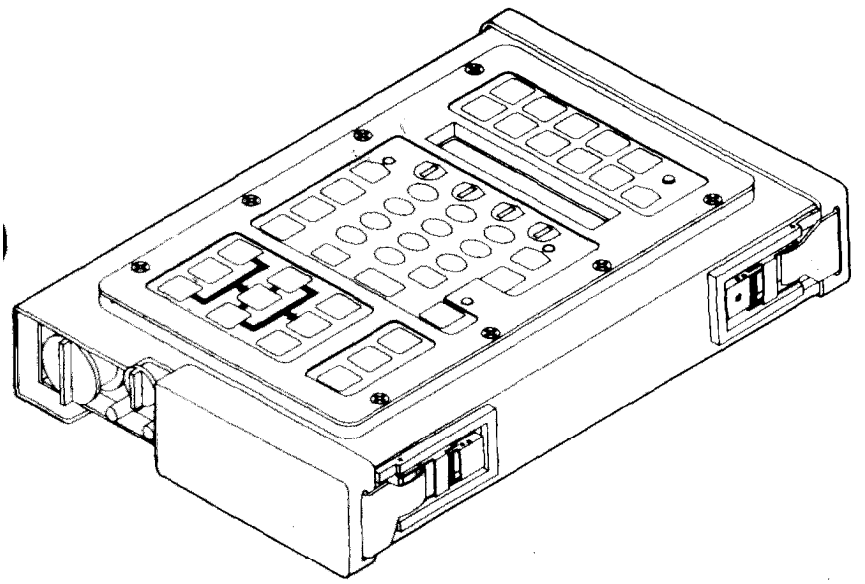
TECHNICAL MANUAL

DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS, SPECIAL TOOLS,
AND DEPOT MAINTENANCE REPAIR PARTS LISTS)



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MORTAR BALLISTICS COMPUTER SET

M 2 3

(1220-01-119-6049)

HEADQUARTERS, DEPARTMENT OF THE ARMY

AUGUST 1985

CHANGE

NO. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., 9 August 1995

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS, SPECIAL TOOLS, AND DEPOT MAINTENANCE REPAIR PARTS LISTS)

MORTAR BALLISTICS COMPUTER SET, M23 (1220-01-119-6049)

TM 9-1220-246-34&P, 27 August 1985, is changed as follows:

1. Air Force Number for this manual is T.O. 11W2-13-8-2.

2. Remove old pages and insert new pages indicated below.

3. New or changed material is indicated by vertical bar in the margin of the page.

Remove Pages	Insert Pages
i thru iv	i thru iv
B2-1 thru B3-2	B2-1 thru B3-2
Figure B9 thru B9-2	Figure B9 thru B9-2
I-3 and I-4	I-3 and I-4
I-9 thru I-12	I-9 thru I-12

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DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS, SPECIAL TOOLS,
AND DEPOT MAINTENANCE REPAIR PARTS LISTS)

MORTAR BALLISTICS COMPUTER SET, M23
(1220-01-119-6049)

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Figure B9 thru B9-2	Figure B9 thru B9-2
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CHANGE

NO. 1

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DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS, SPECIAL TOOLS, AND DEPOT MAINTENANCE REPAIR PARTS LISTS)

MORTAR BALLISTICS COMPUTER SET, M23 (1220-01-119-6049)

TM 9-1220-246-34&P, 27 August 1985, is changed as follows:

1. This change is a general update and reflects the software change accomplished by MWO 9-1220-246-50-1.

2. Air Force Number for this manual is T.O. 11W2-13-8-2.

3. Remove old pages and insert new pages indicated below.

4. New or changed material is indicated by vertical bar in the margin of the page.

Remove Pages	Insert Pages
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C-1 and C-2	C-1 and C-2
Index 1 thru Index 4	Index 1 thru Index 4

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The Adjutant General

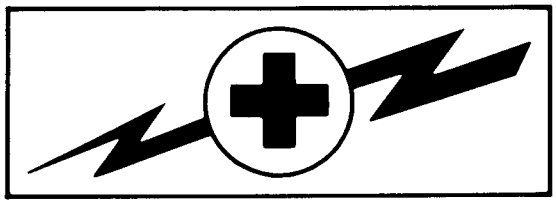
DISTRIBUTION: To be distributed in accordance with DA Form 12-41E, (Block 0027), Direct and General Support Maintenance Requirements for TM 9-1220-246-34&P.

WARNING

Type BA-5588/U lithium organic batteries or cells are used in this equipment. They are potentially hazardous if misused or tampered with before, during, or after discharge. The following precautions must be strictly observed to prevent possible injury to personnel or equipment damage:

- DO NO heat, incinerate, crush, puncture, disassemble, or otherwise mutilate the batteries.
- DO NOT short circuit, recharge, or bypass internal fuse.
- DO NOT store in equipment during periods of nonuse in excess of 30 days.
- TURN OFF the equipment immediately if you detect battery compartment becoming unusually hot, hear battery cells venting (hissing sound), or smell sulphur dioxide gas. Remove battery, let it cool for 30 to 60 minutes, then dispose of it per current regulations.
- Remove battery and permit it to cool for 30 to 60 minutes before disposal in accordance with current regulations.
- FAILURE TO OBSERVE THIS WARNING COULD RESULT IN PERSONAL INJURY.

WARNING



HIGH VOLTAGE

is used in the operation of this equipment

DEATH ON CONTACT

may result if personnel fail to observe safety precautions

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Whenever possible, the power supply to the equipment must be shut off before beginning work on the equipment. Take particular care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

Be careful not to contact high-voltage connections or power input connections when operating or maintaining this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through the body.

WARNING: DO NOT BE MISLED BY THE TERM " LOW VOLTAGE". POTENTIALS AS LOW AS 50 VOLTS MAY CAUSE DEATH UNDER ADVERSE CONDITIONS.

For Artificial Respiration, refer to FM 21-11.

TECHNICAL MANUAL
No. TM 9-1220-246-34&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. *27 August 1985*

DIRECT SUPPORT AND GENERAL SUPPORT

MAINTENANCE MANUAL

(INCLUDING REPAIR PARTS, SPECIAL TOOLS, AND

DEPOT MAINTENANCE REPAIR PARTS LISTS)

MORTAR BALLISTICS COMPUTER SET

M23

(1220-01-119-6049)

Current as of 15 April 1995 for Appendix B

REPORTING ERRORS AND RECOMMENCING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, US Army Armament, Munitions, and Chemical Command, ATTN: AMSMC-MAS, Rock Island, IL 61299-6000. A reply will be furnished to you.

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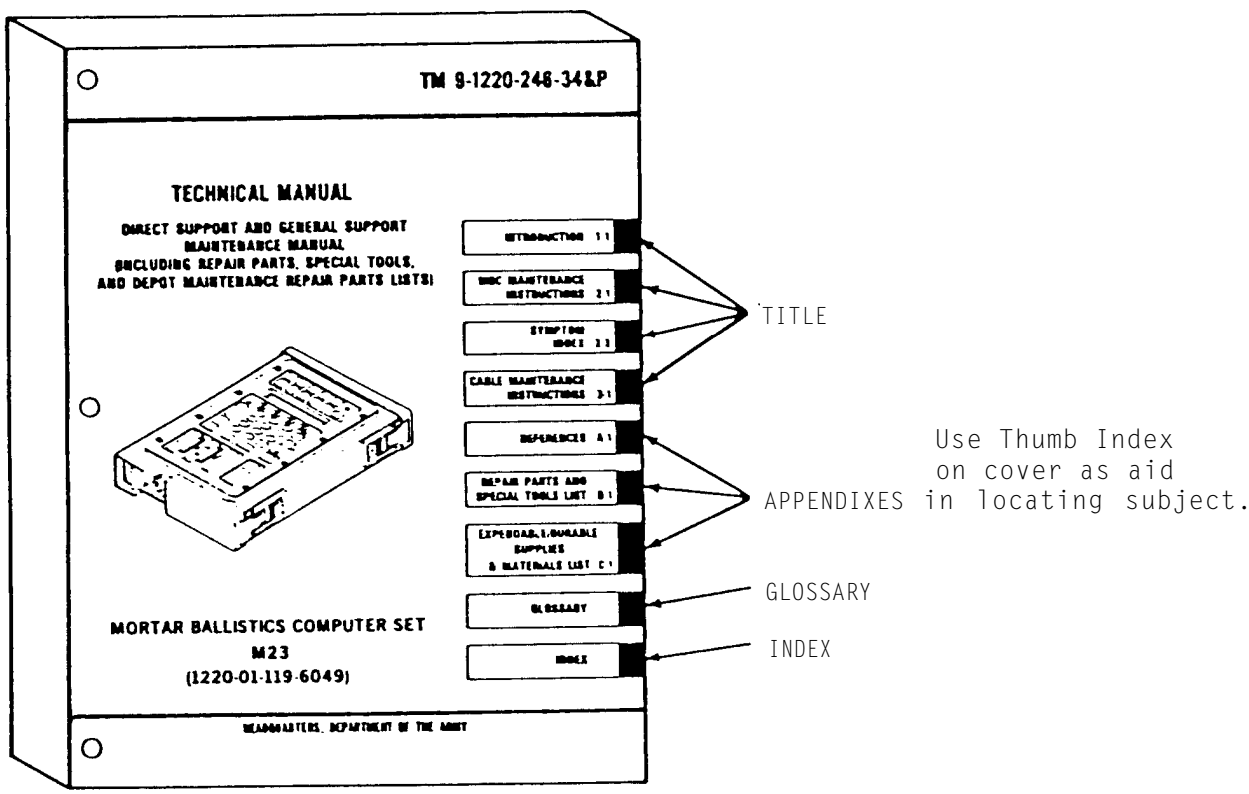
HOW TO USE THIS MANUAL

This manual is divided into three chapters:

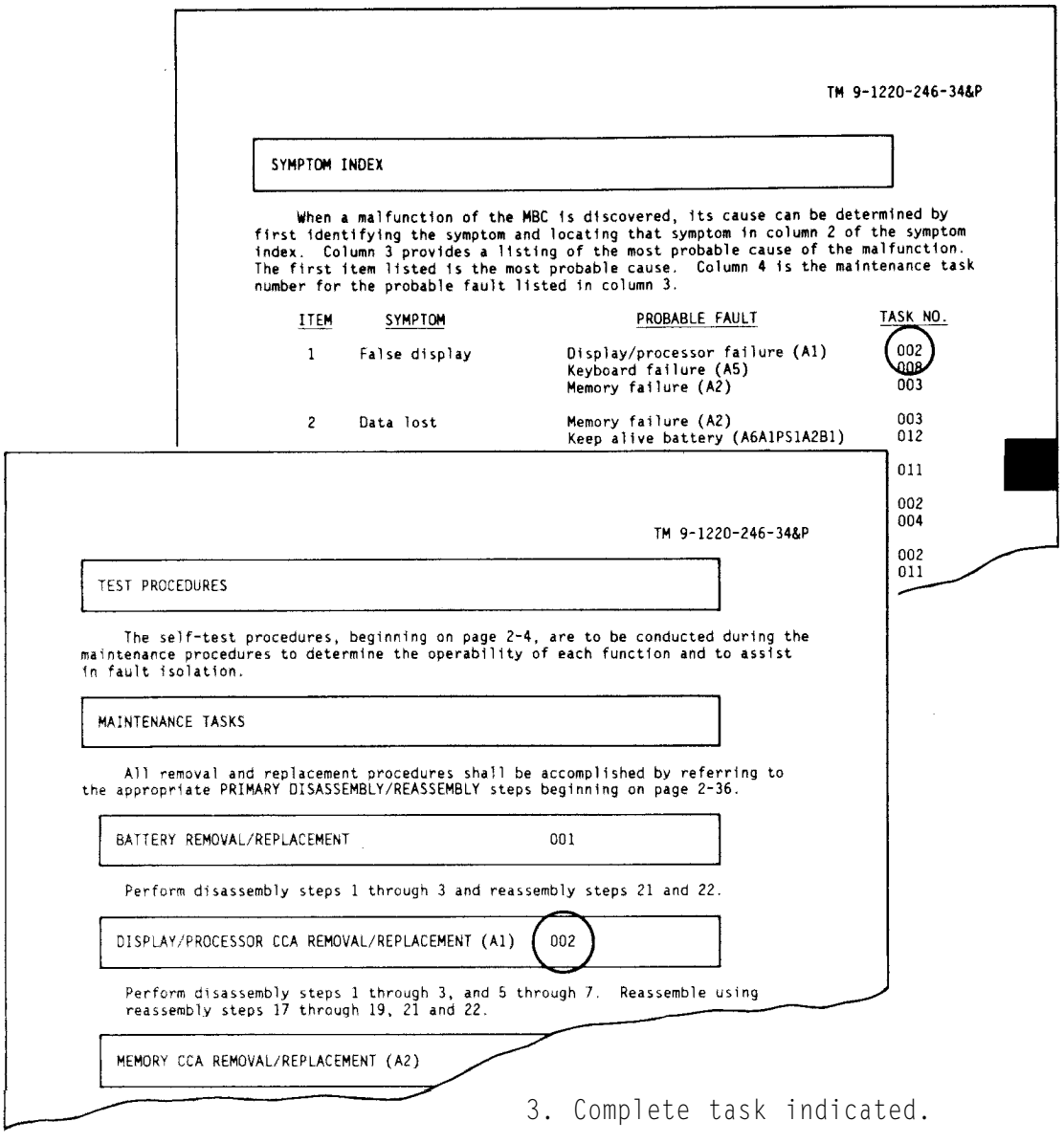
- CHAPTER 1 contains an introduction to this manual and the Mortar Ballistics Computer Set M23.
- CHAPTER 2 contains maintenance instructions for Mortar Ballistics Computer Set M23.
- CHAPTER 3 contains cable maintenance information for the Mortar Ballistics Computer Set M23.



HOW TO USE THIS MANUAL (CONT)

Troubleshoot by performing tests and inspections necessary to identify fault.

1. Then locate fault in Symptom Index.
2. Check Symptom Index for task number.



TM 9-1220-246-34&P

SYMPTOM INDEX

When a malfunction of the MBC is discovered, its cause can be determined by first identifying the symptom and locating that symptom in column 2 of the symptom index. Column 3 provides a listing of the most probable cause of the malfunction. The first item listed is the most probable cause. Column 4 is the maintenance task number for the probable fault listed in column 3.

ITEM	SYMPTOM	PROBABLE FAULT	TASK NO.
1	False display	Display/processor failure (A1)	002
		Keyboard failure (A5)	008
		Memory failure (A2)	003
2	Data lost	Memory failure (A2)	003
		Keep alive battery (A6A1PS1A2B1)	012
			011
			002
			004
			002
			011

TM 9-1220-246-34&P

TEST PROCEDURES

The self-test procedures, beginning on page 2-4, are to be conducted during the maintenance procedures to determine the operability of each function and to assist in fault isolation.

MAINTENANCE TASKS

All removal and replacement procedures shall be accomplished by referring to the appropriate PRIMARY DISASSEMBLY/REASSEMBLY steps beginning on page 2-36.

BATTERY REMOVAL/REPLACEMENT 001

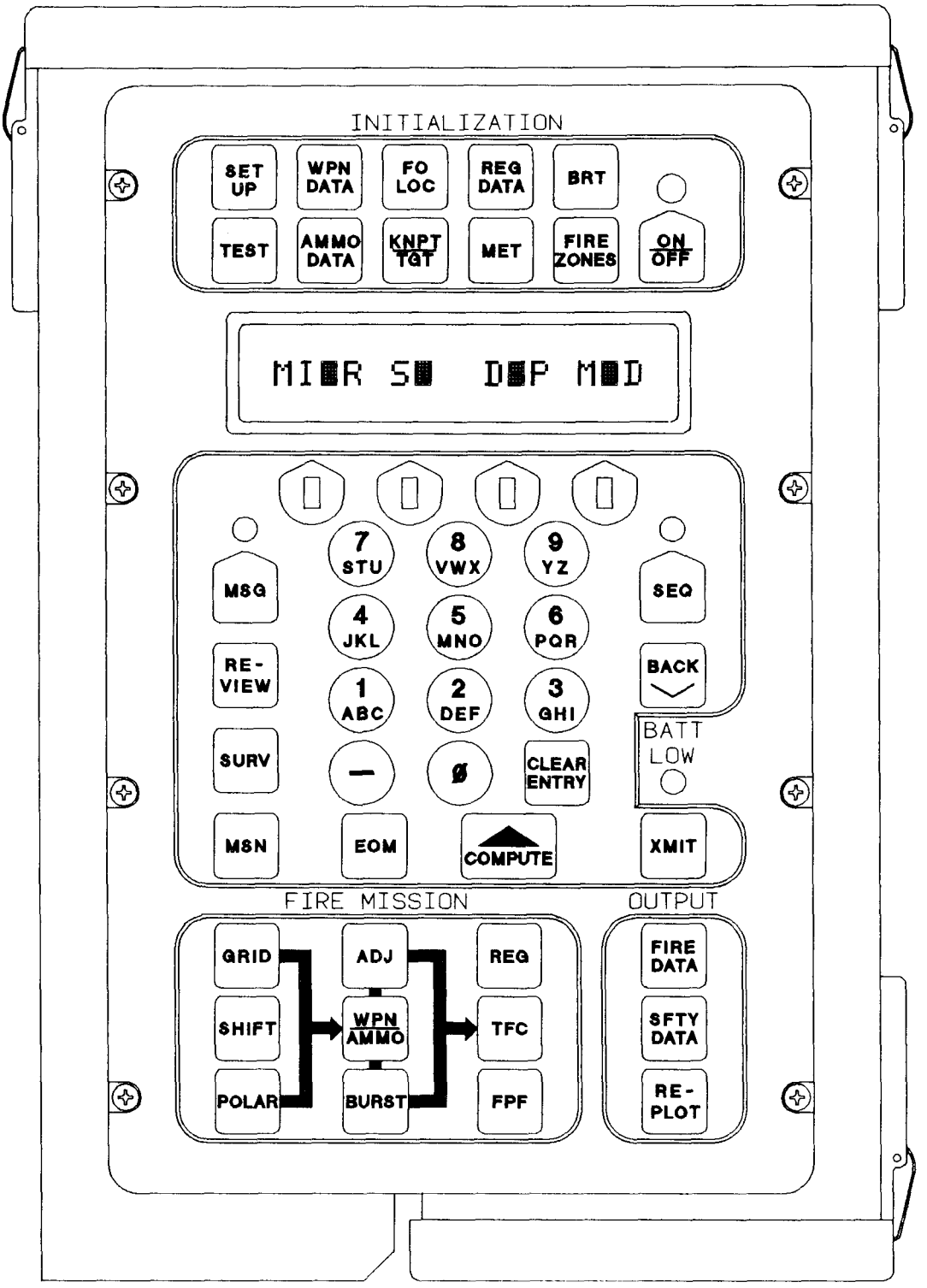
Perform disassembly steps 1 through 3 and reassembly steps 21 and 22.

DISPLAY/PROCESSOR CCA REMOVAL/REPLACEMENT (A1) 002

Perform disassembly steps 1 through 3, and 5 through 7. Reassemble using reassembly steps 17 through 19, 21 and 22.

MEMORY CCA REMOVAL/REPLACEMENT (A2)

3. Complete task indicated.
4. Retest as required before returning to use.
5. When maintenance requirements are beyond your capability, redirect unit to higher maintenance level.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SET UP
WPN DATA
FO LOC
REG DATA
BRT
TEST
AMMO DATA
KNPT TGT
MET
FIRE ZONES
ON OFF
MI R S D P M D
MSG
7 STU
8 VWX
9 YZ
SEQ
4 JKL
5 MNO
6 PQR
RE-VIEW
BACK
1 ABC
2 DEF
3 GHI
SURV
BATT LOW
CLEAR ENTRY
MSN
EOM
COMPUTE
XMIT
FIRE MISSION
OUTPUT
GRID
ADJ
REQ
FIRE DATA
SHIFT
WPN AMMO
TFC
SFTY DATA
POLAR
BURST
FPF
RE-PLOT

CHAPTER 1

INTRODUCTION

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Principles of Operation.. 1-8

Section I. GENERAL INFORMATION

SCOPE

Type of Manual: Direct Support and General Support Maintenance including Repair Parts, Special Tools and Depot Maintenance Repair Parts Lists.

1. Direct support will test and repair the MBC by replacing printed circuit boards and nonrepairable subassemblies.

2. General support provides screening and transfer of the MBC, and/or the depot repairable subassemblies between the next lower and the next higher maintenance level.

Model Number and Equipment Name: M23 Mortar Ballistics Computer Set (herein referenced as MBC set)

Purpose of Equipment: The MBC is a small, lightweight, portable, battery-powered data entry terminal and computer used for automated computation, digital communication, and display of mortar-related information. It sends and receives digital information within the Tactical Fire Direction System (TACFIRE), communicating with the Digital Message Device (DMD) through standard Army communications radios or field wire.

MAINTENANCE FORMS, RECORDS, AND REPORTS.

Department of The Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS).

CALIBRATION

There are no calibration requirements for the MBC,

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Destruction of electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

PREPARATION FOR STORAGE OR SHIPMENT

Preparation for storage or shipment instructions are covered in TM 9-1220-246-12&P.

NOMENCLATURE CROSS-REFERENCE LIST

This listing includes nomenclature cross-references used in this manual.

COMMON NAME	OFFICIAL NOMENCLATURE
AN/GRC-106 Interface Cable	Cable Assembly, Special Purpose, Electrical (CX-13150/GR)
Audio Interface CCA	Audio Interface
Battery Compartment Cover	Cover, Battery
Card Cage	Card Cage Assembly
Carrying Case	Case, Radio Set Container
Case Interconnect CCA	Circuit Card Assembly (A4A1)
Chassis Assembly	Chassis, Electrical
Computer Case	Case, Computer
Display Power Supply	Circuit Card Assembly (A6A1PS1A2)
Display/Processor CCA	Circuit Card Assembly: Display
Dustcover	Cover, Electrical
Field Case	Case, Computer, Ballistics

COMMON NAME	OFFICIAL NOMENCLATURE
Interconnect CCA	Circuit Card Assembly: Interconnect
Keep Alive Battery	Battery, Storage
Keyboard	Keyboard, Data, Entry
Logic Power Supply	Circuit Card Assembly (A6A1PS1A1)
MBC	Computer, Ballistics: Mortar
MBC Set	Computer Set, Ballistics: Mortar M23
Memory CCA	Circuit Card Assembly: Memory
Modem CCA	Circuit Card Assembly: Modem
Power Supply	Power Supply Assembly
Primary Radio Interface Cable	Cable Assembly, Special Purpose, Electrical (CX-13151/PSG-2)
Security Screw Tool	Socket, Socket Wrench
Top Cover	Cover, Access
Vehicular Battery Cable	Cable Assembly, Special Purpose, Electrical (CX-13152/PSG-2)
Vehicular Receptacle Cable	Cable Assembly, Special Purpose, Electrical (CX-13148/PSG-2)

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

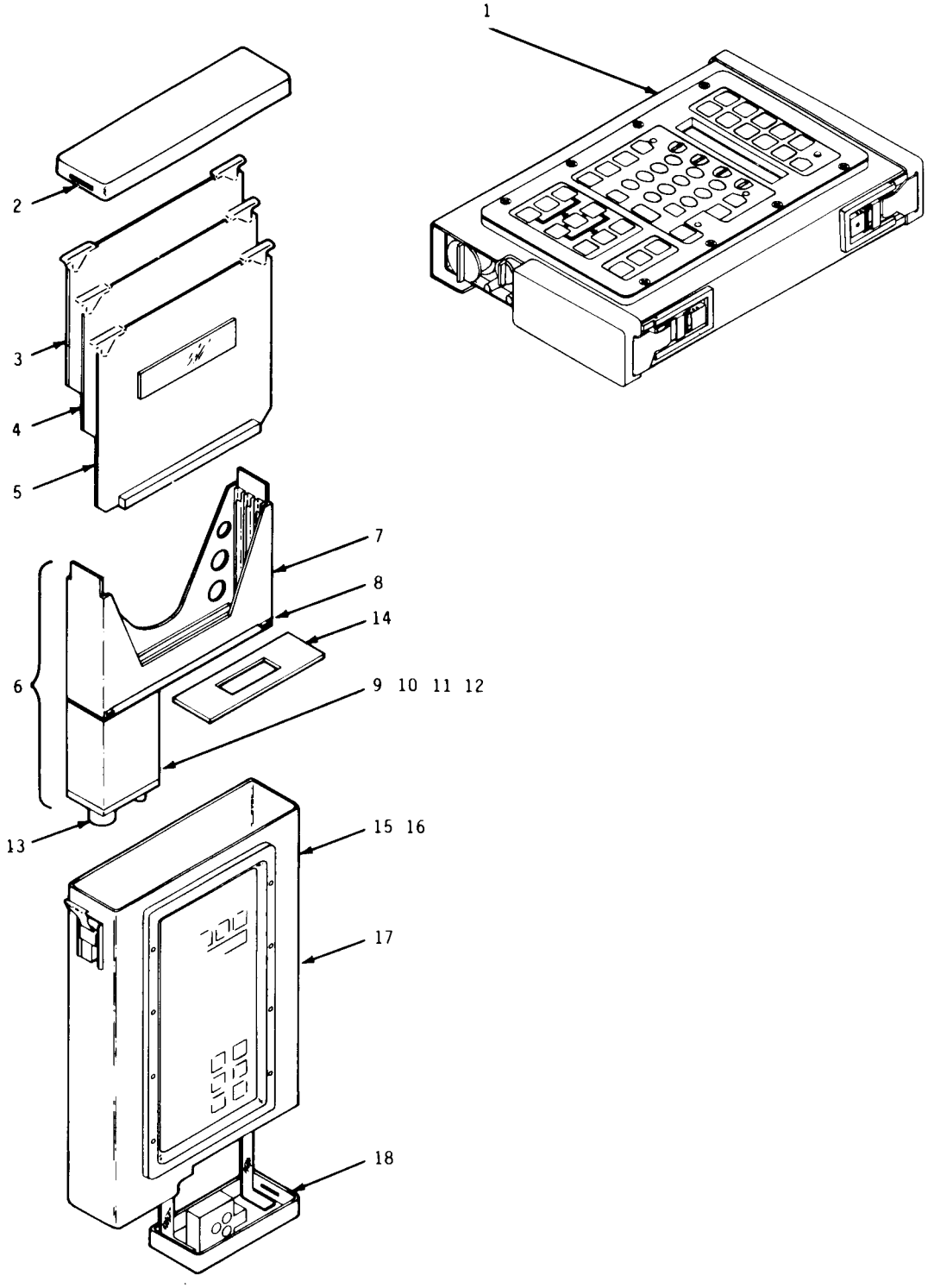
If your MBC needs improvement, let us know. Send us an EIR. YOU, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at Commander, US Army Armament, Munitions, and Chemical Command, ATTN: AMSMC-QAD, Rock Island, IL 61299-6000.

Section II. EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

Refer to TM 9-1220-246-12&P for a listing of MBC characteristics, capabilities and features.

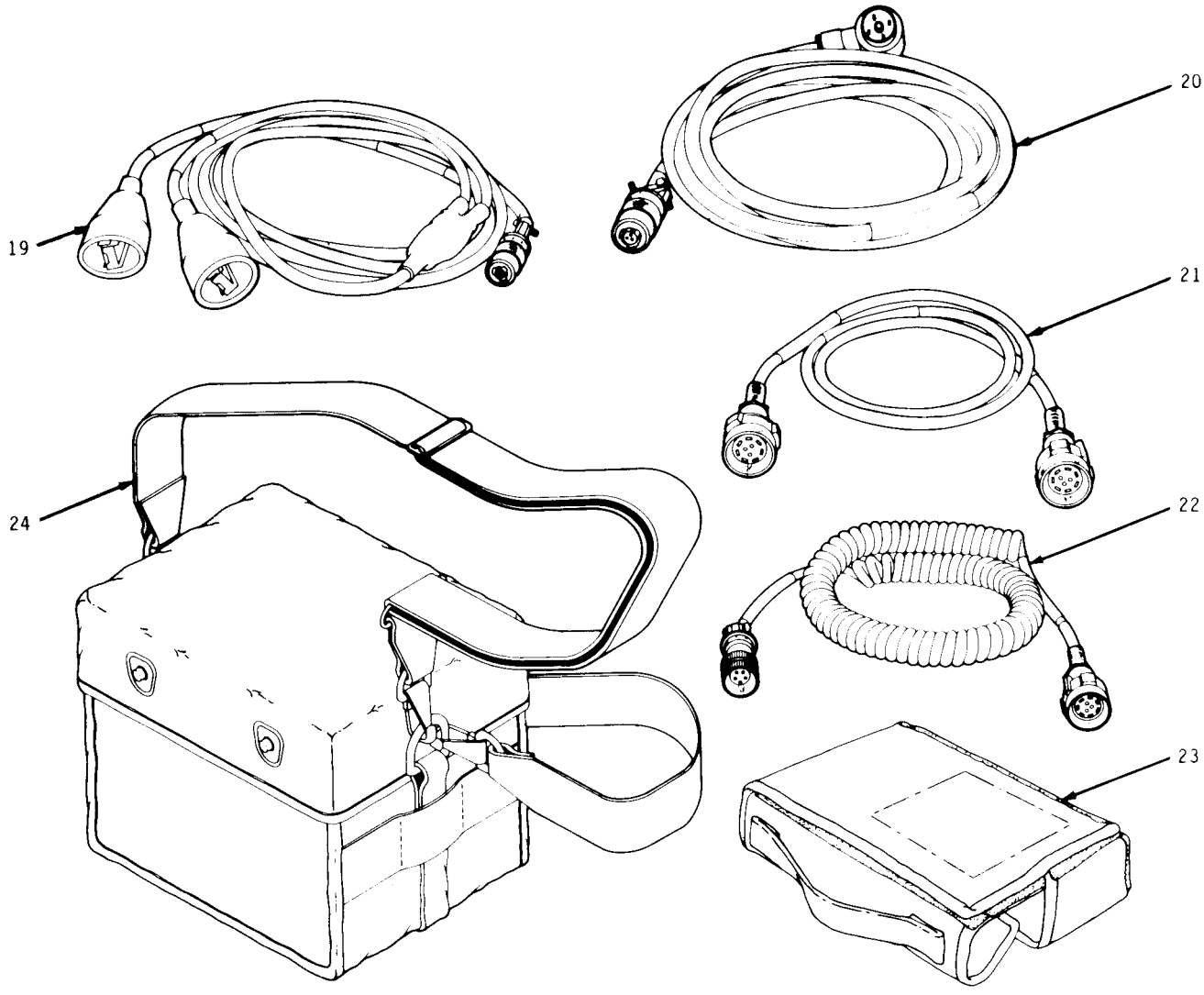
LOCATION AND DESCRIPTION OF MAJOR COMPONENTS



MAINTENANCE FUNCTION LIST

ITEM	COMPONENT/ASSEMBLY	TEST	REPLACE	REPAIR	REMARKS
1	MBC	*	*	*	
2	Top Cover (Part of A4)		*		
3	Modem CCA (A3)		*		
4	Memory CCA (AZ)		*		
5	Display/Processor CCA (Al)		*		
6	Chassis Assembly (A6)		*	*	Repair by repairing A6A1 subassemblies
7	Card Cage		*		
8	Interconnect CCA (A6A2)		*		
9	Interface Assembly (A6A1)		*	*	Repair by repairing A6A1 subassemblies
10	Power Supply (A6A1PS1)		*	*	Repair by replacing fuse or keep alive battery
11	Keep Alive Battery		*		
12	Audio Interface CCA (A6A1A2)		*		
13	Connector Assembly (A6A1A1)		*	*	Repair by replacing dustcovers
14	Case Interconnect CCA (A4A1)		*	*	Repair by replacing fuse
15	Computer Case (A4)		*		
16	Housing Assembly (Part of A4)		*		
17	Keyboard (AS)		*		
18	Battery Compartment Cover (Part of A4)		*		

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)



LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

MAINTENANCE FUNCTION LIST (CONT)

ITEM	COMPONENT/ASSEMBLY	TEST	REPLACE	REPAIR	REMARKS
19	Vehicular Battery Cable			*	
20	Vehicular Receptacle Cable			*	
21	AN/GRC-106 Interface Cable			*	
22	Primary Radio Interface Cable			*	
23	Field Case		*		no repairs authorized
24	Carrying Case		*		no repairs authorized

NOTES

- Reference designations for components and assemblies appear in this manual without the 1 prefix, except in Appendix B, RPSTL. For example, chassis assembly is abbreviated A6, but appears in Appendix B as 1A6.

EQUIPMENT DATA

Refer to TM 9-1220-246-12&P for a listing of equipment data.

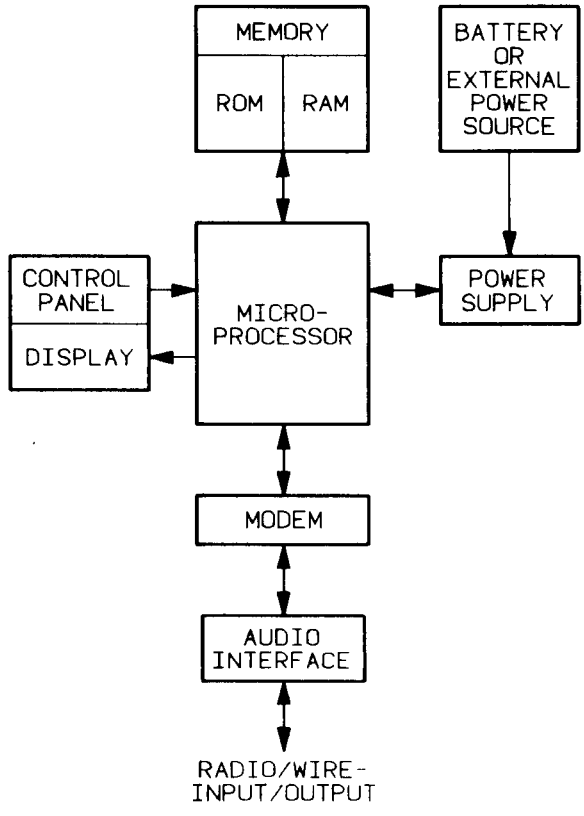
EQUIPMENT CONFIGURATION

Refer to TM 9-1220-246-12&P for a description of how the MBC is connected to other equipment.

Section III. PRINCIPLES OF OPERATION

This section contains theory of operation for each MBC function.

SYSTEM DESCRIPTION



SYSTEM DESCRIPTION (CONT)

The MBC contains seven primary functional areas. They are:

a. Control panel - contains a 48-switch matrix which enables the operator to input data to the MBC or respond to displayed data received from external sources. It also contains four light emitting diodes (LEDs) which are used as indicators to notify the operator of various conditions or situations.

b. Display - presents a maximum of 16 characters for viewing by the operator.

c. Memory - contains both RAM and ROM. Provides a means for storing programs required by the microprocessor to perform MBC functions.

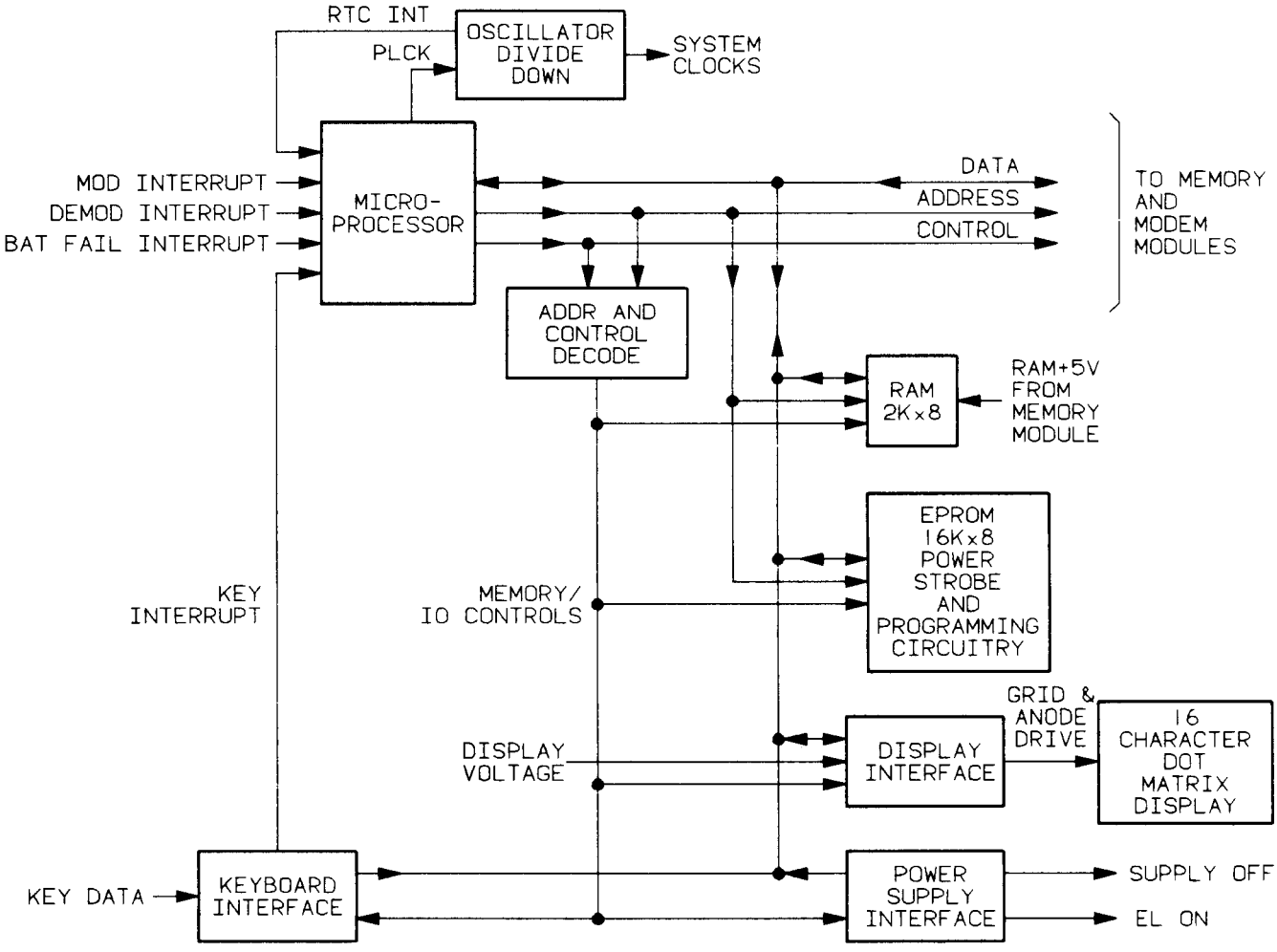
d. Microprocessor - provides the timing and control for the MBC. It accepts inputs from the keyboard and modem, performs the commanded calculations and outputs the results to the display for the operator's viewing or to the modem for external use.

e. Audio interface - provides signal conditioning of both incoming and outgoing data being transferred to or from the modem.

f. Modem - contains a demodulator for processing incoming data before it is sent to the microprocessor, and a modulator for processing outgoing data before placing it on external communications lines.

g. Power supply - provides various voltages required throughout the MBC. The MBC receives its power from a battery mounted within its internal battery compartment, or from a 20-32 V dc external source.

DISPLAY/PROCESSOR CCA



DISPLAY/PROCESSOR CCA (CONT)

The display/processor circuit card assembly (A1) contains the following:

a. Oscillator - divided down to provide the various system clock signals.

b. Microprocessor - provides data, address and control signals to other MBC functional assemblies.

c. Address/control circuit - applies power to the 16K byte EPROM on this assembly.

d. RAM - a 2K byte capacity for temporary storage of data.

e. EPROM - contains permanent program data for computing mortar fire missions, and BITE which is used for testing logic contained on display/processor, modem, and memory CCA'S.

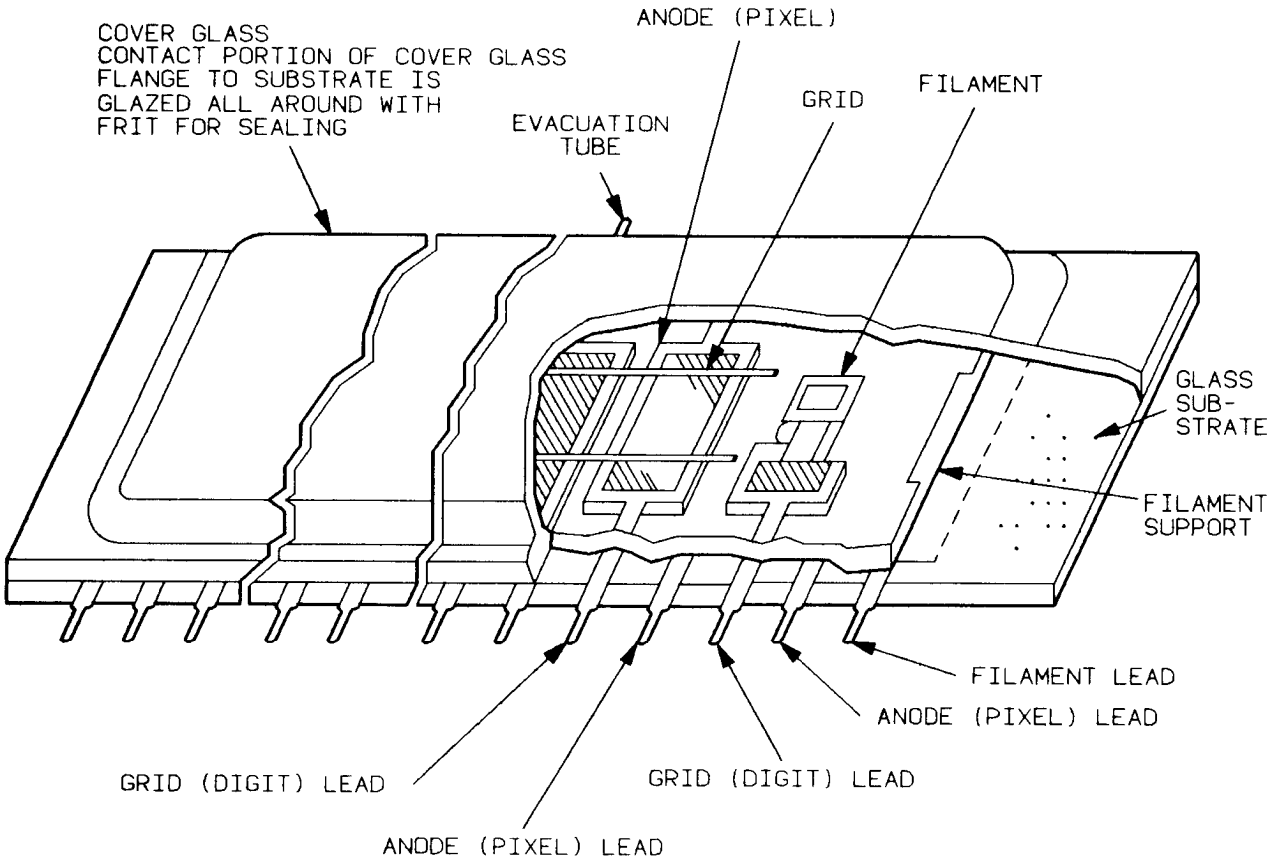
f. Keyboard interface circuit - provides signal interface for proper transfer of data from the keyboard to the microprocessor.

g. Power supply interface - provides circuitry for the transfer of data between power supply and microprocessor.

h. Display - a 16-character display for presenting prompts and data to the operator.

i. Interface/drive circuitry - used for placing data on the display.

DISPLAY CONSTRUCTION



The MBC display is a 16-character, low power, multi-digit vacuum fluorescent display. It is basically a multi-element triode, using a common filament which functions as a cathode. The grids, of which there are 16, one for each character of the display, are normally held in a negative bias condition which prevents current flow to the anodes. Positive signals applied to the grid forward. biases the elements allowing current to flow. Electrons striking the anode excite the fluorescent coating to luminescence.

MICROPROCESSOR

The CMOS microprocessor requires very little power. It operates on a clock frequency of 2.4576 MHz and can access 16K bytes of RAM and 176K bytes of EPROM.

RAM DATA STORAGE AND BITE PROGRAM STORAGE

All temporary data stored in the MBC is stored in 16K byte capacity RAM. Less than 8K bytes are used with the current system design, the remaining capacity being reserved for future expansion. During operation the RAM is powered by regulated +5 V dc. A +4.8 V dc "Keep Alive" battery provides power to RAM when the MBC is turned off. This +4.8 V dc battery ensures that all data stored in RAM is retained when the MBC is temporarily turned off.

NOTE

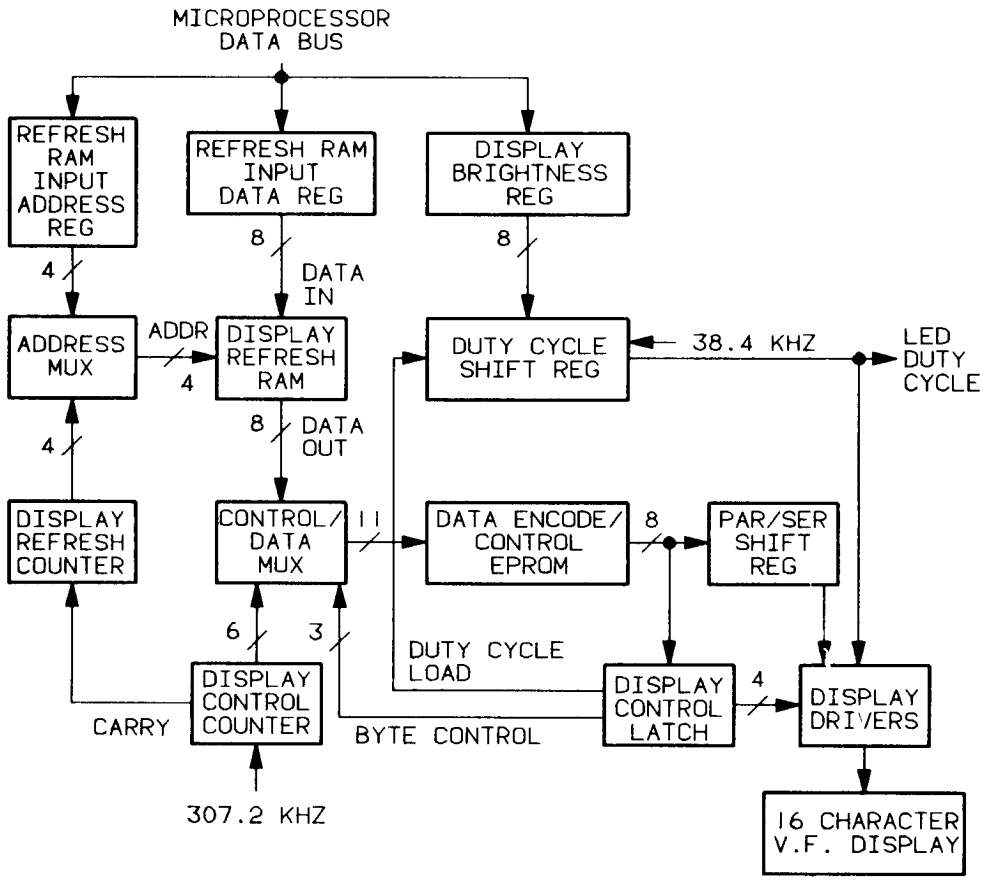
The "Keep Alive" battery must be charged to provide memory retention. The battery is automatically charged by the primary power source while the computer is turned on. Leaving the computer on for 14 hours will fully charge the "Keep Alive" battery. This should provide 5-10 hours of memory retention. (If the computers only on a short time, the "Keep Alive" battery will not receive a full charge, which will result in a shorter memory retention time.)

All permanent data, consisting of the microprocessor application and BITE programs, is stored in EPROM.

A total of 16K bytes of EPROM, located on the display/processor, contains the BITE program which tests the logic on the display/processor, modem, audio interface and memory CCA'S. This placement of BITE permits the complete testing of the display/processor before other subsystem tests.

Power is applied to EPROM on both the display/processor and memory CCA'S only when instructions, or data in its assigned address spaces, are to be read by the processor. This address-decoded "Power Strobing" reduces overall power usage and extends primary battery life.

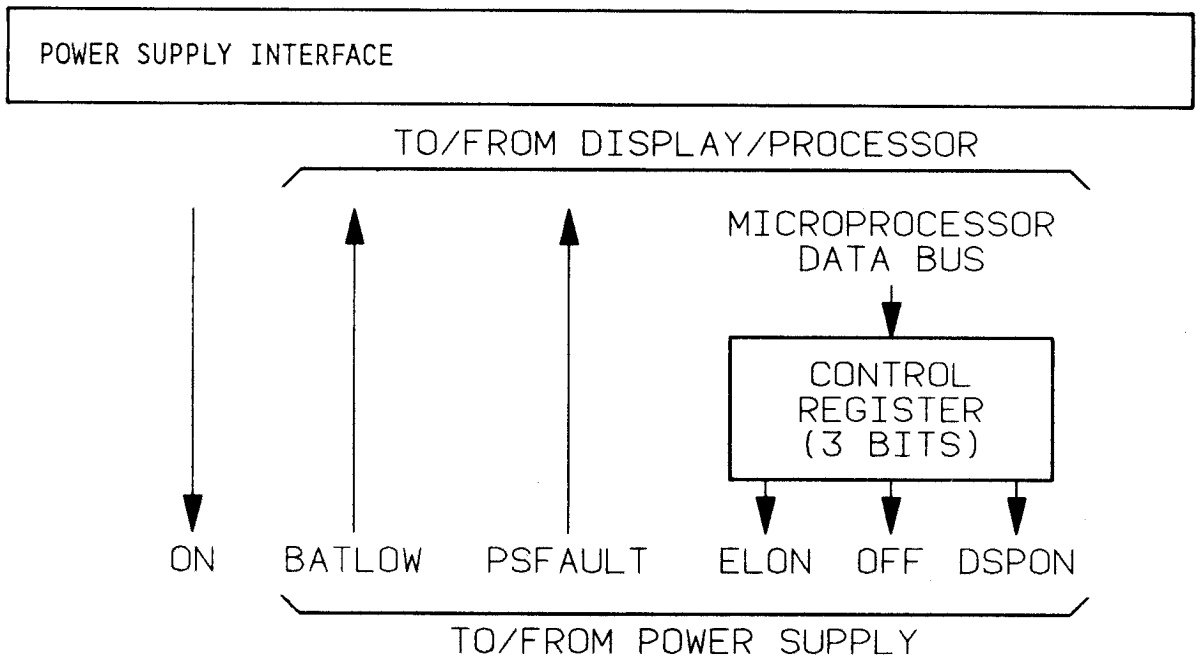
DISPLAY INTERFACE



The display and indicator interface circuitrv is used to control the data. The main-element of this circuitry is the 16-byte display refresh-RAM which holds the character codes used for refreshing the display. It is loaded by the microprocessor using both the RAM input data register and RAM input address register. The address multiplexer sends either the refresh address or the input address to the RAM, depending upon the type of cycle. Character data is repeatedly sent by the RAM to the data encode/control EPROM. The data encode/control EPROM converts the character codes to drive enables which are parallel loaded into the shift register and then serially shifted into the display driver. The display drivers receive a clocked frequency from the display brightness register via the duty cycle shift register which determines the brightness of the vacuum fluorescent (V.F.) display.

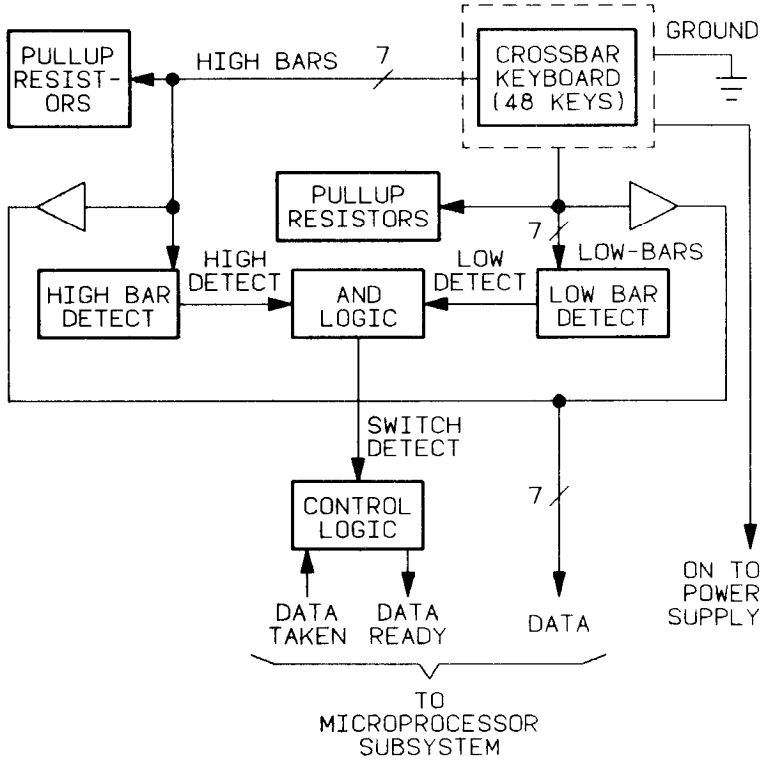
CASE INTERCONNECT CCA

The case interconnect CCA provides power distribution and overcurrent protection for the MBC while using internal battery as primary power source. It further provides signal transfer between keyboard and the chassis-mounted interconnect CCA. The fuse installed on this CCA also protects the lithium battery from being accidentally shorted to ground.

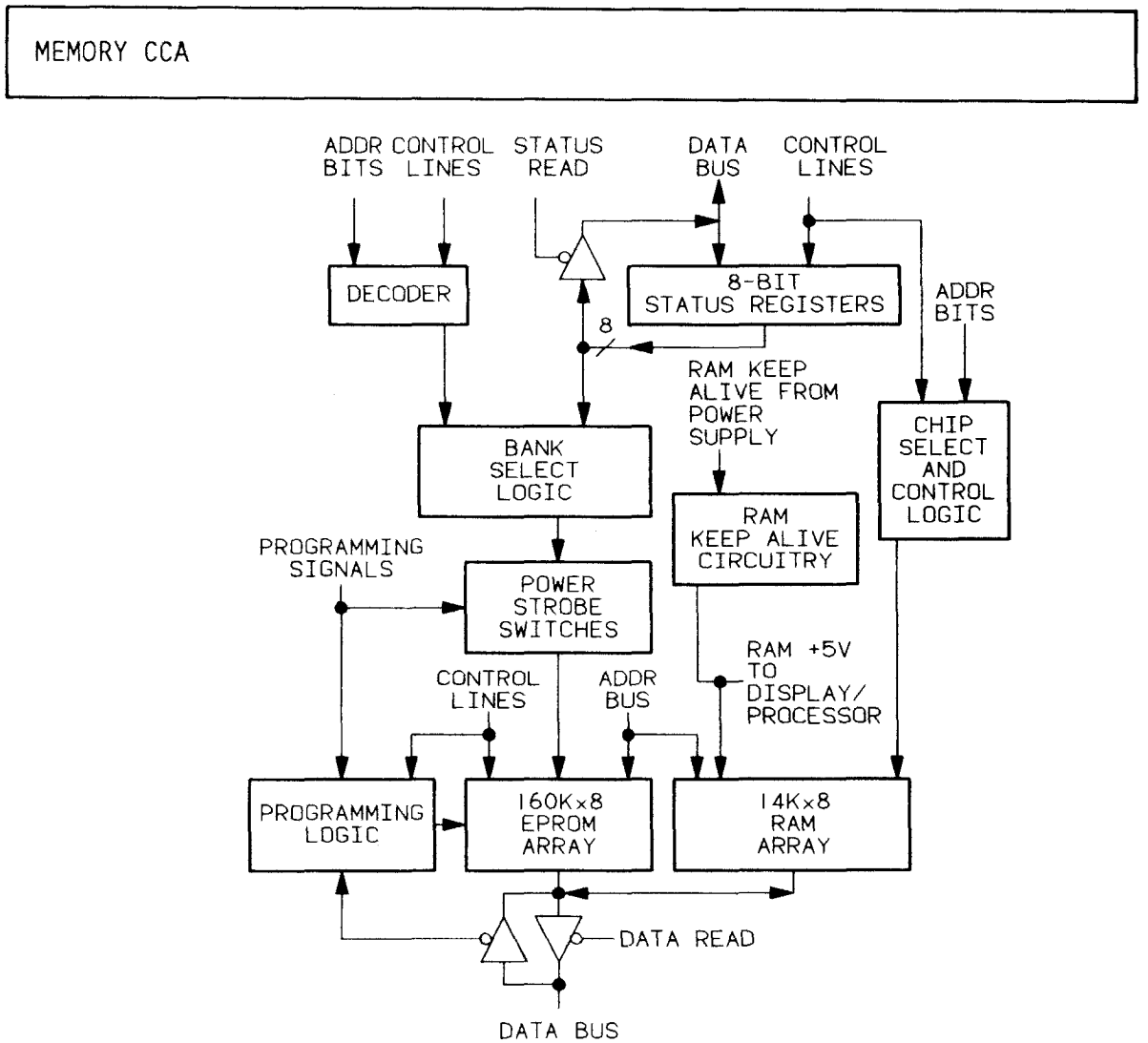


When the battery voltage drops to 11 volts, the BATLOW signal goes high causing the test LED to light. If the primary power battery is not replaced before its voltage level drops to an unacceptable level, the power supply will generate a PSFAULT (Power Supply Fault) signal causing the display/processor to-begin an orderly system shutdown. The DSPON (Display On) signal will go high any time data is being displayed. When the power supply is to be completely turned off, the microprocessor will set the OFF signal high, This is done only when the MBC is on and the microprocessor detects a closing of the ON/OFF switch.

KEYBOARD INTERFACE

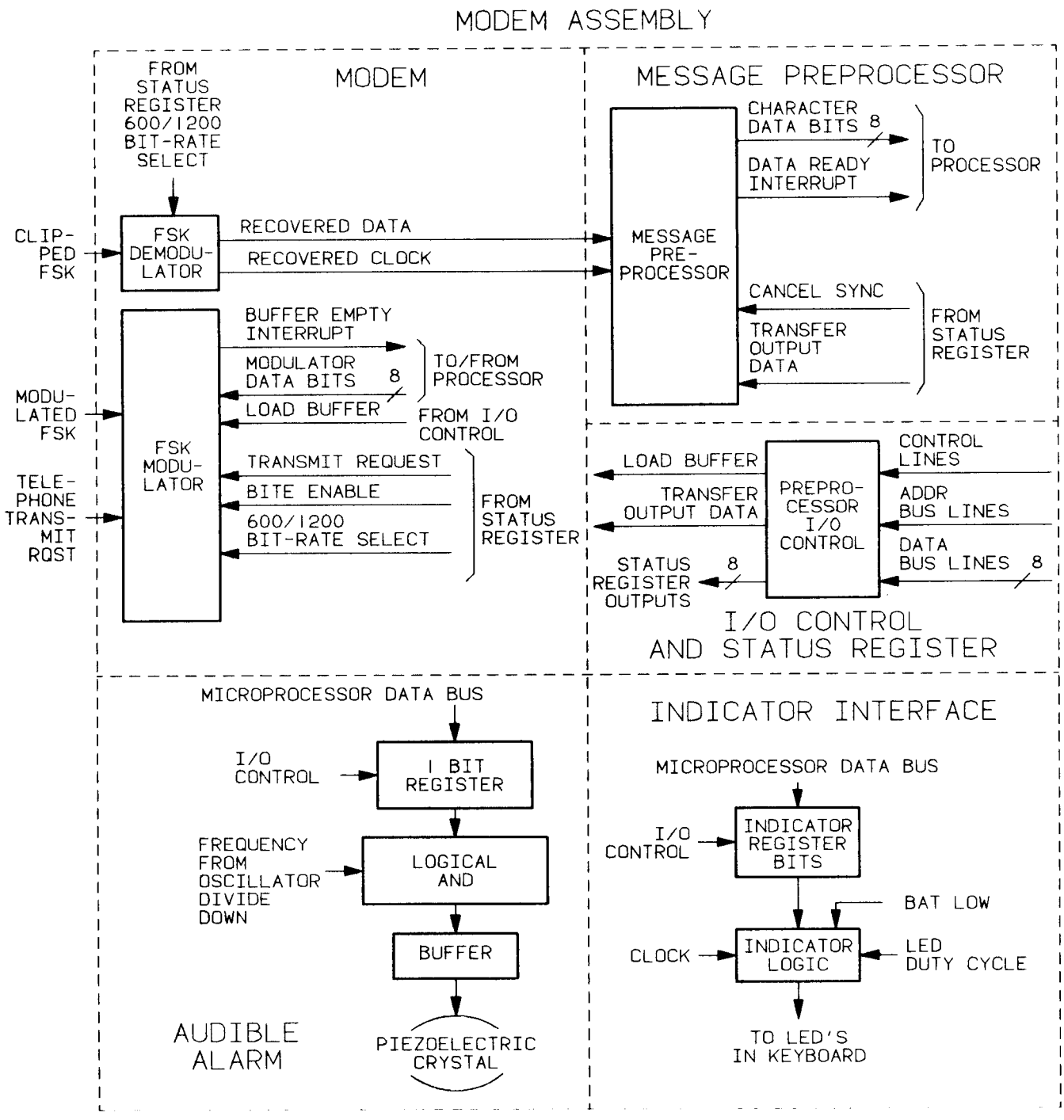


The keyboard matrix consists of a series of conductors arranged in an X-Y matrix pattern beneath the keyboard legend panel. Each line of the matrix pattern is terminated with pull-up resistors which hold the input to the high bar and low bar input gates at a logic high. When a key is pressed it will cause one input line on the high bar and one input line on the low bar to change from logic high to logic low. When this changing of logic level is applied to the AND logic circuit, a SWITCH DETECT signal is generated and sent to the microprocessor as a KEYBOARD INTERRUPT. The KEYBOARD INTERRUPT informs the microprocessor that data is ready to be put on the data bus and ready for transfer to the microprocessor. When data has been transferred, the microprocessor responds with a DATA TAKEN signal which resets the INTERRUPT control logic gate circuitry. The ON signal is sent to the power supply to enable the power supply and turn the MBC on.



Memory CCA (A2) holds 14K bytes of CMOS RAM used for storing temporary data. It also contains address decode and memory management logic which allows the microprocessor to access more than 64K bytes of memory. The CCA can hold a maximum of 160K bytes of EPROM. The microprocessor address and control decoder uses the address bus, control bus, and the contents of memory management storage register to determine which EPROM to access and applies power to only that EPROM. This power strobing reduces overall MBC power usage.

MODEM CCA


MODEM ASSEMBLY
MODEM
FROM STATUS REGISTER 600/1200 BIT-RATE SELECT
CLIP-PED FSK
FSK DEMODU-LATOR
RECOVERED DATA
RECOVERED CLOCK
BUFFER EMPTY INTERRUPT
MODULATOR DATA BITS
8
TO/FROM PROCESSOR
LOAD BUFFER
FROM I/O CONTROL
MODU-LATED FSK
TELE-PHONE TRANS-MIT RQST
FSK MODU-LATOR
TRANSMIT REQUEST
BITE ENABLE
600/1200 BIT-RATE SELECT
FROM STATUS REGISTER
MESSAGE PREPROCESSOR
MESSAGE PRE-PROCESSOR
CHARACTER DATA BITS
8
DATA READY INTERRUPT
TO PROCESSOR
CANCEL SYNC
TRANSFER OUTPUT DATA
FROM STATUS REGISTER
LOAD BUFFER
TRANSFER OUTPUT DATA
PREPRO-CESSOR I/O CONTROL
CONTROL LINES
ADDR BUS LINES
DATA BUS LINES
8
STATUS REGISTER OUTPUTS
8
I/O CONTROL AND STATUS REGISTER
MICROPROCESSOR DATA BUS
I/O CONTROL
1 BIT REGISTER
FREQUENCY FROM OSCILLATOR DIVIDE DOWN
LOGICAL AND
BUFFER
AUDIBLE ALARM
PIEZOELECTRIC CRYSTAL
INDICATOR INTERFACE
MICROPROCESSOR DATA BUS
I/O CONTROL
INDICATOR REGISTER BITS
BAT LOW
CLOCK
INDICATOR LOGIC
LED DUTY CYCLE
TO LED'S IN KEYBOARD

MODEM CCA (CONT)

The modem CCA contains the following circuitry involved in the transfer of data between the MBC and external communications equipment:

a. Modulator - receives 8-bit bytes of time dispersed data from the processor, and converts it to serial two-tone audio FSK signals which are passed to the audio interface.

b. Demodulator - receives clipped FSK data from the audio interface, converts it to recovered digital data, and synchronizes the modem-recovered clock to the recovered data. The recovered clock is used to clock recovered data into the message preprocessor subsection.

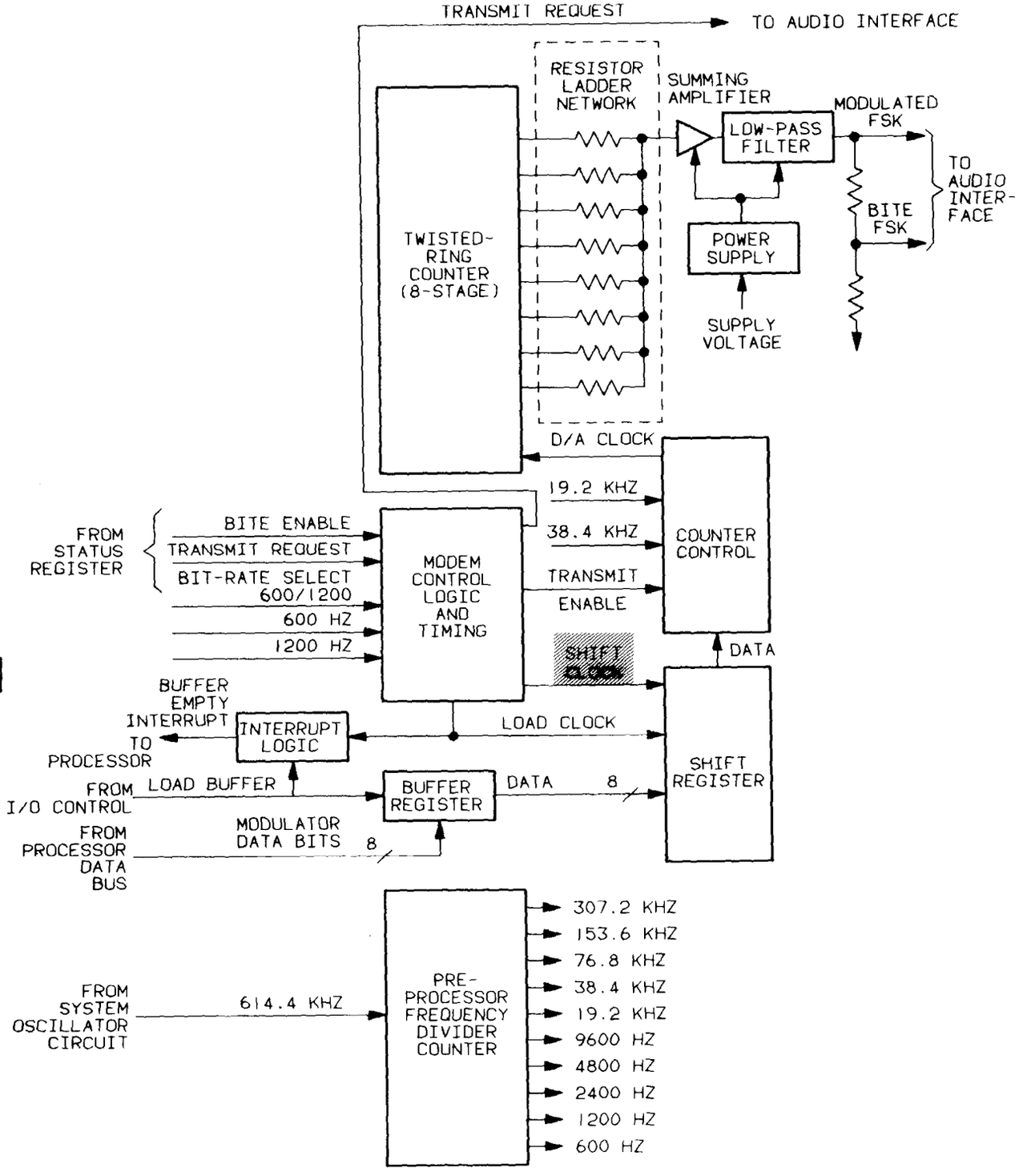
c. Message preprocessor - accepts digital data bits from the FSK demodulator, determines message synchronization, converts time-dispersed coded data to character and parity data, encodes an error detection code from the character and parity data, and transfers the data to the display/processor in blocks of sixteen 8-bit error corrected words.

d. Input/output control and status register - used to provide processor control over the modem functions. Address recognition circuitry decodes the preprocessor-assigned address, decodes the function command, and executes the function command. A status register provides discrete control signals to control operation of the modem.

e. Indicator interface - is also located on the modem CCA. One indicator is enabled by the BATTERY LOW signal from the power supply. This signal is activated when the battery voltage level decreases to the minimum operational level and will cause the test LED to illuminate at approximately 1-second intervals. The other provides an output to the ON/OFF LED driver at the rate of once every 6 seconds anytime the power supply is in the standby mode.

f. Audible alarm - activated by the output of the microprocessor to alert the operator of an incoming message. The microprocessor places a logic one in the 1 bit register which is logically ANDed with the oscillator clock, then passed through buffer circuitry where it drives the piezo-electric crystal which emits sound.

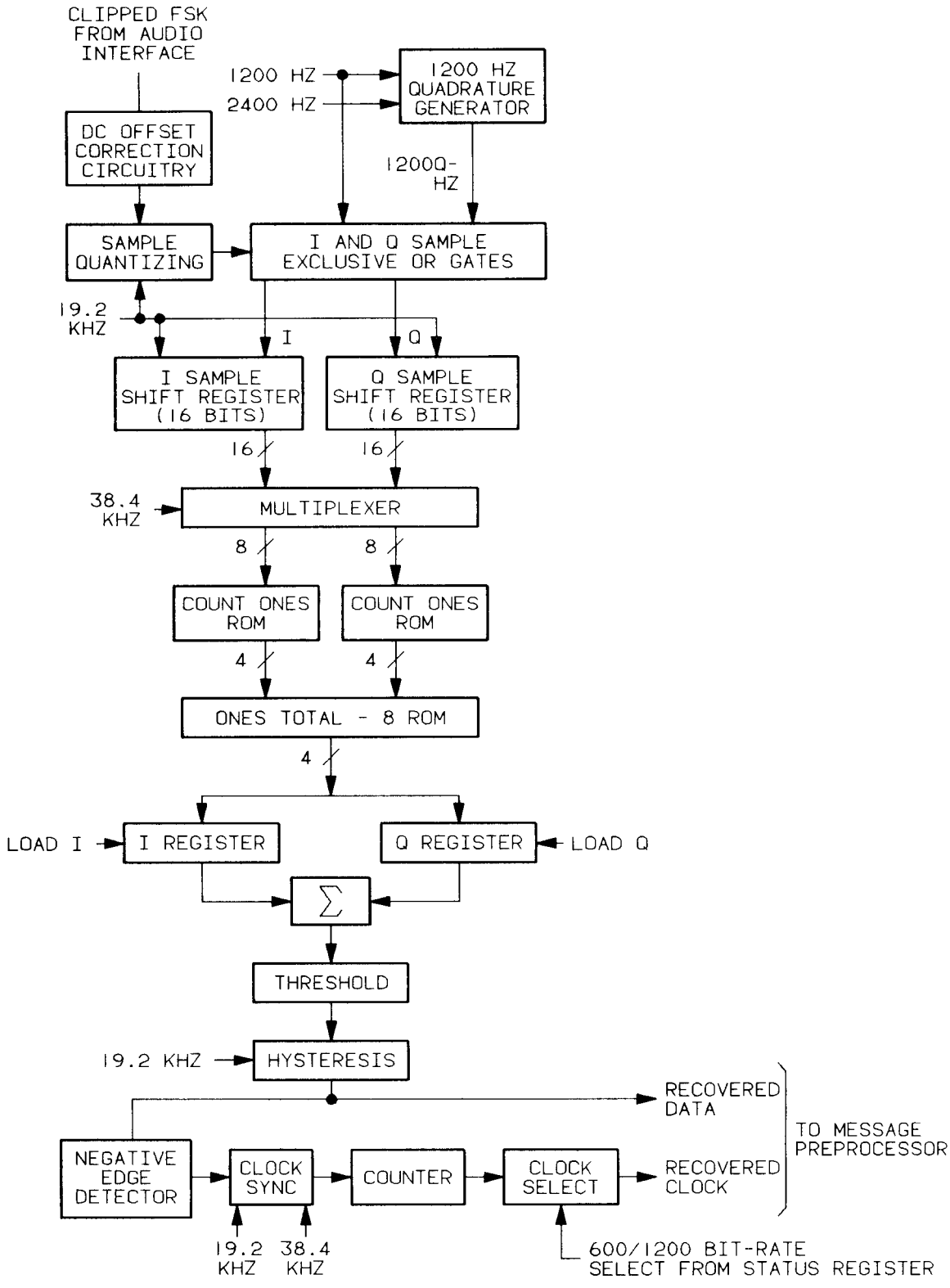
FSK MODULATOR



FSK MODULATOR (CONT)

The buffer receives the 8 data bits from the processor and holds it until it is loaded into the shift register by the LOAD BUFFER signal from the 1/O control. Data is shifted out of the shift register upon receipt of the SHIFT CLOCK signal from the modem control logic and timing circuit. The counter control circuit, which is enabled during the transmit operation, selects either the 19.2 or 38.4 kHz signal as the clocking signal for the 8-stage twisted ring counter. Each output acts as a switch applying (logic high) or removing (logic low) voltage to the resistor on the counter output, The resistors in the ladder network are weighted to provide current values into the summing amplifier. When summed, the data approximates a sinusoidal waveform on the summing amplifier output. The power switch applies power to the summing amplifier and low pass filter only upon receipt of the TRANSMIT ENABLE signal. The processor frequency divider counter receives a 614.4 kHz signal from the system oscillator and divides the signal down for use throughout the modem as clock signals.

FSK DEMODULATOR



FSK DEMODULATOR (CONT)

The FSK signal received by the MBC is amplified, filtered, and clipped before being applied to the FSK demodulator.

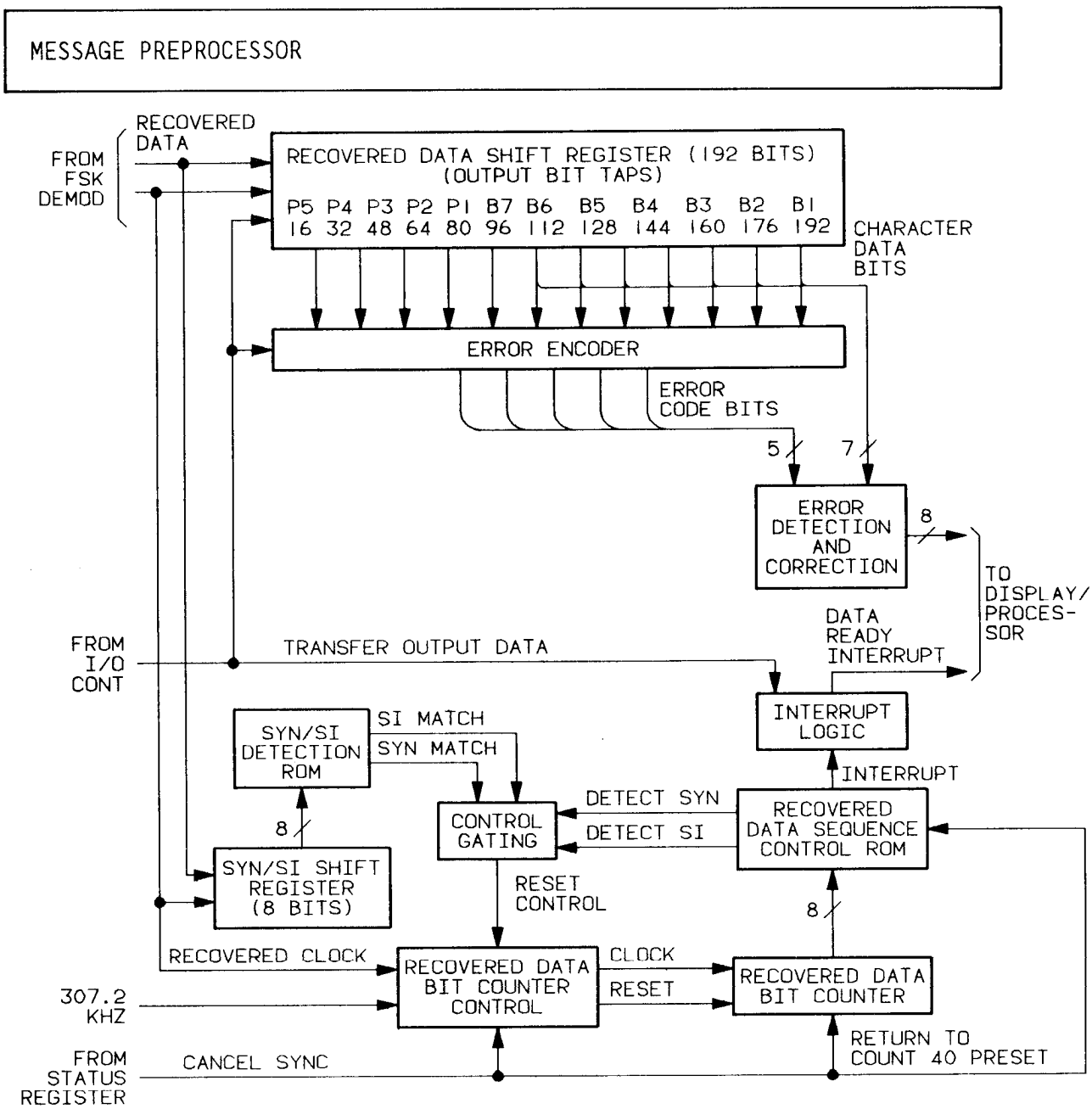
The clipped FSK signal applied to the FSK demodulator input is sampled and quantized by the sample quantizing circuit at a rate of 16 times the 1200 Hz logic one signal frequency.

The I and Q sample exclusive OR gates receive the sampled inputs along with a 1200 Hz signal and 1200 Hz, 90 degree-phase-shifted signal. The resultant output is loaded into the I and Q sample shift registers. Each shift register contains the sample multiplication results of the last 16 sample periods. The contents of the I sample register is selected by the multiplexer and routed in two 8-bit groups to the identical count ones ROM'S. The ROM outputs the absolute value of the total number of logic ones in the 16-bit sample minus 8. The output is stored in the I register.

Next, the 16 bits of sampled data in the Q sample shift register are selected by the multiplexer and processed in the same way as the I sample. .

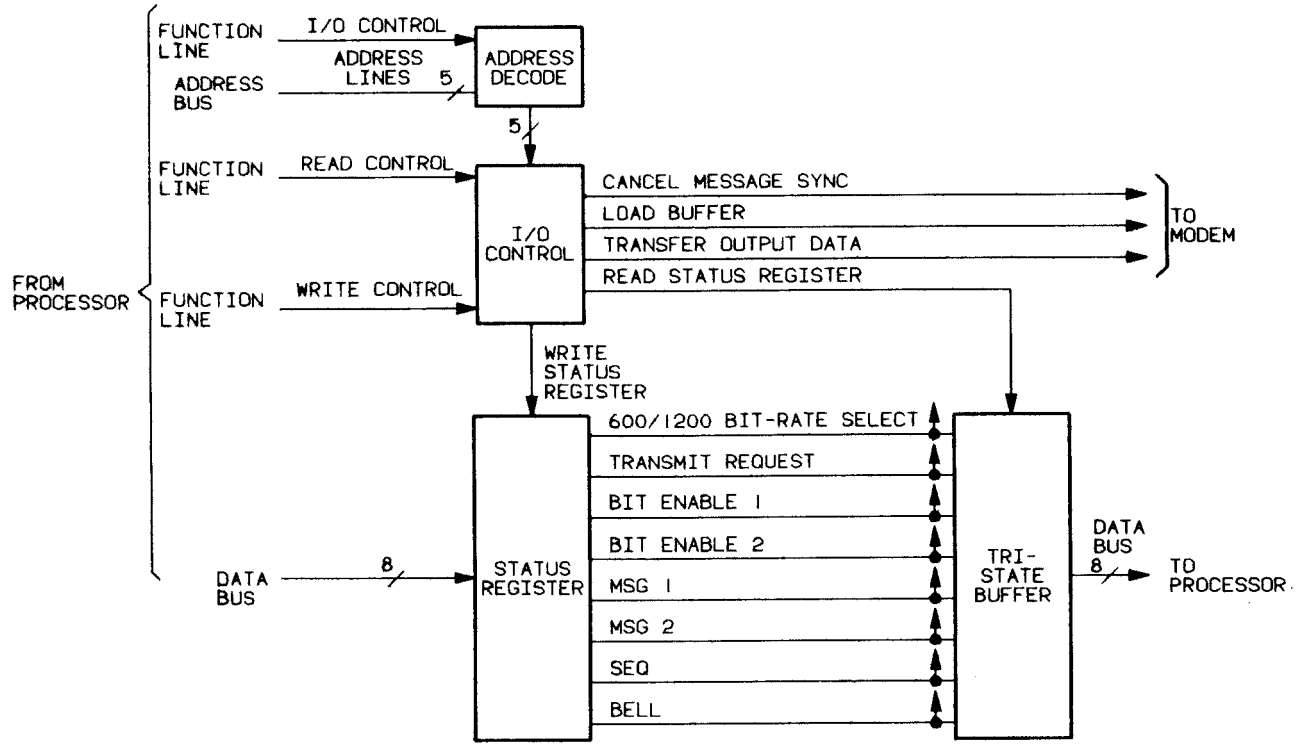
When the Q register has received the output of the ones total-8 ROM, the contents of both the I and Q register are summed together and applied to the threshold circuit which decides whether the recovered data is a logic zero (2400 Hz FSK) or a logic one (1200 Hz). This threshold output is applied to a digital hysteresis circuit which requires that two sequential similar data decisions be made before the recovered data output is changed.

Synchronization of the recovered clock and recovered data is controlled by the negative edge detector which provides a sync output pulse each time a data bit goes negative. During each sync output pulse, the relationship between the negative edge of the recovered data and the negative edge of the counter-generated recovered clock is checked. If the edge of the recovered clock occurs before that of the recovered data, a clock pulse is deleted from the counter; if the edge of the recovered clock occurs after that of the recovered data, a clock pulse is added to the counter. These additions and deletions of clock pulses occur during the sync output pulse period, and continue to occur until the recovered clock and recovered data are in sync.



The message preprocessor receives RECOVERED DATA from the FSK demodulator and determines message synchronization. After synchronization is obtained via the sync shift register, sync detection and control circuitry, the preprocessor recovers complete blocks of message data, interrupts the microprocessor, and sends the words to the microprocessor. This process continues until the microprocessor detects an end of transmission (EOT) character or until the microprocessor determines that the message is not to be accepted. A CANCEL SYNC signal from the microprocessor resets the message preprocessor which will again search for message synchronization.

I/O CONTROL AND STATUS REGISTER



Both the 1/O control and status register are controlled by the processor. The processor can transfer data to the modem and read or write the status register by issuing 1/O commands on the processor address bus along with a strobe signal. After the address is decoded and recognized by the address decode circuitry, it enables the 1/O control circuitry. Depending on the control signal from the processor the 1/O control circuitry will generate one of five control signals.

a. TRANSFER OUTPUT DATA and LOAD BUFFER - causes data to be transferred to or from the processor CCA.

b. READ STATUS REGISTER - enables the tri-state buffer which will output the status register contents onto the processor data bus.

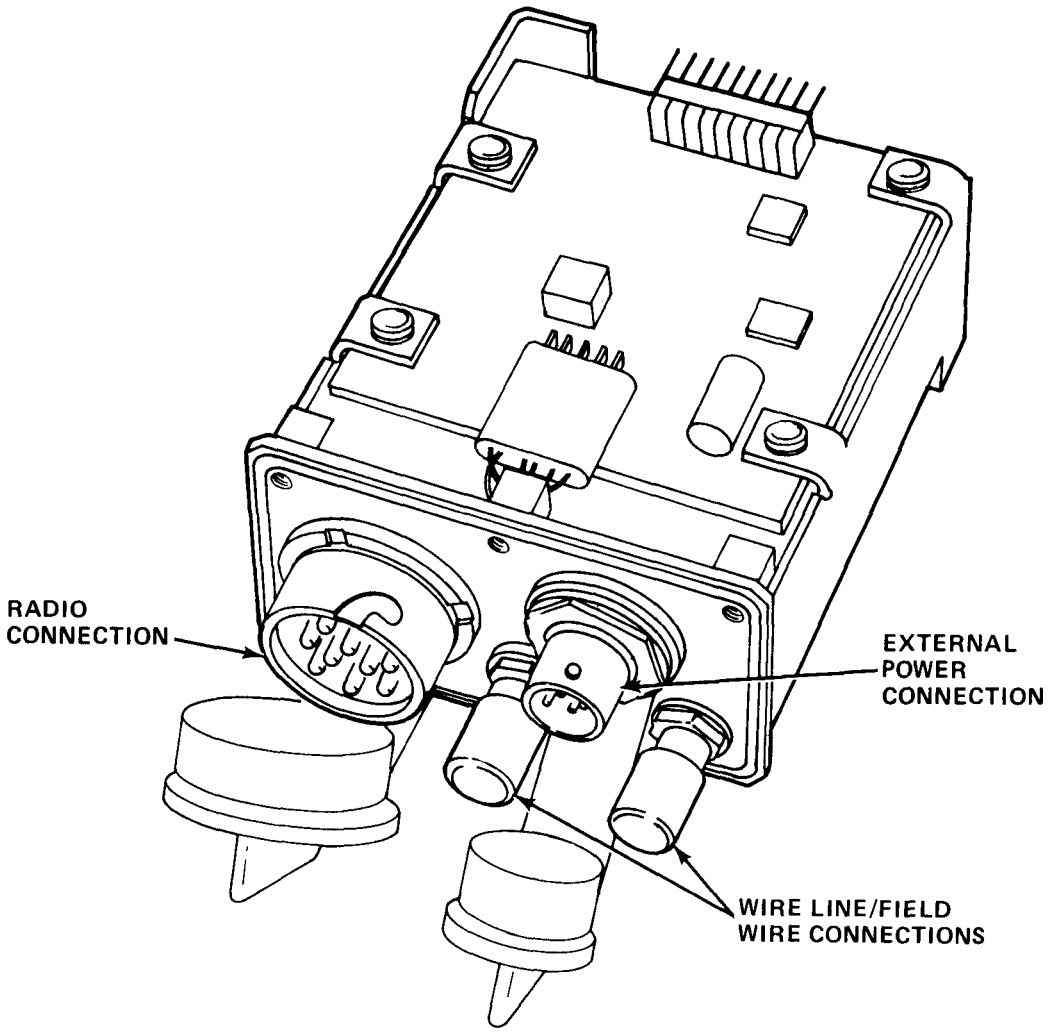
c. WRITE STATUS REGISTER - causes the 8-bit word on the processor data bus to be written into the status register.

d. CANCEL MESSAGE SYNC - cancels message synchronization to allow the demodulator to start looking for the next SYN SYN SYN SI in a message.

INTERCONNECT CCA

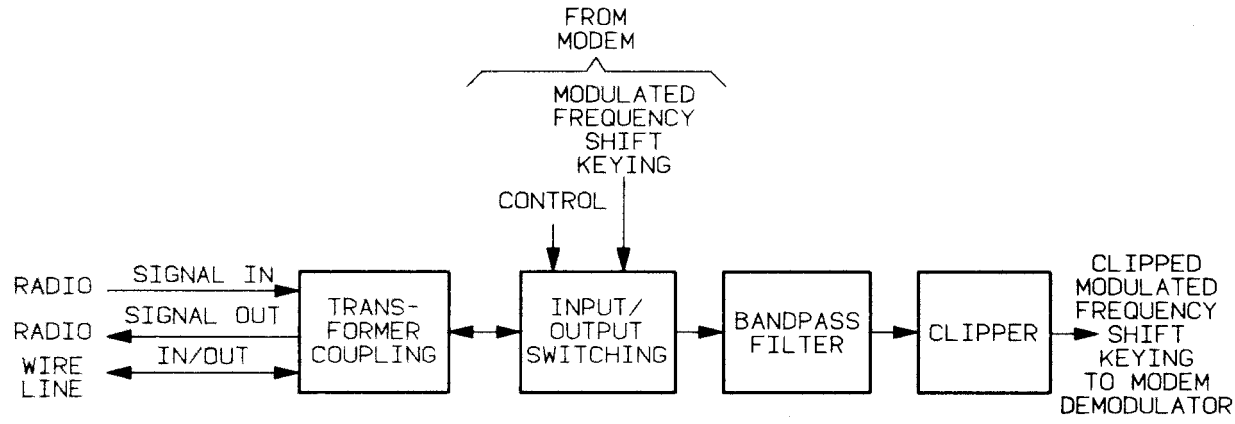
The interconnect CCA is a collection of pins and sockets mounted on a printed wiring board. It distributes signals and power throughout the MBC.

INTERFACE ASSEMBLY



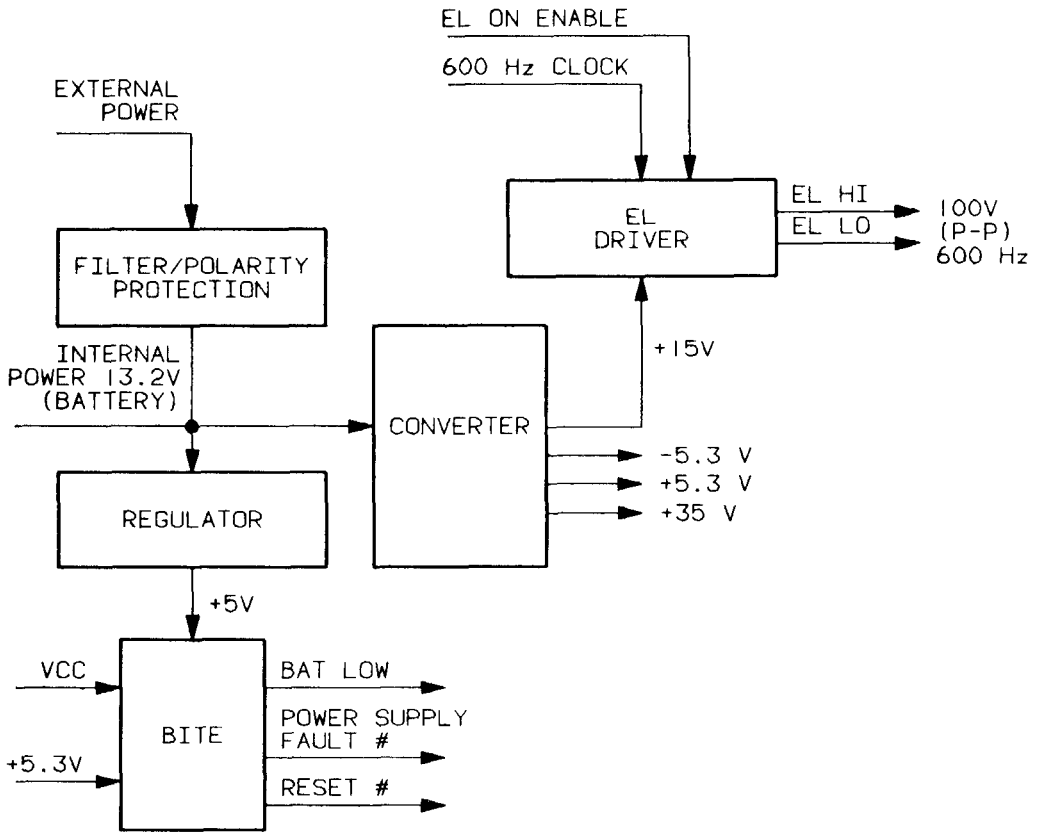
The interface assembly contains the audio interface CCA, power supply, and connector assembly. It provides external cable connectors for connecting external power sources and communication equipment.

AUDIO INTERFACE CCA



The audio interface CCA takes FSK data from the FSK modulator in the modem and provides the voltage levels and impedance necessary to drive and control radio or wire equipment. It also accepts FSK data from wire or radio equipment, filters unwanted frequencies, clips and level-shifts the FSK signal, and passes the digitized data to the FSK demodulator.

POWER SUPPLY



The power supply receives power from either an internal battery or an external 20 to 32 V dc source. External power is applied to a protection circuit which provides filtering and also ensures proper polarity of voltage applied to other MBC circuitry. In addition to providing various DC voltages for use throughout the MBC, the power supply CCA contains BITE circuitry for monitoring battery status, and provides a 100V P-P 600Hz signal for keyboard lighting.

CHAPTER 2

MBC MAINTENANCE INSTRUCTIONS

	Page
Repair Parts, Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment	2-1
Troubleshooting	2-2
Symptom Index	2-3
Self-Test	2-4
Powerup Test	2-5
Transmission Test	2-27
Maintenance Procedures	2-29
Maintenance Tasks	2-31
Primary Disassembly/Reassembly	2-36

Section I. REPAIR PARTS, SPECIAL TOOLS; TEST, MEASUREMENT, ANO DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

All maintenance instructions found within this manual are supported by repair parts, special tools, test, measurement, and diagnostic equipment as listed in Appendix B.

COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Refer to Appendix B, Section III.

REPAIR PARTS

Appendix B, Direct Support and General Support Maintenance Repair Parts, Special Tools, and Depot Maintenance Repair Parts Lists (RPSTL), contains an illustrated parts breakdown and repair parts listing.

Section II. TROUBLESHOOTING

GENERAL

Direct support level mantenance consists of:

First - Performing a physical inspection of the MBC as described in TM 9-1220-246-12&P and correcting those faults which are correctable at the direct support level.

Second - Performing the Self-Test as outlined in this section and, if a fault is indicated, using the logic tree and Symptorn Index to determine the required maintenance task to correct the deficiency.

Third - Performing the Self-Test after repairs to verify effectiveness of repairs.

NOTE

When a malfunction of the MBC is suspected, a new battery should be installed prior to beginning the Self-Test.

NOTE

The +4.8 Vdc "Keep Alive" battery must be charged with the MBC connected to a power source in order to provide memory retention. Leaving the MBC on for 14 hours willfully charge the "Keep Alive" battery for memory retention of 5-10 hours.

WARNING

An explosion or venting of toxic fumes may result if batteries are burned or damaged during disposal. Dispose of used batteries in accordance with local Standard Operating Procedures (SOP).

FAILURE TO OBSERVE THIS WARNING COULD RESULT IN PERSONAL INJURY.

SYMPTOM INDEX

When a malfunction of the MBC is discovered. its cause can be determined by first identifying the symptom and locating that symptom in column 2 of the symptom index. Column 3 provides a listing of the most probable cause of the malfunction. The first item listed is the most probable cause. Column 4 is the maintenance task number for the probable fault listed in column 3.

ITEM	SYMPTOM	PROBABLE FAULT	TASK NO.
1	False display	Display/processor failure (A1)	002
		Keyboard failure (A5)	008
		Memory failure (A2)	003
2	Data lost	Memory failure (A2)	003
		Keep alive battery (A6A1PS1A2B1)	012
3	Low power	Power supply failure (A6A1PS1A1)	011
4	No alarm/continuous alarm	Display/processor failure (A1)	002
		Modem failure (A3)	004
5	No BIT	Display/processor failure (A1)	002
		Power supply failure (A6A1PS1)	011
6	No display	Display/processor failure (A1)	002
		Power supply failure (A6A1PS1A1)	011
		Power supply failure (A6A1PS1A2)	011
7	No external power	Power supply failure (A6A1PS1A1)	011
8	No internal power	Case interconnect fuse (A4A1)	018
		Power supply failure (A6A1PS1A1)	011
9	No keyboard lighting	Power supply failure (A6A1PS1A2)	011
10	No response to keypress	Keyboard failure (A5)	008
		Display/processor failure (A1)	002
11	Will not receive	Audio interface failure	014
		Keyboard failure (A5)	008
		Display/processor failure (A1)	002
		Modem failure (A3)	004
12	Will not transmit	Audio interface failure	014
		Keyboard failure (A5)	008
		Display/processor failure (A1)	002
		Modem failure (A3)	004
13	Wrong computations	Memory failure (A2)	003
		Display/processor failure (A1)	002

SYMPTOM INDEX (CONT)

ITEM	SYMPTOM	PROBABLE FAULT	TASK NO.
14	ON/OFF lamp OFF continuously after display timeout	Modem failure (A3) Display/processor failure (A1) Keyboard failure (A5)	004 002 008
15	ON/OFF lamp flashes:		
	Once every 6 seconds	Normal indication when display has timed out.	---
	Wrong rate	Modem failure (A3)	004
16	ON/OFF lamp on continuously	Modem failure (A3)	004

SELF-TEST

The Self-Test is a step by step instruction designed to lead the operator and technician through a logical systematic checkout of the MBC. It tests the microprocessor (MICR), all switches (SW), display and indicators (DSP), modem (MOD), and directs the technician to the most probable fault. These four tests may be performed in any sequence, but are presented here in the following order - MICR, SW, DSP and MOD.

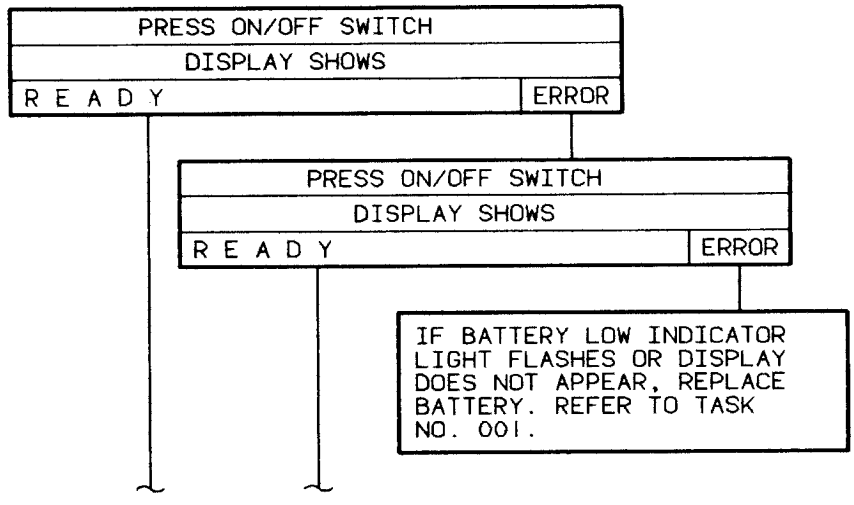
NOTE

While in the Self-Test mode of operation, pressing of any switch other than the one called for on the display will cause an error indication to momentarily appear on the display and then return to the previous indication. Failure of the MBC to respond to a keypress normally indicates a malfunctioning keyboard. To verify operation of keyboard, substitute with a known good assembly.

SELF-TEST (CONT)

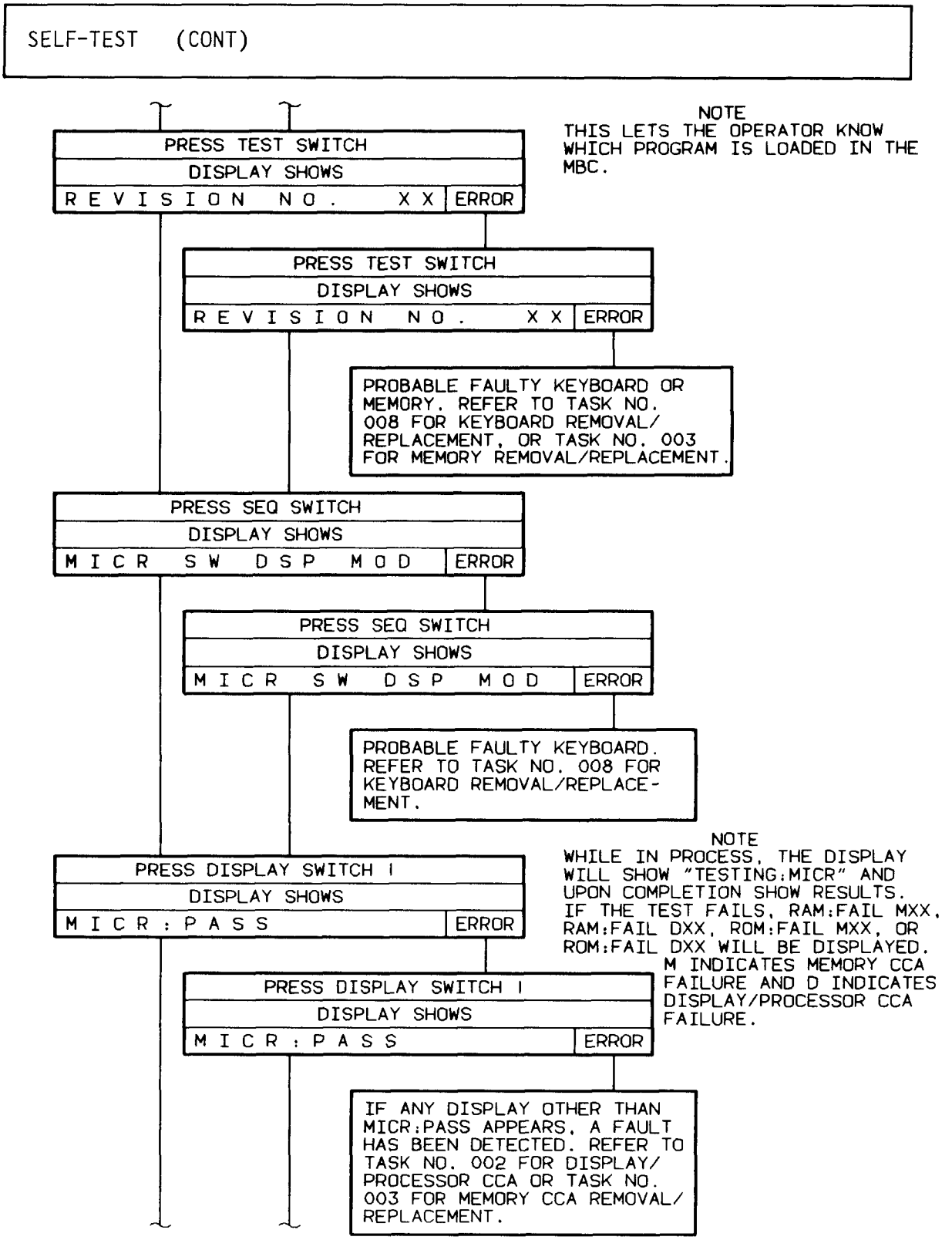
POWERUP TEST

The power-up test is automatically initiated when the ON-OFF switch is depressed to energize the MBC. POWERUP TEST will be displayed for approximately ten seconds while the the MBC automatically performs the system test. Upon completion of the test, READY will be displayed. If a malfunction is detected, one of the following displays will be presented; RAM:FAIL DXX, RAM:FAIL MXX, ROM:FAIL DXX, ROM:FAIL MXX, INST:FAIL, or BANK:FAIL. D indicates a failure of the display/processor CCA while M indicates a failure of the memory CCA. The XX refers to the failed component. INST:FAIL will be displayed when a failure of the function code instructions (Display/processor CCA (A1) has been detected. BANK:FAIL indicates a failure of Mernory CCA (AZ) EPROM.

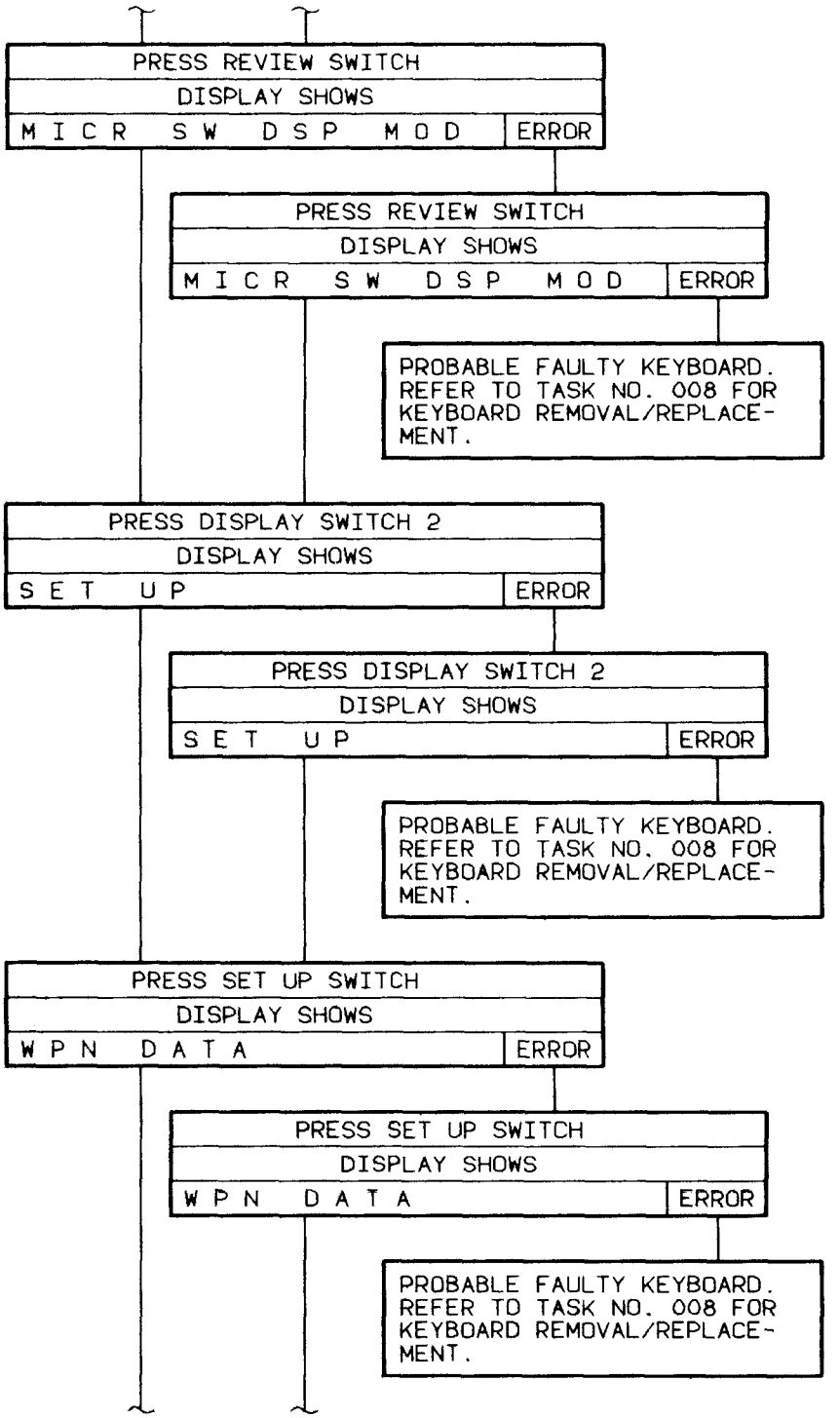


NOTE

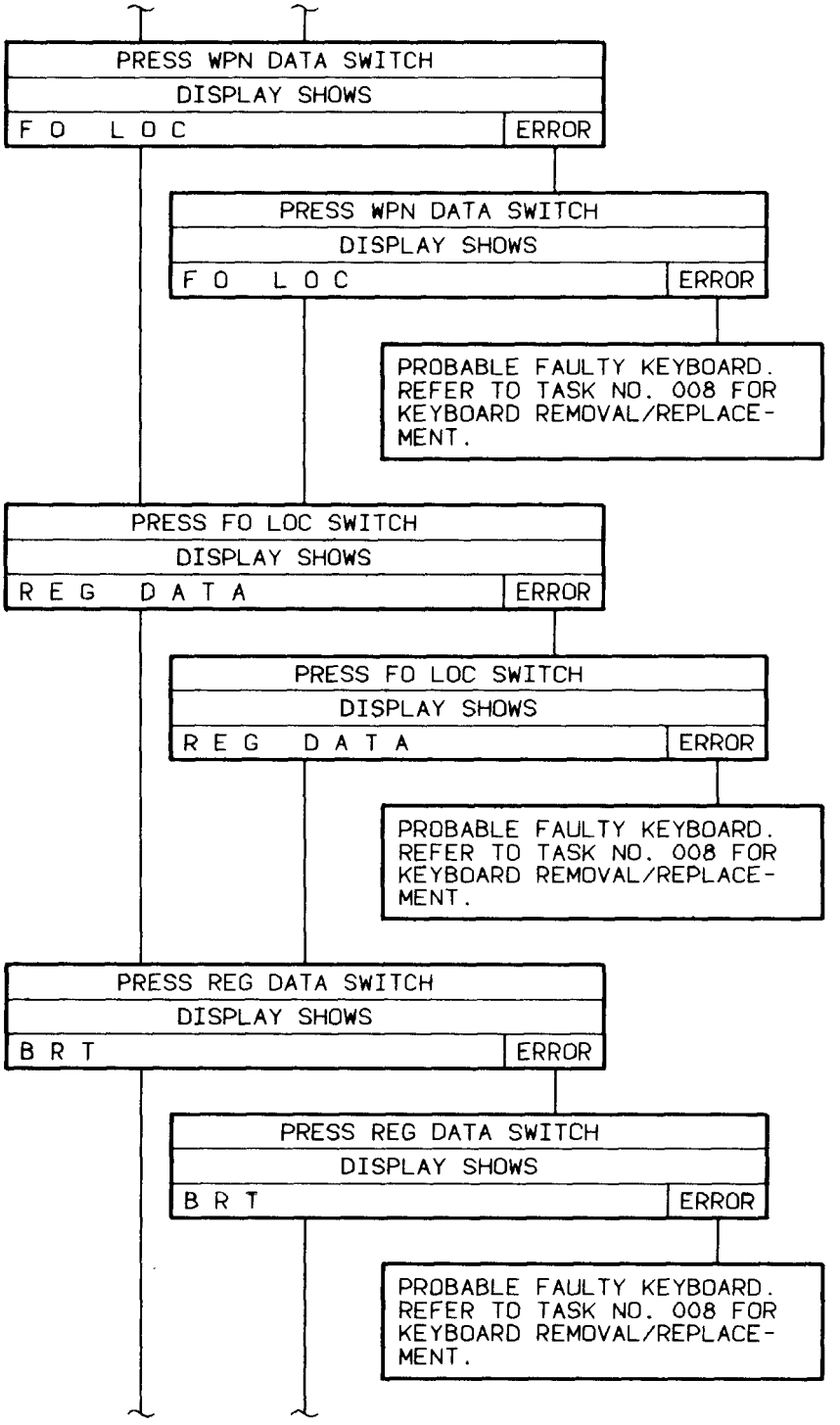
When replacing either the display/processor or memory CCA, the self-test must be performed to verify the compatibility of software revisions contained on both CCA'S. If the revisions are not compatible, pressing the TEST switch will generate a “REV NO. FAILURE” display. After observing this display, press the SEQ switch to display the revision contained on each CCA, (e. g., DISP 1B MEM 1A). Both revisions must be the same, preferably the most recent revision, for correct system operation.

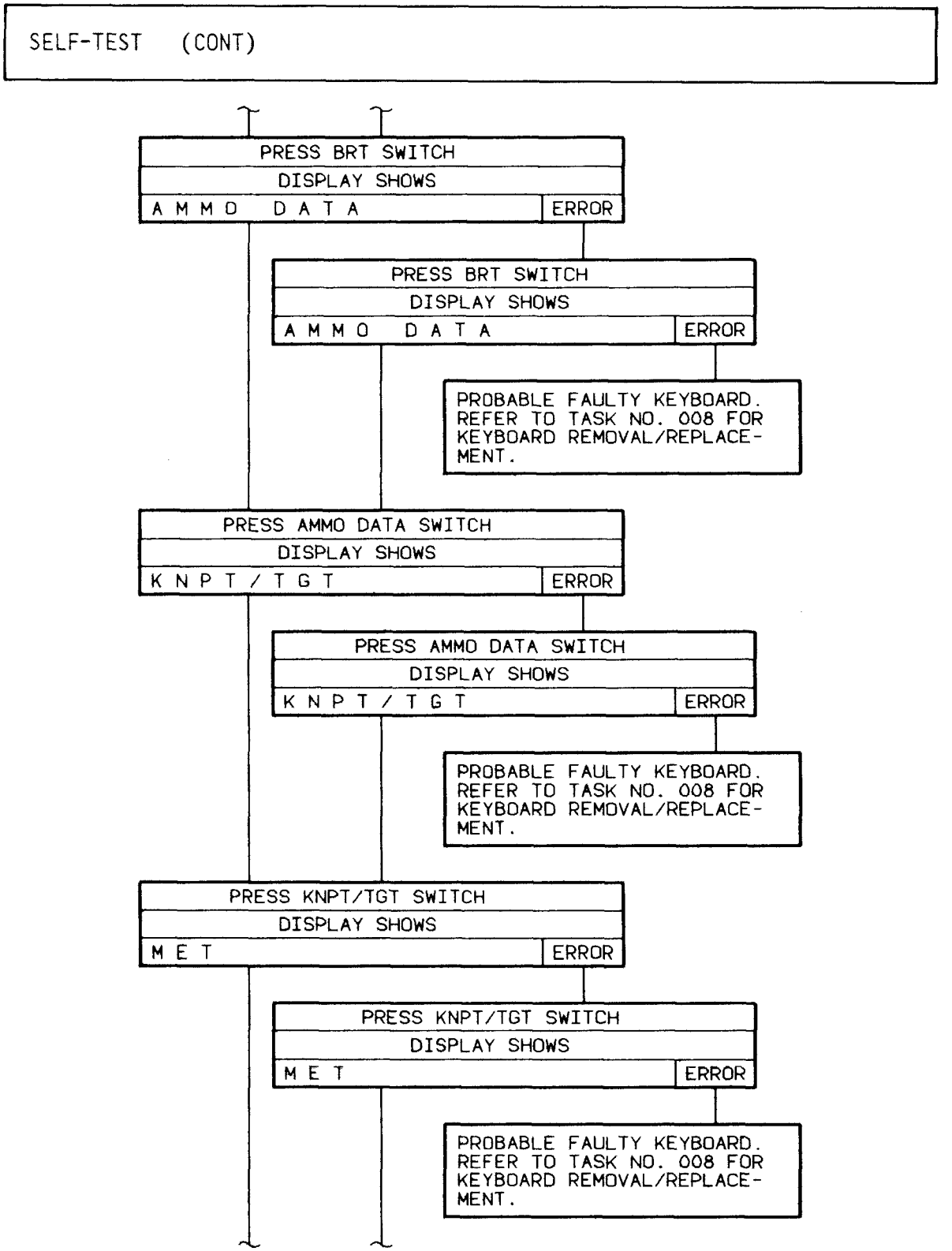

SELF-TEST (CONT)
PRESS TEST SWITCH
DISPLAY SHOWS
REVISION NO. XX
ERROR
NOTE
THIS LETS THE OPERATOR KNOW WHICH PROGRAM IS LOADED IN THE MBC.
PRESS TEST SWITCH
DISPLAY SHOWS
REVISION NO. XX
ERROR
PROBABLE FAULTY KEYBOARD OR MEMORY. REFER TO TASK NO. 008 FOR KEYBOARD REMOVAL/ REPLACEMENT, OR TASK NO. 003 FOR MEMORY REMOVAL/REPLACEMENT.
PRESS SEQ SWITCH
DISPLAY SHOWS
MICR SW DSP MOD
ERROR
PRESS SEQ SWITCH
DISPLAY SHOWS
MICR SW DSP MOD
ERROR
PROBABLE FAULTY KEYBOARD. REFER TO TASK NO. 008 FOR KEYBOARD REMOVAL/REPLACE- MENT.
PRESS DISPLAY SWITCH 1
DISPLAY SHOWS
MICR:PASS
ERROR
NOTE
WHILE IN PROCESS, THE DISPLAY WILL SHOW "TESTING:MICR" AND UPON COMPLETION SHOW RESULTS. IF THE TEST FAILS, RAM:FAIL MXX, RAM:FAIL DXX, ROM:FAIL MXX, OR ROM:FAIL DXX WILL BE DISPLAYED. M INDICATES MEMORY CCA FAILURE AND D INDICATES DISPLAY/PROCESSOR CCA FAILURE.
PRESS DISPLAY SWITCH 1
DISPLAY SHOWS
MICR:PASS
ERROR
IF ANY DISPLAY OTHER THAN MICR:PASS APPEARS, A FAULT HAS BEEN DETECTED. REFER TO TASK NO. 002 FOR DISPLAY/ PROCESSOR CCA OR TASK NO. 003 FOR MEMORY CCA REMOVAL/ REPLACEMENT.

SELF-TEST (CONT)

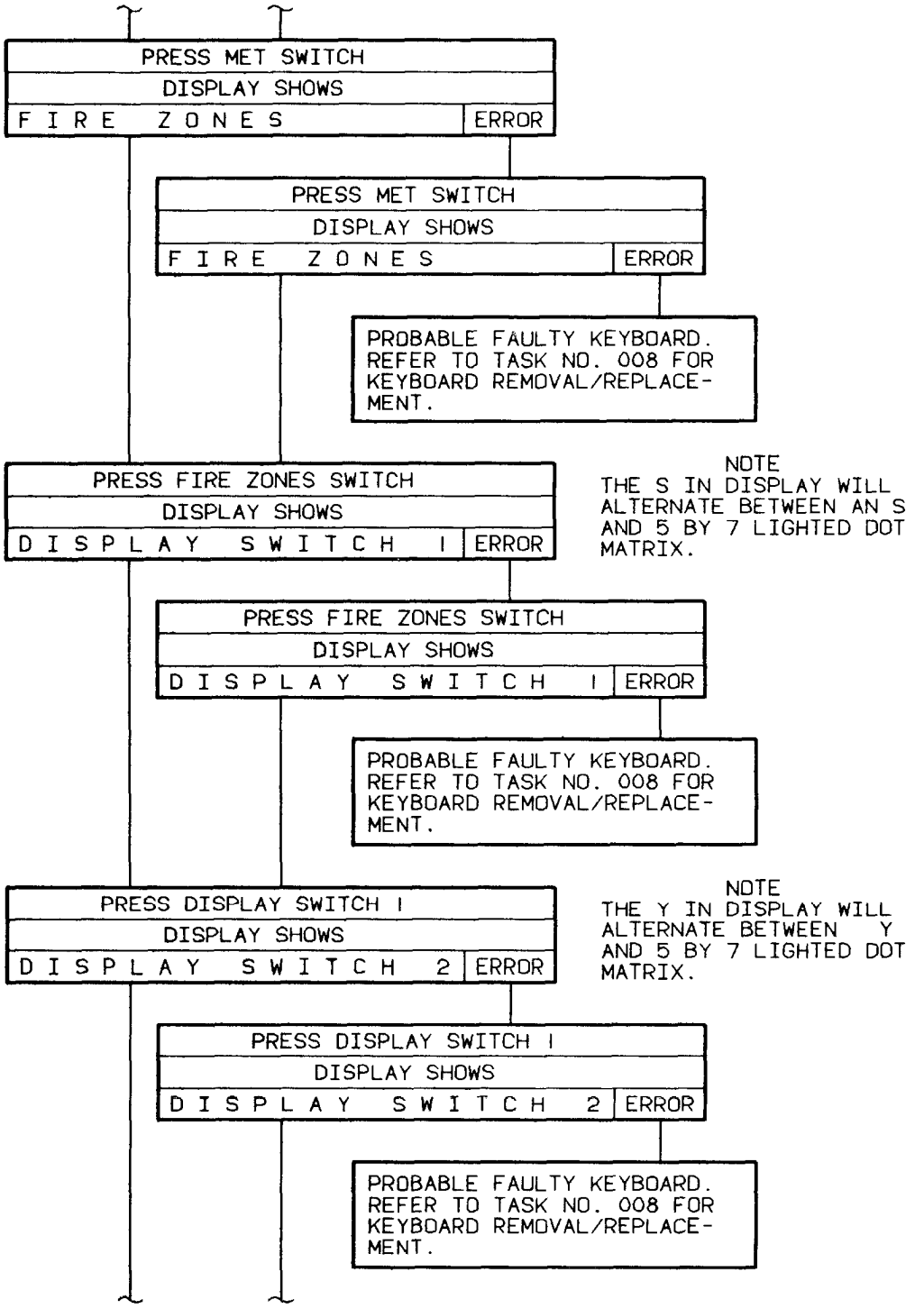


SELF-TEST (CONT)

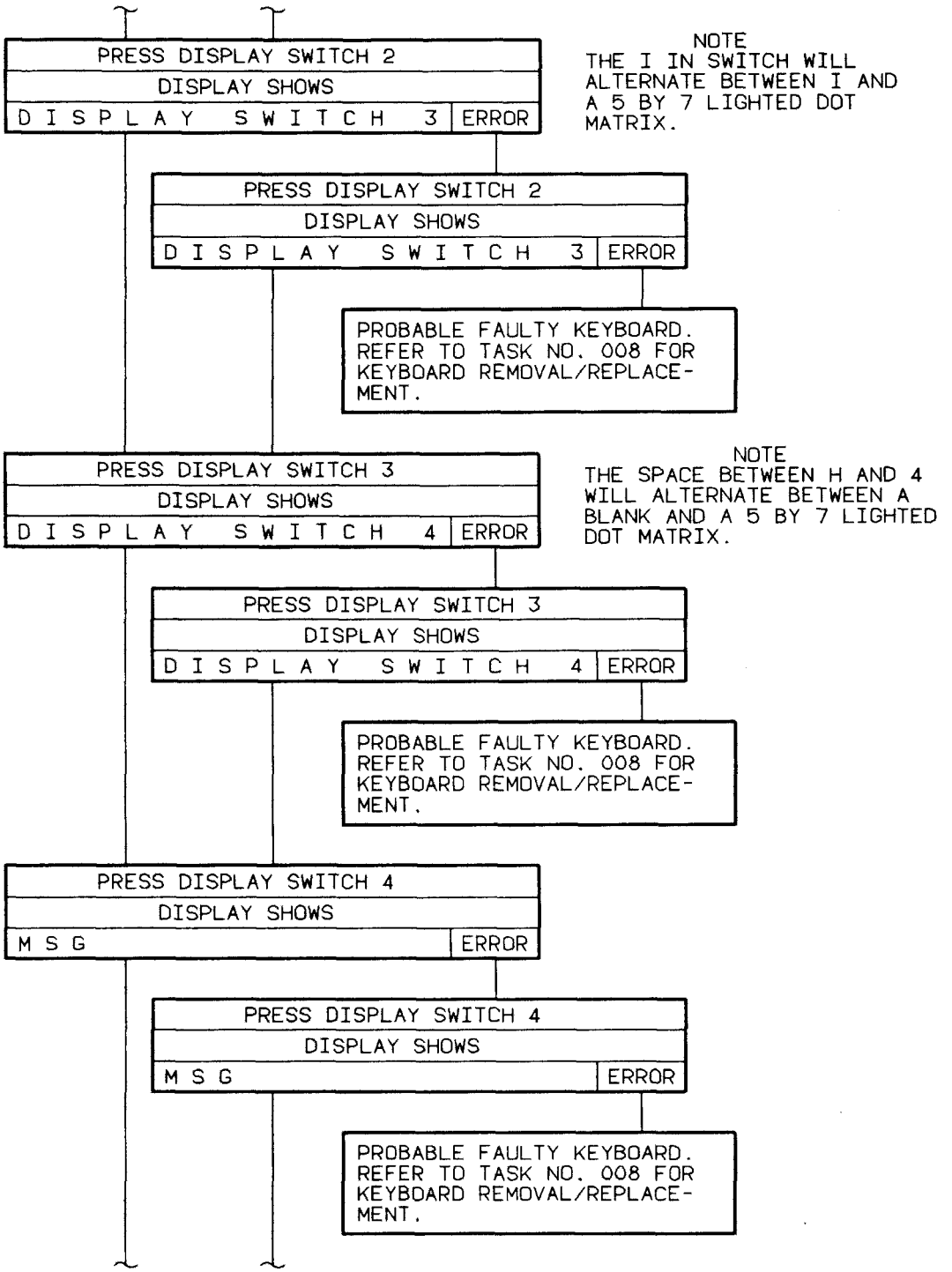



SELF-TEST (CONT)
PRESS BRT SWITCH
DISPLAY SHOWS
A M M O D A T A
ERROR
PRESS BRT SWITCH
DISPLAY SHOWS
A M M O D A T A
ERROR
PROBABLE FAULTY KEYBOARD. REFER TO TASK NO. 008 FOR KEYBOARD REMOVAL/REPLACEMENT.
PRESS AMMO DATA SWITCH
DISPLAY SHOWS
K N P T / T G T
ERROR
PRESS AMMO DATA SWITCH
DISPLAY SHOWS
K N P T / T G T
ERROR
PROBABLE FAULTY KEYBOARD. REFER TO TASK NO. 008 FOR KEYBOARD REMOVAL/REPLACEMENT.
PRESS KNPT/TGT SWITCH
DISPLAY SHOWS
M E T
ERROR
PRESS KNPT/TGT SWITCH
DISPLAY SHOWS
M E T
ERROR
PROBABLE FAULTY KEYBOARD. REFER TO TASK NO. 008 FOR KEYBOARD REMOVAL/REPLACEMENT.

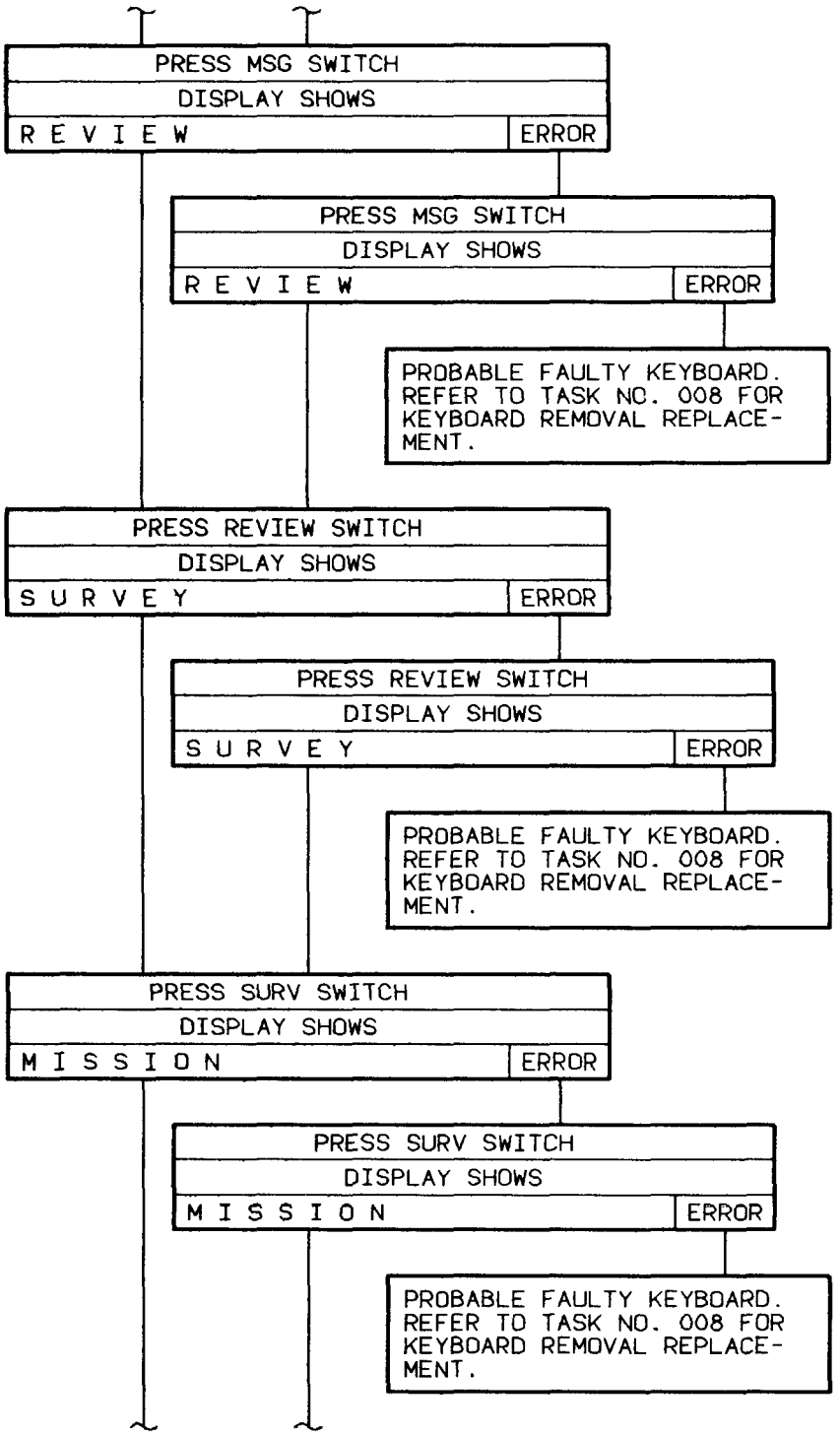
SELF-TEST (CONT)



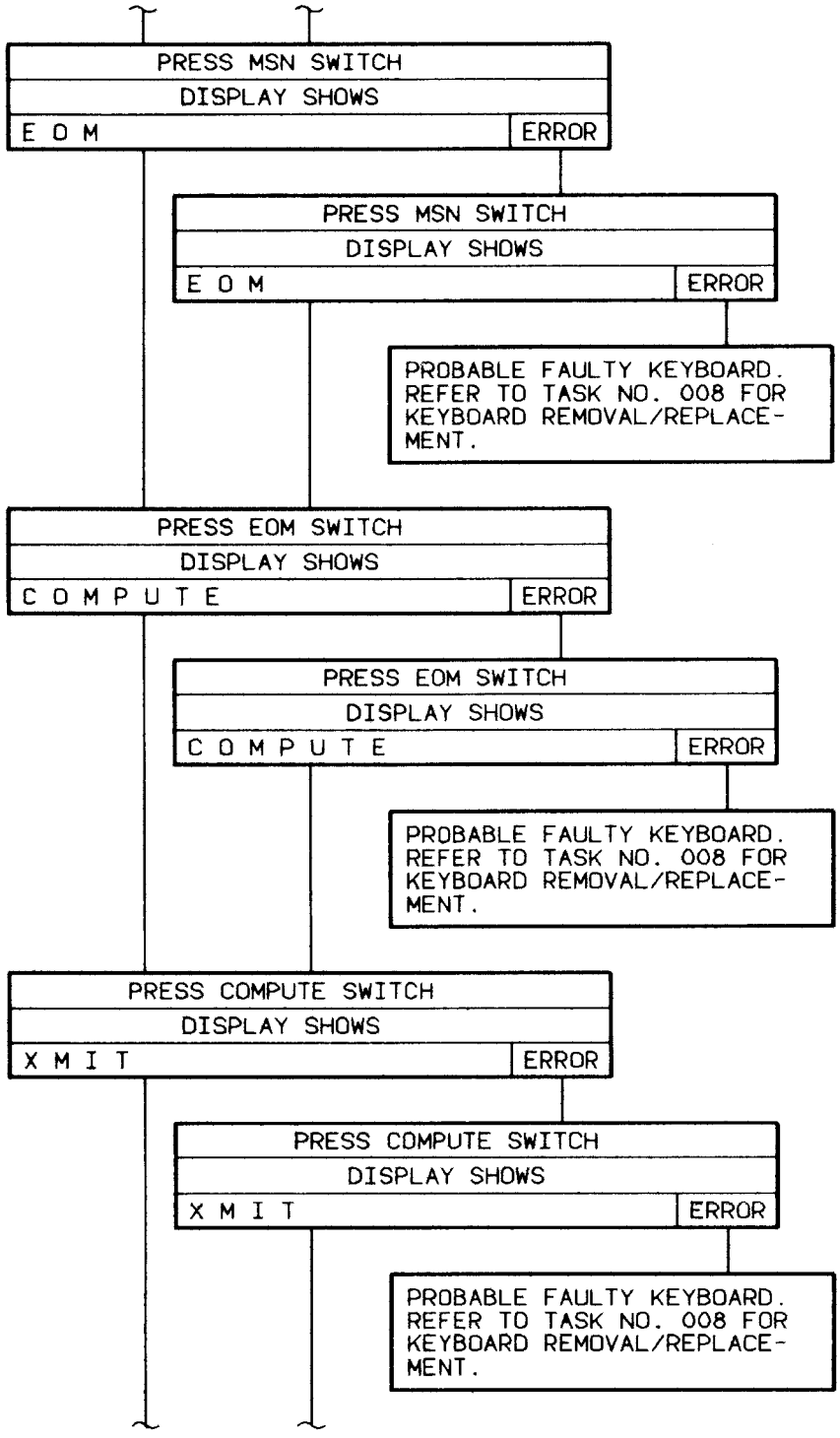
SELF-TEST (CONT)



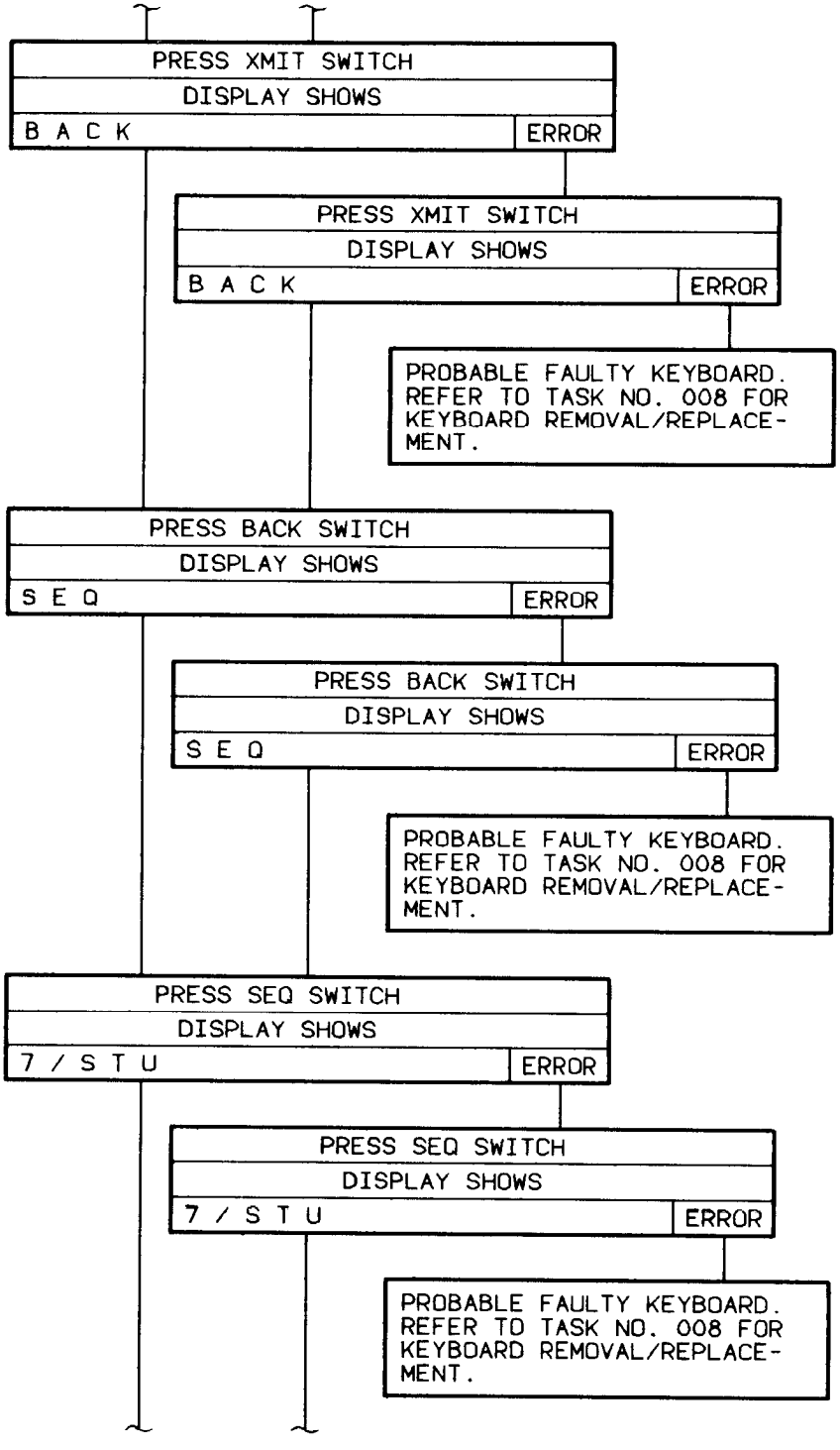
SELF-TEST (CONT)



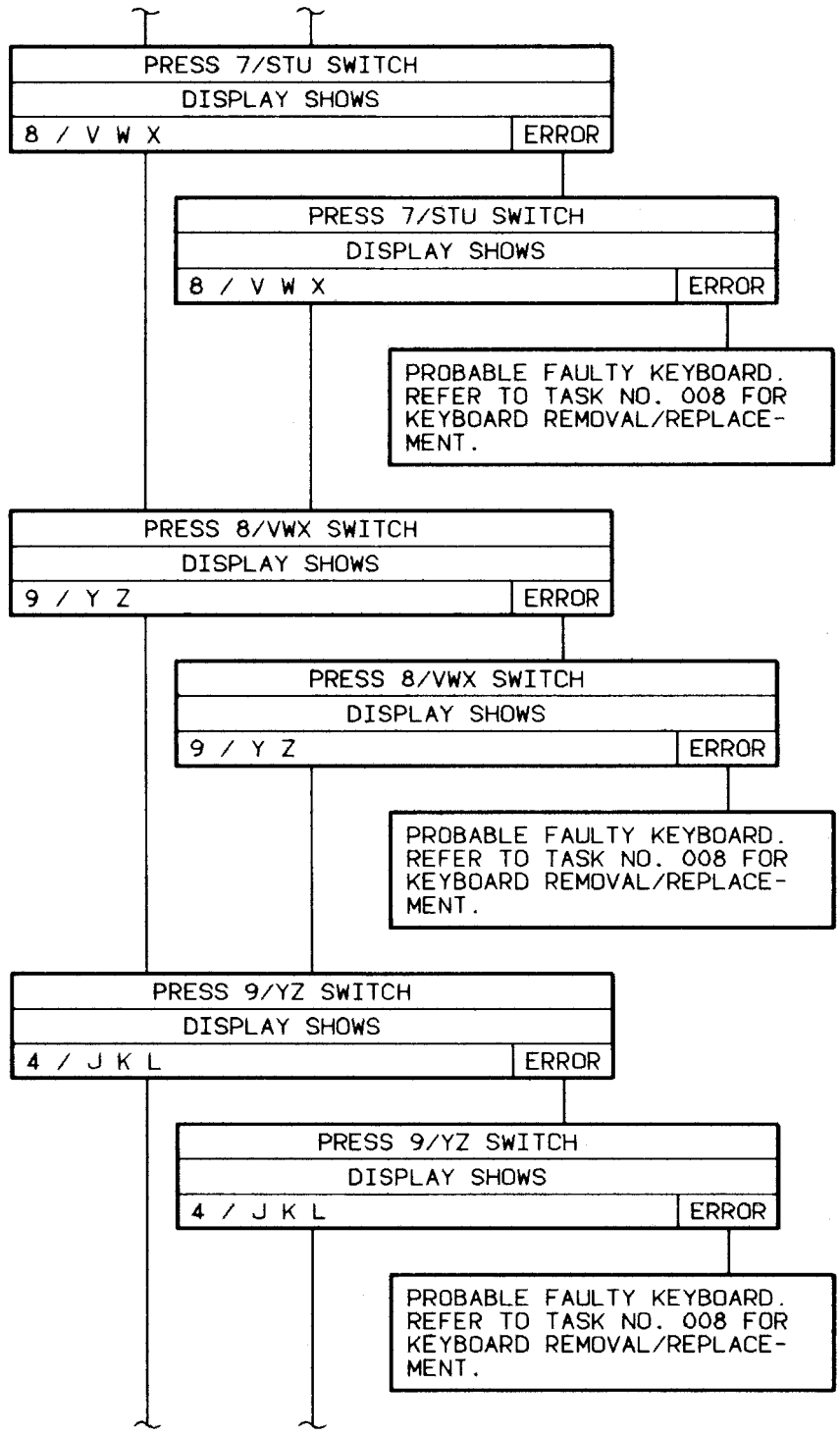
SELF-TEST (CONT)



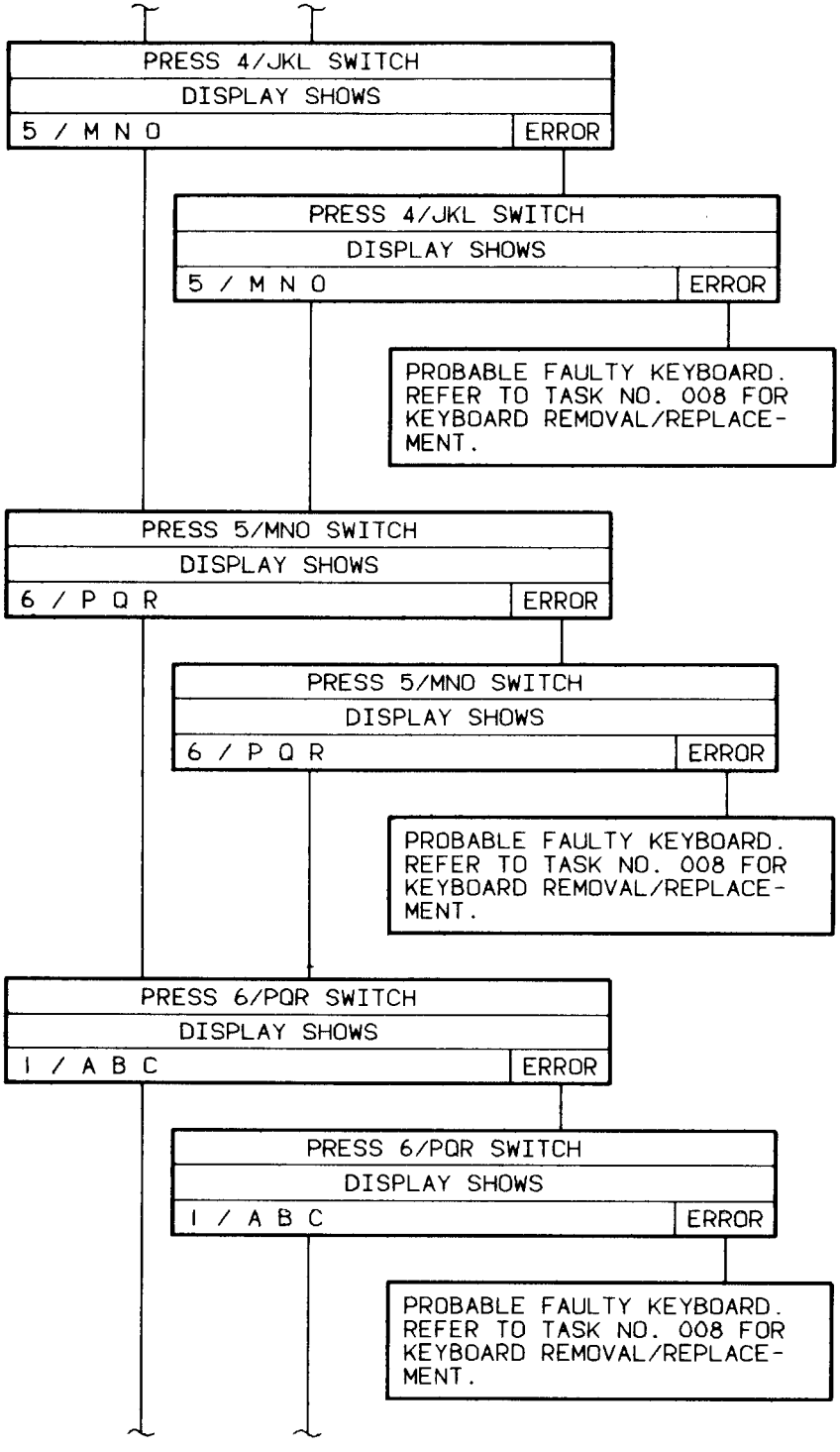
SELF-TEST (CONT)



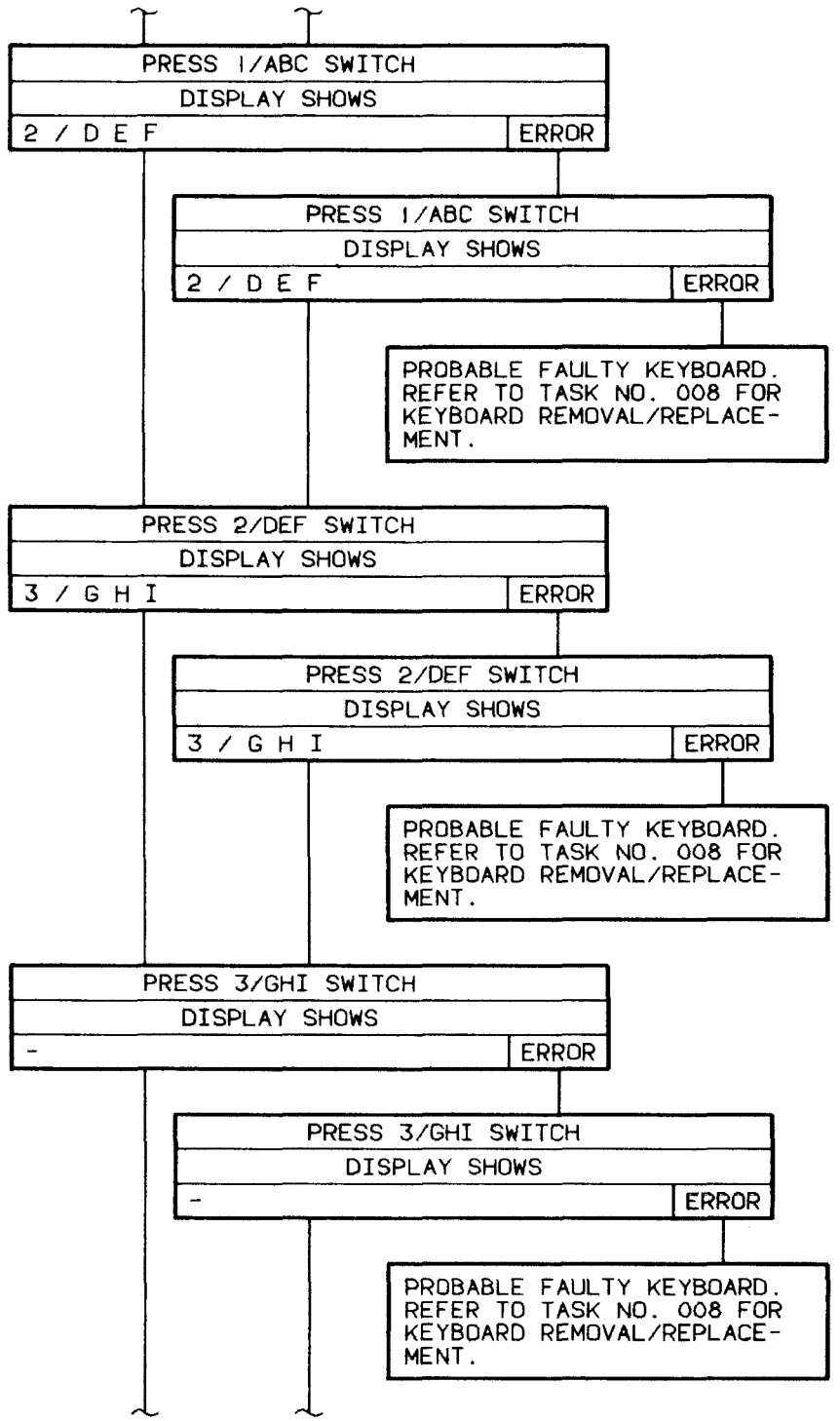
SELF-TEST (CONT)



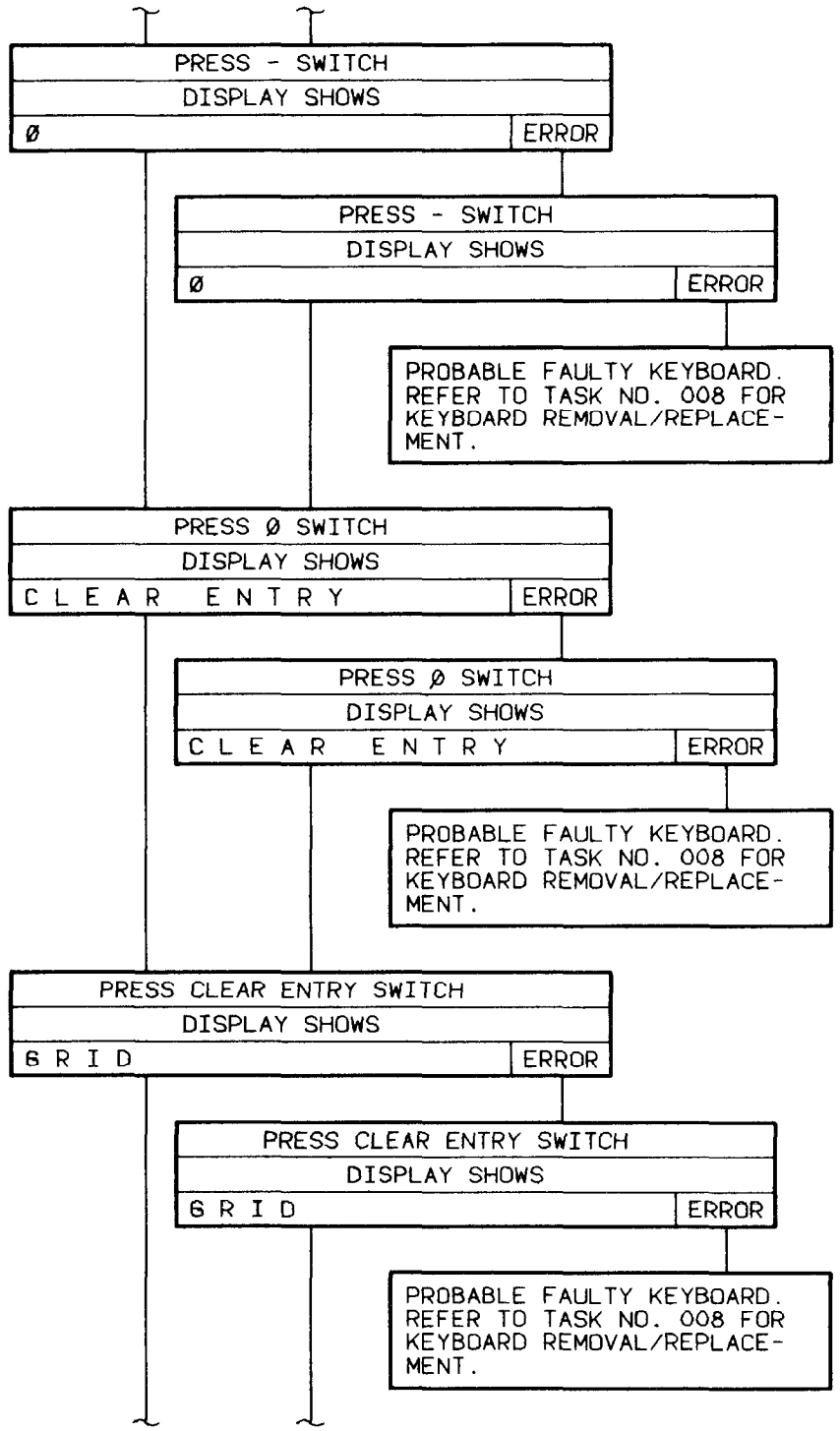
SELF-TEST (CONT)



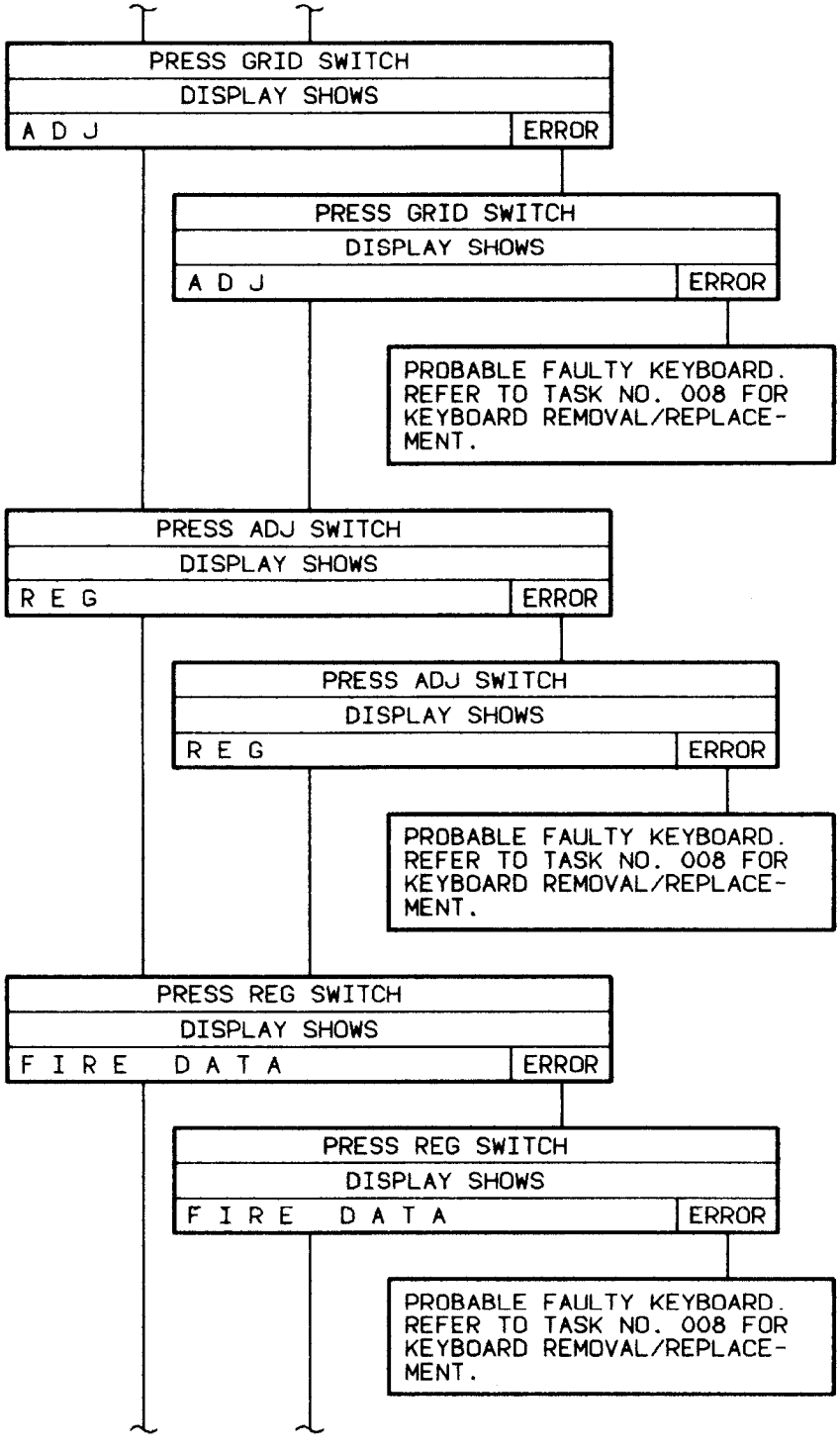
SELF-TEST (CONT)



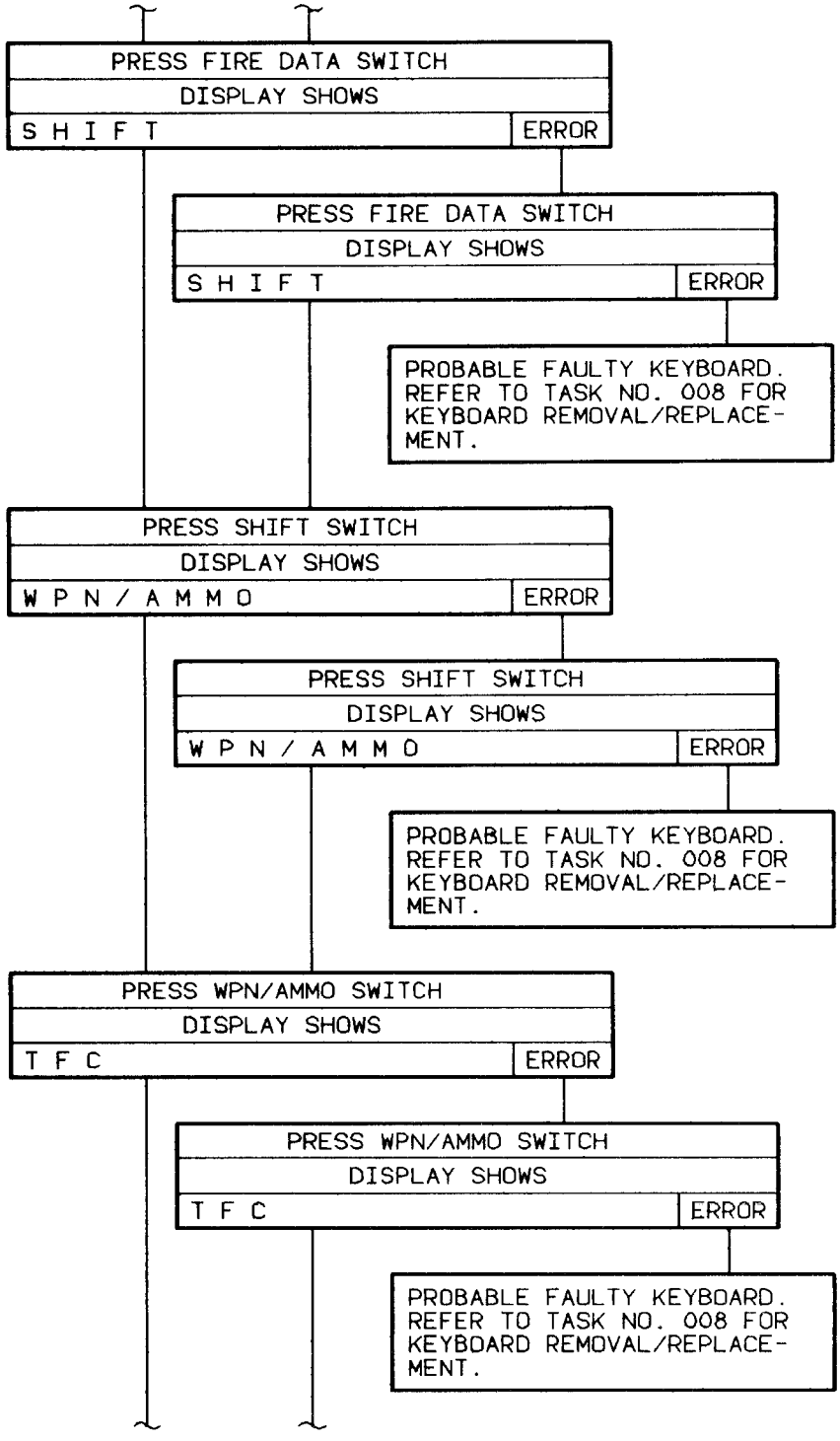
SELF-TEST (CONT)



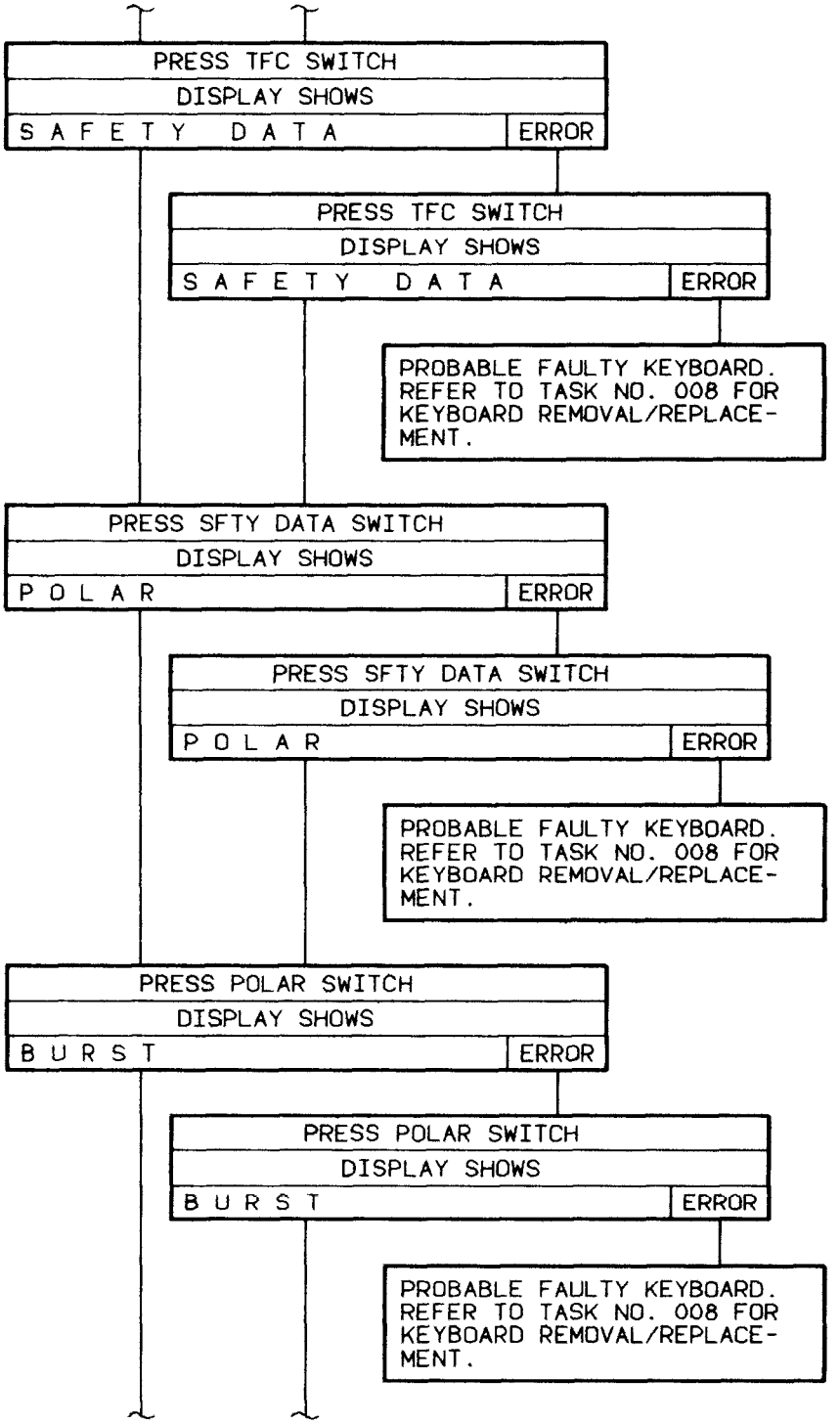
SELF-TEST (CONT)



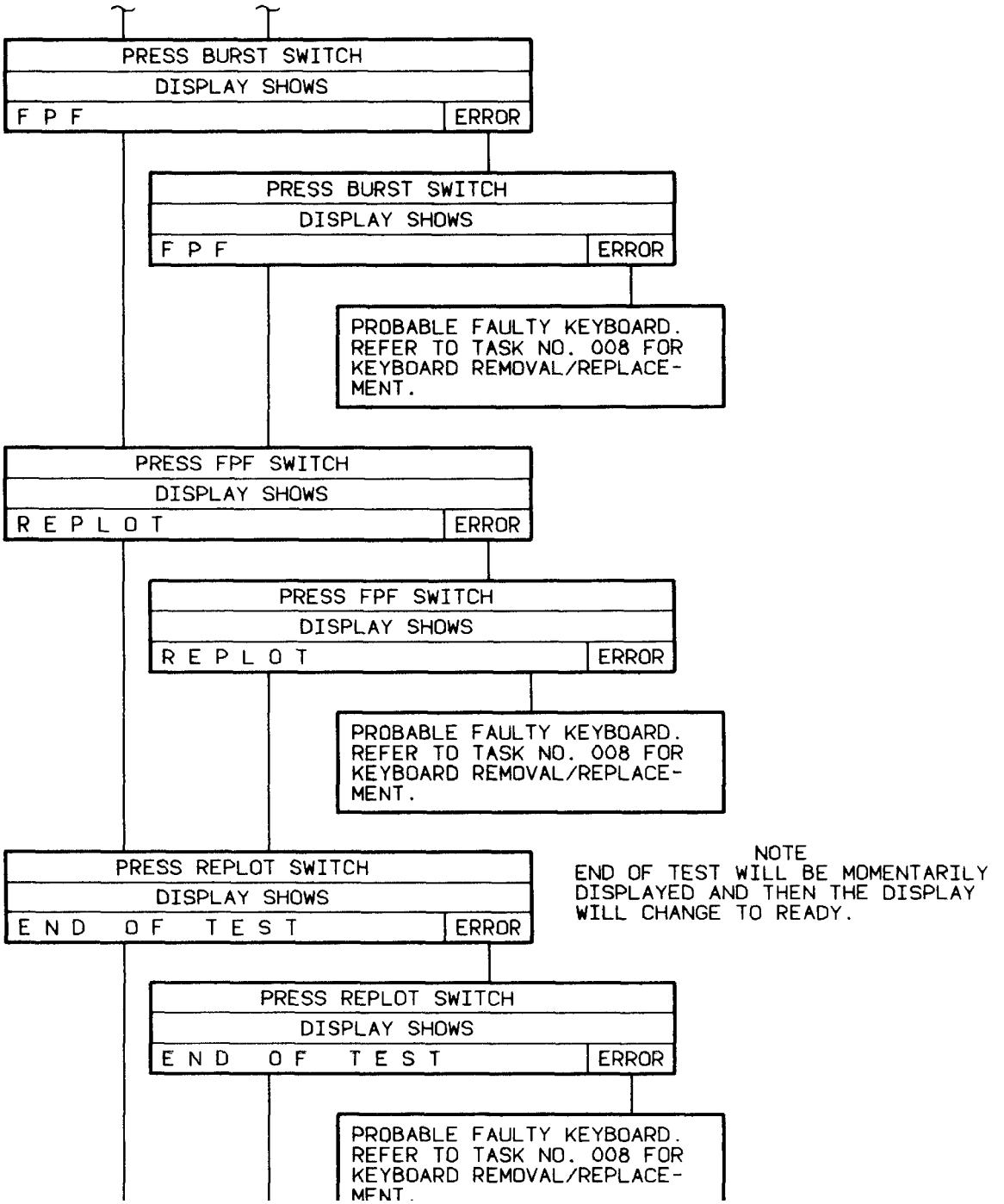
SELF-TEST (CONT)



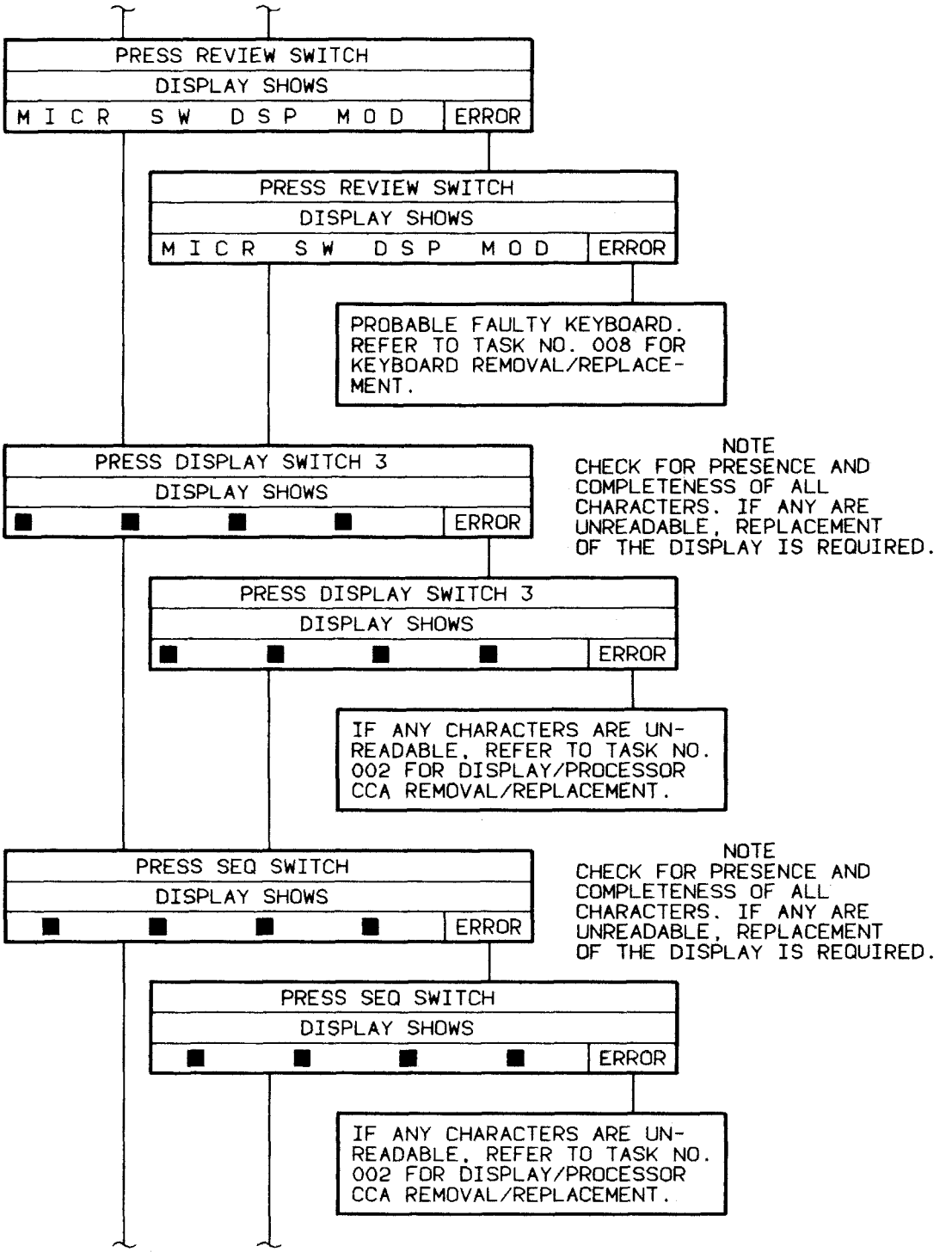
SELF-TEST (CONT)



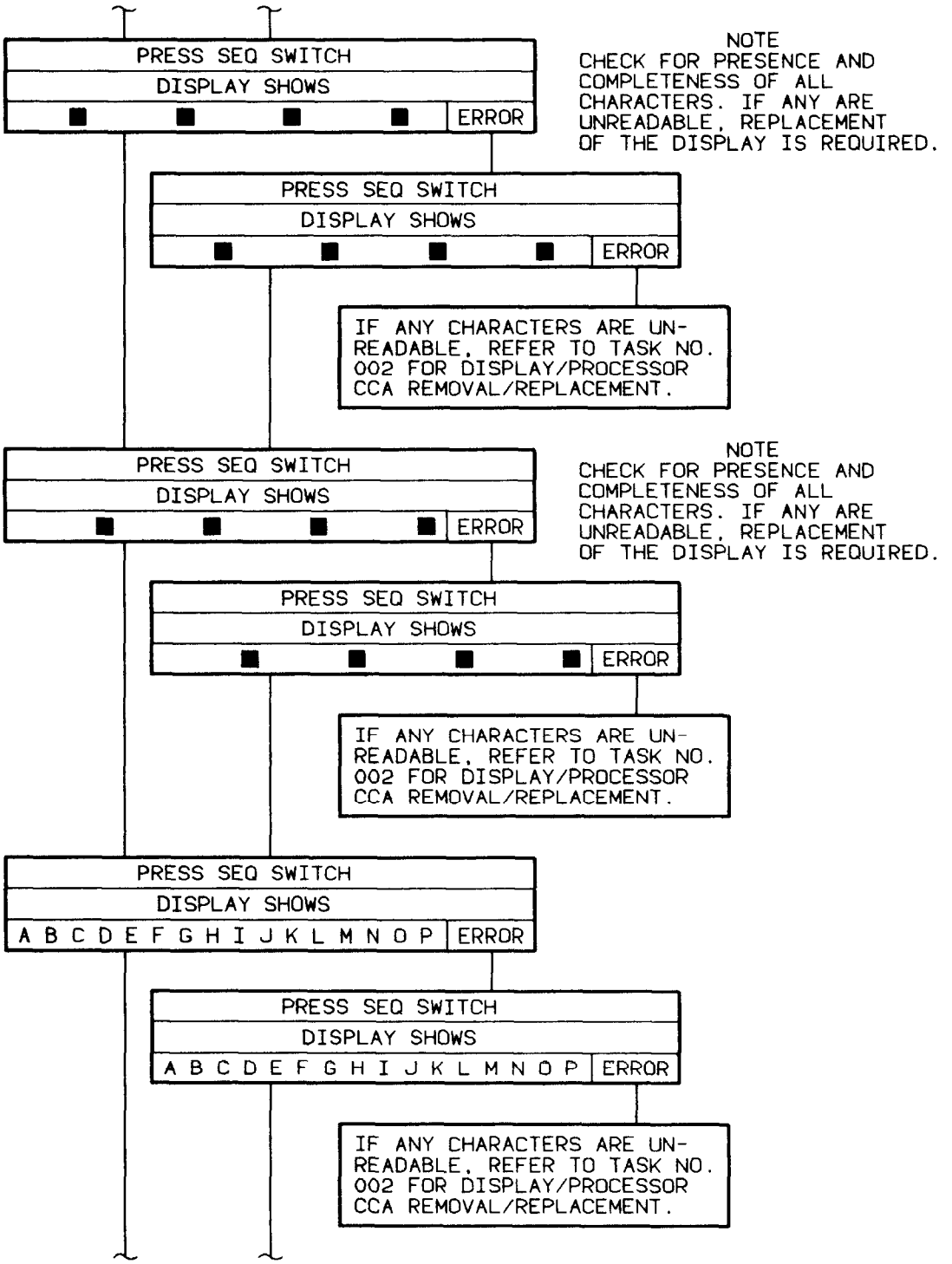
SELF-TEST (CONT)



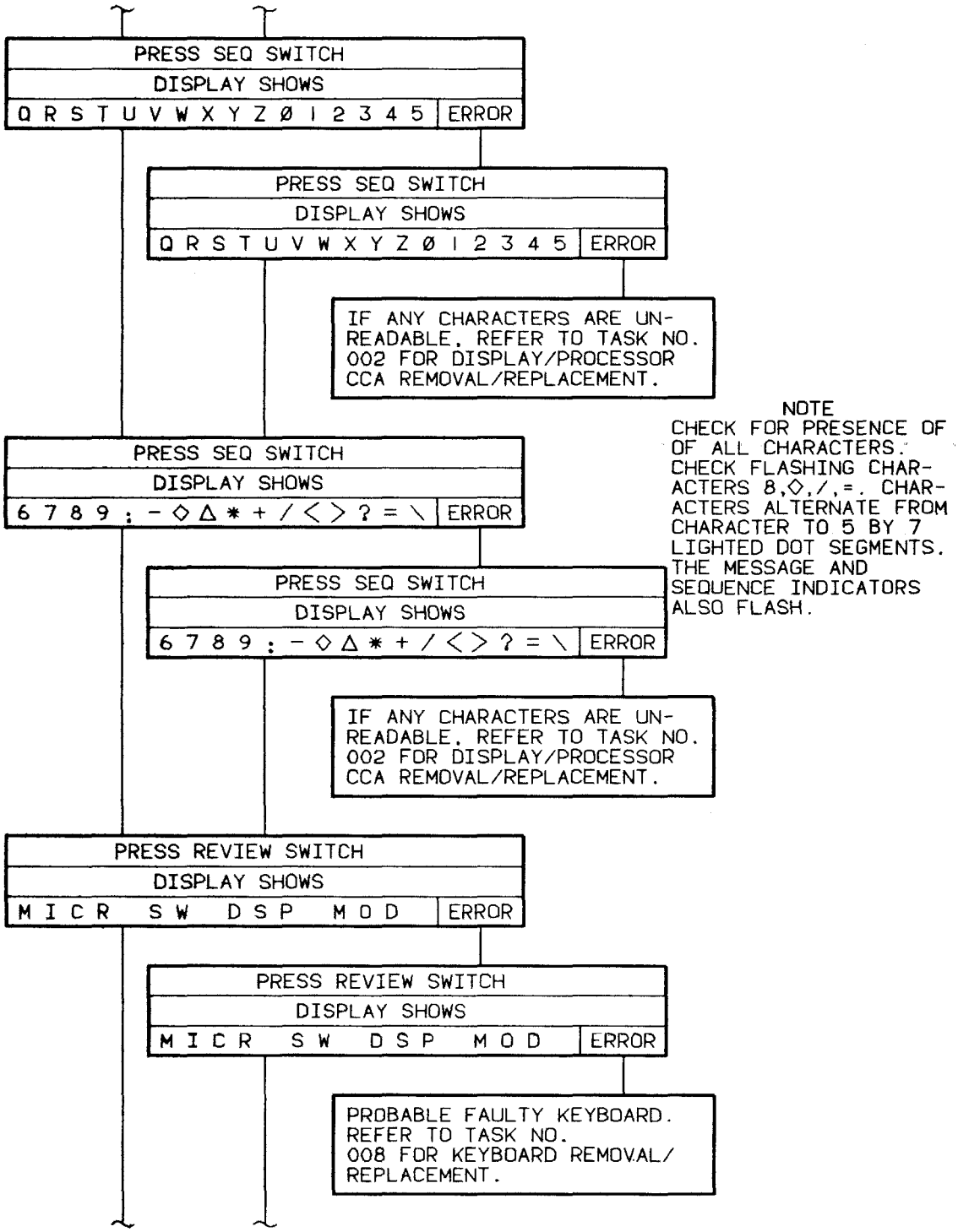
SELF-TEST (CONT)



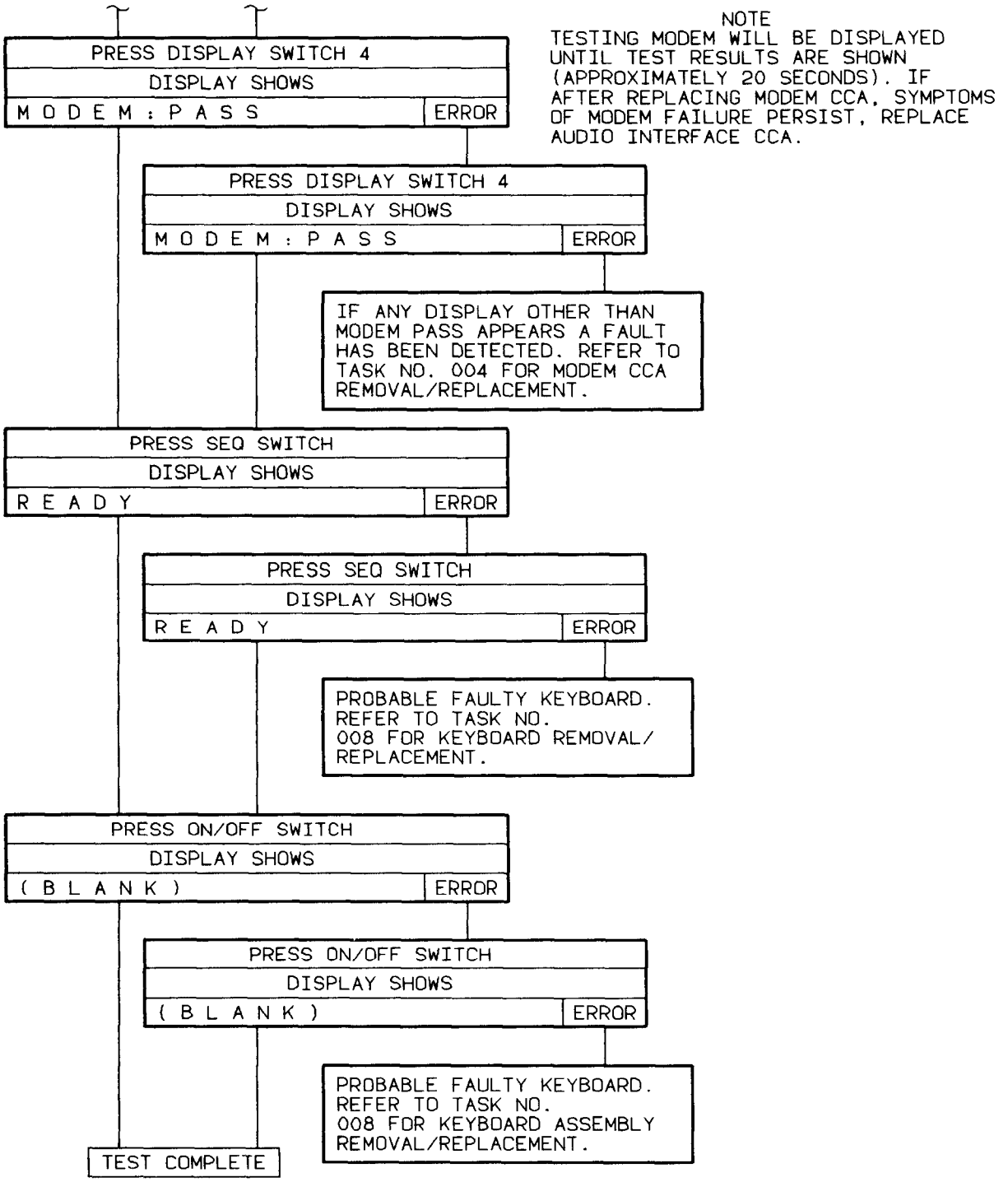
SELF-TEST (CONT)



SELF-TEST (CONT)



SELF-TEST (CONT)

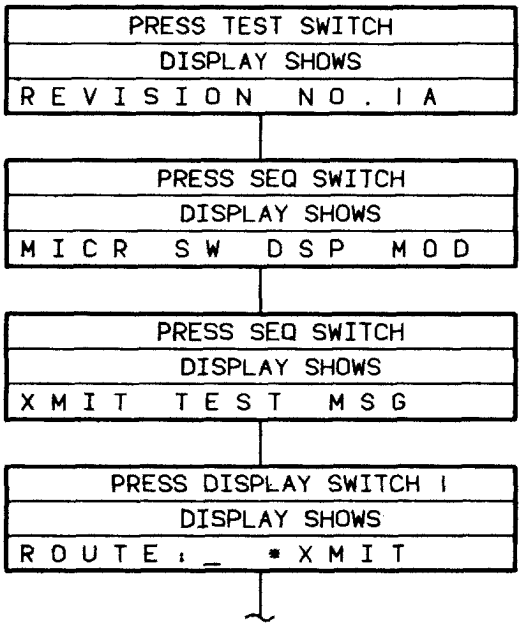


TRANSMISSION TEST

In addition to the built-in self-test, the MBC has a permanently programmed transmission test which tests the internal wiring, connector assembly and external signal path when the MBC is connected to another MBC or a DMD.

To initiate the XMIT TEST, both the MBC under test and the accompanying MBC or DMD must be properly connected and set up in accordance with TM 9-1220-246-12&P (MBC), or TM 11-7440-281-12&P (DMD).

After energizing the MBC and obtaining a READY display, perform the following steps:



NOTE

THE SEQ LED FLASHES AT APPROXIMATELY ONE SECOND INTERVALS.

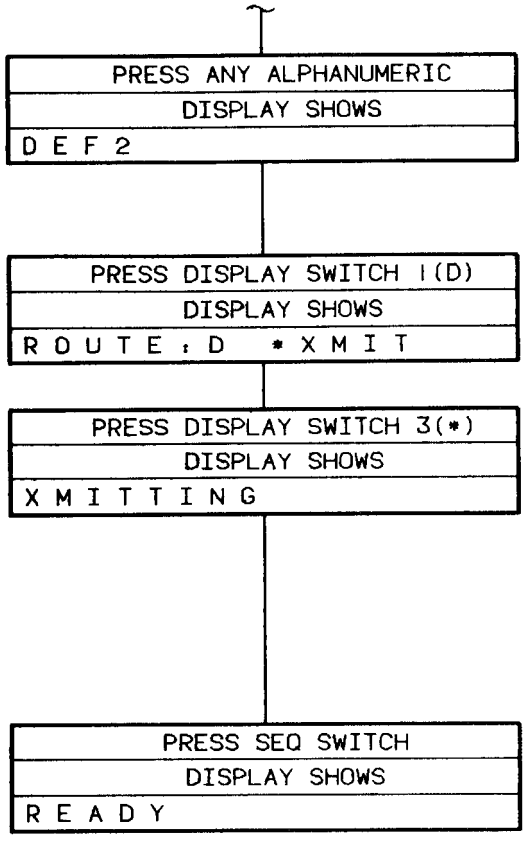
NOTE

THE I IN XMIT ALTERNATES BETWEEN I AND A 5 BY 7 LIGHTED DOT MATRIX.

NOTE

THE U AND * ALTERNATE BETwEEN LIGHTED DOT MATRIX AND LETTER/SYMBOL.

TRANSMISSION TEST (CONT)



NOTE

TO SELECT A ROUTE, PRESS ANY ALPHA-NUMERIC SWITCH I THROUGH 9. (EXAMPLE: 2/DEF) THE ALPHANUMERICS WILL APPEAR ABOVE DISPLAY SWITCHES AND ALTERNATE BETWEEN A LIGHTED D0T MATRIX AND ALPHANUMERIC.

NOTE

THE U AND * ALTERNATE BETWEEN A LIGHTED DOT MATRIX AND LETTER/SYMBOL.

NOTE

THIS DISPLAY LASTS FOR APPROXIMATELY NINE SECONDS AND THEN CHANGES TO EITHER ACK (INDICATING THAT THE TEST MESSAGE WAS SATISFACTORILLY TRANS-MITTED TO ANO RECEIVED BY THE MBC OR DMD), OR NO RSP RETRY I (INDICATING THE TEST MESSAGE DID NOT REACH THE ACCOMPANYING MBC OR DMD). THE RETRY NUMBER I WILL AOVANCE EACH TIME A TRANSMISSION TEST IS ATTEMPTED, UP TO 3, AND NO RESPONSE IS RECEIVED.

NOTE

PRESS SEQ SWITCH TD RETURN TO READY.

Section III. MAINTENANCE PROCEDURES

CAUTION

The MBC contains certain static-sensitive solid state devices which are subject to damage from electrostatic discharge. Effective control of electrostatic discharge is maintained only through continuous, strict observance of the following maintenance procedures.

- Any maintenance requiring disassembly of the MBC must be performed at an approved, grounded work station which has a grounded work surface and grounded wrist straps as required by DOD-HDBK-263 and TB 43-0127.
- All maintenance personnel handling the disassembled MBC or its static-sensitive subassemblies must wear the grounded wrist straps that are part of the work station.
- The static-sensitive MBC subassemblies must be stored in approved electrostatic-free material when not actually in the MBC.
- The following MBC subassemblies include static-sensitive devices and require special handling:

SUBASSEMBLY	ELECTROSTATIC-FREE STORAGE BAG CAGEC	PART NO.
Display Processor CCA (A1)	37695	346514-23
Memory CCA (A2)	37695	346514-23
Modem CCA (A3)	37695	346514-23
Power Supply (A6A1PS1)	37695	346514-23
Audio Interface CCA (A6A1A2)	37695	346514-23

- DISREGARDING THIS CAUTION COULD RESULT IN EQUIPMENT DAMAGE.

NOTE

Refer to TM 9-1220-246-12&P for chemical decontamination procedures.

GENERAL

This section contains detailed instructions required to restore the MBC to a completely serviceable/operational condition.

SERVICING

Servicing of the MBC consists of cleaning the unit and replacing primary battery. Battery replacement instructions are included in primary disassembly/-reassembly procedures as disassembly steps 1 through 3, and reassembly steps 21 and 22.

OPERATIONAL CHECK

To determine the operational status of the MBC, both before and after making repairs, perform the self-test procedures as described in Chapter 2, Section III, Troubleshooting.

DISASSEMBLY/REASSEMBLY

For detailed instructions in disassembly and reassembly of the MBC, refer to maintenance tasks and primary disassembly/reassembly.

REPAIR OR REPLACEMENT

Repair of the MBC at direct support level is primarily limited to replacement of designated assemblies or replacement of the complete MBC. All CCA repairs shall be accomplished at depot level except for replacement of the keep alive battery located on display power supply A6A1PS1A2, fuse located on logic power supply A6A1PS1A1, and fuse located on the case interconnect CCA A4A1.

TEST PROCEDURES

The self-test procedures, beginning on page 2-4, are to be conducted during the maintenance procedures to determine the operability of each function and to assist in fault isolation.

MAINTENANCE TASKS

All removal and replacement procedures shall be accomplished by referring to the appropriate PRIMARY DISASSEMBLY/REASSEMBLY steps beginning on page 2-37.

BATTERY REMOVAL/REPLACEMENT 001

Perform disassembly steps 1 through 3 and reassembly steps 21 and 22.

DISPLAY/PROCESSOR CCA REMOVAL/REPLACEMENT (A1) 002

Perform disassembly steps 1 through 3, and 5 through 7. Reassemble using reassembly steps 17 through 19, 21 and 22.

MEMORY CCA REMOVAL/REPLACEMENT (A2) 003

Perform disassembly steps 1 through 3, and 5 through 7. Reassemble using reassembly steps 17 through 19, 21 and 22.

MODEM CCA REMOVAL/REPLACEMENT (A3) 004

Perform disassembly steps 1 through 3, and 5 through 7. Reassemble using reassembly steps 17 through 19, 21 and 22.

COMPUTER CASE REMOVAL/REPLACEMENT (A4) 005

Perform disassembly steps 1 through 3, 5 through 10, and 20. Reassemble using reassembly steps 4, 14 through 19, 21 and 22.

CASE INTERCONNECT CCA REMOVAL/REPLACEMENT (A4A1) 006

Perform disassembly steps 1 through 3, 5 through 10, and 20 through 23. Reassemble using reassembly steps 2 through 4, 14 through 19, 21 and 22.

MAINTENANCE TASKS (CONT)

HOUSING REMOVAL/REPLACEMENT	007

Perform disassembly steps 1 through 10, and 20 through 24. Reassemble using reassembly steps 1 through 4, and 14 through 22.

KEYBOARD REMOVAL/REPLACEMENT (A5)	008

Perform disassembly steps 1 through 3, and 20. Reassemble using reassembly steps 4, 21 and 22.

CHASSIS ASSEMBLY REMOVAL/REPLACEMENT (A6)	009

Perform disassembly steps 1 through 3, and 5 through 10. Reassemble using reassembly steps 14 through 19, 21 and 22.

INTERFACE ASSEMBLY REMOVAL/REPLACEMENT (A6A1)	010

Perform disassembly steps 1 through 3, and 5 through 11. Reassemble using reassembly steps 13 through 19, 21 and 22.

POWER SUPPLY REMOVAL/REPLACEMENT (A6A1PS1)	011

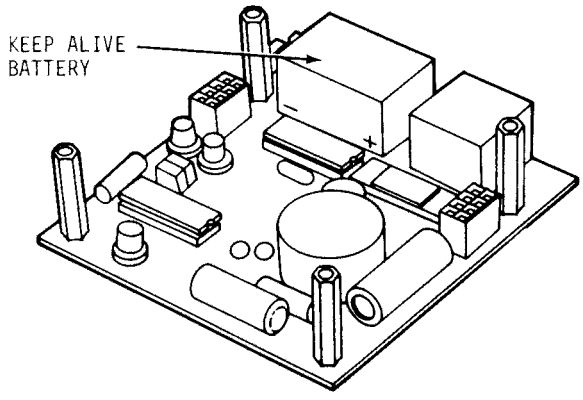
Perform disassembly steps 1 through 3, 5 through 11, 13 and 14, and 16 through 18. Reassemble using reassembly steps 6 through 8, 10 and 11, 13 through 19, 21 and 22.

KEEP ALIVE BATTERY REMOVAL/REPLACEMENT (A6A1PS1A2B1)	012

A. Disassembly - Perform disassembly steps 1 through 3, 5 through 11, 13 and 14, 16 through 19.

B. Repair - Remove and replace battery using accepted soldering practices.

MAINTENANCE TASKS (CONT)



C. Reassembly - Perform reassembly steps 5 through 8, 10 and 11, 13 through 19, 21 and 22.

CONNECTOR ASSEMBLY REMOVAL/REPLACEMENT (A6A1A1) 013

Perform disassembly steps 1 through 3, 5 through 10, 13 and 14. Reassemble using reassembly steps 10, 11, 14 through 19, 21 and 22.

AUDIO INTERFACE CCA REMOVAL/REPLACEMENT (A6A1A2) 014

Perform disassembly steps 1 through 3, 5 through 11, 13 and 14, 16 and 17. Reassemble using reassembly steps 7 and 8, 10 and 11, 13 through 19, 21 and 22.

INTERCONNECT CCA REMOVAL/REPLACEMENT (A6A2) 015

Perform disassembly steps 1 through 3, 5 through 12. Reassemble using reassembly steps 12 through 19, 21 and 22.

BATTERY COMPARTMENT COVER REMOVAL/REPLACEMENT 016

Perform disassembly steps 1 through 4. Reassemble using reassembly steps 20 through 22.

MAINTENANCE TASKS (CONT)

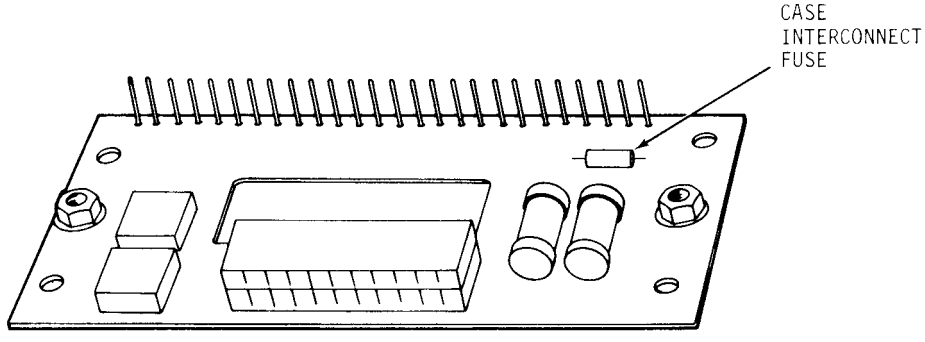
TOP COVER REMOVAL/REPLACEMENT 017

Perform disassembly steps 5 and 6. Reassemble using reassembly steps 18 and 19.

CASE INTERCONNECT FUSE REMOVAL/REPLACEMENT (A4A1F1) 018

A. Disassembly - Perform disassembly steps 1 through 3, 5 through 10, and 20 through 23.

B. Repair - Remove and replace fuse using accepted soldering practices.



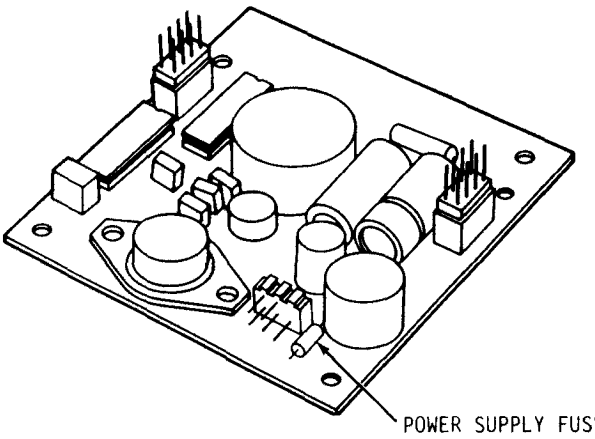
C. Reassembly - Perform reassembly steps 2 through 4, 14 through 19, 21 and 22.

MAINTENANCE TASKS (CONT)

POWER SUPPLY FUSE REMOVAL/REPLACEMENT (A6A1PS1A1F1) 019

A. Disassembly - Perform disassembly steps 1 through 3, 5 through 11, 13, 14, and 16 through 19.

B. Repair - Remove and replace fuse using accepted soldering practices,



C. Reassembly - Perform reassembly steps 5 through 8, 10 and 11, 13 through 19, 21 and 22.

LEFT SIDE BRACKET REMOVAL/REPLACEMENT 020

Perform disassembly steps 1 through 3, 5 through 11, 13 and 14, and 16. Reassemble using reassembly steps 8, 10 and 11, 13 through 19, 21 and 22.

RIGHT SIDE BRACKET REMOVAL/REPLACEMENT 021

Perform disassembly steps 1 through 3, 5 through 11, 13 and 14, 17 and 18. Reassemble using reassembly steps 6, 7, 10 and 11, 13 through 19, 21 and 22.

MAINTENANCE TASKS (CONT)

CARD CAGE REMOVAL/REPLACEMENT 022

Perform disassembly steps 1 through 3, 5 through 12. Reassemble using reassembly steps 12 through 19, 21 and 22.

BATTERY CONNECTOR REMOVAL/REPLACEMENT 023

Perform disassembly steps 1 through 3, 5 through 10, 23 (items 65 and 66 only) and 24. Reassemble using reassembly steps 1 and 2 (items 65 and 66 only), 14 through 19, 21 and 22.

KEYBOARD CONNECTOR REMOVAL/REPLACEMENT 024

Perform disassembly steps 1 through 3, 20 and 21. Reassemble using reassembly steps 3 and 4, 21 and 22.

DUSTCOVER REMOVAL/REPLACEMENT 025

Perform disassembly steps 1 through 3, 5 through 10, and 15. Reassemble using reassembly steps 9, 14 through 19, 21 and 22.

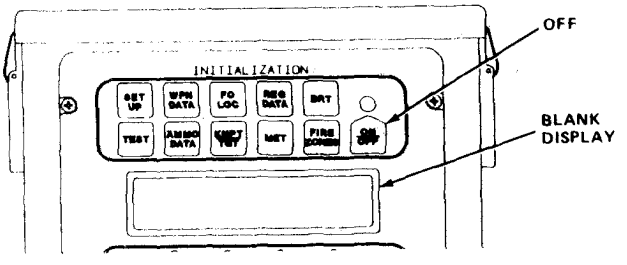
COVER GASKET REMOVAL/REPLACEMENT 026

Top Access Cover - Perform disassembly steps 1, 5, 6 and 25.
Perform reassembly steps 1.1, 1.2, 18 and 19.
Battery Compartment Cover - Perform disassembly steps 1, 2, 3, 4 and 25.
Perform reassembly steps 1.1, 1.2, 20, 21 and 22.

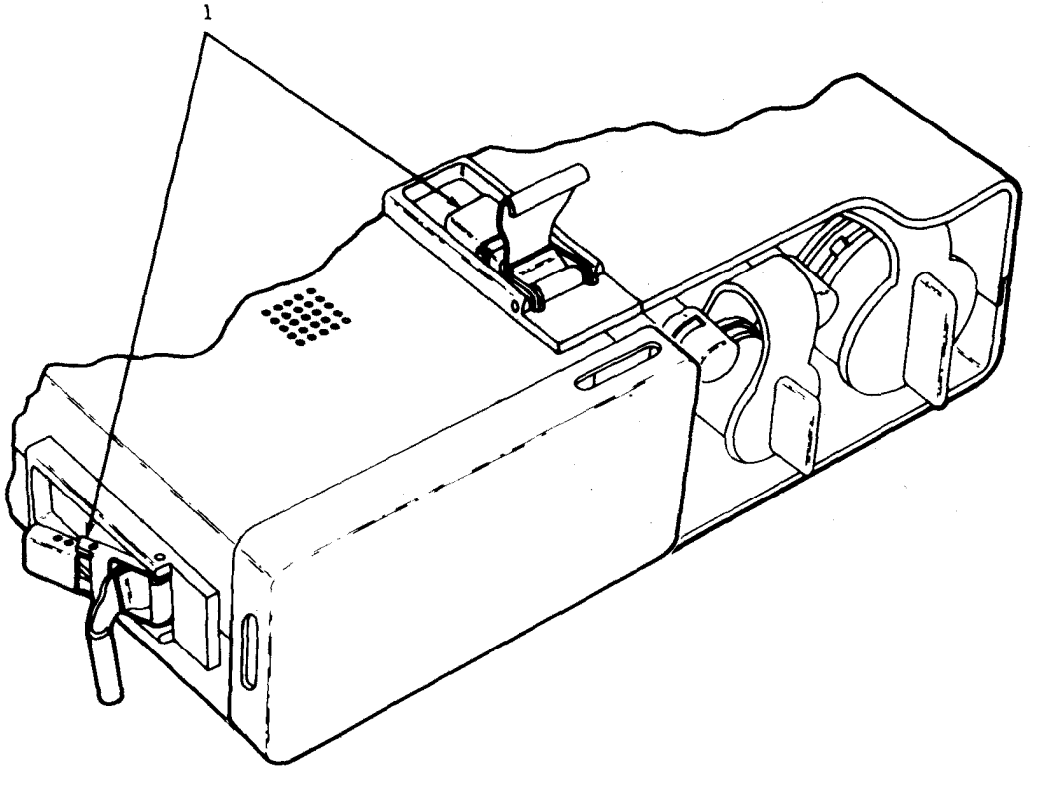
PRIMARY DISASSEMBLY/REASSEMBLY

DISASSEMBLY

After removing MBC from field case, ensure power is turned off by pressing ON/OFF switch and observing no display presented.

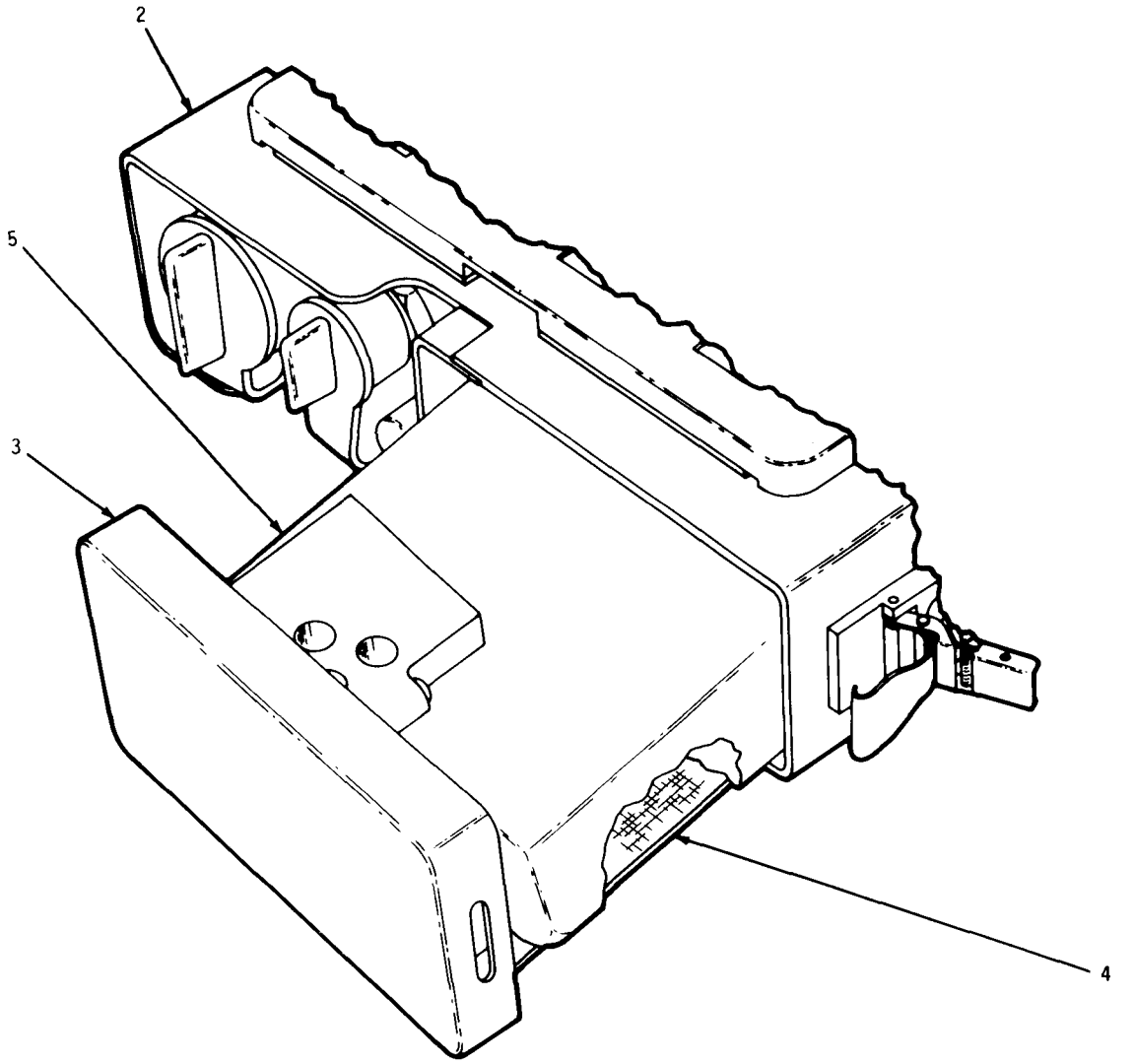


2 Release two battery compartment cover latches (1).



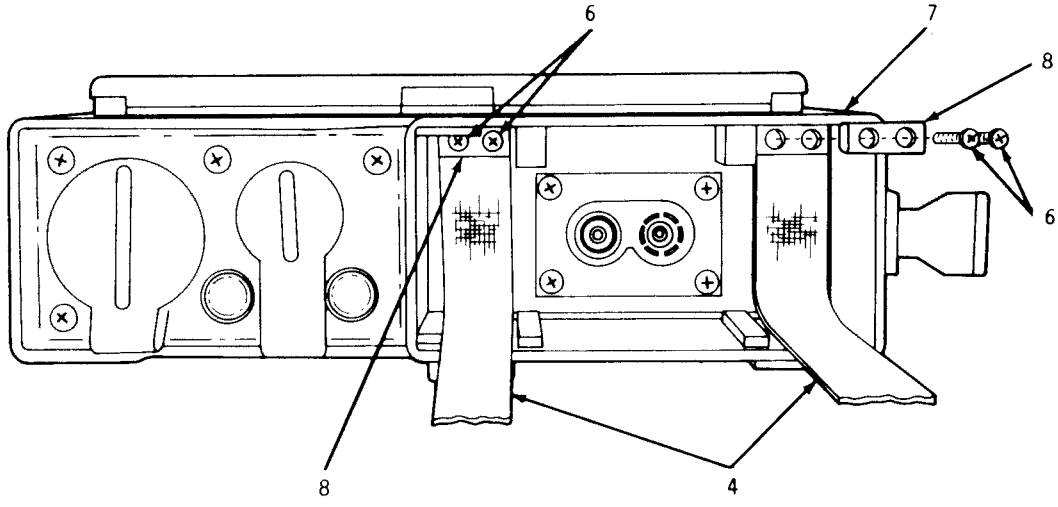
DISASSEMBLY (CONT)

3 Holding the MBC (2), grasp battery compartment cover (3) and pull cover from MBC until battery removal straps (4) pull battery (5) free. Remove battery.

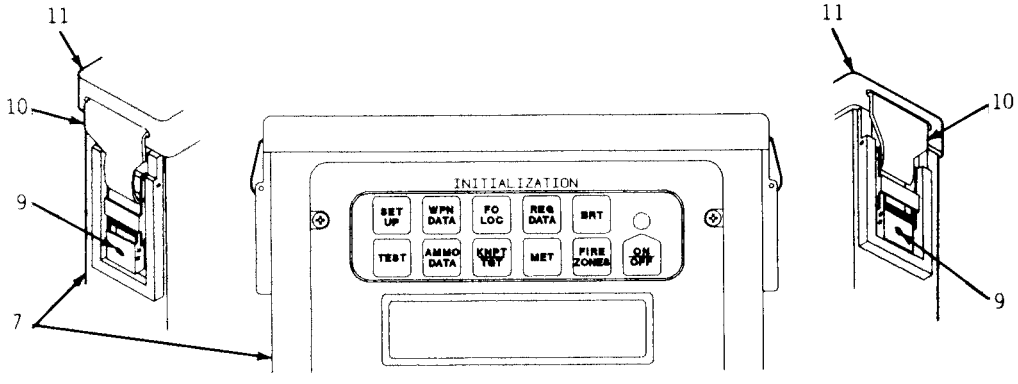


DISASSEMBLY (CONT)

4 Remove four screws (6) and two strap retainer plates (8) joining battery removal straps (4) to-case (7).

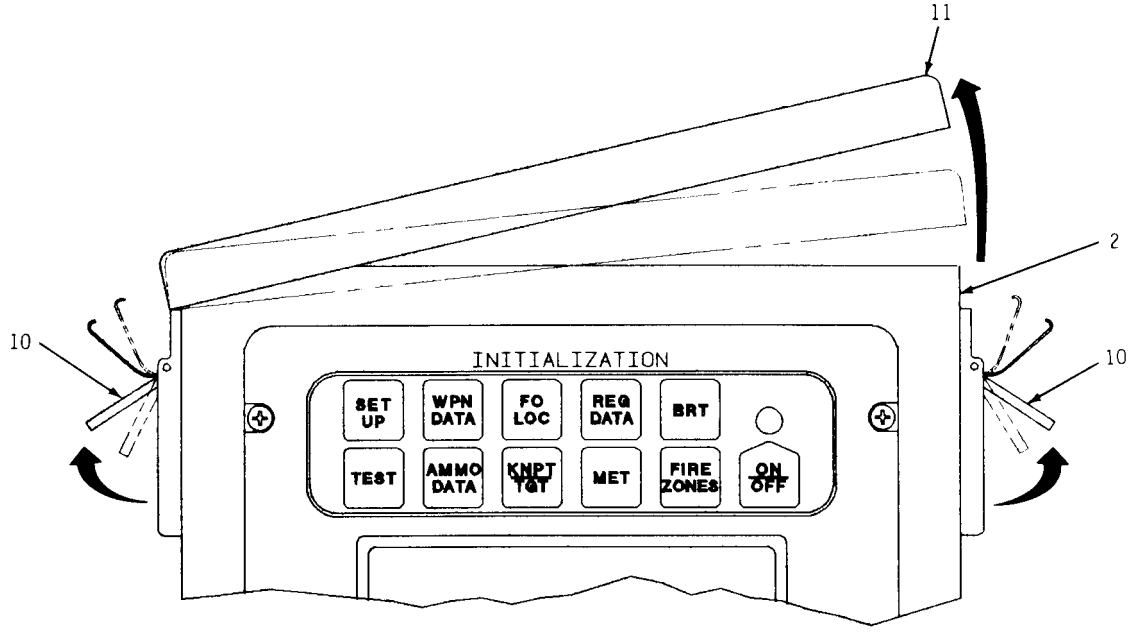


5 Using security screw tool, remove one security screw (9) from each of two latches (10) joining top cover (11) to case (7).



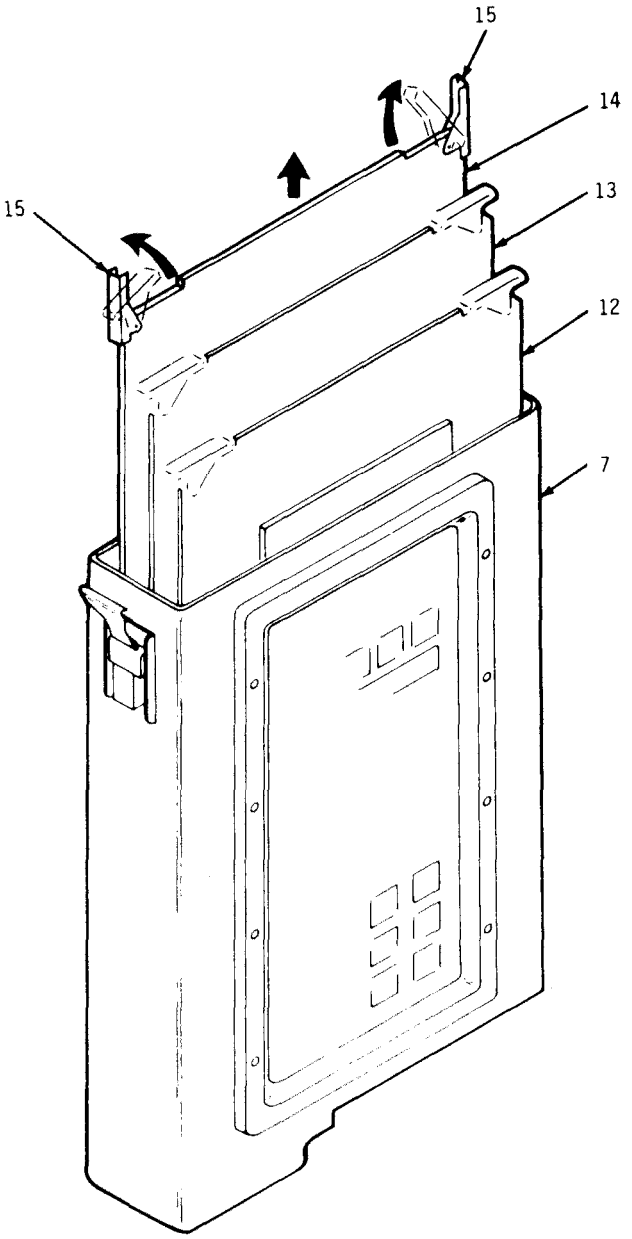
DISASSEMBLY (CONT)

6 Release two latches (10) holding top cover (11) to MBC (2) and remove top cover.



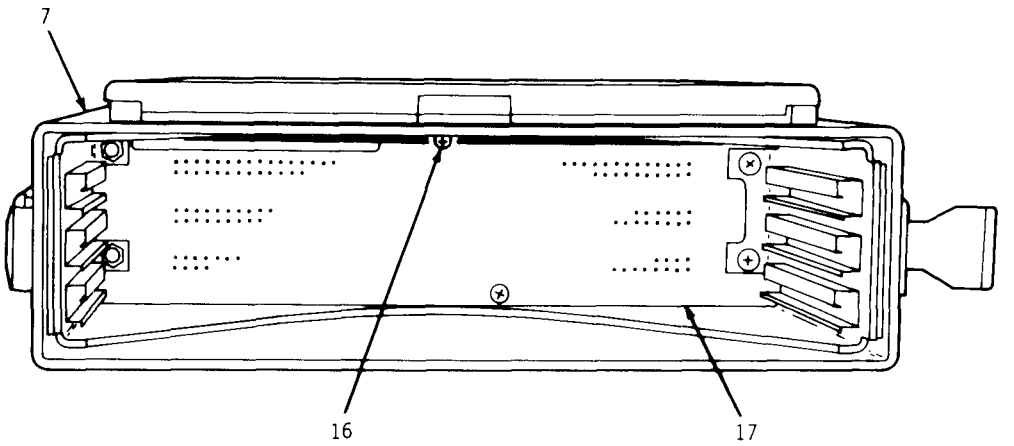
DISASSEMBLY (CONT)

7 Remove circuit cards A1 (12), A2 (13), A3 (14) by lifting two card extractors (15) on each card and gently lifting card from case (7)

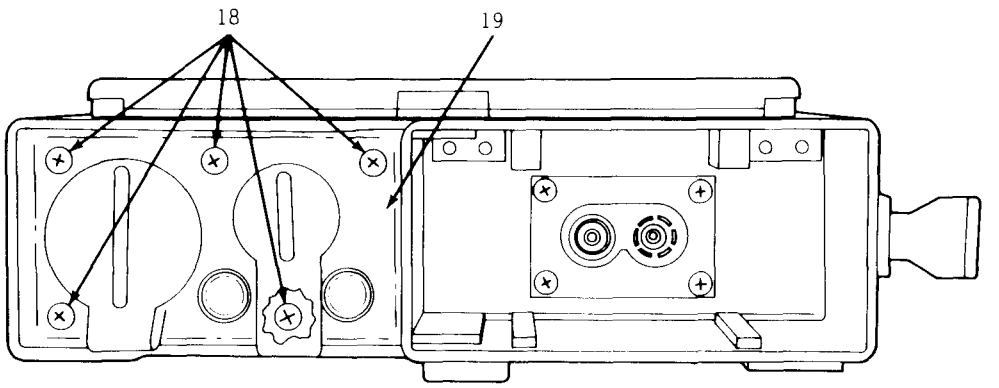


DISASSEMBLY (CONT)

8 Remove one screw (16) joining chassis assembly (17) to case (7).

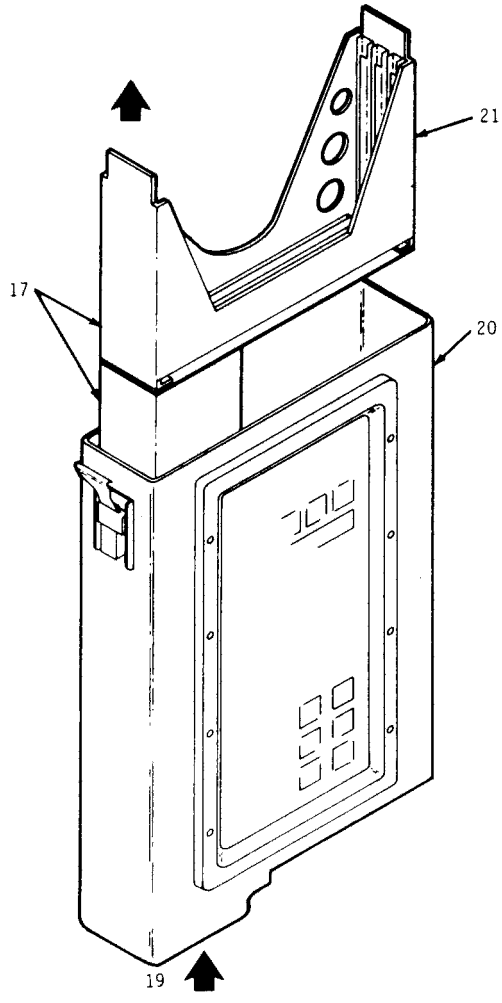


9 Remove five screws (18) from bottom of connector assembly (19).



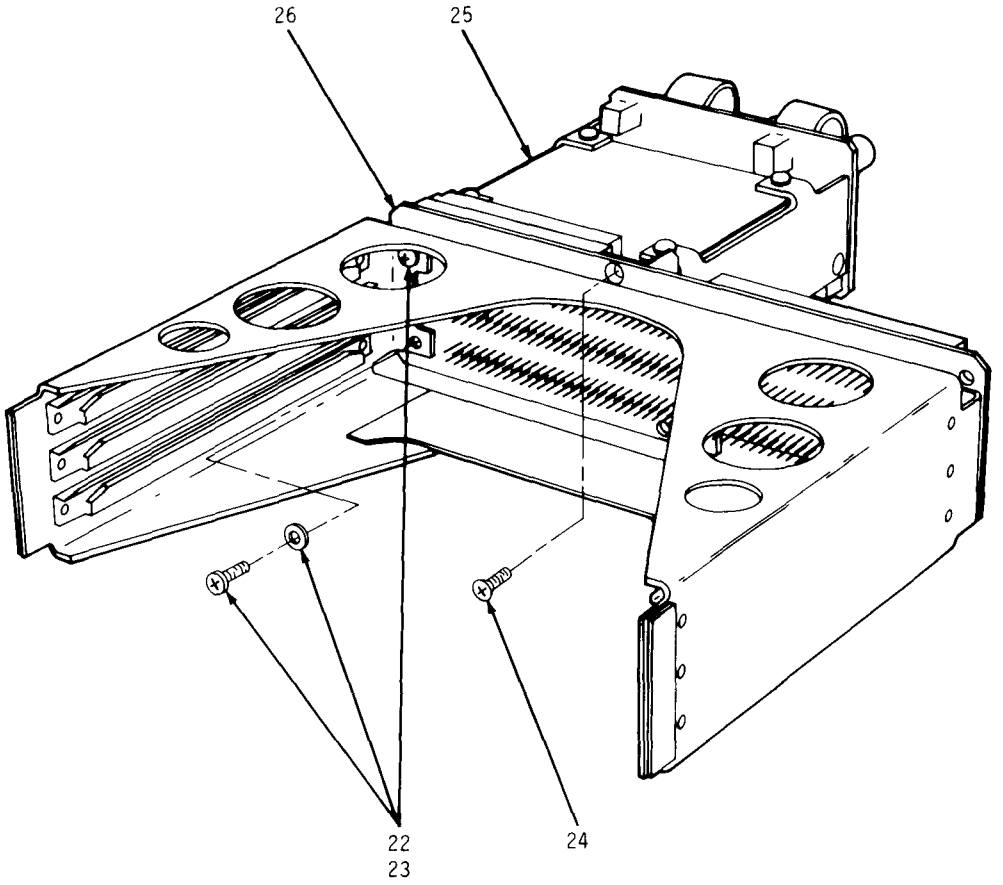
DISASSEMBLY (CONT)

10 Remove chassis assembly (17) from housing assembly (20) by gently pushing upward on connector assembly (19) until able to grasp card cage (21) and pull chassis assembly free.



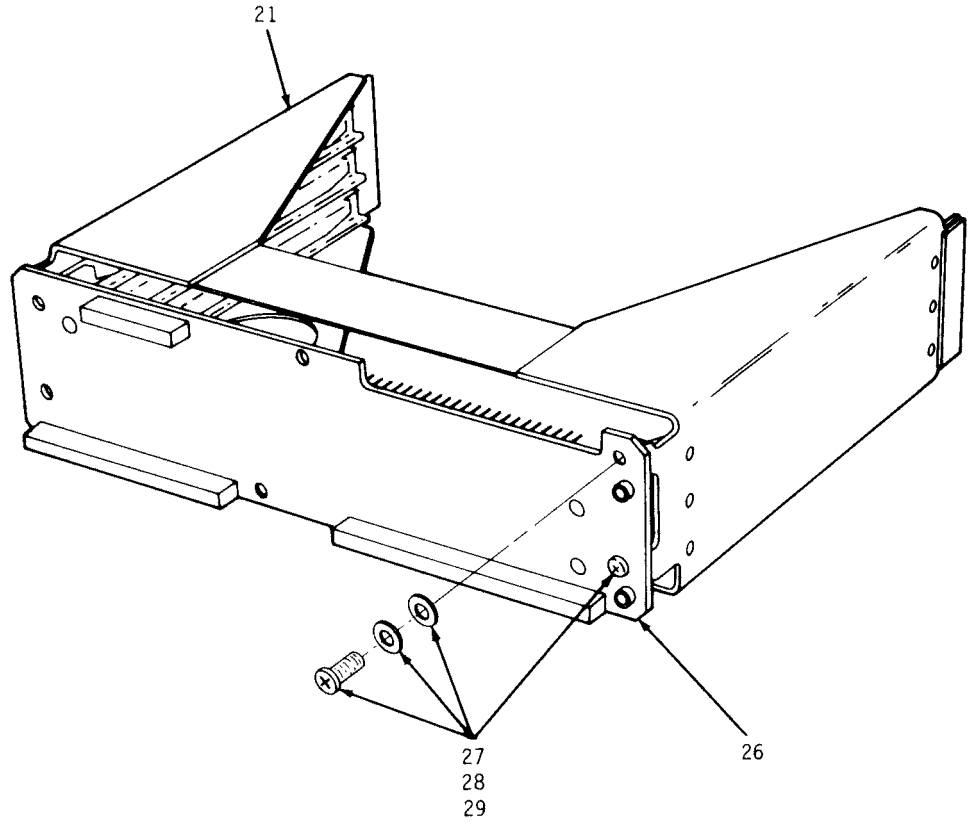
DISASSEMBLY (CONT)

11 Remove two screws (22), two washers (23) and one screw (24) joining interface assembly (25) to interconnect CCA (26) and separate the two assemblies.



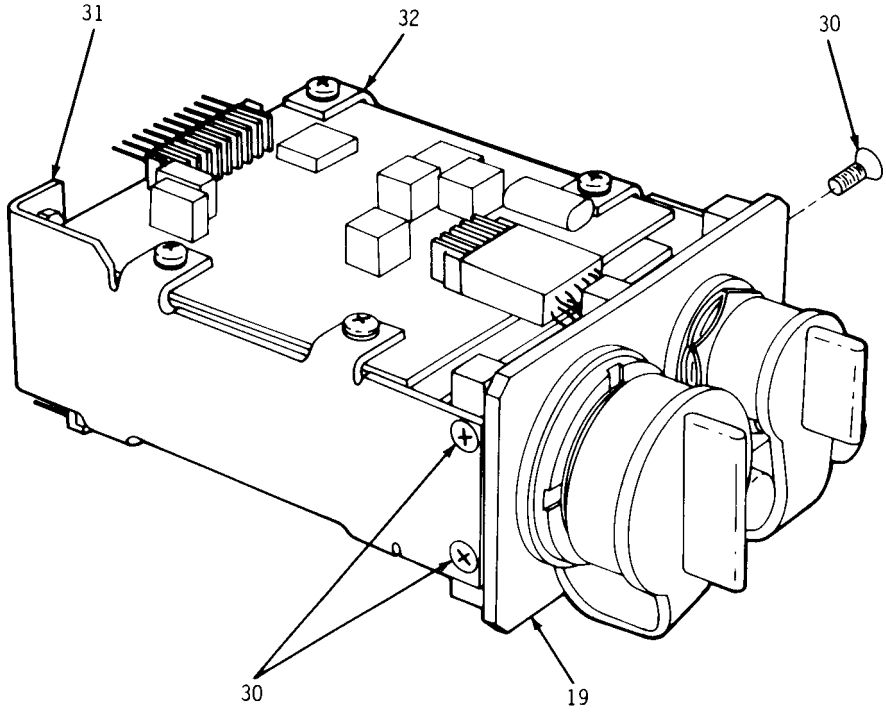
DISASSEMBLY (CONT)

12 Remove two screws (27), two lock washers (28), and two flat washers (29) joining card cage (21) to interconnect CCA (26).



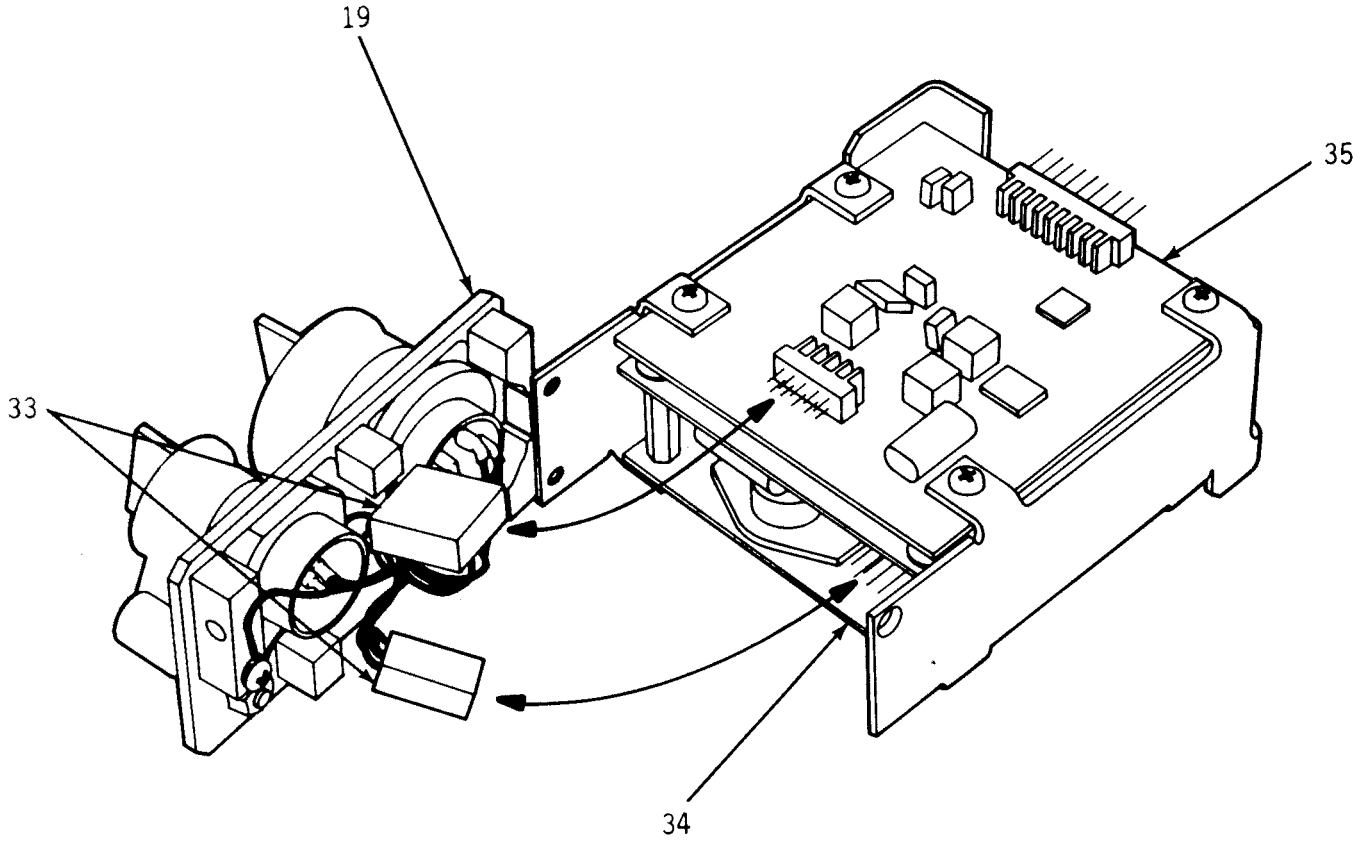
DISASSEMBLY (CONT)

13 Remove three screws (30) joining connector assembly (19) to left side bracket (31) and right side bracket (32).



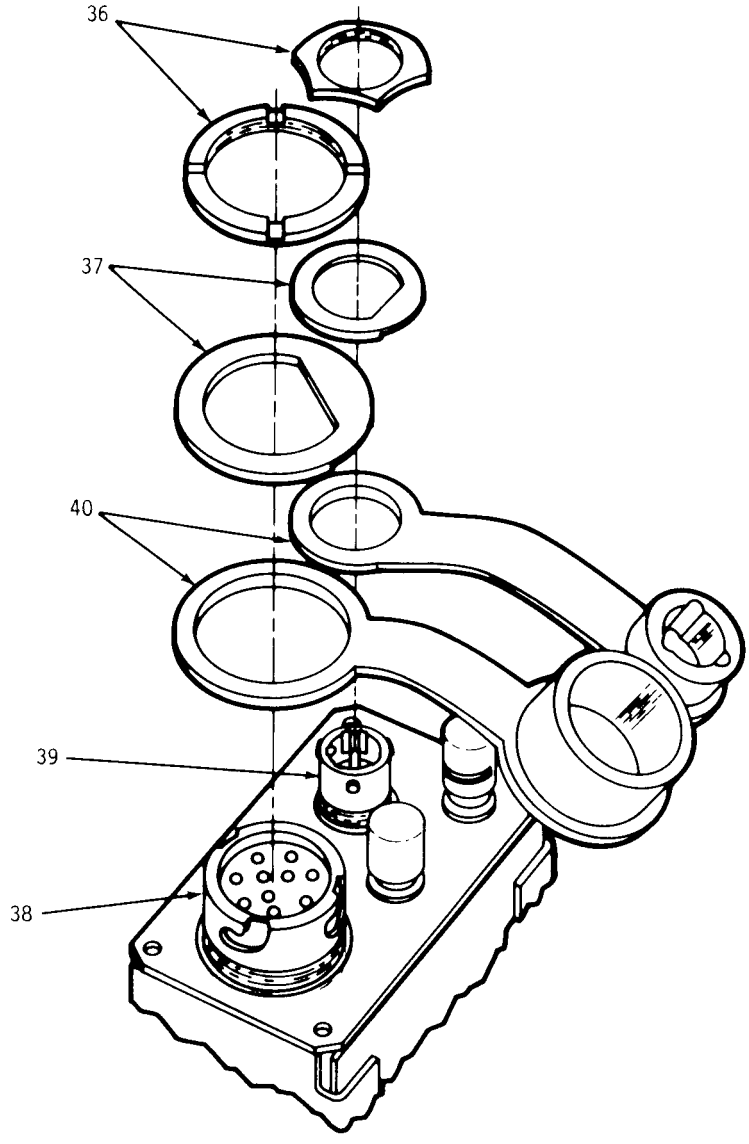
DISASSEMBLY (CONT)

14 Disconnect connector assembly connectors (33) from power supply (34) and audio interface CCA (35). Remove connector assembly (19).



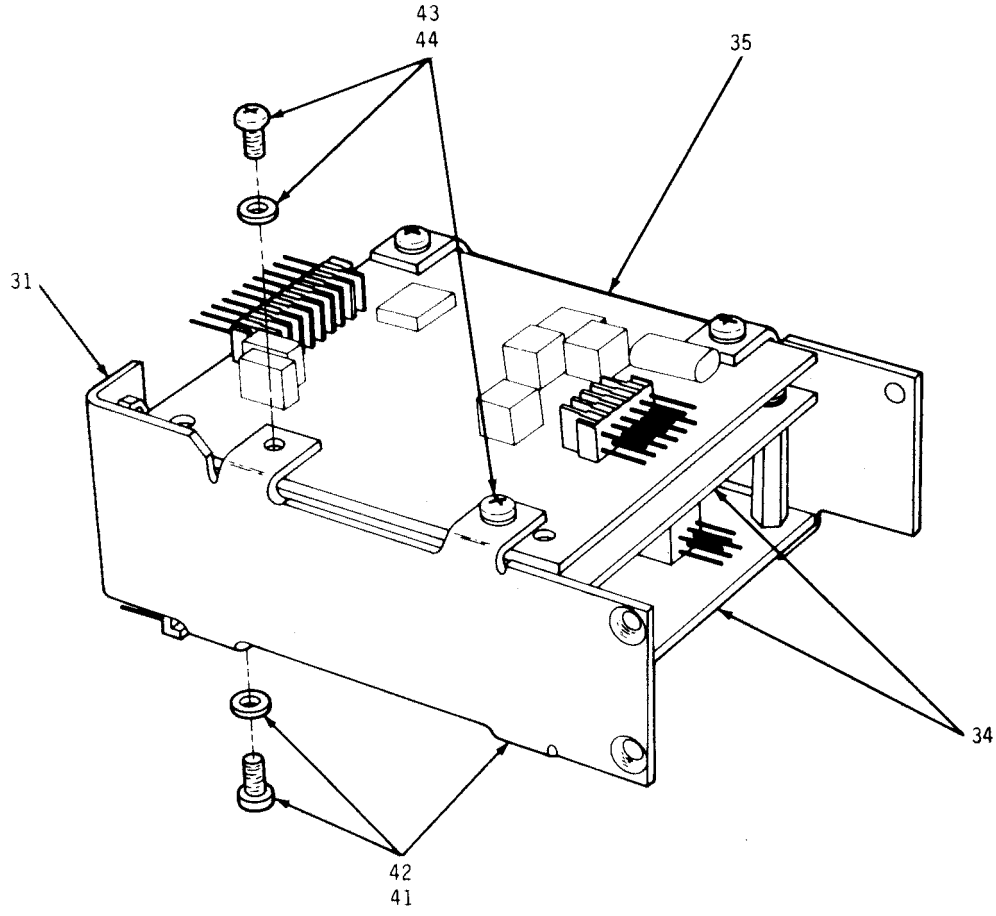
DISASSEMBLY (CONT)

15 Remove nut (36) and cup washer (37) from radio connector (38) or power connector (39) (depending on which dustcover (40) is being removed), and remove appropriate dustcover.



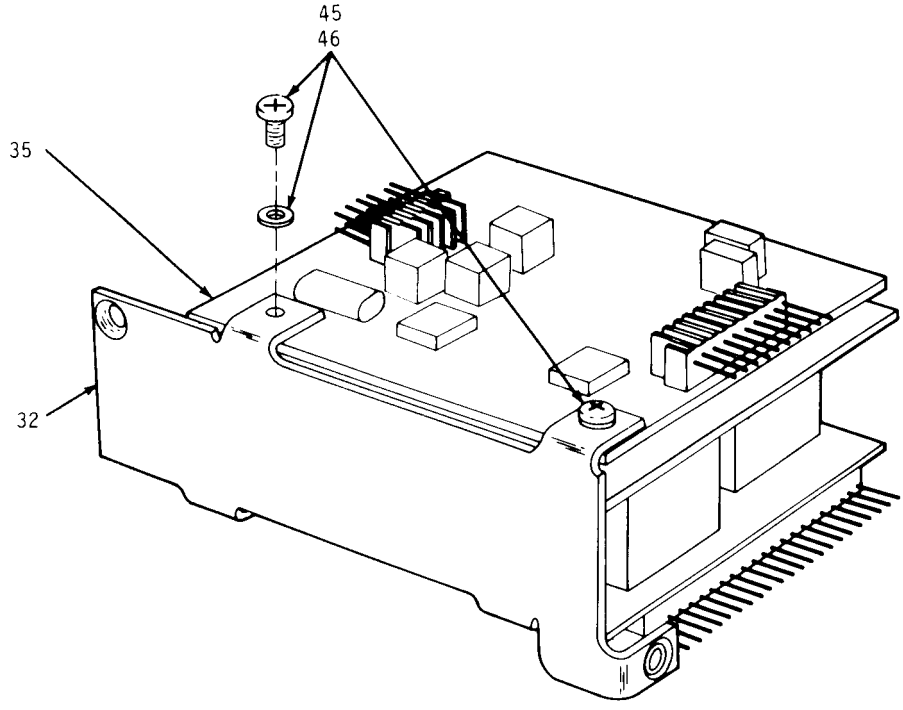
DISASSEMBLY (CONT)

16 Remove left side bracket (31) by removing two screws (41), and two lock washers (42) from power supply assembly (34), and two screws (43), and two lock washers (44) from audio interface CCA (35).



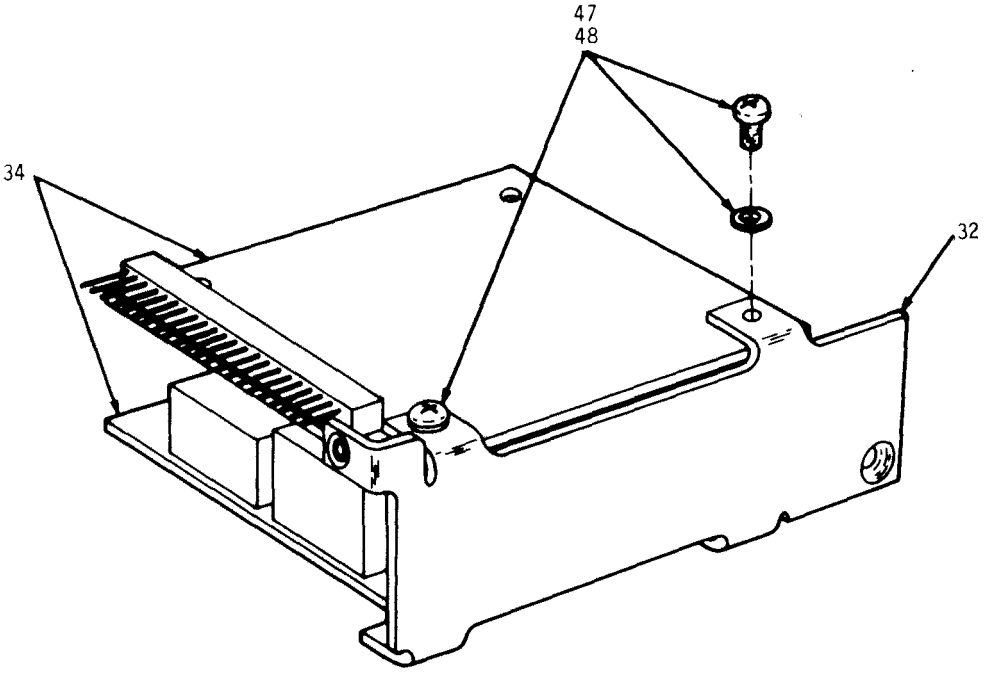
DISASSEMBLY (CONT)

17 Remove two screws (45) and two lock washers (46) joining audio interface CCA (35) to right side bracket (32) and remove audio interface CCA.

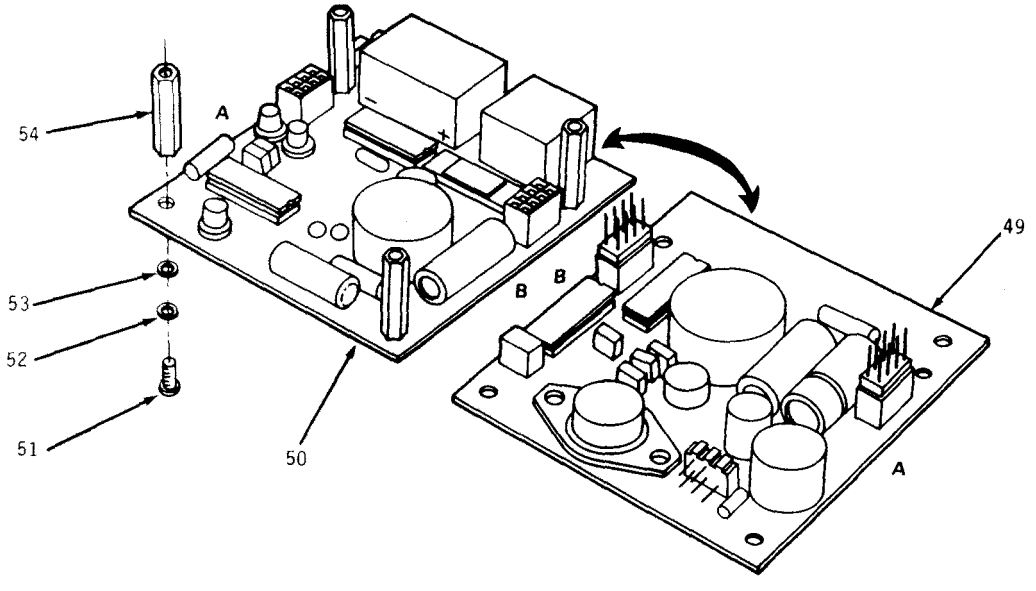


DISASSEMBLY (CONT)

18 Remove two screws (47) and two lock washers (48) joining power supply (34) to right side bracket (32) and separate the two units.

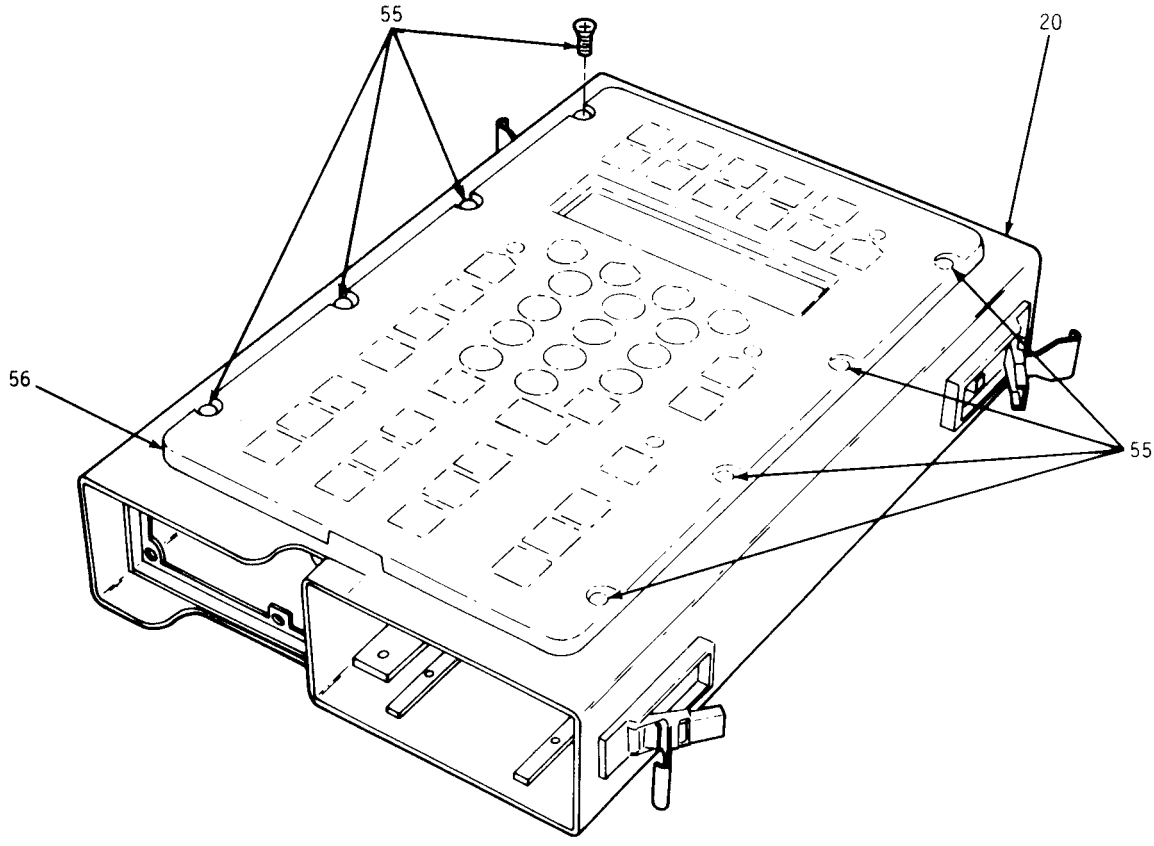


19 Separate logic power supply (49) from display power supplY (50) by gently pulling them apart, then remove four screws (51), four lock washers (52), four flat washers (53) and four spacers (54).



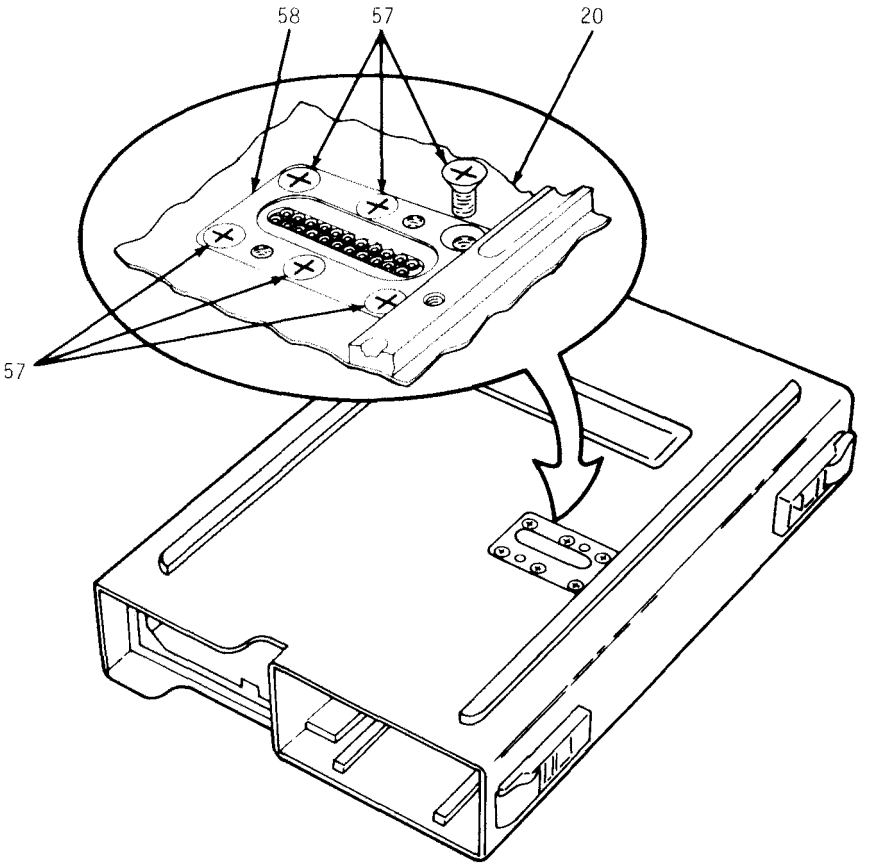
DISASSEMBLY (CONT)

20 Remove eight screws (55) joining keyboard (56) to housing assembly (20), and lift keyboard from housing.



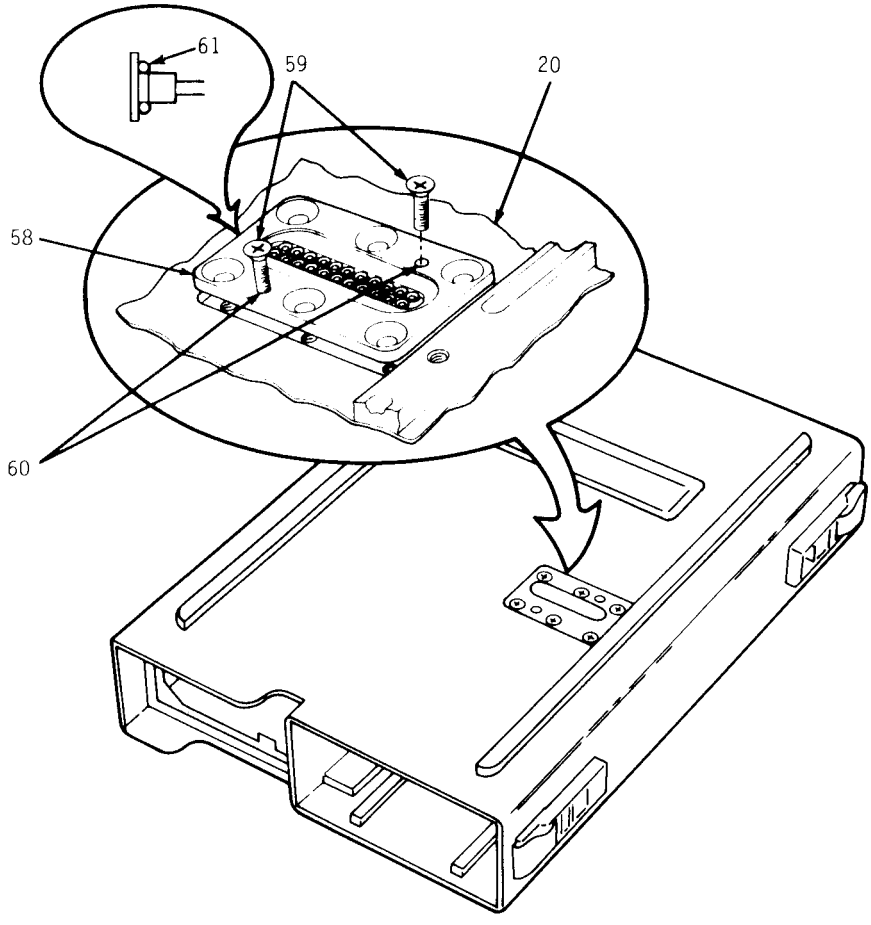
DISASSEMBLY (CONT)

21 Remove six screws (57) joining keyboard connector (58) to housing assembly (20).



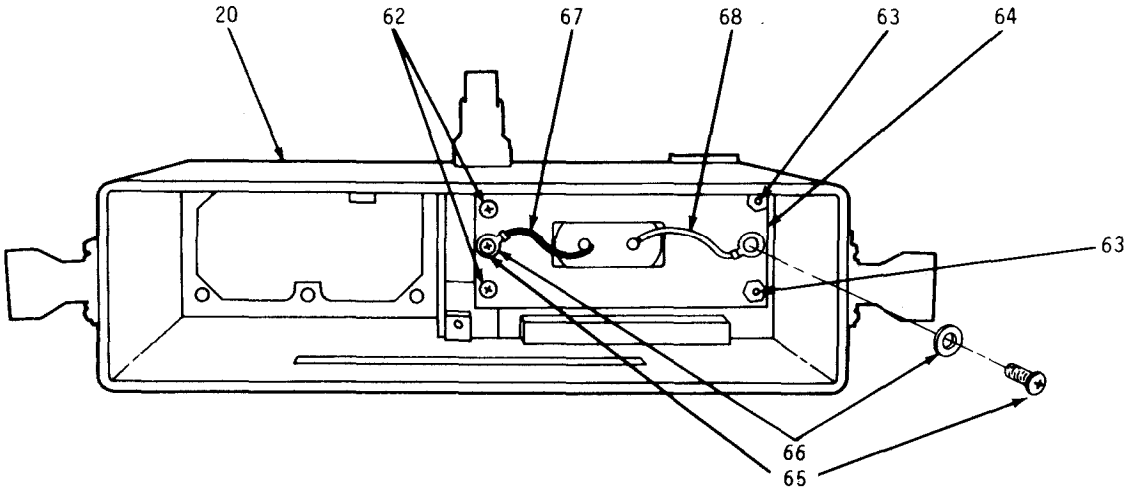
DISASSEMBLY (CONT)

22 Insert two screws (59), (removed step 21), in previously unused holes (60) on top of keyboard connector (58), lifting gently, remove keyboard connector from housing assembly (20) and remove O-ring seal (61) from connector.

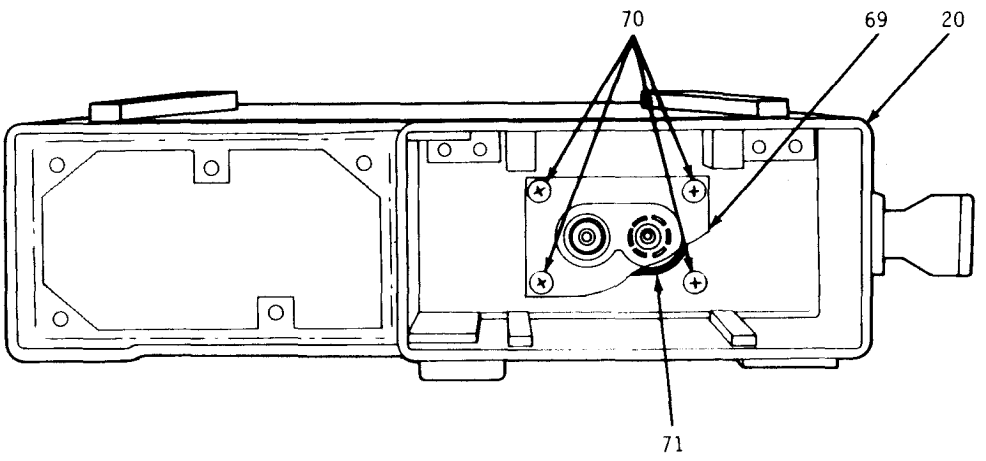


DISASSEMBLY (CONT)

23 Remove two screws (62) and two guide pins (63) joining case interconnect CCA (64) to housing assembly (20). Remove two screws (65) and two lock washers (66) connecting battery connector wires (67) and (68) to CCA and remove case interconnect CCA.

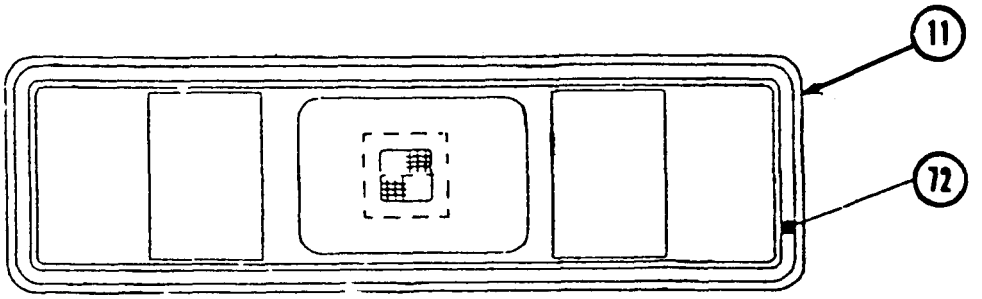


24 Remove battery connector (69) by removing four screws (70) joining connector to housing assembly (20). Then remove O-ring seal (71) from connector.



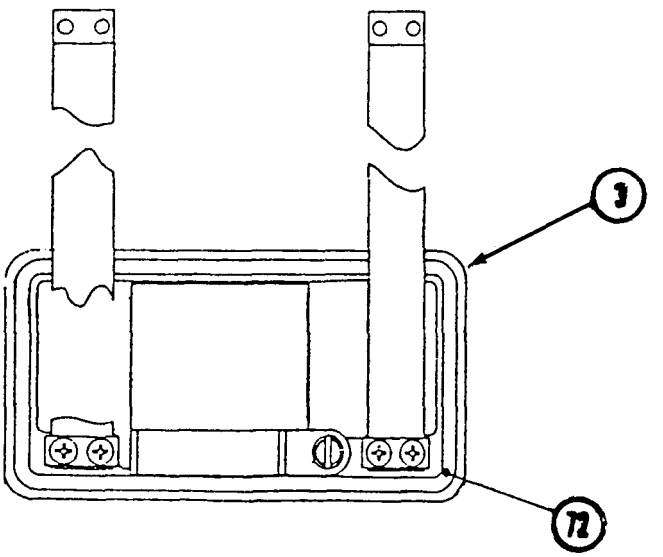
DISASSEMBLY (CONT)

25 Remove electrical shielding gaskets (72) from top cover (11) and battery compartment cover (3) by scraping with small knife.



NOTE

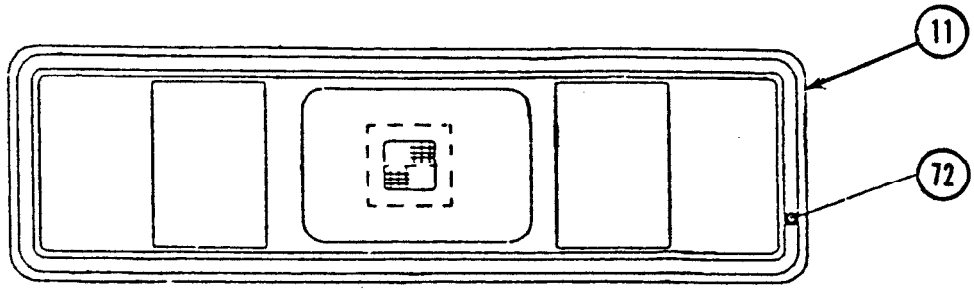
Thoroughly clean recess of any remaining gasket material to ensure proper sealing of new gasket.



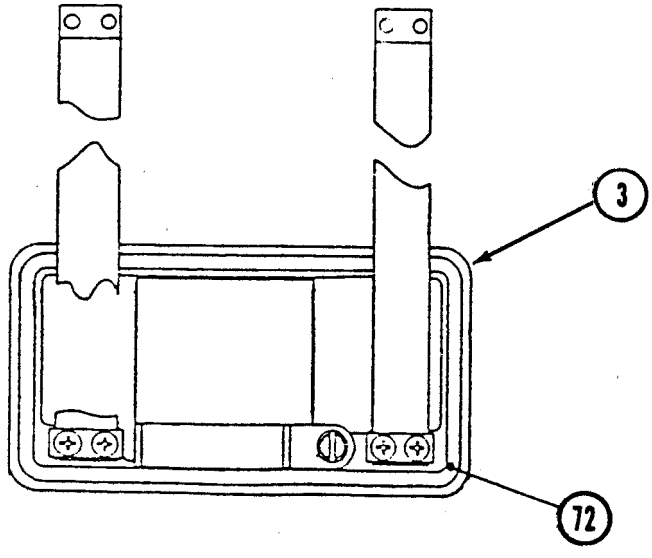
PRIMARY DISASSEMBLY/REASSEMBLY

REASSEMBLY

1.1 Accurately measure gasket material required and cut to length. Apply adhesive to gasket ends and splice together. Allow time for splice to adhere.



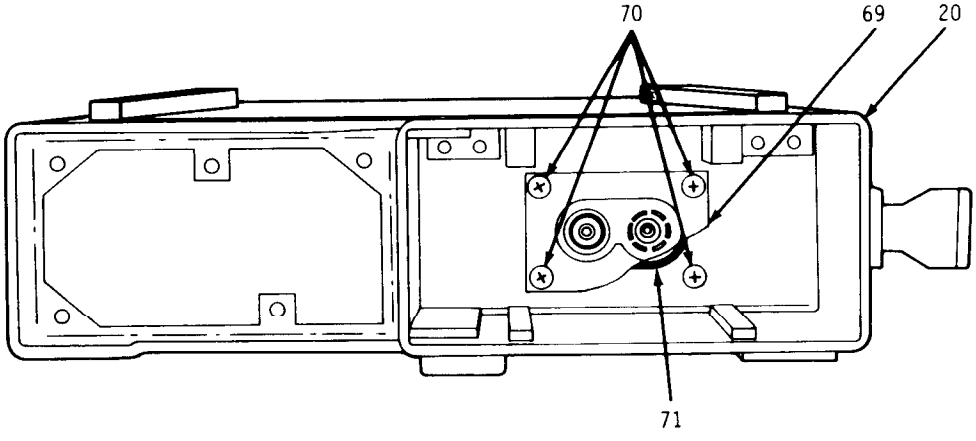
1.2 Lightly coat the recess in top cover (11) and battery compartment cover (3), and the assembled gaskets with adhesive and press gaskets (72) in place. Allow time for gasket to adhere and dry, then apply a bead of silicone compound on gasket for water resistant seal.



PRIMARY DISASSEMBLY/REASSEMBLY

REASSEMBLY (CONT)

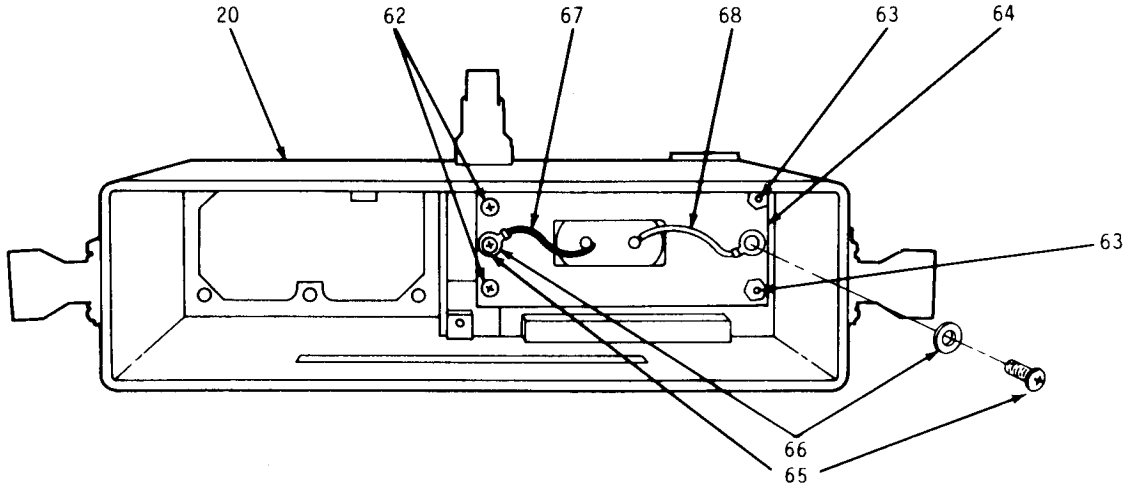
1.3 Place O-ring seal (71) around base of battery connector (69) and position battery connector in battery compartment exactly as shown with wires extending through housing assembly (20). Reinstall four screws (70).



2 Position case interconnect CCA (64) on housing assembly (20) and reinstall two screws (62) and two guide pins (63) joining case interconnect CCA to housing assembly. Reinstall two screws (65) and two lock washers (66) connecting battery connector wires (67 and 68) to case interconnect CCA.

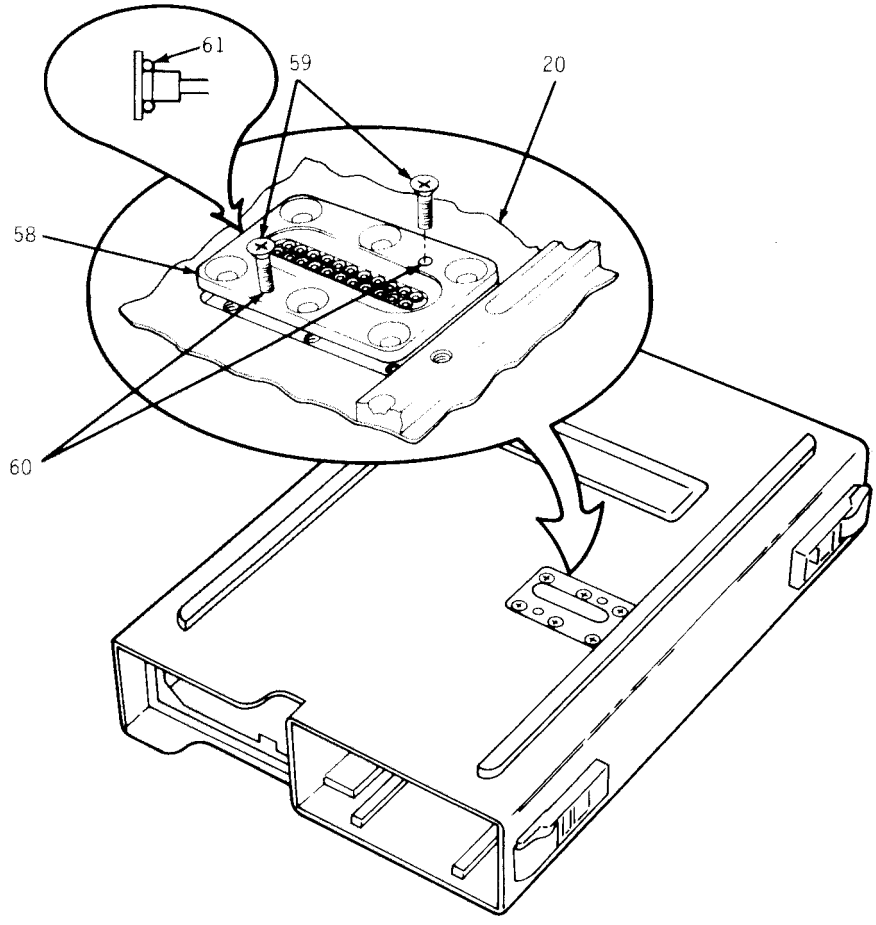
CAUTION

Ensure correct part number for twoscrews (item 65) is used when reassembling case interconnect CAA. (See Appx B) Failure to observe this caution could result in equipment damage.



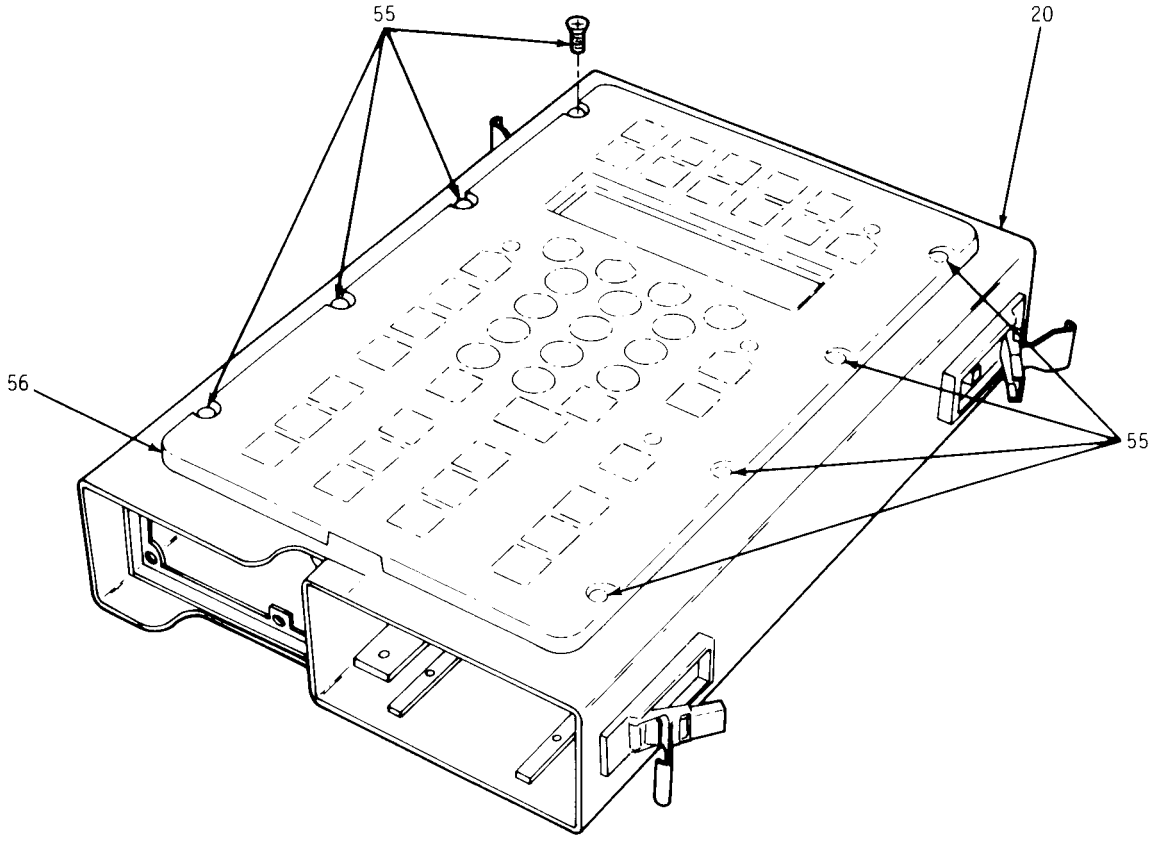
REASSEMBLY (CONT)

3 Place O-ring seal (61) around base of keyboard connector (58) and position connector on housing assembly (20). Reinstall six screws (57).



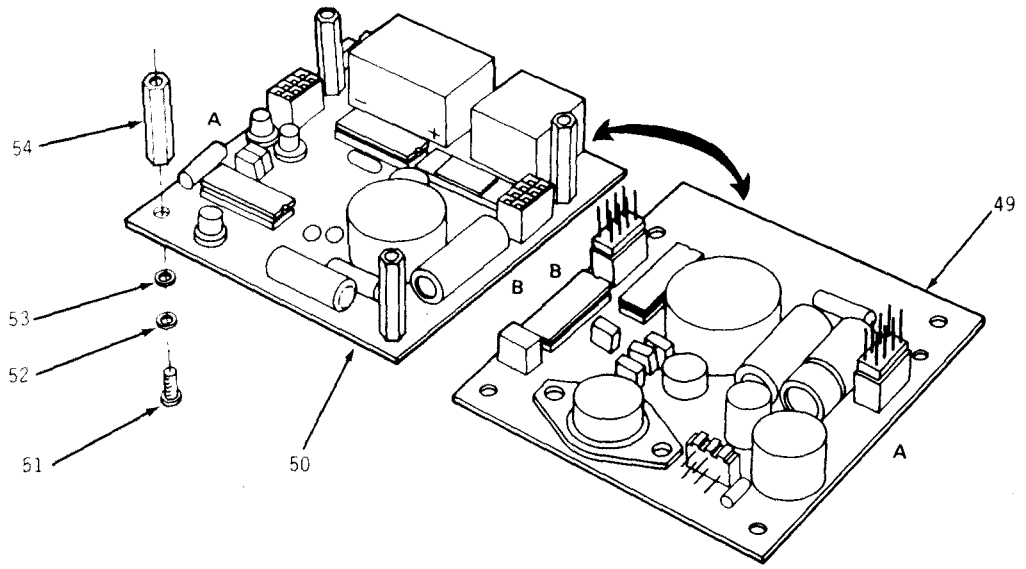
REASSEMBLY (CONT)

4 Position keyboard (56) on the housing assembly (20) carefully mating keyboard connector to keyboard. Reinstall eight screws (55).

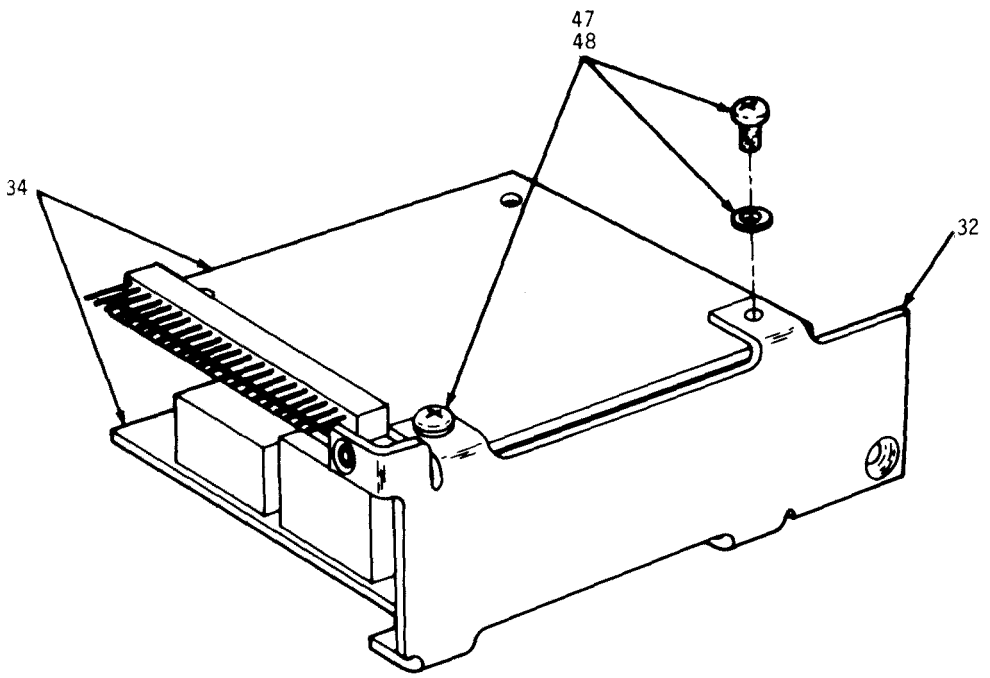


REASSEMBLY (CONT)

5 Reinstall four spacers (54) on display power supply (50) using four screws (51), four lock washers (52), and four flat washers (53). Join logic power supply (49) and display power supply by properly mating connectors.

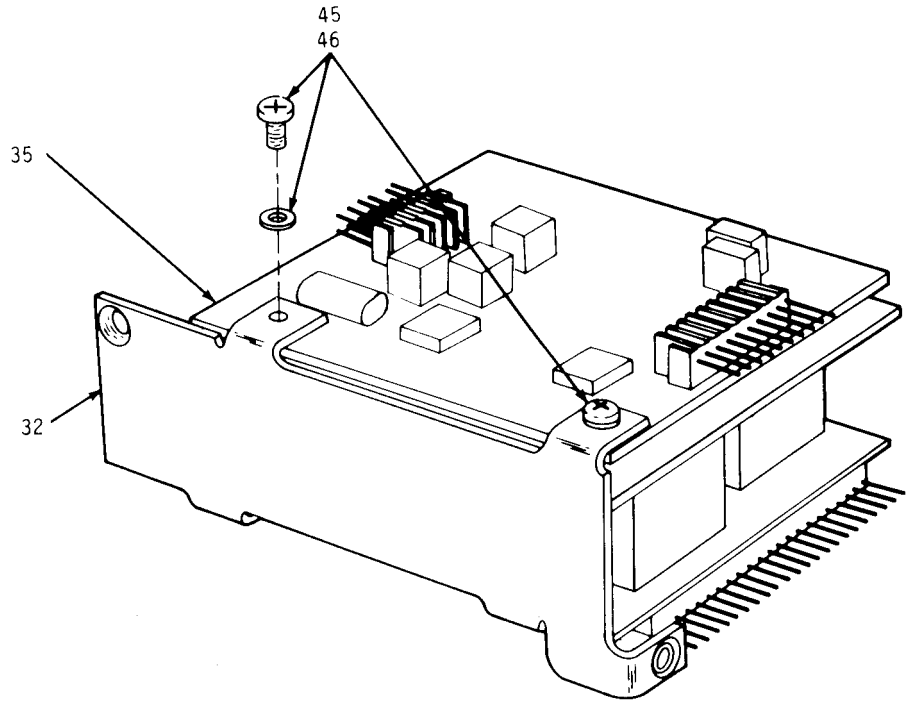


6 Join power supply (34) to right side bracket (32) using two screws (47) and two lock washers (48).



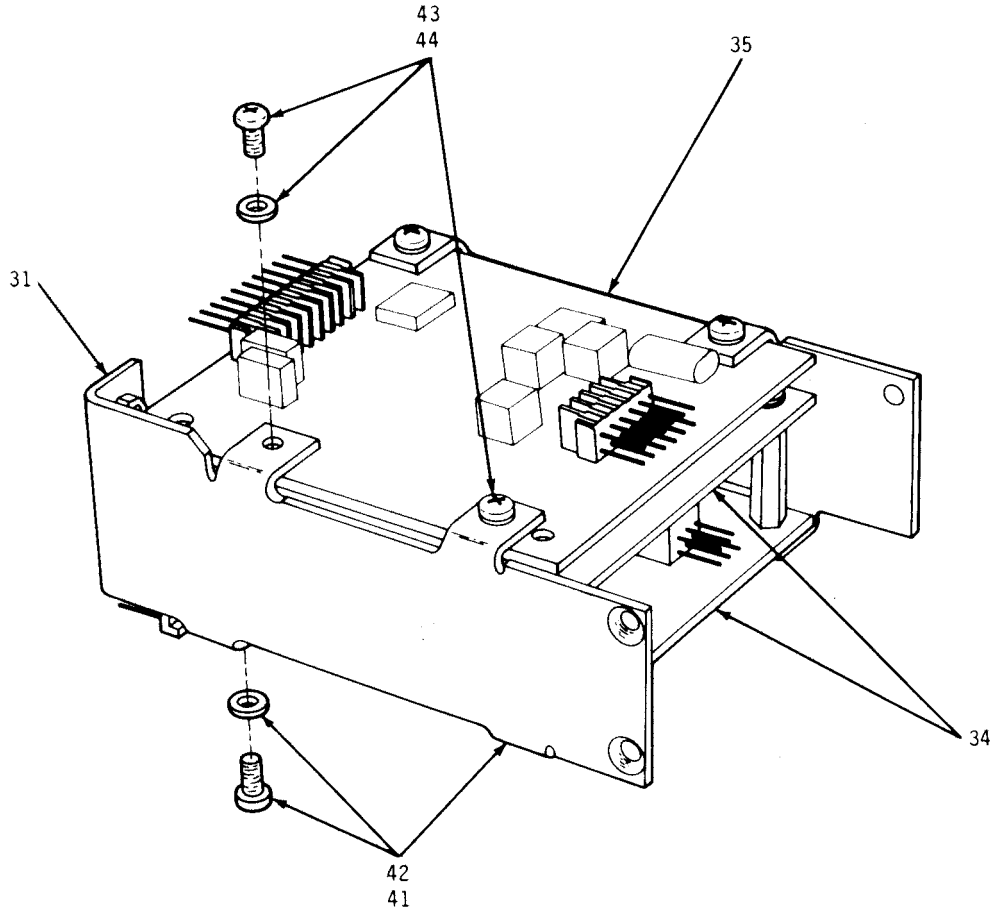
REASSEMBLY (CONT)

7 Join audio interface CCA (35) to right side bracket (32) using two screws (45) and two lock washers (46).



REASSEMBLY (CONT)

8 Join left side bracket (31) to power supply (34) using two screws (41) and two lock washers (42). Mount audio interface CCA (35) by installing two screws (43) and two lock washers (44).

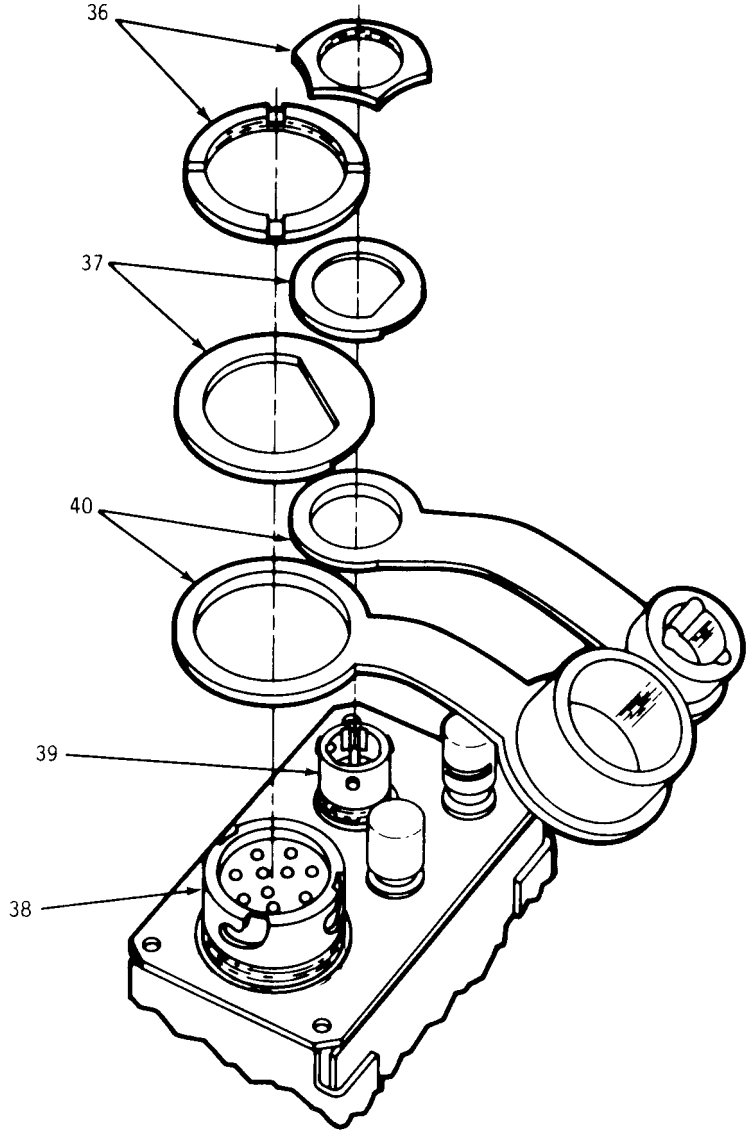


REASSEMBLY (CONT)

9 Properly position dustcover (40), cup washer (37), and nut (36) on connector (38) or (39) (as applies), and tighten the nut snugly.

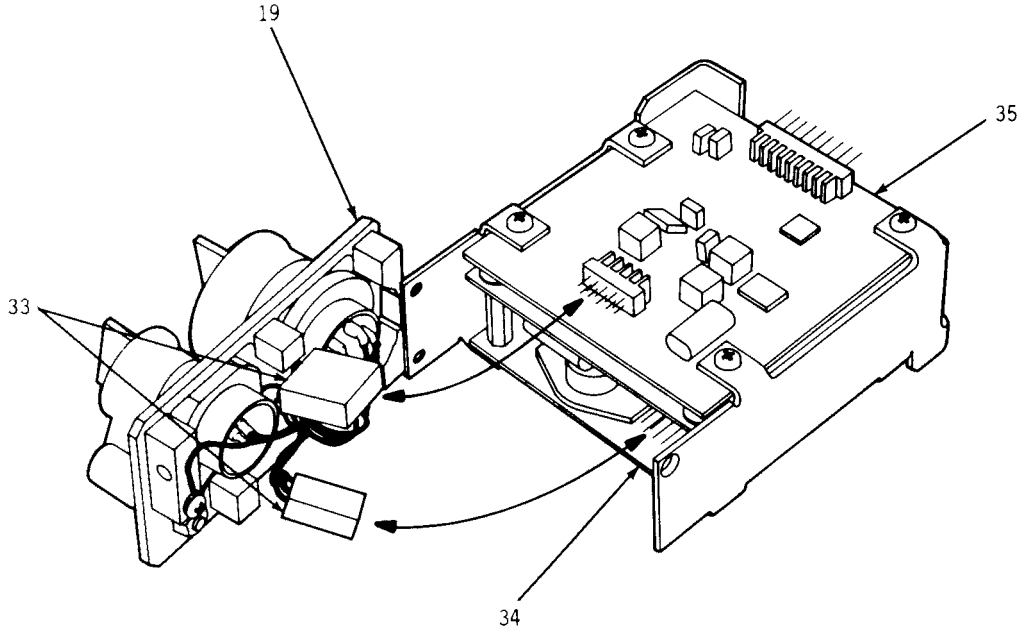
CAUTION

Cutout area of cup washer must be aligned with dustcover tab.

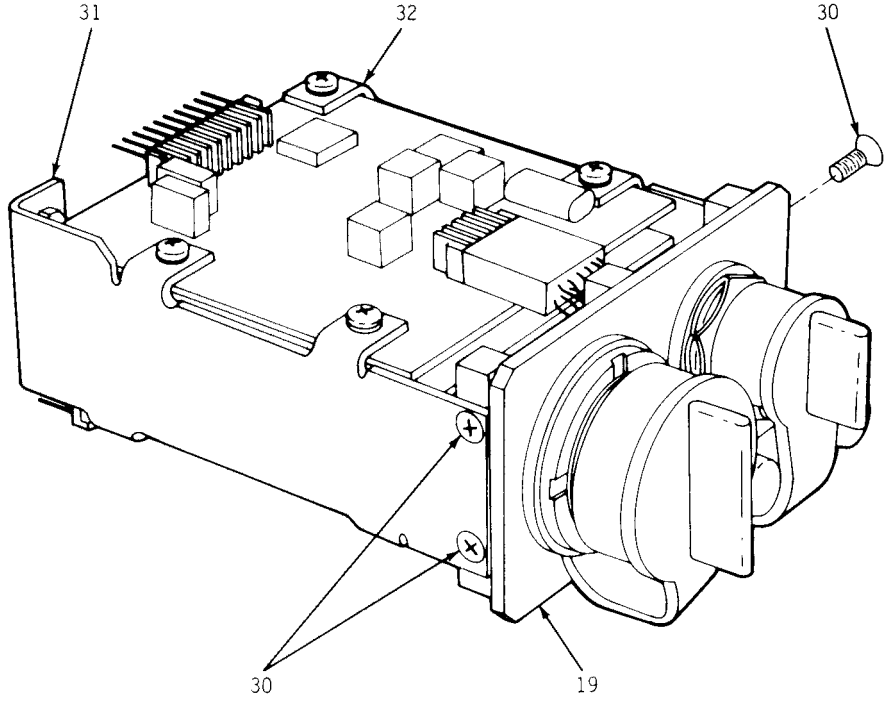


REASSEMBLY (CONT)

10 Mate connector assembly (19) connectors (33) to power supply (34) and audio interface CCA (35) connectors.

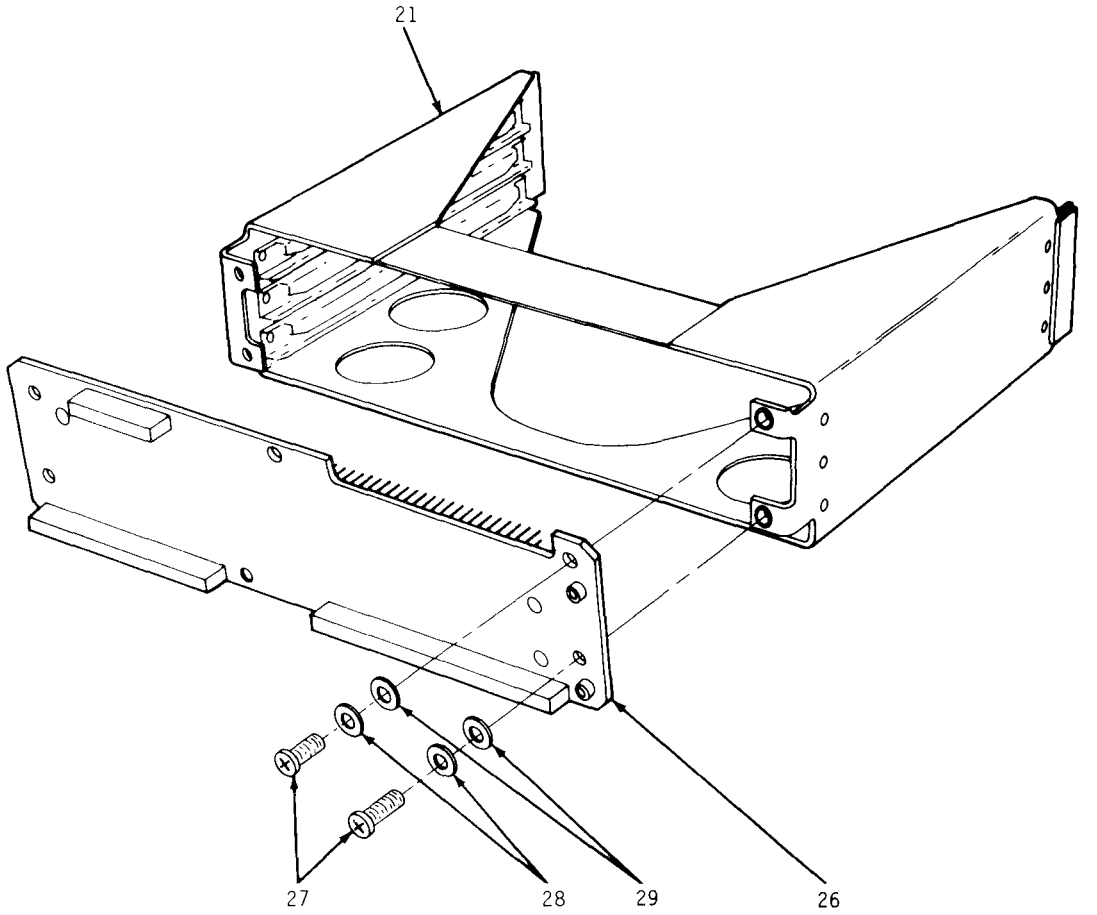


11 Mount connector assembly (19) to side brackets (31) and (32) using three screws (30).



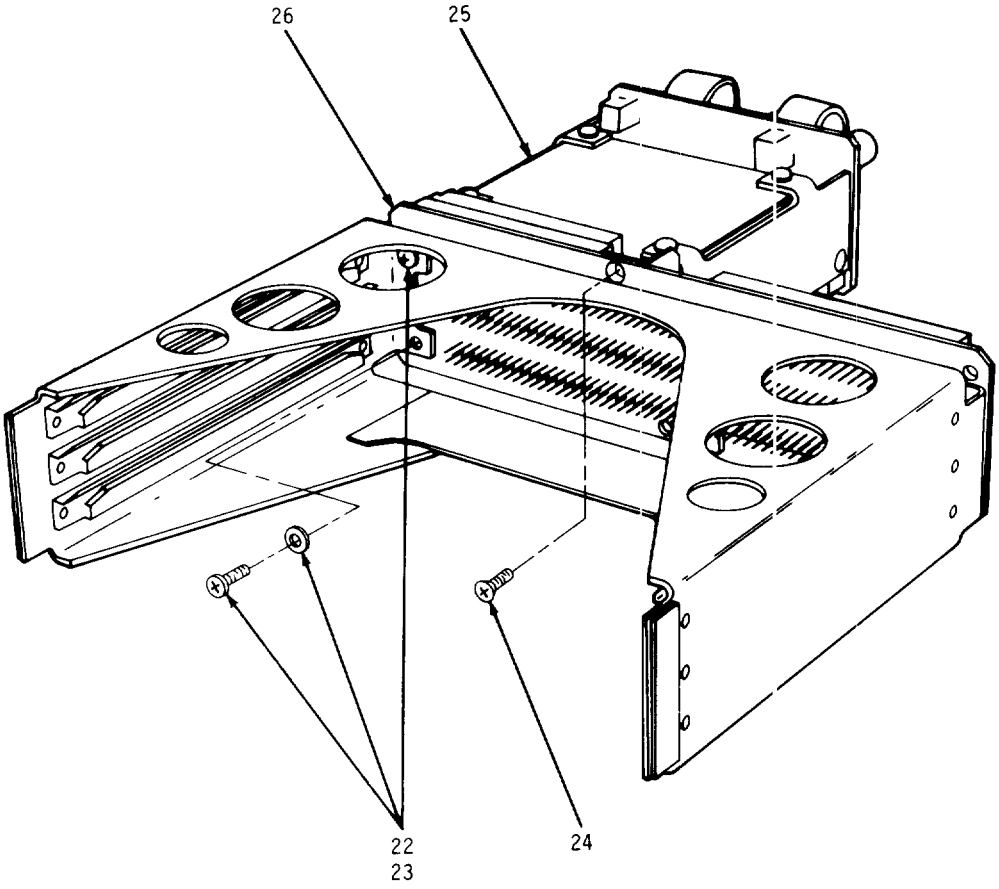
REASSEMBLY (CONT)

12 Join card cage (21) to interconnect CCA (26) using two screws (27), lock washers (28) and two flat washers (29).



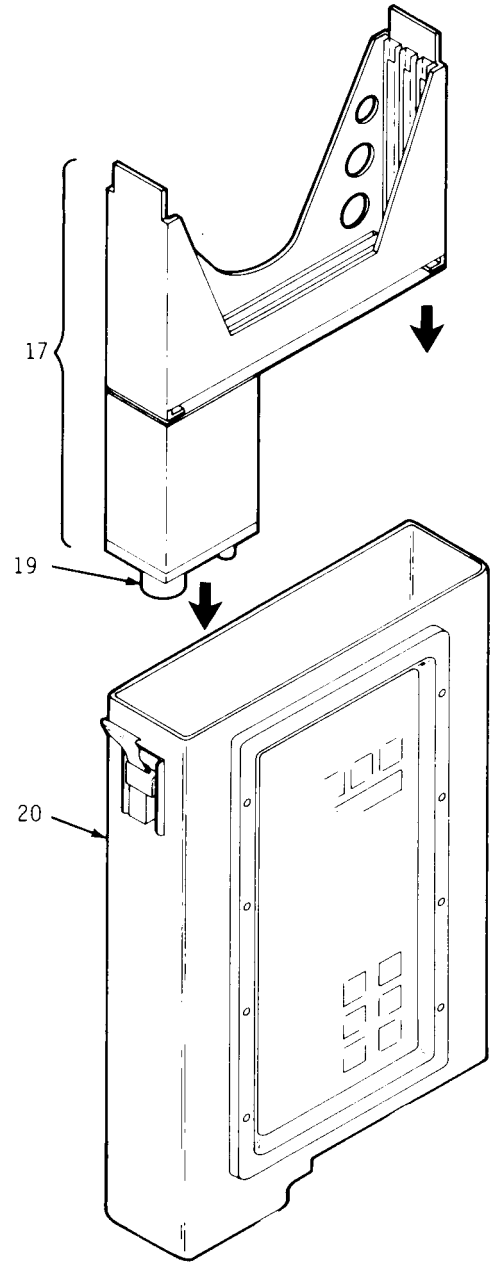
REASSEMBLY (CONT)

13 Mate connectors on interface assembly (25) to appropriate connectors on interconnect CCA (26) and reinstall two screws (22), two washers (23) and one screw (24).



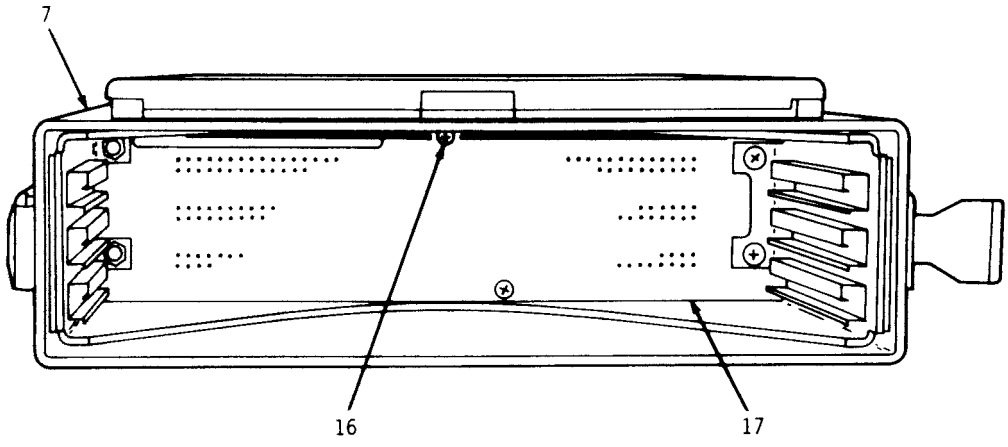
REASSEMBLY (CONT)

14 Slide chassis assembly (17) into housing assembly (20), ensuring connector assembly (19) is properly aligned with case openings.

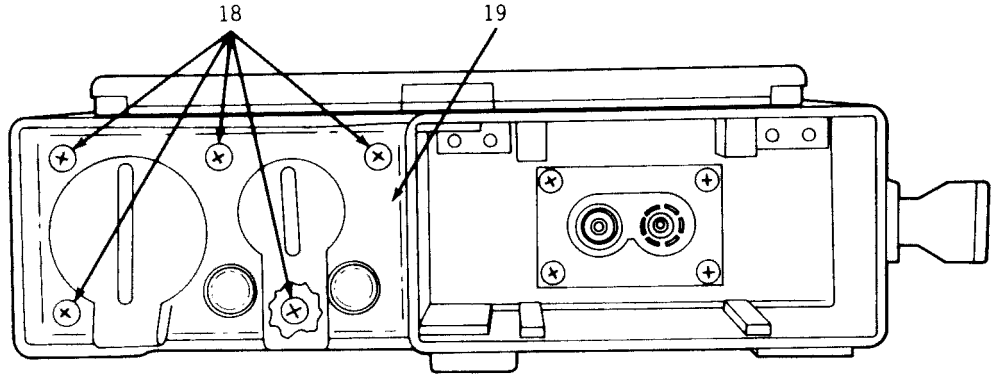


REASSEMBLY (CONT)

15 Reinstall one screw (16) holding chassis assembly (17) to case (7).

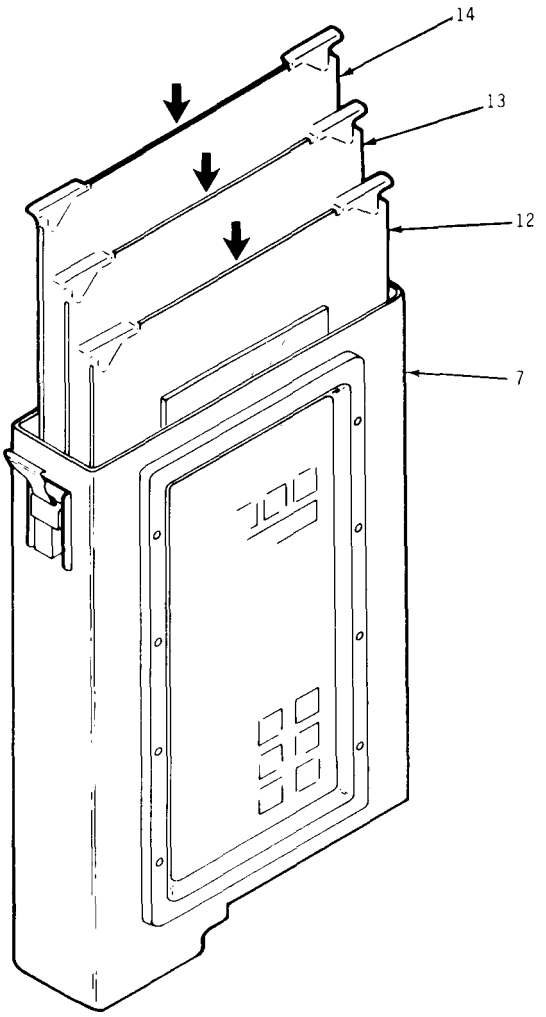


16 Reinstall five screws (18) in bottom of connector assembly (19).



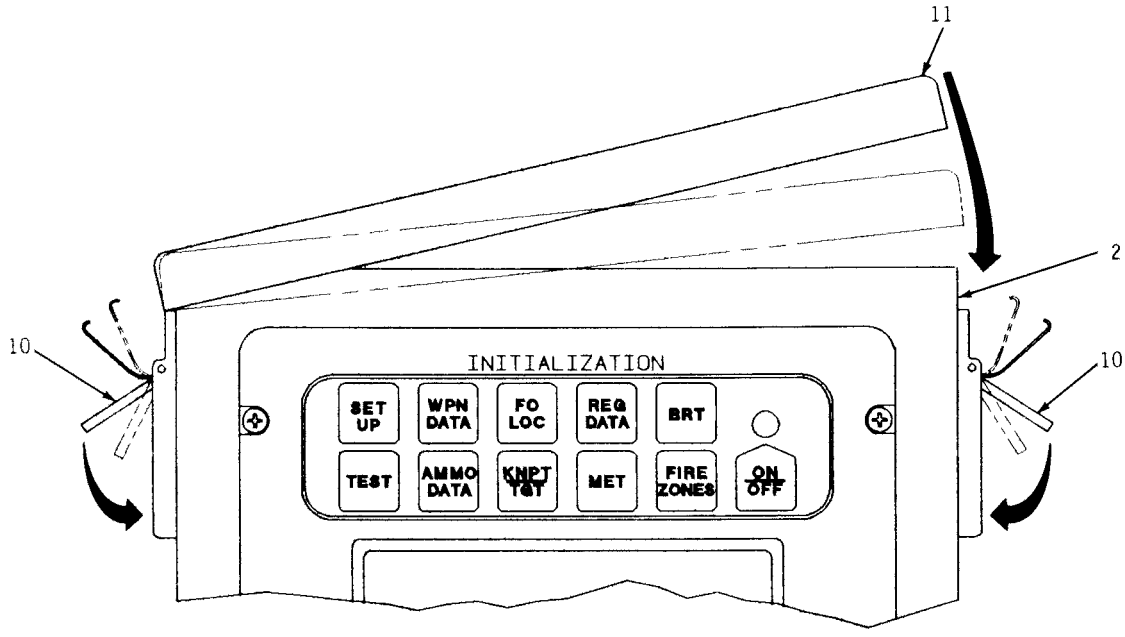
REASSEMBLY (CONT)

17 Insert circuit cards A1 (12), A2 (13), A3 (14) in proper slots of case (7). Press firmly to ensure proper seating of cards.

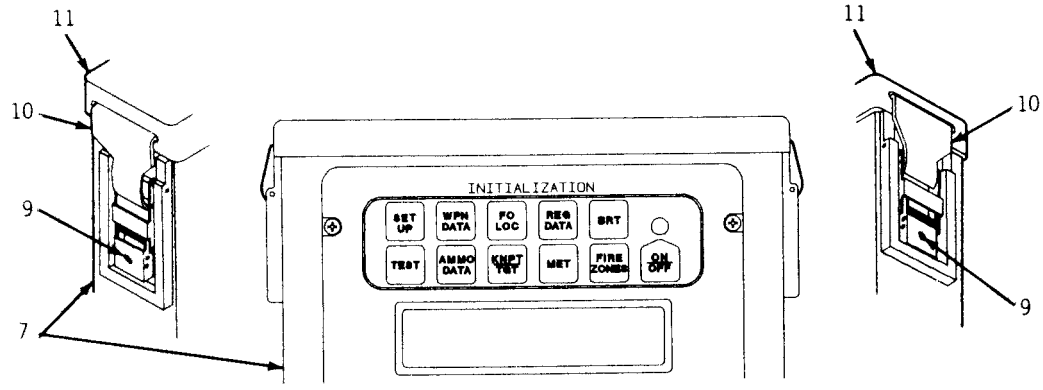


REASSEMBLY (CONT)

18 Place top cover (11) on MBC (2) and close two latches (10).

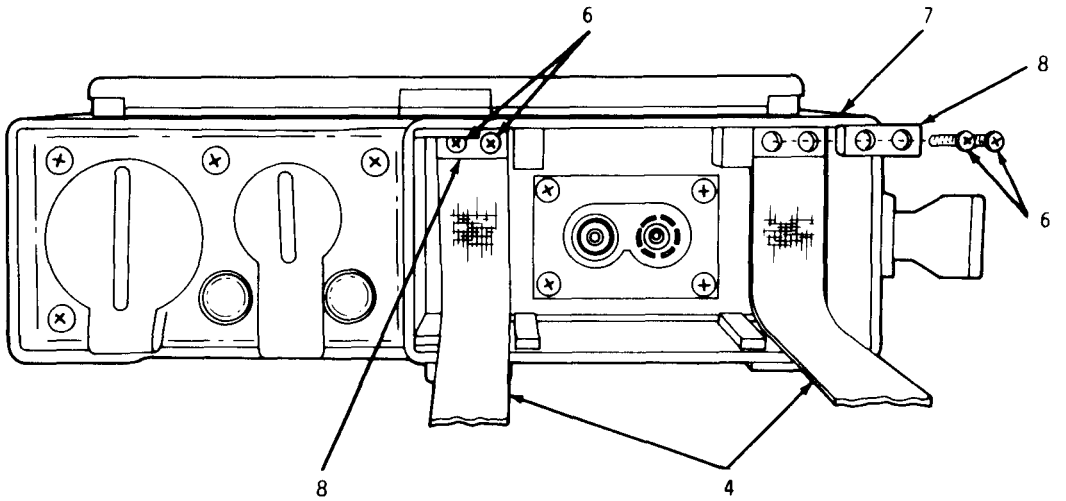


19 Using security screw tool, reinstall security screw (9) in each of two latches (10) holding top cover (11) to case (7).



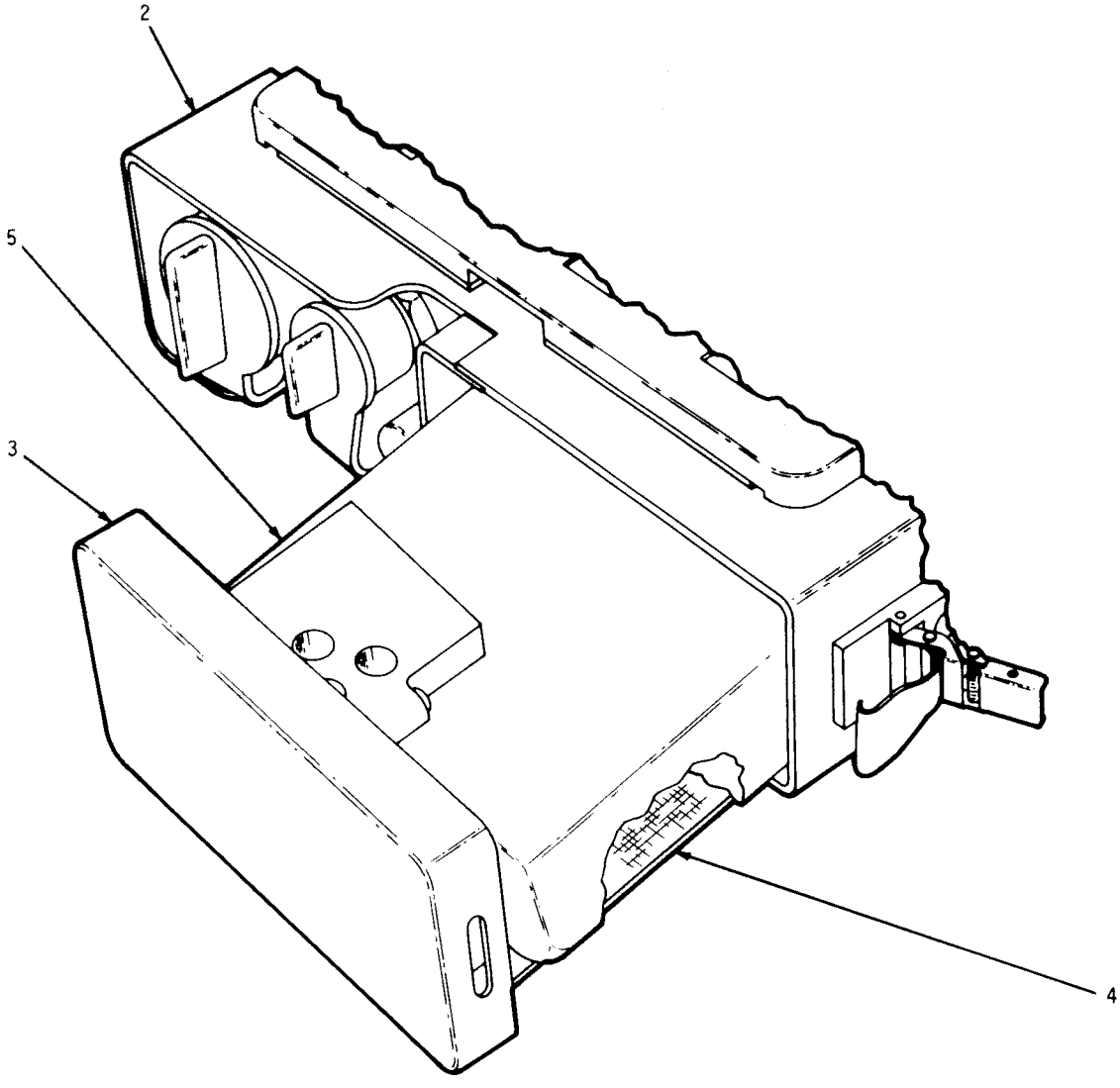
REASSEMBLY (CONT)

20 Reinstall battery removal straps (4) to case (7) using four screws (6), and two strap retainer plates (8).



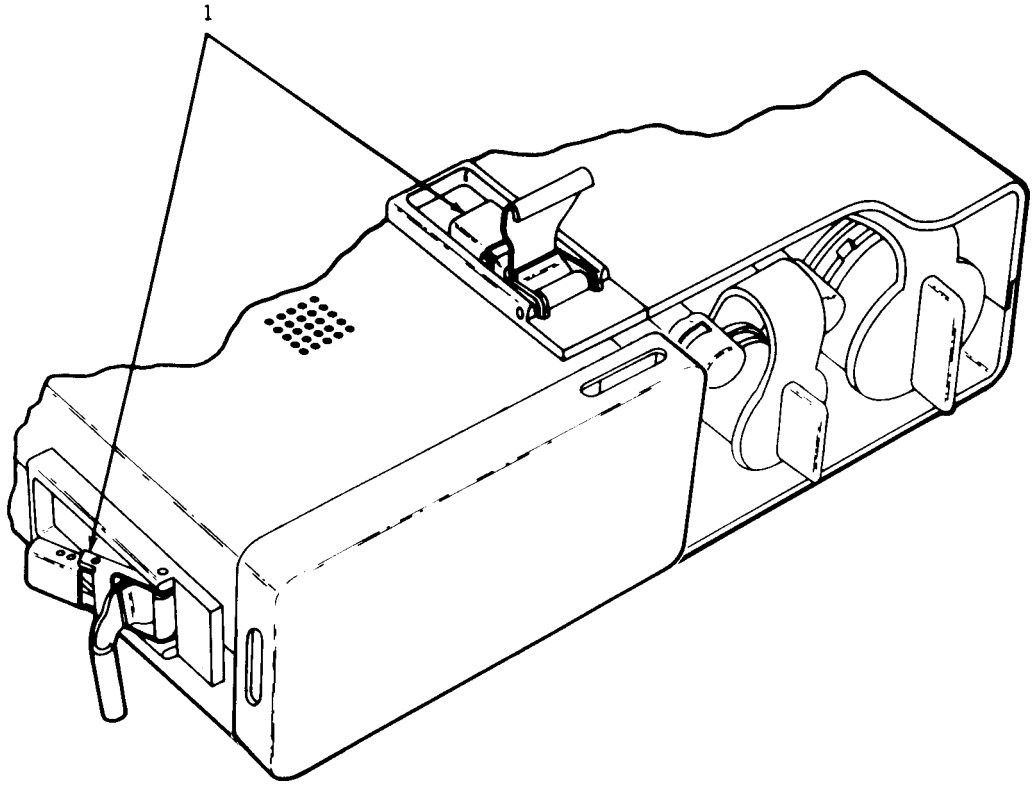
21 Position battery (5) on top of battery removal straps (4) and insert battery into MBC (2). Battery compartment cover (3) must fit snugly.

(Observe proper mechanical battery connections, and proper draping of battery removal straps for future battery removal.)



REASSEMBLY (CONT)

22 Close two battery compartment cover latches (1).



REPAIR

Repair of the MBC is accomplished by performing a particular maintenance task as determined during troubleshooting procedures.

CHAPTER 3

CABLE MAINTENANCE INSTRUCTIONS

Page

Repair Parts, Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment 3-1
Troubleshooting, Repair/Replacement 3-2
Maintenance Procedures 3-3
Diagrams 3-5

Section I

REPAIR PARTS, SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

GENERAL INFORMATION

This chapter contains maintenance instructions to service and maintain cables used to connect the MBC to external equipment and power sources, The maintenance instructions are supported by Common Tools; Test, Measurement, and Diagnostic Equipment; Repair Parts List, and Troubleshooting Information.

COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your cables.

SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

At the direct support and general support levels of maintenance, no special tools or support are required for maintenance of the interconnect cables.

REPAIR PARTS

Repair parts are listed and illustrated in Appendix B, RPSTL of this manual

SECTION II

TROUBLESHOOTING, REPAIR/REPLACEMENT

TROUBLESHOOTING

This section contains the maintenance instructions for interconnecting cables. Follow the maintenance program.

First - Perform a physical inspection of any faulty cables received for maintenance. Perform any maintenance indicated by observation of unacceptable conditions. Check the free action of connector shells and pin clearances. Refer to TM 9-1220-246-12&P for additional inspection criteria.

Second - Perform point-to-point resistance check to locate possible faults as described in Chapter 3, Section III, Maintenance Procedures.

REPAIR/REPLACEMENT

Repair and replacement is confined to connector and cable maintenance. Damaged connectors are replaced, pins are not replaced. Cables are repaired by replacing cable assembly.

SECTION III

MAINTENANCE PROCEDURES

MAINTENANCE TASKS

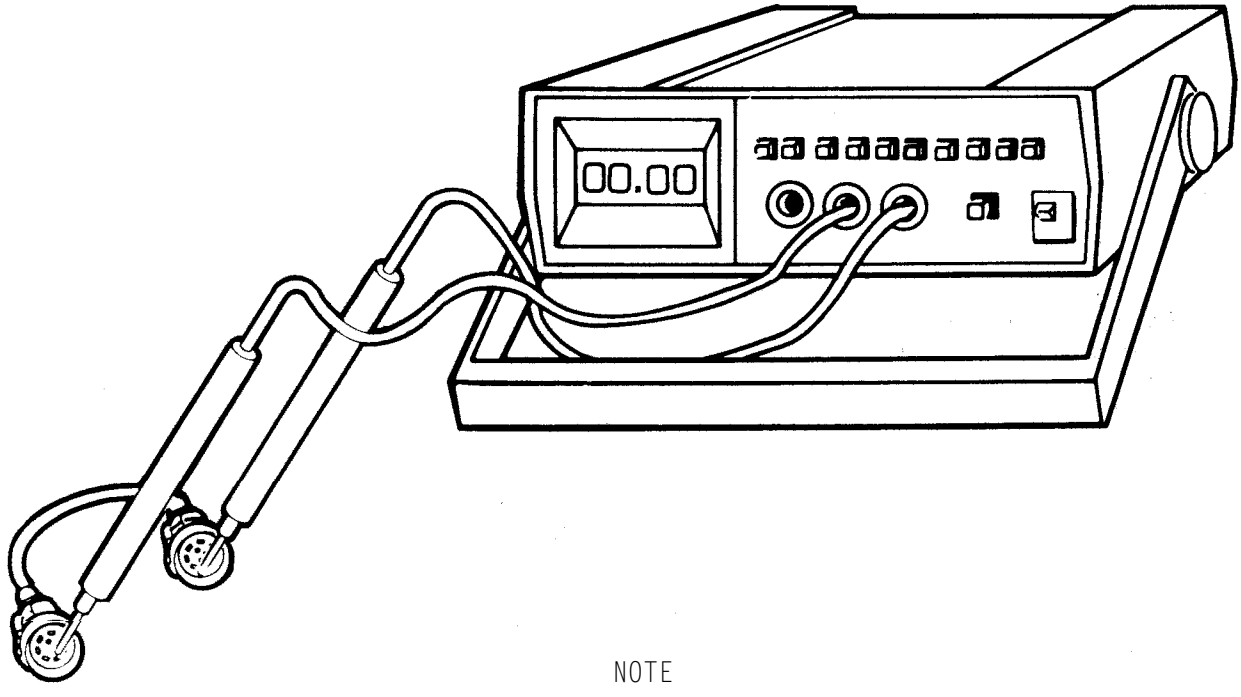
NOTE

ALL CABLE MAINTENANCE IS SIMILAR; CABLES SHOWN ARE TYPICAL.

STEP 1 Clear connectors of foreign materials.

STEP 2 Locate cable wiring diagram by referring to cable types.

STEP 3 Refer to cable wiring diagrams; then use AN/USM-486 set to ohms scale to make a complete pin-to-pin continuity check.



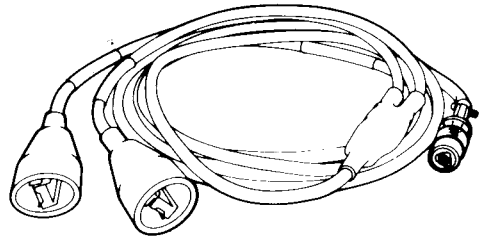
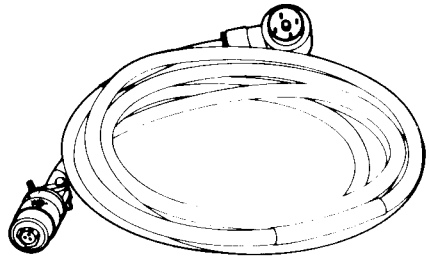
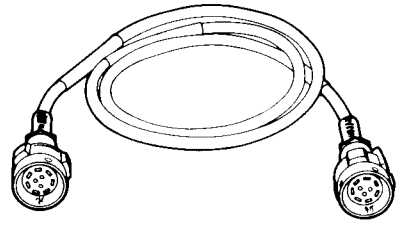
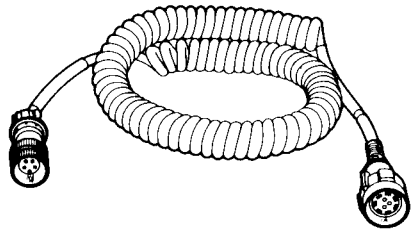
NOTE

Refer to TM 55-1500-323-24 for general cable maintenance.

STEP 4 Upon completion of repair perform continuity check as detailed in step 3.

CABLE TYPES

Locate cable type in table. Then refer to applicable cable wiring diagram.

CABLE TYPE	ILLUSTRATION	WIRING DIAGRAMS PAGE
VEHICULAR BATTERY CABLE		3-5
VEHICULAR RECEPTACLE CABLE		3-5
AN/GRC-106 INTERFACE CABLE		3-6
PRIMARY RADIO INTER-FACE CABLE		3-6

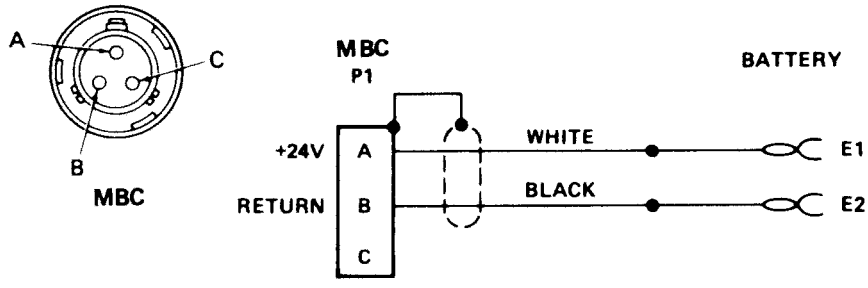
SECTION IV

DIAGRAMS

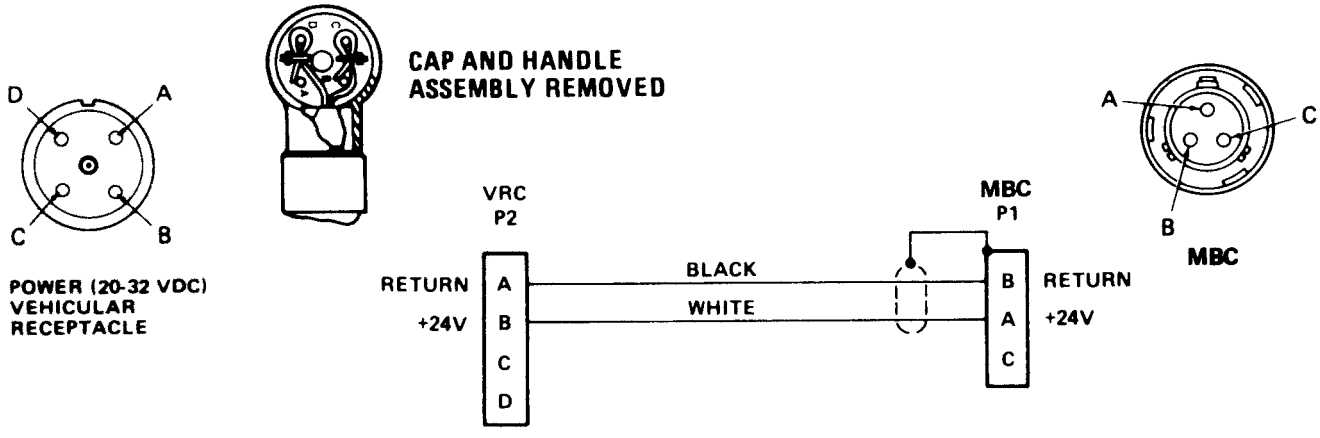
This section includes those cable diagrams required for maintenance of the cables used to connect the MBC to external equipment and power sources.

CABLE WIRING DIAGRAMS

VEHICULAR BATTERY CABLE

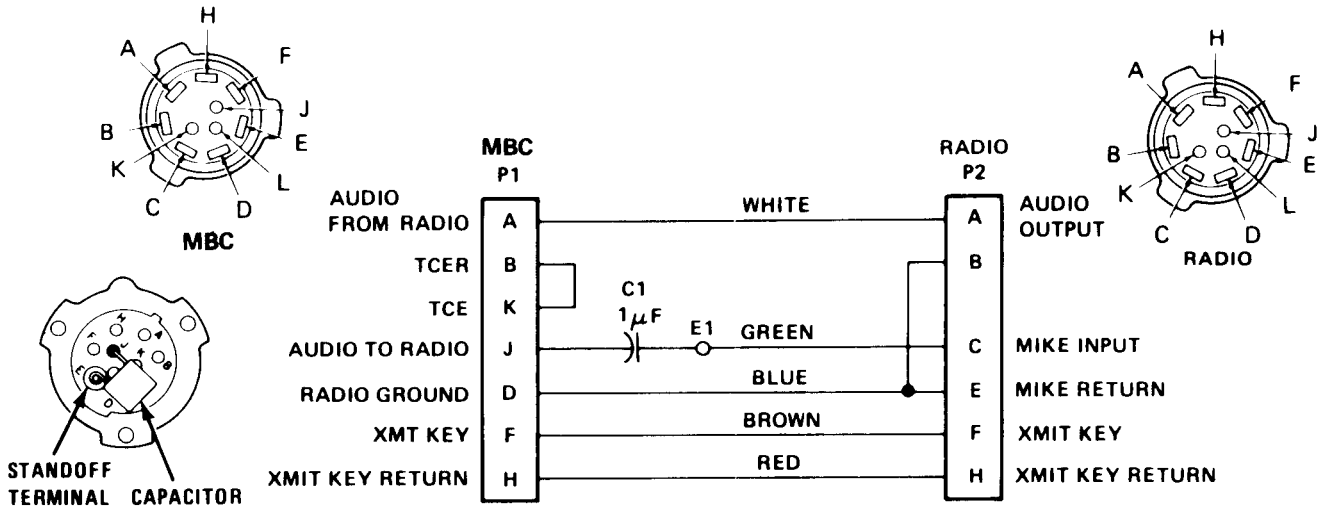


VEHICULAR RECEPTACLE CABLE

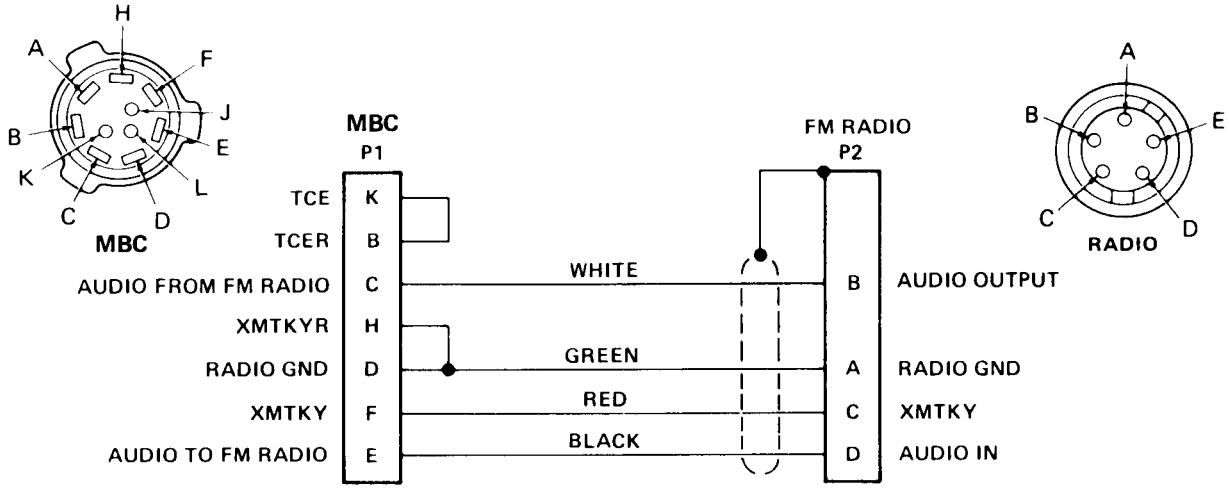


CABLE WIRING DIAGRAMS (CONT)

AN/GRC-106 INTERFACE CABLE



PRIMARY RADIO INTERFACE CABLE



APPENDIX A

REFERENCES

A-1. SCOPE

This appendix lists all forms, field manuals, technical manuals and miscellaneous publications referenced in this manual.

A-2 . FORMS

Quality Deficiency Report ..... SF 368
Recommended Changes to DA Publications . . .. DA Form 2028-2

A-3. FIELD MANUALS

First Aid For Soldiers . . . . . FM 21-11

A-4. TECHNICAL MANUALS

Organizational, DS, GS, and Depot Maintenance Manual:
Installation Practices for Aircraft Electric and
Electronic Wiring ..... TM 55-1500-323-24
Operator's and Organizational Maintenance Manual
Including Repair Parts and Special Tools List for
Digital Message Device AN/PSG-2B . . . . . TM 11-7440-281-12&P
Operator's and Organizational Maintenance Manual for
Mortar Ballistics Computer Set, M23 ..... TM 9-1220-246-12&P
Procedures for Destruction of Electronics Materiel
to Prevent Enemy Use (Electronics Command) . . . . . TM 750-244-2

A-5. MISCELLANEOUS PUBLICATIONS

Army Materiel Management Policy and Retail Maintenance Operations ..... AR 750-1
Electrostatic Discharge Control Handbook for
Protection of Electrical and Electronic Parts,
Assemblies and Equipment DOD-HDBK-263
Index of Technical Publications . . . . . DA PAM 25-30
Maintenance and Repair of Printed Circuit Boards and
Printed Wiring Assemblies ..... TB 43-0127
The Army Maintenance Management System (TAMMS) . . . . . DA PAM 738-750

APPENDIX B

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE

REPAIR PARTS, SPECIAL TOOLS, AND DEPOT

MAINTENANCE REPAIR PARTS LISTS

(Current as of 24 December 1990)

Section 1. INTRODUCTION

1. Scope.

This RPSTL lists and authorizes spares and repair parts and special tools required for performance of direct support and depot maintenance of the M23 Mortar Ballistics Computer. It authorizes the requisitioning, issue, and Disposition of spares, repair parts, and special tools as indicated by the Source, Maintenance and Recoverability (SMR) codes.

2. General.

In addition to Section I, Introduction, this Repair Parts and Special Tools List is divided into the following sections:

a. Section II. Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Bulk materials are listed by item name in FIG BULK at the end of the section.

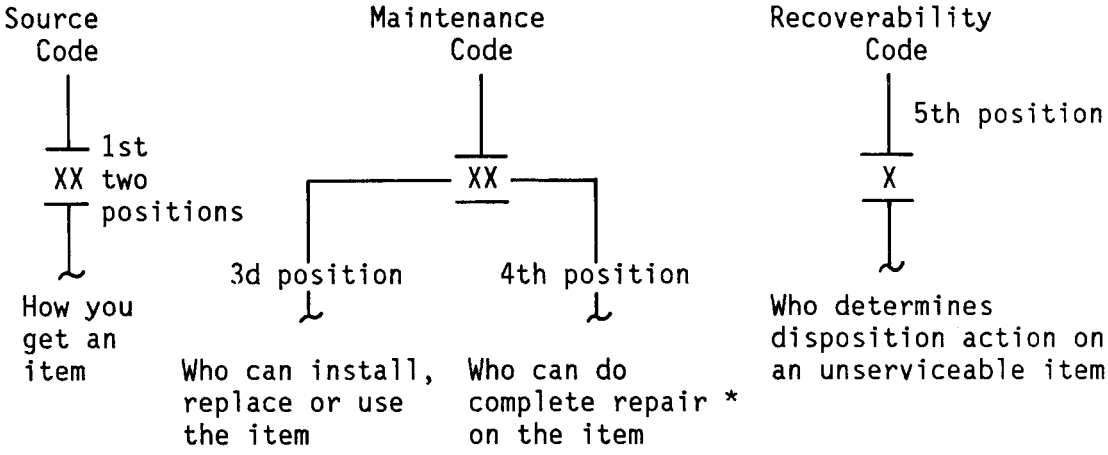
b. Section III. Special Tools List. A list of special tools, authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in DESCRIPTION AND USABLE ON CODE (UOC) column) for the performance of maintenance.

c. Section IV. National Stock Number and Part Number Index. A list, in National Item Identification Number (NIIN) sequence, of all National stock numbered items appearing in the listings, followed by a list in alphanumeric sequence of all part numbers appearing in the listing. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance.

3. Explanation of Columns (Sections II and III).

a. ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

b. SMR CODE (Column (2)). The Source, Maintenance, and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instructions, as shown in the following breakout:



*Complete Repair: Maintenance capacity, capability, and authority to perform all the corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

(1) Source code. The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Source codes are always the first two positions of the SMR code. Explanations of source codes follow:

Code	Explanation
PA PB PC** PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3d position of the SMR code. **NOTE : Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the 3d position of the SMR code. The complete kit must be requisitioned and applied.

Code	Explanation
MO-(Made at org Level) MF-(Made at DS Level) MH-(Made at GS Level) ML-(Made at Specialized Repair Act (SRA)) MD-(Made at Depot)	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the Bulk Material group in the repair parts list in this RPSTL. If the item is authorized to you by the 3d position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.
AO-(Assembled by org Level) AF-(Assembled by DS Level) AH-(Assembled by GS Level) AL-(Assembled by SRA) AD-(Assembled by Depot)	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3d position code of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.

XA- Do not requisition an "XA''-coded item. Order its next higher assembly. (Al so, refer to the NOTE below.)

XB- If an "XB" item is not available from salvage, order it using the FSCM and part number given.

xc- Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.

XD- Item is not stocked. Order an "XD''-coded item through normal supply channels using the CAGEC and part number given, if no NSN is available.

NOTE: Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

(2) Maintenance code. Maintenance codes tell you the level(s) of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the SMR Code as follows:

(a) The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance rode entered in the third position will indicate authorization to one of the following levels of maintenance.

Code	Application/Explanation
c	- Crew or operator maintenance done within organizational or aviation unit maintenance.
o	- Organizational or aviation unit level can remove, replace, and use the item.
F	- Direct support or aviation intermediate level can remove, replace, and use the item.
H	- General support level can remove, replace, and use the item.
L	- Specialized repair activity can remove, replace, and use the item.
D	- Depot level can remove, replace, and use the item.

(b) The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (i.e., perform all authorized repair functions). (NOTE: Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.) This position will contain one of the following maintenance codes.

Code	Application/Explanation
o	- Organizational or aviation unit is the lowest level that can do complete repair of the item.
F	- Direct support or aviation intermediate is the lowest level that can do complete repair of the item.
H	- General support is the lowest level that can do complete repair of the item.
L	- Specialized repair activity is the lowest level that can do complete repair of the item.
D	- Depot is the lowest level that can do complete repair of the iten.
z	- Nonreparable. No repair is authorized.
B	- No repair is authorized. (No parts or special tools are authorized for the maintenance of a “B” coded item.) However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

(3) Recoverability code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the SMR Code as follows:

Recoverability Codes	Application/Explanation
z	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in 3d position of SMR code.
o	Reparable item. When uneconomically reparable, condemn and dispose of the item at organizational or aviation unit level.
F	Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support or aviation intermediate level.
H	Reparable item. When uneconomically reparable, condemn and dispose of the tern at the general support level.
D	Reparable item. When beyond lower level repair capability ty , return to depot Condemnation and disposal of item not authorized below depot level.
L	Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).
A	Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manual/directives for specific instructions.

c. CAGEC (Column(3)). The Contractor and Government Entity Code (CAGEC) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc. , that supplies the item.

d. Part Number (Column(4)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements to identify an item or range of items.

NOTE : When you use an NSN to requisition an item, the item you receive may have a different part number from the part ordered.

e. DESCRIPTION AND USABLE ON CODE (UOC) (Column (5)). This column includes the following information:

(1) The Federal item name and, when required, a minimum description to identify the item.

(2) The physical security classification of the item. Not applicable.

(3) Items that are included in kits and sets. Not applicable.

(4) Spare/repair parts that make up an assembled item are listed immediately following the assembled item line entry.

(5) Part numbers for bulk materials are referenced in this column in the line item entry for the item to be manufactured/fabricated.

(6) When the part is not used with all serial numbers of the same model. Not applicable.

(7) The usable on code, when applicable (see paragraph 5, Special Information).

(8) In the Special Tools List section, the basis of issue (BOI) appears as the last line(s) in the entry for each special tool, special TMDE, and other special support equipment. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased proportionately.

(9) The statement "END OF FIGURE" appears just below the last item description in column 5 for a given figure in both Section II and Section III.

f. QTY (Column (6)). The QTY (quantity per figure column) indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A “V” appearing in this column in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

4. Explanation of Columns (Sect. IV).

a. NATIONAL STOCK NUMBER (NSN) INDEX.

(1) STOCK NUMBER column. This column lists the NSN by National Item Identification Number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN (i.e., 5305-01-674-1467). When using this column to locate an item, ignore the first 4 digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

(2) FIG. column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in Section II and Section III.

(3) ITEM column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.

b. PART NUMBER INDEX. Part numbers in this index are listed by part number in ascending alphanumeric sequence (i.e., vertical arrangement of letter and number combination which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

(1) CAGEC column. The Contractor and Government Entity Code (CAGEC) is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

(2) PART NUMBER column. Indicates the primary number used by the manufacturer (individual, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements to identify an item or range of items.

(3) STOCK NUMBER column. This column lists the NSN for the associated part number and manufacturer identified in the PART NUMBER and CAGEC columns to the left.

(4) FIG. column. This column lists the number of the figure where the item is identified/located in Section II and III.

(5) ITEM column. The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

5. Special Information. Use the following subparagraphs as applicable:

a. USABLE ON CODE. Not applicable.

b. FABRICATION INSTRUCTIONS. Bulk materials required to manufacture items are listed in the Bulk Material Functional Group of this RPSTL. Part numbers for bulk materials are also referenced in the description column of the line entry for the item to be manufactured/fabricated. Detailed fabrication instructions for items source coded to be manufactured or fabricated are found in TM 9-1220-246-34&P.

c. ASSEMBLY INSTRUCTIONS. Detailed assembly instructions for items source coded to be assembled from component spare/repair parts are found in Chapter 2, Section 111. Items that make up the assembly are listed immediately following the assembly item entry or reference is made to an applicable figure.

d. KITS . Not applicable.

e . INDEX NUMBERS. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the National Stock Number/Part Number Index and the bulk material list in Section 11.

f. ASSOCIATED PUBLICATIONS. Not applicable.

9. ILLUSTRATIONS - LISTING. Not applicable.

6. How to Locate Repair Parts.

a. When National Stock Number or Part Number is Not Known:

(1) First. Using the table of contents, determine the assembly group or subassembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same groups.

(2) Second. Find the figure covering the assembly group or subassembly group to which the item belongs.

(3) Third. Identify the item on the figure and note the item number.

(4) Fourth. Refer to the Repair Parts List for the figure to find the part number for the item number noted on the figure.

(5) Fifth. Refer to the Part Number Index to find the NSN, if assigned.

b. When National Stock Number or Part Number is Known:

(1) First. Using the Index of National Stock Numbers and Part Numbers, find the pertinent National Stock Number or Part Number. The NSN index is in National Item Identification Number (NIIN) sequence (see 4a(l)). The part numbers, in the Part Number index are listed in ascending alphanumeric sequence (see 4.b). Both indexes cross-reference you to the illustration figure and item number of the item you are looking for.

(2) Second. After finding the figure and item number, verify that the item is the one you're looking for, then locate the item number in the repair parts list for the figure.

7. Abbreviations. Not applicable.

Section II. REPAIR PARTS LIST

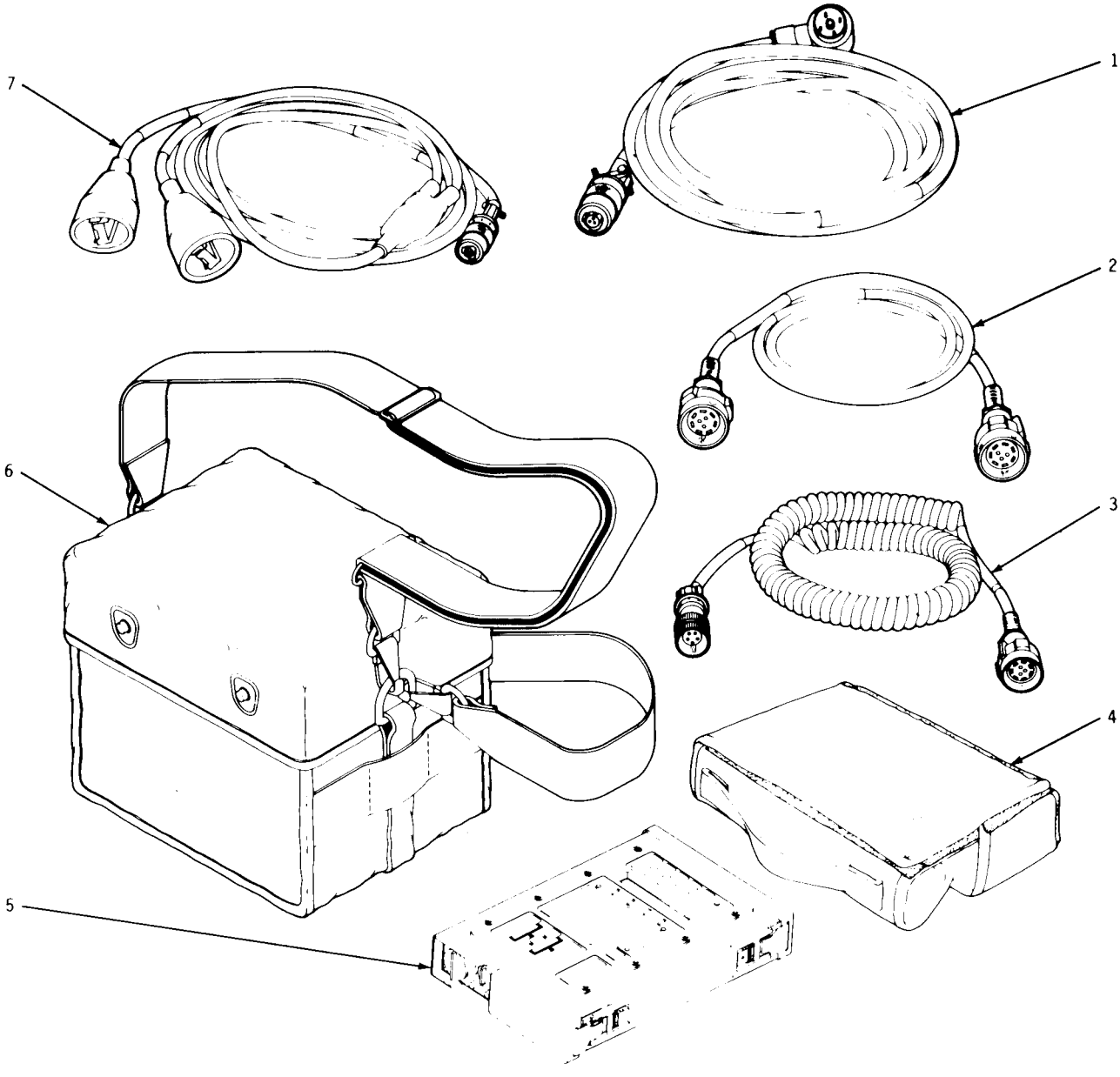


Figure B1. Computer set, ballistics: mortar M23 (11785850)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				FIG. B1. GROUP 00:COMPUTER SET. BALLISTICS:MORTAR,M23 (11785850)	
1	PAOFF	80063	SM-D-917637	CABLE ASSEMBLY,SPECIAL PURPOSE, ELECTRICAL	1
2	PAOFF	80063	SM-D-955457	CABLE ASSEMBLY,SPECIAL PURPOSE, ELECTRICAL	1
3	PAOFF	80063	SM-D-875498	CABLE ASSEMBLY,SPECIAL PURPOSE ELECTRICAL	1
4	PAOZZ	19200	9355747	CASE,COMPUTER BALLISTICS	1
5	XADDD	19200	11785700-1	COMPUTER,BALLISTICS:MORTAR	1
6	PAOZZ	80063	SM-C-456359	CASE,RADIO SET CONTAINER	1
7	PAOFF	80063	SM-D-875489	CABLE ASSEMBLY,SPECIAL PURPOSE ELECTRICAL	1
				END OF FIGURE	

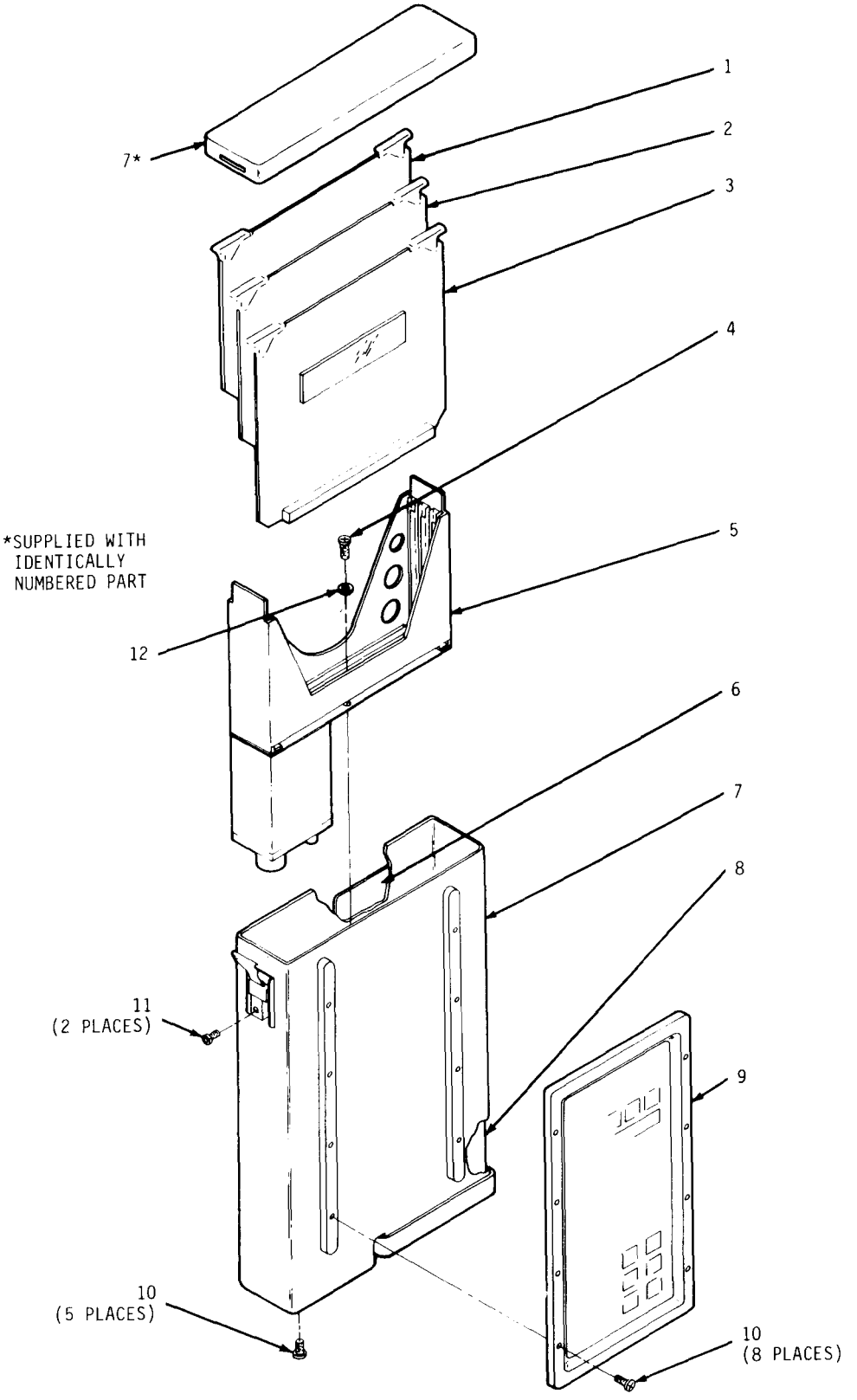


Figure B2. Computer, ballistics: mortar (1) (11785700-1)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				FIG. B2,GROUP 01:COMPUTER, BALLISTICS:MORTAR (1) (11785700-1)	
1	PAFDD	19200	9355760	CIRCUIT CARD ASSEMBLY: MODEM	1
2	PAFDD	19200	9379230-5	CIRCUIT CARD ASSEMBLY:MEMORY (PROGRAMMED)	1
3	PAFDD	19200	9379229-5	CIRCUIT CARD ASSEMBLY:DISPLAY (PROGRAMMED)	1
4	PAFZZ	96906	MS51957-13	SCREW,MACHINE	1
5	AFFFF	19200	9355730	CHASSIS,ELECTRICAL	1
6	PADZZ	19200	11785701	PLATE,IDENTIFICATION	1
7	AFFFF	19200	9355750	CASE,COMPUTER	1
8	PCCZA	80058	BA-5588/U	BATTERY,DRY	1
8	PCCZA	80058	BA-1588/U	BATTERY (1) NONRECHARGABLE	1
8	PAOZA	80058	BB-588/U	BATTERY,STORAGE	1
9	PAFZZ	19200	9355810	KEYBOARD,DATA ENTRY	1
10	PAFZZ	96906	MS51957-12	SCREW,MACHINE	13
11	PAFZZ	19200	9379234	SCREW,SECURITY	2
12	PAFZZ	80205	NAS620C4	WASHER,FLAT	1
				END OF FIGURE	

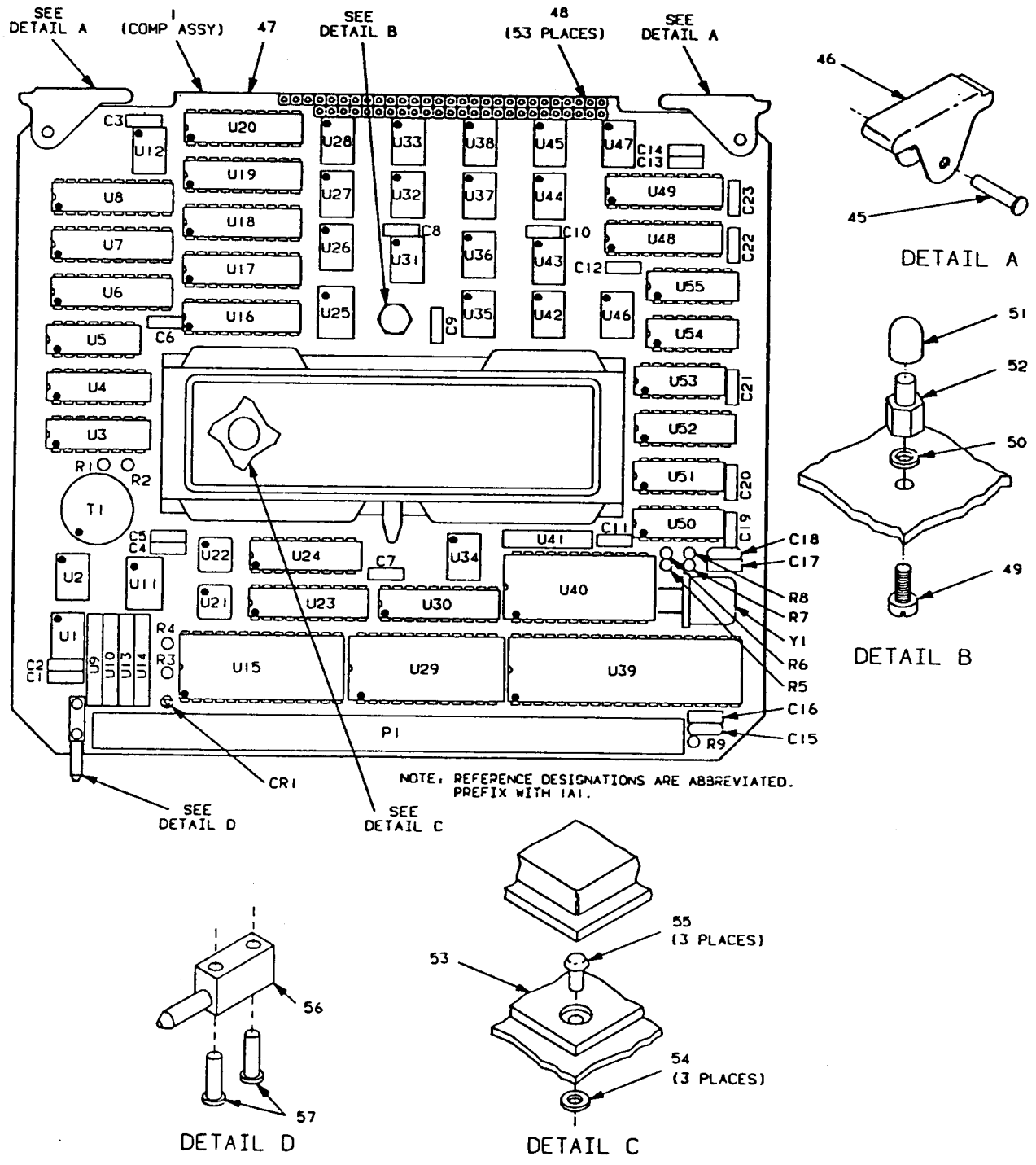


Figure B3. Circuit card assembly: display (1A1) (9379229-5)
(Sheet 1 of 2)

LEGEND

REF. DES.	ITEM NO.
CR1	1
C1	2
C2	2
C3	2
C4	2
C5	2
C6	2
C7	2
C8	2
C9	2
C10	2
C11	2
C12	2
C13	2
C14	2
C15	3
C16	2
C17	2
C18	4
C19	2
C20	2
C21	2
C22	2
C23	2
DS1	5
P1	6
R1	7
R2	7
R3	8
R4	9
R5	7
R6	7
R7	7
R8	10
R9	11
T1	12
U1	13
U2	14
U3	15
U4	16
U5	17
U6	18
U7	19
U8	19
U9	20
U10	20

REF. DES.	ITEM NO.
U11	21
U12	13
U13	20
U14	20
U15	22
U16	23
U17	23
U18	24
U19	19
U20	19
U21	25
U22	26
U23	24
U24	27
U25	21
U26	28
U27	29
U28	30
U29	31
U30	24
U31	32
U32	33
U33	34
U34	35
U35	33
U36	36
U37	29
U38	35
U39	37
U40	38
U41	20
U42	36
U43	13
U44	29
U45	39
U46	29
U47	39
U48	23
U49	19
U50	40
U51	41
U52	16
U53	17
U54	42
U55	43
Y1	44

Figure B3. Circuit card assembly: display (1A1) (9379229-5) (Sheet 2 of 2)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				FIG. B3,GROUP 0101:CIRCUIT CARD ASSEMBLY:DISPLAY (PROGRAMMED) (1A1) (9379229-5)	
1	PADZZ	81349	JANTX1N4454-1	SEMICONDUCTOR DEVICE,DIODE	1
2	PADZZ	81349	M39014/01-1593	CAPACITOR,FIXED,CERMACI DIELECTRIC	21
3	PADZZ	81349	CCR05CG330GS	CAPACITOR,FIXED,CERAMIC DIELECTRIC	1
4	PADZZ	81349	CCR05CG200GS	CAPACITOR,FIXED,CERAMIC DIELECTRIC	1
5	PADZZ	19200	9355723	DISPLAY,BACUUM FLOURESCENT	1
6	PADZZ	80063	SM-C-875403	CONNECTOR,RECEPTACLE	1
7	PADZZ	81349	RCR05G104JS	RESISTOR,FIXED,COMPOSITION	5
8	PADZZ	81349	RCR05G101JS	RESISTOR,FIXED,COMPOSITION	1
9	PADZZ	81349	RCR05G103JS	RESISTOR,FIXED,COMPOSITION	1
10	PADZZ	81349	RCR05G105JS	RESISTOR,FIXED,COMPOSITION	1
11	PADZZ	81349	RCR05G202JS	RESISTOR,FIXED,COMOSITION	1
12	PADZZ	19200	9355744	TRANSFORMER,POWER FILAMENT	1
13	PADZZ	80063	SM-C-875372	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	3
14	PADZZ	80063	SM-C-875374	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
15	PADZZ	19200	9355732	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
16	PADZZ	19200	9355731	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	2
17	PADZZ	19200	9355729	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	2
18	PADZZ	19200	9355735	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
19	PADZZ	19200	9355739	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	5
20	PADZZ	81349	M8340105M1003JC	RESISTOR NETWORK,FIXED FILM	5
21	PADZZ	80063	SM-C-875475	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	2
22	PADZZ	19200	9355743	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
23	PADZZ	19200	9355733	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	3
24	PADZZ	19200	9355736	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	3
25	PADZZ	80063	SM-C-955514	MICROCIRCUIT,DIGITAL DEVICE SET, TRANSISTOR	1
26	PADZZ	80063	SM-C-875392	SEMICONDUCTOR DEVICE SET,TRANSISTOR	1
27	PADZZ	19200	11785687	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
28	PADZZ	80063	SM-C-875387-2	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
29	PADZZ	80063	SM-C-875369	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	4
30	PADZZ	80063	SM-C-875362-4	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
31	PADZZ	18876	13031853	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
32	PADZZ	80063	SM-C-875362-2	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
33	PADZZ	81349	M38510/05702BFA	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	2
34	PADZZ	81349	M38510/17401BYA	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
35	PADZZ	80063	SM-C-875363	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	2
36	PADZZ	80063	SM-C-875390	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	2
37	PADZZ	19200	9355738	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	1
38	PADZZ	19200	9355737	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
39	PADZZ	80063	SM-C-875362-5	MICROCIRCUIT, DIGITAL (ELECTROSTATIC SENSITIVE)	2
40	PADZZ	19200	9355728	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
41	PADZZ	19200	9355727	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
42	PADZZ	19200	9355726	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
43	PADZZ	19200	9355725	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
44	PADZZ	81349	CR-64/U4.915200M HZ	CRYSTAL UNIT,QUARTZ	1
45	PADZZ	96906	MS16535-94	RIVET,TUBULAR	2
46	PADZZ	19200	9355787	RETAINER-EJECTOR,ELECTRICAL CARD	2
47	XADZZ	19200	9355721	PRINTED WIRING BOARD	1
48	PADZZ	19200	9355803	SOCKET,PLUG-IN ELEC	53
49	PADZZ	96906	MS51957-13	SCREW,MACHINE	1
50	PADZZ	80205	NAS620C4	WASHER,FLAT	1
51	PADZZ	19200	9355713	BUMPER,NONMETALLIC	1
52	PADZZ	19200	9355769	GUIDE,CARD CAGE	1
53	PADZZ	19200	9379223	STIFFENER,PRINTED W	1
54	PADZZ	80205	NAS620C5	WASHER,FLAT	3
55	PADZZ	96906	MS16535-175	RIVET,TUBULAR	3
56	PADZZ	80063	SM-C-875433	PIN,SHOULDER,HEADLESS	1
57	PADZZ	96906	MS16535-96	RIVET,TUBULAR	2

END OF FIGURE

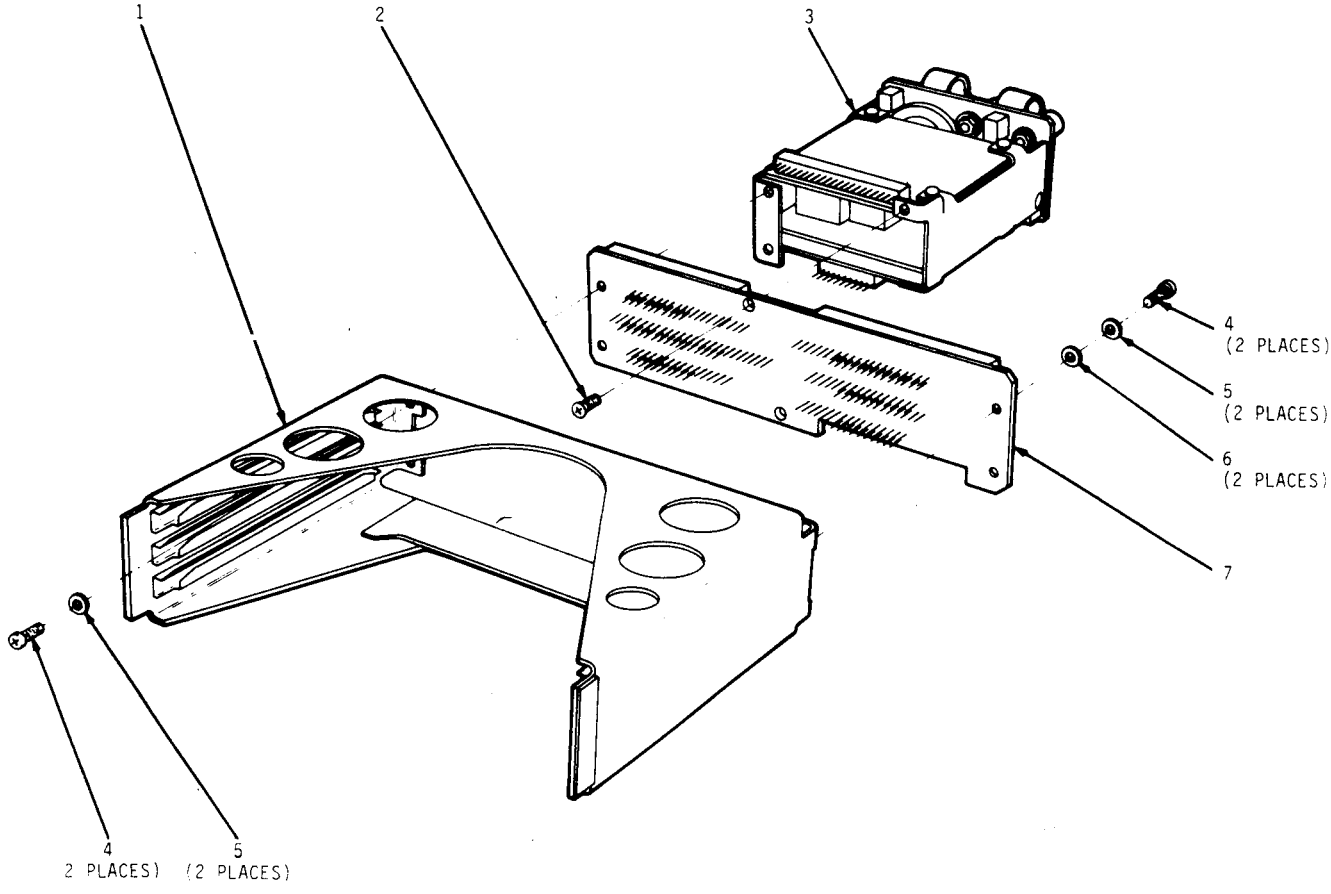


Figure B4. Chassis, electrical (1A6) (9355730)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				FIG. B4,GROUP 0102:CHASIS, ELECTRICAL (1A6)(9355730)	
1	PAFZZ	19200	9355777	CARD CAGE ASSEMBLY	1
2	PAFZZ	96906	MS24693-C2	SCREW,MACHINE	1
3	AFFFF	19200	9355780	INTERFACE ASSEMBLY	1
4	PAFZZ	96906	MS51957-15	SCREW,MACHINE	4
5	PAFZZ	96906	MS35338-135	WASHER,LOCK	4
6	PAFZZ	80205	NAS620C4	WASHER,FLAT	2
7	PAFZZ	19200	9355770	CIRCUIT CARD ASSEMBLY:INTERCONNECT	1
				END OF FIGURE	

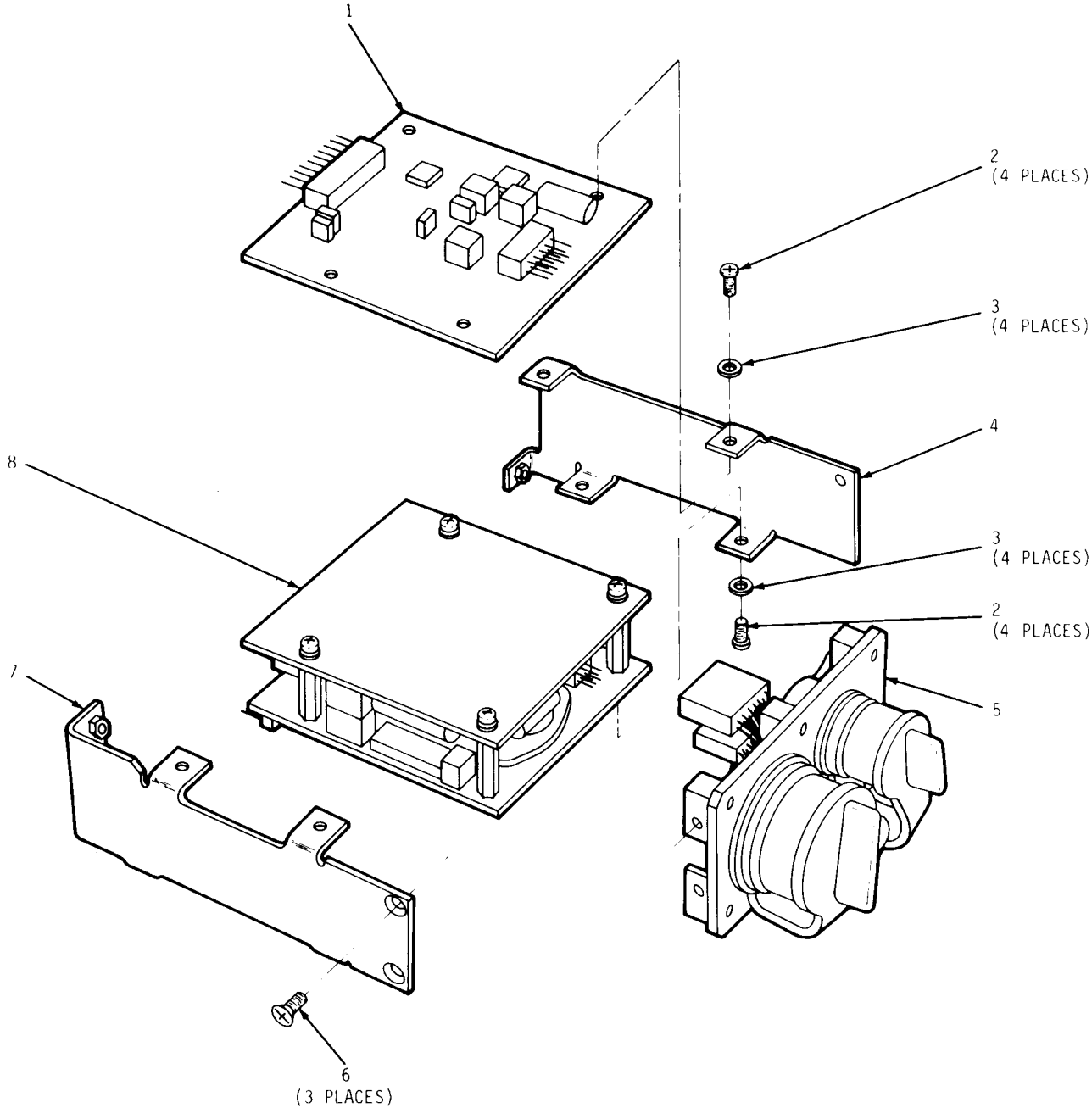


Figure B5. Interface assembly (1A6A1) (9355780)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				FIG. B5,GROUP 010201: INTERFACE ASSEMBLY(1A6A1)(9355780)	
1	PAFDD	19200	9355830	CIRCUIT CARD ASSEMBLY	1
2	PAFZZ	96906	MS51957-13	SCREW,MACHINE	8
3	PAFZZ	96906	MS35338-135	WASHER,LOCK	8
4	PAFZZ	19200	9355782	BRACKET ASSEMBLY,RIGHT	1
5	PAFFF	19200	9355697	CONNECTOR ASSEMBLY DIRECT CURRENT	1
6	PAFZZ	96906	MS24693-C2	SCREW,MACHINE	3
7	PAFZZ	19200	9355781	BRACKET ASSEMBLY,LEFT	1
8	AFFFF	19200	9355840	POWER SUPPLY ASSEMBLY	1
				END OF FIGURE	

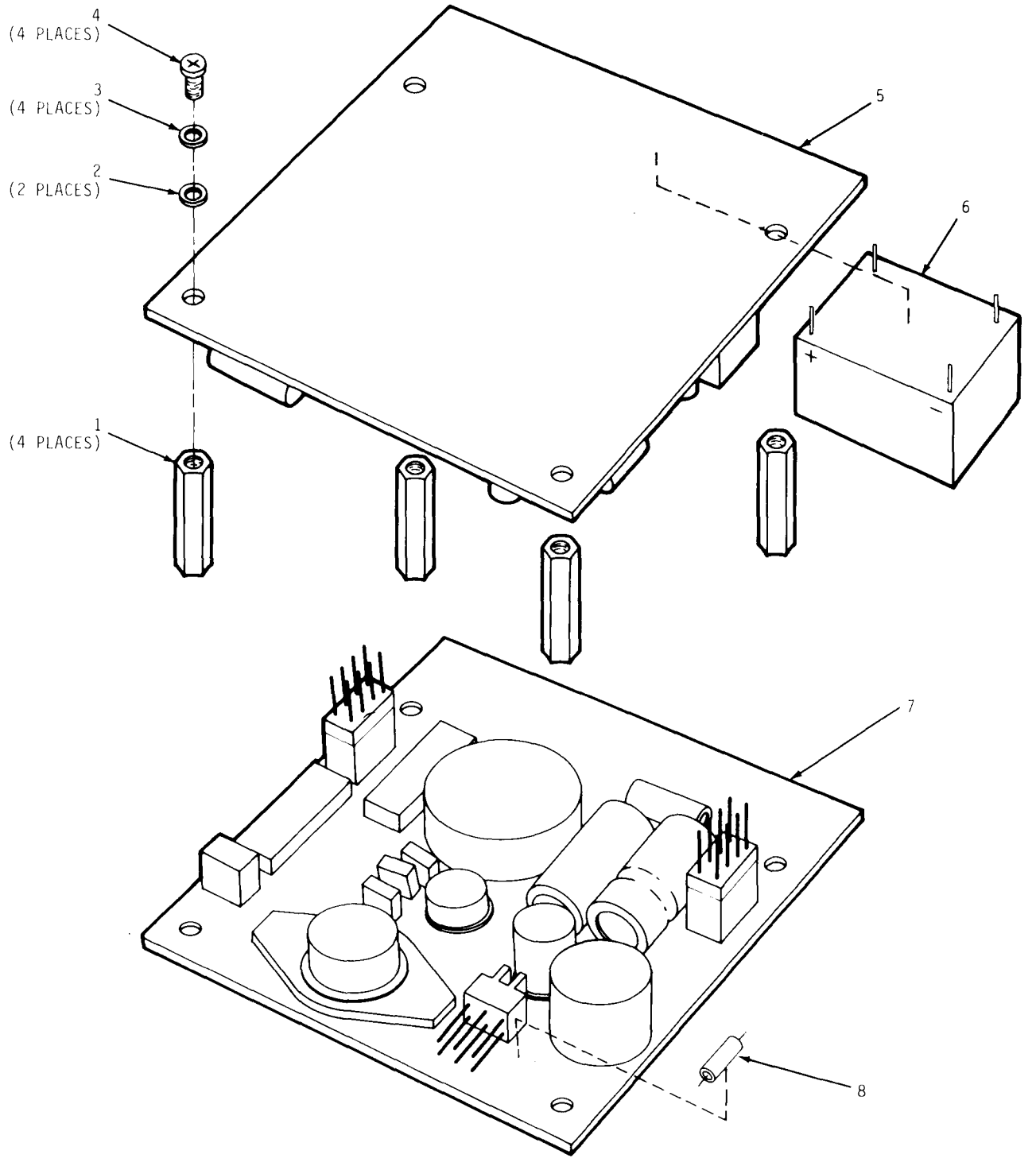
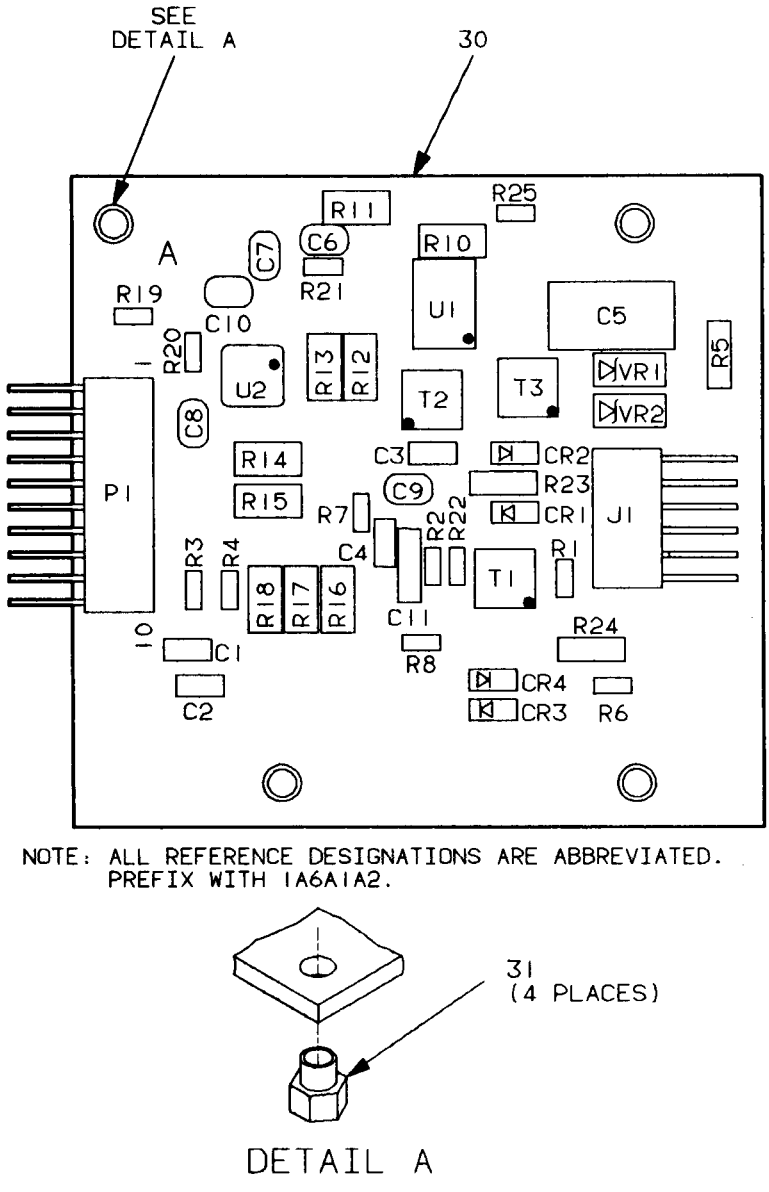


Figure B6. Power supply assembly (1A6A1PS1) (9355840), Circuit card assembly (1A6A1PS1A1) (9355846), and Circuit card assembly (1A6A1PS1A2) (9355847)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				FIG. B6. GROUP 01020101: POWER SUPPLY ASSEMBLY (1A6A1PS1) (9355840): GROUP 0102010101:CIRCUIT CARD ASSEMBLY (1A6A1PS1A1) (9355846): AND GROUP 0102010102: CIRCUIT CARD ASSEMBLY (1A6A1PS1A2) (9355847)	
1	PAFZZ	19200	9355821	POST,ELECTRICAL-MECHANICAL	4
2	PAFZZ	80205	NAS620C4	WASHER,FLAT	4
3	PAFZZ	96906	MS35338-135	WASHER,LOCK	4
4	PAFZZ	96906	MS51957-13	SCREW,MACHINE	4
5	PAFFF	19200	9355847	CIRCUIT CARD ASSEMBLY	1
6	PAFZZ	19200	9355841	..BATTERY,STORAGE	1
7	PAFFF	19200	9355846	CIRCUIT CARD ASSEMBLY	1
8	PAFZZ	81349	FM04A125V3/4A	..FUSE,CARTRIDGE	1
				END OF FIGURE	



LEGEND

REF. DES.	ITEM NO.
CR1	1
CR2	1
CR3	1
CR4	1
C1	2
C2	2
C3	2
C4	2
C5	3
C6	4
C7	4
C8	4
C9	4
C10	4
C11	5
J1	6
P1	7
R1	8
R2	9
R3	10
R4	10
R5	11
R6	12
R7	12
R8	12
R9	DEL
R10	13
R11	13
R12	14
R13	15
R14	16
R15	16
R16	17
R17	18
R18	19
R19	20
R20	21
R21	22
R22	23
R23	11
R24	24
R25	25
T1	26
T2	26
T3	26
U1	27
U2	28
VR1	29
VR2	29

Figure B7. Audio interface (1A6A1A2) (9355830)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				FIG. B7,GROUP 01020102: AUDIO INTERFACE (1A6A1A2) (9655830)	
1	PADZZ	81349	JANTX1N4454-1	SEMICONDUCTOR DEVICE DIODE	4
2	PADZZ	81349	M39014/01-1593	CAPACITOR,FIXED,CERAMIC DIELECTRIC	4
3	PADZZ	81349	CFR06ARB274JP	CAPACITOR,FIXED,METALLIZED	1
4	PADZZ	80063	SM-C-875583-1	CAPACITOR,FIXED,CERAMIC DIELECTRIC	5
5	PADZZ	81349	M39014/02-1419	CAPACITOR,FIXED,CERAMIC DIELECTRIC	1
6	PADZZ	19200	9379226	CONNECTOR,PLUG,ELECTRICAL-MODIFIED	1
7	PADZZ	19200	9379227	CONNECTOR,PLUG,ELECTRICA-MODIFIED	1
8	PADZZ	81349	RCR05G103JS	RESISTOR,FIXED,COMPOSITION	1
9	PADZZ	81349	RCR05G202JS	RESISTOR,FIXED,COMPOSITION	1
10	PADZZ	81349	RCR05G680JS	RESISTOR,FIXED,COMPOSITION	2
11	PADZZ	81349	RCR07G102JS	RESISTOR,FIXED,COMPOSITION	2
12	PADZZ	81349	RCR05G104JS	RESISTOR,FIXED,COMPOSITION	3
13	PADZZ	81349	RNC55H3242FS	RESISTOR,FIXED,FILM	2
14	PADZZ	81349	RNC55H1303FS	RESISTOR,FIXED,FILM	1
15	PADZZ	81349	RNC55H1213FS	RESISTOR,FIXED,FILM	1
16	PADZZ	81349	RNC55H1622FS	RESISTOR,FIXED,FILM	2
17	PADZZ	81349	RNC55H4752FS	RESISTOR,FIXED,FILM	1
18	PADZZ	81349	RNC55H8452FS	RESISTOR,FIXED,FILM	1
19	PADZ	81349	RNC55H3402FS	RESISTOR,FIXED,FILM	1
20	PADZZ	81349	RCR05G152JS	RESISTOR,FIXED,COMPOSITION	1
21	PADZZ	81349	RCR05G334JS	RESISTOR,FIXED,COMPOSITION	1
22	PADZZ	81349	RCR05G105JS	RESISTOR,FIXED,COMPOSITION	1
23	PADZZ	81349	RCR05G391JS	RESISTOR,FIXED,COMPOSITION	1
24	PADZZ	81349	RCR07G471JS	RESISTOR,FIXED,COMPOSITION	1
25	PADZZ	81349	RCR05G332JS	RESISTOR,FIXED,COMPOSITION	1
26	PADZZ	80063	SM-C-875391	TRANSFORMER,AUDIO FREQUENCY	3
27	PADZZ	80063	SM-C-875584	MICROCIRCUIT,LINEAR DIGITAL (ELECTRSTATIC SENSITIVE)	1
28	PADZZ	80063	SM-C-875585	MICROCIRCUIT,LINEAR	1
29	PADZZ	81349	JANTX1N4620	SEMICONDUCTOR DEVICE,DIODE	2
30	XADZZ	19200	9355831	PRINTED WIRING BOARD	1
31	PADZZ	19200	9355793	POST,ELECTRICAL-MECHANICAL	4
				END OF FIGURE	

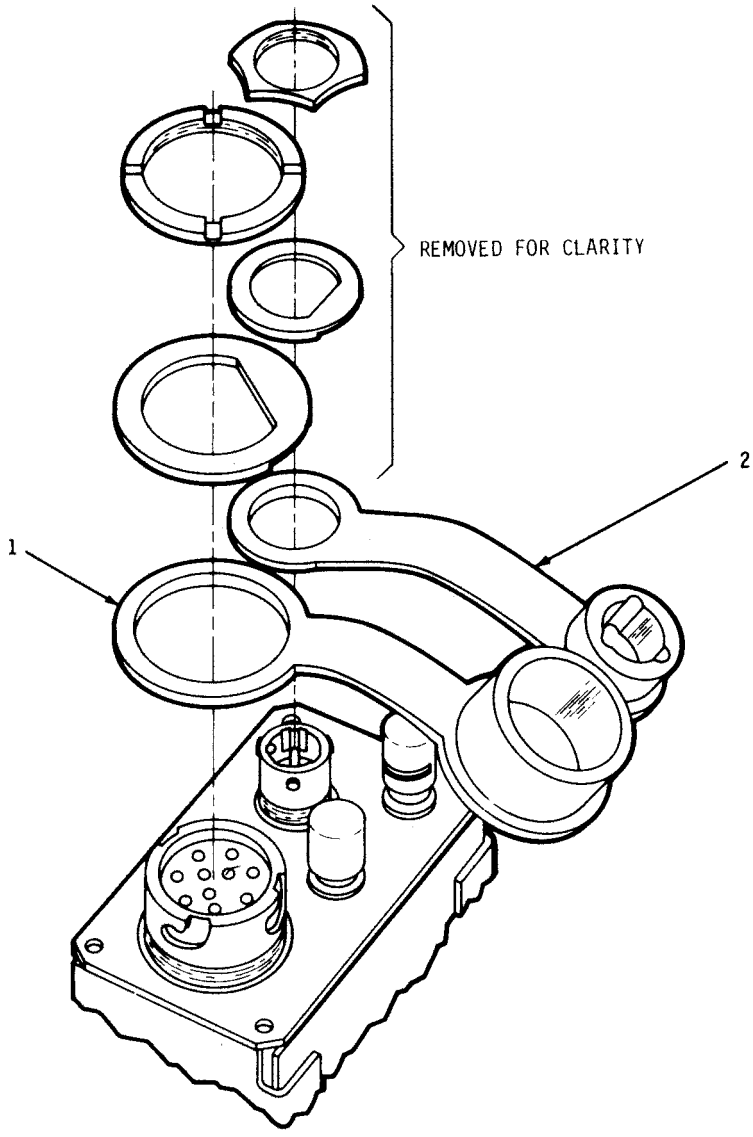


Figure B8. Connector assembly (1A6A1A1) (9355697)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				FIG. B8, GROUP 01020103: CONNECTOR ASSEMBLY (1A6A1A1) (9355697)	
1	PAFZZ	80063	SM-D-875393	COVER,ELECTRICAL CO	1
2	PAFZZ	80063	SM-D-875397	COVER,ELECTRICAL CO	1
				END OF FIGURE	

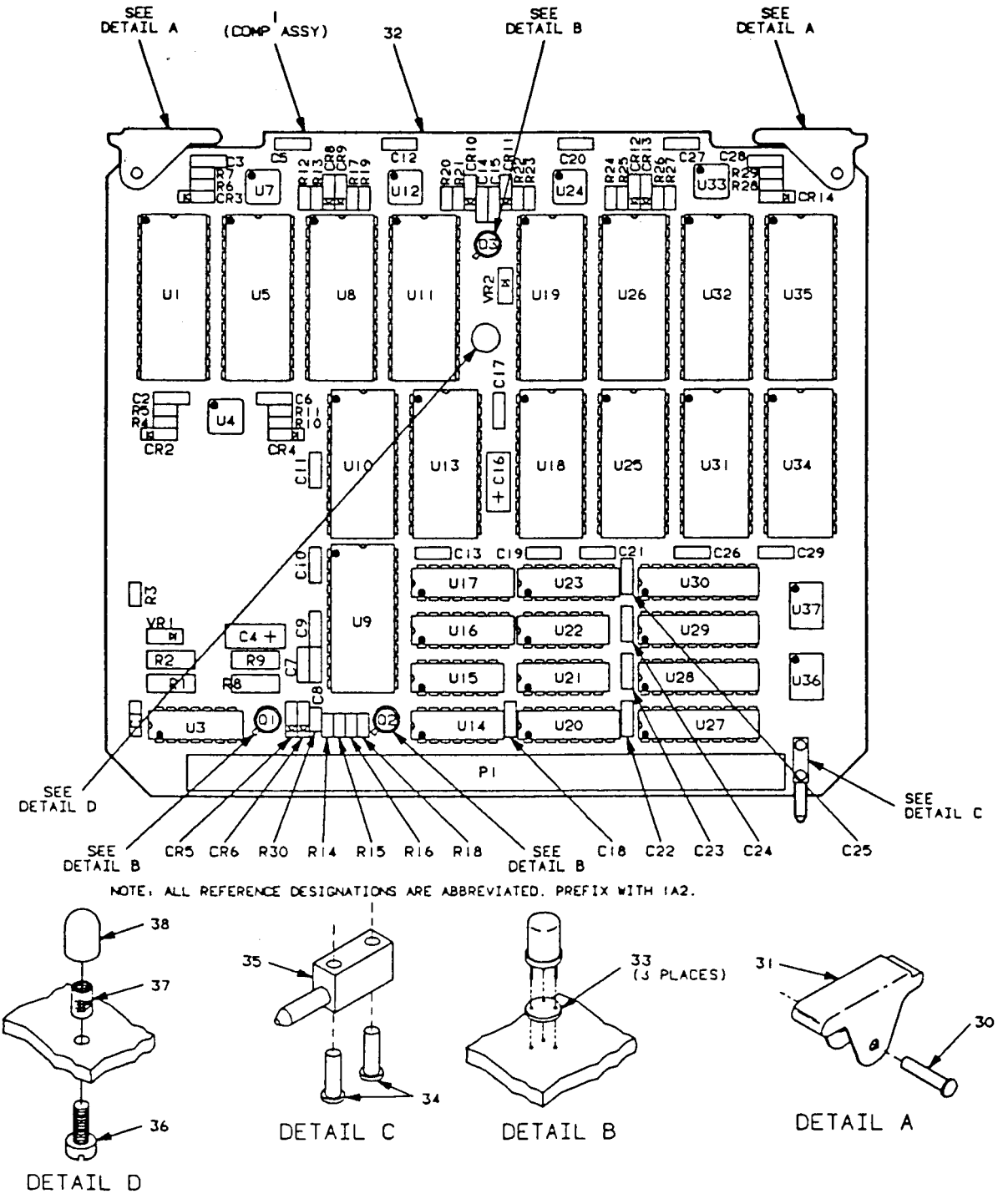


Figure B9. Circuit card assembly: memory (1A2) (9379230-5) (Sheet 1 of 2)

LEGEND

REF. DES.	ITEM NO.
CR2	1
CR3	1
CR4	1
CR5	1
CR6	1
CR8	1
CR9	1
CR10	1
CR11	1
CR12	1
CR13	1
CR14	1
C1	2
C2	3
C3	3
C4	4
C5	3
C6	3
C7	2
C8	3
C9	3
C10	3
C11	3
C12	3
C13	3
C14	3
C15	3
C16	4
C17	3
C18	3
C19	3
C20	3
C21	3
C22	3
C23	3
C24	3
C25	3
C26	3
C27	3
C28	3
C29	3
P1	5
Q1	6
Q2	7

REF. DES.	ITEM NO.
Q3	6
R1	8
R2	9
R3	10
R4	10
R5	11
R6	10
R7	11
R8	8
R9	12
R10	10
R11	11
R12	10
R13	11
R14	13
R15	14
R16	14
R17	10
R18	10
R19	11
R20	10
R21	11
R22	10
R23	11
R24	10
R25	11
R26	10
R27	11
R28	10
R29	11
R30	15
U1	16
U3	17
U4	18
U5	16
U7	18
U8	16
U9	19
U10	19
U11	16
U12	18
U13	19
U14	20
U15	21

REF. DES.	ITEM NO.
U16	22
U17	22
U18	19
U19	16
U20	22
U21	23
U22	24
U23	22
U24	18
U25	19
U26	16
U27	25
U28	25
U29	25
U30	26
U31	19
U32	16
U33	18
U34	19
U35	16
U36	27
U37	27
VR1	28
VR2	29

Figure B9. Circuit card assembly: memory (1A2) (9379230-5) (Sheet 2 of 2)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				FIG. B9,GROUP 0103: CIRCUIT CARD ASSEMBLY: MEMORY (PROGRAMMED) (1A2) (9379230-5)	
1	PADZZ	81349	JANTX1N4454-1	SEMICONDUCTOR DEVICE,DIODE	12
2	PADZZ	81349	M39014/01-1575	CAPACITOR,FIXED,CERMIC DIELECTRIC	2
3	PADZZ	81349	M39014/01-1593	CAPACITOR,FIXED,CERAMIC DIELECTRIC	25
4	PADZZ	81349	M39003/01-2976	CAPACITOR,FIXED,ELECTROLYTIC	2
5	PADZZ	80063	SM-C-875403	CONNECTOR,RECEPTACLE	1
6	PADZZ	81349	JANTX2N2222A	TRANSISTOR	2
7	PADZZ	81349	JANTX2N2907A	TRANSISTOR	1
8	PADZZ	81349	RNC55H2003FS	RESISTOR,FIXED,FILM	2
9	PADZZ	81349	RNC55H4023FS	RESISTOR,FIXED,FILM	1
10	PADZZ	81349	RCR05G103JS	RESISTOR,FIXED,COMPOSITION	12
11	PADZZ	81349	RCR05G101JS	RESISTOR,FIXED,COMPOSITION	10
12	PADZZ	81349	RNC55H2873FS	RESISTOR,FIXED,FILM	1
13	PADZZ	81349	RCR05G563JS	RESISTOR,FIXED,COMPOSITION	1
14	PADZZ	81349	RCR05G104JS	RESISTOR,FIXED,COMPOSITION	2
15	PADZZ	81349	RCR05G102JS	RESISTOR,FIXED,COMPOSITION	1
16	PADZZ	19200	9355743	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	8
17	PADZZ	81349	M38510/11005BCB	MICROCIRCUIT,LINEAR	1
18	PADZZ	80063	SM-C-875392	SEMICONDUCTOR DEVICE SET, TRANSISTOR	5
19	PADZZ	18876	13031853	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	7
20	PADZZ	19200	9355726	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE	1
21	PADZZ	19200	9355725	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	
22	PADZZ	19200	9355731	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	4
23	PADZZ	19200	9355727	MICROCIRCUIT,DIGITAL) (ELECTROSTATIC SENSITIVE)	
24	PADZZ	19200	9355728	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
25	PADZZ	19200	9355733	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	3
26	PADZZ	19200	9355734	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE) CIIC(D)	1
27	PADZZ	80063	SM-C-875387-2	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	2
28	PADZZ	81349	JANTX1N4617	SEMICONDUCTOR DEVICE,DIODE	1
29	PADZZ	81349	JANTX1N4625	SEMICONDUCTOR DEVICE,DIODE	1
30	PADZZ	96906	MS16535-96	RIVET,TUBULAR	2
31	PADZZ	19200	9355787	RETAINER-EJECTOR,ELECTRICAL CARD	2
32	XADZZ	19200	9355741	PRINTED WIRING BOARD	1
33	PADZZ	13499	352-9552-230	MOUNTING PAD,ELECTRICAL	3
34	PADZZ	96906	MS16535-94	RIVET,TUBULAR	2
35	PADZZ	80063	SM-C-875433	PIN,SHOULDER,HEADLESS	1
36	PADZZ	96906	MS51957-13	SCREW,MACHINE	1
37	PADZZ	19200	9379243	POST,ELECTRICAL-MEC	1

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
38	PADZZ	19200	9355713	BUMPER,NONMETALLIC	1
				END OF FIGURE	

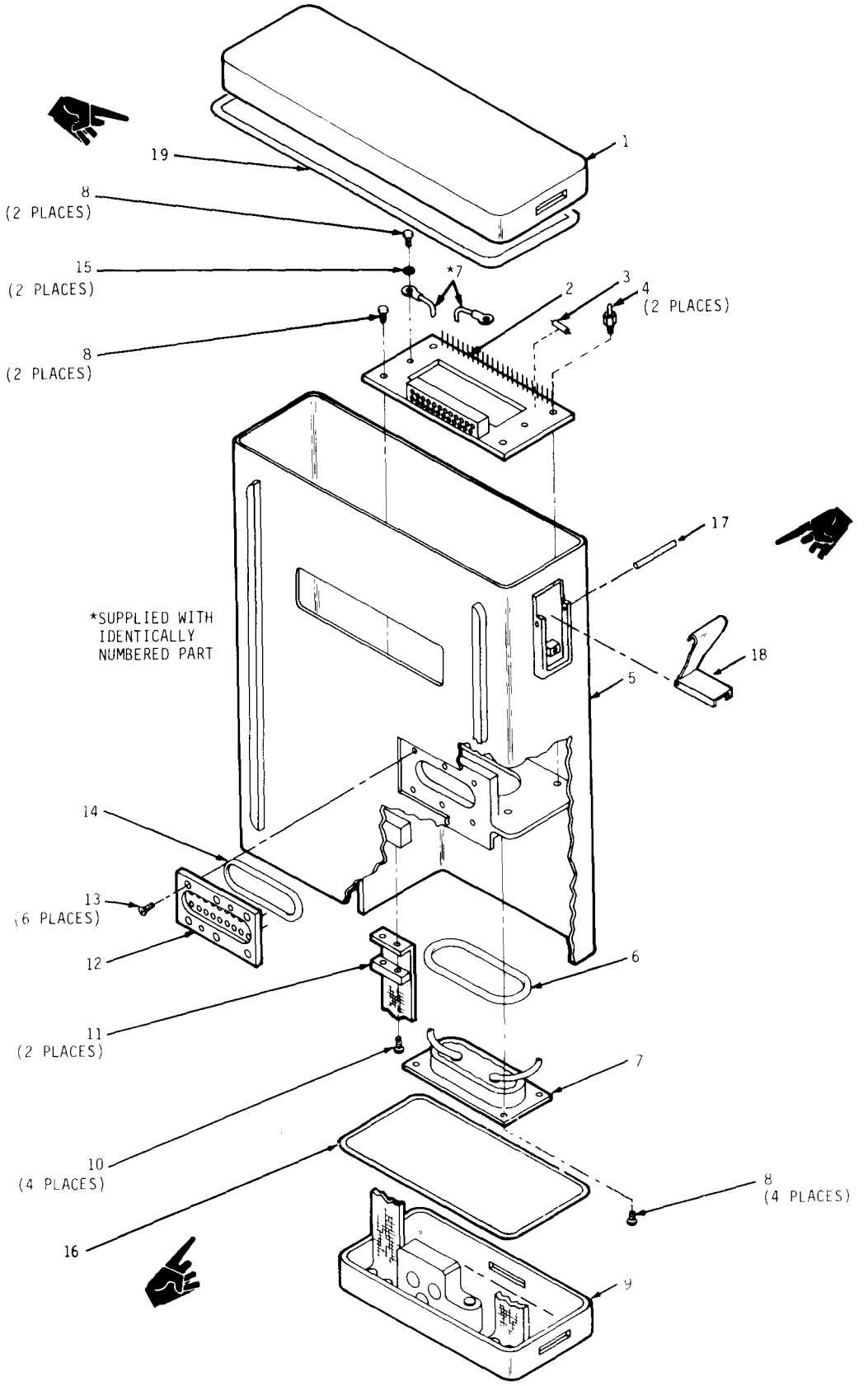


Figure B10. Case computer (1A4) (9355750) and Circuit card assembly (1A4A1) (9355699)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				FIG. B10. GROUP 0104: CASE,COMPUTER (1A4) (9355750) AND GROUP 010401: CIRCUIT CARD ASSEMBLY (1A4A1) (9355699)	
1	PAFZZ	19200	9355790	COVER,ACCESS	1
2	PAFFF	19200	9355699	CIRCUIT CARD ASSEMBLY	1
3	PAFZZ	81349	FM04A125V3/4A	..FUSE,CARTRIDGE	12
4	PAFZZ	19200	9355759	PIN,GUIDE	2
5	PAFZZ	19200	9355820	COVER,ACCESS	1
6	PAFZZ	96906	MS28775-021	PACKING,PREFORMED	1
7	PAFZZ	19200	9355715	BATTERY CONNECTOR A	1
8	PAFZZ	96906	MS51957-12	SCREW,MACHINE	8
9	PAFZZ	19200	9355710	COVER,BATTERY	1
10	PAFZZ	96906	MS51957-14	SCREW,MACHINE	4
11	PAFZZ	19200	9355774	PLATE,RETAINING,STRAP	2
12	PAFZZ	19200	9355714	CONNECTOR ASSEMBLY,KEYBOARD	1
13	PAFZZ	96906	MS24693-C2	SCREW,MACHINE	6
14	PAFZZ	96906	MS28775-020	PACKING,PREFORMED	1
15	PAFZZ	96906	MS35335-57	WASHER,LOCK	2
16	MFFZZ	19200	9355711-1	GASKET,SHIELDING UOC:L91	1
17	PAFZZ	19200	9355778	PIN,SHOULDER,HEADLESS	4
18	PAFZZ	19200	9379233-2	LEVER,MANUAL CONTROL	4
19	MFFZZ	19200	9355711-2	GASKET,SHIELDING UOC:L91	1
				END OF FIGURE	

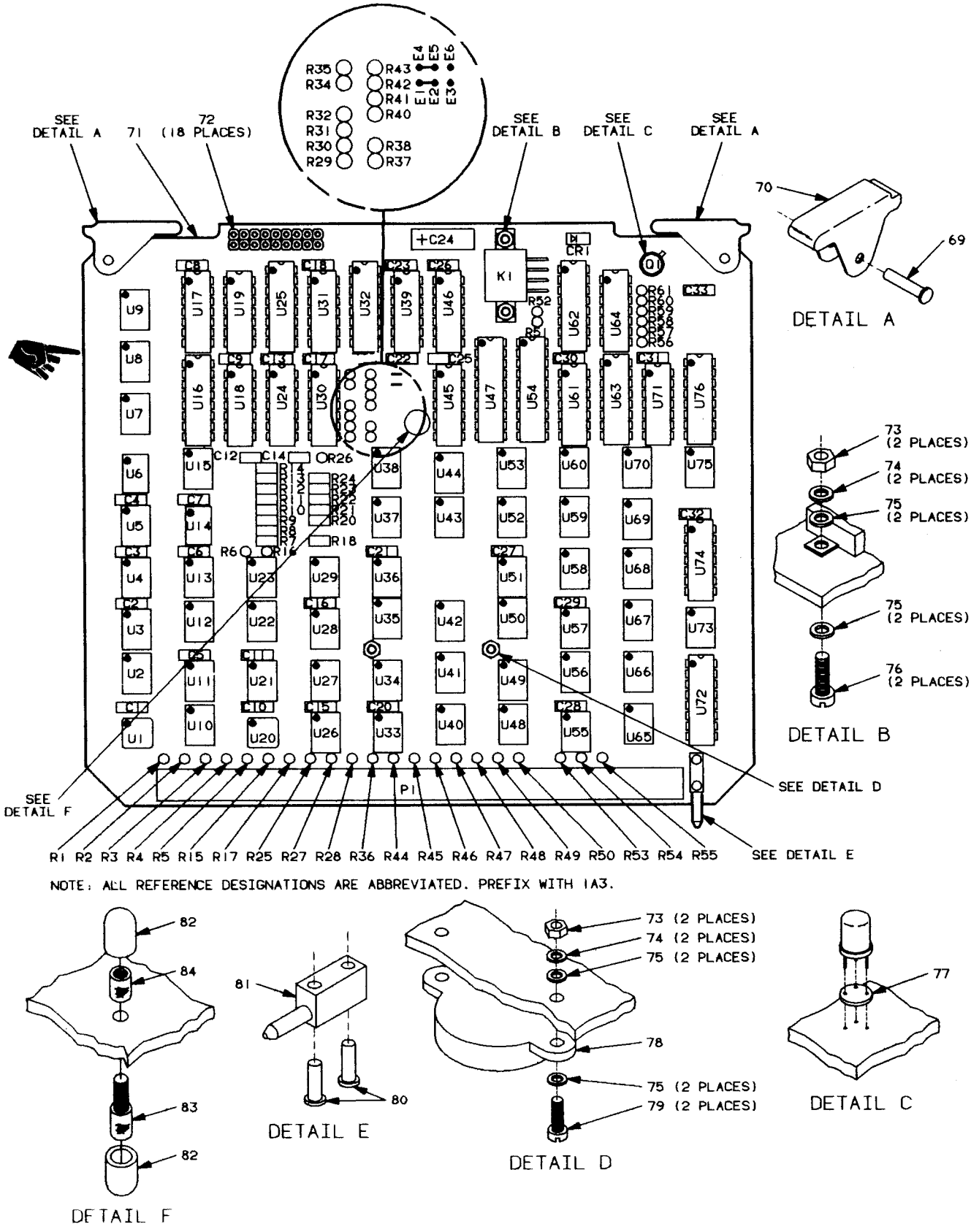


Figure B11. Circuit card assembly: modem (1A3) (9355760) (Sheet 1 of 2)

LEGEND

REF. DES.	ITEM NO.
CR1	1
C1	2
C2	2
C3	2
C4	2
C5	2
C6	2
C7	2
C8	2
C9	2
C10	2
C11	2
C12	3
C13	2
C14	3
C15	2
C16	2
C17	2
C18	2
C20	2
C21	2
C22	2
C23	2
C24	4
C25	3
C26	2
C27	2
C28	2
C29	2
C30	2
C31	2
C32	2
C33	2
K1	5
P1	6
Q1	7
R1	8
R2	9
R3	10
R4	10
R5	11
R6	12
R7	13
R8	14
R9	15

REF. DES.	ITEM NO.
R10	16
R11	17
R12	18
R13	19
R14	20
R15	21
R16	12
R17	22
R18	16
R19	17
R20	23
R21	14
R22	23
R23	15
R24	24
R25	22
R26	25
R27	26
R28	22
R29	27
R30	27
R31	28
R32	28
R34	28
R35	28
R36	26
R37	27
R38	27
R40	28
R41	26
R42	9
R43	28
R44	22
R45	26
R46	29
R47	29
R48	28
R49	27
R50	28
R51	28
R52	28
R53	28
R54	30
R55	27

REF. DES.	ITEM NO.
R56	28
R57	28
R58	11
R59	27
R60	27
R61	27
U1	31
U2	32
U3	33
U4	33
U5	34
U6	35
U7	36
U8	37
U9	38
U10	39
U11	40
U12	32
U13	33
U14	35
U15	41
U16	42
U17	43
U18	43
U19	43
U20	31
U21	44
U22	45
U23	46
U24	47
U25	48
U26	49
U27	33
U28	50
U29	33
U30	43
U31	43
U32	51
U33	46
U34	50
U35	52
U36	53
U37	54
U38	54
U39	55
U40	38

REF. DES.	ITEM NO.
U41	56
U42	38
U43	38
U44	57
U45	58
U46	59
U47	60
U48	38
U49	61
U50	62
U51	46
U52	63
U53	41
U54	60
U55	33
U56	64
U57	53
U58	63
U59	41
U60	63
U61	55
U62	65
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U64	43
U65	66
U66	67
U67	45
U68	41
U69	63
U70	63
U71	43
U72	68
U73	46
U74	59
U75	41
U76	48

Figure B11. Circuit card assembly: modem (1A3) (9355760) (Sheet 2 of 2)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				FIG. B11,GROUP 0105: CIRCUIT CARD ASSEMBLY: MODEM (1A3) (9655760)	
1	PADZZ	81349	JANTX1N4454-1	SEMICONDUCTOR DEVICE,DIODE	1
2	PADZZ	81349	M39014/01-1593	CAPACITOR,FIXED,CERAMIC DIELECTRIC	28
3	PADZZ	81349	CCR09CG102GR	CAPACITOR,FIXED, CERAMIC DIELECTRIC	3
4	PADZZ	81349	M39003/01-2976	CAPACITOR,FIXED,ELECTROLYTIC	1
5	PADZZ	81349	M39016/34-001M	RELAY,ELECTROMAGNETIC	1
6	PADZZ	80063	SM-C-875403	CONNECTOR,RECEPTACLE	1
7	PADZZ	81349	JANTX2N2222A	TRANSISTOR	1
8	PADZZ	81349	RCR05G105JS	RESISTOR,FIXED,COMPOSITION	1
9	PADZZ	81349	RCR05G113JS	RESISTOR,FIXED,COMPOSITION	2
10	PADZZ	81349	RCR05G154JS	RESISTOR,FIXED,COMPOSITION	2
11	PADZZ	81349	RCR05G334JS	RESISTOR,FIXED,COMPOSITION	2
12	PADZZ	81349	RCR05G123JS	RESISTOR,FIXED,COMPOSITION	2
13	PADZZ	81349	RNC50H7502FS	RESISTOR,FIXED,FILM	1
14	PADZZ	81349	RNC50H2373FS	RESISTOR,FIXED,FILM	2
15	PADZZ	81349	RNC50H5113FS	RESISTOR,FIXED,FILM	2
16	PADZZ	81349	RNC50H2003FS	RESISTOR,FIXED,FILM	2
17	PADZZ	81349	RNC50H3483FS	RESISTOR,FIXED,FILM	2
18	PADZZ	81349	RNC50H1242FS	RESISTOR,FIXED,FILM	1
19	PADZZ	81349	RNC50H7872FS	RESISTOR,FIXED,FILM	1
20	PADZZ	81349	RNC50H5112FS	RESISTOR,FIXED,FILM	1
21	PADZZ	81349	RCR05G102JS	RESISTOR,FIXED,COMPOSITION	1
22	PADZZ	81349	RCR05G332JS	RESISTOR,FIXED,COMPOSITION	4
23	PADZZ	81349	RNC50H4873FS	RESISTOR,FIXED,FILM	2
24	PADZZ	81349	RNC50H2492FS	RESISTOR,FIXED,FILM	1
25	PADZZ	81349	RCR05G683JS	RESISTOR,FIXED,COMPOSITION	1
26	PADZZ	81349	RCR05G201JS	RESISTOR,FIXED,COMPOSITION	4
27	PADZZ	81349	RCR05G103JS	RESISTOR,FIXED,COMPOSITION	1
28	PADZZ	81349	RCR05G104JS	RESISTOR,FIXED,COMPOSITION	13
29	PADZZ	81349	RCR05G152JS	RESISTOR,FIXED,COMPOSITION	2
30	PADZZ	81349	RCR05G472JS	RESISTOR,FIXED,COMPOSITION	1
31	PADZZ	80063	SM-C-875392	SEMICONDUCTOR DEVICE SET, TRASISTOR	2
32	PADZZ	80063	SM-C-875374	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	2
33	PADZZ	80063	SM-C-875372	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	6
34	PADZZ	14933	7703601DB	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	1
35	PADZZ	80063	SM-C-875584	MICROCIRCUIT,LINEAR DIGITAL (ELECTROSTATIC SENSITIVE)	2
36	PADZZ	19200	9379239	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
37	PADZZ	80063	SM-C-875383	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
38	PADZZ	80063	SM-C-875387-2	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	5
39	PADZZ	80063	SM-C-875367	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
40	PADZZ	80063	SM-C-875362-4	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	1
41	PADZZ	81349	M38510/05703BFA	MICROCIRCUIT, DIGITAL (ELECTROSTATIC SENSITIVE)	5
42	PADZZ	80063	SM-C-875376-4	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	1
43	PADZZ	19200	9355746	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	7
44	PADZZ	80063	SM-C-875362-3	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
45	PADZZ	27014	MM54C76W	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	2
46	PADZZ	80063	SM-C-875362-2	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	4
47	PADZZ	81349	M38510/11005BCB	MICROCIRCUIT,LINEAR	1
48	PADZZ	80063	SM-C-875349	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	2
49	PADZZ	80063	SM-C-875362-5	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	1
50	PADZZ	80063	SM-C-875363	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	2
51	PADZZ	80063	SM-C-875376-2	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
52	PADZZ	81349	M38510/05204BDB	MICROCIRCUIT,DIGITAL	1
53	PADZZ	81349	M38510/17401BYA	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	2
54	PADZZ	80063	SM-C-875375	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	2
55	PADZZ	19200	9355726	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	2
56	PADZZ	81349	M38510/05702BFA	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE	1
57	PADZZ	80063	SM-C-875585	MICROCIRCUIT,LINEAR	1
58	PADZZ	81349	M38510/11201BCB	MICROCIRCUIT,LINEAR	1
59	PADZZ	19200	9355727	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	2
60	PADZZ	19200	9355733	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	2
61	PADZZ	81349	M38510/05203BDA	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
62	PADZZ	81349	M38510/17201BDA	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE	1
63	PADZZ	27014	MM54C157W	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	5
64	PADZZ	80063	SM-C-875480	MICROCIRCUIT,DIGITAL (ELECTRSTATIC SENSITIVE)	1
65	PADZZ	80063	SM-C-875376-1	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	2
66	PADZZ	80063	SM-C-875475	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
67	PADZZ	81349	M38510/05604BFA	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
68	PADZZ	19200	9355731	MICROCIRCUIT,DIGITAL (ELECTROSTATIC SENSITIVE)	1
69	PADZZ	96906	MS16535-94	RIVET,TUBULAR	2
70	PADZZ	19200	9355787	RETAINER-EJECTOR,ELECTRICAL CARD	2
71	XADZZ	19200	9355761	PRINTED WIRING BOARD	1
72	PADZZ	19200	9355803	SOCKET,PLUG-IN ELECTRICAL	18
73	PADZZ	80205	NAS671C2	NUT,PLAIN,HEXAGON	4
74	PADZZ	80205	NAS1640-2	WASHER,LOCK	4
75	PADZZ	80205	NAS620C2	WASHER,FLAT	8
76	PADZZ	96906	MS51957-3	SCREW,MACHINE UOC:L91	2
77	PADZZ	13499	352-9552-230	MOUNTING PAD,ELECTRICAL	1
78	PADZZ	19200	11785698	BUZZER	1
79	PADZZ	96906	MS51957-4	SCREW,MACHINE	2
80	PADZZ	96906	MS16535-96	RIVET,TUBULAR	2
81	PADZZ	80063	SM-C-875433	PIN,SHOULDER,HEADLESS	1
82	PADZZ	19200	9355713	BUMPER,NONMETALLIC	2
83	PADZZ	19200	9379242	SCREW,KNURLED	1
84	PADZZ	19200	9379243	POST,ELECTRICAL-MEC	1

END OF FIGURE

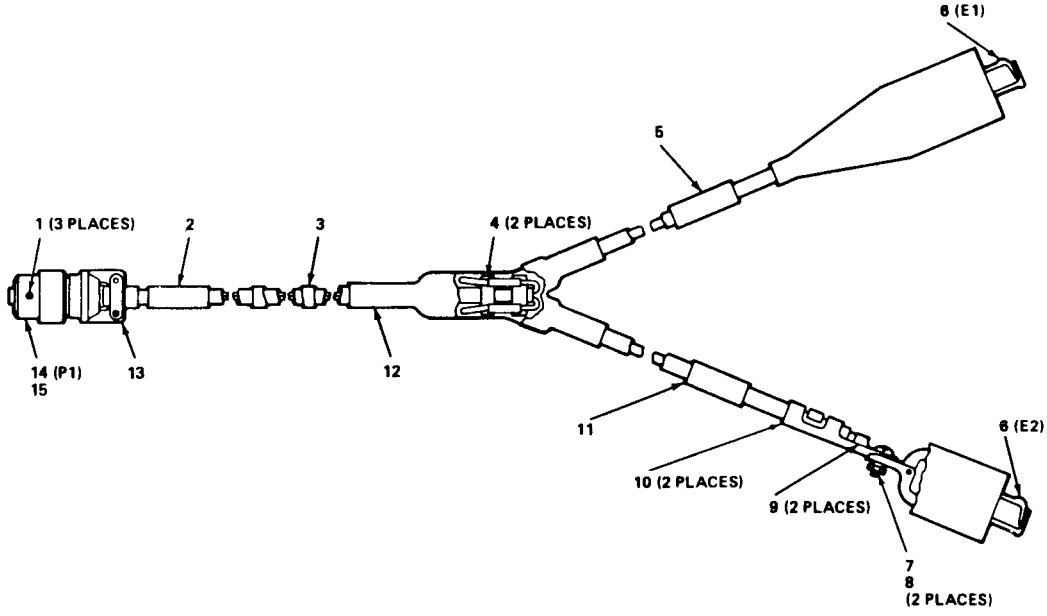

Figure B12. Cable assembly, special purpose, electrical (SM-D-875489)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				FIG. B12, GROUP 02: CABLE ASSEMBLY SPECIAL PURPOSE, ELECTRICAL (SM-D-875489)	
1	XDFZZ	80063	SM-C-955489	SETSCREW	3
2	XDFZZ	80063	SM-C-917651-1	BAND,MARKER	1
3	XDFZZ	80063	SM-C-917651-6	BAND,MARKER	1
4	XDFZZ	80063	SM-C-917635	CLAMP,STRAIN RELIEF	2
5	XDFZZ	80063	SM-C-917651-3	BAND,MARKER	1
6	XDFZZ	80063	SM-A-955478	CLIP,ELECTRICAL	2
7	PAFZZ	96906	MS21083C3	NUT,SELF-LOCKING , HEXAGON	2
8	PAFZZ	96906	MS51958-62	SCREW,MACHINE	2
9	PAFZZ	96906	MS25036-112	TERMINAL,LUG	2
10	XDFZZ	80063	SM-C-917636	BRACKET,STRAIN RELIEF	2
11	XDFZZ	80063	SM-C-917651-8	BAND,MARKER	1
12	XDFZZ	06090	381A015-4-01/42	SLEEVING,BRANCHED	1
13	XDFZZ	07418	S1993	BACKSHELL,CONNECTOR	1
14	PAFZZ	80063	SM-C-955455	CONNECTOR,PLUG , ELECTRICAL	1
15	XDFZZ	80063	SM-C-955461	RING,COUPLING NU T	1

END OF FIGURE

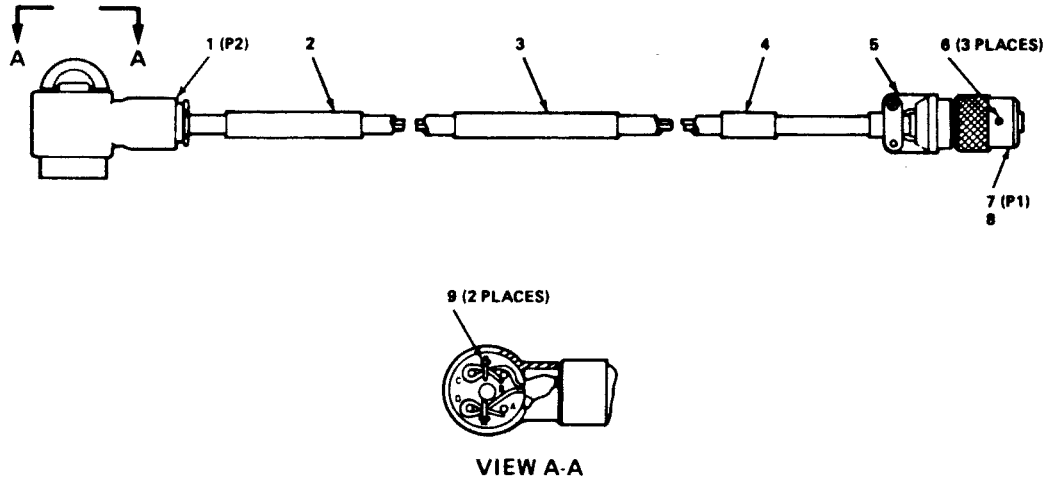

Figure B13. Cable assembly, special purpose, electrical (SM-D-917637)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				FIG. B13, GROUP 03: CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (SM-D-917637)	
1	PAFZZ	81349	M55181/3-02	CONNECTOR,PLUG , ELECTRICAL	1
2	XDFZZ	80063	SM-C-917651-2	BAND,MARKER	1
3	XDFZZ	80063	SM-C-917651-7	BAND,MARKER	1
4	XDFZZ	80063	SM-C-917651-1	BAND,MARKER	1
5	XDFZZ	07418	S1993	BACKSHELL,CONNECTOR	1
6	XDFZZ	80063	SM-C-955489	SETSCREW	3
7	PAFZZ	80063	SM-C-955455	CONNECTOR,PLUG , ELECTRICAL	1
8	XDFZZ	80063	SM-C-955461	RING,COUPLING NUT	1
9	PAFZZ	96906	MS3367-4-9	STRAP,TIEDOWN, ELECTRICAL	2
				END OF FIGURE	

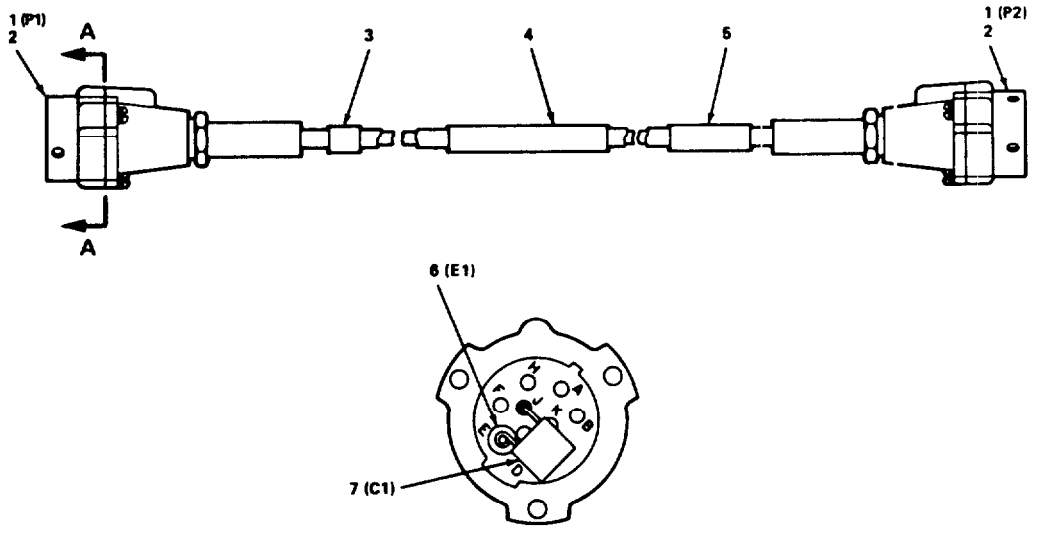

Figure B14. Cable assembly, special purpose, electrical (SM-D-955457)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				FIG. B14, GROUP 04: CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICA: (SM-D-955457)	
1	XAFZZ	81349	U-77/U	CONNECTOR, PLUG, ELECTRICAL	2
2	XDFZZ	80063	SM-C-955501	GROMMET, SEALING	1
3	XDFZZ	80063	SM-C-875364-5	BAND, MARKER	1
4	XDFZZ	80063	SM-C-875364-24	BAND, MARKER	1
5	XDFZZ	80063	SM-C-875364-6	BAND, MARKER	1
6	XDFZZ	80063	SM-C-955460	TERMINAL, STANDOFF	1
7	PAFZZ	81349	M39014/02-1419	CAPACITOR, FIXED, CERAMIC	1

END OF FIGURE

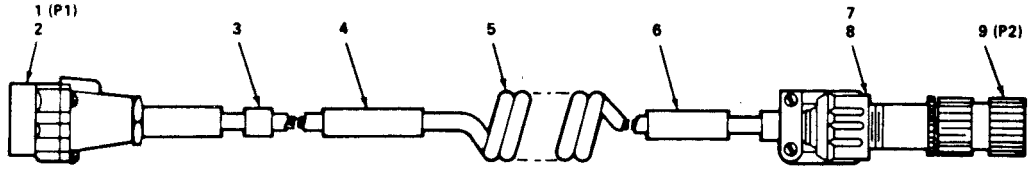

Figure B15. Cable assembly, special purpose, electrical (SM-D-875498)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				FIG. B15, GROUP 05, CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (SM-D-875498)	
1	XAFZZ	81349	U-77/U	CONNECTOR,PLUG , ELECTRICAL	1
2	XDFZZ	80063	SM-C-955501	GROMMET, SEALING	1
3	XDFZZ	80063	SM-C-875364-5	BAND,MARKER	1
4	XDFZZ	80063	SM-C-875364-17	BAND,MARKER	1
5	PAFZZ	16428	YH-9319	CORD ASSEMBLY,ELECT	1
6	XDFZZ	80063	SM-C-875364-7	BAND,MARKER	1
7	PAFZZ	80063	SM-C-917641	ADAPTER,CABLE CLAMP	1
8	XDFZZ	80063	SM-C-955500	WASHER,FLAT	1
9	XAFZZ	81349	U-229/U	CONNECTOR,MINIATURE	1
				END OF FIGURE	

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				FIG. BULK,GROUP 99: BULK MATERIALS	
1	PCFZZ	80063	SM-C-875560	GASKETING MATERIAL	1
				END OF FIGURE	

Section III. SPECIAL TOOLS LIST

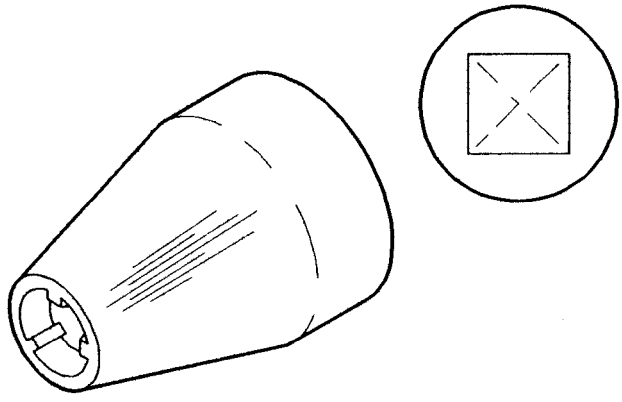

Figure B16. SOCKET, SOCKET WRENCH (9355698)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				FIG. B16, GROUP 95: TOOLS SOCKET, SOCKET WRENCH (9355698)	
1	PAFZZ	19200	9355698	SOCKET, SOCKET WRENCH (9355698)	1
				END OF FIGURE	

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG	ITEM	STOCK NUMBER	FIG	ITEM
5910-00-007-3973	B9	4	5905-00-401-7433	B7	16
	B11	4	5905-00-407-0085	B7	23
5910-00-010-8717	B3	2	5905-00-407-0088	B7	10
	B7	2	5905-00-410-1306	B11	24
	B9	3	5905-00-412-0760	B9	13
	B11	2	5905-00-412-4045	B7	21
5910-00-010-8721	B7	5		B11	11
	B14	7	5905-00-431-5151	B9	8
5961-00-022-5666	B9	7	5905-00-458-9346	B3	7
5310-00-043-4708	B11	75		B7	12
5305-00-054-5637	B11	76		B9	14
5305-00-054-5638	B11	79		B11	28
5305-00-054-5646	B2	10	5905-00-458-9500	B9	15
	B10	8		B11	21
5305-00-054-5647	B2	4	5905-00-466-1215	B11	12
	B3	49	5905-00-466-1217	B11	25
	B5	2	5905-00-466-1416	B11	26
	B6	4	5905-00-470-9481	B3	11
	B9	36		B7	9
5305-00-054-5648	B10	10	5905-00-484-7550	B11	10
5305-00-054-5649	B4	4	5905-00-491-1984	B11	9
5310-00-057-0573	B2	12	5905-00-570-5040	B9	9
	B3	50	5330-00-585-7723	B10	14
	B4	6	5905-00-617-5091	B11	30
	B6	2	5905-00-629-3376	B7	17
5310-00-058-3599	B10	15	5330-00-631-1341	B10	6
5305-00-059-3658	B12	8	5975-00-727-5153	B13	9
5905-00-110-7620	B7	11	5905-00-758-2932	B11	13
5905-00-120-9154	B7	24	5905-00-758-5009	B7	15
5910-00-124-0659	B9	2	5310-00-812-4294	B11	73
5905-00-137-0598	B11	20	5961-00-858-3826	B9	6
5905-00-137-4818	B7	18		B11	7
5940-00-143-4794	B12	9	5820-00-889-3856	B1	6
5905-00-158-5234	B9	12	5310-00-903-1509	B3	54
5320-00-171-3773	B3	55	5310-00-926-1835	B12	7
5905-00-172-7992	B7	13	5310-00-928-2690	B11	74
5905-00-180-8301	B3	8	5310-00-933-8118	B4	5
	B9	11		B5	3
5905-00-180-8303	B7	20		B6	3
	B11	29	5999-00-944-5012	B9	33
5905-00-195-4074	B3	10		B11	77
	B7	22	5905-01-017-8102	B11	16
	B11	8	5961-01-023-8523	B9	28
5920-00-236-8150	B6	8	5961-01-024-2145	B9	29
	B10	3	5961-01-026-1256	B7	29
5905-00-243-1908	B7	14	5905-01-035-5065	B3	9
5905-00-286-5198	B11	18		B7	8
5905-00-305-5509	B7	19		B9	10
5905-00-401-7427	B7	25		B11	27
	B11	22	5320-01-038-2892	B3	45

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STOCK NUMBER	FIG	ITEM	STOCK NUMBER	FIG	ITEM
5320-01-038-2892	B9	34	5962-01-110-6920	B11	54
	B11	69	5962-01-110-6921	B11	51
5961-01-043-9178	B3	1	5962-01-110-6922	B7	27
	B7	1		B11	35
	B9	1	5962-01-113-0832	B9	17
	B11	1		B11	47
5905-01-044-5890	B11	19	5935-01-113-3591	B12	14
5962-01-064-1325	B11	63		B13	7
5905-01-068-5841	B11	15	5962-01-119-4698	B11	34
5962-01-071-3328	B11	45	5950-01-119-6688	B7	26
5962-01-082-9852	B3	33	5910-01-120-1192	B7	4
	B11	56	5905-01-120-3793	B3	20
5910-01-088-0745	B11	3	5935-01-120-4412	B3	6
6135-01-088-2708	B2	8		B9	5
5962-01-088-3862	B11	58		B11	6
6140-01-091-1536	B2	8	5935-01-120-5203	B15	7
5320-01-091-6939	B3	57	5905-01-120-8779	B11	23
	B9	30	5905-01-120-9011	B11	14
	B11	80	5905-01-121-2252	B11	17
6135-01-094-6536	B2	8	5935-01-124-9341	B13	1
5995-01-098-2613	B1	7	5962-01-127-9575	B11	52
5995-01-098-7076	B1	2	5945-01-128-1727	B11	5
5995-01-098-7077	B1	1	5995-01-128-2266	B15	5
5995-01-104-0669	B1	3	5962-01-128-2849	B11	48
5962-01-107-1077	B11	41	5961-01-128-3316	B3	26
5962-01-110-6884	B7	28		B9	18
	B11	57		B11	31
5962-01-110-6888	B3	29	5962-01-128-3915	B11	67
5962-01-110-6889	B11	39	5962-01-132-7852	B3	31
5962-01-110-6893	B3	39		B9	19
	B11	49	5315-01-133-1773	B3	56
5962-01-110-6895	B3	35		B9	35
	B11	50		B11	81
5962-01-110-6896	B3	21	5935-01-136-4064	B8	1
	B11	66	5340-01-136-4065	B8	2
5962-01-110-6899	B3	14	5962-01-146-0341	B3	34
	B11	32		B11	53
5962-01-110-6901	B3	32	5962-01-146-9211	B11	64
	B11	46	5955-01-152-2632	B3	44
5962-01-110-6902	B3	13	5340-01-161-1727	B10	5
	B11	33	5998-01-161-1728	B5	1
5962-01-110-6903	B3	36	5120-01-161-1729	B16	1
5962-01-110-6904	B11	44	6140-01-161-1740	B6	6
5962-01-110-6910	B3	30	6135-01-161-1743	B10	9
	B11	40	5340-01-161-1761	B10	1
5962-01-110-6916	B11	42	5962-01-168-6168	B11	65
5962-01-110-6918	B3	28	5999-01-175-4907	B4	7
	B9	27	5999-01-176-1790	99	1
	B11	38	7420-01-181-5977	B2	9
5962-01-110-6919	B11	37	5999-01-181-5979	B2	1

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NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG	ITEM	STOCK NUMBER	FIG	ITEM
5935-01-188-7331	B5	5	5962-01-199-8839	B11	62
1220-01-188-7340	B10	7	5340-01-206-4650	B9	37
1220-01-188-7341	B4	1		B11	84
1220-01-188-7342	B3	5	5305-01-206-4651	B11	83
5840-01-188-7343	B1	4	5910-01-207-8618	B7	3
1220-01-188-7869	B10	11	5950-01-209-0369	B3	12
5315-01-188-7870	B10	4	5998-01-210-8061	B3	46
5935-01-188-7871	B10	12		B9	31
1220-01-188-7872	B5	7		B11	70
1220-01-188-7873	B5	4	5310-01-212-0103	B7	31
1220-01-188-7874	B3	53	5910-01-213-2358	B3	3
1220-01-188-7875	B3	52	5340-01-213-4609	B6	1
1220-01-188-7876	B2	11	6350-01-216-4190	B11	78
5962-01-189-4480	B3	41	5910-01-229-6830	B3	4
	B9	23	5962-01-239-8207	B11	61
	B11	59	5962-01-248-0863	B11	36
5962-01-189-4481	B3	16	5340-01-248-0865	B3	51
	B9	22		B9	38
	B11	68		B11	82
5962-01-189-4482	B3	23	3040-01-283-4356	B10	18
	B9	28	5315-01-283-4739	B10	17
	B11	60	7035-01-290-4750	B2	7
5962-01-189-4483	B3	22	5998-01-412-0155	B2	3
	B9	16	5998-01-412-0156	B2	2
5962-01-189-4484	B3	43			
	B9	21			
5962-01-189-4485	B3	40			
	B9	24			
5962-01-189-4486	B9	26			
5962-01-189-4487	B3	25			
5962-01-189-4488	B3	15			
5962-01-189-4489	B3	24			
5962-01-189-4490	B3	17			
5962-01-189-4491	B3	38			
5962-01-189-4492	B3	37			
5962-01-189-4493	B3	19			
5962-01-189-4494	B3	27			
5935-01-190-0939	B7	7			
5935-01-190-0954	B3	48			
	B11	72			
5962-01-190-0958	B3	18			
5999-01-190-0963	B10	2			
5999-01-190-0964	B6	7			
5999-01-190-0965	B6	5			
9905-01-190-3284	B2	6			
5962-01-192-3997	B3	42			
	B9	20			
	B11	55			
5935-01-194-7809	B7	6			
5962-01-195-0017	B11	43			

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CAGEC	PART NUMBER	STOCK NUMBER	FIG	ITEM
80058	BA-1588/U	6135-01-094-6536	B2	8
80058	BA-5588/U	6135-01-088-2708	B2	8
80058	BB-588/U	6140-01-091-1536	B2	8
81349	CCR05CG200GS	5910-01-229-6830	B3	4
81349	CCR05CG330GS	5910-01-213-2358	B3	3
81349	CCR09CG102GR	5910-01-088-0745	B11	3
81349	CFR06ARB274JP	5910-01-207-8618	B7	3
81349	CR-64/U4.915200M HZ	5955-01-152-2632	B3	44
81349	FM04A125V3/4A	5920-00-236-8150	B6	8
			B10	3
81349	JANTX1N4454-1	5961-01-043-9178	B3	1
			B7	1
			B9	1
			B11	1
81349	JANTX1N4617	5961-01-023-8523	B9	28
81349	JANTX1N4620	5961-01-026-1256	B7	29
81349	JANTX1N4625	5961-01-024-2145	B9	29
81349	JANTX2N2222A	5961-00-858-3826	B9	6
			B11	7
81349	JANTX2N2907A	5961-00-022-5666	B9	7
27014	MM54C157W	5962-01-064-1325	B11	63
27014	MM54C76W	5962-01-071-3328	B11	45
96906	MS16535-175	5320-00-171-3773	B3	55
96906	MS16535-94	5320-01-038-2892	B3	45
			B9	34
			B11	69
96906	MS16535-96	5320-01-091-6939	B3	57
			B9	30
			B11	80
96906	MS21083C3	5310-00-926-1835	B12	7
96906	MS24693-C2	5305-00-993-9189	B4	2
			B5	6
			B10	13
96906	MS25036-112	5940-00-143-4794	B12	9
96906	MS28775-020	5330-00-585-7723	B10	14
96906	MS28775-021	5330-00-631-1341	B10	6
96906	MS3367-4-9	5975-00-727-5153	B13	9
96906	MS35335-57	5310-00-058-3599	B10	15
96906	MS35338-135	5310-00-933-8118	B4	5
			B5	3
			B6	3
96906	MS51957-12	5305-00-054-5646	B2	10
			B10	8
96906	MS51957-13	5305-00-054-5647	B2	4
			B3	49
			B5	2
			B6	4
			B9	36
96906	MS51957-14	5305-00-054-5648	B10	10
96906	MS51957-15	5305-00-054-5649	B4	4

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CAGEC	PART NUMBER	STOCK NUMBER	FIG	ITEM
96906	MS51957-3	5305-00-054-5637	B11	76
96906	MS51957-4	5305-00-054-5638	B11	79
96906	MS51958-62	5305-00-059-3658	B12	8
81349	M38510/05203BDA	5962-01-239-8207	B11	61
81349	M38510/05204BDB	5962-01-127-9575	B11	52
81349	M38510/05604BFA	5962-01-128-3915	B11	67
81349	M38510/05702BFA	5962-01-082-9852	B3	33
			B11	56
81349	M38510/05703BFA	5962-01-107-1077	B11	41
81349	M38510/11005BCB	5962-01-113-0832	B9	17
			B11	47
81349	M38510/11201BCB	5962-01-088-3862	B11	58
81349	M38510/17201BDA	5962-01-199-8839	B11	62
81349	M38510/17401BYA	5962-01-146-0341	B3	34
			B11	53
81349	M39003/01-2976	5910-00-007-3973	B9	4
			B11	4
81349	M39014/01-1575	5910-00-124-0659	B9	2
81349	M39014/01-1593	5910-00-010-8717	B3	2
			B7	2
			B9	3
			B11	2
81349	M39014/02-1419	5910-00-010-8721	B7	5
			B14	7
81349	M39016/34-001M	5945-01-128-1727	B11	5
81349	M55181/3-02	5935-01-124-9341	B13	1
81349	M8340105M1003JC	5905-01-120-3793	B3	20
80205	NAS1640-2	5310-00-928-2690	B11	74
80205	NAS620C2	5310-00-043-4708	B11	75
80205	NAS620C4	5310-00-057-0573	B2	12
			B3	50
			B4	6
			B6	2
80205	NAS620C5	5310-00-903-1509	B3	54
80205	NAS671C2	5310-00-812-4294	B11	73
81349	RCR05G101JS	5905-00-180-8301	B3	8
			B9	11
81349	RCR05G102JS	5905-00-458-9500	B9	15
			B11	21
81349	RCR05G103JS	5905-01-035-5065	B3	9
			B7	8
			B9	10
			B11	27
81349	RCR05G104JS	5905-00-458-9346	B3	7
			B7	12
			B9	14
			B11	28
81349	RCR05G105JS	5905-00-195-4074	B3	10
			B7	22
			B11	8
81349	RCR05G113JS	5905-00-491-1984	B11	9

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CAGEC	PART NUMBER	STOCK NUMBER	FIG	ITEM
81349	RCR05G123JS	5905-00-466-1215	B11	12
81349	RCR05G152JS	5905-00-180-8303	B7	20
			B11	29
81349	RCR05G154JS	5905-00-484-7550	B11	10
81349	RCR05G201JS	5905-00-466-1416	B11	26
81349	RCR05G202JS	5905-00-470-9481	B3	11
			B7	9
81349	RCR05G332JS	5905-00-401-7427	B7	25
			B11	22
81349	RCR05G334JS	5905-00-412-4045	B7	21
			B11	11
81349	RCR05G391JS	5905-00-407-0085	B7	23
81349	RCR05G472JS	5905-00-617-5091	B11	30
81349	RCR05G563JS	5905-00-412-0760	B9	13
81349	RCR05G680JS	5905-00-407-0088	B7	10
81349	RCR05G683JS	5905-00-466-1217	B11	25
81349	RCR07G102JS	5905-00-110-7620	B7	11
81349	RCR07G471JS	5905-00-120-9154	B7	24
81349	RNC50H1242FS	5905-00-286-5198	B11	18
81349	RNC50H2003FS	5905-01-017-8102	B11	16
81349	RNC50H2373FS	5905-01-120-9011	B11	14
81349	RNC50H2492FS	5905-00-410-1306	B11	24
81349	RNC50H3483FS	5905-01-121-2252	B11	17
81349	RNC50H4873FS	5905-01-120-8779	B11	23
81349	RNC50H5112FS	5905-00-137-0598	B11	20
81349	RNC50H5113FS	5905-01-068-5841	B11	15
81349	RNC50H7502FS	5905-00-758-2932	B11	13
81349	RNC50H7872FS	5905-01-044-5890	B11	19
81349	RNC55H1213FS	5905-00-758-5009	B7	15
81349	RNC55H1303FS	5905-00-243-1908	B7	14
81349	RNC55H1622FS	5905-00-401-7433	B7	16
81349	RNC55H2003FS	5905-00-431-5151	B9	8
81349	RNC55H2873FS	5905-00-158-5234	B9	12
81349	RNC55H3242FS	5905-00-172-7992	B7	13
81349	RNC55H3402FS	5905-00-305-5509	B7	19
81349	RNC55H4023FS	5905-00-570-5040	B9	9
81349	RNC55H4752FS	5905-00-629-3376	B7	17
81349	RNC55H8452FS	5905-00-137-4818	B7	18
80063	SM-A-955478		B12	6
80063	SM-C-456359	5820-00-889-3856	B1	6
80063	SM-C-875349	5962-01-128-2849	B11	48
80063	SM-C-875362-2	5962-01-110-6901	B3	32
			B11	46
80063	SM-C-875362-3	5962-01-110-6904	B11	44
80063	SM-C-875362-4	5962-01-110-6910	B3	30
			B11	40
80063	SM-C-875362-5	5962-01-110-6893	B3	39
			B11	49
80063	SM-C-875363	5962-01-110-6895	B3	35
			B11	50
80063	SM-C-875364-17		B15	4

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CAGEC	PART NUMBER	STOCK NUMBER	FIG	ITEM
80063	SM-C-875364-24		B14	4
80063	SM-C-875364-5		B14	3
			B15	3
80063	SM-C-875364-6		B14	5
80063	SM-C-875364-7		B15	6
80063	SM-C-875367	5962-01-110-6889	B11	39
80063	SM-C-875369	5962-01-110-6888	B3	29
80063	SM-C-875372	5962-01-110-6902	B3	13
			B11	33
80063	SM-C-875374	5962-01-110-6899	B3	14
			B11	32
80063	SM-C-875375	5962-01-110-6920	B11	54
80063	SM-C-875376-1	5962-01-168-6168	B11	65
80063	SM-C-875376-2	5962-01-110-6921	B11	51
80063	SM-C-875376-4	5962-01-110-6916	B11	42
80063	SM-C-875383	5962-01-110-6919	B11	37
80063	SM-C-875387-2	5962-01-110-6918	B3	28
			B9	27
			B11	38
80063	SM-C-875390	5962-01-110-6903	B3	36
80063	SM-C-875391	5950-01-119-6688	B7	26
80063	SM-C-875392	5961-01-128-3316	B3	26
			B9	18
			B11	31
80063	SM-C-875403	5935-01-120-4412	B3	6
			B9	5
			B11	6
80063	SM-C-875433	5315-01-133-1773	B3	56
			B9	35
			B11	81
80063	SM-C-875475	5962-01-110-6896	B3	21
			B11	66
80063	SM-C-875480	5962-01-146-9211	B11	64
80063	SM-C-875560	5999-01-176-1790	99	1
80063	SM-C-875583-1	5910-01-120-1192	B7	4
80063	SM-C-875584	5962-01-110-6922	B7	27
			B11	35
80063	SM-C-875585	5962-01-110-6884	B7	28
			B11	57
80063	SM-C-917635		B12	4
80063	SM-C-917636		B12	10
80063	SM-C-917641	5935-01-120-5203	B15	7
80063	SM-C-917651-1		B12	2
			B13	4
80063	SM-C-917651-2		B13	2
80063	SM-C-917651-3		B12	5
80063	SM-C-917651-6		B12	3
80063	SM-C-917651-7		B13	3
80063	SM-C-917651-8		B12	11
80063	SM-C-955455	5935-01-113-3591	B12	14
			B13	7

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CAGEC	PART NUMBER	STOCK NUMBER	FIG	ITEM
80063	SM-C-955460		B14	6
80063	SM-C-955461		B12	15
			B13	8
80063	SM-C-955489		B12	1
			B13	6
80063	SM-C-955500		B15	8
80063	SM-C-955501		B14	2
			B15	2
80063	SM-C-955514	5962-01-189-4487	B3	25
80063	SM-D-875393	5935-01-136-4064	B8	1
80063	SM-D-875397	5340-01-136-4065	B8	2
80063	SM-D-875489	5995-01-098-2613	B1	7
80063	SM-D-875498	5995-01-104-0669	B1	3
80063	SM-D-917637	5995-01-098-7077	B1	1
80063	SM-D-955457	5995-01-098-7076	B1	2
07418	S1993		B12	13
			B13	5
81349	U-229/U		B15	9
81349	U-77/U		B14	1
			B15	1
16428	YH-9319	5995-01-128-2266	B15	5
19200	11785687	5962-01-189-4494	B3	27
19200	11785698	6350-01-216-4190	B11	78
19200	11785700-1		B1	5
19200	11785701	9905-01-190-3284	B2	6
18876	13031853	5962-01-132-7852	B3	31
			B9	19
13499	352-9552-230	5999-00-944-5012	B9	33
			B11	77
06090	381A015-4-01/42		B12	12
14933	7703601DB	5962-01-119-4698	B11	34
19200	9355697	5935-01-188-7331	B5	5
19200	9355698	5120-01-161-1729	B16	1
19200	9355699	5999-01-190-0963	B10	2
19200	9355710	6135-01-161-1743	B10	9
19200	9355711-1		B10	16
19200	9355711-2		B10	19
19200	9355713	5340-01-248-0865	B3	51
			B9	38
			B11	82
19200	9355714	5935-01-188-7871	B10	12
19200	9355715	1220-01-188-7340	B10	7
19200	9355721		B3	47
19200	9355723	1220-01-188-7342	B3	5
19200	9355725	5962-01-189-4484	B3	43
			B9	21
19200	9355726	5962-01-192-3997	B3	42
			B9	20
			B11	55
19200	9355727	5962-01-189-4480	B3	41
			B9	23

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CAGEC	PART NUMBER	STOCK NUMBER	FIG	ITEM
19200	9355727	5962-01-189-4480	B11	59
19200	9355728	5962-01-189-4485	B3	40
			B9	24
19200	9355729	5962-01-189-4490	B3	17
19200	9355730		B2	5
19200	9355731	5962-01-189-4481	B3	16
			B9	22
			B11	68
19200	9355732	5962-01-189-4488	B3	15
19200	9355733	5962-01-189-4482	B3	23
			B9	25
			B9	25
			B11	60
19200	9355734	5962-01-189-4486	B9	26
19200	9355735	5962-01-190-0958	B3	18
19200	9355736	5962-01-189-4489	B3	24
19200	9355737	5962-01-189-4491	B3	38
19200	9355738	5962-01-189-4492	B3	37
19200	9355739	5962-01-189-4493	B3	19
19200	9355741		B9	32
19200	9355743	5962-01-189-4483	B3	22
			B9	16
19200	9355744	5950-01-209-0369	B3	12
19200	9355746	5962-01-195-0017	B11	43
19200	9355747	5840-01-188-7343	B1	4
19200	9355750	7035-01-290-4750	B2	7
19200	9355759	5315-01-188-7870	B10	4
19200	9355760	5999-01-181-5979	B2	1
19200	9355761		B11	71
19200	9355769	1220-01-188-7875	B3	52
19200	9355770	5999-01-175-4907	B4	7
19200	9355774	1220-01-188-7869	B10	11
19200	9355777	1220-01-188-7341	B4	1
19200	9355778	5315-01-283-4739	B10	17
19200	9355780		B4	3
19200	9355781	1220-01-188-7872	B5	7
19200	9355782	1220-01-188-7873	B5	4
19200	9355787	5998-01-210-8061	B3	46
			B9	31
			B11	70
19200	9355790	5340-01-161-1761	B10	1
19200	9355793	5310-01-212-0103	B7	31
19200	9355803	5935-01-190-0954	B3	48
			B11	72
19200	9355810	7420-01-181-5977	B2	9
19200	9355820	5340-01-161-1727	B10	5
19200	9355821	5340-01-213-4609	B6	1
19200	9355830	5998-01-161-1728	B5	1
19200	9355831		B7	30
19200	9355840		B5	8
19200	9355841	6140-01-161-1740	B6	6
19200	9355846	5999-01-190-0964	B6	7

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CAGEC	PART NUMBER	STOCK NUMBER	FIG	ITEM
19200	9355847	5999-01-190-0965	B6	5
19200	9379223	1220-01-188-7874	B3	53
19200	9379226	5935-01-194-7809	B7	6
19200	9379227	5935-01-190-0939	B7	7
19200	9379229-5	5998-01-412-0155	B2	3
19200	9379230-5	5998-01-412-0156	B2	2
19200	9379233-2	3040-01-283-4356	B10	18
19200	9379234	1220-01-188-7876	B2	11
19200	9379239	5962-01-248-0863	B11	36
19200	9379242	5305-01-206-4651	B11	83
19200	9379243	5340-01-206-4650	B9	37
			B11	84

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FIG	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
B1	1	5995-01-098-7077	80063	SM-D-917637
B1	2	5995-01-098-7076	80063	SM-D-955457
B1	3	5995-01-104-0669	80063	SM-D-875498
B1	4	5840-01-188-7343	19200	9355747
B1	5		19200	11785700-1
B1	6	5820-00-889-3856	80063	SM-C-456359
B1	7	5995-01-098-2613	80063	SM-D-875489
B2	1	5999-01-181-5979	19200	9355760
B2	2	5998-01-412-0156	19200	9379230-5
B2	3	5998-01-412-0155	19200	9379229-5
B2	4	5305-00-054-5647	96906	MS51957-13
B2	5		19200	9355730
B2	6	9905-01-190-3284	19200	11785701
B2	7	7035-01-290-4750	19200	9355750
B2	8	6135-01-088-2708	80058	BA-5588/U
B2	8	6135-01-094-6536	80058	BA-1588/U
B2	8	6140-01-091-1536	80058	BB-588/U
B2	9	7420-01-181-5977	19200	9355810
B2	10	5305-00-054-5646	96906	MS51957-12
B2	11	1220-01-188-7876	19200	9379234
B2	12	5310-00-057-0573	80205	NAS620C4
B3	1	5961-01-043-9178	81349	JANTX1N4454-1
B3	2	5910-00-010-8717	81349	M39014/01-1593
B3	3	5910-01-213-2358	81349	CCR05CG330GS
B3	4	5910-01-229-6830	81349	CCR05CG200GS
B3	5	1220-01-188-7342	19200	9355723
B3	6	5935-01-120-4412	80063	SM-C-875403
B3	7	5905-00-458-9346	81349	RCR05G104JS
B3	8	5905-00-180-8301	81349	RCR05G101JS
B3	9	5905-01-035-5065	81349	RCR05G103JS
B3	10	5905-00-195-4074	81349	RCR05G105JS
B3	11	5905-00-470-9481	81349	RCR05G202JS
B3	12	5950-01-209-0369	19200	9355744
B3	13	5962-01-110-6902	80063	SM-C-875372
B3	14	5962-01-110-6899	80063	SM-C-875374
B3	15	5962-01-189-4488	19200	9355732
B3	16	5962-01-189-4481	19200	9355731
B3	17	5962-01-189-4490	19200	9355729
B3	18	5962-01-190-0958	19200	9355735
B3	19	5962-01-189-4493	19200	9355739
B3	20	5905-01-120-3793	81349	M8340105M1003JC
B3	21	5962-01-110-6896	80063	SM-C-875475
B3	22	5962-01-189-4483	19200	9355743
B3	23	5962-01-189-4482	19200	9355733
B3	24	5962-01-189-4489	19200	9355736
B3	25	5962-01-189-4487	80063	SM-C-955514
B3	26	5961-01-128-3316	80063	SM-C-875392
B3	27	5962-01-189-4494	19200	11785687
B3	28	5962-01-110-6918	80063	SM-C-875387-2
B3	29	5962-01-110-6888	80063	SM-C-875369
B3	30	5962-01-110-6910	80063	SM-C-875362-4

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
B3	31	5962-01-132-7852	18876	13031853
B3	32	5962-01-110-6901	80063	SM-C-875362-2
B3	33	5962-01-082-9852	81349	M38510/05702BFA
B3	34	5962-01-146-0341	81349	M38510/17401BYA
B3	35	5962-01-110-6895	80063	SM-C-875363
B3	36	5962-01-110-6903	80063	SM-C-875390
B3	37	5962-01-189-4492	19200	9355738
B3	38	5962-01-189-4491	19200	9355737
B3	39	5962-01-110-6893	80063	SM-C-875362-5
B3	40	5962-01-189-4485	19200	9355728
B3	41	5962-01-189-4480	19200	9355727
B3	42	5962-01-192-3997	19200	9355726
B3	43	5962-01-189-4484	19200	9355725
B3	44	5955-01-152-2632	81349	CR-64/U4.915200M HZ
B3	45	5320-01-038-2892	96906	MS16535-94
B3	46	5998-01-210-8061	19200	9355787
B3	47		19200	9355721
B3	48	5935-01-190-0954	19200	9355803
B3	49	5305-00-054-5647	96906	MS51957-13
B3	50	5310-00-057-0573	80205	NAS620C4
B3	51	5340-01-248-0865	19200	9355713
B3	52	1220-01-188-7875	19200	9355769
B3	53	1220-01-188-7874	19200	9379223
B3	54	5310-00-903-1509	80205	NAS620C5
B3	55	5320-00-171-3773	96906	MS16535-175
B3	56	5315-01-133-1773	80063	SM-C-875433
B3	57	5320-01-091-6939	96906	MS16535-96
B4	1	1220-01-188-7341	19200	9355777
B4	2	5305-00-993-9189	96906	MS24693-C2
B4	3		19200	9355780
B4	4	5305-00-054-5649	96906	MS51957-15
B4	5	5310-00-933-8118	96906	MS35338-135
B4	6	5310-00-057-0573	80205	NAS620C4
B4	7	5999-01-175-4907	19200	9355770
B5	1	5998-01-161-1728	19200	9355830
B5	2	5305-00-054-5647	96906	MS51957-13
B5	3	5310-00-933-8118	96906	MS35338-135
B5	4	1220-01-188-7873	19200	9355782
B5	5	5935-01-188-7331	19200	9355697
B5	6	5305-00-993-9189	96906	MS24693-C2
B5	7	1220-01-188-7872	19200	9355781
B5	8		19200	9355840
B6	1	5340-01-213-4609	19200	9355821
B6	2	5310-00-057-0573	80205	NAS620C4
B6	3	5310-00-933-8118	96906	MS35338-135
B6	4	5305-00-054-5647	96906	MS51957-13
B6	5	5999-01-190-0965	19200	9355847
B6	6	6140-01-161-1740	19200	9355841
B6	7	5999-01-190-0964	19200	9355846
B6	8	5920-00-236-8150	81349	FM04A125V3/4A

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
B7	1	5961-01-043-9178	81349	JANTX1N4454-1
B7	2	5910-00-010-8717	81349	M39014/01-1593
B7	3	5910-01-207-8618	81349	CFR06ARB274JP
B7	4	5910-01-120-1192	80063	SM-C-875583-1
B7	5	5910-00-010-8721	81349	M39014/02-1419
B7	6	5935-01-194-7809	19200	9379226
B7	7	5935-01-190-0939	19200	9379227
B7	8	5905-01-035-5065	81349	RCR05G103JS
B7	9	5905-00-470-9481	81349	RCR05G202JS
B7	10	5905-00-407-0088	81349	RCR05G680JS
B7	11	5905-00-110-7620	81349	RCR07G102JS
B7	12	5905-00-458-9346	81349	RCR05G104JS
B7	13	5905-00-172-7992	81349	RNC55H3242FS
B7	14	5905-00-243-1908	81349	RNC55H1303FS
B7	15	5905-00-758-5009	81349	RNC55H1213FS
B7	16	5905-00-401-7433	81349	RNC55H1622FS
B7	17	5905-00-629-3376	81349	RNC55H4752FS
B7	18	5905-00-137-4818	81349	RNC55H8452FS
B7	19	5905-00-305-5509	81349	RNC55H3402FS
B7	20	5905-00-180-8303	81349	RCR05G152JS
B7	21	5905-00-412-4045	81349	RCR05G334JS
B7	22	5905-00-195-4074	81349	RCR05G105JS
B7	23	5905-00-407-0085	81349	RCR05G391JS
B7	24	5905-00-120-9154	81349	RCR07G471JS
B7	25	5905-00-401-7427	81349	RCR05G332JS
B7	26	5950-01-119-6688	80063	SM-C-875391
B7	27	5962-01-110-6922	80063	SM-C-875584
B7	28	5962-01-110-6884	80063	SM-C-875585
B7	29	5961-01-026-1256	81349	JANTX1N4620
B7	30		19200	9355831
B7	31	5310-01-212-0103	19200	9355793
B8	1	5935-01-136-4064	80063	SM-D-875393
B8	2	5340-01-136-4065	80063	SM-D-875397
B9	1	5961-01-043-9178	81349	JANTX1N4454-1
B9	2	5910-00-124-0659	81349	M39014/01-1575
B9	3	5910-00-010-8717	81349	M39014/01-1593
B9	4	5910-00-007-3973	81349	M39003/01-2976
B9	5	5935-01-120-4412	80063	SM-C-875403
B9	6	5961-00-858-3826	81349	JANTX2N2222A
B9	7	5961-00-022-5666	81349	JANTX2N2907A
B9	8	5905-00-431-5151	81349	RNC55H2003FS
B9	9	5905-00-570-5040	81349	RNC55H4023FS
B9	10	5905-01-035-5065	81349	RCR05G103JS
B9	11	5905-00-180-8301	81349	RCR05G101JS
B9	12	5905-00-158-5234	81349	RNC55H2873FS
B9	13	5905-00-412-0760	81349	RCR05G563JS
B9	14	5905-00-458-9346	81349	RCR05G104JS
B9	15	5905-00-458-9500	81349	RCR05G102JS
B9	16	5962-01-189-4483	19200	9355743
B9	17	5962-01-113-0832	81349	M38510/11005BCB
B9	18	5961-01-128-3316	80063	SM-C-875392

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
B9	19	5962-01-132-7852	18876	13031853
B9	20	5962-01-192-3997	19200	9355726
B9	21	5962-01-189-4484	19200	9355725
B9	22	5962-01-189-4481	19200	9355731
B9	23	5962-01-189-4480	19200	9355727
B9	24	5962-01-189-4485	19200	9355728
B9	25	5962-01-189-4482	19200	9355733
B9	26	5962-01-189-4486	19200	9355734
B9	27	5962-01-110-6918	80063	SM-C-875387-2
B9	28	5961-01-023-8523	81349	JANTX1N4617
B9	29	5961-01-024-2145	81349	JANTX1N4625
B9	30	5320-01-091-6939	96906	MS16535-96
B9	31	5998-01-210-8061	19200	9355787
B9	32		19200	9355741
B9	33	5999-00-944-5012	13499	352-9552-230
B9	34	5320-01-038-2892	96906	MS16535-94
B9	35	5315-01-133-1773	80063	SM-C-875433
B9	36	5305-00-054-5647	96906	MS51957-13
B9	37	5340-01-206-4650	19200	9379243
B9	38	5340-01-248-0865	19200	9355713
B10	1	5340-01-161-1761	19200	9355790
B10	2	5999-01-190-0963	19200	9355699
B10	3	5920-00-236-8150	81349	FM04A125V3/4A
B10	4	5315-01-188-7870	19200	9355759
B10	5	5340-01-161-1727	19200	9355820
B10	6	5330-00-631-1341	96906	MS28775-021
B10	7	1220-01-188-7340	19200	9355715
B10	8	5305-00-054-5646	96906	MS51957-12
B10	9	6135-01-161-1743	19200	9355710
B10	10	5305-00-054-5648	96906	MS51957-14
B10	11	1220-01-188-7869	19200	9355774
B10	12	5935-01-188-7871	19200	9355714
B10	13	5305-00-993-9189	96906	MS24693-C2
B10	14	5330-00-585-7723	96906	MS28775-020
B10	15	5310-00-058-3599	96906	MS35335-57
B10	16		19200	9355711-1
B10	17	5315-01-283-4739	19200	9355778
B10	18	3040-01-283-4356	19200	9379233-2
B10	19		19200	9355711-2
B11	1	5961-01-043-9178	81349	JANTX1N4454-1
B11	2	5910-00-010-8717	81349	M39014/01-1593
B11	3	5910-01-088-0745	81349	CCR09CG102GR
B11	4	5910-00-007-3973	81349	M39003/01-2976
B11	5	5945-01-128-1727	81349	M39016/34-001M
B11	6	5935-01-120-4412	80063	SM-C-875403
B11	7	5961-00-858-3826	81349	JANTX2N2222A
B11	8	5905-00-195-4074	81349	RCR05G105JS
B11	9	5905-00-491-1984	81349	RCR05G113JS
B11	10	5905-00-484-7550	81349	RCR05G154JS
B11	11	5905-00-412-4045	81349	RCR05G334JS
B11	12	5905-00-466-1215	81349	RCR05G123JS

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
B11	13	5905-00-758-2932	81349	RNC50H7502FS
B11	14	5905-01-120-9011	81349	RNC50H2373FS
B11	15	5905-01-068-5841	81349	RNC50H5113FS
B11	16	5905-01-017-8102	81349	RNC50H2003FS
B11	17	5905-01-121-2252	81349	RNC50H3483FS
B11	18	5905-00-286-5198	81349	RNC50H1242FS
B11	19	5905-01-044-5890	81349	RNC50H7872FS
B11	20	5905-00-137-0598	81349	RNC50H5112FS
B11	21	5905-00-458-9500	81349	RCR05G102JS
B11	22	5905-00-401-7427	81349	RCR05G332JS
B11	23	5905-01-120-8779	81349	RNC50H4873FS
B11	24	5905-00-410-1306	81349	RNC50H2492FS
B11	25	5905-00-466-1217	81349	RCR05G683JS
B11	26	5905-00-466-1416	81349	RCR05G201JS
B11	27	5905-01-035-5065	81349	RCR05G103JS
B11	28	5905-00-458-9346	81349	RCR05G104JS
B11	29	5905-00-180-8303	81349	RCR05G152JS
B11	30	5905-00-617-5091	81349	RCR05G472JS
B11	31	5961-01-128-3316	80063	SM-C-875392
B11	32	5962-01-110-6899	80063	SM-C-875374
B11	33	5962-01-110-6902	80063	SM-C-875372
B11	34	5962-01-119-4698	14933	7703601DB
B11	35	5962-01-110-6922	80063	SM-C-875584
B11	36	5962-01-248-0863	19200	9379239
B11	37	5962-01-110-6919	80063	SM-C-875383
B11	38	5962-01-110-6918	80063	SM-C-875387-2
B11	39	5962-01-110-6889	80063	SM-C-875367
B11	40	5962-01-110-6910	80063	SM-C-875362-4
B11	41	5962-01-107-1077	81349	M38510/05703BFA
B11	42	5962-01-110-6916	80063	SM-C-875376-4
B11	43	5962-01-195-0017	19200	9355746
B11	44	5962-01-110-6904	80063	SM-C-875362-3
B11	45	5962-01-071-3328	27014	MM54C76W
B11	46	5962-01-110-6901	80063	SM-C-875362-2
B11	47	5962-01-113-0832	81349	M38510/11005BCB
B11	48	5962-01-128-2849	80063	SM-C-875349
B11	49	5962-01-110-6893	80063	SM-C-875362-5
B11	50	5962-01-110-6895	80063	SM-C-875363
B11	51	5962-01-110-6921	80063	SM-C-875376-2
B11	52	5962-01-127-9575	81349	M38510/05204BDB
B11	53	5962-01-146-0341	81349	M38510/17401BYA
B11	54	5962-01-110-6920	80063	SM-C-875375
B11	55	5962-01-192-3997	19200	9355726
B11	56	5962-01-082-9852	81349	M38510/05702BFA
B11	57	5962-01-110-6884	80063	SM-C-875585
B11	58	5962-01-088-3862	81349	M38510/11201BCB
B11	59	5962-01-189-4480	19200	9355727
B11	60	5962-01-189-4482	19200	9355733
B11	61	5962-01-239-8207	81349	M38510/05203BDA
B11	62	5962-01-199-8839	81349	M38510/17201BDA
B11	63	5962-01-064-1325	27014	MM54C157W

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
B11	64	5962-01-146-9211	80063	SM-C-875480
B11	65	5962-01-168-6168	80063	SM-C-875376-1
B11	66	5962-01-110-6896	80063	SM-C-875475
B11	67	5962-01-128-3915	81349	M38510/05604BFA
B11	68	5962-01-189-4481	19200	9355731
B11	69	5320-01-038-2892	96906	MS16535-94
B11	70	5998-01-210-8061	19200	9355787
B11	71		19200	9355761
B11	72	5935-01-190-0954	19200	9355803
B11	73	5310-00-812-4294	80205	NAS671C2
B11	74	5310-00-928-2690	80205	NAS1640-2
B11	75	5310-00-043-4708	80205	NAS620C2
B11	76	5305-00-054-5637	96906	MS51957-3
B11	77	5999-00-944-5012	13499	352-9552-230
B11	78	6350-01-216-4190	19200	11785698
B11	79	5305-00-054-5638	96906	MS51957-4
B11	80	5320-01-091-6939	96906	MS16535-96
B11	81	5315-01-133-1773	80063	SM-C-875433
B11	82	5340-01-248-0865	19200	9355713
B11	83	5305-01-206-4651	19200	9379242
B11	84	5340-01-206-4650	19200	9379243
B12	1		80063	SM-C-955489
B12	2		80063	SM-C-917651-1
B12	3		80063	SM-C-917651-6
B12	4		80063	SM-C-917635
B12	5		80063	SM-C-917651-3
B12	6		80063	SM-A-955478
B12	7	5310-00-926-1835	96906	MS21083C3
B12	8	5305-00-059-3658	96906	MS51958-62
B12	9	5940-00-143-4794	96906	MS25036-112
B12	10		80063	SM-C-917636
B12	11		80063	SM-C-917651-8
B12	12		06090	381A015-4-01/42
B12	13		07418	S1993
B12	14	5935-01-113-3591	80063	SM-C-955455
B12	15		80063	SM-C-955461
B13	1	5935-01-124-9341	81349	M55181/3-02
B13	2		80063	SM-C-917651-2
B13	3		80063	SM-C-917651-7
B13	4		80063	SM-C-917651-1
B13	5		07418	S1993
B13	6		80063	SM-C-955489
B13	7	5935-01-113-3591	80063	SM-C-955455
B13	8		80063	SM-C-955461
B13	9	5975-00-727-5153	96906	MS3367-4-9
B14	1		81349	U-77/U
B14	2		80063	SM-C-955501
B14	3		80063	SM-C-875364-5
B14	4		80063	SM-C-875364-24
B14	5		80063	SM-C-875364-6
B14	6		80063	SM-C-955460

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
B14	7	5910-00-010-8721	81349	M39014/02-1419
B15	1		81349	U-77/U
B15	2		80063	SM-C-955501
B15	3		80063	SM-C-875364-5
B15	4		80063	SM-C-875364-17
B15	5	5995-01-128-2266	16428	YH-9319
B15	6		80063	SM-C-875364-7
B15	7	5935-01-120-5203	80063	SM-C-917641
B15	8		80063	SM-C-955500
B15	9		81349	U-229/U
B16	1	5120-01-161-1729	19200	9355698
99	1	5999-01-176-1790	80063	SM-C-875560

APPENDIX C

EXPENDABLE/DURABLE SUPPLIES ANO MATERIALS LIST

Section I. INTRODUCTION

C-1. SCOPE

This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/ Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

C-2 . EXPLANATION OF COLUMNS

a. Column (1) - Item Number. This number is assigned the the entry in the listing and is referenced to the narrative instructions the identify the material (e.g., "Use cleaning compound, item 5, App. C").

b. Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item.

C - Operator/Crew
F - Direct Support Maintenance

c. Column (3) - National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column (4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Contractor and Government Entity Code (CAGEC) in parentheses followed by the part number.

e. Column (5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) UNIT OF MEAS
1	F	8040-00-117-8510	Adhesive (81349) MIL-A-46146	OZ
2	F		Bag, Storage, Electrostatic-Free (37695)346514-23	EA
3	C	6135-01-088-2708	Battery, Storage (80058) BA-5588/U	EA
4	C	8020-00-260-1305	Brush, Varnish (81349) H-B-695	EA
5	C	8305-00-818-4567	Cloth, Cheesecloth (81348) CCCC440	YD
6	F	6850-00-880-7616	Compound, Silicone (81349) MIL-S-8660	OZ
7	F	5999-01-176-1790	Gasket, Shielding Electrical (80063) SM-C-875560	RO

GLOSSARY

Section I ABBREVIATIONS

A list of abbreviations with their definitions.

TERM	DEFINITION
ADJ	Adjust
BIT	Binary Digit
BIT	Built in Test
BITE	Built in Test Equipment
BRT	Brightness
BYTE	8 Bits
CCA,	Circuit Card Assembly
CMOS	Complementary Metal Oxide Semiconductor
DSP	Display
EOM	End of Message
EOT	End of Transmission
EPROM	Erasable Programmable Read Only Memory
FO	Forward Observer
FPF	Final Protective Fire
FSK	Frequency Shift Keyed
I/O	Input/output
KNPT	Known Point
LED	Light Emitting Diode
LO.,	Location
MBC	Mortar Ballistics Computer
MET	Meteorological
MICRO	Microprocessor
MOD	Modem
MSG.	Message
MSN	Mission
MTOE	Modified Table of Organization and Equipment
RAM	Random Access Memory
REG	Registration
ROM	Read Only Memory
SEQ	Sequence
SI	Shift In
SW	Switch
SYN	Synchronous Idle
TFC	Technical Fire Control
TGT	Target
TMDE	Test Measurement Diagnostic Equipment
WPN	Weapon
XMIT	Transmit

Section II DEFINITIONS OF UNUSUAL TERMS

There are no unusual or unique terms used within this text.

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2-25	2-28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°. REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of [illegible] knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation
3-10	3-3		3-1	Item 5, Function column. Change "2 db" to "3db." REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.
5-6	5-8			Add new step f.1 to read, "Replace cover plate removed in step e.1, above." REASON: To replace the cover plate.
		F03		Zone C 3. On J1-2, change "+24 VDC to "+5 VDC." REASON: This is the output line of the 5 VDC power supply. + 24 VDC is the input voltage.

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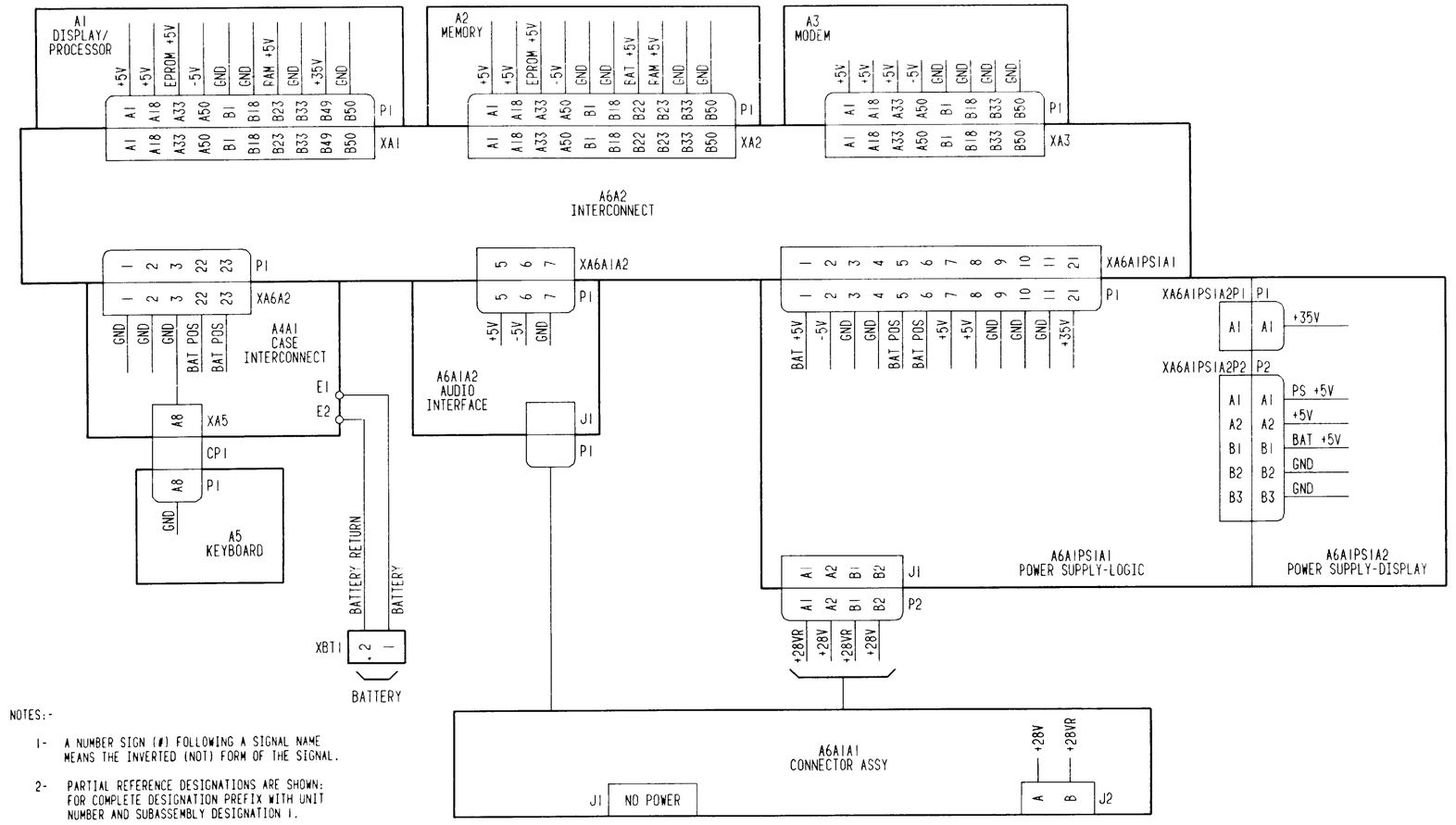


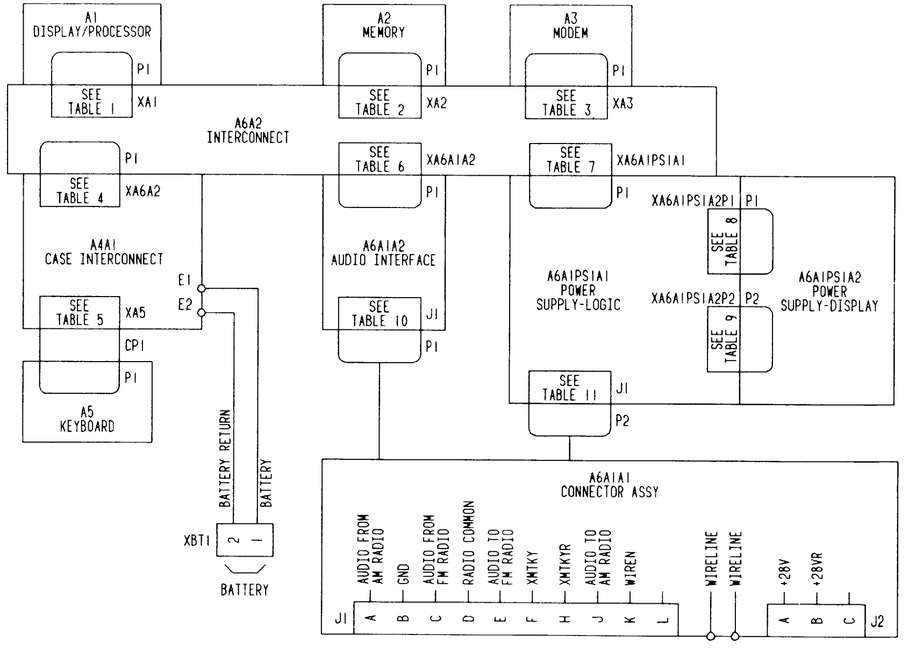
NOTES:-

1- A NUMBER SIGN (#) FOLLOWING A SIGNAL NAME MEANS THE INVERTED (NOT) FORM OF THE SIGNAL.

2- PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATION PREFIX WITH UNIT NUMBER AND SUBASSEMBLY DESIGNATION 1.

Power Distribution Diagram

TABLE 1					
PIN	A1P1	XA1	PIN	A1P1	XA1
A1	+5V	+5V	B1	GND	GND
A2	AB00	AB00	B2	DB0	DB0
A3	AB01	AB01	B3	DB1	DB1
A4	AB02	AB02	B4	DB2	DB2
A5	AB03	AB03	B5	DB3	DB3
A6	AB04	AB04	B6	DB4	DB4
A7	AB05	AB05	B7	DB5	DB5
A8	AB06	AB06	B8	DB6	DB6
A9	AB07	AB07	B9	DB7	DB7
A10	AB08	AB08	B10	RD#	RD#
A11	AB09	AB09	B11	WT#	WT#
A12	AB10	AB10	B12	IO/M#	IO/M#
A13	AB11	AB11	B13	S0	S0
A14	AB12	AB12	B14	S1	S1
A15	AB13	AB13	B15	RESET#	RESET#
A16	AB14	AB14	B16	LE	LE
A17	AB15	AB15	B17	ALE	ALE
A18	+5V	+5V	B18	GND	GND
A19	PCLKI	PCLK	B19	PCLKO	PCLK
A20	KEYINTI#	KEYINT#	B20	KEYINTO#	KEYINT#
A21	RTCINTI#	RTCINT#	B21	RTCINTO#	RTCINT#
A22	MODINT#	MODINT#	B22	PS#	
A23	DEMODINT#	DEMODINT#	B23	RAM+5V	RAM+5V
A24	PSFAULT#	PSFAULT#	B24	WAITI#	WAIT#
A25	BREQ#	BREQ#	B25	BACK#	BACK#
A26	LB0#	LB0#	B26	HB0#	HB0#
A27	LB1#	LB1#	B27	HB1#	HB1#
A28	LB2#	LB2#	B28	HB2#	HB2#
A29	LB3#	LB3#	B29	HB3#	HB3#
A30	LB4#	LB4#	B30	HB4#	HB4#
A31	LB5#	LB5#	B31	HB5#	HB5#
A32	LB6#	LB6#	B32	HB6#	HB6#
A33	EPROM+5V	+5V	B33	GND	GND
A34			B34	614.4KHZ	614.4KHZ
A35			B35	5HZ	5HZ
A36	SENSE1		B36	2HZ	2HZ
A37	SENSE2		B37	1HZ	1HZ
A38	PGM#		B38	2SEC	2SEC
A39	VPP		B39	3SEC	3SEC
A40	WAITO#	WAIT#	B40	6SEC	6SEC
A41	OFF	OFF	B41	LEDDC	LEDDC
A42	ELON	ELON	B42	DSPON#	DSPON#
A43	ANDATO	ANDAT	B43	ANDATI	ANDAT
A44	ANCLKO	ANCLK	B44	ANCLKI	ANCLK
A45	GRDENO	GRDEN	B45	GRDENI	GRDEN
A46	GRDCLKO	GRDCLK	B46	GRDCLKI	GRDCLK
A47	EOFO	EOF	B47	EOFI	EOF
A48	320HZO	320HZ	B48	320HZI	320HZ
A49	CNTRST		B49	+35V	+35V
A50		-5V	B50	GND	GND



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Interconnect System Diagram
(Sheet 1 of 2)

TABLE 2

PIN	A2P1	XA2	PIN	A2P1	XA2
A1	+5V	+5V	B1	GND	GND
A2	AB00	AB00	B2	DB0	DB0
A3	AB01	AB01	B3	DB1	DB1
A4	AB02	AB02	B4	DB2	DB2
A5	AB03	AB03	B5	DB3	DB3
A6	AB04	AB04	B6	DB4	DB4
A7	AB05	AB05	B7	DB5	DB5
A8	AB06	AB06	B8	DB6	DB6
A9	AB07	AB07	B9	DB7	DB7
A10	AB08	AB08	B10	RD#	RD#
A11	AB09	AB09	B11	WT#	WT#
A12	AB10	AB10	B12	IO/M#	IO/M#
A13	AB11	AB11	B13		S0
A14	AB12	AB12	B14		S1
A15	AB13	AB13	B15		
A16	AB14	AB14	B16	LE	LE
A17	AB15	AB15	B17		ALE
A18	+5V	+5V	B18	GND	GND
A19			B19		PCLK
A20			B20		
A21			B21		
A22			B22	BAT+5V	BAT+5V
A23			B23	RAM+5V	RAM+5V
A24			B24		
A25		BREQ#	B25		BACK#
A26			B26		
A27			B27		
A28			B28		
A29			B29		
A30			B30		
A31			B31		
A32			B32		
A33	EPROM+5V	+5V	B33	GND	GND
A34			B34		
A35			B35		
A36	SENSE1		B36		
A37	SENSE2		B37		
A38	PGM#		B38		
A39	VPPL0		B39		
A40	VPPH0		B40		
A41	VPPL1		B41		
A42	VPPH1		B42		
A43	VPPL2		B43		
A44	VPPH2		B44		
A45	VPPL3		B45		
A46	VPPH3		B46		
A47	VPPL4		B47		
A48	VPPH4		B48		
A49			B49		
A50		-5V	B50	GND	GND

TABLE 3

PIN	A3P1	XA3	PIN	A3P1	XA3
A1	+5V	+5V	B1	GND	GND
A2	AB00	AB00	B2	DB0	DB0
A3	AB01	AB01	B3	DB1	DB1
A4	AB02	AB02	B4	DB2	DB2
A5	AB03	AB03	B5	DB3	DB3
A6	AB04	AB04	B6	DB4	DB4
A7		AB05	B7	DB5	DB5
A8		AB06	B8	DB6	DB6
A9		AB07	B9	DB7	DB7
A10		AB08	B10	RD#	RD#
A11		AB09	B11	WT#	WT#
A12		AB10	B12	IO/M#	IO/M#
A13		AB11	B13		S0
A14		AB12	B14		S1
A15		AB13	B15		
A16		AB14	B16	LE	LE
A17		AB15	B17		ALE
A18	+5V	+5V	B18	GND	GND
A19	CFSKI	CFSK	B19		PCLK
A20	WXMT	WXMT	B20	WIREN	WIREN
A21	MFSK	MFSK	B21		
A22	MODINT#	MODINT#	B22	XMTKY	XMTKY
A23	DEMODINT#	DEMODINT#	B23	XMTKYR	XMTKYR
A24	MC6000	MC600	B24	MC600I	MC600
A25		BREQ#	B25		BACK#
A26	DACLKO#	DACLK#	B26	DACLKI#	DACLK#
A27	ROM1CLKO#	ROM1CLK#	B27	ROM1CLKI#	ROM1CLK#
A28	ROM2CLKO#	ROM2CLK#	B28	ROM2CLKI#	ROM2CLK#
A29	RCDATAO	RCDATA	B29	RCDATAI	RCDATA
A30	RCCLKO	RCCLK	B30	RCCLKI	RCCLK
A31	DCCFSKO	DCCFSK	B31	DCCFSKI	DCCFSK
A32	MC19KO	MC19K	B32	MC19KI	MC19K
A33	+5V	+5V	B33	GND	GND
A34	MBRST#		B34	614.4KHZ	614.4KHZ
A35	MCCLR		B35	5HZ	5HZ
A36	SYNCRST		B36	2HZ	2HZ
A37	DAENSET#		B37	1HZ	1HZ
A38	DARST#		B38	2SEC	2SEC
A39	SAMEGRST#		B39	3SEC	3SEC
A40	DMGDRST#		B40	6SEC	6SEC
A41	LDCNT40#		B41	LEDDC	LEDDC
A42	RSTRDBC#		B42	DSPON#	DSPON#
A43			B43	BATLOW	BATLOW
A44			B44		
A45	SEQLED	SEQLED	B45	ONLED	ONLED
A46	BATLED	BATLED	B46	MSGLED	MSGLED
A47	MC9.6KO	MC9.6K	B47	MC9.6KI	MC9.6K
A48	MC2400O	MC2400	B48	MC2400I	MC2400
A49	MC1200O	MC1200	B49	MC1200I	MC1200
A50	-5V	-5V	B50	GND	GND

TABLE 4

XA6A2 A6A2P1	SIGNAL NAME
1	GND
2	GND
3	GND
4	LB0#
5	LB1#
6	LB2#
7	LB3#
8	LB4#
9	HB5#
10	HB1#
11	HB4#
12	HB3#
13	HB0#
14	HB2#
15	MSGLED
16	ELLO
17	HB6#
18	ELHI
19	ONLED
20	LB5#
21	LB6#
22	BATPOS
23	BATPOS
24	ON#
25	SEQLED
26	BATLED

TABLE 5

XA5 CP1 A5P1	SIGNAL NAME
A1	HB0#
A2	HB1#
A3	HB2#
A4	HB3#
A5	HB4#
A6	HB5#
A7	HB6#
A8	GND
A9	MSGLED
A10	ONLED
A11	ELLO
B1	LB0#
B2	LB1#
B3	LB2#
B4	LB3#
B5	LB4#
B6	LB5#
B7	LB6#
B8	ON#
B9	SEQLED
B10	BATLED
B11	ELHI

TABLE 6

A6A1A2P1 XA6A1A2	SIGNAL NAME
1	CFSK
2	WXMT
3	WIREN
4	MFSK
5	+5V
6	-5V
7	GND
8	
9	XMTKYR
10	XMTKY

TABLE 7

A6A1PS1A1P1 XA6A1PS1A1	SIGNAL NAME
1	BAT+5V
2	-5V
3	GND
4	GND
5	BATPOS
6	BATPOS
7	+5V
8	+5V
9	GND
10	GND
11	GND
12	RESET#
13	PSFAULT#
14	BATLOW
15	OFF
16	ELHI
17	ON#
18	ELON
19	ELLO
20	DSPON#
21	+35V
22	MC1200

TABLE 8

XA6A1PS1A2P1 AND A6A1PS1A2P1	SIGNAL NAME
A1	+35V
A2	ELHI
A3	ELLO
A4	MC1200
B1	ELON
B2	DSPON#
B3	ON#
B4	OFF

TABLE 9

XA6A1PS1A2P2 AND A6A1PS1A2P2	SIGNAL NAME
A1	PS+5V
A2	+5V
A3	SPOS
A4	PSRUN#
B1	BAT+5V
B2	GND
B3	GND
B4	PSFAULT#

TABLE 10

A6A1A2J1 A6A1A1P1	SIGNAL NAME
A1	XMTKY
A2	
A3	AUDIO TO FM RADIO
A4	RADIO COMMON
A5	AUDIO FROM AM RADIO
A6	WIRELINE
B1	XMTKYR
B2	GND
B3	WIREN
B4	AUDIO TO AM RADIO
B5	AUDIO FROM FM RADIO
B6	WIRELINE

TABLE 11

A6A1PS1A1J1 A6A1A1P2	SIGNAL NAME
A1	+28VR
A2	+28V
A3	
B1	+28VR
B2	+28V
B3	

NOTES:-

1- A NUMBER SIGN (#) FOLLOWING A SIGNAL NAME MEANS THE INVERTED (NOT) FORM OF THE SIGNAL.

2- PARTIAL REFERENCE DESIGNATIONS ARE SHOWN: FOR COMPLETE DESIGNATION PREFIX WITH UNIT NUMBER AND SUBASSEMBLY DESIGNATION 1.

Interconnect System Diagram
(Sheet 2 of 2)

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

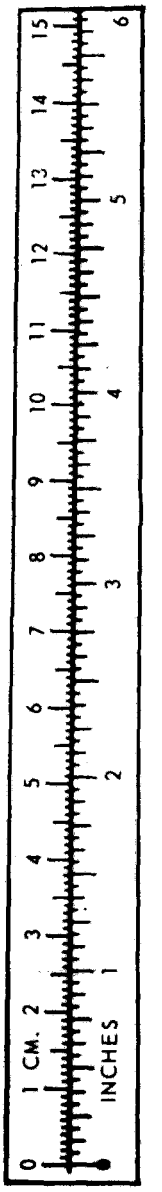
TEMPERATURE

$5/9\ (^0F - 32) = {}^0C$
212^0 Fahrenheit is equivalent to 100^0 Celsius
90^0 Fahrenheit is equivalent to 32.2^0 Celsius
32^0 Fahrenheit is equivalent to 0^0 Celsius
$9/5\ C^0 + 32 = F^0$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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