TECHNICAL MANUAL

GENERAL SUPPORT AND DEPOT MAINTENANCE MANUAL

TEST SET, RADIO AN/ARM-63
(AIRCRAFT RADIO CORP. MODEL BTK-35A)
(NSN 6625-00-868-8323)

This copy is a reprint which includes current pages from Changes 1 through 5.

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HEADQUARTERS
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CHAPTER 1
FUNCTIONING

NOTE

Test Set, Radio AN/ARM-63 procured on Contract DAAB05-67-C-1648, is similar to Test Set, Radio AN/ARM-63 (Aircraft Radio Corp. Model BTK-35A) except for the changes indicated on figures 2.1 and 5.1. This manual applies to both the AN/ARM-63 procured on Contract DAAB05-67-C-1648 and AN/ARM-63 (Aircraft Radio Corp. Model BTK-35A) unless otherwise specified.

Section I. INTRODUCTION

1. Scope

a. This manual covers general support and depot maintenance for Test Set, Radio AN/ARM-63 (Aircraft Radio Corp. Model BTK-35A). It includes instructions appropriate to general support and depot maintenance for troubleshooting, testing, and repairing and replacing specified maintenance parts. It also lists the required tools, materials, and test equipment.

b. The complete technical manual for this equipment includes one other publication: TM 11-6625-556-12.

c. You can improve this manual by recommending improvements using DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 (Test) located in the back of the manual. To use the form in the back of the manual, simply tear it out, fill it out as shown on the sample in figure 1-1, fold it where shown, and drop it in the mail. A reply will be furnished direct to you.

Note

For applicable forms and records, see paragraph 2.1, TM 11-6625-556-12.

2. Indexes of Publications

a. DA Pam 310-4. Refer to DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are Modification Work Orders (MWO's) pertaining to the equipment.

Section II UNIT FUNCTIONING

3. Antenna Position Simulator

(fig. 1)

The antenna position simulator provides a calibrated radiofrequency (RF) electromagnetic field for testing automatic direction finder (adf) antennas and receivers.

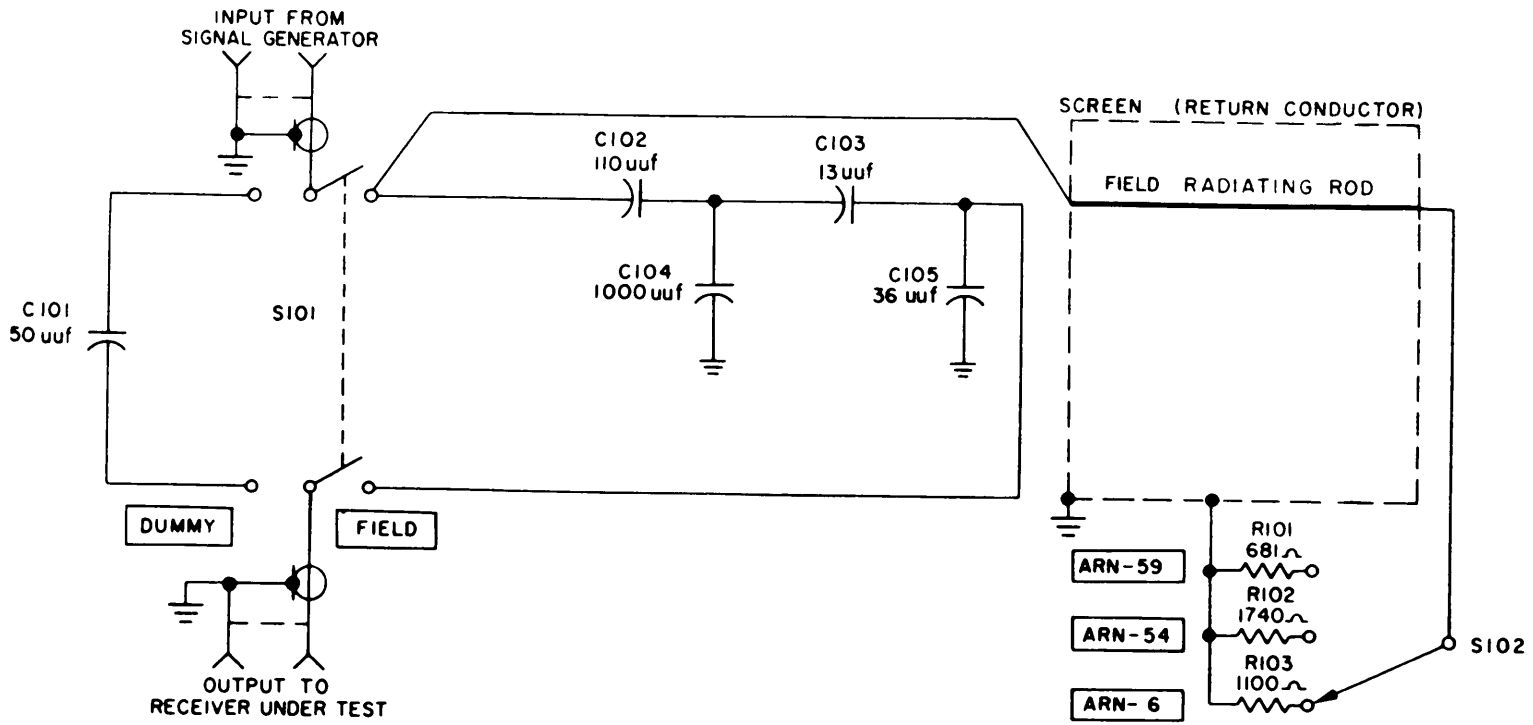


Figure 1. Antenna position simulator, schematic diagram.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS

SOMETHING WRONG WITH THIS MANUAL?

THEN. . .JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)
Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703

DATE 10 July 1975

PUBLICATION NUMBER	DATE	TITLE
TM 11-5840-340-12	23 Jan 74	Radar Set AN/MPQ-76

BE EXACT. . .PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.	
2-25	2-28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°. REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.
3-10	3-3		3-1	Item 5, Function column. Change "2 db" to "3db." REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.
5-6	5-8			Add new step f.1 to read, "Replace cover plate removed in step e.1, above." REASON: To replace the cover plate.
		F03		Zone C 3. On J1-2, change "+24 VDC to "+5 VDC." REASON: This is the output line of the 5 VDC power supply. + 24 VDC is the input voltage.

TEAR ALONG DOTTED LINE

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER	SIGN HERE:
SSG I. M. DeSpiritof 999-1776	SSG I.M. DeSpiritof

DA FORM 1 AUG 74 2028-2 (TEST) P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR MANUAL "FIND," MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

BTK—35A—25—23

Figure 1-1. DA Form 2028-2 (TEST), sample form.

a. The RF power is coupled to the antenna position simulator from a separate signal source and applied to the field radiating rod through the two-position DUMMY-FIELD switch.

b. In the FIELD position, the DUMMY-FIELD switch connects the field radiating rod to ground through a calibrated resistive load; the rod then acts as a transmitting antenna and radiates an electromagnetic field having a field strength (in microvolts/meter) numerically equal to one-tenth the applied RF signal strength (in microvolt). Selector switch S102 selects the proper resistive load (resistor R101, R102, or R103) for the radio set under test (AN/ARN-6, AN/ARN-54, or AN/ARN-59). The loop antenna under test picks up the radiated signal and couples it to the receiver through a coaxial cable. The RF signal is attenuated in the antenna position simulator by a voltage-divider network consisting of capacitors C102, C103, C104, and C105, and is applied to the antenna input jack of the receiver under test to simulate an effective length of one-quarter meter antenna.

c. In the DUMMY position, the DUMMY-FIELD switch connects the signal generator to the receiver under test through capacitor C101. In this mode, the input RF signal is coupled direct through the antenna position simulator to the antenna input jack of the receiver under test. No radiation is involved.

4. Test Set Functioning

The test set provides the control and interconnection point for the equipment under test and for additional test equipment used. The test set is entirely passive; it generates no signals. The major circuits comprising the test set are power, radio frequency and audio, tuning and control, and metering and indicating circuits. The power circuits (para 5) route direct current (dc) and alternating current (ac) to the test equipment under test. The RF and audio circuits (para 6) provide RF and audio input and output routing to and from the equipment under test. The tuning and control circuits (para 7) provide frequency selection and associated control circuitry for equipment under test. The metering and indicating circuits (para 8) provide measuring and indicating devices for checking and monitoring the operation of equipment under test.

5. Power Circuits

(fig. 2)

The power circuits receive 98 volts dc and 115 volts, 400 cycles per second (cps), ac power from the input sources and route it through the test set and the equipment under test. When power is applied, circuit breakers CB1 and CB2 provide current overload protection. The dc and ac voltage is indicated by lighting of POWER DC indicator DS23 and POWER 400 ~ indicator DS24 connected across the power sources.

a. Dc voltage (98 volts dc) is monitored by multimeter M3 (METER switch S24 in the LV 0–30V position). Direct current, flow is monitored by multimeter M3 through the 0–5-ampere shunt and the 0-30 ampere shunt resistors with METER switch S24 in the LV 0-5A and LV 0–30A positions, respectively. Dc power is supplied to indicator lamps DS1 through DS15, STANDBY lamp DS21, XMTR lamp DS22, and to all test cable connectors except test cable connector J101. Resistors R1 through R9, and R16 through R23 are current-limiting resistors for indicator lamps DS1 through DS15. Dc power is provided through the test cable connectors to operate all of the equipments under test. For the AN/ARM-63 procured on Contract DAAB05-67–C–1648, variable resistor R49 and fixed resistor R37 are in series with multirneter M3 to provide a means of dc voltage for the multimeter (fig. 2.1).

b. The ac voltage (115 volts at 400 cps) is monitored by multimeter M3 when METER switch S24 is in the 400 ~ 0–150–V position. Bridge rectifier CR2 through CR5 converts the voltage to dc for measurement by multimeter M3. The 115 volt ac is supplied to external components under test through pin 10 of connector J104 (marker and glide slope receivers) and to transformer T1. Transformer T1 steps down the 115 volt ac to approximately 26 volts and 11 volts ac and applies these voltages through pins A and 8, respectively, of connector J101 (For the AN/

ARM-63 procured on contract DAAB05-67-C-1648, use pins 39 and 41 of connector J103) for use by the AN/ARM-30 (*) equipments under test. For the AN/ARM-63 procured on Contract DAAB05-67-C-1648, variable resistor R47 provides ac voltage calibration for multi meter M3 (fig. 2.1).

6. Radiofrequency and Audio Circuits (fig. 2)

a. RF. Transmitter RF signals are routed through XMTR OUT jack J120 for measurements at WATT MTR jack J118 or for modulation measurements at MOD TEST jack J114. In either case, KEY–OFF-MOM switch S23 must be placed in the KEY position to energize relay K3 to connect the XMTR OUT jack to WATT MTR jack J118 and MOD TEST jack J114. With relay K3 deenergized (switch S23 at OFF), the output of an external signal generator can be made available at XMTR OUT jack J120 by connecting the signal generator output to the SIG GEN jack J119.

b. Audio. The audio circuits are connections between inputs to, and outputs from, the audio circuits of the equipment under test. (The test set neither develops nor detects audio signals.) AUDIO INPUT jack J113 and MIC jack J110 are connected in parallel to permit use of either a two-prong audio connector or a standard telephone jack, the latter accommodating microphone press-to-talk control functions. AUDIO OUTPUT jack J111 and PHONE jack J112 are similarly connected to permit alternate usage of a]oudspeaker or Headset HS-33. The audio output signal level of the equipment under test is monitored by multimeter M3 with METER switch S24 in any one of four positions: AUDIO 0–6V, AUDIO 0-30V, AUDIO 0-50MV, or AUDIO 0-500MW.

7. Tuning and Control Circuits

a. Tuning Control ARC 18639 (fig. 3) consisting of a tuning crank mechanical linkage, and MC BAND switch S5, is used to tune the tuning circuit of Receiver, Radio R-836/ARN-59 under test. Rotation of the tuning crank drives the panel-mounted indicating drum. RF sensitivity (gain control) signals from the equipment under test are routed through pin 15 of connector J102 (fig. 2) (For the AN/ARM-63 procured on Contract DAAB05-67-C-l648, use pin U of J102) direct to tuning meter M1 on the test set front panel. A maximum reading on tuning meter M1 indicates maximum RF amplifier cathode current in the equipment under test; this is a measure of receiver sensitivity at the selected frequency and therefore indicates best tuning. In the LOOP and ANT modes of test set LOOP switch S2, the negative terminal of meter M1 is grounded through potentiometer R7 (part of ganged ADF VOL control). In the COMP position of switch S2, meter M1 is grounded directly to permit aural null adf operation of the AN/ARN-59(V) under test. MC BAND switch S5, part of tuning control ARC 18639, permits the remote selection of one of the three adf bands (0.19 to 0.40 mc, 0.04 to 0.84 mc, or 0.84 to 1.75 mc) when testing the AN/ARN–59 (V). BFO switch S4 provides remote control of the beat frequency oscillator of the R–836/ARN-59 under test. Switch S1 (part of ganged ADF VOL control) controls the application of dc power to the R–836/ARN–59. Potentiometer R6 (part of ADF VOL control) varies the audio of the equipment under test connected to pins 18 and 19 of connector J102 (For the AN/ARM-63 procured on Contract DAAB05-67-C-1648, use pins X and Y),

b. The test set megacycle selector control (fig. 4) controls frequency selection for Receiving Sets, Radio AN/ARN-30D and AN/ARN-30E and Receiving Set Radio R-746/AR under test. The control contains two rotary switches, one governing select ion of whole megacycle increments consisting of switch sections S1A, S2A, and S2B, the second governing selection of tenth-megacycle increments consisting of switch sections S1B, S3A, and S3B. Each switch connects different terminal of terminal board TB1 to ground for each frequency increment. The ground connections J103 and J104 to the equipment under test. Control selector switch S7 permits either internal (INT position) or external (EXT position) control of the AN/ARN-30D or AN/ARN-30E under test.

c. Interconnecting Box J–1107/ARN (BTK-35A only) is used with the test set to test components of Receiving Set, Radio AN/ARN-30,

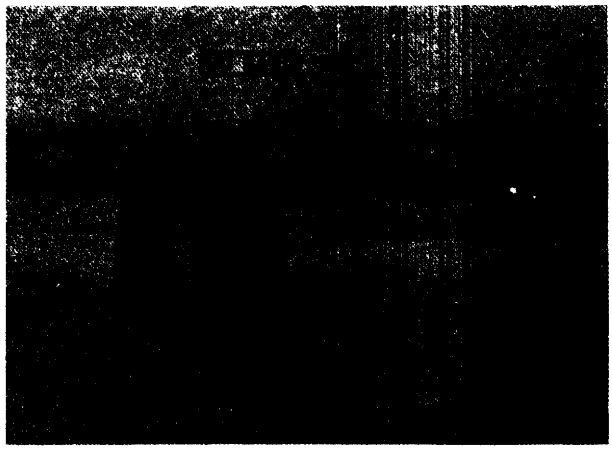


Figure 3. Tuning control ARC 18639, internal view.

d. Control, Radio Set C–1827/ARC–55 is used in the test set for control of both AN/ARC-55 and AN/ARC–27. Alignment function selector switch S19A provides frequency cycling control of the AN/ARC–55 and AN/ARC–27 under test. For circuit details of the C–1827/ARC–55, refer to TM 11–5821–225-24 and TM 11-5821-225–50.

e. The PRESS-TO-WHISTLE tuning crank and its associated indicating dial used in the test set are identical to components of Radio Set AN/ARC–60. They are used to tune the AN/ARC-60, Radio Set ARC Type 12, and Receiving Sets, Radio AN/ARN-30A through AN/ARN–30C under test. PRESS-TO-WHISTLE switch S18 (fig. 2) completes the appropriate ground connection through test set connector J105 for whistle-through tuning. UHF-VHF crystal selector switch S20 is used to select the appropriate crystal socket of the radio set transmitter under test. Switch S20 is electrically identical to the channel selector switch used in the AN/ARC–60 with one exception: switch S20 includes high- and low-band switch arrangements. For further circuit details, refer to TM 11-5821-205–35.

8. Metering and Indicating Circuits (fig. 2)

a. MULTIMETER M3 is a standard microammeter connected as a multimeter through METER switch S24. The 0–5-ampere and 0–30-ampere shunt resistors are used to reduce current through the meter during dc power checks. Fuse F1 protects the meter for currents in excess of 1/32 ampere. Switch S24 connects full-wave bridge rectifier CR2 through CR5 into the circuit to produce equivalent-valued dc current for multimeter M3 when 115-volt ac or audio voltage is measured. When switch S24 is in the FLAG 0–1MA position and VERT FLAG HOR switch S27 is in either the VERT or HOR position, multimeter M3 indicates the current in microampere to the vertical and horizontal OFF flangs of the test set Indicator, Course ID-453/ARN-30. Switch section S24C connects the coil of relay K4 to ground in METER switch positions requiring ac or audio voltage measurements. When relay K4 is energized, the bridge rectifier is connected between multimeter M3 and switch sections S24A and S24B. When relay K4 is deenergized, the 115-volt ac or audio voltage is bypassed around the bridge rectifier.

Note. Dc power must be applied to the test set to energize relay K4 before 115-volt ac or audio measurements can be made by multimeter M3.

b. FREQUENCY METER M4 is a reed-indicating device for measuring the frequency of the antenna loop reference phase during tests of automatic direction finder equipments.

c. DEVIATION meter M2 is a sealed unit that measures the deviation current applied to the cross-pointer of Indicator, Course ID-453/ARN-30. VERT CP HOR switch S11 selects either the vertical or horizontal cross-pointer deviation current for measurement with CP LOAD switch S8 in VOR position. The ID-453/ARN-30 horizontal cross-pointer is used in tests of Receiver, Radio R–746/AR, and the ID-453/ARN-30 vertical cross-pointer is used in tests of the AN/ARN-30(*).

d. Tuning meter Ml is covered in paragraph 7a. It duplicates the functions of the identical meter used in Direction Finder Set AN/ARN-59.

e. Course Indicator ID–250/ARN furnishes a visual dsiplay of very high frequency omnidirectional radio range (VOR) and adf signals. Detailed maintenance of the ID-250/ARN is covered in TM 11-5826–211–50.

CHAPTER 2
TROUBLESHOOTING

Section I. GENERAL TROUBLESHOOTING TECHNIQUES

9. General Instructions

Troubleshooting at general support and depot maintenance includes all the techniques outlined for organizational maintenance and any special or additional techniques required to isolate a defective part.

10. Organizational of Troubleshooting Procedures

a. General. The first step in servicing a defective radio test set is to sectionalize the fault by tracing it to a defective test set or antenna position simulator. The second step is to localize the fault by tracing it to a defective circuit responsible for the abnormal condition. Some faults, such as burned-out resistors, arcing, or shorted capacitors, can often be identified by sight, smell, or sound. The majority of faults, however, must be isolated by checking voltages and resistances.

b. Sectionalization. The radio test set consists of the test set and the antenna position simulator. The first step in tracing the trouble is to determine whether the test set or antenna position simulator, or both units, are at fault by using the following methods:

(1) Visual inspection. Make a visual inspection to locate faults before testing or measuring the circuits. Check all meter readings, panel lamps, and smoothness of operation of all controls and switches. Also, observe other visual signs and attempt to sectionalize the fault to the defective unit.

(2) *Operational tests.* Operational tests provide the best indication of the exact location of trouble.

c. Localization and Isolation. The tests listed below will aid in localizing and isolating the trouble to a circuit and component part. Use the following methods:

(1) *Voltage and resistance measurements.* These measurements will help locate the faulty circuit and component part. To obtain resistance values, use the schematic diagram (fig. 2).

(2) *Troubleshooting charts.* The trouble symptoms listed in the chart (para 12 *c)* will aid in localizing troubles to a component part.

(3) *lntermittent trouble.* In all tests, the possibility of intermittent troubles should not be overlooked. If present, this type of trouble often may be made to appear by tapping or jarring the equipment. Check the cabling, wiring, and connections to both units of the equipment.

11. Test Equipment Required

The only test equipment required for troubleshooting the radio test set at Multimeter AN/USM-223. Operational checks of the radio test set require a complete complement of equipment under test.

Section II. RADIO TEST SET TROUBLESHOOTING

12. Localizing Troubles

a. General. The troubleshooting procedures applicable to the radio test set consist only of continuity and resistance checks. If a defect is noted during operation and is clearly sectionalized to the test set or antenna position simulator, the suspected unit should be disconnected completely and subjected to appropriate resistance and continuity tests. The operational checks *(b* below) and the troubleshooting chart *(c below)* are used for localizing troubles to the individual circuits and component parts. Depending on the nature of the operational symptoms, one or more of the localizing procedures may be necessary. When use of the operational checks results in localization of trouble to a particular circuit, use resistance measurements to isolate the trouble to a particular part. Parts locations are indicated in figures 5 and 6.

b. Operational Checks. In general, equipment malfunctions can be specifically identified from the nature of their occurrence. *For example,* failure of the test set multimeter to read on one or more scales would indicate a malfunction either in the meter or in its associated selector switch circuitry. If more complex troubles are suspected (for example, if the test set is known simply as "defective"), it will be necessary to make a full operational check of the unit, using an appropriate radio set (or group of sets) known to be in good working order. In such cases, follow the operating test instructions.

c. Troubleshooting Chart. Malfunctions that can be encountered in each of the operational tests are given in the troubleshooting charts below. Each troubleshooting chart covers a group or particular communication or navigation equipment, with the exception of the first chart, which covers power circuit troubles in the test set. When a failure in an operational test is observed, find the appropriate listing in the applicable chart and note the probable trouble and correction. In most cases, the correction is to remove the defective component and to replace it with one known to be in good working order. Repeat the operational test or check to be sure that correct results are then obtained.

(1) *Power circuit troubles.*

	Symptom	Probable trouble	Correction
1.	No dc output to equipment under test.	Open resistor shunts or defective circuit breaker CB1.	Replace 0-5A and 0-30A resistor shunts and circuit breaker CB1.
2.	No ac output to equipment under test.	Defective circuit breaker CB2.	Replace circuit breaker CB2.

(2) *Marker receiver test troubles.*

	Symptom	Probable trouble	Correction
1.	Receiver does not operate.	No dc voltage applied to receiver under test.	Replace defective switch S14, switch S9, or relay K1.
2.	No audio volume control..	Defective potentiometer R24	Replace potentiometer R24.
3.	Marker indicator does not light.	Defective indicator DS19.	Replace indicator DS19.
4.	No control of receiver sensitivity.	Defective switch S13	Replace switch S13.
5.	No audio output	Defective jack J113 or resistor R45.	Check jack wire connections and replace jack J113 if required. Replace resistor R45.

(3) AN/ARN-30(*) test troubles.

	Symptom	Probable trouble	Correction
1	Receiver does not operate -----	Defective switch S9, relay K1, or switch S12.	Replace switch S9, S12, or relay K1.
2	Incorrect multimeter readings, or no multimeter readings.	Defective capacitor C8, multimeter M3, switch S24, or switch S27, or fuse F1. For the AN/ARM-63 procured on Contract DAAB05-67–C–1648, also check resistor R37, R47, or R49,	Replace capacitor C8, multimeter M3, switch S24, or switch S27, fuse F1, or resistors R37, R47, or R49.
3	MAX-MIN SENS switch does not cut off audio.	Defective switch S25 or resistor R11.	Replace switch S23 or resistor R11.
4	No receiver navigation modulation,	Defective capacitor C8 or switch S10,	Replace capacitor C8 or switch S10.
5	No external navigation modulation.	Defective capacitor C8, switch S10, or jack J115.	Replace capacitor C8 or switches. Check jack J113 and replace if required.
6	Indicator, Course ID453/ARN-30 does not operate.	Defective indicator --------	Replace ID-453/ARN-30.
7	ID-453/ARN-30 vertical cross-pointer operates improperly.	Defective switch S8 or indicator movement.	Replace switch S8. Check ID-453/ARN–30 and replace if required.
8	ID-453/ARN–30 TO-FROM flag does not operate.	Defective capacitor C5 or indicator flag movement.	Replace capacitor C5. Check ID-453/ARN-30 and replace if required
9	No deviation reading on DEVIATION meter M2.	Defective meter M2 or switch S11__	Replace meter M2 or switch S11.
10	Incorrect deviation current reading on DEVIATION meter M2.	Defective switch S8, meter M2, or ID-453/ARN-30.	Replace switch S8 or meter M2. Check ID-453/ARN-30 and replace if required.
11	Indicator ID-250/ARN does not operate.	Defective ID-250/ARN. No ac voltage.	Check and replace ID-250/ARN if defective. Check ac voltage and. if not present, replace transformer T1 or circuit breaker CB2.
12	Cannot tune receivers AN/ARN-30A through AN/ARN-30C.	Defective tuning control ARC 18639 or mechanical linkage.	Replace parts as required. Replace entire control if required.
13	Cannot tune AN/ARN-30D or AN/ARN-30E.	Defective megacycle selector control.	Replace defective parts of megacycle selector control. Replace entire control if required.
		Defective control selector switch S7.	Replace switch S7.

(4) *AN/ARC-60(*) and ARC Type 12 test troubles.*

	Symptom	Probable trouble	correction
1	Radio set does not operate _____	No dc voltage to radio set under test.	Refer to power circuits ((1) above).
2	Cannot tune radio set -------	Defective tuning control ARC 18639.	Replace parts as required; replace entire tuning control if required.
3	No meter readings, or incorrect readings.	Defective multimeter M3, switch S24, or resistors R37, R44, and R46, or fuse F1. For the AN/ ARM-63 procured on Contract DAAB05-67-C-1648, also check resistors R44A, R44B, R46, R47, and R49.	Replace multimeter M3, switch S24, or resistors R37, R44 and R42, fuse F1, or resistors R44A, R44B, R46, R47, or R49.
4	No automatic volume control __	Defective resistor R27 _____	Replace resistor R27.
5	No audio output ----------	Defective resistor R27, relay K2, or jacks J110, J111, J112, J113, and resistor R45.	Replace resistors R27 or R45. Check relay K2 and replace if defective. Check jacks J111, J112, J113, and related wiring; replace jacks if defective.
6	No audio control ----------	Defective resistor R27 _____	Replace resistor R27.
7	Cannot select AX/ARC-60 (*) high-low crystal band.	Defective switch S20A or S20B ----	Replace switch section S20A or B. If switch sections are not available, replace entire switch S20.
8	Cannot energize any crystals __	Defective switch S20C ----------	Replace switch S20C.
9	Cannot key CV-431/AR (transmitter).	Defective switch S20D, relay K2, jack J110, or switch S23.	Check relay K2 and replace if defective. Check jack J110 and related wiring; replace if defective. Replace switch S23 or switch section S20B or entire switch S20.
10	No vhf voice transmission -----	Defective switch S20B _____	Replace switch section S20B or entire switch S20.
11	No whistle-through tuning _____	Defective switch S18 ----------	Replace switch S18.

(5) *Receiver, Radio R-746/AR test troubles.*

	Symptom	Probable trouble	correction
1	Receiver does not operate ----	No dc voltage applied. No ac voltage applied.	Replace switch S9, relay K1, or circuit breaker CB1. Replace circuit breaker CB2.
2	No deviation reading on DEVIATION meter M2.	Defective meter M2, S11, or ID–453/ ARN–30.	Replace defective meter M2 or switch S11, Check and replace ID-453/ARN-30 if defective.

	Symptom	Probable trouble	Correction
3	Incorrect test readings, or no readings.	Defective multimeter M3 or switch S24, or fuse F1. For the AN/ ARM-63 procured on Contract DAAB05-67-C–1648, also check resistors R37, R47, and R49.	Replace rnultimeter M3 or switch S24, fuse F1, resistors R37, R47, or R49.

(6) AN/ARC-27(*)and AN/ARC-55(*) test troubles.

	Symptom	Probable trouble	Correction
1	Receiver does not operate _____	No dc voltage applied _____	See power circuit trouble ((1) above).
2	Incorrect readings, or no readings.	Defective multimeter M3, switrh S24, resistor R36, or fuse F1.	Replace multimeter M3, switch S24, resistor R36, fuse F1, or resistors R37 and R49.
3	STANDBY larnp does not light _	Defective lamp DS21 or resistor R36.	Replace lamp DS21 or relay K2.
4	XMTR lamp does not light . ___	Defective lamp DS22 or relay K2.	Replace lamp DS22 or relay K2.
5	Cannnot key transmitter _____	Defective switch S23 _____	Replace switch S23.
6	No transmitter output measured.	Defective switch S23 or relay K3 __	Replace switch S23 or relay K3.
7	Cannot tune radio set _____	Defective C–l827/ARC-55 _____	Check and replace C-1827/ARC-55 if required
8	Any one indicator lamp (A through R) will not light.	Defective indicator lamps and associated resister. or switch S7.	Replace defective lamps DS1 through DS15, or associated resistors R1 through R9 and R16 through R23, or switch S7.

(7) Adf test troubles.

	Symptom	Probable trouble	Correction
1	Receiver does not operate _____	No dc voltage applied _____	See power circuit troubles ((1) above.
		Defective switch S1 _____	Replace switch S1.
2	Incorrect readings, or no readings on multimeter M3.	Defective mulitmeter M3. switch S24, resistors R32. R33, R34, or R35, or fuse F1. For the AN/ ARM-63 procured on Contract DAAB05-67-C-l648. also check resistors R32A. R32B, R33, R34A, R34B, R35A, R35B, R37. and R49.	Replace muiltimeter M3, switch S24, resistors R32, R33, R34, or R35. or fuse F1, or resistors R32A. R32B, R33, R34A, R34B, R35A, R35B, R37, and R49.
3	Cannot tune AN/ARN–59 _____	Defective tuning control ARC l8639 or switch S5.	Replace parts as required, or replace entire turning control switch S5.

	symptom	Probable trouble	Correction
4	No tuning indication _____	Defective tuning meter M1, resistor R7, or switch S2.	Replace tuning meter M1, resistor R7, or switch S2.
5	So RF input to receiver ------	Defective antenna position simulator DUMMY-FIELD switch, selector switch, dummy SIG GEN, or REC jack.	In antenna position simulator, replace switches S101, S102, SIG GEN, or REC jack.
6	No gain control ----------	Defective resistor R6 ----------	Replace resistor R6.
7	No AN/ARN–54 or AX/ARN-59(V) loop drive.	Defective switch S3 or capacitor C1.	Replace switch S3 or capacitor C1.
8	No beat-frequency oscillator output.	Defective switch S4 ----------	Replace switch S4.
9	No antenna motor drive _____	Defective switch S6 ----------	Replace switch S6.

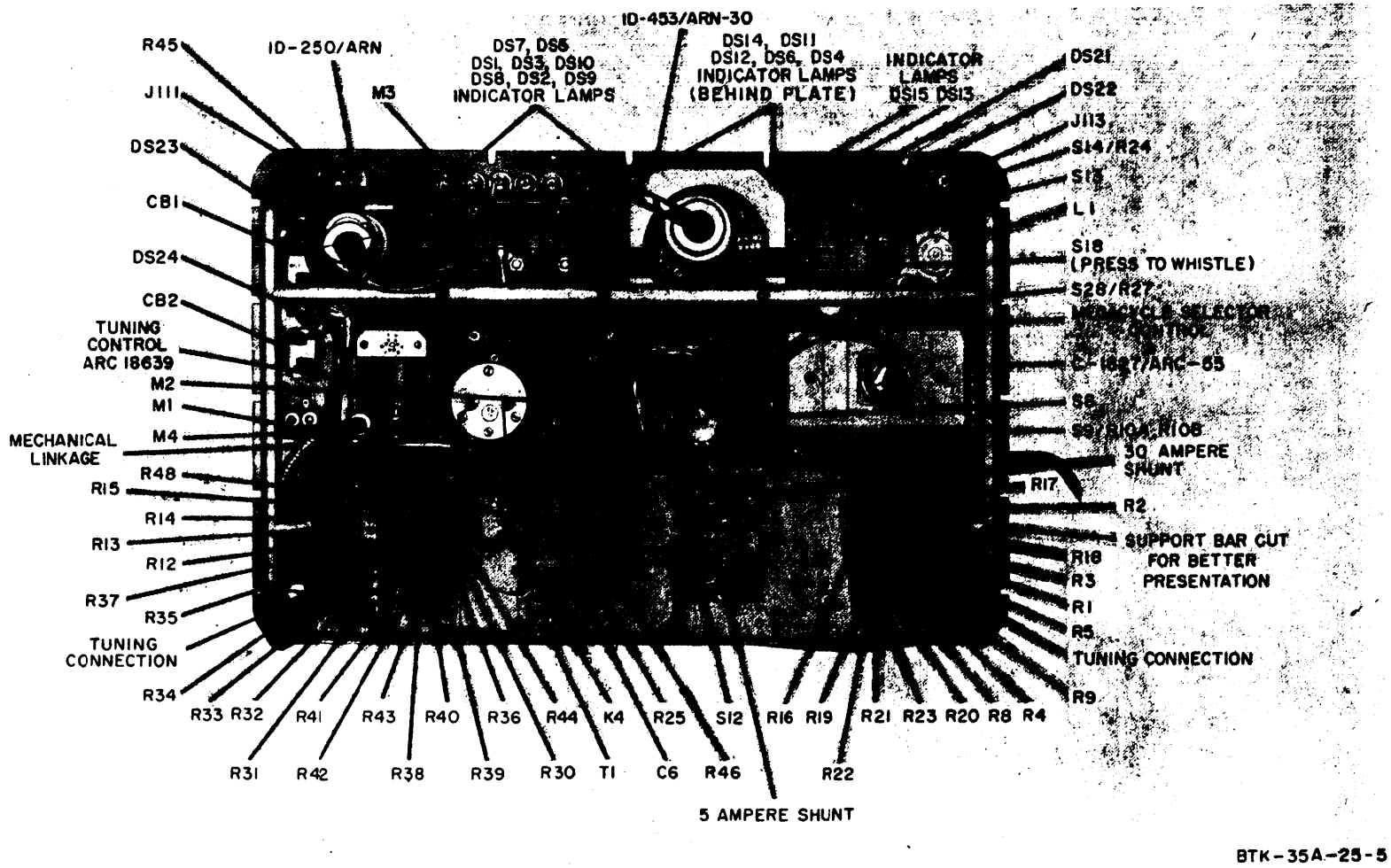


Figure 5. Test set front panel, rear view, parts locations.

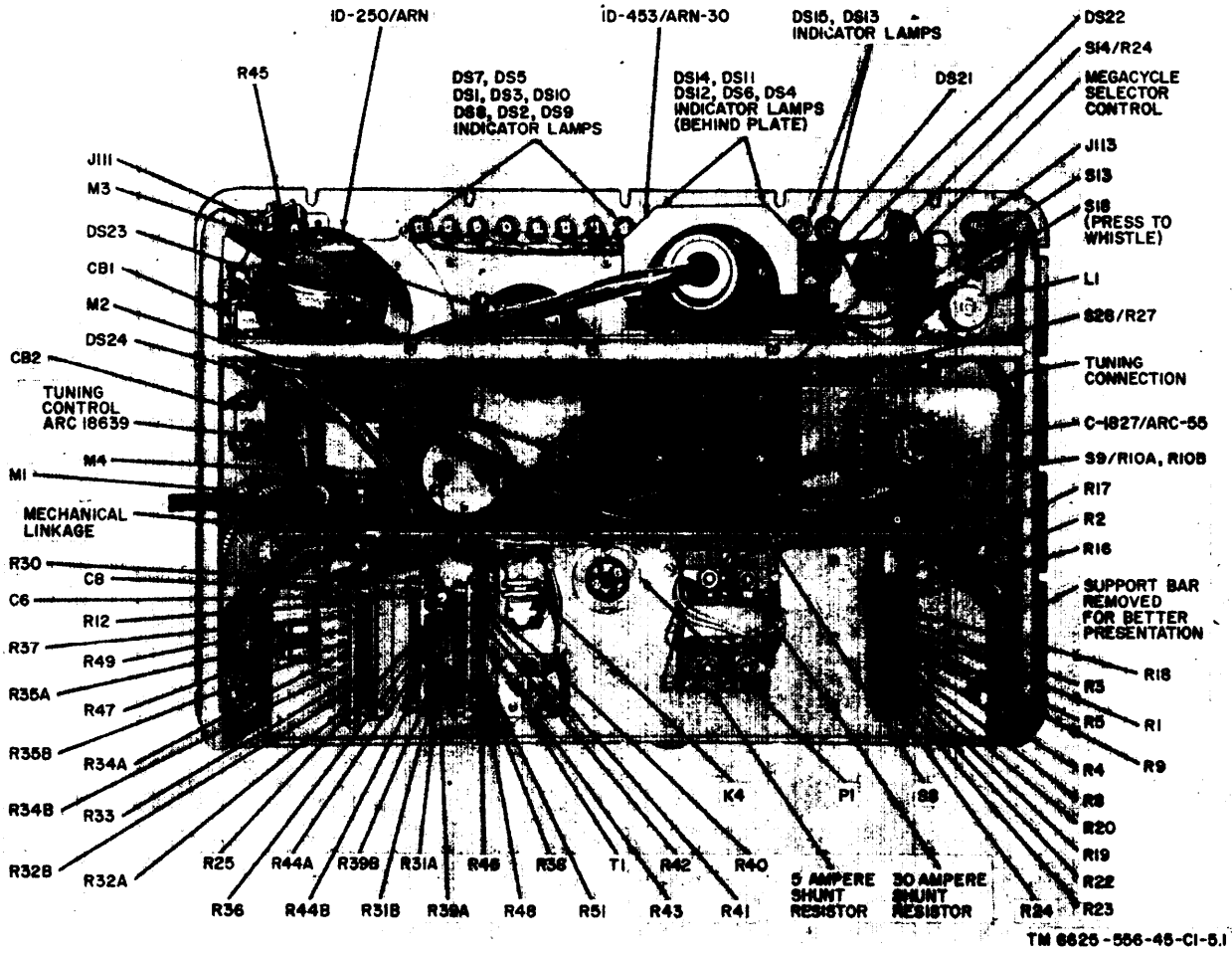


Figure 5.1 Test Set Radio AN/ARM-63 (procured on Contract DAAB05-67-C-1648 front panal, rear view, parts location.

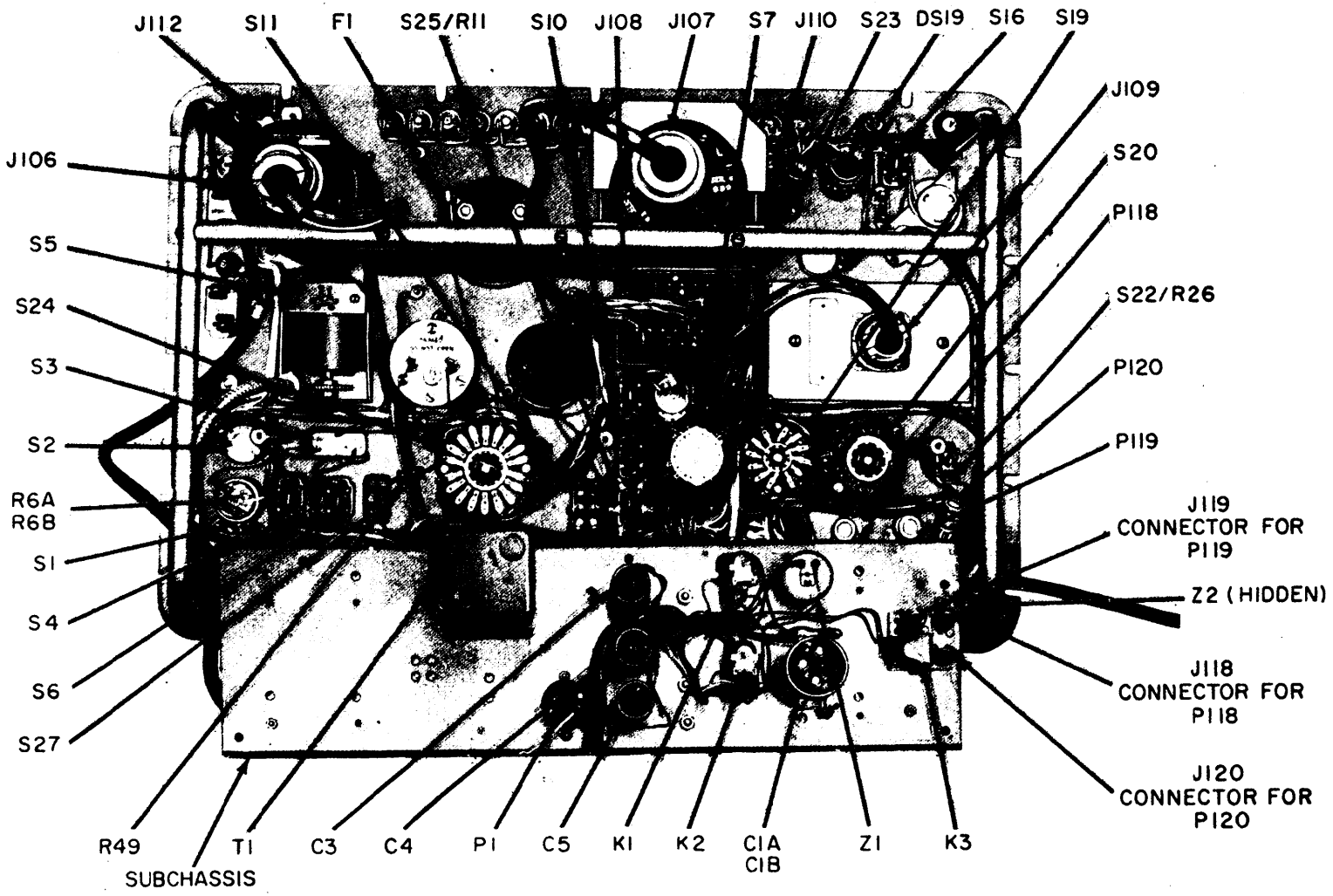


Figure 6. Test set front panel, rear view with subchassis inverted, parts location.

CHAPTER 3

REPAIRS

13. General Parts Replacement Techniques

a. General. Most parts of the radio test set do not lend themselves to repairs other than removal and replacement. When a defective part has been identified, unsolder all electrical leads, free any attaching hardware, and remove and replace the component.

b. Repair of Standard Components. The repair of the following components is covered in separate technical manuals:

Component	Technical manual
Indicator, Course ID-453/ ARN-30.	TM 11-5826-207-24 and TM 11–5826-2(?7-50
Indicator, Course ID-250/ARN	TM 11-5826-211-50
Radio Set Control C-1827/ ARC-55	TM 11-5821-225-24 and TM 11–5821-225-50
PRESS-TO-WHISTLE tuning crank, indicating dial, and UHF-VHF crystal selector switch S20 (Components of control radio set C-1917/AR.)	TM 11-5821-205-36

c. Components to be Replaced. Tuning meter M1, DEVIATION meter M2, and frequency meter M4 should be replaced with new components rather than repaired. These components can easily be removed and replaced without following special procedures.

14. Removal, Disassembly, Replacement, and Reassembly of Multimeter M3

a. Removal and Disassembly.

(1) Remove the test set rear cover from the case by releasing the four rear cover hasps.

(2) Disconnect the electrical leads and fuse F1 holder from the terminals on the rear of multimeter M3 (fig. 5).

(3) Remove the four bezel mounting screws and remove the bezel from the meter assembly (fig. 7).

(4) Remove the four meter-mounting screws and carefully slide the meter assembly from the test set front panel.

(5) Remove the two dial-mounting screws that secure the dial to the meter housing (fig. 8). Carefully remove the dial from the meter housing by sliding the dial forward and under the pointer.

Caution: To avoid damage to the pointer, do not lift the dial up until it is clear of the pointer.

(6) Remove the two movement-mounting screws and lift the galvanometers movement from the meter housing.

b. Reassembly and Replacement.

(1) Position the galvanometers movement in the multimeter housing and replace the two movement-mounting screws (fig. 8).

(2) Replace the dial on the housing by carefully sliding the dial under the pointer; position the dial and replace the two dial mounting screws.

(3) Place the meter assembly in the test set front panel and replace the four meter-mounting screws that secure the meter assembly to the test set front panel.

(4) Replace the bezel on the meter assembly and replace the four bezel-mounting screws (fig. 7).

(5) Adjust the pointer for 0 scale reading with the zero-adjust screw located on the bezel.
(6) At the rear of multimeter M3, connect the electrical leads to the terminals (fig. 5).
(7) Replace the test set rear cover on the case and secure the four rear cover hasps.

15. Removal and Replacement of Megacycle Selector Control

a. Removal.
(1) Remove the test set rear cover from the case by releasing the four rear cover hasps.
(2) At the test set front panel, remove the two knobs from the megacycle selector control (fig. 9).
(3) Remove the six binding-head screws that secure the megacycle selector control to the test set front panel.
(4) From the rear of the test set front panel, carefully remove the megacycle selector control (fig. 5).
(5) Unsolder all the wires connected to the terminals at the rear of the megacycle selector control. Tag all wires.

b. Replacement.
(1) From the *rear of the test set front panel,* replace the megacycle selector control (fig. 5).
(2) Resolder the wires to the terminals on the rear of the megacycle selector control.
(3) Replace the six binding-head screws that secure the megacycle selector control to the test set front panel.
(4) Replace the two megacycle selector knobs (fig. 9).
(5) Replace the test set rear cover to the case and secure the four rear cover hasps.

16. Repair of Test Cables

Wiring diagrams of the eight special test cables used with the test set are shown in

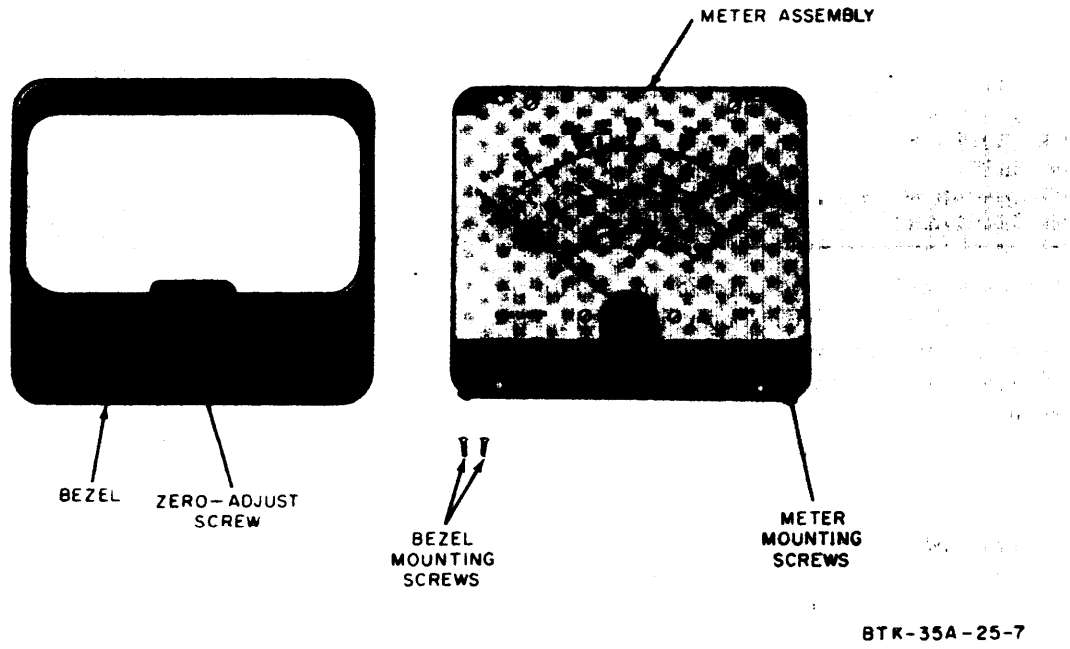


Figure 7. Multimeter M3, bezel and meter assembly.

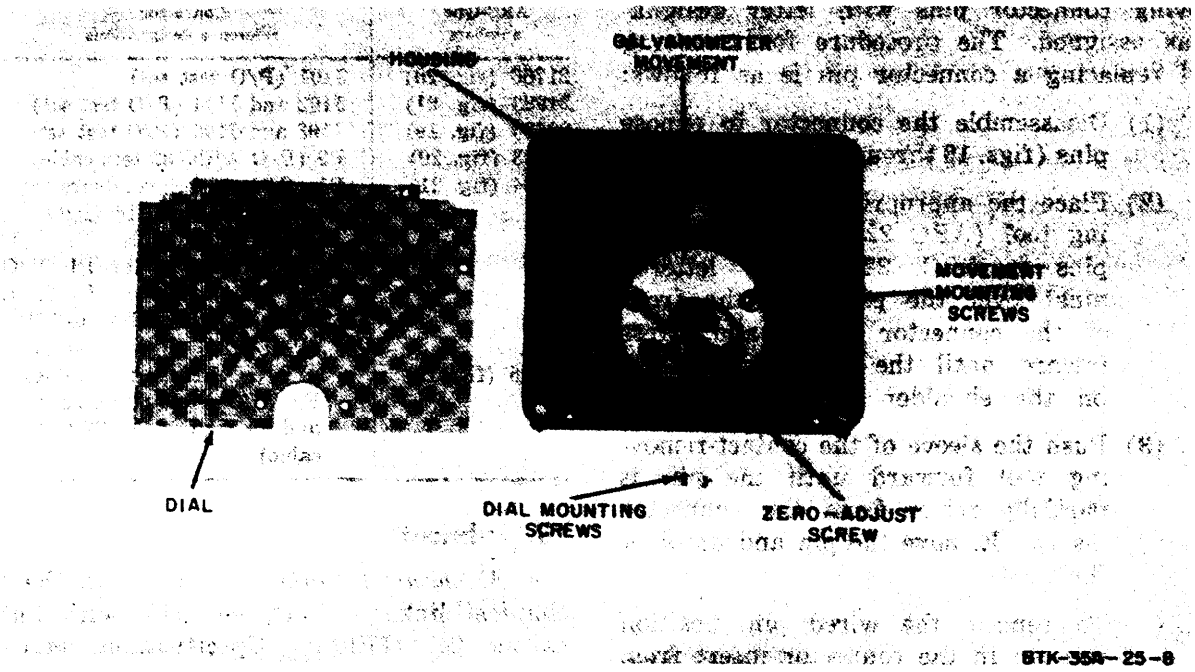


Figure 8. Multimeter M3, meter dial and interion components.

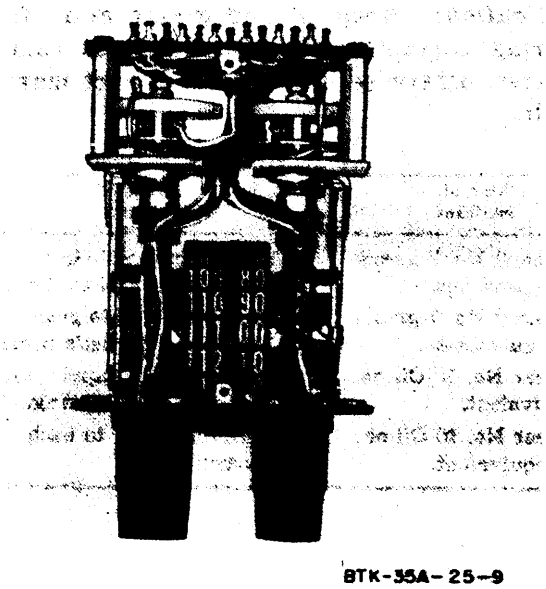


Figure 9. Megacycle selector control, removed from test set front panel

figures 10 through 17. No wiring diagrams for the other cables supplied are required. When repairing a test cable having a broken, frayed, or burned wire, follow the procedure listed below if a replacement cable is not available.

a. Disconnect the ends of the faulty wire at each connector (para 17).

b. Cut off approximately 2 inches from the ends of the wire and tape each end securely to the test cable.

c. Obtain a replacement wire of correct size and color code; cut the wire to the required' size and route the wire as shown in the appropriate wiring diagram.

d. Connect the wire ends to each conntor (para 17) and lace or tape the replacement wire securely to the test cable.

17. Repair of Test Cable Special Connectors

a. The repair and rewiring of the test cable special connectors *(b* blow) requires the use of contact-removing tools ARC 22001 and ARC 22002 (fig. 18). Contact-removing tool ARC 22001 (A, fig. 18) is used for removing connector contacts (pins) with number designations assigned. Contact-removing

tool ARC 22002 (B, fig. 18) is used for removing connector pins with letter designations assigned. The procedure for removing and replacing a connector pin is as follows:

(1) Disassemble the connector to expose pins (figs. 19 through 21).

(2) Place the appropriate contact-removing tool (ARC 22001 for numbered pins or ARC 22002 for lettered pins) over the pin from the f rent of the connector insert, and press inward until the tool firmly seats on the shoulder of the insert.

(3) Push the sleeve of the contact-removing tool forward until the pin is partially driven from the connector insert. Remove the pin and unsolder the wire.

(4) To replace the wired pin, position the pin in the connector insert from the rear and press the pin firmly in place.

(5) Reassemble the connector.

b. The test cable special connectors are listed in the following chart. The connectors are listed by their ARC-type numbers and corresponding reference designations.

Connector ARC-type numbers	Connector reference designating
21766 (fig. 20)	J101 (P/O test set)
21983 (fig. 21)	J102 and J104 (P/O test set)
22630 (fig. 19)	JI03 and J105 (P/O test set)
29433 (fig. 20)	P9 (P/O ARN-30 test cable)
29434 (fig. 21)	P1 (P/O marker receivers test cable), P8 and P10 (P/O ARN-30 test cable), P1 (P/O ARC-27 test cable), P1 (P/O ARN-6 test cable), P1 (P/O ARN-64 test cable), and P1 (P/O ARN-59 test cable).
35346 (fig. 19)	P1 (P/O ARN-30 test cable), P9 (P/O ARN-60 test cable), and P1 (P/O ARC-27 test cable).

18. Lubrication

a. Mechanical Linkage. Lubricate the mechanical linkage shaft, MC–215, with Lubricating Oil (Military Specification MIL-O–6084 or equivalent once every 500 hours.

b. Megacycle Selector Control. Lubricate the megacycle selector control in accordance with the chart below and figure 22.

Caution: **Keep oil and grease away from spring contacts and printed circuit contact plates, otherwise intermittent conact may result.**

Point of lubrication	Part to be lubricated	Lubrication period	Kind of lubricant	Method of application
A	Dentent gear	600 hours	Aeroshell No. 7 grease or equivalent	Apply thin coat to gear teeth with artist's brush.
B	Bevel gear	500 hours	Aeroshell No. 7 grease or equivalent	Apply thin coat to gear teeth with artist's brush.
C	Control shaft bearing	600 hours	Pioneer No. 10 Oil or equivalent	Invert unit and apply one drop to each bearing.
D	Drum shaft bearing	600 hours	Pioneer No. 10 Oil or or equivalent.	Apply one drop to each bearing.

CHAPTER 4
DEPOT OVERHAUL STANDARDS

19. General

The test specified herein are designed to measure the performance capability of a repaired equipment. Equipment that meets the minimum standards stated in the tests will furnish satisfactory operation, equivalent to that of new equipment.

20. Test Facilities Required

The test equipment listed in the chart below will be used in determining compliance with these tests.

Test equipment	Technical manual	Common name
Motor-Generator PU-545/A	TM 11-6125-239-15	Motor-generator
Multimeter AN/USM-223	TM 11-6625-654-14	Multi meter
Power Supply PP-1104C/G	TM 11-6130-246-12	Power supply
Resistance Bridge ZM-4/U	TB 9-6625-388-35	Resistance bridge
Variable Power Transformer CN-16(*/U	TM 11-5950-205-14P	Variac

21. Continuity Tests

To check continuity of panel connectors J102, J103, J104, and J105 for the AN/ARM-63 procured on contract DAAB05-67-C-1648, perform the procedures in a through d below. To check continuity of panel connectors J101, J102, J103, J104, and J105 for the AN/ARM-63 (Aircraft Corp. Model BTK-35A), perform the procedures in a, b, c, and e below.

a. Place a shorting clip across the terminals of test set tuning meter Ml.

b. Set the test set panel switches as follows:

(1) Dc and ac circuit breakers to off (down).

(2) ADF VOL switch S1 to OFF.

(3) Function switch S2 to COMP.

(4) Band switch and tuning crank S5 to .40-.84 mc

(5) BFO switch S4 to ON

c. Disconnect Indicator, Course ID-250/ARN at connector J106, disconnect Indicator, Course ID-453/ARN-30 at connector J107, and disconnect Control, Radio Set C-1827/ARC-55 at connector J109. Disconnect plugs P1 (28-volt dc input) and P2 (115-volt ac, 400-cycle input).

d. Use the multimeter to check for continuity as indicated in the chart below.

Connector J102

Condition	From pin —	To pin —	Circuit tested
Circuit breaker CB1 set to on	A	B	A, B
	A	±28v input connector (internal).	±28-volt input
	C	GND J116	C
	D	S(J106)	D
	E	T(J106)	E
	F	U(J106)	F
Band switch and tuning crank S5 set to .40-.84	H	K	H, K, and center portion of S5
Band switch and tuning crank S5 set to .19-.40.	H	L	H, L, and upper portion of S5
Band switch and tuning crank S5 set to .84-1.75.	H	J	H, J, and upper portion of S5
Jumper across capacitor C1	M	N	M, N
LOOP switch S3 set to the right	N	P	N, P, and one position of S3
LOOP switch S3 set to the left	P	R	P, R, and the other position of S3
Jumper across frequency meter M4	R	GND J116	R, circuit to M4, and from M4 to ground.
BFO switch S4 set to OFF	S	GND J116	S, and switch S4
BFO switch S4 set to ON	S	GND J116	Indicates an open circuit
LOOP switch S3 set to the right	T	C	T, C, and switch S3

Condition	From pin—	To pin—
Function switch S2 set to COMP . .	U	GXD J116
Function switch S2 set to ANT ___	V	GND J116
Function switch S2 set to LOOP __	W	GND J116
ADF VOL switch S1 set to ON ___	Z	GXD J116
MOTOR switch S6 set to ON ------	AA	CC
	DD	J111
	DD	PHONE J112

Connector J103

Condition	From pin—	To pin—
Control selector switch S7 set to EXT.	1	3
	1	41
	1	B (J106)
	1	C(J106)
	2	51
	4	5
	4	22
	4	E (J106)
	4	D (J106)
	4	L.(J106)
	6	14
	6	48(J103)
	7	15
	7	47(J105
	8	13

Condition	From pin—	To pin—	
	8	46(J105)	
	9	12	9 and 12
	9	45(J105)	
	10	29	10 and 29
	10	44(J105)	
	11	19	11 and 19
	11	58(J105)	
	16	27	16 and 27
	16	56(J105)	
	17	26	17 and 26
	17	54(J105)	
	18	28	18 and 28
	18	57(J105)	
	20	30	20 and 30
	20	59(J105)	
	22	GND J116	22
	22	L(J106)	
	23	32	23 and 32
	23	M(J106)	
	23	V(J106)	
	24	N(J106)	24
	25	P(106)	25
	35	36	35, 36, and
	35	61	35 and 61
	37	38	37 and 38
	39	Terminal 6 on T1	39
	41	Terminal 10 on T1	41
	44	A(J107)	44

Condition	From	To pin—	Circuit tested
Control selector switch S7 set to UHF XMTR.	12	b(J109)	12
	13	u(J109)	13
	14	w(J109)	14
	15	z(J109)	15
	26	a(J109)	26
	27	d(J109)	27
	28	c(J109)	28
	29	v(J109)	29
	30	X(J109)	30
Control selector switch S7 set to I NT.	11	H(J108)	11
	12	Q(J108)	12
	13	N(J108)	13
	14	K(J1OS)	14
	15	I(J108)	15
	26	R(J108)	26
	27	O(J108)	27
	28	P(J108)	28
	29	L(J108)	29
	30	J(J108)	30
	35	T(J108)	35
	37	M(J108)	37
Control selector switch S7 set to EXT and VHF REC switch S12 set to LOC.	35	40	35, 40. and LOC position of S12
NAV MOD switch S10 set to RCVR	31	33	31, 33, and RCVR position of S10
NAV MOD switch S10 set to EXT	33	J115	33 and EXT position of S10

Condition	From pin—	To pin—	Circuit tested
VOR–GS switch S9 set to on _____	35	42	33, 42, and the on position of S9.
Jumper across terminals of DEVIATION meter M2 and YERT CP HOR switch S11 set to VERT.	44	48	44, 48, S11
	44	Center blade S11	
	47	50	47, 50, and 3(J103)
	47	3(J105)	
	48	B(J107)	48
	49	E(J107)	49
	52	F(J107)	52
	53	I(J107)	53
MAX-MIX SENS switch S25 set to MAX.	54	GXD J116	54
	55	AUDIO 0UTPUT Jill (red).	55
	56	J(J107)	56
	57	L(J107)	57
	58	N(J107)	58
	59	P(J107)	59
	60	R(J104)	60
	62	GXD J116	62
	63	K(J107)	63
	63	M(J107)	

Connector J104

Condition	From pin—	To pin—	Circuit tested
MRK VOL switch S14 set to on ____	A	42(J103)	A and 42(J103)
SENS HI–LO switch S13 set to HI.	C	D	C and D

Condition	From pin—	To pin—	Circuit tested
	C	GND J116	
	F	AUDIO OUTPUT J111 (red).	F
	H	C(J107)	H
VERT–CP-HOR switch S11 set to HOR.	H	L	H
	H	D(J107)	
	J	H(J107)	J
	K	G(J107)	K
	M	Terminal 1 on T1	M, CB2, and P2
	M	Circuit Breaker CB2	
	M	Connector P2	
	P	1 (J108)	P
	P	GND J116	
	S	5(J108)	S
	T	6(J108)	T
	U	7(J108)	1'
	V	8(J108)	V
	W	9(J108)	W
	X	10(J1O8)	X
	Y	11(J108)	Y
	Z	12(J108)	Z
	AA	13(J108)	AA
	BB	14(J108)	BR
	CC	15(J108)	CC
	CC	GND J116	
	DD	17(J108)	DD

Connector , J105

Condition	From pin—	To pin—	Circuit tested
PRESS TO WHISTLE switch S18 pressed in.	4	GND J116	4
HI-LO band selector of VHF-UHF crystal selector switch S20 set to position 1.	5	GND J116	5
VHF–UHF crystal selector switch S20 at any position other than positions 1 through 8.	6	GND J116	6
VHF-UHF crystal selector switch S20 set to position 1.	8	9	8, 9, 25, 28, 31, 38, 51, and VHF position of S20.
	25	6	
	28	31	
	28	38	
	28	51	
	28	F(J109)	
Position 2 ----------	24	6	24
Position 3 ----------	23	6	23
Position 4 ----------	22	6	22
Position 5 ------- — ------- —----------	21	6	21
Position 6 ----------	20	6	20
Position 7 ----------	19	6	19
Position 8 ----------	18	6	18 and 29
	29	GND J116	
MIC–TONE switch S22 set to MIC and VHF UHF switch S20 set to—			

Condition	From pin—	To pin—	circuit tested
Position J	14	6	14
Position I	13	6	13,26, and 27
	26	6	26
	27	31	27, 31, 38, 51, J110, and VHF section of S20.
	27	51	
	27	MIC J110	
	27	F(J109)	
Position H	12	6	12
Position G	11	6	11
Position F	10	6	10
Position E	14	6	14
Position D	13	6	13
Position C	12	6	12
Position B	11	6	11
Position A	10	6	7,9, and 10
	7	9	
Relay K2 deenergized	15	55	15, 17, 55, and F(J104)
	15	17	
	15	AUDIO OUTPUT J111 (red).	
	15	F(J104)	
KEY-OFF-MOM switch S23 set to either KEY or MOM.	31	GND J116	31

Condition	From pin—	To pin—	Circuit tested
SENS switch S2S set to on _____	30	63	30, 63, CB1, and A and B (J102)
	30	Circuit Breaker CB1	
	30	A(.J102)	
	30	B (J102)	
None _____	32	A(J109)	32, 34, 36, and 37
	34	T(J109)	
	36	E (J109)	
	37	B(J109)	
MCW OX switch S21 set ot 0N ___	35	GND J116	35
Alignment function selector switch S19 set to RUN.	39	GND J116	39, 40, 41, 42, 43, and S19
	39	40	
	39	41	
	39	42	
	39	43	
Alignment function selector switch S19 held in NORM position	39	N(J109)	
	40	P(J109)	
	41	K(J109)	
	42	M(J109)	
	43	L(J109)	
None----------	50	D(J109)	50, 53, and 62
	53	S(J109)	
	62	GND J1116	

e. Use the multimeter to check for continuity as indicated in the chart below.

Connector J101 (BTK-35A)

Condition	From pin —	To pin —	Circuit tested
Control selector switch S7 set to EXT.	2	3	2, 3, and 8
	4	5	4, 5, and 10
	4	10	
	4	E(J106)	
	4	D(J106)	
	4	L(J106)	
	10	GND J116	10
	10	L(J106)	
	11	6	11, 6
	11	M(J106)	
	12	N(J106)	12
	13	P(J106)	13
	A1	Terminal 6 on T1	A

Connector J102 (BTK-35A)

Condition	From pin—	To pin—	Circuit tested
Circuit breaker CB1 set to on.	A	B	A, B
	A	±28 volts input connector (internal).	±28 volts input
	c	GND J116	C
	1	R(J106)	1
	2	S(J106)	2
	3	T(J106)	3
	4	U(J106)	4
MC BAND switch S5 set to .40-.84.	5	7	5, 7, and center portion of S5
MC BAND switch S5 set to .841.75.	5	6	5, 6 and lower portion of S5
MC BAND switch S5 set to .19-.40.	5	8	5.8 and upper portion of S5
Jumper across capacitor Cl	9	10	9, 10
LO P switch S3 set to the right . . .	10	11	10, 11, and one position of S3
LOOP switch S3 set to the left	11	12	11, 12, and the other position of S3.
Jumper across frequency meter M4	12	GND J116	12, circuit to M4, and from M4 to ground.
BFO switch S4 set to OFF	13	GND J116	13 and switch S4
BFO switch S4 set to ON	13	GND J116	Indicates an open circuit
LOOP switch S3 set to the right . . .	14	C	14, C, and switch S3
COMP ANT LOOP switch S2 set to COMP.	15	GND J116	15 and COMP position of S2
COMP ANT LOOP switch S2 set to ANT.	16	GND J116	16 and ANT position of S2
COMP ANT LOOP switch S2 set to LOOP.	17	GND J116	17 and LOOP position of S2
ADF VOL-OFF switch S1 set to on.	20	GND J116	20 and the on position of S1
MOTOR switch S6 set to ON	21	23	21, 23, and S6
	24	J111 (red) AUDIO OUTPUT	24, J111, and J112
	24	PHONE J112 (tip)	24, J111, and J112

Connector J103 (BTK-35A)

Condition	From pin —	To pin —	Circuit tested
Control selector switch S7 set to INT and VHF REC switch S12 set to LOC.	B	40	B, 40, and LOC position of S12
SQUELCH control R10A set to CCW.	51	GND J116	51 and R10A
SENS switch S25 set to .MAX	54 A	GND J116 13 (J104)	54 A
Control selector switch S7 set to EXT.	6	14	6 and 14
	6	48(J105)	
	7	15	7 and 15
	7	47(J105)	
	8	13	8 and 13
	8	46(J105)	
	9	12	9 and 12
	9	45(J105)	
	10	29	10 and 29
	10	44(J105)	
	11	19	11 and 19
	11	53(J105)	
	16	27	16 and 27
	16	56(J105)	
	17	26	17 and 26
	17	54(J105)	
	18	28	18 and 28
	18	57(J105)	
	20	30	20 and 30
	20	50(J1O5)	
	25	26	25, 26 and B
	25	B	25 and B
	37	38	37 and 38
	44	A(J107)	44
Control selector switch S7 set to I NT.			
Megacycle selector control position: 120	11	GND J116	11
120.2	12	GND J116	12
120.5	13	GND J116	13
116.5	14	GND J116	14
112.5	15	GND J116	15
112.6	26	GND J116	26
112.4	27	GXD J116	27
112.3	28	GND J116	28
118.3	29	GXD J116	29
114.3	30	GXD J116	30
114.1	35	37	35, T of megacycle selector sw
114.9	37	35	37, M of megacycle selector sw
NAV MOD switch S10 set to RCVR.	31	33	31, 33, and RCVR position of S10
NAV MOD switch S10 set to EXT.	33	J115 (EXT NAV (MOD)	33 and EXT position of S10
VOR-GS switch S9 set to on	40	42	40, 42, and the on position of S9
	47	50	47, 50, and 3(J105)
	47	3(J105)	
	48	B(J107)	48
	49	E(J107)	49
	52	F(J107)	52
	53	I(J107)	51
	55	24(J102)	55

Connector J103 (BTK-35A) -Continued

Condition	From pin —	To pin —	Circuit tested
	56	J(J107)	66
	57	L(J107)	67
	58	N(J107)	58
	59	P(J107)	59
	c	GND J116	c
	D	K(J107)	D
	D	M(J107)	

Connector J104 (B TK-34A)

Condition	From pin —	To pin —	Circuit tested
MRK VOL switch S14 set to on . . .	1	42 (J103)	1 and 42 (J103)
SENS HI LO switch S13 set to HI.	2	3	2 and 3
	2	GND J116	
	5	AUDIO OUTPUT J11 (red)	5
	6	C(J107)	6
VERT CP HOR switch S11 set to HOR.	6	9	6
Jumper terminals of deviation meter M2.	6	D(J107)	
VERT CP HOR switch S11 set to HOR.	7	H(J107)	7
	8	G(J107)	8
	10	Terminal 2 on T1	10, CB2 and P2
	10	Circuit breaker CB2	
POWER 400~sw: ON	10	Connector P2	
Megacycle selector control position:	12	GND J116	
108.1	14	25 and GND J116	14
108.3	15	25 and GND J116	16
108.5	16	26 and GND J116	16
108.7	17	25 and GND J116	17
108.9	18	25 and GND J116	18
109.1	19	GND J116	19
109.3	20	GND J116	20
109.5	21	GND J116	21
109.7	22	GND J116	22
109.9	23	GND J116	23
	24	GND J116	
Megacycle selector control position: 110.1	14	GND J116	14
110.3	15	GND J116	15
110.5	16	GND J116	16
110.7	17	GND J116	17
110.9	18	GND J116	18
111.1	19	25 and GND J116	19
111.3	20	25 and GND J116	20
111,5	21	25 and GND J116	21
111.7	22	25 and GND J116	22
111.9	23	25 and GND J116	23

Connector J105 (BTK-34A)

Condition	From pin —	To pin —	Circuit tested
SENS OFF switch S28 to ON	30	D	30, D, CB1, and J102 (A and B)
	30	Circuit breaker CB1	
	30	A(J102)	
	30	B(J102)	
None	C	GND J116	

22. Resistance Tests

Use the multimeter to check the resistance capabilities of both sections of ADF VOL control R6, SENS HI-LO switch S13, and MKR VOL control R24.

Proceed as follows:

a. ADF VOL Control R6.

NOTE

Pin numbers shown in parenthesis refer to the BTK-35A model.

Condition	From pin —	To pin —	Multimeter reading	Circuit tested
Function switch S2 set to COMP.	X(J102) (18(J102))	C(J102)	100K ±20% .	S2 and the A-section of R6.
Rotate ADF VOL control R6 fully clockwise and fully counterclockwise, checking smoothness of operation.	Y(J102) (19(J102))	C(J102)	100K ±20% in fully clockwise position 0 to +250 ohms in fully counterclockwise position.	S2 and the A-section of R6.
With function switch S2 set to ANT., rotate ADF VOL control R6 in both directions.	Y(J102)	X(J102)	100K ±20% in fully counterclockwise position. 0 to 360 ohms in fully clockwise position.	S2 and the A-section of R6.
Place a shorting clip across the terminals of tuning meter M1. both directions,	U(J102) (15(J102))	C(J102)	50K ±20% in fully counterclock-	B-section of R6.

b. SENS HI-LO Switch S13.

(1) Set SENS switch S13 to LO. Connect the multimeter to pins C(2) and D(3) of connector J104. Multimeter must indicate a reading of infinity.

(2) Set SENS HI-LO switch S13 to HI without changing multi meter connections. Multi meter must indicate a reading of less than 2 ohms.

c. MKR Vol Control R24.

(1) Connect the multimeter to pins B and D(3) of connector J104. Multi meter must indicate a reading of 5K ±20 percent.

(2) Connect the multimeter to pins N(11) and D(3) of connector J104. Rotate MKR VOL control R24 fully clockwise and then fully counterclockwise. The multimeter must indicate a reading of 5K ± 1K in the fully clockwise position and a reading of 0 ohm, + 10, -0, in the fully counterclockwise position.

23. Indicator Meter Tests

Test the operation of Indicator, Course ID-453/ ARN-30, tuning meter M1, DEVIATION meter M2, multimeter M3, and frequency meter M4, as follows:

a. Indicator, Course ID-.453/ARN-30 and DEVIATON METER M2.

(1) Turn power supply off and set variac for minimum output.

(2) connect the power supply to pins K(8) (positive) and J(7) (negative) of connector J104 and connect the test multimeter in series with the power supply connections. Turn power supply on.

(3) Set the VERT-FLAT-HOR switch S27 to HOR and METER switch S24 to FLAG 0-1MA.

(4) Increase the power supply output until the horizontal flag on the indicator is just concealed by the indicator mask. Note and record the indication on the test multimeter. Multinleter M3 must indicate a reading of 254 microampere ±20 if test set is equipped with early model course indicator, and 394 ±20 microampere if test set is equipped with later model course indicator.

(5) (Deleted)

(6) Reduce the power supply output to zero.

(7) Connect the power supply to pins 49 (positive) and 52 (negative) of connector J103 and connect the test multimeter in series with the power supply connections.

(8) Set VERT-FLAG-HOR switch S27 to VERT and METER switch S24 to FLAG 0-1MA.

(9) Increase the power supply output until the vertical flag on the indicator is just concealed by the indicator mask. The test multimeter should indicate the same as in (4) above. Multimeter M3 must indicate a reading of 245 microamperes±20 if test set is equipped with early model course indicator, and 385 ±20 microampere if test set is equipped with later model course indicator.

(10)(Deleted)

(11) Reduce the power supply output to zero.

(12) Connect the power supply to pins 44 (positive) and 48 (negative) of connector J103.

(13) Set VERT-CP-HOR switch S11 to VERT and CP LOAD switch S8 to VOR.

(14) Increase the power supply output until the vertical pointer of the indicator centers midway between the second and third dots to the right of the center circle on the indicator dial. DEVIATION meter M2 must indicate a reading of 110 microampere ±10.

(15) (Deleted)

(16) Reduce the power supply output to zero.

(17) Connect the power supply to pins H(6) (positive) and L(9) (negative) of connector J104 and set the VERT-CP-HOR switch S11 to HOR.

(18) Increase the power supply output until the indicator horizontal pointer centers over the second dot below the center circle on the indicator dial. DEVIATION meter M2 must indicate a reading of 110 microampere ±10.

(19) (Deleted)

(20) Reduce the power supply output to zero and disconnect the power supply.

b. Turning Meter M1.

(1) Connect the power supply to pin U(15) (positive) of connector J102 and GND connector J116.

(2) Set function switch S2 to ANT and rotate ADF VOL control R6 fully clockwise.

(3) Adjust the power supply to provide 15 milliamperes ±10 percent. Tuning meter M1 should indicate approximately full scale to the left.

(4) Rotate ADF VOL control R6 fully counterclockwise without changing switch S2 or the power supply output. Tuning meter M1 should indicate approximately full scale to the right.

(5) Rotate ADF VOL control R6 slowly back to the fully clockwise position and note there is no needle hang-up during its swing from full right to full left.

(6) Reduce power supply output to zero and disconnect the power supply.

c. *Multimeter M3 and Frequency Meter M4.*

(l) Connect the power supply to the studs of the 5-ampere shunt on the test set, observing proper polarity. Connect the test multimeter in series with the power supply connections. Set METER switch S24 to LV 0-5A.

(2) Slowly increase the power supply output until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 5 amperes ±0.15.

(3) Reduce the power supply output to zero.

(4) Connect the power supply to the studs of the 30-ampere shunt on the test set. Observe proper polarity. Connect the test multimeter to the power supply connections and set METER switch S24 to LV 0-30A.

(5) Slowly increase the power supply output until multimeter M3 indicates full scale (or 25 amp). The test multimeter must indicate a reading of 30 amperes ±0.9 (or 25 amp ±0.9).

(6) *Reduce the* power supply output to zero.

(7) Connect the power supply to connector P1 and set circuit breaker CB1 to ON. Set METER switch S24 to LV 0-30V. Connect the test multimeter to the power supply connections.

(8) Slowly increase the power supply output until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 30 volts dc ±0.9. Check to see that POWER DC indicator lamp DS23 glows.

(9) Reduce the power supply output to zero.

(10) With the power supply connected to connector P1, connect the motor-generator and variac to the red and blackjacks of connector J111 (AUDIO OUTPUT). Set METER switch S24 to AUDIO 0-6V. Connect the test multimeter across the variac connections.

(11) Apply 30 volts dc from the power supply to the test set. Apply 6 volts, 400 Hertz through the variac to the test set. Check to see that multimeter M3 indicates full scale. The test multimeter must indicate a reading of 30 volts ac ±3 percent (29.1 to 30.9 volts).

(12) Set METER switch S24 to AUDIO 0-30V. Increase the ac voltage until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 30 volts ac ±3 percent (29.1 to 30.9 volts).

(13) Reduce the motor-generator output to zero.

(14) Set METER switch S24 to AUDIO 0-50MW. Increase the ac voltage until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 3.88 volts ac ±0.08 (3.80 to 3.96 volts).

(15) Reduce the motor-generator output to zero.

(16) Set METER switch S24 to the AUDIO 0-500MW. Increase the ac voltage until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 12.2 volts ac ±0.4 (11.8 to 12.6 volts).

(17) Reduce the ac and dc voltages to zero and disconnect the test equipment.

(18) Connect the power supply to pin 3 (positive) of connector J105 and GND connector J116. Connect the test multimeter across the power supply connections.

(19) Set METER switch S24 to HV +0 -600V. Increase the power supply output until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 600 volts dc ± 18 (5.82 to 6.18 volts).

(20) Reduce the power supply output to zero.

(21) Set METER switch S24 to NAVMOD 0-6V. Connect the power supply to the connector P1. Connect the motor-generator through the variac to pin 33 of connector JI03 and GND connector J116. Connect the test multimeter across the ac voltage connections.

(22) Apply a dc voltage of 30 volts ±0 and increase the ac voltage until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 6 volts ac ±.0.18 (5.82 to 6.18 volts).

(23) Reduce the ac and dc voltages to zero and disconnect the test equipment.

(24) Connect the Positive lead from the power supply to pin 1 of connector J105 and the negative lead to GND connector J116. Connect the test multi meter in series with the power supply connections. Set METER switch S24 to CATHODE 0-30 MA. Rotate SENS control R27 fully clockwise.

(25) Increase the power supply output until multi meter M3 indicates full scale, The test multimeter must indicate a reading of 30 milliamperes ±0.9 (29.1 to 30.9 ma).

(26) Reduce the power supply output to zero.

(27) Connect the positive lead from the power supply to pin 52 and the negative lead to pin 49 of connector J105. Connect the test multi meter in series with the power supply connections. Set METER switch S24 to AN/ARC-27155.

(28) Increase the power supply output until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 1 milliampere ±0.03.

(29) Reduce the power supply output to zero.

(30) Connect the positive lead from the power supply to pin BB of connector J102 and the negative lead to GND connector J116. Set METER switch S24 to HV1 0-150V. Connect the test multimeter across the power supply connections.

(31) Increase the power supply output until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 150 volts dc ±4.5 (145.5 to 154.5 volts).

(32) Reduce the power supply output to zero.

(33) Connect the positive lead from power supply to pin EE (25) of connector J102 and the negative lead to GND connector JI16. Set METER switch S24 to HV2 0-150V. Connect the test multi meter across the power supply connections.

(34) Increase the power supply output until multirneter M3 indicates full scale. The test multimeter must indicate a reading of 150 volts ±4.5 (145.5 to 154.5 volts).

(35) Reduce the power supply output to zero.

(36) Connect the power supply connector P1 and set circuit breaker CB1 to the ON position. Connect the motor-generator through the variac to pin R(12) of connector J102 and GND connector J116. Connect the test multimeter across the variac connections. Set METER switch S24 to ADF 0-30V.

(37) Apply 30 volts dc from the power supply and adjust the frequency of the ac voltage to 100±3 Hertz. Increase the ac voltage output of the motor-generator until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 30 volts ac ±0.9 and test set frequency meter M4 must indicate 100 Hertz.

(38) Reduce the ac voltage output to zero.

(39) Connect the motor-generator to pin AA (21) of connector J102 and the GND connector J116. The power supply connections remain the same as in (37) above. Connect the test multimeter across the variac connections and set METER switch S24 to ADF 0-150V. Set MOTOR switch S6 to ON.

(40) Adjust the frequency of the ac voltage to 400 Hertz and increase the ac voltage output until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 150 volts ac ±4.5 (145.5 to 154.5 volts).

(41) Reduce the ac and dc voltages to zero and disconnect the test equipment.

(42) Connect the positive lead from the power supply to pin K (8) and the negative lead to pin J (7) of connector J104. Connect the test multimeter in series with the power supply connections. Disconnect connector J107 from Indicator, Course ID-453/ARN-30.

(43) Set VERT-FLAG-HOR switch S27 to HOR. Set METER switch S24 to FLAG 0-1MA. Increase the power supply output until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 1 milliampere ±0.3.

(44) Reduce the power supply output to zero.

(45) Connect the power supply to connector P1 and set circuit breaker CB1 ON. Connect the motor-generator through the variac to connector P2. Set circuit breaker CB2 to ON. Connect the test multimeter across the variac connections.

(46) Set METER switch S24 to 400- 0-150V. Adjust the power supply for an output of 30 volts dc and increase the ac voltage output until multimeter M3 indicates full scale. The test multimeter must indicate a reading of 150 volts ac ±4.5 (145.5 to 154.5 volts). Check to see that the POWER 400 ~ indicator lamp DS24 glows.

(47) Reduce the ac and dc voltages to zero and disconnect the test equipment.

24. Indicator, Course ID-250/ARN Test

Check to see that the indicator dial locks in at 0° or 180° when power is applied. Proceed as follows:

a. Connect the motor-generator through the variac to connector P2 and set circuit breaker CB2 to ON.

b. Apply an ac voltage of 115 volts, 400 Hertz, to the test set. The indicator dial must lock in at 0° or 180°.

c. Reduce the ac voltage zero and disconnect the motor-generator and variac.

25. Indicator Lamps Tests

Test the lighting and cycling operation of indicator lamps DS1 through DS15 as follows:

a. Connect the power supply to connector PI and set circuit breaker CB1 to ON. Set control selector switch S7 to UHF XMTR. Set alignment function selector switch S19 to NORM.

b. Apply 30 volts dc from the power supply.

c. Set the C-1827/ARC-55 control to the 10-mc dial settings as shown in the left-hand column of the following chart. The indicator lamps listed for each setting must light.

NOTE

Ignore indicator lamps I through R.

10-mc dial setting	Lighted indicator lamps
20	ACEH
21	BDH
22	CEH
23	ADH
24	BE
25	CH
26	DH
27	E
28	AH
29	AB
30	ABCH
31	ABCD
32	BCDEH
33	ACDE
34	ABDE
35	BCEH
36	ACD
37	BDE
38	ACE
39	BD

d. Set the C-1827/ARC-55 control to the l-me dial settings with the 0.1-mc dial in any position from 0 to 0.4. The indicator lamps listed for each setting must light.

NOTE

Ignore indicator lamps A through H and O through R.

1-mc dial setting	Lighted indicator lamps
o	IJL
1	IJKN
2	JKL
3	IKLN
4	IJLN
5	JKN
6	KL
7	ILN
8	JN
9	IK

e. Set the C-1827/ARC-55 control to the l-me dial settings with the 0.1-mc dial in any position from 0.5 to 0.9. The indicator lamps listed for each settings must light.

NOTE

Ignore indicator lamps A through H and O through R.

1-mc dial setting	Lighted indicator lamps
0	KN
1	L
2	IN
3	J
4	K
5	IL
6	IJN
7	JK
8	lKL
9	JLN

f. Set the C1827/ARC-55 control to the 0.1-mc dial settings. The indicator lamps listed for each setting must light.

NOTE

Ignore indicator lamps A through N.

0.1-mc dial setting	*Lighted indicator lamps*
0	OPQ
1	PQR
2	OQR
3	PR
4	Q
5	R
6	0
7	P
8	OQ
9	OPR

g. Without disturbing the power supply connections, set control selector switch S7 to INT and operate the megacycles and fractional megacycle knobs of the megacycle selector control. The indicator lamps listed in the chart below must light for each setting shown.

NOTE

Ignore indicator lamps A through E and N through R on whole megacycle drum settings. Ignore lamps A through L for fractional megacycle drum settings.

	Lighted indicator lamps
108	KL
109	JKL
110	HL
111	IJKL
112	I
113	HLJK
114	J
115	HLJL
116	K
117	HIK
118	L
119	HJL
120	H
121	IK
122	HI
123	HJ
124	IJ
125	IL
126	JK
Space	HKL

Fractional *megatcycle dream setting*	*Lighted indicator lamps*
.00	NO
.01	NR
.20	Q
.30	P
.40	0
.50	N
.60	R
.70	QR
.80	PQ
.90	OP

h. Replace the power supply output to zero and disconnect the power supply.

26. Relay Operation and Transformer T1 Tests

a. Connect 30 VDC to P1. Connect 115V 400 Hz to P2.

6. Jumper pins 61(B) and 63(D) on J105. Set KEY/MOM switch to OFF. Set VOR-GS switch to OFF.

c. Perform continuity/voltage measurements per following chart.

Condition	F'rom	To	Requirements
Set CB1 and CB2 to on,	—	—	Power DC indicator on power 400~ indicator on. STANDBY indicator on.
	J119 -Hi (Sig Gen)	J120 - Hi (Xmtr Out)	Continuity.
Set KEY/MOM switch to KEY.	J118 - Hi (Watt Mtr)	J120 - Hi (Xmtr Out)	Continuity.
	J105 Pin 15	J105 Pin 16	Continuity.
	—	—	Xmtr indicator on STANDBY indicator off.
Set VOR-GS switch to on.	J103 Pin 60 (A)	GND J116	30 vdc ± 10%
Momentarily press PRESS TO SET switch.	—	—	400 ~ indicator on.
Set MKR VOL switch on jumper pins A(1) and E(4) on J104.	—	—	400 ~ indicator on.
Transformer T1 measures at 400 Hz.	J103 Pin 41 (J101-8)	GND J116	9 to 13 vat.
	J103 Pin 39 (J1O1-A)	GND J116	24 to 33 vat.
Remove power and jumpers.	—	—	None.

27. Simulator SM-295/ARM-63 or SA-41A Test

a. Refer to figure 1 in TM, the simulator schematic diagram. Use Digital Multimeter Fluke #8100A and verify the resistance of R101, R102, and R103. Resistance should be within 1% of indicated value.

b. Connect Signal Generator AN/GRM-50 (HP-606A) to the SIG GEN input of the SM-295/ARM-63. Load input with 50-ohm impedance, using the DA-296/GRM-50. Connect Rf Voltmeter AN/URM-155 (HP-411A) to the REC output of the SM-295/ARM-63. Set the AN/GRM-50 for a 500 kHz. CW, 1 volt output.

c. Set the range switch of the AN/URM-155 to the 1-volt FS range. Set the DUMMY-FIELD switch on the UUT to the DUMMY position. The AN/URM-155 should indicate 0.8 volts ± 10% (0.72 to 0.88 volt).

d. Set the range switch of the AN/URM-155 to the 0.03-volt FS range. Set the DUMMY-FIELD switch on the UUT to the FIELD position. Rotate the selector switch on the UUT to positions ARN-6, ARN-54 and ARN-59, in turn. The AN/URM-155 should indicate between 0.016 and 0.04 volt at each position, and there shall be a definite level change for each position.

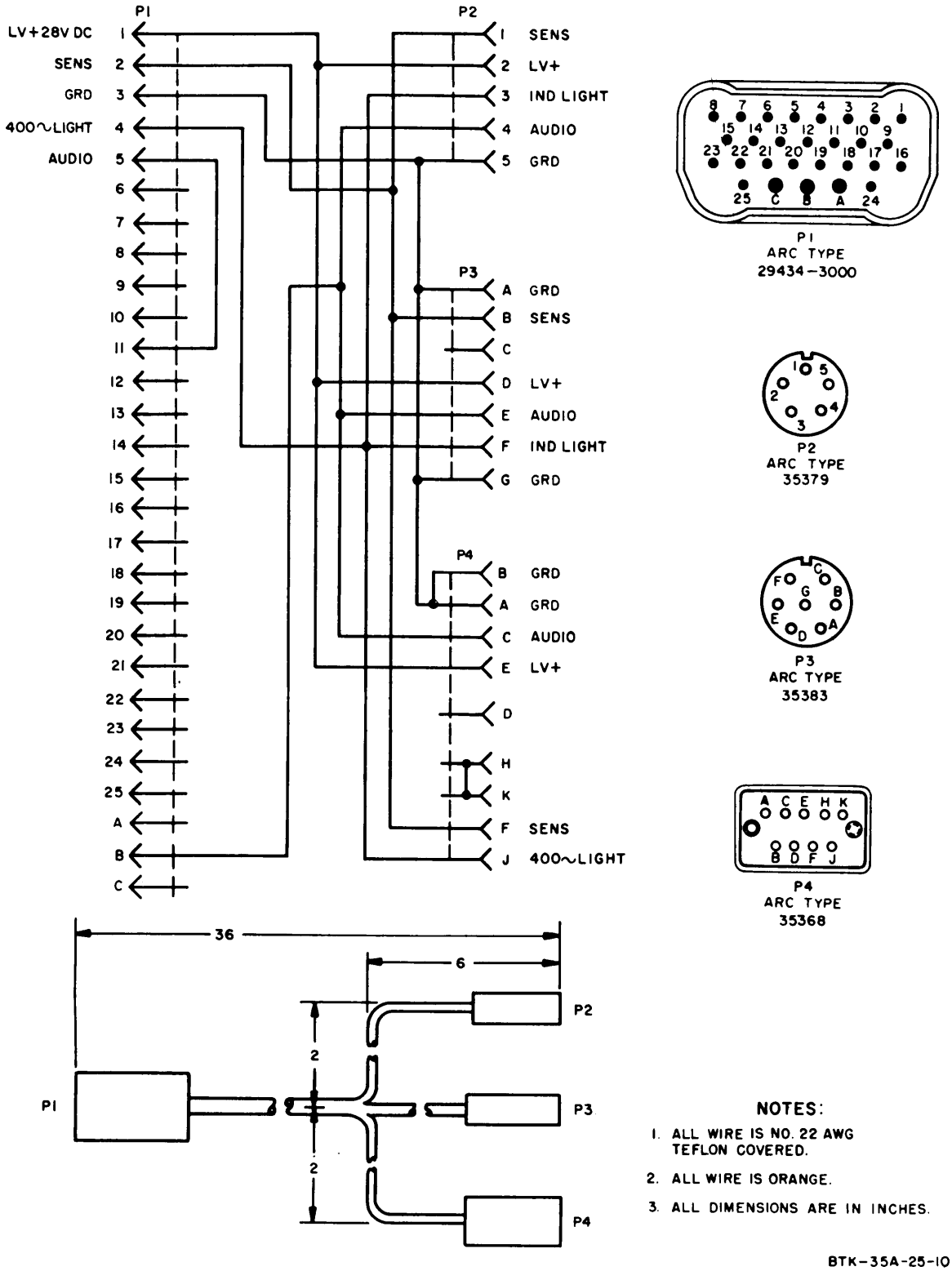


Figure 10. Marker receirers test cable,
(Aircraft Radio Corp. Model BTK-35A)

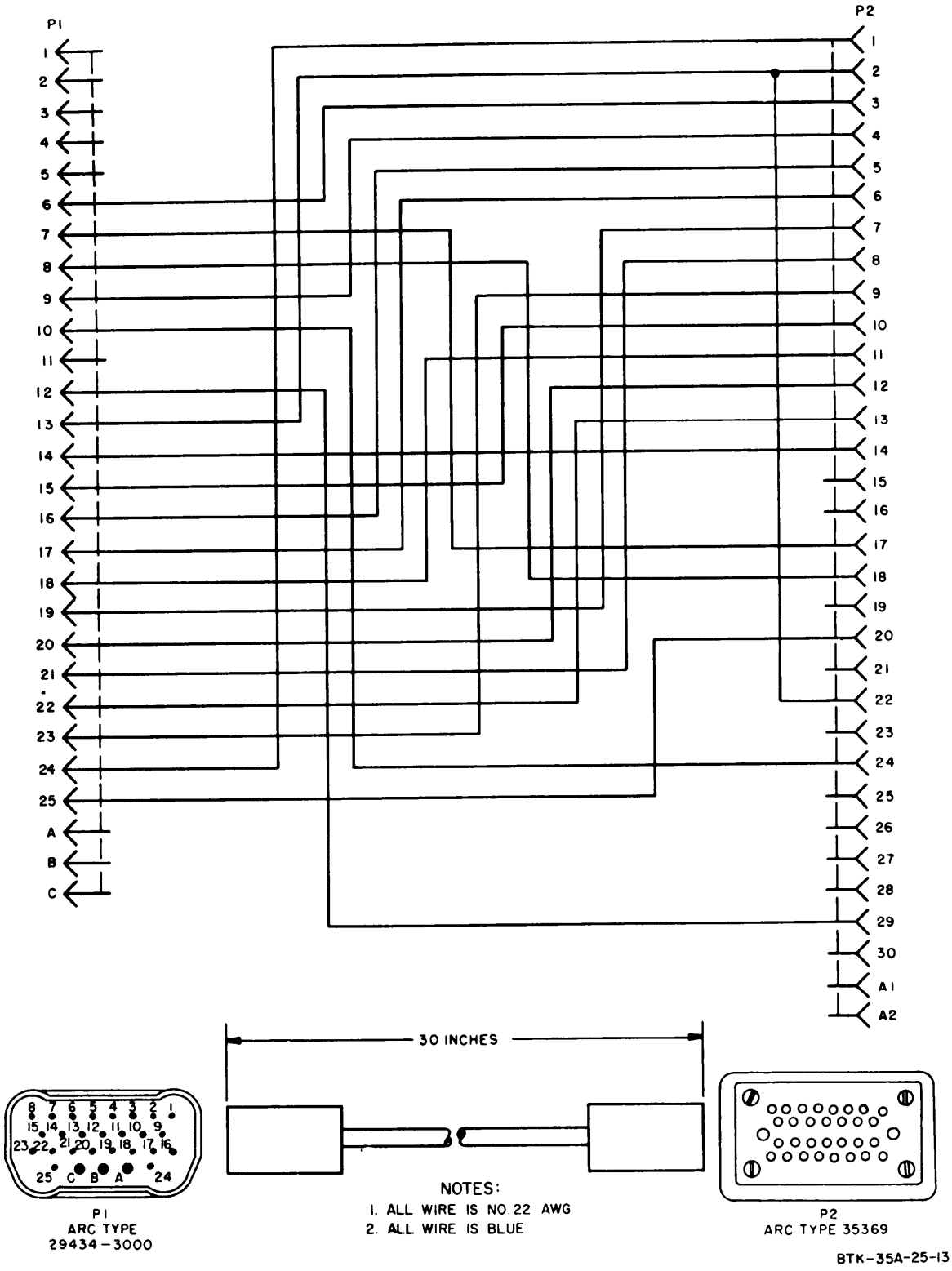


Figure 13. Glide slop test cable, wiring diagram (Aircraft Radio Corps. Model btk-35A)

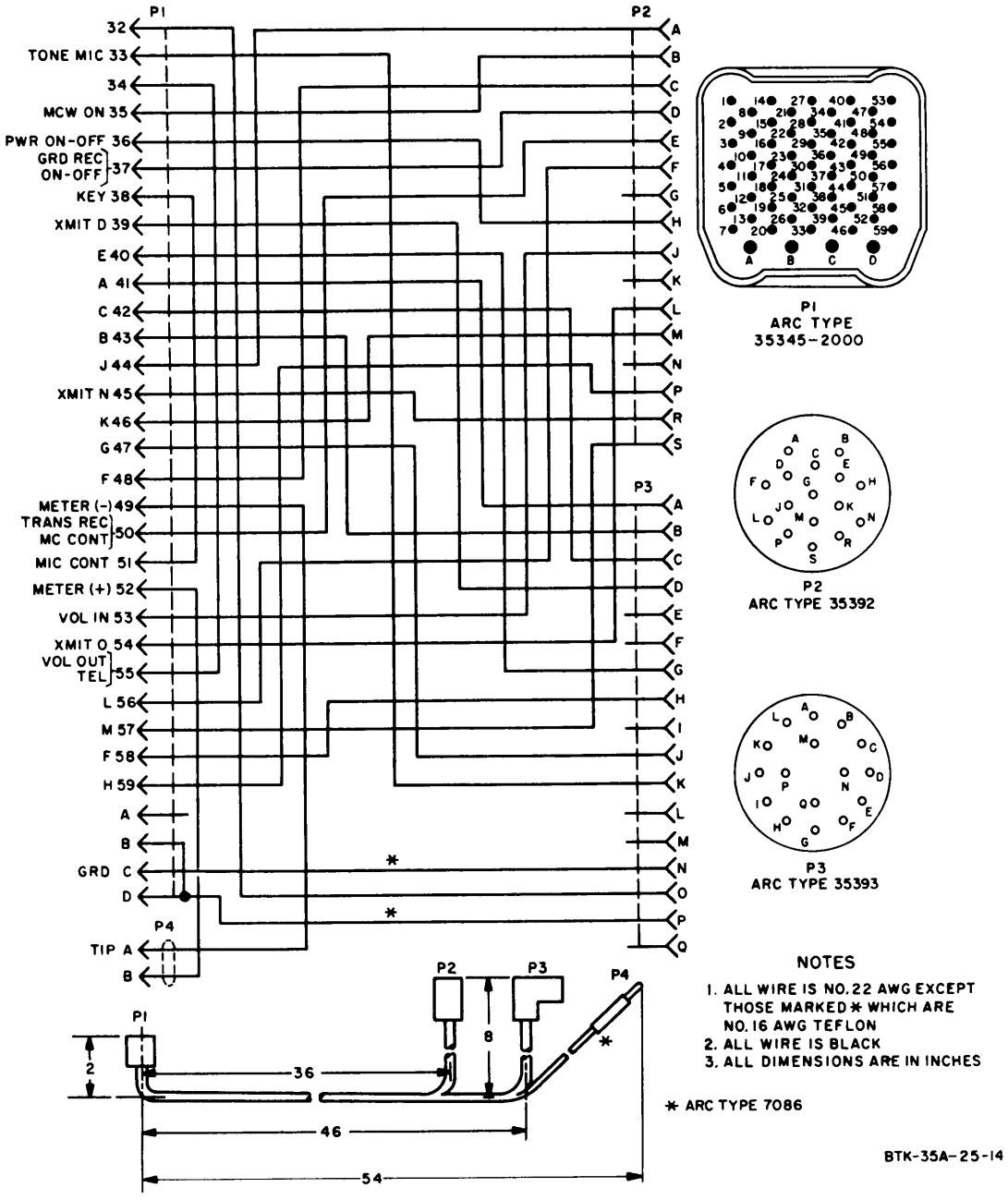


Figure 14. ARC–27 test cable, wiring diagram. (Aircraft Radio Corp. Model BTK-35A)

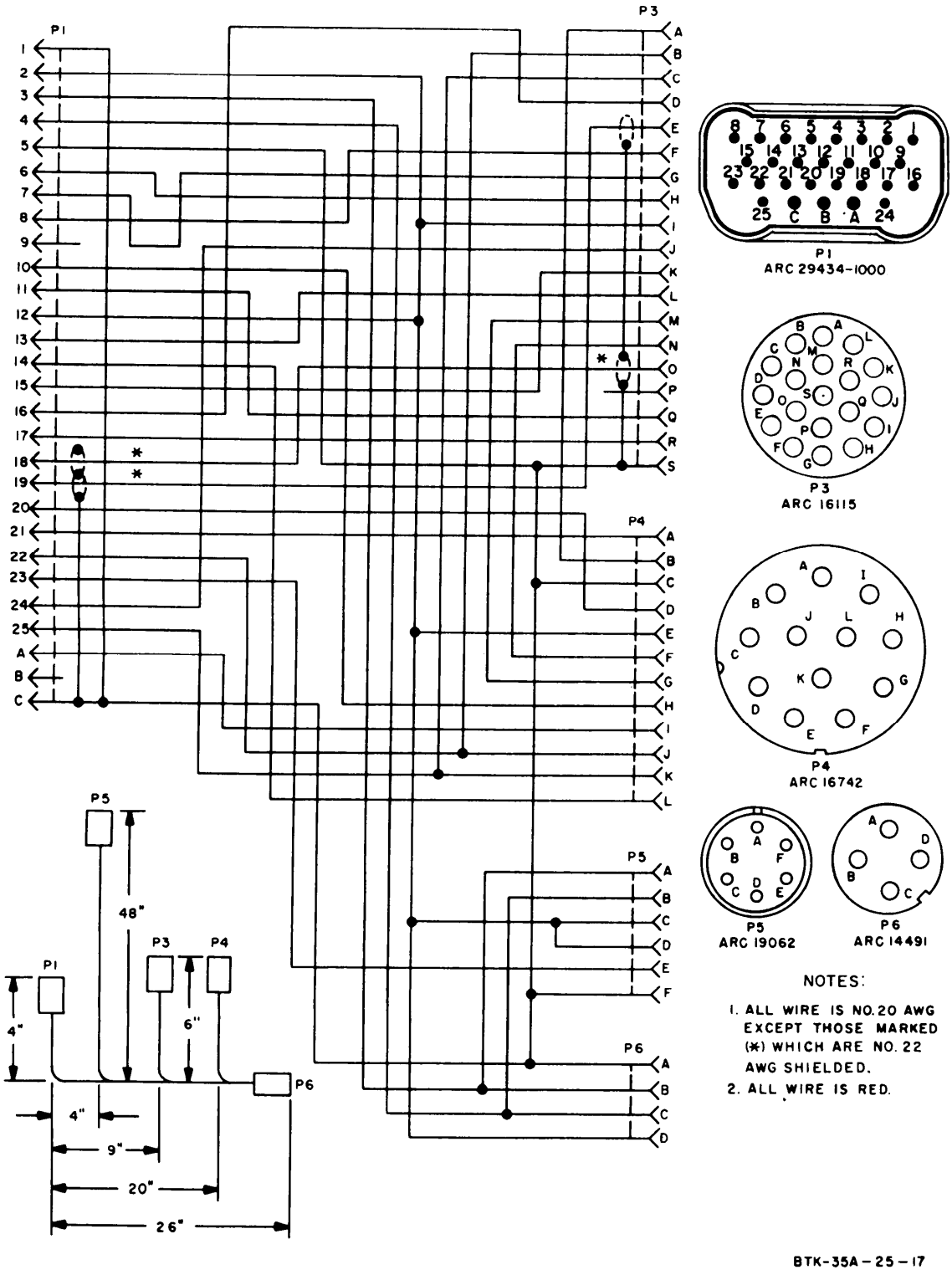
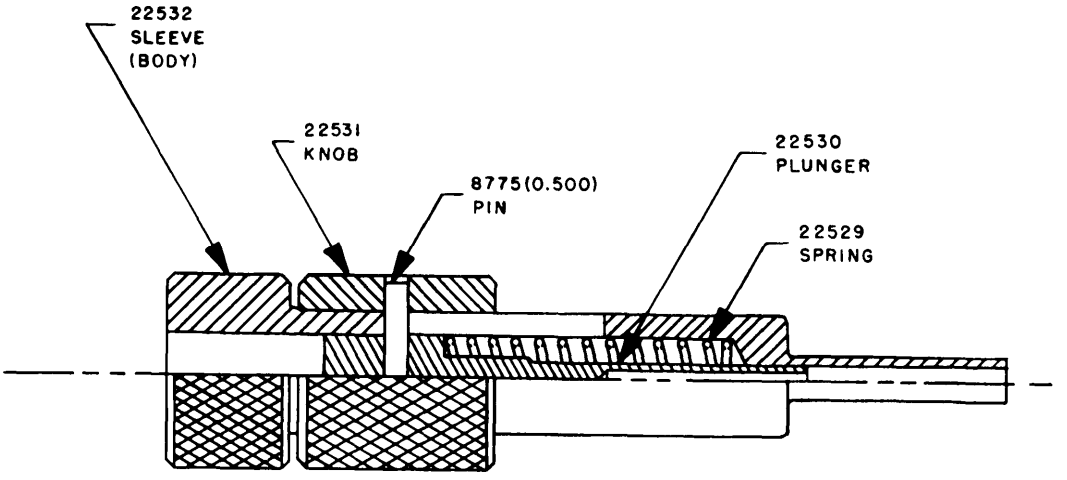
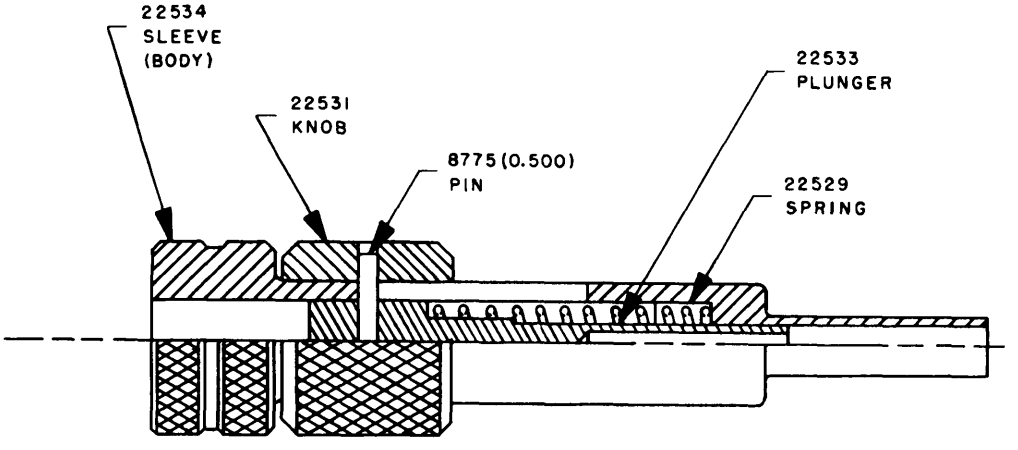


Figure 17. ARN–59 test cable, wiring diagram. (Aircraft Radio Corp. Model BTK-35A)



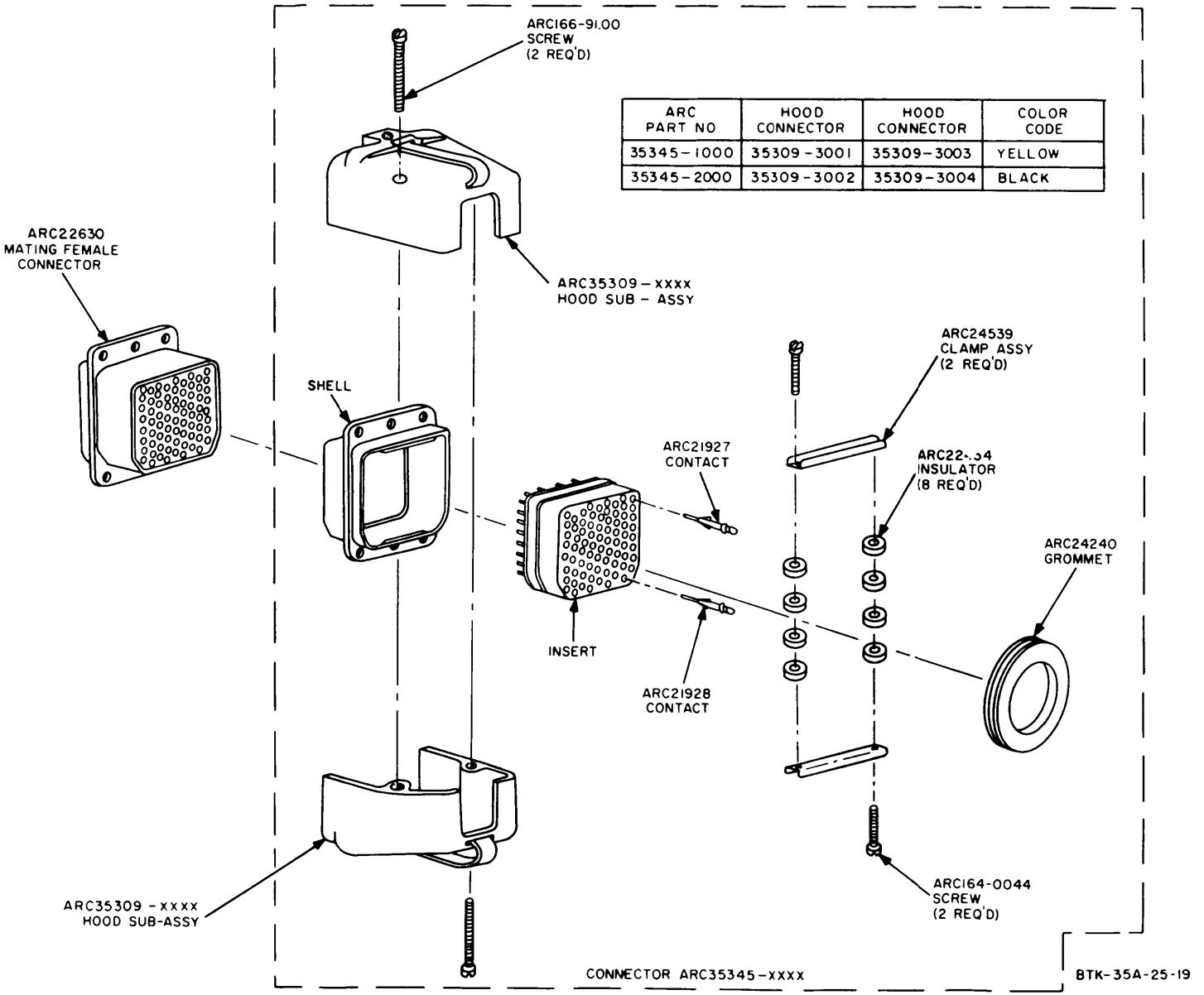
A. CONTACT REMOVING TOOL ARC 22001 FOR 0.040 DIAMETER CONTACTS



B. CONTACT REMOVING TOOL ARC 22002 FOR 0.062 DIAMETER CONTACTS

BTK-35A-25-18

Figure 18. contact-removing tools.



ARC PART NO	HOOD CONNECTOR	HOOD CONNECTOR	COLOR CODE
35345-1000	35309-3001	35309-3003	YELLOW
35345-2000	35309-3002	35309-3004	BLACK

Figure 19. Connectors ARC 22630 and ARC 28148, exploded view.

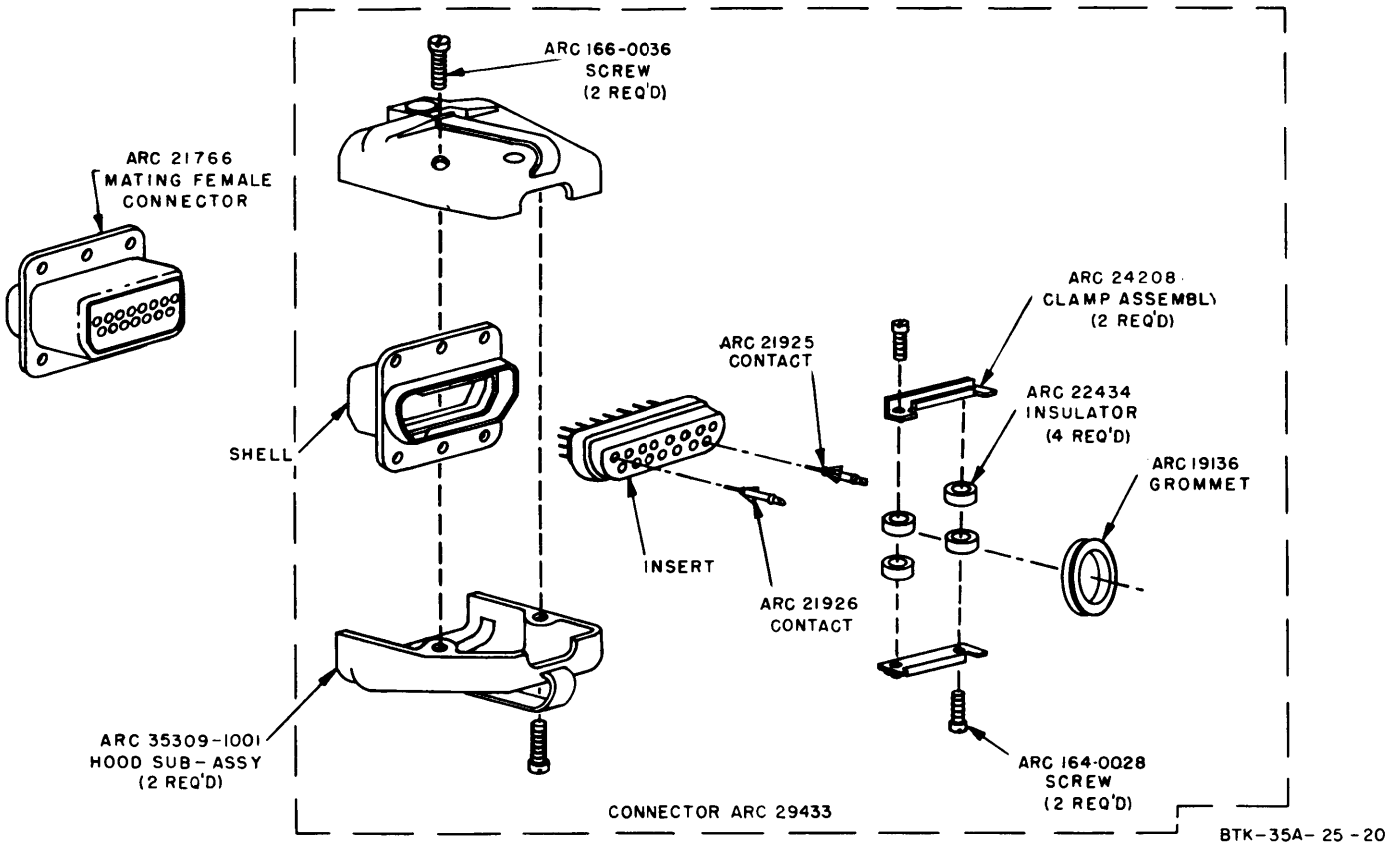
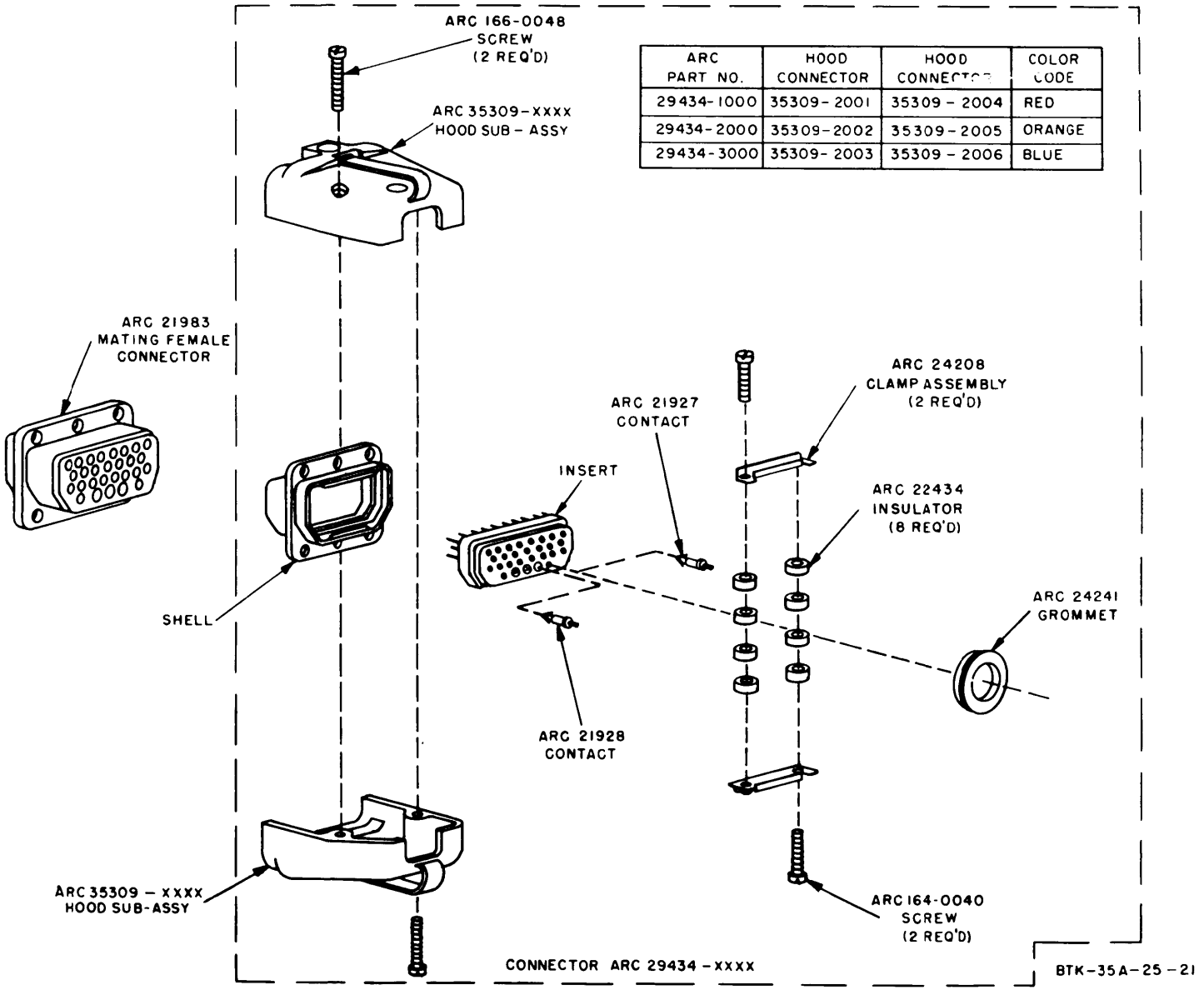


Figure 20. Connectors ARC 21766 and 29433, exploded view.



ARC PART NO.	HOOD CONNECTOR	HOOD CONNECTOR	COLOR CODE
29434-1000	35309-2001	35309-2004	RED
29434-2000	35309-2002	35309-2005	ORANGE
29434-3000	35309-2003	35309-2006	BLUE

Figure 21. Connectors ARC 21983 and ARC 29434, exploded view.

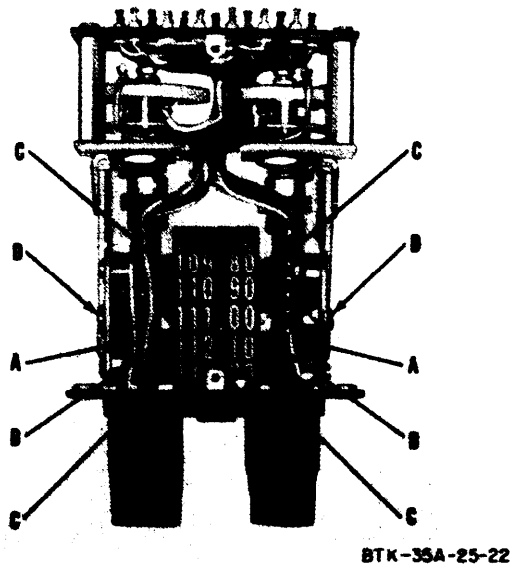


Figure 22. Megacycle selector control lubrication points.

APPENDIX A
REFERENCES

Following is a list of applicable references available to General Support and Depot Maintenance of Test Set, Radio AN/ARM-63 (Aircraft Radio Corp. Model BTK-35A):

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, 9) Supply Bulletins and Lubrication Orders.
DA Pam 310-7	U.S. Army Equipment Index of Modification Work Orders.
TB 9-6625-388-35	Calibration Procedure for Resistance Bridge ZM-4/U, ZM-4A/U, ZM-4B/U, I-49, I-49A, and I-49B; Industrial Instruments Model RN-1; Leeds and Northrup Models 5300, 5305, and 5430AMI; and Gray Instruments Models E3108 and E3207.
TM 11-5821-205-35	DS, GS, and Depot Maintenance Manual Radio Sets AN/ARC-60 and AN/ARC-60A.
TM 11-5821-225-24	Organizational and Field Maintenance Manual: Radio Sets AN/ARC-27, AN/ARC-27A, AN/ARC-55, AN/ARC-55A, and AN/ARC-55B.
TM 11-5821-225-50	Depot Maintenance Manual: Radio Set AN/ARC-27, AN/ARC-27A, AN/ ARC-55, AN/ARC-55A, and AN/ARC-55B.
TM 11-5826-207-24	Organizational and Field Maintenance: Radio Receiving Sets AN/ARN-30A, AN/ARN-30B, and AN/ARN-30C.
TM 11-5826-20760	Depot Maintenance: Radio Receiving Sets AN/ARN-30A, AN/ARN-30B, AN/ARN-30C.
TM 11-5826-211-50	Depot Maintenance Manual: Radio Magnetic Indicator ID-250A/ARN.
TM 11-5950-205-14P	Operator's Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools Lists (including Depot Maintenance Repair Parts and Special Tools): Transformer, Variable, Power CN-16U, CN-16AU, and CN-16B/U.
TM 11-6125-239-15	Operator's, Organizational, Direct Support, General Support and Depot Maintenance Manual: Motor Generator PU-544/A.
TM 11-6130-246-12	Operator's and Organizational Maintenance Manual: Power Supply PP-1104/G (with Instructions for Use as a Battery Charger).
TM 11-6625-556-12	Operator and Organizational Maintenance Manual Including Repair Parts and Special Tools Lists, Test Set, Radio AN/ARN-63 (Aircraft Radio Corp. Model BTK-35).
TM 11-6625-654-14	Operator's, Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools Lists) for Multimeter AN/USM-223.

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General, United States Army.
Chief of Stuff.

Official:

KENNETH G. WICKHAM
Major General, United States Army,
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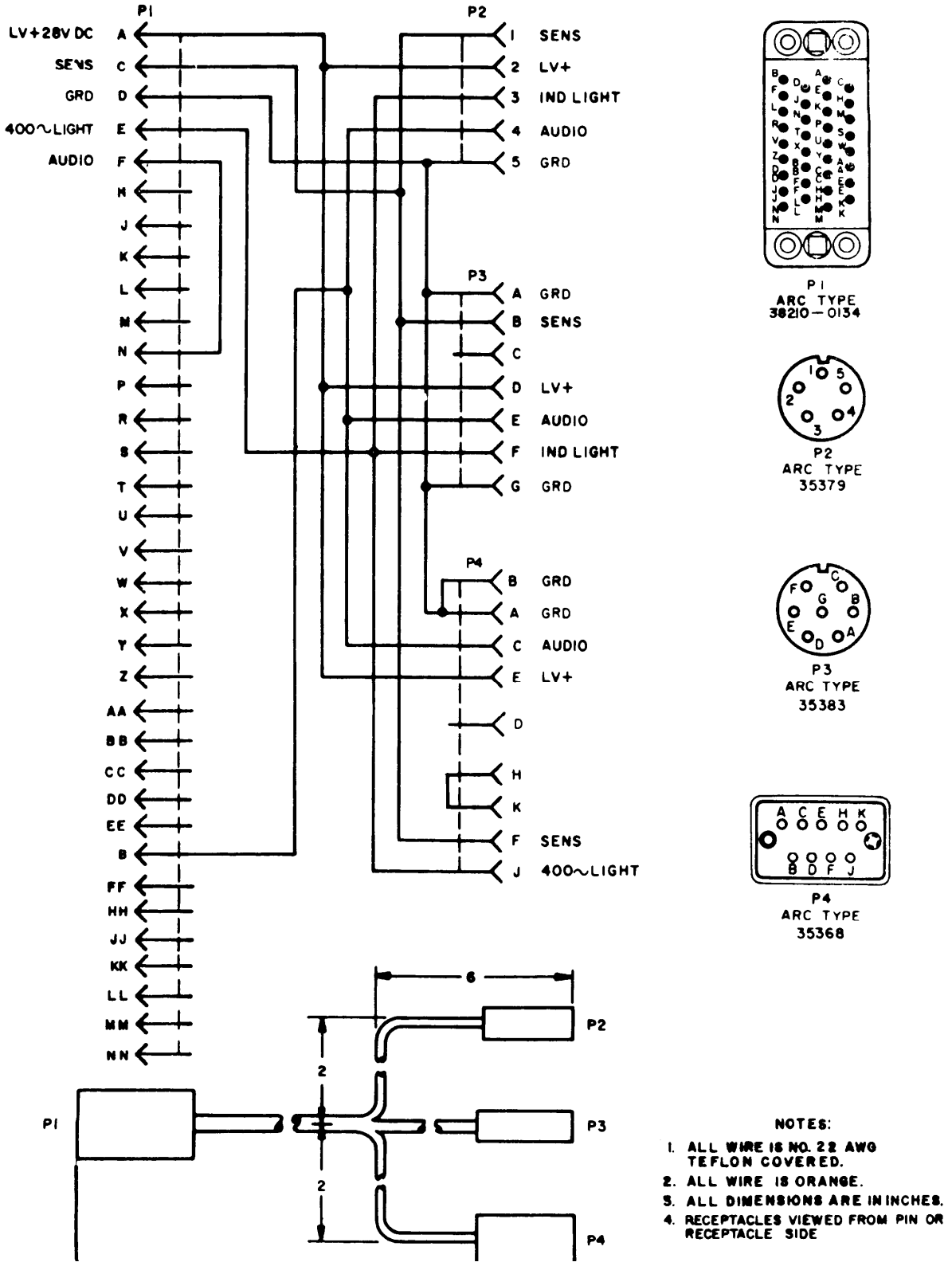


Figure 10.1 Marker Receiver Test Cable CX-8745/ARM-63 wiring diagram (AN/ARM-63 procuredon Contract DAAB05-67-C-1648).

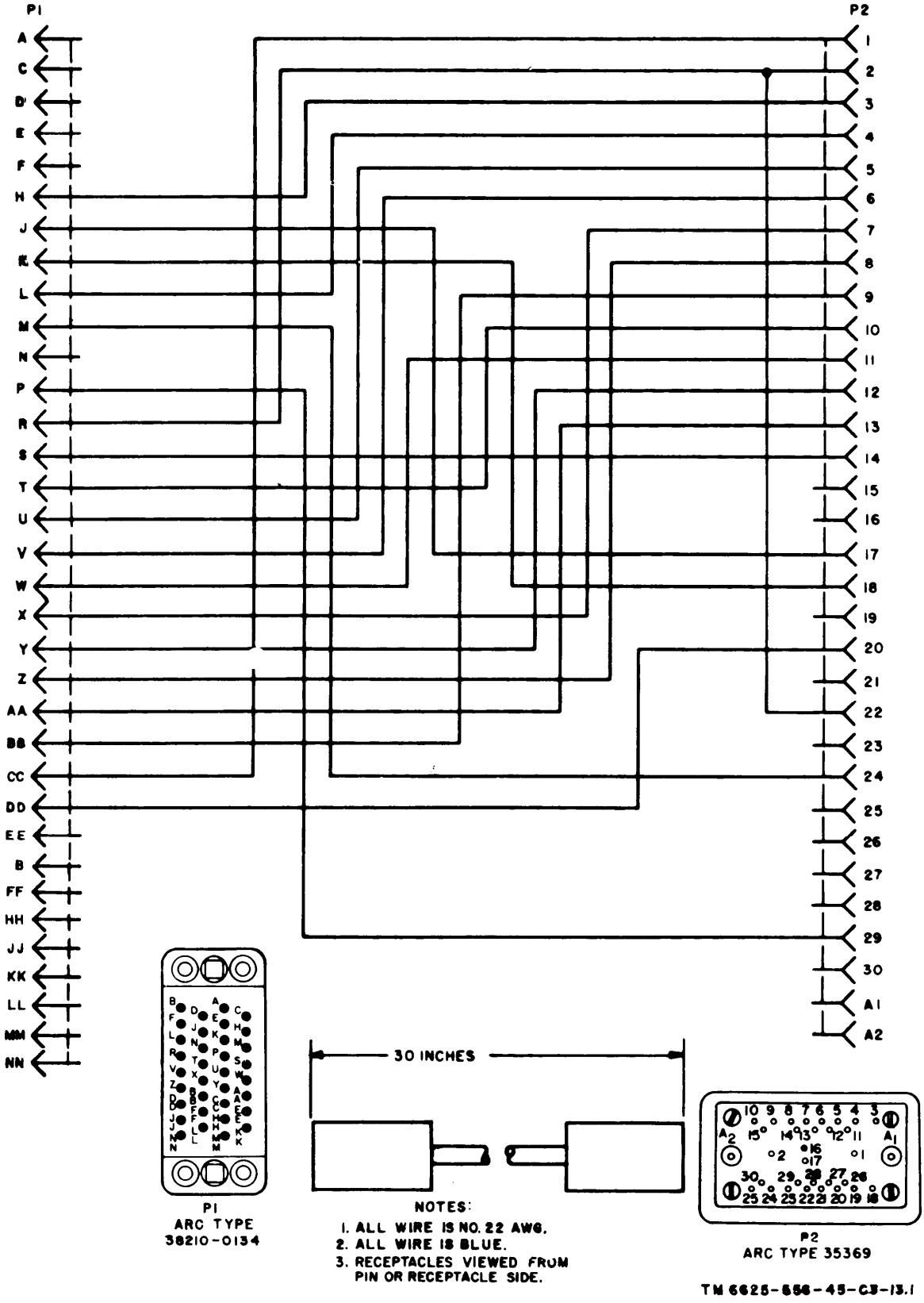
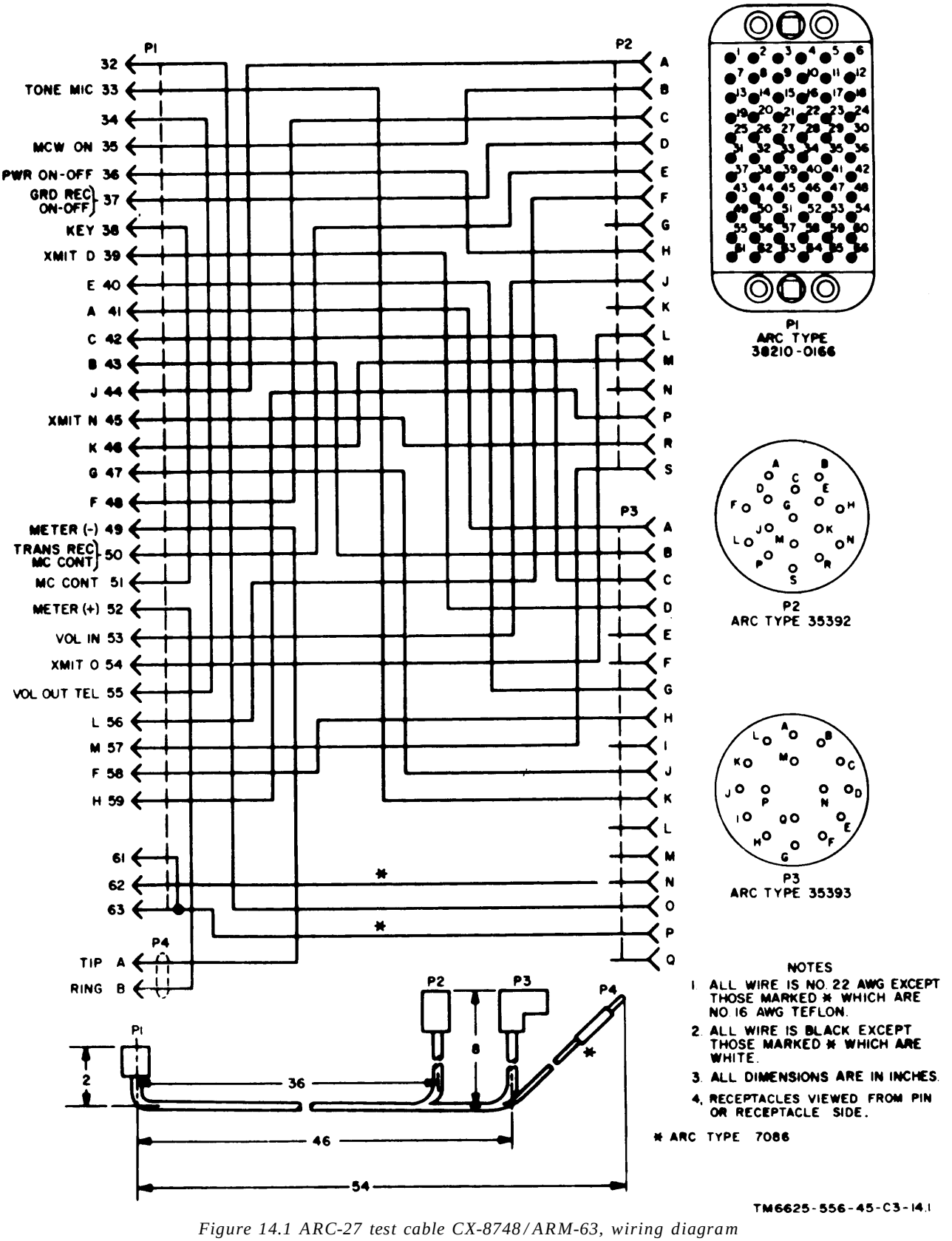


Figure 13.1 Glide slope test cable CX-8747/ARM-63, wiring diagram (AN/ARM-63 procured on Contract DAAB05-67-C-1648).



NOTES

1. ALL WIRE IS NO. 22 AWG EXCEPT THOSE MARKED * WHICH ARE NO. 16 AWG TEFLON.
2. ALL WIRE IS BLACK EXCEPT THOSE MARKED * WHICH ARE WHITE.
3. ALL DIMENSIONS ARE IN INCHES.
4. RECEPTACLES VIEWED FROM PIN OR RECEPTACLE SIDE.

* ARC TYPE 7086

TM6625-556-45-C3-14.1

Figure 14.1 ARC-27 test cable CX-8748/ARM-63, wiring diagram (AN/ARM-63 procured on Contract DAAB05-67-C-1648).

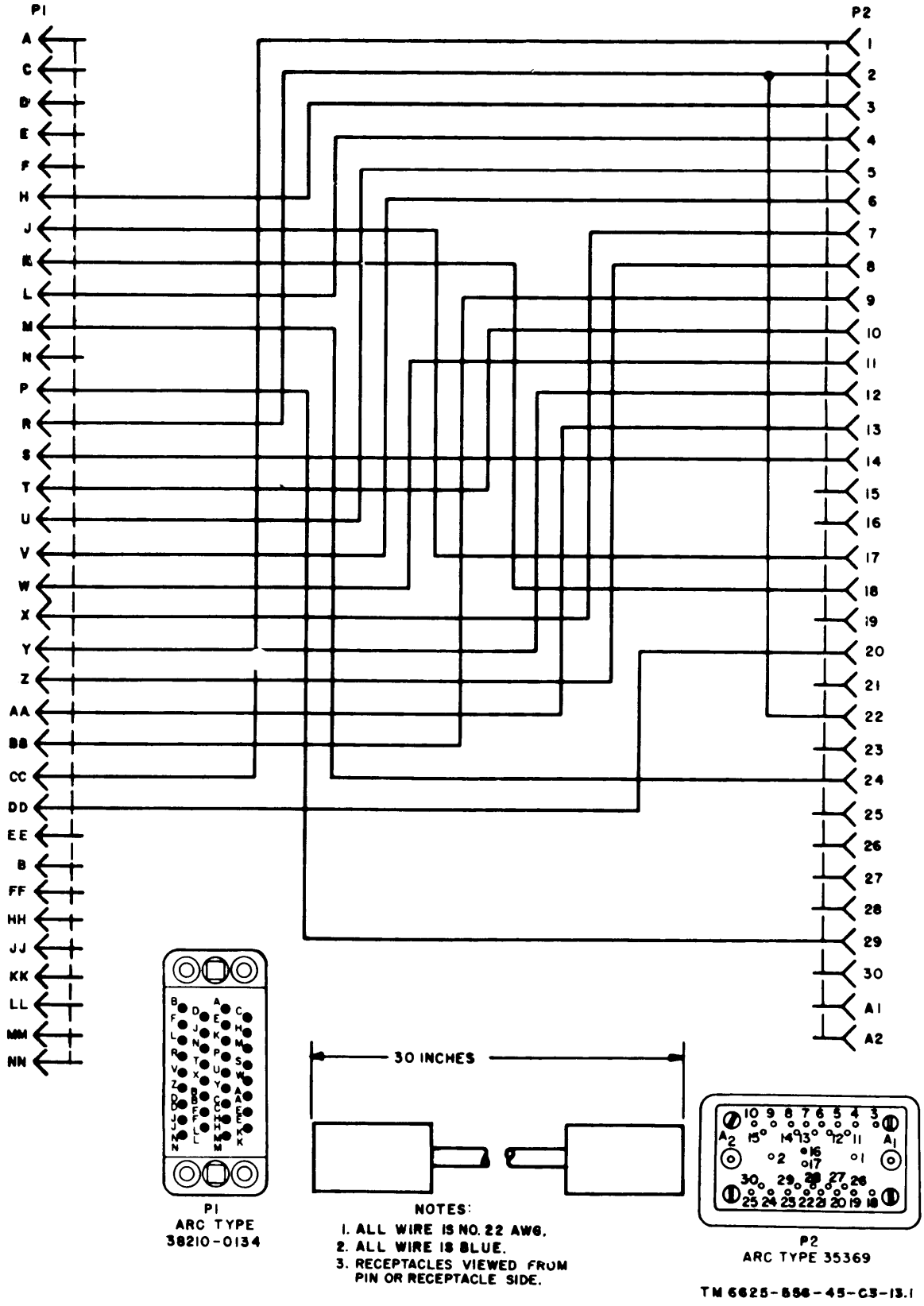
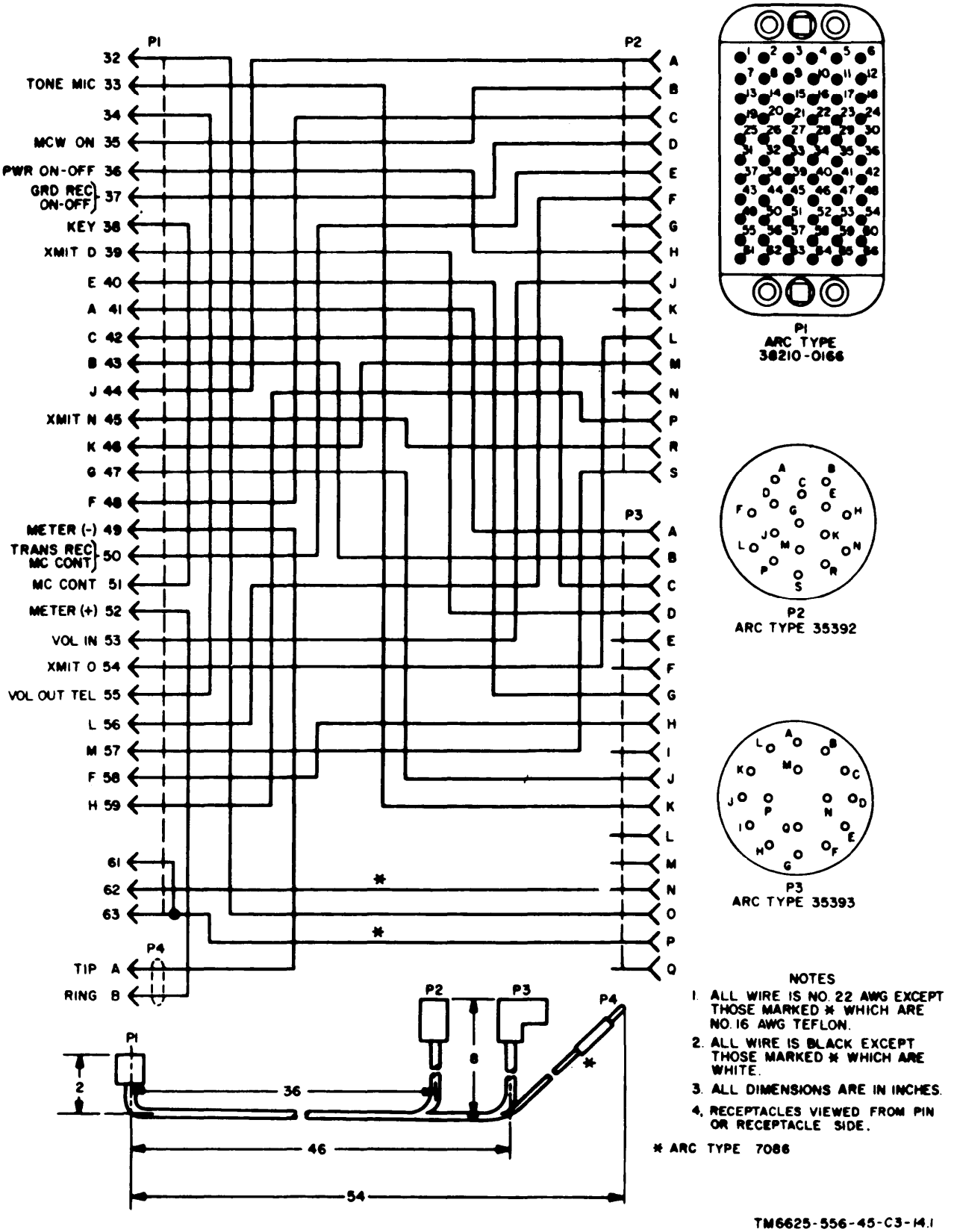


Figure 13.1 Glide slope test cable CX-8747/ARM-63, wiring diagram (AN/ARM-63 procured on Contract DAAB05-67-C-1648).



NOTES

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2. ALL WIRE IS BLACK EXCEPT THOSE MARKED * WHICH ARE WHITE.
3. ALL DIMENSIONS ARE IN INCHES.
4. RECEPTACLES VIEWED FROM PIN OR RECEPTACLE SIDE.

* ARC TYPE 7086

TM6625-556-45-C3-14.1

Figure 14.1 ARC-27 test cable CX-8748/ARM-63, wiring diagram (AN/ARM-63procured on Contract DAAB05-67-C-1648).

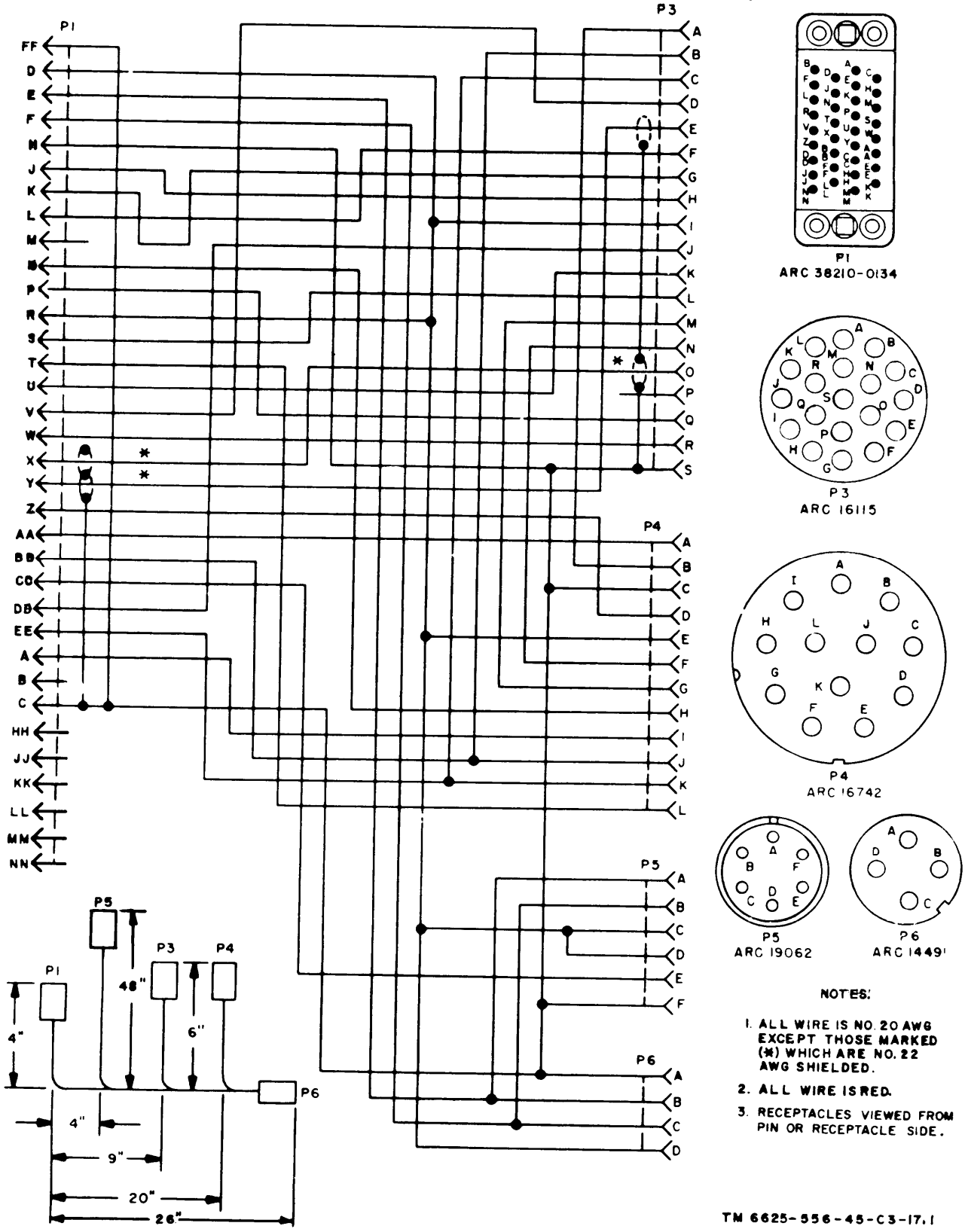


Figure 17.1 ARN-59 test cable CX-8744/ARM-63, wiring diagram (AN/ARM-63 procured on Contract DAAB05-67-C-1648).

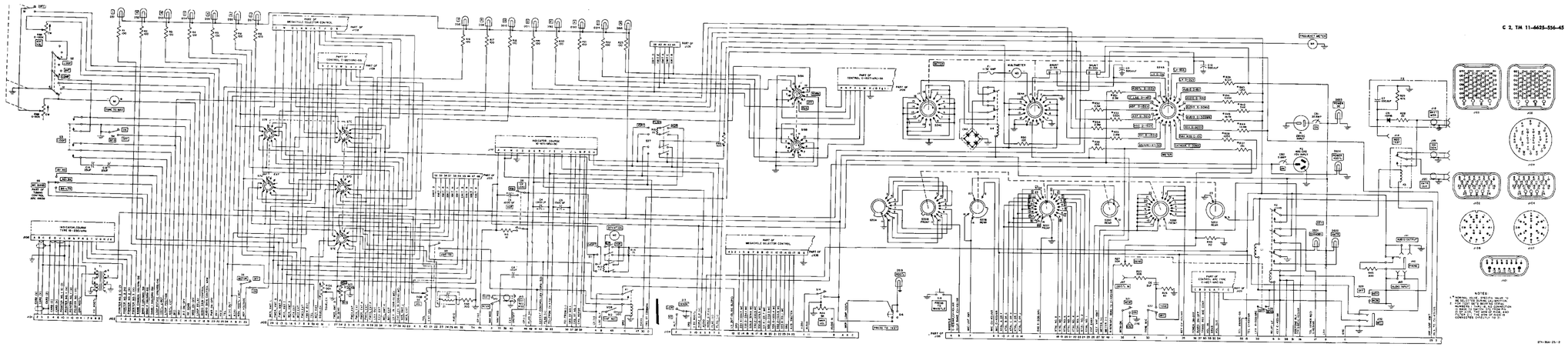


Figure 2. Test set, schematic diagram. (Aircraft Radio Corp. Model BTK-35A.)

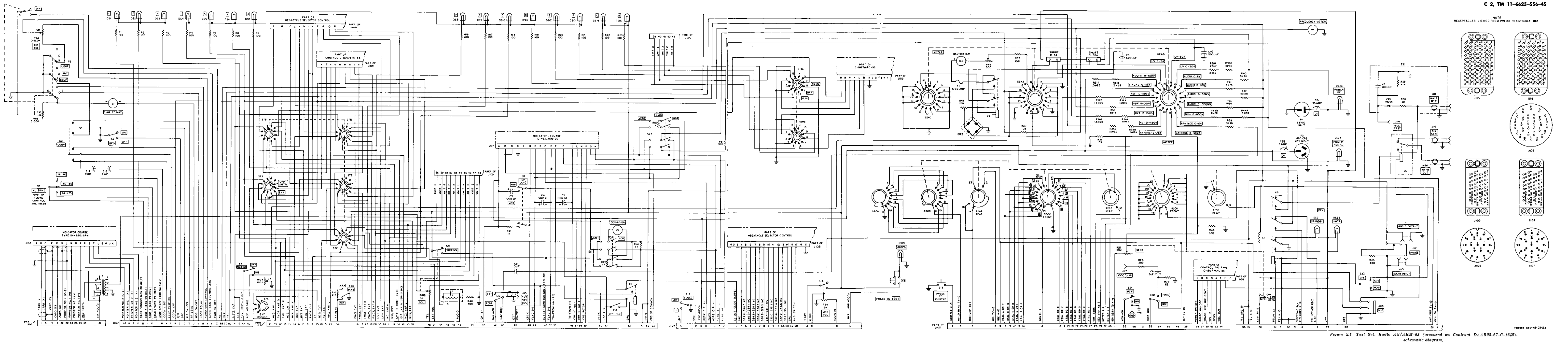


Figure 2.1 Test Set, Radio AN/ARM-63 (procured on Contract DAAB05-67-C-1648), schematic diagram.

NOTES:

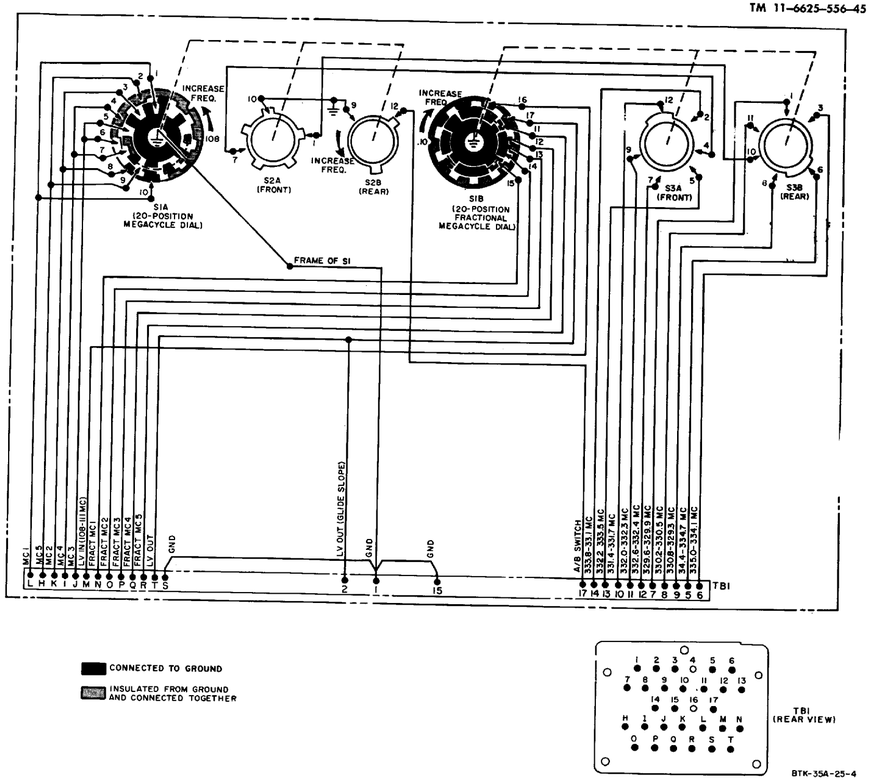
1. SWITCH SECTIONS S1A AND S1B ARE SHOWN AT 108.00 MC.
2. S1A CONTROLS TERMINAL GROUP H,I,J,K,L. S1B CONTROLS TERMINAL GROUP N,O,P,Q,R. AT EACH POSITION OF S1A AND S1B CERTAIN TERMINALS IN EACH GROUP ARE GROUNDED AND THE OTHER TERMINALS IN THE GROUP ARE CONNECTED TOGETHER FREE FROM GROUND. REFER TO TABLE I.
3. TERMINALS 2, M AND T ARE CONNECTED TOGETHER FREE FROM GROUND AT ODD-TENTH POSITIONS OF S1B (.10, .30, ETC.).
4. SWITCH S2 (A&B) IS SHOWN AT 108 MC AND IS CONTROLLED BY THE MEGACYCLE DIAL. GROUNDED TERMINALS ARE SHOWN IN TABLE II. SWITCH S3 (A&B) IS SHOWN AT .10 MC AND IS CONTROLLED BY THE FRACTIONAL MEGACYCLE DIAL. GROUNDED TERMINALS ARE SHOWN IN TABLE II.

TABLE I
TABULATION OF GROUNDED TERMINALS IN EACH GROUP (SWITCH S1)

S1A	TBI TERMINAL GROUP H, I, J, K, L	S1B	TBI TERMINAL GROUP N, O, P, Q, R
108	L, K	.00	N, O
109	L, K, J	.10	N, R
110	L, H	.20	O
111	L, K, J, I	.30	P
112	I	.40	O
113	K, J, I, H	.50	N
114	J	.60	R
115	L, J, I, H	.70	O, R
116	K	.80	P, Q
117	K, I, H	.90	O, P
118	L	.00	N, O
119	L, J, H	.10	N, R
120	H	.20	O
121	K, I	.30	P
122	I, H	.40	O
123	J, H	.50	N
124	J, I	.60	R
125	L, I	.70	O, R
126	K, J	.80	P, Q
SPACE	L, K, H	.90	O, P

TABLE II
TABULATION OF GROUNDED TERMINALS (SWITCHES S2 & S3)

S2 (A & B) AND S3 (A & B)	TBI GROUNDED TERMINALS FOR PAIRED GLIDE SLOPE FREQUENCY	PAIRED GLIDE SLOPE FREQUENCY MC
108.10	5, 17	334.7
108.30	6, 17	334.1
108.50	7, 17	329.9
108.70	8, 17	330.5
108.90	9, 17	329.3
109.10	10	331.4
109.30	11	332.0
109.50	12	332.6
109.70	13	333.2
109.90	14	333.8
110.10	5	334.4
110.30	6	335.0
110.50	7	329.6
110.70	8	330.2
110.90	9	330.8
111.10	10, 17	331.7
111.30	11, 17	332.3
111.50	12, 17	332.9
111.70	13, 17	333.5
111.90	14, 17	331.1



CONNECTED TO GROUND

INSULATED FROM GROUND AND CONNECTED TOGETHER

TBI (REAR VIEW)

BTK-35A-25-4

Figure 4. Megacycle selector control schematic diagram.

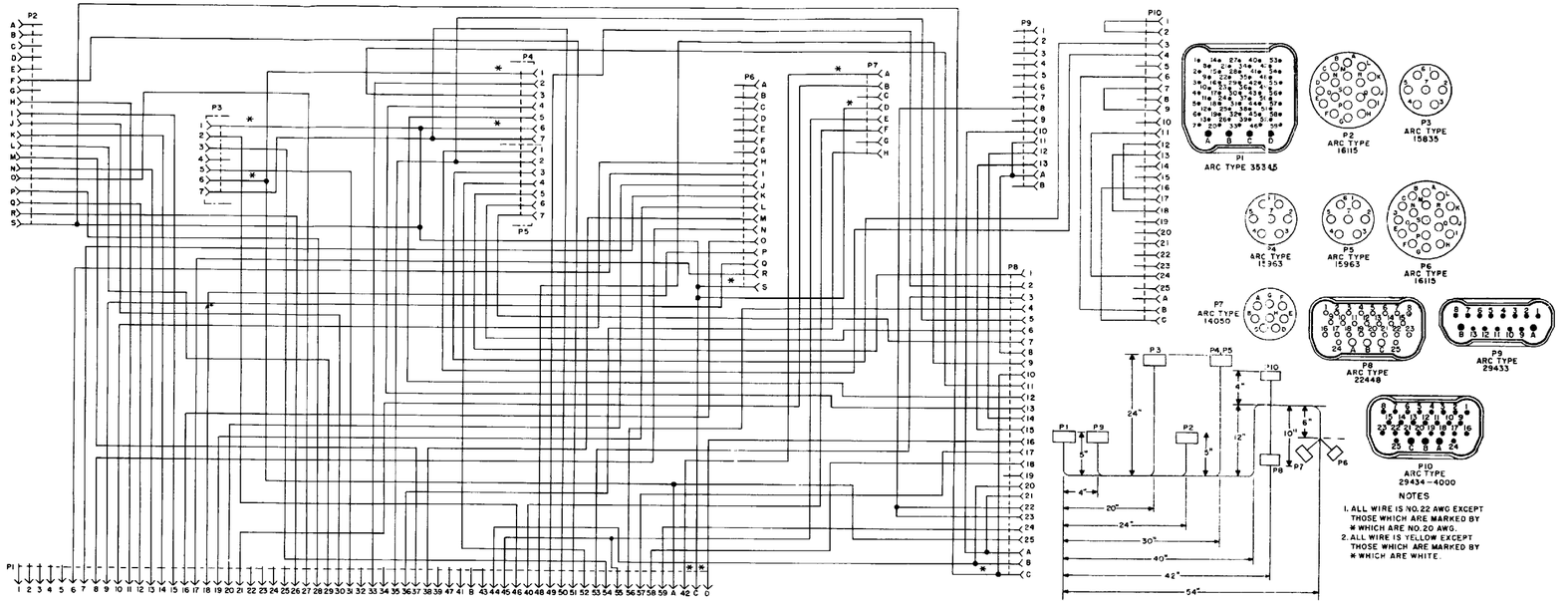


Figure 11. ARN-39 test cable, wiring diagram. (Aircraft Radio Corp. Model BTK-35A)

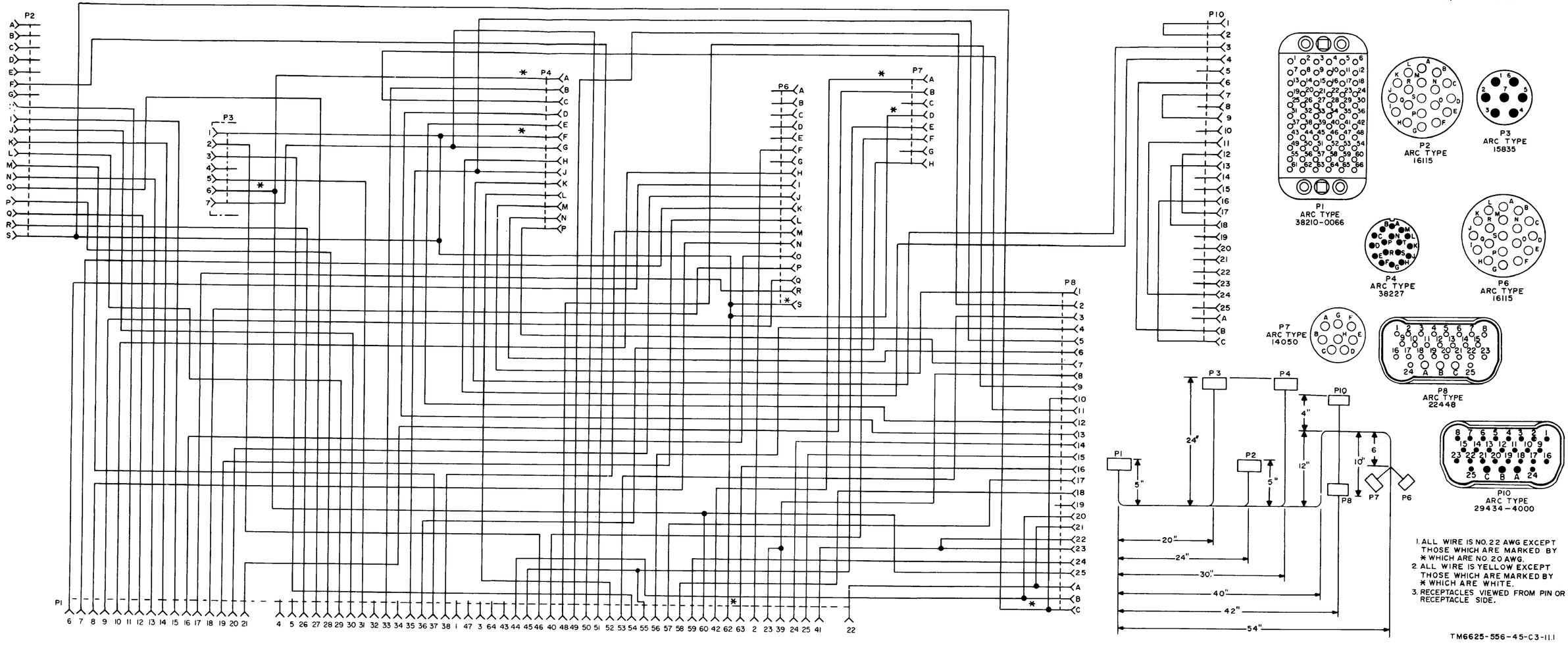
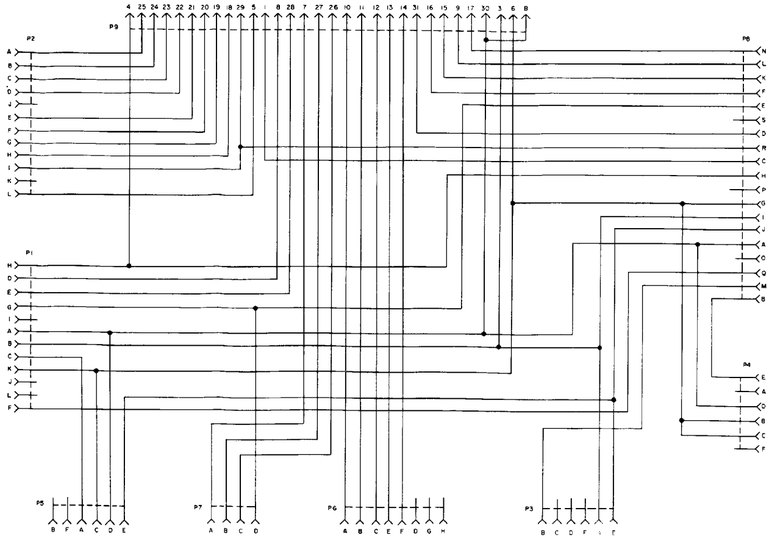
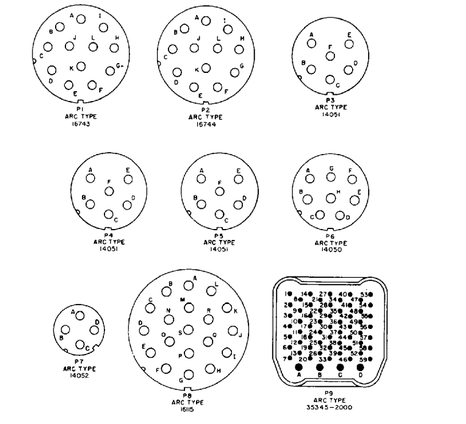
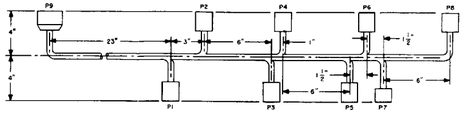


Figure 11.1 ARN-30 test cable CX-8749/ARM-63, wiring diagram, (AN/ARM-63 procured on Contract DAAB05-67-C-1648).



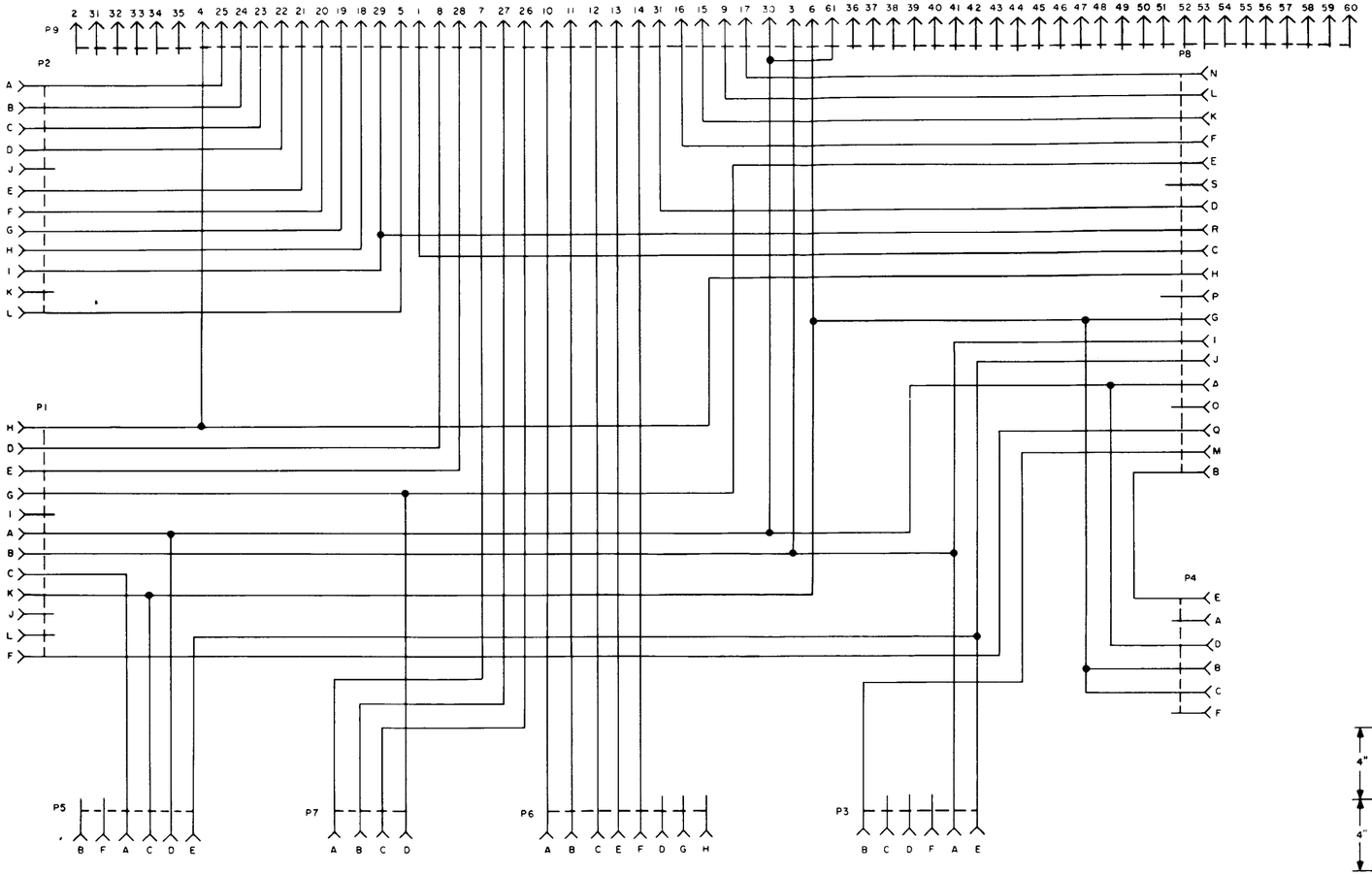


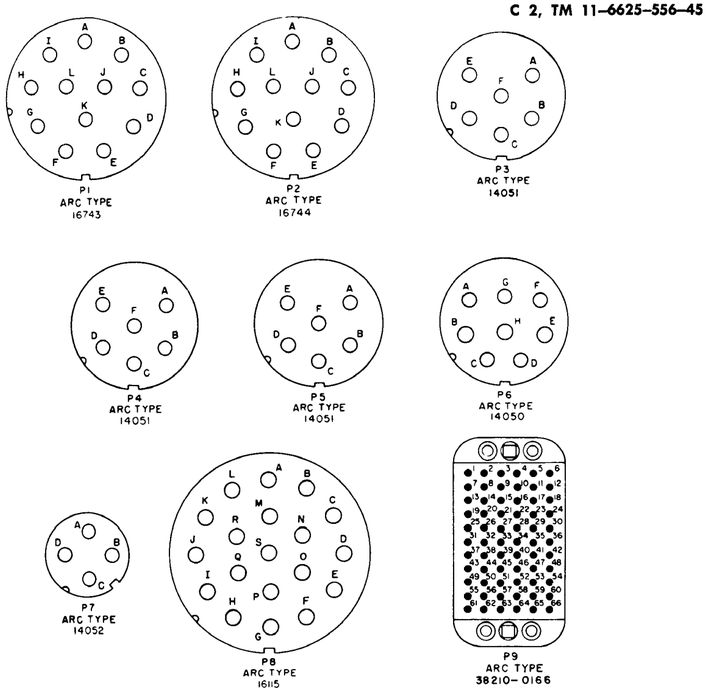
NOTES:
1. ALL WIRE IS NO. 20 AWG.
2. ALL WIRE IS BLACK WITH WHITE TRACE.



BTK-35A-25-12

Figure 12. ARC-60 test cable, wiring diagram.
(Aircraft Radio Corp. Model BTK-35A)





NOTES:

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3. RECEPTACLES VIEWED FROM PIN OR RECEPTACLE SIDE.

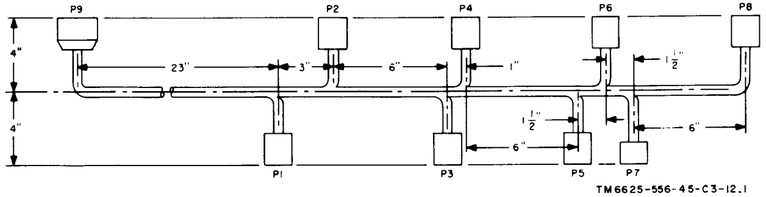


Figure 12.1 ARC-60 test cable CX-8746/ARM-63, wiring diagram (AN/ARM-63 procured on Contract DAAB05-67-C-1648).

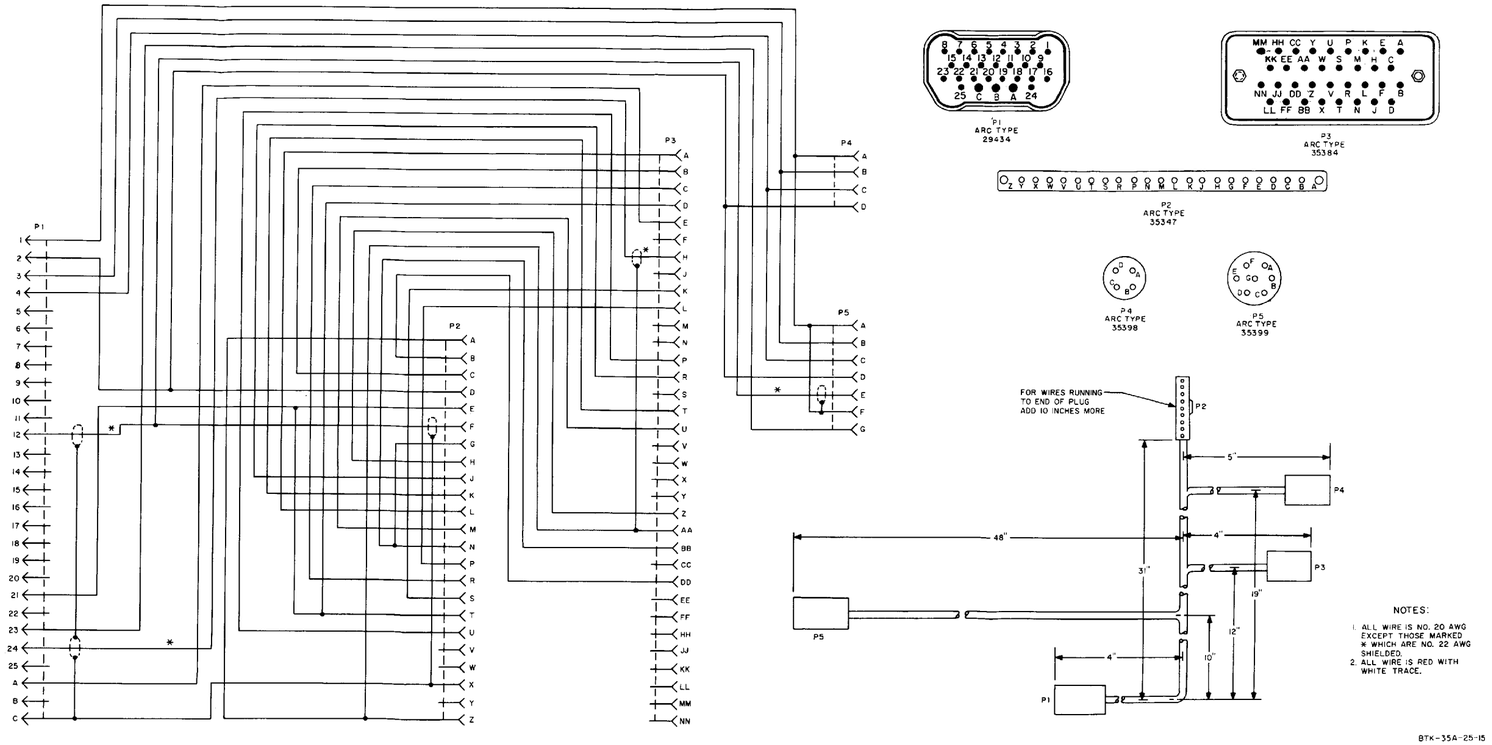
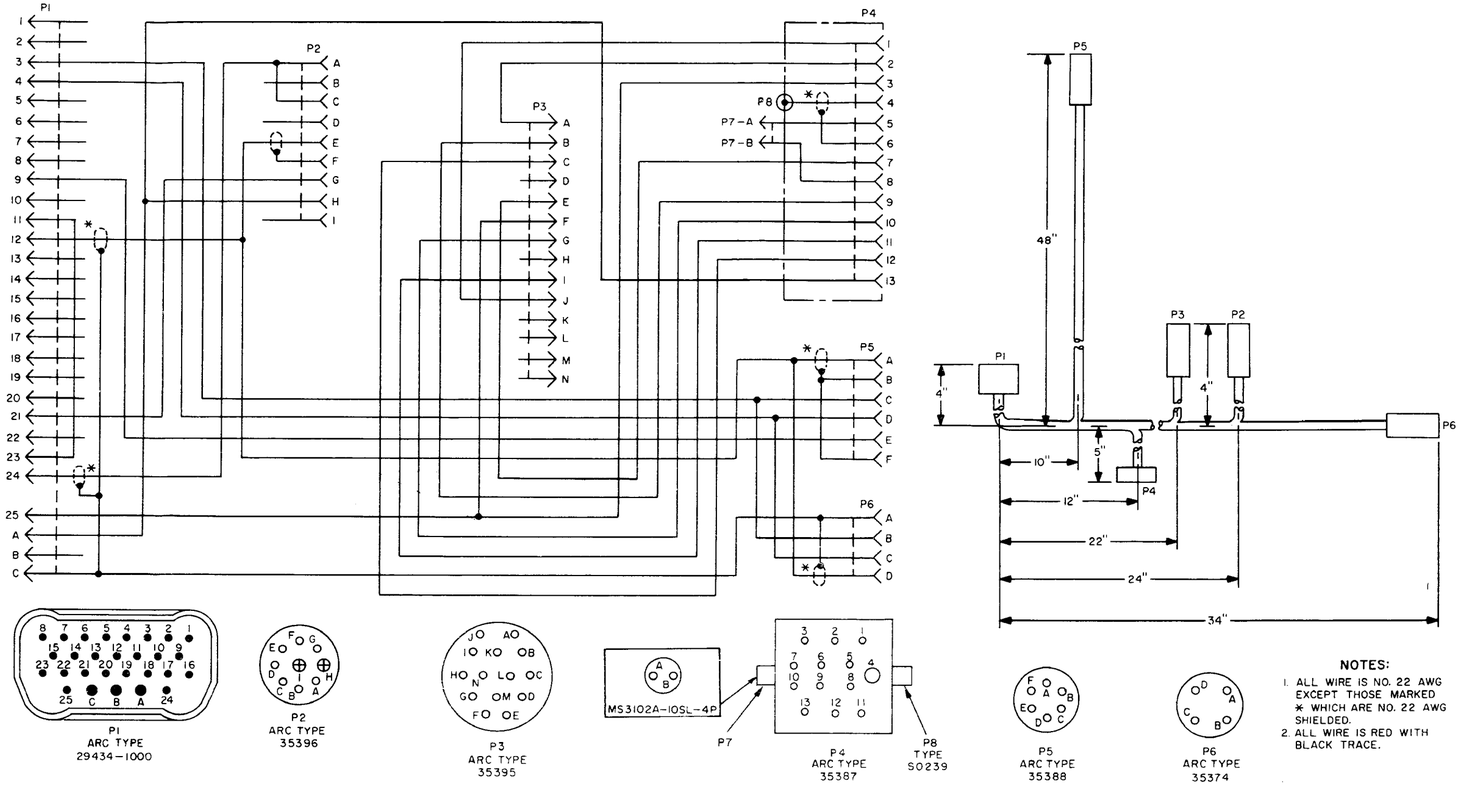


Figure 15. ARN-6 test cable, wiring diagram.



BTK-35A-25-16

Figure 16. ARN-54 test cable, wiring diagram.