TECHNICAL MANUAL

DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOL LISTS TEST SET, PHOTOGRAPHIC FLASHER SYSTEM, BENCH LS-69A

This copy is a reprint which includes current pages from Changes 1 through 3.

HEADQUARTERS, DEPARTMENT OF THE ARMY

JULY 1970

WARNING

Be careful when working on the 115-volt ac power connections. Serious injury or death may result from contact with these terminals.

DON'T TAKE CHANCES!

CHANGE
No.3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON DC, 15 October 1981

Direct Support, General Support, and Depot Maintenance Manual
TEST SET, PHOTOGRAPHIC FLASHER SYSTEM, BENCH LS-69A
NSN 6760-00-999-5662

TM 11-6760-232-35, 8 July 1970, is changed as follows:
1. The title of the manual is changed as shown above.
2. New or changed material is indicated by a vertical bar in the margin.
3. Remove and insert pages as indicated below:

Remove	*Insert*
1-1 and 1-2	1-1 and 1-2
6-1 through 6-8	6-1 through 6-8
6-11 through 6-20.4	6-11 through 6-20.4

4. File this change sheet in front of the manual for reference purposes.

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

TECHNICAL MANUAL

No. 11-6760-232-35

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 8 July 1970

DS, GS, and Depot Maintenance Manual Including Repair Parts and Special Tools List TEST SET, PHOTOGRAPHIC FLASHER SYSTEM, BENCH LS-69A

*This manual, together with TM 114760-232-12, 16 February 1970, supersedes TM 1146760-232.15, 26 Jun 1967, and TM 1146760-232-35P, 26 June 1967,

CHAPTER 1
FUNCTIONING

Section I. GENERAL

1-1. Scope

a. This manual contains direct support (DS), general support (GS), and depot maintenance instructions for Test Set, Photographic Flasher System, Bench LS-69A (bench test set). Instructions included in this manual cover troubleshooting, testing, aligning, and repairing the bench test set at the direct and general support and depot maintenance categories of maintenance. It also lists the tools, materials, and test equipment required to perform direct and general support and depot maintenance.

b. The complete technical manual for this equipment includes TM 11-6760-232-12.

NOTE

For applicable forms and records, refer to TM 11-6760-232-12.

1-2. Indexes of Publications

Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, additional publications or modification work orders pertaining to the equipment.

1.3. Reporting Errors and Recommending 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 or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to Commander, US Army Communications-Electronics Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703. In either case, a reply will be furnished direct to you.

1-3.1. Reporting Equipment Improvement Recommendations (EIR)

If your LS-69A 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 Commander, US Army Communications-Electronics Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703. We'll send you a reply.

Section II. BLOCK DIAGRAM ANALYSIS

1-4. General

The block diagram analysis is divided into two major discussions: circuits common to various test configurations, and circuits concerned in the specific test performed by the bench test set. Figure 6-3 is the overall block diagram of the bench test set, figure 1-9 is the block diagram of the blower panel, and figure 1-9.1 is the block diagram of the adapter.

1-5. Common Circuits

a. Input Pulse Generator A9, (fig. 1-1). The output of input pulse generator A9 controls the operation of camera frame pulse trigger Q22 which generates the simulated camera frame pulse. Input pulse generator A9 produces a + 28-volt direct current (dc) 140 + 20-millisecond pulse which occurs once every 1,250 milliseconds (1.25 seconds), or once every 3,750 milliseconds (3.75 seconds). The controlling elements of A9 are injunction oscillator Q3 and amplifier Q2, which along with their associated resistor and capacitor components, constitute a variable frequency astable multivibrator. For the 3.75-second pulse period, timing network C1, C2, R8, and R9 determines the multivibrator operating frequency. The shorter 1.25-second pulse period is obtained by shunting timing resistor R6 into the circuit. Isolation diode CRI insures that the switching action of amplifier Q2 is positive and non ambiguous. Regenerative feedback to the emitter circuit of injunction oscillator Q3 is provided through feedback network CR2, R7. The positive pulse from amplifier Q2 drives relay driver Q1 out of cutoff into saturation. In its saturated state, Q1 effectively grounds the base of pulse trigger Q22, causing it to generate the simulated camera frame pulse. The manual trigger, which is a + 28-volt control signal, triggers relay driver Q1 when the INPUT PULSE PRESS FOR MANUAL switch on the front panel is depressed. The disable signal grounds the collector of pulse amplifier Q2

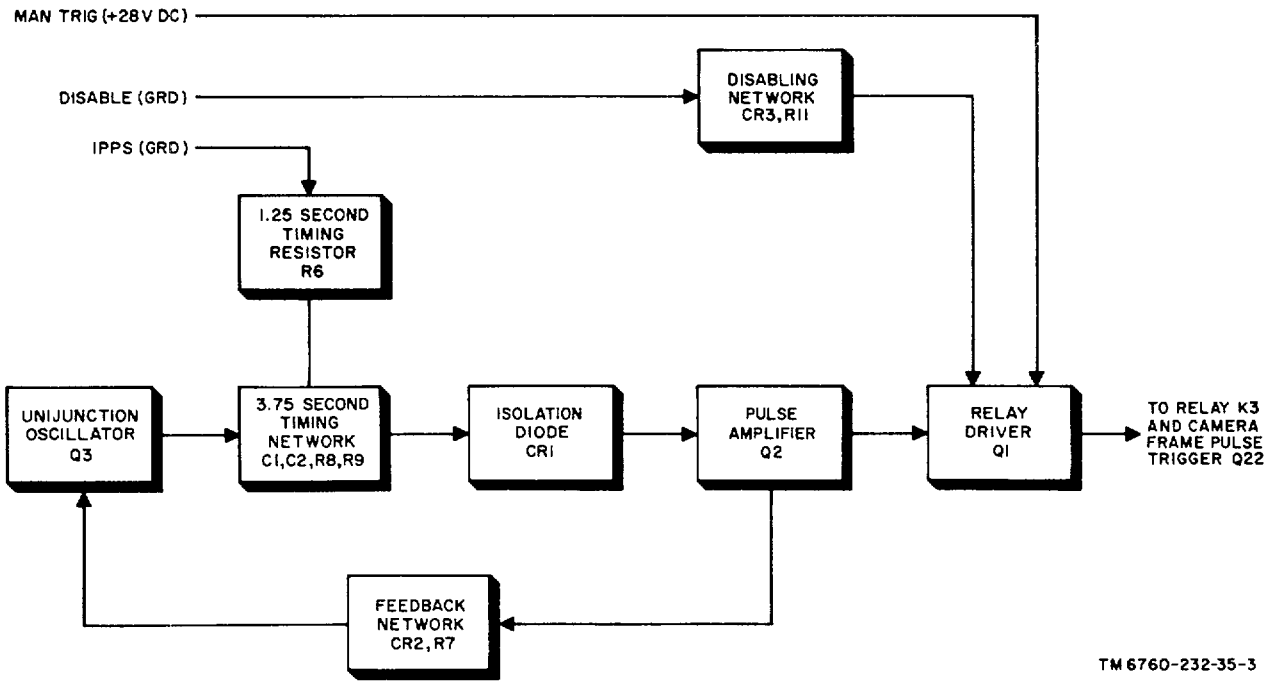


Figure 1-1. Input pulse generator A9, block diagram.

through disabling network CR3, R11 preventing the triggering of relay driver Q1. Also note that each time relay driver Q1 gates Q22, the INPUT PULSE lamp lights. Input pulse generator A9 is operative when the MASTER selector switch is set to LOGIC, MODULE, SYSTEM, or INTERNAL TEST.

b. Lamp Driver with OR Gate and AND gate AIO, A12, A14 (fig. 1-2). The test panel contains three lamp drivers with OR gate and AND gate assemblies, A10, A.12, and A14. When the SYSTEM test is performed, assemblies A10, A12, and A14 detect the simultaneous generation of flash pulses No. 1 and No. 2 by illuminator modules A3, A4 and A5, respectively. During the MODULE test, assemblies A10 and A12 detect the generation of flash pulses A and B (flash pulses No. 2 and No. 1) by the illuminator (A3, A4, or A5) under test. The flash pulses trigger the Xenon flash tubes of the illuminator modules during actual flight operation.

(1) In the SYSTEM position of the MASTER selector switch, flash pulses No. 1 and No. 2 are applied to AND gate CR2, CR3 each time a camera frame pulse is generated. These pulses are -350 volts in amplitude and 20 milliseconds wide. The simultaneous application of the flash pulses to the input of AND gate CR2, CR3 produces a negative gate pulse which is coupled through OR gate diode CR6 to scr trigger Q1. Under quiescent conditions, scr trigger Q1 is cut off. Application of the negative gate pulse from OR gate diode CR6 drives Q1 into saturation. The positive pulse generated by scr trigger Q1 is applied to the gate of lamp driver CR7

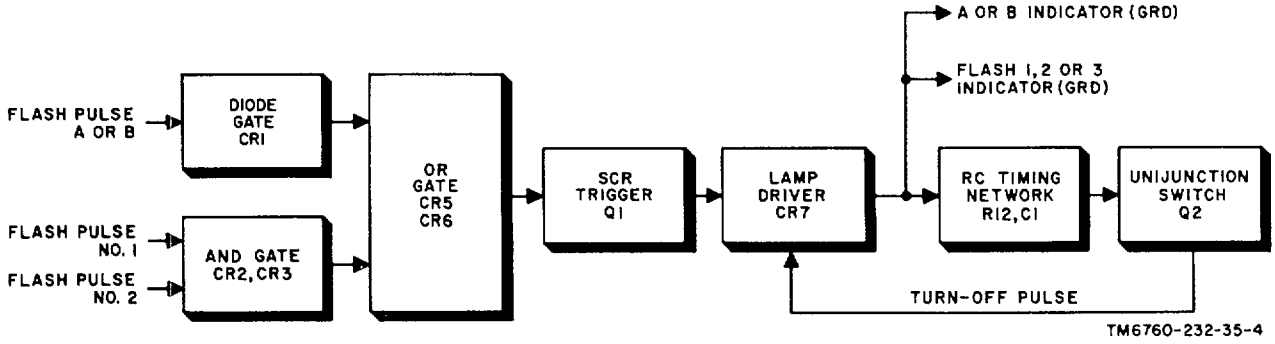


Figure 1-2. Lamp driver with OR and AND gate assemblies AIO, A12, A14, block diagram.

which is a silicon-controlled rectifier (scr). Lamp driver CR7 is turned on, effectively grounding the LASH 1 lamp. Lighting of the FLASH 1 lamp indicates the simultaneous generation of flash pulses No. 1 and No. 2 by illuminator module A3. (Flash pulses from illuminator module A4 light the FLASH lamp, and those from illuminator module A5 ,ht the FLASH 3 lamp.) When lamp driver CR7 turns on, it also grounds resistance-capacitance (rc) timing network R12, C1, thereby initiating its charge cycle. Charging of R12, C1 continues until the peak point voltage of injunction switch Q2 is attained. At this time, Q2 is switched on, generating the negative turn-off pulse. Application of the turnoff pulse to the anode of lamp driver CR7 causes its anode current to fall below its holding current level, turning it off and extinguishing the FLASH 1 lamp. The assembly remains in its quiescent state until the next camera frame pulse occurs.

(2) In the MODULE position of the MASTER selector switch, flash pulse A (flash pulse No. 2) is applied to diode gate CR1 of assembly A10, and flash pulse B (flash pulse No. 1) is applied to diode gate CR1 of assembly A12. Diode gate CR1 insures that OR gate diode CR5 is reverse-biased under no signal conditions. When flash pulse A occurs at the input to CR1, CR1 produces a negative gate pulse which is coupled through OR gate diode CR5 to .r trigger Q1. The operation of the circuits from this point on is identical to that described in (1), above. Note, however, that for the MODULE test, assemblies A10 and A12 light the FLASH A and B lamps of the MODULE section of the test panel.

c. Lamp Driver with OR Gates, All, A13, and A15, (fig. 1-3). The test panel contains three lamp drivers with OR gate assemblies, All, A13, and A15. When the SYSTEM test is performed, assemblies All, A13, and A15 detect the generation of flash triggers A3, A4, and A5 by logic module A2A2 of the electronic flash system. During the LOGIC test, assemblies All, A13, and A15 detect the generation of trigger pulses 1, 2, and 3 by the logic module A2A2 under test. The flash triggers fire illuminator modules A3, A4, and A5 during actual flight operation.

(1) In the SYSTEM position of the MASTER selector switch, flash trigger A3 is applied to diode gate CR2 each time a camera frame pulse is generated. The flash trigger is -4 volts minimum in amplitude and 250 + 100 microseconds wide. Diode gate CR2 insures that OR gate CR5 is reverse-biased under signal conditions. Application of the enable signal is required before the diode gate circuit is operative. The application of flash trigger A3 to the input of diode gate CR2 produces a negative gate pulse which is coupled through OR gate diode CR5 to scr trigger Q1. Under quiescent conditions, scr trigger Q1 is cut off. Application of the negative gate pulse from OR gate diode CR5 drives Q1 into saturation. The positive pulse generated by scr trigger Q1 is applied to the gate of lamp driver CR6 which is a silicon-controlled rectifier. Lamp driver CR6 is turned on, effectively grounding the LOGIC 1 lamp. Lighting of LOGIC 1 lamp indicates the generation of flash trigger A3 by logic module A2A2. (Trigger pulse A4 lights the LOGIC 2 lamp and trigger pulse A5 lights the LOGIC 3 lamp.) When lamp driver CR6 turns on, it also grounds for timing network R9, C1, initiating its charge cycle. Charging of R9, C1 continues until the peak point voltage of injunction switch Q2 is attained. At this time, Q2 is switched on, generating the negative turn-off pulse. Application of the turn-off pulse to the anode of lamp driver CR6 causes its anode current to fall below its holding current level, turning it off and extinguishing the LOGIC 1 lamp. The assembly remains in its quiescent state until the next camera frame pulse occurs.

(2) In the LOGIC position of the MASTER selector switch, trigger pulses 1, 2, and 3 (flash triggers A5, A4, and A3, respectively) are applied to diode gate CR1 of A15, A13, and All. Diode gate CR1 insures that OR gate diode CR4 is reverse biased under no signal conditions. When trigger

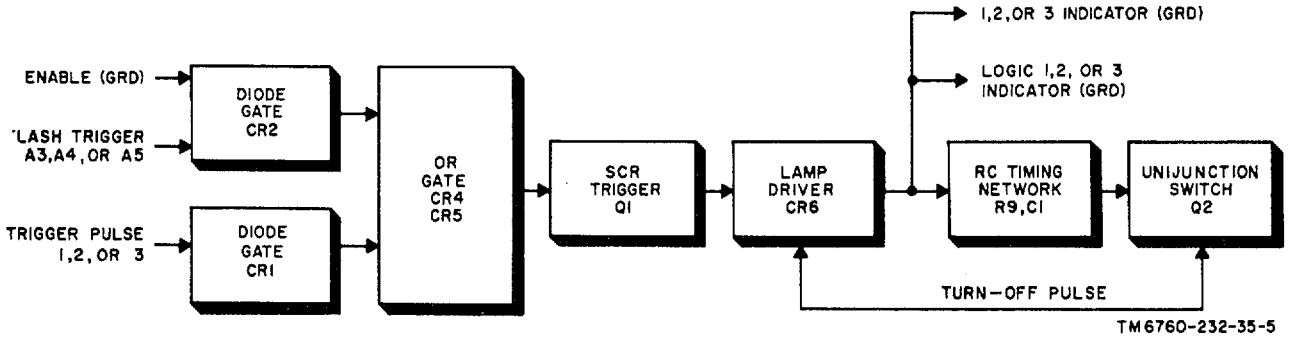


Figure 1-3. Lamp driver with OR gate assemblies All, A13, A15, block diagram.

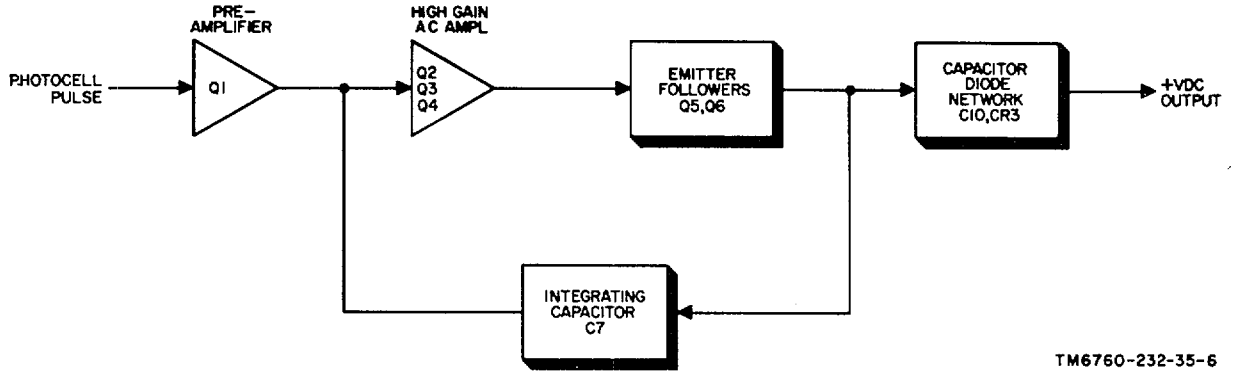


Figure 1-4. Integrating amplifier A16, block diagram.

pulse 1 occurs at the input to CR1, CR1 produces a negative gate pulse which is coupled through OR gate diode CR4 to scr trigger Q1. The operation of all subsequent circuits from this point on is identical to that described in (1) above. Note, however, that for the LOGIC test, assemblies All, A13 and A15 light lamps 1, 2, and 3 of the LOGIC section of the test panel.

d. *Integrating Amplifier A16, (fig. 1-4).* The prime function of integrating amplifier A16 is to integrate the 500-millivolt, 700-microsecond wide photocell pulse generated by photocell of the illuminator modules each time their Xenon flash tubes are fired. Integration of the photocell pulses is required to detect and measure their average dc level. The average dc level of the photocell pulses indicates the light energy output of the illuminator module Xenon flash tubes. The dc output of integrating amplifier A16 is read on LIGHT ENERGY meter M1. Integrating amplifier A16 is used during the MODULE and SYSTEM tests. Preamplifier Q1 is a precision ac amplifier whose gain can be accurately set. Its prime function is to amplify the input photocell pulse to a. level sufficient to drive the high gain ac amplifier consisting of Q2 through Q4. The amplified ac output of Q4 is applied to emitter followers Q5, Q6. Emitter followers Q5, Q6 match the high output impedance of high gain ac amplifier Q4 to the low input impedance of capacitor diode network C10, CR3. It also supplies the drivir current required to charge capacitor C10. Diodt CR3 rectifies the ac output of Q6 and charges capacitor C10 to the average dc level of the photocell input pulse. The dc voltage level across capacitor C10 is indicated by LIGHT ENERGY meter M1.

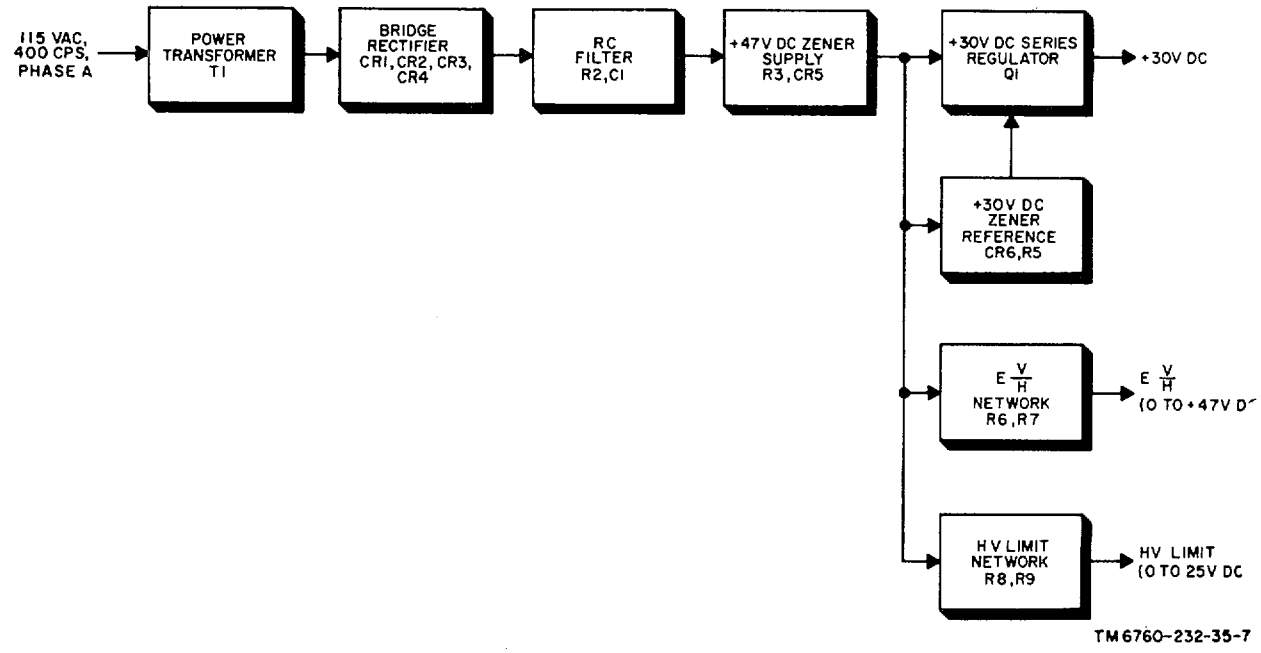


Figure 1-5. + 47-volt de and + 30-volt dc regulated power supplies, block diagram.

e. + 47and + 30-Volt Dc Regulated Power Supplies (fig. 1-5). The + 30and + 47-volt regulated power supply supplies operating voltages for input pulse generator A9, integrating amplifier A16, HV L.IMIT network R8, R9 and E V/H network R6, R7. Primary 115-volt alternating current (ac), 400cycle-per-second (cps) phase A power is applied to step down, power transformer T1. The reduced output of T1 is fed to full-wave bridge rectifier SRi, CR2, CR3, CR4. The positive, pulsating dc output of the bridge rectifier is filtered by rc filter R2, C1 and applied to + 47-vdc Zener supply R3, CR5. The regulated + 47-vdc output of R3, CR5 is applied in parallel to + 30-vdc series regulator Q1 and + 30-vdc Zener reference CR5, R5. The output of the + 30-vdc Zener CR5 is fed to the base of Q1, effectively clamping its output at + 30-vdc. Series regulator Q1 holds the output voltage at + 30 vdc under varying load conditions.

(1) Regulated + 47 vdc is applied to HV LIMIT network R8, R9 which is a series voltage divider. HV LIMIT potentiometer R9 produces a continuously variable output of 0 to + 25 vdc. The output of R9 is used during the VOLTAGE CONTROL test to check the over voltage limit circuits of voltage control module A2A3.

(2) Regulated + 47 vdc is also applied to E V/H network R6, R7. E V/H potentiometer R6 produces a continuously variable output of 0 to 47 vdc. The output of R6 is used during the SYSTEM and LOGIC tests to simulate the aircraft E V/H control signal.

f. External Test Equipment Circuits (fig. 6-3).

(1) OSCILLOSCOPE circuits. The oscilloscope circuits permit observation of input and output signals under dynamic conditions. They also allow precise adjustment of input signals which simulate normal operating parameters. The oscilloscope circuits are designed for use with a dual-beam oscilloscope. Test signals can be monitored separately or simultaneously at either CHAN A terminals J7, J8 or CHAN B terminals J5, J6. All signal data is automatically switched to the oscilloscope terminals through MASTER switch S6.

(2) MULTR circuit. The multimeter circuits permits observation of power and input and output control voltages. This circuit also permits accurate adjustment of the simulated E V/H and HV LIMIT control voltages. All voltage data is automatically to and monitored at MULTR terminals a, Jio0.

1-6. SYSTEM Test Circuit

(fig. 6-6)

With the MASTER selector switch S6 set to SYSTEM, SYSTEM TEST switch S8 is operated through its various positions to determine the operational status of pod assembly LS-388A of the electronic flash system. The operation of power supply module A2 (including logic module A2A2 and voltage control module A2A3) and illuminator modules A3, A4, and A5 is checked during the SYSTEM test.

a. Operation of the rectifier circuits of power supply module A2 is checked by monitoring phase A, B, and C common signals and the oscillator input signal. These signals are fed through SYSTEM TEST switch S8 to MASTER switch S6 where they are routed to CHAN A and MULTR terminals J7, J8 and J9, J10, respectively. The oscillator input signal, which indicates that the power supply blocking oscillator is operative, is fed through SYSTEM TEST switch S8 and MASTER switch S6 to CHAN B terminals J5, J6. Simultaneously, the oscillator input signal is applied to K1 relay driver Q2, Q3 which energizes relay K1 and lights GATE CONT lamp DS3. Phase A, phase B, and phase C common signals are applied through the closed contacts of relay K1 to + GATE FAIL and -GATE FAIL lamps DS1 and DS2. If any of the scr gate circuits (phase A, phase B, or phase C) fails during testing, the appropriate lamp is lighted. The + GATE FAIL lamp DS1 lights if the failure occurs on a positive alternation of the input voltage, and -GATE FAIL lamp DS2 lights if the failure occurs on a negative alternation.

b. The HV test A3, A4, and A5 control voltages and oscillator feedback pulse are generated by voltage control circuits of power supply module A2. If an overvoltage condition occurs, MV test A3, A4, or A5 control voltage will exceed a predetermined limit and cause K2 relay driver Q4 to energize relay K2 lighting HV LIMIT FAIL lamp A2DS1. The HV test A3, A4, and A5 control voltages are also fed through SYSTEM TEST switch S8 and MASTER switch S6 to CHAN A and MULTR terminals J7, J8 and J9, J10 where they are monitored. Operation of the overvoltage protection circuits is checked by depressing HV LIMIT TEST switch S2 which controls application of the overvoltage test signal (ground) to these circuits. The oscillator feedback pulse, which indicates that the illuminator module charge cycle has been completed, is applied to gate control disable lamp driver Q8, Q9 which lights GATE CONT DISABLE lamp DS6 momentarily. The oscillator feedback pulse is monitored at CHAN A terminals J7, JS.

c. Operation of logic module A2A2 is checked by applying the E V/H control voltage and camera frame pulse to its input and monitoring its output signals, flash triggers A3, A4, and A5. The dc level

of the E V/H control voltage is varied by E V/H control R6 which is powered from the + 30and + 47-volt dc regulated power supplies. Input pulse generator A9 drives camera frame pulse trigger Q22, generating the camera frame pulse which lights INPUT PULSE lamp A18DS1. Simultaneously, the camera frame pulse is applied to TRIGGER and SHTR SYNC terminals J4 and Jll, J12. The trigger circuits of the test oscilloscope are synchronized by the pulse at TRIGGER terminal J4 and camera shutter synchronization is accomplished from SHTR SYNC terminals J11, J12. The prf, 3.75 or 1.25 pps, of input pulse generator A9 is controlled by SYSTEM TEST switch S8. Manual operation of input pulse generator A9 is initiated by MANUAL switch A18S1. The camera frame pulse is monitored at CHAN B terminals J5, J6. Logic module A2A2 flash triggers A3, A4 and A5 and applied to the test panel lamp driver with OR gate assemblies All, A13, and A15 which light LOGIC 1 lamp A3DS3, A3DS4; LOGIC 2 lamp A4DS3, A4DS4; and LOGIC 3 lamp A5DS3, A5DS4; respectively. Flash triggers A3, A4, and A5 are monitored at CHAN B terminals J5, J6.

d. Each time a camera frame pulse occurs, illuminator modules A3, A4, and A5 of the electronic flash system generate flash pulses 1, 2 (A3), flash pulse 1, 2 (A4), and flash pulses 1, 2 (A5) respectively. These pulses are applied to lamp driver with OR gate and AND gate assemblies A10, A12, and A14. Simultaneous application of flash pulses 1, 2 (A3), flash pulses 1, 2 (A4) and flash pulses 1, 2 (A5) to assemblies A10, A12, and A14 causes FLASH 1 lamp A3DS1, A3DS2, FLASH 2 lamp A4DS1, A4DS2, and FLASH 3 lamp A5DS1, A5DS2 to light. The photocell pulse, which indicates that the illuminator module Xenon flash tubes have fired, is fed to PHOTOCELL trivial connector J13 through MASTER switch S6 to integrating amplifier A16. Integrating amplifier A16 determines the average dc level of the photocell pulse and applies it as a dc control voltage to LIGHT ENERGY meter M1. The indicator level established on LIGHT ENERGY meter M1 indicates the relative light output level of the Xenon flash tubes. LIGHT ENERGY meter M1 is manually reset to its reference level by RESET switch S5.

e. The + 350and + 28-volt dc power circuits are monitored at MULTR terminals J9, J10. If the + 28-vdc interlock circuit is complete, + 28 vdc is applied to interlock lamp driver Q5, Q6 which lights INTERLOCK lamp DS4. Failure of either the interlock circuit or + 28-vdc power will cause INTERLOCK lamp DS4 to extinguish. Positive 350 vdc is applied to neon regulator lamps DS8, DS9 o + 350-vdc lamp driver Q7 which lights + 350 VDC lamp DS5. The + 350 VDC lamp DS5 remain lighted as long as the + 350-vdc power circuit i, operative.

1-7. CONTROL PANEL Test Circuit

(fig. 6-3)

With MASTER switch S6 set to CONTROL PANEL, the operation of the pilot control panel is checked. Test panel + 28-vdc power is applied to the control circuits of the pilot control panel and its power switch is set to ON. If the pilot control panel control circuits are complete and operative, test panel CONTROL PANEL DC lamps A8DS1, A8DS2 and AC lamps A8DS3, A8DS4 light.

1-8. MODULE Test Circuit

(fig. 1-6)

With MASTER switch S6 set to MODULE, the operational status of an illuminator module (A3, A4, or A5) is checked by rotating MODULE TEST switch S9 through its various test positions. The module test isolates malfunctions in the charge and signal generating circuits of the illuminator module under test.

a. The HV test control voltage indicates the deenergized and energized state of illuminate' module discharge relay K1. When relay K1 is d energized, a + 28-vdc HV test control voltage is applied to K1 CLOSE lamp A6DS1, causing it to light. Conversely, when relay K1 is energized, a 0-vdc HV test control voltage is applied to K1 lamp driver Q10 which lights K1 OPEN lamp A6DS2. The high voltage control voltage, which indicates the condition of the illuminator module charge diodes, is fed through MODULE TEST switch S9 and MASTER switch S6 to MULTR terminals J9, J10 where it is monitored. If the illuminator module interlock circuit is complete, the + 28-vdc interlock voltage is applied to MODULE INTERLOCK lamp DS10, lighting it. Failure of the interlock circuit or + 28-vdc power will cause MODULE INTERLOCK lamp DSIO to extinguish.

b. Each time a camera frame pulse occurs, the illuminator module under test generates five pulses which are monitored by test panel circuits: Q1, Q2, flash pulses A and B, and the photocell pulse. Input pulse generator A9 drives camera frame pull trigger Q22, initiating the camera frame pulse whit lights INPUT PULSE lamp A18DSl. Simultaneously, the camera frame pulse is fed to TRIGGER terminal J4 and camera frame pulse amplifier Q27 Trigger circuits of the test oscilloscope are synchronized by the pulse at TRIGGER terminal J4. The prf, 3.75 or 1.25 pps of input pulse generator A9 is

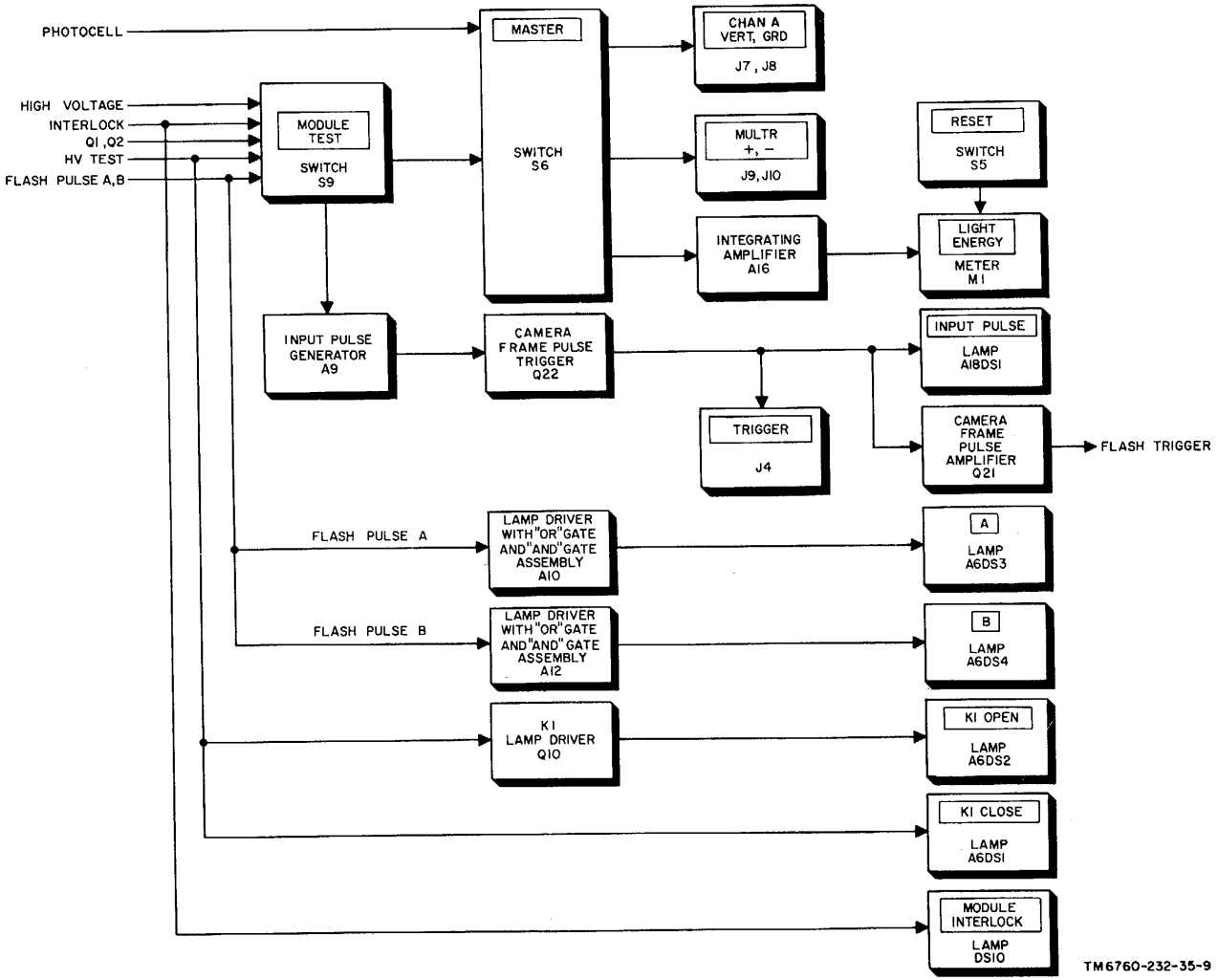


Figure 1-6. MODULE test circuit block diagram.

controlled by MODULE TEST switch S9. Camera frame pulse amplifier Q21 inverts and level shifts the camera frame pulse to produce the fast trigger which fires the illuminator module trigger circuits. Application of the flash trigger to the trigger circuits of the illuminator module under test produces flash pulses A and B. Simultaneous application of flash pulses A and B to lamp driver with OR gate and AND gate assemblies A10 and A12, respectively, lights A lamp A6DS3 and B lamp A6DS4. Flash pulses A and B are monitored at CHAN A terminals J7, J8. The dc levels of the Q1 and Q2 pulses are metered at MULTR terminals J9, J10. The Q1 and Q2 pulses are visually monitored at CHAN A terminals J7, J8 each time a flash trigger occurs. The photocell pulse is fed through MASTER switch S6 to integrating amplifier A16, which determines the average dc level of the photocell pulse and applies it as a dc control voltage to LIGHT ENERGY meter M1. For the module test, an amplified version of the photocell pulse is coupled from the preamplifier of A16 to CHAN A terminals J7, J8 where it is monitored. The indicator level established on LIGHT ENERGY meter M1 indicates the relative light output level of the illuminator module Xenon flash tubes. LIGHT ENERGY meter M1 is manually reset to its reference level by RESET switch S5.

1-9. VOLTAGE CONTROL Test Circuit

(fig. 1-7)

With MASTER switch S6 set to VOLTAGE CONTROL, the operational status of voltage control module A2A3 is checked by rotating VOLTAGE CONTROL TEST switch S7 through its various test positions. The voltage control test isolates malfunctions in the gate control and power circuits of the voltage control module under test.

a. Voltage control module A2A3 generates six 20-kc control gates which are fed through VOLTAGE CONTROL TEST switch S7 to MASTER switch S6 and monitored at CHAN A terminals J7, J8. The + scr phase A, B, and C, 20-kc gate pulses control the rectification of the positive alternations of the three-phase input power. Similarly, the -ser phase A, B, and C, 20-kc gate pulses control the rectification of the negative alternations of the three-phase input power.

b. The operational status of blocking oscillator Q1 of voltage control module A2A3 is indicated by the oscillator input pulse and the oscillator feedback pulse. When blocking oscillator Q1 is operating normally, the 20-kc oscillator input pulses are applied to relay K1 driver Q2, Q3 which energizes relay K1 lighting GATE CONT lamp DS3. During normal operation, blocking oscillator Q1 is disabled when the illuminator modules are fully charged This condition is simulated during the voltage control test by applying a ground from MASTER switch S6 through the contacts of relay K2 to GATE CONT DISABLE switch S4. When GATE CONT, DISABLE switch S4 is depressed, the overvoltage test signal (ground) is applied, and the control. circuits of voltage control module A2A3 disable blocking oscillator Q1 and generate the 6scillator feedback pulse. The oscillator feedback pulse is applied to gate control disable lamp driver Q8, Q9 which lights GATE CONT DISABLE lamp DS6. The oscillator feedback pulse is also applied through MASTER switch S6 to CHAN B terminals J5, J6 where it is monitored.

c. HV test control voltages A3, A4 and A5, which indicate overvoltage condition, are simulated for the voltage control test by HV TEST control R9 which is powered from the + 47-vdc regulated power supply. HV TEST control R9 is advanced beyond the dc level required for an overvoltage condition, causing GATE CONT lamp DS3 to extinguish. The HV test voltage required to cause this condition (A3, A4, or A5) is monitored at MULTR terminals J9, J10.

d. The + 28-vdc power applied to voltage control, module A2A3 is stepped down to operating voltage levels of + 5.6-vdc and + 20-vdc by two Zen regulators. The + 5.6-vdc and + 20-vdc are fed through VOLTAGE CONTROL switch S7 and MASTER switch S6 to MULTR terminals J9, J10. The peak to-peak noise present on these supplies is monitored at CHAN A terminals J7, J8.

1-10. LOGIC Test Circuit

(fig. 1-8)

With MASTER switch S6 set to LOGIC, the operational status of logic module A2A2 is checked by rotating LOGIC TEST switch S10 through its various test positions. The logic test isolates malfunctions in the input, logic, output, and power circuits of the logic module under test.

a. Operation of logic module A2A2' is checked by applying the E V/H control voltage and camera frame pulse to its input circuits and monitoring the following:

(1) Drive pulses T, T, and the delay pulse to the logic circuit registers and NOR gates;

(2) The dc levels of input signals Q1 and Q2 of the logic module Schmitt triggers;

(3) The dc levels of output signals Q1 and Q2 of the logic module Schmitt triggers;

(4) The dc levels of output signals A and B of the logic module registers;

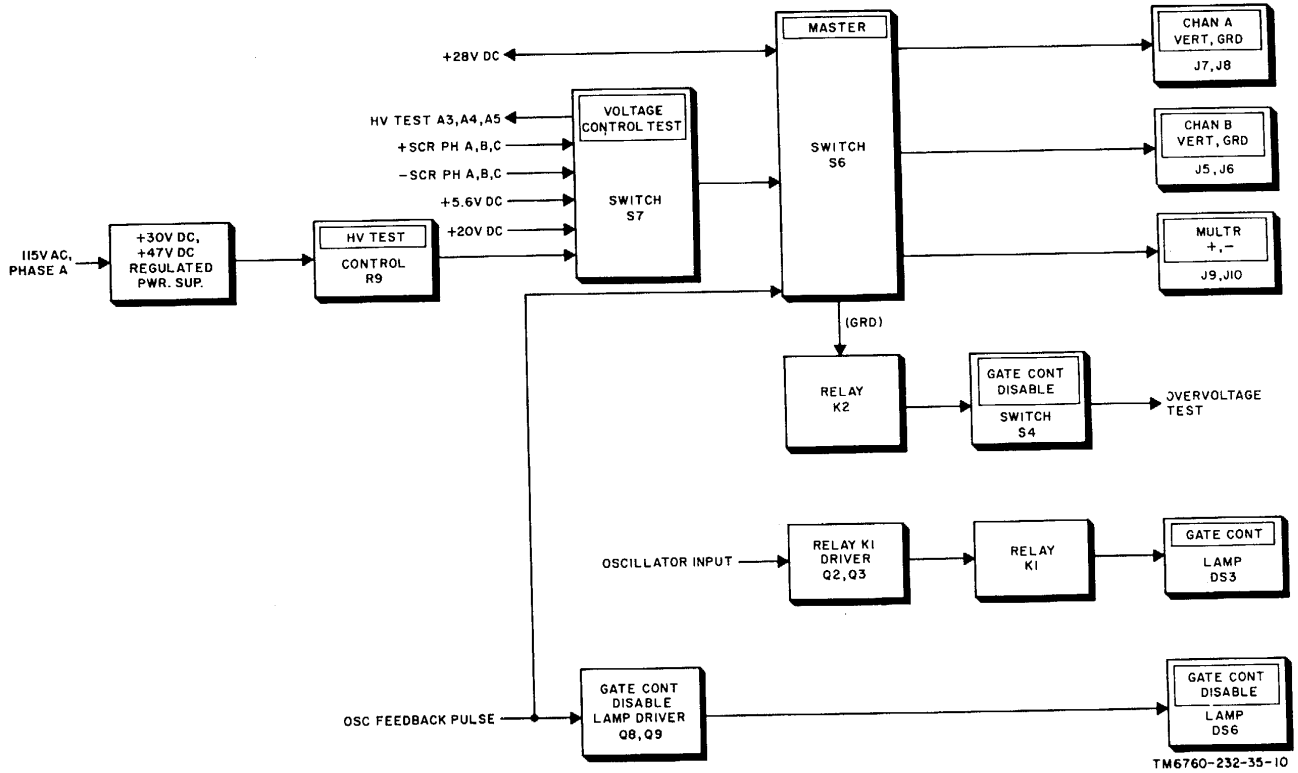


Figure 1-7. VOLTAGE CONTROL test circuit, block diagram.

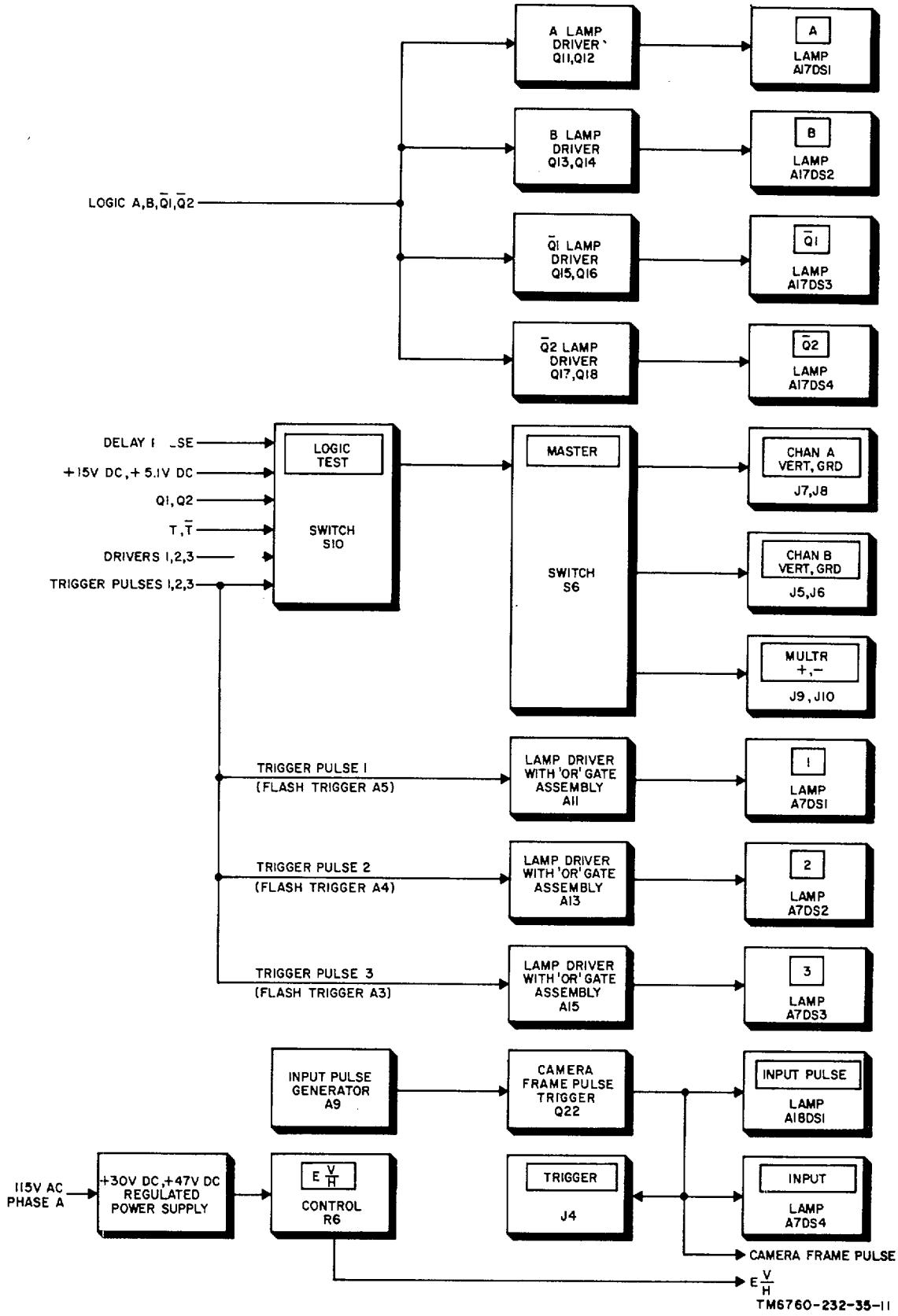


Figure 1-8. LOGIC test circuit, block diagram.

(5) The output pulses of the logic module NOR gates, drivers 1, 2, and 3;

(6) The outputs of logic module A2A2 trigger pulses 1, 2, and 3 (flash triggers A5, A4, and A3).

(7) The dc level of the E V/H control voltage is varied by E V/H control R6 which is powered from he + 30-vdc, + 47-vdc regulated power supply. Input pulse generator A9 drives camera frame pulse trigger Q22 rating the camera frame pulse which lights the LOGIC section INPUT lamp A7DS4 and INPUT PULSE lamp A18DS1. Simultaneously, the camera frame pulse is applied to TRIGGER terminal J4 and the input to logic module A2A2. Trigger circuits of the test oscilloscope are synchronized by the pulse at TRIGGER terminal J4. The prf, 3.75 pps or 1.25 pps of input pulse generator A9 is controlled by LOGIC TEST switch S10. The camera frame pulse is monitored at CHAN A terminals J7, J8.

b. Drive pulses T and T occur each time a camera frame pulse is generated. Drive pulse T is monitored at CHAN A terminals J7, J8 and drive pulse T is monitored at CHAN B terminals J5, J6. The two pulses are displayed simultaneously to insure that the leading edge of T is coincident with the trailing edge of the T pulse. The delay pulse which s coincident with the leading edge of the camera frame pulse is displayed at CHAN B terminals J5, J6.

c. The de levels of input signals Q1 and Q2 are monitored at MULTR terminals J9, J10. When the dc level of Q1 exceeds + 3.4 vdc, output signal Q1 is set to ground (logic state 0). Output signal Q1 is applied to Q1 lamp driver Q15, Q16 which lights Q1 lamp A17DS3. Similarly, when the de level of input signal Q2 exceeds + 3.4 vdc, output signal Q2 is set to ground (logic state 0). Output signal Q2 is applied to Q2 lamp driver Q17, Q18 which lights Q2 lamp A17DS4.

d. The de levels of signals A and B indicate the output logic state of the logic module registers.
When the output state of register A is 0 (ground), A signal is applied to A lamp driver Qll, Q12 which lights A lamp A17DS1. Similarly, when the output state of register A is 0 (ground), B signal is applied to B lamp driver Q13, Q14 which lights B lamp &A17DS2.

e. Driver pulses 1, 2, and 3 and trigger pulses 1, 2, and 3 occur simultaneously, in pairs (driver pulse 1 with trigger pulse 1, etc) and in synchronization with the camera frame pulse. The driver pulses 1, 2, and 3 are monitored at CHAN A terminals J7, J8. Trigger pulses 1, 2, and 3 are monitored simultaneously at CHAN B terminals J5, J6. The trigger TM 11-6760-232-35 ulses are also applied to lamp driver with OR gate assemblies All, A13 and A15 (trigger pulse 1 to All, trigger pulse 2 to A13, and trigger pulse 3 to A15). Assemblies All, A13, and A15 light 1 lamp A7DS1, 2 lamp A7DS2, and 3 lamp A7DS3, respectively.

f. The + 28-vdc power applied to logic module A2A2 is stepped down to operating voltage levels of + 5.1 vdc and + 15 vdc by two Zener regulators.

The + 5.1-vdc and + 15-vdc regulated outputs are fed through LOGIC TEST switch S10 and MASTER switch S6 to MULTR terminals J9, J10. The peak to-peak noise present on these supplies is monitored at CHAN A terminals J7, J8.

1-11. INTERNAL TEST Circuit
(fig. 6-3)
With MASTER switch S6 set to INTERNAL TEST, a self check of the circuits of the test panel is made by rotating MASTER switch S6 through its INTERNAL TEST positions. The internal test isolates malfunctions in the test panel circuits before its use in testing of the electronic flash system.

a. + 30 VDC. In this position, the output of the + 30-vdc power supply is monitored at MULTR terminals J9, J1O. Its peak-to-peak noise is observed at CHAN A terminals J7, J8.

b. E V/H. In this position, the output of the + 47-vdc regulated power supply is monitored at MULTR terminals J9, J10. Its peak-to-peak noise is observed at CHAN A terminals J7, J8. The + 47vdc power is the input voltage to E V,/H control R6 and HV TEST control R9. The outputs of these controls simulate the aircraft E V/H control voltage and the power supply module overvoltage signals.

c. .INTEGR AMP. In this position, the operation of integrating amplifier A16 is checked. Its output is observed at CHAN A terminals J7, J8. Provision is also made for calibrating LIGHT ENERGY meter M1 by application of a calibrating pulse to the input of A16. The calibrating pulse simulates the input pulse received from the illuminator module photocell during testing.

d. LAMP DRIVERS. In this position, the operation of lamp driver with OR gate and AND gate assemblies A10, A12, and A14 and lamp driver with OR gate assemblies All, A13, and A15 is checked. This position also checks the INPUT PULSE; LOGIC 1, 2, and 3; and FLASH 1, 2, and 3 lamps.

e. LAMPS. In this position, the operation of all the lamps of the test panel is checked. Positive 28 vdc is applied to all the lamps of the test panel and each is checked to insure that it is lighted.

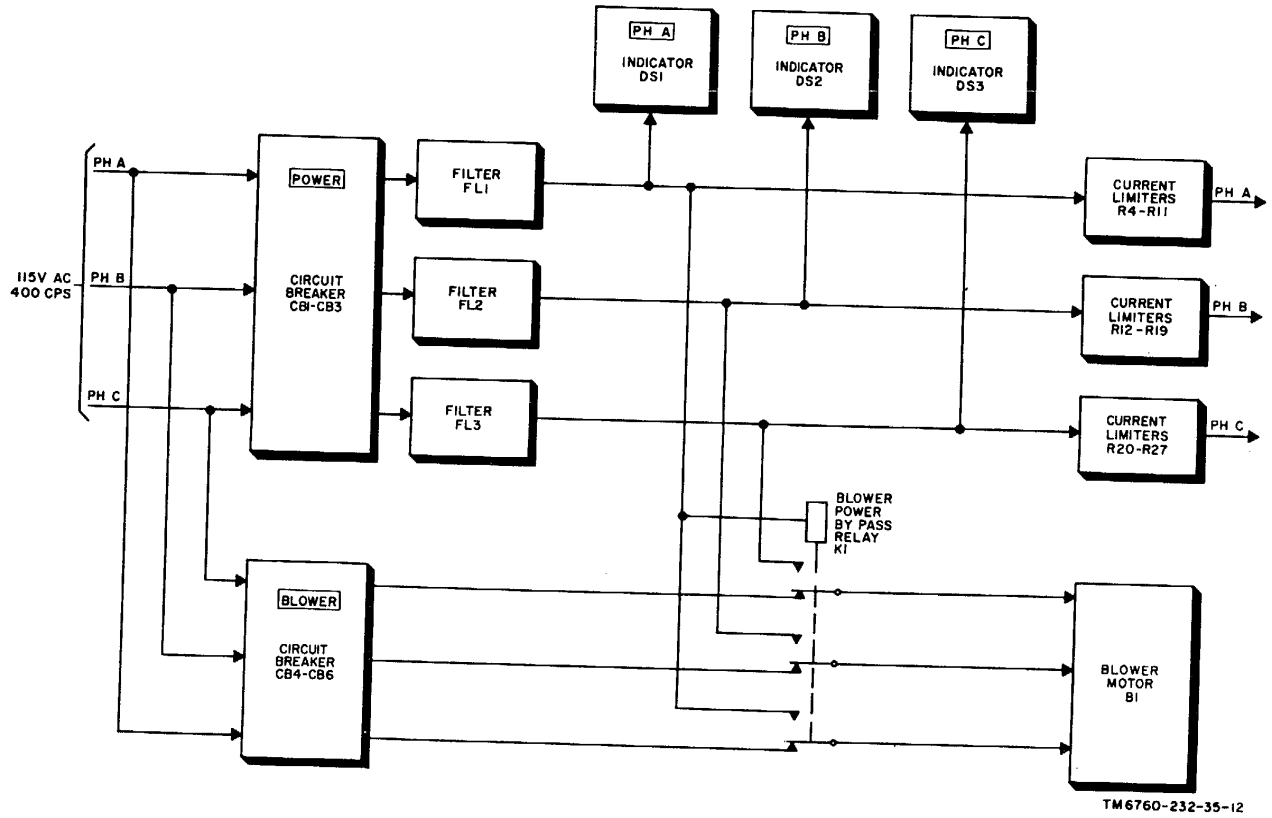


Figure 1-9. Blower panel, block diagram.

1-12. Power Limiter and Blower Panel
(fig. 1-9)

The blower panel has two prime functions:

a. Provides forced-air cooling for the modules of the pod assembly and the current limiting resistors of the blower assembly.

b. Provides primary 115-volt, 400-cps, three phase power for the operation of the power modules of the pod assembly. During in-flight operation, the major power requirements of the electronic flash system are normally supplied by the turbine-alternator of the power assembly. The turbine-alternator, how- ever, is powered by a wind-driven, variable pitch propeller which requires a 160-knot wind for its operation. The blower assembly circuits permit bench power to be substituted for that generated by the turbine-alternator during flight.

c. Primary 115-volt, 400-cps, three-phase power is fed in parallel to POWER circuit CB1, CB2, CB3 and BLOWER circuit breakers CB4, CB5, CB6.

When POWER circuit breaker CB1, CB2, CB3 is set to ON, PHA lamp DS1, PHB lamp DS2, and PHC lamp DS3 light and blower B1 is automatically turned on. Blower B1 is interlocked to POWER circuit breaker CB1, CB2, CB3 by blower power bypass relay K1 which prevents the application of primary ac power to the pod assembly without cooling air also simultaneously being applied. BLOWER circuit breakers CB4, CB5, CB6 applies power to blower B1 only, permitting cooling of pod assembly without application of primary ac power. Line filters FL1, FL2, and FL3 eliminate line transients and rf noise present on the input power lines. AC power to the phase A, B, and C circuits of the pod assembly is limited by power limiters R4 through R11, R12 through R19, and R20 through R27 respectively.

1-12.1. ADAPTER CIRCUIT
(fig. 1-9.1)

With MASTER switch S6 set at SYSTEM, and the test set adapter connected in the circuit, TM 11-6760-232-35 the operational status of the rate limit primary power disconnect module A2A4 (module A2A4) is checked by turning the adapter controls to their various positions.

a. Amplifier transistors ASQ5 and A36Q6 drive identical integrated circuits A3A1 and A3A2 and are used to lengthen the input pulses which are received through diodes A3CR6 thru A3CR12. The one shot outputs of integrated circuit A3A1 and A3A2 are fed to the lamp drivers, transistors A3Q8 and A3Q9, which control the CAMR PULSE and FLASH PULSE lamp circuits.

b. Lamp driver transistors A3Q1 and A3Q2 energize the READY/INTLK lamp when an input signal is received through diode A3CR1 or A3CR2.

c. Lamp driver transistor A3Q3 energizes the K1 RELAY lamp when an input signal is received through diode A3CR3 or A3CR4.

d. Integrated circuit A3A3 develops various pulse rates which are amplified by transistor A3Q7. Amplified pulses from transistor A3Q7 are applied to PULSE RATE switch S5 and applied from there to the KA-30 or KA-76 input circuitry in the pod assembly, or the rate limit/primary power disconnect module A2A4 under test.

e. Amplifier transistor A3Q4 detects an E V/H voltage generated in LS-69A and applied thru, module A2A4 either in the LS-59A system or independently when tested as a module. Amplifier transistor A3Q4 amplifies the E V/H voltage to eliminate circuit loading when it is monitored externally.

f. The READY/INTLK switch S1, and TEST 1, TEST 2, and TEST 3 switches (S2, S3, and S4 respectively) are used to test the operation of the rate limit/primary power disconnect module A2A4. It may be tested while installed in the pod assembly, or as a separate module, removed from the flasher.

Section III. STAGE ANALYSIS

1-13. Common Circuits

a. Input Pulse Generator A9 (fig. 1-10). Input pulse generator A9 drives camera frame pulse trigger Q22 which generates the simulated camera frame pulse. (In-flight the camera frame pulse is

b. generated by the KA-30 or KA-76 camera.) Taken together, Q2 and Q3 (fig. 1-10) constitute a fixed frequency, asymmetrical, a stable hybrid multi-vibrator. Functionally, Q3 is a unijunction oscillator and Q2 is a pulse amplifier. The unijunction was chosen as the switching and timing element in this

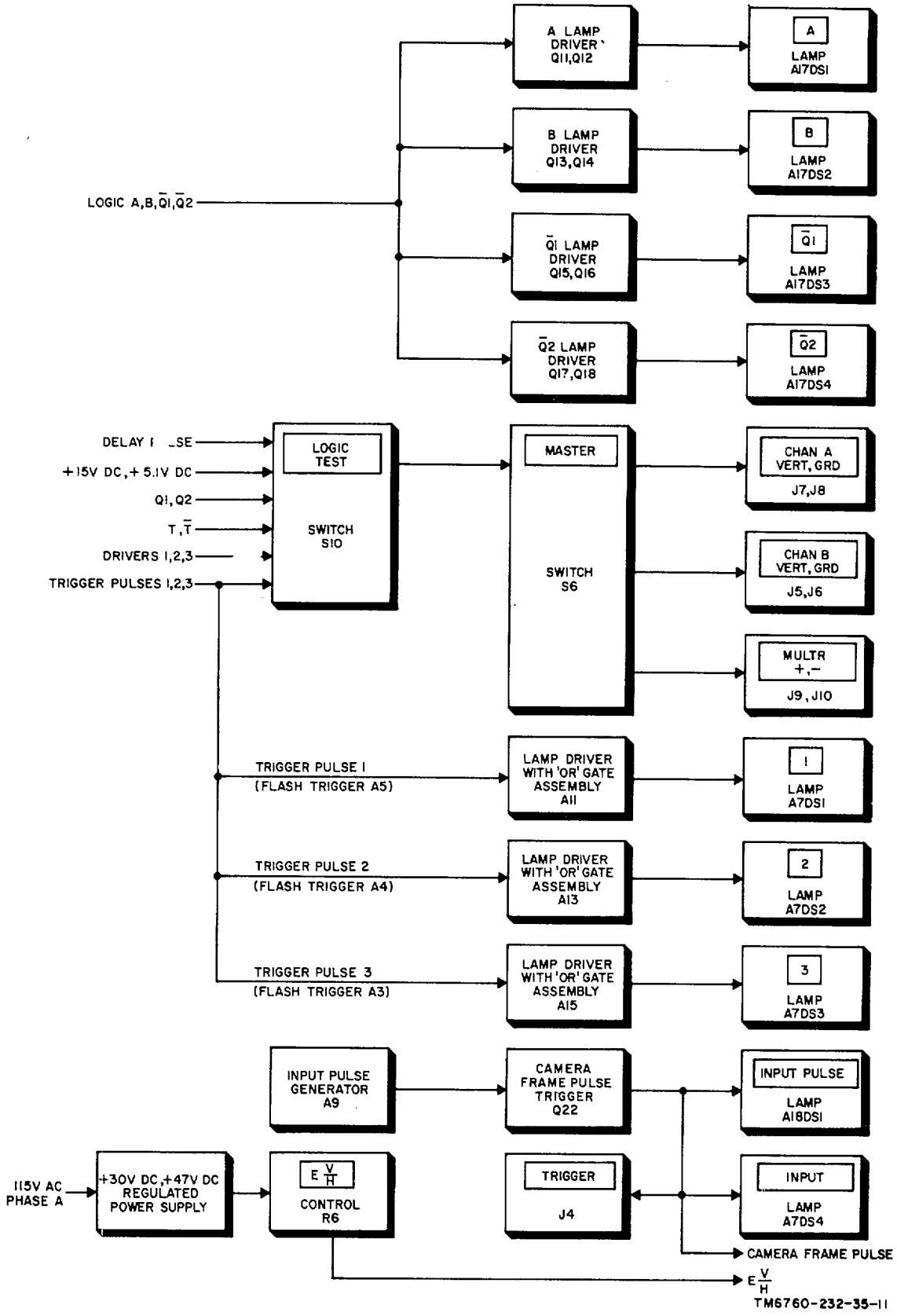


Figure 1-9.1. Adapter, block diagram.

configuration because of its extremely stable peak point voltage characteristic. For low frequency op-3ration, this characteristic permits independent adjustment of the two portions of the multivibrator timing cycle despite the appreciable difference in their lengths (fig. 1-11). Also, Q3 offers the advantage of an almost ideal rectangular waveform out-, and good timing stability and requires electrolytic timing capacitors of minimum size. Multivibrator Q2, Q3 generates a pulse every 3.75 seconds (its basic pulse rate) or every 1.25 seconds (its secondary pulse rate). The third element of input pulse generator A9 is relay driver Q1.

(1) When POWER switch S1 (fig. 6-4) is set to ON at time To, regulated + 30 vdc is applied to Q2 and Q3, and + 28 vdc to Q1 and initially:

(a) Q3 is reverse-biased and cut off;

(b) Q2 is forward-biased by + 30 vdc applied through base 2 load, R10, discharge resistor R5 and isolation diode CR1 and driven into saturation:

(c) Q1 is reverse-biased and cut off.

(2) From time To (fig. 1-11), the charge period of timing capacitors C1 and C2:

(a) Timing capacitors C1 and C2 charge TM 11-6760-232-35

toward + 30 vdc through timing resistors R8 and R9. Pulse rate adjustment R9 normally is set for a charge period of 3.6 seconds (E, fig. 1-11).

(b) The base of Q2 is clamped at a positive potential which holds Q2 in saturation during the charge period. In its saturated state, the collector of Q2 is approximately at ground potential (C, fig. 1-11) effectively shorting out bias resistors R2 and R3 and reverse biasing feedback diode CR2.

(c) The base of Q1 is clamped at ground potential and Q1 is cut off. The collector of Q1 is held at + 28 vdc (B, fig. 1-11) and camera frame pulse trigger Q22 (fig. 6-4) remains cutoff. With Q22 cut off, the output at its collector is ground (A, fig. 1-11).

(3) From T to To (fig. 1-11), the discharge period of C1 and C2:

(a) The voltage across C1 and C2 reaches the peak point voltage of Q3, causing it to conduct.

When Q3 conducts, its emitter voltage drops to its base 1-to-emitter value. This drop in potential at the plates of C1 and C3 reverses the voltage across them, causing them to discharge through discharge resistor R5 and base 2 load R10.

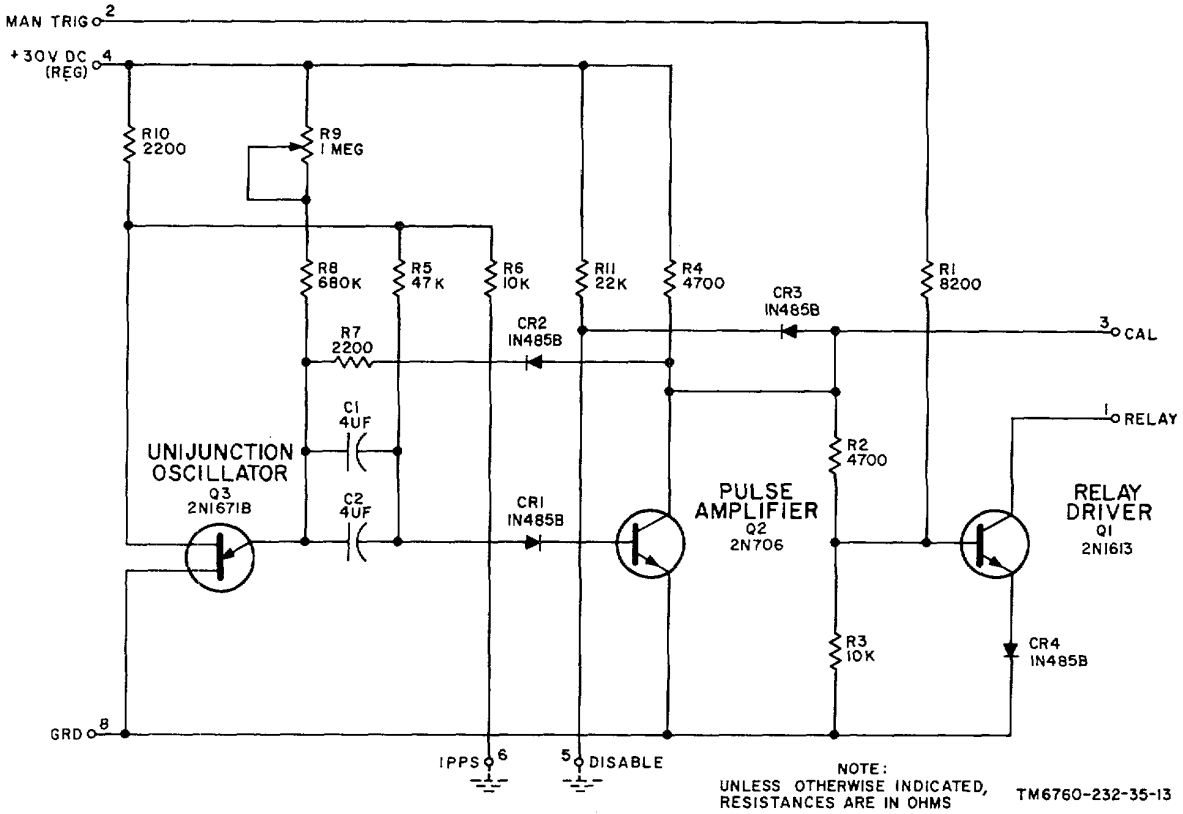


Figure 1-10. Input pulse generator A9, schematic diagram.

(b) When Q3 conducts, it generates 'a negative pulse which is applied across CR1 and the base-to-emitter junction of Q2, driving it into cutoff (D, fig. 1-11). Isolation diode CR1 protects the base-to-emitter junction of Q2 against excessive reverse bias when the negative pulse occurs. Reverse biasing Q2 causes its collector to rise rapidly towards + 30 vdc. The positive pulse at the collector of Q2 is amplified across collector load R4 and coupled through feedback diode CR2 and emitter current Limiter R7, further accelerating the switching of Q3 and the discharge of C1 and C2.

(c) The positive potential at the collector of Q2 is also applied directly across bias resistors R2 and R3. Forward bias at the junction of R2 and R3 is sufficient to drive Q1 into saturation (B, fig. 1-11). With Q1 saturated, ground is applied to the base of Q22, which is a PNP transistor (fig. 6-4), driving it into saturation. When Q22 saturates, + 28 vdc is applied to its collector circuit generating the simulated 140 millisecond camera frame pulse (A, fig. 1-11). Emitter diode CR4 protects the emitter-to-base junction of Q1 against excessive reverse bias when Q1 is again driven into cutoff at the end of the 140 millisecond camera frame pulse period.

(4) Input pulse generator A9 is designed so that its basic pulse rate can be changed from 3.75 seconds to 1.25 seconds. This is accomplished by applying ground to A9-6 connecting 1.25 second timing resistor R6 into the base 2 circuit of Q3. Base 2 load R10 and R6 form a dc voltage divider which significantly lowers the voltage across Q3. Lowering the base 2-to-base 1 voltage across Q3 also lowers its peak point voltage, effectively changing the charge period of timing capacitors C1 and C2.

(5) Input pulse generator A9 can also be disabled and operated manually. When ground is applied to A9-5, diode clamp CR3 is connected into the collector circuit of Q2, clamping its collector at approximately 1 vdc and preventing the switching of Q2. Shunt resistor R11 provides a parallel load for the + 30-vdc supply when Q2 is disabled. Application of the + 28-vdc manual trigger at A9-2 overrides the cutoff bias at the base of Q1, driving Q1 out of cutoff into saturation. A simulated camera frame pulse will be generated each time a manual trigger is applied to Q1 by depressing MANUAL switch A18S1 (fig. 6-4).

b. *Lamp Driver with* OR Gate and AND Gates

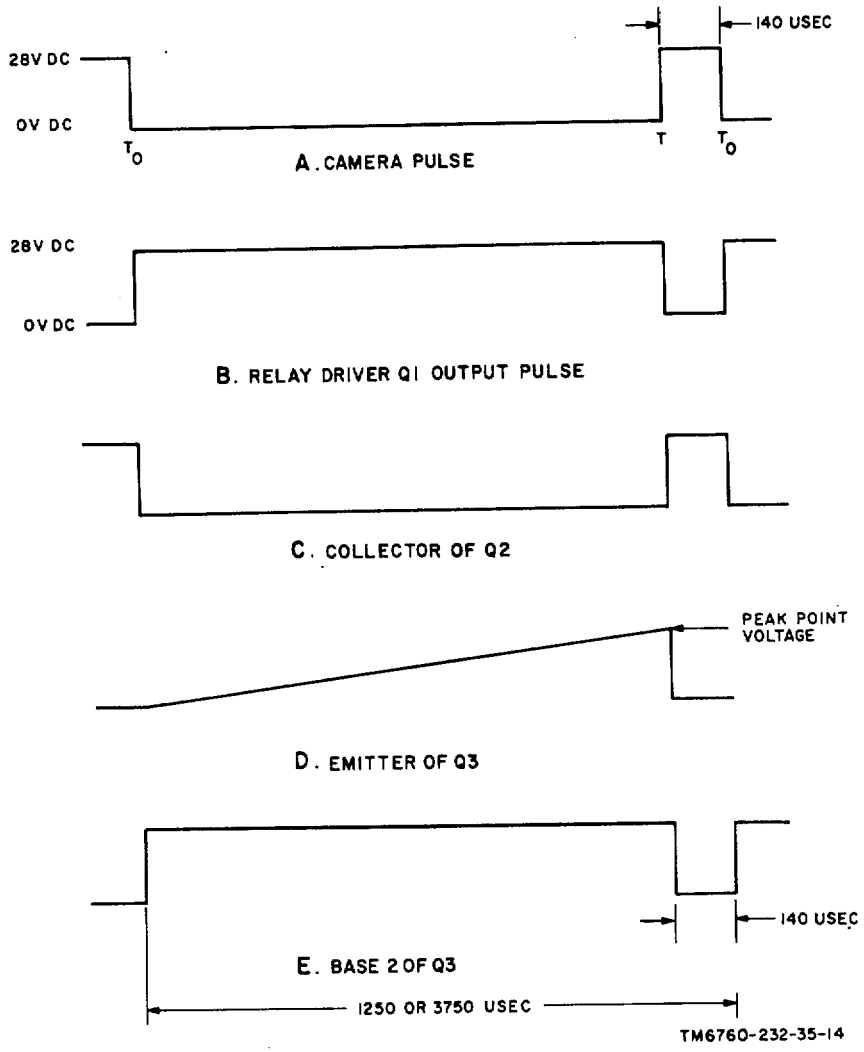


Figure 1-11. Input pulse generator A9 wave forms.

A10A12, and A14 (fig. 1-12). With MASTER switch S6 set to SYSTEM, lamp driver with OR gate and AND gate assemblies A10, A12, A14 indicate the number and sequence of the flash pulse pairs (No. 1 and No. 2) generated by the trigger circuits of illuminator modules A3, A4, and A5. Illuminator modules A3, A4, and A5 generate a pair of flash pulses for each flash trigger A3, A4, and A5 received from logic module A2A2. Depending upon the manner in which flash triggers A3, A4, and A5 are generated, the illuminator module flash pulse pairs can' occur simultaneously (A3, A4, and A5), in pairs and sequentially (A3 and A4, A3 and A5, A4 and A5), or singly and in sequence (A3, A4, and then A5). In response to the flash pairs generated, lamp drivers A10, A12, and light the FLASH 1, FLASH 2, and FLASH 3 lamps of the SYSTEM section. With MASTER switch S6 set to MODULE, lamp driver A10 and A12 are connected directly to the trigger circuits of the illuminator module under test. Each lamp driver now indicates only the generation of a single flash pulse. In the MODULE position, lamp drivers A10 and A12 light the FLASH A and FLASH B lamps of the MODULE section.

NOTE

Except for reference designation, the operation of lamp drivers A10, A12, and A14 is identical.

(1) Each time flash trigger A3 occurs, flash pulse No. 1 and No. 2 (A3) are generated simultaneously by the trigger circuits of illuminator module A3. The flash pulses are -350 volts in amplitude and 20 milliseconds in width. Flash pulse No. 1 (A3) (A, fig. 1-13) is applied through A10-1 and current Limiter R3 to the anode of A3 AND gate diode CR3. Similarly, flash pulse No. 2 (A3) (B,

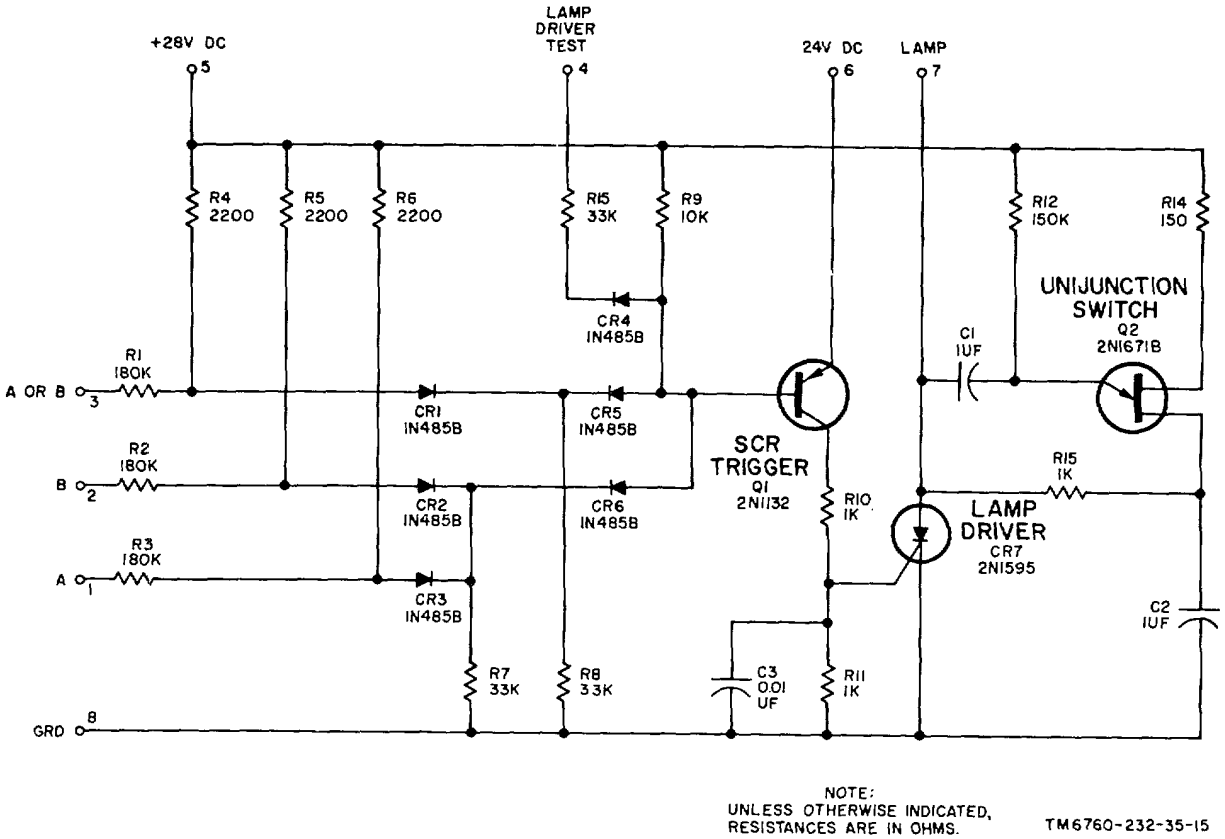


Figure 1-12. Lamp driver with OR gate and AND gate A10, A12, A14, schematic diagram.

fig. 1-13) is applied through A10-2 and current Limiter R2 to the anode of A3 AND gate diode CR2. Under no signal conditions, A3 AND gate diodes CR2 and CR3 are forward-biased by the divider networks formed by bias resistors R5 and R6 and common load R7. This clamps the junction of A3 AND gate diodes CR2 and CR3 and load resistor R7 at about + 25 vdc. Application of flash pulses No. 1 and No. 2 (A3) to the anodes of CR2, and CR3 reverse biases them. With CR2 and CR3 off, OR gate diode CR6 conducts through base resistor R9 which is connected to + 28 vdc. The -6volt A3 AND gate pulse (C, fig. 1-13) is coupled through OR gate diode CR6 to the base of scr trigger Q1.

(2) Prior to the application of flash pulses No. 1 and No. 2 (A3), lamp driver A10 is in its stable state. In its quiescent state:

(a) Scr trigger Q1 is reverse biased and cut off. The base of Q1 is at + 28 vdc, the emitter at + 24 vdc, and its collector is clamped at ground.

(b) Lamp driver CR7 is in a blocked or off condition. The gate of CR7 is at ground and its anode is a + 28 vdc.

(c) Unijunction switch Q2 is reverse biased and cut off. All of its elements, emitter, base 1, and base 2, are all held at + 28 vdc.

(3) The A3 AND gate pulse is applied through OR gate diode CR6 to the base of Q1, driving it out of cutoff into conduction. The negative A3 AND gate pulse is inverted and amplified across collector load R10 and R11. Compensating capacitor C3 prevents degradation in the risetime of the leading edge of the amplified gate pulse. The CR7 gate pulse (D, fig. 1-13), produced at the junction of R10 and R11, switches CR7 on, effectively grounding (E, fig. 1-13) the low side of FLASH 1 lamp A3DS1, A3DS2.

(4) Lamp driver CR7, which is an scr, is a bistable device. Once it has been turned on, the gate pulse no longer exercises any control over its anode current. Lamp driver CR7 is turned off by reducing its anode current below the holding level. (Holding current is the minimum anode current required to maintain the scr in an on state.) Unijunction switch Q2 maintains conduction through CR7 for a predetermined period (approximately 100 milliseconds), and then turns it off. In turning

off CR7, Q2 also extinguishes FLASH 1 lamp A3DS1, A3DS2.

(5) When CR7 turns on, it grounds the junction of timing capacitor C1 and feedback resistor R15, dropping the voltage at the junction from + 28 vdc to approximately + 1 vdc (forward voltage trop across CR7). This negative voltage drop at .he low side of C1 is coupled through C1 to the base of Q2. Simultaneously, feedback capacitor C2 discharges rapidly through lamp driver CR7 and feedback resistor R15 which limits current in the CR7, R15, C2 loop. Without feedback capacitor C2, unijunction switch Q2 is basically an astable relaxation oscillator. Inserting C2 in the base 1 circuit of Q2 permits the bias of Q2 to be adjusted automatically as CR7 is turned on and off. Feedback capacitor C2 converts Q2 from an astable relaxation oscillator to a triggered monostable switch. Upon discharge, the junction of R15 and C2 is held at approximately 1 vdc (G, fig. 1-13) and Q2 remains cutoff because its emitter and base 1 are at approximately the same potential. Under these conditions, timing capacitor C1 starts to charge towards + 28 vdc through timing resistor R12 (F, fig. 1-13).
When the voltage across C1 reaches the peak voltage of Q2, Q2 conducts, dropping its emitter voltage to the base 1-to-emitter value of Q2. Base 2 reistor R14 temperature compensates Q2, preventing variations in its peak point voltage with changes in ambient temperature. Such variations would affect the timing and stability of unijunction switch Q2. The negative pulse produced in the emitter circuit of Q2 when it conducts is coupled through C1 to the anode of CR7, causing its anode current to fall below the holding current level (E, fig. 1-13) turning it off. When CR7 turns off, FLASH 1 lamp A3DS1, A3DS2 extinguishes and unijunction switch Q2 returns to its stable state. Lamp driver A10 will remain in its stable state until the next flash pulses occur.

(6) When MASTER switch S6 is set to MODULE, flash pulse A is applied through A10-3 and current Limiter Ri to the anode of diode gate CR1. Under no signal conditions, diode gate CR1 is forward-biased by divider resistor R4 and load resistor R8. This clamps the junction of CR1 and R8 at about + 25 vdc. Application of flash pulse A to the anode of CR1 reverse biases it. With CR1 .ut off, OR gate diode CR5 conducts through base resistor R9 which is connected to + 28 vdc. The negative pulse from CR5 gates scr trigger Q1. Lamp drivers A10 and A12 light the FLASH A and B lamps of the MODULE section.

(7) With MASTER switch S6 set to LAMP DRIVERS, the lamp driver test signal is applied through Limiter R15 to the cathode of OR gate diode CR4. The lamp drivers test signal, which is ground switched at a 3.75 second rate, causes the FLASH 1, 2, and 3 lamps of the SYSTEM section to light.

c. Lamp Driver with OR Gates All, and A13, A15 (fig. 1-14). With MASTER switch S6 set to SYSTEM, lamp driver with OR gate assemblies All, A13, A15 indicate the number and sequence in which flash triggers A3, A4, and A5 are generated by logic module A2A2 of the electronic flash system. Depending upon the dc level of control voltage E V/H, the flash triggers may be generated simultaneously (A3, A4, and A5); in pairs and sequentially (A3 and A4, A3 and A5, A4 and A5); or singly and in sequence (A3, A4, and A5). Flash triggers are produced each time a camera frame pulse is generated. In response to the flash triggers generated, lamp drivers All, A13, and A15 light the LOGIC 1, LOGIC 2, and LOGIC 3 of the SYSTEM section. With MASTER switch S6 set to LOGIC, lamp drivers All, A13, and A15 light the 1, 2, and 3 lamps of the LOGIC section.

NOTE

Except for reference designations, the operation of lamp drivers, All, A13, and A15 is identical.

(1) When a camera pulse occurs, flash trigger A3 is applied through All-2 to the anode of diode gate CR2. Flash trigger A3, (A, fig. 1-15) is a fastrise, 250-microsecond, -5-volt pulse. Under no signal conditions, diode gate CR2 is forward-biased by bias resistor R12 and load R1. This clamps the junction of CR2 and Ri at about + 25 vdc. Application of flash trigger A3 to the anode of CR2 reverse biases it. With CR2 off, OR gate diode CR5 conducts through base resistor R5 which is connected to + 28 vdc. The -6-volt diode gate pulse is coupled through OR gate diode CR5 to the base of scr trigger Q1.

(2) Prior to the application of flash trigger A3, lamp driver All is in its stable state. In its quiescent state:

(a) Scr trigger Q1 is reverse biased and cut off. The base of Q1 is at + 28 vdc, the emitter at + 24 vdc, and its collector is clamped at ground.

(b) Lamp driver CR6 is in a blocked or off condition. The gate of CR6 is at ground and its anode is a + 28 vdc.

(c) Unijunction switch Q2 is reverse-biased and cut off. All of its elements, emitter, base 1, and base 2, are all held at +28 vdc.

(3) The diode gate pulse is applied through

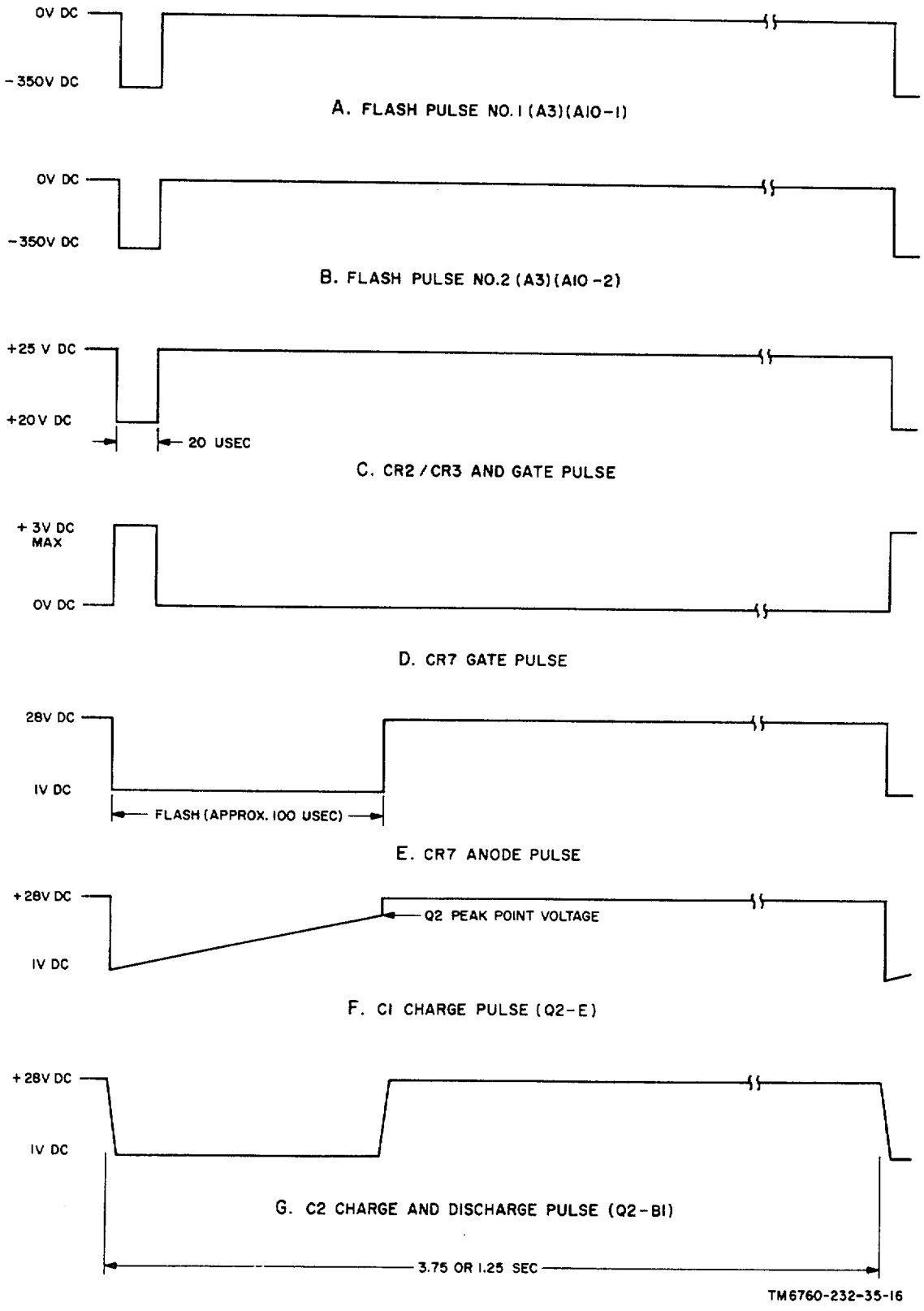


Figure 1-13. Lamp driver with OR gate and AND gate AIO, A12, A14, waveforms.

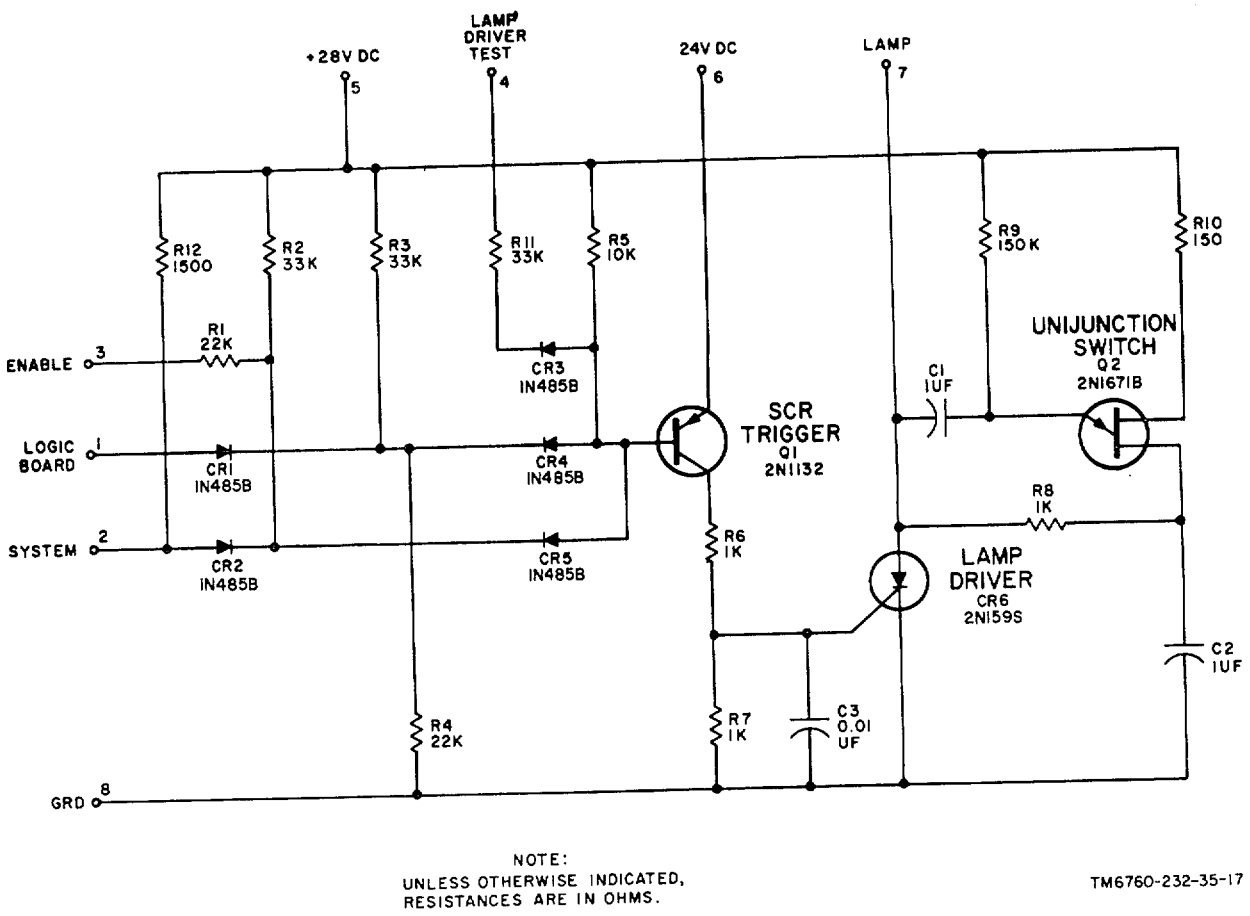


Figure 1-14. Lamp driver with OR gate All, A13, A15, simplified schematic diagram.

OR gate diode CR5 to the base of Q1 driving it out of cutoff into conduction. The CR5 OR gate pulse is inverted and amplified across collector load R6 and R7. Compensating capacitor C3 prevents degradation in the risetime of the leading edge of the amplified gate pulse. The CR6 gate pulse (B, fig. 1-15) produced at the junction of R6 and R8 switches CR6 on, effectively grounding (C, fig. 1-13) the low side of LOGIC 1 lamp A3DS3, A3DS4.

(4) Lamp driver CR6 which is an scr is a bistable device. Once it has been turned on, the gate pulse no longer exercises any control over its anode current. Lamp driver CR6 is turned off by reducing its anode current below the holding current level. (Holding current is the minimum anode current required to maintain the scr in an on state.) Unijunction switch Q2 maintains conduction through CR6 for a predetermined period (approximately 100 milliseconds) and then turns it off. In turning off CR6, Q2 also extinguishes LOGIC 1 lamp A3DS3, A3DS4.

(5) When CR6 turns on, it grounds the junction of timing capacitor C1 and feedback resistor R8, dropping the voltage at the junction from + 28 vdc to approximately + 1 vdc (forward voltage drop across CR6). This negative voltage drop at the low side of C1 is coupled through C1 to the base of Q2. Simultaneously, feedback capacitor C2 discharges rapidly through lamp driver CR6 and feedback resistor R8 which limits current in the CR6, R8, C2 loop. Without feedback capacitor C2, unijunction switch Q2 is basically an astable relaxation oscillator. Inserting C2 in the base 1 circuit of Q2 permits the bias of Q2 to be adjusted automatically as CR6 is turned on and off. Feedback capacitor C2 converts Q2 from an astable relaxation oscillator to a triggered monostable switch. Upon discharge, the junction of R8 and C2 is held at approximately 1 vdc (E, fig. 1-15) and Q2 remains cut off because its emitter and base 1 are at approximately the same potential. Under these conditions, timing capacitor C1 starts to charge towards + 28 vdc through timing resistor R9 (D, fig. 1-15). When the voltage across C1 reaches the peak point voltage of Q2, Q2 conducts, dropping its emitter voltage to the base 1-to-emitter value of Q2. Base

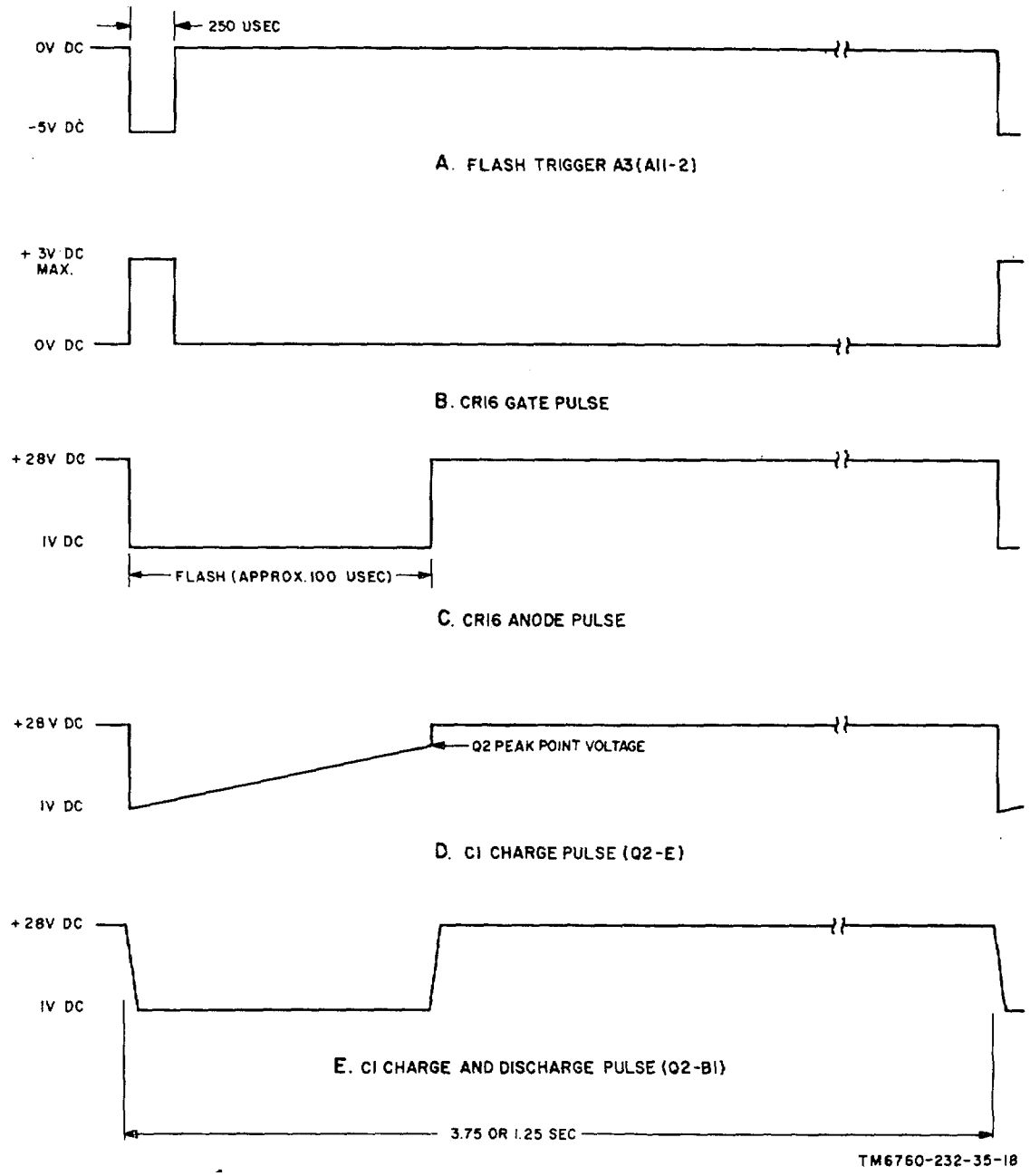


Figure 1-15. Lamp driver with OR gates All, A13, and AI5, waveforms.

2 resistor RIO temperature compensates Q2 preventing variations in its peak point voltage with changes in ambient temperature. Such variations would affect the timing and stability of unijunction switch Q2. The negative pulse produced in the emitter circuit of Q2 when it conducts is coupled through C1 to the anode of CR6, causing CR6 anode current to fall below the holding current level (C, fig. 1-15) turning it off. When CR6 turns off, LOGIC 1 lamp A3DS3, A3DS4 extinguishes and unijunction switch Q2 returns to its stable state. Lamp driver All will remain in its stable state until the next flash pulses occur.

(6) When MASTER switch S6 is set to LOGIC, trigger pulse 1 is applied through All-2 to the anode of diode gate CR1. Under no signal conditions, diode gate CR1 is forward biased by a bias resistor in the test panel and load resistor R4. This clamps the junction of CR1 and R4 at about + 25 vdc. Application of flash trigger 1 to the anode of CR1 reverse biases it. With CR1 cut off, OR gate diode CR4 conducts through base resistor R5 which is connected to + 28 vdc. The negative pulse from, CR5 gates scr trigger Q1. Lamp drivers All, A13,' and A15 light the 1, 2, and 3 lamps of the LOGIC section.

(7) With MASTER switch S6 set to LAMP DRIVERS, the lamp driver test signal is applied through limiter R11 to the cathode of OR gate diode CR3. The lamp drivers test signal, which is ground switched at a 3.75 second rate, causes the LOGIC 1, 2, and 3 lamps of the SYSTFM section to light.

d. Integrating Amplifier A16 (fig. 6-7). The positive 500-millivolt, 700-microsecond photocell pulse is applied to A16-1 through coupling capacitor C1 to the base of high gain preamplifier Q1. Dc bias for Q1 is provided by divider network R1, R2. The amplified input pulse is inverted and amplified across collector load R3. Emitter resistor R7 provides degenerative feedback for preamplifier Q1, stabilizing its ac and dc gain characteristics and minimizing dc drift. The prime functions of Q1e to provide an amplified version of the input signal at test terminal A16-6, and sufficient ac gain to drive high gain ac amplifiers Q2 through Q4. The output of Q1is ac coupled through coupling capacitor C2 and base resistors R4 and R6. The overall gain of A16 is set by Amp Cal adjustment R6. The large size of coupling capacitor C2 makes it appear to be a virtual short circuit to the fastrise, narrow width photocell pulse, however, by avoiding dc coupling bias voltage supply and dc drift problems are eliminated. Ac amplifiers Q2, Q3, and Q4 are essentially identical. Dc bias for Q2 is provided by divider network R5, R8; that for Q3 by R12, R15, and that for Q4 by R16, R17. The amplified output of Q2 is developed across collector load R10 and coupled through C3. The collector loads for Q3 and Q4 are R14 and R19 and their outputs are coupled through C4 and C8. Degenerative feedback for Q2 is provided by emitter resistor R11; that for Q3 by R15, and that for Q4 by R18. The regulated + 30 vdc supply to Q2 and Q3 is decoupled by low-pass rc filter R9, C5. The amplified output of Q4 is fed to emitter followers Q5 and Q6. Base resistors R20 and R21 limit the current in the base circuit of Q5 and also provide additional degenerative feedback in the emitter circuit of Q5. An attenuated version of the signal at the base of Q5 is fed to its base through C9. The output of Q5 is developed across emitter load R22 and applied to the base of Q6. Collector load R25 temperature compensates Q5, minimizing drift with changes in ambient temperature. Emitter followers Q5, Q6 match the high impedance of ac amplifiers Q2 through Q4 to the low impedance of capacitor diode networks CR1, CR2, C7 and CR3, C10. They also provide the driving current required to charge C7 and C10. The ac output of Q6 is developed across emitter load R24 and rectified by charge diodes CR1, CR2, and CR3. The dc developed by CR1, CR2 charges integrator capacitor C7. The dc current for C7 flows through bias resistor R8;. therefore, the ac and dc gain of A16 is automatically adjusted to the number and amplitude of the photocell pulses it receives by C7. Bleeder resistor R25 provides a leakage path for the discharge of C7. Diode CR3 rectifies the ac output of Q6 and charges C10 to the average dc level of the photocell input pulses as indicate by integrator capacitor C7. The dc level across C10 is indicated at output terminal A16-4 which is connected directly to LIGHT ENERGY meter Ml1.

e. + 47and + 30-Volt Dc Regulated Power Supplies (fig. 1-16). Figure 1-16 is a simplified schematic of + 47and + 30-volt dc regulated power supplies. The operation of this circuit is covered in detail in paragraph 1-5e. It should be noted that a constant load for these power supplies is provided by HV LIMIT network R8, R9; E V./H network R6, R7; input pulse generator A9; and integrating amplifier A16. The output of the + 47 vdc power supply is + 47 + 3 volts dc with a maximum ripple of 200 millivolt peak-to-peak. The + 30 vdc output of series regulator Q1 is 28.5 to 30.5 vdc with a maximum ripple of 50 millivolts peak-to-peak.

1-14. SYSTEM TEST Circuit

Detailed operation of the SYSTEM TEST circuit is covered in paragraph 1-6. Figure 6-8 is a simplified schematic of the SYSTEM TEST circuit. The following additional circuit details should be noted from figure 6-8:

a. Diodes CR55, CR54, and CR56 are the diode gates for hv limit fail circuit Q4.

b. The inner shield of PHOTOCELL connector J13 is raised to + 600 millivolts dc by precision voltage divider R62, R63. This voltage provides for the photocell and electrostatically shields it from ground. High frequency noise and radio frequency (rf) transients are bypassed to ground through decoupling capacitor C3.

c. Failure in the + phase circuits of the power supply module are indicated by + GATE FAIL scr OR gate diodes CR57, CR59, and CR61. Similarly, failure in the -phase circuits are indicated by -GATE FAIL scr OR gate diodes CR58, CR60, and CR62.

d. Isolation diodes CR47 through CR52 provide isolation for the + 28 vdc line during the MOD 1, 2, and 3 tests. In this configuration, these lines are connected directly to the flash trigger output circuits of logic module A2A2.

e. Coupling capacitor C13 provides ac coupling for camera frame pulse to the circuits of the elec-

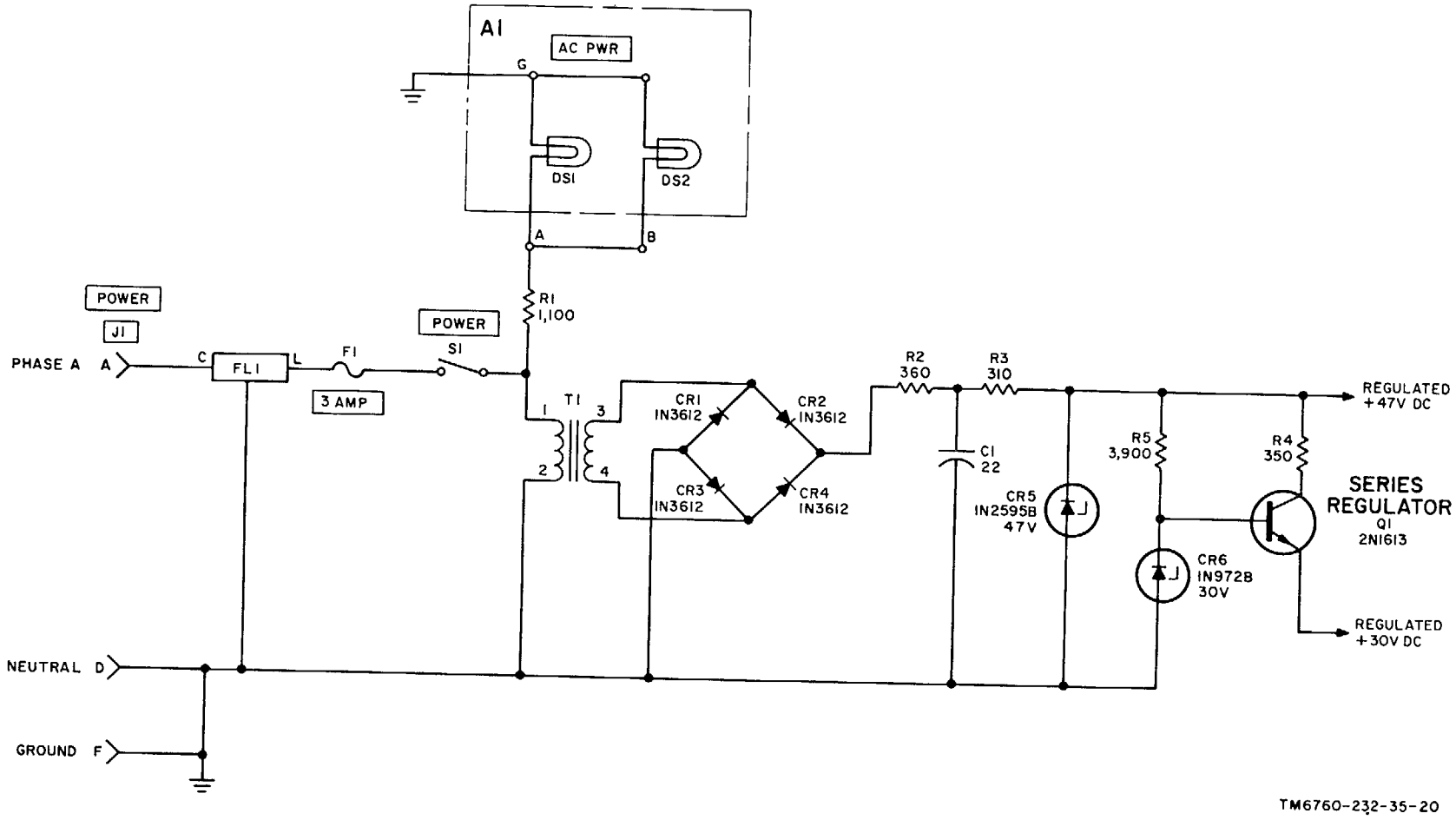


Figure 1-16. + 47 and + 30-volts de regulated power supplies; schematic diagram.

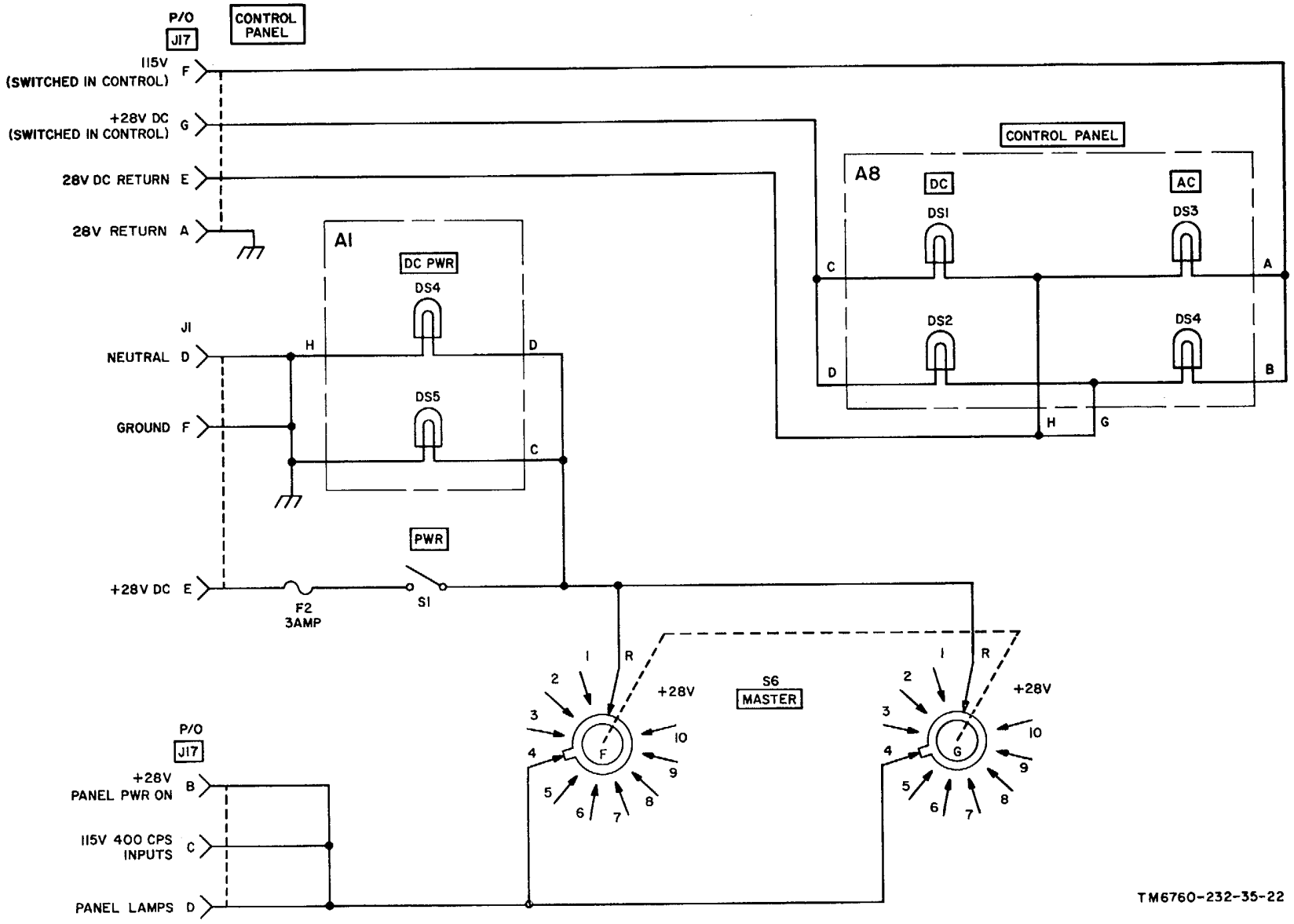


Figure 1-17. CONTROL PANEL test circuit, schematic diagram.

tronic flash system. Diodes CR70 and CR71 serve as diode gates.

f. High-pass filter R72, C14 serves two functions: Base Limiter R72 limits current in the base circuit of Q22, and C14 provides frequency compensation which prevents degradation in the risetime of the leading edge of the output pulse of A9. Capacitor C14 also prevents significant decay in the dc level of the output pulse.

g. Zener diode CR21 and load R32 constitute a + 24-vdc regulated power supply. This + 24 vdc is applied to lamp drivers A10, A12, and A14.

1-15. CONTROL PANEL Test Circuit

(fig. 1-17) Detailed operation of the CONTROL PANEL test circuit is covered in paragraph 1-7. Figure 1-17 is a simplified schematic of the CONTROL PANEL test circuit.

1-16. MODULE TEST Circuit

Detailed operation of the MODULE TEST circuit is covered in paragraph 1-8. Figure 6-9 is a simplified schematic of the MODULE TEST circuit. The following additional circuit details should be noted from figure 6-9.

a. Camera frame pulse amplifier Q21 amplifies and inverts the camera frame pulse. Inversion is required to provide proper phasing for the illuminator module trigger circuits. This circuit also isolates Q22 from the illuminator module trigger circuits and provides proper impedance matching for the input pulse.

b. High voltage for the operation of the illuminator module trigger circuits is provided by cascade voltage doubler CR68, CR 69. The output of the doubler is + 350 vdc + 10 percent.

1-17. VOLTAGE CONTROL TEST Circuit

Detailed operation of the VOLTAGE CONTROL TEST circuit is covered in paragraph 1-9. Figure 6-10 is a simplified schematic of the VOLTAGE CONTROL TEST circuit. The following additional circuit details should be noted from figure 6-10:

a. The oscillator input signal is provided the -scr ph A signal at J16-M. This signal indicates the operation of blocking oscillator Q2 of voltage control module A2A3.

b. Load resistors R73 through R76 provide constant loads for the + ph A, B and C scr circuits of A2A3.

c. Voltage divider R34, R35 provides + 14 vdc to the high-voltage test circuits. This voltage simulates a fully charged condition of the illuminator module charge capacitors.

1-18. LOGIC TEST Circuit

Detailed operation of the LOGIC TEST circuit is covered in paragraph 1-10. Figure 6-11 is a simplified schematic of the LOGIC TEST circuit.

1-19. INTERNAL TEST Circuits

Detailed operation of the INTERNAL TEST circuits is covered in paragraph 1-11. Figures 6-12 through 6-18 provide simplified schematic diagrams of all five positions of the INTERNAL TEST circuits.

1-20. POWER LIMITER AND BLOWER PANEL

Detailed operation of the power Limiter and blower circuits is covered in paragraph 1-12. Figure 6-5' is a schematic diagram of the power Limiter and blower.

1-21. ADAPTER Circuit

Detailed operation of the adapter circuit is covered in paragraph 1-12.1. Figure 6-19 is a schematic diagram of the adapter. The following additional circuit details should be noted from figure 6-19.

a. No camera pulse is applied to the ad? Transistor A3Q5 has no input on the base does not conduct +28 vdc present at the collector. The output of integrated circuit A3A1 is zero and transistor A3Q8 does not conduct +28 vdc present at the collector. A +28-vdc camera pulse is applied thru diode A3CR6, A3CR7, or A3CR8 to the base of transistor A3Q5. Transistor A3Q5 conducts causing the collector to go to zero. Integrated circuit A3A1 applies +12 vdc to the base of transistor A3Q8 causing the collector to go to zero and the CAMR PULSE lamp DS1 to light. CAMR PULSE lamp DS1 remains lit for 30 milliseconds after the +28-vdc camera pulse is removed.

b. With no camera pulse applied to the adapter, transistor A3Q6 has no input on the base and does not conduct +28 vdc present at the collector. The output of integrated circuit A3A2 is zero and transistor A3Q9 does not conduct +28 vdc present at the collector A +28-vdc camera pulse is applied thru diagram A3CR9, A3CR10, A3CR11, or A3CR12 to this, base of transistor A3Q6. Transistor A3Q6 conducts, causing the collector to go to zero Integrated circuit A3A2 applies +12 vdc to the base of transistor A3Q9 causing the col-

lector to go to zero and causing the FLASH TUT.SE lamp DS2 to light. FLASH PULSE
amp DS2 remains lit for 30 milliseconds after the +28-vdc camera pulse is removed.

c. Transistor A3Q1, with no input on the base, does not conduct +28 vdc present at
+he collector. The collector is high which applies +28 vdc to the base of transistor A3Q2 causing the collector to go to zero and causing READY INTLK lamp DS3 to light. Positive 28 vdc is applied through diode A3CR1 or A3CR2 to the base of transistor A3Q1 causing the collector to go to zero which removes +28 vdc from the base of transistor A3Q2. Transistor A3Q2 does not conduct causing READY INTI,K indicator assembly DS3 to extinguish.

d. Transistor A3Q3, with no input-on the base, does not conduct +28 vdc present at the collector, and K1 RELAY lamp DS4 does not light. When +28 vdc is applied through diodes A3CR3 or A3CR4 to the base of transistor A3Q the collector goes to zero and K1 RELAY lamp lights.

e. Integrated circuit A3A3 operates as follow when PULSE RATE switch S5 is set to its various positions.

(1) NORM: Integrated circuit A3A3 is inoperative.

(2) KA30 A: Voltage is applied through resistor A3R6 to produce a pulse interval of 1, 000 + 100 milliseconds.

(3) KA30 B: Voltage is applied through resistor A3R7 to produce a pulse interval of 400 a: 40 milliseconds.

(4) KA30 C: Voltage is applied through resistor A3R8 to produce a pulse interval of 285 A 30 milliseconds.

(5) KA30 D: Voltage is applied through resistor A3R9 to produce a pulse interval of 166 i 17 milliseconds.

The remaining positions of PULSE RATE switch S5, KA76 A, KA76 B, KA76 C and KA76 D produce the same pulse intervals as the KA30 selections respectively. The pulse output of integrated circuit A3A3 is amplified to +28 vdc by transistor A3Q7 and routed back to PULSE RATE switch S5 for distribution to connectors P2 and J1, and transistor A3Q5.

f. An E V/H or E V/H modified voltage is applied from module A2A4 in either system test (installed in the pod assembly) or in module test (removed from the pod assembly) to the base of transistor A3Q4. This causes current to conduct thru transistor A3Q4, resistor A3R12, VOLTAGE switch S6, and VOLTAGE + test jack J11 without loading the E V/H generating circuit in module A2A4.

CHAPTER 2
TROUBLESHOOTING

Section I. GENERAL TROUBLESHOOTING TECHNIQUES

WARNING

When servicing the bench test set, be extremely careful of high voltages. Disconnect the primary ac and dc power before making any repairs.

2-1. General Instructions

Troubleshooting at direct support, general sup- port, and depot maintenance includes all of the techniques outlined for organizational maintenance (TM 11-6760-232-12) and special or additional techniques required to isolate a defective part. The systematic troubleshooting procedure (para 2-4 and 2-6), which begin with the operational and sectionalization checks that are performed at the organizational category of maintenance, must be completed by direct support and general support sectionalization, localization and isolation techniques (para 2-2b and c). Paragraphs 2-5 and 2-7 provide trouble- shooting procedures which are performed at direct support maintenance.

2-2. Organization of Troubleshooting Procedures

a. General. The first step in servicing a defective bench test set is to sectionalize the fault. Sectionalization means tracing the fault to one of its units, such as the lamp driver with OR gate. The second step is to localize the fault. Localization means tracing the fault to the defective stage or circuit responsible for the abnormal conditions. The third step, isolation, means tracing the fault to and identifying the defective part or parts. Some faults, such as burned-out resistors or wiring, a shorted transformer, or a damaged meter, can often be located by sight, smell, or hearing. The majority of faults, however, must be located by signal tracing and checking voltages and resistance.

b. Sectionalization.

(1) Test Set, Photographic Flasher System, LS-69A consists of two units: Bench Test Panel Al and Power Limiter and Blower Assembly A2. The following charts provide a breakdown of these units by reference designation.

2-2b(1) (cont.)

Ref. Des.	*Item Name*	*Common Name*
A1	Bench test Panel	Test Panel
A1A1	Panel Bench Test Set	Panel
A1	Light-Switch Assembly	AC-DC PWR lamps
A2	Switch, Push	HV LIMIT FAIL indicator
A3	Light-Switch Assembly	LOGIC 1-FLASH 1 lamps
A4	Light-Switch Assembly	LOGIC 2-FLASH 2 lamps
A5	Light-Switch Assembly	LOGIC 3-FLASH 3 lamps
A6	Light-Switch Assembly	FLASH A, FLASH B, K1 OPEN, K1 CLOSE lamps
A7	Light-Switch Assembly	1, 2, 3, INPUT LAMPS
A8	Light-Switch Assembly	AC-DC CONTROL PANEL lamps
A9	Switch and Component Assembly	MASTER switch S6
A10	Switch and Component Assembly	VOLTAGE CONTROL TEST switch S7
A11	itch and Component Assembly	LOGIC TEST switch S10
A12	Switch and Component Assembly	MODULE TEST switch S9
A13	Chassis and Component Assembly Power	Power chassis
A14	Chassis and Component Assembly	Function chassis-
A14 A1	Not used	
A14 A2	Not used	
A14 A3	Not used	
A14 A4	Not used	
A14 A5	Not used	
A14 A6	Not used	
A14 A7	Not used	
A14 A8	Not used	

Ref. Des.	Item Name
A14 A9	Input Pulse Generator IPPS/4PPS
A14 A10	Electronic Component Assembly
A14 All	Electronic Component Assembly
A14 A12	Electronic Component Assembly
A14 A13	Electronic Component Assembly
A14 A14	Electronic Component Assembly
A14 A15	Electronic Component Assembly
A14 A16	Integrating Amplifier
A1A1 A15	Switch and Component Assembly
A1A1 A16	Not used
A1A1 A17	Light-Switch Assembly
A18	Switch, Push
AlA2	Adapter Test LS-491A
AIA2A3	Adapter PCB
A2	Power Limiter and Blower Assembly
A2A1	Panel and Component Assembly
A1	Cover and Filter Assembly
A2	Chassis and Component Assembly

(2) The first step in troubleshooting is to locate the assembly or circuits at fault by using the following methods:

(a) Visual inspection. The purpose of visual inspection is to locate faults without actually performing circuit tests or making voltage and resistance checks. During operational checks, the meter and indicator lamps, particularly the LOGIC PULSE-FLASH PULSE 1, 2, 3 and INPUT PULSE lamps, should be observed and an attempt made to localize the fault.

CAUTION

Corrective maintenance for most visible defects is obvious; however, care must be taken if heat-damaged parts are located. Overheating is normally only a symptom of trouble. For this reason, it is essential to determine the actual cause of overheating before the heat-damaged part is replaced; otherwise, damage to the equipment may be repeated.

(b) Operational tests. An operational test frequently indicates the general location of trouble. In many instances, the test will help in determining the exact nature of the fault. The INT TEST procedures given in TM 11-67W-232-12 provide a good operational check of the bench test set. Additional operational tests are given in paragraph 2-4.

c. Localization. Localization procedures should be performed after the trouble has been sectionalized (b above). The localization procedures applicable to the bench test set are listed in (1) and (2) below and should be used in localizing the trouble to a stage or circuit in the suspected unit.

(1) Troubleshooting chart. The troubleshooting charts (para 2-5, 2-7 and 2-7.2) list symptoms of common troubles and gives (or

Common Name

Input Pulse Generator

Lamp Driver with OR Gate and AND Gate A10 (FLASH 1. - driver A1O)

Lamp Driver with OR Gate All (LOGIC I lamp driver All)

Lamp Driver with OR Gate and AND Gate A12 (FLASH 2

lamp driver A12)

Lamp Driver with OR Gate A13 (LOGIC 2 lamp driver A13)

Lamp Driver with OR Gate and AND Gate A14 (FLASH lamp driver A14)

Lamp Driver with OR Gate A15 (LOGIC 3 lamp driver A15)

Integrating Amplifier

SYSTEM TEST switch S8

A, B, Q1, Q2 lamps

INPUT PULSE indicator

Adapter

Adapter PCB

Power Limiter and Blower

Blower Panel

Filter

Resistor board

references) corrective measures. Such a chart obviously cannot include all trouble symptoms that may occur. The repairman should use this chart as a guide in analyzing symptoms that may not be listed.

(2) Signal substitution. Signal substitution procedures for the bench test set are given in paragraph 4-3 Observe the cautions given in paragraph 2-3 and follow the signal substitution: procedures closely so that damage to transistors can be avoided.

d. Isolation. Procedures for isolating troubles are given in chapter 4.

e. Techniques. In performing the sectionalization, localization, and isolation procedures, one or more of the techniques below may be applied. Apply these techniques only as indicated, and observe all cautions.

(1) Voltage measurements. The bench test set is transistorized. When measuring voltage, use tape or sleeving to insulate the entire test probe, except for the extreme tip. A momentary short can ruin a transistor. All voltage measurements are made between the point under test and ground. When measuring positive voltages, connect the negative lead of the multimeter to chassis ground. When measuring negative voltages, connect the positive lead of the multimeter to chassis ground.

(2) Resistance measurements. Make resistance measurements in the bench test set only 'as directed in the resistance chart of (para 4-2). AL resistance measurements are made between the point under test and ground. When connecting the multimeter, observe the polarity as indicated.

(3) Intermittent troubles. In all tests, the possibility of intermittent troubles should not be over-

looked. If present, this type of trouble often may be made to appear by tapping or jarring the equipment. Make a visual inspection of the wiring and connections to the chassis and component assemblies. Cold solder joints usually can be cured by resoldering or sweating the suspected tie points. Broken wires and conductors can be detected by making point-to-point continuity checks.

2-3. Test Equipment Required

The following chart lists the test equipment required for troubleshooting the LS-69A.

CAUTION

Do not connect test equipment (other than multimeter and voltmeter outputs directly to a transistor circuit; use a coupling capacitor.

CAUTION

Make test equipment connections carefully so that short circuits will not be caused by exposed test equipment connectors. Tape or sleeve (spaghetti) test probes or clips as necessary to leave as little exposed as needed to make contact to the circuit under test.

`Test equipment	Common Name
Multimeter, Simpson Model 260	Multimeter
Power supply, Tektronix Type 160A	Power supply
Pulse generator, Tektronix Type 161	Pulse generator
Waveform generator, Tektronix Type 162	Waveform generator
Oscilloscope, Tektronix Type 502A	Oscilloscope
AC Ammeter, 0-10 amp, Simpson Model 270	Ammeter

Section II. TROUBLESHOOTING TEST PANEL AND BLOWER ASSEMBLY

2-4. General Operational Check of Test Panel

a. Test Equipment Required. The test equipment listed in paragraph 2-3 and (1) through (4) below are required to perform a general operational check of the test panel:

(1) Figure 5-1 is a schematic diagram of the bench test panel test board. The test board permits the application of control pulses and voltages to the bench test panel. It also facilitates measurement of input and output voltages and observation of input and output signals.

(2) 1K, %-watt resistor.

(3) 1 mfd capacitor.

(4) 120-ohm resistor.

(5) Buffer amplifier.

b. Operational Check Setup (fig. 2-1)

NOTE

Unless specified, all the following controls are located on the bench test panel.

(1) Set POWER switch to OFF.

(2) Set VOLTAGE CONTROL TEST switch to PH A (+ GATE CONT).

(3) Set HV TEST control fully counterclockwise.

(4) Set MASTER switch to LAMPS.

(5) Set E V/H control fully counterclockwise.

(6) Set SYSTEM TEST switch to SYNC.

(7) Set MODULE TEST switch to K1 CLOSE.

(8) Set LOGIC TEST switch to OPERATE.

(9) KA-30-KA-76 switch to KA-30.

(10) the test board to the bench test panel and adapter as shown in figure 2-1.

(11) Set READY INTLK switch on adapter to OFF.

(12) Set PULSE RATE switch on adapter to NORM.

(13) Set VOLTAGE switch on adapter to 12V.

c. Operational Check Procedure.

NOTE: ***Unless otherwise indicated, all controls, indicators, and connectors referred to in the following steps are located on the bench test panel.***

(1) Set POWER switch to ON. Observe that all lamps light.

(2) Set MASTER switch to LAMP DRIVERS. Observe that::

(a) All the lamps, except AC PWR and DC PWR, extinguish.

(b) The INPUT PULSE, LOGIC 1, FLASH 1, LOGIC 2, FLASH 2, LOGIC 3 and FLASH 3 lamps flash together once every 3.75 seconds.

(3) Set MASTER switch to INTEGR AMP. Observe that:

(a) The three LOGIC and the three FLASH lamps stop flashing.

(b) The LIGHT ENERGY meter will indicate a peak surge of 8.0 0.2 light energy units each time the INPUT PULSE lamp flashes and then decrease slowly.

NOTE: When the LIGHT ENERGY meter receives its first pulse, the meter will peg (go off scale above 10) for a short time before registering an indication. This is normal and will not damage the meter.

(4) Depress RESET switch. Observe that the meter reading drops to 0 light energy units.

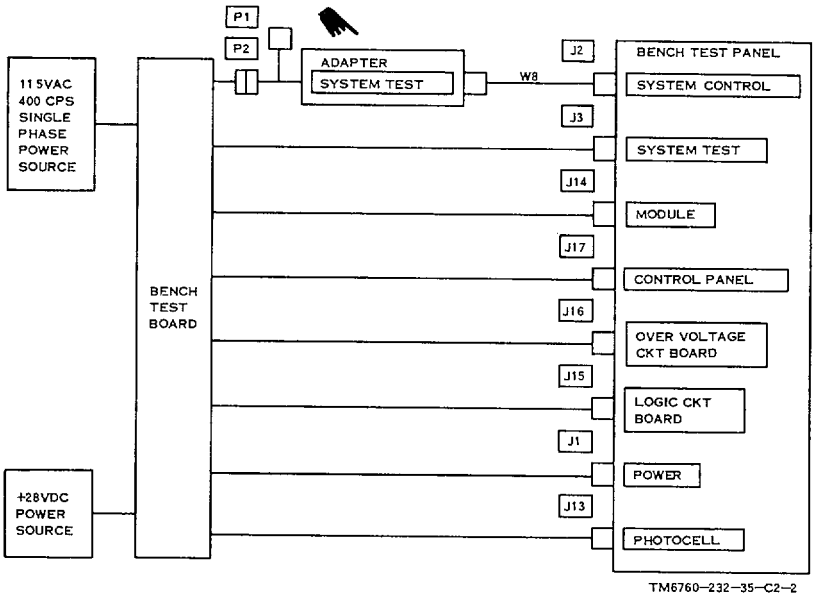


Figure 2-1. Test panel, operational check setup.

NOTE

If the RESET switch is held depressed longer than the time constant of the internal generator, the meter will read each time it receives an input impulse. This is normal.

(5) Connect the oscilloscope to CHAN A VERT and GND terminals. Observe that the oscilloscope displays a negative-going pulse of approximately 12 volt peak, 1-mnillisecond duration measured at the 50-percent point.

(6) Set MASTER switch to E V/H.

(7) Connect the multimeter to the + and MULTR terminals. Adjust the oscilloscope to measure the 800-cps ripple. Observe that:

(a) The inter indicates 47 t 1.5 vdc.

(b) The oscilloscope should display a ripple of less than 200 millivolts, peak to peak.

(c) The INPUT PULSE lamp flashes once every 3.75 seconds.

(8) Set MASTER switch to + 30 VDC. Observe that:

(a) The multimeter indicates 30 + 1.5 vdc.

(b) The oscilloscope should display a ripple of less than 50 millivolts peak to peak.

(c) The INPUT PULSE lamp flashes once every 3.75 seconds.

(9) Set MASTER switch to SYSTEM.

(10) Set SYSTEM TEST switch to OPR MODE.

(11) Connect the multimeter positive lead to J2-E and the negative lead to J2-F.

(12) Rotate the E V/H control fully clockwise. Observe that:

(a) The multimeter indicates a smooth increase in voltage from 0 to approximately 47 vdc.

(b) The INPUT PULSE lamp flashes.

(13) Rotate the SYSTEM TEST switch through all its positions. Observe that the multimeter indicates 0 vdc in all positions except OPR MODE.

(14) Set SYSTEM TEST switch to OPR MODE.

(15) Disconnect the oscilloscope from CHAN A VERT and GND terminals and connect the oscilloscope 'vertical lead to J2-L and the ground lead to J2-F.

(16) Externally trigger the oscilloscope by connecting a jumper between the TRIGGER terminal on the bench test panel and the external trigger input terminal of the oscilloscope. Observe that:

(a) The oscilloscope displays a pulse of 30 t 3 volts peak and a duration of 140 20 milliseconds.

(b) The INPUT PULSE lamp flashes.

(c) Connect oscilloscope vertical input to J2 pin K, set INPUT PULSE switch to KA-76 and observe oscilloscope for same pulse as noted in (a) above.

(17) Move the positive multimeter lead to J2-B. Move the negative multimeter lead to J2-A. Observe that:

(a) The multimeter indicates 28 t 1 vdc.

(b) The INPUT PULSE lamp flashes.

(18) Rotate MASTER switch through all its

positions. Observe that the multimeter indicates 28 + 1 vdc in the SYSTEM position only.

(19) Remove the multimeter from the test setup and adjust to read ac volts, 250-volt range.

(20) Connect the multimeter positive lead to J2-C and the negative lead to J2-A. Rotate MASTER switch through all positions. Observe that:

(a) The multimeter indicates 115 + 10 vdc in the SYSTEM position only.

(b) The INPUT PULSE lamp flashes.

(21) Remove the multimeter from the test setup and adjust to read dc volts, 50-volt range.

(22) Connect the multimeter positive .lead to J3-21 and the negative lead to J2-A.

(23) Set SYSTEM TEST switch to SYNC. Rotate MASTER switch through all its positions. Observe that the multimeter indicates 28 1 vdc in the SYSTEM position only.

(24) Set MASTER switch to SYSTEM. Set SYSTEM TEST switch to MOD-1, MOD-2, and MOD-3 positions. Observe that the INPUT PULSE lamp flashes once every 1.25 seconds in each of these positions.

(25) Set SYSTEM TEST switch to HV LIMIT, PH A, PH B, and PH C. Observe that INPUT PULSE lamp does not flash in any of these positions.

(26) In each of the positions mentioned in step 25, depress MANUAL switch several times. Observe that the INPUT PULSE lamp flashes each time the switch is depressed.

(27) Move the multimeter positive lead to + SHTR SYNC terminal. Rotate SYSTEM TEST switch through all its positions. Observe that an indication of 28 1 vdc appears only when the switch is in the SYNC position.

(28) Set SYSTEM TEST switch to MOD-1.

(29) Connect a .K, %-watt resistor between J3-13 and J3-37.

(30) Connect the multimeter positive lead to J3-13 and the negative lead to J3-37. Observe that:

(a) The multimeter indicates 7 10 vdc.

(b) The LOGIC 1 lamp lights.

(31) Rotate the SYSTEM TEST switch to MOD-2 and MOD-3 position. Observe that the multimeter indicates 28 1 vdc in each position.

(32) Set SYSTEM TEST switch to MOD-2.

(33) Move the multimeter positive lead and the jumper lead connected to the IK resistor from J3-13 to J3-14. Observe that:

(a) The multimeter indicates 7-10 vdc.

(b) The LOGIC 2 lamp lights.

(34) Rotate SYSTEM TEST switch to MOD-1 and MOD-3. Observe that the multimeter indicates 28 t 1 vdc in each position.

(35) Set the SYSTEM TEST switch to MOD-3.

(36) Move the multimeter positive lead and the jumper lead connected to the 1K resistor from J314 to J3-15. Observe that:

(a) The multimeter indicates 7-10 vdc.

(b) The LOGIC 3 lamp lights.

(37) Rotate SYSTEM TEST switch to MOD-1 and MOD-2. Observe that the multimeter indicates 28 1 vdc in each position.

(38) Remove the multimeter, jumper leads, and resistor from the bench test panel test board.

(39) Set the SYSTEM TEST switch to HV LIMIT.

(40) Connect the oscilloscope to CHAN B VERT and GND terminals.

(41) Connect the output of pulse generator through the buffer amplifier to J3, pin 35 and ground (J3, pin 37). Set pulse generator for an output pulse of 2.0 volts peak, 10 microseconds. Observe that the GATE CONT lamp lights.

(42) Connect a jumper between J2-C and J333.

(43) Connect the oscilloscope to CHAN A VERT and GND terminals. Observe that the GATE CONT lamp remains lit.

(44) Set SYSTEM TEST switch to OPR MODE. Observe that the + GATE FAIL and GATE FAIL lamps light.

(45) Set SYSTEM TEST switch to PH A. Observe that:

(a) The oscilloscope indicates a 324 volt peak-to-peak, 400 cps signal.

(b) The + GATE FAIL and GATE FAIL lamps light.

(46) Move the jumper lead from J3-33 to J336.

(47) Set SYSTEM TEST switch to OPR MODE. Observe that the + GATE FAIL and GATE FAIL lamps light.

(48) Set SYSTEM TEST switch to PH B. Observe that:

(a) The oscilloscope indicates a 324 volt peak-to-peak, 400-cps signal;

(b) The + GATE FAIL and GATE FAIL lamps light.

(49) Move the jumper lead from J3-36 to J334.

(50) Set SYSTEM TEST switch to OPR MODE. Observe that the + GATE FAIL and GATE FAIL lamps light.

(51) Set SYSTEM TEST switch to PH C. Observe that: (a) The oscilloscope indicates a 324-volt peak-to-peak, 400 cps signal;

(b) The +GATE FAIL and -GATE FAIL lamps light.

(52) Remove the oscilloscope, pulse generator, buffer amplifier, and jumper from the bench test panel test board.

(53) Connect a jumper from J14-12 to J Observe that the + 350 vdc lamp lights and remains lit as long as the jumper lead remains connected.

(54) Remove the jumper from the bench test panel test board.

(55) Set SYSTEM TEST switch to HV LIMIT.

(56) Connect the multimeter positive lead to J3-26 and the negative lead to ground (J3-37).

(57) Rotate the E V/H control fully counterclockwise.

(58) Connect a jumper between J15-W and J3-26.

NOTE

If HV LIMIT lamp it lit at this time, depress it and it will extinguish.

(59) Slowly rotate the E V/H control clockwise until the HV LIMIT FAIL lamp lights. Observe that the multimeter indicates 13.5 1 vdc.

(60) Rotate the E V/H control fully counterclockwise. Observe that the HV LIMIT FAIL lamp is still lit. Depress it and it will extinguish.

(61) the jumper and meter lead from connector J3, pin 26 and connect to J3, pin 25. Repeat procedure given in steer (59) and (60) and note that results are identical.

(62) the jumper and meter lead from J3 pin 25 to J3, pin 24.

(63) the procedure of steps (59) and (60) above. The observed results should be identical.

(64) Remove the jumper and the multimeter from the bench test panel test board.

(65) Connect a jumper between J2-A and J318. Observe that the INTERLOCK lamp will light as long as the jumper is connected.

(66) Remove jumper from the bench test panel test board.

(67) Connect the output of the pulse generator through a 1-mfd capacitor, to J3-13 and the ground terminal to J3-37.

(68) Set the pulse generator operating mode switch for manual trigger. Set pulse generator output for a pulse of -4.0 volts peak and a pulse width of 250 microseconds.

(69) Manually trigger the pulse generator. Observe that the LOGIC 1 lamp will flash each time the pulse generator is triggered.

(70) Move the output of the pulse generator J3-14. Observe that the LOGIC 2 lamp will flash each time the pulse generator is triggered.

(71) Move the output of the pulse generator to J3-15. Observe that the LOGIC 3 lamp will flash each time the pulse generator is triggered.

(72) Remove the pulse generator from the' bench test panel test board.

(73) Connect a jumper between the FLASH PULSE OUTPUT (TB9-5 on test board) and J3-10.

(74) Momentarily depress the PULSE INITIATE switch (on test board). Observe that the FLASH 1 lamp does not light.

(75) Move the jumper from J3-10 to J3-1. Momentarily depress PULSE INITIATE switch. Observe that, FLASH 1 lamp does not light.

(76) Connect a second jumper between J3-1 and J3-10. Momentarily depress PULSE INITIATE switch. Observe that the FLASH 1 lamp flashes each time the switch is actuated.

(77) Remove the jumper between J3-1 and J3-10.

(78) Move the first jumper so it now connects the FLASH PULSE output of the test board to J311. Momentarily depress PULSE INITIATE switch. Observe that FLASH 2 lamp does not light.

(79) Move the jumper from J3-11 to J3-3. Momentarily depress PULSE INITIATE switch. Observe that the FLASH 2 lamp does not-light.

(80) Connect the second jumper between J311 and J3-3. Momentarily depress PULSE INITIATE switch. Observe that the FLASH 2 lamp flashes each time the switch is actuated.

(81) Remove the jumper between J3-11 an/ J3-3.

(82) Move the first jumper so it now connects the FLASH PULSE output of the test board to J3-12. Momentarily depress PULSE INITIATE switch. Observe that the FLASH 3 lamp does not light.

(83) Move the jumper from J3-12 to J3-2. Momentarily depress PULSE INITIATE switch. Observe that the FLASH 3 lamp does not light.

(84) Connect the second jumper between J312 and J3-2. Momentarily depress PULSE INITIATE switch. Observe that the FLASH 3 lamp flashes each time the switch is actuated.

(85) Remove both jumpers from the bench test panel test board.

(86) Connect the output of the pulse generator to J3-19 and the ground lead to J3-37. Adjust the pulse generator to manually trigger a pulse of -5.0 + 0.5 volt peak and a pulse width of 30 + 3.0 milliseconds. Observe that the GATE CONT DISABLE lamp will flash each time the pulse generator is triggered.

(87) Disconnect the pulse generator from the bench test panel test board.

(88) Set MASTER switch to VOLTAGE CONTROL.

(89) Connect the multimeter positive lead to the + MULTR terminals and the negative lead J15-Y.

(90) Rotate the HV TEST control fully clockwise. Set VOLTAGE CONTROL TEST switch to HV LIMIT 1, HV LIMIT 2, and HV LIMIT 3. Observe that the multimeter indicates 25 + 1 vdc in each of these positions.

(91) Move the positive lead of the multimeter to J16-E. Observe that:

(a) The multimeter indicates 25 + 1 vdc when VOLTAGE CONTROL switch is set to IHV LIMIT 1;

(b) The multimeter indicates 16 + 1 vdc when VOLTAGE CONTROL switch is set to HV LIMIT 2 and HV LIMIT 3.

(92) Move the multimeter positive lead to J16F. Observe that:

(a) The multimeter indicates 25 + 1 vdc when the VOLTAGE CONTROL switch is set to HV LIMIT 2;

(b) The multimeter indicates 16 + 1 vdc when the VOLTAGE CONTROL switch is set to HV LIMIT 1 and HV LIMIT 3.

(93) Move the multimeter positive lead to J16-G. Observe that:

(a) The multimeter indicates 25 + 1 vdc when the VOLTAGE CONTROL switch is set to HV LIMIT 3;

(b) The multimeter indicates 16 t 1 vdc when the VOLTAGE CONTROL switch is set to HV LIMIT 1 and HV LIMIT 2.

(94) Set MASTER switch to LOGIC.

(95) Connect the multimeter positive lead to the + MULTR terminal.

(96) Rotate the E V/H control fully clockwise.

(97) Set LOGIC TEST switch to DELAY and then to OPERATE. Observe that:

(a) The multimeter reads approximately 47 vdc in each position;

(b) The INPUT PULSE lamp and the INPUT lamp in the LOGIC section flash simultaneously.

(98) Move the multimeter positive lead to J15-W. Observe that the multimeter indicates approximately 47 vdc.

(99) Disconnect the multimeter from the bench test panel test board.

(100) Rotate LOGIC TEST switch through all its positions. Observe that the INPUT PULSE lamp and the INPUT lamp in the LOGIC section will flash in all positions except SHIFT.

(101)Set LOGIC TEST switch to OPERATE. Connect a jumper to the following points and observe the following indications:

Jumper		*Indication*
From	To	
J15-P	J15-S	A lamp in LOGIC section lights.
J15-D	J15-S	B lamp in LOGIC section lights.
J15-R	J15-S	o1 lamp in LOGIC section lights.
J15-F	J15-S	i2 lamp in LOGIC section lights.

(102) Remove the jumper from the bench test panel test board.

(103) Connect one end of a 120 ohm resistor to J1-E. Connect the other end to J14-14.

(104) Connect the oscilloscope vertical lead to J14-14 and the ground lead to J15-Y. Observe that the oscilloscope displays a negative-going spike of approximately 5 volts-peak and 100-microseconds duration, measured at the 50-percent point, each time the INPUT PULSE lamp flashes.

(105) Remove the 120 ohm resistor from the bench test panel test board.

(106) Move the vertical lead to J15-L. Observe that:

(a) The oscilloscope displays a positive pulse of 27 + 3 volts peak with a duration of 140. 20 milliseconds.

(b) The INPUT PULSE lamp flashes.

(107) Move the vertical lead to CHAN A VERT terminal. Set LOGIC TEST switch to DELAY. Observe that the signal is the same as in step 106.

(108) Set LOGIC TEST switch to SHIFT.

(109) Connect the upper vertical oscilloscope lead to the CHAN A VERT terminal and the lower vertical oscilloscope lead to CHAN B VERT terminal. Connect the oscilloscope ground lead to J3-37. Adjust both oscilloscope channels for 5 volts/centimeter sensitivity. Position the upper trace two centimeters above the centerline on the oscilloscope screen and position the lower trace two centimeters below the centerline on the oscilloscope screen.

(110) Connect a jumper between TB9-3 (see fig. 2-1) and J15-N. Connect another jumper between TB9-4 and J15-C.

(111) Depress and hold the light cluster marked PRESS TO SHIFT. Observe that the upper trace moves down (toward centerline on the screen), approximately 1.2 ± 0.3 centimeter, while the lower trace moves up (toward centerline on the screen), approximately 1.2 0.3 centimeter. Release PRESS TO SHIFT light cluster.

(112) Remove the lower channel oscilloscope lead from the CHAN B terminal and position the trace so that it is off-screen. Move upper channel oscilloscope lead to J15-C and position the trace to the centerline of the oscilloscope screen,

(113) Rotate the LOGIC TEST switch through all its positions. Observe that the oscilloscope trace

will appear approximately 1.5 centimeters above the centerline in all positions except SHIFT.

(114) Remove the two jumper leads and the oscilloscope from the bench test panel test board.

(115) Set the LOGIC TEST switch to OUTPUT 1.

(116) Connect the oscilloscope to CHAN B VERT and GND terminals.

(117) Connect a jumper between J14-14 and J15-b. Observe that the oscilloscope displays a negative-going pulse of approximately 25 volts peak and pulse width of 125 microseconds measured at the 50 percent point each time the INPUT PULSE lamp, INPUT lamp (in LOGIC section) and 1 lamp (in LOGIC section) flash.

(118) Move the jumper lead from J15-b to J15c. Set LOGIC TEST switch to OUTPUT 2. Results should be identical to step 117, except that the 2 lamp will flash.

(119) Move the jumper lead from J15-c to J15-a. Set the LOGIC TEST switch to OUTPUT 3. Results should be identical to step 117 except that the 3 lamp will flash.

(120) Remove the jumper and the oscilloscope from the bench test panel test board.

(121) Adjust the multimeter to read dc volts, 2.5 volt scale. Connect the positive lead to J13inner shield. Connect the negative lead to J13-outer shield. Observe that the multimeter indicates 0.59 + 0.06 vdc.

(122) Remove multimeter from bench test panel test board.

(123) Set MASTER switch to SYSTEM.

(124) Connect the pulse generator to the bench test panel test board as shown in figure 2-1. Adjust the output of the pulse generator for a pulse of 50 volts peak, pulse width of 700 microseconds and a 1 pulse per second repetition rate. Observe that the LIGHT ENERGY meter indicates a sharp upswing followed by a very slow decrease in the reading.

(125) Connect the oscilloscope to the CHAN B VERT and GND terminals. Set SYSTEM TEST switch to MOD 1, MOD 2, and MOD 3. Observe that in each position the oscilloscope displays a -10 volt peak pulse with pulse width of 700 microseconds occurring each time the INPUT PULSE lamp flashes.

(126) Transfer clip lead of test board to J14-24 and oscilloscope leads to CIIAN , VERITY and GND.

(127) Set MASTER switch to MODULE. Set MODULE TEST switch to P/C. Observe that the LIGHT ENERGY meter indicates a sharp upswing each time a pulse is displayed on the oscilloscope.

(128) Remove the pulse generator and the oscilloscope from the bench test panel test board.

(129) Set MASTER switch to CONTROL PANEL. Observe that INPUT PULSE lamp flashes.

(130) Adjust multimeter to read dc volts 50 volt scale and connect to the following points and observe indications:

Positive Lead	*Negative Lead*	*Indication*
J17-B	J17-A	28 + 1 vdc
J17-C	J17-A	28 + 1 vdc
J17-D	J17-A	28 + 1 vdc

(131) Remove the multimeter from the bench test panel test board.

(132) Connect a jumper between J17-A and J17-E. Connect a second jumper between J17-B and J17-G. Observe that the CONTROL DC lamp lights and stays lit as long as the second jumper is connected.

(133) Move one end of the second jumper from J17-G to J17-F. Observe that the CONTROL AC lamp lights and stays lit as long as the jumper is connected.

(134) Remove both jumpers from the bench test panel test board.

(135) Set the MASTER switch to MODULE.. Set the MODULE TEST switch to K1 CLOSE.

(136) Connect a jumper between J14-8 and J14-11. Observe that: (a) The K1 CLOSE lamp lights; (b) The INPUT PULSE lamp flashes.

(137) Set the MODULE TEST switch to K1 OPEN. Observe that the K1 CLOSE lamp is still lit.

(138) Remove the jumper from J14-11.

(139) Remove the jumper from the bench test panel test board.

(140) Adjust the multimeter to read dc volts '50-volt range and connect the positive lead to J14-1 and the negative lead to J14-11.

(141) Set the MODULE TEST switch to DISCH RES. Observe that:

(a) The meter indicates 28 + 1 vdc.

(b) The K1 OPEN lamp extinguishes.

(142) Move the multimeter positive lead to J14-8. Connect a 1K resistor between J14-11 and J14-8.

(143) Set the MODULE TEST switch to CHARGE DIODES. Observe that the multimeter indicates 14 2 vdc.

(144) Remove the jumper, resistor, and multimeter from the bench test panel test board.

(145) Set the MODULE TEST switch to INTLK.

(146) Connect a jumper between J1-E and

J14-10. Observe that the MOD INTLK lamp lights and remains lit as long as the jumper is connected.

(147) Remove the jumper from the test board.

(148) Connect a jumper from FLASH PULSE OUTPUT TB9-5 to J14-13.

(149) Connect the oscilloscope to CHAN A VERT and GND terminals.

(150) Set the MODULE TEST switch to FLASH PULSE A. Momentarily depress the PULSE INITIATE switch (see fig. 2-1). Observe that the FLASH A lamp will flash each time the switch is depressed and the oscilloscope displays the trigger voltage.

(151) Move one end of the jumper from J1413 to J14-20.

(152) Set the MODULE TEST switch to FLASH PULSE B. Observe that the FLASH PULSE B lamp will light each time the switch is depressed and the oscilloscope displays the trigger voltage.

(153) Adjust the multimeter to read dc volts, 50-volt range. Connect the positive lead to J14-17 and the negative lead to J14-11.

(154) Rotate the MODULE TEST switch through all its positions. Observe that:

(a) The multimeter indicates 28 + 1 vdc in all positions except K1 OPEN and K1 CLOSE.

(b) In the K1 OPEN position the K1 OPEN lamp lights. Set the MODULE TEST switch to K1 CLOSE.

(155) Move the multimeter positive lead to J16-Z.

(156) Set the MASTER switch to VOLTAGE CONTROL. Observe that the multimeter indicates 28 + 1 vdc.

(157) Remove the multimeter from the test board.

(158) Connect a 1K resistor from CHAN B VERT terminal to CHAN B GND terminal.

(159) Connect the multimeter positive lead to the CHAN B VERT terminal and the negative lead to the CHAN B GND terminal.

(160) Set MASTER switch to LOGIC. Set LOGIC TEST switch to OUTPUT 1, OUTPUT and OUTPUT 3. In each position, observe that:

(a) The multimeter indicates 14 + 1 vdc.

(b) The corresponding 1. 2. and 3 lamps light.

(c) The INPUT PULSE and INPUT lamps flash.

(161) Remove jumper leads, resistor, and multimeter from the bench test panel test board.

(162) Set LOGIC TEST switch to OPERATE. Set SYSTEM TEST switch to SYNC.

(163) Connect a jumper between J1-E and -SHTRY SYNC terminal. Observe that the INPUT PULSE and INPUT lamp light.

(164) Remove all power from the test board.

2-5. Localizing Troubles, Test Panel

a. In the troubleshooting chart (c below), procedures are outlined for localizing troubles to the test panel. Additional troubleshooting procedures have been provided for troubleshooting the Input Pulse Generator A9, Lamp Driver with OR and AND Gate A10, A12, and A14; Lamp Driver with OR Gate All, A13 and A15; and Integrating Amplifier A16. Parts location are indicated on figures 3-1 through 3-15. Complete ac and dc power distribution is shown on figure 6-4, the overall 'bench test set schematic diagram and figure 6-19, the adapter schematic diagram. Voltage and resistance measurements are given in paragraph 4-4. Depending on the nature of the operational symptoms (TM 11-6760-232-12), one or more of the localizing procedures will be necessary.

b. Use of Chart. The troubleshooting chart supplements the operational checks given in TM 11-6760-232-12 and paragraph 2-4 and 2-7.1. When an abnormal symptom is observed during the operational check, look for a description of this symptom in the Symptom column and perform the corrective measure given in the Correction column. If no operational symptoms are known, begin with step 1 of the Operational check procedure of (para 2-4c or 2-7. 1c) and proceed until a trouble symptom occurs.

CAUTION

If operational symptoms are not known, or it they indicate the possibility of short circuits, make the resistance checks (para 4-2) before applying power.

c. Troubleshooting Chart.

Item No	*Symptom*	*Probable Cause*	*Correction*
1	All lamps do not light:		
	a. AC PWR lamp does not light	Defective bulb	Replace bulb.
		F1 open	Replace Fl.
		PWR switch contacts dirty or defective	Inspect contacts; clean or replace as necessary.
		FL1 defective	Replace F11.
		R1 open	Replace R1.
		Improper power connection from test board	Check test board for faulty or improper connections.
	b. DC PWR lamp does not light	Defective bulb	Replace bulb.
		F2 open	Replace F2.
		PWR switch contacts dirty or defective	Inspect contacts; clean or replace as necessary.
		Faulty ground connection	Tighten or reconnect as necessary.
		Improper power connection from test board	Check test board for correctness and reconnect if necessary.
	c. GATE CONT lamp does not light	Lamp defective	Replace lamp.
		CR9 defective	Replace CR9.
		Ground not applied to lamp	MASTER switch defective or contacts dirty; clean or replace as necessary.
	d. IV LIMIT FAIL lamp does not light	Lamp defective	Replace lamp.
		CR13 defective	Replace CR13.
	e. SYSTEM INTERLOCK lamp does not light.	Lamp defective	Replace lamp.
		CR14 defective	Replace CR16.
	f. ± 350 V DC lamp does not light	Lamp defective	Replace lamp.
		CR16 defective	Replace CR16.
	g. GATE CONT DISABLE lamp does not light.	Lamp defective	Replace lamp.
		CR17 defective	Replace CR17.
	h. ± GATE FAIL lamp does not light	Defective lamp	Replace lamp.
		CR7 defective	Replace CR7.
	i. -GATE FAIL lamp does not light	Defective bulb	Replace bulb.
		CR8 defective	Replace CR7.
	j. INPUT PULSE lamp does not light	Defective bulb	Replace bulb.
		MASTER switch contacts loose, dirty or defective	Inspect switch; tighten, clean or replace as necessary.
		CR19 defective	Replace CRl9.
	k. MODULE INTERLOCK lamp does not light.	Defective bulb	Replace bulb.
		CR39 defective	Replace CR39.
		CR36 defective	Replace CR36.
	l. FLASH 1, LOGIC 1, FLASH 2, LOGIC 2, FLASH 3 and LOGIC 3 lamps do not light.	CR24 defective	Replace CR24.
	m. FLASH 1 lamp does not light	Defective lamp	Replace lamp.
		ASCR1 defective	Replace A3CR1.
		CR22 defective	Replace CR22.

c. Troubleshooting Chart (cont.)

item No	*Symptom*	*Probable Cause*	*Correction*
n.	LOGIC 1 lamp does not light	Defective lamp	Replace lamp.
		A3CR3 defective	Replace A3CR3.
		CR23 defective	Replace CR23.
o.	FLASH 2 lamp does not light	Defective lamp	Replace lamp.
		A4CR1 defective	Replace A4CR1.
		CR25 defective	Replace CR25.
p.	LOGIC 2 lamp does not light	Defective lamp	Replace lamp.
		A4CR3 defective	Replace A4CR3.
		CR26 defective	Replace CR26.
q.	FLASH 3 lamp does not light	Defective lamp	Replace lamp.
		A5CR1 defective	Replace A5CR1.
		CR27 defective	Replace CR27.
r.	LOGIC 3 lamp does not light	Defective lamp	Replace lamp.
		A5CR3 defective	Replace A5CR3.
		CR28 defective	Replace CR28.
s.	K1 CLOSE lamp does not light,	Defective lamp	Replace lamp.
		CR38 defective	Replace CR38.
		CR37 defective	Replace CR37.
t.	K1 OPEN lamp does not light	Defective lamp	Replace lamp.
		CR39 defective	Replace CR39.
		CR40 defective	Replace CR40.
u.	FLASH A and FLASH B lamps do not light.	CR30 defective	Replace CR30.
v.	FLASH A lamp does not light	Defective lamp	Replace lamp.
		A3CR2 defective	Replace A3CR2.
w.	FLASH B lamp does not light	Defective lamp	Replace lamp.
		A4CR2 defective	Replace A4CR2.
x.	1, 2, and 3 lamps do not light	CR30 defective	Replace CR30.
y.	1 lamp does not light	Defective lamp	Replace lamp.
		A3CR4 defective	Replace A3CR4.
z.	2 lamp does not light	Defective lamp	Replace lamp.
		A4CR4 defective	Replace A4CR4.
aa.	3 lamp does not light	Defective bulb	Replace bulb.
		A5CR4 defective	Replace A5CR4.
ab.	INPUT lamp does not light	Defective bulb	Replace bulb.
		CR31 defective	Replace CR31.
ac.	CONTROL PANEL DC and CONTROLL PANEL AC lamps do not light.	CR67 defective	Replace CR67.
ad.	CONTROL PANEL DC lamp does not light.	Defective bulbs	Replace bulbs.
		CR32 defective	Replace CR32.
ae.	CONTROL PANEL AC lamp does not light.	Defective lamp	Replace lamp.
		CR33 defective	Replace CR33.
af.	A, B, Q1 and Q2 lamps do not light	CR41 defective	Replace CR41.
ag.	A lamp does not light	Defective lamp	Replace lamp.
		CR42 defective	Replace CR42.

c. Troubleshooting Chart (cont.)

Item No		*Symptom*	*Probable Cause*	*Correction*
	ah	B lamp does 'not light	Defective lamp,	Replace bulb.
			CR43 defective	Replace CR43.
	al	Q1 lamp does not light	Defective lamp	Replace bulb.
			CR44 defective	Replace CR44.
	aj	Q2 lamp does not light	Defective lamp	Replace bulb.
			CR45 defective	Replace CR45.
2	a	INPUT PULSE, LOGIC 1, FLASH 1, LOGIC 2, FLASH 2, LOGIC 3 and FLASH 3 lamps do not flash.	Input pulse generator defective	Check input pulse generator.
	b.	INPUT PULSE lamp does not flash	CR20 defective	Replace CR20.
			R72 defective	Replace R72.
			C14 defective	Replace C14.
			Q22 defective	Replace Q22.
	c	INPUT PULSE lamp flashes but FLASH 1, LOGIC 1, FLASH 2, LOGIC 2, FLASH 3, and LOGIC 3 lamps do not flash.	Lamp drivers test relay K3 defective, or points dirty	Inspect, clean, or replace as necessary.
			CR21 defective	Replace CR21.
	d	FLASH 1, OR LOGIC 1, OR FLASH 2, OR LOGIC 2, OR FLASH 3, OR LOGIC 3 lamp does not flash.	Defective lamp driver associated with lamp.	Check associated circuit.
3	a	FLASH 1, LOGIC 1, FLASH 2, LOGIC 2, FLASH 3, and LOGIC 3 lamps continue to flash.	Master switch, deck E, position 8 and 9 shorted.	Repair or replace as necessary.
	b	LIGHT ENERGY meter does not indicate 8.0 $\pm$0.2 light energy units	LIGHT ENERGY METER not calibrated	Refer to para 3-7 for calibration procedure.
		Integrating amplifier not calibrated		Refer to para 3-6 for calibration procedure.
			LIGHT ENERGY METER defective	Replace LIGHT ENERGY meter.
	c	INPUT PULSE lamp does not flash at lpps rate	MASTER switch, deck E position 8 not making contact with rotor.	Inspect and repair as necessary.
4		LIGHT ENERGY METER does not drop to 0 light energy units when RESET switch is depressed.	Defective RESET switch	Replace switch.
5		Oscilloscope does not indicate a negative-going pulse of 12 volts measured at the 50% point	Poor connection from wiper to contact on MASTER switch, deck B, position 8.	Inspect and adjust if necessary.
6	a	Multimeter does not indicate 47 $\pm$ 1.5 vdc.	CR5 defective	Replace CR5.
			Poor wiper to contact connection at position 7 deck H, Master switch	Inspect, clean, or tighten as necessary.
	b	Oscilloscope indicates a ripple voltage greater than 200 mv pp point.	C1 defective at 50%	Replace C1.
7	a	Multimeter does not indicate $\pm$ vdc.	30 CR6 defective	Replace CR6.
			Poor wiper to contact connection, MASTER switch, deck H, position 6.	Inspect, clean, and tighten as necessary.
	b	Oscilloscope indicates a ripple voltage, greater than 50 mv pp.	Q1 defective	Replace Q1.

c. Troubleshooting Chart (cont.)

Item No	*Symptom*	*Probable Cause*	*Correction*
8	Multimeter does not indicate a smooth rise in voltage to approximate 47 vdc.	R6 defective	Replace R6.
9	Multimeter indicates ± 28 ± 1 vdc in a position other than OPR MODE	SYSTEM TEST switch 'deck G, wired incorrectly.	Inspect and reconnect as necessary.
10	Oscilloscope does not display a pulse of ± 30 ± 3 volts with a duration of 140 ± 20 msec.	C13 defective	Replace C13.
11	Multimeter does not indicate ± vdc	28 ± 1 Open wire from J2-B to MASTER switch, decks E and F.	Reconnect wire.
12	Multimeter indicates ± 28 ± 1 vdc in a position other than SYSTEM	MASTER switch, deck F or G wired incorrectly.	Inspect and reconnect as necessary.
13	Multimeter does not indicate 115 ±10 vac	MASTER switch, deck I, wired incorrectly or position 5 defective	Inspect, clean, tighten, or replace as necessary.
14	Multimeter indicates ± 28 ±: 1 vdc in a position other than SYSTEM	SYSTEM TEST switch, deck E, wired incorrectly.	
15	The INPUT PULSE lamp does not flash once each 1.25 seconds	MASTER switch, deck F, wired incorrectly or wire loose.	Inspect and reconnect as necessary.
16	a INPUT PULSE lamp flashes in the HV LIMIT position.	CR63 defective	Replace CR63.
	b INPUT PULSE lamp flashes in PH A, PH B or PH C position	MASTER switch, deck F, wired incorrectly or wire loose.	Inspect and reconnect as necessary.
17	INPUT PULSE lamp does not flash each time the MANUAL switch is de-pressed.	MANUAL switch defective	Replace switch.
	a Multimeter does not indicate ±28 ± 1 vdc in SYNC position	Open wire from ± SHTR SYNC terminal to position 1, deck E, of SYSTEM TEST switch.	Reconnect wire.
	b Multimeter indicates 28 ± a position other than SYNC	1 vdc in MASTER switch, deck E, wired incorrectly.	Inspect and reconnect as necessary.
|18	a Multimeter does not indicate 7-10 vdc.	A11CR2 defective	Replace A11CR2.
	b LOGIC 1 lamp does not flash	AllCR5 defective	Replace A11CRS.
19	Multimeter does not indicate 28± vdc in MOD 2 or MOD 3 position of SYSTEM TEST switch.	1 CR49 (MOD 2 position) or CR47 (MOD 3 position) defective.	Replace defective component.
20	a Same as 18a above	A13CR2 defective	Replace A13CR2.
	b LOGIC 2 lamp does not light	A13CR5 defective	Replace A13CR5.
21	Multimeter does not indicate 28±1 vdc in MOD 1 or MOD 3 position	CR51 (MOD 1 position) or CR48 (MOD 3 position) defective.	Replace defective component.
22	a Same as 18a above	a A15CR2 defective	a Replace A15CR2.
	b Logic 3 lamp does not flash	b A15CR5 defective	b Replace A15CR5.

c. Troubleshooting Chart (cont.)

item No		*Symptom*	*Probable Cause*	*Correction*
23		Multimeter does not indicate ±28 ±1 vdc in MOD 1 or MOD 2 position	CR52 (MOD 1 position) or CR50 (MOD 2 position) defective.	Replace defective component.
24		GATE CONTROL lamp does not flash	Lamp driver circuit Q2, Q3 defective.	Replace defective component.
25		± GATE FAIL and --GATE FAIL lamps do not light.	Relay K1 defective	Replace relay K1.
26	a	Oscilloscope does not indicate 324 volt signal	SYSTEM TEST switch deck B, wired incorrectly or position 7 open.	Inspect; clean, tighten, reconnect as necessary.
27	b	± GATE FAIL or -GATE FAIL lamps do not light	CR57 (± GATE FAIL lamp) or CR58 (-GATE FAIL lamp) defective.	Replace defective component.
28	a	Same as 21a above open or contacts dirty	SYSTEM TEST switch position 8 as necessary.	Inspect; clean, adjust or replace
	b	Same as 21b above	CR59 (± GATE FAIL lamp or CR60 (-GATE FAIL lamp) defective.	Replace defective component.
29	a	Same as 21a above	SYSTEM TEST switch position 9, open or contacts dirty	Inspect; clean, adjust or replace as necessary.
	b	Same as 21b above	CR61(±GATE FAIL lamp) or CR62 (-GATE FAIL lamp) defective.	Replace defective component.
30		± 350 VDC lamp does not light	(1.) Neon lamp defective (2.) Lamp driver Q7 defective (3.) Voltage doubler defective	(1.) Replace neon lamp. (2.) Replace defective component. (3.) Replace defective component.
31	a	HV LIMIT lamp does not light	1 Relay K2 defective or points dirty 2 Q4 lamp driver circuit defective 3 CR54 defective	Inspect; clean, or replace as necessary. Replace defective component in lamp driver circuit. Replace CR54.
	b	Meter does not indicate 13.5 ±1 vdc	Q4 lamp driver circuit defective	Replace defective component in lamp driver circuit.
32		HV LIMIT lamp goes out	1 RESET switch defective 2 K2 relay points defective	Replace switch. Inspect; clean, or replace as necessary.
33		HV LIMIT lamp does not light	CR55 defective	Replace CR55.
34		Same as 33 above	CR 56 defective	Replace CR56.
35		INTERLOCK lamp does not light	Lamp driver circuit Q5, Q6 defective.	Replace faulty component.
36		LOGIC 1 lamp does not flash each time the pulse generator is triggered	A11CR2 defective MASTER switch, deck E, position 5 dirty contacts or open	Replace AllCR2. Inspect; clean, reconnect, or replace as necessary.
37		LOGIC 2 lamp does not flash each time the pulse generator is triggered.	A13CR2 defective	Replace A13CR2.

c. Troubleshooting Chart (cont.)

Item No		*Symptom*	*Probable Cause*	*Correction*
38		LOGIC 3 lamp does not flash each time the pulse generator is triggered.	A15CR2 defective	Replace A15CR2.
39		FLASH 1 lamp flashes	A1OCR2 defective	Replace A1OCR2.
40		Flash 1 lamp flashes	A1OCR3 defective	Replace A1OCR2.
41		Flash 1 lamp does not flash	A1OCR6 defective	Replace A1OCR6.
42		FLASH 2 lamp flashes	A12CR2 defective	Replace A12CR2.
43		FLASH 2 lamp flashes	A12CR3 defective	Replace A12CR3.
44		FLASH 2 lamp does not flash	A12CR6 defective	Replace A12CR3.
45		FLASH 3 lamp flashes	A14CR2 defective	Replace A14CR2.
46		FLASH 3 lamp flashes	A14CR3 defective	Replace A14CR3.
47		FLASH 3 lamp does not flash	A14CR6 defective	Replace A14CR6.
48		GATE CONT DISABLE lamp does not flash each time the pulse generator is triggered.	Lamp driver assembly Q8, Q9 defective.	Replace defective component.
49		Multimeter does not indicate $\pm$ vdc in HV LIMIT 1, or HV LIMIT 2 or HV LIMIT 3.	25 $\pm$ 1 Potentiometer R9 defective R8 defective VOLTAGE CONTROL TEST switch, deck B, defective or wired incorrectly.	Replace R9. Replace RS. Inspect, repair, or replace as necessary.
50	a	Multimeter does not indicate $\pm$ 35 $\pm$ 1.	Open wire to J16-E	Reconnect open wire.
	b	Multimeter does not indicate $\pm$ 16 $\pm$ 1 vdc in HV LIMIT 2 or HV LIMIT 3.	VOLTAGE CONTROL TEST switch, deck E, defective. Voltage divider networks R3'3, R35 defective. Loose or open ground connection	Repair or replace as necessary. Replace defective component. Reconnect or tighten ground connect.
51	a	Same as 50a above	Open wire to J16-F	Reconnect wire.
	b	Multimeter does not indicate $\pm$16 $\pm$ 1 vdc in HV LIMIT 1 or HV LIMIT 3.	VOLTAGE CONTROL TEST switch, deck E, defective	Inspect, repair, or replace as necessary.
52	a	Same as 50a above	Open wire to J16-G	Reconnect wire.
	b	Multimeter does not indicate $\pm$ 16 $\pm$ 1 vdc in HV LIMIT 1 or HV LIMIT 2.	VOLTAGE CONTROL TEST switch, deck E, defective	Inspect, repair, or replace as necessary.
53	a	Multimeter does not indicate approximately 47 vdc	LOGIC TEST switch, deck A, wired incorrectly.	Rewire as necessary.
	b	INPUT lamp in LOGIC section does not flash.	CR46 defective MASTER switch, deck E, position 1 defective	Replace CR46. Inspect, clean, repair, tighten, or replace as necessary.

c. Troubleshooting Chart (cont.)

Item No		*Symptom*	*Probable Cause*	*Correction*
54		Multimeter does not indicate approximately 47 vdc.	Open wire to J15-W	Reconnect wire.
55		INPUT PULSE and INPUT lamps flash in SHIFT position of LOGIC TEST switch.	CR66 defective	Replace CR66.
56	a	A lamp does not light	Lamp driver Q11, Q12 defective	Replace defective component.
	b	B lamp does not light	Lamp driver Q13, Q14 defective	Replace defective component.
	c	QB lamp does not light	Lamp driver Q15, Q16 defective	Replace defective component.
	d	Q2 lamp does not light	Lamp driver Q17, Q18 defective	Replace defective component.
57		Oscilloscope does not display a negative-going spike of approximately 5 volts and 100 msec duration.	Q21 circuit defective	Replace defective component.
58		Oscilloscope does not display a positive pulse of 27 $\pm$ 3 volts, 140 $\pm$ 20 msec duration.	C13 defective	Replace C13.
59		Same as 58 above	LOGIC TEST switch, deck B, defective	Inspect, clean, rewire, tighten or replace as necessary.
60	a	Upper oscilloscope trace does not move down.	Q20 circuitry defective	Replace defective component.
	b	Lower oscilloscope trace does not move up.	Q19 circuitry defective	Replace defective component.
61		Oscilloscope trace does not move when in SHIFT position of LOGIC TEST switch.	LOGIC TEST switch, deck C, defective	Inspect, clean, tighten, or replace as necessary.
62		Oscilloscope does not indicate a negative-going pulse of approximately 25 volts and pulse width of 125 msec when LOGIC TEST switch set to OUTPUT 1.	LOGIC TEST switch, deck D, defective	Inspect, clean, tighten or replace as necessary.
63		Same as 62 above with LOGIC TEST switch set to OUTPUT 2.	Same as 62 above	Same as 62 above.
64		Same as 62 above with LOGIC TEST switch set to OUTPUT 3.	Same as 62 above	Same as 62 above.
65		Multimeter does not indicate 0.59 $\pm$ 0.06 vdc.	R62 defective	Replace R62.
			R63 defective	Replace R6$.
			R63 not connected to signal ground	Reconnect R63 to signal ground.
66		LIGHT ENERGY meter does not indicate a sharp upswing and a slow decrease.	MASTER switch, deck A, defective	Inspect, clean, tighten, adjust, repair, or replace as necessary.
67		Oscilloscope does not indicate a -10-volt pulse with a duration of 700 msec each time the INPUT PULSE lamp flashes	SYSTEM TEST switch, deck C, defective	Inspect, clean, tighten, adjust, repair, or replace as necessary.
			MASTER switch, deck C, defective	Inspect, clean, tighten, adjust, repair or replace as necessary.

c. Troubleshooting Chart (cont.)

Item No		*Symptom*	*Probable Cause*	*Correction*
68	a	LIGHT ENERGY meter does not indicate a sharp upswing	MASTER switch, deck A, defective	Inspect, clean, tighten, adjust, or replace as necessary.
	b	No pulse displayed on the oscilloscope	MODULE TEST switch, deck A, defective	Inspect, clean, tighten, adjust, repair, or replace as necessary.
			MASTER switch, deck B, defective	Inspect, clean, tighten, adjust, repair, or replace as necessary.
69	a	Multimeter does not indicate ±28 ± 1 vdc.	a Open wire to J17-B	Reconnect wire.
	b	Same as a above	b Open wire to J17-C	Reconnect wire.
	c	Same as a above	c Open wire to J17-D	Reconnect wire.
70		CONTROL DC lamp does not light	Open wire to J17-G	Reconnect wire.
71		CONTROL AC lamp does not light	Open wire to J17-F	Reconnect wire.
72	a	K1 lamp does not light	a (1) MODULE TEST switch, deck B, defective	Inspect, clean, tighten, adjust, or replace as necessary.
			(2) Open wire to J14-8	Reconnect wire.
			(3) Open wire to J14-11	Reconnect wire.
	b	INPUT PULSE lamp does not flash	b MODULE TEST switch, deck D, wired incorrectly.	Inspect and reconnect as necessary.
73		K1 CLOSE lamp goes out MODULE	TEST switch, deck B, wired incorrectly.	Rewire as necessary.
74		K1 OPEN lamp does not light	Q10 circuitry defective	Replace defective component.
75	a	Multimeter does not indicate 28 ± 1 vdc	MODULE TEST switch, deck B, wired incorrectly.	Rewire as necessary.
	b	K1 OPEN lamp does not extinguish	MODULE TEST switch, deck C wired incorrectly.	Rewire as necessary.
76		Multimeter does not indicate 14 ± 2 vdc.	R52 defective	Replace R52.
77		MOD INTLK lamp does not light	MODULE TEST switch, deck D, defective	Inspect, clean, tighten, adjust, or replace as necessary.
		Open wire to J14-10	Reconnect wire.	
78	a	FLASH A lamp does not flash	A1OCR1 defective	Replace A1OCR1.
	b	Oscilloscope does not display trigger voltage	MODULE TEST switch, deck A, defective	Inspect, clean, tighten, adjust, or replace as necessary.
79	a	FLASH B lamp does not flash	A12CR1 defective	Replace A12CR1.
	b	Oscilloscope does not display trigger voltage	MODULE TEST switch, deck A, defective	Inspect, clean, tighten, adjust, or replace as necessary.
80		Multimeter does not indicate ±28 ±1 vdc in all positions, except K1 OPEN and K1 CLOSE.	MODULE TEST switch, deck C, wired incorrectly.	Reconnect as necessary.
81		Multimeter does not indicate ±28 ± 1 vdc	MASTER switch, decks F and G, defective	Inspect, clean, tighten, adjust, or replace as necessary.
			Open wire to J16-Z	Reconnect wire.

c. Troubleshooting Chart (cont.)

item No		Symptom	Probable Cause	Correction
82	a	Multimeter does not indicate +14 ± 2 vdc when LOGIC TEST switch in OUTPUT 1, OUTPUT 2, or OUTPUT 3 position.	R56, R55 or R54 defective or improperly wired	Inspect, reconnect, or replace as necessary.
	b	Corresponding 1, 2, or 3 lamps do not light	Open wire to pin 1 of the lamp driver with OR gate.	Reconnect wire.
83		INPUT PULSE and INPUT lamps do not light,	Open wire from -SHTR SYNC terminals to C13.	Reconnect wire.

2-6. General Operational Check of Power Limiter and Blower

a. Test Equipment Required. The following test equipment is required to perform a general operational check of the Power Limiter and Blower:

(1) Ammeter, 0 to 10 ampere, Simpson Model 270. The ammeter is required to make current measurements.

(2) Multimeter Simpson Model 260. The multimeter is required to make current measurements.

(3) Resistor, 8-ohm, 5-percent, 400 watt.

(4) Test cables as shown in figure 2-2.

b. Operational Check Setup.

(1) Set POWER circuit breaker to OFF.

(2) Set BLOWER circuit breaker to OFF.

(3) Connect the power limiter and blower as shown in figure 2-2.

c. Operational Check Procedure.

(1) Set the POWER circuit breaker to ON. Observe that:

(a) The three power indicators light.

(b) The blower starts and blows air out of the EXHAUST opening in the panel. Set the POWER circuit breaker to OFF.

(2) Set the BLC)WER circuit breaker to ON. Observe that the blower starts and blows air out of the EXHAUST opening in the panel. Set the BLOWER circuit breaker to OFF.

CAUTION

During the following tests do not leave the POWER circuit breaker on for more than 15 seconds. Do not turn POWER circuit breaker on more than once a minute.

(3) Connect ammeter and 8-ohm resistor in series between J2-1 and J2-4.

(4) Connect multimeter (250 ac volt scale) between J1-A and J1-D.

NOTE

For the following procedure, the readings on the volt-meter are used as a reference to determine the upper and lower limits of the current according to the following formula

$\frac{E_1}{16}$ -1 = lower

$\frac{E_1}{16}$ +1 = upper limit.

where E = the reading on the multimeter

Example: If the multimeter reading was 115 vac, then the current limits would be:

$\frac{115}{16} = 7.18$

7.18 - 1 = 6.18 amps, or lower limits
7.18 +1 = 8.18 amps, or upper limits

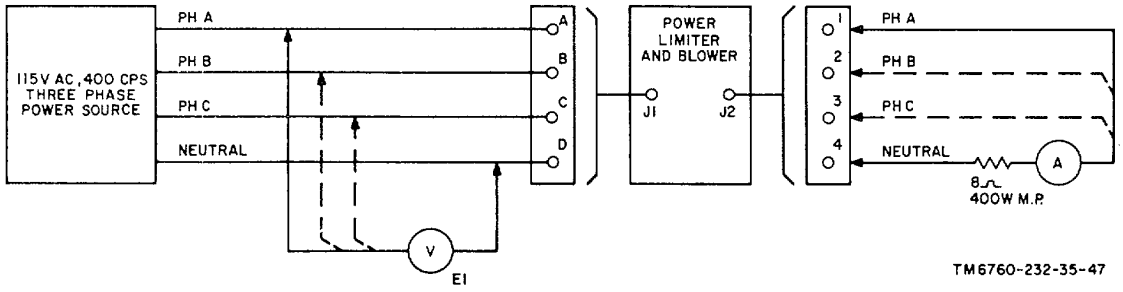


Figure 2-2. Power limiter and blower, test setup.

(5) Set the POWER circuit breaker to ON. Observe and record the multimeter and ammeter readings. Set the POWER circuit breaker to OFF. The current must be within the limits computed by the above formula.

(6) Move the multimeter lead from J1-A to J1-B. Move the ammeter lead from J2-1 to J2-2. Perform the procedure in (5) above.

(7) Move the multimeter lead from J1-B to J1-C. Move the ammeter lead from J2-2 to J2-3. Perform the procedure in (5) above.

(8) Disconnect the test setup.

2-7. Localizing Troubles, Blower Assembly

a. In the troubleshooting chart (c below), procedures are outlined for localizing troubles to the blower assembly. Parts location are indicated on figures 3-2 through 3-13. Complete ac and dc power distribution is shown on figure 6-4. Voltage and resistance measurements are given in paragraph 4-2. Depending on the nature of the operational symptoms (TM 11-6760-232-12) one or more of the localizing procedures will be necessary.

b. Use of Chart. The troubleshooting chart supplements the operational checks given in TM 116760-232-12 and paragraph 2-6. When an abnormal symptom is observed during the operational check, look for a description of this symptom in the Symptom column and perform the corrective measure given in the Correction column. If no operational symptoms are known, begin with step 1 of the operational check procedure of (para 2-6c) and proceed until a trouble symptom occurs.

CAUTION

If operational symptoms are not known, or if they indicate the possibility of short circuits, make the resistance checks of paragraph 4-2 before applying power.

c. Troubleshooting Chart

Item No		*Symptom*	*Probable Cause*	*Correction*
1	a	Three POWER indicators do not light	Defective neon	Replace neon.
			Defective POWER switch	Replace POWER switch.
			Defective FL	Replace FL
			Defective thermal switch	Replace thermal switch.
	b	Blower does not start	Relay K1 contacts dirty	Clean contacts
			Relay K1 defective	Replace relay
			Open blower motor winding	Replace blower motor.
2		Blower does not start	BLOWER switch defective	Replace BLOWER switch.
			Thermal switch defective	Replace thermal switch.
3		Current not within limits	External resistor changed value	Replace external resistor.
			One of the resistors from R4 R11 changed value.	to Replace resistor.
6		Same as 5 above	Same as 5 above (resistors 12-19)	Replace resistor.
7		Same as 5 above	Same as 5 above (resistors 20-27)	Replace resistor.

2-7.1 General Operational Check of Adapter

a. Test Equipment Required.

(1) Multimeter, Simpson Model 260. The multimeter is required to make current measurements.

(2) Oscilloscope, Tektronix Type 502A. The oscilloscope is required to make rate interval measurements.

(3) Jumper clip lead, 24 inches long.

b. Operational Check Setup (fig. 2-1).

(1) Set POWER switch on test panel to OFF.

(2) Set VOLTAGE CONTROL TEST switch on test panel to PH A (+GATE CONT).

(3) Set HV TEST control on test panel fully counterclockwise.

(4) Set MASTER SWITCH on test panel to SYSTEM.

(5) Set E V/H control on test panel fully counterclockwise.

(6) Set SYSTEM TEST switch on test panel to OPR MODE.

(7) Set MODULE TEST switch on test panel to K1 CLOSE.

(8) Set LOGIC TEST switch on test panel to OPERATE.

(9) Set INPUT PULSE switch on test panel to KA30.

(10) Set PULSE RATE switch on adapter to NORM.

(11) Set VOLTAGE switch on adapter to 12V.

(12) Set READY/INTLK switch on adapter to OFF.

(13) Connect the test board to the test panel and adapter as shown in figure 2-1.

c. Operational Check Procedure.

NOTE

All the components are on the adapter unless otherwise noted.

(1) Set POWER switch on test panel to ON. Observe that AC and DC lamps in POWER section. light. Observe that INPUT PULSE lamp on test panel lights once every 3.75 seconds. Observe on adapter that the READY INTLK lamp lights and that the CAMR PULSE lamp lights each time the INPUT PULSE lamp on the test panel lights.

(2) Connect clip lead to CAMERA PULSE + terminal and the FLASH PULSE + terminal. Observe that the FLASH PULSE lamp lights each time the CAMERA PULSE lamp lights.

(3) Remove clip lead and connect it to pins 17 and 18 of connector J1. Observe that both CAMERA PULSE and FLASH PULSE lamps light.

(4) Remove clip lead and connect it to pins 21 and 22 of connector J1. Set the INPUT PULSE switch on the test panel to KA-76. Observe that both CAMERA PULSE and FLASH PULSE lamps light.

(5) Remove clip lead and connect it to pin 8 of connector P1 and pin 21 of connector J1. Observe that both CAMERA PULSE and FLASH PULSE lamps light.

(6) Remove clip lead and connect it to pin 9 of connector P1 and pin 17 of connector J1. Set INPUT PULSE switch on test panel to KA-30. Observe that both CAMERA PULSE and FLASH PULSE lamps light.

(7) Remove clip lead and connect it to pins 3 and 4 of connector J1. Set the READY/INTLK switch to READY. Observe that the READY/INTLK lamp extinguishes. Return READY/INTLK switch to OFF.

(8) Remove clip lead and connect it to pin 4 of connector J1 and terminal K of TB1 on bench test board. Set the READY/ INTLK switch to the READY position. Observe that READY/INTLK lamp extinguishes.

(9) Remove clip lead and connect it to pins 8 and 10 of connector J1. Set the READY/INTLK switch to K1 and observe that the K1 RELAY lights and remains lit while READY/INTLK switch is in the K1 position.

(10) Remove clip lead and connect it to pin 8 of connector J1 and pin 2 of connector P1. Set the READY/INTLK switch to K1 and observe that the K1 lamp lights and remains lit while the READY/INTLK switch is in the K1 position.

(11) Remove clip lead and connect it to pins 3 and 4 of connector J1. Set READY/INTLK switch to READY. Set TEST switch in SYSTEM section on test panel to GATE PH A. Connect oscilloscope leads to CAMERA PULSE + terminal and CAMERA PULSE terminal. Set PULSE RATE switch to KA30 A and observe on the oscilloscope a +28-volt do pulse rate of 1 PPS (pulse interval of 1, 000 * 100 ms). Set PULSE RATE switch to KA76 A and observe an identical oscilloscope indication. Observe that CAMERA PULSE lamp lights for every camera pulse generated.

(12) Set PULSE RATE switch to KA30 B and observe on the oscilloscope a +28-volt do pulse rate of 2.5 PPS (pulse interval of 400 * 40 ms). Set PULSE RATE switch to KA76 B and observe an identical pulse rate. Observe that CAMERA PULSE lamp lights for every camera pulse generated.

(13) Set PULSE RATE switch to KA30 C and observe on the oscilloscope a +28-volt do pulse rate of 3.5 PPS (pulse interval of 285 -h 30 ms). Set PULSE RATE switch to KA76 C and observe an identical pulse rate.

Observe that CAMERA PULSE lamp lights or every camera pulse generated.

(14) Set PULSE RATE switch to KA30 D and observe on the oscilloscope a +28-volt de pulse rate of 6.0 PPS (pulse interval of 166 * 17 ms). Set PULSE TATE switch to KA76 D and observe an identical pulse rate. Observe that CAMERA PULSE lamp lights for every camera pulse generated.

(15) Set PULSE RATE switch to NORM. Remove clip lead and connect to pins 24 and 25 of connector J1. Disconnect oscilloscope from CAMERA PULSE + and CAMERA PULSE terminals. Set multimeter range controls to 50V and + DC and connect multimeter to VOLTAGE + and VOLTAGE terminals observing polarity of leads. Set VOLTAGE switch to E V/H MOD. Set SYSTEM TEST switch on test panel to OPR MODE. Observe the multimeter while adjusting the E V/H control on the test panel from 0 to 30. Note that as the E V/H control on the test panel indicates 30 the multimeter indicates 27 volts dc.

(16) Disconnect multimeter and clip lead from adapter terminals.

(17) Set controls on test panel and adapter as instructed in paragraph 2-7. lb.

(18) Disconnect operational check setup.

2-7.2. Localizing Troubles, Adapter

a. In the troubleshooting chart (c below) procedures are outlined for localizing toubles to the adapter. Parts locations are indicated on figure 3-14. Complete ac and dc power distribution is shown on figure 6-19. Voltage measurements are given in paragraph 4-4.

b. Use of Chart. The troubleshooting chart supplements the operational checks given in TM 11-6760-232-12 and paragraph 2-7.1. When an abnormal symptom is observed during the operational check, look for a description of this symptom in the symptom column and perform the corrective measure in the correction column.

CAUTION

If operation symptoms are not known, or if they indicate the possibility of a short circuit, make the resistance check of paragraph 4-4 before applying power.

c. Troubleshooting Chart

Item No	Sympton	Probable cause	Correction
1	CAMERA PULSE indicator does not light	a Lamp defective	a Replace defective lamp.
		b A3Q5,A3Q8 or AlA1 defective	b Replace defective component.
		c A3CR6,A3CR7, or A3CR8 are defective	c Replace defective component.
2	FLASH PULSE indicator	a Lamp defective does not light	a Replace defective a lamp.
		b A3Q6, A3Q9 or A3A2 defective	b Replace defective component.
		c A3CR9,A3CR1O,A3CR11 or A3CR12 are defective.	c Replace defective component

c*	**********	*****		**	******* ***********s*
3	READY INTLK indicator does not light	a	Lamp defective	a	Replace defective lamp.
		b	A3Q1 or A3Q2 defective	b	Replace defective component.
		c	A3CR1 or A3CR2 are defective	c	Replace defective component.
4	K1 RE LAY indicator	a	Lamp defective does not light	a	Replace defective lamp.
		b	A3Q3 defective	b	Replace defective component.
		c	A3CR3 or A3CR4 are defective	c	Replace defective component.
5	Pulse generator has no output	a	A3A3 or A3Q7 is defective	a	Replace defective component.
		b	A3CR16 Zener diode is defective	b	Replace defective component.
		c	PULSE RATE S5 switch is defective	c	Replace defective switch.
		d	A3CR13 or A3CR14 are defective	d	Replace defective component.

2-8. Additional Troubleshooting Procedures

a. *General*. The troubleshooting procedures given in c through f below are intended to be general. This allows the technician to troubleshoot the symptom rather than performing a step-by-step Procedural analysis.

b. *Test Equipment*. An oscilloscope is the only test equipment required.

c. *Troubleshooting Lamp Driver with OR Gate*.

(1) *Applied potentials*. When power is applied to the bench test set, the following potentials are available: + 28 volts dc at pin 5; + 24 volts dc at pin 6; and ground at pin 8. When the MASTER switch is in the SYSTEM position, ground is also applied at pin 3. The output is pin 7.

(2) *Circuit operation.* A negative voltage shift is applied to the base of Q1 (voltage drops to a value less than the steady state value) which allows Q1 to conduct. The emitter potential (+ 24 volts dc) is applied to the voltage divider R6-R7. This positive voltage is then applied to CR7, allowing it to conduct. CR7 applies ground potential to the output and to the emitter and base 1 lead of Q2. The emitter of Q2 starts charging to the peak point 'some positive voltage). When this voltage is cached, Q2 conducts and the base 1 potential is applied to the emitter lead. The emitter drops from the peak point voltage to ground and this negative shift is coupled through C1 to the anode CR7, cutting it off.

(3) *Checkout*. Checkout can be accomplished as follows:

(a) Applying ground pin 1, 2, or 4 should result in a negative voltage swing at the base of Q1. If this voltage swing is not present, the input diodes are defective.

(b) A positive voltage should be seen at the voltage divider network each time any input is grounded. If this voltage is not present, Q1 is defective.

(c) Ground should be present at pin 7 each time any input is grounded. If ground is not present, CR7 is defective.

(d) A defective Q2 or C1 will not allow the lamp associated with the lamp driver to turn off.

d. Troubleshooting Lamp Driver with OR and AND Gate.

(1) Applied potentials. When power is applied to the bench test set, the following potentials are applied: + 26 volts dc at pin 5; + 24 volts dc at pin 6; and ground at pin 8. The output is pin 7.

(2) Circuit operation. The circuit operation of the lamp driver with OR and AND gate is identical with the circuit operation of lamp driver with OR gate.

(3) Checkout. Checkout can be accomplished in two steps:

(a) Applying ground to pin 4 should result in a negative swing at the base of Q1. At this point, checkout is identical to lamp driver with OR gate assembly.

(b) Checkout of inputs 1, 2, and 3 requires that a negative voltage be applied to these pins. If a negative pulse cannot be easily applied, ground may be applied to the anode of the diodes. The input must be applied to diodes CR2 and CR3 simultaneously to see a negative voltage at 91 base. Only a single input is required at CR1 to check for a negative voltage swing at the base of Q1.

e. Troubleshooting Input Pulse Generator.

(1) Applied potentials. When power is applied to the bench test set, the following potentials are available: + 30 volts dc at pin 4; and ground at pin 8.

(2) Circuit operation. The input pulse generator is on (developing an output pulse) as soon as power is applied. When Q3 emitter lead charges to the peak point, Q3 will conduct and apply ground to the emitter lead. This negative voltage shift from a positive voltage to ground will be coupled through capacitors C1 and C2 and will cut off CR1. Cutting off CR1 also cuts off Q2 and the collector potential swings up to + 30 volts. This positive voltage is applied to the base of Q1, driving it into saturation and ground potential will be present at the output, pin 1. The positive voltage present at the collector of Q2 also feeds back to the emitter lead of Q3, cutting it off and allowing another cycle to begin. Applying ground potential to pin 5 insures that the base lead of Qi is at ground potential and keeps it from conducting. Applying ground potential to pin 6 introduces another path to ground from + 30 volts which effectively reduces the peak point voltage necessary for conduction. Reducing this voltage decreases the time between pulses.

(3) Checkout. Checkout can be accomplished in three steps:

(a) Applying + 28 volts dc to pin 2 or pin 3 should turn on Q1 and ground should be present at pin 1. If it is not present, Q1 is defective.

(b) Check to see that a positive voltage is present at the base of Q2. If it is not present, either diode CR1 or Q3 is defective.

(c) Check to see that the emitter -lead drops

to ground potential and then starts a smooth charge to its peak point. If ground is not observed, Q3 is Defective. If a smooth charge period is not observed, capacitor C1 or C2 is defective.

f. Troubleshooting Integrating Amplifier.

(1) Applied potentials. When power is applied .o the bench test set the following potentials are available: + 30 volts dc at pin 2; + 28 volts dc at pin 3, and ground at pin 5.

(2) Circuit operation. A small input signal is amplified through four stages and the final stage charges C10 to the average dc level of the amplified input signal. This dc level is applied to the LIGHT ENERGY meter.

(3) Checkout. Checkout can be accomplished in two steps:

(a) The output pin 4 should display an almost steady state de voltage. If the voltage is observed to have large fluctuations, capacitor C10 is defective.

(b) Q1 through Q4 should amplify the input signal at each stage. The coupling capacitors at the base lead of each stage should allow only the ac component of the preceding stage to be amplified. By observing the wave-shapes, the faulty capacitor or transistor can be found.

CHAPTER 3
DIRECT SUPPORT REPAIRS AND ALIGNMENT

Section I. REPAIRS

3-1. General Parts Replacement Techniques

Most of the components of the bench test set can be removed and replaced without special procedures. The precautions given in a and b below apply specifically to bench test panel assembly A1.

a. Do not disturb the settings of pulse rate, amp cal or pulse cal adjustment potentiometers R9, R6, and R31, respectively. Any adjustment of these potentiometers will require recalibration of A9, A16, or LIGHT ENERGY meter M1.

b. When soldering filters FL1, be careful to prevent excessive bending or stressing of their metal tab terminals. To prevent these tabs from becoming brittle, use the minimum amount of solder needed for a solid connection and avoid overheating.

c. When soldering connections to the standoff terminals, avoid pressing against them. Also, heat only the metal tips of standoffs and be careful not to touch the insulated bases with the soldering iron. Do not overheat.

d. Use a pencil-type iron with a 25 watt maximum capacity. Bench test panel Al is fully transistorized; be careful when replacing its components. If the iron must be used with ac, use an isolating transformer between the iron and the line, or use an iron which can be properly grounded (3-wire). Do not use soldering gun, damaging voltages from the gun can be induced into semiconductor components.

e. When soldering semiconductor (transistors, injunctions, silicon-controlled rectifiers and diodes) leads, solder quickly; wherever wiring permits, use a heat sink (such as long-nosed pliers) between the soldered terminal and the semiconductor. Use approximately the same length and dress of semiconductor leads as used originally.

3-2. Replacement Procedures

Test Set Photographic Flasher System, Bench LS69A consists of two major assemblies: test panel (Al) and power limiter and blower assembly (A2). The test panel is further divided into 11 subassemblies: MASTER switch and component assembly AlAIA9, VOLTAGE CONTROL TEST switch and component assembly AlAlA10, LOGIC TEST switch and component assembly A1A1A11, MODULE TEST switch and component assembly AlAlA12, power chassis and component assembly AlAlA13, function chassis and component assembly AlAlA14, input pulse generator AlAlA14A9, integrating amplifier AlAIA14A16, electronic component assembly A1A1Al4A1l, A13, and A15, and SYSTEM TEST switch and component assembly AlAlA15. Procedures for the removal and replacement of the components of the bench test set are obvious and require no special instructions. Figure 3-1 identifies all the major units of the bench test set. Figures 3-2 through 3-12 identify all the subassemblies and component parts of panel chassis. Figures 3-13 identifies all the major units of the Dower limiter and blower assembly. Figure 3-15 identifies the components and assemblies of the adapter and figure 3-14 identifies the components of the adapter printed circuit board.

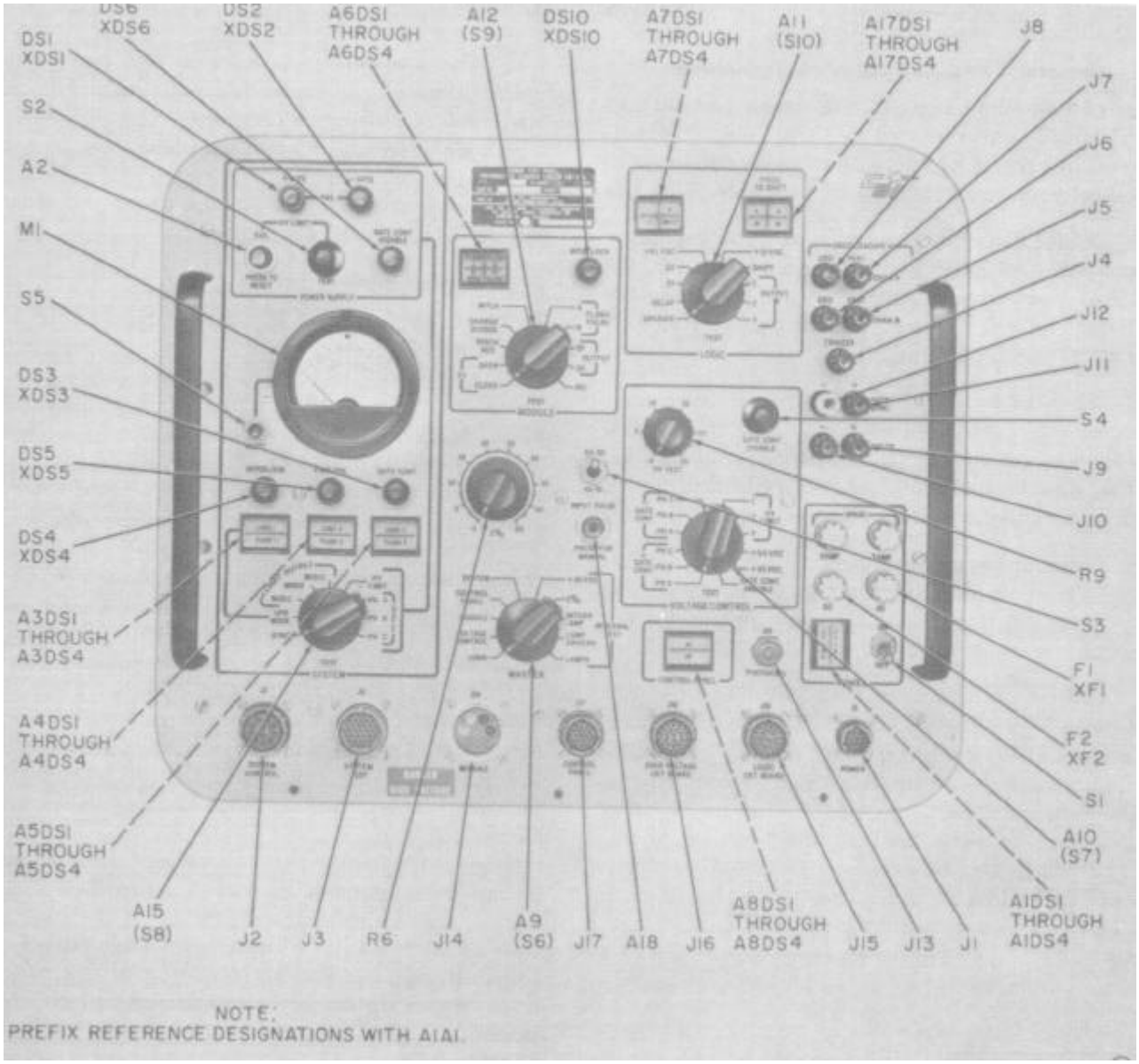


Figure 3-1 (1). Test panel A1AI, location of parts, (part 1 of 3).

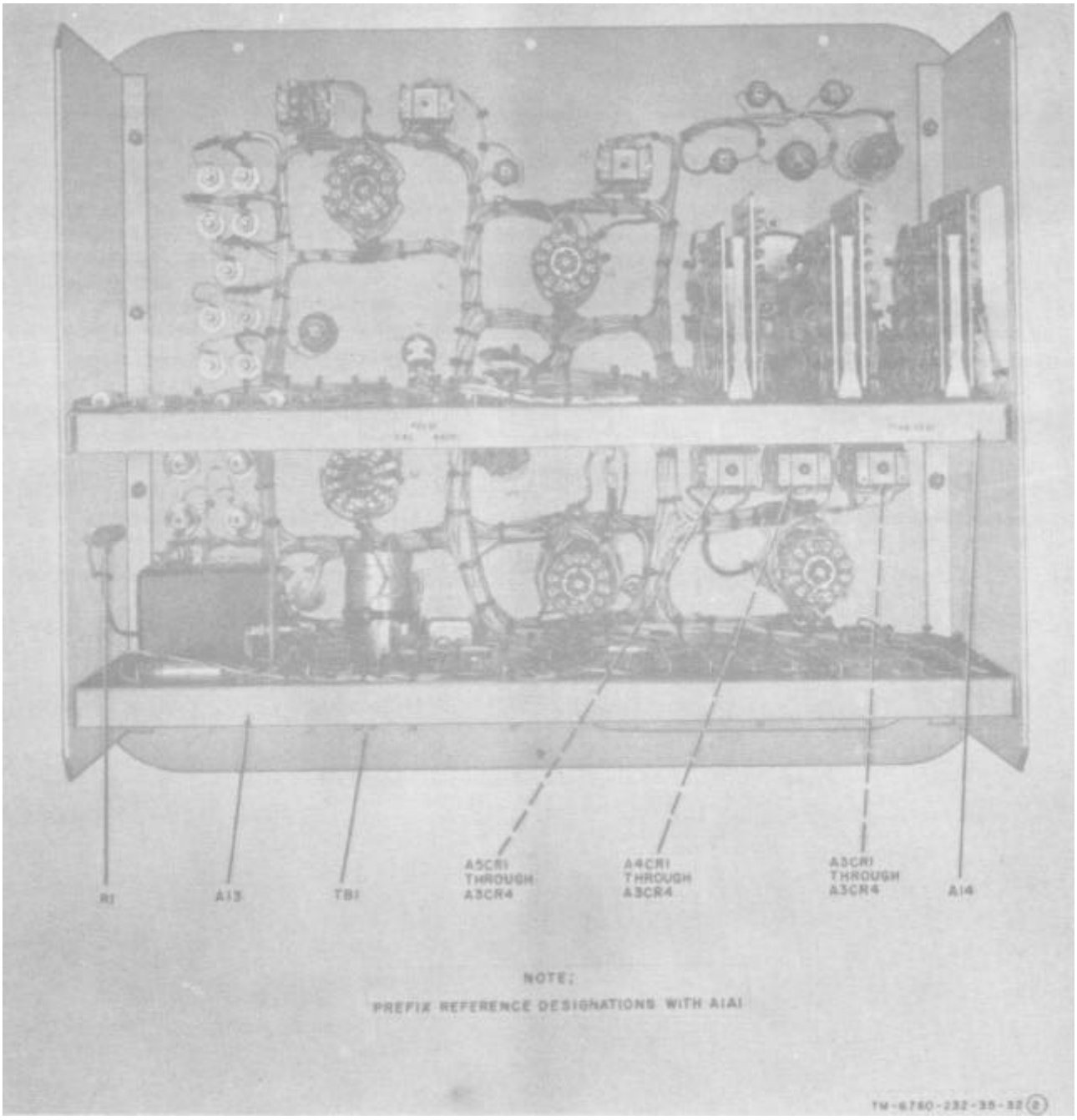
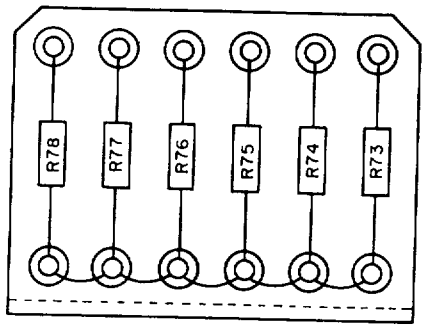


Figure 3-1 (2). Test panel AIAI, location of parts, (part 2 of 3).



NOTE:
PREFIX REFERENCE DESIGNATIONS WITH A1A1TB1.

TM6760-232-35-32(3)

Figure 3-1 (3). Test panel AIAI, location of parts, (part 3 of 3).

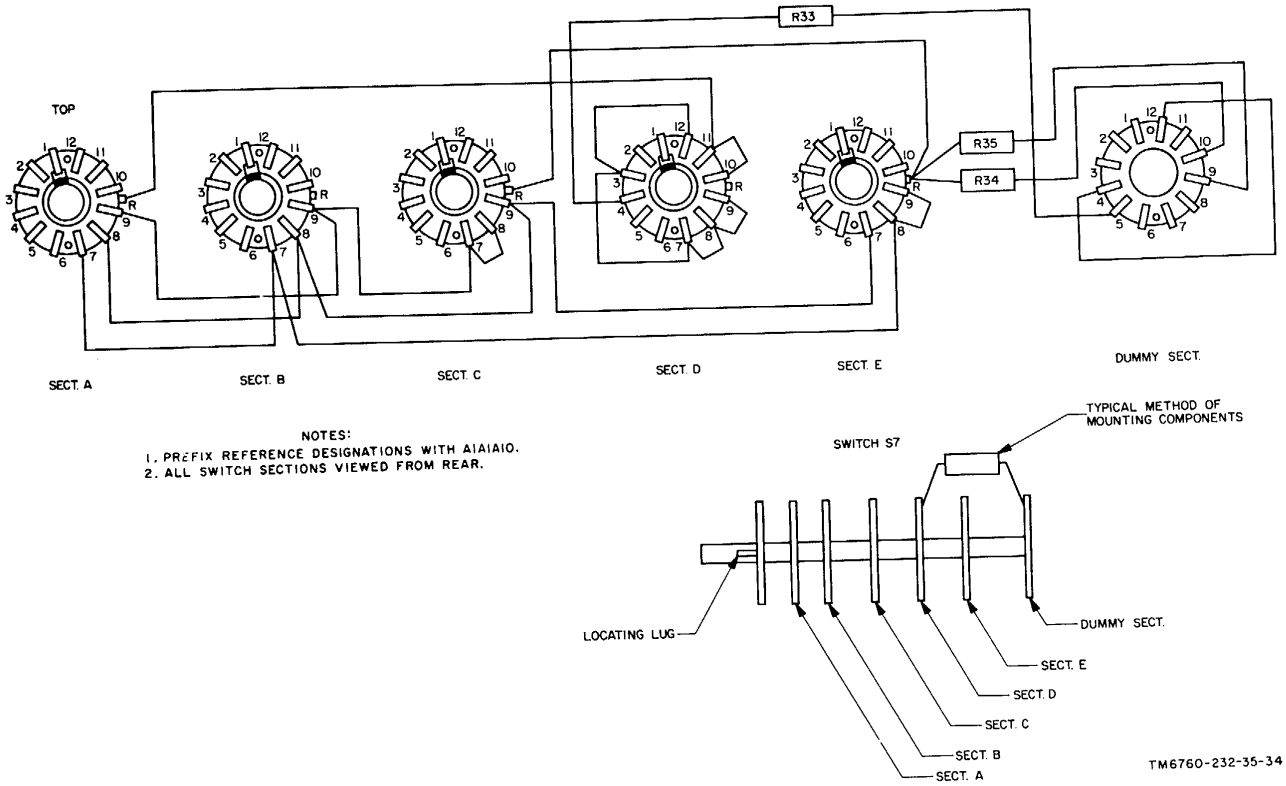


Figure 3-3. VOLTAGE CONTROL TEST switch and component assembly A1A1A10,, location of parts.

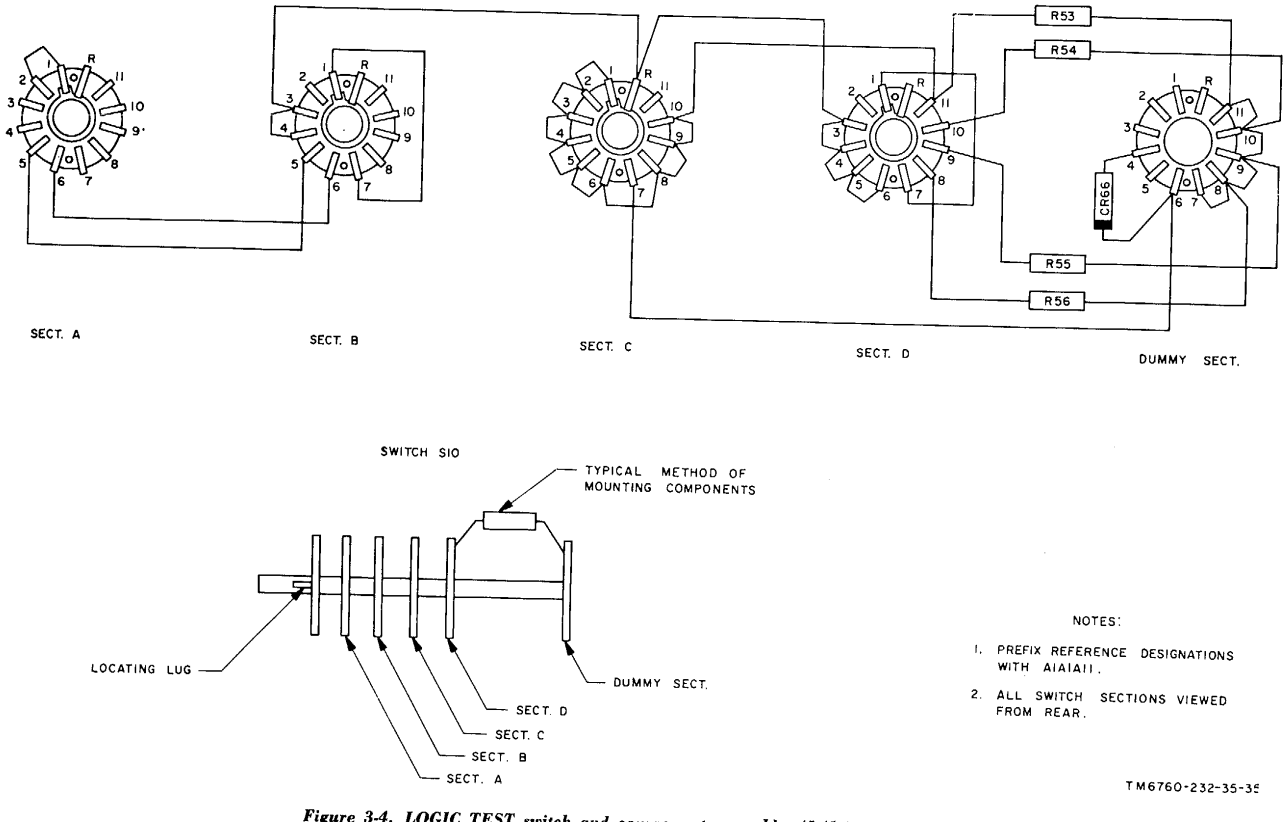


Figure 3-4. LOGIC TEST switch and component assembly a1a1a11, location of parts.

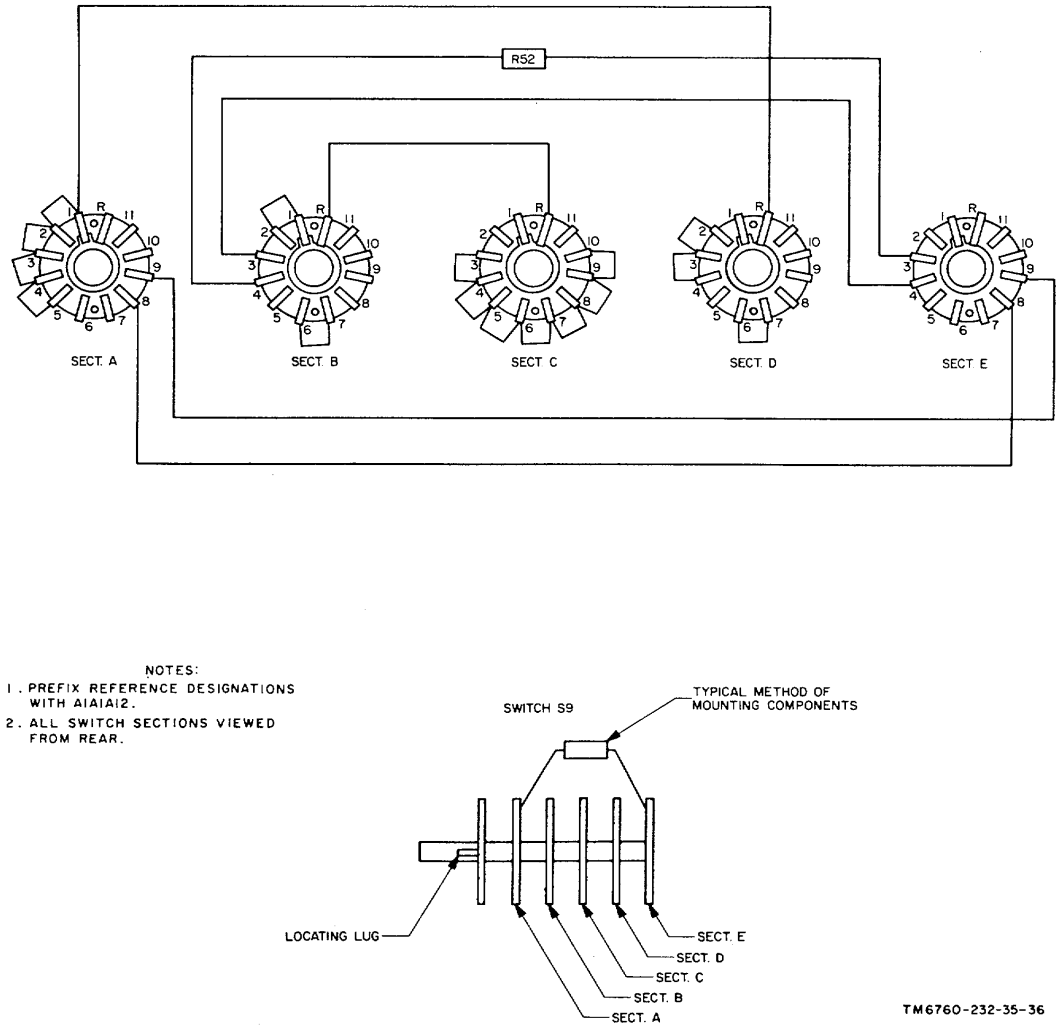


Figure 3-5. Module switch and component assembly A1A1A12, location of parts.

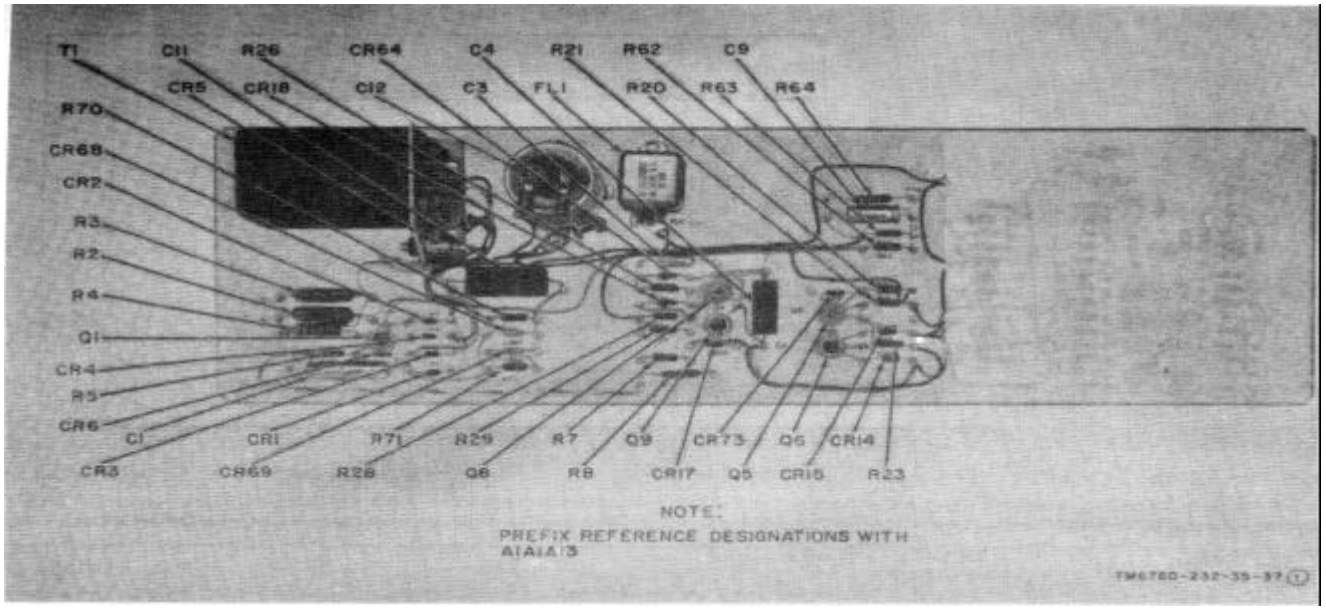


Figure 3-6 (1). Power chassis and component assembly A1A1A13, location of parts, (part 1 of 2).

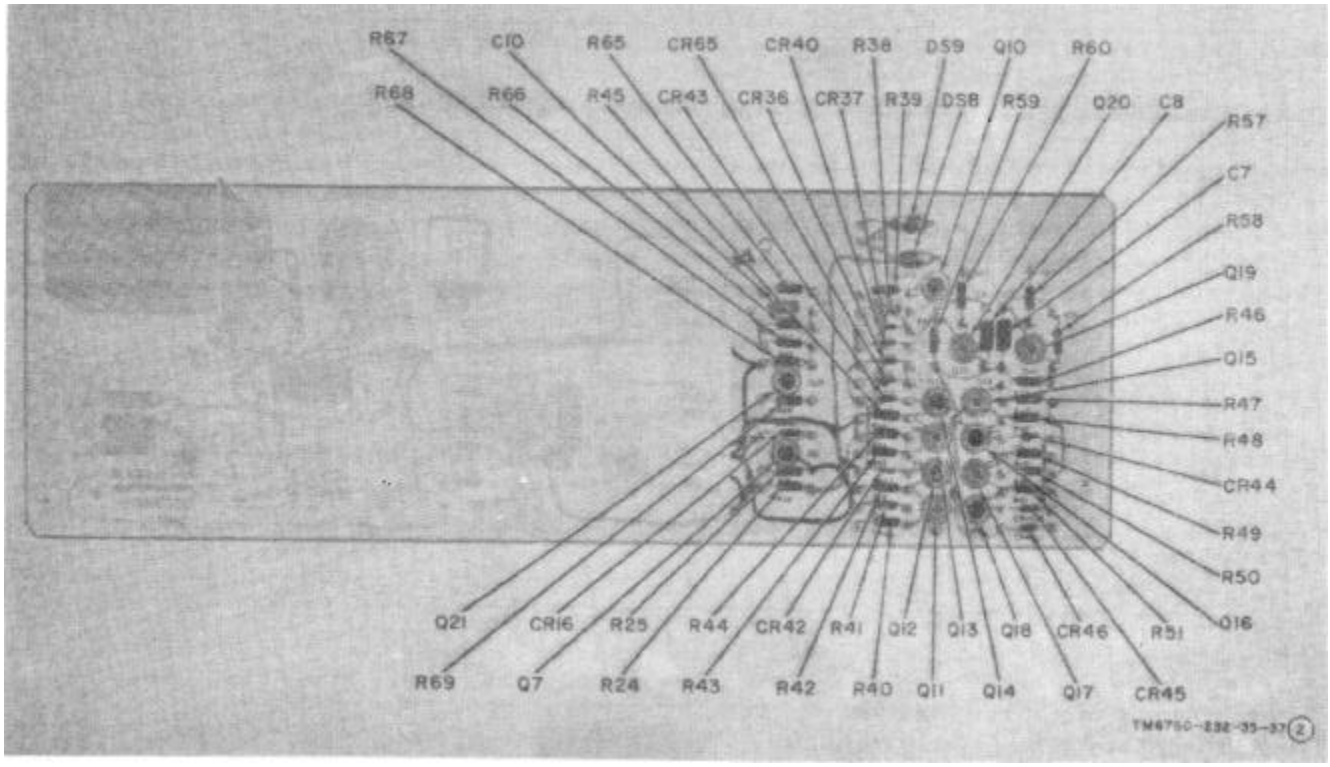


Figure 3-6 (2). Power chassis and component assembly A1A1A13, location of parts. (part 2 of 2).

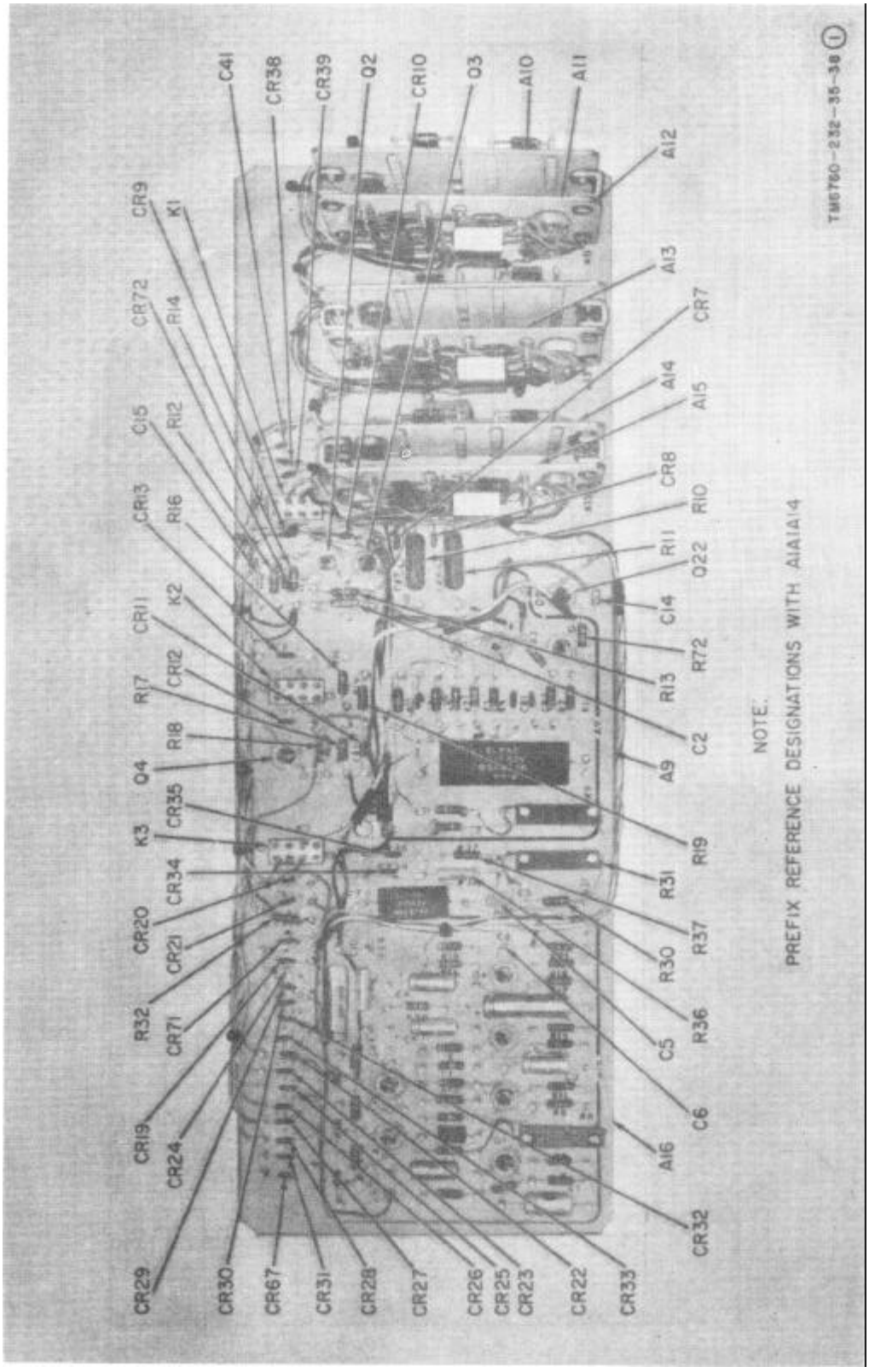


Figure 3-7 (1). Function chassis and component assembly A1A1A14, location of parts, (part 1 of 2).

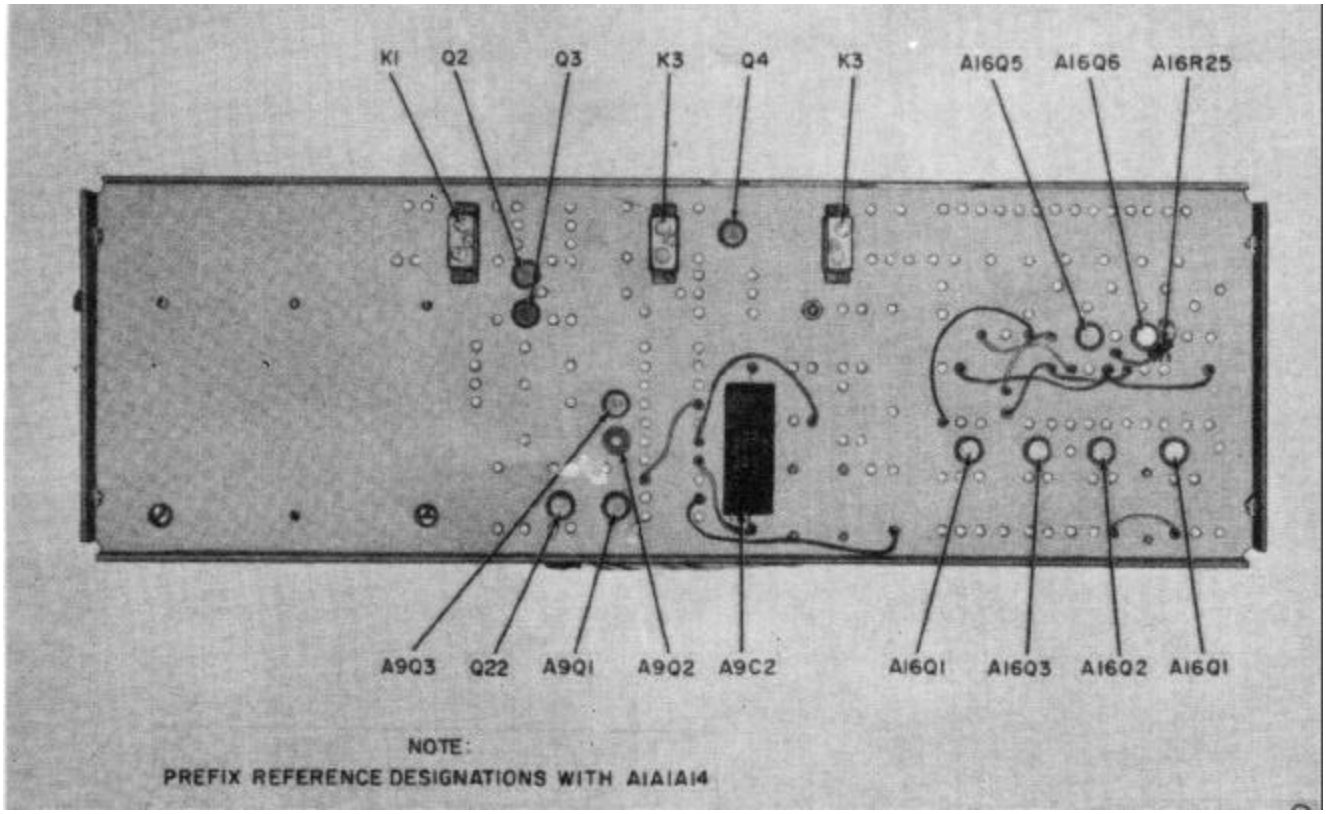


Figure 3-7 (2). Function chassis and component assembly A1A1A14, location of parts, (part 2 of 2).

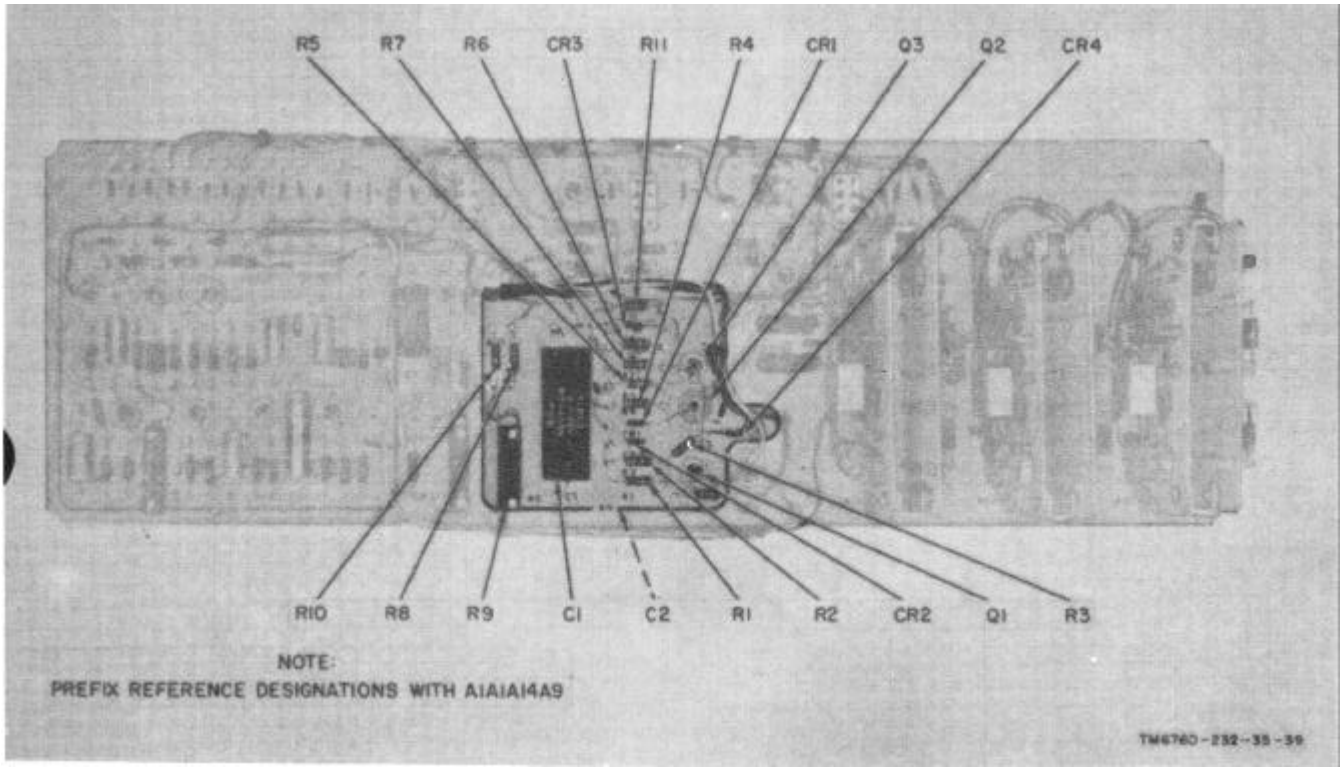


Figure 3-8. Input pulse generator A1A1A14A9, location of parts.

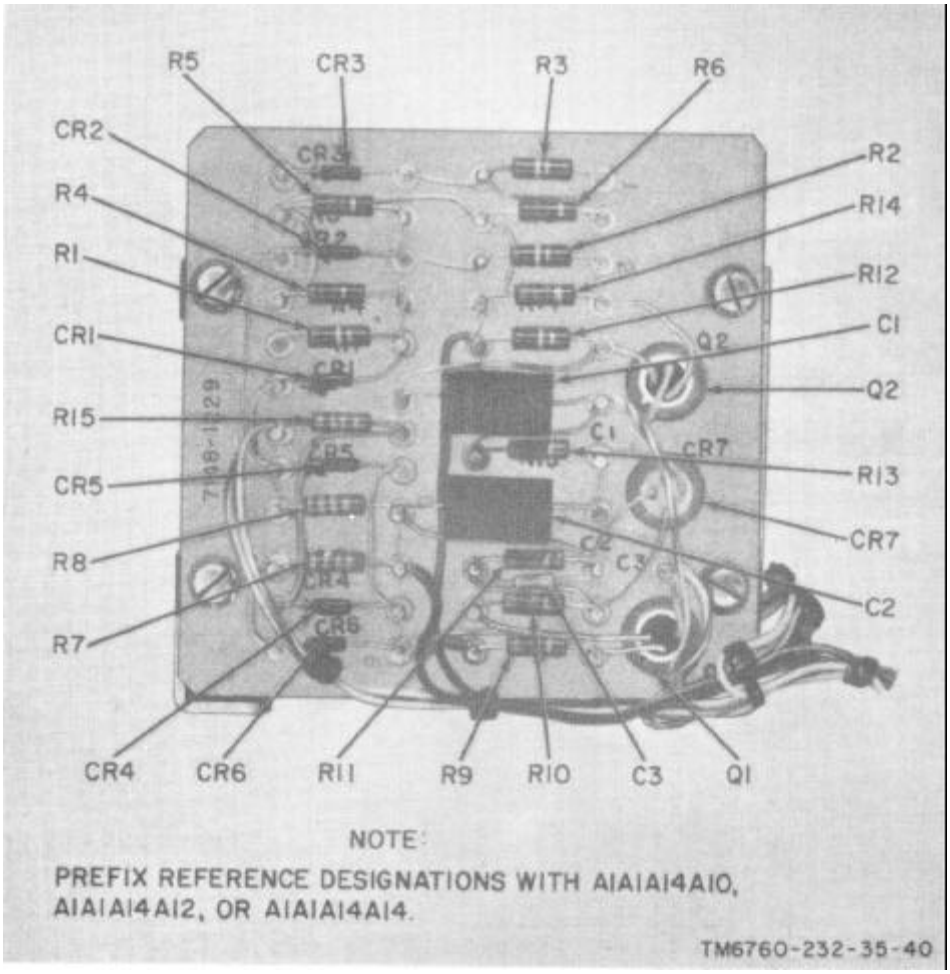


Figure 3-9. Electronic component assembly A1A1A14A10, A1A1A14A12, or A1A1A14A14, location of parts.

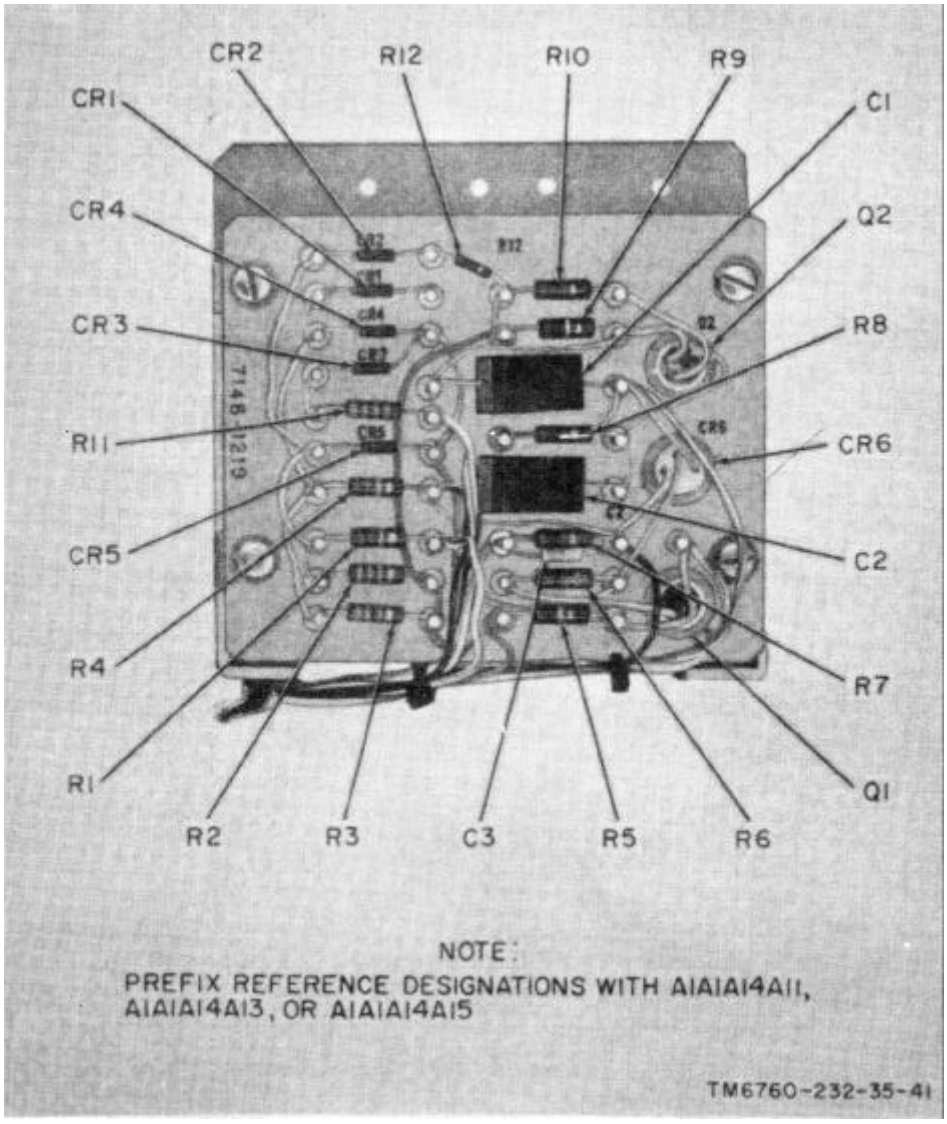


Figure 3-10. Electronic component assembly A1A1A14A11, A1A1A14A13, or A1A1A14A15, location of parts.

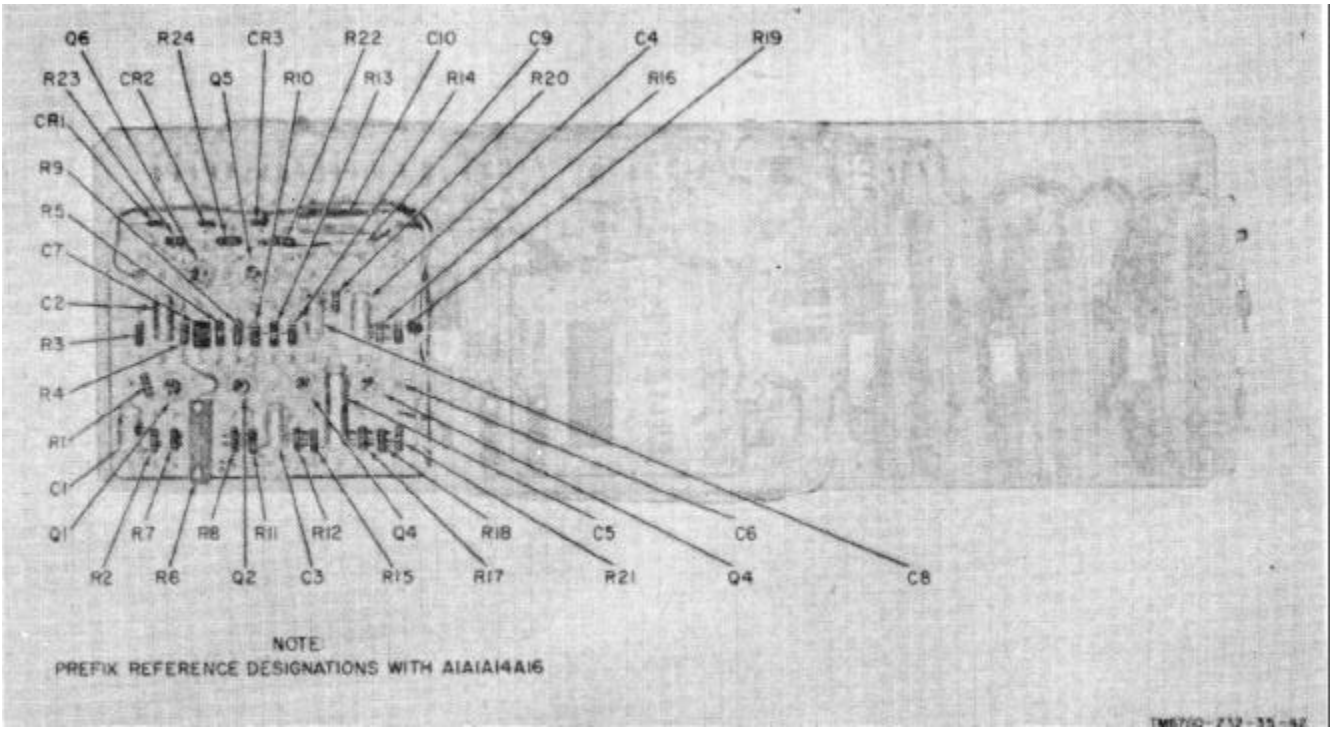


Figure 3-11. Integrating Amplifier A1A1A15A16, location of parts.

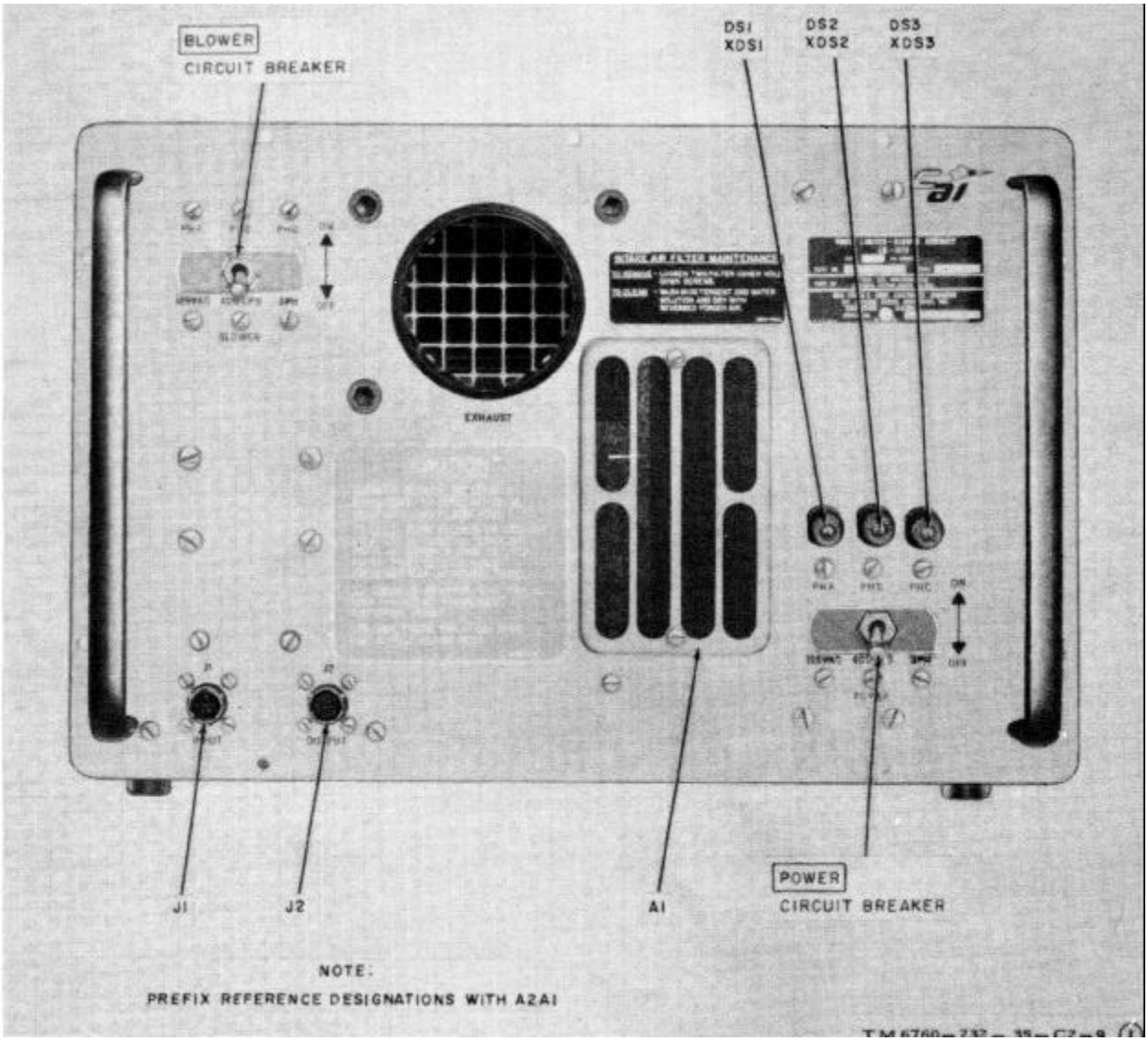


Figure 3-13 (1). Power limiter and blower, panel and component assembly A2A1 (sheet 1 of 2).

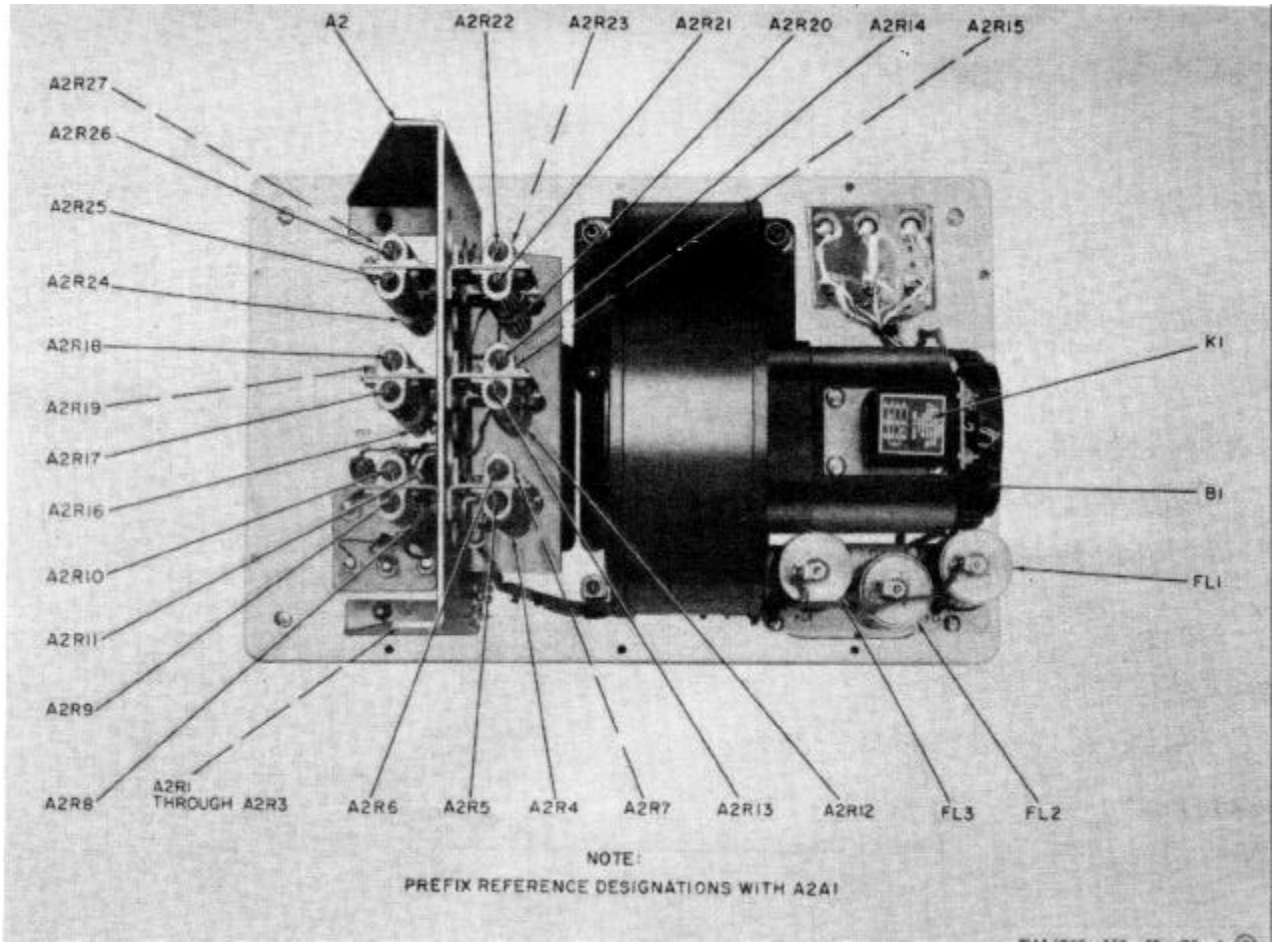


Figure 3-13 (2). Power limiter and blower, panel and component assembly A2A1 (sheet 2 of 2).

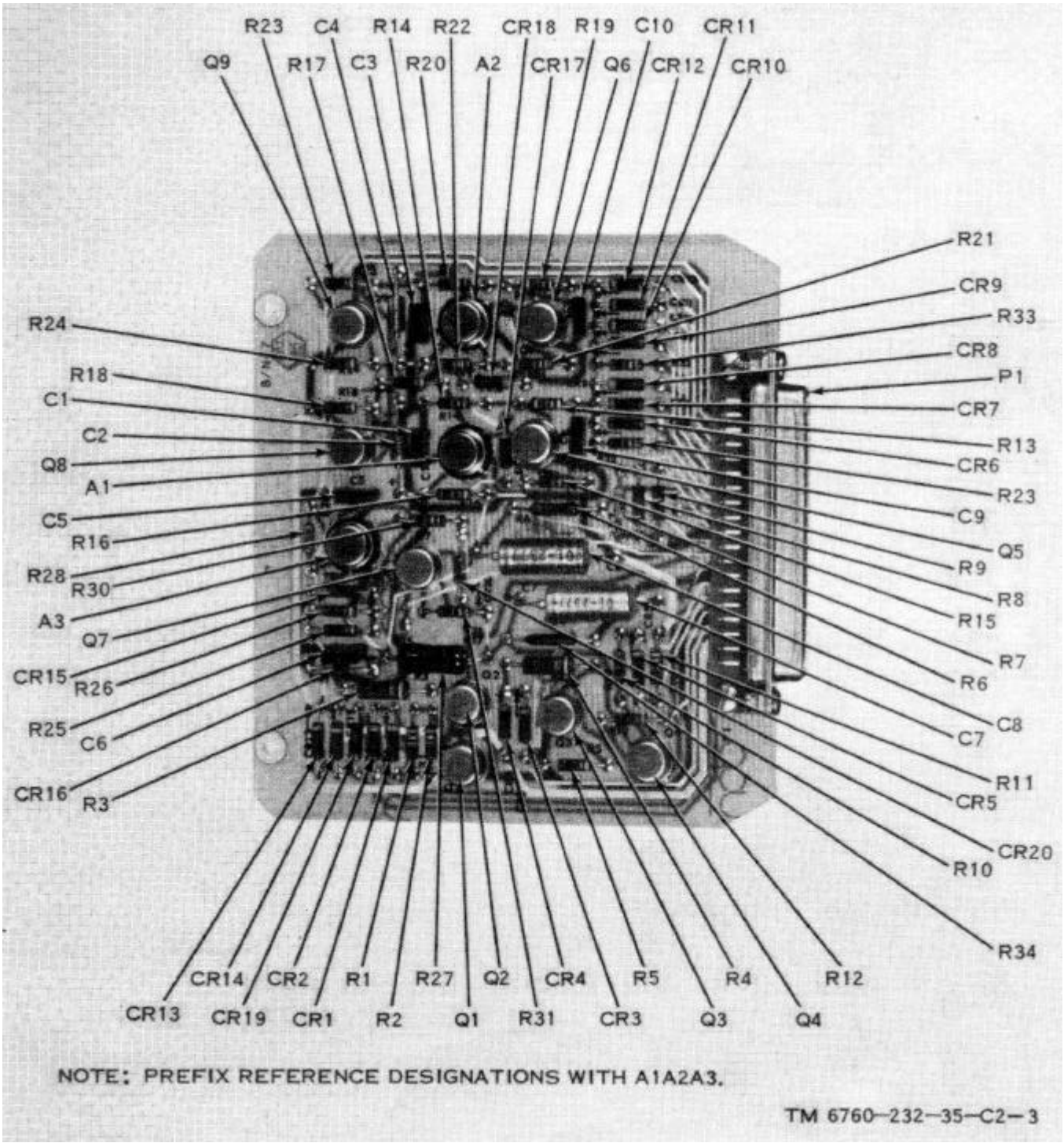


Figure 3-14. Adapter PCB, location of parts.

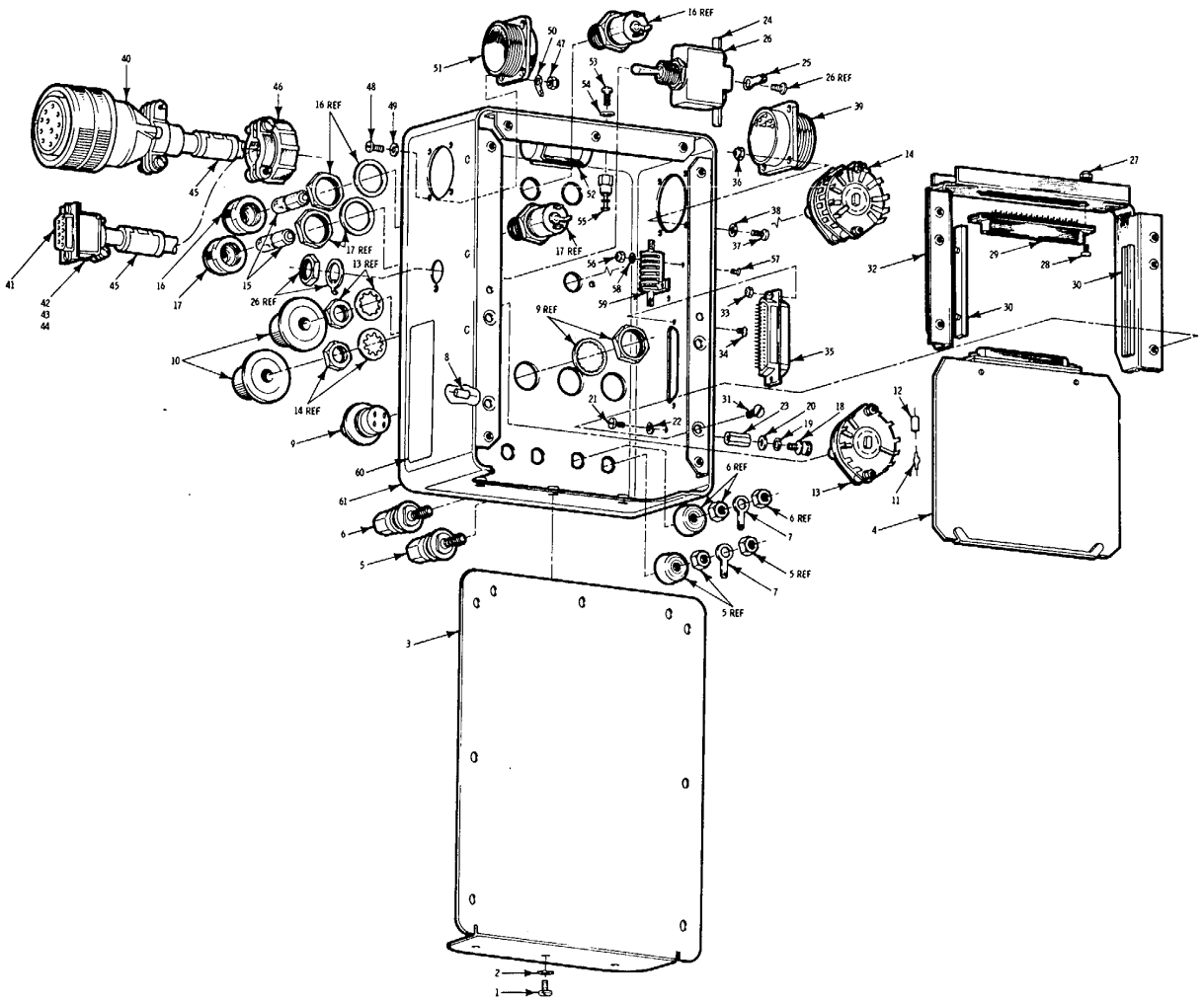


Figure 3-15. Adapter, Exploded View.

Note. Prefix all reference designations with A1A2.

1. Screw; Machine (H12)
2. Washer, Flat (H12)
3. Cover Test Set (MP1)
4. PC Board, Test Set Adapter (A3)
5. Post, Binding, Red (J5, J7, J9, J11)
6. Post, Binding, Black (J6,J8, J10,J12)
7. Terminal, Lug (El)
8. Resistor, Fixed Composition (13)
9. Switch, Push (S2 -S4)
10. Knob (MP5-MP6)
11. Semiconductor Device, Diode (CR1)
12. Resistor, Fixed Composition (R1)
13. Switch, Rotary (S6)
14. Switch, Rotary (S5)
15. Lamp, Incandescent (DS1- DS4)
16. Light, Indicator, Green (XDS1 - XDS2)
17. " Light, Indicator, Amber (XDS3 - XDS4)
18. Scr, BRSKNR LSHLDR 4-40UNC-2Bxl-4 (H2)
19. Washer, Lock (H2)
20. Washer, Flat (H2)
21. Screw, Machine (H2)
22. Washer, Flat (H2)
23. Sapcer (MP11-MP12)
24. Terminal, Lug (E3-E4)
25. Terminal, Lug (E5)
26. Switch, Toggle (S1)
27. Nut, Self Locking (H2)
28. Screw, Machine (H2)
29. Connector, Receptacle, Electrical (J4)
30. Guide, Circuit Card (MP3- MP4)
31. Screw, Machine (H4)
32. Bracket, Connector (Al)
33. Nut, Self Locking (H2)
34. Screw, Machine (H2)
35. Connector, Electrical, Socket (J1)
36. Nut, Self Locking (H4)
37. Screw, Machine (H4)
38. Washer, Flat (H4)
39. Connector, Electrical Plug (J2)
40. Connector, Electrical (P2)
41. Connector, Receptacle, Electrical (P1)
42. Nut, Self Locking (H2)
43. Screw, Machine (H2)
44. Shield, Electrical Connector (MP13)
45. Tiedown, Electrical Component (MP14-MP15)
46. Clamp, Cable, Electrical (MP2)
47. Nut, Self Locking (H4)
48. Screw, Machine (H4)
49. Washer, Flat (H4)
50. Terminal, Lug (E2)
51. Dummy, Connector Receptacle (MP8)
52. Capacitor, Fixed Plastic (C1)
53. Screw, Machine (H2)
54. Washer, Flat (H2)
55. Terminal, Stud (MP9-MP10)
56. Nut, Self Locking (H2)
57. Screw, Machine (H2)
58. Washer, Flat (H2)
59. Resistor, Fixed Wirewound (R2)
60. Plate, Identification (A3MP7)
61. Enclosure, Test Set (A2)

Figure 3-15 - Continued

Section II. ALIGNMENT

3-3. General Alignment Instructions

The procedures and test equipment required to align and calibrate the bench test set are given in paragraphs 3-4 through 3-7. To insure proper operation of and reliable results from the bench test set, the calibration procedures should be performed every 30 days. Also, if any major electrical or electronic assembly or component affecting the operation of either integrating amplifier A16 or input pulse generator assembly A9 is replaced, the bench test set should be recalibrated.

3-4. Test Equipment Required

The following test equipment is required to align and calibrate the bench test set:

a. Multimeter, Simpson Model 260. The multimeter is required to make voltage and resistance measurements.

b. Pulse Generating Equipment.

(1) Power supply, Tektronix type 160A. The power supply provides the required ac and dc currents and voltages for the operation of pulse generator type 161 and waveform generator type 162.

(2) Pulse generator, Tektronix type 161. The pulse generator simulates the output of the illuminator module photocell.

(3) Waveform generator, Tektronix type 162. The waveform generator provides the trigger source for the pulse generator.

c. Oscilloscope, Tektronix Type 502A. The test oscilloscope is required to observe waveforms and to make time measurements.

3-5. Input Pulse Generator Pulse Rate A9R9 Adjustment

a. Preadjustment Setup Procedure.

(1) Present the test panel controls to the positions indicated below:

Control	*Setting*
POWER switch	OFF
MASTER selector switch	LOGIC
SYSTEM TEST switch	SYNC
MODULE TEST switch	K1 CLOSE
EV/H control	0 (fully counterclockwise)
Camera pulse switch	KA-30
LOGIC TEST switch	OPERATE
VOLTAGE CONTROL TEST switch	PR A (± GATE CONT)
HV TEST control	0 (fully counterclockwise)

(2) Using power cable W1, connect test panel POWER connector J1 to an external 115-volt, 400cps, single-phase and ± 28-vdc source of power.

(3) Using the oscilloscope test probe, connect channel A of the oscilloscope to the TRIGGER binding post of the test panel. Set the oscilloscope controls for 50 milliseconds/cm horizontal sweep and 20 volts/cm vertical sensitivity.

b. Adjustment Procedure for Pulse Rate A9R9.

(1) Set test panel POWER switch to ON.

(2) Note that oscilloscope displays a rectangular pulse having an amplitude of ± 28 vdc and a pulse width of 130 milliseconds. The time interval from leading edge to leading edge of successive pulses is 3.6 seconds. If an abnormal pulse waveform is observed, adjust variable resistor pulse rate A9R9 of input pulse generator assembly A9 to obtain the correct waveform.

(3) Set test panel POWER switch to OFF.

(4) Disconnect the test equipment.

3-6. Integrating Amplifier Amp Cal A16R6 Adjustment

a. Preadjustment Setup Procedure.

(1) Preset the test panel controls to the positions indicated below:

Control	*Setting*
POWER switch	OFF
MASTER selector switch	MODULE
SYSTEM TEST switch	SYNC
MODULE TEST switch	K1 CLOSE
EV/H control	0 (fully counterclockwise)
Camera pulse switch	KA-30
LOGIC TEST switch	OPERATE
VOLTAGE CONTROL TEST switch	PH A (± GATE CONT)
HV TEST switch	0 (fully counterclockwise)

(2) Using power cable W1, connect test panel POWER connector J1 to an external 115-volt, 400cps, single-phase and ± 28-vdc source of power.

(3) Adjust the pulse generator for an output signal with the following characteristics:

(a) Pulse amplitude: 500 millivolts dc.

(b) Pulse width: 700 microseconds.

(c) Pulse repetition rate: 1 pulse per second.

(4) Connect the output of the pulse generator between pins 24 and 23G of MODULE connector J14.

NOTE

If desired, the high side of the pulse generator output can be connected to terminal 1 of integrating amplifier assembly A16, and the ground can be connected to test panel ground (chassis).

b. Adjustment Procedure for Amp Cal A16R6.

(1) Set test panel POWER switch to ON.

(2) Set pulse generator power switch to on.

(3) Observe needle on LIGHT ENERGY meter. It should indicate 0.8 unit maximum on the

meter scale. If meter reading is abnormal, adjust variable resistor Amp Cal A16R6 for a peak reading of 0.8 unit.

(4) Set test panel POWER switch to OFF.

(5) Set pulse generator power switch to off.

(6) Disconnect the test equipment.

3-7. LIGHT ENERGY Meter M1 Pulse Cal R31 Adjustment

a. Preadjustment Setup Procedure.

(1) Preset the test panel controls to the positions indicated below:

Control	*Setting*
POWER switch	OFF
MASTER selector switch	INTEGR AMP
SYSTEM TEST switch	SYNC
MODULE TEST switch	K1 CLOSE
EV/H control	0 (fully counterclockwise)
Camera pulse switch	KA-30
LOGIC TEST switch	OPERATE
VOLTAGE CONTROL TEST switch	PH A (± GATE CONT)
HV TEST switch	0 (fully counterclockwise)

(2) Using power cable W1, connect test panel POWER connector J1 to an external 115-volt, 400cps, single-phase and ± 28-vdc source of power.

b. Adjustment Procedure for Pulse Cal R31.

(1) Set test panel POWER switch to ON.

(2) Calibrate input pulse generator A9 and integrating amplifier A16 as indicated in paragraphs 3-5 and 3-6.

(3) Set MASTER selector switch to INTEGR AMP.

(4) Adjust Pulse Cal potentiometer R31 to obtain a peak reading of 0.8 unit on the LIGHT ENERGY meter.

(5) Set test panel POWER switch to OFF.

CHAPTER 4
GENERAL SUPPORT MAINTENANCE

Section I. TROUBLESHOOTING

WARNING

When servicing the bench test set, be extremely careful of high voltages. Disconnect the primary ac and dc power before making any repairs.

4-1. General Instructions

Troubleshooting at the general support category of maintenance includes all of the techniques outlined for organizational maintenance (TM 11-6760232-12), direct support maintenance, and special or additional techniques required to isolate a defective component. Localization and isolation are the principal troubleshooting techniques employed at the general support category of maintenance. Localization procedures trace the fault to the defective stage or circuit responsible for the abnormal conditions. Isolation traces the fault to, and identifies, the defective parts or part. Some faults, such as burnedout resistors or wiring, a shorted transformer, or a damaged meter, can often be located by sight, smell, or hearing. The majority of faults, however, must be located by signal tracing and checking voltages and resistances.

4-2. Troubleshooting Techniques

a. Visual Inspection. The purpose of visual inspection is to locate faults without actually performing circuit tests or making voltage and resistance checks. During operational checks, observe meter and indicator lamps, particularly the LOGIC and FLASH 1, 2, 3 and INPUT PULSE lamps, should be observed and an attempt made to localize the fault.

CAUTION

Corrective maintenance for most visible defects is obvious; however, care must be taken if heat-damaged parts are located. Overheating is normally only a symptom of trouble. For this reason, it is essential to determine the actual cause of overheating before the heat-damaged part is replaced; otherwise, damage to the equipment may be repeated.

b. Operational Checks. The operational checks of paragraphs 2-4 and 2-6 should be performed prior to troubleshooting to locate and isolate the fault. In most instances, the operational checks will help determine the exact nature of the fault and indicate what corrective action is required. If the trouble has previously been identified in a particular stage or circuit, only that portion of the operational checks applicable to the suspected circuit need be performed.

c. Voltage Measurements. Voltage measurements indicate the steady state or quiescent conditions of the active elements of the bench test set. The voltages given in paragraph 4-4, in combination with the bench test set wiring diagram figure 6-18, permit the repairman to isolate faults to a particular transistor. Paragraph 4-4e also gives the conditions under which these measurements were taken.

d. Resistance Measurements. Resistance measurements indicate the condition of the bench test set circuits under no voltage conditions. They are particularly useful in locating faults that prevent the bench test set from being operated due to short circuits or overheating. The resistances given in paragraph 4-4d, in combination with the bench test set wiring diagram figure 6-18, permit the repairman to isolate faults to a particular component or group of components. Paragraph 4-4d also gives the conditions under which these measurements were taken.

e. Resistor, Capacitor and Diode Color Code Diagrams. Color code diagrams for resistors, capacitors, and diodes are shown in figures 6-1 and 6-2. These diagrams provide pertinent resistance, voltage rating, and tolerance information.

4-3. Signal Substitution

Signal substitution procedures help to locate faults to a stage or circuit of the bench test panel. This is done by substituting a signal for the one which would normally be present during circuit operation.

Since the bench test panel is a complete unit and

not a subsystem of a complete unit, signal substitution is used throughout this manual to check performance. For this reason, the repairman is advised to utilize the detailed procedures of chapter 2 or 3 for detailed signal substitution procedures.

4-4. Voltage and Resistance Measurements

a. General. When trouble has been localized to a stage through operational checks isolate the defective component by voltage measurements or resistance measurements (para d and e below). Use figure 6-4, the overall bench test set schematic diagram, and figure 6-19, the adapter schematic diagram, to determine the function of the defective stage or component. Figures 3-1 through 3-15 permit the repairman to physically locate the defective stage or component.

CAUTION

Before performing voltage and resistance measurements, review paragraph 2-3, and carefully follow their instructions and give in d and e below; carelessness may cause more trouble in the equipment and make the troubleshooting job more difficult. Do not insert or remove a transistor with voltage applied to the circuit.

b. Transistor Testing. The transistors of the flasher test set are wired into their circuits. Every effort should be made to troubleshoot these circuits without physically unsoldering and removing the transistors. Observing transistor operation under dynamic conditions is the best method for isolating and determining faults. Paragraph 4-3 contains information that will be helpful in isolating troubles with the transistors wired in the circuit.

c. Test Equipment Required. All the required voltage and resistance measurements are made with the multimeter.

d. Resistance Measurements. Preset the bench test set and adapter controls as indicated in (a and b) below and make the resistance measurements listed in (2), (3) and (4) below.

(1) Preliminary Procedure.

(a) Preset all test panel controls as follows.

Control	*Setting*
Power switch	OFF
MASTER selector switch	LAMPS
System TEST switch	SYNC
Module TEST switch	K1 CLOSE
EV/H control	0 (fully counterclockwise)
Camera pulse switch	KA-30
LOGIC TEST switch	OPERATE
VOLTAGE CONTROL TEST switch	PH A (± GATE CONT)
HV TEST control	0 (fully counterclockwise)

(b) Preset adapter controls as follows:

Control	*Setting*
READY/INTLK switch	OFF
PULSE RATE switch	NORM
VOLTAGE switch	12V

(c) Preset blower assembly controls as follows.

Control	*Setting*
POWER circuit breaker	OFF
BLOWER circuit breaker	OFF

(d) Be certain that all power has been removed from the test panel and blower assembly.

(e) Remove the test panel and blower assembly from their case bottoms.

Multimeter connections		Resistance	
From ±	To -	(ohms ± 10%)	Conditions
J1-D	Frame ground	0	
J1-F	Do	0	
J2-F		0	
J2-A		0	
J2-D		0	
J3-20		0	
J3-37		0	
CHAN A GRD		0	
CHAN B GRD		0	
- MULTR		0	
Outer shell (J13)		0	
J14-24G		0	
J14-23G		0	
J14-11		0	
J15-H		0	
J15-S		0	
J15-Y		0	
J16-X		0	
J16-Y		0	
J16-R		0	

(2) Test panel resistance measurements (cont.)

Multimeter connections From +	To -	Resistance (ohms ± 10%)	Conditions
J16-N		0	
J16-H		0	
J16-W		0	
J16-S		0	
T17-A		0	
11-A		Infinite	
J1-E	Do.	Infinite	Meter initially will read low and increase to infinity This is normal. (Use RX100 range.)
J14-1	J14-11	4.7k	± 5%
J2-L	TRIGGER terminal	0	
J3-35	J16-M	0	
J3-19	CHAN A VERT terminal	0	Set MASTER selector switch to SYSTEM; set SYSTEM TEST switch to OPR MODE.
J2-B	J1-E	0	Set MASTER selector switch to SYSTEM; set SYSTEM TEST switch to OPR MODE; set POWER switch to ON.
J2-B	J1-E	Approx. 15	Set MASTER selector switch to LAMP DRIVERSRotate SYSTEM TEST switch through all positions, except SYNC.
J2-D	J2-L	Approx. 15	
J3-19	J16-a	0	
J15-W	± MULTR terminal	0	Set MASTER selector switch to LOGIC; set LOGIC TEST to OPERATE.
.J15-W	± MULTR terminal	0	Set LOGIC TEST switch to DELAY.

(3) Blower assembly resistance measurements.

Multimeter connections From +	To -	Resistance (ohms ± 10%)	Conditions
J1-A	J1-D	Infinite	
J1-B	J1-D	Infinite	
J1-C	J1-D	Infinite	
J1-A	J1-D	18K min	Set POWER circuit breaker to ON
J1-B	J1-D	18K min	
J1-C	J1-D	18K min	
J1-A	J2-A	8 min	
J1-B	J2-B	8 min	
J1-C	J2-C	8 min	

(4) Adapter resistance measurements.

Multimeter connections From +	To -	Resistance (ohms ± 10%)	Conditions
P2-B	J1-11	0	
P2-B	J2-B	0	
P2-A	J1-14	0	
P2-A	51-10	200	
P2-A	J2-A	0	
P2-A	J6	0	The adapter is not connected in
P2-A	J8	0	the test setup.
P2-A	J10	0	
P2-A	J12	0	
P2-A	Chassis	0	
P2-A	J11	47K	
P2-A	J1-12	48K	

(4) Adapter resistance measurements. (cont)

Multimeter connections From +	To -	Resistance (ohms ± 10%)	Conditions
P2 -E	J1-24	0	
P2 -E	J2-E	0	
P2-C	J1-5,6, & 7	0	
P2-C	J1-16	0	
P2-C	J1-1	0	
P2-C	J1-2	0	
P2-C	J2 -C	0	
J1-15	J5	0	
P2-L	J1-21	0	
P2-L	J2-L	0	

e. Voltage Measurements.

NOTE

When measuring positive voltages, connect the negative lead of the multimeter to chassis ground. When measuring negative voltages, connect the positive lead of the multimeter to chassis ground.

CAUTION

The test panel is transistorized. Observe all precautions given to prevent transistor damage. Make voltage measurements only as specified. When measuring voltages, use electrical tape or sleeving to insulate the entire test prod, except for the extreme tip. A momentary short circuit can destroy a transistor.

(1) Preliminary procedure.

(a) Preset all test panel controls as follows:

Control	*Setting*
POWER switch	OFF
MASTER selector switch	LOGIC
SYSTEM TEST switch	SYNC
MODULE TEST switch	K1 CLOSE
EV/H control	0 (fully counterclockwise)
Camera pulse switch	KA-30
LOGIC TEST switch	OPERATE
VOLTAGE CONTROL TEST switch	PH A (+ GATE CONT)
HV TEST control	0 (fully counterclockwise)

(b) Preset blower assembly controls as follows:

Control	*Setting*
POWER circuit breaker	OFF
BLOWER circuit breaker	OFF

(c) Preset adapter controls as follows:

Control	*Setting*
READY/INTLK switch	OFF
PULSE RATE switch	NORM
VOLTAGE switch	12V

(d) Remove the test panel and blower assembly from their case bottoms.

(e) Connect the test panel and blower assembly to ac and dc power sources.

(f) Use the multimeter to perform the voltage measurements given in b, c and, d following.

(2) Test panel connectors voltage measurements. Set POWER switch to ON, and make the following voltage measurements:

Multimeter connections *From*	*To*	*Control setting*	*Voltage*
J1-A	J1-D		115 vac
J1-E	J1-D		+ 28 vdt
J2-C	J2-F	MASTER selector switch set to SYSTEM	
J2-B	J2-F		+ 28 vdc
J2-E	J2-F	Rotate E V/H control throughout its range.	0-47 vdc
J3-21	J3-20	SYSTEM section TEST switch set to SYNC	+ 28 vdc
J3-14	J3-37	SYSTEM section TEST switch set to MOD 1	+ 28 vdc
J3-15	J3-37		+ 28 vdc
J3-13	J3-37	SYSTEM section TEST switch set to MOD 2	+ 28 vdc
J3-15	J'3-37		+ 28 vdc
J3-13	J3-37	SYSTEM section TEST switch set to MOD 3	+ 28 vdc
J3-14	J3-37		+ 28 vdc
J14-17	J14-10	MASTER selector switch set to MODULE; MODULE section TEST switch set to DISCH RES	
J14-1	J14-10		+ 28 vd
J17-A	J17-B	MASTER selector switch set to CONTROL PANEL	+ 28 vdc
J17-C	J17-B		+ 28 vdc
J17-D	J17-B		+ 28 vdc
J15-Z	J15-S	MASTER selector switch set to LOGIC	+ 28 vdc

Multimeter connections			
From	*To*	*Control setting*	*Voltage*
J15-W	J15-S	Rotate E V/H control throughout its range	0-47 vdc
T16-Z	J16-X	MASTER selector switch set to VOLTAGE CONTROL	± 28 vdc
J16-E	J16-X	VOLTAGE CONTROL section TEST switch to HV LIMIT 1	15-17 vdc
J16-F	J16-X	VOLTAGE CONTROL section TEST switch to HV LIMIT 2	15-17 vdc
J16-G	J16-X	VOLTAGE CONTROL section TEST switch to HV LIMIT 3	15-17 vdc
Ji3-high	J13-shield		200 mv

(3) Blower assembly OUTPUT connector J2 voltage measurements. Set POWER switch to ON, and make the following voltage measurements:

Multimeter connections			
From	*To*	*Control setting*	*Voltage*
J2-A	J2-D	POWER switch to ON	115 vac
J2-B	J2-D		115 vac
J2-C	J2-D		115 vac

(4) Test Panel transistor voltage measurements. Set POWER switch on ON and make the following voltage measurements:

Transistor	Emitter (vdc)	Base (vdc)	Collector (vdc)
Q1	30± 1.5	30.6 ± 1.5	40± 2.5
Q2	0	0	28± 1
Q3	28± 1	28± 1	0
Q4	0	0	28± 1
Q5	3.3 ± 0.2	28± 1	3.3 ± 0.2
Q6	3.3 ± 0.2	3.3 ± 0.2	28± 1
Q7	0	0	28± 1
Q8	0	28± 1	0
Q9	0	0	28± 1
Q10	0	0	28± 1
Q11	0	28± 1	0
Q12	0	0	28± 1
Q13	0	28±1	0
Q14	0	0	28± 1
Q15	0	28± 1	0
Q16	0	0	28± 1
Q17	0	28± 1	0
Q18	0	0	28± 1
Q19	0	0	
Q20	0	0	
Q21	0	0	
Q22	28± 1	28± 1	0

(5) Procedure for checking adapter voltages.

(a) Set test panel controls as follows:

Control	*Setting*
POWER switch	OFF
MASTER switch	SYSTEM
SYSTEM TEST switch	OPR MODE
MODULE TEST switch	K1 C LOSE
E V/H control	0 (fully counter-clockwise)
INPUT PULSE switch	KA-30
LOGIC TEST switch	OPERATE
VOLTAGE CONTROL TEST switch	PH A (± GATE CONT)
HV TEST control	0 (fully counte - clockwise)

(b) Remove bottom cover from adapter.

(c) Connect adapter to test panel with cable assembly W8.

(d) Apply ac and dc power to test panel.

(6) Test adapter connectors voltage measurements. Set POWER switch on test panel to ON.

Multimeter connections			
From (-)	To (±)	Test Panel Control Setting	Voltage
P2-A	P2-B	±28 vdc	
P2-D	P2-C	115 vac	
P2-A	P2-E	Rotate E V/H control on test panel from fully counterclockwise to fully clock-wise	From 0 to 47 vdc
P2-A	J1-24	(Same as pre- ceding)	(Same as preceding)
J1-14	J1-11		±28 vdc
J1-14	J1-5		115 vac
J1-14	J1-6		115 vac
J1-14	J1-7		115 vac

(7) Test the following adapter PCB component voltages with power applied and switches set as in (5) above. Voltages indicated are in respect to ground Voltage measured at:

Transistor	Emitter (vdc)	Base (vdc)	Collector (vdc)	IC							
								(voltages are all + vdc)			
Q1	0	0	±o0.6	data Pin	1	2	3	4	5	6	7	8
Q2	0	±0	6ac	0	A1	0 12	0	12	7.5	0	0	12
Q3	0	0	±28	A2	0	12	0	12	7.5	0	0	12
Q4	±6.5	0	±28	A3	0 .15	0	2	7.5	0	0	12	

Transistor	Emitter (vdc)	Base (vdc)	Collector (vdc)
Q5	0	0	+12
Q6	0	0	+12
Q7	+28	+27.5	+28
Q8	0	0	+28
Q9	0	0	+28

Section II. REPAIR PROCEDURES

4-5. Repair Techniques

Most of the components of the bench test set can be removed and replaced without special procedures.

The precautions given in a and b below apply specifically to the bench test panel assembly Al: a. Do not disturb the settings of pulse rate, amp cal or pulse cal adjustment potentiometers R9, R6 and R31. Any adjustment of these potentiometers will require recalibration of A9, A16, or LIGHT .NERGY meter M1.

b. When soldering filters FL1, be careful to prevent excessive bending or stressing of their metal tab terminals. To prevent these tabs from becoming brittle, use the minimum amount of solder needed for a solid connection and avoid overheating.

c. When soldering connections to the standoff terminals, avoid pressing against them. Also, heat only the metal tips of standoffs and be careful not to touch the insulated bases with the soldering iron. Do not overheat.

d. Use a pencil-type iron with a 25-watt maximum capacity. Bench test panel Al is fully transistorized; be careful when replacing its components. If the iron must be used with ac, use an isolating transformer between the iron and the line, or use an iron which can be properly grounded (3-wire). Do not use a soldering gun; damaging voltages from the gun can be induced into semiconductor components.

e. When soldering semiconductor (transistors, unijunctions, silicon-controlled rectifiers and diodes) leads, solder quickly; wherever wiring permits, use a heat sink (such as long-nosed pliers) between the soldered terminal and the semiconductor. Use approximately the same length and dress of semiconductor leads as used originally.

4-6. Replacement Procedures

Test Set, Photographic Flasher System, Bench LS69A consists of two major assemblies: test panel (A1) and power limiter and blower assembly (A2). The bench test panel is further divided into eleven subassemblies: MASTER switch and component assembly A1A1A9; VOLTAGE CONTROL TEST switch and component assembly A1A1A10; LOGIC TEST switch and component assembly A1A1A11; MODULE TEST switch and component assembly A1A1A12; Power chassis and component assembly A1A1A13; Function chassis and component assembly A1A1A14; Input Pulse Generator A1A1A14A9; Integrating Amplifier A1A1A14A16; Electronic component assembly 1A1A14A10, A12 and A14; Electronic component assembly A1A1A14A11, A13, and A15, and SYSTEM TEST switch and component assembly A1A1A15. Procedures for the removal and replacement of the components of the bench test set are obvious and require no special instructions. Figure 3-1 identifies all the major units of the bench test set. Figure 3-2 through 3-12 identify all the subassemblies and component parts of panel and chassis. Figure 3-13 identifies all the major units of the power limiter and blower assembly. Figure 3-15 identifies the components and assemblies of the adapter, and figure 3-14 identifies the components of the adapter PCB.

CHAPTER 5
GENERAL SUPPORT TESTING PROCEDURES

5-1. General

a. Testing procedures are prepared for use by Electronics Field Maintenance Shops and Electronics Service Organizations responsible for general support maintenance of electronic equipment to determine the acceptability of repaired equipment. These procedures set forth specific requirements that the repaired bench test set must meet before it is returned to the using organization. These procedures may also be used as a guide for testing equipment that has been repaired at direct support if the proper tools and test equipment are available. A summary of the performance standards is given in paragraph 5-12.

b. Comply with the instructions preceding each chart before preceding to the chart. Perform each step in sequence. Do not vary the sequence. For each stop, perform all the actions required in the Test equipment and Equipment under test columns; then, perform each specific test procedure and verify it against its performance standard.

5-2. Test Equipment and Materials

All test equipment, and materials required to perform the testing procedures given in this section are listed below and are authorized under TA-11-17 and TA 11-100(11-17).

a. Test Equipment.
(1) Ac Ammeter.
(2) Multimeter.
(3) Oscilloscope.
(4) Pulse generator.

b. Material.
(1) Connector, PT06CE-1Sl11P(SR).
(2) Connector, PT06CE-12-lOS(SR).
(3) Connector, PT06CE-14-19P(SR).
(4) Connector, PT06CE-14-19P(SR).
(5) Connector, DS04-37-30P-059-1.
(6) Connector, PT06CE-16-26PW(SR).
(7) Connector, PT06CE-16-26P(SR).
(8) Connector, DM9702-37S.
(9) Resistor, 36-ohm.
(10) Resistor, 82-ohm.
(11) Resistor, 120-ohm (2)
(12) Resistor, 240-ohm.
(13) Resistor, 360-ohm.
(14) Resistor, 33-ohm.
(15) Resistor, 820-ohm.
(16) Resistor, 4.3K.
(17) Resistor, variable, 10K.
(18) Resistor, 80K.
(19) Diode, Zener, 8.2-volt.
(20) Diode, Zener 24-volt.
(21) Capacitor, 0.22 F. 400 WVDC.
(22) Capacitor, 0.33 F. 50 WVDC.
(23) Rectifier, silicon-controlled, 2N3652.
(24) Switch, pushbutton.

5-3. Characteristics of Test Equipment Required General Support Testing

a. Ac Ammeter.
(1) Frequency range: 25 to 1,000 cps.
(2) Current range: 0 to 15 amperes.
(3) Accuracy: ± 3/4 percent.

b. Multimeter.
(1) Dc volts: 0-2.5-10-50-250-1,000-5,000-at 20,000 ohms/volt.
(2) Dc accuracy: t 2 percent.
(3) Ac volts: 0-3-10-50-250-1,000-5,000-at 5,000 ohms/volt.
(4) Ac accuracy: ± 3 percent.
(5) Ohms: 0-1,000-10,000-(4.4-44 at center scale).
(6) Megohms: 0-1-100-(4,400-440,000 at center scale).

c. Oscilloscope.
(1) Time base range: 1 usec/cm to 5 sec/cm accuracy: ± 3 percent.
(2) Vertical amplifier bandwidth: dc-coupled, dc to l-megohm deflection factor (sensitivity): 0.2 mV/cm to 20 volts/cm accuracy: ± 3 percent.

d. Pulse generator.
(1) Amplitude calibrated continuously variable, 0 to 50 volts, peak-to-peak.
(2) Duration: calibrated, variable, 10 usec to 100 msec., (3) Polarity: positive or negative.
(4) Prf. 0.1 cps to 10 kc.

5-4. Fabrication of Test Panel Test Board

Testing of the test panel requires the use of a test board which permits application of primary ac and

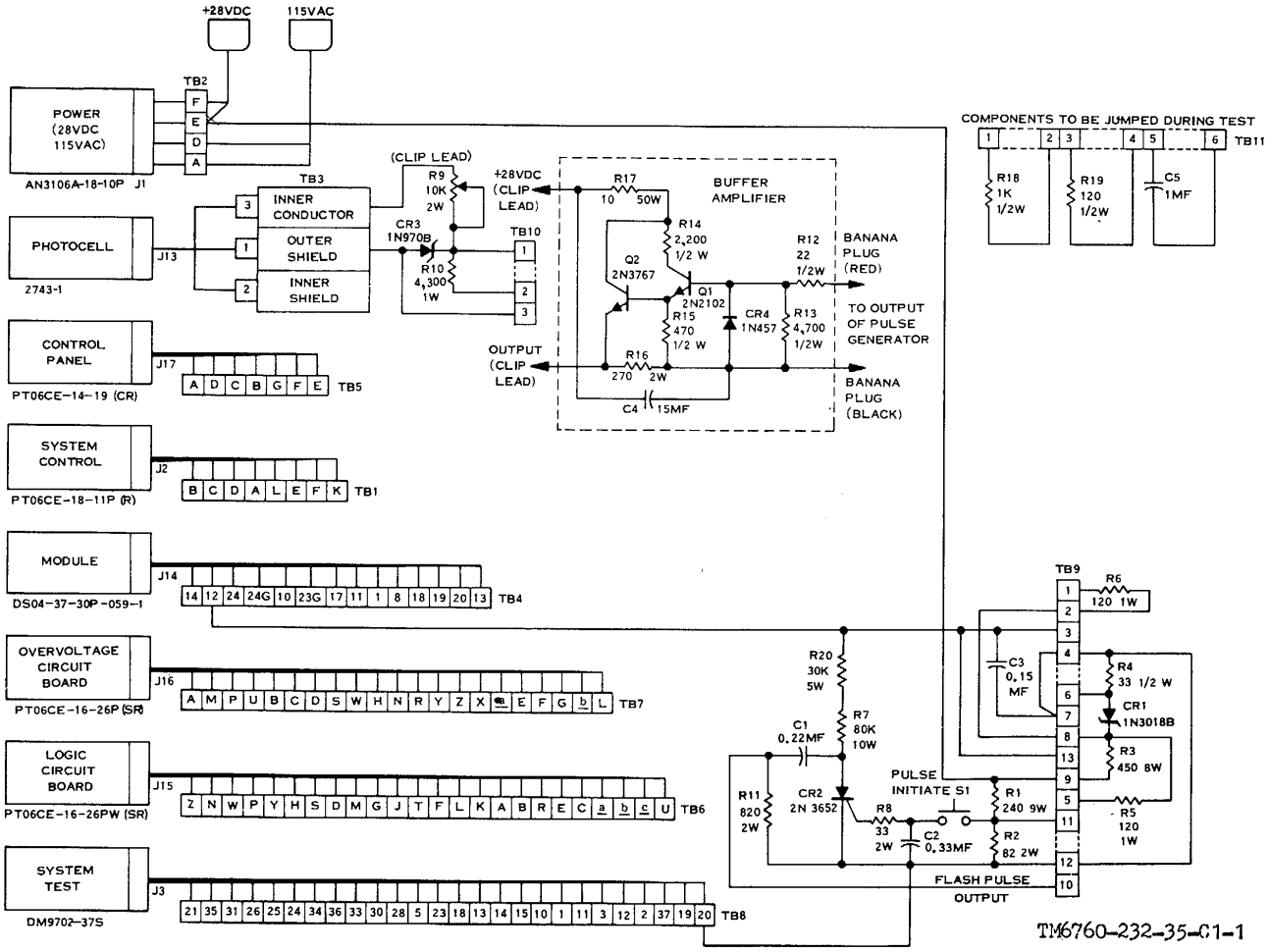


Figure 5-1. Test panel test board, schematic diagram.

dc power. It also facilitates the application of operational control voltages and signals and the measurement of input and output voltages and test signals. No special techniques are required in the construction of the test board. Materials needed for construction are listed in paragraph 5-2b. Construct the test board as shown in figure 5-1.

c. Procedure.

5-5. Physical Condition

r. Test Equipment. None.

b. Test Connections and Equipment.

(1) No connections required.

(2) Remove test panel from combination case.

Step No.	*Test equipment*	*Equipment under test*	*Control settings*	*Test procedure*	*Performance standard*
1.	None		Controls may be in any position	a. Inspect combination case and panel assembly for damage, missing parts, and condition of paint Note. Touchup painting is recommended In lieu of refinishing whenever practical; screwheads, connectors, and other plated parts will not be polished with abrasives.	a. No damage evident or parts missing. External surfaces intended to be painted will not show bare metal. Panel lettering must be legible.
				b. Inspect all switches and component and chassis assemblies for loose or missing screws, nuts, and washers.	b. Screws, nuts and washers will be tight. None missing.
				c. Inspect connectors, switches, and the meter for looseness, damage, or missing parts.	c. No loose parts or damage No missing parts.
2.	None		Controls may be in any position	a. Rotate all switches throughout the limits of their travel. Operate toggle switches on panel operate firmly and positively.	a. All switches must rotate freely without binding or excessive looseness. Togle switch must
				b. Inspect stops on all switches for damage or bending and for proper orientation.	b. Stops will operate properly without evidence of damage.

5-6INTERNALTEST Position Test

(1) Multimeter

(2) Oscilloscope.

(3) Test board.

b. Test Connections and Conditions. Connect bench test set to test board as shown in figure 5-2.

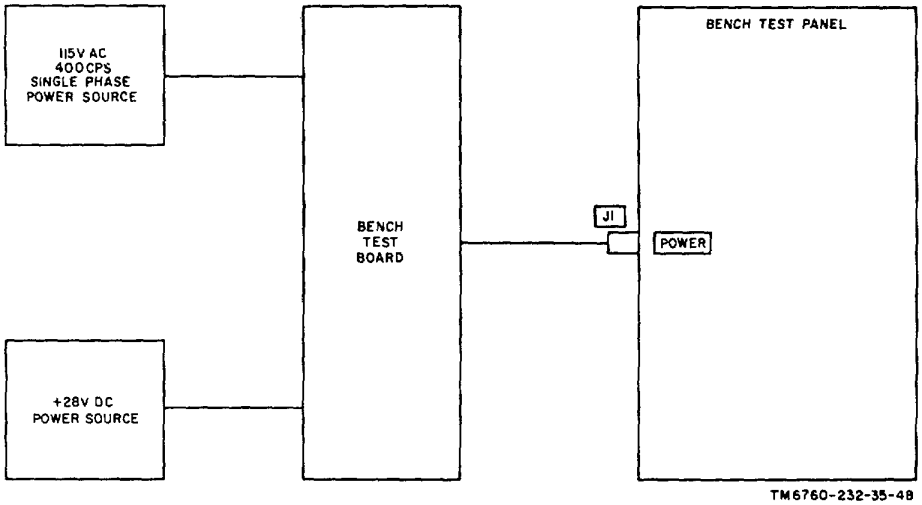


Figure 5-2. INTERNAL TEST position, operational test setup.

c. Procedure.

Step No.	*Test equipment*	*Control settings* *Equipment under test*	*Test procedure*	*Performance standard*
1	a. Dc power source: ON b. Ac power source: ON	a. None b. None	a. None b. None	a. None. b. None.
2	N/A	MASTER switch: LAMPS. E V/H control fully ccw H V TEST control fully ccw POWER switch to on	a. None b. None c. None d. None	a. None. b. None. c. None. d. All lamps light.
3	N/A	MASTER switch: LAMP DRIVERS	None	a. All lamps extinguish, except AC PWR and DC PWR. b. INPUT PULSE, FLASH 1, 2, 3, and LOGIC 1, 2, 3 lamps flash once every 3.75 seconds.
4	a. N/A INTEGR AMP b. N/A	a. MASTER switch to b. RESET switch de-pressed momentarily	a. None (1) FLASH and LOGIC lamps stop flashing. (2) LIGHT ENERGY meter indicates 8.0 ± 0.2 light energy units. b. None	a. Observe that: b. LIGHT ENERGY meter indication de-creases to 0.
5	Oscilloscope: DC	N/A	Connect oscilloscope to CHAN A VERT and GND terminals	Negative-going pulse of approx 12 volts peak, and pulse width of 1 msec.
6	a. Multimeter: 50 vdc scale b. Oscilloscope, AC	MASTER switch: E V/H terminals.	a. Connect multimeter to ± and - MULTR b. Oscilloscope connected as in step 5	a. Multimeter indicates 47 ± 2.5 vdc. b. Oscilloscope displays a ripple voltage less than 200 mv peak to peak. c. INPUT PULSE lamp flashes once every 3.75 seconds.
7	a. Multimeter: 50 vdc scale b. Oscilloscope: AC	MASTER switch: ± 30 VDC	a. Multimeter connected as in step 6 b. Oscilloscope connected as in step 5	a. Multimeter indicates 30 -±1.5 vdc. b. Oscilloscope indicates a ripple voltage less than 50 mv peak to peak. c. INPUT PULSE lamp flashes once every 3.75, seconds.

5-7. LOGIC TEST Position Test

a. Test Equipment

(1) Test board

(2) Multimeter

(3) Oscilloscope.

(4) 1K resistor.

(5) 120 ohm resistor.

b. Test Connections and Conditions. Connect bench test set to test board as shown in figure 5-3.

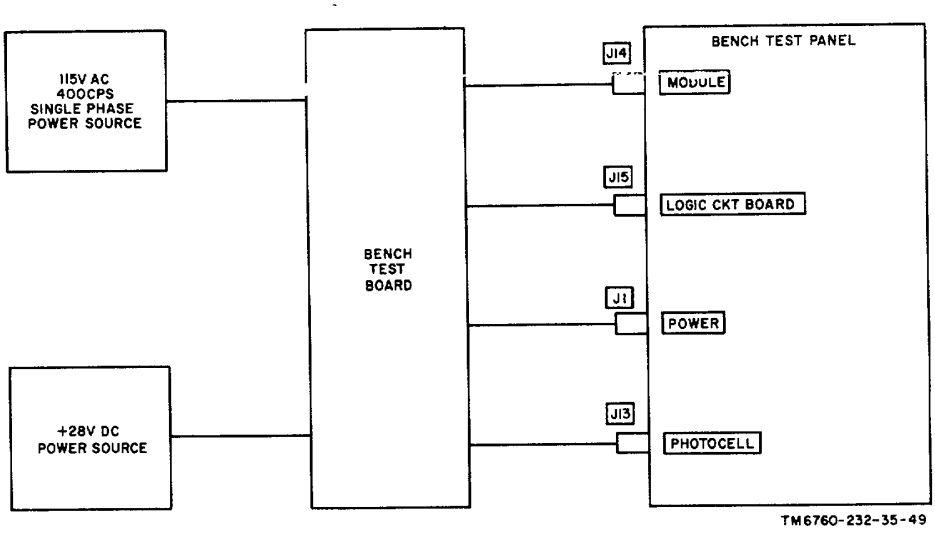


Figure 5-3. LOGIC TEST position, operational check setup.

c. Procedure.

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1	Multimeter: 50 vdc scale	a. MASTER switch to LOGIC.	a. None	a. None.
		b. E V/H control fully cw	b. None	b. None.
		c. LOGIC TEST switch to DELAY	c. Connact positive lead to ± MULTPR terminal and negative lead to J15-Y.	c. (1) Multimeter indicates approximately 47 vdc. (2) INPUT PULSE and INPUT lamps flash simultaneously.
		d. LOGIC TEST switch to OPERATE	d None	d. (1) Multimeter indicates approximately 47 vdc. (2) INPUT PULSE and INPUT lamps flash simultaneously.
		e. N/A	e. Move positive lead to J15-W	e. Multimeter indicates approximately 47 vdc.
		f. Rotate LOGIC TEST through all positions	f. None	f. INPUT PULSE and INPUT lamps flash in all positions except SHIFT.
2	N/A	OPERATE	LOGIC TEST switch to	a. Connect jumper from a. A lamp lights.
			J15-P to J15-S.	
			b. Move jumper from J15-P to J15-D.	b. B lamp lights.
			c. Move jumper from J15-D to J15-R.	c. Q1 lamp lights.
			d. Move jumper from J15-R to J15-F.	d. Q2 lamp lights.
			e. Remove jumper	e. None.

c. Procedure. (cont.)

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
3	Oscilloscope: DC range	Same as step 2	a. Connect 120 ohm resistor between J1-E and J14-14.	a. None
			b. Connect oscilloscope vertical lead to J14-14 and ground lead to J15-Y	b. Oscilloscope displays negative-going pulse, 5 volts peak, pulse width of 100 psec each time INPUT PULSE lamp flashes.
			c. Remove 120 ohm resistor.	c. None.
			d. Move oscilloscope vertical lead to J15-L	d. (1) Oscilloscope displays'a 27 - 3-volt peak, 140 ± 20-msec pulse. (2) INPUT PULSE lamp flashes.
		LOGIC TEST switch to DELAY	e. Move oscilloscope vertical lead to CHAN A VERT terminal	e. (1) Oscilloscope displays a 27 ± 3-volt peak, 140 ± 20-msec pulse. (2) INPUT PULSE lamp flashes.
4	a. Oscilloscope: DC range, 59v/cm. sensitivity. Position upper trace 2 cm above centerline and lower trace 2 cm below center line	a. LOGIC TEST switch to SHIFT	a. Connect A channel vertical lead to CHAN A VERT terminal, and B channel vertical lead to CHAN B VERT terminal. Connect ground leads to J3-37.	a. None.
	b. N/A	b. N/A	b. Connect jumper between TB9-3 and J15-N.	b. None.
	c. N/A	c. N/A	e. Connect second jumper between TB9-4 and J15-C.	c. None.
	d N/A	d. Depress and hold PRESS to SHIFT light cluster.	d. None	d. Both oscilloscope traces move 1.2±0.3 cm toward centerline on screen.
	e. N/A	e. Release PRESS to SHIFT light cluster.	e. None	e. None.
	f. Position channel B trace off screen.	f. N/A	f Remove channel B vertical lead.	f. None.
	g. Position channel A trace to centerline.	g. Rotate LOGIC TEST switch through all positions	g. None.	g. Oscilloscope trace will appear approximately 1.5 cm above centerline in all positions except SHIFT.
	h. N/A	h. N/A	h. Remove jumpers	h. None.
5	Oscilloscope DC range	a. LOGIC TEST switch to OUTPUT 1	a. Connect oscilloscope to CHAN B VERT and GND terminals.	a. None.

c. Procedure.

Step No.	Test equipment	Control settings / Equipment under test		Test procedure	Performance standard
		b	N/A	b Connect jumper between J14-14 and J15-b	b Oscilloscope displays a 25-volt peak, 125-Ilsec pulse each time the INPUT PULSE, INPUT and 1 lamps flash.
		c	LOGIC TEST switch to OUTPUT 2	c Move jumper J15-b to J15-c,	c Oscilloscope displays a 25-volt peak, 125-psec pulse each time the INPUT PULSE INPUT and 2 lamps flash.
		d	LOGIC TEST switch to OUTPUT 3	d Move jumper from J15-c to J15-a	d Oscilloscope displays a 25-volt peak, 125-/Csec pulse each time the INPUT PULSE, INPUT and 3 lamps flash.
		e	N/A	e Remove jumper and oscilloscope.	e None.
6	Multimeter: 2.5 vdc scale		Same as step 5	Connect positive lead to J13-inner shield and negative lead to J13-outer shield.	Multimeter indicates 0.59 ± 0.06 vdc.
7	Multimeter	a	LOGIC TEST switch to OUTPUT 1 TEST switch to K1 CLOSE	a Connect 1K resistor MODULE terminal to CHAN B GND terminal.	a None. from CHAN B VERT
		b	N/A	b Connect positive lead to CHAN B VERT terminal and negative lead to CHAN B GND terminal.	b (1) Multimeter indicates 14 ± 1 vdc. (2) INPUT PULSE, INPUT and 1 lamps flash.
		c	LOGIC TEST switch to OUTPUT 2	c None	c Multimeter indicates 14 ± 1 vdc. INPUT PULSE, INPUT and 2 lamps flash.
		d	LOGIC TEST switch to OUTPUT 3	d None	d Multimeter indicates 14 ± 1 vdc. INPUT PULSE, INPUT and 3 lamps flash.
8	N/A	LOGIC TEST switch to OPERATE. SYSTEM TEST switch to SYNC		Connect a jumper between J1-E and - SHTR SYNC terminal.	INPUT]PULSE and INPUT lamps light.

5-8. VOLTAGE CONTROL TEST Position Test

a. Test Equipment.

(1) Test board

(2) Multimeter.

b. Test Connections and Conditions. Connect bench test set to test board as shown in figure 5-4.

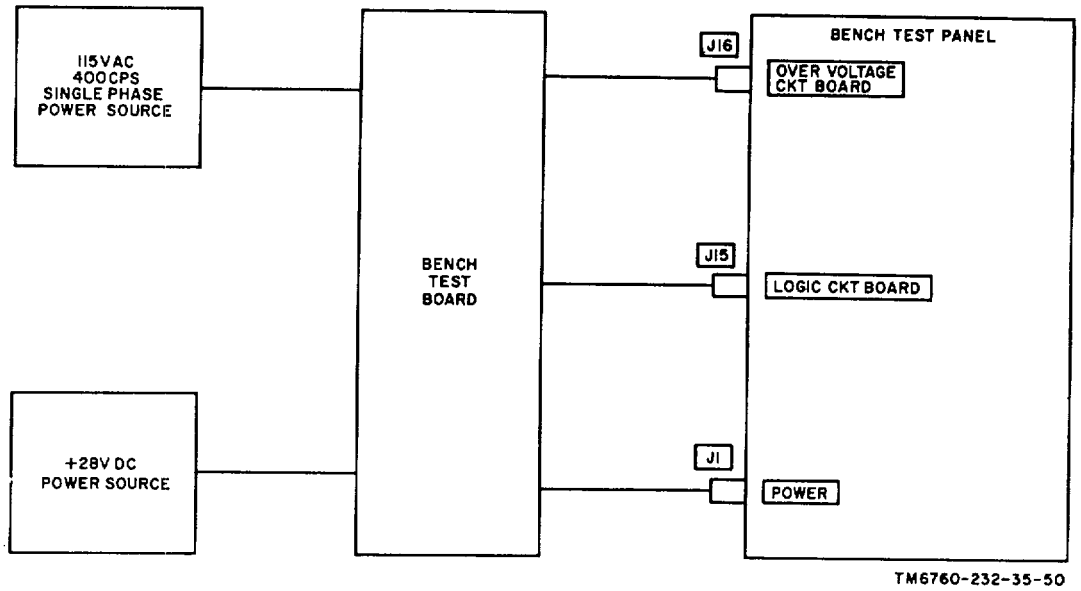


Figure 5-4. VOLTAGE CONTROL TEST position, operational test setup.

c. Procedure.

Step No.	*Test equipment*	*Control settings / Equipment under test*	*Test procedure*	*Performance standard*
1	Multimeter: 50 vdc scale VOLTAGE CONTROL.	a. MASTER switch to	a. None	a. None.
		b. HV TEST control fully cw.	b. None	b. None.
		c. VOLTAGE CONTROL TEST switch to HV LIMIT 1.	c. None	c. None.
		d. N/A	d. Connect multimeter positive lead to ± MULTR terminal and negative lead to J15-Y.	d. Multimeter indicates 25 ± 1 vdc.
		e. VOLTAGE CONTROL TEST switch to HV LIMIT 2.	e. None	e. Multimeter indicates 25 ± 1 vdc.
		f. VOLTAGE CONTROL TEST switch to HV LIMIT 3.	f. None ± 1 vdc.	f. Multimeter indicates 25
2	Multimeter: 50 vdc scale	a. VOLTAGE CONTROL TEST switch to HV LIMIT 1	a. Connect positive lead to J16-E and negative lead to J15-Y.	a. Multimeter indicates 25 t 1 vdc.
		b. VOLTAGE CONTROL TEST switch to HV LIMIT 2.	b. None ± 1 vdc.	b. Multimeter indicates 16
		c. VOLTAGE CONTROL TEST switch to HV LIMIT 3.	c. None ± 1 vdc.	c. Multimeter indicates 16

c. Procedure (cont.)

c. Procedure.

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
3	Multimeter: 50 vdc scale	a VOLTAGE CONTROL TEST switch to HV .LIMIT 2	a Connect positive lead to J16-F and negative lead to J15-Y.	a Multimeter indicates 25 ± 1 vdc.
		b VOLTAGE CONTROL TEST switch to HV LIMIT 3.	b None	b Multimeter indicates 16 ± vdc.
		c VOLTAGE CONTROL TEST switch to HV LIMIT 1,	c None	c Multimeter indicates 16 ± 1 vdc.
4	Multimeter: 50 vdc scale,	a VOLTAGE CONTROL TEST switch to RI LIMIT 3	a Connect positive lead to J16-G and negative lead to J15-Y.	a Multimeter indicates 25 ± 1 vdc.
		b VOLTAGE CONTROL TEST switch to HV LIMIT 2.	b None	b Multimeter indicates 16 1 vdc.
		c VOLTAGE CONTROL TEST switch to HV LIMIT 1.	c None	c Multimeter indicates 16 ± 1 vdc.
5	Multimeter: 50 vdc scale	Same as step 4	Connect positive lead to J16-Z and negative lead to J14-11.	Multimeter indicates 28 1 vdc.

5-9, MODULE TEST Position Test

a Test Equipment

(1) Test board
(2) Oscilloscope
(3) Multimeter.
(4) Pulse generator.
(5) 1K resistor.

b. Test Connections and Conditions Connect bench test set to test board as shown in figure 5-5.

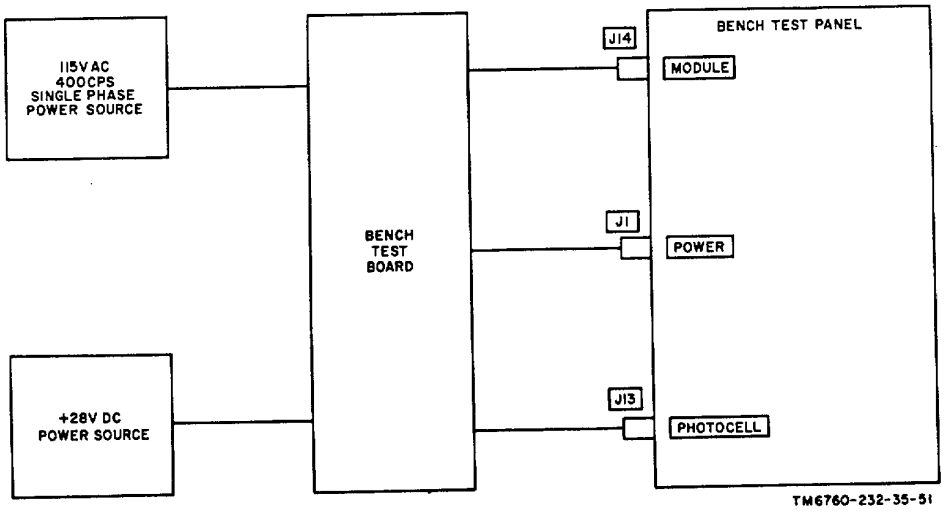


Figure 5-5. MODULE TEST position, operational test setup.

c. Procedure.

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1	Pulse generator connected as shown in figure 5-1	a. MASTER switch to MODULE	a. Adjust pulse generator for a 50-volt, 700-1sec pulse at a prf of 1 pps, and connect clip lead to J14-24 and ground lead to J13-outer shield.	a. None.
		b. N/A	b. Connect oscilloscope to CHAN A VERT and GND terminals.	b. None.
		c. MODULE TEST switch to P/C	c. None	c. LIGHT ENERGY meter indicates a sharp upswing each time a pulse is displayed on oscilloscope.
		d N/A	d Remove pulse generator.	d None.
2	N/A	a	MODULE TEST switch	a Connect jumper be- a
K1 CLOSE lamp lights.		to K1 CLOSE	tween J14-8 and J14-11	INPUT PULSE lamp flashes.
		b MODULE test switch to K1 OPEN	b	b K- CLOSE lamp remains lighted.
		c N/A	c Remove jumper lead from J14-11	c K1 CLOSE lamp extinguishes and K1 OPEN lamp lights.
		d N/A	d Remove jumper	d None.
3	Multimeter: 50 vdc scale. 1K resistor	a MODULE TEST switch to DISCH RES	a Connect positive lead to J14-1 and negative lead to J14-11	a Multimeter indicates 28 ± 1 vdc. K1 OPEN lamp extinguishes.
		b N/A	b Connect 1K resistor between J14-11 and'J14-8.	b None.
		c N/A	c Move positive multimeter lead from J14-1 to J14-8.	c None.
		d MODULE TEST switch to CHARGE DIODES	d None	d Multimeter indicates 14 ± 2 vdc.
		e N/A	e Remove jumper resistor and multimeter.	e None.
4	N/A	a	MODULE TEST switch	a Connect a jumper be- a
MOD INTLK lamp		to INTLK	tween J1-E and J14-10	lights.
		b N/A	b Remove jumper	b None.
5	a Oscilloscope DC range	a MODULE TEST switch to FLASH PULSE A	a Connect a jumper from FLASH PULSE OUTPUT (TB9-5) to J14-13.	a None.
	b N/A	b N/A	b Connect oscilloscope to CHAN A VERT and GND terminals.	b None.
	c Momentarily depress PULSE INITIATE switch,	c N/A	c None	c FLASH A lamp flashes and oscilloscope displays the trigger voltage.

c. Procedure.

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
	d. N/A	d. MODULE TEST switch to FLASH PULSE B	d. Move jumper from J14-13 to J14-20.	d. None.
	e. Momentarily depress PULSE INITIATE switch	e. N/A	e. None	e. FLASH B lamp flashes and oscilloscope displays the trigger voltage.
	f. N/A	f. N/A	f. Remove jumper	f. None.
6	Multimeter 50: vdc scale	a. Same as step 5	a. Connect positive lead to J14-17 and the negative lead to J14-11.	a. None.
		b Rotate MODULE TEST switch through all positions	b. None	b. Multimeter indicates 28 - 1 vdc in all positions except K1 OPEN and K1 CLOSE. In K1 OPEN position the K1 OPEN lamp lights.
		c N/A	c Remove multimeter	c None.

5-10 CONTROL PANEL TEST Position Test

a. Test Equipment

(1) Test board

(2) Multimeter.

b. Test Connections and Conditions Connect bench test set to test board as shown in figure 5-6.

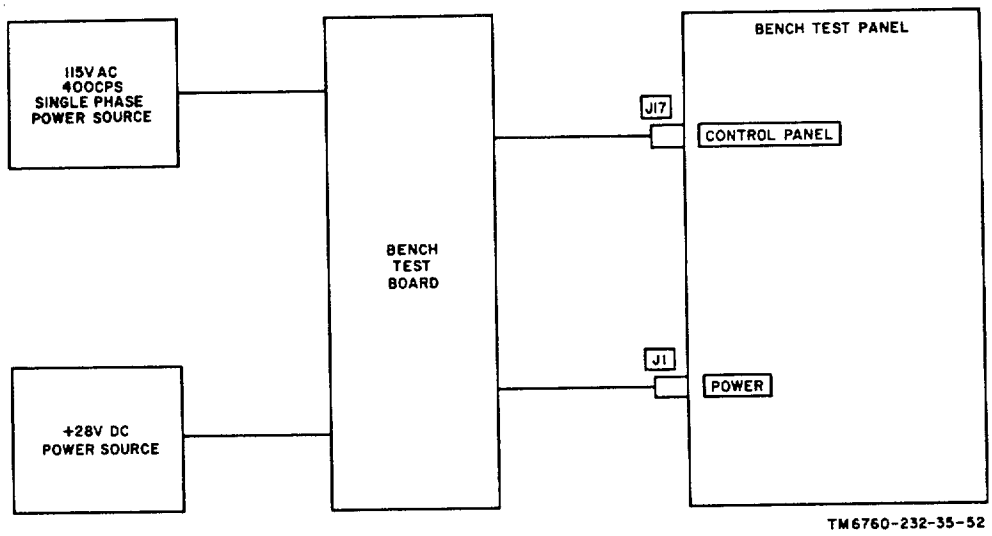


Figure 5-6. CONTROL PANEL TEST position, operational test setup.

c. Procedure.

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1	Multimeter: 50 vdc scale	MASTER switch to CONTROL PANEL	a. None	a. INPUT PULSE lamp flashes.
			b. Connect positive lead to J17-B and negative lead to J17-A.	b. Multimeter indicates 28 ±1 vdc.
			c. Move positive lead from J17-B to J17-C	c. Multimeter indicates 28 ± 1i vdc.
			d. Move positive lead from J17-C to J17-D	d. Multimeter indicates 28 ± 1 vdc.
			e. Remove multimeter	e. None.
2	N/A	Same as step 1	a. Connect a jumper between J17-A and J17-E.	a. None.
			b Connect a second jumper between J17-B and J17-G.	b. CONTROL DC lamp lights.
			c. Move the second jumper from J17-G to J17-F	c. CONTROL AC lamp lights.
			d. Remove jumpers	d. None.

5-11. SYSTEM TEST Position Test

a. Test Equipment

(1) Test board
(2) Multimeter
(3) Oscilloscope
(4) 1K, ½ -watt resistor.
(5) 1-mfd capacitor.
(6) Pulse generator.
(7) Buffer amplifier.

b. Test Connections and Conditions. Connect bench test set to test board as shown in figure 5-7.

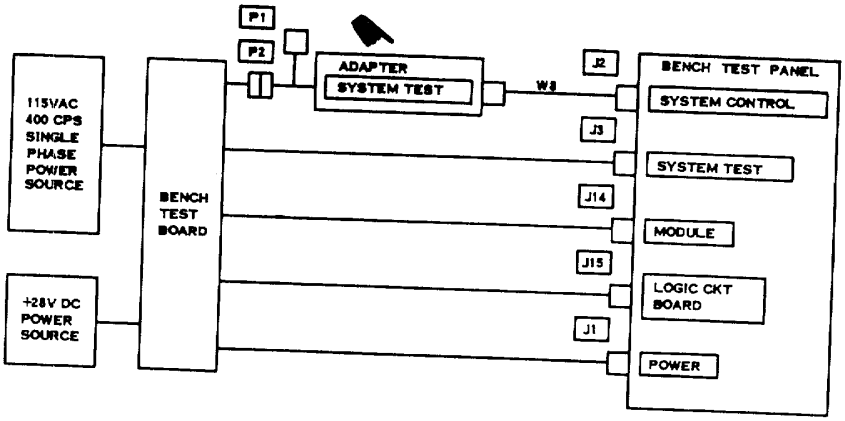


Figure 5-7. SYSTEM TEST position, operational test setup.

c. Procedure.

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1	N/A	a. MASTER switch to SYSTEM.	a. None	a. None.
		b. SYSTEM TEST switch to OPR MODE.	b. None	b. None.
		c. E V/H control fully ccw.	c. None	c. None.

c. Procedure.

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
		d. HV TEST control fully ccw.	d. None	d. None.
		e VOLTAGE CONTROL TEST switch to PHA (+ GATE CONT).	e. None	e. None.
		f MODULE TEST switch to K1 CLOSE.	f. None	f. None.
		g LOGIC TEST switch to OPERATE.	g. None	g. None.
		h. KA-30-KA-76 switch to KA-30,	h. None	h. None
		i. READY/INTLK switch on adapter to OFF.	i. None	i. None
		j. PULSE RATE switch on adapter to NORM.	j. None	j. None
		k. VOLTAGE switch on adapter to 12V.	k. None	k. None
2	Multimeter: 50 vdc scale	Rotate E V/H control fully cw	Connect positive lead to J2-E and negative lead to J2-F.	a Multimeter indicates a smooth increase in voltage from 0 to approximately 47 vdc. b. INPUT PULSE lamp flashes.
3	Multimeter: 50 vdc scale	Rotate SYSTEM TEST switch through all its positions	Multimeter connected as in step 2	Multimeter indicates 0 vdc in all positions except OPR MODE.
4	a. Oscilloscope: DC range, external trigger	SYSTEM TEST switch to OPR MODE	a. Connect oscilloscope vertical lead to J2-L and ground lead to J2-F.	a. None.
	b. Multimeter: 50 vdc scale		b. Connect a jumper between TRIGGER terminal on test panel and external trigger input of oscilloscope	b. Observe that: (1) Oscilloscope displays a 30 ± 3 volt peak pulse with pulse width of 140 ± 20 msec. (2) INPUT PULSE lamp flashes.
			c. Connect multimeter positive lead to J2-B and negative lead to J2-A.	c. Multimeter indicates 28 ±1 vdc.
			d. Move oscilloscope input to J2 pin K	d. None.
			e. INPUT PULE switch to KA-76	e. Observe same pulse as b (1) above.
5	Multimeter: 50 vdc scale	Rotate MASTER switch through all its positions	None	Multimeter indicates 28 ± 1 vdc in SYSTEM position only.
6	Multimeter: 250 vac scale	Rotate MASTER switch through all positions	Connect multimeter positive lead to J2-C and negative lead to J2-A.	a. Multimeter indicates 115 ± 10 vac in SYSTEM position only. b. INPUT PULSE lamp flashes.

c. Procedure.

Step No.	*Test equipment*	*Control settings* *Equipment under test*	*Test procedure*	*Performance standard*
7	Multimeter: 50 vdc scale	a. SYSTEM TEST switch to SYNC	a. Connect positive lead to J3-21 and negative lead to J2-A.	a. None.
		b. Rotate MASTER switch through all positions	b. None	b. Multimeter indicates ± 28 ± 1 vdc in SYSTEM position only.
8	N/A	SYSTEM SYSTEM TEST switch to MOD 1; MOD 2; MOD 3.	MASTER switch to	None INPUT PULSE lamp flashes in each named position of SYSTEM TEST switch.
9	N/A	a. SYSTEM TEST switch to HV LIMIT,	SYSTEM TEST switch	a None a. INPUT PULSE lamp does not light.
		b. Momentarily depress MANUAL switch	b None	b. INPUT PULSE lamp lights.
		c. SYSTEM TEST switch to PH A	c None	c. INPUT PULSE lamp does not light.
		d. Momentarily depress MANUAL switch.	d None	d. INPUT PULSE lamp.
		e. SYSTEM TEST switch to PH B	e None	e. INPUT PULSE lamp does not light.
		f. Momentarily depress MANUAL switch	f None	f. INPUT PULSE lamp lights.
		g. SYSTEM TEST switch to PH C	g None	g. INPUT PULSE lamp does not light.
		h. Momentarily depress MANUAL switch	h None	h. INPUT PULSE lamp lights.
10	Multimeter: 50 vdc scale	Rotate SYSTEM TEST switch through all positions	Connect positive lead to + SHTR SYNC terminals and negative lead to J2-A.	Multimeter indicates + 28 ± 1 vdc in SYNC position only.
11	Multimeter: 50 vdc scale,	a. SYSTEM TEST switch to MOD-1	a. Connect 1K resistor between J3-13 and J3-37. Connect multimeter positive lead to J3-13 and negative lead to J3-37.	a. None. Multimeter indicates
		b. SYSTEM TEST switch to MOD-2	b. None	b. Multimeter indicates 28 ± 1 vdc.
		c. SYSTEM TEST switch to MOD-3	c. None	c. Multimeter indicates 28 ± 1 vdc.
12	Same as step 11	a. SYSTEM TEST switch to MOD-2	a. Connect 1K resistor between J3-14 and J3-37. Connect multimeter positive lead to J3-14 and negative lead to J3-37.	a. None. Multimeter indicates
		b. SYSTEM TEST switch to MOD-3	b. None	b. Multimeter indicates 28 ± 1 vdc.
		c. SYSTEM TEST switch to MOD-1	c. None	c. Multimeter indicates 28 ± 1 vdc.

c. Procedure.

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
13	Same as step 11,	a. SYSTEM TEST switch to MOD-3	a. Connect resistor between J3-15 and J3-37. Connect multimeter positive lead to J3-15 and negative lead to J3-37.	a. None. Multimeter indicates
		b. SYSTEM TEST switch to MOD-2	b. None	b. Multimeter indicates 28 ± 1 vdc.
		c. SYSTEM TEST switch to MOD-I	c. None	c. Multimeter indicates 28 ± 1 vdc.
14	Oscilloscope: DC range	a. SYSTEM TEST switch to HV LIMIT	a. Connect the oscilloscope to CHAN A VERT and GND terminals.	a. None.
		b. N/A	b. Connect the pulse generator through the buffer amplifer to Set pulse generator for an output of 2.3 volts peak' 10 usec pulse width, prf of 100 usec.	b. None. GATE CONT lamp lights.
		c. N/A	c. Connect oscilloscope to CHAN A VERT and GND terminals.	c. None.
		d. N/A	d. Connect a jumper between J2-C and J3-33	d. GATE CONT lamp remains lighted.
		e. SYSTEM TEST switch to OPR MODE	e. None	e. + GATE FAIL and -GATE FAIL lamps light.
		f. SYSTEM TEST switch to PH A	f. None	f. Oscilloscope indicates 324-volt peak-to-peak 400-cps signal. + GATE FAIL and -GATE FAIL lamps light.
		g. SYSTEM TEST switch to OPR MODE	g. Move jumper lead from J3-33 to J3-36	g. + GATE FAIL and -GATE FAIL lamps light.
		h. SYSTEM TEST switch to PH B	h. None	h. Oscilloscope indicates 324-volt peak-to-peak, 400-cps signal. + GATE FAIL and -GATE FAIL lamps light.
		i. SYSTEM TEST switch to OPR MODE	i. Move jumper lead from J3-36 to J3-34	i. + GATE FAIL and -GATE FAIL lamps light.
		j. SYSTEM TEST switch to PH C	j. None, 324-volt	j. Oscilloscope indicates peak-to-peak, 400-cps signal. + GATE FAIL and -GATE FAIL lamps light.
		k. N/A	k. Disconnect pulse generator, oscilloscope, buffer amplifier, and jumper.	k. None.

c. Procedure.

Step No.	Test equipment	Control settings / Equipment under test		Test procedure		Performance standard	
15	N/A	Same as step 14		a	Connect a jumper between J14-12 and J3-5.	a	+ 350 VDC lamp lights
		b	Remove jumper	b	None.		
16	Multimeter: 15 vdc scale	a	SYSTEM TEST switch to HV LIMIT	a	Connect positive lead to J3-26 and negative lead to J3-37.	a	None.
		b	N/A	b	Connect jumper between J15-W and J3-26. *Note* If HV LIMIT FAIL lamp is lit at this time, depress It and It will extinguish.	b	None.
		c	E V/H control rotated cw	c	Slowly rotate the E V/H control clockwise until HV LIMIT FAIL lamp lights.	c	Multimeter indicates 13.5 ± 1 vdc.
		d	E V/H control rotated fully ccw	d	None	d	HV LIMIT FAIL lamp remains lit.
		e	Depress HV LIMIT FAIL lamp	e	None	e	HV LIMIT FAIL lamp extinguishes.
		f	N/A	f	Move jumper lead from J3-26 to J3-25.	f	None.
		g	Rotate E V/H control cw	g	Slowly rotate E V/H control clockwise until HV LIMIT FAIL lamp lights.	g	Multimeter indicates 135 ± 1 vdc.
		h	Rotate E V/H control fully ccw	h	None	h	HV LIMIT FAIL lamp remains lit
		i.	Depress HV LIMIT FAIL lamp	i.	None	i.	HV LIMIT FAIL lamp extinguishes.
		j.	N/A	j.	Move jumper lead from J3-25 to J3-24.	j.	None.
		k	Rotate E V/H control cw	k	Slowly rotate E V/H control clockwise until H V LIMIT FAIL lamp lights.	k	Multimeter indicates 13.5 ± 1 vdc.
		l.	Rotate E V/H control fully ccw	l.	None	l.	HV LIMIT FAIL lamp remains lit
		m	Depress H V LIMIT FAIL lamp	m	None	m	HV LIMIT FAIL lamp extinguishes.
		n	N/A	n	Remove jumper	n	None.
17	N/A	Same as step 16		a	Connect a jumper between J2-A and J3-18	a	Connect a jumper between J2-A and J3-18 lights.
		b	Remove jumper	b	None.		
18	Pulse generator	Same as step 16		a	Connect pulse generator output through 1mfd capacitor to J3-13 and ground (J3-37).	a	None.
		b.	Set the pulse generator operating mode switch to manual trigger.	b.	None.		

INTERLOCK lamp

c. Procedure.

Step No.	Control settings: Test equipment	Equipment under test	Test procedure	Performance standard
			c. Set pulse generator output for a pulse of -4.0 volts peak and pulse width of 400 sec.	c. None.
			d. Manually trigger the pulse generator.	d. LOGIC 1 lamp flashes.
			e. Move pulse generator output to J3-14.	e. None.
			f. Manually trigger the pulse generator.	f. LOGIC 2 lamp flashes.
			g. Move pulse generator output to J3-15.	g. None.
			h. Manually trigger the pulse generator.	h. LOGIC 3 lamp flashes.
			i. Remove pulse generator.	i. None.
19 a	N/A	Same as step 16	a. Connect a jumper between FLASH PULSE OUTPUT (TB9-5) and J3-10.	a. None.
b.	Momentarily depress PULSE INITIATE switch		b. None	b. FLASH 1 lamp does not light.
c.	N/A		c. Move jumper from J3-10 to J3-1.	c. None.
d.	Momentarily depress PULSE INITIATE switch		d. None	d. Flash 1 lamp does not light.
e.	N/A		e. Connect a second jumper between J3-1 and J3-10.	e. None.
f.	Momentarily depress PULSE INITIATE switch.		f. None	f. FLASH 1 lamp flashes.
g.	N/A		g.	Remove jumpers g. None.
h	N/A		h.	Connect a jumper be- h.
None.			tween FLASH PULSE OUTPUT (TB9-5) and J3-11.	
i.	Momentarily depress PULSE INITIATE switch		i. None	i. FLASH 2 lamp does not light.
j.	N/A		j.	Move the jumper from j.
None.			J3-11 to J3-3.	
k.	Momentarily depress PULSE INITIATE switch,		k. None	k. FLASH 2 lamp does not light.
l.	N/A		l.	Connect a second l. FLASH 2
lamp lights.			jumper between J3-11 and J3-3.	
m	N/A		m.	Remove jumpers m. None.
o.	N/A		o.	Connect a jumper from o.
None.			FLASH PULSE OUTPUT to J3-12.	

c. Procedure.

Step No.		Test equipment	Control settings: Equipment under test		Test procedure		Performance standard
	p	Momentarily depress PULSE INITIATE switch		p	None	p	FLASH 3 lamp does not light.
	q	N/A		q	Move jumper from J3-12 to J3-2.	q	None.
	r	Momentarily depress PULSE INITIATE switch		r	None	r	FLASH 3 lamp does not light.
	s	N/A		s	Connect a second jumper between J3-12 and J3-2.	s	None.
	t	Momentarily depress PULSE INITIATE switch.		t	None	t	FLASH 3 lamp lights.
	u	N/A		u	Remove jumpers	u	None.
20		Pulse generator: manual setting	Same as step 16	a	Connect the pulse generator output to J3-19 and ground (J3-37).	a	None.
				b	Adjust pulse generator for a manual pulse of -5.0 volt peak, pulse width of 30 μ sec,	b	None.
				c	Trigger pulse generator lamp flashes.	c	GATE CONT DISABLE
21	a	Pulse generator		a	Connect the pulse generator exactly as shown in figure 3-1		
	b	Oscilloscope: dc range		b	Adjust the output for a pulse of 50.0 volts peak, pulse width of 700 sec and prf of 1 pps	b	LIGHT ENERGY meter indicates sharp upswing followed by a very slow decrease in the reading.
				c	Connect oscilloscope to CHAN B VERT and GND terminals.	c	None.
			d SYSTEM TEST switch to MOD-1	d	None	d	Oscilloscope displays -10 volt peak pulse with a pulse width of 700 sec each time INPUT PULSE lamp flashes.
			e SYSTEM TEST switch to MOD-2.	e	None	e	Same as d.
			f SYSTEM TEST switch to MOD-3.	f	None	f	Same as d.
			g N/A	g	Remove pulse generator and oscilloscope.	g	None.

5-12. POWER LIMITER and BLOWER Test

a. Test Equipment

(1) Ammeter

(2) Voltmeter.

b. Test Connections and Conditions. Connect power limiter and blower to test setup as shown in figure 2-2.

c. Procedure.

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1	N/A	a PHA, PHB and POWER circuit breaker to ON	None	a (1) PHC POWER lamps light. (2) Blower starts and blows air out of EXHAUST opening.
		b POWER circuit breaker to OFF.	b None	b None.
2	N/A	a BLOWER circuit breaker to ON	None	a Blower starts and blows air out of EXHAUST opening.
		b BLOWER circuit breaker to OFF.	b None	b None.
3	a Voltmeter: 250 vac scale	a N/A	a Connect voltmeter positive lead to J1-A and negative lead to J1-D.	a None.
	b Ammeter: 10 amp scale	b N/A	b Connect 8-ohm, 400-watt resistor between J2-4 and, negative lead of ammeter.	b None.
		c N/A	c Connect positive lead of ammeter to J2-1. **CAUTION** During the following tests do not leave POWER circuit breaker ON for more than 15 seconds. Do not turn POWER circuit breaker ON more than once a minute.	c None.
		d POWER circuit breaker ON and then OFF	d Observe and record the voltmeter and ammeter readings,	d Ammeter reading within following specifications: **Ammeter reading within following specifications:** $\left(\frac{\text{voltage reading}}{16}\right) - 1 = \text{lower ammeter limit}$ $\left(\frac{\text{voltage reading}}{16}\right) + 1 = \text{upper ammeter limit}$
		e N/A	e Move multimeter positive lead from J1-A to J1-B.	e.
		f N/A	f Move positive lead of ammeter from J2-1 to J2-2.	f None.
		g POWER circuit breaker ON; then OFF	g Observe and record voltmeter and ammeter readings.	g Same as step d.
		h N/A	h Move multimeter positive lead from J1-B to J1-C.	h None.

c. Procedure.

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
		i. N/A	i. Move ammeter positive lead from J2-2 to J2-3.	i. None.
		j. POWER circuit breaker ON; then OFF	j. Observe and record voltmeter and ammeter readings.	j. Same as step d.

5-12.1 ADAPTER Test

a. Test Equipment.
   (1) Multimeter.
   (2) Oscilloscope.
   (3) Jumper clip lead

b. Test Connections and Conditions. Connect test panel and adapter to test setup as shown in figure 5-7.

c. Procedure.

Step No.	Test equipment	Control settings: Equipment under test	Test procedure	Performance standard
1		Same as 5-11,c step 1	a None	a AC PWR and DC PWR lamps in test panel POWER section light.
			b None	b INPUT PULSE lamp on test panel and CAI ERA PULSE lamp on adapter light simultaneously once every 3.75 seconds.
			c None	c READY/INTLK lamp on adapter lights.
2		Same as for step 1	Connect clip lead to CAMERA PULSE + terminal and FLASH PULSE + terminal	FLASH PULSE lamp lights when CAMR PULSE lamp lights.
3		Same as for step 1	Connect clip lead to pins 17 and 18 of connector J1.	Same as for step 2.
4		Same as for step 1,	Connect clip lead to pin 9 of connector P1 and pin 17 of connector J1. Set INPUT PULSE switch on test panel to KA-76.	Same as for step

c. Procedure (cont)

Step No	Control Settings Test equipment	Equipment under test Test Procedure		Performance Standard
5		Same as for step 1.	Connect clip lead to pins 21 and 22 of connector J1.	Same as for step 2.
6		Same as for step 1.	Connect clip lead to pin 8 of connector P1 and pin 21 of connector J1.	Same as for step 2.
7		READY/INTLK switch to READY.	Connect clip lead to pins 3 and 4 of connector J1.	READY/INTLK lamp extinguishes.
8		READY/INTLK switch to READY. tor J1 and to terminal K of TB1 on bench test board.	Connect clip lead to pin 4 of connec-	READY/INTLK lamp extinguishes
9		READY/INTLK switch to K1. connector J1.	Connect clip lead to pins 8 and 10 of lit while READY/	K1 RELAY lamp lights and remains
10		INTLK switch is in K1 position.		
10		READY/INTLK switch to K1.	Connect clip lead to pin 8 of connector J1 and pin 2 of connector P1.	K1 RELAY lamp lights and remains lit while READY/ INTLK switch is in K1 position.
11	Adjust oscilloscope sweep speed to .05 sec/ cm, and vertical gain to 10 volts per cm.	a. READY/INTLK switch to READY	a. None	a. None
		b. Test panel TEST	b. Connect clip switch in SYSTEM section to GATE PH A.	b. None lead to pins 3 and 4 of connector J1.
		c. PULSE RATE switch to KA30 A	c. Connect oscilloscope leads to CAMERA PULSE + termainal and CAMERA PULSE - terminal on adapter.	c. Oscilloscope indicates a +28-vdc pulse rate of 1 PPS, (pulse interval of 1, 000 + 100 ms). Observe also that CAMR PULSE lamp lights for every camera pulse generated.

c. Procedure (cont)

Step No	Control Settings Test equipment	Performance Equipment under test	Test Procedure	Standard
12	Same as for step 11.	Same as for step 11 except PULSE RATE switch to KA 76 A.	Same as for step 11,	Same as for step 11
13	Adjust oscilloscope sweep speed to 0.1 sec/cm and vertical gain to 10 volts/cm.	Same as for step 11 except PULSE RATE switch to KA30 B.	a. Same as for step 11.	a. Oscilloscope indicates a +28-vdc pulse rate of 2.5 PPS (pulse interval of 400 ± 40 ms).
14	Same as for step 13.	Same as for step 11 except PULSE RATE switch to KA76 B.	Same as for step 11	Same as for step 13.
15	Same as for step 13.	Same as for step 11 except PULSE RATE switch to KA30 C.	a. Same as for step 11.	a. Oscilloscope indicates a +28 vdc pulse rate of 3. 5 PPS (pulse interval of 285 ± 30 ms).
			b. Same as for step 11.	b. CAMR PULSE lamp lights for every camera pulse generated.
16	Same as for step 13.	Same as for step 11 except PULSE RATE switch to KA76 C.	Same as for step 11	Same as for step 15.
17	Same as for step 13.	Same as for step 11 except PULSE RATE switch to KA30 D.	a. Same as for step 11	a. Oscilloscope indicates a +28 vdc pulse rate of 6.0 PPS (pulse interval of 166 ± 17 ms).
			b. Same as for step 11.	b. CAMR PULSE lamp lights for every camera pulse generated.
18	Same as for step 13.	Same as for step 11 except PULSE RATE switch to KA76 D.	Same as for step 11.	Same as for step 17

c. Procedure (cont)

Step No	Control Settings Test equipment	Equipment under test Test Procedure		Performance Standard
19	Set multimeter to + DC and 50 V range.	a. PULSE RATE switch to NORM	a. None	a. None
		b. VOLTAGE switch to E V/H MOD.	b. Connect multimeter to VOLTAGE + and VOLTAGE - terminals on adapter, observing polarity of leads.	b. None
		c. TEST switch in SYSTEM section on test panel to OPR MODE.	c. Adjust the E V/H control on the test panel from 0 to 30.	c. Observe that the multimeter indicator increases from 0 to 27 vdc
		d. N/A	d. Disconnect multimeter from adapter terminals.	d. None

13. Test Data Summary

a. INTERNAL TEST.
(1) All lamps light.
(2) All lamps extinguish, except AC PWR and DC PWR. INPUT PULSE; FLASH 1,2,3; and LOGIC 1,2,3 lamps flash every 3.75 seconds.
(3) FLASH and LOGIC lamps stop-flashing.
LIGHT ENERGY meter indicates 8.0 - 0.2 light energy units.
LIGHT ENERGY meter indication decreases to 0.
(4) Negative-going 12-volt peak, 1-millisecond pulse.
(5) 47 - 1.5 vdc.
Ripple voltage 200 millivolts peak to peak maximum.
INPUT PULSE lamp flashes every 3.75 seconds.
(6) 30 + 1.5 vdc.
Ripple voltage 50 millivolts peak to peak maximum.
INPUT PULSE lamp flashes every 3.75 seconds.

b. LOGIC TEST.
(1) Approximately 47 vdc;
INPUT PULSE and INPUT lamp flash simultaneously.
Approximately 47 vdc;
INPUT PULSE and INPUT lamp flash simultaneously.
Approximately 47 vdc.
INPUT PULSE and INPUT lamps flash in all positions except SHIFT.
(2) A lamp lights.
B lamp lights.
Q1 lamp lights.
Q2 lamp lights.
(3) Negative-going pulse, 5 volts peak, 100 micro-seconds wide
27 + 3 volts peak, 140 + 20 millisecond pulse.
INPUT PULSE lamp flashes.

27 + 3 volts peak, 140 + 20 millisecond pulse.
(4) 1.2 + 0.3 centimeter movement of both traces.
Trace appears 1.5 centimeters above center line in all positions except SHIFT.
(5) 25-volt peak, 125-microsecond pulse when INPUT PULSE, INPUT and 1 lamps flash.
25-volt peak, 125-microsecond pulse when INPUT PULSE, INPUT and 2 lamps flash.
25-volt peak, 125-microsecond pulse when INPUT PULSE, INPUT and 3 lamps flash.
(6) 0.59 - 0.06 vdc.
(7) 14 + 1 vdc;
INPUT PULSE, INPUT and 1 lamps flash.
14 + 1 vdc;
INPUT PULSE, INPUT and 2 lamps flash.
14 + 1 vdc;
INPUT PULSE, INPUT and 3 lamps flash.
(8) INPUT PULSE and INPUT lamps flash.

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c. VOLTAGE CONTROL TEST.
(1) 25 ± 1 vdc.
25 ± 1 vdc.
25 ± I vdc.
(2) 25 ± 1 vdc.
16 ± 1 vdc.
16 ±1 vdc.
(3) 25 ± 1 vdc.
16±1 vdc.
16 ± 1 vdc.
(4) 25 ± 1 vdc.
16 ± 1 vdc.
16 ± 1 vdc.
(5) 28±1 vdc.

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d. MODULE TEST.
(1) LIGHT ENERGY meter indicates sharp upswing.
(2) K1 CLOSE lamp lights.
INPUT PULSE lamp flashes.
K1 CLOSE lamp lit.
(3 28 ± 1 vdc.
K1 OPEN lamp extinguishes.
14 ± 2 vdc.
(4) MOD INTLK lamp lights.
(5) FLASH A lamp flashes.
FLASH B lamp flashes.
(6) 28 ± 1 vdc in all positions, except K1 OPEN and K1 CLOSE.
K1 OPEN lamp lights when switch in K1 OPEN position.

e. CONTROL PANEL TEST.
(1) INPUT PULSE lamp flashes. =
28 ± 1 vdc.
28 ± 1 vdc.
28 ± 1 vdc.
(2) CONTROL DC lamp lights.
CONTROL AC lamp lights.

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f. SYSTEM TEST.
(1) 0 to 47 vdc.
INPUT PULSE lamp flashes.
(2) 0 vdc all positions except SHIFT.
(3) (1) 30 ± 3-volt peak, 140* 20-millisecond pulse.
(2) 28 ± 1 vdc.
28 ± 1 vdc.
(4) 28 ± 1 vdc in SYSTEM position.
(5) 115 * 10 vac in SYSTEM position.
INPUT PULSE lamp flashes.
(6) 28 - 1 vdc in SYSTEM position.
(7) INPUT PULSE lamp flashes.
(8) INPUT PULSE lamp does not flash.
INPUT PULSE lamp flashes.
INPUT PULSE lamp does not flash.
INPUT PULSE lamp flashes.
INPUT PULSE lamp does not flash.
INPUT PULSE lamp flashes.
INPUT PULSE lamp does. not flash.
INPUT PULSE lamp flashes.
(9) 28 ± 1 vdc in SYSTEM position.
(10) 7-10 vdc
28 ± 1 vdc.
28 ± 1 vdc.
(11) 7-10 vdc
28 ± 1 vdc.
28 ± 1 vdc.
12) 7-10 vdc
28 ± 1 vdc.
28 ± 1 vdc.
(13) 2. GATE CONTROL lamp lights.
GATE CONTROL lamp remains lit.

+ GATE FAIL and -GATE FAIL lamps light.
324 volts peak to peak, 400 cps.
+ GATE FAIL and -GATE FAIL lamps light.
+ GATE FAIL and -GATE FAIL lamps light.
324 volts peak to peak, 400 cps.
+ GATE FAIL and -GATE FAIL lamps light.
+ GATE FAIL and -GATE FAIL lamps light.
324 volts peak to peak, 400 cps;
+ GATE FAIL and -GATE FAIL lamps light.

(14) + 350 VDC lamp lights.
(15) 13.5 - 1vdc.
HV LIMIT FAIL lamp remains lit.
HV LIMIT FAIL lamp extinguishes.
13.5 + 1 vdc.
HV LIMIT FAIL lamp remains lit.
HV LIMIT FAIL lamp extinguishes.
13.5 + 1 vdc.
HV LIMIT FAIL lamp remains lit.
HV LIMIT FAIL lamp extinguishes.
(16) INTERLOCK lamp lights.
(17) LOGIC 1 lamp flashes.
LOGIC 2 lamp flashes.
LOGIC 3 lamp flashes.
(18) FLASH 1 lamp does not light.
FLASH 1 lamp does not light.
FLASH 1 lamp flashes.
FLASH 2 lamp does not flash.
FLASH 2 lamp does not flash.
FLASH 2 lamp flashes.
FLASH 3 lamp does not flash.
FLASH 3 lamp does not flash.
FLASH 3 lamp flashes.
(19) GATE CONT DISABLE lamp flashes.
(20) LIGHT ENERGY meter indicates sharp upswing.
-10-volt, 700-microsecond pulse when INPUT PULSE lamp flashes.
-10-volt, 700-microsecond pulse when INPUT PULSE lamp flashes.
-10-volt, 700 microsecond pulse when INPUT PULSE lamp flashes.

g. POWER LIMITER AND BLOWER TEST.
(1) Power indicators light.
Blower starts.
(2) Blower starts.
(3) Ammeter reading within specification.
Ammeter reading within specification.
Ammeter reading within specification.

h. ADAPTER TEST.
(1) AC PWR and DC PWR lamps, POWER section on test panel lights;
INPUT PULSE lamp on test panel and CAMERA PULSE lamp on adapter light. READY/INTLK lamp lights.
(2) FLASH PULSE and CAMR PULSE lamps light.
(3) FLASH PULSE and CAMR PULSE lamps light.
(4) FLASH PULSE and CAMR PULSE lamps light.
(5) FLASH PULSE and CAMR PULSE lamps light.
(6) FLASH PULSE and CAMR PULSE lamps light.
(7) READY/INTLK lamp extinguishes.
(8) READY/INTLK lamp extinguishes.
(9) K1 RELAY lamp lights.
(10) K1 RE LAY lamp lights.
(11) Oscilloscope indicates 1 PPS.
CAME PULSE lamp lights.
(12) Same as for (11).
(13) Oscilloscope indicates 2.5 PPS.
CAMR PULSE lamp lights.
(14) Same as for (13).
(15) Oscilloscope indicates 3.5 PPS.
CAMR PULSE lamp lights.
(16) Same as for (15).
(17) Oscilloscope indicates 6.0 PPS.
CAMR PULSE lamp lights.
(18) Same as for (17).
(19) Multimeter indicates from 0 vdc to +27 vdc.

CHAPTER 6
DEPOT OVERHAUL STANDARDS

6-1. Applicability of Depot Overhaul Standards

The tests outlined in this chapter are designed to measure the performance and capability of a re- paired equipment. Equipment that is to be returned to stock should meet the standards given in these tests.

a. Repair Standards. Applicable procedures of the depots performing these tests and the general standards for repaired electronic equipment given in TB SIG 355-1, TB SIG 355-2, and TB SIG 355-3 form a part of the requirements for testing this equipment.

b. Technical Publications. The technical publication listed below is also applicable to this equipment.

Title	*Number*
Operator's and Organizational Maintenance Manual: Test Set, Photographic Flasher System, Bench LS-69A	TM 11-6760-232-12

c. Modification Work Orders. Perform the work specified by modification work orders pertaining to this equipment before making the tests specified. DA PAM 310-7 lists all available MWO's.

6-2. Test Equipment and Facilities Required

The following equipment, or suitable equivalents, will be used in determining compliance with the requirements of these inspection standards.

a. Equipment.

Equipment	*Qty req.*
Multimeter, Simpson Model 260	1
Oscilloscope, Teletronix 502	1
Pulse generator	1
Test board	1
Ammeter, Ac, Simpson, Model 370, 0-19A.	1
Voltmeter, Ac, Simpson	

b. Facilities.

Equipment	*Qty req.*
Power source: 115-volts ac, three phase, 400 cps.	1
Power source: 28-volts dc, at 3 amperes minimum.	1
Power source: 10-volts dc.	1
Power source: 115-volts ac, 60 cps, single phase at 4 amperes.	

c. Test Board. The test board equipment shown in figure 6-17 is required to perform the following tests. The parts required for the test board are listed below.

Ref. Des	Value	Volts/watts
Q1	2N2102	
Q2	2N3767	
S1	Push button	
CR1	1N3018B	
CR2	2N3652	
CR3	1N970B	
CR4	1N457	
C1	0.22UF	400VDC
C2	0.33UF	200VDC
C3	0.15UF	400OVDC
C4	15UF	35VDC
C5	1UF	20VDC
R1	240 OHMS	9 WATTS
R2	82 OHMS	2 WATTS
R3	450 OHMS	8 WATTS
R4	33 OHMS	1/2 WATT
R5	120 OHMS	1 WATT
R6	120 OHMS	1 WATT
R7	80 OHMS	10 WATTS
R8	33 OHMS	2 WATTS
R9	10K OHMS	2 WATTS
R10	4,300 OHMS	1 WATT
R11	820 OHMS	2 WATTS
R12	22 OHMS	1/2 WATT
R13	4,700 OHMS	1/2WATT
R14	2,200 OHMS	/2WATT
R15	470 OHMS	1/2 WATT
R16	270 OHMS	2 WATTS
R17	10 OHMS	50 WATTS
R18	1K OHM	1 WATT
R19	120 OHMS	1/2 WATT
R20	30K OHMS	5 WATTS

6-3. General Test Requirements

The procedures given in paragraphs 6-3, 6-4, and 6-5 outline the functional tests to be performed on the bench test set.

a. Test Conditions.

(1) Adjust the equipment as described in (a) through (j) below.

(a) All power remains disconnected until instructed otherwise in paragraph 6-4.

(b) On test panel, set POWER ON/OFF switch to OFF position.

(c) On test panel, set TEST switch (VOLT-AGE CONTROL section) to PH A (+ GATE CONT) position.

(d) On test panel, set HV TEST (VOLTAGE CONTROL section) switch to zero position.

(e) On the test panel, set MASTER switch to LAMPS position.

(f) On the test panel, set E V'H switch to zero position.

(g) On the test panel, set TEST switch (SYSTEM section) to SYNC position.

(h) On the test panel, set TEST switch (MODULE section) to CLOSE (K1) position.

(i) On the test panel, set TEST switch (LOGIC section) to OPERATE position.

(j) On the test panel, set INPUT PULSE switch to KA-30 position.

(k) On the adapter, set the READY/ INTLK switch to OFF.

(l) On the adapter, set the PULSE RATE switch to NORM.

(m) On the adapter, set the VOLT- AGE switch to 12V.

b. Test Connections. Connect the equipment as indicated below.

(1) Connect jack TB1 of the test board to adapter connector P2.

(2) Connect adapter SYSTEM TEST connector J2 to test panel SYSTEM CONTROL connector J2.

(3) Connect jack TB3 of the test board to PHOTOCELL plug J13 on the front of test panel.

(4) Connect jack TB4 of the test board to MODULE connector J14 on the front of test panel.

(5) Connect jack TB5 of the test board to CONTROL PANEL connector J17 on the front of test panel.

(6) Connect jack TB6 of the test board to LOGIC CIRCUIT BOARD connector J15 on the front of test panel.

(7) Connect jack TB7 of the test board to OVERVOLTAGE CIRCUIT BOARD connector J16 on the front of test panel.

(8) Connect jack TB8 of the test board to SYSTEM TEST connector J3 on the front of test panel.

(9) Connect jack TB2 of the test board to POWER connector J1 on the front of test panel.

6-4. Continuity Tests

NOTE

Use the multimeter to perform the following test panel continuity checks.

a. Deenergized Tests. Use RX100 range on multimeter.

Positive lead	Negative lead	Result (ohm)
Pin D of TB2	Test Panel Chassis Ground	0
Pin F of TB2	Test Panel Chassis Ground	0
Pin F of TB1	Test Panel Chassis Ground	0
Pin A of TB1	Test Panel Chassis Ground	0
Pin D of TB1	Test Panel Chassis Ground	0
Pin 20 of TB8	Test Panel Chassis Ground	0
Pin 37 of TB8 (OSCILLOSCOPE) CHAN A GRD	Test Panel Chassis Ground	0
(OSCILLOSCOPE) CHAN B GRD	Test Panel Chassis Ground	0
MULTR (-)	Test Panel Chassis Ground	0
Outer Shield (Ground) of TB3	Test Panel Chassis Ground	0
Positive lead	*Negative lead*	*Result (ohm)*
Pin 24G of TB4	Test Panel Chassis Ground	0
Pin 23G of TB4	Test Panel Chassis Ground	0
Pin 11 of TB4	Test Panel Chassis Ground	0
Pin H of TB6	Test Panel Chassis Ground	0
Pin S of TB6	Test Panel Chassis Ground	0
Pin Y of TB6	Test Panel Chassis Ground	0
Pin X of TB7	Test Panel Chassis Ground	0
Pin Y of TB7	Test Panel Chassis Ground	0
Pin R of TB7	Test Panel Chassis Ground	0
Pin N of TB7	Test Panel Chassis Ground	0
Pin H of TB7	Test Panel Chassis Ground	0
Pin W of TB7	Test Panel Chassis Ground	0
Pin S of TB7	Test Panel Chassis Ground	
Pin A of TB5	Test Panel Chassis Ground	0
Note: Turn POWER ON/OFF switch to OFF.		
Pin A of TB2	Test Panel Chassis Ground	6.3
Pin E of TB2	Test Panel Chassis Ground	20 (approx)
Note: Turn POWER ON/OFF switch to OFF.		
Pin 1 of TB4	Pin 11 of TB4	4.7K -+ 5%
Pin L of TB1	(OSCILLOSCOPE) TRIGGER	Infinity
Pin 35 of TB8	Pin M of TB7	0
Pin 19 of TB8	(OSCILLOSCOPE) GHAN A VERT	infinity

Note.: Disconnect multimeter leads

b. Energized Tests.

CAUTION

Do not apply power to test panel until instructed.

(1) On the test panel, set MASTER switch to SYSTEM position.

(2) On the test panel, set TEST switch (SYSTEM section) to OPR MODE position.

(3) On the test panel, set POWER ON/OFF switch to ON position.

Positive lead	*Negative lead*	*Result(ohm)*
Pin B of TB1	Pin E of TB2	0

(4) On the test panel, set MASTER switch to LAMP DRIVERS position.

(5) On the test panel, rotate TEST switch (SYSTEM section) through each of its positions.

Positive lead	*Negative lead*	*Result(ohm)*
Pin D of TB1	Pin E of TB1	1.5M (approx)
Pin 19 of TB8	Pin A of TB7	0

(6) On the test panel, place the MASTER switch to LOGIC position.

(7) On the test panel, place the TEST switch (LOGIC section) to the OPERATE position.

Positive lead	Negative lead	Result (ohm)
Pin W of TB6	MULTR +	0

(8) On the test panel, place the TEST switch (LOGIC section) to the DELAY position, multimeter should indicate 0 ohms.

(9) Return the test panel POWER ON/OFF switch to the OFF position.

(10) Disconnect multimeter connections.

6-5. Functional Tests, Test Panel

a. General Requirements. Insure that all switches and controls on the test panel are in the OFF position, neutral, or rotated fully counterclockwise. (Except MASTER switch which should be at the LAMPS position.)

b. Power Application. Connect 28-volt dc and 115-volt ac, 400-cps power to the test board.

c. Functional Tests.

Test	Procedure	Correct Indication
1. Lamp and LIGHT ENERGY meter.	a. Place the test panel POWER ON/OFF switch to ON position.	a. All indicators on the front of test panel will illuminate.
	b. Place the MASTER switch on the front of the test panel to LAMP DRIVERS position. Connect the oscilloscope vertical input to terminal L of TBI on the test board, and oscilloscope ground lead to terminal F of TBI. Turn power on oscilloscope to on. on the oscilloscope.	b. All indicator lamps, except AC PWR and DC PWR, will extinguish. INPUT PULSE, LOGIC 1, LOGIC 2, LOGIC 3, FLASH 1, FLASH 2, and FLASH 3 lamps will flash synchronously at an interval of approximately 3.75 seconds as verified
	c. Place the MASTER switch on the test Panel to INTEGR AMP position.	c. The LOGIC 1, FLASH 1, LOGIC 2, FLASH 2, LOGIC 3, and FLASH 3 indicator lamps will extinguish. The LIGHT ENERGY meter will indicate a peak surge of 8.0 + 0.2 light energy units and decrease slowly each time INPUT PULSE indicator flashes.
		Note. As the MASTER switch is set to INTEGR AMP, and the LIGHT ENERGY meter receives the first pulse, the meter needle may pin (move off the scale) momentarily. If the meter needle pins, depress and release the meter RESET pushbutton to zero the meter. After approximately three pulses, the meter will normalize. Measurements should be taken only after normalization.
	d. Depress the test panel RESET switch	d. The LIGHT ENERGY meter will drop to zero. After the next three pulses, 1.25 seconds apart, the light energy units will indicated.
		Note. The RESET switch does not disable the 1.25-second input source pulse in the test panel, nor does it affect the signal input to the meter; therefore, if the RESET is held longer than 1.25 seconds, the meter will continue to reflect these input pulses. Verify the pulse rate at 1.25 seconds on the oscilloscope.
2. MASTER section.	a. Connect the oscilloscope to the CHAN A VERT and GRD terminals on the front of test panel.	a. The oscilloscope should indicate a pulse of approximately - 12 volts peak and approximately 1 ms in duration when measured at the midpoint (50%).
	NOTE Oscilloscope must be in external sync to get proper pulse display.	
	b. Place the test panel MASTER switch to E V/H position. Connect the multimeter to the + and - MULTR terminals on the front of test panel.	b. The multimeter should indicate 47 + 2.5 vdc.
	c. Adjust the oscilloscope to measure the ripple on the 400-cps signal.	c. The ripple should be less than 200 mv peak to peak. The INPUT PULSE lamp should flash at approximately a 3.75-second rate.
	d. Place the test panel MASTER switch to + 30 VDC position.	d. The INPUT PULSE lamp should continue flashing at the 3.75-second rate. The multimeter should read 30 + 1.5 vdc and the oscilloscope should display a ripple of less than 50 mv peak to peak.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	e. Place the test panel MASTER switch to SYSTEM position. Place the test panel TEST switch (SYSTEM section) to OPR MODE position. Connect the negative lead of the multimeter to terminal F of TB1, and the positive lead to terminal E of TB1 on the test board. Rotate the E V/H control, on the front panel of test panel, throughout its range and leave in fully clockwise position.	e. The multimeter should indicate 0 vdc to approximately 47 vdc, the maximum voltage corresponding to the fully clockwise position of the E V/H control. The INPUT PULSE lamp should continue to flash at the 3.75-second rate.
	f. Rotate the test panel TEST switch (SYSTEM sec tion) through all its operating positions and leave in OPR MODE position.	f. The multimeter should read 0 vdc in all positions, except OPR MODE.
	g. Disconnect the oscilloscope from the CHAN A VERT terminal and connect the input lead of the oscilloscope to terminal K of TB1 on the test board. Externally trigger the oscilloscope by jumping the TRIGGER terminal, on the front of test panel, to the external terminal of the oscilloscope.	g The oscilloscope should indicate a pulse of 30 I 3-volt peak, 140 + 40-millisecond duration at a 3.75-second period.
	h. Remove the oscilloscope input from terminal L of TB1 on the test board and connect to terminal K of TB1. Place the Camera Pulse switch to KA-76 position.	h. Observe the same trace on the oscilloscope as in g above.
	i. Remove the positive multimeter lead from terminal E of TB1 on the test board and connect to terminal B of TB1. Remove negative multimeter lead from terminal F of TB1 and connect it to terminal A of TB1.	i The multimeter should indicate 28 + 1 vdc. The INPUT PULSE indicator should flash during this test.
	j. Rotate the MASTER switch, on the front panel of test panel, through all of its positions.	j. The multimeter should indicate 28 + 1 vdc in SYSTEM postion only. The INPUT PULSE indicator should flash during this test.
	k. Disconnect the multimeter from the test board and adjust to read AC VOLTS in the 250-volt range. Connect the positive lead of the multimeter to terminal C of TB1, and the negative lead to terminal A of TB1 on the test board. Rotate the test panel MASTER switch through all its positions.	k. The multimeter should indicate 115 + 10 vac in the SYSTEM position only. The INPUT PULSE indicator should flash during this test. Note: Input pulse lamp will not flash in VOLTAGE CONTROL position of %MASTER switch.
	l. Disconnect the multimeter from the test board and adjust to read DC VOLT in the 50-volt range. Connect positive lead of the multimeter to terminal 21 of TB8, and the negative lead to terminal A of TB1 and the test board. Place the test panel TEST switch to SYSTEM SYNC position. Rotate the test panel MASTER switch through all its positions and leave in SYSTEM position.	l. The multimeter should indicate 28 + 1 vdc In the SYSTEM position only.
	m. Remove the POWER connector from J1 on the front panel of test panel. Adjust the multimeter to read continuity on the RX1 range and connect the positive lead to terminal 23 of TB8 and the negative lead to terminal 20 of TB8. Place the test panel MASTER switch to VOLTAGE CONTROL position. Depress the HV LIMIT TEST switch.	m. The multimeter should read 150 + 25 ohms while HV LIMIT TEST switch is depressed.
	n. Place the test panel MASTER switch to SYSTEM position. Place the test panel TEST switch (SYSTEM section) to HV LIMIT.	n. The multimeter should read 150 + 251 ohms while HV LIMIT TEST switch is depressed.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	o. Place the test panel MASTER switch to VOLTAGE CONTROL position. Remove the positive lead of the multimeter from terminal 23 of TB8 and connect to terminal A of TB7. Depress the GATE CONT DISABLE switch.	o. The multimeter should read 150 I 20 ohms while GATE CONT DISABLE switch is depressed.
	p. Remove the positive lead of the multimeter from terminal A of TB7. Remove the negative lead of the multimeter from terminal 20 of TB8. Place the test panel MASTER switch to SYSTEM position. Connect the POWER connector to J1 on the front panel of test panel.	p. No indication.
	q. Adjust the multimeter to read VDC in the 40 VDC range. Connect the positive lead of the multimeter to terminal 26 of TB8 and the negative terminal to terminal 37 of TB8. Connect a jumper from terminal W of TB6 to terminal 26 of TB8. Adjust the E V/H control to the 0 position. If the HV LIMIT FAIL lamp is illuminated, depress to extinguish. Slowly rotate the E V/H control clockwise until the HV LIMIT FAIL lamp illuminates.	q. The multimeter should read 13.5 + 1 vdc.
	r. Return the E V/H control to 0.	r. The HV LIMIT FAIL lamp should remain illuminated. Depress to extinguish.
	s. Remove the positive lead of the multimeter and the jumper from terminal 26 of TB8 and connect to terminal 25 of TB8. Rotate the E V/H control clockwise until HV LIMIT FAIL lamp illuminates.	s. The multimeter should read 13.5 + 1 vdc.
	t. Return the E V/H control to 0.	t. The HV LIMIT FAIL lamp should remain illuminated. Depress to extinguish.
	u. Remove the multimeter lead and jumper from terminal 25 of TB8 and connect to terminal 24 of TB8. Rotate to test panel E V/H control clockwise until HV LIMIT FAIL lamp illuminates.	u. The multimeter should read 13.5 + 1 vdc.
	v. Return the E V/H control to 0.	v. The HV LIMIT FAIL lamp should remain illuminated. Depress to extinguish.
	w. Remove the jumper from terminal 24 of TB8 and terminal W of TB6. Remove the positive lead of the multimeter from terminal 24 of TB8 and the negative from terminal 37 of TB8.	w. No indication.
	x. Connect a jumper between terminal A of TB1 and terminal 18 of TB8.	x. The INTERLOCK lamp (SYSTEM section) should illuminate.
	y. Remove the jumper connected in X above.	y. The INTERLOCK lamp (SYSTEM section should extinguish.
	z. Insure test panel MASTER switch is set at SYSTEM position. Disconnect buffer amplifier from pulse generator. Connect positive lead of pulse generator to terminal 5 of TB11. Connect terminal 6 of TB11 to terminal 13 of TB8. Connect the ground lead of the pulse generator to terminal 37 of TB8. Adjust the operating mode switch on the pulse generator for manual trigger. Adjust the output of the pulse generator for a negative-going pulse of 4.0-volt peak amplitude with a pulse width of 250/ sec. Manually pulse the pulse generator.	z. The LOGIC 1 lamp will flash each time the pulse generator is pulsed.

c. *Functional Tests (cont.)*

Test	*Procedure*	*Correct Indication*
	aa. Disconnect terminal 13 of TB8 (positive lead) and connect to terminal 14 of TB8. Pulse the pulse generator several times.	aa. The LOGIC 2 lamp will flash each time the pulse generator is pulsed.
	ab. Disconnect terminal 14 of TB8 and connect to terminal 15 of TB8. Pulse the pulse generator several times.	ab. The LOGIC 3 lamp will flash each time the pulse generator is pulsed.
	ac. Disconnect pulse generator minus lead from ter minal 37 of TB8. Disconnect positive lead of pulse generator from terminal 5 of TB11. Disconnect jumper from terminal 15 of TB8 and terminal 6 of TB11.	ac. No indication.
	ad. Connect a jumper from simulated flash pulse output (terminal 10 of TB9) to terminal 10 of TB8. Actuate the PULSE INITIATE switch on test board.	ad. The FLASH 1 lamp should not flash.
	ae. Remove the jumper from terminal 10 of TB8 and connect to terminal 1 of TB8. Actuate the PULSE INITIATE switch on test board.	ae. The FLASH 1 lamp should not flash.
	af. Connect a second jumper from terminal 1 of TB8 to terminal 10 of TB8. Actuate the PULSE INITIATE switch on test board.	af. The FLASH 1 lamp should flash each time PULSE INITIATE switch is actuated.
	ag. Remove the jumper from terminal 1 and terminal 10 of TB8.	ag. No indication.
	ah. Connect jumper from simulated flash pulse output and connect to terminal 11 of TB8. Actuate the PULSE INITIATE switch on test board.	ah. The FLASH 2 lamp should not flash.
	ai. Remove the jumper from terminal 11 of TB8 and connect to terminal 3 of TB8. Actuate the PULSE INITIATE switch on test board.	ai. The FLASH 2 lamp should not flash.
	aj. Connect a second jumper between terminal 11 and terminal 3 of TB8. Actuate the PULSE INITIATE switch on test board.	aj. The FLASH 2 lamp should flash each time PULSE INITIATE switch is actuated.
	ak. Remove the jumper from terminals 11 and 3 of TBS.	ak. No indication.
	al. Remove the jumper from terminal 3 of TB8 and connect to terminal 12 of TB8. Actuate the PULSE INITIATE switch on test board.	al. The FLASH 3 lamp should not flash.
	am. Remove the jumper from terminal 12 of TB8 and connect to terminal 2 of TB8. Actuate the PULSE INITIATE switch on test board.	am. The FLASH 3 lamp should not flash.
	an. Connect a second jumper between terminal 12 and terminal 2 of TB8. Actuate the PULSE INITIATE switch on test board.	an. The FLASH 3 lamp should flash each time PULSE INITIATE switch is actuated.
	ao. Remove the jumpers from terminals 12 and 2 of TB8 and simulated flash pulse output lead from terminal 10 of TB9.	ao. No indication.
	ap. Connect positive lead of pulse generator to terminal 19 of TB8. Connect negative lead of pulse generator to terminal 37 of TB8 (ground). Adjust the pulse generator to manually trigger a pulse of -5.0 + 0.5-volt peak amplitude with a pulse width of 30 + 3 milliseconds. Pulse the pulse generator.	ap. The GATE CONT DISABLE lamp will flash each time the pulse generator is pulsed.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	aq. Disconnect pulse generator leads from terminals 19 and 37 of TB8.	aq. No indication.
	ar. Disconnect the POWER connector from J1 on the front panel of test panel. Adjust the multimeter to read continuity in the R X 1 position and connect the positive terminal to CHAN B VERT terminal, Connect the negative lead to terminal 14 of TB8. Place the test panel switch (SYSTEM section) to PH B position.	ar. The multimeter should indicate continuity.
	as. Remove the negative lead of the multimeter from terminal 14 of TB8 and connect to terminal 15 of TB8. Place the test panel TEST switch (SYSTEM section) to PH C position.	as. The multimeter should indicate continuity.
	at. Remove the negative lead of the multimeter from terminal 15 of TB8 and connect to terminal 13 of TB8. Place the test panel TEST switch (SYSTEM section) to PH A position.	at. The multimeter should indicate continuity.
	au. Remove the negative lead of the multimeter from terminal 13 of TB8 and connect to the CHAN B GRD terminal on the front panel of test panel. Rotate the MASTER switch through all its operating positions.	au. The multimeter should indicate continuity in all positions, except LOGIC, VOLTAGE CONTROL and SYSTEM positions.
	av. Place test panel MASTER switch to LOGIC position. Remove the negative lead of the multimeter from the CHAN B GRD terminal and connect to terminal C of TB6. Place the test panel TEST switch (LOGIC section) to OPERATE and then to SHIFT positions.	av. The multimeter should indicate continuity in the OPERATE and SHIFT positions.
	aw. Remove the negative lead of the multimeter from terminal C of TB6 and connect to terminal E of TB6. Place test panel TEST switch (LOGIC section) to DELAY position.	aw. The multimeter should indicate continuity.
	ax. Remove the negative lead of the multimeter from terminal E of TB6 and connect to terminal a of TB 7. Place the test panel MASTER switch to VOLTAGE CONTROL position,	ax. The multimeter should indicate continuity.
	ay. Place the test panel MASTER switch to LOGIC position. Remove the multimeter lead from terminal a of TB7 and connect to CHAN B GRD terminal. Rotate the test panel TEST switch (LOGIC section) through its operating positions.	ay. The multimeter should indicate continuity in the Q1, Q2, + 5.1 VDC and -+15 VDC positions.
	az. Remove the positive lead of the multimeter from the CHAN B VERT terminal and connect to CHAN A VERT terminal on the front panel of test panel. Rotate the test panel MASTER switch through its operating positions.	az. The multimeter should indicate continuity in MODULE, CONTROL PANEL, LAMP DRIVERS, and LAMPS positions. Note: Multimeter should indicate approximately 1 ohm in VOLTAGE CONTROL position.
	ba. Place the test panel MASTER switch to LOGIC position. Remove the negative lead of the multimeter from the CHAN B GRD terminal and connect to terminal N of TB6. Place the test panel TEST switch (LOGIC section) to OPERATE and then SHIFT positions.	ba. The multimeter should indicate continuity in OPERATE and SHIFT positions.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
3. SYSTEM section.	NOTES 1 power cable to J1. 2. Place MASTER switch on test panel to SYSTEM. 3. Set multimeter to indicate DC volts.	
	a. Rotate the test panel TEST switch (SYSTEM section) through the MOD 1, MOD 2, and MOD 3 positions.	a. The INPUT PULSE indicator should flash at a 1.25-second rate in each position.
	b. Rotate the test panel TEST switch (SYSTEM section) through the HV LIMIT, PH A, PH B, and PH C positions. Depress the test panel MANUAL switch several times in each position.	b. The INPUT PULSE indicator should flash only when the MANUAL switch is depressed.
	c. Connect multimeter positive lead to + SHTR SYNC binding post on front of test panel. Connect multimeter negative lead to pin A of TBI. Rotate test panel TEST switch (SYSTENM section) through all its positions.	c. The multimeter should indicate 28 + 1 vdc in the SYNC position only.
	d. Disconnect the POWER connector from JI on the front panel of test panel. Adjust the multimeter to read resistance (R X I scale). Remove the positive lead of the multimeter from + SHTR SYNC terminal and connect to terminal 35 of TB8 on the test board. Remove the negative lead from terminal A of TBI on the test board and connect to CHAN B VERT terminal on the front panel of test panel. Rotate the test panel TEST switch (SYSTEM section) between OPR MODE position and HV LIMIT position.	d. The multimeter should indicate continuity in OPR MODE and HV LIMIT positions.
	e. Place the test panel TEST switch (SYSTEM section) to SYNC position.	e. The multimeter should indicate infinity.
	f. Remove the positive lead of the multimeter from terminal 35 of TB8 and connect to terminal 31 of TB 8 on the test board.	f. The multimeter should indicate continuity.
	g. Remove the positive lead of the multimeter from terminal 31 of TB8 and connect to terminal 26 of TB8 on the test board. Remove the negative lead of the multimeter from CHAN B VERT and connect to CHAN A VERT terminal on the front panel of test panel. Rotate the test panel TEST switch (SYSTEM section) between MOD 3 and HV LIMIT positions.	g. The multimeter should indicate continuity when the TEST switch (SYSTEM section) is in MOD 3 and HV LIMIT positions.
	h. Remove the negative lead of the multimeter from the CHAN A VERT terminal and connect to + MULTR terminal. Rotate the test panel TEST switch (SYSTEM section) between PH C and HV LIMIT positions.	h. The multimeter should indicate continuity when the TEST switch (SYSTEM section) is in PH C and HV LIMIT positions.
	i. Remove the positive lead of the multimeter from terminal 26 of TB8 and connect to terminal 25 of TB8 on the test board. Place the TEST switch (SYSTEM section) to PH B position.	i. The multimeter should indicate continuity.
	j. Remove the negative lead of the multimeter from the MULTR terminal and connect to the CHAN A VERT terminal on the front panel of the bench test set. Place the test panel TEST switch (SYSTEM section) to MOD 2 position.	j. The multimeter should indicate continuity.
	k. Remove the positive lead of the multimeter from terminal 25 of TB8 and connect to terminal 24 of TB8. Place the test panel TEST switch (SYSTEM section) to MOD I position.	k. The multimeter should indicate continuity in the MOD I position.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	l. Remove the negative lead of the multimeter from the CHAN A VERT terminal and connect to + MULTR terminal on the front panel of test panel. Place the test panel TEST switch (SYSTEM section) to PH A position.	l. The multimeter should indicate continuity.
	m. Remove the positive lead of the multimeter from terminal 24 of TB8 and connect to terminal 30 of TB8 on the test board. Place the test panel TEST switch (SYSTEM section) to OPR MODE position.	m. The multimeter should indicate continuity.
	n. Remove the positive lead of the multimeter from terminal 30 of TB8 and connect to terminal 13 of TB8 on the test board. Remove the negative lead of the multimeter from the + MULTR terminal and connect to CHAN B VERT terminal on the front panel of test panel. Place the TEST switch (SYSTEM section) to the PH A position.	n. The multimeter should indicate continuity.
	o. Transfer negative lead of multimeter from CHAN B VERT to CHAN A VERT terminal. Place the TEST switch (SYSTEM section) in the SYNC position.	o. The multimeter should indicate continuity.
	p. Remove the positive lead of the multimeter from terminal 13 of TB8 and connect to terminal 28 of TB8 on the test board. Remove the negative lead of the multimeter from the CHAN A VERT terminal and connect to + MULTR terminal on the front panel of test panel. Place the test panel TEST switch (SYSTEM section) to MOD 2 position.	p. The multimeter should indicate continuity.
	q. Remove the positive lead of the multimeter from terminal 28 of TB8 and connect to terminal 5 of TB8 on the test board. Place the test panel TEST switch (SYSTEM section) to MOD 1 position.	q. The multimeter should indicate continuity.
	r. Remove the positive multimeter lead from terminal 5 of TB8 and connect to terminal 29 of TB8. Place the test panel TEST switch (SYSTEM section) to MOD 3 position.	r. The multimeter should indicate continuity.
	s. Disconnect the multimeter from the test board and the test panel.	s. No indication.
	t. Connect the POWER connector J1 on the front panel of test panel. Adjust the multimeter to read VDC in the 50-volt range. Connect the positive lead of the multimeter to terminal 13 of TB8 and the negative lead to terminal 37 of TB8. Using jumper leads connect a 1K-ohm, 1/2-watt resistor by connecting terminal 1 of TB11, to terminal 13 of TB8 and terminal 2 of TB11 to terminal 37 of TB8. Place the test panel TEST switch (SYSTEM section) to MOD 1 position.	t. The multimeter should read 12 $\pm$ 2 vdc, and LOGIC 1 lamp should illuminate.
	u. Place the test panel TEST switch (SYSTEM section) to MOD 2 and then MOD 3 positions.	u. The multimeter should read 28 + 2 vdc in both positions.
	v. Transfer the positive lead and resistor jumper lead from terminal 13 of TB8 to terminal 14 of TB8 on the. test board. Place the test panel TEST switch (SYSTEM section) to MOD 1 and then MOD 3 positions.	v. The multimeter should read 28 + 2 vdc in both positions.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	w. Place the test panel TEST switch (SYSTEM sec tion) to MOD 2 position.	w. The multimeter should read 12 + 2 vdc and LOGIC 2 lamp should illuminate,
	x. Transfer the positive lead and resistor jumper lead from terminal 14 of TB8 to terminal 15 of TB8. Place the test panel TEST switch (SYSTEM section) to MOD 1 and then to MOD 2 position.	x. The multimeter should indicate 28 t 2 vdc.
	y. Place the test panel TEST switch (SYSTEM sec tion) to MOD 3 position.	y. The multimeter should indicate 12 + 2 vdc and LOGIC 3 lamp should illuminate.
	z. Remove the multimeter and jumper leads from the resistor, test panel, and test board. Place the test panel TEST switch (SYSTEM section) to HV LIMIT position.	z. No indication.
	aa. Connect the oscilloscope to the CHAN B VERT and GRD terminals on the front panel of test panel.	
	ab. Disconnect buffer amplifier clip leads from TB10.	
	ac. Connect positive and negative banana plugs of buffer amplifier to output of pulse generator.	
	ad. Connect the buffer amplifier output lead to terminal 35 to TB8 and the buffer amplifier + 28 vdc lead to terminal 9 of TB9. Turn on and adjust the pulse generator for an output pulse of 5 + 0.5-volts peak amplitude, 10-microseconds duration at a repetition rate of 100'microseconds.	ad. The GATE CONT lamp will illuminate.
	ae. Connect a jumper between terminal C of TB1 and terminal 33 of TB8. Remove the oscilloscope from the CHAN B VERT and GRD terminals and connect to CHAN A VERT and GRD terminals on the front panel of test panel.	ae. The GATE CONT indicator should remain illuminated.
	af. Place the test panel TEST switch (SYSTEM section) to OPR MODE position.	af. The + GATE FAIL and the -GATE FAIL indicators will illuminate.
	ag. Place the test panel TEST switch (SYSTEM section) to PH A position.	ag. The + GATE FAIL and the -GATE FAIL indicators will illuminate.
	ah. Remove the jumper from terminal 33 of TB8 and connect to terminal 36 of TB8.	ah. The GATE CONT indicator should remain illuminated.
	ai. Place the test panel TEST switch (SYSTEM section) to OPR MODE position,	ai. The + GATE FAIL and -GATE FAIL indicators should illuminate.
	al. Place the test panel TEST switch (SYSTEM section) to PH B position,	aj. The oscilloscope should indicate an approximate 324 volt peak-to-peak, 400-cps signal, and the + GATE FAIL and -GATE FAIL indicators should illuminate.
	ak. Remove the jumper from terminal 36 of TB8 and connect to terminal 34 of TB8.	ak. The GATE CONT indicator should remain illuminated.
	al. Place the test panel TEST switch (SYSTEM section) to OPR MODE position.	al. The + GATE FAIL and -GATE FAIL indicators should illuminate.
	am. Place the test panel TEST switch (SYSTEM section) to PH C position.	am. The oscilloscope should indicate an approximate 324 volt peak-to-peak, 400-cps signal, and the + GATE FAIL and -GATE FAIL indicators should illuminate.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	an. Disconnect jumpered leads from TBI and TB8. Disconnect buffer amplifier from TB8 and TB9 but leave buffer amplifier connected to pulse generator. Remove oscilloscope from test panel.	an. No indication.
	ap. Connect a jumper from terminal 12 of TB4 to terminal 5 of TB8.	ap. The + 350 VDC lamp should illuminate And remain illuminated until the jumper is removed.
	aq. Remove the jumper from terminal 12 of TB4 and terminal 5 of TB8.	aq. The + 350 VDC lamp should extinguish.
4 VOLTAGE CONTROL section.	NOTES 1. Disconnect power cable from J1. 2. Connect positive (+) lead to oscilloscope channel A vertical. 3. Set multimeter to indicate ohms.	
	a. Remove the negative lead of the multimeter from terminal N of TB6 and connect to teminal C of TB7. Place the test panel MASTER switch to VOLTAGE CONTROL position. Place the test panel TEST switch (VOLTAGE CONTROL section) to PH A (+ GATE CONT) position.	a. The multimeter should indicate continuity.
	b. Remove the negative lead of the multimeter from terminal C of TB7 and connect to terminal D of TB7. Place the test panel TEST switch (VOLTAGE CONTROL section) to PH B (+ GATE CONT) position.	b. The multimeter should indicate continuity.
	c. Remove the negative lead of the multimeter from terminal D of TB7 and connect to terminal B of TB7. Place the test panel TEST switch (VOLTAGE CONTROL section) to each of the following positions: PH C (+ GATE CONT), HV LIMIT 1, HV LIMIT 2, HV LIMIT 3, and GATE CONT DISABLE.	c. The multimeter should indicate continuity.
	d. Remove the negative lead of the multimeter from terminal B of TB7 and connect to terminal M of TB7. Place the test panel TEST switch (VOLTAGE CONTROL section) to PH A (- GATE CONT) position.	d. The multimeter should indicate continuity.
	e. Remove the negative lead of the multimeter from terminal M of TB7 and connect to terminal X TB7. Place the test panel TEST switch (VOLTAGE CONTROL section) to PH A (- GATE CONT) position.	e. The multimeter should read approximately of 2.7 ohms.
	f. Remove the negative lead of the multimeter from terminal X of TB7 and connect to terminal P of TB7. Place the test panel TEST switch (VOLTAGE CONTROL section) switch to PH B (- GATE CONT) position.	f. The multimeter should indicate continuity.
	g. Remove the negative lead of the multimeter from terminal P of TB7 and connect to terminal U of TB7. Place the test panel TEST switch (VOLTAGE CONTROL section) to PH C (- GATE CONT) position.	g. The multimeter should indicate continuity.
	h. Remove the negative lead of the multimeter from terminal U of TB7 and connect to terminal b of TB7. Place test panel TEST switch (VOLTAGE CONTROL section) to + 5.6 VDC position.	h. The multimeter should indicate continuity.
	i. Remove the negative lead of the multimeter from terminal b of TB7and connect to terminal L of TB7. Place the test panel TEST switch (VOLTAGE CONTROL section) to + 20 VDC position.	i. The multimeter should indicate continuity.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	j. Remove the negative lead of the multimeter from terminal L of TB7 and connect to terminal Y of TB7. Place the test panel MASTER switch to MODULE position. Place the test panel TEST switch (MODULE section) to the following positions: CLOSE K1, OPEN K1, DISCH RES, CHARGE DIODES, and INTLK.	j. The multimeter should indicate continuity.
	k. Place the test panel TEST switch (MODULE section) to CLOSE K1 position. Remove the negative lead of the multimeter from terminal Y of TB7 and the positive lead from CHAN A VERT terminal on the front panel of test panel. Place the test panel MASTER switch to LOGIC position.	k. No indication.
5. LOGIC section.	a. Connect the POWER connector to J1 on the front panel of test panel. Adjust the multimeter to read VOLTS DC in the 50 VDC range. Connect the positive lead of the multimeter to + MULTR terminal on the front panel of test panel. Connect the negative terminal of the multimeter to terminal Y of TB6. Place the test panel E V/H control in the fully clockwise position. Place the test panel TEST switch (LOGIC section) to DELAY and then to OPERATE positions.	a. The multimeter should read approximately 47 vdc in each position.
	b. Remove the positive lead of the multimeter from the + MULTR terminal on test panel and connect to terminal W of TB6. should be flashing simultaneously.	b. The multimeter should read approximately 47 vdc, and INPUT PULSE lamp and INPUT lamp (LOGIC section)
	c. Remove the positive lead of the multimeter from terminal W of TB6 and connect to + MULTR terminal on test panel. Place the test panel MASTER switch to VOLTAGE CONTROL position and rotate the HV TEST control fully clockwise. Place the test panel TEST switch (VOLTAGE CONTROL section) to the following positions: HV LIMIT 1, HV LIMIT 2, and HV LIMIT 3.	c. The multimeter should indicate 25 + 1 vdc in each position.'
	d. Remove the positive lead of the multimeter from the + MULTR terminal on the test panel and connect to terminal E of TB7. Place the test panel TEST switch (VOLTAGE CONTROL section) to HV LIMIT 1 position. Insure that the HV LIMIT control is fully clockwise.	d. The multimeter should read 25 + 1 vdc.
	e. Place the test panel TEST switch (VOLTAGE CONTROL section) to HI' LIMIT 2 and then to HV LIMIT 3 positions.	e. The multimeter should read 16 + 1 vdc in each position.
	f. Remove the positive lead of the multimeter from terminal E and connect to terminal F of TB7. Place the test panel TEST switch (VOLTAGE CONTROL section) to HV LIMIT 1 and then to HV LIMIT 3 positions.	f. The multimeter should read 16 + 1 vdc in both positions.
	g. Place the test panel TEST switch (VOLTAGE CONTROL section) to HV LIMIT 2 position.	g. The multimeter should read 25 + 1 vdc.
	h. Remove the positive lead of the multimeter from terminal F of TB7 and connect to terminal G of TB7. Place the test panel TEST switch (VOLTAGE CONTROL section) to HV LIMIT 1 position and then to HV LIMIT 2 position.	h. The multimeter should read 16 I1 vdc in both positions.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	i. Place the test panel TEST switch (VOLTAGE CONTROL section) to HV LIMIT 3 position.	i. The multimeter should read 25 + 1 vdc.
	j. Remove the positive lead of the multimeter from terminal G of TB7 and the negative lead from terminal Y of TB6.	j. No indication.
	k. Place the test panel MASTER switch to LOGIC position. Rotate the test panel TEST switch (LOGIC section) through all positions. TEST switch (LOGIC section), except SHIFT.	k. The INPUT lamp (LOGIC section) will flash in synchronism with the INPUT PULSE lamp in all positions of the
	l. Place the test panel TEST switch (LOGIC section) to OPERATE position. Connect a jumper between terminal P of TB6 and terminal S of TB6.	l. The A lamp (LOGIC section) will illuminate as long the jumper is connected. The INPUT PULSE lamp and INPUT lamps (LOGIC section) will flash simultaneously.
	m. Remove the jumper from terminal P of TB6 and connect to terminal D of TB6. The INPUT PULSE lamp and INPUT lamps (LOGIC section) will flash simultaneously.	m. The B lamp (LOGIC section) will illuminate as long as the jumper is connected.
	n. Remove the jumper from terminal D of TB6 and connect to terminal R of TB6,	n. The Q1 lamp (LOGIC section) will illuminate as long as the jumper is connected. The INPUT PULSE lamp and INPUT lamps (LOGIC section) will flash simultaneously.
	o. Remove the jumper from terminal R of TB6 and connect to terminal F of TB6. nected. The INPUT PULSE lamp (LOGIC section) will flash simultaneously.	o. The Q2 lamp (LOGIC section) will illuminate as long as the jumper is con-
	p. Remove the jumper from terminal F and terminal S of TB6.	p. No indication.
	Q Connect a 120-ohm resistor (terminal 3 of TB11) to terminal E of TB2 and terminal 4 of TB11 to terminal 14 of TB4. Connect the positive lead of the oscilloscope to terminal 14 of TB4 and the negative lead (GRD) to terminal Y of TB6. PUT PULSE lamp and INPUT lamp (LOGIC section) should flash simultaneously.	q. The oscilloscope should indicate a negative going spike of approximately 5-volt peak amplitude of 100-microsecond duration at the midpoint each time the INPUT PULSE lamp flashes. The IN-
	r. Remove the 120-ohm resistor jumper leads from terminal E of TB2 and terminal 14 of TB4	r. No indication.
	s. Remove the positive lead of the oscilloscope from terminal 14 of TB4 and connect to terminal L of TB6. Place the Camera Pulse switch to the KA-30 position and observe the oscilloscope indication. (LOGIC section) should flash simultaneously.	s. The oscilloscope should indicate a positive pulse of 27 + 3-volt peak amplitude of 140 + 40-millisecond duration. The INPUT PULSE lamp and INPUT lamp
	Note. After completion of s above, transfer the positive lead of the oscilloscope to terminal U of TB6 and set the Camera Pulse switch to the KA-76 position. Observe for the same indications as s above.	
	t. Remove the positive lead of the oscilloscope from terminal U of TB6 and connect to CHAN A VERT terminal on the front panel of test panel. Place the test panel TEST switch (LOGIC section) to DELAY position. Place the Camera Pulse switch to the KA-30 position.	t. Indication should be the same as s above.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	u. Place the Camera Pulse switch to the KA-76 position, then remove the oscilloscope from the test panel.	u. No indication.
	v. Remove the POWER connector from J] on the front panel of test panel. Adjust the multimeter to read resistance in the R X I range. Connect the positive lead of the multimeter to CHAN A VERT terminal on test panel and the negative terminal to CHAN A GRD terminal. Place the test panel TEST switch (LOGIC section) to the Q1 and then the Q2 positions.	v. The multimeter should indicate continuity in both positions.
	w. Remove the negative lead of the multimeter from the CHAN A GRD terminal and connect to terminal M of TB6. Place the test panel TEST switch (LOGIC section) to + 5.1 VDS position.	w. The multimeter should indicate continuity.
	x. Remove the negative lead of the multimeter from terminal M of TB6 and connect to terminal T of TB6. Place the test panel TEST switch (LOGIC section) to + 15 VDC position.	x. The multimeter should indicate continuity.
	y. Remove the negative lead of the multimeter from terminal T of TB6 and connect to the + MULTR terminal on the front panel of the test panel. Verify that the test panel TEST switch (LOGIC section) is in the + 15 VDC position.	y. The multimeter should indicate continuity.
	z. Remove the negative lead of the multimeter from the + MULTR terminal on test panel and connect to terminal K of TB6. Place the test panel TEST switch (LOGIC section) to OUTPUT 1 position.	z. The multimeter should indicate continuity.
	aa. Remove the negative lead of the multimeter from terminal K of TB6 and connect to terminal B of TB6. Place the TEST switch (LOGIC section) to OUTPUT 2 position.	aa. The multimerer should indicate continuity.
	ab. Remove the negative lead of the multimeter from terminal B of TB6 and connect to terminal A of TB6. Place the TEST switch (LOGIC section) to OUTPUT 3 position.	ab. The multimeter should indicate continuity.
	ac. Remove the positive terminal of the multimeter from the CHAN A VERT terminal on test panel and connect to + MULTR terminal. Remove the negative lead of the multimeter from terminal A of TB6, and connect to terminal G of TB6. Place the test panel TEST switch (LOGIC section) to Q1 position.	ac. The multimeter should indicate continuity.
	ad. Remove the negative lead of the multimeter from terminal G of TB6 and connect to terminal J of TB6. Place the test panel TEST switch (LOGIC section) to Q2 position.	ad. The multimeter should indicate continuity.
	ae. Remove the negative lead of the multimeter from terminal J of TB6 and connect to terminal M of TB6. Place the test panel TEST switch (LOGIC section) to + 5.1 VDC position.	ae. The multimeter should indicate continuity.
	af. Remove the negative lead of the multimeter from terminal M of TB6 and the positive lead from +MULTR terminal on the front panel of the test panel.	af. No indication.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	ag. Connect the POWER connector to J1 on the test panel. Place the test panel TEST switch (LOGIC section) to SHIFT position. Connect the upper and lower channel oscilloscope probe to the CHAN A VERT and CHAN B VERT terminals on the test panel, respectively. Connect a jumper from terminal 1 of TB9 (+ 10 V power supply) to terminal N of TB6. Connect a second jumper from terminal 5 of TB9 to terminal C of TB6. Adjust both oscilloscope channels for 5-volt per centimeter sensitivity. Adjust the upper oscilloscope trace 2 centimeters above the centerline and the lower trace 2 centimeters below the centerline. Depress the test panel PRESS TO SHIFT indicators (LOGIC section) A, B, Q1 and Q2,'	ag. The upper trace on the oscilloscope will move down toward the centerline of the screen and. the lower trace will move up toward the centerline of the screen approximately 11/4 centimeters.
	ah. Remove the lower oscilloscope probes from the CHAN B VERT and GRD terminals of the test panel. Remove the upper oscilloscope probe from the CHAN A VERT terminal on test panel and connect to terminal C of TB6. Position the lower oscilloscope trace so that it is off the oscilloscope screen. Place the test panel TEST switch (LOGIC section) to SHIFT position and then position the upper oscilloscope trace to the center of the screen. Rotate the test panel TEST switch (LOGIC section) through its operating positions.	ah. The oscilloscope trace should appear approximately 2 centimeters above the centerline in all positions except SHIFT.
	at. Remove the upper oscilloscope probe from terminal C of TB6. Remove the jumpers between terminal 1 of TB9 and terminal N of TB6 and terminal 5 of TB9 and terminal C of TB6.	ai. No indication.
	aj. Place the test panel TEST switch (LOGIC section on the front panel of the test panel to OUTPUT 1 position. Connect the oscilloscope to the CHAN B VERT and CHAN B GRD terminals on the test panel. Connect a jumper between terminal 14 of TB4 and terminal b of TB6.	aj. The oscilloscope should indicate a negative going spike of approximately -19-volt peak amplitude at 110-microsecond duration at the midpoint (50%). The INPUT PULSE lamp, INPUT lamp (LOGIC section) and 1 lamp (LOGIC section) illuminate simultaneously.
	ak. Remove the jumper from terminal b of TB6 and connect to terminal c of TB6. Place the test panel TEST switch (LOGIC section) to OUTPUT 2 position.	ak. The indication on the oscilloscope should be the same as aj above, except that the 2 lamp (LOGIC section) will flash simultaneously.
	al. Remove the jumper from terminal c of TB6 and connect to terminal a of TB6. Place the test panel TEST switch (LOGIC section) to output 3 position.	al. The indication on the oscilloscope should be the same as aj above, except that the 3 lamp (LOGIC section) will flash simultaneously.
	am. Remove the oscilloscope probes from CHAN B VERT and CHAN B GRD terminals on the front panel of the test panel. Remove the jumpers from terminals 14 of TB4 and terminal a of TB6.	am. No indication.
	an. Adjust the multimeter to read VDC in the 2.5 VDC range. Connect the positive lead of the multimeter to terminal 2 (INNER SHIELD) of TB3. Connect the negative multimeter lead to terminal 1 (OUTER SHIELD) of TB3.	an. The multimeter should indicate 0.53 to 0.65 vdc. The INPUT PULSE lamp and the INPUT lamp (LOGIC section) will flash simultaneously.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
6. MODULE section.	a. Adjust the output of the pulse generator to obtain a positive output pulse of 50-volt dc peak amplitude with a pulse width of 700 microseconds at a repetition rate of approximately 1 pulse per second. Connect positive lead of pulse generator to terminal 2 of TB10. Connect negative lead of pulse generator to terminal 3 of TB10. Place the test panel MASTER switch to SYSTEM position.	a. The LIGHT ENERGY meter should indicate a sharp upswing followed by a very slow decrease in the reading on the meter. The upswing will occur at a rate determined by 'a repetition rate of the pulse generator.
	b. Deleted.	b. Deleted.
	c. Deleted.	c. Deleted.
	d. Adjust the output of pulse generator to approximately 0.5-volt and 700p. s pulse width. Transfer the positive output lead of the pulse generator from terminal 2 of TB10 to terminal 24 of TB4. Place the test panel MASTER switch to MODULE position. Connect the probes of the oscilloscope to the CHAN A VERT and CHAN A GRD terminals on the test panel. Place the test panel TEST switch (MODULE section) to P/C position.	d. The LIGHT ENERGY meter should indicate a sharp upswing occuring in synchronism with the pulse displayed on the oscilloscope. The INPUT PULSE lamp will also flash.
	e. Remove the probes of the oscilloscope from the CHAN VERT and CHAN A GRD terminals on the test panel. Remove the output lead of the pulse generator from terminal 24 of TB4 and terminal 3 of TB10.	e. No indication.
	f. Place the test panel MASTER switch to CONTROL PANEL position. Adjust the multimeter to read VDC in the 50-volt dc range. Connect the positive lead of the multimeter to terminal B of TB5 and connect the negative lead to terminal A of TB5.	f. The multimeter should read 28 + 1 vdc. The INPUT PULSE lamp should flash at approximately 3.75-second rate.
	g. Remove the positive lead of the multimeter from terminal B of TB5 and connect to terminal C of TB5.	g. The multimeter should read the same as f above.
	h. Transfer positive lead of multimeter to terminal D of TB5.	h. Same as f above.
	i. Remove multimeter from test panel.	i. No indication.
	j. Connect a jumper between terminal A of TB5 and terminal E of TB5. Connect a second jumper between terminal B of TB5 and terminal G of TB5.	j. The DC lamp (CONTROL PANEL section) should illuminate. The INPUT PULSE lamp should be flashing at approximately a3.75- second rate.
	k. Remove the second jumper from terminal G of TB5 and connect to terminal F of TB5.	k. The DC lamp (CONTROL PANEL section) should extinguish and the CONTROL PANEL AC indicator should illuminate as long as the second jumper is connected. The INPUT PULSE indicator should be flashing at a 3, 75-second rate.

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	l. Remove the jumpers connected between terminal F of TB5, terminal B of TB5, terminal A of TB5, and terminal E of TB5.	l. No indication.
	m. Remove the POWER connector from J1 on the front panel of the test panel. Place the test panel MASTER switch to MODULE position. Adjust the multimeter to read resistance in the R X 1 range. Connect the negative lead of the multimeter to terminal 8 of TB4 and connect the positive lead of the multimeter to + MULTR terminal on the test panel. Place the test panel TEST switch (MODULE section) to DISCH RES position.	m. The multimeter should indicate continuity.
	n. Remove the negative lead of the multimeter from terminal 8 of TB4 and connect to terminal 1 of TB4. Place the test panel TEST switch (MODULE section) to CHARGE DIODES position.	n. The multimeter should indicate continuity.
	o. Remove the negative lead of the multimeter from terminal 1 of TB4 and connect to terminal 19 of TB4. Place the test panel TEST switch (MODULE section)to the OUTPUT Q1 position.	o. The multimeter should indicate continuity.
	p. Remove the negative lead of the multimeter from terminal 19 of TB4 and connect to terminal 18 of TB4. Place the test panel TEST switch (MODULE section) to OUTPUT Q2 position.	p. The multimeter should indicate continuity.
	q. Remove the positive lead of the multimeter from the + MULTR terminal on the test panel and connect to the CHAN A VERT terminal.	q. The multimeter should indicate continuity.
	r. Remove the negative lead of the multimeter from terminal 18 of TB4 and connect to terminal 19 of TB4. Place the test panel TEST switch (MODULE section) to OUTPUT Q1 position.	r. The multimeter should indicate continuity.
	s. Remove the negative lead of the multimeter from terminal 19 of TB4. Remove the positive terminal of the multimeter from CHAN A VERT terminal on the test panel.	s. No indication.
	t. Connect the POWER connector to J1 on the test panel. Place the test panel TEST switch (MODULE section) to K1 CLOSE. Connect a jumper between terminal 8 of TB4 and terminal 11 of TB4.	t. The K1 CLOSE lamp should illuminate and the INPUT PULSE lamp should flash.
	u. Place the test panel TEST switch (MODULE section) to the R1 OPEN position,	u. The K1 CLOSE lamp should remain illuminated.
	v. Remove the jumper from terminal 11 of TB4 and connect to terminal 10 of TB4,	v. The K1 CLOSE lamp should extinguish and the K1 OPEN lamp illuminate.
	w. Remove the jumper between terminal 10 of TB4 and terminal 8 of TB4.	w. The K1 OPEN lamp remains illuminated.
	x. Adjust the multimeter to read VDC in the 50-volt dc range. Connect the positive lead of the multimeter to terminal 1 of TB4 and the negative lead to terminal 1-1 of TB4. Place the test panel TEST switch (MODULE section) to DISCH RES position.	x. The multimeter should read 25 $\pm$ 1 vdc and the K1 OPEN lamp should extinguish.

c Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	y. Remove the positive lead of the multimeter from terminal 1 of TB4 and connect to terminal 8 of TB4. Using jumper leads, connect terminal 1 of TB1l to terminal 11 of TB4, and terminal 2 of TB11 to terminal 8 of TB4. Place the test panel TEST switch (MODULE section) to CHARGE DIODES position.	y. The multimeter should read 14 + 2 vdc.
	z. Remove the jumper leads connected between terminals 11 and S of TB4, and 1 and 2 of TB11. Remove the positive lead of the multimeter from terminal 8 of TB4 and the negative lead from terminal 11 of TB4.	z. No indication.
	aa. Place the test panel TEST switch (MODULE section) to INTLK position. Connect a jumper between terminal E of TB2 and terminal 10 of TB4.	aa. The INTERLOCK lamp should illuminate and continue until the jumper is removed.
	ab. Remove the jumper between terminal E of TB2 and terminal 10 of TB4.	ab. The INTERLOCK lamp extinguishes.
	ac. Connect the Flash Pulse Output, terminal 10 of TB9, to terminal 13 of TB4. Connect the oscilloscope to the CHAN A VERT and CHAN A GRD terminals on the test panel. Place the test panel TEST switch (MODULE section) to FLASH PULSE A position. Actuate the PULSE INITIATE switch on the test board.	ac. Each time the PULSE INITIATE switch is actuated, the FLASH A lamp should flash and the trigger voltage should appear on the oscilloscope. The INPUT PULSE lamp should flash during this test.
	ad. Remove the Flash Pulse Output from terminal 13 of TB4, and connect to terminal 20 of TB4. Place the test panel TEST switch (MODULE section) to the FLASH PULSE B position. Actuate the PULSE INITIATE switch located on the test board.	ad. Each time the PULSE INITIATE switch is actuated, the FLASH B lamp should flash and the trigger voltage will appear on the oscilloscope. The INPUT PULSE lamp should flash during this test.
	ae. Remove the jumper from the Flash Pulse Output (terminal 10 of TB9) and terminal 20 of TB4. Remove the probes of the oscilloscope from the CHAN A VERT and CHAN A GRD terminals on the test panel.	ae. No indication.
	af. Adjust the multimeter to read VDC in the 50-volt de range. Connect the positive lead of the multimeter to terminal 17 of TB4 and the negative lead to terminal 11 of TB4. Rotate the test panel TEST switch (MODULE section) through all its operating positions.	af. The multimeter should indicate 28 $\pm$ 1 vdc in all positions, except K1 CLOSE and K1 OPEN. In the K1 OPEN position, the K1 OPEN lamp should illuminate.
	ag. Remove the positive lead of the multimeter from terminal 17 of TB4 and connect to terminal Z of TB7. Place the test panel MASTER switch to VOLTAGE CONTROL position.	ag. The multimeter should read 28 + 1 vdc.
	ah. Remove the positive lead of the multimeter from terminal Z of TB7 and the negative lead from terminal 11 of TB4.	ah. No indication.
	ai. Connect terminal 1 of TB11 to CHAN B VERT and terminal 2 of TB11 to CHAN B GRD minals on the test panel. Adjust the multimeter to read VDC in the 50-volt dc range. Connect the positive lead of the multimeter to CHAN B VERT terminal and the negative lead to CHAN B GRD terminal. Place the test panel MASTER switch to LOGIC position. Rotate the test panel TEST switch (LOGIC section) through OUTPUT 1, OUTPUT 2, and OUTPUT 3 positions.	ai. The lamps corresponding to OUTPUT 1, ter- OUTPUT 2, and OUTPUT 3 should illuminate as the test switch (LOGIC section) is set to each position. The INPUT PULSE lamp and INPUT lamp (LOGIC section) should flash simultaneously during this test. Multimeter should indicate 14 + 1 VDC,

c. Functional Tests (cont.)

Test	*Procedure*	*Correct Indication*
	aj. Remove the terminals 1 and 2 of TB11 from CHAN B VERT and CHAN B GRD terminals on the test panel. Remove the positive lead of the multimeter from the CHAN B VERT terminal and the negative lead from the CHAN B GRD terminal on the test panel.	aj. No indication.
	ak. Place the test panel TEST switch (SYSTEM section) to SYNC position. Insure the test panel MASTER switch to set to LOGIC position. Apply + 28 vdc to the - SHTR SYNC terminal on the test panel.	ak. The INPUT PULSE lamp and the INPUT lamp (LOGIC section) should illuminate and remain on until 28 vdc is removed from - SHTR SYNC terminal.
	al. Remove the + 28 vdc from the -SHTR SYNC terminal on the test panel,	al. The test panel is operational,
	am. Remove operating power from the test board; then, remove test board connectors from the test panel.	

6-6. Functional Tests, Blower Assembly

Perform the general support testing procedures (para 5-11) for overload standards for the blower assembly.

6-7. Functional Test, Adapter

a. General Requirements. Insure that all switches and controls are set as follows:

Switch/Control	*Setting*
POWER switch on test panel	OFF
MASTER switch on test panel	SYSTEM
TEST switch, SYSTEM section on test panel	OPR MODE
TEST switch, VOLTAGE CONTROL section on test panel. PH A	+ GATE CONT
E V/H control on test panel	zero (fully CCW)
INPUT PULSE switch on test panel	KA-30
HV TEST control, VOLTAGE CONTROL section on test panel	zero (fully CCW)
TEST switch, MODULE section on test panel	K1 CLOSE
TEST switch, LOGIC section on test panel	OPERATE
READY/INTLK switch on adapter	OFF
PULSE RATE switch on adapter	NORM
VOLTAGE switch on adapter	12V

b. Resistance Measurements. Use a multimeter to perform the following resistance measurements on the adapter before making any setup connections.

NOTE

Refer to figure 6-19 for identification of adapter plugs.

Multimeter connections

From + (ohms	*To - Resistance 10/o%)*	
P2-B	J1-11	0
P2-B	J2-B	0
P2-A	Jl-14	0
P2-A	Jl-10	200
P2-A	J2-A	0
P2-A	J6	0
P2-A	J8	0
P2-A	J10	0
P2-A	J12	0
P2-A	Chassis	0
P2-A	J11	47K
P2-A	J1-12	48K
P2-E	J11-24	Infinity
P2-E	J2-E	0
P2-C	J1-5, 6, & 7	0
P2-C	Jl-16	0
P2-C	Jl-1	0
P2-C	J 1-2	0
P2-C	J2-C	0
J1-15	35	0
P2-M	J 1-21	0
P2-M	J2-L	0

c. Connections. Connect bench test set as described in paragraph 6-3 part (b).

d. Power Application. Connect +28-volt dc and 115-volt ac, 400 cps power to the test board.

e. Functional Tests.

NOTE

All the components are on the adapter unless otherwise noted.

Test		*Procedure*	*Correct Indication*
1.	1,2 and 3 switches in TEST section.	a. Place the test panel POWER ON/OFF switch to the ON position.	a. The READY/INTLK lamp wil/ illuminate. The INPUT PUL. lamp on the test panel will flash once every 3.75 seconds and the CAMR PULSE lamp will flash simultaneously.
		b. Set the multimeter to the AC, 250 V range and connect to pins 14 and 16 of connector J1.	b. The multimeter will indicate 115 volts ac.
		c. Depress switch 1 in TEST section.	c. The multimeter will indicate zero volts.
		d. Release switch 1 in TEST section. Disconnect the multimeter from pins 14 and 16 of connector and connect to pins 1 and 14 of connector J1.	d. The multimeter will indicate 115 volts ac.
		e. Depress switch 2 in TEST section. zero volts.	e. The multimeter will indicate
		f. Release switch 2 in TEST section. Disconnect the multimeter from pins 1 and 14 of connector J1 and connect to pins 2 and 14 of connector J1.	f. The multimeter will indicate 115 volts ac.
		g. Depress switch 3 in TEST section. zero volts.	g. The multimeter will indicate
		h. Release switch 3 in TEST section. Disconnect the multimeter from pins 2 and 14 of connector J1 and connect to pin 7 of connector P1 and terminal D of terminal board TB1 on the test board.	h. The multimeter will indicate zero volts.
		i. Depress switch 1 in TEST section.	i. The multimeter will indicate 115 volts ac.
		j. Release switch 1 in TEST section. Disconnect the multimeter from pin 7 of connector P1 and terminal D of terminal board TB1 on the test board. Set the multimeter to the RX10 range. Connect the multimeter to pin 6 of connector P1 and terminal A of terminal board TB1 on the test board.	j. The multimeter will indicate infinite resistance.

e. Functional tests (cont)

	Test	Procedure	Correct Indication
		k. Depress switch 2 in TEST section.	k. The multimeter will indicate continuity.
		l. Release switch 2 in TEST section. Disconnect the multimeter from pin 6 of connector P1 and terminal A of terminal board TB1 on test board.	1. The multimeter will indicate infinite resistance.
2.	VOLTAGE switch	a. Set the VOLTAGE switch to 30V. Set the multimeter to the R x 100 range and connect it to VOLTAGE + terminal J11 and pin 1 of connector P1.	a. The multimeter will indicate 1K ohms i 10%.
		b. Disconnect the multimeter lead from pin 1 of connector P1 and connect it to pin 23 of connector J1.	b. The multimeter will indicate 1K ohms : 10%.
		c. Disconnect the multimeter lead from VOLTAGE + terminal J11 and connect it to VOLTAGE - terminal J12. Set the multimeter to the R x 10,000 range.	c. The multimeter will indicate 48K ohms + 10%.
		d. Disconnect the multimeter from pin 23 of connector J1. Set the multimeter to the + DC 50V range and connect the + lead to the VOLTAGE + terminal J11 and the - lead to the VOLTAGE - terminal J12. Connect a clip lead jumper to pins 24 and 25 on connector J1. Set the VOLTAGE switch to E V/H MOD. Adjust the E V/H control on the test panel from zero to 30.	d. The multimeter indication will vary from 2.5 to 27 volts as the E V/H control on the test panel is adjusted.
		e. Set the E V/H control on the test panel to zero. Remove clip lead jumper from connector J1. Disconnect multimeter from VOLTAGE + and VOLTAGE - terminals J11 and J12.	e. The multimeter will indicate 2.5 ± 0.5 volts.
3.	K1 RE LAY circuit	a. Depress the K1 RELAY lamp. light when depressed.	a. The K1 RELAY lamp will
		b. Release the K1 RELAY lamp and connect a clip lead jumper to pins 8 and 10 of connector J1.	b. The K1 RE LAY lamp will extinguish.
		c. Set and hold the READY/INTLK switch to K1.	c. The K1 RELAY lamp will light.

e. Functional tests (cont)

	Test	Procedure	Correct Indication
		d. Release READY/INTLK switch. Remove clip lead jumper from connector J1. Connect the clip lead jumper to pin 2 of connector P1 and terminal B of terminal board TB1 on test board.	d. The K1 RELAY lamp will light.
		e. Remove clip lead jumper from connector P1 and terminal board T131.	e. The K1 RELAY lamp will extinguish.
4.	READY/INTLK	a. Connect a clip lead jumper to pins 4 circuit and 3 of connector J1. Place the READY/INTLK switch to the READY position.	a. The READY/INTLK lamp extinguishes.
		b. Depress the READY/INTLK lamp. lights when depressed.	b. The READY/INTLK lamp
		c. Release the READY/INTLK lamp. Place the READY/INTLK switch to OFF. Remove the clip lead jumper from connector J1 and connect it to terminals B and K of terminal board TB1 on the test board.	c. The READY/INTLK lamp extinguishes.
		d. Remove the clip lead jumper from connector J1.	d. The READY/INTLK lamp lights.
5.	CAMR PULSE circuit	a. Depress the CAMR PULSE lamp.	a. The CAMR PULSE lamp stops flashing and lights steadily.
		b. Release the CAMERA PULSE lamp.	b. The CAMR PULSE lamp flashes simultaneously with the INPUT PULSE lamp on the test set.
		c. Turn the INPUT PULSE switch on the test panel to KA-76. the INPUT PULSE lamp on the test panel at a rate of about one flash every 3.75 seconds.	c. The CAMR PULSE lamp flashes simultaneously with
6.	FLASH PULSE circuit	a. Depress the FLASH PULSE lamp.	a. The FLASH PULSE lamp lights steadily.
		b. Release the FLASH PULSE lamp and connect a clip lead jumper to pins 21 and 22 of connector J1.	b. The FLASH PULSE lamp flashes simultaneously with the CAMR PULSE lamp.

e. Functional tests (cont.)

Test	Procedure	Correct Indication
	c. Remove the clip lead jumper from pins 21 and 22 of connector JI and connect it to pin 8 on connector P1 and terminal L on terminal board TBI on the test board.	c. The FLASH PULSE lamp flashes simultaneously with the CAMR PULSE lamp.
	d. Remove the clip lead jumper from connector P1 and terminal board TBI and connect it to pin 9 on connector P1 and terminal M on terminal board TBI on the test board. Set INPUT PULSE switch on test panel to KA-30.	d. The FLASH PULSE lamp lights simultaneously with the CAMR PULSE lamp.
	e. Remove the clip lead jumper from connector P1 and terminal board TBI on the test board.	e. The FLASH PULSE lamp will extinguish, and the CAMR PULSE lamp will continue to flash.
7. PULSE RATE circuit	NOTES 1. Connect jumper between pins 3 and 4 of adapter connector J.1 2. Set adapter READY INTLK switch to READY.	
	a. Adjust oscilloscope sweep speed to 0.05 sec/cm and vertical gain to 10 volts/cm. Connect the oscilloscope to the second. CAMERA PULSE + and CAMERA PULSE - terminals on the adapter. Place the PULSE RATE switch to the KA30 A position.	a. The CAMR PULSE lamp will flash once every The oscilloscope will indicate a +28-volt dc pulse with a pulse interval of 1,000 ± 100 ms.
	b. Place the PULSE RATE switch to the KA76 A position.	b. Observe the same indication on the oscilloscope as in a above.
	c. Adjust oscilloscope sweep speed to 0.1 sec/cm and vertical gain to 10 volts/cm. Place the PULSE RATE switch to the KA30 B position.	c The CAMR PULSE lamp will flash 2.5 times every second. The oscilloscope will indicate a +28-volt dc pulse with a pulse interval of 400 ± 40 ms.
	d. Place the PULSE RATE switch to the KA76 B position. as in b above.	d. Observe the same indication on the oscilloscope
	e. Place the PULSE RATE switch to the KA30 C position.	e. The CAMR PULSE lamp will flash 3.5 times every second. The oscilloscope will indicate a +28-volt dc pulse with a pulse interval of 285 + 30 ms.
	f. Place the PULSE RATE switch to the KA76 C position.	f. Observe the same indication on the oscilloscope as in c above.

e. Functional tests (cont.)

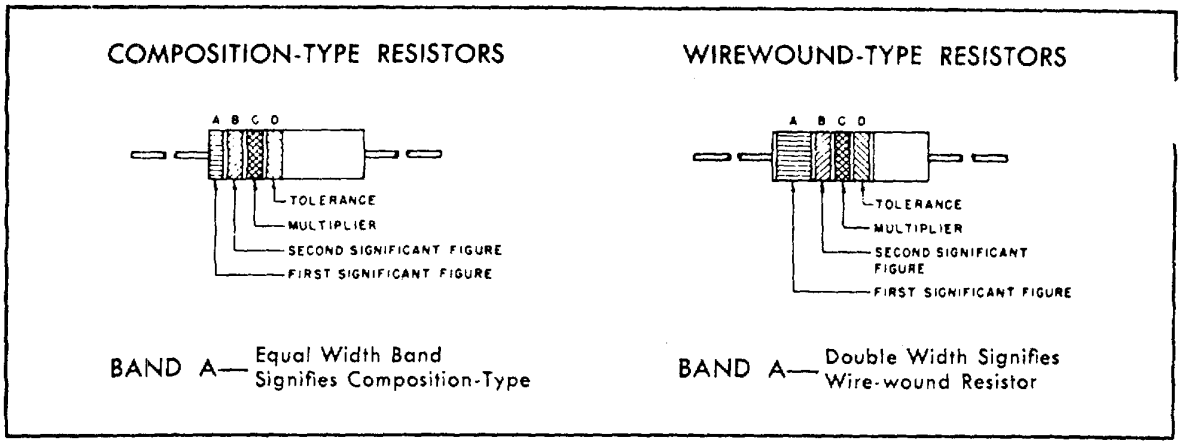
	Test		*Procedure*		*Correct Indication*
		g.	Place the PULSE RATE switch to the KA30 D position.	g.	The CAMR PULSE lamp will flash six times every second. The oscilloscope will indicate a +28-volt pulse with a pulse interval of 166 ± 17 ms.
		h.	Place the PULSE RATE switch to the KA76 D position. as in d above.	h.	Observe the same indication on the oscilloscope
		i.	Place the PULSE RATE switch to the NORM position. Remove the oscilloscope from the CAMERA PULSE + and CAMERA PULSE - terminals. Disconnect power cable from adapter connector JI. Remove jumper wire from pins 3 and 4 on connector J.	i.	The CAMR PULSE lamp will flash once every 3.75 seconds.
8.	Input power and control signals	a.	Set the multimeter to the + DC 50V range. Connect the multimeter (+) lead to terminal B of terminal board TBI on the test board and the (-) lead to terminal A.	a.	The multimeter will indicate +28 volts dc.
		b.	Connect the multimeter (+) lead to terminal E of terminal board TBI on the test board, and the (-) lead to terminal A. Rotate the E V/H control on the test panel from fully counterclockwise to fully clockwise and back again.	b.	The multimeter will indicate zero volts dc when the E V/H control on the test panel is fully counterclockwise, gradually increase to +47 volts dc as the E V/H control is rotated clockwise, and return to zero when the E V/H control is again counterclockwise.
		c.	Connect the multimeter (+) lead to pin 24 of connector J1. Rotate the E V/H control on the test panel as in b above.	c.	The multimeter will indicate the same as in b above.

* U.S. GOVERNMENT PRINTING OFFICE: 1981-765 016/101

e. Functional tests (cont)

Test	Procedure	Correct Indication
	d. Disconnect the multimeter leads from the terminal borad TB1 and pin 24 of connector J1. Connect the (+) lead to pin 11 of connector J1, and the (-) lead to pin 14 of connector J1.	d. The multimeter will indicate +28 volts dc.
	e. Disconnect the multimeter leads from connector J1. Set the multimeter to the AC 250V range. Connect the multimeter leads to terminals D and C of terminals board TB1 on the test board.	e. The multimeter will indicate 115 volts ac.
	f. Disconnect the multimeter leads from the terminal board TB1 on the test board. Connect one multimeter lead to pin 14 on connector J1 and the other lead to pin 5 of connector J1.	f. The multimeter will indicate 115 volts ac.
	g. Remove the multimeter lead from pin 5 of connector J1 and connect it to pin 6 of connector J1.	g. The multimeter will indicate 115 volts ac.
	h. Remove the multimeter lead from pin 6 of connector J1 and connect it to pin 7 of connector J1.	h. The multimeter will indicate 115 volts ac.
	i. Remove the multimeter leads from connector J1.	i. The multimeter will indicate zero volts.
	j. Place the POWER ON/OFF switch on the test panel to the OFF position. Remove AC and DC operating power from the test board. Remove the test board connectors from the test panel and adapter. Remove cable W8 from adapter and test panel.	j. The READY/INTLKI lamp will extinguish. The CAMR PULSE lamp will stop flashing.

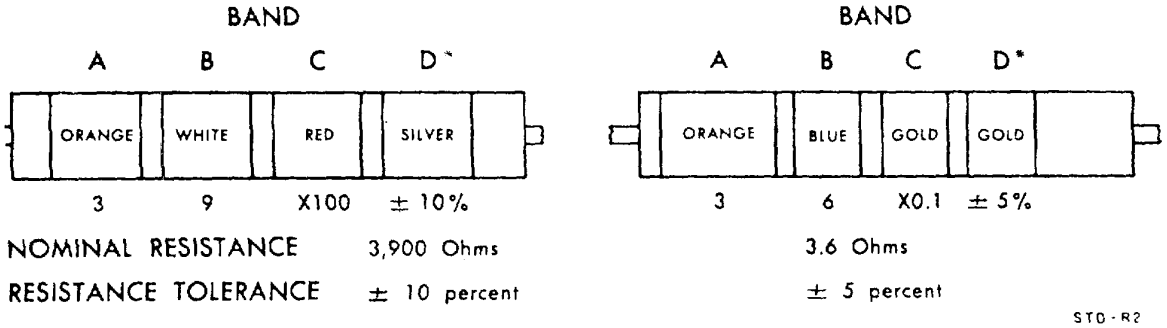
COLOR CODE MARKING FOR MILITARY STANDARD RESISTORS



COLOR CODE TABLE

BAND A		BAND B		BAND C		BAND D*	
COLOR	FIRST SIGNIFICANT FIGURE	COLOR	SECOND SIGNIFICANT FIGURE	COLOR	MULTIPLIER	COLOR	RESISTANCE TOLERANCE (PERCENT)
BLACK	0	BLACK	0	BLACK	1		
BROWN	1	BROWN	1	BROWN	10		
RED	2	RED	2	RED	100		
ORANGE	3	ORANGE	3	ORANGE	1,000		
YELLOW	4	YELLOW	4	YELLOW	10,000	SILVER	10
GREEN	5	GREEN	5	GREEN	100,000	GOLD	5
BLUE	6	BLUE	6	BLUE	1,000,000		
PURPLE (VIOLET)	7	PURPLE (VIOLET)	7				
GRAY	8	GRAY	8	SILVER	0.01		
WHITE	9	WHITE	9	GOLD	0.1		

EXAMPLES OF COLOR CODING



*If Band D is omitted, the resistor tolerance is ± 20%, and the resistor is not Mil-Std.

Figure 6-1. Color code marking for MIL-STD resistors.

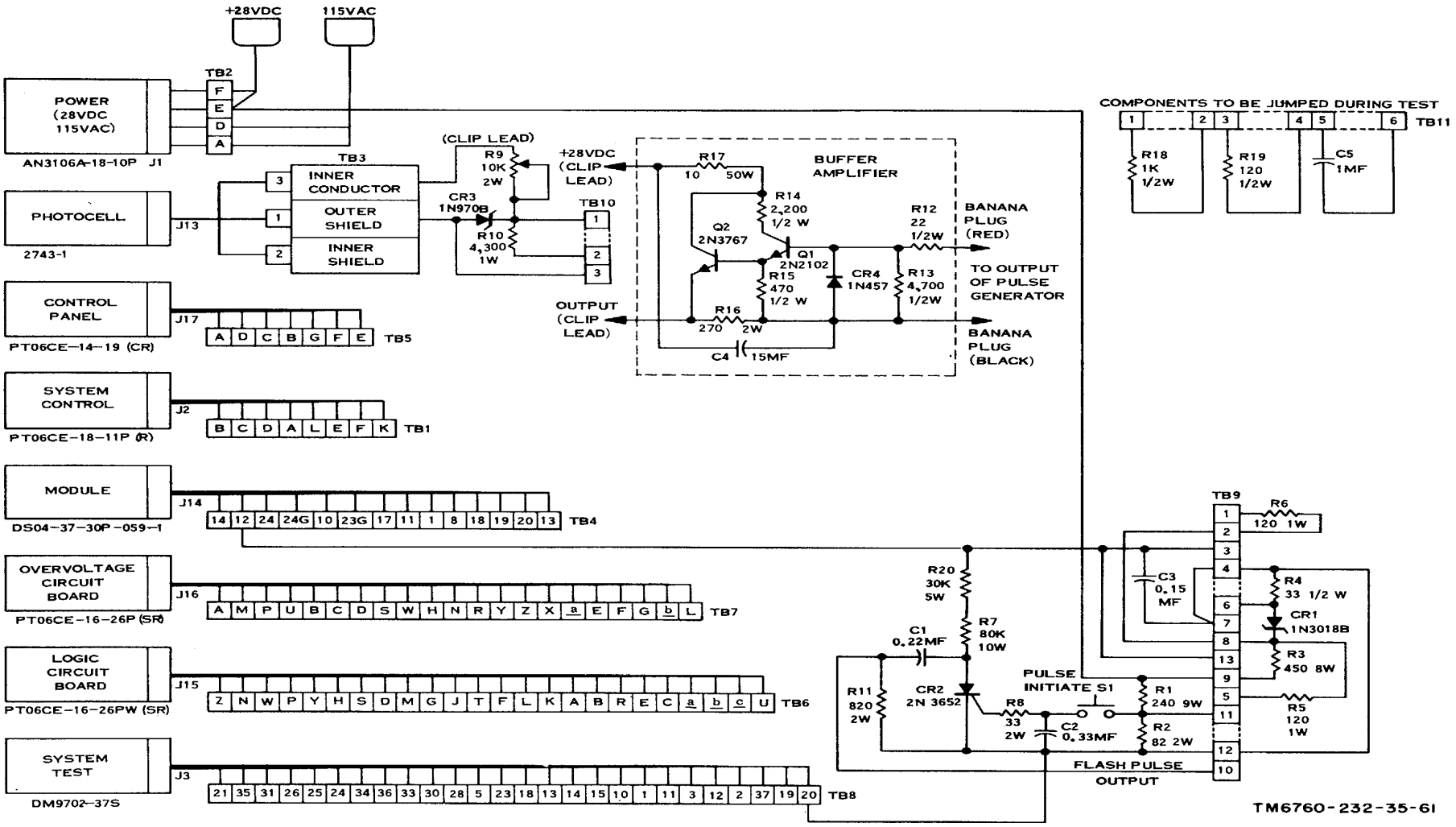
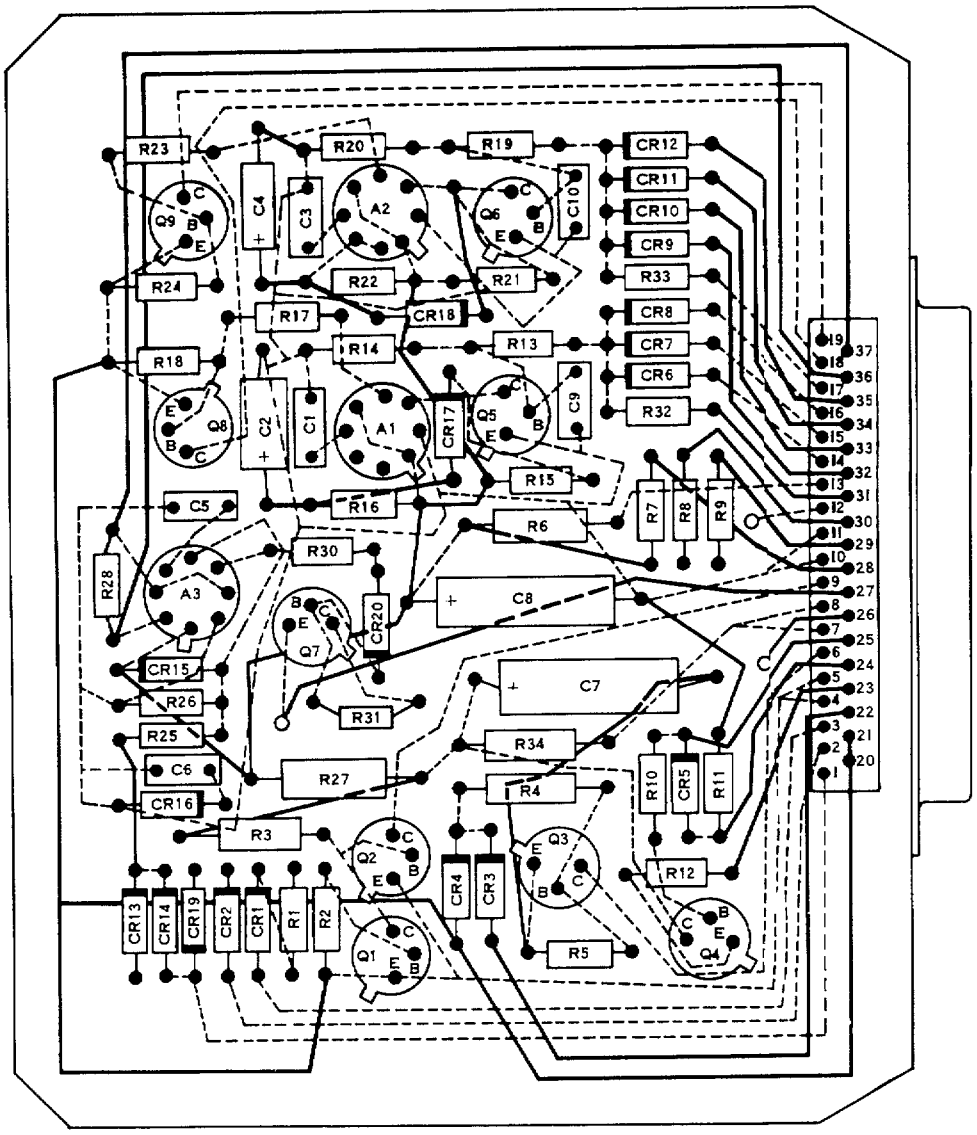


Figure 6-17. Test panel test board, schematic diagram.



NOTES:

1. CIRCUIT VIEWED FROM SIDE ON WHICH COMPONENTS ARE MOUNTED.
2. ——— PARTS AND PIGTAILS ON FRONT OF BOARD.
3. – – – WIRING ON BACK OF BOARD.
4. ——— WIRING ON FRONT OF BOARD.
5. – – – WIRING ON FRONT OF BOARD BUT UNDER A PART.
6. PREFIX ALL REFERENCE DESIGNATORS WITH A1A2A3.

Figure 6-21. Adapter PCB A3 Circuit diagram.

APPENDIX A

REFERENCES

DA Pam 3104.....Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins and Lubrication Orders.

DA Pam 3107.....U. S. Army Equipment Index of Modification Work Orders.

SB 70050.....Expendable Items (except: Medical, Class V, Repair Parts and Heraldic Items).

TB SIG 3551. .....Depot Inspection Standard for Repaired Signal Equipment.

TB SIG 3552.....Depot Inspection Standard for Refinishing Repaired Signal Equipment.

TB SIG 3553.....Depot Inspection Standard for Moisture and Fungus Resistant Treatment.

TM 11-6760-232-12.....Operator and Organizational Maintenance Manual: Test Set, Photographic Flasher System, Bench LS69A.

TM 38750.....The Army Maintenance Management System (TAMMS).

APPENDIX B

DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE REPAIR PARTS

Section I. INTRODUCTION

B-1. Scope

This appendix lists repair parts and special tools required for the performance of direct support, general support, and depot maintenance of the LS-69A.

B-2. General

This Repair Parts and Special Tools List is divided into the following sections:

a. Repair Parts-Section II. A list of repair parts authorized for the performance of maintenance at the direct support, general support, and depot level.

b. Special Tools, Test and Support Equipment Section III. Not applicable.

c. Index-Federal Stock Number Cross-Reference to Figure and Item Number or Reference Des7nation-Section IV. A list of Federal stock numbers in ascending numerical sequence followed by a list of reference numbers in ascending alphanumeric sequence, cross-referenced to illustration figure number and reference designation.

d. Index-Reference Designation Cross-Reference to Page Numbers-Section V. A list of reference designations cross-referenced to page number.

B-3. Explanation of Columns

The following provides an explanation of columns in the tabular lists

a. Source, Maintenance, and Recoverability Codes (SMR), Column 1:

(1) Source code indicates the selection status and source for the listed item. Source codes are:

Code *Explanation*

P-Repair parts which are stocked in or supplied from the GSA/DAS, or Army supply system and authorized for use at indicated maintenance categories.

P2-Repair parts which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.

P9--Assigned to items which are NSA design controlled: unique repair parts, special tools, test, measuring and diagnostic equipment, which are stocked and supplied by the Army COMSEC logistic system, and which are not subject to the provisions of AR 380-41.

Code *Explanation*

P10-Assigned to items which are NSA design controlled: special tools, test, measuring and diagnostic equipment for COMSEC support, which are accountable under the provisions of AR 380-41, and which are stocked and supplied by the Army COMSEC logistic system.

M-Repair parts which are not procured or stocked, but are to be manufactured in indicated maintenance levels.

A-Assemblies which are not procured or stocked as such, but are made up of two or more units. Such component units carry individual stock numbers and descriptions, are procured and stocked separately and can be assembled to form the required assembly at indicated maintenance categories.

X-Parts and assemblies which are not procured or stocked and the mortality of which normally is below that of the applicable end item or component. The failure of such part or assembly should result in retirement of the end item from the supply system.

X1-Repair parts which are not procured or stocked. The requirement for such items will be filled by use of the next higher assembly or component.

X2--Repair parts which are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain same through cannibalization. Where such repair parts are not obtainable through cannibalization, requirements will be requisitioned, with accompanying justification, through normal supply channels.

G-Major assemblies that are procured with PEMA funds for initial issue only as exchange assemblies at DSU and GSU level. These assemblies will not be stocked above DS and GS level or returned to depot supply level.

(2) Maintenance code, indicates the lowest category of maintenance authorized to install the listed item. The maintenance level codes are:

Code	*Explanation*
C	Operator/Crew
O	Organizational maintenance
F	Direct support maintenance
H	General support maintenance
D	Depot maintenance

(3) Recoverability code, indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are:

Code *Explanation*

R-Repair parts and assemblies that are economically repairable at DSU and GSU activities and normally are furnished by supply on an exchange basis.

S-Repair parts and assemblies which are economically repairable at DSU and GSU activities and which normally are furnished by supply on an exchange basis. When items are determined by a GSU to be uneconomically repairable, they will be evacuated to a depot for evaluation and analysis before final disposition.

T-High dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts normally are repaired or overhauled at depot maintenance activities.

U-Repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, or high dollar value reusable casings or castings.

b. Federal Stock Number, Column 2. This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description, Column 3. This column indicates the Federal item name and any additional description of the item required. The index number has been included as part of the description to aid in the location of "same as" items. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parentheses.

d. Unit of Measure (U/M), Column 4. A 2 character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Incorporated in Unit, Column 5. This column indicates the quantity of the item used in the LS-69A. A "V" appearing in this column in lieu of a quantity indicates that a definite quantity cannot be indicated (e.g., shims, spacers, etc.). Subsequent appearances of the same item in the same assembly are indicated by the letters "REF."

f. 30-Day DS/GS Maintenance Allowances, Columns 6 and 7.

NOTE

Allowances in GS column are for GS maintenance only.

(1) The allowance columns are divided into three subcolumns. Indicated in each subcolumn, opposite the first appearance of each item, is the total quantity of items authorized for the number of equipments supported. Subsequent appearances of the same item will have the letters "REF" in the applicable allowance columns. Items authorized for use as required but not for initial stockage are identified with an asterisk in the ,allowance column.

(2) The quantitative allowances for DS/GS levels of maintenance will represent initial stock age for a 30-day period for the number of equipments supported.

(3) Determination of the total quantity of parts required for maintenance of more than 100 of these equipments can be accomplished by converting the equipment quantity to a decimal factor by placing a decimal point before the next to last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51-100 allowance column. Example, authorized allowance for 51-100 equipments is 40; for 150 equipments multiply 40 by 1.50 or 60 parts required.

g. 1-Year Allowances Per 100 Equipments/Contingency Planning Purposes, Column 8. This column indicates opposite the first appearance of each item the total quantity required for distribution and contingency planning purposes. The range of items indicates total quantities of all authorized items required to provide for adequate support of 100 equipments for one year.

h. Depot Maintenance Allowance Per 100 Equipments, Column 9. This column indicates opposite the first appearance of each item, the total quantity authorized for depot maintenance of 100 equipments. Subsequent appearances of the same item will have the letters "REF" in the allowance column. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

i. Illustration, Column 10. This column is divided as follows:

(1) *Figure Number, Column 10a*. Indicates the figure number of the illustration in which the item is shown.

(2) *Item Number or Reference Designation, Column 10b*. Indicates the callout number or reference designation used to identify the item in the illustration.

B-4. Special Information

Repair parts mortality is computed from failure rates derived from experience factors with the individual parts in a variety of equipments. Variations in the specific application and periods of use of electronics equipment, the fragility of electronic piece parts, intangible materials and quality factors intrinsic to the manufacture of electronic parts, do

not permit mortality to be based on hours of end item use. However, long periods of continuous use under adverse conditions are likely to increase repair parts mortality.

B-5. Location of Repair Parts

a. This appendix contains two cross-reference .indexes (sec IV and sec V) to be used to locate a repair part when either the Federal stock number, reference number (manufacturer's part number), or reference designation is known. The first column in each index is prepared in numerical and/or alphanumeric sequence in ascending order. Where a Federal stock number is not listed, refer to the reference number (manufacturer's part numbers) immediately following the Federal stock number.

b. When the Federal stock number is known, follow the procedures give in (1) and (2) below.

(1) Refer to the index of Federal stock numbers (sec IV) and locate the Federal stock number. The FSN is cross-referenced to the applicable figure and reference designation.

(2) When the reference designation is determined, refer to the reference designation index (sec. V). The reference designations are listed in numeric-alpha ascending order and are cross referenced to the page number on which they appear n the repair parts list (sect. II). Refer to the page number noted in the index and locate the reference designation (col. 10b). If the word "REF" appears in the allowance column for the repair part, note the Federal stock Number (col. 2) or manufacturer's part number (col. 3). Refer to the FSN index and note the reference designation for that FSN or part number. Refer to the reference designation index and note the page number given for the reference designation. Refer to the page noted in the RPSTL (sec II) and locate the reference designation in col. 10b of the repair parts list.

c. When the reference designation is known, follow the procedures given in b (2) above.

d. When neither the FSN nor reference designation is known, identify the part in the illustration and follow directions given in c above or scrutinize column 3 of the repair parts list.

B-6. Federal Supply Code for Manufacturers

Code	*Manufacturer's Name*
00236	Fendall Co.
05571	Sprague Electric Co.
06001	General Electric Co.
06090	Raychem Corp.
06383	Panduit Corp.
07344	Bircher Co. Inc.
07497	Essex International Inc.
07933	Raytheon Co., Newton, Mass.
08289	Blinn Delbert Co.
08806	General Electric Co.
09213	General Electric Co.
09022	Burndy Corp.
11139	Deutsch Co.
11871	Chicago Aerial Industries, Inc.
12406	Elpac Inc.
12697	Clarostat Mfg. Co.
13619	R F Interonics Inc.
14158	Potter Co.
16326	Boston Insulated Wire and Cable Co.
37942	Mallory P R and Co. Inc.
39428	McMaster-Carr Supply Co.
49956	Raytheon Co.
70485	Atlantic India Rubber Works Inc.
70892	Bead Chain Mfg. Co.
71279	Cambridge Thermionic Corp.
72619	Dialight Corp.
72794	Dzus Fastener Co. Inc.
72962	Elastic Stop Nut
77820	Bendix Corp.
78189	Illinois Tool Works Inc.
80089	Essex Wire Corp.
80294	Bourns Inc.
81073	Grayhill Inc.
81349	Military Specifications
87034	Marco & Oak Industries
88044	Aeronautical Standards Group
91506	Augat Inc.
91637	Dale Electronics Inc.
91929	Honeywell Inc.
95712	Bendix Corp.
95987	WecKesser Co. Inc.
96906	Military Standards
97564	Clare-Pendar Inc.
98291	Sealectro Corp.
99515	Marshall Industries

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
	6760-999-5662	A001 TEST SET, PHOTOGRAPHIC FLASHER SYSTEM BENCH LS-69A (This item is nonexpendable)													
G-O-S	6760-113-5726	A002 BENCH TEST PANEL LM-179A		EA	1										A1
G-O-S		A003 CASE, BENCH TEST SET PANEL 7148-1205; (11871)		EA	1										A1MP1
M-H		A004 CUSHION, TOP: 7148-1206;		EA	1										A1MP2
M-H		A005 CUSHION, BOTTOM: 7148-1207; (11871)		EA	1										A1MP3
A-F-R		A006 PANEL, BENCH TEST SET: 7148-1208; (11871)		EA	1										A1A1
X2-F		A007 SCREW, MACHINE: CAV70-1032-12P; (11871)		EA	12										A1H1
X2-F	5310-888-6488	A008 WASHER FLAT: CAV10-69P; (11871)		EA	12										A1H2
P-F	5930-669-7286	A009 SWITCH PUSH: 2PB11T; (91929)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1S5
P-F	5940-730-4873	A010 POST, BINDING: 29-3RED: (81073)		EA	5	*	2	2	*	2	2	16	10	3-1(1)	A1A1J4
P-F	5940-730-4873	A011 POST, BINDING: SAME AS A010		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1J5
P-F	5940-730-4873	A012 POST, BINDING: SAME AS A010		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1J7
P-F	5940-730-4873	A013 POST, BINDING: SAME AS A010		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1J9
P-F	5940-730-4873	A014 POST, BINDING: SAME AS A010		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1J11
P-F		A015 POST, BINDING: 29-3BLACK; (81073)		EA	3	*	2	2	*	2	2	16	9	3-1(1)	A1A1J6
P-F		A016 POST, BINDING: SAME AS A015		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1J8
P-F		A017 POST, BINDING: SAME AS A015		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1J10
P-F		A018 LIGNT-SWITCH ASSAEBLY: 6679-117-18; (11871)		EA	1	*	*	2	*	2	2	10	5	3-1(1)	A1A1A17
P-O	6240-155-7836	A019 LAMP, INCANDESCENT: KS25237-327; (96906)		EA	4	4	11	20	6	5	5	242	200	3-1(1)	A131A17DS1
P-O	6240-155-7836	A020 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A17DS2
P-O	6240-155-7836	A021 LAMP, INCANDESCENT: SAME AS A0019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A17DS3
P-O	6240-155-7836	A022 LAMP, INCANDESCENT: SAME AS A019		EA	P	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A17DS4
P-F		A023 LIGHT-SWITCH ASSEBLY: 6679-117-15; (11871)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1A3
P-O	6240-155-7836	A024 LAMP, INCANDESCENT: SAME AS A019		EA	4	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A3DS1
P-O	6240-155-7836	A025 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A3DS2
P-O	6240-155-7836	A026 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A3DS3
P-O	6240-155-7836	A027 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	RE	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A3DS4
P-F		A028 SEMICONDUCTOR DEVICE, DIODE: IN645M; (81349)		EA	4	2	3	5	2	2	2	52	40	3-1(2)	A1A1A3CR1
P-F		A029 SEMICONDUCOR DEVICE, DIODE: SAME AS A028		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A3CR2
P-F		A030 SEMICONDUCTOR DEVICE, DIODE: SAME AS A028		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A3CR3

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F		A031 SEMICONDUCTOR DEVICE, DIODE:		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A3CR4
P-F		A032 LIGHT-SWITCH ASSEMBLY: 6679-117-21; (11871)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1A4
P-O	6240-155-7836	A033 LAMP, INCANDESCENT: SAME AS A019		EA	4	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A4DS1
P-0	6240-155-7836	A034 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A4DS2
P-O	6240-155-7836	A035 LAMP, INCANDESCENT:		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A4DS3
P-O	6240-155-7836	A036 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A4DS4
P-F		A037 SEMICONDUCTOR DEVICE DIODE: SAME AS A028		EA	4	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A4CR1
P-F		A038 SEMIC0NDUCTOR DEVICE DIODE: SAME AS A028		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A4CR2
P-F		A039 SEMICONDUCTOR DEVICE DIODE: SAME AS A028		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A4CR3
P-F		A040 SEMICONDUCTOR DEVICE DIODE: SAME AS A028		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A4CR4
P-F		A041 LIGHT-SWITCH ASSMEBLY: 6679-117-22; (11871)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1A5
P-O	6240-155-7836	A042 LAMP, INCANDESCENT: SAME AS A019		EA	4	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A5DS1
P-O	6240-155-7836	A043 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A5DS2
P-O	6240-155-7836	A044 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A5DS3
P-O	6240-155-7836	A045 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1DS4
P-F		A046 SEMICONDUCTOR DEVICE, DIODE: SAME AS A028		EA	4	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A5CR1
P-F		A047 SEMICONDUCTOR DEVICE DIODE: SAME AS A028		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A5CR2
P-F		A048 SEMICONDUCTOR DEVICE DIODE: SAME AS A028		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A5CR3
P-F		A049 SEMICONDUCTOR DEVICE DIODE: SAME AS A028		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A5CR4
P-F		A050 LIGHT-SWITCH ASSEMBLY: 6679-117-17; (11871)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1A8
P-O	6240-155-7836	A051 LAMP, INCANDESCENT: SAME AS A019		EA	4	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A8DS1
P-O	6240-155-7836	A052 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	RE	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A8DS2
P-O	6240-155-7836	A053 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A8DS3
P-O	6240-155-7836	A054 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A8DS4
P-F		A055 LIGHT-SWITCH ASSEMBLY: 6679-117-4; (11871)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1A1
P-O	6240-155-7836	A056 LAMP, INCANDESCENT: SAME AS A019		EA	4	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A1DS1
P-O	6240-155-7836	A057 LAMP, INCANDESCENT:		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A1DS2
P-O	6240-155-7836	A058 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A1DS3

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-O	6240-155-7836	A059 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A1DS4
P-F		A060 LIGHT-SWITCH ASSEMBLY: 6679-317-19; (11871)		EA	1	*	*	2	*	*	8	3	3	3-1(1)	A1A16
P-O	6240-155-7836	A061 LAMP, INCANDESCENT: SAME AS A019		EA	4	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A11A6DS1
P-O	6240-155-7836	A062 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A6DS2
P-O	6240-155-7836	A063 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A6DS3
P-O	6240-155-7836	A064 LAMP, INCANDESCENT: SAME AS A019		EA	REF	RE7	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A16DS4
P-F		A065 LIGHT-SWITCH ASSEMBLY: 6679-117-16; (11871)		EA	1	*	*	2	*	2	2	10	5	3-1(1)	A1A1A7
P-O	6240-155-7836	A066 LAMP, INCANDESCENT: SAME AS A019		EA	4	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A7DS1
P-O	6240-155-7836	A067 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A7DS2
P-O	6240-155-7836	A068 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A7DS3
P-O	6240-155-7836	A069 LAMP, INCANDBSCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1A7DS4
A-F		A070 SWITCH AND COMPONENT ASSY: 7148-1236; (11871)		EA	1									3-1(1)	A1A1A15
P-F	5930-835-4731	A071 SWITCH, ROTARY: 6679-132-34; (11871)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1A1558
P-F	5961-840-54 66	A072 SEMICONDUCTOR DEVICE, DIODE: 1N485B; (81349)		EA	16	6	16	29	9	8	7	322	300	3-1(2)	A1A1A15CR47
P-F	5961-840-5466	A073 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR48
P-F	5961-840-5466	A074 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR49
P-F	5961-840-5466	A075 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR50
P-F	5961-840-5466	A076 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR51
P-F	5961-840-5466	A077 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR52
P-F	5961-840-5466	A078 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR54
P-F	5961-840-5466	A079 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	RE	REF	REF	REF	3-1(2)	A1A1A15CR55
P-F	5961-840-5466	A080 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR56
P-F	5961-840-5466	A081 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR57
P-F	5961-840-5466	A082 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR58
P-F	5961-840-5466	A083 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR59
P-F	5961-840-5466	A084 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR60
P-F	5961-840-5466	A085 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR61
P-F	5961-840-5466	A086 SEMICONDUCTOR DEVICE DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR62

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5961-840-5466	A087 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(2)	A1A1A15CR63
A-P		A088 SWITCH AND COMPONENT ASSY: 7148-1234; (11871)		EA	1									3-1(1)	A1A1A9
P-F	5930-835-4742	A089 SWITCH ROTARY: 6679-132-35; (1183)1		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1A9S6
P-F		A090 SEMICONDUCTOR DEVICE DIODE: 1N3656; (81349)		EA	1	*	2	2	*	2	2	11	6		A1A1A9CR53
A-F		A091 SWITCH AND COMPONENT ASSY: 7138-1235; (11871)		EA	1									3-1(1)	A1A1A10
P-F	5930-836-1933	A092 SWITCH, ROTARY: 6679-132-36; (11871)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1A10S7
P-F	5905-279-1753	A093 RESISTOR, FIXED, COMPOSITION: RC20GF180J; (81349)		EA	1	*	2	*	*	2	8	3	3	3-3	A1A1A10R33
P-F	5905-185-8510	A094 RESISTOR, FIXED, COMPOSITION: RC (81349)		EA	1	2	4	8	3	2	2	91	75	3-3	A1A1A10R35
P-F	5905-299-1971	A095 RESISTOR, FIXED, COMPOSITION: RC20GF822J; (81349)		EA	1	*	2	2	*	2	2	11	6	3-3	A1A1A10R34
A-F		A096 SWITCH AND COMPONENT ASSY: 7148-1238; (11871)		EA	1									3-1(1)	A1A1A11
P-F	5930-835-4785	A097 SWITCH ROTARY: 6679-132-37;		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1A11S10
P-F	5905-195-6806	A098 RESISTOR, FIXED, COMPOSITION: RC20GF102J; (81349)		EA	3	2	4	8	3	2	2	91	75	3-4	A1A1A11R54
P-F	5905-195-6806	A099 RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-4	A1A1A11R55
P-F	5905-195-6806	A100 RESISTOR, FIXED, COMP0SITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-4	A1A1A11R56
P-F	5905-279-3503	A101 RESISTOR, FIXED, COMPOSITION: RC20GF682J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-4	A1A1A11R53
P-F	5961-840-5466	A102 SEMICONDUCTOR DEVICE DIODE: SAME AS A072		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-4	A1A1A11CR66
A-F		A103 SWITCH AND C0MPONENT ASSY: 7148-1237; (11871)		EA	1									3-1(1)	A1A1A12
P-F	5930-836-1934	A104 SWITCH, ROTARY: 6679-132-38; (11871)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1A12S9
P-F	5905-473-5251	A105 RESISTOR, FIXED, COMPOSITION: RC32GF102J; (81349)		EA	1	*	*	*	*	*	*	5	2	3-5	A1A1A12R52
P-F	6210-969-9048	A106 LIGHT, INDICATOR: VM300M8; (87031)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1XDS6
P-F	6210-722-6151	A107 LIGHT, INDICATOR: VM300M7; (87034)		EA	3	*	2	2	*	2	2	16	9	3-1(1)	A1A1XDS3
P-F	6210-722-6151	A108 LIGHT, INDICATOR: SAME AS A107		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1XDS5
P-F	6210-722-6151	A109 LIGHT, INDICATOR: SAME AS A107		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1XDS10
P-F	6210-557-3010	A110 LIGHT INDICATOR: ;V300M6; (87034)		EA	3	*	2	2	*	2	2	16	9	3-1(1)	A1A1XDS1
P-F	6210-557-3010	A111 LIGHTING, INDICATOR: SAME AS A110		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1XDS2
P-F	6210-557-3010	A112 LIGHT, INDICATOR: SAME AS A110		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1XDS4
M-H		A113 BUSHING, SWITCH: 7148-1028; (11871)		EA	2										A1A1MP1
X2-H		A114 PANEL, BENCH TEST SET; 7148-1204; (11871)		EA	1										A1A1MP2
A-H-R		A115 CHASSIS AND COMPONENT ASSY: 7148-1209; (11871)		EA	1									3-1(2)	A1A1A13
X2-F		A116 SCREW, MACHINE: 2950-416C33G; (11871)		EA	4										A1A1H3

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
X2-F		A117 BRACKET, ANGLE: 7148-1221; (11871)		EA	1										A1A1A13MP1
X2-F	5305-802-7927	A118 SCREW, MACHINE: CAV70-6-6P; (11871)		EA	1										A1A1A13H1
X2-F	5305-576-7272	A119 SCREW; MACHINE: CAV70-6-7P; (11871)		EA	1										A1A1A13H2
X2-F	5310-680-7543	A120 NUT, SELF-LOCKING HEXAGON: 68NM6,2; (72962)		EA	2										A1A1A13H3
P-F		A121 CAPACITOR, FIXED, PAPER: B5X117W; (121406)		EA	1	*	2	2	*	2	2	11	6	3-6(1)	A1A1A13C4
P-F		A122 CAPACITOR, FIXED, PLASTIC: DE2-223; (99515)		EA	3	*	2	2	*	2	2	11	6	3-6(2)	A1A1A13C7
P-F		A123 CAPACITOR, FIXED, PLASTIC: SAME AS A122		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13C8
P-F		A124 CAPACITOR, FIXED, PLASTIC: SAME AS A122		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13C10
P-F	5910-984-3530	A125 CAPACITOR, FIXED, PLASTIC:		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13C11
P-F		A126 CAPACITOR, FIXED, ELECTRICAL: 36D132GO50AA6B; (05571)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13C12
P-F	5910-837-1646	A127 CAPACITOR, FIXED, ELECTRICAL: 7602BX221; (06001)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13C9
P-F	5910-837-1649	A128 C7APACITOR, FIXED, ELECTRICAL: 76F02LC2R2 ; (06001)		EA	1	*	2	*	*	2	8	3	3	3-6(1)	A1A1A13C3
P-F	5910-837-1648	A129 CAPACITOR, FIXED, ELECTRICAL: 76F02MM220; (06001)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13C1
X2-H		A130 CHASSIS, ELECTRCAL EQUIPMENT: 7148-1222; (11871)		EA	1										A1A1A13A1
X2-H		A131 CHASSIS, ELEC EQUIPT: SAME AS A130		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	REF	A1A1A13A1MP1
X2-F	5940-683-4671	A132 TERMINAL, STUD: FTSM2TURC2; (98291)		EA	4										A1A1A13A1MP2
X2-F	5940-581-7901	A133 TERMINAL, STUD: STSM1TURC2; (968291)		EA	147										A1A1A13A1MP3
X2-F	5310-821-3576	A134 NUT, SELF-LOCKING, PLATE: 52LHTA521A162E (72962)		EA	4										A1A1A13A1MP4
X2-F	5320-558-9040	A135 RIVET, SOLID: S20470A2-3; (96926)		EA	8										A1A1A13H1
P-F		A136 CLIP, SPRING: 6007-8CC;		EA	2	*	*	2	*	*	2	8	4		A1A1A13A1MP5
X2-F	5320-721-8973	A137 RIVET, SOLID: 20470A3-3; (96906)		EA	2										A1A1A13A1H2
X2-F	5910-682-2543	A138 CLAP, CAPACITOR: VR3; (37942)		EA	1										A1A1A13MP2
X2-F	5305-802-7927	A139 SCREW, MACHINE: SAME AS A118		EA	1										A1A1A13H4
X2-F		A140 SCREW, MACHINE CAV70-6-8P; (11871)		EA	1										A1A1A13H5
X2-F	5310-680-7543	A141 NUT, SELF-LOCKING, HEXAGON: SAME AS A120		EA	2										A1A1A13H6
P-F	5915-267-8911	A142 FILTER, RADIO FREQUENCY: 5525-152; (11871)		EA	1	*	*	*	*	*	*	5	2	3-6(1)	A1A1A13FL1
X2-F	5305-639-8291	A143 SCREW, MACHINE: CAV70-4-5P;		EA	2									3-6(1)	A1A1A13H7
X2-F	5310-281-9845	A144 NUT, SELF-LOCKING, HEXAON: 681H40; (72962)		EA	2										A1A1A13H8
P-F	5960-991-8781	A145 HOLDER TRANSISTOR: A51043; (08289)		EA	10	2	1	8	3	2	2	91	75		A1A1A13MP3

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F		A146 HOLDER, TRANSISTOR: 6680-822; (1187)		EA	8	*	2	2	2	2	2	29	20		A1A1A13MP4
P-O	6240-731-5071	A147 LAMP, GLOW: NE2H; (08806)		EA	2	*	2	2	*	2	2	16	10	3-6(2)	A1A1A13DS8
P-O	6240-731-5071	A148 LAMP, GLOW: SAME AS A147		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13DS9
P-F	5905-195-6806	A149 RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	3	REF	REF	REF	REF		REF	REF	REF	3-6(1)	A1A1A13R23
P-F	5905-195-6806	A150 RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R25
P-F	5905-195-6806	A151 RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R68
P-F	5905-185-8510	A152 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	10	REF	REF	REF	REF	REF	REF	REF	REF	3-6(1)	A1A1513R7
P-F	5905-185-8510	A153 RESISTOR, FIXED, COMPOSITION: SAME AS Ao94		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R26
P-F	5905-185-8510	A154 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R42
P-F	5905-185-8510	A155 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R45
P-F	5905-185-8510	A156 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	REF	REF	REF	RFH	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R48
P-F	5905-185-8510	A157 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	REF	REF	REF	REF	REF	RF	REF	REF	REF	3-6(2)	A1A1A13R51
P-F	5905-185-8510	A158 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R58
P-F	5905-185-8510	A159 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R59
P-F	5905-185-8510	A160 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R62
P-F	5905-185-8510	A161 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R67

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5905-195-6761	A162 RESISTOR, FIXED , COMPOSITION: RC20GF104J; (81349)		EA	5	2	2	3	2	2	2	42	30	3-6(1)	A1A1A13R20
P-F	5905-195-6761	A163 RESISTOR, FIXED, COMPOSITION; SAME AS A162		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R41
P-F	5905-195-6761	A164 RESISTOR, FIXED COMPOSITION: SAMEAS A162		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R44
P-F	5905-195-6761	A165 RESISTOR, FIXED COMPOSITION: SAME AS A162		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R47
P-F	5905-195-6761	A166 HESISTOR, FIE, COMPOSITION; SAME AS A162		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R50
P-F	5905-192-0390	A167 RESISTOR, FIXED, COMPOSIITON: RC20GF105J; (81349)		EA	3	*	2	2	*	2	2	18	12	3-6(2)	A1A1A13R66
P-F	5905-192-0390	A168 RESISITOR, FIXED, COMPOSITION: SAME AS A167		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(1)	A1A1A13R70
P-F	5905-192-0390	A169 RESISTOR, FIXED COMPOSITION: SAME AS A167		EA	7	REF	REF	REF	REF	REF	REF	REF	REF	3-6(1)	A1A1A13R71
P-F	5905-279-1752	A170 RESISTOR, FIXED, COMPOSITION: RC20GF120J; (81349)		EA	2	*	2	2	*	2	2	1	6	3-6(2)	A1A1A13R57
P-F	5905-579-1752	A171 RESISTOR, FIXED, COMPOSITION: SAME AS A170		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R60
P-F	5905-579-1757	A172 RESISTOR, FIXED, COMPOSITION: RC20GF52J; (81349)		EA	4	*	2	2	*	2	2	18	12	3-6(2)	A1A1A13R40
P-F	5905-279-1757	A173 RESISTOR, FIXED, COMPOSITION: SAME AS A172		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R43
P-F	5905-2T9-1757	A174 RESISTOR, FIXED, COMPOSITION: SAME AS A172		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R46
P-F	5905-259-1757	A175 RESISTOR, FIXED, COMPOSITION: SAME AS A172		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R49
P-F	5905-279-3500	A176 RESISTOR, FIXED, COMPOSITION: RC20GF183J; (81349)		EA	1	*	2	2	2	2	2	29	20	3-6(1)	A1A1A13R29
P-F	5905-279-2674	A177 RESISTOR, FIXED, COMPOSITION: RC20GF201J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13R63
P-F	5905-279-2519	A178 RESISTOR, FIXED, COMPOSITION: RC20GF334J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13R28
P-F	5905-279-3505	A179 RESISTOR, FIXED , COMPOSITION: RC20GF392J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13R5
P-F	5905-192-3973	A180 RESISTOR, FIXED, COMPOSITION: RC20GF471J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(2)	A1A1A13R69
P-F	5905-79-3504	A181 RESISTOR, FIXED, COMPOSITION: RC10GF4725; (81349)		EA	3	2	2	3	2	2	2	42	30	3-6(1)	A1A1A13R21
F-F	5905-279-3504	A182 RESISTOR, FIXED, COMPOSITION: SAME AS A181		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R38
P-P	5905-279-3504	A183 RESISTOR, FIXED, COMPOSITION: SAME AS A181		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13R65
P-F	5905-195-6800	A184 COMPOSITION: FIXED, COMPOSITION: RC20GF561J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(2)	A1A1A13R39
P-F	5905-279-3494	A185 RESISTOR, FIXED, COMPOSITION: RC20GF823J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(2)	A1A1A13R24

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5905-253-1231	A186 RESISTOR, FIXED, COMPOSITION: RC42GF391J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13R4
P-F	5905-978-7095	A187 RESISTOR, FIXED, FILM: RN65D1500F; (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13R64
P-F	5905-989-6500	A188 RESISTOR, FIXED, FILM: RN65D4421F; (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13R8

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5905-780-8544	A189 RESISTOR, FIXED, WIRE WOUND: RW67V361; (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13R2
P-F	5905-975-1145	A190 RESISTOR, FIXED, WIRE WOUND: RW67V511; (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13R3
P-F	5961-723-3602	A191 SEMICONDUCTOR DEVICE, DIODE: lN3612; (81349)		EA	4	*	2	2	*	2	2	18	12	3-6(1)	A1A1A13CR1
P-F	5961-723-3602	A192 SEMICONDUCTOR DEVICE, DIODE: SAME AS A191		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(1)	A1A1A13CR2
P-F	5961-723-3602	A193 SEMICONDUCTOR DEVICE, DIODE: SAME AS Al91		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(1)	A1A1A13CR3
P-F	5961-723-3602	A194 SEMICONDUCTOR DEVICE, DIODE: SAME AS A91		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(1)	A1A1A13CR4
P-F	5961-840-5466	A195 SEMICONDUCTOR DEVICE, DIODE: SAME AS AG72		EA	15	REF	REF	REF	REF	REF	PEF	REF	REF	3-6(1)	A1A1A13CR14
P-F	5961-840-5466	A196 SEMICONDUCTOR DEVICE, DIODE: SAME AS AO72		EA	REF	REF	REF	REF	REF	REF	PEF	REF	REF	3-6(2)	A1A1A13CR16
P-F	5961-840-5466	A197 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(1)	A1A1A13CR17
P-F	5961-840-5466	A198 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	FEF	FEF	REF	REF	3-6(1)	A1A1A13CR18
P-F	5961-840-5466	A199 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13CR36
P-F	5961-840-5466	A200 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	PEF	3-6(2)	A1A1A13CR37
P-F	5961-840-5466	A201 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13CR40
P-F	5961-840-5466	A202 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13CR42
P-F	5961-840-5466	A203 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	EEF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13CR43
P-F	5961-840-5466	A204 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13CR44
P-F	5961-840-5466	A205 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13CR45
P-F	5961-840-5466	A206 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	PEF	REF	REF	PEF	3-6(2)	A1A1A13CR46
P-F	5961-840-5466	A207 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	EEF	REF	PEF	REF	PEF	REF	REF	3-6(1)	A1A1A13CR64
P-F	5961-840-5466	A208 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13CR65
P-F	5961-840-5466	A209 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(1)	A1A1A13CR73
P-F	5961-848-7006	A210 SEMICONDUCTOR DEVICE, DIODE: 1N2995B (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13CR5
P-F	5961-064-2379	A211 SEMICONDUCTOR DEVICE, DIODE: 1N649; (81349)		EA	2	*	2	2	*	2	2	11	6	3-6(1)	A1A1A13CR68
P-F	5961-064-2379	A212 SEMICONDUCTOR DEVICE, DIODE: SAME AS A211		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(1)	A1A1A13CR69
P-F	5961-847-5246	A213 SEMICONDUCTOR DEVICE, DIODE: 1N746A; (81349)		EA	1	*	2	2	*	2	2	11	6	3-6(1)	A1A1A13CR15
P-F	5961-850-9561	A214 SEMICONDUCTOR DEVICE, DIODE: 1N972B; (81349)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13CR6
X2-F	5940-577-3711	A215 TERMINAL, LUG: MS25036-3; (96906)		EA	2										A1A1A13MP5
P-F	5940-682-2477	A216 TERMINAL, LUG: 2104-04-01; (78189)		EA	2	*	2	2	2	2	2	23	15		A1A1A13MP6

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
X2-F	5305-639-8291	A217 SCREW, MACHINE: SAME AS A143		EA	1										A1A1A3H9
X2-F	5310-281-9845	A218 NUT, SELF-LOCKING HEXAGON: SAME AS A144		EA	1										A1A1A13H10
P-F	5940-156-7344	A219 TERMINAL, LUG: 2104-06-02; (78189)		EA	2	*	*	2	*	*	2	8	3		A1A1A13MP7
P-F	5961-813-9360	A220 TRANSISTOR: 2N1613; (81349)		EA	10	2	4	8	3	2	2	91	75	3-6(1)	A1A1A13Q1
P-F	5961-813-9360	A221 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(1)	A1A1A13Q6
P-F	5961-813-9360	A222 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q7
P-F	5961-813-9360	A223 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(1)	A1A1A13Q9
P-F	5961-813-9360	A224 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q10
P-F	5961-813-9360	A225 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q12
P-F	5961-813-9360	A226 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q14
P-F	5961-813-9360	A227 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q16
P-F	5961-813-9360	A228 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q18
P-F	5961-813-9360	A229 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q21
P-F		A230 TRANSISTOR, SILICON, NPN: 6679-129; (11871)		EA	8	*	2	2	2	2	2	36	25	3-6(1)	A1A1A13Q5
P-F		A231 TRANSISTOR, SILICON, NPN: SAME AS A230		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(1)	A1A1A13Q8
P-F		A232 TRANSISTOR, SILICON, NPN: SAME AS A230		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q11
P-F		A233 TRANSISTOR, SILICON, NMN: SAME AS A230		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q13
P-F		A234 TRANSISTOR, SILICON, NPN: SAME AS A230		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q15
P-F		A235 TRANSISTOR, SILICON, NPN: SAME AS A230		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q17
P-F		A236 TRANSISTOR, SILICON, NPN: SAME AS A230		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q19
P-F		A237 TRANSISTOR, SILICON, NPN: SAME AS A230		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-6(2)	A1A1A13Q20
P-F		A238 TRANSFORMER: 41MS40, (80089)		EA	1	*	*	2	*	*	2	8	3	3-6(1)	A1A1A13T1
X2-F	5310-680-7543	A239 NUT, SELF-LOCKING HEXAGON: SAME AS A120		EA	2										A1A1A13H11
P-F	6625-997-6233	A240 VOLTMETER: 7148-1210; (11871)		EA	1	*	*	*	*	*	*	5	2	3-1(1)	A1A1M1
A-H-R		A241 CHASSIS AND COMPONENT ASSY: 7148-1228; (11871)		EA	1									3-1(2)	A1A1A14
X2-F		A242 SCREW, MACHINE: SAME AS A116		EA	4										A1A1H4
M-H		A243 BRACKET: 217-1044P3; (07933)		EA	6										A1A1A14MP1
X2-F	5305-591-9321	A244 SCREW, MACHINE: CAV70-6-5P; (11871)		EA	6										A1A1A14H1
P-F	5310-209-1366	A245 WASHER, LOCK: MS35335-58; (96906)		EA	6	2	4	8	3	2	2	91	75		A1A1A14H2
P-F	5310-638-9857	A246 WASHER, FLAT: AN960C6L; (88044)		EA	6	2	4	8	3	2	2	91	75		A1A1A14H3
P-F	5910-837-1641	A247 CAPACITOR, FIXED, PAPER: B5X223J; (12406)		EA	1	*	*	2	*	*	2	8	3	3-11	A1A1A14A16C7

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5910-837-1640	A248 CAPACITOR, FIXED, PAPER: B5X405K; (12406)		EA	2	*	2	2	*	2	2	11	6	3-8	A1A1A14A9C1
P-F	5910-837-1640	A249 CAPACITOR, FIXED, PAPER: SAME AS A248		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A14A9C2
P-F		A250 CAPACITOR, FIXED, PAPER: SAME AS A121		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14C6
P-F	5910-933-6628	A251 CAPACITOR, FIXED, CERAMIC: CK1T104K; (14158)		EA	2	*	2	2	*	2	2	11	6	3-7(1)	A1A1A14C2
P-F	5910-933-6628	A252 CAPACITOR, FIXED, CERAMIC: SAME AS A251		EA	REF	PEF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14C5
P-F		A253 CAPACITOR, FIXED, CERAMIC DIELECTRIC: CK1T103K; (14158)		EA	3	2	2	3	2	2	2	42	30	3-7(1)	A1A1A1C14
P-F		A254 CAPACITOR, FIXED, CERAMIC DIELECTRIC: SAME AS A253		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14C15
P-F		A255 CAPACITOR, FIXED, CERAMIC DIELECTRIC: SAME AS A253		EA	REF	REF	REF	REF	REF	REF	BEF	REF	REF	3-11	A1A1A14A16C6
P-F	5910-837-1644	A256 CAPACITOR, FIXED, ELECTRICAL: 76FO2EF470; (06001)		EA	1	*	*	2	*	*	2	8	3	3-11	A1A1A14A16C1
P-F	5910-924-7298	A257 CAPACITOR, FIXED, ELECTRICAL: 76F02KM101; (06001)		EA	1	*	*	2	*	*	2	8	3	3-11	A1A1A1A46C10
P-F	5910-905-0675	A258 CAPACITOR, FIXED, ELECTRICAL: 76F02LD4R7; (06001)		EA	1	*	*	2	*	*	2	8	3	3-11	A1A1A14A16C9
P-F	5910-947-8290	A259 CAPACITOR, FIXED, ELECTRICAL: 76F02LE100; (06001)		EA	5	*	2	2	2	2	2	23	15	3-7(1)	A1A1A14C13
P-F	5910-947-8290	A260 CAPACITOR, FIXED, ELECTRICAL: SAME AS A259		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16C2
P-F	5910-947-8290	A261 CAPACITOR, FIXED, ELECTRICAL: SAME AS A259		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16C3
P-F	5910-947-6290	A262 CAPACITOR, FIXED, ELECTRICAL: SAME AS A259		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16C4
P-F	5910-947-6290	A263 CAPACITOR, FIXED, ELECTRICAL: SAME AS A259		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16C8
P-F	5910-913-0231	A264 CAPACITOR, FIXED, ELECTRICAL: 76F02LM470; (06001)		EA	1	*	*	2	*	*	2	8	3	3-11	A1A1A14A16C5
X2-H		A265 CHASSIS, ELECTRICAL EQUIPMENT: 7148-1227; (11871)		EA	1									3-11	A1A1A14A16
X2-H		A266 CHASSIS, ELECTRICAL EQUIPMENT: 7148-1227-1; (11871)		EA	1										A1A1A14A16MP1
X2-F	5310-821-3576	A267 NUT, SELF-LOCKING, PLATE: SAME AS A134		EA	4										A1A1A14A16MP2
X2-F	5320-558-9040	A268 RIVET, SOLID: SAME AS A135		EA	8										A1A1A14AL6MP3
X2-F	5320-558-5040	A269 TERMINAL, SOLID: SAME AS A132		EA	21										A1A1A14A16MP1
X2-F	5940-581-7901	A270 TERMINAL, STUD: SAME AS A133		EA	159										A1A1A14A16MP5
P-F-S	6760-457-0522	A271 ELECTRONIC COMPONENT ASSY: 7148-1230; (11871)		EA	3	*	2	2	*	2	2	11	6	3-7(1)	A1A1A14A10
K2-F	5305-591-9321	A272 SCREW, MACHINE: SAME AS A244		EA	4										A1A1A14H4
P-F	5310-209-1366	A273 WASHER, LOCK: SAME AS A245		EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14H5

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5310-638-9857	A274 WASHER, FLAT: SAME AS A246		EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14H6
P-F	5910-999-4662	A275 CAPACITOR, FIXED, PLASTIC: 2DE1-105E; (99515)		EA	2	2	3	5	2	2	2	52	40	3-9	A1A1A14A10C1
P-F	5910-999-4662	A276 CAPACITOR, FIXED, PLASTIC: SAME AS A275		EA	REF	REF	REF	REF	REF	REF	PEF	REF	REF	3-9	A1A1A14A10C2
P-F		A277 CAPACITOR, FIXED, CERAMIC DIELECTRIC: SAME AS A253		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A1A10C3
P-F	5960-991-8781	A278 HOLDER, TRANSISTOR: SAME AS A145		EA	3	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14A1MP1
P-F	5905-195-6806	A279 RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A140R10
P-F	5905-195-6806	A280 RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10R11
P-F	5905-195-6806	A281 RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10R13
P-F	5905-185-8510	A282 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10R9
P-F	5905-299-1541	A283 RESISTOR, FIXED, COMPOSITION: RC20CF151J; (81349)		EA	1	*	2	2	2	2	2	29	20	3-9	A1A1A14A10R14
P-F	5905-279-2522	A284 RESISTOR, FIXED, COMPOSITION: RC20F154J; (81349)		EA	1	*	2	2	2	2	2	29	20	3-9	A1A1A14A10R12
P-F	5905-192-0660	A285 RESISTOR, FIXED, COMPOSITION: RC20GF184J; (81349)		EA	1	2	2	3	2	2	2	42	30	3-9	A1A1A14A10R1
P-F	5905-192-0660	A2186 RESISTOR, FIXED, COMPOSITION: SAME AS A285		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10R2
P-F	5905-192-0660	A2187 RESISTOR, FIXED, COMPOSITION: SAME AS A285		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10R3
P-F	5905-279-1876	A288 RESISTOR, FIXED, COMPOSITION: RC20GF222J; (81349)		EA	3	2	3	6	2	2	2	64	50	3-9	A1A1A14A10R4
P-F	5905-279-1876	A289 RESISTOR, FIXED, COMPOSITION: SAME AS A288		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10R5
P-F	5905-279-1876	A290 RESISTOR, FIXED, COMPOSITION: SAME AS A288		EA	REF	REF	REF	REFP	REF	REFP	EF	REF	REF	3-9	A1A1A14A10R6
P-F	5905-171-1998	A291 RESISTOR, FIXED, COMPOSITION: RC20GF333J; (81349)		EA	3	2	3	5	2	2	2	52	40	3-9	A1A1A14A10R7
P-F	5905-171-1998	A292 RESISTOR, FIXED, COMPOSITION: SAME AS A291		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10R8
P-F	5905-171-1998	A293 RESISTOR, FIXED, COMPOSITION: SAME AS A291		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A1A4A10R15
P-F	5961-840-5466	A294 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	6	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10CR1
P-F	5961-840-5466	A295 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10CR2
P-F	5961-840-5466	A296 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10CR3
P-F	5961-840-5466	A297 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10CR4
P-F	5961-840-5466	A299 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10CR5
P-F	5961-840-5466	A299 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A10CR6
X1-F		A300 TERMINAL BOARD: 7148-1229; (11871)		EA	1									3-9	A1A1A14A10A1

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
X1-F	A1A1A14A10A1MP1	A301	TERMINAL BOARD: 7148-1229-1; (11871)	EA	1										
X2-F	5940-581-7901	A302	TERMINAL, STUD: SAME AS A133	EA	45										A1A1A14A10A1MP2
P-F	5961-855-1551	A303	TRANSISTOR: 2N1132; (81345)	EA	1	*	2	2	2	2	2	29	20	3-9	A1A1A1A4A10Q1
P-F	6130-917-1988	A304	TRANSISTOR: 2N1595; (09213)	EA	1	*	2	2	2	2	2	29	20	3-9	A1A1A14A10CR7
P-F	5961-990-4605	A305	TRANSISTOR: 2N1671B; (09213)	EA	1	*	2	2	2	2	2	29	20	3-9	A1A1A14A10Q2
P-F-S	6760-457-0582	A306	ELECTRONIC COMPONENT ASSY: SAME AS A271	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12
X2-F	5305-591-9321	A306A	SCREW, MACHINE: SAME AS A244	EA	4										A1A1A14H26
P-F	5310-209-1366	A306B	WASHER, LOCK: SAME AS A245	EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14H27
P-F	5310-638-9857	A306C	WASHER, FLAT: SAME AS A246	EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14H28
P-F	5910-999-4662	A306E	CAPACITOR, FIXED, PLASTIC: SAME AS A275	EA	2	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12C1
P-F	5910-999-4662	A306F	CAPACITOR, FIXED, PLASTIC: SAME AS A275	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12C2
P-F		A306G	CAPACITOR, FIXED, CERAMIC DIELECTRIC: SAME AS A253	EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12C3
P-F	5960-991-8781	A306H	HOLDER, TRANSISTOR: SAME AS A145	EA	3	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14A12MP1
P-F	5905-195-6806	A306I	RESISTOR, FIXED, COMPOSITION: SAME AS A098	EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R10
P-F	5905-195-6806	A306J	RESISTOR, FIXED, COMPOSITION: SAME AS A098	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R11
P-F	5905-195-6306	A306K	RESISTOR, FIXED, COMPOSITION: SAME AS A098	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R13
P-F	5905-185-8510	A306L	RESISTOR, FIXED, C0MPOSITION: SAME AS A094	EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R9
P-F	5905-299-1541	A306N	RESISTOR, FIXED, COMPOSITION: SAME AS A283	EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R14
P-F	5905-279-2522	A306O	RESISTOR, FIXED, COMPOSITION: SAME AS A284	EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R12
P-F	5905-192-0660	A306P	RESISTOR, FIXED, COMPOSITION: SAME AS A285	EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R1
P-F	5905-192-0660	A306Q	RESISTOR, FIXED, COMPOSITION: SAME AS A285	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R2
P-F	5905-192-0660	A306R	RESISTOR, FIXED, COMPOSITION: SAME AS A285	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R3
P-F	5905-279-1876	A306S	RESISTOR, FIXED, COMPOSITION: SAME AS A288	EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R4
P-F	5905-279-1876	A306T	RESISTOR, FIXED, COMPOSITION: SAME AS A288	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R5
P-F	5905-279-1876	A306U	RESISTOR, FIXED, COMPOSITION: SAME AS A288	EA	REF	REF	REF	REF	REF	*	REF	REF	REF	3-9	A1A1A14A12R6
P-F	5905-171-1998	A306V	RESISTOR, FIXED, COMPOSITION: SAME AS A291	EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R7
P-F	5905-171-1998	A306W	RESISTOR, FIXED, COMPOSITION: SAME AS A291	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R8
P-F	5905-171-1998	A306X	RESISTOR, FIXED, COMPOSITION: SAME AS A291	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12R15
P-F	5961-840-5466	A306Y	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072	EA	6	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12CR1

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5961-840-5466	A3062 SEMICONDUCTOR DEVICE, DIODE SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12CR2
P-F	5961-840-5466	A3061 SEMICONDUCTOR DEVICE, DIODE, SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12CR3
P-F	5961-840-5466	A0362 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12CR4
P-F	5961-840-5466	A3063 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12CR5
P-F	5961-840-5466	A3064 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A14A12CR6
P-F		A3065 TERMINAL BOARD: SAME AS A300		EA	1									3-9	A1A1A14A12A1
X1-F		A3066 TERMINAL BOARD: SAME AS A301		EA	1										A1A1A1A42A1MP1
X2-F		A3067 TERMINAL, STUD: SAME AS A133		EA	45										A1AA14A12A1MP2
P-F	5961-855-1551	A3068 TRANSISTOR: SAME AS A303		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12Q1
P-F	6130-917-1988	A3069 TRANSISTOR: SAME AS A304		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A14A2CR7
P-F	5961-990-4605	A307 TRANSISTOR: SAME AS A305		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A12Q2
P-F	6760-457-0582	A307A ELECTRONIC COMPONENT ASSY: SAME AS A271		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14
X2-F	5305-591-9321	A308 SCREW, MACHINE: SAME AS A244		EA	4										A1A1A14H7
P-F	5310-209-1366	A309 WASHER, LOCK: SAME AS A245		EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14H8
P-F	5310-638-9857	A310 WASHER, FLAT: SAME AS A24675		EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14H9
P-F	5910-999-4662	A310A CAPACITOR, FIXED, PLASTIC: SAME AS A275		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14C1
P-F		A310H CAPACITOR, FIXED, CERAMIC DIELECTRIC: SAME AS A253		EA	1	REF	REF	EE	REF	EF	REF	REF	REF	3-9	A1A1A1AA14C3
P-F	5960-991-8781	A310E HOLDER TRANSISTOR: SAME AS A145		EA	3	PEF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A14A4MP1
P-F	5905-195-6806	A310F RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	3	REF	REF	REF	RE	REE	REF	REF	REF	3-9	A1B1A14A14R10
P-F	5905-195-6806	A310G RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14R11
P-F	5905-195-6806	A310H RESISTOR, FIXED, COMPOSITION: SAME AS A099		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14R13
P-F	5905-185-8510	A3101 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	1	REF	REF	PEE	REF	REF	PEF	REF	REF	3-9	A1A1A14A14R9
P-F	5905-299-1541	A310J RESISTOR, FED, COMPOSITION: SAME AS A283		EA	1	REF	REF	REF	REF	REF	REF	REF	REE	3-9	A1A1A14A14R14
P-F	5905-279-2522	A310K RESISTOR, FIXED, COMPOSITION: SAME AS A284		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14R12
P-F	5905-192-0660	A310L RESISTOR, FIXED, COMPOSITION: SAME AS A235		EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14R1
P-F	5905-192-0660	A310N RESISTOR, FIXED, COMPOSITION: SAME AS A285		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14R2
P-F	5905-192-0660	A310O RESISTOR, FIXED, COMPOSITION: SAME AS A285		EA	REF	REF	REF	PEF	REF	REF	REF	REF	REF	3-9	A1A1A14A14R3
P-F	5905-279-1876	A310P RESISTOR, FIXED, COMPOSITION: SAME AS A288		EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14R4
P-F	5905-279-1876	A310Q RESISTOR, FIXED, COMPOSITION: SAME AS A288		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14R5

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5905-279-1876	A310R RESISTOR, FIXED, COMPOSITION: SAME AS A288		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14R6
P-F	5905-171-1995	A310S RESISTOR, FIXED, COMPOSITION: SAME AS A291		EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14R7
P-F	5905-171-1998	A310T RESISTOR, FIXED, COMPOSITION: SAME AS A291		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14R8
P-F	5905-171-1998	A310U RESISTOR, FIXED, COMPOSITION: SAME AS A291		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14R15
P-F	5961-840-5466 A1A1A14A14CR1	A310V SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	6	REF	REF	REF	REF	REF	REF	REF	REF	3-9	
P-F	5961-840-5466	A310W SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14CR2
P-F	5961-840-5466	A310X SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14CR3
P-F	5961-840-5466	A310Y SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14CR4
P-F	5961-640-5466	A310Z SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14CR5
P-F	5961-840-5466	A3101 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14CR6
X1-F		A3102 TERMINAL BOARD: SAME AS A300		EA	1									3-9	A1A1A14A14A1
X1-F		A3103 TERMINAL BOARD: SAME AS A301		EA	1										A1A1A14A14A1MP1
X2-F	5940-581-7901	A3104 TERMINAL, STUD: SAME AS A133		EA	45										A1A1A14A14A1MP2
P-F	5961-855-1551	A3105 TRANSISTOR: SAME AS A303		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14Q1
P-F	6130-917-1988	A3106 TRANSISTOR: SAME AS A304		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14CR7
P-F	5961-990-4605	A3107 TRANSISTOR: SAME AS A305		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-9	A1A1A14A14Q2
P-F	6760-457-0581	A311 ELECTRONIC COMPONENT ASSY: 7148-1122; (11871)		EA	3	*	2	2	*	2	2	16	9	3-7(1)	A1A1A14A11
X2-F	5305-591-9321	A312 SCREW, MACHINE: SAME AS A244		EA	4										A1A1A14H10
P-F	5310-209-1366	A313 WASHER, LOCK: SAME AS A245		EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14H11
P-F	5310-638-9857	A314 WASHER, FLAT: SAME AS A246		EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14H12
P-F	5910-999-4662	A315 CAPACITOR, FIXED, PLASTIC: SAME AS A275		EA	2	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11C1
P-F	5910-999-4662	A316 CAPACITOR, FIXED, PLASTIC: SAME AS A275		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11C2
P-F		A317 CAPACITOR, FIXED, CERAMIC DIELECTRIC: SAME AS A253		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11C3
P-F	5960-991-8781	A318 HOLDER, TRANSISTOR: SAME AS A145		EA	3	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14A11MP1
P-F	5905-195-6806	A319 RESISTOR, FIXED, CCMPOSITION: SAME AS A098		EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11R6
P-F	5905-195-6906	A320 RESISTOR, FIXED, COMPOSITION: SAME AS A090		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11R7
P-F	5905-195-6806	A321 RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	PEF	REF	REF	REF	3-10	A1A1A14A11R8
P-F	5905-185-8510	A322 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11R5
P-F	5905-299-1541	A323 RESISTOR, FIXED, COMPOSITION: SAME AS A283		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A1R10

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5905-279-1757	A324 RESISTOR, FIXED, COMPOSITION: SAME AS A172		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11R12
P-F	5905-279-2522	A25 RESISTOR, FIXED, CCMPOSITION: CAPA AS A284		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11R9
P-F	5905-171-2004	A326 RESISTOR, FIXED, COMPOSITION: RC20GF223J; (81349)		2	2	2	3	2	2	2	3	42	30	3-10	A1A1A14A11R1
P-F	5905-171-2004	A327 RESISTOR, FIXED, COMPOSITION: SAME AS A326		EA	REF	REF	REF	REF	REF	RBF	PEP	REF	REF	3-10	A1A1A14A11R4
P-F	5905-171-1998	A328 RESISTOR, FIXED, CCMPOSITION: SAME AS A291		EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11R2
P-F	5905-171-1998	A329 RESISTOR, FIXED, COMPOSITION: SAME AS A291		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11R3
P-F	5905-171-1998	A330 RESISTOR, FIXED COMPOSITION: SAME AS A291		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11R11
P-F	5961-840-5466	A331 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	5	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11CR1
P-F	5961-840-5466	A332 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11CR2
P-F	5961-840-5466	A333 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11CR3
P-F	5961-840-5466	A334 SEMICONDUCTOR DEVICE,		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11CR4
P-F	5961-840-5466	A335 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11CR5
X1-F	A336	TERMINAL BOARD: 7148-1219; (11871)		EA	1									3-10	A1A1A14A11A1
X1-F	A337	TERMINAL BOARD: 7148-1219-1; (11871)		EA	1										A1A1A14A11A1MP1
X2-F	5940-581-7901	A338 TERMINAL, STUD: SAME AS A133		EA	35										A1A1A14A11A1MP2
P-F	5961-855-1551	A339 TRANSISTOR: SAME AS A303		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11Q1
P-F	6130-917-1988	A340 TRANSISTOR: SAME AS A304		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11CR6
P-F	5961-990-4605	A341 TRANSISTOR: SAME AS A305		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A11Q2
P-F	6760-457-0581	A342 ELECTRONIC COMPONENT ASSY: SAME AS A311		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14A13
X2-F	5305-591-9321	A342A SCREW, MACHINE: SAME AS A244		EA	4										A1A1A14H10
P-F	5310-209-1366	A342B WASHER, LOCK: SAME AS A245		EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14H11
P-F	5310-638-9857	A342C WASHER FLAT: SAME AS A246		EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14H12
P-F	5910-999-4662	A342E CAPACITOR, FIXED, PLASTIC: SAME AS 275		EA	2	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13C1
P-P	5910-999-4662	A342F CAPACITOR, FIXED, PLASTIC: SAME AS A275		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13C2
P-F		A342G CAPACITOR, FIXED, CERAMIC DIELECTRIC: SAME AS A253		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13C3
P-F	5960-991-8781	A342H HOLDER, TRANSISTOR: SAME AS A145		EA	3	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14A13MP1
P-F	5905-195-6806	A342I RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13R6
P-F	5905-195-6806	A342J RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13R7
P-F	5905-195-6806	A342K RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13R8

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5905-185-8510	A342L	RESISTOR, FIXED, COMPOSITION: SAME AS A094	EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13R5
P-F	5905-299-1541	A342N	RESISTOR, FIXED COMPOSITION: SAME AS A283	EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13R10
P-F	5905-279-1757	A3420	RESISTOR, FIXED, COMPOSITION: SAME AS A172	EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13R12
P-F	5905-179-2522	A342P	RESISTOR, FIXED, COMPOSITION: SAME AS A284	EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13R9
P-F	5905-171-2004	A342Q	RESISTOR, FIXED, COMPOSITION: SAME AS A326	EA	2	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13R1
P-F	5905-171-2004	A342R	RESISTOR, FIXED, COMPOSITION: SAME AS A326	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13R4
P-F	5905-171-1998	A342S	RESISTOR, FIXED, COMPOSITION: SAME AS A291	EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13R2
P-F	5905-171-1998	A342T	RESISTOR, FIXED, COMPOSITION: SAME AS A291	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13R3
P-F	5905-171-1998	A342U	RESISTOR, FIXED, COMPOSITION: SAME AS A291	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13R1
P-F	5961-840-5466	A342V	SEMICONDUCTOR DEVICE, DIODE: SAMES A 072	EA	5	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13CR1
P-F	5961-840-5466	A342W	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13CR2
P-F	5961-840-5466	A342X	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13CR3
P-F	5961-840-5466	A342Y	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13CR4
P-F	5961-840-5466	A342Z	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13ACR5
X1-F		A3421	TERMINAL BOARD: SAME AS A336	EA	1									3-10	A1A1A14A13A1
X1-F		A3422	TERMINAL BOARD: SAME AS A337	EA	1										A1A1A14A13A1MP1
X2-F	5940-581-7901	A3423	TERMINAL, STUD: SAME AS A133	EA	35										A1A1A14A13A1MP2
P-F	5961-855-1551	A3424	TRANSISTOR: SAME AS A303	EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13Q1
P-F	6130-917-1988	A3425	TRANSISTOR: SAME AS A304	EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13CR6
P-F	5961-9c0-4605	A3426	TRANSISTOR: SAME AS A305	EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A13Q2
P-F	6760-457-0581	A343	ELECTRONIC COMPONENT ASSM SAME AS A311	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	A1A1A14A15
X2-F	5305-591-9321	A343A	SCREW, MACH1NE: SAME AS A244	EA	4										A1A1A14H10
P-F	5310-209-1366	A343B	WASHER, LOCK: SAME AS A245	EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14H11
P-F	5310-638-9857	A343C	WASHER, FLAT: SAME AS A246	EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14H12
P-F	5910-999-4662	A343E	CAPACITOR, FIXED, PLASTIC: SAME AS A275	EA	2	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15C1
P-F	5910-999-4662	A343F	CAPACITOR, FIXED, PLASTIC: SAME AS A275	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15C2.
P-F		A343G	CAPACITOR, FIXED, CERAMIC: SAME AS 253	EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15C3
P-F	5960-991-8781	A343H	HOLDER, TRANSISTOR: SAME AS A145	EA	3	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14A15MP1
P-F	5905-195-6806	A3431	RESISTOR, FIXED, COMPOSITION: SAME AS A098	EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15R6

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5905-195-6806	A343J RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15R7
P-F	5905-195-6806	A343K RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15R8
P-F	5905-185-8510	A343L RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15R5
P-F	5905-299-1541	A343 RESISTOR, FIXED, COMPOSITION: SAME AS A283		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15R10
P-F	5905-279-1757	A3430 RESISTOR, FIXED, COMPOSITION: SAME AS A172		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15R12
P-F	5905-279-2522	A343P RESIST0R, FIXED, COMPOSITION: SAME AS A284		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15R9
P-F	5905-171-2004	A343Q RESISTOR, FIXED, COMPOSITION: SAME AS A326		EA	2	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15R1
P-F	5905-171-2004	A343R RESISTOR, FIXED, COMPOSITION: SAME AS A326		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15R4
P-F	5905-171-1998	A343S RESISTOR, FIXED, COMPOSITION: SAME AS A291		EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15R2
P-F	5905-171-1998	A343T RESISTOR, FIXED, COMPOSITION: SAME AS A291		EA	REF	REF	REF	REF	BEF	REF	REF	REF	REF	3-10	A1A1A14A15R3
P-F	5905-171-1998	A343U RESISTOR, FIXED, COMPOSITION: SAME AS A291		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A5R11
P-F	5961-810-5466	A343V SEMICONDUCTOR DEVICE DIODE: SAME AS A072		EA	5	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15CR1
P-F	5961-840-5466	A343W SEMICONDUCTOR DEVICE DIODE: SAME AS A07		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15CR2
P-F	5961-840-5466	A343X SEMICONDUCTOR DEVICE DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15CR3
P-F	5961-840-5466	A343Y SEMICONDUCTOR DEVICE DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15CR4
P-F	5961-840-5466	A343Z SEMICONDUCTOR DEVICE DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15CR5
X1-F		A3431 TERMINAL BOARD: SAME AS A336		EA	1										A1A1A14A15A1
X1-F		A3432 TERMINAL BOARD: SAME AS A337		EA	1										A1A1A14A15A1MP1
X2-F	5940-581-7901	A3433 TERMNAL BOARD: SAME AS A133		EA	35										A1A1A14A15A1MP2
P-F	5961-855-1551	A3434 TRANSISTOR: SAME AS A303		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15Q1
P-F	6130-917-1988	A3435 TRANSISTOR: SAME AS A306		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15CR6
P-F	5961-990-4605	A3436 TRANSISTOR: SAME AS A305		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-10	A1A1A14A15Q2
X2-F	5940-722-4352	A347 FERRULE, ELEC CONDUCTOR: YNC90; (09922)		EA	2										A1A1A14MP3
P-F	5960-991-8781	A348 HOLDER, TRANSISTOR: SAME AS A145		EA	12	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14MP4
P-F		A349 HOLDER, TRANSISTOR: SAME AS A146		EA	1	REF	REF	REF	REF	REF	REF	REF	REF		A1A1A14MP5
P-F	5945-823-2970	A350 RELAY, ARMATURE:: RY4NA3B3L01; (81349)		EA	3	*	2	2	*	2	2	16	9	3-7(1)	A1A1A14K1
P-F	5945-823-2970	A351 RELAY, ARMATURE: SAME AS A350		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14K2
P-F	5945-83-2970	A352 RELAY, ARMATURE: SAME AS A350		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14K3
X2-F		A353 SCREW, MACHINE: CAV71C24G (11871)		EA	6										A1A1A14H16

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
X2-F	5310-622-1724	A354 NUT, SELF-LOCKING HEXAGON: 68-1660-26; (72962)		EA	6										A1A1A14H17
P-F	5905-195-6806	A355 RESISTOR, FIXED, COMPOSITION: SAME AS A355		EA	5	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14R12
P-F	5905-195-6806	A356 RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14R30
P-F	5905-195-6806	A357 RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9R6
P-F	5905-195-6806	A358 RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R9
P-F	5905-195-6806	A359 RESISTOR, FIXED, COMPOSITION: SAME AS A098		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R11
P-F	5905-185-8510	A360 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9R3
P-F	5905-185-8510	A361 RESISTOR, FIXED, COMPOSITION: SAME AS A090		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R21
P-F	5905-185-8510	A362 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R22
P-F	5905-185-8510	A363 RESISTOR, FIXED, COMPOSITION: SAME AS A094		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R24
P-F	5905-195-6761	A364 RESISTOR, FIXED, COMPOSITION: SAME AS A162		EA	5	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14R13
P-F	5905-195-6761	A365 RESISTOR, FIXED, COMPOSITION: SAME AS A162		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14R14
P-F	5905-195-6761	A366 RESISTOR, FIXED, COMPOSITION: SAME AS A162		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R5
P-F	5905-195-6761	A367 RESISTOR, FIXED, COMPOSITION : SAME AS A162		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R13
P-F	5905-195-6761	A368 RESISTOR, FIXED, COMPOSITION: SAME AS A162		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R23
P-F	5905-192-0390	A369 RESISTOR, FIXED, COMPOSITION: SAME AS A167		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14R17
P-F	5905-252-5434	A370 RESISTOR, FIXED, COMPOSITION: RC20GF121J; (81349)		EA	2	*	2	2	*	2	2	11	6	3-11	A1A1A14A16R7
P-F	5905-252-5434	A371 RESISTOR, FIXED, C0MPOSITION: SAME AS A370		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R18
P-F	5905-299-1541	A372 RESISTOR, FIXED, COMPOSITION: SAME AS A283		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14R16
P-F	5905-279-3514	A373 RESISTOR, FIXED, COMPOSITION : RC20GF181J; (81349)		EA	1	*	*	2	*	8	2	8	3	3-11	A1A1A14A16R15
P-F	5905-279-3500	A374 RESISTOR, FIXED, COMPOSITION: SAME AS A176		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14R19
P-F	5905-279-3513	A375 RESISTOR, FIXED COMPOSITION: RC20GF221J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-7(1)	A1A1A14R37
P-F	5905-279-1876	A376 RESISTOR, FIXED, COMPOSITION: SAME AS A288		EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14R32
P-F	5905-279-1876	A377 RESISTOR, FIXED, COMPOSITION: SAME AS A288		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9R7
P-F	5905-279-1876	A378 RESISTOR, FIXED COMPOSITION: SAME AS A288		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9R10
P-F	5905-171-2004	A380 RESISTOR, PIPES, COMPOSITION: SAME AS A326		EA	4	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R2
P-F	5905-171-2004	A381 RESISTOR, FIXED, COMPOSITION: SAME AS A326		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R8

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5905-171-2004	A382 RESISTOR, FIXED, COMPOSITION: SAME AS A326		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R12
P-F	5905-171-2004	A383 RESISTOR, FIXED, COMPOSITION: SAME AS A326		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R17
P-F	5905-192-0667	A384 RESISTOR, FIXED, COMPOSITION: RC20GF224J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-11	A1A1A14A16R1
P-7	5905-279-1880	A385 RESISTOR, FIXED, COMPOSITION: RC20GF72J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-7(1)	A1A1A14R72
P-F	5905-279-1876	A386 RESISTOR, FIXED, COMPOSITION: SAME AS A291		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14R4
P-F	5905-252-4018	A387 RESISTOR, FIXED, COMPOSITION: RC20GF470J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-11	A1A1A14A16R25
P-F	5905-279-3504	A388 RESISTOR, FIXED, COMPOSITION: SAME AS A181		EA	6	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9R2
P-F	5905-279-3504	A389 RESISTOR, FIXED, COMPOSITION: SAME AS A181		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9R4
P-F	5905-279-3504	A390 RESISTOR, FIXED, COMPOSITION: SAME AS A181		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R3
P-F	5905-279-3504	A391 RESISTOR, FIXED, COMPOSITION: SAME AS A181		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R10
P-F	5905-279-3504	A392 RESISTOR, FIXED, COMPOSITION: SAME AS A181		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R14
P-F	5905-279-3504	A393 RESISTOR, FIXED, COMPOSITION: SAME AS A181		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R19
P-F	5905-254-9201	A394 RESISTOR, FIXED, COMPOSITION: RC200F473J; (81349)		EA	4	*	2	2	*	2	2	18	12	3-7(1)	A1A1A14R18
P-F	5905-254-9201	A395 RESISTOR, FIXED, COMPOSITION:		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9R5
P-F	5905-254-9201	A396 RESISTOR, FIXED, COMPOSITION: SAME AS A394		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R16
P-F	5905-254-9201	A397 RESISTOR, FIXED COMPOSITION: SAME AS A394		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16R20
P-F	5905-171-2000	A398 RESISTOR, FIXED COMPOSITION: RC20684J; (81349)		EA	1	*	*	2	*	*	2	8	3	3-8	A1A1A14A9R8
P-F	5905-299-1971	A399 RESISTOR, FIXED, COMPOSITION: SAME AS A095		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9R1
P-F	5905-814-3871	A400 RESISTOR, FIXED, FILM: RN65D2493F; (81349)		EA	1	*	*	2	*	*	2	8	3	3-7(1)	A1A1A14R36
P-F	5905-087-6593	A401 RESISTOR, FIXED, WIREWOUND: RW67V152 (81349)		EA	2	*	2	2	*	2	2	11	6	3-7(1)	A1A1A14R10
P-F	5905-087-6593	A402 RESISTOR, FIXED, WIREWOUND: SAME AS A401		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14R11
P-F		A403 RESISTOR, VARIABLE: 3012L1-102; (80294)		EA	1	*	2	*	2	*	8	8	3	3-7(1)	A1A1A14R31

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE		USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
X2-F		A404	SCREW, MACHINE: CAV70-2-7P; (11871)		EA	2										A1A1A14H18
X2-F	5310-622-1724	A405	MTM, SELF-LOCKINC HEXAGON: SAME AS A354		EA	2										A1A1A14H19
P-F	5905-937-1637	A406	RESISTOR, VARIABLE: 3012L1-103; (80294)		EA	1	*	*	2	*	*	2	8	3	3-11	A1A1A14A16R6
X2-F	A407		SCREW, MACHINE: SAME AS A404		EA	2										A1A1A14R20
X2-F	5310-622-1724	A408	NUT, SELF-LOCKING HEXAGON: SAME AS A354		EA	2										A1A1A14R21
P-F	5905-834-6266	A409	RESISTOR, VARIABLE: 3012L1-105; (80294)		EA	1	*	*	2	*	*	2	8	3	3-8	A1A1A14A9R9
X2-F		A410	SCREW, MACHINE: SAME AS A404		EA	2										A1A1A14R22
X2-F	5310-622-1724	A411	NUT, SELF-LOCKING HEXAGON: SAME AS A354		EA	2										A1A1A14R23
P-F		A412	SEMICONDUCTOR DEVICE, DIODE: SAME AS A090		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR24
P-F	5961-840-5466	A413	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	38	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR7
F-F	5961-840-5466	A414	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR8
P-F	5961-840-5466	A415	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR9
P-F	5961-840-5466	A416	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR10
P-F	5961-840-5466	A417	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR11
P-F	5961-840-5466	A48	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR12
P-F	5961-840-5466	A419	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR13
P-F	5961-840-5466	A420	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR19
P-F	5961-840-5466	A421	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR20
P-F	5961-840-5466	A422	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR22
P-F	5961-840-5466	A423	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR23
P-F	5961-840-5466	A424	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR24
P-F	5961-840-5466	A425	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR25
P-F	5961-840-5466	A426	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR26
P-F	5961-840-5466	A427	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR27
P-F	5961-840-5466	A428	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR28
P-F	5961-840-5466	A429	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR29
P-F	5961-840-5466	A430	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR21
P-F	5961-840-5466	A431	SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR30

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5961-840-5466	A432 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR31
P-F	5961-840-5166	A433 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR32
P-F	5961-840-5466	A434 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR33
P-F	5961-840-5466	A435 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR34
P-F	5961-840-5466	A436 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR35
P-F	5961-840-5466	A437 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR38
P-F	5961-840-5466	A438 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR39
P-F	5961-840-5166	A439 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR41
P-F	5961-40-5466	A440 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A1A4CR67
P-F	5961-840-5466	A441 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR70
P-F	5961-840-5466	A442 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A1A4CR71
P-F	5961-840-5466	A443 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14CR72
P-F	5961-840-5466	A444 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9CR1
P-F	5961-840-5466	A445 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9CR2
P-F	5961-840-5466	A446 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9CR3
P-F	5961-840-5466	A447 SEMICONDUCTOR, DEVICE DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A19CR4
P-F	5961-840-5466	A448 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16CR1
P-F	5961-840-5466	A449 SEMICONDUCTOR DEVICE, DIODE: SAME AS A072		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16CR2
P-F	5961-840-5466	A450 SEMICONDUCTOR DEVICE,		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16CR3
P-F	5961-847-5246	A451 SEMICONDUCTOR DEVICE, DIODE: SAME AS A213 DIODE: SAME AS A213		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14CR21
P-F	5961-752-6115	A452 SEMICONDUCTOR DEVICE, DIODE: 11964B; (81349)		EA	1	*	*	2	*	*	2	8	3	3-7(1)	A1A1A14CR11
P-F	5940-156-7344	A453 SEMICONDUCTOR, DEVICE, SAME AS A219		EA	1	REF	REF	REF	REF	REF	REF	REF	REF		A11A14MP6
X2-F	5305-591-9321	A454 SCREW, MACHINE: SAME AS A244		EA	1										A1A1A14H24
X2-F	5310-497-3901	A455 NUT, SELF-LOCKING HEXAGON: MS20364D632; (96906)		EA	1										A1A1A14H25
P-F	5961-855-1551	A456 TRANSISTOR: SAME AS A303		EA	2	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14Q3
P-F	5961-855-1551	A457 TRANSISTOR: SAME AS A303		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14Q22
P-F	5961-813-9360	A458 TRANSISTOR: SAME AS A220		EA	9	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14Q2
P-F	5961-813-9360	A459 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-7(1)	A1A1A14Q4
P-F	5961-813-9360	A460 TRANSISTOR: SAME ASA220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9Q1
P-7	5961-813-9360	A461 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16Q1
P-F	5961-813-9360	A462 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16Q2

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5961-813-9360	A463 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REEF	REF	REF	3-11	A1A1A14A16Q3
P-F	5961-813-9360	A464 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16Q4
P-F	5961-813-9360	A465 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16Q5
P-F	5961-813-9360	A466 TRANSISTOR: SAME AS A220		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-11	A1A1A14A16Q6
P-F	5961-990-4605	A467 TRANSISTOR: SAME AS A305		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9Q3
P-F		A468 TRANSISTOR, SILICON, NPN SAME AS A230		EA	1	REF	REF	REF	REF	REF	REF	REF	REF	3-8	A1A1A14A9Q2
M-K		A469 SUPPORT: 7148-1232-1; (11871)		EA	1										A1A1MP3
X2-F	5305-800-9411	A470 SCREW, MACHINE: CAV70-8-7P; (11871)		EA	2										A1A1H5
X2-F		A471 SCREW MACHINE: 2950-416C52G; (11871)		EA	2										A1A1B6
X2-F	5310-596-7981	A472 NUT, SELF-LOCKING HEXAGON: 79BT82; (72962)		EA	4										A1A1B7
M-D		A473 SUPPORT: 7148-1241; (11871)		EA	1										A1A1MP4
X2-F	5305-800-9411	A474 SCREW, MACHINE: SAME AS A470		EA	2										A1A1H8
X2-F		A475 SCREW, MACHINE: SAME AS A471		EA	2										A1A1H9
X2-F	5310-596-7981	A476 NUT, SELF-LOCKING HEXAGON: SAME AS A472		EA	4										A1A1H10
HM-		A477 POST, ELEC-MECH EQUIPMENT: 7148-1233-1; (11871)		EA	4										A1A1MP5
X2-F	5305-591-9321	A478 SCREW, MACHINE: SAME AS A244		EA	8										A1A1H11
X2-F	5310-043-1754	A479 WASHER LOCK: MS35337-79; (969065		EA	8										A1A1H12
X2-F	5310-722-5998	A480 WASHER, FLAT: MS15795-85; (96906)		EA	4										A1A1H13
M-H		A481 POST ELEC-MECH EQUIP: 7148-1233-2; (11871)		EA	2										A1A1MP6
X2-F	5305-591-9321	A482 SCREW, MACHINE: SAME A AA244		EA	4										A1A1H14
X2-F	5310-043-1754	A483 WASHER, LOCK: SAME AS A479		EA	4										A1A1H15
X2-F	5310-722-5998	A484 WASHER, FLAT: SAME A A480		EA	2										A1A1H16
M-D		A485 PLATE, IDENTIFICATION: 7140-517-4; (11871)		EA	1										A1A1MP7
P-F	5940-080-2924	A486 POST, BINDING: 29-3YELLOI; (81073)		EA	1		*	*	2	*	*	2	8	3	3-1(1)	A1A1J12
P-F		A487 TERMINAL, LUG: 2104-10-00; (78189)		EA	9		*	2	2	2	2	2	36	25		A1A1MP8
P-F	5940 -68-3743	A488 TERMINAL, LUG: 2540-20-00; (78189)		EA	4		*	2	2	*	2	2	18	12		A1A1MP9
P-F	5940-682-2477	A489 TERMINAL, LUG: SAME AS A216		EA	5	REF	REF	REF	REF	REF	REF	REF	REF		A1A1MP10
P-F	5930-504-6223	A4910 SWITCH, PUSH: MS25089-4C (969065		EA	2		*	2	2	*	2	2	16	9	3-1(1)	A1A1S2
P-P	5930-504-6223	A491 SWITCH, PUSH: SAME AS A490		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1S4
P-0	6240-155-7836	A492 LAMP, INCANDESCENT: SAME AS A019		EA	7	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1DS1

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-O	6240-155-7836	A493 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1DS2
P-O	6240-155-7836	A494 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1DS3
P-D	6240-155-7836	A495 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1DS4
P-O	6240-155-7836	A496 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1DS5
P-O	6240-155-7836	A497 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1DS6

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-O	6240-155-7836	A498 LAMP, INCANDESCENT: SAME AS A019		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1DS10
P-F	5935-826-1007	A499 CONNECTOR, RECEPTACLE, ELEC: M3112E12-10P; (96906)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1J1
X2-F	5305-615-5079	A500 SCREW, MACHINE: AN507C440-8; (88044)		EA	4										A1A1H17
X2-F	5310-281-9843	A501 NUT, SELF-LOCKING, HEXAGON: AN365-440C; (88044)		EA	4										A1A1H18
P-F	5935-825-8862	A502 CONNECTOR, RECEPTACLE, ELEC: MS3112E14-190; (96906)		EA	1	*	*	2	*		*2	8	3	3-1(1)	A1A1J17
X2-F	5305-615-5079	A503 SCREW, MACHINE: SAME AS A500		EA	4										A1A1H19
X2-F	5310-281-9843	A504 NUT, SELF-LOCKING, ELEC: SAME AS A501		EA	4										A1A1H20
P-F	5935-827-1545	A505 CONNECTOR, RECEPTACLE, ELEC: MS3112E16-26S (96906)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1J16
X2-F	5305-615-5079	A506 SCREW, MACHINE: SAME AS A500		EA	4										A1A1H21
X2-F	5310-281-9843	A507 NUT, SELF-LOCKING, HEXAGON: SAME AS A501		EA	4										A1A1H22
P-F	5935-811-8869	A508 CONNECTOR, RECEPTACLE, ELEC: MS3112E16-26SW; (96906)		EA	1	*		*	2	*	2	8	3	3-1(1)	A1A1J15
X2-F	5305-615-5079	A509 SCREW, MACHINE: SAME AS A500		EA	4										A1A1H23
X2-F	5310-281-9843	A510 NUT, SELF-LOCKING, HEXAGON: SAME AS A501		EA	4										A1A1H24
P-F	5935-062-5083	A511 CONNECTOR, RECEPTACLE, ELEC: MS3112E18-11S; (96906)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1J2
X2-F	5305-615-5079	A512 SCREW, MACHINE: SAME AS A500		EA	4										A1A1H25
X2-F	5310-281-9843	A513 NUT, SELF-LOCKING, HEXAGON: SAME AS A501		EA	4										A1A1H26
X2-F		A514 SPACER, LUG: 1332-241; (11871)		EA	4										A1A1MP11
P-F	5930-622-1575	A515 SWITCH, TOGGLE: MS35059-22; (96906)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1S1
A-F		A516 BRACKET AND RESISTOR ASSY: 7148-1244; (11871)		EA	1									3-1(3)	A1A1TB1
P-F		A517 RESISTOR, FIXED, WIRE WOUND: BWH1OHM5PCT; (07716)		EA	5	*	2	2	2	2	2	23	15	3-1(3)	A1A1TB1R73
P-F		A518 RESISTOR, FIXED, WIRE WOUND: SAME AS A517		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(3)	A1A1TB1R74
P-F		A519 RESISTOR, FIXED, WIRE WOUND: SAME AS A517		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(3)	A1A1TB1R75
P-F		A520 RESISTOR, FIXED, WIRE WOUND: SAME AS A517		EA	REF	REF	REF	REF	REF	REF-	REF	REF	REF	3-1(3)	A1A1TB1R77
P-F		A521 RESISTOR, FIXED, WIRE WOUND: SAME AS A517		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(3)	A1A1TB1R78
P-F		A522 RESISTOR, FIXED, WIRE BWH2-70HM5PCT; (07716)		EA	1	*	*	2	*	*	2	8	3	3-1(3)	A1A1TB1R76
X1-F		A523 TERMINAL BOARD: 7148-1243; (11871)		EA	1										A1A1TB1A1
X1-F		A524 TERMINAL BOARD: 7148-1243-1; (11871)		EA	1										A1A1TB1A1TB1

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
X1-F		A523 TERMINAL BOARD: 7148-1243; (11871)		EA	1										A1A1TB1A1
X1-F		A524 TERMINAL BOARD: 7148-1243-1; (11871)		EA	1										A1A1TB1A1TB1
X1-F		A525 TERMINAL, FEEDTHRU, INS: FTSM2TUR, (93291)		EA	7										A1A1TB1A1MP1
X2-F'		A526 TERMINAL, STUD: STSM1TUR; (98291)		EA	5										A1A1TB1A1MP2
P-F	5920-556-0144	A527 FUSEHOLDER: FHN20G; (81349)		EA	2	*	2	2	*	2	2	14	8	3-1(1)	A1A1XF1
P-F	5920-556-0144	A528 FUSEHOLDER: SAME AS A527		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1XF2
P-O	5920-290-1517	A529 FUSE, CARTRIDGE: FO2A250V3A; (81349)		EA	2	2	3	5	2	2	2	59	40	3-1(1)	A1A1F1
P-O	5920-290-1517	A530 FUSE, CARTRIDGE: SAME AS A529		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-1(1)	A1A1F2
P-F	5905-617-8016	A531 RESISTOR, VARA1BLE: RA20NASD103A; (81349)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1R6
P-F		A532 RESISTOR, VARIABLE: 49M5KPMIOPCT; (12697)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1R9
P-F	5935-819-0429	A533 CONNECTOR, RECEPTACLE, ELEC: DSOO-37P; (11139)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1J3
X2-F	5305-615-5079	A534 SCREW, MACHINE: SAME AS A5OO		EA	4										A1A1H27
X2-F	5310-281-9843	A535 NUT, SELF-LOCKING, HEXAGON: SAME AS A501		EA	4										A1A1H28
P-O	5355-682-6753	A536 KNOB: 70-3-1G; (49956)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1MP12
P-O	5355-751-7597	A537 KNOB: 70-IWL2C; (49956)		EA	5	*	2	2	*	2	2	19	10	3-1(1)	A1A1MP13
P-O	5355-926-5505	A538 KNOB: 90-3-20: (49956)		EA	1	*	*	*	*	*	*	5	2	3-1(1)	A1A1MP14
X2-H		A539 HANDLE, BOW: 2385-4-14; (71279)		EA	2									3-1(1)	A1A1MP15
X2-F		A540 SCREW, MACHINE: 2950-416C68G; (11871)		EA	4										A1A1H29
P-F	5935-963-6181	A541 CONNECTOR, RECEPTACLE, ELEC: 3107-1; (95712)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1J13
P-F		A542 CONNECTOR, RECEPTACLE, ELEC: 17062-37-3051; (11139)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1J14
X2-F	5305-615-5079	A543 SCREW, MACHINE: SAME AS A500		EA	4										A1A1H30
X2-F	5310-281-9043	A544 NUT, SELF-LOCKING, HEXAGON: SAME AS A501		EA	4										A1A1H31
P-F		A545 SWITCH, PUSH: 12-1425DL34R11L; (97564)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1A2
X2-F		A546 NUT, PLA1N, HEXAGON: 7148-1053; (11871)		EA	1										A1A1H32
X2-F		A547 WASHER, LOCK: 1730-00; (78189)		EA	1										A1A1H33
P-F		A548 SWITCH, PUSH: 12-1425DL34A2L; (97564)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1A18
X2-F		A549 NUT, PLAIN, HEXAGON: SAME AS A546		EA	1										A1A1H34
X2-F		A550 WASHER, LOCK: SAME AS A547		EA	1										A1A1H35
P-F	5905-730-6523	A551 RESISTOR, FIXED, WIRE WOUND: RW68V112; (81349)		EA	1	*	*	2	*	*	2	8	3	3-1(2)	A1A1R1

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5930-655-1515	A552 SWITCH, TOGGLE: MS35058-23; (96906)		EA	1	*	*	2	*	*	2	8	3	3-1(1)	A1A1S3
P-O-R	6760-898-7281	A553 CABLE ASSEMBLY, SP, ELECTRICAL LM-180A		EA	1	*	*	2	*	*	2	8	3		A1W1
X-D		A554 BAND, MARKER, CABLE: CAV176-189; (11871)		EA	1										A1W1MP1
M-D		A555 BAND, MARKER, CABLE: CAV176-189; (11871)		EA	1										A1W1MP2
M-D		A556 FERRULE, FLEC CONDUCTOR: 1332-223; (11871)		EA	4										A1W1MP3
P-F	5935-762-1495	A557 CONNECTOR, PLUG, ELECTRICAL: MS3116F12-10S; (96906)		EA	1	*	*	*	*	*	*	5	2		A1W1P1
X2-F	5340-727-5153	A558 TIE, CABLE: SST1; (06383)		EA	3										A1W1MP4
P-F	5935-227-8394	A559 CONNECTOR, PLUG, ELECTRICAL: MS3106A22-5P; (96906)		EA	1	*	*	*	*	*	*	5	2		A1W1P2
P-F	5935-835-4448	A560 CONNECTOR, PLUG, ELECTRICAL: M33106A24-12P; (96906)		EA	1	*	*	*	*	*	*	5	2		A1W1MP3
X2-F	5935-223-0572	A561 CLAMP, CABLE, ELECTRICAL CONN: MS3057-12A; (96906)		EA	1										A1W1MP5
X2-F	5935-280-2353	A562 CLAMP, CABLE, ELECTRICAL CONN: MS3057-16A; (96906)		EA	1										A1W1MP6
P-F		A563 BUSHING, SLEEVE: AN3420-4A; (88044)		EA	2	*	2	2	*	2	2	16	10		A1W1MP7
P-F		A564 BUSHING, SLEEVE: AN3420-6A; (88044)		EA	2	*	2	2	*	2	2	18	12		A1W1MP8
P-F		A565 BUSHING, SLEEVE: AN3420-8A; (88O44)		EA	2	*	2	2	*	2	2	14	8		A1W1MP9
P-F	5340-598-5287	A566 BUSHING, SLEEVE: AN3420-12A		EA	2	*	2	2	*	2	2	11	6		A1W1MP10
P-F	5340-598-5379	A567 BUSHING, SLEEVE: AN3420-16A; (88044)		EA	1	*	*	*	*		*	5	2		A1W1MP11
P-O-R	5995-999-4811	A568 CABLE ASSEMBLY, SP, ELECTRICAL LM-181A		EA	1	*	*	2	*	*	2	8	3		A1W2
M-D		A569 BAND, MARKER, CABLE: CAV176-204; (11871)		EA	1										A1W2MP1
M-D		A570 BAND, MARKER, CABLE: CAV176-190; (11871)		EA	1										A1W2MP2
M-D		A571 BAND, MARKER, CABLE: CAV176-203; (11871)		EA	1										A1W2MP3
M-D		A572 BAND, MARKER, CABLE: CAV176-218; (11871)		FA	1										A1W2MP4
P-F		A573 CONNECTOR, PLUG, ELECTRICAL: 7140-211-1; (11871)		EA	1	*	*	*	*	*	*	5	2		A1W2MP1
P-F		A574 C0NNECTOR., PLUG, ELECTRICAL: 7140-212-2; (11871)		EA	1	*	*	*	*	*	*	5	2		A1W2MP3
P-F	5935-783-5368	A575 CONNECTOR, PLUG, ELECTRICAL: M3116F16-26PW; (96906)		EA	1	*	*	*	*	*	*	5	2		A1W2MP2
X2-F	5340-727-5153	A576 TIE, CABLE: SAME AS A558		EA	5										A1W2MP5

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
X2-F	5940-722-4352	A577	FERRULE, ELEC CONDUCTOR: SAME AS A347	EA	10										A1W2MP6
P-F		A578	BUSHING, SLEEVE: SAME AS A565	EA	1	REF	REF	REF	REF	REF	REF	REF	REF		A1W2MP7
P-F		A579	BUSHING, SLEEVE: SAME AS A564	EA	1	REF	REF	REF	REF	REF	REF	REF	REF		A1W2MP8
X2-F		A580	COVER, ELEC CONNECTOR: 7148-1242-1; (11871)	EA	2										A1W2MP9
X2-F		A581	COVER, ELEC CONNECTOR: 7148-1242-2; (11871)	EA	2										A1W2MP10
P-O-R	5995-999-4812	A582	CABLE ASSEMBLY, SP, ELECTRICAL, LM-191A	EA	1	*	*	2	*	*	2	8	3		A1W3
M-D		A583	BAND, MARKER, CABLE: CAV176-207; (11871)	EA	1										A1W3MP1
M-D		A584	BAND, MARKER, CABLE: CAV176-206; (11871)	EA	1										A1W3MP2
M-D		A585	BAND, MARKER, CABLE: CAV176-193; (11871)	EA	1										A1W3MP3
M-D		A586	BAND, MARKER, CABLE: CAV176-219; (11871)	EA	1										A1W3MP4
P-F	5935-899-9456	A587	CONNECTOR, PLUG, ELECTRICAL: WD22SA; (81312)	EA	1	*	*	*	*	*	*	5	2		A1W3P1
P-F		A588	CONNECTOR, PLUG, ELECTRICAL: 7140-212-1; (11871)	EA	1	*	*	*	*	*	*	5	2		A1W3P3
P-F	5935-722-9261	A589	CONNECTOR, PLUG, ELECTRICAL: MS3116F16-26P; (96906)	EA	1	*	*	*	*	*	*	5	2		A1W3P2
X2-F	5340-727-5153	A590	TIE, CABLE: SAME AS A558	EA	5										A1W3MP5
X2-F	5940-722-4352	A591	FERRULE, ELEC CONNECTOR: SAME AS A347	EA	7										A1W3MP6
X2-F		A592	COVER, ELEC CONNECTOR: 7148-1242-3; (11871)	EA	2										A1W3MP7
X2-F		A593	COVER, ELEC CONNECTOR: SAME AS A581	EA	2										A1W3MP6
P-0-R	6760-937-3793	A594	CABLE ASSEMBLY, SP, ELECTRICAL LM-182A	EA	1	*	*	2	*	*	2	8	3		A1W4
M-D		A595	BAND, MARKER, CABLE: CAV176-196; (11871)	EA	1										A1W4MP1
M-D		A596	BAND, MARKER, CABLE: CAV176-195; (11871)	EA	1										A1W4MP2
M-D		A597	BAND, MARKER, CABLE: CAV176-216; (11871)	EA	1										A1W4MP3
X2-F	5935-223-0572	A598	CLAMP, CABLE, ELECTRICAL CONN: SAME AS A561	EA	1										A1W4MP4
X2-F	5340-727-5153	A599	TIE, CABLE: SAME AS A558	EA	3										A1W4MP5
P-F		A600	CONNECTOR, PLUG, ELECTRICAL: M3106E22-145; (96906)	EA	1	*	*	2	*	*	2	8	3		A1W4P1
P-F	5935-779-8294	A601	CONNECTOR, PLUG, ELECTRICAL: M93116F14-19P; (96906)	EA	1	*	*	2	*	*	2	8	3		A1W4P2
P-O-R	6760-937-3792	A602	CABLE ASSEMBLY, SP, ELECTRICAL LM-183A	EA	1	*	*	2	*	*	2	8	3		A1W5
M-D		A603	BAND, MARKER, CABLE: CAV176-198; (11871)	EA	1										A1W5MP1

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

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M-D		A604 BAND, MARKER, CABLE: CAV176-197; (11871)		EA	1										A1W5MP2
M-D		A605 BAND, MARKER, CABLE: CAV176-217; (11871)		EA	1										A1W5MP3
X1-D		A606 CABLE, SPECIAL PURPOSE, ELEC: TRT24-19ST2RO-9-0; (06090)		FT	1										A1W5W1
X1-D		A607 CABLE, SPECIAL PURPOSE, ELEC: TRT24-19ST3RO-2-9-9; (06090)		FT	1										A1W5W2
P-F	5935-704-5836	A608 CONNECTOR, PLUG, ELECTRICAL: DS07-37PO59; (11139)		EA	1	*	*	2	*	*	2	8	3		A1W5P1
P-F	5935-704-5840	A609 CONNECTOR, PLUG, ELECTRICAL: DS07-37S059; (11139)		EA	1	*	*	2	*	*	2	8	3		A1W5P2
X2-F	5940-722-4352	A610 FERRULE, ELEC CONDUCTOR: SAME AS A347		EA	11										A1W5MP4
X2-F	5340-727-5153	A611 TIE, CABLE: SAME AS A558		EA	3										A1W5MP5
X2-F		A612 SHELL, ELEC CONNECTOR: E1-196D12-2; (16326)		EA	2										A1W5MP6
X2-F	5940-615-5738	A613 FERRULE, ELEC CONDUCTOR: YOE90; (09922)		EA	1										A1W5MP7
P-0-R	6760-937-3791	A614 CABLE ASSEMBLY, SP, ELECTRICAL LM-184A		EA	1	*	*	2	*	*	2	8	3		A1W6
M-D		A615 BAND, MARKER, CABLE: CAV176-199; (11871)		EA	1										A1W6MP1
M-D		A616 BAND, MARKER, CABLE: CAV176-200; (11871)		EA	1										A1W6MP2
M-D		A617 BAND, MARKER, CABLE: CAV176-201; (11871)		EA	1										A1W6MP3
M-D		A618 CABLE, SPECIAL PURPOSE, ELEC: 21-738; (07497)		FT	1										A1W6W1
P-F	5935-935-2120	A619 CONNECTOR, PLUG, ELECTRICAL: DS07-37-30P1-059; (11139)		EA	1	*	*	2	*	*	2	8	3		A1W6P1
P-F		A620 CONNECTOR, PLUG, ELECTRICAL: DS04-37-30P1-059; (11139)		EA	1	*	*	2	*	*	2	8	3		A1W6P2
X2-F	5340-727-5153	A621 TIE, CABLE: SAME AS A558		EA	3										A1W6MP4
X2-F	5940-722-4352	A622 FERRULE, ELEC CONDUCTOR: SAME AS A347		EA	3										A1W6MP5
P-F	5340-598-5287	A623 BUSHING, SLEEVE: SAME AS A566		EA	2	*	*	2	*	*	2	8	4		A1W6MP6
P-F	5340-598-54!6	A624 BUSHING, SLEEVE: MS3420-12; (96906)		EA	3	*	2	2	*	2	2	11	6		A1W6MP7
P-O-R	6760-841-9369	A625 CABLE ASSEMBLY, SP, ELECTRICAL LM-185A		EA	1	*	*	2	*	*	2	8	3		A1W7
P-F	5935-959-8233	A626 CONNECTOR, PLUG, ELECTRICAL: 2743-1; (95712)		EA	2	*	*	2	*	*	2	8	4		A1W7P1
P-F	5935-989-8233	A627 CONNECTOR, PLUG, ELECTRICAL: SAME AS A626		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	A1W7P2
M-D		A628 BAND, MARKER, CABLE: CAV176-220; (11871)		EA	1										A1W7MP1
M-D		A629 BAND, M,A17, CABLE: CAV176-202; (11871)		EA	1										A1W7MP2

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

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M-D		A630 BAND, MARKER, CABLE: CAV176-I22; (11871)		EA	1										A1W7MP3
X2-F	5340-727-5153	A631 TIE, CABLE: SAME AS A558		EA	3										A1W7MP4
P-F		A632 BUSHING, SLEEVE: SAME AS A564		EA	3	REF	REF	REF	REF	REF	REF	REF	REF		A1W7MP5
P-F		A633 BUSHING, SLEEVE: SAME AS A563		EA	3	REF	REF	REF	REF	REF	REF	REF	REF		A1W7MP6
M-D		A634 CABLE, SPECIAL PURPOSE, ELEC: SAME AS A618		FT	1										A1W7W1
P-O-R	6760-841-9368	A635 CABLE ASSEMBLY, SP, ELECTRICAL LM-186A		EA	1		*	*	2	*	*	2	8	3		A1W8
M-D		A636 BAND, MARKER, CABLE: CAV176-222; (11871)		EA	1										A1WMP1
M-D		A637 BAND, MARKER, CABLE: CAV176-223; (11871)		EA	1										A1W8MP2
M-D		A638 BAND, MARKER, CABLE: CAV76-224; (11871)		EA	1										A1W8MP3
P-P		A639 CONNECTOR, PLUG, ELECTRICAL: MS3106E20-33S; (96906)		EA	1		*	*	2	*	*	2	8	3		A1W8P1
P-F		A640 CONNECTOR, PLUG, ELECTRICAL: MS3106F18-11P; (96906)		EA	1		*	*	2	*	*	2	8	3		A1W4P2
X2-F	5340-727-5153	A641 TIE, CABLE: SAME AS A558		EA	3										A1W8MP4
X2-F	5940-722-4352	A642 FERRULE, ELEC CONDUCTOR: SAME AS A347		EA	3										A1W8MP5
P-F		A643 BUSHING, SLEEVE: SAME AS A565		EA	1	REF	REF	REF	REF	REF	REF	REF	REF		A1W8MP6
X2-F		A644 BUSHING, SLEEVE: AN3420-1CA; (88044)		EA	1										A1W8MP7
P-F	5340-598-5287	A645 BUSHING, SLEEVE: SAME AS A566		EA	1	REF	REF	REF	REF	REF	REF	REF	REF		A1W8MP8
M-D		A646 PLATE, CONTENTS: 7148-1224; (11871)		EA	1										A1MP4
P-O	6760-832-5915	A647 LENS: 870; (00236)		EA	2		*	2	2	*	2	3	14	8		A1MP5
P-F	6760-840-9803	A648 LENS: 1448; (00236)		EA	2		*	2	2	*	2	2	14	8		A1MP6
G-O-R	6760-116-7088	A649 POWER LIMITER AND BLOWER ASSY LM-187A		EA	1											A2
A-F-B		A650 PANEL AND COMPONENT ASSY: 7148-1404; (11871)		EA	1										3-13(1)	A2A1
X2-F		A651 SCREW, MACHINE: SAME AS A007		EA	10											A2H1
X2-F		A652 WASHER, FLAT: CAV10-69; (11871)		EA	10											A2H2
P-F	6210-782-0646	A653 LIGHT, INDICATOR: 819-1030-0997-50; (72619)		EA	3		*	2	2	*	2	2	16	9	3-13(1)	A2A1XDS1
P-F	6210-782-0646	A654 LIGHT, INDICATOR: SAME AS A653		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(1)	A2A1XDS2
P-F	6210-782-0646	A655 LIGHT, INDICATOR: SAME AS A653		E A	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(1)	A2A1XDS3
P-F	5915-937-5004	A656 FILTER, RADIOFREQUENCY: RF713; (13619)		EA	3		*	2	2	*	2	2	16	9	3-13(1)	A2A1FL1
P-F	5915-937-5004	A657 FILTER, RADIOFREQUENCY: SAME AS A656		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(1)	A2A1FL2

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-F	5915-937-5004	A658	FILTER, RADIOFREQUENCY: SAME AS A656	EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1FL3
M-D		A659	PLATE, IDENTIFICATION: 7140-517-5; (11871)	EA	1									3-13(1)	A2A1MP1
X2-H		A660	PANEL, XMFR AND BLOWER: 7148-1405; (11871)	EA	1									3-13(1)	A2AIMP2
X2-F		A661	CLAMP: 7148-1412; (11871)	EA	2										A2A1MP3
X2-F		A662	SCREW, MACHINE: 2950-416C110; (11871)	EA	4										A2A1H1
X2-F		A663	FLANGE: 7148-1413; (11871)	EA	1										A2A1MP4
X2-F		A664	SCREW, MACHINE: CAV70-6-7; (11871)	EA	4										A2A1H2
P-F	5310-638-9857	A665	WASHER, FIAT: SAME AS A246	EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A2A1H3
X2-F	5915-999-4816	A666	COVER AND FILTER ASSEMBLY: 7148-1416; (1181)	EA	1									3-13(1)	A2A1A1
X2-F		A667	SCREW, MACHINE: CAV70-6-10; (11871)	EA	2									3-13(1)	A2A1H4
P-F	5310-638-9857	A668	WASHER, FLAT: SAME AS A246	EA	2	REF	REF	REF	REF	REF	REF	REF	REF		A2A1H5
X2-F	5310-680-7543	A669	NUT, SELF-LOCKING, HEXAGON: SAME AS A120	EA	2										A2A1H6
X2-F		A670	COVER: 7148-1416-1;	EA	1										A2A1A1MP1
M-D	5915	A671	FILTER: 7148-1416-2;	EA	1										A2A1A1MP2
M-H		A672	BRACKET: 7148-1417; (11871)	EA	2										A2A1MP5
X2-F	5305-992-5916	A673	SCREW, MACHINE: MS16996-010; (96906)	EA	4										A2A1H7
X2-F	5310-058-2951	A674	WASHER, LOCK: MS35337-81; (96906)	EA	4										A2A1H8
X2-F		A675	SCREW, MACHINE: CAV70-1032-9; (11871)	EA	4										A2A1H9
X2-F	5310-167-0812	A676	WASHER, FLAT: AN960ClOL; (88044)	EA	4										A2A1H10
X2-F	5310-208-4043	A677	NUT, SELF-LOCKING, HEXAGON: 79NM02; (72962)	EA	4										A2A1H11
X2-F		A678	POST, ELEC-MECH EQUIPMENT: 7148-1419; (1187)	EA	4										A2A1MP6
X2-F		A679	SCREW, MACHINE: SAME AS A664	EA	4										A2A1H12
X2-F	5310-043-1754	A680	WASHER, LOCK: SAME AS A479	EA	4										A2A1H13
X2-F		A681	SCREW, MACHINE: SAME AS A664	EA	4										A2A1H14
X2-F	5310-043-1754	A682	WASHER, LOCK: SAME AS A479	EA	4										A2A1H15
P-F	5310-638-9857	A683	WASHER, FLAT: SAME AS A246	EA	4	REF	REF	REF	REF	REF	REF	REF	REF		A2A1H16
M-H		A684	SUPPORT, FILTER: 7148-140; (L1871)	EA	1										A2A1MP7
M-H		A685	SCREEN: 7148-1422;	EA	1										A2A1MP8

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
M-H		A686 BRACKET, ANGLE: 7148-1424; (11871)		EA	1										A2A1MP9
X2-F		A687 SCREW, MACHINE: CAV70-1032-8; (11871)		EA	4										A2A1H17
X2-F	5310-058-2951	A688 WASHER, LOCK: SAME AS A674		EA	4										A2A1H18
M-D		A689 PLATE, INSTRUCTION: 7148-1425; (1871)		EA	1									3-13(1)	A2A1MP10
M-D		A690 PLATE, INSTRUCTION: 7148-1426; (118i1)		EA	1									3-13(1)	A2A1MP11
A-F-R		A691 CHASSIS AND COMPONENT ASSY: 7148-1435; (11871)		EA	1									3-13(1)	A2A1A2
X2-F		A692 SCREW, MACHINE: SAME AS A675		EA	4										A2A1H19
X2-F	5310-167-0812	A693 WASHER, FLAT: SAME AS A676		EA	4										A2A1H20
X2-F	5310-208-4043	A694 NUT, SELF-LOCKING, HEXAGON: SAME AS A677		EA	4										A2A1H21
X2-F		A695 CHASSIS, ELEC EQUIPMENT: 7148-1411; (11871)		EA	1									3-13(2)	A2A1A21
M-H		A696 CHASSIS, ELEC EQUIPMENT: 7148-1411-1; (11871)		EA	1										A2A1A2A1MP1
X2-F	5940-615-2514	A697 TERMINAL, FEEDTHRU, INS: FT950DTUR; (98291)		EA	6										A2A1A2A1MP2
M-H		A698 BRACKET, RESISTOR MTG: 6680-449-1; (11871)		EA	1										A2A1A2MP1
X2-F		A699 SCREW, MACHINE: CAV70-4-SP; (11871)		EA	2										A2A1A2H1
M-E		A700 BRACKET, RESISTOR MTG: 6680-449-2; (11871)		EA	1										A2A1A2MP2
X2-F		A701 SCREW, MACHNE: SAME AS A699		EA	2										A2A1A2H2
M-H		A702 BRACKET, RESISTOR MTG: 6680-449-3; (11871)		EA	1										A2A1A2P3
X2-F		A703 SCREW, MACHINE: SAME AS A699		EA	2										A2A1A2H3
M-H		A704 BRACKET, RESISTOR MTG: 6680-449-4; (11871)		EA	1										A2A1A2MP4
X2-F		A705 SCREW, MACHINE: SAME AS A699		EA	2										A2A1A2H4
M-H		A706 BRACKET, RESISTOR MTG: 6680-449-5; (11871)		EA	1										A2A1A2NP5
X2-F		A707 SCREW, MACHINE: SAME AS A699		EA	2										A2A1A2H5
M-H		A708 BRACKET, RESISTOR MTG: 6680-449-6; (11871)		EA	1										A2A1A2P6
X2-F		A709 SCREW, MACHINE: SAME AS A699		EA	2										A2A1A2H6
X2-F		A710 NUT, SELF-LOCKING, HEXAGON: 69NM40; (72962)		EA	12										A2A1A2H7
M-H		A711 BRACKET, RESISTOR MTG: 6680-449-7; (11871)		EA	1										A2A1AMP7
M-H		A712 BRACKET, RESISTOR MTG: 6680-449-8; (11871)		EA	1										A2A1A2MP8

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
M-H		A713 BRACKET, RESISTOR MTG: 6680-449-9; (11871)		EA	1										A2A1A2MP9
M-H		A714 BRACKET, RESISTOR MTG: 6680-449-10; (11871)		EA	1										A2A1A2MP10
M-H		A715 BRACKET, RESISTOR MTG: 6680-449-11; (11871)		EA	1										A2A1A2MP11
M-H		A716 BRACKET, RESISTOR MTG: 6680-449-12; (11871)		EA	1										A2A1A2MP12
P-F		A717 RESISTOR, FIXED, WIRE WOUND: RH50-1R000H; (91637)		EA	24	2	4	8	3	2	2	91	75	3-13(2)	A2A1A2R4
P-F		A718 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R5
P-F		A719 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R6
P-F		A720 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R7
P-F		A721 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R8
P-F		A722 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R9
P-F		A723 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R10
P-F		A724 RESISTOR, FIXED , WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R11
P-F		A725 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R12
P-F		A726 RESISTOR, FIXED, WIRE		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R13
P-F		A727 RESISTOR, FIXED WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R14
P-F		A728 RESISTOR, FIXED, WIRE WOUND: SAE AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R15
P-F		A729 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R16
P-F		A730 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R17
F-F		A731 RESISTOR, FIXED, WIRE		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R18
P-F		A732 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R19
P-F		A733 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R20
P-F		A734 RESISITOR, FIXED, WIRE WOUND: CAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R21
P-F		A733 RESISTOR, FIXED, WIRE WOUND: AME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R22
P-F		A736 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R23
P-F		A737 RESISTOR, FIXED, WIRE WOUND: CAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R24
P-F		A738 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R25
P-F		A739 RESISTOR, FIXED, WIRE		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R26
P-F		A740 RESISTOR, FIXED, WIRE WOUND: SAME AS A717		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R27

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
X2-F	5305-802-1537	A741 SCREW, MACHINE: CAV70-4-6P; (11871)		EA	48										A2A1A2H8
X2-F	5310-958-5941	A742 NUT, SELF-LOCKING, HEXAGON: SAME AS A710		EA	48										A2A1A2H9
P-F	5905-279-3500	A743 RESISTOR, FIXED, COMPOSITION: SAME AS A176		EA	3	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R1
P-F	5905-279-3500	A744 RESISTOR, FIXED, COMPOSITION: SAME AS A176		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R2
P-F	5905-279-3500	A745 RESISTOR, FIXED, COMPOSITION: SAME AS A176		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(2)	A2A1A2R3
P-O	6240-723-3378	A746 LAMP, GLOW: MS25252A E2J; (96906)		EA	3	*	2	2	2	2	2	7	15	3-13(2)	A2A1DS1
P-O	6240-723-3378	A747 LAMP, GLOW: SAME AS A746		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(1)	A2A1DS2
P-O	6240-723-3378	A748 LAMP, GLOW: SAME AS A746		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(1)	A2A1DS3
P-F	5945-808-6345	A749 RELAY, ARMATURE: MS2527111; (96906)		EA	1	*	*	*	*	*	*	5	2	3-13(2)	A2A1K1
X2-F	5310-680-7543	A750 NUT, SELF-LOCKING, HEXAGON: SAME AS A120		EA	4										A2A1H22
P-F	5925-752-6430	A751 CIRCUIT BREAKER: MS25337-5; (96906)		EA	3	*	2	2	*	2	2	11	6	3-13(1)	A2A1CB4
P-F	5925-752-6430	A752 CIRCUIT BREAKER: SAME AS A751		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(1)	A2A1CB5
P-F	5925-752-6430	A753 CIRCUIT BREAKER: SAME AS 8751		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(1)	A2A1CB6
X2-F		A754 SCREW, MACHINE: SAME AS A664		EA	6										A2A1H23
P-F	5310-638-9857	A755 WASHER, FLAT: SAME AS A246		EA	6	REF	REF	REF	REF	REF	REF	REF	REF		A2A1H24
P-F	5925-752-6427	A756 CIRCUIT BREAKER: MS25337-15; (96906)		EA	3	*	2	2	*	2	2	11	6	3-13(1)	A2A1CB1
P-F		A757 CIRCUIT BREAKER: SAME AS A756		EA	RE	REF	REF	REF	REF	REF	REF	REF	REF	3-13(1)	A2A1CB2
P-F	5925-752-6427	A758 CIRCUIT BREAKER: SAME AS A756		EA	REF	REF	REF	REF	REF	REF	REF	REF	REF	3-13(1)	A2A1CB3
X2-F		A759 SCREW, MACHINE: SAME AS A664		EA	6										A2A1H25
P-F	5310-638-9857	A760 WASHER, FLAT: SAME AS A246		EA	6	REF	REF	REF	REF	REF	REF	REF	REF		A2A1H26
P-F	4150-134-4212	A761 BLOWER: DRFSNSB502-267JS; (82877)		EA	1	*	*	2	*	*	2	8	3	3-13(2)	A2A1B1
X2-F		A762 SCREW, MACHINE: 2950-410-64; (11871)		EA	3										A2A1H27
X2-F		A763 WASHER, FLAT: CAV10-104; (11871)		EA	3										A2A1H28
X2-F	5310-264-6800	A764 NUT, SELF-LOCKING, HEXAGON: 79NTE064; (72962)		EA	3										A2A1H29
X2-F		A765 SCREW, MACHINE: 2950-416C700; (11871)		EA	1										A2A1H30
X2-F	5310-208-4043	A766 NUT, SELF-LOCKING, HEXAGON: SAME AS A677		EA	1										A2A1H31
X2-H		A767 HANDLE, BOW: SAME AS A539		EA	2									3-13(1)	A2A1MP12
X2-F		A768 SCREW, MACHINE: SAME AS A687		EA	4										A2A1H32

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
X2-F	5310-058-2951	A769	WASHER, LOCK: SAME AS A674	EA	4										A2A1H33
X2-F	5310-167-0812	A770	WASHER, FLAT: SAME AS A676	EA	4										A2A1H34
P-F	5935-992-0309	A771	CONNECTOR, RECEPTACLE, ELEC: PTO2E10-98SW; (77820)	EA	1		*	*	2	*	*	2	8	3	3-13(1) A2A1J2
X2-F	5305-802-1535	A772	SCREW, MACHINE: CAV70-4-6; (11871)	EA	4									3-13(1)	A2A1H35
X2-F	5310-595-6425	A773	WASHER, FLAT: AN960C4L; (88044)	EA	4									3-13(1)	A2A1H36
X2-F	5310-614-3500	A774	NUT, SELF-LOCKING, HEXAGON: 68-1660-40; (72962)	EA	4									3-13(1)	A2A1H37
P-F	5935-992-0312	A775	CONNECTOR, RECEPTACLE, ELEC: PTO2E10-98P; (77820)	EA	1		*	*	2	*	*	2	8	3-13(1)	A2A1J1
X2-F	5305-802-1535	A776	SCREW, MACHINE: SAME AS A772	EA	4									3-13(1)	A2A1H38
X2-F	5310-595-6425	A777	WASHER, FLAT: SAME AS AT73	EA	4									3-13(1)	A2A1H39
X2-F	5310-614-3500	A778	NUT, SELF-LOCKING, HEXAGON: SAME AS AT774	EA	4									3-13(1)	A2A1H40
P-F	5940-682-2477	A779	TERMINAL, LUG: SAME AS A216	EA	2	REF	REF	REF	REF	REF	REF	REF	REF		A2A1MP13
X2-F	5340-282-7966	A780	CLAMP, LOOP: 5-16-6; (95987)	EA	1										A2AHP14
X2-F		A781	SCREW, MACHINE: SAME AS A664	EA	1										A2A1H41
P-F	5310-638-9857	A782	WASHER, FLAT: SAME AS A246	EA	1	REF	REF	REF	REF	REF	REF	REF	REF		A2A1H42
X2-F	5310-330-5065	A783	WASHER, D: D191; (95987)	EA	1										A2A1H43
X2-F	5310-680-7543	A784	NUT, SELF-LOCKING, HEXAGOIN: SAME AS A120	EA	1										A2A1H44
X1-O		A785	CASE, POWER LIM AND BLOWER: 7148-1407; (11871)	EA	1										A2MP1
P-O-R	6760-840-986	A786	HOSE AND CLAMP ASSEMBLY LM-188A	EA	1		*	*	*	*	*	*	5	2	A2A2
P-F	4220-	A787	HOSE, AIR DUCT: 748-1408-1; (11871)	EA	1		*	*	2	*	2	2	10	5	A2A24P1
X2-F		A788	DUCT AND CLAMP ASSEMBLY: 748-1408-2; (11871)	EA	1										A2A*P2
X2-F		A789	PLATE AND SPRING ASSEMBLY: 7148-1408-3; (11871)	EA	1										A2A2A1
M-H		A790	PLATE: 7148-1408-8; (1l871)	EA	1										A2A2A1MP1
X2-F	5320-721-8973	A791	RIVET, SOLID: SAME AS A137	EA	2										AA2A2AH1
X2-F	5325-355-8963	A792	LOCKSPRING, TRNLOCK FASTNR: S4-200; (72794)	EA	1										A2A2A1MP2
X2-F		A793	CLAMP, OVAL: 7148-1408-5; (11871)	EA	1										A2A4MP3
X2-F		A794	RETAINER AND STUD ASSEMBLY: 7148-1408-5; (11871)	EA	1										A2A2A2
P-F	5325-141-4003	A795	RING, RETAINING: GH4; (72794)	EA	1		*	*	*	*	*	*	5	2	A2A2MP1

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
X2-F		A796 STUD, TURNLOCK FASTENER: 6680-819; (11871)		EA	1										A2A2A2MP2
X2-F		A797 BUMPER, RUNNER: X376-1/8sq: (70485)		EA	12										A2A2MP4
X2-F		A798 BLOCK: 71481408-7; (11871)		EA	2										A2A2MP5
X2-F		A799 SCREW, MACHINE: 2950-416C9K; (11871)		EA	8										A2A2H1
X2-F		A800 CLAMP, GRIP: 22T3LESSBRKTS; (07344)		EA	1										A2A2MP6
X2-F		A801 CLAMP, GRIP J5416-3 1-8IN; (39428)		EA	1										A2A2MP7
X2-F		A802 CLAMP, GRIP: J5416- 1-8IN; (39428)		EA	2										A2A2MP8
M-H		A803 CHAIN, HEAD: 6ADSS2 1-2; (70892)		EA	1										A2A2MP9
X2-F	5305-550-5001	A804 SCREW, MACHINE: MS35233-12: (96906)		EA	1										A2A2H2
X2-F	5340-753-3716	A805 WASHER, FLAT: CAVIO-24P; (11871)		EA	1										A2A2H3
X2-F	5305-638-0653	A806 SCREW, MACHINE: MS35233-14; (96906)		EA	1										A2A2H4
X2-F	5340-753-3716	A807 WASHER, FLAT: SAME AS A805		EA	1										A2A2H5
X2-F	5310-614-3500	A808 NUT, SELF-LOCKING, HEXAGON: CAME AS A'774		EA	1										A2A2H6
M-H		A809 CUSHION, TOP: 7148-1414; (11871)		EA	1										A2MP2
M-H		A810 CUSHION, BOTTOM: 7148-1415; (11871)		EA	1										A2MP3
M-D		A811 PLATE, INSTRUCTION: 71480-1421; (11871)		EA	1										A2MP4
P-O-R	6760-841-9367	A812 CABLE ASSEMBLY, SP, ELECTRICAL LM-189A		EA	1	*	*	2	*	*	2	8	3		A2W10
M-D		A813 BAND, MARKER, CABLE: CAV176-215; (11871)		EA	1										A2W10MP1
M-D		A814 BAND, MARKER, CABLE: CAV176-192; (11871)		EA	1										A2W10MP2
M-D		A815 BAND, MARKER, CABLE: CAV176-234; (11871)		EA	1										A2W10MP3
P-F	5935-992-0303	A816 CONNECTOR, PLUG, ELECTRICAL:		EA	1	*	*	2	*	*	2	8	3		A2W10P1
X2-F	5340-727-5153	A817 TIE, CABLE: SAME AS A558		EA	3										A2W10MP4
P-F	5935-201-3031	A818 CCNNECTOR, PLUG, ELECTRICAL: MS3106E22-5P; (96906)		EA	1	*	*	2	*	*	2	8	3		A2W1P2
X2-F	5935-223-0572	A819 CLAMP, CABLE, ELECTRICAL CONN: SAME AS A561		EA	1										A2W10P5
M-D		A820 FERRULE, ELEC CONDUCTOR: SAME AS A556		EA	4										A2W10P6
P-O-R	6760-840-9802	A821 CABLE ASS£MBLY, SP, ELECTRICAL LM-190A		EA	1	*	*	2	*	*	2	8	3		A2W9
M-D		A822 BIND, MARER, CABLE: CAV176-194; (11871)		EA	1										A2W9MPI

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
M-D		A823 BAND, MARKER, CABLE:		EA	1										A2W9MP2
M-D		A824 BAND, MARKER, CABLE: CAV176-214; (11871)		EA	1										A2W9MP3
X2-F	5340-727-5153	A825 TIE, CABLE: SAME AS A558		EA	3										A2W9MP4
P-F	5935-836-0423	A826 CONNECTOR, PUG, ELECTRICAL: DM9607-197s; (11139)		EA	1	*	*	2	*	*	2	8	3		A2W'9P1
P-F	5935-992-0302	A827 C0NNECTOR, PLUG, ELECTRICAL: PT06E10-98PWSR; (77820)		EA	1	*	*	2	*	*	2	8	3		A2W9P2

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
G-H-S	6760-193-0004	B001	ADAPTER, TEST SET LA-491A: 2432-100 (11871)	EA	1									3-14	A1A2
X-H	5340	8002	BRACKET, CONNECTOR:	EA	1									3-14	AMA2A
P-H	6305	B003	SCREW, MACHINE: CAV73-6-5P (11871)	EA	4				*	1	1	8	4	3-14	A1A2H4
X-H	5340	B004	BRACKET:	EA	1									3-14	A1A2A1MP1
P-H	5310-866-3506	B005	NUT, SELF-LOCKING: 12NCFMA2-62 (72962)	EA	16				1	1	1	46	30	3-14	A1A2A1H6
X-D	6760	B006	COVER, TEST SET:	EA	1									3-14	A1A2MPI
P-H	5305-4-6652	B007	SCREW, MACHINE: MS51957-28 (96906)	EA	12				1	1	1	40	25	3-14	A1A2H12
P-H	5310-880-5976	B008	WASHER, FLAT: MS15795-806 (96906)	EA	12				1	1	1	40	25	3-14	A1A2H12
P-H	5910-496-7030	B009	CAPACITOR, FIXED: CQ09AIMZ225G3 (81349)	EA	1				*	*	1	8	3	3-14	A1A2C
P-H	5935	BO10	CONNECTOR, ELECTRICAL PLUG: MS3102E20-33P (96906)	EA	1				*	*	1	8	3	3-14	A1A2J2
P-H	5305-054-5649	B011	SCREW, MACHINE: MS51957-15 (96906)	EA	4				*	1	1	16	8	3-14	A1A2H4
P-H	5310-782-1349	B012	WASHER, FLAT: MS15795-804 (96906)	EA	10				1	1	1	35	20	3-14	A1A2H4
P-H	5310-208-9287	B013	NUT, SELF-LOCKING: 68NTM40 (72962)	EA	10				1	1	1	35	20	3-14	A1A2H4
P-H	5935-809-0788	B014	CLAMP, CABLE, ELECTRICAL: MS3057-1OA (96906)	EA	1				*	*	1	8	3	3-14	A1A2MP2
P-H	5935-498-3453	B3015	CONNECTOR, ELECTRICAL, SOCKET: DBMM25S (71468)	EA	1				*	*	1	8	3	3-14	A1A1J1
P-H	5305	B016	SCREW, MACHINE: 2950-416-10G (11871)	EA	2				*	*	1	10	4	3-14	A1A2H2
P-H	5310-622-1724	B017	NUT, SELF-LOCKING: 68-1660-26 (72982)	EA	4				*	1	1	16	8	3-14	A1A2H2
P-H	5935-476-4618	B018	CONNECTOR, RECEPTACLE ELECTRICAL: DCMM37S (71468)	EA	1				*	*	1	8	3	3-14	A1A2J4
P-H	5305-054-5647	B019	SCREW, MACHINE: MS51957-13 (96906)	EA	4				*	1	1	16	8	3-14	A1A2H2
P-H	5310-208-9287	B020	NUT, SELF-LOCKING: SAME AS B013	EA	REF				REF	REF	REF	REF	REF	3-14	AtA2H2
P-H	5935	B021	CONNECTOR, ELECTRICAL: MS310SE20-33S (96906)	EA	1				*	*	1	8	3	3-14	A1A2P2
P-H	5935-951-8986	B022	CONNECTOR, RECEPTACLE, ELECTRICAL: DEMM9S (71468)	EA	1				*	*	1	8	3	3-14	AA2PI
X-H	6760	B023	ENCLOSURE, TEST SET	EA	1									3-14	A1A2A2
X-H	5340	B024	ANGLE:	EA	1									3-14	A1A2A2MP1
P-H	5320-117-6816	B025	RIVET, SOLID: MS20470AD3-5 (96906)	EA	12				1	1	1	40	25	3-14	A1A2A2H4
X-H	5340	B026	ANGLE:	EA	1									3-14	A1A2A2MP2

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

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P-H	5320-117-6816	B027	RIVET, SOLID SAME AS B025	EA	REF				REF	REF	REF	REF	REF	3-14	A1A2A2H4
X-H	5340	B028	ANGLE:	EA	1									3-14	A1A2A2MP3
P-H	5320-117-6816	B029	RIVET, SOLID: SAME AS B025	EA	REF				REF	REF	REF	REF	REF	3-14	A1A2A2H4
P-H	5340	B030	CLIP: 6017-S4CC (91506)	EA	1				*	*	1	8	3	3-14	A1A2A2MP4
P-H	5320-637-5422	B031	RIVET, SOLID: MS20470A3-4 (96906)	EA	2				*	*	1	10	4	3-14	A1A2A2H2
X-H	6760	B032	ENCLOSURE:	EA	1									3-14	A12A2MPS
P-H	5310-866-3506	B033	NUT, SELF-LOCKING SAME AS B005	EA	REF				REF	REF	REF	REF	REF	3-14	A1A2A2H10
P-H	5999-221-1973	B034	GUIDE CIRCUIT CARD: 125OF (23880)	EA	2				*	1	1	13	6	3-14	A1A2MP
P-H	5899-221-1973	B034A	GUIDE CIRCUIT CARD: SAME AS B034	EA	REF				REF	REF	REF	REF	REF	3-14	A1A2MP4
P-H	5355-680-1357	B035	KNOB: MS91528-1F2B (96906)	EA	2				*	*	1	10	4	3-14	A1A2MPS
P-H	5355-680-1357	B035A	KNOB: SAME AS B035	EA	REF				REF	REF	REF	REF	REF	3-14	A1A2MP3
P-D	6240-155-7839	B035B	LAMP, INCANDESCENT: MS25237-327 (96906)	EA	4							59	40	3-14	A1A2DSI
P-D	6240-155-7836	B035C	LAMP, INCANDESCENT: SAME AS B035B	EA	REF							REF	REF	3-14	A1A2DS2
P-D	6240-155-7836	B035E	LAMP, INCANDESCENT: SAME AS B035B	EA	REF							REF	REF	3-14	A1A2DSS
P-D	6240-155-7836	BO35F	LAMP, INCANDESCENT: SAME AS B035B	EA	REF							REF	REF	3-14	A1A2DS4
P-H	6210-553-1076	B036	LIGHT, INDICATOR GREEN: MS25041-7 (96906)	EA	2				*	1	1	19	10	3-14	A1A2XDSI
P-H	6210-553-1076	B037	LIGHT, INDICATOR SAME AS B036	EA	REF				REF	REF	REF	REF	REF	3-14	A1A2XDS2
P-H	6210-635-4700	B038	LIGHT, INDICATOR AMBER: MSI5041-8 (98906)	EA	2				*	1	1	13	6	3-14	A1A2XDS6
P-H	6210-635-4700	B039	LIGHT, INDICATOR SAME AS 1038	EA	REF				REF	REF	REF	REF	REF	3-14	A1A2XDS4
P-H-T	6760-2165897	B040	PC BOARD, TEST SET ADAPTER: 2432-111 (11871)	EA	1				*	*	1	8	3	3-15	A1A2A3
P-D	5910-426-9594	B041	CAPACITOR, FIXED CERAMIC: M39014-2-0378 (81349)	EA	4							27	15	3-15	A1A2ASC1
P-D	5910-426-9594	B042	CAPACITOR, FPKED SAME AS B041	EA	REF							REF	REF	3-15	A1A2A3C3
P-D	5910-426-9594	B043	CAPACITOR, FIXED SAME AS B041*	EA	REF							REF	REF	3-15	A1A2ASCS
P-D	5910-426-9594	B044	CAPACITOR, FIXED SAME AS B041	EA	REF							REF	REF	3-15	A1A2ASC6

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-D	5910-0684298	B045 CAPACITOR, FIXED TANTALUM: M39003-01-2356 (81349)		EA	2							13	6	3-15	A1A2ASC2
P-D	5910-068-4298	B046 CAPACITOR, FI XED TANTALUM: SAME AS B045		EA	REF							REF	REF	3-15	A1A2A3C4
P-D	5910-858-5189	B047 CAPACITOR, FIXED ELECTROLYTIC: M39003-01-2377 (81349)		EA	2							13	6	3-15	A1A2A3C7
P-D	5910-858-5189	B048 CAPACITOR, FIXED ELECTROLYTIC: SAME AS BO47		EA	REF							REF	REF	3-15	A1A2A3C8
P-D	5935-005-2638	B049 CONNECTOR, RECEPTACLE ELECTRICAL: DCMM37PA (71488)		EA	1							8	3	3-15	A1A2A3P1
P-D	5340	B050 HANDLE: 35709 (97525)		EA	1							8	3	3-15	A1A2A3MP1
P-D	5315	B051 PIN, SPRING: 323009-15-00 (97525)		EA	2							13	6	3-15	A1A2A3H2
P-D	5962	B052 INTEGRATED CIRCUIT: SE55ST (18324)		EA	3							18	9	3-15	A1A2A3A1
P-D	5962	B053 INTEGRATED CIRCUIT: SAME AS B052		EA	REF							REF	REF	3-15	A1A2A3A2
P-D	5962	B054 INTEGRATED CIRCUIT: SAME AS 2052		EA	REF							REF	REF	3-15	A1A2A3A3
P-D	5961-831-8819	B055 MOUNTING PAD, ELECTRICAL: 10277DAP (07047)		EA	3							18	9	3-15	A1A2A3H3
X1-D	6760	9056 PRINTED CIRCUIT BOARD: 2432-112 (11871)		EA	1									3-15	A1A2A3MP2
P-D	5905-106-9356	B057 RESISTOR, FIXED COMPOSITION: RCR07G203JS (81349)		EA	5							27	15	3-15	A1A2A3R1
P-D	5905-106-9356	B058 RESISTOR, FIXED COMPOSITION: SAME AS 2057		EA	REF							REF	REF	3-15	A1A2A3R14
P-D	5905-106-9356	B059 RESISTOR, FIXED COMPOSITION: SAME AS B057		EA	REF							REF	REF	3-15	A1A2ASR15
P-D	5905-106-9356	B060 RESISTOR, FIXED COMPOSITION: SAME AS B057		EA	REF							REF	REF	3-15	A1A2ASR20
P-D	5905-106-9356	B061 RESISTOR, FIXED COMPOSITION: SAME AS B057		EA	REF							REF	REF	3-15	A1A2A3R21
P-D	5905-106-3666	B062 RESISTOR, FIXED COMPOSITION: RCR07G10O3JS (81349)		EA	6							27	15	3-15	A1A2ASR2
P-D	5905-106-3666	B063 RESISTOR, FIXED COMPOSITION: SAME AS B062		EA	REF							REF	REF	3-15	A1A2A3R10
P-D	5905-106-3666	B064 RESISTOR, FIXED COMPOSITION' SAME AS B062		EA	REF							REF	REF	3-15	A1A2A3R30
P-D	5905-106-3666	B065 RESISTOR, FIXED COMPOSITION: SAME AS B062		EA	REF							REF	REF	3-15	A1A2A3R31
P-D	590 5-106-3666	B066 RESISTOR, FIXED COMPOSITION: SAME AS B062		EA	REF							REF	REF	3-15	A1A2A3R32

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

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P-D	5905-106-3666	B067	RESISTOR, FIXED COMPOSMITON: SAME AS B062	EA	REF							REF	REF	3-15	AA2A3RS3
P-D	5905-141-1130	B068	RESISTOR, FIXED COMPOSITION: RCR20G272JS (81349)	EA	3							18	9	3-15	A1A2ASR3
P-D	5905-141-1130	B069	RESISTOR, FIXED COMPOSITION: SAME AS B068	EA	REF							REF	REF	3-15	A1A2A3R4
P-D	5905-141-1130	B070	RESISTOR, FIXED COMPOSITION: SAME AS B068	EA	REF							REF	REF	3-15	A1A2A3R29
P-D	5905-110-7620	B071	RESISTOR, FIXED COMPOSITION: RCR07G102JS (81349)	EA	8							40	25	3-15	A1A2A3R5
P-D	5905-110-7620	B072	RESISTOR, FIXED COMPOSITION: SAME AS B071	EA	REF							REF	REF	3-15	A1A2A3R12
P-D	5905-110-7620	B073	RESISTOR, FIXED COMPOSTION: SAME AS B071	EA	REF							REF	REF	3-15	A1A2A3R17
P-D	5905-110-7620	B074	RESISTOR, FIXED COMPOSITION: SAME AS B071	EA	REF							REF	REF	3-15	A1A2A3R18
P-D	5905-110-7620	B075	RESISTOR, FIXED COMPOSITION: SAME AS B071	EA	REF							REF	REF	3-15	A1A2ASR23
P-D	5905-110-7620	B076	RESISTOR, FIXED COMPOSTION: SAME AS B071	EA	REF							REF	REF	3-15	A1A2A3R24
P-D	5905-110-7620	B077	RESISTOR, FIXED COMPOSITION: SAME AS 2071	EA	REF							REF	REF	3-15	A1A2ASR25
P-D	5905-110-7620	B078	RESISTOR, FIXED COMPOSITION: SAME AS B3071	EA	REF							REF	REF	3-15	A12A3R26
P-D	5905	B079	RESISTOR, FIXED FILM: RNR60K5623FM (81349)	EA	1							8	3	3-15	A1A2ADR6
P-D	5905	B080	RESISTOR, FIXED FLM: RNR55KlI93FM (81349)	EA	1							8	3	3-15	A1A2A3R7
P-D	5905	B081	RESISTOR, FIXED FILM: RNR55K8662FM (81349)	EA	1							8	3	3-15	A1A2ASR8
P-D	5905	B082	RESISTOR, FIXED FILM: RNR65I IO562FM (81349)	EA	1							8	3	3-15	A1A2A3RO
P-D	5905-244-6934	B083	RESISTOR, FIXED COMPOSTION: RCR07G824JS (81349)	EA	1							8	3	3-15	A1A2ASR11
P-D	6905-141-0717	B084	RESISTOR, FIXED COMPOSITION: RCR07G47SJS (81349)	EA	2							13	6	3-15	A1A2A3R13
P-D	5905-1410717	B085	RESISTOR, FIXED COMPOSITION: SAME AS B084	EA	REF							REF	REF	3-15	A1A2A3R19
P-D	5905-43-6374	B086	RESISTOR, FIXED RCR07G823JS (81349)	EA	2							13	6	3-15	A1A2A3R16

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-D	5905-435-6374	B087 RESISTOR, FIXED COMPOSITION: SAME AS B086		EA	REF							REF	REF	3-15	A1A2A3R22
P-D	6905-01-8672	B088 RESISTOR, FIXED WIREWOUND: RW69V241 (81349)		EA	1							8	3	3-15	A1A2A3R27
P-D	5905	B089 RESISTOR, FIXED FILM: RNRSSK4992FM (81349)		EA	1							8	3	3-15	A1A2ASR28
P-D	5905-972-4687	B090 RESISTOR, FIXED WIREWOUND: RW70UIROOF (81S49)		EA	1							8	3	3-15	A1A2A3R34
P-D	$961-087-6047	B091 SEMICONDUCTOR DEVICE, DIODE: 1N645 (81349)		EA	15							59	40	3-15	A1A2ASCRI
P-D	5961-087-6047	B092 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2A3CR2
P-D	5961-087-6047	B093 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2A3CR3
P-D	5961-087-6047	B094 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2A3CR4
P-D	5961-087-6047	B095 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2A3CR5
P-D	5961-087-6047	B096 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2A3CR6
P-D	5961-087-6047	B097 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2A3CR7
P-D	5961-087-6047	3098 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2A3CR8
P-D	5981-087-6047	B099 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2ASCR9
P-D	5961-087-6047	B100 SEMICONDUCTOR DEVICE, DIODE: SAME AS B191		EA	REF							REF	REF	3-15	A1A2A3CR1O
P-D	5961-087-6047	B101 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2ASCR11
P-D	5961-087-6047	B102 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2A3CR12
P-D	5961-087-6047	B103 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2A3CR13
P-D	5961-087-6047	B104 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2A3CR14
P-D	5981-087-6047	B105 SEMICONDUCTOR DEVICE, DIODE: SAME AS B091		EA	REF							REF	REF	3-15	A1A2ASCR15
P-D	5961-147-9600	B1OS SEMICONDUCTOR DEVICE, DIODE: 1N4467 (81349)		EA	1							8	3	3-15	A1A2ASCR16
P-D	5961-949-1432	B107 TRANSISTOR: 2N2219A (81349)		EA	9							46	30	3-15	A1A2A3Q1

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-D	5961-949-1432	B108	TRANSISTOR: SAME AS R1O7	EA	REF							REF	REF	3-15	AAT2ASQ2
P-D	5961-949-1432	B109	TRANSISTOR: SAME AS B107	EA	REF							REF	REF	3-15	A1A2A3Q3
P-D	5961-949-1432	B11O	TRANSISTOR: SAME AS B107	EA	REF							REF	REF	3-15	A1A2A3Q4
P-D	5981-949-1432	B111	TRANSISTOR: SAME AS B107	EA	REF							REF	REF	3-15	AA2A3Q
P-D	5961-949-1432	B112	TRANSISTOR: SAME AS BLO7	EA	REF							REF	REF	3-15	A1A2A3Q6
P-D	5961-949-1432	B113	TRANSISTOR: SAME AS B107	EA	REF							REF	REF	3-15	A1A2A3Q7
P-D	5961-949-1432	B14	TRANSISTOR: SAME AS B107	EA	REF							REF	REF	3-15	A1A2A3Q8
P-D	5961-949-1432	B115	TRANSISTOR: SAME AS B107T	EA	REF							REF	REF	3-15	A1A2A3Q9
P-D	5961-963-6930	B116	MOUNTING PAD, ELECTRICAL: 10031OOSODAP (07047)	EA	REF							REF	REF	3-15	A1A2AMP2
P-D	5961-969-930	B116A	MOUNTNG PAD, ELECTRICAL: SAME AS B116	EA	REF							REF	REF	3-15	A1A2A3MP3
P-D	5961-963-6930	B116B	MOUNTING PAD, ELECTRICAL: SAME AS B116	EA	REF							REF	REF	3-15	A1A2A3MP4
P-D	5961-963-8930	B116C	MOUNTING PAD, ELECTRICAL: SAME AS B116	EA	REF							REF	REF	3-15	A1A2ASMPS
P-D	5961-963-6930	B116E	MOUNTING PAD, ELECTRICAL: SAME AS B116	EA	REF							REP	REF	3-15	A1A2A3MP6
P-D	5961-963-6930	BIIBF	MOUNTING PAD, ELECTRICAL: SAME AS Bl16	EA	REF							REF	REF	3-15	A1A2A3MP7
P-D	5961-963-6930	B16G	MOUNTING PAD, ELECTRICAL: SAME AS B116	EA	REF							REF	REF	3-15	A1A2A3MP8
P-D	5961-963-6930	B116H	MOUNTING PAD, ELECTRICAL: SAME AS B116	EA	REF							REF	REF	3-15	A1A2A3MP9
P-D	5961-963-6930	B116I	MOUNTING PAD, ELECTRICAL: SAME AS 1116	EA	REF							REF	REP	3-15	A1A2A3MP10
M-D	9905	B117	PLATE, IDENTIFICATION: 2432-114 (11871)	EA	1									3-14	A1A2A3MP7
P-H	5940-842-6483	B118	POST, BINDING, RED: PBOIFAO1 (81349)	EA	4				*	1	1	16		3-14	A1A2JS
P-H	5940-842-6483	B119	POST, BINDING, RED: SAME AS B118	EA	REF				REF	REF	REF	REF	REF	3-14	A1A2J7
P-H	5940-842-6483	B120	POST, BINDING, RED: SAME AS B118	EA	REF				REF	REF	REF	REF	REF	3-14	A1A2J9
P-H	5940-842-6483	B121	POST, BINDING, RED: SAME AS B118	EA	REF				REF	REF	REF	REF	REF	3-14	A1A2J11
P-H	5940-044-1683	B132	POST, BINDING, BLACK: PBO1FA02 (81349)	EA	4				*	1	1	16	8	3-14	A1A2J6
P-H	5940-044-183	B123	POST, BINDING, BLACK: SAME AS BL22	EA	REF				REF	REF	REF	REF	REF	3-14	A1A2JS
P-H	5940-044-1583	B124	POST, BINDING, BLACK: SAME AS MB22	EA	REF				REF	REF	REF	REF	REF	3-14	A1A2JI0

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-H	5940-044-183	B125	POST, BINDING, BLACK: SAME AS B122	EA	REF			REF	REF	REF		REF	REF	3-14	A1A2J12
P-H	3905	B126	RESISTOR, FLYED WIREWOUND: RER65F200M (81349)	EA	1			2	2	2		29	20	3-14	A1A2R2
P-H	5306-04-5638	B127	SCREW, MACHINE: M851957-4 (96906)	EA	2			*	*	2		8	4	3-14	A1A2H2
P-H	5340-275-0912	B128	SHIM: CAVIO-SB (11871)	EA	2			*	*	2		8	4	3-14	A1A2H2
P-H	5310-622-1724	B129	NUT, SELF-LOCKING: SAME AS B017	EA	REF			REF	REF	REF		REF	REF	3-14	A1A2H2
P-H	5905-110-019	B5130	RESISTOR, FMIED COMPOSITION: RC20G102JS (81349)	EA	1			2	2	2		29	20	3-14	A1A2RI
P-H	5930	B131	SWITCH, ROTARY: 5-22233-701 (768554)	EA	1			*	*	2		8	3	3-14	A1A2S6
P-H	5930	B132	SWITCH, ROTARY: 5-11373-761 (76854)	EA	1			*	*	2		8	3	3-14	A1A2S6
P-H	5930-068-1625	B133	SWITCH, TOGGLE: MS24523-31 (96906)	EA	1			*	*	2		8	3	3-14	A1A2S1
P-H	5930-501-1749	B134	SWITCH, PUSH: MS25089-3C (96906)	EA	3			*	2	2		16	9	3-14	A1A2S2
P-H	5930-501-1749	B135	SWITCH, PUSH: SAME AS B134	EA	REF			REF	REF	REF		REF	REF	3-14	A1A2S9
P-H	5930-501-1749	BIS	SWITCH, PUSH: SAME AS B134	EA	REF			REF	REF	REF		REF	REF	3-14	A1A2S4
P-H	5935-222-7322	B1S7	DUMMY, CONNECTOR RECEPTACLE: 97-181-16 (02660)	EA	1			*	*	2		8	3	3-14	A1A2MP8
P-H	5305	B1S8	SCREW, MACHINE: CAV7S-4-5P (11874	EA	4			1	1	1		22	12	3-14	A1A2H4
P-H	6510-208-9287	B139	NUT, SELF-LOCKING: SAME AS B013	EA	REF			REF	REF	REF		REF	REF	3-14	A1A2H4
P-H	6940-082-4652	B140	TERMINAL, STUD: SE20XD01 (81S49)	EA	2			*	1	1		13	6	3-14	A1A2MP9
P-H	5940-082-4652	B140A	TERMINAL, STUD: SAME AS B140	EA	REF			REF	REF	REF		REF	REF	3-14	A1A2MPIO
P-H	5306-054-5646	B141	SCREW, MACHINE: MS51957-12 (9906)	EA	2			*	*	2		8	4	3-14	A1A2H2
P-H	5310-782-1349	B142	WASHER, FLAT: SAME AS BO12	EA	REF			REF	REF	REF		REF	REF	3-14	A1A2H2
P-D		B143	SCREW, BRASS KNURLED SHIELD R4-4OUNC-2Bx-4: COML	EA	2							8	4	3-14	A1A2H2
P-H	5310-782-1349	B144	WASHER, FLAT: SAME AS B012	EA	REF			REF	REF	REF		REF	REF	3-14	A1A2BH
P-H	5310-933-8118	B145	WASHER, LOCK: MS95338-135 (96906)	EA	2			*	*	2		8	4	3-14	A1A2R
P-H	5365	B146	SPACER: 8215A0440 (08540)	EA	2			*	*	2		8	4	3-14	A1A2MP1l
P-H	5365	B146A	SPACER: SAME AS B146	EA	REF			REF	REF	REF		REF	REF	3-14	A1A2MP12
P-H	5305-054-5647	B147	SCREW, MACHINE: SAME AS 5019	EA	REF			REF	REF	REF		REF	REF	3-14	A1A2H2
P-H	5310-782-1349	B148	WASHER, FLAT: SAME AS 5012	EA	REF			REF	REF	REF		REF	REF	3-14	A1A2H2
P-H	5935-7168-8591	B149	SHIELD, ELECTRICAL CONNECTOR: DE24657 (71468)	EA	1			*	*	1		8	3	3-14	A1A2MP1S

SECTION II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(7) 30-DAY GS MAINT ALLOWANCE (a) 1-20	(b) 21-50	(c) 51-100	(8) 1 YR ALW PER EQUIP CNTGCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REF. DESIGN.
P-H	5940-583-7741	B160	TERMINAL, LIW: 2104-10-00 (78189	EA	6				2	2	2	36	25	3-14	A1A2EI
P-H	5940	B151	TERMINAL, LIG: 2104-04-01 (78189)	EA	2				*	*	2	8	3	3-14	A1A2E2
P-H	5975	B152	TIEDOWN, ELECTRICAL COMPONENT: TY46MDO (59730)	EA	2				*	*	2	8	3	3-14	A1AIMP14
P-H	5975	B153	TIEDOWN, ELECTRICAL COMPONENT: SAME AS B152	EA	REF				REF	REF	REF	REF	REF	3-14	A12MP1S

SECTION IV. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

FEDERAL STOCK NO.	FIGURE NUMBER	ITEM NO OR REFERENCE DESIGNATION
4150-134-4212	3-31 (2)	A2A1B1
5305-550-5001		A2A2H2
5305-576-7272		AA1A113H2
5305-591-9321		A1A1A14H4
5305-591-9321		A1AlA14H26
5305-591-9321		A1A1A14H7
5305-591-9321		A1A1A14H24
5305-591-9321		A1AlHL1
5305-591-9321		A1A1HL4
5305-591-9321		A1AlA14H1
5305-615-5079		A1AlH17
5305-615-5079		A1A1K19
5305-615-5079		A1A1H21
5305-615-5079		A1AlH23
5305-615-5079		AALH25
5305-615-5079		A1A1H27
5305-615-5079		A1AlH30
5305-638-0653		A2A2H4
5305-639-8291	3-6 (1)	A1A1A13H7
5305-639-8291		A1A1A13H9
5305-800-9411		A1AlH5
5305-800-9411		A1A1H8
5305-802-1535	3-31 (1)	A2A1H35
5305-802-1535	3-31 (1)	A2A1H38
5305-802-1537		A2A1A2H8
5305-802-7927		A1A1A13H4
5305-802-7927		AA1A13H1
5305-992-5916		A2A1H7
5310-043-1754		AAlHLI2
5310-043-1754		A1AlH15
5310-043-1754		A2A1H13
5310-043-1754		A2A1HL5
5310-058-2951		A2A1H8
5310-058-2951		A2AHL18
5310-058-2951		A2A1H33
5310-167-0812		A2AlH10
5310-167-0812		A2A1H20
5310-167-0812		A2A1H34
5310-208-4043		A2A1HL1
5310-208-4043		A2A1H21
5310-208-4043		A2A1H31
5310-209-1366		A1A1AL4H2
5310-209-1366		A1AA14H5
5310-209-1366		A1AlA14H27
5310-209-1366		A1A1A14HS
5310-209-1366		A1A1A14HLK
5310-264-6800		A2A1129
5310-281-9843		AA1H8
5310-281-9843		A1A1H20
5310-281-9843		A1AlH22
5310-281-9843		A1A1H24
5310-281-9843		A1A1H26
5310-281-9843		A1A1H28
5310-281-9843		A1A1H31
5310-281-9845		A1A1A13H
5310-281-9845		A1A1A13HLO
531-330-5065		A2ALH43
5310-497-3901		A1AlA14H25
5310-595-6425	3-31 (1)	A2ALH36
5310-595-6425	3-31 (1)	A2A.1H39
5310-596-7981		A1ALH7
5310-596-7981		A1AH1O
5310-614-3500	3-31 (1)	A2A1H37
5310-614-3500	3-31 (1)	A2ALH40
5310-614-3500		A2A2H6
5310-622-1724		A1A1A4HL7
5310-622-1754		A1A1A14EI9
5310-622-1724		A1AA14H21
5310-622-1724		A4IA1A4H23
5310-638-9857		AA1AL4H3
5310-638-9857		A1A14H6
5310-638-9857		A1AlA14H28
5310-638-9857		A1AlA14H9
5310-638-9857		A1A1Al4HL2
5310-638-9857		A2A1H3
5310-638-9857		A2A1H5
5310-638-9857		A2AlH16
5310-638-9857		A2A1H24
5310-638-9857		A2A1H26
5310-638-9857		A2A1H42
5310-680-7543		A1A1A3H3
5310-680-7543		A1A1A13H6
5310-680-7543		A1A1A13Hll
5310-680-7543		A2A1H6
5310-680-7543		A2A1H22
5310-680-7543		A2A1N44
5310-722-5998		AA1lHL3
5310-722-5998		A1AlH6
5310-821-3576		A1A1A13A1MP4
5310-821-3576		A1AlA14A16MP2
5310-888-6488		A1H2
5310-958-5941		A2A1A2H7
5310-958-5941		A2A1A2H9
5320-558-9040		A1A1A13HL
5320-558-9040		A1AlA14A16MP3
5320-721-8973		AAA1AL3A1H2
5320-721-8973		A2A2AlHl
5325-141-4003		A2A2MP1
5325-355-8963		A2A2A1MP2
5340-282-7966		A2ALMP14
5340-598-5287		ALWIMP10
5340-598-5387		ALW6MP6
5340-598-5287		A1W8MP8
5340-598-5379		AlW1MP1l
5340-598-5416		AW6MP7
5340-727-5153		AWIMP4
5340-727-5153		AlW24P5
5340-727-5153		A1W3MP5
5340-727-5153		A1W4MP5
5355-926-5505	3-1 (1)	A1A1MP14
5340-727-5153		AlW5MP5
5340-727-5153		ALWEUP4
5340-727-5153		A1W7MP4
5340-727-5153		A1W8MP4
5340-727-5153		A2W10MP4
5340-727-5153		A2W9MP4
5340-753-3716		A2A2H3
5340-753-3716		A2A2H5
5355-682-6753	3-1 (1)	A1A1MP12
5355-751-7597	3-1 (1)	A1A1MP13
5905-087-6593	3-7 (1)	A1AA1l4RlO
5905-087-6593	3-7 (1)	A1A1A14R11
5905-171-1998	3-9	A1AlA14A1OR7
5905-171-1998	3-9	A1A1A4AOR8
5905-171-1998	3-9	A1AA14A10R15
5905-11-1998	3-9	AA1A1A142R7
5905-171-1998	3-9	A1AA14A12R8
5905-171-1998	3-9	A1A1A14A12R15
5905-171-1998	3-9	A1A1A14AL4R7
5905-171-1998	3-9	A1A1A14A14R8
5905-171-1998	3-9	A1AA14A14R15
5905-171-1998	3-10	A1AA14A11R2
59v5-171-1998	3-10	AAlIA1L4A1R3
5905-171-1998	3-10	A1A1A14A11Il
5905-171-1998	3-10	A1A1A14A13R2
5905-171-1-998	3-10	A1A1A14A13R3
5905-171-1998	3-10	A1A1A14A13R11
5905-171-1998	3-10	A1A1A14A15R2
5905-171-1998	3-10	A1AlA14A15R3
5905-171-1998	3-10	A1AlA1A15R11

SECTION IV. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

FEDERAL STOCK NO.	FIGURE NUMBER	ITEM NO OR REFERENCE DESIGNATION
5905-171-2000	3-8	A1A1A4A9R8
5905-171-2004	3-10	A1ALA14Al9RL
5905-171-2004	3-10	A1ALA14A11R4
5905-171-2004	3-10	A1ALA14A13R1
5905-171-2004	3-10	A1A1A14A13R4
5905-171-2004	3-10	A1A1A14A15R1
5905-171-2004	3-10	A1A1A14A15R4
5905-171-2004	3-11	A1A1A14A16R2
5905-171-2004	3-11	A1A1A14A16R8
5905-171-2004	3-11	A1A1A14A16RL2
5905-171-2004	3-11	A1A1A14A16Rl7
5905-185-8510	3-11	AA14A163R7
5905-185-8510	3-6 (1)	A1AA13R26
5905-185-8510	3-6 (2)	A1A1A13R42
5905-185-8510	3-6 (2)	A1A1A13R45
5905-185-8510	3-6 (2)	A1A1A13R48
5905-185-8510	3-6 (2)	A1A1A13R51
5905-185-8510	3-6 (2)	A1A1A13R58
5905-185-8510	3-6 (2)	A1AlA13R59
5905-185-8510	3-6 (2)	A1A1A13R62
5905-185-8510	3-6 (2)	A1AlA13R67
5905-185-8510	3-9	A1A1A14A10R9
5905-185-8510	3-9	A1A1Al4A12R9
5905-185-8510	3-9	A1A1AA14Al4R9
5905-185-8510	3-10	A1AAl4A11R5
5905-185-8510	3-10	A1A1A14AL3R5
5905-185-8510	3-8	A1AlA14A9R3
5905-185-8510	3-11	A1A1A14A16R21
5905-185-8510	3-11	A1AlA14A16R22
5905-185-8510	3-11	A1A1A14A16R24
5905-185-8510	3-3	A1ALA1OR35
5905-192-0390	3-6 (2)	A1A1A13R66
5905-192-0390	3-6 (1)	A1A1A13R70
5905-192-0390	3-6 (1)	AUlAA13R71
5905-192-0390	3-7 (1)	A1A1A14RL7
5905-192-0660	3-9	A1A1A14A10R1
5905-192-0660	3-9	A1A1A14A10R2
5905-192-0660	3-9	A1A1A1A14A10R3
5905-192-0660	3-9	A1A1A14Al2R1
5905-192-0660	3-9	A1A1A14A12R2
5905-192-0660	3-9	A1A1A14A12R3
5905-192-0660	3-9	A1A1A14A14R1
5905-192-0660	3-9	A1AlA14A14R2
5905-192-0660	3-9	A1A1A14A14R3
5905-192-0667	3-11	A1A1A14A16RL
5905-192-3973	3-6 (2)	A1AA13R69
5905-195-6761	3-6 (1)	A1ALA13R20
5905-195-6761	3-6 (2)	A1A1A13R41
5905-195-6761	3-6 (2)	AL1Al3R44
5905-195-6761	3-6 (2)	AA1A13R47
5905-195-6761	3-6 (2)	A1A1A13R50O
5905-195-6761	3-7 (1)	A1A1A14RL3
5905-195-6761	3-7 (1)	A1A1Al4RL4
5905-195-6761	3-11	A1A1A146R5
5905-195-6761	3-11	A1A1A14A16Rl3
5905-195-6761	3-11	A1A1A14AL6R23
5905-195-6800	3-6 (2)	A1A1A13R39
5905-195-6806	3-4	A1AA1llR54
5905-195-6806	3-4	A1A1A1lR55
5905-195-6806	3-4	A1A1AlR56
5905-195-6806	3-6 (1)	A1AlA13R23
5905-195-6806	3-6 (2)	A1AlA13R25
5905-195-6806	3-6 (2)	A1A1A1368
5905-195-6806	3-9	A1Al1Al4AORL
5905-195-6806	3-9	A1A1A14A10RL1
5905-195-6806	3-9	A1A1A14A10RL3
5905-195-6806	3-9	A1A1A14A12
5905-195-6806	3-9	A1A1A14A12RL1
5905-195-6806	3-9	A1A1A14A12Rl3
5905-195-6806	3-9	A1A1A14AL4RLO

FEDERAL STOCK NO.	FIGURE NUMBER	ITEM NO. OR REFERENCE DESIGNATION
5905-195-68S6	3-9	A1A1A14A4RIl
5905-195-6806	3-9	A1AA14A14Rl3
5905-195-6806	3-10	AA1A14A11R6
5905-195-6806	3-10	AAA1A4A11R7
5905-195-6806	3-10	A1A1A14A11R8
5905-195-6806	3-10	A1A1A14Al3R6
5905-195-6806	3-10	A1AA1A4A13R7
5905-195-6806	3-10	A1A1A14A13R8
5905-195-6806	3-10	A1AlA14A15R6
5905-195-6806	3-10	A1A1A14A15R7
5905-195-6806	3-10	A1AA1A4A15R8
5905-195-6806	3-7 (1)	A1A1A14RA152
5905-195-6506	3-7 (1)	A1A1A14R39
5905-195-6806	3-8	A1A1A14A9R6
5905-195-6306	3-11	A1A1Al4A16R9
5905-19-S806	3-11	A1A1A14A165Rl
5905-252-4018	3-11	A1A14A16R25
5905-252-5434	3-11	A1A14A16R7
5905-252-543'4	3-11	A1A1414A16R13
5905-253-1231	3-6 (1)	A1A14A13R4
5905-254-9201	3-7 (1)	A1A1A14R18
5905-254-9201	3-8	A1A1A14A9R5
5905-254-9201	3-11	A1A1A14A16R16
5905-254-9201		A1A1A14A16R20
5905-279-1752	3-6 (2)	A1A1A13R57
5905-279-1752	3-6 (2)	A1A1A13R60
5905-279-1753	3-3	A1AlA1OR33
5905-279-1757	3-6 (2)	A1A1A13R40
5903-279-1757	3-6 (2)	A1A1A13R43
5905-279-1757	3-6 (2)	A1A1A13R46
5905-279-1757	3-6 (2)	A1A1A13R49
5905-279-1757	3-10	A1A1A14A11R12
5905-279-1757	3-10	A1A1A14A13R12
5905-279-1757	3-10	A1A1A14A15R12
5905-279-1876	3-9	A1AlA14A10R4
5905-279-1876	3-9	A1A1A14A10R5
5905-279-1876	3-9	A1A1A14A11R6
5905-279-1876	3-9	A1A1A14A12R4
5905-279-1876	3-9	A1AlA14A12R5
5905-279-1876	3-9	A1A1A14A12R6
5905-279-1876	3-9	A1AL1A14Al2R4
5905-279-1876	3-9	A1A1AA14A4R5
5905-279-1876	3-9	A1A1A14A14R6
5905-279-1876	3-7 (1)	A1A1A14R32
5905-279-1876	3-8	AA1Al14A9R7
5905-279-1876	3-8	A1AlA14A9RlO
5905-279-1876	3-7 (1)	A1AlA14R4
5905-279-1880	3-7 (1)	A1AlA14R72
5905-279-2519	3-6 (1)	A1AA13R28
5905-279-2522	3-9	A1AlA14A10R12
5905-279-2522	3-9	A1A1A14A12RL2
5905-279-2522	3-9	A1A1A14AR2
5905-279-2522	3-10	A1A1A14Al1R9
5905-279-2522	3-10	A1AlA14A13R9
5905-279-2522	3-10	A1AA14A15R9
5905-279-2674	3-6 (1)	A1A1A13R63
5905-279-3494	3-6 (2)	A1A1A13R24
5905-279-3500	3-6 (1)	A1A1A13R29
5905-279-3500	3-7 (1)	A1A1A14RL9
5905-279-3500	3-31 (2)	A2A1A2U9
5905-279-3500	3-31 (2)	A2A1A2R2
5905-279-3500	3-31 (2)	A2A1A2R3
5905-279-3503	3-4	A1A1A11R53
5905-279-3504	3-6 (1)	A1AlA13R21
5905-279-3504	3-6 (2)	A1A1A13R38
5905-279-3504	3-6 (2)	A1A1A13R65
5905-279-3504	3-8	A1A1A14A9R2
5905-279-3504	3-8	A1A1A14A9R4
5905-279-3504	3-11	A1AlA14A16R3
5905-279-3504	3-11	A6 A1Al4Al6RlO

SECTION IV. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

FEDERAL STOCK NO.	FIGURE NUMBER	ITEM NO OR REFERENCE DESIGNATION
5905-279-3504	3-11	A1AA14A16Ril
5905-279-3504	3-11	A1AlA14A16R14
5905-279-3504	3-11	A1A1A14A16R19
5905-279-3505	3-6 (1)	A1A1A13R5
5905-279-3513	3-7 (1)	A1AlA14R37
5905-279-3514	3-11	AA1A14A16R15
5905-299-1541	3-9	A1A1A14A10R14
5905-299-1541	3-9	A1A1A14A12Rl4
5905-299-1541	3-9	A1A1A14A14R14
5905-299-1541	3-10	A1A1A14A11R0
5905-299-1541	3-10	A1A1A14A13R10
5905-299-1541	3-10	A1A1A14A15R10
5905-299-1541	3-7 (1)	A1A1A14R16
5905-299-1971	3-3	A1AA1lOR34
5905-299-1971	3-8	A1AlA14A9R1
5905-473-5251	3-5	A1A12R52
5905-617-8016	3-1 (1)	A1A1R6
5905-730-6523	3-1 (2)	A1A1R1
5905-780-8544	3-6 (1)	A1A1A13R2
5905-834-6266	3-8	A1AlA14A9R9
5905-937-1637	3-11	A1AlA14A16R6
5905-975-1145	3-6 (1)	A1A1A13R3
5905-978-7095	3-6 (1)	A1A1A13R64
5905-989-6500	3-6 (1)	A1AlA13R8
5910-682-2543		A1A1A13MP2
5905-814-3871	3-7 (1)	A1AA1A4R36
5910-837-1640	3-8	A1AlA14A9C1
5910-837-1640	3-8	A1A1A14A9C2
5910-837-1641	3-11	A1AlA14A16C7
5910-837-1644	3-11	A1A1A14A16C1
5910-837-1646	3-6 (1)	A1A1A13C9
5910-837-1648	3-6 (1)	A1A1A13C1
5910-837-1649	3-6 (1)	A1AlA13C3
5910-905-0675	3-11	A1AlA14A16C9
5910-913-0231	3-11	A1AAl14A16C5
5910-924-7298	3-11	A1A1A14A16C10
5910-933-6628	3-7 (1)	A1A1A14C2
5910-933-6628	3-7 (1)	A1A1A14C5
5910-947-8290	3-7 (1)	A1A1A14C13
5910-947-8290	3-11	A1A1A14A16C2
5910-947-8290	3-11	A1A1A14A16C3
5910-947-8290	3-11	A1A1A14A16C4
5910-947-8290	3-11	A1A1A14A16C8
5910-984-3530	3-6 (1)	A1A1A13C11
5910-999-4662	3-9	A1ALA14A10C1
5910-999-4662	3-9	A1A1A14A10C2
5910-999-4662	3-9	A1A1A14A12C1
5910-999-4662	3-9	A1A1A14A12C2
5910-999-4662	3-9	A1A1A14A14C1
5910-999-4662	3-9	A1A1A4A14C2
5910-999-4662	3-10	A1A1A14AllC1
5910-999-4662	3-10	A1A1A14A11C2
5910-999-4662	3-10	A1AlA14A13C1
5910-999-4662	3-10	A1A1A14A13C2
5910-999-4662	3-10	A1AlA14A15C1
5910-999-4662	3-10	A1A1A14A15C2
5915-267-8911	3-6 (1)	A1AA1A3FLI
5915-937-5004	3-31 (2)	A2A1FL1
5915-937-5004	3-31 (2)	A2A1FL2
5915-937-5004	3-31 (2)	A2A1FL3
5915-999-4816	3-31(1)	A2A1A1
5920-290-1517	3-1 (1)	A1A1FL
5920-290-1517	3-1 (1)	A1A1F2
5920-556-0144	3-1 (1)	A1AlXF1
5920-556-0144	3-1 (1)	A1A1XF2
5925-752-6427	3-31 (1)	A2A1CB1
5925-752-6427	3-31 (1)	A2A1CB2
5925-752-6427	3-31 (1)	A2A1CB3
5925-752-6430	3-31 (1)	A2A1CB5
5925-752-6430	3-31 (1)	A2A1CB6
5930-504-6223	3-1 (1)	A1A1S2
5930-504-6223	3-1 (1)	A1A1S4
5930-655-1515	3-1 (1)	A1A1S3
5930-655-1575	3-1 (1)	A1A1S1
5930-669-7286	3-1 (1)	A1A1S5
5930-835-4742	3-1 (1)	A1A1A9S6
5930-836-1934	3-1 (1)	A1AlA12S9
5930-835-4731	3-1 (1)	A1AlA15S8
5930-836-1933	3-1 (1)	A1A1A10S7
5930-835-4785	3-1 (1)	A1A1A11S10
5935-062-5083	3-1 (1)	A1A1J2
5935-201-3031		A2W10P2
5935-223-0572		A1WlMP5
5935-223-0572		A1W4MP4
5935-223-0572		A2WLOMP5
5935-227-8394		A1WlP2
5935-280-2353		A1WlMP6
5935-704-5836		A1W5P1
5935-704-5840		A1W5P2
5935-762-1495		A1WIP1
5935-772-9261		A1W3P2
5935-779-8294		A1W4P2
5935-783-5368		A1W2P2
5935-811-8869	3-1 (1)	A1A1J15
5935-819-0429	3-1 (1)	A1A1J3
5935-825-8862	3-1 (1)	A1AlJ17
5935-826-1007	3-1 (1)	A1A1J1
5935-827-1545	3-1 (1)	A1A1J16
5935-835-4448		A1WLP3
5935-836-0423		A2W9P1
5935-899-9456		A1W3P1
5935-935-2120		A1W6P1
5935-963-6181	3-1(1)	A1A1J13
5935-989-8233		A1W7P1
5935-989-8233		A1W7P2
5935-992-0302		A2W9P2
5935-992-0303		A2W10P1
5935-992-0309	3-31 (1)	A2A1J2
5935-992-0312	3-31 (1)	A2A1J1
5940-080-2924	3-1 (1)	A1A1J12
5940-156-7344		A1A1A13MP7
5940-156-7344		A1A1A14MP6
5940-577-3711		A1A1A13MP5
5940-581-7901		A1A1A13ALMP3
5940-581-7901		A1A1A14A16MP5
5940-581-7901		A1A1A14A10A1MP2
5940-581-7901		A1A1A14A12AlMP2
5940-581-7901		A1A1A14A14AlMP2
5940-581-7901		A1A1A14A11ALMP2
5940-581-7901		A1A1A14A13ALMP2
5940-581-7901		A1A1A14A15ALMP2
5940-583-7242		A1A1TB1A1MP1
5940-583-7741		A1ALMP8
5940-615-2514		A2A1A2ALMP2
5940-615-5738		A1W5MP7
5940-682-2477		A1AlA13MP6
5940-682-2477		A1A1MPL0
5940-682-2477		A2AlMP13
5940-683-4671		A1A1A13AlMP2
5940-683-4671		A1ALAL4A16MP4
5940-688-3743		A1A1M9
5940-722-4352		A1A1A14MP3
5940-722-4352		A1W2MP6
5940-722-4352		A1W3MP6
5940-722-4352		A1W5MP4
5940-722-4352		A1W8MP5

SECTION IV. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

FEDERAL STOCK NO.	FIGURE NUMBER	ITEM NO OR REFERENCE DESIGNATION
5940-730-4873	3-1 (1)	A1A1J4
5940-730-4873	3-1 (1)	A1A1J5
5940-730-4873	3-1 (1)	AA1J7
5940-730-4873	3-1 (1)	A1A1J9
5940-730-4873	3-1 (1)	A1AlJ11
5945-808-6345	3-31 (2)	A2A1K1
5945-823-2970	3-7 (1)	A1A1A14K1
5945-823-2970	3-7 (1)	A1A1A14K2
5945-823-2970	3-7 (1)	A1ALA14K3
5960-991-8781		A1A1A143MP3
5960-991-8781		A1AA14A10MPL
5960-991-8781		A1A1A14A12MPL
5960-991-8781	3-9	A1A1A14A14MP1
5960-991-8781		A1A14A14MPL
5960-991-8781		A1A1A14A13MP1
5960-991-8781		AL1A1A4A15MP
5960-991-8781		A1A1A14MP4
5961-064-2379	3-6 (1)	A1A1A13CR68
5961-064-2379	3-6 (1)	A1A1A13CR69
5961-723-3602	3-6 (1)	A1A1A13CR1
5961-723-3602	3-6 (1)	AA1A13CR2
5961-723-3602	3-6 (1)	A1A1A13CR3
5961-723-3602	3-6 (1)	A1A1A13CR4
5961-752-6115	3-7 (1)	A1AA1A14CR
5961-813-9360	3-6 (1)	AA1A13Ql6
5961-813-9360	3-6 (1)	A1A1A13Q6
5961-813-9360	3-6 (2)	A1AA13Q7
5961-813-9360	3-6 (1)	A1A1A13Q9
5961-813-9360	3-6 (2)	A1A1A13QL
5961-813-9360	3-6 (2)	AA1A13Q1l2
5961-813-9360	3-6 (2)	A1ALA13Q14
5961-813-9360	3-6 (2)	A1AA13Q16
5961-813-9360	3-6 (2)	A1A1Al3Q8
5961-813-9360	3-6 (2)	A1A1A13Q2
5961-813-9360	3-7 (1)	A1A1A14Q2
5961-813-9360	3-7	A1A1A14Q4
5961-813-9360	3-8	A1AA14A9Q1
5961-813-9360	3-11	A1A1A14A16Q1
5961-813-9360	3-11	A1ALA14A16Q2
5961-813-9360	3-11	AA1A14A16Q3
5961-813-9360	3-11	A1A1A14A16Q4
5961-813-9360	3-11	A1ALA14A16Q5
5961-813-9360	3-11	A1ALA14AL6Q6
5961-840-5466	3-12	A1ALA15CR47
5961-840-5466	3-12	A1A1A15CR48
5961-840-5466	3-12	A1A1A15CR49
5961-840-5466	3-12	A1A1A15CR50
5961-840-5466	3-12	A1A1A15CR51
5961-840-5466	3-12	A1A1A15CR52
5961-840-5466	3-12	A1ALA15CR54
5961-840-5466	3-12	A1ALA15CR55
5961-840-5466	3-12	A1A1A15CR56
5961-840-5466	3-12	A1ALA15CR57
5961-840-5466	3-12	A1A1A15CR58
5961-840-5466	3-12	A1A15CR59
5961-840-5466	3-12	A1A1A15CR60
5961-840-5466	3-12	A1A1A15CR61
5961-840-5466	3-12	A1A1A15CR62
5961-840-5466	3-12	AllA15CR63
5961-840-5466	3-4	A1lA11ACR66
5961-840-5466	3-6 (1)	A1AAl13CRL4
5961-840-5466	3-6 (2)	A1A13CRl6
5961-840-5466	3-6 (1)	A1A1AL3CR17
5961-840-5466	3-6 (1)	A1A1A13CRl8
5961-840-5466	3-6 (2)	A1A13CR36
5961-840-5466	3-6 (2)	A1A1A13CR37
5961-840-5466	3-6 (2)	A1AA3CR40
5961-840-5466	3-6 (2)	A1AL13CR42
5961-840-5466	3-6 (2)	A1A1A13cR43
5961-840-5466	3-6 (2)	A1A1A13CR44
5961-840-5466	3-6 (2)	A1A1A13CR45
5961-840-5466	3-6 (2)	A1A1A13CR46
5961-840-5466	3-6 (1)	A1A1A13CR64
5961-840-5466	3-6 (2)	A1A1A13CR65
5961-840-5466	3-6 (1)	A1A1A13CR73
5961-840-5466	3-9	A1A1A14A10CR1
5961-840-5466	3-9	A1ALA14A10CR2
5961-840-5466	3-9	A1LAA14A10CR3
5961-840-5466	3-9	A1A1A14AlocR4
5961-840-5466	3-9	A1A1A14A10CR5
5961-840-5466	3-9	A1A1A14A10CR6
5961-840-5466	3-9	A1ALA14A12CRi
5961-840-5466	3-9	A1A1A14A12CR2
5961-840-5466	3-9	A1A1A14A12CR3
5961-840-5466	3-9	A1A1A14A12CR4
5961-840-5466	3-9	A1A1A14A12CR5
5961-840-5466	3-9	A1A1A14A12CR6
5961-840-5466	3-9	A1A1A14A14CRL
5961-840-5466	3-9	A1A1A14A14CR2
5961-840-5466	3-9	A1A1A14A14CR3
5961-840-5466	3-9	A1ALA14A14CR4
5961-840-5466	3-9	A1ALA14A14CR5
5961-840-5466	3-9	A1A1A14A14CR6
5961-840-5466	3-10	A1A1A14A11CRL
5961-840-5466	3-10	A1A1A14A11CR2
5961-840-5466	3-10	A1ALA14A11CR3
5961-840-5466	3-10	A1ALA14A11CR4
5961-840-5466	3-10	A1A1A14A11CR5
5961-840-5466	3-10	A1ALA14A13CR1
5961-840-5466	3-10	A1ALA14A13CR2
5961-840-5466	3-10	A1A1A14A13CR3
5961-840-5466	3-10	A1A1A14A13CR4
5961-840-5466	3-10	A1A1A14A13CR5
5961-840-5466	3-10	A1LA1A4A15CRL
5961-840-5466	3-10	A1A1A14A15CR2
5961-840-5466	3-10	A1A1A14A15CR3
5961-840-5466	3-10	A1A1A14A15CR4
5961-840-5466	3-10	A1ALA14A15CRS
5961-840-5466	3-7 (1)	A1A1A14CR7
5961-840-5466	3-7 (1)	A1A1A14CR8
5961-840-5466	3-7 (1)	A1A1A14CR9
5961-840-5466	3-7 (1)	A1AA14CRLO
5961-840-5466	3-7 (1)	A1A1A14CRL1
5961-840-5466	3-7 (1)	A1A1A14CRl2
5961-840-5466	3-7 (1)	A1A1A14CRl3
5961-840-5466	3-7 (1)	A1A1A14CR19
5961-840-5466	3-7 (1)	AA1A14CR20
5961-840-5466	3-7 (1)	A1A1A14CR22
5961-840-5466	3-7 (1)	A1A1A14CR23
5961-840-5466	3-7 (1)	A1A1A14CR24
5961-840-5466	3-7 (1)	AA1A1A4CR25
5961-840-5466	3-7 (1)	A1A1A14CR26
5961-840-5466	3-7 (1)	A1A1A14CR27
5961-840-5466	3-7 (1)	A1A1A14CR28
5961-840-5466	3-7 (1)	A1AA14CR29
5961-840-5466	3-7 (1)	A1A1A14CR21
5961-840-5466	3-7 (1)	A1A1A14CR30
5961-840-5466	3-7 (1)	A1AA14CR31
5961-840-5466	3-7 (1)	A1A1A14CR32
5961-840-5466	3-7 (1)	A1AA14CR33
5961-840-5466	3-7 (1)	A1A1A14CR34
5961-840-5466	3-7 (1)	A1ALA14CR35
5961-840-5466	3-7 (1)	A1A1A14CR38
5961-840-5466	3-7 (1)	A1A1A14CR39
596i-84A-5466	3-7 (1)	A1AA14CR41
5961-840-5466	3-7 (1)	A1A1A14CR67
5961-840-5466	3-7 (1)	A1A1A14CR70
5961-840-5466	3-7	A1A1A14CR71
5961-840-5466	3-7	A1AA14CR72
5961-840-5466	3-8	A1A1A14A9CR1

SECTION IV. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

FEDERAL STOCK NO.	FIGURE NUMBER	ITEM NO OR REFERENCE DESIGNATION
5961-840-5466	3-8	A1A1A14A9CR2
5961-840-5466	3-8	A1A1A14A9CR3
5961-840-5466	3-8	A1A1A14A9CR4
5961-840-5466	3-11	A1A1A14A16CR1
5961-840-5466	3-11	A1A1A14A16CR2
5961-840-5466	3-11	A1AlA14A16CR3
5961-847-5246	3-6 (1)	A1A1A13CR1S
5961-847-5246	3-7 (1)	A1A1A14CR21
5961-850-9561	3-6 (1)	A1A1A143CR6
5961-848-7006	3-6 (1)	A1AlA13CR5
5961-855-1551	3-9	A1A1A14A10Q1
5961-855-1551	3-9	A1A14A1A112Q
5961-855-1551	3-9	A1A1A14A14Q1
5961-855-1551	3-10	A1A1A14A1Q1
5961-855-1551	3-10	A1AlA14A13Q1
5961-855-1551	3-10	A1A1A14A15Q1
5961-855-1551	3-7 (1)	A1A1A14Q3
5961-855-1551	3-7 (1)	A1A1A14Q22
5961-990-4605	3-9	A1AA14A10Q2
5961-990-4605	3-9	A1A114A12Q2
5961-990-4605	3-9	A1A1414A14Q2
5961-990-4605	3-10	A1A1A14A11Q2
5961-990-4605	3-10	A1AlA14A13Q2
5961-990-4605	3-10	A1AlA14A15Q2
5961-990-4605	3-8	A1A1A4A9Q3
5995-999-4811		A1W2
5995-999-4812		A1W3
6130-917-1988	3-9	A1A1A14A10CR7
6130-917-1988	3-9	A1AA14A12CR7
6130-917-1988	3-9	A1A1A14A14CR7
6130-917-1988	3-1 (1)	A1A1A14A11CR6
6130-917-1988	3-1 (1)	A1A1A14A13CR6
6130-917-1988	3-1 (1)	A1AlA14A15CR6
6210-557-3010	3-1 (1)	A1AlXDS1
6210-557-3010	3-1 (1)	A1AlXDS2
6210-557-3010	3-1 (1)	A1AlXDS4
6210-722-6151	3-1 (1)	A1A1XDS3
6210-722-6151	3-1 (1)	A1A1XDS5
6210-722-6151	3-31 (1)	A1A1XDS10
6210-782-0646	3-31 (1)	A2A1XDS2
6210-782-0646	3-31 (1)	A2AXDS3
6210-969-9048	3-1 (1)	A1ALXDS6
6240-155-7836	3-1 (1)	A1A1A17D S1
6240-155-7836	3-1 (1)	A1AlA17DS2
6240-155-7836	3-1 (1)	A1A1A17DS3
6240-155-7836	3-1 (1)	A1A1Al7DS4
6240-155-7836	3-1 (1)	A1A1A3DS1
6240-155-7836	3-1 (1)	A1AA3DS2
6240-155-7836	3-1 (1)	A1AlA3DS3
6240-155-7836	3-1 (1)	A1A1A3DS4
6240-155-7836	3-1 (1)	A1AlA4DS1
6240-155-7836	3-1 (1)	A1AlA4DS2
6240-155-7836	3-1 (1)	
6240-155-7836	3-1 (1)	A2A1A4DS4
6240-155-7836	3-1 (1)	A1A1A
6240-155-7836	3-1 (1)	A1A1A5DS2
6240-155-7836	3-1 (1)	A1A1A5DS2
6240-155-7836	3-1 (1)	A1A1A5DS3
6240-155-7836	3-1 (1)	A1A1A1DS4
6240-155-7836	3-1 (1)	
6240-155-7836	3-1 (1)	A1A1A8DS1
6240-155-7836	3-1 (1)	A1A1A8DS2
6240-155-7836	3-1 (1)	A1A1A8DS4
6240-155-7836	3-1 (1)	A1A1AlDSl
6240-155-7836	3-1 (1)	A1A1A1DS12
6240-155-7836	3-1 (1)	A1A1A1DS
6240-155-7836	3-1 (1)	A1A1ADS3
6240-155-7836	3-1 (1)	A1A1A6DS4
6240-155-7836	3-1 (1)	A1A1A6DS1
6240-155-7836	3-1 (1)	A1A1A6DS2
6240-155-7836	3-1 (1)	A1A1A6DS3

FEDERAL STOCK NO.	FIGURE NUMBER	ITEM NO. OR REFERENCE DESIGNATION
6240-155-7836	3-1 (1)	A1AlA6DS4
6240-155-7836	3-1 (1)	A1A1A7DSl5961-
6240-155-7836	3-1 (1)	A1AlA7DS2
6240-155-7836	3-1 (1)	A1AlA7DS3
6240-155-7836	3-1 (1)	A1A1A7DS4
6240-155-7836	3-1 (1)	A1A1DS1
6240-155-7836	3-1 (1)	A1A1DS2
6240-155-7836	3-1 (1)	A1A1DS3
6240-155-7836	3-1 (1)	A1AlDS4
6240-155-7836	3-1(1)	A1AlDS5
6240-155-7836	3-1 (1)	A1A1DS6
6240-155-7836	3-1 (1)	A1AlDS1O
6240-723-3378	3-31 (1)	A2A1DS
6240-723-3378	3-31 (1)	A2A1DS2
6240-723-3378	3-31 (1)	A2AlDS3
6240-731-5071	3-6 (2)	A1A1A13Ds8
6240-731-5071		A1A1A13DS9
6625-997-6233	3-1 (1)	A1A1L1
6760-113-5736		A1
6760-116-7088		A2
6760-457-0581	3-7 (1)	A1AlA14A1l
6760-457-0581	3-7 (1)	A1AlA14A13
6760-457-0581		A1AlA14A15
6760-457-0582	3-7(1)	A1A1A14A10
6760-457-0582	3-9	A1AlA14A12
6760-457-0582	3-9	A1AlA14Al4
6760-832-5915		A1MP5
6760-840-9802		A2W9
6760-840-9803		AlMP6
6760-840-9806		A2A2
6760-841-9367		A2W10
6760-841-9368		A1W8
6760-841-9369		A1W7
6760-898-7281		A1W1
6760-937-3791		A1W6
6760-937-3792		A1W5
6760-937-3793		A1W4
6210-782-0646	3-31 (1)	A2AXDS1

REFERENCE NO.	MFG CODE	FIG NO.	REFERENCE DESIGNATION OR ITEM NO.
12-1425DL34R1L	97564	3-1 (1)	A1AlA2
12-1425DL34A2L	97564	3-1 (1)	A1A1A18
1332-223	11871		A1WlMP3
1332-223	11871		A2W10MP6
1332-241	11871		A1AlMP1
17062-37-30S1	11139	3-1 (1)	A1A14
1730-00	78189		A1A1N33
1730-00	78189		A1AlH35
1N3656	81349	3-7 (1)	A1A1A14CR24
1N3656	81349		A1A1A9CR53
1N645M	81349	3-1 (2)	A1A1A3CR1
1N645M	81349	3-1 (2)	A1A1A3CR2
1N645M	81349	3-1 (2)	A1A1A3CR3
1N645M	81349	3-1 (2)	A1A1A3CR4
1N645M	81349	3-1 (2)	A1A1A4CR1
1N645M	81349	3-1 (2)	A1A1A4CR2
1N645M	81349	3-1 (2)	A1A1A4CR3
1N645M	81349	3-1 (2)	A1A1A4CR4
1N645M			
1N645M	81349	3-1 (2)	A1A1A3CR3
1N645M	81349	3-1 (2)	A1A1A5CR2
1N645M	81349	3-1 (2)	A1AASACR2
1N645M	81349	3-1 (2)	A1A1A5CR4
217-1044P3	94145		A1A1A14MP1
21-738	07497		A1W6W1
21-738	07497		A1W7W1
22T3LESSBRKTS	07344		A2A2MP6
2385-4-14	71279	3-1 (1)	A1AMAIS
2385-4-14	71279	3-31 (1)	Al2AlMP12
29-3BLACK	81073	3-1 (1)	A1A1J6
29-3BLACK	81073	3-1 (1)	A1A1J8

SECTION IV. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

REFERENCE NO.	MFGCODE	FIG NO.	REFERENCE DESIGNATION OR ITEM NO
29-3BLACK	81073	3-1(1)	A1A1J10
2950-410-64	11871		A2A1H27
2950-416ClIG	11871		A2A1H1
2950-416C33G	11871		A1A1H3
2950-416C33G	11871		A1A1H4
2950-416C52G	11871		A1AlH6
2950-416C52G	11871		A1A1H9
2950-416C68G	11871		A1A1H29
2950-416C70G	11871		A2AlH30
2950-I416C9K	11871		A2A2HI
3012L1-102	80294	3-7 (1)	A1AlA14R31
36D132G050AA6B	05571	3-6 (1)	A1A1A13C12
4IMS40	97965	3-6 (1)	A1A1A13T1
49M5KPM10PCT	12697	3-1 (1)	A1A1R9
6007-8CC	91506		A1A113A1MP5
6679-117-4	11871	3-1 (1)	A1A1A1
6679-117-15	11871	3-1 (1)	A1A1A3
6679-117-16	11871	3-1 (1)	A1A1A7
6679-117-17	118'71	3-1 (1)	A1A1A8
6679-117-18	11871	3-1 (1)	A1A1A17
6679-117-19	11871	3-1 (1)	A1A1A6
6679-117-21	11871	3-1 (1)	AnIA4
6679-117-22	11871	3-1 (1)	A1A1A5
6679-129	1] 871	3-6 (1)	A1A1A13Q5
6679-129	11871	3-6 (1)	A1A1A13Q8
6679-129	11871	3-6 (2)	A1A1A13Q11
6679-129	11871	3-6 (2)	AA1A13Q13
6679-129	11871	3-6 (2)	A1A1A13Q15
6679-129	11871	3-6 (2)	A1A1A13Q17
6679-129	11871	3-6 (2)	A1A1A13Q19
6679-129	11871	3-6 (2)	A1A1A13Q20
6679-129	1871	3-8	A1A1A14A9Q2
6680-449-1	11871		A2A1A2MP1
6680-449-10	11871		A2A1A2MP10
6680-449-11	11871il		A2A1A2MP11
6680-449-12	11871		A2A1A2MP12
6680-449-2	11871		A2A1A2MP2
6680-449-3	11871		A2A1A2MP3
6680-449-4	11871		A2A1A2MP4
6680-449-5	11871		A2A1A2MP5
6680-449-6	11871		A2A1A24P6
6680-449-7	11871		A2A1A2MP7
6680-449-8	11871		A2A1A2MP8
6680-449-9	11871		A2A1A2MP9
6680-819	11871		A2A2A24P2
6680-822	11871		A1A1A13MP4
6680-822	11871		A1A1A14MP5
6ADSS2 1-2	70892		A2A2MP9
7140-211-1	11871		A1W2P1
7140-212-1	11871		A1W3P3
7140-212-2	11871		A1W2P3
7140-517-4	11871		A1A1MP7
7140-517-5	11871	3-31 (1)	A2ALMP1
7148-1053	11871		A1A1H32
7148-1053	11871		A1A1H34
7148-1028	11871		A1A1MP1
7148-1204	11871		A1A1MP2
7148-1205	11871		A1MP1
7148-1206	11871		ALMP2
7148-1207	11871		AlMP3
7148-1208	11871	3-1	A1A1
7148-1209	11871	3-1 (2)	A1A1A13
7148-1219	11871	3-10	ATA1A14A11A1
7148-1219	11871	3-10	A1A1A14A13A1
7148-1219	11871	3-10	A1A1A14A15A1
7148-1219-1	11871		A1A1A14A11A1MP1
7148-1219-1	11871		A1A1A14A13A1MP1
7148-1219-1	11871		A1A1A14A15A1MP1
7148-1221	11871		A1A1A13MP1

REFERENCE NO.	MFG CODE	FIG NO.	REFERENCE DESIGNATION OR ITEM NO.
7148-1222	11871		A1A1A13A1
7148-1222	11871		A1AlA13A1MP1
7148-1224	11871		A1MP4
7148-1227	11871	3-11	A1A1A14A16
7148-1227-1	11871		A1A1A14A16MP1
7148-1228	11871		A1A1A14
7148-1229	11871	3-9	A1AA14A10A1
7148-1229	11871	3-9	A1A1A14A12A1
7148-1229	11871	3-9	A1A1A14A14A1
7148-1229-1	11871		A1A1A4A14A1MP1
7148-1229-1	11871		A1A1A14A12A1MP1
7148-1229-1	11871		A1A1A14A14A1MP
7148-1232-1	11871		A1A1MP3
7148-1233-1	11871		A1A1MP5
7148-1233-2	11871		A1A1MP6
7148-1234	11871	3-1 (1)	A1A1H9
7148-1235	11871	3-1 (1)	A1AlA10
7148-1236	11871	3-1 (1)	A1A1A15
7148-1237	11871	3-1 (1)	A1A1A12
7148-1238	11871	3-1 (1)	A1A1A11
7148-1241	11871		A1A1MP4
7148-1242-1	11871		A1W2MP9
7148-1242-3	11871		A1W3MP7
7148-1242-2			A1W2P10
7148-1242-2	11871		A1W3MP8
7148-1243	11871		A1A1TBA1A1TB1
7148-1243-1	11871		A1A1TB1A1TB1
7148-1244	11871	3-1 (3)	A1A1TB1
7148-1404	11871	3-31 (1)	A2A1
7148-1405	11871	3-31 (1)	A2A11MP2
7148-1407	11871		A2MP1
7148-1408-1	11871		A2A2MP1
7148-1408-2	11871		A2A2MP2
7148-1408-3	11871		A2A2A1
7148-1408-4	11871		A2A2MP3
7148-1408-5	11871		A2A2A2
7148-1408-7	11871		A2A2MP5
7148-1408-8	11871		A2A2AlMP1
7148-1411	11871		A2A1A2Al
7148-1411-1	11871		A2A1A2AlMP1
7148-1412	11871		A2A1MP3
7148-1413	11871		A2AlMP4
7148-1414	11871		A2MP2
7148-1415	11871		A24P3
7148-1416-1	11871		A2A1AlMPl
7148-1416-2	11871		A2A1AlMP2
7148-1417	11871		A2A14P5
7148-1419	11871		A2A1MP6
7148-1421	11871		A2MP4
7148-1422	11871		A2A14P8
7148-1420	11871		A2A1MP7
7148-1424	11871		A2A1MP9
7148-1425	11871		A2A1MP10
7148-1426	11871	3-31 (1)	A2A1MP11
7148-1435	11871	3-31 (2)	A2A1A2
AN3420-4A	88044		A1WlMP7
AN3420-4A	88044		A1W7MP6
AN3420-6A	88044		A1W1MP8
AN3420-6A	88044		A1W2MP8
AN3420-6A	88044		A1W7MP5
AN3420-8A	88044		A1W1MP9
AN3420-8A	88044		A1W24P7
AN3420-8A	88044		A1W8MP6
AN3420-10A	88044		A1W81MP7
BWH10HM5PCT	07716	3-1 (3)	A1A1TB1R73
BWH10HM5PCT	07716	3-1 (3)	A1A1TB1R74
BWH10HM5PCT	07716	3-1 (3)	A1A1TB1R75
BWH10HM5PCT	07716	3-1 (3)	A1A1TB1R77
BWH10HM5PCT	07716	3-1 (3)	A1A1TB1R78

SECTION IV. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

REFERENCE NO.	MFG. CODE	FIG NO.	REFERENCE DESIGNATION OR ITEM NO
BW2-70HMSPCT	07716	3-1 (3)	AAITBR76
BSX474K	12406	3-6 (1)	A1A1A13C4
B5X474K	12406	3-7 (1)	A1A1A14C6
cAv1o-104	11871		A2AIH28
CAVio-69	11871		A2H2
CAV176-188	11871		A1W1MP
CAV176-189	11871		A1WIMPI
CAN176-190	11871		A1W2MP2
CAV176-192	11871		A2W1CMP2
CAV176-193	11871		A1W39P1
CAV176-194	11871		A1W4MP2
CAV176-195	11871		A1W4MP1
CAV176-196	11871		A1W5MP2
CAV176-197	11871		A1WSMP1
CAV176-199	11871		A1W6MP1
CAV176-200	11871		A1W6MP1
CAV176-201	11871		A1W6MP3
CAV176-201	11871		A1W7MP2
CAV176-202	11871		A1W2MP2
CAV176-204	11871		A1W3MP1
CAV176-205	11871		AW92MP2
CAV176-206	11871		A2W3MP2
CAV176-207	11871		A1W3MP2
CAV176-207	11871		A2W9
CAV176-214	11871		A2W1MP1
CAnV76-216	11871		A1W4NP3
CAV176-217	11871		A1W5MP3
CAV176-218	11871		A1W2MP4
CAv176-219	11871		A1W3mP4
CAV176-22	11871		A1W7MP1
CAV176-221	11871		A1W7MP3
CAv176-222	11871		A1W8MP1
CAV176-223	11871		A1W8MP2
CAv76-224	11871		A1W8MP3
CAV176-234	11871		A2W10MP3
CAV70-1032-8	11871		A2ANI17
CAV70-1032-8	11871		A2A1N32
CAV70-1032-9	11871		A2AIH9
CAY70-1032-9	11871		A2A1H19
CAY70-1032-12P	11871		A1H1
CAV70-1032-12	11871		A2H1
CAV70-2-7P	11871		AA1AI4H18
CAV70-2-7P	11871		AL14XH2o
CAV70-2-7P	11871		AA1AW4H22
CAV70-4-8p	11871		A2A1A2H1
CAVr0-41-8P	11871		A2A1A2R2
CAV70-4-8P	11871		A2A1A2H3
CAVO7-4-3P	11871		A2A1A2H4
CAV70 4-8P	11871		A2A1A2H5
CAV70-4-8P	11871		A2A1A2H6
CAV7o-6-7	11871		A2A1H2
CAV79-6-7	11871		A2A1H12
CAV70-6-7	11871		A2A1H14
CAV70-6-7	11871		A2A1H23
CAV70-6-7	11871		A2A1H25
CAV70-6-7	11871		A2A11H41
CAV70-6-8P	11871		A1A1A13H5
CAV70-6-10	11871	3-31 (1)	A2A1H4
CAV71C24G	11871		A1A14H16
CKIT10o3K	14158	3-7 (1)	AA1A14C14
CKIT103K	14158	3-9	A1AI14A10C3
CK}T103K	14158	3-9	A1A14A12C3
CKLT103K	14158	3-9	A1AA1A14AI4C3
CKIT103K	14158	3-10	A1AIA14A11C3
CKIT103K	14158	3-10	A1A1A14AI3C3
Ca0io103K	14158	3-10	A1AIA14A15C3
DE2-223	99515	3-6 (2)	A1A1A13C7
DE2-223	99515	3-6 (2)	AAA1A3CS
DE2-223	99515	3-6 (2)	AAA13C10

REFERENCE NO.	MFG CODE	FIG NO.	REFERENCE DESIGNATION OR ITEM NO.
DS04-37-3oP1-059	11139		A1W6P2
E1-196D12-2	16326		A1W5MP6
J5416-1 1-8IN	39428		A2A247
J5L16-3 1-8nr	39428		A2A2MP3
MS3106E20-33S	96906		Alw8P1
MS3106E22-14s	96906		A1W4P1
MS31068-11P	96906		A1W8P2
RH50-1R000H	91637	3-31 (2)	A2A1A2R4
RH50-1R000H	91637	3-31 (2)	A2A1A2R5
RN50-1R000H	91637	3-31 (2)	A2A1A2R6
RH50-1R000H	91637	3- 31 (2)	A2A1A2R8
RH50-1R000H	91637	3-31 (2)	A2A1A2R9
RH50-1R000H	91637	3-31 (2)	A2AA2R10
RH50-1R000H	91637	3-31 (2)	A2AA2RO
RH50-1R000H	91637	3-31 (2)	A2A1A2R12
RH50-1R000H	91637	3-31 (2)	A2A1A2R8
RH50-1R000H	91637	3-31 (2)	A2A1A2RI4
RH50-1R000H	91637	3-31 (2)	A2AA2R1
RH50-1R000H	91637	3-31 (2)	A2AA2RI
RH50-1R000H	91637	3-31(2)	A2A1A2R17
RH50-1R000H	91637	3-31 (2)	A2AA2R8
RH50-1R000H	91637	3-31 (2)	A2A1A2R19
RH50-1R000H	91637	3-31 (2)	A2A1A2R20
RH50-1R000H	91637	3-31 (2)	A2A1A2R21
RH50-1R000H	91637	3-31 (2)	2A.A2R2
RH50-R000H	91637	3-31 (2)	A2A1A2R23
RH50-1R000H	91637	3-31 (2)	A2AR24
RH50-1R000H	91637	3-31 (2)	A2A1A2R25
RH50-1R000H	91637	3-31 (2)	A2A1A2R26
RH50-1R000H	91637	3-31 (2)	A2A1A2R27
STSI4LTUR	98291		AAITBIAUIP2
TRT24-195T3RO-2-9-9	06090		A1W5W2
TRT24-19ST2RO-9-0			Alw5WI
X376-1/8 SQ	70485		A2A2MP4

SECTION IV. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

FEDERAL STOCK NO.	FIGURE NUMBER	ITEM NO OR REFERENCE DESIGNATION
5305-054-5638	3-14	A1A2H2
5305-054-5646	3-14	A1A2H2
5305-054-5647	3-14	A1A2H2
5305-054-5649	3-14	A1A2H4
5305-054-6652	3-14	A1A2H12
5310-208-9287	3-14	A1A2H4
5310-622-1724	3-14	A1A2H2
5310-782-1349	3-14	A1A2H4
5310-880-5976	3-14	A1A2H12
5310-866-3506	3-14	A1A2A1H6
5310-933-8118	3-14	A1A2H2
5320-117-6816	3-14	A1A2A2H4
5320-637-5422	3-14	A1A2A2H2
5340-275-0912	3-14	A1A2H2
5355-680-1357	3-14	A1A2MP5
5905-081-8672	3-15	A1A2A3R27
5905-106-3666	3-15	A1A2A3R2
5905-106-3666	3-15	A1A2A3R10
5905-106-3666	3-15	A1A2A3R30
5905-106-3666	3-15	A1A2A3R33
5905-106-9356	3-15	A1A2A3R1
5905-106-9356	3-15	A1A2A3R14
5905-106-9356	3-15	A1A2A3R15
5905-106-9356	3-15	A1A2A3R20
5905-106-9356	3-15	A1A2A3R21
5905-110-0196	3-14	A1A2RI
5905-110-7620	3-15	A1A2A3R5
5905-110-7620	3-15	A1A2A3R12
5905-110-7620	3-15	A1A2A3R17
5905-110-7620	3-15	A1A2A3R18
5905-110-7620	3-15	A1A2A3R23
5905-110-7620	3-15	A1A2A3R23
5905-110-7620	3-15	A1A2A3R24
5905-110-7620	3-15	A1A2A3R25
5905-141-0717	3-15	A1A2A3R13
5905-141-0717	3-15	A1A2A3R19
5905-141-1130	3-15	A1A2A3R3
5905-141-1130	3-15	A1A2A3R4
5905-141-1130	3-15	A1A2A3R29
5905-244-6934	3-15	A1A2A3R11
5905-435-6374	3-15	A1A2A3R16
5905-435-6374	3-15	A1A2A3R22
5905-972-4687	3-15	A1A2A3R34
5910-068-4298	3-15	A1A2A3C2
5910-068-4298	3-15	A1A2A3C4
5910-426-9594	3-15	A1A2A3C1
5910-426-9594	3-15	A1A2A3C3
5910-426-9594	3-15	A1A2A3C5
5910-426-9594	3-15	A1A2A3C6
5910-476-7030	3-14	A1A2C1
5910-858-5189	3-15	A1A2A3C7
5910-858-5189	3-15	A1A2A3C8
5930-501-1749	3-14	A1A2S2
5930-501-1749	3-14	A1A2S3
5930-501-1749	3-14	A1A2S4
5930-683-1625	3-14	A1A2SI
5935-005-2638	3-15	A1A2A3P1
5935-222-7322	3-14	A1A2MP8
5935-476-4618	3-14	A1A2J4
5935-498-3453	3-14	A1A2JI
5935-716-6591	3-14	A1A2MP13
5935-809-0786	3-14	A1A2MP2
5935-951-8986	3-14	A1A2PI
5940-044-1583	3-14	A1A2J6
5940-044-1583	3-14	A1A2J8
5940-044-1583	3-14	A1A2J10
5940-044-1583	3-14	A1A2J12
5940-082-4652	3-14	A1A2MP9
5940-583-7741	3-14	A1E2E1
5940-842-6483	3-14	A1A2J5
5940-842-6483	3-14	A1A2J7
5940-842-6483	3-14	A1A2J9
5961-087-6047	3-15	A1A2A3CRI
5961-087-6047	3-15	A1A2A3CR2
5961-087-6047	3-15	A1A2A3CR3
5961-087-6047	3-15	A1A2A3CR4
5961-087-6047	3-15	A1A2A3CR5
5961-087-6047	3-15	A1A2A3CR6
5961-087-6047	3-15	A1A2A3CR7
5961-087-6047	3-15	A1A2A3CR8
5961-087-6047	3-15	A1A2A3CR9
5961-087-6047	3-15	A1A2A3CR10
5961-087-6047	3-15	A1A2A3CR11
5961-087-6047	3-15	A1A2A3CR12
5961-087-6047	3-15	A1A2A3CR13
5961-0874047	3-15	A1A2A3CR14
5961-087-6047	3-15	A1A2A3CR15
5961-147-9600	3-15	A1A2A3CR16
5961-831-8819	3-15	A1A2A3H2
5961-949-1432	3-15	A1A2A3QI
5961-949-1432	3-15	A1A2A3Q2
5961-949-1432	3-15	A1A2A3Q3
5961-949-1432	3-15	A1A2A3Q4
5961-949-1432	3-15	A1A2A3Q5
5961-949-1432	3-15	A1A2A3Q6
5961-949-1432	3-15	A1A2A3Q7
5961-949-1432	3-15	A1A2A3Q8
5961-949-1432	3-15	A1A2A3Q9
5961-963-6930	3-15	A1A2A3MP2
5961-963-6930	3-15	A1A2A3MP3
5961-963-6930	3-15	A1A2A3MP4
5961-963-6930	3-15	A1A2A3MP5
5961-963-6930	3-15	A1A2A3MP6
5961-963-6930	3-15	A1A2A3MP7
596]-963-6930	3-15	A1A2A3MP8
5961-963-6930	3-15	A1A2A3MP9
5961-963-6930	3-15	A1A2A3MP10
5999-221-1973	3-14	A1A2MP3N
6210-553-1076	3-14	A1A2XDSI
6210-553-1076	3-14	A1A2XDS2
6210-635-4700	3-14	A1A2XDSS
6210-635-4700	3-14	A1A2XDS4
6240-155-7836	3-14	A1A2CSI

SECTION IV. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

REFERENCE NO.	MFG. CODE	FIG NO.	REF. DESIGN.
CAV10-38	11871	3-14	A1A2H2
CAV73-4-5P	11871	3-14	A1A2H4
CAV73-6-5P	11871	3-14	A1A2H4
CE20XD01	81349	3-14	A1A2MP9
CG09A1MZ225G3	81349	3-14	A1A2CI
DCMM37PA	71468	3-15	A1A2A3P1
DCMM37S	71468	3-14	A1A2J4
DEMM25S	71468	3-14	A1A2Jt
DEMM9S	71468	3-14	A1A2PI
DE24657	71468	3-14	A1A2MP13
MS15795-804	96906	3-14	A1A2H4
M515795-806	96906	3-14	A1A2HI2
MS20470A3-4	96906	3-14	A1A2A2H2
MS20470AD3-5	96906	3-14	A1A2A2H4
MS24523-31	96906	3-14	A1A2SI
MS25041-7	96906	3-14	A1A2XDSI
MS25041-7	96906	3-14	A1A2XDS2
MS25041-8	96906	3-14	A1A2XDS3
MS25041-8	96906	3-14	A1A2XDS4
MS25089-3C	96906	3-14	A1A2S2
MS25089-3C	96906	3-14	A1A2S3
MS25089-3C	96906	3-14	A1A2S4
M525237-327	96906	3-14	A1A2CSI
MS3057-10A	96906	3-14	A1A2MP2
MS3102E20-33P	96906	3-14	A1A2J2
MS3106E20-33S	96906	3-14	A1A2P2
MS35338-135	96906	3-14	A1A2H2
MS51957-4	96906	3-14	A1A2H2
MS51957-12	96906	3-14	A1A2H2
MS51957-13	96906	3-14	A1A2H2
MS51957-15	96906	3-14	Al A2H4
MS51957-28	96906	3-14	A1A2H12
MS91528-1I28	96906	3-14	A1A2MP5
M39003-01-2356	81349	3-14	A1A2A3C2
M39003-01-2356	81349	3-14	A1A2A3C4
M39003-01-2377	81349	3-15	A1A2A3C7
M39003-01-2377	81349	3-15	A1A2A3C8
M39014-02-0378	81349	3-15	A1A2A3CI
M39014-02-0378	81349	3-15	A1A2A3C3
M39014-02-0378	81349	3-15	A1A2A3C5
M39014-02-0378	81349	3-15	A1A2A3C6
PECI FAC1	81349	3-14	A1A2J
PEC1IFACI	81349	3-14	A1A2J7
PECI FAC]	81349	3-14	A1A2J9
PEC1FAO2	81349	3-14	A1A2J6
PEC FAO2	81349	3-14	A1A2J8
PECIFAO2	81349	3-14	A1A2J10
PECIFAO2	81349	3-14	A1A2J12
RC20G102JS	81349	3-14	A1A2R1
RCR07G103JS	81349	3-15	A1A2A3R2
RCR07G103JS	81349	3-15	A1A2A3R10
11CR07010335	81349	3-15	A1A2AIR30
RCR07G103JS	81349	3-15	A1A2A3R31
RCR07G103JS	81349	3-15	A1A2A3R32
RCR07G1IOJS	81349	3-15	A1A2A3R33
RCR07G103JS	81349	3-15	A1A2A3R5
RCR07G103JS	81349	3-15	A1A2A3R12
RCR07G103JS	81349	3-15	A1A2A3R17
RCR07G103JS	81349	3-15	A1A2A3R18
RCR07G103JS	81349	3-15	AlIA2A3R23
RCR07G103JS	81349	3-15	A1A2A3R24
RCR07G103JS	81349	3-15	A1A2A3R24
RCR07G203JS	81349	3-15	A1A2A3R25
RCR07G2103JS	81349	3-15	A1A2A3R25
RCR07G203JS	81349	3-15	A1A2AI1I4 !
RCR07G203JS	81349	3-5	A1A2A 311
RCR07G203JS	81349	3-15	A1A2AI:R15O
RCR07G203JS	81349	3-15	A1A2A3121
RCR07G473JS	81349	3-15	A1A2A3R 1:

REFERENCE NO.	MFG CODE	FIG NO.	REF. DESIGN.
RCR07G473JS	81349	3-15	A1A2A3R19
RCR07G823JS	81349	3-15	A1A2A3R16
RCR07G823JS	81349	3-15	A1A2A3R22
RCR07G824JS	81349	3-15	A1A2A3R11
RCR20G272JS	81349	3-15	A1A2A3R3
RCR20G272JS	81349	3-15	A1A2A3R4
RCR20G272JS	81349	3-15	A1A2A3R29
RER65F200M	81349	3-14	A1A2R2
RNR55K1052FM	81349	3-15	A1A2A3R9
RNR55K1693FM	81349	3-15	A1A2A3R7
RNR55K4992FM	81349	3-15	A1A2A3R28
RNR55K8662FM	81349	3-15	A1A2A3R8
RNR60K5623FM	81349	3-15	A1A2A3R6
RW69V241	81349	3-15	A1A2A3R27
RW70U1ROOF	81349	3-15	A1A2A3R34
SE555T	18324	3-15	A1A2A3A1
SE555T	18324	3-15	A1A2A3A2
SE555T	18324	3-15	A1A2A3A3
TY46MDO	59730	3-14	A1A2MP14
TY46MDO	59730	3-14	A1A2MP15
1N4467	81349	3-15	A1A2A3CRI6
1N645	81349	3-15	A1A2A3CR1
1N645	81349	3-15	A1A2A3CR2
1N645	81349	3-15	A1A2A3CR3
1N645	81349	3-15	A1A2A3CR4
1N645	81349	3-15	A1A2A3CR5
1N645	81349	3-15	A1A2A3CR6
1N645	81349	3-15	A1A2A3CR7
1N645	81349	3-15	A1A2A3CR8
1N645	81349	3-15	AA2AICR9
1N645	81349	3-15	A1A2ACRIO
1N645	81349	3-15	A1A2A3CR11
1N645	81349	3-15	A1A2A3CRI2
1N645	81349	3-15	A1A2A3CR]3
1N645	81349	3-15	A1A2A3CR14
1N645	81349	3-15	A1A2A3CR15
10030DAP	07047	3-15	A1A2A3MP2
10030DAP	07047	3-15	A1A2A3MP3
10030DAP	07047	3-15	A1A2AIMP4
10030DAP	07047	3-15	A1A2A3MP5
10030DAP	07047	3-15	A1A2A3MP6
10030DAP	07047	1-15	A1A2A3MP7
10030DAP	07047	3-15	A1A2A3MP8
10030DAP	07047	3-15	A1A2A3MP9
10030DAP	07047	3-15	A1A2A3MP10
10277DAP	07047	3-15	A1A2A3H2
12NCFMA2-62	72962	3-14	A1A2A1H6
1250F	23880	3-14	A1A2MP3
2N2219A	81349	3-15	A1A2A3Q1
2N2219A	81349	3-15	A1A2A3Q2
2N2219A	81349	3-15	A1A2A3Q3
2N2219A	81 349	3-15	A1A2A304
2N2219A	81349	3-15	A1A2A3Q4
2N2219A	81349	3-15	A1A2A3Q5
2N2219A	81349	3-15	A1A2A1Q7
2N2219A	81349	3-15	A1A2A3Q8
2N2219A	81349	3-15	A1A2A3Q9
2104-04-01	78189	3-14	A1A2A3QE
2104-10-00	78189	3-14	A1A2E2
2432-100	78189	3-14	A1A2E
2432-108	11871	3-14	A1A2MPI
2432-109	11871	3-14	A1A2AI
2432-109	11871	3-14	A1A21MP1
2432-109	11871	3-14	A1A2A1MP1
2432-110	11871	3-14	A1A2A2
2432-110-1	11871	3-14	A1A2A2MP5
2432-110-2	11871	3-14	A1A2A2MP1
2432-110-3	11871	3-14	A1A2A2MP2
2432-110-4	11871	3-14	A1A2A2MP3

SECTION IV. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

REFERENCE NO.	MFG. CODE	FIG NO.	REF. DESIGN.
2432-111	11871	3-15	A1A2A3
2432-112	11871	3-15	A1A2A3MP2
2432-114	11871	3-14	A1A2A3MP7
2432-115	76854	3-14	A1A2SS
2432-116	76854	3-14	A1A2S6
2950-416-10G	11871	3-14	A1A2H2
323009-15-00	97525	3-15	A1A2A3H2
35709	97525	3-15	A1A2A3MP1
6017-34CC	91506	3-14	A1A2A2MP4
68-1660-26	72962	3-14	A1A2H2
68NTM40	72962	3-14	A1A2H4
8215A0440	06540	3-14	A1A2MP11
97-181-16	02660	3-14	A1A2MP8

REFERENCE NO.	MFG CODE	FIG NO.	REF. DESIGN.

SECTION V. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

SECTION V. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

REFERENCE DESIGNATION	PAGE NUMBER
A1A1XDS2	B-7
A1A1XDS3	B-7
A1AXDS4	B-7
A1A1XDS5	B-7
A1A1XDS6	B-7
A1AlXDS10	B-7
A1A1XF1	B-29
A1A1XF2	B-29
A1A1A1	B-5
A1A1A1DS1	B-5
A1A1A1DS2	B-5
A1A1A1DS3	B-5
A1A1AlDS4	B-6
A1AlA2	B-29
A1A1A3	B-4
A1A1A3CRI	B-4
A1A1A3CR2	B-4
A1AlA3CR3	B-4
A1A1A3CR4	B-5
A1A1A3DS1	B-4
A1A1A3DS2	B-4
A1A1A3DS3	B-4
A1A1A3DS4	B-4
A1A1A3H3	B-8
A1A1A4	B-5
A1A1A4CR1	B-5
A1A1A4CR2	B-5
A1A1A4CR3	B-5
A1A1A4CR4	B-5
A1AlA4DS1	B-5
A1A1A4DS2	B-5
A1A1A4DS3	B-5
A1A1A4DS4	B-5
A1A1A5	B-5
A1A1A5CR1	B-5
A1A1A5CR2	B-5
A1A1ASCR3	B-5
A1A1A5CR4	B-5
A1A1A5DS1	B-5
A1A1A5DS2	B-5
A1AlA5DS3	B-5
A1A1A5DS4	B-5
A1A1A6	B-6
A1A1A6DS1	B-6
A1A1A6DS2	B-6
A1A1A6DS3	B-6
A1A1A6DS4	B-6
A1A1A7	B-6
A1A1A7DS1	B-6
A1A1A7DS2	B-6
A1A1A7DS3	B-6
A1A1A7DS4	B-6
A1A1A8	B-5
A1A1A8DS1	B-5
A1A1ASDS2	B-5
A1A1ASDS3	B-5
A1A1A8DS4	B-5
A1A1A9	B-7
A1A1A9CR53	B-7
A1A1A9S6	B-7
A1A1A10	B-7
A1A1A10R33	B-7
A1A1A10R34	B-7
A1A1A10R35	B-7
A1A1A10S7	B-7
A1A1A11	B-7
A1A1A11CR66	B-7
A1A1A11R53	B-7
A1A1A11R54	B-7
A1A1A11R55	B-7
A1A1A11R56	B-7
A1AA11S10	B-7
A1A1A12	B-7
A1A1A12R52	B-7
A1AlA12S9	B-7
A1A1A13	B-7
A1A1A13C1	B-8
A1AA13C3	B-8
A1A1A13C4	B-8
A1lAA13C7	B-8
A1AA1i3C8	B-8
A1AlA13C9	B-8
A1AA13ClO	B-8
A1A1A13Cl	B-8
A1AlA13C12	B-8
A1AA13CR1	B-12
A1A1A13CR2	B-12
A1AA13CR3	B-12
A1A1A13CR4	B-12
A1AA13CR5	B-12
A1AA1A13CR6	B-12
A1A1A13CR14	B-12
A1AA13CR15	B-12
A1A1A13CR16	B-12
A1A1A13CR17	B-12
A1A1A13CR18	B-12
A1A1A13CR36	B-12
A1AA1A3CR37	B-12
A1A1A13CR40	B-12
A1A1A13CR42	B-12
A1A1A13CR43	B-12
A1A1A13CR44	B-12
A1A1A13CR45	B-12
A1A1A13CR46	B-12
A1A1A13CR64	B-12
A1A1A13CR65	B-12
A1A1A13CR68	B-12
A1A1A13CR69	B-12
A1A1A13CR73	B-12
A1A1A13DS8	B-9
A1A1A13DS9	B-9
A1A1A13FLl	B-8
A1A1A13H1	B-8
A1AA13H2	B-8
A1A1A13H4	B-8
A1A1A13H5	B-8
A1A1A13H6	B-8
A1A1A13H7	B-8
A1A1A13H8	B-8
A1A1A13E9	B-13
A1A1A13H10	B-13
A1A1A13	B-13
A1A1A13MP1	B-8
A1A1A13MP2	B-8
A1A1A13MP3	B-8
A1A1A13MP4	B-9
A1A1A13MP5	B-12
A1A1A13MP6	B-12
A1AA13MP7	B-13
A1A1A13Q1	B-13
A1A1A13Q5	B-13
A1A1A13Q6	B-13
A1A1A13Q7	B-13
A1A1A13Q8	B-13
A1A1A13Q9	B-13
A1A1A13Q10	B-13
A1A1A13Q11	B-13
A1A1A13Q12	B-13
A1A1A13Q13	B-13
AA1A13Q14	B-13
A1AA13Q15	B-13
A1A1A13Q16	B-13
A1A1A13Q17	B-13
A1AlA13Q18	B-13
A1AA13Qi19	B-13
A1A1A13Q20	B-13
A1AmA13q21	B-13
AA1A13R2	B-12
A1AA13R3	B-12
A1A1A13R4	B-11
A1AlA13R5	B-10
A1A1A13R7	B-9
A1A1A13R8	B-11
A1A1A13R20	B-10
A1A1A13R21	B-10
A1A1A13R23	B-9
A1A1A13R24	B-10
A1AA13R25	B-9
A1AlA13R26	B-9
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A1AlA13R29	B-10
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A1A1A13R39	B-10
A1AlA13R40	B-10
A1AlA13R41	B-10
A1AlA13R42	B-9
A1A1A13R43	B-10
A1AlA13R44	B-10
A1A1A13R45	B-9
A1A1A13R46	B-10
A1A1A13R47	B-10
A1A1A13R48	B-9
A1AlA13R49	B-10
A1AA13R50	B-10
A1A1A13R51	B-9
A1A1A13R57	B-10
A1A1A13R58	B-9
A1A1A13R59	B-9
A1A1A13R60	B-10
AA13R62	B-9
AA1A13R63	B-10
A1AlA13R64	B-11
A1A1A13R65	B-10
A1A1A13R66	B-10
A1A1A13R67	B-9
A1A1A13R68	B-9
A1A1A13R69	B-10
A1A1A13R70	B-10
A1A1A13R71	B-10
A1A1A13T1	B-13
A1A1A14	B-13
AA1A14C2	B-14
A1A1A14C5	B-14
A1A1A14C6	B-14
A1A1A14C13	B-14
A1A1A14C14	B-14
A1A1A14CR7	B-24
A1A1A14CR8	B-24

SECTION V. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

REFERENCE DESIGNATION	PAGE NUMBER
A1A1A14CR9	B-24
A1AlA14CR1O	B-24
A1A1A14CR11	B-24
A1AlA14CR12	B-24
A1A1A14CR13	B-24
A1A1A14CRl9	B-24
ALiA1h4CR20	B-24
A1A1Al4CR21	B-24
A1A1A14CR22	B-24
A1A1A14CR23	B-24
A1A1A14CR24	B-24
A1A1A14CR25	B-24
A1AA14CR26	B-24
A1AA14CR27	B-24
A1A1A14CR28	B-24
A1AAl4CR29	B-24
A1AlA14CR30	B-24
A1A1A14CR31	B-25
A1AlA14CR32	B-25
A1A1A14CR33	B-25
A1AlA14CR34	B-25
A1A1A14CR35	B-25
A1A1A14CR38	B-25
A1A1A14CR39	B-25
A1A1A14CR41	B-25
A1AlA14CR67	B-25
A1A1A14CR70	B-25
A1A1A14CR71	B-25
A1A1A14CR72	B-25
A1A1A14H1	B-13
A1A1A14H2	B-13
A1A1A14H3	B-13
A1A1A14H4	B-14
A1A1A14H5	B-14
A1A1A14H6	B-15
A1A1A14H7	B-17
A1A1A14H8	B-17
A1A1A14H9	B-17
A1A1A14H10	B-18
A1A1A14H11	B-18
A1A1A14H12	B-18
A1A1A14H16	B-21
A1A1A14H17	B-22
A1A1A14H18	B-24
A1A1A14H19	B-24
A1A1A14H20	B-24
A1A1A14H21	B-24
A1A1A14H22	B-24
A1A1A14H23	B-24
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A1A1A14H26	B-16
A1A1A14H27	B-16
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A1A1A14K1	B-21
A1A1A14K2	B-21
A1A1A14K3	B-21
A1A1A14MP1	B-13
A1A1A14MP3	B-21
A1A1A14MP4	B-21
A1A1A14MP5	B-21
A1A1A14MP6	B-25
A1A1A14Q2	B-25
A1A1A14Q3	B-25
A1A1A14Q4	B-25
A1A1A14Q22	B-25

REFERENCE DESIGNATION	PAGE NUMBER
A1A1A14R4	B-23
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A1A1A14R12	B-23
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A1A1A14R18	B-23
A1A1A14R19	B-22
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A1A1A15	B-6
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A1A1A15CR48	B-6
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A1A1A15CR61	B-6
A1A1A15CR62	B-6
A1A1A15CR63	B-7
A1A1A15S8	B-6
A1A1A17	B-4
A1A1A17DS1	B-4
A1A1A17DS2	B-4
A1A1A17DS3	B-4
A1A1A17DS4	B-4
A1A1A18	B-29
A1A1A13A1	B-8
A1A1A13ALH2	B-8
A1A1A13A1MP1	B-8
A1A1A13A1MP2	B-8
A1A1A13A1MP3	B-8
A1A1A13A1MP4	B-8
A1A1A13A1MP5	B-8
A1A1A14A9C1	B-14
A1AlA14A9C2	B-14
A1A1A14A9CR1	B-25
A1A1A14A9CR2	B-25
A1A1A14A9CR3	B-25
A1A1A14A9CR4	B-25
A1A1A14A9Q1	B-25
A1A1A14A9Q2	B-26
A1A1A14A9Q3	B-26
A1A1A14A9R1	B-23
A1A1A14A9R2	B-23
A1A1A14A9R3	B-22
A1A1A14A9R4	B-23
A1A1A14A9R5	B-23
A1A1A14A9R6	B-22
A1A1A14A9R7	B-22
A1A1A14A9R8	B-23
A1A1A14A9R9	B-24
A1A1A14A9R10	B-22

REFERENCE DESIGNATION	PAGE NUMBER
A1A1A14A10	B-14
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A1A1A14A10C2	B-15
A1A1A14A10C3	B-15
A1A1A14A10CR1	B-15
A1A1A14A10CR2	B-15
A1A1A14A10CR3	B-15
A1A1A14A10CR4	B-15
A1A1A14A10CR5	B-15
A1A1A14A10CR6	B-15
A1A1A14A10CR7	B-16
A1A1A14A10MP1	B-16
A1A1A14A10Q1	B-16
A1A1A14A1PQ2	B-16
A1A1A14A10R1	B-15
A1A1A14A10R2	B-15
A1A1A14A10R3	B-15
A1A1A14A10R4	B-15
A1A1A14A10R5	B-15
A1A1A14A10R6	B-15
A1A1A14A10R7	B-15
A1A1A14A10R8	B-15
A1A1A14A10R9	B-15
A1A1A14A10R10	B-15
A1A1A14A10R11	B-15
A1A1A14A10R12	B-15
A1A1A14A10R13	B-15
A1A1A14A10R14	B-15
A1A1A14A10R15	B-15
A1AA14A11	B-18
A1A1A14A11C1	B-18
A1A1A14A11C2	B-18
A1A1A14A11C3	B-18
A1A1A14A11CR1	B-19
A1A1A14A11CR2	B-19
A1A1A14A11CR3	B-19
A1A1A14A11CR4	B-19
A1A1A14A11CR5	B-19
A1A1A14A11CR6	B-19
A1AlA14A11MP1	B-18
A1AlA14A11Q1	B-19
A1AlA14A11Q2	B-19
A1A1A14A11R	B-19
AA1lA14A11R2	B-19
A1A1A14A11R3	B-19
A1A1A14A11R4	B-19
A1AA1h4A11R5	B-18
A1A1A14A11R6	B-18
A1A1A14A11R7	B-18
A1A1A14A11R8	B-18
A1A1A14A11R9	B-19
A1A1A14A11R10	B-18
A1A1A14A11R11	B-19
AA1A14A11R12	B-19
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A1A1A14A12C2	B-16
A1A1A14A12C3	B-16
A1A1A14A12CR1	B-16
A1A1A14A12CR2	B-17
A1A1A14A12CR3	B-17
A1A1A14A12CR4	B-17
A1A1A4A12CR5	B-17
A1A1A14A12CR6	B-17
A1A1A14A12CR7	B-17

SECTION V. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

SECTION V. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO FIGURE AND INDEX NUMBER OR REFERENCE DESIGNATION

INDEX

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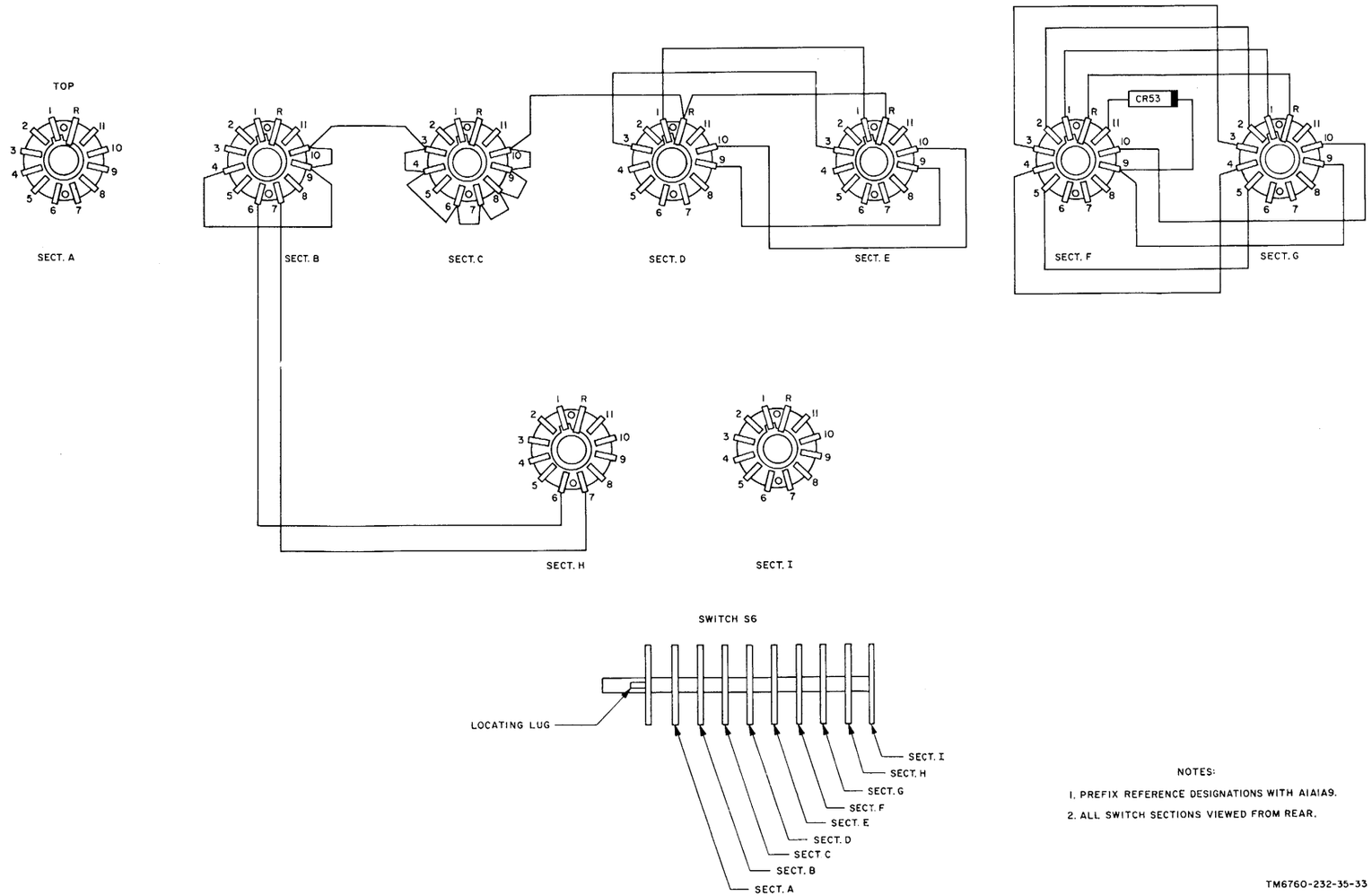


Figure 3-2. MASTER switch and component assembly A1A1A9, location of parts.

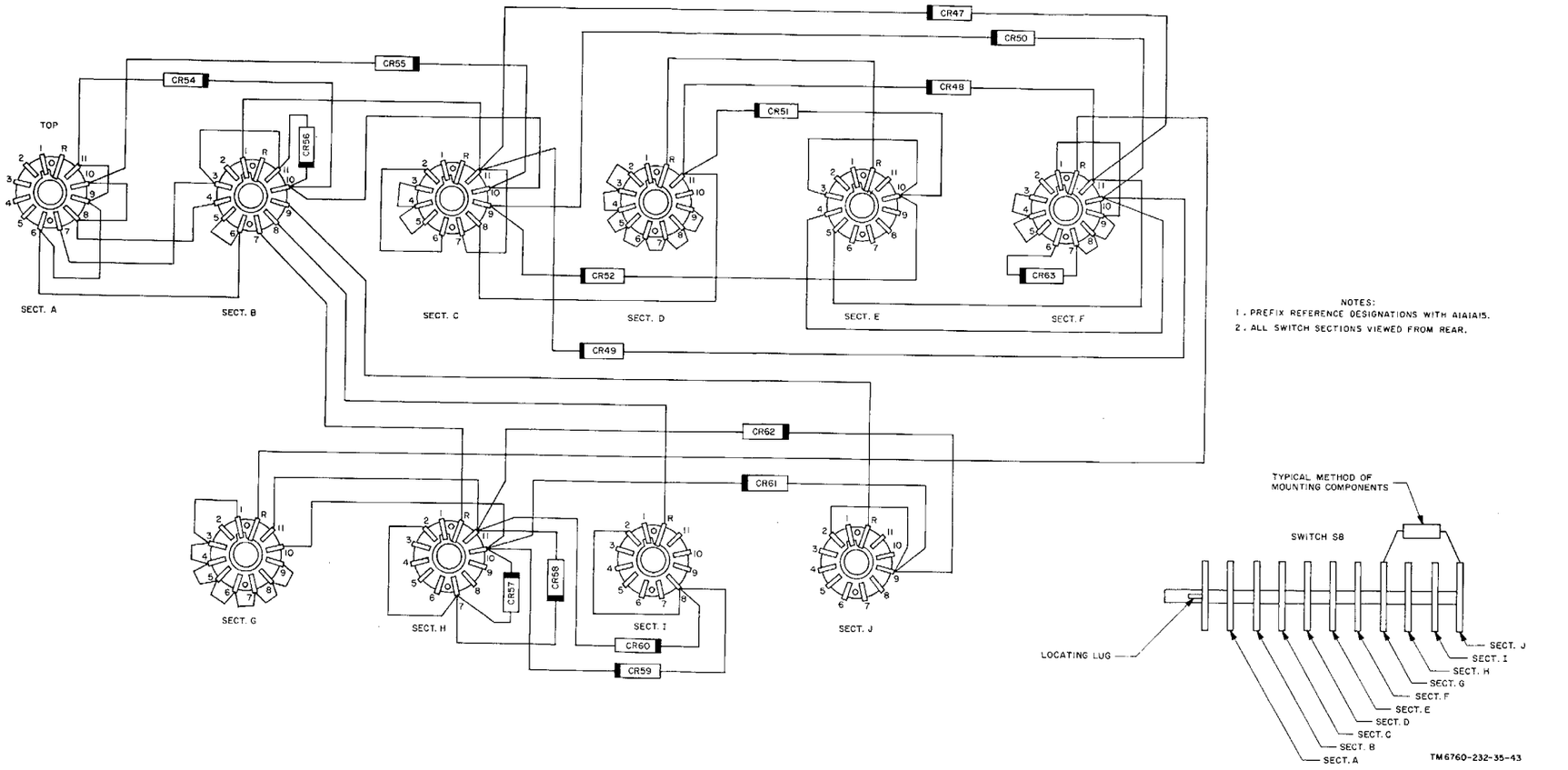
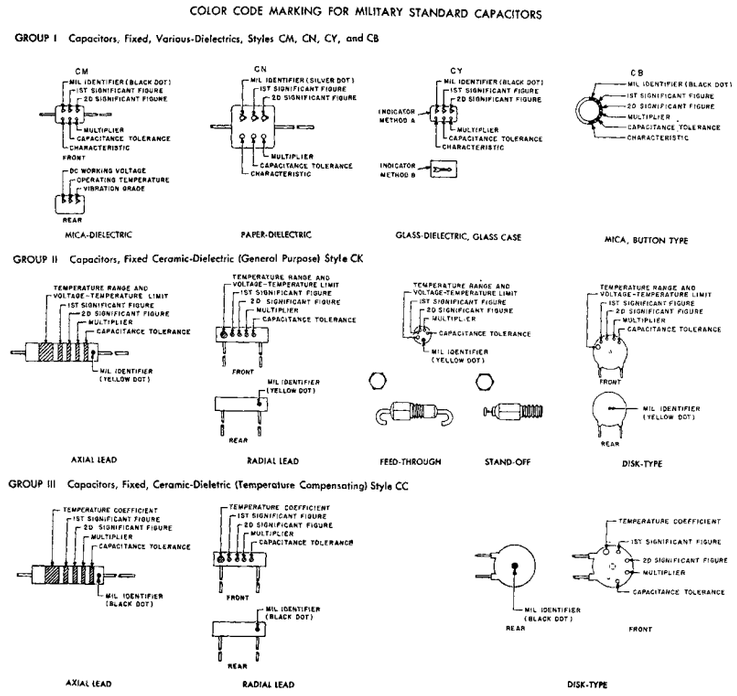


Figure 3-12. System test switch and component assembly A1A1A15, location of parts.



COLOR CODE TABLES

TABLE I – For use with Group I, Styles CM, CN, CY and CB

COLOR	MIL ID	1st SIG FIG	2nd SIG FIG	MULTIPLIER[1]	CAPACITANCE TOLERANCE				CHARACTERISTIC[2]				DC WORKING VOLTAGE	OPERATING TEMP. RANGE	VIBRATION GRADE
					CM	CN	CY	CB	CM	CN	CY	CB	CM	CM	CM
BLACK	CM, CY, CB	0	0	1			± 20%	± 20%		A				−55° to +70°C	10–55 cps
BROWN		1	1	10					B	E		E			
RED		2	2	100	± 2%		± 2%	± 2%	C		C			−55° to +85°C	
ORANGE		3	3	1,000		± 30%			D			D	300		
YELLOW		4	4	10,000					E					−55° to +125°C	10–2,000 cps
GREEN		5	5		± 5%				F				500		
BLUE		6	6											−55° to +150°C	
PURPLE (VIOLET)		7	7												
GREY		8	8												
WHITE		9	9												
GOLD				0.1			± 5%	± 5%							
SILVER	CM				± 10%	± 10%	± 10%	± 10%							

TABLE II – For use with Group II, General Purpose, Style CK

COLOR	TEMP. RANGE AND VOLTAGE – TEMP. LIMITS[3]	1st SIG FIG	2nd SIG FIG	MULTIPLIER[1]	CAPACITANCE TOLERANCE	MIL ID
BLACK		0	0	1	± 20%	
BROWN	AW	1	1	10	± 10%	
RED	AX	2	2	100		
ORANGE	BX	3	3	1,000		
YELLOW	AV	4	4	10,000		CK
GREEN	CZ	5	5			
BLUE	BV	6	6			
PURPLE (VIOLET)		7	7			
GREY		8	8			
WHITE		9	9			
GOLD						
SILVER						

TABLE III – For use with Group III, Temperature Compensating, Style CC

COLOR	TEMPERATURE COEFFICIENT[4]	1st SIG FIG	2nd SIG FIG	MULTIPLIER[1]	CAPACITANCE TOLERANCE		MIL ID
					Capacitances over 10 uuf	Capacitances 10 uuf or less	
BLACK	0	0	0	1	± 2.0 uuf		CC
BROWN	−30	1	1	10	± 1%		
RED	−80	2	2	100	± 2%	± 0.25 uuf	
ORANGE	−150	3	3	1,000			
YELLOW	−220	4	4				
GREEN	−330	5	5		± 5%	± 0.5 uuf	
BLUE	−470	6	6				
PURPLE (VIOLET)	−750	7	7				
GREY		8	8	0.01			
WHITE		9	9	0.1	± 10%		
GOLD	+100					± 1.0 uuf	
SILVER							

1. The multiplier is the number by which the two significant (SIG) figures are multiplied to obtain the capacitance in uuf.
2. Letters indicate the Characteristics designated in applicable specifications: MIL–C–5, MIL–C–91, MIL–C–11272, and MIL–C–10950 respectively.
3. Letters indicate the temperature range and voltage-temperature limits designated in MIL–C–11015.
4. Temperature coefficient in parts per million per degree centigrade.

STD–CC

ge for MIL-STD capacitors.

6-21/22

Figure 6-2. Color code markings for MIL-STD capacitors.

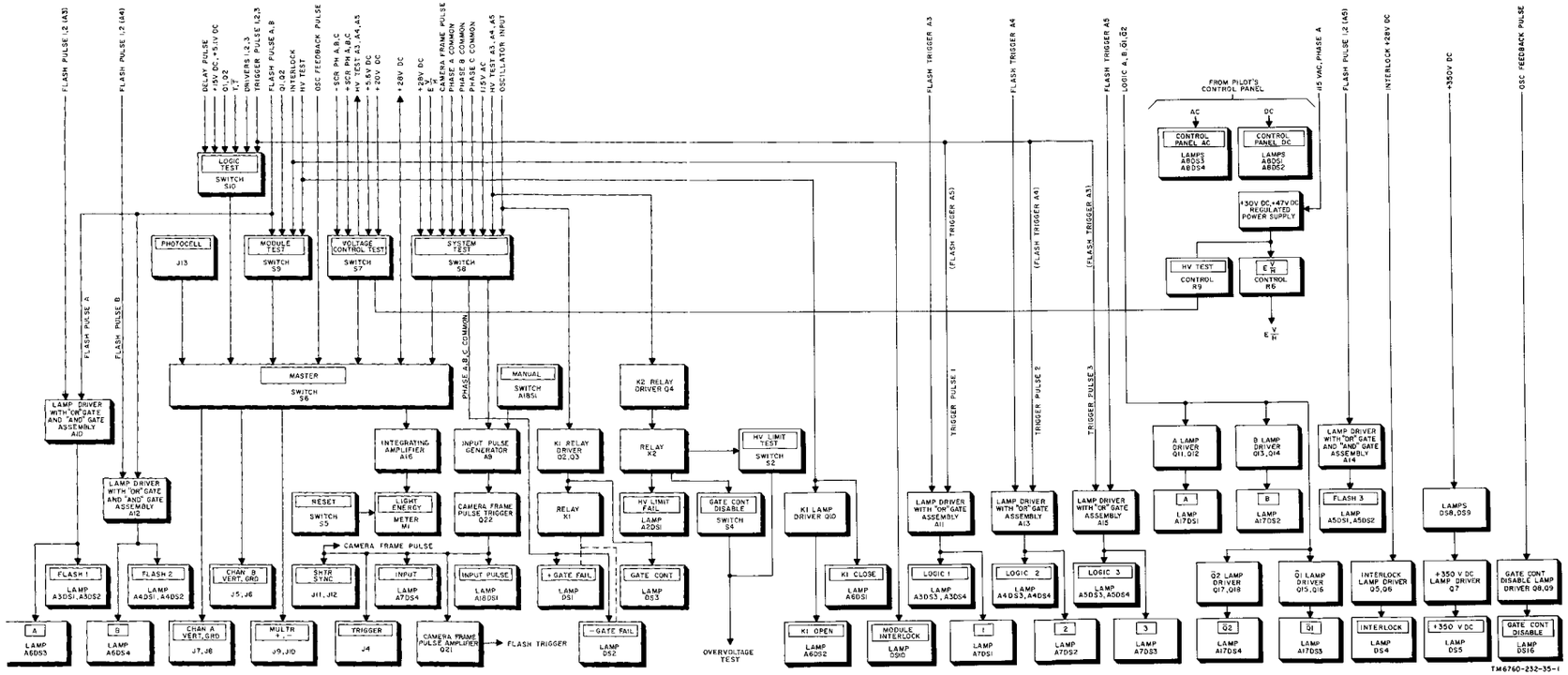


Figure 6-3. Test panel, block diagram.

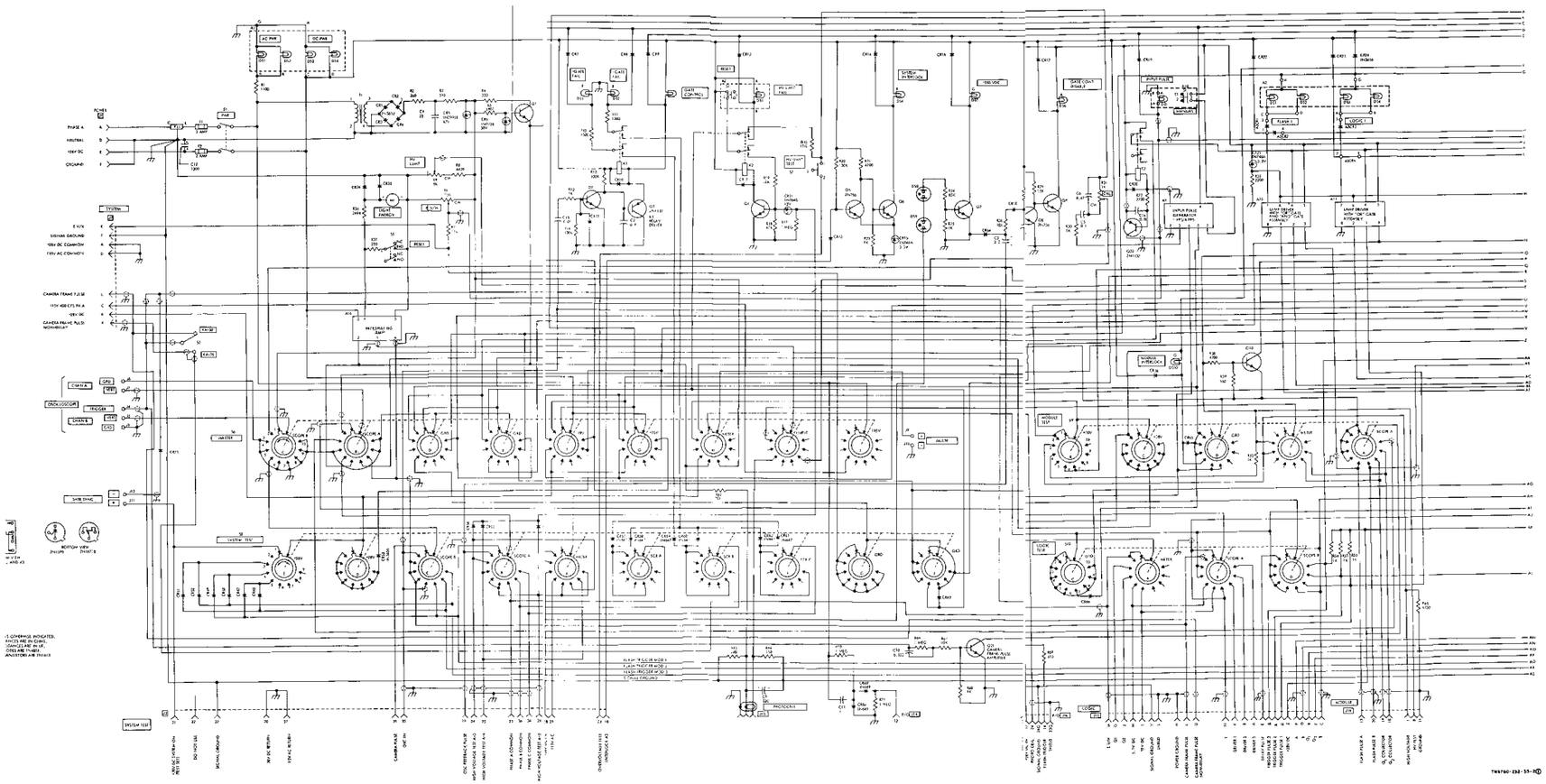


Figure 6-4 (1). Test Panel, Photographic Flasher System LM- 179A, schematic diagram (part 1 of 2).

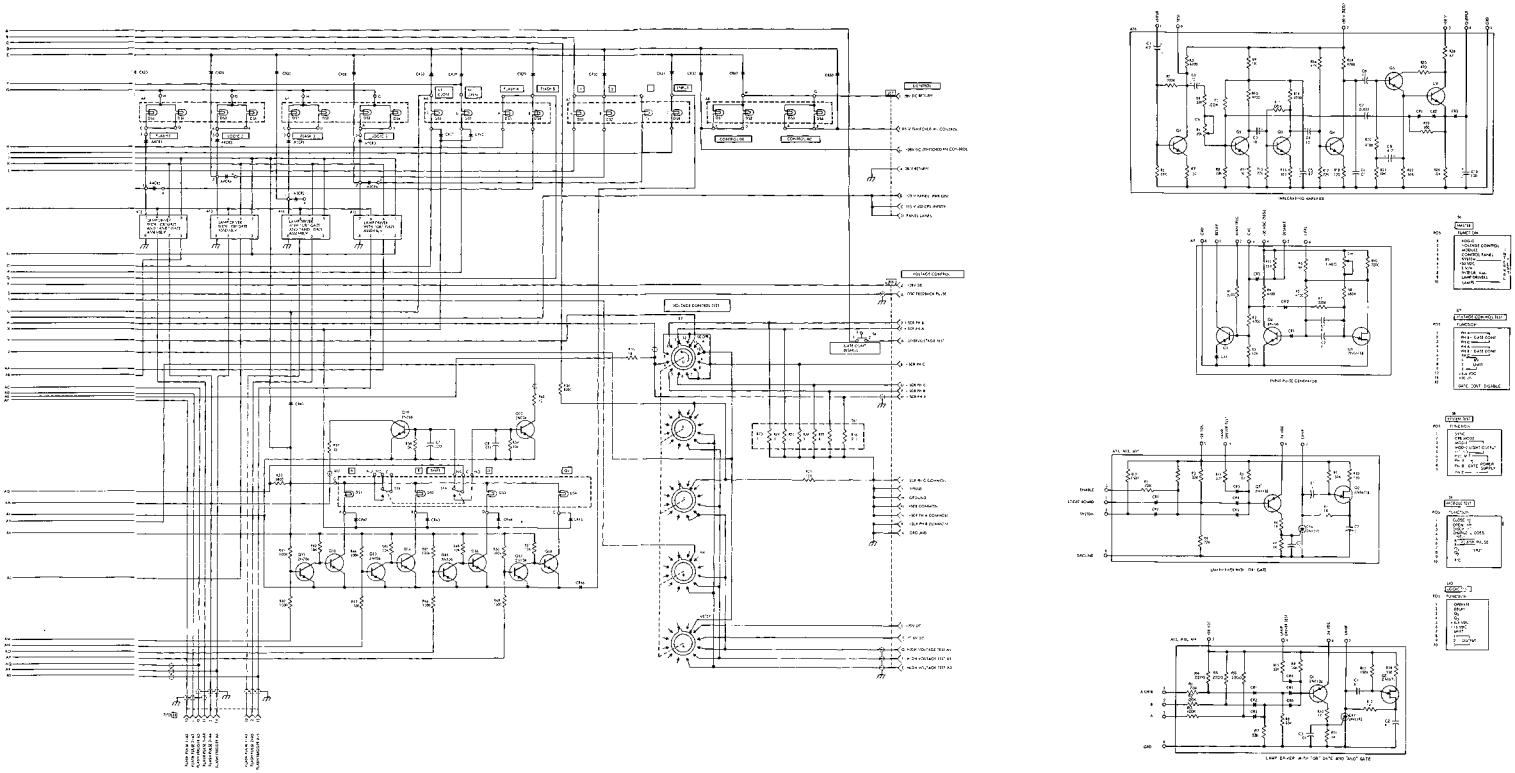


Figure 6-4 (2). Test panel, Photographic Flasher System LM-179A, schematic diagram (part 2 of 2).

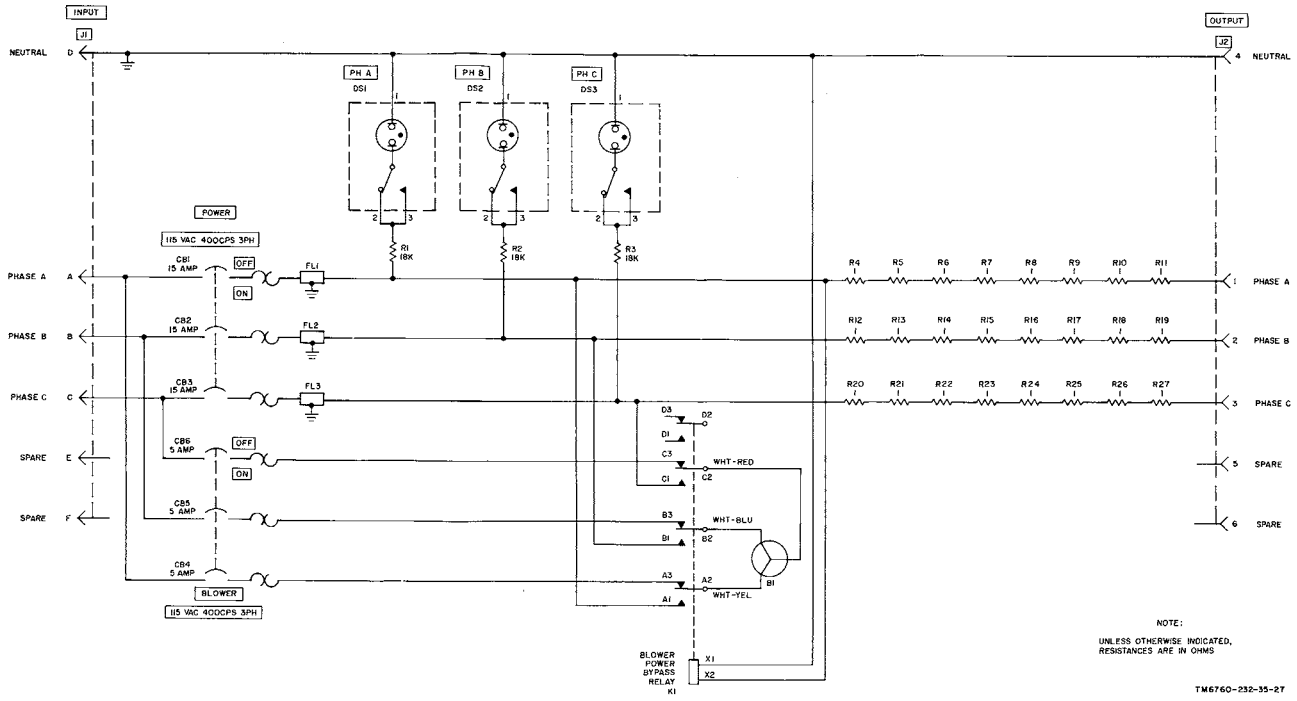


Figure 6-5. Power Limiter- Blower Assembly LM-187A, schematic diagram.

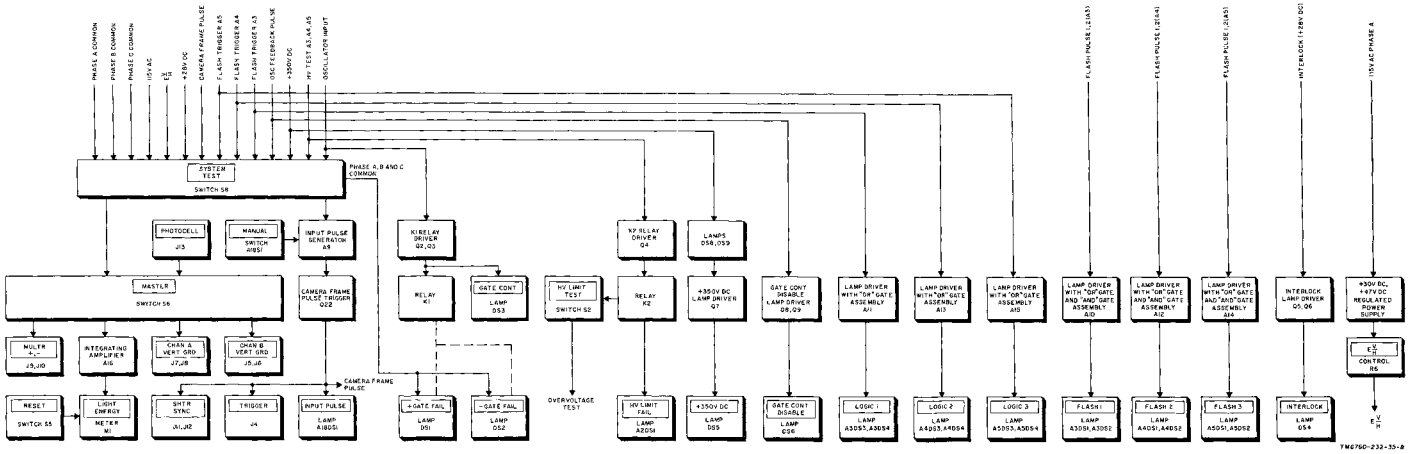


Figure 6-6. SYSTEM test circuit block diagram.

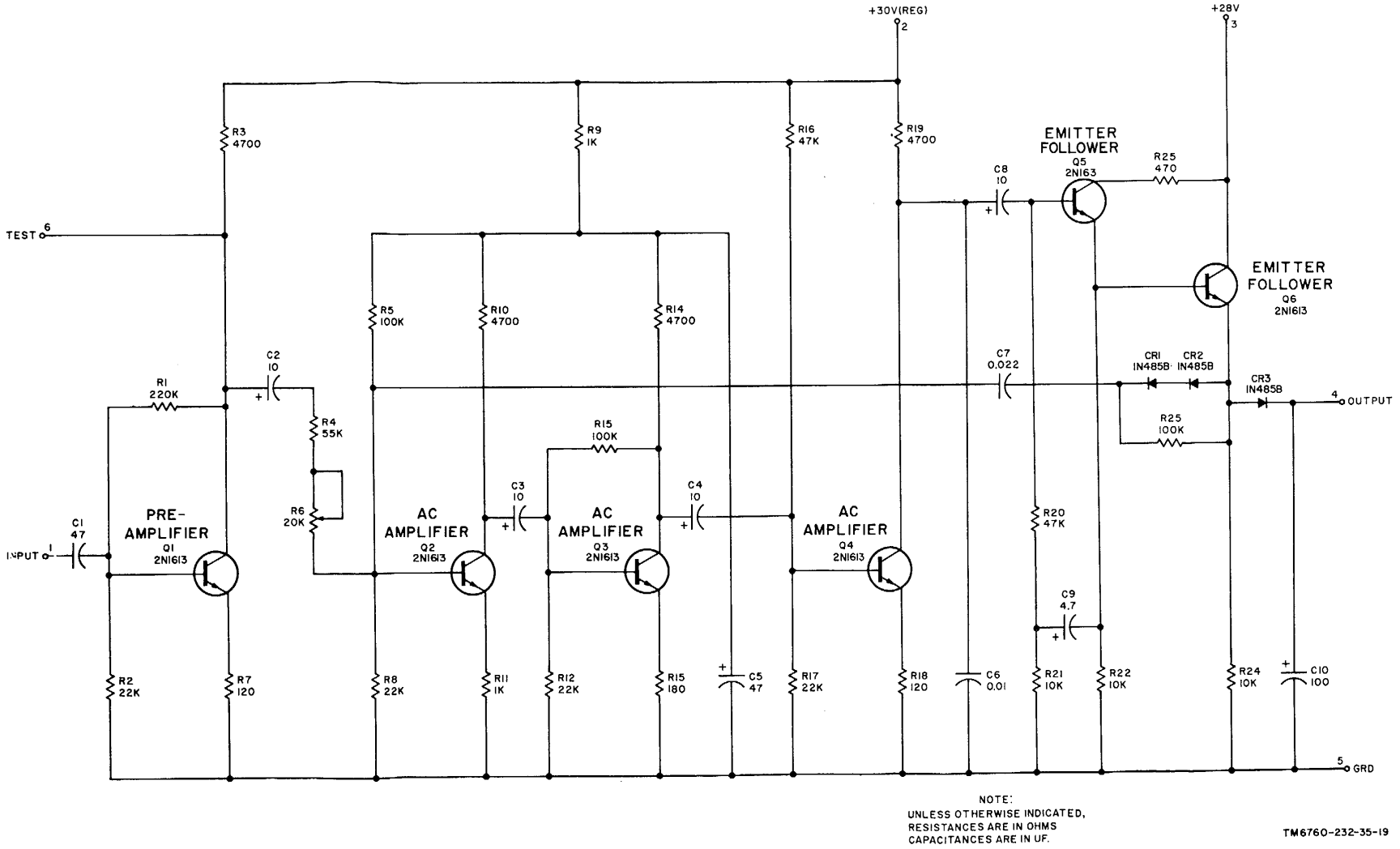


Figure 6-7. Integrating amplifier A16, schematic diagram.

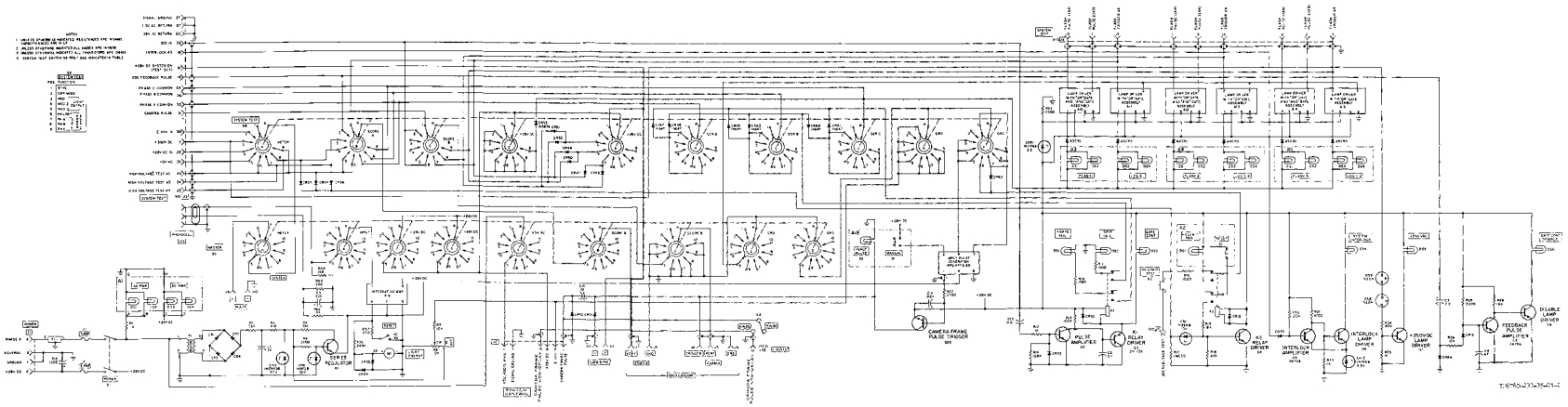


Figure 6-8. SYSTEM test circuit, schematic diagram.

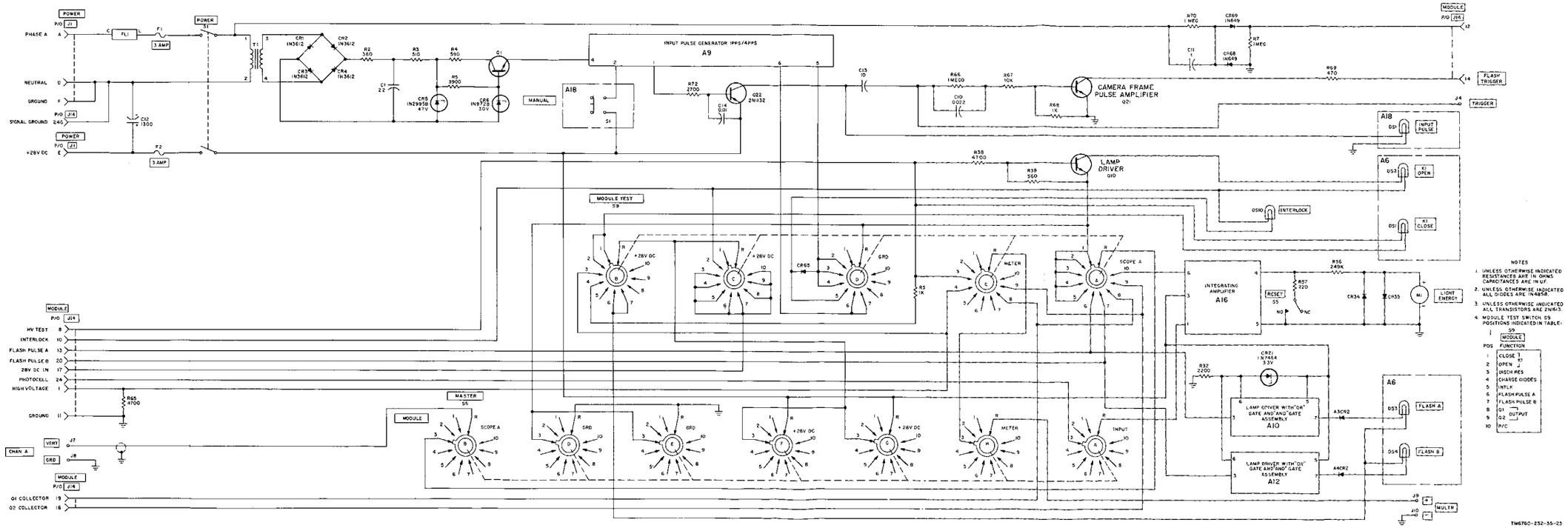


Figure 6-9. MODULE test circuit, schematic diagram

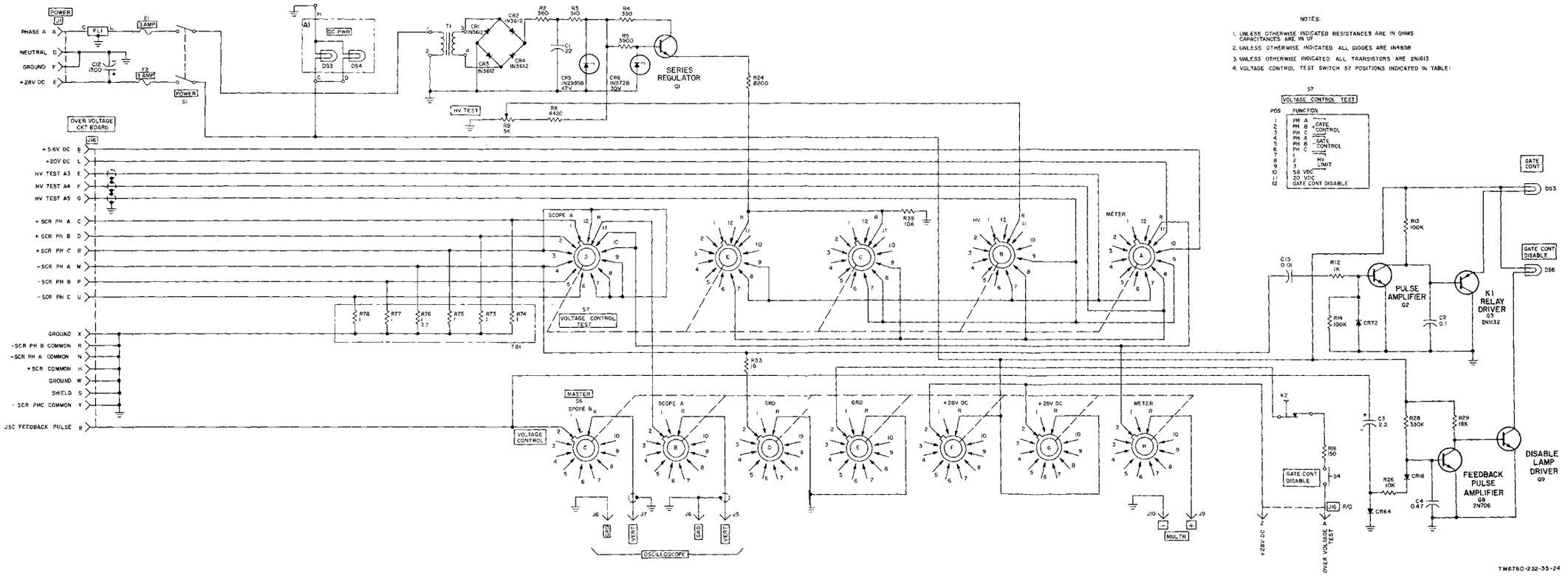


Figure 6-10. VOLTAGE CONTROL test circuit, schematic

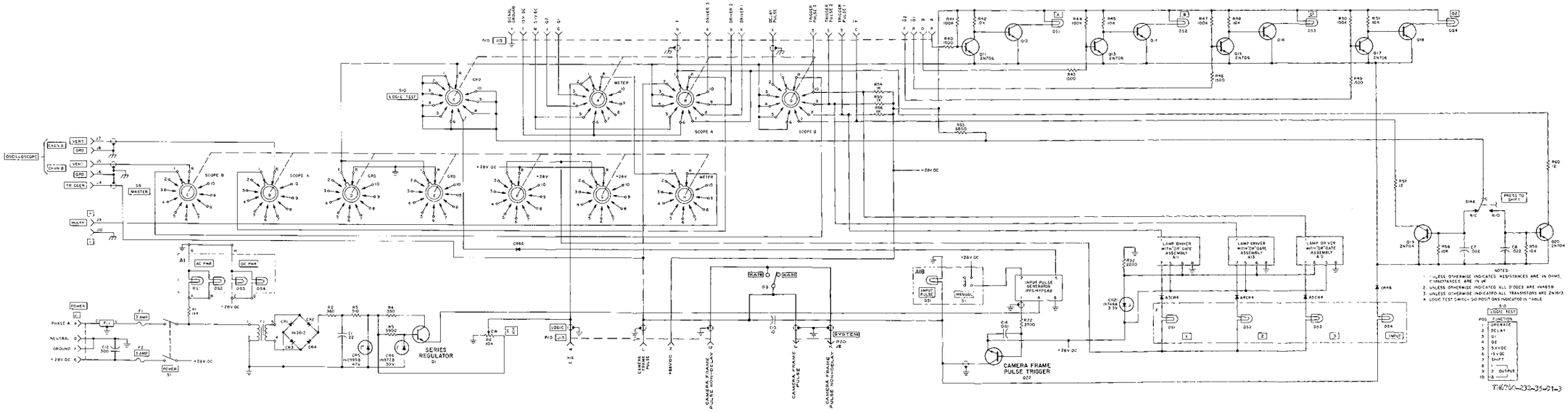


Figure 6-11. LOGIC test circuit, schematic diagram

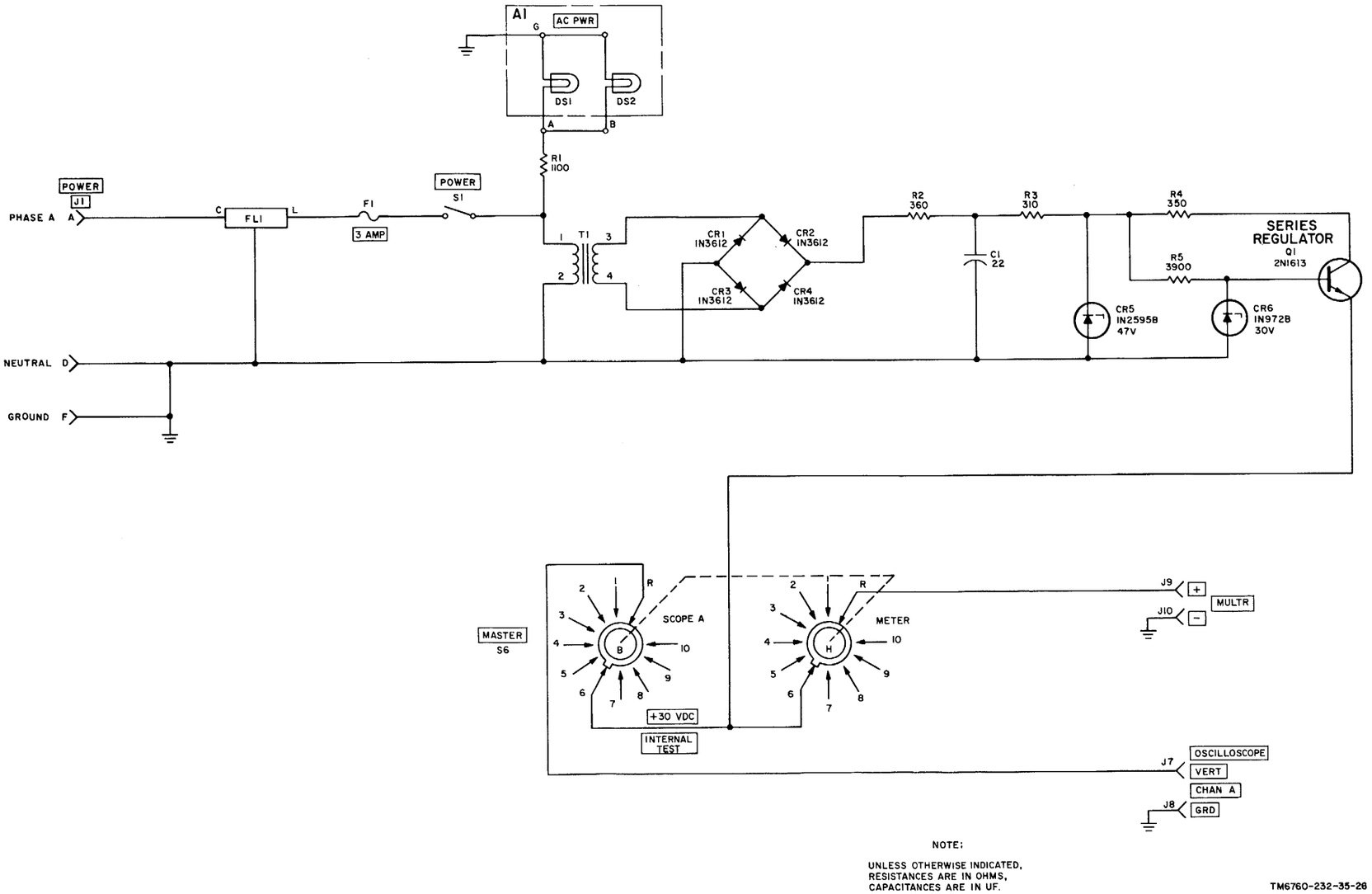


Figure 6-12. INTERVAL test circuit + 30 volts dc schematic diagram.

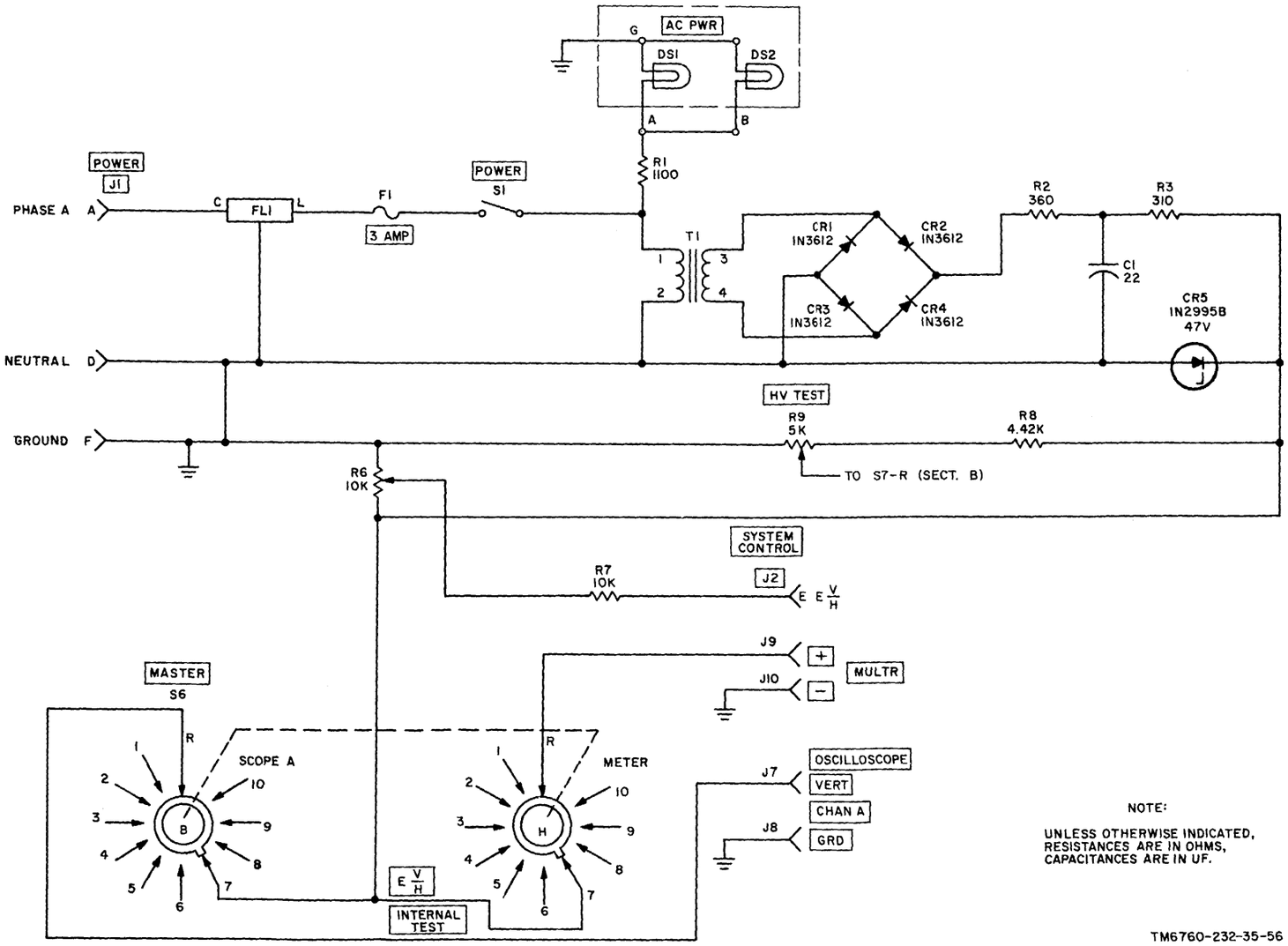
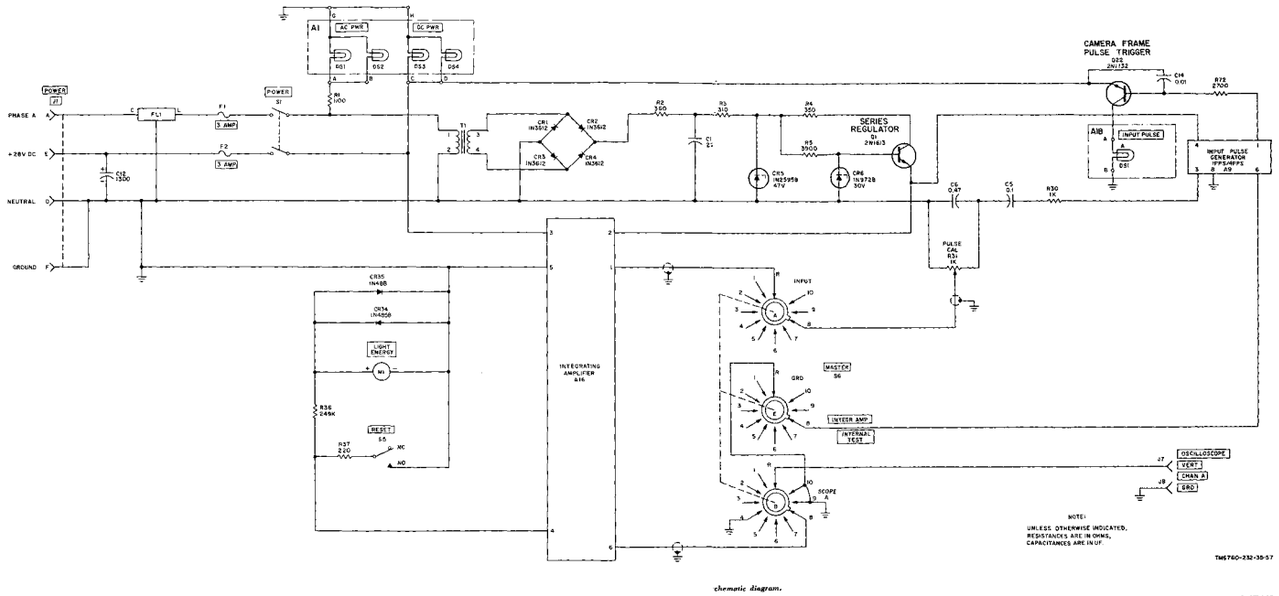


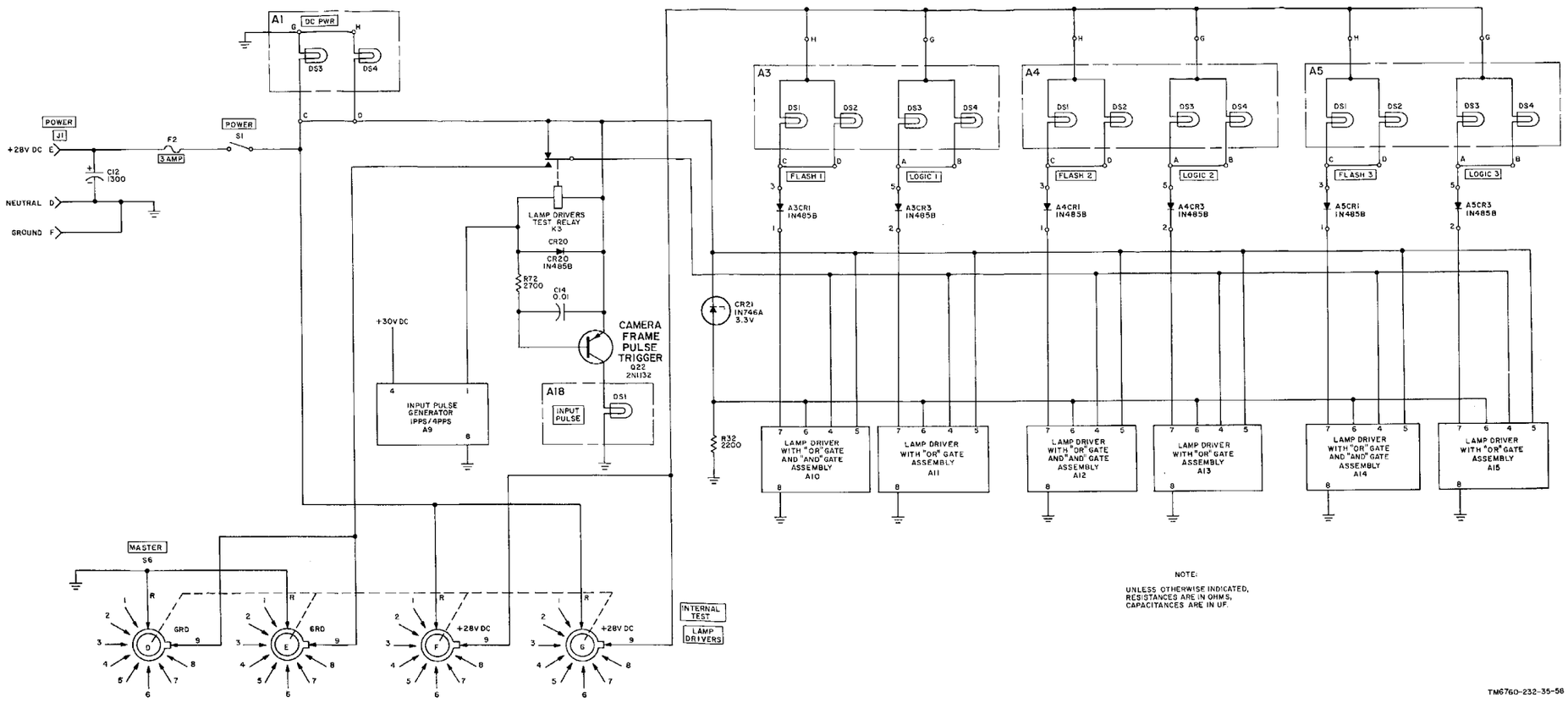
Figure 6-13. INTERVAL test circuit, E V/H, schematic diagram.



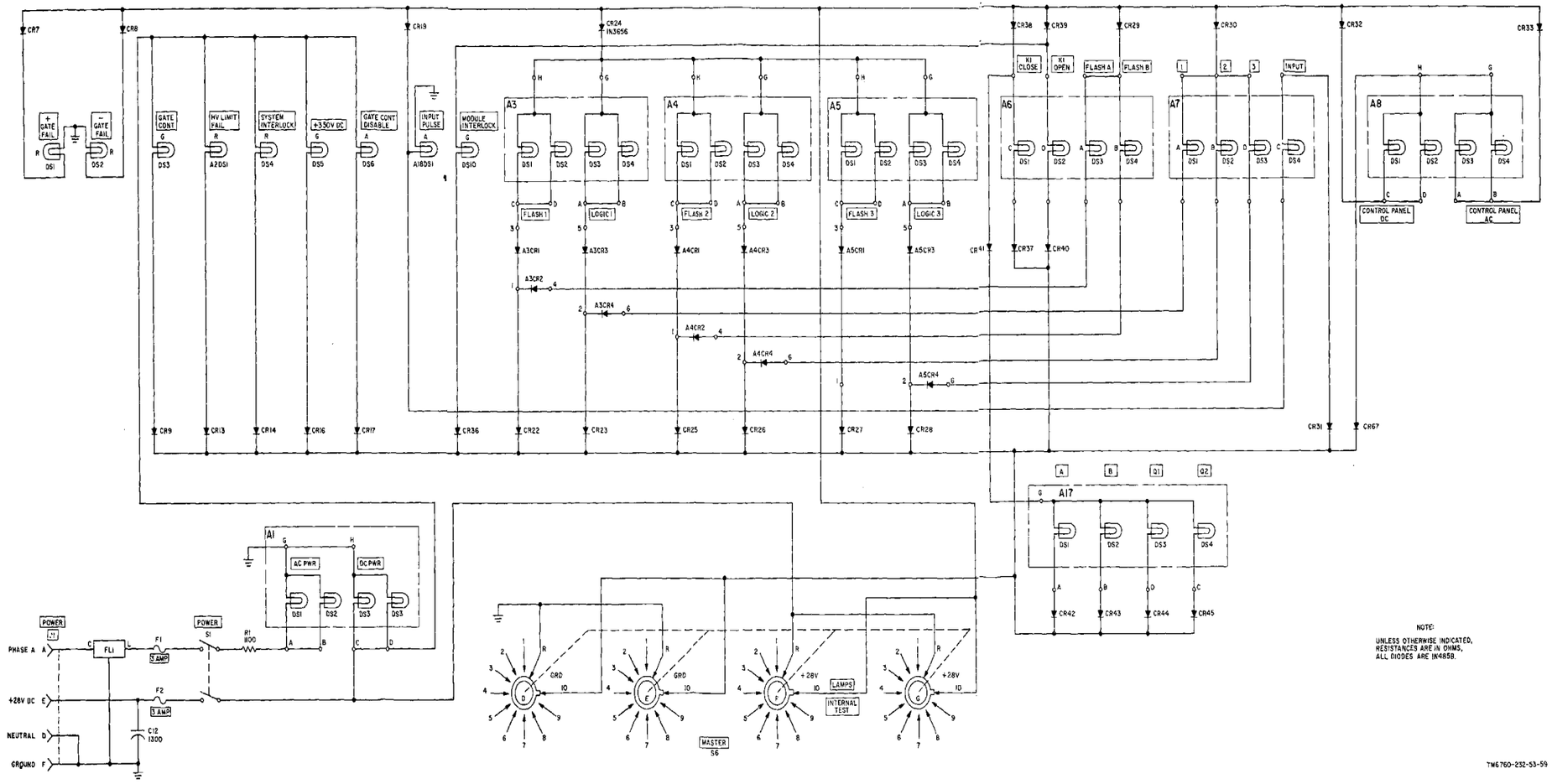
schematic diagram.

6-47/48

Figure 6-14. INTERNAL test circuit, integrated amplifier, schematic diagram.


A1
DC PWR
DS3
DS4
POWER
J1
+28V DC
F2
3 AMP
POWER
S1
C12
1300
NEUTRAL
GROUND
LAMP DRIVERS TEST RELAY K3
CR20
CR20 IN485B
R72 2700
C14 0.01
+30V DC
CAMERA FRAME PULSE TRIGGER Q22 2N1132
CR21 IN746A 3.3V
R32 220Ω
INPUT PULSE GENERATOR (PPS/4PPS A9
A18
INPUT PULSE
DS1
A3
A4
A5
DS1
DS2
DS3
DS4
FLASH 1
LOGIC 1
FLASH 2
LOGIC 2
FLASH 3
LOGIC 3
A3CR1 IN485B
A3CR3 IN485B
A4CR1 IN485B
A4CR3 IN485B
A5CR1 IN485B
A5CR3 IN485B
LAMP DRIVER WITH "OR" GATE AND "AND" GATE ASSEMBLY A10
LAMP DRIVER WITH "OR" GATE ASSEMBLY A11
LAMP DRIVER WITH "OR" GATE AND "AND" GATE ASSEMBLY A12
LAMP DRIVER WITH "OR" GATE ASSEMBLY A13
LAMP DRIVER WITH "OR" GATE AND "AND" GATE ASSEMBLY A14
LAMP DRIVER WITH "OR" GATE ASSEMBLY A15
MASTER
S6
GRD
+28V DC
INTERNAL TEST
LAMP DRIVERS
NOTE:
UNLESS OTHERWISE INDICATED, RESISTANCES ARE IN OHMS, CAPACITANCES ARE IN UF.
TM6760-232-35-58

6-49/50


CR7
CR8
CR19
CR24 IN3656
CR38
CR39
CR29
CR30
CR32
CR33
+ GATE FAIL
- GATE FAIL
DS1
DS2
GATE CONT
HV LIMIT FAIL
SYSTEM INTERLOCK
+330V DC
GATE CONT DISABLE
DS3
A2DS1
DS4
DS5
DS6
INPUT PULSE
MODULE INTERLOCK
A1DS1
DS10
A3
A4
A5
A6
A7
A8
K1 CLOSE
K1 OPEN
FLASH A
FLASH B
INPUT
CONTROL PANEL DC
CONTROL PANEL AC
FLASH 1
LOGIC 1
FLASH 2
LOGIC 2
FLASH 3
LOGIC 3
A3CR1
A3CR3
A4CR1
A4CR3
A5CR1
A5CR3
CR41
CR37
CR40
A3CR2
A3CR4
A4CR2
A4CR4
A5CR4
CR9
CR13
CR14
CR16
CR17
CR36
CR22
CR23
CR25
CR26
CR27
CR28
CR31
CR67
A1
AC PWR
DC PWR
A17
A
B
Q1
Q2
CR42
CR43
CR44
CR45
POWER
S1
PHASE A
+28V DC
NEUTRAL
GROUND
F1
5 AMP
F2
3 AMP
FLI
R1 100
C12 1300
GRD
+28V
LAMPS
INTERNAL TEST
MASTER 56
NOTE:
UNLESS OTHERWISE INDICATED, RESISTANCES ARE IN OHMS, ALL DIODES ARE IN4858.
TM6760-232-53-59
6-51/52

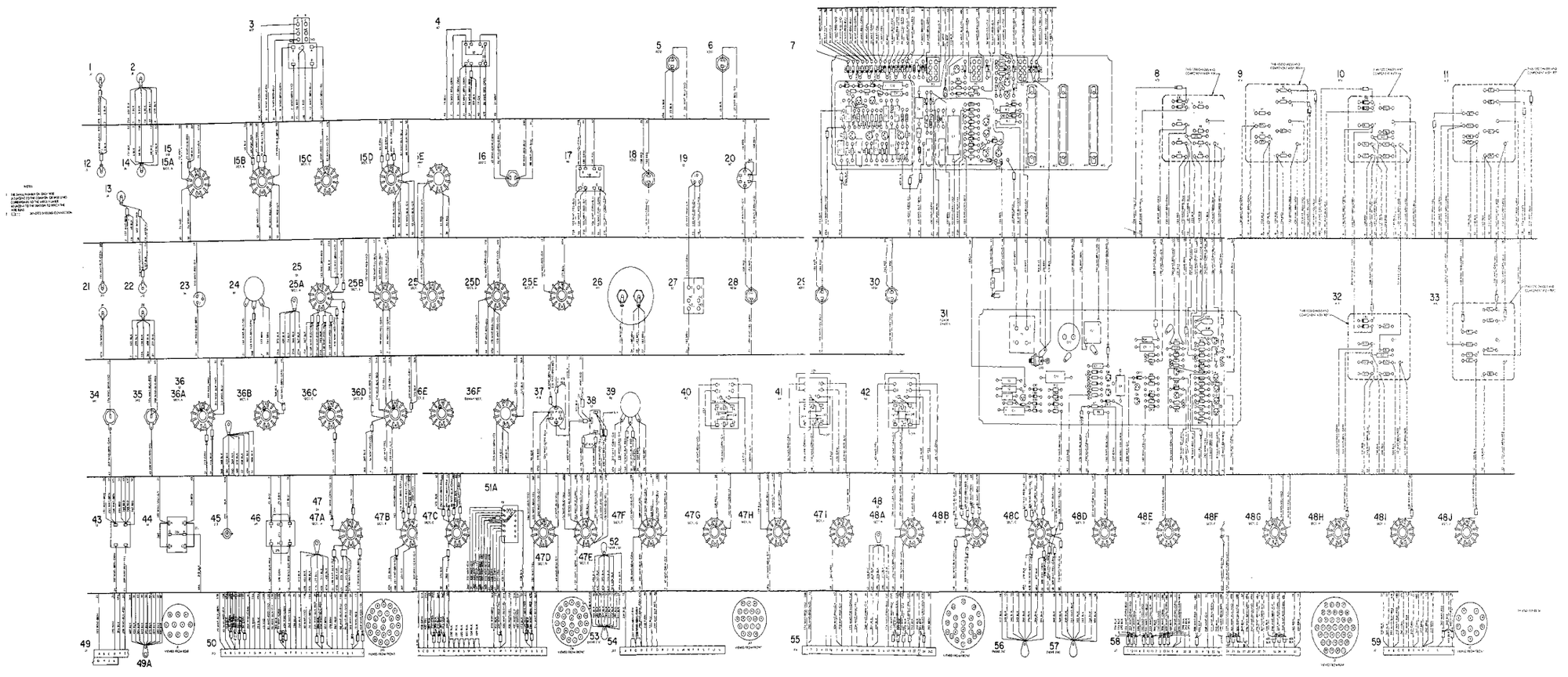
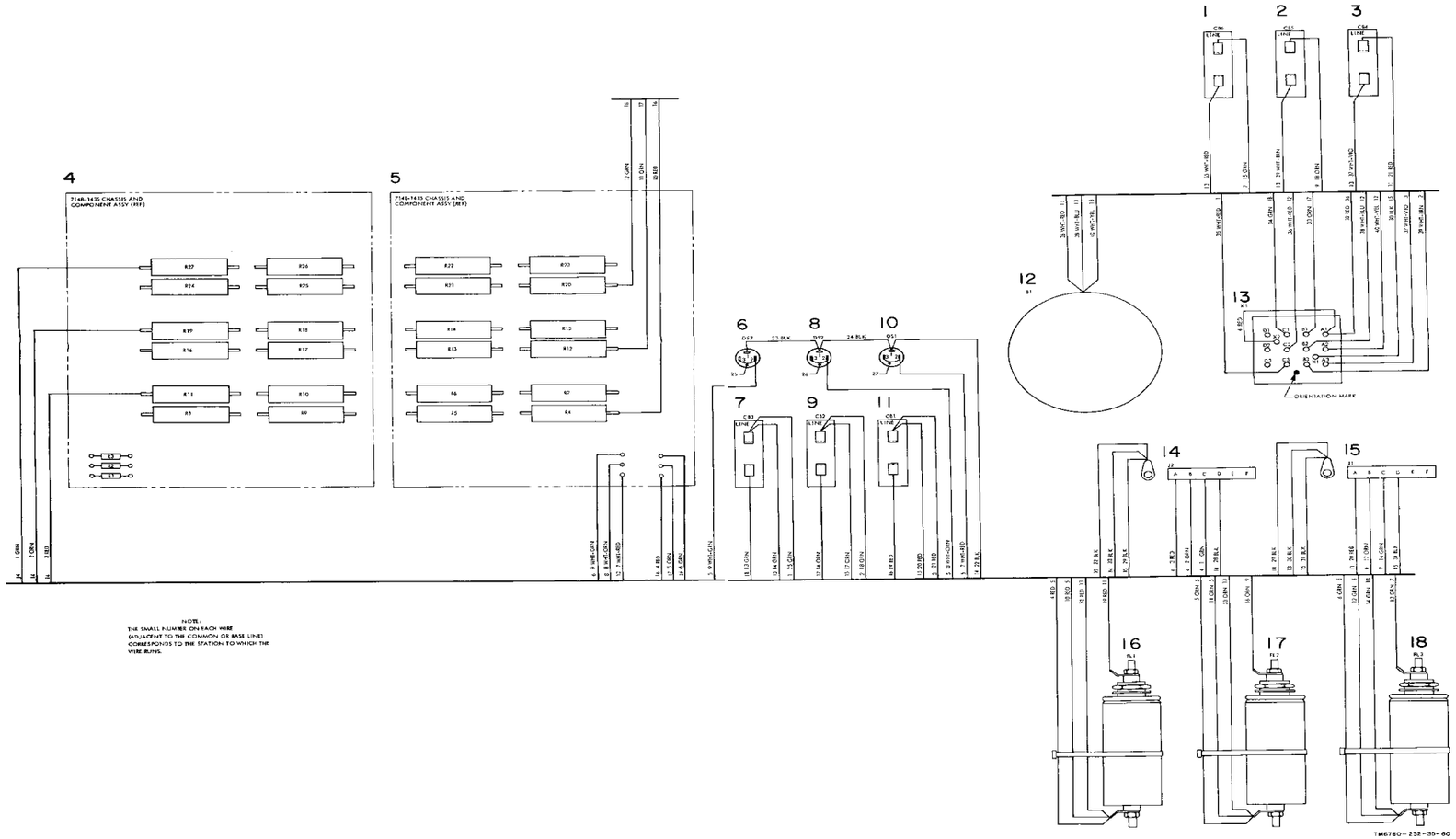


Figure 6-18. Test panel, Photographic Flasher System LM-179A, wiring diagram.



6-57/58

Figure 6-19. Power Limiter and Blower Assembly LM-187A, wiring diagram.

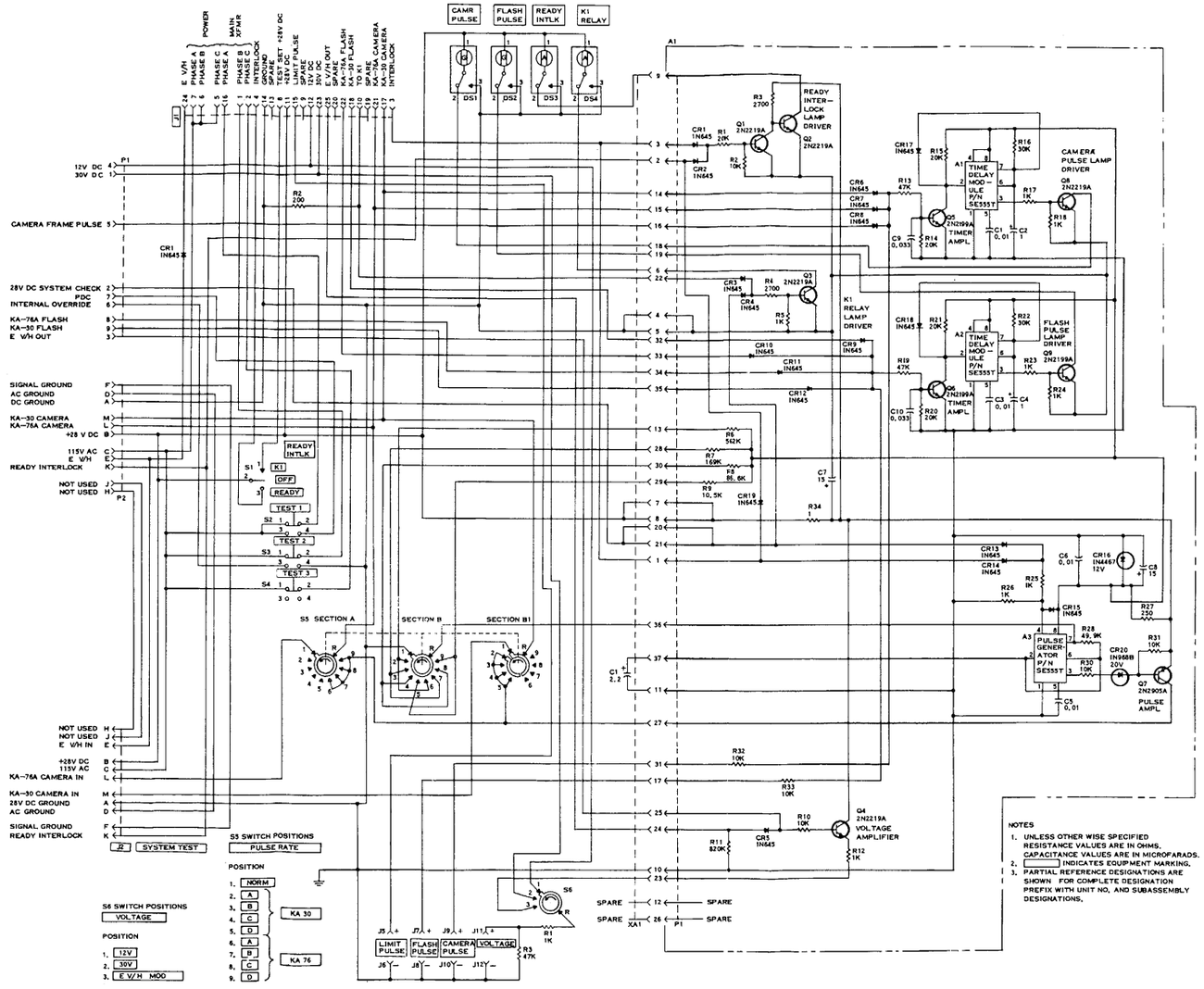


Figure 6-19. Adapter schematic diagram.

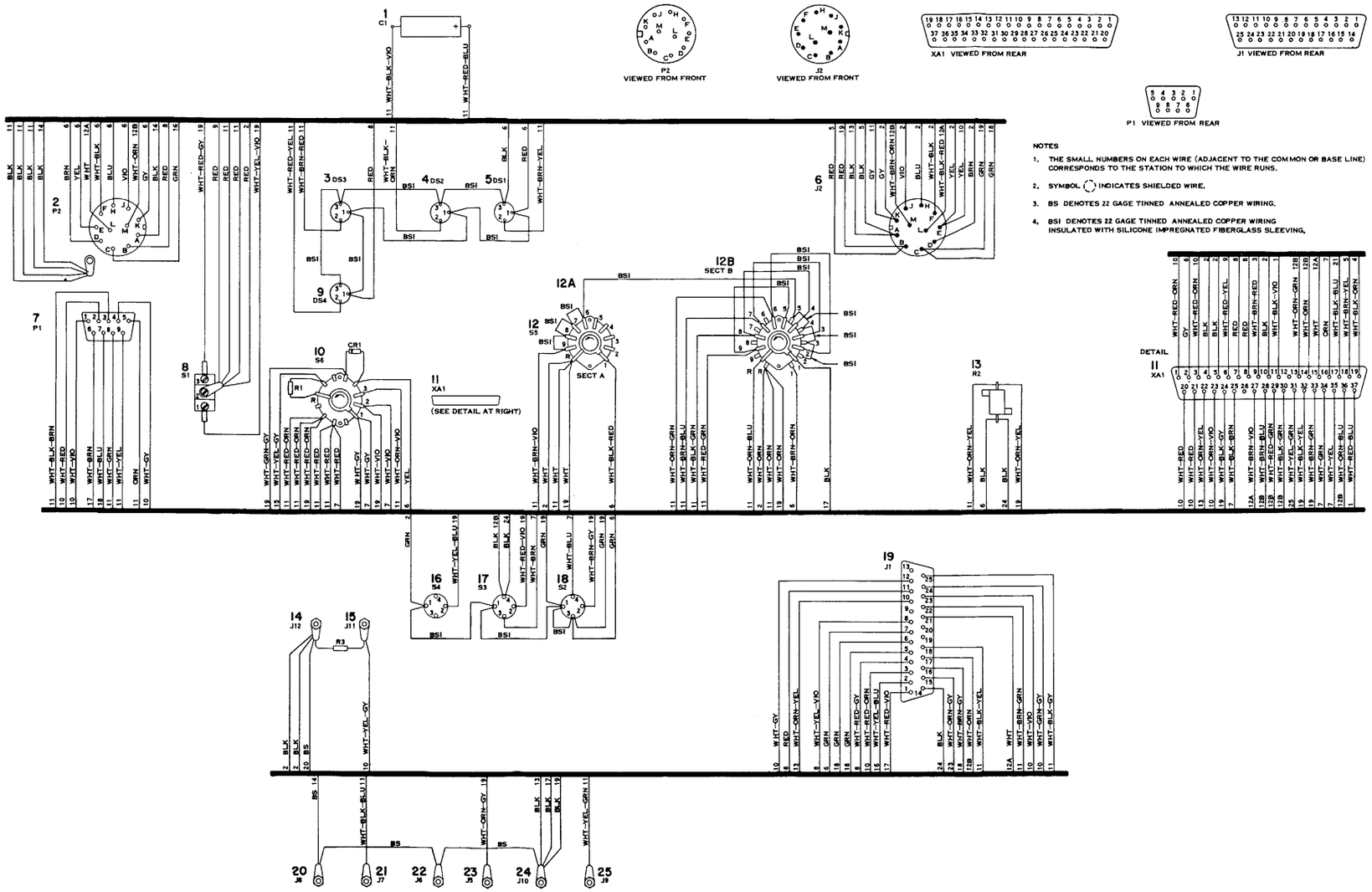


Figure 6-20. Adapter wiring diagram.

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