TM 11-6625-664-45

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

GENERAL SUPPORT AND DEPOT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST TEST SET, RADAR AN/APM-246 AND TEST SET, RADAR AN/APM-246

HEADQUARTERS, DEPARTMENT OF THE ARMY

MAY 1967

WARNING

DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT

Be careful when working on the 115-volt primary power circuits in the equipment.

570 volts exist in the klystron power supply circuit.

Serious injury or death may result from contact with these potentials.

DON’T TAKE CHANCES

TECHNICAL MANUAL
No. TM 11-6625-664-45

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., *10 May 1967*

GS AND DEPOT MAINTENANCE MANUAL

(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

TEST SET, RADAR AN/APM-246 AND TEST SET, RADAR AN/APM-247

***This manual supersedes TM 11-6625-664-45, 23 November 1966.**

CHAPTER 1
FUNCTIONING

Section I. GENERAL

1-1. Scope

a. This manual contains general support and depot maintenance instructions for Test Sets, Radar AN/APM-246 and AN/APM-247. It includes instructions appropriate for troubleshooting, testing, alignment, tools, materials, and test equipment required for general support and depot maintenance. Functional analysis and circuit theory for the equipment are covered in this chapter.

b. The complete manual for this equipment includes TM 11-6625-664-12.

c. Reporting of Equipment Manual Improvements. Reporting of errors, omissions, and recommendations for improving this manual by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to Commanding General, U. S. Army Electronics Command, ATTN: AMSELMR-NMP-AD, Fort Monmouth, N.J. 07703.

Note. For applicable forms and records, see paragraph 1-3, TM 11-6625-664-12.

1-2. Index of Equipment Publications

Refer to the latest issue of DA Pam 310-4 to determine if there are new editions, changes, or additional publications pertaining to the equipment. DA Pam 310-4 is an index of current technical manuals, technical bulletins, supply manuals (types 7, 8, and 9), supply bulletins, lubrication orders, and modification work orders that are available through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc.) and the latest changes to and revisions of each equipment publication.

Section II. FUNCTIONING

1-3. Functioning of Test Set, Radar AN/APM-246

Test Set, Radar AN/APM-246 consists of a case (CY-475/APM-246) and a cable harness tester (TS-2154/APM-246). The TS-2154/APM-246 tests the aircraft cable harness that is associated with the installation of an AN/APN-158 radar set. The equipment checks the cable harness for continuity, shorts, and grounds. Paragraphs a through c below discuss each of the harness tester functions. Figure 5-3 is the AN/APM-246 overall schematic diagram.

a. Testing for Continuity. (fig. 1-1). The continuity testing portion of the TS-2154/ APM-246 consists of three parts; wire selector switches, a test selector switch, and an indicator. The wires in the aircraft wiring harness connect to switches S1 through S4. Wires having continuity through the wiring harness connect to corresponding contacts on different wafers on the same switch. For example, one end of a continuous harness wire connects to the first contact on switch S1A rear and the other end of the wire connects to the first contact of S1C rear. Switch S5C, in the second position, connects the wiper arms of switches S1A and S1C to the indicator circuit. When the TEST switch is pushed, there is a complete circuit from battery negative through the CONTINUITY indicator, S5C rear, S1A rear, the wiring harness, S1C rear, S5C rear, the TEST switch, and back to battery positive.

Therefore, if the wire in the aircraft harness is continuous, the CONTINUITY lamp lights when the TEST switch is pushed. The circuit action is the same for the remaining 22 positions of S1 except different wires in the harness are tested. Switches S2, S3, and S4 work the same as S1. TEST SELECTOR switch S5 connects any one of these switches to the indicator circuit, depending upon its position. TEST SELECTOR switch S5 also has a LAMP TEST position. In this position, continuity for the indicator circuit is made inside the equipment and the CONTINUITY lamp lights when the TEST switch is pushed.

b. Testing for Shorts. (fig. 1-2). The short-testing portion of the TS-2154/APM-246 consists of three parts: wire selector switches, a test selector switch, and an indicator circuit. The wire selector switches short all harness wires together except the one being tested. If the wire being tested is shorted to any other wire in the harness, the SHORT lamp will light. The front and rear B sections of S2 through S4 are wired in parallel (S1B and S1C are similarly wired on S1). The corresponding switch configurations are complementary. The front B sections of switches S1 through S4 short all wires in the harness except the one wire that is left open by the open switch segment. These signal wires are shorted through the rear B sections of S2 through S4 (S1 shorts through the rear C section) and through the A and B sections of S5.

c. Testing for Grounds. (fig. 1-1). The circuit configuration for ground testing is similar to that for continuity testing; however, only the harness wires on the B section rear wafers (C section rear on S1) on switches S2 through S4 are checked. Checking the harness wires connected to the A sections is not necessary since these wires are continuous with the harness wires on the B section wafers. CIRCUIT SELECTOR switch S5 connects the wiper arm of the B section rear wafers to the indicating circuit. One side of the GROUND lamp is grounded; therefore, if any wire on the B rear wafers is shorted to ground, it grounds the positive side of the battery and lights the GROUND lamp.

1-4. Functioning of Test Set, Radar AN/APM-247

Test Set, Radar AN/APM-247 consists of Test Set, Radar TS-2081/APM-247, Radar Test Set Cover CW-752/APM-247, and various interconnecting cables. The TS-2081/APM-247 may be used to bench test Radar Set AN/APN-158 as a system or to test the individual units of the AN/APN-158. The individual units of the AN/APN-158 are Receiver-Transmitter RT-711/APN-158, Synchronizer SN-358/APN-158, Antenna AS1642/APN-158, Indicator IP-724/APN-158, and Radar Control Unit C-4881/APN-158. The RT-711/APN-158 is tested on the TS-2081/APM-247, independent of the other units; whereas, the SN-358/APN-158 is tested with the RT-711/APN-158 also plugged into the TS-2081/APM-247. The AS-1642/APN-158 test is performed with the RT-711/APN-158 and SN-358/APN158 plugged into the AN/APM-247. Similarly, the IP-724/APN-158 test requires that the RT-711/APN-158, SN-358/APN158, and AS-1642/APN-158 be connected into the TS-2081/APM-247. The C-4881/APN-158 test does not require that any other AN/APN-158 units be connected to the TS2081/APM-247. Paragraphs 1-5 through 1-9 below discuss the testing of each of the five AN/APN-158 units. Figure 5-4 is the AN/APM-247 overall schematic diagram.

1-5. Receiver-Transmitter Test Block Diagram Theory

The following paragraphs describe the tests that are performed on Receiver-Transmitter RT-711/APN-158 by Test Set, Radar AN/APM-247. Figure 5-6 shows a block diagram of the functional circuits in the AN/APM-247 used in the receiver-transmitter tests. The paragraphs are arranged in the order of the tests performed on the receiver-transmitter. Refer to figure 5-6 for the following discussions.

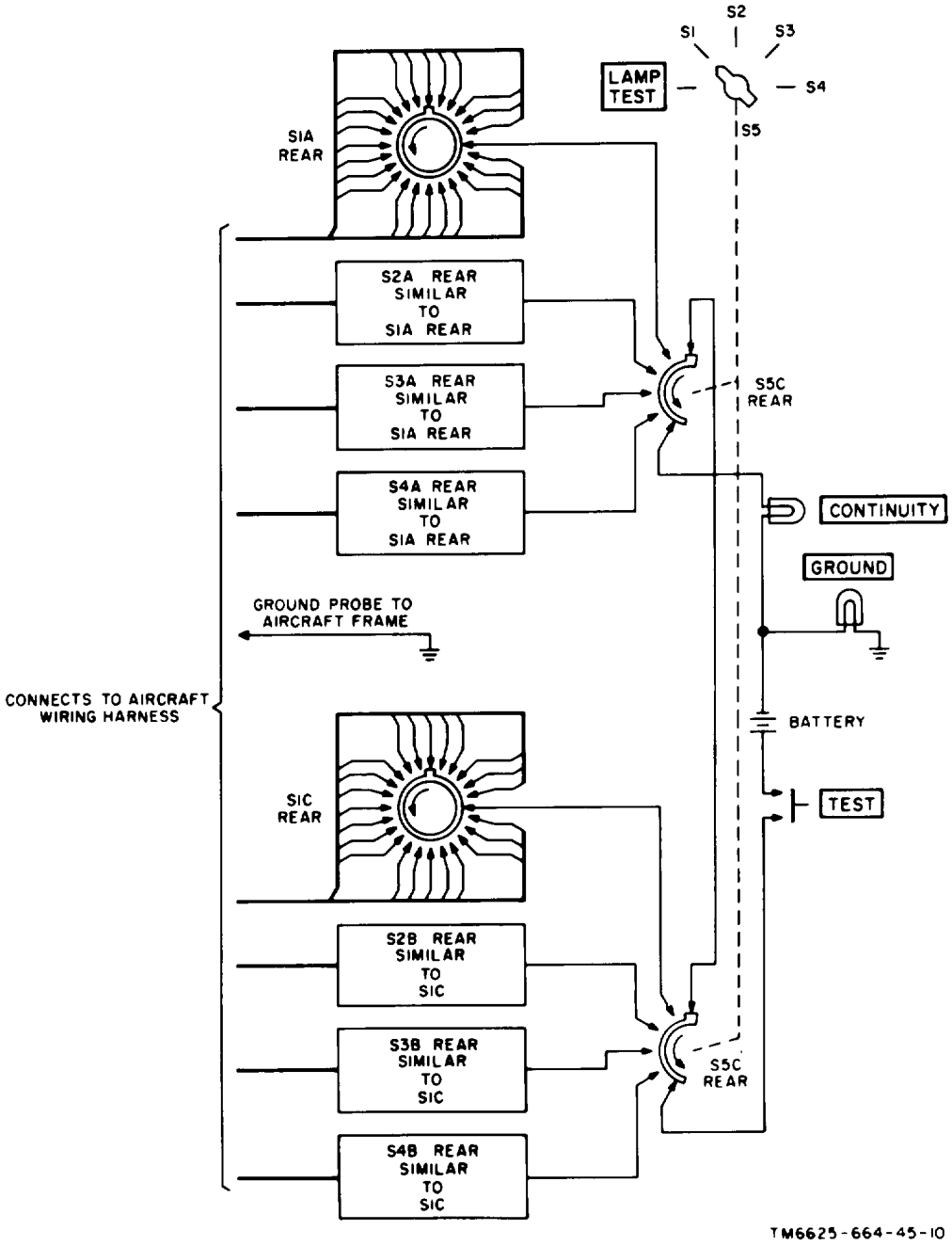


Figure 1-1. Continuity test configuration simplified schematic diagram.

a. Power Input. The AC POWER switch connects the 115-volt, 400-cps input power to variable autotransformer T1. The autotransformer adjusts the receiver-transmitter input voltage to 115 volts. INPUT FREQUENCY meter M1 and INPUT VOLTAGE meter M2 monitor the voltage and frequency characteristics of the 400-cps input power.

b. Relay Power. The relay power supply in the receiver-transmitter produces approximately 25 volts at the output. When the RECEIVER TRANSMITTER TESTS TEST FUNCTION switch S11 is in the RELAY POWER position, the relay power voltage is applied to both the TEST METER and to channel A of the oscilloscope. The TEST METER full scale sensitivity for this test is -50 volts dc.

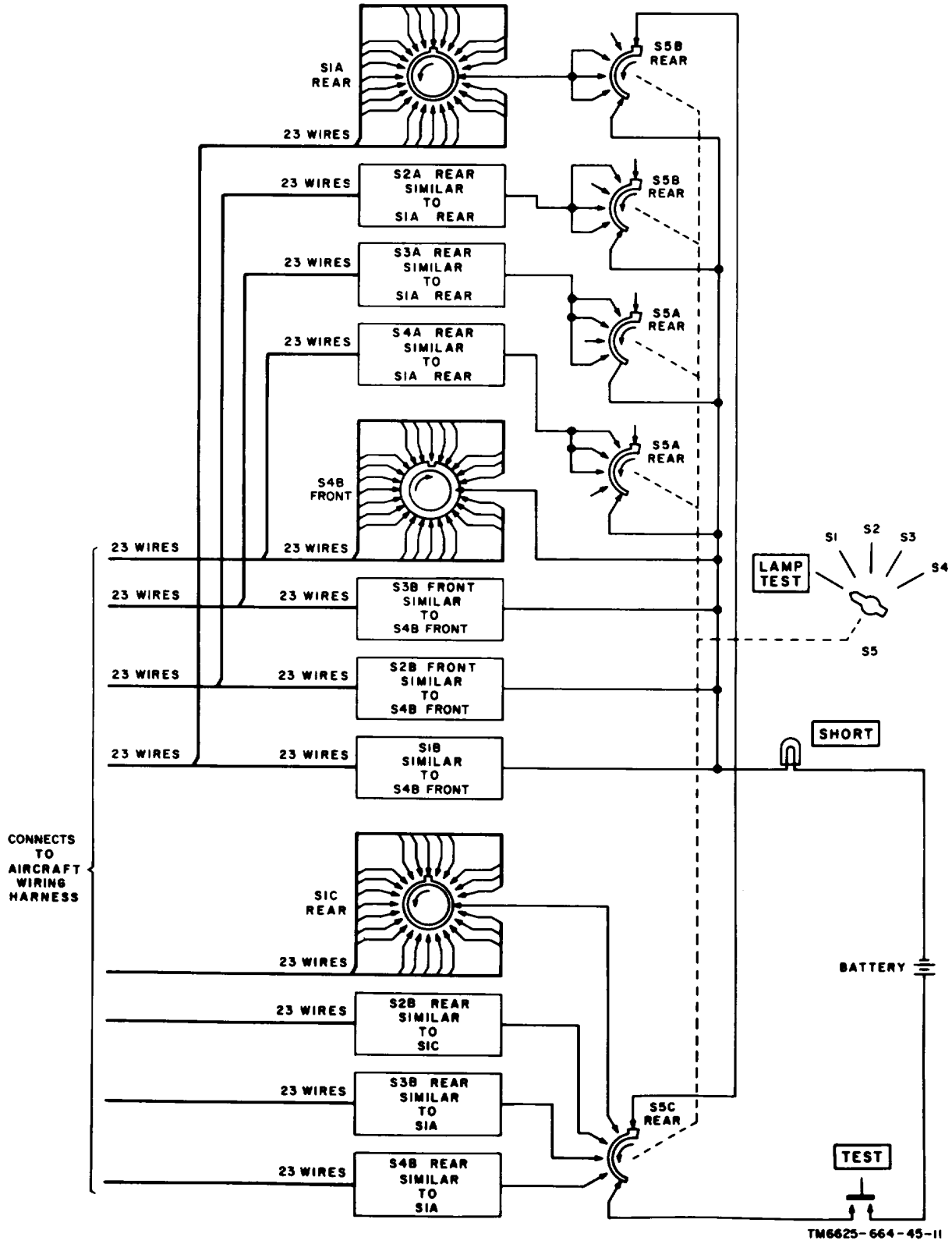


Figure 1-2. Short and ground test configuration simplified schematic diagram.

full scale sensitivity for this test is -50 volts dc.

c. -27 Volts DC. The -27-volt power supply in the receiver-transmitter produces a regulated -27-volt output when the operate relay is energized. The output of the -27-volt power supply connects to an internal 50-ohm load in the AN/APM-247 when S15 is set to RECEIVER TRANSMITTER TESTS. The -27-volt power supply output connects to the TEST METER and channel A of the oscilloscope when S11 is set to -27V. The TEST METER full scale sensitivity for this test is - 50 volts dc.

d. +27.5 Volts DC. The +27.5-volt dc power supply in the receiver-transmitter produces a regulated 27.5-volt dc output when the operate relay is energized. Three switches (S8, S9, and S10) connect the power supply output to load resistors. When NORMAL LOAD switch S8 is on, a 20-ohm load is placed on the 27.5-volt power supply. This load simulates the load normally presented to the power supply. SAFE LOAD switch S9 connects al 0ohm load to the power supply, simulating the maximum load that the power supply can withstand before the overcurrent sensor begins to function. OVERLOAD switch S10 connects a 3.5-ohm load to the power supply to test the overcurrent sensor circuit. The OVERVOLTAGE switch grounds the power supply regulator input. The regulator circuit senses that the output voltage has decreased and raises the power supply output voltage. This switch is used to test the overvoltage sensor circuit in the receiver-transmitter. In the + 27.5V position, switch S11 connects the power supply output to the TEST METER and to channel A of the oscilloscope. The TEST METER full scale sensitivity for this test is +50 volts dc.

e. +250 Volts DC. The 250-volt power supply in the receiver-transmitter produces a regulated (Zener) +250-volt dc output when the operate relay is energized. Switches S5 and S6 connect a normal load and an overload, respectively, to the power supply output. NORMAL LOAD switch S5 connects a 9K load to the power supply, simulating normal operating conditions. The OVERLOAD switch connects a 100-ohm load to the power supply to test the overload sensor circuit. Switch S11, in the +250V position, connects the power supply output to the TEST METER and to channel B of the oscilloscope. The TEST METER full scale sensitivity for this test is +500 volts dc.

f. Trigger. When switch S15 is in the TRIGGER position, the trigger generator module output is displayed on channel A of the oscilloscope.

g. KA-TR. Switch S15, in the KA-TR position, sets the TEST METER full scale sensitivity to -1000 volts dc. An external test lead can be connected to the KA-TR TEST LEAD jack for keep-alive and transmit-receive voltage measurements on the receiver-transmitter chassis.

h. AFC Mixer. The output from the afc mixer in the receiver-transmitter connects to an afc discriminator and amplifier in the AN/APM-247. These circuits simulate the afc detector circuit in the if. amplifier module (synchronizer). A variable negative power supply in the AN/APM-247 provides an adjustable repeller voltage for the klystron in the mixer-duplexer assembly. The klystron repeller supply is adjusted to a voltage value that falls midway between the extremes of the afc sweep voltage. This repeller voltage is monitored on the TEST METER. The afc discriminator in the test set is tuned to 30 mc; therefore, the klystron frequency is adjusted for an afc discriminator peak pulse output. The discriminator output connects to channel A of the oscilloscope when S11 is in the AFC MIXER position.

i. Internal Control Unit. The AN/APM-247 contains an internal control unit that is identical to Radar Control Unit C-4881/APN158. Switch S20 connects either this internal control unit or an external control unit to the receiver-transmitter. The SYSTEM CONTROL switch on the INTERNAL CONTROL UNIT subpanel is set to OPERATE for all receiver-transmitter tests. In this position, the switch energizes both the standby and operate relays in the receiver-transmitter.

j. TEST SET FUNCTION SELECTOR Switch S15. Switch S15 on the AN/APM-247 selects the unit of the AN/APN-158 radar set that is being tested. This switch is set to RECEIVER TRANSMITTER TESTS for all tests performed on the receiver-transmitter. In this position, S15 connects the signal outputs from the RECEIVER TRANSMITTER TESTS TEST FUNCTION switch to the TEST METER and channel A of the oscilloscope.

1-6. Synchronizer Test Block Diagram Theory

The following paragraphs describe the tests that are performed on Synchronizer SN358/APN-158 by Radar Test Set AN/APM-247. Figure 5-7 is a block diagram of the circuits described in this paragraph.

a. Power Inputs. Power switch S4 connects 115-volt, 400-cps primary power through INPUT POWER ADJUST transformer T1 to the RT-711/APN-158. T1 is a variable transformer used to adjust the primary power to 115 volts as indicated by INPUT VOLTAGE meter M2. INPUT FREQUENCY meter M1 indicates the frequency of the primary power. The RT-711/APN-158 supplies 115-volt, 400-cps standby power, relay power, 27.5 volts dc, -27.5 volts dc and 115-volt, 400-cps operate power to the SN358/APN-158. The RT-711/APN-158 also supplies a trigger signal to the oscilloscope sync input through SYNCHRONIZER TEST FUNCTION switch S3J. The SYNCHRONIZER TEST FUNCTION switch also connects the repeller voltage from the SN358/APN-158 to the RT-711/APN-158 repeller voltage input.

b. Gate Pulse and Range Marks Test Circuit. SYNCHRONIZER TEST FUNCTION switch S3H connects the gate pulse from the SN-358/APN-158 to TEST SET FUNCTION SELECTOR S15F. S15F connects the gate pulse to oscilloscope channel A. TEST RANGE SELECTOR switch S14 supplies a ground, from TEST SET FUNCTION SELECTOR S15, to either the 60-mile range input or 150-mile range input so that the positive gate pulse can be checked for the proper pulse width. The 30-mile range is selected when neither the 60-mile range input nor the 150-mile range input is grounded. Setting SYNCHRONIZER TEST FUNCTION switch S3H too RANGE connects the video signal to oscilloscope channel A through TEST SET FUNCTION SELECTOR S15F.

c. Phase Detector Test Circuit. The phase detector circuit checks the X and Y sweep excitation signals for proper balance and amplitude (length). Proper balance of the X sweep excitation signal is checked by connecting the X sweep excitation signal from the SN-358/APN-158 to TEST METER M3. An offset voltage is also applied to M3 to bring the M3 reading to midscale (null). PHASE DETECTOR switch S2 provides the switching required for checking the balance of the sweep excitation signal. The length of the X sweep excitation signal is checked by connecting the output of resolver B2 to the X sweep circuit in the SN-358/APN-158 and connecting the X sweep excitation signal from the SN-358/APN-158 to TEST METER M3. The offset voltage is removed when checking the X length. The switching required for the Y balance and Y length tests is accomplished by PHASE DETECTOR switch S2. SYNCHRONIZER TEST FUNCTION switch S3 connects the resolver B2 output to PHASE DETECTOR switch S2. The Y balance and Y length tests are like the X balance and X length tests except different positions of PHASE DETECTOR switch S2 are used.

d. Sweep Balance Test Circuit. The sweep balance test is performed by connecting the X1 and X2 sweep current signals to TEST METER M3 when SWEEP BAL switch S12 is in the X position and by connecting the Y1 and Y2 current signals to TEST METER M3 when SWEEP BAL switch S12 is in the Y position. TEST SET FUNCTION SELECTOR S15 connects the sweep current signals to their respective loads (R13 through R16) and to SWEEP BAL switch S12. SWEEP BAL switch S12 connects either the X signals or the Y signals to TEST SET FUNCTION SELECTOR switch S15E. S15E connects the X or Y sweep current signals to TEST METER M3.

e. Sweep Calibration Test Circuit. S15C connects resolver excitation voltage from the SN358/APN-158 to sweep resolver B2. SYNCHRONIZER TEST FUNCTION switch S3A and B connects the sweep resolver output to SWEEP CAL switch S1. SWEEP CAL switch S1 connects the sweep resolver output to either the SN-358/APN-158 X high and X low inputs or Y high and Y low inputs. The X signals are reversed in polarity by SWEEP CAL switch S1 to simulate both right and left signals. The Y signals are likewise reversed in polarity by SWEEP CAL switch S1 to simulate up and down signals. The SN-358/APN-158 then supplies X and Y sweep currents to TEST SET FUNCTION SELECTOR S15, which connects the sweep currents through SWEEP CAL switch S1, SYNCHRONIZER TEST FUNCTION switch S3, and TEST SET FUNCTION SELECTOR S15 to oscilloscope channels A and B. Resistors R13 through R16 are loads for the four sweep currents. The 4-volt calibration source voltage is connected to oscilloscope channels A and B, when SWEEP CAL switch S1 is in the SCOPE CAL position, to calibrate the oscilloscope.

f. AFC Test Circuit. The repeller voltage from the afc module in the SN-358/APN158 is connected to TEST METER M3. The connections are made by SYNCHRONIZER TEST FUNCTION switch S3 and TEST SET FUNCTION SELECTOR switch S15E. TEST METER M3 indicates the amplitude and sweep action of the repeller voltage.

g. STC Test Circuit. The sensitivity time control (stc) signal output of the gate generator module in the SN-358/APN-158 is connected to TEST SET FUNCTION SELECTOR S15F by SYNCHRONIZER TESIT FUNCTION switch S3H. Switch S15F connects the stc signal to oscilloscope channel A.

h. Video Test Circuit. The VIDEO position of SYNCHRONIZER TEST FUNCTION switch S3H connects the video output signal from the video amplifier module in the SN358/APN-158 to TEST SET FUNCTION SELECTOR switch S15F. Switch S15F connects the video signal to oscilloscope channel A. This test configuration is used in conjunction with Radar Test Set AN/UPM-56 to determine the tangential sensitivity of the AN/APN-158.

i. Isolation Amplifier Gain Test Circuit. The RT-711/APN-158 supplies 115-volt, 400-cps power to stepdown transformer T4. The output of T4 is connected to PITCH control R19 and ROLL control R18 by GYRO SIMULATOR switch S16. The PITCH and ROLL controls vary the amplitude of the simulated pitch and roll signals. Phase shift networks R62-C19 and R61-C18, associated with the roll and pitch signals, simulate the phase shift normally produced by the aircraft gyro. The pitch and roll outputs of the phase shift networks connect to the isolation amplifier in the SN-358/APN-158. The isolation amplifier amplifies the pitch and roll signals. PITCHROLL switch S13 connects the isolation amplifier output to TEST SET FUNCTION SELECTOR switch S15B. Switch S15B connects the pitch or roll signal to 1800-ohm load R26 and diode CR13. Diode CR13 rectifies the output signal and applies the resulting dc voltage to TEST METER M3 through SYNCHRONIZER TEST FUNCTION switch S3F and TEST SET FUNCTION SELECTOR S15E.

j. Isolation Amplifier Phase Test Circuit. The isolation amplifier phase test uses the same circuits as the isolation amplifier gain test except that the isolation amplifier output is connected through SYNCHRONIZER TEST FUNCTION switch S3 and TEST SET FUNCTION SELECTOR switch S15 to oscilloscope channel A. A 400-cps reference signal from transformer T2 connects to oscilloscope channel B. The isolation amplifier output is compared to the 400-cps reference to check phase shift characteristics.

k. Servoamplifier Test Circuit. The RT711/APN-158 supplies 115-volt, 400-cps power to stepdown transformer T4. The output of T4 is connected to SERVO switch S17 by TEST SET FUNCTION SELECTOR S15B. The SERVO switch connects the 400-cps signal to either the stabilization or rate input of the servoamplifier in the SN-358/APN-158. The servoamplifier output is connected to load resistors R21 and R22, and to SYNCHRONIZER TEST FUNCTION switch S3.

Switch S3 connects the servoamplifier output through TEST SET FUNCTION SELECTOR switch S15E to TEST METER M3.

1-7. Antenna Test Block Diagram Theory

This paragraph describes the operation of the AN/APM-247 circuits that test Antenna AS-1642/APN-158. Figure 5-8 is a block diagram of the circuits described in this paragraph. AC POWER switch S4 connects 115 volt, 400-cps primary power through INPUT POWER ADJUST transformer T1 to the RT-711/APN-158. Variable transformer T1 permits adjustment of the primary power to 115 volts as indicated in INPUT VOLTAGE meter M2. INPUT FREQUENCY meter M1 indicates the frequency of the primary power. The RT-711/APN-158 supplies 115-volt, 400cps standby power, relay, power, 27.5 volts dc, -27.5 volts dc, and 115-volt, 400-cps operate power directly to the SN-358/APN-158. TEST SET FUNCTION SELECTOR switch S15 connects gate trigger and repeller voltage to and from the RT-711/APN-158 and SN-358/APN-158. The RT-711/APN-158 supplies 115-volt, 400-cps operate power directly to the AS-1642/APN-158. The SN-358/APN-158 supplies pitch, roll, stabilization, and rate signals directly to the AS-1642/APN-158. TEST SET FUNCTION SELECTOR S15 connects the X-axis, Y-axis, resolver excitation, and servomotor control signals from the RT-711/APN-158 to AS-1642/APN-158. The manual elevation signal from the AS-1642/APN-158 is connected to elevation resolver B1. The output of B1 is connected to the SN-358/APN-158 tilt-synchro-stator input. The gyro simulator circuit (T4, S16, R18, R19, R61, C18, R62, and C19) functions are described in the synchronizer block diagram discussion. The AS-1642/APN-158 signals that are to be checked are connected to ANTENNA TESTS switch S18. The various positions of S18 connect the selected AS-1642/APN-158 signal through CONTROL UNIT SELECTOR S20 to rectifier CR15. The rectified dc signal is coupled to TEST METER M3 by TEST SET FUNCTION SELECTOR S15.

1-8. Indicator Test Block Diagram Theory

This paragraph describes the operation of the AN/APM-247 circuits that test Indicator IP-724/APN-158. Figure 5-9 is a block diagram of the circuits described in this paragraph. The RT-711/APN-158, AS-1642/APN-158, SN-358/APN-158, and AN/APM-247 operate the same as in the SN358/APN-158 test. The IP-724/APN-158 receives 115-volt, 400-cps operate power and 115-volt, 400-cps standby power from the RT711/APN-158 and a video blanking signal from the AS-1642/APN-158. X-axis and Y-axis sweep currents are supplied to the IP-724/APN-158 from the SN-358/APN-158. The X-axis sweep current is disconnected for the sweep deflection test by ZERO AZIMUTH switch S19. Range switching signals are connected from the range switch on the IP-724/APN-158 to the SN-358/APN-158. Test indications are read on external test equipments that are connected to test points on the IP-724/APN-158.

1-9. Radar Control Unit Test Block Diagram Theory

This paragraph describes the operation of the AN/APM-247 circuits that test Radar Control Unit C-4881/APN-158. Figure 1-3 is a block diagram of the circuits described in this paragraph. Power switch S4 connects the 115-volt, 400-cps primary power to transformer T2. Transformer T2 steps down the 115 volts to 6.3 and 12.6 volts. The 12.6-volt power is connected to the C-4881/APN-158 to light the panel lamps. The 6.3-volt power is connected to INVERTER RELAY indicator DS4, CONTOUR indicator DS5, OPERATE indicator DS6, and STANDBY indicator DS7. Indicators DS4 through DS7 are grounded in the C-4881/APN-158. These indicators light to show continuity through the C-4881/APN-158 function switch. The 6.3volt output of T2 is applied to the resolver and gain control in the C-4881/APN-158. The outputs of the resolver and gain control are connected to TEST METER M3 through CONTROL UNI TEST FUNCTION switch S22 and CONTROL UNI SELECTOR S20.

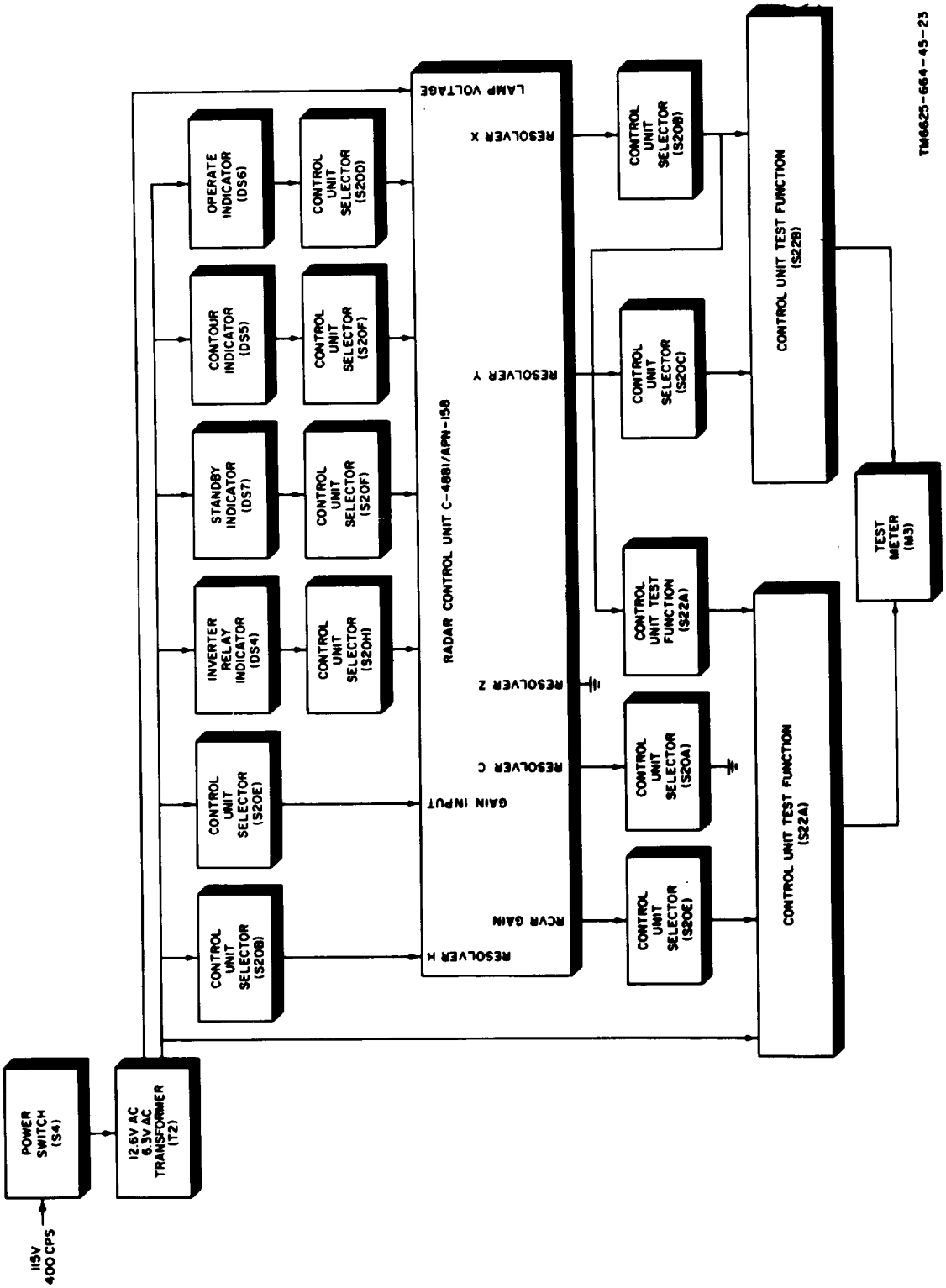


Figure 1-3. Radar control unit block diagram.

are connected to TEST METER M3 through CONTROL UNIT TEST FUNCTION switch S22 and CONTROL UNIT SELECTOR S20. There is a separate position of CONTROL UNIT TEST FUNCTION switch S22 for each output.

Section III. DETAIL FUNCTIONING

1-10. Detail Functioning of Test Set, Radar AN/APM-46

Test Set, Radar AN/APM-246 is a cable harness tester that tests the aircraft cable harness associated with an AN/APN-158 radar set installation The AN/APM-246 checks the cable harness for continuity, grounds, and shorts. Paragraphs 1-11 and 1-12 explain the functioning of the AN/APM-246 in terms of simplified circuits showing the general functioning of the equipment. The overall schematic diagram is shown in figure 5-3.

1-11. Functioning of the Short Test Circuit

Figure 1-4 shows a typical harness test circuit for checking a 14-wire cable for interwire shorts. The actual wiring harness associated with the AN/APN-158 installation has approximately 85 wires; however, the same basic system is used for checking both large and small cable systems, the only difference being the number of switches. S1 and S2 are the same used in the continuity and ground tests (para. 1-3*a* and *c*). Switch wafers S1C and S2C are wire shorting wafers added for performing interwire short checks. Switch S3 selects either S1 or S2 (S1 for wires 1 through 7 and S2 for wires 8 through 14). Assume that wire 1 is being checked for shorts. Switch S3 connects the positive side of the battery to wire 1 through the TEST switch and S1B. Switches S1C and S2C short all cable wires together except wire 1 and wire 8. Wire 1 is being tested and, therefore, should not be shorted; however, wire 8 should be. Switches S2A and S3B connect wire 8 to all other cable wires. Now all wires except wire 1 connect to the top side of the SHORT lamp, and wire 1 connects to the lower side through S1B. Should wire 1 be shorted to any wire in the harness, the circuit is completed and the SHORT lamp lights. The circuit action is identical for checking wires 2 through 7. Wires 8 through 11 are checked similarly by wafers on switch S2.

1-12. Functioning of the Ground and Continuity Test Circuit

Figure 1-5 shows a typical harness test circuit for checking a 14-wire cable for continuity and ground. The actual harness in the aircraft contains approximately 85 wires; however, the same system is used for checking larger systems, the only difference being the number of switches and switch contacts.

a. Continuity Checks. Switches S1 and S2 are the wire selector switches. The switch positions are numbered from 1 to 14, each number corresponding to a particular harness wire. Switch S3 is a switch selector; it selects S1 for wires 1 through 7, and it selects S2 for wires 8 through 14. Switch S3 also has a lamp test position for checking that the CONTINUITY and GROUND indicators are functioning. Suppose that it is desired to check the continuity of wires 1 through 7 in the cable harness. First, set S3 to the second position; this selects switch S1. Second, push the TEST switch and rotate S1 through each of its seven positions. If all wires (1 through 7) are continuous through the aircraft cabling, the CONTINUITY lamp lights for each position of S1. If the lamp fails to light on any position of the switch, the wires associated with that switch position are discontinuous and repair is needed. The operation for checking wires 8 through 14 is the same, except S3 is set to the third position, selecting switch S2.

b. Ground Checks. The ground test circuit uses many of the same circuit components and in much the same way as the continuity test circuit described in a above. Notice that one side of the GROUND lamp connects to chassis ground.

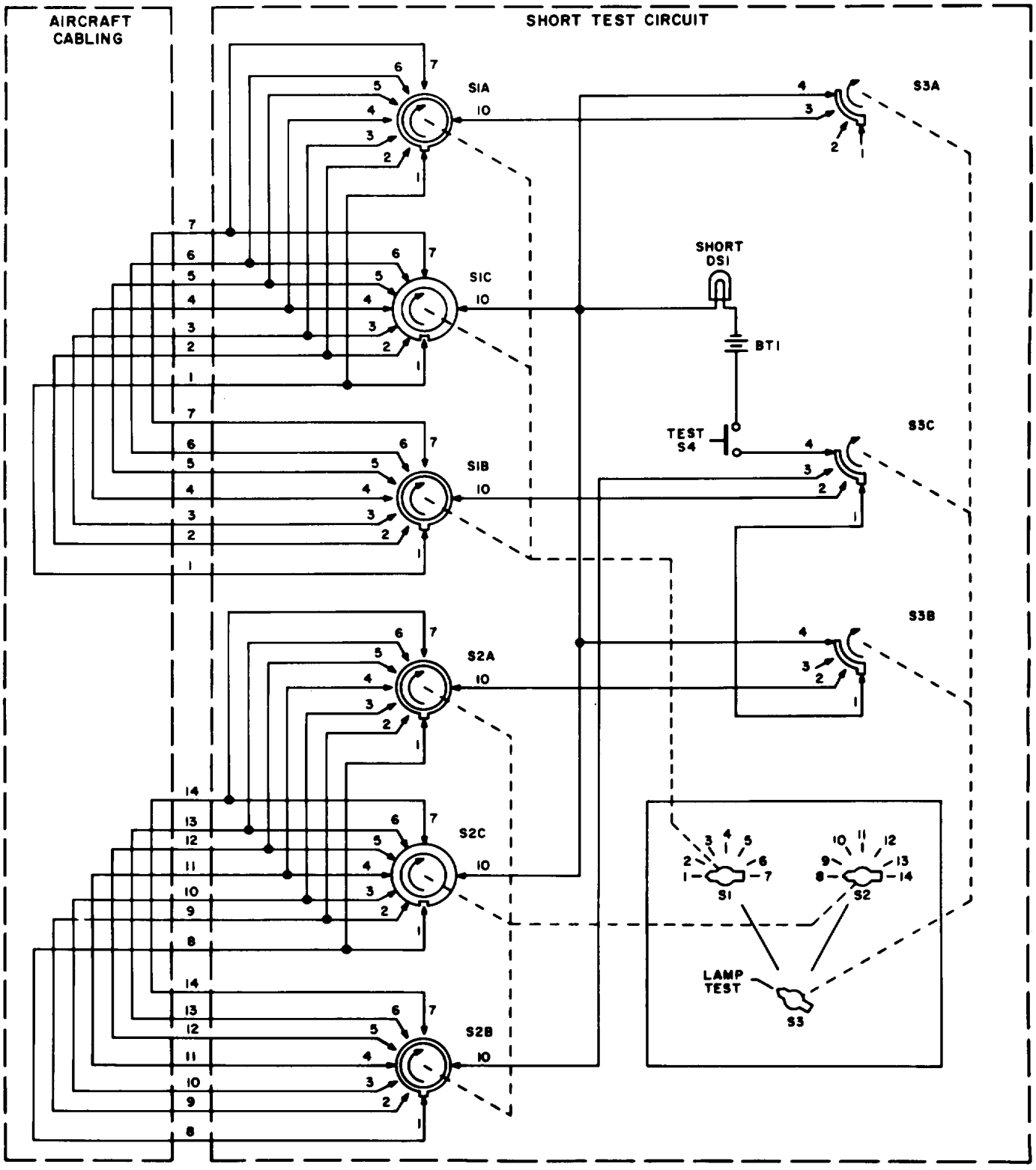


Figure 1-4. Typical short test configuration simplified schematic diagram.

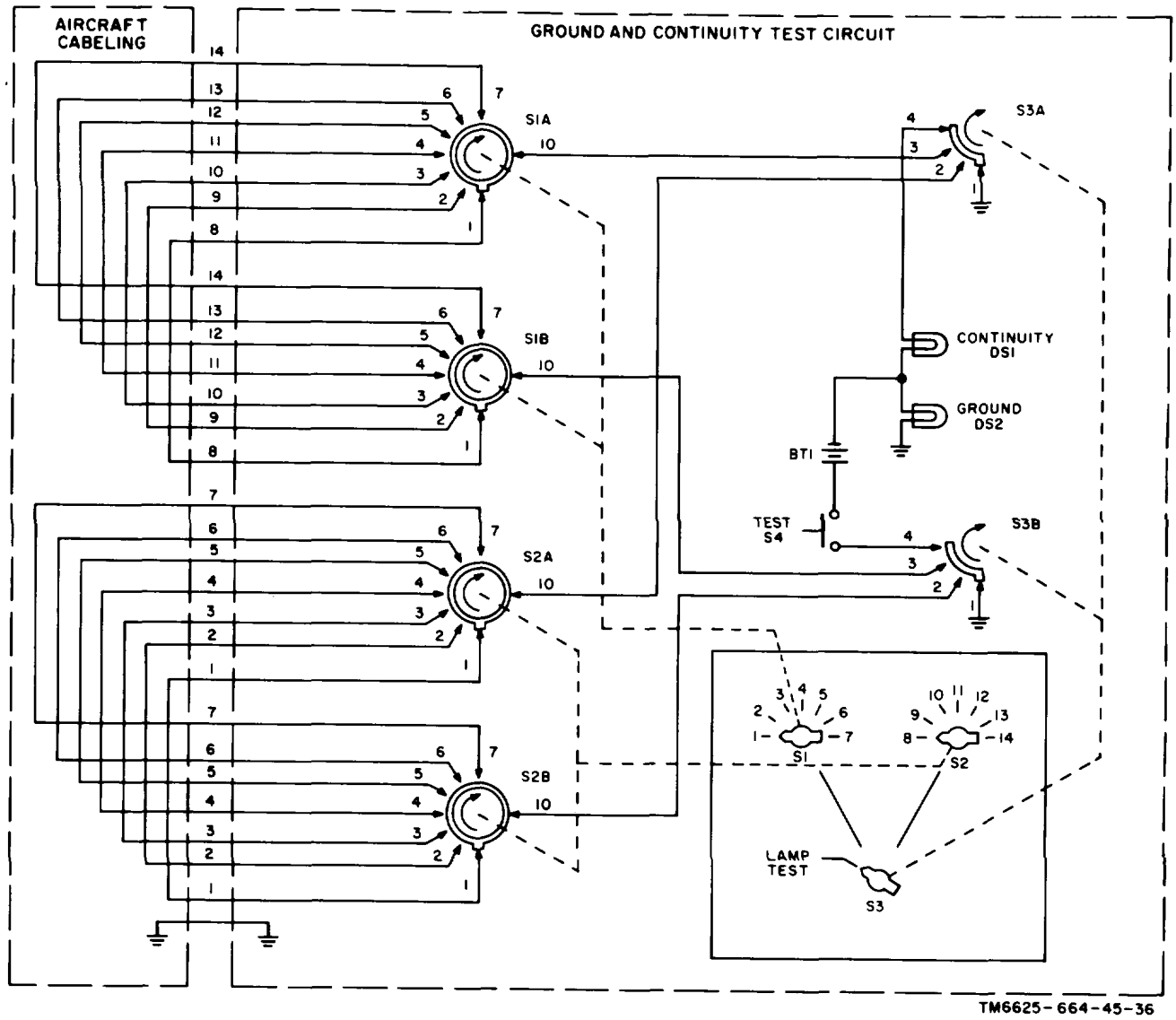


Figure 1-5. Typical continuity and ground test configuration simplified schematic diagram.

ground. A ground lead connects the chassis of the tester to the frame of the aircraft. Therefore, if any wire in the harness is shorted to the frame of the aircraft, the GROUND lamp lights when that wire is checked. The continuity and ground tests are made simultaneously.

1-13. Detailed Functioning of Test Set, Radar AN/APM-247

Paragraphs 1-14 through 1-30 describe the detailed functioning of the AN/APM-247. Many of the circuits that simply switch signals from one AN/APN-158 unit to another or switch signals from the output of an AN/APN-158 unit to the AN/APM-247 TEST meter are not described. Figure 5-4 is the AN/APM-247 overall schematic diagram.

1-14. Receiver-Transmitter Test Circuits

The detailed functioning of the various circuits used to perform tests on the receiver-transmitter is discussed in paragraphs 1-15 through 1-20. Figure 5-5 shows only the TS-2081/APM-247 circuits that are used in testing the receiver-transmitter.

ing the receiver-transmitter. Refer to this figure for all discussions.

1-15. AFC Detector/Amplifier (fig. 5-5)

a. General. The afc detector/amplifier circuit in the TS-2081/APM-247 simulates the afc detector on the if. amplifier module in the AN/APN-158 radar set. The amplifier/detector circuit in the test set is used to check the operation of the klystron local oscillator and the afc mixer in the AN/APN-158 radar set. The detector/amplifier circuit detects and amplifies the 30-megacycle signal output of the afc mixer in the receiver-transmitter unit. The circuit output is displayed on channel A of the oscilloscope when RECEIVER TRANSMITTER TESTS TEST FUNCTION switch S11 is set to AFC MIXER. The afc detector circuit consists of three functional circuits; a 30-megacycle amplifier, a detector, and a pulse amplifier. The 30-megacycle amplifier amplifies the low-level afc detector output signal and applies the amplified signal to the detector. The detector circuit (actually an fm detector) produces output pulses with amplitudes proportional to the frequency of the incoming signal. The detector applies its output to a two-stage pulse amplifier circuit that amplifies the detector output to exactly 10 volts for an input frequency of 30 megacyles.

b. Detailed Analysis. The high-pass filter circuit, consisting of C6, C8, and L2, couples the 30-megacyle output from the receiver-transmitter to the emitter of common-base amplifier Q1. Zener diode CR3 develops an emitter voltage of 10 volts for transistor Q1. Resistors R2 through R4, inductor L1, and capacitors C2 and C3 are a power supply filter and decoupling circuit for the base-bias circuit. Resistors R3 and R4 also form a voltage-divider circuit to set the Q1 base bias at the desired level. Inductor L3 is the collector load impedance for the amplifier stage and develops the 30-megacycle output signal. Capacitor C25 couples the 80-megacycle signal to the detector circuit. The detector operates on the same basic principle as a slope detector. Transformer T1 and its internal capacitor form a parallel resonant circuit tuned to 31 megacycles. The effective inductance of the primary of T1 and the effective capacitance of capacitors C4 and C9 form a series resonant circuit at 29 megacycles. The complete circuit, therefore, displays a high impedance at 31 megacycles and a low impedance at 29 megacycles. Capacitor C5 couples the circuit output signal to diode CR6, clamping the output signal at or below ground. Diode CR5 has no function in this circuit except to duplicate the circuit conditions of the similar circuit of the if. amplifier module. Inductor L4 and capacitor C10 couple the detector output signal to pulse amplifier Q2. Resistor R11 in the emitter circuit of Q2 adjusts the circuit output amplitude to 10 volts when the input frequency is exactly 30 megacycles. Capacitor C11 couples the pulse output from the collector of Q2 to the base of the second pulse amplifier, Q3. Switch S11C, in the AFC MIXER position, connects the circuit output to channel A of the oscilloscope.

1-16. Repeller Voltage Power Supply and Switching Circuit (fig. 5-5)

a. General. The repeller voltage power supply in the TS-2081/APM-247 generates an adjustable negative voltage for operation of the klystron local oscillator in the receiver-transmitter unit. This voltage is normally generated by the afc module in the synchronizer. TEST FUNCTION SELECTOR switch S15, in the RECEIVER TRANSMITTER TESTS position, connects the power supply output to the receiver-transmitter. The RECEIVER TRANSMITTER TESTS TEST FUNCTION switch connects the power supply output to the TEST METER circuit.

b. Detailed Analysis. The receiver-transmitter supplies 115-volt operate power to transformer T3. Transformer T3 has two windings; a 6.3-volt winding that lights the OPERATE RELAY indicator, and a 570-volt winding that supplies the operating voltage for the klystron repeller power supply. Diodes A1CR1, A1CR2, and A1CR3 rectify the transformer output and apply the resulting negative dc voltage to a pi-type filter circuit that consists of capacitors

A1C13 and C1 and resistor A1R19. Diodes A1CR1, A1CR2, and A1CR3 are placed in series to increase the reverse-breakdown voltage of the rectifier circuit. Resistors A1R16, A1R17, and A1R18 bridge the diodes to ensure the reverse voltage is distributed equally among the three diodes. Diodes A1CR7 and A1CR8 are 110-volt Zener diodes connected in series across the power supply output. The diodes maintain the output voltage at 220 volts dc. TEST FUNCTION SELECTOR switch S15E, in the RECEIVER TRANSMITTER TESTS position only, connects the power supply output to the receiver-transmitter. The TEST METER reads the power supply output when the RECEIVER TRANSMITTER TESTS TEST FUNCTION switch is set to AFC MIXER. Resistors A1R33, A1R34, and A1R36 form a voltage divider that reduces the power supply output voltage by 24 at the junction of A1R34 and A1R36. Resistor A1R34 is a meter-multiplier resistor that sets the full-scale meter sensitivity to 500 volts dc.

1-17. Power Supply Metering Circuit (fig. 5-5)

The RECEIVER TRANSMITTER TESTS TEST FUNCTION switch connects the various voltages that are generated in the receiver-transmitter to the TEST METER. Resistor networks in the TS-2081/APM-247 determine the full-scale meter sensitivity for each voltage.

a. Relay Power Metering Circuit. When the RECEIVER TRANSMITTER TESTS TEST FUNCTION switch is set to RELAY POWER, the TEST METER indicates the output of the relay power supply in the receiver-transmitter. Resistor R4 and switches S11B and S15E connect the relay power supply voltage to the negative side of the meter. Switches S15E and S11A connect the positive side of the meter to a ground inside the receiver-transmitter. Resistor R4 sets the full-scale meter sensitivity to -50 volts for this test. Switches S11C and S15F also connect the power supply output to channel A of the oscilloscope.

b. -27-Volt Power Supply Metering Circuit. When the RECEIVER TRANSMITTER TESTS TEST FUNCTION switch is set to -27V, the TEST METER indicates the output voltage of the -27-volt power supply in the receiver-transmitter. Resistor R5 and switches S11B and S15E connect the power supply output to the negative side of the meter. Switches S15E and S11A connect the positive meter terminal back to the low (ground) side of the power supply. Resistor R5 sets the full-scale meter sensitivity to 50 volts for this test. Switches S11C and S15F also connect the power supply output to channel A of the oscilloscope.

c. +27.5-Volt Power Supply Metering Circuit. When RECEIVER TRANSMITTER TESTS TEST FUNCTION switch is set to +27.5V, the TEST METER indicates the output voltage of the +27.5-volt power supply in the receiver-transmitter. Resistors R7 and switches S11A and S15E connect the power supply output to the positive side of the meter. Switches S15E and S11B connect the negative meter terminal to ground. Resistor R7 sets the full-scale meter sensitivity to 50 volts for this test. Switches S11C and S15F also connect the power supply output to channel A of the oscilloscope.

d. +250-Volt Power Supply Metering Circuit. When the RECEIVER TRANSMITTER TESTS TEST FUNCTION switch is set to +250V, the TEST METER indicates the output voltage of the 250-volt power supply in the receiver-transmitter, Resistors AIR28, AlR29, and AlR35 form a voltage divider that reduces the voltage at the junction of A1R46 and A1R45 by 24. Resistor A1R46 and switches S11A and S15E connect the voltage-divider output to the positive side of the meter. Switches S15E and S11B connect the negative meter terminal to ground. Resistor A1R46, in conjunction with the voltage divider, sets the full-scale meter sensitivity to 500 volts for this test. Switches S11C and S15F also apply the power supply voltage to channel A of the oscilloscope.

e. KA and TR Metering Circuit. When the RECEIVER TRANSMITTER TESTS TEST function switch is set to KA-TR, the TEST METER indicates the voltage applied to the KA-TR TEST LEAD jack. Voltage measurements using this facility must be made with an external test lead connected to either the keep-alive (KA) or transmit-receive (TR) voltages inside the receiver-transmitter chassis.

Resistors A1R30, A1R31, A1R32, and A1R43 constitute a voltage divider that reduces the voltage at the junction of A1R43 and A1R44 by 330. Resistor A1R44 and switches S11B and S15E connect the voltage-divider output to the negative side of the meter. Switches S15E and S11A connect the positive meter terminal to ground. Resistor A1R44, in conjunction with the voltage divider, sets the full-scale meter sensitivity to 1000 volts for the test. The oscilloscope does not monitor the KA-TR voltage.

1-18. Fault Sensing Test Circuits (fig. 5-5)

The TS-2081/APM-247 includes fault sensing test circuits that check the power supply fault sensors in the receiver-transmitter. The fault sensing test circuits for the +27.5volt and +250-volt power supplies are discussed in *a* and *b* below.

a. +27.5-Volt Power Supply Fault Sensing Test Circuit. The 27.5-volt power supply fault sensing test circuit consists of four switches. Three of the switches, NORMAL LOAD SAFE LOAD, and OVERLOAD, connect different loads to the +27.5-volt power supply output. The fourth switch, OVERVOLTAGE, simulates an overvoltage condition. This simulated condition activates the overvoltage sensor in the receiver-transmitter and deenergizes the operate relay. The overload-sensor circuit in the receiver-transmitter should not react to normal or safe loads, but should deenergize the operate relay for an overload condition. NORMAL LOAD switch S8 connects 20-ohm resistor R9 to the power supply output. SAFE LOAD switch S9 connects the parallel combination of R9 and R10 (10 ohms) to the power supply output. OVERLOAD switch S10 connects the parallel combination of R9, R10, R11, and R12 (approximately 5.5 ohms) to the power supply, activating the overload-sensor circuit. When the operate relay deenergizes, OPERATE RELAY indicator DS2 extinguishes when the OVERLOAD switch is pushed. The OVERVOLTAGE switch, in its normal position, connects the +27.5-volt power supply output to the +27.5-volt power supply monitor line, which is the +27.5-volt regulator input. When the OVERLOAD switch is pushed, it grounds the monitor line. The regulator senses that the power supply output has decreased (actually to zero) and attempts to compensate for this by raising the power supply output voltage. When the output voltage reaches a specified value, the overvoltage-sensor circuit activates and deenergizes the operate relay. The OPERATE RELAY indicator shows the condition of the operate relay and extinguishes when the OVERVOLTAGE switch is pushed.

b. +250-Volt Power Supply Fault Sensing Test Circuit. The +250-volt power supply fault sensing test circuit consists of two switches and two load resistors. SAFE LOAD switch S5 connects 9000-ohm resistor R1 to the power supply output. The overload-sensor circuit in the receiver-transmitter should not activate for this load. OVERLOAD switch S6 connects 100-ohm resistor R2 to the power supply output. This load presents an overload condition to the power supply and activates the overload sensor circuit. The overload sensor deenergizes the operate relay in the receiver-transmitter. This action is indicated when OPERATE RELAY indicator DS2 extinguishes when the OVERLOAD switch is pushed.

1-19. Receiver Gain Control (fig. 5-5)

The receiver gain control is normally located on an external control unit. Wiring the receiver-transmitter tests, no external control unit is connected, and the gain control function is simulated by GAIN potentiometer R27. CONTROL UNIT SELECTOR switch S20 must be in the INT position if the gain control on the TS-2081/APM-247 is used. If it is desired to use an external control unit, the CONTROL UNIT SELECTOR is set to EXT and the external control unit is plugged into EXTERNAL CONTROL UNIT connector J8 on the front panel.

1-20. System Control Switch
(fig. 5-5)

The SYSTEM CONTROL switch simulates a switch on Radar Control Unit C-4881/APN-158. The SYSTEM CONTROL switch performs the function of the switch on the C4881/APN-158 because the C-4881/APN-158 is not connected to the TS-2081/APM-247 during the receiver-transmitter tests. The SYSTEM CONTROL switch energizes the standby and operate relays in the receiver-transmitter by applying ground to one side of the relay coil.

1-21. Synchronizer Test Circuits

Paragraphs 1-22 through 1-27 describe the detailed functioning of the circuits used when Synchronizer SN-358/APN-158 is under test. Only the more complicated circuits are described since most of the SN-358/APN158 test circuits are simple switching circuits used to connect the SN-358/APN-158 to the RT-711/APN-158.

1-22. X- and Y-Signal Generation (fig. 1-6)

a. General. The X- and Y-signal generation circuit develops the sweep-exitation signal, which is connected to either the X-signal input or Y-signal input. Sweep resolver B2 converts the resolver-excitation signal from the synchronizer to the sweep-excitation signal to check the phase and calibration of the sweep signals. Variable resistor R20 is used to adjust the amplitude of the sweep-excitation signal. The phase test and calibration test circuits are discussed in *b* and *c* below.

b. Phase. The PHASE DETECTOR position of TEST FUNCTION switch S3 connects the sweep-excitation signal to PHASE DETECTOR switch S2. The Y LENGTH position of PHASE DETECTOR switch S2 connects the sweep-excitation signal through TEST SET FUNCTION SELECTOR S15 to the synchronizer X-signal inputs. The X LENGTH position of PHASE DETECTOR switch S2 connects the sweep-excitation signal through TEST SET FUNCTION SELECTOR S15 to the synchronizer Y-signal inputs.

c. Calibration. The SWEEP CAL position of TEST FUNCTION switch S3 connects the sweep-excitation signal to SWEEP CAL switch S1. The UP position of SWEEP CAL switch S1 connects the sweep-excitation signal through TEST SET FUNCTION SELECTOR S15 to the synchronizer Y-signal inputs. SWEEP CAL switch S1 reverses the polarity of the sweep-excitation signal to the Y-signal inputs when S1 is set to the DOWN position. The RIGHT and LEFT positions of SWEEP CAL switch S1 perform the same functions as the UP and DOWN positions except the sweep-calibration signal is connected to the synchronizer X-signal inputs rather than to the Y-signal inputs.

1-23. Phase-Detector Test (fig. 1-7)

a. General. The phase-detector test circuit checks the balance of the Y1 phase-detector amplifier in the synchronizer against the Y2 phase-detector amplifier, and the balance of the X1 phase-detector amplifier against the X2 phase-detector amplifier. The phase-detector test circuit also checks the length of the X- and Y-excitation signals.

b. Balance. The Y-balance test is made by applying the Y1- and sweep-excitation signals to one side of TEST METER M3 and by applying Y2 to the other side of M3 without applying the Y-excitation signals to the phase-detector circuit in the synchronizer. Notice that in the Y BAL position of PHASE DETECTOR switch S2, the output of sweep resolver B2 is not connected to synchronizer Y-signal inputs P2B-32 and-33. The Y1 and Y2 sweep-excitation signals are normally equal in amplitude of the same polarity. Therefore, any meter deflection either side of the null position indicates error. The offset voltage deflects TEST METER M3 to the null position so that any deflection caused by the Y1 and Y2 sweep-excitation signals can be easily read. The offset voltage is generated by stepping down, rectifying, and filtering 115 volts, 400 cps from the receiver-transmitter unit. The resulting dc, applied to a voltage divider made up of variable resistors R55 and resistor R58, is maintained at 5.1 volts dc by Zener diode CR11.

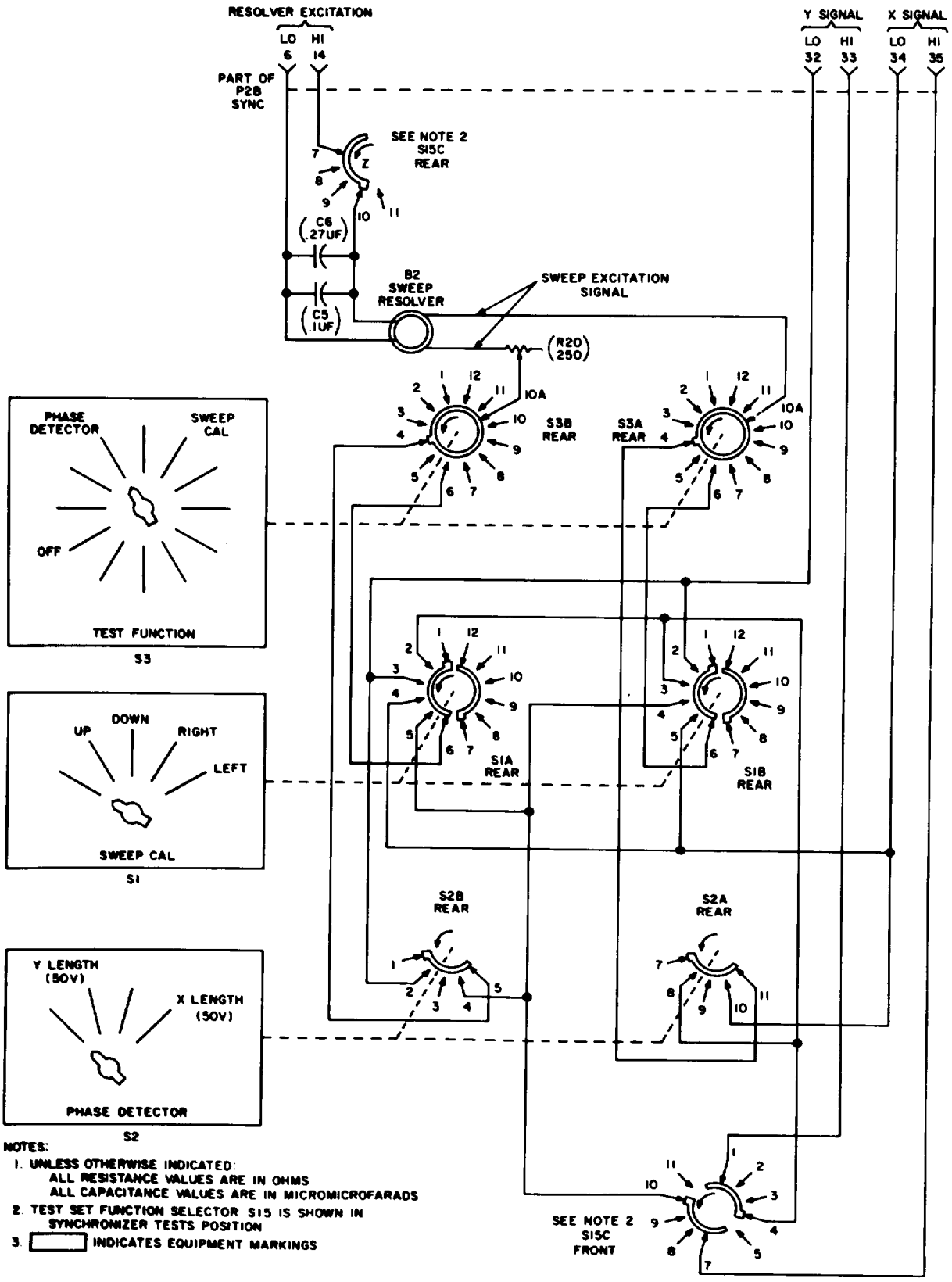


Figure 1-6. X- and Y-signal generation, simplified schematic diagram.

resistors R55 and resistor R58, is maintained at 5.1 volts dc by Zener diode CR11. The correct level of offset voltage is tapped off by the wiper of variable resistor R55. Resistor R40, in the Y2 sweep-excitation circuit, is a meter dropping resistor used to regulate the sensitivity of TEST METER M3. The X-balance test is the same as the Y-balance test, except different contacts of PHASE DETECTOR switch S2 are used and the meter dropping resistor is R38 instead of R40.

c. Length. The Y-length test is made by connecting the Y1 sweep-excitation signal to one side of TEST METER M3 and Y2 to the other side of M3. Sweep-excitation signals are applied to the phase detector through P2B-32 and -33. The difference in the amplitude of the two signals applied to TEST METER MS deflects M3 thereby giving a Y-length reading. Resistor R39 in the Y2 sweep circuit determines the sensitivity of TEST METER M3. The X-length test is the same as the Y-length test, except different contacts of PHASE DETECTOR switch S2 are used and resistor R37, rather than R39, determines the sensitivity of TEST METER M3.

1-24. Sweep-Current Test (fig. 1-8)

a. General. The sweep-current test circuit checks the synchronizer sweep current for proper balance and calibration. Paragraphs *b* and *c* describe the functioning of this circuit.

b. Sweep Balance. TEST SET FUNCTION SELECTOR S15 connects the sweep current to SWEEP BAL switch S12. S12 selects the Y sweep current in one position and the X sweep current in the other position. TEST FUNCTION switch S3 and TEST SET FUNCTION SELECTOR S1S connect the selected sweep current to TEST METER M3 and S3 is in the SWEEP BAL position. Resistors R13 through R16 are load resistors for the sweep current.

c. Sweep Calibration. The sweep-calibration circuit compares the Y1 sweep current to the Y2 sweep current and the X1 sweep current to the X2 sweep current by displaying the sweep currents on a dual-trace oscilloscope that is connected to oscilloscope connectors A and B. TEST FUNCTION switch S3 connects the sweep currents to the A and B oscilloscope channels. The SCOPE CAL position of SWEEP CAL switch S1 connects 4 volts dc from calibration voltage adjust potentiometer R50 for calibrating the dual-trace oscilloscope. The UP, DOWN, RIGHT, and LEFT positions of SWEEP CAL switch S1 select the X or Y sweep current for display on the dual-trace oscilloscope. The video input, P2A-3, supplies range marks which are coupled by capacitors C3 through C8 to the sweep-current signals. The range marks, which are superimposed on the sweep-current signals, are used as reference points for measuring the amplitude of the signal displayed on the dual-trace oscilloscope.

1-25. Isolation Amplifier Test (fig. 1-9)

a. General. The isolation amplifier test circuit checks the isolation amplifier in the synchronizer for proper gain and phase. Paragraphs *b* and *c* describe the functioning of this circuit.

b. Gain. The isolation amplifier gain test circuit rectifies the pitch or roll signal, depending on which is selected by ISO AMP switch S13, and connects it to TEST METER M3. The TEST METER MS reading is then compared to the performance standard. Resistor R26 is the load resistor for the pitch or roll signal, and resistor R53 is a meter dropping resistor. Diode CR13 rectifies the pitch or roll signal. TEST FUNCTION switch S3 is in the ISO AMP GAIN position during this test.

c. Phase. The isolation amplifier phase test circuit connects the pitch or roll signals to A oscilloscope output J1 and a 6.3-volt, 400-cps reference signal to B oscilloscope output J2. The phase of the pitch or roll signal is compared to the 400-cps reference signal by connecting the A and B oscilloscope channels to an external dual-trace oscilloscope. Transformer T2 generates the 400-cps reference signal by stepping down the 115-volt, 400-cps primary power to 6.3 volts ac.

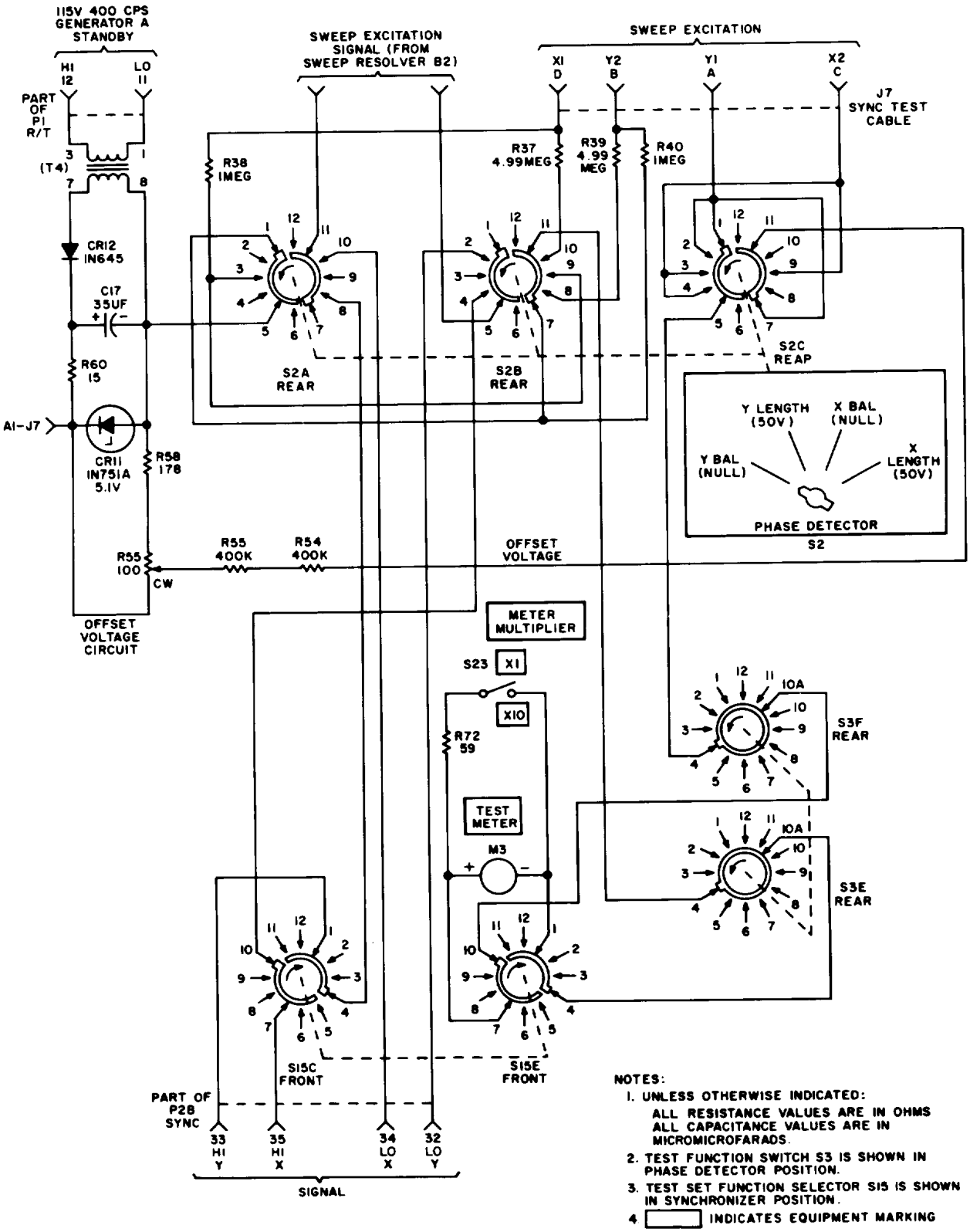


Figure 1-7. Phase-detector test, simplified schematic diagram.

AGO 7780A

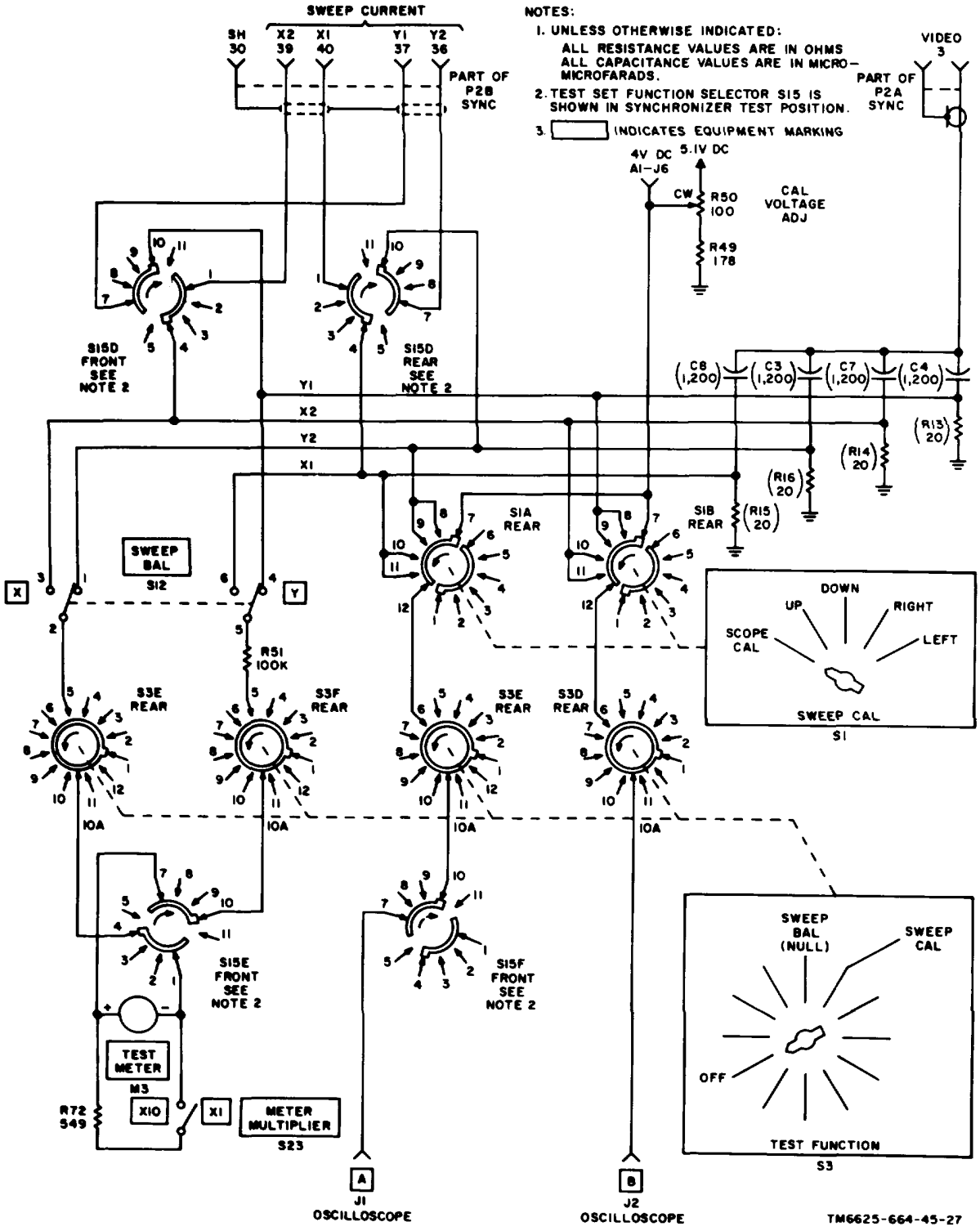
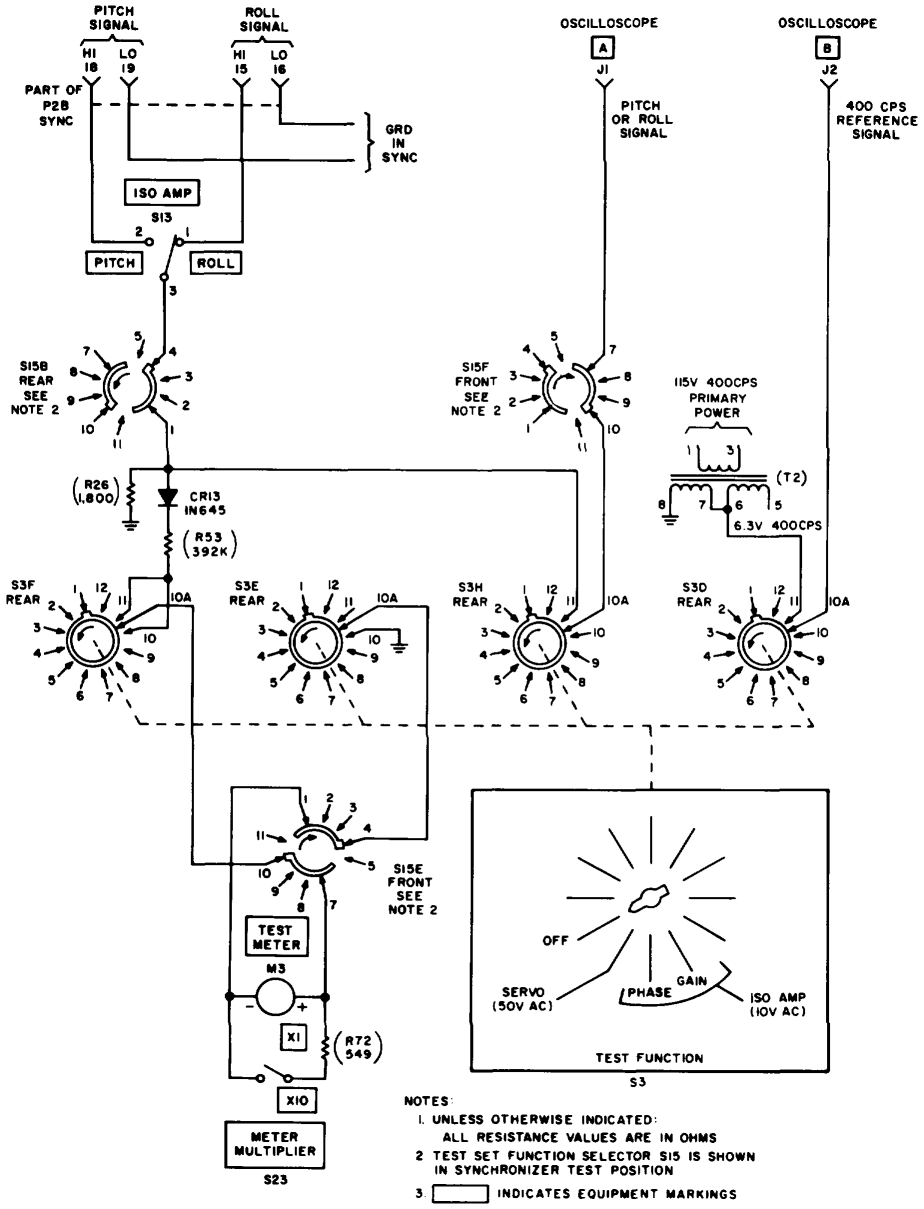


Figure 1-8. Sweep-current test circuit, simplified schematic diagram.



TM6625-664-45-34

Figure 1-9. Isolation amplifier test circuit, simplified schematic diagram.

AGO 7780A

1-26. Pitch, Roll, Stabilization, and Rate Signal Generation

(fig. 1-10)

a. General. Transformer T4 generates the pitch, roll, stabilization, and rate signals by stepping down the 115-volt, 400-cps standby power. Resistors R63 and R64 provide the load for the output of transformer T4. Paragraph b describes the functioning of the roll and pitch signal generation circuits and paragraph c describes the generation of the rate and stabilization signals.

b. Roll and Pitch Signal Generation. The roll signal is generated by a voltage divider made up of resistors R77, R78, and R19. Since resistor R19 is a potentiometer, the roll signal, which is taken at the R19 wiper, can be varied. Capacitor C19 and resistor R62 shift the phase of the pitch signal to simulate the phase shift of the gyroscope that is normally used with the AN/APN-158. The pitch signal is generated by an identical circuit and connected to pitch signal output P2B-22. Both the pitch and roll signal circuits are disabled when they are not needed by setting GYRO SIMULATOR switch S16 to OFF.

c. Stabilization and Rate Signal Generation. The stabilization and rate signals are generated by applying one-half of the transformer T4 output to a voltage divider made up of resistors R25 and R26 and by connecting the output of the voltage divider to SERVO switch S17. SERVO switch S17 connects the output of the voltage divider to rate signal output P2B-10 when S17 is in the RATE position, and it connects the output to stabilization signal output P2B-15 when S17 is in the STAB position.

1-27. Servoamplifier Test

(fig. 1-11)

TEST SET FUNCTION SELECTOR S15 connects the servomotor control signal from the servoamplifier to load resistors R21 and R22. The common point of resistors R21 and R22 is grounded in the servoamplifier. Dc blocking capacitors C20 and C21 couple the servomotor control signal to rectifiers CR14 and CR17. The dc output of the rectifiers is applied to TEST METER M3 through meter dropping resistors R84, R85, and R28. TEST FUNCTION switch S3 and TEST SET FUNCTION SELECTOR S15 make the connections between the meter dropping resistors and TEST METER M3.

1-28. Antenna Test, Manual Elevation Signal

(fig. 1-12)

a. General. The antenna test detail functioning consists of a manual elevation signal discussion.

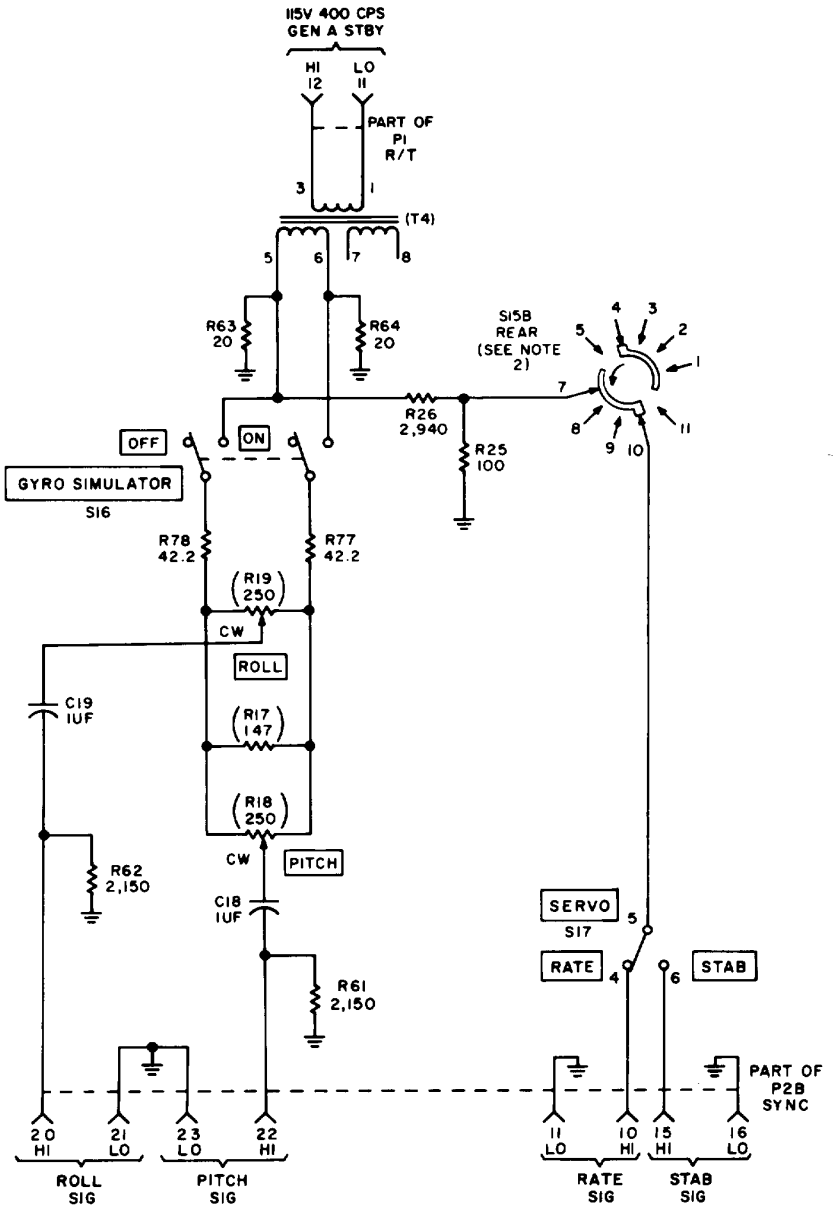
b. Manual Elevation Signal. ELEVATION synchro B1 simulates the manual elevation synchro located in the control unit during normal AN/APN-158 operation. Synchro B1 adds a manual elevation signal to the tilt-synchro-stator signal from the antenna. The resulting manual elevation signal drives the elevation servoamplifier in the synchronizer. The amount of manual elevation amplitude added to the tilt-synchro-stator signal is determined by the setting of ELEVATION control B1 on the AN/APM-247 INTERNAL CONTROL UNIT anel. CONTROL UNIT SELECTOR S20 switches synchro B1 into the circuit when S20 is in the INT position.

1-29. Radar Control Unit Test, Elevation Synchro Circuit

(fig. 1-13)

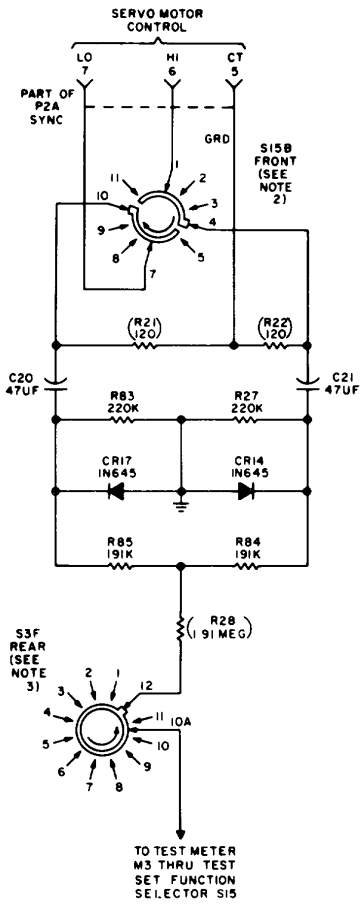
a. General. The radar control unit test detail functioning consists of an elevation synchro test discussion.

b. Elevation Synchro Test. The elevation synchro test circuit excites the synchro in the radar control unit by supplying 6.3 volts ac across the H and C inputs, J8-2 and -1. TEST FUNCTION switch S22, CONTROL UNIT SELECTOR S20, and TEST SET FUNCTION SELECTOR S15 connect the radar control unit synchro outputs, X and Y, to TEST METER M3. Diode CR15 rectifies the synchro output before it is applied to the meter. Resistors R69, R70, and R71 determine the



NOTES:
1. UNLESS OTHERWISE INDICATED:
   ALL RESISTANCE VALUES ARE IN OHMS
   ALL CAPACITANCE VALUES ARE IN MICROMICROFARADS
2 TEST SET FUNCTION SELECTOR S15 IS SHOWN IN
SYNCHRONIZER POSITION
3. ▭ INDICATES EQUIPMENT MARKING TM6625-664-45-30

Figure 1-10. Pitch, roll, stabilization, and rate signal generation, simplified schematic diagram.

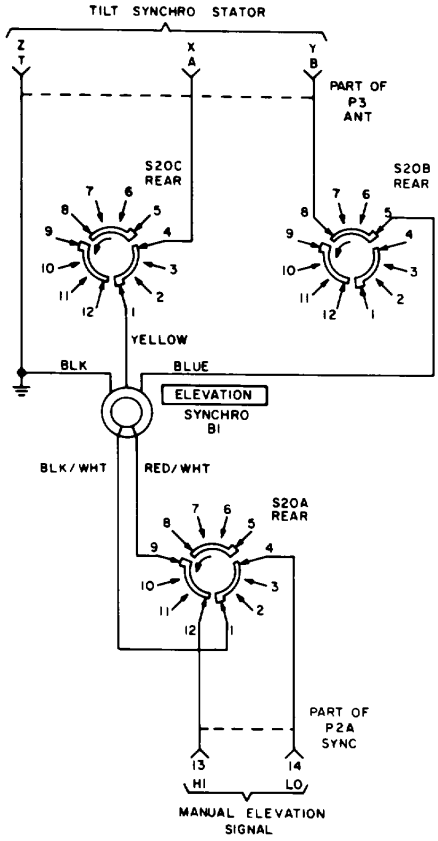


NOTES:
1. UNLESS OTHERWISE INDICATED ALL RESISTANCE VALUES ARE IN OHMS ALL CAPACITANCE VALUES ARE IN MICROMICROFARADS
2 TEST SET FUNCTION SELECTOR SIS IS SHOWN IN THE SYNCHRONIZER POSITION
3. TEST FUNCTION SWITCH S3 IS SHOWN IN THE SERVO POSITION

TM6625-664-45-31

Figure 1-11. Servoamplifier test, simplified schematic diagram.

sensitivity of the meters. TEST FUNCTION switch S22 is a three-position switch that switches the synchro output to the meter so that two



NOTE:
CONTROL UNIT SELECTOR S20 IS SHOWN IN THE INT POSITION

TM6625-664-45-32

Figure 1-12. Antenna test manual elevation signal, simplified schematic diagram.

levels of coarse adjustments or tests and a fine adjustment or test can be made to the radar control unit synchro. The first coarse adjustment or test is made with TEST FUNCTION switch S22 in the ELEV COARSE ADJ (8V) position. In this position, a 6.3-volt ac offset voltage is applied to the positive side of TEST METER M3 through diode CR15 and resistors R69 and R71. TEST FUNCTION switch S22 applies the synchro Y-signal to the negative side of TEST METER M3. The second coarse

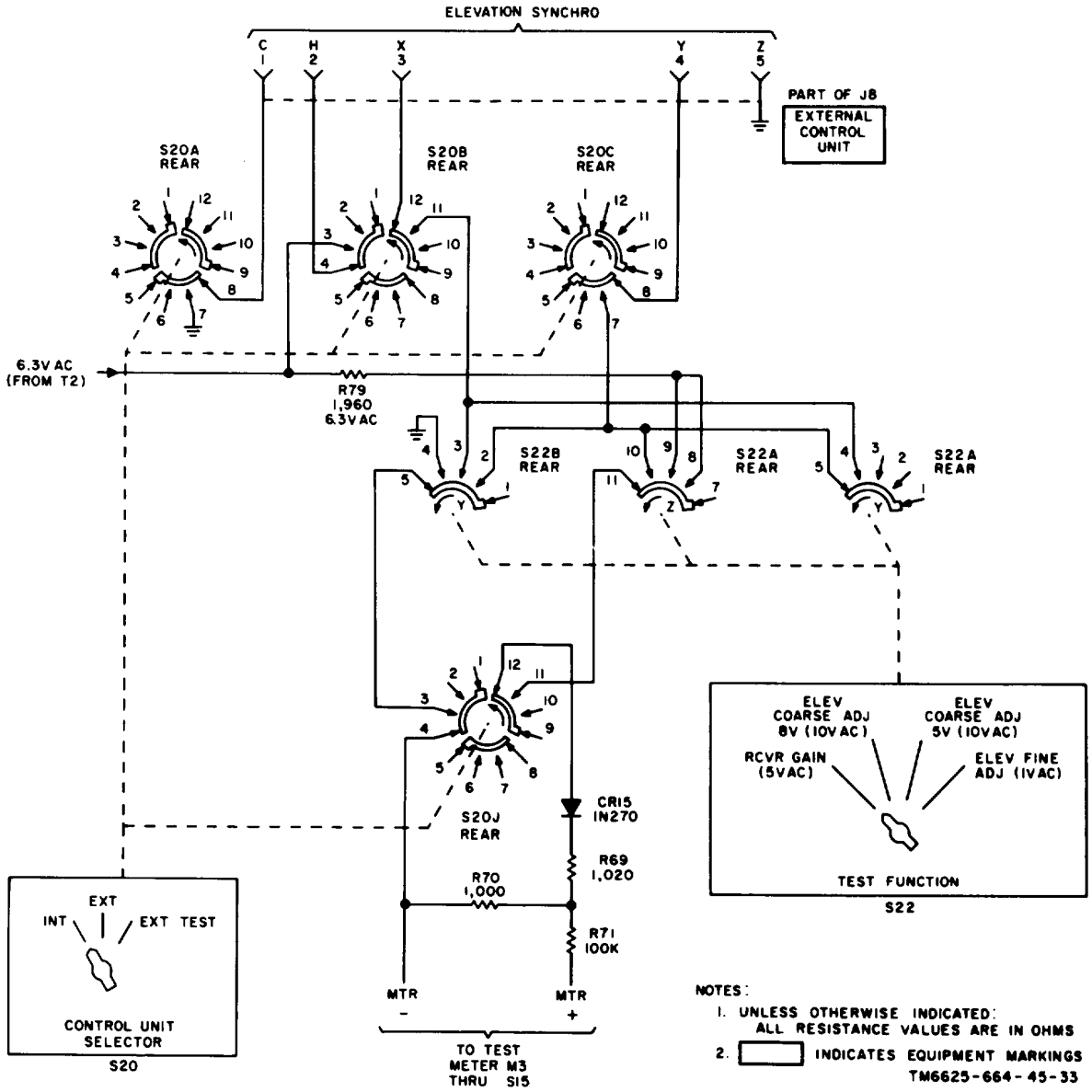


Figure 1-13. Elevation synchronization circuit, simplified schematic diagram.

adjustment or test which is made with TEST FUNCTION switch S22 in the ELEV COARSE ADJ (5V) position is the same as the first coarse adjustment, except the synchro X-signal, rather than Y-signal, is applied to the negative side of TEST METER M3. When TEST FUNCTION switch S22 is in the ELEV FINE ADJ position, the radar control unit X and Y-signals are in parallel and applied to the positive side of TEST METER M3 through diode CR15 and resistors R69 and R71. The 6.3volt ac offset voltage is then removed, and the negative side of the meter is grounded.

1-30. Lamp Flasher

(fig. 1-14)

a. General. The lamp flasher circuit is a relaxation

oscillator circuit which flashes the TEST METER X10 indicator on the TS-2081/ APM-247 at approximately a 0.-cps rate. The TEST METER X10 indicator flashes when the METER MULTIPLIER switch is in the X10 position. The flashing lamp draws the operator's attention to the fact that the TEST METER is uncalibrated.

b. Circuit Description. Base current in transistor Q1 flows from ground, through the Q1 emitter-base junction, through resistor R1, to the positive supply voltage. Transistor Q1 turns on and the resulting collector current flows through resistor R3 and the base junction of transistor Q2, turning Q2 on also. The voltage at the junction of DS8 and R4 increases and is coupled back to the base of Q1 by capacitor C1 and resistor R2. This regenerative action drives transistor Q1 into saturation, lighting DS8 at full brilliance. The feedback voltage decays exponentially at a rate determined by the R2-C1 time constant. When the voltage at the base of Q1 is no longer sufficient to keep Q1 in saturation, both transistors begin to turn off. Regeneration again occurs, this time in the reverse direction, causing Q1 and Q2 to cut off very rapidly. Capacitor C1 begins to charge to the supply voltage through R2 and R1. When the Q1 base voltage becomes positive enough, Q1 begins to turn on and a new cycle begins.

c. NOTE:
UNLESS OTHERWISE INDICATED:
ARE IN OHMS
ALL CAPACITANCE VALUES
ARE IN MICROMICROFARADS

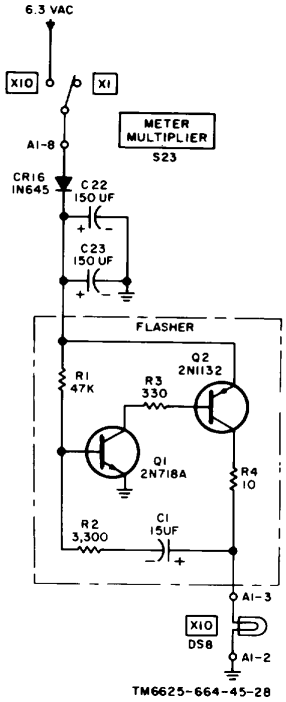


Figure 1-14. Lamp flasher circuit, simplified schematic diagram

CHAPTER 2

TROUBLESHOOTING

Section I. GENERAL TROUBLESHOOTING TECHNIQUES

Warning: **When servicing the AN/APM-247, be careful of high voltages present inside the case. Disconnect power before making resistance measurements.**

2-1. Introduction

a. Field and depot troubleshooting procedures supplement the procedures described in the organizational maintenance manual, TM 11-6625-664-12. Systematic troubleshooting begins with the operational and localization checks that are performed at the organizational level and is carried on to a higher level in this manual.

b. Field and depot troubleshooting procedures in this manual are limited to localization and isolation of faults that can be accomplished with the aid of the operational checks (para. 2-4) and the voltage and resistance measurements (para. 2-6). The overall schematic diagrams for both radar test sets are included (fig. 5-3 and 5-4). Use these diagrams to aid in localizing the trouble to a functional circuit. Refer to the voltage and resistance chart (para. 2-6) to isolate the trouble to a circuit element.

2-2. Troubleshooting Techniques

a. The first step in troubleshooting a defective radar test set is to localize the fault. Localization means tracing the fault to a particular functional area of the equipment. The second step is to isolate the fault. Isolation means tracing the fault to a defective circuit element.

b. When a trouble occurs, study the symptoms carefully. Use the overall schematic diagrams (fig. 5-3 and 5-4) to aid in localizing the fault. Troubles such as broken connectors, burned-out resistors, and arcing can sometimes be located by sight, smell, or hearing; however, the majority of troubles must be located by voltage and resistance measurements (para. 2-6).

2-3. Test Equipment Required

The following chart lists test equipment required for troubleshooting AN/APM-246 and AN/APM-247. The associated technical manuals are also listed.

Cautions:

1. The AN/APM-247 contains transistor circuits in the afc detector/amplifier circuit. If any equipment item does not have an isolation transformer in its power supply circuit, connect one in the power input circuit. A suitable transformer is identified by FSN 59503561779.
2. Never connect test equipment (other than multimeters and vtvm's) outputs directly to a transistor circuit; use a coupling capacitor.
3. Make test equipment connections with care to avoid shorts caused by exposed test equipment connectors. Tape or sleeve (spaghetti) test prods or clips to leave as little exposed as needed to make contact to the circuit under test.
4. The equipment battery (or its equivalent) is recommended as the source of power when servicing transistorized equipment. Observe battery polarity. Polarity reversal may damage the transistors or electrolytic capacitors in the circuit. If a battery eliminator is used in place of the battery, it must have good volt-

age regulation and low ac ripple. Good regulation is important because the output voltage of a battery eliminator that has poor regulation may exceed the maximum voltage rating of the transistors in the equipment being tested. A battery eliminator that has poor ac filtering will create a false indication of poor filtering in the equipment being tested. 5. The transistorized equipment must be turned off before switching the battery eliminator on or off. The transient voltages, created by switching the battery eliminator on and off, may exceed the "punch-through" rating of the transistors. Make sure that a normal load is connected to the transistorized equipment before applying power.

Test equipment	Technical manual
Signal Generator AN/URM-44	TM 11-6625-508-10
Test Set, Radar AN/UPM-56	
Pulse Generator AN/PPM-1A	TM 11-2678
Multimeter ME-26B/U	TM 11-6625-200-12
Oscilloscope AN/USM-81	TM 11-6625-219-12

2-4. Operational Checks

Operational self-checks for both the AN/APM-246 and AN/APM-247 are given in the monthly preventive maintenance checks and services chart in TM 11-6625-664-12. Normal indications for the tests are listed. The troubleshooting chart in the same manual gives troubleshooting information for faults that occur during the self-check procedures.

2-5. Additional Operational Checks for Test Set, Radar AN/APM-246

a. Procedure. When the AN/APM-247 is set for system operation, it connects the individual units of the AN/APN-158 radar set together the same as an aircraft harness. The AN/APM-247 therefore simulates an aircraft wiring harness and may be used to check the operation of the AN/APM-246. Perform the checks by connecting the pendant cables of the AN/APM-247 into the AN/APM-246. Also connect the ground clip from the AN/ APM-246 to the chassis of the AN/APM-247. Push the TEST button on the AN/APM-246 and perform the continuity, short, and ground checks as specified in TM 11-6625-664-12. The chart in b below shows the condition of the CONTINUITY, SHORT, and GROUND lamps for each of the 82 checks.

b. Chart.

Test pos	cont	Lamps short	Grd	Test pos	cont	Lamps short	Grd	Test pos	Cont	Lamps short	Grd	Test pos	Cont	Lamps short	Grd
1	X			22	X			43	X			63	X		
2	X			23	X			44	X			64	X		
3	X			24	X			45	X			65	X		
4	X			25	X	X	X	46	X			66	X		
5	X			26	X			47	X			67	X		
6	X			27	X			48	X			68	X		
7	X			28	X			49	X			69	X		
8	X			29	X			50	X			70	X		
9	X			30	X			51	X			71	X		
10	X	X	X	31	X			52	X			72	X		
11	X	X	X	32	X	X	X	53	X			73	X		
12	X	X	X	33	X			54	X			74	X		
13	X	X	X	34	X			55	X			75	X		
14	X	X	X	35	X			56	X			76	X		
15	X	X	X	36	X			57	X			77	X	X	X
16	X	X	X	37	X			58	X			78	X	X	X
17	X	X	X	38	X			59	X			79	X		
18	X	X	X	39	X			60	X			80			
19	X	X	X	40	X			61	X			81			
20	X		X	41	X			62	X			82			
21	X			42	X										

X indicates lamp lighted.

2-6. Voltage and Resistance Measurements

The normal voltage and resistance measurements taken at the emitter, base, and collector of each transistor in the AN/APM-247 are presented in chart form in paragraph 2-6c. Voltages at other pertinent points in the circuit are also given in the chart. Use these voltage and resistance measurements and the schematic diagram in the rear of this manual to localize and isolate trouble in the equipment. No voltage and resistance chart is given for the AN/APM-246 because it contains no active circuit element. Refer to paragraph 2-6 for test procedures for the AN/APM-246.

a. Voltage Measurements.

Caution: When measuring voltages, use tape or sleeving (spaghetti) to insulate the entire test prod except for the extreme tip. A momentary short can ruin a transistor. The voltage readings in the chart para. 2-6c were obtained under the conditions outlined in (1) through (4) below. Always make voltage readings under these same conditions, or the readings obtained may be inaccurate.

(1) Make all voltage readings with a 20,-000 ohms-per-volt multimeter (TS-352/U or equivalent).

(2) Make all voltage measurements with respect to chassis ground unless otherwise specified.

(3) Make all voltage measurements with power applied and the power switch on. Set the INPUT VOLTAGE ADJUST control for an indication of 115_+1 volts ac on the INPUT VOLTAGE meter. Also ensure that the input frequency is 400+5 cps as indicated by the INPUT FREQUENCY meter.

(4) all switches and controls to the full counterclockwise or off position except as noted in (3) above or in the voltage measurement chart.

b. Resistance Measurements. The resistance readings in the chart (para. 2-6c) were obtained under the conditions outlined in (1) and (2) below. Always make resistance measurements under these conditions, or the readings may be inaccurate. Pay particular attention to the ohmmeter range because the equipment contains semiconductor devices. The resistance of these devices is quite voltage dependent. The resistance values given are actual measurements taken on a unit; however, measurements taken on other units may vary as much as + 50 and -25 percent because of differences in semiconductor components.

(1) Make all resistance measurements with power off.

(2) Make all resistance measurements with a 20,000 ohms-per-volt multimeter (TS-352/U or equivalent).

c. Chart.

Circuit element	Resistance measurements				Voltage measurements		Special conditions (voltage measurements only)
	Negative ohmmeter	Positive ohmmeter	Ohmmeter range	Resistance (ohms)	Test point	Voltage (volts de)	
Q1	E	B	X100	6.2K	C	0	1. TEST FUNCTION SELECTOR: RECEIVER TRANSMITTER.
	B	C	X1	10			
	C	E	X1	135	B	4.4	2. Connect a known good Receiver-Transmitter RT-711/APN-158
	B	E	X1	12			
	C	B	X100	4K	E	4.7	to the AN/APM-247.
	E	C	X100	3.7K			3. Set the AF switch on the RT-711/APN-158 to OFF.
							4. Set the POWER switch to ON and set the INPUT VOLTAGE ADJUST control for 115 volts on the INPUT VOLTAGE meter.
							5. Set the SYSTEM CONTROL switch to OPERATE.

Circuit element	Resistance measurements				Voltage measurements		Special conditions (voltage measurements only)
	Negative ohmmeter	Positive ohmmeter	Ohmmeter range	Resistance (ohms)	Test point	Voltage (volts de)	
Q2	E	B		X100	3.6E	C 6.7	Same as for Q1.
	B	C	X1	7.5			
	C	E	X100	1.4K	B	16.7	
	B	E	X1	8			
	C	B	X100	5.9K	E	16.8	
	E	C	X100	670			
Q3	E	B		X1	18		Same as for Q1.
	B	C	X100	8K	C	13.5	
	C	E	X100	850			
	B	E	X100	4.3K	B	046	
	C	B	X1	18			
	E	C	X100	22K	E	0.37	
Z1Q1	E	B	X1	16.5			1. Same as for Q1.
	B	C	X10,000	Infinite	C	5.5	2. Set METER MULTIPLIER switch to ON
	C	E	X100	3K			
	B	E	X10,000	75K	B	0.4	
	C	B	X1	15			
	E	C	X10,000	Infinite	E	0	
Z1Q2	E	B	X10,000	Infinite			Same as for Z1Q1.
	B	C	X1	18.3	C	2.6	
	C	E	X1	80			
	B	E	X1	20	B	7.65	
	C	B	X10,000	Infinite			
	E	C	X100	3.7K	E	8.4	
Points Test					J1	5.1	Same as for Q1.
					J2	18	
					*J3	575(ac)	
					J4	-220	
					J6	10	
					J6	4	
					**J7	5.1	

*Make measurement with respect to terminal 9 of T8.
** Make measurement with reset to terminal A1-1.

2-7. Servicing Transistor Circuits

a. General. In general, the servicing procedures and test equipment used for other types of electronic equipment may be used for transistor circuits. Those cases which require special precautions are outlined below. If the equipment under test contains transistors, even though they may not be in the circuit under test, the precautions should be observed because of the possibility of accidentally contacting a transistor circuit.

b. Test Equipment. Transistor damage caused by test equipment is usually the result of accidentally applying too much current or voltage to the transistor elements. One source of such current is from the power line when test equipment with transformerless power supplies is used. The test equipment recommended for testing this equipment has transformer-type power supplies; however, if substitute equipment should be used, check its power supply. If line isolation is required, a suitable transformer is identified by FSN 5950-351779. If the equipment has a line filter, it is also possible to damage transistors from line current, even though the test equipment has a power transformer in the power supply. The line filter acts as a voltage divider, applying 55 volts (one-half of the line voltage) to the test equipment chassis.

To eliminate trouble from this situation, connect the chassis of all equipment together with a no. 14 bus wire before any other connections are made. Multimeters that have sensitivities of less than 5000 ohms-per-volt should not be used in transistor circuits. Multimeters with lower sensitivities draw excessive current through many types of transistors, damaging them. Use 20,000 ohms-per-volt meters or vacuum tube voltmeters for all transistor circuits. Check the ohmmeter circuit (even those in vtvms) on all scales with an external, low resistance milliammeter in series with the ohmmeter leads. If the ohmmeter draws more than one milliampere on any range, this range cannot be used safely on small transistors. Electric soldering irons may also damage transistors through leakage current. To check a soldering iron for leakage current, connect an ac voltmeter between the tip of the iron and a ground connection (water pipe or line ground), allow the iron to heat, then check for voltage indications on the meter. Reverse the plug in the receptacle and again check for voltage. If there is any indication on the meter, isolate the iron from the line with an isolation transformer. The iron may be used without the isolation transformer if the iron is heated, then unplugged for the soldering operation. A ground wire between the top of the soldering iron and the chassis of the equipment being repaired will also prevent damage from leakage current.

c. Soldering Techniques. Light-duty soldering irons of 20 to 25 watts are adequate for transistor work and should be used. If it is necessary to use a heavier iron, wrap a piece of no. 10 copper wire around the tip of the iron and make it extend beyond the tip of the iron. Tin the end of the copper wire and use it as the soldering tip. When installing or removing a soldered-in transistor, use a long nosed pliers to grasp the transistor lead between the solder joint and the transistor. The pliers absorb heat that would otherwise conduct into the transistor from the soldering iron. Be sure that wires being soldered to transistor terminals are pretinned so the connection can be made quickly. Excessive heat may damage the transistor.

d. Circuit Measurements. When measuring resistance of circuits containing transistors or semiconductor diodes, remember that these components are polarity sensitive; therefore, follow the directions in the notes given in the resistance tables to be sure that the correct polarity and range for the capacitors to fully charge or the readings obtained will be erroneous. In some cases, it is best to isolate the components in question and measure them individually. Test probes used for transistor circuit measurements should be clean and sharp. Because many of she resistors used in transistorized circuits have low values, any additional resistance introduced by dirty test probes makes a good resistor appear to be out of tolerance. The etched circuit boards in the equipment are covered with an epoxy coating. The test probes used must be sharp enough to pierce the epoxy coating and make good contact to the circuit under test. The clearance between socket terminals, wires, and other components is usually very small. It is easy to cause accidental short circuits with a test probe having a long, exposed tip. Short circuits are very damaging to transistor circuits; it is therefore a good practice to cover all but about one-eighth inch of the exposed tip of test probes with plastic tape or other insulation.

e. Ohmmeter Checks of Transistors. If a transistor tester is not available, a good ohmmeter may be used for testing. Be sure the ohmmeter meets the requirements given in b above.

(1) *Checking PNP transistors*. Connect the positive lead of the ohmmeter to the base and the negative lead to the emitter. A resistance reading of 50,000 ohms or more should be obtained. Connect the negative lead to the collector. The meter should again read 50,000 ohms or more. Reconnect the circuit with the negative lead of the ohmmeter to the base. Connect the positive lead to the emitter and read the resistance. The meter should read 500 ohms or less. Connect the positive

lead to the collector. The meter should read 50,000 ohms or more. Connect the negative lead of the ohmmeter to the base and the positive lead to emitter. The meter should read 500 ohms or less. Connect the positive lead to the collector. The meter should read 500 ohms or less.

(2) Checking NPN transistors. Connect the negative lead of the ohmmeter to the base and the positive lead to the emitter. A resistance reading of 50,000 ohms or more should be obtained. Connect the positive lead to the collector. The meter should again read 50,000 ohms or more. Reconnect the circuit with the positive lead of the ohmmeter to the base. Connect the negative lead to the emitter and read the resistance. The meter should read 500 ohms or less. Connect the negative lead to the collector. The meter should read 500 ohms or less.

2-8. Localizing and Isolating Troubles

a. There are two types of troubles that are likely to occur in the test set; (1) troubles that are detected by running procedures in the monthly preventive maintenance checks and service chart (TM 11-6625-664-12) and (2) troubles that occur during the performance of the operating procedures and cannot be detected by the preventive maintenance checks. The preventive maintenance check procedures localize the first type of trouble to a circuit board or to the chassis of the test set. The general support or depot maintenance man must perform additional procedures to localize the second type of trouble. An example of this type of trouble would be an open terminating resistor. The test set contains many resistors that simulate terminating resistance for the AN/APN-158 circuits. To localize a trouble of this type, first find out in which system component test the trouble occurred. Obtain an AN/APN-158 system component of the same type that is known to be in operating condition. Plug the component into the test set and perform the test procedure for that component to the point where an incorrect reading is obtained.

Note. If none of the tests on the component can be performed, there is a possibility that no power is being applied to the component.

b. The following is an example of a typical trouble that might occur during performance of the operating procedures. Assume that when performing step 12d of the isolation amplifier gain test in paragraph 2-7c TM 11-6625664-12, the TEST METER indicates less than 5 volts dc with a known good Synchronizer SN-358/APN-158 and Receiver-Transmitter RT-711/APN-158 connected to the AN/ APM-247. Reference to the AN/APM-247 schematic and detailed functioning reveals that the trouble can be localized by performing step 12e of TM 11-6625-664-12 paragraph 2-7c. If step 12e also indicates less than 5 volts, the trouble is probably in a component that is common to both the pitch and roll functions. If the indication in step 12e is normal, the trouble is probably in a component peculiar to the pitch function. Note that with switches set as directed in TM 11-6625-66412 paragraph 2-7c step 12, malfunction of the following components could cause the faulty indication: TEST METER M3, TEST FUNCTION SELECTOR S15, TEST FUNCTION switch S3, resistor R53, diode CR13, resistor R26, ISO AMP switch S13, and pitch and roll signal input pins P2B-18 and -15. These components should be checked with an ohmmeter and power removed from the equipment since none of the components are active elements. If these components and wiring check normal, the AN/APM-247 input to the isolation amplifier should be checked. The voltage at both the pitch signal input and roll signal input should be approximately 1 volt ac. If 1 volt is not present, trace the signal back to the 115-volt, 400-cps input of transformer T4. Remember that normally the signal will be greater at the input of potentiometers R18 and R19 and at the secondary of transformer T4.

c. Use the same techniques as in b above to isolate troubles that occur during the performance of the test procedures.

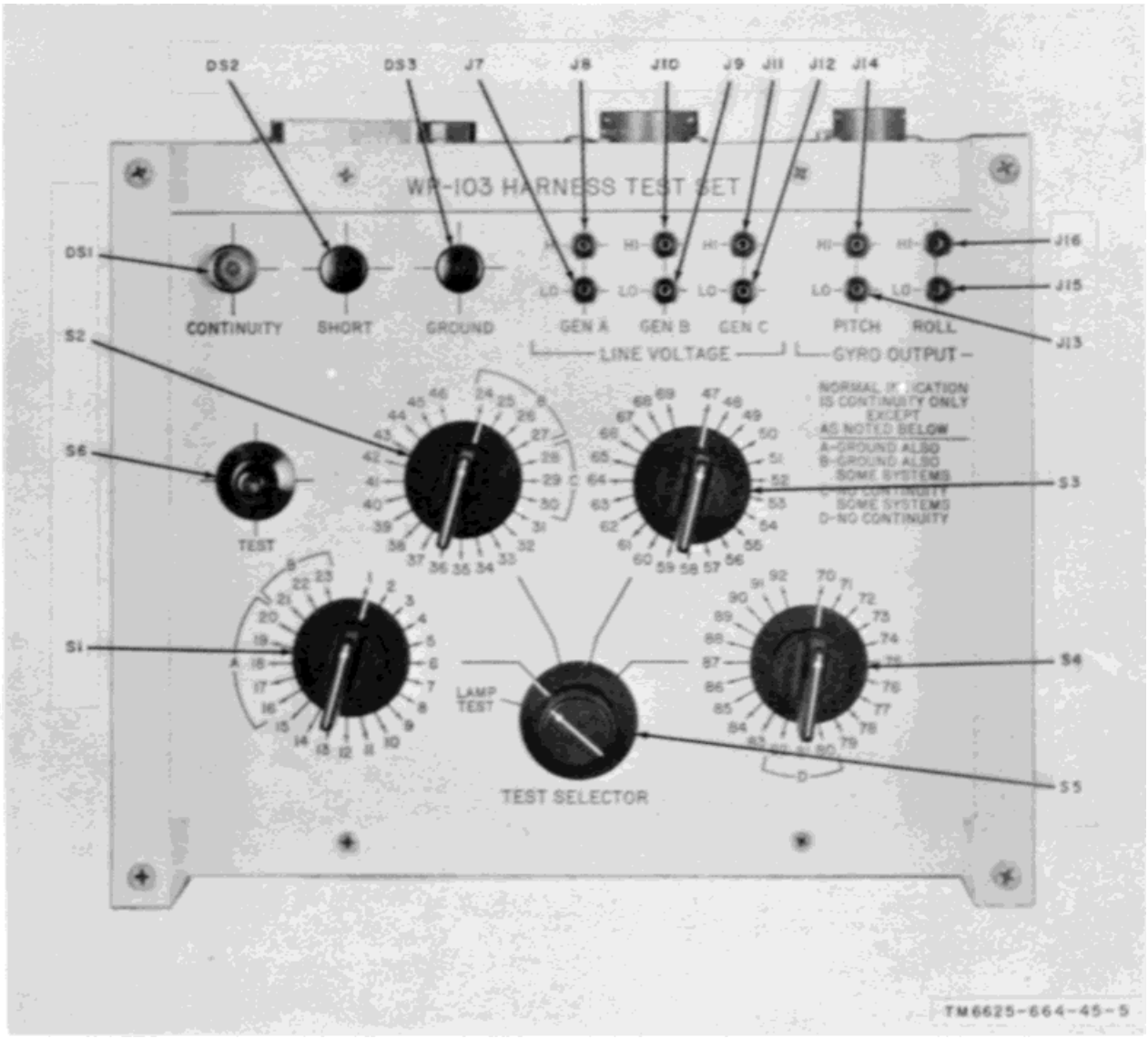


Figure.2-1. Test Set, Radar AN/APM-246, front panel, parts location.

2-9. Parts Location

Figures 2-1 through 2-3 show the AN/ APM-246 parts location. Figures 2-4 through 2-7 show the AN/APM-47 parts location.

2-10. Special Purpose Cables

The schematic diagrams of the special purpose cables supplied with the AN/APM-246 and AN/APM-247 are shown in figures 2-8 through 2-14.

TM 11-6625-664-45

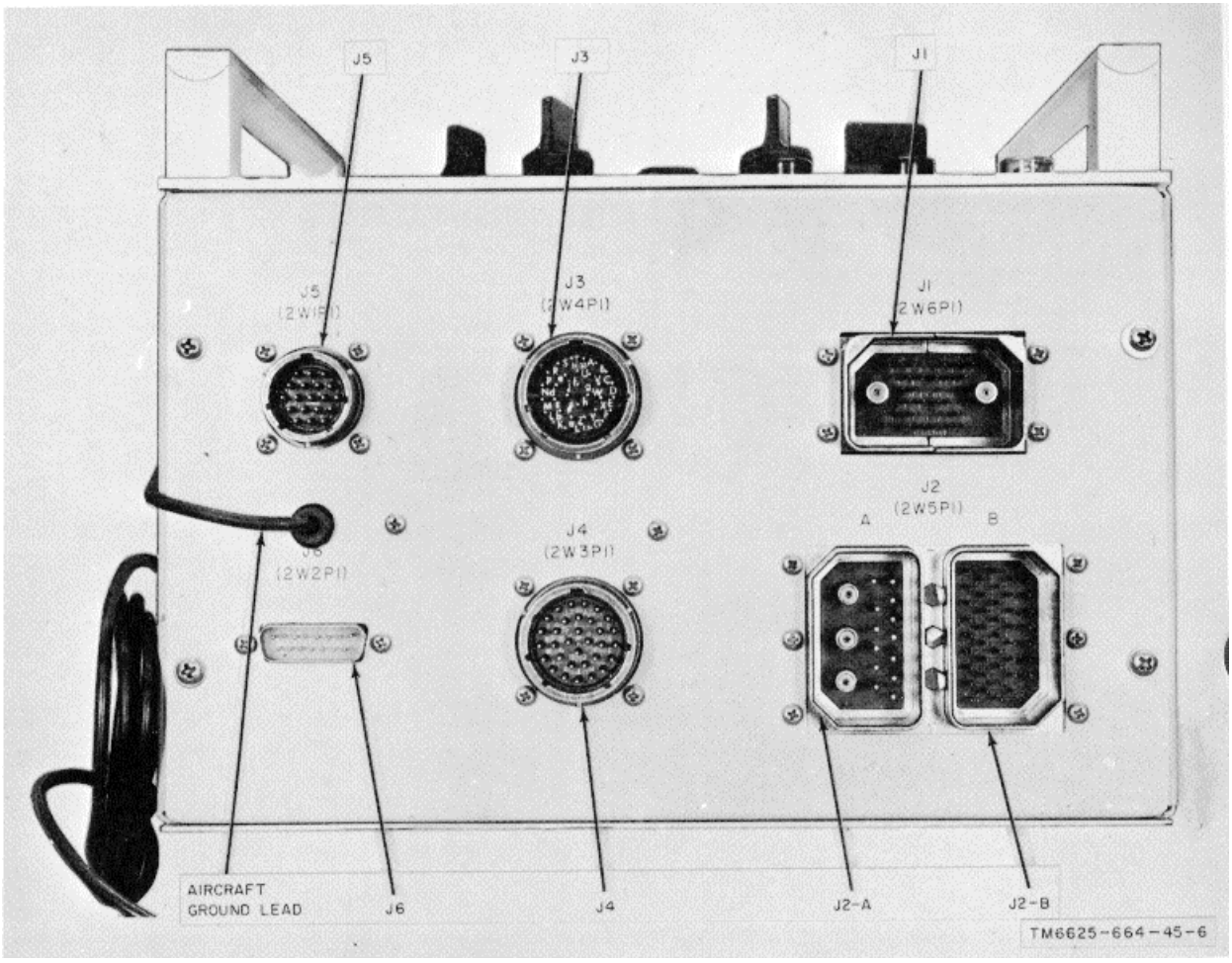


Figure 2-2. Test Set, Radar AN/APM-246, plug side view, parts location.

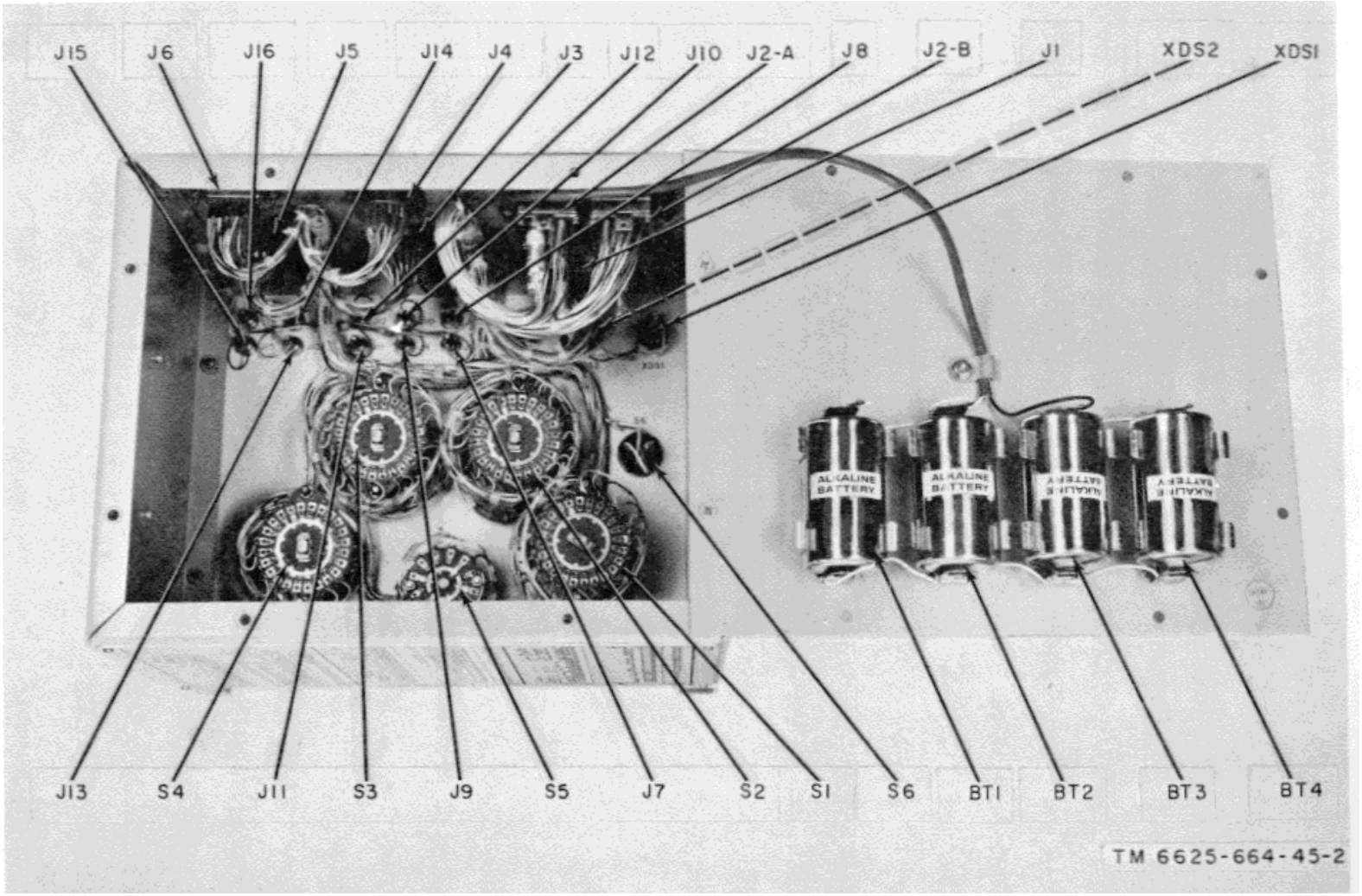


Figure 2-3. Test Set, Radar AN/APM-246, inside view, parts location

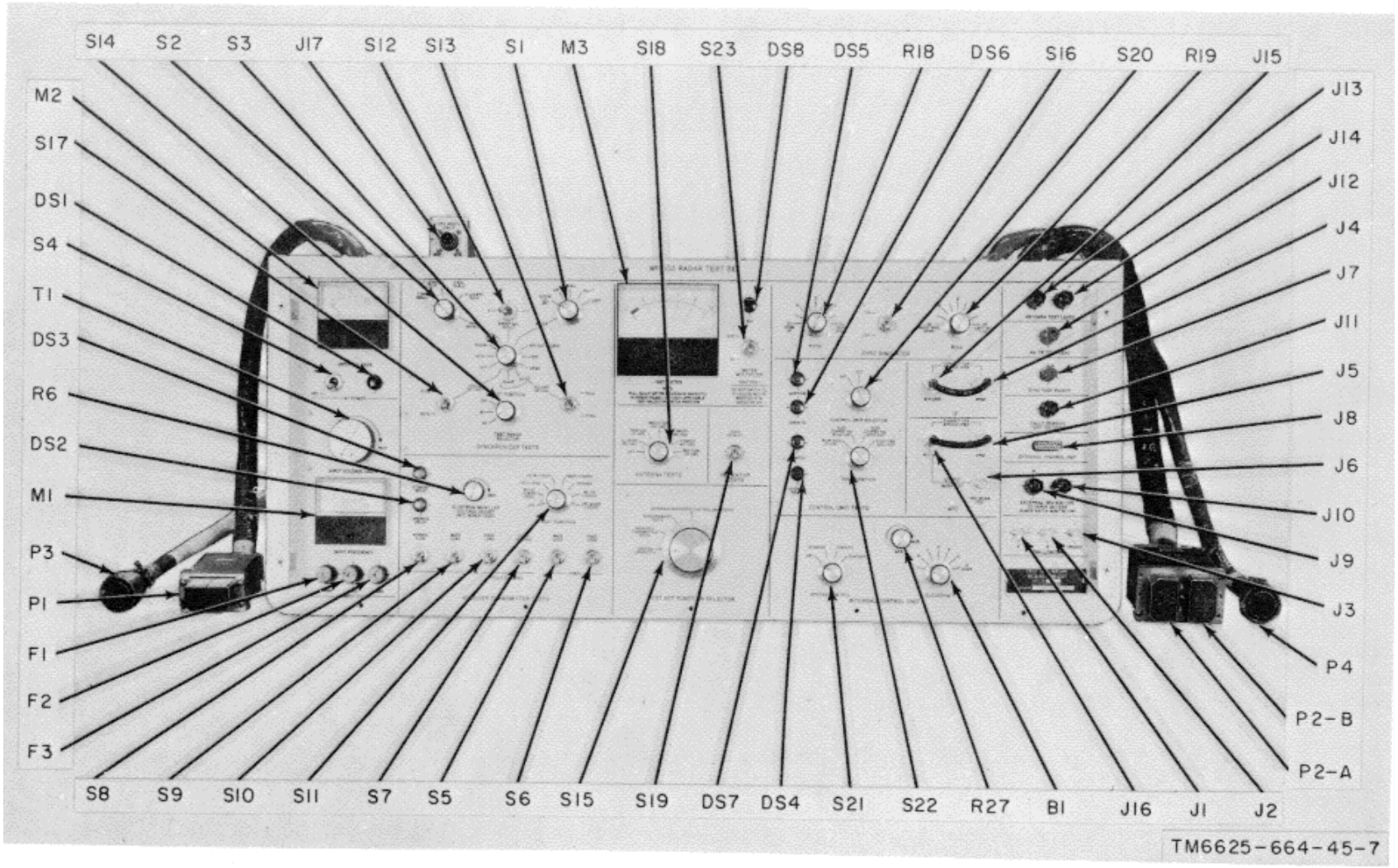


Figure 2-4. Test Set, Radar AN/APM-247, front panel, parts location.

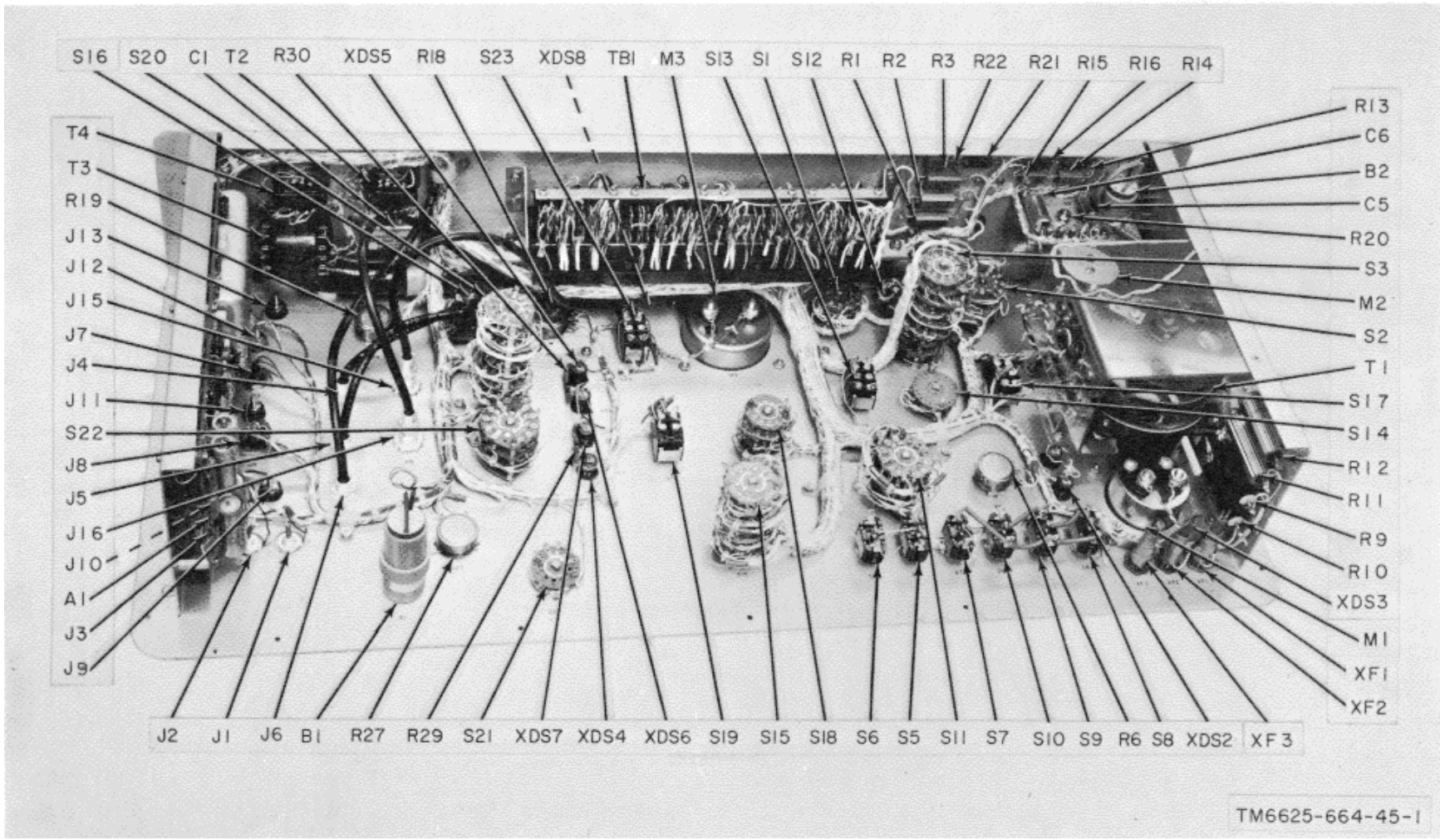


Figure 2-5. Test Set, Radar AN/APM-247, inside view, parts location

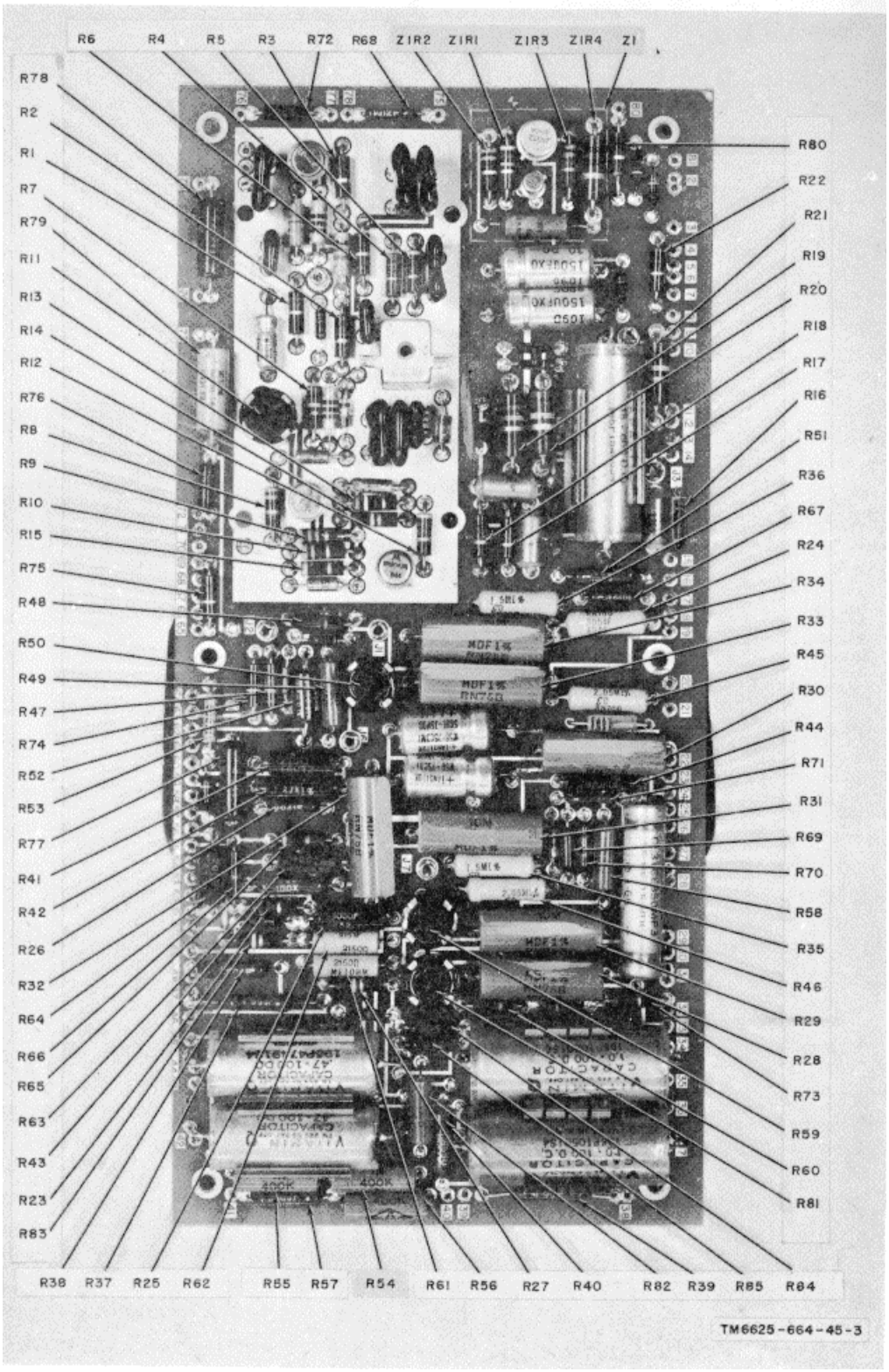


Figure 2-6. Printed circuit board No. 1 (AN/APM-247), parts location.

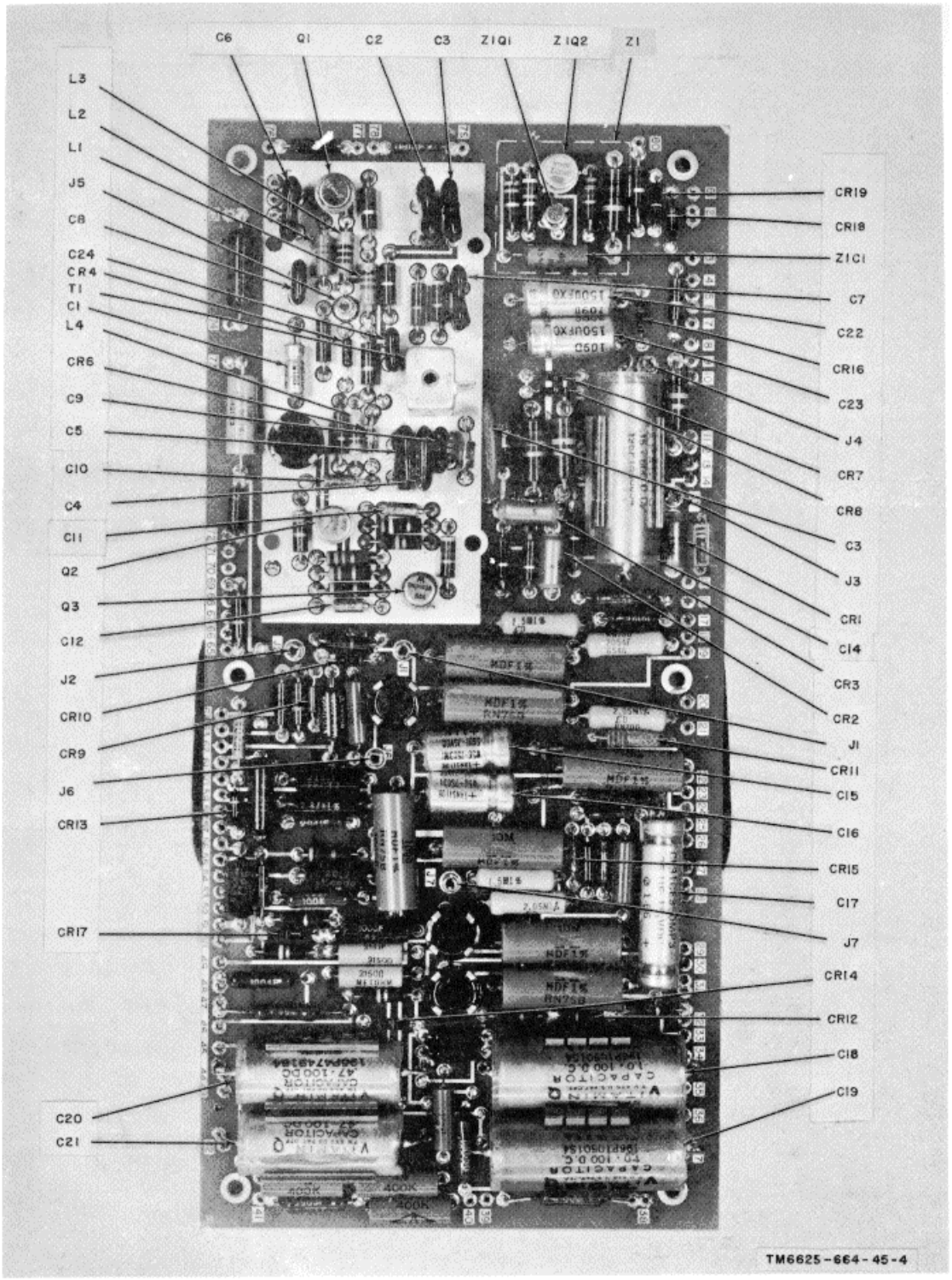
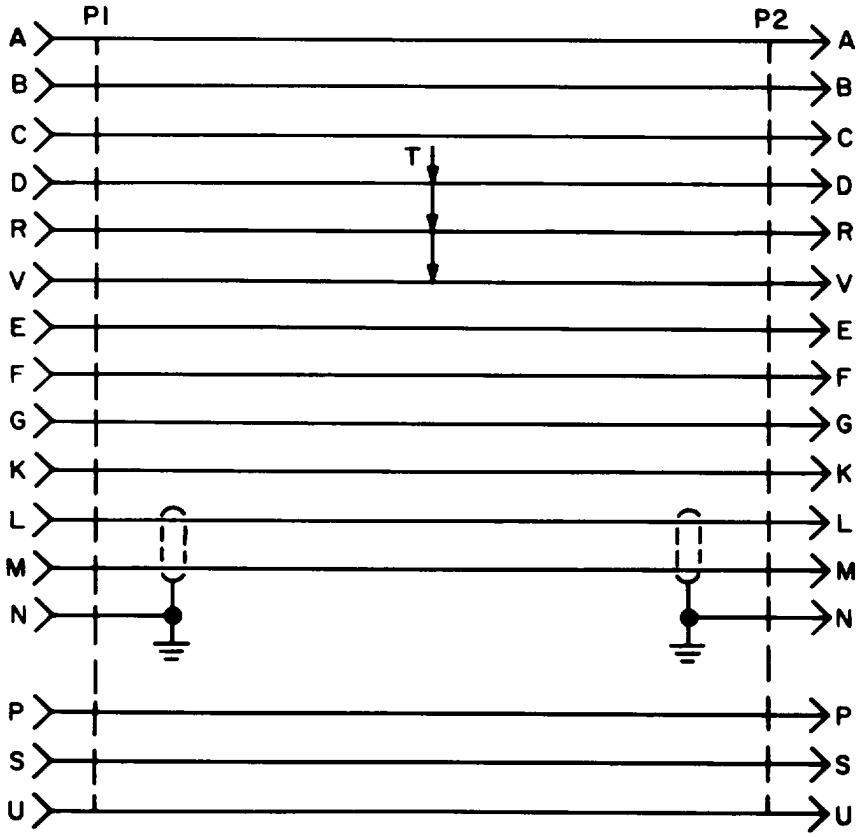
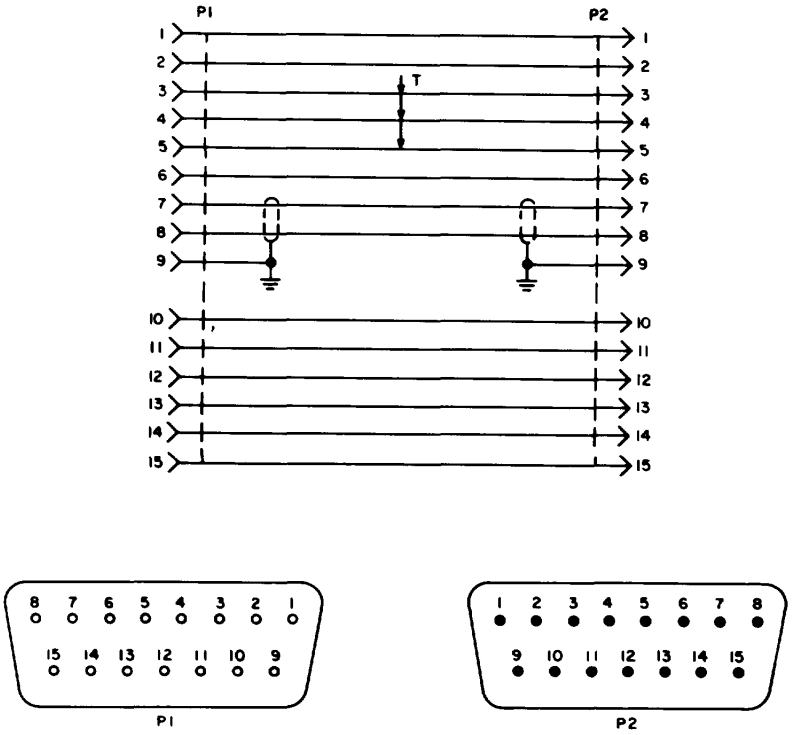


Figure 2-7. Printed circuit board No. 2 (AN/APM-247), parts location.



TM6625-664-45-18

Figure 2-8. Cable Assembly, Special Purpose, Electrical CX-10030/APM-246, schematic diagram.



TM6625-664-45-15

Figure 2-9. Cable Assembly, Special Purpose, Electrical CX-10032/APM-246, schematic diagram.

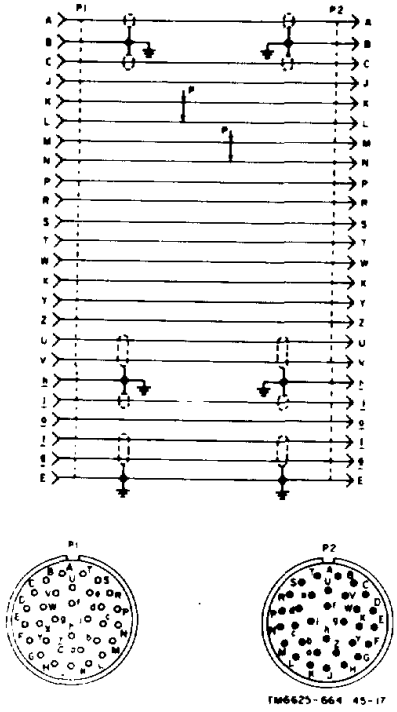
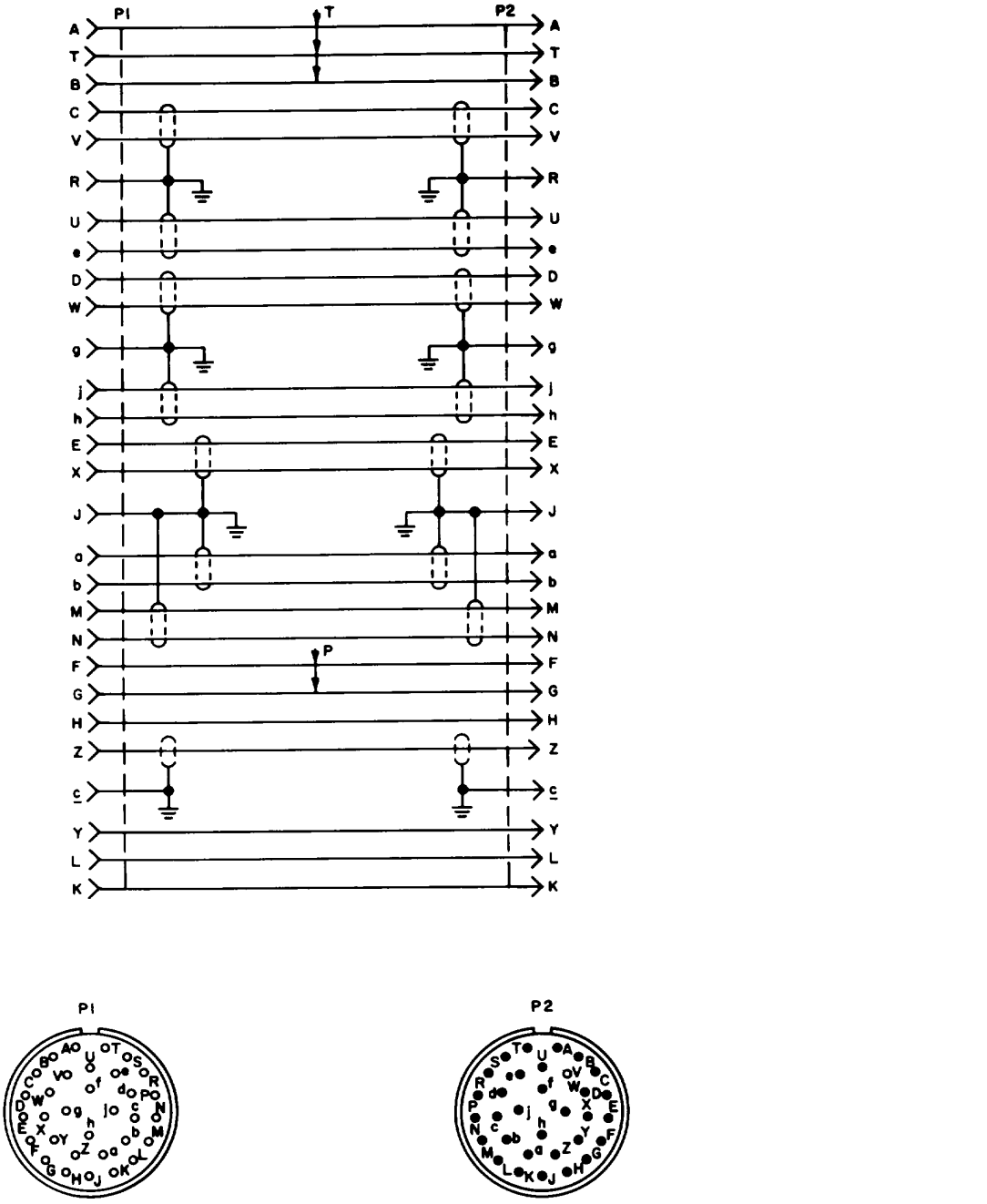
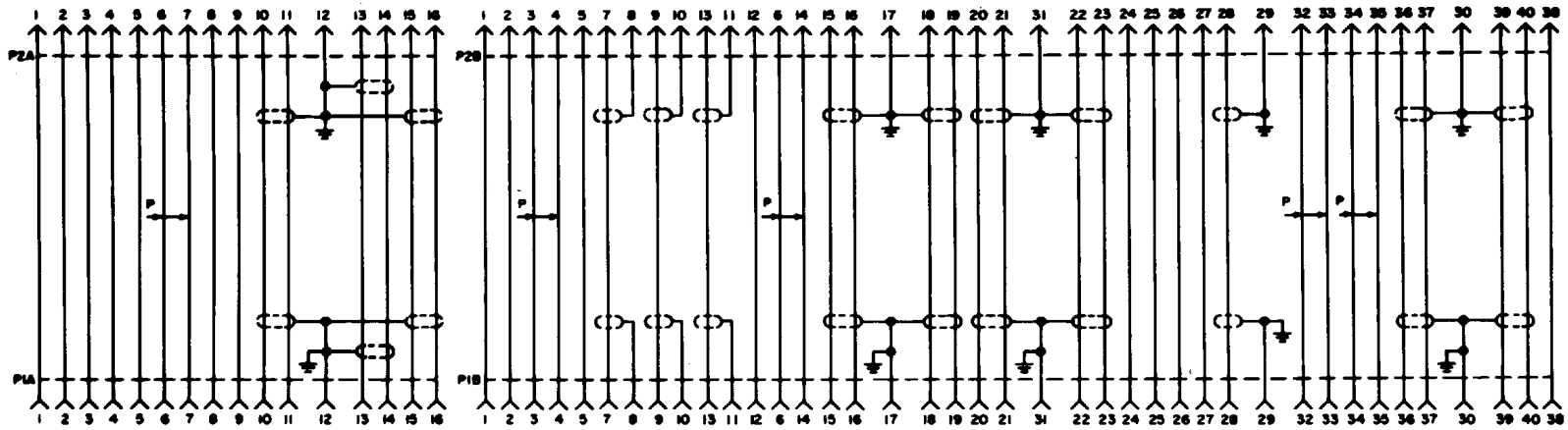


Figure 2-10. Cable Assembly, Special Purpose, Electrical CX-10032/APM-246, schematic diagram.



TM6625-664-45-12

Figure 2-11. Cable Assembly, Special Purpose, Electrical CX-100S/APM-246, schematic diagram.



TM6625-664-45-13

Figure 2-12. Cable Assembly, Special Purpose, Electrical CR -10034/APM-246, schematic diagram.

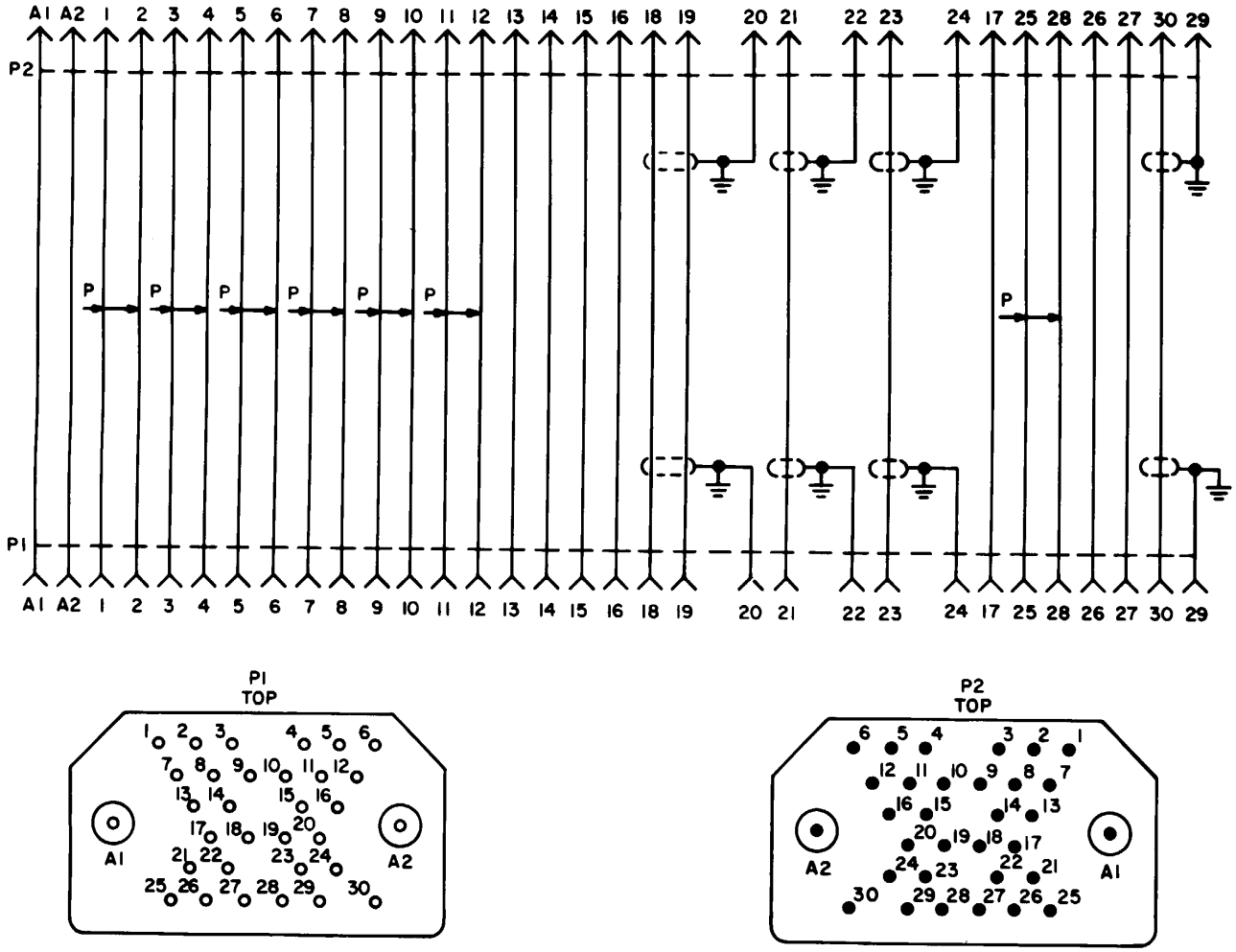
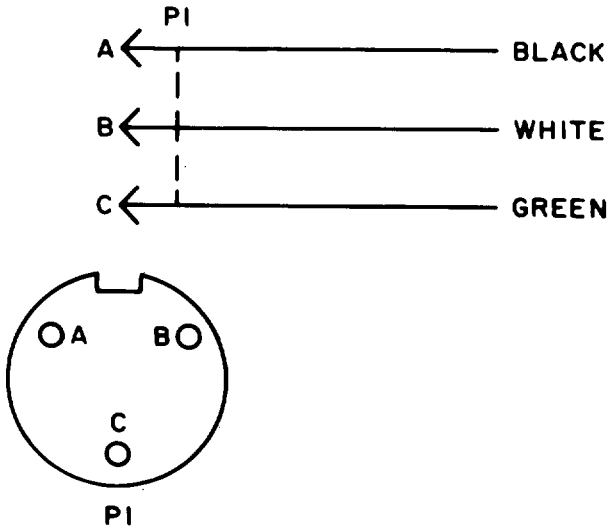


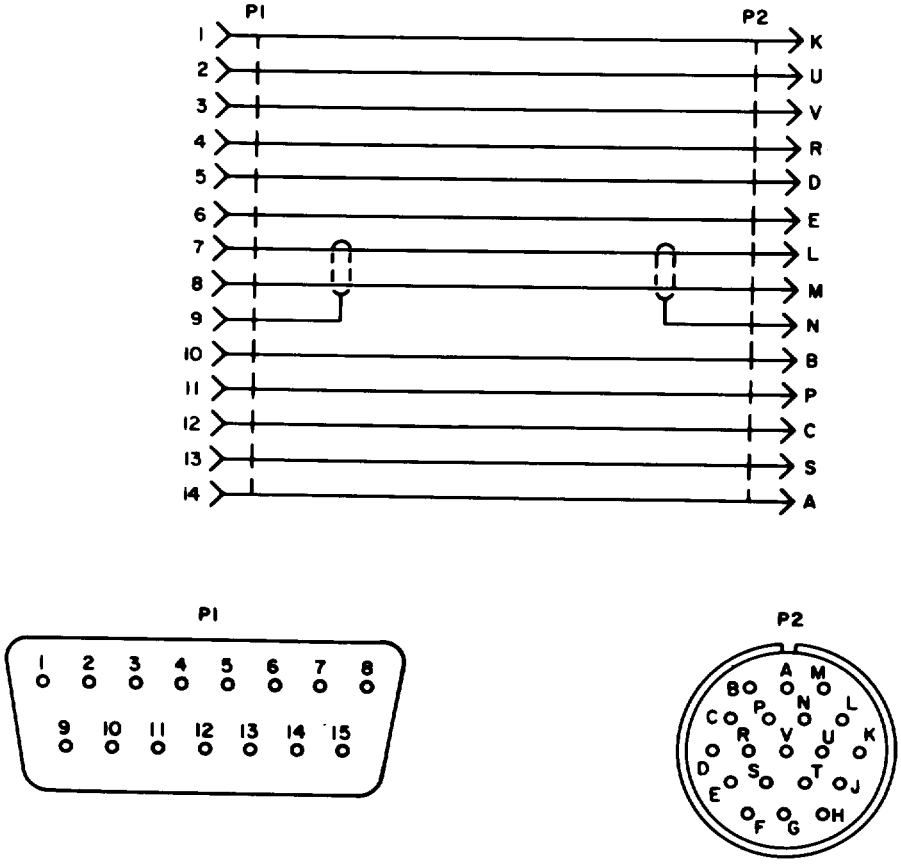
Figure 2-13. Cable Assembly, Special Purpose, Electrical CX-10035/APM-246, schematic diagram.

AGO 7812A



TM6625-664-45-14

Figure 2-14. Cable Assembly, Power, Electrical CX-100l2/APM-247, schematic diagram.



TM6625-664-45-34

Figure 2-15. Cable Assembly, Special Purpose, Electrical CX-11555/APM-247, schematic diagram.

CHAPTER 3
REPAIRS AND ALIGNMENT

Section I. REPAIRS

3-1. General Parts Replacement Techniques

a. Replacement of Circuit Board. Use care when removing and replacing circuit boards. Do not use excessive force or the board may become damaged. After a circuit board is replaced, always perform the adjustment procedures applicable to that circuit board before returning the equipment to the user. Refer to paragraph 3-2 for details on printed circuit board repair.

b. Soldering. Use a pencil-type iron with a capacity of 20 or 25 watts. Check that the iron tip is isolated from the ac line (paragraph 2-7). Do not use a soldering gun; damaging voltages can be induced into the equipment. Solder transistor and diode leads quickly; semiconductor devices are easily damaged by heat. Whenever possible, use a heat sink (such as long-nose pliers) between the soldering iron and the component.

c. Parts Replacement. Always replace defective parts with identical good parts. For replacing parts on the printed circuit cards, refer to paragraph 3-2. When replacing wiring or components on the chassis, place the new wires or components as nearly like the original as possible.

d. Switch Replacement. When replacing a a multicontact rotary switch, always identify the wires before removing them from the switch terminals. White adhesive tape or masking tape marked with the switch terminal number works ideally. If it is necessary to remove cable lacing during the replacement of a switch, always replace the lacing after the new switch is installed.

3-2. Printed Circuit Board Repair

Parts mounted on printed circuit boards are bonded to the boards to protect the parts from humidity and moisture. This bonding, or postcoating, also protects the parts against excessive vibration in service. If the repair process requires that a part be removed from the board and replaced with another part, the following procedure should be followed. The bonding age used in recoating the boards is a postcoating material, Dennis 1169. This material consists of two parts, Dennis 1169A and 1169B. The two parts must be mixed at the time of use.

a. Inspect the card for evidence of burns, scorches, or heat damage; corroded metal parts or terminals; or delamination of the basic laminate. If any of these defects are evident, replace the entire board rather than attempting repair. If the board appears repairable, proceed to b below.

b. Remove the designated part from the board by destroying the protective postcoating with a hot soldering iron, and then unsolder the part and lift it off the board with a pair of long-nosed pliers.

Caution

Do not use soldering irons rated above 40 watts on boards bearing transistors, ceramic capacitors, or other heat sensitive components. Also exercise care when removing components from the board so that the circuits are not damaged.

c. If necessary, remove the excess solder from the joint with a soldering iron.

d. Insert the new wire or component lead in the correct eyelet and clinch the wire over the eyelet.

AGO 7780A

e. Apply solder to the joint using any resin flux core solder. Do not use acid core solder or other unapproved flux. Do not keep the iron on the joint longer than necessary to complete the solder flow throughout the joint.

f. Inspect the solder joint to be sure the solder completely cover the joint and there is a smooth continuous flow of solder between the eyelet flares and the circuitry. Note also that there are no cold or fractured solder joints or nonadherence of solder to metal and no excess solder globules, peaks, strings, or bridges of solder between adjacent parts or circuits.

g. Clean the joint to remove the flux, using a medium-bristled brush and a small amount of organic solvent, such as trichloroethylene of toluol. Remove as much of the melted plastic and flux from the soldered area as possible. Remove excess solvent and dissolved flux with an absorbent material.

Note

Use a solvent sparingly since the postcoating will also be dissolved. Apply a small amount to the area of the solder joint only.

h. Mix one part of Dennis 1169A liquid with one part Dennis 1169B, liquid in a stainless steel, wax-free paper or polyethylene container and stir with a stainless steel spatula or equivalent. Mix thoroughly.

i. Apply the mixture to the newly soldered joint(s) covering all areas where the original coating was damaged and any new components which were added. Use a soft-bristled brush to apply the mixture.

j. Allow the newly coated boards to dry to a tack-free condition (approximately two hours) before installing them in the equipment. The final cure takes approximately seven days at room temperature or one hour at + 60 C (+ 140 F). However, the equipment may be operated during the curing period.

Section II. ADJUSTMENTS

3-3. Introduction

Paragraphs 3-5 through 3-11 describe adjustment procedures for the various functional circuits in the AN/APM-247. The AN/APM246 does not require adjusting. Always perform the adjustment procedure for a circuit after a repair operation. The adjustment procedures can also be used in troubleshooting the test set by attempting to adjust a circuit that is suspected to be faulty. If the circuit cannot be adjusted, the fault is probably in that circuit. When a complete alignment of the test set is necessary, perform the adjustment procedures in the order of their appearance.

3-4. Test Equipment and Special Tools Required for Alignment

a. The following chart lists test equipment required for aligning Test Set, Radar AN/ APM-247. Refer to paragraph 3-4a for fabrication of the test jig.

Test equipment	Technical manual	Common name
Oscilloscope AN/USM-81	TM11-625-219-12	Oscilloscope
Power supply, 27.5-vdc (see para 3-4b.)		
Signal Generator AN/USM-44	TM11-6625-508-10	Power supply Signal generator
Pulse Generator AN/PPM-1A	TM11-2678	Pulse generator
Multimeter ME-26B/U	TM11-6625-200-12	Multimeter
Test Jig (see para. 3-4a)	None Test jig	

b. The power supply shall be capable of supplying at least 27.5 volts dc at 500 milliamperes with 1 percent regulation.

c. The test jig is to be constructed by field maintenance personnel. The material and components required are listed in the chart below. The schematic diagram (fig. 3-1) shows the connection of components. Test jig connections to the AN/APM-247 are given in the adjustment procedures.

Component	Description	FSN or commercial No.
C1	Capacitor, 0.033 uf, 200 wvdc	Sprague 118P33306S4
C2	Capacitor, 0.068 uf, 200 wvdc	Sprague 118P68306S4
C3	Capacitor, 0.1 uf, 200 wvdc	Sprague 118P10406S4
C4	Capacitor, 0.12 uf, 200 wvdc	Sprague 192P12492
C5	Capacitor, 0.15 uf, 200 wvdc	Sprague 118P15406S4
J1	Connector, floating mount	Cannon DPXLF-A32C2-34P
J2B	Connector, miniature	Cannon DPX2-B16C3P40P-34A-1073
J7	Connector	R5935-539-3357D336
R1	Resistor, 19600 ohms, ½ watt, 1%	5905-807-5627
R2	Resistor, 82500 ohms, ½ watt, 1%	None
R3 and R7	Resistor, 100 ohms, ½ watt, 1%	5905-702-3360
R4 through R6	Resistor, 1250 ohms, 10 watts, 1%	None
S1 and S3	Toggle switch, SPST	R5930-548-9693D334
S2	Toggle switch, 4PDT	R5930-655-1681D334
S4	Rotary switch; any switch, that performs the switching requirements shown on test jig schematic, may be used	
S5 and S6	Toggle switch, DPDT	R5930-6-1582D334
T1	Transformer, variable, 0 to 132 volts	Superior Electric 10B
T2	Transformer	5950-775-1686
TP1 through TP15	Binding post, red	R5940-329-5356D336
TP20 and TP21	Same as TP1	Same as TP1
TP16 and TP19	Binding post, black	R5940-610-2301D336
Chassis	Steel chassis, 5 x 17 x 13 in.	Bud CB-626
Wire	Stranded, insulated, 22 AWG	NA
Vinyl tubing	M -in. vinyl tubing	NA

3-5. AFC Adustments

Perform the following procedures to adjust the afc circuit.

a. Remove the test set from the case.

b. Connect P1 from the AN/APM-247 to J1 on the test jig.

c. Connect channel A of the oscilloscope to OSCILLOSCOPE A of the AN/APM-247.

d. Connect 27.5 volts dc to test points and 2 of P1 on the front panel of the test jig.

e. Connect the signal generator to the AFC MIXER TEST jack (J6) on the AN/APM-247.

(1) Adjust the signal generator for a 30megacycle output at 18 dbm.

(2) Pulse modulate the signal generator with a 5 microsecond, 20-volt peak amplitude signal at 400 cps.

f. Adjust T1, on the printed circuit board of the AN/APM-247, for a negative peak output as indicated by the oscilloscope.

g. Increase the signal generator frequency. The amplitude of the oscilloscope pulse should increase.

h. Adjust R11, in the printed circuit board of the AN/APM-247, for a 10-volt signal as indicated by the oscilloscope.

i. Remove power and disconnect the equipment.

3-6. Sweep Calibration Adjustment

Perform the following procedures to adjust the sweep calibration:

a. Remove the test set from the case.

b. Connect P1 from the AN/APM-247 to J1 on the test jig.

c. Connect the multimeter between test

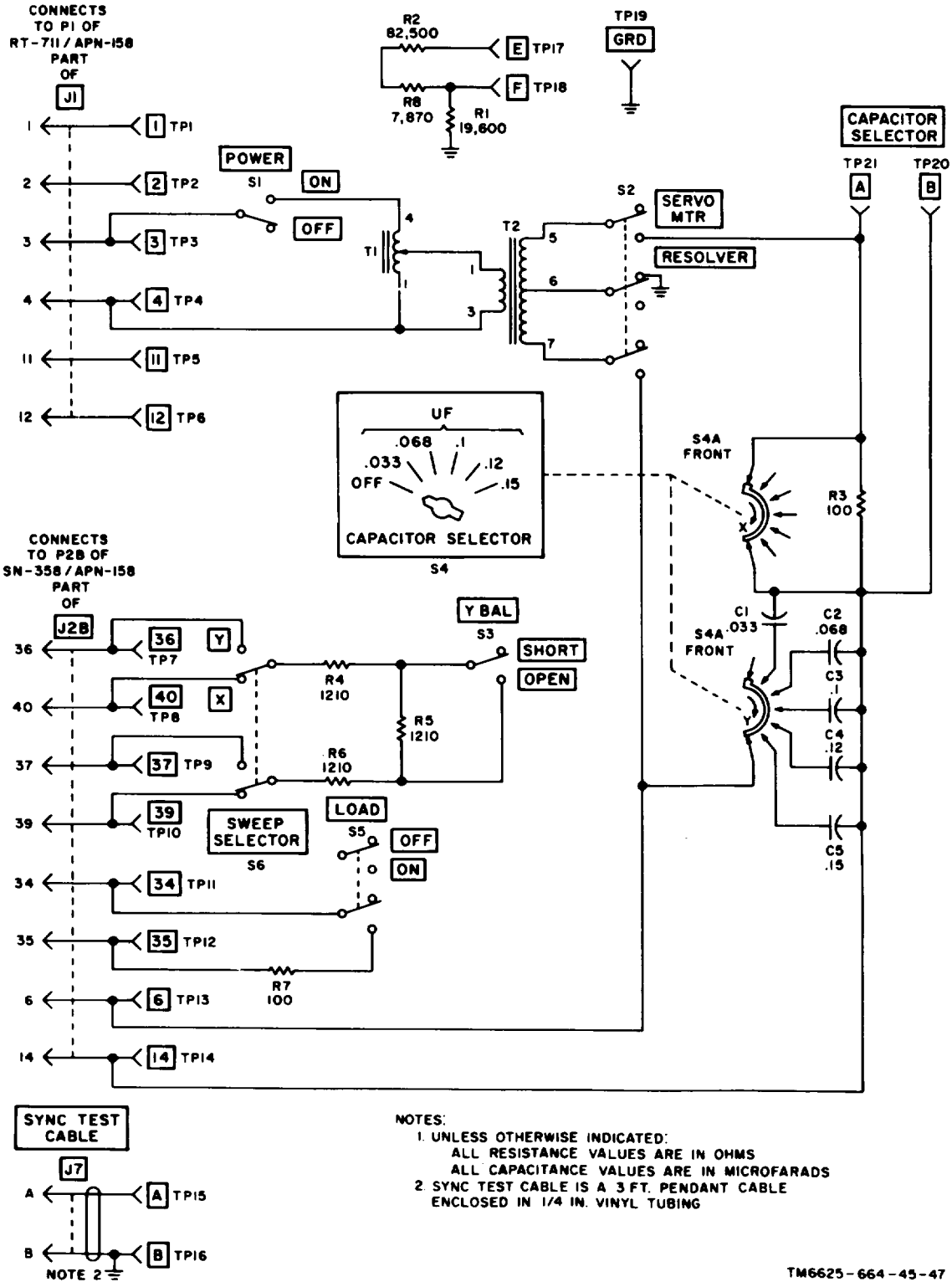


Figure 3-1. Test jig, schematic diagram.

point A1-J6 on the AN/APM-247 and ground.

d. Connect 27.5 volts dc to test points 1 and 2 of P1 on the front panel of the test jig.

e. Adjust R50 on the AN/APM-247 for 4.0±0.01 volts dc as indicated by the multimeter.

f. Remove power and disconnect the equipment.

3-7. Sweep Y Balance Adjustment

Perform the following procedure to adjust the sweep Y balance:

a. Remove the test set from the case.

b. Connect P2B from the AN/APM-247 to J2B on the test jig.

c. Connect P1 from the AN/APM-247 to J1 on the test jig.

d. On the AN/APM-247 set the controls as follows:

(1) Set the TEST SET FUNCTION SELECTOR switch (S15) to SYNCHRONIZER TESTS.

(2) Set the SYNCHRONIZER TESTS, TEST FUNCTION switch (S3) to SWEEP BAL.

(3) Set the SYNCHRONIZER TESTS SWEEP BAL switch (S12) to Y.

e. On the test jig set the controls as follows: (1) Set Y BAL switch S3 to SHORT.

(2) Set SWEEP SELECTOR switch S6 to Y.

(3) Set POWER switch S1 to ON.

f. Connect 27.5 volts dc to test points 1 and 2 of P1 on the front panel of the test jig.

g. Adjust R81 on the AN/APM-247 for a null as indicated by the TEST METER.

h. Remove power and disconnect the equipment.

3-8. Phase Detector Y Balance Adjustment

Perform the following procedures to adjust 'he phase detector Y balance:

a. Remove the test set from the case.

b. Connect J7 from the AN/APM-247 to J7 on the test jig.

c. Connect P1 from the AN/APM-247 to J1 on the test jig.

d. Connect jumpers from test points 11 and 12 to test points 3 and 4, respectively, of P1 on the front panel of the test jig.

Warning

Care should be exercised when selecting the jumpers as they will have 115 volts, 400 cps on them.

e. On the AN/APM-247 set the controls as follows:

(1) Set the AC POWER switch (S4) to ON.

(2) Adjust INPUT VOLTAGE ADJUST T1 for 115 volts as indicated by the INPUT VOLTAGE meter.

(3) Set TEST SET FUNCTION SELECTOR switch S15 to SYNCHRONIZER TESTS.

(4) Set SYNCHRONIZER TESTS, TEST FUNCTION switch S3 to PHASE DETECTOR.

(5) Set PHASE DETECTOR switch S2 to Y BAL.

f. Connect jumper from test point A to F on the front panel of the test jig.

g. Adjust R59, on the printed circuit board of the AN/APM-247, for a null on the TEST METER.

h. Remove power and disconnect the equipment.

3-9. Sweep Resolver Adjustment

Perform the following procedures to adjust the sweep resolver:

a. Connect P1 from the AN/APM-247 to J1 on the test jig.

b. Connect the multimeter between test points 6 and 14 on the test jig.

c. Set the test jig controls as follows:

(1) RESOLVER switch S2 to RESOLVER.

(2) CAPACITOR SELECTOR switch S4 to OFF.

(3) LOAD switch S7 to OFF.

(4) POWER switch S1 to ON.

d. Adjust R20 on the resolver bracket of the AN/APM-247 to the maximum clockwise position.

e. Set the AC POWER switch S4 on the AN/APM-247 to ON.

f. Adjust the VOLTAGE ADJUST control T1 on the test jig for 30.0+0.2 volts ac as indicated on the multimeter.

g. Set the AC POWER switch S4 on the AN/APM-247 to OFF.

h. Disconnect the multimeter.

i. Connect a jumper between test points E3 and E6 on the sweep resolver bracket of the AN/APM-247.

j. Connect the multimeter between test points E2 and E5 on the sweep resolver bracket of the AN/APM-247.

k. Set the AC POWER switch S4 on the AN/APM-247 to ON.

I. Loosen the holding screws on resolver B2.

m. Rotate the resolver for minimum voltage (null) as indicated by the multimeter. The null should occur at approximately 20 volts ac.

n. Tighten the holding screws on resolver B2.

o. Set the AC POWER switch S4 on the AN/APM-247 to OFF.

p. Disconnect the multimeter and remove the jumper from test points E3 and E6.

q. Connect P2B from the AN/APM-274 to J2B on the test jig.

r. Set the LOAD switch S5 on the test jig to ON.

s. Set the PHASE DETECTOR switch (S2) on the AN/APM-247 to X LENGTH.

t. Connect the multimeter between test points 34 and 35 on the test jig.

u. Set the AC POWER switch S4 on the AN/APM-247 to ON.

v. Loosen the holding screws on resolver B2.

w. Rotate the resolver for minimum voltage (null) as indicated by the multimeter. The null should be less than 50 mv.

x. Tighten the holding screws on resolver B2.

y. Remove the power and disconnect the equipment.

3-10. Sweep Resolver Resonating Capacitor Selection

Note

To be performed only when the resolver has been replaced.

Perform the following procedure to select the sweep resonating capacitor C5: a. Connect P1 from the AN/APM-247 to J1 on the test jig.

b. Connect P2B from the AN/APM-247 to J2B on the test jig.

c. Remove C5 from the sweep resolver circuit.

d. Connect the multimeter to the CAPACITOR SELECTOR test points A and B on the test jig.

e. Set the POWER switch S1 on the test jig to ON.

f. Set the AC POWER switch (S4) on the AN/APM-247 to ON.

g. Set test jig SERVO MTR-RESOLVER switch S2 to RESOLVER.

h. Rotate the CAPACITOR SELECTOR switch (S4) on the test jig for a minimum voltage indication on the multimeter.

i. Remove the power and disconnect the equipment.

j. Replace C5 in the sweep resolver circuit with the selected value of capacitance.

3-11. Sweep Sensitivity Adjustment

Perform the following procedure to adjust the sweep sensitivity: a. Remove the test set from the case.

b. Connect P2B from the AN/APM-247 to J2B on the test jig.

c. Connect P1 from the AN/APM-247 to J1 on the test jig.

d. Connect the multimeter between test points 34 and 35 on the test jig.

e. Set LOAD switch S5 on the test jig to ON.

f. Set RESOLVER SWITCH S2 on the test jig to RESOLVER.

g. Set POWER switch S1 on the test jig to ON.

h. On the AN/APM-247 perform the following:

(1) Set AC POWER switch S4 to ON.

(2) Loosen the holding screws on resolver B2.

(3) Rotate the resolver 90 clockwise as indicated by maximum reading on the multimeter.

(4) Adjust R20 for 9.1±0.2 volts ac as indicated on the multimeter.

(6) Tighten the holding screws on resolver B2.

(6) Recheck the multimeter, it should still read 9.1+ 0.2 volts ac.

i. Remove power and disconnect the equipment.

CHAPTER 4
GENERAL SUPPORT TESTING PROCEDURES

Section I. TEST SET, RADAR AN/APM-246

4-1. General

a. Testing procedures are prepared for use by Signal Field Maintenance Shops and Signal Service Organizations responsible for general support maintenance of signal equipment to determine the acceptability of repaired equipment. These procedures set forth specific requirements that repaired equipment must meet before it is returned to the using organization. A summary of the performance standards is given in paragraph 4-6.

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

4-2. Test Equipment, Tools, and Materials

All test equipment, tools, materials, and other equipment required to perform the testing procedures given in this section are listed in the following chart and are authorized under TA-11-17, Signal Field Maintenance Shops, and TA-11-100 (11-17). Allowances of Signal Corps Expendable Supplies for Signal Field Maintenance Shop, Continental United States.

Nomenclature	Federal Stock No.	Technical Manual
Test Set, Radar AN/APM-247		TM11-6625-664-12

4-3. Physical Tests and Inspections

a. Test Equipment and Materials.
None.

b. Test Connections and Conditions.

(1) No connections necessary.

(2) Remove test set chassis from its case.

c. Procedure.

Step No.	Test equipment control settings	Equipment under test control settings	Test procedure	Performance standard
1	None	Controls may be in any position	*a.* Inspect case and chassis for damage, missing parts, and condition of paint painted will not show bare metal. Panel lettering will be legible. ***Note:*** **Touchup painting is recommended in lieu of refinishing whenever practical; screw heads, binding posts, receptacles and other plated parts will not be painted or polished with abrasives.**	*a.* No damage evident or parts missing. External surfaces intended to be
			b. Inspect all controls and mechanical assemblies for loose or missing None missing. screws, bolts, and nuts.	*b.* Screws, bolts, and nuts will be tight.
			c. Inspect all connections, sockets, receptacles and meters for loose- ing parts. ness, damage or missing parts	*c.* No loose parts or damage. No miss-
2	None	Controls may be in any position	*a.* Rotate all panel controls throughout their limits or travel.	*a.* Controls will rotate freely without binding or excessive looseness
			b. Inspect dial stops for damage and proper operations. evident of damage.	*b.* Stops will operate properly without
			c. Operate all switches	*c.* Switches will operate properly.

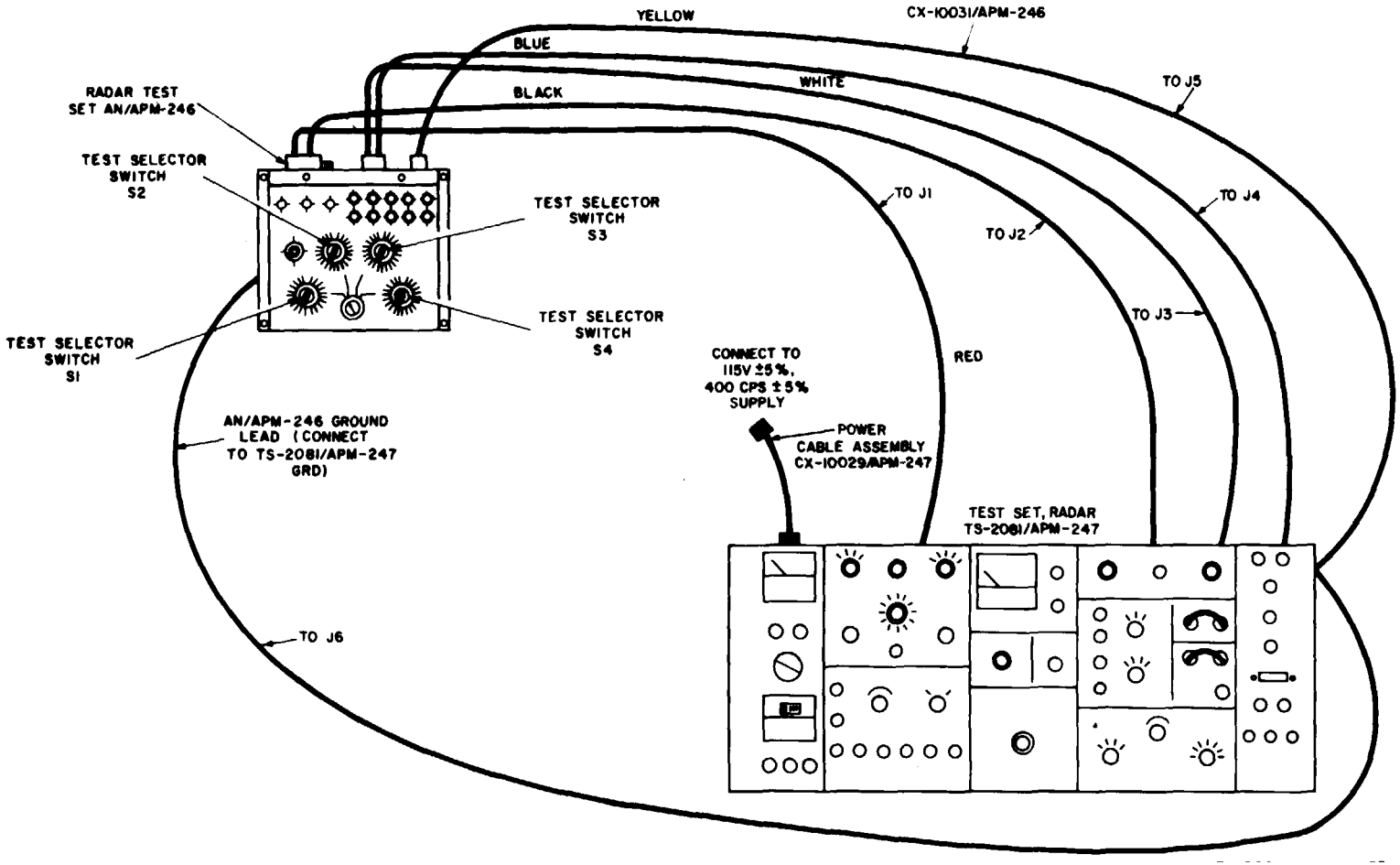


Figure 4-1. AN/APM-246 test connection diagram.

4-4. AN/APM-246 Overall Test

a. Test Equipment and Material.

Test Set, Radar AN/APM-247.

b. Test Connections and Conditions.

(1) Remove test set chassis from its case.

(2) Connect coaxial cables between R-T UNIT and SYNC connectors on IF subpanel, and between R-T UNIT AND SYNC connectors on AFC subpanel on AN/APM-247.

(3) Connect the equipment as shown in figure 4-1.

c. Procedure.

Step No.	Test equipment control settings	Equipment under test control settings	Test procedure	Performance standard
1	*AN/APM-247* AC POWER: OFF TEST SET FUNCTION SELECTOR: SYSTEM OPERATION CONTROL UNIT SELECTOR: EXT Set all other rotary switches to extreme counterclockwise position.	*AN/APM-246* TEST SELECTOR: LAMP TEST	Press TEST switch on AN/APM-246.	CONTINUITY, SHORT, and GROUND lamps should light
		AN/APM-246 TEST SELECTOR: S1	*a.* Set S1 to positions 1 thru 9 and 21 thru 23 in turn. Press TEST pushbutton at each position.	*a.* CONTINUITY lamp lights at each position.
			b. Set S1 to positions 10 thru 20 in turn. Press TEST pushbutton at each position.	*b.* CONTINUITY, SHORT, and GROUND lamps lights at each position.
2	Same as 1 above			
3	Same as 1 above	AN/APM-246 TEST SELECTOR: S2	*a.* Set S2 to positions 24, 26 thru 31, and 33 thru 45 in turn. Press TEST pushbutton at each position.	*a.* CONTINUITY lamp lights at each position.
			b. Set S2 to positions 25, 32, and 46 in turn. Press TEST pushbutton at each position.	*b.* CONTINUITY, SHORT, and GROUND lamps light at each position.
4	Same as 1 above	*AN/APM-246* TEST SELECTOR: S3	*a.* Set S3 to position 47 thru 50, and 52 thru 69 in turn. Press TEST pushbutton at each position.	*a.* CONTINUITY lamp light at each position.
			b. Set S3 to position 51. Press TEST pushbutton. GROUND lamps light.	*b.* CONTINUITY, SHORT, and
5	Same as 1 above	*AN/APM-246* TEST SELECTOR:S4	*a.* Set S4 to positions 70 thru 76 and 79 in turn. Press TEST push-button at each position.	*a.* CONTINUITY lamp light at each position.
			b. Set S4 to positions 77 and 78 in turn. Press TEST pushbutton at each position.	*b.* CONTINUITY, SHORT, and GROUND lamps light at each position.
			c. Set S4 to position 80. Press TEST pushbutton.	*c.* GROUND lamp lights.

4-5. AN/APM-246 Test Data Summary

a. Personnel may find it convenient to arrange the checklist in a manner similar to that shown below:

b. AN/APM-246 TESTS

Step 1. CONTINUITY, SHORT, and GROUND lamps light.

Step 2, a. CONTINUITY lamp lights at each position.

b. CONTINUITY, SHORT, and GROUND lamps light at each position.

Step 3, *a.* CONTINUITY lamp lights at each position.

b. CONTINUITY, SHORT, and GROUND lamps light at each position.

Step 4, *a.* CONTINUITY lamp lights at each position.

b. CONTINUITY, SHORT, and GROUND lamps light.

Step 5, *a.* CONTINUITY lamp lights at each position.

b. CONTINUITY, SHORT, and GROUND lamps light at each position.

c. GROUND lamp lights.

Section II. TEST SET, RADAR AN/APM-247

4-6. General

a. Testing procedures are prepared for use by Signal Field Maintenance Shops and Signal Service Organizations responsible for general support maintenance of signal equipment to determine the acceptability of repaired equipment. These procedures set forth specific requirements that repaired equipment must meet before it is returned to the using organization. A summary of the performance standards is given in paragraph 4-20.

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

4-7. Test Equipment, Tools, and Materials

All test equipment, tools, materials, and other equipment required to perform the testing procedures given in this section are listed in the following charts and are authorized under TA 11-17. Signal Field Maintenance Shops, and TA 11-100 (11-17), Allowances of Signal Corps Expendable Supplies for Signal Field Maintenance Shop.

a. Test Equipment

Nomenclature	Federal stock No.	Technical manual
Radar Set AN/APN-168		TM 11-5840-241-12
Oscilloscope AN/USM41		TM 11-6625219-12
Radar Test Set AN-APM-246		TM 11-662564-12
Multimeter ME-26B/U		TM 11-662520012

b. Other Equipment.

Equipment	Federal stock No.
Cable Assembly CG-1464/U (3)	
Adapter UG-273/U (3)	

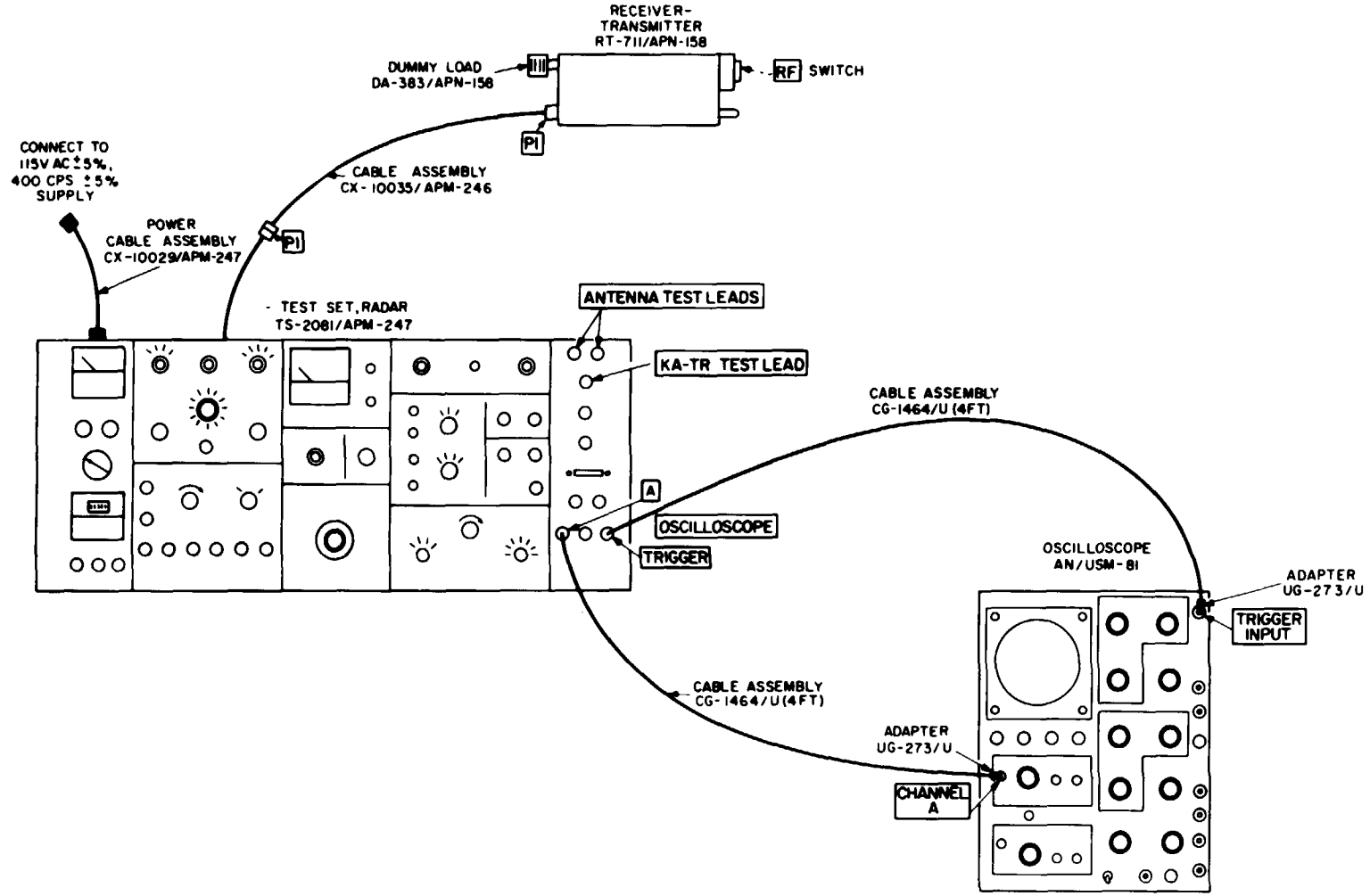
4-8. Physical Tests and Inspections

a. Test Equipment and Materials.
None.

b. Test Connections and Condition.
(1) No connections necessary.
(2) Remove test set chassis from its case.

c. Procedure.

Step No.	Test equipment control settings	Equipment under test control settings	Test procedure	Performance standard
1	None	Controls may be in any position	*a.* Inspect case and chassis for damage, missing parts, and condition of paint. **Note** **Touchup painting is recommended in lieu of refinishing whenever practical; screw heads, binding posts, receptacles, and other plated parts will not be painted or polished with abrasives.**	*a.* No damage evident or parts missing. External surfaces intended to be painted will not show bare metal. Panel lettering will be legible.
			b. Inspect all controls and mechanical assemblies for loose or missing screws, bolts, and nuts.	*b.* Screws, bolts, and nuts will be tight. None missing.
			c. Inspects all connectors, sockets, receptacles and meters for looseness, damage, or missing parts.	*c.* No loose parts or damage. No missing part.
2	None	Controls may be in any position	*a*, Rotate all panel controls throughout their limits of travel.	*a.* Controls will rotate freely without binding or excessive looseness.
			b. Inspect dial stops of damage and proper operations.	*b.* Stops will operate properly without evidence of damage.
			c. Operate all switches.	*c.* Switches will operate properly.



TM6625-664-45-38

Figure 4-2. 115-volt, 400-cps power and operating voltages test connection diagram.

4-9. 115-Volt, 400.CPS Power and Operating Voltages Tests

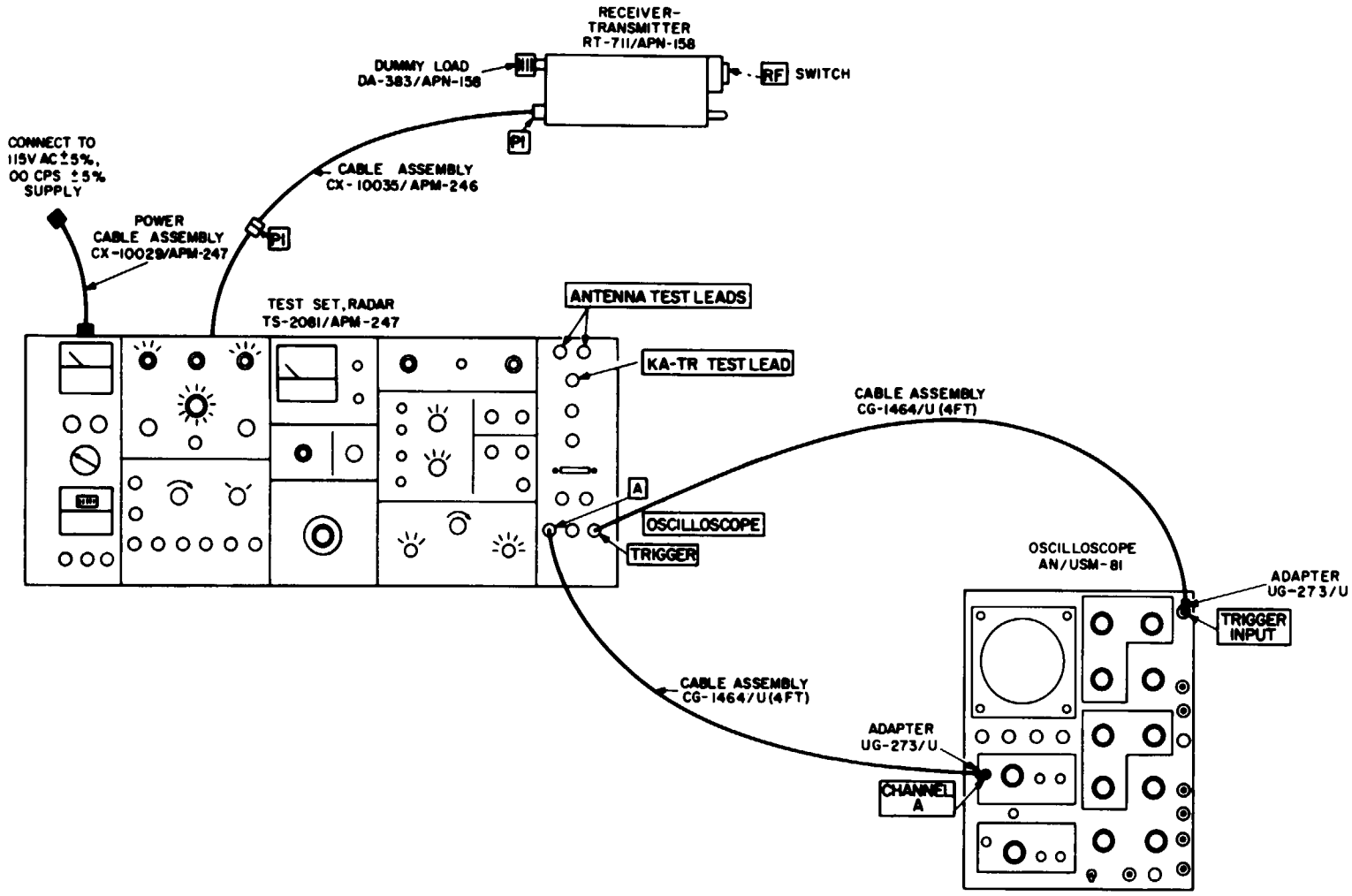
a. Test Equipment and Material.
Receiver-Transmitter RT-711/APN-158
Oscilloscope AN/USM-81
Dummy Load DA-83/APN-158

b. Test Connections and Conditions. Connect the equipment as shown in figure 4-2.

c. Procedure.

Step	Test equipment	Equipment under test	Test procedure	Performance standard
1	*RT-711/APN-158* RF switch: OFF *AN/USM-81* POWER: ON MODE: A ONLY CHANNEL A, AC-DC: AC VOLTS/CM: .05 POLARITY: NORMAL TIME/CM: .1 MULTIPLIER: 5 TRIGGERING MODE: EXT HORIZONTAL DISPLAY: MAIN SWEEP NORMAL	*AN/APM-247* CONTROL UNIT SELECTOR: INT METER MULTIPLIER: X10 RECEIVER TRANSMITTER, ESTS, TEST FUNCTION: OFF SYNCHRONIZER TESTS, TEST FUNCTION: OFF ANTENNA TESTS: OFF GYRO SIMULATOR: OFF TEST SET FUNCTION SELECTOR: RECEIVER TRANSMITTER TESTS	*a.* Set AN/APM-247 AC POWER switch to ON and adjust INPUT VOLTAGE ADJUST control for 115 volts. *b.* Set AN/APM-247 SYSTEM CONTROL switch to STANDBY. *c.* Set AN/APM-247 SYSTEM CONTROL switch to OPERATE. *d.* Set AN/APM-247 RECEIVER TRANSMITTER TESTS, TEST FUNCTION switch to RELAY POWER, SYSTEM CONTROL switch to STANDBY and METER MULTIPLIER to X1. *e.* Set AN/APM-247 METER MULTIPLIER to X10 and RECEIVER TRANSMITTER TESTS, TEST FUNCTION switch to -27V; set METER MULTIPLIER to X1 and SYSTEM CONTROL switch to OPERATE. *f.* Adjust AN/USM-81 for a clear display. *g.* Set AN/APM-247 METER MULTIPLIER to X10 and RECEIVER TRANSMITTER TESTS, TEST FUNCTION switch to +27.5 volts; set METER MULTIPLIER to X1. *h.* Set AN/APM-247 FAULT SENSING +27.5V switch to NORMAL LOAD. *i.* Set AN/APM-247 METER MULTIPLIER to X10 and RECEIVER TRANSMITTER TEST FUNCTION switch to +250V; set METER MULTIPLIER to X1. *j.* Set FAULT SENSING +250V switch to SAFE LOAD.	*a.* AN/APM-247 INPUT FREQUENCY meter should read 400±20 cps, AC POWER lamp should light, and X10 lamp should flash. *b.* AN/APM-247 STANDBY RELAY lamp should light. *c.* AN/APM-247 OPERATE RELAY lamp should light. *d.* AN/APM-247 TEST METER should read 27±3 volts. *e.* AN/APM-247 TEST METER should read 27±2 volts *f.* Ripple on AN/USM-81 display should be not more than 0.02 volt. *g.* AN/APM-247 TEST METER should read 27.5+2 volts. *h.* AN/APM-247 TEST METER should read 27.5+0.3 volts and AN/USM-81 should display not more than 0.03 volt of ripple. *i.* AN/APM-247 TEST METER should read 260±15 volts *j.* AN/APM-247 TEST METER should read 260±15 volts and AN/USM-81 should display not more than 0.3 volt of ripple.

PAGES 4-10 AND 4-11 MISSING FROM THE HARD COPY



TM6625-664-45-39

Figure 4-3. Fault sensing, trigger pulse, and KA-TR test connection diagram.

4-10. Fault Sensing, Trigger Pulse, and KA-TR Tests

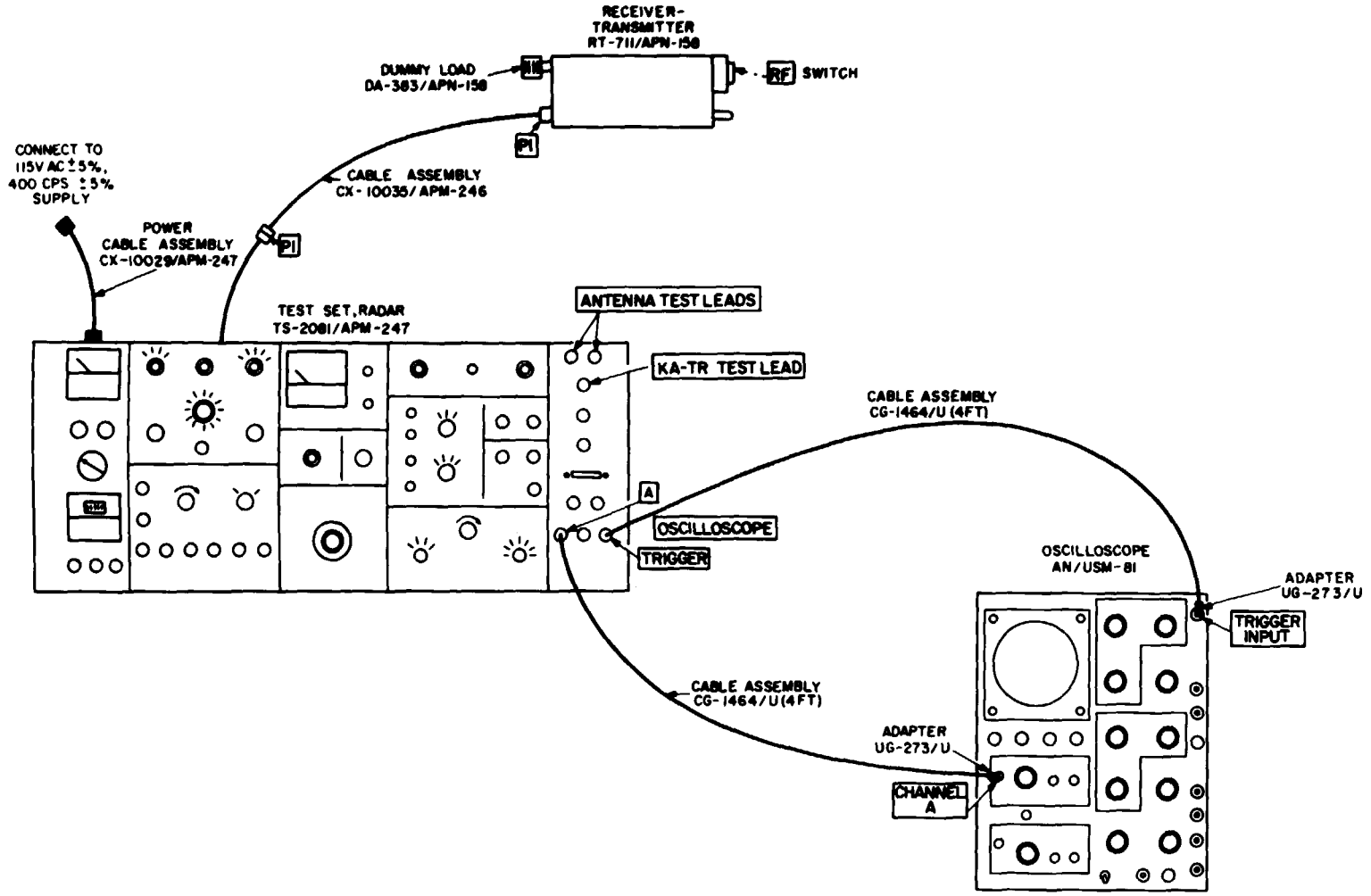
a. Test Equipment and Material.
Receiver-Transmitter RT-711/APN-158
Oscilloscope AN/USM-81
Test Lead CX-10092/APN-158
Test Adapter MX-6637/APN-158

b. Test Connections and Conditions. Connect the equipment as shown in figure 4-3.

c. Procedure.

Step	Test equipment	Equipment under test	Test procedure	Performance standard
1	None	*AN/APM-247* AC POWER: ON CONTROL UNIT SELECTOR: INT METER MULTIPLIER: X10 SYSTEM CONTROL: OPERATE	*a*. Adjust AN/APM-247 INPUT VOLTAGE ADJUST for 115 volts on INPUT VOLTAGE meter. *b*. Momentarily set FAULT SENSING +27.5V switch to SAFE LOAD. *c*. Momentarily set FAULT SENSING +27.5V switch to OVERLOAD. *d*. Set AN/APM-247 SYSTEM CONTROL switch to STANDBY and back to OPERATE. *e*. Momentarily set FAULT SENSING +27.5V switch to OVERVOLTAGE. *f*. Repeat at step *d*. *g*. Momentarily set FAULT SENSING +250V switch to SAFE LOAD. *h*. Momentarily set FAULT SENSING +250V switch to OVERLOAD. *i*. Repeat step *d*.	*a*. AN/APM-247 OPERATE RELAY lamp should light. *b*. AN/APM-247 OPERATE RELAY lamp should remain lighted. *c*. AN/APM-247 OPERATE RELAY lamp should go out. *d*. AN/APM-247 OPERATE RELAY lamp should light. *e*. OPERATE RELAY lamp should go out. *f*. Repeat at step *d*. *g*. OPERATE RELAY lamp should remain lighted. *h*. OPERATE RELAY lamp should go out. *i*. Repeat step *d*.
2	AN/USM-81 POWER: ON MODE: A ONLY CHANNEL A, AC-DC: AC VOLTS/,CM: 10 POLARITY: NORMAL TIME/CM: .1 MULTIPLIER: 5 TRIGGERING MODE: EXT HORIZONTAL DISPLAY: MAIN SWEEP NORMAL	Controls same as end of step 1	*a*. Set AN/APM-247 RECEIVER TRANSMITTER TESTS, TEST FUNCTION switch to TRIGGER. *b*. Adjust AN/USM-81 for a clear display of trigger pulse.	*a*. None *b*. AN/USM--81 should display a pulse of not less than 29.5 volts.
3	NA	*AN/APM-247* AC POWER: OFF SYSTEM CONTROL: OFF RECEIVER TRANSMITTER TESTS, TEST FUNCTION: KA-TR	*a*. Remove dust cover from RT-711/APN-158 and disconnect high-voltage cap from T-R tube V3. Connect Test Adapter MX-6637/APN-158 to high-voltage cap of T-R tube V3. *b*. Connect Test Lead CX-10092/APN-158 between AN/APM-247 KA-TR TEST LEAD connector and Test Adapter MX-6637/APN-158. *c*. Set AN/APM-247 AC POWER switch to ON and METER MULITIPLIER to X10. *d*. Set AN/APM-247 SYSTEM CONTROL switch to STANDBY and METER MULTIPLIER to X1. *e*. Set AN. APM-247 AC POWER switch to OFF. *f*. Remove Test Lead CX-10092/APN-158 and Test Adapter MX-6637/APN-158. Connect high-voltage cape to T-R tube V3.	*a*. None *b*. None *c*. None *d*. AN/APM-247 TEST METER should read 700±100 volts. *e*. None *f*. None

PAGES 4-14 AND 4-15 MISSING FROM THE HARD COPY



TM6625-664-45-40

Figure 4-4. Afc detector test connection diagram.

4-11. Afc Detector Tests

a. Test Equipment and Material.
Receiver-Transmitter RT-711/APN-158
Oscilloscope AN/USM-81

b. Test Connections and Conditions. Connect the test equipment as shown in figure 4-4.

c. Procedure.

Step No.	Test equipment control settings	Equipment under test control settings	Test procedure	Performance standard
1	AN/USM-*81* POWER: ON MODE: A ONLY CHANNEL A, AC-DC: AC VOLTS/CM: 2 POLARITY: NORMAL TIME/CM: .1 MULTIPLIER: 5 TRIGGERING DISPLAY: MAIN SWEEP NORMAL	AN/APM-*247* AC POWER: ON INPUT VOLTAGE ADJUST: adjust for 115 volts on INPUT VOLTAGE meter METER MULTIPLIER: X1 KLYSTRON REPELLER VOLTAGE ADJUST: fully counterclockwise RECEIVER TRANSMITTER TESTS, TEST FUNCTION: AFC MIXER CONTROL UNIT SELECTOR: INT SYSTEM CONTROL: OPERATE	*a.* Disconnect coaxial cable from AN/APM-247 AFC SYNC jack and connect coaxial cable to CONNECT FOR AFC MIXER TEST jack. *b.* If RT/711/APN-158 has serial no. lower than 2784 and if it has not been modified by modification AF1 or above, adjust AN/APM-247 KLYSTRON REPELLER VOLTAGE ADJUST for --185 volts as indicated by AN/APM-247 TEST METER. Adjust for -175 volts if RT-711/APN-158 has serial no. 2784 or higher, or if RT-711/APN-158 has been modified by modification AF1 or above. c. Adjust AN/USM-81 for a clear display. d. Disconnect coaxial cable from AN/APM-247 CONNECTOR FOR AFC MIXER TEST jack and connect coaxial cable to AFC SYNC jack. e. Set AN/APM-247 KLYSTRON REPELLER VOLTAGE ADJUST full counterclockwise. f. Set AN/APM-247 KLYSTRON REPELLER VOLTAGE ADJUST full clockwise.	*a.* None *b.* None *c.* AN/USM-81 should display a 10 ± 1-volt pulse. *d.* None *e.* AN/APM-247 TEST METER should read 150±10 volts. *f.* AN APM-247 TEST METER should read 220± 10 volts.

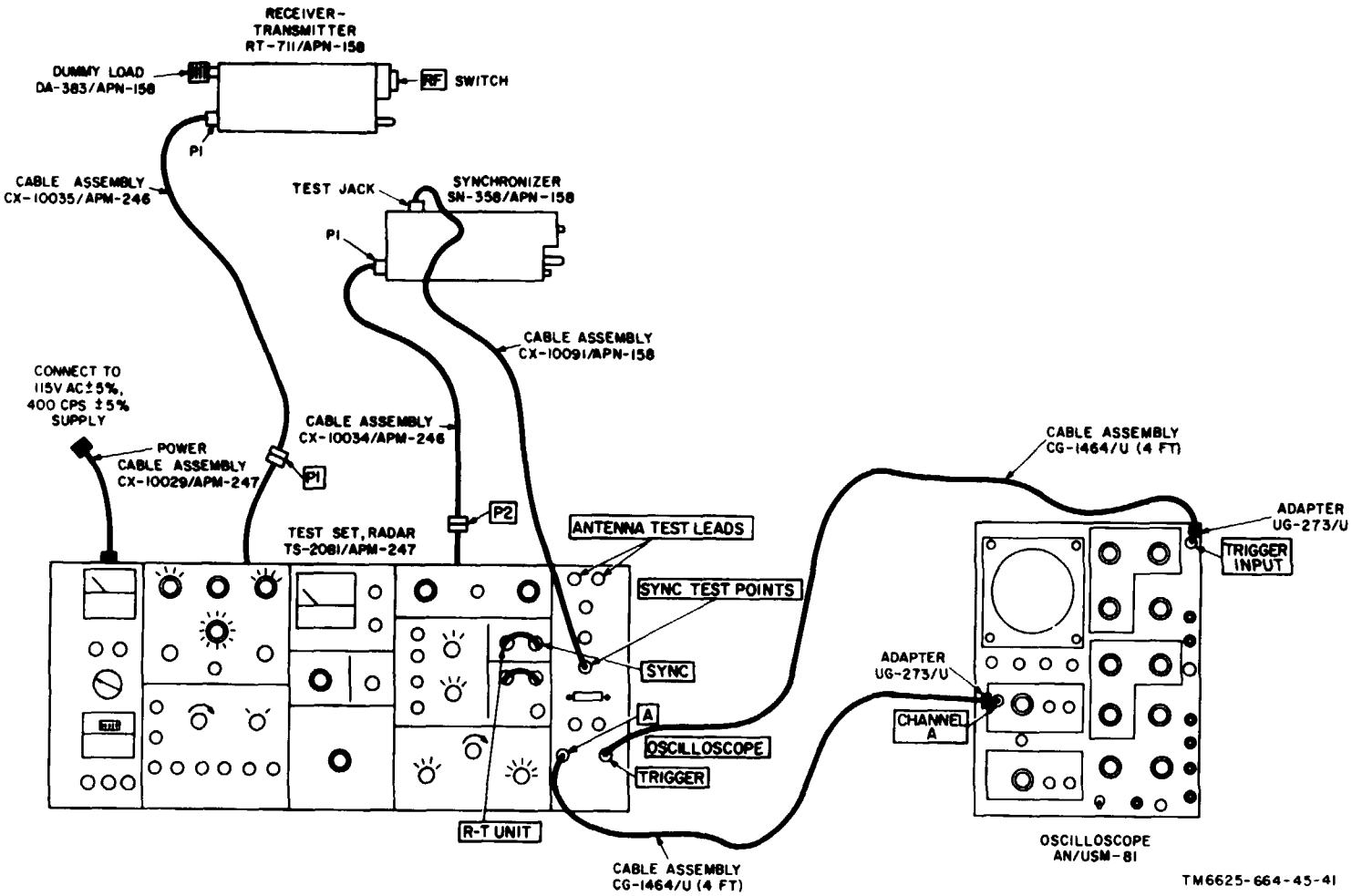


Figure 4-5. Gate pulse, range marks phase detector, and sweep balance test connection diagram.

4-12. Gate, Pulse, Range Marks, Phase Detector, Sweep Balance Tests

a. Test Equipment and Material.
Receiver-Transmitter RT-711/APN-158
Synchronizer SN-358/APN-158
Oscilloscope AN/USN-81

b. Test Connections and Conditions. Connect the test equipment as shown in figure 4-5.

c. Procedure.

Step	Test equipment	Equipment under test	Test procedure	Performance standard
1	*RT-711/APN-158* RF: OFF *AN/USM-81* POWER: ON MODE: A ONLY CHANNEL A, AC-DC: AC VOLTS/CM: .05 POLARITY: NORMAL TIME/CM: 1 MULTIPLIER: 5 TRIGGERING MODE EXT HORIZONTAL DISPLAY: MAIN SWEEP NORMAL,	*AN/APM-247* AC POWER: ON INPUT VOLTAGE ADJUST: adjust for 115-voit indication on INPUT VOLTAGE meter. TEST SET FUNCTION SELECTOR: SYNCHRONIZER TESTS SYSTEM CONTROL: OPERATE SYNCHRONIZER TESTS, TEST FUNCTION: GATE: CONTROL UNIT SELECTOR: INT	*a*. Adjust AN/USM-81 for a clear display. *b*. Set AN/APM-247 TEST RANGE SELECTOR switch to 30 *c*. Set TEST RANGE SELECTOR switch to 60. *d*. Set TEST RANGE SELECTOR switch to 150.	*a*. AN/USM-81 should display a 20-volt peak-to-peak pulse. *b*. AN/USM-81 should display a pulse width of 430±20 microseconds. *c*. AN/USM-81 should display a pulse width of 860±40 microseconds. *d*. AN/USM-81 should display a pulse width of 2100+±60 microseconds.
2	Same as step 1	Same as end of step 1.	*a*. Set SYNCHIRONNIZER TESTS, TEST FUNCTION switch to RANGE and TEST RANGE SELECTOR to 30.	*a*. AN/USM-81 should display a negative pulse not less than 3.5 volts in amplitude. The distance from start of sweep to third range mark should be 370±70 microseconds.
3	Same as step 1.	Same as end of step 2.	*a*. Set AN/APM-247 SYNCHRONIZER TESTS, TEST FUNCTION switch to PHASE DETECTOR; set PHASE DETECTOR switch to Y BAL; set TEST RANGE SELECTOR to 30. *b*. Set PHASE DETECTOR switch to Y LENGTH. *c*. Set PHASE DETECTOR switch to X BAL *d*. Set PHASE DETECTOR switch to X LENGTH.	*a*. AN/APM-247 TEST METER should read null ± one division. *b*. AN/APM-247 TEST METER should read 22.5±0.5 volts. *c*. AN/APM-247 TEST METER should read null ± one division. *d*. AN/APM -247 TEST METER should read 22.5±0.5 volts.
4	Same as step 1	Same as end of step 3.	*a*. Set AN/APM-247 SYNCHRONIZER TESTS, TEST FUNCTION switch to SWEEP BAL. Set SWEEP BAL switch to X. *b*. Set SWEEP BAL switch to Y.	*a*. AN/APM-247 TEST METER should read null ± one division, *b*. AN/APM-247 TEST METER should read null ± one division.

PAGES 4-20 AND 4-21 MISSING FROM THE HARD COPY

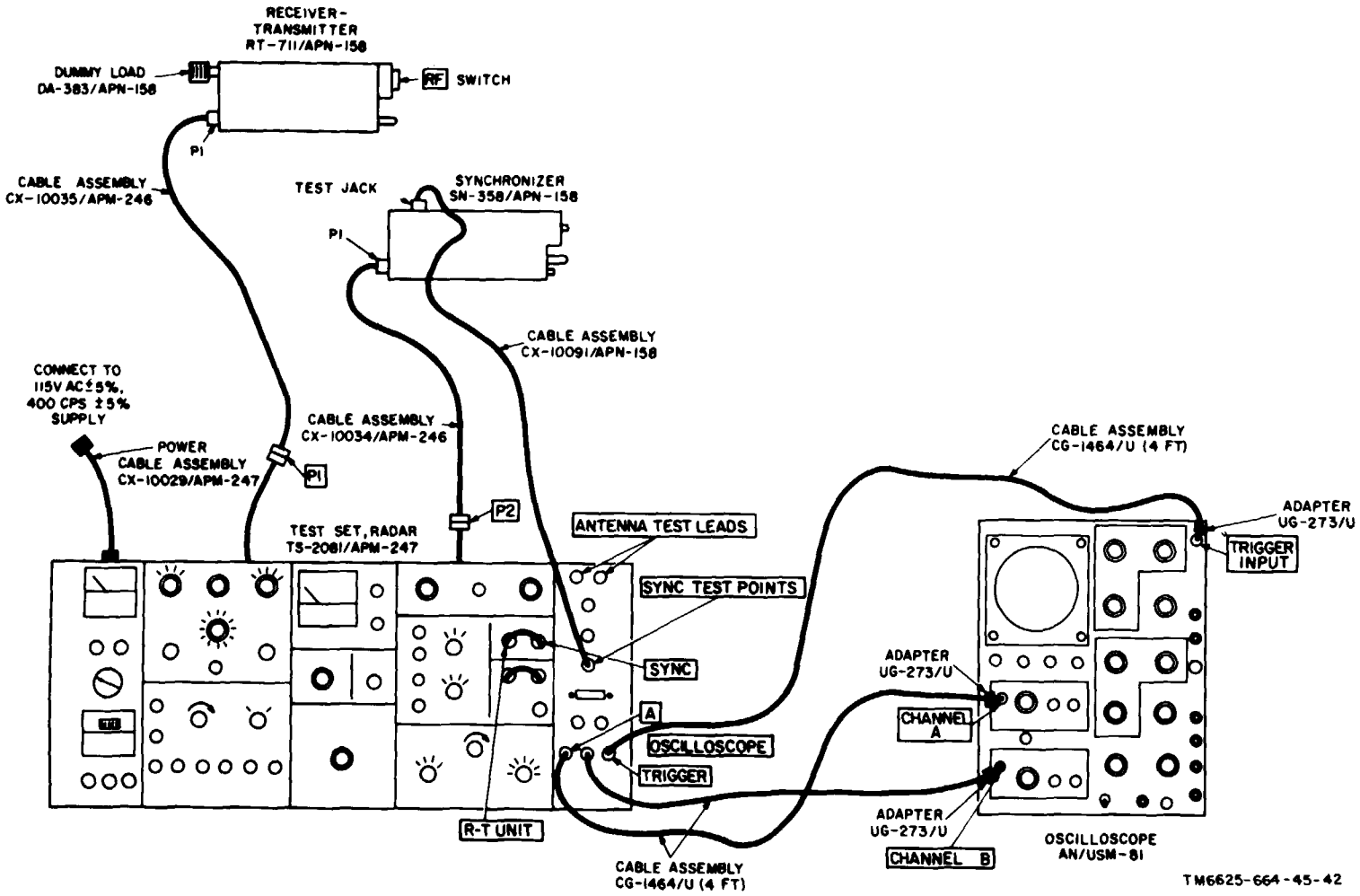


Figure 4-6. Sweep calibration, afc, stc, and video test connection diagram.

4-13. Sweep Calibration, AFC, STC, Video Tests

a. Test Equipment and Material.
Receiver-Transmitter RT-711/APN-158
Synchronizer SN-358/APN-158
Oscilloscope AN/USM-81
Multimeter ME-26B/U

b. Test Connections and Conditions. Connect the test equipment as shown in figure 4-6.

c. Procedure.

Step	Test equipment	Equipment under test	Test procedure	Performance standard
1	*AN/USM-81* POWER: ON MODE: ALTERNATE CHANNEL A, AC-DC: AC CHANNEL B, AC-DC: AC VOLTS/,CM: 1 (both channels) POLARITY: NORMAL TIME/CM: 10 MULTIPLIER: 5 TRIGGERING MODE: EXT HORIZONTAL DISPLAY: MAIN SWEEP NORMAL	*AN/APM-247* AC POWER: ON INPUT VOLTAGE ADJUST: adjust for 115 volts on INPUT VOLTAGE meter. TEST SET FUNCTION SELECTOR: SYNCHRONIZER TESTS SYNCHRONIZER TESTS, TEST FUNCTION: SWEEP BAL CONTROL UNIT SELECTOR: INT SYSTEM CONTROL: OPERATE	*a*. Set AN/APM-247 SWEEP CAL switch to SCOPE CAL and INPUT VOLTAGE ADJUST: adjust for 115 volts on INPUT VOLTAGE meter. *b*. Adjust AN/USM-81 to display a dc level on each channel. *c*. Set AN/APM-247 SWEEP CAL switch to UP. *d*. Set AN/USM-81 MODE switch to ALTERNATE. *e*. Set AN/APM-247 TEST RANGE SELECTOR switch to 30. *f*. Adjust AN/USM-81 channel A and channel B vertical controls until base lines of the two waveforms coincide. *g*. Set AN/APM-247 SWEEP CAL switch to DOWN. *h*. Set SWEEP CAL switch to RIGHT. *i*. Set SWEEP CAL switch to LEFT.	*a*. AN/APM-247 TEST METER should read 4.0±0.1 volts. *b*. AN/USM-81 should display a 4.0±0.1-volt dc level on each channel. *c*. None *d*. None *e*. None *f*. The voltage difference displayed on the AN/USM-81, between the two third range marks should be 4.0±0.1 volts. *g*. Same as step f. *h*. Same as step f. *i*. Same as step f.
2	Same as step 1.	Same as end of step 1.	*a*. Set RT-711/APN-158 RF switch to ON and allow a 4-minute warmup. *b*. Set AN/APM-247 SYNCHRONIZER TESTS, TEST FUNCTION switch to AFC OUT.	*a*. None *b*. AN/APM-247 TEST METER should read 185 if RT-711/APN 158 used has serial number lower than 2784 and it has not been modified by modification AF1 or above. TEST METER should read 175 volts if RT-711/APN-158 used has serial number above or if it has been modified by AF1 or above.
3	Same as step 1.	Same as end of step 1.	*a*. Set AN/APM-247 SYNCHRONIZER TESTS, TEST FUNCTION switch to STC. *b*. Adjust AN/USM-81 for a clear display.	*a*. None *b*. AN/USM-81 should display a 2.5±0.3-volt peak-to-peak signal.
4	Same as step 1.	Same as step 1.	*a*. Set AN/APM-247 INTERNAL CONTROL UNIT, GAIN control to the counterclockwise position. *b*. Set GAIN control to fully clockwise position.	*a*. Note the video noise at the oscilloscope. *b*. Noise at oscilloscope should increase

PAGES 4-24 AND 4-25 MISSING FROM THE HARD COPY

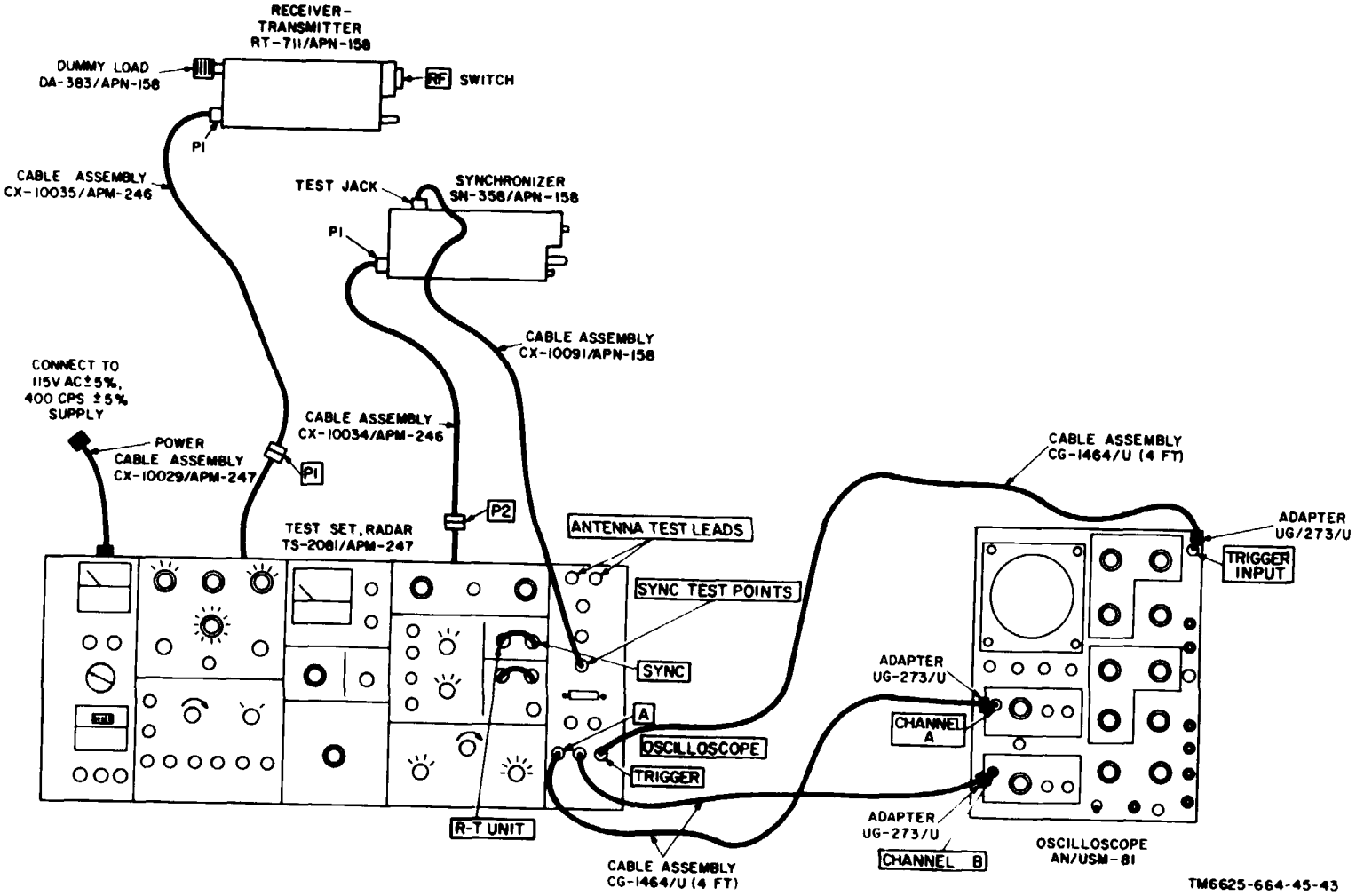


Figure 4-7. Isolation amplifier and servoamplifier test connection diagram.

4-14. Isolation Amplifier and Servoamplifier Tests

a. Test Equipment and Material.
Receiver-Transmitter RT-711/APN-158
Synchronizer SN358/APN-158
Oscilloscope AN/USM-81

b. Test Connections and Conditions. Connect the test equipment as shown in figure 4-7.

c. Procedure.

Step No.	Test equipment control settings	Equipment under test control settings	Test procedure	Performance standard
1	*AN/USM-81* POWER: ON MODE: ALTERNATE CHANNEL A, AC-DC: AC CHANNEL B, AC-DC: AC VOLTS/CM: .5 (both channels) POLARITY: NORMAL TIME/CM: .1 MULTIPLIER: 5 TRIGGERING MODE: EXIT HORIZONTAL DISPLAY: MAIN SWEEP NORMAL	*AN/APM-247* AC POWER: ON INPUT VOLTAGE ADJUST: adjust for 115 volts on INPUT VOLTAGE meter CONTROL UNIT SELECTOR: INT SYSTEM CONTROL: OPERATE SYNCHRONIZER TESTS, TEST FUNCTION: 150 AMP GAIN TEST SET FUNCTION, SELECTOR: SYNCHRONIZER TESTS METER MULTIPLIER: X10 GYRO SIMULATOR: ON ISO AMP: PITCH PITCH: 20 NOSE UP	*a.* Set AN/APM-247 METER MULTIPLIER to X1. *b.* Set AN/APM-247 ROLL control to 20 LEFT WING DOWN. *c.* Set AN/APM-247 SYNCHRONIZER TESTS, TEST FUNCTION switch to ISO AMP PHASE. *d.* Set ISO AMP switch to PITCH. *e.* Adjust AN/USM-81 gain control for waveforms of equal amplitude. *f.* Set AN/APM-247 PITCH control to 0. *g.* Set AN/APM-247 ISO AMP switch to ROLL. *h.* Set AN/APM-247 ROLL control to 0.	*a.* AN/APM-247 TEST METER should indicate 5+_1 volts. *b.* AN/APM-247 TEST METER should indicate 5 + 1 volts. *c.* None *d.* None *e.* None *f.* AN/USM-81 waveforms displayed on channels A and B should coincide at the zero crossing points. If necessary, adjust PITCH control. *g.* None *h.* AN/USM-81 waveforms displayed on channels A and B should coincide at the zero crossing points. If necessary, adjust ROLL control.
2	NA	Same as step 1.	a. Set AN/APM-247 SYNCHRONIZER TESTS, TEST FUNCTION switch to SERVO and SERVO switch to STAB. b. Set AN/APM-247 SERVO switch to RATE.	*a.* AN/APM-247 TEST METER should read not less than 10 volts. *b.* AN/APM-247 TEST METER should read not less than 10 volts.

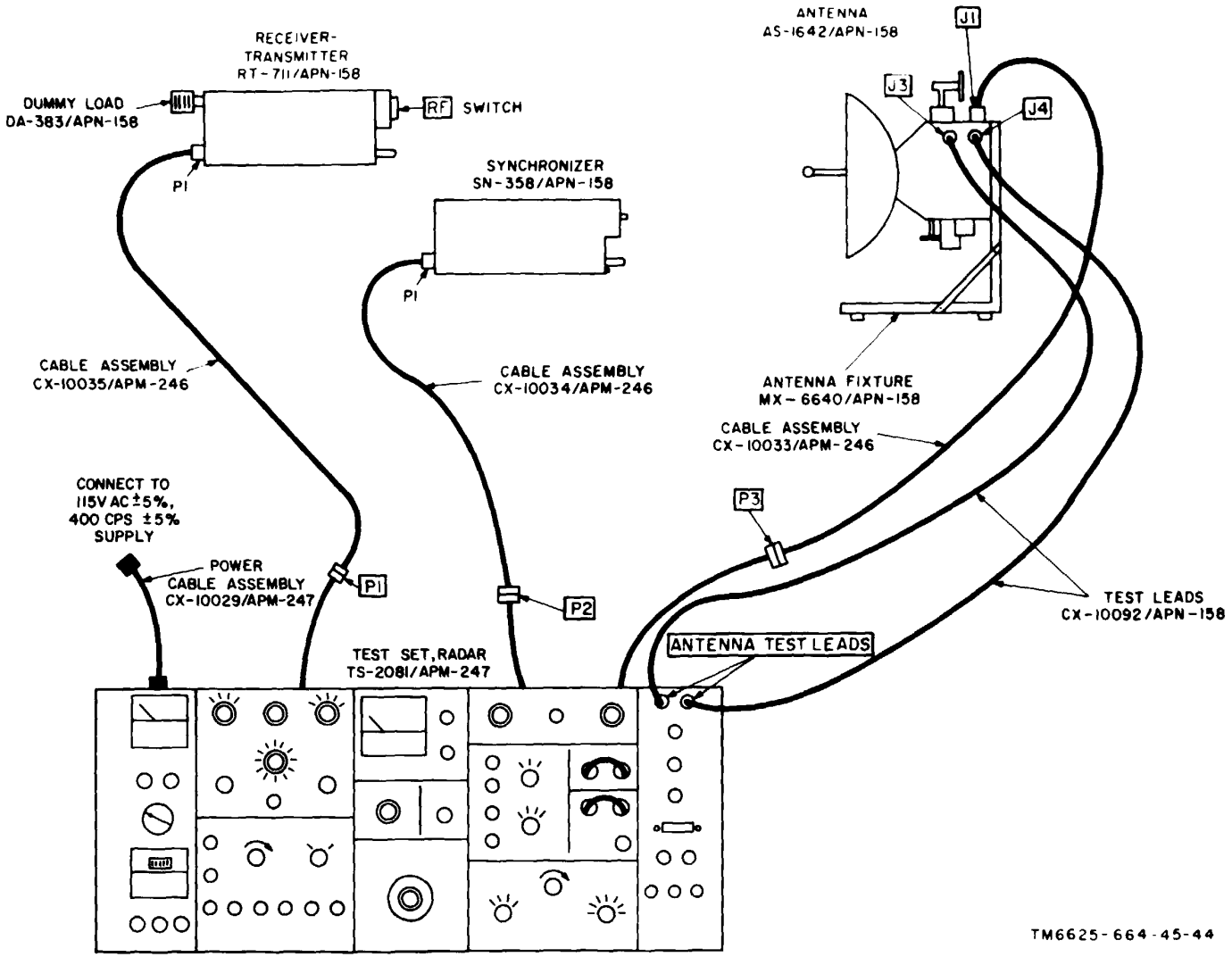


Figure 4-8. Elevation sync, trim adjustment, sweep excitation resolver tune, pitch, and roll test connection diagram,

4-15. Elevation Sync, Trim Adjustment, Sweep Excitation, Resolver Tune, Pitch, and Roll Tests

a. Test Equipment and Material.
Receiver - Transmitter RT-11/APN-158
Synchronizer SN-358/APN-158
Antenna MX-6640/APN-158
Dummy Load DA-382/APN-158

b. Test Connections and Conditions. Connect the test equipment as shown in figure 4-8.

c. Procedure.

Step	Test equipment	Equipment under test	Test procedure	Performance standard
1	*RT-711/APN-158* RF: OFF *AS-1642/APN-158* SCAN: OFF	*AN/APM-247*: AC POWER: ON INPUT VOLTAGE ADJUST: adjust for 115 volts on INPUT VOLTAGE meter. TEST SET FUNCTION SELECTOR: ANTENNA/ INDICATOR/CONTROL UNIT TESTS METER MULTIPLIER: X10 ANTENNA TESTS: EL SYNC SYSTEM CONTROL: OPERATE CONTROL UNIT SELECTOR: INT	*a*. Set AN/APM-247 METER MULTIPLIER to X1. *b*. Remove Test Leads CX-10092/ APN-158 from AS-1642/APN-158 jacks J3 and J4. *c*. Move AS-1642/APN-158 dish rapidly by varying AN/APM-247 ELEVATION control.	*a*. AN/APM-247 TEST METER should read 17±1 volts. *b*. None *c*. AS-1642 dish should not overshoot or oscillate while the ELEVATION control is varied.
2	Same as step 1.	Same as end of step 1.	*a*. Set AN/APM-247 ANTENNA TESTS switch to TRIM ADJ and GYRO SIMULATOR switch to ON. *b*. Set AN/APM-247 PITCH control to 0 and ROLL control to 20 RIGHT WING DOWN. *c*. Connect Test Leads CX-10092/ APN-158 to AS-1642/APN-158 LO jack J8 and STAB SIG jack J9. *d*. Adjust the position of AS-1642/ APN-158 dish for a null indication on AN/APM-247 TEST METER. *e*. Point the AS-1642/APN-158 dish straight ahead and set PITCH control to 20 NOSE UP. *f*. Set AN/APM-247 PITCH control to 4 NOSE DOWN and ROLL control to 4 RIGHT WING DOWN. *g*. Point AS-1642/APN-158 antenna dish to 60° right. *h*. Set AN/APM-247 GYRO SIMULATOR switch to OFF.	*a*. None *b*. None *c*. None *d*. AS-1642/APN-158 dish should be positioned straight ahead. *e*. AS-1642/APN-158 dish moves down. *f*. None *g*. AN/APM-247 TEST METER should read 1.0±0.2 volt. *h*. None
3	Same as step 1.	Same as end of step 1.	*a*. Set AN/APM-247 ANTENNA TESTS switch to SWEEP EXC. *b*. Set AN/APM-247 ANTENNA TESTS switch to X SWEEP. *c*. Point AS-1642/APN-158 dish straight ahead. *d*. Set AN/APM-247 ANTENNA TESTS switch to Y SWEEP. *e*. Point AS-1642/APN-158 dish straight ahead.	*a*. AN/APM-247 TEST METER reads 35.0±3.5 volts. *b*. None *c*. AN/APM-247 TEST METER should read 10.6±1.1 volts. *d*. None *e*. AN/APM-247 TEST METER should read 10.6±1.1 volts.
4	Same as step 1.	Same as end of step 3.	*a*. Set AN/APM-247 ANTENNA TESTS switch to RES TUNE.	*a*. AN/APM-247 TEST METER should read not more than 3 volts.

PAGES 4-30 AND 4-31 MISSING FROM THE HARD COPY

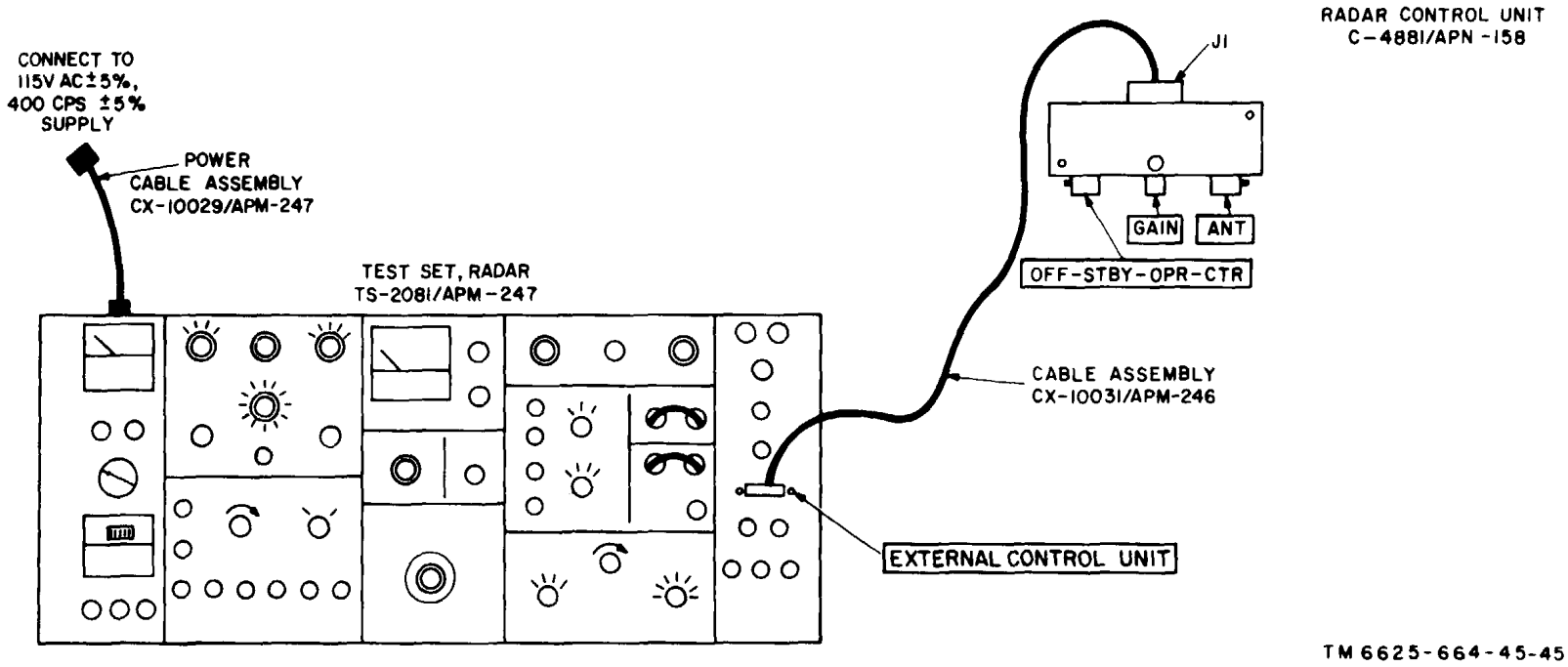


Figure 4-9. Control unit circuit test connection diagram

4-16. Control Unit Circuit Test

a. *Test Equipment and Material*. Radar Control Unit C-T4881/APN-158

b. Test Connections and Conditions. Connect the test equipment as shown in figure 4-9.

c. Procedure.

Step No.	Test equipment Control settings	Equipment under test control settings	Test procedure	Performance standard
1	C-4881/APN-158 OFF-STBY-OPR-CTR: OFF GAIN: fully counterclockwise ANT: 0	AN/APM-247 AC POWER: OFF INPUT VOLTAGE ADJUST: adjust for 115 volts on INPUT VOLTAGE meter TEST SET FUNCTION SELECTOR: ANTENNA/INDICATOR/CONTROL UNIT TESTS CONTROL UNIT SELECTOR: EXT TESTS CONTROL UNIT TESTS, TEST FUNCTION: RCVR GAIN	a. Set C4881/APN-158 OFF-STBY-OPR-CTR switch to STBY b. Set GC-4881/APN-158 OFF-STBY-OPR-CTR switch to OPR. should light. c. Set C-4881/APN-158 OFF-STBY-OPR-CTR switch to CTR. should light. d. Set C-4881/APN-158 to clockwise stop e. Set AN/APM-247 CONTROL UNIT TEST, TEST FUNCTION switch to ELEV COARSE ADJ 8V. f. Set C-4881/APN-158 to 0. g. Set AN/APM-247 CONTROL UNIT TEST, TEST FUNCTION switch to ELEV COARSE ADJ 5V. h. Set AN/APM-247 CONTROL UNIT TEST, TEST FUNCTION switch to ELEV FINE ADJ.	a. AN/APM-247 STANDBY lamp should light and TEST METER should read 2.6+0.2 volts. b. AN/APM-247 OPERATE lamp c. AN/APM-247 CONTOUR lamp d. AN/APM-247 TEST METER should read not more than 0.2 volt. e. None f. AN/APM-247 TEST METER should read 8.0 + 0.6 volts. g. AN/APM-247 TEST METER should read 5.0- 0.6 volts h. AN/APM-247 TEST METER should read less than 50 mv.

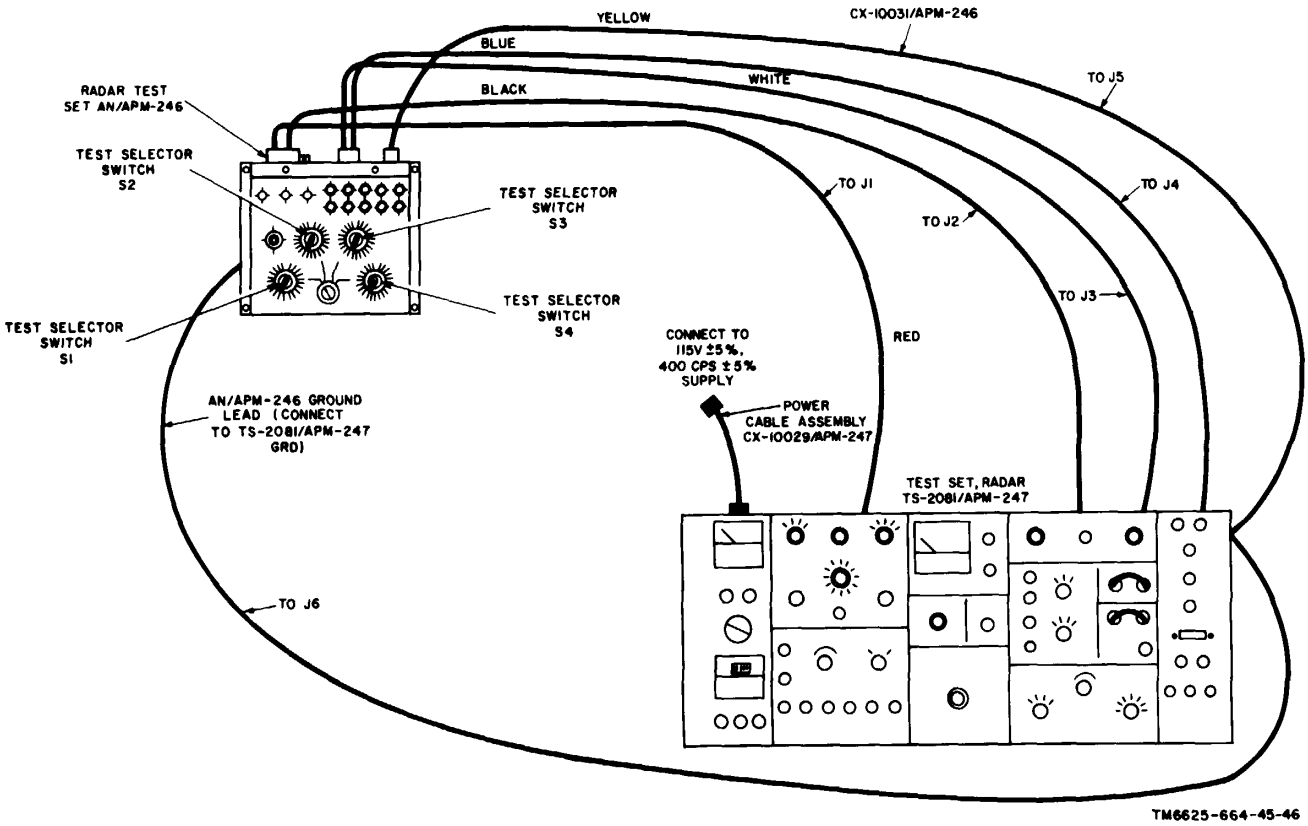


Figure 4-10. Indicator circuit test connection diagram.

4-17. Indicator Circuit Test

a. Test Equipment and Material.
Radar Test Set AN/APM-246

b. Test Connections and Conditions. Connect the test equipment as shown in figure 4-10.

c. *Procedure.*

Step No.	Test equipment control settings	Equipment under test control settings	Test procedure	Performance standard
1	AN/APM-246 TEST SELECTOR: LAMP TEST	AN/APM-247 AC POWER: OFF TEST SET FUNCTION SELEC TOR: SYSTEM OPERA-TION CONTROL UNIT SE-LECTOR: EXT Set all other rotary switches to extreme counterclockwise position.	*a.* Press TEST switch on AN/APM-246.	a. CONTINUITY, SHORT, and GROUND lamps should light.
			b. Set TEST SELECTOR to test	*b.* CONTINUITY lamp should light.
			selector switch 1. Set TEST SELECTOR switch to position 1 and press TEST pushbutton.	
			c. *C.* Set TEST SELECTOR switch 1 to position 2 and press TEST push-button.	*c.* CONTINUITY lamp should light.
			d. Set TEST SELECTOR switch 1 to position 3 and press TEST push-button.	*d*. CONTINUITY lamp should light.
			e. Set TEST SELECTOR switch 1 to position 5 and press TEST push-button.	*e.* CONTINUITY lamp should light.
			f. Set TEST SELECTOR switch 1 to position 7 and press TEST pushbutton.	*f.* CONTINUNTY lamp should light.
			g. Set TEST SELECTOR switch 1 to position 8 and press TEST pushbutton.	*g*. CONTINUITY lamp should light.
			h. Set TEST SELECTOR switch 1 to position 9 and press TEST pushbutton.	*h*. CONTINUITY lamp should light.
			i. Set TEST SELECTOR switch 1 to position 12 and press TEST pushbutton.	*i.* CONTINUITY, SHORT, and GROUND lamps should light.
			j. Set TEST SELECTOR switch 1 to position 15 and press TEST pushbutton.	*j.* CONTINUITY, SHORT, and GROUND lamps should light.
			k. Set TEST SELECTOR switch 1 to position 18 and press TEST pushbutton.	*k*. CONTINUITY, SHORT, and GROUND lamps should light.
			I. Set TEST SELECTOR switch 2 to position 28 and press TEST pushbutton.	*I*. CONTINUITY lamp should light.
			m. Set TEST SELECTOR switch 2 to position 29 and press TEST pushbutton.	*m.* CONTINUITY lamp should light.
			n. Set TEST SELECTOR switch 2 to position 30 and press TEST pushbutton.	*n.* CONTINUITY lamp should light.
			o. Set TEST SELECTOR switch 2 to position 40 and press TEST pushbutton.	*o.* CONTINUITY lamp should light.
			p. Set TEST SELECTOR switch 2 to position 41 and press TEST pushbutton.	*p.* CONTINUITY lamp should light.
			q. Set TEST SELECTOR switch 3 to position 54 and press TEST pushbutton.	*q.* CONTINUITY lamp should light.
			r. Set TEST SELECTOR switch 3 to position 56 and press TEST pushbutton.	*r.* CONTINUITY lamp should light.
			s. Set TEST SELECTOR switch 3 to position 63 and press TEST pushbutton.	*s*. CONTINUITY lamp should light.
			t. Set TEST SELECTOR switch 3 to position 64 and press TEST pushbutton.	*t.* CONTINUITY lamp should light.
			u. Set TEST SELECTOR switch 3 to position 65 and press TEST pushbutton.	*u*. CONTINUITY lamp should light.
			v. Set TEST SELECTOR switch 4 to position 70 and press TEST pushbutton.	*v.* CONTINUITY lamp should light.
			w. Set TEST SELECTOR switch 4 to position 71 and press TEST pushbutton.	*w.* CONTINUITY lamp should light.
			x. Set TEST SELECTOR switch 4 to position 73 and press TEST pushbutton.	x. CONTINUITY lamp should light.
			y. Set TEST SELECTOR switch 4 to position 74 and press TEST pushbutton.	y. CONTINUITY lamp should light.

4-18. AN/APM-247 Test Data Summary

Personnel may find it convenient to arrange the checklist in a manner similar to that shown below:

Paragraph 4-9

1. 115-VOLT 400-CPS POWER AND OPERATING VOLTAGE TESTS
   - *a.* INPUT FREQUENCY meter reads 400±20 cps. AC POWER lamp lights and X10 lamp flashes.
   - *b*. STANDBY RELAY lamp lights.
   - *c*. OPERATE RELAY lamp lights.
   - *d.* TEST METER reads 17±3 volts.
   - *e.* TEST METER reads 17±2 volts.
   - *f.* Not more than 0.02 volt of ripple.
   - *g.* TEST METER reads 27.5±0.2 volts.
   - *h*. TEST METER reads 27.5±0.3 volts, AN/USM-81 reads not more than 0.03 volt of ripple.
   - *i.* TEST METER reads 260±15 volts.
   - *j*. TEST METER reads 260±15 volts; AN/USM-81 reads not more than 0.03 volt of ripple.

Paragraph 4-10

1. FAULT SENSING
   - *a*. OPERATE RELAY lamp lights.
   - *b*. OPERATE RELAY lamp remains lighted.
   - *c.* OPERATE RELAY lamp goes out.
   - *d*. OPERATE RELAY lamp lights.
   - *e.* OPERATE RELAY lamp goes out.
   - *f*. OPERATE RELAY lamp lights.
   - *g*. OPERATE RELAY lamp remains lighted.
   - *h.* OPERATE RELAY lamp goes out.
   - *i.* OPERATE RELAY lamp lights.
2. TRIGGER not less than 29.4 volts
3. KA-TR 700 +100 volts

Paragraph 4-11

1. AFC DE-TECTOR TESTS 10±1 volts

Paragraph 4-12

1. GATE PULSE
   - *a*. 20 volts peak-to-peak
   - *b*. 430±20 microseconds
   - *c*. 860±40 microseconds
   - *d*. 2100±60 microseconds
2. RANGE MARKS not less than 3.5 volt negative pulse; start of sweep to third range mark is 37010 micro-seconds.
3. PHASE DETECTOR
   - *a.* null±1 division
   - *b.* 22.5±0.5 volts
   - *c.* null±division
   - *d*. 22.5±0.5 volts
4. SWEEP BALANCE
   - a. null±1 division
   - b. null±1 division

Paragraph 4-13

1. SWEEP CALIBRATION
   - *a*. 4.0±0.1 volts
   - *b*. 4.0±0.1 volts
   - *c.* through
   - *e.* None
   - *f.* Voltage difference between third range marks is 4.0±0.1 volts
   - *g.* through i. Same as f.
2. AFC
   - *a*. None
   - *b*. 185 volts (175 volts)
3. STC
   - *a.* None
   - b. 2.5+0.3 volts peak-to-peak
4. VIDEO
   - *a*. noise at oscilloscope
   - *b.* increase in noise at oscilloscope

Paragraph 4-14

1. ISOLATION AMPLIFIER
   - *a*. 5±1 volts
   - *b.* 5±1 volts
   - *c.* through e. None
   - *f.* Dual-trace displays should coincide at zero crossing points.
   - *g.* None
   - *h*. Same as f.
2. SERVOAMPLIFIER
   - *a*. Not less than 10 volts
   - ***b.*** Not less than 10 volts

Paragraph 4-15

1. ELEVATION SYNC
   a. 35.0±3.5 volts
   b. None
   c. No overshoot or oscillation
2. TRIM ADJUSTMENT
   a. through c. None
   d. Antenna dish straight ahead
   e. Antenna dish moves down
   f. None
   g. 1.0+0.2 volt
3. SWEEP EXCITATION
   a. 35.0±3.5 volts
   b. None
   c. 10.6-1.1 volts
   d. None
   e. 10.6+1.1 volts
4. RESOLVER TUNE
   a. Not more than 3 volts

Paragraph 4-16

1. CONTROL UNIT
   a. STANDBY lamp lights; 2.6±0.2 volts
   b. OPERATE lamp lights
   c. CONTOUR lamp lights
   d. Not more than 0.2 volt
   e. None
   f. 8.0±0.6 volts
   g. 5.0±0.6 volts
   h. less than 50 mv

Paragraph 4-17

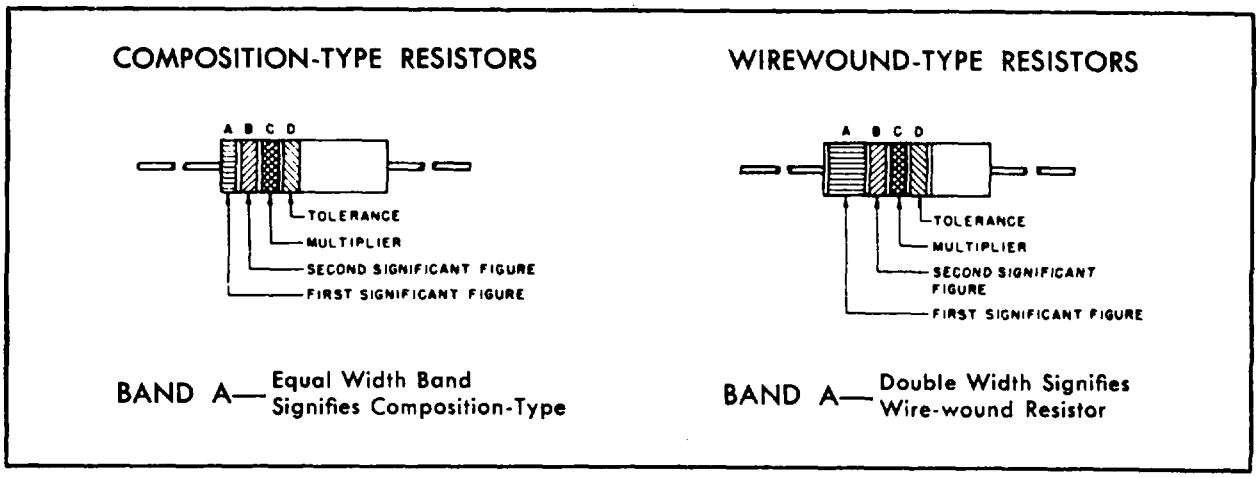
1. INDICATOR
   a. CONTINUITY, SHORT, and GROUND lamps light.
   b. through h. CONTINUITY lamp lights.
   i. through k. CONTINUITY, SHORT, and GROUND lamps light.
   I. through v. CONTINUITY lamp lights.

CHAPTER 5

ILLUSTRATIONS

This chapter contains resistor and capacitor color code illustrations, and all foldout illustrations.

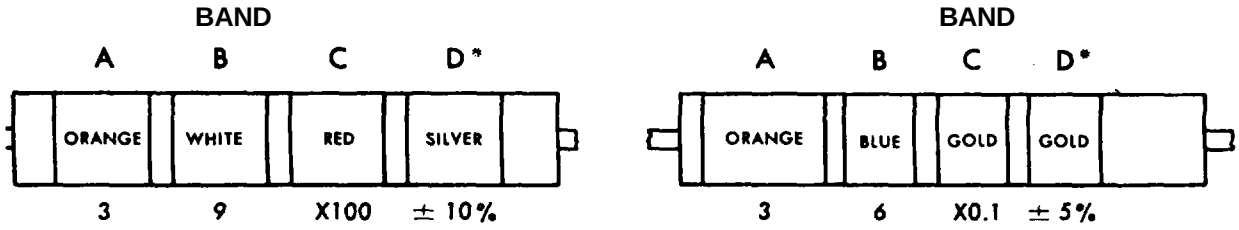
COLOR CODE MARKING FOR MILITARY STANDARD RESISTORS



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



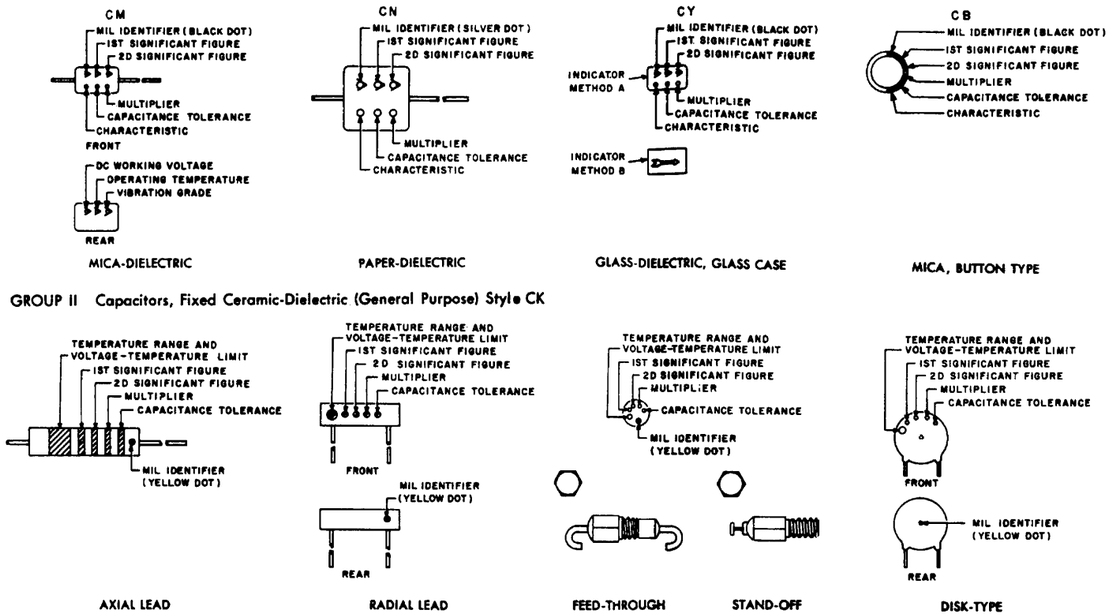
NOMINAL RESISTANCE	3,900 Ohms	3.6 Ohms
RESISTANCE TOLERANCE	±10 percent	±5 percent

STD- R2

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

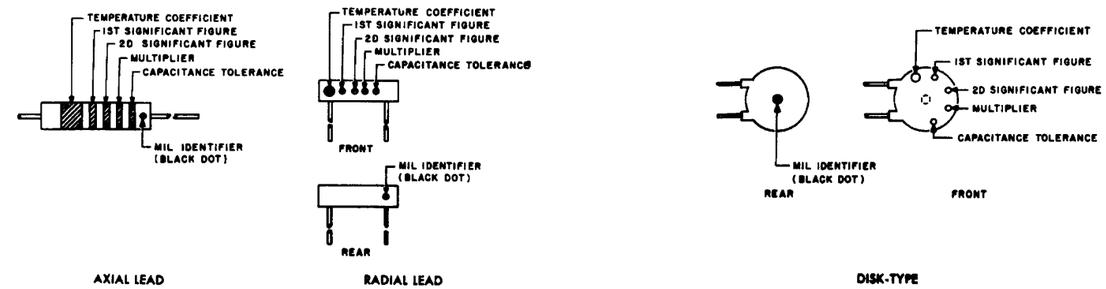
Figure 5-1. Color code marking for MIL-STD resistors.

GROUP I Capacitors, Fixed, Various-Dielectrics, Styles CM, CN, CY, and CB



GROUP II Capacitors, Fixed Ceramic-Dielectric (General Purpose) Style CK

GROUP III Capacitors, Fixed, Ceramic-Dieletric (Temperature Compensating) Style CC



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		B			
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	CN				± 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 10uuf	Capacitances 10uuf or less	
BLACK	0	0	0	1		± 2.0uuf	CC
BROWN	−30	1	1	10	± 1%		
RED	−80	2	2	100	± 2%	± 0.25uuf	
ORANGE	−150	3	3	1,000			
YELLOW	−220	4	4				
GREEN	−330	5	5		± 5%	± 0.5uuf	
BLUE	−470	6	6				
PURPLE (VIOLET)	−750	7	7				
GREY		8	8	0.01			
WHITE		9	9	0.1	± 10%		
GOLD	+100					± 1.0uuf	
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–C2

Figure 5-2. Color code marking for MIL-STD capacitors.

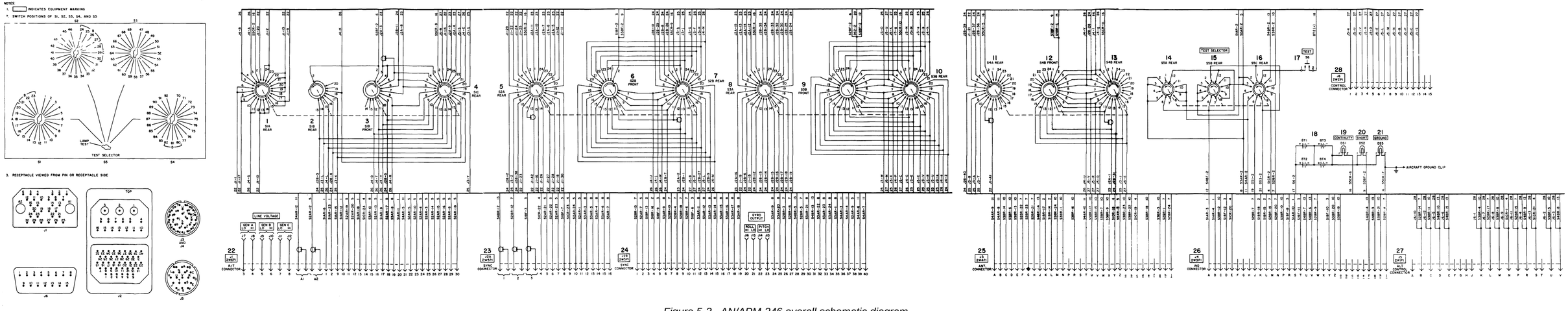


Figure 5-3. AN/APM-246 overall schematic diagram.

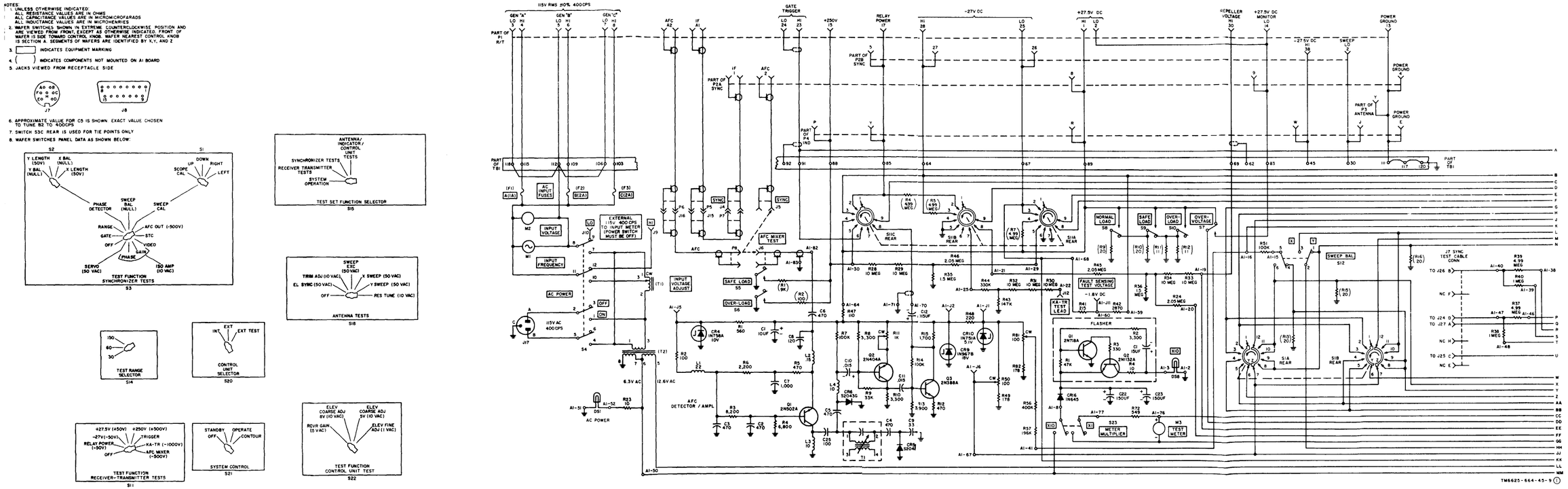


Figure 5-4. AN/APM-247 overall schematic diagram.

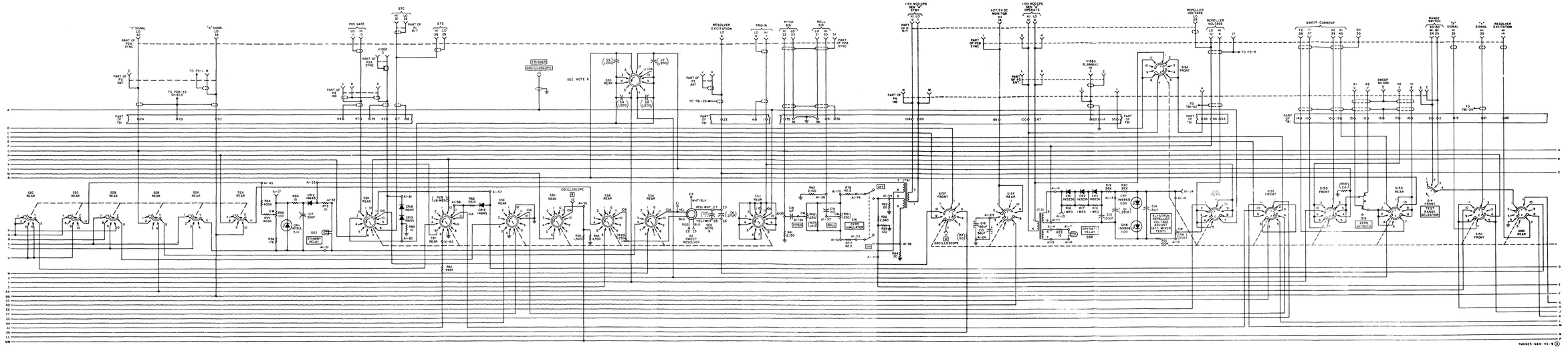


Figure 5-4-Continued.

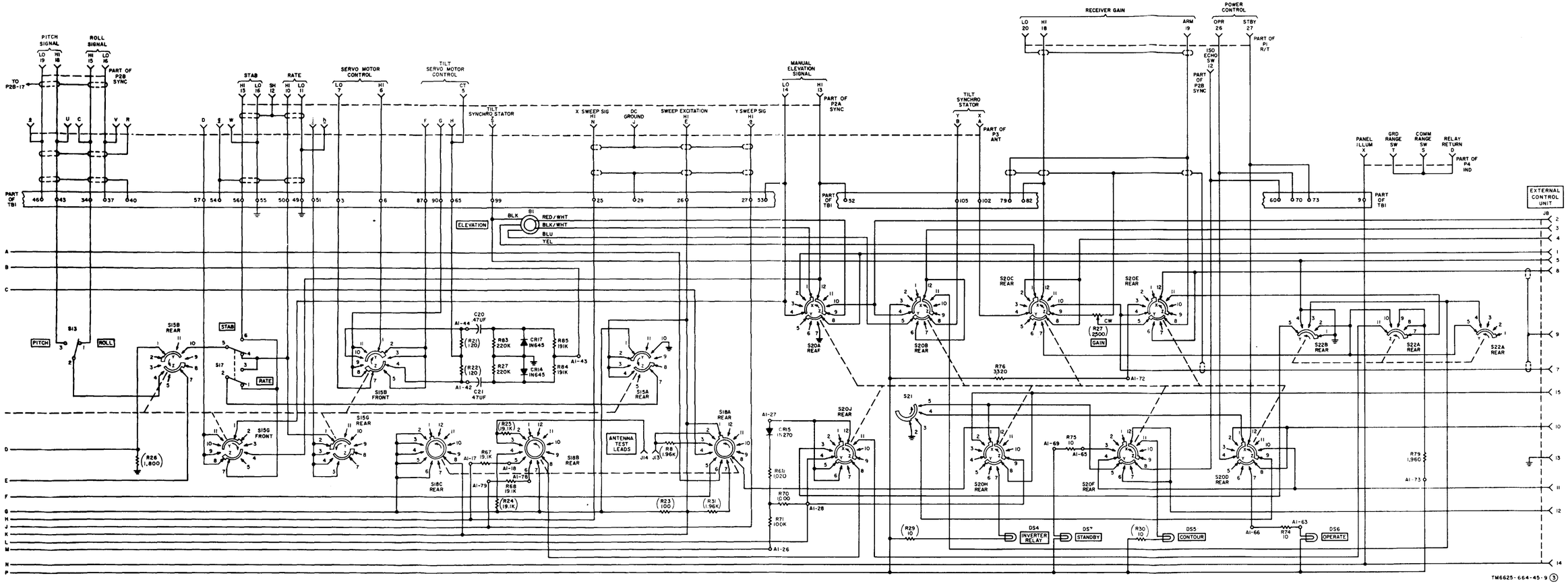


Figure 5-4-Continued.

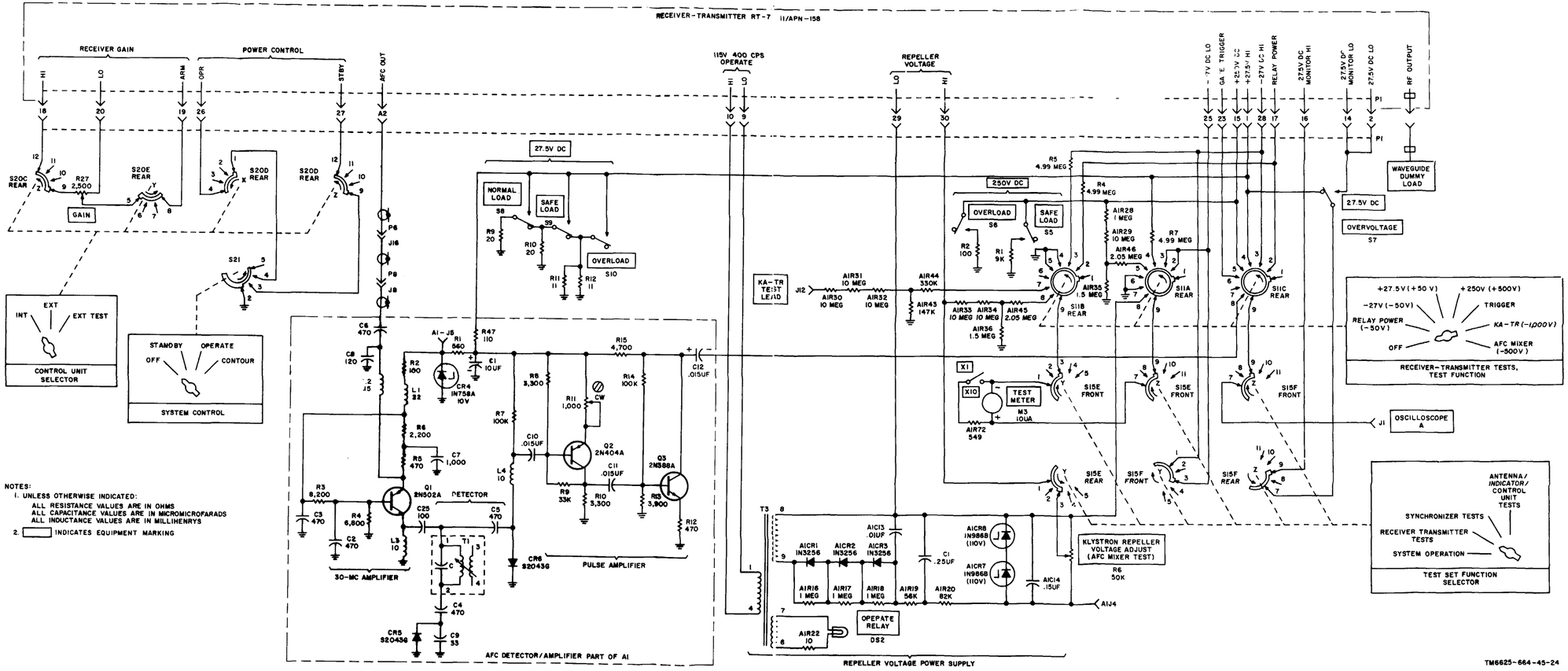


Figure 5-5. Receiving-transmitter simplified schematic diagram.

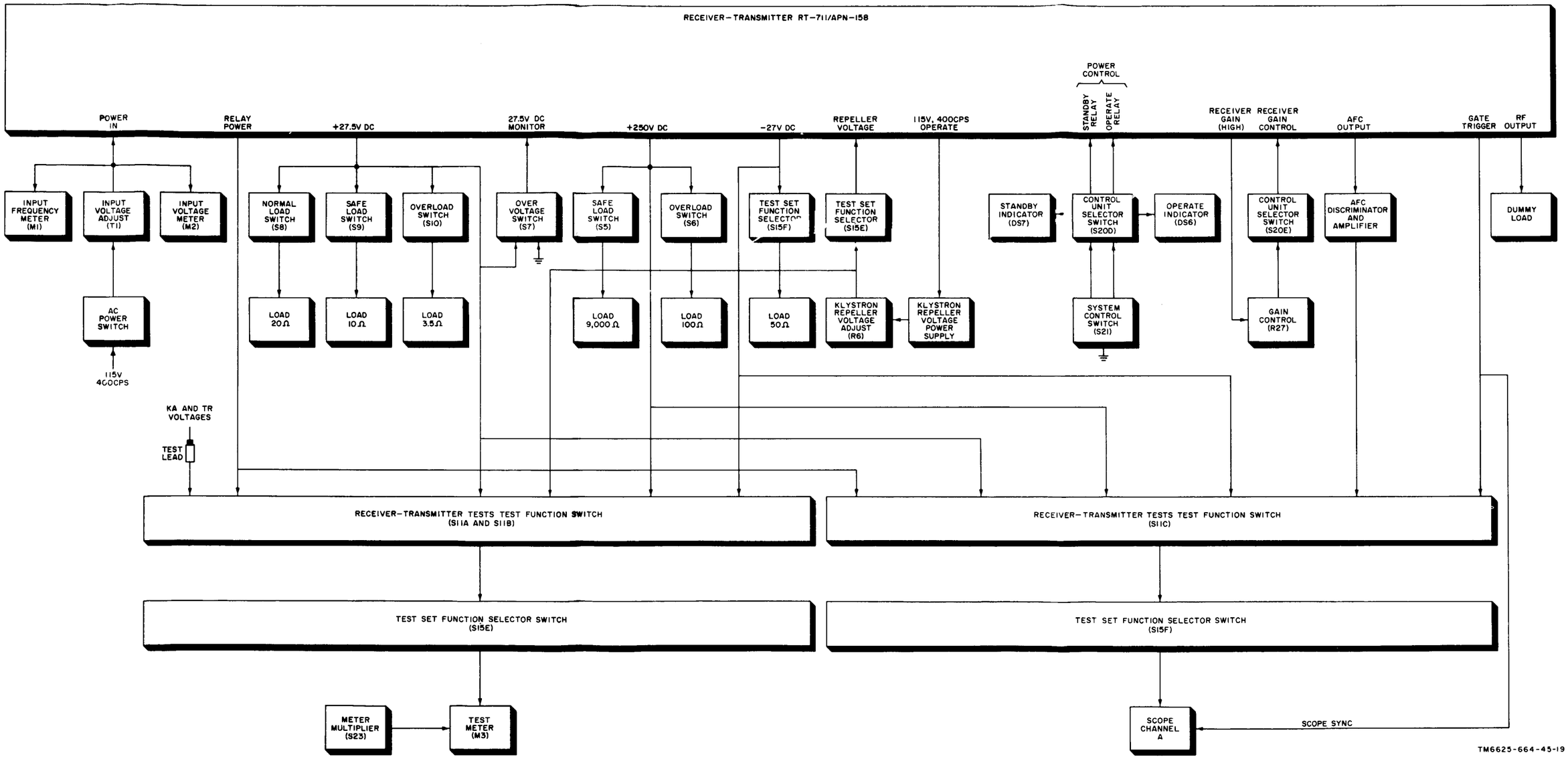


Figure 5-6. Receiver-transmitter unit test block diagram.

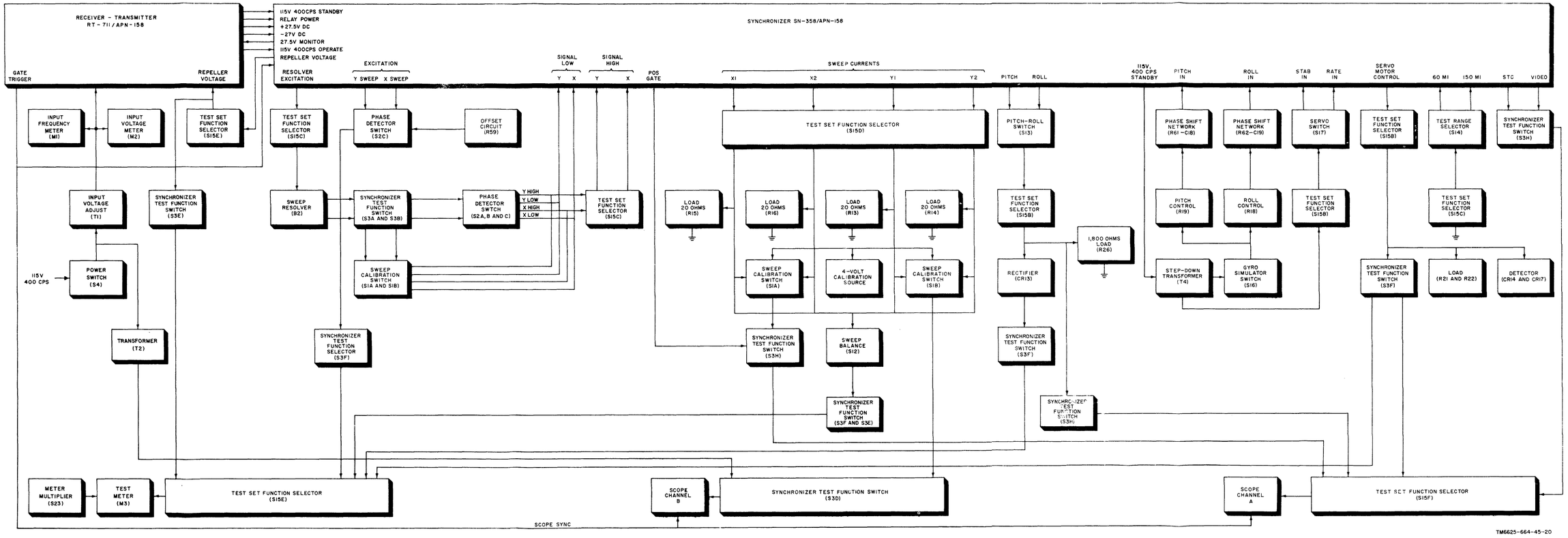


Figure 5-7. Sync unit test block diagram.

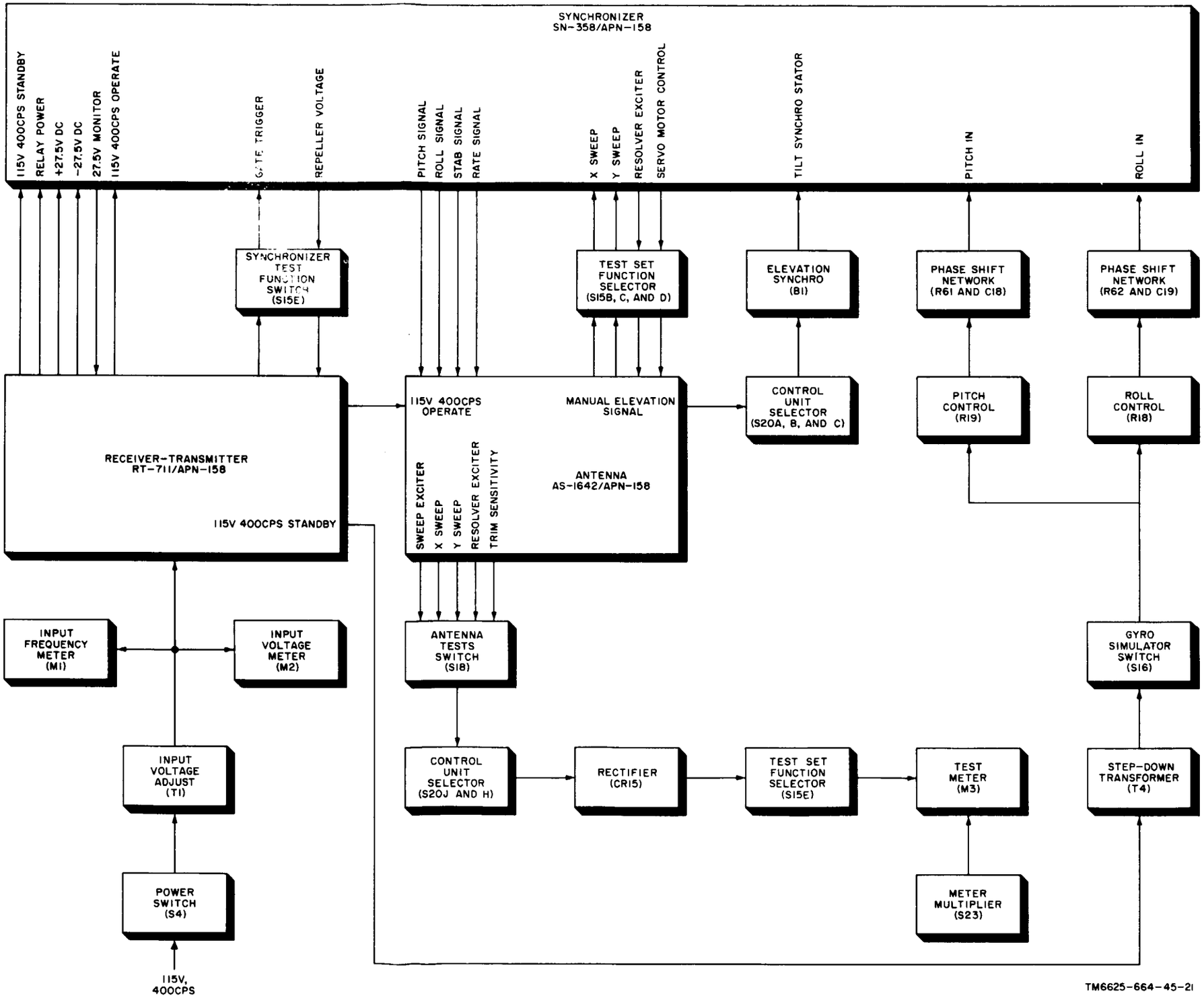


Figure 5-8. Antenna test block diagram.

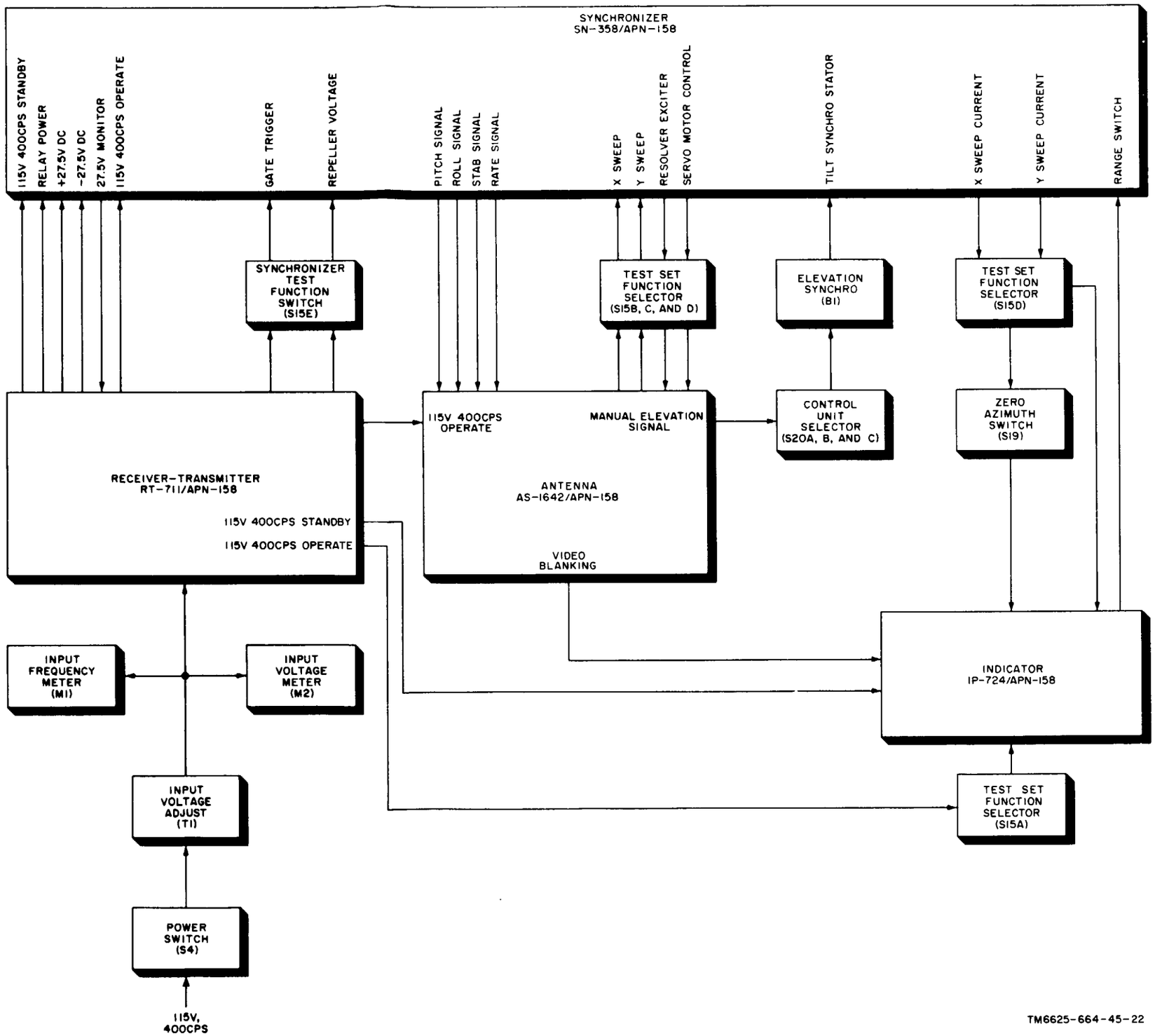


Figure 5-9. Indicator test block diagram.

APPENDIX A

REFERENCES

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Work Orders.
TM 11-2678	Operator, Organizational, Field and Depot Maintenance Manual, Pulse Generator AN/PPM-1 and AN/PPM-1A.
TM 11-5841-241-12	Organizational Maintenance Manual (Including Repair Parts and Special Tools List), Radar Set AN/APN-158.
TM 11-6625-200-12	Organizational Maintenance Manual, Multimeters ME-26A/U, ME-26B/U, and ME-26C/U.
TM 11-6625-219-12	Organizational Maintenance Manual, Oscilloscope AN/USM-81.
TM 11-6625-508-10	Operator's Manual, Signal Generators AN/USM-44 and AN/USM-44A.
TM 11-6625-664-12	Organizational Maintenance Manual, Test Set, Radar AN/APM-246 and Test Set, Radar AN/APM-247.

APPENDIX B
GS AND DEPOT MAINTENANCE REPAIR PARTS

Section I. INTRODUCTION

B-1. General

This appendix contains a list of repair parts required for the performance of general support, and depot maintenance for Test Set, Radar AN/APM-246 and Test Set, Radar AN/APM-247.

Note. **No special tools, test and support equipment are required.**

B2. Explanation of Sections

This repair parts list is divided into sections.

a. Repair Parts for Direct Support, General Support and Depot Maintenance-Section II. This chart lists repair parts authorized for maintenance performance at general support, and depot categories.

b. Federal Stock Number Cross-Reference Index-Section III. This is a cross-reference index of FSN's to illustrations by figure and item number.

B-3. Explanation of Columns

The following is an explanation of the columns in section II.

a. Source, Maintenance, and Recoverability Codes, Column 1.

(1) Source code, column 1a. The selection status and source for the listed item is shown in the column. Source codes and their explanations are as follows:

Code	*Explanation*
P	-Applies to repair parts which are stocked in or supplied from the GSA/DSA, or Army supply system, and authorized for use at indicated maintenance categories.
M	-Applies to repair parts which are not procured or stocked but are to be manufactured at indicated maintenance categories.
A	-Applies to assemblies which are not procured or stocked as such but are made up of two or more units, each of which carry individual stock numbers and descriptions and are procured and stocked and can be assembled by units at indicated maintenance categories.
X1	-Applies to repair parts which are not procured or stocked, the requirement for which will be supplied by use of next higher assembly or component.
X2	-Applies to repair parts which are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain such parts through cannibalization. If they are not obtainable through cannibalization, such repair parts will be requisitioned with supporting justification through normal supply channels.
AH	-Applies to repair parts requiring manufacturer assembly, or test at a category higher than that authorized to replace the part.

(2) Maintenance code, column lb. The lowest category of maintenance authorized to install the listed item is indicated in this column.

Code	*Explanation*
O	Organizational Maintenance
H	General Support Maintenance
D	Depot Support Maintenance

(3) Recoverability code, column 1c. The information in this column indicates whether unserviceable items should be returned for recovery or salvage. Recoverability codes are:

Code	*Explanation*
R	-Applies to repair parts and assemblies which are economically repairable at DSU and GSU activities and normally are furnished by supply on an exchange basis.

Note. **When no code is indicated in the recoverability column, the part will be considered expendable.**

b. *Federal Stock Number, Column 2.* The Federal stock number for the item is indicated in this column.

c. *Description, Column 3*. The sequence number, Federal item name, a five-digit manufacturer's code, an indenture code, and a part number are included in this column. For subsequent appearances of the same item, the manufacturer's code and part number are omitted. The words "same as" followed by the sequence number assigned to the item when it first appeared in the list will follow the item name, e.g. "RESISTOR, FIXED, COMPOSITION: SAME AS A298." The indenture codes indicate the end item, the assemblies, and the component parts. Identical codes are parts of the proceding higher code.

d. *Unit of Issue, Column 4.* The unit used as a basis of issue (e.g. ea, pr, ft, yd, etc) is noted in this column.

e. *Quantity Incorporated in Unit Pack, Column 5.* The actual quality contained in the unit pack is indicated in this column.

f. *Quantity Incorporated in unit, Column 6*. The quantity of repair parts in an assembly is indicated in this column.

g. *Maintenance Allowances, Column 7*.

(1) The allowance columns are divided into subcolumns. The total quantity of items authorized for the number of equipments supported is indicated in each subcolumn opposite the first appearance of each item. Subsequent appearances of the same item will have no entry in the allowance columns but will have a reference, in the description column, to the first appearance of the item. Items authorized for use as required but not for initial stockage are identified with an asterisk (*) in the allowance column. an asterisk (*) in the allowance column.

(2) The quantitative allowances for DS/ GS categories of maintenance will represent initial stockage for a 30- day period for the number of equipments supported.

h. *One Year Allowances Per 100 Equipments/Contingency Planning Purposes, Column 8*. Opposite the first appearance of each item, the total quantity required for distribution and contingency planning purposes is indicated. The range of items indicates total quantities of all authorized items required to provide for adequate support of 100 equipments for one year.

i. Depot Maintenance Allowance Per 100 Equipments, Column 9. This column indicates the total quantity of each item authorized depot maintenance for 100 equipments. Subsequent appearances of the same item will have no entry in this column, but will have a reference in the description column to the first appearance of the item.

j. Illustration, Column 10.

(1) Figure number, column 10a. The figure number of the illustration in which the item is shown is included in this column.

(2) Item or symbol number, column 10b. The callout number used to reference the item in the illustration is indicated in this column.

4. Location of Repair Parts

a. When the Federal stock number is unknown follow the procedures given in (1) through (4) below.

(1) Use the table of contents to locate the appropriate appendix of the repair parts list.

(2) If the item or symbol number is available, locate the item by scrutiny of column 10b of the repair parts list.

(3) If the item, symbol, and figure number is not known check the description column (column 3) in the repair parts list to locate the part.

(4) Locate the applicable illustration in this manual and note the figure number and item number. Use the repair parts listing and locate the figure number and item number as noted on the illustration.

b. When the Federal stock number is known, use the repair part listing to find the part and the figure and item numbers as noted in the Index of Federal stock numbers.

5. Federal Supply Codes

This paragraph lists the Federal supply code and the associated manufacturer's name.

Code	*Manufacturer*
00656	Aerovox Corp
01121	Allen-Bradley Co
01281	TRW Semiconductors Inc
02660	Amphenol-Borg Electronics Corp
027365	Radio Corp of America Commercial Receiving Tube and Semiconductor Div
03877	Transitron Electronic Corp
04009	Arrow-Hart and Hegeman Electric Co
04713	Motorola Inc Semiconductor Products Div
06773	Timber Top Inc
07148	Dynamic Controls Corp
07418	Sunbank Electronics Inc
07688	Joint Electron Device Engineering Council
08664	Bristol Co
09922	Burndy Corp
11870	Melabs Inc
13499	Collins Radio Co
15605	Cutler-Hammer Inc
17419	Deutsch Co
19701	Electra Mfg Co
28266	Superior Electromechanical Component Service Inc SECS
24342	General Cable Corp
46859	Philco Corp
53021	Sangamo Electric Co
56289	Sprague Electric Co
57163	Starrett L.S. Co
58189	General Dynamics-Electronics Dynamic Div
58474	Superior Electric Co
70892	Bead Chain Mfg Co
71286	Camloc Fastener Corp
71400	Bussman Mfg Div of McGraw-Edison Co
71468	ITT Cannon Electric Inc
71590	Centralab Div of Globe-Union Inc
72314	Fairchild Camera and Instrument Corp Defense Products Div
76545	Mueller Electric Co
76854	Oak Mfg Co
77221	Phaostron Instrument and Electric Co
77250	Pheoll Mfg Co
77820	Bendix Corp Scintella Div
78189	Shakeproof Div of Illinois Tool Works
79807	Wrought Washer Mfg Co
80058	Joint Electronic Type Designation System
81073	Grayhill Inc
81349	Military Specifications
81815	Communications Coil Co
86197	Clifton Precision Products Co Inc
87034	Marco Industries Co
88044	Aeronautical Standards Gr Dept of Navy and Air Force
91637	Dale Electronics Inc
91663	Armel Electronics Inc
91833	Keystone Electronics Corp
93332	Sylvania Electric Products Inc
94375	Automatic Metal Products Co
95104	Collins Radio Co
95105	Collins Radio Co
96096	American Carbonic Engineering Co
96106	Kingston Mfg Co Inc
96906	Military Standard
97965	Stancor Electronics Inc
99800	Delevan Electronics Corp

Section II. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT AND DEPOT MAINTENANCE

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
															DS			GS			1 YR ALW PER 100	DEPOT MAINT ALW.		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	MODEL 1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	EQUIP. CNTGCY	PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											TEST SET, RADAR AN/AFM-247														
			6625-926-4322							A	A002 TEST SET, RADAR AN/AFM-24T 95104; 522-5731-015	ea												
A	H	R	6625-926-4403							B	A003 TEST SET TS-2081: 95104; 516-3055-001	ea	1	1										
A	H	R								C	A004 CHASSIS ASSEMBLY: 95104; 764-8612-001	ea	1	1										
M	D									D	A005 SUPPORT, WELDED: 95104; 764-8550-004	ea	1	1										
M	D									D	A006 BRACKET, CONECTR, MOUNTING: 95104: 764 -8596-001	ea	1	1										
P	H		5935-726-0708							D	A007 CONNECTOR, RECEFTACLE, ELECTRICAL: 96906; MS3102R10SL3P	ea	1	1				*	*	2	5	9	2-4	A1J17
P	H		5325-263-6632							D	A008 GROMMET: 96106; MS35489-6	ea	1	1				*	*	2	8	10		A1H1
P	H		9330-683-8587							D	A009 GROMMET: 96906; MS21266-2N	ea	1	6				2	2	2	27	40		A1H2
X1	D									D	A010 TERMINAL BOARD: 58189; 2033-43-000	ea	1	1									2-5	A1TB1
M	D									D	A011 BRACKET, LEFT: 95104; 764-8589-001	ea	1	1										A1MP3
M	D									D	A012 BRACKET, RIGHT: 95104; 764-8589-002	ea	1	1										A1MP4
M	D									D	A013 BAR, MOUNTING: 95104; 764-8590-001	ea	1	1										A1MP5

AMSEL-MR Form **ESC-FM 2474-46**
1 May 66 6048 **AN/APM-247, -246**

AGO 7780A

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL											DS			GS						
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/AFM-247, -246 (continued)														
X1	D									D	A014 PRINTED CIRCUIT BOARD: 95104; 764-8618-001	ea	1	1									2-5	A1A1
X1	D									E	A015 BOARD, FLARED: 95104; 764-8618-003	ea	1	1										A1A1TB1
M	D									E	A016 COVER, WELDED: 95104; 764-8617-002	ea	1	1										A1A1MP1
X2	H		5305-059-8447							E	A017 SCREW: 96906; MS51957-13	ea	1	4										A1A1H1
P	H		5910-702-5406							E	A018 CAPACITOR, FIXED, ELECTROLYTIC: 56289; 109D106X0050C2	ea	1	1				*	*	2	5	9	2-5	A1A1C1
P	H		5910-043-1994							E	A019 CAPACITOR, FIXED, MICA: 81349; CM06F471J03	ea	1	5				*	2	2	19	30	2-7	C2 thru C6
P	H		5910-087-3468							E	A020 CAPACITOR, FIXED, MICA: 81349; CM05F101J03	ea	1	1				*	*	2	5	9	2-7	C24
P	H		5910-060-1194							E	A021 CAPACITOR, FIXED, MICA: 81349; CM06F102J03	ea	1	1				*		2	5	9	2-7	C7
P	H		5910-811-5081							E	A022 CAPACITOR, FIXED, MICA: 81349; CM05F121J03	ea	1	1				*	*	2	5	9	2-7	C8
P	H		5910-088-0281							E	A023 CAPACITOR, FIXED, MICA: 81349; CM05E330J03	ea	1	1				*	*	2	5	9	2-7	C9
P	H		5910-726-1406							E	A024 CAPACITOR, FIXED, ELECTROLYTIC: 56289; 150D153XOO35A2	ea	1	3				*	2	2	8	24	2-7	C10, C11, C12
P	H		5910-773-1725							E	A025 CAPACITOR, FIXED, CERAMIC: 56289; Y77590C-4	ea	1	1				*	*	2	5	9	2-7	C13

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL											DS			GS			1 YR ALW PER	DEPOT MAINT		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	100 EQUIP. CNTGCY	ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)													
P	H		5910-655-0099							E	A026 CAPACITOR, FIXED, PAPER: 53021; SDBK06154M	ea	1	1				*	*	2	5	9	2-7	C14
P	H		5910-848-8601							E	A027 CAPACITOR, FIXED, ELECTROLYTIC: 56289; 1090566X0075T2	ea	1	2				*	2	2	10	16	2-7	C15, C16
P	H		5910-727-7049							E	A028 CAPACITOR, FIXED, ELECTROLYTIC: 56289; 150D224K0035A2	ea	1	1				*	*	2	5	9	2-7	C17
P	H		5910-812-8598							E	A029 CAPACITOR, FIXED, PAPER: 53021; SDB1K01105M	ea	1	2				*	2	2	10	16	2-7	C18, C19
P	H		5910-644-3590							E	A030 CAPACITOR, FIXED, PAPER: 56289; 196P47491S4	ea	1	2				*	2	2	10	16	2-7	C20,C21
P	H		5910-853-1743							E	A031 CAPACITOR, FIXED, ELECTROLITIC: 56289; 109D157X030T2	ea	1	2				*	2	2	10	16	2-7	C22, C13
P	H		5910-800-2866							E	A032 CAPACITOR, FIXED, ELECTROLYTIC: 56289; 109D156X0030C2	ea	1	1				*	*	2	5	9	2-7	C25
P	H		5961-972-9395							E	A033 SEMICONDUCTOR DEVICE, DIODE: 02735; 1N3256	ea	1	3				*	2	2	18	24	2-7	CR1, CR2, CR3
P	H		5961-894-0684							E	A034 SEMICONDWCTOR DEVICE, DIODE: 07688; lN758	ea	1	1				*	*	2	5	9	2-7	CR4
P	H		5960-774-6362							E	A035 SEMICONDUCTOR DEVICE, DIODE: 03877; S2043C	ea	1	2				*	2	2	10	16	2-7	CR5, CR6
P	H		5961-851-5926							E	A036 SEMICONDUCTOR DEVICE, DIODE: 04713; 1N9868	ea	1	2				*	2	2	10	16	2-7	CR7, CR8
P	H		5960-851-8296							E	A037 SEMICONDUCTOR DEVICE, DIODE: 81349; lN967B	ea	1	1				*	*	2	5	9	2-7	CR9

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE										(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
			(2)	MODEL							(3)					DS			GS			1 YR ALW PER	DEPOT MAINT		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	DESCRIPTION		UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	100 EQUIP. CNTGCY	ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)															
P	H		5960-821-2309							E	A038	SEMICONDUCTOR DEVICE, DIODE: 81349; USN1N751A	ea	2	2				*	2	2	10	16	2-7	CR10, CR11
P	H		5960-617-4347							E	A039	SEMICONWDCTOR DEVICE, DIODE: 07688; 1N645	ea	1	4				*	2	2	20	27	2-7	CR12, CR13, CR14, CR16
P	H		5950-819-1990							E	A040	COIN, RADIOFREQUENCY: 99800; 1537-44	ea	1	1				*	*	2	5	9	2-7	L1
P	H		5950-855-0469							E	A041	COIL, RADIOFR;EQUCY: 99800; 1537-00	ea	1	1				*	*	2	5	9	2-7	A1A1L2
P	H		5950-659-8167							E	A042	COIL, RF: 99800; 1537-36	ea	1	2				*	2	2	10	16	2-7	A1A1L3, A1A1L4
P	H									E	A043	TRANSISTOR: 46859; 2N502A	ea	1	1				*	*	2	5	9	2-7	A1A1Q1
P	H		5960-878-6521							E	A044	TRANSISTOR: 93332; 2N404A	ea	1	1				*	*	2	5	9	2-7	A1A1Q2
P	H		5960-837-1757							E	A045	TRANSISTOR: 93332; 2N388A	ea	1	1				*	*	2	5	9	2-7	A1A1Q3
P	H		5961-855-1551							E	A046	TRANSISTOR: 72314; 2N1132	ea	1	1				*	*	2	5	9	2-6	A1A1Q4
P	H		5961-787-5305							E	A047	TRANSISTOR: 01281; 2N718A	ea	1	1				*	*	2	5	9	2-6	A1A1Q5
P	H		5905-195-6799							E	A048	RESISTOR, FIXED, COMPOSITION: 81349; RC20GF561K	ea	1	1				*	*	2	5	9	2-6	A1A1R1
P	H		5905-186-3008							E	A049	RESTOR, FIXED, CCMP: 81349; RC20GF101K	ea	1	1				*	*	2	5	9	2-6	A1A1R2
P	H		5905-171-1985							E	A050	RESISTOR, FIXED, COMP: 81349; RC20GF822K	ea	1	1				*	*	2	5	9	2-6	A1A1R3
P	H		5905-245-0023							E	A051	RESISTOR, FIXED, COMP: 81349; RC20GF682K	ea	1	1				*	*	2	5	9	2-6	A1A1R4

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE																						
			(2)	MODEL							(3)	(4)	(5)	(6)	30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
															DS			GS						
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)														
P	H		5905-171-2005							E	A052 RESISTOR, FIXED, COMP: 81349; RC20GF471K	ea	1	2				*	2	2	10	16	2-6	A1A1RS, A1A1R12
P	H		5905-279-1876							E	A053 RESISTOR, FIXED, COMP: 81349; RC20GF222K	ea	1	1				*	*	2	5	9	2-6	A1A1R6
P	H		5905-192-3987							E	A054 RESISTOR, FIXED, COMP: 81349; RC20GF104K	ea	1	3				*	2	2	18	24	2-6	A1A1R7, A1A1R14, A1A1R27
P	H		5905-195-6502							E	A055 RESISTOR, FIXED, COMP: 81349; RC20CGF332K	ea	1	2				*	2	2	18	24	2-6	A1A1R8, A1A1R10
P	H		5905-249-4248							E	A056 RESISTOR, FIXED, CCMP: 81349; RC20GF333K	ea	1	1				*	*	2	5	9	2-6	A1A1R9
P	H		5905-185-6575							E	A057 RESISTOR, FIXED, COMP: 81349; RC20GF392J	ea	1	1				*	*	2	5	9	2-6	1A1R13
P	H		5905-279-3504							E	A058 RESISTOR, FIXED, COMP: 81349; RC20GF472K	ea	1	1				*	*	2	5	9	2-6	A1A1R15
P	H		5905-192-3982							E	A059 RESISTOR, FIXED, COMP: 81349; RC20GF105K	ea	1	3				*	2	2	18	24	2-6	A1A1R16, A1A1R17, A1A1R18
P	H		5905-299-2012							E	A060 RESISTOR, FIXED, COMP: 81349; RC32GF563K	ea	1	1				*	*	2	5	9	2-6	A1A1R19
P	H		5905-245-0712							E	A061 RESISTOR, FIXED, COMP: 81349; RC32CF823K	ea	1	1				*	*	2	5	9	2-6	A1A1R20
P	H		5905-299-2002							E	A062 RESISTOR, FIXED, COMP: 81349; RC32GF124K	ea	1	1				*	*	2	5	9	2-6	A1A1R21
P	H		5905-190-8883							E	A063 RESISTOR, FIXED, CCOMP: 81349; RC20GF100K	ea	1	5				2	2	2	33	42	2-6	A1A1R22, A1A1R23, A1A1R73, A1AR74, A1A1R75
P	H		5905-985-5954							E	A064 RESISTOR, FIXED, FITM: 00656; CPM1-1005F thru A1A1R34	ea	1	7				2	2	2	33	42	2-6	A1A1R28

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL											DS			GS			1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100			(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247,-246 (continued)													
P	H		5905-892-6475							E	A065 RESISTOR,FIXED,FIT: 81349; RN65D1004F	ea	1	3				*	2	2	18	24	2-6	A1A1R38, A1A1R52
P	H									E	A066 RESISTOR,FIXED,FILM: 81349; RN65C2150F	ea	1	1				*	*	2	5	9	2-6	A1A1R40, A1A1R41
P	H		5905-843-6696							E	A067 RESISTOR,FIXED,FILM: 81349; RN65C2871F	ea	1	1				*	*	2	5	9	2-6	A1A1R42
P	H		5905-814-3815							E	A068 RESISTOR,FIXED,FILM: 81349; RN65D1003F	ea	1	2				*	2	2	10	16	2-6	A1A1R43, A1A1R51
P	H		5905-834-6263							E	A069 RESISTOR,FIXED,FILM: 13499; 705-5024-000	ea	1	1				*	*	2	5	9	2-6	A1A1R44
P A1A1R4,A1AR45,	H		5905-993-1358							E	A070 RESISTOR,FIXED,FILM: 81349; RN65D2371F	ea	1	3				*	2	2	18	24	2-6	A1A1R46
P	H		5905-279-3515							E	A071 RESISTOR,FIXED,COMP: 81349; RC20GF111J	ea	1	1				*	*	2	5	9	2-6	A1A1R47
P	H		5905-192-3971							E	A072 RESISTOR,FIXED,COMP: 81349; RC20CF331J	ea	1	1				*	*	2	5	9	2-6	A1A1R48
P	H		5905-993-6974							E	A073 RESISTOR,FIXED,FIIM: 81349; RN65D1780F	ea	1	2				*	2	2	10	16	2-6	A1A1R49, A1A1R58
P	H		5905-852-6571							E	A074 RESISTOR,VARIABLE: 01121; FP101UA	ea	1	2				*	2	2	10	16	2-6	A1A1R50, A1A1R59
P	H		5905-225-9387							E	A075 RESISTOR,FIXED,FILM: 81349;RN60D4223F	ea	1	1				*	*	2	5	9	2-6	A1A1R53
P	H		5905-082-0715							E	A076 RESISTOR,FIXED,FIIM: 19701; DC1-2A400000-PCT	ea	1	4				*	2	2	20	27	2-6	A1A1R54 thru A1A1R57
P	H		5905-279-3521							E	A077 RESISTOR,FIXED,COMP: 81349; RC20GF150J	ea	1	1				*	*	2	5	9	2-6	A1A1R60

AMSEL-MR Form **ESC-FM 2474-46**
1 May 66 6048 **AN/APM-247, -246**

AGO 7780A

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL											DS			GS			1 YR ALW PER	DEPOT MAINT		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	100 EQUIP. CNTGCY	ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-147, -146 (continued)													
P	H		5905-063-8405							E	A078 RESISTOR, FIXED, FILM: 81349; RN65D2151F	ea	1	2				*	2	2	10	16	2-6	A1A1R61, A1A1R62
P	H		5905-844-1598							E	A079 RESISTOR, FIXED, WIREWOUND: 91637; HSM2C20ROOF	ea	1	2				*	2	2	10	16	2-6	A1A1R63, A1A1A64
P	H		5905-279-3504							E	A080 RESISTOR, FIXED, COMP: SAME AS A058	ea	1	1									2-6	A1AR65
P	H		5905-279-1757							E	A081 RESISTOR, FIXED, COMP: 81349; RC2OGF152J	ea	1	1				*	*	2	5	9	2-6	A1A166
P	H		5905-985-5465							E	A082 RESISTOR, FIXED, FILM: 81349; RN60D1962F	ea	1	2				*	2	2	20	27	2-6	A1A1R67, A1A1AR68
P	H									E	A083 RESISTOR, FIXED, FILIM: 81349; R160D2941F	ea	1	1				*	*	2	5	9	2-6	A1A1R26
P	H		5905-988-2317							E	A084 RESISTOR, FIXED, FITM: 81349; RN60D1001F	ea	1	1				*	*	2	5	9	2-6	A1AR70
P	H		5905-988-2307							E	A085 RESISTOR, FIXED, FILM: 81349; RN60D1003F	ea	1	1				*	*	2	5	9	2-6	A1A1R71
P	H									E	A086 RESISTOR, FIXED, FILM: 81349; RN60D5490F	ea	1	1				*	*	2	5	9	2-6	A1A1R76
P	H		5960-556-2091							E	A087 SEMICONDUCTOR DEVICE, DIODE: 03877; 1N270	ea	1	1				*	*	2	5	9	2-7	A1A1CR15
P	H		5905-902-2887							E	A088 RESISTOR, FIXED, FILM: 91637; DCS-1/249903F	ea	1	2				*	2	2	24	32	2-6	A1A1R37, A1AR39
P	H	5	5905-702-8755							E	A089 RESISTOR, FIXED, FILM: 81349; RN65C1000F	ea	1	1				*	*	2	5	9	2-6	A1A1R25
P	H									E	A090 RESISTOR, FIXED, FILM: 81349; RN60D3321F	ea	1	1				*	*	2	5	9	2-6	A1A1R77

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL											DS			GS			1 YR ALW PER	DEPOT MAINT		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	100 EQUIP. CNTGCY	ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APN-247, -246 (continued)													
P	H									E	A091 RESISTOR, FIXED, FILM: 81349;RY60D1021F	ea	1	1				*	*	2	5	9	2-6	A1A1R69
P	H		5950-777-495							E	A093 TRANSFORMER, IF: 81815; X165-2	ea	1	1				*	*	2	5	9	2-5	A1A1T1
P	H		5910-815-5650							E	A094 JACK: 81073; 31-1	ea	1	7				*	2	2	30	39	2-5	A1A1J1 thru A1A1J7
P	H		5970-767-9283							E	A095 HOOD, PLASTIC: 81073; 3188	ea	1	7				*	2	2	30	39		A1A1F1
P		H	5905-295-3410							E	A096 RESISTOR, FIXED, COMPOSITION: 81349; RC20GF473K	ea	1	1				*	*	2	5	9	2-6	A1A1R78
P	H		5905-195-6502							E	A097 RESISTOR, FIXED, COMP: SAME AS A055	ea	1	1									2-6	A1A1R79
P	H		5905-171-1997							E	A098 RESISTOR, FIXED, COMP: 81349; RC20GF331K	ea	1	1				*	*	2	5	9	2-6	A1A1R80
P	H		5905-665-6051							E	A099 RESISTOR, FIXED, COMP: 81349;RC32GF100K	ea	1	1				*	*	2	5	9	2-6	A1A1R81
A	H	R								D	A100 BRACKET ASSEMBLY: 95104; 764-8611-001	ea	1	1										A1A2
X1	D									E	A101 BRACKET, RESERVOIR: 95104; 764-8588-002	ea	1	1										A1A2MP1
X2	H									E	A102 BLOCK, LOCKING: 95104; 764-8591-001	ea	1	1										A1A2MP2
X2	H		5340-861-5784							E	A103 CLAMP: 06773; 106064-337	ea	10	3										A1A2MP3
P	H		5990-965-0495							E	A104 RESOLVER, SWEEP: 86197; CS11B2A372	ea	1	1				*	*	2	7	13		A1A2B2

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL											DS			GS			1 YR ALW PER	DEPOT MAINT		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	100 EQUIP. CNTGCY	ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)													
X2	H		5940-061-0050							E	A105 TERMINAL: 91663; RTMT16M	ea	50	8										A1A2E1 thru A1A2E8
P	H									E	A106 RESISTOR, VARIABLE: 81349; RV5NAYSD2518	ea	1	1				*	*	2	5	9	2-6	A1A2R20
P	H		5910-649-1858							E	A107 CAPACITOR, FIXED, PAPER: 56289; 196P27451S4	ea	1	1				*	*	2	5	9	2-7	A1A2C6
X2	H		5305-059-8448							E	A108 SCREW: 96906; MS51957-14	ea	25	8										A1A2H1
X2	H		5305-o59-8449							E	A109 SCREW: 96906; MS51957-15	ea	25	2										A1A2H2
X2	H		5305-263-9170							E	A110 SCREW: 96906; MS51053-113	ea	25	2										A1A2H3
X2	H		5310-058-2949							E	A111 WASHER, LOCK: 79807; 310-0278-000	ea	50	10										A1A2H4
X2	H									E	A112 WASHER, LOCK: 7807; COML-281X-0024	ea	50	10										A1A2H5
X2	H		5310-271-7452							E	A113 WASHER, LOCK: 96906; MS35333-74	ea	50	1										A1A2H6
X2	H									E	A114 NUT, HEX: 77250; P334-0287-000	ea	25	1										A1A2H7
P	H									D	A115 RESISTOR, FIXED, WIREWOUND: 91637; 747-8715-000	ea	1	2				*	2	2	10	16	2-6	A1R9, A1R10
P	H									D	A116 RESISTOR, FIXED, W. W: 91637; 747-8710-000	ea	1	2				*	2	2	10	16	2-6	A1R11, A1R12

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
			(2)	MODEL							(3)				DS			GS			1 YR ALW PER	DEPOT MAINT		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	100 EQUIP. CNTGCY	ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)													
P	H									D	A117 RESISTOR, FIXED, WIREWOUND: 13499; 747-0985-360	ea	1	4				*	2	2	20	27	2-6	A1R13 thru A1R16
P	H		5905-958-6715							D	A118 RESISTOR, FIXED, WIREWOUND: 81349; RE65G1210	ea	1	2				*	2	2	10	16	2-6	A1R21, A1R22
P	H		5905-577-3888							D	A119 RESISTOR, FIXED, WIREWOUND: 91637; RH25-90000G	ea	1	1				*	*	2	5	9	2-6	A1R1
P	H		5905-295-5796							D	A120 RESISTOR, FIXED, WIREWOUND: 91637; R125-100ROG	ea	1	1				*	*	2	5	9	2-6	A1R2
P	H		5905-665-6187							D	A121 RESISTOR, FIXED, WIREWOUND: 91637; RH25-50ROOG	ea	1	1				*	*	2	5	9	2-6	A1R3
P	H		5910-112-7312							D	A122 CAPACITOR, FIXED, PAPER: 81349; CP53B1EG254K1	ea	1	1				*	*	2	5	9	2-7	A1C1
P	H		5950-907-8302							D	A123 TRANSFORMER: 97965; 29318	ea	1	2				*	2	2	10	16	2-5	A1T2, A1T4
P	H		5950-778-8624							D	A124 TRANSFORMER: 95105; 76-0093-66	ea	1	1				*	*	2	5	9	2-5	A1T3
X2	H		5310-854-9085							D	A125 POST, BINDING: 95104; 540-9176-003	ea	10	6										A1E1
X2	H		5305-059-8440							D	A126 SCREW: 96906; MS35216-5	ea	25	12										A1H3
X2	H		5305-059-8449							D	A127 SCREW: SAME AS A109	ea	25	14										A1H4
X2	H		5305-059-8451							D	A128 SCREW: 96906; MS35216-16	ea	25	4										A1H5
X2	H		5305-059-8459							D	A129 SCREW: 96906; MS35216-24	ea	25	16										A1H6

AMSEL-MR Form **ESC-FM 2474-46**

1 May 66 6048 **AN/APM-247, -246**

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
			(2)	MODEL							(3)				DS			GS			1 YR	DEPOT		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	ALW PER 100 EQUIP. CNTGCY	MAINT ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)														
X1	H		5305-059-8460							D	A130 SCREW: 96906; MS35216-25	ea	25	6										A1H7
X2	H		5305-044-2786							D	A131 SCREW: 96906; MS35216-39	ea	25	2										A1H8
X2	H		5305-059-8592							D	A132 SCREW: 96906; MS35217-54	ea	25	5										A1H9
X2	H									D	A133 WASHER, LOCK: AS A112	ea	50	20										A1H10
X2	H		5310-595-5371							D	A134 WASHER, FLAT: 79807; 310-0046-000	ea	50	30										A1H11
X2	H		5310-209-1074							D	A135 WASHER, FLAT: 79807; 310-0048-000	ea	50	5										A1H12
X2	H		5310-685-1450							D	A136 WASHER, FLAT: 79807; 310-0049-000	ea	50	9										A1H13
X2	H		5310-058-2950							D	A137 WASHER, LOCK: 96906; MS35337-77	ea	50	12										A1H14
X2	H		5310-058-2949							D	A138 WASHER, LOCK: SAME AS A111	ea	50	42										A1H15
X2	H		5310-043-1754							D	A139 WASHER, LOCK: 96906; MS35337-79	ea	50	30										A1H16
X2	H		5310-297-9041							D	A140 WASHER, LOCK: 96906; MS35337-81	ea	50	5										A1H17
X2	H		5310-058-2951							D	A141 WASHER, LOCK: 96906; MS35337-81	ea	50	9										A1H18
X2	H		5310-71-4640							D	A142 NUT, HEX: 96906; MS3569-24	ea	25	12										A1H19
X2	H		5310-685-2791							D	A143 NUT, HEX: 77250; P313-0132-000	ea	25	20										A1H20
X2	H		5310-262-6105							D	A144 NUT, HEX: 77250; P313-0045-000	ea	25	14										A1H21

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
															DS			GS						
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	MODEL 1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)														
X2	H		5310-268-6103							D	A145 NUT, HEX: 96906; MS35649-84	ea	25	5											A1H22
X2	H		5310-176-8097							D	A146 NUT, HEX: 96906; MS35650-104	ea	25	2											A1H23
X2	H		5305-059-8475							D	A147 SCREW: 96906; MS35216-41	ea	25	3											A1H24
X2	H									D	A148 SCREW: 95104; 516-3498-016	ea	25	2											A1H25
X2	H									D	A149 SCREW: 95104; 516-3498-030	ea	25	4											A1H26
X2	H									D	A150 SCREW: 96906; MS35216-52	ea	25	4											A1H27
M	D									D	A151 BRACKET, RIGHT: 95104; 764-8535-002	ea	1	1											A1MP6
M	D									D	A152 BRACET, .LEFT: 95104; 764-8536-002	ea	1	1											A1MP7
X2	H									D	A153 SHAFT, EXTENSION: 95104; 764-8581-001	ea	1	1											A1MP8
X2	H									D	A154 TAB: 95104; 764-8607-001	ea	1	11											A1MP9
P	H									D	A155 ADAPTER, ELECTRICAL: 23266; 01-150	ea	1	1					*	*	2	5	9	A1F2
P	O		5355-767-5008							D	A156 KNOB: 95104; 757-0233-001	ea	1	7					2	2	2	33	42	A1MP10
P	O		5355-937-0800							D	A157 KNOB: 95104; 757-0233-005	ea	1	5					*	2	2	27	35	A1MP11

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL											DS			GS						
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)													
P	O		5355-937-2294							D	A158 KNOB: 95104; 757-0232-002	ea	1	2				*	2	2	13	18		A1MP12
P	O		5355-937-0799							D	A159 KNOB: 95104; 757-0232-004	ea	1	1				*	*	2	9	16		A1MP13
P	O		5355-941-6758							D	A160 KNOB: 95104; 757-0233-004	ea	1	1				*	*	2	9	16		A1M14
P	H		5935-552-7660							D	A161 CONNECTOR, RECEPTACLE, ELECTRICAL: 96906; MS27035-6258	ea	1	3				*	2	2	18	24	2-7	A1J1thru A1J3
P	H		5935-660-5204							D	A162 CONNECTOR, RECEPTACLE, ELECTRICAL: 80058; UG910BU	ea	1	2				*	2	2	20	27	2-5	A1J15, A1J16
P	H		5935-814-7791							D	A163 CONNECTOR, RECEPTACLE, ELECTRICAL: 02660; 126-1057	ea	1	1				*	*	2	5	9	2-5	A1J7
P	H		5935-280-2264							D	A164 CONNECTOR, RECEPTACLE, ELECTRICAL: 71468; DA-15S	ea	1	1				*	*	2	5	9	2-5	A1J8
P	H		5935-815-8596							D	A165 CONNECTOR, RECEPTACLE, ELECTRICAL: 17419; DM9702-61sw	ea	1	6				*	2	2	28	37	2-5	A1J9 thru A1J14
P	H		5930-872-0565							D	A166 SWITCH, ROTARY: 76854; 237966K2	ea	1	1				*	*	2	5	9	2-1	A1S1
P	H		5930-835-4751							D	A167 SWITCH, ROTARY: 76854; 78959H3	ea	1	2				*	2	2	10	16	2-1	A1S2, A1S22
P	H		5930-909-3459							D	A168 SWITCH, ROTARY: 76854; 197794-J8	ea	1	1				*	*	2	5	9	2-1	A1S3

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL											DS			GS						
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, 246 (continued)													
P	H		5930-852-6681							D	A169 SWITCH, TOGGLE: 15605; 7665K4BRTCRLEVNUT	ea	1	1				*	*	2	5	9	2-1	A1S4
P	H		5930-834-6174							D	A170 SWITCH, TOGGLE: 04009; 82984S	ea	1	6				2	2	2	28	37	2-1	A1S5thru A1S10
P	H		5930-627-4018							D	A171 SWITCH, ROTARY: 13499; 259-0852-000	ea	1	1				*	*	2	5	9	2-4	A1S11
P	H		5930-834-6264							D	A172 SWITCH, TOGGLE: 04009; 8299sA1S17T, ALS23	ea	1	5				2	2	2	24	32	2-4	A1S12, A1S13, A1S16,
P		H	5930-937-2913							D	A173 SWITCH, ROTARY: 71590; 259-2344-130	ea	1	1				*	*	2	5	9	2-4	A1S18
P	H									D	A174 SWITCH, TOGGLE: 04009; 35059K	ea	1	1				*	*	2	5	9	2-4	A1S19
P	H		5930-944-2415							D	A175 SWITCH, ROTARY: 76854; 254403-F8	ea	1	1				*	*	2	5	9	2-4	A1S20
P	H		5930-930-7478							D	A176 SWITCH, ROTARY: 13499; 259-1231-000	ea	1	1				*	*	2	5	9	2-4	A1S21
P	H									D	A177 SWITCH, ROTARY: 76854; 593441K1	ea	1	1				*	*	2	5	9	2-4	A1S14
P	H		5930-835-4726							D	A178 SWITCH, ROTARY: 13499; 259-2508-000	ea	1	1				*	*	2	5	9	2-4	A1S15
P	O		6240-155-7857							D	A179 LAMP: 96906; MS25237-328	ea	8	2				2	4	6	250	400	2-4	A1DS1 thru A1DS8
P	O		6210-923-4466							D	A180 LENS, RED: 87034; 6P6	ea		2				*	2	2	10	16		A1E3
P	O		6210-923-4467							D	A181 LENS, AMBER: 87034; 8P6	ea		6				2	2	2	30	40		A1E4

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL											DS			GS						
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)													
F	H		6220-562-5965							D	A182 LAMPHOLDER: 87034; 30380M	ea	1	8				2	2	2	35	45	2-4	A1XDS1 thru A1XDS8
P	H		5920-660-6705							D	A183 FUSEHOLDER: 71400; HKP-H	ea	1	3				*	2	2	18	24	2-4	A1XF1 thru A1XF3
P	O		5920-280-4465							D	A184 FUSE: 81349; F02A250V1AS	ea	1	2				2	2	2	71	100	2-4	A1F1
P	O		5920-280-4960							D	A185 FUSE: 81349; F02A250V2AS	ea	1	2				2	2	4	125	200	2-4	A1F2, A1P3
P	H									D	A186 METER, FREQUENCY: 77221; 290-13220	ea	1	1				*	*	*	4	8	2-4	A1M1
P	H		6625-997-6245							D	A187 METER, VOLT: 77221; 250-13283	ea	1	1				*	*	*	4	8	2-4	A1M2
P	H									D	A188 METER, AMP: 77221; 329-13219	ea	1	1				*	*	*	4	8	2-4	A1M3
P	H		5905-539-4900							D	A189 RESISTOR, VARIABE: 81349; RV4NAYSD503A	ea	1	1				*	*	2	5	9	2-4	A1R6
P	H		5905-539-5000							D	A190 RESISTOR, VARIABLE: 81349; RV4NAYSD251A	ea	1	2				*	2	2	10	16	2-4	A1R18, A1R19
P	H		5905-539-5013							D	A191 RESISTOR, VARIABLE: 81349; RV4NAYSD252A	ea	1	1				*	*	2	5	9	2-4	A1R27
P	H		5950-903-3386							D	A192 TRMMSFUIER, VARIABLE: 58474;116-1199	ea	1	1				*	*	2	5	9	2-4	A1T1
X2H	D										A193 HANDLE: 95104; 764-8528-002	ea	1	2										A1MP15
X2H	D										A194 SUPPORT: 95104; 764-8529-001	ea	1	4										A1MP16

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL											DS			GS			1 YR	DEPOT		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	ALW PER 100 EQUIP. CNTGCY	MAINT ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)													
X2	H									D	A195 PANEL, PRESSED: 95104; 764-8574-002	ea	1	1										A1MP17
A	H	R								D	A196 CABLE ASSMBLY: 95104; 764-8597-001	ea	1	1										A1W3
P	H		5935-804-0802							D	A197 CONNECTOR, PLUG, ELECTRICAL: 77820; PT0618-32SSR	ea	1	1				*	2	2	10	16	2-4	A1W3P3
A	H	R								D	A198 CABLE ASSEMBLY: 95104; 764-8598-001	ea	1	1										A1W4
P	H		5935-804-0802							E	A199 CONNECTOR, PLUG, ELECTRICAL: SAME AS A197	ea	1	1									2-4	A1W4P4
A	H	R								D	A200 CABLE ASSEMBLY: 95104; 764-8599-001	ea	1	1										A1W1
P	H		5935-773-1744							E	A201 CONNECTOR, PUG, ELECTRICAL: 71468; DPX32C2-33S	ea	1	1				*	*	2	5	9	2-4	A1W1P1
P	H		5935-173-5895							E	A202 CONNECTOR, PLUG, ELECTRICAL: 80058; UG260U	ea	1	2				*	2	2	20	27		A1W1P5, A1W1P6
P	H									E	A203 ADAPTER, CONNECTOR: 07418; S139	ea	1	1				*	2	5	9			A1W1P1
P	H		5935-937-2265							E	A204 CONNECTOR, ELECTRICAL: 94375; RF6621-78	ea	1	2				*	2	2	24	32		A1W1F1
X2	H		6145-661-0191							E	A205 CABLE, CAXIAL: 80058; RG59BU	ft	50	9										A1W1W1
2	H		5305-059-8449							E	A206 SCREW: SAME AS A109	ea	25	4										A1W1H1

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE																						
			(2)	MODEL							(3)	(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
															DS			GS						
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)														
X2	H		5310-058-2949							E	A207 WASHER, LOCK: SAME AS A111	ea	50	4											AM1WH2
A	H	R								D	A208 CABLE ASSEMBLY: 95104; 764-8600-001	ea	1	1										A1W2
P	H		5935-773-1735							E	A209 CONNECTOR, PLUG, ELECTRICAL: 71468; DPX2-M16C3S40S-33A-1073	ea	1	1				*	*	2	5	9	2-4	A1W2P2
P	H		5935-660-5204							E	A210 CONNECTOR, RECEPTACLE ELECTRICAL: SAME AS A162	ea	1	2									2-4	A1W2J4, A1W2J5
P	H		5935-937-2265							E	A211 CONNECTOR, ELECTRICAL: SAME AS A204	ea	1	3										A1W2E1
P	H									E	A212 ADAPTER, CONNECTOR: 07418; S138	ea	1	1				*	*	2	5	9		A1W2CP1
X2	H		5305-059-8449							E	A213 SCREW: SAME AS A109	ea	25	4										A1W2H1
X2	H		5310-058-2949							E	A214 WASHER, LOCK: SAME AS A111	ea	50	4										A1W2H2
X2	H		6145-661-0191							E	A215 CABLE, COAXIAL: SAME AS A205	ft	50	14										A1W2W1
P	H		5990-774-6295							D	A216 SYNCHRO: 95104; 563-5048-002	ea	1	1				*	*	*	3	7	2-4	A1B1
X2	H		5310-596-7681							D	A217 WASHER, LOCK: 78189; 1924-02-00-2480	ea	50	1										A1H28
X2	H		5310-800-5281							D	A218 NUT: 77250; P334-0260-000	ea	25	1										A1H29
P	H		5935-173-5895							D	A219 CONNECTOR, PLUG, ELECTRICAL: SAME AS A202	ea	1	2										A1P7, A1P8
X2	H		5305-059-7214							D	A220 SCREW: 96906; MS35200-40	ea	25	4										A1H30

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE										(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
																DS			GS			1 YR ALW PER	DEPOT MAINT		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	MODEL 1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	100 EQUIP. CNTGCY	ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)														
X2	H		5305-720-8367							D	A221 SCREW: 96906; MS35200-43	ea	25	4											A1H31
X2	H		5340-598-0457							D	A222 CLAMP, CABLE: 09922; HP14N	ea	10	3											A1MP18
X2	H		5305-059-8447							D	A223 SCREW: SAME AS A017	ea	25	12											A1H32
X2	H		5305-638-5655							D	A224 SETSCREW: 08664; 335-0011-000	ea	25	27											A1H33
P	H		5910-615-0289							D	A225 CAPACITOR, FIXED, PAPER: 56289; 196P33392S4	ea	1	1				*	*	2	5	9	2-7	A1C5
P	H		5910-553-6413							D	A226 CAPACITOR, FIXED, PAPER: 56289; 196P68392S4	ea	1	1				*	*	2	5	9	2-7	A1C5 ALT
P	H		5910-643-9392							D	A227 CAPACITOR, FIXED, PAPER: 56289; 196P10494S4	ea	1	1				*	*	2	5	9	2-7	A1C5 ALT
P	H		5910-173-7984							D	A228 CAPACITOR, FIXED, PAPER: 56289; 196P12493S4	ea	1	1				*	*	2	5	9	2-7	A1C5 ALT
P	H		5910-649-3121							D	A229 CAPACITOR, FIXED, PAPER: 56289; 196P15493S4	ea	1	1				*	*	2	5	9	2-7	A1C5 ALT
X2	H		5310-263-8462							D	A230 NUT, HEX: 77250; P313-0064-000	ea	25	1											A1H34
X2	H		5940-502-4760							D	A231 TERMINAL LUG: 78189; 2540-20-03	ea	50	10											A1E5
X2	H		5310-595-7154							D	A232 WASHER, LOCK: 78189; 1720-02	ea	50	1											A1H36
X2	H		5340-322-4148							D	A233 RING, LOCKING: 02660; 126-1069	ea	1	1											A1MP19

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE										(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL												DS			GS			1 YR	DEPOT		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	(3) DESCRIPTION		UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	ALW PER 100 EQUIP. CNTGCY	MAINT ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)														
X2	H		5310-801-5300							D	A234 WASHER, FLAT: 79807; 310-0052-000		ea	50	11										A1H37
P	H									D	A235 RESISTOR, FIXED, FILM: 81349; RN60D2051F		ea	1	1				*	*	2	5	9	2-6	A1R8
P	H		5905-902-2887							D	A236 RESISTOR, FIXED, FILM: SAME AS A088		ea	1	3									2-6	A1R4
P	H		5905-722-3774							D	A237 RESISTOR, FIXED, FILM: 81349; RN60D1000F		ea	1	1				*	*	2	5	9		A1R23
P	H		5905-985-5465							D	A238 RESISTOR, FIXED, FILM: SAME AS A082		ea	1	2									2-6	A1R24, A1R25
P	H		5905-190-8881							D	A239 RESISTOR, FIXED, COMP: 81349; RC20GF182J		ea	1	1				*	*	2	5	9	2-6	A1R26
P	H		5905-834-6265							D	A240 RESISTOR, FIXED, FILM: 91637; DCS1-2 95303F		ea	1	1				*	*	2	5	9	2-6	A1R28
P	H		5905-190-8883							D	A241 RESISTOR, FIXED, COMP: SAME AS A063		ea	1	2									2-6	A1R29, A1R30
X2	H									C	A242 CASE, RIVETED: 95104; 764-8583-002		ea	1	1										MP1
X2	H									C	A243 SCREW: 95104; 516-3498-031		ea	25	11										H1
X2	H		5305-059-8446							C	A244 SCREW: 96906; MS35216-11		ea	25	2										H2
A	H	R	6625-926-4404							B	A245 COVER, TEST SET, RADAR CW-752/APM-247: 95104; 516-3089-001		ea	1	1										
X2	H									C	A246 CASE, RIVETED: 95104; 764-8583-001		ea	1	1										MP1

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE																				
													(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
																DS			GS			1 YR	DEPOT		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	MODEL 1	2	3	4	5	6	IND CD	(3) DESCRIPTION		UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	ALW PER 100 EQUIP. CNTGCY	MAINT ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
											AN/APM-247, -246 (continued)															
X2	H		5320-117-6938							C	A247 RIVET: 96906; MS20426AD3-4		ea	25	4										H1
X2	H		5320-117-6949							C	A248 RIVET: 96906; MS20426AD4-4		ea	25	2										H2
X2	H									C	A249 NUT, THUMB: 95104; 764-8554-001		ea	25	1										H3
X2	H		5340-950-6456							C	A250 SPACER, SLEEVE: 13499; 541-6017-002		ea	1	1										H4
X2	H		5305-059-8460							C	A251 SCREW: SAME AS A130		ea	25	1										H5
X2	H		5310-685-7538							C	A252 WASHER, FLAT: 79807; 310-0447-000		ea	50	1										H6
X2	H		5320-117-6830							C	A253 RIVET: 96906; MS20470AD4-8		ea	25	1										H7
X2	H									C	A254 CHAIN, BEAD: 70892: 015-0259-000		ea	1	1										MP2
X2	H		5305-0594-8447							C	A255 SCREW: SAME AS A017		ea	25	1										H8
X2	H		5310-058-2949							C	A256 WASHER, LOCK: SAME AS A111		ea	50	1										H9
X2	H									C	A257 WASHER, LOCK: SAME AS A112		ea	50	1										H10
X2	H		5310-167-1376							C	A258 NUT, HEX: 96906; MS35649-44		ea	25	1										H11
X2	H									C	A259 COVER, ASSEMBLY: 95104; 764-8549-002		ea	1	1										A1
X2	H									D	A260 COVER: 95104; 764-8549-001		ea	1	1										A1MP1
P	H		5325-937-0796							D	A261 FASTENER: 71286; 26S37-3		ea	1	2				*	2	2	10	16		A1H1

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE										(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL												DS			GS						
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD		(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP	(a) FIGURE NUMBER	(b) ITEM OR NUMBER
												AN/APM-247, -246 (continued)														
AH	O	R	5995-926-0820							B	A262	CABLE ASSEMBLY CX-10029/APM-247: 95104; 516-3090-001	ea	1	1											
P	H		5935-813-4716							C	A263	CONNECTOR, PLUG, ELECTRICAL: 96906; MS3106R10SL3S	ea	1	1				*	*	2	5	9		P1
X2	H									C	A264	CABLE, POWER: 24342; 30SJ18GY	ft	50	6										W1
X2	H									C	A265	CLAMP, CABLE: 96906; MS3057-3	ea	10	1										MP1
A	H	R	5995-926-3330							B	A266	CABLE ASSEMBLY CX-11555/APM-247: 95104; 764-8586-001	ea	1	1											
P	H		5935-729-8683							C	A267	CONNECTOR, PLUG, ELECTRICAL: 09922; BT06AC14-19S	ea	1	1				*	*	2	5	9	2-4	P1
P	H		5935-280-2266							C	A268	CONNECTOR, PLUG, ELECTRICAL: 71468; DA-15P	ea	1	1				*	*	2	5	9	2-4	P2
X2	H		5935-396-0040							C	A269	SHELL, CONNECTOR: 71468; JSDA19678-1	ea	1	1										E1
X2	H		5305-059-8447							C	A270	SCREW: SAME AS A017	ea	25	2										H1
X2	H		5310-058-2949							C	A271	WASHER, LOCK: 79807; 310-0278-000	ea	50	2										H2
X2	H		5310-685-2791							C	A272	NUT, HEX: SAME AS A143	ea	25	2										H3
A	H	R	5995-933-5385							B	A273	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL CX-10242/APM-247: 13499; 516-3072-003	ea	1	1										

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
			(2)	MODEL							(3)					DS			GS			1 YR	DEPOT		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	ALW PER 100 EQUIP. CNTGCY	MAINT ALW. PER 100 EQUIP	(A) FIGURE NUMBER	(B) ITEM OR NUMBER
											AN/APM-247, -246 (continued)														
A	H	R	5995-931-1047							B	A273A CABLE ASSEMBLY, RADIO-FREQUENCY CG-1464/U: 95104; 516-3085-001	ea	1	6											
P	H		5935-258-7429							B	A273B ADAPTER: 80058; UG-201A/U	ea	1	2				*	*	2	6	10		
P	H		5935-149-3534							B	A273C ADAPTER: 80058; UG-273/U	ea	1	3				*	2	2	8	12		
											TEST SET, RADAR AN/APM-246														
			6625-999-6367							A	A274 TEST SET, RADAR AN/APM-246 95104; 522-5729-014	ea												
P	H		6625-943-2067							B	A275 CASE, TEST SET CY-4475/APM-246: 95104; 516-3067-001	ea	1	1				*	*	*	3	5		
X1	H									C	A276 CASE, PREFLIGHT: 95104; 764-8584-001	ea	1	1										MP1
X2	H		5230-117-6816							C	A277 RIVET: 96906; MS20470AD3-5	ea	25	4										H1
X2	H		5320-754-0822							C	A278 RIVET: 96906; MS20470AD4-5	ea	25	2										H2
X2	H		5305-059-8460							C	A279 SCREW: 96906; MS35216-25	ea	25	1										H3
X2	H		5340-950-6456							C	A280 SLEEVE, SPACER: 95104; 541-6017-002	ea	1	1										MP2
X2	H		5310-685-7528							C	A281 WASHER: 79807; 310-0447-000	ea	50	1										H4
X2	H									C	A282 NUT: 95104; 764-8554-001	ea	25	1										H5
A	H	R	6625-943-2058							B	A283 WAVEGUIDE ASSEMBLY CG-3098/APM-246: 95104; 516-3074-001	ea	1	1										

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	MODEL 1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	DS (A) 1-20	DS (B) 21-50	DS (C) 51-100	GS (A) 1-20	GS (B) 21-50	GS (C) 51-100	1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP	(A) FIGURE NUMBER	(B) ITEM OR NUMBER
											AN/APM-247, -246 (continued)														
X1	H									C	A298 PROTRACTOR: 95104; 764-8538-001	ea	1	1										A1
X1	H									C	A299 BEAD, PROTRACTOR: 57163; PR1224-18	ea	1	1										A1MP1
X2	H		5305-059-8449							C	A300 SCREW: 96906; MS51957-15	ea	25	4										H1
X2	H		5305-680-5510							C	A301 SCREW: 96906; MS35216-2	ea	25	2						H2				
A	H	R	5995-926-0825							B	A302 CABLE ASSEMBLY CX-10030/AFM-246: 95104; 516-3073-001	ea	1	1										
P	H		5935-729-8683							C	A303 CONNECTOR, PLUG, ELECTRICAL: 09922; BT06AC14-19S	ea	1	1				*	*	2	5	9		P1
P	H		5935-814-9624							C	A304 CONNECTOR, PLUG, ELECTRICAL: 77820; PT01A14-19PSR	ea	1	1				*	*	2	5	9		P2
A	H	R	5995-926-0821							B	A305 CABLE ASSEMBLY CX-10031/APM-246: 95104; 516-3072-001	ea	1	1										
P	H		5935-280-2264							C	A306 CONNECTOR, PLUG, ELECTRICAL: 71458; DA15S	ea	1	1				*	*	2	5	9		P1
P	H		5935-280-2266							C	A307 CONNECTOR, PLUG, ELECTRICAL: 71468; DA15P	ea	1	1				*	2	2	10	16		P2
X2	H		5935-396-0040							C	A308 SHELL, CONNECTER: 71468; JSDA19678-1	ea	1	2										MP1
X2	H									C	A309 SCREW: 71468; 20419	ea	25	2										H1
X2	H		5305-059-8447							C	A310 SCREW: SAME AS A290	ea	25	2										H2

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE										(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	MODEL 1	2	3	4	5	6	IND CD	(3) DESCRIPTION		UNIT OF ISSUE	IN UN PK	INC IN UNIT	DS (A) 1-20	DS (B) 21-50	DS (C) 51-100	GS (A) 1-20	GS (B) 21-50	GS (C) 51-100	1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP	(A) FIGURE NUMBER	(B) ITEM OR NUMBER
											AN/AFN-247, -246 (continued)															
P	H									C	A284	WAVEGUIDE: 11870; J4768	ea	1	1				*	*	*	3	5		W1
X2	H									C	A285	PLATE, NUT: 95104; 764-8592-001	ea	1	1										MP1
X2	H									C	A286	SCREW, THUMB: 95104; 76-8593-001	ea	10	4										H1
X2	H									C	A287	CHAIN, BEAD: 70892; 015-0259-000	ea	10	5										MP2
X2	H		5305-638-8030							C	A288	SCREW: 96906; MS35216-4	ea	25	4										H2
X2	H		5310-595-5421							C	A289	WASHER: 79807; 310-6320-000	ea	50	4										H3
X2	H		5305-059-8447							C	A290	SCREW: 96906; MS51957-13	ea	25	4										H4
X2	H									C	A291	WASHER: 79807; COML-281X-024	ea	50	4										H5
X2	H		5305-059-8460							C	A292	SCREW: SAME AS A279	ea	25	1										H6
X2	H		5310-262-6105							C	A293	NUT: 77250; P313-0045-000	ea	25	1										H7
X2	H		5310-595-5371							C	A294	WASHER: 79807; 310-0046-000	ea	50	1										H8
X2	H		5310-271-7446							C	A295	WASHER, LOCK: 96906; MS35337-79	ea	50	1										H9
P	H		5210-999-1432							B	A296	SQUARE, COMBINATION MX-6613/APA-246: 13499; 516-3073-001	ea	1	1				*	*	*	2	4		
X1	D									C	A297	BLADE: 95104; 764-8537-001	ea	1	1										MP1

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
			(2)	MODEL							(3)				DS			GS			1 YR ALW PER 100	DEPOT MAINT ALW.		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1 20	(B) 21 50	(C) 51 100	(A) 1 20	(B) 21 50	(C) 51 100	EQUIP. CNTGCY	PER 100 EQUIP	(A) FIGURE NUMBER	(B) ITEM OR NUMBER
											AN/APM-247, -246 (continued)													
P	H		5935-937-2266							C	A322 CONNECTOR, PLUG, ELECTRICAL: 94375; RF6621-23	ea	1	6				2	2	2	45	70		P3
P	H									C	A323 ADAPTER, CONNECTOR: 07418; S138	ea	1	2				*	2	2	10	16		CP1
X2	H									C	A324 CABLE, COAXIAL: 80058; RG-179/U	ft	24											W1
X2	H		5305-059-8447							C	A325 SCREW: SAME AS A300	ea	25	8										H1
X2	H		5310-058-2949							C	A326 WASHER, LOCK: 79807; 310-0278-000	ea	50	8										H2
X2	H		5340-141-6943							C	A327 BUSHING: 88044; AN3420-16	ea	10	2										MP1
X2	H		5975-513-2263							C	A328 BUSHING: 88044; AN3420-20	ea	10	2										MP2
A	H	R	5995-926-0826							B	A329 CABLE ASSEMBLY CX-10035/APM-246: 95104; 516-3068-001	ea	1	1										
P	H									C	A330 CONNECTOR, PLUG, ELECTRICAL: 71468; DPX32C2-33S	ea	1	1				*	*	2	5	9		P1
P	H		5935-578-9825							C	A331 CONNECTOR, PLUG, ELECTRICAL: 71468; DPX25C3-34P	ea	1	1				*	2	2	10	16		P2
P	H									C	A332 ADAPTER, CONNECTOR: 07148 S139	ea	1	2				*	2	2	10	16		CP1, CP2
P	H		5935-937-2266							C	A333 CONNECTOR, PLUG, ELECTRICAL: SAME AS A322	ea	1	4										P3 thru P6

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE								(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
				MODEL										DS			GS			1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP		
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100			(A) FIGURE NUMBER	(B) ITEM OR NUMBER
											AN/APM-247, -246 (continued)													
X2	H		5310-058-2949							C	A311 SCREW: 79807; 310-0278-000	ea	50	2										H3
X2	H		5310-685-2791							C	A312 NUT, HEX: 77250; P313-0132-000	ea	25	2										H4
A	H	R	5995-926-0822							B	A313 CABLE ASSEMBLY CX-10032/AFM-246: 95104; 516-3070-001	ea	1	1										
P	H		5935-804-0802							C	A314 CONNECTOR, PLUG, ELECTRICAL: 77820; PT01A18-32PSR	ea	1	1				*	2	2	10	16		P1
P	H		5935-805-2267							C	A315 CONNECTOR, PLUG, ELECTRICAL: 77820; PT01A18-32PSR	ea	1	1				*	2	2	10	16		P2
A	H	R	5995-926-0823							B	A316 CABLE ASSEMBLY CX-10033/APM-246: 95104; 516-3071-001	ea	1	1										
P	H		5935-804-0802							C	A317 CONNECTOR, PLUG, ELECTRICAL: SAME AS A314	ea	1	1										P1
P	H		5935-805-2267							C	A318 CONNECTOR, PLUG, ELECTRICAL: SAME AS A315	ea	1	1										P2
A	H	R	5995-926-0824							B	A319 CABLE ASSEMBLY CX-10034/APM-246: 95104; 516-3069-001	ea	1	1										
P	H									C	A320 CONNECTOR, PLUG, ELECTRICAL: 71468; DPX2M16C3S40S33AAAAABAAJ	ea	1	1				*	*	2	5	9		P1
P	H									C	A321 CONNECTOR, PLUG, ELECTRICAL: 71468; DPX2M16C3P40P34AAAAABAAJ	ea	1	1				*	2	2	10	16		P2

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE								(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
			(2)	MODEL					IND	(3)					DS			GS		1 YR ALW PER 100	DEPOT MAINT ALW.		
(A) SOURCE	(B) MAINT	(C) REC	FEDERAL STOCK	1	2	3	4	5	6	CD	DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	EQUIP. CNTGCY	PER 100 EQUIP	(A) FIGURE NUMBER	(B) ITEM OR NUMBER
CD	CD	CODE	NUMBER							CD		ISSUE	PK	UNIT										
											AN/APM-247, -246 (continued)													
X2	H									C	A348 SUPPORT: 95104; 764-8529-001	ea	1	4									MP4
X2	H									C	A349 HANDLE: 95104; 764-8528-001	ea	1	2									MP5
X2	H		6135-990-2831							C	A350 BATTERY: 13499 221-0045-010	ea	1	4								2-3	B1 thru B4
P	H		6620-562-5965							C	A351 LAMPHOLDER: 87034; 30380M	ea	1	3				*	2	2	18	24	2-1	XDS1, XDS2, XDS3
P	O		6210-923-4466							C	A352 LENS, RED: 87034; 6P6	ea	1	2				2	2	2	10	16		F1, F2
P	O		6210-923-4467							C	A353 LENS, AMBER: 87034; 8P6	ea		1				*	2	2	5	9		F3
P	H		5930-504-6223							C	A354 SWITCH, PUSH BUTTON: 96906; MS25089-4C	ea	1	1				*	2	2	8	11		S6
P	H		5930-835-4739							C	A355 SWITCH, ROTARY: 76854; 239014K3	ea	1	1				*	2	2	8	11	2-1	S5
P	H		5930-835-4730							C	A357 SWITCH, ROTARY ; 13499; 259-2508-020	ea	1	2				*	2	2	10	16	2-1	S3, S4
P	H		5930-835-4746							C	A358 JACK, TIP: 96906;	ea	1	1				*	2	2	7	11	2-1	S1
P	H		5930-552-7613							C	A359 MS16108-1A	ea	1	10				*	2	2	10	16	2-1	J7 thru J16
P	H		5935-280-2266								CONNECTOR, PLUG, ELECTRICAL: SAME AS A307	ea	1	1									2-2	P6
P	H		5935-617-5388							C	A360 CONNECTOR, RECEPTACLE, ELECTRICAL: 77820; PT02A14-19P	ea	1	1				*	*	2	5	9	2-2	P6

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
(A) SOURCE	(B) MAINT	(C) REC	(2) FEDERAL STOCK	MODEL 1	2	3	4	5	6	IND	(3) DESCRIPTION	UNIT OF	IN UN	INC IN		DS			GS		1 YR ALW PER 100	DEPOT MAINT ALW.	(A)	(B)
															(A)	(B)	(C)	(A)	(B)	(C)	EQUIP.	PER 100	FIGURE	ITEM OR
CD	CD	CODE	NUMBER							CD		ISSUE	PK	UNIT	1-20	21-50	51-100	1-20	21-50	51-100	CNTGCY	EQUIP	NUMBER	NUMBER
											AN/APM-247, -246 (continued)													
X2	H		5305-059-8449							C	A334 SCREW: SAME AS A300	ea	25	8										H1
X2	H		5310-058-2949							C	A335 WASHER, LOCK: SAME AS A326	ea	50	8										H2
X2	H									C	A336 CABLE, COAXIAL: SAME AS A324	ft		22										W1
X2	H		5340-141-6944							C	A337 BUSHING: 88044; AN3420-8	ea	10	2										MP1
X2	H		5340-141-6942							C	A338 BUSHING: 88044; AN3420-10	ea	10	2										MP2
X2	H		5340-598-5416							C	A339 BUSHING: 88044; AN3420-12	ea	10	2										MP3
A	H	R	6625-926-4402							B	A340 TEST SET, RADAR, PREFLIGHT TS-2154/APM-246: 95104; 516-3076-001	ea	1	1										
X1	H									C	A341 PANEL, FRONT: 95104; 764-8522-001	ea	1	1									2-1	MP1
X1	H									C	A342 PANEL, REAR: 95104; 764-8526-002	ea	1	1										MP2
M	D									C	A343 FRAME, PANEL: 95104; 764-8523-002	ea	1	1										MP3
M	D									C	A344 PLATE, ASSEMBLY: 95104; 764-8527-002	ea	1	1										A1
M	D									D	A345 PLATE: 95104; 764-8527-001	ea	1	1										A1MP1
X2	H									D	A346 CLIP, BATTERY: 91833; 173	ea	1	4										A1MP2
X2	H		5320-117-6949							D	A347 RIVET: 96906; MS20426AD4-4	ea	25	8										A1H1

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
			(2)	MODEL							(3)				DS			GS						
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	FEDERAL STOCK NUMBER	1	2	3	4	5	6	IND CD	DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	(A) 1-20	(B) 21-50	(C) 51-100	(A) 1-20	(B) 21-50	(C) 51-100	1 YR ALW PER 100 EQUIP. CNTGCY	DEPOT MAINT ALW. PER 100 EQUIP	(A) FIGURE NUMBER	(B) ITEM OR NUMBER
											AN/APM-247, -246 (continued)													
P	H		5935-648-2316							C	A361 CONNECTOR, RECEPTACLE, ELECTRICAL: 77820; PT02A18-32P	ea	1	2				*	2	2	10	16	2-2	J3, J4
P	H									C	A362 CONNECTOR, PLUG, ELECTRICAL: SAME AS A322	ea	1	5										CP1 thru CP5
P	H		5306-937-0932							C	A363 CLIP: 71468; CA20418-4	ea	1	2				*	2	2	10	16		MP6
X2	H		5340-663-2907							C	A364 CLAMP, CABLE: 09922: HP7N	ea	10	2										MP7
P	O		5355-908-4763							C	A365 KNOB: 95104: 757-030-005	ea	1	4				*	2	2	20	2		MP8
X2	H		5305-059-7214							C	A366 SCREW: 96906; MS35200-40	ea	25	4										H1
X2	H		5305-720-8367							C	A367 SCREW: 96906: MS35200-43	ea	25	4										H2
X2	H										A368 SCREW: 95104; 516-3498-030	ea	25	8										H3
X2	H		5305-059-8460							C	A369 SCREW: SAME AS A279	ea	25	4										H4
X2	H		5205-059-8449							C	A370 SCREW: SAME AS A300	ea	25	22										H5
X2	H		5310-685-2791							C	A371 NUT, HEX: SAME ASA312	ea	25	24										H6
X2	H		5310-595-5371							C	A372 WASHER, FLAT: 79807 310-0046-000	ea	50	12										H7
X2	H									C	A373 WASHER, FLAT: SAME AS A291	ea	50	24										H8
X2	H		5310-042-9609							C	A374 WASHER, LOCK: 96906; MS35338-78	ea	50	24										H9

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE								(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8) 1 YR ALW PER 100 EQUIP.	(9) DEPOT MAINT ALW. PER 100 EQUIP	(10) ILLUSTRATIONS	
(A) SOURCE CD	(B) MAINT CD	(C) REC CODE	(2) FEDERAL STOCK NUMBER	MODEL 1	2	3	4	5	6	IND CD	(3) DESCRIPTION	UNIT OF ISSUE	IN UN PK	INC IN UNIT	DS (A) 1-20	DS (B) 21-50	DS (C) 51-100	GS (A) 1-20	GS (B) 21-50	GS (C) 51-100			(A) FIGURE NUMBER	(B) ITEM OR NUMBER
											AN/APM-247, -246 (continued)													
P	H									C	A375 CONNECTOR, PLUG, ELECTRICAL: SAME AS A321	ea	1	1									2-1	P2
P	H		5935-578-9825							C	A376 CONNECTOR, PLUG, ELECTRICAL: SAME AS A331	ea	1	1									2-3	P1
X2	H		5320-754-0822							C	A377 RIVET: SAME AS A278	ea	25	2										H10
X2	H		5340-664-2635							C	A378 CLAMP, CABLE: 09922; HP2N	ea	10	3										MP9
X2	H									C	A379 SCREW: 95104; 556-3012-029	ea	25	8										H11
X2	H									C	A380 SCREW: 95104; 556-3012-015	ea	25	2										H12
X2	H									C	A381 SKIRT, KNOB: 13499; 757-0220-002	ea	1	5										MP10
P	O		5355-937-0798							C	A382 KNOB: 13499; 757-0228-006	ea		1				*	2	2	5	9		MP11
X2	H		5305-727-4599							C	A383 SCREW: 08664; 328-0473-000	ea	25	5										H13
P	O		6240-647-0774							C	A384 LAMP: 96906; MS25237-328	ea	1	3				2	2	5	120	150	2-1	DS1, DS2, DS3
P	H		5930-835-4782							C	A385 SWITCH, ROTARY: 13499; 259-2508-040	ea	1	1				*	2	2	7	11	2-1	S2
M	D									C	A386 PLATE: 95104; 764-8608-001	ea	1	1										MP12
X2	H									C	A387 CABLE, COAXIAL: SAME AS A324	ft		8										W1
P	H		5325-174-5317							C	A388 GROMMET, RUBBER: 96906; MS35489-4	ea	10	1				*	*	2	5	9		MP13

(1)			REPAIRS PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE									(4)	(5)	(6)	(7) 30 DAY MAINT. ALW.						(8)	(9)	(10) ILLUSTRATIONS	
			(2)	MODEL						(3)					DS			GS			1 YR ALW PER	DEPOT MAINT		
(A) SOURCE	(B) MAINT	(C) REC	FEDERAL STOCK						IND	DESCRIPTION		UNIT OF	IN UN	INC IN	(A)	(B)	(C)	(A)	(B)	(C)	100 EQUIP.	ALW. PER 100	(A) FIGURE	(B) ITEM OR
CD	CD	CODE	NUMBER	1	2	3	4	5	6	CD		ISSUE	PK	UNIT	1-20	21-50	51-100	1-20	21-50	51-100	CNTGCY	EQUIP	NUMBER	NUMBER
											AN/APM-247, -246 (continued)													
X2	H									C	A389 CLIP: 76545: 85	ea	1	1										MP14

Section III. FEDERAL STOCK NUMBER INDEX

STOCK NO.	FIGURE NO.	ITEM NO. REF. SYMBOL
5905-063-8405	2-6	A1A1R61, A1A1R62
5905-082-0715	2-6	A1A1R54, A1A1R57
5905-171-1985	2-6	A1A1R3
5905-171-1997	2-6	A1A1R80
5905-171-2005	2-6	A1A1R5, A1A1R12
5905-185-6575	2-6	A1A1R13
A1A1R51		
5905-186-3008	2-6	A1A1R2
5905-190-8881	2-6	A1R26
5905-190-8883	2-6	A1A1R22, A1A1R23,
		A1A1R73, A1A1R74,
		A1A1R75
A1A1R64		
		A1R29, A1R30
A1A1R59		
5905-192-3971	2-6	A1A1R48
A1A1R40,		
5905-192-3982	2-6	A1A1R16, A1A1R17,
		A1A1R18
A1A1R39		
5905-192-3987	2-6	A1A1R7, A1A1R14,
		A1A1R27
5905-195-6502	2-6	A1A1R8, A1A1R10,
A1A1R68,		
		A1A1R79
5905-195-6799	2-6	A1A1R1
5905-225-9387	2-6	A1A1R53
5905-988-2307	2-6	
5905-245-0023	2-6	A1A1R4
5905-245-0712	2-6	A1A1R20
A1A1R45,		
5905-249-4248	2-6	A1A1R9
5905-279-1757	2-6	A1A1R66
A1A1R58		
5905-279-1876	2-6	A1A1R6
5905-279-3504	2-6	A1A1R15, A1A1R65
5905-279-3515	2-6	A1A1R47
5905-279-3521	2-6	A1A1R60
5905-295-3410	2-6	A1A1R78
5905-295-5796	2-6	A1R2
5905-299-2002	2-6	A1A1R21
5905-299-2012	2-6	A1A1R19
5905-539-4900	2-4	A1R6
5905-539-5000	2-4	A1R18, A1R19
5905-539-5013	2-4	A1R27
5905-577-3888	2-6	A1R1
5905-665-6051	2-6	A1A1R81
5905-665-6187	2-6	A1R3
5905-702-8755	2-6	A1AR25
5905-814-3815	2-6	A1A1R43,
5905-834-6263	2-6	A1A1R44
5905-834-6265	2-6	A1R28
5905-843-6696	2-6	A1A1R42
5905-844-1598	2-6	A1A1R63,
5905-852-6571	2-6	A1A1R50,
5905-892-6475	2-6	A1A1R38,
		A1A1R52
5905-902-2887	2-6	A1A1R37,
5905-958-6715	2-6	A1R21, A1R22
5905-985-5465	2-6	A1A1R67,
		A1R24, A1R25
5905-985-5954	2-6	A1A1R28 thru
		A1A1R34
		A1A1R71
5905-988-2317	2-6	A1A1R70
5905-993-1358	2-6	A1A1R24,
		A1A1R46
5905-993-6974	2-6	A1A1R49,
5910-043-1994	2-7	C2 thru C6
5910-060-1194	2-7	C7
5910-087-3468	2-7	C24
5910-088-0281	2-7	C9
5910-112-7312	2-7	A1C1
5910-173-7984	2-7	A1C5 ALT
5910-553-6413	2-7	A1C5 ALT
5910-615-0289	2-7	A1C5
5910-643-9392	2-7	A1C5 ALT

Section III. FEDERAL STOCK NUMBER INDEX

STOCK NO.	FIGURE NO.	ITEM NO. REF. SYMBOL
5910-644-3590	2-7	C20, C21
5910-649-1858	2-7	ALA2C6
5910-649-3121	2-7	A1C5 ALT
5910-655-0099	2-7	C14
5910-702-5406	2-5	A1A1C1
5910-726-1406	2-7	C10, C11, C12
5910-727-7049	2-7	C17
5910-773-1725	2-7	C13
5910-800-2866	2-7	C25
5910-811-5081	2-7	C8
5910-812-8598	2-7	C18, C19
5910-815-5650	2-5	A1A1J1 thru A1A1J7
5910-848-8601	2-7	C15, C16
5910-853-1743	2-7	C22, C23
5920-280-4465	2-4	A1F1
5920-280-4960	2-4	A1F2, A1F3
5920-660-6705	2-4	A1XF1, A1XF2, A1XF3
5930-504-6223	2-1	S6
5930-627-4018	2-4	A1S11
5930-834-6174	2-1	A1S5 thru A1S10
5930-834-6264	2-4	A1S12, A1S13, A1S16, A1S17, A1S23
5930-835-4726	2-4	A1S15
5930-835-4730	2-1	S3, S4
5930-835-4739	2-1	S5
5930-835-4746	2-1	S1
5930-835-4751	2-1	A1S2, A1S22
5930-835-4782	2-1	S2
5930-852-6681	2-1	A1S4
5930-872-0565	2-1	A1S1
5930-909-3459	2-1	A1S3
5930-930-7478	2-4	A1S21
5930-937-2913	2-4	A1S18
5930-944 -2415	2-4	A1S20
5935-280-2264	2-5	A1J8
5935-280-2266	2-4	P2
	2-2	P6
5935-552-7613	2-1	J7 thru J16
5935-552-7660	2-7	A1J1, A1J2, A1J3
5935-578-9825	2-3	P1
5935-617-5388	2-2	J5
5935-648-2316	2-2	J3, J4
5935-660-5204	2-5	ALJ15, A1J16
	2-4	A1W2J4, A1W2J5
5935-726-0708	2-4	A1J17
5935-729-8683	2-4	P1
5935-773-1735	2-4	A1W2P2
5935-773-1744	2-4	A1W1P1
5935-804-0802	2-4	A1W3P3, A1W4P4
5935-814-7791	2-5	A1J7
5935-815-8596	2-5	A1J9 thru A1J14
5950-659-8167	2-7	A1A1L3, A1A1L4
5950-777-4974	2-5	A1A1T1
5950-778-8624	2-5	A1T3
5950-819-1990	2-7	L1
5950-855-0469	2-7	A1A1L2
5950-903-3386	2-4	A1T1
5950-907-8302	2-5	A1T2, A1T4
5960-556-2091	2-7	A1A1CR15
5960-617-4347	2-7	CR12, CR13, CR14, CR16
5960-774-6362	2-7	CR5, CR6

STOCK NO.	FIGURE NO.	ITEM NO. REF. SYMBOL	STOCK NO.	FIGURE NO.	ITEM NO. REF. SYMBOL
5960-821-2309	2-7	CR10, CR11			
5960-837-1757	2-7	A1A1Q3			
5960-851-8296	2-7	CR9			
5960-878-6521	2-7	A1A1Q2			
5961-851-5926	2-7	CR7, CR8			
5961-855-1551	2-6	A1A1Q4			
5961-894-0684	2-7	CR4			
5961-972-9395	2-7	CR1, CR2, CR3			
5900-774-6295	2-4	A1B1			
6135-990-2831	2-3	B1 thru B4			
6220-562-5965	2-4	A1XDS1 thru A1XDS8			
6240-155-7857	2-4	A1DS1 thru A1DS8			
6240-647-0774	2-1	DS1, DS2, DS3			
6620-562-5965	2-1	XDS1, XDS2, XDS3			
6625-997-6245	2-4	A1M2			

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:
KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:
To be distributed in accordance with DA Form 12-36 requirements, Unclassified requirements for Direct and General Support Maintenance literature for the U-8D and U-8F aircraft.

☆U.S. Government Printing Office 1967-255-599/7780A

TEAR ALONG PERFORATED LINE

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO	TABLE NO.

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.—IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

PIN:020997-000