

HP 8642A/B SYNTHESIZED SIGNAL GENERATOR (Including Options 001, 002 and 003)

Service Manual VOLUME 1 SERIAL NUMBERS

This manual applies directly to modules with serial numbers prefixed:

2427A to 2816A and all *MAJOR* changes that apply to your instrument/modules.

rev.01NOV88

For additional important information about serial numbers, refer to "INSTRUMENTS COVERED BY THIS MANUAL" in Section 1.

Second Edition

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Service Manual HP Part 08642-90226

Other Documents Available:

Microfiche Operation and Calibration Manual HP Part 08642-90225

Operation and Calibration Manual HP Part 08642-90224

Microfiche Service Manual HP Part 08642-90227

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SAFETY CONSIDERATIONS

GENERAL

This product and related documentation must be reviewed for familiarization with safety markings and instructions before operation.

This product is a Safety Class I instrument (provided with a protective earth terminal).

BEFORE APPLYING POWER

Verify that the product is set to match the available line voltage and the correct fuse is installed.

SAFETY EARTH GROUND

An uninterruptible safety earth ground must be provided from the main power source to the product input wiring terminals, power cord, or supplied power cord set.

SAFETY SYMBOLS



Instruction manual symbol: the product will be marked with this symbol when it is necessary for the user to refer to the instruction manual (refer to Table of Contents).



Indicates hazardous voltages.



Indicates earth (ground) terminal.

WARNING

The WARNING sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

CAUTION

The CAUTION sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product. Do not proceed beyond a CAUTION sign until the indicated conditions are fully understood and met.

WARNING

Any interruption of the protective (grounding) conductor (inside or outside the instrument) or disconnecting the protective earth terminal will cause a potential shock hazard that could result in personal injury. (Grounding one conductor of a two conductor outlet is not sufficient protection).

Whenever it is likely that the protection has been impaired, the instrument must be made inoperative and be secured against any unintended operation.

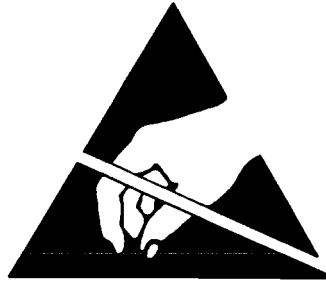
If this instrument is to be energized via an autotransformer (for voltage reduction) make sure the common terminal is connected to the earth terminal of the power source.

Servicing instructions are for use by service-trained personnel only. To avoid dangerous electric shock, do not perform any servicing unless qualified to do so.

Adjustments described in the manual are performed with power supplied to the instrument while protective covers are removed. Energy available at many points may, if contacted, result in personal injury.

Capacitors inside the instrument may still be charged even if the instrument has been disconnected from its source of supply.

For continued protection against fire hazard, replace the line fuse(s) only with 250V fuse(s) of the same current rating and type (for example, normal blow, time delay, etc.). Do not use repaired fuses or short circuited fuseholders.



**ATTENTION
Static Sensitive
Devices**

This instrument was constructed in an ESD (electro-static discharge) protected environment. This is because most of the semiconductor devices used in this instrument are susceptible to damage by static discharge.

Depending on the magnitude of the charge, device substrates can be punctured or destroyed by contact or mere proximity of a static charge. The results can cause degradation of device performance, early failure, or immediate destruction.

These charges are generated in numerous ways such as simple contact, separation of materials, and normal motions of persons working with static sensitive devices.

When handling or servicing equipment containing static sensitive devices, adequate precautions must be taken to prevent device damage or destruction.

Only those who are thoroughly familiar with industry accepted techniques for handling static sensitive devices should attempt to service circuitry with these devices.

In all instances, measures must be taken to prevent static charge build-up on work surfaces and persons handling the devices.

For further information on ESD precautions, refer to "SPECIAL HANDLING CONSIDERATIONS FOR STATIC SENSITIVE DEVICES" in Section VIII Service Section.

SECTION VI

REPLACEABLE PARTS

6-1. INTRODUCTION

This section contains information for identifying and ordering replacement parts for the HP 8642.

6-2. ABBREVIATIONS

Table 6-1 lists abbreviations used in the parts list, schematics and throughout this manual. In some cases, two forms of the abbreviation are used, one all in capital letters, and one partial or no capitals. This occurs because the abbreviations in the parts list are always all capitals. However, in the schematics and other parts of the manual, other abbreviation forms are used with both lower case and upper case letters.

6-3. REPLACEABLE PARTS LIST

Table 6-3 is the list of replaceable parts and is organized as follows:

- a. Modules in alpha-numerical order by reference designation.
 1. Module mechanical parts and intramodular cables in alpha-numeric order by reference designator.
 2. Board assemblies and their components in alpha-numeric order by reference designator.
- b. Miscellaneous chassis-mounted parts and intermodular cables in alpha-numerical order by reference designation.

The information given for each part consists of the following:

- a. The Hewlett-Packard part number.
- b. Part number check digit (CD).
- c. The total quantity (Qty) per instrument (listed at the first occurrence of the part number in the list).
- d. The description of the part.
- e. A typical manufacturer of the part in a five-digit code.
- f. The manufacturer's number for the part.

6-4. RESTORED MODULE EXCHANGE

Some of the modules within the instrument may be replaced on an exchange basis, thus affording a considerable cost savings. Restored, factory-repaired and tested (calibrated) modules are available on a trade-in basis; therefore, the defective modules must be returned for credit. This is Hewlett-Packard's Blue Stripe Program. Modules required for spare parts stock must be ordered by the new Module Kit part number. Some of the modules may not be included in the Blue Stripe Program and must be ordered by the new part number.

To order blue stripe Module Kits refer to paragraph **6-5. ORDERING INFORMATION**. An exchange module kit will be sent. Tag the defective module with the special tag provided, and return the defective module within thirty days. When the replacement Module Kit arrives, save the special packaging material in which it was shipped and use it to package and return the defective module.

6-5. ORDERING INFORMATION

Instrument Serial Numbers. Attached to the rear of the instrument is a serial number plate. The first four digits and the letter are the **Instrument Serial Prefix (ISP)**. The last five digits (suffix) are unique to each instrument. The contents of this manual apply directly to instruments having the same serial prefix(es) as those listed on the title page. To update your manual to different serial prefixes, refer to paragraph 6-7.

Module Configuration Codes (MCC). In addition to the instrument serial prefix, each module in the instrument has a Module Configuration Code.

There will be two labels on each module:

One is the five digit module number: . This number is not needed for parts ordering.

The other is the nine digit module identification code: . The first four digits of the nine digit code comprise the **Module Configuration Code (MCC)**. The last five digits are the calibration data code.

Ordering. Parts in the parts list which are peculiar to a Module Configuration Code (MCC) or Instrument Serial Prefix (ISP) will be called out in the parts list. Reference the parts listed under the configuration code or serial prefix of your module.

Instrument level parts must be ordered by the serial prefix of the instrument. Module level parts must be ordered by the module configuration code. For example:

To order a part outside a module (parts found in the parts list under "MISCELLANEOUS PARTS"), use the **Instrument Serial Prefix (ISP)**. In the example below the ISP 2448A.

To order a part inside a module (parts found in the parts list prefixed with an assembly number, such as A19MP1), use the **Module Configuration Code (MCC)**. In the example below the MCC is 2452A.

Instrument Serial Number is

Module Identification Number is

If no configuration code or serial prefix is listed for a part number, you may assume that it is compatible for all configurations.

To order a part in the Replaceable Parts List, Call or write the nearest Hewlett-Packard Sales Office. Have the following information compiled to speed the ordering process:

1. The Hewlett-Packard part number with the check digit. (The check digit will ensure accurate and timely processing of your order.)
2. The quantity required.
3. An approved purchase order number may also be required.

NOTE

Within the USA, it is better to order directly from the HP Parts Center in Mountain View, California. Ask your nearest HP office for information and forms for the "Direct Mail Order System."

6-6. RECOMMENDED SPARES LIST

Stocking spare parts for an instrument is often done to ensure quick return to service after a malfunction occurs. Hewlett-Packard prepares a "Recommended Spares" list for this instrument. The contents of the list are based on failure reports and repair data. Quantities given are for one year of parts support. A complimentary copy of the "Recommended Spares" list and information concerning a "Spare Parts Kit" may be requested from your nearest Hewlett-Packard office.

When stocking parts to support more than one instrument or to support a variety of Hewlett-Packard instruments, it may be more economical to work from one consolidated list rather than simply adding together stocking quantities from the individual instrument lists. Hewlett-Packard will prepare consolidated "Recommended Spares" lists for any number or combination of instruments. Contact your nearest Hewlett-Packard office for details.

6-7. PARTS LIST UPDATING

A "MANUAL UPDATES" packet is shipped with the manual, when necessary, to provide the most current information available at the time of shipment. These packets consist of replacement and addition pages which should be incorporated into the manual to bring it up to date.

Hewlett-Packard offers a **Documentation Update Service** that will provide you with further updates as they become available. If you operate or service instruments of different serial prefixes, we strongly recommend that you join this service immediately to ensure that your manual is kept current. For more information, refer to the **Documentation Update Service** reply card included in this manual, or write:

Hewlett-Packard Company
Technical Writing Department
24001 E. Mission -- TAF C-34
Spokane, WA 99220

or call:

Technical Writing Department
(509) 922-4001

6-8. ILLUSTRATED PARTS BREAKDOWN AND INTERNAL PHOTOS

Most mechanical parts, chassis parts, and cables are identified in Figures 6-1 through 6-5. These Figures are located at the end of this section. **Figure 6-1** shows reference designators for cabinet parts. **Figure 6-2** shows reference designators for front and rear panel connectors and mechanical parts. **Figure 6-3** is a top internal view showing reference designators for internal mechanical parts. **Figure 6-4** is a top internal view of the instrument showing reference designators for cables. **Figure 6-5** is a bottom view of the instrument.

Major mechanical parts have reference designations that begin with the letters **MP**. To find the part number and description of a mechanical part, find the part in one of the figures in this Section VI. Part numbers for the parts called out in these figures can be found in one of two places. Part numbers can be found near the end of the parts list under **MISCELLANEOUS PARTS**, or the parts prefixed with an assembly number, for example A19MP3, are listed under the Module reference designator (in this case A19).

Other mechanical parts, such as screws, are listed under the part which they attach. For example, the screws that attach MP64 (fan access cover) to MP6 (rear panel) are listed under MP64.

If a part in question is not visible or not called out in one of the figures, some searching through the parts list will have to be done. It may be helpful to keep in mind that when the reference designators were assigned, they were generally assigned in a top to bottom left to right order.

6-8. SERVICE KITS

Refer to Section III and Section VIII for information about Service Kits.

Table 6-1. Reference Designations

| REFERENCE DESIGNATIONS | | | |
|------------------------|--------------------------------------------------------------|----------|-------------------------------------------------|
| A | assembly | E | miscellaneous electrical part |
| AT | attenuator; isolator; termination | F | fuse |
| B | fan; motor | FL | filter |
| BT | battery | H | hardware |
| C | capacitor | HY | circulator |
| CP | coupler | J | electrical connector (stationary portion); jack |
| CR | diode; diode thyristor; varactor | K | relay |
| DC | directional coupler | L | coil; inductor |
| DL | delay line | M | meter |
| DS | annunciator; signaling device (audible or visual); lamp; LED | MP | miscellaneous mechanical part |
| P | electrical connector (movable portion); plug | Q | transistor; SCR; triode thyristor; FET |
| R | resistor | RT | thermistor |
| S | switch | T | transformer |
| TB | terminal board | TC | thermocouple |
| TP | test point | U | integrated circuit; microcircuit |
| V | electron tube | VR | voltage regulator; breakdown diode |
| W | cable; transmission path; wire | X | socket |
| Y | crystal unit (piezo-electric or quartz) | Z | tuned cavity; tuned circuit |

Abbreviations (1 of 2)

| ABBREVIATIONS | | | |
|---------------|-----------------------------|-----------------|---------------------------------------------------|
| A | ampere | COEF | coefficient |
| ac | alternating current | COM | common |
| ACCESS | accessory | COMP | composition |
| ADJ | adjustment | COMPL | complete |
| A/D | analog-to-digital | CONN | connector |
| AF | audio frequency | CP | cadmium plate |
| AFC | automatic frequency control | CRT | cathode-ray tube |
| AGC | automatic gain control | CTL | complementary transistor logic |
| AL | aluminum | CW | continuous wave |
| ALC | automatic level control | cw | clockwise |
| AM | amplitude modulation | cm | centimeter |
| AMPL | amplifier | D/A | digital-to-analog |
| APC | automatic phase control | dB | decibel |
| ASSY | assembly | dBm | decibel referred to 1 mW |
| AUX | auxiliary | dc | direct current |
| avg | average | deg | degree (temperature interval or difference) |
| AWG | American wire gauge | ...° | degree (plane angle) |
| BAL | balance | °C | degree Celsius (centigrade) |
| BCD | binary coded decimal | °F | degree Fahrenheit |
| BD | board | °K | degree Kelvin |
| BECU | beryllium copper | DEPC | deposited carbon |
| BFO | beat frequency oscillator | DET | detector |
| BH | binder head | diam | diameter |
| BKDN | breakdown | DIA | diameter (used in parts list) |
| BP | bandpass | DIFF AMPL | differential amplifier |
| BPF | bandpass filter | div | division |
| BRS | brass | DPDT | double-pole, double-throw |
| BWO | backward-wave oscillator | DR | drive |
| CAL | calibrate | DSB | double sideband |
| ccw | counter-clockwise | DTL | diode transistor logic |
| CER | ceramic | DVM | digital voltmeter |
| CHAN | channel | ECL | emitter coupled logic |
| cm | centimeter | EMF | electromotive force |
| CMO | cabinet mount only | EDP | electronic data processing |
| COAX | coaxial | ELECT | electrolytic |
| | | ENCAP | encapsulated |
| | | EXT | external |
| | | F | farad |
| | | FET | field-effect transistor |
| | | F/F | flip-flop |
| | | FH | flat head |
| | | FIL H | fillister head |
| | | FM | frequency modulation |
| | | FP | front panel |
| | | FREQ | frequency |
| | | FXD | fixed |
| | | g | gram |
| | | GE | germanium |
| | | GHz | gigahertz |
| | | GL | glass |
| | | GRD | ground(ed) |
| | | H | henry |
| | | h | hour |
| | | HET | heterodyne |
| | | HEX | hexagonal |
| | | HD | head |
| | | HDW | hardware |
| | | HF | high frequency |
| | | HG | mercury |
| | | HI | high |
| | | HP | Hewlett-Packard |
| | | HPF | high pass filter |
| | | HR | hour (used in parts list) |
| | | HV | high voltage |
| | | Hz | Hertz |
| | | IC | integrated circuit |
| | | ID | inside diameter |
| | | IF | intermediate frequency |
| | | IMPG | impregnated |
| | | in | incandescent |
| | | INCL | include(s) |
| | | INP | input |
| | | INS | insulation |
| | | INT | internal |
| | | kg | kilogram |
| | | kHz | kilohertz |
| | | k | kilohm |
| | | kV | kilovolt |
| | | lb | pound |
| | | LC | inductance-capacitance |
| | | LED | light-emitting diode |
| | | LF | low frequency |
| | | LG | long |
| | | LH | left hand |
| | | LIM | limit |
| | | LIN | linear taper (used in parts list) |
| | | LK WASH | lock washer |
| | | LO | low; local oscillator |
| | | LOG | logarithmic taper (used in parts list) |
| | | log | logarithm(ic) |
| | | LPF | low pass filter |
| | | LV | low voltage |
| | | m | meter (distance) |
| | | mA | milliampere |
| | | MAX | maximum |
| | | M | megohm |
| | | MEG | meg (10 ⁶) (used in parts list) |
| | | MET FLM | metal film |
| | | MET OX | metallic oxide |
| | | MF | medium frequency; microfarad (used in parts list) |
| | | MFR | manufacturer |
| | | mg | milligram |
| | | MHz | megahertz |
| | | mH | millihenry |
| | | mho | mho |
| | | min | minute (time) |
| | | ...° | minute (plane angle) |
| | | MINAT | miniature |
| | | mm | millimeter |

NOTE

All abbreviations in the parts list will be in upper-case.

Abbreviations (2 of 2)

| | | | |
|-----------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------|----------------------------------------------------|
| MOD modulator | OD outside diameter | PWV peak working voltage | TD time delay |
| MOM momentary | OH oval head | RC resistance-capacitance | TERM terminal |
| MOS metal-oxide semiconductor | OP AMPL operational amplifier | RECT rectifier | TFT thin-film transistor |
| ms millisecond | OPT option | REF reference | TGL toggle |
| MTG mounting | OSC oscillator | REG regulated | THD thread |
| MTR meter (indicating device) | OX oxide | REPL replaceable | THRU through |
| mV millivolt | oz ounce | RF radio frequency | TI titanium |
| mVac millivolt, ac | Ω ohm | RFI radio frequency interference | TOL tolerance |
| mVdc millivolt, dc | P peak (used in parts list) | RH round head; right hand | TRIM trimmer |
| mVpk millivolt, peak | PAM pulse-amplitude modulation | RLC resistance-inductance-capacitance | TSTR transistor |
| mVp-p millivolt, peak-to-peak | PC printed circuit | RMO rack mount only | TTL transistor-transistor logic |
| mVrms millivolt, rms | PCM pulse-code modulation; pulse-count modulation | rms root-mean-square | TV television |
| mW milliwatt | PDM pulse-duration modulation | RND round | TVI television interference |
| MUX multiplex | pF picofarad | ROM read-only memory | TWT traveling wave tube |
| MY mylar | PH BRZ phosphor bronze | R&P rack and panel | U micro (10^{-6}) (used in parts list) |
| μ A microampere | PHL Phillips | RWV reverse working voltage | UF microfarad (used in parts list) |
| μ F microfarad | PIN positive-intrinsic-negative | S scattering parameter | UHF ultrahigh frequency |
| μ H microhenry | PIV peak inverse voltage | s second (time) | UNDEF undefined |
| μ mho micromho | pk peak | " second (plane angle) | UNREG unregulated |
| μ s microsecond | PL phase lock | S-B slow-blow (fuse) (used in parts list) | V volt |
| μ V microvolt | PLO phase lock oscillator | SCR silicon controlled rectifier; screw | VA voltampere |
| μ Vac microvolt, ac | PM phase modulation | SE selenium | Vac volts, ac |
| μ Vdc microvolt, dc | PNP positive-negative-positive | SECT sections | VAR variable |
| μ Vpk microvolt, peak | P/O part of | SEMICON semiconductor | VCO voltage-controlled oscillator |
| μ Vrms microvolt, rms | POLY polystyrene | SHF superhigh frequency | Vdc volts, dc |
| μ W microwatt | PORC porcelain | SI silicon | VDCW volts, dc, working (used in parts list) |
| nA nanoampere | POS positive; position(s) (used in parts list) | SIL silver | V(F) volts, filtered |
| NC no connection | POSN position | SL slide | VFO variable-frequency oscillator |
| N/C normally closed | POT potentiometer | SNR signal-to-noise ratio | VHF very-high frequency |
| NE neon | p-p peak-to-peak | SPDT single-pole, double-throw | Vpk volts, peak |
| NEG negative | PP peak-to-peak (used in parts list) | SPG spring | Vp-p volts, peak-to-peak |
| nF nanofarad | PPM pulse-position modulation | SR split ring | Vrms volts, rms |
| NI PL nickel plate | PREAMPL preamplifier | SPST single-pole, single-throw | VSWR voltage standing wave ratio |
| N/O normally open | PRF pulse-repetition frequency | SS Service Sheet | VTO voltage-tune oscillator |
| NOM nominal | PRR pulse repetition rate | SSB single sideband | VTVM vacuum-tube voltmeter |
| NORM normal | ps picosecond | SST stainless steel | V(X) volts, switched |
| NPN negative-positive-negative | PT point | STL steel | W watt |
| NPO negative-positive zero (zero temperature coefficient) | PTM pulse-time modulation | SQ square | W/ with |
| NRFR not recommended for field replacement | PWM pulse-width modulation | SWR standing-wave ratio | WIV working inverse voltage |
| NSR not separately replaceable | | SYNC synchronize | WW wirewound |
| ns nanosecond | | T timed (slow-blow fuse) | W/O without |
| nW nanowatt | | TA tantalum | YIG yttrium-iron-garnet |
| OBD order by description | | TC temperature compensating | Z ₀ characteristic impedance |

NOTE

All abbreviations in the parts list will be in upper-case.

MULTIPLIERS

| Abbreviation | Prefix | Multiple |
|--------------|--------|------------|
| T | tera | 10^{12} |
| G | giga | 10^9 |
| M | mega | 10^6 |
| k | kilo | 10^3 |
| da | deka | 10 |
| d | deci | 10^{-1} |
| c | centi | 10^{-2} |
| m | milli | 10^{-3} |
| μ | micro | 10^{-6} |
| n | nano | 10^{-9} |
| p | pico | 10^{-12} |
| f | femto | 10^{-15} |
| a | atto | 10^{-18} |

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A 1 | | | | | | |
| A1 | 08642-60889 | 7 | 1 | KEYBOARD/LCD DISPLAY MODULE | 28480 | 08642-60889 |
| A1 | 08642-69889 | 5 | 1 | KEYBOARD/LCD DISPLAY MODULE (RESTORED) | 28480 | 08642-69889 |
| A1A1 | 08642-60122 | 1 | 1 | KEYBOARD ASSEMBLY | 28480 | 08642-60122 |
| A1A1C1 | 0160-4835 | 7 | 154 | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A1A1C2 | 0180-2207 | 5 | 4 | CAPACITOR-FXD 100UF+-10% 10VDC TA | 56289 | 150D107X9010R2 |
| A1A1C3 | | | | NOT ASSIGNED | | |
| A1A1C4 | | | | NOT ASSIGNED | | |
| A1A1C5 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A1A1C6 | | | | NOT ASSIGNED | | |
| A1A1C7 | 0160-4822 | 2 | 4 | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4822 |
| A1A1C8 | 0180-0291 | 3 | 7 | CAPACITOR-FXD 1UF+-10% 35VDC TA | 56289 | 150D105X9035A2 |
| A1A1C9 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A1A1J1 | 1251-5926 | 3 | 1 | CONNECTOR 50-PIN M POST TYPE | 28480 | 1251-5926 |
| A1A1J2 | | | | NOT ASSIGNED | | |
| A1A1J3 | 1251-8821 | 3 | 1 | CONN-POST TYPE .100-PIN-SPCG 5-CONT | 28480 | 1251-8821 |
| A1A1J4 | 1251-8810 | 0 | 2 | CONN-POST TYPE .100-PIN-SPCG 11-CONT | 28480 | 1251-8810 |
| A1A1J5 | 1251-8810 | 0 | | CONN-POST TYPE .100-PIN-SPCG 11-CONT | 28480 | 1251-8810 |
| A1A1L1 | 9140-0238 | 3 | 1 | INDUCTOR RF-CH-MLD 82UH 5% .166DX.385LG | 28480 | 9140-0238 |
| A1A1MP1 | 0590-1095 | 6 | 6 | THREADED INSERT-NUT M3 X 0.5 .059-IN-LG | 28480 | 0590-1095 |
| A1A1Q1 | 1853-0281 | 9 | 9 | TRANSISTOR PNP 2N2907A SI TO-18 PD=400MW | 04713 | 2N2907A |
| A1A1Q2 | 1854-0477 | 7 | 9 | TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW | 04713 | 2N2222A |
| A1A1R1 | 0757-0317 | 7 | 2 | RESISTOR 1.33K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1331-F |
| A1A1R2 | 0757-0436 | 1 | 1 | RESISTOR 4.32K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-4321-F |
| A1A1R3 | | | | NOT ASSIGNED | | |
| A1A1R4 | | | | NOT ASSIGNED | | |
| A1A1R5 | 0698-8815 | 0 | 2 | RESISTOR 1.78 1% .125W F TC=0+-100 | 28480 | 0698-8815 |
| A1A1R6 | 0698-8815 | 0 | | RESISTOR 1.78 1% .125W F TC=0+-100 | 28480 | 0698-8815 |
| A1A1R7 | 0698-3160 | 8 | 2 | RESISTOR 31.6K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-3162-F |
| A1A1R8 | 1810-0286 | 4 | 3 | NETWORK-RES 16-DIP10.0K OHM X 15 | 01121 | 316A103 |
| A1A1R9 | 1810-0286 | 4 | | NETWORK-RES 16-DIP10.0K OHM X 15 | 01121 | 316A103 |
| A1A1R10 | 1810-0286 | 4 | | NETWORK-RES 16-DIP10.0K OHM X 15 | 01121 | 316A103 |
| A1A1R11 | 0757-0465 | 6 | 18 | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A1A1R12 | | | | NOT ASSIGNED | | |
| A1A1R13 | 0757-0442 | 9 | 14 | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A1A1R14 | 0698-3156 | 2 | 3 | RESISTOR 14.7K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1472-F |
| A1A1R15 | 0757-0280 | 3 | 42 | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A1A1R16 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A1A1R17 | 0698-3157 | 3 | 3 | RESISTOR 19.6K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1962-F |
| A1A1S1 | 5060-9436 | 7 | 87 | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0720 | 4 | 1 | KEY CAP "INSTR PRESET" | 28480 | 5041-0720 |
| A1A1S2 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-4537 | 9 | 1 | KEY CAP "SHIFT" | 28480 | 5041-4537 |
| A1A1S3 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-1792 | 2 | 1 | KEY HALF "LOCAL" | 28480 | 5041-1792 |
| A1A1S4 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-4538 | 0 | 1 | KEY CAP "MSG" | 28480 | 5041-4538 |
| A1A1S5 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2719 | 5 | 1 | KEY F "START FREQ" | 28480 | 5041-2719 |
| A1A1S6 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2823 | 2 | 1 | KEYCAP "START AMPTD" | 28480 | 5041-2823 |
| A1A1S7 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-1749 | 9 | 1 | KEY CAP "FREQ" | 28480 | 5041-1749 |
| A1A1S8 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2820 | 9 | 1 | KEY CAP "AMPTD" | 28480 | 5041-2820 |
| A1A1S9 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-1835 | 4 | 1 | KEY HALF "--" | 28480 | 5041-1835 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------|----------|-----------------|
| A1A1S10 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0817 | 0 | 1 | KEY/HALF SK/GY 7 | 28480 | 5041-0817 |
| A1A1S11 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0818 | 1 | 1 | KEY/HALF SK/GY 8 | 28480 | 5041-0818 |
| A1A1S12 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0816 | 9 | 2 | KEY/HALF SK/GY 6 | 28480 | 5041-0816 |
| A1A1S13 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2839 | 0 | 1 | KEY CAP "GHZ DBM" | 28480 | 5041-2839 |
| A1A1S14 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2835 | 6 | 2 | KEY CAP HZ ARROW | 28480 | 5041-2835 |
| A1A1S15 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2835 | 6 | | KEY CAP HZ ARROW | 28480 | 5041-2835 |
| A1A1S16 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0855 | 6 | 2 | KEY CAP VT ARROW | 28480 | 5041-0855 |
| A1A1S17 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2830 | 1 | 1 | KEYCAP "RF OFF/ON" | 28480 | 5041-2830 |
| A1A1S18 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2720 | 8 | 1 | KEY F "STOP FREQ" | 28480 | 5041-2720 |
| A1A1S19 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2824 | 3 | 1 | KEYCAP "STOP AMPD0" | 28480 | 5041-2824 |
| A1A1S20 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2818 | 5 | 1 | KEY CAP "AM" | 28480 | 5041-2818 |
| A1A1S21 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2819 | 6 | 1 | KEY CAP "FM" | 28480 | 5041-2819 |
| A1A1S22 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2837 | 8 | 1 | KEY CAP "BACK SP" | 28480 | 5041-2837 |
| A1A1S23 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0814 | 7 | 1 | KEY/HALF SK/GY 4 | 28480 | 5041-0814 |
| A1A1S24 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0815 | 8 | 1 | KEY/HALF SK/GY 5 | 28480 | 5041-0815 |
| A1A1S25 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0816 | 9 | | KEY/HALF SK/GY 6 | 28480 | 5041-0816 |
| A1A1S26 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2938 | 0 | 1 | KEY CAP "MHZ V" | 28480 | 5041-2938 |
| A1A1S27 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0855 | 6 | | KEY CAP VT ARROW | 28480 | 5041-0855 |
| A1A1S28 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2825 | 4 | 1 | KEY CAP "MOD FREQ" | 28480 | 5041-2825 |
| A1A1S29 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2826 | 5 | 1 | KEY-CAP "INCR SET" | 28480 | 5041-2826 |
| A1A1S30 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0095 | 6 | 1 | KEY CAP "SAVE" | 28480 | 5041-0095 |
| A1A1S31 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0811 | 4 | 1 | KEY/HALF SK/GY 1 | 28480 | 5041-0811 |
| A1A1S32 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0812 | 5 | 1 | KEY/HALF SK/GY 2 | 28480 | 5041-0812 |
| A1A1S33 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0813 | 6 | 1 | KEY/HALF SK/GY 3 | 28480 | 5041-0813 |
| A1A1S34 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0926 | 2 | 1 | KEY CAP "KHZ MV" | 28480 | 5041-0926 |
| A1A1S35 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2834 | 5 | 1 | KEY CAP "INT" | 28480 | 5041-2834 |
| A1A1S36 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2828 | 7 | 1 | KEY CAP "EXT AC" | 28480 | 5041-2828 |
| A1A1S37 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2827 | 6 | 1 | KEY CAP "EXT DC" | 28480 | 5041-2827 |
| A1A1S38 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2829 | 8 | 1 | KEY CAP "OFF ON" | 28480 | 5041-2829 |
| A1A1S39 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2836 | 7 | 1 | KEY CAP "SEQ" | 28480 | 5041-2836 |
| A1A1S40 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0775 | 9 | 1 | KEY CAP "RECALL" | 28480 | 5041-0775 |
| A1A1S41 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0819 | 2 | 1 | KEY/HALF SK/GY 0 | 28480 | 5041-0819 |
| A1A1S42 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-0808 | 9 | 1 | KEY/HALF GY DOT | 28480 | 5041-0808 |

See introduction to this section for ordering information.

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|--------|-----|------------------------------------------|----------|----------------------|
| A1A1S43 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2832 | 3 | 1 | KEY-HALF "RAD ½" | 28480 | 5041-2832 |
| A1A1S44 | 5060-9436 | 7 | | PUSHBUTTON SWITCH P.C. MOUNT | 28480 | 5060-9436 |
| | 5041-2940 | 4 | 1 | KEY CAP "HZ UV" | 28480 | 5041-2940 |
| A1A1S45 | 3100-3364 | 2 | 1 | SWITCH-ROTARY 16 PIN DIP 4PDT | 28480 | 3100-3364 |
| A1A1S46 | 3101-2971 | 7 | 1 | SWITCH-PB SPST-NO ALTNG .125A 115VAC | 28480 | 3101-2971 |
| | 0380-1200 | 0 | 2 | STANDOFF-PRESS-IN 10MM LONG; M3 X 0.5 | 00000 | 0380-1200 |
| | 5041-0944 | 4 | 1 | KEY CAP "POWER" | 28480 | 5041-0944 |
| | 0515-1227 | 8 | | SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD | 28480 | 0515-1227 |
| | 08642-60085 | 5 | | WIRE ASSY | 28480 | 08642-60085 |
| A1A1S47 | 3101-2243 | 6 | 1 | SWITCH-RKR DIP-RKR-ASSY 8-1A .05A 30VDC | 28480 | 3101-2243 |
| A1A1TP1 | 0360-0535 | 0 | 125 | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A1A1TP2 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A1A1TP3 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A1A1TP4 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A1A1TP5 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A1A1TP6 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A1A1U1-U12 | | | | NOT ASSIGNED | | |
| A1A1U13 | 1820-1423 | 4 | 5 | IC MV TTL LS MONOSTBL RETRIG DUAL | 01295 | SN74LS123N |
| A1A1U14 | 1820-2466 | 7 | 1 | IC TIMER CMOS | 32293 | ICM7555IPA |
| A1A1U15 | 1820-1197 | 9 | 9 | IC GATE TTL LS NAND QUAD 2-INP | 01295 | SN74LS00N |
| A1A1U16 | 1820-1207 | 2 | 1 | IC GATE TTL LS NAND 8-INP | 01295 | SN74LS30N |
| A1A1U17 | 1820-1408 | 5 | 1 | IC GATE CMOS AND TPL 3-INP | 3L585 | CD4073BE |
| A1A1U18 | | | | NOT ASSIGNED | | |
| A1A1U19 | 1820-1112 | 8 | 7 | IC FF TTL LS D-TYPE POS-EDGE-TRIG | 01295 | SN74LS74AN |
| A1A1U20 | 1820-1112 | 8 | | IC FF TTL LS D-TYPE POS-EDGE-TRIG | 01295 | SN74LS74AN |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|---------------------------------------|----------|-----------------|
| A1A2 | 08642-60075 | 3 | 1 | LCD DISPLAY ASSEMBLY | 28480 | 08642-60075 |
| A1A2DS1 | | | | NOT ASSIGNED | | |
| A1A2DS2 | 2140-0536 | 7 | 2 | LAMP-INCAND 5VDC 115MA T-1-BULB | 28480 | 2140-0536 |
| A1A2DS3 | 2140-0536 | 7 | | LAMP-INCAND 5VDC 115MA T-1-BULB | 28480 | 2140-0536 |
| A1A2MP1 | 08642-40060 | 4 | 2 | LAMP COVER | 28480 | 08642-40060 |
| | 0515-1083 | 4 | 14 | SCREW-MACH M1.6 X 0.35 10MM-LG PAN-HD | 28480 | 0515-1083 |
| | 3050-1031 | 9 | 1 | WASHER-FL MTLC NO. 0 .065-IN-ID | 28480 | 3050-1031 |

See introduction to this section for ordering information.

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A 2 | | | | | | |
| A2 | 08642-60890 | 0 | 1 | MODULATION MODULE | 28480 | 08642-60890 |
| A2 | 08642-69890 | 8 | 1 | MODULATION MODULE (RESTORED) | 28480 | 08642-69890 |
| A2C1 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C2 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C3 | 0160-3661 | 5 | 2 | CAPACITOR-FXD .1UF +-5% 50VDC MET-POLYC | 28480 | 0160-3661 |
| A2C4 | 0160-5543 | 6 | 2 | CAPACITOR-FXD .018UF +-5% 100VDC | 28480 | 0160-5543 |
| A2C5 | 0160-6021 | 7 | 2 | CAPACITOR-FXD 2700PF +-2% 200VDC | 28480 | 0160-6021 |
| A2C6 | 0160-5404 | 8 | 2 | CAPACITOR-FXD 360PF +-5% 100VDC CER | 28480 | 0160-5404 |
| A2C7 | 0160-4803 | 9 | 3 | CAPACITOR-FXD 68PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4803 |
| A2C8 | 0180-0491 | 5 | 87 | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C9 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C10 | 0160-4502 | 5 | 4 | CAPACITOR-FXD 390PF +-5% 100VDC CER | 28480 | 0160-4502 |
| A2C11 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C12 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C13 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C14 | 0160-4765 | 2 | 2 | CAPACITOR-FXD 36PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4765 |
| A2C15 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C16 | 0160-4527 | 4 | 12 | CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4527 |
| A2C17 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C18 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C19 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +-5% 200VDC CER | 28480 | 0160-3874 |
| A2C20 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C21 | 0160-3661 | 5 | | CAPACITOR-FXD .1UF +-5% 50VDC MET-POLYC | 28480 | 0160-3661 |
| A2C22 | 0160-5543 | 6 | | CAPACITOR-FXD .018UF +-5% 100VDC | 28480 | 0160-5543 |
| A2C23 | 0160-6021 | 7 | | CAPACITOR-FXD 2700PF +-2% 200VDC | 28480 | 0160-6021 |
| A2C24 | 0160-5404 | 8 | | CAPACITOR-FXD 360PF +-5% 100VDC CER | 28480 | 0160-5404 |
| A2C25 | 0160-4803 | 9 | | CAPACITOR-FXD 68PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4803 |
| A2C26 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C27 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C28 | 0160-4502 | 5 | | CAPACITOR-FXD 390PF +-5% 100VDC CER | 28480 | 0160-4502 |
| A2C29 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C30 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C31 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C32 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C33 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C34 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C35 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C36 | 0160-4846 | 0 | 1 | CAPACITOR-FXD 1500PF +-5% 100VDC CER | 28480 | 0160-4846 |
| A2C37 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C38 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C39 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C40 | 0160-4832 | 4 | 47 | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A2C41 | 0160-4387 | 4 | | CAPACITOR-FXD 47PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4387 |
| A2C42 | 0160-4040 | 6 | 45 | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A2C43 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C44 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C45 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C46 | 0180-2141 | 6 | 1 | CAPACITOR-FXD 3.3UF+-10% 50VDC TA | 56289 | 150D335X9050B2 |
| A2C47 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A2C48 | 0160-0572 | 1 | 1 | CAPACITOR-FXD 2200PF +-20% 100VDC CER | 28480 | 0160-0572 |
| A2C49 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C50 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C51 | 0180-2506 | 7 | 4 | CAPACITOR-FXD 470UF+50-10% 25VDC AL | 28480 | 0180-2506 |
| A2C52 | 0180-2506 | 7 | | CAPACITOR-FXD 470UF+50-10% 25VDC AL | 28480 | 0180-2506 |
| A2C53 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C54 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C55 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C56 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C57 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C58 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C59 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C60 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A2C56 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| <i>2724A TO 2514A</i> | | | | | | |
| A2C57 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C58 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C59 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C60 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| <i>2714A AND ABOVE</i> | | | | | | |
| A2C57 | | | | NOT ASSIGNED | | |
| A2C58 | | | | NOT ASSIGNED | | |
| A2C59 | | | | NOT ASSIGNED | | |
| A2C60 | | | | NOT ASSIGNED | | |
| A2C61 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C62 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C63 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C64 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C65 | 0160-4494 | 4 | 3 | CAPACITOR-FXD 39PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4494 |
| A2C66 | 0180-0116 | 1 | 7 | CAPACITOR-FXD 6.8UF+-10% 35VDC TA | 56289 | 150D685X9035B2 |
| A2C67 | 0160-4527 | 4 | | CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4527 |
| A2C68 | 0160-3874 | 2 | 24 | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A2C69 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C70 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C71 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C72 | 0180-0197 | 8 | 2 | CAPACITOR-FXD 2.2UF+-10% 20VDC TA | 56289 | 150D225X9020A2 |
| A2C73 | 0180-0197 | 8 | | CAPACITOR-FXD 2.2UF+-10% 20VDC TA | 56289 | 150D225X9020A2 |
| A2C74 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C75 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C76 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| <i>2427A TO 2513A</i> | | | | | | |
| A2C77 | 0160-5412 | 8 | 1 | CAPACITOR-FXD 16PF +-5% 100VDC CER 0+-30 | 28480 | 0160-5412 |
| <i>2514A AND ABOVE</i> | | | | | | |
| A2C77 | 0160-4523 | 0 | 1 | CAPACITOR-FXD 16PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4523 |
| A2C78 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C79 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C80 | | | | NOT ASSIGNED | | |
| A2C81 | 0160-4535 | 4 | 11 | CAPACITOR-FXD 1UF +-10% 50VDC CER | 28480 | 0160-4535 |
| A2C82 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C83 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C84 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C85 | 0180-2506 | 7 | | CAPACITOR-FXD 470UF+50-10% 25VDC AL | 28480 | 0180-2506 |
| A2C86 | 0180-2506 | 7 | | CAPACITOR-FXD 470UF+50-10% 25VDC AL | 28480 | 0180-2506 |
| A2C87 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C88 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C89 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C90 | 0160-4765 | 2 | | CAPACITOR-FXD 36PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4765 |
| A2C91 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C92 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| <i>2427A TO 2514A</i> | | | | | | |
| A2C93 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C94 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| <i>2714A AND ABOVE</i> | | | | | | |
| A2C93 | | | | NOT ASSIGNED | | |
| A2C94 | | | | NOT ASSIGNED | | |
| A2C95-C100 | | | | NOT ASSIGNED | | |
| A2C101 | 0160-6023 | 9 | 1 | CAPACITOR-FXD 2200PF +-1% 200VDC | 28480 | 0160-6023 |
| A2C102 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C103 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C104 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C105 | 0160-4527 | 4 | | CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4527 |
| A2C106 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C107 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C108 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A2C109 | 0160-4494 | 4 | | CAPACITOR-FXD 39PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4494 |
| A2C110 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C111 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C112-C117 | | | | NOT ASSIGNED | | |
| A2C118 | 0180-0116 | 1 | | CAPACITOR-FXD 6.8UF+-10% 35VDC TA | 56289 | 150D685X9035B2 |
| A2C119 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C120 | 0180-0116 | 1 | | CAPACITOR-FXD 6.8UF+-10% 35VDC TA | 56289 | 150D685X9035B2 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A2C121 | 0160-4835 | 7 | 2 | CAPACITOR-FXD 1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C122 | 0180-0229 | 7 | | CAPACITOR-FXD 33UF+-10% 10VDC TA | 56289 | 150D336X9010B2 |
| A2C123 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C124 | 0180-0229 | 7 | | CAPACITOR-FXD 33UF+-10% 10VDC TA | 56289 | 150D336X9010B2 |
| A2C125 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C126 | 0180-0116 | 1 | | CAPACITOR-FXD 6.8UF+-10% 35VDC TA | 56289 | 150D685X9035B2 |
| A2C127 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C128 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C129 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C130 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C131 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C132 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C133 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C134 | | | | NOT ASSIGNED | | |
| A2C135 | | | | NOT ASSIGNED | | |
| A2C136 | 0160-3874 | 2 | 4 | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A2C137 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A2C138 | 0160-4385 | 2 | | CAPACITOR-FXD 15PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4385 |
| A2C139 | 0160-4385 | 2 | | CAPACITOR-FXD 15PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4385 |
| A2C140 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| 2427A TO 2513A | | | | NOT ASSIGNED | | |
| A2C141 | | | | NOT ASSIGNED | | |
| A2C142 | | | | NOT ASSIGNED | | |
| A2C143 | | | | NOT ASSIGNED | | |
| 2514A AND ABOVE | | | | | | |
| A2C141 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C142 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A2C143 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| 2427A TO 2514A | | | | NOT ASSIGNED | | |
| A2C144-C151 | | | | | | |
| 2714A AND ABOVE | | | | | | |
| A2C144 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C145 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C146 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C147 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C148 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C149 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C150 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2C151 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A2CR1 | 1901-1128 | 8 | 4 | DIODE-SCHOTTKY 40V 1A | 28480 | 1901-1128 |
| A2CR2 | 1901-1128 | 8 | | DIODE-SCHOTTKY 40V 1A | 28480 | 1901-1128 |
| A2CR3 | 1901-0050 | 3 | 77 | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A2CR4 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A2CR5 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A2CR6 | 1901-0050 | 3 | | DIODE SWITHCING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A2CR7 | 1901-0518 | 8 | 13 | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0518 |
| A2CR8 | 1901-0880 | 7 | | DIODE-GEN PRP 125MA DO-35 | 28480 | 1901-0880 |
| A2CR9 | 1901-0880 | 7 | 10 | DIODE-GEN PRP 125MA DO-35 | 28480 | 1901-0880 |
| A2CR10 | 1901-0880 | 7 | 10 | DIODE-GEN PRP 125MA DO-35 | 28480 | 1901-0880 |
| A2CR11 | 1901-0880 | 7 | 10 | DIODE-GEN PRP 125MA DO-35 | 28480 | 1901-0880 |
| A2CR12 | 1901-0880 | 7 | 10 | DIODE-GEN PRP 125MA DO-35 | 28480 | 1901-0880 |
| A2CR13 | 1901-0880 | 7 | 10 | DIODE-GEN PRP 125MA DO-35 | 28480 | 1901-0880 |
| A2CR14 | 1901-0880 | 7 | 10 | DIODE-GEN PRP 125MA DO-35 | 28480 | 1901-0880 |
| A2CR15 | | | | NOT ASSIGNED | | |
| A2CR16 | 1901-0880 | 7 | 10 | DIODE-GEN PRP 125MA DO-35 | 28480 | 1901-0880 |
| A2CR17 | | | | NOT ASSIGNED | | |
| A2CR18 | 1901-0880 | 7 | 10 | DIODE-GEN PRP 125MA DO-35 | 28480 | 1901-0880 |
| A2CR19 | 1901-0880 | 7 | | DIODE-GEN PRP 125MA DO-35 | 28480 | 1901-0880 |
| 2427A TO 2514A | | | | | | |
| A2CR20 | 1901-0518 | 8 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0518 |
| A2CR21 | 1901-0518 | 8 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0518 |
| 2714A AND ABOVE | | | | | | |
| A2CR20 | 1901-1085 | 6 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-1085 |
| A2CR21 | 1901-1085 | 6 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-1085 |
| A2J1 | 1251-8812 | 2 | 2 | CONN-POST TYPE .100-PIN-SPCG 20-CONT | 28480 | 1251-8812 |
| A2J2 | 1250-0836 | 2 | | CONNECTOR-RF SMC M PC 50-OHM | 28480 | 1250-0836 |
| A2J3 | 1250-0836 | 2 | 7 | CONNECTOR-RF SMC M PC 50-OHM | 28480 | 1250-0836 |
| A2J4 | 1250-0836 | 2 | | CONNECTOR-RF SMC M PC 50-OHM | 28480 | 1250-0836 |
| A2J5 | 1250-0836 | 2 | | CONNECTOR-RF SMC M PC 50-OHM | 28480 | 1250-0836 |
| A2J6 | 1250-0836 | 2 | | CONNECTOR-RF SMC M PC 50-OHM | 28480 | 1250-0836 |
| A2J7 | 1250-0836 | 2 | | CONNECTOR-RF SMC M PC 50-OHM | 28480 | 1250-0836 |
| A2J8 | 1250-0836 | 2 | | CONNECTOR-RF SMC M PC 50-OHM | 28480 | 1250-0836 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------------------------|----------------|-----|-----|---------------------------------------|----------|------------------|
| A2K1 | 0490-1426 | 5 | 6 | RELAY 1C 12VDC-COIL 1A 110VAC | 28480 | 0490-1426 |
| A2K2 | 0490-1426 | 5 | | RELAY 1C 12VDC-COIL 1A 110VAC | 28480 | 0490-1426 |
| A2K3 | 0490-1426 | 5 | | RELAY 1C 12VDC-COIL 1A 110VAC | 28480 | 0490-1426 |
| A2K4 | 0490-1426 | 5 | | RELAY 1C 12VDC-COIL 1A 110VAC | 28480 | 0490-1426 |
| A2K5 | 0490-1426 | 5 | | RELAY 1C 12VDC-COIL 1A 110VAC | 28480 | 0490-1426 |
| A2K6 | 0490-1426 | 5 | | RELAY 1C 12VDC-COIL 1A 110VAC | 28480 | 0490-1426 |
| 2427A TO 2514A A2K7-K14 2714A AND ABOVE | | | | NOT ASSIGNED | | |
| A2K7 | 0490-1585 | 7 | | RELAY 1C 12VDC-COIL 2A 250VAC | 01850 | DS1E-S-DC12V |
| A2K8 | 0490-1585 | 7 | | RELAY 1C 12VDC-COIL 2A 250VAC | 01850 | DS1E-S-DC12V |
| A2K9 | 0490-1585 | 7 | | RELAY 1C 12VDC-COIL 2A 250VAC | 01850 | DS1E-S-DC12V |
| A2K10 | 0490-1585 | 7 | | RELAY 1C 12VDC-COIL 2A 250VAC | 01850 | DS1E-S-DC12V |
| A2K11 | 0490-1585 | 7 | | RELAY 1C 12VDC-COIL 2A 250VAC | 01850 | DS1E-S-DC12V |
| A2K12 | 0490-1585 | 7 | | RELAY 1C 12VDC-COIL 2A 250VAC | 01850 | DS1E-S-DC12V |
| A2K13 | 0490-1585 | 7 | | RELAY 1C 12VDC-COIL 2A 250VAC | 01850 | DS1E-S-DC12V |
| A2K14 | 0490-1585 | 7 | | RELAY 1C 12VDC-COIL 2A 250VAC | 01850 | DS1E-S-DC12V |
| A2MP1 | 1400-0249 | 0 | | CABLE TIE .062-.625-DIA .091-WD NYL | 06383 | PLT1M-8 |
| A2R1 | 0698-7195 | 7 | 54 | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R2 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R3 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R4 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| 2427A TO 2514A A2R5 2714A AND ABOVE | 0698-7245 | 8 | 14 | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A2R5 | 0698-7242 | 5 | | RESISTOR 1.78K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1781-F |
| 2427A TO 2514A A2R6 2714A AND ABOVE | 0698-7235 | 6 | 2 | RESISTOR 909 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-909R-F |
| A2R6 | 0698-7225 | 4 | | RESISTOR 348 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1781-F |
| A2R7 | 0698-7195 | 7 | 2 | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R8 | 2100-2030 | 6 | | RESISTOR-TRMR 20K 10% C TOP-ADJ 1-TRN | 73138 | 82PR20K |
| A2R9 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A2R10 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R11 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R12 | 0698-7249 | 2 | 2 | RESISTOR 3.48K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3481-F |
| A2R13 | 0698-7278 | 7 | | RESISTOR 56.2K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5622-F |
| A2R14 | 0698-7260 | 7 | 1 | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A2R15 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R16 | 0698-7245 | 8 | | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A2R17 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R18 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R19 | 0698-6261 | 6 | 3 | RESISTOR 600 .25% .25W F TC=0+-50 | 28480 | 0698-6261 |
| A2R20 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R21 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R22 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R23 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| 2427A TO 2514A A2R24 A2R25 | 0698-7245 | 8 | | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A2R25 | 0698-7235 | 6 | | RESISTOR 909 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-909R-F |
| 2717A AND ABOVE A2R24 A2R25 | 0698-7242 | 5 | | RESISTOR 1.78K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1781-F |
| A2R25 | 0698-7225 | 4 | | RESISTOR 348 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1781-F |
| A2R26 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R27 | 2100-2030 | 6 | | RESISTOR-TRMR 20K 10% C TOP-ADJ 1-TRN | 73138 | 82PR20K |
| A2R28 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R29 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R30 | 0698-7267 | 4 | 3 | RESISTOR 19.6K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1962-F |
| A2R31 | 0698-7267 | 4 | | RESISTOR 19.6K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1962-F |
| A2R32 | 0698-7246 | 9 | 7 | RESISTOR 2.61K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2611-F |
| A2R33 | 0698-7246 | 9 | | RESISTOR 2.61K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2611-F |
| A2R34 | 0698-7247 | 0 | 7 | RESISTOR 2.87K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2871-F |
| A2R35 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R36 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R37 | 0698-7256 | 1 | 12 | RESISTOR 6.81K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6811-F |
| A2R38 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A2R39 | 0698-7253 | 8 | 37 | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A2R40 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A2R41 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A2R42 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A2R43 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A2R44 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R45 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----------------------------------|--------------------------------------|---------------------------------|----------------------|
| A2R86 | 0698-7195 | 7 | 3 | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R87 | 0698-7579 | 1 | | RESISTOR 7.853K .1% .125W F TC=0+-25 | 19701 | MF4C1/8-T9-7853R-B |
| A2R88 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A2R89 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R90 | 0698-7245 | 8 | | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A2R91 | 0698-7195 | 7 | 6 | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R92 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R93 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A2R94 | 0698-3453 | 2 | | RESISTOR 196K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1963-F |
| A2R95 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A2R96 | 0698-3453 | 2 | 2 | RESISTOR 196K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1963-F |
| A2R97 | | | | NOT ASSIGNED | | |
| A2R98 | | | | NOT ASSIGNED | | |
| A2R99 | 0698-7195 | 7 | 7 | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R100 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R101 | 0698-8825 | 2 | 5 | RESISTOR 681K 1% .125W F TC=0+-100 | 28480 | 0698-8825 |
| A2R102 | 0699-0123 | 9 | | RESISTOR 6.75K .1% .125W F TC=0+-25 | 28480 | 0699-0123 |
| A2R103 | 0698-8671 | 6 | | RESISTOR 273.2 .1% .125W F TC=0+-25 | 28480 | 0698-8671 |
| A2R104 | 0698-7579 | 1 | | RESISTOR 7.853K .1% .125W F TC=0+-25 | 19701 | MF4C1/8-T9-7853R-B |
| A2R105 | 0698-8009 | 4 | | RESISTOR 95 .1% .1W F TC=0+-15 | 07716 | MAR5-1/10-T10-95R0-B |
| A2R106 | | | | NOT ASSIGNED | | |
| A2R107 | | | | NOT ASSIGNED | | |
| A2R108 | 0757-0470 | 3 | 2 | RESISTOR 162K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1623-F |
| A2R109 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R110 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R111 | 0698-7243 | 6 | 6 | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A2R112 | 0698-6261 | 6 | | RESISTOR 600 .25% .25W F TC=0+-50 | 28480 | 0698-6261 |
| A2R113 | 0757-0727 | 3 | | RESISTOR 562 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-562R-F |
| A2R114 | 0698-6362 | 8 | | RESISTOR 1K .1% .125W F TC=0+-25 | 28480 | 0698-6362 |
| A2R115 | 0698-8803 | 6 | | RESISTOR 5.9K .1% .125W F TC=0+-25 | 28480 | 0698-8803 |
| A2R116 | 0698-7220 | 9 | | RESISTOR 215 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-215R-F |
| A2R117 | 0698-7220 | 9 | RESISTOR 215 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-215R-F | |
| A2R118 | 0698-6360 | 6 | 2 | RESISTOR 10K .1% .125W F TC=0+-25 | 28480 | 0698-6360 |
| A2R119 | 0698-7249 | 2 | | RESISTOR 3.48K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3481-F |
| A2R120 | 0698-6360 | 6 | | RESISTOR 10K .1% .125W F TC=0+-25 | 28480 | 0698-6360 |
| A2R121 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R122 | 0698-7195 | 7 | 7 | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R123 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R124 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R125-R130 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| | | | | NOT ASSIGNED | | |
| A2R131 | 0698-6343 | 5 | 1 | RESISTOR 9K .1% .125W F TC=0+-25 | 28480 | 0698-6343 |
| A2R132 | 0698-6360 | 6 | | RESISTOR 10K .1% .125W F TC=0+-25 | 28480 | 0698-6360 |
| A2R133 | 0698-6944 | 2 | | RESISTOR 35K 1% .125W F TC=0+-25 | 28480 | 0698-6944 |
| A2R134 | 0698-7150 | 4 | | RESISTOR 306K .1% .125W F TC=0+-25 | 28480 | 0698-7150 |
| A2R135 | 0698-8574 | 8 | | RESISTOR 2.429K .1% .125W F TC=0+-25 | 28480 | 0698-8574 |
| A2R136 | 0698-7195 | 7 | 7 | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R137 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R138 | 0698-7579 | 1 | | RESISTOR 7.853K .1% .125W F TC=0+-25 | 19701 | MF4C1/8-T9-7853R-B |
| A2R139 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R140 | 0698-7245 | 8 | | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A2R141 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R142 | 0698-7195 | 7 | 6 | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R143 | 0698-6360 | 6 | | RESISTOR 10K .1% .125W F TC=0+-25 | 28480 | 0698-6360 |
| A2R144 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A2R145 | 0698-6364 | 0 | | RESISTOR 50 .1% .125W F TC=0+-100 | 28480 | 0698-6364 |
| A2R146 | 0698-7188 | 8 | | 15 | RESISTOR 10 1% .05W F TC=0+-100 | 24546 |
| A2R147 | 0698-7188 | 8 | RESISTOR 10 1% .05W F TC=0+-100 | | 24546 | C3-1/8-T0-10R-F |
| A2R148 | 0698-6360 | 6 | RESISTOR 10K .1% .125W F TC=0+-25 | | 28480 | 0698-6360 |
| A2R149 | 0698-6364 | 0 | RESISTOR 50 .1% .125W F TC=0+-100 | | 28480 | 0698-6364 |
| A2R150 | 0698-6364 | 0 | RESISTOR 50 .1% .125W F TC=0+-25 | | 28480 | 0698-6364 |
| A2R151 | 0699-0626 | 7 | 1 | RESISTOR 3.056K .1% .125W F TC=0+-25 | 28480 | 0699-0626 |
| A2R152 | 0698-6364 | 0 | | RESISTOR 50 .1% .125W F TC=0+-25 | 28480 | 0698-6364 |
| A2R153 | 0699-0274 | 1 | | RESISTOR 350 .1% .125W F TC=0+-25 | 28480 | 0699-0274 |
| A2R154 | 0699-0430 | 1 | | RESISTOR 54.47 .1% .125W F TC=0+-25 | 28480 | 0699-0430 |
| A2R155 | 0698-6354 | 8 | | RESISTOR 40 .1% .125W F TC=0+-25 | 28480 | 0698-6354 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|--------------------------------------|----------|----------------------|
| A2R96 | 0698-3453 | 2 | | RESISTOR 196K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1963-F |
| A2R97 | | | | NOT ASSIGNED | | |
| A2R98 | | | | NOT ASSIGNED | | |
| A2R99 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R100 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R101 | 0698-8825 | 2 | 5 | RESISTOR 681K 1% .125W F TC=0+-100 | 28480 | 0698-8825 |
| A2R102 | 0699-0123 | 9 | 1 | RESISTOR 6.75K .1% .125W F TC=0+-25 | 28480 | 0699-0123 |
| A2R103 | 0698-8671 | 6 | 1 | RESISTOR 273.2 .1% .125W F TC=0+-25 | 28480 | 0698-8671 |
| A2R104 | 0698-7579 | 1 | | RESISTOR 7.853K .1% .125W F TC=0+-25 | 19701 | MF4C1/8-T9-7853R-B |
| A2R105 | 0698-8009 | 4 | 1 | RESISTOR 95 .1% .1W F TC=0+-15 | 07716 | MAR5-1/10-T10-95R0-B |
| A2R106 | | | | NOT ASSIGNED | | |
| A2R107 | | | | NOT ASSIGNED | | |
| A2R108 | 0757-0470 | 3 | 2 | RESISTOR 162K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1623-F |
| A2R109 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R110 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R111 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A2R112 | 0698-6261 | 6 | | RESISTOR 600 .25% .25W F TC=0+-50 | 28480 | 0698-6261 |
| A2R113 | 0757-0727 | 3 | | RESISTOR 562 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-562R-F |
| A2R114 | 0698-6362 | 8 | | RESISTOR 1K .1% .125W F TC=0+-25 | 28480 | 0698-6362 |
| A2R115 | 0698-8803 | 6 | | RESISTOR 5.9K .1% .125W F TC=0+-25 | 28480 | 0698-8803 |
| A2R116 | 0698-7220 | 9 | | RESISTOR 215 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-215R-F |
| A2R117 | 0698-7220 | 9 | | RESISTOR 215 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-215R-F |
| A2R118 | 0698-6360 | 6 | | RESISTOR 10K .1% .125W F TC=0+-25 | 28480 | 0698-6360 |
| A2R119 | 0698-7249 | 2 | | RESISTOR 3.48K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3481-F |
| A2R120 | 0698-6360 | 6 | | RESISTOR 10K .1% .125W F TC=0+-25 | 28480 | 0698-6360 |
| A2R121 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R122 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| 2427A TO 2514A | | | | | | |
| A2R123 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R124 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| 2714A AND ABOVE | | | | | | |
| A2R123 | | | | NOT ASSIGNED | | |
| A2R124 | | | | NOT ASSIGNED | | |
| A2R125-R130 | | | | NOT ASSIGNED | | |
| A2R131 | 0698-6343 | 5 | | RESISTOR 9K .1% .125W F TC=0+-25 | 28480 | 0698-6343 |
| A2R132 | 0698-6360 | 6 | | RESISTOR 10K .1% .125W F TC=0+-25 | 28480 | 0698-6360 |
| A2R133 | 0698-6944 | 2 | 1 | RESISTOR 35K 1% .125W F TC=0+-25 | 28480 | 0698-6944 |
| A2R134 | 0698-7150 | 4 | 1 | RESISTOR 306K .1% .125W F TC=0+-25 | 28480 | 0698-7150 |
| A2R135 | 0698-8574 | 8 | 1 | RESISTOR 2.429K .1% .125W F TC=0+-25 | 28480 | 0698-8574 |
| A2R136 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R137 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R138 | 0698-7579 | 1 | | RESISTOR 7.853K .1% .125W F TC=0+-25 | 19701 | MF4C1/8-T9-7853R-B |
| A2R139 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R140 | 0698-7245 | 8 | | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A2R141 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R142 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-19R6-F |
| A2R143 | 0698-6360 | 6 | | RESISTOR 10K .1% .125W F TC=0+-25 | 28480 | 0698-6360 |
| A2R144 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A2R145 | 0698-6364 | 0 | | RESISTOR 50 .1% .125W F TC=0+-100 | 28480 | 0698-6364 |
| A2R146 | 0698-7188 | 8 | 15 | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A2R147 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A2R148 | 0698-6360 | 6 | | RESISTOR 10K .1% .125W F TC=0+-25 | 28480 | 0698-6360 |
| A2R149 | 0698-6364 | 0 | | RESISTOR 50 .1% .125W F TC=0+-100 | 28480 | 0698-6364 |
| A2R150 | 0698-6364 | 0 | 4 | RESISTOR 50 .1% .125W F TC=0+-25 | 28480 | 0698-6364 |
| A2R151 | 0699-0626 | 7 | 1 | RESISTOR 3.056K .1% .125W F TC=0+-25 | 28480 | 0699-0626 |
| A2R152 | 0698-6364 | 0 | | RESISTOR 50 .1% .125W F TC=0+-25 | 28480 | 0698-6364 |
| A2R153 | 0699-0274 | 1 | 1 | RESISTOR 350 .1% .125W F TC=0+-25 | 28480 | 0699-0274 |
| A2R154 | 0699-0430 | 1 | 1 | RESISTOR 54.47 .1% .125W F TC=0+-25 | 28480 | 0699-0430 |
| A2R155 | 0698-6354 | 8 | 1 | RESISTOR 40 .1% .125W F TC=0+-25 | 28480 | 0698-6354 |
| A2R156 | 0698-6364 | 0 | | RESISTOR 50 .1% .125W F TC=0+-25 | 28480 | 0698-6364 |
| A2R157 | 0698-7574 | 6 | 1 | RESISTOR 31.62 .1% .125W F TC=0+-25 | 19701 | MF4C1/8-T9-31R62-B |
| A2R158 | 0698-7093 | 4 | 1 | RESISTOR 46.5 .1% .125W F TC=0+-25 | 28480 | 0698-7093 |
| A2R159 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A2R160 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A2R161 A2R162 A2R163 A2R164 A2R165 | 0698-7260 | 7 | | NOT ASSIGNED NOT ASSIGNED RESISTOR 10K 1% .05W F TC=0+-100 NOT ASSIGNED NOT ASSIGNED | 24546 | C3-1/8-T0-1002-F |
| A2R166 A2R167 A2R168 A2R169 A2R170 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 NOT ASSIGNED NOT ASSIGNED RESISTOR 10K 1% .05W F TC=0+-100 NOT ASSIGNED | 24546 | C3-1/8-T0-1002-F |
| A2R171 A2R172 A2R173 A2R174 A2R175 | 0698-7260 | 7 | | NOT ASSIGNED RESISTOR 10K 1% .05W F TC=0+-100 NOT ASSIGNED NOT ASSIGNED RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A2R176 A2R177 A2R178 A2R179 A2R180 | 0698-7236 0698-6362 0698-6362 | 7 8 8 | | NOT ASSIGNED NOT ASSIGNED RESISTOR 1K 1% .05W F TC=0+-100 RESISTOR 1K .1% .125W F TC=0+-25 RESISTOR 1K .1% .125W F TC=0+-25 | 24546 28480 28480 | C3-1/8-T0-1001-F 0698-6362 0698-6362 |
| A2R181 A2R182 A2R183 A2R184 A2R185 A2R186 | 0698-7225 0698-7236 0698-7242 0698-7242 0698-7253 | 4 7 5 5 8 | 1 | RESISTOR 348 1% .05W F TC=0+-100 RESISTOR 1K 1% .05W F TC=0+-100 NOT ASSIGNED RESISTOR 1.78K 1% .05W F TC=0+-100 RESISTOR 1.78K 1% .05W F TC=0+-100 RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 24546 24546 24546 24546 | C3-1/8-T0-348R-F C3-1/8-T0-1001-F C3-1/8-T0-1781-F C3-1/8-T0-1781-F C3-1/8-T0-5111-F |
| A2R187 A2R188 | 0698-7253 0698-7195 | 8 7 | | RESISTOR 5.11K 1% .05W F TC=0+-100 RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 24546 | C3-1/8-T0-5111-F C3-1/8-T0-19R6-F |
| 2427A TO 2513A A2R189 A2R190 | | | | NOT ASSIGNED NOT ASSIGNED | | |
| 2514A AND ABOVE A2R189 A2R190 | 0699-0073 0698-7248 | 8 1 | | RESISTOR 10M 1% .125W F TC=0+-150 RESISTOR 3.16K 1% .05W F TC=0+-100 | 28480 28480 | 0699-0073 0698-7248 |
| 2427A TO 2514A A2R191-199 | | | | NOT ASSIGNED | | |
| 2714A TO 2726A A2R191 A2R192 A2R193 A2R194 A2R195 A2R196 A2R197 A2R198 A2R199 | 0698-7253 0698-7253 0698-7253 0698-7253 0698-7253 0698-7253 0698-7253 0698-7253 0698-7253 | 8 8 8 8 8 8 8 8 8 | | RESISTOR 5.11K 1% .05W F TC=+-100 RESISTOR 5.11K 1% .05W F TC=+-100 RESISTOR 5.11K 1% .05W F TC=+-100 RESISTOR 5.11K 1% .05W F TC=+-100 RESISTOR 5.11K 1% .05W F TC=+-100 RESISTOR 5.11K 1% .05W F TC=+-100 RESISTOR 5.11K 1% .05W F TC=+-100 RESISTOR 5.11K 1% .05W F TC=+-100 RESISTOR 5.11K 1% .05W F TC=+-100 | 24546 24546 24546 24546 24546 24546 24546 24546 24546 | C3-1/8-T0-4641-F C3-1/8-T0-4641-F C3-1/8-T0-4641-F C3-1/8-T0-4641-F C3-1/8-T0-4641-F C3-1/8-T0-4641-F C3-1/8-T0-4641-F C3-1/8-T0-4641-F C3-1/8-T0-4641-F |
| 2727A AND ABOVE A2R191 A2R192 A2R193 A2R194 A2R195 A2R196 A2R197 A2R198 A2R199 | 8159-0005 8159-0005 8159-0005 8159-0005 8159-0005 8159-0005 8159-0005 8159-0005 8159-0005 | 0 0 0 0 0 0 0 0 0 | | RESISTOR-ZERO OHMS 22 AWG LEAD DIA RESISTOR-ZERO OHMS 22 AWG LEAD DIA RESISTOR-ZERO OHMS 22 AWG LEAD DIA RESISTOR-ZERO OHMS 22 AWG LEAD DIA RESISTOR-ZERO OHMS 22 AWG LEAD DIA RESISTOR-ZERO OHMS 22 AWG LEAD DIA RESISTOR-ZERO OHMS 22 AWG LEAD DIA RESISTOR-ZERO OHMS 22 AWG LEAD DIA RESISTOR-ZERO OHMS 22 AWG LEAD DIA | 28480 28480 28480 28480 28480 28480 28480 28480 28480 | 8159-0005-4641-F 8159-0005-4641-F 8159-0005-4641-F 8159-0005-4641-F 8159-0005-4641-F 8159-0005-4641-F 8159-0005-4641-F 8159-0005-4641-F 8159-0005-4641-F |
| A2TP1-TP30 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| 2427A TO 2514A A2U1 A2U2 | 1826-1596 1826-1596 | 4 4 | 11 | ANALOG SWITCH DPDT 14 -CBRZ/SDR ANALOG SWITCH DPDT 14 -CBRZ/SDR | 28480 28480 | 1826-1596 1826-1596 |
| 2714A AND ABOVE A2U1 A2U2 | | | | NOT ASSIGNED NOT ASSIGNED | | |
| A2U3 | 1826-0982 | 0 | 13 | IC OP AMP LOW-NOISE 8-DIP-C PKG | 28480 | 1826-0982 |
| 2427A TO 2514A A2U4 2714A AND ABOVE A2U4 | 1826-1596 | 4 | | ANALOG SWITCH DPDT 14 -CBRZ/SDR NOT ASSIGNED | 28480 | 1826-1596 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A2U31 | 1820-1858 | 9 | 6 | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A2U32 | 1820-3100 | 8 | | IC CDCR TTL ALS BIN 3-TO-8-LINE 3-INP | 28480 | 1820-3100 |
| A2U33 | 1826-0921 | 7 | | D/A 10-BIT 16-CBRZ/SDR CMOS | 28480 | 1826-0921 |
| A2U34 | 1826-0982 | 0 | | IC OP AMP LOW-NOISE 8-DIP-C PKG | 28480 | 1826-0982 |
| A2U35 | 1826-0606 | 5 | | IC SWITCH ANLG QUAD 16-DIP-C PKG | 17856 | DG201BK |
| A2U36 | 1826-1513 | 5 | 2 | IC OP AMP LOW-BIAS-H-IMPD DUAL 8-DIP-C | 04713 | 1826-1513 |
| A2U37 | 1826-0606 | 5 | | IC SWITCH ANLG QUAD 16-DIP-C PKG | 17856 | DG201BK |
| A2U38 | 1826-1513 | 5 | 2 | IC OP AMP LOW-BIAS-H-IMPD DUAL 8-DIP-C | 04713 | 1826-1513 |
| A2U39 | 1820-1440 | 5 | | IC LCH TTL LS QUAD | 01295 | SN74LS279N |
| A2U40 | 1820-2739 | 7 | 1 | IC GATE TTL ALS NOR QUAD 2-INP | 01295 | SN74ALS02N |
| A2U41 | 1820-1858 | 9 | 9 | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A2U42 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A2U43 | 1826-0921 | 7 | | D/A 10-BIT 16-CBRZ/SDR CMOS | 28480 | 1826-0921 |
| A2U44 | 1826-0982 | 0 | | IC OP AMP LOW-NOISE 8-DIP-C PKG | 28480 | 1826-0982 |
| A2U45 | 1826-0606 | 5 | | IC SWITCH ANLG QUAD 16-DIP-C PKG | 17856 | DG201BK |
| A2U46 | 1820-1858 | 9 | 2 | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A2U47 | 1826-0921 | 7 | | D/A 10-BIT 16-CBRZ/SDR CMOS | 28480 | 1826-0921 |
| A2U48 | 1826-0982 | 0 | | IC OP AMP LOW-NOISE 8-DIP-C PKG | 28480 | 1826-0982 |
| A2U49 | 1826-0982 | 0 | | IC OP AMP LOW-NOISE 8-DIP-C PKG | 28480 | 1826-0982 |
| A2U50 | 1826-0210 | 7 | | IC COMPARATOR HS 14-DIP-P PKG | 27014 | LM361N |
| A2U51 | 1826-0606 | 5 | 8 | IC SWITCH ANLG QUAD 16-DIP-C PKG | 17856 | DG201BK |
| A2U52 | 1826-0606 | 4 | | IC MULTIPLXR 8-CHAN-ANLG 16-DIP-C PKG | 17856 | DG508BK |
| A2U53 | 1826-0014 | 9 | | IC MULTIPLIER 14-DIP-C PKG | 04713 | MC1595L |
| A2U54 | 1826-0982 | 0 | | IC OP AMP LOW-NOISE 8-DIP-C PKG | 28480 | 1826-0982 |
| A2VR1 | 1902-0943 | 5 | 4 | DIODE-ZNR 2.4V 5% D0-35 PD=.4W TC=-.037% | 28480 | 1902-0943 |
| A2VR2 | 1902-0957 | 1 | | DIODE-ZNR 9.1V 5% D0-35 PD=.4W TC=+.069% | 28480 | 1902-0957 |
| A2VR3 | 1902-0957 | 1 | | DIODE-ZNR 9.1V 5% D0-35 PD=.4W TC=+.069% | 28480 | 1902-0957 |
| A2VR4 | 1902-0957 | 1 | | DIODE-ZNR 9.1V 5% D0-35 PD=.4W TC=+.069% | 28480 | 1902-0957 |
| A2VR5 | 1902-0957 | 1 | | DIODE-ZNR 9.1V 5% D0-35 PD=.4W TC=+.069% | 28480 | 1902-0957 |
| A2VR6 | 1902-0956 | 0 | 4 | DIODE-ZNR 8.2V 5% D0-35 PD=.4W TC=+.065% | 28480 | 1902-0956 |
| A2VR7 | 1902-0956 | 0 | | DIODE-ZNR 8.2V 5% D0-35 PD=.4W TC=+.065% | 28480 | 1902-0956 |
| A2VR8 | 1902-0956 | 0 | | DIODE-ZNR 8.2V 5% D0-35 PD=.4W TC=+.065% | 28480 | 1902-0956 |
| A2VR9 | 1902-0956 | 0 | | DIODE-ZNR 8.2V 5% D0-35 PD=.4W TC=+.065% | 28480 | 1902-0956 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|-----------------|
| A3 | | | | | | |
| A3 | 08642-60891 | 1 | 1 | PROCESSOR/MEMORY MODULE | 28480 | 08642-60891 |
| A3 | 08642-69891 | 9 | 1 | PROCESSOR/MEMORY MODULE (RESTORED) | 28480 | 08642-69891 |
| A3BT1 | 1420-0351 | 7 | 1 | BATTERY 3.6V .045A-HR NI-CD W-FLEX | 28480 | 1420-0351 |
| A3C1 | 0180-0228 | 6 | 2 | CAPACITOR-FXD 22UF+-10% 15VDC TA | 56289 | 150D226X9015B2 |
| A3C2 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C3 | | | | NOT ASSIGNED | | |
| A3C4 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C5 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C6 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C7 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C8 | 0160-3531 | 8 | 3 | CAPACITOR-FXD 2UF +-5% 50VDC MET-POLYC | 28480 | 0160-3531 |
| A3C9 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C10 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C11 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C12 | 0180-0100 | 3 | 8 | CAPACITOR-FXD 4.7UF+-10% 35VDC TA | 56289 | 150D475X9035B2 |
| A3C13 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C14 | 0180-0100 | 3 | | CAPACITOR-FXD 4.7UF+-10% 35VDC TA | 56289 | 150D475X9035B2 |
| A3C15 | | | | NOT ASSIGNED | | |
| A3C16 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C17 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C18 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C19 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C20 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C21 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C22 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C23 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C24 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C25 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C26 | 0180-0100 | 3 | | CAPACITOR-FXD 4.7UF+-10% 35VDC TA | 56289 | 150D475X9035B2 |
| A3C27 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C28 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C29 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C30 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C31 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C32 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C33 | | | | NOT ASSIGNED | | |
| A3C34 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C35 | | | | NOT ASSIGNED | | |
| A3C36 | 0180-0100 | 3 | | CAPACITOR-FXD 4.7UF+-10% 35VDC TA | 56289 | 150D475X9035B2 |
| A3C37 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A3C38 | 0180-0374 | 3 | 1 | CAPACITOR-FXD 10UF+-10% 20VDC TA | 56289 | 150D106X9020B2 |
| A3C39 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C40 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C41 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C42 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C43 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A3C44 | 0180-0100 | 3 | | CAPACITOR-FXD 4.7UF+-10% 35VDC TA | 56289 | 150D475X9035B2 |
| A3CR1 | | | | NOT ASSIGNED | | |
| A3CR2 | 1901-1128 | 8 | | DIODE-SCHOTTKY 40V 1A | 28480 | 1901-1128 |
| A3CR3 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A3CR4 | | | | NOT ASSIGNED | | |
| A3CR5 | 1902-0945 | 7 | 1 | DIODE-ZNR 3V 5% DO-35 PD=.4W TC=-.043% | 28480 | 1902-0945 |
| A3CR6 | | | | NOT ASSIGNED | | |
| A3CR7 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A3CR8 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A3CR9 | 1901-1128 | 8 | | DIODE-SCHOTTKY 40V 1A | 28480 | 1901-1128 |
| A3J1 | 1252-0074 | 4 | 1 | CONN POST TYPE .100-PIN-SPCG 36-CONT | 28480 | 1252-0074 |
| A3J2 | 1251-5039 | 9 | 1 | CONNECTOR 18-PIN M POST TYPE | 22526 | 65500-118 |
| A3J3 | 1251-7307 | 8 | 7 | CONN POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-7307 |
| A3J4 | 1252-0046 | 0 | 1 | CONN POST TYPE .100-PIN-SPCG 18-CONT | 28480 | 1252-0046 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------------------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| A3L1 | 9100-1788 | 6 | 4 | CORE-FERRITE CHOKE-WIDEBAND; IMP:>680 | 28480 | 9100-1788 |
| A3MP1 | 1400-0249 | 0 | | CABLE TIE .062-.625-DIA .091-WD NYL | 06383 | PLT1M-8 |
| A3MP2 | 5040-6068 | 3 | 2 | EXTR PC BD BLK | 28480 | 5040-6068 |
| | 1480-0073 | 6 | 4 | PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU | 28480 | 1480-0073 |
| A3MP3 | 5040-6067 | 2 | 2 | EXTR PC BD WHT | 28480 | 5040-6067 |
| | 1480-0073 | 6 | | PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU | 28480 | 1480-0073 |
| A3MP4 | 08642-40032 | 0 | 6 | SPACER | 28480 | 08642-40032 |
| A3P1-P4 | | | | NOT ASSIGNED | | |
| A3P5 | 1251-7307 | 8 | | CONN POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-7307 |
| A3P6 | | | | NOT ASSIGNED | | |
| A3P7 | | | | NOT ASSIGNED | | |
| A3P8 | 1251-7307 | 8 | | CONN POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-7307 |
| A3Q1 | | | | NOT ASSIGNED | | |
| A3Q2 | 1853-0459 | 3 | 20 | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A3Q3-Q8 | | | | NOT ASSIGNED | | |
| A3Q9 | 1854-0809 | 9 | 2 | TRANSISTOR NPN 2N2369A SI TO-18 PD=360MW | 28480 | 1854-0809 |
| A3R1 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A3R2 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A3R3 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A3R4 | 0699-0150 | 2 | 2 | RESISTOR 16.2K .1% .1W F TC=0+-15 | 28480 | 0699-0150 |
| A3R5 | 0699-0150 | 2 | | RESISTOR 16.2K .1% .1W F TC=0+-15 | 28480 | 0699-0150 |
| A3R6 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A3R7 | 0698-8960 | 6 | 1 | RESISTOR 750K 1% .125W F TC=0+-100 | 28480 | 0698-8960 |
| A3R8-R11 | | | | NOT ASSIGNED | | |
| A3R12 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A3R13 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A3R14-R23 | | | | NOT ASSIGNED | | |
| A3R24 | 0698-3445 | 2 | 3 | RESISTOR 348 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-348R-F |
| A3R25 | | | | NOT ASSIGNED | | |
| A3R26 | 0757-0438 | 3 | 8 | RESISTOR 5.11K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-5111-F |
| A3R27-R29 | | | | NOT ASSIGNED | | |
| A3R30 | 0698-3441 | 8 | 7 | RESISTOR 215 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-215R-F |
| A3R31 | 0698-3437 | 2 | 1 | RESISTOR 133 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-133R-F |
| A3R32 | 0757-0439 | 4 | 1 | RESISTOR 6.81K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-6811-F |
| A3R33 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A3R34 | 0698-8827 | 4 | 8 | RESISTOR 1M 1% .125W F TC=0+-100 | 28480 | 0698-8827 |
| A3R35 | 0757-0465 | 6 | | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A3R36 | 0757-0465 | 6 | | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A3R37 | 0698-3450 | 9 | 2 | RESISTOR 42.2K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-4222-F |
| A3R38 | 0698-3452 | 1 | 3 | RESISTOR 147K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1473-F |
| A3R39 | 0698-3155 | 1 | 3 | RESISTOR 4.64K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-4641-F |
| A3R40 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A3R41-R43 | | | | NOT ASSIGNED | | |
| A3R44 | 0698-0084 | 9 | 12 | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2151-F |
| A3R45 | 0698-3440 | 7 | 4 | RESISTOR 196 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-196R-F |
| A3R46 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A3R47 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A3R48 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A3R49 | 2100-3759 | 8 | 1 | RESISTOR-TRMR 2K 10% C SIDE-ADJ 17-TRN | 28480 | 2100-3759 |
| A3R50 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A3R51 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| 2427A TO 2612A A3R52 2613A AND ABOVE A3R52 | 0698-3433 | 8 | 1 | RESISTOR 28.7 1% .125W F TC=0+-100 | 03888 | PME55-1/8-T0-2BR7 |
| A3S1 | 3101-2482 | 5 | 1 | SWITCH-RKR DIP-RKR-ASSY 3PDT .05A 30VDC | 28480 | 3101-2482 |
| A3S2 | 3101-2751 | 1 | 2 | SWITCH-RKR DIP-RKR-ASSY 2-1A .015A 24VDC | 28480 | 3101-2751 |
| A3TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A3U1 | 1820-2657 | 8 | 3 | IC GATE TTL ALS OR QUAD 2-INP | 01295 | SN74ALS32N |
| A3U2 | 1813-0203 | 1 | 1 | XTAL-CLOCK OSCILLATOR 5-MHZ 0.01% TTL | 28480 | 1813-0203 |
| A3U3 | 1820-3466 | 9 | 1 | IC FF TTL ALS D-TYPE POS-EDGE-TRIG COM | 28480 | 1820-3466 |
| A3U4 | 1820-3718 | 4 | 1 | IC DRVR TTL ALS NOR HEX 2-INP | 28480 | 1820-3718 |
| A3U5 | 1820-2488 | 3 | 3 | IC FF TTL ALS D-TYPE POS-EDGE-TRIG | 01295 | SN74ALS74N |
| A3U6 | 1820-2656 | 7 | 2 | IC GATE TTL ALS NAND QUAD 2-INP | 01295 | SN74ALS00N |
| A3U7 | 1820-2657 | 8 | | IC GATE TTL ALS OR QUAD 2-INP | 01295 | SN74ALS32N |
| A3U8 | 1820-2488 | 3 | | IC FF TTL ALS D-TYPE POS-EDGE-TRIG | 01295 | SN74ALS74N |
| A3U9 | 1820-2634 | 1 | 2 | IC INV TTL ALS HEX | 01295 | SN74ALS04N |
| A3U10 | 1820-2096 | 9 | 3 | IC CNTR TTL LS BIN DUAL 4-BIT | 01295 | SN74LS393N |

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|----------------------|
| A3U11 | 1820-3318 | 0 | 1 | IC FF TTL ALS D-TYPE POS-EDGE-TRIG COM | 28480 | 1820-3318 |
| A3U12 | 1820-2505 | 5 | 1 | IC-MPU;CLK FREQ=8MHZ, INSTRUCTION | 28480 | 1820-2505 |
| A3U13 | 1826-1201 | 8 | 1 | IC V RGLTR-FXD-POS 4.5/5.5V TO-220 PKG | 28480 | 1826-1201 |
| | 0515-0655 | 4 | 23 | SCREW-MACH M3 X 0.5 8MM-LG PAN-HD | 00000 | ORDER BY DESCRIPTION |
| | 0535-0004 | 9 | 17 | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| | 2190-0584 | 0 | 27 | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A3U14 | 1826-0773 | 7 | 1 | IC OP AMP GP TO-99 PKG | 27014 | LM10CH |
| A3U15 | 1820-3100 | 8 | | IC DCDR TTL ALS BIN 3-TO-8-LINE 3-INP | 28480 | 1820-3100 |
| A3U16 | 1820-1851 | 2 | 1 | IC ENCDR TTL LS | 01295 | SN74LS148N |
| A3U17 | 1820-3100 | 8 | | IC DCDR TTL ALS BIN 3-TO-8-LINE 3-INP | 28480 | 1820-3100 |
| A3U18 | | | | NOT ASSIGNED | | |
| A3U19 | 1820-3100 | 8 | | IC DCDR TTL ALS BIN 3-TO-8-LINE 3-INP | 28480 | 1820-3100 |
| A3U20 | 1818-3375 | 4 | 4 | IC NMOS 16384 (16K) EAROM 450-NS 3-S | 28480 | 1818-3375 |
| A3U21 | 1818-3375 | 4 | | IC NMOS 16384 (16K) EAROM 450-NS 3-S | 28480 | 1818-3375 |
| A3U22 | | | | NOT ASSIGNED | | |
| 2427A TO 2514A | | | | | | |
| A3U23 | 08642-80138 | 1 | 1 | PROM-PROGRAMMED | 28480 | 08642-80138 |
| A3U24 | 08642-80139 | 2 | 1 | PROM-PROGRAMMED | 28480 | 08642-80139 |
| A3U25 | 08642-80140 | 5 | 1 | PROM-PROGRAMMED | 28480 | 08642-80140 |
| A3U26 | 08642-80141 | 6 | 1 | PROM-PROGRAMMED | 28480 | 08642-80141 |
| A3U27 | 08642-80142 | 7 | 1 | PROM-PROGRAMMED | 28480 | 08642-80142 |
| A3U28 | 08642-80143 | 8 | 1 | PROM-PROGRAMMED | 28480 | 08642-80143 |
| 2515A ONLY | | | | | | |
| A3U23 | 08642-80238 | 1 | 1 | PROM-PROGRAMMED | 28480 | 08642-80238 |
| A3U24 | 08642-80239 | 2 | 1 | PROM-PROGRAMMED | 28480 | 08642-80239 |
| A3U25 | 08642-80240 | 5 | 1 | PROM-PROGRAMMED | 28480 | 08642-80240 |
| A3U26 | 08642-80241 | 7 | 1 | PROM-PROGRAMMED | 28480 | 08642-80241 |
| A3U27 | 08642-80242 | 8 | 1 | PROM-PROGRAMMED | 28480 | 08642-80242 |
| A3U28 | 08642-80243 | 9 | 1 | PROM-PROGRAMMED | 28480 | 08642-80243 |
| 2516A TO 2521A | | | | | | |
| A3U23 | 08642-80438 | 4 | 1 | PROM-PROGRAMMED | 28480 | 08642-80438 |
| A3U24 | 08642-80439 | 5 | 1 | PROM-PROGRAMMED | 28480 | 08642-80439 |
| A3U25 | 08642-80440 | 8 | 1 | PROM-PROGRAMMED | 28480 | 08642-80440 |
| A3U26 | 08642-80441 | 6 | 1 | PROM-PROGRAMMED | 28480 | 08642-80441 |
| A3U27 | 08642-80442 | 0 | 1 | PROM-PROGRAMMED | 28480 | 08642-80442 |
| A3U28 | 08642-80443 | 1 | 1 | PROM-PROGRAMMED | 28480 | 08642-80443 |
| 2526A ONLY | | | | | | |
| A3U23 | 08642-80538 | 5 | 1 | PROM-PROGRAMMED | 28480 | 08642-80538 |
| A3U24 | 08642-80539 | 6 | 1 | PROM-PROGRAMMED | 28480 | 08642-80539 |
| A3U25 | 08642-80540 | 9 | 1 | PROM-PROGRAMMED | 28480 | 08642-80540 |
| A3U26 | 08642-80541 | 0 | 1 | PROM-PROGRAMMED | 28480 | 08642-80541 |
| A3U27 | 08642-80542 | 1 | 1 | PROM-PROGRAMMED | 28480 | 08642-80542 |
| A3U28 | 08642-80543 | 2 | 1 | PROM-PROGRAMMED | 28480 | 08642-80543 |
| 2527A TO 2530A | | | | | | |
| A3U23 | 08642-80638 | 6 | 1 | PROM-PROGRAMMED | 28480 | 08642-80638 |
| A3U24 | 08642-80639 | 7 | 1 | PROM-PROGRAMMED | 28480 | 08642-80639 |
| A3U25 | 08642-80640 | 0 | 1 | PROM-PROGRAMMED | 28480 | 08642-80640 |
| A3U26 | 08642-80641 | 1 | 1 | PROM-PROGRAMMED | 28480 | 08642-80641 |
| A3U27 | 08642-80642 | 2 | 1 | PROM-PROGRAMMED | 28480 | 08642-80642 |
| A3U28 | 08642-80643 | 3 | 1 | PROM-PROGRAMMED | 28480 | 08642-80643 |
| 2531A TO 2551A | | | | | | |
| A3U23 | 08642-80738 | 7 | 1 | PROM-PROGRAMMED | 28480 | 08642-80738 |
| A3U24 | 08642-80739 | 8 | 1 | PROM-PROGRAMMED | 28480 | 08642-80739 |
| A3U25 | 08642-80740 | 1 | 1 | PROM-PROGRAMMED | 28480 | 08642-80740 |
| A3U26 | 08642-80741 | 2 | 1 | PROM-PROGRAMMED | 28480 | 08642-80741 |
| A3U27 | 08642-80742 | 3 | 1 | PROM-PROGRAMMED | 28480 | 08642-80742 |
| A3U28 | 08642-80743 | 4 | 1 | PROM-PROGRAMMED | 28480 | 08642-80743 |
| 2601A TO 2615A | | | | | | |
| A3U23 | 08642-80838 | 8 | 1 | PROM-PROGRAMMED | 28480 | 08642-80838 |
| A3U24 | 08642-80839 | 9 | 1 | PROM-PROGRAMMED | 28480 | 08642-80839 |
| A3U25 | 08642-80840 | 2 | 1 | PROM-PROGRAMMED | 28480 | 08642-80840 |
| A3U26 | 08642-80841 | 3 | 1 | PROM-PROGRAMMED | 28480 | 08642-80841 |
| A3U27 | 08642-80842 | 4 | 1 | PROM-PROGRAMMED | 28480 | 08642-80842 |
| A3U28 | 08642-80843 | 5 | 1 | PROM-PROGRAMMED | 28480 | 08642-80843 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|-----------------------------------------|----------|-----------------|
| <i>2622A TO 2643A</i> | | | | | | |
| <i>A3U23</i> | 08642-80938 | 9 | 1 | PROM-PROGRAMMED | 28480 | 08642-80938 |
| <i>A3U24</i> | 08642-80939 | 0 | 1 | PROM-PROGRAMMED | 28480 | 08642-80939 |
| <i>A3U25</i> | 08642-80940 | 3 | 1 | PROM-PROGRAMMED | 28480 | 08642-80940 |
| <i>A3U26</i> | 08642-80941 | 4 | 1 | PROM-PROGRAMMED | 28480 | 08642-80941 |
| <i>A3U27</i> | 08642-80942 | 5 | 1 | PROM-PROGRAMMED | 28480 | 08642-80942 |
| <i>A3U28</i> | 08642-80943 | 6 | 1 | PROM-PROGRAMMED | 28480 | 08642-80943 |
| <i>2644A TO 2647A</i> | | | | | | |
| <i>A3U23</i> | 08642-80188 | 1 | 1 | PROM-PROGRAMMED | 28480 | 08642-80188 |
| <i>A3U24</i> | 08642-80189 | 2 | 1 | PROM-PROGRAMMED | 28480 | 08642-80189 |
| <i>A3U25</i> | 08642-80190 | 5 | 1 | PROM-PROGRAMMED | 28480 | 08642-80190 |
| <i>A3U26</i> | 08642-80191 | 7 | 1 | PROM-PROGRAMMED | 28480 | 08642-80191 |
| <i>A3U27</i> | 08642-80192 | 7 | 1 | PROM-PROGRAMMED | 28480 | 08642-80192 |
| <i>A3U28</i> | 08642-80193 | 8 | 1 | PROM-PROGRAMMED | 28480 | 08642-80193 |
| <i>2651A TO 2707A</i> | | | | | | |
| <i>A3U23</i> | 08642-80288 | 2 | 1 | PROM-PROGRAMMED | 28480 | 08642-80288 |
| <i>A3U24</i> | 08642-80289 | 3 | 1 | PROM-PROGRAMMED | 28480 | 08642-80289 |
| <i>A3U25</i> | 08642-80290 | 6 | 1 | PROM-PROGRAMMED | 28480 | 08642-80290 |
| <i>A3U26</i> | 08642-80291 | 7 | 1 | PROM-PROGRAMMED | 28480 | 08642-80291 |
| <i>A3U27</i> | 08642-80292 | 8 | 1 | PROM-PROGRAMMED | 28480 | 08642-80292 |
| <i>A3U28</i> | 08642-80293 | 9 | 1 | PROM-PROGRAMMED | 28480 | 08642-80293 |
| <i>2708A TO 2721A</i> | | | | | | |
| <i>A3U23</i> | 08642-80388 | 3 | 1 | PROM-PROGRAMMED | 28480 | 08642-80388 |
| <i>A3U24</i> | 08642-80389 | 4 | 1 | PROM-PROGRAMMED | 28480 | 08642-80389 |
| <i>A3U25</i> | 08642-80390 | 7 | 1 | PROM-PROGRAMMED | 28480 | 08642-80390 |
| <i>A3U26</i> | 08642-80391 | 8 | 1 | PROM-PROGRAMMED | 28480 | 08642-80391 |
| <i>A3U27</i> | 08642-80392 | 9 | 1 | PROM-PROGRAMMED | 28480 | 08642-80392 |
| <i>A3U28</i> | 08642-80393 | 0 | 1 | PROM-PROGRAMMED | 28480 | 08642-80393 |
| <i>2722A AND ABOVE</i> | | | | | | |
| <i>A3U23</i> | 08642-80488 | 4 | 1 | PROM-PROGRAMMED | 28480 | 08642-80488 |
| | 1200-0567 | 1 | 8 | SOCKET-IC 28-CONT DIP DIP-SLDR | 28480 | 1200-0567 |
| <i>A3U24</i> | 08642-80489 | 5 | 1 | PROM-PROGRAMMED | 28480 | 08642-80489 |
| | 1200-0567 | 1 | 8 | SOCKET-IC 28-CONT DIP DIP-SLDR | 28480 | 1200-0567 |
| <i>A3U25</i> | 08642-80490 | 8 | 1 | PROM-PROGRAMMED | 28480 | 08642-80490 |
| | 1200-0567 | 1 | 8 | SOCKET-IC 28-CONT DIP DIP-SLDR | 28480 | 1200-0567 |
| <i>A3U26</i> | 08642-80491 | 9 | 1 | PROM-PROGRAMMED | 28480 | 08642-80491 |
| | 1200-0567 | 1 | 8 | SOCKET-IC 28-CONT DIP DIP-SLDR | 28480 | 1200-0567 |
| <i>A3U27</i> | 08642-80492 | 0 | 1 | PROM-PROGRAMMED | 28480 | 08642-80492 |
| | 1200-0567 | 1 | 8 | SOCKET-IC 28-CONT DIP DIP-SLDR | 28480 | 1200-0567 |
| <i>A3U28</i> | 08642-80493 | 1 | 1 | PROM-PROGRAMMED | 28480 | 08642-80493 |
| | 1200-0567 | 1 | 8 | SOCKET-IC 28-CONT DIP DIP-SLDR | 28480 | 1200-0567 |
| <i>A3U29</i> | 1820-3100 | 8 | | IC DCDR TTL ALS BIN 3-TO-8-LINE 3-INP | 28480 | 1820-3100 |
| <i>A3U30</i> | 1820-2485 | 0 | 1 | IC RCVR TTL LS BUS OCTL | 01295 | SN75160N |
| <i>A3U31</i> | 1820-2932 | 2 | 1 | IC-PROGRAMMABLE TIMER MODULE;4MHZ INPUT | 28480 | 1820-2932 |
| <i>2427A TO 2514A</i> | | | | | | |
| <i>A3U32</i> | 08642-80144 | 9 | 1 | PROM-PROGRAMMED | 28480 | 08642-80144 |
| <i>A3U33</i> | 08642-80145 | 0 | 1 | PROM-PROGRAMMED | 28480 | 08642-80145 |
| <i>2515A ONLY</i> | | | | | | |
| <i>A3U32</i> | 08642-80244 | 0 | 1 | PROM-PROGRAMMED | 28480 | 08642-80244 |
| <i>A3U33</i> | 08642-80245 | 1 | 1 | PROM-PROGRAMMED | 28480 | 08642-80245 |
| <i>2516A TO 2521A</i> | | | | | | |
| <i>A3U32</i> | 08642-80444 | 2 | 1 | PROM-PROGRAMMED | 28480 | 08642-80444 |
| <i>A3U33</i> | 08642-80445 | 3 | 1 | PROM-PROGRAMMED | 28480 | 08642-80445 |
| <i>2526A ONLY</i> | | | | | | |
| <i>A3U32</i> | 08642-80544 | 3 | 1 | PROM-PROGRAMMED | 28480 | 08642-80544 |
| <i>A3U33</i> | 08642-80545 | 4 | 1 | PROM-PROGRAMMED | 28480 | 08642-80545 |
| <i>2527A TO 2530A</i> | | | | | | |
| <i>A3U32</i> | 08642-80644 | 4 | 1 | PROM-PROGRAMMED | 28480 | 08642-80644 |
| <i>A3U33</i> | 08642-80645 | 5 | 1 | PROM-PROGRAMMED | 28480 | 08642-80645 |
| <i>2531A TO 2551A</i> | | | | | | |
| <i>A3U32</i> | 08642-80744 | 5 | 1 | PROM-PROGRAMMED | 28480 | 08642-80744 |
| <i>A3U33</i> | 08642-80745 | 6 | 1 | PROM-PROGRAMMED | 28480 | 08642-80745 |
| <i>2601A TO 2615A</i> | | | | | | |
| <i>A3U32</i> | 08642-80844 | 6 | 1 | PROM-PROGRAMMED | 28480 | 08642-80844 |
| <i>A3U33</i> | 08642-80845 | 7 | 1 | PROM-PROGRAMMED | 28480 | 08642-80845 |
| <i>2622A TO 2643A</i> | | | | | | |
| <i>A3U32</i> | 08642-80944 | 7 | 1 | PROM-PROGRAMMED | 28480 | 08642-80944 |
| <i>A3U33</i> | 08642-80945 | 8 | 1 | PROM-PROGRAMMED | 28480 | 08642-80945 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------------------------|-------------------------|-----------|-----|-----------------------------------------|------------------------------------|----------------------|
| 2516A TO 2521A A3U32 A3U33 | 08642-80444 | 2 | 1 | PROM-PROGRAMMED | 28480 | 08642-80444 |
| | 08642-80445 | 3 | 1 | PROM-PROGRAMMED | 28480 | 08642-80445 |
| 2526A ONLY A3U32 A3U33 | 08642-80544 | 3 | 1 | PROM-PROGRAMMED | 28480 | 08642-80544 |
| | 08642-80545 | 4 | 1 | PROM-PROGRAMMED | 28480 | 08642-80545 |
| 2527A TO 2530A A3U32 A3U33 | 08642-80644 | 4 | 1 | PROM-PROGRAMMED | 28480 | 08642-80644 |
| | 08642-80645 | 5 | 1 | PROM-PROGRAMMED | 28480 | 08642-80645 |
| 2531A TO 2551A A3U32 A3U33 | 08642-80744 | 5 | 1 | PROM-PROGRAMMED | 28480 | 08642-80744 |
| | 08642-80745 | 6 | 1 | PROM-PROGRAMMED | 28480 | 08642-80745 |
| 2601A TO 2615A A3U32 A3U33 | 08642-80844 | 6 | 1 | PROM-PROGRAMMED | 28480 | 08642-80844 |
| | 08642-80845 | 7 | 1 | PROM-PROGRAMMED | 28480 | 08642-80845 |
| 2622A TO 2643A A3U32 A3U33 | 08642-80944 | 7 | 1 | PROM-PROGRAMMED | 28480 | 08642-80944 |
| | 08642-80945 | 8 | 1 | PROM-PROGRAMMED | 28480 | 08642-80945 |
| 2644A TO 2650A A3U32 A3U33 | 08642-80194 | 9 | 1 | PROM-PROGRAMMED | 28480 | 08642-80194 |
| | 08642-80195 | 0 | 1 | PROM-PROGRAMMED | 28480 | 08642-80195 |
| 2651A TO 2707A A3U32 A3U33 | 08642-80294 | 0 | 1 | PROM-PROGRAMMED | 28480 | 08642-80294 |
| | 08642-80295 | 1 | 1 | PROM-PROGRAMMED | 28480 | 08642-80295 |
| 2708A TO 2721A A3U32 A3U33 | 08642-80394 | 1 | 1 | PROM-PROGRAMMED | 28480 | 08642-80394 |
| | 08642-80395 | 2 | 1 | PROM-PROGRAMMED | 28480 | 08642-80395 |
| 2722A TO 2733A A3U32 A3U32 | 08642-80494 | 2 | 1 | PROM-PROGRAMMED | 28480 | 08642-80494 |
| | 1200-0567 | 1 | 8 | SOCKET-IC 28-CONT DIP DIP-SLDR | 28480 | 1200-0567 |
| | 08642-80495 | 3 | 1 | PROM-PROGRAMMED | 28480 | 08642-80495 |
| | 1200-0567 | 1 | 8 | SOCKET-IC 28-CONT DIP DIP-SLDR | 28480 | 1200-0567 |
| 2734A TO 2738A A3U32 A3U33 | 08642-80594 | 3 | 1 | PROM-PROGRAMMED | 28480 | 08642-80594 |
| | 1200-0567 | 1 | 8 | SOCKET-IC 28-CONT DIP DIP-SLDR | 28480 | 1200-0567 |
| | 08642-80595 | 4 | 1 | PROM-PROGRAMMED | 28480 | 08642-80595 |
| | 1200-0567 | 1 | 8 | SOCKET-IC 28-CONT DIP DIP-SLDR | 28480 | 1200-0567 |
| 2748A AND ABOVE A3U32 A3U33 | 08642-80694 | 4 | | PROM-PROGRAMMED | 28480 | 08642-80694 |
| | 1200-0567 | 1 | 8 | SOCKET-IC 28-CONT DIP DIP-SLDR | 28480 | 1200-0567 |
| | 08642-80695 | 5 | | PROM-PROGRAMMED | 28480 | 08642-80695 |
| | 1200-0567 | 1 | 8 | SOCKET-IC 28-CONT DIP DIP-SLDR | 28480 | 1200-0567 |
| A3U34 A3U35 A3U36 A3U37 A3U38 | 1818-3183 | 2 | 4 | IC CMOS 65536 (64K) STAT RAM 150-NS 3-S | 28480 | 1818-3183 |
| | 1818-3183 | 2 | | IC CMOS 65536 (64K) STAT RAM 150-NS 3-S | 28480 | 1818-3183 |
| | 1818-3183 | 2 | | IC CMOS 65536 (64K) STAT RAM 150-NS 3-S | 28480 | 1818-3183 |
| | 1818-3183 | 2 | | IC CMOS 65536 (64K) STAT RAM 150-NS 3-S | 28480 | 1818-3183 |
| | 1820-2547 | 5 | 1 | IC RCVR TTL LS OCTL | 01295 | SN75162N |
| | 1820-2551 | 1 | 1 | IC-IMS9914 GBIB | 28480 | 1820-2551 |
| A3U39 | 0520-0128 | 7 | 2 | SCREW-MACH 2-56 .25 TN-LG PAN-HD-POZI | 00000 | ORDER BY DESCRIPTION |
| | 0610-0701 | 6 | 2 | NUT-HEX-DBL-CHAM 2-56-THD .062-IN-THK | 00000 | ORDER BY DESCRIPTION |
| | 1205-0081 | 9 | 1 | HEATSINK SGL DIP | 28480 | 1205-0581 |
| | 2190-0654 | 5 | 2 | WASHER-LK HLCL 2.0 MM 2.1-MM-ID | 28480 | 2190-0654 |
| | 1820-2656 | 7 | | IC GATE TTL ALS NAND QUAD 2-INP | 01295 | SN74ALS00N |
| | 2427A TO 2748A A3U41 | 1826-0759 | 9 | | IC COMPARATOR GP QUAD 14-DIP-C PKG | 04713 |
| 2807A AND ABOVE A3U41 | 1826-0138 | 8 | | IC COMPARATOR GP QUAD 14-DIP-C PKG | 01295 | LM339N |
| A3W1 A3W2 A3W3 A3W4 A3W5 | 1258-0227 | 1 | 1 | JUMPER 18 GOLD PLTD BRONZE CONTACTS | 28480 | 1258-0227 |
| | 1258-0218 | 0 | 1 | MULTI-B-JUMP | 28480 | 1258-0218 |
| | 1258-0209 | 9 | | JUMPER-REMOVABLE 2 POSITION; .200 IN | 28480 | 1258-0209 |
| | 8159-0005 | 0 | 7 | RESISTOR-ZERO OHMS 22 AWG LEAD DIA | 28480 | 8159-0005 |
| | 8159-0005 | 0 | | RESISTOR-ZERO OHMS 22 AWG LEAD DIA | 28480 | 8159-0005 |
| A3W6 A3W7 | 8159-0005 | 0 | | RESISTOR-ZERO OHMS 22 AWG LEAD DIA | 28480 | 8159-0005 |
| | 8159-0005 | 0 | | RESISTOR-ZERO OHMS 22 AWG LEAD DIA | 28480 | 8159-0005 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------|----------------|--------|-----|------------------------------------------|----------|-----------------|
| A4 | | | | | | |
| A4 | 08642-60892 | 2 | 1 | LATCH MODULE | 28480 | 08642-60892 |
| A4 | 08642-69892 | 0 | 1 | LATCH MODULE (RESTORED) | 28480 | 08642-69892 |
| A4C1 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C2 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C3 | 0160-4787 | 8 | 9 | CAPACITOR-FXD 22PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4787 |
| A4C4 | 0160-0576 | 5 | 181 | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2447A TO 2632A A4C5 | 0160-3879 | 7 | 177 | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| 2636A TO 2644A A4C5 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| 2647A AND ABOVE A4C5 | 0160-3879 | 7 | 177 | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A4C6 | 0180-0228 | 6 | | CAPACITOR-FXD 22UF+-10% 15VDC TA | 56289 | 150D226X9015B2 |
| A4C7 | 0180-3074 | 6 | 2 | CAPACITOR-FXD 15UF+-20% 30VDC TA | 28480 | 0180-3074 |
| A4C8 | 0180-3074 | 6 | | CAPACITOR-FXD 15UF+-20% 30VDC TA | 28480 | 0180-3074 |
| A4C9 | 0180-0100 | 3 | | CAPACITOR-FXD 4.7UF+-10% 35VDC TA | 56289 | 150D475X9035B2 |
| A4C10 | 0180-0100 | 3 | | CAPACITOR-FXD 4.7UF+-10% 35VDC TA | 56289 | 150D475X9035B2 |
| A4C11 | 0180-0100 | 3 | | CAPACITOR-FXD 4.7UF+-10% 35VDC TA | 56289 | 150D475X9035B2 |
| A4C12 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C13 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C14 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C15 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C16 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C17 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C18 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C19 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C20 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C21 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C22 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C23 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C24 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C25 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C26 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C27 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C28 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C29 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C30 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C31 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C32 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C33 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C34 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C35 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A4C36 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| 2447A TO 2517A A4C37 | 0160-4787 | 8 | | CAPACITOR-FXD 22PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4787 |
| 2521A AND ABOVE A4C37 | 0160-0571 | 0 | | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |
| A4C38 | 0160-4809 | 5 | 1 | CAPACITOR-FXD 390PF +-5% 100VDC CER | 28480 | 0160-4809 |
| 2427A TO 2517A A4C39-C42 | | | | NOT ASSIGNED | | |
| 2521A AND ABOVE A4C39 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2521A TO 2630A A4C40 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2636A AND ABOVE A4C40 | | | | NOT ASSIGNED | | |
| 2521A AND ABOVE A4C41 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A4C42 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|---------------------------------------|----------|------------------|
| A4CR1 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A4CR2 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A4CR3 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A4CR4 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A4CR5 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A4CR6 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A4CR7 | 1901-0539 | 3 | 16 | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A4CR8 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A4CR9 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A4CR10 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A4CR11 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A4CR12 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A4J1 | 1251-5946 | 7 | 1 | CONNECTOR 12-PIN M POST TYPE | 28480 | 1251-5946 |
| A4K1 | 0490-0916 | 6 | 2 | RELAY-REED 1A 500MA 100VDC 5VDC-COIL | 28480 | 0490-0916 |
| A4L1 | 9100-1788 | 6 | | CORE-FERRITE CHOKE-WIDEBAND; IMP:>680 | 28480 | 9100-1788 |
| A4L2 | 9100-1788 | 6 | | CORE-FERRITE CHOKE-WIDEBAND; IMP:>680 | 28480 | 9100-1788 |
| A4L3 | 9100-1788 | 6 | | CORE-FERRITE CHOKE-WIDEBAND; IMP:>680 | 28480 | 9100-1788 |
| A4MP1 | 1400-0249 | 0 | | CABLE TIE .062-.625-DIA .091-WD NYL | 06383 | PLT1M-8 |
| A4MP2 | 5040-6067 | 2 | | EXTR PC BD WHT | 28480 | 5040-6067 |
| | 1480-0073 | 6 | | PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU | 28480 | 1480-0073 |
| A4MP3 | 5040-6068 | 3 | | EXTR PC BD BLK | 28480 | 5040-6068 |
| | 1480-0073 | 6 | | PIN-ROLL .062-IN-DIA .25-IN-LG BE-CU | 28480 | 1480-0073 |
| A4MP4 | 08642-40032 | 0 | | SPACER | 28480 | 08642-40032 |
| A4P1 | 1251-7307 | 8 | | CONN POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-7307 |
| A4P2 | 1251-7307 | 8 | | CONN POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-7307 |
| A4P3 | 1251-7307 | 8 | | CONN POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-7307 |
| A4P4 | 1251-7307 | 8 | | CONN POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-7307 |
| A4R1 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A4R2 | 0698-0084 | 9 | | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2151-F |
| A4R3 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A4R4 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A4R5 | 0698-0084 | 9 | | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2151-F |
| A4R6 | 0698-3454 | 3 | 3 | RESISTOR 215K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2153-F |
| A4R7 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A4R8 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A4R9 | 0698-3452 | 1 | | RESISTOR 147K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1473-F |
| <i>2427A TO 2647</i> | | | | | | |
| <i>A4R10</i> | 0757-0394 | 0 | 7 | RESISTOR 51.1 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-51R1-F |
| <i>2717A AND ABOVE</i> | | | | | | |
| <i>A4R10</i> | 0699-2279 | 0 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-51R1-F |
| A4R11 | 0757-0462 | 3 | 2 | RESISTOR 75K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-7502-F |
| A4R12 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A4R13 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A4R14 | | | | NOT ASSIGNED | | |
| A4R15 | 0698-3451 | 0 | 2 | RESISTOR 133K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1333-F |
| <i>2717A TO 2736A</i> | | | | | | |
| <i>A4R16</i> | 0757-0458 | 7 | 2 | RESISTOR 51.1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-5112-F |
| <i>2737A AND ABOVE</i> | | | | | | |
| <i>A4R16</i> | 0698-3228 | 9 | | RESISTOR 49.9K 1% .125W F TC=0+-100 | 28480 | 0698-3228 |
| A4R17 | 0757-0465 | 6 | | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A4R18 | 0757-0465 | 6 | | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A4R19 | 0698-3450 | 9 | | RESISTOR 42.2K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-4222-F |
| A4R20 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A4R21 | 0698-3155 | 1 | | RESISTOR 4.64K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-4641-F |
| A4R22 | 0698-3155 | 1 | | RESISTOR 4.64K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-4641-F |
| A4R23 | 0698-0084 | 9 | | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2151-F |
| A4R24 | 0698-3454 | 3 | | RESISTOR 215K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2153-F |
| A4R25 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A4R26 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A4R27 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A4R28 | | | | NOT ASSIGNED | | |
| A4R29 | 0698-3449 | 6 | 2 | RESISTOR 28.7K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2872-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|----------------------------|----------------|--------|-----|------------------------------------------|----------|----------------------|
| 2427A TO 2630A A4R30-37 | | | | NOT ASSIGNED | | |
| 2636A AND ABOVE | | | | | | |
| A4R30 | 0757-0394 | 0 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 24546 | C4-1/8-TO-51R1-F |
| A4R31 | 0757-0346 | 2 | | RESISTOR 10 1% .125W F TC=0+-100 | 24546 | C4-1/8-TO-10RO-F |
| A4R32 | 0757-0346 | 2 | | RESISTOR 10 1% .125W F TC=0+-100 | 24546 | C4-1/8-TO-10RO-F |
| A4R33 | 0698-3443 | 9 | | RESISTOR 2.26K .25% .5W F TC=0+-100 | 28480 | 0698-3443 |
| A4R34 | 0757-0458 | 7 | | RESISTOR 51.1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-TO-5112-F |
| A4R35 | 0757-0394 | 0 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 24546 | C4-1/8-TO-51R1-F |
| A4R36 | 0757-0346 | 2 | | RESISTOR 10 1% .125W F TC=0+-100 | 24546 | C4-1/8-TO-10RO-F |
| A4R37 | 0757-0346 | 2 | | RESISTOR 10 1% .125W F TC=0+-100 | 24546 | C4-1/8-TO-10RO-F |
| A4S1 | 3101-2751 | 1 | | SWITCH-RKR DIP-RKR-ASSY 2-1A .015A 24VDC | 28480 | 3101-2751 |
| A4TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A4TP2 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A4TP3 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A4U1 | 1820-2889 | 8 | 1 | IC GATE TTL ALS AND TPL 3-INP | 28480 | 1820-2889 |
| A4U2 | 1820-2053 | 8 | 1 | IC OADR TTL LS BCD 4-TO-16-LINE | 18324 | 74LS154N |
| A4U3 | 1820-3100 | 8 | | IC OADR TTL ALS BIN 3-TO-8-LINE 3-INP | 28480 | 1820-3100 |
| A4U4 | 1826-0753 | 3 | 2 | IC OP AMP LOW-BIAS-H-IMPQ QUAD 14-DIP-C | 04713 | MC34004BL |
| A4U5 | 1826-1206 | 3 | 2 | D/A 10-BIT 20-DIP-C CMOS | 28480 | 1826-1206 |
| A4U6 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A4U7 | 1820-1858 | 9 | 8 | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A4U8 | 1820-3121 | 3 | 2 | IC TRANSCIEVER TTL ALS BUS OCTL | 28480 | 1820-3121 |
| A4U9 | 1820-1858 | 9 | 8 | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A4U10 | 1820-3121 | 3 | 2 | IC TRANSCIEVER TTL ALS BUS OCTL | 28480 | 1820-3121 |
| A4U11 | 1820-1858 | 9 | 8 | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A4U12 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A4U13 | 1820-1858 | 9 | 8 | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A4U14 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A4U15 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A4U16 | 1820-1858 | 9 | 8 | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A4U17 | 1820-1858 | 9 | 8 | IC FF TTL LS D-TYPE OCTL | 01295 | SN74S377N |
| A4U18 | 1820-1858 | 9 | 8 | IC FF TTL LS D-TYPE OCTL | 01295 | SN74S377N |
| A4U19 | 1820-1858 | 9 | 8 | IC FF TTL LS D-TYPE OCTL | 01295 | SN74S377N |
| A4U20 | | | | NOT ASSIGNED | | |
| A4U21 | 1820-2951 | 5 | 2 | IC DRVR TTL ALS BUS OCTL | 28480 | 1820-2951 |
| A4U22 | 1820-2951 | 5 | | IC DRVR TTL ALS BUS OCTL | 28480 | 1820-2951 |
| A4U23 | 1826-1206 | 3 | | D/A 10-BIT 20-DIP-C CMOS | 28480 | 1826-1206 |
| A4U24 | 1820-3467 | 0 | 3 | IC DRVR TTL ALS OR HEX 2-INP | 28480 | 1820-3467 |
| A4U25 | | | | NOT ASSIGNED | | |
| A4U26 | | | | NOT ASSIGNED | | |
| A4U27 | 1820-3378 | 2 | 6 | IC LCH TTL ALS D-TYPE NEG-EDGE-TRIG OCTL | 28480 | 1820-3378 |
| A4U28 | 1820-3378 | 2 | | IC LCH TTL ALS D-TYPE NEG-EDGE-TRIG OCTL | 28480 | 1820-3378 |
| A4U29 | 1820-3378 | 2 | | IC LCH TTL ALS D-TYPE NEG-EDGE-TRIG OCTL | 28480 | 1820-3378 |
| A4U30 | 1820-3467 | 0 | | IC DRVR TTL ALS OR HEX 2-INP | 28480 | 1820-3467 |
| A4U31 | 1820-3378 | 2 | | IC LCH TTL ALS D-TYPE NEG-EDGE-TRIG OCTL | 28480 | 1820-3378 |
| A4U32 | 1820-3467 | 0 | | IC DRVR TTL ALS OR HEX 2-INP | 28480 | 1820-3467 |
| A4U33 | 1820-3378 | 2 | | IC LCH TTL ALS D-TYPE NEG-EDGE-TRIG OCTL | 28480 | 1820-3378 |
| A4U34 | 1820-3372 | 6 | 1 | IC GATE TTL ALS NAND 13-INP | 28480 | 1820-3372 |
| A4U35 | 1820-3378 | 2 | | IC LCH TTL ALS D-TYPE NEG-EDGE-TRIG OCTL | 28480 | 1820-3378 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|---------------------------------------|----------|-----------------|
| A4U36 | | | | NOT ASSIGNED | | |
| A4U37 | 1826-0605 | 4 | | IC MULTIPLXR 8-CHAN-ANLG 16-DIP-C PKG | 17856 | DG508BK |
| A4U38 | 1820-2488 | 3 | | IC FF TTL ALS D-TYPE POS-EDGE-TRIG | 01295 | SN74ALS74N |
| A4U39 | 1826-0605 | 4 | | IC MULTIPLXR 8-CHAN-ANLG 16-DIP-C PKG | 17856 | DG508BK |
| A4U40 | | | | NOT ASSIGNED | | |
| A4U41 | | | | NOT ASSIGNED | | |
| A4U42 | 1826-0792 | 0 | | IC COMPARATOR PRCN QUAD 16-DIP-C PKG | 34371 | HA1-4905-5 |
| A4U43 | 1826-0792 | 0 | | IC COMPARATOR PRCN QUAD 16-DIP-C PKG | 34371 | HA1-4905-5 |
| A4U44 | 1820-1440 | 5 | | IC LCH TTL LS QUAD | 01295 | SN74LS279N |
| A4U45 | 1820-1440 | 5 | | IC LCH TTL LS QUAD | 01295 | SN74LS279N |
| A4U46 | 1826-0742 | 0 | 1 | IC V RGLTR-V-REF-FXD 10V TO-5 PKG | 28480 | 1826-0742 |
| | 1200-0173 | 5 | 20 | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A4U47 | 1820-1416 | 5 | 8 | IC SCHMITT-TRIG TTL LS INV HEX 1-INP | 01295 | SN74LS14N |
| A4W1 | 08642-60077 | 5 | 1 | CABLE COAX 4 | 28480 | 08642-60077 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|-----------------|
| A5 | | | | | | |
| A5 | 08642-60126 | 5 | 1 | POWER SUPPLY/CONTROL ASSEMBLY | 28480 | 08642-60126 |
| A5J1 | 1251-8816 | 6 | 1 | CONN-POST TYPE .100-PIN-SPCG 40-CONT | 28480 | 1251-8816 |
| A5J2 | 1251-8813 | 3 | 2 | CONN-POST TYPE .100-PIN-SPCG 14-CONT | 28480 | 1251-8813 |
| A5J3 | 1251-8815 | 5 | 3 | CONN-POST TYPE .100-PIN-SPCG 26-CONT | 28480 | 1251-8815 |
| A5J4 | 1251-8814 | 4 | 3 | CONN-POST TYPE .100-PIN-SPCG 16-CONT | 28480 | 1251-8814 |
| A5J5 | 1251-8815 | 5 | | CONN-POST TYPE .100-PIN-SPCG 26-CONT | 28480 | 1251-8815 |
| A5J6 | 1251-8814 | 4 | | CONN-POST TYPE .100-PIN-SPCG 16-CONT | 28480 | 1251-8814 |
| A5J7 | 1251-8815 | 5 | | CONN-POST TYPE .100-PIN-SPCG 26-CONT | 28480 | 1251-8815 |
| A5J8 | 1251-8817 | 7 | 2 | CONN-POST TYPE .100-PIN-SPCG 34-CONT | 28480 | 1251-8817 |
| A5J9 | 1251-8817 | 7 | | CONN-POST TYPE .100-PIN-SPCG 34-CONT | 28480 | 1251-8817 |
| A5J10 | 1251-8814 | 4 | | CONN-POST TYPE .100-PIN-SPCG 16-CONT | 28480 | 1251-8814 |
| A5J11 | 1251-8812 | 2 | | CONN-POST TYPE .100-PIN-SPCG 20-CONT | 28480 | 1251-8812 |
| A5J12 | 1251-8811 | 1 | 2 | CONN-POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-8811 |
| A5J13 | 1251-8811 | 1 | | CONN-POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-8811 |
| A5J14 | 1251-7300 | 1 | 4 | CONN-POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-7300 |
| A5J15 | 1251-7300 | 1 | | CONN-POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-7300 |
| A5J16 | 1251-7300 | 1 | | CONN-POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-7300 |
| A5J17 | 1251-7300 | 1 | | CONN-POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-7300 |
| A5J18 | 08642-80014 | 2 | 2 | CONN DIST PCB | 28480 | 08642-80014 |
| A5J19 | 08642-80014 | 2 | | CONN DIST PCB | 28480 | 08642-80014 |
| A5J20 | 1251-4927 | 2 | 2 | CONNECTOR 16-PIN M POST TYPE | 28480 | 1251-4927 |
| A5J21 | 1251-4927 | 2 | | CONNECTOR 16-PIN M POST TYPE | 28480 | 1251-4927 |
| A5W1-1W131 | 7175-0057 | 5 | 131 | RESISTOR-ZERO OHMS SOLID TINNED COPPER | 28480 | 7175-0057 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|---------------------------|----------------|-----|-----|--------------------------------------------------------------------|----------|----------------------|
| A6 | | | | | | |
| A6 | 08642-60893 | 3 | 1 | FM LOOP/COUNTER/TIMEBASE MODULE | 28480 | 08642-60893 |
| A6 | 08642-69893 | 1 | 1 | FM LOOP/COUNTER/TIMEBASE MODULE (RESTORED) | 28480 | 08642-69893 |
| A6FL2 | 08642-80015 | 3 | 1 | FLTR LP 3M BKT | 28480 | 08642-80015 |
| A6MP1 | 08642-20001 | 1 | 1 | COVER FM VCO | 28480 | 08642-20001 |
| A6MP2 | 08642-40053 | 5 | 4 | GASKET FD/THRU13 | 28480 | 08642-40053 |
| A6MP3 | 08642-00087 | 1 | 7 | FOAM-DAMPING | 28480 | 08642-00087 |
| A6MP4 | 08642-20002 | 2 | 1 | BASE FM TIMEBASE | 28480 | 08642-20002 |
| A6MP5 | 08642-00061 | 1 | 1 | GASKET 11 PN FLT | 28480 | 08642-00061 |
| A6MP6 | 0515-1521 | 5 | | SCREW-MACH M3 X 0.5 5MM-LG 90-DEG-FL-HD (ATTACH FILTER TO BASE) | 28480 | 0515-1521 |
| A6MP7 | 08642-20003 | 3 | 1 | COVER FM CNTR/TB | 28480 | 08642-20003 |
| A6MP8 | 08642-40056 | 8 | 1 | GASKET FEEDTHRU6 | 28480 | 08642-40056 |
| A6MP9 | 0515-0684 | 9 | 30 | SCREW-MACH M4 X 0.7 6MM-LG PAN-HD (ATTACH BOARDS TO BASE) | 28480 | 0515-0684 |
| A6MP10 | 0515-0381 | 3 | 147 | SCREW-MACH M4 X 0.7 10MM-LG PAN-HD (ATTACH COVERS TO BASE) | 00000 | ORDER BY DESCRIPTION |
| A6MP11 | 8160-0472 | 8 | 101 | RFI ROUND STRIP BE-CU SN-PL .093-IN-OD (SPIRA SHIELD) | 28480 | 8160-0472 |
| A6MP12 | 08642-00183 | 8 | 2 | SLIDE-MODULE | 28480 | 08642-00183 |
| A6MP13 | 08642-00183 | 8 | 1 | SLIDE-MODULE | 28480 | 08642-00183 |
| A6MP14 | 0515-1102 | 8 | 43 | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH MODULE SLIDE) | 28480 | 0515-1102 |
| A6MP15 | 08642-80064 | 2 | 1 | LABEL-FM 60001 | 28480 | 08642-80064 |
| 2427A TO 2714A A6MP16 | | | | NOT ASSIGNED | | |
| 2751A AND ABOVE A6MP16 | 1400-0015 | 8 | | CLAMP-CABLE .25-DIA .375-WD STL | 28480 | 1400-0015 |
| A6W1 | 5061-4811 | 4 | 1 | CBL-COAX 94 (A6A2J4 TO A6A1J3) | 28480 | 5061-4811 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A6A1 | 08642-60101 | 6 | 1 | FM VCO ASSEMBLY | 28480 | 08642-60101 |
| A6A1C1 | | | | NOT ASSIGNED | | |
| A6A1C2 | 0180-2374 | 7 | 3 | CAPACITOR-FXD 100UF+-10% 20VDC TA | 56289 | 150D107X9020X2 |
| A6A1C3 | | | | NOT ASSIGNED | | |
| A6A1C4 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A6A1C5 | 0121-0452 | 4 | 7 | CAPACITOR-V TRMR-AIR 1.3-5.4PF 175V | 74970 | 187-0103-028 |
| A6A1C6 | 0160-6434 | 6 | 1 | CAPACITOR-FXD 5.6PF +- .5PF 100VDC CER | 28480 | 0160-6434 |
| A6A1C7 | 0160-6435 | 7 | 1 | CAPACITOR-FXD 13PF +-5% 100VDC CER | 28480 | 0160-6435 |
| A6A1C8 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A6A1C9 | | | | NOT ASSIGNED | | |
| A6A1C10 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A6A1C11 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A6A1C12 | 0160-4494 | 4 | | CAPACITOR-FXD 39PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4494 |
| A6A1C13 | 0160-4618 | 4 | 1 | CAPACITOR-FXD 3.9PF +- .25PF 200VDC CER | 28480 | 0160-4618 |
| A6A1C14 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A6A1C15 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A6A1C16 | 0160-4040 | 6 | | CAPACITOR-FXL 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A6A1C17 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A6A1C18 | 0160-4031 | 5 | 3 | CAPACITOR-FXD 330PF +-5% 100VDC CER | 28480 | 0160-4031 |
| A6A1C19 | | | | NOT ASSIGNED | | |
| A6A1C20 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A1C21 | 0160-3878 | 6 | 9 | CAPACITOR-FXD 1000PF + 20% 100VDC CER | 28480 | 0160-3878 |
| A6A1C22 | | | | NOT ASSIGNED | | |
| A6A1C23 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A1C24 | | | | NOT ASSIGNED | | |
| A6A1C25 | 0160-3878 | 6 | | CAPACITOR-FXD 1000PF +-20% 100VDC CER | 28480 | 0160-3878 |
| A6A1C26 | 0160-4897 | 1 | 1 | CAPACITOR-FXD 4.7PF +- .1PF 200VDC CER | 28480 | 0160-4897 |
| A6A1C27 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C28 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A1C29 | | | | NOT ASSIGNED | | |
| A6A1C30 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A1C31 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C32 | 0180-2683 | 1 | 3 | CAPACITOR-FXD 4.7UF+-20% 35VDC TA | 28480 | 0180-2683 |
| A6A1C33 | 0180-2683 | 1 | | CAPACITOR-FXD 4.7UF+-20% 35VDC TA | 28480 | 0180-2683 |
| A6A1C34 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A6A1C35 | | | | NOT ASSIGNED | | |
| A6A1C36 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A6A1C37 | | | | NOT ASSIGNED | | |
| A6A1C38 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C39 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C40 | | | | NOT ASSIGNED | | |
| A6A1C41 | 0160-5866 | 6 | 1 | CAPACITOR-FXD .12UF +-5% 50VDC CER 0+-30 | 28480 | 0160-5866 |
| A6A1C42 | 0160-5623 | 3 | 1 | CAPACITOR-FXD .082UF +-2% 50VDC | 28480 | 0160-5623 |
| A6A1C43 | 0160-5622 | 2 | 1 | CAPACITOR-FXD 1.25UF +-2% 50VDC | 28480 | 0160-5622 |
| A6A1C44 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C45 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C46 | 0160-5867 | 7 | 1 | CAPACITOR-FXD .047UF +-5% 50VDC CER | 28480 | 0160-5867 |
| A6A1C47 | 0160-3400 | 0 | 2 | CAPACITOR-FXD .01UF +-5% 200VDC | 28480 | 0160-3400 |
| A6A1C48 | 0160-3400 | 0 | | CAPACITOR-FXD .01UF +-5% 200VDC | 28480 | 0160-3400 |
| A6A1C49 | 0160-3324 | 7 | 5 | CAPACITOR-FXD 1UF +-5% 100VDC MET-POLYC | 28480 | 0160-3324 |
| A6A1C50 | 0160-0302 | 5 | 1 | CAPACITOR-FXD .018UF +-10% 200VDC POLYE | 28480 | 0160-0302 |
| A6A1C51 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A1C52 | 0160-2290 | 4 | 1 | CAPACITOR-FXD .15UF +-10% 80VDC POLYE | 28480 | 0160-2290 |
| A6A1C53 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C54 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C55 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A6A1C56 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C57 | 0160-4787 | 8 | | CAPACITOR-FXD 22PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4787 |
| A6A1C58 | 0160-4789 | 0 | 2 | CAPACITOR-FXD 15PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4789 |
| A6A1C59 | | | | NOT ASSIGNED | | |
| A6A1C60 | 0160-3501 | 2 | 1 | CAPACITOR-FXD 4UF +-10% 50VDC MET-POLYC | 28480 | 0160-3501 |
| A6A1C61 | 0160-3324 | 7 | | CAPACITOR-FXD 1UF +-5% 100VDC MET-POLYC | 28480 | 0160-3324 |
| A6A1C62 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A1C63 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C64 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C65 | 0160-4789 | 0 | | CAPACITOR-FXD 15PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4789 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|----------------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A6A1C66 | 0160-4805 | 1 | 1 | CAPACITOR-FXD 47PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4805 |
| A6A1C67 | | | | NOT ASSIGNED | | |
| A6A1C68 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C69 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C70 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C71 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C72 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A1C73 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A1C74 | 0160-3878 | 6 | | CAPACITOR-FXD 1000PF +-20% 100VDC CER | 28480 | 0160-3878 |
| A6A1C75 | 0160-4822 | 2 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4822 |
| A6A1C76 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A1C77 | 0180-2618 | 2 | 12 | CAPACITOR-FXD 33UF+-10% 10VDC TA | 25088 | D33GS1B10K |
| A6A1C78 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A1C79 | 0180-2661 | 5 | 4 | CAPACITOR-FXD 1UF+-10% 50VDC TA | 25088 | D1R0GS1A50K |
| A6A1C80 | 0160-3324 | 7 | | CAPACITOR-FXD 1UF +-5% 100VDC MET-POLYC | 28480 | 0160-3324 |
| A6A1C81 | | | | NOT ASSIGNED | | |
| A6A1C82 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A1C83 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A1C84 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A1C85 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A1C86 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A1C87 | 0180-2618 | 2 | | CAPACITOR-FXD 33UF+-10% 10VDC TA | 25088 | D33GS1B10K |
| A6A1C88 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A1C89 | 0160-4350 | 1 | | CAPACITOR-FXD 150PF +-5% 200VDC CER | 28480 | 0160-4547 |
| 2427A TO 2543A A6A1C90 | | | | NOT ASSIGNED | | |
| 2550A TO 2751A A6A1C90 | 0160-4835 | 7 | 1 | CAPACITOR-FXD .1UF +10% 50VDC CER | 28480 | 0160-4835 |
| 2824A AND ABOVE A6A1C90 | 0160-5098 | 6 | 1 | CAPACITOR-FXD .22UF +-10% 50VDC CER | 16299 | CAC05X7R22RJO50A |
| A6A1CR1 | 0122-0164 | 7 | 4 | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0164 |
| A6A1CR2 | 0122-0164 | 7 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0164 |
| A6A1CR3 | 0122-0164 | 7 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0164 |
| A6A1CR4 | 0122-0164 | 7 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0164 |
| A6A1CR5-CR7 | | | | NOT ASSIGNED | | |
| A6A1CR8 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A6A1CR9 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A6A1CR10 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A6A1E1 | 9170-0029 | 3 | 11 | CORE-SHIELDING BEAD | 28480 | 9170-0029 |
| A6A1FL1 | 9135-0214 | 4 | 102 | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1FL2 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1FL3 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1FL4 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1FL5 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1FL6 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1FL7 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1FL8 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1FL9 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1FL10 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1FL11 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1FL12 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1FL13 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A1J1 | 1251-8248 | 8 | 3 | CONN-POST TYPE .100-PIN-SPCG 26-CONT | 28480 | 1251-8248 |
| | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A6A1J2 | 1250-2090 | 4 | 47 | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTM CONN SMC | 28480 | 08642-20081 |
| A6A1J3 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTM CONN SMC | 28480 | 08642-20081 |
| A6A1J4 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTM CONN SMC | 28480 | 08642-20081 |
| A6A1J5 | 1251-5621 | 5 | 2 | CONNECTOR 12-PIN F POST TYPE | 28480 | 1251-5621 |
| A6A1K1 | | | | NOT ASSIGNED | | |
| A6A1K2 | 0490-0916 | 6 | | RELAY-REED 1A 500MA 100VDC 5VDC-COIL | 28480 | 0490-0916 |
| A6A1K3 | 0490-1423 | 2 | 1 | RELAY-REED 1C 250MA 28VDC 5VDC-COIL 3VA | 28480 | 0490-1423 |
| A6A1L1 | 9140-1087 | 2 | 99 | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A1L2 | 08642-80006 | 2 | 1 | INDUCTOR AY 45NH | 28480 | 08642-80006 |
| A6A1L3 | 9140-0096 | 1 | 1 | INDUCTOR RF-CH-MLD 1UH 10% .166DX.385LG | 28480 | 9140-0096 |
| A6A1L4 | 9100-2250 | 9 | 2 | INDUCTOR RF-CH-MLD 180NH 10% .105DX.26LG | 28480 | 9100-2250 |
| A6A1L5 | | | | NOT ASSIGNED | | |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|-------------------------------------------|----------|-------------------|
| A6A1L6 | | | | NOT ASSIGNED | | |
| A6A1L7 | 9100-1627 | 2 | 2 | INDUCTOR RF-CH-MLD 39UH 5% .166DX.385LG | 28480 | 9100-1627 |
| A6A1L8 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A1L9 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A1L10 | 9100-2250 | 9 | | INDUCTOR RF-CH-MLD 150NH 10% .105DX.26LG | 28480 | 9100-2250 |
| A6A1MP1 | 0410-1507 | 5 | 1 | COMPONENT-CRYSTAL COMPONENT OVEN, SET | 28480 | 0410-1507 |
| A6A1MP2 | 0340-0840 | 8 | | INSULATOR SLBL-LAC-CMPD | 28480 | 0340-0840 |
| A6A1Q1 | 1854-0810 | 2 | 13 | TRANSISTOR NPN SI PD=625MW FT=200MHZ | 28480 | 1854-0810 |
| A6A1Q2 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A6A1Q3 | 1855-0235 | 7 | 14 | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A6A1Q4 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A6A1Q5 | | | | NOT ASSIGNED | | |
| A6A1Q6 | 1854-0345 | 8 | 10 | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713 | 2N5179 |
| A6A1Q7 | 1854-0345 | 8 | | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713 | 2N5179 |
| A6A1Q8 | | | | NOT ASSIGNED | | |
| A6A1Q9 | 1855-0420 | 2 | 6 | TRANSISTOR J-FET 2N4391 N-CHAN D-MODE | 01295 | 2N4391 |
| A6A1Q10 | 1854-0813 | 5 | 7 | TRANSISTOR NPN 2N3501S SI TO-39 PD=1W | 28480 | 1854-0813 |
| A6A1Q11 | 1854-0474 | 4 | 5 | TRANSISTOR NPN SI PD=310MW FT=100MHZ | 04713 | 2N5551 |
| A6A1Q12 | 1854-0474 | 4 | | TRANSISTOR NPN SI PD=310MW FT=100MHZ | 04713 | 2N5551 |
| A6A1Q13 | 1854-0813 | 5 | | TRANSISTOR NPN 2N3501S SI TO-39 PD=1W | 28480 | 1854-0813 |
| A6A1Q14 | | | | NOT SEPARATELY REPLACEABLE P/O FM FET KIT | | |
| A6A1Q15 | 1200-0172 | 4 | 1 | INSULATOR-XSTR DAP-GL | 28480 | 1200-0172 |
| | 1853-0405 | 9 | 4 | TRANSISTOR PNP SI PD=300MW FT=850MHZ | 04713 | 2N4209 |
| A6A1R1 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A6A1R2 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A6A1R3 | 0698-7273 | 2 | 2 | RESISTOR 34.8K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3482-F |
| A6A1R4 | 0757-0338 | 2 | 2 | RESISTOR 30.1 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-30R1-F |
| A6A1R5 | 0757-0338 | 2 | 2 | RESISTOR 30.1 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-30R1-F |
| A6A1R6 | 0698-7224 | 3 | 6 | RESISTOR 316 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-316R-F |
| A6A1R7 | 0698-7224 | 3 | | RESISTOR 316 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-316R-F |
| A6A1R8 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A6A1R9 | | | | NOT ASSIGNED | | |
| A6A1R10 | 0698-0084 | 9 | | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2151-F |
| A6A1R11 | 0698-3404 | 3 | 1 | RESISTOR 383 1% .5W F TC=0+-100 | 28480 | 0698-3404 |
| A6A1R12 | | | | NOT ASSIGNED | | |
| A6A1R13 | 0698-7213 | 0 | 3 | RESISTOR 110 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-110R-F |
| A6A1R14 | | | | NOT ASSIGNED | | |
| A6A1R15 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A6A1R16 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A6A1R17 | 0698-7208 | 3 | 4 | RESISTOR 68.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-68R1-F |
| A6A1R18 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A6A1R19 | | | | NOT ASSIGNED | | |
| A6A1R20 | 0757-0419 | 0 | 20 | RESISTOR 681 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-681R-F |
| A6A1R21 | 0757-0416 | 7 | 8 | RESISTOR 511 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-511R-F |
| A6A1R22 | | | | NOT ASSIGNED | | |
| A6A1R23 | 0698-7245 | 8 | | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A6A1R24 | 0698-7229 | 8 | 23 | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A6A1R25 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A6A1R26 | 0698-7250 | 5 | 14 | RESISTOR 3.83K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3831-F |
| A6A1R27 | 0698-7277 | 6 | 6 | RESISTOR 51.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5112-F |
| A6A1R28 | 0698-7277 | 6 | | RESISTOR 51.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5112-F |
| A6A1R29 | 0698-7246 | 9 | | RESISTOR 2.61K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2611-F |
| A6A1R30 | 0698-7233 | 4 | 3 | RESISTOR 750 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-750R-F |
| A6A1R31 | 0698-7245 | 8 | | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A6A1R32 | 0757-0293 | 8 | 2 | RESISTOR 1.96K 1% .125W F TC=0+-25 | 19701 | MF4C1/8-T9-1961-F |
| A6A1R33 | | | | NOT ASSIGNED | | |
| A6A1R34 | 0757-0293 | 8 | | RESISTOR 1.96K 1% .125W F TC=0+-25 | 19701 | MF4C1/8-T9-1961-F |
| A6A1R35 | 0698-8638 | 5 | 1 | RESISTOR 3.16K .1% .125W F TC=0+-25 | 28480 | 0698-8638 |
| A6A1R36 | 2100-3154 | 7 | 1 | RESISTOR-TRMR 1K 10% C SIDE-ADJ 17-TRN | 02111 | 43P102 |
| A6A1R37 | | | | NOT ASSIGNED | | |
| A6A1R38 | 0698-3960 | 6 | 1 | RESISTOR 1.1M 1% .125W F TC=0+-100 | 28480 | 0698-3960 |
| A6A1R39 | 0698-8959 | 3 | 2 | RESISTOR 619K 1% .125W F TC=0+-100 | 28480 | 0698-8959 |
| A6A1R40 | 0698-8959 | 3 | | RESISTOR 619K 1% .125W F TC=0+-100 | 28480 | 0698-8959 |
| A6A1R41 | 0698-7280 | 1 | 8 | RESISTOR 68.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6812-F |
| A6A1R42 | 0698-7283 | 4 | 2 | RESISTOR 90.9K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-9092-F |
| A6A1R43 | 0698-8615 | 8 | 4 | RESISTOR 75K 1% .05W F TC=0+-100 | 28480 | 0698-8615 |
| A6A1R44 | | | | NOT ASSIGNED | | |
| A6A1R45 | 0698-3453 | 2 | | RESISTOR 196K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1963-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|-------------------------------------------|----------|----------------------|
| A6A1R46 | 0757-0398 | 4 | 1 | RESISTOR 75 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-75R0-F |
| A6A1R47 | 0757-0416 | 7 | | RESISTOR 511 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-511R-F |
| A6A1R48 | 0698-3154 | 0 | 2 | RESISTOR 4.22K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-4221-F |
| A6A1R49 | 2100-3122 | 9 | 1 | RESISTOR-TRMR 100 10% C SIDE-ADJ 17-TRN | 02111 | 43P101 |
| A6A1R50 | 0698-6481 | 2 | 4 | RESISTOR 16.2K 1% .125W F TC=0+-25 | 28480 | 0698-6481 |
| A6A1R51 | 0698-6481 | 2 | | RESISTOR 16.2K 1% .125W F TC=0+-25 | 28480 | 0698-6481 |
| A6A1R52 | 0698-6481 | 2 | | RESISTOR 16.2K 1% .125W F TC=0+-25 | 28480 | 0698-6481 |
| A6A1R53 | 0698-6481 | 2 | | RESISTOR 16.2K 1% .125W F TC=0+-25 | 28480 | 0698-6481 |
| A6A1R54 | 0698-7258 | 3 | 3 | RESISTOR 8.25K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-8251-F |
| A6A1R55 | 0698-3409 | 8 | 1 | RESISTOR 2.37K 1% .5W F TC=0+-100 | 28480 | 0698-3409 |
| A6A1R56 | 0698-3406 | 5 | 1 | RESISTOR 1.33K 1% .5W F TC=0+-100 | 28480 | 0698-3406 |
| A6A1R57 | 0698-7283 | 4 | | RESISTOR 90.9K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-9092-F |
| A6A1R58 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A6A1R59 | 0698-7288 | 9 | 2 | RESISTOR 147K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1473-F |
| A6A1R60 | 0698-7268 | 5 | 6 | RESISTOR 21.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2152-F |
| A6A1R61 | | | | NOT ASSIGNED | | |
| A6A1R62 | 0698-4443 | 2 | 1 | RESISTOR 4.53K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-4531-F |
| A6A1R63 | 0698-7265 | 2 | 2 | RESISTOR 16.2K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1622-F |
| A6A1R64 | 0698-8784 | 2 | 1 | RESISTOR 19.6K 1% .125W F TC=0+-25 | 28480 | 0698-8784 |
| A6A1R65 | 0698-6358 | 2 | 1 | RESISTOR 100K 1% .125W F TC=0+-25 | 28480 | 0698-6358 |
| A6A1R66 | 2100-3103 | 6 | 2 | RESISTOR-TRMR 10K 10% C SIDE-ADJ 17-TRN | 02111 | 43P103 |
| A6A1R67 | 0698-3150 | 6 | 3 | RESISTOR 2.37K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2371-F |
| A6A1R68 | 0757-0317 | 7 | | RESISTOR 1.33K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1331-F |
| A6A1R69 | 2100-3056 | 8 | 1 | RESISTOR-TRMR 5K 10% C SIDE-ADJ 17-TRN | 02111 | 43P502 |
| A6A1R70 | | | | NOT SEPARATELY REPLACEABLE P/O FM FET KIT | | |
| A6A1R71 | | | | NOT SEPARATELY REPLACEABLE P/O FM FET KIT | | |
| A6A1R72 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A6A1R73 | | | | NOT ASSIGNED | | |
| A6A1R74 | 2100-3103 | 6 | | RESISTOR-TRMR 10K 10% C SIDE-ADJ 17-TRN | 02111 | 43P103 |
| A6A1R75 | | | | NOT SEPARATELY REPLACEABLE P/O FM FET KIT | | |
| A6A1R76 | | | | NOT SEPARATELY REPLACEABLE P/O FM FET KIT | | |
| A6A1R77 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A6A1R78 | 0698-7255 | 0 | 4 | RESISTOR 6.19K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6191-F |
| A6A1R79 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A6A1R80 | 0757-0394 | 0 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-51R1-F |
| A6A1R81 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A6A1R82 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A6A1R83 | 0698-7284 | 5 | 15 | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A6A1R84 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A6A1R85 | 0757-0465 | 6 | | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A6A1R86 | 0757-0441 | 8 | 2 | RESISTOR 8.25K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-8251-F |
| A6A1R87 | 0757-0465 | 6 | | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A6A1R88 | 0698-3160 | 8 | | RESISTOR 31.6K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-3162-F |
| A6A1R89 | 0757-0470 | 3 | | RESISTOR 162K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1623-F |
| A6A1R90 | 0757-0403 | 2 | 1 | RESISTOR 121 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-121R-F |
| A6A1R91 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A6A1R92 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A6A1R93 | | | | NOT ASSIGNED | | |
| A6A1R94 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A6A1R95 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A6A1R96 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A6A1R97 | 0698-7238 | 9 | 9 | RESISTOR 1.21K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1211-F |
| A6A1R98 | 0698-3445 | 2 | | RESISTOR 348 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-348R-F |
| A6A1S1 | 3101-2172 | 0 | 1 | SWITCH-TGL DIP-RKR-ASSY SPDT .05A 30VDC | 28480 | 3101-2172 |
| A6A1TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A6A1TP2 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A6A1TP3 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A6A1TP4 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A6A1TP5 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A6A1TP6 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A6A1TP7 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A6A1TP8 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A6A1U1 | 1820-1112 | 8 | | IC FF TTL LS D-TYPE POS-EDGE-TRIG | 01295 | SN74LS74AN |
| A6A1U2 | 1820-1112 | 8 | | IC FF TTL LS D-TYPE POS-EDGE-TRIG | 01295 | SN74LS74AN |
| A6A1U3 | | | | NOT ASSIGNED | | |
| A6A1U4 | 1820-1197 | 9 | | IC GATE TTL LS NAND QUAD 2-INP | 01295 | SN74LS00N |
| A6A1U5 | 1820-0429 | 8 | 1 | IC V RGLTR TO-39 | 18324 | LM309H |
| A6A1U6 | 1826-0026 | 3 | 2 | IC COMPARATOR PRCN TO-99 PKG | 01295 | LM311L |
| A6A1U7 | 1826-0716 | 8 | 5 | IC OP AMP LOW-NOISE DUAL 8-DIP-C PKG | 18324 | NE5532AFE |
| A6A1U8 | 1826-1048 | 1 | | IC OP AMP PRCN 8-DIP-C PKG | 06655 | 0P-07CZ |
| A6A1U9 | 1826-0783 | 9 | 7 | IC OP AMP LOW-NOISE 8-DIP-C PKG | 52063 | XR5534ACN |
| A6A1U10 | | | | NOT ASSIGNED | | |
| A6A1U11 | 1820-0535 | 7 | 3 | IC DRVR TTL AND DUAL 2-INP | 01295 | SN75451BP |
| A6A1U12 | 1826-0920 | 6 | | ANALOG SWITCH DPDT 14 -CBRZ/SDR | 28480 | 1826-0920 |
| A6A1U13 | 1826-1049 | 2 | 1 | IC OP AMP PRCN 8-DIP-C PKG | 28480 | 1826-1049 |
| A6A1U14 | 1826-0920 | 6 | | ANALOG SWITCH DPDT 14 -CBRZ/SDR | 28480 | 1826-0920 |
| A6A1U15 | 1826-0716 | 8 | | IC OP AMP LOW-NOISE DUAL 8-DIP-C PKG | 18324 | NE5532AFE |
| A6A1U16 | 1820-1416 | 5 | | IC SCHMITT-TRIG TTL LS INV HEX 1-INP | 01295 | SN74LS14N |
| A6A1U17 | 1820-1433 | 6 | 13 | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A6A1U18 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A6A1U19 | 1820-1212 | 9 | 9 | IC FF TTL LS J-K NEG-EDGE-TRIG | 01295 | SN74LS112AN |
| A6A1U20 | 1826-0138 | 8 | 1 | IC COMPARATOR GP QUAD 14-DIP-P PKG | 01295 | LM339N |
| A6A1U21 | 1826-0920 | 6 | | ANALOG SWITCH DPDT 14 -CBRZ/SDR | 28480 | 1826-0920 |
| A6A1U22 | 1820-1547 | 3 | 1 | IC MULTIPLXR 8-CHAN-ANLG 16-DIP-C PKG | 04713 | MC14051BCL |
| A6A1U23 | 1826-0372 | 2 | 3 | IC MISC 8-DIP-P PKG | 28480 | 1826-0372 |
| A6A1VR1 | 1902-0692 | 1 | 3 | DIODE-ZNR 6.3V 1% DO-7 PD=.4W TC=+.001% | 28480 | 1902-0692 |
| | 08642-80016 | 4 | 1 | FM FET KIT | 28480 | 08642-80016 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A6A2 | 08642-60102 | 7 | 1 | COUNTER/TIMEBASE ASSEMBLY | 28480 | 08642-60102 |
| A6A2C1 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C2 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF 10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C3 | 0160-4787 | 8 | | CAPACITOR-FXD 22PF + % 100VDC CER 0+-30 | 28480 | 0160-4787 |
| A6A2C4 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C5 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A2C6 | 0180-2815 | 1 | 1 | CAPACITOR-FXD 100UF+-20% 10VDC TA | 28480 | 0180-2815 |
| A6A2C7 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C8 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C9 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A2C10 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C11 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C12 | 0160-4803 | 9 | | CAPACITOR-FXD 88PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4803 |
| A6A2C13 | 0160-4793 | 6 | 1 | CAPACITOR-FXD 6.8PF +- .5PF 100VDC CER | 28480 | 0160-4793 |
| A6A2C14 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C15 | 0121-0445 | 5 | 1 | CAPACITOR-V TRMR-CER 4.5-20PF 160V | 28480 | 0121-0445 |
| A6A2C16 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C17 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C18 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C19 | 0160-4791 | 4 | 4 | CAPACITOR-FXD 10PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4791 |
| A6A2C20 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-1% 50VDC CER | 28480 | 0160-4835 |
| A6A2C21 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A2C22 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A2C23 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A2C24 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C25 | 0160-4787 | 8 | | CAPACITOR-FXD 22PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4787 |
| A6A2C26 | 0160-4768 | 5 | 10 | CAPACITOR-FXD 470PF +-5% 100VDC CER | 28480 | 0160-4768 |
| A6A2C27 | 0160-4787 | 8 | | CAPACITOR-FXD 22PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4787 |
| A6A2C28 | 0160-4768 | 5 | | CAPACITOR-FXD 470PF +-5% 100VDC CER | 28480 | 0160-4768 |
| A6A2C29 | 0160-4787 | 8 | | CAPACITOR-FXD 22PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4787 |
| A6A2C30 | 0160-4768 | 5 | | CAPACITOR-FXD 470PF +-5% 100VDC CER | 28480 | 0160-4768 |
| A6A2C31 | 0160-4787 | 8 | | CAPACITOR-FXD 22PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4787 |
| A6A2C32 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A2C33 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A2C34 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A2C35 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C36 | 0160-4801 | 7 | 15 | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A6A2C37 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A2C38 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C39 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A2C40 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C41 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C42 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C43 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C44 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C45 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C46 | 0160-4791 | 4 | | CAPACITOR-FXD 10PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4791 |
| A6A2C47 | 0160-4574 | 1 | 2 | CAPACITOR-FXD 1000PF +-10% 100VDC CER | 28480 | 0160-4574 |
| A6A2C48 | 0160-4766 | 3 | 7 | CAPACITOR-FXD 30PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4766 |
| A6A2C49 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A6A2C50 | 0160-3878 | 6 | | CAPACITOR-FXD 1000PF +-20% 100VDC CER | 28480 | 0160-3878 |
| A6A2C51 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C52 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C53 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C54 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C55 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C56 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C57 | | | | NOT ASSIGNED | | |
| A6A2C58 | 0180-2618 | 2 | | CAPACITOR-FXD 33UF+-10% 10VDC TA | 25088 | D33GS1B10K |
| A6A2C59 | 0180-2618 | 2 | | CAPACITOR-FXD 33UF+-10% 10VDC TA | 25088 | D33GS1B10K |
| A6A2C60 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C61 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C62 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C63 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C64 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C65 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|----------------------------|----------------|-----|-----|---------------------------------------|----------|-----------------|
| A6A2C66 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C67 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C68 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C69 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C70 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C71 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C72 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C73 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C74 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C75 | 0180-2661 | 5 | | CAPACITOR-FXD 1UF+-10% 50VDC TA | 25088 | D1ROGS1A50K |
| A6A2C76 | 0160-4030 | 4 | | CAPACITOR-FXD 820PF +-5% 100VDC CER | 28480 | 0160-4030 |
| A6A2C77 | 0160-4030 | 4 | | CAPACITOR-FXD 820PF +-5% 100VDC CER | 28480 | 0160-4030 |
| A6A2C78 | 0160-4030 | 4 | | CAPACITOR-FXD 820PF +-5% 100VDC CER | 28480 | 0160-4030 |
| A6A2C79 | 0160-3878 | 6 | | CAPACITOR-FXD 1000PF +-20% 100VDC CER | 28480 | 0160-3878 |
| A6A2C80 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A2C81 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A2C82 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A6A2C83 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A6A2C84 | 0180-0116 | 1 | | CAPACITOR-FXD 6.8UF+-10% 35VDC TA | 56289 | 150D685X9035B2 |
| A6A2C85 | 0160-4822 | 9 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4822 |
| A6A2C86 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A2C87 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A6A2C88 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A6A2C89 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A6A2C90 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A2C91 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A2C92 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C93 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A6A2C94 | 0180-2661 | 5 | | CAPACITOR-FXD 1UF+-10% 50VDC TA | 25088 | D1ROGS1A50K |
| A6A2C95 | 0180-2618 | 2 | | CAPACITOR-FXD 33UF+-10% 10VDC TA | 25088 | D33GS1B10K |
| A6A2C96 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A6A2C97 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A6A2C98 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2427A TO 2701A A6A2C99 | | | | NOT ASSIGNED | | |
| 2714A AND ABOVE A6A2C99 | 0160-5939 | 4 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-5939 |
| A6A2CR1 | 1901-0539 | 3 | 12 | DIODE-SCHOTTKY SM SIG | 28480 | 1901-0539 |
| A6A2CR2 | 1906-0098 | 9 | | DIODE-MATCHED 1V | 28480 | 1906-0098 |
| A6A2CR3 | 1906-0098 | 9 | | DIODE-MATCHED 1V | 28480 | 1906-0098 |
| A6A2CR4 | 1906-0098 | 9 | | DIODE-MATCHED 1V | 28480 | 1906-0098 |
| A6A2CR5 | 1906-0098 | 9 | | DIODE-MATCHED 1V | 28480 | 1906-0098 |
| A6A2CR6 | 1901-0028 | 5 | 12 | DIODE-PWR RECT 400V 750MA DO-29 | 28480 | 1901-0028 |
| A6A2CR7 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A6A2CR8 | 0122-0161 | 4 | | DIODE-VVC 2.15PF 7% BVR=30V | 28480 | 0122-0161 |
| A6A2CR9 | 1901-0028 | 5 | | DIODE-PWR RECT 400V 750MA DO-29 | 28480 | 1901-0028 |
| A6A2CR10 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A6A2CR11 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A6A2FL1 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A2FL2 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A2FL3 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A2FL4 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A2FL5 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A2FL6 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A6A2J1 | 1251-8823 | 5 | 2 | CONN-POST TYPE .100-PIN-SPCG 14-CONT | 28480 | 1251-8823 |
| | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A6A2J2 | 1251-5621 | 5 | | CONNECTOR 12-PIN F POST TYPE | 28480 | 1251-5621 |
| A6A2J3 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTM CONN SMC | 28480 | 08642-20081 |
| A6A2J4 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTM CONN SMC | 28480 | 08642-20081 |
| A6A2J5 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTM CONN SMC | 28480 | 08642-20081 |
| A6A2J6 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTM CONN SMC | 28480 | 08642-20081 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|---------------------------------------------------------|----------------|-----|------------------|------------------------------------------|--------------|---------------------|
| A6A2J7 | 1250-2090 | 4 | 5 | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A6A2J8 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20078 | 2 | | ELSTMR CON SMC D | 28480 | 08642-20078 |
| A6A2J9 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20078 | 2 | ELSTMR CON SMC D | 28480 | 08642-20078 | |
| A6A2L1 | 9100-3919 | 9 | 1 | INDUCTOR RF-CH-MLD 130NH 5% .166DX.385LG | 28480 | 9100-3919 |
| A6A2L2 | 9135-0069 | 7 | 1 | INDUCTOR RF-CH-MLD 30NH 5% .102DX.26LG | 28480 | 9135-0069 |
| A6A2L3 | 9100-2261 | 2 | 1 | INDUCTOR RF-CH-MLD 2.7UH 10% .105DX.26LG | 28480 | 9100-2261 |
| A6A2L4 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A2L5 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A2L6 | 9140-1087 | 2 | 6 | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A2L7 | 9100-2256 | 5 | | INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG | 28480 | 9100-2256 |
| A6A2L8 | 9100-2256 | 5 | | INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG | 28480 | 9100-2256 |
| A6A2L9 | 9100-2256 | 5 | | INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG | 28480 | 9100-2256 |
| A6A2L10 | 9100-2256 | 5 | | INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG | 28480 | 9100-2256 |
| A6A2L11 | 9140-0302 | 2 | 1 | INDUCTOR RF-CH-MLD 21.9UH 2% | 28480 | 9140-0302 |
| A6A2L12 | 9140-1087 | 2 | 27 | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A2L13 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| 2427A TO 2550A A6A2L14 2701A AND ABOVE A6A2L14 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| | | | | NOT ASSIGNED | | |
| A6A2L15 | 9140-0142 | 8 | 3 | INDUCTOR RF-CH-MLD 2.2UH 10% .105DX.26LG | 28480 | 9140-0142 |
| A6A2L16 | 9100-2817 | 4 | 1 | INDUCTOR RF-CH-MLD 100NH 5% .105DX.26LG | 28480 | 9100-2817 |
| 2427A TO 2550A A6A2L17 2701A AND ABOVE A6A2L17 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| | | | | NOT ASSIGNED | | |
| A6A2L18 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A2L19 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A2L20 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A2L21 | 9100-1620 | 5 | 6 | INDUCTOR RF-CH-MLD 15UH 10% .166DX.385LG | 28480 | 9100-1620 |
| A6A2L22 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A2L23 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A2L24 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A2L25 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A2L26 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A6A2MP1 | 0340-0840 | 8 | | INSULATOR SLBL-LAC-CMPD | 28480 | 0340-0840 |
| A6A2Q1 | 1853-0459 | 3 | 4 | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A6A2Q2 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625MW FT=200MHZ | 28480 | 1854-0810 |
| A6A2Q3 | 1853-0430 | 0 | | TRANSISTOR PNP 2N4959 SI TO-72 PD=200MW | 04713 | 2N4959 |
| A6A2Q4 | 1853-0430 | 0 | | TRANSISTOR PNP 2N4959 SI TO-72 PD=200MW | 04713 | 2N4959 |
| A6A2Q5 | 1854-0345 | 8 | | TRANSISTOR NPN 2N5179 SI TO-72 PD=300MW | 04713 | 2N5179 |
| A6A2Q6 | 1853-0430 | 0 | | TRANSISTOR PNP 2N4959 SI TO-72 PD=200MW | 04713 | 2N4959 |
| A6A2Q7 | 1853-0430 | 0 | | TRANSISTOR PNP 2N4959 SI TO-72 PD=200MW | 04713 | 2N4959 |
| A6A2Q8 | 1854-0811 | 3 | 1 | TRANSISTOR NPN SI PD=625MW FT=100MHZ | 28480 | 1854-0811 |
| A6A2R1 | 0757-0467 | 8 | 1 | RESISTOR 121K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1213-F |
| A6A2R2 | 0757-0198 | 2 | 1 | RESISTOR 100 1% .5W F TC=0+-100 | 28480 | 0757-0198 |
| A6A2R3 | 0757-0465 | 6 | | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A6A2R4 | 0698-3429 | 2 | 1 | RESISTOR 19.6 1% .125W F TC=0+-100 | 03888 | PME55-1/8-T0-19R6-F |
| A6A2R5 | 0698-3452 | 1 | | RESISTOR 147K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1473-F |
| A6A2R6 | 0698-3162 | 0 | 1 | RESISTOR 46.4K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-4642-F |
| A6A2R7 | 0757-0405 | 4 | 2 | RESISTOR 162 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-162R-F |
| A6A2R8 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A6A2R9 | 0757-0428 | 1 | 3 | RESISTOR 1.62K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1621-F |
| A6A2R10 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A6A2R11 | 2100-3970 | 5 | 1 | RESISTOR-TRMR 20K 10% C SIDE-ADJ 25-TRN | 28480 | 2100-3970 |
| A6A2R12 | 0757-0465 | 6 | | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A6A2R13 | 0757-0438 | 3 | | RESISTOR 5.11K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-5111-F |
| A6A2R14 | 0757-0465 | 6 | | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A6A2R15 | 0698-0083 | 8 | 2 | RESISTOR 1.96K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1961-F |
| A6A2R16 | 0757-0280 | 3 | 14 | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A6A2R17 | 0698-3451 | 0 | | RESISTOR 133K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1333-F |
| A6A2R18 | 0698-3447 | 4 | | RESISTOR 422 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-422R-F |
| A6A2R19 | 0757-0438 | 3 | | RESISTOR 5.11K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-5111-F |
| A6A2R20 | | | | | NOT ASSIGNED | |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|----------------------------|----------------|-----|-----|-------------------------------------|----------|-------------------------|
| A6A2R21 | 0757-0394 | 0 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-51R1-F |
| A6A2R22 | | | | NOT ASSIGNED | | |
| A6A2R23 | 0698-3152 | 8 | 2 | RESISTOR 3.48K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-3481-F |
| A6A2R24 | 0757-0394 | 0 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-51R1-F |
| A6A2R25 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A6A2R26-R31 | | | | NOT ASSIGNED | | |
| A6A2R32 | 0757-0394 | 0 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-51R1-F |
| A6A2R33 | 0757-1094 | 9 | 2 | RESISTOR 1.47K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1471-F |
| A6A2R34 | 0757-0290 | 5 | 1 | RESISTOR 6.19K 1% .125W F TC=0+-100 | 19701 | MF4C1/8-T0-6191-F |
| A6A2R35 | 0757-0438 | 3 | | RESISTOR 5.11K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-5111-F |
| A6A2R36 | 0757-0278 | 9 | | RESISTOR 1.78K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1781-F |
| A6A2R37 | 0757-0421 | 4 | 3 | RESISTOR 825 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-825R-F |
| A6A2R38 | 0698-3438 | 3 | 3 | RESISTOR 147 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-147R-F |
| A6A2R39 | | | | NOT ASSIGNED | | |
| A6A2R40 | 0757-0438 | 3 | | RESISTOR 5.11K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-5111-F |
| A6A2R41 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A6A2R42 | 0757-0279 | 0 | 3 | RESISTOR 3.16K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-3161-F |
| A6A2R43 | 0698-3154 | 0 | | RESISTOR 4.22K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-4221-F |
| A6A2R44 | 0698-7219 | 6 | 5 | RESISTOR 196 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-196R-F |
| A6A2R45 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A6A2R46 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A6A2R47-R49 | | | | NOT ASSIGNED | | |
| A6A2R50 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A6A2R51 | 0698-7240 | 3 | 4 | RESISTOR 1.47K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1471-F |
| A6A2R52 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A6A2R53 | 0698-7224 | 3 | | RESISTOR 316 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-316R-F |
| A6A2R54 | 0698-7212 | 9 | 27 | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A6A2R55 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A6A2R56 | 0698-7259 | 4 | 5 | RESISTOR 9.09K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-9091-F |
| A6A2R57 | 0698-7259 | 4 | | RESISTOR 9.09K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-9091-F |
| A6A2R58 | 0698-7259 | 4 | | RESISTOR 9.09K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-9091-F |
| A6A2R59 | 0698-7207 | 2 | 1 | RESISTOR 61.9 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-61R9-F |
| A6A2R60 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A6A2R61 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A6A2R62 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A6A2R63 | 0698-7205 | 0 | 49 | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A6A2R64 | 0698-7239 | 0 | 4 | RESISTOR 1.33K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1331-F |
| A6A2R65 | 0698-7239 | 0 | | RESISTOR 1.33K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1331-F |
| A6A2R66 | 0698-7203 | 8 | 10 | RESISTOR 42.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-42R2-F |
| A6A2R67 | 0698-7264 | 1 | 7 | RESISTOR 14.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1472-F |
| A6A2R68 | 0698-7212 | 2 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0 100R-F-100R-F |
| 2427A TO 2550A A6A2R69 | | | | NOT ASSIGNED | | |
| 2701A AND ABOVE A6A2R69 | 0698-7220 | 9 | | RESISTOR 215 1% .05W F TC=0+-100 | 24546 | C4-1/8-T0-215R-F |
| 2427A TO 2550A A6A2R70 | | | | NOT ASSIGNED | | |
| 2701A AND ABOVE A6A2R70 | 0698-7220 | 9 | | RESISTOR 215 1% .05W F TC=0+-100 | 24546 | C4-1/8-T0-215R-F |
| A6A2T1 | 08642-60029 | 7 | 1 | RF TRANSFORMER | 28480 | 08642-60029 |
| A6A2T2 | 08662-80013 | 5 | 1 | TRANSFORMER 12T | 28480 | 08662-80013 |
| A6A2TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A6A2TP2 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A6A2U1 | 1820-2691 | 0 | 6 | IC FF TTL F D-TYPE POS-EDGE-TRIG | 07263 | 74F74PC |
| A6A2U2 | 1820-3353 | 3 | 1 | IC CNTR TTL ALS BIN UP/DOWN SYNCHRO | 28480 | 1820-3353 |
| A6A2U3 | 1820-1225 | 4 | 1 | IC FF ECL D-M/S DUAL | 04713 | MC10231P |
| A6A2U4 | 1820-1052 | 5 | 3 | IC XLTR ECL ECL-TO-TTL QUAD 2-INP | 04713 | MC10125L |
| A6A2U5 | 1820-1278 | 7 | 1 | IC CNTR TTL LS BIN UP/DOWN SYNCHRO | 01295 | SN74LS191N |
| A6A2U6 | 1820-2506 | 6 | 2 | IC INV TTL F HEX | 07263 | 74F04PC |
| A6A2U7 | 1820-1201 | 6 | 1 | IC GATE TTL LS AND QUAD 2-INP | 01295 | SN74LS08N |
| A6A2U8 | 1820-1112 | 8 | | IC FF TTL LS D-TYPE POS-EDGE-TRIG | 01295 | SN74LS74AN |
| A6A2U9 | 1820-1208 | 3 | 1 | IC GATE TTL LS OR QUAD 2-INP | 01295 | SN74LS32N |
| A6A2U10 | 1820-1437 | 0 | 7 | IC MV TTL LS MONOSTBL DUAL | 01295 | SN74LS221N |
| A6A2U11 | 1820-1437 | 0 | | IC MV TTL LS MONOSTBL DUAL | 01295 | SN74LS221N |
| A6A2U12 | 1820-2935 | 5 | 1 | IC PRESCR ECL | 28480 | 1820-2935 |
| A6A2U13 | 1820-1991 | 1 | 3 | IC CNTR TTL LS DECD DUAL 4-BIT | 01295 | SN74LS390N |
| A6A2U14 | 1820-2691 | 0 | | IC FF TTL F D-TYPE POS-EDGE-TRIG | 07263 | 74F74PC |
| A6A2U15 | 1826-0210 | 7 | | IC COMPARTOR HS 14-DIP-P PKG | 27014 | LM361N |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|-----------------------------------------|----------|-----------------|
| A6A2U16 | 1820-1197 | 9 | 2 | IC GATE TTL LS NAND QUAD 2-INP | 01295 | SN74LS00N |
| A6A2U17 | 1820-1251 | 6 | | IC CNTR TTL LS DECD ASYNCHRO | 01295 | SN74LS196N |
| A6A2U18 | 1820-1197 | 9 | | IC GATE TTL LS NAND QUAD 2-INP | 01295 | SN74LS00N |
| A6A2U19 | 1820-1197 | 9 | | IC GATE TTL LS NAND QUAD 2-INP | 01295 | SN74LS00N |
| A6A2U20 | 1820-1197 | 9 | | IC GATE TTL LS NAND QUAD 2-INP | 01295 | SN74LS00N |
| A6A2U21 | 1820-2684 | 1 | 2 | IC GATE TTL F NAND QUAD 2-INP | 07263 | 74F00PC |
| A6A2U22 | 1820-1991 | 1 | | IC CNTR TTL LS DECD DUAL 4-BIT | 01295 | SN74LS390N |
| A6A2U23 | 1820-1193 | 5 | | IC CNTR TTL LS BIN ASYNCHRO | 01295 | SN74LS197N |
| A6A2U24 | 1820-1975 | 1 | | IC SHF-RGTR TTL LS NEG-EDGE-TRIG PRL-IN | 01295 | SN74LS165N |
| A6A2U25 | 1820-1975 | 1 | | IC SHF-RGTR TTL LS NEG-EDGE-TRIG PRL-IN | 01295 | SN74LS165N |
| A6A2U26 | 1820-1975 | 1 | 1 | IC SHF-RGTR TTL LS NEG-EDGE-TRIG PRL-IN | 01295 | SN74LS165N |
| A6A2U27 | 1820-0765 | 5 | | IC CNTR TTL BIN ASYNCHRO NEG-EDGE-TRIG | 01295 | SN74197N |
| A6A2U28 | 1820-2096 | 9 | | IC CNTR TTL LS BIN DUAL 4-BIT | 01295 | SN74LS393N |
| A6A2U29 | 1820-2096 | 9 | | IC CNTR TTL LS BIN DUAL 4-BIT | 01295 | SN74LS393N |
| A6A2U30 | 1826-0606 | 5 | | IC SWITCH ANLG QUAD 16-DIP-C PKG | 17856 | DG201BK |
| A6A2U31 | 1826-0753 | 3 | 1 | IC OP AMP LOW-BIAS-H-IMPQ QUAD 14-DIP-C | 04713 | MC34004BL |
| A6A2U32 | 1820-1991 | 1 | | IC CNTR TTL LS DECD DUAL 4-BIT | 01295 | SN74LS390N |
| A6A2U33 | 1820-0681 | 4 | | IC GATE TTL S NAND QUAD 2-INP | 01295 | SN74S00N |
| A6A2U34 | 1820-1052 | 5 | | IC XLTR ECL ECL-TO-TTL QUAD 2-INP | 04713 | MC10125L |
| A6A2U35 | 1820-1423 | 4 | | IC MV TTL LS MONOSTBL RETRIG DUAL | 01295 | SN74LS123N |
| A6A2U36 | 1820-1416 | 5 | 1 | IC SCHMITT-TRIG TTL LS INV HEX 1-INP | 01295 | SN74LS14N |
| A6A2Y1 | 0410-1568 | 8 | 1 | XTAL 44.996 MHZ | 28480 | 0410-1568 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|--------------------------------------------------------------------|----------|----------------------|
| A7 | | | | | | |
| A7 | 08642-60894 | 4 | 1 | SAWR LOOP MODULE | 28480 | 08642-60894 |
| A7 | 08643-69894 | 2 | 1 | SAWR LOOP MODULE (RESTORED) | 28480 | 08642-69894 |
| A7MP2 | 08642-40055 | 7 | 4 | GASKET FEEDTHRU5 | 28480 | 08642-40055 |
| A7MP3 | 08642-40059 | 1 | 2 | GASKET FEEDTHRU9 | 28480 | 08642-40059 |
| A7MP4 | 08642-00121 | 4 | 1 | FOAM-COND SAWR GD | 28480 | 08642-00121 |
| A7MP5 | 08642-20005 | 5 | 1 | BASE SAWR PLL | 28480 | 08642-20005 |
| A7MP6 | 0515-0684 | 9 | | SCREW-MACH M4 X 0.7 6MM-LG PAN-HD (ATTACH BOARDS TO BASE) | 28480 | 0515-0684 |
| A7MP7 | 0515-0381 | 3 | | SCREW-MACH M4 X 0.7 10MM-LG PAN-HD (ATTACH COVER TO BASE) | 00000 | ORDER BY DESCRIPTION |
| A7MP8 | 8160-0472 | 8 | | RFI ROUND STRIP BE-CU SN-PL .093-IN-OD (SPIRA SHIELD) | 28480 | 8160-0472 |
| A7MP9 | 08642-00056 | 4 | 1 | SLIDE-MODULE F2 (FRONT) | 28480 | 08642-00056 |
| A7MP10 | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH A7MP9 TO BASE) | 28480 | 0515-1102 |
| A7MP11 | 08642-00055 | 3 | 2 | SLIDE-MODUL IR23 (REAR, BOTTOM) | 28480 | 08642-00055 |
| A7MP12 | 08642-00057 | 5 | 2 | SLIDE-MODUL OR23 (REAR, TOP) | 28480 | 08642-00057 |
| A7MP13 | 0515-1103 | 9 | 6 | SCREW-MACH M3 X 0.5 10MM-LG (ATTACH A7MP11, A7MP12 TO BASE) | 28480 | 0515-1103 |
| A7MP14 | 08642-80065 | 3 | 1 | LABEL-SAW 60002 | 28480 | 08642-80065 |
| A7MP1 | 08642-20004 | 4 | 1 | COVER SAWR LOOP | 28480 | 08642-20004 |

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| 2427A TO 2512A A7A1 | 08642-60103 | 8 | 1 | SAWR LOOP ASSEMBLY | 28480 | 08642-60103 |
| 2513A AND ABOVE A7A1 | 08642-60203 | 9 | 1 | SAWR LOOP ASSEMBLY | 28480 | 08642-60203 |
| A7A1C1 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A7A1C2 | | | | NOT ASSIGNED | | |
| A7A1C3 | 0160-4522 | 9 | 2 | CAPACITOR-FXD 13PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4522 |
| A7A1C4 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A7A1C5 | 0160-0571 | 0 | 12 | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |
| A7A1C6 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A7A1C7 | 0160-0571 | 0 | | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |
| A7A1C8 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A7A1C9 | 0160-0571 | 0 | | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |
| A7A1C10 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A7A1C11 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A7A1C12 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A7A1C13 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A7A1C14 | 0160-2946 | 7 | 1 | CAPACITOR-FXD 120PF +-1% 500VDC MICA | 28480 | 0160-2946 |
| A7A1C15 | 0160-0571 | 0 | | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |
| A7A1C16 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A7A1C17 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A7A1C18 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A7A1C19 | 0160-3875 | 3 | 10 | CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30 | 28480 | 0160-3875 |
| A7A1C20 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A7A1C21 | 0160-4833 | 5 | 2 | CAPACITOR-FXD .022UF +-10% 100VDC CER | 28480 | 0160-4833 |
| A7A1C22 | 0160-3875 | 3 | | CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30 | 28480 | 0160-3875 |
| A7A1C23 | 0180-2205 | 3 | 1 | CAPACITOR-FXD .33UF+-10% 35VDC TA | 56289 | 150D334X9035A2 |
| A7A1C24 | 0160-5714 | 3 | 1 | CAPACITOR-FXD .68UF +-10% 100VDC CER | 28480 | 0160-5714 |
| A7A1C25 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A7A1C26 | 0160-0573 | 2 | 9 | CAPACITOR-FXD 4700PF +-20% 100VDC CER | 28480 | 0160-0573 |
| A7A1C27 | 0160-0573 | 2 | | CAPACITOR-FXD 4700PF +-20% 100VDC CER | 28480 | 0160-0573 |
| A7A1C28 | 0160-4387 | 4 | 7 | CAPACITOR-FXD 47PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4387 |
| A7A1C29 | 0160-4387 | 4 | | CAPACITOR-FXD 47PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4387 |
| A7A1C30 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A7A1C31 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A7A1C32 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A7A1C33 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A7A1C34 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A7A1C35 | 0180-0553 | 0 | 3 | CAPACITOR-FXD 22UF+-20% 25VDC TA | 28480 | 0180-0553 |
| A7A1C36 | 0180-2683 | 1 | | CAPACITOR-FXD 4.7UF+-20% 35VDC TA | 28480 | 0180-2683 |
| A7A1C37 | 0180-0553 | 0 | | CAPACITOR-FXD 22UF+-20% 25VDC TA | 28480 | 0180-0553 |
| A7A1C38 | 0160-4511 | 6 | 6 | CAPACITOR-FXD 220PF +-5% 200VDC CER | 28480 | 0160-4511 |
| A7A1C39-C100 | | | | NOT ASSIGNED | | |
| A7A1C101 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A7A1C102 | | | | NOT ASSIGNED | | |
| A7A1C103 | 0160-4387 | 4 | | CAPACITOR-FXD 47PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4387 |
| A7A1C104 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A7A1C105 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A7A1C106 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A7A1C107 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A7A1C108 | 0160-4387 | 4 | | CAPACITOR-FXD 47PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4387 |
| A7A1C109 | | | | NOT ASSIGNED | | |
| A7A1C110 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A7A1C111 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A7A1C112 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A7A1C113 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A7A1C114-C116 | | | | NOT ASSIGNED | | |
| A7A1C117 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A7A1C118 | | | | NOT ASSIGNED | | |
| A7A1C119 | | | | NOT ASSIGNED | | |
| A7A1C120 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A7A1C121 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A7A1C122 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A7A1C123 | 0160-3872 | 0 | 9 | CAPACITOR-FXD 2.2PF +- .25PF 200VDC CER | 28480 | 0160-3872 |
| A7A1C124 | 0160-3872 | 0 | | CAPACITOR-FXD 2.2PF +- .25PF 200VDC CER | 28480 | 0160-3872 |
| A7A1C125 | | | | NOT ASSIGNED | | |
| A7A1C126 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A7A1C127 | 0160-5947 | 4 | | CAPACITOR-FXD 1000PF +-10% 50VDC CER | 28480 | 0160-5947 |
| A7A1C128 | 0160-0571 | 0 | | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A7A1C129 | 0160-0571 | 0 | | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |
| A7A1C130 | 0160-3872 | 0 | | CAPACITOR-FXD 2.2PF +- .25PF 200VDC CER | 28480 | 0160-3872 |
| A7A1C131 | 0160-3872 | 0 | | CAPACITOR-FXD 2.2PF +- .25PF 200VDC CER | 28480 | 0160-3872 |
| A7A1C132 | 0160-0571 | 0 | | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |
| A7A1C133 | 0160-0571 | 0 | | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |
| A7A1C134 | 0160-3873 | 1 | 9 | CAPACITOR-FXD 4.7PF +- .5PF 200VDC CER | 28480 | 0160-3873 |
| A7A1C135 | 0160-0571 | 0 | | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |
| A7A1C136 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A7A1C137 | | | | NOT ASSIGNED | | |
| A7A1C138 | 0160-0571 | 0 | | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |
| A7A1C139 | 0160-0571 | 0 | | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |
| A7A1C140 | 0160-5947 | 4 | | CAPACITOR-FXD .01UF +-10% 50VDC | 28480 | 0160-5947 |
| A7A1C141 | 0160-5970 | 3 | | CAPACITOR-FXD 3.9PF +- .5PF 50VDC CER | 28480 | 0160-5970 |
| A7A1C142 | 0160-6212 | 8 | | CAPACITOR-FXD 470PF +-5% 50VDC CER | 28480 | 0160-6212 |
| A7A1C143 | 0160-6212 | 8 | | CAPACITOR-FXD 470PF +-5% 50VDC CER | 28480 | 0160-6212 |
| A7A1C144 | 0160-6212 | 8 | | CAPACITOR-FXD 470PF +-5% 50VDC CER | 28480 | 0160-6212 |
| A7A1C145 | 0160-6212 | 8 | | CAPACITOR-FXD 470PF +-5% 50VDC CER | 28480 | 0160-6212 |
| A7A1C146 | 0160-5971 | 4 | | CAPACITOR-FXD 4.7PF +- .5PF 50VDC CER | 28480 | 0160-5971 |
| 2427A TO 2512A | | | | | | |
| A7A1C147* | 0160-4382 | 9 | | CAPACITOR-FXD 3.3PF +- .25PF 200VDC CER | 28480 | 0160-4382 |
| A7A1C148* | 0160-4618 | 4 | | CAPACITOR-FXD 3.9PF +- .25PF 200VDC CER | 28480 | 0160-4618 |
| A7A1C149* | 0160-4498 | 8 | | CAPACITOR-FXD 5.6PF +- .5PF 200VDC CER | 28480 | 0160-4498 |
| 2513A AND ABOVE | | | | | | |
| A7A1C147 | 0160-5969 | 0 | | CAPACITOR-FXD 3.3PF +- .5PF 50VDC CER | 28480 | 0160-5969 |
| A7A1C148 | 0160-5970 | 3 | | CAPACITOR-FXD 3.9PF +- .5PF 50VDC CER | 28480 | 0160-5970 |
| A7A1C149 | 0160-5972 | 2 | | CAPACITOR-FXD 5.6PF +- .5PF 50VDC CER | 28480 | 0160-5972 |
| A7A1CR1-CR4 | | | | NOT ASSIGNED | | |
| A7A1CR5 | 1906-0098 | 9 | | DIODE-MATCHED 1V | 28480 | 1906-0098 |
| A7A1CR6 | 1906-0098 | 9 | | DIODE-MATCHED 1V | 28480 | 1906-0098 |
| A7A1CR7 | 1906-0098 | 9 | | DIODE-MATCHED 1V | 28480 | 1906-0098 |
| A7A1CR8 | 1906-0098 | 9 | | DIODE-MATCHED 1V | 28480 | 1906-0098 |
| A7A1CR9 | 1901-0457 | 4 | 2 | DIODE-STEP RECOVERY | 28480 | 1901-0457 |
| A7A1CR10 | 1901-0518 | 8 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0518 |
| A7A1CR11-CR100 | | | | NOT ASSIGNED | | |
| A7A1CR101 | 0122-0161 | 4 | | DIODE-VVC 2.15PF 7% BVR=30V | 28480 | 0122-0161 |
| A7A1CR102 | 0122-0161 | 4 | | DIODE-VVC 2.15PF 7% BVR=30V | 28480 | 0122-0161 |
| A7A1CR103 | | | | NOT ASSIGNED | | |
| A7A1CR104 | | | | NOT ASSIGNED | | |
| A7A1CR105 | 0122-0161 | 4 | | DIODE-VVC 2.15PF 7% BVR=30V | 28480 | 0122-0161 |
| A7A1CR106 | 0122-0161 | 4 | | DIODE-VVC 2.15PF 7% BVR=30V | 28480 | 0122-0161 |
| A7A1CR107 | | | | NOT ASSIGNED | | |
| A7A1CR108 | | | | NOT ASSIGNED | | |
| A7A1CR109 | 0122-0161 | 4 | | DIODE-VVC 2.15PF 7% BVR=30V .5 | 04713 | BB105B |
| A7A1CR110 | 0122-0161 | 4 | | DIODE-VVC 2.15PF 7% BVR=30V | 04713 | BB105B |
| A7A1FL1 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL2 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL3 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL4 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL5 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL6 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL7 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL8 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL9 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL10 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL11 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL12 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL13 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1FL14 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A7A1J1 | 1251-8823 | 5 | | CONN-POST TYPE .100-PIN-SPCG 14-CONT | 28480 | 1251-8823 |
| | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A7A1J2 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A7A1J3 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A7A1L1 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A7A1L2 | 9100-2254 | 3 | 4 | INDUCTOR RF-CH-MLD 390NH 10% .105DX.26LG | 28480 | 9100-2254 |
| A7A1L3-L5 | | | | NOT ASSIGNED | | |
| A7A1L6 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A7A1L7 | 9100-1624 | 9 | 1 | INDUCTOR RF-CH-MLD 30UH 5% .166DX.385LG | 28480 | 9100-1624 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A7A1L8 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A7A1L9 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A7A1L10 | 9140-0531 | 9 | 8 | INDUCTOR RF-CH-MLD 1UH 5% .105DX.26LG | 28480 | 9140-0531 |
| A7A1L11 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A7A1L12 | 9140-0532 | 0 | 5 | INDUCTOR RF-CH-MLD 1.2UH 5% .105DX.26LG | 28480 | 9140-0532 |
| A7A1L13 | 9140-0532 | 0 | | INDUCTOR RF-CH-MLD 1.2UH 5% .105DX.26LG | 28480 | 9140-0532 |
| A7A1L14 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A7A1L15-L100 | | | | NOT ASSIGNED | | |
| A7A1L101 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A7A1L102 | 9140-0532 | 0 | | INDUCTOR RF-CH-MLD 1.2UH 5% .105DX.26LG | 28480 | 9140-0532 |
| A7A1L103 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A7A1L104 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A7A1L105 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A7A1L106-L108 | | | | NOT ASSIGNED | | |
| A7A1L109 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A7A1L110 | | | | NOT ASSIGNED | | |
| A7A1L111 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A7A1L112 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A7A1L113 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A7A1MP1 | 0340-0840 | 8 | | INSULATOR SLBL-LAC-CMPD | 28480 | 0340-0840 |
| A7A1Q1 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A7A1Q2 | 1854-0477 | 7 | | TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW | 04713 | 2N2222A |
| A7A1Q3 | 1854-0477 | 7 | | TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW | 04713 | 2N2222A |
| A7A1Q4 | 1854-0944 | 3 | 10 | TRANSISTOR NPN SI PD=600MW FT=5GHZ | 28480 | 1854-0944 |
| A7A1Q5 | 1853-0281 | 9 | | TRANSISTOR PNP 2N2907A SI TO-18 PD=400MW | 04713 | 2N2907A |
| A7A1Q6 | 1854-0809 | 9 | | TRANSISTOR NPN 2N2369A SI TO-18 PD=360MW | 28480 | 1854-0809 |
| A7A1Q7 | 1858-0071 | 5 | 2 | TRANSISTOR ARRAY PLSTC TO-116 | 04713 | MPQ3798 |
| A7A1Q8-Q100 | | | | NOT ASSIGNED | | |
| A7A1Q101 | 1854-0944 | 3 | | TRANSISTOR NPN SI PD=600MW FT=5GHZ | 28480 | 1854-0944 |
| A7A1Q102 | 1854-0944 | 3 | | TRANSISTOR NPN SI PD=600MW FT=5GHZ | 28480 | 1854-0944 |
| A7A1Q103 | 1854-0944 | 3 | | TRANSISTOR NPN SI PD=600MW FT=5GHZ | 28480 | 1854-0944 |
| A7A1Q104 | 1854-0944 | 3 | | TRANSISTOR NPN SI PD=600MW FT=5GHZ | 28480 | 1854-0944 |
| A7A1Q105 | 1854-0944 | 3 | | TRANSISTOR NPN SI PD=600MW FT=5GHZ | 28480 | 1854-0944 |
| A7A1Q106 | 1854-0944 | 3 | | TRANSISTOR NPN SI PD=600MW FT=5GHZ | 28480 | 1854-0944 |
| A7A1Q107 | 1854-0944 | 3 | | TRANSISTOR NPN SI PD=600MW FT=5GHZ | 28480 | 1854-0944 |
| A7A1Q108 | 1854-0944 | 3 | | TRANSISTOR NPN SI PD=600MW FT=5GHZ | 28480 | 1854-0944 |
| A7A1Q109 | | | | NOT ASSIGNED | | |
| A7A1Q110 | 1854-0944 | 3 | | TRANSISTOR NPN SI PD=600MW FT=5GHZ | 28480 | 1854-0944 |
| A7A1R1 | 0699-1361 | 9 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 28480 | 0699-1361 |
| A7A1R2 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A7A1R3 | 0698-7261 | 8 | 4 | RESISTOR 11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1102-F |
| A7A1R4 | 0699-1415 | 4 | | RESISTOR 100 1% .125W F TC=0+-100 | 28480 | 0699-1415 |
| A7A1R5 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A7A1R6 | 0698-3445 | 2 | | RESISTOR 348 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-348R-F |
| A7A1R7 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A7A1R8 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A7A1R9 | 0757-0416 | 7 | | RESISTOR 511 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-511R-F |
| A7A1R10 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A7A1R11 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A7A1R12 | 0698-7281 | 2 | 1 | RESISTOR 75K 2% .05W F TC=0+-100 | 24546 | C3-1/8-T0-7502-G |
| A7A1R13 | | | | NOT ASSIGNED | | |
| A7A1R14 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A7A1R15 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A7A1R16 | 0699-1415 | 4 | | RESISTOR 100 1% .125W F TC=0+-100 | 28480 | 0699-1415 |
| A7A1R17 | 0698-7231 | 2 | 8 | RESISTOR 619 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-619R-F |
| A7A1R18 | 0698-4514 | 8 | 1 | RESISTOR 105K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1053-F |
| A7A1R19 | 0698-7245 | 8 | | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A7A1R20 | 0698-7277 | 6 | | RESISTOR 51.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5112-F |
| A7A1R21 | 0698-7234 | 5 | 3 | RESISTOR 825 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-825R-F |
| A7A1R22 | 0698-3458 | 7 | 4 | RESISTOR 348K 1% .125W F TC=0+-100 | 28480 | 0698-3458 |
| A7A1R23 | 0698-7288 | 9 | | RESISTOR 147K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1473-F |
| A7A1R24 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A7A1R25 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|-----------------------------------------|----------|------------------|
| A7A1R26 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A7A1R27 | 0698-3453 | 2 | | RESISTOR 196K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1963-F |
| A7A1R28 | 0698-7261 | 8 | | RESISTOR 11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1102-F |
| A7A1R29 | 0698-7242 | 5 | 3 | RESISTOR 1.78K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1781-F |
| A7A1R30 | 0698-7251 | 6 | 1 | RESISTOR 4.22K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4221-F |
| A7A1R31 | 0698-7231 | 2 | | RESISTOR 619 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-619R-F |
| A7A1R32 | 0698-7285 | 6 | 1 | RESISTOR 110K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1103-F |
| A7A1R33 | 2100-3097 | 7 | 3 | RESISTOR-TRMR 100K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-104 |
| A7A1R34 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A7A1R35 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A7A1R36 | 0698-7272 | 1 | 11 | RESISTOR 31.6K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3162-F |
| A7A1R37 | 0698-7277 | 6 | | RESISTOR 51.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5112-F |
| A7A1R38 | 0698-7277 | 6 | | RESISTOR 51.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5112-F |
| A7A1R39 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A7A1R40 | | | | NOT ASSIGNED | | |
| A7A1R41 | | | | NOT ASSIGNED | | |
| A7A1R42 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A7A1R43 | 0698-7280 | 0 | | RESISTOR 68.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6812-F |
| A7A1R44 | 0699-1354 | 1 | | RESISTOR 26.1 1% .125W F TC=0+-100 | 28480 | 0699-1354 |
| A7A1R45 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A7A1R46 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A7A1R47 | 1810-0503 | 8 | 1 | NETWORK-RES 16-DIP3.3K OHM X 8 | 28480 | 1810-0503 |
| A7A1R48 | 0698-3457 | 6 | | RESISTOR 316K 1% .125W F TC=0+-100 | 28480 | 0698-3457 |
| A7A1R49-R100 | | | | NOT ASSIGNED | | |
| A7A1R101 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A7A1R102 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A7A1R103 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A7A1R104 | 0698-7244 | 7 | 8 | RESISTOR 2.15K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2151-F |
| A7A1R105 | 0699-1361 | 9 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 28480 | 0699-1361 |
| A7A1R106 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A7A1R107 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A7A1R108 | 0698-3447 | 4 | | RESISTOR 422 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-422R-F |
| A7A1R109 | 0699-1419 | 8 | | RESISTOR 147 1% .125W F TC=0+-100 | 28480 | 0699-1419 |
| A7A1R110 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A7A1R111 | 0698-3447 | 4 | | RESISTOR 422 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-422R-F |
| A7A1R112 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A7A1R113 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A7A1R114 | 0698-7244 | 7 | | RESISTOR 2.15K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2151-F |
| A7A1R115 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A7A1R116 | 0698-3447 | 4 | | RESISTOR 422 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-422R-F |
| A7A1R117 | 0699-3447 | 4 | | RESISTOR 422 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-422R-F |
| A7A1R118 | 0699-1361 | 9 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 28480 | 0699-1361 |
| A7A1R119-R121 | | | | NOT ASSIGNED | | |
| A7A1R122 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A7A1R123 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A7A1R124 | 0698-7244 | 7 | | RESISTOR 2.15K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2151-F |
| A7A1R125 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A7A1R126 | 0698-3447 | 4 | | RESISTOR 422 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-422R-F |
| A7A1R127-R130 | | | | NOT ASSIGNED | | |
| A7A1R131 | 2100-2061 | 3 | 1 | RESISTOR-TRMR 200 10% C TOP-ADJ 1-TRN | 73138 | 82PR200 |
| A7A1R132 | 0698-7211 | 8 | 7 | RESISTOR 90.9 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-909R-F |
| A7A1R133 | 0698-7211 | 8 | | RESISTOR 90.9 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-909R-F |
| A7A1R134 | 0698-7211 | 8 | | RESISTOR 90.9 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-909R-F |
| A7A1R135 | 0699-1419 | 8 | | RESISTOR 147 1% .125W F TC=0+-100 | 28480 | 0699-1419 |
| A7A1R136 | 0698-3447 | 4 | | RESISTOR 422 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-422R-F |
| A7A1R137 | | | | NOT ASSIGNED | | |
| A7A1R138 | 0699-1415 | 4 | | RESISTOR 100 1% .125W F TC=0+-100 | 28480 | 0699-1415 |
| A7A1R139 | 0699-1361 | 9 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 28480 | 0699-1361 |
| A7A1R140 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A7A1R141 | 0699-1361 | 9 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 28480 | 0699-1361 |
| A7A1R142 | | | | NOT ASSIGNED | | |
| A7A1R143 | 0698-3447 | 4 | | RESISTOR 422 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-422R-F |
| A7A1R144 | | | | NOT ASSIGNED | | |
| A7A1R145 | | | | NOT ASSIGNED | | |
| A7A1R146 | 0757-0419 | 0 | | RESISTOR 681 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-681R-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|---------------------------------------|----------|------------------|
| A7A1R147 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A7A1R148 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A7A1R149 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A7A1R150 | 0757-0419 | 0 | | RESISTOR 681 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-681R-F |
| A7A1U1 | 1820-2506 | 6 | | IC INV TTL F HEX | 07263 | 74F04PC |
| A7A1U2 | 1820-2691 | 0 | | IC FF TTL F D-TYPE POS-EDGE-TRIG | 07263 | 74F74PC |
| A7A1U3 | 1826-0208 | 3 | 1 | IC OP AMP GP 8-DIP-P PKG | 27014 | LM310N |
| A7A1U4 | | | | NOT ASSIGNED | | |
| A7A1U5 | | | | NOT ASSIGNED | | |
| A7A1U6 | 1820-1037 | 6 | 1 | IC DCDR TTL BCD-T0-7-SEG 4-T0-7-LINE | 01295 | SN7446AN |
| 2427A TO 2550A | | | | | | |
| A7A1U7 | 1826-0043 | 4 | | IC OP AMP GP T0-99 PKG | 3L585 | CA307T |
| A7A1U8 | 1826-0759 | 9 | | IC OP AMP GP T0-99 PKG | 04713 | LM339J |
| A7A1U9 | 1826-0111 | 7 | | IC OP AMP GP DUAL T0-99 PKG | 3L585 | CA1458T |
| 2808A AND ABOVE | | | | | | |
| A7A1U7 | 1826-0989 | 7 | | IC OP AMP GP 8-DIP-C PKG | 28480 | 1826-0989 |
| A7A1U8 | 1826-0138 | 8 | | IC COMPARTOR GP QUAD 14-DIP-P PKG | 01295 | LM339N |
| A7A1U9 | 1826-0990 | 0 | | IC OP AMP GP DUAL P-DIP-C PKG | 28480 | 1826-0990 |
| A7A1U10 | 1826-0606 | 5 | | IC SWITCH ANLG QUAD 16-DIP-C PKG | 17856 | DG201BK |
| A7A1U11 | 1820-1423 | 4 | | IC MV TTL LS MONOSTBL RETRIG DUAL | 01295 | SN74LS123N |
| A7A1VR1 | 1902-1428 | 3 | 59 | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A7A1VR2-VR100 | | | | NOT ASSIGNED | | |
| A7A1VR101 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A7A1VR102 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A7A1VR103 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A7A1VR104 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A7A1VR105 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A7A1VR106 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A7A1VR107 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A7A1VR108 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A7A1VR109 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| 2427A TO 2512A | | | | | | |
| A7A1W1 | | | | WIRE JUMPER 22 AWG | | |
| A7A1W2 | | | | WIRE JUMPER 22 AWG | | |
| A7A1W3 | | | | WIRE JUMPER 22 AWG | | |
| 2513A AND ABOVE | | | | | | |
| A7A1W1 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1W2 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1W3 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1W4 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1W5 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1W6 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1W7 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1W8 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1W9 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1W10 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1W11 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1W12 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1W13 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A7A1Y1 | 1GAI-8003 | 5 | 1 | SAW CMPNT 787.5 | 28480 | 1GAI-8003 |
| A7A1Y2 | 1GAI-8004 | 6 | 2 | SAW CMPNT 832.5 | 28480 | 1GAI-8004 |
| A7A1Y3 | 1GAI-8002 | 4 | 1 | SAW CMPNT 742.5 | 28480 | 1GAI-8002 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|------------------------|--------|----------|---------------------------------------------------------------------------------|----------------|----------------------|
| A8 A8 | 1813-0415 | 7 | 1 | OSCILLATOR-CRYSTAL=10MHZ, INPUT (OPTION 001 ONLY) | 28480 | 1813-0415 |
| | 0515-1227 1400-0249 | 8 0 | 45 31 | SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD CABLE TIE .062-.625-DIA .091-WD NYL | 28480 06383 | 0515-1227 PLT1M-8 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|---------------------------------------------------------------------|----------|----------------------|
| A9 | | | | | | |
| A9 | 08642-60895 | 5 | 1 | IF LOOP MODULE | 28480 | 08642-60895 |
| A9 | 08642-69895 | 3 | 1 | IF LOOP MODULE (RESTORED) | 28480 | 08642-69895 |
| A9A1 | 08642-60104 | 9 | 1 | IF VCO ASSEMBLY | 28480 | 08642-60104 |
| A9A2 | 08642-60105 | 0 | 1 | FRACTIONAL-N ASSEMBLY | 28480 | 08642-60105 |
| A9FL1 | 08642-80013 | 1 | 3 | FLTR LP 3M BKT | 28480 | 08642-80013 |
| A9FL2 | 08642-80012 | 0 | 3 | FLTR LP 7POS BKT | 28480 | 08642-80012 |
| A9MP1 | 08642-20006 | 6 | 1 | COVER IF VCO | 28480 | 08642-20006 |
| A9MP2 | 08642-00087 | 1 | | FOAM-DAMPING | 28480 | 08642-00087 |
| A9MP3 | 08642-20007 | 7 | 1 | BASE IF | 28480 | 08642-20007 |
| A9MP4 | 08642-40053 | 5 | | GASKET FD/THRU13 | 28480 | 08642-40053 |
| A9MP5 | 0515-1521 | 5 | | SCREW-MACH M3 X 0.5 5MM-LG 90-DEG-FLH-HD (ATTACH FILTER TO BASE) | 28480 | 0515-1521 |
| A9MP6 | 08642-20008 | 8 | 1 | COVER FRACTIONAL-N | 28480 | 08642-20008 |
| A9MP7 | 08642-00001 | 9 | 4 | GASKET 7 P FLTR | 28480 | 08642-00001 |
| A9MP8 | 08642-00002 | 0 | 3 | GASKET 10 P FLTR | 28480 | 08642-00002 |
| A9MP9 | 0515-0684 | 9 | | SCREW-MACH M4 X 0.7 6MM-LG PAN-HD (ATTACH BOARDS TO BASE) | 28480 | 0515-0684 |
| A9MP10 | 0515-0381 | 3 | | SCREW-MACH M4 X 0.7 10MM-LG PAN-HD (ATTACH COVERS TO BASE) | 00000 | ORDER BY DESCRIPTION |
| A9MP11 | 8160-0472 | 8 | | RFI ROUND STRIP BE-CU SN-PL .093-IN-OD (SPIRA SHIELD) | 28480 | 8160-0472 |
| A9MP12 | 08642-00099 | 5 | | SLIDE-MODULE 13 (FRONT) | 28480 | 08642-00099 |
| A9MP13 | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH A9MP12 TO BASE) | 28480 | 0515-1102 |
| A9MP14 | 08642-00057 | 5 | | SLIDE-MODUL R23 (REAR, TOP) | 28480 | 08642-00057 |
| A9MP15 | 08642-00055 | 3 | | SLIDE-MODUL R23 (REAR, BOTTOM) | 28480 | 08642-00055 |
| A9MP16 | 0515-1103 | 9 | | SCREW-MACH M3 X 0.5 10MM-LG (ATTACH A9MP14, A9MP15 TO BASE) | 28480 | 0515-1103 |
| A9MP17 | 08642-80066 | 4 | 1 | LABEL-IF 60003 | 28480 | 08642-80066 |
| A9W1 | 08642-60042 | 4 | 1 | CBL-COAX 947 (A9A1J1 TO A9A2J4) | 28480 | 08642-60042 |
| A9W2 | 5061-4809 | 0 | 1 | CBL-COAX 934 (A9A1J3 TO A9A2J2) | 28480 | 5061-4809 |

See introduction to this section for ordering information.

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A9A1 | 08642-60104 | 9 | 1 | IF VCO ASSEMBLY | 28480 | 08642-60104 |
| A9A1C1 | 0160-0571 | 0 | | CAPACITOR-FXD 470PF +-20% 100VDC CER | 28480 | 0160-0571 |
| A9A1C2 | 0160-4834 | 6 | 1 | CAPACITOR-FXD .047UF +-10% 100VDC CER | 28480 | 0160-4834 |
| A9A1C3 | 0180-0141 | 2 | 1 | CAPACITOR-FXD 50UF+75-10% 50VDC AL | 56289 | 30D506G050DD2 |
| A9A1C4 | 0160-4527 | 4 | | CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4527 |
| A9A1C5 | 0160-0166 | 9 | 1 | CAPACITOR-FXD .068UF +-10% 200VDC POLYE | 28480 | 0160-0166 |
| A9A1C6 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A1C7 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A1C8 | 0160-3324 | 7 | | CAPACITOR-FXD 1UF +-5% 100VDC MET-POLYC | 28480 | 0160-3324 |
| A9A1C9 | 0160-4834 | 6 | | CAPACITOR-FXD .047UF +-10% 100VDC CER | 28480 | 0160-4834 |
| A9A1C10 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A1C11 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A1C12 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A1C13 | 0180-2667 | 1 | 2 | CAPACITOR-FXD 150UF+-10% 20VDC TA | 56289 | 150D157X9020S2 |
| A9A1C14 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A1C15 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A1C16 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A1C17 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A1C18 | 0180-2667 | 1 | | CAPACITOR-FXD 150UF+-10% 20VDC TA | 56289 | 150D157X9020S2 |
| A9A1C19 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A1C20 | 0160-3029 | 9 | | CAPACITOR-FXD 7.5PF +- .5PF 100VDC CER | 28480 | 0160-3029 |
| A9A1C21 | 0160-3029 | 9 | | CAPACITOR-FXD 7.5PF +- .5PF 100VDC CER | 28480 | 0160-3029 |
| A9A1C22 | 0160-4520 | 7 | | CAPACITOR-FXD 11PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4520 |
| A9A1C23 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C24 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C25 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C26 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C27 | 0160-0575 | 4 | 6 | CAPACITOR-FXD .047UF +-20% 50VDC CER | 28480 | 0160-0575 |
| A9A1C28 | 0121-0564 | 9 | | CAPACITOR-V TRMR-AIR 1.7-7.4PF 175V | 28480 | 0121-0564 |
| A9A1C29 | 0160-0573 | 2 | | CAPACITOR-FXD 4700PF +-20% 100VDC CER | 28480 | 0160-0573 |
| A9A1C30 | 0160-4383 | 0 | | CAPACITOR-FXD 6.8PF +- .5PF 200VDC CER | 28480 | 0160-4383 |
| A9A1C31 | 0160-4383 | 0 | | CAPACITOR-FXD 6.8PF +- .5PF 200VDC CER | 28480 | 0160-4383 |
| A9A1C32 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-43874 |
| A9A1C33 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C34 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C35 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C36 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C37 | 0160-0575 | 4 | | CAPACITOR-FXD .047UF +-20% 50VDC CER | 28480 | 0160-0575 |
| A9A1C38 | 0121-0564 | 9 | | CAPACITOR-V TRMR-AIR 1.7-7.4PF 175V | 28480 | 0121-0564 |
| A9A1C39 | 0160-0573 | 2 | | CAPACITOR-FXD 4700PF +-20% 100VDC CER | 28480 | 0160-0573 |
| A9A1C40 | 0160-3873 | 1 | | CAPACITOR-FXD 4.7PF +- .5PF 200VDC CER | 28480 | 0160-3873 |
| A9A1C41 | 0160-3873 | 1 | | CAPACITOR-FXD 4.7PF +- .5PF 200VDC CER | 28480 | 0160-3873 |
| A9A1C42 | 0160-4383 | 0 | | CAPACITOR-FXD 6.8PF +- .5PF 200VDC CER | 20932 | 5024E0200RD689D |
| A9A1C43 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C44 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C45 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C46 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C47 | 0160-0575 | 4 | | CAPACITOR-FXD .047UF +-20% 50VDC CER | 28480 | 0160-0575 |
| A9A1C48 | 0121-0564 | 9 | | CAPACITOR-V TRMR-AIR 1.7-7.4PF 175V | 28480 | 0121-0564 |
| A9A1C49 | 0160-0573 | 2 | | CAPACITOR-FXD 4700PF +-20% 100VDC CER | 28480 | 0160-0573 |
| A9A1C50 | 0160-4518 | 3 | | CAPACITOR-FXD 3.9PF +- .5PF 200VDC CER | 28480 | 0160-4518 |
| A9A1C51 | 0160-4518 | 3 | | CAPACITOR-FXD 3.9PF +- .5PF 200VDC CER | 28480 | 0160-4518 |
| A9A1C52 | 0160-4498 | 8 | | CAPACITOR-FXD 5.6PF +- .5PF 200VDC CER | 28480 | 0160-4498 |
| A9A1C53 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C54 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C55 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C56 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C57 | 0160-0575 | 4 | | CAPACITOR-FXD .047UF +-20% 50VDC CER | 28480 | 0160-0575 |
| A9A1C58 | 0121-0452 | 4 | | CAPACITOR-V TRMR-AIR 1.3-5.4PF 175V | 74970 | 187-0103-028 |
| A9A1C59 | 0160-0573 | 2 | | CAPACITOR-FXD 4700PF +-20% 100VDC CER | 28480 | 0160-0573 |
| A9A1C60 | 0160-4619 | 5 | 4 | CAPACITOR-FXD 2.7PF +- .25PF 200VDC CER | 28480 | 0160-4619 |
| A9A1C61 | 0160-4619 | 5 | | CAPACITOR-FXD 2.7PF +- .25PF 200VDC CER | 28480 | 0160-4619 |
| A9A1C62 | 0160-4518 | 3 | | CAPACITOR-FXD 3.9PF +- .5PF 200VDC CER | 28480 | 0160-4518 |
| A9A1C63 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C64 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C65 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A9A1C66 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C67 | 0160-0575 | 4 | | CAPACITOR-FXD .047UF +-20% 50VDC CER | 28480 | 0160-0575 |
| A9A1C68 | 0121-0452 | 4 | | CAPACITOR-V TRMR-AIR 1.3-5.4PF 175V | 74970 | 187-0103-028 |
| A9A1C69 | 0160-0573 | 2 | | CAPACITOR-FXD 4700PF +-20% 100VDC CER | 28480 | 0160-0573 |
| 2427A TO 2613A | | | | | | |
| A9A1C70 | 0160-4619 | 5 | | CAPACITOR-FXD 2.7PF +- .25PF 200VDC CER | 28480 | 0160-4619 |
| A9A1C71 | 0160-4619 | 5 | | CAPACITOR-FXD 2.7PF +- .25PF 200VDC CER | 28480 | 0160-4619 |
| 2615A AND ABOVE | | | | | | |
| A9A1C70 | 0160-3872 | 0 | 1 | CAPACITOR-FXD 2.2PF +- .25PF 200VDC CER | 28480 | 0160-3872 |
| A9A1C71 | 0160-4382 | 9 | 1 | CAPACITOR-FXD 3.3PF +- .25PF 200VDC CER | 28480 | 0160-4382 |
| A9A1C72 | 0160-4518 | 3 | | CAPACITOR-FXD 3.9PF +- .5PF 200VDC CER | 28480 | 0160-4518 |
| A9A1C73 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C74 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C75 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C76 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C77 | 0160-0575 | 4 | | CAPACITOR-FXD .047UF +-20% 50VDC CER | 28480 | 0160-0575 |
| A9A1C78 | 0121-0452 | 4 | | CAPACITOR-V TRMR-AIR 1.3-5.4PF 175V | 74970 | 187-0103-028 |
| A9A1C79 | 0160-0573 | 2 | | CAPACITOR-FXD 4700PF +-20% 100VDC CER | 28480 | 0160-0573 |
| A9A1C80 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C81 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C82 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A1C83 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C84 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C85 | | | | NOT ASSIGNED | | |
| A9A1C86 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C87 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C88 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C89 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1C90 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A1CR1 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A9A1CR2 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A9A1CR3 | 1901-0518 | 8 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0518 |
| A9A1CR4 | 1901-0518 | 8 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0518 |
| A9A1CR5 | 1901-0518 | 8 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0518 |
| A9A1CR6 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A9A1CR7 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A9A1CR8 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A9A1CR9 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A9A1CR10 | 1901-1097 | 0 | 6 | DIODE-PIN | 28480 | 1901-1097 |
| A9A1CR11 | 0122-0159 | 0 | 12 | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0159 |
| A9A1CR12 | 0122-0159 | 0 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0159 |
| A9A1CR13 | 0122-0159 | 0 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0159 |
| A9A1CR14 | 0122-0159 | 0 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0159 |
| A9A1CR15 | 1901-1097 | 0 | | DIODE-PIN | 28480 | 1901-1097 |
| A9A1CR16 | 0122-0159 | 0 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0159 |
| A9A1CR17 | 0122-0159 | 0 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0159 |
| A9A1CR18 | 0122-0159 | 0 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0159 |
| A9A1CR19 | 0122-0159 | 0 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0159 |
| A9A1CR20 | 1901-1097 | 0 | | DIODE-PIN | 28480 | 1901-1097 |
| A9A1CR21 | 0122-0159 | 0 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0159 |
| A9A1CR22 | 0122-0159 | 0 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0159 |
| A9A1CR23 | 0122-0159 | 0 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0159 |
| A9A1CR24 | 0122-0159 | 0 | | DIODE-VVC 47PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0159 |
| A9A1CR25 | 1901-1097 | 0 | | DIODE-PIN | 28480 | 1901-1097 |
| A9A1CR26 | 0122-0158 | 9 | 12 | DIODE-VVC 33PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0158 |
| A9A1CR27 | 0122-0158 | 9 | | DIODE-VVC 33PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0158 |
| A9A1CR28 | 0122-0158 | 9 | | DIODE-VVC 33PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0158 |
| A9A1CR29 | 0122-0158 | 9 | | DIODE-VVC 33PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0158 |
| A9A1CR30 | 1901-1097 | 0 | | DIODE-PIN | 28480 | 1901-1097 |
| A9A1CR31 | 0122-0158 | 9 | | DIODE-VVC 33PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0158 |
| A9A1CR32 | 0122-0158 | 9 | | DIODE-VVC 33PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0158 |
| A9A1CR33 | 0122-0158 | 9 | | DIODE-VVC 33PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0158 |
| A9A1CR34 | 0122-0158 | 9 | | DIODE-VVC 33PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0158 |
| A9A1CR35 | 1901-1097 | 0 | | DIODE-PIN | 28480 | 1901-1097 |
| A9A1CR36 | 0122-0158 | 9 | | DIODE-VVC 33PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0158 |
| A9A1CR37 | 0122-0158 | 9 | | DIODE-VVC 33PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0158 |
| A9A1CR38 | 0122-0158 | 9 | | DIODE-VVC 33PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0158 |
| A9A1CR39 | 0122-0158 | 9 | | DIODE-VVC 33PF 5% BVR=60V DO-7 Q=200-MIN | 28480 | 0122-0158 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|-------------------------------------------|----------|-----------------|
| A9A1E1 | 9170-0029 | 3 | | CORE-SHIELDING BEAD | 28480 | 9170-0029 |
| A9A1J1 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| A9A1J2 | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A9A1J3 | 1251-8758 | 5 | 8 | CONN-POST TYPE .100-PIN-SPCG 8-CONT | 28480 | 1251-8758 |
| | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A9A1J4 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| A9A1J5 | 08642-20078 | 2 | | ELSTMR CON SMC D | 28480 | 08642-20078 |
| | 1251-8759 | 6 | 6 | CONN-POST TYPE .100-PIN-SPCG 11-CONT | 28480 | 1251-8759 |
| A9A1L1 | 9100-1629 | 4 | 3 | INDUCTOR RF-CH-MLD 47UH 5% .166DX.385LG | 28480 | 9100-1629 |
| A9A1L2 | 9100-1629 | 4 | | INDUCTOR RF-CH-MLD 47UH 5% .166DX.385LG | 28480 | 9100-1629 |
| A9A1L3 | 9100-1629 | 4 | | INDUCTOR RF-CH-MLD 47UH 5% .166DX.385LG | 28480 | 9100-1629 |
| A9A1L4 | 08642-60026 | 4 | 1 | COIL ASSY 7 TURN | 28480 | 08642-60026 |
| <i>2427A TO 2637A</i> | | | | | | |
| A9A1L5 | 9140-0179 | 1 | 2 | INDUCTOR RF-CH-MLD 22UH 10% .166DX.385LG | 28480 | 9140-0179 |
| A9A1L6 | 9140-0179 | 1 | | INDUCTOR RF-CH-MLD 22UH 10% .166DX.385LG | 28480 | 9140-0179 |
| <i>2728A AND ABOVE</i> | | | | | | |
| A9A1L5 | 9140-0453 | 4 | | INDUCTOR RF-CH-MLD 6.8UF 5% .166DX .385LG | 28480 | 9100-0453 |
| A9A1L6 | 9140-0453 | 4 | | INDUCTOR RF-CH-MLD 6.8UF 5% .166DX .385LG | 28480 | 9100-0453 |
| A9A1L7 | 08642-60028 | 6 | 1 | COIL ASSY 5.5 TURN | 28480 | 08642-60028 |
| <i>2427A TO 2637A</i> | | | | | | |
| A9A1L8 | 9100-1621 | 6 | 5 | INDUCTOR RF-CH-MLD 18UH 10% .166DX.385LG | 28480 | 9100-1621 |
| A9A1L9 | 9100-1621 | 6 | | INDUCTOR RF-CH-MLD 18UH 10% .166DX.385LG | 28480 | 9100-1621 |
| <i>2728A AND ABOVE</i> | | | | | | |
| A9A1L8 | 9100-3562 | 8 | | INDUCTOR RF-CH-MLD 4.7UH 5% .166DX .385LG | 28480 | 9100-3562 |
| A9A1L9 | 9100-3562 | 8 | | INDUCTOR RF-CH-MLD 4.7UH 5% .166DX .385LG | 28480 | 9100-3562 |
| A9A1L10 | 08642-60025 | 3 | 2 | COIL ASSY 5 TURN | 28480 | 08642-60025 |
| <i>2427A TO 2637A</i> | | | | | | |
| A9A1L11 | 9100-1621 | 6 | | INDUCTOR RF-CH-MLD 18UH 10% .166DX.385LG | 28480 | 9100-1621 |
| A9A1L12 | 9100-1621 | 6 | | INDUCTOR RF-CH-MLD 18UH 10% .166DX.385LG | 28480 | 9100-1621 |
| <i>2728A AND ABOVE</i> | | | | | | |
| A9A1L11 | 9100-3562 | 8 | | INDUCTOR RF-CH-MLD 4.7UH 5% .166DX .385LG | 28480 | 9100-3562 |
| A9A1L12 | 9100-3562 | 8 | | INDUCTOR RF-CH-MLD 4.7UH 5% .166DX .385LG | 28480 | 9100-3562 |
| A9A1L13 | 08642-60025 | 3 | | COIL ASSY 5 TURN | 28480 | 08642-60025 |
| <i>2427A TO 2637A</i> | | | | | | |
| A9A1L14 | 9100-1620 | 5 | | INDUCTOR RF-CH-MLD 15UH 10% .166DX.385LG | 28480 | 9100-1620 |
| A9A1L15 | 9100-1620 | 5 | | INDUCTOR RF-CH-MLD 15UH 10% .166DX.385LG | 28480 | 9100-1620 |
| <i>2728A AND ABOVE</i> | | | | | | |
| A9A1L14 | 9100-3562 | 8 | | INDUCTOR RF-CH-MLD 4.7UH 5% .166DX .385LG | 28480 | 9100-3562 |
| A9A1L15 | 9100-3562 | 8 | | INDUCTOR RF-CH-MLD 4.7UH 5% .166DX .385LG | 28480 | 9100-3562 |
| A9A1L16 | 08642-60027 | 5 | 1 | COIL ASSY 4.5 TURN | 28480 | 08642-60027 |
| <i>2427A TO 2637A</i> | | | | | | |
| A9A1L17 | 9100-1620 | 5 | | INDUCTOR RF-CH-MLD 15UH 10% .166DX.385LG | 28480 | 9100-1620 |
| A9A1L18 | 9100-1620 | 5 | | INDUCTOR RF-CH-MLD 15UH 10% .166DX.385LG | 28480 | 9100-1620 |
| <i>2728A AND ABOVE</i> | | | | | | |
| A9A1L17 | 9100-3562 | 8 | | INDUCTOR RF-CH-MLD 4.7UH 5% .166DX .385LG | 28480 | 9100-3562 |
| A9A1L18 | 9100-3562 | 8 | | INDUCTOR RF-CH-MLD 4.7UH 5% .166DX .385LG | 28480 | 9100-3562 |
| A9A1L19 | 08642-60024 | 2 | 1 | COIL ASSY 4 TURN | 28480 | 08642-60024 |
| <i>2427A TO 2637A</i> | | | | | | |
| A9A1L20 | 9140-0178 | 0 | 2 | INDUCTOR RF-CH-MLD 12UH 10% .166DX.385LG | 28480 | 9140-0178 |
| A9A1L21 | 9140-0178 | 0 | | INDUCTOR RF-CH-MLD 12UH 10% .166DX.385LG | 28480 | 9140-0178 |
| <i>2728A AND ABOVE</i> | | | | | | |
| A9A1L20 | 9100-3553 | 7 | | INDUCTOR RF-CH-MLD 3.9UH 5% .166DX .385LG | 28480 | 9100-3553 |
| A9A1L21 | 9100-3553 | 7 | | INDUCTOR RF-CH-MLD 3.7UH 5% .166DX .385LG | 28480 | 9100-3553 |
| A9A1L22 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A9A1L23 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A9A1L24 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A9A1L25 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A9A1L26 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A9A1MP1 | 1251-2194 | 1 | | CONNECTOR-SGL CONT SKT .021-IN-BSC-SZ | 28480 | 1251-2194 |
| A9A1Q1 | 1855-0423 | 5 | 5 | TRANSISTOR MOSFET N-CHAN E-MODE | 17856 | VN10KM |
| A9A1Q2 | 1855-0423 | 5 | | TRANSISTOR MOSFET N-CHAN E-MODE | 17856 | VN10KM |
| A9A1Q3 | 1855-0423 | 5 | | TRANSISTOR MOSFET N-CHAN E-MODE | 17856 | VN10KM |
| A9A1Q4 | 1855-0423 | 5 | | TRANSISTOR MOSFET N-CHAN E-MODE | 17856 | VN10KM |
| A9A1Q5 | 1855-0423 | 5 | | TRANSISTOR MOSFET N-CHAN E-MODE | 17856 | VN10KM |
| A9A1Q6 | 1854-0474 | 4 | | TRANSISTOR NPN SI PD=310MW FT=100MHZ | 04713 | 2N5551 |
| A9A1Q7 | 1854-0474 | 4 | | TRANSISTOR NPN SI PD=310MW FT=100MHZ | 04713 | 2N5551 |
| A9A1Q8 | 1854-0813 | 5 | | TRANSISTOR NPN 2N3501S SI TO-39 PD=1W | 28480 | 1854-0813 |
| A9A1Q9 | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A9A1Q10 | 1854-0813 | 5 | | TRANSISTOR NPN 2N3501S SI TO-39 PD=1W | 28480 | 1854-0813 |
| A9A1Q11 | 1200-0173 | 5 | 3 | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A9A1Q12 | 1853-0462 | 8 | | TRANSISTOR PNP 2N3635 SI TO-39 PD=1W | 01295 | 2N3635 |
| A9A1Q13 | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A9A1Q14 | 1854-0477 | 7 | | TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW | 04713 | 2N2222A |
| A9A1Q15 | 1854-0477 | 7 | | TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW | 04713 | 2N2222A |
| A9A1Q16 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625MW FT=200MHZ | 28480 | 1854-0810 |
| A9A1Q17 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625MW FT=200MHZ | 28480 | 1854-0810 |
| A9A1Q18 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625MW FT=200MHZ | 28480 | 1854-0810 |
| A9A1Q19 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A9A1Q20 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A9A1Q21 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A9A1Q22 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A9A1Q23 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A9A1Q24 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A9A1Q25 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A9A1Q26 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A9A1Q27 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A9A1Q28 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A9A1Q29 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A9A1Q30 | 1855-0235 | 7 | | TRANSISTOR J-FET N-CHAN D-MODE TO-52 SI | 28480 | 1855-0235 |
| A9A1Q31 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625MW FT=200MHZ | 28480 | 1854-0810 |
| A9A1Q32 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625MW FT=200MHZ | 28480 | 1854-0810 |
| A9A1Q33 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625MW FT=200MHZ | 28480 | 1854-0810 |
| A9A1Q34 | 1854-0345 | 8 | | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713 | 2N5179 |
| A9A1Q35 | 1854-0345 | 8 | | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713 | 2N5179 |
| A9A1Q36 | 1854-0696 | 2 | 2 | TRANSISTOR NPN SI TO-72 PD=200MW | 28480 | 1854-0696 |
| A9A1Q37 | 1854-0696 | 2 | | TRANSISTOR NPN SI TO-72 PD=200MW | 28480 | 1854-0696 |
| A9A1Q38 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625MW FT=200MHZ | 28480 | 1854-0810 |
| A9A1Q39 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A9A1R1 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A9A1R2 | 0698-7270 | 9 | 2 | RESISTOR 26.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2612-F |
| A9A1R3 | 0698-7277 | 6 | | RESISTOR 51.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5112-F |
| A9A1R4 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A9A1R5 | 0698-7234 | 5 | | RESISTOR 825 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-825R-F |
| A9A1R6 | 0757-0441 | 8 | | RESISTOR 8.25K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-8251-F |
| A9A1R7 | 0698-7201 | 6 | 2 | RESISTOR 34.8 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-34R8-F |
| A9A1R8 | 0698-7261 | 8 | | RESISTOR 11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1102-F |
| A9A1R9 | 0698-7270 | 9 | | RESISTOR 26.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2612-F |
| A9A1R10 | 0757-0199 | 3 | 1 | RESISTOR 21.5K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2152-F |
| A9A1R11 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A9A1R12 | 0757-0747 | 7 | 1 | RESISTOR 5.11K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-5111-F |
| A9A1R13 | 0698-7264 | 1 | | RESISTOR 14.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1472-F |
| A9A1R14 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A1R15 | 0698-7256 | 1 | | RESISTOR 6.81K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6811-F |
| A9A1R16 | 0757-0420 | 3 | 6 | RESISTOR 750 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-751-F |
| A9A1R17 | 0757-0418 | 9 | 3 | RESISTOR 619 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-619R-F |
| A9A1R18 | 0698-3447 | 4 | | RESISTOR 422 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-422R-F |
| A9A1R19 | 0757-0737 | 5 | 1 | RESISTOR 1.62K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-1621-F |
| A9A1R20 | 0698-7267 | 4 | | RESISTOR 19.6K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1962-F |
| A9A1R21 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A1R22 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A9A1R23 | 0698-7246 | 9 | | RESISTOR 2.61K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2611-F |
| A9A1R24 | 0698-7238 | 9 | | RESISTOR 1.21K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1211-F |
| A9A1R25 | 0698-7274 | 3 | 2 | RESISTOR 38.3K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3832-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| A9A1R26 | 0698-7253 | 8 | 3 | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A9A1R27 | 2100-3286 | 6 | | RESISTOR-TRMR 10K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-103 |
| A9A1R28 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A9A1R29 | 0698-7274 | 3 | | RESISTOR 38.3K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3832-F |
| A9A1R30 | 0698-7261 | 8 | | RESISTOR 11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1102-F |
| A9A1R31 | 0698-7260 | 7 | 8 | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A1R32 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A9A1R33 | 0698-7228 | 7 | | RESISTOR 464 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-464R-F |
| A9A1R34 | 0698-7272 | 1 | | RESISTOR 31.6K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3162-F |
| A9A1R35 | 0698-7244 | 7 | | RESISTOR 2.15K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2151-F |
| A9A1R36 | 0698-7260 | 7 | 7 | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A1R37 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A1R38 | 0698-7273 | 2 | | RESISTOR 34.8K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3482-F |
| A9A1R39 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A1R40 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A1R41 | 0757-0465 | 6 | 6 | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A9A1R42 | 0698-0084 | 9 | | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2151-F |
| A9A1R43 | 0698-7273 | 2 | | RESISTOR 34.8K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3482-F |
| A9A1R44 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A1R45 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A1R46 | 0757-0465 | 6 | 6 | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A9A1R47 | 0698-0084 | 9 | | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2151-F |
| A9A1R48 | 0698-7273 | 2 | | RESISTOR 34.8K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3482-F |
| A9A1R49 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A1R50 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A1R51 | 0757-0465 | 6 | 6 | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A9A1R52 | 0698-0084 | 9 | | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2151-F |
| A9A1R53 | 0698-7273 | 2 | | RESISTOR 34.8K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3482-F |
| A9A1R54 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A1R55 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A1R56 | 0757-0465 | 6 | 6 | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A9A1R57 | 0698-0084 | 9 | | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2151-F |
| A9A1R58 | 0698-7273 | 2 | | RESISTOR 34.8K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3482-F |
| A9A1R59 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A1R60 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A1R61 | 0757-0465 | 6 | 6 | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A9A1R62 | 0698-0084 | 9 | | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2151-F |
| A9A1R63 | 0698-7273 | 2 | | RESISTOR 34.8K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3482-F |
| A9A1R64 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A1R65 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A1R66 | 0757-0465 | 6 | 6 | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A9A1R67 | 0698-0084 | 9 | | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2151-F |
| A9A1R68 | 0698-7206 | 1 | | RESISTOR 56.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-56R2-F |
| A9A1R69 | 0757-0730 | 8 | | RESISTOR 750 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-751-F |
| A9A1R70 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A9A1R71 | 0698-7188 | 8 | 8 | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A9A1R72 | 0698-3444 | 1 | | RESISTOR 316 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-316R-F |
| A9A1R73 | 0698-7198 | 0 | | RESISTOR 26.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-26R1-F |
| A9A1R74 | 0698-7206 | 1 | | RESISTOR 56.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-56R2-F |
| A9A1R75 | 0757-0274 | 5 | | RESISTOR 1.21K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1211-F |
| A9A1R76 | 0698-7243 | 6 | 6 | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A9A1R77 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| 2427A TO 2613A A9A1R78 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| 2615A AND ABOVE A9A1R78 | | | | NOT ASSIGNED | | |
| A9A1T1 | 08640-60355 | 0 | 1 | TRANSFMR-RF BLU | 28480 | 08640-60355 |
| A9A1TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A9A1TP2 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A9A1TP3 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A9A1TP4 | | | | NOT ASSIGNED | | |
| A9A1TP5 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A9A1TP6 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A9A1VR1 | 1902-0967 | 3 | 1 | DIODE-ZNR 24V 5% DO-35 PD=.4W TC=+.094% | 28480 | 1902-0967 |
| A9A1VR2 | 1902-0943 | 5 | | DIODE-ZNR 2.4V 5% DO-35 PD=.4W TC=-.037% | 28480 | 1902-0943 |
| A9A1VR3 | 1902-0943 | 5 | | DIODE-ZNR 2.4V 5% DO-35 PD=.4W TC=-.037% | 28480 | 1902-0943 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A9A2 | 08642-60105 | 0 | 1 | FRACTIONAL-N ASSEMBLY | 28480 | 08642-60105 |
| A9A2C1 | 0180-2620 | 6 | 11 | CAPACITOR-FXD 2.2UF+-10% 50VDC TA | 25088 | D2R2GS1B50K |
| A9A2C2 | 0180-2620 | 6 | | CAPACITOR-FXD 2.2UF+-10% 50VDC TA | 25088 | D2R2GS1B50K |
| A9A2C3 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C4 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C5 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C6 | 0160-0576 | 5 | 11 | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C7 | 0180-2618 | 2 | | CAPACITOR-FXD 33UF+-10% 10VDC TA | 25088 | D33GS1B10K |
| A9A2C8 | 0180-2618 | 2 | | CAPACITOR-FXD 33UF+-10% 10VDC TA | 25088 | D33GS1B10K |
| A9A2C9 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C10 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C11 | 0180-0491 | 5 | 11 | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C12 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C13 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C14 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C15 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C16 | 0160-3879 | 7 | 11 | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C17 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C18 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C19 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C20 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C21 | 0160-3879 | 7 | 11 | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C22 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C23 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C24 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C25 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C26 | 0160-3879 | 7 | 11 | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C27 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C28 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C29 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C30 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C31 | 0160-4588 | 7 | 3 | CAPACITOR-FXD 270PF +-5% 100VDC CER | 28480 | 0160-4588 |
| A9A2C32 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C33 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C34 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C35 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C36 | 0160-3879 | 7 | 11 | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C37 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C38 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C39 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C40 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C41 | 0160-0576 | 5 | 11 | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C42 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C43 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C44 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C45 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C46 | 0180-2618 | 2 | 11 | CAPACITOR-FXD 33UF+-10% 10VDC TA | 25088 | D33GS1B10K |
| A9A2C47 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C48 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C49 | 0160-4527 | 4 | | CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4527 |
| A9A2C50 | 0160-4527 | 4 | | CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4527 |
| A9A2C51 | 0160-4527 | 4 | 11 | CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4527 |
| A9A2C52 | 0160-4527 | 4 | | CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4527 |
| A9A2C53 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C54 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C55 | 0180-2618 | 2 | | CAPACITOR-FXD 33UF+-10% 10VDC TA | 25088 | D33GS1B10K |
| A9A2C56 | 0160-3879 | 7 | 11 | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C57 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C58 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C59 | 0180-2618 | 2 | | CAPACITOR-FXD 33UF+-10% 10VDC TA | 25088 | D33GS1B10K |
| A9A2C60 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C61 | 0160-0576 | 5 | 11 | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C62 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C63 | 0180-2618 | 2 | | CAPACITOR-FXD 33UF+-10% 10VDC TA | 25088 | D33GS1B10K |
| A9A2C64 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C65 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A9A2C66 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C67 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C68 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C69 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C70 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C71 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C72 | 0180-2618 | 2 | | CAPACITOR-FXD 33UF+-10% 10VDC TA | 25088 | D33GS1B10K |
| A9A2C73 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C74 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C75 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A9A2C76 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A9A2C77 | 0160-0158 | 9 | 1 | CAPACITOR-FXD 5600PF +-10% 200VDC POLYE | 28480 | 0160-0158 |
| A9A2C78 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C79 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C80 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C81 | 0160-5392 | 3 | 1 | CAPACITOR-FXD 1500PF 400VDC | 28480 | 0160-5392 |
| A9A2C82 | 0160-3531 | 8 | | CAPACITOR-FXD 2UF +-5% 50VDC MET-POLYC | 28480 | 0160-3531 |
| A9A2C83 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C84 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A9A2C85 | 0180-2620 | 6 | | CAPACITOR-FXD 2.2UF+-10% 50VDC TA | 25088 | D2R2GS1B50K |
| A9A2C86 | 0180-2620 | 6 | | CAPACITOR-FXD 2.2UF+-10% 50VDC TA | 25088 | D2R2GS1B50K |
| A9A2CR1 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A9A2CR2 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A9A2CR3 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A9A2CR4 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A9A2CR5 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A9A2CR6 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A9A2CR7 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A9A2CR8 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A9A2CR9 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A9A2CR10 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A9A2CR11 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A9A2DS1 | 1990-0451 | 5 | 1 | LED-LAMP LUM-INT=300UCD IF=20MA-MAX | 28480 | 5082-4468 |
| A9A2FL1-FL13 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A9A2J1 | 1251-8248 | 8 | | CONN-POST TYPE .100-PIN-SPCG 26-CONT | 28480 | 1251-8248 |
| | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A9A2J2 | 1250-1425 | 7 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-1425 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A9A2J3 | 1250-1425 | 7 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-1425 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A9A2J4 | 1250-1425 | 7 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-1425 |
| | 08642-20078 | 2 | | ELSTMR CON SMC D | 28480 | 08642-20078 |
| A9A2J5 | 1251-8759 | 6 | | CONN-POST TYPE .100-PIN-SPCG 11-CONT | 28480 | 1251-8759 |
| A9A2J6 | 1251-8758 | 5 | | CONN-POST TYPE .100-PIN-SPCG 8-CONT | 28480 | 1251-8758 |
| A9A2L1 | 9100-2262 | 3 | 2 | INDUCTOR RF-CH-MLD 3.9UH 10% .105DX.26LG | 28480 | 9100-2262 |
| A9A2L2 | 9100-1623 | 8 | 4 | INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG | 28480 | 9100-1623 |
| A9A2L3 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A9A2L4 | 9100-1623 | 8 | | INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG | 28480 | 9100-1623 |
| A9A2L5 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A9A2L6 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A9A2L7 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A9A2L8 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A9A2L9 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A9A2L10 | 9100-2262 | 3 | | INDUCTOR RF-CH-MLD 3.9UH 10% .105DX.26LG | 28480 | 9100-2262 |
| A9A2L11 | 9100-1623 | 8 | | INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG | 28480 | 9100-1623 |
| A9A2L12 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A9A2L13 | 9100-1623 | 8 | | INDUCTOR RF-CH-MLD 27UH 5% .166DX.385LG | 28480 | 9100-1623 |
| A9A2Q1 | 1854-0345 | 8 | | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713 | 2N5179 |
| A9A2Q2 | 1854-0345 | 8 | | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713 | 2N5179 |
| A9A2Q3 | 1854-0345 | 8 | | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713 | 2N5179 |
| A9A2Q4 | 1854-0345 | 8 | | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713 | 2N5179 |
| A9A2Q5 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A9A2Q6 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A9A2Q7 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A9A2Q8 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A9A2Q9 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A9A2Q10 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A9A2Q11 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625MW FT=200MHZ | 28480 | 1854-0810 |
| A9A2Q12 | 1853-0405 | 9 | | TRANSISTOR PNP SI PD=300MW FT=850MHZ | 04713 | 2N4209 |
| A9A2Q13 | 1853-0405 | 9 | | TRANSISTOR PNP SI PD=300MW FT=850MHZ | 04713 | 2N4209 |
| A9A2Q14 | 1855-0049 | 1 | 1 | TRANSISTOR-JFET DUAL N-CHAN D-MODE SI | 28480 | 1855-0049 |
| A9A2Q15 | 1853-0034 | 0 | 3 | TRANSISTOR PNP SI TO-18 PD=360MW | 28480 | 1853-0034 |
| A9A2Q16 | 1854-0477 | 7 | | TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW | 04713 | 2N2222A |
| A9A2Q17 | 1854-0477 | 7 | | TRANSISTOR NPN 2N2222A SI TO-18 PD=500MW | 04713 | 2N2222A |
| A9A2Q18 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625MW FT=200MHZ | 28480 | 1854-0810 |
| A9A2Q19 | 1853-0281 | 9 | | TRANSISTOR PNP 2N2907A SI TO-18 PD=400MW | 04713 | 2N2907A |
| A9A2Q20 | 1853-0281 | 9 | | TRANSISTOR PNP 2N2907A SI TO-18 PD=400MW | 04713 | 2N2907A |
| A9A2Q21 | 1853-0034 | 0 | | TRANSISTOR PNP SI TO-18 PD=360MW | 28480 | 1853-0034 |
| A9A2Q22 | 1853-0034 | 0 | | TRANSISTOR PNP SI TO-18 PD=360MW | 28480 | 1853-0034 |
| A9A2Q23 | 1855-0276 | 6 | 3 | TRANSISTOR J-FET 2N4416A N-CHAN D-MODE | 01295 | 2N4416A |
| A9A2Q24 | 1854-0345 | 8 | | TRANSISTOR NPN 2N5179 SI TO-72 PD=200MW | 04713 | 2N5179 |
| A9A2Q25 | 1853-0281 | 9 | | TRANSISTOR PNP 2N2907A SI TO-18 PD=400MW | 04713 | 2N2907A |
| A9A2Q26 | 1853-0281 | 9 | | TRANSISTOR PNP 2N2907A SI TO-18 PD=400MW | 04713 | 2N2907A |
| A9A2Q27 | 1853-0281 | 9 | | TRANSISTOR PNP 2N2907A SI TO-18 PD=400MW | 04713 | 2N2907A |
| A9A2Q28 | 1853-0281 | 9 | | TRANSISTOR PNP 2N2907A SI TO-18 PD=400MW | 04713 | 2N2907A |
| A9A2Q29 | 1854-0215 | 1 | 3 | TRANSISTOR NPN SI PD=350MW FT=300MHZ | 04713 | 2N3904 |
| A9A2Q30 | 1853-0281 | 9 | | TRANSISTOR PNP 2N2907A SI TO-18 PD=400MW | 04713 | 2N2907A |
| A9A2Q31 | 1854-0215 | 1 | | TRANSISTOR NPN SI PD=350MW FT=300MHZ | 04713 | 2N3904 |
| A9A2Q32 | 1854-0215 | 1 | | TRANSISTOR NPN SI PD=350MW FT=300MHZ | 04713 | 2N3904 |
| A9A2Q33 | 1855-0277 | 7 | 2 | TRANSISTOR J-FET 2N5268 P-CHAN D-MODE | 04713 | 2N5268 |
| A9A2Q34 | 1855-0276 | 6 | | TRANSISTOR J-FET 2N4416A N-CHAN D-MODE | 01295 | 2N4416A |
| A9A2Q35 | 1855-0276 | 6 | | TRANSISTOR J-FET 2N4416A N-CHAN D-MODE | 01295 | 2N4416A |
| A9A2Q36 | 1855-0277 | 7 | | TRANSISTOR J-FET 2N5268 P-CHAN D-MODE | 04713 | 2N5268 |
| A9A2R1 | 1810-0206 | 8 | 3 | NETWORK-RES 8-SIP10.0K OHM X 7 | 01121 | 208A103 |
| A9A2R2 | 0698-7244 | 7 | | RESISTOR 2.15K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2151-F |
| A9A2R3 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R4 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A9A2R5 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R6 | 0698-7262 | 9 | 2 | RESISTOR 12.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1212-F |
| A9A2R7 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A9A2R8 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A9A2R9 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A9A2R10 | 0698-7209 | 4 | 4 | RESISTOR 75 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-75R0-F |
| A9A2R11 | 0757-0730 | 8 | | RESISTOR 750 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-751-F |
| A9A2R12 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A9A2R13 | 0698-7216 | 3 | 2 | RESISTOR 147 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-147R-F |
| A9A2R14 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A9A2R15 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A9A2R16 | 0698-7209 | 4 | | RESISTOR 75 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-75R0-F |
| A9A2R17 | 0757-0274 | 5 | | RESISTOR 1.21K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1211-F |
| A9A2R18 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A9A2R19 | 0698-7226 | 5 | 2 | RESISTOR 383 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-383R-F |
| A9A2R20 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R21 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R22 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R23 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R24 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R25 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R26 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A9A2R27 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R28 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R29 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R30 | 1810-0316 | 1 | 1 | NETWORK-RES 16-DIP10.0K OHM X 8 | 01121 | 316B103 |
| A9A2R31 | 1810-0206 | 8 | | NETWORK-RES 8-SIP10.0K OHM X 7 | 01121 | 208A103 |
| A9A2R32 | 1810-0206 | 8 | | NETWORK-RES 8-SIP10.0K OHM X 7 | 01121 | 208A103 |
| A9A2R33 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R34 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A9A2R35 | 0698-7209 | 4 | | RESISTOR 75 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-75R0-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|------------------|
| A9A2R36 | 0698-7206 | 1 | 4 | RESISTOR 56.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-56R2-F |
| A9A2R37 | 0698-7232 | 3 | | RESISTOR 681 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-681R-F |
| A9A2R38 | 0698-7239 | 0 | | RESISTOR 1.33K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1331-F |
| A9A2R39 | 0698-7204 | 9 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R40 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A9A2R41 | 0698-7209 | 4 | 12 | RESISTOR 75 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-75R0-F |
| A9A2R42 | 0698-7206 | 1 | | RESISTOR 56.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-56R2-F |
| A9A2R43 | 0698-7232 | 3 | | RESISTOR 681 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-681R-F |
| A9A2R44 | 0698-7239 | 0 | | RESISTOR 1.33K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1331-F |
| A9A2R45 | 0698-7204 | 9 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R46 | 0698-7228 | 7 | 7 | RESISTOR 464 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-464R-F |
| A9A2R47 | 0698-7204 | 9 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R48 | 0698-7228 | 7 | | RESISTOR 464 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-464R-F |
| A9A2R49 | 0698-7204 | 9 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R50 | 0698-7228 | 7 | | RESISTOR 464 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-464R-F |
| A9A2R51 | 0698-7205 | 0 | 0 | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A9A2R52 | 0698-7228 | 7 | | RESISTOR 464 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-464R-F |
| A9A2R53 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A9A2R54 | 0757-0421 | 4 | | RESISTOR 825 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-825R-F |
| A9A2R55 | 0698-7219 | 6 | | RESISTOR 196 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-196R-F |
| A9A2R56 | 0698-7253 | 8 | 1 | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A9A2R57 | 0698-7197 | 9 | | RESISTOR 23.7 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-23R7-F |
| A9A2R58 | 0757-0421 | 4 | | RESISTOR 825 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-825R-F |
| A9A2R59 | 0698-3150 | 6 | | RESISTOR 2.37K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2371-F |
| A9A2R60 | 0698-7242 | 5 | | RESISTOR 1.78K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1781-F |
| A9A2R61 | 0698-7232 | 3 | 3 | RESISTOR 681 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-681R-F |
| A9A2R62 | 0757-1094 | 9 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1471-F |
| A9A2R63 | 0698-7204 | 9 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R64 | 0698-7262 | 9 | | RESISTOR 12.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1212-F |
| A9A2R65 | 0698-7242 | 5 | | RESISTOR 1.78K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1781-F |
| A9A2R66 | 0698-3152 | 8 | 6 | RESISTOR 3.48K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-3481-F |
| A9A2R67 | 0698-7257 | 2 | | RESISTOR 7.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-7501-F |
| A9A2R68 | 0698-7231 | 2 | | RESISTOR 619 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-619R-F |
| A9A2R69 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A9A2R70 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A9A2R71 | 0698-7232 | 3 | 2 | RESISTOR 681 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-681R-F |
| A9A2R72 | 0698-7204 | 9 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R73 | 2100-3096 | 6 | | RESISTOR-TRMR 50K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-503 |
| A9A2R74 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R75 | 2100-3296 | 8 | | RESISTOR-TRMR 1K 10% C TOP-ADJ 17-TRN | 28480 | 2100-3296 |
| A9A2R76 | 2100-3096 | 6 | 3 | RESISTOR-TRMR 50K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-503 |
| A9A2R77 | 0698-7204 | 9 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R78 | 0698-7193 | 5 | | RESISTOR 16.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-16R2-F |
| A9A2R79 | 0698-7204 | 9 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R80 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A9A2R81 | 0698-7236 | 7 | 7 | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A9A2R82 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3831-F |
| A9A2R83 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A9A2R84 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A9A2R85 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3831-F |
| A9A2R86 | 0698-7243 | 6 | 1 | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A9A2R87 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A9A2R88 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3831-F |
| A9A2R89 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R90 | 0699-0073 | 8 | | RESISTOR 10M 1% .125W F TC=0+-150 | 28480 | 0699-0073 |
| A9A2R91 | 0698-7212 | 9 | 1 | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A9A2R92 | 0698-8961 | 7 | | RESISTOR 909K 1% .125W F TC=0+-100 | 28480 | 0698-8961 |
| A9A2R93 | 0698-7254 | 9 | | RESISTOR 5.62K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5621-F |
| A9A2R94 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A9A2R95 | 2100-3288 | 8 | | RESISTOR-TRMR 50 20% C TOP-ADJ 17-TRN | 28480 | 2100-3288 |
| A9A2R96 | 0698-7258 | 3 | 7 | RESISTOR 8.25K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-8251-F |
| A9A2R97 | 0698-7238 | 9 | | RESISTOR 1.21K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1211-F |
| A9A2R98 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R99 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A9A2R100 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------|----------------|-----|-----|---------------------------------------|----------|----------------------|
| A9A2R101 | 0698-7193 | 5 | | RESISTOR 16.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-16R2-F |
| A9A2R102 | 0698-7193 | 5 | | RESISTOR 16.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-16R2-F |
| A9A2R103 | 0698-7228 | 7 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R104 | 0698-7268 | 5 | | RESISTOR 21.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2152-F |
| A9A2R105 | 0698-7204 | 9 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R106 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A9A2R107 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A9A2R108 | 0698-7204 | 9 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R109 | 0698-7234 | 5 | | RESISTOR 825 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-825R-F |
| A9A2R110 | 0698-7204 | 9 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R111 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A9A2R112 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A9A2R113 | 0698-7256 | 1 | | RESISTOR 6.81K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6811-F |
| A9A2R114 | 0698-7204 | 9 | | RESISTOR 46.4 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-46R4-F |
| A9A2R115 | 0698-7266 | 3 | 1 | RESISTOR 17.8K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1782-F |
| A9A2R116 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A9A2R117 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A9A2R118 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A9A2R119 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A9A2R120 | 0698-7259 | 4 | | RESISTOR 9.09K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-9091-F |
| A9A2R121 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| 2427A TO 2636A A9A2R122 | | | | NOT ASSIGNED | | |
| 2637A AND ABOVE A9A2A122 | 0699-1391 | 5 | 1 | RESISTOR 10K 1% .125W F TC=0+-100 | 28480 | 0699-1391 |
| A9A2TP1-TP23 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A9A2U1 | 1820-1197 | 9 | | IC GATE TTL LS NAND QUAD 2-INP | 01295 | SN74LS00N |
| A9A2U2 | 1820-0817 | 8 | 2 | IC FF ECL D-M/S DUAL | 04713 | MC10131P |
| A9A2U3 | 1820-0683 | 6 | 2 | IC INV TTL S HEX 1-INP | 01295 | SN74S04N |
| A9A2U4 | 1820-0629 | 0 | 5 | IC FF TTL S J-K NEG-EDGE-TRIG | 01295 | SN74S112N |
| A9A2U5 | 1820-0629 | 0 | | IC FF TTL S J-K NEG-EDGE-TRIG | 01295 | SN74S112N |
| A9A2U6 | 1820-0668 | 7 | 6 | IC BFR TTL NON-INV HEX 1-INP | 01295 | SN7407N |
| A9A2U7 | 1820-1216 | 3 | 2 | IC DCDR TTL LS 3-T0-8-LINE 3-INP | 01295 | SN74LS138N |
| A9A2U8 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A9A2U9 | 1818-3460 | 8 | 1 | IC ROM 2048X8 | 28480 | 1818-3460 |
| | 1200-0565 | 9 | 1 | SOCKET-IC 24-CONT DIP-SLDR | 28480 | 1200-0565 |
| A9A2U10 | 1820-1196 | 8 | 3 | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM | 01295 | SN74LS174N |
| A9A2U11 | 1820-1279 | 8 | 2 | IC CNTR TTL LS DECD UP/DOWN SYNCHRO | 01295 | SN74LS190N |
| A9A2U12 | 1820-1144 | 6 | 3 | IC GATE TTL LS NOR QUAD 2-INP | 01295 | SN74LS02N |
| A9A2U13 | 1820-1212 | 9 | | IC FF TTL LS J-K NEG-EDGE-TRIG | 01295 | SN74LS112AN |
| A9A2U14 | 1820-0683 | 6 | | IC INV TTL S HEX 1-INP | 01295 | SN74S04N |
| A9A2U15 | 1820-1112 | 8 | | IC FF TTL LS D-TYPE POS-EDGE-TRIG | 01295 | SN74LS74AN |
| A9A2U16 | 1820-0629 | 0 | | IC FF TTL S J-K NEG-EDGE-TRIG | 01295 | SN74S112N |
| A9A2U17 | 1820-0629 | 0 | | IC FF TTL S J-K NEG-EDGE-TRIG | 01295 | SN74S112N |
| A9A2U18 | 1820-1416 | 5 | | IC SCHMITT-TRIG TTL LS INV HEX 1-INP | 01295 | SN74LS14N |
| A9A2U19 | 1820-1112 | 8 | | IC FF TTL LS D-TYPE POS-EDGE-TRIG | 01295 | SN74LS74AN |
| A9A2U20 | 1820-2004 | 9 | 1 | IC MISC NMOS | 28480 | 1820-2004 |
| | 08642-00111 | 2 | 1 | FOAM IC | 28480 | 08642-00111 |
| | 1200-1121 | 5 | 1 | SOCKET-IC DIP PC | 28480 | 1200-1121 |
| A9A2U21 | 1820-1196 | 8 | | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM | 01295 | SN74LS174N |
| A9A2U22 | 1820-1279 | 8 | | IC CNTR TTL LS DECD UP/DOWN SYNCHRO | 01295 | SN74LS190N |
| A9A2U23 | 1820-1197 | 9 | | IC GATE TTL LS NAND QUAD 2-INP | 01295 | SN74LS00N |
| A9A2U24 | 1820-0629 | 0 | | IC FF TTL S J-K NEG-EDGE-TRIG | 01295 | SN74S112N |
| A9A2U25 | 1820-1197 | 9 | | IC GATE TTL LS NAND QUAD 2-INP | 01295 | SN74LS00N |
| A9A2U26 | 1820-1144 | 6 | | IC GATE TTL LS NOR QUAD 2-INP | 01295 | SN74LS02N |
| A9A2U27 | 1820-1212 | 9 | | IC FF TTL LS J-K NEG-EDGE-TRIG | 01295 | SN74LS112AN |
| A9A2U28 | 1820-1212 | 9 | | IC FF TTL LS J-K NEG-EDGE-TRIG | 01295 | SN74LS112AN |
| A9A2U29 | 1820-1251 | 6 | | IC CNTR TTL LS DECD ASYNCHRO | 01295 | SN74LS196N |
| A9A2U30 | 1826-0141 | 3 | 1 | IC COMPARATOR GP DUAL 14-DIP-C PKG | 27014 | LM319J |
| A9A2U31 | 1820-0817 | 8 | | IC FF ECL D-M/S DUAL | 04713 | MC10131P |
| A9A2U32 | 1826-1045 | 8 | 1 | IC OP AMP H-SLEW-RATE 8-DIP-C PKG | 28480 | 1826-1045 |
| A9A2U33 | 1826-0371 | 1 | | IC OP AMP LOW-BIAS-H-IMPED TO-99 PKG | 27014 | LF256H |
| A9A2U34 | 1810-0294 | 4 | 1 | NETWORK-RESISTOR 16 PIN DIP; RES | 28480 | 1810-0294 |
| A9A2U35 | 1858-0032 | 8 | 1 | TRANSISTOR ARRAY 14-PIN PLSTC DIP | 3L585 | CA3146E |
| A9A2U36 | 1820-1196 | 8 | | IC FF TTL LS D-TYPE POS-EDGE-TRIG COM | 01295 | SN74LS174N |
| A9A2U37 | 1826-0371 | 1 | | IC OP AMP LOW-BIAS-H-IMPED TO-99 PKG | 27014 | LF256H |
| 2427A TO 2738A A9A2U38 | 1826-0043 | 4 | | IC OP AMP GP TO-99 PKG | 3L585 | CA307T |
| 2809A AND ABOVE A9A2U38 | 1826-0989 | 7 | | IC OP AMP GP 8-DIP-C PKG | 28480 | 1826-0989 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|--------|-----|------------------------------------------|----------|-----------------|
| A9A2VR1 | 1902-0946 | 8 | 1 | DIODE-ZNR 3.3V 5% DO-35 PD=.4W TC=-.039% | 28480 | 1902-0946 |
| A9A2VR2 | 1902-0680 | 7 | 5 | DIODE-ZNR 1N827 6.2V 5% DO-7 PD=.4W | 24046 | 1N827 |
| A9A2VR3 | 1902-0680 | 7 | | DIODE-ZNR 1N827 6.2V 5% DO-7 PD=.4W | 24046 | 1N827 |
| A9A2VR4 | 1902-0947 | 9 | 1 | DIODE-ZNR 3.6V 5% DO-35 PD=.4W TC=-.036% | 28480 | 1902-0947 |
| A9A2VR5 | 1902-0680 | 7 | | DIODE-ZNR 1N827 6.2V 5% DO-7 PD=.4W | 24046 | 1N827 |

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------------|-----------------------------------|-------------------|-------------------|--------------------------------------------------------------------------------------------------|---------------------------|-------------------------------|
| <p>A10</p> <p>A10</p> | <p>0960-0448</p> <p>0362-0265</p> | <p>6</p> <p>7</p> | <p>1</p> <p>7</p> | <p>LINE POWER ASSEMBLY</p> <p>LINE MODULE-FILTERED CONNECTOR-SGL CONT SKT 1.14-MM-BSC-SZ</p> | <p>05245</p> <p>28480</p> | <p>F1927</p> <p>0362-0265</p> |

See introduction to this section for ordering information.

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|-----------------------------------------------------------------------------|----------|----------------------|
| A11 | | | | | | |
| A11 | 08642-60896 | 6 | 1 | REFERENCE LOOP MODULE | 28480 | 08642-60896 |
| A11 | 08642-69896 | 4 | 1 | REFERENCE LOOP MODULE (RESTORED) | 28480 | 08642-69896 |
| A11FL1 | 08642-80012 | 0 | | FLTR LP 7POS BKT | 28480 | 08642-80012 |
| A11FL2 | 9135-0233 | 7 | 3 | FLTR LP .3G 100V | 28480 | 9135-0233 |
| A11FL3 | 9135-0233 | 7 | | FLTR LP .3G 100V | 28480 | 9135-0233 |
| A11MP1 | 08642-20009 | 9 | 1 | COVER REF PHASE DETECTOR | 28480 | 08642-20009 |
| A11MP2 | 08642-40057 | 0 | 2 | GASKET FEEDTHRU | 28480 | 08642-40058 |
| A11MP3 | 08642-00044 | 0 | 4 | CVR MXR ACCES | 28480 | 08642-00044 |
| A11MP4 | 0515-1101 | 7 | | SCREW-MACH M4 X 0.7 8MM-LG 90-DEG-FLH-HD (ATTACH ACCESS COVERS TO COVER) | 28480 | 0515-1101 |
| A11MP5 | 08642-20010 | 2 | 1 | BASE REF LOOP | 28480 | 08642-20010 |
| A11MP6 | 3050-0990 | 7 | 2 | WASHER-FL NM NO. 000 .04-IN-ID .25-IN-OD | 28480 | 3050-0990 |
| A11MP7 | 08642-00001 | 9 | | GASKET 7 P FILTR | 28480 | 08642-00001 |
| A11MP8 | 0515-1521 | 5 | | SCREW-MACH M3 X 0.5 5MM-LG 90-DEG-FLH-HD (ATTACH FILTER TO BASE) | 28480 | 0515-1521 |
| A11MP9 | 08642-00075 | 7 | 1 | FOAM-COND (1000 TO 5000 OHMS PER SQ) | 28480 | 08642-00075 |
| A11MP11 | 08642-20011 | 3 | 1 | COVER REF VCO/MIXER/SPLITTER | 28480 | 08642-20011 |
| A11MP12 | 11661-20046 | 4 | 2 | SHIELD-POLYIRON | 28480 | 11661-20046 |
| A11MP13 | 08642-40078 | 4 | 1 | SHIELD POLYIRON | 28480 | 08642-40078 |
| A11MP14 | 0515-0684 | 9 | | SCREW-MACH M4 X 0.7 6MM-LG PAN-HD (ATTACH BOARDS TO BASE) | 28480 | 0515-0684 |
| A11MP15 | 0515-0381 | 3 | | SCREW-MACH M4 X 0.7 10MM-LG PAN-HD (ATTACH COVERS TO BASE) | 00000 | ORDER BY DESCRIPTION |
| A11MP16 | 8160-0472 | 8 | | RFI ROUND STRIP BE-CU SN-PL .093-IN-OD (SPIRA SHIELD) | 28480 | 8160-0472 |
| A11MP17 | 08642-00050 | 8 | 3 | SLIDE-MODUL 57R4 (FRONT) | 28480 | 08642-00050 |
| A11MP18 | 08642-00049 | 5 | 6 | SLIDE-MDL469R56 (REAR) | 28480 | 08642-00049 |
| A11MP19 | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH MODULE SLIDES TO BASE) | 28480 | 0515-1102 |
| A11MP20 | 08642-80067 | 5 | 1 | LABEL-REF 60004 | 28480 | 08642-80067 |
| A11W1 | 5061-4806 | 7 | 1 | CBL-COAX 925 (A11A1J2 TO A11A3J3) | 28480 | 5061-4806 |
| A11W2 | 08642-60043 | 5 | 1 | CBL-COAX 923 (A11A1J4 TO A11A2J1) | 28480 | 08642-60043 |
| A11W3 | 08642-20066 | 8 | 2 | CABLE SR JUMPER (A11A2J3 TO A11A3J6) | 28480 | 08642-20066 |

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A11A1 | 08642-60106 | 1 | 1 | REFERENCE PHASE DETECTOR ASSEMBLY | 28480 | 08642-60106 |
| A11A1C1 | 0180-0089 | 7 | 2 | CAPACITOR-FXD 10UF+50-10% 150VDC AL | 56289 | 30D106F150DD2 |
| A11A1C2 | 0160-0168 | 1 | 2 | CAPACITOR-FXD .1UF +-10% 200VDC POLYE | 28480 | 0160-0168 |
| A11A1C3 | 0160-4535 | 4 | | CAPACITOR-FXD 1UF +-10% 50VDC CER | 28480 | 0160-4535 |
| A11A1C4 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A11A1C5 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A11A1C6 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A11A1C7 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A11A1C8 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A11A1C9 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A1C10 | 0160-4524 | 1 | 3 | CAPACITOR-FXD 24PF +-5% 200VDC CER 0+-30 | 51642 | 200-200-NP0-240J |
| A11A1C11 | 0160-4526 | 3 | 4 | CAPACITOR-FXD 42PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4526 |
| A11A1C12 | 0160-4524 | 1 | | CAPACITOR-FXD 24PF +-5% 200VDC CER 0+-30 | 51642 | 200-200-NP0-240J |
| A11A1C13 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A1C14 | 0160-4389 | 6 | 17 | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A11A1C15 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A11A1C16 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A11A1C17 | 0160-4535 | 4 | | CAPACITOR-FXD 1UF +-10% 50VDC CER | 28480 | 0160-4535 |
| A11A1C18 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A11A1C19 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A11A1C20 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A1C21 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A11A1C22 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A1C23 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A11A1C24 | | | | NOT ASSIGNED | | |
| A11A1C25 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A11A1C26 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A11A1C27 | 0160-5959 | 8 | 2 | CAPACITOR-FXD 33PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5959 |
| A11A1C28 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +-5PF 200VDC CER | 28480 | 0160-3874 |
| A11A1C29 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A11A1C30 | 0160-4498 | 8 | | CAPACITOR-FXD 5.6PF +-5PF 200VDC CER | 28480 | 0160-4498 |
| A11A1C31 | 0160-5961 | 2 | | CAPACITOR-FXD 22PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5961 |
| A11A1C32 | 0160-4768 | 5 | | CAPACITOR-FXD 470PF +-5% 100VDC CER | 28480 | 0160-4768 |
| 2731A TO 2735A | | | | | | |
| A11A1C33 | 0160-4387 | 4 | | CAPACITOR-FXD 47PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4387 |
| A11A1C34 | 0121-0449 | 9 | 2 | CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG | 28480 | 0121-0449 |
| 2736A AND ABOVE | | | | | | |
| A11A1C33 | 0160-4765 | 2 | | CAPACITOR-FXD 36PF+-5% 200VDC CER 0+-30 | 28480 | 0160-4765 |
| A11A1C34 | 0160-0461 | 5 | | CAPACITOR-V TRMR-CER 6-22PF 63V PC-MTG | 28480 | 0121-0461 |
| A11A1C35 | 0160-4768 | 5 | | CAPACITOR-FXD 470PF +-5% 100VDC CER | 28480 | 0160-4768 |
| A11A1C36 | 0160-5038 | 4 | 2 | CAPACITOR-FXD 3300PF +-10% 100VDC CER | 28480 | 0160-5038 |
| A11A1C37 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A11A1C38 | 0160-4535 | 4 | | CAPACITOR-FXD 1UF +-10% 50VDC CER | 28480 | 0160-4535 |
| A11A1C39 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A11A1C40 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A11A1C41 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A11A1C42 | 0160-3875 | 3 | | CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30 | 28480 | 0160-3875 |
| A11A1C43 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A11A1C44 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A11A1C45 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A11A1C46 | 0160-4822 | 2 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4822 |
| A11A1C47 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A11A1C48 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A11A1C49 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A11A1C50 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A11A1C51 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A11A1C52 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A11A1C53 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A1C54 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A11A1C55 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A1C56 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A1C57 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A11A1C58 | 0160-4547 | 8 | 4 | CAPACITOR-FXD 150PF +-5% 200VDC CER | 28480 | 0160-4547 |
| A11A1C59 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A11A1C60 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A11A1C61 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A11A1C62 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A11A1C63 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A11A1C64 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A11A1C65 | 0160-5959 | 8 | | CAPACITOR-FXD 33PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5959 |

See introduction to this section for ordering information.

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A11A1CR1 | 1901-1085 | 6 | 4 | DIODE-SM SIG SCHOTTKY | 28480 | 1901-1085 |
| A11A1CR2 | 1901-1085 | 6 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-1085 |
| A11A1CR3 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A11A1CR4 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A11A1CR5 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A11A1DS1 | 1990-1110 | 5 | 2 | LED-LAMP LUM-INT=1.5MCD IF=20MA-MAX | 28480 | 1990-1110 |
| A11A1FL1 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A11A1FL2 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A11A1FL3 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A11A1FL4 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A11A1FL5 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A11A1FL6 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A11A1FL7 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A11A1FL8 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A11A1J1 | 1251-8105 | 6 | 3 | CONN-POST TYPE .100-PIN-SPCG 16-CONT | 28480 | 1251-8105 |
| | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A11A1J2 | 1250-1425 | 7 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-1425 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A11A1J3 | 1250-1425 | 7 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-1425 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A11A1J4 | 1250-1425 | 7 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-1425 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A11A1J5 | 1252-0318 | 9 | 6 | CONN POST SKT 2 | 28480 | 1252-0318 |
| A11A1J6 | 1252-0318 | 9 | | CONN POST SKT 2 | 28480 | 1252-0318 |
| A11A1J7 | 1251-8758 | 5 | | CONN-POST TYPE .100-PIN-SPCG 8-CONT | 28480 | 1251-8758 |
| A11A1L1 | 9140-0528 | 4 | 2 | INDUCTOR RF-CH-MLD 120NH 5% .105DX.26LG | 28480 | 9140-0528 |
| A11A1L2 | 9140-0400 | 1 | 2 | INDUCTOR RF-CH-MLD 8.2UH 5% .166DX.385LG | 28480 | 9140-0400 |
| A11A1L3 | 9100-1631 | 8 | 3 | INDUCTOR RF-CH-MLD 56UH 5% .166DX.385LG | 28480 | 9100-1631 |
| A11A1L4 | 9140-0531 | 9 | | INDUCTOR RF-CH-MLD 1UH 5% .105DX.26LG | 28480 | 9140-0531 |
| A11A1L5 | 9135-0078 | 8 | 8 | INDUCTOR RF-CH-MLD 82NH 7% .102DX.26LG | 28480 | 9135-0078 |
| A11A1L6 | 9140-0531 | 9 | | INDUCTOR RF-CH-MLD 1UH 5% .105DX.26LG | 28480 | 9140-0531 |
| A11A1L7 | 9135-0078 | 8 | | INDUCTOR RF-CH-MLD 82NH 7% .102DX.26LG | 28480 | 9135-0078 |
| A11A1L8 | 9140-0531 | 9 | | INDUCTOR RF-CH-MLD 1UH 5% .105DX.26LG | 28480 | 9140-0531 |
| A11A1L9 | 9135-0079 | 9 | 9 | INDUCTOR RF-CH-MLD 100NH 5% .102DX.26LG | 28480 | 9135-0079 |
| A11A1L10 | 9140-0517 | 1 | 2 | INDUCTOR RF-CH-MLD 180NH 5% .105DX.26LG | 28480 | 9140-0517 |
| A11A1L11 | 9140-0517 | 1 | | INDUCTOR RF-CH-MLD 180NH 5% .105DX.26LG | 28480 | 9140-0517 |
| A11A1L12 | 9140-0528 | 4 | | INDUCTOR RF-CH-MLD 120NH 5% .105DX.26LG | 28480 | 9140-0528 |
| A11A1L13 | 9140-0531 | 9 | | INDUCTOR RF-CH-MLD 1UH 5% .105DX.26LG | 28480 | 9140-0531 |
| A11A1L14 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A11A1L15 | 9140-0299 | 6 | 2 | INDUCTOR RF-CH-MLD 820NH 5% .105DX.26LG | 28480 | 9140-0299 |
| A11A1L16 | 9140-0137 | 1 | 1 | INDUCTOR RF-CH-MLD 1MH 5% .2DX.45LG Q=60 | 28480 | 9140-0137 |
| A11A1L17 | 9140-0507 | 9 | 3 | INDUCTOR RF-CH-MLD 56UH 5% .105DX.26LG | 28480 | 9140-0507 |
| A11A1Q1 | 1854-1008 | 2 | 4 | TRANSISTOR NPN SI PD=600MW FT=2GHZ | 28480 | 1854-1008 |
| A11A1Q2 | 1854-0720 | 3 | 10 | TRANSISTOR NPN SI PD=500MW FT=4GHZ | 28480 | 1854-0720 |
| A11A1Q3 | 1854-0720 | 3 | | TRANSISTOR NPN SI PD=500MW FT=4GHZ | 28480 | 1854-0720 |
| A11A1Q4 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A11A1Q5 | | | | NOT ASSIGNED | | |
| A11A1Q6 | 1854-0720 | 3 | | TRANSISTOR NPN SI PD=500MW FT=4GHZ | 28480 | 1854-0720 |
| A11A1Q7 | 1854-0637 | 1 | 6 | TRANSISTOR NPN 2N2219A SI TO-5 PD=800MW | 01295 | 2N2219A |
| | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| | 1205-0011 | 0 | 7 | HEAT SINK TO-5/TO-39-CS | 28480 | 1205-0011 |
| A11A1Q8 | 1854-0637 | 1 | | TRANSISTOR NPN 2N2219A SI TO-5 PD=800MW | 01295 | 2N2219A |
| | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| | 1205-0011 | 0 | | HEAT SINK TO-5/TO-39-CS | 28480 | 1205-0011 |
| A11A1Q9 | 1854-0720 | 3 | | TRANSISTOR NPN SI PD=500MW FT=4GHZ | 28480 | 1854-0720 |
| A11A1Q10 | 1854-0813 | 5 | | TRANSISTOR NPN 2N3501S SI TO-39 PD=1W | 28480 | 1854-0813 |
| | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| | 1205-0011 | 0 | | HEAT SINK TO-5/TO-39-CS | 28480 | 1205-0011 |
| A11A1R1 | 0757-0835 | 4 | 2 | RESISTOR 6.81K 1% .5W F TC=0+-100 | 28480 | 0757-0835 |
| A11A1R2 | 0757-0399 | 5 | 3 | RESISTOR 82.5 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-82R5-F |
| A11A1R3 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A11A1R4 | 0757-0418 | 9 | | RESISTOR 619 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-619R-F |
| A11A1R5 | 0698-4588 | 6 | 7 | RESISTOR 383 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-383R-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|--------------------------------------------------------|----------|-------------------|
| A11A1R6 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A11A1R7 | 0698-4588 | 6 | | RESISTOR 383 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-383R-F |
| A11A1R8 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 26654 | 3C120J |
| A11A1R9 | 0698-7245 | 8 | | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A11A1R10 | 0698-7217 | 4 | 2 | RESISTOR 162 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-162R-F |
| A11A1R11 | 0698-7231 | 2 | | RESISTOR 619 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-619R-F |
| A11A1R12 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 26654 | 3C120J |
| A11A1R13 | 0757-1090 | 5 | 7 | RESISTOR 261 1% .5W F TC=0+-100 | 28480 | 0757-1090 |
| A11A1R14 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A11A1R15 | 0698-7220 | 9 | | RESISTOR 215 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-215R-F |
| A11A1R16 | 0698-7245 | 8 | | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A11A1R17 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A11A1R18 | 0698-4588 | 6 | | RESISTOR 383 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-383R-F |
| A11A1R19 | 0698-7231 | 2 | | RESISTOR 619 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-619R-F |
| A11A1R20 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A11A1R21 | 0757-1090 | 5 | | RESISTOR 261 1% .5W F TC=0+-100 | 28480 | 0757-1090 |
| A11A1R22 | 0699-1361 | 9 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 28480 | 0699-1361 |
| A11A1R23 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A11A1R24 | 0698-7280 | 1 | | RESISTOR 68.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6812-F |
| A11A1R25 | 0698-7238 | 9 | | RESISTOR 1.21K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1211-F |
| A11A1R26 | 0698-7280 | 1 | | RESISTOR 68.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6812-F |
| A11A1R27 | 0698-7238 | 9 | | RESISTOR 1.21K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1211-F |
| A11A1R28 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A11A1R29 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A11A1R30 | 0698-3400 | 9 | 3 | RESISTOR 147 1% .5W F TC=0+-100 | 28480 | 0698-3400 |
| A11A1R31 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A11A1R32 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A11A1R33 | 0757-0422 | 5 | 2 | RESISTOR 909 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-909R-F |
| A11A1R34 | 0757-0401 | 0 | 2 | RESISTOR 100 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-101-F |
| A11A1R35 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A11A1R36 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A11A1R37 | 0698-7256 | 1 | | RESISTOR 6.81K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6811-F |
| A11A1R38 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A11A1R39 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A11A1R40 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A11A1R41 | 0698-3156 | 2 | | RESISTOR 14.7K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1472-F |
| A11A1R42 | 2100-3090 | 0 | 2 | RESISTOR-TRMR 500 10% C TOP-ADJ 17-TRN NOT ASSIGNED | 32997 | 3292W-1-501 |
| A11A1R43 | | | | | | |
| A11A1R44 | 0698-8825 | 2 | | RESISTOR 681K 1% .125W F TC=0+-100 | 28480 | 0698-8825 |
| A11A1R45 | 0698-8825 | 2 | | RESISTOR 681K 1% .125W F TC=0+-100 | 28480 | 0698-8825 |
| A11A1R46 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A11A1R47 | 0698-6323 | 1 | 2 | RESISTOR 100 .1% .125W F TC=0+-25 | 28480 | 0698-6323 |
| A11A1R48 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A11A1R49 | 0698-6362 | 8 | | RESISTOR 1K .1% .125W F TC=0+-25 | 28480 | 0698-6362 |
| A11A1R50 | 0757-0274 | 5 | | RESISTOR 1.21K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1211-F |
| A11A1R51 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A11A1R52 | 0698-6377 | 5 | 2 | RESISTOR 200 .1% .125W F TC=0+-25 | 28480 | 0698-6377 |
| A11A1R53 | 0698-6355 | 9 | 2 | RESISTOR 400 .1% .125W F TC=0+-25 | 28480 | 0698-6355 |
| A11A1R54 | 0698-8028 | 7 | 2 | RESISTOR 800 1% .125W F TC=0+-100 | 19701 | MF4C1/8-T0-800R-F |
| A11A1R55 | 0698-6103 | 5 | 2 | RESISTOR 1.6K .1% .125W F TC=0+-50 | 28480 | 0698-6103 |
| A11A1R56 | 0698-7570 | 2 | 1 | RESISTOR 3.2K .5% .125W F TC=0+-50 | 19701 | MF4C1/8-T2-3201-D |
| A11A1R57 | 0698-6624 | 5 | 2 | RESISTOR 2K .1% .125W F TC=0+-25 | 28480 | 0698-6624 |
| A11A1R58 | 0698-5323 | 9 | 2 | RESISTOR 4K .5% .125W F TC=0+-50 | 28480 | 0698-5323 |
| A11A1R59 | 0698-3200 | 7 | 2 | RESISTOR 8K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-8001-F |
| A11A1R60 | 0698-7884 | 1 | 2 | RESISTOR 16K 1% .125W F TC=0+-50 | 19701 | MF4C1/8-T2-1602-F |
| A11A1R61 | 0698-6900 | 0 | 2 | RESISTOR 32K .5% .125W F TC=0+-50 | 28480 | 0698-6900 |
| A11A1R62 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A11A1R63 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A11A1R64 | 1810-0319 | 4 | 1 | NETWORK-RES 16-DIP100.0K OHM X 8 | 01121 | 316B104 |
| A11A1R65 | 0698-8827 | 4 | | RESISTOR 1M 1% .125W F TC=0+-100 | 28480 | 0698-8827 |
| A11A1R66 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A11A1R67 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A11A1R68 | 0698-0084 | 9 | | RESISTOR 2.15K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2151-F |
| A11A1R69 | 0698-3438 | 3 | | RESISTOR 147 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-147R-F |
| A11A1R70 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| A11A1R71 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A11A1R72 | 0698-7206 | 1 | | RESISTOR 56.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-56R2-F |
| A11A1R73 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A11A1R74 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A11A1R75 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A11A1R76 | 0698-7256 | 1 | | RESISTOR 6.81K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6811-F |
| A11A1R77 | 0698-7256 | 1 | | RESISTOR 6.81K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6811-F |
| A11A1R78 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A11A1R79 | 0698-7256 | 1 | | RESISTOR 6.81K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6811-F |
| A11A1R80 | 0698-7272 | 1 | | RESISTOR 31.6K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3162-F |
| A11A1R81 | 0698-7272 | 1 | | RESISTOR 31.6K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3162-F |
| A11A1R82 | 0698-8827 | 4 | | RESISTOR 1M 1% .125W F TC=0+-100 | 28480 | 0698-8827 |
| A11A1R83 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A11A1R84 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A11A1R85 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A11A1R86 | 0698-8381 | 5 | | RESISTOR 50 5% .1W C TC=0+-200 | 28480 | 0698-8381 |
| A11A1R87 | 0698-7227 | 6 | 4 | RESISTOR 422 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-422R-F |
| A11A1R88 | 0698-7227 | 6 | | RESISTOR 422 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-422R-F |
| A11A1R89 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A11A1S1 | 3101-2566 | 6 | 3 | SWITCH-RKR DIP-RKR-ASSY DPDT .5A 30VDC | 28480 | 3101-2566 |
| A11A1T1 | 9100-4365 | 1 | 6 | TRANSFORMER-RF INPUT Z:50 OHMS;Z RATIO:1 | 28480 | 9100-4365 |
| A11A1T2 | 9100-4365 | 1 | | TRANSFORMER-RF INPUT Z:50 OHMS;Z RATIO:1 | 28480 | 9100-4365 |
| A11A1T3 | 9100-4365 | 1 | | TRANSFORMER-RF INPUT Z:50 OHMS;Z RATIO:1 | 28480 | 9100-4365 |
| A11A1TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT SKT | 00000 | ORDER BY DESCRIPTION |
| A11A1TP2 | 1252-0216 | 6 | 2 | CONNECTOR-SGL CONT SKT .04-IN-BSC-SZ RND | 28480 | 1252-0216 |
| A11A1TP3 | 1250-0835 | 1 | | CONNECTOR-RF SMC M PC 50-OHM | 28480 | 1250-0835 |
| A11A1TP4 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A11A1U1 | 1820-0668 | 7 | | IC BFR TTL NON-INV HEX 1-INP | 01295 | SN7407N |
| A11A1U2 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A11A1U3 | 1820-1433 | 6 | | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A11A1U4 | 1826-0605 | 4 | | IC MULTIPLEXR 8-CHAN-ANLG 16-DIP-C PKG | 17856 | DG508BK |
| A11A1U5 | 1820-1433 | 6 | | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A11A1U6 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A11A1U7 | 1820-0668 | 7 | | IC BFR TTL NON-INV HEX 1-INP | 01295 | SN7407N |
| A11A1U8 | 1826-0180 | 0 | 2 | IC TIMER TTL MONO/ASTBL | 01295 | NE555P |
| A11A1U9 | 1826-0606 | 5 | | IC SWITCH ANLG QUAD 16-DIP-C PKG | 17856 | DG201BK |
| A11A1U10 | 1826-0783 | 9 | | IC OP AMP LOW-NOISE 8-DIP-C PKG | 52063 | XR5534ACN |
| 2427A TO 2738A A11A1U11 | 1826-0759 | 9 | | IC COMPARATOR GP QUAD 14-DIP-C PKG | 04713 | LM339J |
| 2814A AND ABOVE A11A1U11 | 1826-0138 | 8 | | IC COMPARATOR GP QUAD 14-DIP-C PKG | 01295 | LM339N |
| A11A1U12 | 1820-1437 | 0 | | IC MV TTL LS MONOSTBL DUAL | 01295 | SN74LS221N |
| A11A1U13 | 1820-1416 | 5 | | IC SCHMITT-TRIG TTL LS INTR | 01295 | SN74LS14N |
| A11A1U14 | 1820-1212 | 9 | | IC FF TTL LS J-K NEG-EDGE-TRIG | 01295 | SN74LS112AN |
| A11A1U15 | 1820-0535 | 7 | | IC DRVR TTL AND DUAL 2-INP | 01295 | SN75451BP |
| A11A1U16 | 1826-0785 | 1 | | IC OP AMP LOW-BIAS-H-IMPED DUAL 8-DIP-C | 01295 | TL072ACJG |
| A11A1U17 | 1820-1433 | 6 | | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A11A1U18 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A11A1U19 | 1826-0921 | 7 | | D/A 10-BIT 16-CBRZ/SDR CMOS | 28480 | 1826-0921 |
| A11A1U20 | 1826-0371 | 1 | | IC OP AMP LOW-BIAS-H-IMPED TO-99 PKG | 27014 | LF256H |
| A11A1VR1 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A1VR2 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A1VR3 | 1902-0680 | 7 | | DIODE-ZNR 1N827 6.2V 5% DO-35 .4W | 24045 | 1N827 |
| A11A1VR4 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A1Z1 | 0955-0219 | 8 | 2 | MIXER-DOUBLE BALANCED RF: .5-500MHZ; IF | 28480 | 0955-0219 |
| | 1251-3172 | 7 | 43 | CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND | 28480 | 1251-3172 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------------------------------------|----------------|-----|-----|-------------------------------------------|----------|------------------|
| 2427A TO 2611A A11A2 | 08642-60107 | 2 | 1 | REFERENCE VCO ASSEMBLY | 28480 | 08642-60107 |
| 2706A AND ABOVE A11A2 | 08642-60207 | 3 | 1 | REFERENCE VCO ASSEMBLY | 28480 | 08642-60207 |
| A11A2C1 | 0121-0531 | 0 | 6 | CAPACITOR-V TMR-CER .25-.7PF 250V | 28480 | 0121-0531 |
| A11A2C2 | 0160-5988 | 3 | 8 | CAPACITOR-FXD 100PF +-5% 500VDC PORC | 28480 | 0160-5988 |
| A11A2C3 | 0160-5989 | 4 | 6 | CAPACITOR-FXD 1PF +- .1PF 50VDC CER 0+-30 | 28480 | 0160-5989 |
| A11A2C4 | 0160-5994 | 1 | 1 | CAPACITOR-FXD 10PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5994 |
| A11A2C5 | 0160-5988 | 3 | | CAPACITOR-FXD 100PF +-5% 500VDC PORC | 28480 | 0160-5988 |
| A11A2C6 | 0160-5975 | 8 | | CAPACITOR-FXD 10PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5975 |
| A11A2C7 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A11A2C8 | 0160-5975 | 8 | | CAPACITOR-FXD 10PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5975 |
| A11A2C9 | 0160-5995 | 2 | 1 | CAPACITOR-FXD 4.7F +- .25PF 50VDC 0+-30 | 28480 | 0160-5995 |
| A11A2C10 | 0160-5988 | 3 | | CAPACITOR-FXD 100PF +-5% 500VDC PORC | 28480 | 0160-5988 |
| A11A2C11 | 0160-5987 | 2 | 4 | CAPACITOR-FXD 47PF +-5% 500VDC PORC | 28480 | 0160-5987 |
| A11A2C12 | 0160-5989 | 4 | | CAPACITOR-FXD 1PF +- .1PF 50VDC CER 0+-30 | 28480 | 0160-5989 |
| A11A2C13 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A2C14 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A2C15 | 0121-0531 | 0 | | CAPACITOR-V TMR-CER .25-.7PF 250V | 28480 | 0121-0531 |
| A11A2C16 | 0160-3468 | 0 | 2 | CAPACITOR-FXD .12UF +-10% 80VDC POLYE | 28480 | 0160-3468 |
| A11A2C17 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A2C18 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| 2427A TO 2706A A11A2C19-C22 2731A ONLY | | | | NOT ASSIGNED | | |
| A11A2C19 | 0160-5988 | 3 | 7 | CAPACITOR-FXD 100PF +-5% 500VDC PORC | 28480 | 0160-5988 |
| A11A2C20 | 0160-5988 | 3 | 7 | CAPACITOR-FXD 100PF +-5% 500VDC PORC | 28480 | 0160-5988 |
| A11A2C21 | 0160-5988 | 3 | 7 | CAPACITOR-FXD 100PF +-5% 500VDC PORC | 28480 | 0160-5988 |
| A11A2C22 | 0160-5988 | 3 | 7 | CAPACITOR-FXD 100PF +-5% 500VDC PORC | 28480 | 0160-5988 |
| 2738A AND ABOVE A11A2C19-C22 | | | | NOT ASSIGNED | | |
| A11A2CR1 | 0122-0157 | 8 | 2 | DIODE-VVC 15PF 5% BVR=60V | 28480 | 0122-0157 |
| A11A2CR2 | 1901-0639 | 4 | 56 | DIODE-PIN | 28480 | 5082-3080 |
| A11A2CR3 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A11A2CR4 | 0122-0155 | 6 | 3 | DIODE-VVC 6.8PF 5% BVR=60V | 28480 | 0122-0155 |
| 2427A TO 2611A A11A2CR5 2706A AND ABOVE A11A2CR5 | | | | NOT ASSIGNED | | |
| A11A2CR5 | 1901-0880 | 7 | | DIODE-GEN PRP 125MA DO-35 | 28480 | 1901-0880 |
| A11A2E1 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A11A2E2 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A11A2E3 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A11A2E4 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A11A2E5 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A11A2J1 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| A11A2J2 | 08642-20081 | 7 | | ELSTMR CONS7D SMC | 28480 | 08642-20081 |
| A11A2J3 | 1251-8758 | 5 | | CONN-POST TYPE .100-PIN-SPCG 8-CONT | 28480 | 1251-8758 |
| | 08656-00033 | 3 | 4 | CLIP SEMI-R GRND | 28480 | 08656-00033 |
| | 1251-2194 | 1 | 15 | CONNECTOR-SGL CONT SKT .021-IN-BSC-SZ | 28480 | 1251-2194 |
| A11A2L1 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A11A2L2 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A11A2L3 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A11A2L4 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A11A2L5 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A11A2L6 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A11A2L7 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A11A2Q1 | 1854-0946 | 5 | 31 | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A11A2Q2 | 1854-1009 | 3 | 5 | TRANSISTOR NPN SI PD=580MW | 28480 | 1854-1009 |
| A11A2Q3 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A11A2Q4 | 1854-0597 | 2 | 2 | TRANSISTOR NPN 2N5943 SI TO-39 PD=1W | 04713 | 2N5943 |
| A11A2Q5 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A11A2Q6 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A11A2R1 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A11A2R2 | 0698-3441 | 8 | | RESISTOR 215 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-215R-F |
| A11A2R3 | 0699-1430 | 3 | | RESISTOR 422 1% .125W F TC=0+-100 | 28480 | 0699-1430 |
| A11A2R4 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A11A2R5 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3831-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|---------------------------------------|----------|----------------------|
| A11A2TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A11A2TP2 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A11A2TP3 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A11A2TP4 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A11A2TP5 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A11A2TP6 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A11A2TP7 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A11A2VR1 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A2VR2 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A1W1-W100 | | | | NOT ASSIGNED | | |
| A11A1W101 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A11A1W102 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A11A1W103 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A11A1W104 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A11A1W105 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|----------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A11A3 | 08642-60108 | 3 | 1 | REFERENCE MIXER/SPLITTER ASSEMBLY | 28480 | 08642-60108 |
| A11A3C1 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A3C2 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A3C3 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A3C4 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A3C5 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A11A3C6 | 0160-3873 | 1 | | CAPACITOR-FXD 4.7PF +- .5PF 200VDC CER | 28480 | 0160-3873 |
| A11A3C7 | 0160-3872 | 0 | | CAPACITOR-FXD 2.2PF +- .25PF 200VDC CER | 28480 | 0160-3872 |
| A11A3C8 | 0160-3872 | 0 | | CAPACITOR-FXD 2.2PF +- .25PF 200VDC CER | 28480 | 0160-3872 |
| A11A3C9 | 0160-3872 | 0 | | CAPACITOR-FXD 2.2PF +- .25PF 200VDC CER | 28480 | 0160-3872 |
| A11A3C10 | 0160-3872 | 0 | | CAPACITOR-FXD 2.2PF +- .25PF 200VDC CER | 28480 | 0160-3872 |
| A11A3C11 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A3C12 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A3C13 | 0160-5947 | 4 | | CAPACITOR-FXD 1000PF +-10% 50VDC CER | 28480 | 0160-5947 |
| A11A3C14 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A3C15 | 0160-5975 | 8 | | CAPACITOR-FXD 10PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5975 |
| A11A3C16 | 0160-4498 | 8 | | CAPACITOR-FXD 5.6PF +- .5PF 200VDC CER | 28480 | 0160-4498 |
| A11A3C17 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A11A3C18 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A11A3C19 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A11A3C20 | 0160-5947 | 4 | | CAPACITOR-FXD 1000PF +-10% 50VDC CER | 28480 | 0160-5947 |
| A11A3C21 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A11A3C22 | 0160-4766 | 3 | | CAPACITOR-FXD 30PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4766 |
| A11A3C23 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A11A3C24 | 0160-5961 | 2 | | CAPACITOR-FXD 22PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5961 |
| A11A3C25 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A11A3C26 | 0160-4766 | 3 | | CAPACITOR-FXD 30PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4766 |
| A11A3C27 | 0160-5973 | 6 | | CAPACITOR-FXD 6.8PF +- .5PF 50VDC CER | 28480 | 0160-5973 |
| A11A3C28 | 0160-4493 | 3 | 4 | CAPACITOR-FXD 27PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4493 |
| A11A3C29 | 0160-4493 | 3 | | CAPACITOR-FXD 27PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4493 |
| A11A3C30 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A11A3C31 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A11A3C32 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A11A3C33 | 0160-4535 | 4 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4535 |
| A11A3C34 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A11A3C35 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A11A3C36 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A11A3C37 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A11A3C38 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A11A3C39 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A11A3C40 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A11A3FL1 | 08642-60132 | 3 | 1 | BD 1GHZ 15PL LPF | 28480 | 08642-60132 |
| A11A3FL2 | 08642-60131 | 2 | 1 | BD 860 MHZ LPF | 28480 | 08642-60131 |
| A11A3J1 | 1252-0318 | 9 | | CONN POST SKT 2 | 28480 | 1251-0318 |
| A11A3J2 | 1250-1425 | 7 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-1425 |
| A11A3J3 | 08642-20080 | 6 | 2 | ELSTMR CON SMC R | 28480 | 08642-20080 |
| A11A3J3 | 1250-1425 | 7 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-1425 |
| A11A3J3 | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A11A3J4 | 1250-1425 | 7 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-1425 |
| A11A3J5 | 08642-20080 | 6 | | ELSTMR CON SMC R | 28480 | 08642-20080 |
| A11A3J6 | 1252-0318 | 9 | | CONN POST SKT 2 | 28480 | 1252-0318 |
| A11A3J6 | 1251-2194 | 1 | | CONNECTOR-SGL CONT SKT .021-IN-BSC-SZ | 28480 | 1251-2194 |
| A11A3L1 | 9140-0158 | 6 | 16 | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A11A3L2 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A11A3L3 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A11A3L4 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A11A3L5 | 9135-0070 | 0 | 4 | INDUCTOR RF-CH-MLD 24NH 7% .102DX.26LG | 28480 | 9135-0070 |
| A11A3L6 | 9135-0070 | 0 | | INDUCTOR RF-CH-MLD 24NH 7% .102DX.26LG | 28480 | 9135-0070 |
| A11A3L7 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| 2427A TO 2534A A11A3L8 | 9135-0070 | 0 | | INDUCTOR RF-CH-MLD 24NH 7% .102DX.26LG | 28480 | 9135-0070 |
| 2535A AND ABOVE A11A3L8 | 9135-0077 | 7 | | INDUCTOR RF-CH-MLD 36NH 6% .102DX.26LG | 28480 | 9135-0077 |
| A11A3L9 | 9135-0072 | 2 | 6 | INDUCTOR RF-CH-MLD 56NH 5% .102DX.26LG | 28480 | 9135-0072 |
| A11A3L10 | 9135-0079 | 9 | | INDUCTOR RF-CH-MLD 100NH 5% .102DX.26LG | 28480 | 9135-0079 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|----------------------------------------------------------|---------------------------------------------------------------|-----------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------|
| A11A3L11 A11A3L12 A11A3L13 A11A3L14 A11A3L15 | 9135-0072 | 2 | | INDUCTOR RF-CH-MLD 56NH 5% .102DX.26LG PART IS ETCHED TRACE ON CIRCUIT BOARD PART IS ETCHED TRACE ON CIRCUIT BOARD PART IS ETCHED TRACE ON CIRCUIT BOARD PART IS ETCHED TRACE ON CIRCUIT BOARD | 28480 | 9135-0072 |
| A11A3L16 A11A3L17 A11A3L18 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD PART IS ETCHED TRACE ON CIRCUIT BOARD PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A11A3MP1 A11A3MP2 | 0362-0804 08656-00033 | 0 3 | 51 | TERMINAL-STUD SGL-PIN SWGFRM-MTG CLIP SEMI-R GRND | 28480 28480 | 0362-0804 08656-00033 |
| A11A3Q1 A11A3Q2 A11A3Q3 A11A3Q4 A11A3Q5 | 1854-0946 1854-0946 1854-0946 1854-0946 1854-0946 | 5 5 5 5 5 | | TRANSISTOR NPN SI PD=290Mw TRANSISTOR NPN SI PD=290Mw TRANSISTOR NPN SI PD=290Mw TRANSISTOR NPN SI PD=290Mw TRANSISTOR NPN SI PD=290Mw | 28480 28480 28480 28480 28480 | 1854-0946 1854-0946 1854-0946 1854-0946 1854-0946 |
| A11A3Q6 A11A3Q7 A11A3Q8 A11A3Q9 | 1854-0946 1854-0946 1854-0946 1854-1009 | 5 5 5 3 | | TRANSISTOR NPN SI PD=290Mw TRANSISTOR NPN SI PD=290Mw TRANSISTOR NPN SI PD=290Mw TRANSISTOR NPN SI PD=580Mw | 28480 28480 28480 28480 | 1854-0946 1854-0946 1854-0946 1854-1009 |
| A11A3R1 A11A3R2 A11A3R3 A11A3R4 A11A3R5 | 0698-7205 0699-1423 0757-0419 0698-7205 0698-7205 | 0 4 0 0 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 RESISTOR 215 1% .125W F TC=0+-100 RESISTOR 681 1% .125W F TC=0+-100 RESISTOR 51.1 1% .05W F TC=0+-100 RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 28480 24546 24546 24546 | C3-1/8-T0-51R1-F 0699-1423 C4-1/8-T0-681R-F C3-1/8-T0-51R1-F C3-1/8-T0-51R1-F |
| A11A3R6 A11A3R7 A11A3R8 A11A3R9 A11A3R10 | 0699-1423 0757-0419 0698-1361 0699-1423 0757-0417 | 4 0 9 4 8 | 6 | RESISTOR 215 1% .125W F TC=0+-100 RESISTOR 681 1% .125W F TC=0+-100 RESISTOR 51.1 1% .125W F TC=0+-100 RESISTOR 215 1% .125W F TC=0+-100 RESISTOR 562 1% .125W F TC=0+-100 | 28480 24546 28480 28480 24546 | 0699-1423 C4-1/8-T0-681R-F 0699-1361 0699-1423 C4-1/8-T0-562R-F |
| A11A3R11 A11A3R12 A11A3R13 A11A3R14 A11A3R15 | 0698-1361 0699-1423 0698-0082 0698-7205 0699-1423 | 9 4 7 0 4 | 4 | RESISTOR 51.1 1% .125W F TC=0+-100 RESISTOR 215 1% .125W F TC=0+-100 RESISTOR 464 1% .125W F TC=0+-100 RESISTOR 51.1 1% .05W F TC=0+-100 RESISTOR 215 1% .125W F TC=0+-100 | 28480 28480 24546 24546 28480 | 0699-1361 0699-1423 C4-1/8-T0-4640-F C3-1/8-T0-51R1-F 0699-1423 |
| A11A3R16 A11A3R17 A11A3R18 A11A3R19 A11A3R20 | 0698-3438 0699-1346 0699-1346 0698-7205 0698-7205 | 3 0 0 0 0 | | RESISTOR 147 1% .125W F TC=0+-100 RESISTOR 12.1 1% .125W F TC=0+-100 RESISTOR 12.1 1% .125W F TC=0+-100 RESISTOR 51.1 1% .05W F TC=0+-100 RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 28480 28480 24546 24546 | C4-1/8-T0-147R-F 0699-1346 0699-1346 C3-1/8-T0-51R1-F C3-1/8-T0-51R1-F |
| A11A3R21 A11A3R22 A11A3R23 A11A3R24 A11A3R25 | 0698-7205 0757-0417 0698-7205 0699-1423 0698-0082 | 0 8 0 4 7 | | RESISTOR 51.1 1% .05W F TC=0+-100 RESISTOR 562 1% .125W F TC=0+-100 RESISTOR 51.1 1% .05W F TC=0+-100 RESISTOR 215 1% .125W F TC=0+-100 RESISTOR 464 1% .125W F TC=0+-100 | 24546 24546 24546 28480 24546 | C3-1/8-T0-51R1-F C4-1/8-T0-562R-F C3-1/8-T0-51R1-F 0699-1423 C4-1/8-T0-4640-F |
| A11A3R26 A11A3R27 A11A3R28 A11A3R29 A11A3R30 | 0698-4579 0698-7205 0699-1423 0699-1432 0698-3102 | 5 0 4 5 8 | 1 6 | RESISTOR 261 1% .25W F TC=0+-100 RESISTOR 51.1 1% .05W F TC=0+-100 RESISTOR 215 1% .125W F TC=0+-100 RESISTOR 511 1% .125W F TC=0+-100 RESISTOR 237 1% .5W F TC=0+-100 | 24546 24546 28480 28480 28480 | C5-1/4-T0-261R-F C3-1/8-T0-51R1-F 0699-1423 0699-1432 0698-3102 |
| A11A3R31 A11A3R32 A11A3R33 A11A3R34 A11A3R35 | 0698-3102 0699-1423 0698-1361 0699-1826 0698-1827 | 8 4 9 1 2 | 1 2 | RESISTOR 237 1% .5W F TC=0+-100 RESISTOR 215 1% .125W F TC=0+-100 RESISTOR 51.1 1% .125W F TC=0+-100 RESISTOR 45.3 1% .2W C TC=0+-200 RESISTOR 130 1% .2W C TC=0+-200 | 28480 28480 28480 28480 28480 | 0698-3102 0699-1423 0699-1361 0699-1826 0699-1827 |
| A11A3R36 A11A3R37 A11A3R38 A11A3R39 A11A3R40 | 0699-1827 0699-1423 0698-7205 0698-7205 0698-7205 | 2 4 0 0 0 | | RESISTOR 130 1% .2W C TC=0+-200 RESISTOR 215 1% .125W F TC=0+-100 RESISTOR 51.1 1% .05W F TC=0+-100 RESISTOR 51.1 1% .05W F TC=0+-100 RESISTOR 51.1 1% .05W F TC=0+-100 | 28480 28480 24546 24546 24546 | 0699-1827 0699-1423 C3-1/8-T0-51R1-F C3-1/8-T0-51R1-F C3-1/8-T0-51R1-F |
| A11A3R41 A11A3R42 A11A3R43 A11A3R44 A11A3R45 | 0698-1361 0699-1372 0699-1372 0699-1372 0699-1372 | 9 2 2 2 2 | | RESISTOR 51.1 1% .125W F TC=0+-100 RESISTOR 1.47K 1% .125W F TC=0+-100 RESISTOR 1.47K 1% .125W F TC=0+-100 RESISTOR 1.47K 1% .125W F TC=0+-100 RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 28480 28480 28480 28480 | 0699-1361 0699-1372 0699-1372 0699-1372 0699-1372 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A11A3R46 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A11A3R47 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A11A3R48 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A11A3R49 | 0699-1432 | 4 | | RESISTOR 511 1% .125W F TC=0+-100 | 28480 | 0699-1432 |
| A11A3R50 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A11A3VR1 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A3VR2 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A3VR3 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A3VR4 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A3VR5 | 1902-1428 | 3 | | DIODE 7NR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A3VR6 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A3VR7 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A3VR8 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A11A3VR9 | 1902-0950 | 4 | 1 | DIODE-ZNR 4.7V 5% DO-35 PD=.4W TC=+.025X | 28480 | 1902-0950 |
| A11A3Z1 | 0960-0682 | 0 | 2 | POWER SPLITTER-RF PC MOUNT: 10-1500MHZ | 28480 | 0960-0682 |
| | 1251-3172 | 7 | | CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND | 28480 | 1251-3172 |
| A11A3Z2 | | 4 | 1 | MXR DBL .05-2GHZ | 28480 | |
| | 1251-3172 | 7 | | CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND | 28480 | 1251-3172 |

See introduction to this section for ordering information

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|-----------------------------------------------------------------------------|----------|----------------------|
| A12 | | | | | | |
| A12 | 08642-60897 | 7 | 1 | SUM LOOP/DIVIDER MODULE | 28480 | 08642-60897 |
| A12 | 08642-69897 | 5 | 1 | SUM LOOP/DIVIDER MODULE (RESTORED) | 28480 | 08642-69897 |
| A12FL1 | 08642-80013 | 1 | | FLTR LP 3M BKT | 28480 | 08642-80013 |
| A12FL2 | 9135-0233 | 7 | | FLTR LP .3G 100V | 28480 | 9135-0233 |
| A12MP1 | 08642-20012 | 4 | 1 | COVER SUM VCO/MIXER/SPLITTER | 28480 | 08642-20012 |
| A12MP2 | 08642-40055 | 7 | | GASKET FEEDTHRU5 | 28480 | 08642-40055 |
| A12MP3 | 08642-40058 | 0 | 6 | GASKET FEEDTHRU | 28480 | 08642-40058 |
| A12MP4 | 08642-00006 | 4 | 2 | CVR MXR ACCES RT | 28480 | 08642-00006 |
| A12MP5 | 08642-00044 | 0 | | CVR MXR ACCES | 28480 | 08642-00044 |
| A12MP6 | 0515-1101 | 7 | | SCREW-MACH M4 X 0.7 8MM-LG 90-DEG-FLH-HD (ATTACH ACCESS COVERS TO COVER) | 28480 | 0515-1101 |
| A12MP7 | 08642-20013 | 5 | 1 | BASE SUM LOOP | 28480 | 08642-20013 |
| A12MP8 | 3050-0990 | 7 | | WASHER-FL NM NO. 000 .04-IN-ID .25-IN-OD | 28480 | 3050-0990 |
| A12MP9 | 0515-1521 | 5 | | SCREW-MACH M3 X 0.5 5MM-LG 90-DEG-FLH-HD (ATTACH FILTER TO BASE) | 28480 | 0515-1521 |
| A12MP10 | 08642-00002 | 0 | | GASKET 10 P FLTR | 28480 | 08642-00002 |
| A12MP11 | 08642-20014 | 6 | 1 | COVER SUM PHASE DETECTOR/DIVIDER | 28480 | 08642-20014 |
| A12MP12 | 0515-0684 | 9 | | SCREW-MACH M4 X 0.7 6MM-LG PAN-HD (ATTACH BOARDS TO BASE) | 28480 | 0515-0684 |
| A12MP13 | 0515-0381 | 3 | | SCREW-MACH M4 X 0.7 10MM-LG PAN-HD (ATTACH COVERS TO BASE) | 00000 | ORDER BY DESCRIPTION |
| A12MP14 | 8160-0472 | 8 | | RFI ROUND STRIP BE-CU SN-PL .093-IN-OD (SPIRA SHIELD) | 28480 | 8160-0472 |
| A12MP15 | 08642-00050 | 8 | | SLIDE-MODUL 57R4 (FRONT) | 28480 | 08642-00050 |
| A12MP16 | 08642-00049 | 5 | | SLIDE-MDL469R56 (REAR) | 28480 | 08642-00049 |
| A12MP17 | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH MODULE SLIDES TO BASE) | 28480 | 0515-1102 |
| A12MP18 | 08642-80068 | 6 | 1 | LABEL-SUM 60005 | 28480 | 08642-80068 |
| A12W1 | 08642-20066 | 8 | | CABLE SR JUMPER (A12A2J4 TO A12A1J3) | 28480 | 08642-20066 |
| A12W2 | 08642-60045 | 7 | 1 | CBL-COAX 907 (A12A3J2 TO A12A2J3) | 28480 | 08642-60045 |
| A12W3 | 08642-60047 | 9 | 1 | CBL-COAX 902 (A12A2J1 TO A12A3J5) | 28480 | 08642-60047 |
| A12W4 | 5061-4810 | 3 | 1 | CBL-COAX 91 (A12A1J1 TO A12A3J4) | 28480 | 5061-4810 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------------------------------------|----------------|-----|-----|-------------------------------------------|----------|-----------------|
| 2427A TO 2613A A12A1 | 08642-60109 | 4 | 1 | SUM VCO ASSEMBLY | 28480 | 08642-60109 |
| 2708A AND ABOVE A12A1 | 08642-60209 | 5 | 1 | SUM VCO ASSEMBLY | 28480 | 08642-60209 |
| A12A1C1 | 0160-3468 | 0 | | CAPACITOR-FXD .12UF +-10% 80VDC POLYE | 28480 | 0160-3468 |
| A12A1C2 | 0121-0531 | 0 | | CAPACITOR-V TRMR-CER .25-.7PF 250V | 28480 | 0121-0531 |
| A12A1C3 | 0121-0531 | 0 | | CAPACITOR-V TRMR-CER .25-.7PF 250V | 28480 | 0121-0531 |
| A12A1C4 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A1C5 | 0160-5988 | 3 | | CAPACITOR-FXD 100PF +-5% 500VDC PORC | 28480 | 0160-5988 |
| A12A1C6 | 0160-5989 | 4 | | CAPACITOR-FXD 1PF +- .1PF 50VDC CER 0+-30 | 28480 | 0160-5989 |
| A12A1C7 | 0160-5989 | 4 | | CAPACITOR-FXD 1PF +- .1PF 50VDC CER 0+-30 | 28480 | 0160-5989 |
| A12A1C8 | 0160-5988 | 3 | | CAPACITOR-FXD 100PF +-5% 500VDC PORC | 28480 | 0160-5988 |
| A12A1C9 | 0160-5990 | 7 | 1 | CAPACITOR-FXD 12PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5990 |
| A12A1C10 | 0160-5988 | 3 | | CAPACITOR-FXD 100PF +-5% 500VDC PORC | 28480 | 0160-5988 |
| A12A1C11 | 0160-5987 | 2 | | CAPACITOR-FXD 47PF +-5% 500VDC PORC | 28480 | 0160-5987 |
| A12A1C12 | 0160-5991 | 8 | 1 | CAPACITOR-FXD 8.2PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5991 |
| A12A1C13 | 0160-5975 | 8 | | CAPACITOR-FXD 10PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5975 |
| A12A1C14 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A12A1C15 | 0160-5975 | 8 | | CAPACITOR-FXD 10PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5975 |
| A12A1C16 | 0160-5993 | 0 | 1 | CAPACITOR-FXD 3.3PF +- .25PF 50VDC CER | 28480 | 0160-5993 |
| A12A1C17 | 0160-5987 | 2 | | CAPACITOR-FXD 47PF +-5% 500VDC PORC | 28480 | 0160-5987 |
| A12A1C18 | 0160-5988 | 3 | | CAPACITOR-FXD 100PF +-5% 500VDC PORC | 28480 | 0160-5988 |
| A12A1C19 | 0160-5989 | 4 | | CAPACITOR-FXD 1PF +- .1PF 50VDC CER 0+-30 | 28480 | 0160-5989 |
| A12A1C20 | 0160-5987 | 2 | | CAPACITOR-FXD 47PF +-5% 500VDC PORC | 28480 | 0160-5987 |
| A12A1C21 | 0160-5992 | 9 | 1 | CAPACITOR-FXD 5.1PF +- .25PF 50VDC CER | 28480 | 0160-5992 |
| A12A1C22 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A1C23 | 0160-5989 | 4 | | CAPACITOR-FXD 1PF +- .1PF 50VDC CER 0+-30 | 28480 | 0160-5989 |
| A12A1C24 | 0160-5988 | 3 | | CAPACITOR-FXD 100PF +-5% 500VDC PORC | 28480 | 0160-5988 |
| A12A1C25 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A1C26 | 0121-0531 | 0 | | CAPACITOR-V TRMR-CER .25-.7PF 250V | 28480 | 0121-0531 |
| A12A1C27 | 0121-0531 | 0 | | CAPACITOR-V TRMR-CER .25-.7PF 250V | 28480 | 0121-0531 |
| A12A1C28 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| 2427A TO 2706A A12A1C29-C36 2731A ONLY | | | | NOT ASSIGNED | | |
| A12A1C29 | 0160-5988 | 3 | 7 | CAPACITOR-FXD 100PF +-55 500VDC PORC | 28480 | 0160-5988 |
| A12A1C30 | 0160-5988 | 3 | 7 | CAPACITOR-FXD 100PF +-55 500VDC PORC | 28480 | 0160-5988 |
| A12A1C31 | 0160-5988 | 3 | 7 | CAPACITOR-FXD 100PF +-55 500VDC PORC | 28480 | 0160-5988 |
| A12A1C32 | 0160-5988 | 3 | 7 | CAPACITOR-FXD 100PF +-55 500VDC PORC | 28480 | 0160-5988 |
| A12A1C33 | 0160-5988 | 3 | 7 | CAPACITOR-FXD 100PF +-55 500VDC PORC | 28480 | 0160-5988 |
| A12A1C34 | 0160-5988 | 3 | 7 | CAPACITOR-FXD 100PF +-55 500VDC PORC | 28480 | 0160-5988 |
| A12A1C35 | 0160-5988 | 3 | 7 | CAPACITOR-FXD 100PF +-55 500VDC PORC | 28480 | 0160-5988 |
| A12A1C36 | 0160-5988 | 3 | 7 | CAPACITOR-FXD 100PF +-55 500VDC PORC | 28480 | 0160-5988 |
| 2738A AND ABOVE A12A1C29-C36 | | | | NOT ASSIGNED | | |
| A12A1CR1 | 0122-0157 | 8 | 1 | DIODE-VVC 15PF 5% BVR=60V | 28480 | 0122-0157 |
| A12A1CR2 | 0122-0156 | 7 | | DIODE-VVC 10PF 5% BVR=60V | 28480 | 0122-0156 |
| A12A1CR3 | 0122-0155 | 6 | | DIODE-VVC 6.8PF 5% BVR=60V | 28480 | 0122-0155 |
| A12A1CR4 | 0122-0170 | 5 | | DIODE-VVC 6.8PF 5% BVR=60V | 28480 | 0122-0170 |
| A12A1CR5 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A12A1CR6 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A12A1CR7 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A12A1CR8 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| 2427A TO 2613A A12A1CR9 2708A AND ABOVE A12A1CR9 | | | | NOT ASSIGNED | | |
| A12A1CR9 | 1901-0880 | 7 | | DIODE-GEN PRP 125MA DO-35 | 28480 | 1901-0880 |
| A12A1E1 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A12A1E2 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A12A1E3 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A12A1E4 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A12A1E5 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A12A1E6 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A12A1E7 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A12A1E8 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A12A1E9 | 08642-60149 | 2 | | CORE ASSEMBLY | 28480 | 08642-60149 |
| A12A1J1 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A12A1J2 | 1251-8759 | 6 | | CONN-POST TYPE .100-PIN-SPOG 11-CONT | 28480 | 1251-8759 |
| A12A1J3 | 08656-00033 | 3 | | CLIP SEMI-R GRND | 28480 | 08656-00033 |
| | 1251-2194 | 1 | | CONNECTOR-SGL CONT SKT .021-IN-BSC-SZ | 28480 | 1251-2194 |
| A12A1L1 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A12A1L2 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A12A1L3 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A12A1L4 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A12A1L5 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|--------------------------------------|----------|----------------------|
| A12A1Q1 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290Mw | 28480 | 1854-0946 |
| A12A1Q2 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290Mw | 28480 | 1854-0946 |
| A12A1Q3 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290Mw | 28480 | 1854-0946 |
| A12A1Q4 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290Mw | 28480 | 1854-0946 |
| A12A1Q5 | 1854-1009 | 3 | | TRANSISTOR NPN SI PD=580Mw | 28480 | 1854-1009 |
| A12A1Q6 | 1854-0597 | 2 | | TRANSISTOR NPN 2N5943 SI TO-39 PD=1w | 04713 | 2N5943 |
| | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A12A1Q7 | 1858-0071 | 5 | | TRANSISTOR ARRAY PLSTC TO-116 | 04713 | MPQ3798 |
| A12A1R1 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125w F TC=0+-100 | 28480 | 0699-1372 |
| A12A1R2 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125w F TC=0+-100 | 28480 | 0699-1372 |
| A12A1R3 | 0698-3441 | 8 | | RESISTOR 215 1% .125w F TC=0+-100 | 24546 | C4-1/8-T0-215R-F |
| A12A1R4 | 0698-3441 | 8 | | RESISTOR 215 1% .125w F TC=0+-100 | 24546 | C4-1/8-T0-215R-F |
| A12A1R5 | 0699-1430 | 3 | | RESISTOR 422 1% .125w F TC=0+-100 | 28480 | 0699-1242 |
| A12A1R6 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125w F TC=0+-100 | 28480 | 0699-1346 |
| A12A1R7 | | | | NOT ASSIGNED | | |
| A12A1R8 | 0698-7220 | 9 | | RESISTOR 215 1% .05w F TC=0+-100 | 24546 | C3-1/8-T0-215R-F |
| A12A1R9 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125w F TC=0+-100 | 28480 | 0699-1346 |
| A12A1R10 | 0699-1377 | 7 | | RESISTOR 2.37K 1% .125w F TC=0+-100 | 28480 | 0699-1377 |
| A12A1R11 | 0698-4590 | 0 | | RESISTOR 422 1% .25w F TC=0+-100 | 24546 | C5-1/4-T0-422R-F |
| A12A1R12 | 0698-3441 | 8 | | RESISTOR 215 1% .125w F TC=0+-100 | 24546 | C4-1/8-T0-215R-F |
| A12A1R13 | 0698-3441 | 8 | | RESISTOR 215 1% .125w F TC=0+-100 | 24546 | C4-1/8-T0-215R-F |
| A12A1R14 | 0757-0419 | 0 | | RESISTOR 681 1% .125w F TC=0+-100 | 24546 | C4-1/8-T0-681R-F |
| A12A1R15 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125w F TC=0+-100 | 28480 | 0699-1372 |
| A12A1R16 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125w F TC=0+-100 | 28480 | 0699-1372 |
| A12A1R17 | 0699-1415 | 4 | | RESISTOR 100 1% .125w F TC=0+-100 | 28480 | 0699-1415 |
| A12A1R18 | 0699-1415 | 4 | | RESISTOR 100 1% .125w F TC=0+-100 | 28480 | 0699-1415 |
| A12A1R19 | 57-1078 | 9 | | RESISTOR 1.47K 1% .5w F TC=0+-100 | 28480 | 0757-1078 |
| A12A1R20 | 0699-1415 | 4 | | RESISTOR 100 1% .125w F TC=0+-100 | 28480 | 0699-1415 |
| A12A1R21 | 0699-1415 | 4 | | RESISTOR 100 1% .125w F TC=0+-100 | 28480 | 0699-1415 |
| A12A1R22 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05w F TC=0+-100 | 24546 | C3-1/8-T0-3831-F |
| A12A1R23 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05w F TC=0+-100 | 24546 | C3-1/8-T0-3831-F |
| A12A1R24 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05w F TC=0+-100 | 24546 | C3-1/8-T0-3831-F |
| A12A1R25 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05w F TC=0+-100 | 24546 | C3-1/8-T0-3831-F |
| A12A1TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A12A1TP2 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A12A1TP3 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A12A1TP4 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A12A1TP5 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A12A1TP6 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A12A1TP7 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A12A1TP8 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1TP9 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1VR1 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4w IR=1UA | 28480 | 1902-1428 |
| A12A1VR2 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4w IR=1UA | 28480 | 1902-1428 |
| A12A1VR3 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4w IR=1UA | 28480 | 1902-1428 |
| A12A1VR4 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4w IR=1UA | 28480 | 1902-1428 |
| A12A1W1-W99 | | | | NOT ASSIGNED | | |
| A12A1W100 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1W101 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1W102 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1W103 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1W104 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1W105 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1W106 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1W107 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1W108 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1W109 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1W110 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |
| A12A1W111 | | | | PART IS ETCHED ON CIRCUIT BOARD | | |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|--------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| 2427A TO 2612A A12A2 | 08642-60110 | 7 | 1 | SUM MIXER/SPLITTER ASSEMBLY | 28480 | 08642-60110 |
| 2613A AND ABOVE A12A2 | 08642-60210 | 8 | 1 | SUM MIXER/SPLITTER ASSEMBLY | 28480 | 08642-60210 |
| A12A2C1 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A12A2C2 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A2C3 | 0160-3873 | 1 | | CAPACITOR-FXD 4.7PF +- .5PF 200VDC CER | 28480 | 0160-3873 |
| A12A2C4 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A2C5 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A2C6 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A12A2C7 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A12A2C8 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A2C9 | 0160-3873 | 1 | | CAPACITOR-FXD 4.7PF +- .5PF 200VDC CER | 28480 | 0160-3873 |
| A12A2C10 | 0160-4383 | 0 | | CAPACITOR-FXD 6.8PF +- .5PF 200VDC CER | 20932 | 5024E0200RD689D |
| A12A2C11 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A2C12 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A12A2C13 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A2C14 | 0160-5961 | 2 | | CAPACITOR-FXD 22PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5961 |
| A12A2C15 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A2C16 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A12A2C17 | 0160-4766 | 3 | | CAPACITOR-FXD 30PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4766 |
| A12A2C18 | 0160-5973 | 6 | | CAPACITOR-FXD 6.8PF +- .5PF 50VDC CER | 28480 | 0160-5973 |
| A12A2C19 | 0160-5938 | 3 | 2 | CAPACITOR-FXD 39PF +-5% 100VDC CER | 28480 | 0160-5938 |
| A12A2C20 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A2C21 | 0160-5958 | 7 | | CAPACITOR-FXD 39PF +-5% 50VDC CER 0+- 30 | 28480 | 0160-5958 |
| A12A2C22 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A2C23 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A2C24 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A2C25 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A2C26 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A2C27 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A2C28 | 0160-4766 | 3 | | CAPACITOR-FXD 30PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4766 |
| A12A2C29 | 0160-4492 | 2 | 3 | CAPACITOR-FXD 18PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4492 |
| A12A2C30 | 0160-4492 | 2 | | CAPACITOR-FXD 18PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4492 |
| A12A2C31 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A2C32 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| A12A2C33 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A12A2C34 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A12A2C35 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A12A2C36 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A12A2C37 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A12A2C38 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A12A2C39 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A12A2C40 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A12A2C41 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A12A2C42 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A12A2C43 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50 VDC CER | 28480 | 0160-6222 |
| A12A2C44 | 0160-4801 | 7 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-4801 |
| A12A2C45 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A12A2C46 | 0160-5939 | 4 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-5939 |
| A12A2C47 | 0160-4535 | 4 | | CAPACITOR-FXD 1UF +-10% 50VDC CER | 28480 | 0160-4535 |
| A12A2FL1 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A2J1 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A12A2J2 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A12A2J3 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A12A2J4 | 1251-2194 | 1 | | CONNECTOR-SGL CONT SKT .021-IN-BSC-SZ | 28480 | 1251-2194 |
| A12A2J5 | 1252-0318 | 9 | | CONN POST SKT 2 | 28480 | 1252-0318 |
| A12A2L1 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A12A2L2 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A12A2L3 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A12A2L4 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A12A2L5 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A12A2L6 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A12A2L7 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A12A2L8 | 9100-0368 | 6 | 1 | INDUCTOR RF-CH-MLD 330NH 10% .105DX.26LG | 28480 | 9100-0368 |
| A12A2L9 | 9135-0078 | 8 | | INDUCTOR RF-CH-MLD 82NH 7% .102DX.26LG | 28480 | 9135-0078 |
| A12A2L10 | 9100-2249 | 6 | 7 | INDUCTOR RF-CH-MLD 150NH 10% .105DX.26LG | 28480 | 9100-2249 |
| A12A2L11 | 9135-0078 | 8 | | INDUCTOR RF-CH-MLD 82NH 7% .102DX.26LG | 28480 | 9135-0078 |
| A12A2L12 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A12A2L13 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A12A2L14 | 9135-0072 | 2 | | INDUCTOR RF-CH-MLD 56NH 5% .102DX.26LG | 28480 | 9135-0072 |
| A12A2L15 | 9135-0072 | 2 | | INDUCTOR RF-CH-MLD 56NH 5% .102DX.26LG | 28480 | 9135-0072 |
| A12A2L16 | 9135-0070 | 0 | | INDUCTOR RF-CH-MLD 24NH 7% .102DX.26LG | 28480 | 9135-0070 |
| A12A2L17 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A12A2L18 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A12A2L19 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A12A2L20 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A12A2L21 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A12A2L22 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| A12A2MP1 | 08656-00033 | 3 | | CLIP SEMI-R GRND | 28480 | 08656-00033 |
| A12A2MP2 | 0340-0840 | 8 | | INSULATOR SLBL-LAC-CMPD | 28480 | 0340-0840 |
| A12A2Q1 | 1854-1009 | 3 | | TRANSISTOR NPN SI PD=580MW | 28480 | 1854-1009 |
| A12A2Q2 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A12A2Q3 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A12A2Q4 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A12A2Q5 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A12A2Q6 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A12A2Q7 | 1854-0720 | 3 | | TRANSISTOR NPN SI PD=500MW FT=4GHZ | 28480 | 1854-0720 |
| A12A2Q8 | 1854-1008 | 2 | | TRANSISTOR NPN SI PD=600MW FT=2GHZ | 28480 | 1854-1008 |
| A12A2Q9 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A12A2Q10 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A12A2R1 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A12A2R2 | 0757-0417 | 8 | | RESISTOR 562 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-562R-F |
| A12A2R3 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A12A2R4 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A12A2R5 | 0698-4588 | 6 | | RESISTOR 383 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-383R-F |
| A12A2R6 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A12A2R7 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A12A2R8 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A12A2R9 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A12A2R10 | 0757-0419 | 0 | | RESISTOR 681 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-681R-F |
| A12A2R11 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A12A2R12 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A12A2R13 | 0757-0417 | 8 | | RESISTOR 562 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-562R-F |
| A12A2R14 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A12A2R15 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A12A2R16 | 0698-0082 | 7 | | RESISTOR 464 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-4640-F |
| A12A2R17 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A12A2R18 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A12A2R19 | 0698-3401 | 0 | | RESISTOR 215 1% .5W F TC=0+-100 | 28480 | 0698-3401 |
| A12A2R20 | 0699-1432 | 5 | | RESISTOR 511 1% .125W F TC=0+-100 | 28480 | 0699-1432 |
| A12A2R21 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A12A2R22 | 0698-3102 | 8 | | RESISTOR 237 1% .5W F TC=0+-100 | 28480 | 0698-3102 |
| A12A2R23 | 0698-3102 | 8 | | RESISTOR 237 1% .5W F TC=0+-100 | 28480 | 0698-3102 |
| A12A2R24 | 0699-1363 | 1 | | RESISTOR 61.9 1% .125W F TC=0+-100 | 28480 | 0699-1213 |
| A12A2R25 | 0699-1828 | 3 | 2 | RESISTOR 105 1% .2W C TC=0+-200 | 28480 | 0699-1828 |
| A12A2R26 | 0699-1828 | 3 | | RESISTOR 105 1% .125W F TC=0+-100 | 28480 | 0699-1828 |
| A12A2R27 | 0699-1361 | 9 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 28480 | 0699-1361 |
| A12A2R28 | 0698-4588 | 6 | | RESISTOR 383 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-383R-F |
| A12A2R29 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A12A2R30 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A12A2R31 | 0698-7245 | 8 | | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A12A2R32 | 0698-7217 | 4 | | RESISTOR 162 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-162R-F |
| A12A2R33 | 0698-4588 | 6 | | RESISTOR 383 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-383R-F |
| A12A2R34 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A12A2R35 | 0757-0418 | 9 | | RESISTOR 619 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-619R-F |
| A12A2R36 | 0757-0399 | 5 | | RESISTOR 82.5 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-82R5-F |
| A12A2R37 | 0699-0443 | 6 | 1 | RESISTOR 21.5 1% .05W F TC=0+-100 | 28480 | 0699-0443 |
| A12A2R38 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A12A2R39 | 0698-0082 | 7 | | RESISTOR 464 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-4640-F |
| A12A2R40 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A12A2R41 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A12A2R42 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A12A2R43 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 26654 | 3C120J |
| A12A2R44 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A12A2R45 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A12A2R46 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A12A2R47 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A12A2R48 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A12A2R49 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A12A2R50 | 0699-1432 | 5 | | RESISTOR 511 1% .125W F TC=0+-100 | 28480 | 0699-1432 |
| A12A2R51 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-51R1-F |
| A12A2R52 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-51R1-F |
| A12A2R53 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-51R1-F |
| A12A2R54 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-51R1-F |
| A12A2R55 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-51R1-F |
| A12A2R56 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-51R1-F |
| A12A2R57 | 0699-1361 | 9 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 28480 | 0699-1361 |
| A12A2R58 | 0698-7191 | 3 | 1 | RESISTOR 13.3 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-16R3-F |
| A12A2T1 | 9100-4365 | 1 | | TRANSFORMER-RF INPUT Z:50 OHMS;Z RATIO:1 | 28480 | 9100-4365 |
| A12A2VR1 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A12A2VR2 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A12A2VR3 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A12A2VR4 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A12A2VR5 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A12A2VR6 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A12A2VR7 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A12A2VR8 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A12A2Z1 | 0955-0212 | 1 | 1 | MIXER-DOUBLE BALANCED FREQ RANGE: LO | 28480 | 0955-0212 |
| | 1251-3172 | 7 | | CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND | 28480 | 1251-3172 |
| A12A2Z2 | 0960-0682 | 0 | | POWER SPLITTER-RF PC MOUNT: 10-1500MHZ | 28480 | 0960-0682 |
| | 1251-3172 | 7 | | CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND | 28480 | 1251-3172 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|--------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| 2427A TO 2529A A12A3 | 08642-60111 | 8 | 1 | SUM PHASE DETECTOR/DIVIDER ASSEMBLY | 28480 | 08642-60111 |
| 2530A TO 2535A A12A3 | 08642-60211 | 9 | 1 | SUM PHASE DETECTOR/DIVIDER ASSEMBLY | 28480 | 08642-60211 |
| 2543A AND ABOVE A12A3 | 08642-60311 | 0 | 1 | SUM PHASE DETECTOR/DIVIDER ASSEMBLY | 28480 | 08642-60311 |
| A12A3C1 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A12A3C2 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C3 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A12A3C4 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C5 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C6 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A3C7 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A3C8 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A3C9 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C10 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C11 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C12 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A12A3C13 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A12A3C14 | 0160-5965 | 6 | | CAPACITOR-FXD 150PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5965 |
| A12A3C15 | 0160-5968 | 9 | | CAPACITOR-FXD 82PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5968 |
| A12A3C16 | 0160-4767 | 4 | 6 | CAPACITOR-FXD 20PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4767 |
| A12A3C17 | 0121-0449 | 9 | | CAPACITOR-V TRMR-CER 3.5-10PF 63V PC-MTG | 28480 | 0121-0449 |
| A12A3C18 | 0160-4385 | 2 | | CAPACITOR-FXD 15PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4385 |
| A12A3C19 | 0160-5939 | 4 | 2 | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-5939 |
| A12A3C20 | 0160-5965 | 6 | | CAPACITOR-FXD 150PF +-5% 50VDC CER | 28480 | 0160-5965 |
| A12A3C21 | 0160-5939 | 4 | | CAPACITOR-FXD 100PF +-5% 100VDC CER | 28480 | 0160-5939 |
| A12A3C22 | 0160-5038 | 4 | | CAPACITOR-FXD 3300PF +-10% 100VDC CER | 28480 | 0160-5038 |
| A12A3C23 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C24 | 0160-4535 | 4 | | CAPACITOR-FXD 1UF +-10% 50VDC CER | 28480 | 0160-4535 |
| A12A3C25 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A12A3C26 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A12A3C27 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C28 | 0160-3914 | 1 | 2 | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-3914 |
| A12A3C29 | 0160-3875 | 3 | | CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30 | 28480 | 0160-3875 |
| A12A3C30 | 0160-3914 | 1 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-3914 |
| A12A3C31 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C32 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A3C33 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C34 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C35 | 0180-0089 | 7 | | CAPACITOR-FXD 10UF+50-10% 150VDC AL | 56289 | 30D106F150D02 |
| A12A3C36 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A12A3C37 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A12A3C38 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A12A3C39 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A12A3C40 | 0160-4535 | 4 | | CAPACITOR-FXD 1UF +-10% 50VDC CER | 28480 | 0160-4535 |
| A12A3C41 | 0160-0168 | 1 | | CAPACITOR-FXD .1UF +-10% 200VDC POLYE | 28480 | 0160-0168 |
| A12A3C42 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C43 | 0160-4547 | 8 | | CAPACITOR-FXD 150PF +-5% 200VDC CER | 28480 | 0160-4547 |
| A12A3C44-C47 | | | | NOT ASSIGNED | | |
| A12A3C48 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C49 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C50 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C51 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C52 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C53 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A3C54 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A12A3C55 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C56 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C57-C100 | | | | NOT ASSIGNED | | |
| A12A3C101 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C102 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A12A3C103 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C104 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C105 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A12A3C106 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A12A3C107 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C108 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C109 | 0160-4511 | 6 | | CAPACITOR-FXD 220PF +-5% 200VDC CER | 28480 | 0160-4511 |
| A12A3C110 | 0160-4511 | 6 | | CAPACITOR-FXD 220PF +-5% 200VDC CER | 28480 | 0160-4511 |
| A12A3C111 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------|-----|-----|----------------------------------------------------|----------|-----------------|
| A12A3C112 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C113 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C114 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C115 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C116 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C117 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C118 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C119 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A12A3C120 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C121 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C122 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C123 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C124 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C125 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C126 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C127 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C128 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2427A TO 2529A A12A3C129 2530A AND ABOVE A12A3C129 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER NOT ASSIGNED | 28480 | 0160-0576 |
| A12A3C130 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C131 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C132 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| 2427A TO 2535A A12A3C133 2543A AND ABOVE A12A3C133 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| | 0180-2618 | 2 | | CAPACITOR-FXD 33UF +-10% 10 VDC TA | 25088 | D33GS1B10K |
| A12A3C134 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2427A TO 2535A A12A3C135 2543A AND ABOVE A12A3C135 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| | 0180-2618 | 2 | | CAPACITOR-FXD 33UF +-10% 10 VDC TA | 25088 | D33GS1B10K |
| A12A3C136 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C137 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A12A3C138 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A12A3C139 | 0160-4511 | 6 | | CAPACITOR-FXD 220PF +-5% 200VDC CER | 28480 | 0160-4511 |
| 2427A TO 2529A A12A3C140 A12A3C141 2530A TO 2535A A12A3C140 A12A3C141 2543A AND ABOVE A12A3C140 A12A3C141 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| | | | | NOT ASSIGNED NOT ASSIGNED | | |
| 2427A TO 2529A A12A3C142-C147 2530A AND ABOVE A12A3C142 A12A3C143 A12A3C144 A12A3C145 A12A3C146 A12A3C147 | 0160-5975 | 8 | | CAPACITOR-FXD .22UF +80-20% 25VDC CER | 28480 | 0160-5975 |
| | 0160-5975 | 8 | | CAPACITOR-FXD .22UF +80-20% 25VDC CER | 28480 | 0160-5975 |
| | 0160-5975 | 8 | | CAPACITOR-FXD .22UF +80-20% 25VDC CER | 28480 | 0160-5975 |
| | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +-5PF 200VDC CER | 28480 | 0160-3874 |
| | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +-5PF 200VDC CER | 28480 | 0160-3874 |
| | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +-5PF 200VDC CER | 28480 | 0160-3874 |
| A12A3CR1 | 1901-1085 | 6 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-1085 |
| A12A3CR2 | 1901-1085 | 6 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-1085 |
| A12A3CR3 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A12A3CR4 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A12A3CR5 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A12A3CR6-CR101 | | | | NOT ASSIGNED | | |
| A12A3CR102 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A12A3CR103 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A12A3CR104 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A12A3CR105 | | | | NOT ASSIGNED | | |
| A12A3CR106 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A12A3DS1 | 1990-1110 | 5 | | LED-LAMP LUM-INT=1.5MCD IF=20MA-MAX | 28480 | 1990-1110 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A12A3FL1 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL2 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL3 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL4 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL5 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL6 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL7 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL8 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL9 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL10 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL11 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL12 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL13 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3FL14 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A12A3J1 | 1251-8248 | 8 | | CONN-POST TYPE .100-PIN-SPCG 26-CONT | 28480 | 1251-8248 |
| | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A12A3J2 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A12A3J3 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A12A3J4 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A12A3J5 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A12A3J6 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20078 | 2 | | ELSTMR CON SMC C | 28480 | 08642-20078 |
| A12A3J7 | 1251-8759 | 6 | | CONN-POST TYPE .100-PIN-SPCG 11-CONT | 28480 | 1251-8759 |
| A12A3J8 | 1252-0318 | 9 | | CONN POST SKT 2 | 28480 | 1252-0318 |
| A12A3L1 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A12A3L2 | 9140-0477 | 2 | 1 | INDUCTOR RF-CH-MLD 270NH 1% .105DX.26LG | 28480 | 9140-0477 |
| A12A3L3 | 9100-0593 | 9 | 3 | INDUCTOR RF-CH-MLD 470NH 5% .105DX.26LG | 28480 | 9100-0593 |
| A12A3L4 | 9100-0593 | 9 | | INDUCTOR RF-CH-MLD 470NH 5% .105DX.26LG | 28480 | 9100-0593 |
| A12A3L5 | 9100-1631 | 8 | | INDUCTOR RF-CH-MLD 56UH 5% .166DX.385LG | 28480 | 9100-1631 |
| A12A3L6 | 9140-0400 | 1 | | INDUCTOR RF-CH-MLD 8.2UH 5% .166DX.385LG | 28480 | 9140-0400 |
| A12A3L7 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A12A3L8 | 9140-0299 | 6 | | INDUCTOR RF-CH-MLD 820NH 5% .105DX.26LG | 28480 | 9140-0299 |
| A12A3L9 | 9140-0531 | 9 | | INDUCTOR RF-CH-MLD 1UH 5% .105DX.26LG | 28480 | 9140-0531 |
| A12A3L10 | 9140-0507 | 9 | | INDUCTOR RF-CH-MLD 56UH 5% .105DX.26LG | 28480 | 9140-0507 |
| A12A3L11-L100 | | | | NOT ASSIGNED | | |
| A12A3L101 | 9135-0079 | 9 | | INDUCTOR RF-CH-MLD 100NH 5% .102DX.26LG | 28480 | 9135-0079 |
| 2427A TO 2535A A12A3L102 | 9140-1087 | 4 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| 2543A AND ABOVE A12A3L102 | 9140-1088 | 3 | | INDUCTOR-FIXED 4 MHZ | 28480 | 9140-1088 |
| A12A3L103 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A12A3L104 | 9135-0079 | 9 | | INDUCTOR RF-CH-MLD 100NH 5% .102DX.26LG | 28480 | 9135-0079 |
| A12A3L105 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A12A3L106 | 9140-0507 | 9 | | INDUCTOR RF-CH-MLD 56UH 5% .105DX.26LG | 28480 | 9140-0507 |
| A12A3L107 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A12A3L108 | 9135-0079 | 9 | | INDUCTOR RF-CH-MLD 100NH 5% .102DX.26LG | 28480 | 9135-0079 |
| A12A3L109 | 9100-2254 | 3 | | INDUCTOR RF-CH-MLD 390NH 10% .105DX.26LG | 28480 | 9100-2254 |
| A12A3L110 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| 2427A TO 2535A A12A3L111 | 9100-3922 | 4 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9100-3922 |
| 2543A AND ABOVE A12A3L111 | 9140-0891 | 4 | | INDUCTOR FIXED INDUCTANCE 27UH +-15% @1 | 28480 | 9140-0891 |
| 2427A TO 2529A A12A3L112 | | | | NOT ASSIGNED | | |
| 2530A AND ABOVE A12A3L112 | 9140-0517 | 1 | | INDUCTOR RF-CH-MLD 180NH 5% .105DX-.26L | 28480 | 9140-0517 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------------------------------|-------------------------------------|-------------|-----|---------------------------------------------------------------------------------------------|-------------------------|-------------------------------------|
| A12A3Q1 | 1854-0637 1200-0173 1205-0011 | 1 5 0 | | TRANSISTOR NPN 2N2219A SI TO-5 PD=800Mw INSULATOR-XSTR DAP-GL HEAT SINK TO-5/TO-39-CS | 01295 28480 28480 | 2N2219A 1200-0173 1205-0011 |
| A12A3Q2 | 1854-0720 | 3 | | TRANSISTOR NPN SI PD=500Mw FT=4GHZ | 28480 | 1854-0720 |
| A12A3Q3 | 1854-0720 | 3 | | TRANSISTOR NPN SI PD=500Mw FT=4GHZ | 28480 | 1854-0720 |
| A12A3Q4 | 1854-0637 1200-0173 1205-0011 | 1 5 0 | | TRANSISTOR NPN 2N2219A SI TO-5 PD=800Mw INSULATOR-XSTR DAP-GL HEAT SINK TO-5/TO-39-CS | 01295 28480 28480 | 2N2219A 1200-0173 1205-0011 |
| A12A3Q5 | 1854-0720 | 3 | | TRANSISTOR NPN SI PD=500Mw FT=4GHZ | 28480 | 1854-0720 |
| A12A3Q6 | 1854-0813 1200-0173 1205-0011 | 5 5 0 | | TRANSISTOR NPN 2N3501S SI TO-39 PD=1w INSULATOR-XSTR DAP-GL HEAT SINK TO-5/TO-39-CS | 28480 28480 28480 | 1854-0813 1200-0173 1205-0011 |
| A12A3Q7-Q100 | | | | NOT ASSIGNED | | |
| A12A3Q101 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625Mw FT=200MHZ | 28480 | 1854-0810 |
| 2427A TO 2529A A12A3Q102-Q104 2530A AND ABOVE | | | | NOT ASSIGNED | | |
| A12A3Q102 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625Mw FT=200MHZ | 28480 | 1854-0810 |
| A12A3Q103 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625Mw FT=200MHZ | 28480 | 1854-0810 |
| A12A3Q104 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625Mw FT=200MHZ | 28480 | 1854-0810 |
| A12A3R1 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A12A3R2 | 0698-7220 | 9 | | RESISTOR 215 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-215R-F |
| A12A3R3 | 0698-7245 | 8 | | RESISTOR 2.37K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2371-F |
| A12A3R4 | 0698-4588 | 6 | | RESISTOR 383 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-383R-F |
| A12A3R5 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A12A3R6 | 0698-7231 | 2 | | RESISTOR 619 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-619R-F |
| A12A3R7 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A12A3R8 | 0757-1090 | 5 | | RESISTOR 261 1% .5W F TC=0+-100 | 28480 | 0757-1090 |
| A12A3R9 | 0698-7231 | 2 | | RESISTOR 619 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-619R-F |
| A12A3R10 | 0757-1090 | 5 | | RESISTOR 261 1% .5W F TC=0+-100 | 28480 | 0757-1090 |
| A12A3R11 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A12A3R12 | 0699-1361 | 9 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 28480 | 0699-1361 |
| A12A3R13 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A12A3R14 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A12A3R15 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A12A3R16 | 0757-0399 | 5 | | RESISTOR 82.5 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-82R5-F |
| A12A3R17 | 0757-0422 | 5 | | RESISTOR 909 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-909R-F |
| A12A3R18 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A12A3R19 | 0698-7238 | 9 | | RESISTOR 1.21K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1211-F |
| A12A3R20 | 0698-7280 | 1 | | RESISTOR 68.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6812-F |
| A12A3R21 | 0698-7238 | 9 | | RESISTOR 1.21K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1211-F |
| A12A3R22 | 0698-7280 | 1 | | RESISTOR 68.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6812-F |
| A12A3R23 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A12A3R24 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A12A3R25 | 0698-3400 | 9 | | RESISTOR 147 1% .5W F TC=0+-100 | 28480 | 0698-3400 |
| A12A3R26 | 0698-7256 | 1 | | RESISTOR 6.81K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6811-F |
| A12A3R27 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A12A3R28 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A12A3R29 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A12A3R30 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A12A3R31 | | | | NOT ASSIGNED | | |
| A12A3R32 | 2100-3090 | 0 | | RESISTOR-TRMR 500 10% C TOP-ADJ 17-TRN | 32997 | 3292w-1-501 |
| A12A3R33 | 0698-7264 | 1 | | RESISTOR 14.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1472-F |
| A12A3R34 | 0698-8825 | 2 | | RESISTOR 681K 1% .125W F TC=0+-100 | 28480 | 0698-8825 |
| A12A3R35 | 0698-8825 | 2 | | RESISTOR 681K 1% .125W F TC=0+-100 | 28480 | 0698-8825 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------------|----------------|-----|-----|-------------------------------------|----------|-------------------|
| A12A3R36 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A12A3R37 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A12A3R38 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A12A3R39 | 0757-0274 | 5 | | RESISTOR 1.21K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1211-F |
| A12A3R40 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A12A3R41 | 0757-0835 | 4 | | RESISTOR 6.81K 1% .5W F TC=0+-100 | 28480 | 0757-0835 |
| A12A3R42 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A12A3R43 | 0698-6364 | 0 | | RESISTOR 50 .1% .125W F TC=0+-25 | 28480 | 0698-6364 |
| A12A3R44 | 0698-6323 | 1 | | RESISTOR 100 .1% .125W F TC=0+-25 | 28480 | 0698-6323 |
| A12A3R45 | 0698-6377 | 5 | | RESISTOR 200 .1% .125W F TC=0+-25 | 28480 | 0698-6377 |
| A12A3R46 | 0698-6355 | 9 | | RESISTOR 400 .1% .125W F TC=0+-25 | 28480 | 0698-6355 |
| A12A3R47 | 0698-8028 | 7 | | RESISTOR 800 1% .125W F TC=0+-100 | 19701 | MF4C1/8-T0-800R-F |
| A12A3R48 | 0698-6103 | 5 | | RESISTOR 1.6K .1% .125W F TC=0+-50 | 28480 | 0698-6103 |
| A12A3R49 | 0698-6362 | 8 | | RESISTOR 1K .1% .125W F TC=0+-25 | 28480 | 0698-6362 |
| A12A3R50 | 0698-6624 | 5 | | RESISTOR 2K .1% .125W F TC=0+-25 | 28480 | 0698-6624 |
| A12A3R51 | 0698-5323 | 9 | | RESISTOR 4K .5% .125W F TC=0+-50 | 28480 | 0698-5323 |
| A12A3R52 | 0698-8200 | 7 | | RESISTOR 8K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-8001-F |
| A12A3R53 | 0698-7884 | 1 | | RESISTOR 16K 1% .125W F TC=0+-50 | 19701 | MF4C1/8-T2-1602-F |
| A12A3R54 | 0698-6900 | 0 | | RESISTOR 32K .5% .125W F TC=0+-50 | 28480 | 0698-6900 |
| A12A3R55 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| A12A3R56 | 0698-8827 | 4 | | RESISTOR 1M 1% .125W F TC=0+-100 | 28480 | 0698-8827 |
| A12A3R57 | 0698-3458 | 7 | | RESISTOR 348K 1% .125W F TC=0+-100 | 28480 | 0698-3458 |
| A12A3R58 | 0698-8827 | 4 | | RESISTOR 1M 1% .125W F TC=0+-100 | 28480 | 0698-8827 |
| A12A3R59 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A12A3R60 | 0757-0465 | 6 | | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A12A3R61 | 0757-0465 | 6 | | RESISTOR 100K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1003-F |
| A12A3R62 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R1-F |
| A12A3R63 | 0698-7272 | 1 | | RESISTOR 31.6K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3162-F |
| A12A3R64 | 0698-7272 | 1 | | RESISTOR 31.6K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3162-F |
| A12A3R65 | 0698-7256 | 1 | | RESISTOR 6.81K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6811-F |
| A12A3R66 | 0698-7256 | 1 | | RESISTOR 6.81K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6811-F |
| A12A3R67 | 0698-7256 | 1 | | RESISTOR 6.81K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6811-F |
| A12A3R68 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R1-F |
| A12A3R69 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A12A3R70 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A12A3R71 | 1810-0205 | 7 | 1 | NETWORK-RES 8-SIP4.7K OHM X 7 | 01121 | 208A472 |
| A12A3R72 | 0699-1242 | 5 | | RESISTOR 422 1% .2W C TC=0+-200 | 28480 | 0699-1242 |
| A12A3R73 | 0699-1242 | 5 | | RESISTOR 422 1% .2W C TC=0+-200 | 28480 | 0699-1242 |
| A12A3R74-R100 | | | | NOT ASSIGNED | | |
| A12A3R101 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A12A3R102 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| 2427A TO 2529A A12A3R103 | 0698-7208 | 3 | | RESISTOR 68.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-68R1-F |
| 2530A TO 2535A A12A3R103 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| 2543A AND ABOVE A12A3R103 | 0698-7214 | 1 | | RESISTOR 121 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-121R-F |
| A12A3R104 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A12A3R105 | | | | NOT ASSIGNED | | |
| A12A3R106 | | | | NOT ASSIGNED | | |
| A12A3R107 | 0698-3132 | 4 | 8 | RESISTOR 261 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2610-F |
| 2427A TO 2529A A12A3R108 | 0698-7227 | 6 | | RESISTOR 422 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-422R-F |
| A12A3R109 | 0698-7227 | 6 | | RESISTOR 422 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-422R-F |
| A12A3R110 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| 2530A AND ABOVE A12A3R108 | 0698-3445 | 2 | | RESISTOR 348 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-348R-F |
| A12A3R109 | 0698-3445 | 2 | | RESISTOR 348 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-348R-F |
| A12A3R110 | 0698-7232 | 3 | | RESISTOR 681 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-681R-F |
| A12A3R111 | | | | NOT ASSIGNED | | |
| A12A3R112 | 0698-3132 | 4 | | RESISTOR 261 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2610-F |
| A12A3R113 | 0698-7222 | 1 | 5 | RESISTOR 261 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-261R-F |
| A12A3R114 | 0698-3132 | 4 | | RESISTOR 261 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2610-F |
| A12A3R115 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A12A3R116 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A12A3R117 | 0698-3132 | 4 | | RESISTOR 261 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2610-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------------|----------------|--------|-----|------------------------------------|----------|------------------|
| 2427A TO 2529A A12A3R118 | 0698-7208 | 3 | | RESISTOR 68.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-68R1-F |
| 2530A TO 2535A A12A3R118 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| 2543A AND ABOVE A12A3R118 | 0698-7214 | 1 | | RESISTOR 121 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-121R-F |
| A12A3R119 | 0698-3132 | 4 | | RESISTOR 261 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2610-F |
| A12A3R120 | 0698-3132 | 4 | | RESISTOR 261 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2610-F |
| A12A3R121 | 0698-7222 | 1 | | RESISTOR 261 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-261R-F |
| A12A3R122 | 0698-3132 | 4 | | RESISTOR 261 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2610-F |
| A12A3R123 | 0698-3132 | 4 | | RESISTOR 261 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2610-F |
| A12A3R124 | 0698-3447 | 4 | | RESISTOR 422 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-422R-F |
| A12A3R125 | 0757-0394 | 0 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-51R1-F |
| 2427A TO 2529A A12A3R126 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A12A3R127 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A12A3R128 | 0698-7221 | 0 | 3 | RESISTOR 237 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-237R-F |
| 2530A AND ABOVE A12A3R126-R128 | | | | NOT ASSIGNED | | |
| A12A3R129 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A12A3R130 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| 2427A TO 2529A A12A3R131 | 0698-7222 | 1 | | RESISTOR 261 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-261R-F |
| A12A3R132 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A12A3R133 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A12A3R134 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| 2530A AND ABOVE A12A3R131 | | | | NOT ASSIGNED | | |
| A12A3R132 | 0699-1424 | 5 | | RESISTOR 237 1% .125W C TC=0+-125 | 28480 | 0699-1424 |
| A12A3R133 | 0699-1424 | 5 | | RESISTOR 237 1% .125W C TC=0+-125 | 28480 | 0699-1424 |
| A12A3R134 | 0699-1424 | 5 | | RESISTOR 237 1% .125W C TC=0+-125 | 28480 | 0699-1424 |
| A12A3R135 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A12A3R136 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A12A3R137 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| 2427A TO 2529A A12A3R138 | 0698-7230 | 1 | | RESISTOR 562 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-562R-F |
| 2530A AND ABOVE A12A3R138 | 0698-7226 | 5 | | RESISTOR 383 1% .05W F TC=0+-100 | 24546 | C4-1/8-T0-383R-F |
| A12A3R139 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| 2427A TO 2529A A12A3R140 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A12A3R141 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| 2530A TO 2535A A12A3R140 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A12A3R141 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| 2543A AND ABOVE A12A3R140 | 0699-1359 | 5 | | RESISTOR 42.2 1% .125W F TC=0+-100 | 28480 | 0699-1359 |
| A12A3R141 | 0699-1359 | 5 | | RESISTOR 42.2 1% .125W F TC=0+-100 | 28480 | 0699-1359 |
| 2427A TO 2529A A12A3R142 | 0698-7208 | 3 | | RESISTOR 68.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-68R1-F |
| A12A3R143 | 0698-7220 | 9 | | RESISTOR 215 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-215R-F |
| 2530A AND ABOVE A12A3R142 | 0699-1827 | 2 | | RESISTOR 130 1% .2W C TC=0+-200 | 28480 | 0699-1827 |
| A12A3R143 | 0699-1430 | 3 | | RESISTOR 422 1% .125W F TC=0+-100 | 28480 | 0699-1430 |
| A12A3R144 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A12A3R145 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|----------------------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| 2427A TO 2529A A12A3R146 | 0698-7199 | 1 | 2 | RESISTOR 28.7 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-28R7-F |
| A12A3R147 | 0698-7199 | 1 | | RESISTOR 28.7 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-28R7-F |
| 2530A AND ABOVE A12A3R146 | 0699-0938 | 4 | | RESISTOR 26.1 1% .05W F TC=0+-100 | 28480 | 0699-0938 |
| 2530A TO 2535A A12A3R147 | 0699-0938 | 4 | | RESISTOR 26.1 1% .05W F TC=0+-100 | 28480 | 0699-0938 |
| 2543A AND ABOVE A12A3R147* | 0699-1947 | 7 | | RESISTOR 38.3 1% .05W F TC=0+-100 | 28480 | 0699-1947 |
| 2427A TO 2529A A12A3R148-R170 | | | | NOT ASSIGNED | | |
| 2530A AND ABOVE A12A3R148 | 0699-1435 | 8 | | RESISTOR 681 1% .125W F TC=0+-100 | 28480 | 0699-1435 |
| 2530A TO 2535A A12A3R149 | 0699-1430 | 3 | | RESISTOR 422 1% .125W F TC=0+-100 | 28480 | 0699-1430 |
| A12A3R150 | 0699-1827 | 2 | | RESISTOR 130 1% .2W C TC=0+-200 | 28480 | 0699-1827 |
| 2543A AND ABOVE A12A3R149 | | | | NOT ASSIGNED | | |
| A12A3R150 | | | | NOT ASSIGNED | | |
| 2530A AND ABOVE A12A3R151 | 0699-1435 | 8 | | RESISTOR 681 1% .125W F TC=0+-100 | 28480 | 0699-1435 |
| A12A3R152 | 0699-1435 | 8 | | RESISTOR 681 1% .125W F TC=0+-100 | 28480 | 0699-1435 |
| 2530A TO 2535A A12A3R153 | 0699-1430 | 3 | | RESISTOR 422 1% .125W F TC=0+-100 | 28480 | 0699-1430 |
| A12A3R154 | 0699-1827 | 2 | | RESISTOR 130 1% .2W C TC=0+-200 | 28480 | 0699-1827 |
| 2543A AND ABOVE A12A3R153 | | | | NOT ASSIGNED | | |
| A12A3R154 | | | | NOT ASSIGNED | | |
| 2530A AND ABOVE A12A3R155 | 0699-1429 | 0 | | RESISTOR 383 1% .125W F TC=0+-100 | 28480 | 0699-1429 |
| A12A3R156 | 0699-1429 | 0 | | RESISTOR 383 1% .125W F TC=0+-100 | 28480 | 0699-1429 |
| A12A3R157 | 0699-1429 | 0 | | RESISTOR 383 1% .125W F TC=0+-100 | 28480 | 0699-1429 |
| A12A3R158-R160 | | | | NOT ASSIGNED | | |
| A12A3R161 | 0699-1498 | 3 | | RESISTOR 237 1% .125W C TC=0+-125 | 28480 | 0699-1498 |
| A12A3R162 | 0699-1498 | 3 | | RESISTOR 237 1% .125W C TC=0+-125 | 28480 | 0699-1498 |
| A12A3R163 | 0699-1498 | 3 | | RESISTOR 237 1% .125W C TC=0+-125 | 28480 | 0699-1498 |
| A12A3R164 | 0699-1424 | 5 | | RESISTOR 237 1% .125W C TC=0+-125 | 28480 | 0699-1424 |
| A12A3R165 | 0699-1424 | 5 | | RESISTOR 237 1% .125W C TC=0+-125 | 28480 | 0699-1424 |
| A12A3R166 | 0699-1424 | 5 | | RESISTOR 237 1% .125W C TC=0+-125 | 28480 | 0699-1424 |
| 2427A TO 2535A A12A3R167-R170 | | | | NOT ASSIGNED | | |
| 2543A AND ABOVE A12A3R167 | 0699-1359 | 5 | | RESISTOR 42.2 1% .125W F TC=0+-100 | 28480 | 0699-1359 |
| A12A3R168 | 0699-1503 | 1 | | RESISTOR-ZERO OHMS SMD ZERO OHM JUMPER | 28480 | 0699-1503 |
| A12A3R169 | 0699-1503 | 1 | | RESISTOR-ZERO OHMS SMD ZERO OHM JUMPER | 28480 | 0699-1503 |
| A12A3R170 | 0699-1503 | 1 | | RESISTOR-ZERO OHMS SMD ZERO OHM JUMPER | 28480 | 0699-1503 |
| A12A3S1 | 3101-2566 | 6 | | SWITCH-RKR DIP-RKR-ASSY DPDT .5A 30VDC | 28480 | 3101-2566 |
| A12A3T1 | 9100-4365 | 1 | | TRANSFORMER-RF INPUT Z:50 OHMS;Z RATIO:1 | 28480 | 9100-4365 |
| A12A3T2 | 9100-4365 | 1 | | TRANSFORMER-RF INPUT Z:50 OHMS;Z RATIO:1 | 28480 | 9100-4365 |
| A12A3TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A12A3TP2 | 1252-0216 | 6 | | CONNECTOR-SGL CONT SKT .04-IN-BSC-SZ RND | 28480 | 1252-0216 |
| A12A3TP3 | 1250-0835 | 1 | | CONNECTOR-RF SMC M PC 50-OHM | 28480 | 1250-0835 |
| A12A3TP4 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A12A3U1 | 1820-0668 | 7 | | IC BFR TTL NON-INV HEX 1-INP | 01295 | SN7407N |
| A12A3U2 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A12A3U3 | 1820-0668 | 7 | | IC BFR TTL NON-INV HEX 1-INP | 01295 | SN7407N |
| A12A3U4 | 1820-0668 | 7 | | IC BFR TTL NON-INV HEX 1-INP | 01295 | SN7407N |
| A12A3U5 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A12A3U6 | 1820-1433 | 6 | | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A12A3U7 | 1820-1416 | 5 | | IC SCHMITT-TRIG TTL LS INV HEX 1-INP | 01295 | SN74LS14N |
| A12A3U8 | 1820-1433 | 6 | | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A12A3U9 | 1820-1433 | 6 | | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A12A3U10 | 1826-0605 | 4 | | IC MULTIPLXR 8-CHAN-ANLG 16-DIP-C PKG | 17856 | DG508BK |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A12A3U11 | 1820-1212 | 9 | | IC FF TTL LS J-K NEG-EDGE-TRIG | 01295 | SN74LS112AN |
| A12A3U12 | 1826-0783 | 9 | | IC OP AMP LOW-NOISE 8-DIP-C PKG | 52063 | XR5534ACN |
| A12A3U13 | | | | NOT ASSIGNED | | |
| A12A3U14 | 1826-0785 | 1 | | IC OP AMP LOW-BIAS-H-IMPD DUAL 8-DIP-C | 01295 | TL072ACJG |
| A12A3U15 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A12A3U16 | 1826-0606 | 5 | | IC SWITCH ANLG QUAD 16-DIP-C PKG | 17856 | DG201BK |
| A12A3U17 | 1820-1437 | 0 | | IC MV TTL LS MONSTBL DUAL | 01295 | SN74LS221N |
| 2427A TO 2738A | | | | | | |
| A12A3U18 | 1826-0759 | 9 | | IC COMPARATOR GP QUAD 14-DIP-C PKG | 04713 | LM399J |
| 2809A AND ABOVE | | | | | | |
| A12A3U18 | 1826-0138 | 8 | | IC COMPARATOR GP QUAD 14-DIP-C PKG | 01295 | LM339N |
| A12A3U19 | 1826-0180 | 0 | | IC TIMER TTL MONO/ASTBL | 01295 | NE555P |
| A12A3U20-U100 | | | | NOT ASSIGNED | | |
| A12A3U101 | 1826-0372 | 2 | | IC MISC 8-DIP-P PKG | 28480 | 1826-0372 |
| A12A3U102 | 1826-0372 | 2 | | IC MISC 8-DIP-P PKG | 28480 | 1826-0372 |
| A12A3U103 | 1820-0471 | 0 | 1 | IC INV TTL HEX 1-INP | 01295 | SN7406N |
| A12A3U104 | 1820-1216 | 3 | | IC DCDR TTL LS 3-TO-8-LINE 3-INP | 01295 | SN74LS138N |
| A12A3U105 | 1820-1202 | 7 | 1 | IC GATE TTL LS NAND TPL 3-INP | 01295 | SN74LS10N |
| A12A3U106 | 1820-2933 | 3 | 1 | IC PRESCR ECL | 28480 | 1820-2933 |
| A12A3U107 | 1820-0796 | 2 | 1 | IC GATE ECL NOR QUAD 2-INP | 04713 | MC1662L |
| A12A3U108 | 1820-1173 | 1 | 2 | IC XLTR ECL TTL-TO-ECL QUAD 2-INP | 04713 | MC10124L |
| 2427A TO 2529A | | | | | | |
| A12A3U109 | 1820-1173 | 1 | | IC XLTR ECL TTL-TO-ECL QUAD 2-INP | 04713 | MC10124L |
| 2530A AND ABOVE | | | | | | |
| A12A3U109 | 1820-0471 | 0 | | IC INV TTL HEX 1-INP | 01295 | SN7406N |
| A12A3U110 | 1820-2634 | 1 | | IC INV TTL ALS HEX | 01295 | SN74ALS04N |
| A12A3U111 | 1820-2657 | 8 | | IC GATE TTL ALS OR QUAD 2-INP | 01295 | SN74ALS32N |
| A12A3U112 | 1820-0682 | 5 | 1 | IC GATE TTL S NAND QUAD 2-INP | 01295 | SN74S03N |
| A12A3U113 | 1820-3485 | 2 | | IC PRESCR ECL | 04713 | MC12090 |
| A12A3U114 | 1820-3485 | 2 | | IC PRESCR ECL | 04713 | MC12090 |
| A12A3U115 | 1820-3485 | 2 | | IC PRESCR ECL | 04713 | MC12090 |
| A12A3U116 | 1820-1052 | 5 | | IC XLTR ECL ECL-TO-TTL QUAD 2-INP | 04713 | MC10125L |
| A12A3U117 | 1820-2691 | 0 | | IC FF TTL F D-TYPE POS-EDGE-TRIG | 07263 | 74F74PC |
| A12A3U118 | 1820-2691 | 0 | | IC FF TTL F D-TYPE POS-EDGE-TRIG | 07263 | 74F74PC |
| A12A3VR1 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A12A3VR2 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| A12A3VR3 | 1902-0680 | 7 | | DIODE-ZNR 1N827 6.2V 5% DO-7 PD=.4W | 24046 | 1N827 |
| A12A3VR4-VR100 | | | | NOT ASSIGNED | | |
| A12A3VR101 | 1902-0953 | 7 | 2 | DIODE-ZNR 6.2V 5% DO-35 PD=.4W TC=+.053% | 28480 | 1902-0953 |
| 2427A TO 2529A | | | | | | |
| A12A3VR102-VR104 | | | | NOT ASSIGNED | | |
| 2530A AND ABOVE | | | | | | |
| A12A3VR102 | 1902-0953 | 7 | 2 | DIODE-ZNR 6.2V 5% DO-35 PD=.4W TC=+.053% | 28480 | 1902-0953 |
| A12A3VR103 | 1902-0953 | 7 | 2 | DIODE-ZNR 6.2V 5% DO-35 PD=.4W TC=+.053% | 28480 | 1902-0953 |
| A12A3VR104 | 1902-0953 | 7 | 2 | DIODE-ZNR 6.2V 5% DO-35 PD=.4W TC=+.053% | 28480 | 1902-0953 |
| A12A3W1-W100 | | | | NOT ASSIGNED | | |
| 2427A TO 2529A | | | | | | |
| A12A3W101 | 8159-0005 | 0 | | RESISTOR-ZERO OHMS 22 AWG LEAD DIA | 28480 | 8159-0005 |
| 2530A AND ABOVE | | | | NOT ASSIGNED | | |
| A12A3W101 | | | | | | |
| A12A3Z1 | 0955-0219 | 8 | | MIXER-DOUBLE BALANCED RF: .5-500MHZ; IF | 28480 | 0955-0219 |
| | 1251-3172 | 7 | | CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND | 28480 | 1251-3172 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|----------------------------------------------------------------------------|----------|----------------------|
| A13 | | | | | | |
| A13 | 08642-60898 | 8 | 1 | OUTPUT FILTERS/ALC MODULE | 28480 | 08642-60898 |
| A13 | 08642-69898 | 6 | 1 | OUTPUT FILTERS/ALC MODULE (RESTORED) | 28480 | 08642-69898 |
| A13FL1 | 08642-80047 | 1 | 1 | FLTR LP 7POS BKT | 28480 | 08642-80047 |
| A13MP1 | 08642-20017 | 9 | 1 | COVER LOW PASS FILTER | 28480 | 08642-20017 |
| A13MP2 | 08642-20029 | 3 | 3 | HEATSINK XSTOR | 28480 | 08642-20029 |
| A13MP3 | 08642-20016 | 8 | 1 | BASE OUTPUT UHF | 28480 | 08642-20016 |
| A13MP4 | 08642-00001 | 9 | 9 | GASKET 7 P FILTR | 28480 | 08642-00001 |
| A13MP5 | 0515-1521 | 5 | | SCREW-MACH M3 X 0.5 5MM-LG 90-DEG-FLH-HD (ATTACH FILTER TO BASE) | 28480 | 0515-1521 |
| A13MP6 | 08642-20015 | 7 | 1 | COVER OUTUHF ALC/POWER AMPLIFIER | 28480 | 08642-20015 |
| A13MP7 | 08642-40058 | 0 | | GASKET FEEDTHRU | 28480 | 08642-40058 |
| A13MP8 | 08642-00049 | 5 | | SLIDE-MDL469R56 (FRONT AND REAR) | 28480 | 08642-00049 |
| A13MP9 | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH MODULE SLIDES TO BASE) | 28480 | 0515-1102 |
| A13MP10 | 0515-0684 | 9 | | SCREW-MACH M4 X 0.7 6MM-LG PAN-HD (ATTACH BOARDS TO BASE) | 28480 | 0515-0684 |
| A13MP11 | 0515-1101 | 7 | 2 | SCREW-MACH M4 X 0.7 8MM-LG 90-DEG-FLH-HD (ATTACH A13A2 TO BASE) | 28480 | 0515-1101 |
| A13MP12 | 0515-0381 | 3 | | SCREW-MACH M4 X 0.7 10MM-LG PAN-HD (ATTACH COVERS TO BASE) | 00000 | ORDER BY DESCRIPTION |
| A13MP12 | 8160-0472 | 8 | | RFI ROUND STRIP BE-CU SN-PL .093-IN-OD (SPIRA SHIELD) | 28480 | 8160-0472 |
| A13MP13 | 08642-80069 | 7 | 1 | LABEL-UHF 60006 | 28480 | 08642-80069 |
| A13W1 | 5061-4807 | 8 | 1 | CBL-COAX 926 (A13A1J1 TO A13A2J5) | 28480 | 5061-4807 |
| A13W2 | 5061-4808 | 9 | 1 | CBL-COAX 924 (A13A1J2 TO A13A2J2) | 28480 | 5061-4808 |

See introduction to this section for ordering information.

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A13A1 | | | | | | |
| 2427A TO 2510A A13A1 | 08642-60112 | 9 | 1 | LOW PASS FILTER ASSEMBLY | 28480 | 08642-60112 |
| 2511A TO 2550A A13A1 | 08642-60212 | 0 | 1 | LOW PASS FILTER ASSEMBLY | 28480 | 08642-60212 |
| 2551A AND ABOVE A13A1 | 08642-60312 | 1 | 1 | LOW PASS FILTER ASSEMBLY | 28480 | 08642-60212 |
| A13A1C1 | 0121-0448 | 8 | 5 | CAPACITOR-V TRMR-CER 2.5-5PF 63V PC-MTG | 28480 | 0121-0448 |
| A13A1C2 | 0121-0448 | 8 | | CAPACITOR-V TRMR-CER 2.5-5PF 63V PC-MTG | 28480 | 0121-0448 |
| A13A1C3 | 0121-0448 | 8 | | CAPACITOR-V TRMR-CER 2.5-5PF 63V PC-MTG | 28480 | 0121-0448 |
| 2427A TO 2550A A13A1C4 | 0121-0448 | 8 | | CAPACITOR-V TRMR-CER 2.5-5PF 63V PC-MTG | 28480 | 0121-0448 |
| A13A1C5 | 0121-0448 | 8 | | CAPACITOR-V TRMR-CER 2.5-5PF 63V PC-MTG | 28480 | 0121-0448 |
| 2551A AND ABOVE A13A1C4 | 0121-0565 | 0 | | CAPACITOR-V TRMR-CER 2.5-5PF 63V PC MTG | 28480 | 0121-0565 |
| A13A1C5 | 0121-0565 | 0 | | CAPACITOR-V TRMR-CER 2.5-5PF 63V PC MTG | 28480 | 0121-0565 |
| A13A1C6 | | | | NOT ASSIGNED | | |
| A13A1C7 | 0160-6709 | 8 | | CAPACITOR-FXD 10PF 200VDC CER | 28480 | 0160-6709 |
| A13A1C8 | 0160-6706 | 5 | | CAPACITOR-FXD 13PF 200VDC CER | 28480 | 0160-6706 |
| A13A1C9 | 0160-6709 | 8 | | CAPACITOR-FXD 10PF 200VDC CER | 28480 | 0160-6709 |
| A13A1C10 | 0160-6707 | 6 | | CAPACITOR-FXD 12PF 200VDC CER | 28480 | 0160-6707 |
| A13A1C11 | 0160-6708 | 7 | | CAPACITOR-FXD 18PF 200VDC CER | 28480 | 0160-6708 |
| A13A1C12 | 0160-6707 | 6 | | CAPACITOR-FXD 12PF 200VDC CER | 28480 | 0160-6707 |
| A13A1C13 | 0160-4767 | 4 | | CAPACITOR-FXD 20PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4767 |
| 2427A TO 2550A A13A1C14 | 0160-4493 | 3 | | CAPACITOR-FXD 27PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4493 |
| 2551A AND ABOVE A13A1C14 | 0160-4524 | 1 | | CAPACITOR-FXD 24PF+-5% 200VDC CER 0+-30 | 51642 | 200-200-NPO-240J |
| A13A1C15 | 0160-4767 | 4 | | CAPACITOR-FXD 20PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4767 |
| A13A1C16 | 0160-4766 | 3 | | CAPACITOR-FXD 30PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4766 |
| A13A1C17 | 0160-4526 | 3 | | CAPACITOR-FXD 42PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4526 |
| A13A1C18 | 0160-4766 | 3 | | CAPACITOR-FXD 30PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4766 |
| A13A1C19 | 0160-4526 | 3 | | CAPACITOR-FXD 42PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4526 |
| A13A1C20 | 0160-4527 | 4 | | CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4527 |
| A13A1C21 | 0160-4526 | 3 | | CAPACITOR-FXD 42PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4526 |
| A13A1C22 | 0160-4527 | 4 | | CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4527 |
| A13A1C23 | 0160-5939 | 4 | | CAPACITOR-FXD 100PF +-5PF 100VDC CER | 28480 | 0160-5939 |
| A13A1C24 | 0160-4527 | 4 | | CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4527 |
| 2427A TO 2534A A13A1C25 | 0160-4350 | 1 | 2 | CAPACITOR-FXD 68PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4350 |
| 2535A AND ABOVE A13A1C25 | 0160-4387 | 4 | | CAPACITOR-FXD 47PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4387 |
| 2427A TO 2510A A13A1C26 | 0160-4926 | 7 | 3 | CAPACITOR-FXD 110PF +-5% 200VDC CER | 28480 | 0160-4926 |
| 2511A TO 2534A A13A1C26 | 0160-4512 | 7 | 3 | CAPACITOR-FXD 120PF +-5% 200VDC CER | 28480 | 0160-4512 |
| 2535A AND ABOVE A13A1C26 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| 2427A TO 2534A A13A1C27 | 0160-4350 | 1 | | CAPACITOR-FXD 68PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4350 |
| A13A1C28 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| 2535A AND ABOVE A13A1C27 | 0160-4387 | 4 | | CAPACITOR-FXD 47PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4387 |
| A13A1C28 | 0160-4497 | 7 | | CAPACITOR-FXD 82 F +-5% 200VDC CER 0+-30 | 28480 | 0160-4497 |
| A13A1C29 | 0160-5413 | 9 | 1 | CAPACITOR-FXD 160PF +-5% 100VDC CER | 28480 | 0160-5413 |
| 2427A TO 2534A A13A1C30 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| 2535A AND ABOVE A13A1C30 | 0160-4497 | 7 | | CAPACITOR-FXD 82 F +-5% 200VDC CER 0+-30 | 28480 | 0160-4497 |
| A13A1C31 | 0160-4926 | 7 | | CAPACITOR-FXD 110PF +-5% 200VDC CER | 28480 | 0160-4926 |
| A13A1C32 | 0160-4617 | 3 | | CAPACITOR-FXD 180PF +-5% 200VDC CER | 28480 | 0160-4617 |
| A13A1C33 | 0160-4617 | 3 | | CAPACITOR-FXD 180PF +-5% 200VDC CER | 28480 | 0160-4617 |
| A13A1C34 | 0160-4926 | 7 | | CAPACITOR-FXD 110PF +-5% 200VDC CER | 28480 | 0160-4926 |
| A13A1C35 | 0160-4547 | 8 | | CAPACITOR-FXD 150PF +-5% 200VDC CER | 28480 | 0160-4547 |
| A13A1C36 | 0160-4588 | 7 | | CAPACITOR-FXD 270PF +-5% 100VDC CER | 28480 | 0160-4588 |
| A13A1C37 | 0160-4588 | 7 | | CAPACITOR-FXD 270PF +-5% 100VDC CER | 28480 | 0160-4588 |
| A13A1C38 | 0160-4547 | 8 | | CAPACITOR-FXD 150PF +-5% 200VDC CER | 28480 | 0160-4547 |
| A13A1C39 | 0160-4511 | 6 | | CAPACITOR-FXD 220PF +-5% 200VDC CER | 28480 | 0160-4511 |
| A13A1C40 | 0160-4502 | 5 | | CAPACITOR-FXD 390PF +-5% 100VDC CER | 28480 | 0160-4502 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------|----------------|-----|-----|---------------------------------------|----------|-----------------|
| A13A1C41 | 0160-4502 | 5 | 2 | CAPACITOR-FXD 390PF +-5% 100VDC CER | 28480 | 0160-4502 |
| A13A1C42 | 0160-4511 | 6 | | CAPACITOR-FXD 220PF +-5% 200VDC CER | 28480 | 0160-4511 |
| A13A1C43 | 0160-4031 | 5 | | CAPACITOR-FXD 330PF +-5% 100VDC CER | 28480 | 0160-4031 |
| A13A1C44 | 0160-4616 | 2 | | CAPACITOR-FXD 560PF +-5% 200VDC CER | 28480 | 0160-4616 |
| A13A1C45 | 0160-4616 | 2 | | CAPACITOR-FXD 560PF +-5% 200VDC CER | 28480 | 0160-4616 |
| A13A1C46 | 0160-4031 | 5 | 2 | CAPACITOR-FXD 330PF +-5% 100VDC CER | 28480 | 0160-4031 |
| A13A1C47 | 0160-4768 | 5 | | CAPACITOR-FXD 470PF +-5% 100VDC CER | 28480 | 0160-4768 |
| A13A1C48 | 0160-4030 | 4 | | CAPACITOR-FXD 820PF +-5% 100VDC CER | 28480 | 0160-4030 |
| A13A1C49 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A13A1C50 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A13A1C51 | 0160-4040 | 6 | 7 | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A13A1C52 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A13A1C53 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A13A1C54 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A13A1C55 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A13A1C56 | 0160-3879 | 7 | 5 | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A13A1C57 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A1C58 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A1C59 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A1C60 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A1C61 | 0160-0576 | 5 | 5 | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A1C62 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A1C63 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A1C64 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A1C65 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A13A1C66 | 0160-0576 | 5 | 9 | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2427A TO 2510A A13A1C67 | 0160-4077 | 9 | | CAPACITOR-FXD .01UF +-20% 50VDC CER | 51959 | 0805X103K2P |
| 2511A AND ABOVE A13A1C67 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A13A1C68 | 0160-0576 | 5 | 9 | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2427A TO 2510A A13A1C69 | 0160-4077 | 9 | | CAPACITOR-FXD .01UF +-20% 50VDC CER | 51959 | 0805X103K2P |
| 2511A AND ABOVE A13A1C69 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A13A1C70 | 0160-0576 | 5 | 7 | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A1C71 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A13A1C72 | 0160-0576 | 5 | 5 | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2427A TO 2510A A13A1C73 | 0160-4106 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 51959 | 1209X104M2P |
| 2511A AND ABOVE A13A1C73 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| 2427A TO 2511A A13A1C74 | 0160-0576 | 5 | 6 | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2512A AND ABOVE A13A1C74 | 0160-4040 | 6 | | CAPACITOR-FXD 1000-PF +-5% 100VDC CER | 28480 | 0160-4040 |
| 2427A TO 2510A A13A1C75 | 0160-5978 | 1 | 5 | CAPACITOR-FXD 2.2PF 50VDC CER | 28480 | 0160-5978 |
| A13A1C76 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2511A AND ABOVE A13A1C75 | 0160-5969 | 0 | 2 | CAPACITOR-FXD 3.3PF +.5PF 50VDC CER | 28480 | 0160-5969 |
| A13A1C76 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A13A1C77 | 0160-3879 | 7 | 5 | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| 2427A TO 2510A A13A1C78 | 0160-4106 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 51959 | 1209X104M2P |
| 2511A AND ABOVE A13A1C78 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A13A1C79 | 0160-0576 | 5 | 5 | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A1C80 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A1C81 | 0160-0576 | 5 | 3 | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A1C82 | 0160-4030 | 4 | | CAPACITOR-FXD 820PF +-5% 100VDC CER | 28480 | 0160-4030 |
| A13A1C83 | 0160-4768 | 5 | | CAPACITOR-FXD 470PF +-5% 100VDC CER | 28480 | 0160-4768 |
| A13A1C84 | 0160-4371 | 6 | | CAPACITOR-FXD 680PF +-5% 100VDC CER | 28480 | 0160-4371 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------------------------------------|-------------------------------------|-------------|--------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------|
| 2427A TO 2510A A13A1C85 A13A1C86 | 0160-4040 0160-4040 | 6 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 28480 | 0160-4040 0160-4040 |
| 2511A AND ABOVE A13A1C85 A13A1C86 | 0160-6308 0160-6308 | 3 3 | | CAPACITOR-FXD 1100PF +-5% 100VDC CER CAPACITOR-FXD 1100PF +-5% 100VDC CER | 28480 28480 | 0160-6308 0160-6308 |
| A13A1C87 A13A1C88 A13A1C89 A13A1C90 | 0160-4371 0160-0576 0160-0576 | 6 5 5 | | CAPACITOR-FXD 680PF +-5% 100VDC CER NOT ASSIGNED CAPACITOR-FXD .1UF +-20% 50VDC CER CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 28480 28480 | 0160-4371 0160-0576 0160-0576 |
| 2427A TO 2510A A13A1C91 | 0160-4106 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 51959 | 1209X104M2P |
| 2511A AND ABOVE A13A1C91 A13A1C91 | 0160-6222 0160-4106 | 0 5 | | CAPACITOR-FXD .1UF +-10% 50VDC CER CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 51959 | 0160-6222 1209X104M2P |
| 2427A TO 2722A A13A1C92 A13A1C93 | 0160-4518 0160-3872 | 3 0 | | CAPACITOR-FXD 3.9PF +- .5PF 200VDC CER CAPACITOR-FXD 2.2PF +- .25PF 200VDC CER | 28480 28480 | 0160-4518 0160-3872 |
| 2728A AND ABOVE A13A1C92 A13A1C93 | 0160-5973 0160-5975 | 6 8 | | CAPACITOR-FXD 6.0PF +-5% 50VDC CER CAPACITOR-FXD 10PF +-5% 50VDC CER 0+-30 | 28480 28480 | 0160-5973 0160-5975 |
| A13A1C94 | | | | NOT ASSIGNED | | |
| 2427A TO 2510A A13A1C95 A13A1C96 | 0160-5049 | 7 | 2 | CAPACITOR-FXD 3.3PF +- .25PF 100VDC CER NOT ASSIGNED | 28480 | 0160-5049 |
| 2511A TO 2533A A13A1C95 A13A1C96 | 0160-5969 0160-0572 | 0 1 | 3 3 | CAPACITOR-FXD 3.3PF +- .5PF 50VDC CER CAPACITOR-FXD 2200PF +-20% 100VDC CER | 28480 28480 | 0160-5969 0160-0572 |
| 2534A AND ABOVE A13A1C95 A13A1C96 | 0160-5969 | 0 | 3 | CAPACITOR-FXD 3.3PF +- .5PF 50VDC CER NOT ASSIGNED | 28480 | 0160-5969 |
| 2427A TO 2511A A13A1C97 | | | | NOT ASSIGNED | | |
| 2512A TO 2550A A13A1C97 | 0160-5942 | 9 | | CAPACITOR-FXD 1PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5942 |
| 2551A AND ABOVE A13A1C97 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| 2427A TO 2527A A13A1C98-C101 | | | | NOT ASSIGNED | | |
| 2529A TO 2550A A13A1C98 A13A1C99 | | | | NOT ASSIGNED NOT ASSIGNED | | |
| A13A1C100 A13A1C101 | 0160-5954 0160-5954 | 3 3 | | CAPACITOR-FXD 220PF +-5% 50VDC CER 0+-30 CAPACITOR-FXD 220PF +-5% 50VDC CER 0+-30 | 28480 28480 | 0160-5954 0160-5954 |
| 2551A TO 2722A A13A1C98 | 0160-5969 | 0 | | CAPACITOR-FXD 3.3PF +- .5PF 50VDC CER | 28480 | 0160-5969 |
| 2728A AND ABOVE A13A1C98 | | | | NOT ASSIGNED | | |
| 2551A AND ABOVE A13A1C99 A13A1C100 A13A1C101 | 0160-4030 0160-5954 0160-5954 | 4 3 3 | | CAPACITOR-FXD 820PF +-5% 100VDC CER CAPACITOR-FXD 220PF +-5% 50VDC CER 0+-30 CAPACITOR-FXD 220PF +-5% 50VDC CER 0+-30 | 28480 28480 28480 | 0160-4030 0160-5954 0160-5954 |
| 2427A TO 2722A A13A1CR1 A13A1CR2 | 1901-1096 1901-1096 | 9 9 | | DIODE-PIN DIODE-PIN | 28480 28480 | 1901-1096 1901-1096 |
| 2728A AND ABOVE A13A1CR1 A13A1CR2 | 1901-0639 1901-0639 | 4 4 | | DIODE-PIN DIODE-PIN | 28480 28480 | 1901-0639 1901-0639 |
| A13A1CR3 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| 2427A TO 2722A A13A1CR4 A13A1CR5 | 1901-1096 1901-1096 | 9 9 | | DIODE-PIN DIODE-PIN | 28480 28480 | 1901-1096 1901-1096 |
| 2728A AND ABOVE A13A1CR4 A13A1CR5 | 1901-0639 1901-0639 | 4 4 | | DIODE-PIN DIODE-PIN | 28480 28480 | 5082-3080 5082-3080 |
| A13A1CR6 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| 2427A TO 2722A A13A1CR7 A13A1CR8 | 1901-1096 1901-1096 | 9 9 | | DIODE-PIN DIODE-PIN | 28480 28480 | 1901-1096 1901-1096 |
| 2728A AND ABOVE A13A1CR7 A13A1CR8 | 1901-0639 1901-0639 | 4 4 | | DIODE-PIN DIODE-PIN | 28480 28480 | 1901-0639 1901-0639 |
| A13A1CR9 A13A1CR10 | 1901-0639 1901-0639 | 4 4 | | DIODE-PIN DIODE-PIN | 28480 28480 | 5082-3080 5082-3080 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|----------------------------------------|----------|-----------------|
| A13A1CR11 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR12 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR13 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR14 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR15 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR16 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR17 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR18 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR19 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR20 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR21 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR22 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR23 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR24 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR25 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR26 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR27 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR28 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR29 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR30 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR31 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR32 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR33 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR34 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR35 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR36 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR37 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR38 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR39 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR40 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| 2427A TO 2722A | | | | | | |
| A13A1CR41 | 1901-1096 | 9 | | DIODE-PIN | 28480 | 1901-1096 |
| 2828A AND ABOVE | | | | | | |
| A13A1CR41 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 1901-0639 |
| A13A1CR42 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR43 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| 2427A TO 2722A | | | | | | |
| A13A1CR44 | 1901-1096 | 9 | | DIODE-PIN | 28480 | 1901-1096 |
| 2828A AND ABOVE | | | | | | |
| A13A1CR44 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 1901-0639 |
| A13A1CR45 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR46 | 1901-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| 2427A TO 2510A | | | | | | |
| A13A1CR47-CR50 | | | | NOT ASSIGNED | | |
| 2511A AND ABOVE | | | | | | |
| A13A1CR47 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS D0-35 | 28480 | 1901-0050 |
| A13A1CR48 | 1900-0047 | 6 | | DIODE-PIN | 28480 | 1900-0047 |
| A13A1CR49 | 1900-0047 | 6 | | DIODE-PIN | 28480 | 1900-0047 |
| A13A1CR50 | 1900-0047 | 6 | | DIODE-PIN | 28480 | 1900-0047 |
| A13A1CR51 | 1900-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1CR52 | 1900-0639 | 4 | | DIODE-PIN | 28480 | 5082-3080 |
| A13A1J1 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A13A1J2 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A13A1J3 | 1251-8758 | 5 | | CONN-POST TYPE .100-PIN-SPCG 8-CONT | 28480 | 1251-8758 |
| A13A1L1 | | | | NOT ASSIGNED | | |
| A13A1L2 | | | | NOT ASSIGNED | | |
| 2427A TO 2722A | | | | | | |
| A13A1L3 | 9135-0080 | 2 | 4 | INDUCTOR RF-CH-MLD 27NH 5% .102DX.26LG | 28480 | 9135-0080 |
| A13A1L4 | 9135-0080 | 2 | | INDUCTOR RF-CH-MLD 27NH 5% .102DX.26LG | 28480 | 9135-0080 |
| 2728A AND ABOVE | | | | | | |
| A13A1L3 | 8159-0005 | 0 | | RESISTOR-ZERO OHMS 22 AWG LEAD DIA | 28480 | 8159-0005 |
| A13A1L4 | 8159-0005 | 0 | | RESISTOR-ZERO OHMS 22 AWG LEAD DIA | 28480 | 8159-0005 |
| A13A1L5 | 9135-0080 | 2 | | INDUCTOR RF-CH-MLD 27NH 5% .102DX.26LG | 28480 | 9135-0080 |
| A13A1L6 | 9135-0080 | 2 | | INDUCTOR RF-CH-MLD 27NH 5% .102DX.26LG | 28480 | 9135-0080 |
| A13A1L7 | 9135-0077 | 7 | 2 | INDUCTOR RF-CH-MLD 36NH 6% .102DX.26LG | 28480 | 9135-0077 |
| A13A1L8 | 9135-0077 | 7 | | INDUCTOR RF-CH-MLD 36NH 6% .102DX.26LG | 28480 | 9135-0077 |
| A13A1L9 | 9135-0074 | 4 | 2 | INDUCTOR RF-CH-MLD 47NH 4% .102DX.26LG | 28480 | 9135-0074 |
| A13A1L10 | 9135-0074 | 4 | | INDUCTOR RF-CH-MLD 47NH 4% .102DX.26LG | 28480 | 9135-0074 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A13A1L11 | 9135-0072 | 2 | | INDUCTOR RF-CH-MLD 56NH 5% .102DX.26LG | 28480 | 9135-0072 |
| A13A1L12 | 9135-0072 | 2 | | INDUCTOR RF-CH-MLD 56NH 5% .102DX.26LG | 28480 | 9135-0072 |
| A13A1L13 | 9135-0078 | 8 | | INDUCTOR RF-CH-MLD 82NH 7% .102DX.26LG | 28480 | 9135-0078 |
| A13A1L14 | 9135-0078 | 8 | | INDUCTOR RF-CH-MLD 82NH 7% .102DX.26LG | 28480 | 9135-0078 |
| A13A1L15 | 9135-0079 | 9 | | INDUCTOR RF-CH-MLD 100NH 5% .102DX.26LG | 28480 | 9135-0079 |
| A13A1L16 | 9135-0079 | 9 | | INDUCTOR RF-CH-MLD 100NH 5% .102DX.26LG | 28480 | 9135-0079 |
| A13A1L17 | 9140-0530 | 8 | | INDUCTOR RF-CH-MLD 150NH 5% .105DX.26LG | 28480 | 9140-0530 |
| A13A1L18 | 9140-0530 | 8 | | INDUCTOR RF-CH-MLD 150NH 5% .105DX.26LG | 28480 | 9140-0530 |
| A13A1L19 | 9140-0519 | 3 | | INDUCTOR RF-CH-MLD 220NH 5% .105DX.26LG | 28480 | 9140-0519 |
| A13A1L20 | 9140-0519 | 3 | | INDUCTOR RF-CH-MLD 220NH 5% .105DX.26LG | 28480 | 9140-0519 |
| A13A1L21 | 9140-0352 | 2 | 2 | INDUCTOR RF-CH-MLD 330NH 1% .105DX.26LG | 28480 | 9140-0352 |
| A13A1L22 | 9140-0310 | 2 | 1 | INDUCTOR RF-CH-MLD 390NH 5% .105DX.26LG | 28480 | 9140-0310 |
| A13A1L23 | 9140-0352 | 2 | | INDUCTOR RF-CH-MLD 330NH 1% .105DX.26LG | 28480 | 9140-0352 |
| A13A1L24 | 9140-0353 | 3 | 2 | INDUCTOR RF-CH-MLD 430NH 1% .105DX.26LG | 28480 | 9140-0353 |
| A13A1L25 | 9100-0593 | 9 | | INDUCTOR RF-CH-MLD 470NH 5% .105DX.26LG | 28480 | 9100-0593 |
| A13A1L26 | 9140-0353 | 3 | | INDUCTOR RF-CH-MLD 430NH 1% .105DX.26LG | 28480 | 9140-0353 |
| A13A1L27 | 9140-1095 | 2 | 2 | INDUCTOR RF-CH-MLD 680NH 5% .105DX.26LG | 28480 | 9140-1095 |
| A13A1L28 | 9140-0526 | 2 | 1 | INDUCTOR RF-CH-MLD 750NH 5% .105DX.26LG | 28480 | 9140-0526 |
| A13A1L29 | 9140-1095 | 2 | | INDUCTOR RF-CH-MLD 680NH 5% .105DX.26LG | 28480 | 9140-1095 |
| A13A1L30 | 9140-0333 | 9 | 2 | INDUCTOR RF-CH-MLD 910NH 5% .105DX.26LG | 28480 | 9140-0333 |
| A13A1L31 | 9140-0531 | 9 | | INDUCTOR RF-CH-MLD 1UH 5% .105DX.26LG | 28480 | 9140-0531 |
| A13A1L32 | 9140-0333 | 9 | | INDUCTOR RF-CH-MLD 910NH 5% .105DX.26LG | 28480 | 9140-0333 |
| A13A1L33 | 9100-2249 | 6 | | INDUCTOR RF-CH-MLD 150NH 10% .105DX.26LG | 28480 | 9100-2249 |
| A13A1L34 | 9100-2249 | 6 | | INDUCTOR RF-CH-MLD 150NH 10% .105DX.26LG | 28480 | 9100-2249 |
| A13A1L35 | 9100-2250 | 9 | | INDUCTOR RF-CH-MLD 180NH 10% .105DX.26LG | 28480 | 9100-2250 |
| A13A1L36 | 9100-2251 | 0 | | INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG | 28480 | 9100-2251 |
| A13A1L37 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A13A1L38 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A13A1L39 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A13A1L40 | 9140-0158 | 6 | | INDUCTOR RF-CH-MLD 1UH 10% .105DX.26LG | 28480 | 9140-0158 |
| A13A1L41 | 9140-0144 | 0 | 4 | INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG | 28480 | 9140-0144 |
| A13A1L42 | 9140-0144 | 0 | | INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG | 28480 | 9140-0144 |
| A13A1L43 | 9100-1619 | 2 | 1 | INDUCTOR RF-CH-MLD 6.8UH 10% | 28480 | 9100-1619 |
| A13A1L44 | 9140-0105 | 3 | 4 | INDUCTOR RF-CH-MLD 8.2UH 10% | 28480 | 9140-0105 |
| A13A1L45 | 9100-1627 | 2 | | INDUCTOR RF-CH-MLD 39UH 5% .166DX.385LG | 28480 | 9100-1627 |
| A13A1L46 | 9100-1631 | 8 | | INDUCTOR RF-CH-MLD 56UH 5% .166DX.385LG | 28480 | 9100-1631 |
| A13A1L47 | 9140-0210 | 1 | 5 | INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG | 28480 | 9140-0210 |
| A13A1L48 | 9100-1637 | 4 | 1 | INDUCTOR RF-CH-MLD 120UH 5% .166DX.385LG | 28480 | 9100-1637 |
| A13A1L49 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A1L50 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A1L51 | 9140-0210 | 1 | | INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG | 28480 | 9140-0210 |
| A13A1L52 | 9140-0210 | 1 | | INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG | 28480 | 9140-0210 |
| A13A1L53 | 9140-1088 | 3 | 2 | INDUCTOR 15.4UH 25% .23D | 28480 | 9140-1088 |
| A13A1L54 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A1L55 | 9140-0114 | 4 | 2 | INDUCTOR RF-CH-MLD 10UH 10% .166DX.385LG | 28480 | 9140-0114 |
| A13A1L56 | 9140-1088 | 3 | | INDUCTOR 15.4UH 25% .23D | 28480 | 9140-1088 |
| A13A1L57 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A1L58 | 9140-0114 | 4 | | INDUCTOR RF-CH-MLD 10UH 10% .166DX.385LG | 28480 | 9140-0114 |
| A13A1L59 | | | | NOT ASSIGNED | | |
| A13A1L60 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A1L61 | 9100-1620 | 5 | | INDUCTOR RF-CH-MLD 15UH 10% .166DX.385LG | 28480 | 9100-1620 |
| A13A1L62 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A1L63 | 9140-0532 | 0 | | INDUCTOR RF-CH-MLD 1.2UH 5% .105DX.26LG | 28480 | 9140-0532 |
| A13A1L64 | 9140-0534 | 2 | 1 | INDUCTOR RF-CH-MLD 1.5UH 5% .105DX.26LG | 28480 | 9140-0534 |
| A13A1L65 | 9140-0532 | 0 | | INDUCTOR RF-CH-MLD 1.2UH 5% .105DX.26LG | 28480 | 9140-0532 |
| A13A1L66 | 9140-0309 | 9 | 2 | INDUCTOR RF-CH-MLD 1.8UH 5% .105DX.26LG | 28480 | 9140-0309 |
| A13A1L67 | 9140-0537 | 5 | 1 | INDUCTOR RF-CH-MLD 2.2UH 5% .105DX.26LG | 28480 | 9140-0537 |
| A13A1L68 | 9140-0309 | 9 | | INDUCTOR RF-CH-MLD 1.8UH 5% .105DX.26LG | 28480 | 9140-0309 |
| 2427A TO 2510A | | | | | | |
| A13A1L69-L71 | | | | NOT ASSIGNED | | |
| 2511A TO 2533A | | | | | | |
| A13A1L69 | 9140-1088 | 3 | | INDUCTOR 17.4UH | 28480 | 9140-1088 |
| A13A1L70 | 9140-1087 | 2 | | INDUCTOR-FXD 120-1300 HZ | 28480 | 9140-1087 |
| A13A1L71 | 9140-1088 | 3 | | INDUCTOR 17.4UH | 28480 | 9140-1088 |
| 2534A AND ABOVE | | | | | | |
| A13A1L69 | 9140-1088 | 3 | | INDUCTOR 17.4UH | 28480 | 9140-1088 |
| A13A1L70 | | | | NOT ASSIGNED | | |
| A13A1L71 | 9140-1088 | 3 | | INDUCTOR 17.4UH | 28480 | 9140-1088 |
| A13A1MP1 | 0340-0840 | 8 | | INSULATOR SLBL-LAC-CMPD | 28480 | 0340-0840 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|--------------------------------------|----------|------------------|
| A13A1Q1 | 1854-0942 | 1 | 1 | TRANSISTOR NPN SI PD=2.25W FT=3GHZ | 28480 | 1854-0942 |
| A13A1Q2 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A13A1Q3 | 1854-0720 | 3 | | TRANSISTOR NPN SI PD=500MW FT=4GHZ | 28480 | 1854-0720 |
| A13A1R1 | 0698-3446 | 3 | 4 | RESISTOR 383 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-383R-F |
| A13A1R2 | 0699-1318 | 6 | | RESISTOR 1K 1% .125W F TC=0+-100 | 28480 | 0699-1318 |
| <i>2427A TO 2510A</i> | | | | | | |
| <i>A13A1R3</i> | 0757-0405 | 4 | | RESISTOR 162 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-162R-F |
| <i>2511A AND ABOVE</i> | | | | | | |
| <i>A13A1R3</i> | 0698-3439 | 4 | | RESISTOR 178 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-178R-F |
| A13A1R4 | 0757-0802 | 5 | 1 | RESISTOR 162 1% .5W F TC=0+-100 | 28480 | 0757-0802 |
| <i>2427A TO 2510A</i> | | | | | | |
| <i>A13A1R5</i> | 0699-0268 | 3 | 12 | RESISTOR 45 5% .1W C TC=0+-200 | 28480 | 0699-0268 |
| <i>A13A1R6</i> | 0699-0268 | 3 | | RESISTOR 45 5% .1W C TC=0+-200 | 28480 | 0699-0268 |
| <i>A13A1R7</i> | 0699-0268 | 3 | | RESISTOR 45 5% .1W C TC=0+-200 | 28480 | 0699-0268 |
| <i>2511A AND ABOVE</i> | | | | | | |
| <i>A13A1R5</i> | 0699-1359 | 5 | 12 | RESISTOR CHIP 42.2 | 28480 | 0699-1359 |
| <i>A13A1R6</i> | 0699-1359 | 5 | 12 | RESISTOR CHIP 42.2 | 28480 | 0699-1359 |
| <i>A13A1R7</i> | 0699-1359 | 5 | 12 | RESISTOR CHIP 42.2 | 28480 | 0699-1359 |
| A13A1R8 | 0757-0402 | 1 | 8 | RESISTOR 110 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-111-F |
| A13A1R9 | 0757-0402 | 1 | | RESISTOR 110 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-111-F |
| A13A1R10 | 0757-0402 | 1 | | RESISTOR 110 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-111-F |
| A13A1R11 | 0757-0402 | 1 | | RESISTOR 110 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-111-F |
| A13A1R12 | 0757-0402 | 1 | | RESISTOR 110 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-111-F |
| A13A1R13 | 0757-0402 | 1 | | RESISTOR 110 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-111-F |
| A13A1R14 | | | | NOT ASSIGNED | | |
| A13A1R15 | 0757-0402 | 1 | | RESISTOR 110 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-111-F |
| A13A1R16 | 0757-0402 | 1 | | RESISTOR 110 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-111-F |
| A13A1R17 | | | | NOT ASSIGNED | | |
| A13A1R18 | | | | NOT ASSIGNED | | |
| A13A1R19 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A13A1R20 | 0698-7240 | 3 | | RESISTOR 1.47K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1471-F |
| A13A1R21 | 0698-3397 | 3 | 1 | RESISTOR 42.2 1% .5W F TC=0+-100 | 28480 | 0698-3397 |
| <i>2427A TO 2510A</i> | | | | | | |
| <i>A13A1R22</i> | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| <i>2511A AND ABOVE</i> | | | | | | |
| <i>A13A1R22</i> | 0699-1295 | 8 | | RESISTOR 1K 1% .125W F TC=0+-100 | 28480 | 0699-1295 |
| A13A1R23 | 0699-0181 | 9 | 1 | RESISTOR 178 5% .1W C TC=0+-200 | 28480 | 0699-0181 |
| A13A1R24 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A13A1R25 | 1810-0207 | 9 | 3 | NETWORK-RES 8-SIP22.0K OHM X 7 | 01121 | 208A223 |
| A13A1R26 | 1810-0207 | 9 | | NETWORK-RES 8-SIP22.0K OHM X 7 | 01121 | 208A223 |
| A13A1R27 | 1810-0207 | 9 | | NETWORK-RES 8-SIP22.0K OHM X 7 | 01121 | 208A223 |
| A13A1R28 | 1810-0204 | 6 | 2 | NETWORK-RES 8-SIP1.0K OHM X 7 | 01121 | 208A102 |
| A13A1R29 | 0698-7224 | 3 | | RESISTOR 316 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-316R-F |
| <i>2427A TO 2510A</i> | | | | | | |
| <i>A13A1R30</i> | 0699-0268 | 3 | | RESISTOR 45 5% .1W C TC=0+-200 | 28480 | 0699-0268 |
| <i>A13A1R31</i> | 0699-0268 | 3 | | RESISTOR 45 5% .1W C TC=0+-200 | 28480 | 0699-0268 |
| <i>A13A1R32</i> | 0699-0268 | 3 | | RESISTOR 45 5% .1W C TC=0+-200 | 28480 | 0699-0268 |
| <i>A13A1R33-R37</i> | | | | NOT ASSIGNED | | |
| <i>2511A AND ABOVE</i> | | | | | | |
| <i>A13A1R30</i> | 0699-1359 | 5 | 12 | RESISTOR CHIP 42.2 | 28480 | 0699-1359 |
| <i>A13A1R31</i> | 0699-1359 | 5 | 12 | RESISTOR CHIP 42.2 | 28480 | 0699-1359 |
| <i>A13A1R32</i> | 0699-1359 | 5 | 12 | RESISTOR CHIP 42.2 | 28480 | 0699-1359 |
| <i>A13A1R33</i> | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=+-100 | 24546 | C3-1/8-T0-1961-F |
| <i>2511A TO 2533A</i> | | | | | | |
| <i>A13A1R34</i> | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=+-100 | 24546 | C3-1/8-T0-1001-F |
| <i>A13A1R35</i> | 0698-3441 | 8 | | RESISTOR 215 1% .125W F TC=+-100 | 24546 | C4-1/8-T0-215R-F |
| <i>2534A AND ABOVE</i> | | | | | | |
| <i>A13A1R34</i> | | | | NOT ASSIGNED | | |
| <i>A13A1R35</i> | | | | NOT ASSIGNED | | |
| <i>2511A TO 2642A</i> | | | | | | |
| <i>A13A1R36</i> | 0698-3599 | 7 | | RESISTOR 2.15K 1% .25W F TC=+-100 | 24546 | C5-1/4-T0-2151-F |
| <i>A13A1R37</i> | 0757-0397 | 3 | | RESISTOR 68.1 1% .125W F TC=+-100 | 24546 | C4-1/8-T0-68R1-F |

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* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------|
| 2703A AND ABOVE A13A1R36 A13A1R37 | 0757-0338 0757-0276 | 2 7 | | RESISTOR 1K 1% .25W F TC=0+-100 RESISTOR 61.9 1% .125W F TC=0+-100 | 24546 24546 | C5-1/4-TO-1001-F C4-1/8-TO-6192-F |
| 2427A TO 2527A A13A1R38 2529A TO 2550A A13A1R38 2551A TO 2722A A13A1R38 2728A AND ABOVE A13A1R38 | 0699-1423 | 4 | | NOT ASSIGNED NOT ASSIGNED RESISTOR 215 1% .125W F TC=0+-100 NOT ASSIGNED | 28480 | 0699-1423 |
| 2427A TO 2527A A13A1R39 2529A TO 2550A A13A1R39 2551A AND ABOVE A13A1R39 | 0699-1423 0699-1423 | 4 4 | | NOT ASSIGNED RESISTOR 215 1% .125W F TC=0+-100 RESISTOR 215 1% .125W F TC=0+-100 | 28480 28480 | 0699-1423 0699-1423 |
| A13A1TP1 A13A1TP2 A13A1TP3 | 0360-0535 0360-0535 1251-2194 | 0 0 1 | | TERMINAL TEST POINT PCB TERMINAL TEST POINT PCB CONNECTOR-SGL CONT SKT .021-IN-BSC-SZ | 00000 00000 28480 | ORDER BY DESCRIPTION ORDER BY DESCRIPTION 1251-2194 |
| 2427A TO 2828A A13A1U1 2814A AND ABOVE A13A1U1 | 1826-0047 1826-0138 | 8 8 | | IC PL LOOP 16-DIP-P PKG IC COMPARATOR GP QUAD 14-DIP-P PKG | 18324 01295 | NE562B LM339N |
| A13A1U2 A13A1U3 A13A1U4 A13A1U5 | 1820-1729 1858-0047 1820-1729 1858-0047 | 3 5 3 5 | 2 | IC LCH TTL LS COM CLEAR 8-BIT TRANSISTOR ARRAY 16-PIN PLSTC DIP IC LCH TTL LS COM CLEAR 8-BIT TRANSISTOR ARRAY 16-PIN PLSTC DIP | 01295 13606 01295 13606 | SN74LS259N ULN-2003A SN74LS259N ULN-2003A |
| 2427A TO 2809A A13A1U6 2814A AND ABOVE A13A1U6 | 1826-0759 1826-0138 | 9 8 | | IC COMPARATOR GP QUAD 14-DIP-C IC COMPARATOR GP QUAD 14-DIP-C PKG | 04713 01295 | LM339J LM339N |
| A13A1W1 A13A1Z1 | 8159-0005 08642-00062 | 0 2 | 1 | RESISTOR-ZERO OHMS 22 AWG LEAD DIA G STRP UHF XSTR | 28480 28480 | 8159-0005 08642-00062 |

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A13A2 | | | | | | |
| 2427A TO 2510A A13A2 | 08642-60113 | 0 | 1 | ALC/POWER AMPLIFIER ASSEMBLY | 28480 | 08642-60113 |
| 2511A TO 2640A A13A2 | 08642-60213 | 0 | 1 | ALC/POWER AMPLIFIER ASSEMBLY | 28480 | 08642-60213 |
| 2642A ATO 2728A A13A2 | 08642-60313 | 2 | 1 | ALC/POWER AMPLIFIER ASSEMBLY | 28480 | 08642-60313 |
| 2801A AND ABOVE A13A2 | 08642-60413 | 3 | 1 | ALC/POWER AMPLIFIER ASSEMBLY | 28480 | 08642-60413 |
| A13A2C1 | 0160-4387 | 4 | | CAPACITOR-FXD 47PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4387 |
| A13A2C2 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A13A2C3 | 0160-4387 | 4 | | CAPACITOR-FXD 47PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4387 |
| A13A2C4 | 0160-4822 | 2 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4822 |
| A13A2C5 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A13A2C6 | 0160-3531 | 8 | | CAPACITOR-FXD 2UF +-5% 50VDC MET-POLYC | 28480 | 0160-3531 |
| A13A2C7 | | | | NOT ASSIGNED | | |
| A13A2C8 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| 2427A TO 2728A A13A2C9 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2801A AND ABOVE A13A2C9 | | | | NOT ASSIGNED | | |
| A13A2C10 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C11 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C12 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C13 | 0160-4524 | 1 | | CAPACITOR-FXD 24PF +-5% 200VDC CER 0+-30 | 51642 | 200-200-NP0-240J |
| A13A2C14 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C15 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C16 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C17 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C18 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C19 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C20 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C21 | | | | NOT ASSIGNED | | |
| 2427A TO 2510A A13A2C22 | 0160-4106 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 51959 | 1209X104M2P |
| 2511A AND ABOVE A13A2C22 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A13A2C23 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2427A TO 2510A A13A2C24 | 0160-4106 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 51959 | 1209X104M2P |
| 2511A AND ABOVE A13A2C24 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A13A2C25 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C26 | | | | NOT ASSIGNED | | |
| 2427A TO 2510A A13A2C27 | 0160-4106 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 51959 | 1209X104M2P |
| 2511A AND ABOVE A13A2C27 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A13A2C28 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C29 | 0160-3873 | 1 | | CAPACITOR-FXD 4.7PF +- .5PF 200VDC CER | 28480 | 0160-3873 |
| A13A2C30 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2427A TO 2510A A13A2C31 | 0160-4077 | 9 | | CAPACITOR-FXD .01UF +-20% 50VDC CER | 51959 | 0805X103K2P |
| A13A2C32 | 0160-4077 | 9 | | CAPACITOR-FXD .01UF +-20% 50VDC CER | 51959 | 0805X103K2P |
| A13A2C33 | 0160-3641 | 1 | 2 | CAPACITOR-FXD 4700PF +-10% 50VDC CER | 26654 | 1BX050S472K(D) |
| A13A2C34 | 0160-3641 | 1 | 1 | CAPACITOR-FXD 4700PF +-10% 50VDC CER | 26654 | 1BX050S472K(D) |
| 2511A AND ABOVE A13A2C31 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A13A2C32 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A13A2C33 | 0160-6218 | 4 | | CAPACITOR-FXD 4700PF +-10% 50VDC CER | 28480 | 0160-6218 |
| A13A2C34 | 0160-6218 | 4 | 2 | CAPACITOR-FXD 4700PF +-10% 50VDC CER | 28480 | 0160-6218 |
| A13A2C35 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C36 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C37 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A13A2C38 | 0160-4386 | 3 | 1 | CAPACITOR-FXD 33PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4386 |
| A13A2C39 | 0160-5954 | 3 | | CAPACITOR-FXD 220PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5954 |
| A13A2C40 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A13A2C41 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A13A2C42 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C43 | 0160-3878 | 6 | | CAPACITOR-FXD 1000PF +-20% 100VDC CER | 28480 | 0160-3878 |
| A13A2C44 | 0160-3878 | 6 | | CAPACITOR-FXD 1000PF +-20% 100VDC CER | 28480 | 0160-3878 |
| A13A2C45 | 0160-3878 | 6 | | CAPACITOR-FXD 1000PF +-20% 100VDC CER | 28480 | 0160-3878 |
| A13A2C46 | 0160-3878 | 6 | | CAPACITOR-FXD 1000PF +-20% 100VDC CER | 28480 | 0160-3878 |
| A13A2C47 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C48 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A13A2C49 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A13A2C50 | 0160-5216 | 0 | 2 | CAPACITOR-FXD .1UF +-10% 100VDC CER | 28480 | 0160-5216 |
| A13A2C51 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C52 | 0160-5216 | 0 | | CAPACITOR-FXD .1UF +-10% 100VDC CER | 28480 | 0160-5216 |
| A13A2C53 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C54 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C55 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C56 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C57 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C58 | | | | NOT ASSIGNED | | |
| A13A2C59 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A13A2C60 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A13A2CR1 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A13A2CR2 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A13A2CR3 | 1901-0886 | 3 | 1 | DIODE-SCHOTTKY 20V 1A | 28480 | 1901-0886 |
| A13A2CR4 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A13A2CR5 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| 2427A TO 2622A A13A2CR6 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| 2630A TO 2703A A13A2CR6 | | | | NOT ASSIGNED | | |
| 2709A AND ABOVE A13A2CR6 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A13A2CR7 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A13A2CR8 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A13A2CR9 | | | | NOT ASSIGNED | | |
| A13A2CR10 | | | | NOT ASSIGNED | | |
| A13A2CR11 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A13A2CR12 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A13A2CR13 | | | | NOT ASSIGNED | | |
| A13A2CR14 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| 2427A TO 2640A A13A2CR15 | | | | NOT ASSIGNED | | |
| 2642A AND ABOVE A13A2CR15 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A13A2E1 | 9170-0029 | 3 | | CORE-SHIELDING BEAD | 28480 | 9170-0029 |
| A13A2FL1 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A13A2FL2 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A13A2FL3 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A13A2FL4 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A13A2FL5 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A13A2FL6 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A13A2FL7 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A13A2FL8 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A13A2FL9 | 9135-0226 | 8 | 1 | FILTER-LOW PASS WIRE-LEAD-TERMS | 28480 | 9135-0226 |
| A13A2FL10 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A13A2FL11 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------------------------------------|----------------|-----|---------------------------------------|------------------------------------------|--------------|------------------|
| A13A2J1 | 1251-8105 | 6 | 3 | CONN-POST TYPE .100-PIN-SPCG 16-CONT | 28480 | 1251-8105 |
| | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A13A2J2 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A13A2J3 | 08642-80018 | 6 | | CONNECTOR-RF | 28480 | 08642-80018 |
| | 08642-20079 | 3 | | ELSTMR CNDCT SMA | 28480 | 08642-20079 |
| A13A2J4 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A13A2J5 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A13A2J6 | 1250-2090 | 4 | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 | |
| | 08642-20081 | 7 | ELSTMR COND SMC | 28480 | 08642-20081 | |
| A13A2J7 | 1251-8758 | 5 | | CONN-POST TYPE .100-PIN-SPCG 8-CONT | 28480 | 1251-8758 |
| A13A2L1 | 9140-0105 | 3 | | INDUCTOR RF-CH-MLD 8.2UH 10% | 28480 | 9140-0105 |
| A13A2L2 | 9140-0105 | 3 | | INDUCTOR RF-CH-MLD 8.2UH 10% | 28480 | 9140-0105 |
| A13A2L3 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A2L4 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A2L5 | | | | NOT ASSIGNED | | |
| A13A2L6 | | | | NOT ASSIGNED | | |
| A13A2L7 | | | | NOT ASSIGNED | | |
| A13A2L8 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A2L9 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A2L10 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A2L11 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A2L12 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A2L13 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A2L14 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A2L15 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A2L16 | | | | NOT ASSIGNED | | |
| A13A2L17 | | | | NOT ASSIGNED | | |
| A13A2L18 | | | | NOT ASSIGNED | | |
| A13A2L19 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A13A2MP1 | 08642-20088 | 4 | 1 | CONTACT-FINGER | 28480 | 08642-20088 |
| A13A2Q1 | 1854-1009 | 3 | | TRANSISTOR NPN SI PD=580MW | 28480 | 1854-1009 |
| A13A2Q2 | 1853-0405 | 9 | | TRANSISTOR PNP SI PD=300MW FT=850MHZ | 04713 | 2N4209 |
| A13A2Q3 | 1855-0420 | 2 | | TRANSISTOR J-FET 2N4391 N-CHAN D-MODE | 01295 | 2N4391 |
| A13A2Q4 | 1855-0420 | 2 | | TRANSISTOR J-FET 2N4391 N-CHAN D-MODE | 01295 | 2N4391 |
| A13A2Q5 | 1854-0720 | 3 | | TRANSISTOR NPN SI PD=500MW FT=4GHZ | 28480 | 1854-0720 |
| A13A2Q6 | | | | NOT ASSIGNED | | |
| A13A2Q7 | 1855-0560 | 1 | 3 | TRANSISTOR MOSFET N-CHAN E-MODE TO-52 SI | 28480 | 1855-0560 |
| A13A2Q8 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A13A2Q9 | 1855-0560 | 1 | | TRANSISTOR MOSFET N-CHAN E-MODE TO-52 SI | 28480 | 1855-0560 |
| A13A2Q10 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| | | | | | NOT ASSIGNED | |
| 2427A TO 2703A A13A2Q11 2709A AND ABOVE A13A2Q11 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 |
| A13A2R1 | 0698-8625 | 0 | 2 | RESISTOR 1K 1% .1W F TC=0+-5 | 28480 | 0698-8625 |
| A13A2R2 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A13A2R3 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A13A2R4 | | | | NOT ASSIGNED | | |
| A13A2R5 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A13A2R6 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A13A2R7 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A13A2R8 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A13A2R9 | 0757-1002 | 9 | 1 | RESISTOR 61.9 1% .5W F TC=0+-100 | 28480 | 0757-1002 |
| A13A2R10 | 0699-1419 | 8 | | RESISTOR 147 1% .125W F TC=0+-100 | 28480 | 0699-1419 |
| A13A2R11 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A13A2R12 | 0699-1419 | 8 | | RESISTOR 147 1% .125W F TC=0+-100 | 28480 | 0699-1419 |
| A13A2R13 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A13A2R14 | 0698-7244 | 7 | | RESISTOR 2.15K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2151-F |
| A13A2R15 | 0698-7247 | 0 | | RESISTOR 2.87K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2871-F |
| A13A2R16 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A13A2R17 | 0698-7247 | 0 | | RESISTOR 2.87K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2871-F |
| A13A2R18 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A13A2R19 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A13A2R20 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3831-F |
| A13A2R21 | 0698-7240 | 3 | | RESISTOR 1.47K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1471-F |
| 2427A TO 2510A A13A2R22 2511A AND ABOVE A13A2R22 | 0698-7268 | 5 | | RESISTOR 21.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2152-F |
| | 0698-7269 | 6 | | RESISTOR 23.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2372-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------|----------|------------------|
| A13A2R23 | 0698-8615 | 8 | | RESISTOR 75K 1% .05W F TC=0+-100 | 28480 | 0698-8615 |
| A13A2R24 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A13A2R25 | | | | NOT ASSIGNED | | |
| A13A2R26 | 0698-7237 | 8 | 1 | RESISTOR 1.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1101-F |
| A13A2R27 | 0698-7276 | 5 | 3 | RESISTOR 46.4K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4642-F |
| A13A2R28 | 0698-7247 | 0 | | RESISTOR 2.87K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2871-F |
| A13A2R29 | 0698-7220 | 9 | | RESISTOR 215 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-215R-F |
| A13A2R30 | 0757-0420 | 3 | | RESISTOR 750 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-751-F |
| A13A2R31 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A13A2R32 | 0698-3442 | 9 | 2 | RESISTOR 237 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-237R-F |
| A13A2R33 | 0699-1360 | 8 | | RESISTOR 46.4 1% .125W F TC=0+-100 | 28480 | 0699-1360 |
| A13A2R34 | 0699-1360 | 8 | | RESISTOR 46.4 1% .125W F TC=0+-100 | 28480 | 0699-1360 |
| A13A2R35 | 0698-8827 | 4 | | RESISTOR 1M 1% .125W F TC=0+-100 | 28480 | 0698-8827 |
| A13A2R36 | 0757-0416 | 7 | | RESISTOR 511 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-511R-F |
| A13A2R37 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A13A2R38 | 0698-3442 | 9 | | RESISTOR 237 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-237R-F |
| 2427A TO 2640A | | | | | | |
| A13A2R39 | 0699-1360 | 8 | | RESISTOR 46.4 1% .125W F TC=0+-100 | 28480 | 0699-1360 |
| A13A2R40 | 0699-1360 | 8 | | RESISTOR 46.4 1% .125W F TC=0+-100 | 28480 | 0699-1360 |
| A13A2R41 | 0699-1360 | 8 | | RESISTOR 46.4 1% .125W F TC=0+-100 | 28480 | 0699-1360 |
| 2642A AND ABOVE | | | | | | |
| A13A2R39 | 0699-1359 | 5 | | RESISTOR 42.2 1% .125W F TC=0+-100 | 28480 | 0699-1359 |
| A13A2R40 | 0699-1359 | 5 | | RESISTOR 42.2 1% .125W F TC=0+-100 | 28480 | 0699-1359 |
| A13A2R41 | 0699-1359 | 5 | | RESISTOR 42.2 1% .125W F TC=0+-100 | 28480 | 0699-1359 |
| A13A2R42 | 0698-3400 | 9 | | RESISTOR 147 1% .5W F TC=0+-100 | 28480 | 0698-3400 |
| A13A2R43 | 0757-0179 | 9 | 3 | RESISTOR 196 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-196R-F |
| A13A2R44 | 0757-0179 | 9 | | RESISTOR 196 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-196R-F |
| A13A2R45 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A13A2R46 | 0699-1360 | 8 | | RESISTOR 46.4 1% .125W F TC=0+-100 | 28480 | 0699-1360 |
| A13A2R47 | | | | NOT ASSIGNED | | |
| A13A2R48 | 0698-7254 | 9 | | RESISTOR 5.62K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5621-F |
| A13A2R49 | 0698-7256 | 1 | | RESISTOR 6.81K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6811-F |
| A13A2R50 | 0698-3102 | 8 | | RESISTOR 237 1% .5W F TC=0+-100 | 28480 | 0698-3102 |
| A13A2R51 | 0698-3102 | 8 | | RESISTOR 237 1% .5W F TC=0+-100 | 28480 | 0698-3102 |
| 2427A TO 2709A | | | | | | |
| A13A2R52 | 0699-1206 | 1 | 1 | RESISTOR 127 1% 2W MO TC=0+-200 | 28480 | 0699-1206 |
| 2722A AND ABOVE | | | | | | |
| A13A2R52 | 0699-2301 | 9 | | RESISTOR 107 1% 2W MO TC=0+-200 | 28480 | 0699-2301 |
| A13A2R53 | 0698-7255 | 0 | | RESISTOR 6.19K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6191-F |
| A13A2R54 | 0698-7259 | 4 | | RESISTOR 9.09K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-9091-F |
| A13A2R55 | 0698-7271 | 0 | 5 | RESISTOR 28.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2872-F |
| A13A2R56 | 0698-3260 | 9 | 4 | RESISTOR 464K 1% .125W F TC=0+-100 | 28480 | 0698-3260 |
| A13A2R57 | 0698-3260 | 9 | | RESISTOR 464K 1% .125W F TC=0+-100 | 28480 | 0698-3260 |
| A13A2R58 | 0757-1090 | 5 | | RESISTOR 261 1% .5W F TC=0+-100 | 28480 | 0757-1090 |
| A13A2R59 | 0698-7271 | 0 | | RESISTOR 28.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2872-F |
| A13A2R60 | 0699-0303 | 7 | 2 | RESISTOR 1.33K 1% .1W F TC=0+-5 | 28480 | 0699-0303 |
| 2427A TO 2510A | | | | | | |
| A13A2R61 | 0698-7244 | 7 | | RESISTOR 2.15K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2151-F |
| 2511A AND ABOVE | | | | | | |
| A13A2R61 | | | | NOT ASSIGNED | | |
| A13A2R62 | 0698-7203 | 8 | | RESISTOR 42.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-42R2-F |
| A13A2R63 | 0698-8625 | 0 | | RESISTOR 1K .1% .1W F TC=0+-5 | 28480 | 0698-8625 |
| A13A2R64 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A13A2R65 | | | | NOT ASSIGNED | | |
| A13A2R66 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A13A2R67 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A13A2R68 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A13A2R69 | 0698-8827 | 4 | | RESISTOR 1M 1% .125W F TC=0+-100 | 28480 | 0698-8827 |
| A13A2R70 | 0698-7265 | 2 | | RESISTOR 16.2K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1622-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|------------------------------------------|-------------------------------------|----------------------|
| A13A2R71 | 0698-7238 | 9 | 4 | RESISTOR 1.21K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1211-F |
| A13A2R72 | 0698-8958 | 2 | | RESISTOR 511K 1% .125W F TC=0+-100 | 28480 | 0698-8958 |
| A13A2R73 | 0698-8958 | 2 | | RESISTOR 511K 1% .125W F TC=0+-100 | 28480 | 0698-8958 |
| A13A2R74 | | | | NOT ASSIGNED | | |
| A13A2R75 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A13A2R76 | | | | NOT ASSIGNED | | |
| A13A2R77 | 2100-1986 | 9 | 1 | RESISTOR-TRMR 1K 10% C TOP-ADJ 1-TRN | 73138 | 82PR1K |
| A13A2R78 | 0698-7230 | 1 | | | RESISTOR 562 1% .05W F TC=0+-100 | 24546 |
| <i>2427A TO 2703A</i> | | | | NOT ASSIGNED | | |
| <i>A13A2R79</i> | | | | NOT ASSIGNED | | |
| <i>A13A2R80</i> | | | | NOT ASSIGNED | | |
| <i>A13A2R81</i> | | | | NOT ASSIGNED | | |
| <i>2709A AND ABOVE</i> | | | | | | |
| <i>A13A2R79</i> | 0698-7276 | 5 | | RESISTOR 46.4K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4642-F |
| <i>A13A2R80</i> | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| <i>A13A2R81</i> | 0698-7271 | 0 | | RESISTOR 28.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2872-F |
| A13A2TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A13A2TP2 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A13A2TP3 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A13A2TP4 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A13A2TP5 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A13A2TP6 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A13A2TP7 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A13A2TP8 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A13A2TP9 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A13A2TP10 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A13A2TP11 | 1251-2194 | 1 | | CONNECTOR-SGL CONT SKT .021-IN-BSC-SZ | 28480 | 1251-2194 |
| A13A2U1 | 1826-0605 | 4 | 4 | IC MULTIPLXR 8-CHAN-ANLG 16-DIP-C PKG | 17856 | DG508BK |
| A13A2U2 | 1826-0412 | 1 | | | IC COMPARATOR PRCN DUAL 8-DIP-P PKG | 27014 |
| <i>2427A TO 2709</i> | | | | | | |
| <i>A13A2U3</i> | 08642-67001 | 9 | 1 | UHF POWER AMP | 28480 | 08642-67001 |
| <i>2722A AND ABOVE</i> | | | | | | |
| <i>A13A2U3</i> | 08642-67013 | 3 | 1 | UHF POWER AMP | 28480 | 08642-67013 |
| A13A2U4 | 1251-3172 | 7 | | CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND | 28480 | 1251-3172 |
| | 1820-1416 | 5 | | IC SCHMITT-TRIG TTL LS INV HEX 1-INP | 01295 | SN74LS14N |
| A13A2U5 | 1820-1212 | 9 | | IC FF TTL LS J-K NEG-EDGE-TRIG | 01295 | SN74LS112AN |
| A13A2U6 | 1820-1433 | 6 | | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A13A2U7 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| <i>2427A TO 2801A</i> | | | | | | |
| <i>A13A2U8</i> | 1826-0759 | 9 | | IC COMPARATOR GP QUAD 14-DIP-C PKG | 04713 | LM339J |
| <i>2809A AND ABOVE</i> | | | | | | |
| <i>A13A2U8</i> | 1826-0138 | 8 | | IC COMPARATOR GP QUAD 14-DIP-C PKG | 01295 | LM339N |
| A13A2U9 | 1826-0783 | 9 | | IC OP AMP LOW-NOISE 8-DIP-C PKG | 52063 | XR5534ACN |
| A13A2U10 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A13A2U11 | 1820-1433 | 6 | | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A13A2U12 | 1820-1433 | 6 | | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A13A2U13 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A13A2U14 | 1826-0896 | 5 | 2 | D/A 12-BIT 24-CBRZ/SDR BPLR | 28480 | 1826-0896 |
| A13A2U15 | 1826-0889 | 6 | 2 | IC OP AMP LOW-NOISE DUAL 14-DIP-C PKG | 52063 | XR5533AN(PER HP DWG) |
| A13A2U16 | 1826-0889 | 6 | | IC OP AMP LOW-NOISE DUAL 14-DIP-C PKG | 52063 | XR5533AN(PER HP DWG) |
| A13A2U17 | 1820-0224 | 1 | | IC OP AMP SPCL TO-99 PKG | 27014 | LH0002CH |
| | 1205-0011 | 0 | | HEAT SINK TO-5/TO-39-CS | 28480 | 1205-0011 |
| A13A2VR1 | 1902-0962 | 8 | 1 | DIODE-ZNR 15V 5% DO-35 PD=.4W TC=+.087% | 28480 | 1902-0962 |
| A13A2Z1 | 1906-0279 | 8 | 2 | DIODE-BM LD QUAD RINGS | 28480 | 1906-0279 |
| A13A2Z2 | 1906-0279 | 8 | | | DIODE-BM LD QUAD RINGS | 28480 |
| A13A2Z3 | 9100-4393 | 5 | 2 | XFMR BALUN 36AWG | 28480 | 9100-4393 |
| A13A2Z4 | 9100-4393 | 5 | | | XFMR BALUN 36AWG | 28480 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|--------------------------|----------------|-----|-----|----------------------------------------------------------------------------|----------|----------------------|
| A14 | | | | | | |
| A14 | 08642-60899 | 9 | 1 | HETERODYNE MODULE | 28480 | 08642-60899 |
| A14 | 08642-69899 | 7 | 1 | HETERODYNE MODULE (RESTORED) | | |
| A14FL1 | 08642-80012 | 0 | | FILTER-EMI 7 POS | 28480 | 08642-80012 |
| A14MP1 | 08642-20019 | 1 | 1 | COVER HET LO | 28480 | 08642-20019 |
| A14MP2 | 08642-40052 | 4 | 3 | GASKET FD/THRU 2 | 28480 | 08642-40052 |
| A14MP3 | 08642-00058 | 6 | 1 | COV MXR ACS HET | 28480 | 08642-00058 |
| A14MP4 | 0515-1101 | 7 | | SCREW-MACH M4 X 0.7 8MM-LG 90-DEG-FLH-HD (ATTACH ACCESS COVER TO COVER) | 28480 | 0515-1101 |
| A14MP5 | 08642-20029 | 3 | | HEATSINK XSTOR | 28480 | 08642-20029 |
| A14MP6 | 3050-0891 | 7 | 6 | WASHER-FL MTLCL 3.0 MM 3.3-MM-ID | 28480 | 3050-0891 |
| A14MP7 | 2190-0584 | 0 | 12 | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A14MP8 | 0515-0680 | 5 | 8 | SCREW-MACH M3 X 0.5 6MM-LG PAN-HD (ATTACH SWITCH TO BOARD) | 28480 | 0515-0680 |
| A14MP9 | 08642-20020 | 4 | 1 | BASE OUTPUT HET | 28480 | 08642-20020 |
| A14MP10 | 08642-00001 | 9 | | GASKET 7 P FILTR | 28480 | 08642-00001 |
| A14MP11 | 0515-1521 | 5 | | SCREW-MACH M3 X 0.5 5MM-LG 90-DEG-FLH-HD (ATTACH FILTER TO BASE) | 28480 | 0515-1521 |
| A14MP12 | 08642-00121 | 4 | | FOAM-COND SAW GD | 28480 | 08642-00121 |
| A14MP13 | 0515-0684 | 9 | | SCREW-MACH M4 X 0.7 6MM-LG PAN-HD (ATTACH BOARDS TO BASE) | 28480 | 0515-0684 |
| A14MP14 | 08642-20021 | 5 | 1 | COVER HET | 28480 | 08642-20001 |
| A14MP15 | 0515-0381 | 3 | | SCREW-MACH M4 X 0.7 10MM-LG PAN-HD (ATTACH COVERS TO BASE) | 00000 | ORDER BY DESCRIPTION |
| A14MP16 | 08642-40057 | 9 | | GASKET FEEDTHRU | 28480 | 08642-40057 |
| A14MP17 | 8160-0472 | 8 | | RFI ROUND STRIP BE-CU SN-PL .093-IN-OD (SPIRA SHIELD) | 28480 | 8160-0472 |
| A14MP18 | 08642-00050 | 8 | | SLIDE-MODUL 57R4 (FRONT) | 28480 | 08642-00050 |
| A14MP19 | 08642-00054 | 2 | 1 | SLIDE-MODULE R7 (REAR) | 28480 | 08642-00054 |
| A14MP20 | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH MODULE SLIDE TO BASE) | 28480 | 0515-1102 |
| A14MP21 | 08642-80070 | 0 | 1 | LABEL-HET 60007 | 28480 | 08642-80070 |
| A14MP22 | 1400-0249 | 0 | 1 | CABLE TIE .062-.625-DIA .091-WD NYL | 06383 | PLT1M-8 |
| 2427A TO 2509A A14U1 | 08642-60098 | 1 | 1 | ASSY HET SWITCH | 28480 | 08642-60098 |
| 2510A AND ABOVE A14U1 | 08642-60958 | 5 | 1 | ASSY HET SWITCH | 28480 | 08642-60958 |
| A14W1 | 08642-60070 | 8 | 1 | CBL-COAX 916 (A14A2J4 TO A14A3J2) | 28480 | 08642-60070 |
| A14W2 | 08642-60091 | 3 | 1 | CBL COAX 912 (A14A3J3 TO A14U1J1) | 28480 | 08642-60091 |
| A14W3 | 08642-60090 | 2 | 1 | CBL COAX 914 (A14A3J1 TO A14U1J4) | 28480 | 08642-60090 |
| A14W4 | 08642-60085 | 5 | 1 | CBL-RY HET-SWITCH (A14U1 TO A14A3J5) | 28480 | 08642-60085 |

See introduction to this section for ordering information.

* Indicates factory selected value



Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|----------------------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A14A1 | | | | NOT ASSIGNED | | |
| <i>2427A TO 2507A</i> A14A2 | 08642-60115 | 2 | 1 | HETERODYNE LOCAL OSCILLATOR ASSEMBLY | 28480 | 08642-60115 |
| <i>2509A TO 2521A</i> A14A2 | 08642-60215 | 3 | 1 | HETERODYNE LOCAL OSCILLATOR ASSEMBLY | 28480 | 08642-60215 |
| <i>2526A AND ABOVE</i> A14A2 | 08642-60315 | 4 | 1 | HETERODYNE LOCAL OSCILLATOR ASSEMBLY | 28480 | 08642-60215 |
| A14A2C1 | 0160-4040 | 6 | | CAPACITOR-FXD 1000PF +-5% 100VDC CER | 28480 | 0160-4040 |
| A14A2C2 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C3 | 0160-4512 | 2 | 1 | CAPACITOR-FXD 120PF +-5% 200VDC CER | 28480 | 0160-4512 |
| A14A2C4 | 0160-4768 | 5 | | CAPACITOR-FXD 470PF +-5% 100VDC CER | 28480 | 0160-4768 |
| A14A2C5 | 0160-0574 | 3 | 1 | CAPACITOR-FXD .022UF +-20% 100VDC CER | 28480 | 0160-0574 |
| A14A2C6 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C7 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +-5PF 200VDC CER | 28480 | 0160-3874 |
| A14A2C8 | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +-5PF 200VDC CER | 28480 | 0160-3874 |
| A14A2C9 | 0160-4385 | 2 | | CAPACITOR-FXD 15PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4385 |
| A14A2C10 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C11 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C12 | 0160-5971 | 4 | | CAPACITOR-FXD 4.7PF +-5PF 50VDC CER | 28480 | 0160-5971 |
| A14A2C13 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C14 | 0160-5971 | 4 | | CAPACITOR-FXD 4.7PF +-5PF 50VDC CER | 28480 | 0160-5971 |
| A14A2C15 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C16 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A14A2C17 | 0160-3875 | 3 | | CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30 | 28480 | 0160-3875 |
| A14A2C18 | 0160-3875 | 3 | | CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30 | 28480 | 0160-3875 |
| A14A2C19 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C20 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C21 | 0160-4441 | 1 | 3 | CAPACITOR-FXD .47UF +-10% 50VDC CER | 28480 | 0160-4441 |
| A14A2C22 | 0160-0573 | 2 | | CAPACITOR-FXD 4700PF +-20% 100VDC CER | 28480 | 0160-0573 |
| A14A2C23 | 0160-3875 | 3 | | CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30 | 28480 | 0160-3875 |
| A14A2C24 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C25 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C26 | | | | NOT ASSIGNED | | |
| A14A2C27 | 0160-4441 | 1 | | CAPACITOR-FXD .47UF +-10% 50VDC CER | 28480 | 0160-4441 |
| A14A2C28 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C29 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C30 | | | | NOT ASSIGNED | | |
| A14A2C31 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C32 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C33 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A14A2C34 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A14A2C35 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A14A2C36 | 0160-3875 | 3 | | CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30 | 28480 | 0160-3875 |
| A14A2C37 | 0160-3875 | 3 | | CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30 | 28480 | 0160-3875 |
| A14A2C38 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C39 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A14A2C40 | 0160-4389 | 6 | | CAPACITOR-FXD 100PF +-5PF 200VDC CER | 28480 | 0160-4389 |
| A14A2C41 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C42 | | | | NOT ASSIGNED | | |
| A14A2C43 | 0160-5971 | 4 | | CAPACITOR-FXD 4.7PF +-5PF 50VDC CER | 28480 | 0160-5971 |
| A14A2C44 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C45 | 0160-5971 | 4 | | CAPACITOR-FXD 4.7PF +-5PF 50VDC CER | 28480 | 0160-5971 |
| A14A2C46 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C47 | 0160-5971 | 4 | | CAPACITOR-FXD 4.7PF +-5PF 50VDC CER | 28480 | 0160-5971 |
| A14A2C48 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C49 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C50 | 0160-5971 | 4 | | CAPACITOR-FXD 4.7PF +-5PF 50VDC CER | 28480 | 0160-5971 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A14A2C51 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C52 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C53 | | | | NOT ASSIGNED | | |
| A14A2C54 | 0160-5978 | 1 | | CAPACITOR-FXD 2.2F 50VDC CER | 28480 | 0160-5978 |
| A14A2C55 | 0160-4521 | 8 | | CAPACITOR-FXD 12PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4521 |
| A14A2C56 | | | | NOT ASSIGNED | | |
| A14A2C57 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C58 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C59 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C60 | | | | NOT ASSIGNED | | |
| A14A2C61 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C62 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C63 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C64 | | | | NOT ASSIGNED | | |
| A14A2C65 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C66 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C67 | 0160-5978 | 1 | | CAPACITOR-FXD 2.2PF 50VDC CER | 28480 | 0160-5978 |
| A14A2C68 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A14A2C69 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C70 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A14A2C71 | 0160-5975 | 8 | | CAPACITOR-FXD 10PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5975 |
| A14A2C72 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C73 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A14A2C74 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C75 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C76 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C77 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C78 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C79 | 0160-3873 | 1 | | CAPACITOR-FXD 4.7PF +-5% 200VDC CER | 28480 | 0160-3873 |
| A14A2C80 | 0160-3875 | 3 | | CAPACITOR-FXD 22PF +-5% 200VDC CER 0+-30 | 28480 | 0160-3875 |
| A14A2C81 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C82 | 0160-4493 | 3 | | CAPACITOR-FXD 27PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4493 |
| A14A2C83 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A14A2C84 | 0160-5957 | 6 | | CAPACITOR-FXD 47PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5957 |
| A14A2C85 | 0160-5975 | 8 | | CAPACITOR-FXD 10PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5975 |
| A14A2C86 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A2C87 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| 2427A TO 2521A A14A2C88 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A14A2C89 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| A14A2C90 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| 2526A AND ABOVE A14A2C88 | 0160-6222 | 0 | | CAPACITOR-FXD .1U 50 VDC CER | 28480 | 0160-6222 |
| A14A2C89 | 0160-6222 | 0 | | CAPACITOR-FXD .1U 50 VDC CER | 28480 | 0160-6222 |
| A14A2C90 | 0160-6222 | 0 | | CAPACITOR-FXD .1U 50 VDC CER | 28480 | 0160-6222 |
| A14A2C91 | 0180-2661 | 5 | | CAPACITOR-FXD 1UF+-10% 50VDC TA | 25088 | D1R0GS1A50K |
| 2427A TO 2521A A14A2C92 | 0160-5945 | 2 | | CAPACITOR-FXD .01UF +-10% 50VDC CER | 28480 | 0160-5945 |
| 2526A AND ABOVE A14A2C92 | 0160-6222 | 0 | | CAPACITOR-FXD .1U 50 VDC CER | 28480 | 0160-6222 |
| 2427A TO 2507A A14A2C93 | 0160-4877 | 7 | | CAPACITOR-FXD 3.9PF +- .25PF 50VDC CER | 28480 | 0160-4877 |
| 2509A TO 2521A A14A2C93 | | | | NOT ASSIGNED | | |
| 2526A AND ABOVE A14A2C93 | 0160-6222 | 0 | | CAPACITOR-FXD .1U 50 VDC CER | 28480 | 0160-6222 |
| 2427A TO 2521A A14A2C94 | | | | NOT ASSIGNED | | |
| 2526A AND ABOVE A14A2C94 | 0160-6222 | 0 | | CAPACITOR-FXD .1U 50 VDC CER | 28480 | 0160-6222 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A14A2CR1 | 1901-0457 | 4 | | DIODE-STEP RECOVERY | 28480 | 1901-0457 |
| A14A2CR2 | 1906-0098 | 9 | | DIODE-MATCHED 1V | 28480 | 1906-0098 |
| A14A2CR3 | 1906-0098 | 9 | | DIODE-MATCHED 1V | 28480 | 1906-0098 |
| A14A2CR4 | 1906-0098 | 9 | | DIODE-MATCHED 1V | 28480 | 1906-0098 |
| A14A2CR5 | 1906-0098 | 9 | | DIODE-MATCHED 1V | 28480 | 1906-0098 |
| A14A2CR6 | | | | NOT ASSIGNED | | |
| A14A2CR7 | | | | NOT ASSIGNED | | |
| A14A2CR8 | 1901-0518 | 8 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0518 |
| A14A2CR9 | 1901-0518 | 8 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0518 |
| A14A2CR10 | | | | NOT ASSIGNED | | |
| A14A2CR11 | 0122-0161 | 4 | 2 | DVVC 2.2PF 5.0CR | 28480 | 0122-0161 |
| A14A2CR12 | 0122-0161 | 4 | | DVVC 2.2PF 5.0CR | 28480 | 0122-0161 |
| A14A2CR13 | 1901-1134 | 6 | 2 | DIODE PIN | 28480 | 1901-1134 |
| A14A2CR14 | 1901-1134 | 6 | | DIODE PIN | 28480 | 1901-1134 |
| A14A2CR15 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A14A2CR16-CR23 | | | | NOT ASSIGNED | | |
| A14A2CR24 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A14A2CR25 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A14A2FL1 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A14A2FL2 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A14A2FL3 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A14A2FL4 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A14A2FL5 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A14A2FL6 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A14A2FL7 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A14A2J1 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A14A2J2 | 1251-8105 | 6 | | CONN-POST TYPE .100-PIN-SPCG 16-CONT | 28480 | 1251-8105 |
| | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A14A2J3 | 1251-8758 | 5 | | CONN-POST TYPE .100-PIN-SPCG 8-CONT | 28480 | 1251-8758 |
| A14A2J4 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A14A2L1 | | | | NOT ASSIGNED | | |
| <i>2427A TO 2714A</i> | | | | | | |
| <i>A14A2L2</i> | 9100-2254 | 3 | | INDUCTOR RF-CH-MLD 390NH 10% .105DX.26LG | 28480 | 9100-2254 |
| <i>2731A ONLY</i> | | | | | | |
| <i>A14A2L2</i> | 9140-0353 | 3 | | INDUCTOR RF-CH-MLD 430NH 1% .105DX.26LG | 28480 | 9140-0353 |
| <i>2744A AND ABOVE</i> | | | | | | |
| <i>A14A2L2</i> | 9140-0477 | 2 | | INDUCTOR RF-CH-MLD 270NH 1% .105DX.26LG | 28480 | 9140-0477 |
| A14A2L3 | | | | NOT ASSIGNED | | |
| A14A2L4 | | | | NOT ASSIGNED | | |
| A14A2L5 | 9100-2251 | 0 | | INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG | 28480 | 9100-2251 |
| A14A2L6 | 9100-2251 | 0 | | INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG | 28480 | 9100-2251 |
| A14A2L7 | 9140-0210 | 1 | | INDUCTOR RF-CH-MLD 100UH 5% .166DX.385LG | 28480 | 9140-0210 |
| A14A2L8 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A14A2L9 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A14A2L10 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L11 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L12 | 9100-2251 | 0 | | INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG | 28480 | 9100-2251 |
| A14A2L13 | 9100-2251 | 0 | | INDUCTOR RF-CH-MLD 220NH 10% .105DX.26LG | 28480 | 9100-2251 |
| A14A2L14 | 9100-2247 | 4 | | INDUCTOR RF-CH-MLD 100NH 10% .105DX.26LG | 28480 | 9100-2247 |
| A14A2L15 | 9140-0531 | 9 | | INDUCTOR RF-CH-MLD 1UH 5% .105DX.26LG | 28480 | 9140-0531 |
| <i>2447A TO 2521A</i> | | | | | | |
| <i>A14A2L16</i> | 9100-3922 | 4 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9100-3922 |
| <i>2526A AND ABOVE</i> | | | | | | |
| <i>A14A2L16</i> | | | | NOT ASSIGNED | | |
| A14A2L17 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L18 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L19 | 9140-0144 | 0 | | INDUCTOR RF-CH-MLD 4.7UH 10% .105DX.26LG | 28480 | 9140-0144 |
| A14A2L20 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L21 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L22 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L23 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L24 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L25 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------|----------------|-----|-----|------------------------------------------|----------|------------------|
| A14A2L26 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L27 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L28 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L29 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L30 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L31 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L32 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L33 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L34 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A2L35 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| 2447A TO 2521A A14A2L36 | 9100-3548 | 0 | 2 | INDUCTOR RF-CH-MLD 470NH 5% .166DX.385LG | 28480 | 9100-3548 |
| 2526A AND ABOVE A14A2L36 | 9100-0593 | 9 | | INDUCTOR-RF-CH-MLD 470NH 5% .105DX.26LG | 28480 | 9100-0593 |
| A14A2MP1 | 5021-3273 | 6 | 7 | CABLE HOLDER | 28480 | 5021-3273 |
| A14A2MP2 | 0340-0840 | 8 | | INSULATOR SLBL-LAC-CMPD | 28480 | 0340-0840 |
| A14A2Q1 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A14A2Q2 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A14A2Q3 | 1853-0264 | 8 | 1 | TRANSISTOR NPN SI PD=310MW FT=100MHZ | 04713 | 2N5401 |
| A14A2Q4 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A14A2Q5 | 1854-1008 | 2 | | TRANSISTOR NPN SI PD=600MW FT=2GHZ | 28480 | 1854-1008 |
| A14A2Q6 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A14A2Q7 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A14A2Q8 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A14A2Q9 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A14A2Q10 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A14A2Q11 | | | | NOT ASSIGNED | | |
| A14A2Q12 | 1854-0946 | 5 | | TRANSISTOR NPN SI PD=290MW | 28480 | 1854-0946 |
| A14A2Q13 | 1854-1036 | 6 | 2 | TRANSISTOR NPN SI PD=2.5W | 28480 | 1854-1036 |
| A14A2R1 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A14A2R2 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| 2427A TO 2521A A14A2R3 | 0698-0090 | 7 | | RESISTOR 464 1% .5W F TC=0+-100 | 28480 | 0698-0090 |
| 2526A AND ABOVE A14A2R3 | 0757-1092 | 7 | | RESISTOR 287 1% .5W F TC=0+-100 | 28480 | 0757-1092 |
| A14A2R4 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A14A2R5 | 0698-7272 | 1 | | RESISTOR 31.6K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3162-F |
| A14A2R6 | 0757-0416 | 7 | | RESISTOR 511 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-511R-F |
| A14A2R7 | 0699-1241 | 4 | | RESISTOR 1.47K 1% .2W C TC=0+-200 | 28480 | 0699-1241 |
| A14A2R8 | 0698-7200 | 5 | 2 | RESISTOR 31.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-316R-F |
| A14A2R9 | 0757-0419 | 0 | | RESISTOR 681 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-681R-F |
| A14A2R10 | 0699-1241 | 4 | | RESISTOR 1.47K 1% .2W C TC=0+-200 | 28480 | 0699-1241 |
| A14A2R11 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A14A2R12 | 0698-3446 | 3 | | RESISTOR 383 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-383R-F |
| A14A2R13 | 0698-3440 | 7 | | RESISTOR 196 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-196R-F |
| A14A2R14 | 0698-7269 | 6 | 1 | RESISTOR 23.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2372-F |
| A14A2R15 | 0698-3456 | 5 | 2 | RESISTOR 287K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2873-F |
| A14A2R16 | 0757-0417 | 8 | | RESISTOR 562 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-562R-F |
| A14A2R17 | 0698-7254 | 9 | | RESISTOR 5.62K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5621-F |
| A14A2R18 | 0698-3260 | 9 | | RESISTOR 464K 1% .125W F TC=0+-100 | 28480 | 0698-3260 |
| A14A2R19 | 0698-7246 | 9 | | RESISTOR 2.61K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2611-F |
| A14A2R20 | 0698-7211 | 8 | | RESISTOR 90.9 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-909R-F |
| A14A2R21 | 0757-0438 | 3 | | RESISTOR 5.11K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-5111-F |
| A14A2R22 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A14A2R23 | | | | NOT ASSIGNED | | |
| 2427A TO 2642A A14A2R24 | 0698-7268 | 5 | | RESISTOR 21.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2152-F |
| 2714A AND ABOVE A14A2R24 | 0698-7271 | 0 | | RESISTOR 28.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2872-F |
| A14A2R25 | 0698-7272 | 1 | | RESISTOR 31.6K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3162-F |
| A14A2R26 | 0698-7282 | 3 | | RESISTOR 82.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-8252-F |
| A14A2R27 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A14A2R28 | 0698-7282 | 3 | | RESISTOR 82.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-8252-F |
| A14A2R29 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A14A2R30 | 0698-8615 | 8 | | RESISTOR 75K 1% .05W F TC=0+-100 | 28480 | 0698-8615 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------|----------------|-----|-----|-------------------------------------|----------|------------------|
| A14A2R31 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| 2427A TO 2521A A14A2R32 | 0698-3157 | 3 | | RESISTOR 19.6K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1962-F |
| 2526A AND ABOVE A14A2R32 | 0757-0747 | 7 | | RESISTOR 5.11K 1% .25W F TC=0+-100 | 24546 | C4-1/8-T0-5111- |
| A14A2R33 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A14A2R34 | 0698-3447 | 4 | | RESISTOR 422 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-422R-F |
| A14A2R35 | 0699-1241 | 4 | | RESISTOR 1.47K 1% .2W C TC=0+-200 | 28480 | 0699-1241 |
| A14A2R36 | 0698-1391 | 5 | | RESISTOR 10K 1% .125W F TC=0+-100 | 28480 | 0699-1391 |
| A14A2R37 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1961-F |
| A14A2R38 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A14A2R39 | 0757-0416 | 7 | | RESISTOR 511 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-511R-F |
| A14A2R40 | 0757-0279 | 0 | | RESISTOR 3.16K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-3161-F |
| A14A2R41 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A14A2R42 | 0698-7203 | 8 | | RESISTOR 42.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-42R2-F |
| A14A2R43 | 0757-0428 | 1 | | RESISTOR 1.62K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1621-F |
| 2447A TO 2521A A14A2R44 | 0699-1241 | 4 | | RESISTOR 1.47K 1% .2W C TC=0+-200 | 28480 | 0699-1241 |
| 2526A AND ABOVE A14A2R44 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A14A2R45 | 0757-0419 | 0 | | RESISTOR 681 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-681R-F |
| A14A2R46 | 0699-1966 | 0 | | RESISTOR 90.1 1% .05W | 28480 | 0699-1966 |
| A14A2R47 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A14A2R48 | 0757-0419 | 0 | | RESISTOR 681 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-681R-F |
| A14A2R49 | 0699-1969 | 3 | | RESISTOR 26.1 1% .05W | 28480 | 0699-1969 |
| A14A2R50 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A14A2R51 | 0699-1241 | 4 | | RESISTOR 1.47K 1% .2W C TC=0+-200 | 28480 | 0699-1241 |
| A14A2R52 | 0757-0419 | 0 | | RESISTOR 681 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-681R-F |
| A14A2R53 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A14A2R54 | 0699-1241 | 4 | | RESISTOR 1.47K 1% .2W C TC=0+-200 | 28480 | 0699-1241 |
| A14A2R55 | 0757-0419 | 0 | | RESISTOR 681 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-681R-F |
| A14A2R56 | 0698-7203 | 8 | | RESISTOR 42.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-42R2-F |
| A14A2R57 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A14A2R58 | 0757-0419 | 0 | | RESISTOR 681 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-681R-F |
| A14A2R59 | 0698-7203 | 8 | | RESISTOR 42.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-42R2-F |
| A14A2R60 | | | | NOT ASSIGNED | | |
| A14A2R61 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A14A2R62 | 0698-3447 | 4 | | RESISTOR 422 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-422R-F |
| A14A2R63 | | | | NOT ASSIGNED | | |
| A14A2R64 | | | | NOT ASSIGNED | | |
| A14A2R65 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A14A2R66 | | | | NOT ASSIGNED | | |
| A14A2R67 | | | | NOT ASSIGNED | | |
| A14A2R68 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A14A2R69 | | | | NOT ASSIGNED | | |
| A14A2R70 | 0698-7275 | 4 | 3 | RESISTOR 42.2K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4222-F |
| A14A2R71 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A14A2R72 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A14A2R73 | 0699-1350 | 6 | | RESISTOR 17.8 1% .125W F TC=0+-100 | 28480 | 0699-1350 |
| A14A2R74 | 0699-1350 | 6 | | RESISTOR 17.8 1% .125W F TC=0+-100 | 28480 | 0699-1350 |
| A14A2R75 | | | | NOT ASSIGNED | | |
| A14A2R76 | | | | NOT ASSIGNED | | |
| A14A2R77 | 0757-1090 | 5 | | RESISTOR 261 1% .5W F TC=0+-100 | 28480 | 0757-1090 |
| A14A2R78 | 0699-1423 | 4 | | RESISTOR 215 1% .125W F TC=0+-100 | 28480 | 0699-1423 |
| A14A2R79 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A14A2R80 | 0699-1346 | 0 | | RESISTOR 12.1 1% .125W F TC=0+-100 | 28480 | 0699-1346 |
| A14A2R81 | | | | NOT ASSIGNED | | |
| A14A2R82 | | | | NOT ASSIGNED | | |
| A14A2R83 | 0698-3399 | 5 | | RESISTOR 133 1% .5W F TC=0+-100 | 28480 | 0698-3399 |
| A14A2R84 | 0698-7219 | 6 | | RESISTOR 196 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-196R-F |
| A14A2R85 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A14A2R86 | 0698-7221 | 0 | | RESISTOR 237 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-237R-F |
| A14A2R87 | | | | NOT ASSIGNED | | |
| A14A2R88 | | | | NOT ASSIGNED | | |
| A14A2R89 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A14A2R90 | 0698-7258 | 3 | | RESISTOR 8.25K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-8251-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------------------------------------------|----------------|-----|-----|----------------------------------------------------|----------|----------------------|
| R14A2R91 | 0698-7284 | 5 | | RESISTOR 100K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1003-F |
| 2427A TO 2513A A14A2R92 2514A AND ABOVE A14A2R92 | 0698-8827 | 4 | | NOT ASSIGNED RESISTOR 1M 1% .125W F TC=0+-100 | 28480 | 0698-8827 |
| 2427A TO 2521A A14A2R93-R98 2526A AND ABOVE | | | | NOT ASSIGNED | | |
| A14A2R93 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A14A2R94 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A14A2R95 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| A14A2R96 | 0699-1432 | 5 | | RESISTOR 511 1% .125W F TC=0+-100 | 28480 | 0699-1432 |
| A14A2R97 | 0699-0182 | 0 | | RESISTOR 220 5% .1W C TC=0+-200 | 28480 | 0699-0182 |
| A14A2R98 | 0699-1372 | 2 | | RESISTOR 1.47K 1% .125W F TC=0+-100 | 28480 | 0699-1372 |
| R14A2TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| R14A2TP2 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| R14A2TP3 | 1251-4670 | 2 | 2 | CONNECTOR 3-PIN M POST TYPE | 28480 | 1251-4670 |
| R14A2TP4 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| R14A2U1 | 1820-2684 | 1 | | IC GATE TTL F NAND QUAD 2-INP | 07263 | 74F00PC |
| R14A2U2 | 1820-2691 | 0 | | IC FF TTL F D-TYPE POS-EDGE-TRIG | 07263 | 74F74PC |
| R14A2U3 | 1826-0371 | 1 | | IC OP AMP LOW-BIAS-H-IMPD T0-99 PKG | 27014 | LF256H |
| R14A2U4 | 1826-1796 | 6 | | IC OP AMP LOW-BIAS-H-IMPD DUAL 8-DIP-C | 28480 | 1826-1796 |
| R14A2U5 | 1826-0606 | 5 | | IC SWITCH ANLG QUAD 16-DIP-C PKG | 17856 | DG201BK |
| 2427A TO 2744A A14A2U6 | 1826-0759 | 9 | | IC COMPARATOR GP QUAD 14-DIP-C PKG 04713 | LM339J | |
| 2807A AND ABOVE A14A2U6 | 1826-0138 | 8 | | IC COMPARATOR GP QUAD 14-DIP-C PKG | 01295 | LM339N |
| R14A2U7 | 1820-1423 | 4 | | IC MV TTL LS MONOSTBL RETRIG DUAL | 01295 | SN74LS123N |
| R14A2U8 | 1826-0605 | 4 | | IC MULTIPLXR 8-CHAN-ANLG 16-DIP-C PKG | 17856 | DG508BK |
| R14A2U9 | | | | NOT ASSIGNED | | |
| R14A2U10 | 08642-80061 | 9 | | IC DRVR TTL AND DUAL 2-INP | 28480 | 08642-80061 |
| R14A2VR1 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| R14A2VR2 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| R14A2VR3 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| R14A2VR4 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| R14A2VR5 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| R14A2VR6 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| R14A2VR7 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| R14A2VR8 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| R14A2VR9 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| R14A2VR10 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| R14A2VR11 | 1902-1428 | 3 | | DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| 2427A TO 2521A A14A2VR12 2526A AND ABOVE A15A2VR12 | 1902-1428 | 3 | | NOT ASSIGNED DIODE-ZNR 4.6V DO-35 PD=.4W IR=1UA | 28480 | 1902-1428 |
| R14A2W1 | 1258-0209 | 9 | | JUMPER-REMOVABLE 2 POSITION; .200 IN | 28480 | 1258-0209 |
| R14A2W2 | 08642-20062 | 4 | 1 | SEMI-RIGID 50Z | 28480 | 08642-20062 |
| 2427A TO 2507A A14A2W3 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| 2509A AND ABOVE A14A2W3 | | | | NOT ASSIGNED | | |
| R14A2W4 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| R14A2W5 | | | | PART IS ETCHED TRACE ON CIRCUIT BOARD | | |
| R14A2Y1 | 1GA1-8004 | 6 | | SAW CMPNT 832.5 | 28480 | 1GA1-8004 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| A14A3 | | | | | | |
| <i>2427A TO 2807A</i> <i>A14A3</i> | 08642-60116 | 3 | 1 | HETERODYNE ASSEMBLY | 28480 | 08642-60116 |
| <i>2825A AND ABOVE</i> <i>A14A3</i> | 08642-60216 | 4 | 1 | HETERODYNE ASSEMBLY | 28480 | 08642-60216 |
| A14A3C1 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C2 | 0180-2620 | 6 | | CAPACITOR-FXD 2.2UF+-10% 50VDC TA | 25088 | D2R2GS1B50K |
| A14A3C3 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A14A3C4 | 0160-4535 | 4 | | CAPACITOR-FXD 1UF +-10% 50VDC CER | 28480 | 0160-4535 |
| A14A3C5 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A14A3C6 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| <i>2427A TO 2807A</i> <i>A14A3C7</i> | 0160-3874 | 2 | | CAPACITOR-FXD 10PF +- .5PF 200VDC CER | 28480 | 0160-3874 |
| <i>2825A AND ABOVE</i> <i>A14A3C7</i> | 0160-4766 | 3 | 1 | CAPACITOR-FXD 30PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4766 |
| A14A3C8 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C9 | 0180-2620 | 6 | | CAPACITOR-FXD 2.2UF+-10% 50VDC TA | 25088 | D2R2GS1B50K |
| A14A3C10 | | | | NOT ASSIGNED | | |
| A14A3C11 | | | 2 | NOT ASSIGNED | | |
| A14A3C12 | 0160-3789 | 8 | | CAPACITOR-FXD 560PF +-20% 50VDC CER | 28480 | 0160-3789 |
| A14A3C13 | 0160-4767 | 4 | | CAPACITOR-FXD 20PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4767 |
| A14A3C14 | 0160-4768 | 5 | | CAPACITOR-FXD 470PF +-5% 100VDC CER | 28480 | 0160-4768 |
| A14A3C15 | 0160-4768 | 5 | | CAPACITOR-FXD 470PF +-5% 100VDC CER | 28480 | 0160-4768 |
| A14A3C16 | 0160-3789 | 8 | | CAPACITOR-FXD 560PF +-20% 50VDC CER | 28480 | 0160-3789 |
| A14A3C17 | 0160-4767 | 4 | | CAPACITOR-FXD 20PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4767 |
| A14A3C18 | | | | NOT ASSIGNED | | |
| A14A3C19 | 0160-5961 | 2 | | CAPACITOR-FXD 22PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5961 |
| A14A3C20 | 0160-5961 | 2 | | CAPACITOR-FXD 22PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5961 |
| A14A3C21-C24 | | | | NOT ASSIGNED | | |
| <i>2427A TO 2807A</i> <i>A14A3C25</i> | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| <i>A14A3C26</i> | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| <i>2825A AND ABOVE</i> <i>A14A3C25</i> | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| <i>A14A3C26</i> | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C27 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C28 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C29 | 0180-2620 | 6 | | CAPACITOR-FXD 2.2UF+-10% 50VDC TA | 25088 | D2R2GS1B50K |
| A14A3C30 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C31 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C32 | 0160-4535 | 4 | | CAPACITOR-FXD 1UF +-10% 50VDC CER | 28480 | 0160-4535 |
| A14A3C33 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A14A3C34 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| <i>2427A TO 2807A</i> <i>A14A3C35</i> | 0160-4767 | 4 | | CAPACITOR-FXD 20PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4767 |
| <i>2825A AND ABOVE</i> <i>A14A3C35</i> | | | | NOT ASSIGNED | | |
| A14A3C36 | 0180-2620 | 6 | | CAPACITOR-FXD 2.2UF+-10% 50VDC TA | 25088 | D2R2GS1B50K |
| A14A3C37 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C38 | 0160-5961 | 2 | | CAPACITOR-FXD 22PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5961 |
| A14A3C39 | 0160-5961 | 2 | | CAPACITOR-FXD 22PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5961 |
| A14A3C40 | | | | NOT ASSIGNED | | |
| A14A3C41 | | | | NOT ASSIGNED | | |
| A14A3C42 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A14A3C43 | 0160-4535 | 4 | | CAPACITOR-FXD 1UF +-10% 50VDC CER | 28480 | 0160-4535 |
| A14A3C44 | 0160-6222 | 0 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-6222 |
| A14A3C45 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A14A3C46 | | | | NOT ASSIGNED | | |
| A14A3C47 | 0180-2620 | 6 | | CAPACITOR-FXD 2.2UF+-10% 50VDC TA | 25088 | D2R2GS1B50K |
| A14A3C48 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C49 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A14A3C50 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C51 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A14A3C52 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C53 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C54 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C55 | 0160-4527 | 4 | | CAPACITOR-FXD 56PF +-5% 200VDC CER 0+-30 | 28480 | 0160-4527 |
| A14A3C56 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C57 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C58 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|-------------------------------------------|----------|-----------------|
| A14A3C59 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A14A3C60 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A14A3C61 | 0160-5969 | 0 | | CAPACITOR-FXD 3.3PF +- .5PF 50VDC CER | 28480 | 0160-5969 |
| A14A3C62 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C63 | 0160-5961 | 2 | | CAPACITOR-FXD 22PF +-5% 50VDC CER 0+-30 | 28480 | 0160-5961 |
| A14A3C64 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C65 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C66 | 0160-5942 | 9 | | CAPACITOR-FXD 1PF +- .5PF 50VDC CER 0+-30 | 28480 | 0160-5942 |
| 2427A TO 2807A | | | | | | |
| A14A3C67 | | | | NOT ASSIGNED | | |
| A14A3C68 | | | | NOT ASSIGNED | | |
| 2825A AND ABOVE | | | | | | |
| A14A3C67 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3C68 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A14A3CR1 | 1900-0045 | 4 | 12 | DIODE-PIN | 28480 | 1900-0045 |
| A14A3CR2 | 1900-0045 | 4 | | DIODE-PIN | 28480 | 1900-0045 |
| A14A3CR3 | 1900-0045 | 4 | | DIODE-PIN | 28480 | 1900-0045 |
| A14A3CR4 | 1900-0045 | 4 | | DIODE-PIN | 28480 | 1900-0045 |
| A14A3CR5 | 1900-0045 | 4 | | DIODE-PIN | 28480 | 1900-0045 |
| A14A3CR6 | 1900-0045 | 4 | | DIODE-PIN | 28480 | 1900-0045 |
| A14A3CR7 | 1900-0045 | 4 | | DIODE-PIN | 28480 | 1900-0045 |
| A14A3CR8 | 1900-0045 | 4 | | DIODE-PIN | 28480 | 1900-0045 |
| A14A3CR9 | 1900-0045 | 4 | | DIODE-PIN | 28480 | 1900-0045 |
| A14A3CR10 | 1900-0045 | 4 | | DIODE-PIN | 28480 | 1900-0045 |
| A14A3CR11 | 1900-0045 | 4 | | DIODE-PIN | 28480 | 1900-0045 |
| A14A3CR12 | 1900-0045 | 4 | | DIODE-PIN | 28480 | 1900-0045 |
| 2427A TO 2640A | | | | | | |
| A14A3CR13 | | | | NOT ASSIGNED | | |
| A14A3CR14 | | | | NOT ASSIGNED | | |
| A14A3CR15 | | | | NOT ASSIGNED | | |
| 2642A AND ABOVE | | | | | | |
| A14A3CR13 | 1901-0179 | 7 | 3 | DIODE-SWITCHING 15V 50MA 750PS DO-7 | 28480 | 1901-0179 |
| A14A3CR14 | 1901-0179 | 7 | 3 | DIODE-SWITCHING 15V 50MA 750PS DO-7 | 28480 | 1901-0179 |
| A14A3CR15 | 1901-0179 | 7 | 3 | DIODE-SWITCHING 15V 50MA 750PS DO-7 | 28480 | 1901-0179 |
| A14A3FL1 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A14A3FL2 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A14A3FL3 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A14A3FL4 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A14A3FL5 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| | 08642-20086 | 2 | 2 | ELSTMR FEEDTHRU | 28480 | 08642-20086 |
| A14A3J1 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A14A3J2 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A14A3J3 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A14A3J4 | 1251-8758 | 5 | | CONN-POST TYPE .100-PIN-SPCG 8-CONT | 28480 | 1251-8758 |
| A14A3J5 | 1251-8948 | 5 | 2 | CONN POST TYPE 2.5-PIN-SPCG 2-CONT | 28480 | 1251-8948 |
| A14A3J6 | 1252-0153 | 0 | 1 | CONN POST TYPE .100-PIN-SPCG 10-CONT | 28480 | 1252-0153 |
| | 1251-5595 | 2 | 23 | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A14A3L1 | 9135-0079 | 9 | | INDUCTOR RF-CH-MLD 100NH 5% .102DX.26LG | 28480 | 9135-0079 |
| A14A3L2 | 9100-2256 | 5 | | INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG | 28480 | 9100-2256 |
| A14A3L3 | 9140-0142 | 8 | | INDUCTOR RF-CH-MLD 2.2UH 10% .105DX.26LG | 28480 | 9140-0142 |
| A14A3L4 | 9140-0142 | 8 | | INDUCTOR RF-CH-MLD 2.2UH 10% .105DX.26LG | 28480 | 9140-0142 |
| A14A3L5 | 9100-2256 | 5 | | INDUCTOR RF-CH-MLD 560NH 10% .105DX.26LG | 28480 | 9100-2256 |
| A14A3L6 | 9135-0078 | 8 | | INDUCTOR RF-CH-MLD 82NH 7% .102DX.26LG | 28480 | 9135-0078 |
| A14A3L7 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A3L8 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A3L9 | 9135-0079 | 9 | | INDUCTOR RF-CH-MLD 100NH 5% .102DX.26LG | 28480 | 9135-0079 |
| A14A3L10 | 9100-1650 | 1 | 1 | INDUCTOR RF-CH-MLD 680UH 5% .2DX.45LG | 28480 | 9100-1650 |
| A14A3L11 | 9135-0078 | 8 | | INDUCTOR RF-CH-MLD 82NH 7% .102DX.26LG | 28480 | 9135-0078 |
| A14A3L12 | 9135-0079 | 9 | | INDUCTOR RF-CH-MLD 100NH 5% .102DX.26LG | 28480 | 9135-0079 |
| A14A3L13 | 9140-0245 | 2 | 1 | INDUCTOR RF-CH-MLD 445UH 5% .29DX.924LG | 28480 | 9140-0245 |
| A14A3L14 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A3L15 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A3L16 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A3L17 | 9135-0073 | 3 | 4 | INDUCTOR RF-CH-MLD 51NH 6% .102DX.26LG | 28480 | 9135-0073 |
| A14A3L18 | 9135-0073 | 3 | | INDUCTOR RF-CH-MLD 51NH 6% .102DX.26LG | 28480 | 9135-0073 |
| A14A3L19 | 9135-0073 | 3 | | INDUCTOR RF-CH-MLD 51NH 6% .102DX.26LG | 28480 | 9135-0073 |
| A14A3L20 | 9135-0073 | 3 | | INDUCTOR RF-CH-MLD 51NH 6% .102DX.26LG | 28480 | 9135-0073 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------------|----------------|-----|-----|------------------------------------------|----------|-------------------|
| A14A3L21 | 9100-2249 | 6 | | INDUCTOR RF-CH-MLD 150NH 10% .105DX.26LG | 28480 | 9100-2249 |
| A14A3L22 | 9100-2249 | 6 | | INDUCTOR RF-CH-MLD 150NH 10% .105DX.26LG | 28480 | 9100-2249 |
| A14A3L23 | 9140-1087 | 2 | | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A14A3Q1 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625Mw FT=200MHZ | 28480 | 1853-0459 |
| A14A3Q2 | 1854-1008 | 2 | | TRANSISTOR NPN SI PD=600Mw FT=2GHZ | 28480 | 1854-1008 |
| A14A3Q3 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625Mw FT=200MHZ | 28480 | 1853-0459 |
| A14A3Q4 | 1854-1008 | 2 | | TRANSISTOR NPN SI PD=600Mw FT=2GHZ | 28480 | 1854-1008 |
| A14A3Q5 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625Mw FT=200MHZ | 28480 | 1853-0459 |
| A14A3Q6 | 1854-1036 | 6 | | TRANSISTOR NPN SI PD=2.5W | 28480 | 1854-1036 |
| 2427A TO 2807A A14A3Q7-Q10 | | | | NOT ASSIGNED | | |
| 2825A AND ABOVE A14A3Q7 | 1854-1202 | 8 | | TRANSISTOR NPN SI DARL TO-92 PD=625 Mw | 02307 | MPSA27 |
| A14A3Q8 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625Mw FT=200MHZ | 28480 | 1853-0459 |
| A14A3Q9 | 1854-1202 | 8 | | TRANSISTOR NPN SI DARL TO-92 PD=625Mw | 02307 | MPSA27 |
| A14A3Q10 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625Mw FT=200MHZ | 28480 | 1853-0459 |
| A14A3R1 | 0699-2196 | 0 | 2 | RESISTOR 78.8 2% .125W C T=0+-125 | 28480 | 0699-2196 |
| A14A3R2 | 0699-1828 | 3 | 1 | RESISTOR 106 2% .125W C TC=0+-125 | 28480 | 0699-1828 |
| A14A3R3 | 0699-2196 | 0 | | RESISTOR 78.8 2% .125W C T=0+-125 | 28480 | 0699-2196 |
| A14A3R4 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A14A3R5 | 0698-7257 | 2 | | RESISTOR 7.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-7501-F |
| A14A3R6 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A14A3R7 | 0757-0394 | 0 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-51R1-F |
| A14A3R8 | 0698-3444 | 1 | | RESISTOR 316 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-316R-F |
| A14A3R9 | 0698-7222 | 1 | | RESISTOR 261 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-261R-F |
| 2427A TO 2807A A14A3R10 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| 2825A AND ABOVE A14A3R10 | 0698-7196 | 8 | | RESISTOR 21.5 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-21R5-F |
| A14A3R11 | 0699-1346 | 0 | 3 | RESISTOR 15.4 1% .125W C TC=0+-125 | 28480 | 0699-1346 |
| A14A3R12 | 0699-1352 | 8 | | RESISTOR 15.4 1% .125W C TC=0+-125 | 28480 | 0699-1352 |
| A14A3R13 | | | | NOT ASSIGNED | | |
| A14A3R14 | | | | NOT ASSIGNED | | |
| A14A3R15 | 0757-0338 | 2 | 6 | RESISTOR 1K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-1001-F |
| A14A3R16 | 0757-1022 | 3 | 2 | RESISTOR 1.78K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-1781-F |
| A14A3R17 | 0757-1022 | 3 | | RESISTOR 1.78K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-1781-F |
| A14A3R18 | 0757-0338 | 2 | | RESISTOR 1K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-1001-F |
| A14A3R19 | 0757-0338 | 2 | | RESISTOR 1K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-1001-F |
| A14A3R20 | 0757-0338 | 2 | | RESISTOR 1K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-1001-F |
| A14A3R21 | 0698-7201 | 6 | | RESISTOR 34.8 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-34R8-F |
| A14A3R22 | 0757-0179 | 9 | | RESISTOR 196 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-196R-F |
| A14A3R23 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A14A3R24 | 0698-7257 | 2 | | RESISTOR 7.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-7501-F |
| A14A3R25 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A14A3R26 | 0698-7222 | 1 | | RESISTOR 261 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-261R-F |
| 2427A TO 2807A A14A3R27 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| 2825A AND ABOVE A14A3R27 | | | | NOT ASSIGNED | | |
| A14A3R28 | 0699-1350 | 6 | 2 | RESISTOR 17.8 1% .125W C TC=0+-125 | 28480 | 0699-1350 |
| A14A3R29 | 0699-1350 | 6 | | RESISTOR 17.8 1% .125W C TC=0+-125 | 28480 | 0699-1350 |
| A14A3R30 | | | | NOT ASSIGNED | | |
| A14A3R31 | | | | NOT ASSIGNED | | |
| A14A3R32 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A14A3R33 | 0698-7257 | 2 | | RESISTOR 7.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-7501-F |
| A14A3R34 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A14A3R35 | 0699-1424 | 5 | 1 | RESISTOR 237 1% .125W C TC=0+-125 | 28480 | 0699-1424 |
| A14A3R36 | 0757-0379 | 1 | 1 | RESISTOR 12.1 1% .125W F TC=0+-100 | 19701 | MF4C1/8-T0-12R1-F |
| A14A3R37 | | | | NOT ASSIGNED | | |
| A14A3R38 | 0699-1348 | 2 | 2 | RESISTOR 14.7 1% .125W C TC=0+-125 | 28480 | 0699-1348 |
| A14A3R39 | 0699-1348 | 2 | | RESISTOR 14.7 1% .125W C TC=0+-125 | 28480 | 0699-1348 |
| A14A3R40 | | | | NOT ASSIGNED | | |
| A14A3R41 | 0757-0420 | 3 | | RESISTOR 750 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-751-F |
| A14A3R42 | 0757-0420 | 3 | | RESISTOR 750 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-751-F |
| A14A3R43 | 0757-0420 | 3 | | RESISTOR 750 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-751-F |
| A14A3R44 | 0757-0420 | 3 | | RESISTOR 750 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-751-F |
| A14A3R45 | 0698-3446 | 3 | | RESISTOR 383 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-383R-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|---------------------------------------------------|----------------|-----|-----|------------------------------------------------------------|----------|------------------|
| A14A3R46 | 0699-1361 | 9 | | RESISTOR 51.1 1% .125W F TC=0+-100 | 28480 | 0699-1361 |
| 2427A TO 2530A A14A3R47 | 0698-7215 | 2 | 3 | RESISTOR 133 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-133R-F |
| A14A3R48 | 2100-3091 | 1 | 1 | RESISTOR-TRMR 2K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-202 |
| A14A3R49 | 0698-7215 | 2 | | RESISTOR 133 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-133R-F |
| 2537A AND ABOVE A14A3R47 | 0698-7215 | 2 | | RESISTOR 196 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-196R-F |
| A14A3R48 | 2100-3090 | 0 | | RESISTOR-TRMR 500 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-501 |
| A14A4R49 | 0698-7209 | 4 | | RESISTOR 75 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-75R0-F |
| A14A3R50 | 8159-0005 | 0 | 1 | RESISTOR-ZERO OHMS 22 AWG LEAD DIA | 28480 | 8159-0005 |
| 2427A TO 2807A A14A3R51 | 0698-7195 | 7 | | RESISTOR 19.6 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-19R6-F |
| 2825A AND ABOVE A14A3R51 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-10R-F |
| 2427A TO 2530A A14A3R52 | 0699-1354 | 6 | | RESISTOR 26.1 1% .125W F TC=0+-100 | 28480 | 0699-1354 |
| 2537A AND ABOVE A14A3R52* | 0699-1503 | 1 | | RESISTOR -ZERO OHMS SMD ZERO OHM JUMPER | 00746 | 9C1206 |
| A14A3R53 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-1002-F |
| 2427A TO 2807A A14A3R54-R65 2825A AND ABOVE | | | | NOT ASSIGNED | | |
| A14A3R54 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-1002-F |
| A14A3R55 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-3831-F |
| A14A3R56 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-1961-F |
| A14A3R57 | 0698-7243 | 6 | | RESISTOR 1.96K 1% .05W F TC=0+-100 | 24546 | C3-1/8-TO-1961-F |
| A14A3R58 | | | | NOT ASSIGNED | | |
| A14A3R59 | | | | NOT ASSIGNED | | |
| A14A3R60 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-TO-1002-F |
| A14A3R61 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-TO-1002-F |
| A14A3R62 | 0699-1415 | 4 | | RESISTOR 100 1% .125W TKF TC=0+-100 | 04935 | 9C12063AFKRT |
| A14A3R63 | 0699-1415 | 4 | | RESISTOR 100 1% .125W TKF TC=0+-100 | 04935 | 9C12063AFKRT |
| A14A3R64 | 0699-1415 | 4 | | RESISTOR 100 1% .125W TKF TC=0+-100 | 04935 | 9C12063AFKRT |
| A14A3R65 | 0699-1415 | 4 | | RESISTOR 100 1% .125W TKF TC=0+-100 | 04935 | 9C12063AFKRT |
| A14A3RT1 | 0837-0307 | 5 | 1 | THERMISTOR DISC 100-OHM TC=-4.4%/C-DEG | 28480 | 0837-0307 |
| A14A3TP1 | 1251-2194 | 1 | | CONNECTOR-SGL CONT SKT .021-IN-BSC-SZ | 28480 | 1251-2194 |
| A14A3TP2 | 1251-2194 | 1 | | CONNECTOR-SGL CONT SKT .021-IN-BSC-SZ | 28480 | 1251-2194 |
| A14A3TP3 | 1251-2194 | 1 | | CONNECTOR-SGL CONT SKT .021-IN-BSC-SZ | 28480 | 1251-2194 |
| A14A3TP4 | 1251-2194 | 1 | | CONNECTOR-SGL CONT SKT .021-IN-BSC-SZ | 28480 | 1251-2194 |
| 2427A TO 2807A A14A3U1 | 1820-3691 | 2 | 1 | IC XLTR TTL TTL-TO-MOS DUAL | 28480 | 1820-3691 |
| 2825A AND ABOVE A14A3U1 | 1826-0412 | 1 | | IC COMPARATOR-FXD 30PF +-5% 200VDC CER | 28480 | LM393N |
| A14A3W1 | 0955-0234 | 7 | 1 | NOT ASSIGNED | 28480 | 0955-0234 |
| A14A3Z1 | 1251-2194 | 1 | | MIXER .05-2000MHZ CONNECTOR-SGL CONT SKT .021-IN-BSC-SZ | 28480 | 1251-2194 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|---------------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| A15 | | | | | | |
| 2427A TO 2810A A15 | 08642-60129 | 8 | 1 | HP-IB CONNECTOR ASSEMBLY | 28480 | 08642-60129 |
| 2816A AND ABOVE A15 | 08642-60229 | 9 | 1 | HP-IB CONNECTOR ASSEMBLY | 28480 | 08642-60229 |
| A15J1 | 1251-7772 | 1 | 1 | CONN-REG CHAMP 24-CKT 24-CONT | 28480 | 1251-7772 |
| 2427A TO 2810A A15J2 | 1251-7447 | 7 | 1 | CONN POST 34 M2R | 28480 | 1251-7447 |
| 2816A AND ABOVE A15J2 | 1251-5720 | 5 | 1 | CONNECTOR 34-PIN M POST TYPE | 28480 | 1251-5720 |
| A15J3 | 1251-0600 | 0 | 4 | CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ | 28480 | 1251-0600 |
| A15J4 | 1251-0600 | 0 | | CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ | 28480 | 1251-0600 |
| A15J5 | 1251-0600 | 0 | | CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ | 28480 | 1251-0600 |
| A15J6 | 1251-0600 | 0 | | CONNECTOR-SGL CONT PIN 1.14-MM-BSC-SZ SQ | 28480 | 1251-0600 |
| A15MP1 | 0380-1180 | 5 | 2 | STANDOFF-HEX 5-MM-LG 7.1-MM-A/F STL | 00000 | ORDER BY DESCRIPTION |
| A15MP2 | 0515-0655 | 4 | | SCREW-MACH M3 X 0.5 8MM-LG PAN-HD | 00000 | ORDER BY DESCRIPTION |
| A15MP3 | 1251-7773 | 2 | 1 | SHIELD-AMP CHAMP 24 CONT CONN | 28480 | 1251-7773 |
| A15MP4 | 08642-20068 | 0 | 2 | BRACKET HP-IB | 28480 | 08642-20068 |
| 2427A TO 2810A A15MP5 | | | | NOT ASSIGNED | | |
| 2816A AND ABOVE A15MP5 | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |

See introduction to this section for ordering information.

* Indicates factory selected value

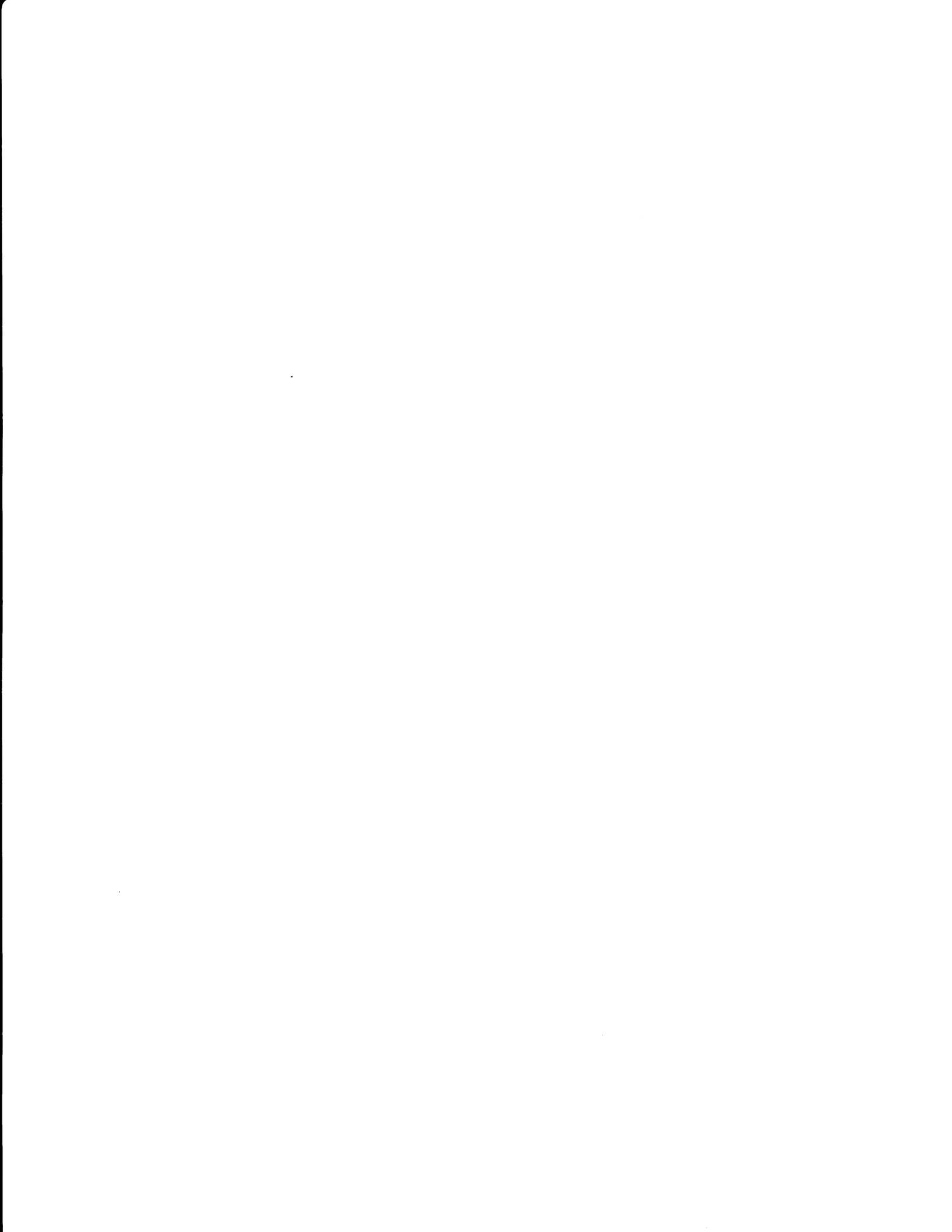


Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|--------|-----|-------------------------------------------------------------------------------|----------|----------------------|
| A 16 | | | | | | |
| A16 | 08642-60842 | 2 | 1 | ATTENUATOR MODULE (8642A STANDARD ONLY) | 28480 | 08642-60842 |
| A16 | 08642-69842 | 0 | 1 | ATTENUATOR MODULE (8642A STANDARD ONLY) (RESTORED) | 28480 | 08642-69842 |
| A16AT1 | 08642-60954 | 7 | 1 | ATTENUATOR ASSEMBLY | 28480 | 08642-60954 |
| A16MP1 | 08642-00112 | 3 | 1 | ATTENUATOR FRAME | 28480 | 08642-00112 |
| A16MP2 | 0380-0008 | 4 | 4 | SPACER-RND .5-IN-LG .18-IN-ID .25-IN-OD (BETWEEN A16A1 AND A16MP1) | 00000 | ORDER BY DESCRIPTION |
| A16MP3 | 0515-0655 | 4 | 4 | SCREW-MACH M3X0.5 8MM-LG PAN-HD (ATTACH A16A1 TO A16MP1) | 00000 | ORDER BY DESCRIPTION |
| A16MP4 | 0515-0680 | 5 | 8 | SCREW-MACH M3 X 0.5 8MM-LG PAN-HD (ATTACH A16AT1 AND A16A1 TO A16MP1) | 28480 | 0515-0680 |
| A16MP5 | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A16MP6 | 08642-00049 | 5 | | SLIDE-MDL469R56 (FRONT AND REAR) | 28480 | 08642-00049 |
| A16MP7 | 08642-00052 | 0 | | SLIDE-MODULE R89 (REAR) | 28480 | 08642-00052 |
| A16MP8 | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH A16MP6, A16MP7 TO A16MP1) | 28480 | 0515-1102 |
| A16MP9 | 08642-20072 | 6 | 7 | MODULE SLIDE RIBBON CABLE SCREW | 28480 | 08642-20072 |
| A16MP10 | 08642-80071 | 1 | 1 | LABEL-ATTEN 60008 | 28480 | 08642-80071 |
| A 16 | | | | | | |
| OPTION 003 ONLY | | | | | | |
| A16 | 08642-60848 | 8 | 1 | ATTENUATOR MODULE (8642A OPTION 003) | 28480 | 08642-60848 |
| A16 | 08642-69848 | 6 | 1 | ATTENUATOR MODULE (8642A OPTION 003) (RESTORED) | 28480 | 08642-69848 |
| A16AT1 | 08642-60962 | 7 | 1 | 70 DB ATTENUATOR | 28480 | 08642-60962 |
| A16AT2 | 08642-60963 | 8 | 1 | 75 DB ATTENUATOR | 28480 | 08642-60963 |
| A16MP1 | 2200-0109 | 8 | 2 | SCREW-MACH 4-40 .438-IN-LG PAN-HD-POZI (ATTACH AT1, AT2 BOTTOM TO BASE) | 00000 | ORDER BY DESCRIPTION |
| A16MP2 | 2200-0103 | 2 | 2 | SCREW-MACH 4-40 .25-IN-LG PAN-HD-POZI (ATTACH AT1, AT2 TOP TO BASE) | 28480 | 2200-0103 |
| A16MP3 | 08642-40025 | 1 | 1 | COVER ATTENUATOR RPP | 28480 | 08642-40025 |
| A16MP4 | 08642-20026 | 0 | 1 | BASE ATTENUATOR | 28480 | 08642-20026 |
| A16MP5 | 8160-0472 | 8 | | RFI ROUND STRIP BE-CU SN-PL .093-IN-OD (SPIRA SHIELD) | 28480 | 8160-0472 |
| A16MP6 | 08642-00049 | 5 | | SLIDE-MDL469R56 (FRONT) | 28480 | 08642-00049 |
| A16MP7 | 08642-00052 | 0 | | SLIDE-MODULE R89 (REAR) | 28480 | 08642-00052 |
| A16MP8 | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD | 28480 | 0515-1102 |
| A16W1 | 08642-20057 | 7 | 1 | CABLE SR A70-A75 (A16AT1J2 TO A16AT2J2) | 28480 | 08642-20057 |
| A16W2 | 08642-20047 | 5 | 1 | CABLE SR A75-RPP (A16AT2J1 TO A16A2J1) | 28480 | 08642-20047 |

See introduction to this section for ordering information.

* Indicates factory selected value

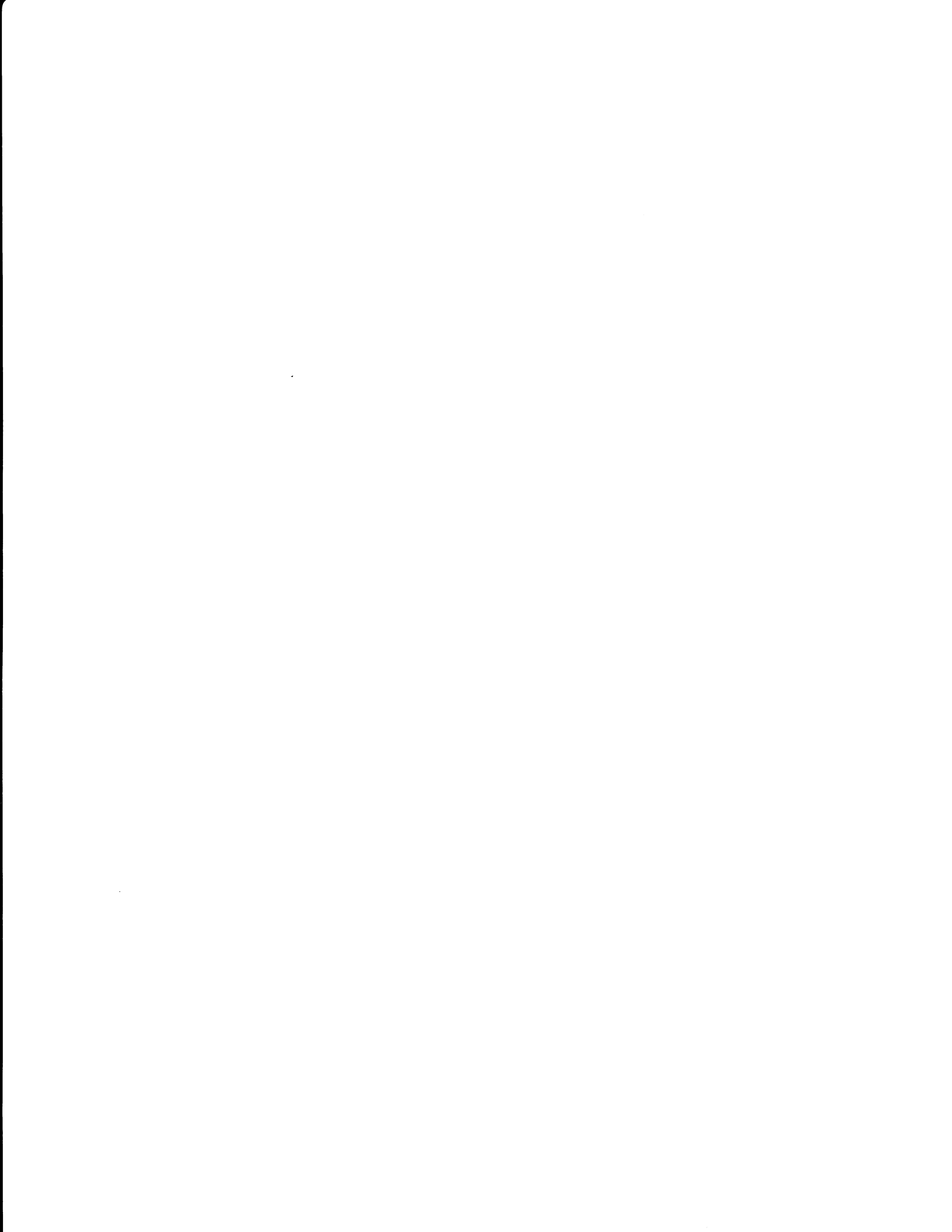


Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|--------------------------------------------------------------|----------|------------------|
| A16A1 | 08642-60117 | 4 | 1 | ATTENUATOR INTERCONNECTION ASSEMBLY (8642A STANDARD ONLY) | 28480 | 08642-60117 |
| A16A1CR1 | 1901-0050 | 3 | | DIODE SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A16A1CR2 | 1901-0050 | 3 | | DIODE SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A16A1CR3 | 1901-0050 | 3 | | DIODE SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A16A1CR4 | 1901-0050 | 3 | | DIODE SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A16A1CR5 | 1901-0050 | 3 | | DIODE SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A16A1CR6 | 1901-0050 | 3 | | DIODE SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A16A1CR7 | 1901-0050 | 3 | | DIODE SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A16A1J1 | 1251-5720 | 5 | | CONNECTOR 34-PIN M POST-TYPE | 28480 | 1251-5720 |
| | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A16A1R1 | 1810-0204 | 6 | | NETWORK-RES 8-SIP 1.0K OHMX7 | 01121 | 208A102 |
| A16A1R2 | 1810-0206 | 8 | | NETWORK-RES 8-SIP 10.0K OHMX7 | 01121 | 208A103 |
| A16A1U1 | 1820-2273 | 4 | | IC DRVR TTL OCTL | 13606 | UDN2981A |
| A16A1 | 08642-60145 | 8 | 1 | ATTENUATOR INTERCONNECTION ASSEMBLY (OPTION 003 ONLY) | 28480 | 08642-60145 |
| A16A1J1 | 1251-8813 | 3 | | CONN-POST TYPE .100-PIN-SPCG 14-CONT | 28480 | 1251-8813 |
| A16A1J2 | 1251-8601 | 7 | 1 | CONN-POST TYPE .100-PIN-SPCG 34-CONT | 28480 | 1251-8601 |
| | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A16A1J3 | | | | PRINTED CIRCUIT PADS | | |
| A16A1R1 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A16A1W1 | 08642-60073 | 1 | 1 | CABLE ASSEMBLY (A16A1J3 TO A16A2J3) | 28480 | 08642-60073 |

See introduction to this section for ordering information.

* Indicates factory selected value

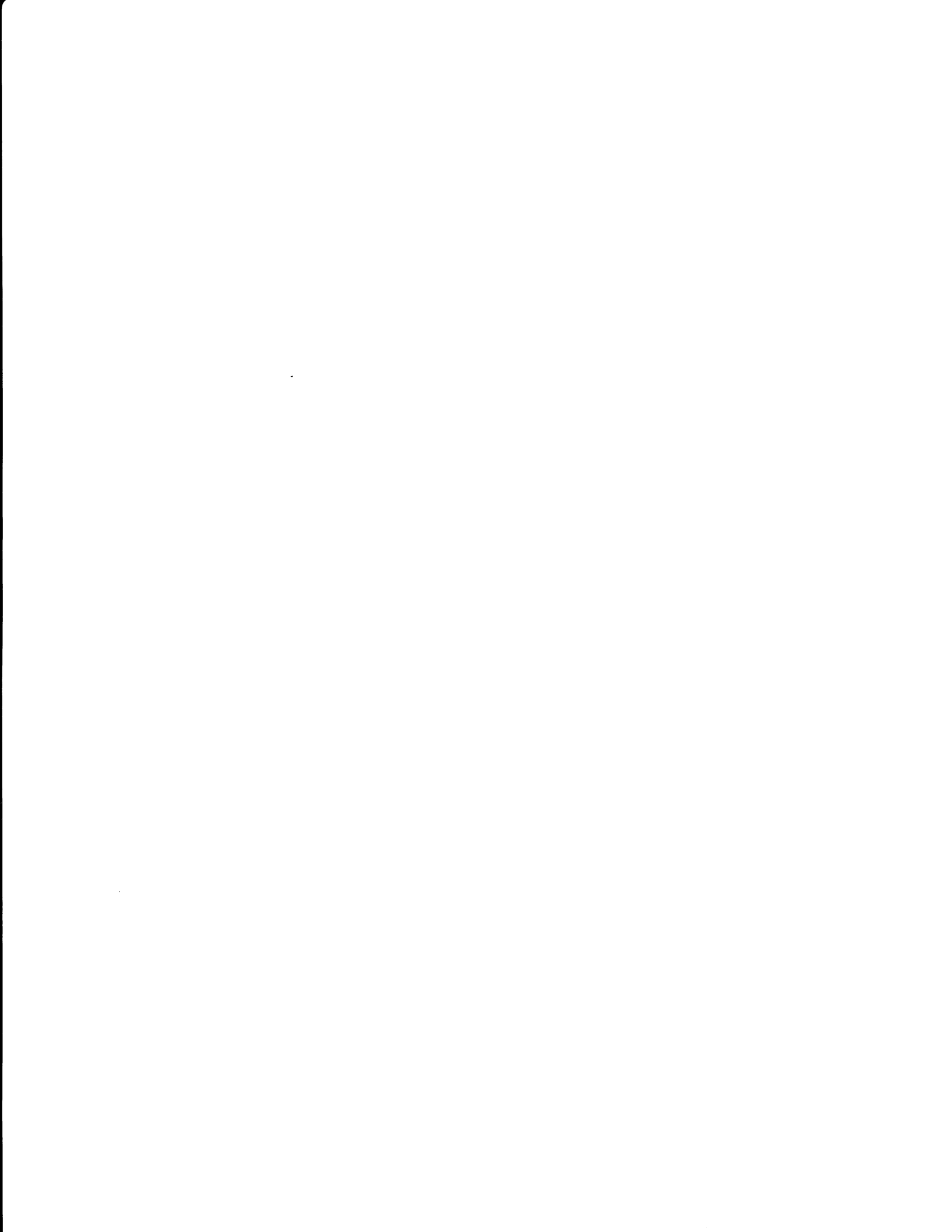


Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------------------|----------------|-----|-----|-----------------------------------------------------|----------|-----------------|
| A 16A2 | 08642-60119 | 6 | 1 | REVERSE POWER PROTECT ASSEMBLY (OPTION 003 ONLY) | 28480 | 08642-60119 |
| A16A2C1 | 0160-0546 | 9 | 2 | CAPACITOR-FXD .1UF +-20% 100VDC CER | 16546 | W100KI104M |
| A16A2C2 | 0160-0546 | 9 | | CAPACITOR-FXD .1UF +-20% 100VDC CER | 16546 | W100KI104M |
| <i>2427A TO 2640A A16A2CR1</i> | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| <i>2708A AND ABOVE A16A2CR1</i> | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| | 9170-0029 | 3 | | CORE-SHIELDING BEAD | 28480 | 9170-0029 |
| A16A2FL1 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A16A2FL2 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A16A2J1 | 1250-2091 | 5 | 2 | CONNECTOR-RF SMA PC | 28480 | 1250-2091 |
| | 08642-20079 | 3 | 3 | ELSTMR CNDCT SMA | 28480 | 08642-20079 |
| A16A2J2 | 08642-80018 | 6 | | CONNECTOR-RF | 28480 | 08642-80018 |
| | 08642-20079 | 3 | | ELSTMR CNDCT SMA | 28480 | 08642-20079 |
| A16A2J3 | 1251-8948 | 5 | | CONN POST TYPE 2.5-PIN-SPCG 2-CONT | 28480 | 1251-8948 |
| A16A2K1 | 0490-1452 | 7 | 1 | RELAY-REED 1A 500MA 100VDC 5VDC-COIL | 28480 | 0490-1452 |
| A16A2U1 | 08642-67004 | 2 | 1 | X2 REV PWR LIMTR | 28480 | 08642-67004 |

See introduction to this section for ordering information.

* Indicates factory selected value

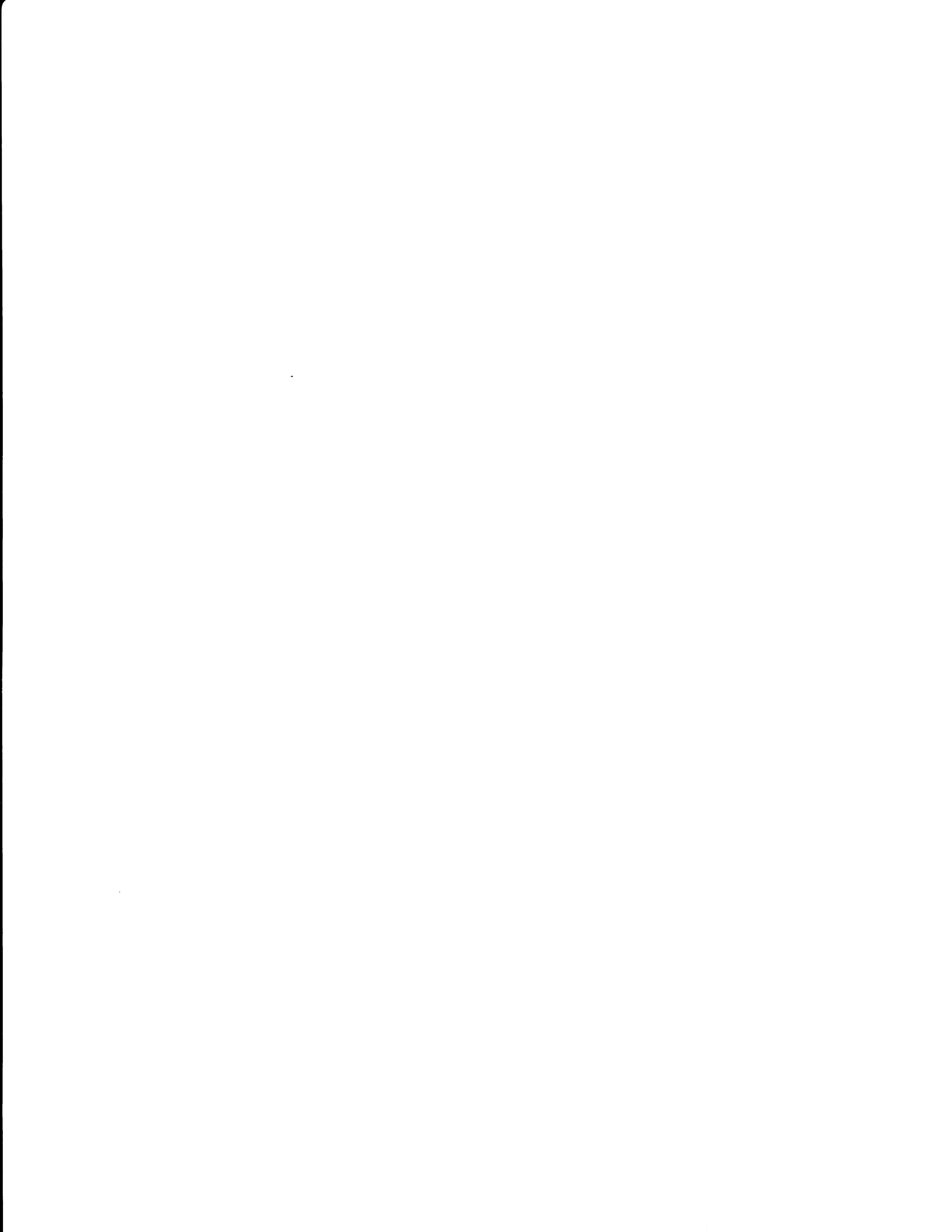


Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|--------------------------------------------------------------|----------|-----------------|
| A17 | | | | | | |
| A17 | 08642-60843 | 3 | 1 | POWER SUPPLY REGULATORS/ATTENUATOR DRIVERS MODULE | 28480 | 08642-60843 |
| A17 | 08642-69843 | 1 | 1 | POWER SUPPLY REGULATORS/ATTENUATOR DRIVERS MODULE (RESTORED) | 28480 | 08642-69843 |
| A17C1-C7 | | | | NOT ASSIGNED | | |
| A17C8 | 0160-4810 | 8 | 4 | CAPACITOR-FXD 330PF +-5% 100VDC CER | 28480 | 0160-4810 |
| A17C9 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A17C10 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C11 | 0180-2374 | 7 | | CAPACITOR-FXD 100UF+-10% 20VDC TA | 56289 | 150D107X9020X2 |
| A17C12 | 0160-4810 | 8 | | CAPACITOR-FXD 330PF +-5% 100VDC CER | 28480 | 0160-4810 |
| A17C13 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A17C14 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C15 | 0180-2374 | 7 | | CAPACITOR-FXD 100UF+-10% 20VDC TA | 56289 | 150D107X9020X2 |
| A17C16 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C17 | 0180-2207 | 5 | | CAPACITOR-FXD 100UF+-10% 10VDC TA | 56289 | 150D107X9010R2 |
| A17C18 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C19 | 0180-2207 | 5 | | CAPACITOR-FXD 100UF+-10% 10VDC TA | 56289 | 150D107X9010R2 |
| A17C20 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C21 | 0180-2610 | 4 | 1 | CAPACITOR-FXD 10UF+-10% 75VDC TA | 00904 | T110A106K075AS |
| A17C22 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A17C23 | 0160-4574 | 1 | | CAPACITOR-FXD 1000PF +-10% 100VDC CER | 28480 | 0160-4574 |
| A17C24 | | | | NOT ASSIGNED | | |
| A17C25 | | | | NOT ASSIGNED | | |
| A17C26 | 0160-4810 | 8 | | CAPACITOR-FXD 330PF +-5% 100VDC CER | 28480 | 0160-4810 |
| A17C27 | 0160-4441 | 1 | | CAPACITOR-FXD .47UF +-10% 50VDC CER | 28480 | 0160-4441 |
| A17C28 | 0160-4810 | 8 | | CAPACITOR-FXD 330PF +-5% 100VDC CER | 28480 | 0160-4810 |
| A17C29 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A17C30-C100 | | | | NOT ASSIGNED | | |
| A17C101 | 0180-0291 | 3 | | CAPACITOR-FXD 1UF+-10% 35VDC TA | 56289 | 150D105X9035A2 |
| A17C102 | 0180-0291 | 3 | | CAPACITOR-FXD 1UF+-10% 35VDC TA | 56289 | 150D105X9035A2 |
| A17C103 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C104 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C105 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C106 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C107 | 0180-0291 | 3 | | CAPACITOR-FXD 1UF+-10% 35VDC TA | 56289 | 150D105X9035A2 |
| A17C108 | 0180-0291 | 3 | | CAPACITOR-FXD 1UF+-10% 35VDC TA | 56289 | 150D105X9035A2 |
| A17C109 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C110 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C111 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C112 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17C113 | 0180-0347 | 0 | 2 | CAPACITOR-FXD 1.5UF+-10% 35VDC TA | 56289 | 150D155X9035B2 |
| A17C114 | 0180-0347 | 0 | | CAPACITOR-FXD 1.5UF+-10% 35VDC TA | 56289 | 150D155X9035B2 |
| A17C115 | 0180-2207 | 5 | | CAPACITOR-FXD 100UF+-10% 10VDC TA | 56289 | 150D107X9010R2 |
| A17C116 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A17C117-C119 | | | | NOT ASSIGNED | | |
| A17C120 | 0160-4791 | 4 | | CAPACITOR-FXD 10PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4791 |
| A17C121 | 0160-4832 | 4 | | CAPACITOR-FXD .01UF +-10% 100VDC CER | 28480 | 0160-4832 |
| A17CR1 | 1901-0028 | 5 | | DIODE-PWR RECT 400V 750MA DO-29 | 28480 | 1901-0028 |
| A17CR2 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR3 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR4 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR5 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR6 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR7 | 1901-0028 | 5 | | DIODE-PWR RECT 400V 750MA DO-29 | 28480 | 1901-0028 |
| A17CR8 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR9 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR10 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR11 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR12 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR13 | | | | NOT ASSIGNED | | |
| A17CR14 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR15 | 1901-0028 | 5 | | DIODE-PWR RECT 400V 750MA DO-29 | 28480 | 1901-0028 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|---------------------------------------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| A17CR16 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR17 | 1901-0028 | 5 | | DIODE-PWR RECT 400V 750MA DO-29 | 28480 | 1901-0028 |
| A17CR18 | 1901-0028 | 5 | | DIODE-PWR RECT 400V 750MA DO-29 | 28480 | 1901-0028 |
| 2427A TO 2647A A17CR19-CR23 2709A AND ABOVE | | | | NOT ASSIGNED | | |
| A17CR19 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR20 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR21 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR22 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17CR23 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A17DS1 | 1990-0835 | 9 | 5 | LED-LAMP LUM-INT=6MCD IF=30MA-MAX BVR=5V | 28480 | HLMP-1523 |
| A17DS2 | 1990-0835 | 9 | | LED-LAMP LUM-INT=6MCD IF=30MA-MAX BVR=5V | 28480 | HLMP-1523 |
| A17DS3 | 1990-0835 | 9 | | LED-LAMP LUM-INT=6MCD IF=30MA-MAX BVR=5V | 28480 | HLMP-1523 |
| A17DS4 | 1990-0835 | 9 | | LED-LAMP LUM-INT=6MCD IF=30MA-MAX BVR=5V | 28480 | HLMP-1523 |
| A17DS5 | 1990-0835 | 9 | | LED-LAMP LUM-INT=6MCD IF=30MA-MAX BVR=5V | 28480 | HLMP-1523 |
| A17F1 | 2110-0047 | 2 | 1 | FUSE 1A 125V .25X.27 | 71400 | GMW-1 |
| A17J1 | 1251-2313 | 6 | 2 | CONNECTOR-SGL CONT SKT .04-IN-BSC-SZ RND | 28480 | 1251-2313 |
| A17J1 | 1251-6982 | 3 | 1 | CONNECTOR 14-PIN M POST TYPE | 28480 | 1251-6982 |
| A17J2 | 1251-5653 | 3 | 2 | CONNECTOR 50-PIN M POST TYPE | 28480 | 1251-5653 |
| A17J2 | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A17J3 | 1251-5653 | 3 | | CONNECTOR 50-PIN M POST TYPE | 28480 | 1251-5653 |
| A17J3 | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 |
| A17MP1 | 08642-20077 | 1 | 1 | HEATSINK MAIN | 28480 | 08642-20077 |
| A17MP2 | 08642-00098 | 4 | 1 | FOAM 9.5 FIRM | 28480 | 08642-00098 |
| A17Q1 | | | | NOT ASSIGNED | | |
| A17Q2 | 1853-0526 | 5 | 2 | TRANSISTOR PNP 2N6437 SI PD=200W | 28480 | 1853-0526 |
| A17Q2 | 0515-0681 | 6 | | SCREW-MACH M3 X 0.5 14MM-LG PAN-HD | 28480 | 0515-0681 |
| A17Q2 | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| A17Q2 | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A17Q2 | 1200-0043 | 8 | 8 | INSULATOR-XSTR ALUMINUM | 28480 | 1200-0043 |
| A17Q2 | 1200-0081 | 4 | 10 | INSULATOR-FLG-BSHG NYLON | 28480 | 1200-0081 |
| A17Q3 | 1854-0637 | 1 | | TRANSISTOR NPN 2N2219A SI TO-5 PD=800MW | 01295 | 2N2219A |
| A17Q3 | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A17Q3 | 1205-0361 | 3 | | HEAT SINK SGL TO-5/TO-39-CS | 13103 | 2226C |
| A17Q4 | 1884-0273 | 4 | 3 | THYRISTOR-SCR 2N4101 TO-66 | 3L585 | 2N4101 |
| A17Q4 | 0340-0162 | 7 | 4 | INSULATOR-XSTR ALUMINUM | 28480 | 0340-0162 |
| A17Q4 | 0515-0655 | 4 | | SCREW-MACH M3 X 0.5 8MM-LG PAN-HD | 00000 | ORDER BY DESCRIPTION |
| A17Q4 | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| A17Q4 | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A17Q5 | 1854-0741 | 8 | 2 | TRANSISTOR NPN 2N6338 SI PD=200W | 04713 | 2N6338 |
| A17Q5 | 0515-0681 | 6 | | SCREW-MACH M3 X 0.5 14MM-LG PAN-HD | 28480 | 0515-0681 |
| A17Q5 | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| A17Q5 | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A17Q5 | 1200-0043 | 8 | | INSULATOR-XSTR ALUMINUM | 28480 | 1200-0043 |
| A17Q5 | 1200-0081 | 4 | | INSULATOR-FLG-BSHG NYLON | 28480 | 1200-0081 |
| A17Q6 | 1853-0314 | 9 | 3 | TRANSISTOR PNP 2N2905A SI TO-39 PD=600MW | 04713 | 2N2905A |
| A17Q6 | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A17Q7 | 1884-0273 | 4 | | THYRISTOR-SCR 2N4101 TO-66 | 3L585 | 2N4101 |
| A17Q7 | 0340-0162 | 7 | | INSULATOR-XSTR ALUMINUM | 28480 | 0340-0162 |
| A17Q7 | 0515-0655 | 4 | | SCREW-MACH M3 X 0.5 8MM-LG PAN-HD | 00000 | ORDER BY DESCRIPTION |
| A17Q7 | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| A17Q7 | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A17Q8 | 1853-0526 | 5 | | TRANSISTOR PNP 2N6437 SI PD=200W | 28480 | 1853-0526 |
| A17Q8 | 0515-0681 | 6 | | SCREW-MACH M3 X 0.5 14MM-LG PAN-HD | 28480 | 0515-0681 |
| A17Q8 | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| A17Q8 | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A17Q8 | 1200-0043 | 8 | | INSULATOR-XSTR ALUMINUM | 28480 | 1200-0043 |
| A17Q8 | 1200-0081 | 4 | | INSULATOR-FLG-BSHG NYLON | 28480 | 1200-0081 |
| A17Q9 | 1854-0637 | 1 | | TRANSISTOR NPN 2N2219A SI TO-5 PD=800MW | 01295 | 2N2219A |
| A17Q9 | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A17Q9 | 1205-0361 | 3 | | HEAT SINK SGL TO-5/TO-39-CS | 13103 | 2226C |
| A17Q10 | 1884-0065 | 2 | 1 | THYRISTOR-SCR 2N3670 TO-3 VRRM=400 | 3L585 | 2N3670 |
| A17Q10 | 0515-0655 | 4 | | SCREW-MACH M3 X 0.5 8MM-LG PAN-HD | 00000 | ORDER BY DESCRIPTION |
| A17Q10 | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| A17Q10 | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A17Q10 | 1200-0043 | 8 | | INSULATOR-XSTR ALUMINUM | 28480 | 1200-0043 |
| A17Q10 | 1200-0081 | 4 | | INSULATOR-FLG-BSHG NYLON | 28480 | 1200-0081 |
| A17Q11 | 1854-0741 | 8 | | TRANSISTOR NPN 2N6338 SI PD=200W | 04713 | 2N6338 |
| A17Q11 | 0515-0681 | 6 | | SCREW-MACH M3 X 0.5 14MM-LG PAN-HD | 28480 | 0515-0681 |
| A17Q11 | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| A17Q11 | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A17Q11 | 1200-0043 | 8 | | INSULATOR-XSTR ALUMINUM | 28480 | 1200-0043 |
| A17Q11 | 1200-0081 | 4 | | INSULATOR-FLG-BSHG NYLON | 28480 | 1200-0081 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|--------|-----|------------------------------------------|----------|----------------------|
| A17Q12 | 1853-0314 | 9 | | TRANSISTOR PNP 2N2905A SI TO-39 PD=600MW | 04713 | 2N2905A |
| | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A17Q13 | 1884-0273 | 4 | | THYRISTOR-SCR 2N4101 TO-66 | 31585 | 2N4101 |
| | 0340-0162 | 7 | | INSULATOR-XSTR ALUMINUM | 28480 | 0340-0162 |
| | 0515-0655 | 4 | | SCREW-MACH M3 X 0.5 8MM-LG PAN-HD | 00000 | ORDER BY DESCRIPTION |
| | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A17Q14 | 1853-0414 | 0 | 1 | TRANSISTOR PNP 2N6423 SI TO-66 PD=35W | 04713 | 2N6423 |
| | 0340-0162 | 7 | | INSULATOR-XSTR ALUMINUM | 28480 | 0340-0162 |
| | 0515-0681 | 6 | | SCREW-MACH M3 X 0.5 14MM-LG PAN-HD | 28480 | 0515-0681 |
| | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A17Q15 | 1853-0462 | 8 | | TRANSISTOR PNP 2N3635 SI TO-39 PD=1W | 01295 | 2N3635 |
| | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A17Q16 | 1854-0813 | 5 | | TRANSISTOR NPN 2N3501S SI TO-39 PD=1W | 28480 | 1854-0813 |
| | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A17Q17 | 1854-0474 | 4 | | TRANSISTOR NPN SI PD=310MW FT=100MHZ | 04713 | 2N5551 |
| A17Q18 | 1854-0810 | 2 | | TRANSISTOR NPN SI PD=625MW FT=200MHZ | 28480 | 1854-0810 |
| A17Q19 | 1884-0244 | 9 | 1 | THYRISTOR-SCR VRRM=400 | 31585 | S2600D |
| | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A17Q20-Q100 | | | | NOT ASSIGNED | | |
| A17Q101 | 1853-0314 | 9 | | TRANSISTOR PNP 2N2905A SI TO-39 PD=600MW | 04713 | 2N2905A |
| | 1200-0173 | 5 | | INSULATOR-XSTR DAP-GL | 28480 | 1200-0173 |
| A17R1-R5 | | | | NOT ASSIGNED | | |
| A17R6 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A17R7 | 0698-3394 | 0 | 1 | RESISTOR 31.6 1% .5W F TC=0+-100 | 28480 | 0698-3394 |
| A17R8 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A17R9 | 0698-4632 | 1 | 2 | RESISTOR 1.96K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-1961-F |
| A17R10 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A17R11 | 0757-0338 | 2 | | RESISTOR 1K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-1001-F |
| A17R12 | 0757-0728 | 4 | 1 | RESISTOR 619 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-619R-F |
| A17R13 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A17R14 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A17R15 | 0698-7224 | 3 | | RESISTOR 316 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-316R-F |
| A17R16 | 0698-7233 | 4 | | RESISTOR 750 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-750R-F |
| A17R17 | 0699-1076 | 3 | 2 | RESISTOR 7.8K .1% .1W F TC=0+-5 | 28480 | 0699-1076 |
| A17R18 | 2100-3095 | 5 | 3 | RESISTOR-TMR 200 10% C SIDE-ADJ 17-TRN | 02111 | 43P201 |
| A17R19 | 0699-1304 | 0 | 2 | RESISTOR 5.62K .1% .1W F TC=0+-5 | 28480 | 0699-1304 |
| A17R20 | 0698-7280 | 1 | | RESISTOR 68.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6812-F |
| A17R21 | 0698-7264 | 1 | | RESISTOR 14.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1472-F |
| A17R22 | 0698-7215 | 2 | | RESISTOR 133 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-133R-F |
| A17R23 | 0812-0111 | 7 | 1 | RESISTOR .05 3% 3W PW TC=0+-90 | 28480 | 0812-0111 |
| A17R24 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A17R25 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A17R26 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F |
| A17R27 | 0698-4632 | 1 | | RESISTOR 1.96K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-1961-F |
| A17R28 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A17R29 | 0757-0730 | 8 | | RESISTOR 750 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-751-F |
| A17R30 | 0757-0338 | 2 | | RESISTOR 1K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-1001-F |
| A17R31 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F |
| A17R32 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A17R33 | 0698-7224 | 3 | | RESISTOR 316 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-316R-F |
| A17R34 | 0698-7233 | 4 | | RESISTOR 750 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-750R-F |
| A17R35 | 0699-1076 | 3 | | RESISTOR 7.8K .1% .1W F TC=0+-5 | 28480 | 0699-1076 |
| A17R36 | 2100-3095 | 5 | | RESISTOR-TMR 200 10% C SIDE-ADJ 17-TRN | 02111 | 43P201 |
| A17R37 | 0699-1304 | 0 | | RESISTOR 5.62K .1% .1W F TC=0+-5 | 28480 | 0699-1304 |
| A17R38 | 0698-7280 | 1 | | RESISTOR 68.1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6812-F |
| A17R39 | 0698-7264 | 1 | | RESISTOR 14.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1472-F |
| A17R40 | 0698-7213 | 0 | | RESISTOR 110 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-110R-F |
| A17R41 | 0811-3470 | 5 | 2 | RESISTOR .1 3% 3W PW TC=0+-90 | 28480 | 0811-3470 |
| A17R42 | 0698-7205 | 0 | | RESISTOR 51.1 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-51R1-F |
| A17R43 | 0698-3389 | 3 | 1 | RESISTOR 17.8 1% .5W F TC=0+-100 | 28480 | 0698-3389 |
| A17R44 | 0698-7228 | 7 | | RESISTOR 464 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-464R-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------------|----------------|-----|-----|-----------------------------------------|----------|-------------------|
| A17R45 | 0698-7248 | 1 | | RESISTOR 3.16K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3161-F |
| A17R46 | | | | NOT ASSIGNED | | |
| A17R47 | 0698-3453 | 2 | | RESISTOR 196K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1963-F |
| A17R48 | 0698-7264 | 1 | | RESISTOR 14.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1472-F |
| A17R49 | 0698-7216 | 3 | | RESISTOR 147 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-147R-F |
| A17R50 | 0811-3511 | 5 | 1 | RESISTOR .01 1% 2W PWW TC=0+-150 | 28480 | 0811-3511 |
| A17R51 | 0757-1001 | 8 | 1 | RESISTOR 56.2 1% .5W F TC=0+-100 | 28480 | 0757-1001 |
| A17R52 | 0698-3440 | 7 | | RESISTOR 196 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-196R-F |
| A17R53 | 2100-3123 | 0 | 2 | RESISTOR-TRMR 500 10% C SIDE-ADJ 17-TRN | 02111 | 43P501 |
| A17R54 | 0699-1305 | 1 | 2 | RESISTOR 10.2K .1% .1W F TC=0+-5 | 28480 | 0699-1305 |
| A17R55 | 0698-7203 | 8 | | RESISTOR 42.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-42R2-F |
| A17R56 | 0757-0400 | 9 | 1 | RESISTOR 90.9 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-90R9-F |
| A17R57 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A17R58 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A17R59 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A17R60 | 0698-3453 | 2 | | RESISTOR 196K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1963-F |
| A17R61 | 0698-7264 | 1 | | RESISTOR 14.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1472-F |
| A17R62 | 0698-7228 | 7 | | RESISTOR 464 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-464R-F |
| A17R63 | 0811-3470 | 5 | | RESISTOR .1 3% 3W PW TC=0+-90 | 28480 | 0811-3470 |
| A17R64 | 0698-7521 | 3 | 1 | RESISTOR 5.1 5% .25W F TC=0+-100 | 11502 | TF07-1/4-T0-5R1-J |
| A17R65 | 0698-7276 | 5 | | RESISTOR 46.4K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4642-F |
| A17R66 | 2100-3123 | 0 | | RESISTOR-TRMR 500 10% C SIDE-ADJ 17-TRN | 02111 | 43P501 |
| A17R67 | 0699-1305 | 1 | | RESISTOR 10.2K .1% .1W F TC=0+-5 | 28480 | 0699-1305 |
| A17R68 | 0698-7203 | 8 | | RESISTOR 42.2 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-42R2-F |
| A17R69 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A17R70 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A17R71 | 0698-7238 | 9 | | RESISTOR 1.21K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1211-F |
| A17R72 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A17R73 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A17R74 | 0757-0984 | 4 | 1 | RESISTOR 10 1% .5W F TC=0+-100 | 28480 | 0757-0984 |
| A17R75 | 0699-1306 | 2 | 1 | RESISTOR 42.2K .1% .1W F TC=0+-5 | 28480 | 0699-1306 |
| A17R76 | 2100-3095 | 5 | | RESISTOR-TRMR 200 10% C SIDE-ADJ 17-TRN | 02111 | 43P201 |
| A17R77 | 0699-1476 | 7 | 1 | RESISTOR 6K .1% .1W F TC=0+-5 | 28480 | 0699-1476 |
| A17R78 | 0698-7272 | 1 | | RESISTOR 31.6K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3162-F |
| A17R79 | 0757-0729 | 5 | 1 | RESISTOR 681 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-681R-F |
| A17R80 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A17R81 | 0699-1307 | 3 | 2 | RESISTOR 1.96K .1% .1W F TC=0+-5 | 28480 | 0699-1307 |
| A17R82 | 0699-1307 | 3 | | RESISTOR 1.96K .1% .1W F TC=0+-5 | 28480 | 0699-1307 |
| A17R83 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| 2427A TO 2531A A17R84 | | | | NOT ASSIGNED | | |
| 2533A AND ABOVE A17R84 | 0698-7236 | 7 | | RESISTOR 1K 1% F TC=0+-100 | 28480 | C3-1/8-T0-1001-F |
| 2427A TO 2647A A17R85-R100 | | | | NOT ASSIGNED | | |
| 2709A AND ABOVE A17R85 | 0698-7228 | 7 | | RESISTOR 464 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-464R-F |
| A17R86 | 0698-7228 | 7 | | RESISTOR 464 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-464R-F |
| A17R87 | 0698-7228 | 7 | | RESISTOR 464 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-464R-F |
| A17R88 | 0698-7228 | 7 | | RESISTOR 464 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-464R-F |
| A17R89 | 0698-7228 | 7 | | RESISTOR 464 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-464R-F |
| A17R90-R100 | | | | NOT ASSIGNED | | |
| A17R101 | 0698-3449 | 6 | | RESISTOR 28.7K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2872-F |
| A17R102 | 0757-0460 | 1 | 1 | RESISTOR 61.9K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-6192-F |
| A17R103 | 0757-0464 | 5 | 1 | RESISTOR 90.9K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-9092-F |
| A17R104 | 0698-3243 | 8 | 1 | RESISTOR 178K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1783-F |
| A17R105 | 0757-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A17R106 | 0757-0438 | 3 | | RESISTOR 5.11K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-5111-F |
| A17R107 | 0698-0442 | 9 | | RESISTOR 10K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1002-F |
| A17R108 | 0698-0083 | 8 | | RESISTOR 1.96K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1961-F |
| A17R109 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A17R110 | | | | NOT ASSIGNED | | |
| A17R111 | | | | NOT ASSIGNED | | |
| A17R112 | 0698-8958 | 2 | | RESISTOR 511K 1% .125W F TC=0+-100 | 28480 | 0698-8958 |
| 2427A TO 2507A A17R113 | 0698-3161 | 9 | 1 | RESISTOR 38.3K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-3832-F |
| A17R114 | 0757-0461 | 2 | 1 | RESISTOR 68.1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-6812-F |
| 2509A AND ABOVE A17R113 | 0757-0459 | 8 | 1 | RESISTOR 56.2K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-5622-F |
| A17R114 | 0757-0463 | 4 | 1 | RESISTOR 82.5K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-8252-F |
| A17R115 | 0757-0462 | 3 | | RESISTOR 75K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-7502-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|----------------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| 2427A TO 2507A A17R116 | 0757-0463 | 4 | 1 | RESISTOR 82.5K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-8252-F |
| 2509A AND ABOVE A17R116 | 0757-0459 | 8 | | RESISTOR 56.2K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-5622-F |
| A17R117 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A17R118 | 0757-0280 | 3 | | RESISTOR 1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1001-F |
| A17TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A17TP2 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A17TP3 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A17TP4 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A17TP5 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A17TP6 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| 2427A TO 2709A A17U1 | 1826-0989 | 7 | | IC OP AMP GP 8-DIP-C PKG | 28480 | 1826-0989 |
| A17U2 | 1826-0989 | 8 | | IC OP AMP GP 8-DIP-C PKG | 28480 | 1826-0989 |
| 2808A AND ABOVE A17U1 | 1826-0043 | 4 | | IC OP AMP GP T0-99 PKG | 3L585 | CA307T |
| A17U2 | 1826-0043 | 4 | | IC OP AMP GP T0-99 PKG | 3L585 | CA307T |
| A17U3 | 1826-0323 | 3 | 2 | IC OP AMP GP QUAD 14-DIP-C PKG | 28480 | 1826-0323 |
| A17U4 | 1826-0323 | 3 | | IC OP AMP GP QUAD 14-DIP-C PKG | 28480 | 1826-0323 |
| A17U5-U100 | | | | NOT ASSIGNED | | |
| A17U101 | 1820-1199 | 1 | 2 | IC INV TTL LS HEX 1-INP | 01295 | SN74LS04N |
| A17U102 | 1820-1199 | 1 | | IC INV TTL LS HEX 1-INP | 01295 | SN74LS04N |
| A17U104 | 1820-2686 | 3 | 5 | IC GATE TTL F AND QUAD 2-INP | 07263 | 74F08PC |
| A17U105 | 1820-2686 | 3 | | IC GATE TTL F AND QUAD 2-INP | 07263 | 74F08PC |
| A17U106 | 1820-2686 | 3 | | IC GATE TTL F AND QUAD 2-INP | 07263 | 74F08PC |
| A17U107 | 1820-2686 | 3 | | IC GATE TTL F AND QUAD 2-INP | 07263 | 74F08PC |
| A17U108 | | | | NOT ASSIGNED | | |
| A17U109 | | | | NOT ASSIGNED | | |
| A17U110 | 1820-2111 | 9 | 4 | IC DRVR TTL INV | 01295 | SN75468N |
| A17U111 | 1820-2111 | 9 | | IC DRVR TTL INV | 01295 | SN75468N |
| A17U112 | 1820-2111 | 9 | | IC DRVR TTL INV | 01295 | SN75468N |
| A17U113 | 1820-2111 | 9 | | IC DRVR TTL INV | 01295 | SN75468N |
| A17U114 | 1820-1437 | 0 | | IC MV TTL LS MONOSTBL DUAL | 01295 | SN74LS221N |
| A17U115 | 1820-1437 | 0 | | IC MV TTL LS MONOSTBL DUAL | 01295 | SN74LS221N |
| A17U116 | 1820-2686 | 3 | | IC GATE TTL F AND QUAD 2-INP | 07263 | 74F08PC |
| A17U117 | 1820-2273 | 4 | | IC DRVR TTL OCTL | 13606 | UDN2981A |
| A17U118 | 1826-0026 | 3 | | IC COMPARATOR PRCN T0-99 PKG | 01295 | LM311L |
| A17U119 | 1820-1212 | 9 | | IC FF TTL LS J-K NEG-EDGE-TRIG | 01295 | SN74LS112AN |
| A17U120 | 1820-1144 | 6 | | IC GATE TTL LS NOR QUAD 2-INP | 01295 | SN74LS02N |
| A17U121 | 1820-1437 | 0 | | IC MV TTL LS MONOSTBL DUAL | 01295 | SN74LS221N |
| A17VR1 | 1902-0963 | 9 | 2 | DIODE-ZNR 16V 5% D0-35 PD=.4W TC=+.088% | 28480 | 1902-0963 |
| A17VR2 | 1902-0960 | 6 | 2 | DIODE-ZNR 12V 5% D0-35 PD=.4W TC=+.077% | 28480 | 1902-0960 |
| A17VR3 | 1902-0692 | 1 | | DIODE-ZNR 6.3V 1% D0-7 PD=.4W TC=+.001% | 28480 | 1902-0692 |
| A17VR4 | 1902-0963 | 9 | | DIODE-ZNR 16V 5% D0-35 PD=.4W TC=+.088% | 28480 | 1902-0963 |
| A17VR5 | 1902-0960 | 6 | | DIODE-ZNR 12V 5% D0-35 PD=.4W TC=+.077% | 28480 | 1902-0960 |
| A17VR6 | 1902-0692 | 1 | | DIODE-ZNR 6.3V 1% D0-7 PD=.4W TC=+.001% | 28480 | 1902-0692 |
| A17VR7 | 1902-0952 | 6 | 2 | DIODE-ZNR 5.6V 5% D0-35 PD=.4W TC=+.046% | 28480 | 1902-0952 |
| A17VR8 | 1902-0943 | 5 | | DIODE-ZNR 2.4V 5% D0-35 PD=.4W TC=-.037% | 28480 | 1902-0943 |
| A17VR9 | 1902-0952 | 6 | | DIODE-ZNR 5.6V 5% D0-35 PD=.4W TC=+.046% | 28480 | 1902-0952 |
| A17VR10 | 1902-0943 | 5 | | DIODE-ZNR 2.4V 5% D0-35 PD=.4W TC=-.037% | 28480 | 1902-0943 |
| A17VR11 | 1902-3333 | 3 | 1 | DIODE-ZNR 46.4V 5% D0-35 PD=.4W | 28480 | 1902-3333 |
| A17VR12 | 1902-3357 | 1 | 1 | DIODE-ZNR 56.2V 5% D0-7 PD=.4W TC=+.081% | 28480 | 1902-3357 |
| A17VR101 | 1902-0953 | 7 | | DIODE-ZNR 6.2V 5% D0-35 PD=.4W TC=+.053% | 28480 | 1902-0953 |
| A17VR102 | 1902-1412 | 5 | 1 | DIODE-ZNR 39V 5% D0-35 PD=.4W TC=+.113% | 28480 | 1902-1412 |
| A17W1 | 1251-4670 | 2 | | CONNECTOR 3-PIN M POST TYPE | 28480 | 1251-4670 |
| | 1258-0209 | 9 | 5 | JUMPER-REMOVABLE 2 POSITION; .200 IN | 28480 | 1258-0209 |
| A17W2 | 1251-5380 | 3 | 2 | CONNECTOR 2-PIN M POST TYPE | 28480 | 1251-5380 |
| | 1258-0209 | 9 | | JUMPER-REMOVABLE 2 POSITION; .200 IN | 28480 | 1258-0209 |
| A17W3 | 1251-5380 | 3 | | CONNECTOR 2-PIN M POST TYPE | 28480 | 1251-5380 |
| | 1258-0209 | 9 | | JUMPER-REMOVABLE 2 POSITION; .200 IN | 28480 | 1258-0209 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|---------------------------------------------------|----------|----------------------|
| A18 | | | | | | |
| A18 | 08642-60844 | 4 | 1 | POWER SUPPLY RECTIFIER/FILTER MODULE | 28480 | 08642-60844 |
| A18 | 08642-69844 | 2 | 1 | POWER SUPPLY RECTIFIERS/FILTERS MODULE (RESTORED) | 28480 | 08642-69844 |
| A18C1 | 0180-2969 | 6 | 1 | CAPACITOR-FXD .02F+75-10% 40VDC AL | 56289 | 36DX203G040BC2A |
| | 2190-0011 | 8 | 5 | WASHER-LK INTL T NO. 10 .195-IN-ID | 28480 | 2190-0011 |
| | 2680-0129 | 8 | 10 | SCREW-MACH 10-32 .312-IN-LG PAN-HD-POZI | 00000 | ORDER BY DESCRIPTION |
| A18C2 | 0180-3042 | 8 | 1 | CAPACITOR-FXD .012F+75-10% 40VDC AL | 28480 | 0180-3042 |
| | 2190-0011 | 8 | | WASHER-LK INTL T NO. 10 .195-IN-ID | 28480 | 2190-0011 |
| | 2680-0129 | 8 | | SCREW-MACH 10-32 .312-IN-LG PAN-HD-POZI | 00000 | ORDER BY DESCRIPTION |
| A18C3 | 0180-3017 | 7 | 1 | CAPACITOR-FXD .045F+75-10% 25VDC AL | 28480 | 0180-3017 |
| | 2190-0011 | 8 | | WASHER-LK INTL T NO. 10 .195-IN-ID | 28480 | 2190-0011 |
| | 2680-0129 | 8 | | SCREW-MACH 10-32 .312-IN-LG PAN-HD-POZI | 00000 | ORDER BY DESCRIPTION |
| A18C4 | 0180-2671 | 7 | 1 | CAPACITOR-FXD .012F+75-10% 30VDC AL | 00853 | 500123U030AC2A |
| | 2190-0011 | 8 | | WASHER-LK INTL T NO. 10 .195-IN-ID | 28480 | 2190-0011 |
| | 2680-0129 | 8 | | SCREW-MACH 10-32 .312-IN-LG PAN-HD-POZI | 00000 | ORDER BY DESCRIPTION |
| A18C5 | 0180-2316 | 7 | 1 | CAPACITOR-FXD 900UF+50-10% 100VDC AL | 28480 | 0180-2316 |
| | 2190-0011 | 8 | | WASHER-LK INTL T NO. 10 .195-IN-ID | 28480 | 2190-0011 |
| | 2680-0129 | 8 | | SCREW-MACH 10-32 .312-IN-LG PAN-HD-POZI | 00000 | ORDER BY DESCRIPTION |
| A18C6 | 0160-5559 | 4 | 2 | CAPACITOR-FXD .82UF +-5% 100VDC | 28480 | 0160-5559 |
| A18C7 | 0160-5559 | 4 | | CAPACITOR-FXD .82UF +-5% 100VDC | 28480 | 0160-5559 |
| A18C8 | 0180-0291 | 3 | | CAPACITOR-FXD 1UF+-10% 35VDC TA | 56289 | 150D105X9035A2 |
| A18C9 | 0180-0291 | 3 | | CAPACITOR-FXD 1UF+-10% 35VDC TA | 56289 | 150D105X9035A2 |
| A18CR1 | 1906-0231 | 2 | 2 | DIODE-CT-RECT 200V 15A | 28480 | 1906-0231 |
| | 0515-1084 | 5 | 4 | SCREW-MACH M3 X 0.5 12MM-LG PAN-HD | 28480 | 0515-1084 |
| | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| | 1200-0043 | 8 | | INSULATOR-XSTR ALUMINUM | 28480 | 1200-0043 |
| | 1200-0081 | 4 | | INSULATOR-FLG-BSHG NYLON | 28480 | 1200-0081 |
| | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| | 08642-00038 | 2 | 3 | HEAT SINK RECTI | 28480 | 08642-00038 |
| A18CR2 | 1901-0418 | 7 | 4 | DIODE-PWR RECT 400V 1.5A | 28480 | 1901-0418 |
| A18CR3 | 1901-0418 | 7 | | DIODE-PWR RECT 400V 1.5A | 28480 | 1901-0418 |
| A18CR4 | 1906-0231 | 2 | | DIODE-CT-RECT 200V 15A | 28480 | 1906-0231 |
| | 0515-1084 | 5 | | SCREW-MACH M3 X 0.5 12MM-LG PAN-HD | 28480 | 0515-1084 |
| | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| | 1200-0043 | 8 | | INSULATOR-XSTR ALUMINUM | 28480 | 1200-0043 |
| | 1200-0081 | 4 | | INSULATOR-FLG-BSHG NYLON | 28480 | 1200-0081 |
| | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| | 08642-00038 | 2 | | HEAT SINK RECTI | 28480 | 08642-00038 |
| A18CR5 | 1901-0418 | 7 | | DIODE-PWR RECT 400V 1.5A | 28480 | 1901-0418 |
| A18CR6 | 1901-0418 | 7 | | DIODE-PWR RECT 400V 1.5A | 28480 | 1901-0418 |
| A18CR7 | 1901-0028 | 5 | | DIODE-PWR RECT 400V 750MA DO-29 | 28480 | 1901-0028 |
| A18CR8 | 1901-0028 | 5 | | DIODE-PWR RECT 400V 750MA DO-29 | 28480 | 1901-0028 |
| A18CR9 | 1901-0028 | 5 | | DIODE-PWR RECT 400V 750MA DO-29 | 28480 | 1901-0028 |
| A18CR10 | 1901-0028 | 5 | | DIODE-PWR RECT 400V 750MA DO-29 | 28480 | 1901-0028 |
| A18CR11 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A18CR12 | 1901-0028 | 5 | | DIODE-PWR RECT 400V 750MA DO-29 | 28480 | 1901-0028 |
| A18F1 | 2110-0010 | 9 | 1 | FUSE 5A 250V NTD 1.25X.25 UL | 75915 | 312005 |
| | 2110-0643 | 4 | 5 | FUSEHOLDER-CLIP TYPE 15A 250 V | 28480 | 2110-0643 |
| <i>2427A TO 2734A</i> | | | | | | |
| <i>A18F2</i> | 2110-0002 | 9 | 2 | FUSE 2A 250V NTD 1.25X.25 UL | 75915 | 312005 |
| <i>2738A AND ABOVE</i> | | | | | | |
| <i>A18F2</i> | 2110-0303 | 3 | 1 | FUSE 2A 250V TD 1.25X.25 UL | 28480 | 2110-0303 |
| | 2110-0643 | 4 | | FUSEHOLDER-CLIP TYPE 15A 250 V | 28480 | 2110-0643 |
| A18F3 | 2110-0036 | 9 | 1 | FUSE 8A 125V NTD 1.25X.25 UL | 75915 | 312008 |
| | 2110-0643 | 4 | | FUSEHOLDER-CLIP TYPE 15A 250 V | 28480 | 2110-0643 |
| A18F4 | 2110-0002 | 9 | | FUSE 2A 250V NTD 1.25X.25 UL | 75915 | 312002 |
| | 2110-0643 | 4 | | FUSEHOLDER-CLIP TYPE 15A 250 V | 28480 | 2110-0643 |
| A18F5 | 2110-0004 | 1 | 1 | FUSE .25A 250V NTD 1.25X.25 UL | 28480 | 2110-0004 |
| | 2110-0643 | 4 | | FUSEHOLDER-CLIP TYPE 15A 250 V | 28480 | 2110-0643 |
| A18J1 | 1251-5256 | 2 | 1 | CONNECTOR 9-PIN M POST TYPE | 28480 | 1251-5256 |
| A18J2 | 1251-5170 | 9 | 1 | CONNECTOR 2-PIN M POST TYPE | 28480 | 1251-5170 |
| A18J3 | 1251-6732 | 1 | 1 | CONNECTOR 14-PIN M POST TYPE | 28480 | 1251-6732 |
| A18J4 | 1251-4969 | 2 | 1 | CONNECTOR 4-PIN M POST TYPE | 28480 | 1251-4969 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| A18K1 | 0490-1427 | 6 | 1 | RELAY 2C 24VDC-COIL 7.5A 120VAC | 28480 | 0490-1427 |
| A18MP1 | | | | NOT ASSIGNED | | |
| A18MP2 | 08642-00115 | 6 | 1 | FOAM - 6.4 BFC | 28480 | 08642-00115 |
| A18MP3 | 08642-00131 | 6 | 1 | FOAM - 1.6 BFC | 28480 | 08642-00131 |
| A18Q1 | 1884-0276 | 7 | 1 | THYRISTOR-TRIAC TO-220AB | 28480 | 1884-0276 |
| | 0515-0655 | 4 | | SCREW-MACH M3 X 0.5 8MM-LG PAN-HD | 00000 | ORDER BY DESCRIPTION |
| | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| A18R1 | 0757-0401 | 0 | | RESISTOR 100 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-101-F |
| A18R2 | 0757-1078 | 9 | | RESISTOR 1.47K 1% .5W F TC=0+-100 | 28480 | 0757-1078 |
| A18R3 | 0698-4636 | 5 | 1 | RESISTOR 2.61K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-2611-F |
| A18R4 | 0757-0730 | 8 | | RESISTOR 750 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-751-F |
| A18R5 | 0698-3150 | 6 | | RESISTOR 2.37K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-2371-F |
| A18R6 | 0698-4727 | 5 | 1 | RESISTOR 21.5K 1% .25W F TC=0+-100 | 24546 | C5-1/4-T0-2152-F |
| A18R7 | 0698-7214 | 1 | 1 | RESISTOR 121 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-121R-F |
| A18R8 | 0757-0274 | 5 | | RESISTOR 1.21K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-1211-F |
| A18U1 | 1826-0523 | 5 | 1 | IC 337 V RGLTR TO-3 | 27014 | LM337K |
| | 0515-1084 | 5 | | SCREW-MACH M3 X 0.5 12MM-LG PAN-HD | 28480 | 0515-1084 |
| | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| | 1200-0043 | 8 | | INSULATOR-XSTR ALUMINUM | 28480 | 1200-0043 |
| | 1200-0081 | 4 | | INSULATOR-FLG-BSHG NYLON | 28480 | 1200-0081 |
| | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| | 08642-00038 | 2 | | HEAT SINK RECTI | 28480 | 08642-00038 |
| A18VR1 | 1902-3381 | 1 | 2 | DIODE-ZNR 68.1V 5% DO-7 PD=.4W TC=+.079% | 28480 | 1902-3381 |
| A18VR2 | 1902-3381 | 1 | | DIODE-ZNR 68.1V 5% DO-7 PD=.4W TC=+.079% | 28480 | 1902-3381 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | Hr Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|----------------------------------------------------------------------------|----------|----------------------|
| A19 | | | | | | |
| A19 | 08642-60845 | 5 | 1 | DOUBLER/ATTENUATOR MODULE (8642B ONLY) | 28480 | 08642-60845 |
| A19 | 08642-6984 | 3 | 1 | DOUBLER/ATTENUATOR MODULE (8642B ONLY) (REWORKED) | 28480 | 08642-69845 |
| 2427A TO 2708A | | | | | | |
| A19AT1 | 08642-60962 | 7 | 1 | 70 DB ATTENUATOR | 28480 | 08642-60962 |
| A19AT2 | 08642-60963 | 8 | 1 | 75 DB ATTENUATOR | 28480 | 08642-60963 |
| 2709A AND ABOVE | | | | | | |
| A19AT1 | 08642-60291 | 5 | 1 | 70 DB ATTENUATOR | 28480 | 08642-60291 |
| A19AT2 | 08642-60292 | 6 | 1 | 75 DB ATTENUATOR | 28480 | 08642-60292 |
| 2427A TO 2450A | | | | | | |
| A19FL1 | 08642-80013 | 1 | | FLTR LP 3M BKT | 28480 | 08642-80013 |
| 2708A AND ABOVE | | | | | | |
| A19FL1 | 08642-80094 | 8 | | FLTR ASSY 10 PIN | 28480 | 08642-80094 |
| A19K1 | 3106-0030 | 5 | 2 | RELAY-COAXIAL LATCHING SPDT; FREQ RANGE | 28480 | 3106-0030 |
| A19K2 | 3106-0030 | 5 | | RELAY-COAXIAL LATCHING SPDT; FREQ RANGE | 28480 | 3106-0030 |
| A19MP1 | 2200-0109 | 8 | 2 | SCREW-MACH 4-40 .438-IN-LG PAN-HD-POZI (ATTACH AT1, AT2 BOTTOM TO BASE) | 00000 | ORDER BY DESCRIPTION |
| A19MP2 | 2200-0103 | 2 | 2 | SCREW-MACH 4-40 .25-IN-LG PAN-HD-POZI (ATTACH AT1, AT2 TOP TO BASE) | 28480 | 2200-0103 |
| A19MP3 | 08642-20024 | 8 | 1 | COVER DOUBLER CONTROL | 28480 | 08642-20024 |
| A19MP4 | 08642-40059 | 1 | | GASKET FEEDTHRU | 28480 | 08642-40059 |
| A19MP5 | 0515-1142 | 6 | 2 | SCREW-MACH M4 X 0.7 8MM-LG PAN-HD (ATTACH A19A1 TO BASE) | 28480 | 0515-1142 |
| A19MP6 | 0515-0381 | 3 | | SCREW-MACH M4 X 0.7 10MM-LG PAN-HD (ATTACH COVER, A19A2, A19A3 TO BASE) | 00000 | ORDER BY DESCRIPTION |
| A19MP7 | 08642-40025 | 1 | 1 | COVER DOUBLER RPP | 28480 | 08642-40025 |
| A19MP8 | 08642-40052 | 4 | | GASKET FD/THRU 2 | 28480 | 08642-40052 |
| A19MP9 | 08642-20026 | 0 | 1 | BASE DOUBLER | 28480 | 08642-20026 |
| A19MP10 | 08642-00002 | 0 | | GASKET 10 P FLTR | 28480 | 08642-00002 |
| A19MP11 | 0515-1521 | 5 | | SCREW-MACH M3 X 0.5 5MM-LG 90-DEG-FLH-HD (ATTACH FILTER TO BASE) | 28480 | 0515-1521 |
| A19MP12 | 0515-1143 | 7 | 2 | SCREW-MACH M4 X 0.7 16MM-LG PAN-HD (ATTACH A19A3 TO BASE) | 28480 | 0515-1143 |
| A19MP13 | 08642-20027 | 1 | 1 | COVER DOUBLER ALC | 28480 | 08642-20027 |
| A19MP14 | 3050-0891 | 7 | | WASHER-FL MTL C 3.0 MM 3.3-MM-ID (FOR A19K1, A19K2 TO BASE) | 28480 | 3050-0891 |
| A19MP15 | 0515-0682 | 7 | 4 | SCREW-MACH M3 X 0.5 18MM-LG PAN-HD (ATTACH A19K1, A19K2 TO BASE) | 28480 | 0515-0682 |
| A19MP16 | 8160-0472 | 8 | | RFI ROUND STRIP BE-CU SN-PL .093-IN-OD (SPIRA SHIELD) | 28480 | 8160-0472 |
| A19MP17 | 08642-00049 | 5 | | SLIDE-MDL 469R56 (FRONT) | 28480 | 08642-00049 |
| A19MP18 | 08642-00052 | 0 | | SLIDE-MODULE R89 (REAR) | 28480 | 08642-00052 |
| A19MP19 | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH MODULE SLIDE TO BASE) | 28480 | 0515-1102 |
| A19MP20 | 08642-80072 | 2 | 1 | LABEL-DBLR 60009 | 28480 | 08642-80072 |
| 2427A TO 2735A | | | | | | |
| A19MP21 | | | | NOT ASSIGNED | | |
| 2748A AND ABOVE | | | | | | |
| A19MP21 | 86701-00017 | 3 | 2 | DISK FAN SHIELD | 28480 | 86701-00017 |
| A19W1 | 08642-20055 | 5 | 1 | CABLE SR SW2-SW3 (A19K1J1 TO A19K2J1) | 28480 | 08642-20055 |
| A19W2 | 08642-20056 | 6 | 1 | CABLE SR SW3-A70 (A19K2J2 TO A19AT1J1) | 28480 | 08642-20056 |
| A19W3 | 08642-20053 | 3 | 1 | CABLE SR SW2-X2 (A19K1J3 TO A19A3J1) | 28480 | 08642-20053 |
| A19W4 | 08642-20046 | 4 | 1 | CABLE SR X2-SW3 (K2J3 TO U2J2) | 28480 | 08642-20046 |
| A19W5 | 08642-20057 | 7 | 1 | CABLE SR A70-A75 (A19AT1J2 TO A19AT2J2) | 28480 | 08642-20057 |
| A19W6 | 08642-20047 | 5 | 1 | CABLE SR A75-RPP (A19AT2J1 TO A19A2J1) | 28480 | 08642-20047 |
| A19W7 | 08642-60074 | 2 | 1 | CBL AY RIBN SJLH (K1, K2 TO A19A1J4) | 28480 | 08642-60074 |
| A19W8 | | | | RTBBON CABLE (A19AT1/AT2 TO A19A1J1) (NOT SEPARATELY REPLACEABLE) | | |

See introductory section for ordering information

* Indicates factory selected value

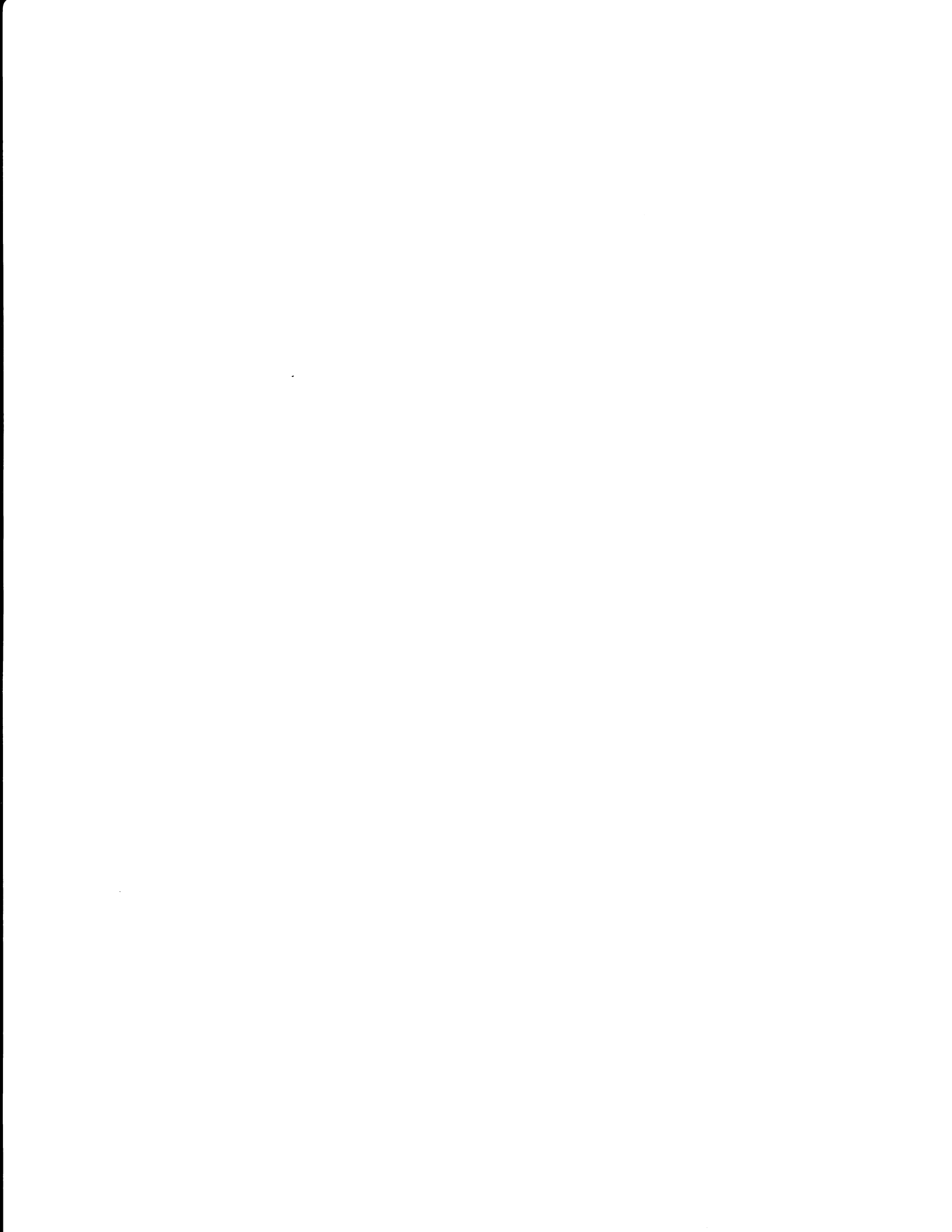


Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------|----------------|-----|-----|------------------------------------------|----------|-----------------|
| 2427A TO 2516A A19A1 | 08642-60118 | 5 | 1 | DOUBLER CONTROL ASSEMBLY | 28480 | 08642-60118 |
| 2517A TO 2637A A19A1 | 08642-60218 | 6 | 1 | DOUBLER CONTROL ASSEMBLY | 28480 | 08642-60218 |
| 2640A AND ABOVE A19A1 | 08642-60318 | 7 | 1 | DOUBLER CONTROL ASSEMBLY | 28480 | 08642-60318 |
| A19A1C1 | 0180-2853 | 7 | 1 | CAPACITOR-FXD 10UF+-20% 100VDC TA | 56289 | 109D106X0100C2 |
| A19A1C2 | 0180-0116 | 1 | | CAPACITOR-FXD 6.8UF+-10% 35VDC TA | 56289 | 150D685X9035B2 |
| A19A1C3 | 0180-0116 | 1 | | CAPACITOR-FXD 6.8UF+-10% 35VDC TA | 56289 | 150D685X9035B2 |
| A19A1C4 | 0180-2620 | 6 | | CAPACITOR-FXD 2.2UF+-10% 50VDC TA | 25088 | D2R2GS1B50K |
| A19A1C5 | 0180-2620 | 6 | | CAPACITOR-FXD 2.2UF+-10% 50VDC TA | 25088 | D2R2GS1B50K |
| A19A1C6 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A19A1C7 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A19A1C8 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A19A1C9 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A19A1C10 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A19A1C11 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A19A1C12 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| 2427A TO 2637A A19A1C13 | 0160-4791 | 4 | | CAPACITOR-FXD 10PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4791 |
| 2640A AND ABOVE A19A1C13 | | | | NOT ASSIGNED | | |
| A19A1C14 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A19A1C15 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| 2427A TO 2516A A19A1C16 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| 2517A AND ABOVE A19A1C16 | 0160-4834 | 6 | | CAPACITOR-FXD .047UF +-10% 100VDC CER | 28480 | 0160-4834 |
| A19A1C17 | 0160-4835 | 7 | | NOT ASSIGNED | 28480 | 0160-4835 |
| A19A1C18 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A19A1C19 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A19A1C20 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A19A1C21 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A19A1C22 | 0160-3324 | 7 | | CAPACITOR-FXD 1UF +-5% 100VDC MET-POLYC | 28480 | 0160-3324 |
| A19A1C23 | 0160-4371 | 6 | | CAPACITOR-FXD 680PF +-5% 100VDC CER | 28480 | 0160-4371 |
| A19A1C24 | 0160-4788 | 9 | 1 | CAPACITOR-FXD 18PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4788 |
| A19A1C25 | 0160-4807 | 3 | 1 | CAPACITOR-FXD 33PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4807 |
| A19A1C26 | 0160-4519 | 4 | 1 | CAPACITOR-FXD 9.1PF +- .5PF 200VDC CER | 28480 | 0160-4519 |
| A19A1C27 | 0180-0491 | 5 | | CAPACITOR-FXD 10UF+-20% 25VDC TA | 28480 | 0180-0491 |
| A19A1C28 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A19A1C29 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| 2427A TO 2516A A19A1C30 | | | | NOT ASSIGNED | | |
| A19A1C31 | | | | NOT ASSIGNED | | |
| A19A1C32 | | | | NOT ASSIGNED | | |
| A19A1C33 | | | | NOT ASSIGNED | | |
| 2517A AND ABOVE A19A1C30 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A19A1C31 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A19A1C32 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A19A1C33 | 0160-3879 | 7 | | CAPACITOR-FXD .01UF +-20% 100VDC CER | 28480 | 0160-3879 |
| A19A1CR1 | 1901-0518 | 8 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0518 |
| A19A1CR2 | 1901-0518 | 8 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0518 |
| A19A1CR3 | | | | NOT ASSIGNED | | |
| A19A1CR4 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A19A1CR5 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A19A1CR6 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A19A1CR7 | | | | NOT ASSIGNED | | |
| A19A1CR8 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A19A1CR9 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A19A1CR10 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A19A1CR11 | 1901-0050 | 3 | | DIODE-SWITCHING 80V 200MA 2NS DO-35 | 28480 | 1901-0050 |
| A19A1FL1 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A19A1FL2 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A19A1FL3 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A19A1FL4 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A19A1FL5 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A19A1FL6 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A19A1FL7 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A19A1FL8 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A19A1FL9 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number | | |
|-----------------------------------------------------------|--------------------------|-----|-----|------------------------------------------|----------|------------------|-------|-------------|
| A19A1J1 | 1251-8813 | 3 | 1 | CONN-POST TYPE .100-PIN-SPCG 14-CONT | 28480 | 1251-8813 | | |
| A19A1J2 | 1251-8601 | 7 | | CONN-POST TYPE .100-PIN-SPCG 34-CONT | 28480 | 1251-8601 | | |
| | 1251-5595 | 2 | | POLARIZING KEY-POST CONN | 28480 | 1251-5595 | | |
| A19A1J3 | 1251-8947 | 4 | 1 | PRINTED CIRCUIT PADS | 28480 | 1251-8947 | | |
| A19A1J4 | | | | | | | | |
| A19A1J5 | 1250-2090 08642-20081 | 4 | 40 | NOT ASSIGNED | 28480 | 1250-2090 | | |
| A19A1J6 | | | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | | | 28480 | 08642-20081 |
| A19A1J7 | | | | ELSTMR COND SMC | | | 28480 | 1251-8759 |
| | 1251-8759 | 6 | | CONN-POST TYPE .100-PIN-SPCG 11-CONT | 28480 | | | |
| A19A1L1 | 9100-1621 | 6 | | INDUCTOR RF-CH-MLD 18UH 10% .166DX.385LG | 28480 | 9100-1621 | | |
| A19A1L2 | 9140-0105 | 3 | | INDUCTOR RF-CH-MLD 8.2UH 10% | 28480 | 9140-0105 | | |
| 2427A TO 2516A A19A1Q1 2517A AND ABOVE A19A1Q1 | 1855-0420 | 2 | | TRANSISTOR J-FET 2N4391 N-CHAN D-MODE | 01295 | 2N4391 | | |
| | | | | NOT ASSIGNED | | | | |
| A19A1Q2 | 1855-0420 | 2 | | TRANSISTOR J-FET 2N4391 N-CHAN D-MODE | 01295 | 2N4391 | | |
| A19A1Q3 | 1855-0420 | 2 | | TRANSISTOR J-FET 2N4391 N-CHAN D-MODE | 01295 | 2N4391 | | |
| A19A1Q4 | 1853-0459 | 3 | | TRANSISTOR PNP SI PD=625MW FT=200MHZ | 28480 | 1853-0459 | | |
| A19A1Q5 | 1855-0560 | 1 | | TRANSISTOR MOSFET N-CHAN E-MODE T0-52 SI | 28480 | 1855-0560 | | |
| A19A1R1 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F | | |
| A19A1R2 | 0698-7219 | 6 | | RESISTOR 196 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-196R-F | | |
| A19A1R3 | 0698-7213 | 0 | | RESISTOR 110 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-110R-F | | |
| A19A1R4 | 0698-7226 | 5 | | RESISTOR 383 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-383R-F | | |
| A19A1R5 | | | | NOT ASSIGNED | | | | |
| A19A1R6 | | | | NOT ASSIGNED | | | | |
| 2427A TO 2720A A19A1R7 2721A AND ABOVE A19A1R7 | 2100-3286 | 6 | | RESISTOR-TRMR 10K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-103 | | |
| | 2100-3659 | 7 | | RESISTOR-TRMR 20K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-203 | | |
| A19A1R8 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3831-F | | |
| A19A1R9 | 0698-7257 | 2 | | RESISTOR 7.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-7501-F | | |
| A19A1R10 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F | | |
| A19A1R11 | 2100-3097 | 7 | | RESISTOR-TRMR 100K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-104 | | |
| A19A1R12 | 2100-3097 | 7 | | RESISTOR-TRMR 100K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-104 | | |
| A19A1R13 | 0698-7257 | 2 | | RESISTOR 7.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-7501-F | | |
| 2427A TO 2720 A19A1R14 2721A AND ABOVE A19A1R14 | 2100-3286 | 6 | | RESISTOR-TRMR 10K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-103 | | |
| | 2100-3659 | 7 | | RESISTOR-TRMR 20K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-203 | | |
| A19A1R15 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3831-F | | |
| A19A1R16 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F | | |
| A19A1R17-R20 | | | | NOT ASSIGNED | | | | |
| A19A1R21 | 0698-7276 | 5 | | RESISTOR 46.4K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4642-F | | |
| A19A1R22 | 0698-7246 | 9 | | RESISTOR 2.61K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2611-F | | |
| A19A1R23-R28 | | | | NOT ASSIGNED | | | | |
| A19A1R29 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F | | |
| 2427A TO 2516A A19A1R30 2517A AND ABOVE A19A1R30 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002 | | |
| | | | | NOT ASSIGNED | | | | |
| A19A1R31 | 0698-7250 | 5 | | RESISTOR 3.83K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-3831-F | | |
| A19A1R32 | 0698-7240 | 3 | | RESISTOR 1.47K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1471-F | | |
| A19A1R33 | | | | NOT ASSIGNED | | | | |
| A19A1R34 | 0698-7252 | 7 | | RESISTOR 4.64K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4641-F | | |
| A19A1R35 | | | | NOT ASSIGNED | | | | |
| A19A1R36 | | | | NOT ASSIGNED | | | | |
| A19A1R37 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F | | |
| A19A1R38 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F | | |
| A19A1R39 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F | | |
| A19A1R40 | 0698-7229 | 8 | | RESISTOR 511 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-511R-F | | |
| A19A1R41 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F | | |
| A19A1R42 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F | | |
| A19A1R43 | 0698-8625 | 0 | | RESISTOR 1K .1% .1W F TC=0+-100 | 28480 | 0698-8625 | | |
| A19A1R44 | 0699-0303 | 7 | | RESISTOR 1.33K 1% .1W F TC=0+-5 | 28480 | 0699-0303 | | |
| A19A1R45 | 0698-5457 | 0 | | RESISTOR 990 .1% .125W F TC=0+-50 | 24546 | C4-1/8-T0-990R-F | | |
| A19A1R46 | 0698-7247 | 0 | | RESISTOR 2.87K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2871-F | | |
| A19A1R47 | 0698-7247 | 0 | | RESISTOR 2.87K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2871-F | | |
| A19A1R48 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F | | |
| A19A1R49 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F | | |
| A19A1R50 | 0698-7244 | 7 | | RESISTOR 2.15K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2151-F | | |
| A19A1R51 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F | | |
| A19A1R52 | 0698-8827 | 4 | | RESISTOR 1M 1% .125W F TC=0+-100 | 28480 | 0698-8827 | | |
| A19A1R53 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F | | |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| A19A1R54-R76 | | | | NOT ASSIGNED | | |
| A19A1R77 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A19A1R78 | 0698-7212 | 9 | | RESISTOR 100 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-100R-F |
| A19A1R79 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A19A1R80 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A19A1R81 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A19A1R82 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A19A1R83 | 0698-8958 | 2 | | RESISTOR 511K 1% .125W F TC=0+-100 | 28480 | 0698-8958 |
| A19A1TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A19A1TP2 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A19A1U1 | 1820-1416 | 5 | | IC SCHMITT-TRIG TTL LS INV HEX 1-INP | 01295 | SN74LS14N |
| A19A1U2 | 1820-1433 | 6 | | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A19A1U3 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A19A1U4 | 1820-1433 | 6 | | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A19A1U5 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A19A1U6 | 1820-1433 | 6 | | IC SHF-RGTR TTL LS R-S SERIAL-IN PRL-OUT | 01295 | SN74LS164N |
| A19A1U7 | 1820-1858 | 9 | | IC FF TTL LS D-TYPE OCTL | 01295 | SN74LS377N |
| A19A1U8 | 1820-1212 | 9 | | IC FF TTL LS J-K NEG-EDGE-TRIG | 01295 | SN74LS112AN |
| A19A1U9 | 1826-0921 | 7 | | D/R 10-BIT 16-CBRZ/SDR CMOS | 28480 | 1826-0921 |
| A19A1U10 | 1826-0605 | 4 | | IC MULTIPLXR 8-CHAN-ANLG 16-DIP-C PKG | 17856 | DG508BK |
| 2427A TO 2516A A19A1U11 | 1826-0896 | 5 | | D/R 12-BIT 24-CBRZ/SDR BPLR | 28480 | 1826-0896 |
| 2517A AND ABOVE A19A1U11 | 1826-1013 | 0 | | D/1 12-1/2-BIT 24-DIP-C BPLR | 28480 | 1826-1013 |
| A19A1U12 | 1826-0783 | 9 | | IC OP AMP LOW-NOISE 8-DIP-C PKG | 52063 | XR5534ACN |
| A19A1U13 | 1826-0412 | 1 | | IC COMPARATOR PRCN DUAL 8-DIP-P PKG | 27014 | LM393N |
| A19A1U14 | 1826-0783 | 9 | | IC OP AMP LOW-NOISE 8-DIP-C PKG | 52063 | XR5534ACN |
| A19A1U15 | 1826-0716 | 8 | | IC OP AMP LOW-NOISE DUAL 8-DIP-C PKG | 18324 | NE5532AFE |
| A19A1U16 | 1826-0412 | 1 | | IC COMPARATOR PRCN DUAL 8-DIP-P PKG | 27014 | LM393N |
| A19A1U17 | 1826-0716 | 8 | | IC OP AMP LOW-NOISE DUAL 8-DIP-C PKG | 18324 | NE5532AFE |
| 2427A TO 2516A A19A1U18 | 1826-0412 | 1 | | IC COMPARATOR PRCN DUAL 8-DIP-P PKG | 27014 | LM393N |
| 2517A AND ABOVE A19A1U18 | | | | NOT ASSIGNED | | |
| A19A1VR1 | 1902-0961 | 7 | 1 | DIODE-ZNR 13V 5% DO-35 PD=.4W TC=+.082% | 28480 | 1902-0961 |
| A19A1VR2 | 1902-0958 | 2 | 2 | DIODE-ZNR 10V 5% DO-35 PD=.4W TC=+.075% | 28480 | 1902-0958 |
| A19A1VR3 | 1902-0965 | 1 | 1 | DIODE-ZNR 20V 5% DO-35 PD=.4W TC=+.092% | 28480 | 1902-0965 |
| 2427A TO 2516A A19A1W1 | 8159-0005 | 0 | | RESISTOR-ZERO OHMS 22 AWG LEAD DIA | 28480 | 8159-0005 |
| 2517A AND ABOVE A19A1W1 | | | | NOT ASSIGNED | | |
| A19A1W2 | 8159-0005 | 0 | | RESISTOR-ZERO OHMS 22 AWG LEAD DIA | 28480 | 8159-0005 |
| A19A1W3 | 08642-60073 | 1 | 1 | CABLE ASSEMBLY (A19A1J3 TO A19A2J3) | 28480 | 08642-60073 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------------------------------|----------------|-----|-----|--------------------------------------|----------|-----------------|
| A19A2 | 08642-60119 | 6 | 1 | REVERSE POWER PROTECT ASSEMBLY | 28480 | 08642-60119 |
| <i>2637A TO 2640A A19A2C1</i> | 0160-6356 | 1 | 2 | CAPACITOR-FXD .22U +-20% 100 VDC CER | 28480 | 0160-6356M |
| <i>2640A AND ABOVE A19A2C1 A19A2C4</i> | 0160-0546 | 9 | 2 | CAPACITOR-FXD .1UF +-20% 100VDC CER | 28480 | 0160-0546 |
| | 0160-0546 | 9 | 2 | CAPACITOR-FXD .1UF +-20% 100VDC CER | 28480 | 0160-0546 |
| A19A2CR1 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A19A2FL1 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A19A2FL2 | 9135-0214 | 4 | | FILTER-HIGH PASS PIN STYLE-TERMS | 28480 | 9135-0214 |
| A19A2J1 | 08642-80018 | 6 | 3 | CONNECTOR-RF | 28480 | 08642-80018 |
| | 08642-20079 | 3 | | ELSTMR CNDCT SMA | 28480 | 08642-20079 |
| A19A2J2 | 08642-80018 | 6 | | CONNECTOR-RF | 28480 | 08642-80018 |
| | 08642-20079 | 3 | | ELSTMR CNDCT SMA | 28480 | 08642-20079 |
| A19A2J3 | 1251-8948 | 5 | | CONN POST TYPE 2.5-PIN-SPCG 2-CONT | 28480 | 1251-8948 |
| <i>2427A TO 2449A A19A2K1</i> | 0490-1185 | 3 | 1 | RELAY-REED 1A 500MA 100VDC 5VDC-COIL | 28480 | 0490-1185 |
| <i>2507A AND ABOVE A19A2K1</i> | 0490-1452 | 7 | 1 | RELAY-REED 1A 500MA 100VDC 5VDC-COIL | 28480 | 0490-1452 |
| A19A2U1 | 08642-67004 | 2 | 1 | X2 REV PWR LIMTR | 28480 | 08642-67004 |
| A19A2Z1 | 1600-0265 | 4 | 1 | NICKEL DISC .15IN .01IN ASTM F-15 | 28480 | 1600-0265 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|---------------------------------|----------------|-----|-----|------------------------------------------------------|----------|----------------------|
| 2427A TO 2637A A19A3 | 08642-60220 | 0 | 1 | DOUBLER/ALC ASSEMBLY | 28480 | 08642-60220 |
| 2640A TO 2735A A19A3 | 08642-60320 | 1 | 1 | DOUBLER/ALC ASSEMBLY | 28480 | 08642-60320 |
| 2744A AND ABOVE A19A3 | 08642-60420 | 2 | 1 | DOUBLER/ALC ASSEMBLY | 28480 | 08642-60420 |
| A19A3C1 | 0180-0553 | 0 | | CAPACITOR-FXD 22UF+-20% 25VDC TA | 28480 | 0180-0553 |
| A19A3C2 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A19A3C3 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A19A3C4 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A19A3C5 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A19A3C6 | 0160-4787 | 8 | | CAPACITOR-FXD 22PF +-5% 100VDC CER 0+-30 | 28480 | 0160-4787 |
| A19A3C7 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A19A3C8 | 0160-0576 | 5 | | CAPACITOR-FXD .1UF +-20% 50VDC CER | 28480 | 0160-0576 |
| A19A3CR1 | 1906-0244 | 7 | 1 | DIODE-FW BRDG 2V | 17540 | D5848 |
| | 08642-00119 | 0 | 1 | PEDESTAL-SEMIRIG | 28480 | 08642-00119 |
| A19A3CR2 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A19A3CR3 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A19A3CR4 | 1901-0539 | 3 | | DIODE-SM SIG SCHOTTKY | 28480 | 1901-0539 |
| A19A3E1 | 9170-0029 | 3 | | CORE-SHIELDING BEAD | 28480 | 9170-0029 |
| A19A3E2 | 9170-0029 | 3 | | CORE-SHIELDING BEAD | 28480 | 9170-0029 |
| A19A3E3 | 9170-0029 | 3 | | CORE-SHIELDING BEAD | 28480 | 9170-0029 |
| A19A3E4 | 9170-0029 | 3 | | CORE-SHIELDING BEAD | 28480 | 9170-0029 |
| A19A3E5 | 9170-0029 | 3 | | CORE-SHIELDING BEAD | 28480 | 9170-0029 |
| A19A3E6 | 9170-0029 | 3 | | CORE-SHIELDING BEAD | 28480 | 9170-0029 |
| A19A3E7 | 9170-0029 | 3 | | CORE-SHIELDING BEAD | 28480 | 9170-0029 |
| A19A3E8 | 9170-0029 | 3 | | CORE-SHIELDING BEAD | 28480 | 9170-0029 |
| A19A3J1 | 1250-2090 | 4 | | CONNECTOR-RF SMC M SGL-HOLE-RR 50-OHM | 28480 | 1250-2090 |
| A19A3J2 | 08642-20081 | 7 | | ELSTMR COND SMC | 28480 | 08642-20081 |
| A19A3J3 | 1251-8759 | 6 | | NOT ASSIGNED CONN-POST TYPE .100-PIN-SPCG 11-CONT | 28480 | 1251-8759 |
| 2427A TO 2637A A19A3L1 | 9140-1087 | 2 | 1 | INDUCTOR-FIXED 120-1300 HZ | 28480 | 9140-1087 |
| A19A3L2 | 9140-0261 | 2 | | INDUCTOR RF-CH-MLD 100NH 5% .166DX.385LG | 28480 | 9140-0261 |
| 2640A TO 2751A A19A3L1 | 9135-0078 | 8 | 1 | INDUCTOR RF-CH-MLD 82NH 7% .102DX.26LG | 28480 | 9135-0078 |
| 2640A TO 2751A A19A3L2 | 9100-2250 | 9 | 1 | INDUCTOR RF-CH-MLD 180NH 10% .105DX.26LG | 28480 | 9100-2250 |
| 2835A AND ABOVE A19A3L1 | 9100-2817 | 4 | | INDUCTOR RF-CH-MLD 100NH 5% .105DX.26LG | 28480 | 9100-2817 |
| A19A3MP1 | 5021-3273 | 6 | | CABLE HOLDER | 28480 | 5021-3273 |
| A19A3Q1 | 1854-0814 | 6 | 1 | TRANSISTOR NPN SI TO-66 PD=75W FT=3MHZ | 28480 | 1854-0814 |
| | 0515-1084 | 5 | | SCREW-MACH M3 X 0.5 12MM-LG PAN-HD | 28480 | 0515-1084 |
| | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| | 0340-0933 | 0 | 2 | INSULATOR-FLG-BSHG PPS BLACK | 28480 | 0340-0933 |
| | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID | 28480 | 2190-0584 |
| | 08642-00082 | 6 | 1 | HEATSINK TO-66 | 28480 | 08642-00082 |
| 2427A TO 2721A A19A3R1 | 2100-3089 | 7 | 3 | RESISTOR-TRMR 5K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-502 |
| 2735A AND ABOVE A19A3R1 | 2100-3286 | 6 | | RESISTOR-TRMR 10K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-103 |
| A19A3R2 | | | | NOT ASSIGNED | | |
| A19A3R3 | 2100-3089 | 7 | | RESISTOR-TRMR 5K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-502 |
| A19A3R4 | 2100-3089 | 7 | | RESISTOR-TRMR 5K 10% C TOP-ADJ 17-TRN | 32997 | 3292W-1-502 |
| A19A3R5 | 2100-3296 | 8 | | RESISTOR-TRMR 1K 10% C TOP-ADJ 17-TRN | 28480 | 2100-3296 |
| A19A3R6 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A19A3R7 | | | | NOT ASSIGNED | | |
| A19A3R8 | | | | NOT ASSIGNED | | |
| A19A3R9 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A19A3R10 | 0698-3603 | 4 | 2 | RESISTOR 12 5% 2W MO TC=0+-200 | 27167 | FP42-2-T00-12R0-J |
| A19A3R11 | | | | NOT ASSIGNED | | |
| A19A3R12 | | | | NOT ASSIGNED | | |
| A19A3R13 | 0698-7253 | 8 | | RESISTOR 5.11K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-5111-F |
| A19A3R14 | 0698-7231 | 2 | | RESISTOR 619 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-619R-F |
| A19A3R15 | 0698-7236 | 7 | | RESISTOR 1K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1001-F |
| A19A3R16 | 0698-7271 | 0 | | RESISTOR 28.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2872-F |
| A19A3R17 | 0698-7271 | 0 | | RESISTOR 28.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2872-F |
| A19A3R18 | 0698-8812 | 7 | 3 | RESISTOR 1 1% .125W F TC=0+-100 | 28480 | 0698-8812 |
| A19A3R19 | 0698-8812 | 7 | | RESISTOR 1 1% .125W F TC=0+-100 | 28480 | 0698-8812 |
| A19A3R20 | 0698-7271 | 0 | | RESISTOR 28.7K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2872-F |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| A19A3R21 | 0698-3458 | 7 | | RESISTOR 348K 1% .125W F TC=0+-100 | 28480 | 0698-3458 |
| A19A3R22 | 0698-3458 | 7 | | RESISTOR 348K 1% .125W F TC=0+-100 | 28480 | 0698-3458 |
| A19A3R23 | 0698-8625 | 0 | | RESISTOR 1K .1% .1W F TC=0+-100 | 28480 | 0698-8625 |
| A19A3R24 | | | | NOT ASSIGNED | | |
| A19A3R25 | | | | NOT ASSIGNED | | |
| A19A3R26 | 0698-8625 | 0 | | RESISTOR 1K .1% .1W F TC=0+-100 | 28480 | 0698-8625 |
| A19A3R27 | 0698-8625 | 0 | | RESISTOR 1K .1% .1W F TC=0+-100 | 28480 | 0698-8625 |
| A19A3R28 | 0698-7255 | 0 | | RESISTOR 6.19K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6191-F |
| A19A3R29 | | | | NOT ASSIGNED | | |
| A19A3R30 | 0698-8812 | 7 | | RESISTOR 1 1% .125W F TC=0+-100 | 28480 | 0698-8812 |
| A19A3R31 | 0698-7222 | 1 | | RESISTOR 261 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-261R-F |
| A19A3R32 | 0698-3603 | 4 | | RESISTOR 12 5% 2W MO TC=0+-200 | 27167 | FP42-2-T00-12R0-J |
| A19A3R33 | 0698-7268 | 5 | | RESISTOR 21.5K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2152-F |
| A19A3R34 | 0698-3258 | 5 | 1 | RESISTOR 5.36K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-5361-F |
| A19A3R35 | 0698-7255 | 0 | | RESISTOR 6.19K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-6191-F |
| A19A3R36 | 0698-8625 | 0 | | RESISTOR 1K .1% .1W F TC=0+-100 | 28480 | 0698-8625 |
| A19A3R37 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A19A3R38 | | | | NOT ASSIGNED | | |
| A19A3R39 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A19A3R40 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A19A3R41 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A19A3R42 | 0698-7275 | 4 | | RESISTOR 42.2K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-4222-F |
| A19A3R43 | 0698-7247 | 0 | | RESISTOR 2.87K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-2871-F |
| A19A3R44 | | | | NOT ASSIGNED | | |
| A19A3R45 | 0698-7260 | 7 | | RESISTOR 10K 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-1002-F |
| A19A3R46 | 0698-7188 | 8 | | RESISTOR 10 1% .05W F TC=0+-100 | 24546 | C3-1/8-T0-10R-F |
| A19A3TP1 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A19A3TP2 | | | | NOT ASSIGNED | | |
| A19A3TP3 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A19A3TP4 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A19A3TP5 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A19A3TP6 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A19A3TP7 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A19A3TP8 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A19A3TP9 | 0360-0535 | 0 | | TERMINAL TEST POINT PCB | 00000 | ORDER BY DESCRIPTION |
| A19A3U1 | 1826-0716 | 8 | | IC OP AMP LOW-NOISE DUAL 8-DIP-C PKG | 18324 | NE5532AFE |
| 2427A TO 2735A | | | | | | |
| A19A3U2 | 08642-67002 | 0 | 1 | X2 POWER AMP | 28480 | 08642-67002 |
| A19A3U3 | 08642-67003 | 1 | 1 | X2 AMP MOD FILTR | 28480 | 08642-67003 |
| 2749A AND ABOVE | | | | | | |
| A19A3U2 | 08642-67002 | 0 | 1 | X2 POWER AMP | 28480 | 08642-67002 |
| | 1251-3172 | 7 | 1 | CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND | 28480 | 1251-3172 |
| A19A3U3 | 08642-67003 | 1 | 1 | X2 AMP MOD FILTR | 28480 | 08642-67003 |
| | 1251-3172 | 7 | 1 | CONNECTOR-SGL CONT SKT .03-IN-BSC-SZ RND | 28480 | 1251-3172 |
| A19A3U4 | 1826-0783 | 9 | | IC OP AMP LOW-NOISE 8-DIP-C PKG | 52063 | XR5534ACN |
| A19A3VR1 | 1902-0951 | 5 | 1 | DIODE-ZNR 5.1V 5% DO-35 PD=.4W TC=+.035% | 28480 | 1902-0951 |
| A19A3VR2 | 1902-0958 | 2 | | DIODE-ZNR 10V 5% DO-35 PD=.4W TC=+.075% | 28480 | 1902-0958 |
| A19A3W1 | 08642-20063 | 5 | 1 | CBL SR X2 MCKTS | 28480 | 08642-20063 |
| A19A3W2 | 08642-20064 | 6 | 1 | CBL SR X2 FLTR | 28480 | 08642-20064 |
| | 08642-20086 | 2 | | ELSTMR FEEDTHRU | 28480 | 08642-20086 |
| A19A3W3 | 08642-20070 | 4 | 1 | CABLE SR-TL 1 | 28480 | 08642-20070 |
| A19A3W4 | 08642-20071 | 5 | 1 | CABLE SR-TL 2 | 28480 | 08642-20071 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|----------------------------------------|----------|------------------|
| A 20 | | | | | | |
| A20 | 08642-60133 | 4 | 1 | CALIBRATION DATA MODULE | 28480 | 08642-60133 |
| A20C1 | 0180-1746 | 5 | 1 | CAPACITOR-FXD 15UF+-10% 20VDC TA | 56289 | 150D156X9020B2 |
| A20C2 | 0160-4835 | 7 | | CAPACITOR-FXD .1UF +-10% 50VDC CER | 28480 | 0160-4835 |
| A20LS1 | 9164-0183 | 7 | 1 | AUDIO TRANSDUCER | 28480 | 9164-0183 |
| A20MP1 | 5021-3273 | 6 | | CABLE HOLDER | 28480 | 5021-3273 |
| A20MP2 | 0380-1705 | 0 | 4 | STANDOFF-1/4 TURN 6.35 MM LG; 10.16 MM | 28480 | 0380-1705 |
| A20P1 | 1251-8098 | 6 | 1 | CONN-POST TYPE .100-PIN-SPCG 50-CONT | 28480 | 1251-8098 |
| A20R1 | 0757-0458 | 7 | | RESISTOR 51.1K 1% .125W F TC=0+-100 | 24546 | C4-1/8-T0-5112-F |
| A20S1 | 3101-2566 | 6 | | SWITCH-RKR DIP-RKR-ASSY DPDT .5A 30VDC | 28480 | 3101-2566 |
| A20U1 | 1818-3375 | 4 | | IC NMOS 16384 (16K) EARAM 450-NS 3-S | 28480 | 1818-3375 |
| A20U2 | 1818-3375 | 4 | | IC NMOS 16384 (16K) EARAM 450-NS 3-S | 28480 | 1818-3375 |

See introduction to this section for ordering information.

* Indicates factory selected value

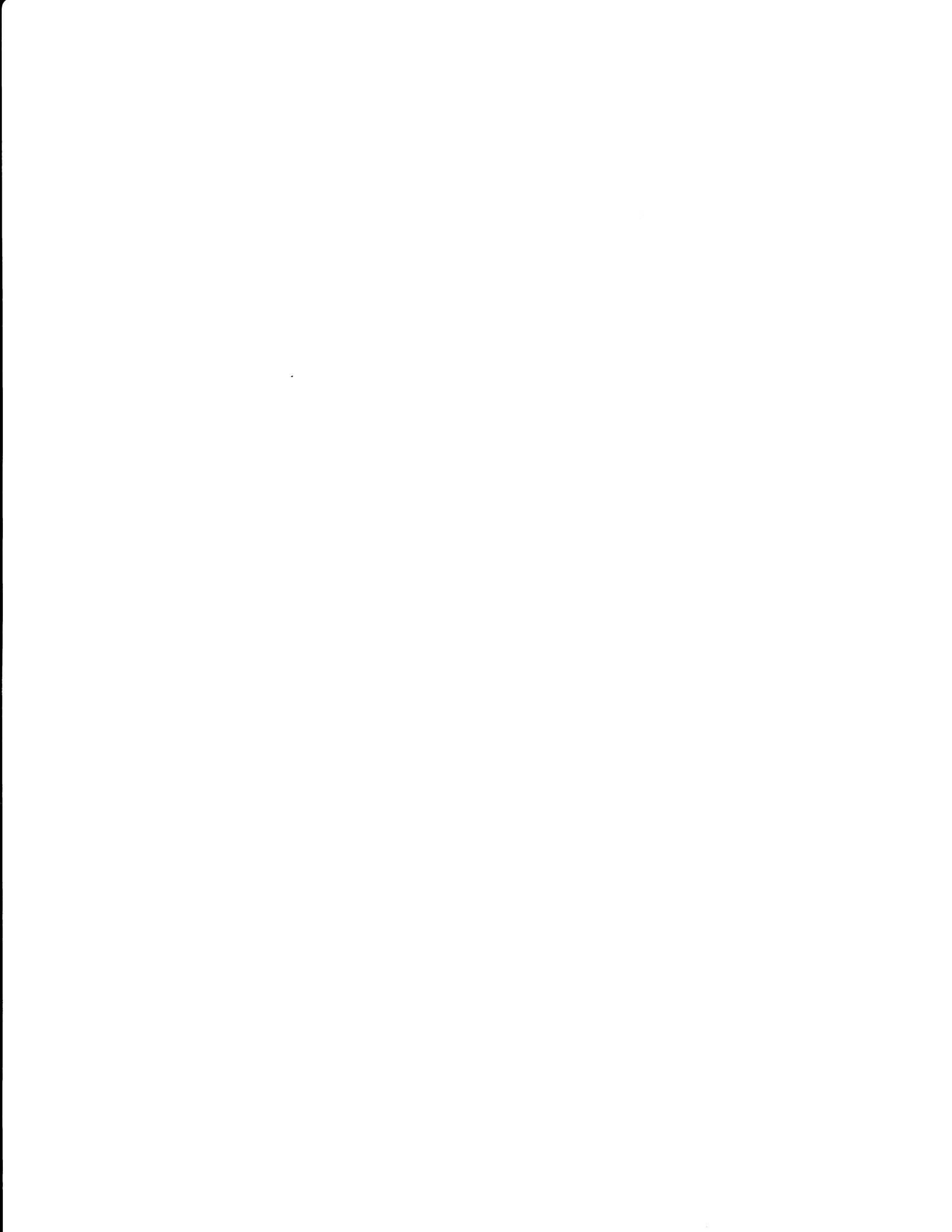


Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|------------------------------------------|----------|----------------------|
| A21 | | | | | | |
| A21 | 5061-4824 | 9 | 1 | ROTARY PULSE GENERATOR ASSEMBLY | 28480 | 5061-4824 |
| | 0960-0684 | 2 | 1 | ROTARY PULSE GENERATOR INPUT POWER: 5VDC | 28480 | 0960-0684 |
| | 1251-3963 | 4 | 1 | KEY-POST CONN | 28480 | 1251-3967 |
| | 1251-3967 | 8 | 4 | CONTACT-CONN U/W-POST TYPE FEM CRP | 28480 | 1251-3967 |
| | 1251-4511 | 0 | 1 | CONNECTOR 6-PIN F POST TYPE | 27480 | 11251 4511 |
| A21MP1 | 0370-2389 | 7 | | KNOB-BASE 1-1/2 JGK .25-IN-ID | 28480 | 0370-2110 |
| | 3050-0067 | 9 | 1 | WASHER-FL MTLT 5/16 IN .375-IN-ID | 28480 | 3050-0067 |
| | 0370-2110 | 2 | 2 | KNOB-BASE 1-1/8 JGK .25-IN-ID | 28480 | 0370-2110 |
| A21MP2 | 3050-0016 | 8 | 1 | WASHER-FL MTLT NO. 6 .147-IN-ID | 28480 | 3050-0016 |
| A21MP3 | 2950-0001 | 8 | | NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK | 00000 | ORDER BY DESCRIPTION |

See introduction to this section for ordering information.

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Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|----------------------------|----------------|-----|-----|------------------------------------------------------------------------------------------------------------|----------|----------------------|
| MISCELLANEOUS PARTS | | | | | | |
| B1 | 08642-80019 | 7 | 1 | FAN ASSEMBLY | 28480 | 08642-80019 |
| | 3160-0377 | 7 | 1 | FAN-TBAX 122-CFM 9.5-14VDC 16.5KV-DIEL | 28480 | 3160-0377 |
| | 1251-7363 | 6 | 11 | CONTACT-CONN U/W-POST-TYPE FEM CRP | 28480 | 1251-7363 |
| | 1252-0070 | 0 | 1 | CONN-POST TYPE .156-PIN-SPCG | 28480 | 1252-0070 |
| | 0515-1142 | 6 | 49 | SCREW-MACH M4 X 0.7 8MM-LG PAN-HD | 28480 | 0515-1142 |
| CP1 | 1250-1772 | 7 | 2 | ADAPTER-COAX STR F-N F-SMA (STANDARD AND OPTION 001 ONLY; INCLUDES ATTACHING HARDWARE) FRONT PANEL "RF" | 28480 | 1250-1772 |
| CP2 | 1250-1772 | 7 | 7 | ADAPTER-COAX STR F-N F-SMA (OPTION 002 ONLY; INCLUDES ATTACHING HARDWARE) REAR PANEL "RF OUTPUT" | 28480 | 1250-1772 |
| F1 | 2110-0003 | 0 | 1 | FUSE 3A 250V NTD 1.25X.25 UL (FOR 110/120V OPERATION) | 75915 | 312003 |
| F1 | 2110-0002 | 9 | 1 | FUSE 2.0A 250V NTD 1.25X.25 UL (FOR 220/240V OPERATION) | 28480 | 2110-0002 |
| J1 | 1250-1091 | 3 | 6 | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM "AM PULSE" PART OF W18 | 28480 | 1250-1091 |
| | 3050-1016 | 0 | 6 | WASHER-FL MTLT 1/2 IN .503-IN-ID | 28480 | 3050-1016 |
| | 08642-00139 | 4 | 6 | WASHER, CAPACITIVE | 28480 | 08642-00139 |
| | 08642-40072 | 8 | 6 | BNC INSULATOR | 28480 | 08642-40072 |
| | 0590-1251 | 6 | 3 | NUT-SPCLY 15/32-32-THD .1-IN-THK .562-WD | 00000 | ORDER BY DESCRIPTION |
| J2 | 1250-1091 | 3 | 3 | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM "FM/OM PART OF W19 | 28480 | 1250-1091 |
| | 3050-1016 | 0 | 3 | WASHER-FL MTLT 1/2 IN .503-IN-ID | 28480 | 3050-1016 |
| | 08642-00139 | 4 | 3 | WASHER, CAPACITIVE | 28480 | 08642-00139 |
| | 0590-1251 | 6 | 3 | NUT-SPCLY 15/32-32-THD .1-IN-THK .562-WD | 00000 | ORDER BY DESCRIPTION |
| | 08642-40072 | 8 | 3 | BNC INSULATOR | 28480 | 08642-40072 |
| J3 | 1250-1091 | 3 | 3 | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM "MOD" PART OF W17 | 28480 | 1250-1091 |
| | 3050-1016 | 0 | 3 | WASHER-FL MTLT 1/2 IN .503-IN-ID | 28480 | 3050-1016 |
| | 08642-00139 | 4 | 3 | WASHER, CAPACITIVE | 28480 | 08642-00139 |
| | 08642-40072 | 8 | 3 | BNC INSULATOR | 28480 | 08642-40072 |
| | 0590-1251 | 6 | 3 | NUT-SPCLY 15/32-32-THD .1-IN-THK .562-WD | 00000 | ORDER BY DESCRIPTION |
| J4 | 1250-0870 | 4 | 3 | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM "EXT REF INPUT" PART OF W23 | 28480 | 1250-0870 |
| | 2190-0102 | 8 | 6 | WASHER-LK INTL T 15/32 IN .472-IN-ID | 28480 | 2190-0102 |
| | 2950-0035 | 8 | 6 | NUT-HEX-DBL-CHAM 15/32-32-THD | 00000 | ORDER BY DESCRIPTION |
| J5 | 1250-0870 | 4 | 4 | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM "10MHZ OVEN" | 28480 | 1250-0870 |
| | 2190-0102 | 8 | 8 | PART OF W101 (OPTION 001 ONLY) | 28480 | 2190-0102 |
| | 2950-0035 | 8 | 8 | WASHER-LK INTL T 15/32 IN .472-IN-ID NUT-HEX-DBL-CHAM 15/32-32-THD | 00000 | ORDER BY DESCRIPTION |
| J6 | 1250-1091 | 3 | 3 | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM "AM PULSE" | 28480 | 1250-1091 |
| | 3050-1016 | 0 | 3 | PART OF W202 (OPTION 002 ONLY) | 28480 | 3050-1016 |
| | 08642-00139 | 4 | 3 | WASHER-FL MTLT 1/2 IN .503-IN-ID | 28480 | 08642-00139 |
| | 08642-40072 | 8 | 3 | WASHER, CAPACITIVE | 28480 | 08642-40072 |
| | 2950-0035 | 8 | 3 | BNC INSULATOR NUT-HEX-DBL-CHAM 15/32-32-THD | 00000 | ORDER BY DESCRIPTION |
| J7 | 1250-0083 | 1 | 2 | CONNECTOR-RF BNC FEM SGL-HOLE-FR 50-OHM "X-AXIS" | 28480 | 1250-0083 |
| | 2190-0016 | 3 | 4 | WASHER-LK INTL T 3/8 IN .377-IN-ID | 28480 | 2190-0016 |
| | 0360-1190 | 5 | 2 | TERMINAL-SLDR LUG PL-MTG FOR- 3/8-SCR | 28480 | 0360-1190 |
| | 2950-0001 | 8 | 3 | NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK | 00000 | ORDER BY DESCRIPTION |
| | 0362-0227 | 1 | 4 | CONNECTOR-SGL CONT SKT 1.14-MM-BSC-SZ | 28480 | 0362-0227 |
| J8 | 1250-0870 | 4 | 4 | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM "10MHZ OUT" PART OF W23 | 28480 | 1250-0870 |
| | 2190-0102 | 8 | 8 | WASHER-LK INTL T 15/32 IN .472-IN-ID | 28480 | 2190-0102 |
| | 2950-0035 | 8 | 8 | NUT-HEX-DBL-CHAM 15/32-32-THD | 00000 | ORDER BY DESCRIPTION |
| J9 | 1250-1091 | 3 | 3 | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM "FM/OM" | 28480 | 1250-1091 |
| | 3050-1016 | 0 | 3 | PART OF W201 (OPTION 002 ONLY) | 28480 | 3050-1016 |
| | 08642-00139 | 4 | 3 | WASHER-FL MTLT 1/2 IN .503-IN-ID | 28480 | 08642-00139 |
| | 08642-40072 | 8 | 3 | WASHER, CAPACITIVE | 28480 | 08642-40072 |
| | 2950-0035 | 8 | 3 | BNC INSULATOR NUT-HEX-DBL-CHAM 15/32-32-THD | 00000 | ORDER BY DESCRIPTION |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | Part Number | U D | Qty | Description | Code | Mfr Part Number |
|-----------------------|-------------|-----|-----|----------------------------------------------------------------------------------|-------|----------------------|
| J10 | 1250-0083 | 1 | | CONNECTOR-RF BNC FEM SGL-HOLE-FR 50-OHM "Z-AXIS" | 28480 | 1250-0083 |
| | 2190-0016 | 3 | | WASHER-LK INTL T 3/8 IN .377-IN-ID | 28480 | 2190-0016 |
| | 0360-1190 | 5 | | TERMINAL-SLDR LUG PL-MTG FOR- 3/8-SCR | 28480 | 0360-1190 |
| | 2950-0001 | 8 | | NUT-HEX-DBL-CHAM 3/8-32-THD .094-IN-THK | 00000 | ORDER BY DESCRIPTION |
| | 0362-0227 | 1 | | CONNECTOR-SGL CONT SKT 1.14-MM-BSC-SZ | 28480 | 0362-0227 |
| J11 | 1250-1091 | 3 | | CONNECTOR-RF BNC FEM SGL-HOLE-RR 50-OHM "MOD OUT" | 28480 | 1250-1091 |
| | 3050-1016 | 0 | | PART OF W203 (OPTION 002 ONLY) | | |
| | 08642-00139 | 4 | | WASHER-FL MTLC 1/2 IN .503-IN-ID | 28480 | 3050-1016 |
| | 08642-40072 | 8 | | WASHER, CAPACITIVE | 28480 | 08642-00139 |
| | 2950-0035 | 8 | | BNC INSULATOR | 28480 | 08642-40072 |
| MP1 | 08642-00172 | 5 | 1 | FRONT DRESS PANEL (STANDARD AND OPTION 001 8642A ONLY) | 28480 | 08642-00172 |
| | 0515-0680 | 3 | | SCREW-MACH M3 X 0.5 6MM-LG PAN-HD | 28480 | 0515-0680 |
| | 3050-0891 | 7 | | WASHER-FL MTLC 3.0 MM 3.3-MM-ID | 28480 | 3050-0891 |
| | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| | 0380-1362 | 5 | 40 | STANDOFF-HEX 12-MM-LG M3.0 X 0.5-THD | 28480 | 0380-1362 |
| MP1 | 08642-00173 | 6 | 1 | FRONT DRESS PANEL (OPTION 002 8642A ONLY) | 28480 | 08642-00173 |
| | 0515-0680 | 3 | | SCREW-MACH M3 X 0.5 6MM-LG PAN-HD | 28480 | 0515-0680 |
| | 3050-0891 | 7 | | WASHER-FL MTLC 3.0 MM 3.3-MM-ID | 28480 | 3050-0891 |
| | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| | 0380-1362 | 5 | | STANDOFF-HEX 12-MM-LG M3.0 X 0.5-THD | 28480 | 0380-1362 |
| MP1 | 08642-00174 | 7 | 1 | FRONT DRESS PANEL (STANDARD AND OPTION 001 8642B ONLY) | 28480 | 08642-00174 |
| | 0515-0680 | 3 | | SCREW-MACH M3 X 0.5 6MM-LG PAN-HD | 28480 | 0515-0680 |
| | 3050-0891 | 7 | | WASHER-FL MTLC 3.0 MM 3.3-MM-ID | 28480 | 3050-0891 |
| | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| | 0380-1362 | 5 | | STANDOFF-HEX 12-MM-LG M3.0 X 0.5-THD | 28480 | 0380-1362 |
| MP1 | 08642-00175 | 8 | 1 | FRONT DRESS PANEL(OPTION 002 8642B ONLY) | 28480 | 08642-00175 |
| | 0515-0680 | 3 | | SCREW-MACH M3 X 0.5 6MM-LG PAN-HD | 28480 | 0515-0680 |
| | 3050-0891 | 7 | | WASHER-FL MTLC 3.0 MM 3.3-MM-ID | 28480 | 3050-0891 |
| | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK | 00000 | ORDER BY DESCRIPTION |
| | 0380-1362 | 5 | | STANDOFF-HEX 12-MM-LG M3.0 X 0.5-THD | 28480 | 0380-1362 |
| MP2 | 08642-00008 | 6 | 1 | FRONT SUB PANEL | 28480 | 08642-00008 |
| | 0535-0004 | 9 | | NUT-HEX DBL-CHAM M3 X 0.5 2.4MM-THK (ATTACH KEYBOARD TO SUBPANEL) | 00000 | ORDER BY DESCRIPTION |
| | 0515-1227 | 8 | | SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD (ATTACH SUB PANEL TO FRAME) | 28480 | 0515-1227 |
| MP3 | 0515-1102 | 8 | 33 | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH SUB-PANEL TO FRAME) | 28480 | 0515-1102 |
| | 08642-00009 | 7 | 1 | FRONT PANEL HINGE | 28480 | 08642-00009 |
| | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH HINGE TO PIVOT) | 28480 | 0515-1102 |
| MP4 | 2190-0586 | 2 | 1 | WASHER-LK HLCL 4.0 MM 4.1-MM-ID | 28480 | 2190-0586 |
| | 08642-20040 | 8 | 3 | HINGE PIVOT | 28480 | 08642-20040 |
| 2427A TO 2534A MP5 | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH PIVOT TO FRAME) | 28480 | 0515-1102 |
| | 5020-8803 | 6 | 1 | FRONT FRAME | 28480 | 5020-8803 |
| MP6 | 2510-0192 | 6 | 16 | SCREW-MACH 8-32 .25-IN-LG 100 DEG (ATTACH FRAME TO CORNER STRUT) | 00000 | ORDER BY DESCRIPTION |
| | 08642-60083 | 3 | 1 | REAR FRAME WITH REAR DRESS PANEL | 28480 | 08642-60083 |
| MP7 | 0515-1142 | 6 | | SCREW-MACH M4 X 0.7 8MM-LG PAN-HD (ATTACH REAR FRAME TO REAR BRACKETS) | 28480 | 0515-1142 |
| | 5020-8838 | 7 | 3 | CORNER STRUT | 28480 | 5020-8838 |
| MP8 | 2510-0192 | 6 | | SCREW-MACH 8-32 .25-IN-LG 100 DEG (ATTACH CORNER STRUT TO FRONT AND REAR FRAMES) | 00000 | ORDER BY DESCRIPTION |
| | 0515-0684 | 9 | 18 | SCREW-MACH M4 X 0.7 6MM-LG PAN-HD (ATTACH CONTROLLER ASSEMBLY TO CORNER STRUTS) | 28480 | 0515-0684 |
| | 0515-1142 | 6 | | SCREW-MACH M4 X 0.7 8MM-LG PAN-HD (ATTACH A17 TO CORNER STRUT) | 28480 | 0515-1142 |
| | 08642-60094 | 6 | 1 | SIDE STRUT SPACER ASSEMBLY | 28480 | 08642-60094 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------|----------------|-----|-----|-------------------------------------------------------------------------------------------------------------------------------|----------|----------------------|
| 2535A AND ABOVE MP5 | 5021-5803 | 2 | 1 | FRONT FRAME SCREW-METRIC SPECIALTY M4 X 0.7 THD;6 (ATTACH FRAME TO CORNER STRUT) | 28480 | 5021-5803 |
| | 0515-1331 | 5 | 20 | | 28480 | 0515-1331 |
| MP6 | 08642-60956 | 9 | 1 | REAR FRAME WITH REAR DRESS PANEL SCREW-MACH M4 X 0.7 8MM-LG PAN-HD (ATTACH REAR FRAME TO REAR BRACKETS CORNER STRUT) | 28480 | 08642-60956 |
| | 0515-1142 | 6 | | | 28480 | 0515-1142 |
| MP7 | 5021-5838 | 3 | 3 | SCREW-METRIC SPECIALTY M4 X 0.7 THD;6 (ATTACH CORNER STRUT TO FRONT AND REAR FRAMES) | 28480 | 5021-5838 |
| | 0515-1331 | 5 | | | 28480 | 0515-1331 |
| | 0515-0684 | 9 | 18 | | 28480 | 0515-0684 |
| | 0515-1142 | 6 | | | 28480 | 0515-1142 |
| MP8 | 08642-60957 | 9 | 1 | SIDE STRUT SPACER ASSEMBLY | 28480 | 08642-60957 |
| MP9 | 5001-0439 | 8 | 2 | SIDE TRIM (FRONT) | 28480 | 5001-0439 |
| MP10 | 5040-7202 | 9 | 1 | TOP TRIM (FRONT) | 28480 | 5040-7202 |
| MP11 | 5060-9881 | 6 | 1 | SIDE COVER (LEFT, WITH HANDLE RECESS) | 28480 | 5060-9881 |
| 2427A TO 2534A MP12 | 5060-9913 | 5 | 1 | SIDE COVER (RIGHT, PERFORATED) | 28480 | 5060-9913 |
| 2535A AND ABOVE MP12 | 08642-00152 | 1 | 1 | SIDE COVER (RIGHT, PERFORATED) | 28480 | 08642-00152 |
| MP13 | 5060-9805 | 4 | 1 | STRAP HANDLE | 28480 | 5060-9805 |
| 2427A TO 2534A MP14 | 5040-7219 | 8 | 1 | STRAP HANDLE CAP (FRONT) | 28480 | 5040-7219 |
| MP15 | 2680-0118 | 5 | 2 | SCREW-MACH 10-32 .5-IN-LG 82 DEG | 00000 | ORDER BY DESCRIPTION |
| | 5040-7220 | 1 | 1 | STRAP HANDLE CAP (REAR) | 28480 | 5040-7220 |
| MP16 | 2680-0118 | 5 | | SCREW-MACH 10-32 .5-IN-LG 82 DEG | 00000 | ORDER BY DESCRIPTION |
| | 08642-00118 | 9 | 1 | TOP COVER | 28480 | 08642-00118 |
| 2535A AND ABOVE MP14 | 5041-6819 | 4 | 1 | STRAP HANDLE CAP (FRONT) | 28480 | 5041-6819 |
| MP15 | 0515-1239 | 2 | 4 | SCREW-MACH M5 X 0.8 12MM-LG | 00000 | ORDER BY DESCRIPTION |
| | 5041-6820 | 2 | 1 | STRAP HANDLE CAP (REAR) | 28480 | 5041-6820 |
| MP16 | 0515-1239 | 2 | 4 | SCREW-MACH M5 X 0.8 12MM-LG | 00000 | ORDER BY DESCRIPTION |
| | 08642-00169 | 2 | 1 | TOP COVER | 28480 | 08642-00169 |
| | 7120-8138 | 4 | 1 | LABEL-WARNING 6-MMOWD 51-MM-LG VINYL | 28480 | 7120-8138 |
| 2427A TO 2708A MP17 | 08642-60095 | 7 | 1 | BOTTOM COVER FRONT | 28480 | 08642-60095 |
| | 08642-00142 | 9 | 1 | INSULATOR, BOTTOM FRONT COVER | 28480 | 08642-00142 |
| | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD | 28480 | 0515-1102 |
| 2724A AND ABOVE MP17 | 08642-61002 | 8 | 1 | BOTTOM COVER ASSEMBLY | 28480 | 08642-61002 |
| | 08642-00142 | 9 | | INSULATOR, BOTTOM FRONT COVER | 28480 | 08642-00142 |
| | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD | 28480 | 0515-1102 |
| 2427A TO 2708A MP18 | 08642-60088 | 8 | 1 | BOTTOM COVER CENTER | 28480 | 08642-60088 |
| | 0515-1227 | 8 | | SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD | 28480 | 0515-1227 |
| | 08642-61002 | 8 | 1 | BOTTOM COVER ASSEMBLY | 28480 | 08642-61002 |
| 2724A AND ABOVE MP18 | 0515-1227 | 8 | | SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD | 28480 | 0515-1227 |
| 2427A TO 2708A MP19 | 08642-60092 | 4 | 1 | BOTTOM COVER REAR | 28480 | 08642-60092 |
| | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD | 28480 | 0515-1102 |
| | 08642-61002 | 8 | 1 | BOTTOM COVER ASSEMBLY | 28480 | 08642-61002 |
| 2724A AND ABOVE MP19 | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD | 28480 | 0515-1102 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------|----------------|-----|-----|------------------------------------------------------------------------------------|----------|-----------------|
| MP20 | 5040-7201 | 8 | 4 | FOOT | 28480 | 5040-7201 |
| MP21 | 1460-1345 | 5 | 2 | TILT STAND SST | 28480 | 1460-1345 |
| MP22 | 08642-00010 | 0 | 1 | RF CONNECTOR BRACKET (STANDARD AND OPTION 001 ONLY) | 28480 | 08642-00010 |
| | 0515-1101 | 7 | 2 | SCREW-MACH M4 X 0.7 8MM-LG 90-DEG-FLH-HD | 28480 | 0515-1101 |
| MP23 | 08642-00011 | 1 | 1 | MODULATION BOARD SHIELD | 28480 | 08642-00011 |
| | 0515-1103 | 9 | 50 | SCREW-MACH M3 X 0.5 10MM-LG (SHIELD TO KEYBOARD) | 28480 | 0515-1103 |
| | 1400-0082 | 9 | 2 | CLAMP-CABLE .125-DIA .375-WD NYL (STANDARD AND OPTION 001 ONLY) | 28480 | 1400-0082 |
| | 2190-0584 | 0 | | WASHER-LK HLCL 3.0 MM 3.1-MM-ID (STANDARD AND OPTION 001 ONLY) | 28480 | 2190-0584 |
| | 3050-0891 | 7 | 2 | WASHER-FL MTLCL 3.0 MM 3.3-MM-ID (STANDARD AND OPTION 001 ONLY) | 28480 | 3050-0891 |
| MP24 | 08642-00140 | 7 | 1 | MODULATION SHIELD INSULATOR | 28480 | 08642-00140 |
| 2427A TO 2709A MP25 | 08642-00012 | 2 | 1 | CONTROLLER SHIELD | 28480 | 08642-00012 |
| | 0515-1227 | 8 | | SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD (ATTACH SHIELD TO CONTROLLER BRACKETS) | 28480 | 0515-1227 |
| | 0515-0680 | 5 | 14 | SCREW-MACH M3 X 0.5 6MM-LG PAN-HD (ATTACH MOD BOARD TO CONTROLLER SHIELD) | 28480 | 0515-0680 |
| 2723A AND ABOVE MP25 | 08642-00186 | 1 | 1 | CONTROLLER SHIELD | 28480 | 08642-00012 |
| | 0515-1227 | 8 | | SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD (ATTACH SHIELD TO CONTROLLER BRACKETS) | 28480 | 0515-1227 |
| | 0515-0680 | 5 | 14 | SCREW-MACH M3 X 0.5 6MM-LG PAN-HD (ATTACH MOD BOARD TO CONTROLLER SHIELD) | 28480 | 0515-0680 |
| MP26 | 08642-00078 | 0 | 1 | CONTROLLER GUIDE BRACKET (LEFT) | 28480 | 08642-00078 |
| | 0515-1227 | 8 | | SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD (ATTACH BRACKET TO DISTRIBUTION BOARD) | 28480 | 0515-1227 |
| | 0515-0684 | 9 | | SCREW-MACH M4 X 0.7 6MM-LG PAN-HD (ATTACH BRACKET TO CORNER STRUT) | 28480 | 0515-0684 |
| MP27 | 08642-40029 | 5 | 1 | CONTROLLER GUIDE (LEFT, BLACK) | 28480 | 08642-40029 |
| | 0515-1134 | 6 | 1 | SCREW-MACH M3 X 0.5 18MM-LG (TOP: ATTACH BRACKET TO FRONT PAN BRACE) | 28480 | 0515-1134 |
| | 0515-0682 | 7 | 1 | SCREW-MACH M3 X 0.5 18MM-LG PAN-HD (TOP: ATTACH BRACKET TO FRONT BRACE) | 28480 | 0515-0682 |
| | 0515-1135 | 7 | 2 | SCREW-MACH M3 X 0.5 25MM-LG (BOTTOM: ATTACH BRACKET TO FRONT BRACE) | 28480 | 0515-1135 |
| | 0515-0683 | 8 | 1 | SCREW-MACH M3 X 0.5 25MM-LG PAN-HD (BOTTOM: ATTACH BRACKET TO FRONT BRACE) | 28480 | 0515-0683 |
| MP28 | 08642-00079 | 1 | 1 | CONTROLLER GUIDE BRACKET (RIGHT) | 28480 | 08642-00079 |
| | 0515-1227 | 8 | | SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD (ATTACH BRACKET TO DISTRIBUTION BOARD) | 28480 | 0515-1227 |
| MP29 | 08642-40030 | 8 | 1 | CONTROLLER GUIDE (RIGHT) | 28480 | 08642-40030 |
| | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH GUIDE AND BRACKET TO FRONT BRACE) | 28480 | 0515-1102 |
| MP30 | 08642-00086 | 0 | 2 | FLAT CABLE SHIELD | 28480 | 08642-00086 |
| MP31 | 08642-00066 | 6 | 1 | FLAT CABLE RETAINING BAR | 28480 | 08642-00066 |
| | 1400-0249 | 0 | | CABLE TIE .062-.625-DIA .091-WD NYL | 06383 | PLT1M-8 |
| MP32 | 08642-00015 | 5 | 1 | FRONT BRACE | 28480 | 08642-00015 |
| | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACHES BRACE TO GUSSETS) | 28480 | 0515-1102 |
| | 0515-0684 | 9 | | SCREW-MACH M4 X 0.7 6MM-LG PAN-HD (ATTACHES BRACE TO CORNER STRUTS) | 28480 | 0515-0684 |
| MP33 | 08642-00014 | 4 | 1 | FRONT BRACE INSULATOR | 28480 | 08642-00014 |
| | 0515-0680 | 5 | | SCREW-MACH M3 X 0.5 6MM-LG PAN-HD (ATTACH DISTRIBUTION BOARD TO BRACE) | 28480 | 0515-0680 |
| MP34 | 08642-40031 | 9 | 3 | CONTROLLER MOTHERBOARD SUPPORT | 28480 | 08642-40031 |
| | 0515-1227 | 8 | | SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD (ATTACH SUPPORTS TO BOARD) | 28480 | 0515-1227 |
| MP35 | 08642-40070 | 6 | 6 | CABLE RETAINER (W9, W14 AND W15) | 28480 | 08642-40070 |
| MP36 | 08642-20073 | 7 | 1 | BOTTOM COVER SUPPORT | 28480 | 08642-20073 |
| | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD | 28480 | 0515-1102 |
| MP37 | 08642-40034 | 2 | 14 | MODULE GUIDE POST (LONG) | 28480 | 08642-40034 |
| | 0515-1103 | 9 | | SCREW-MACH M3 X 0.5 10MM-LG 90-DEG-FLH-HD | 28480 | 0515-1103 |
| MP38 | 08642-40046 | 6 | 2 | MODULE GUIDE POST (SHORT) | 28480 | 08642-40046 |
| | 0515-1103 | 9 | | SCREW-MACH M3 X 0.5 10MM-LG 90-DEG-FLH-HD | 28480 | 0515-1103 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-----------------------|----------------|-----|-----|--------------------------------------------------------------------------------------------------|----------|----------------------|
| MP39 | 08642-60080 | 0 | 1 | SIDE STRUT BRACE | 28480 | 08642-60080 |
| | 0515-1142 | 6 | | SCREW-MACH M4 X 0.7 8MM-LG PAN-HD | 28480 | 0515-1142 |
| | 08642-00124 | 7 | 6 | CABLE CLIP | 28480 | 08642-00124 |
| MP40 | 08642-00125 | 8 | 1 | TUBULAR CABLE GUIDE | 28480 | 08642-00125 |
| | 0515-1142 | 6 | | SCREW-MACH M4 X 0.7 8MM-LG PAN-HD | 28480 | 0515-1142 |
| MP41 | 08642-60068 | 4 | 1 | SHOCK BOX | 28480 | 08642-60068 |
| MP42 | 1520-0236 | 9 | 4 | SHOCK MOUNT .63-EFF-HGT | 28480 | 1520-0236 |
| | 0515-0684 | 9 | | SCREW-MACH M4 X 0.7 6MM-LG PAN-HD | 28480 | 0515-0684 |
| | 0515-1138 | 0 | 4 | (FRONT: SHOCK MOUNT TO MAIN BRACE) (REAR: ATTACH SHOCK MOUNT TO SHOCK BOX) | 28480 | 0515-1138 |
| | 0380-0010 | 8 | 4 | SPACER-RND .625-IN-LG .18-IN-ID | 28480 | 0380-0010 |
| MP43 | 08642-00080 | 4 | 1 | SHOCK LIMITER | 28480 | 08642-00080 |
| | 0515-1140 | 4 | 4 | SCREW-MACH M4 X 0.7 25MM-LG | 28480 | 0515-1140 |
| MP44 | 08642-20059 | 9 | 2 | SHOCK CUSHION SPACER | 28480 | 08642-20059 |
| MP45 | 08642-00020 | 2 | 1 | LONG GUSSET | 28480 | 08642-00020 |
| | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH GUSSET TO CENTER REAR AND LEFT REAR BRACKET) | 28480 | 0515-1102 |
| MP46 | 08642-00021 | 3 | 1 | SHORT GUSSET | 28480 | 08642-00021 |
| | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD (ATTACH GUSSET TO RIGHT REAR BRACKET) | 28480 | 0515-1102 |
| MP47 | 08642-60089 | 9 | 1 | REAR BRACKET (LEFT) | 28480 | 08642-60089 |
| | 0515-1142 | 6 | | SCREW-MACH M4 X 0.7 8MM-LG PAN-HD (ATTACH BRACKET TO CORNER STRUT) | 28480 | 0515-1142 |
| | 08642-00124 | 7 | | CABLE CLIP | 28480 | 08642-00124 |
| MP48 | 08642-00171 | 4 | 1 | TRANSFORMER RETAINER | 28480 | 08642-00171 |
| MP49 | 8710-1378 | 2 | 1 | TORX BIT T15 | 28480 | 8710-1378 |
| MP50 | 8710-1524 | 0 | 1 | TORX BIT T10 | 28480 | 8710-1524 |
| MP51 | 08642-20041 | 9 | 2 | EXTENDER POSTS | 28480 | 08642-20041 |
| MP52 | 7100-1115 | 1 | 1 | TRANSFORMER COVER | 28480 | 7100-1115 |
| | 0515-1082 | 3 | 4 | SCREW-MACH M4 X 0.7 75MM-LG PAN-HD | 28480 | 0515-1082 |
| | 3050-2007 | 1 | 4 | INSULATED WASHER | 28480 | 3050-2007 |
| MP53 | 08642-60086 | 6 | 1 | REAR BRACKET (CENTER) | 28480 | 08642-60086 |
| | 0515-1142 | 6 | | SCREW-MACH M4 X 0.7 8MM-LG PAN-HD | 28480 | 0515-1142 |
| | 0515-1228 | 9 | 3 | SCREW-MACH M4 X 0.7 6MM-LG 90-DEG-FLH-HD (ATTACH CENTER BRACKET TO RIGHT BRACKET) | 28480 | 0515-1228 |
| | 0515-0655 | 4 | | SCREW-MACH M3 X 0.5 8MM-LG PAN-HD (ATTACH A18 TO BRACKET) | 00000 | ORDER BY DESCRIPTION |
| MP54 | 08642-00070 | 2 | 1 | RF CONNECTOR WRENCH | 28480 | 08642-00070 |
| MP55 | 08642-00031 | 5 | 1 | REAR BRACKET (RIGHT) | 28480 | 08642-00031 |
| | 0515-1142 | 6 | | SCREW-MACH M4 X 0.7 8MM-LG PAN-HD (ATTACH BRACKET TO SUPPORT) | 28480 | 0515-1142 |
| | 2190-0071 | 0 | 7 | WASHER-LK EXT T NO. 4 .116-1N-ID | 28480 | 2190-0071 |
| | 0515-0655 | 4 | | SCREW-MACH M3 X 0.5 8MM-LG PAN-HD (ATTACH A18 TO BRACKET) | 00000 | ORDER BY DESCRIPTION |
| | 2190-0005 | 0 | 4 | WASHER-LK EXT T NO. 4 .116-IN-ID | 28480 | 2190-0005 |
| MP56 | 08642-20037 | 3 | 1 | REAR BRACKET SUPPORT (RIGHT) | 28480 | 08642-20037 |
| | 0515-0381 | 3 | 6 | SCREW-MACH M4 X 0.7 10MM-LG PAN-HD (ATTACH SUPPORT TO STRUT) | 00000 | ORDER BY DESCRIPTION |
| | 2190-0009 | 4 | | WASHER-LK INTL NO.8 .168-IN-ID | 28480 | 2190-0009 |
| | 08642-00116 | 7 | | SCREW CAP | 28480 | 08642-00116 |
| MP57 | 08642-00104 | 3 | 1 | POWER SUPPLY L-BRACKET | 28480 | 08642-00104 |
| | 0515-1142 | 6 | | SCREW-MACH M4 X 0.7 8MM-LG PAN-HD (ATTACH BRACKET TO STRUT) | 28480 | 0515-1142 |
| | 08642-00116 | 7 | | SCREW CAP | 28480 | 08642-00116 |
| | 2190-0009 | 4 | | WASHER-LK INTL NO.8 .168-IN-ID | 28480 | 2190-0009 |
| | 0515-0655 | 4 | | SCREW-MACH M3 X 0.5 8MM-LG PAN-HD (ATTACH A18 TO BRACKET) | 00000 | ORDER BY DESCRIPTION |
| | 2190-0005 | 0 | | WASHER-LK EXT T NO. 4 .116-IN-ID | 28480 | 2190-0005 |
| MP58 | 08642-00089 | 3 | 1 | AIR SEAL PLATE | 28480 | 08642-00089 |
| | 0515-1227 | 8 | | SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD (ATTACH PLATE TO RIGHT REAR BRACKET) | 28480 | 0515-1227 |
| | 0400-0002 | 2 | 1 | GROMMET-RND .188-IN-ID .312-IN-GRV-OD | 28480 | 0400-0002 |
| | 0400-0009 | 9 | 1 | GROMMET-RND .125-IN-ID .25-IN-GRV-OD | 28480 | 0400-0009 |
| MP59 | 08642-00028 | 0 | 1 | SMA RF OUT BRACKET | 28480 | 08642-00028 |
| | 0515-1102 | 8 | | SCREW-MACH M3 X 0.5 8MM-LG 90-DEG-FLH-HD | 28480 | 0515-1102 |
| MP60 | 0515-1142 | 6 | | SCREW-MACH M4 X 0.7 8MM-LG PAN-HD (ATTACH A17 TO STRUTS) | 28480 | 0515-1142 |
| | 0515-0655 | 4 | | SCREW-MACH M3 X 0.5 8MM-LG PAN-HD (ATTACH A18 TO INSTRUMENT) | 00000 | ORDER BY DESCRIPTION |
| MP61 | 2190-0071 | 0 | 7 | WASHER-LK EXT T NO.4 .116-1N-ID | 28480 | 2190-0071 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------|----------------|-----|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------|
| 2427A TO 2534A MP62 | 08642-60087 | 7 | 1 | POWER SUPPLY COVER SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD | 28480 | 08642-60087 0515-1227 |
| | 0515-1227 | 8 | | | 28480 | |
| 2435A AND ABOVE MP62 | 08642-60143 | 6 | 1 | POWER SUPPLY COVER SCREW-MACH M3 X 0.5 6MM-LG 90-DEG-FLH-HD | 28480 | 08642-60143 0515-1227 |
| | 0515-1227 | 8 | | | 28480 | |
| MP63 | 08642-40073 | 9 | 1 | FUSE PULLER FAN ACCESS COVER | 28480 | 08642-40073 08642-60082 |
| | 08642-60082 | 2 | | | 28480 | |
| MP64 | 0515-0681 | 6 | 1 | SCREW-MACH M3 X 0.5 14MM-LG PAN-HD (ATTACH ACCESS COVER TO FAN) | 28480 | 0515-0681 |
| | 0515-0381 | 3 | | | 00000 | |
| 2447A TO 2434A MP65 | 08642-00091 | 7 | 1 | CALIBRATION BOARD COVER FASTENER-SNAP-IN PLGR FOR USE WITH FASTENER-SNAP-IN GROM FOR USE WITH STANDOFF-1/4 TURN 6.35 MM LG; 10.16 MM | 28480 | 08642-00091 1390-0365 1390-0366 0380-1705 |
| | 1390-0365 | 8 | | | 28480 | |
| | 1390-0366 | 9 | | | 28480 | |
| | 0380-1705 | 0 | | | 28480 | |
| 2535A AND ABOVE MP65 | 08642-00157 | 6 | 1 | CALIBRATION BOARD COVER FASTENER-SNAP-IN PLGR FOR USE WITH FASTENER-SNAP-IN GROM FOR USE WITH STANDOFF-1/4 TURN 6.35 MM LG; 10.16 MM | 28480 | 08642-00157 1390-0365 1390-0366 0380-1705 |
| | 1390-0365 | 8 | | | 28480 | |
| | 1390-0366 | 9 | | | 28480 | |
| | 0380-1705 | 0 | | | 28480 | |
| MP66 | 6960-0095 | 5 | 3 | PLUG-HOLE DOME-HD FOR .562-D-HOLE NYL "FM/OM", "MOD OUT", "AM/PULSE" (REAR PANEL: EXCEPT OPTION 002) | 28520 | 6960-0095 |
| MP67 | 6960-0027 | 3 | 4 | PLUG-HOLE FL-HD FOR .625-D-HOLE NYL "RF OUTPUT" (REAR PANEL: EXCEPT OPTION 002) | 28480 | 6960-0027 |
| MP68 | 6960-0041 | 1 | 1 | PLUG-HOLE FL-HD FOR .5-D-HOLE NYL "10 MHZ OVEN OUT" (EXCEPT OPTION 001) | 28480 | 6960-0041 |
| MP69 | 0890-0025 | 6 | 1 | SPIRAL CABLE WRAP CABLE TIE .062-.625-DIA .091-WD NYL | 28480 | 0890-0025 PLT1M-8 |
| | 1400-0249 | 0 | | | 06383 | |
| MP70 | 08642-20072 | 6 | 7 | MODULE SLIDE RIBBON CABLE SCREW (8642A ONLY) | 28480 | 08642-20072 |
| MP71 | 08642-00092 | 8 | 1 | ESD STRAP | 28480 | 08642-00092 |
| MP72 | 7120-4296 | 7 | 1 | LABEL-WARNING .688-IN-WD 1.5-IN-LG AL "WARNING HAZARDOUS VOLTAGE ALWAYS PRESENT IN THIS AREA..." | 28480 | 7120-4296 |
| MP73 | 7120-1254 | 1 | 1 | NAMEPLATE .312-IN-WD .54-IN-LG AL (HP LOGO) | 28480 | 7120-1254 |
| MP74 | 7124-2312 | 2 | 1 | LABEL-INFORMATION .21-IN-WD 2.33-IN-LG LABEL | 28480 | 7124-2312 08642-00138 |
| | 08642-00138 | 3 | | | 28480 | |
| MP75 | 7120-8138 | 4 | 1 | "EXCESSIVE WEIGHT..." LABEL "CAUTION: REMOVE 4 REAR FEET BEFORE REMOVING ANY COVER." | 28480 | 7120-8138 |
| 2427A TO 2534A MP78 | 5040-7221 | 2 | 4 | REAR PANEL FOOT SCREW-MACH 6-32 .375-IN-LG PAN-HD-POZI | 28480 | 5040-7221 2360-0197 |
| | 2360-0197 | 2 | | | 28480 | |
| 2535A AND ABOVE MP78 | 5040-7221 | 2 | 4 | REAR PANEL FOOT SCREW-MACH M3.5 X 0.6 8MM-LG PAN-HD | 28480 | 5040-7221 0515-1232 |
| | 0515-1232 | 5 | | | 28480 | |
| 2709A TO 2719A MP79 | | | | NOT ASSIGNED | | |
| 2720A AND ABOVE MP79 | 86701-00017 | 3 | 1 | DISK FAN SHIELD (PLACED BETWEEN DBLR AND ATTENUATORS) | 28480 | 86701-00017 |
| 2427A TO 2637A RT1 | | | | NOT ASSIGNED | | |
| 2640A AND ABOVE RT1 | 0837-0366 | 6 | 1 | THEMISTOR-SURGE PTCTR 5 OHM AT 25 DEG C TRANSFORMER CONNECTOR-SGL CONT SKT 1.14-MM-BSC-SZ CONTACT-CONN U/W-POST-TYPE FEM CRP CABLE TIE .062-.625-DIA .091-WD NYL | 28480 | 0837-0366 0362-0265 1251-7363 PLT1M-8 |
| | 9100-4417 | 7 | | | 28480 | |
| | 0362-0265 | 6 | | | 28480 | |
| | 1251-7363 | 0 | | | 06383 | |
| T1 | 1400-0249 | 0 | | | | |
| | | | | | | |
| W1 | 08642-60015 | 1 | 1 | FM CABLE, FLAT - A6A1J1, A6A2J1 TO A5J1 | 28480 | 08642-60015 |
| W2 | 08642-60016 | 2 | 1 | SAWRS CABLE FLAT - A7A1J1 TO A5J2 | 28480 | 08642-60016 |
| W3 | 08642-60017 | 3 | 1 | IF CABLE FLAT - A9A2J1 TO A5J3 | 28480 | 08642-60017 |
| W4 | 08642-60018 | 4 | 1 | REF CABLE FLAT - A11A1J1 TO A5J4 | 28480 | 08642-60018 |
| W5 | 08642-60019 | 5 | 1 | SUM CABLE FLAT - A12A3J1 TO A5J5 | 28480 | 08642-60019 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|------------------------|----------------|-----|-----|----------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------|
| W6 | 08642-60020 | 8 | 1 | OUTUHF CABLE FLAT - A13A2J1 TO A5J6 | 28480 | 08642-60020 |
| W7 | 08642-60021 | 9 | 1 | OUTHET CABLE FLAT - A14A2J2 TO A5J7 | 28480 | 08642-60021 |
| W8 | 08642-60023 | 1 | 1 | ATTEN CABLE ASSY FLAT - A16A1J1 TO A5J8 | 28480 | 08642-60023 |
| W9 | 08642-60013 | 9 | 1 | DRIVERS CABLE FLAT - A17J3 TO A5J13 | 28480 | 08642-60013 |
| W10 | 08642-60012 | 8 | 1 | POWER SUPPLY CABLE FLAT - A17J2 TO A5J12 | 28480 | 08642-60012 |
| W11 | 08642-60023 | 1 | 1 | DOUBLER CABLE FLAT - A19A1J2 TO A5J8 (8642B ONLY) | 28480 | 08642-60023 |
| W12 | 08642-60014 | 0 | 1 | HP-IB CABLE FLAT A15J2 TO A5J20, A5J21 | 28480 | 08642-60014 |
| W13 | 08642-60038 | 8 | 1 | POWER SUPPLY JUMPER - A18J3 TO A17J1 | 28480 | 08642-60038 |
| W14 | 08642-60010 | 6 | 1 | MODULATION 20 CABLE FLAT - A2J1 TO A5J11 | 28480 | 08642-60010 |
| W15 | 08642-60011 | 7 | 1 | DISPLAY CABLE FLAT-A1A1J1 TO A5J9, A5J10 | 28480 | 08642-60011 |
| W16 | 08642-20044 | 2 | 1 | RF OUT CABLE SEMI-RIGID | 28480 | 08642-20044 |
| W17 | 08642-60060 | 6 | 1 | A2J7 TO FRONT PANEL J3 "MOD" (95) | 28480 | 08642-60060 |
| W18 | 08642-60059 | 3 | 1 | A2J2 TO FRONT PANEL J1 "AM/PULSE" (945) | 28480 | 08642-60059 |
| W19 | 08642-60058 | 2 | 1 | A2J5 TO FRONT PANEL J2 "FM/0M" (98) | 28480 | 08642-60058 |
| W20 | 08642-60064 | 0 | 1 | A6A1J4 TO A2J6 (967) | 28480 | 08642-60064 |
| W21 | 08642-60062 | 8 | 1 | A6A2J3 TO A2J8 (93) | 28480 | 08642-60062 |
| W22 | 08642-60061 | 7 | 1 | A2J3 TO A13A2J4 (90) | 28480 | 08642-60061 |
| W23 | 08642-60057 | 1 | 1 | A6A2J5 TO REAR PANEL J8 "10 MHZ OUT" (903) | 28480 | 08642-60057 |
| W24 | 08642-60051 | 5 | 1 | A6A1J2 TO A11A1J3 (935) | 28480 | 08642-60051 |
| W25 | 08642-60052 | 6 | 1 | A7A1J3 TO A11A3J4 (937) | 28480 | 08642-60052 |
| W26 | 08642-60053 | 7 | 1 | A6A2J6 TO A9A2J3 (905) | 28480 | 08642-60053 |
| W27 | 08642-60056 | 0 | 1 | A6A2J7 TO REAR PANEL J4 "EXT REF INPUT" (97) | 28480 | 08642-60056 |
| W28 | 08642-60054 | 8 | 1 | A6A2J8 TO A7A1J2 (927) | 28480 | 08642-60054 |
| W29 | 08642-60035 | 5 | 1 | A6A2J9 TO A14A2J1 (926) | 28480 | 08642-60035 |
| W30 | 08642-60036 | 6 | 1 | A9A1J4 TO A12A3J6 (956) | 28480 | 08642-60036 |
| W31 | 08642-60039 | 9 | 1 | A11A3J2 TO A12A2J2 (901) | 28480 | 08642-60039 |
| W32 | 08642-60037 | 7 | 1 | A12A3J3 TO A13A2J6 (957) | 28480 | 08642-60037 |
| W33 | 08642-60063 | 9 | 1 | A2J4 TO A19A1J6 (96) 8642B ONLY | 28480 | 08642-60063 |
| 2427A TO 2509A | | | | | | |
| W34 | 08642-20048 | 6 | 1 | A13A2J3 TO A14U1J2 | 28480 | 08642- |
| W35 | 08642-20051 | 1 | 1 | A14U1J3 TO A16AT1J1 (8642A ONLY) | 28480 | 08642-20095 |
| W36 | 08642-20052 | 2 | 1 | A14U1J3 TO A19K1J2 (8642B ONLY) | 28480 | 08642-20052 |
| 2510A AND ABOVE | | | | | | |
| W34 | 08642-20095 | 3 | 1 | A13A2J3 TO A14U1J2 | 28480 | 08642-20094 |
| W35 | 08642-20096 | 4 | 1 | A14U1J3 TO A16AT1J1 (8642A ONLY) | 28480 | 08642-20095 |
| W36 | 08642-20094 | 2 | 1 | A14U1J3 TO A19K1J2 (8642B ONLY) | 28480 | 08642-2009 |
| W37 | 08642-20058 | 8 | 1 | A16AT2J2 TO W16P2 (8642A: EXCEPT OPTION 002) | 28480 | 08642-20058 |
| W38 | 08642-20054 | 4 | 1 | A16AT2J2 TO W200P2 (8642A: OPTION 002) A19A2J2 TO W16P2 (8642B: EXCEPT OPTION 002) A19A2J2 TO W200P2 (8642B: OPTION 002 ONLY) | 28480 | 08642-20054 |
| W39-W99 | | | | NOT ASSIGNED | | |
| W100 | 1250-1499 | 5 | 1 | ADAPTER COAXIAL "10 MHZ OVEN OUT" TO "EXT REF INPUT" (OPTION 001 ONLY) | 28480 | 1250-1499 |
| W101 | 08642-60055 | 9 | 1 | A8J1 TO REAR PANEL J5 "10 MHZ OVEN OUT" (92) (OPTION 001 ONLY) | 28480 | 08642-60055 |
| W102 | 08642-60071 | 9 | 1 | OVEN HARNESS A8 TO A18J4 (OPTION 001 ONLY) | 28480 | 08642-60071 |
| W103-W199 | | | | NOT ASSIGNED | | |
| W200 | 08642-20045 | 3 | 1 | RF OUT CABLE SEMIRIGID (REAR PANEL; OPTION 002 ONLY) | 28480 | 08642-20045 |
| W201 | 08642-60067 | 3 | 1 | A2J5 TO REAR PANEL J9 "FM/0M" (98) (OPTION 002 ONLY) | 28480 | 08642-60067 |
| W202 | 08642-60066 | 2 | 1 | A2J2 TO REAR PANEL J6 "AM/PULSE" (945) (OPTION 002 ONLY) | 28480 | 08642-60066 |
| W203 | 08642-60065 | 1 | 1 | A2J7 TO REAR PANEL J11 "MOD OUT" (95) (OPTION 002 ONLY) | 28480 | 08642-60065 |
| W204-W299 | | | | NOT ASSIGNED | | |
| 2427A TO 2509A | | | | | | |
| W300 | 08642-20093 | 1 | 1 | A14U1J3 TO A16AT1J1 | 28480 | 08642-20093 |
| 2510A AND ABOVE | | | | | | |
| W300 | 08642-20097 | 5 | 1 | A14U1J3 TO A16AT1J1 | 28480 | 08642-20097 |
| W301 | 08642-20054 | 4 | 1 | A16A2J2 TO W200P2 | 28480 | 08642-20054 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-2. Replaceable Parts

| Reference Designation | HP Part Number | C D | Qty | Description | Mfr Code | Mfr Part Number |
|-------------------------|----------------|-----|-----|------------------------------------------------------------------------|----------|-----------------|
| W100 | 1250-1499 | 5 | 1 | ADAPTER COAXIAL "10 MHZ OVEN OUT" TO "EXT REF INPUT" (OPTION 001 ONLY) | 28480 | 1250-1499 |
| W101 | 08642-60055 | 9 | 1 | A8J1 TO REAR PANEL J5 "10 MHZ OVEN OUT" (92) (OPTION 001 ONLY) | 28480 | 08642-60055 |
| W102 | 08642-60071 | 9 | 1 | OVEN HARNESS A8 TO A18J4 (OPTION 001 ONLY) | 28480 | 08642-60071 |
| W103-W199 | | | | NOT ASSIGNED | | |
| W200 | 08642-20045 | 3 | 1 | RF OUT CABLE SEMIRIGID (REAR PANEL; OPTION 002 ONLY) | 28480 | 08642-20045 |
| W201 | 08642-60067 | 3 | 1 | A2J5 TO REAR PANEL J9 "FM/0M" (98) (OPTION 002 ONLY) | 28480 | 08642-60067 |
| W202 | 08642-60066 | 2 | 1 | A2J2 TO REAR PANEL J6 "AM/PULSE" (945) (OPTION 002 ONLY) | 28480 | 08642-60066 |
| W203 | 08642-60065 | 1 | 1 | A2J7 TO REAR PANEL J11 "MOD OUT" (95) (OPTION 002 ONLY) | 28480 | 08642-60065 |
| W204-W299 | | | | NOT ASSIGNED | | |
| 2427A TO 2509A W300 | 08642-20093 | 1 | 1 | A14U1J3 TO A16AT1J1 | 28480 | 08642-20093 |
| 2510A AND ABOVE W300 | 08642-20097 | 5 | 1 | A14U1J3 TO A16AT1J1 | 28480 | 08642-20097 |
| W301 | 08642-20054 | 4 | | A16A2J2 TO W200P2 | 28480 | 08642-20054 |

See introduction to this section for ordering information.

* Indicates factory selected value

Table 6-3. Manufacturers Code List

| Mfr Code | Manufacturer Name | Address | Zip Code |
|----------|-------------------------------------|-------------------|----------|
| 00000 | ANY SATISFACTORY SUPPLIER | | |
| 00853 | SANGAMO ELEC CO S CAROLINA DIV | PICKENS SC | 29671 |
| 00904 | DENVER PLASTIC INC | LAKWOOD CO | 80214 |
| 01121 | ALLEN-BRADLEY CO | MILWAUKEE WI | 53204 |
| 01295 | TEXAS INSTR INC SEMICOND CMPNT DIV | DALLAS TX | 75222 |
| 02111 | SPECTROL ELECTRONICS CORP | CITY OF IND CA | 91745 |
| 02114 | FERROXCUBE CORP | SAUGERTIES NY | 12477 |
| 03888 | K D I PYROFILM CORP | WHIPPANY NJ | 07981 |
| 04713 | MOTOROLA SEMICONDUCTOR PRODUCTS | PHOENIX AZ | 85008 |
| 05245 | CORCOM INC | CHICAGO IL | 60657 |
| 06383 | PANDUIT CORP | TINLEY PARK IL | 60477 |
| 07263 | FAIRCHILD SEMICONDUCTOR DIV | MOUNTAIN VIEW CA | 94042 |
| 07716 | TRW INC BURLINGTON DIV | BURLINGTON IA | 52601 |
| 11502 | TRW INC BOONE DIV | BOONE NC | 28607 |
| 13103 | THERMALLY CO | DALLAS TX | 75234 |
| 13606 | SPRAGUE ELECT CO SEMICONDUCTOR DIV | CONCORD NH | 03301 |
| 16546 | U S CAPACITOR CORP | BURBANK CA | 91504 |
| 17540 | ALPHA INDUSTRIES INC | WOBURN MA | 01801 |
| 17856 | SILICONIX INC | SANTA CLARA CA | 95054 |
| 18324 | SIGNETICS CORP | SUNNYVALE CA | 94086 |
| 19701 | MEPCO/ELECTRA CORP | MINERAL WELLS TX | 76067 |
| 20932 | EMCON DIV ITW | SAN DIEGO CA | 92129 |
| 22526 | BERG ELEK DIV DUPONT | NEW CUMBERLAND PA | 17070 |
| 24046 | TRANSITRON ELECTRONIC CORP | WAKEFIELD MA | 01880 |
| 24546 | CORNING GLASS WORKS (BRADFORD) | BRADFORD PA | 16701 |
| 25088 | SIEMENS CORP | ISELIN NJ | 08830 |
| 26654 | VARADYNE INC | SANTA MONICA CA | 90404 |
| 27014 | NATIONAL SEMICONDUCTOR CORP | SANTA CLARA CA | 95051 |
| 27167 | CORNING GLASS WORKS (WILMINGTON) | WILMINGTON NC | 28401 |
| 28480 | HEWLETT-PACKARD CO CORPORATE HQ | PALO ALTO CA | 94304 |
| 31585 | RCA CORP SOLID STATE DIV | SOMERVILLE NJ | |
| 32293 | INTERSIL INC | CUPERTINO CA | 95014 |
| 32997 | BOURNS INC TRIMPOT PROD DIV | RIVERSIDE CA | 92507 |
| 34371 | HARRIS SEMICON DIV HARRIS-INTERTYPE | MELBOURNE FL | 32901 |
| 51642 | CENTRE ENGINEERING INC | STATE COLLEGE PA | 16801 |
| 51959 | VICLAN INC | SAN DIEGO CA | 92138 |
| 52063 | EXAR INTEGRATED SYSTEMS INC | SUNNYVALE CA | 94086 |
| 56289 | SPRAGUE ELECTRIC CO | NORTH ADAMS MA | 01247 |
| 71400 | BUSSMAN MFG DIV OF MCCRAW-EDISON CO | ST LOUIS MO | 63107 |
| 73138 | BECKMAN INSTRUMENTS INC HELIPOT DIV | FULLERTON CA | 92634 |
| 74970 | JOHNSON E F CO | WASECA MN | 56093 |
| 75915 | LITTELFUSE INC | DES PLAINES IL | 60016 |
| 8M498 | JOHANSON DIELECTRICS INC | BURBANK CA | 91510 |

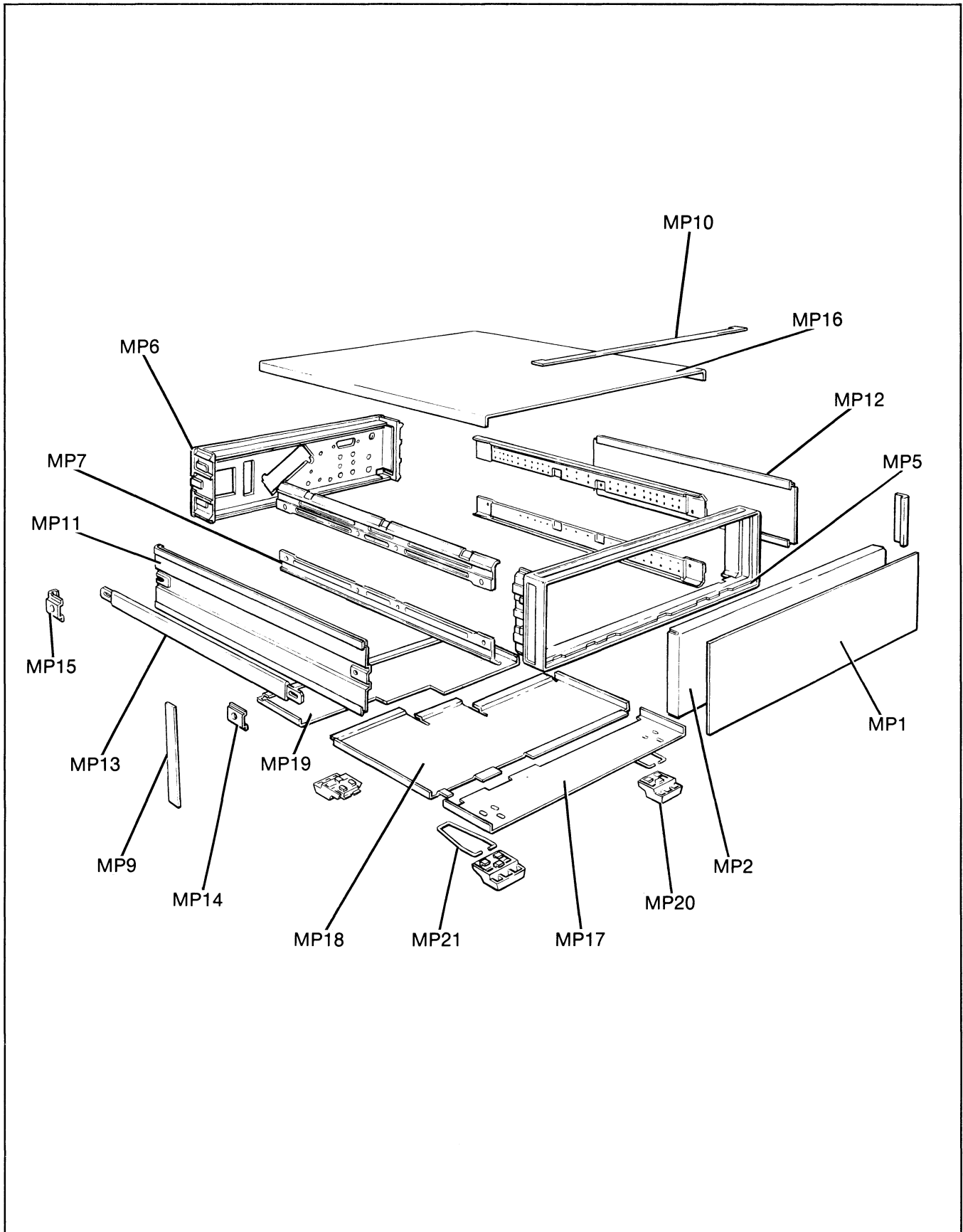


Figure 6-1. Cabinet Parts

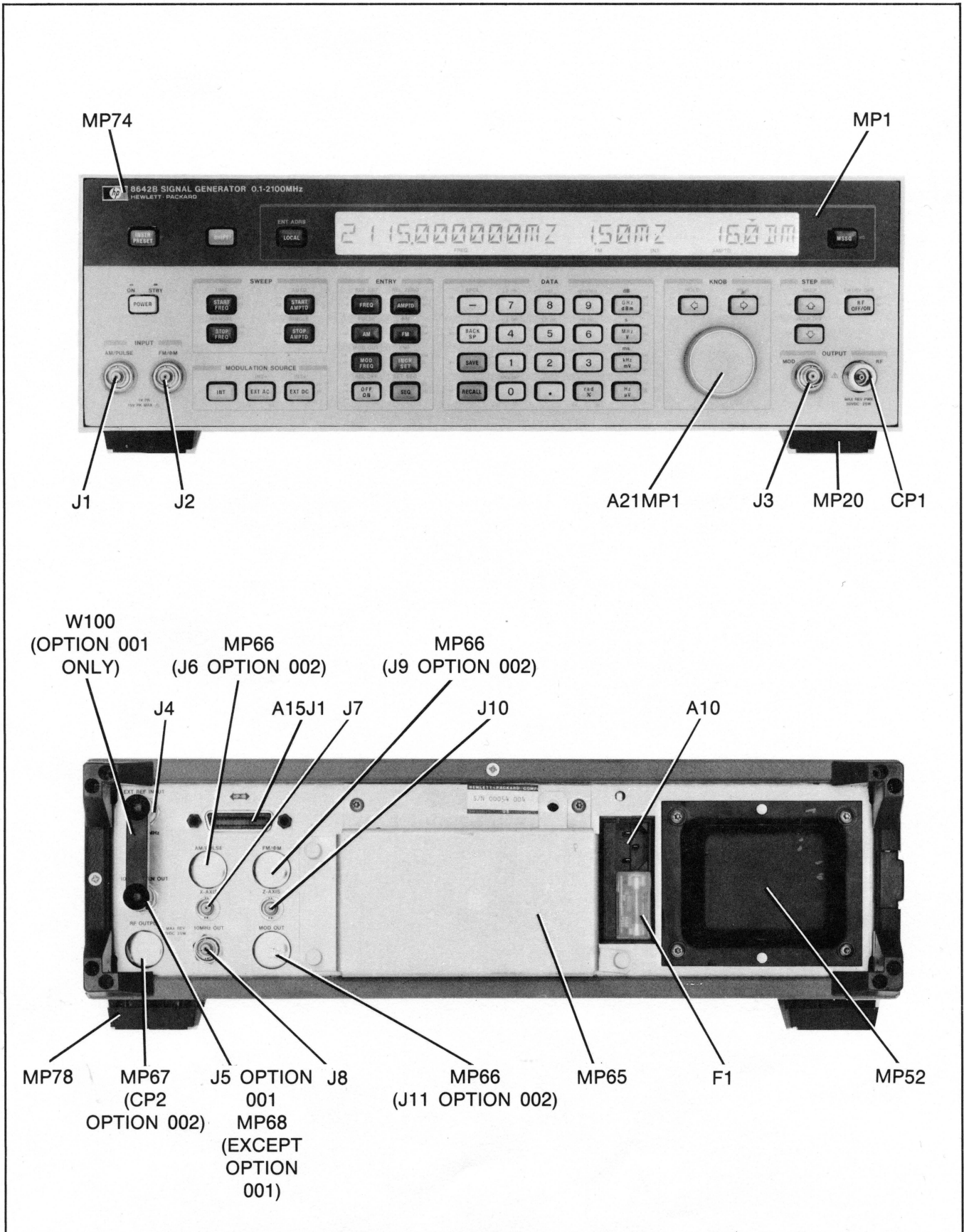


Figure 6-2. Front and Rear Panel Parts Identification

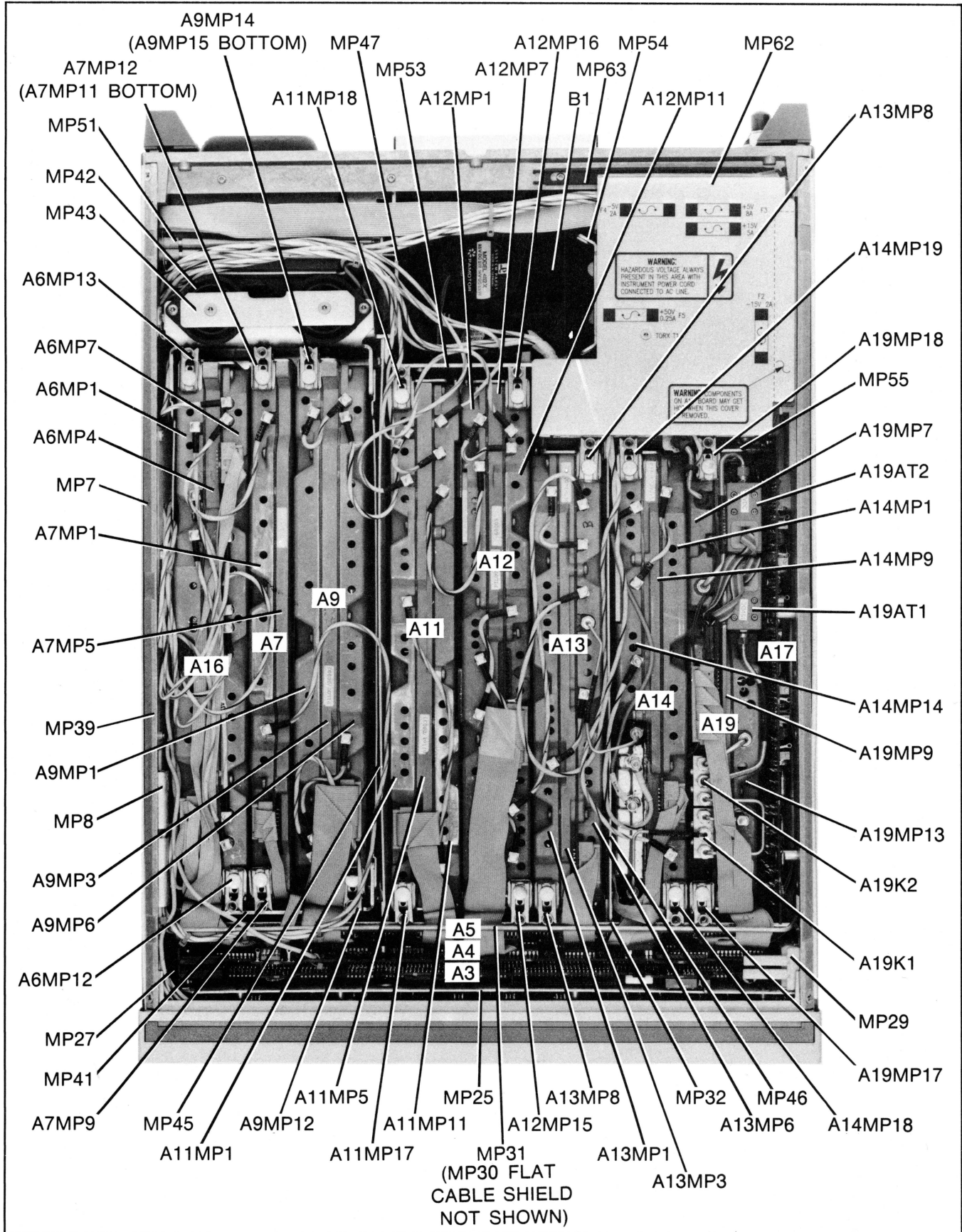


Figure 6-3. Top Internal View Parts Identification

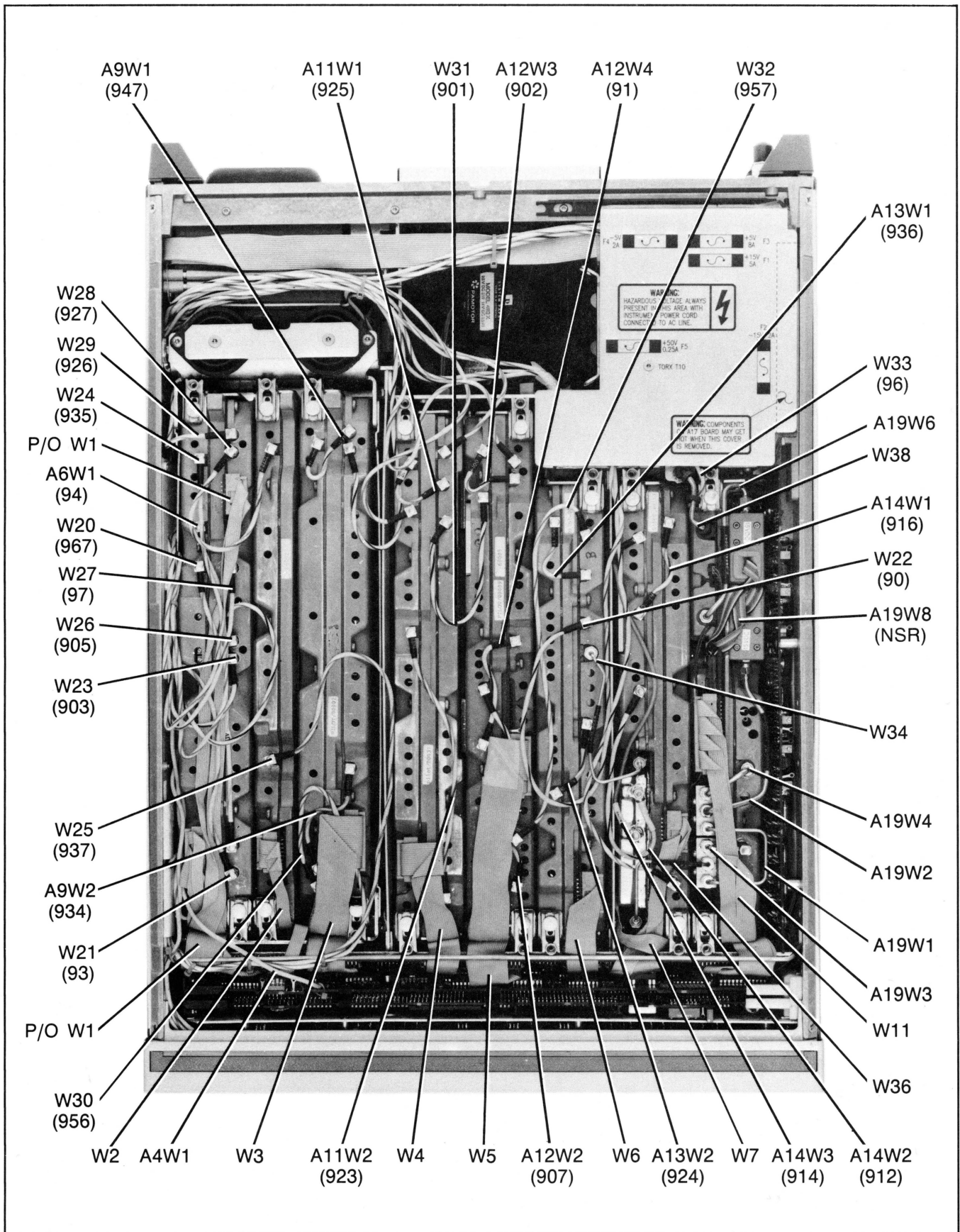


Figure 6-4. Top Internal View Cable Identification

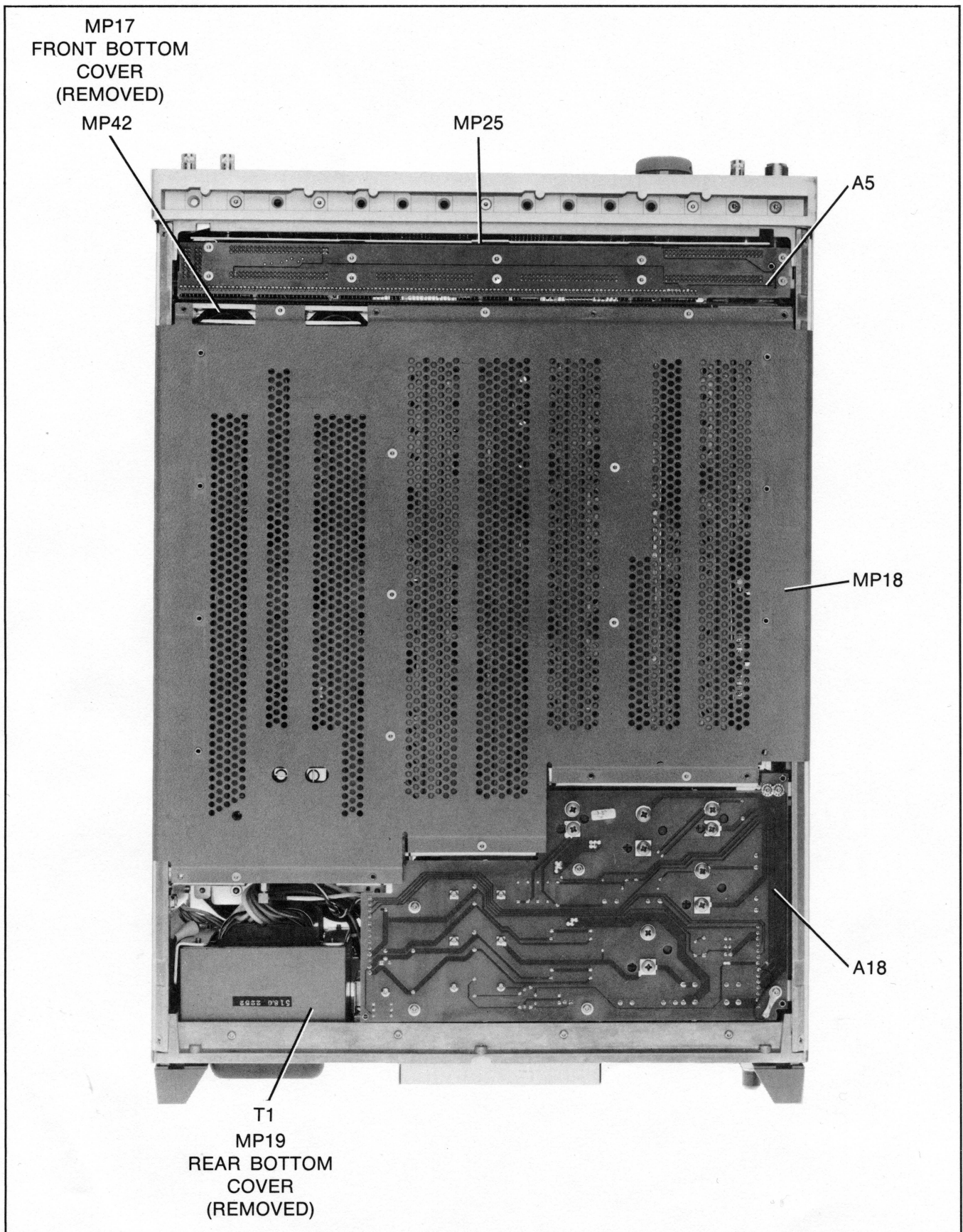


Figure 6-5. Bottom Internal View Parts Identification

Section 7 INSTRUMENT CHANGES

7-1. INTRODUCTION TO THIS SECTION

This section contains instrument modification recommendations and procedures that could improve the performance and reliability of your instrument. Refer to *Instruments Covered by This Manual*, paragraph 1-12 in Section 1 for important information about serial number coverage.

7-2. CABINET PARTS COLOR CHANGE

(2930A and above)

Serial prefix 2930A changes the color of the instrument covers and accessories. The old color cover and accessories are no longer available. If your instrument has serial prefixes 2927A and below (8642A only) or 2816A and below (8642B only), and you must replace one of these parts, we recommend that you order the full set of covers and accessories. Affected cabinet parts are MP1, MP9-10, MP12-16, MP18, MP19-20, and, MP78 (see Table 6-2).

7-3. A16 ATTENUATOR MODULE

(2427A to 2941A)

Serial prefix 3005A replaces the A16 Attenuator Module with HP Part 08642-60848 (08642-69848 restored). If you need to replace A16 and the Serial Prefix is 2427A to 2941A, order the part numbers listed above.

SECTION VIII

SERVICE

8-1. INTRODUCTION

The following General Service Information will prepare you for success in repairing the HP 8642. By reading through this brief section you will:

- Understand the troubleshooting philosophy that the manual is designed to support.
- Become aware of safety hazards and the precautions you must take to prevent injury to yourself and others. You will also learn procedures on how to protect this instrument from inadvertent damage.
- Understand how the service portion of the manual is organized.
- Know what tools and equipment you will need for servicing the instrument.

8-2. TROUBLESHOOTING

General

The troubleshooting procedures in this manual are designed to identify and isolate failures. Following the steps as outlined will provide you with a troubleshooting strategy designed for successful instrument repair. The process used is divided into four steps.

1. Identification of Failures
2. Instrument Troubleshooting
3. Module Troubleshooting
4. Service Sheet (component) Troubleshooting

Step 1. Identification of Failures

Before attempting to isolate a failure, it should first be identified as: operator error, performance degradation, or a catastrophic failure.

Operator Error

The HP 8642 will recognize many operator errors through the internal controller. The display will prompt the user/operator when this occurs. The operating section can also help identify operator errors. As a final check for operator errors, compare two HP 8642s. If both instruments perform similarly, suspect an operator error.

Performance Degradation

Performance degradation should be confirmed using methods and specifications found in Performance Tests (Section IV). Be sure the test equipment meets or exceeds critical specifications outlined in Section I. Use the information obtained to determine a potentially faulty module. If possible, substitute a known good module for the suspected module and repeat the test that indicated a problem.

Catastrophic Failures

Most catastrophic failures will be detected by the HP 8642's diagnostic hardware or firmware. Hardware failures will cause a blinking message to be displayed. The message can be viewed by pressing the **MSSG** key on the front panel. Multiple hardware failure messages are normally observed when an HP 8642 is not operating correctly. This is due to a ripple effect in the feed-forward design of the instrument. After verification of a catastrophic failure, proceed to instrument troubleshooting.

Step 2. Instrument Troubleshooting

Isolating a catastrophic failure to a single module is called Instrument Troubleshooting. Begin Instrument Troubleshooting by opening the manual to the Diagnostics Tab. The goal in troubleshooting at the instrument level is to rapidly locate a faulty module or interconnection. Using these procedures, you should succeed in isolating a faulty module more than 80% of the time. There is a portion of the diagnostics that provides information helpful in dealing with the remaining 20%. It is called Exceptional Cases and is included as a subset of the diagnostic procedures. After a faulty module has been isolated, proceed to module troubleshooting.

Step 3. Module Troubleshooting

Begin by turning to the tab that lists the module known to be faulty. (All modules are tabbed and are located in Volumes 3 and 4.) These procedures are designed to isolate a fault in a module that is *known* to be the cause of some type of instrument failure. The goal at this level is to identify the Service Sheet that will provide the information necessary for repair. This is accomplished by using the module troubleshooting procedure, simplified block diagram, module block diagram, and module test point/adjustment locations. See Table 8-1 (page 1 of 8). After following this procedure, Service Sheet troubleshooting is used to isolate the fault to a component or components.

Step 4. Service Sheet (Component) Troubleshooting

After a fault has been isolated to the Service Sheet level, the techniques employed to diagnose and repair are left to the service person. The schematics have all circuitry in functional blocks with main feed forward signal paths starting on the left side and going to the right. Feedback paths are shown with dashed lines and have arrows showing direction of signal. This is done to help the service person isolate a faulty component using conventional troubleshooting methods (such as the half splitting method). For an explanation of Service Sheet format, see Table 8-3 (pages 1 and 2 of 8).

8-3. SAFETY CONSIDERATIONS**COMMENT**

These safety considerations are part of an effort to inform you of potential health hazards you may encounter while servicing this instrument. Some are simply common sense precautions that apply to all instruments. Others are peculiar to this instrument and need to be brought to your attention. Please read through this section carefully and thoroughly. We are concerned with your safety.

Before Applying Power to Instrument

Verify that the instrument is set to match the line voltage being used and that the correct fuse is installed. An uninterrupted safety earth ground must be provided from the main power source to the instrument input wiring terminals, power cord, or supplied power cord set. (Refer to Section II.)

Warnings and Cautions

Pay attention to WARNINGS and CAUTIONS. They must be followed for your protection and to avoid damage to the equipment.

WARNING

Transistor A13Q3 contains beryllium oxide (BeO_2), a highly toxic compound. The compound is formed into a pellet which unless ground or crushed into a powder, is completely safe. If the transistor is damaged in a way such that the pellet is no longer intact, do not inhale the beryllium oxide dust and dispose of this component.

Maintenance described herein is performed with power supplied to the instrument and with the protective covers removed. Such maintenance should be performed only by service-trained personnel who are aware of the hazards involved (for example, fire and electrical shock). Where maintenance can be performed without power supplied, the power should be removed.

WARNING

Any interruption of the protective (grounding) conductor (inside or outside the instrument) or disconnection of the protective earth terminal will create a potential shock hazard that could result in personal injury. Grounding one conductor of a two conductor outlet is not sufficient. Whenever it is likely that the protection has been impaired, the instrument must be made inoperative (i.e., secured against unintended operation).

If this instrument is to be energized via an autotransformer, make sure that the autotransformer's common terminal is connected to the earth terminal of the power source.

Capacitors inside the instrument can still be charged even if the instrument is disconnected from its source of supply.

Make sure that only 250 volt fuses with the required rated current and of the specified type (normal blow, time delay, etc.) are used for replacement. Do not use repaired fuses or shortcircuited fuses to do so would create a shock or fire hazard.

For continued protection against fire hazard, replace the line fuse(s) only with 250V fuse(s) of the same current rating and type (for example, normal blow, time delay, etc.). Do not use repaired fuses or short circuited fuseholders.

The left rear portion of the chassis becomes hot during operation. A cooling period may be desired before servicing modules in this area.

To avoid personal injury, avoid contact with the A17 heatsink when the A17 Module is extended.

The HP 8642 is extremely heavy. Do not lift or carry the instrument without assistance. If the instrument is rack-mounted, do not pull the instrument from the rack without assistance.

CAUTION

Do not disconnect or remove any modules in the Signal Generator unless the instrument is unplugged. Some boards contain devices which can be damaged if the board is removed when the power is on. Use conductive foam when removing MOS devices from sockets. Use care when unplugging ICs from high-grip sockets.

The Signal Generator top cover directs cooling airflow and prolonged operation with inadequate airflow could result in instrument damage, therefore, the top cover should be removed only for repair and then promptly replaced.

8-4. COMPONENT HANDLING PRECAUTIONS

Component Replacement Procedures

The instrument's printed circuit boards are manufactured using a Hot Air Leveled (HAL) process. The printed circuit board traces, pads and plated-through holes (PTH) are copper. While the process has several advantages over conventional processes, the printed circuit boards are more susceptible to broken traces, lifted pads and damage to the plated-through holes. Therefore, additional care must be taken when replacing components on HAL printed circuit boards.

Listed below are soldering considerations that apply to all printed circuit boards:

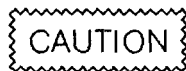
- The temperature of the soldering iron tip and time the tip is in contact with the printed circuit board.
- The size and shape of the soldering iron tip.
- The pressure of the soldering iron tip on the pad.
- The operator's skill.

When replacing components on HAL printed circuit boards the following steps should be taken.

1. Use a temperature controlled soldering iron set at a temperature of 600° F (315° C).

Extensive tests were made by Hewlett-Packard using commercial brands of soldering irons. As a result of these tests, the recommended soldering iron was the HEXACON THERM-O-TRAC STATION #1000 with the FINGER GRIP SLEEVE 21 A-5 and solder tip #J 301X. During soldering, the tip temperature of the HEXACON THERM-O-TRAC STATION remained very stable.

2. Cut out the body of the component to be removed. (Leave leads as long as possible for easier removal.)
3. Apply heat to the lead only. Adding solder as required, slide the tip down to the pad and remove solder with solder sucker.



Tip pressure on the pad is most critical and is totally operator dependent. Excessive tip pressure will damage or destroy the board. Do not use tin desoldering braid or solder wicking techniques on Hot Air Leveled boards.

The melting point of solder in the plated through hole (PTH) is reached in 2.5 seconds at tip temperature of 600° to 750° F (315° to 400° C). The *recommended* time for heat to be applied is 3 seconds.

Keep the solder sucker clean and **do not** let the tip of the solder sucker hit the pad when removing solder. Breaking the lead loose can damage the PTH. If the lead is attached to the PTH after the solder has been removed, reheat the lead to remove it.

4. When soldering or desoldering multilead components, **do not** consecutively apply heat to adjacent leads. Instead, distribute heat by skipping leads or crossing to opposite side of device.

Static Sensitive Devices

This instrument has been assembled in an ESD protected environment. It is important that you read the following information so that you may also prevent ESD damage to the instrument.

Static Sensitive Devices are electronic components that are susceptible to damage or complete destruction in the presence of a static discharge. While all electronic components are static sensitive to some degree, the possibility of damage due to electro-static discharge (ESD) becomes greater as the insulating materials in the components become thinner and as component densities increase. Depending on the magnitude of the charge, device substrates can be punctured or destroyed by contact or **mere proximity** of a static charge.

Static charges accumulate harmlessly in a person's body, therefore the charges can be passed on in numerous ways such as simple contact with the device, during separation of materials, or during normal destructive static discharges (<4000 V). Often static discharges cannot be seen or felt. The damage which may result from these charges can cause degradation of device performance, early failure, or complete destruction of the device.

All schematics with circuit assemblies containing static sensitive components are designated with the international awareness symbol. This symbol indicates that special precautions apply when servicing these circuits.

Following the precautions listed below will prevent damage to the circuit board and its components.



- a. Use metal or conductive plastic wriststraps with a 1 Megohm series resistor connected to ground.

- b. Packages should not be removed from their conductive or antistatic carriers until required and should only be removed by an operator that is grounded through a 1 Megohm series resistor. Devices that are removed should be placed in a conductive tray.
- c. Metal parts of fixtures, tools, soldering irons, and table tops should be grounded to a common point.
- d. Handling equipment, trays, table tops, and transport carts should be electrically conductive.
- e. The circuit board should have a conductive strip placed on its connectors to short all the connections together.

Device Classes

The following is a classification of the ESD sensitivity of components used in most Hewlett-Packard instruments:

CLASS I devices have a sensitivity range from 0 to 1000 volts. Devices in this range include microwave diodes (especially Schottky), BIFET and precision OP AMP ($I_{OS} < 50$ nA, $V_{OS} < 1$ mV), unprotected MOS (especially VLSI), MOS capacitors, advanced Schottky logic, junction FETs and low current SCRs (< 1.5 A), microwave and VHF transistors and ICs, precision IC voltage regulators and resistors, low power resistors (< 0.05 W), VLSICs with dual-level metalization, and Surface Acoustic Wave (SAW) devices.

CLASS II devices have a sensitivity range from 1000 to 4000 volts. Devices in this range include MOS ICs with internal protection (CMOS, NMOS, PMOS) and LSI ICs, Schottky rectifier diodes, linear ICs (bipolar), precision resistor networks, high speed bipolar logic (ECL, LS-TTL, S-TTL), varactor diodes, monolithic ceramic capacitors, RF Mixers and other RF devices utilizing diodes.

CLASS III devices have a sensitivity range from 4000 to 15000 volts. Devices in this range include small signal diodes, and transistors, low-speed bipolar logic (TTL, DTL), quartz and piezoelectric crystals, and thin and thick film resistors ($< 1/8$ W, ≥ 500 k ohms).

8-3. TABS

Section VIII contains information for troubleshooting and repairing the Signal Generator. Located under tabs are:

General Service Information

Under the **GENERAL SERVICE INFORMATION** tab, you will find important information regarding your safety while servicing the instrument. Precautions necessary for protection of the instrument are covered under Component Handling Precautions. You will also find an explanation of service equipment and aids available, and troubleshooting tips.

Disassembly Procedures

Under the **MECHANICAL ASSEMBLY/DISASSEMBLY** tab you will find the information you need to correctly remove and replace instrument assemblies.

Instrument Block Diagram

Under this tab is a highly simplified Block Diagram of the Signal Generator. Its purpose is to provide a conceptual overview of the operating principles and to aid in isolating a fault to a single module.

Diagnostics

Under the **DIAGNOSTICS** tab are the procedural steps for isolating a fault in the Signal Generator to a single module. Internal (microprocessor initiated) diagnostics are used in conjunction with troubleshooting fundamentals to perform this level of service.

Module Level Service (All tabs beginning A___)

Under each tab in the module level service are the block diagram, schematics, and all service information pertaining specifically to the module or modules listed on that tab. Before proceeding to this level of troubleshooting a high probability that the correct (faulty) module has been identified should exist. The procedural steps given in diagnostics will provide this high probability.

8-5. SERVICE EQUIPMENT

Test equipment and test accessories required to maintain the Signal Generator are listed in the table of Recommended Test Equipment in Section I. If any of the recommended test equipment is unavailable, instruments meeting minimum specification may be substituted. Refer to Section I.

Service Tools

Tools Provided in the Instrument

Two Torx bits are located in bracket mounted to the transformer (T1). The Torx bits will fit a 1/4 inch hex drive.

Module extender posts are provided in the tool bracket attached to the transformer (T1). Refer to Assembly/Disassembly procedure for information on use of extender posts.

An RF connector wrench is attached to the metal bracket to the right of the fan. A fuse extraction/insertion tool is located on top of the rear frame of instrument near the fan.

Other Tools

Torque Drivers and Torx Bits. Most screws in the instrument are Torxhead screws. They require a torque wrench and Torxhead bits for proper removal and installation. HP Part Number for T-10 Torx bit is 8710-1493. HP Part Number for T-15 Torx bit is 8710-1465. HP Part Number for torque wrench is 8730-0012.



To avoid damage, do not exceed the following torque limits:

Torque limit for 4 mm screws: 2.2 Nm. (Use bit T-15)

Torque limit for 3 mm screws: 1.5 Nm. (Use bit T-10)

To set the torque limit of the wrench, remove cover from end of handle. Lift key to the vertical position and turn clockwise to increase torque setting or counter-clockwise to decrease torque setting. Align hairline on clear bulb of wrench shaft with the desired setting. Push the key back to the flat position (a very slight turn in either direction may be necessary for key to lock into place).

Pozidriv Screwdrivers. Screws in the Signal Generator that appear to be Phillips type, are not. To avoid damage to the screw slots, Pozidriv screwdrivers should be used. HP 8710-0899 is the No. 1 Pozidriv. HP 8710-0900 is the No. 2 Pozidriv.

Tuning Tools. For adjustments requiring non-metallic tuning tools, use the HP 8710-0033 blade tuning tool or the HP 8710-1010 (JFD Model No. 5284) hex tuning tool. For other adjustments an ordinary small insulated screwdriver or suitable tool is sufficient. No matter which tool is used, never force any adjustment control. This is especially critical when adjusting variable inductors or capacitors.

Heat Staking Tool. The front-panel pushbutton switches have small plastic pins protruding from the back. These tabs fit through holes in the keyboard printed circuit board and are melted down to hold the switch in place. This process is known as heat staking. The heat staking tool is a standard soldering iron with a special tip attached (HP part numbers for the heat staking tools: solder iron tip 5020-8160, special support anvil 5040-6882.)

Service Kits. The 8642A/B has two Service Kits that assist in repair, an On-Site Service Kit and a Bench Service Kit.

The On-Site Service Kit is designed to assist in rapid repair for critical up-time applications. This kit contains all modules needed to restore operation to an instrument. The On-Site Service Kit contains its own manual. One On-Site kit should support a minimum of 25 instruments if properly maintained. Part Numbers for the On-Site Kit are as follows:

| | |
|-------------|--------|
| 8642A only | 11801A |
| 8642B only | 11801B |
| 8642A and B | 11801C |

See Table 1-5 for a complete listing of On-Site Service Kit contents.

The Bench Service Kit contains extender boards, troubleshooting tools, and adapters for bench level component troubleshooting. See Table 1-6 for a detailed listing of its contents.

Top Cover

Assembly locations in the Signal Generator are shown on the inside of the Top Cover of the Signal Generator. There is also a table of cable Designations showing connect points for each cable.

8-6. BASIC LOGIC SYMBOLOGY

The symbols used in this manual are based on the Institute of Electrical and Electronic Engineers (IEEE) IEEE-STD 91-1984, "Graphic Symbols for Logic Functions". This publication may be purchased from:

Institute of Electrical and Electronic Engineers Inc.
345 East 47th Street
New York, N.Y. 10017

There is also an "Explanation of New Logic Symbols" section in Volume I of Texas Instruments TTL Data Book, Vol. 1, 1984. For a listing of combinational and sequential logic functions, dependency notation, and miscellaneous logic functions, see Table 8-1 (pages 5 through 8 of 8).

Table 8-3. Schematic Diagram Notes (1 of 8)

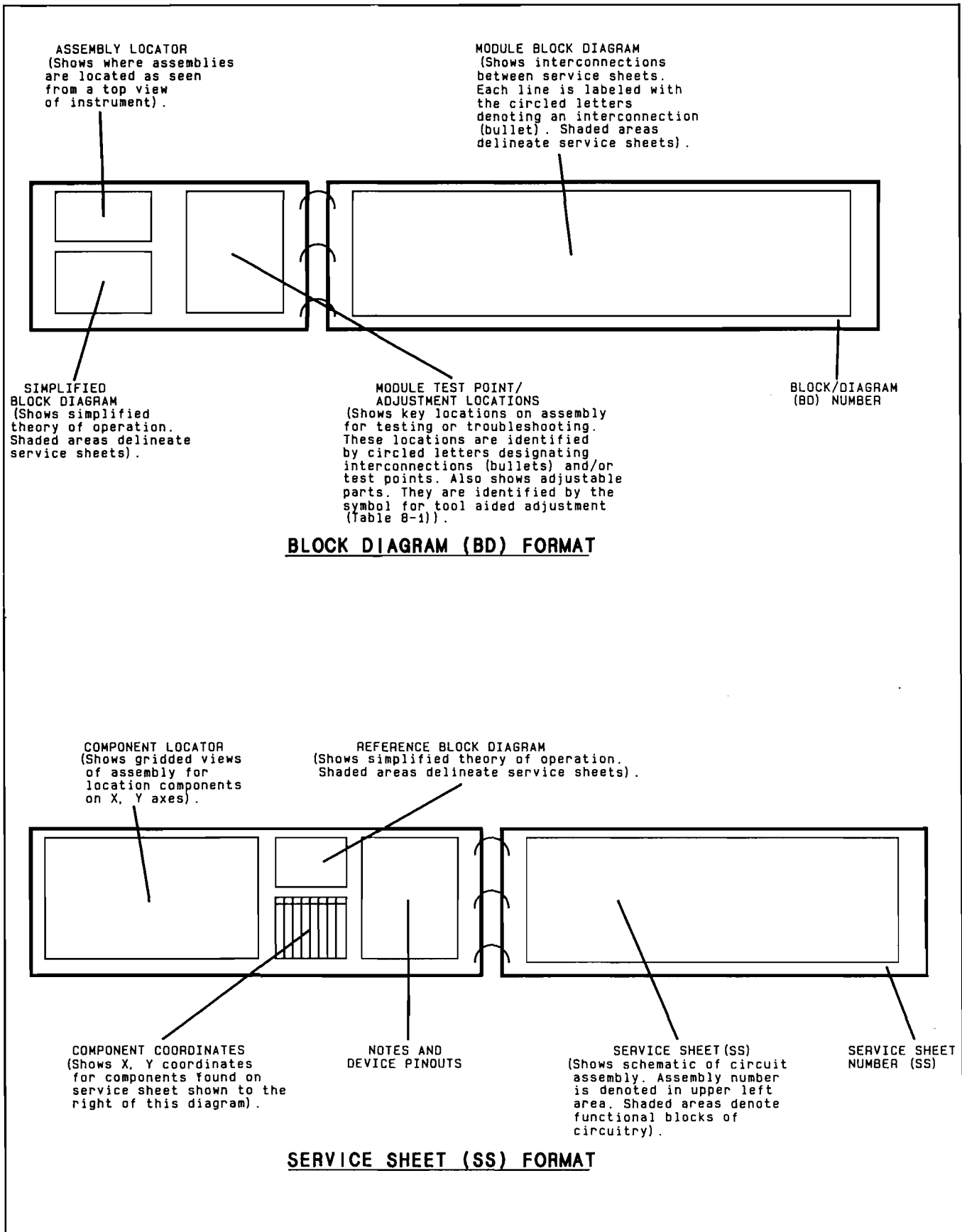


Table 8-3. Schematic Diagram Notes (2 of 8)

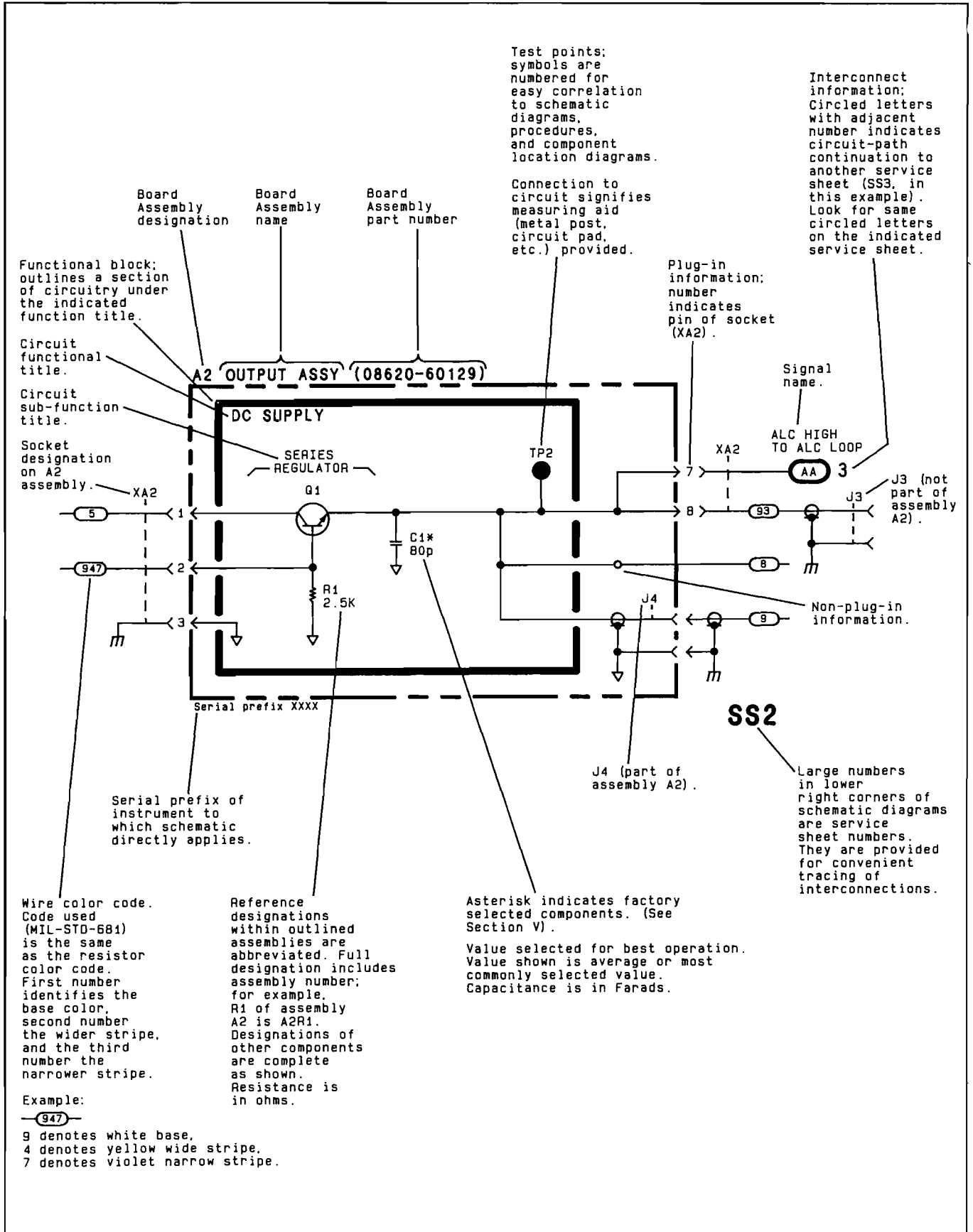


Table 8-3. Schematic Diagram Notes (3 of 8)

Values for all components are marked in units of farads, henries, and ohms unless otherwise specified.






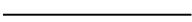












| | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| * | Asterisk denotes a factory-selected value. Value shown is typical. |
|  | Tool-aided adjustment. |
|  | Manual control. |
|  | Encloses front-panel designation. |
|  | Encloses rear-panel designation |
|  | Circuit assembly borderline. |
|  | Other assembly borderline. |
|  | Heavy line with arrows indicates path and direction of main signal. |
|  | Heavy dashed line with arrows indicates path and direction of main feedback. |
|  | Indicates stripline (i.e., RF transmission line above ground). |
|  | Wiper moves toward cw with clockwise rotation of control (as viewed from shaft or knob). |
|  | Numbered Test Point measurement aid provided. |
|  | Encloses wire or cable color code. Code used is the same as the resistor color code. First number identifies the base color, second number identifies the wider stripe, and the third number identifies the narrower stripe, e.g., 947 denotes white base, yellow wide stripe, violet narrow stripe. |
|  | A direct conducting connection to earth, or a conducting connection to a structure that has a similar function (e.g., the frame of an air, sea, or land vehicle). |
|  | A conducting connection to a chassis or frame. |
|  | Common connections. All like-designation points are connected. |
|  | Letter = off-page connection. Number = Service Sheet number for off-page connection. In the example, signal flow is continued on Service Sheet 12, at the point marked |
|  | Number (only) = on-page connection. |
|  | Step recovery diode. |

Table 8-3. Schematic Diagram Notes (4 of 8)

| | |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p>Indicates multiple paths represented by only one line. Letters or names identify individual paths. Numbers indicate number of paths represented by the line.</p> |
| | <p>Coaxial or shielded cable.</p> |
| | <p>Ferrite bead. (Increases the self-inductance of the conductor passing through the bead.)</p> |
| | <p>Relay. Contact moves in direction of arrow when energized.</p> |
| | <p>Indicates a pushbutton switch with a momentary (ON) position.</p> |
| | <p>Capacitive feedthrough filter. (Acts as a feedthrough terminal.)</p> |
| | <p>Indicates a PIN diode.</p> |
| | <p>Indicates a current regulation diode.</p> |
| | <p>Indicates a voltage regulation diode.</p> |
| | <p>Indicates a capacitive (varactor) diode.</p> |
| | <p>Indicates a Schottky (hot-carrier) diode.</p> |
| | <p>Light-emitting diode.</p> |
| | <p>Multiple transistors in a single package—physical location of the pins is shown in Notes section.</p> |
| | <p>Identification of logic families as shown (in this case, ECL).</p> |
| | <p>Coaxial connectors.</p> |

Table 8-3. Schematic Diagram Notes (5 of 8)

DIGITAL SYMBOLOGY REFERENCE INFORMATION

Combinational Logic Symbols and Functions


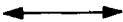
| | |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Σ | Summing Junction—Outputs added together at a common point. |
| & | AND—All inputs must be active for the output to be active. |
| ≥ 1 | OR—One or more inputs being active will cause the output to be active. |
| $\geq m$ | Logic Threshold—m or more inputs being active will cause the output to be active (replace m with a number). |
| =1 | EXCLUSIVE OR—Output will be active when one (and only one) input is active. |
| =m | m and only m—Output will be active when m (and only m) inputs are active (replace m with a number). |
| = | Logic Identity—Output will be active only when all or none of the inputs are active (i.e., when all inputs are identical, output will be active). |
|  | Amplifier—The output will be active only when the input is active (can be used with polarity or logic indicator at input or output to signify inversion). |
| X/Y | Signal Level Converter—Input level(s) are different than output level(s). |
|  | Bilateral Switch—Binary controlled switch which acts as an on/off switch to analog or binary signals flowing in both directions. Dependency notation should be used to indicate affecting/affected inputs and outputs. Note: amplifier symbol (with dependency notation) should be read to indicate unilateral switching. |
| X→Y | Coder—Input code (X) is converted to output code (Y) per weighted values or a table. |
| (Functional Labels) | The following labels are to be used as necessary to ensure rapid identification of device function. |
| MUX | Multiplexer—The output is dependent only on the selected input. |
| DEMUX | Demultiplexer—Only the selected output is a function of the input. |
| CPU | Central Processing Unit |

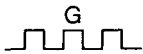
Table 8-3. Schematic Diagram Notes (6 of 8)

DIGITAL SYMBOLOGY REFERENCE INFORMATION

Sequential Logic Functions



Monostable—Single shot multivibrator. Output becomes active when the input becomes active. Output remains active (even if the input becomes inactive) for a period of time that is characteristic of the device and/or circuit.



Oscillator—The output is a uniform repetitive signal which alternates between the high and low state values. If an input is shown, then the output will be active if and only if the input is in the active state.

FF

Flip-Flop—Binary element with two stable states, set and reset. When the flip-flop is set, its outputs will be in their active states. When the flip-flop is reset, its outputs will be in their inactive states.

T

Toggle Input—When active, causes the flip-flop to change states.

S

Set Input—When active, causes the flip-flop to set.

R

Reset Input—When active, causes the flip-flop to reset.

J

J Input—Analogous to set input.

K

K Input—Analogous to reset input.

D

Data Input—Always enabled by another input (generally a C input—see Dependency Notation). When the D input is dependency-enabled, a high level at D will set the flip-flop; a low level will reset the flip-flop. Note: strictly speaking, D inputs have no active or inactive states—they are just enabled or disabled.

+m

Count-Up Input—When active, increments the contents (count) of a counter by “m” counts (m is replaced with a number).

−m

Count-Down Input—When active, decrements the contents (count) of a counter by “m” counts (m is replaced with a number).

→m

Shift Right (Down) Input—When active, causes the contents of a shift register to shift to the right or down “m” places (m is replaced with a number).

←m

Shift Left (Up) Input—When active, causes the contents of a shift register to shift to the left or up “m” places (m is replaced with a number).

NOTE

For the four functions shown above, if m is one, it is omitted.

(Functional Labels)

The following functional labels are to be used as necessary in symbol build-ups to ensure rapid identification of device function.

mCNTR

Counter—Array of flip-flops connected to form a counter with modules m (m is replaced with a number that indicates the number of states: 5 CNTR, 10 CNTR, etc.).

Table 8-3. Schematic Diagram Notes (7 of 8)

DIGITAL SYMBOLOGY REFERENCE INFORMATION**Sequential Logic Functions (Cont'd)**

| | |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| REG | Register—Array of unconnected flip-flops that form a simple register or latch. |
| SREG | Shift Register—Array of flip-flops that form a register with internal connections that permit shifting the contents from flip-flop to flip-flop. |
| ROM | Read Only Memory—Addressable memory with read-out capability only. |
| RAM | Random Access Memory—Addressable memory with read-in and read-out capability. |

Dependency Notation

| | |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cm | Control Dependency—Binary affecting input used where more than a simple AND relationship exists between the C input and the affected inputs and outputs (used only with D-type flip-flops). |
| Gm | Gate (AND) Dependency—Binary affecting input with an AND relationship to those inputs or outputs labeled with the same identifier. The m is replaced with a number or letter (the identifier). |
| Vm | OR Dependency—Binary affecting input with an OR relationship to those inputs or outputs labeled with the same identifier. The m is replaced with a number or the letter (the identifier). |
| mAm | Address Dependency—Binary affecting inputs of affected outputs. The m prefix is replaced with a number that differentiates between several address inputs, indicates dependency, or indicates demultiplexing of address inputs and outputs. The m suffix indicates the number of cells that can be addressed. |
| ENm | Enable Dependency—Binary affecting input which, when active enables all outputs. When inactive open-collector and open-emitter outputs are off, and three-state outputs are at an external high impedance state. When the enable input affects only certain inputs and outputs, they will be numbered to indicate the logic connection. |
| Xm | Transmission Dependency—Binary affecting input which bidirectionally connects dependent inputs and outputs. |
| Mm | Mode Dependency—Binary affecting input used to indicate that the effects of particular inputs and outputs of an element depend on the mode in which the element is operating. The m is replaced with a number or letter (the identifier). |
| Zm | Interconnection Dependency—Indicates the existence of internal logic connections between inputs, outputs, internal inputs, and/or internal outputs. The m is replaced with a number (the identifier). |
| , | Comma—AND Function. |
| / | Slant—OR Function. |

NOTE

The identifier (m) is omitted if it is one—that is, when there is only one dependency relationship of that kind in a particular device. When this is done, the dependency indicator itself (G, C, EN, or V) is used to prefix or suffix the affected (dependent) input or output.

Table 8-3. Schematic Diagram Notes (8 of 8)

DIGITAL SYMBOLOGY REFERENCE INFORMATION

Miscellaneous



Schmitt Trigger—Input characterized by hysteresis; one threshold for positive going signals and a second threshold for negative going signals.

Active

Active State—A binary physical or logical state that corresponds to the true state of an input, an output, or a function. The opposite of the inactive state.

Procedure Guide

COMMENT

When looking at the instrument, some of the mechanical procedures may seem intuitively obvious. There are, however, some hidden problems. We strongly recommend that you read through an entire procedure before performing any of the steps in these mechanical procedures.

| Procedure | Paragraph |
|----------------------------------------------------------------|-----------|
| Introduction | 8-1 |
| Tools | 8-2 |
| Open/Close Front Panel (Except Option 002)..... | 8-7 |
| Open/Close Front Panel (Option 002 Only)..... | 8-8 |
| Remove/Replace A1 Module | 8-10 |
| Remove/Replace LCD Display | 8-11 |
| Replace LCD Lamps | 8-12 |
| Remove/Replace A2 Module | 8-9 |
| Remove/Replace Top Cover | 8-3 |
| Remove/Replace A3 Module | 8-5 |
| Remove/Replace A4 Module | 8-6 |
| Remove/Replace A4 Module | 8-25 |
| Remove/Replace RF Modules (A6, A7, A9, A11-14, A16, A19) | 8-4 |
| Module Disassembly (A6, A7, A9, A11-14, A16, A19) | 8-21 |
| Remove Printed Circuit Assemblies | 8-22 |
| Replace Printed Circuit Assemblies | 8-23 |
| Remove/Replace Right Side Cover | 8-13 |
| Remove/Replace A17 Module | 8-14 |
| Remove/Replace Rear Bottom Cover | 8-15 |
| Remove/Replace A18 Module | 8-16 |
| Remove/Replace A20 Module | 8-17 |
| Remove/Replace Fan (B1)..... | 8-19 |
| Remove/Replace A5 Ribbon Cables | 8-20 |
| Remove/Replace Module Feedthrough Filter Network | 8-24 |
| Remove/Replace A8 Oscillator (Option 001 Only)..... | 8-18 |

8-1. INTRODUCTION

This section contains mechanical procedures required for service of the HP 8642A/B Synthesized Signal Generator. The instrument should be serviced in an electrostatic discharge protected environment. For your safety, read the warnings and cautions in the General Information section of this manual before performing the assembly/disassembly procedures.

NOTE

Unless otherwise noted, the directions "left" and "right" given in the instructions are referenced as though you are looking at the instrument from the front panel.

The first page of this section, **PROCEDURE GUIDE**, is a quick reference for locating the paragraph in which the removal and replacement procedures for each module/assembly can be found.

8-2. TOOLS

Most screws used in instrument are Torxhead screws. They require a torque driver and Torxhead bits for proper removal and installation.

To avoid damage, do not exceed the following torque limits:

Torque limit for 4 mm screws: 2.2 Nm. (Use bit T15)

Torque limit for 3 mm screws: 1.5 Nm. (Use bit T10)

Two bits are located in tool pouch sent with the Operating Manual.

To set torque limit of wrench, remove cover from end of handle. Lift the key to the vertical position and turn clockwise to increase torque setting, or turn counter-clockwise to decrease torque setting. Align hairline on clear bulb of wrench shaft with the desired setting. Push the key back to the flat position (a very slight turn in either direction may be necessary for key to lock into place).

Also included in the tool pouch are two module extender posts.

An RF connector wrench is located above fan on right inner wall of center rear bracket. A fuse extraction/insertion tool is located on top of rear frame under the power supply cover.

The On-Site Service Kit contains many tools needed to service the instrument. (See Table 9-1 for contents of kit.)

Other tools required but not contained in the kit are:

2 pt. Pozidrive screwdriver.
 1 pt. Pozidrive screwdriver
 6.0 mm open end wrench.
 Small flathead screwdriver.
 Small needlenose pliers
 Small diagonal cutters
 Soldering/Desoldering tools

Tools not included in the kit which are called for in the procedures are printed in italics.

8-3. TOP COVER

| | |
|-------------------|-------------------------------|
| Removal Time: | 2 min |
| Replacement Time: | 2 min |
| Tools Required: | <i>Pozidrive screwdriver.</i> |

To Remove: Top Cover

1. Remove four rear feet from rear frame of instrument by removing screw in each foot.
2. Loosen screw in middle of rear edge of top cover. This is a captive screw (attached to top cover). Loosening it will cause cover to push away from front frame.
3. Slide top cover toward rear of instrument to disengage and lift and away. The cover has a tight fit and may need to be worked loose.

To Replace: Top Cover

1. Place cover onto top of instrument making sure that the cover fits into the grooves on the top of the side covers. Slide cover toward front of instrument while applying a slight downward pressure to front edge of cover. Guide into slot in top of front frame. The cover has a tight fit and may need to be worked forward.
2. When screw on rear edge of cover is in contact with rear frame tighten it. The cover should move forward as the screw is tightened.
3. Replace four feet on rear frame, one screw in each.

8-4. RF MODULES: A6, A7, A9, A11-14, A16, A19

| | |
|-------------------|---------------------|
| Removal Time: | 4 min |
| Replacement Time: | 8 min |
| Tools Required: | RF connector wrench |

To locate module, refer to drawing on inside of instrument top cover.

To Remove: A6, A7, A9, A11-14, A16, A19

1. Remove top cover (Refer to paragraph 8-3.)
2. Reroute obstructing coax cables around ends of module. (These are cables lying across the top of module that would hinder lifting of module from the instrument.)
3. Use RF connector wrench provided in the instrument to disconnect intermodular cables from the module being removed. (These are cables which connect the module to other parts of the instrument, including ribbon cables.)
 - To avoid damaging semi-rigid coax cables, disconnect both ends of cable.

NOTE

DO NOT disconnect intramodular cables. (These are cables which connect from one point on the module to another point on the same module.) Intramodular cables must remain in place for proper module calibration.

4. Slide L-shaped retaining clip at each end of module toward center of module to release from guide post. See figure 1. **RF MODULE MECHANICAL PARTS** on the foldout at the end of this section.
5. Using the finger loops on the retaining clips, lift module from instrument.
6. Loosen the black ribbon cable retaining screw on the module slide three turns. Carefully slide ribbon cable from behind retaining screw.

To Replace: A6, A7, A9, A11-14, A16, A19

1. Clear cables from empty module slot.
2. Route ribbon cable behind ribbon cable retaining screw on module slide. Retighten the retaining screw. Pull cable up until bar rests in cable fold. (With a new cable the fold will not be evident. Allow enough slack in the cable to accommodate lowering the module into the instrument.)
3. Align module slide with guide post mounted in instrument. (Modules are designed so slide will not align properly if an attempt is made to install module backwards.)
4. Using finger loops on module slides, lower module into place.
5. Align retaining clips with notch in guide posts and slide clips into notch to lock module in position.
6. Reconnect all cables. Tighten connectors finger tight, then use RF connector wrench to tighten only slightly more (about 1/2 turn: 1 N.m). The RF connectors on the modules are fragile and over-torquing could cause damage. (Refer to inside of instrument top cover for cable connections.)



Make sure that ribbon cable on top of A12 Module (W5) is dressed under the SMC connector of A12W4 (91). If the ribbon cable is allowed to rest on the top of the connector it may be punctured when the top cover is replaced.

To Extend: (A6, A7, A9, A11-14, A16, A19)

1. Remove top cover (Refer to paragraph 8-3.)
2. Reroute any obstructing cables around ends of module.

3. Screw extender posts into top of module guide posts.
4. Slide L-shaped retaining clip at each end of module toward center of module to release from guide post.
5. Slide Module to top of extender.
6. Align retaining clip with notch in extender post. Slide clip into locked position.

8-5. CONTROL MODULE: A3

| | |
|-------------------|-------|
| Removal Time: | 1 min |
| Replacement Time: | 1 min |
| Tools Required: | None |

To Remove: A3

1. Remove top cover. (Refer to paragraph 8-3.)
2. Disconnect the yellow cable fastener from mounting hole on the A11 module.
3. Raise the black extractor and the white extractor to upright position. The extractors may be difficult to raise. You will feel resistance from the connectors on the bottom of the module as you raise them.
4. Grasp the extractors in the upright position and pull module up, out of instrument.

To Replace: A3

1. Raise the black extractor and the white extractor to upright position.
2. Position module so extractor colors match colors of plastic guides in instrument (component side toward front of instrument).
3. Align board edges with the left and right slots in plastic guides.
4. Push board into instrument holding extractors in upright position.
 - Be sure yellow power meter cable isn't caught between the modules.

5. Push extractors down to lock module into notch near top of guides.
6. Push the yellow cable fastener into mounting hole on the A11 module.

8-6. CONTROL MODULE: A4

| | |
|-------------------|-------|
| Removal Time: | 1 min |
| Replacement Time: | 4 min |
| Tools Required: | None |

To Remove: A4

1. Remove top cover. (Refer to paragraph 8-3.)
2. Raise the black and the white extractors to upright position. The extractors may be slightly difficult to raise. You will feel some resistance from the connectors on the bottom of the module as you raise them.
3. Grasp the extractors and pull module up, out of instrument.

To Replace: A4

1. Check that ribbon cable shields are in place between ribbon cables on A5 module and A4 slot. Check that ribbon cables and shields are not obstructing connectors into which A4 plugs.
2. Raise the black and the white extractor to the upright position.
3. Position module so extractor colors match colors of plastic guides mounted in instrument (component side toward rear of instrument).
4. Align board edges with the left and right slots in plastic guides.
5. Push board into instrument holding extractors in upright position. As you lower A4 module into instrument, check that ribbon cables on A5 module stay in place.
6. Push extractors down to lock module into notch near top of guide.

8-7. FRONT PANEL
(Except Option 002)

| | |
|-----------------|-----------------------------------------------------------------|
| Opening Time: | 5 min |
| Closing Time: | 4 min |
| Tools Required: | Torque driver, Torxhead bits, <i>small flathead screwdriver</i> |

Front panel assembly is mounted into front frame on a hinge. Hinge mechanism is located on left side of front panel and allows right side to swing open like a door for accessing A1 and A2 Modules. If your instrument is an Option 002, go to paragraph 8-8.

COMMENT

This procedure requires careful attention to each step. Read through the entire procedure before performing any of the steps. If you don't follow the instructions, it's the pits.

To Open: Front Panel

1. Remove any adapters from RF Output connector.
2. Insert a screwdriver into holes in slot in rear edge of top plastic trim strip, and gently pry strip from top of front frame.
3. On top of front frame, remove two countersunk screws (first and thirteenth holes, counting from the right).

On the bottom of front frame, remove three countersunk screws (third, eighth, and twelfth holes, counting from right).

4. Grasp AM/Pulse Input Connector (J1) and Mod Output Connector (J3). Pull outward until entire front panel clears front frame by about 1/2 inch. If it is difficult to pull front panel out, it may be helpful to slightly loosen two screws on bottom of front frame under RF OUTPUT connector (CP1).



DO NOT swing right side open until entire panel is pulled out from front frame. Left (hinged) side of front panel may be damaged if not pulled out from frame before right side is swung open.

5. Slowly swing right side of panel outward while carefully guiding left side of front panel away from left edge of frame. (In other words, don't crunch the left side of the pretty fiberglass front panel into the left side of the frame or you'll ruin it.)

To Close: Front Panel

1. Using J1 (AM/PULSE INPUT connector) to guide left side of the front panel, slowly swing right side of panel inward until "door" is almost closed (remember don't crunch it).
2. Push left side of panel into front frame, then push right side into frame.
3. Replace screws in first and thirteenth countersunk holes in top of front frame and replace screws in third, eighth and twelfth holes in bottom of front frame (count from right).
4. Tighten two screws under RF OUTPUT connector if they were loosened when front panel was opened (refer to paragraph 8-8, step 4).
5. Press top plastic trim strip into place on top of front frame, slot toward rear of instrument.

**8-8. FRONT PANEL
(Option 002 Only)**

| | |
|-----------------|-----------------------------------------------------------------|
| Opening Time: | 5 min |
| Closing Time: | 4 min |
| Tools Required: | Torque driver, Torxhead bits, <i>small flathead screwdriver</i> |

Front panel assembly is mounted into front frame on a hinge. Hinge mechanism is located on left side of front panel and allows right side to swing open like a door for accessing A1 and A2 Modules. If your instrument is not an Option 002, go to paragraph 8-7.

COMMENT

This procedure requires careful attention to each step. Read through the entire procedure before performing any of the steps. If you don't follow the instructions, it's the pits.

To Open: Front Panel

1. Insert a screwdriver into the holes in slot in rear edge of top plastic trim strip, and gently pry strip from top of front frame.
2. On top of front frame, remove two countersunk screws (first and thirteenth holes, counting from right).

On bottom of front frame, remove three countersunk screws (third, eighth and twelfth holes, counting from right).

3. Grasp round knob on front panel and pull panel outward about 1/2 inch. If left side of panel is stuck in frame, use a screwdriver to gently pry it out of frame.



DO NOT swing right side open until entire panel is pulled out from front frame. Left (hinged) side of front panel may be damaged if not pulled out from frame before right side is swung open.

4. Slowly swing right side of panel outward while carefully guiding left side of front panel away from left edge of frame. (In other words, don't crunch the left side of the pretty fiberglass front panel into the left side of the frame or you'll ruin it.)

To Close: Front Panel

1. Hold left side of panel out from front frame while swinging right side inward until "door" is almost closed (remember, don't crunch it).
2. Push left side of panel into front frame, then right side.
3. Replace screws in first and thirteenth countersunk holes counting from the right, in top of front frame.
4. Press top plastic trim strip into place on top of front frame, slot toward rear of instrument.

8-9. RF MODULE: A2

| | |
|-------------------|------------------------------------------------------------------------------------------|
| Removal Time: | 10 min |
| Replacement Time: | 15 min |
| Tools Required: | Torque driver, Torxhead bits, RF connector wrench, <i>diagonal cutters</i> , cable ties. |

Front panel assembly is mounted into front frame on a hinge. Hinge mechanism is located on left side of front panel and allows right side to swing open for accessing A1 and A2 Modules. A1 is mounted onto the hinged "door" that swings open. A2 is mounted in the front frame of the instrument.

To Remove: A2

1. Open front panel. (Refer to paragraph 8-7: Standard; paragraph 8-9: Option 002.)
2. Disconnect coax cables using RF connector wrench.
 - Clip cable ties holding cable bundle to module ties. (See figure 4. A2 Cable Ties and Connectors on foldout at the end of this section.)
3. Remove seven screws securing module to instrument.
4. Disconnect ribbon cable from A2J1, then pull the module out of instrument.

To Replace: A2

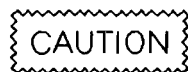
1. Slip four cable ties under ties on component side of module.
2. Position module with component side toward front. Connect ribbon cable at A2J1.
3. Secure module to metal shield. (7 screws, finger tight).
 - When all screws are in place tighten each one.
4. Connect coax cables. See instrument top cover for cable connections. Use cable ties installed in step 1 to secure cables to module.
5. Close front panel. (Refer to paragraph 8-7: Standard; paragraph 8-8: Option 002.)

8-10. CONTROL MODULE: A1

| | |
|-------------------|-----------------------------------------------------|
| Removal Time: | 8 min |
| Replacement Time: | 8 min |
| Tools Required: | Torque driver, Torxhead bits, 6 mm open end wrench. |

Front panel assembly is mounted into front frame on a hinge. Hinge mechanism is located on left side of front panel and allows right side to swing open for accessing A1 and A2 Modules. A1 is mounted onto the hinged "door" that swings open. A2 is mounted in the front frame of the instrument.

A1 module consists of A1A1 Keyboard Assembly and A1A2 LCD Display Assembly. References to A1 refer to the module as a single unit.



When removing A1 Module, the A1A2 LCD Display Assembly can be inadvertently detached from the keyboard. Remove A1 slowly and be sure that the display is firmly in place. It is advisable to wear gloves when handling the LCD display, it is easily soiled and not so easily cleaned.

The A1A2 LCD Display Assembly is extremely static sensitive. Observe handling precautions described in Section 1 of this Manual.

To Remove: A1

1. Open front panel. (Refer to paragraph 8-7: Standard; paragraph 8-8: Option 002.)
2. Remove four screws securing metal shield to back of A1 module. Pull shield off.
3. Remove ten hex nuts securing module to front panel standoffs.



To avoid damage to key caps, and to avoid pulling switches loose, pull A1 rearward slowly, keeping key caps aligned with holes in front panel.

4. Pull module away from front panel far enough to disconnect RPG (knob) wiring harness from A1A1J3. RPG, Rotary Pulse Generator, is round, black assembly attached to front panel visible through cutout in A1A1 assembly.
5. Disconnect the ribbon cable from A1A1J1.
6. Pull module from instrument.

To Replace: A1

1. Position board with component side toward front panel.
2. Connect ribbon cable at A1A1J1.
3. Route RPG (knob) wiring harness through circular hole in A1 Module then back under A1 module to front. Connect at A1A1J3.
4. Align keys with holes in front panel, and mounting holes with standoffs, then push board into place onto standoffs.
5. Place hex nut onto each standoff (qty 10) and tighten finger tight. When each nut is in place tighten each one.
6. Position metal shield with U-shaped cutout over RPG (knob) assembly.
7. Secure shield to front panel with four screws.
8. Close front panel (refer to paragraph 8-7: Standard; paragraph 8-8: Option 002.)

8-11. LCD DISPLAY ASSEMBLY A1A2

| | |
|-------------------|-------|
| Removal Time: | 2 min |
| Replacement Time: | 2 min |
| Tools Required: | None |



When removing A1 Module, the A1A2 LCD Display can be inadvertently detached from keyboard. Remove A1 slowly and check that the display is firmly in place. It is advisable to wear gloves when handling the LCD display, it is easily soiled and not so easily cleaned.

The A1A2 LCD Display Assembly is extremely static sensitive. Observe handling precautions described in Section I or Section VII general information of this manual.

To Remove: A1A2

1. Open front panel. (Refer to paragraph 8-7: Standard; paragraph 8-8: Option 002.)
2. Remove A1 module. (Refer to paragraph 8-10.)
3. Lay A1 Module flat, component side up.
 - A1A2 assembly plugs into A1 module at A1A1J4 and A1A1J5.
 - Grasp connectors on A1A2 Assembly and pull both upward at the same time. There will be resistance as you pull, DO NOT use a twisting action as you pull upward, this may cause damage to components or solder connections.

To Replace: A1A2

1. Carefully align plugs A1A2P1 and A1A2P2 with connector pins of A1A1J4 and A1A1J5.
 - With even pressure at both ends, press display into place.
2. Replace A1 module (refer to paragraph 8-10).

8-12. LCD DISPLAY INCANDESCENT LAMPS

| | |
|-------------------|---------------------------------------------------------------------------------------------------|
| Replacement Time: | 10 min |
| Tools Required: | Torque driver, Torxhead bits, <i>Soldering iron, desoldering tool, needlenose pliers, gloves.</i> |

CAUTION

When removing A1 Module, the A1A2 LCD Display Assembly can be inadvertently detached from the keyboard. Remove A1 slowly and be sure that the display is firmly in place. It is advisable to wear gloves when handling the LCD display, it is easily soiled and not so easily cleaned.

The A1A2 LCD Display Assembly is extremely sensitive. Observe handling precautions described in this Manual.

To Replace: Incandescent Lamp

1. Remove A1A2. (Refer to paragraph 8-7 Standard; paragraph 8-8 Option 002.)
2. On end of display on which defective lamp is located, remove two screws securing black end cap of LCD display. The screw on the upper edge of the end cap requires two washers, don't lose them. Remove end cap.
3. Unsolder two leads of incandescent lamp, and remove lamp from mounting holes. To avoid damage to printed circuit traces and plated mounting holes, be sure leads are completely unsoldered before pulling lamp free.
4. Form leads of new lamp to fit spacing of mounting holes. Place leads in mounting holes and solder lamp into place.
5. Replace black end cap over lamp, and secure from circuit side with two screws. Screw on upper edge of end cap requires two washers.
6. Replace A1A2 Assembly. (Refer to paragraph

8-13. RIGHT SIDE COVER

| | |
|-------------------|-------------------------------|
| Removal Time: | 2 min |
| Replacement Time: | 2 min |
| Tools Required: | <i>Pozidrive screwdriver.</i> |

To Remove: Right Side Cover

1. Remove the four feet on rear frame by removing screw in each foot.
2. Remove top cover. (Refer to paragraph 8-3.)
3. Loosen screw on rear edge of right cover. This is a captive screw (attached to cover), loosening it will cause cover to push back away from front frame.
4. Being careful not to dislodge foam pieces on cover, pull side cover from chassis after screw is disengaged from frame.

To Replace: Right Side Cover

1. Inspect side cover for loose or damaged foam. Replace if necessary. Foam is critical to proper air flow in the instrument.
2. Place groove on bottom edge of side cover onto edge of bottom cover.
3. Slide cover from rear frontward until captive screw on rear edge of side cover is in contact with rear frame. The screw should be in position to be tightened into frame. Cover will move forward into place as the screw is tightened.
4. Replace top cover. (Refer to paragraph 8-3.)
5. Replace four feet on rear frame.

8-14. POWER SUPPLY MODULE: A17

| | |
|-------------------|----------------------------------|
| Removal Time: | 10 min |
| Replacement Time: | 12 min |
| Tools Required: | Torque driver and Torxhead bits. |

WARNING

Left rear portion of the instrument becomes hot during operation; a cooling period may be desired before servicing.

To avoid personal injury, avoid contact with the A17 heatsink when the A17 Module is extended.

To Remove: A17

1. Remove power to instrument.
2. Remove top cover (Refer to paragraph 8-3.)
3. Remove right side cover. (Refer to paragraph 8-13.)
4. Remove power supply cover (one screw).
5. Remove 13 screws on side frame indicated in figure 2. **A17 MODULE MECHANICAL PARTS** on the foldout at the end of this section.
6. Lift module partially out of instrument to expose ribbon cable connectors through gap in side frame. Push levers on ribbon cable connectors apart to release ribbon cables.
7. Disconnect power supply wiring harness (W13) from A17 connector below heatsink.
8. Lift module out of instrument.

COMMENT

You may feel resistance as you pull the board upward. This is caused by one of the foam strips adhered to the circuit side of the board. Use slow but firm upward pressure.

To Replace: A17

1. Position component side of board toward outside of instrument.
2. Connect power supply wiring harness (W13) to A17 connector below heatsink.
3. Lower board into place.

COMMENT

You may feel resistance as you lower the board into place. This is caused by one of the foam strips adhered to the circuit side of the board. Use slow but firm downward pressure.

4. Connect ribbon cable 08642-60013 to A17J3, and 08642-60012 to A17J2. (Ribbon cable part numbers are stamped on the cable.)
5. Foam strip should overlap metal bracket to seal gap between bracket and A17.
6. Align module with screw holes. Replace 13 screws finger tight. When all the screws are in place, tighten each one. (Refer to figure 2. **A17 MODULE MECHANICAL PARTS** on the foldout at the end of this section.)
7. Replace side cover. (Refer to paragraph 8-13.)

To Extend: A17

1. Remove power to instrument.
2. Remove top cover (refer to paragraph 8-3).
3. Remove power supply cover (one screw).
4. Remove screws shown in 2. **A17 MODULE MECHANICAL PARTS** on the foldout at the end of this section.
5. Lift module partially out of instrument to expose ribbon cable connectors through gap in side frame. Push levers on ribbon cable connectors apart to release ribbon cables.
6. Pull module up until lower mounting holes on module are aligned with top row of holes in upper rail of frame.
7. Insert screws through holes in top rail into bottom mounting holes on A17 and tighten finger tight. When all screws are in place, tighten each one.

8. Connect ribbon cable 08642-60013 to A17J3, and 08642-60012 to A17J2. (Ribbon cable part numbers are stamped on the cable.)
 - Be sure the power supply wiring harness remains connected.
9. Reconnect power.

8-15. REAR BOTTOM COVER

| | |
|-------------------|----------------------------------------------------------------------|
| Removal Time: | 5 min |
| Replacement Time: | 3 min |
| Tools Required: | <i>Posidrive screwdriver, small flat head screwdriver, patience.</i> |

To access the A18 Module or Option 001 A8 Assembly, only the REAR bottom cover should be removed. All other modules are accessible through the top of the instrument.



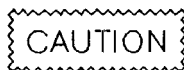
Do not remove center bottom cover, it is important to the structural stability of instrument. Any serviceable parts in the center section of instrument are accessible through top of the instrument.

Remove line power cord before removing this cover.

To Remove: Rear Bottom Cover

1. Remove the four feet on the rear frame by removing screw in each foot.
2. Turn instrument on its side and remove the two rear feet on bottom cover.
3. Unscrew four screws on front edge of cover.
4. Slide cover toward rear of instrument and lift cover from instrument. Cover fits snugly and may need to be worked loose. don't give up.

To Replace: Rear Bottom Cover



Remove line power cord before replacing rear bottom cover.

1. Slide rear bottom cover from rear forward and align holes in front edge with holes rear edge of center bottom cover.
2. Insert and tighten four screws.
3. Replace two rear feet on bottom of instrument.
4. Replace four feet on rear frame.

8-16. POWER SUPPLY MODULE: A18

| | |
|-------------------|-----------------------------------------------------------------|
| Removal Time: | 10 min |
| Replacement Time: | 10 min |
| Tools Required: | Torque driver and Torxhead bits, <i>insulated screwdriver</i> . |

WARNING

Do not operate the instrument with the A18 Module extended. The screws securing the A18 Power Supply Rectifier and Filter Module to the chassis are an integral part of the protective grounding of the instrument.

The left rear portion of the instrument becomes heated during operation and a cooling period may be desired before servicing.

Capacitors inside the instrument may still be charged even if the instrument has been disconnected from its source of supply.

To Remove: A18

1. Remove power to instrument.
2. Remove top cover. (Refer to paragraph 8-3.)
3. Remove power supply cover (one screw).
4. Remove bottom rear cover (refer to paragraph 8-15.)
5. Using insulated screwdriver, discharge capacitors by shorting mounting screws together.
6. Remove screws on bottom of A18 module shown in figure 4. **A18 MODULE MOUNTING SCREWS** on the foldout at the end of this section.

7. Gently push module from top of instrument, while guiding module out from bottom until wires are extended.
8. Disconnect transformer output cable at A18J1. Disconnect cable to fan at A18J2. Disconnect wiring harness to A17 at A18J3.
 - If instrument is Option 001, disconnect wiring harness at A18J4.

To Replace: A18

1. Connect cables removed in paragraph 8-16, step 8.
2. Guide module into position from the top of the instrument, and hold in place. Be sure air seal foam and rubber strips are inside instrument (should not overlap on outside). Foam and rubber strips are easily torn and can cause difficulty when positioning the module. It may be necessary to re-position the modules several times before a proper seal is accomplished.
3. Align board with screw holes and secure screws finger tight. Use star washers on all screws. When all screws are in place tighten each one. (See figure 4. **A18 MODULE MOUNTING SCREWS** on the foldout at the end of this section.)
4. Replace bottom cover (refer to paragraph 8-15).
5. Replace power supply cover, one screw.

8-17. CALIBRATION MODULE A20

| | |
|-------------------|------------------------------------|
| Removal Time: | 3 min |
| Replacement Time: | 3 min |
| Tools Required: | <i>Small flathead screwdriver.</i> |

To Remove: A20

1. Pull four plastic fastener plungers outward and remove Calibration Module cover. It is not necessary to pull the fasteners completely out of the mounting holes in the cover. (See figure 3. **A20 and B1 MECHANICAL PARTS** on the foldout at the end of this section.)

2. Four plastic fasteners hold Calibration Module to fan access cover on rear panel. Turn screw heads 1/4 turn (fastener shoulders will close).
3. Pull Calibration Module off of fasteners. Fasteners will stay in place on access cover.

To Replace: A20

1. Check that the 1/4 turn fasteners on the fan access cover are in the unlocked (shoulders closed) position. Push Calibration Module onto fasteners. (See figure 3. A20 and B1 MECHANICAL PARTS on the foldout at the end of this section.)
2. Turn fasteners 1/4 turn (shoulders open) to secure Calibration Module to access cover.
3. Align plastic fasteners on Calibration Module cover with mounting holes in rear panel.
 - Push the fastener socket into the mounting hole. Then push the fastener plunger in.

8-18. A8 OSCILLATOR MODULE (OPTION 001)

| | |
|-------------------|----------------------------------|
| Removal Time: | 12 min |
| Replacement Time: | 10 min |
| Tools Required: | Torque driver and Torxhead bits. |

To Remove: A8

1. Remove top cover. (Refer to paragraph 8-3.)
2. Remove rear bottom cover. (Refer to paragraph 8-15.)
3. From bottom of instrument, disconnect wiring harness from A18J4.
 - Disconnect coax cable from A8J1.
4. From top of instrument, remove modules A7 and A9. (Refer to paragraph 8-4.)
5. Remove four screws on top of A8 securing it to metal bracket.
6. Pull A8 toward front panel, then out of instrument. A8 has a tight fit between bottom cover and metal bracket. Use a slight downward pressure on the A8 Assembly to ease the removal process.

To Replace: A8

1. Position A8 module with screw holes up and wiring harness toward rear of instrument.
2. Push A8 under metal bracket with slight downward pressure, while guiding the wiring harness through the rectangular hole in the rear of the bracket.
3. Align screw holes with holes in metal frame.
4. Secure with four screws.
5. From bottom of instrument, reconnect wiring harness to A18J4. Be sure all connector pins on A18J4 are properly plugged into in wiring harness connector.
 - Reconnect coax cable to A8.
6. Replace rear bottom cover. (Refer to paragraph 8-15.)
7. From top of instrument, replace A7 and A9 modules. (Refer to paragraph 8-4).
8. Replace top cover. (Refer to paragraph 8-3.)

8-19. FAN (B1)

| | |
|-------------------|------------------------------|
| Removal Time: | 6 min |
| Replacement Time: | 8 min |
| Tools Required: | Torque driver, torxhead bits |

To Remove: B1

1. Remove calibration board cover by pulling plastic fastener plungers outward. (See figure 3. **A20 and B1 MECHANICAL PARTS** on the foldout at the end of this section.)
2. Remove four screws in access cover securing it to rear panel.
3. Fan is mounted to access cover. Pull access cover and attached fan out of instrument.
4. Disconnect wire connector at A18J3.
5. Remove 2 screws that attach fan to rear fan mounting bracket on access cover (one in upper right corner, one in lower left corner).

To Replace: B1

1. Mount fan to rear fan mounting bracket on fan access cover with 2 screws as shown in figure 3. Air directional arrows point down and to right. (See figure 3. **A20 and B1 MECHANICAL PARTS** on the foldout at the end of this section.
2. Route wire through rear panel to connector A18J3. Black (or blue) wire toward large blue capacitors on A18 module.
3. Push fan into access hole in the rear panel. The wire to A18J3 should be routed into the corner of the front sheet metal support bracket with any excess wire looping up. As you push the fan into place, make sure that the wire does not get disconnected.
4. Replace screws securing access cover to rear panel.
5. Replace Cal Board Cover. (Refer to paragraph 8-17 **To Replace: A20** step 3.)

8-20. A5 RIBBON CABLES (W1-W8, W11, W14, W15)

Removal Time: 3 min per cable
 Replacement Time: 5 min per cable
 Tools Required: Torque driver, torxhead bits, *small flathead screwdriver.*

To Disconnect: W1-8, W11

1. Remove A4. (Refer to paragraph 8-6)
 - Some of the ribbon cables are protected by the ribbon cable shields. Flip the plastic ribbon cable shield up to expose the ribbon cable connectors under it.
 - The shield is pliable, and can be bowed slightly when raising it.
2. Cable connectors A5J1-8 (upper row of connectors) are positioned so their pins point downward.
 - Push the cable plug downward to free the cable from the connector on A5.

To Reconnect: W1-W8, W11

1. Remove A4. (Refer to paragraph 8-6)
2. Fold the cable over the top of A5 and curl it under its A5 connector to align the plug with connector pins.
3. Push the plug upward onto the connector.
4. Replace the ribbon cable shields (if necessary).

To Remove: W1-W8, W11

1. Repeat **To Disconnect: W1-8, 11** steps 1-2.
2. Clip cable ties securing retaining bar to A5 Module.
3. Extend module to which cable attaches. (Refer to paragraph 8-4.)
4. On the module slide, loosen the black ribbon cable retaining screw three turns. Slide the cable from behind the retaining screw. (See figure 1. **RF MODULE MECHANICAL PARTS** on the foldout at the end of this section.)
5. Pull cable from module connector.

To Replace: W1-8, W11

1. Extend module to which cable attaches. (Refer to paragraph 8-4.)
2. Plug cable into module connector by matching the arrow on the cable connector with the arrow on the module connector.
3. Slide the cable behind the ribbon cable retaining screw on the module slide and retighten the screw. (See figure 1. **RF MODULE MECHANICAL PARTS** on the foldout at the end of this section.)
4. Remove A4. (Refer to paragraph 8-6)
5. Curl the cable over the top of A5 and under its A5 connector to align the plug with connector pins.
6. Push the plug upward onto the A5 connector.

7. Lower module into instrument.
8. Tie wrap the retaining bar to the A5 Module to hold all ribbon cables in place.
9. Replace A4 (refer to paragraph 8-6).

To Disconnect: W14, W15

W15 is split between connectors A5J9 and A5J10. W14 is connected to A5J11.

1. Remove A3 and A4. Refer to paragraphs 8-5 and 8-6.)
2. Flip the plastic ribbon cable shield up to expose the ribbon cable connectors under it.
 - The shield is pliable, and can be bowed slightly when raising it.
3. Insert a flat head screwdriver between the plastic retaining clip and the connector body and gently pry clip from A5 connector and cable plug.
4. Pull cable from connector.

To Reconnect: W14, W15

1. Align cable plug with A5 connector and push plug onto connector pins.
2. Insert the notched edge of the retaining clip into the slot on the A5 connector, push the smooth edge of the clip over the end of the cable plug.
3. Replace the ribbon cable shield.

To Remove: W14, W15

These cables can be removed by following the steps outlined for removing A5 Module (paragraph 8-25).

To Replace: W14, W15

These cables can be replaced by following the steps outlined for replacing A5 Module (paragraph 8-25).

8-21. MODULE DISASSEMBLY: A6, A7, A9, A11-14, A16, A19

| | |
|-----------------|-------------|
| Dissassembly: | Conditional |
| Assembly: | Conditional |
| Tools Required: | Conditional |

Modules in the center section of the instrument are similar in construction. Printed Circuit (PC) board assemblies are mounted in metal castings to isolate RF circuits from each other and from the outside.

The PC boards are mounted to a casting called the base. The base is generally the center piece of the module. One, two or three boards are mounted to the base. Connections between boards on opposite sides of the base are accomplished with cabling or with feedthrough filters.

The feedthrough filters are mounted to one side of the base. They can be singular filters or they can be arranged in an array. The PC boards have connectors which fit over the filter pins.

The outer castings are called covers and are named after the circuitry on the PC board(s) over which they mount. For example PC Board Assembly, A13A1 is the Low Pass Filter Assembly; the cover mounted over A13A1 is, A13MP1 COVER LOW PASS FILTER.

Module Slides are attached to the end of the module to mount the module to the instrument and to facilitate the removal, replacement or extension of the module.

8-22. PRINTED CIRCUIT (PC) BOARDS: REMOVAL

| | |
|-----------------|-------------|
| Removal Time: | Conditional |
| Tools Required: | Conditional |

The following procedure is a generic **removal** procedure. Modifications peculiar to an assembly are listed following the generic procedure. *Table 8B-1. Removal Modifications* lists which steps, if any, are modified or added for a particular module. Substitute the **MODIFICATIONS** into the generic procedure as directed.

Table 8B-1. Removal Modifications

| ASSEMBLY NUMBER | NO CHANGES | ADD STEP | REPLACE STEP | OMIT STEP |
|-----------------|------------|----------|--------------|-----------|
| A6A1 | X | | | |
| A6A2 | X | | | |
| A7A1 | | | 4, 5 | |
| A9A1 | X | | | |
| A9A2 | X | | | |
| A11A1 | X | | | |
| A11A2 | X | | | |
| A11A3 | X | | | |
| A12A1 | X | | | |
| A12A2 | X | | | |
| A12A3 | X | | | |
| A13A1 | | 1A | | |
| A13A2 | X | | | |
| A14U1 | | | 1, 2 | 3-7 |
| A14A2 | | 1A | | |
| A14A3 | | 1A | | |
| A16A1 | X | | | |
| A16A2 | X | | | |
| A16AT1, 2 | | | 1, 2 | 3-7 |
| A19A1 | X | | | |
| A19A2 | X | | | |
| A19A3 | X | | | |
| A19AT1, 2 | | | 1, 3 | 4-7 |
| A19K1, 2 | | | 1, 3 | 4-7 |

To Remove: Generic

1. Remove module from instrument. (Refer to paragraph 8-4.)
2. Remove screws in casting cover on side of module board assembly is located (see diagram on inside of instrument's top cover to locate board assembly); lift cover off of module.
3. Disconnect all interboard cables (cables that go from one board or assembly to another) from the board being removed.



PC Board is secured to base by mounting screws and feedthrough filters. Feedthrough filter pins fit snugly into connector on board. Filters may be damaged if board is not lifted straight up off of the pins. There will be some resistance as you pull the board upward.

4. Remove screws securing board to module base.
5. Carefully lift board straight up from base until clear of filter pins.

A6A1 MODIFICATIONS: 08642-60101

None

A6A2 MODIFICATIONS: 08642-60102

None

A7A1 MODIFICATIONS: 08642-60103

To Remove:

4. Remove screws securing board to base.
5. Lift board from base.

A9A1 MODIFICATIONS: 08642-60104

None

A9A2 MODIFICATIONS: 08642-60105

None

A11A1 MODIFICATIONS: 08642-60106

None

A11A2 MODIFICATIONS: 08642-60107

None

A11A3 MODIFICATIONS: 08642-60108

None

A12A1 MODIFICATIONS: 08642-60109

None

A12A3 MODIFICATIONS: 08642-60110

None

A12A3 MODIFICATIONS: 08642-60111

None

A13A1 MODIFICATIONS: 08642-60112

To Remove:

- 1A. Use large flathead screwdriver to remove round transistor heatsink from the casting cover. Heat sink is screwed onto shaft of transistor mounted on A13A1.

A14 MODIFICATIONS: HET SWITCH (A14U1)**To Remove: A14U1**

1. Remove A14 Module (refer to paragraph 8-4).
2. Remove cables from top of A14U1. To avoid damage to semi-rigid cables disconnect them at both ends.
3. Unplug wiring harness from A14A3J5.
4. Remove two screws securing HET switch to base.

A14A2 MODIFICATIONS: 08642-60115**To Remove:**

- 1A. Use large flathead screwdriver to remove round transistor heatsink from the casting cover. Heat sink is screwed onto shaft of transistor mounted on A13A1.

A14A3 MODIFICATIONS: 08642-60116**To Remove:**

- 1A. Use large flathead screwdriver to remove round transistor heatsink from the casting cover. Heat sink is screwed onto shaft of transistor mounted on A13A1.

A16A1 MODIFICATIONS: 08642-60145 (Option 003 only)

None

A16A2 MODIFICATIONS: 08642-60119 (Option 003 only)

1. Remove semi-rigid cable from attenuators. To avoid damaging the cable, be sure to disconnect both ends.

Disconnect ribbon cables.
2. Remove mounting screws (two per attenuator) on the opposite side of the base.

A19A1 MODIFICATIONS: 08642-60118

None

A19A2 MODIFICATIONS: 08642-60119

None

A19A3 MODIFICATIONS: 08642-60120

None

A19 ATTENUATORS: A19AT1 and A19AT2**To Remove:**

1. Remove A19A1.
2. Remove mounting screws (four per attenuator) on the side of the base from which the A19A1 Assembly was removed.
3. Remove semi-rigid cable from attenuators. To avoid damaging the cable, be sure to disconnect both ends.

Disconnect ribbon cables.

A19 SWITCHES: A19K1 and A19K2**To Remove:**

1. Remove semi-rigid cables from tops of switches.
2. Remove mounting screws (2 per).
3. Disconnect ribbon cable.

8-23. PRINTED CIRCUIT (PC) BOARDS: REPLACEMENT

| | |
|-------------------|-------------|
| Replacement Time: | Conditional |
| Tools Required: | Conditional |

The following procedure is a generic assembly procedure. Modifications peculiar to an assembly are listed following the generic procedure. Table 8B-2 lists which steps, are modified or added for a particular module. Substitute the **MODIFICATIONS** into the generic procedure as directed.

Table 8B-2. Replacement Modifications

| ASSEMBLY NUMBER | NO CHANGES | ADD STEP | REPLACE STEP | OMIT STEP |
|-----------------|------------|--------------------|--------------|-----------|
| A6A1 | | | 4 | |
| A6A2 | | 2A, 2B, 2C | 4 | 6 |
| A7A1 | | | 2, 3 | |
| A9A1 | | 2A, 2B, 2C | 4 | |
| A9A2 | | 2A, 5A | 4, 7 | 6 |
| A11A1 | | 2A, 2B, 2C, 2D, 7A | 4 | |
| A11A2 | | 7A, 7B | 4, 6 | |
| A11A3 | | 2A, 7A, 7B | 4, 6 | |
| A12A1 | | 7A, 7B | 4 | |
| A12A2 | | 7A, 7B | 4 | |
| A12A3 | | 2A, 2B, 2C, 2D, 7A | 4 | |
| A13A1 | | 8 | 4, 6, 7 | |
| A13A2 | | 2A, 2B, 2C | 4 | |
| A14U1 | | | 1-3 | 4-7 |
| A14A2 | | 2A, 2B, 2C, 8 | 4, 6, 7 | |
| A14A3 | | 8, 9 | 4, 6, 7 | |
| A16A1 | | | 4 | |
| A16A2 | | | 4 | 6 |
| A16AT1, 2 | | | 1-3 | 4-7 |
| A19A1 | | | 4 | 6 |
| A19A2 | | | 4 | 6 |
| A19A3 | | 2A, 2B, 2C | 4 | 6 |
| A19AT1, 2 | | | 1-4 | 5-7 |
| A19K1, 2 | | | 1-4 | 5-7 |

To Replace: Generic

1. Inspect module base for damaged or missing spira shield gasket. If shield is missing or in poor condition (flattened, unwound, or loose), replace it.
2. Inspect PC Board. Clip long leads on circuit side of board that could cause a short circuit to casting. Lower components whose height would prevent proper placement of the module cover.



Feedthrough filter bodies are fragile. Use care when pressing board connector onto filter pins.

3. Position PC Board filter network connector over filter pins and press board into base. Replace mounting screws finger tight, when all screws are in place, tighten each one.
4. Replace all cables. (Refer to MODIFICATIONS for specific cable connections.)
5. Inspect condition of spira shield gasket on module cover; replace if necessary. Replace missing or damaged RF connector or filter gaskets (elastomer).
 - Flat side of RF connector gasket should be flush against board.
6. Check that conductive foam is in place on module cover. If it is missing or damaged replace it.
7. Place cover over PC Board. Replace all screws finger tight, then tighten screws starting in the center and working outward.

A6A1 MODIFICATIONS: 08642-60101**To Replace:**

4. Reconnect cables as follows:

| | |
|--------|-----------------------|
| A6A1W1 | A6A2J4 to A6A1J3 (94) |
|--------|-----------------------|

A6A2 MODIFICATIONS: 08642-60102**To Replace:**

- 2A. Check feedthrough filter network for cracked bodies or bent pins. If the filter network is damaged replace it. (Refer to paragraph 8-24.)
- 2B. Check that gasket is in place under the feedthrough filter network. If it is damaged or missing, replace it.

- 2C. Check that Feedthrough filter network is secured to base.
4. Reconnect cables as follows:
- | | | |
|--------|------------------|------|
| A6A1W1 | A6A2J4 to A6A1J3 | (94) |
|--------|------------------|------|
6. Omit this step.

A7A1 MODIFICATIONS: 08642-60103

To Replace:

2. Follow directions in step 2, but "CAUTION" does not apply to A7A1.
3. Replace mounting screws finger tight. When all screws are in place tighten each one.

A9A1 MODIFICATIONS: 08642-60104

To Replace:

- 2A. Check feedthrough filter network for cracked bodies or bent pins. If the filter network is damaged replace it. (Refer to paragraph 8-24.)
- 2B. Check that gasket is in place under the feedthrough filter network. If it is damaged or missing, replace it.
- 2C. Check that Feedthrough filter network is secured to base.
4. Reconnect cables as follows:
- | | | |
|------|------------------|-------|
| A9W1 | A9A1J1 to A9A2J4 | (947) |
| A9W2 | A9A1J3 to A9A2J2 | (934) |

A9A2 MODIFICATIONS: 08642-60105

To Replace:

- 2A. Check that foam piece is under **A9A2U20**. This foam should raise the IC so that it will contact the casting cover for heat sinking purposes. If the foam is damaged or missing, replace it.
4. Reconnect cables as follows:
- | | | |
|------|------------------|-------|
| A9W1 | A9A1J1 to A9A2J4 | (947) |
| A9W2 | A9A1J3 to A9A2J2 | (934) |
- 5A. Apply thermal compound to casting cover where it will come in contact with **A9A2U20**.
6. Omit this step.

7. Place cover over PC Board. Replace all screws finger tight, then tighten screws starting in the corners and working inward.

A11A1 MODIFICATIONS: 08642-60106

To Replace:

- 2A. Check feedthrough filter network for cracked bodies or bent pins. If the filter network is damaged replace it. (Refer to paragraph 8-24.)
- 2B. Check that gasket is in place under the feedthrough filter network. If it is damaged or missing, replace it.
- 2C. Check that Feedthrough filter network is secured to base.
- 2D. Check that teflon washers are in place on top of feed through filters FL2 and FL3 (single filters). If either or both are missing, replace them. These washers prevent feedthroughs from shorting to A11A1.
4. Reconnect cables as follows:

| | |
|-------|--------------------------|
| A11W1 | A11A1J2 to A11A3J3 (925) |
| A11W2 | A11A1J4 to A11A2J1 (923) |
- 7A. Make sure small access cover is secured to casting cover.

A11A2 MODIFICATIONS: 08642-60107

To Replace:

4. Reconnect cables as follows:

| | |
|-------|--------------------------|
| A11W2 | A11A1J4 to A11A2J1 (923) |
| A11W3 | A11A2J3 to A11A3J6 (SR) |
6. Check that polyiron strips and sheets are in place on cover. If they are damaged or missing, replace them. **Whenever the polyiron is replaced, the module must be recalibrated.**
- 7A. Make sure small access cover is secured to casting cover.
- 7B. Check that screws are mounted in the cover in holes marked "C1" and "C15". If either or both are missing, replace them.

A11A3 MODIFICATIONS: 08642-60108**To Replace:**

- 2A. Place the foam piece onto the areas indicated on the base. The piece is not adhered to the base but is held in place by the board and its mounting hardware.
4. Reconnect cables as follows:
- | | |
|-------|--------------------------|
| A11W1 | A11A1J2 to A11A3J3 (925) |
| A11W3 | A11A2J3 to A11A3J6 (SR) |
6. Check that polyiron strips and sheets are in place on cover. If they are damaged or missing, replace them. **Whenever the polyiron is replaced, the module must be recalibrated.**
- 7A. Make sure mixer access covers secured to casting cover.
- 7B. Check that screws are mounted in the cover in holes marked "C1" and "C15". If either or both are missing, replace them.

A12A1 MODIFICATIONS: 08642-60109**To Replace:**

4. Reconnect cables as follows:
- | | |
|-------|-------------------------|
| A12W1 | A12A2J4 to A12A1J3 (SR) |
| A12W4 | A12A1J1 to A12A3J4 (91) |
- 7A. Make sure mixer access covers secured to casting cover.
- 7B. Check that screws are mounted in the cover in holes marked "C2", "C3", "C26" and "C27". If any are missing replace them.

A12A2 MODIFICATIONS: 08642-60110**To Replace:**

4. Reconnect cables as follows:
- | | |
|-------|--------------------------|
| A12W1 | A12A2J4 to A12A1J3 (SR) |
| A12W2 | A12A3J2 to A12A2J3 (907) |
| A12W3 | A12A2J1 to A12A3J5 (902) |
- 7A. Make sure mixer access covers secured to casting cover.
- 7B. Check that screws are mounted in the cover in holes marked "C2", "C3", "C26" and "C27". If any are missing, replace them.

A12A3 MODIFICATIONS: 08642-60111**To Replace:**

- 2A. Check feedthrough filter network for cracked bodies or bent pins. If the filter network is damaged replace it. (Refer to paragraph 8-24.)
- 2B. Check that gasket is in place under the feedthrough filter network. If it is damaged or missing, replace it.
- 2C. Check that Feedthrough filter network is secured to base.
- 2D. Check that teflon washer is in place on top of feed through filter FL2 (single filter). If it is missing, replace it. This washers prevents feedthrough from shorting to A12A3.
- 4. Reconnect cables as follows:

| | |
|-------|--------------------------|
| A12W2 | A12A3J2 to A12A2J3 (907) |
| A12W3 | A12A2J1 to A12A3J5 (902) |
| A12W4 | A12A1J1 to A12A3J4 (91) |
- 7A. Make sure mixer access covers secured to casting cover.

A13A1 MODIFICATIONS: 08642-60112**To Replace:**

- 4. Reconnect cables as follows:

| | |
|-------|--------------------------|
| A13W1 | A13A1J1 to A13A2J5 (936) |
| A13W2 | A13A1J2 to A13A2J2 (924) |
- 6. Place cover over PC Board. Replace screws finger tight. Do not tighten yet.
- 7. Replace round transistor heatsink on outside of casting cover. Heat sink is screwed onto shaft of transistor mounted on A13A1. Do not overtighten.
- 8. Tighten screws in casting cover starting in the center and working outward.

A13A2 MODIFICATIONS: 08642-60113**To Replace:**

- 2A. Check feedthrough filter network for cracked bodies or bent pins. If the filter network is damaged replace it. (Refer to paragraph 8-24.)
- 2B. Check that gasket is in place under the feedthrough filter network. If it is damaged or missing, replace it.
- 2C. Check that Feedthrough filter network is secured to base.

4. Reconnect cables as follows:

| | |
|-------|--------------------------|
| A13W1 | A13A1J1 to A13A2J5 (936) |
| A13W2 | A13A1J2 to A13A2J2 (924) |

A14 MODIFICATIONS: HET SWITCH (A14U1)**To Replace: A14U1**

1. Secure A14U1 to base with two screws (use flat washer and lock washer with each.
2. Plug wiring harness into A14A3J5.
3. Reconnect cables as follows:

| | |
|-------|-----------------------------------|
| A14W2 | A14A3J3 to A14U1J1 (912) |
| A14W3 | A14A3J1 to A14U1J4 (914) |
| A14W4 | A14U1 to A14A3J5 (WIRING HARNESS) |

Red wire to rear feedthrough filter.
Brown wire to front feedthrough filter.

A14A2 MODIFICATIONS: 08642-60115**To Replace:**

- 2A. Check feedthrough filter network for cracked bodies or bent pins. If the filter network is damaged replace it. (Refer to paragraph 8-24.)
- 2B. Check that gasket is in place under the feedthrough filter network. If it is damaged or missing, replace it.
- 2C. Check that Feedthrough filter network is secured to base.
4. Reconnect cables as follows:

| | |
|-------|--------------------------|
| A14W1 | A14A2J4 to A14A3J2 (916) |
|-------|--------------------------|
6. Place cover over PC Board. Replace screws finger tight. Do not tighten yet.
7. Replace round transistor heatsink on outside of casting cover. Heat sink is screwed onto shaft of transistor mounted on A13A1. Do not overtighten.
8. Tighten screws in casting cover starting in the center and working outward.

A16 ATTENUATORS: A16AT1 and A16AT2 (Option 003 only)**To Replace:**

1. Loosely secure the attenuator to the base with four screws inserted from opposite side of base. These screws must be left slightly loose to facilitate connecting the semi-rigid cable.
2. Reconnect cables as follows:

| | |
|-------|-----------------------------------------------------|
| A16W1 | A16AT1J2 to A16AT2J2 (SR) |
| A16W2 | A16AT2J1 to A16A2J1 (SR) |
| A16W8 | A16AT1 to A16A1J1 odd numbered pins (RIBBON CABLE) |
| | A16AT2 to A16A1J1 even numbered pins (RIBBON CABLE) |
3. Tighten screws securing attenuator to base.

A19A1 MODIFICATIONS: 08642-60118**To Replace:**

4. Reconnect cables as follows:

| | |
|-------|-----------------------------------------------------|
| A19W7 | A19K1, K2 to A19A1J4 (SR) |
| A19W8 | A19AT1 to A19A1J1 odd numbered pins (RIBBON CABLE) |
| | A19AT2 to A19A1J1 even numbered pins (RIBBON CABLE) |
6. Omit this step.

A19A2 MODIFICATIONS: 08642-60119**To Replace:**

4. Reconnect cables as follows:

| | |
|-------|--------------------------|
| A19W6 | A19AT2J1 to A19A2J1 (SR) |
|-------|--------------------------|
6. Omit this step.

A19A3 MODIFICATIONS: 08642-60120**To Replace:**

- 2A. Check feedthrough filter network for cracked bodies or bent pins. If the filter network is damaged replace it. (Refer to paragraph 8-23.)

A16 ATTENUATORS: A16AT1 and A16AT2 (Option 003 only)

To Replace:

1. Loosely secure the attenuator to the base with four screws inserted from opposite side of base. These screws must be left slightly loose to facilitate connecting the semi-rigid cable.
2. Reconnect cables as follows:

| | |
|-------|-----------------------------------------------------|
| A16W1 | A16AT1J2 to A16AT2J2 (SR) |
| A16W2 | A16AT2J1 to A16A2J1 (SR) |
| A16W8 | A16AT1 to A16A1J1 odd numbered pins (RIBBON CABLE) |
| | A16AT2 to A16A1J1 even numbered pins (RIBBON CABLE) |
3. Tighten screws securing attenuator to base.

A19A1 MODIFICATIONS: 08642-60118

To Replace:

4. Reconnect cables as follows:

| | |
|-------|-----------------------------------------------------|
| A19W7 | A19K1, K2 to A19A1J4 (SR) |
| A19W8 | A19AT1 to A19A1J1 odd numbered pins (RIBBON CABLE) |
| | A19AT2 to A19A1J1 even numbered pins (RIBBON CABLE) |
6. Omit this step.

A19A2 MODIFICATIONS: 08642-60119

To Replace:

4. Reconnect cables as follows:

| | |
|-------|--------------------------|
| A19W6 | A19AT2J1 to A19A2J1 (SR) |
|-------|--------------------------|
6. Omit this step.

A19A3 MODIFICATIONS: 08642-60120

To Replace:

- 2A. Check feedthrough filter network for cracked bodies or bent pins. If the filter network is damaged replace it. (Refer to paragraph 8-24.)

3. Hold switches in place and mount to base with two screws. Each screw takes a washer.
4. Reconnect other cables as follows:

| | |
|-------|---------------------------|
| A19W2 | A19K2J2 to A19AT1J1 (SR) |
| A19W3 | A19K1J3 to A19A3J1 (SR) |
| A19W4 | A19K2J3 to A19A3U2J2 (SR) |

8-24. MODULE FEEDTHROUGH FILTER NETWORK

| | |
|-------------------|-------------------------------|
| Removal Time: | 2 min |
| Replacement Time: | 2 min |
| Tools Required: | <i>Pozidrive screwdriver.</i> |

To Remove: Filters

1. Remove PC board assembly under which filters are mounted.
2. Remove two screws securing filter to base. Carefully pull filter network out of module.

To Replace: Filters

1. Place filter gasket over feedthrough hole in casting base.
2. Inspect filter network for cracked or broken filter bodies. If filter network is intact, place the network through the feedthrough hole with the longer set of leads through the casting. Be sure gasket remains in place.
3. Secure filter to base with two screws.
4. Replace PC board. (Refer to paragraph 8-22 **MODIFICATIONS** for the module you are repairing.)

3. Hold switches in place and mount to base with two screws. Each screw takes a washer.
4. Reconnect other cables as follows:

| | |
|-------|---------------------------|
| A19W2 | A19K2J2 to A19AT1J1 (SR) |
| A19W3 | A19K1J3 to A19A3J1 (SR) |
| A19W4 | A19K2J3 to A19A3U2J2 (SR) |

8-24. MODULE FEEDTHROUGH FILTER NETWORK

| | |
|-------------------|-------------------------------|
| Removal Time: | 2 min |
| Replacement Time: | 2 min |
| Tools Required: | <i>Pozidrive screwdriver.</i> |

To Remove: Filters

1. Remove PC board assembly under which filters are mounted.
2. Remove two screws securing filter to base. Carefully pull filter network out of module.

To Replace: Filters

1. Place filter gasket over feedthrough hole in casting base.
2. Inspect filter network for cracked or broken filter bodies. If filter network is intact, place the network through the feedthrough hole with the longer set of leads through the casting. Be sure gasket remains in place.
3. Secure filter to base with two screws.
4. Replace PC board. (Refer to paragraph 8-22 **MODIFICATIONS** for the module you are repairing.)

8-25. MODULE: A5

| | |
|-------------------|-----------------------------------------------------------|
| Removal Time: | 2 min |
| Replacement Time: | 2 min |
| Tools Required: | <i>Pozidrive screwdriver, torque driver Torxhead bits</i> |

To Remove

1. Remove top cover. (Refer to paragraph 8-3.)
2. Remove A3 and A4 Modules. (Refer to paragraph 8-5 and 8-6.)
3. Open front panel (refer to paragraph 8-7: except Option 002, paragraph 8-8: Option 002 only).
4. Remove A2 Module. (Refer to paragraph 8-9.)
5. Remove seven screws in modulation shield (metal plate behind A2). Pull shield out of instrument.
6. Remove left (black) controller guide metal mounting bracket (two screws).
7. Remove two screws in left (black) controller guide.
8. Turn instrument on its side and remove four screws on rear edge of front bottom cover. Pull cover toward rear panel to disengage from front frame.
9. Remove two screws holding left (black) controller guide to bottom of A5 Module and pull guide out of instrument.
10. Remove two screws on far right side holding right (white) controller guide.
11. Disconnect all cables from A5 Module.
12. Remove seven panhead screws securing board to brace. DO NOT remove six flathead screws visible through holes in center section of A5 Module.
13. Pull Module out through bottom of instrument.

To Replace

1. Push A5 Module into instrument through bottom of instrument and align with front brace. Be sure front brace insulator is in place behind A5.
2. Plug HP-IB Cable (W12) into bottom left corner of A5 at A5J20 and A5J21. Red stripe on cable faces front panel. Dress W12 between standoffs on side of frame.

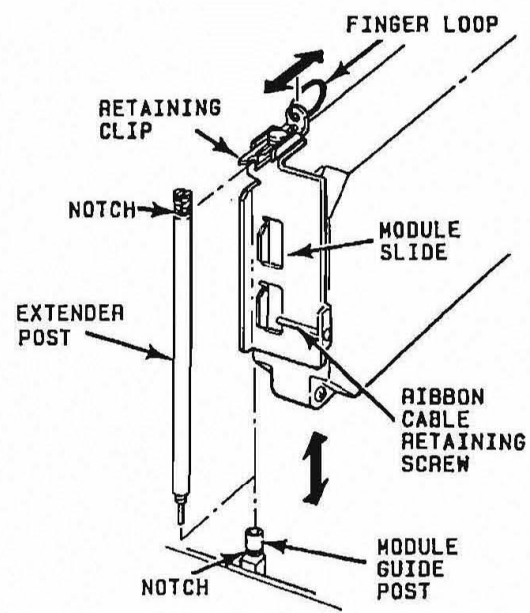
3. Loosely secure A5 and insulator to front brace with seven screws. When all seven screws are in place, tighten each one.



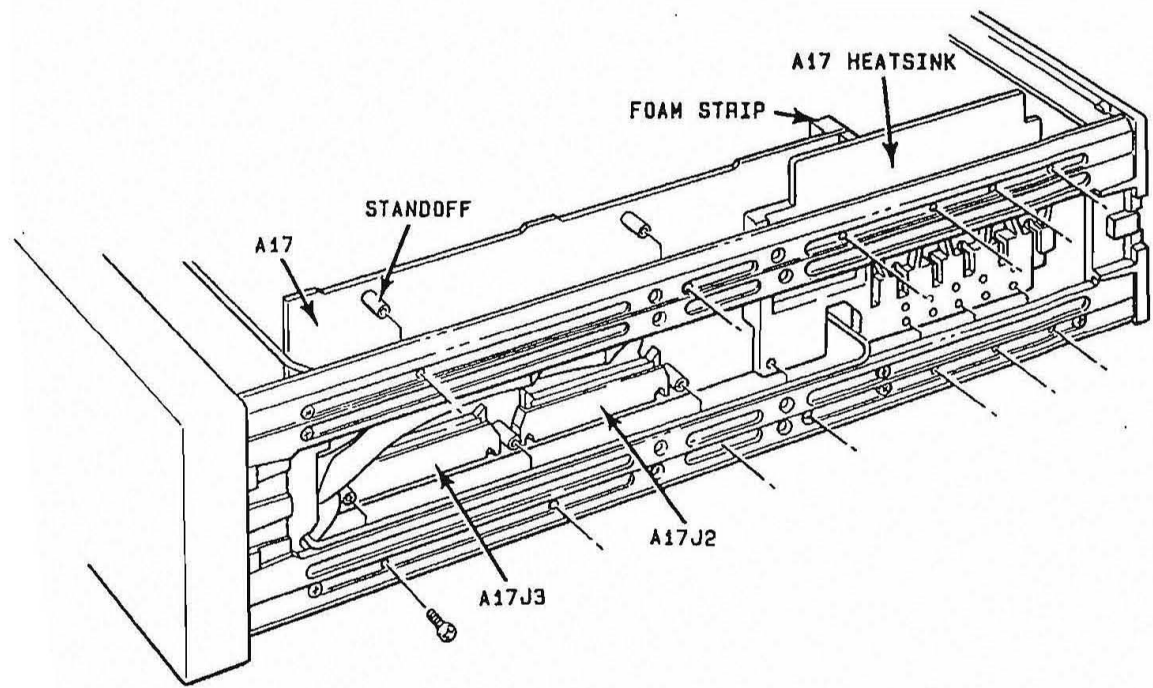
Cables W14 and W15 must be properly dressed into notch provided in left controller guide. Improperly dressed cables can be punctured by screws when securing guide and bracket to frame.

4. Dress W14 (08642-60010) and W15 (08642-60011) flush against left side of instrument. Mount left (black) controller guide over the cables with two panhead screws. Mount the left guide metal bracket with two flathead screws.
5. Replace two screws in right (white) controller guide.
6. Reconnect all cables. (Refer to diagram on inside of instrument Top Cover for cable connections.)
7. Position the modulation shield into the front frame and loosely secure with seven screws. When all screws are in place tighten each one.
8. Replace A2 Module. (Refer to paragraph 8-9.)
9. Close front panel. (Refer to paragraph 8-7: Except Option 002, paragraph 8-8: Option 002 only.)
10. Replace A3 and A4 Modules. (Refer to paragraph 8-5 and 8-6.)

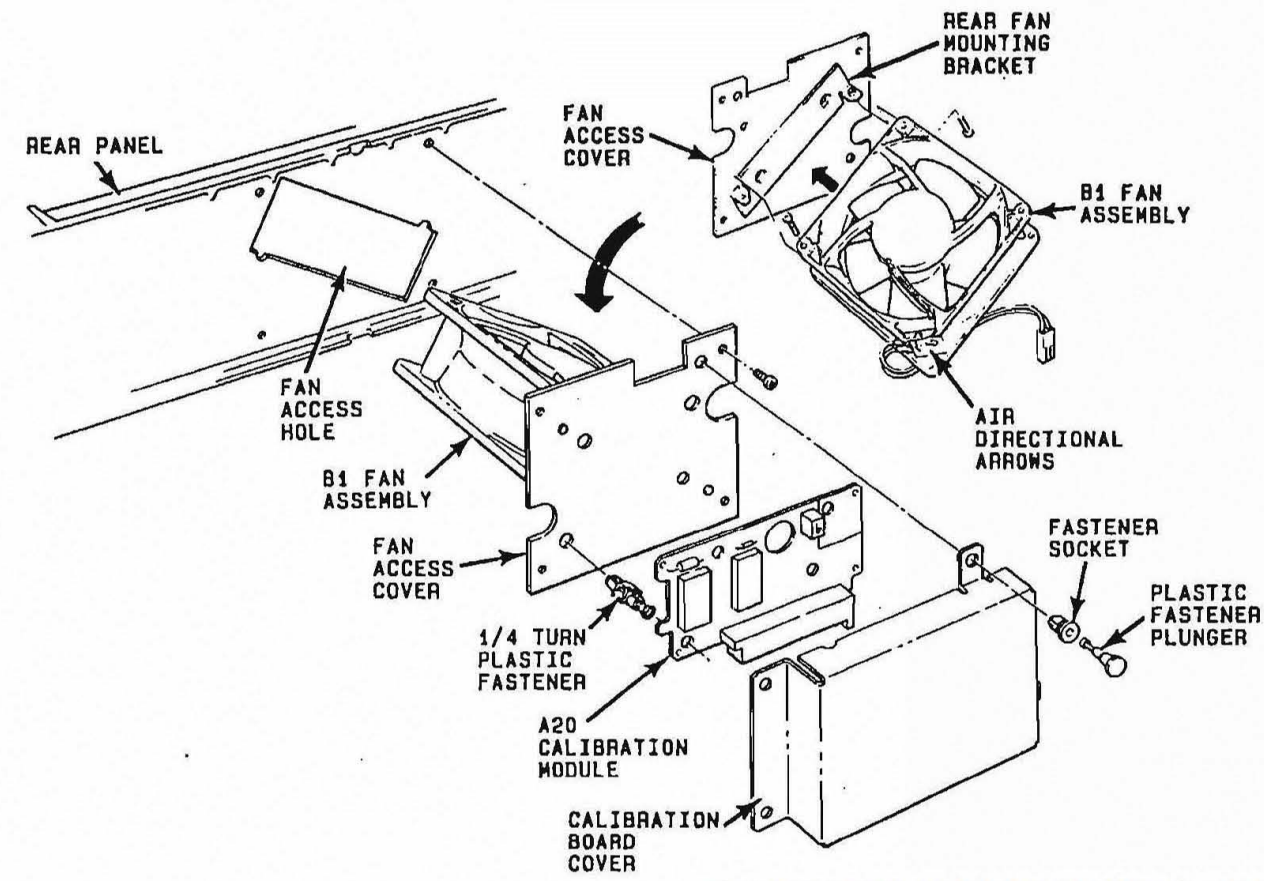
1. RF MODULE MECHANICAL PARTS



2. A17 MODULE MECHANICAL PARTS

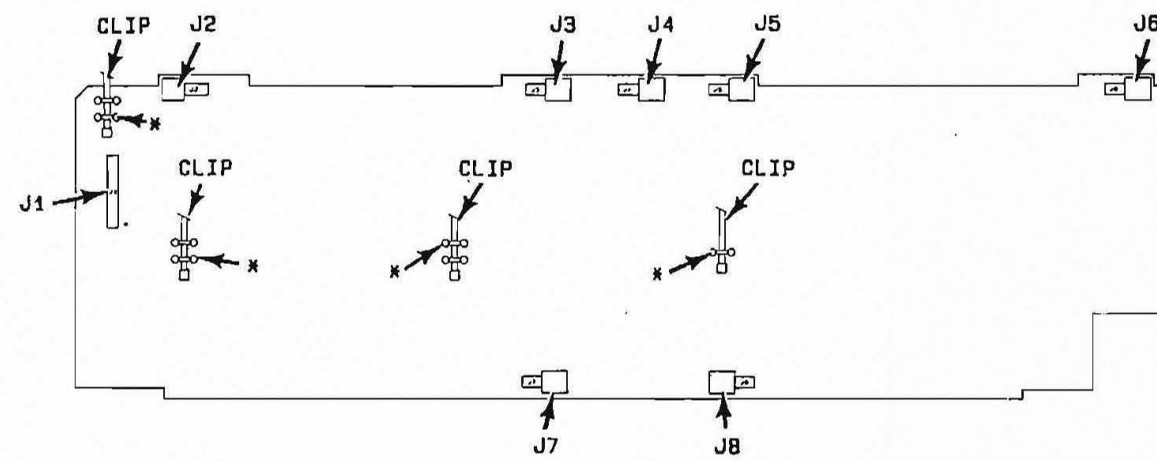


3. A20 AND B1 MECHANICAL PARTS



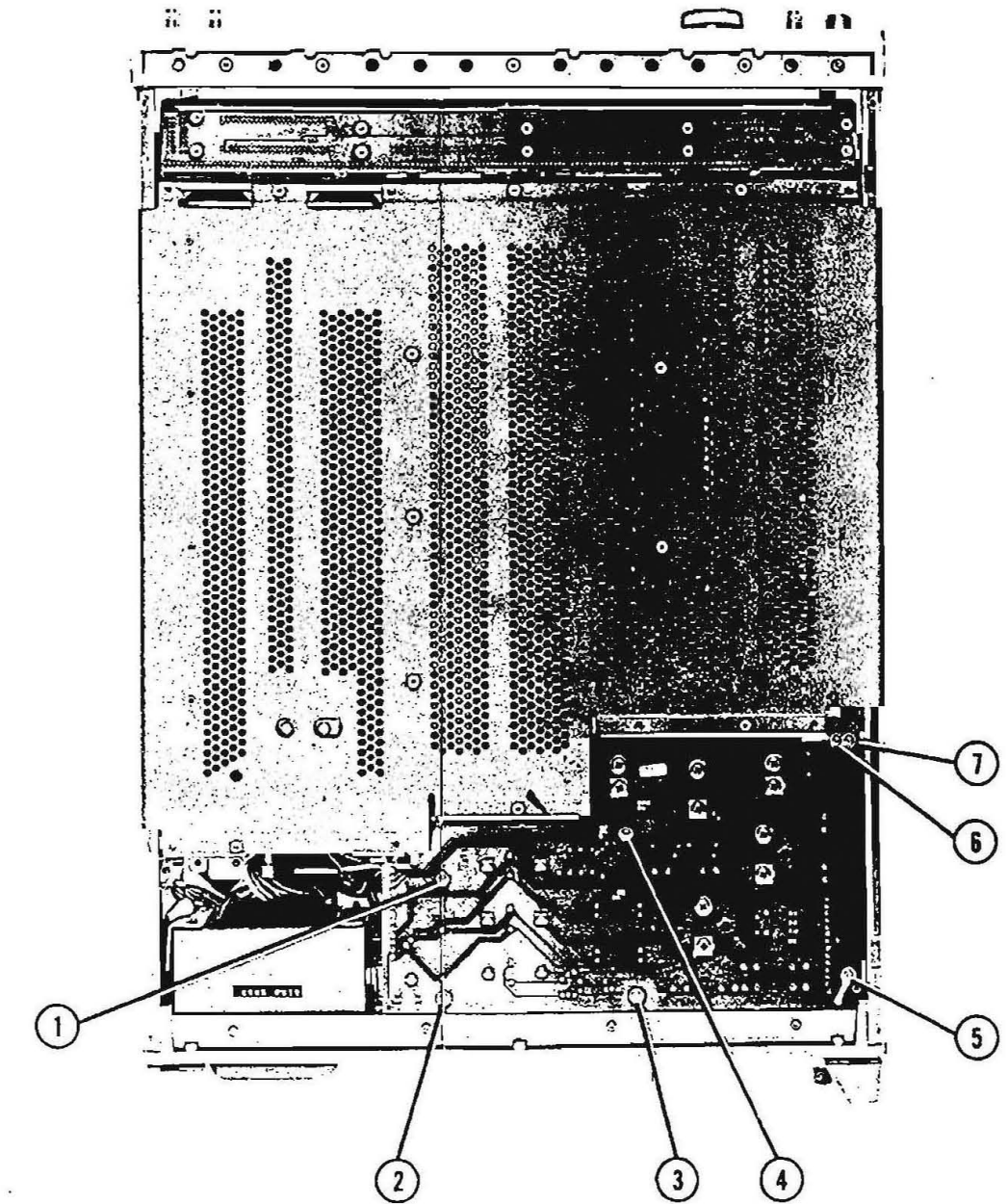
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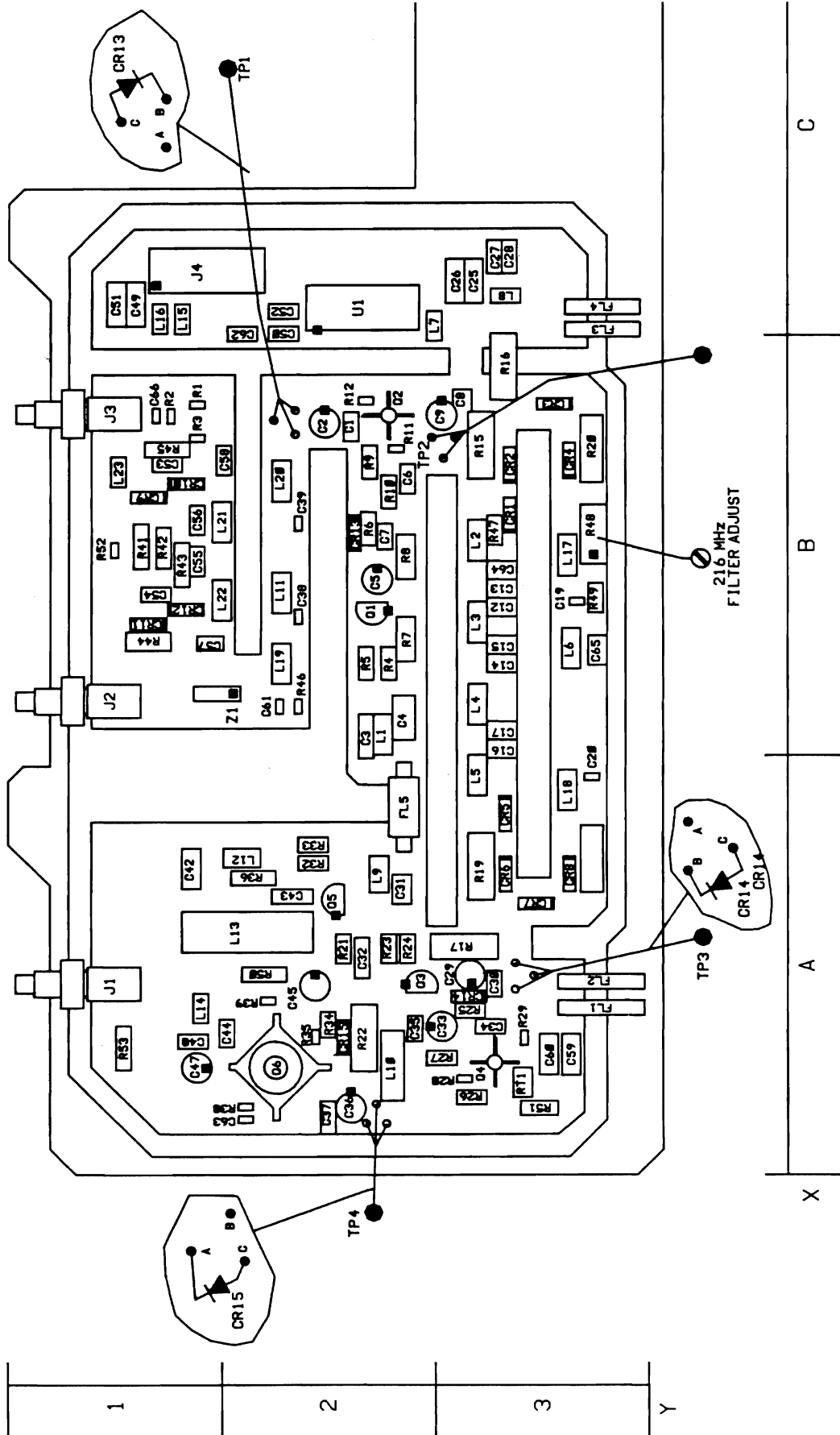
4. A2 CABLE TIES AND CONNECTORS



*MODULE TIES: DO NOT CLIP

5. A18 MOUNTING SCREWS





Changes to Figure 8Q-106 (2642A to 2807A)

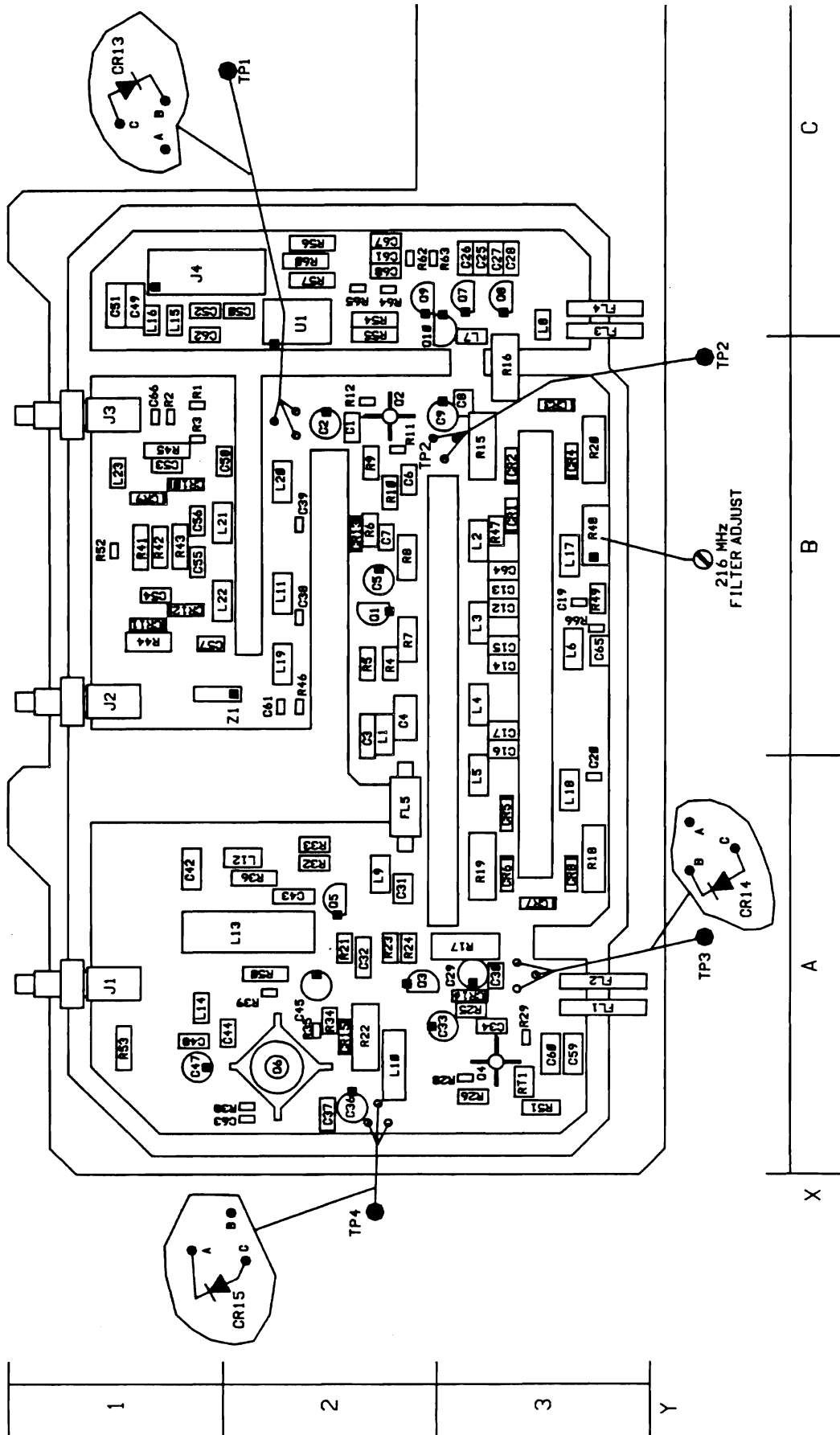


Figure 8Q-106. Component Locator (2825A and above)

SS47

rev.01JUN88

RODYNE ASSEMBLY (08642-60216)

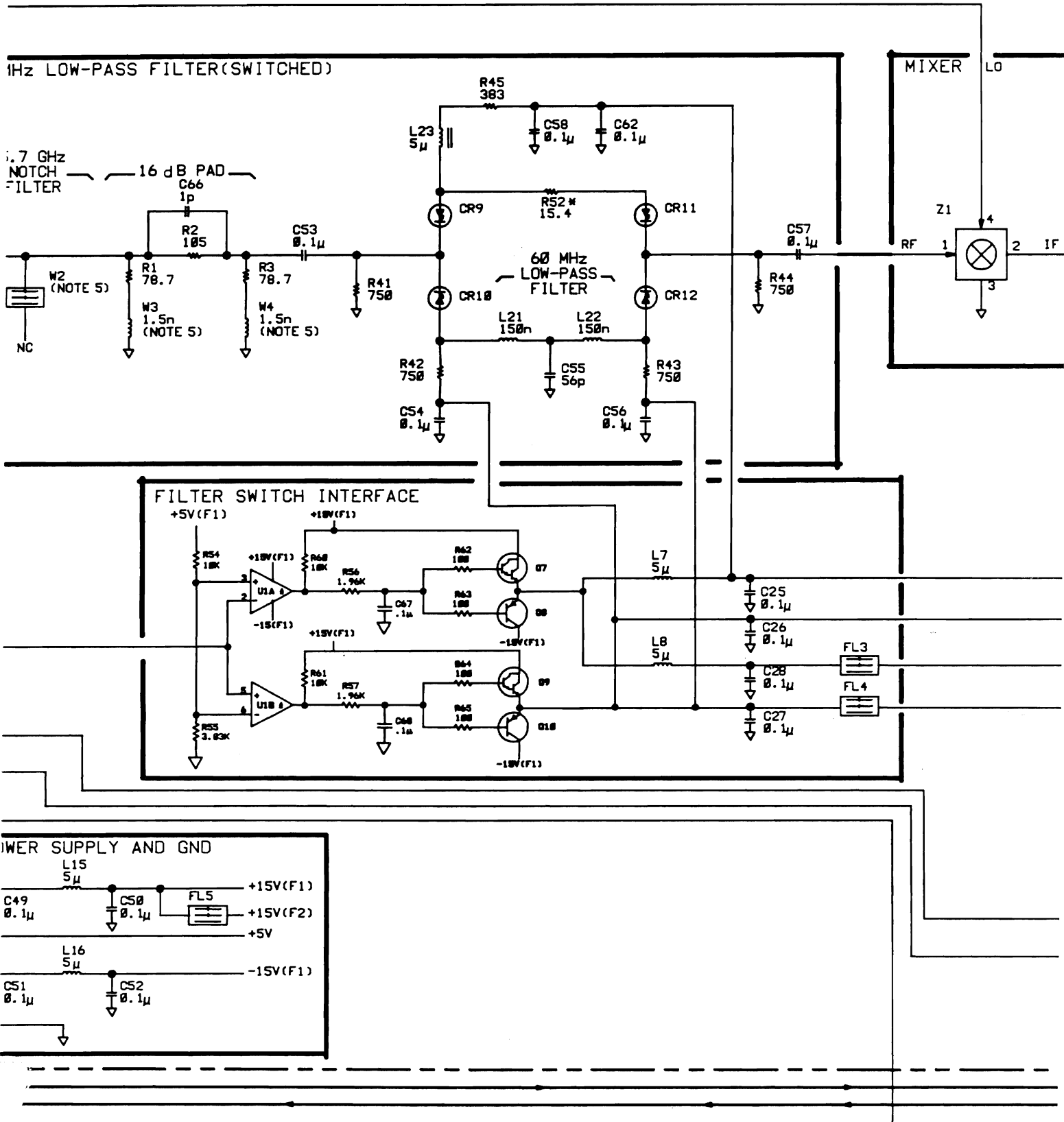
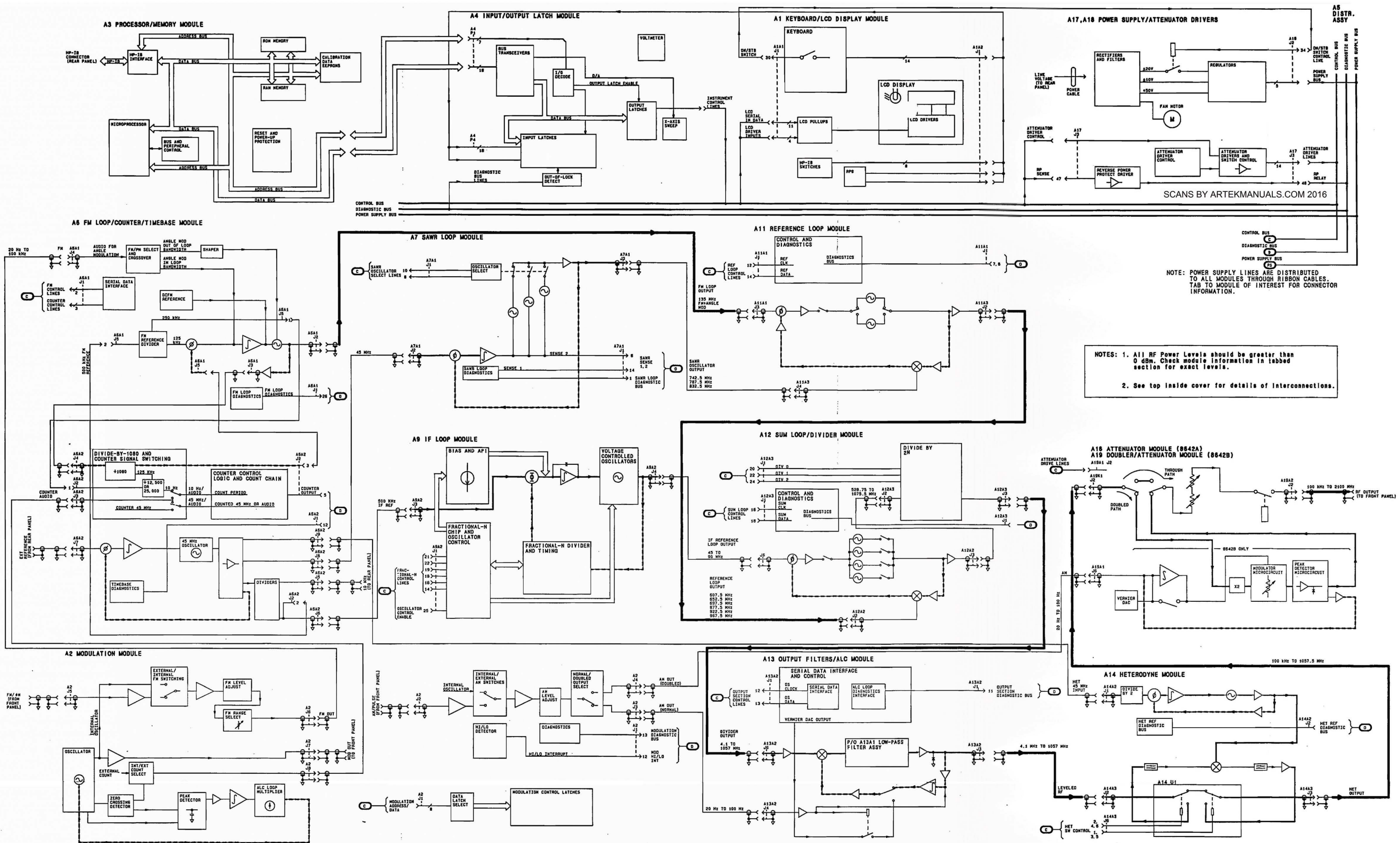


Figure 8Q-107: Service Sheet 47. (2825A and above)



NOTE: POWER SUPPLY LINES ARE DISTRIBUTED TO ALL MODULES THROUGH RIBBON CABLES. TAB TO MODULE OF INTEREST FOR CONNECTOR INFORMATION.

NOTES: 1. All RF Power Levels should be greater than 0 dBm. Check module information in tabbed section for exact levels.
2. See top inside cover for details of interconnections.

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BD1
Figure 8C-101
8C-101

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REPLACING A MODULE

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DIAGNOSTICS

The Diagnostics section of the HP 8642A/B Operating and Service Manual has been taken directly from the HP 8642A/B On-Site Service Manual. When using this section of the manual you will find that certain references have been made for the on-site manual which are not applicable to this manual. These references are listed below.

1. You will read, "The last page of this section is a foldout and should be pulled out now."
 - The foldouts in the Operating and Service manual are in one section. You will need to find the foldout for your module. They are arranged in the following order: Instrument Level Diagnostics, Power Supply Modules, Control Modules and RF Modules.
 2. There are many references to the On-Site Service Kit and its contents, which may or may not be available to you. If you do not have the kit, the contents are listed in the Operating and Service Manual on page 1-17 and 1-18 in Table 1-5. It will be helpful to have the tools and test connectors handy to run the tests.
 3. There are cases where you will be directed to other sections of the On-Site Service Manual. The information in the MECHANICAL PROCEDURES section is found in Assembly/Disassembly of the Operating and Service Manual. References to other sections may be ignored. If you would like to read the information for further understanding, the HP Part Number for the On-Site Service Manual is 08642-90020.
 4. Figures and tables are numbered according to the On-Site Service Manual numbering scheme.
 5. The Exceptional cases section of the manual is not yet available.
 6. There are two page references in the text which will have to be modified. They are:
 - On page 8D-10, page referenced should be 8D-12.
 - On page 8D-271, page referenced should be 8D-274.
 7. Whenever you read "Go to Replacing a Module", go to page 8D-XX.
-

INSTRUMENT LEVEL DIAGNOSTICS

3A-1. INTRODUCTION**WARNING**

The HP 8642 is extremely heavy. Do not lift or carry the instrument without assistance.

If the instrument is rack mounted, do not pull the instrument from the rack without assistance.

The **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** are the first level of troubleshooting for the **HP 8642**. The objective of this group of tests is to isolate the source of a detected failure to the correct section of the instrument: **Power Supply, Control or RF Section**. The **ILD** should be used to determine the appropriate place in the instrument to begin module level troubleshooting.


NOTE

Testing at this level requires two BNC coax cables not supplied in the On-Site Service Kit.

Test Instructions

1. The last page in this group of tests is a foldout and should be pulled out now.
2. Find **INSTRUMENT LEVEL DIAGNOSTICS** on the foldout.
3. Use the Task Sequence Diagram, shown under **INSTRUMENT LEVEL DIAGNOSTICS** to direct you through the testing process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown on the diagram.

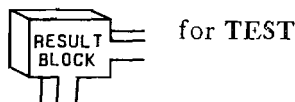
INSTRUMENT LEVEL DIAGNOSTICS

| | | |
|--------------|----------------------------|------------------------------------------------------------------------------------|
| Type: | Instrument Level Self Test | IL.01 |
| Run Time: | 3 min 30 sec |  |
| Set-up Time: | 1 min | |


The Instrument Level Self Test is designed to check the operation of each module in the instrument.

Run Test

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **0** **HZ**.
3. When "WAITING FOR SET-UP 3 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT". (See foldout for setup diagram.)
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
 - **HZ** to continue.
4. When test is complete "DIAG DONE HIT MSSGS .VI" will appear:
 - Use **MSSG** to scroll through messages.
 - Record each module number indicated. (See Front Panel Diagram on foldout to locate module number in display message.)
5. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each INSTRUMENT.



INSTRUMENT LEVEL DIAGNOSTICS

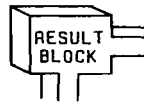
| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Supply Lines Check | IL.02 |
| Run Time: | 2 min |  |
| Set-up Time: | 2 min | |

1. Remove Top Cover. (See table on foldout in **MECHANICAL PROCEDURES** to locate Top Cover removal information.)
2. Connect external DC voltmeter ground lead to instrument's chassis.
3. Measure Power Supply output voltage levels on A17 Module at test points TP1 through 5. (See Top View Diagram on inside of Top Cover for test point locations and voltage levels.) Voltages should be within approximately 1% of those shown with test points on Top View Diagram.
4. The tuning screws located next to A17TP1 through 5, can be used to fine tune voltage levels which are slightly high or low.

COMMENT


The voltages measured at A17TP1 through 5 are being fed back from sense points on the A5 Assembly. A correct measurement verifies the presence of the voltage on the A5 Distribution Assembly.

5. Record the results.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **SUPPLY.**



for **CHECK POWER SUPPLY.**

INSTRUMENT LEVEL DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Identify Conditions | IL.03 |
| Run Time: | N/A |  |
| Set-up Time: | N/A | |

The operating conditions which will cause the **Instrument Level Self Test** to pass are listed below. Find the condition which describes your circumstances.

- Condition 1:** Instrument Level Self Test (ILST) did not detect a known failure.
- Condition 2:** Instrument Level Self Test (ILST) was run to confirm correct operation of instrument.

Condition 1

Output Power Level Failure: To isolate output power level problems which occur at power levels above **-10dBm** and are greater than **10 dB** out of specification, go to **A14 MODULE LEVEL DIAGNOSTICS (MLD)** section. For output power level problems which occur only at settings below **-10dBm** or are less than **10 dB** out of specification, go to **EXCEPTIONAL CASES** section.

Other Failures: To isolate failures which can be detected by the internal diagnostics when the **HP 8642** is set to a specific operating condition, go to the **MLD** section for the module indicated by the instrument. If two or more failures are indicated, go to the **MLD** section for the failing module with the lowest **Troubleshooting Order Number** (see **MODULE TROUBLESHOOTING ORDER** on the foldout).

To troubleshoot failures which cannot be detected by the internal diagnostics, go to **EXCEPTIONAL CASES** section.

Intermittant Failures: To troubleshoot intermittant failures, turn to **EXCEPTIONAL CASES** section.

Execution Errors: Certain incompatible operating conditions will cause service messages to come up. Check for operating modes which do not comply with the **HP 8642's** operating specifications. (Refer to **Section III, OPERATIONS**, in the **HP 8642A/B SYNTHESIZED SIGNAL GENERATOR OPERATING MANUAL** for detailed operating information.)


INSTRUMENT LEVEL DIAGNOSTICS

Condition 2

Repair Confirmation: If **Instrument Level Self Test** was able to detect failure before repair was made; a passing test now indicates repair has corrected failure. If **ILST** was not able to detect failure prior to repair, check instrument in operating condition which indicated failure.

Operation Check: The **ILST** checks 80% of the instrument's overall operation.

MODULE TROUBLESHOOTING ORDER

| | | |
|--------------|-----------------|------------------------------------------------------------------------------------|
| Type: | Module Priority | IL.04 |
| Run Time: | N/A |  |
| Set-up Time: | N/A | |

A troubleshooting priority level has been established for each module. Failing modules must be tested in their order of priority.

1. Find **MODULE TROUBLESHOOTING ORDER** on fold-out. This table lists all **HP 8642** modules covered by on-site diagnostics. The modules are listed in the order which you should troubleshoot them.
2. If the **Instrument Level Self Test** has indicated two or more **failing** modules, use the table to determine which **failing** module has lowest **Troubleshooting Order** number.
3. Use index tabs to locate **Module Level Diagnostics** for **failing** module with lowest **Troubleshooting Order** number.
4. Return to **Task Sequence Diagram** on foldout.

POWER SUPPLY SECTION

3B-1. INTRODUCTION

The **MODULE LEVEL DIAGNOSTICS (MLD)** contained in this section are used to further interrogate the **Power Supply Section** modules: **A17 Power Supply Regulators/Attenuator Drivers Module** and **A18 Power Supply Rectifier/Filter Module**. The objective is to isolate the failure to a module or to a part on which this section depends for operation.

WARNING

Servicing instructions are for use by service trained personnel only. To avoid dangerous electric shock, do not perform any servicing unless qualified to do so.

Some procedures described in this manual are performed with power supplied to the instrument while protective covers are removed. Energy levels at certain points may, if contacted, cause personal injury.

Capacitors inside the instrument may still be charged even if the instrument has been disconnected from its source of supply.

For continued protection against fire hazard, replace the line fuse(s) only with 250v fuse(s) of the same current rating and type (for example, normal blow, time delay, etc.) Do not use repaired fuses or short circuited fuseholders.

The left rear portion of the chassis becomes hot during operation. A cooling period may be desired before servicing modules in this area. To avoid personal injury, avoid contact with the A17 heatsink.

Test Instructions

1. The instrument's **Top Cover** must be removed to run many of these tests. (Refer to the table on the foldout in **MECHANICAL PROCEDURES** to locate instructions.)

POWER SUPPLY SECTION

2. Testing in this section is divided into two categories: **A17 Module** failures, including **Attenuator Drivers**, **Heterodyne Switch Control**, and **Reverse Power Protection Control** and **Power Supply** failures.
3. **A17 Module**: If you were directed here because of a drivers failure detected while testing the **A14**, **A16** or **A19** modules, or if the **Instrument Level Self Test** indicated an **A17** failure, turn to page **3B-4** to begin troubleshooting.
4. **Power Supply**: If you are here because of an apparent **Power Supply** failure, turn to the next page to begin troubleshooting.

POWER SUPPLY SECTION

3B-2. INTRODUCTION

The first step in troubleshooting a Power Supply Section failure is to isolate the defective module or cable.

Troubleshooting Instructions

1. There are two foldouts located at the end of this section. The first foldout, **Figure 3B-100**, is used for troubleshooting **Power Supply** failures and should be pulled out now.
2. Find **POWER SUPPLY DIAGNOSTICS** on the foldout.
3. The Task Sequence Diagrams, shown under **POWER SUPPLY DIAGNOSTICS** are separated into two checks: **1. A18 RECTIFIERS/FILTERS CHECK** and **2. A17 REGULATORS CHECK**.
4. Use the Task Sequence Diagrams to guide you through the verification process. Each Task Arrow shown in a diagram indicates a task title and a task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
5. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
6. Begin now by performing the first task shown under **1. A18 RECTIFIERS/FILTERS CHECK**.

NOTE

*The **POWER SUPPLY I/O SIGNALS DIAGRAM** shows all parts which these modules depend on for operation.*

A17 INPUTS VERIFICATION

3B-3. INTRODUCTION

The first step in troubleshooting failures indicated for the **Attenuator Drivers**, **Heterodyne Switch Control** or **Reverse Power Protection Control** portions of the **A17 Module**, is to check each control signal into this module.

A17 Inputs Verification Instructions

1. The last page in this section is a foldout, **Figure 3B-200**. It is used for troubleshooting the drivers portion of **A17** and should be pulled out now.
2. Find **A17 INPUTS VERIFICATION** on the foldout.
3. Use the Task Sequence Diagrams shown under **A17 INPUTS VERIFICATION** to direct you through the verification process. Each Task Arrow shown in a diagram indicates a task number and task title. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown on the diagram.

COMMENT

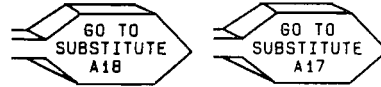
*You will find the **A17 MODULE DIAGNOSTICS** procedures at the end of this section following the **POWER SUPPLY DIAGNOSTICS** procedures.*

NOTE

*The **A17 MODULE I/O SIGNALS DIAGRAM** shows all parts on which the drivers portion of this module depends for operation.*

A17 & A18 MODULE SUBSTITUTION

PS.01


3B-4. INTRODUCTION

Substitution of a known good module is used to further test a suspect module.

A17 & A18 Substitution Instructions

1. Find **A17 & A18 MODULE SUBSTITUTION** on the foldout.
2. Use the Task Sequence Diagram, shown under **A17 & A18 MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
4. Begin now by performing the first task shown on the diagram for the module you have been directed to substitute.

POWER SUPPLY DIAGNOSTICS

| | | |
|--------------|----------------------|------------------------------------------------------------------------------------|
| Type: | Voltage Measurements | PS.02 |
| Run time: | 1 min. |  |
| Set-up time: | 2 min. | |

External DC Voltmeter is used to check power supply levels at A17TP1 through 5.

Run Test

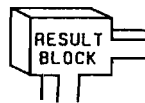
1. Connect instrument's power plug to a known good power source.
2. Switch **POWER** to ON (recessed position).
3. Connect external DC voltmeter ground lead to instrument's chassis.
4. Measure Power Supply output voltage levels on A17 Module at test points TP1 through 5. (See A17 & A18 MODULES CABLE CONNECTION LOCATOR on foldout to locate test points on A17.) Voltages should be within approximately 1% of those shown in chart on foldout.
5. The tuning screws located next to A17TP1 through 5, can be used to fine tune voltage levels which are >1% high or low.

COMMENT


The voltages measured at A17TP1 through 5 are being fed back from sense points on the A5 Assembly. A correct measurement verifies the presence of the voltage on the A5 Distribution Assembly.

6. Record test results.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each

tions shown in each  for TEST Vdc.



POWER SUPPLY DIAGNOSTICS

| | | |
|--------------|------------|------------------------------------------------------------------------------------|
| Type: | Fuse Check |  |
| Run time: | 4 | |
| Set-up time: | 2 min. | |

PS.03

External DC voltmeter is used to test fuses and rectifier output levels.

1. Remove A18 Module's Top Cover located in right-rear corner of instrument (one screw).
2. Connect power to instrument and switch **POWER** to **ON** (recessed position).
3. Measure voltage levels:
 - Use external DC voltmeter to measure voltage levels, with respect to ground, at fuses A18F1 through 5.
 - Leave fuses in instrument and measure voltage levels at both ends of each fuse holder for F1 through 5.
 - Voltage levels should be within ranges shown in following chart and should read the same at both ends of each fuse.

| Fuse Voltages, Vdc | | | | |
|--------------------|------------|-----------|-----------|------------|
| F1 | F2 | F3 | F4 | F5 |
| +15 to +30 | -30 to -20 | +8 to +13 | -13 to -8 | +60 to +80 |

- If all fuse holders measured good at both ends, proceed directly to step 5.
- If any fuse holders measured bad at both ends, proceed directly to step 5, otherwise continue testing.

CAUTION

Disconnect line power to instrument when removing or replacing fuses.

POWER SUPPLY DIAGNOSTICS

4. Replace blown fuses:
- Use plastic Fuse Puller, from On-Site Service Kit, to remove fuses.

NOTE

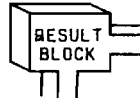
Use side-notched end of Fuse Puller to hook fuse and pull it from instrument. Use end-notched end of Fuse Puller to place fuses in fuse holders or to pick up fuses dropped into instrument.

- Replace blown fuses with a good fuse of proper rating from the On-Site Service Kit. (Fuse ratings are shown on Top View Diagram on inside of instrument's Top Cover at each fuse location.)
 - Reconnect power to instrument, switch **POWER** to **ON** position and repeat procedure beginning at step 3.
5. Record test results.

COMMENT


*If this test has directed you to replace a blown fuse, and if as a result of changing the fuse all levels now measure good, do not return to the foldout. Instead, return to the **INSTRUMENT LEVEL DIAGNOSTICS** section and rerun the **ILST**.*

6. Return to foldout:
- Determine next task by comparing test results to conditions shown in each



for **TEST FUSES**.

POWER SUPPLY DIAGNOSTICS

| | | |
|--------------|-------------------|-------------------------------------------------------------------------------------|
| Type: | I/O Signals Check | PS.04 |
| Run time: | 2 min. |  |
| Set-up time: | 1 min. | |

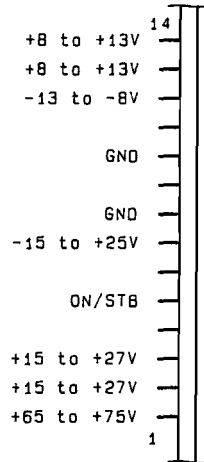
External DC voltmeter and ohmmeter are used to check signal levels at A17J1.

Run Test

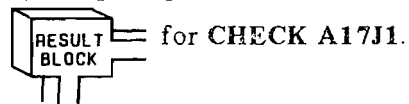
1. Disconnect line power to instrument.
 2. Check **Power Switch**:
 - Connect one test lead of ohmmeter to **GND (A4TP2)**. (See **A17 & A18 MODULES CABLE CONNECTION LOCATOR** on foldout.)
 - Connect other test lead to Power Switch control line (**A17J1** pin 5). (See **A17 & A18 MODULES CABLE CONNECTION LOCATOR** on the foldout to locate **A17J1**.) **Figure 3B-1**. shows signal locations for **A17J1**.
 - Switch **POWER** to **ON** (recessed position). Resistance should measure between **0** and **10** ohms.
 - Switch **POWER** to **Standby**, resistance should be greater than **500** ohms.
 - If switch line is not responding as described above proceed directly to step 6, otherwise continue testing.
 3. Disconnect ohmmeter from **A17J1** and reconnect power to instrument.
 4. Switch **POWER** to **ON** position.
 5. Measure voltage levels:
 - Connect voltmeter's ground lead to **GND (A4TP2)**.
 - Measure **DC** voltages at connector **A17J1** on solder-side of **A17** Module. Voltage level ranges and locations are shown in **Figure 3B-1**.
-

POWER SUPPLY DIAGNOSTICS


**Figure 3B-1. Connector A17J1 Signal Locator
(Solder-Side View)**



6. Record test results.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each



POWER SUPPLY DIAGNOSTICS

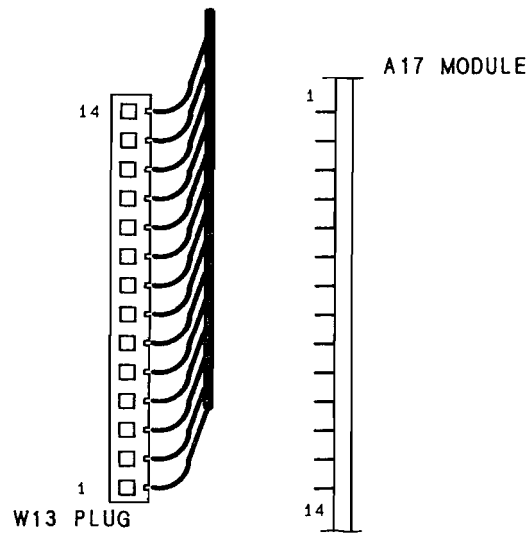
| | | |
|--------------|-------------|------------------------------------------------------------------------------------|
| Type: | Cable Check | PS.05 |
| Run time: | 2 min. |  |
| Set-up time: | 30 sec. | |

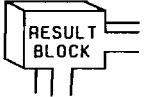
Cable **W13** is tested by checking continuity between cable ends and **A17J1**.

Run Test


1. Remove power from instrument and disconnect cable **W13** from **A18** Module at **A18J3**.
2. Check continuity through each suspect line by connecting test leads from ohmmeter to each end of **W13**.
 - Connect one test probe to **A17J1** pin connection on solder-side of **A17** Module.
 - Insert the other probe into end of cable **W13**. Select socket with same number as **A17J1** pin connection. (See **Figure 3B-2** to determine pin 1 location.)

Figure 3B-2. Cable W13 Connection Locator



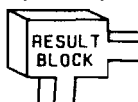
3. Record test results.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST CABLE W13**.

POWER SUPPLY DIAGNOSTICS

| | | |
|--------------|-------------------|------------------------------------------------------------------------------------|
| Type: | Power Switch Test | PS.06 |
| Run time: | 1 min. |  |
| Set-up time: | 6 min. | |

Run Test

1. Check Power Switch:
 - Open Front Panel. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate opening instructions.)
 - Check resistance between Power Switch output, on **A1 Module** at **A1A1 J1** pin **30**, and ground. Resistance should measure less than **2 ohms** in **ON** (recessed) position and greater than **500 ohms** in **Standby** position.
 - If switch responds as described, proceed to step 2, otherwise continue testing.
 - If switch does not respond as described, disconnect cable **W15** from **A1 Module** at **A1A1 J1** and retest switch. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate **A1 Module** removal information.)
 - If switch still does not respond correctly, proceed to step 3, otherwise reconnect **W15** to **A1** and continue testing.
2. Check switch path:
 - Remove right side cover from instrument. (Refer to table on foldout in **MECHANICAL PROCEDURES** for removal information.)
 - Disconnect cable **W10** from **A17 Module** at **A17J2**.
 - Measure resistance at pin **34** of **W10P2**. (Resistance should measure the same as in step 1.)
3. Record test results.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each

for **TEST SWITCH**.

POWER SUPPLY DIAGNOSTICS

| | | |
|--------------|---------------|--|
| Type: | Voltage Check | |
| Run time: | 2 min. | |
| Set-up time: | 2 min. | |

External DC voltmeter is used to test rectifier output levels with A18 Module isolated from A17 Module.

Run Test

1. Switch instrument to Standby and disconnect line power from instrument.
2. Disconnect cable W13 from A18 Module at A18J3 (see A17 & A18 MODULE CABLE CONNECTION LOCATOR on foldout for A18J3 location).
 - Pull straight up on W13 to disconnect it from A18J3.
3. Reconnect power to instrument.
4. Measure voltage levels:
 - Use external DC voltmeter to measure voltage levels, with respect to ground, at fuses A18F1 through 5.
 - Leave fuses in instrument and measure voltage levels at both ends of each fuse holder for F1 through 5.
 - Voltage levels should be within ranges shown in following chart and should read the same at both ends of each fuse.

| Fuse Voltages, Vdc | | | | |
|--------------------|------------|-----------|-----------|------------|
| F1 | F2 | F3 | F4 | F5 |
| +15 to +30 | -30 to -20 | +8 to +13 | -13 to -8 | +60 to +80 |

- If all fuse holders measured good at both ends, proceed directly to step 6.
- If any fuse holders measured bad at both ends, proceed directly to step 6, otherwise continue testing.

POWER SUPPLY DIAGNOSTICS

CAUTION

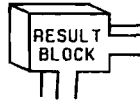
Disconnect line power to instrument when removing or replacing fuses.

5. Replace blown fuses:
 - Use plastic Fuse Puller, from On-Site Service Kit, to remove fuses.

NOTE


Use side-notched end of Fuse Puller to hook fuse and pull it from instrument. Use end-notched end of Fuse Puller to place fuses in fuse holders or to pick up fuses dropped into instrument.

- Replace blown fuses with a good fuse of proper rating from the On-Site Service Kit. (Fuse ratings are shown on Top View Diagram on inside of instrument's Top Cover at each fuse location.)
 - Reconnect power to instrument, switch **POWER** to **ON** position and repeat procedure beginning at step 3.
6. Record test results.
 7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each



for ISOLATE A18.

POWER SUPPLY DIAGNOSTICS

| | | |
|--------------|----------------------------|-------------------------------------------------------------------------------------|
| Type: | 4; AC Voltage Measurements | PS.08 |
| Run time: | 2 min. |  |
| Set-up time: | 7 min. | |

External AC voltmeter is used to check voltages to A18 Module from Transformer, T1.

Run Test

1. Switch instrument to **Standby** and disconnect line power from instrument.

WARNING

Removing rear bottom cover exposes Filter cap screw heads. Voltage potentials are still present at these screws even when power has been removed.

2. Remove instrument's rear bottom cover. (Refer to table on foldout in **MECHANICAL PROCEDURES** for removal information).

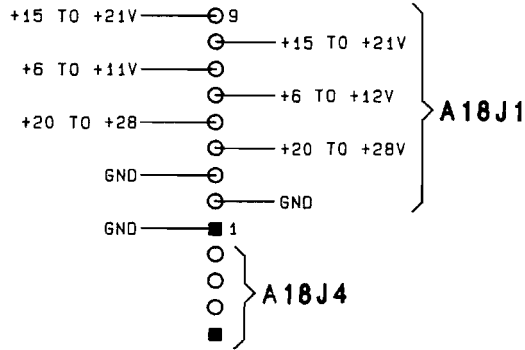
WARNING

Power Transformer T1 should be isolated from AC voltmeter. We recommend you use a portable voltmeter that is not connected to the same power main as the instrument.

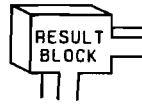
3. Measure voltage levels:
 - Connect voltmeter's ground lead to instrument's chassis.
 - Reconnect line power to instrument.
 - Measure AC voltages at **A18J1** (see **A17 & A18 MODULE CABLE CONNECTION LOCATOR** on the foldout to locate A18J1). See Figure 3B-3 for voltage levels.

POWER SUPPLY DIAGNOSTICS

**Figure 3B-3 Connector A18J1 Signal Locator
(Solder-Side of Board)**




4. Record test results.
5. Return to foldout:
 - ⊛ Determine next task by comparing test results to conditions shown in each



for TEST AC POWER.

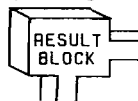
POWER SUPPLY DIAGNOSTICS

| | | |
|--------------|-------------------|------------------------------------------------------------------------------------|
| Type: | Supply Lines Test | PS.09 |
| Run time: | 1 min. |  |
| Set-up time: | 6 min. | |


This test uses **Power Supply Test Connector** from **On-Site Service Kit** to isolate **Power Supply Section** from rest of instrument.

Run Test

1. Switch **POWER** to Standby and disconnect power plug.
2. Remove right side cover from instrument. (Refer to table on foldout in **MECHANICAL PROCEDURES** for removal information).
3. Disconnect cable **W10** from **A17 Module** at **A17J2**. (See **A17 & A18 MODULES CABLE CONNECTION LOCATOR** for **A17J2** location.)
4. Connect **Power Supply Test Connector** (HP 08642-80053) and 50 pin ribbon cable, from **On-Site Service Kit**, to **A17 Module** at **A17J2**.
5. Connect line power to instrument.
6. Turn **Power Supply** on:
 - Connect black alligator clip and retractable clip probe to black test lead from **On-Site Service Kit**.
 - Connect alligator clip to **GND (A4TP2)**. (See **A17 & A18 MODULES CABLE CONNECTION LOCATOR** on foldout for **GND** location.)
 - Connect retractable clip probe to test connector at **TP1**.
7. Measure voltage levels at test points **A17TP1** through **5**. (See **A17 & A18 MODULES CABLE CONNECTION LOCATOR** on foldout for **A17TP1** through **5** locations.) Voltage levels should be within approximately 1% of those shown in chart on foldout.
8. Remove test connector:
 - Disconnect ground from **TP1** on test connector.
 - Disconnect **Power Supply Test Connector** and ribbon cable from **A17 Module**.
 - Reconnect cable **W10** to **A17 Module**.
9. Record test results.
10. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **ISOLATE POWER SUPPLY**.



POWER SUPPLY DIAGNOSTICS

| | | |
|--------------|-------------------|------------------------------------------------------------------------------------|
| Type: | Distribution Test |  |
| Run time: | 1 min. per set-up | |
| Set-up time: | Up to 15 min. | |

This test determines if **Power Supply Section** failure is due to over loading by **Control** or **RF Sections**.

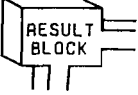
Run Test

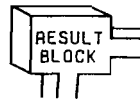
1. Switch **POWER** to Standby.




Be sure to use adequate Electrostatic Discharge (ESD) precautions when handling A3 and A4 Modules.

2. Remove **A3** and **A4** modules from instrument (see Top View Diagram on inside Top Cover to locate **A3** and **A4**).
3. Switch **POWER** to ON.
4. Measure voltage levels at test points **A17TP1** through **5**.
 - If all voltage levels measure within 1% of those shown in chart on foldout, proceed directly to step **10**, otherwise continue testing.
5. Switch **POWER** to Standby.
6. Beginning at left side of **A5 Distribution Assembly**, disconnect ribbon cable **W1** from **A5 Assembly** at **A5J1**. (See **A17 & A18 MODULES CABLE CONNECTIONS LOCATOR** on foldout to locate **J1** on **A5 Assembly**.) Refer to table on foldout in **MECHANICAL PROCEDURES** for information on disconnecting cables from **A5**.
7. Switch **POWER** to ON.
8. Measure voltage levels at test points **A17TP1** through **5**.
9. Repeat steps **5** through **8** for each ribbon cable connected to **A5** (except **W10**) or until **Power Supply** unloads.
10. Record test results. (If **Power Supply** unloads, suspect last cable and module disconnected from **A5** just before unloading occurred.)
11. Return to foldout:
 - Determine next task by comparing test results to condi-

tions shown in each  for **IDENTIFY CAUSE**.



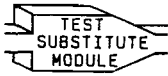
POWER SUPPLY DIAGNOSTICS

| | | |
|--------------|---------------------|-------------------------------------------------------------------------------------|
| Type: | Module Substitution | PS.11 |
| Run time: | 0 |  |
| Set-up time: | 20 min. | |

Connect Substitute Module

1. Refer to table shown on foldout in **MECHANICAL PROCEDURES** to locate removal and replacement procedures for module you have been directed to substitute.
2. Return to foldout.

POWER SUPPLY DIAGNOSTICS

| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | Substitute Module Test | PS.12 |
| Run time: | 1 min. |  |
| Set-up time: | 2 min. | |

External DC Voltmeter is used to check power supply levels at A17TP1 through 5.

Run Test

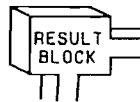
1. Connect instrument's line power plug to a known good power source.
2. Switch **POWER** to ON position.
3. Connect external DC voltmeter ground lead to instrument's chassis.
4. Measure Power Supply output voltage levels on A17 Module at test points TP1 through 5. (See A17 & A18 MODULES CABLE CONNECTION LOCATOR on foldout for test point locations and voltage levels.) Voltages should be within approximately 1% of those shown in chart.
5. The tuning screws located next to A17TP1 through 5, can be used to fine tune voltage levels which are slightly >1% high or low.

COMMENT

The voltages measured at A17TP1 through 5 are being fed back from sense points on the A5 Assembly. A correct measurement verifies the presence of the voltage on the A5 Distribution Assembly.

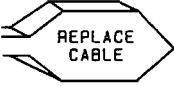
6. Record test results.
7. Return to foldout:
 - Determine next task by comparing test results to condi-

tions shown in each **MODULE.**




for **TEST SUB**

POWER SUPPLY DIAGNOSTICS

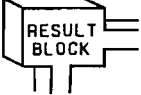
| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | PS.13 |
| Run time: | 5 min. |  |
| Set-up time: | 1 min. | |

1. Testing has shown cable W13 to be suspect (refer to **REPLACEABLE PARTS**, in HP 8642A/B Operating and Service Manual, for information to order a replacement cable).
2. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.


A17 MODULE DIAGNOSTICS

| | | |
|--------------|----------------------|------------------------------------------------------------------------------------|
| Type: | Control Signals Test | A17.01 |
| Run time: | 1 min. |  |
| Set-up time: | 0 | |

Run Test

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **6** **2** **HZ**
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A17. If "TEST 1 OF A17 (PASSED or FAILED)" is not displayed, rerun test.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST A17 CONTROL BITS.

A17 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A17.02 |
| Run time: | 12 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to A17 Module on Attenuator Driver control lines.

COMMENT

If any control line level measures bad, it is not necessary to test remaining lines; proceed directly to step 14.

Run Test

1. Switch **POWER** to Standby:
 - Remove right side cover from instrument (refer to table on foldout in **MECHANICAL PROCEDURES** for information).
 - Disconnect cable W9 from A17 Module at A17J3.
 - Plug end of cable W9 into 50 pin test connector, from On-Site Service Kit.

NOTE

Find arrowhead on test connector and align with arrowhead on cable plug W9P2.

CAUTION

To prevent damage to the Control Section, do not permit the exposed pins on the test connector to short circuit.

2. Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (A4TP1). (See A17 MODULE CABLE CONNECTION LOCATOR on foldout for VM IN location.)
3. Switch **POWER** to ON.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)

A17 MODULE DIAGNOSTICS

Attenuator Driver Control Lines

Check High State

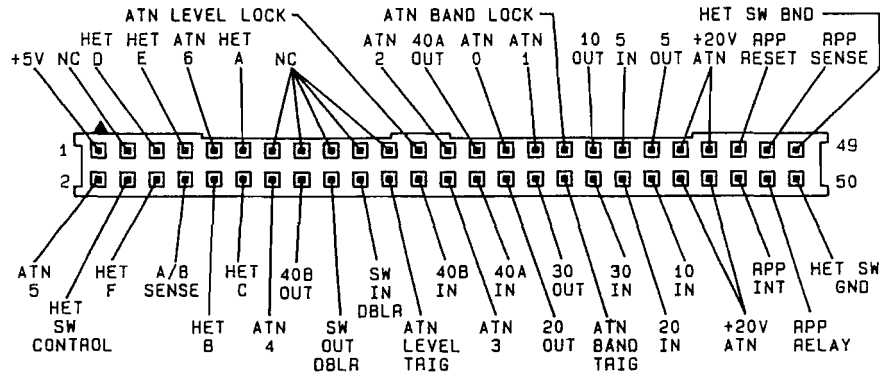
4.
(To specify high state.)
5. Enter **Bit Select Keys**, as indicated in Table 3B-1. **W9P2 Control Bits**, for **Control Line** to be tested.
6. Connect **VM** probe to **Control Line** at **Pin Number** indicated in Table 3B-1. (See Figure 3B-4. Cable Plug **W9P2 Signal Locator**.)

Table 3B-1. W9P2 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 5 and 10) | Pin Number (Step 6) |
|-------------------|---------------------|-----------------------------------------------------------------------------------------------------|--------------------------------|
| 1 | ATN BAND TRIG | <input type="button" value="5"/> <input type="button" value="9"/> <input type="button" value="HZ"/> | 34 |
| 2 | ATN LEVEL TRIG | <input type="button" value="6"/> <input type="button" value="2"/> <input type="button" value="HZ"/> | 22 |
| 3 | ATN 0 | <input type="button" value="6"/> <input type="button" value="4"/> <input type="button" value="HZ"/> | 29 |
| 4 | ATN 1 | <input type="button" value="6"/> <input type="button" value="5"/> <input type="button" value="HZ"/> | 31 |
| 5 | ATN 2 | <input type="button" value="6"/> <input type="button" value="6"/> <input type="button" value="HZ"/> | 25 |
| 6 | ATN 3 | <input type="button" value="6"/> <input type="button" value="7"/> <input type="button" value="HZ"/> | 26 |
| 7 | ATN 4 | <input type="button" value="6"/> <input type="button" value="8"/> <input type="button" value="HZ"/> | 14 |
| 8 | ATN 5 | <input type="button" value="6"/> <input type="button" value="9"/> <input type="button" value="HZ"/> | 2 |
| 9 | ATN 6 | <input type="button" value="7"/> <input type="button" value="0"/> <input type="button" value="HZ"/> | 9 |

A17 MODULE DIAGNOSTICS

Figure 3B-4. Cable Plug W9P2 Signal Locator

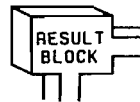


7.
(To enable voltmeter.)
8. Voltage should read approximately +2.5 to +5.5 Vdc.
 to repeat measurement.)


Check Low State

9.
(To specify low state.)
10. Enter **Bit Select Keys**, as indicated in **Table 3B-1. W9P2 Control Bits**, for same **Control Line**.
11.
(To enable voltmeter.)
12. Voltage should read approximately -0.5 to +1.5 Vdc.
 to repeat measurement.)
13. Repeat procedure for each **Control Line** shown in **Table 3B-1**.
14. Record test results.
15. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each

tions shown in each **RESULT BLOCK** for **TEST ATN CONTROL BITS**.



A17 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A17.03 |
| Run time: | 2 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to A17 on **Reverse Power Reset** line.

Run Test

- Switch **[POWER]** to Standby:
 - Remove right side cover from instrument (refer to table on foldout in **MECHANICAL PROCEDURES** for removal information).
 - Disconnect cable **W9** from module at **A17J3**.
 - Plug end of **W9** into **50** pin test connector, from On-Site Service Kit.

NOTE

*Find arrowhead on test connector and align with arrowhead on cable plug **W9P2**.*

CAUTION

Do not permit the exposed pins on the test connector to short circuit.

- Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A17 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
- Switch **[POWER]** on.
[INSTR PRESET] **[SHIFT]**
 (Hold shift key until
"100.000000MZ -140.0DM" appears,
 to override 20 second reset test.

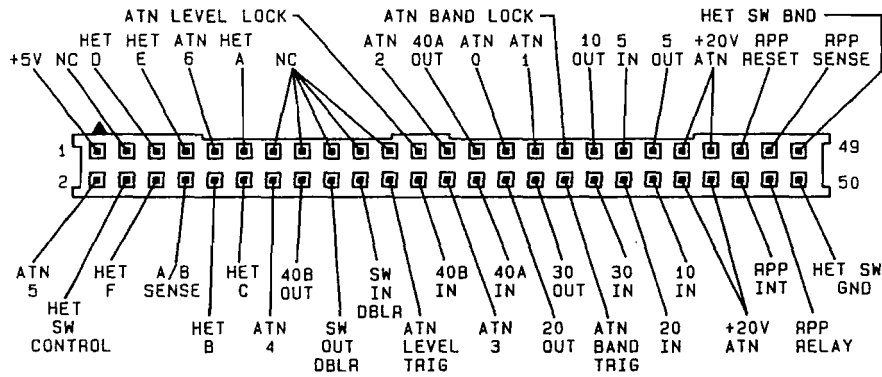
Reverse Power Protection Reset**Check High State**

- [SHIFT]** **[SPCL]** **[3]** **[6]** **[0]** **[1]**
 (To specify high state.)
-

A17 MODULE DIAGNOSTICS

5. **6 3 HZ**
(To select bit.)
6. Connect VM probe to test connector line **RPP Reset** (pin 45). (See Figure 3B-6. Cable Plug W9P2 Signal Locator.)

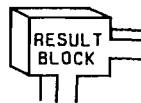
Figure 3B-6. Cable Plug W9P2 Signal Locator




7. **2 5 HZ**
(To enable voltmeter.)
8. Voltage should read approximately **+2.5 to +5.5 Vdc.**
5 HZ to repeat measurement.)

Check Low State

9. **SHIFT SPCL 3 6 0 2**
(To specify low state.)
10. **6 3 HZ**
(To select bit.)
11. **2 5 HZ**
(To enable voltmeter.)
12. Voltage should read approximately **-0.5 to +1.5 Vdc.**
5 HZ to repeat measurement.)
13. Record test results.
14. Return to foldout:
 - ⊙ Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST RPP RESET BIT.**



A17 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A17.04 |
| Run time: | 2 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to **A17** on Heterodyne Switch control line.

Run Test

- Switch **POWER** to Standby:
 - Remove right side cover from instrument. (Refer to table on foldout in **MECHANICAL PROCEDURES** for removal information).
 - Disconnect cable **W9** from module at **A17J3**.
 - Plug end of **W9** into 50 pin test connector, from On-Site Service Kit.

NOTE

*Find arrowhead on test connector and align with arrowhead on cable plug **W9P2**.*

CAUTION

To prevent damage to the Control Section, do not permit the exposed pins on the test connector to short circuit.

- Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (**A4TP1**). (See **A17 MODULE CABLE CONNECTION LOCATOR** on foldout for VM IN location.)
- Turn instrument on.

INSTR PRESET **SHIFT**

 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)

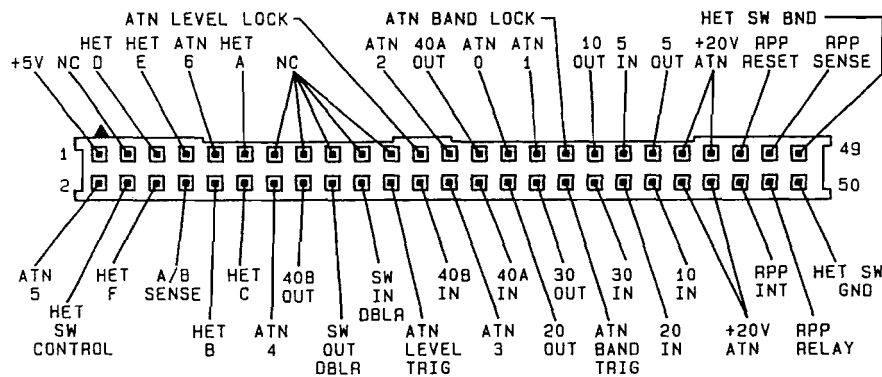
Heterodyne Switch Control Line**Check High State**

- SHIFT** **SPCL** **3** **6** **0** **1**
(To specify high state.)
-

A17 MODULE DIAGNOSTICS

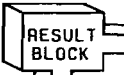
5. (To select bit.)
6. Connect VM probe to test connector line HET SW CONTROL (pin 4). (See Figure 3B-5. Cable Plug W9P2 Signal Locator.)

Figure 3B-5. Cable Plug W9P2 Signal Locator




7. (To enable voltmeter.)
8. Voltage should read approximately +2.5 to +5.5 Vdc. to repeat measurement.)

Check Low State

9. (To specify low state.)
10. (To select bit.)
11. (To enable voltmeter.)
12. Voltage should read approximately -0.5 to +1.5 Vdc. to repeat measurement.)
13. Record test results.
14. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST HET CONTROL BIT.

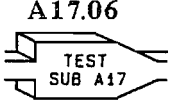
A17 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | A17.05 |
| Run time: | 0 |  |
| Set-up time: | 22 min. | |

Connect Substitute Module

1. Refer to table shown on foldout in **MECHANICAL PROCEDURES** to locate **A17 Module** removal and replacement procedures.
2. Return to **A17 MODULE SUBSTITUTION** on foldout.

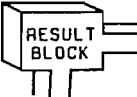
A17 MODULE DIAGNOSTICS

| | | |
|--------------|------------------------|-------------------------------------------------------------------------------------|
| Type: | Substitute Module Test |  |
| Run time: | Conditional | |
| Set-up time: | Conditional | |

The **A17** failure conditions for arriving at this task are described below. Follow the procedure for the **condition** which best fits your module.

- Condition 1: **A17 INPUTS VERIFICATION** indicated **A17** failure.
- Condition 2: **Instrument Level Self Test** indicated **A17** failure.
- Condition 3: **Module Level Diagnostics (MLD)** for **A14**, **A16**, or **A19** indicated **A17** failure.

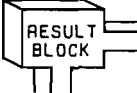
Condition 1

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use to scroll through messages.
 - Record error code(s) displayed for **A17**. If "TEST 1 OF **A17** (PASSED or FAILED)" is not displayed, rerun test.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A17.

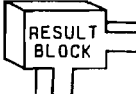
Condition 2

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2.

A17 MODULE DIAGNOSTICS

3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see ILD foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT".
 - HZ to continue test.
4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use MSSG to scroll through messages.
 - Record any error code(s) displayed for A17.
5. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A17.

Condition 3

1. Rerun test which indicated A17 failure.
2. Record test result.
3. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A17.

A17 & A18 THEORY OF OPERATION

**3B-5. A17 REGULATORS/ATTENUATOR DRIVERS
MODULE
A18 RECTIFIER/FILTER MODULE****COMMENT**

It is not essential to understand the internal operation of a module to make an on-site repair.

Power Supply

The HP 8642 requires five regulated power supplies for operation: **+50, +15, +5, -5, and -15 Vdc**. The **A18 Module** full-wave rectifies the outputs from the Power Transformer **T1**. Each supply line is low-pass filtered and fused on the **A18 Module**. The **+15** and **-15** volt lines are switched open when the **POWER** key on the Front Panel is switched to the **Standby** position. The rectifiers and filters remain active whenever line power is connected to the instrument.

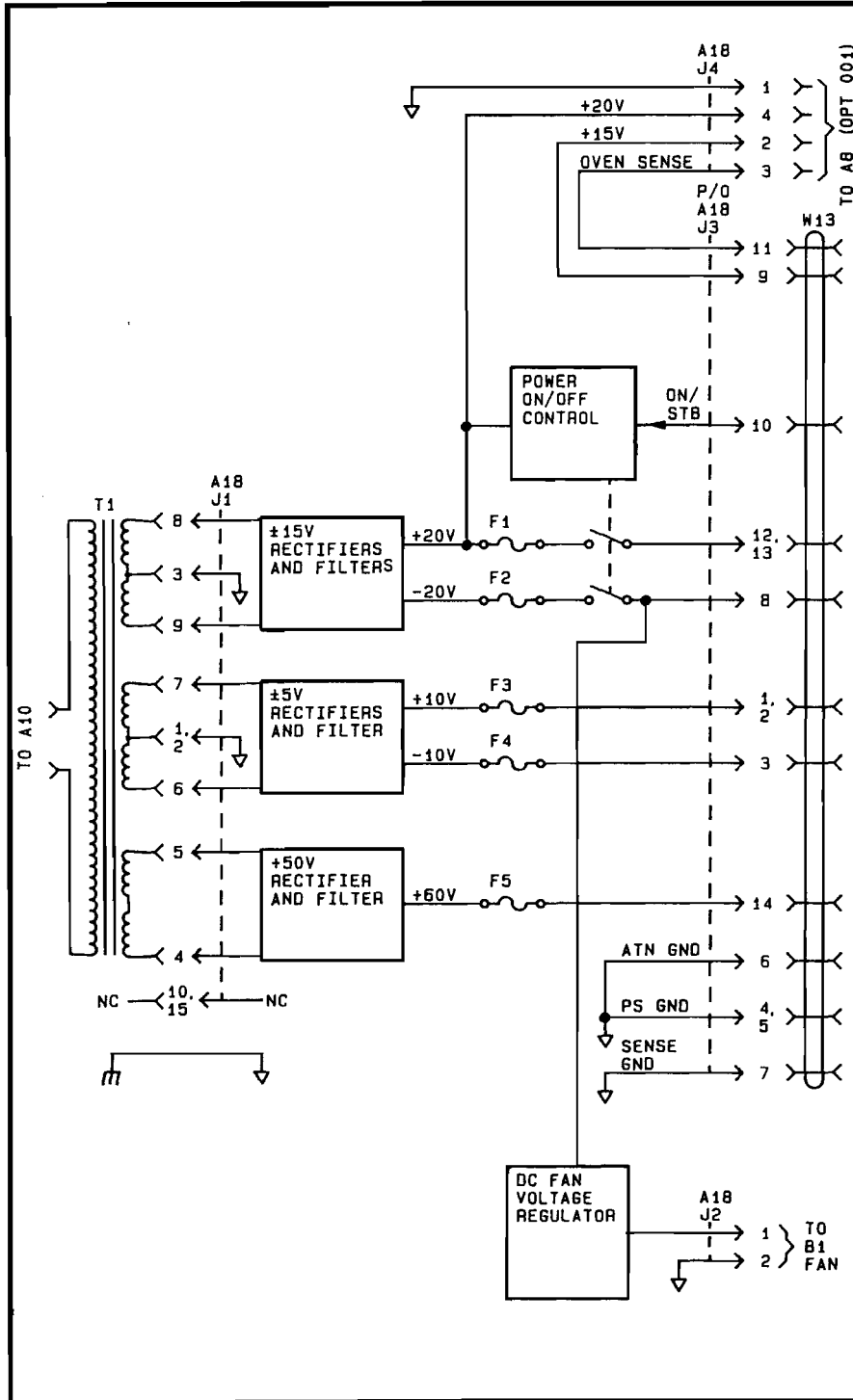
Series-pass type regulators on the **A17 Module** provide level regulation for each supply line. Bias and reference voltages for each regulator are provided by the **+15** and **-15** volt supplies. The output level of each regulator is sensed on the **A5 Assembly** and feedback to control the series-pass element. This requires the supply signal to be present on the **A5 Distribution Assembly** for the regulator to operate. Each regulator is provided with over-voltage protection at its output.

A17 Drivers

The drivers portion of the **A17 Module** provides the proper drive signals to control the attenuators and RF switches in the instrument. It also drives the relay for the reverse power protection circuit. The **A17 Module** senses which attenuator module it is driving and provides continuous state signals to the **A16 Module** and pulsed, drive signals to the **A16 (option 003)** and **A19** modules.

See the **A17** and **A18 MODULES SIMPLIFIED BLOCK DIAGRAMS** for further understanding of the internal operation of these modules.

A18 MODULE SIMPLIFIED BLOCK DIAGRAM



CONTROL SECTION DIAGNOSTICS

3C-1. INTRODUCTION

The **MODULE LEVEL DIAGNOSTICS (MLD)** contained in this section are used to further interrogate the **Control Section Modules: A1 Keyboard/LCD Display Module, A3 Processor/Memory Module, and A4 Latch Module.** The objective is to isolate the failure indicated for this section to a module or to a part on which the **Control Section** depends for operation.

NOTE

At this level of testing, it is assumed that the Power Supply Section is operational. If there is any doubt, turn to the POWER SUPPLY SECTION to begin troubleshooting.

Test Instructions

1. The instrument's **Top Cover** must be removed to run many of these tests. (Refer to the table shown on the foldout in **MECHANICAL PROCEDURES** to locate instructions.)
2. The last page in this group of tests is a foldout and should be pulled out now.
3. Testing in this section is divided into **three** parts, one part for each of the three **Control Section** modules: **A4, A3, A1.**
4. Begin the **Control Section Diagnostics** by reading the next page.

A4 MODULE SUBSTITUTION

3C-2. INTRODUCTION

The first step in isolating a Control Section failure is to substitute in a known good A4 Module from the On-site Service Kit.

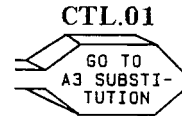
A4 Substitution Instructions

1. Find **A4 MODULE SUBSTITUTION** on the foldout.
2. Use the Task Sequence Diagram, shown under **A4 MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the page indicated and complete the procedure.
3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
4. Begin now by performing the first task shown on the diagram.

NOTE

The CONTROL SECTION I/O SIGNALS DIAGRAM shows all parts which the control modules depend on for operation.

A3 MODULE SUBSTITUTION

3C-3. INTRODUCTION

To isolate a **Control Section** failure to the **A3 Module**, substitute in a known good module from the On-Site Service Kit.

A3 Substitution Instructions

1. Find **A3 MODULE SUBSTITUTION** on the foldout.
2. Use the **Task Sequence Diagram**, shown under **A3 MODULE SUBSTITUTION**, to direct you through the substitution process. Each **Task Arrow** shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they appear in this section. Turn to the task indicated and complete the procedure.
3. After completing the procedure, return to the **Task Sequence Diagram** on the foldout and determine the next task to be performed.
4. Begin now by performing the first task shown on the diagram.

A1 MODULE SUBSTITUTION


3C-4. INTRODUCTION

To isolate a **Control Section** failure to the **A1 Module**, substitute in a known good module from the On-site Service Kit.

A1 Substitution Instructions

1. Find **A1 MODULE SUBSTITUTION** on the foldout.
2. Use the Task Sequence Diagram, shown under **A1 MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered in the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
4. Begin now by performing the first task shown on the diagram.

CONTROL SECTION DIAGNOSTICS

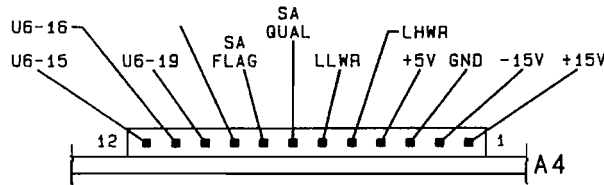
| | | |
|---------------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | CTL.03 |
| Run time: | 2 min. |  |
| Set-up time: | 0 min. | |

External DC voltmeter is used to test power supply levels at A4 Module.

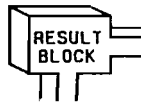
Run Test

1. Turn instrument on.
2. Connect external DC voltmeter ground lead to A4 Module at A4TP2 (GND). (See CONTROL SECTION CONNECTOR LOCATOR on foldout to locate ground post.)
3. Measure power supply voltage levels:
 - Connect test probe to A4 Service Test Points (see Figure 3C-1. A4J1 Service Test Point Signal Locator).

Figure 3C-1. A4J1 Service Test Points Signal Locator




4. Record test results.
5. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each



for TEST A4 Vdc.

CONTROL SECTION DIAGNOSTICS

| | | |
|--------------|--------------|------------------------------------------------------------------------------------|
| Type: | Module Tests | CTL.04 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

The Control Section failure conditions for arriving at this task are described below. Follow the procedure for the condition which fits your instrument.

- Condition 1:** Instrument Level Diagnostics (ILD) indicated Control Section failure.
- Condition 2:** Module Level Diagnostics (MLD) for another module indicated Control Section failure.
- Condition 3:** Instrument must be set to a specific operating condition to detect Control Section failure.

Condition 1

1.
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.
 2. .
 3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
 - to continue test.
 4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use to scroll through messages.
 - Record test results.
 5. Return to foldout.
-

CONTROL SECTION DIAGNOSTICS

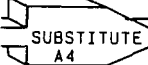
Condition 2

1. Rerun test which indicates Control Section failure.
2. Record test results.
3. Return to foldout.

Condition 3

1. Set instrument to operating condition which causes Control Section failure.
2. Record instrument set-up and error message(s).
3. Return to foldout.


CONTROL SECTION DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | CTL.05 |
| Run time: | 0 |  |
| Set-up time: | 2 min. | |

Substitute Module

1. Switch instrument to **Standby**.
2. Remove **A4 Module** from instrument. (Refer to table on foldout in **MECHANICAL PROCEDURES** for location of removal information.)
3. Replace **A4 Module** with a known good module from On-Site Service Kit.
4. Turn instrument on.
5. Return to foldout.

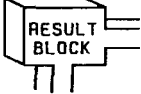
CONTROL SECTION DIAGNOSTICS

| | | |
|--------------|--------------|------------------------------------------------------------------------------------|
| Type: | Module Tests | CTL.06 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

Test operation of substitute module by repeating test(s) performed on module before substitution.

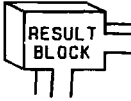
- Condition 1: Instrument Level Diagnostics (ILD) indicated Control Section failure.
- Condition 2: Module Level Diagnostics (MLD) for another module indicated Control Section failure.
- Condition 3: Instrument must be set to a specific operating condition to detect Control Section failure.

Condition 1

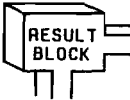
1. **[SHIFT] [SPCL] [3] [3] [0] [HZ]**.
2. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
 - **[HZ]** to continue test.
3. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use **[MSSG]** to scroll through messages.
 - Record test results.
4. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB MODULE.

CONTROL SECTION DIAGNOSTICS


Condition 2

1. Rerun test which indicates **Control Section** failure.
2. Record test results.
3. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB MODULE**.

Condition 3

1. Set instrument to operating condition which causes **Control Section** failure.
2. Record instrument set-up and error message(s).
3. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB MODULE**.

CONTROL SECTION DIAGNOSTICS

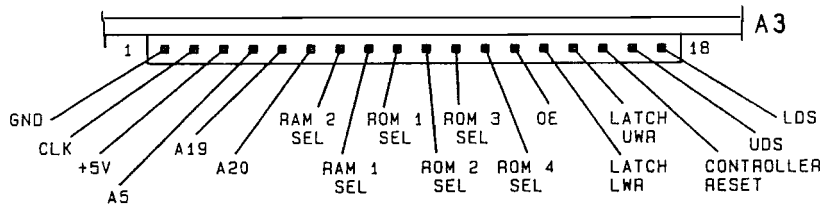
| | | |
|--------------|-------------------------|------------------------------------------------------------------------------------------------------|
| Type: | 4; Voltage Measurements | CTL.07  |
| Run time: | 2' min. | |
| Set-up time: | 0 min. | |

External DC voltmeter is used to test power supply levels at A3 Module.

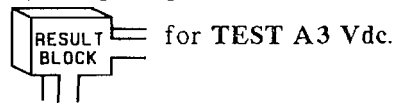
Run Test

1. Turn instrument on.
2. Connect external DC voltmeter ground lead to A4 Module at A4TP2 (GND). (See CONTROL SECTION CONNECTOR LOCATOR on foldout to locate ground post.)
3. Measure power supply voltage levels:
 - Connect test probe to A3 Service Test Points (see Figure 3C-2. A3J4 Service Test Point Signal Locator).

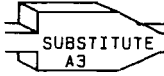
Figure 3C-2. A3J4 Service Test Point Signal Locator



4. Record test results.
5. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each



CONTROL SECTION DIAGNOSTICS

| | | |
|---------------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | CTL.08 |
| Run time: | 1 min. |  |
| Set-up time: | 3 min. | |

In order for the instrument to operate correctly with substitute **A3 Module**, it is necessary to transfer Calibration Data from instrument's **A20 Calibration Module** to substitute **A3 Module**.

Substitute Module

1. Switch instrument to **Standby**.
2. Remove **A3 Module** from instrument. (Refer to foldout in **MECHANICAL PROCEDURES** to locate removal information.)
3. Replace **A3 Module** with a known good module from On-Site Service Kit.

Down-Load Cal Data

CAUTION

Use adequate Electrostatic Discharge Techniques when handling the A20 Calibration Module.

4. Remove **A20 Calibration Module** from **Rear Panel**. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate removal information.)

CAUTION


*Check that switch **SI** on **A20 Module** is switched up to its "**PROTECTED**" position.*

*The Calibration Data stored on the **A20 Module** and in the instrument will be destroyed by misapplied electrical signals.*

CONTROL SECTION DIAGNOSTICS

5. Switch instrument to **Standby**.
6. Connect **A20 Module** to **A3 Module** at **A3J3** (see **CONTROL SECTION CONNECTOR LOCATOR** on foldout).
7. Turn instrument on.
8. When "**100.000000 MZ -140.00 DM**" appears:
 - Slide switch on left side of **A3S2** (on **A3 Module**) back toward rear of instrument (see **CONTROL SECTION CONNECTOR LOCATOR** on foldout).
9. **SHIFT** **SPCL** **3** **7** **5** **HZ**
10. When "**TRANSFER VERIFIED .U613**" appears:
 - Slide **A3S2** forward, toward front of instrument to protect **A3 Module's** memory.
11. Switch instrument to **Standby** and remove **A20 Module**.
Replace A20 Module on Rear Panel of instrument.
12. Return to foldout.

CONTROL SECTION DIAGNOSTICS

| | | |
|--------------|-------------------------|------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | CTL.09 |
| Run time: | 2 min. |  |
| Set-up time: | 6 min. | |

External DC Voltmeter is used to check power supply levels at inputs to A1 Module.

Run Test

1. Turn instrument on.
2. Connect external DC voltmeter ground lead to A4 Module at A4TP2 (GND). (See CONTROL SECTION CONNECTOR LOCATOR on foldout to locate ground post.)

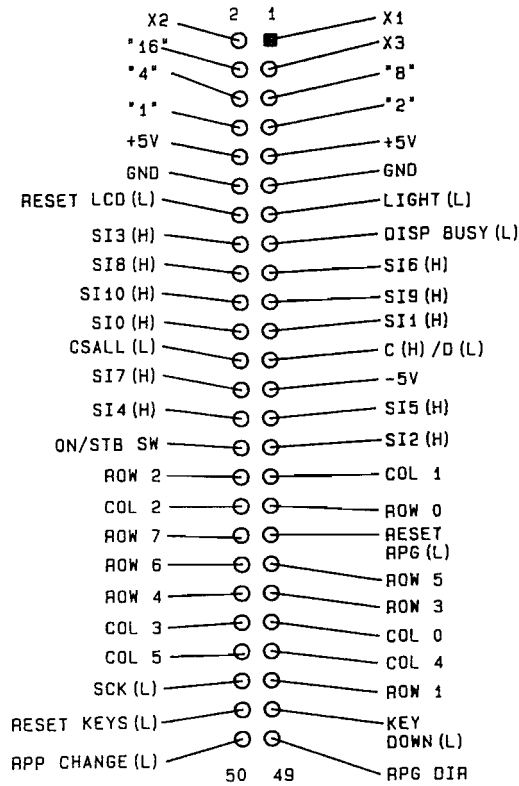
CAUTION

Opening the Front Panel without following the instructions presented in the MECHANICAL PROCEDURES section may cause damage to the Front Panel.

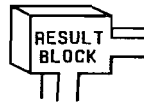
3. Measure voltage levels at A1A1 J1:
 - Open Front Panel. (Refer to table on foldout in MECHANICAL PROCEDURES to locate Front Panel information).
 - Access signals from solder-side of A1A1 J1. (See CONTROL SECTION CONNECTOR LOCATOR on foldout to locate A1A1 J1.)
 - Voltage levels and locations are shown in Figure 3C-3.

CONTROL SECTION DIAGNOSTICS

Figure 3C-3. Connector A1A1 J1 Signal Locator

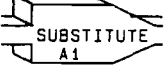


4. Record test results.
5. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each



for TEST A1 Vdc.

CONTROL SECTION DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | CTL.10 |
| Run time: | 0 |  |
| Set-up time: | 10 min. | |

Substitute Module


1. Switch instrument to **Standby** and disconnect power plug.
2. Remove **A1 Module** from instrument. (Refer to table on foldout in **MECHANICAL PROCEDURES** for location of removal information).
3. Replace module with a known good **A1 Module** from On-Site Service Kit.

COMMENT

To set-up the substitute A1 Module for testing, simply connect cables at A1A1 J1 and A1A1 J3 on substitute module and attach module to front panel with four nuts (1 at each corner).

4. Return to foldout.

CONTROL SECTION DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | CTL.11 |
| Run time: | 0 |  |
| Set-up time: | 2-4 min. | |

Replace Module

1. Switch instrument to **Standby** (if you are replacing A1 Module disconnect line power also).
2. Remove **substitute** module from instrument and return to On-Site Service Kit.
3. Replace instrument's module in instrument. (Refer to foldout in **MECHANICAL PROCEDURES** to locate replacement information.)
4. Turn instrument on.
5. Return to foldout.

A2 MODULATION MODULE

3E-1. INTRODUCTION

The **MODULE LEVEL DIAGNOSTICS (MLD)** contained in this section are used to further interrogate the **A2 Module**. The objective is to isolate the failure indicated for this module to the module itself or to a part on which it depends for operation.

NOTE

*At this level of testing, recommendations for further action are made on the assumption that the **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** showed no failures for modules **A01, A03 or A04**. (For information on using the on-site diagnostics, refer to the **INTRODUCTION** section of this manual.)*

CAUTION

When tightening the coax cable connectors, do not exceed a torque of 1.0 Nm or .74 ft-lbs (slightly tighter than finger tight).

When coax cables are disconnected from instrument, do not allow loose ends to come in contact with any exposed circuitry susceptible to short circuiting.

Test Instructions

1. The instrument's **Front Panel** must be opened to run many of these tests. (Refer to the table on the foldout in **MECHANICAL PROCEDURES** to locate instructions.)
2. The last page in this group of tests is a foldout and should be pulled out now.
3. Proceed to the next page to begin the **A2 MLD**.

A2 MODULE SUBSTITUTION

3E-2. INTRODUCTION

NOTE

If a known good module is not available, proceed to the next page A2 INPUTS/OUTPUTS VERIFICATION.

The first step in isolating an A2 failure is to substitute in a known good module from the On-Site Service Kit.

A2 Substitution Instructions

1. Find **A2 MODULE SUBSTITUTION** on the foldout.
2. Use the Task Sequence Diagram, shown under **A2 MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they appear in this section. Turn to the task indicated and complete the procedure.
3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
4. Begin now by performing the first task shown on the diagram.

A2 INPUTS/OUTPUTS VERIFICATION

3E-3. INTRODUCTION

If a known good A2 Module is not available, or if you were not able to isolate the failure using the A2 MODULE SUBSTITUTION procedure, the Task Sequence Diagrams (shown under A2 INPUTS/OUTPUTS VERIFICATION) should be used to check each signal path into the A2 Module.


A2 Inputs/Outputs Verification Instructions

1. Find A2 INPUTS/OUTPUTS VERIFICATION on the foldout.
2. The Task Sequence Diagrams, shown under A2 INPUTS/OUTPUTS VERIFICATION, are separated into four checks: Modulation Input/Output Ports, Audio to Instrument, Control signals, and Power Supply signals.
3. Use the Task Sequence Diagrams to guide you through the verification process. Each Task Arrow shown in a diagram contains a task number and task title. The tasks are numbered according to the order in which they appear in this section. Turn to the task indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown under **1. MODULATION I/O PORTS CHECK.**

NOTE

The A2 MODULE I/O SIGNALS DIAGRAM shows all parts directly associated with modulation.

A2 MODULE DIAGNOSTICS

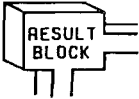
| | | |
|--------------|-------------------------|------------------------------------------------------------------------------------|
| Type: | 1; Modulation Self Test | A2.02 |
| Run time: | 1 min. |  |
| Set-up time: | 1 min. | |

Run Test

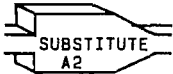
1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **1** **6** **HZ**.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT". (See foldout in INSTRUMENT LEVEL DIAGNOSTICS (ILD) for set-up diagram.)
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a cable from Tee to "AM/PULSE INPUT".
 - **HZ** to continue test.
4. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A2.

COMMENT

If any error codes are displayed for modules A01, A03, or A04, you need to isolate those failure(s) before performing the A2 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

5. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST A2 MODULE.

A2 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | A2.03 |
| Run time: | 0 |  |
| Set-up time: | 5 min | |

The following describes the technique for connecting a known good A2 Module without removing the A2 Module in the instrument.

Connect Substitute Module

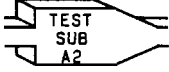
1. Switch instrument to Standby.
2. Disconnect all cables to A2 Module; W14, W17 through 22, and W33. (See A2 MODULE CABLE CONNECTION LOCATOR on foldout.)
 - Clip cable ties holding cable bundle to module ties.
3. Without removing A2 Module from instrument, carefully lay substitute A2 Module against A2 Module in instrument.
4. Connect cables W14, W17 through 22 and W33 to substitute module.
5. Pivot substitute A2 Module away from A2 Module in instrument.
 - Support from cables should allow substitute module to be placed in a free standing position.

CAUTION

If circuit side of substitute A2 is permitted to contact A2 Module in instrument, damage could result to either module. If Front Panel contacts substitute A2 Module, damage could result to substitute A2 Module.

6. Carefully turn instrument on.
 7. Return to foldout.
-

A2 MODULE DIAGNOSTICS

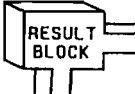
| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | Substitute Module Test | A2.04 |
| Run time: | 1 min. |  |
| Set-up time: | 1 min. | |

Test operation of substitute A2 Module by repeating test performed on A2 Module before substitution.


CAUTION

Do not allow Front Panel to swing against substitute A2 Module while instrument is turned on.

Run Test

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **1** **6** **HZ**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Use same set-up as in previous test.
4. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A2.
5. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A2.

A2 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|-------------------------------------------------------------------------------------|
| Type: | Additional A2 Tests | A2.05 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

The **A2 Module** failure conditions for arriving at this task are described below. Follow the procedure for the condition which fits your module.

- Condition 1:** Instrument Level Diagnostics indicated A2 failure.
- Condition 2:** Failure indicated for another module appears to be **modulation related**.
- Condition 3:** Instrument must be set to a specific operating condition to detect A2 failure.

Condition 1

1.
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see foldout in **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT".
 - to continue test.
4. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use to scroll through messages.
 - Record error code(s) displayed for A2.

COMMENT

If any error codes are displayed for modules A01, A03, or A04, you need to isolate those failure(s) before performing the A2 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

5. Return to foldout.
-

A2 MODULE DIAGNOSTICS


Condition 2

1. Rerun test which generates modulation related failures.
2. Record test results.
3. Return to foldout.

Condition 3

1. Set instrument to operating condition which causes **A2** failure.
 2. Record instrument set-up and error message(s).
 3. Return to foldout.
-

A2 MODULE DIAGNOSTICS

| | | |
|--------------|-----------------------|------------------------------------------------------------------------------------|
| Type: | Additional Substitute | A2.06 |
| Run time: | A2 Tests |  |
| Set-up time: | Conditional | |

Test operation of substitute **A2 Module** by repeating test(s) performed on **A2 Module** before substitution.

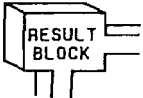
- Condition 1: Instrument Level Diagnostics indicated **A2** failure.
- Condition 2: Failure indicated for another module appears to be modulation related.
- Condition 3: Instrument must be set to a specific operating condition to detect **A2** failure.

Condition 1

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see foldout in **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT".
 - to continue test.
4. When "DIAG DONE HIT MSGS .V1" appears:
 - Use to scroll through messages.
 - Record error code(s) displayed for **A2**.

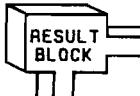
COMMENT

If any error codes are displayed for modules A01, A03, or A04, you need to isolate those failure(s) now.

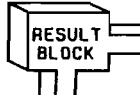
5. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A2 FURTHER**.

A2 MODULE DIAGNOSTICS


Condition 2

1. Rerun test which generates modulation related failures
2. Record test results.
3. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A2 FURTHER.

Condition 3

1. Set instrument to operating condition which causes A2 failure.
2. Record instrument set-up and error message(s).
3. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A2 FURTHER.


A2 MODULE DIAGNOSTICS

| | | |
|--------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A2.07 |
| Run time: | 0 min. |  |
| Set-up time: | 5 min. | |

Connect Module

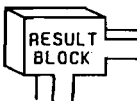
1. Switch instrument to Standby.
2. Disconnect cables W14, W17 through W22 and W33 from substitute A2 Module.
3. Reconnect cables W14, W17 through W22 and W33 to A2 Module and replace cable ties holding cable bundles to module with ties provided in On-Site Service Kit.
4. Turn instrument on.
5. Return substitute A2 Module to On-Site Service Kit.
6. Return to foldout.

A2 MODULE DIAGNOSTICS


| | | |
|--------------|-------------------------|------------------------------------------------------------------------------------|
| Type: | 1; Modulation Self Test | A2.08 |
| Run time: | 1 min. |  |
| Set-up time: | 1 min. | |

This is the same test used to test A2 Module during module substitution process. If you made an accurate record of test results for that test, it is not necessary to rerun test now; instead proceed directly to step 5.

Run Test

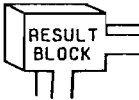
1.
 (Hold shift key until "100.00000MZ -140.0DM" appears, to override 20 second reset test.)
2.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see foldout in INSTRUMENT LEVEL DIAGNOSTICS (ILD) for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT".
 - to continue test.
4. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use to scroll through messages.
 - Record error code(s) displayed for A2.
5. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST MOD PORTS.

A2 MODULE DIAGNOSTICS


| | | |
|---------------------|-------------------------|------------------------------------------------------------------------------------|
| Type: | 1; Modulation Self Test | A2.09 |
| Run time: | 1 min. |  |
| Set-up time: | 6 min. | |

Cable W21 is tested by by-passing it during testing.

Run Test

1. **[INSTR PRESET] [SHIFT]**
 Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **[SHIFT] [SPCL] [3] [3] [1] [6] [HZ]**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect "FM/ΦM INPUT", "MOD OUTPUT" and "AM/PULSE INPUT" same as previous test.
4. Test cable W21:
 - Disconnect cable W21 from A2 Module at A2J8 (see A2 MODULE CABLE CONNECTION LOCATOR on fold-out) and from A6 Module at A6A2 J3 (see Top View Diagram on inside of Top Cover to locate W21 connection on A6 Module). (See table on foldout in MECHANICAL PROCEDURES to locate Top Cover removal information.)
 - Substitute test coax cable from On-Site Service Kit between A2J8 and A6 Module at A6A2 J3.
 - **[HZ]** to continue.
5. When "DIAG DONE HIT MSSGS .V1" appears:
 - Reconnect cable W21 to modules A2 and A6.
 - Use **[MSSG]** to scroll through messages.
 - Record error code(s) displayed for A2.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST CABLE W21.

A2 MODULE DIAGNOSTICS

| | | |
|--------------|-------------------------|------------------------------------------------------------------------------------|
| Type: | 1; Modulation Self Test | A2.10 |
| Run time: | 1 min. |  |
| Set-up time: | 8 min. | |

Cables **W17**, **W18** and **W19** are tested by separately by-passing each cable and rerunning test.

Test Cable W19

1.
 Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect BNC Tee connector from "FM/ΦM INPUT", leave BNC cables connected to "MOD OUTPUT" and "AM/PULSE INPUT" as in previous test.
 - Connect BNC-to-SMC adapter, SMC barrel adapter, and test coax cable (from On-Site Service Kit) to Tee connector.
4. Connect substitute cable:
 - Disconnect cable **W19** from A2 Module at A2J5. (See **A2 MODULE CABLE CONNECTIONS LOCATOR** on foldout to locate A2J5.)
 - Connect the coax cable from Tee connector to A2 Module at A2J5.
 - to continue.
5. When "DIAG DONE HIT MSSGS .V1" appears:
 - Reconnect cable **W19** to A2 Module.
 - Use to scroll through messages.
 - Record error code(s) displayed for A2.

Test Cable W17

6. Repeat steps 1 and 2.
 7. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect BNC cable from "MOD OUTPUT" and connect to "FM/ΦM INPUT".
-

A2 MODULE DIAGNOSTICS

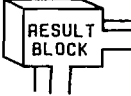
8. Connect substitute cable:
 - Disconnect cable W17 from A2 Module at A2J7.
 - Connect loose end of test cable to A2 Module at A2J7.
 - **[HZ]** to continue test.
9. When "DIAG DONE HIT MSSGS.V1" appears:
 - Reconnect cable W17 to A2 Module.
 - Use **[MSSG]** to scroll through messages.
 - Record error code(s) displayed for A2.

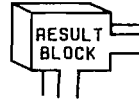
Test cable W18

10. Repeat steps 1 and 2.
11. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect BNC cable from "AM/PULSE INPUT" and connect to "MOD OUTPUT".
12. To connect substitute cable:
 - Disconnect cable W18 from A2 Module at A2J2.
 - Connect loose end of test cable to A2 Module at A2J2.
 - **[HZ]** to continue test.
13. When "DIAG DONE HIT MSSGS.V1" appears:
 - Reconnect cable W18 to A2 Module.
 - Use **[MSSG]** to scroll through messages.
 - Record error code(s) displayed for A2.


NOTE

If tests did not pass for any of the cable substitution attempts, you should have gotten the same error set for each test. If you did not get the same errors, recheck cable connections and rerun test.

14. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST CABLES W17, 18 and 19.



A2 MODULE DIAGNOSTICS

| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | 2; Audio Output Levels | A2:11 |
| Run time: | 30 sec. |  |
| Set-up time: | 6 min. | |

Run Test

1.
 Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W22 from A13 Module at A13A2 J4 (See Top View Diagram inside Top Cover to locate W22 on A13).
 - Connect cable W22 to "AM/PULSE INPUT" using BNC cable and BNC-to-SMC adapter with barrel adapter from On-Site Service Kit.
 - If an HP 8642A is being tested, push now and proceed to step 4.

CAUTION

Extending the A19 Module exposes the circuit side of the A17 Power Supply Regulators/Attenuator Drivers Module. Do not permit the loose end of W33 to contact the A17 Module.

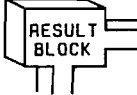
- If an HP 8642B is being tested, disconnect cable W33 from A19 Module at A19A1 J6. To access A19A1 J6, extend A19 Module. (See table on foldout in MECHANICAL PROCEDURES for module extending information).
- Connect cable W33 to "FM/ΦM INPUT" using cabling method described for W22.
- to continue.

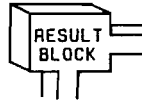
A2 MODULE DIAGNOSTICS

4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cables W22 and (W33 HP 8642B only) to modules.
 - Disconnect cable W20 from A6 Module at A6A1 J4.
 - Connect cable W20 to "AM/PULSE INPUT".
 - Connect "FM/ΦM INPUT" to "MOD OUTPUT".
 - HZ to continue.

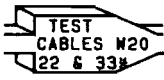
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W20 to A6 Module.
 - HZ to continue.

6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use MSSG to scroll through messages.
 - Record error code(s) displayed for A2.
 - If "TEST 2 OF A02 (PASSED or FAILED)" is not displayed, rerun test.

7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST AUDIO TO A6, 13 and 19.



A2 MODULE DIAGNOSTICS

| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | 2; Audio Output Levels | A2.12 |
| Run time: | 30 sec. |  |
| Set-up time: | 5 min. | |

Cables **W20**, **W22**, and **W23** are tested by substituting in a test cable for each of these cables during testing.

Run Test

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
 2.
 3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable **W22** from **A2 Module** at **A2J3** (see **MODULE CABLE CONNECTION LOCATOR** on fold-out to locate **W22**). (See table on foldout in **MECHANICAL PROCEDURES** for opening Front Panel information.)
 - Using BNC cable and BNC-to-SMC adapter, SMC barrel, and SMC coax cable from On-Site Service Kit, connect **A2 Module** (at **A2J3**) to "AM/PULSE INPUT".
 - If an **HP 8642A** is being tested, push now and proceed to step 4.
 - If an **HP 8642B** is being tested, disconnect cable **W33** from **A2 Module** at **A2J4**.
 - Using same cabling method described for **W22**, connect **A2 Module** (at **A2J4**) to "FM/ΦM INPUT"
 4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cables **W22** and (**W33 HP 8642B** only) to **A2 Module**.
 - Disconnect cable **W20** from **A2 Module** at **A2J6**.
 - Connect **A2 Module** (at **A2J6**) to "AM/PULSE INPUT".
 - Connect "FM/ΦM INPUT" to "MOD OUTPUT".
 - to continue.
-

A2 MODULE DIAGNOSTICS

5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable **W20** to **A2 Module**.
 - **[HZ]** to continue.

6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **[MSSG]** to scroll through messages.
 - Record error code(s) displayed for **A2**.
 - If "TEST 2 OF A02 (PASSED or FAILED)" is not displayed, rerun test.

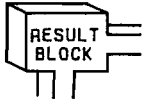
7. If test failed, proceed directly to step 8, otherwise continue testing.
 - A passing test indicates that one of the by-passed cables (**W20**, **W22** or **W23**) was cause of failure.
 - To isolate defective cable, rerun test two more times connecting cables as follows:

Test 1: Connect cables **W22** and **W33** as described in step 3 of this test (by-passed). Connect **W20** as described in step 4 of previous test (not by-passed).


Test 2: Connect cable **W22** as described in previous test (not by-passed). Connect **W33** and **W20** as described in this test (by-passed).
 - Use the following chart to determine defective cable:

| Test 1 | Test 2 | Defective Cable(s) |
|--------|--------|--------------------|
| F | P | W20 |
| P | F | W22 |
| F | F | Cables W20 and W22 |
| P | P | W33 |

A2 MODULE DIAGNOSTICS

8. When testing is complete, return to foldout:
- Determine next task by comparing test results to conditions shown in each  for **TEST CABLES** W20, 22 and 33.

A2 MODULE DIAGNOSTICS

| | |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Type: 3; Bit Transmission Run time: 6 min. Set-up time: 2 min. | A2.13  |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to A2 Module on Clock and Data control lines D0 through D7.

COMMENTS

Check control line inputs to A2 by performing test procedure for control lines shown in Table 3E-1.

If any control line measures bad, it is not necessary to test remaining lines; proceed to step 14.

Run Test

1. Switch instrument to **Standby**:
 - Disconnect cable W14 from module at A2J1.
 - Plug end of W14 into 20 pin test connector, from On-site Service Kit.

NOTE

Find arrowhead on test connector and align with arrowhead on cable plug W14P2.

CAUTION

To prevent damage to the Power Supply and Control sections, do not permit the exposed pins on the test connector to short circuit.

2. Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (A4TP1). (See A2 MODULE CABLE CONNECTION LOCATOR on fold-out for VM IN location.)
3. Turn instrument on.

A2 MODULE DIAGNOSTICS

Clock and Data Control Lines

Check High State

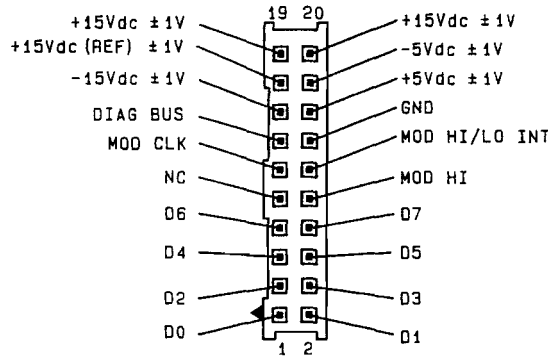
4. SHIFT SPCL 3 6 0 1
(To specify high state.)
5. Enter **Bit Select Keys** as indicated in **Table 3E-1**. **W14P2 Control Bits**, for **Control Line** to be tested.
6. Connect **VM probe Control Line** at **Pin Number** indicated in **Table 3E-1**. (See **Figure 3E-1**. **Cable Plug W14P2 Signal Locator**.)

Table 3E-1. W14P2 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 5 and 10) | Pin Number (Step 6) |
|-------------------|---------------------|-----------------------------------------------------------------------------------|--------------------------------|
| 1 | MOD CLK | <input type="checkbox"/> 6 <input type="checkbox"/> 0 <input type="checkbox"/> HZ | 11 |
| 2 | D0 | <input type="checkbox"/> 4 <input type="checkbox"/> 8 <input type="checkbox"/> HZ | 1 |
| 3 | D1 | <input type="checkbox"/> 4 <input type="checkbox"/> 9 <input type="checkbox"/> HZ | 2 |
| 4 | D2 | <input type="checkbox"/> 5 <input type="checkbox"/> 0 <input type="checkbox"/> HZ | 3 |
| 5 | D3 | <input type="checkbox"/> 5 <input type="checkbox"/> 1 <input type="checkbox"/> HZ | 4 |
| 6 | D4 | <input type="checkbox"/> 5 <input type="checkbox"/> 2 <input type="checkbox"/> HZ | 5 |
| 7 | D5 | <input type="checkbox"/> 5 <input type="checkbox"/> 3 <input type="checkbox"/> HZ | 6 |
| 8 | D6 | <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> HZ | 7 |
| 9 | D7 | <input type="checkbox"/> 5 <input type="checkbox"/> 5 <input type="checkbox"/> HZ | 8 |

A2 MODULE DIAGNOSTICS

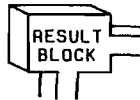
Figure 3E-1. Cable Plug W14P2 Signal Locator




7. (To enable voltmeter.)
8. Voltage should read approximately +2.5 to +5.5 Vdc. (to repeat measurement.)

Check Low State

9. (To specify low state.)
10. Enter **Bit Select Keys** as indicated in **Table 3E-1. W14P2 Control Bits**, for same **Control Line**.
11. (To enable voltmeter.)
12. Voltage should read approximately -0.5 to +1.5 Vdc. (to repeat measurement.)
13. Repeat procedure for each **Control Line** shown in **Table 3E-1**.
14. Record test results.
15. Return to foldout:
 - ⊗ Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST CONTROL BITS**.



A2 MODULE DIAGNOSTICS

| | | |
|---------------------|----------------------|------------------------------------------------------------------------------------|
| Type: | Voltage Measurements | A2.14 |
| Run time: | 2 min. |  |
| Set-up time: | 6 min. | |

Internal Voltmeter (VM) is used to check power supply levels at inputs to A2 Module.

Run Test

- Switch instrument to **Standby**:
 - Disconnect **W14** from A2 at **A2J1**.
 - Plug end of **W14** into **20** pin test connector, from On-site Service Kit.

NOTE

*Find arrowhead on test connector and align with arrowhead on cable plug **W14P2**.*

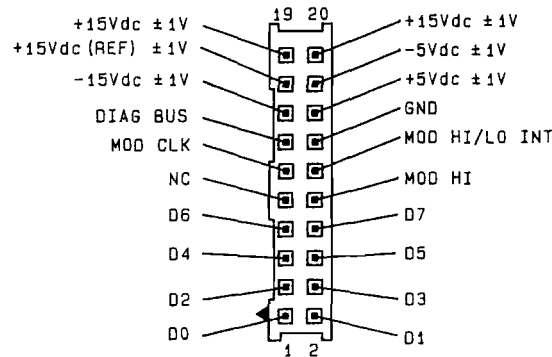
- Connect **VM** probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A2 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
- Turn instrument on and enter:

 (To enable Internal Voltmeter.)

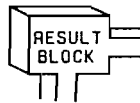
A2 MODULE DIAGNOSTICS

4. Measure voltage levels:
 - Connect VM probe to test connector pin for each power supply line (see Figure 3E-2. Cable Plug W14P2 Signal Locator).
 - **5** **HZ** (To make each voltage measurement.)

Figure 3E-2. Cable Plug W14P2 Signal Locator

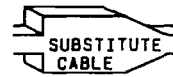


5. Record test results.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for TEST Vdc.




A2 MODULE DIAGNOSTICS

| | |
|--------------|--------------------|
| Type: | Cable Substitution |
| Run Time: | 5 min. |
| Set-up Time: | 1 min. |

A2.15

1. Testing has shown cable **W20**, **W21**, **W22**, or **W33** to be defective, temporarily replace with a test cable from the On-Site Service Kit. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.
2. Refer to **REPLACEABLE PARTS**, in **HP 8642A/B** Operating and Service Manual, for information to order a permanent replacement cable.
3. Return to foldout.

A2 MODULE DIAGNOSTICS

| | | |
|---------------------|-------------|------------------------------------------------------------------------------------|
| Type: | Cable Check | A2.16 |
| Run time: | N/A |  |
| Set-up time: | N/A | |

1. Replacement of cable **W14** is not considered an on-site procedure due to extensive disassembly required.
2. To further test **W14**, verify integrity of signal source by proceeding as directed on foldout.
3. Reconnect cable **W14** to **A2 Module**.
4. Return to foldout.

A2 THEORY OF OPERATION

3E-4. A2 MODULATION MODULE

COMMENT

It is not to essential to understand the internal operation of a module to make an on-site repair.

The **A2 Module** generates an audio signal from **10 Hz** to **100 kHz**. This signal is provided to the **A6 FM Loop** frequency and phase modulation and to the **A13 Output Loop** for amplitude modulation. In the **HP 8642B** this signal is sent to the **A19 Doubler** for amplitude modulation in the **Doubler Band (1057.5 to 2115 MHz)**.

The output of **A2's Internal Audio Oscillator** is also sent to the **A6 Counter**. The frequency count generated by the counter is passed to the **A3 Processor**. The Processor compares the frequency count with the specified setting for the audio oscillator and fine tunes the oscillator until the frequency count matches the specified frequency setting.

The **A2 Module** accepts external modulation signals via the "**AM/PULSE**" and "**FM/ΦM**" input ports.

See the **A2 MODULE SIMPLIFIED BLOCK DIAGRAM** for further understanding of the **A2 Module's** internal operation.

A6 FM LOOP/COUNTER/TIMEBASE MODULE

3F-1. INTRODUCTION

The **MODULE LEVEL DIAGNOSTICS (MLD)** contained in this section are used to further interrogate the **A6 Module**. The objective is to isolate the failure indicated for this module to the module itself or to a part on which it depends for operation.

NOTE

*At this level of testing, recommendations for further action are made on the assumption that the **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** showed no failures for modules **A01, A03** or **A04**. (For information on using the on-site diagnostics, refer to the **INTRODUCTION** section of this manual.)*

CAUTION

When tightening the coax cable connectors, do not exceed a torque of 1.0 Nm or .74 ft-lbs (slightly tighter than finger tight).

When coax cables are disconnected from instrument, do not allow loose ends to come in contact with any exposed circuitry susceptible to short circuiting.

Test Instructions

1. The instrument's **Top Cover** must be removed to run many of these tests. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate instructions.)
2. The last page in this group of tests is a foldout and should be pulled out now.
3. Turn to the next page to begin the **A6 MLD**.

A6 MODULE SUBSTITUTION

3F-2. INTRODUCTION**NOTE**

If a known good module is not available, proceed to the next page, A6 INPUTS VERIFICATION.

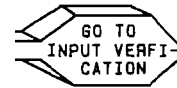
The first step in isolating an A6 failure is to substitute in a known good module from the On-site Service Kit.

A6 Substitution Instructions

1. Find **A6 MODULE SUBSTITUTION** on the foldout.
 2. Use the Task Sequence Diagram, shown under **A6 MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
 3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
 4. Begin now by performing the first task shown on the diagram.
-

A6 INPUTS VERIFICATION

A6.01

3F-3. INTRODUCTION

If a known good A6 Module is not available, or if you were not able to isolate the failure using the **A6 MODULE SUBSTITUTION** procedure, the Task Sequence Diagrams (shown under **A6 INPUTS VERIFICATION**) should be used to check each signal path into the A6 Module.


A6 Inputs Verification Instructions

1. Find **A6 INPUTS VERIFICATION** on the foldout.
2. The Task Sequence Diagrams, shown under **A6 INPUTS VERIFICATION**, are separated into three checks: **Control**, **Power Supply** and **RF** signals.
3. Use the Task Sequence Diagrams to direct you through the verification process. Each Task Arrow shown in a diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown under 1. **A6 CONTROL INPUT CHECK.**

NOTE

The A6 MODULE I/O SIGNALS DIAGRAM shows all parts which the A6 Module depends on for operation.

A6 MODULE DIAGNOSTICS

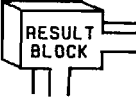
| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 1; Loop Lock/Unlock | A6.02 |
| Run time: | 1 min. |  |
| Set-up time: | 0 | |

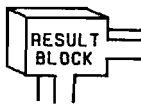
Run Test

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **2** **0** **HZ**.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A6. If "TEST 1 OF A06 (PASSED or FAILED)" is not displayed, rerun test.


COMMENT

If any error codes are displayed for modules A01, A03 or A04, you need to isolate those failure(s) before performing the A6 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST A6 MODULE.



A6 MODULE DIAGNOSTICS

| | | |
|---------------------|---------------------|-------------------------------------------------------------------------------------|
| Type: | Module Substitution | A6.03 |
| Run time: | 0 |  |
| Set-up time: | 7 min. | |

The following describes the technique for connecting a known good A6 Module without removing the A6 module in the instrument.

Connect Substitute Module

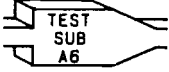
1. Switch instrument to **Standby**.
2. Disconnect cables **W1, W20, W21, W23, W24, W26, W27, W28** and **W29** from A6 Module (see **A6 MODULE CABLE CONNECTION LOCATOR** on foldout).
3. Without removing **A6 Module** from instrument, carefully lay substitute **A6 Module** on top of modules **A7, A9** and **A11**.



When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

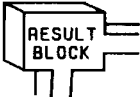
4. Connect cables **W1, W20, W21, W23, W24, W26, W27, W28** and **W29** to substitute module.
 5. Turn instrument on.
 6. Return to foldout.
-

A6 MODULE DIAGNOSTICS


| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | Substitute Module Test | A6.04 |
| Run time: | 1 min. |  |
| Set-up time: | 0 | |

Test operation of **substitute A6 Module** by repeating test performed on A6 Module before substitution.

Run Test

1. **[INSTR PRESET] [SHIFT]**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **[SHIFT] [SPCL] [3] [3] [2] [0] [HZ]**.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **[MSSG]** to scroll through messages.
 - Record error code(s) displayed for **A6**. If "TEST 1 OF A06 (PASSED or FAILED)" is not displayed, rerun test.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A6**.

A6 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Additional A6 Tests | A6.05 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

The **A6** failure conditions for arriving at this task are described below. Follow the procedure for the condition which fits your module.

- Condition 1: Instrument Level Self Test indicated **A6** failure.
- Condition 2: RF Power Test for another module indicated **A6** failure.
- Condition 3: Instrument must be set to a specific operating condition to detect **A6** failure.

Condition 1

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.
2. **SHIFT** **SPCL** **3** **3** **0** **HZ**.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use **MSSG** to scroll through messages.
 - Record **A6** error codes.

COMMENT

If any error codes are displayed for modules A01, A03 or A04, you need to isolate those failure(s) before performing the A6 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

5. Return to foldout.
-

A6 MODULE DIAGNOSTICS

Condition 2


1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
 2. **SHIFT** **SPCL** **3** **3** **2** **2** **HZ**
 3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable **W28** from module at **A6A2 J8**.
 - Connect **YELLOW PM** cable to module at **A6A2 J8**.
 - **HZ** to continue test.
 4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable **W28** to module at **A6A2 J8**.
 - Disconnect cable **W26** from module at **A6A2 J6**.
 - Connect **PM** cable to module at **A6A2 J6**.
 - **HZ** to continue test.
 5. When "WAITING FOR SET-UP 3 .V26" appears:
 - Reconnect cable **W26** to module at **A6A2 J6**.
 - Disconnect cable **W29** from module at **A6A2 J9**.
 - Connect **PM** cable to module at **A6A2 J9**.
 - **HZ** to continue test.
 6. When "WAITING FOR SET-UP 4 .V27" appears:
 - Reconnect cable **W29** to module at **A6A2 J9**.
 - Disconnect cable **W23** from module at **A6A2 J5**.
 - Connect **PM** cable to module at **A6A2 J5**.
 - **HZ** to continue test.
 7. When "WAITING FOR SET-UP 5 .V28" appears:
 - Reconnect cable **W23** to module at **A6A2 J5**.
 - Disconnect cable **W24** from module at **A6A1 J2**.
 - Connect **PM** cable to module at **A6A1 J2**.
 - **HZ** to continue test.
 8. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable **W24** to module at **A6A1 J2**.
 - **HZ** to continue test.
 9. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for **A6**. If "TEST 2A OF A06 (PASSED or FAILED)" is not displayed, rerun test.
 10. Return to foldout.
-

A6 MODULE DIAGNOSTICS

Condition 3

1. Set instrument to operating condition which causes A6 failure.
2. Record instrument set-up and error message(s).
3. Return to foldout.

A6 MODULE DIAGNOSTICS

| | | |
|--------------|-----------------------------------|------------------------------------------------------------------------------------|
| Type: | Additional Substitute A6 Tests | A6.06 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

Test operation of substitute A6 Module by repeating test(s) performed on A6 Module before substitution.

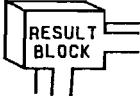
- Condition 1: Instrument Level Self Test indicated A6 failure.
- Condition 2: RF Power Test for another module indicated A6 failure.
- Condition 3: Instrument must be set to a specific operating condition to detect A6 failure.

Condition 1

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.
2. **SHIFT** **SPCL** **3** **3** **0** **HZ**.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT".
4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use **MSSG** to scroll through messages.
 - Record A6 error codes.

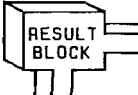
COMMENT

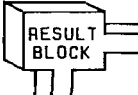
If any error codes are displayed for modules A01, A03 or A04, you need to isolate those failure(s) now.

5. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A6 FURTHER.

A6 MODULE DIAGNOSTICS

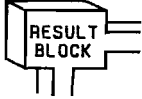
Condition 2

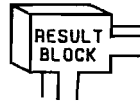
1.
 (Hold shift key until "100.00000MZ -140.0DM" appears, to override 20 second reset test.)
2.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W28 from module at A6A2 J8.
 - Connect YELLOW PM cable to module at A6A2 J8.
 - to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W28 to module at A6A2 J8.
 - Disconnect cable W26 from module at A6A2 J6.
 - Connect PM cable to module at A6A2 J6.
 - to continue test.
5. When "WAITING FOR SET-UP 3 .V26" appears:
 - Reconnect cable W26 to module at A6A2 J6.
 - Disconnect cable W29 from module at A6A2 J9.
 - Connect PM cable to module at A6A2 J9.
 - to continue test.
6. When "WAITING FOR SET-UP 4 .V27" appears:
 - Reconnect cable W29 to module at A6A2 J9.
 - Disconnect cable W23 from module at A6A2 J5.
 - Connect PM cable to module at A6A2 J5.
 - to continue test.
7. When "WAITING FOR SET-UP 5 .V28" appears:
 - Reconnect cable W23 to module at A6A2 J5.
 - Disconnect cable W24 from module at A6A1 J2.
 - Connect PM cable to module at A6A1 J2.
 - to continue test.
8. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W24 to module at A6A1 J2.
 - to continue test.
9. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use to scroll through messages.
 - Record error code(s) displayed for A6. If "TEST 2A OF A06 (PASSED or FAILED)" is not displayed, rerun test.)
10. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A6 FURTHER.



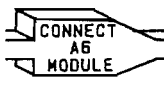
A6 MODULE DIAGNOSTICS

Condition 3

1. Set instrument to operating condition which causes A6 failure.
2. Record instrument set-up and error message(s).
3. Return to foldout:
 - ◆ Determine next task by comparing test results to conditions shown in each  for TEST SUB A6 FURTHER.



A6 MODULE DIAGNOSTICS

| | | |
|--------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A6.07 |
| Run time: | 0 |  |
| Set-up time: | 5 min. | |

Connect Module


1. Switch instrument to Standby.
2. Disconnect cables **W1, W20, W21, W23, W24, W26, W27, W28** and **W29** from substitute A6 Module.

CAUTION

When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

3. Reconnect cables **W1, W20, W21, W23, W24, W26, W27, W28** and **W29** to A6 Module.
4. Turn instrument on.
5. Return substitute A6 Module to On-Site Service Kit.
6. Return to foldout.

A6 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A6.08 |
| Run time: | 3 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to **A6 Module** on Clock, Data and Control lines.

COMMENT

If any control line level is bad, it is not necessary to test remaining lines; proceed to step 34.

Run Test

1. Switch instrument to **Standby**:
 - Disconnect cable **W1** from module at **A6A1 J1**.
 - Plug end of **W1** into **26 pin** test connector, from On-Site Service Kit.

NOTE

*Find arrowhead on test connector and align with arrowhead on cable plug **W1P2**.*

CAUTION

To prevent damage to the Power Supply and Control sections, do not permit the exposed pins on the test connector to short circuit.

2. Connect **VM** probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A6 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
 3. Turn instrument on.
-

A6 MODULE DIAGNOSTICS

FM Control Lines

Check High State

4. .
(To specify high state.)

NOTE

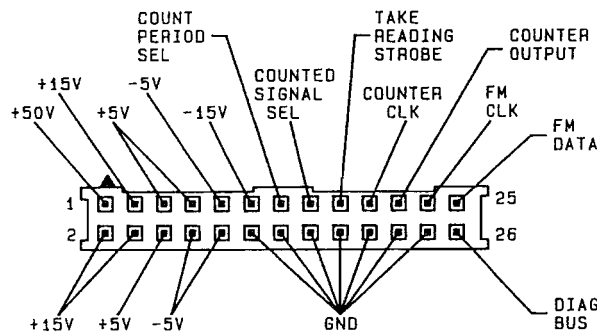
A "0" will appear in display indicating that these data bits will be set low. However, the bits are inverted in the Control Section before they are sent to A6.

5. Enter Bit Select Keys, as indicated in Table 3F-1. W1P2 Control Bits, for Control Line to be tested.
6. Connect VM probe to Control Line at Pin Number indicated in Table 3F-1. (See Figure 3F-1. Cable Plug W1P2 Signal Locator.)

Table 3F-1. W1P2 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 5 and 10) | Pin Number (Step 6) |
|------------|--------------|-----------------------------------------------------------------------------------------------------|---------------------|
| 1 | FM CLK | <input type="button" value="4"/> <input type="button" value="6"/> <input type="button" value="HZ"/> | 23 |
| 2 | FM DATA | <input type="button" value="4"/> <input type="button" value="7"/> <input type="button" value="HZ"/> | 25 |

Figure 3F-1. Cable Plug W1P2 Signal Locator



A6 MODULE DIAGNOSTICS

7.
(To enable voltmeter.)
8. Voltage should read approximately **+2.5 to +5.5 Vdc**.
(to repeat measurement.)

Check Low State

9.
(To specify low state.)

NOTE

A "1" will appear in display indicating that these data bits will be set high. However, the bits are inverted in the Control Section before they are sent to A6.

10. Enter **Bit Select Keys**, as indicated in **Table 3F-1**, for same **Control Line**.
11.
(To enable voltmeter.)
12. Voltage should read approximately **-0.5 to +1.5 Vdc**.
(to repeat measurement.)
13. Repeat procedure for each **Control Line** shown in **Table 3F-1** before proceeding to step 14.

Counter Control Lines**Check High State**

14.
(To specify high state.)
 15. Enter **Bit Select Keys**, as indicated in **Table 3F-2**. **W1P2 Control Bits**, for **Control Line** to be tested.
 16. Connect **VM probe** to **Control Line** at **Pin Number** indicated in **Table 3F-2**. (See **Figure 3F-1**. **Cable Plug W1P2 Signal Locator**.)
-

A6 MODULE DIAGNOSTICS

Table 3F-2. W1P2 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 15 and 20) | Pin Number (Step 16) |
|------------|-----------------------|--------------------------------------|-------------------------|
| 1 | COUNTER CLK | [7] [2] [HZ] | 19 |
| 2 | TAKE READING STROBE | [7] [3] [HZ] | 17 |
| 3 | COUNT PERIOD SELECT | [7] [4] [HZ] | 13 |
| 4 | COUNTED SIGNAL SELECT | [7] [5] [HZ] | 15 |

17. [2] [5] [HZ]
(To enable voltmeter.)
18. Voltage should read approximately +2.5 to +5.5 Vdc.
([5] [HZ] to repeat measurement.)

Check Low State

19. [SHIFT] [SPCL] [3] [6] [0] [2]
(To specify low state.)
20. Enter **Bit Select Keys**, as indicated in Table 3F-2, for same Control Line.
21. [2] [5] [HZ]
(To enable voltmeter.)
22. Voltage should read approximately -0.5 to +1.5 Vdc.
([5] [HZ] to repeat measurement.)
23. Repeat procedure for each **Control Line** shown in Table 3F-2 before proceeding to step 24.
-

A6 MODULE DIAGNOSTICS

24. Switch instrument to **Standby**:
- Disconnect **W1** from module at **A6A2 J1**.
 - Plug end of **W1** into **14 pin** test connector, from On-Site Service Kit, into end of **W1**. (See Figure 3F-2. Cable Plug **W1P3** Signal Locator.)

NOTE

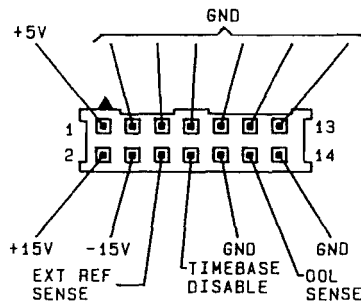
*Find arrowhead on test connector and align with arrowhead on cable plug **W1P3**.*

- Turn instrument on.

Timebase Control Line**Check High State**

25. **SHIFT** **SPCL** **3** **6** **0** **1**
(To specify high state.)
26. **1** **4** **HZ**
(To select bit.)
27. Connect **VM** probe to test connector at **TIMEBASE DISABLE** (pin 8). (See Figure 3F-2. Cable Plug **W1P3** Signal Locator.)

Figure 3F-2. Cable Plug W1P3 Signal Locator

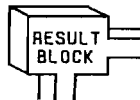


28. **2** **5** **HZ**
(To enable voltmeter.)
29. Voltage should read approximately **+2.5 to +5.5 Vdc**.
(**5** **HZ** to repeat measurement.)
-


A6 MODULE DIAGNOSTICS

Check Low State

- 30. SHIFT SPCL 3 6 0 2
(To specify low state.)
- 31. 1 4 HZ
(To select bit.)
- 32. 2 5 HZ
(To enable voltmeter.)
- 33. Voltage should read approximately **-0.5 to +1.5 Vdc.**
(5 HZ) to repeat measurement.)
- 34. Record test results.
- 35. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST CONTROL BITS.**



A6 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A6.09 |
| Run time: | 3 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to **A6 Module** on Clock, Data and Control lines.

Run Test

1. Switch instrument to **Standby**.
2. Extend **A6 Module** on extender posts, from On-Site Service Kit, and disconnect cable **W1** from **A5 Module** at **A5J1**. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate **A6 Module** extension and **A5** cable disconnection information.)
3. Connect **VM** probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A6 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
4. Turn instrument on.

COMMENT

It is only necessary to perform test on failing control line.

A6 MODULE DIAGNOSTICS

FM Control Lines

Check High State

5. SHIFT SPCL 3 6 0 2
 (To specify high state.)

NOTE

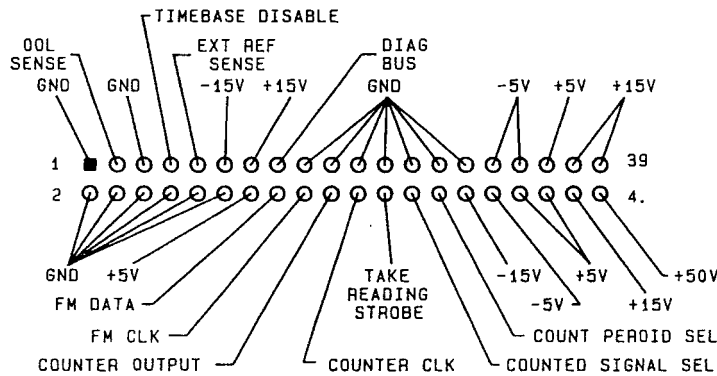
A "0" will appear in display indicating that these data bits will be set low. However, the bits are inverted in the Control Section before they are sent to A6.

6. Enter Bit Select Keys, as indicated in Table 3F-3. A5J1 Control Bits, for Control Line to be tested.
7. Connect VM probe to Control Line at Pin Number indicated in Table 3F-3. (See Figure 3F-3. A5J1 Signal Locator.)

Table 3F-3 A5J1 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 6 and 11) | Pin Number (Step 7) |
|------------|--------------|-----------------------------------------------------------------------------------|------------------------|
| 1 | FM CLK | <input type="checkbox"/> 4 <input type="checkbox"/> 6 <input type="checkbox"/> HZ | 18 |
| 2 | FM DATA | <input type="checkbox"/> 4 <input type="checkbox"/> 7 <input type="checkbox"/> HZ | 16 |

**Figure 3F-3. A5J1 Signal Locator
(Solder-Side View)**



A6 MODULE DIAGNOSTICS

8.
(To enable voltmeter.)
9. Voltage should read approximately **+2.5 to +5.5 Vdc.**
 to repeat measurement.)

Check Low State

10.
(To specify low state.)

NOTE

A "1" will appear in display indicating that these data bits will be set high. However, the bits are inverted in the Control Section before they are sent to A6.

11. Enter **Bit Select Keys**, as indicated in **Table 3F-3**, for same **Control Line**.
12.
(To enable voltmeter.)
13. Voltage should read approximately **-0.5 to +1.5 Vdc.**
 to repeat measurement.)

Counter/Timebase Control Lines**Check High State**

14.
(To specify high state.)
 15. Enter **Bit Select Keys**, as indicated in **Table 3F-4**. **A5J1 Control Bits**, for **Control Line** to be tested.
 16. Connect **VM probe** to **Control Line** at **Pin Number** indicated in **Table 3F-4**. (See **Figure 3F-3**. **A5J1 Signal Locator**.)
-

A6 MODULE DIAGNOSTICS

Table 3F-4. A5J1 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 15 and 20) | Pin Number (Step 16) |
|------------|-----------------------|-----------------------------------------------------------------------------------|-------------------------|
| 1 | COUNTER CLK | <input type="checkbox"/> 7 <input type="checkbox"/> 2 <input type="checkbox"/> HZ | 22 |
| 2 | TAKE READING STROBE | <input type="checkbox"/> 7 <input type="checkbox"/> 3 <input type="checkbox"/> HZ | 24 |
| 3 | COUNT PERIOD SELECT | <input type="checkbox"/> 7 <input type="checkbox"/> 4 <input type="checkbox"/> HZ | 28 |
| 4 | COUNTED SIGNAL SELECT | <input type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> HZ | 26 |
| 5 | TIMEBASE DISABLE | <input type="checkbox"/> 1 <input type="checkbox"/> 4 <input type="checkbox"/> HZ | 7 |

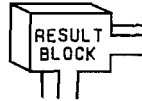
17. 2 5 HZ
(To enable voltmeter.)
18. Voltage should read approximately +2.5 to +5.5 Vdc.
(5 HZ) to repeat measurement.)

Check Low State


19. SHIFT SPCL 3 6 0 2
(To specify low state.)
20. Enter Bit Select Keys, as indicated in Table 3F-4, for same Control Line.

A6 MODULE DIAGNOSTICS

21. 2 5 HZ
(To enable voltmeter.)
22. Voltage should read approximately **-0.5 to +1.5 Vdc**.
(5 HZ to repeat measurement.)
23. Repeat procedure for each Control Line shown in Table 3F-4.
24. Record test results.
25. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST CABLE W1 CTL LINES**.



A6 MODULE DIAGNOSTICS

| | | |
|---------------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A6.10 |
| Run time: | 2 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to check power supply levels at inputs to A6 Module.

Run Test

- Switch instrument to Standby:
 - Disconnect **W1** from **A6** at **A6A1 J1**.
 - Plug end of **W1** into **26** pin test connector, from On-Site Service Kit.

NOTE

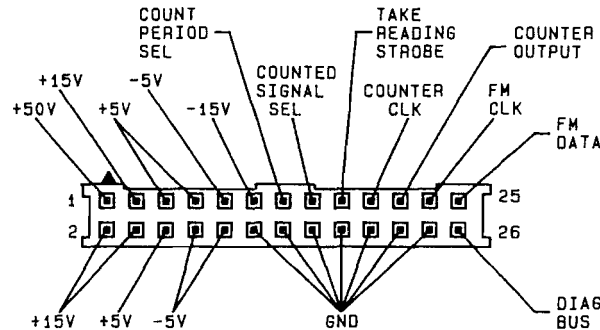
*Find arrowhead on test connector and align with arrowhead on cable plug **W1P2**.*

- Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A6 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
- Turn instrument on and enter:
SHIFT **SPCL** **3** **2** **5** **HZ**
 (To enable Internal Voltmeter.)

A6 MODULE DIAGNOSTICS

4. Measure voltage levels:
 - Connect VM probe to test connector pin for each power supply line. (See Figure 3F-3. Cable Plug W1P2 Signal Locator.)
 - (To make each voltage measurement.)

Figure 3F-3. Cable Plug W1P2 Signal Locator



5. Switch instrument to Standby:
 - Disconnect W1 from A6 at A6A2 J1.
 - Plug end of W1 into 14 pin test connector, from On-Site Service Kit.

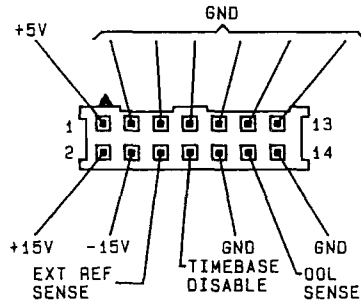
NOTE

Find arrowhead on test connector and align with arrowhead on cable plug W1P3.

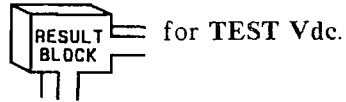
6. Measure voltage levels:
 - Connect VM probe to test connector pin for each power supply line. (See Figure 3F-4. Cable Plug W1P3 Signal Locator.)
 - (To make each voltage measurement.)
-

A6 MODULE DIAGNOSTICS


Figure 3F-4. Cable Plug W1P3 Signal Locator



7. Record test results.
8. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each



A6 MODULE DIAGNOSTICS

| | | |
|--------------|-------------------------|------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A6.11 |
| Run time: | 2 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to check power supply levels at **A5J1**.

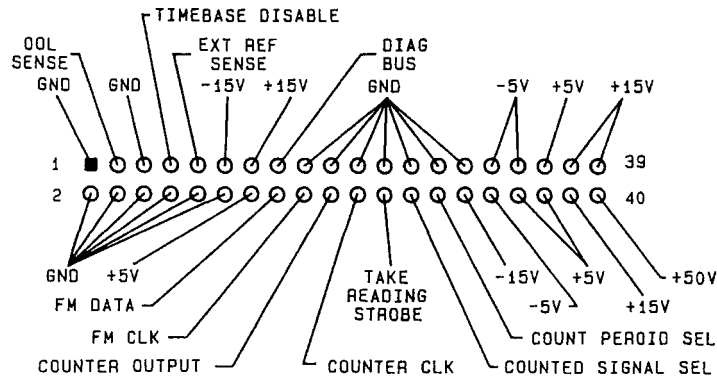
Run Test

1. Switch instrument to **Standby**.
2. Extend **A6 Module** on extender posts, from On-Site Service Kit, and disconnect cable **W1** from **A5 Module** at **A5J1**. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate **A6 Module** extension and **A5** cable disconnection information.)
3. Connect **VM** probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A6 MODULE CABLE CONNECTION LOCATOR** on foldout for **VM IN** location.)
4. Turn instrument on and enter:
 [SHIFT] [SPCL] [3] [2] [5] [HZ]
 (To enable Internal Voltmeter.)

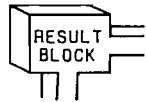
A6 MODULE DIAGNOSTICS

5. Measure voltage levels at A5J1:
 - Access signals from solder-side of A5J1. (See Figure 3F-5. A5J1 Signal Locator.)
 - **5** **HZ** (To make each voltage measurement.)

Figure 3F-5. A5J1 Signal Locator
(Solder-Side View)




6. Record test results.
7. Return to folout:
 - Determine next task by comparing test results to conditions shown in each **PS LINES**.

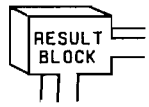


for TEST CABLE W1


A6 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------------|-------------------------------------------------------------------------------------|
| Type: | External Reference Check | A6.12 |
| Run Time: | 10 sec. |  |
| Set-up Time: | 0 | |

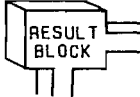
Run Test

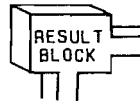
1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. .
3. Record test results.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST EXT. REF.

A6 MODULE DIAGNOSTICS


| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 1; Loop Lock/Unlock | A6.13 |
| Run Time: | 1 min. |  |
| Set-up Time: | 0 | |

Run Test

1. Disconnect external reference from Rear Panel at **EXT REF INPUT (J4)**.
2. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
3. **SHIFT** **SPCL** **3** **3** **2** **0** **HZ**.
4. When "**DIAG DONE HIT MSSG .V1**" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A6. If "**TEST 1 OF A06 (PASSED or FAILED)**" is not displayed, rerun test.
5. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST LOOP**.



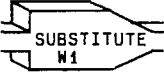
A6 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | External Reference | A6.14 |
| Run time: | N/A |  |
| Set-up time: | N/A | |

Test results indicate that the external reference signal is not stable enough for the **A6 Module** to lock to.

1. Use another reference source if available or operate instrument unreferenced.
2. Return to foldout and proceed as directed to confirm correct operation of the rest of instrument.

A6 MODULE DIAGNOSTICS

| | | |
|---------------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A6.15 |
| Run time: | 0 min. |  |
| Set-up time: | 4 min. | |

Testing has shown cable **W1** to be suspect, temporarily replace with a spare ribbon cable if available. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.

Refer to **REPLACEABLE PARTS**, in HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.

NOTE

*Cable **W1** is a single cable which splits and connects both **A6A1 J1** and **A6A2 J1** to **A5J1**.*


CAUTION

When connecting ribbon cable to A6 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W1

1. Switch instrument to **Standby** to connect cable **W1** to **A5 Module** and **A6 Module**. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on connecting cable **W1** to **A5J1**.)
2. Return to foldout.

A6 MODULE DIAGNOSTICS

| | | |
|--------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A6.16 |
| Run time: | 0 min. |  |
| Set-up time: | 4 min. | |

CAUTION

When connecting ribbon cable to A6 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W1

1. Switch instrument to **Standby** to reconnect cable **W1** to **A5 Module** or **A6 Module**. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on reconnecting cable **W1** to **A5J1**.)
2. Return to foldout.

A6 THEORY OF OPERATION

3F-4. A6 FM/COUNTER/TIMEBASE MODULE

COMMENT

It is not to essential to understand the internal operation of a module to make an on-site repair.

A6 FM LOOP

The **A6 FM Loop** is the angle modulation source for the instrument. A **135 MHz** voltage controlled oscillator (VCO), phase locked to the timebase, can be either frequency or phase modulated by the audio signal sent from the **A2 Module**.

For **DCFM** operation, the VCO tune path is switched to a stable DC voltage source within the **A6 Module**.

The **A6 FM LOOP OUTPUT** is the reference signal for the **A11 Module**.

A6 TIMEBASE

The **A6 Timebase** provides the timebase reference for the instrument. In normal operation, the various timebase signals required for operation are derived from a free running **45 MHz** oscillator.

For improved stability, the **45 MHz** oscillator can be phase locked to an external source (**1, 2, 5, or 10 MHz**) or to the **10 MHz** signal provided by the **A8 High Stability Timebase Module** (installed in Option **001** instruments).

A6 COUNTER

The **A6 Counter** counts audio frequencies produced by the internal modulation source in the **A2 Module**. The counter output is sent to the instrument's **Control Section** which provides the tune control for **A2's** audio oscillator.

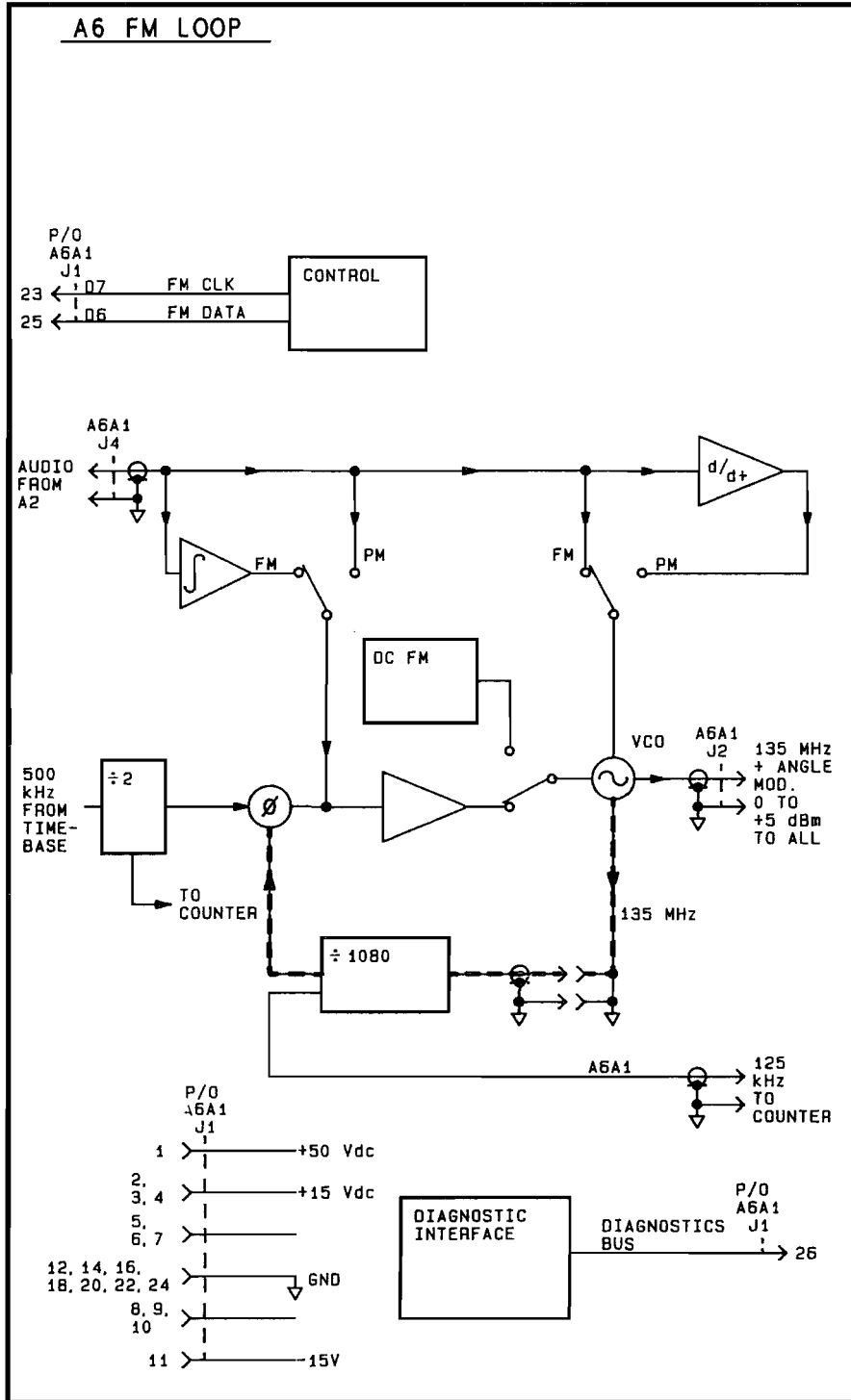
Audio frequencies **greater** than **10 kHz** are counted directly. The Timebase output signal is divided and used as the gate clock.

Audio frequencies **below** **10 kHz** are counted indirectly. The audio signal is used as the gate clock to count the **45 MHz** timebase signal.

The counter also counts the frequency of the **FM Loop**, when it is in **DCFM** mode.

See the **A6 MODULE SIMPLIFIED BLOCK DIAGRAM** for further understanding of the **A6 Module's** internal operation.

A6 MODULE SIMPLIFIED BLOCK DIAGRAM



A7 SAWR LOOP MODULE

3G-1. INTRODUCTION

The **MODULE LEVEL DIAGNOSTICS (MLD)** contained in this section are used to further interrogate the **A7 Module**. The objective is to isolate the failure indicated for this module to the module itself or to a part on which it depends for operation.

NOTE

*At this level of testing, recommendations for further action are made on the assumption that the **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** showed no failures for modules **A01-A06**. (For information on using the on-site diagnostics, refer to the **INTRODUCTION** section of this manual.)*

CAUTION

When tightening the coax cable connectors, do not exceed a torque of 1.0 Nm or .74 ft-lbs (slightly tighter than finger tight).

When coax cables are disconnected from instrument, do not allow loose ends to come in contact with any exposed circuitry susceptible to short circuiting.

Test Instructions

1. The instrument's **Top Cover** must be removed to run many of these tests. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate instructions.)
2. The last page in this group of tests is a foldout and should be pulled out now.
3. Turn to the next page to begin the **A7 MLD**.

A7 MODULE SUBSTITUTION

3G-2. INTRODUCTION

NOTE

If a known good module is not available, proceed to the next page, A7 INPUTS VERIFICATION.

The first step in isolating an A7 failure is to substitute in a known good module from the On-site Service Kit.

A7 Substitution Instructions

1. Find **A7 MODULE SUBSTITUTION** on the foldout.
2. Use the Task Sequence Diagram, shown under **A7 MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
4. Begin now by performing the first task shown on the diagram.

A7 INPUTS VERIFICATION

3G-3. INTRODUCTION

If a known good A7 Module is not available or, if you were not able to isolate the failure using the **A7 MODULE SUBSTITUTION** procedure, the Task Sequence Diagrams (shown under **A7 INPUTS VERIFICATION**) should be used to check each signal path into the A7 Module.


A7 Inputs Verification Instructions

1. Find **A7 INPUTS VERIFICATION** on the foldout.
2. The Task Sequence Diagrams, shown under **A7 INPUTS VERIFICATION**, are separated into three checks: **RF**, **Control** and **Power Supply** signals.
3. Use the Task Sequence Diagrams to direct you through the verification process. Each Task Arrow shown in a diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown under **1. A7 RF INPUT CHECK**.

NOTE

*The **A7 MODULE I/O SIGNALS DIAGRAM** shows all parts which the A7 Module depends on for operation.*

A7 MODULE DIAGNOSTICS

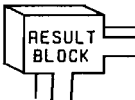
| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 1; Loop Lock/Unlock | A7.02 |
| Run time: | 1 min. |  |
| Set-up time: | 0 | |

Run Test


1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **2** **5** **HZ**.
3. When "DIAG DONE HIT MSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for **A7**. If "TEST 1 OF A07 (PASSED or FAILED)" is not displayed, rerun test.

COMMENT

If any error codes are displayed for modules A01-A06, you need to isolate those failure(s) before performing the A7 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST A7 MODULE**.

A7 MODULE DIAGNOSTICS

| | | |
|---------------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | A7.03 |
| Run time: | 0 |  |
| Set-up time: | 5 min. | |

The following describes the technique for connecting a known good A7 Module without removing the A7 module in the instrument.

Connect Substitute Module


1. Switch instrument to **Standby**.
2. Disconnect cables **W2**, **W25** and **W28** from **A7 Module** (see **A7 MODULE CABLE CONNECTION LOCATOR** on foldout).
3. Without removing **A7 Module** from instrument, carefully lay substitute **A7 Module** on top of modules **A9**, **A11** and **A12**.

CAUTION

When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

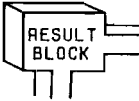
4. Connect cables **W2**, **W25** and **W28** to substitute module.
 5. Turn instrument on.
 6. Return to foldout.
-

A7 MODULE DIAGNOSTICS


| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | Substitute Module Test | A7.04 |
| Run time: | 1 min. |  |
| Set-up time: | 0 | |

Test operation of substitute A7 Module by repeating test performed on A7 Module before substitution.

Run Test

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **2** **5** **HZ**.
3. When "DIAG DONE HIT MSSG.V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A7. If "TEST 1 OF A07 (PASSED or FAILED)" is not displayed, rerun test.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A7.

A7 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Additional A7 Tests | A7.05 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

The A7 failure conditions for arriving at this task are described below. Follow the procedure for the condition which fits your module.

- Condition 1: Instrument Level Self Test indicated A7 failure.
- Condition 2: A11 Module RF Power Test indicated A7 failure.
- Condition 3: Instrument must be set to a specific operating condition to detect A7 failure.

Condition 1

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **0** **HZ**.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use **MSSG** to scroll through messages.
 - Record A7 error codes.

COMMENT

If any error codes are displayed for modules A01-A06, you need to isolate those failure(s) before performing the A7 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

5. Return to foldout.
-

A7 MODULE DIAGNOSTICS

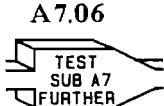
Condition 2

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **2** **6** **HZ**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable **W28** from module at **A7A1 J2**.
 - Connect **YELLOW PM** cable and adapter to cable **W28**.
 - **HZ** to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable **W28** to module at **A7A1 J2**.
 - Disconnect cable **W25** from module at **A7A1 J3**.
 - Connect **PM** cable to module at **A7A1 J3**.
 - **HZ** to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable **W25** to module at **A7A1 J3**.
 - **HZ** to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for **A7**. If "TEST 2A OF A07 (PASSED or FAILED)" is not displayed, rerun test.
7. Return to foldout.

Condition 3

1. Set instrument to operating condition which causes **A7 failure**.
 2. Record instrument set-up and error message(s).
 3. Return to foldout.
-

A7 MODULE DIAGNOSTICS

| | | |
|--------------|-----------------------|------------------------------------------------------------------------------------|
| Type: | Additional Substitute |  |
| Run time: | A7 Tests | |
| Set-up time: | Conditional | |

Test operation of substitute A7 Module by repeating test(s) performed on A7 Module before substitution.

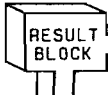
- Condition 1: Instrument Level Self Test indicated A7 failure.
- Condition 2: A11 Module RF Power Test indicated A7 failure.
- Condition 3: Instrument must be set to a specific operating condition to detect A7 failure.

Condition 1

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **0** **HZ**.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use **MSSG** to scroll through messages.
 - Record A7 error codes.

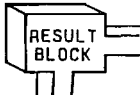
COMMENT

If any error codes are displayed for modules A01-A06, you need to isolate those failure(s) now.

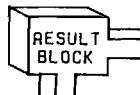
5. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A7 FURTHER.

A7 MODULE DIAGNOSTICS


Condition 2

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **2** **6** **HZ**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable **W28** from module at **A7A1 J2**.
 - Connect **YELLOW PM** cable and adapter to cable **W28**.
 - **HZ** to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable **W28** to module at **A7A1 J2**.
 - Disconnect cable **W25** from module at **A7A1 J3**.
 - Connect **PM** cable to module at **A7A1 J3**.
 - **HZ** to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable **W25** to module at **A7A1 J3**.
 - **HZ** to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for **A7**. If "TEST 2A OF A7 (PASSED or FAILED)" is not displayed, rerun test.)
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A7 FURTHER**.

Condition 3

1. Set instrument to operating condition which causes **A7 failure**.
 2. Record instrument set-up and error message(s).
 3. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A7 FURTHER**.
-

A7 MODULE DIAGNOSTICS

| | | |
|--------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A7.07 |
| Run time: | 0 |  |
| Set-up time: | 5 min. | |

Connect Module


1. Switch instrument to **Standby**.
2. Disconnect cables **W2**, **W25** and **W28** from substitute **A7 Module**.

CAUTION

When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

3. Reconnect cables **W2**, **W25** and **W28** to **A7 Module**.
4. Turn instrument on.
5. Return substitute **A7 Module** to On-Site Service Kit.
6. Return to foldout.

A7 MODULE DIAGNOSTICS

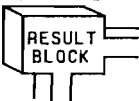
| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A7.08 |
| Run time: | 30 sec. |  |
| Set-up time: | 2 min. | |

RF signal level is measured using Internal Power Meter (PM).


CAUTION

Do not permit end of Internal Power Meter cable to short circuit instrument by coming in contact with any exposed circuitry.

Run Test

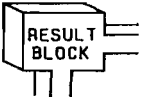
1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **6** **8** **1** **2** **HZ**
(To check input levels only.)
3. **3** **2** **6** **HZ**.
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W28 from module at A7A1 J2.
 - Connect **YELLOW PM** cable and adapter to cable W28.
 - **HZ** to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W28 to module at A7A1 J2.
 - **HZ** to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A7. If "TEST 2A OF A07 (PASSED or FAILED)" is not displayed, rerun test.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST RF POWER**.

A7 MODULE DIAGNOSTICS


| | | |
|--------------|---------------------|-------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A 7.09 |
| Run time: | 30 sec. |  |
| Set-up time: | 2 min. | |

RF signal level is measured using Internal Power Meter (PM).

Run Test

1.
 Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2.
 (To check input levels only.)
3.
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W28 from module at A6A2 J8. (See Top View Diagram inside Top Cover to locate W28 connection on A6 Module.)
 - Connect YELLOW PM cable to module at A6A2 J8.
 - to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W28 to module at A6A2 J8.
 - to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use to scroll through messages.
 - Record error code(s) displayed for A7. If "TEST 2A OF A07 (PASSED or FAILED)" is not displayed, rerun test.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST CABLE W28.

A7 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A7.10 |
| Run time: | 3 min. |  |
| Set-up time: | 2 min. | |

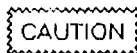
Internal Voltmeter (VM) is used to measure TTL level changes transmitted to **A7 Module** on SAWR oscillator select lines **A** and **B**.

Run Test

- Switch instrument to **Standby**:
 - Disconnect cable **W2** from module at **A7A1 J1**.
 - Plug end of **W2** into **14 pin** test connector, from On-Site Service Kit.

NOTE

*Find arrowhead on test connector and align with arrowhead on cable plug **W2P2**.*



To prevent damage to the Power Supply and Control sections, do not permit the exposed pins on the test connector to short circuit.

- Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A7 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
- Turn instrument on.
(Hold shift key until "**100.000000MZ -140.0DM**" appears, to override 20 second reset test.)

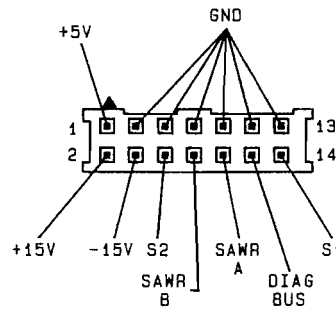
SAWR Select Line A**Check High State**

- SHIFT** **SPCL** **3** **6** **0** **1**
(To specify high state.)
 - 3** **0** **HZ**
(To select bit.)
-

A7 MODULE DIAGNOSTICS

6. Connect VM probe to test connector line A (pin 10). (See Figure 3G-1. Cable Plug W2P2 Signal Locator.)

Figure 3G-1. Cable Plug W2P2 Signal Locator



7. (To enable voltmeter.)
8. Voltage should read approximately +2.5 to +5.5 Vdc. to repeat measurement.)

Check Low State

9. (To specify low state.)
10. (To select bit.)
11. (To enable voltmeter.)
12. Voltage should read approximately -0.5 to +1.5 Vdc. to repeat measurement.)

SAWR Select Line B

Check High State

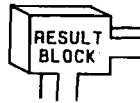
13. (To specify high state.)
14. (To select bit.)

A7 MODULE DIAGNOSTICS


15. Connect VM probe to test connector line B (pin 8). (See Figure 3G-1. Cable Plug W2P2 Signal Locator.)
16. (To enable voltmeter.)
17. Voltage should read approximately +2.5 to +5.5 Vdc. (to repeat measurement.)

Check Low State

18. (To specify low state.)
19. (To select bit.)
20. (To enable voltmeter.)
21. Voltage should read approximately -0.5 to +1.5 Vdc. (to repeat measurement.)
22. Record test results.
23. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for TEST CONTROL BITS.



A7 MODULE DIAGNOSTICS

| | | |
|---------------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A7.11 |
| Run time: | 3 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to A7 Module on SAWR oscillator select lines A and B.

Run Test

1. Switch instrument to **Standby**.
2. Extend **A7 Module** on extender posts, from On-Site Service Kit, and disconnect cable **W2** from **A5 Assembly** at **A5J2**. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate **A7 Module** extension and **A5** cable disconnection information.)
3. Connect **VM** probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A7 MODULE CABLE CONNECTION LOCATOR** on foldout for **VM IN** location.)
4. Turn instrument on.

SAWR Select Line A

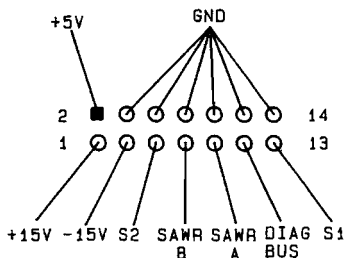
Check High State

5.
(To specify high state.)
6.
(To select bit.)

A7 MODULE DIAGNOSTICS

7. Connect VM probe to solder-side of A5J2 line A (pin 10).
(See Figure 3G-2. A5J2 Signal Locator.)

Figure 3G-2. A5J2 Signal Locator
(Solder-Side View)



8.
(To enable voltmeter.)
9. Voltage should read approximately +2.5 to +5.5 Vdc.
 to repeat measurement.)

Check Low State

10.
(To specify low state.)
11.
(To select bit.)
12.
(To enable voltmeter.)
13. Voltage should read approximately -0.5 to +1.5 Vdc.
 to repeat measurement.)

SAWR Select Line B

Check High State

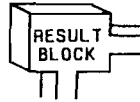
14.
(To specify high state.)
15.
(To select bit.)

A7 MODULE DIAGNOSTICS

16. Connect VM probe to solder-side of A5J2 line B (pin 8).
(See Figure 3G-2. A5J2 Signal Locator.)
17.
(To enable voltmeter.)
18. Voltage should read approximately +2.5 to +5.5 Vdc.
 to repeat measurement.)


Check Low State

19.
(To specify low state.)
20.
(To select bit.)
21.
(To enable voltmeter.)
22. Voltage should read approximately -0.5 to +1.5 Vdc.
 to repeat measurement.)
23. Record test results.
24. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each CTL LINES.



for TEST CABLE W2

A7 MODULE DIAGNOSTICS

| | | |
|---------------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A 7.12 |
| Run time: | 2 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to check power supply levels at inputs to A7 Module.

Run Test

1. Switch instrument to **Standby**:
 - Disconnect **W2** from **A7** at **A7A1 J1**.
 - Plug end of **W2** into **14** pin test connector, from On-Site Service Kit.

NOTE

*Find arrowhead on test connector and align with arrowhead on cable plug **W2P2**.*

2. Connect **VM** probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A7 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
3. Turn instrument on and enter:

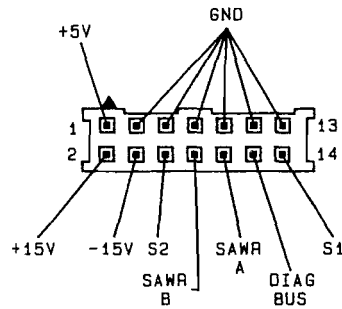
| | | | | | |
|-------|------|---|---|---|----|
| SHIFT | SPCL | 3 | 2 | 5 | HZ |
|-------|------|---|---|---|----|

 (To enable Internal Voltmeter.)

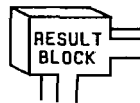
A7 MODULE DIAGNOSTICS

4. Measure voltage levels:
 - Connect VM probe to test connector pin for each power supply line (see Figure 3G-3. Cable Plug W2P2 Signal Locator).
 - **5** **HZ** (To make each voltage measurement.)

Figure 3G-3. Cable Plug W2P2 Signal Locator




5. Record test results.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each



for TEST Vdc.

A7 MODULE DIAGNOSTICS

| | | |
|--------------|-------------------------|------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A7.13 |
| Run time: | 2 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to check power supply levels at A5J2.

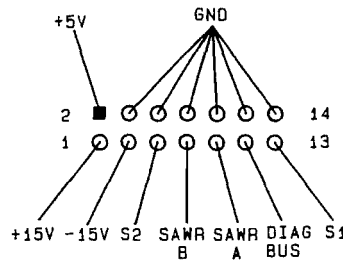
Run Test

1. Switch instrument to **Standby**.
2. Extend **A7 Module** on extender posts, from On-Site Service Kit, and disconnect cable **W2** from **A5 Assembly** at **A5J2**. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate **A7 Module** extension and **A5** cable disconnection information.)
3. Connect **VM** probe:
 - Connect red alligator clip and **pointed tip** probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A7 MODULE CABLE CONNECTION LOCATOR** on foldout for **VM IN** location.)
4. Turn instrument on and enter:
 SHIFT SPCL 3 2 5 HZ
 (To enable Internal Voltmeter.)

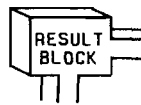
A7 MODULE DIAGNOSTICS

5. Measure voltage levels at **A5J2**:
 - Access signals from solder-side of **A5J2**. (See Figure 3G-4. **A5J2 Signal Locator**.)
 - **5 HZ** (To make each voltage measurement.)

Figure 3G-4. A5J2 Signal Locator
(Solder-Side View)



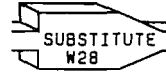
6. Record test results.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **PS LINES**.



for **TEST CABLE W2**

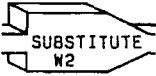
A7 MODULE DIAGNOSTICS

| | |
|--------------|--------------------|
| Type: | Cable Substitution |
| Run Time: | 5 min. |
| Set-up Time: | 1 min. |

A7.14

1. Testing has shown cable **W28** to be suspect, temporarily replace with a test cable from the On-Site Service Kit. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.
2. Refer to **REPLACEABLE PARTS**, in the HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.
3. Return to foldout.

A7 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A7.15 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

Testing has shown cable **W2** to be suspect, temporarily replace with a spare ribbon cable if available. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.

Refer to **REPLACEABLE PARTS**, in the HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.


CAUTION

When connecting ribbon cable to A7 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W2

1. Switch instrument to **Standby** to connect cable **W2** to **A5 Assembly** and **A7 Module**. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on connecting cable **W2** to **A5J2**.)
2. Return to foldout.

A7 MODULE DIAGNOSTICS

| | | |
|--------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A7.16 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

CAUTION

When connecting ribbon cable to A7 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W2

1. Switch instrument to **Standby** to reconnect cable **W2** to **A5 Assembly** or **A7 Module**. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on reconnecting cable **W2** to **A5J2**.)
2. Return to foldout.

A7 THEORY OF OPERATION

3G-4. A7 SAWR LOOP MODULE**COMMENT**

It is not to essential to understand the internal operation of a module to make an on-site repair.

The **A7 Module** contains a phase locked loop circuit. Oscillator select lines **A** and **B** are decoded to select one of three Surface Acoustic Wave Resonator (SAWR) oscillators. The oscillators are referenced to the **A6 Timebase** output (**45 MHz**).

The **A7 Module** output: **742.5, 787.5, and 832.5 Mhz**, is the UHF reference for the **A11 Reference Loop Module**.

See the **A7 MODULE SIMPLIFIED BLOCK DIAGRAM** for further understanding of the **A7 Module's** internal operation.

A9 IF LOOP MODULE

3H-1. INTRODUCTION

The **MODULE LEVEL DIAGNOSTICS (MLD)** contained in this section are used to further interrogate the **A9 Module**. The objective is to isolate the failure indicated for this module to the module itself or to a part on which it depends for operation.

NOTE

*At this level of testing, recommendations for further action are made on the assumption that the **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** showed no failures for modules **A01-A07**. (For information on using the on-site diagnostics, refer to the **INTRODUCTION** section of this manual.)*

CAUTION

When tightening the coax cable connectors, do not exceed a torque of 1.0 Nm or .74 ft-lbs (slightly tighter than finger tight).

When coax cables are disconnected from instrument, do not allow loose ends to come in contact with any exposed circuitry susceptible to short circuiting.

Test Instructions

1. The instrument's **Top Cover** must be removed to run many of these tests. (Refer to the table shown on the foldout in **MECHANICAL PROCEDURES** to locate instructions.)
2. The last page in this group of tests is a foldout and should be pulled out now.
3. Turn to the next page to begin the **A9 MLD**.

A9 MODULE SUBSTITUTION

3H-2. INTRODUCTION

NOTE

If a known good module is not available, proceed to the next page, A9 INPUTS VERIFICATION.

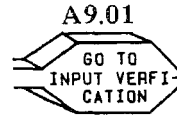
The first step in isolating an A9 failure is to substitute in a known good module from the On-Site Service Kit.

A9 Substitution Instructions

1. Find **A9 MODULE SUBSTITUTION** on the foldout.
 2. Use the Task Sequence Diagram, shown under **A9 MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
 3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
 4. Begin now by performing the first task shown on the diagram.
-

A9 INPUTS VERIFICATION

3H-3. INTRODUCTION



If a known good **A9 Module** is not available, or if you were not able to isolate the failure using the **A9 MODULE SUBSTITUTION** procedure, the Task Sequence Diagrams, shown under **A9 INPUTS VERIFICATION**, should be used to check each signal path into the A9 Module.


A9 Inputs Verification Instructions

1. Find **A9 INPUTS VERIFICATION** on the foldout.
2. The Task Sequence Diagrams, shown under **A9 INPUTS VERIFICATION**, are separated into three checks: **RF**, **Control** and **Power Supply** signals.
3. Use the Task Sequence Diagrams to direct you through the verification process. Each Task Arrow shown in a diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the page indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown under 1. **A9 RF INPUT CHECK**.

NOTE

*The **A9 MODULE I/O SIGNALS DIAGRAM** shows all parts which the A9 Module depends on for operation.*

A9 MODULE DIAGNOSTICS

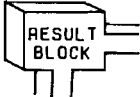
| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 1; Loop Lock/Unlock | A9.02 |
| Run time: | 2 min. 40 sec. |  |
| Set-up time: | 0 | |

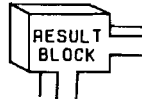
Run Test

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **3** **5** **HZ**.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A9.

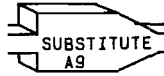
COMMENT

If any error codes are displayed for modules A01-A07, you need to isolate those failure(s) before performing the A9 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST A9 MODULE.



A9 MODULE DIAGNOSTICS

| | | |
|---------------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | A9.03 |
| Run time: | 0 |  |
| Set-up time: | 5 min. | |

The following describes the technique for connecting a known good A9 Module without removing the A9 Module in the instrument.

Connect Substitute Module

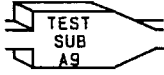
1. Switch instrument to Standby.
2. Disconnect cables **W3**, **W26** and **W30** from **A9 Module** (see **A9 MODULE CABLE CONNECTION LOCATOR** on foldout).
3. Without removing **A9 Module** from instrument, carefully lay substitute **A9 Module** on top of modules **A11**, **A12** and **A13**.

CAUTION

When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

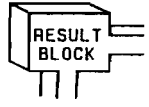
4. Connect cables **W3**, **W26** and **W30** to substitute module.
 5. Turn instrument on.
 6. Return to foldout.
-

A9 MODULE DIAGNOSTICS


| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | Substitute Module Test | A9.04 |
| Run time: | 1 min. |  |
| Set-up time: | 0 | |

Test operation of substitute A9 Module by repeating test performed on A9 Module before substitution.

Run Test

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **3** **5** **HZ**.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A9.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A9.

A9 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Additional A9 Tests | A9.05 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

The A9 failure conditions for arriving at this task are described below. Follow the procedure for the condition which fits your module.

- Condition 1: Instrument Level Self Test indicated A9 failure.
- Condition 2: A12 Module RF Power Test indicated A9 failure.
- Condition 3: Instrument must be set to a specific operating condition to detect A9 failure.

Condition 1

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.
2. **SHIFT** **SPCL** **3** **3** **0** **HZ**.
3. When "WAITING FOR SETUP 1.V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS.VI" appears:
 - Use **MSSG** to scroll through messages.
 - Record A9 error codes.

COMMENT

If any error codes are displayed for modules A01-A07, you need to isolate those failure(s) before performing the A9 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

5. Return to foldout.
-

A9 MODULE DIAGNOSTICS


Condition 2

1.
 (Hold shift key until
 "100.000000MZ -140.0DM" appears,
 to override 20 second reset test.)
2.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W26 from module at A9A2 J3.
 - Connect YELLOW PM cable and adapter to cable W26.
 - to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W26 to module at A9A2 J3.
 - Disconnect cable W30 from module at A9A1 J4.
 - Connect PM cable to module at A9A1 J4.
 - to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W30 to module at A9A1 J4.
 - to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use to scroll through messages.
 - Record error code(s) displayed for A9.
7. Return to foldout.

Condition 3

1. Set instrument to operating condition which causes A9 failure.
 2. Record instrument set-up and error message(s).
 3. Return to foldout.
-

A9 MODULE DIAGNOSTICS

| | | |
|--------------|-----------------------|------------------------------------------------------------------------------------|
| Type: | Additional Substitute | A9.06 |
| Run time: | A9 Tests |  |
| Set-up time: | Conditional | |

Test operation of substitute A9 Module by repeating test(s) performed on A9 Module before substitution.

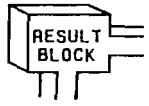
- Condition 1: Instrument Level Self Test indicated A9 failure.
- Condition 2: A12 Module RF Power Test indicated A9 failure.
- Condition 3: Instrument must be set to a specific operating condition to detect A9 failure.

Condition 1

1. **[INSTR PRESET] [SHIFT]**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.
2. **[SHIFT] [SPCL] [3] [3] [0] [HZ]**.
3. When "WAITING FOR SETUP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS.VI" appears:
 - Use **[MSSG]** to scroll through messages.
 - Record A9 error codes.

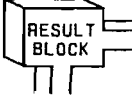
COMMENT

If any error codes are displayed for modules A01-A07, you need to isolate those failure(s) now.

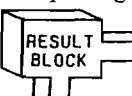
5. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A9 FURTHER.

A9 MODULE DIAGNOSTICS


Condition 2

1. **[INSTR PRESET] [SHIFT]**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **[SHIFT] [SPCL] [3] [3] [3] [7] [HZ]**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W26 from module at A9A2 J3.
 - Connect **YELLOW PM** cable and adapter to cable W26.
 - **[HZ]** to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W26 to module at A9A2 J3.
 - Disconnect cable W30 from module at A9A1 J4.
 - Connect **PM** cable to module at A9A1 J4.
 - **[HZ]** to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W30 to module at A9A1 J4.
 - **[HZ]** to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **[MSSG]** to scroll through messages.
 - Record error code(s) displayed for A9.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A9 FURTHER.

Condition 3

1. Set instrument to operating condition which causes A9 failure.
2. Record instrument set-up and error message(s).
3. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A9 FURTHER.

A9 MODULE DIAGNOSTICS

| | | |
|--------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A9.07 |
| Run time: | 0 |  |
| Set-up time: | 5 min. | |

Connect Module


1. Switch instrument to **Standby**.
2. Disconnect cables **W3**, **W26** and **W30** from substitute **A9 Module**.

CAUTION

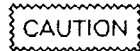
When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

3. Reconnect cables **W3**, **W26** and **W30** to **A9 Module**.
4. Turn instrument on.
5. Return substitute **A9 Module** to On-Site Service Kit.
6. Return to foldout.

A9 MODULE DIAGNOSTICS

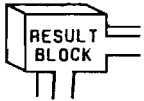
| | | |
|---------------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A9.08 |
| Run time: | 2 min. 30 sec. |  |
| Set-up time: | 3 min. | |

RF signal level is measured using Internal Power Meter (PM).




Do not permit end of Internal Power Meter cable to short circuit instrument by coming in contact with any exposed circuitry.

Run Test

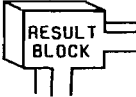
1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **6** **8** **1** **2** **HZ**
(To check input levels only.)
3. **3** **3** **7** **HZ**.
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable **W26** from module at **A9A2 J3**.
 - Connect **YELLOW PM** cable and adapter to cable **W26**.
 - **HZ** to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable **W26** to module at **A9A2 J3**.
 - **HZ** to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for **A9**.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST RF POWER**.

A9 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A9.09 |
| Run time: | 2 min. 30 sec. |  |
| Set-up time: | 3 min. | |

RF signal level is measured using Internal Power Meter (PM).

Run Test

1. **INSTR PRESET** **SHIFT**
Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **6** **8** **1** **2** **HZ**
(To check input levels only.)
3. **3** **3** **7** **HZ**
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W26 from A6 Module at A6A2 J6. (See Top View Diagram inside Top Cover to locate W26 connection on A6 Module.)
 - Connect YELLOW PM cable to module at A6A2 J6.
 - **HZ** to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W26 to module at A6A2 J6.
 - **HZ** to continue test.
6. When "DIAG DONE HIT MSSGS.V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A9.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST CABLE W26.

A9 MODULE DIAGNOSTICS

| | |
|--------------|---------------------|
| Type: | 3; Bit Transmission |
| Run time: | 0 min. |
| Set-up time: | 5 min. |

A9.10

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to **A9 Module Data** and Clock lines.

COMMENT

If any control line level measures bad, it is not necessary to test remaining lines; proceed directly to step 23.

Run Test

1. Switch instrument to **Standby**:
 - Disconnect cable **W3** from module at **A9A2 J1**.
 - Plug end of **W3** into **26 pin** test connector, from On-Site Service Kit.

NOTE

*Find arrowhead on test connector and align with arrowhead on cable plug **W3P2**.*

CAUTION

To prevent damage to the Power Supply and Control sections, do not permit the exposed pins on the test connector to short circuit.

2. Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A9 MODULE CABLE CONNECTION LOCATOR** on fold-out for VM IN location.)
 3. Turn instrument on.
-

A9 MODULE DIAGNOSTICS

Data and Clock Control Lines

Check High State

4.
 (To specify high state.)

NOTE

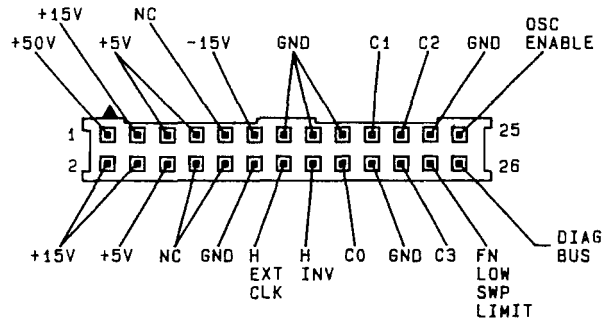
A "0" will appear in display indicating that these data bits will be set low. However, the bits are inverted in the Control Section before they are sent to A9.

5. Enter **Bit Select Keys**, as indicated in Table 3H-1. **W3P2 Control Bits**, for Control Line to be tested.
6. Connect VM probe to **Control Line** at **Pin Number** indicated in Table 3H-1. (See Figure 3H-1. Cable Plug W3P2 Signal Locator.)

Table 3H-1. W3P2 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 5 and 10) | Pin Number (Step 6) |
|------------|--------------|-----------------------------------------------------------------------------------------------|------------------------|
| 1 | C0 | <input type="text" value="3"/> <input type="text" value="2"/> <input type="text" value="HZ"/> | 18 |
| 2 | C1 | <input type="text" value="3"/> <input type="text" value="3"/> <input type="text" value="HZ"/> | 19 |
| 3 | C2 | <input type="text" value="3"/> <input type="text" value="4"/> <input type="text" value="HZ"/> | 21 |
| 4 | C3 | <input type="text" value="3"/> <input type="text" value="5"/> <input type="text" value="HZ"/> | 22 |
| 5 | H INV | <input type="text" value="3"/> <input type="text" value="6"/> <input type="text" value="HZ"/> | 16 |
| 6 | H EXT CLK | <input type="text" value="3"/> <input type="text" value="7"/> <input type="text" value="HZ"/> | 14 |

A9 MODULE DIAGNOSTICS

Figure 3H-1. Cable Plug W3P2 Signal Locator


7. (To enable voltmeter.)
8. Voltage should read approximately +2.5 to +5.5 Vdc. (to repeat measurement.)

Check Low State

9. (To specify low state.)

NOTE

A "1" will appear in display indicating that these data bits will be set high. However, the bits are inverted in the Control Section before they are sent to A9.

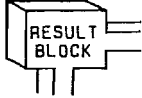
10. Enter **Bit Select Keys**, as indicated in **Table 3H-1. W3P2 Control Bits**, for same **Control Line**.
 11. (To enable voltmeter.)
 12. Voltage should read approximately -0.5 to +1.5 Vdc. (to repeat measurement.)
 13. Repeat procedure for each **Control Line** shown in **Table 3H-1**.
-

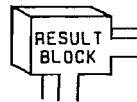
A9 MODULE DIAGNOSTICS

Oscillator Enable**Check High State**


14. **SHIFT** **SPCL** **3** **6** **0** **1**
(To specify high state.)
15. **3** **8** **HZ**
(To select bit.)
16. Connect **VM** probe to test connector line **OSC ENABLE** (pin 25).
17. **2** **5** **HZ**
(To enable voltmeter.)
18. Voltage should read approximately **+2.5 to +5.5 Vdc**.
(**5** **HZ** to repeat measurement.)

Check Low State

19. **SHIFT** **SPCL** **3** **6** **0** **2**
(To specify low state.)
20. **3** **8** **HZ**
(To select bit.)
21. **2** **5** **HZ**
(To enable voltmeter.)
22. Voltage should read approximately **-0.5 to +1.5 Vdc**.
(**5** **HZ** to repeat measurement.)
23. Record test results.
24. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST CONTROL BITS**.



A9 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A9.11 |
| Run time: | 3 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to A9 Module Clock and Data lines.

Run Test

1. Switch instrument to **Standby**.
2. Extend **A9 Module** on extender posts, from On-Site Service Kit, and disconnect cable **W3** from **A5 Assembly** at **A5J3**. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate **A9 Module** extension and **A5 cable** disconnection information.)
3. Connect **VM probe**:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A9 MODULE CABLE CONNECTION LOCATOR** on foldout for **VM IN** location.)
4. Turn instrument on.

NOTE

It is only necessary to perform this test on failing control line.

Data and Clock Control Lines**Check High State**

5. SHIFT SPCL 3 6 0 2
(To specify high state.)

NOTE

A "0" will appear in display indicating that these data bits will be set low. However, the bits are inverted in the Control Section before they are sent to A9.

6. Enter Bit Select Keys, as indicated in Table 3H-2. **A5J3 Control Bits**, for Control Line to be tested.
-

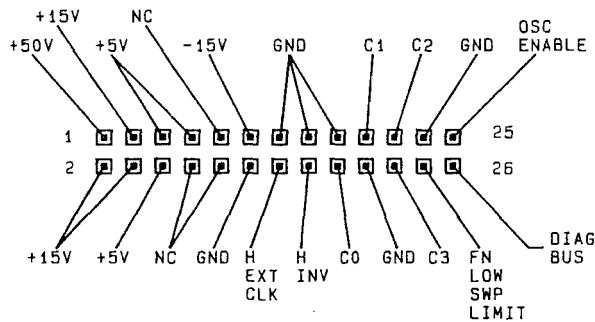
A9 MODULE DIAGNOSTICS

7. Connect VM probe to Control Line at Pin Number indicated in Table 3H-2. (See Figure 3H-2. Cable Plug A5J3 Signal Locator.)

Table 3H-2. A5J3 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 6 and 11) | Pin Number (Step 7) |
|------------|--------------|-------------------------------------|------------------------|
| 1 | C0 | [3] [2] [HZ] | 18 |
| 2 | C1 | [3] [3] [HZ] | 19 |
| 3 | C2 | [3] [4] [HZ] | 21 |
| 4 | C3 | [3] [5] [HZ] | 22 |
| 5 | H INV | [3] [6] [HZ] | 16 |
| 6 | H EXT CLK | [3] [7] [HZ] | 14 |

Figure 3H-2. Cable Plug A5J3 Signal Locator



8. [2] [5] [HZ]
(To enable voltmeter.)
9. Voltage should read approximately +2.5 to +5.5 Vdc.
[5] [HZ] to repeat measurement.)

Check Low State

10. [SHIFT] [SPCL] [3] [6] [0] [1]
(To specify low state.)

A9 MODULE DIAGNOSTICS

NOTE

A "1" will appear in display indicating that these data bits will be set high. However, the bits are inverted in the Control Section before they are sent to A9.

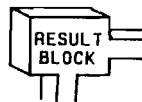
11. Enter **Bit Select Keys**, as indicated in Table 3H-2. **W3P2 Control Bits**, for same **Control Line**.
12.
(To enable voltmeter.)
13. Voltage should read approximately **-0.5 to +1.5 Vdc**.
(to repeat measurement.)

Oscillator Enable**Check High State**


14.
(To specify high state.)
15.
(To select bit.)
16. Connect **VM** probe to test connector line **OSC ENABLE** (pin 25).
17.
(To enable voltmeter.)
18. Voltage should read approximately **+2.5 to +5.5 Vdc**.
(to repeat measurement.)

Check Low State

19.
(To specify low state.)
20.
(To select bit.)
21.
(To enable voltmeter.)
22. Voltage should read approximately **-0.5 to +1.5 Vdc**.
(to repeat measurement.)
23. Record test results.
24. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **CTL LINES**.



A9 MODULE DIAGNOSTICS

| | | |
|---------------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A9.12 |
| Run time: | 2 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to check power supply levels at inputs to A9 Module.

Run Test

- Switch instrument to Standby:
 - Disconnect **W3** from A9 at **A9A2 J1**.
 - Plug end of **W3** into 26 pin test connector, from On-Site Service Kit.

NOTE

*Find arrowhead on test connector and align with arrowhead on cable plug **W3P2**.*

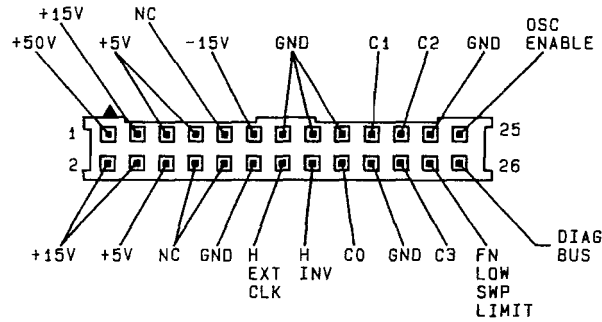
- Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A9 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
- Turn instrument on and enter:

 (To enable Internal Voltmeter.)

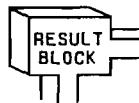
A9 MODULE DIAGNOSTICS

4. Measure voltage levels:
 - Connect VM probe to test connector pin for each power supply line (see Figure 3H-3. Cable Plug W3P2 Signal Locator).
 - 5 HZ (To make each voltage measurement.)


Figure 3H-3. Cable Plug W3P2 Signal Locator



5. Record test results.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for TEST Vdc.



A9 MODULE DIAGNOSTICS

| | | |
|---------------------|-------------------------|------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A9.13 |
| Run time: | 2 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to check power supply levels at A5J3.

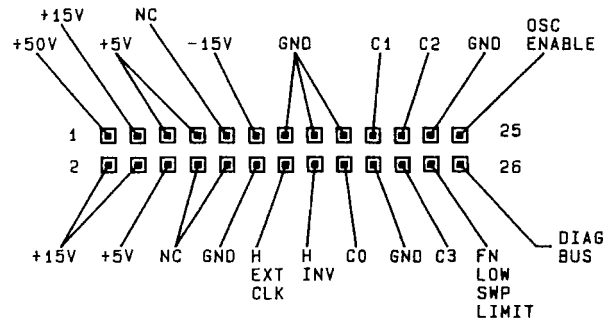
Run Test

1. Switch instrument to **Standby**.
2. Extend **A9 Module** on extender posts, from On-Site Service Kit, and disconnect cable **W3** from **A5 Assembly** at **A5J3**. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate **A9 Module** extension and **A5 cable** disconnection information.)
3. Connect **VM** probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A9 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
4. Turn instrument on and enter:
 (SHIFT) (SPCL) (3) (2) (5) (HZ)
 (To enable Internal Voltmeter.)

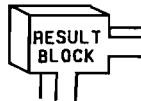
A9 MODULE DIAGNOSTICS

5. Measure voltage levels at **A5J3**:
 - Access signals from solder-side of **A5J3**. (See Figure 3H-4. **A5J3 Signal Locator**.)
 - **5** **HZ** (To make each voltage measurement.)

Figure 3H-4. A5J3 Signal Locator
(Solder-Side View)

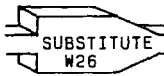


6. Record test results.
7. Return to folout:
 - Determine next task by comparing test results to conditions shown in each **PS LINES**.



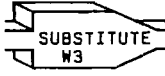
for **TEST CABLE W3**

A9 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A9.14 |
| Run Time: | 5 min. |  |
| Set-up Time: | 1 min. | |

1. Testing has shown cable **W26** to be suspect, temporarily replace with a test cable from the On-Site Service Kit. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.
2. Refer to **REPLACEABLE PARTS**, in the HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.
3. Return to foldout.

A9 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A9.15 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

Testing has shown cable **W3** to be suspect, temporarily replace with a spare ribbon cable if available. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.

Refer to **REPLACEABLE PARTS**, in the HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.


CAUTION

When connecting ribbon cable to A9 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W3

1. Switch instrument to **Standby** to connect cable **W3** to **A5** Assembly and **A9** Module. (Refer to **MECHANICAL PROCEDURES** for information on connecting cable **W3** to **A5J3**.)
2. Return to foldout.

A9 MODULE DIAGNOSTICS

| | | |
|--------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A9.16 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

CAUTION

When connecting ribbon cable to A9 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W3

1. Switch instrument to **Standby** to reconnect cable **W3** to **A5** Assembly or **A9** Module. (Refer to **MECHANICAL PROCEDURES** for information on reconnecting cable **W3** to **A5J3**.)
2. Return to foldout.

A9 THEORY OF OPERATION

3H-4. A9 IF LOOP MODULE**COMMENT**

It is not to essential to understand the internal operation of a module to make an on-site repair.

The **A9 Module** contains a phase locked loop which is referenced to the **A6 Module** timebase output (**500 kHz**). A fractional-N divider in the loop's feedback path and compensating circuitry in the oscillator tune path allow frequency steps of **.05 Hz** at the output.

The fractional-N control signals are decoded to select one of six voltage controlled oscillators to produce the output frequency range of **45 to 90 MHz**. The **A9 Module** output provides the reference signal for the **A12 Module**.

See the **A9 MODULE SIMPLIFIED BLOCK DIAGRAM** for further understanding of the **A9 Module's** internal operation.

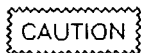
A11 REFERENCE LOOP MODULE

3I-1. INTRODUCTION

The **MODULE LEVEL DIAGNOSTICS (MLD)** contained in this section are used to further interrogate the **A11 Module**. The objective is to isolate the failure indicated for this module to the module itself or to a part on which it depends for operation.

NOTE

*At this level of testing, recommendations for further action are made on the assumption that the **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** showed no failures for modules **A01-A09**. (For information on using the on-site diagnostics, refer to the **INTRODUCTION** section of this manual.)*



When tightening the coax cable connectors, do not exceed a torque of 1.0 Nm or .74 ft-lbs (slightly tighter than finger tight).

When coax cables are disconnected from instrument, do not allow loose ends to come in contact with any exposed circuitry susceptible to short circuiting.

Test Instructions

1. The instrument's **Top Cover** must be removed to run many of these tests. (Refer to the table shown on the foldout in **MECHANICAL PROCEDURES** to locate instructions.)
2. The last page in this group of tests is a foldout and should be pulled out now.
3. Turn to the next page to begin the **A11 MLD**.

A11 INPUTS VERIFICATION

3I-2. INTRODUCTION

The first step in isolating a failure in the **A11 Module** is to verify correct operation of each input signal. Use the **A11 INPUTS VERIFICATION** procedure to check each signal path into the A11 Module.

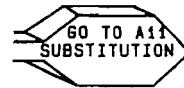
A11 Inputs Verification Instructions

1. Find **A11 INPUTS VERIFICATION** on the foldout.
2. The Task Sequence Diagrams, shown under **A11 INPUTS VERIFICATION**, are separated into three checks: **RF**, **Control** and **Power Supply** signals.
3. Use the Task Sequence Diagrams to direct you through the verification process. Each Task Arrow shown in a diagram indicates a task title and task number. The tasks are numbered according to the order they are arranged in this section. Turn to the task indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown under **1. A11 RF INPUT CHECK**.

NOTE

The A11 MODULE I/O SIGNALS DIAGRAM shows all parts which the A11 Module depends on for operation.

A11 MODULE SUBSTITUTION


A11.01**3I-3. INTRODUCTION**

If you were unable to isolate the failure using the **A11 INPUTS VERIFICATION** procedure, then follow the Task Sequence Diagram, shown under **A11 MODULE SUBSTITUTION**, to substitute in a known good module from the On-site Service Kit.

A11 Substitution Instructions

1. Find **A11 MODULE SUBSTITUTION** on the foldout.
2. Use the Task Sequence Diagram, shown under **A11 MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
4. Begin now by performing the first task shown on the diagram.

A11 MODULE DIAGNOSTICS

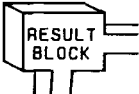
| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A11.02 |
| Run time: | 20 sec. |  |
| Set-up time: | 3 min. | |

RF signal level is measured using Internal Power Meter (PM).


CAUTION

Do not permit end of Internal Power Meter cable to short circuit instrument by coming in contact with any exposed circuitry.

Run Test

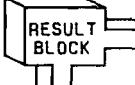
1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **6** **8** **1** **3** **HZ**
(To check input levels only.)
3. **3** **3** **1** **HZ**.
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W25 from module at A11A3 J4.
 - Connect **YELLOW PM** cable and adapter to cable W25.
 - **HZ** to continue test.
5. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W25 to module at A11A3 J4.
 - Disconnect cable W24 from module at A11A1 J3.
 - Connect **YELLOW PM** cable and adapter to cable W24.
 - **HZ** to continue test.
6. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W24 to module at A11A1 J3.
 - **HZ** to continue test.
7. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
8. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST RF POWER**.

A11 MODULE DIAGNOSTICS

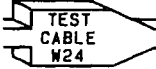
| | | |
|--------------|---------------------|-------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A11.03 |
| Run time: | 10 sec. |  |
| Set-up time: | 2 min. | |

RF signal level is measured using Internal Power Meter (PM).

Run Test

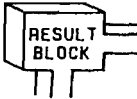
1. **INSTR PRESET** **SHIFT**
 Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **6** **8** **1** **2** **HZ**
 (To check input levels only.)
3. **3** **3** **1** **HZ**
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W25 from A7 Module at A7A1 J3. (See Top View Diagram inside Top Cover to locate W25 connection on A7 Module.)
 - Connect **YELLOW PM** cable to module at A7A1 J3.
 - **HZ** to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W25 to module at A7A1 J3.
 - **HZ** to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST CABLE W25**.

A11 MODULE DIAGNOSTICS


| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A11.04 |
| Run time: | 15 sec. |  |
| Set-up time: | 2 min. | |

RF signal level is measured using Internal Power Meter (PM).

Run Test

1. **INSTR PRESET** **SHIFT**
Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **6** **8** **1** **3** **HZ**
(To check input levels only.)
3. **3** **3** **1** **HZ**
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W25 from module at A7A1 J3. (See Top View Diagram inside Top Cover to locate W25 connection on A7 Module.)
 - Connect **YELLOW PM** cable to module at A7A1 J3.
 - **HZ** to continue test.
5. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W25 to module at A7A1 J3.
 - Disconnect cable W24 from module at A6A1 J2.
 - Connect **YELLOW PM** cable to module at A6A1 J2.
 - **HZ** to continue test.
6. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W24 to module at A6A1 J2.
 - **HZ** to continue test.
7. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
8. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST CABLE W24**.

A11 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A11.05 |
| Run time: | 3 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to **A11 Module** on Clock and Data control lines.

Run Test

- Switch instrument to **Standby**:
 - Disconnect cable **W4** from module at **A11A1 J1**.
 - Plug end of **W4** into **16 pin** test connector, from On-Site Service Kit.

NOTE

*Find arrowhead on test connector and align with arrowhead on cable plug **W4P2**.*

CAUTION

To prevent damage to the Power Supply and Control sections, do not permit the exposed pins on the test connector to short circuit.

- Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A11 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
- Turn instrument on.

Clock Line**Check High State**

- SHIFT

SPCL

3

6

0

2

(To specify high state.)

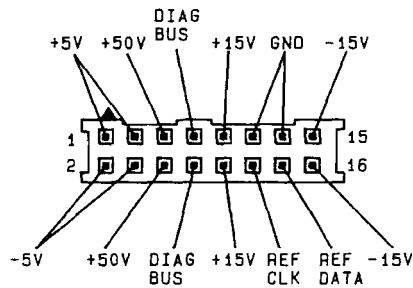
NOTE

A "0" will appear in display indicating that the data bit will be set low. However, the bit is inverted in the Control Section before it is sent to A11.

A11 MODULE DIAGNOSTICS

5.
(To select bit.)
6. Connect VM probe to test connector line REF CLK (pin 12). (See Figure 3I-1. Cable Plug W4P2 Signal Locator.)

Figure 3I-1. Cable Plug W4P2 Signal Locator



7.
(To enable voltmeter.)
8. Voltage should read approximately +2.5 to +5.5 Vdc.
 to repeat measurement.)

Check Low State

9.
(To specify low state.)

NOTE

A "1" will be appear in display indicating that the data bit will be set high. However, the bit is inverted in the Control Section before it is sent to A11.

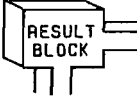
10.
(To select bit.)
 11.
(To enable voltmeter.)
 12. Voltage should read approximately -0.5 to +1.5 Vdc.
 to repeat measurement.)
-

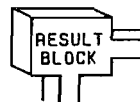
A11 MODULE DIAGNOSTICS

Data Line**Check High State**


13. SHIFT SPCL 3 6 0 2
(To specify high state.)
14. 4 3 HZ
(To select bit.)
15. Connect VM probe to test connector line REF DATA (pin 14). (See Figure 3I-1. Cable Plug W4P2 Signal Locator.)
16. 2 5 HZ
(To enable voltmeter.)
17. Voltage should read approximately +2.5 to +5.5 Vdc.
(5 HZ) to repeat measurement.)

Check Low State

18. SHIFT SPCL 3 6 0 1
(To specify low state.)
19. 4 3 HZ
(To select bit.)
20. 2 5 HZ
(To enable voltmeter.)
21. Voltage should read approximately -0.5 to +1.5 Vdc.
(5 HZ) to repeat measurement.)
22. Record test results.
23. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST CONTROL BITS.



A11 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A11.06 |
| Run time: | 3 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to **A11 Module** on Clock and Data control lines.

Run Test

1. Switch instrument to **Standby**.
2. Extend **A11 Module** on extender posts, from On-Site Service Kit or instrument and disconnect cable **W4** from **A5 Assembly** at **A5J4**. (See table on foldout in **MECHANICAL PROCEDURES** to locate **A11 Module** extension and **A5 cable** disconnection information.)
3. Connect **VM** probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A11 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
4. Turn instrument on.

Clock Line**Check High State**

5.
(To specify high state.)

NOTE

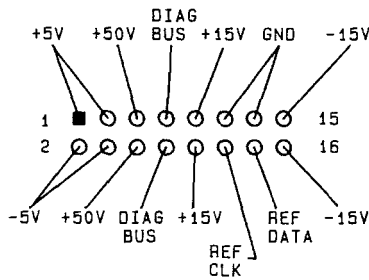
A "0" will appear in display indicating that the data bit will be set low. However, the bit is inverted in the Control Section before it is sent to A11.

6.
(To select bit.)
-

A11 MODULE DIAGNOSTICS

- 7. Connect VM probe to solder-side of A5J4, line REF CLK (pin 12). (See Figure 3I-2. A5J4 Signal Locator.)

Figure 3I-2. A5J4 Signal Locator (Solder-Side View)



- 8. (To enable voltmeter.)
- 9. Voltage should read approximately +2.5 to +5.5 Vdc. to repeat measurement.)

Check Low State

- 10. (To specify low state.)

NOTE

A "1" will be displayed indicating that the data bit will be set high. However, the bit is inverted in the Control Section before it is sent to A11.

- 11. (To select bit.)
- 12. (To enable voltmeter.)
- 13. Voltage should read approximately -0.5 to +1.5 Vdc. to repeat measurement.)

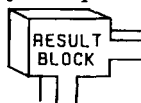
A11 MODULE DIAGNOSTICS

Data Line**Check High State**

14. **SHIFT** **SPCL** **3** **6** **0** **2**
(To specify high state.)
15. **4** **3** **HZ**
(To select bit.)
16. Connect VM probe to solder-side of A5J4, line REF DATA (pin 14). (See Figure 3I-2. A5J4 Signal Locator.)
17. **2** **5** **HZ**
(To enable voltmeter.)
18. Voltage should read approximately +2.5 to +5.5 Vdc.
(**5** **HZ** to repeat measurement.)


Check Low State

19. **SHIFT** **SPCL** **3** **6** **0** **1**
(To specify low state.)
20. **4** **3** **HZ**
(To select bit.)
21. **2** **5** **HZ**
(To enable voltmeter.)
22. Voltage should read approximately -0.5 to +1.5 Vdc.
(**5** **HZ** to repeat measurement.)
23. Record test results.
24. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each CTL LINES.



for TEST CABLE W4

A11 MODULE DIAGNOSTICS

| | | |
|--------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A11.07 |
| Run time: | 3 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to check power supply levels at inputs to A11 Module.

Run Test

- Switch instrument to Standby:
 - Disconnect W4 from A11 at A11A1 J1.
 - Plug end of W4 into 16 pin test connector, from On-Site Service Kit.

NOTE

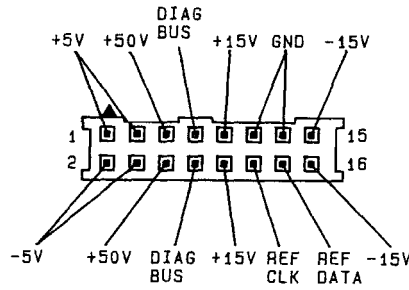
Find arrowhead on test connector and align with arrowhead on cable plug W4P2.

- Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (A4TP1). (See A11 MODULE CABLE CONNECTION LOCATOR on fold-out for VM IN location.)
- Turn instrument on and enter:
 SHIFT SPCL 3 2 5 HZ
 (To enable Internal Voltmeter.)

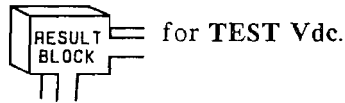
A11 MODULE DIAGNOSTICS

4. Measure voltage levels:
 - Connect VM probe to test connector pin for each power supply line (see Figure 3I-3. Cable Plug W4P2 Signal Locator).
 - [5] [HZ] (To make each voltage measurement.)


Figure 3I-3. Cable Plug W4P2 Signal Locator



5. Record test results.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each



A11 MODULE DIAGNOSTICS

| | | |
|--------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A11.08 |
| Run time: | 3 min. |  |
| Set-up time: | 3 min. | |

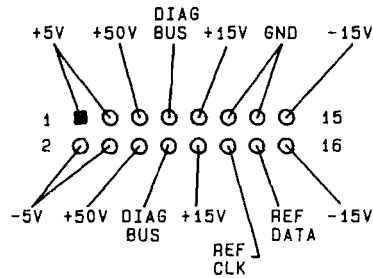
Internal Voltmeter (VM) is used to check power supply levels at A5J4.

Run Test

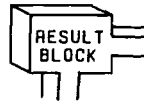
1. Switch instrument to **Standby**.
2. Extend **A11 Module** on extender posts, from On-Site Service Kit or instrument and disconnect cable **W4** from **A5 Assembly** at **A5J4**. (See table on foldout in **MECHANICAL PROCEDURES** to locate **A11 Module** extension and **A5** cable disconnection information.)
3. Connect **VM** probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A11 MODULE CABLE CONNECTION LOCATOR** on foldout for **VM IN** location.)
4. Turn instrument on and enter:
 (SHIFT) (SPCL) (3) (2) (5) (HZ)
 (To enable Internal Voltmeter.)
5. Measure voltage levels at **A5J4**:
 - Access signals from solder-side of **A5J4**. (See Figure 3I-4. **A5J4 Signal Locator**.) It may be necessary to extend the **A11 Module** to access the solder-side of **A5J4**. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information.)
 - (5) (HZ) (To make each voltage measurement.)

A11 MODULE DIAGNOSTICS

**Figure 3I-4. A5J4 Signal Locator
(Solder-Side View)**




6. Record test results.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **PS LINES.**



for **TEST CABLE W4**

A11 MODULE DIAGNOSTICS

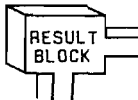
| | | |
|--------------|---------------------|-------------------------------------------------------------------------------------|
| Type: | 1; Loop Lock/Unlock | A11.09 |
| Run time: | 15 sec. |  |
| Set-up time: | 0 | |

Run Test

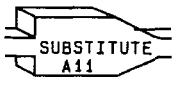
1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.00000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **2** **9** **HZ**.
3. When "DIAG DONE HIT MSSG.V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A11. If "TEST 1 OF A11 (PASSED or FAILED)" is not displayed, rerun test.

COMMENT

If any error codes are displayed for modules A01-A09, you need to isolate those failure(s) before performing the A11 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST A11 MODULE.

A11 MODULE DIAGNOSTICS

| | | |
|---------------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | A11.10 |
| Run time: | 0 |  |
| Set-up time: | 5 min. | |

The following describes the technique for connecting a known good A11 Module **without removing** the A11 module in the instrument.

Connect Substitute Module

1. Switch instrument to Standby.
2. Disconnect cables **W4**, **W24**, **W25** and **W31** from **A11 Module** (see **A11 MODULE CABLE CONNECTION LOCATOR** on foldout).
3. Without removing **A11 Module** from instrument, carefully lay substitute **A11 Module** on top of modules **A6**, **A7** and **A9**.

CAUTION

When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

4. Connect cables **W4**, **W24**, **W25** and **W31** to substitute module.

Down-Load Cal Data

CAUTION

*Use adequate Electrostatic Discharge Techniques when handling the **A20 Calibration Module**.*

5. Remove from On-Site Service Kit **A20 Calibration Module** provided for substitute A11 Module.
-

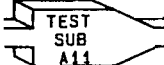
A11 MODULE DIAGNOSTICS

CAUTION

Check that switch SI on A20 Module is switched up to its "PROTECTED" position.

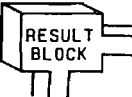
6. With instrument switched to Standby, connect A20 Module to A3 Module at A3J3 (see A11 MODULE CABLE CONNECTION LOCATOR on foldout).
7. Turn instrument on.
8. When "100.000000 MZ -140.00 DM" appears:
 - Slide switch on left side of A3S2 on A3 Module back toward rear of instrument (see A11 MODULE CABLE CONNECTION LOCATOR on foldout).
9. SHIFT SPCL 3 7 3 1 HZ
10. When "TRANSFER VERIFIED .U613" appears:
 - Slide A3S2 forward toward front of instrument to protect A3 Module's memory.
11. Switch Instrument to Standby and remove A20 Module. Replace A20 Module in On-Site Service Kit.
12. Return to foldout.

A11 MODULE DIAGNOSTICS


| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | Substitute Module Test | A11.11 |
| Run time: | 1 min. |  |
| Set-up time: | 0 | |

Test operation of substitute A11 Module by repeating test performed on A11 Module before substitution.

Run Test

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **2** **9** **HZ**.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A11. If "TEST 1 OF A11 (passed or failed)" is not displayed, rerun test.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A11.

A11 MODULE DIAGNOSTICS

| | | |
|--------------|----------------------|------------------------------------------------------------------------------------|
| Type: | Additional A11 Tests | A11.12 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

The **A11** failure conditions for arriving at this task are described below. Follow the procedure for the condition which fits your module.

- Condition 1:** Instrument Level Self Test indicated A11 failure.
- Condition 2:** A12 Module RF Power Test indicated A11 failure.
- Condition 3:** Instrument must be set to a specific operating condition to detect A11 failure.

Condition 1

1.
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. .
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS.VI" appears:
 - Use to scroll through messages.
 - Record **A11** error codes.

COMMENT

If any error codes are displayed for modules A01-A09, you need to isolate those failure(s) before performing the A11 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

5. Return to foldout.
-

A11 MODULE DIAGNOSTICS


Condition 2

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W25 from module at A11A3 J4.
 - Connect YELLOW PM cable and adapter to cable W25.
 - to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W25 to module at A11A3 J4.
 - Disconnect cable W24 from module at A11A1 J3.
 - Connect PM cable to module at A11A1 J3.
 - to continue test.
5. When "WAITING FOR SET-UP 3 .V26" appears:
 - Reconnect cable W24 to module at A11A1 J3.
 - Disconnect cable W31 from module at A11A3 J2.
 - Connect PM cable to module at A11A3 J2.
 - to continue test.
6. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W31 to module at A11A3 J2.
 - to continue test.
7. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use to scroll through messages.
 - Record error code(s) displayed for A11.
8. Return to foldout.

Condition 3

1. Set instrument to operating condition which causes A11 failure.
 2. Record instrument set-up and error message(s).
 3. Return to foldout.
-

A11 MODULE DIAGNOSTICS

| | | |
|---------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Type: | Additional Substitute All Tests | A11.13 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

Test operation of substitute A11 Module by repeating test(s) performed on A11 Module before substitution.

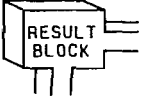
- Condition 1:** Instrument Level Self Test indicated A11 failure.
- Condition 2:** A12 Module RF Power Test indicated A11 failure.
- Condition 3:** Instrument must be set to a specific operating condition to detect A11 failure.

Condition 1

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.
2. **SHIFT** **SPCL** **3** **3** **0** **HZ**.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use **MSSG** to scroll through messages.
 - Record **A11** error codes.

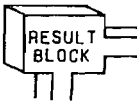
COMMENT

If any error codes are displayed for modules A01-A09, you need to isolate those failure(s) now.

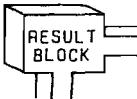
5. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A11 FURTHER**.

A11 MODULE DIAGNOSTICS


Condition 2

1. **[INSTR PRESET] [SHIFT]**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **[SHIFT] [SPCL] [3] [3] [3] [1] [HZ]**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable **W25** from module at **A11A3 J4**.
 - Connect **YELLOW PM** cable and adapter to cable **W25**.
 - **[HZ]** to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable **W25** to module at **A11A3 J4**.
 - Disconnect cable **W24** from module at **A11A1 J3**.
 - Connect **PM** cable to module at **A11A1 J3**.
 - **[HZ]** to continue test.
5. When "WAITING FOR SET-UP 3 .V26" appears:
 - Reconnect cable **W24** to module at **A11A1 J3**.
 - Disconnect cable **W31** from module at **A11A3 J2**.
 - Connect **PM** cable to module at **A11A3 J2**.
 - **[HZ]** to continue test.
6. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable **W31** to module at **A11A3 J2**.
 - **[HZ]** to continue test.
7. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **[MSSG]** to scroll through messages.
 - Record error code(s) displayed for **A11**.
8. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A11 FURTHER.**

Condition 3

1. Set instrument to operating condition which causes **A11** failure.
 2. Record instrument set-up and error message(s).
 3. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A11 FURTHER.**
-

A11 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|-------------------------------------------------------------------------------------|
| Type: | Module Replacement | A11.14 |
| Run time: | 10 sec. |  |
| Set-up time: | 5 min. | |

Connect Module

1. Switch instrument to Standby.
2. Disconnect cables **W4**, **W24**, **W25** and **W31** from substitute **A11 Module**.

CAUTION

When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

3. Reconnect cables **W4**, **W24**, **W25** and **W31** to **A11 Module**.
4. Return substitute **A11 Module** to On-Site Service Kit.

Down-Load Cal Data

CAUTION

*Use adequate Electrostatic Discharge Techniques when handling the **A20 Calibration Module**.*

5. After making sure that **A20 Module** for substitute **A11 Module** has been returned to On-Site Service Kit, remove **A20 Calibration Module** from Rear Panel (see **MECHANICAL PROCEDURES** for removal information).
-

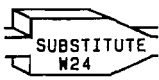
A11 MODULE DIAGNOSTICS

CAUTION

Check that switch S1 on A20 Module is switched up to its "PROTECTED" position.


6. With instrument switched to **Standby**, connect **A20 Module** to **A3 Module** at **A3J3**.
7. Turn instrument on.
8. When "**100.000000 MZ -140.00 DM**" appears:
 - Slide switch on left side of **A3S2** on **A3 Module** back toward rear of instrument.
9. **SHIFT** **SPCL** **3** **7** **3** **1** **HZ**
10. When "**TRANSFER VERIFIED .U613**" appears:
 - Slide **A3S2** forward toward front of instrument to protect **A3 Module's** memory.
11. Switch Instrument to **Standby** and remove **A20 Module**.
Replace A20 Module on Rear Panel.
12. Return to foldout.

A11 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A11.15 |
| Run Time: | 5 min. |  |
| Set-up Time: | 1 min. | |

1. Testing has shown cable **W24** or **W25** to be suspect, temporarily replace it with a test cable from the On-Site Service Kit. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.
2. Refer to **REPLACEABLE PARTS**, in HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.
3. Return to foldout.

A11 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A11.16 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

Testing has shown cable **W4** to be suspect, temporarily replace with a spare ribbon cable if available. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.

Refer to **REPLACEABLE PARTS**, in HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.


CAUTION

When connecting ribbon cable to A11 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W4

1. Switch instrument to **Standby** to connect cable **W4** to **A5 Assembly** and **A11 Module**. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on connecting cable **W4** to **A5J2**.)
2. Return to foldout.

A11 MODULE DIAGNOSTICS

| | | |
|--------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A11.17 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

CAUTION

When connecting ribbon cable to A11 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W4

1. Switch instrument to **Standby** to reconnect cable **W4** to **A5** Assembly or **A11** Module. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on reconnecting cable **W4** to **A5J2**.)
2. Return to foldout.

A11 THEORY OF OPERATION

3I-4. A11 REFERENCE LOOP MODULE**COMMENT**

It is not to essential to understand the internal operation of a module to make an on-site repair.

The **A11 Module** contains a phase lock loop which combines the **A6 FM Loop** output signal (the angle modulation source of the instrument) with the **A7 SAWR Loop** output (one of three UHF reference frequencies) to produce six UHF reference frequencies.

The output of the **A11 Module** is divided into two bands. Each band is generated by a separate voltage controlled oscillator (VCO).

Each of the three upper band frequencies is equal to the sum of the **A6 Module** output signal (135 MHz, plus FM or PM) and one of the three **A7 Module** output frequencies (742.5, 787.5 or 822.5 MHz).

The three lower band frequencies are equal to the difference between the **A6** and **A7 Modules** output frequencies; i.e., $607.5 = 742.5 - 135$.

The **A11 Module** output is the UHF reference for the **A12 Sum Loop/Divider Module**.

See the **A11 MODULE SIMPLIFIED BLOCK DIAGRAM** for further understanding of the **A11 Modules** internal operation.

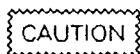
A12 SUM LOOP/DIVIDER MODULE

3J-1. INTRODUCTION

The **MODULE LEVEL DIAGNOSTICS (MLD)** contained in this section are used to further interrogate the **A12 Module**. The objective is to isolate the failure indicated for this module to the module itself or to a part on which it depends for operation.

NOTE

*At this level of testing, recommendations for further action are made on the assumption that the **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** showed no failures for modules **A01-A11**. (For information on using the on-site diagnostics, refer to the **INTRODUCTION** section of this manual.)*



When tightening the coax cable connectors, do not exceed a torque of 1.0 Nm or .74 ft-lbs (slightly tighter than finger tight).

When coax cables are disconnected from instrument, do not allow loose ends to come in contact with any exposed circuitry susceptible to short circuiting.

Test Instructions

1. The instrument's **Top Cover** must be removed to run many of these tests. (Refer to the table shown on the foldout in **MECHANICAL PROCEDURES** to locate instructions.)
2. The last page in this group of tests is a foldout and should be pulled out now.
3. Turn to the next page to begin the **A12 MLD**.

A12 INPUTS VERIFICATION

3J-2. INTRODUCTION

The first step in isolating a failure in the **A12 Module** is to verify correct operation of each input signal. Use the **A12 INPUTS VERIFICATION** procedure to check each signal path into the **A12 Module**.

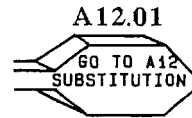
A12 Inputs Verification Instructions

1. Find **A12 INPUTS VERIFICATION** on the foldout.
2. The Task Sequence Diagrams, shown under **A12 INPUTS VERIFICATION**, are separated into three checks: **RF**, **Control** and **Power Supply** signals.
3. Use the Task Sequence Diagrams to direct you through the verification process. Each Task Arrow shown in a diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the page indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown under **1. A12 RF INPUT CHECK**.

NOTE

*The **A12 MODULE I/O SIGNALS DIAGRAM** shows all parts which the **A12 Module** depends on for operation.*

A12 MODULE SUBSTITUTION


3J-3. INTRODUCTION

If you were unable to isolate the failure using the **A12 INPUTS VERIFICATION** procedure, then follow the Task Sequence Diagram, shown under **A12 MODULE SUBSTITUTION**, to substitute in a known good module from the On-Site Service Kit.

A12 Substitution Instructions

1. Find **A12 MODULE SUBSTITUTION** on the foldout.
2. Use the Task Sequence Diagram, shown under **A12 MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
4. Begin now by performing the first task shown on the diagram.

A12 MODULE DIAGNOSTICS

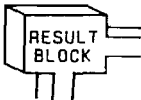
| | | |
|--------------|---------------------|-------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A12.02 |
| Run time: | 4 min. |  |
| Set-up time: | 3 min. | |

RF signal level is measured using Internal Power Meter (PM).

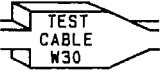
CAUTION

Do not permit end of Internal Power Meter cable to short circuit instrument by coming in contact with any exposed circuitry.

Run Test

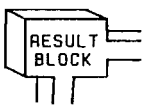
1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **6** **8** **1** **3** **HZ**
 (To check input levels only.)
3. **3** **4** **5** **HZ**.
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W31 from module at A12A2 J2.
 - Connect **YELLOW PM** cable and adapter to cable W31.
 - **HZ** to continue test.
5. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W31 to module at A12A2 J2.
 - Disconnect cable W30 from module at A12A3 J6.
 - Connect **YELLOW PM** cable and adapter to cable W30.
 - **HZ** to continue test.
6. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W30 to module at A12A3 J6.
 - **HZ** to continue test.
7. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record test results.
8. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST RF POWER**.

A12 MODULE DIAGNOSTICS


| | | |
|--------------|---------------------|-------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A12.03 |
| Run time: | 4 min. |  |
| Set-up time: | 2 min. | |

RF signal level is measured using Internal Power Meter (PM).

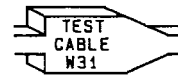
Run Test

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2.
 (To check input levels only.)
3.
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W31 from A11 Module at A11A3 J2. (See Top View Diagram inside Top Cover to locate W31 connection on A11 Module.)
 - Connect YELLOW PM cable to module at A11A3 J2.
 - to continue test.
5. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W31 to module at A11A3 J2.
 - Disconnect cable W30 from module at A9A1 J4.
 - Connect YELLOW PM cable to module at A9A1 J4.
 - to continue test.
6. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W30 to module at A9A1 J4.
 - to continue test.
7. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use to scroll through messages.
 - Record test results.
8. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST CABLE W30.

A12 MODULE DIAGNOSTICS

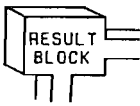
| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels |  |
| Run time: | 4 min. | |
| Set-up time: | 2 min. | |

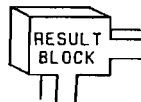
A12.04




RF signal level is measured using Internal Power Meter (PM).

Run Test

1.
 Hold shift key until
 "100.00000MZ -140.0DM" appears,
 to override 20 second reset test.)
2.
 (To check input levels only.)
3.
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W31 from A11 Module at A11A3 J2.
 (See Top View Diagram inside Top Cover to locate W31 connection on A11 Module.)
 - Connect **YELLOW PM** cable to module at A11A3 J2.
 - to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W31 to module at A11A3 J2.
 - to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use to scroll through messages.
 - Record test results.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST CABLE W31.



A12 MODULE DIAGNOSTICS

| | | |
|---------------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A12.05 |
| Run time: | 5 min. |  |
| Set-up time: | 5 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to A12 Module on Clock, Data and Divider control lines.

COMMENT

If any control line level is bad, it is not necessary to test remaining lines; proceed to step 24.

Run Test

1. Switch instrument to Standby:

NOTE

A12 Module must be lifted slightly to disconnect W5. Release module retaining clips (at each end of module) from slide posts. Lift module up high enough to disconnect W5.

- Disconnect cable W5 from module at A12A3 J1.
- Plug end of W5 into 26 pin test connector, from On-Site Service Kit.

NOTE

Find arrowhead on test connector and align with arrowhead on cable plug W5P2.

CAUTION

To prevent damage to the Power Supply and Control sections, do not permit the exposed pins on the test connector to short circuit.

2. Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (A4TP1). (See A12 MODULE CABLE CONNECTION LOCATOR on fold-out for VM IN location.)
-

A12 MODULE DIAGNOSTICS

- Turn instrument on.

Clock and Data Control Lines

Check High State

- SHIFT SPCL 3 6 0 2
(To set bit high).

NOTE

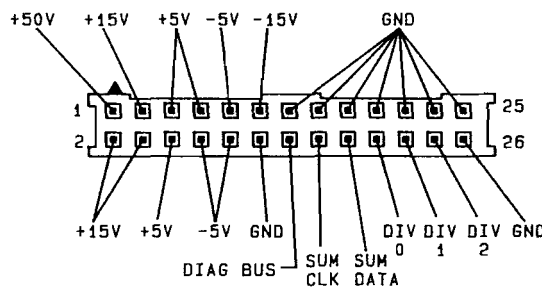
A "0" will appear in display indicating that the data bits will be set low. However, the bits are inverted in the Control Section before they are sent to A12.

- Enter Bit Select Keys, as indicated in Table 3J-1. W5P2 Control Bits, for Control Line to be tested.
- Connect VM probe Control Line at Pin Number indicated in Table 3J-1. (See Figure 3J-1. Cable Plug W5P2 Signal Locator.)

Table 3J-1. W5P2 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 5 and 10) | Pin Number (Step 6) |
|------------|--------------|----------------------------------|---------------------|
| 1 | SUM CLK | 4 4 HZ | 16 |
| 2 | SUM DATA | 4 5 HZ | 18 |

Figure 3J-1. Cable Plug W5P2 Signal Locator



A12 MODULE DIAGNOSTICS

7.
(To enable voltmeter.)
8. Voltage should read approximately +2.5 to +5.5 Vdc.
 to repeat measurement.)

Check Low State

9.
(To set bit low.)

NOTE

A "1" will appear in display indicating that the data bits will be set high. However, the bits are inverted in the Control Section before they are sent to A12.

10. Enter **Bit Select Keys**, as indicated in **Table 3J-1. W5P2 Control Bits**, for same **Control Line**.
11.
(To enable voltmeter.)
12. Voltage should read approximately -0.5 to +1.5 Vdc.
 to repeat measurement.)
13. Repeat procedure for each **Control Line** shown in **Table 3J-1**.

Divider Control Lines**Check High State**

14.
(To set bit high.)

NOTE

This bit is not inverted in the Control Section before it is sent to A12.

15. Enter **Bit Select Keys**, as indicated in **Table 3J-2. W5P2 Control Bits**, for **Control Line** to be tested.
 16. Connect **VM probe Control Line** at **Pin Number** indicated in **Table 3J-2**. (See **Figure 3J-1. Cable Plug W5P2 Signal Locator**.)
-

A12 MODULE DIAGNOSTICS

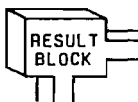
Table 3J-2. W5P2 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 15 and 20) | Pin Number (Step 16) |
|------------|--------------|--------------------------------------|-------------------------|
| 1 | DIV 0 | [2] [7] [HZ] | 20 |
| 2 | DIV 1 | [2] [8] [HZ] | 22 |
| 3 | DIV 2 | [2] [9] [HZ] | 24 |

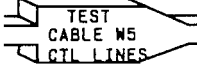
17. [2] [5] [HZ]
(To enable voltmeter.)
18. Voltage should read approximately +2.5 to +5.5 Vdc.
([5] [HZ] to repeat message.)

Check Low State

19. [SHIFT] [SPCL] [3] [6] [0] [2]
(To set bit low.)
20. Enter **Bit Select Keys**, as indicated in **Table 3J-2. W5P2 Control Bits**, for same **Control Line**.
21. [2] [5] [HZ]
(To enable voltmeter.)
22. Voltage should read approximately -0.5 to +1.5 Vdc.
([5] [HZ] to repeat measurement.)
23. Record test results.
24. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST CONTROL BITS**.



A12 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|-----------------------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A12.06  |
| Run time: | 5 min. | |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to A12 Module on Clock, Data and Divider control lines.

Run Test

1. Switch instrument to **Standby**.
2. Extend **A12 Module** on extender posts, from On-Site Service Kit or instrument, and disconnect cable **W5** from **A5 Assembly** at **A5J5**. (See table on foldout in **MECHANICAL PROCEDURES** to locate **A12 Module** extension and **A5 cable** disconnection information.)
3. Connect **VM probe**:
 - ⊗ Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - ⊗ Connect alligator clip to **VM IN (A4TP1)**. (See **A12 MODULE CABLE CONNECTION LOCATOR** on foldout for **VM IN** location.)
4. Turn instrument on.

COMMENT

It is only necessary to perform test on failing control line.

Clock and Data Control Lines**Check High State**

5. SHIFT SPCL 3 6 0 2
(To specify high state.)

NOTE

A "0" will appear in display indicating that the data bits will be set low. However, the bits are inverted in the Control Section before they are sent to A12.

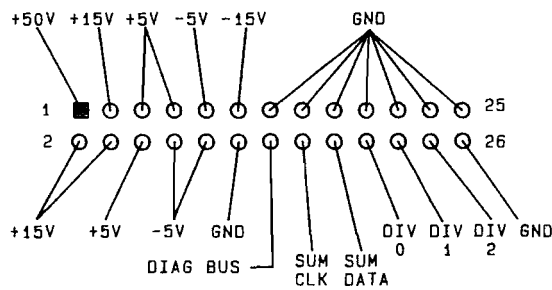
A12 MODULE DIAGNOSTICS

6. Enter **Bit Select Keys**, as indicated in Table 3J-3. **A5J5 Control Bits**, for **Control Line** to be tested.
7. Connect **VM probe Control Line** at **Pin Number** indicated in Table 3J-3. (See Figure 3J-2. **A5J5 Signal Locator**.)

Table 3J-3. A5J5 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 6 and 11) | Pin Number (Step 7) |
|------------|--------------|-------------------------------------|------------------------|
| 1 | SUM CLK | [4] [4] [HZ] | 16 |
| 2 | SUM DATA | [4] [5] [HZ] | 18 |

**Figure 3J-2. A5J5 Signal Locator
(Solder-Side View)**



8. [2] [5] [HZ]
(To enable voltmeter.)
9. Voltage should read approximately +2.5 to +5.5 Vdc.
[5] [HZ] to repeat measurement.)

A12 MODULE DIAGNOSTICS

Check Low State

10.
 (To specify low state.)

NOTE

A "1" will appear in display indicating that the data bits will be set high. However, the bits are inverted in the Control Section before they are sent to A12.

11. Enter **Bit Select Keys**, as indicated in Table 3J-3. A5J5 Control Bits, for same Control Line.
12.
 (To enable voltmeter.)
13. Voltage should read approximately **-0.5 to +1.5 Vdc**.
 to repeat measurement.)

Divider Control Lines**Check High State**

14.
 (To set bit high.)

NOTE

This bit is not inverted in the Control Section before it is sent to A12.

15. Enter **Bit Select Keys**, as indicated in Table 3J-4. A5J5 Control Bits, for Control Line to be tested.
16. Connect VM probe Control Line at PIN NUMBER indicated in Table 3J-4. (See Figure 3J-2. A5J5 Signal Locator.)
-

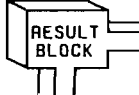
A12 MODULE DIAGNOSTICS

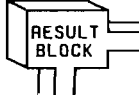
Table 3J-4. A5J5 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 15 and 20) | Pin Number (Step 16) |
|------------|--------------|--------------------------------------|-------------------------|
| 1 | DIV 0 | [2] [7] [HZ] | 20 |
| 2 | DIV 1 | [2] [8] [HZ] | 22 |
| 3 | DIV 2 | [2] [9] [HZ] | 24 |


17. [2] [5] [HZ]
(To enable voltmeter.)
18. Voltage should read approximately **+2.5 to +5.5 Vdc**.
([5] [HZ] to repeat message.)

Check Low State

19. [SHIFT] [SPCL] [3] [6] [0] [2]
(To set bit low.)
20. Enter **Bit Select Keys**, as indicated in **Table 3J-4. A5J5 Control Bits**, for same **Control Line**.
21. [2] [5] [HZ]
(To enable voltmeter.)
22. Voltage should read approximately **-0.5 to +1.5 Vdc**.
([5] [HZ] to repeat measurement.)
23. Record test results.
24. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST CABLE W5 CTL LINES**.



A12 MODULE DIAGNOSTICS

| | | |
|---------------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A12.07 |
| Run time: | 3 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to check power supply levels at inputs to A12 Module.

Run Test

1. Switch instrument to Standby:

NOTE

A12 Module must be lifted slightly to disconnect W5. Release module retaining clips (at each end of module) from slide posts. Lift module up high enough to disconnect W5.

- Disconnect W5 from A12 at A12A3 J1.
- Plug end of W5 into 26 pin test connector, from On-Site Service Kit.

NOTE

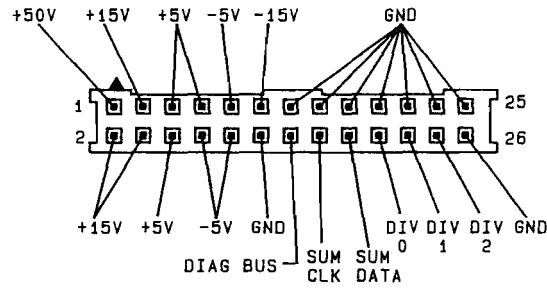
Find arrowhead on test connector and align with arrowhead on cable plug W5P2.

2. Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (A4TP1). (See A12 MODULE CABLE CONNECTION LOCATOR on fold-out for VM IN location.)
3. Turn instrument on and enter:
 (SHIFT) (SPCL) (3) (2) (5) (HZ)
 (To enable Internal Voltmeter.)

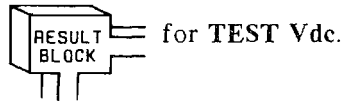
A12 MODULE DIAGNOSTICS

4. Measure voltage levels:
 - Connect VM probe to test connector pin for each power supply line (see Figure 3J-3. Cable Plug W5P2 Signal Locator).
 - **5** **HZ** (To make each voltage measurement.)

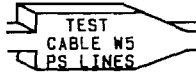
Figure 3J-3. Cable Plug W5P2 Signal Locator



5. Record test results.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each



A12 MODULE DIAGNOSTICS

| | | |
|--------------|-------------------------|------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A12.08 |
| Run time: | 3 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to check power supply levels at A5J5.

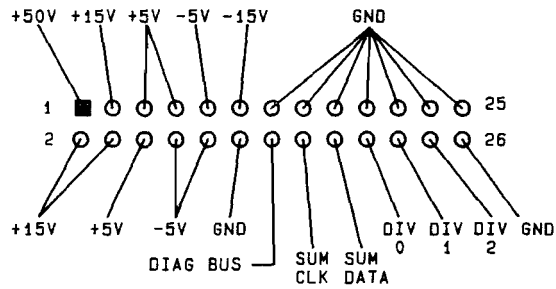
Run Test

1. Switch instrument to Standby.
 2. Extend **A12 Module** on extender posts, from On-Site Service Kit, and disconnect cable **W5** from **A5 Assembly** at **A5J5**. (See table on foldout in **MECHANICAL PROCEDURES** to locate **A12 Module** extension and **A5** cable disconnection information.)
 3. Connect **VM** probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A12 MODULE CABLE CONNECTION LOCATOR** on foldout for **VM IN** location.)
 4. Turn instrument on and enter:

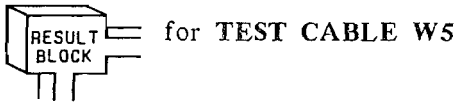
 (To enable Internal Voltmeter.)
 5. Measure voltage levels at **A5J5**:
 - Access signals from solder-side of **A5J5**. (See **Figure 3J-4, A5J5 Signal Locator**.)
 - (To make each voltage measurement.)
-

A12 MODULE DIAGNOSTICS


Figure 3J-4. A5J5 Signal Locator
(Solder-Side View)



6. Record test results.
7. Return to folout:
 - Determine next task by comparing test results to conditions shown in each PS LINES.



A12 MODULE DIAGNOSTICS

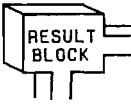
| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 1; Loop Lock/Unlock | A12.09 |
| Run time: | 40 sec. |  |
| Set-up time: | 0 | |

Run Test

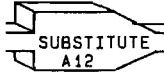
1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.00000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **4** **1** **HZ**.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A12.

COMMENT

If any error codes are displayed for modules A01-A11, you need to isolate those failure(s) before performing the A12 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST A12 MODULE**.

A12 MODULE DIAGNOSTICS

| | | |
|---------------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | A12.10 |
| Run time: | 10 sec. |  |
| Set-up time: | 5 min. | |

The following describes the technique for connecting a known good A12 Module without removing the A12 module in the instrument.

Connect Substitute Module

1. Switch instrument to **Standby**.
2. Disconnect cables **W5**, **W30**, **W31** and **W33** from **A12 Module** (see **A12 MODULE CABLE CONNECTION LOCATOR** on foldout).
3. Without removing **A12 Module** from instrument, carefully lay substitute **A12 Module** on top of modules **A7**, **A9** and **A11**.

CAUTION

When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

4. Connect cables **W5**, **W30**, **W31** and **W33** to substitute module.

Down-Load Cal Data**CAUTION**

*Use adequate Electrostatic Discharge Techniques when handling the **A20 Calibration Module**.*

5. Remove from **On-Site Service Kit**, **A20 Calibration Module** provided for substitute **A12 Module**.
-

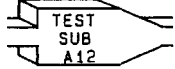
A12 MODULE DIAGNOSTICS

CAUTION

Check that switch S1 on A20 Module is switched up to its "PROTECTED" position.

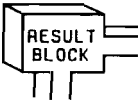
6. With instrument switched to Standby, connect A20 Module to A3 Module at A3J3 (see A12 MODULE CABLE CONNECTION LOCATOR on foldout).
7. Turn instrument on.
8. When "100.000000 MZ -140.00 DM" appears:
 - Slide switch on left side of A3S2 on A3 Module back toward rear of instrument (see A12 MODULE CABLE CONNECTION LOCATOR on foldout).
9. SHIFT SPCL 3 7 3 2 HZ
10. When "TRANSFER VERIFIED .U613" appears:
 - Slide A3S2 forward toward front of instrument to protect A3 Module's memory.
11. Switch Instrument to Standby and remove A20 Module. Replace A20 Module in On-Site Service Kit.
12. Return to foldout.

A12 MODULE DIAGNOSTICS


| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | Substitute Module Test | A12.11 |
| Run time: | 1 min. |  |
| Set-up time: | 0 | |

Test operation of substitute A12 Module by repeating test performed on A12 Module before substitution.

Run Test

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **4** **1** **HZ**.
3. When "**DIAG DONE HIT MSSG .V1**" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A12.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A12**.

A12 MODULE DIAGNOSTICS

| | | |
|--------------|----------------------|------------------------------------------------------------------------------------|
| Type: | Additional A12 Tests | A12.12 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

The A12 failure conditions for arriving at this task are described below. Follow the procedure for the condition which fits your module.

- Condition 1: Instrument Level Self Test indicated A12 failure.
- Condition 2: A13 Module RF Power Test indicated A12 failure.
- Condition 3: Instrument must be set to a specific operating condition to detect A12 failure.

Condition 1

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. .
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS.VI" appears:
 - Use to scroll through messages.
 - Record A12 error codes.

COMMENT

If any error codes are displayed for modules A01-A11, you need to isolate those failure(s) before performing the A12 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

5. Return to foldout.
-

A12 MODULE DIAGNOSTICS


Condition 2

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W31 from module at A12A2 J2.
 - Connect YELLOW PM cable and adapter to cable W31.
 - to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W31 to module at A12A2 J2.
 - Disconnect cable W30 from module at A12A3 J6.
 - Connect PM cable and adapter to W30.
 - to continue test.
5. When "WAITING FOR SET-UP 3 .V26" appears:
 - Reconnect cable W30 to module at A12A3 J6.
 - Disconnect cable W32 from module at A12A3 J3.
 - Connect PM cable to module at A12A3 J3.
 - to continue test.
6. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W32 to module at A12A3 J3.
 - to continue test.
7. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use to scroll through messages.
 - Record error code(s) displayed for A12.
8. Return to foldout.

Condition 3

1. Set instrument to operating condition which causes A12 failure.
 2. Record instrument set-up and error message(s).
 3. Return to foldout.
-

A12 MODULE DIAGNOSTICS

| | | |
|--------------|-----------------------|-------------------------------------------------------------------------------------|
| Type: | Additional Substitute | A12.13 |
| Run time: | A12 Tests |  |
| Set-up time: | Conditional | |

Test operation of substitute A12 Module by repeating test(s) performed on A12 Module before substitution.

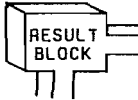
- Condition 1: Instrument Level Self Test indicated A12 failure.
- Condition 2: A13 Module RF Power Test indicated A12 failure.
- Condition 3: Instrument must be set to a specific operating condition to detect A12 failure.

Condition 1

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.
2. .
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use to scroll through messages.
 - Record A12 error codes.

COMMENT

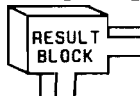
If any error codes are displayed for modules A01-A11, you need to isolate those failure(s) now.

5. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A12 FURTHER.

A12 MODULE DIAGNOSTICS

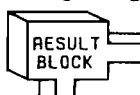
Condition 2

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **4** **5** **HZ**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable **W31** from module at **A12A2 J2**.
 - Connect **YELLOW PM** cable and adapter to cable **W31**.
 - **HZ** to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable **W31** to module at **A12A2 J2**.
 - Disconnect cable **W30** from module at **A12A3 J6**.
 - Connect **PM** cable and apapter to **W30**.
 - **HZ** to continue test.
5. When "WAITING FOR SET-UP 3 .V26" appears:
 - Reconnect cable **W30** to module at **A12A3 J6**.
 - Disconnect cable **W32** from module at **A12A3 J3**.
 - Connect **PM** cable to module at **A12A3 J3**.
 - **HZ** to continue test.
6. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable **W32** to module at **A12A3 J3**.
 - **HZ** to continue test.
7. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for **A12**.
8. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST SUB A12 FURTHER**.




Condition 3

1. Set instrument to operating condition which causes **A12 failure**.
2. Record instrument set-up and error message(s).
3. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST SUB A12 FURTHER**.



A12 MODULE DIAGNOSTICS

| | | |
|---------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------|
| Type: Run time: Set-up time: | Module Replacement 10 sec. 5 min. | A12.14  |
|---------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------|

Connect Module

1. Switch instrument to **Standby**.
2. Disconnect cables **W5**, **W30**, **W31** and **W33** from substitute **A12 Module**.

CAUTION

When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

3. Reconnect cables **W5**, **W30**, **W31** and **W33** to **A12 Module**.
4. Return substitute **A12 Module** to On-Site Service Kit.

Down-Load Cal Data

CAUTION

*Use adequate Electrostatic Discharge Techniques when handling the **A20 Calibration Module**.*

5. After making sure that **A20 Module** for substitute **A12 Module** has been returned to On-Site Service Kit, remove **A20 Calibration Module** from Rear Panel (see **MECHANICAL PROCEDURES** for removal information).
-

A12 MODULE DIAGNOSTICS

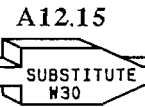
CAUTION

Check that switch S1 on A20 Module is switched up to its "PROTECTED" position.

6. With instrument switched to **Standby**, connect **A20 Module** to **A3 Module** at **A3J3**.
7. Turn instrument on.
8. When "**100.000000 MZ -140.00 DM**" appears:
 - Slide switch on left side of **A3S2** on **A3 Module** back toward rear of instrument.
9. **SHIFT** **SPCL** **3** **7** **3** **2** **HZ**
10. When "**TRANSFER VERIFIED .U613**" appears:
 - Slide **A3S2** forward toward front of instrument to protect **A3 Module's** memory.
11. Switch Instrument to **Standby** and remove **A20 Module**.
Replace A20 Module on Rear Panel.
12. Return to foldout.

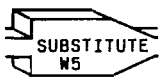
A12 MODULE DIAGNOSTICS

| | |
|--------------|------------------|
| Type: | Cable Connection |
| Run time: | 5 min. |
| Set-up time: | 1 min. |



1. Testing has shown **W30** or **W31** to be suspect, temporarily replace it with a test cable from the On-Site Service Kit. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.
2. Refer to **REPLACEABLE PARTS**, in HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.
3. Return to foldout.

A12 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A12.16 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

Testing has shown cable **W5** to be suspect, temporarily replace with a spare ribbon cable if available. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.

Refer to **REPLACEABLE PARTS**, in HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.


CAUTION

When connecting ribbon cable to A12 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W5

1. Switch instrument to **Standby** to connect cable **W5** to **A5 Assembly** and **A12 Module**. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on connecting cable **W5** to **A5J5**.)
2. Return to foldout.

A12 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A12.17 |
| Run Time: | 6 min. |  |
| Set-up Time: | 8 min. | |

CAUTION

When connecting ribbon cable to A12 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W5

1. Switch instrument to **Standby** to reconnect cable **W5** to **A5** Assembly or **A12** Module. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on reconnecting cable **W5** to **A5J5**.)
2. Return to foldout.

A12 THEORY OF OPERATION

3J-4. A12 SUM LOOP/DIVIDER MODULE

COMMENT

It is not essential to understand the internal operation of a module to make an on-site repair.

Sum Loop

The **A12 Module** contains a phase lock loop which combines the **A9 IF Loop** output (45 to 90 MHz in .5 Hz steps) with the **A11 Reference Loop** output (one of six UHF reference frequencies) to produce the fundamental frequency band of the instrument (528.75 to 1057.5 MHz).

The frequency range of the **Sum Loop** is divided into four bands. Each band is generated by a separate voltage controlled oscillator (VCO).

Divider

The **A12 Module** also contains a selectable divider circuit. The **Sum Loop** output passes directly to the RF input of the **Divider**. The **Divider** output (4.1 to 1057.5 MHz) is produced by dividing the fundamental frequency band by 2 raised the N^{th} power, where N is an integer between 0 and 7.

See the **A12 MODULE SIMPLIFIED BLOCK DIAGRAM** for further understanding of the **A12 Module's** internal operation.

A13 OUTPUT FILTERS/ALC MODULE

3K-1. INTRODUCTION

The **MODULE LEVEL DIAGNOSTICS (MLD)** contained in this section are used to further interrogate the **A13 Module**. The objective is to isolate the failure indicated for this module to the module itself or to a part on which it depends for operation.

NOTE

*At this level of testing, recommendations for further action are made on the assumption that the **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** showed no failures for modules **A01-A12**. (For information on using the on-site diagnostics, refer to the **INTRODUCTION** section of this manual.)*

CAUTION

When tightening the coax cable connectors, do not exceed a torque of 1.0 Nm or .74 ft-lbs (slightly tighter than finger tight).

When coax cables are disconnected from instrument, do not allow loose ends to come in contact with any exposed circuitry susceptible to short circuiting.

Test Instructions

1. The instrument's **Top Cover** must be removed to run many of these tests. (Refer to the table shown on the foldout in **MECHANICAL PROCEDURES** to locate instructions.)
2. The last page in this group of tests is a foldout and should be pulled out now.
3. Turn to the next page to begin the **A13 MLD**.

A13 MODULE SUBSTITUTION

3K-2. INTRODUCTION**NOTE**

If a known good module is not available, proceed to the next page A13 INPUTS VERIFICATION.

The first step in isolating an A13 failure is to substitute in a known good module from the On-site Service Kit.

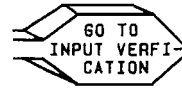
A13 Substitution Instructions

1. Find **A13 MODULE SUBSTITUTION** on the foldout.
2. Use the Task Sequence Diagram, shown under **A13 MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in a diagram indicates a task title and task number. The tasks are numbered according to the order in which they appear in this section. Turn to the task indicated and complete the procedure.
3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
4. Begin now by performing the first task shown on the diagram.

A13 INPUTS VERIFICATION

A13.01

3K-3. INTRODUCTION



If a known good A13 Module is not available, or if you were not able to isolate the failure using the A13 MODULE SUBSTITUTION procedure, the Task Sequence Diagrams (shown under A13 INPUTS VERIFICATION) should be used to check each signal path into the A13 Module.


A13 Inputs Verification Instructions

1. Find A13 INPUTS VERIFICATION on the foldout.
2. The Task Sequence Diagrams, shown under A13 INPUTS VERIFICATION, are separated into three checks: RF, Control and Power Supply signals.
3. Use the Task Sequence Diagrams to direct you through the verification process. Each Task Arrow shown in a diagram indicates a task title and task number. The tasks are numbered according to the order in which they appear in this section. Turn to the task indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown under **1. A13 RF INPUT CHECK.**

NOTE

The A13 MODULE I/O SIGNALS DIAGRAM shows all parts which the A13 Module depends on for operation.

A13 MODULE DIAGNOSTICS

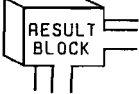
| | | |
|--------------|---------------------|-------------------------------------------------------------------------------------|
| Type: | 1; Loop Lock/Unlock | A13.02 |
| Run time: | 30 sec. |  |
| Set-up time: | 0 | |

Run Test

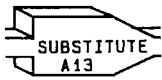
1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **4** **9** **HZ**.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - ⊗ Use **MSSG** to scroll through messages.
 - ⊗ Record error code(s) displayed for **A13**. If "TEST 1 OF A13 (PASSED or FAILED)" is not displayed, rerun test.

COMMENT

If any error codes are displayed for modules A01-A12, you need to isolate those failure(s) before performing the A13 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

4. Return to foldout:
 - ⊗ Determine next task by comparing test results to conditions shown in each  for **TEST A13 MODULE**.

A13 MODULE DIAGNOSTICS

| | | |
|---------------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | A13.03 |
| Run time: | 0 |  |
| Set-up time: | 5 min. | |

The following describes the technique for connecting a known good A13 Module without removing the A13 Module in the instrument.

Connect Substitute Module


1. Switch instrument to Standby.
2. Disconnect cables **W6**, **W22**, **W32** and **W34** from **A13** Module (see **A13 MODULE CABLE CONNECTION LOCATOR** on foldout).
3. Without removing **A13** Module from instrument, carefully lay substitute **A13** Module on top of modules **A9**, **A11** and **A12**.

CAUTION

When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

4. Connect cables **W6**, **W22**, and **W32** to substitute module.
 5. Substitute a flexible coax cable, SMC-to-SMA adapters, and barrel adapters from On-Site Service Kit for cable **W34**, to connect output of substitute module to **A14** Module.
 6. Turn instrument on.
 7. Return to foldout.
-

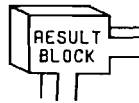
A13 MODULE DIAGNOSTICS

| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | Substitute Module Test | A13.04 |
| Run time: | 1 min. |  |
| Set-up time: | 0 | |

Test operation of substitute A13 Module by repeating test performed on A13 Module before substitution.


Run Test

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **4** **9** **HZ**.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A13. If "TEST 1 OF A13 (PASSED OR FAILED)" is not displayed, rerun test.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each



for TEST SUB A13.

A13 MODULE DIAGNOSTICS

| | | |
|--------------|----------------------|------------------------------------------------------------------------------------|
| Type: | Additional A13 Tests |  |
| Run time: | Conditional | |
| Set-up time: | Conditional | |

The **A13** failure conditions for arriving at this task are described below. Follow the procedure for the condition which fits your module.

- Condition 1: Instrument Level Self Test indicated A13 failure.
- Condition 2: A14 Module RF Power Test indicated A13 failure.
- Condition 3: Instrument must be set to a specific operating condition to detect A13 failure.

Condition 1

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.
2. .
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS.VI" appears:
 - Use to scroll through messages.
 - Record **A13** error codes.

COMMENT

If any error codes are displayed for modules A01-A12, you need to isolate those failure(s) before performing the A13 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

5. Return to foldout.
-

A13 MODULE DIAGNOSTICS

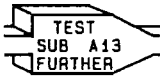
Condition 2

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **5** **1** **HZ**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable **W32** from module at **A13A2 J6**.
 - Connect **YELLOW PM** cable and adapter to cable **W32**.
 - **HZ** to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable **W32** to module at **A13A2 J6**.
 - Disconnect cable **W34** from module at **A13A2 J3**.
 - Connect **PM** cable, SMC-to-SMA adapter, and barrel adapter from On-Site Service Kit to module at **A13A2 J3**.
 - **HZ** to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable **W34** to module at **A13A2 J3**.
 - **HZ** to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for **A13**.
7. Return to foldout.

Condition 3

1. Set instrument to operating condition which causes **A13** failure.
 2. Record instrument set-up and error message(s).
 3. Return to foldout.
-

A13 MODULE DIAGNOSTICS

| | | |
|--------------|------------------------------------|------------------------------------------------------------------------------------|
| Type: | Additional Substitute A13 Tests | A13.06 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

Test operation of substitute A13 Module by repeating test(s) performed on A13 Module before substitution.

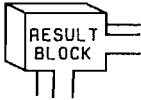
- Condition 1: Instrument Level Self Test indicated A13 failure.
- Condition 2: A14 Module RF Power Test indicated A13 failure.
- Condition 3: Instrument must be set to a specific operating condition to detect A13 failure.

Condition 1

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.
2. .
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use to scroll through messages.
 - Record A13 error codes.

COMMENT

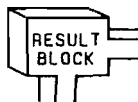
If any error codes are displayed for modules A01-A12, you need to isolate those failure(s) now.

5. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for TEST SUB A13 FURTHER.

A13 MODULE DIAGNOSTICS

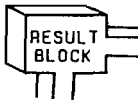
Condition 2

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **5** **1** **HZ**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W32 from module at A13A2 J6.
 - Connect **YELLOW PM** cable and adapter to cable W32.
 - **HZ** to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W32 to module at A13A2 J6.
 - Disconnect cable W34 from module at A13A2 J3.
 - Connect **PM** cable and adapters to module at A13A2 J3.
 - **HZ** to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W34 to module at A13A2 J3.
 - **HZ** to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A13.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST SUB A13 FURTHER.**




Condition 3

1. Set instrument to operating condition which causes A13 failure.
2. Record instrument set-up and error message(s).
3. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST SUB A13 FURTHER.**

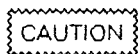


A13 MODULE DIAGNOSTICS

| | | |
|--------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A13.07 |
| Run time: | 0 |  |
| Set-up time: | 5 min. | |

Connect Module


1. Switch instrument to Standby.
2. Disconnect cables W6, W22, W32 and substitute output cable from substitute A13 Module.



When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

3. Reconnect cables W6, W22, W32 and W34 to A13 Module.
4. Turn instrument on.
5. Return substitute A13 Module to On-Site Service Kit.
6. Return to foldout.

A13 MODULE DIAGNOSTICS

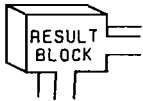
| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A13.08 |
| Run time: | 1 min. 30 sec. |  |
| Set-up time: | 2 min. | |

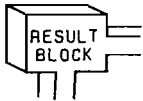
RF signal level is measured using Internal Power Meter (PM).

CAUTION

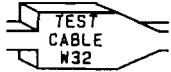
Do not permit end of Internal Power Meter cable to short circuit instrument by coming in contact with any exposed circuitry.

Run Test

1. **INSTR PRESEN** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **6** **8** **1** **2** **HZ**
(To check input levels only.)
3. **3** **5** **1** **HZ**.
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W32 from module at A13A2 J6.
 - Connect **YELLOW PM** cable and adapter to cable W32.
 - **HZ** to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W32 to module at A13A2 J6.
 - **HZ** to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A13.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST RF POWER**.

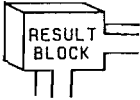


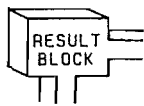
A13 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A13.09 |
| Run time: | 1 min. 30 sec. |  |
| Set-up time: | 2 min. | |


RF signal level is measured using Internal Power Meter (PM).

Run Test

1.
 Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2.
 (To check input levels only.)
3.
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W32 from A12 Module at A12A3 J3. (See Top View Diagram inside Top Cover to locate W32 connection on A12 Module.)
 - Connect YELLOW PM cable to module at A12A3 J3.
 - to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W32 to module at A12A3 J3.
 - to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use to scroll through messages.
 - Record error code(s) displayed for A13.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST CABLE W32.



A13 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A13.10 |
| Run time: | 3 min. |  |
| Set-up time: | 2 min. | |

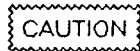
Internal Voltmeter (VM) is used to measure TTL level changes transmitted to A13 Module on Clock and Data control lines.

Run Test

1. Switch instrument to Standby:
 - Disconnect cable W6 from module at A13A2 J1.
 - Plug end of W6 into 16 pin test connector, from On-Site Service Kit.

NOTE

Find arrowhead on test connector and align with arrowhead on cable plug W6P2.



To prevent damage to the Power Supply and Control sections, do not permit the exposed pins on the test connector to short circuit.

2. Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (A4TP1). (See A13 MODULE CABLE CONNECTION LOCATOR on fold-out for VM IN location.)
3. Turn instrument on.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)

A13 MODULE DIAGNOSTICS

Clock Line

Check High State

4.
 (To specify high state.)

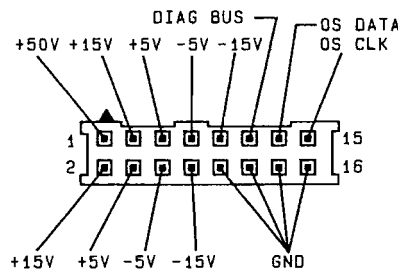
NOTE

A "0" will appear in display indicating that the data bit will be set low. However, the bit is inverted in the Control Section before it is sent to A13.

5.
 (To select bit.)

6. Connect VM probe to test connector line OS CLK (pin 15).
 (See Figure 3K-1. Cable plug W6P2 Signal Locator.)

Figure 3K-1. Cable Plug W6P2 Signal Locator



7.
 (To enable voltmeter.)

8. Voltage should read approximately +2.5 to +5.5 Vdc.
 to repeat measurement.)

A13 MODULE DIAGNOSTICS

Check Low State

9.
 (To specify low state.)

NOTE

A "1" will appear in display indicating that the data bit will be set high. However, the bit is inverted in the Control Section before it is sent to A13.

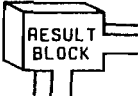
10.
 (To select bit.)
11.
 (To enable voltmeter.)
12. Voltage should read approximately **-0.5 to +1.5 Vdc.**
 to repeat measurement.)

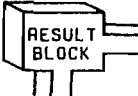
Data Line**Check High State**

13.
 (To specify high state.)
14.
 (To select bit.)
15. Connect VM probe to test connector line **OS DATA** (pin 13). (See Figure 3-xx. Cable Plug W6P2 Signal Locator.)
16.
 (To enable voltmeter.)
17. Voltage should read approximately **+2.5 to +5.5 Vdc.**
 to repeat measurement.)
-

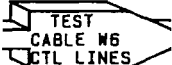
A13 MODULE DIAGNOSTICS

Check Low State

18. SHIFT SPCL 3 6 0 1
(To specify low state.)
19. 4 1 HZ
(To select bit.)
20. 2 5 HZ
(To enable voltmeter.)
21. Voltage should read approximately -0.5 to $+1.5$ Vdc.
(5 HZ) to repeat measurement.)
22. Record test results.
23. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST CONTROL BITS.



A13 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A13.11 |
| Run time: | 3 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to A13 Module on Clock and Data control lines.

Run Test

1. Switch instrument to Standby.
2. Extend A13 Module on extender posts, from On-Site Service Kit, and disconnect cable W6 from A5 Assembly at A5J6. (See table on foldout in MECHANICAL PROCEDURES to locate A13 Module extension and A5 cable disconnection information.)
3. Connect VM probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (A4TP1). (See A13 MODULE CABLE CONNECTION LOCATOR on fold-out for VM IN location.)
4. Turn instrument on.

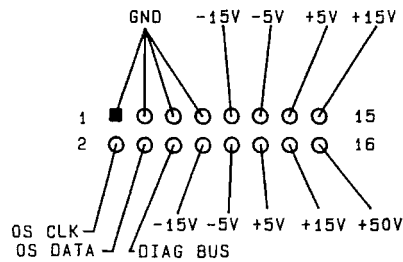
Clock Line**Check High State**

5.
(To specify high state.)
 6.
(To select bit.)
-

A13 MODULE DIAGNOSTICS

7. Connect VM probe to solder-side of A5J6 line OS CLK (pin 2). (See Figure 3K-2. A5J6 Signal Locator.)

Figure 3K-2. A5J6 Signal Locator
(Solder-Side View)



8. (To enable voltmeter.)
9. Voltage should read approximately +2.5 to +3.5 Vdc. (to repeat measurement.)

Check Low State

10. (To specify low state.)
11. (To select bit.)
12. (To enable voltmeter.)
13. Voltage should read approximately -0.5 to +1.5 Vdc. (to repeat measurement.)

Data Line

Check High State

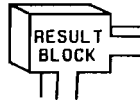
14. (To specify high state.)
15. (To select bit.)

A13 MODULE DIAGNOSTICS

16. Connect VM probe to solder-side of A5J6 line OS DATA (pin 4). (See Figure 3K-2. A5J6 Signal Locator.)
17. **2** **5** **HZ**
(To enable voltmeter.)
18. Voltage should read approximately +2.5 to +5.5 Vdc.
(**5** **HZ** to repeat measurement.)


Check Low State

19. **SHIFT** **SPCL** **3** **6** **0** **1**
(To specify low state.)
20. **4** **1** **HZ**
(To select bit.)
21. **2** **5** **HZ**
(To enable voltmeter.)
22. Voltage should read approximately -0.5 to +1.5 Vdc.
(**5** **HZ** to repeat measurement.)
23. Record test results.
24. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each CTL LINES.



for TEST CABLE W6

A13 MODULE DIAGNOSTICS

| | | |
|--------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A13.12 |
| Run time: | 2 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to check power supply levels at inputs to A13 Module.

Run Test

1. Switch instrument to Standby:
 - Disconnect W6 from A13 at A13A2 J1.
 - Plug end of W6 into 16 pin test connector, from On-Site Service Kit.

NOTE

Find arrowhead on test connector and align with arrowhead on cable plug W6P2.

2. Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (A4TP1). (See A13 MODULE CABLE CONNECTION LOCATOR on fold-out for VM IN location.)
3. Turn instrument on and enter:

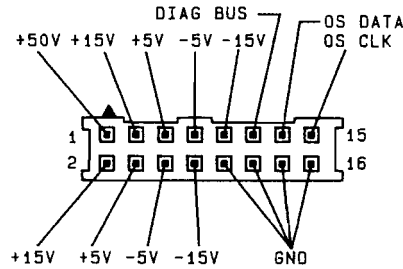
| | | | | | |
|-------|------|---|---|---|----|
| SHIFT | SPCL | 3 | 2 | 5 | HZ |
|-------|------|---|---|---|----|

 (To enable Internal Voltmeter.)

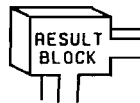
A13 MODULE DIAGNOSTICS

4. Measure voltage levels:
 - Connect VM probe to test connector pin for each power supply line (see Figure 3K-3. Cable Plug W6P2 Signal Locator).
 - **5** **HZ** (To make each voltage measurement.)


Figure 3K-3. Cable Plug W6P2 Signal Locator



5. Record test results.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for TEST Vdc.



A13 MODULE DIAGNOSTICS

| | | |
|--------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A13.13 |
| Run time: | 2 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to check power supply levels at **A5J6**.

Run Test

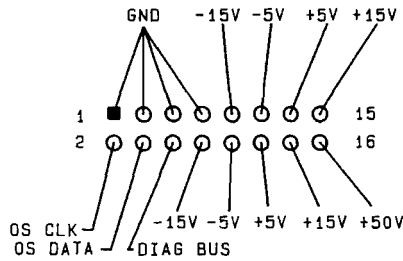
1. Switch instrument to Standby.
2. Extend **A13 Module** on extender posts, from On-Site Service Kit or instrument, and disconnect cable **W6** from **A5 Assembly** at **A5J6**. (See table on foldout in **MECHANICAL PROCEDURES** to locate **A13 Module** extension and **A5** cable disconnection information.)
3. Connect VM probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A13 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
4. Turn instrument on and enter:

 (To enable Internal Voltmeter.)

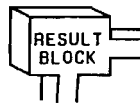
A13 MODULE DIAGNOSTICS

5. Measure voltage levels at A5J6:
 - Access signals from solder-side of A5J6. (See Figure 3K-4, A5J6 Signal Locator.)
 - (To make each voltage measurement.)

Figure 3K-4. A5J6 Signal Locator
(Solder-Side View)

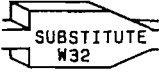


6. Record test results.
7. Return to folout:
 - Determine next task by comparing test results to conditions shown in each PS LINES.




for TEST CABLE W6

A13 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A13.14 |
| Run Time: | 5 min. |  |
| Set-up Time: | 1 min. | |

1. Testing has shown cable W32 to be suspect, temporarily replace with a test cable from the On-Site Service Kit. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.
2. Refer to **REPLACEABLE PARTS**, in HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.
3. Return to foldout.

A13 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A13.15 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

Testing has shown cable **W6** to be suspect, temporarily replace with a spare ribbon cable if available. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.

Refer to **REPLACEABLE PARTS**, in HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.


CAUTION

When connecting ribbon cable to A13 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W6

1. Switch instrument to **Standby** to connect cable **W6** to **A5** Assembly and **A13** Module. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on connecting cable **W6** to **A5J6**.)
2. Return to foldout.

A13 MODULE DIAGNOSTICS

| | | |
|--------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A13.16 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

CAUTION

When connecting ribbon cable to A13 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W6

1. Switch instrument to Standby to reconnect cable **W6** to **A5** Assembly or **A13** Module. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on reconnecting cable **W6** to **A5J6**.)
2. Return to foldout.

A13 THEORY OF OPERATION

3K-4. A13 OUTPUT FILTERS/ALC MODULE**COMMENT**

It is not essential to understand the internal operation of a module to make an on-site repair.

The **A13 Module** contains an Automatic Level Control (ALC) circuit. The ALC loop adjusts the level of the RF signal to between **+5** and **+21.5 dBm** in **0.1 dB** steps. An audio signal, sent from the **A2 Module**, is applied to the ALC loop's feedback path to provide amplitude and pulse modulation for all output, frequency bands, (except the Doubler Band in the HP 8642B.)

An array of selectable, low-pass filters in the RF signal path filters the harmonics produced by the divider in the **A12 Module**.

See the **A13 MODULE SIMPLIFIED BLOCK DIAGRAM** for further understanding of the **A13 Module's** internal operation.

A14 HETERODYNE MODULE

3L-1. INTRODUCTION

The **MODULE LEVEL DIAGNOSTICS (MLD)** contained in this section are used to further interrogate the **A14 Module**. The objective is to isolate the failure indicated for this module to the module itself or to a part on which it depends for operation.

NOTE

*At this level of testing, recommendations for further action are made on the assumption that the **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** showed no failures for modules **A01-A04** and **A07-A13**. (For information on using the on-site diagnostics, refer to the **INTRODUCTION** section of this manual.)*

CAUTION

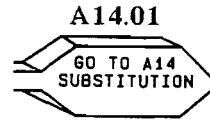
When tightening the coax cable connectors, do not exceed a torque of 1.0 Nm or .74 ft-lbs (slightly tighter than finger tight).

When coax cables are disconnected from instrument, do not allow loose ends to come in contact with any exposed circuitry susceptible to short circuiting.

Test Instructions

1. The instrument's **Top Cover** must be removed to run many of these tests. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate instructions.)
2. The last page in this group of tests is a foldout and should be pulled out now.
3. If you have been directed here to troubleshoot an **RF power level** failure, turn to page **3-4** to begin diagnostics, otherwise, proceed to the next page to begin the **A14 MLD**.

A14 MODULE SUBSTITUTION

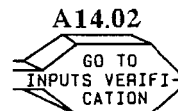
3L-2. INTRODUCTION**NOTE**

If a known good module is not available, proceed to the next page A14 INPUTS VERIFICATION.

A14 Substitution Instructions

1. Find **A14 MODULE SUBSTITUTION** on the foldout.
2. Use the Task Sequence Diagram, shown under **A14 MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
4. Begin now by performing the first task shown on the diagram.

A14 INPUTS VERIFICATION

3L-3. INTRODUCTION

If a known good **A14 Module** is not available, or if you were not able to isolate the failure using the **A14 MODULE SUBSTITUTION** procedure, the Task Sequence Diagrams (shown under **A14 INPUTS VERIFICATION**) should be used to check each signal path into the **A14 Module**.

A14 Inputs Verification Instructions

1. Find **A14 INPUTS VERIFICATION** on the foldout.
2. The Task Sequence Diagrams, shown under **A14 INPUTS VERIFICATION**, are separated into three checks: **RF**, **Control** and **Power Supply** signals.
3. Use the Task Sequence Diagrams to direct you through the verification process. Each Task Arrow shown in a diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the page indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown under **1. A14 RF INPUT CHECK**.

NOTE

*The **A14 MODULE I/O SIGNALS DIAGRAM** shows all parts which the **A14 Module** depends on for operation.*

POWER LEVEL DIAGNOSTICS


3L-4. INTRODUCTION

The first step in isolating an RF power level failure is to check the power levels into and out of the A14 Module.

Power Diagnostics Instructions

1. Find **POWER LEVEL DIAGNOSTICS** on the foldout.
 2. Use the Task Sequence Diagram, shown under **POWER LEVEL DIAGNOSTICS**, to direct you through the testing process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the page indicated and complete the procedure.
 3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
 4. Begin now by performing the first task shown on the diagram.
-

A14 MODULE DIAGNOSTICS

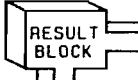
| | | |
|--------------|---------------------|-------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A14.03 |
| Run time: | 1 min. 35 sec. |  |
| Set-up time: | 3 min. | |

RF signal levels are measured using Internal Power Meter (PM).


CAUTION

Do not permit end of Internal Power Meter cable to short circuit instrument by coming in contact with any exposed circuitry.

Run Test

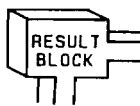
1.
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
 2.
 3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W29 from A14 Module at A14A2 J1.
 - Connect YELLOW PM cable and adapter to cable W29.
 - to continue test.
 4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W29 to module at A14A2 J1.
 - Disconnect cable W34 from A13 Module at A13A2 J3.
 - Connect PM cable to A13 Module at A13A2 J3 using adapter and barrel adapter from On-Site Service Kit.
 - to continue test.
 5. When "WAITING FOR SET-UP 3 .V26" appears:
 - Reconnect cable W34 to A13 Module at A13A2 J3.
 - Disconnect cable W36 from A14 Module at A14U1 J3.
 - Connect PM cable to A14 Module at A14U1 J3.
 - to continue test.
 6. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W36 to module at A14U1 J3.
 - to continue test.
 7. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use to scroll through messages.
 - Record error code(s) displayed for A14.
 8. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST POWER LEVELS.
-

A14 MODULE DIAGNOSTICS

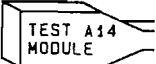
| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A14.04 |
| Run time: | 1 min. 35 sec. |  |
| Set-up time: | 3 min. | |

Cable **W34** is tested by substituting in a test cable from the On-Site Service Kit.

Run Test

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable **W29** from A14 Module at **A14A2 J1**.
 - Connect **YELLOW PM** cable and adapter to cable **W29**.
 - to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable **W29** to module at **A14A2 J1**.
 - Disconnect cable **W34** from **A13** and **A14** modules at **A13A2 J3** and **A14U1 J3**.
 - Connect **PM** cable to **A13 Module** at **A13A2 J3** using adapter and barrel adapter from On-Site Service Kit.
 - to continue test.
5. When "WAITING FOR SET-UP 3 .V26" appears:
 - Connect test cable (flexible) to **A13** and **A14** modules at **A13A2 J3** and **A14U1 J3**.
 - Disconnect cable **W36** from **A14 Module** at **A14U1 J3**.
 - Connect **PM** cable to **A14 Module** at **A14U1 J3**.
 - to continue test.
6. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable **W36** to module at **A14U1 J3**.
 - to continue test.
7. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use to scroll through messages.
 - Record error code(s) displayed for **A14**.
8. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST CABLE W34**.

A14 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------------------------|
| Type: | 1; Loop Lock/Unlock | A14.05  |
| Run time: | 1 min. | |
| Set-up time: | 0 | |

Run Test

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **2** **0** **HZ**.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A6. If "TEST 1 OF A06 (PASSED OR FAILED)" is not displayed, rerun test.

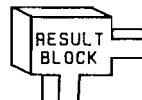
NOTE

The A14 Module's loop test is included in this A6 Module test.

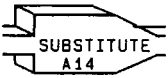
COMMENT

If any error codes are displayed for modules A01-A04 or A07-A13, you need to isolate those failure(s) before performing the A14 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST A14 MODULE**.



A14 MODULE DIAGNOSTICS

| | | |
|---------------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | A14.06 |
| Run time: | 0 |  |
| Set-up time: | 5 min. | |

The following describes the technique for connecting a known good A14 Module.

Connect Substitute Module

1. Switch instrument to Standby.
2. Extend **A14 Module**. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate extension information.)
3. Disconnect cables **W7**, **W29**, **W34** and **W36** from **A14 Module** (see **A14 MODULE CABLE CONNECTION LOCATOR** on foldout).
4. Without removing **A14 Module** from instrument, carefully lay substitute **A14 Module** on top of modules **A9**, **A11** and **A12**.

CAUTION

When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

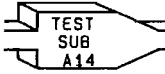
5. Connect cables **W7** and **W29** to substitute module.
 - Use SMA-to-SMC adapters, SMA barrel adapters and flexible coax cable from On-Site Service Kit in place of cable **W34** to connect substitute **A14** to output of **A13 Module**.

NOTE

A14 Module output need not be connected to run test.

6. Turn instrument on.
 7. Return to foldout.
-

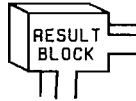
A14 MODULE DIAGNOSTICS

| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | Substitute Module Test | A14.07 |
| Run time: | 1 min. |  |
| Set-up time: | 0 | |

This procedure tests operation of substitute A14 Module by repeating test performed on A14 Module before substitution.


Run Test

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **2** **0** **HZ**.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A6. If "TEST 1 OF A06 (PASSED OR FAILED)" is not displayed, rerun test.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each



for TEST SUB A14.

A14 MODULE DIAGNOSTICS

| | | |
|---------------------|----------------------|------------------------------------------------------------------------------------|
| Type: | Additional A14 Tests | A14.08 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

The **A14** failure conditions for arriving at this task are described below. Follow the procedure for the **condition** which fits your module.

- Condition 1:** Instrument Level Self Test indicated **A14** failure.
- Condition 2:** **A14** Module failed **POWER LEVEL DIAGNOSTICS**.
- Condition 3:** Instrument must be set to a specific operating condition to detect **A14** failure.

Condition 1

1. **[INSTR PRESET]** **[SHIFT]**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.
2. **[SHIFT]** **[SPCL]** **[3]** **[3]** **[0]** **[HZ]**.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see **INSTRUMENT LEVEL DIAGNOSTICS** foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use **[MSSG]** to scroll through messages.
 - Record any **A06** and **A14** error codes.

COMMENT

If any error codes are displayed for modules A01-A04 or A07-A13, you need to isolate those failure(s) before performing the A14 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

5. Return to foldout.
-

A14 MODULE DIAGNOSTICS


Condition 2

1. Use results from **TEST RF POWER** to check substitute module.
2. Rerun test now if necessary to ensure all test results have been recorded accurately.
3. Return to foldout.

Condition 3

1. Set instrument to operating condition which causes **A14 failure**.
2. Record instrument set-up and error message(s).
3. Return to foldout.

A14 MODULE DIAGNOSTICS

| | | |
|--------------|-----------------------|------------------------------------------------------------------------------------|
| Type: | Additional Substitute | A14.09 |
| Run time: | A14 Tests |  |
| Set-up time: | Conditional | |

This procedure tests operation of substitute A14 Module by repeating test(s) performed on A14 Module before substitution.

- Condition 1: Instrument Level Self Test indicated A14 failure.
- Condition 2: A14 Module failed POWER LEVEL DIAGNOSTICS.
- Condition 3: Instrument must be set to a specific operating condition to detect A14 failure.

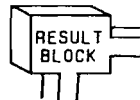
Condition 1

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.
2. **SHIFT** **SPCL** **3** **3** **0** **HZ**.
3. When "WAITING FOR SET-UP 1 V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS.VI" appears:
 - Use **MSSG** to scroll through messages.
 - Record A6 or A14 error codes.

COMMENT

If any error codes are displayed for modules A01-A04 or A07-A13, you need to isolate those failure(s) now.

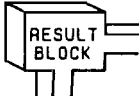
5. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each **FURTHER**.



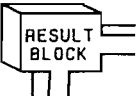
for TEST SUB A14

A14 MODULE DIAGNOSTICS


Condition 2

1. Use results from **A14.03** to check substitute module.
2. Rerun test now if necessary to ensure all test results have been recorded accurately.
3. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A14 FURTHER.**

Condition 3

1. Set instrument to operating condition which causes **A14** failure.
2. Record instrument set-up and error message(s).
3. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A14 FURTHER.**

A14 MODULE DIAGNOSTICS

| | | |
|--------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A14.10 |
| Run time: | 0 |  |
| Set-up time: | 5 min. | |

Connect Module


1. Switch instrument to **Standby**.
2. Disconnect cables **W7**, **W29**, **W34** and **W36** from substitute **A14 Module**.
3. Return substitute A14 Module to On-Site Service Kit.

CAUTION

When connecting ribbon cable, find arrowhead on cable connector and align with arrowhead on board connector.

4. Reconnect **W7** to module at **A14A3 J6** and lower module back into instrument.
 5. Reconnect cables **W7**, **W29**, **W34** and **W36** to **A14 Module**.
 6. Turn instrument on.
 7. Return to foldout.
-

A14 MODULE DIAGNOSTICS

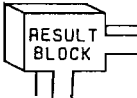
| | | |
|--------------|---------------------|-------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A14.11 |
| Run time: | 1 min. |  |
| Set-up time: | 2 min. | |

RF signal level is measured using Internal Power Meter (PM).


CAUTION

Do not permit end of Internal Power Meter cable to short circuit instrument by coming in contact with any exposed circuitry.

Run Test

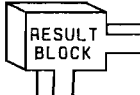
1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **6** **8** **1** **3** **HZ**
(To check input levels only.)
3. **3** **5** **6** **HZ**.
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W29 from module at A14A2 J1.
 - Connect **YELLOW PM** cable and adapter to cable W29.
 - **HZ** to continue test.
5. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W29 to module at A14A2 J1.
 - Disconnect cable W34 from A13 Module at A13A2 J3.
 - Connect **PM** cable to A13 Module at A13A2 J3 using adapter and barrel adapter from On-Site Service Kit.
 - **HZ** to continue test.
6. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W34 to module at A13A2 J3.
 - **HZ** to continue test.
7. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A14.
8. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST RF POWER**.

A14 MODULE DIAGNOSTICS


| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A14.12 |
| Run time: | 10 sec. |  |
| Set-up time: | 1 min. | |

RF signal level is measured using Internal Power Meter (PM).

Run Test

1. **INSTR PRESET** **SHIFT**
Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **6** **8** **1** **2** **HZ**
(To check input levels only.)
3. **3** **5** **6** **HZ**
4. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W29 from A6 module at A6A2 J9. (See Top View Diagram inside Top Cover to locate W29 connection on A6 Module.)
 - Connect **YELLOW** PM cable and adapter to A6 module at A6A2 J9.
 - **HZ** to continue test.
5. When "RECONNECT ALL CABLES .V29" appears:
 - Reconnect cable W29 to A6 module at A6A2 J9.
 - **HZ** to continue test.
6. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A14.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST CABLE W29**.

A14 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A14.13 |
| Run time: | 3 min. |  |
| Set-up time: | 2 min. | |

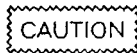
Internal Voltmeter (VM) is used to measure TTL level changes transmitted to **A14 Module** on MUX and Band select lines.

Run Test

1. Switch instrument to Standby:
 - Disconnect cable **W7** from module at **A14A2 J2**.
 - Plug end of **W7** into **16** pin test connector, from On-Site Service Kit.

NOTE

*Find arrowhead on test connector and align with arrowhead on cable plug **W7P2**.*



To prevent damage to the Power Supply and Control sections, do not permit the exposed pins on the test connector to short circuit.

2. Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A14 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
3. Turn instrument on.
(Hold shift key until "**100.00000MZ -140.0DM**" appears, to override 20 second reset test.)

A14 MODULE DIAGNOSTICS

MUX and Band Select Lines

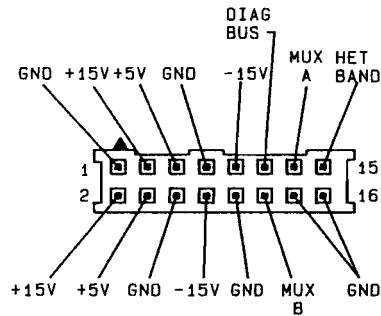
Check High State

4. **SHIFT** **SPCL** **3** **6** **0** **1**
(To specify high state.)
5. Enter **Bit Select Keys** as indicated in Table 3L-1. **W7P2** Control Bits, for Control Line to be tested.
6. Connect VM probe to Control Line at Pin Number indicated in Table 3L-1. (See Figure 3L-1. Cable Plug W7P2 Signal Locator.)

Table 3L-1. W7P2 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 5 and 10) | Pin Number (Step 6) |
|------------|--------------|-------------------------------------|------------------------|
| 1 | MUX A | 9 HZ | 13 |
| 2 | MUX B | 1 1 HZ | 12 |
| 3 | HET BAND | 2 6 HZ | 15 |

Figure 3L-1. Cable Plug W7P2 Signal Locator



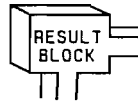
A14 MODULE DIAGNOSTICS

7. **2** **5** **HZ**
(To enable voltmeter.)
8. Voltage should read approximately **+2.5** to **+5.5** Vdc.
(**5** **HZ** to repeat measurement.)

Check Low State

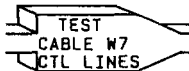
9. **SHIFT** **SPCL** **3** **6** **0** **2**
(To specify low state.)
10. Enter **Bit Select Keys** as indicated in Table 3L-1. **W7P2** Control Bits, for same Control Line.
11. **2** **5** **HZ**
(To enable voltmeter.)
12. Voltage should read approximately **-0.5** to **+1.5** Vdc.
(**5** **HZ** to repeat measurement.)
13. Repeat Procedure for each Control Line shown in Table 3L-1.
14. Record test results.
15. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each

conditions shown in each



for **TEST CONTROL BITS.**

A14 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A14.14 |
| Run time: | 3 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to **A14 Module** on MUX and Band select lines.

Run Test

1. Switch instrument to **Standby**.
2. Extend **A14 Module** on extender posts, from On-Site Service Kit or instrument, and disconnect cable **W7** from **A5 Assembly** at **A5J7**. (See table on foldout in **MECHANICAL PROCEDURES** to locate **A14 Module** extension and **A5** cable disconnection information.)
3. Connect **VM** probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A14 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
4. Turn instrument on.

NOTE

It is only necessary to perform this test on failing control line.

MUX and Band Select Lines

Check High State

5. SHIFT SPCL 3 6 0 1
(To specify high state.)
 6. Enter **Bit Select Keys** as indicated in **Table 3L-2. A5J7 Control Bits**, for **Control Line** to be tested.
-

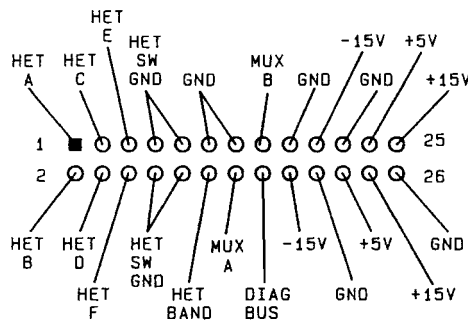
A14 MODULE DIAGNOSTICS

7. Connect VM probe to Control Line at Pin Number indicated in Table 3L-2. (See Figure 3L-2. A5J7 Signal Locator.)

Table 3L-2. A5J7 Control Bits

| Test Order | Control Line | Bit Select Keys (Steps 6 and 11) | Pin Number (Step 7) |
|------------|--------------|-------------------------------------|------------------------|
| 1 | MUX A | [9] [HZ] | 14 |
| 2 | MUX B | [1] [1] [HZ] | 15 |
| 3 | HET BAND | [2] [6] [HZ] | 12 |

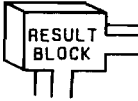
**Figure 3L-2. A5J7 Signal Locator
(Solder-Side View)**




8. [2] [5] [HZ]
(To enable voltmeter.)
9. Voltage should read approximately +2.5 to +5.5 Vdc.
([5] [HZ] to repeat measurement.)

A14 MODULE DIAGNOSTICS

Check Low State

10. **SHIFT** **SPCL** **3** **6** **0** **2**
(To specify low state.)
11. Enter **Bit Select Keys** as indicated in **Table 3L-2. A5J7 Control Bits**, for same **Control Line**.
12. **2** **5** **HZ**
(To enable voltmeter.)
13. Voltage should read approximately **-0.5** to **+1.5 Vdc**.
(**5** **HZ** to repeat measurement.)
14. Record test results.
15. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST CABLE W7 CTL LINES**.

A14 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Driver Transmission | A14.15 |
| Run time: | 3 min. |  |
| Set-up time: | 4 min. | |

Internal Voltmeter (VM) is used to measure level changes transmitted to A14 Module on Switch Driver control lines.

Run Test

1. Switch instrument to Standby:
 - A14 Module will have to be extended to access A14A3 J6. (See table on foldout in MECHANICAL PROCEDURES to locate module extension instructions.)
 - Disconnect cable W7 from module at A14A3 J6.
 - Plug end of W7 into 10 pin test connector, from On-Site Service Kit.

NOTE

Find arrowhead on test connector and align with arrowhead on cable plug W7P3.



To prevent damage to the Power Supply and Control sections, do not permit the exposed pins on the test connector to short circuit.

2. Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (A4TP1). (See A14 MODULE CABLE CONNECTION LOCATOR on foldout for VM IN location.)
3. Turn instrument on.
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)

A14 MODULE DIAGNOSTICS

Check High State

4.
 (To specify high state.)

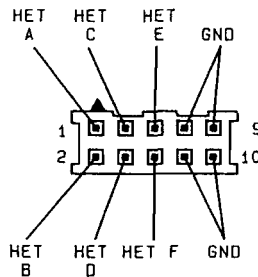
NOTE

A "0" will appear in display indicating that the data bit will be set low. However, the bit is inverted before it is sent to A14.

5.
 (To select bits.)

6. Connect VM probe to test connector **HET A** (pin 1). (See Figure 3L-3. Cable plug W7P3 Signal Locator.)

Figure 3L-3. Cable Plug W7P3 Signal Locator



7.
 (To enable voltmeter.)
8. Voltage should read approximately **+20 Vdc**.
9. Check each driver line (pins **1-6**), by connecting VM probe to each pin and keying . Voltage should read approximately **+20 Vdc** on each line.
-

A14 MODULE DIAGNOSTICS

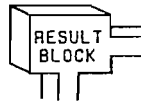
Check Low State

10. **SHIFT** **SPCL** **3** **6** **0** **1**
 (To specify low state.)

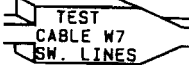
NOTE

A "1" will appear in display indicating that the data bit will be set high. However, the bit is inverted before it is sent to A14.

11. **7** **1** **HZ**
 (To select bits.)
12. **2** **5** **HZ**
 (To enable voltmeter.)
13. Voltage should read approximately **0 Vdc**.
 (**5** **HZ** to repeat measurement.)
14. Check each driver line by connecting **VM** probe to each pin and keying **5** **HZ**. Voltage should read approximately **0 Vdc** on each line.
15. Record test results.
16. Return to foldout:
 • Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST SWITCH DRIVE**.



A14 MODULE DIAGNOSTICS

| | | |
|---------------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Driver Transmission | A14.16 |
| Run time: | 3 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to A14 Module Switch Driver control lines.

Run Test

1. Switch instrument to Standby.
2. Extend A14 Module on extender posts and disconnect cable W7 from A5 Assembly at A5J7. (See table on foldout in **MECHANICAL PROCEDURES** to locate A14 Module extension and A5 cable disconnection information.)
3. Connect VM probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (A4TP1). (See A14 **MODULE CABLE CONNECTION LOCATOR** on fold-out for VM IN location.)
4. Turn instrument on.

Check High State

5.
(To specify high state.)

NOTE

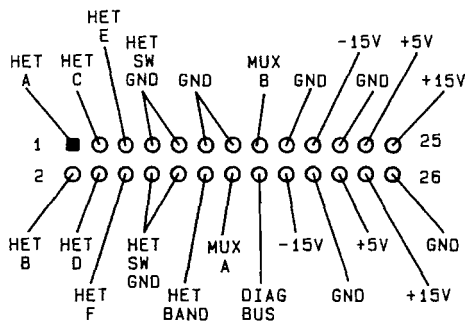
A "0" will appear in display indicating that the data bit will be set low. However, the bit is inverted in the Control Section before it is sent to A14.

6.
(To select bit.)
-

A14 MODULE DIAGNOSTICS

7. Connect VM probe to solder-side of A5J7 line HET A (pin 1). (See Figure 3L-4, A5J7 Signal Locator.)

**Figure 3L-4. A5J7 Signal Locator
(Solder-Side View)**



8. (To enable voltmeter.)
9. Voltage should read approximately +20 Vdc.
10. Check each driver line (pins 1-6) by connecting VM probe to each pin and keying .

Check Low State

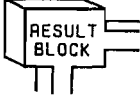
11. (To specify low state.)

NOTE


A "1" will appear in display indicating that the data bit will be set high. However, the bit is inverted in the Control Section before it is sent to A14.

12. (To select bit.)

A14 MODULE DIAGNOSTICS

13. Connect VM probe to solder-side of A5J7 line HET A (pin 1).
14. 2 5 HZ
(To enable voltmeter.)
15. Voltage should read approximately 0 Vdc.
(5 HZ to repeat measurement.)
16. Check each driver line (pins 1-6).
17. Record test results.
18. Return to foldout:
 - ◆ Determine next task by comparing test results to conditions shown in each  for TEST CABLE W7 SW LINES.

A14 MODULE DIAGNOSTICS

| | | |
|---------------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A14.17 |
| Run time: | 2 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to check power supply levels at inputs to A14 Module.

Run Test

- Switch instrument to Standby:
 - Disconnect W7 from A14 at A14A2 J2.
 - Plug end of W7 into 16 pin test connector, from On-Site Service Kit.

NOTE

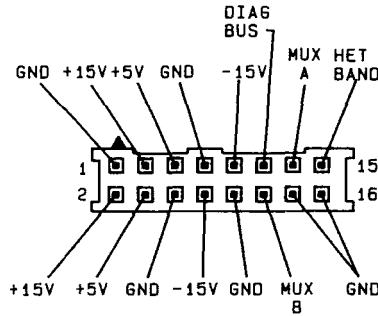
Find arrowhead on test connector and align with arrowhead on cable plug W7P2.

- Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (A4TP1). (See A14 MODULE CABLE CONNECTION LOCATOR on fold-out for VM IN location.)
- Turn instrument on and enter:
 (SHIFT) (SPCL) (3) (2) (5) (HZ)
 (To enable Internal Voltmeter.)

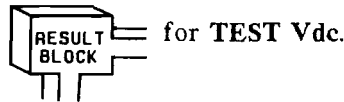
A14 MODULE DIAGNOSTICS

4. Measure voltage levels:
 - Connect VM probe to test connector pin for each power supply line (see Figure 3L-5. Cable Plug W7P2 Signal Locator).
 - **5** **HZ** (To make each voltage measurement.)


Figure 3L-5. Cable Plug W7P2 Signal Locator



5. Record test results.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each



A14 MODULE DIAGNOSTICS

| | | |
|---------------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A14.18 |
| Run time: | 2 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to check power supply levels at A5J2.

Run Test

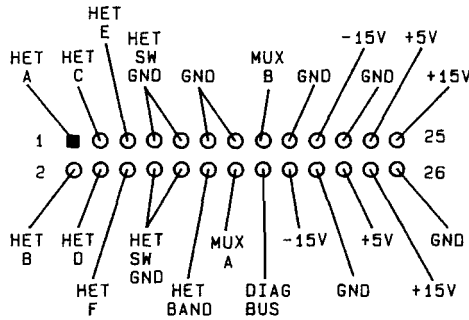
1. Switch instrument to **Standby**.
2. Extend **A14 Module** on extender posts, from On-Site Service Kit, and disconnect cable **W7** from **A5 Assembly** at **A5J2**. (See table on foldout in **MECHANICAL PROCEDURES** to locate **A14 Module** extension and **A5** cable disconnection information.)
3. Connect VM probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A14 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
4. Turn instrument on and enter:

 (To enable Internal Voltmeter.)

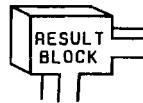
A14 MODULE DIAGNOSTICS

5. Measure all voltage levels at A5J7:
 - Access signals from solder-side of A5J7. (See Figure 3L-6, A5J7 Signal Locator.)
 - 5 HZ (To make each voltage measurement.)

Figure 3L-6. A5J7 Signal Locator
(Solder-Side View)

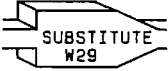


6. Record test results.
7. Return to folout:
 - Determine next task by comparing test results to conditions shown in each PS LINES.



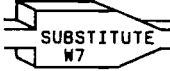
for TEST CABLE W7

A14 MODULE DIAGNOSTICS

| | | |
|---------------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A14.19 |
| Run Time: | 5 min. |  |
| Set-up Time: | 1 min. | |

1. Testing has shown cable **W29** or **W34** to be suspect, temporarily replace **W29** with a test cable from the On-Site Service Kit. Cable **W34** should be replaced by a semi-rigid cable. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.
2. Refer to **REPLACEABLE PARTS**, in HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.
3. Return to foldout.

A14 MODULE DIAGNOSTICS

| | | |
|---------------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A14.20 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

Testing has shown cable **W7** to be suspect, temporarily replace with a spare ribbon cable if available. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.

Refer to **REPLACEABLE PARTS**, in HP 8642A/B Operating and Service Manual, for information to order a permanent replacement cable.


CAUTION

When connecting ribbon cable to A14 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W7

1. Switch instrument to **Standby** to connect cable **W7** to **A5** Assembly and **A14** Module. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on connecting cable **W7** to **A5J7**.)
2. Return to foldout.

A14 MODULE DIAGNOSTICS

| | | |
|---------------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A14.21 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

CAUTION

When connecting ribbon cable to A14 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W7

1. Switch instrument to Standby to reconnect cable **W7** to **A5** Assembly or **A14** Module. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on reconnecting cable **W7** to **A5J7**.)
2. Return to foldout.

A14 HETERODYNE MODULE THEORY OF OPERATION

3L-5. A14 HETERODYNE MODULE**COMMENT**

It is not essential to understand the internal operation of a module to make an on-site repair.

The **A14 Module** switches the **RF Signal** sent from the **A13 Module**, between a through path and the heterodyne path. The heterodyne path down converts the main band signal by mixing it with either **45 MHz** or **832.5 MHz** to produce the two heterodyne bands. Together these two bands provide the output frequency range **100 kHz** to **4.12 MHz**.

The **45 MHz** signal is a timebase output sent from the **A6 Module**. The **832.5 MHz** signal is generated by a voltage controlled oscillator within **A14** which is phase locked to the **45 MHz** timebase signal.

The **Switch Drive**, for controlling the path selection switches, is provided by the **A17 Module** in the Power Supply Section.

See the **A14 MODULE SIMPLIFIED BLOCK DIAGRAM** for further understanding of the **A14 Module's** internal operation.

A16 (OPTION 003) ATTENUATOR MODULE

3M-1. INTRODUCTION

The **MODULE LEVEL DIAGNOSTICS (MLD)** contained in this section are used to further interrogate the **A16 (Option 003) Module (HP 8642A only)**. The objective is to isolate the failure indicated for this module to the module itself or to a part on which it depends for operation.

NOTE

*At this level of testing, recommendations for further action are made on the assumption that the **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** showed no failures for modules **A01-14** or **A17**. (For information on using the on-site diagnostics, refer to the **INTRODUCTION** section of this manual.)*

CAUTION

When tightening the coax cable connectors, do not exceed a torque of 1.0 Nm or .74 ft-lbs (slightly tighter than finger tight).

When coax cables are disconnected from instrument, do not allow loose ends to come in contact with any exposed circuitry susceptible to short circuiting.

Test Instructions

1. The instrument's **Top Cover** must be removed to run many of these tests. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate instructions.)
2. The last page in this group of tests is a foldout and should be pulled out now.
3. Turn to the next page to begin the **A16 MLD**.

A16 (Option 003) MODULE SUBSTITUTION

3M-2. INTRODUCTION**NOTE**

If a known good module is not available, proceed to the next page, A16 (Option 003) INPUTS VERIFICATION.

The first step in isolating an A16 (Option 003) failure is to substitute in a known good module from the On-site Service Kit.

A16 (Option 003) Substitution Instructions

1. Find **A16 (Option 003) MODULE SUBSTITUTION** on the foldout.
 2. Use the Task Sequence Diagram, shown under **A16 (Option 003) MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
 3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
 4. Begin now by performing the first task shown on the diagram.
-

A16 (Option 003) INPUTS VERIFICATION

3M-3. INTRODUCTION

If a known good **A16 (Option 003) Module** is not available or, if you were not able to isolate the failure using the **A16 (OPTION 003) MODULE SUBSTITUTION** procedure, the Task Sequence Diagrams (shown under **A16 (OPTION 003) INPUTS VERIFICATION**) should be used to check each signal path into the **A16 (Option 003) Module**.


A16 (Option 003) Inputs Verification Instructions

1. Find **A16 (OPTION 003) INPUTS VERIFICATION** on the foldout.
2. The Task Sequence Diagrams, shown under **A16 (OPTION 003) INPUTS VERIFICATION**, are separated into three checks: **RF, Control and Power Supply** signals.
3. Use the Task Sequence Diagrams to direct you through the verification process. Each Task Arrow shown in a diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown under **1. A16 POWER SUPPLY INPUT CHECK**.

NOTE

*The **A16 (OPTION 003) MODULE I/O SIGNALS DIAGRAM** shows all parts which the **A16 (Option 003) Module** depends on for operation.*

A16 (OPTION 003) MODULE DIAGNOSTICS

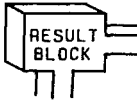
| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 2A; RF Power Levels | A16.22 |
| Run time: | 1 min. |  |
| Set-up time: | 2 min. | |

RF signal level is measured using Internal Power Meter (PM).

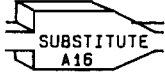
CAUTION

Do not permit end of Internal Power Meter cable to short circuit instrument by coming in contact with any exposed circuitry.

Run Test

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **6** **3** **HZ**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W300 from A14 Module at A14U1 J3.
 - Connect **YELLOW PM** cable and adapters to A14 Module at A14U1 J3.
 - **HZ** to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W300 to A14 Module at A14U1 J3.
 - Disconnect W301 cable from A16 Module at A16A2 J2.
 - Connect PM cable and adapters to module at A16A2 J2.
 - **HZ** to continue test.
5. When "DIAG DONE HIT MSSGS .V1" appears:
 - Reconnect cable W301 to module at A16A2 J2.
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A16.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for TEST RF POWER.


A16 (OPTION 003) MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | A16.23 |
| Run time: | 0 |  |
| Set-up time: | 7 min. | |

Connect Substitute Module

1. Switch instrument to **Standby**.
2. Remove **A16 (Option 003) Module** and install substitute module (refer to table on foldout in **MECHANICAL PROCEDURES** to locate A16 removal and replacement information).
3. Turn instrument on.
4. Return to foldout.


A16 (OPTION 003) MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | A16.24 |
| Run time: | 0 |  |
| Set-up time: | 7 min. | |

Connect Module

1. Switch instrument to **Standby**.
2. Remove substitute **A16 (Option 003) Module** and replace instrument's **A16 (Option 003) Module**.
3. Return substitute **A16 (Option 003) Module** to On-Site Service Kit.
4. Return to foldout.

A16 (OPTION 003) MODULE DIAGNOSTICS

| | | |
|--------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A16.25 |
| Run time: | 2 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to check power supply levels at inputs to A16 (Option 003) Module.

Run Test

- Switch instrument to Standby:
 - Disconnect W11 from A16 (Option 003) at A16A1 J2.
 - Plug end of W11 into 34 pin test connector, from On-Site Service Kit.

NOTE

Find arrowhead on test connector and align with arrowhead on cable plug W11P2.

- Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to VM IN (A4TP1). (See A16 (OPTION 003) MODULE CABLE CONNECTION LOCATOR on foldout for VM IN location.)
- Turn instrument on and enter:

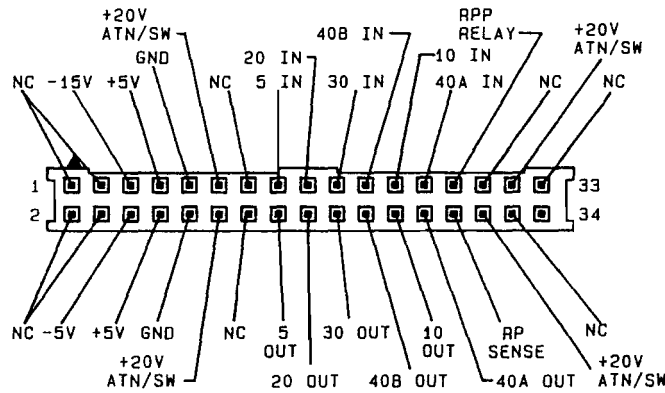
| | | | | | |
|-------|------|---|---|---|----|
| SHIFT | SPCL | 3 | 2 | 5 | HZ |
|-------|------|---|---|---|----|

 (To enable Internal Voltmeter.)

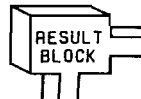
A16 (OPTION 003) MODULE DIAGNOSTICS

4. Measure voltage levels:
 - Connect VM probe to test connector pin for each power supply line including +20V ATN/SW lines. (See Figure 3M-1. Cable Plug W11P2 Signal Locator).
 - 5 HZ (To make each voltage measurement.)

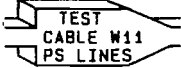
Figure 3M-1. Cable Plug W11P2 Signal Locator



5. Record test results.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each RESULT BLOCK for TEST Vdc.



A16 (OPTION 003) MODULE DIAGNOSTICS

| | | |
|--------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A16.26 |
| Run time: | 2 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to check power supply levels at A5J2.

Run Test

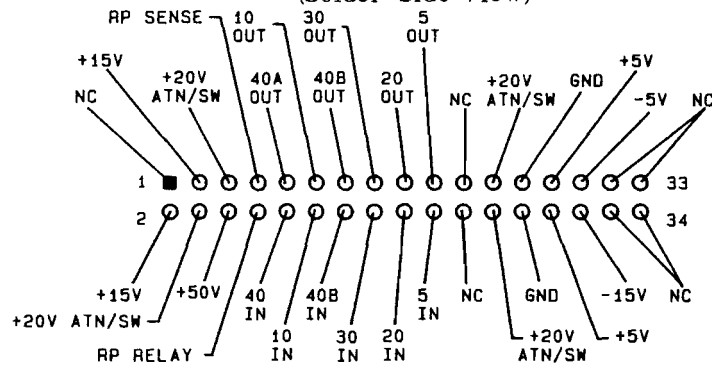
1. Switch instrument to Standby.
2. Extend **A16 (Option 003) Module** on extender posts, from On-Site Service Kit, and disconnect cable **W11** from **A5 Assembly** at **A5J8**. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate **A16 (Option 003) Module** extension and **A5** cable disconnection information.)
3. Connect **VM** probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A16 (OPTION 003) MODULE CABLE CONNECTION LOCATOR** on foldout for **VM IN** location.)
4. Turn instrument on and enter:

 (To enable Internal Voltmeter.)

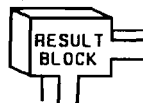
A16 (OPTION 003) MODULE DIAGNOSTICS

5. Measure voltage levels at **A5J8**:
 - Access signals from solder-side of **A5J8**. (See Figure 3M-2. **A5J8 Signal Locator**.)
 - **5 HZ** (To make each voltage measurement.)


Figure 3M-2. A5J8 Signal Locator (Solder-Side View)



6. Record test results.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST CABLE W11 PS LINES**.



A16 (OPTION 003) MODULE DIAGNOSTICS

| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | 3; Driver Transmission | A16.27 |
| Run time: | 1 min. |  |
| Set-up time: | 0 | |

Attenuator drive lines are checked by separately selecting relays and listening for attenuator pads to click in and out.

NOTE

Instrument's Top Cover should be removed to perform this test.

Run Test

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. Set instrument to zero attenuation:
 •
3. Check relay drivers:
 • Select **Amplitude Setting for Attenuator Relay** to be tested (from **Table 3M-1, Attenuator Relay Selection**) and listen for pad to click in.
 • Select and listen for attenuator pad to click out.
 • Repeat process for each relay listed in **Table 3M-1**.

Table 3M-1. Attenuator Relay Selection

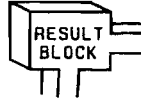
| Test Order | Amplitude Setting | Attenuator Relay |
|------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1 | <input type="button" value="0"/> <input type="button" value="DBM"/> | 5 dB pad |
| 2 | <input type="button" value="-"/> <input type="button" value="5"/> <input type="button" value="DBM"/> | 10 dB pad |
| 3 | <input type="button" value="-"/> <input type="button" value="1"/> <input type="button" value="5"/> <input type="button" value="DBM"/> | 20 dB pad |
| 4 | <input type="button" value="-"/> <input type="button" value="2"/> <input type="button" value="5"/> <input type="button" value="DBM"/> | 30 dB pad |

A16 (OPTION 003) MODULE DIAGNOSTICS

NOTE


This procedure does not check the two 40 dB relay drivers. They can be checked using an external power measuring device connected at the output of A16 (Option 003). Check power out at settings of -60.1 dBm to -100 dBm (40 dB pad A) and -100.1 to -140 dBm (40 dB pad B).

4. Record test results.
5. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **LINES**.



for **TEST ATN DRIVE**

A16 (OPTION 003) MODULE DIAGNOSTICS

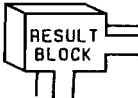
| | | |
|--------------|----------|------------------------------------------------------------------------------------|
| Type: | RF Power | A16.28 |
| Run time: | 1 min. |  |
| Set-up time: | 2 min. | |

Internal Power Meter (PM) is used to test output power levels.


CAUTION

If an external power measuring instrument is available, use it to make power measurements.

Run Test

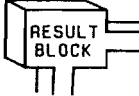
1. **[INSTR PRESET] [SHIFT]**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **[SHIFT] [SPCL] [3] [3] [6] [3] [HZ]**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable W300 from A14 Module at A14U1 J3.
 - Connect **YELLOW PM** cable to A14 Module at A14U1 J3.
 - **[HZ]** to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable W300 to A14 Module at A14U1 J3.
 - Connect **PM** cable and adapters to instrument's **RF Output port CP1**.
 - **[HZ]** to continue test.
5. When "DIAG DONE HIT MSSGS .V1" appears:
 - Use **[MSSG]** to scroll through messages.
 - Record error code(s) displayed for A16.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST OUTPUT POWER**.

A16 (OPTION 003) MODULE DIAGNOSTICS

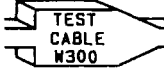
| | | |
|--------------|----------|------------------------------------------------------------------------------------|
| Type: | RF Power | A16.29 |
| Run time: | 1 min. |  |
| Set-up time: | 2 min. | |

Internal Power Meter (PM) is used to test output power levels.

Run Test

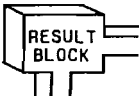
1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **6** **3** **HZ**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable **W300** from **A14 Module** at **A14U1 J3**.
 - Connect **YELLOW PM** cable and adapters to **A14 Module** at **A14U1 J3**.
 - **HZ** to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable **W300** to **A14 Module** at **A14U1 J3**.
 - Disconnect **W301** cable from **A16 Module** at **A16A2 J2**.
 - Connect **PM** cable and adapters to module at **A16A2 J2**.
 - **HZ** to continue test.
5. When "DIAG DONE HIT MSSGS .V1" appears:
 - Reconnect cable **W301** to module at **A16A2 J2**.
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for **A16**.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST A16 OUTPUT**.

A16 (OPTION 003) MODULE DIAGNOSTICS


| | | |
|--------------|----------|------------------------------------------------------------------------------------|
| Type: | RF Power | A16.30 |
| Run time: | 1 min. |  |
| Set-up time: | 2 min. | |

Internal Power Meter (PM) is used to test output power levels.

Run Test

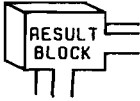
1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **6** **3** **HZ**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable **W300** from **A14** Module at **A14U1 J3**.
 - Connect **YELLOW** PM cable and adapters to **A14** Module at **A14U1 J3**.
 - **HZ** to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Disconnect cable **W300** from **A16** Module at **A16AT1 J1**.
 - Connect flexible coax cable from On-Site Service Kit to modules at **A14U1 J3** and **A16AT1 J1**.
 - Disconnect **W301** cable from **A16** Module at **A16A2 J2**.
 - Connect **PM** cable and adapters to module at **A16A2 J2**.
 - **HZ** to continue test.
5. When "DIAG DONE HIT MSSGS .V1" appears:
 - Reconnect cable **W301** to module at **A16A2 J2**.
 - If power test still fails, reconnect semi-rigid cable **W300** to **A14** and **A16** modules.
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for **A16**.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST CABLE W300**.

A16 (OPTION 003) MODULE DIAGNOSTICS


| | | |
|--------------|----------|------------------------------------------------------------------------------------|
| Type: | RF Power | A16.31 |
| Run time: | 1 min. |  |
| Set-up time: | 2 min. | |

Internal Power Meter (PM) is used to test output power levels.

Run Test

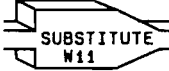
1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **6** **3** **HZ**
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Disconnect cable **W300** from **A14** Module at **A14U1 J3**.
 - Connect **YELLOW PM** cable to **A14** Module at **A14U1 J3**.
 - **HZ** to continue test.
4. When "WAITING FOR SET-UP 2 .V25" appears:
 - Reconnect cable **W300** to **A14** Module at **A14U1 J3**.
 - Disconnect **W301** cable from **A16** Module at **A16A2 J2** and from cable **W16** at **W16P2** (**W200** on Option **002**, rear panel, instruments).
 - Connect flexible coax cable, from On-Site Service Kit, to **A16** Module and cable **W16**.
 - Connect **PM** cable and adapters to instrument's **RF Output** port **CP1**.
 - **HZ** to continue test.
5. When "DIAG DONE HIT MSSGS .V1" appears:
 - If power test still fails, reconnect semi-rigid cable **W301** to **A16** and **W16**.
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for **A16**.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST CABLE W301**.

A16 (OPTION 003) MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A16.32 |
| Run Time: | 5 min. |  |
| Set-up Time: | 1 min. | |

1. Testing has shown cable **W300** or **W301** to be suspect, replace with a semi-rigid cable. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.
2. Refer to **REPLACEABLE PARTS**, in HP 8642A/B Operating and Service Manual, for information to order a replacement cable.
3. Return to foldout.

A16 (OPTION 003) MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A16.33 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

Testing has shown cable **W11** to be suspect, temporarily replace with a spare ribbon cable if available. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.

Refer to **REPLACEABLE PARTS** in HP 8642A/B Operating and Service Manual for information to order a permanent replacement cable.


CAUTION

When connecting ribbon cable to A16 (Option 003) Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W11

1. Switch instrument to **Standby** to connect cable **W11** to **A5 Assembly** and **A16 (Option 003) Module**. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on connecting cable **W11** to **A5J8**.)
 2. Return to foldout.
-

A16 (OPTION 003) MODULE DIAGNOSTICS

| | | |
|--------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A16.34 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

CAUTION

When connecting ribbon cable to A16 (Option 003) Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W11

1. Switch instrument to **Standby** to reconnect cable **W11** to **A5 Assembly** or **A16 (Option 003) Module**. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on reconnecting cable **W11** to **A5J8**.)
2. Return to foldout.

A16 (OPTION 003) THEORY OF OPERATION

3M-4. A16 (OPTION 003) ATTENUATOR MODULE**COMMENT**

It is not essential to understand the internal operation of a module to make an on-site repair.

The **A16 (Option 003) Attenuator Module** is included in the **HP 8642A** only. This module provides level attenuation for the RF output signal. Two attenuator assemblies connected in series provide level attenuation to **-140 dBm**. The second attenuator assembly includes reverse power protection circuitry for the **RF Output** port. The attenuator and reverse power control signals are sent to the **A16 (Option 003) Module** from the **A17 Module** in the **Power Supply Section**.

The RF output signal from the **A16 Module** is routed directly to the **HP 8642A's RF Output** port.

With an **A16 (Option 003) Module** installed the output power level for an **HP 8642A** is increased to **+20 dBm** for the frequency range **264.3 to 528.7 MHz** and to **+19 dBm** for the frequency range **528.7 to 1057.5 MHz**.

See the **A16 (OPTION 003) MODULE SIMPLIFIED BLOCK DIAGRAM** for further understanding of the **A16 (Option 003) Module's** internal operation.

A19 DOUBLER/ATTENUATOR MODULE

3N-1. INTRODUCTION

The **MODULE LEVEL DIAGNOSTICS (MLD)** contained in this section are used to further interrogate the **A19 Module (HP 8642B only)**. The objective is to isolate the failure indicated for this module to the module itself or to a part on which it depends for operation.

NOTE

*At this level of testing, recommendations for further action are made on the assumption that the **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** showed no failures for modules **A01-A17**. (For information on using the on-site diagnostics, refer to the **INTRODUCTION** section of this manual.)*

CAUTION

When tightening the coax cable connectors, do not exceed a torque of 1.0 Nm or .74 ft-lbs (slightly tighter than finger tight).

When coax cables are disconnected from instrument, do not allow loose ends to come in contact with any exposed circuitry susceptible to short circuiting.

Test Instructions

1. The instrument's **Top Cover** must be removed to run many of these tests. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate instructions.)
2. The last page in this group of tests is a foldout and should be pulled out now.
3. Turn to the next page to begin the **A19 MLD**.

A19 MODULE SUBSTITUTION

3N-2. INTRODUCTION

NOTE

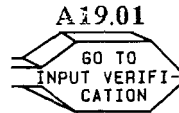
If a known good module is not available, proceed to the next page, A19 INPUTS VERIFICATION.

The first step in isolating an A19 failure is to substitute in a known good module from the On-site Service Kit.

A19 Substitution Instructions

1. Find **A19 MODULE SUBSTITUTION** on the foldout.
2. Use the Task Sequence Diagram, shown under **A19 MODULE SUBSTITUTION**, to direct you through the substitution process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
3. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
4. Begin now by performing the first task shown on the diagram.

A19 INPUTS VERIFICATION

3N-3. INTRODUCTION

If a known good **A19 Module** is not available or, if you were not able to isolate the failure using the **A19 MODULE SUBSTITUTION** procedure, the Task Sequence Diagrams (shown under **A19 INPUTS VERIFICATION**) should be used to check each signal path into the **A19 Module**.


A19 Inputs Verification Instructions

1. Find **A19 INPUTS VERIFICATION** on the foldout.
2. The Task Sequence Diagrams, shown under **A19 INPUTS VERIFICATION**, are separated into three checks: **RF, Control and Power Supply** signals.
3. Use the Task Sequence Diagrams to direct you through the verification process. Each Task Arrow shown in a diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown under **1. POWER SUPPLY INPUT CHECK**.

NOTE

*The **A19 MODULE I/O SIGNALS DIAGRAM** shows all parts which the **A19 Module** depends on for operation.*

A19 MODULE DIAGNOSTICS

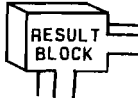
| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 1; Loop Lock/Unlock | A19.02 |
| Run time: | 40 sec. |  |
| Set-up time: | 0 | |

Run Test

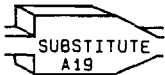
1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.00000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **5** **8** **HZ**.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for **A19**.

COMMENT

If any error codes are displayed for modules A01-A17 you need to isolate those failure(s) before performing the A19 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST A19 MODULE**.

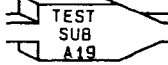
A19 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | A19.03 |
| Run time: | 0 |  |
| Set-up time: | 7 min. | |

Connect Substitute Module

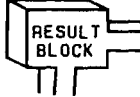
1. Switch instrument to **Standby**.
2. Remove **A19 Module** and install substitute module (refer to table on foldout in **MECHANICAL PROCEDURES** to locate removal and replacement information).
3. Turn instrument on.
4. Return to foldout.

A19 MODULE DIAGNOSTICS

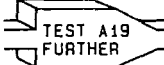
| | | |
|--------------|------------------------|------------------------------------------------------------------------------------|
| Type: | Substitute Module Test | A19.04 |
| Run time: | 40 sec. |  |
| Set-up time: | 0 | |

Test operation of substitute A19 Module by repeating test performed on A19 Module before substitution.

Run Test

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **5** **8** **HZ**.
3. When "DIAG DONE HIT MSSG .V1" appears:
 - Use **MSSG** to scroll through messages.
 - Record error code(s) displayed for A19. If "TEST 1 OF A19 (PASSED or FAILED)" is not displayed, rerun test.
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A19**.

A19 MODULE DIAGNOSTICS

| | | |
|--------------|----------------------|-------------------------------------------------------------------------------------|
| Type: | Additional A19 Tests | A19.05 |
| Run time: | Conditional |  |
| Set-up time: | Conditional | |

The **A19** failure conditions for arriving at this task are described below. Follow the procedure for the condition which fits your module.

- Condition 1:** Instrument Level Self Test indicated **A19** failure.
- Condition 2:** Instrument has a power level failure and **A14** Module RF Power Level Test indicated power level good out of **A14**.
- Condition 3:** Instrument must be set to a specific operating condition to detect **A19** failure.

Condition 1

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **0** **HZ**.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use **MSSG** to scroll through messages.
 - Record **A19** error codes.

COMMENT

If any error codes are displayed for modules A01-A17, you need to isolate those failure(s) before performing the A19 MODULE SUBSTITUTION. (Refer to INSTRUMENT LEVEL DIAGNOSTICS to determine correct order for troubleshooting modules.)

5. Return to foldout.
-

A19 MODULE DIAGNOSTICS

Condition 2**NOTE**

If an external power measuring instrument is available, use it to make power measurements.

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. Connect Power Meter (PM):
 - Connect Yellow PM cable and adapters to instrument's RF Output port CPI.
3. To use Internal Power Meter:
 - **SHIFT** **SPCL** **2** **4** **HZ**
 - **4** **HZ** to repeat measurement.
 - Key sequence must be repeated for each amplitude or frequency setting change.

NOTE


Internal Power Meter should read within ± 3 dB of amplitude setting. The internal power meter cannot measure power levels less than -10 dBm.

4. Measure power level:
 - Set instrument's frequency to 2 GHz.
 - Measure power at amplitude settings of +10, +5, 0 and -5 dBm.
 - Repeat measurement for same amplitude settings at 990 and 4 MHz.
 - Supplement these measurements with additional readings at other instrument settings if desired.
5. Record test results.
6. Return to foldout.

Condition 3

1. Set instrument to operating condition which causes A19 failure.
 2. Record instrument set-up and error message(s).
 3. Return to foldout.
-

A19 MODULE DIAGNOSTICS

| | | |
|--------------|-----------------------|------------------------------------------------------------------------------------|
| Type: | Additional Substitute |  |
| Run time: | A19 Tests | |
| Set-up time: | Conditional | |

Test operation of substitute A19 Module by repeating test(s) performed on A19 Module before substitution.

- Condition 1: Instrument Level Self Test indicated A19 failure.
- Condition 2: Instrument has a power level failure and A14 Module RF Power Level Test indicated power level good out of A14.
- Condition 3: Instrument must be set to a specific operating condition to detect A19 failure.

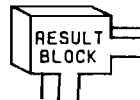
Condition 1

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. **SHIFT** **SPCL** **3** **3** **0** **HZ**.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT" (see INSTRUMENT LEVEL DIAGNOSTICS foldout for set-up diagram).
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use **MSSG** to scroll through messages.
 - Record **A19** error codes.

COMMENT

If any error codes are displayed for modules A01-A17, you need to isolate those failure(s) now.

5. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST SUB A19 FURTHER**.



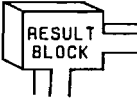
A19 MODULE DIAGNOSTICS

Condition 2

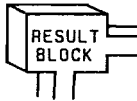
1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. Connect Power Meter:
 - Connect Yellow **PM** cable and adapters to instrument's **RF Output** port **CP1**.
3. To use Internal Power Meter:
 - **SHIFT** **SPCL** **2** **4** **HZ**
 - **4** **HZ** to repeat measurement.
 - Key sequence must be repeated for each amplitude or frequency setting change.

NOTE


Internal Power Meter should read within ± 3 dB of amplitude setting. The internal power meter cannot measure power levels less than -10 dBm.

4. Measure power level:
 - Set instrument's frequency to **2 GHz**.
 - Measure power at amplitude settings of **+10, +5, 0** and **-5 dBm**.
 - Repeat measurements for same amplitude settings at **990** and **4 MHz**.
 - Supplement these measurements with additional readings at other instrument settings if desired.
5. Record test results.
6. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A19 FURTHER**.

Condition 3

1. Set instrument to operating condition which causes **A19** failure.
 2. Record instrument set-up and error message(s).
 3. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **TEST SUB A19 FURTHER**.
-


A19 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | Module Substitution | A19.07 |
| Run time: | 0 |  |
| Set-up time: | 7 min. | |

Connect Module

1. Switch instrument to Standby.
2. Remove substitute **A19 Module** and replace instrument's **A19 Module**.
3. Return substitute A19 Module to On-Site Service Kit.
4. Return to foldout.

A19 MODULE DIAGNOSTICS

| | | |
|---------------------|-------------------------|-------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A19.08 |
| Run time: | 2 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to check power supply levels at inputs to **A19 Module**.

Run Test

- Switch instrument to Standby:
 - Disconnect **W11** from **A19** at **A19A1 J2**.
 - Plug end of **W11** into **34** pin test connector, from On-Site Service Kit.

NOTE

*Find arrowhead on test connector and align with arrowhead on cable plug **W11P2**.*

- Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A19 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
- Turn instrument on and enter:

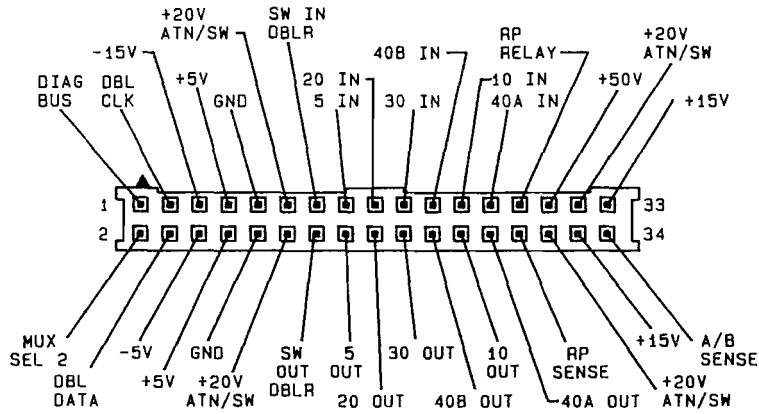
| | | | | | |
|-------|------|---|---|---|----|
| SHIFT | SPCL | 3 | 2 | 5 | HZ |
|-------|------|---|---|---|----|

 (To enable Internal Voltmeter.)

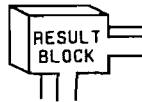
A19 MODULE DIAGNOSTICS

4. Measure voltage levels:
 - Connect VM probe to test connector pin for each power supply line including +20V ATN/SW lines. (See Figure 3N-1. Cable Plug W11P2 Signal Locator).
 - 5 HZ (To make each voltage measurement.)


Figure 3N-1. Cable Plug W11P2 Signal Locator



5. Record test results.
6. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each RESULT BLOCK for TEST Vdc.



A19 MODULE DIAGNOSTICS

| | | |
|--------------|-------------------------|------------------------------------------------------------------------------------|
| Type: | 4, Voltage Measurements | A19.09 |
| Run time: | 2 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to check power supply levels at A5J2.

Run Test

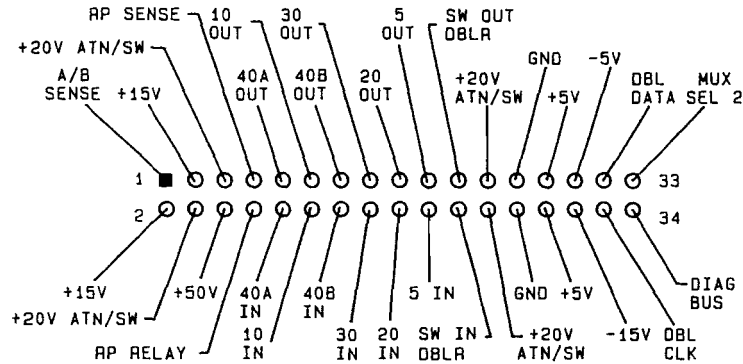
1. Switch instrument to Standby.
2. Extend **A19 Module** on extender posts, from On-Site Service Kit, and disconnect cable **W11** from **A5 Assembly** at **A5J8**. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate **A19 Module** extension and **A5** cable disconnection information.)
3. Connect **VM** probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A19 MODULE CABLE CONNECTION LOCATOR** on foldout for **VM IN** location.)
4. Turn instrument on and enter:

 (To enable Internal Voltmeter.)

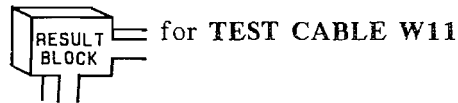
A19 MODULE DIAGNOSTICS

5. Measure voltage levels at A5J8:
 - Access signals from solder-side of A5J8. (See Figure 3N-2, A5J8 Signal Locator.)
 - **5** **HZ** (To make each voltage measurement.)


Figure 3N-2. A5J8 Signal Locator (Solder-Side View)



6. Record test results.
7. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each PS LINES.



A19 MODULE DIAGNOSTICS

| | | |
|---------------------|------------------------|------------------------------------------------------------------------------------|
| Type: | 3; Driver Transmission | A19.10 |
| Run time: | 1 min. |  |
| Set-up time: | 0 | |

Attenuator drive lines are checked by separately selecting relays and listening for attenuator pads to click in and out.

NOTE

Instrument's Top Cover should be removed to perform this test.

Run Test

1.
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. Set instrument to zero attenuation:
 -
3. Check relay drivers:
 - Select **Amplitude Setting for Attenuator Relay** to be tested (from **Table 3N-1. A19 Attenuator Relay Selection**) and listen for pad to click in.
 - Select and listen for attenuator pad to click out.
 - Repeat process for each relay listed in **Table 3N-1.**

Table 3N-1. Attenuator Relay Selection

| Test Order | Amplitude Setting | Attenuator Relay |
|------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1 | <input type="button" value="0"/> <input type="button" value="DBM"/> | 5 dB pad |
| 2 | <input type="button" value="-"/> <input type="button" value="5"/> <input type="button" value="DBM"/> | 10 dB pad |
| 3 | <input type="button" value="-"/> <input type="button" value="1"/> <input type="button" value="5"/> <input type="button" value="DBM"/> | 20 dB pad |
| 4 | <input type="button" value="-"/> <input type="button" value="2"/> <input type="button" value="5"/> <input type="button" value="DBM"/> | 30 dB pad |

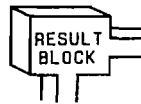
A19 MODULE DIAGNOSTICS

NOTE

This procedure does not check the two 40 dB relay drivers. They can be checked using an external power measuring device connected at the output of A19. Check power out at settings of -60.1 dBm to -100 dBm (40 dB pad A) and -100.1 to -140 dBm (40 dB pad B).


4. Record test results.
5. Return to foldout:
 - Determine next task by comparing test results to condi-

tions shown in each
LINES.



for TEST ATN DRIVE

A19 MODULE DIAGNOSTICS

| | | |
|--------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A19.11 |
| Run time: | 3 min. |  |
| Set-up time: | 2 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to **A19 Module** on Clock and Data control Lines.

Run Test

- Switch instrument to Standby:
 - Disconnect cable **W11** from module at **A19A1 J2**.
 - Plug end of **W11** into **34** pin test connector, from On-Site Service Kit.

NOTE

*Find arrowhead on test connector and align with arrowhead on cable plug **W11P2**.*

CAUTION

To prevent damage to the Power Supply and Control sections, do not permit the exposed pins on the test connector to short circuit.

- Connect VM probe:
 - Connect red alligator clip and retractable hook probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A19 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
- Turn instrument on.
(Hold shift key until "**100.000000MZ -140.0DM**" appears, to override 20 second reset test.)

Clock Line**Check High State**

- SHIFT SPCL 3 6 0 2
(To specify high state.)

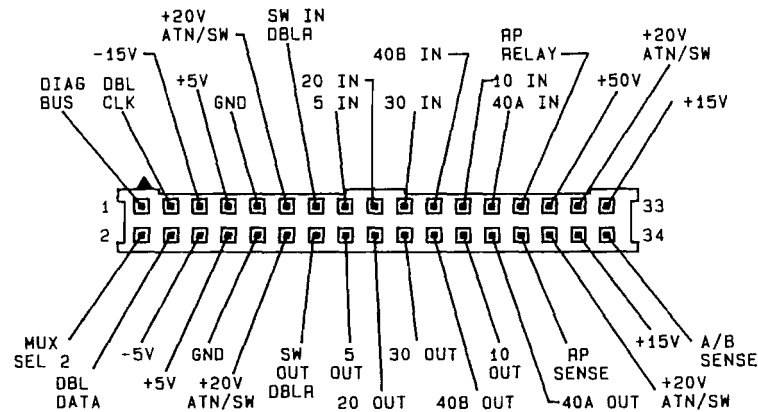
NOTE

*A "0" will appear in display indicating that the data bit will be set low. However, the bit is inverted in the Control Section before it is sent to **A19**.*

A19 MODULE DIAGNOSTICS

5.
(To select bit.)
6. Connect VM probe to test connector line **DBL CLK** (pin 32). (See Figure 3N-1. Cable Plug W11P2 Signal Locator.)

Figure 3N-3. Cable Plug W11P2 Signal Locator



7.
(To enable voltmeter.)
8. Voltage should read approximately +2.5 to +5.5 Vdc.
 to repeat measurement.)

Check Low State

9.
(To specify low state.)

NOTE

A "1" will appear in display indicating that the data bit will be set high. However, the bit is inverted in the Control Section before it is sent to A19.

10.
(To select bit.)
11.
(To enable voltmeter.)
12. Voltage should read approximately -0.5 to +1.5 Vdc.
 to repeat measurement.)

A19 MODULE DIAGNOSTICS

Data Line**Check High State**

13. SHIFT SPCL 3 6 0 2
(To specify high state.)
14. 2 5 HZ
(To select bit.)
15. Connect VM probe to test connector line **DBL DATA** (pin 31). (See Figure 3N-3. Cable Plug W11P2 Signal Locator.)
16. 2 5 HZ
(To enable voltmeter.)
17. Voltage should read approximately **+2.5 to +5.5 Vdc**.
(5 HZ) to repeat measurement.)

Check Low State

18. SHIFT SPCL 3 6 0 1
(To specify low state.)
19. 2 5 HZ
(To select bit.)
20. 2 5 HZ
(To enable voltmeter.)
21. Voltage should read approximately **-0.5 to +1.5 Vdc**.
(5 HZ) to repeat measurement.)

Multiplexer Select Line**Check High State**

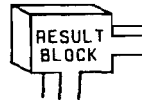
22. SHIFT SPCL 3 6 0 1
(To specify high state.)
23. 8 HZ
(To select bit.)
-

A19 MODULE DIAGNOSTICS

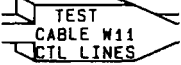
- 24. Connect VM probe to test connector line MUX SEL 2 (pin 33). (See Figure 3N-3. Cable Plug W11P2 Signal Locator.)
- 25. (To enable voltmeter.)
- 26. Voltage should read approximately +2.5 to +5.5 Vdc. (to repeat measurement.)

Check Low State

- 27. (To specify low state.)
- 28. (To select bit.)
- 29. (To enable voltmeter.)
- 30. Voltage should read approximately -0.5 to +1.5 Vdc. (to repeat measurement.)
- 31. Record test results.
- 32. Return to foldout:
 - ⊙ Determine next task by comparing test results to conditions shown in each **RESULTS** for **TEST CONTROL BITS**.



A19 MODULE DIAGNOSTICS

| | | |
|---------------------|---------------------|------------------------------------------------------------------------------------|
| Type: | 3; Bit Transmission | A19.12 |
| Run time: | 3 min. |  |
| Set-up time: | 3 min. | |

Internal Voltmeter (VM) is used to measure TTL level changes transmitted to **A19 Module** on SAWR oscillator select lines **A** and **B**.

Run Test

1. Switch instrument to **Standby**.
2. Extend **A19 Module** on extender posts, from On-Site Service Kit, and disconnect cable **W11** from **A5 Assembly** at **A5J8**. (Refer to table on foldout in **MECHANICAL PROCEDURES** to locate **A19 Module** extension and **A5** cable disconnection information.)
3. Connect **VM** probe:
 - Connect red alligator clip and pointed tip probe to red test lead provided in On-Site Service Kit.
 - Connect alligator clip to **VM IN (A4TP1)**. (See **A19 MODULE CABLE CONNECTION LOCATOR** on fold-out for **VM IN** location.)
4. Turn instrument on.

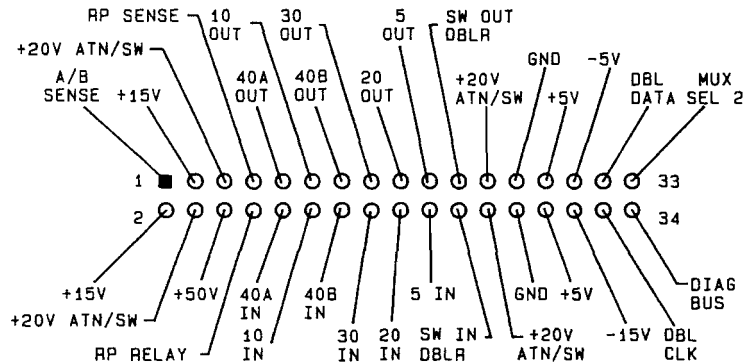
Clock Line**Check High State**

5.
(To specify high state.)
 6.
(To select bit.)
-

A19 MODULE DIAGNOSTICS

7. Connect VM probe to solder-side of A5J8 line DBL CLK (pin 32). (See Figure 3N-4. A5J8 Signal Locator.)

**Figure 3N-4. A5J8 Signal Locator
(Solder-Side View)**



8. (To enable voltmeter.)
9. Voltage should read approximately +2.5 to +5.5 Vdc. to repeat measurement.)

Check Low State

10. (To specify low state.)
11. (To select bit.)
12. (To enable voltmeter.)
13. Voltage should read approximately -0.5 to +1.5 Vdc. to repeat measurement.)

Data Line

Check High State

14. (To specify high state.)
15. (To select bit.)

A19 MODULE DIAGNOSTICS

16. Connect VM probe to solder-side of A5J8 line **DBL DATA** (pin 31). (See Figure 3N-4. A5J8 Signal Locator.)
17.
(To enable voltmeter.)
18. Voltage should read approximately **+2.5 to +5.5 Vdc**.
(to repeat measurement.)

Check Low State

19.
(To specify low state.)
20.
(To select bit.)
21.
(To enable voltmeter.)
22. Voltage should read approximately **-0.5 to +1.5 Vdc**.
(to repeat measurement.)

Multiplexer Select Line**Check High State**

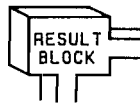
23.
(To specify high state.)
 24.
(To select bit.)
-

A19 MODULE DIAGNOSTICS


25. Connect **VM** probe to solder-side of **A5J8** line **MUX SEL 2** (pin **33**). (See **Figure 3N-4. A5J8 Signal Locator**.)
26. (To enable voltmeter.)
27. Voltage should read approximately **+2.5** to **+5.5 Vdc**. (to repeat measurement.)

Check Low State

28. (To specify low state.)
29. (To select bit.)
30. (To enable voltmeter.)
31. Voltage should read approximately **-0.5** to **+1.5 Vdc**. (to repeat measurement.)
32. Record test results.
33. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST CABLE W11 CTL LINES**.



A19 MODULE DIAGNOSTICS

| | | |
|--------------|----------|------------------------------------------------------------------------------------|
| Type: | RF Power | A19.13 |
| Run Time: | 4 min. |  |
| Set-up Time: | 3 min. | |

Internal Power Meter (PM) is used to test output power levels.

NOTE

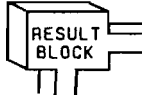
If an external power measuring instrument is available, use it to make power measurements.

Run Test


1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. Connect Power Meter:
 - Connect Yellow PM cable and adapters to instrument's RF Output port CP1.
3. To use Internal Power Meter:
 - **SHIFT** **SPCL** **2** **4** **HZ**
 - **4** **HZ** to repeat measurement.
 - Key sequence must be repeated for each amplitude or frequency setting change.

NOTE

Internal Power Meter should read within ± 3 dB of amplitude setting. The internal power meter cannot measure power levels less than -10 dBm.

4. Measure power level:
 - Set instrument's frequency to 2 GHz.
 - Measure power at amplitude settings of +10, +5, 0 and -5 dBm.
 - Repeat measurements for same amplitude settings at 990 and 4 MHz.
 - Supplement these measurements with additional readings at other instrument settings if desired.
5. Record test results.
6. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for TEST POWER OUTPUT.

A19 MODULE DIAGNOSTICS

| | | |
|--------------|----------|------------------------------------------------------------------------------------|
| Type: | RF Power | A19.14 |
| Run Time: | 4 min. |  |
| Set-up Time: | 3 min. | |

Internal Power Meter (PM) is used to test output power levels.

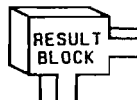
Run Test

1. **INSTR PRESET** **SHIFT**
 (Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. Connect Power Meter:
 - Disconnect cable W38 from A19 Module at A19A2 J2.
 - Connect power meter to module at A19A2 J2.
3. To use Internal Power Meter:
 - **SHIFT** **SPCL** **2** **4** **HZ**
 - **4** **HZ** to repeat measurement.
 - Key sequence must be repeated for each amplitude or frequency setting change.


NOTE

Internal Power Meter should read within +-3 dB of amplitude setting. The internal power meter cannot measure power levels less than -10 dBm.

4. Measure power level:
 - Set instrument's frequency to 2 GHz.
 - Measure power at amplitude settings of +10, +5, 0 and -5 dBm.
 - Repeat measurements for same amplitude settings at 990 and 4 MHz.
 - Supplement these measurements with additional readings at other instrument settings if desired.
5. Record test results.
6. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each **RESULT BLOCK** for **TEST A19 OUTPUT**.



A19 MODULE DIAGNOSTICS

| | | |
|--------------|----------|------------------------------------------------------------------------------------|
| Type: | RF Power | A19.15 |
| Run Time: | 4 min. |  |
| Set-up Time: | 4 min. | |

Internal Power Meter (PM) is used to test output power levels.

Run Test

1.
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. Connect Power Meter:
 - Disconnect cable **W38** from **A19** Module at **A19A2 J2**.
 - Connect power meter to module at **A19A2 J2**.
3. To use Internal Power Meter:
 -
 - to repeat measurement.

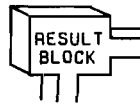
NOTE

Internal Power Meter should read within +-3 dB of amplitude setting. The internal power meter cannot measure power levels less than -10 dBm.

4. Measure power level:
 - Set instrument's frequency to **2 GHz**.
 - Measure power at amplitude settings of **+10, +5, 0** and **-5 dBm**.
 - Repeat measurements for same amplitude settings at **990** and **4 MHz**.
 5. Substitute cable **W36**:
 - Disconnect cable **W36** from **A14** and **A19** modules at **A14U1 J3** and **A19K1 J2**.
 - Connect flexible coax cable from On-Site Service Kit to modules at **A14U1 J3** and **A19K1 J2**.
-


A19 MODULE DIAGNOSTICS

6. Measure power level:
 - Repeat measurements made in step 4.
7. Record test results.
8. If power level still fails, reconnect semi-rigid cable W36 to A14 and A19 modules.
9. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each



for TEST CABLE W36.

A19 MODULE DIAGNOSTICS

| | | |
|--------------|----------|------------------------------------------------------------------------------------|
| Type: | RF Power | A19.16 |
| Run Time: | 5 min. |  |
| Set-up Time: | 5 min. | |


Internal Power Meter (PM) is used to test output power levels.

Run Test

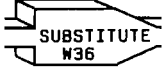
1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.)
2. Connect Power Meter:
 - Connect Yellow PM cable and adapters to instrument's RF Output port CP1.
3. Substitute cable W38:
 - Disconnect cable W38 from A19 Module at A19A2 J2 and from cable W16 at W16P2 (W200 on Option 002, rear panel, instruments).
 - Connect flexible coax cable from On-Site Service Kit to A19 Module and cable W16.
4. To use Internal Power Meter:
 - **SHIFT** **SPCL** **2** **4** **HZ**
 - **4** **HZ** to repeat measurement.
 - Key sequence must be repeated for each amplitude or frequency setting change.

NOTE

Internal Power Meter should read within +-3 dB of amplitude setting. The internal power meter cannot measure power levels less than -10 dBm.

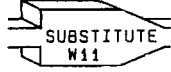
5. Measure power level:
 - Set instrument's frequency to 2 GHz.
 - Measure power at amplitude settings of +10, +5, 0 and -5 dBm.
 - Repeat measurements for same amplitude settings at 990 and 4 MHz.
 6. Record test results.
 7. If power level still fails, reconnect semi-rigid cable W38 to A19 Module and cable W16 (W200 Option 002 instruments).
 8. Return to foldout.
 - Determine next task by comparing test results to conditions shown in each  for TEST CABLE W38.
-

A19 MODULE DIAGNOSTICS

| | | |
|---------------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A19.17 |
| Run Time: | 5 min. |  |
| Set-up Time: | 1 min. | |

1. Testing has shown cable **W36** or **W38** to be suspect, replace with a semi-rigid. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.
2. Refer to **REPLACEABLE PARTS**, in HP 8642A/B Operating and Service Manual, for information to order a replacement cable.
3. Return to foldout.

A19 MODULE DIAGNOSTICS

| | | |
|--------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Cable Substitution | A19.18 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

Testing has shown cable **W11** to be suspect, temporarily replace with a spare ribbon cable if available. Rerun **INSTRUMENT LEVEL DIAGNOSTICS (ILD)** to confirm repair.

Refer to **REPLACEABLE PARTS** in HP 8642A/B Operating and Service Manual for information to order a permanent replacement cable.


CAUTION

When connecting ribbon cable to A19 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W11

1. Switch instrument to **Standby** to connect cable **W11** to **A5** Assembly and **A19** Module. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on connecting cable **W11** to **A5J8**.)
2. Return to foldout.

A19 MODULE DIAGNOSTICS

| | | |
|---------------------|------------------|------------------------------------------------------------------------------------|
| Type: | Cable Connection | A19.19 |
| Run time: | 0 min. |  |
| Set-up time: | 3 min. | |

CAUTION

When connecting ribbon cable to A19 Module, find arrowhead on the cable plug and align with arrowhead on the board connector.

Reconnect W11

1. Switch instrument to **Standby** to reconnect cable **W11** to **A5** Assembly or **A19** Module. (Refer to table on foldout in **MECHANICAL PROCEDURES** for information on reconnecting cable **W11** to **A5J8**.)
2. Return to foldout.

A19 THEORY OF OPERATION

3N-4. A19 DOUBLER MODULE**COMMENT**

It is not to essential to understand the internal operation of a module to make an on-site repair.

The **A19 Doubler Module** is included in the **HP 8642B** only. This module provides both frequency doubling and level attenuation for the RF output signal. Two attenuator assemblies connected in series provide level attenuation to **-140 dBm**. The second attenuator assembly includes reverse power protection circuitry for the **RF Output** port. The RF switch, attenuator and reverse power control signals are sent to the **A19 Module** from the **A17 Module** in the **Power Supply Section**.

The RF Signal from the **A14 Module** is switched between a through path (for output frequencies from **100 kHz** to **1057 MHz**) and a frequency doubler path. In the doubler frequency band (**1058** to **2115 MHz**) the RF signal is amplitude modulated by the **A19 Module** using the audio signal sent from the **A2 Modulation Module**.

The RF output signal from the **A19 Module** is routed directly to the **HP 8642B's RF Output** port.

See the **A19 MODULE SIMPLIFIED BLOCK DIAGRAM** for further understanding of the **A19 Module's** internal operation.

REPLACING A MODULE


4-1. INTRODUCTION

This section contains information for performing a module replacement on-site. Module replacement is the last step in the on-site repair process and should only be performed after the replacement module has been tested using the module substitution techniques described in **Module Level Diagnostics** (refer to the section tabbed for the module you are replacing to find the module substitution procedure). For further information on using the on-site diagnostics, refer to the **INTRODUCTION** section of the manual.

Replacement Instructions

1. **The last page in this section is a foldout and should be pulled out now.**
2. Find **MODULE REPLACEMENT** on the foldout.
3. Use the Task Sequence Diagram, shown under **MODULE REPLACEMENT** to direct you through the testing process. Each Task Arrow shown in the diagram indicates a task title and task number. The tasks are numbered according to the order in which they are arranged in this section. Turn to the task indicated and complete the procedure.
4. After completing the procedure, return to the Task Sequence Diagram on the foldout and determine the next task to be performed.
5. Begin now by performing the first task shown on the diagram.

REPLACING A MODULE

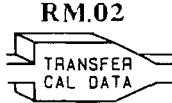
| | | |
|--------------|----------------------|------------------------------------------------------------------------------------|
| Type: | Mechanical Procedure | RM.01 |
| Run Time: | N/A |  |
| Set-up Time: | Refer to Section V | |

NOTE

If you are replacing module A3, A4, A14, A16, or A19, and have performed the module substitution test, the module should already be installed in instrument. Check that cable connections and module retaining clips are secure and return to foldout.

1. Replace module:
 - **MECHANICAL PROCEDURES** section provides replacement procedures for all on-site replaceable modules. Refer to table on foldout in **MECHANICAL PROCEDURES** to locate module replacement information.
2. Reconnect Cables:
 - Connect cable to replacement module (see **INSTRUMENT WIRING DIAGRAM** on foldout for cable connection and routing information).
3. Return to foldout.

REPLACING A MODULE

| | | |
|--------------|-------------------|------------------------------------------------------------------------------------|
| Type: | Cal Data Transfer |  |
| Run Time: | 2 min. | |
| Set-up Time: | 4 min. | |

NOTE

The following modules do not require Calibration Data: A1, A4, A7, A8, and A13. If you are replacing one of these modules, this procedure does not apply; return to foldout now.

Set-Up Cal Board

1. Remove **A20 Calibration Module**, provided with replacement module, from On-Site Service Kit.
2. Switch **POWER** to Standby and connect Cal Board to **A3 Module** at **A3J3**. (See **INSTRUMENT WIRING DIAGRAM** on foldout for **A3J3** location.)

NOTE

*If you are replacing module **A3, A11, or A12** and performed a **Calibration Data Down-Load** as part of the substitution procedure, proceed directly to **Up-Load Cal Data, step 8**, of this procedure.*

3. Switch instrument **ON**.

Down-Load Cal Data**COMMENT**

This portion of the procedure down-loads the calibration data for the replacement module into the instrument. This data replaces the cal data for the defective module.

CAUTION

*Sliding switch **A3S2** to its rear position unprotects the **HP 8642 EEPROMs**. To prevent any damage to the instrument's memory, carefully perform the steps in this procedure in the order which they are given.*

REPLACING A MODULE

COMMENT

If you get off track, return A3S2 to its protect position, switch the instrument to Standby then back ON, and begin again at step 4.

4. When "100.000000MZ -140.0DM appears:
 - Slide A3S2 back toward rear of instrument. (See **INSTRUMENT WIRING DIAGRAM** on foldout to locate A3S2.)
5. **SHIFT** **SPCL** **3** **7** **3** **HZ**
6. Enter Cal Data Select Keys, shown on foldout in **CAL DATA TRANSFER TABLE**, for module being replaced. **HZ**
7. When "TRANSFER VERIFIED U613" appears:
 - Slide A3S2 toward front of instrument to protect instrument's memory.

Up-Load Cal Data

This portion of the procedure creates a new backup A20 Calibration Module for the instrument by up-loading all of the instrument's current Cal Data onto the replacement A20 Module.

CAUTION

*Moving switch A20S1 on the A20 Module down to its **CHANGE** position unprotects the A20 EEPROMs. To prevent any damage to the A20 EEPROMs, carefully perform the steps in this procedure in the order which they are given.*

COMMENT


*If you get off track, return A20S1 to its **PROTECTED** position, switch the instrument to Standby then back ON, and begin again at step 8.*

8. Move A20S1 down to its **CHANGE** position.
 9. **SHIFT** **SPCL** **3** **7** **4** **HZ**
(To up-load entire instrument's cal data)
-

REPLACING A MODULE

10. When "08 SECTIONS STORED .U610" (HP 8642A) or "10 SECTIONS STORED .U610" (HP 8642B) appears:
 - Move A20S1 up to its PROTECTED position.
 - [FZ] to end routine.
11. Switch [POWER] to Standby.
12. Remove old back-up CALIBRATION MODULE A20 from Rear Panel of instrument. (Refer to table on foldout in MECHANICAL PROCEDURES to locate removal instructions.)
13. Put A20 Module from rear of instrument in On-Site Service Kit with defective module. (Place red defective marker in slot with module.)
14. Remove new back-up A20 Module from A3J3 and store in back of instrument. (Refer to table on foldout in MECHANICAL PROCEDURES for location of A20 replacement instructions.)
15. Return to foldout.

REPLACING A MODULE

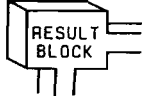
| | | |
|--------------|-------------------------------|------------------------------------------------------------------------------------|
| Type: | Instrument Level Self Test |  |
| Run Time: | 3 min 30 sec | |
| Set-up Time: | 1 min | |

Over-all operation of module and instrument is tested by running the **Instrument Level Self Test (ILST)**.


NOTE

*If the **ILST** did not detect a failure when run as part of **Instrument Level Diagnostics**, repeat test(s) which did indicate a failing condition.*

Run ILST

1. **INSTR PRESET** **SHIFT**
(Hold shift key until "100.000000MZ -140.0DM" appears, to override 20 second reset test.
2. **SHIFT** **SPCL** **3** **3** **0** **HZ**.
3. When "WAITING FOR SET-UP 1 .V24" appears:
 - Connect BNC Tee connector, from On-Site Service Kit, to "FM/ΦM INPUT". (See foldout in **INSTRUMENT LEVEL DIAGNOSTICS** section for set-up diagram.)
 - Connect a coax cable from Tee connector to "MOD OUTPUT".
 - Connect a coax cable from Tee to "AM/PULSE INPUT"
 - **HZ** to continue.
4. When "DIAG DONE HIT MSSGS .VI" appears:
 - Use **MSSG** to scroll through messages.
 - Record any **module numbers** indicated.
5. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **CONFIRM REPAIR**.


REPLACING A MODULE

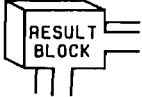
| | | |
|--------------|-----------------|------------------------------------------------------------------------------------|
| Type: | Module Exchange | RM.04 |
| Run Time: | N/A |  |
| Set-up Time: | N/A | |

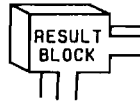
The on-site service process is not finished until all defective parts contained in the On-Site Service Kit have been replaced or repaired.

1. Flag defective module(s):
 - Red "defective" cards have been placed inside On-Site Service Kit. Place one in slot with defective module so that it is visible when kit is open.
2. Make immediate arrangements for defective part(s) to be repaired and/or replaced in On-Site Service Kit. (Refer to **REPLACEABLE PARTS** for ordering and module exchange information.)
3. Return to foldout.


REPLACING A MODULE

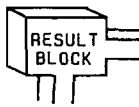
| | | |
|---------------------|-----------------------|------------------------------------------------------------------------------------|
| Type: | Mechanical Inspection | RM.05 |
| Run Time: | 3 min. 30 sec. |  |
| Set-up Time: | Conditional | |

1. Check each cable connection:
 - Make sure each cable connected to module is connected securely at the correct port. (See **HP 8642A/B Table of Cable Connections** on inside of Top Cover to quickly reference cable connections.)
 - Check cable connections for any other cables disconnected during testing. Check for bent pins on ribbon cable connectors.
2. Check Cal Data transfer:
 - If module required transfer of calibration data, refer to **CAL DATA TRANSFER TABLE** and verify that the correct Cal Data Select Keys were used to down-load the data.
3. Re-run confirmation test:
 - Try re-running same confirmation test(s).
4. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **CHECK SET-UP**.

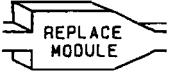


REPLACING A MODULE

| | | |
|---------------------|-----------------------|------------------------------------------------------------------------------------|
| Type: | Module Identification | RM.06 |
| Run Time: | N/A |  |
| Set-up Time: | N/A | |

1. Specify Failure:
 - Do the failure conditions (messages, if internal diagnostics are being used) indicate the same module is still failing?
 - Are the failure conditions identical to those displayed by the original module?
2. Return to foldout:
 - Determine next task by comparing test results to conditions shown in each  for **SPECIFY FAILURE**.

REPLACING A MODULE

| | | |
|---------------------|--------------------|------------------------------------------------------------------------------------|
| Type: | Module Replacement | RM.07 |
| Run Time: | Conditional |  |
| Set-up Time: | Conditional | |

This procedure replaces the **original** module in instrument for further testing.

1. Replace instrument's module in instrument:
 - Refer to table on foldout in **MECHANICAL PROCEDURES** for location of module replacement instructions.
 - Replace substitute module in On-Site Service Kit.
2. Transfer Cal data:
 - If cal data for the substitute module has been down-loaded to instrument, proceed with step 3; otherwise, return to foldout now.
3. Switch **POWER** to Standby.
4. Remove instrument's **A20 Calibration Module** from On-Site Service Kit and connect it to **A3 Module** at **A3J3**.
5. Switch instrument **ON**.

Down-Load Cal Data

COMMENT

This portion of the procedure down-loads the calibration data for the entire instrument. This data replaces the cal data in the instrument for the substitute module.

CAUTION

*Sliding switch **A3S2** to its rear position unprotects the HP 8642 EEPROMs. To prevent any damage to the HP 8642 memory, carefully perform the steps in this procedure in the order which they are given.*

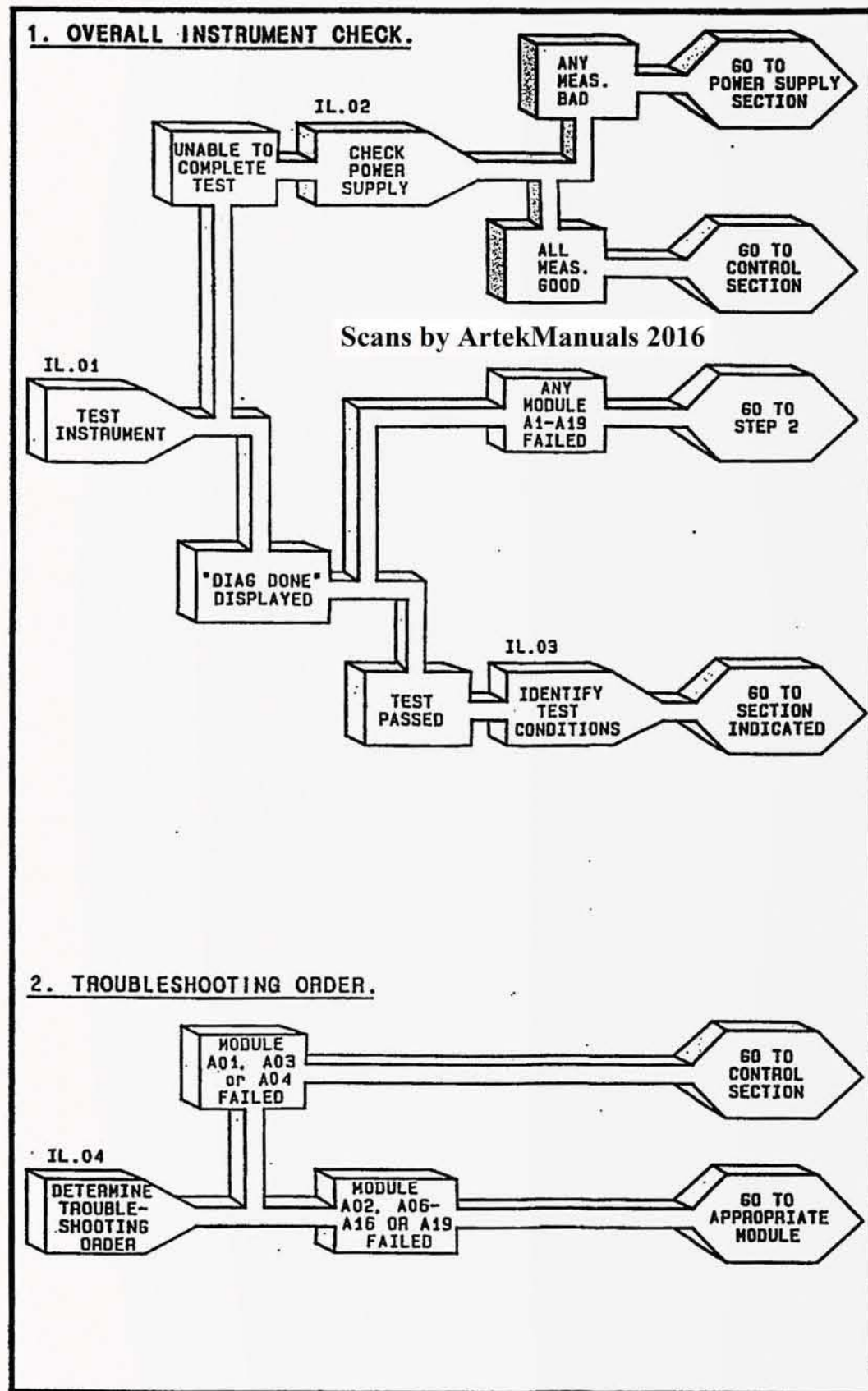
COMMENT

*If you get off track, return **A3S2** to its protect position, switch the instrument to Standby then back **ON**, and begin again at step 6.*

REPLACING A MODULE

6. When "100.000000MZ -140.0DM" appears:
 - Slide A3S2 back toward rear of instrument. (See INSTRUMENT WIRING DIAGRAM on foldout to locate A3S2.)
7.
8. When "TRANSFER VERIFIED .U613" appears:
 - Slide A3S2 toward front of instrument to protect instrument's memory.
 - to end routine.
9. Switch to Standby.
10. Remove A20 Module from Rear Panel of instrument and return it to On-Site Service Kit.
11. Remove instrument's A20 Module from A3J3 and return it to Rear Panel of instrument.
12. Return to foldout.

INSTRUMENT LEVEL DIAGNOSTICS



MODULE TROUBLESHOOTING ORDER

| Modules | Troubleshooting Order Number | Instrument Section |
|-----------------------------------------------------------|------------------------------|----------------------|
| A17 Power Supply Regulators/ Attenuator Drivers Module | 1 | Power Supply Section |
| A18 Power Supply Rectifier/ Filters Module | | |
| A01 Keyboard/LCD Display Module | 2 | Control Section |
| A03 Processor/Memory Module | | |
| A04 Latch Module | | |
| A06 FM Loop/Counter/ Timebase Module | | |
| A02 Modulation Module | 3 | RF Section |
| A08 10 MHz High Stability Timebase Assembly (Opt. 001) | 4 | |
| A07 SAWR Loop Module | 5 | |
| A09 IF Loop Module | 6 | |
| A11 Reference Loop Module | 7 | |
| A12 Sum Loop/Divider Module | 8 | |
| A13 Output Filters/ALC Module | 9 | |
| A14 Heterodyne Module | 10 | |
| A16 Attenuator Module (8642A Only) | 11 | |
| A19 Doubler/Attenuator Module (8642B Only) | | |
| | 12 | |

8642 FRONT PANEL AND DISPLAY

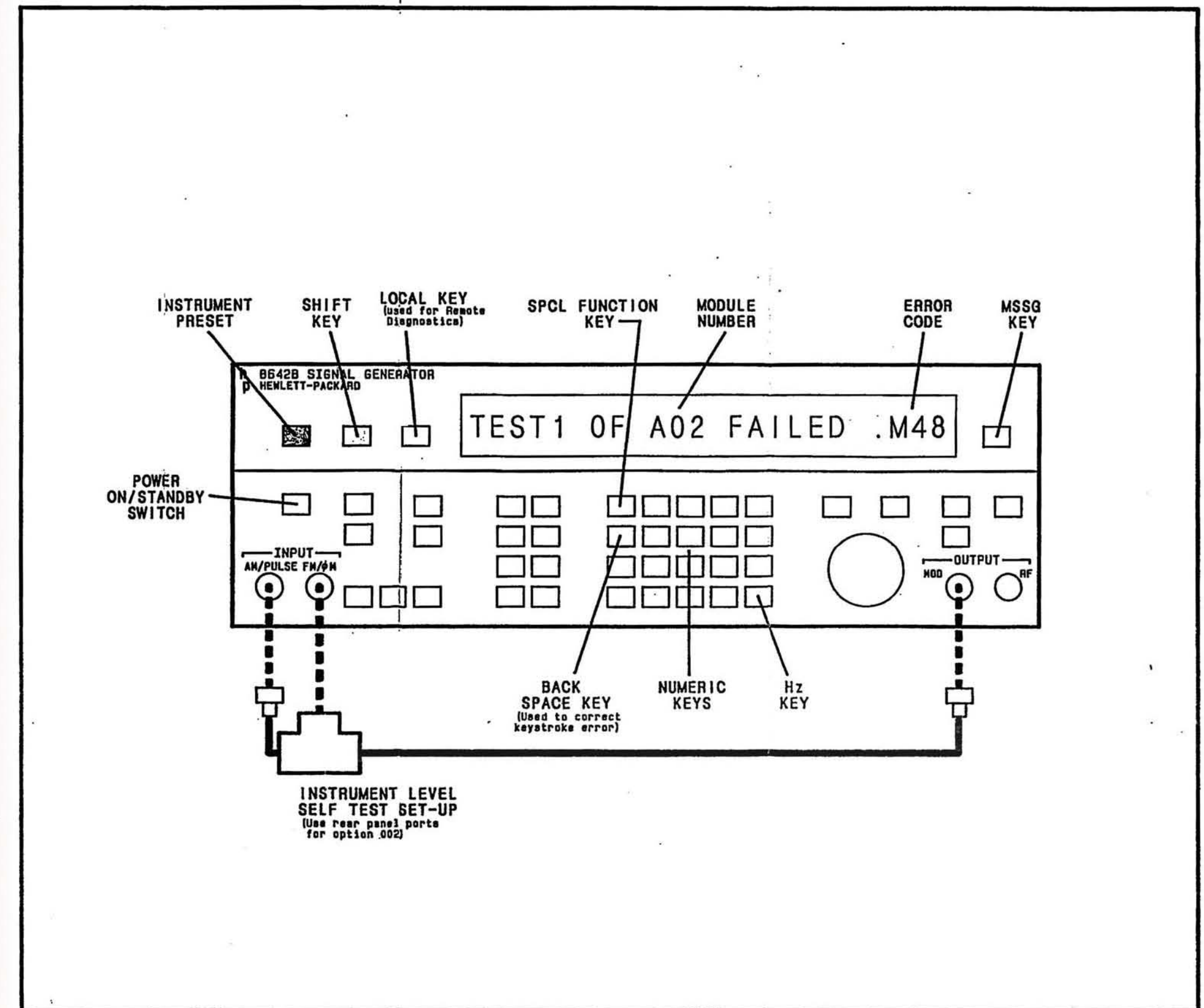


Figure 3A-100. Instrument Level Diagnostics

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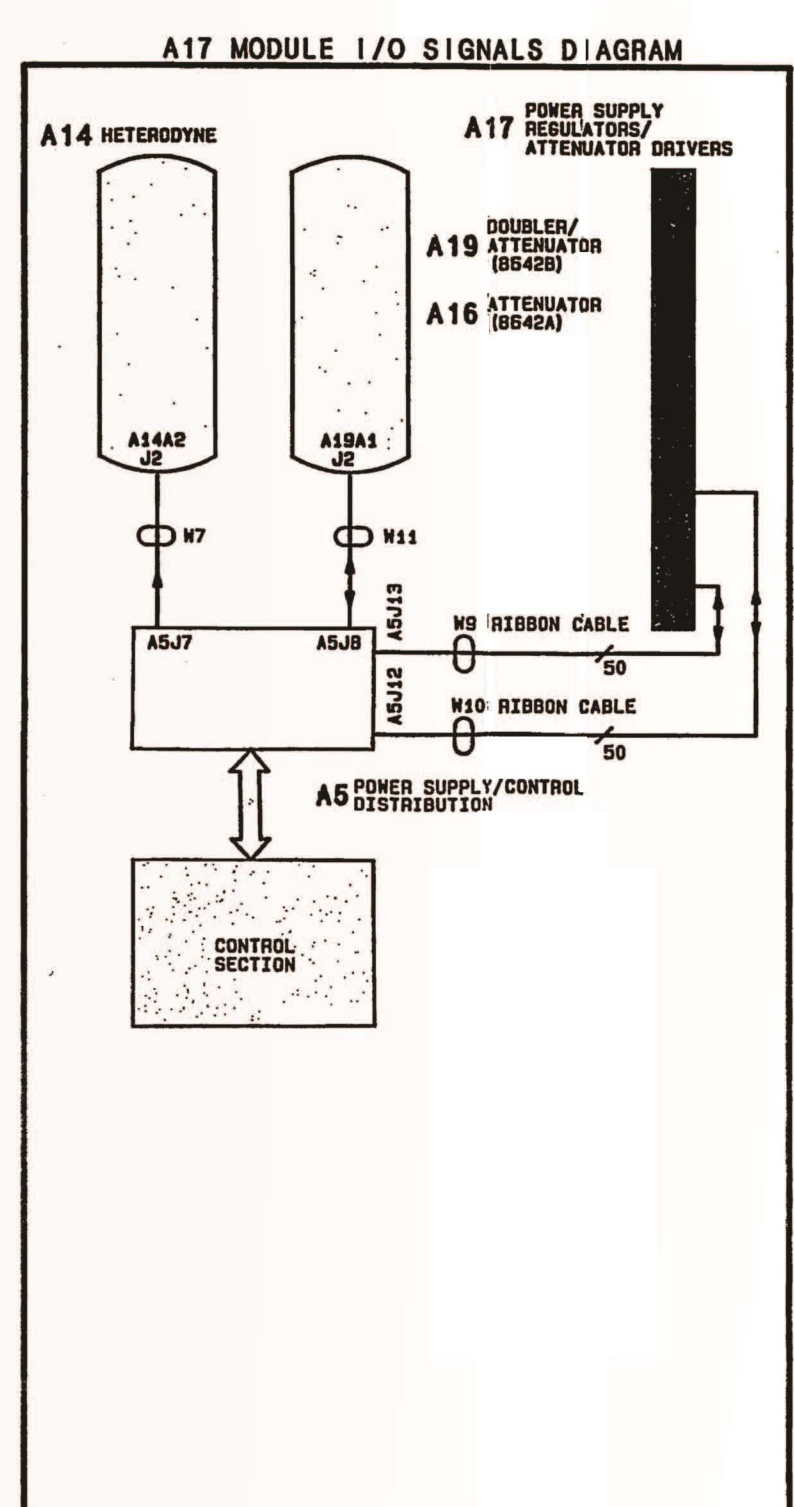
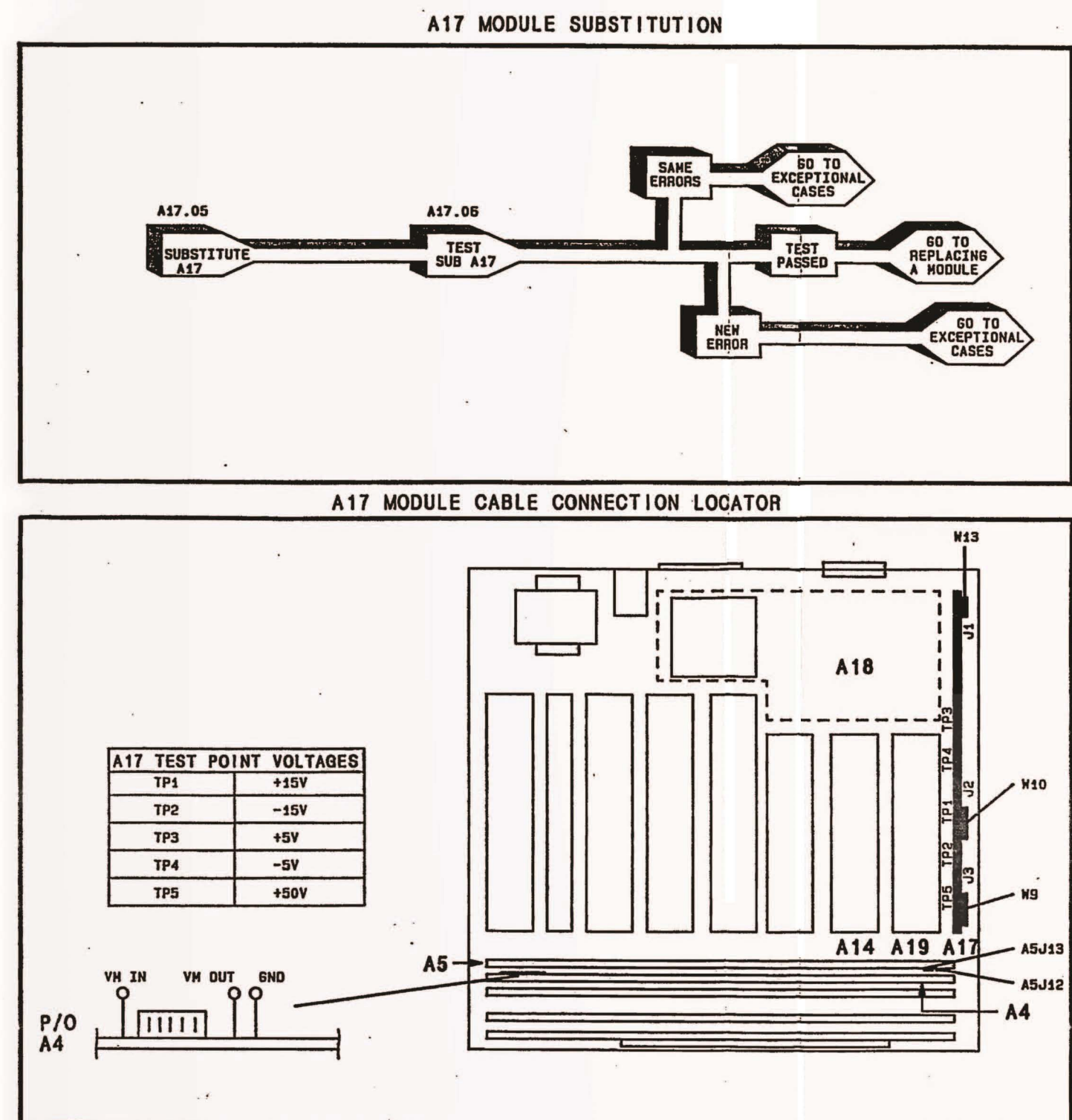
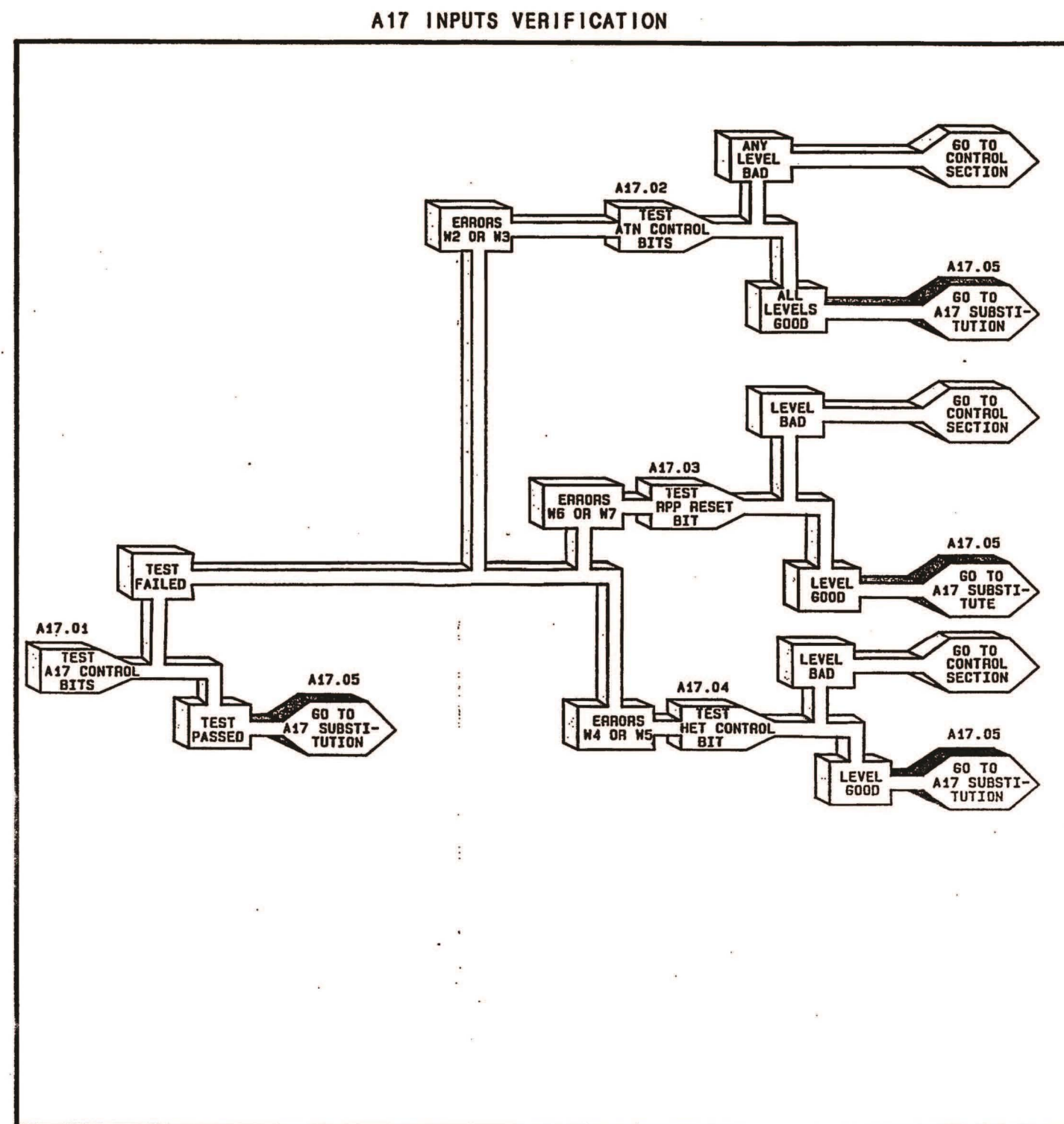
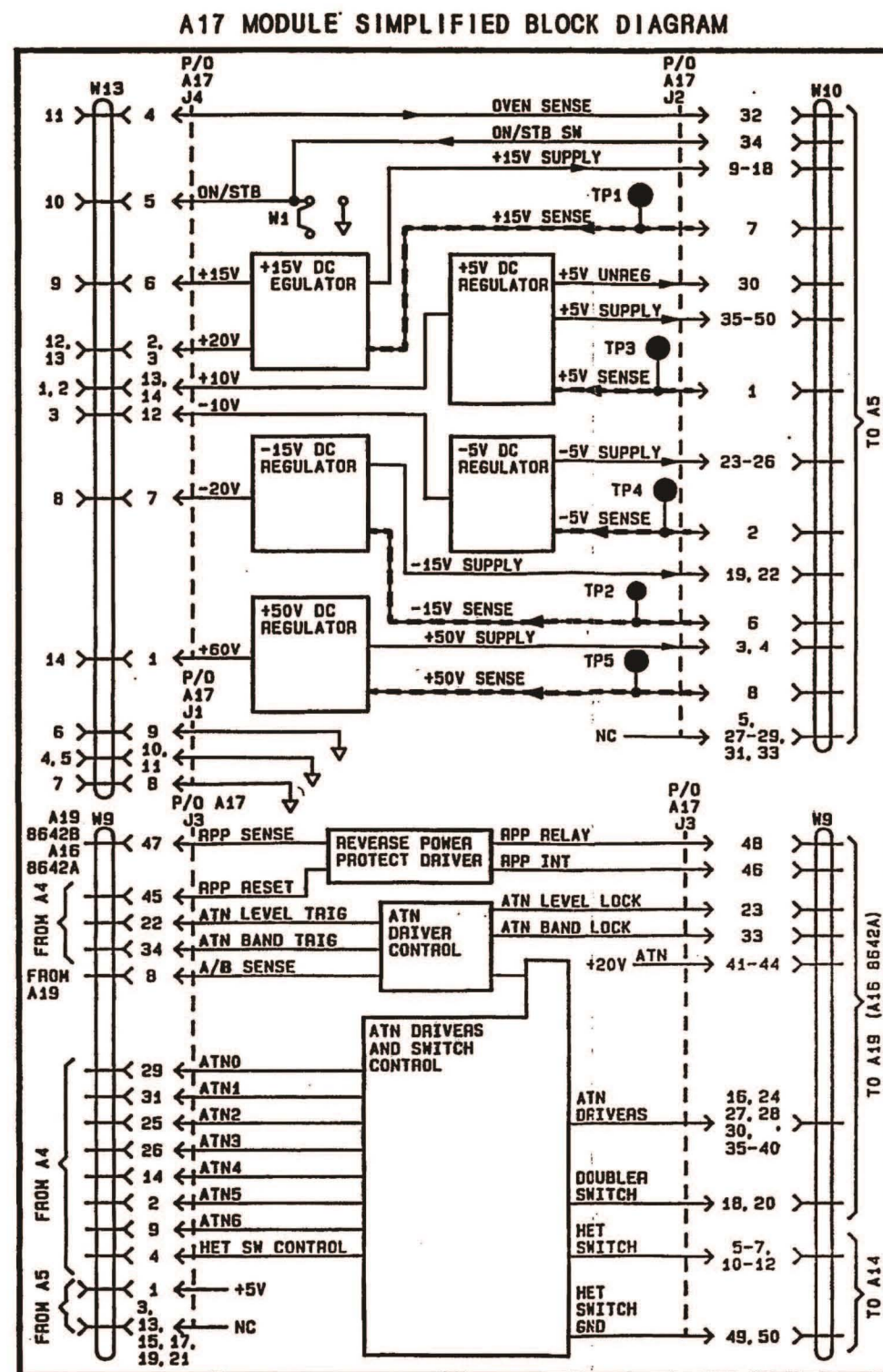
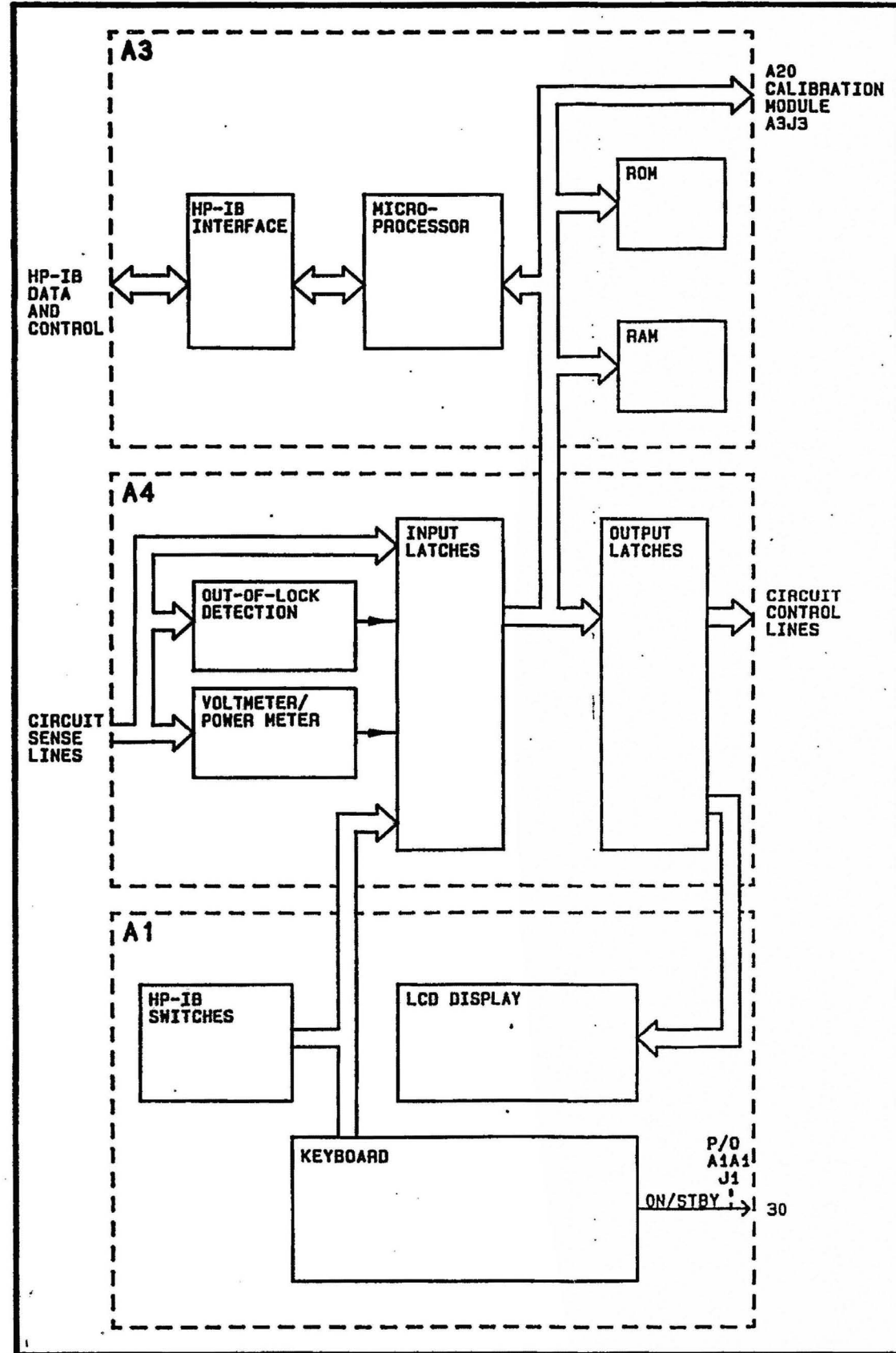


Figure 3B-200. P/O A17 Power Supply Regulators/Attenuator Drivers Module Diagnostics.

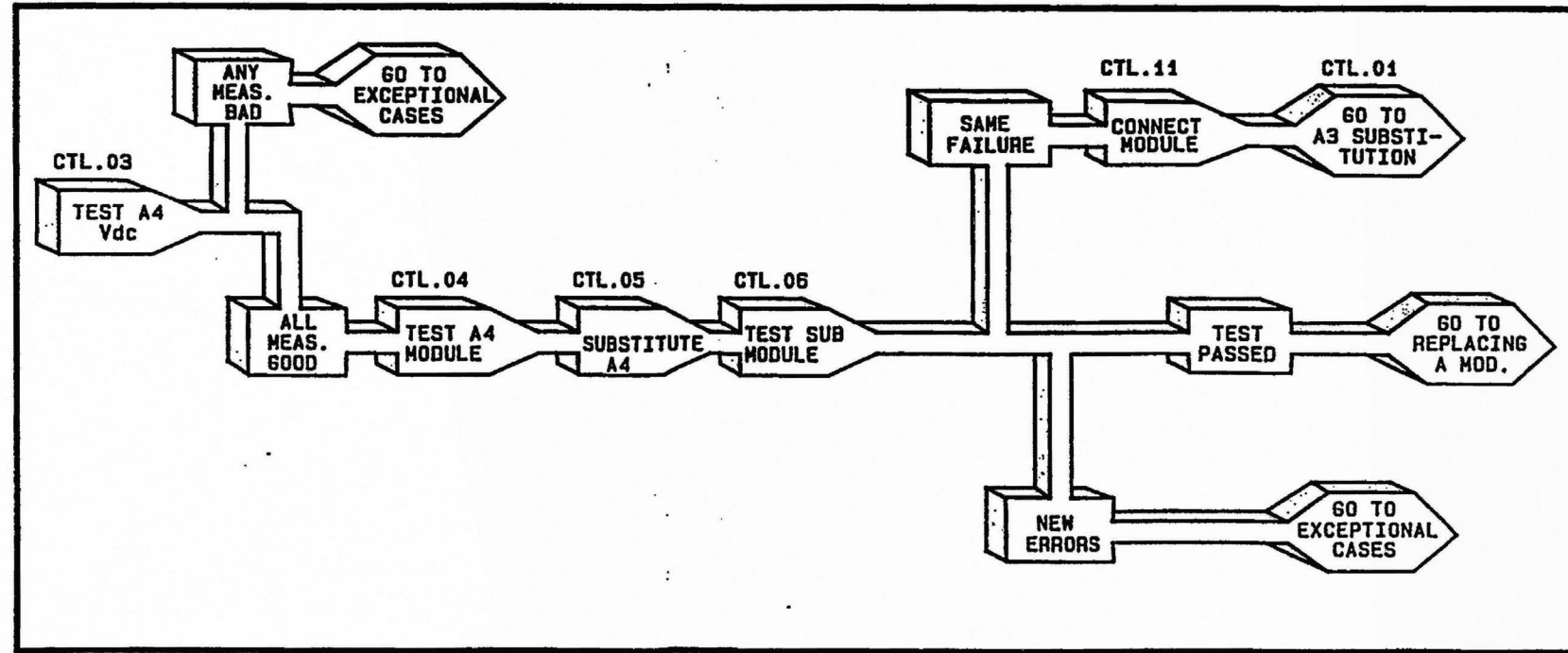
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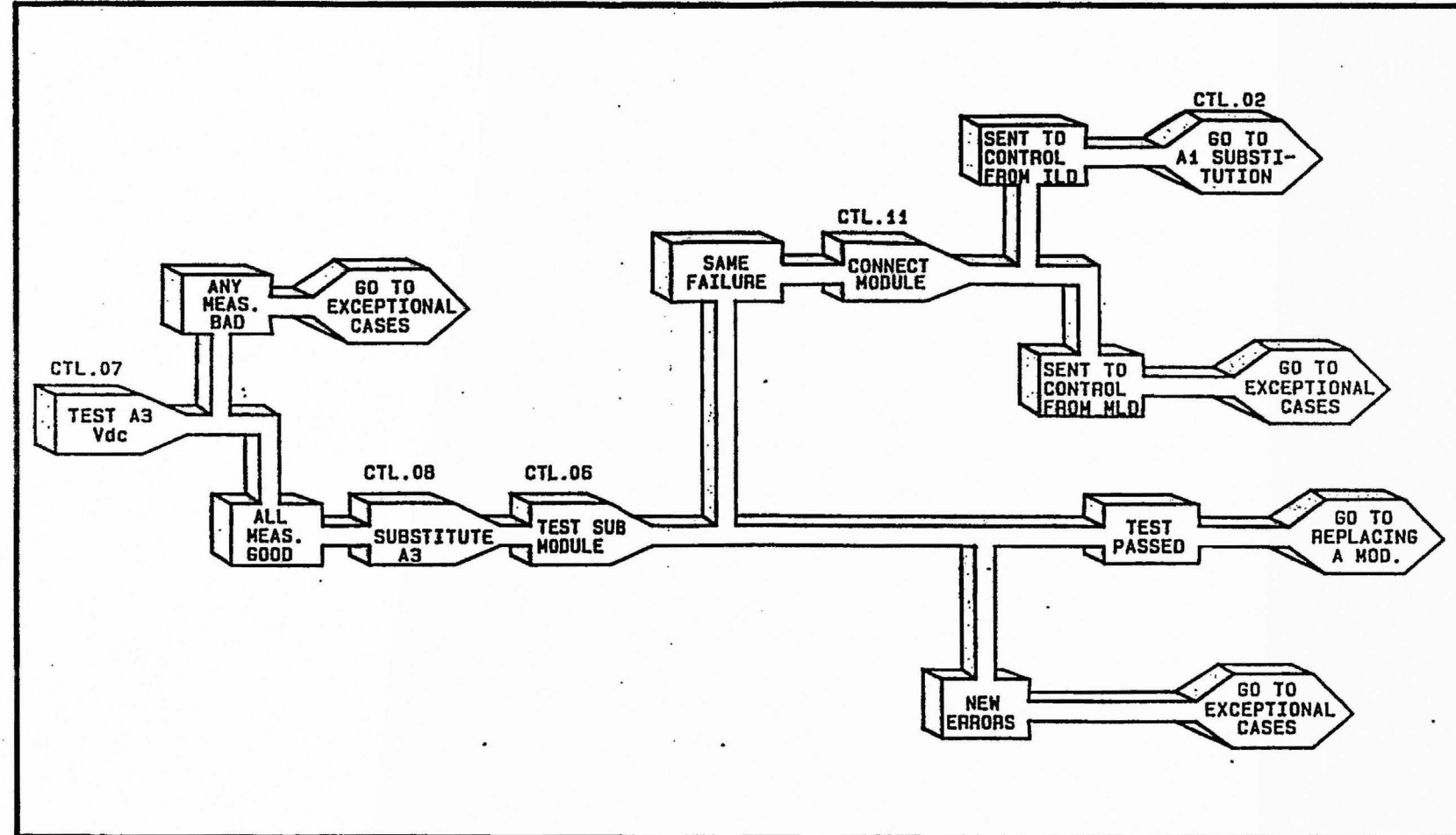
A1, A3, A4 MODULE SIMPLIFIED BLOCK DIAGRAM



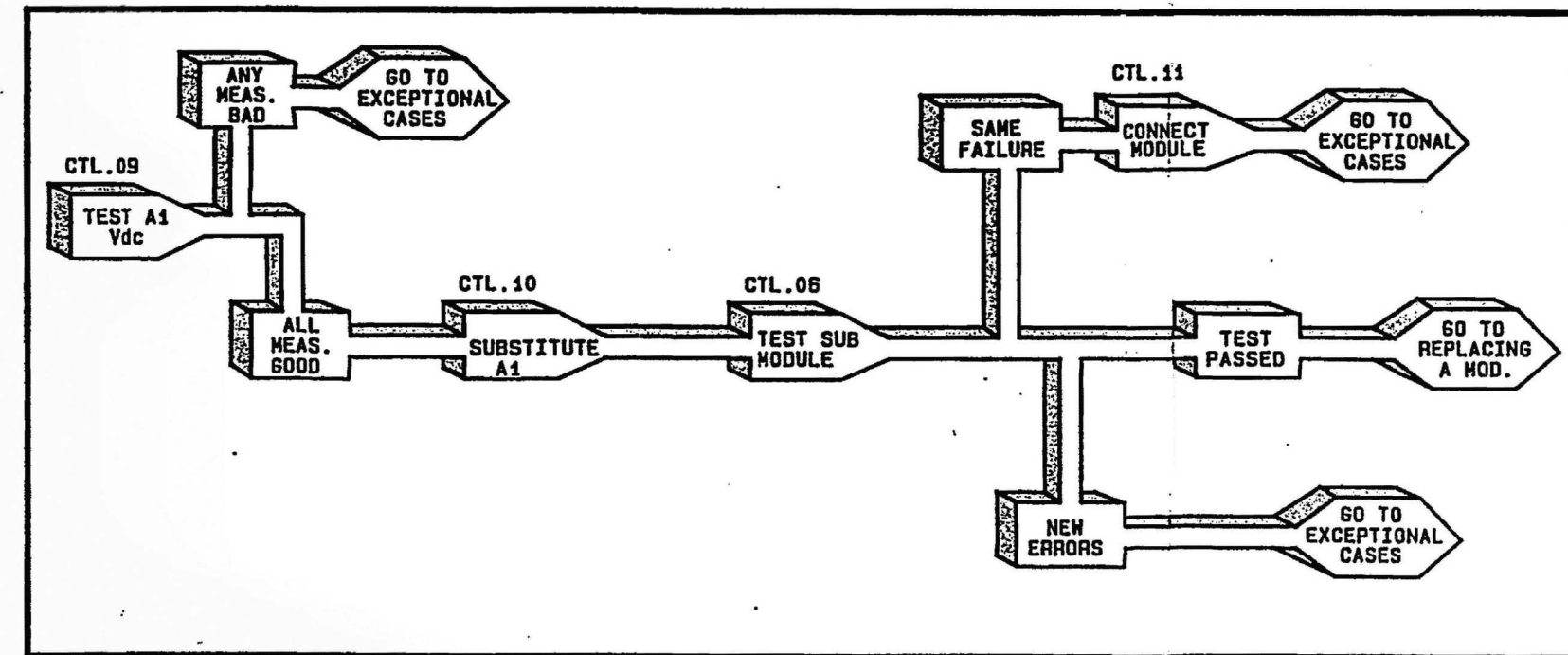
A4 MODULE SUBSTITUTION



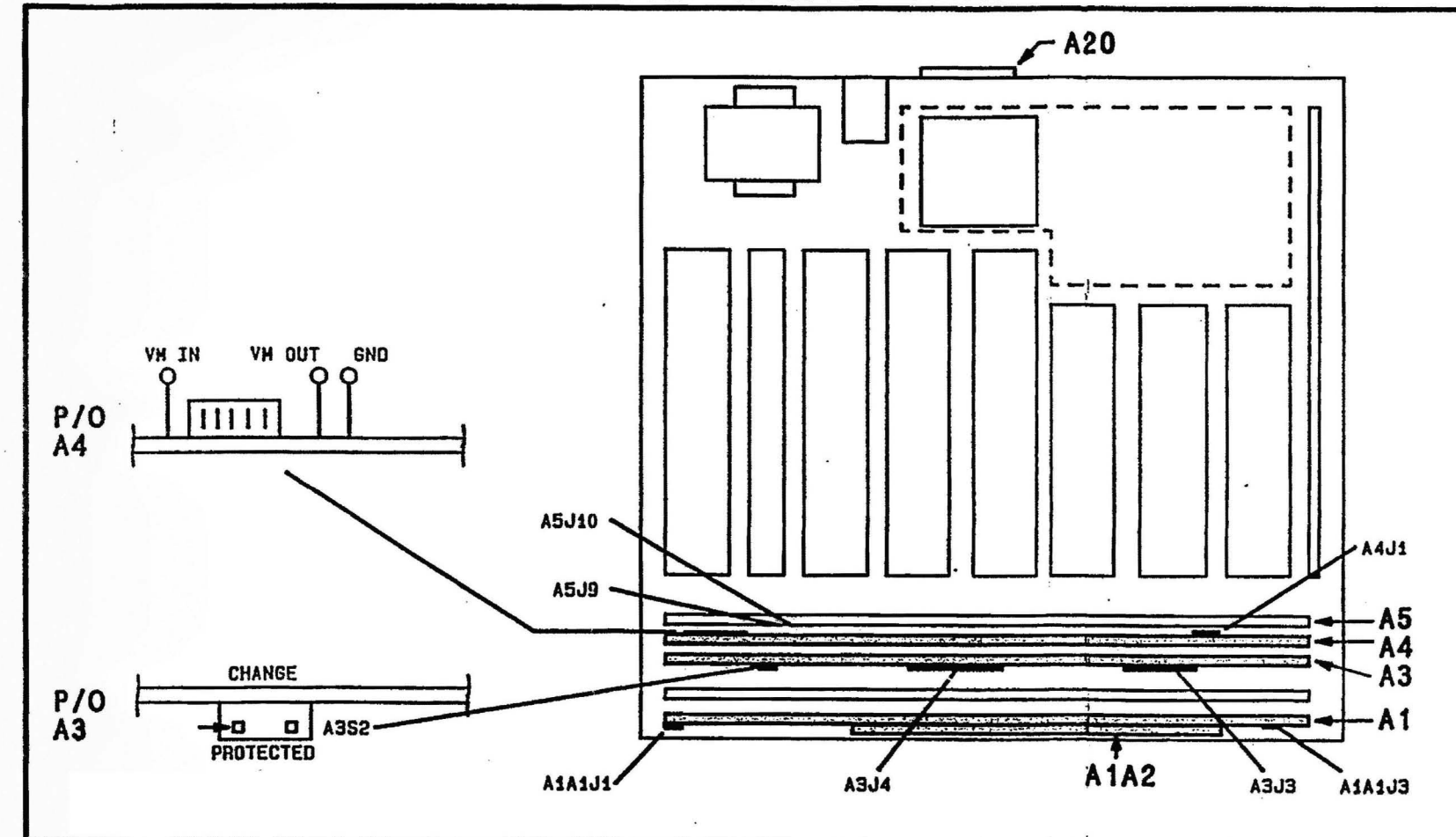
A3 MODULE SUBSTITUTION



A1 MODULE SUBSTITUTION



CONTROL SECTION CONNECTOR LOCATOR



CONTROL SECTION I/O SIGNALS DIAGRAM

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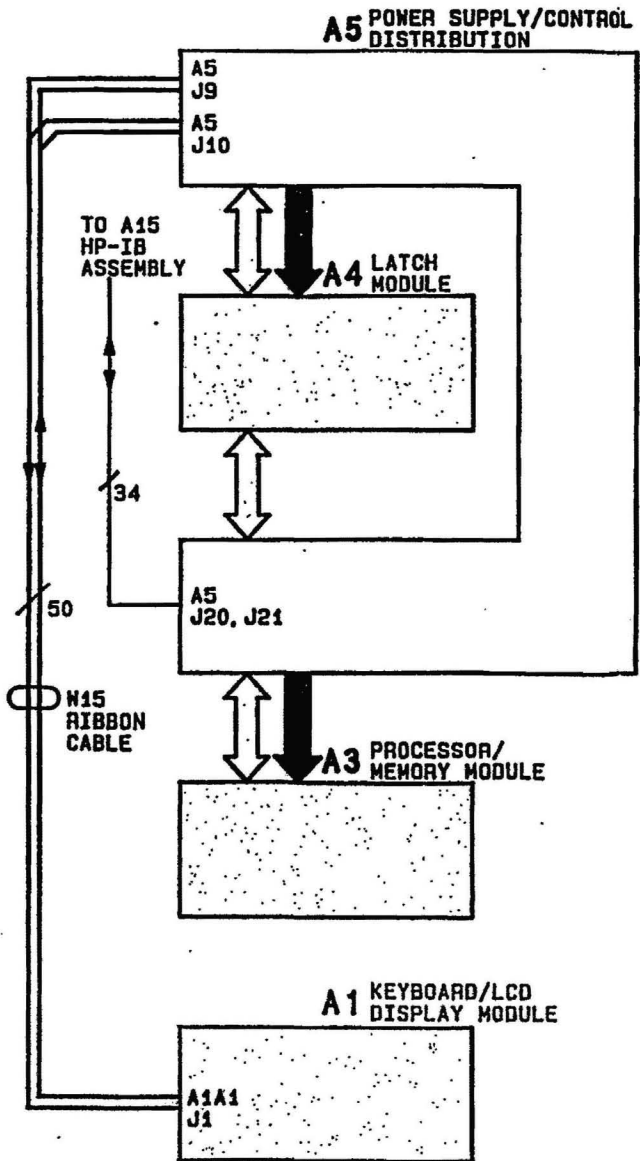


Figure 3C-100. A1, A3 AND A4 Control Section Diagnostics.

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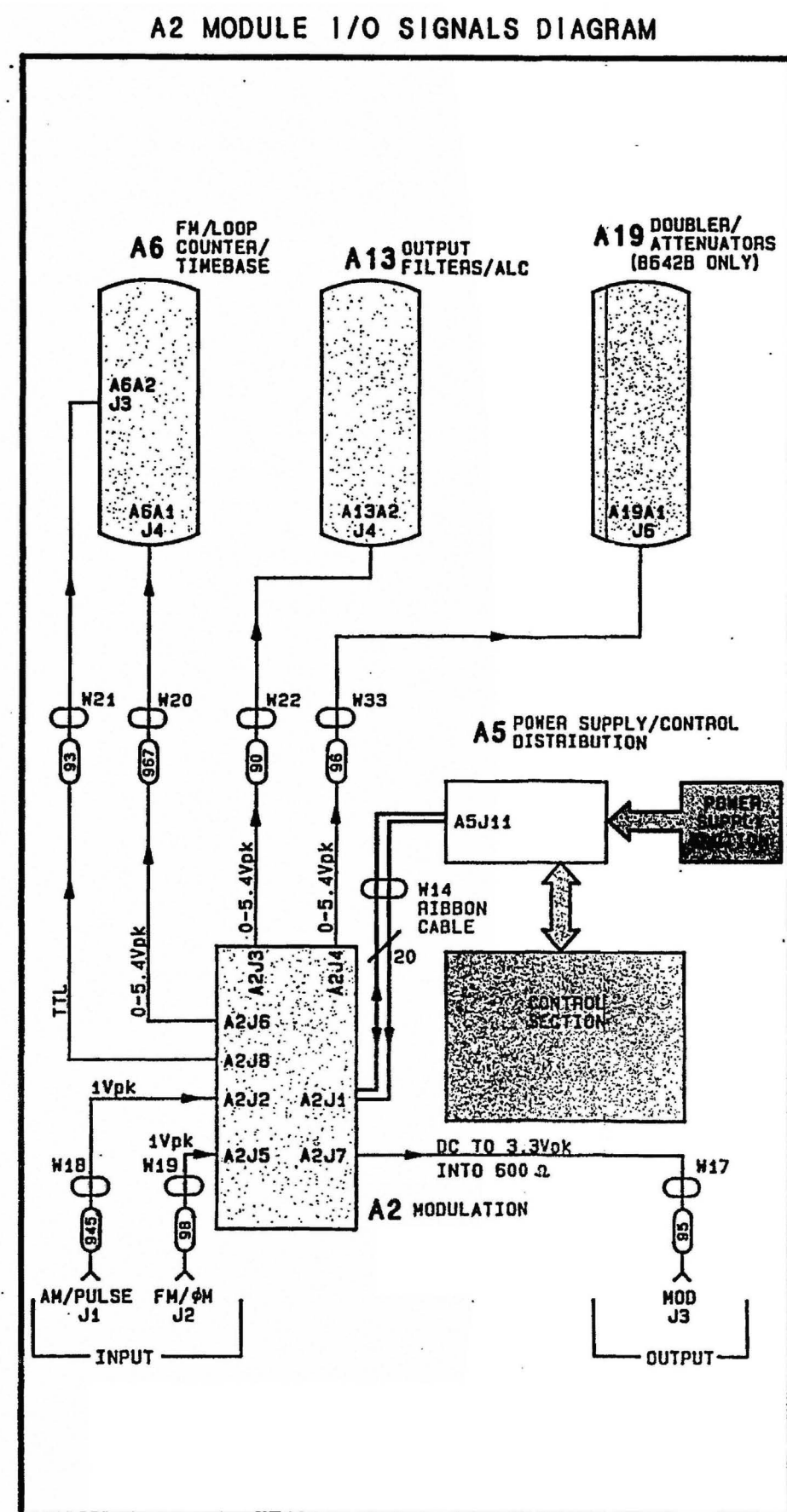
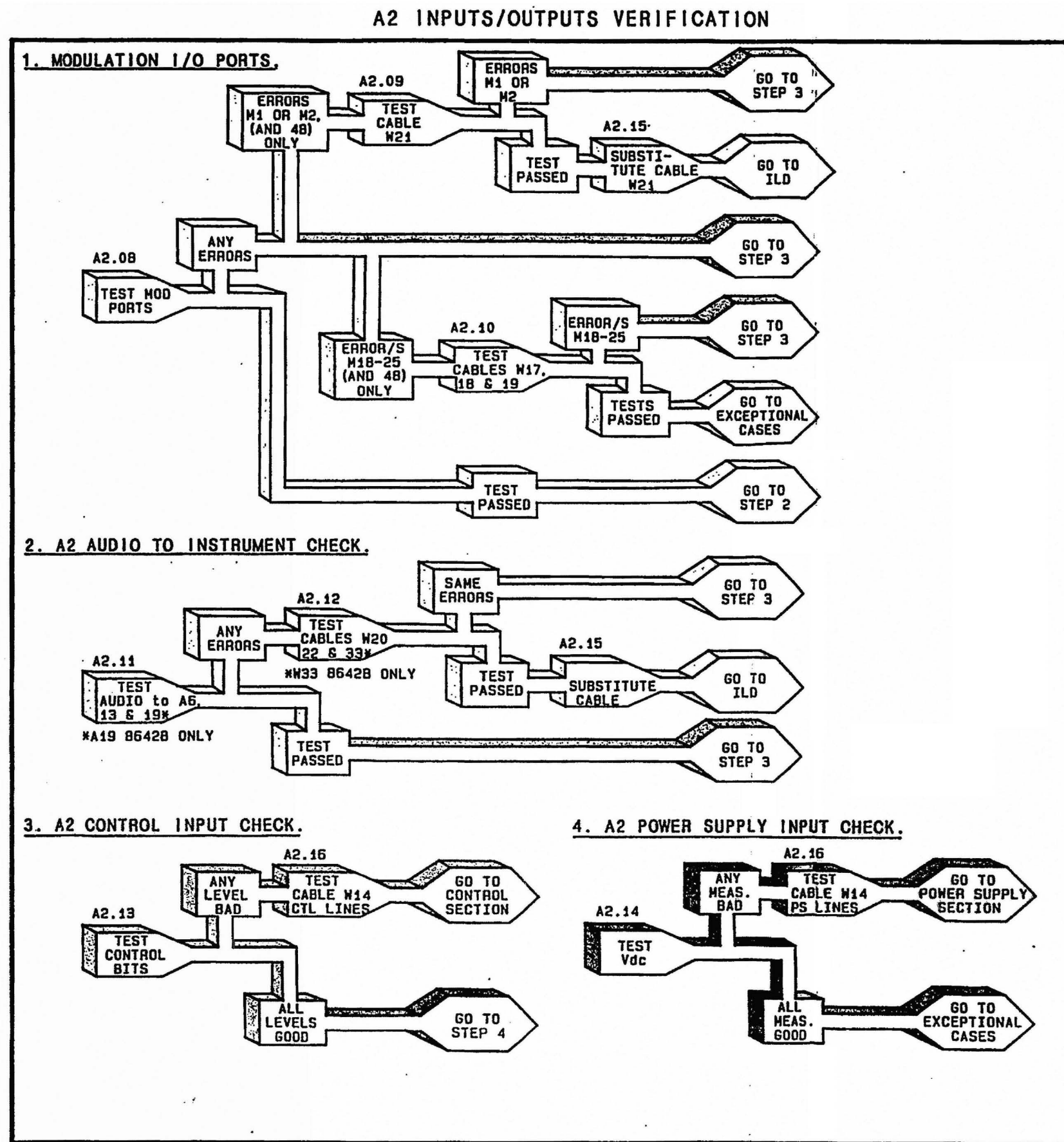
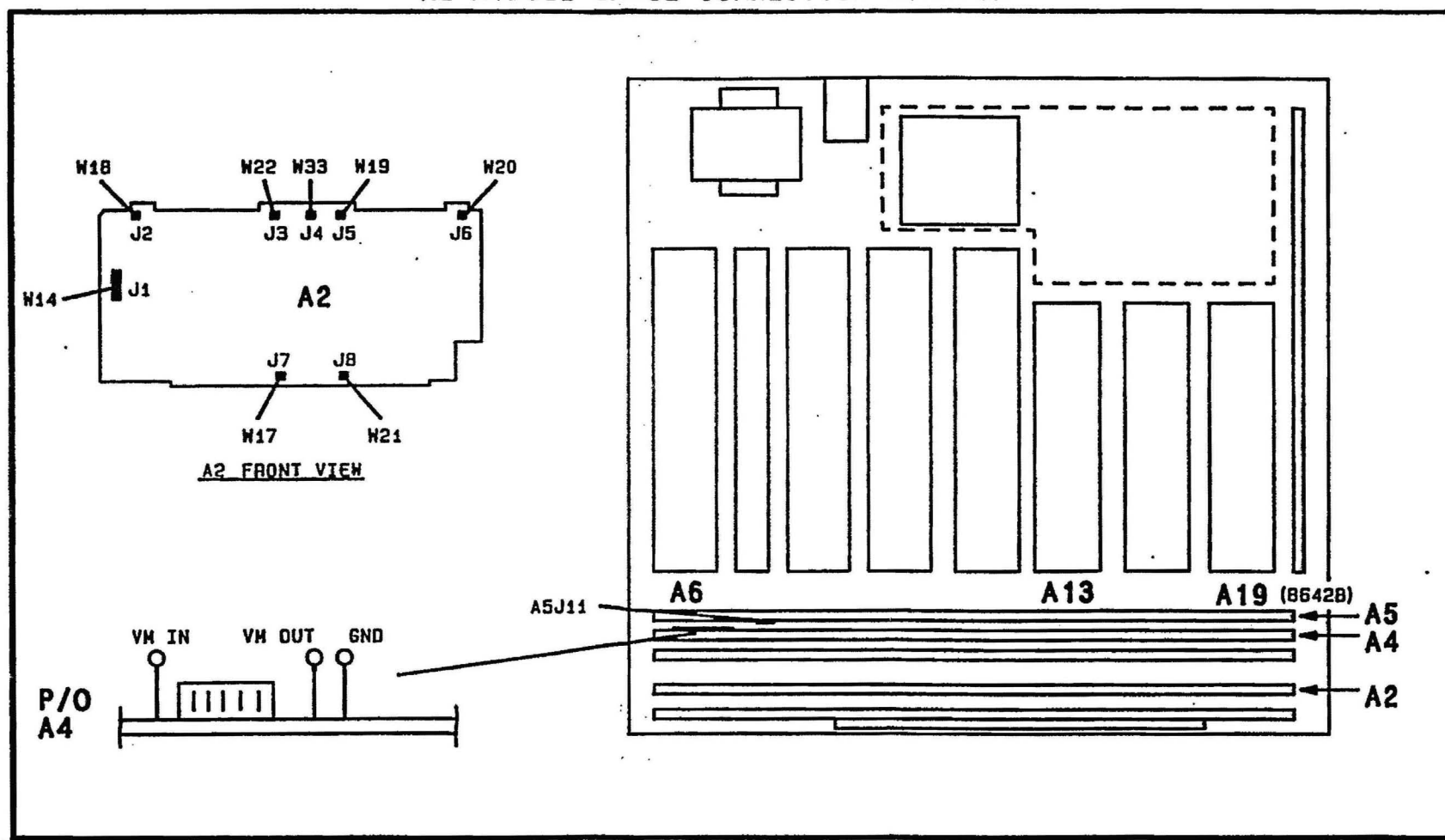
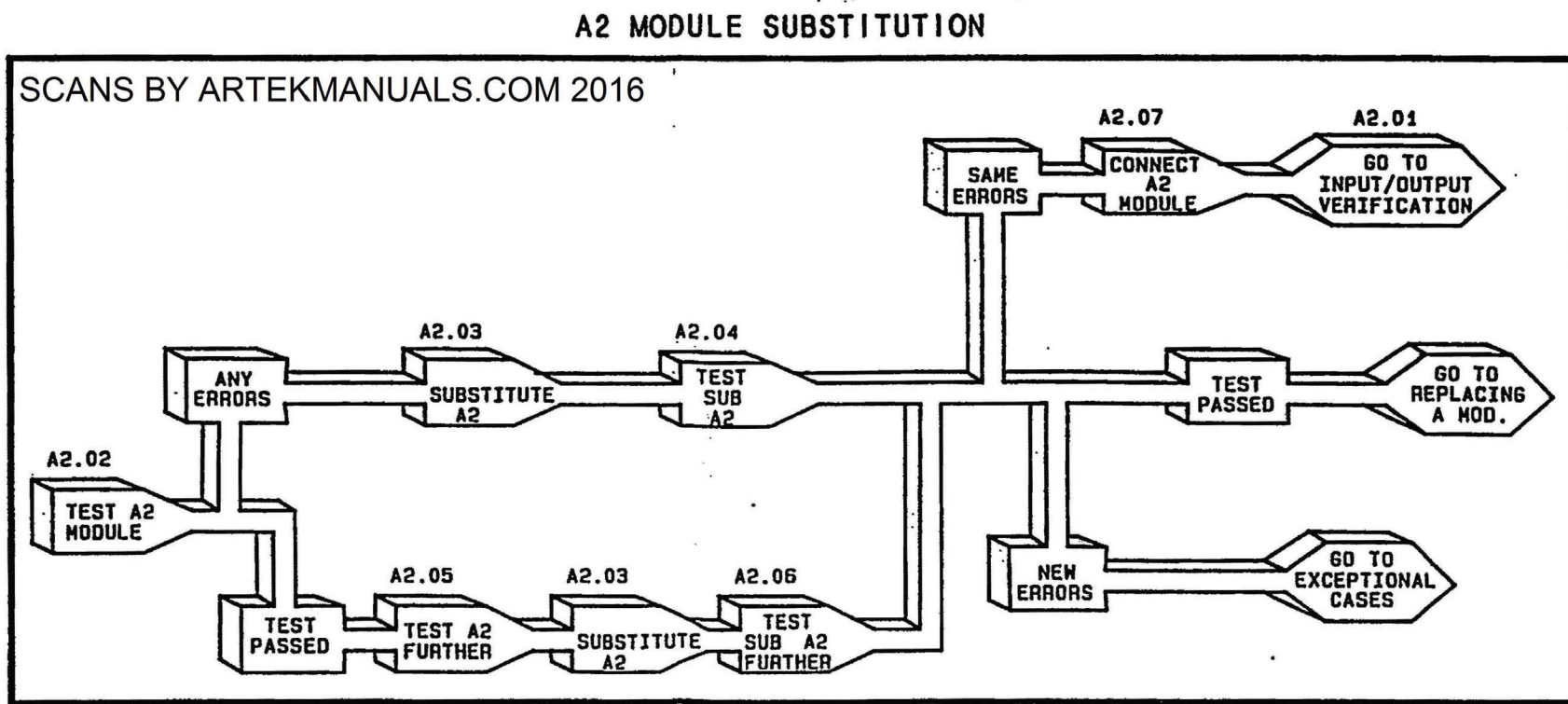
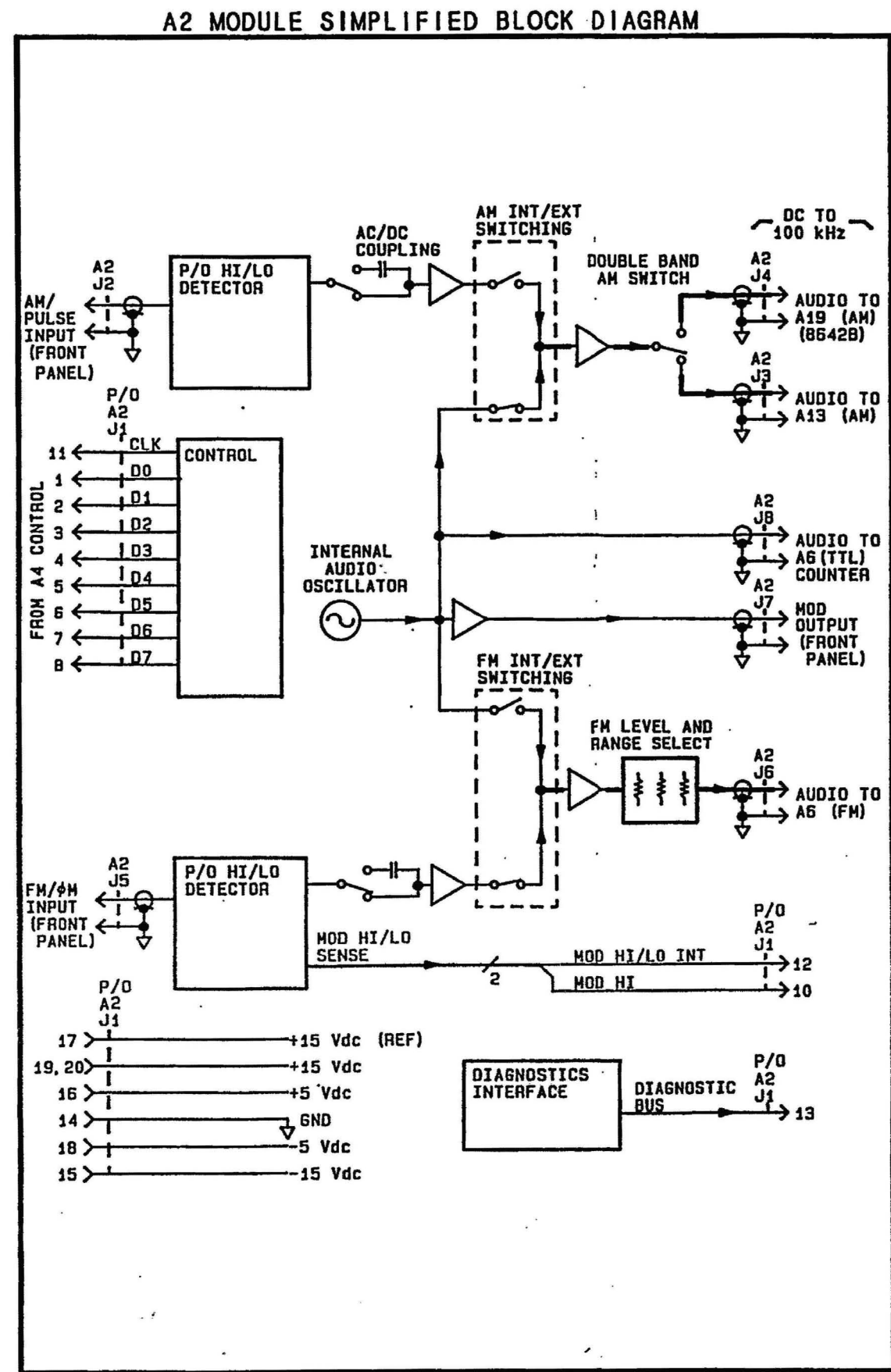


Figure 3E-100. A2 Modulation Module Diagnostics.

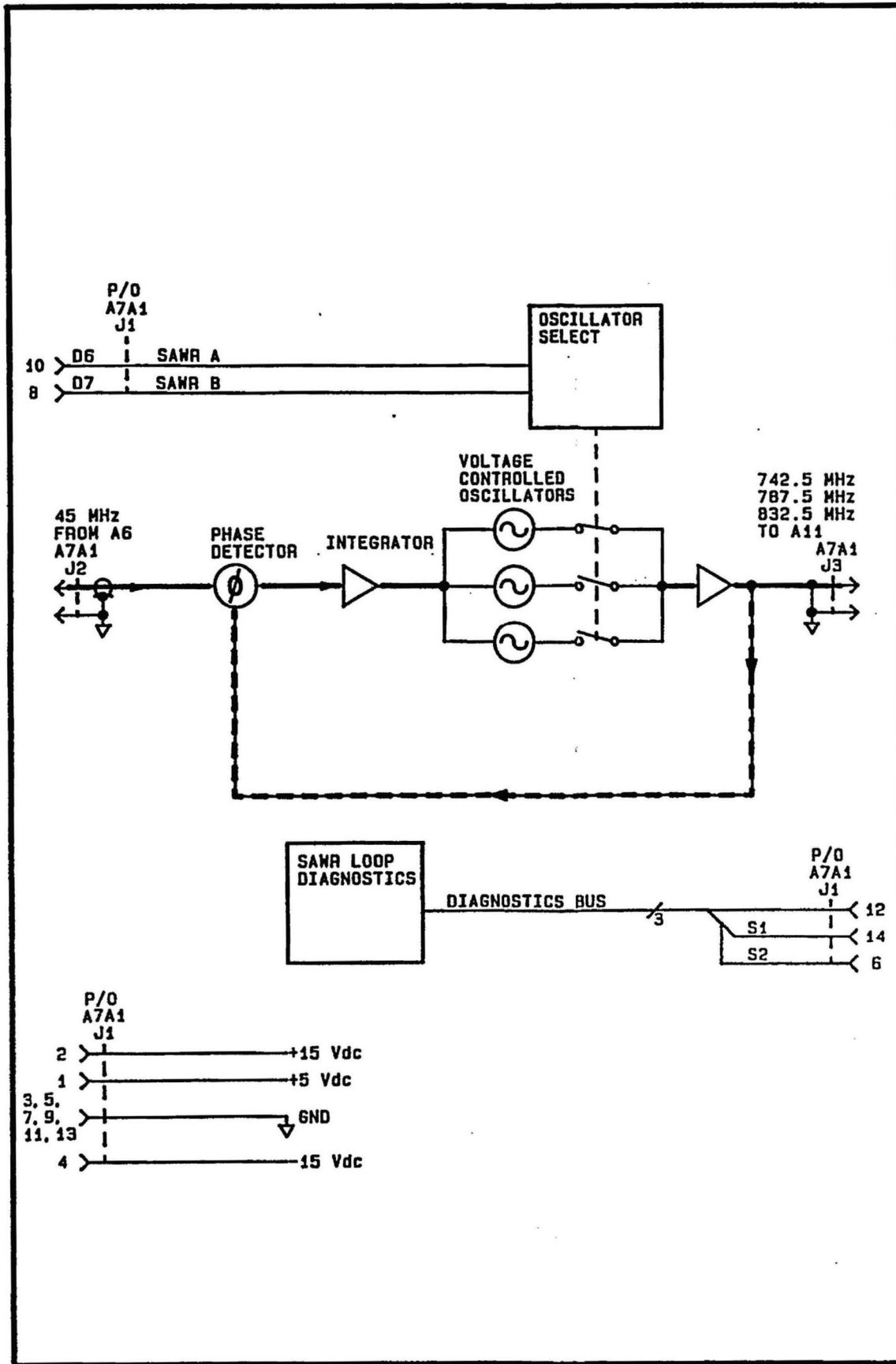
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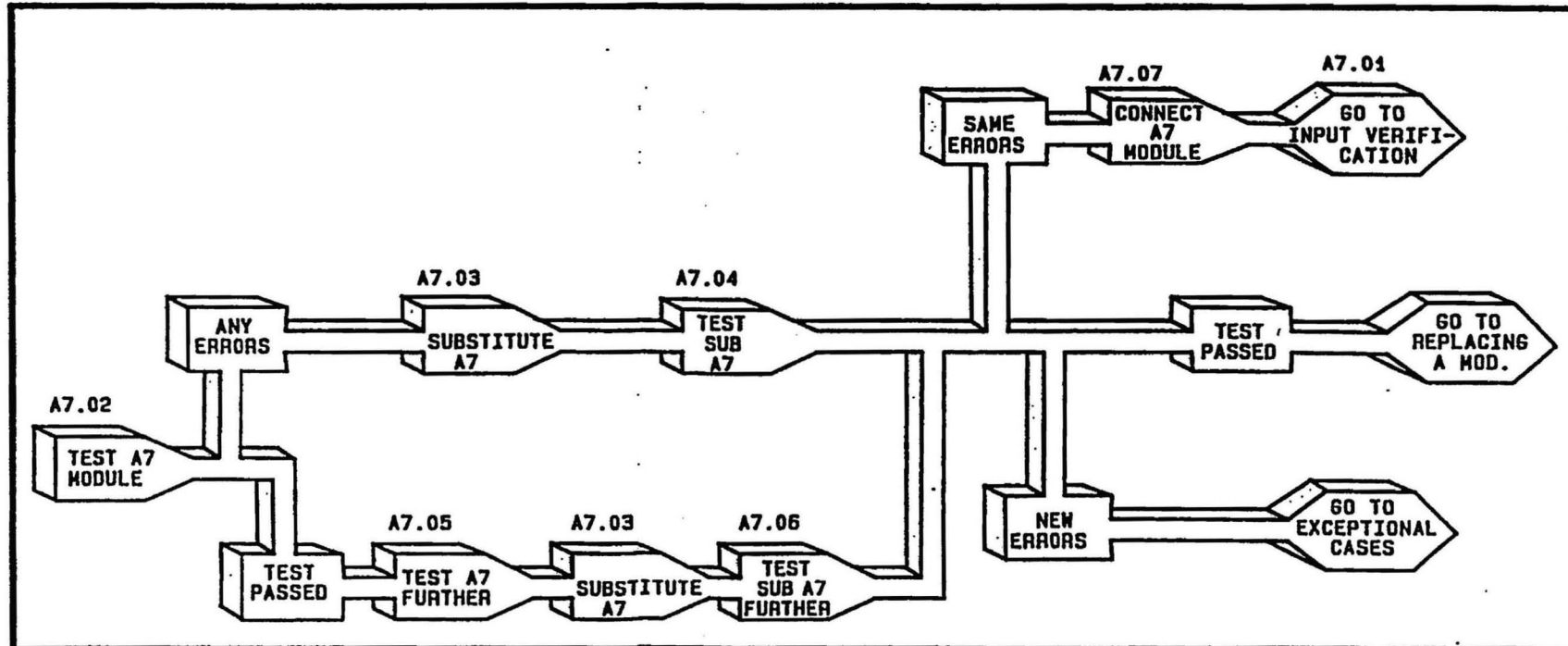
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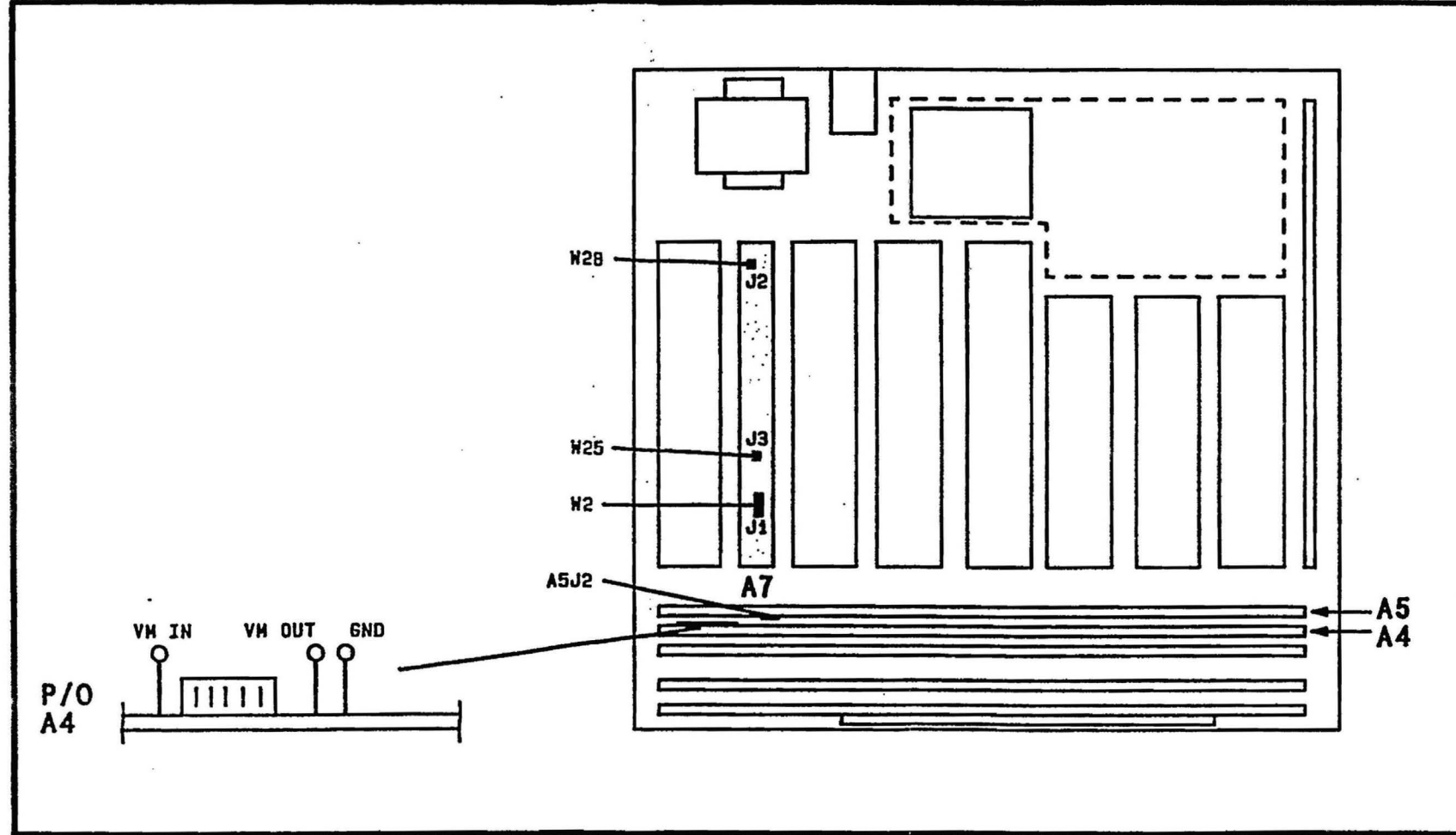
A7 MODULE SIMPLIFIED BLOCK DIAGRAM



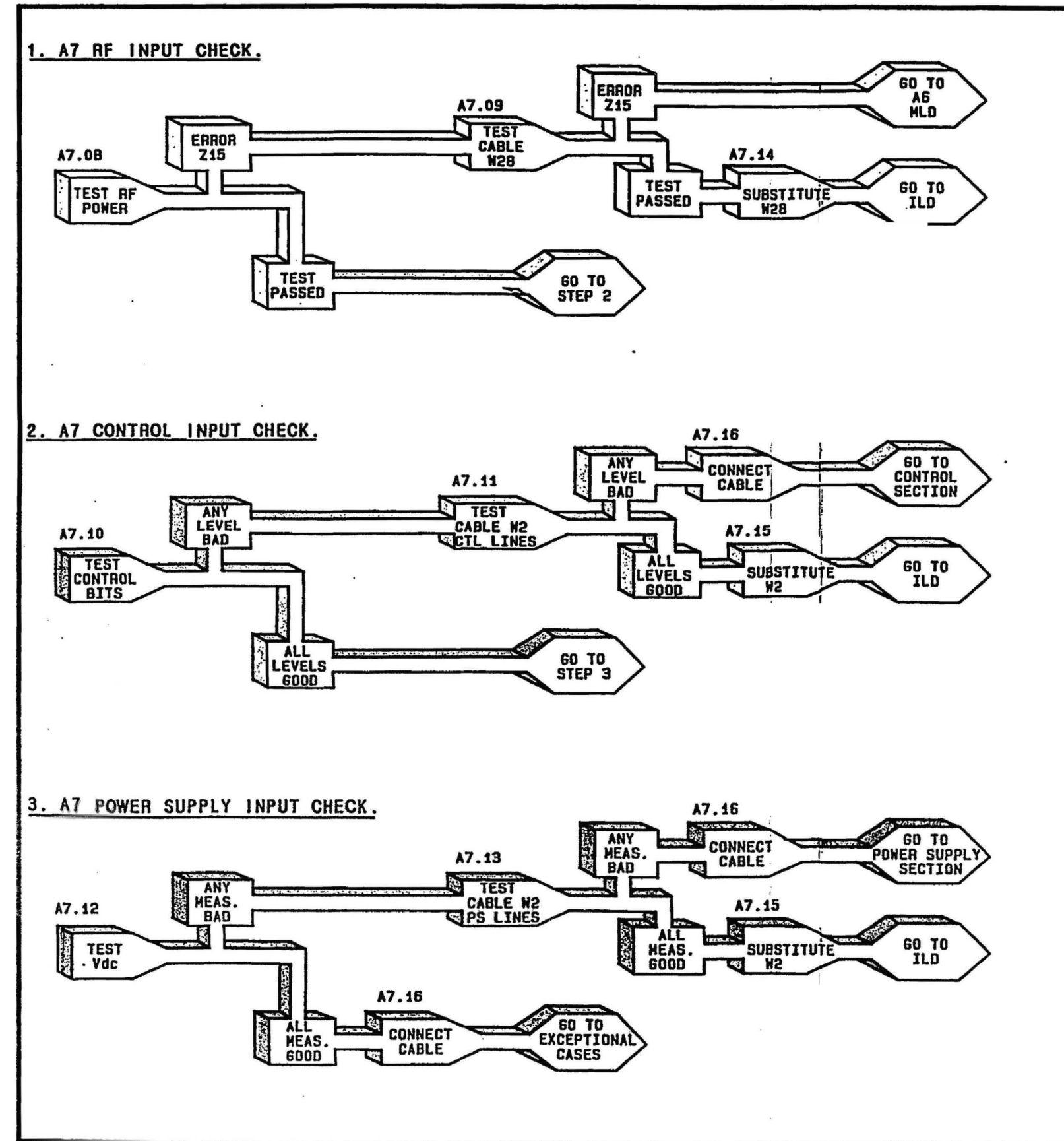
A7 MODULE SUBSTITUTION



A7 MODULE CABLE CONNECTION LOCATOR



A7 INPUTS VERIFICATION



A7 MODULE I/O SIGNALS DIAGRAM

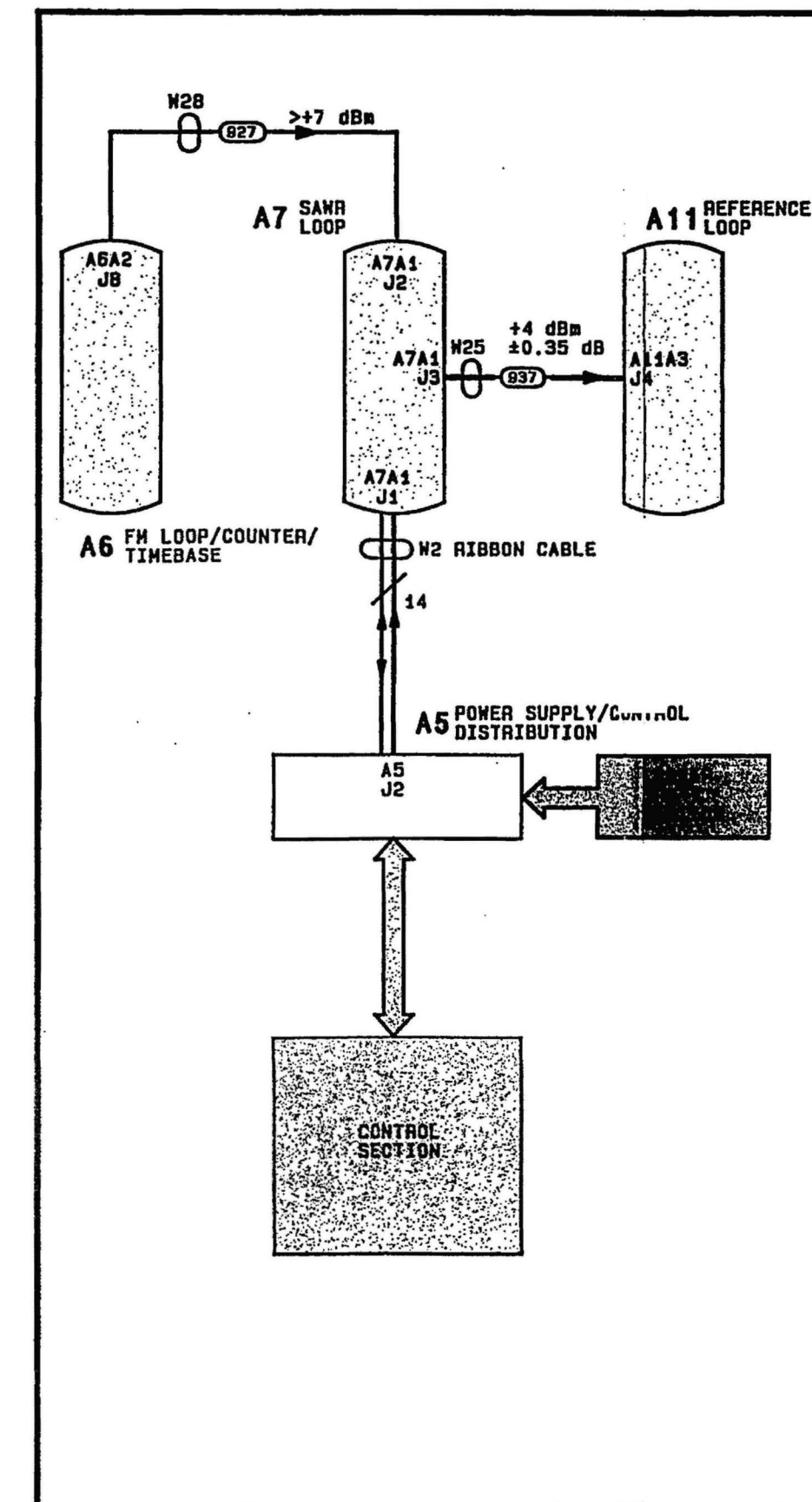
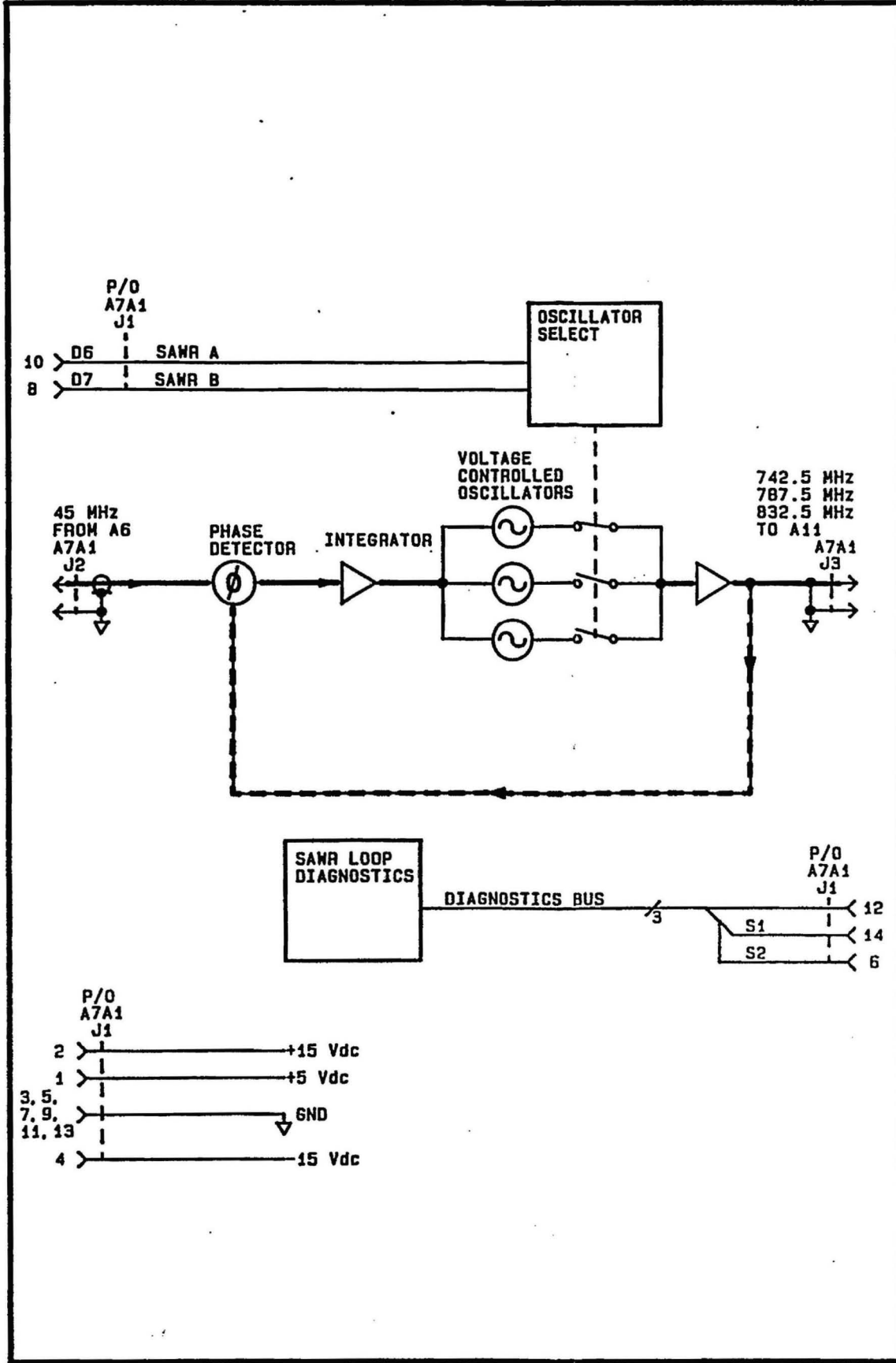


Figure 3G-100. A7 SAWR Loop Module Diagnostics.

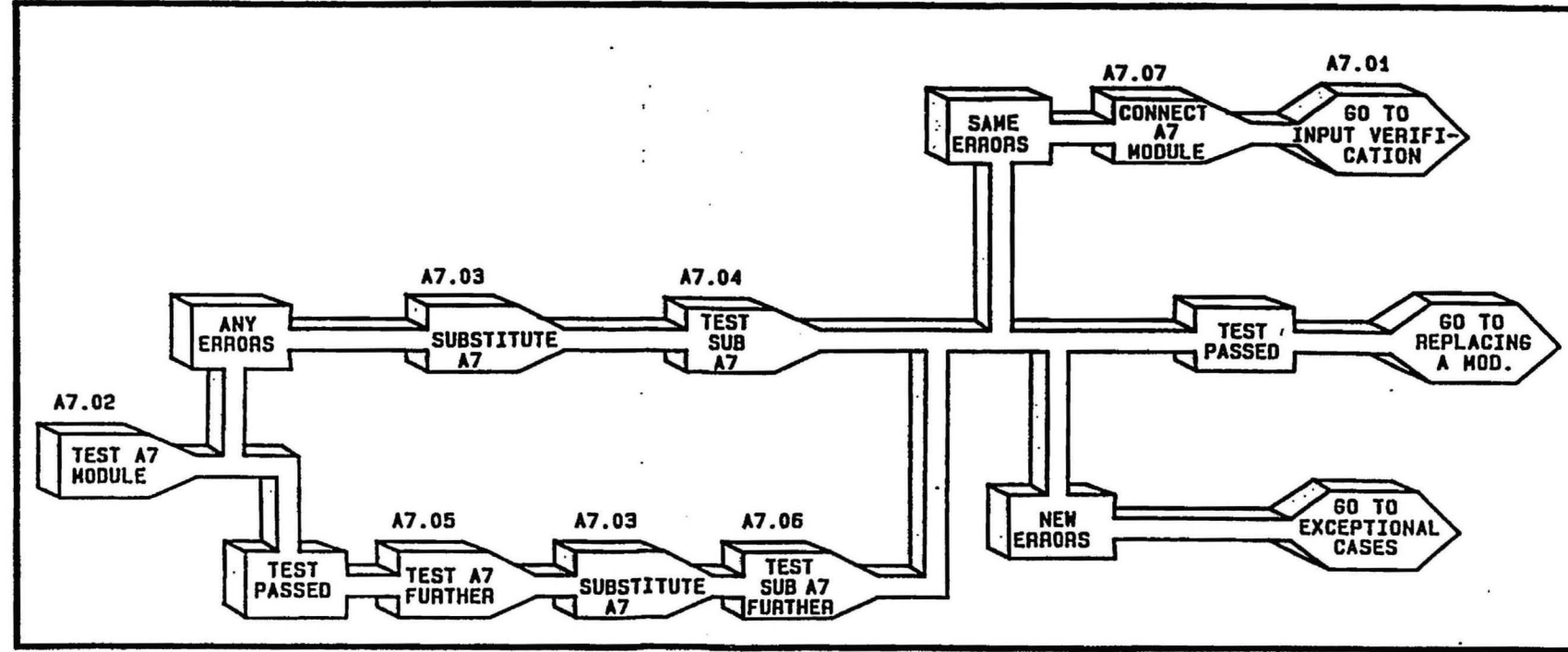
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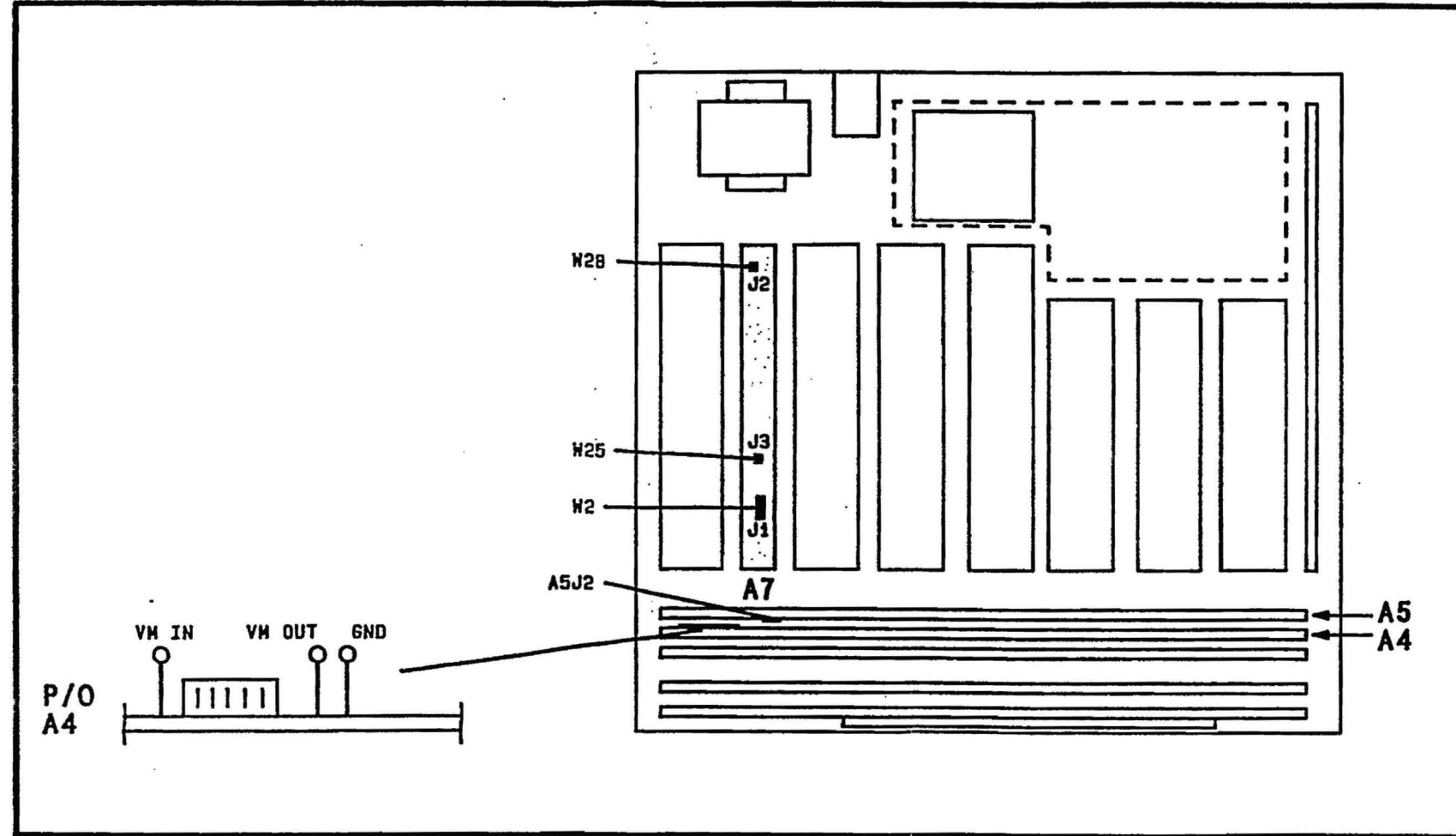
A7 MODULE SIMPLIFIED BLOCK DIAGRAM



A7 MODULE SUBSTITUTION



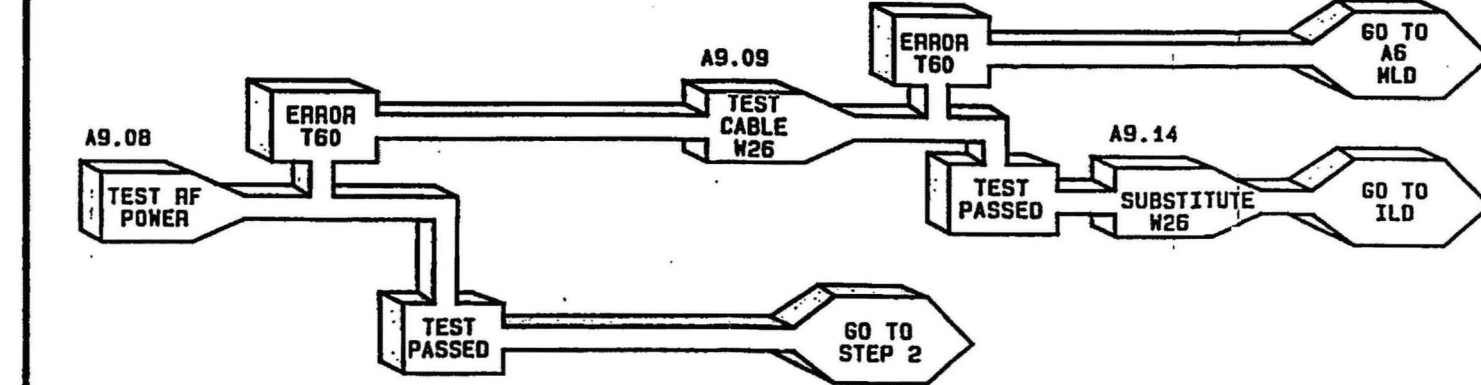
A7 MODULE CABLE CONNECTION LOCATOR



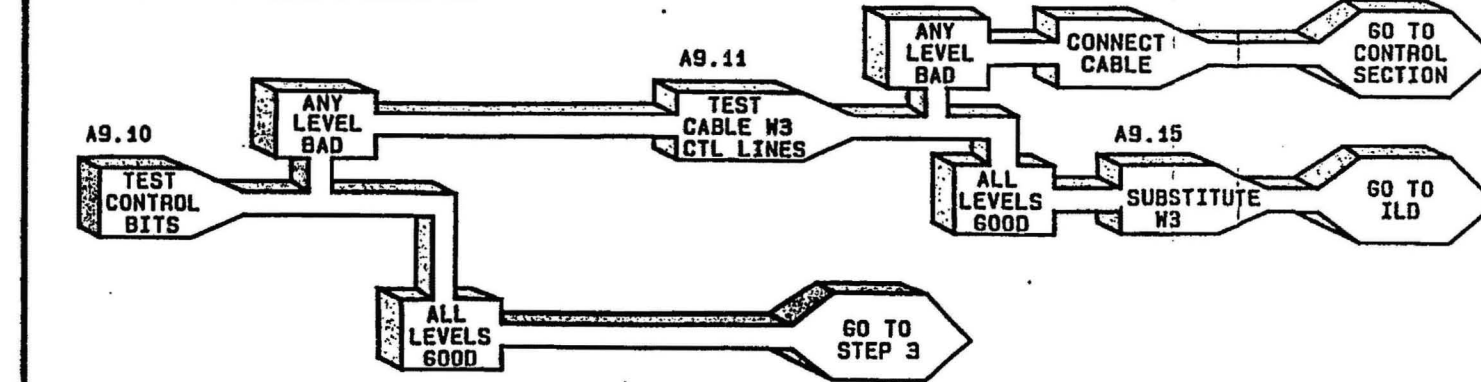
A9 INPUTS VERIFICATION

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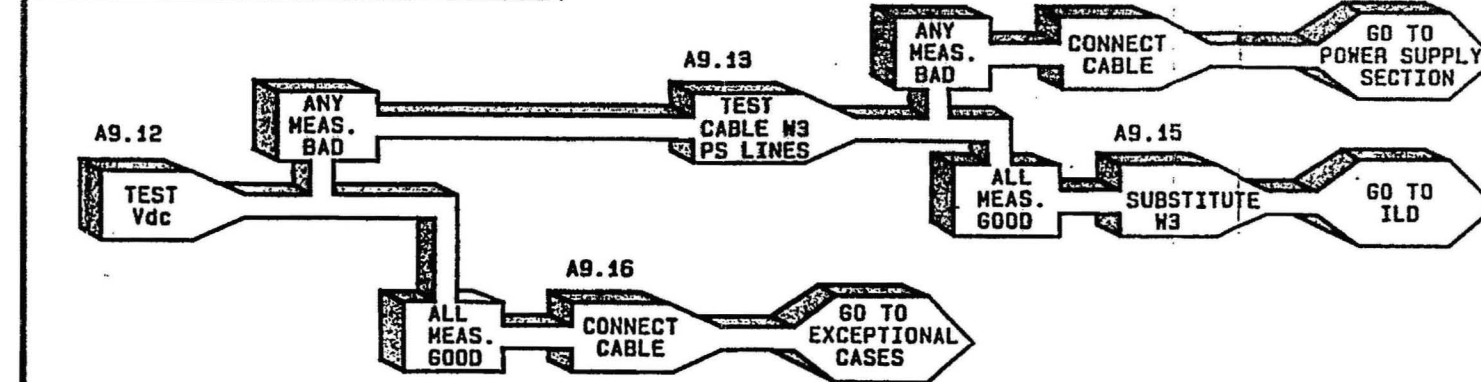
1. A9 RF INPUT CHECK.



2. A9 CONTROL INPUT CHECK.



3. A9 POWER SUPPLY INPUT CHECK.



A9 MODULE I/O SIGNALS DIAGRAM

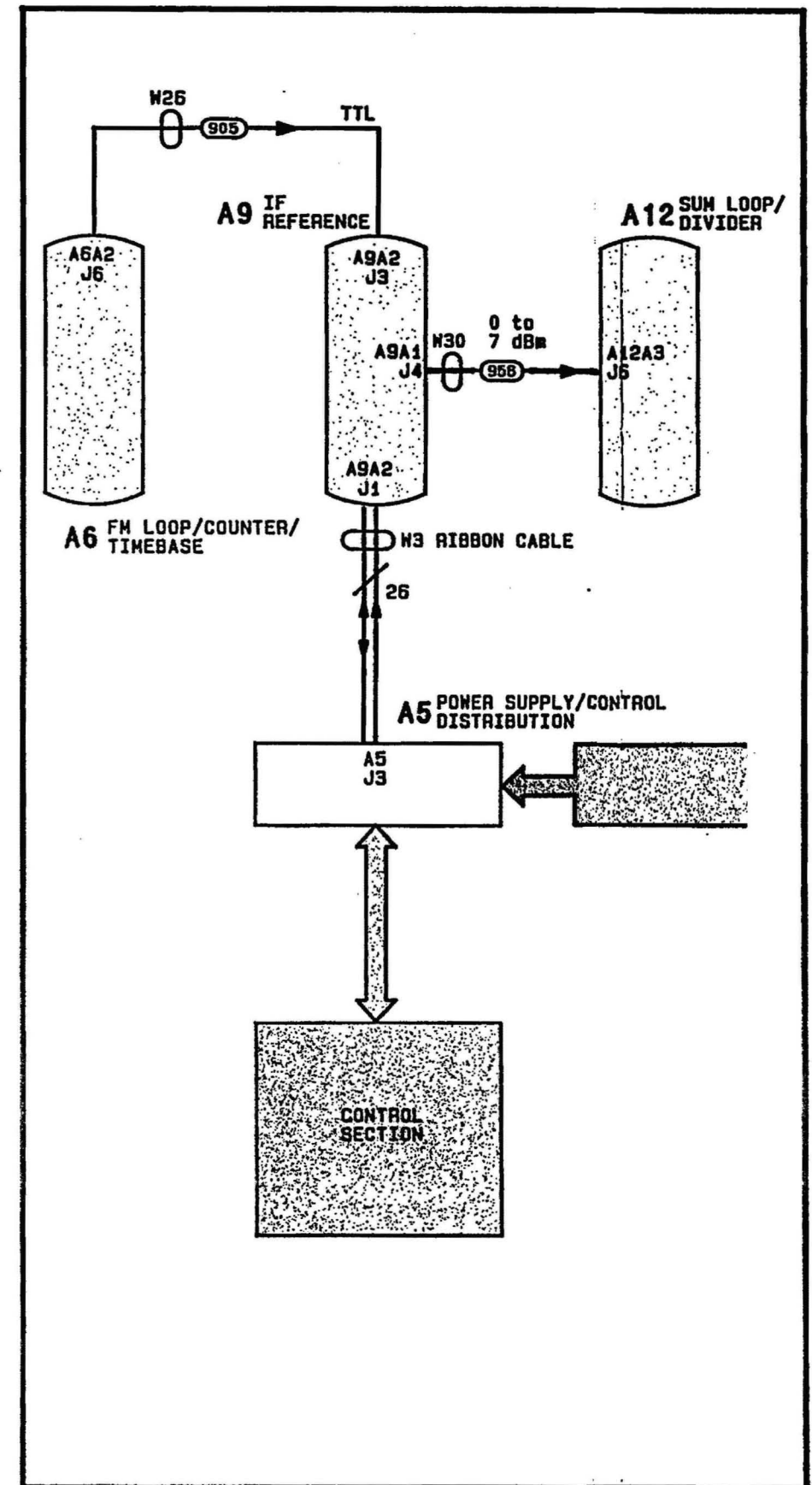
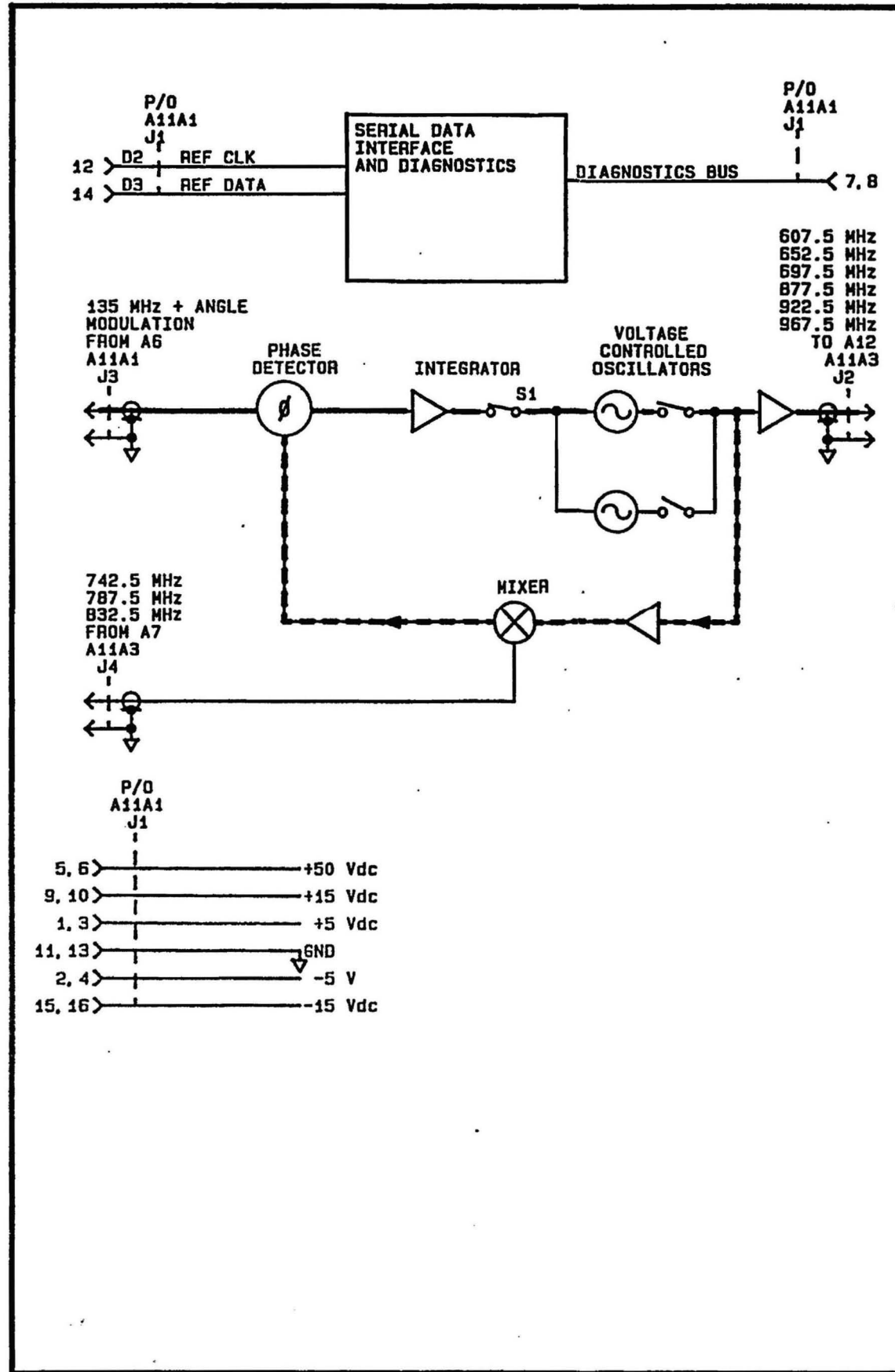


Figure 3H-100. A9 IF Reference Module Diagnostics.

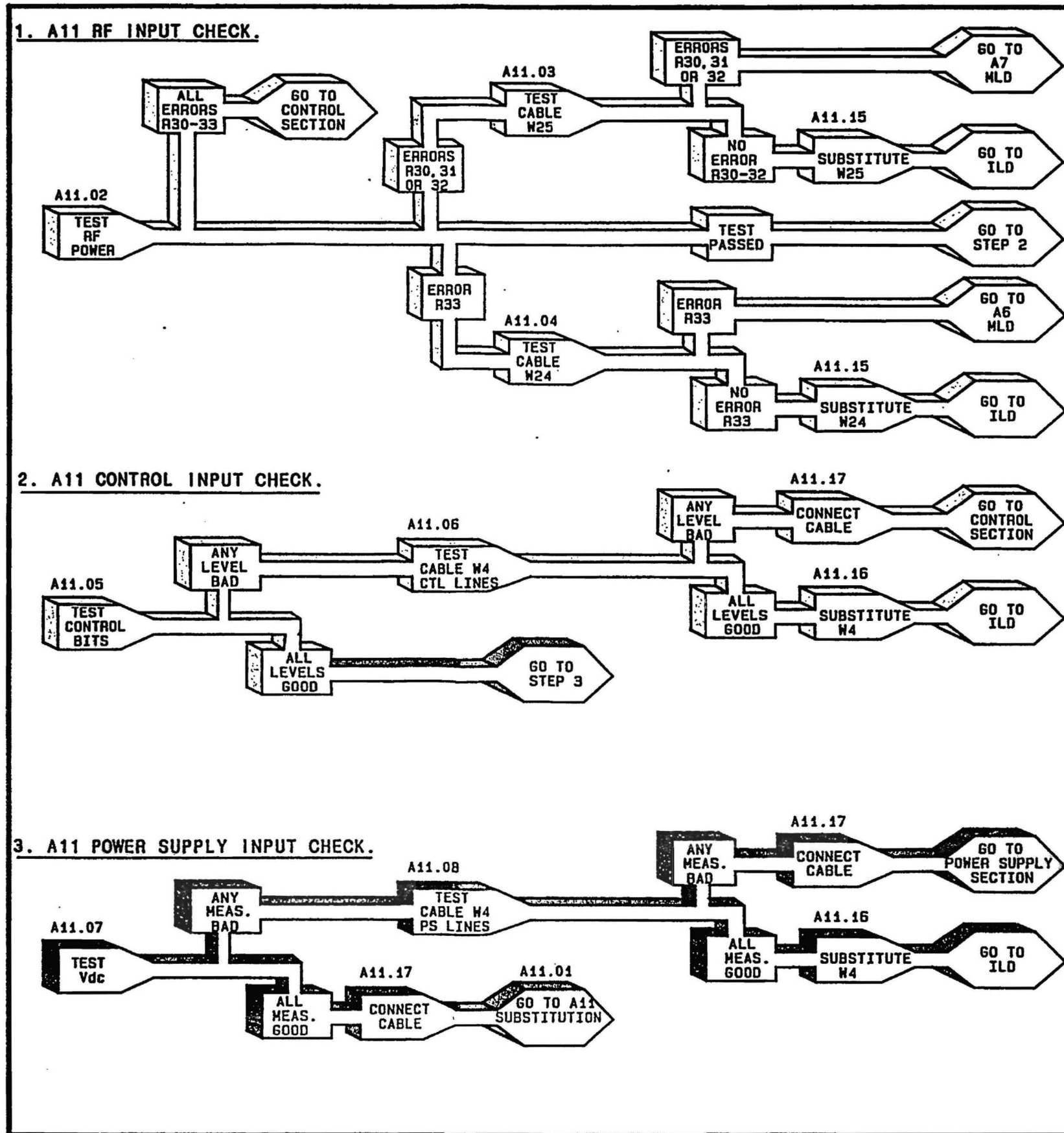
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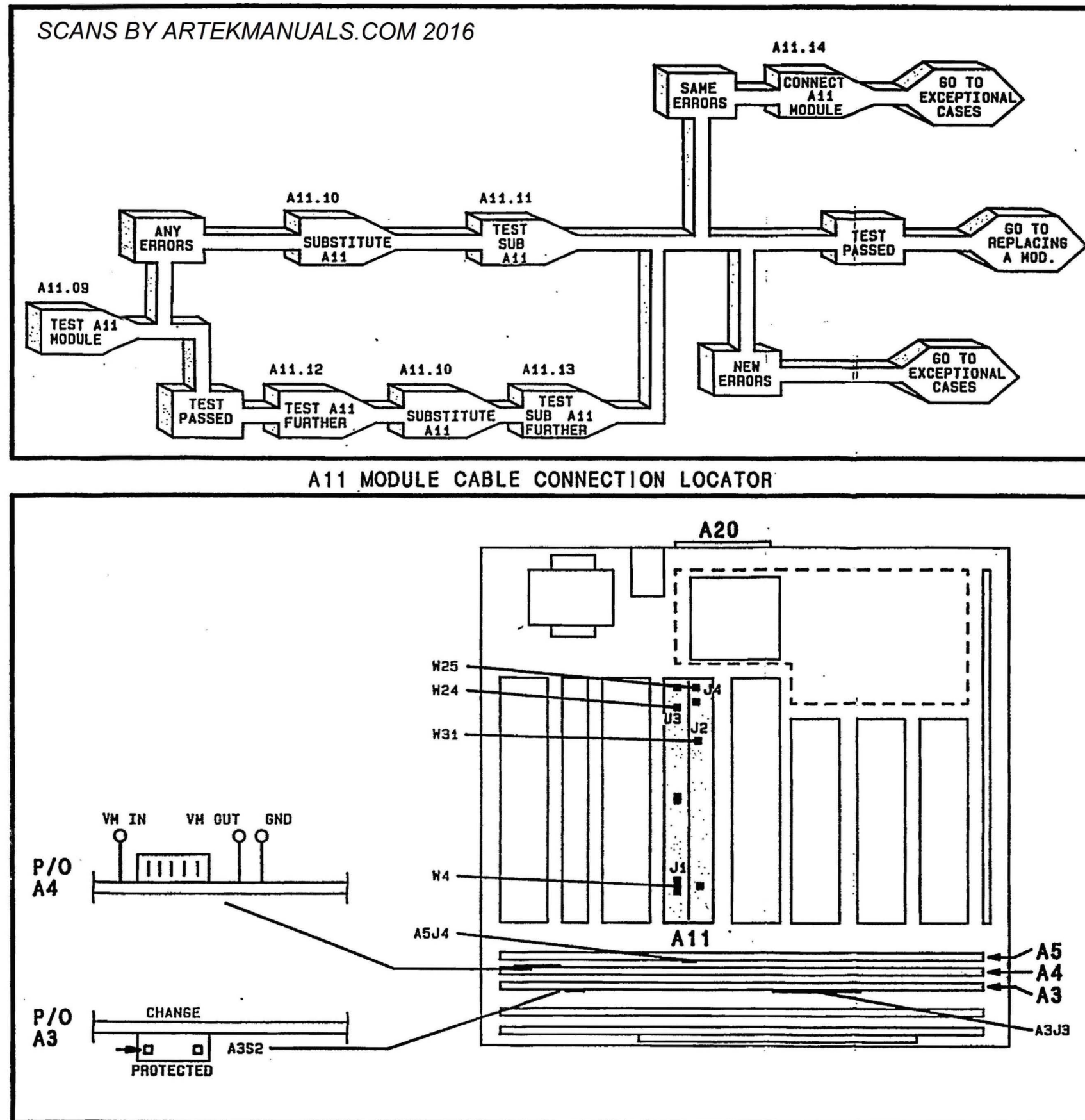
A11 MODULE SIMPLIFIED BLOCK DIAGRAM



A11 INPUTS VERIFICATION



A11 MODULE SUBSTITUTION



A11 MODULE I/O SIGNALS DIAGRAM

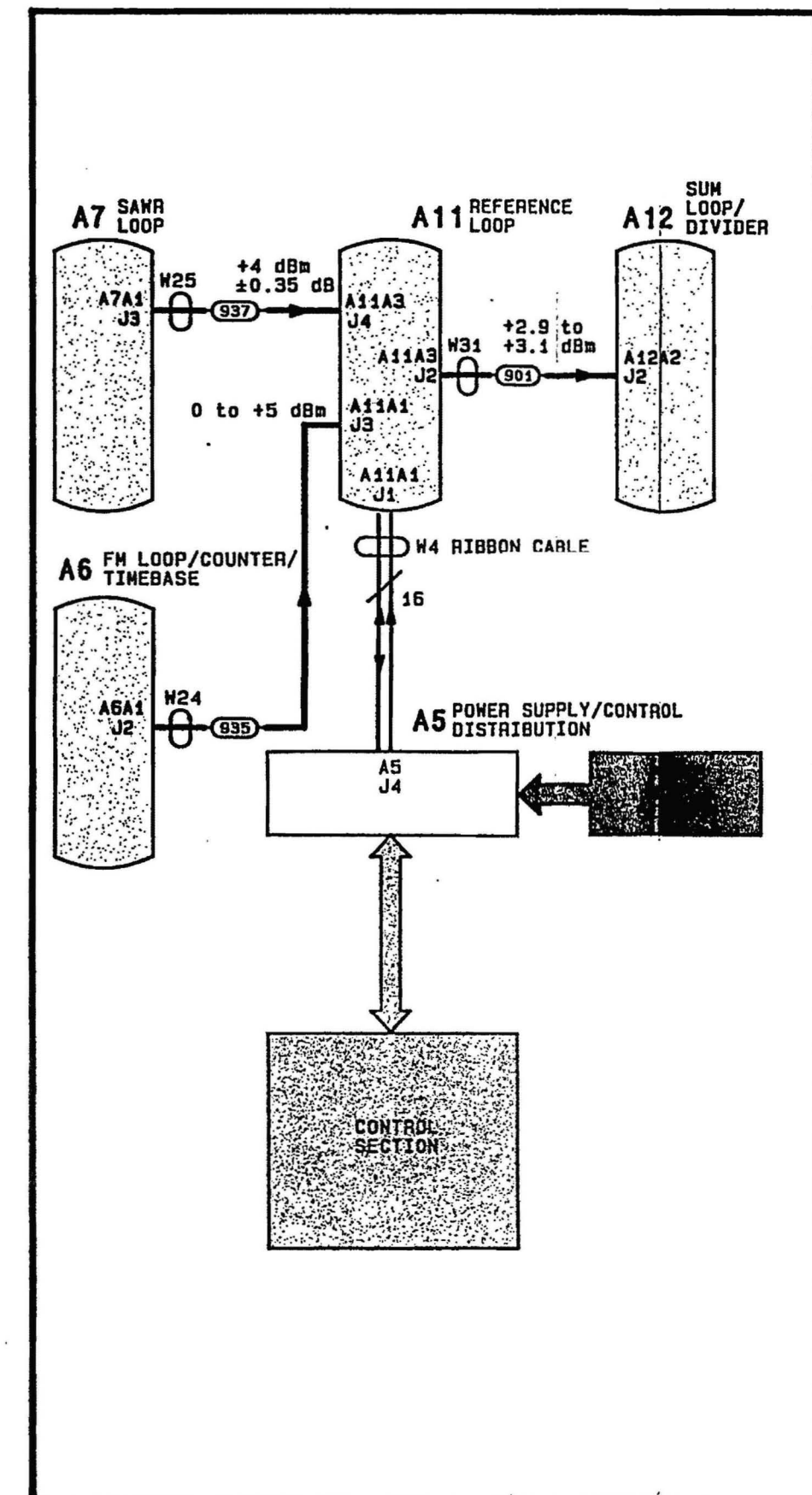


Figure 31-100. A11 Reference Loop Module Diagnostics.

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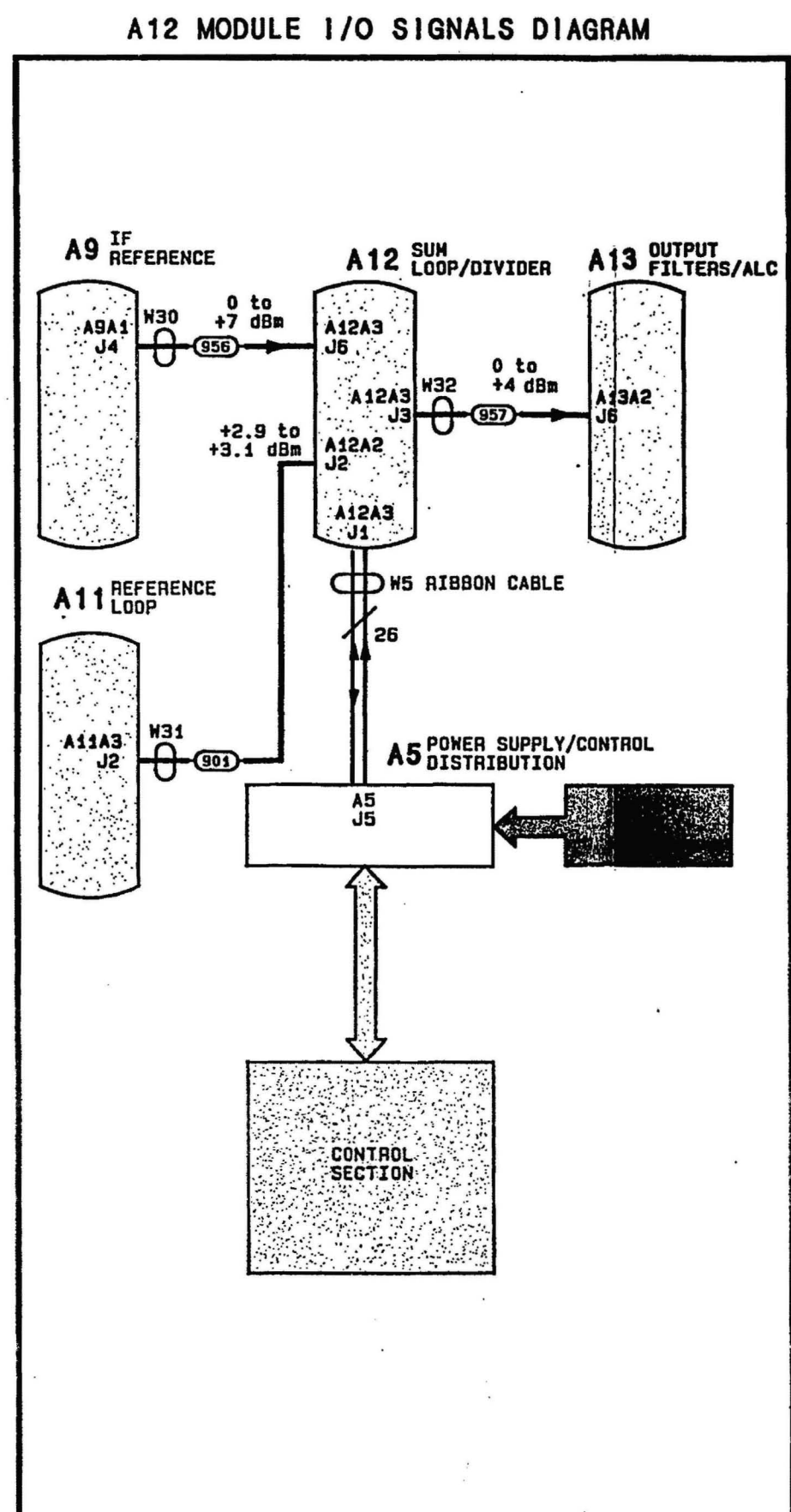
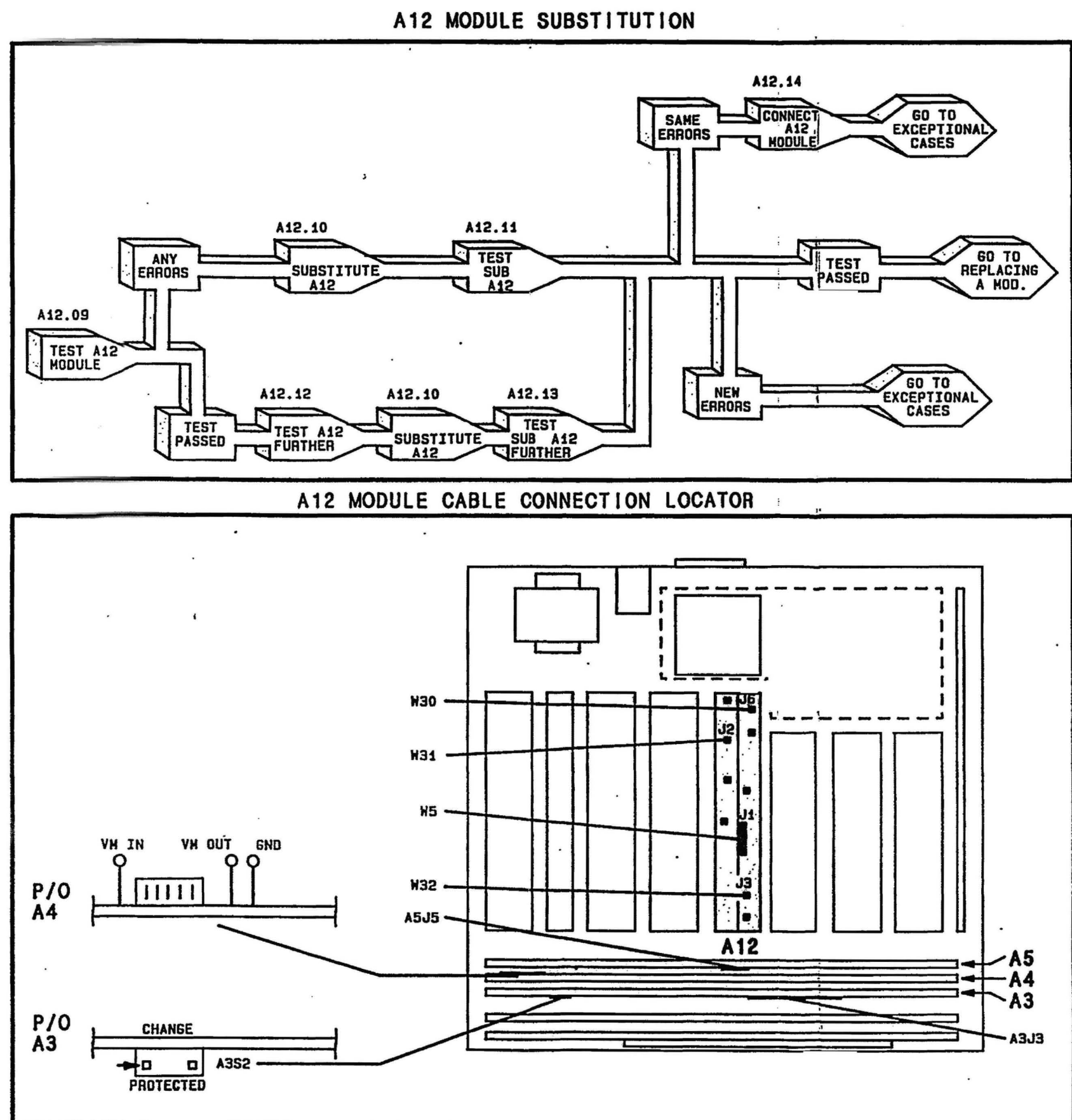
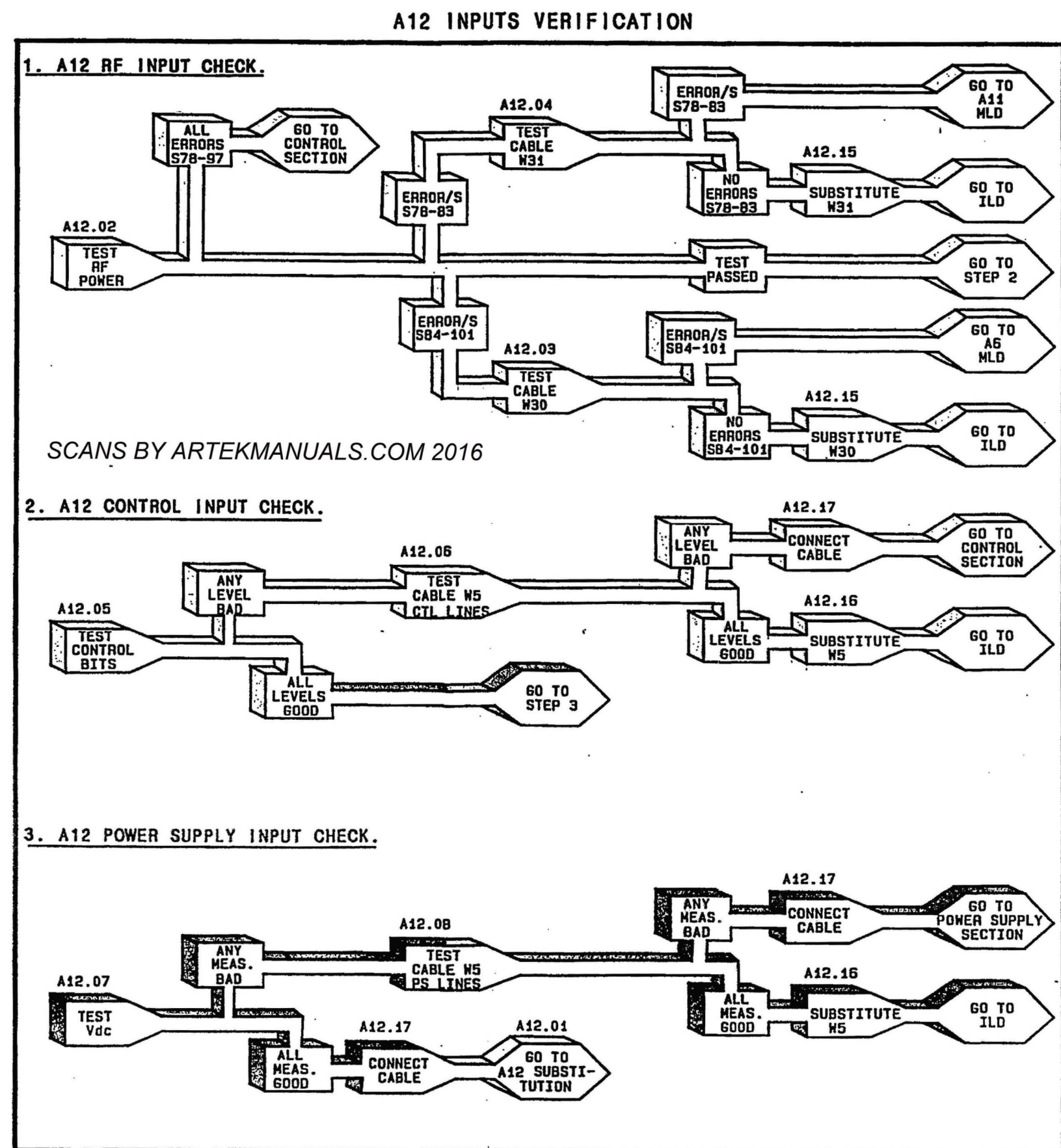
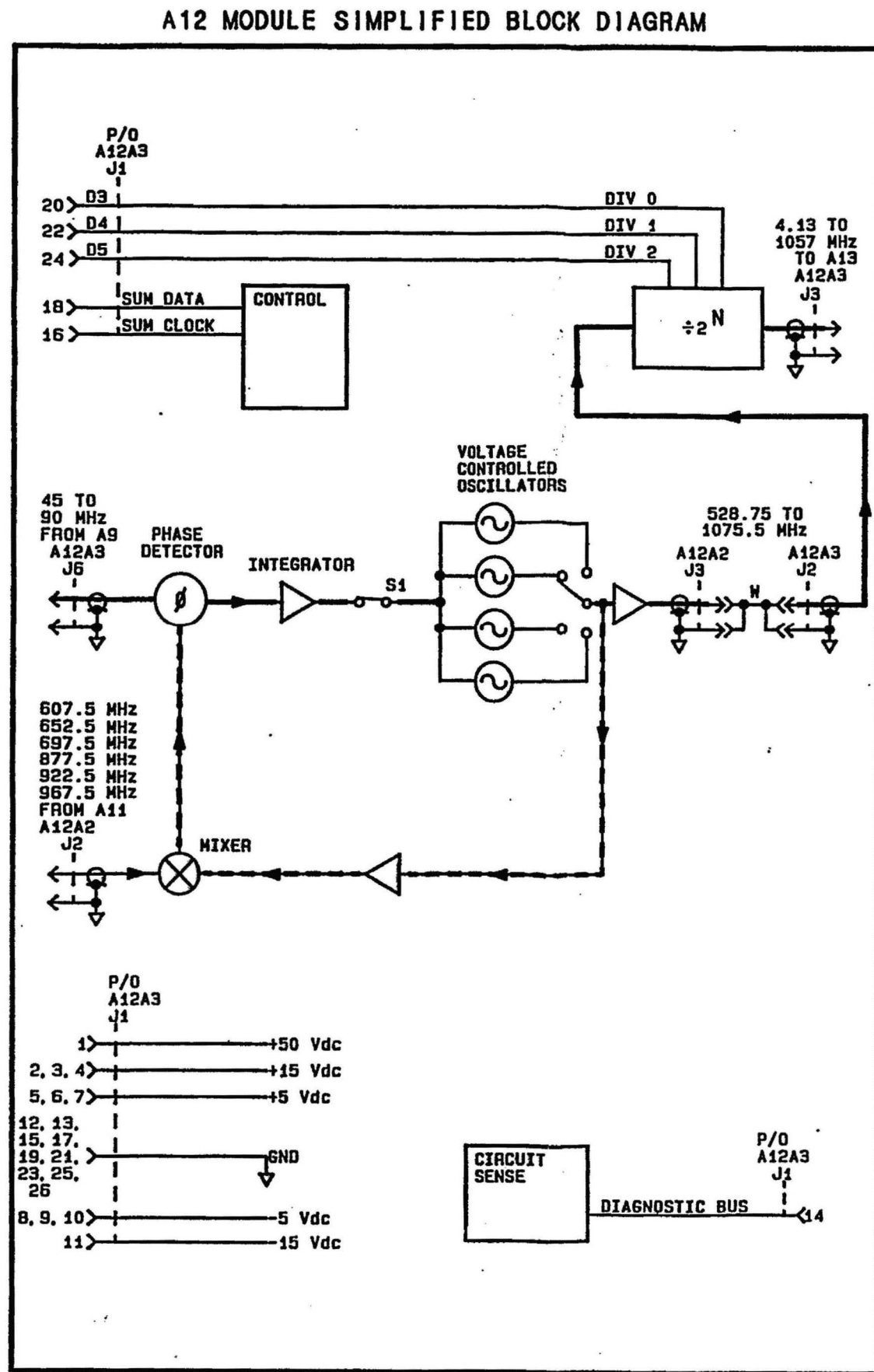
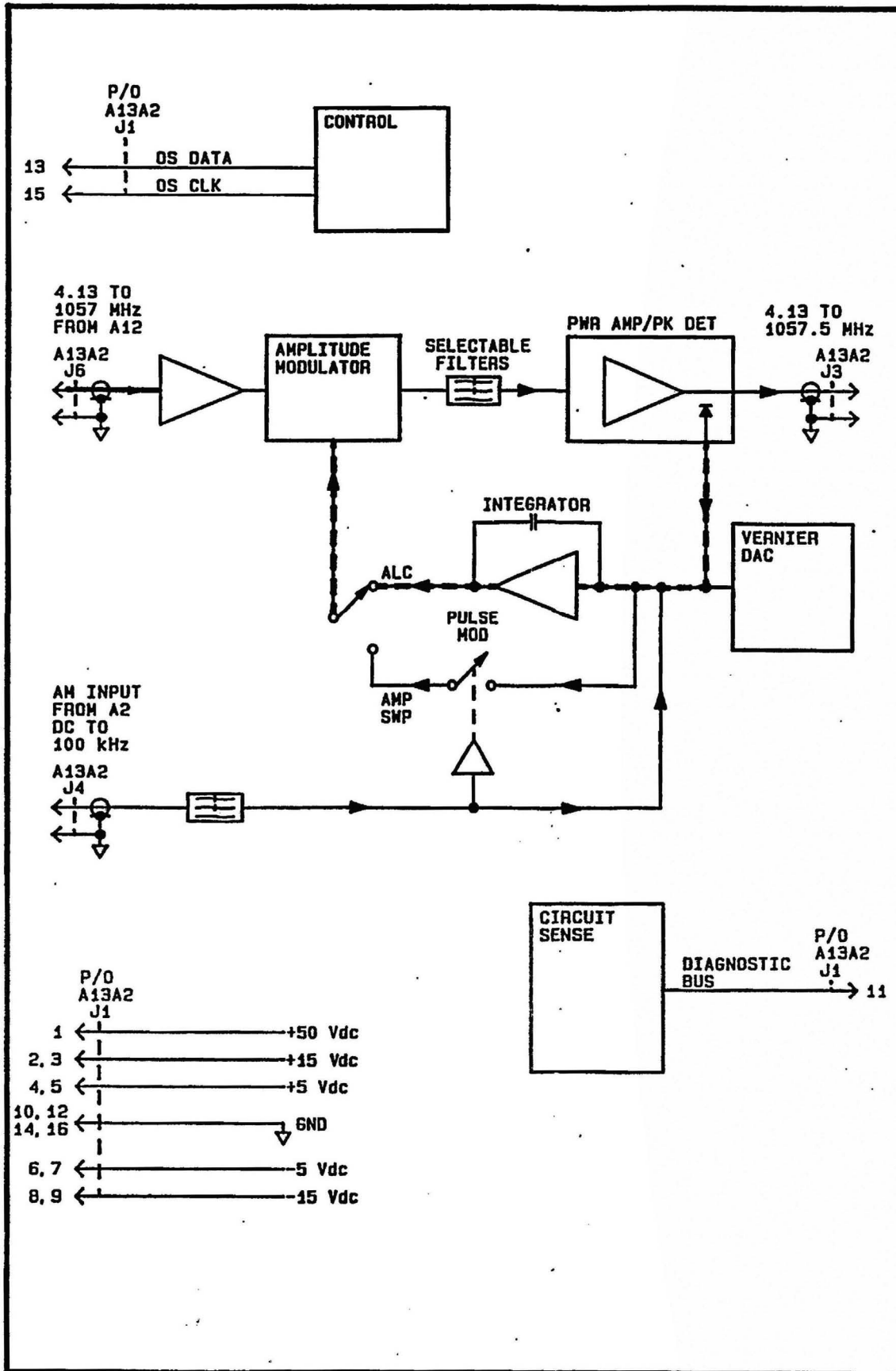


Figure 3J-100. A12 Sum Loop/Divider Module Diagnostics.

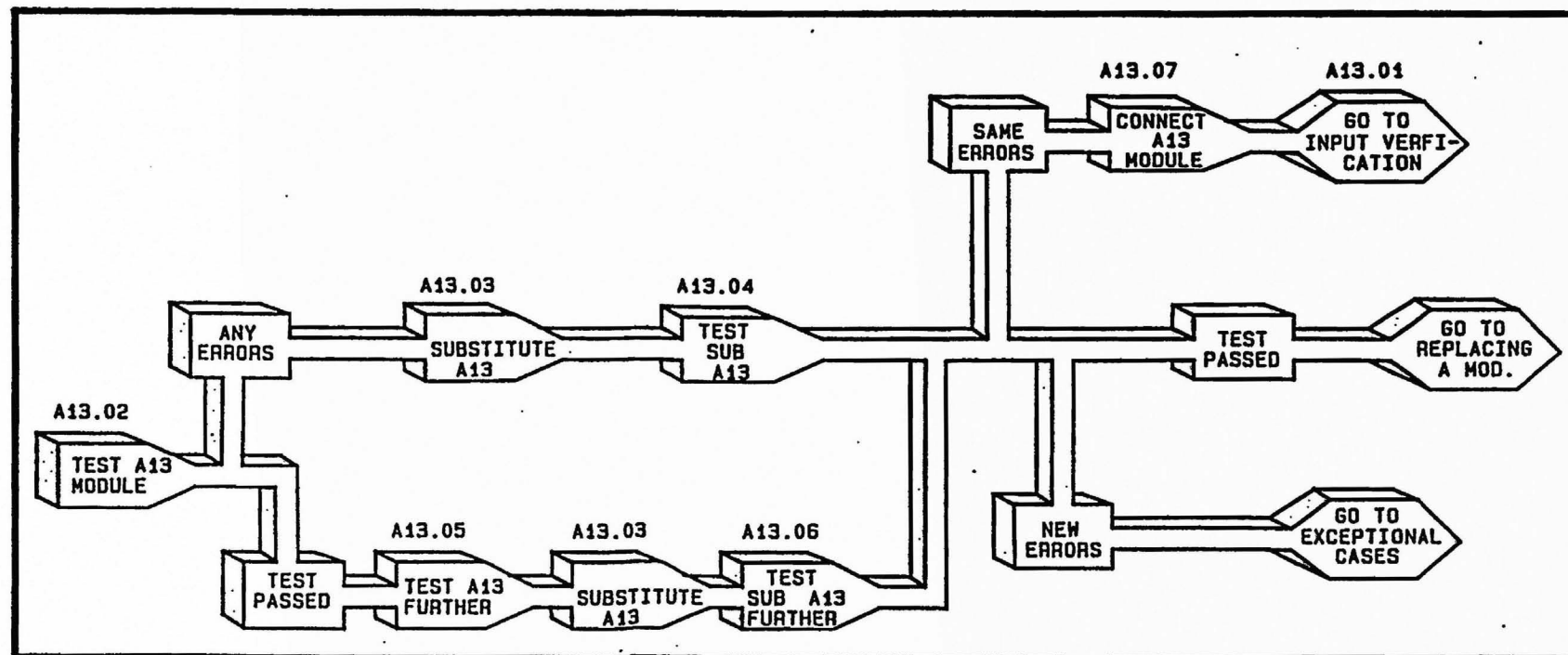
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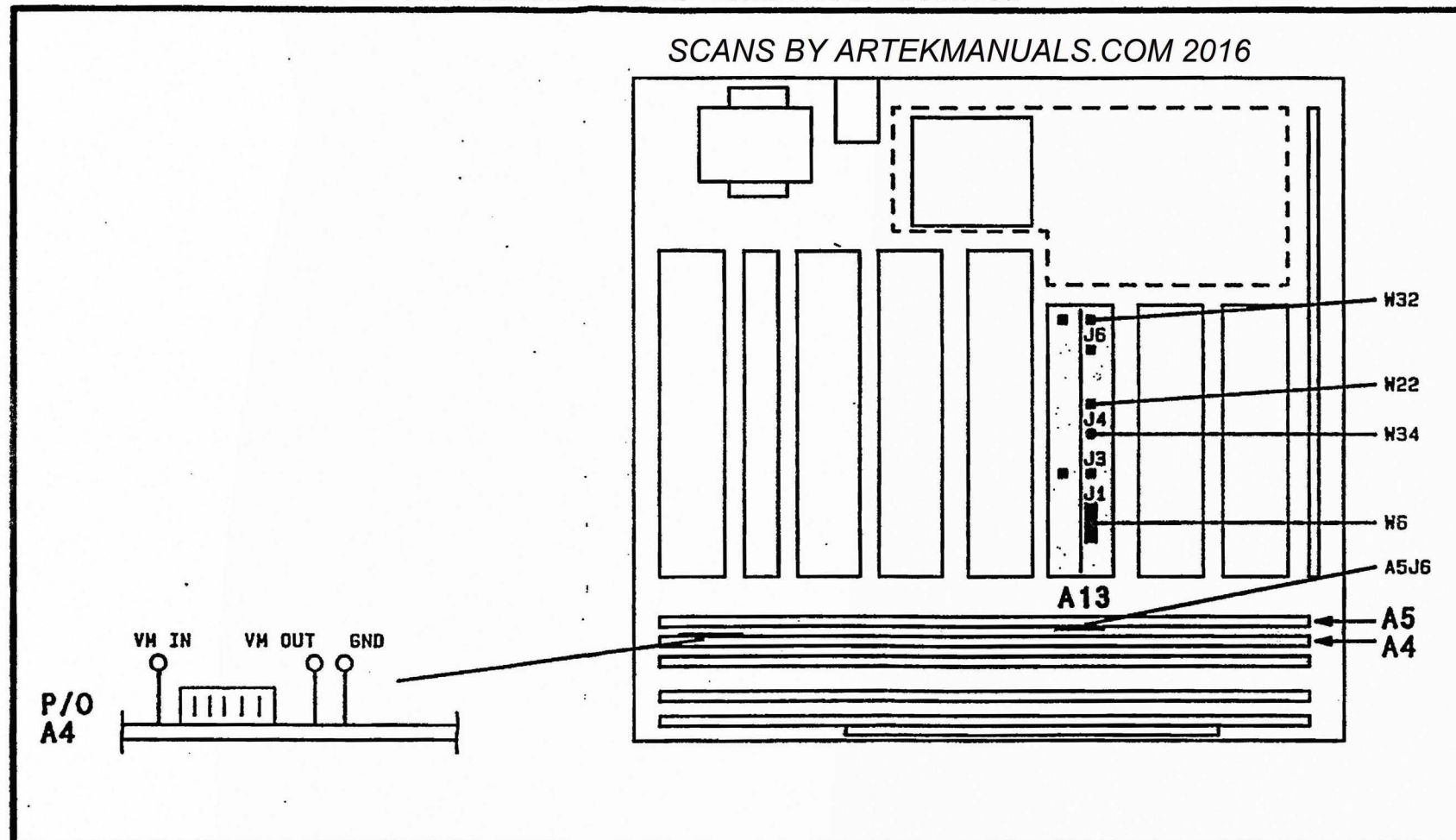
A13 MODULE SIMPLIFIED BLOCK DIAGRAM



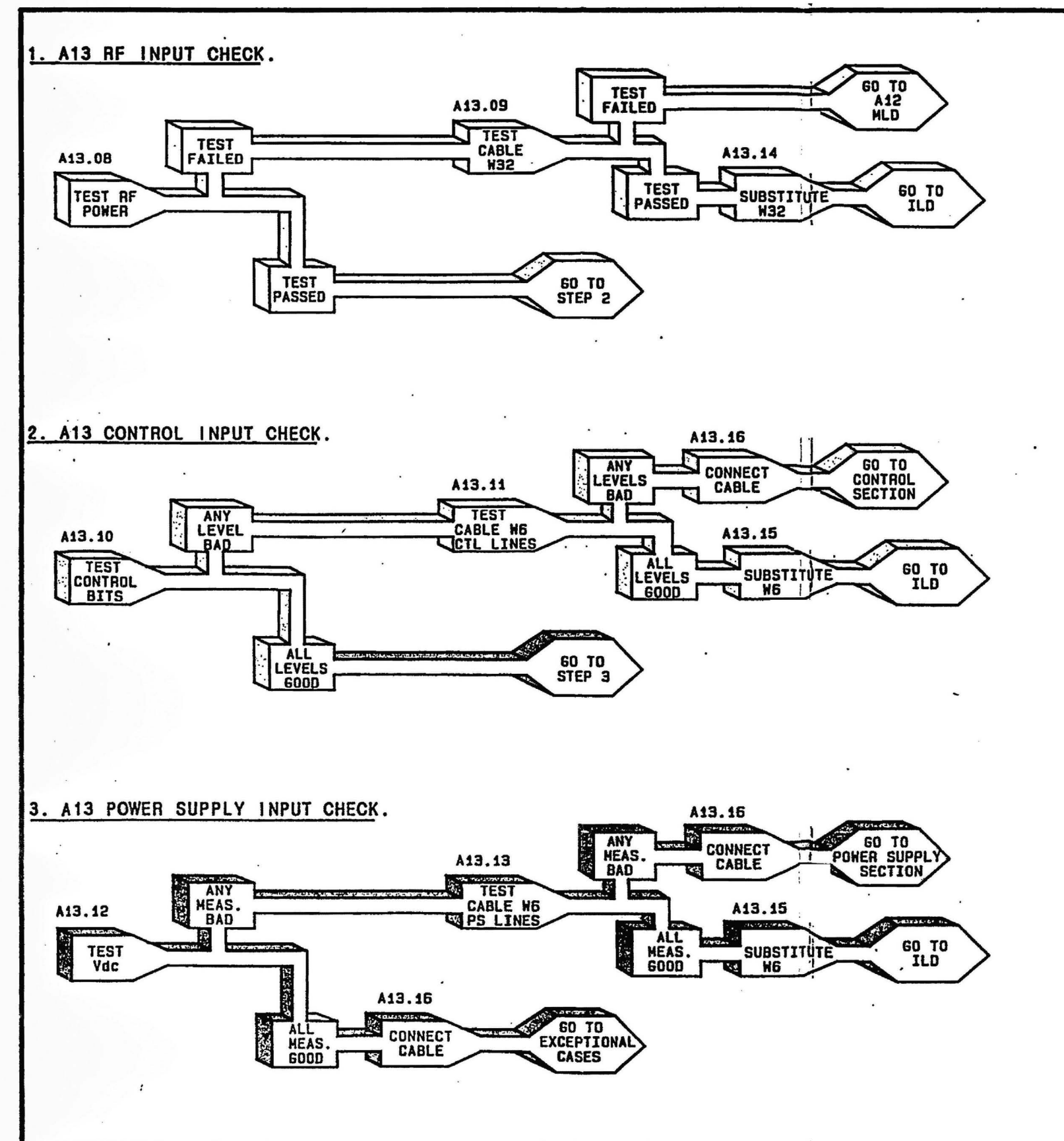
A13 MODULE SUBSTITUTION



A13 MODULE CABLE CONNECTION LOCATOR



A13 INPUTS VERIFICATION



A13 MODULE I/O SIGNALS DIAGRAM

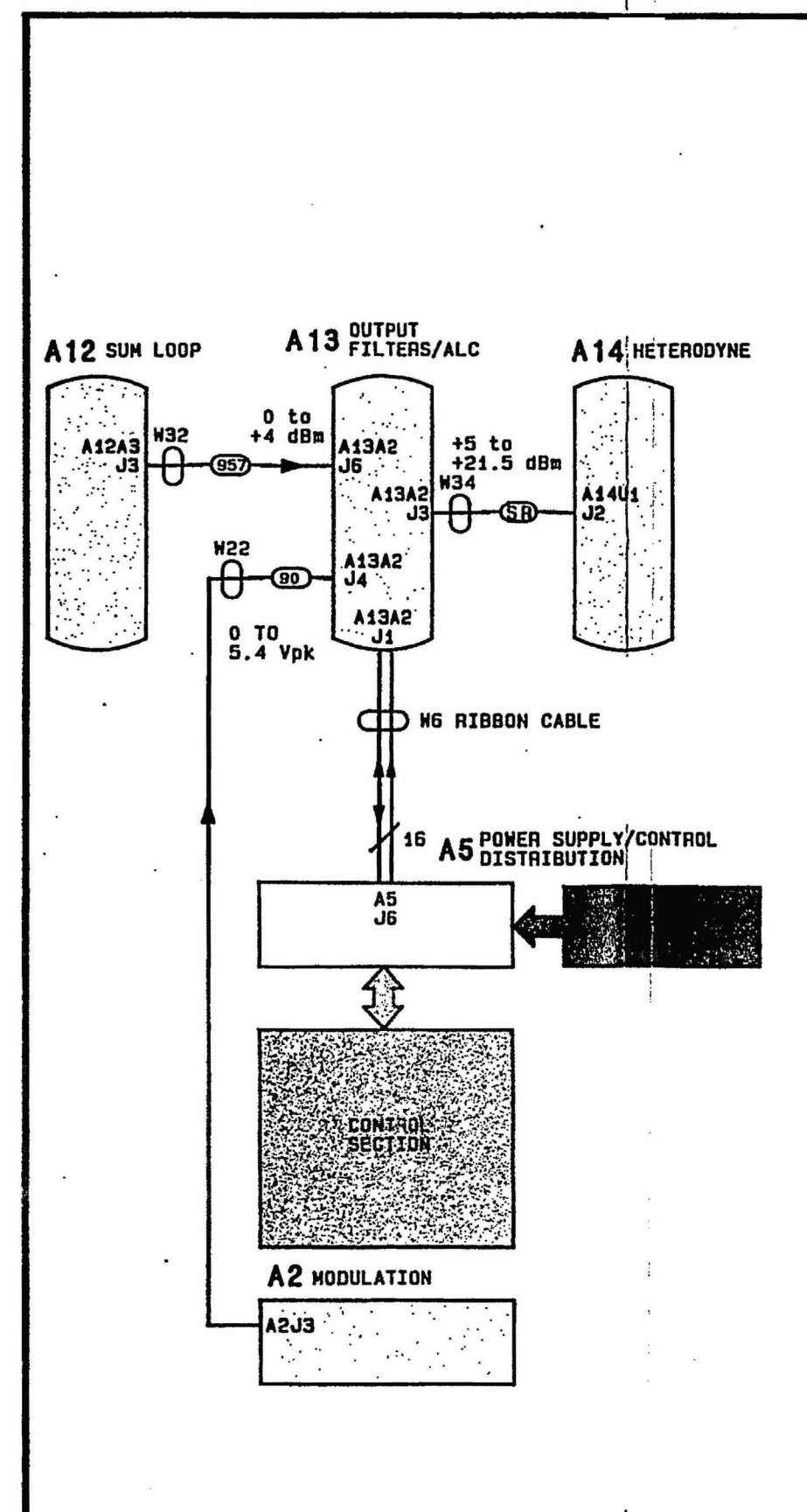


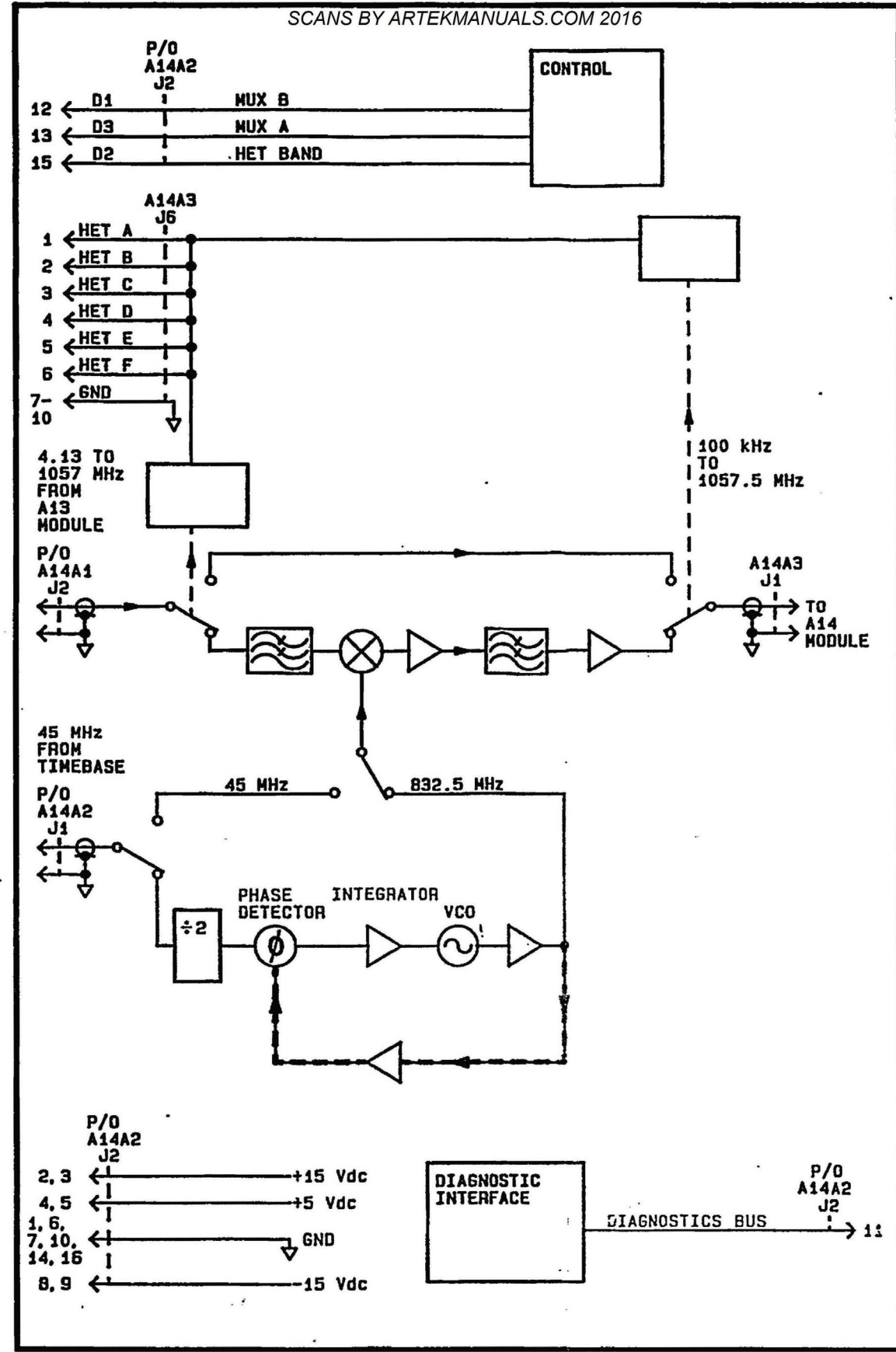
Figure 3K-100. A13 Output Filters/ALC Module Diagnostics.

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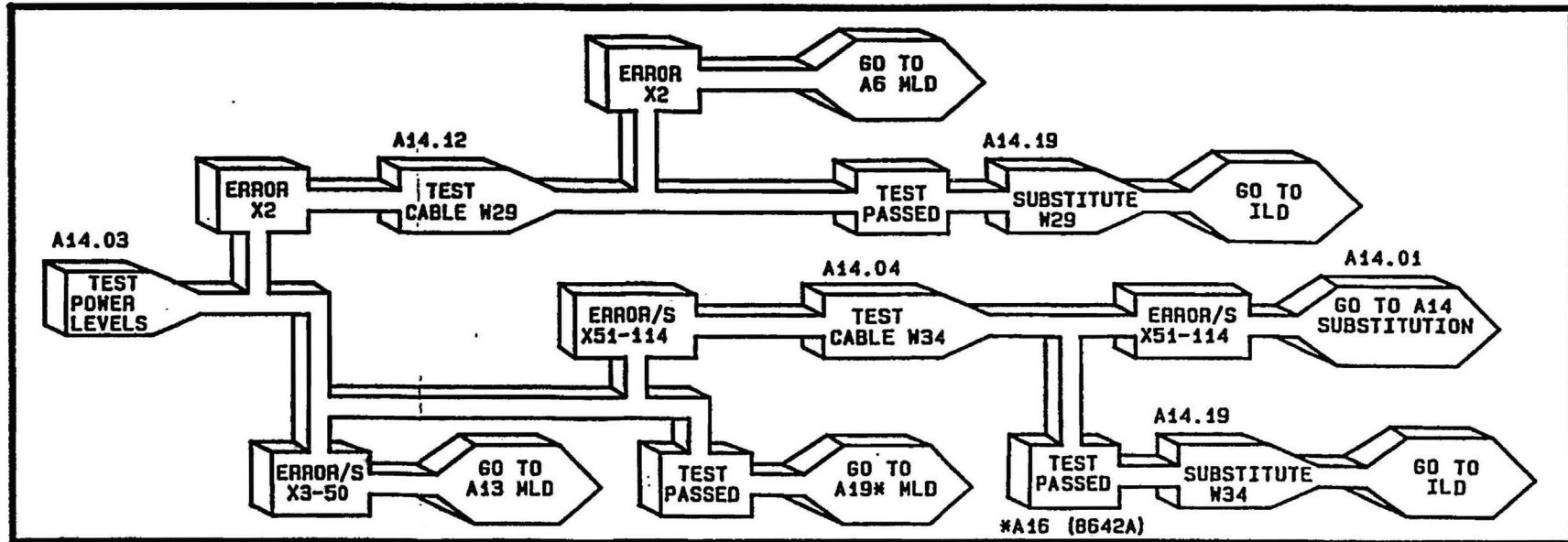
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A14 MODULE SIMPLIFIED BLOCK DIAGRAM

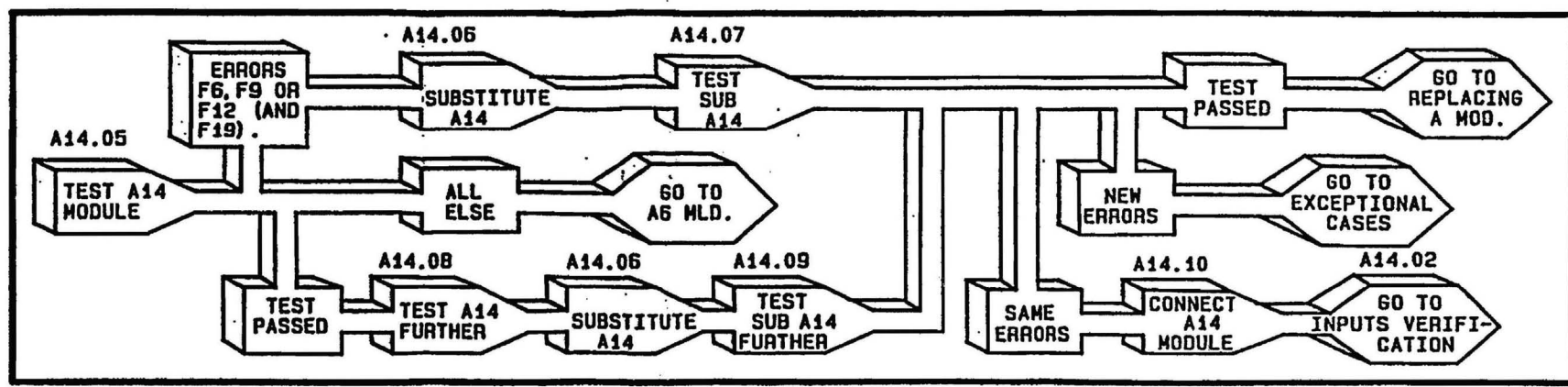
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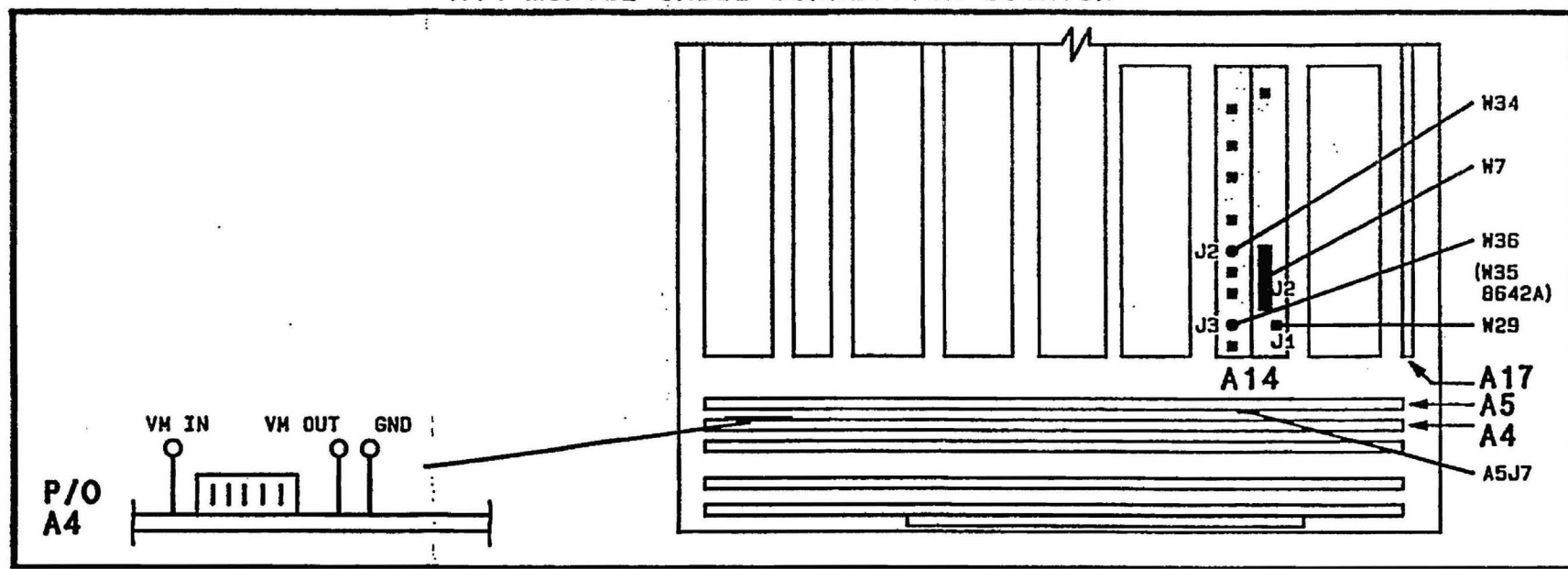
A14 RF POWER LEVEL DIAGNOSTICS



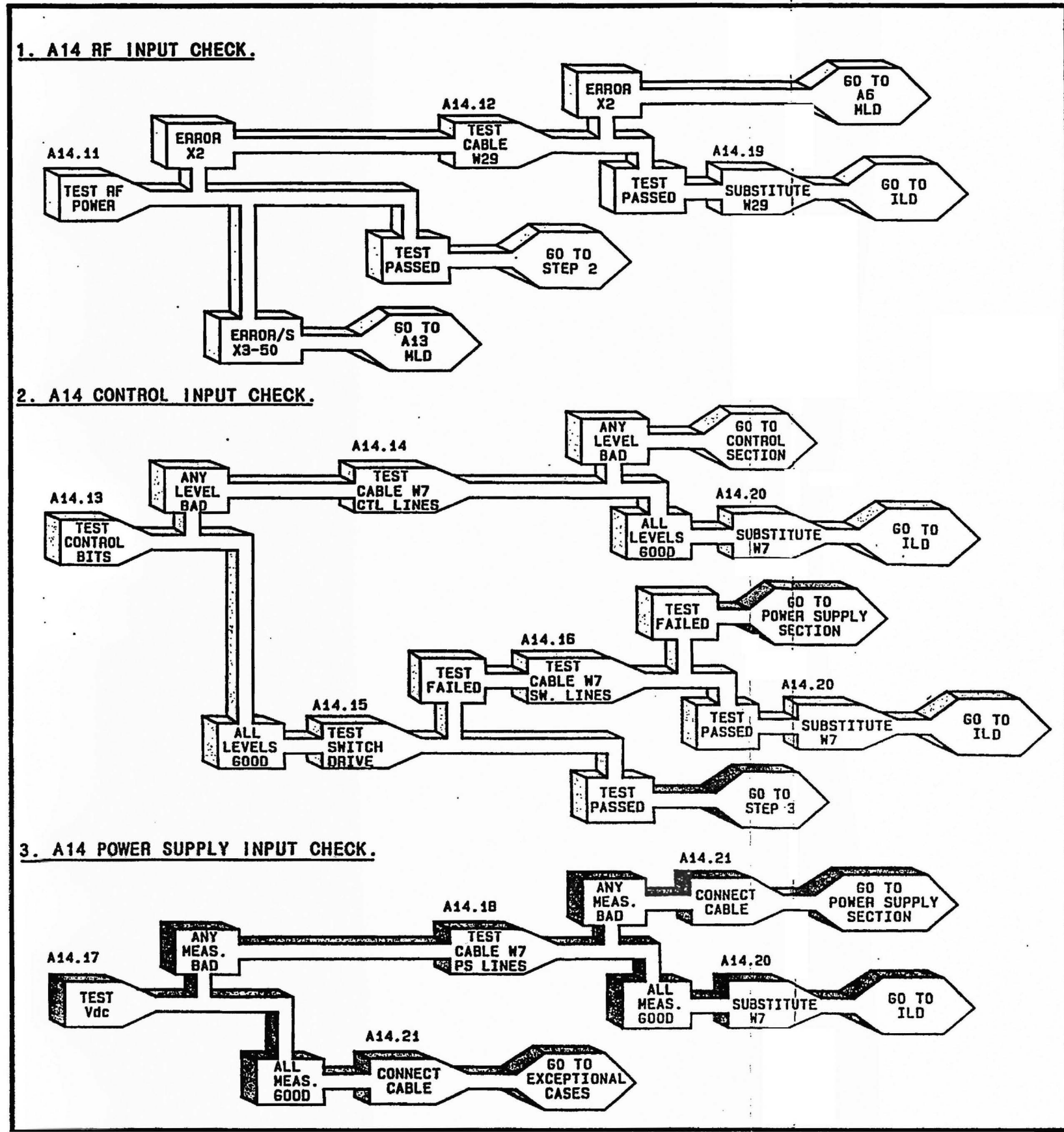
A14 MODULE SUBSTITUTION



A14 MODULE CABLE CONNECTION LOCATOR



A14 INPUTS VERIFICATION



A14 MODULE I/O SIGNALS DIAGRAM

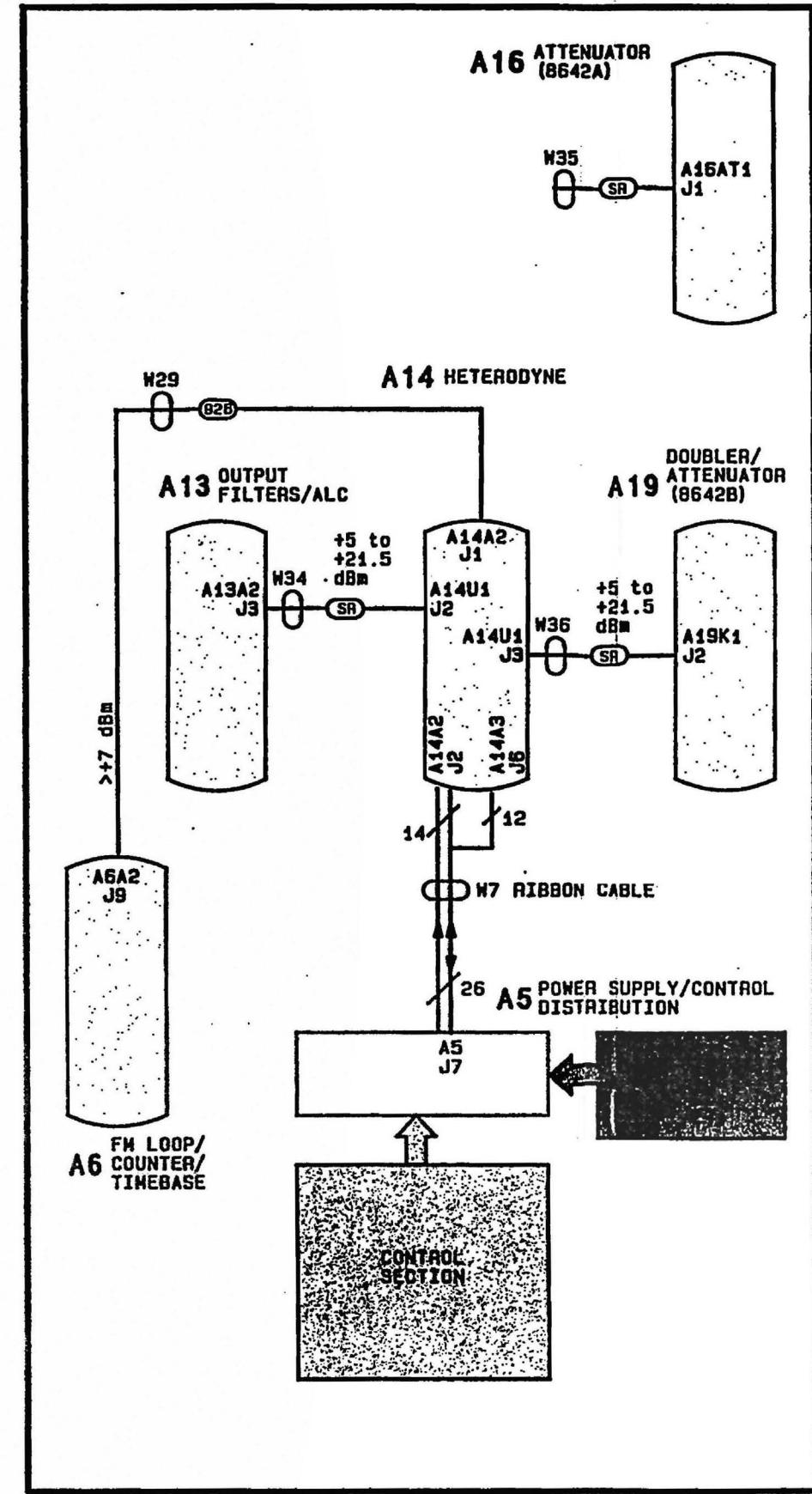


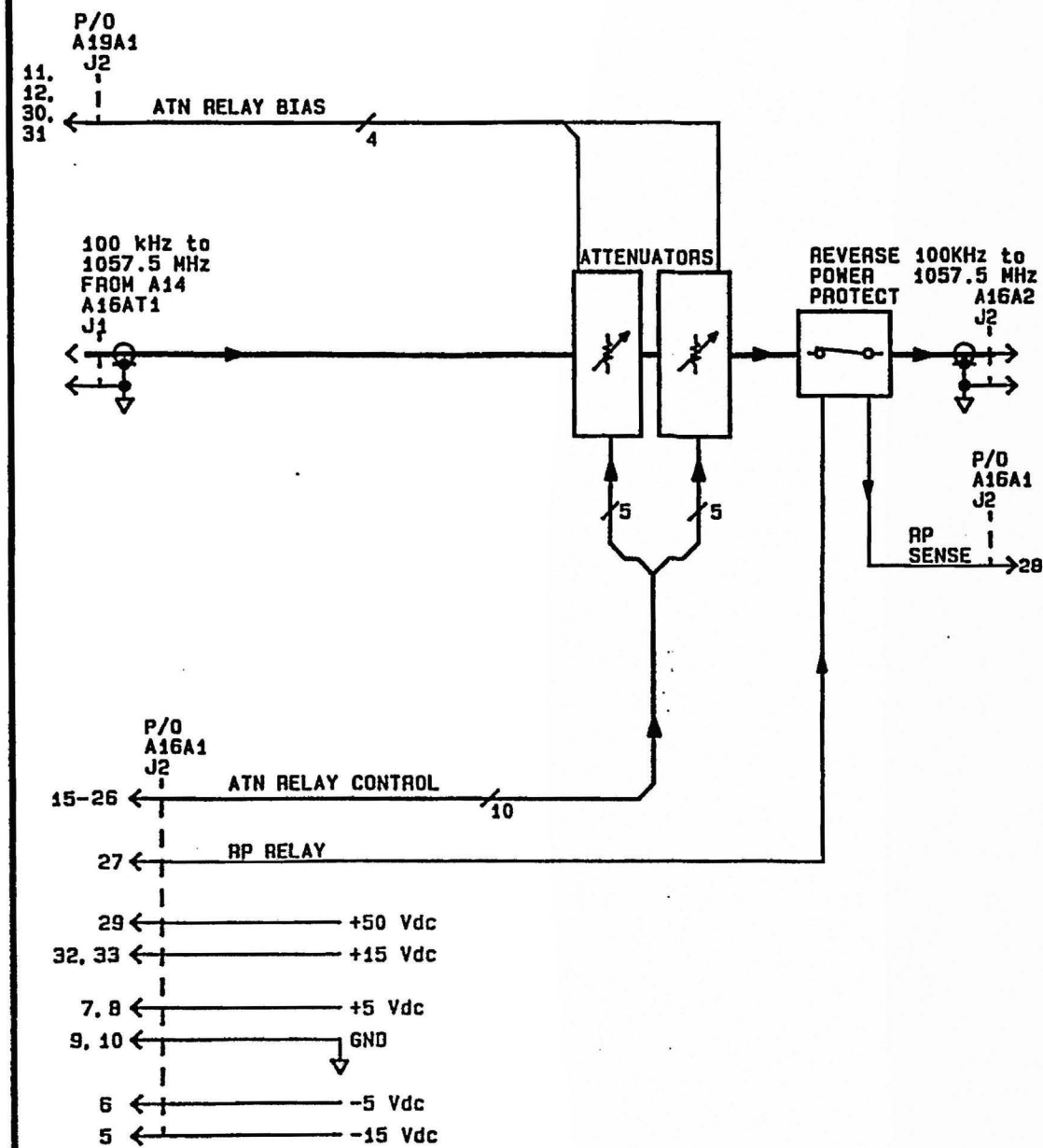
Figure 3L-100. A14 Heterodyne Module Diagnostics.

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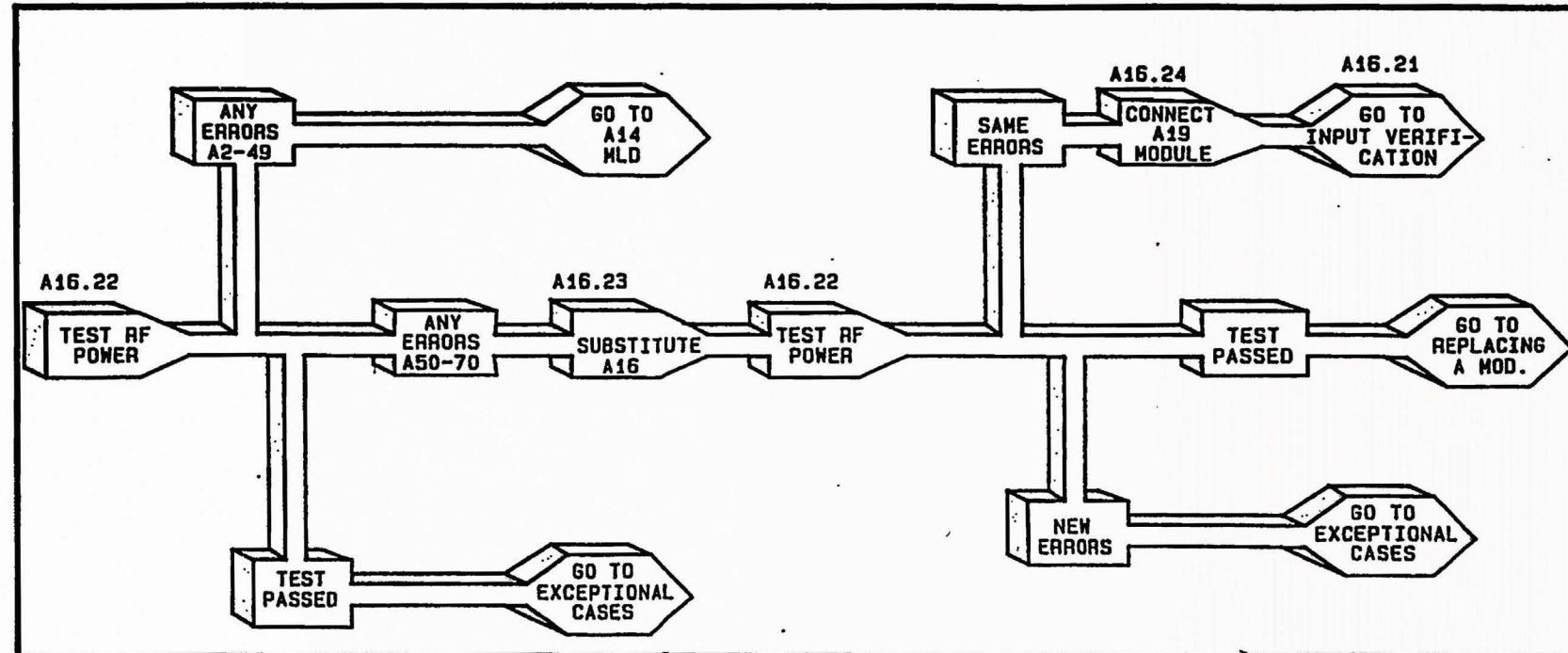
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A16 (OPTION 003) MODULE SIMPLIFIED BLOCK DIAGRAM

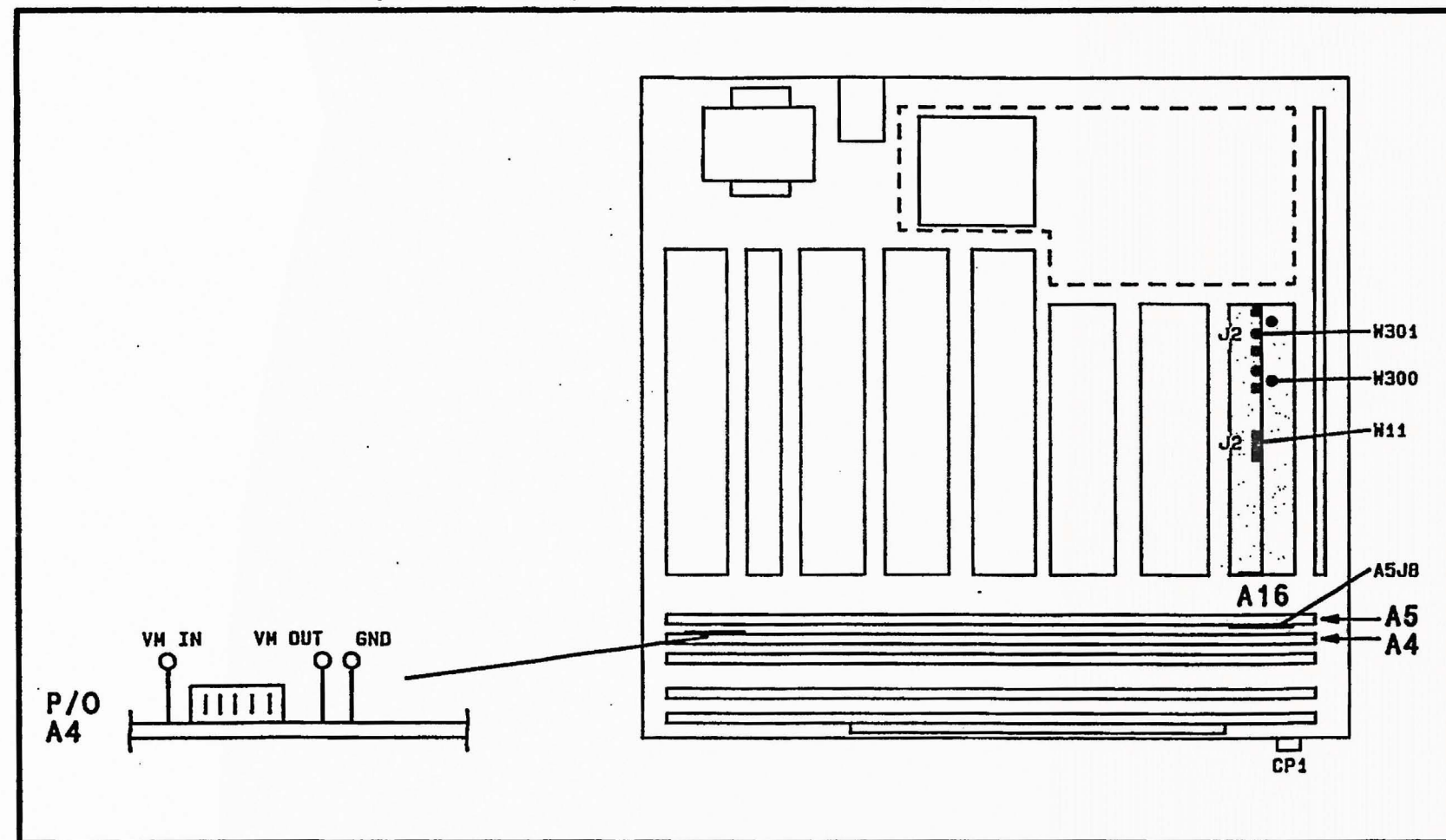
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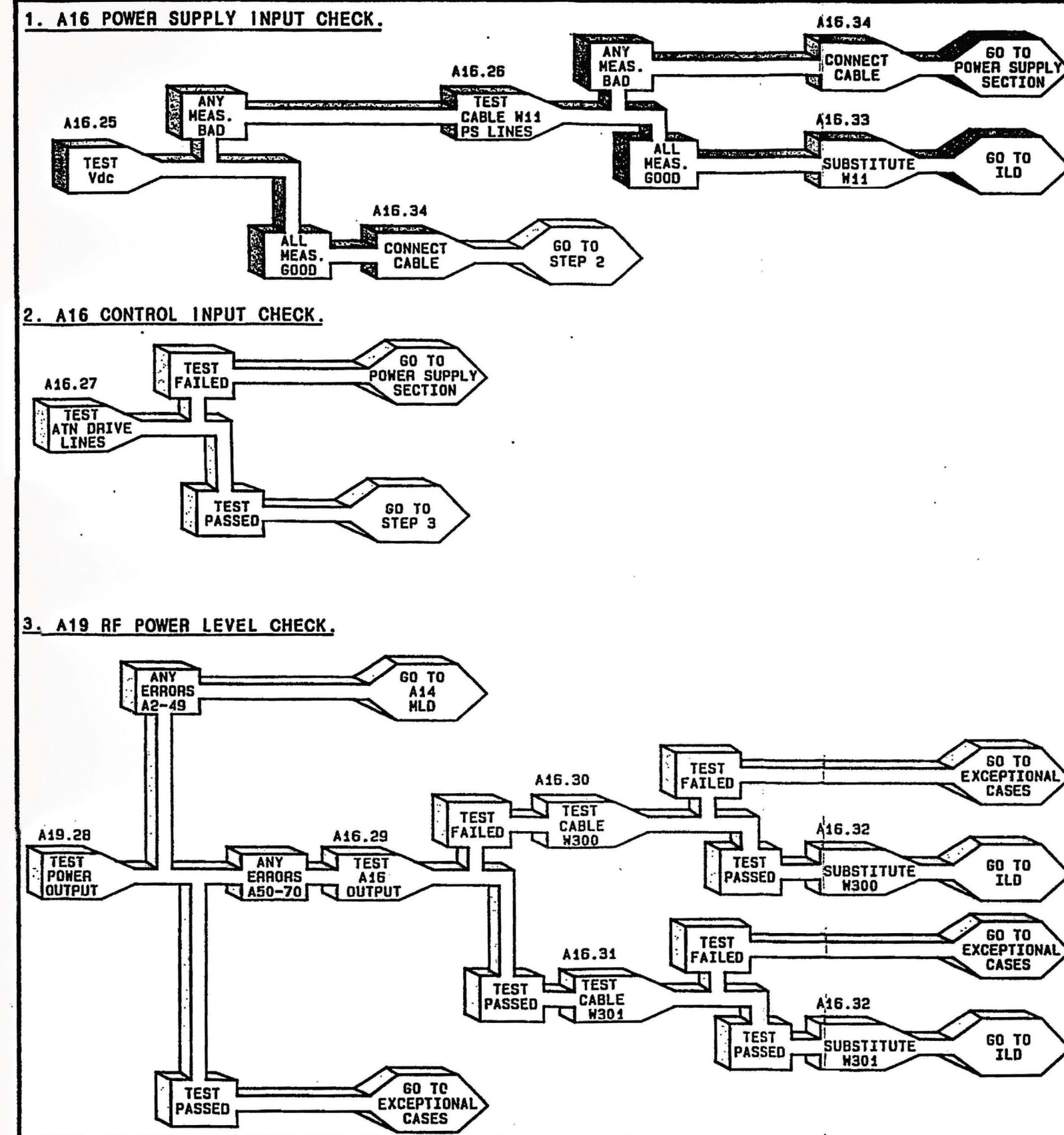
A16 (OPTION 003) MODULE SUBSTITUTION



A16(OPTION 003) MODULE CABLE CONNECTION LOCATOR



A16 (OPTION 003) INPUTS VERIFICATION



A16 (OPTION 003) MODULE I/O SIGNALS DIAGRAM

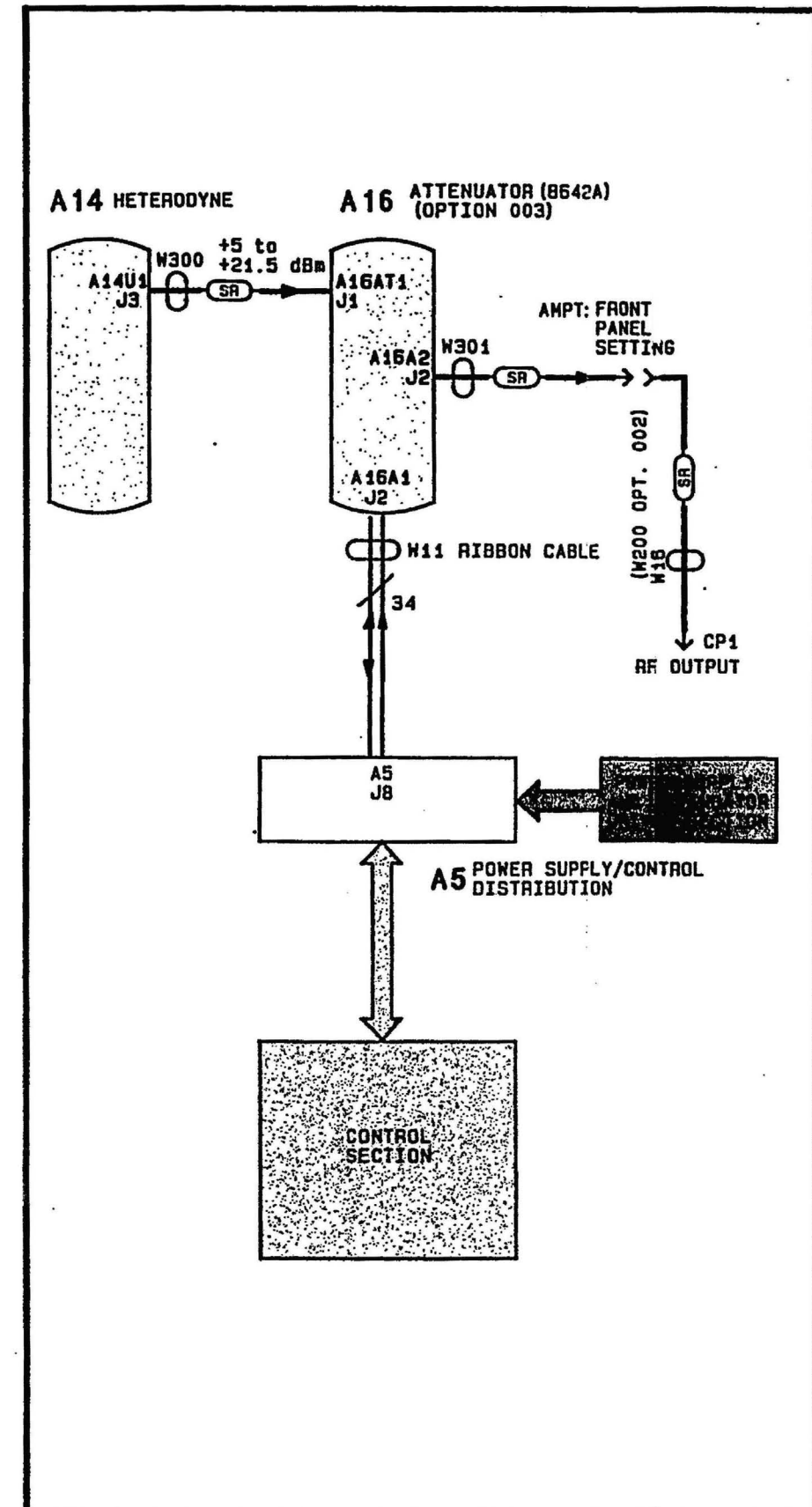
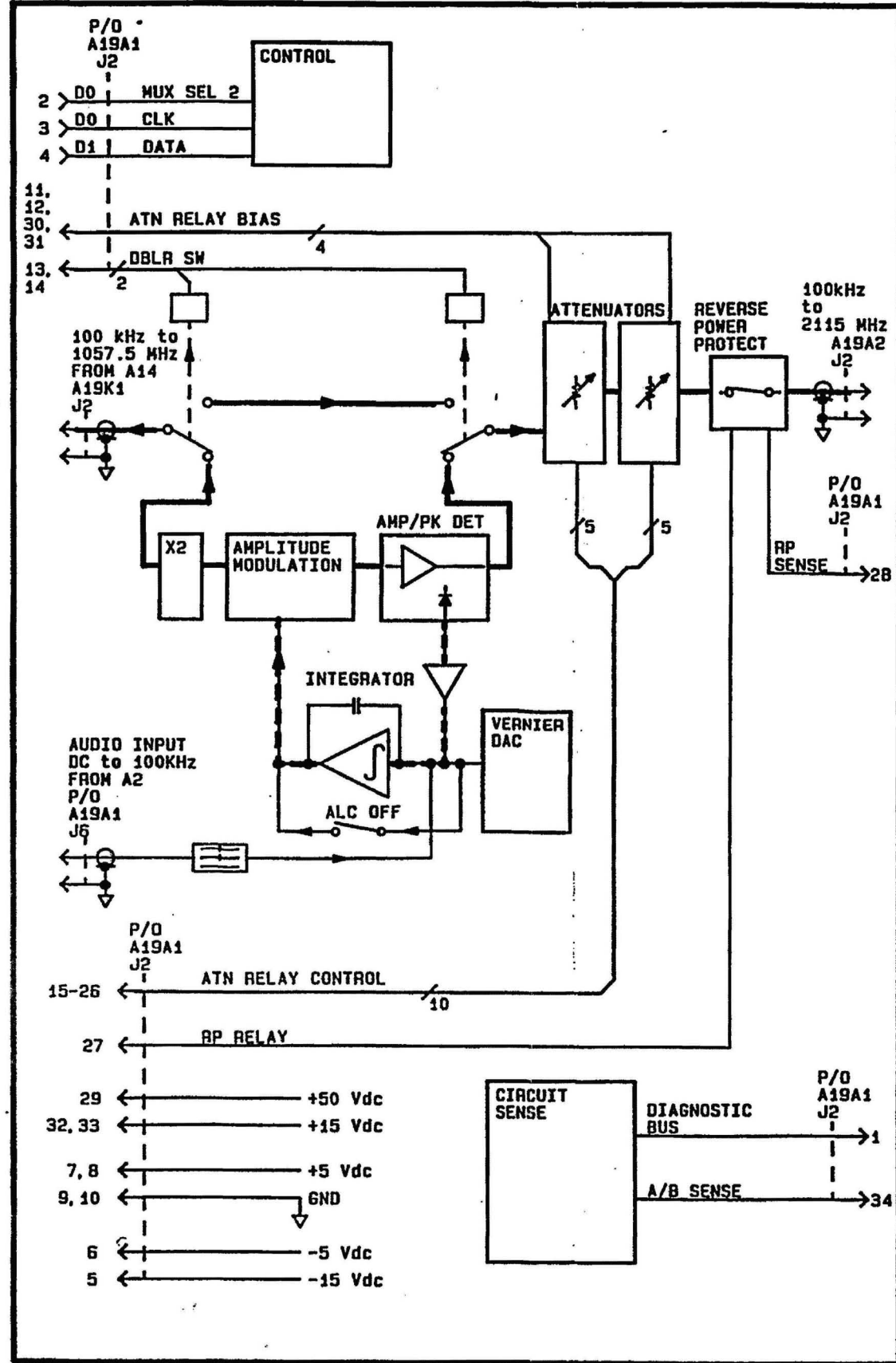


Figure 3M-100. A16 (Option 003) Attenuator Module Diagnostics.

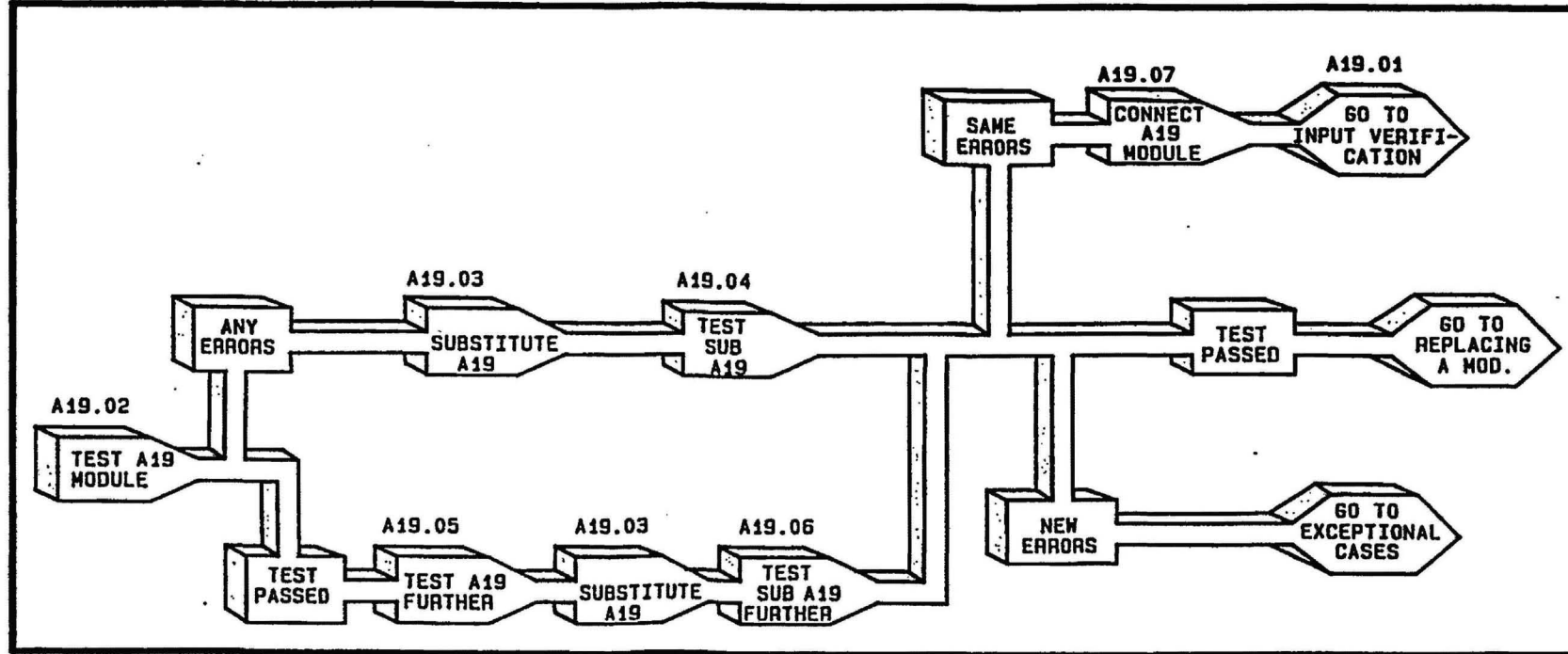
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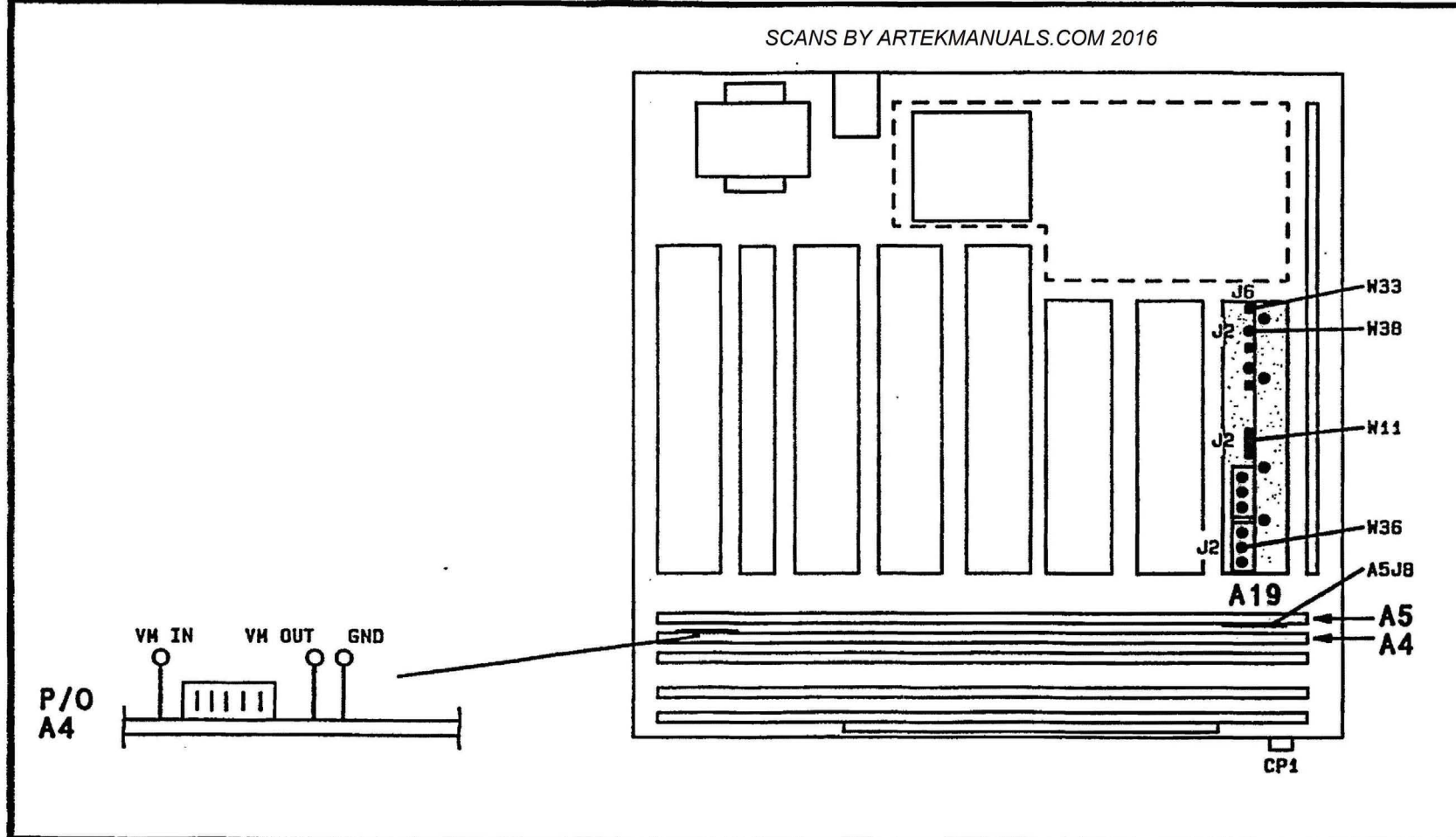
A19 MODULE SIMPLIFIED BLOCK DIAGRAM



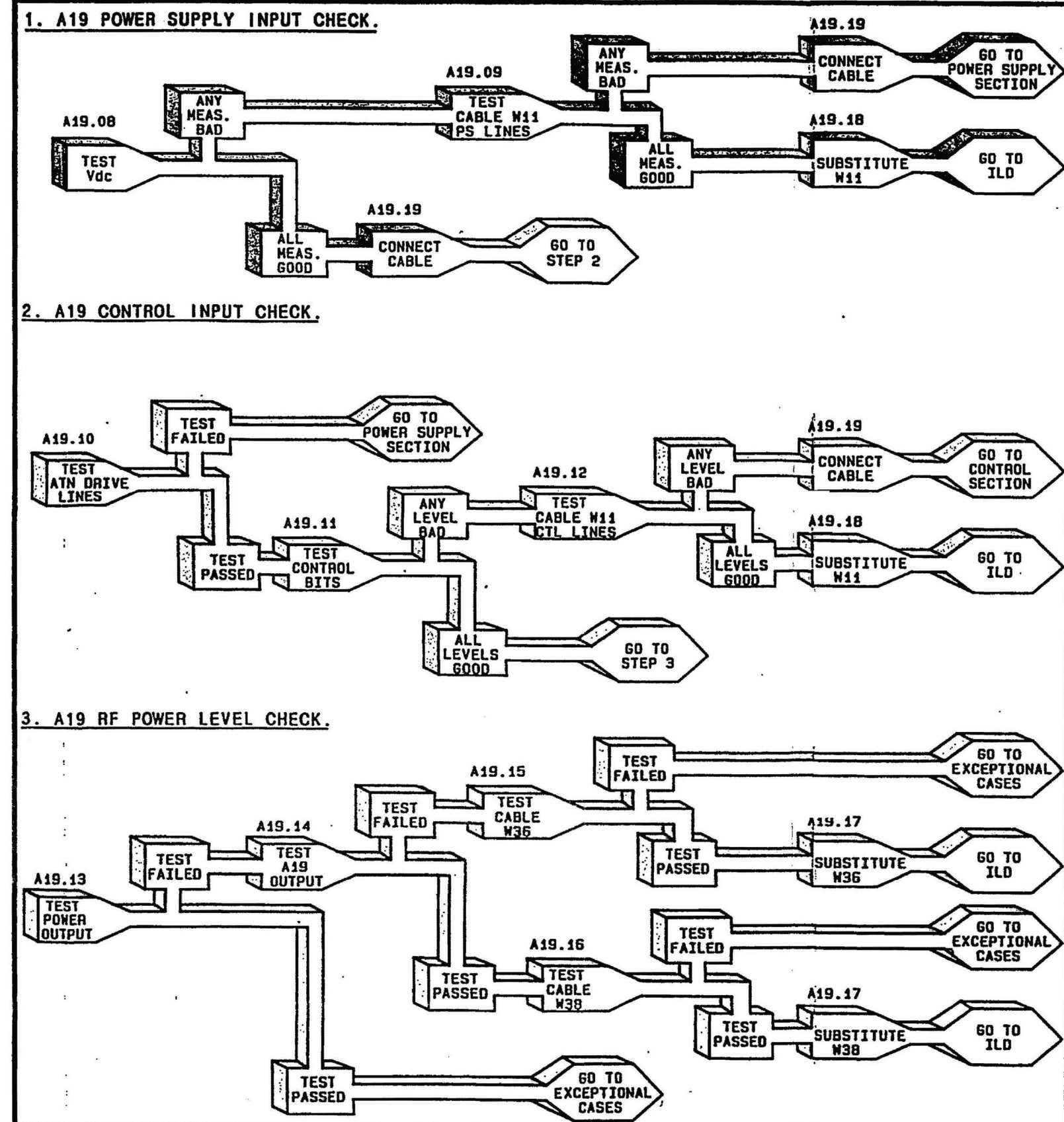
A19 MODULE SUBSTITUTION



A19 MODULE CABLE CONNECTION LOCATOR



A19 INPUTS VERIFICATION



A19 MODULE I/O SIGNALS DIAGRAM

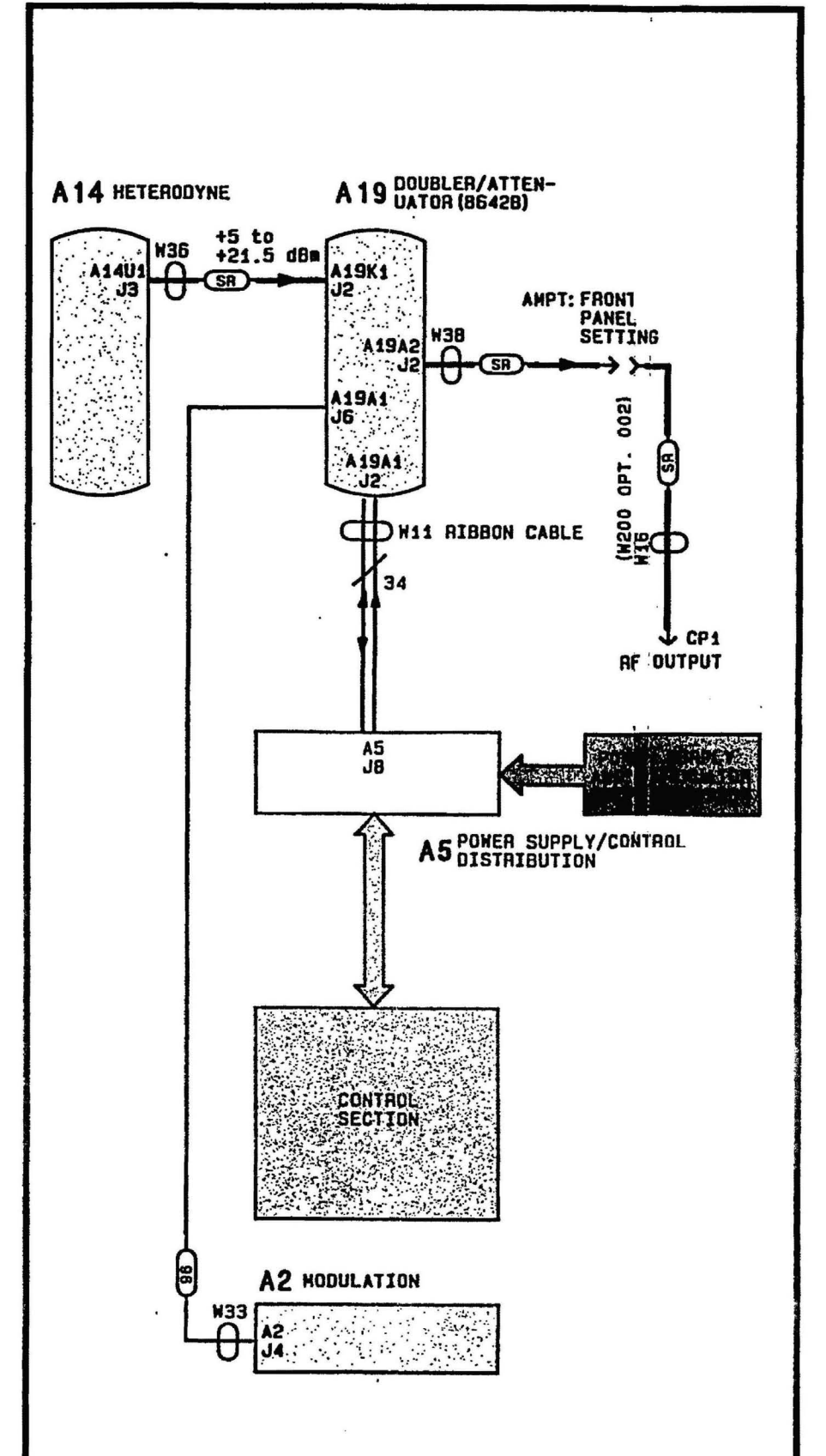


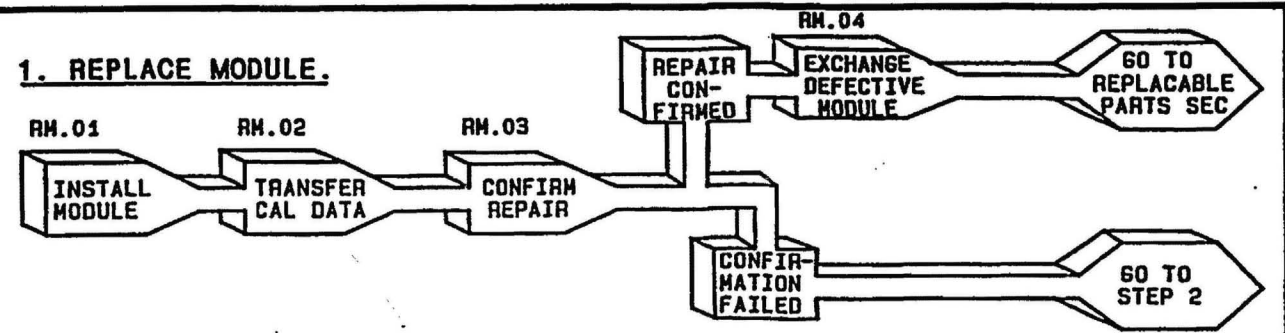
Figure 3N-100. A19 Doubler/Attenuator Module Diagnostics.

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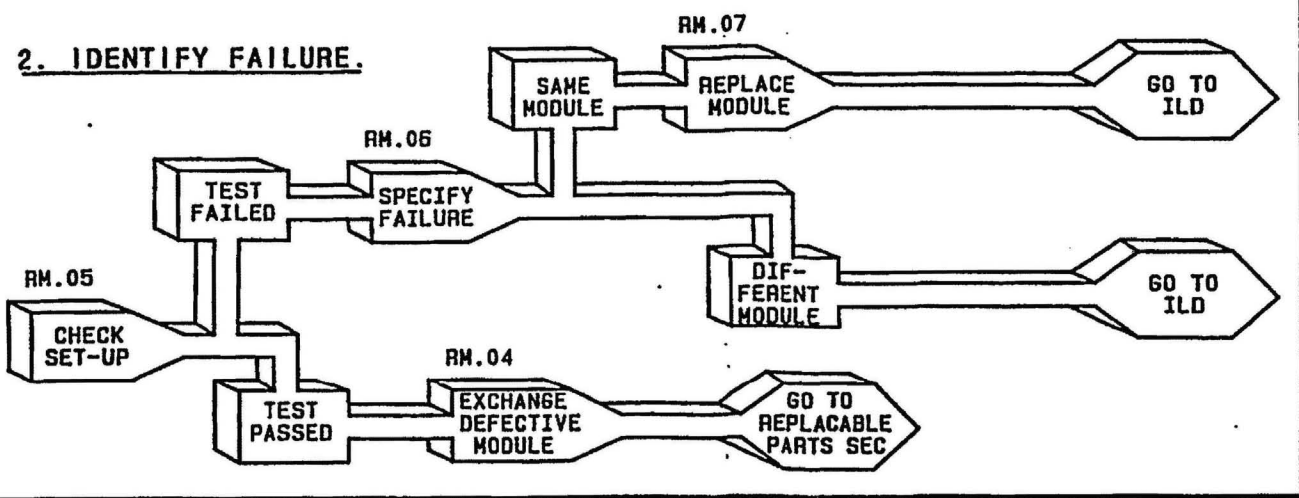
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MODULE REPLACEMENT

1. REPLACE MODULE.



2. IDENTIFY FAILURE.



CAL DATA TRANSFER TABLE

| Modules | Cal Data Select Keys |
|-------------------------------------------------------|----------------------|
| A1 Keyboard/LCD Display Module | No Data Required |
| A2 Modulation Module | 9 HZ |
| A3 Processor/Memory Module | 7 5 9 |
| A4 Latch Module | No Data Required |
| A6 FM Loop/Counter/Timebase Module | 3 HZ |
| A7 SAMR Loop Module | No Data Required |
| A8 10 MHz High Stability Timebase Assembly (Opt. 001) | No Data Required |
| A9 IF Loop Module | No Data Required |
| A11 Reference Loop Module | 1 HZ |
| A12 Sum Loop/Divider Module | -2 HZ |
| A13 Output Filters/ALC Module | 4 HZ |
| A14 Heterodyne Module | 8 HZ |
| A16 Attenuator Module (8642A Only) | 6 HZ |
| A17 Power Supply Regulators/Attenuator Drivers Module | No Data Required |
| A18 Power Supply Rectifier/Filters Module | No Data Required |
| A19 Doubler/Attenuator Module (8642B Only) | 5 HZ |
| RPP Reverse Power Protection | 7 HZ |

INSTRUMENT WIRING DIAGRAM

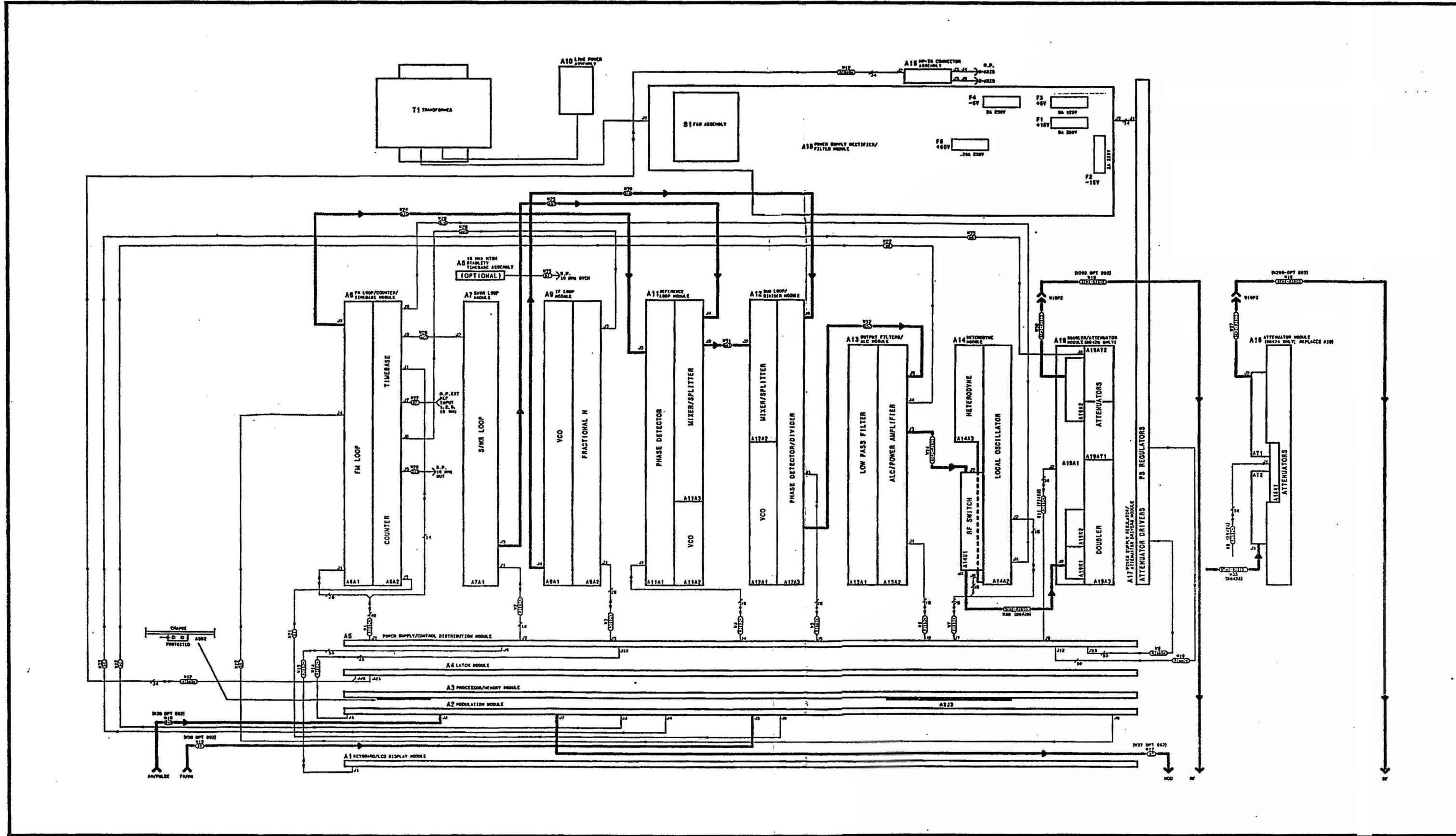


Figure 4-100. Replacing a Module.