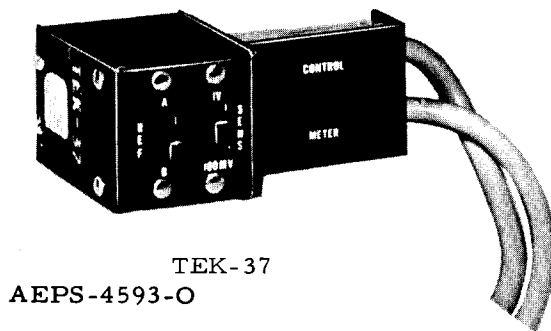


MOTOROLA

TEST SET ADAPTER

MODELS TEK-37 AND TEK-37A



1. INTRODUCTION

The TEK-37 and TEK-37A Test Set Adapters provide metering and control interconnection between Motorola's Portable Test Sets and the "Micor" series of mobile radio equipment. The entire testing procedure can be handled in the trunk of the vehicle since all controls are provided by the test set and receiver audio is available at the test set speaker regardless of test set function selector switch position (XMTR or RCVR).

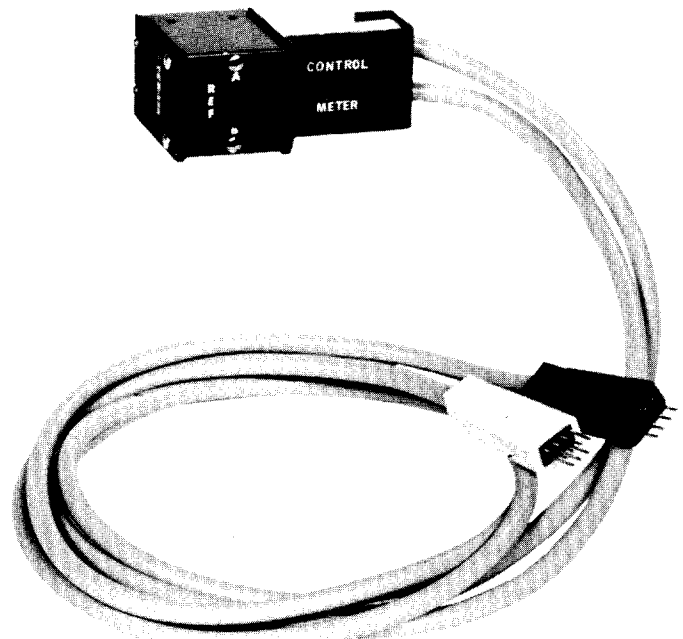
Either adapter can be used with the TU546 or S1056A-9A Series of test sets. However, each test set and standard metering cable requires minor modifications to provide compatibility with both the "Micor" line and all earlier models of Motorola equipment.

2. MODIFICATIONS

Refer to the simplified circuit diagram to determine if your test set and/or metering cable require modifications.

NOTE

All test sets manufactured prior to January 1970 (SLN6056A-3 or earlier)



will require the following modifications to permit the use of the TEK-37 or TEK-37A Test Set Adapter.

The following changes are shown on the simplified circuit diagram.

- a. Test Set
(TU546 Series, S1056A-9A)

These modifications consist of adding two new wires to pins 12 and 14 of the 20-pin receptacle and the removal and addition of jumpers on the main function switch (S1).



MOTOROLA INC.

ENGINEERING PUBLICATIONS

1301 E. ALGONQUIN ROAD

Communications Division

SCHAUMBURG, ILLINOIS 60172

Copyright 1970 by Motorola, Inc.
Printed in U.S.A.
11/13/70-NPC

(1) Connect a wire from J2-12 to terminal 4 of selector switch S1B.

(2) Connect a wire from J2-14 to the arm of the speaker switch S4.

(3) Remove the jumper between terminals 6 and 8 of switch S1B.

(4) Remove the jumper between terminals 1 and 14 of switch S1B.

(5) Add a jumper between terminals 8 and 14 of switch S1B.

This completes the modification of the test set.

b. Metering Cables
(1V858292, SKN6012A, SKN6013A)

Test set modifications effectively disable the 17.5K-ohm metering resistor which is replaced by the addition of a new resistor to the metering cable.

IMPORTANT

When disassembling the 20-pin meter plug, remove cover by removing the nuts! DO NOT REMOVE THE SCREWS! Removal of the screws will permit the connector to fall apart.

Remove the cover from the 20-pin connector and wire a 17.5K-ohm resistor (Motorola Part No. 6K855337) between pin 11 and pin 12. Reassemble the connector and housing. This completes the metering cable conversion.

3. DESCRIPTION

Both adapters consist of a 20-pin connector and housing assembly containing two seven-pin receptacles (control and metering) and one (TEK-37A) or two (TEK-37) slide switches. Both adapters have a slide switch marked REF which is used to select the meter reference "A" or "B" as directed in the instruction manual supplied with the "Micor" radio set. The TEK-37 also has a second switch marked SENS which is used to select test set meter sensitivity of 1 volt or 100 millivolts full scale.

NOTE

Follow the instructions in your manual concerning the use of the SENS switch. If no mention is made in the manual,

place the SENS switch in the 100 mV position for all testing.

A pair of four-foot cables plug into the two seven-pin receptacles of the adapter and held there by a retaining clip. The control cable (supplied with the adapter) is terminated with a six-pin connector (red molded end) that has pin 3 cut off. The metering cable has a seven-pin, white molded connector.

These adapters provide all metering and control interconnections between the test set and the radio required in testing and controlling the receiver and transmitter as follows:

Receiver audio - monitors receiver audio, via the test set speaker regardless of test set function selector switch position (either transmit or receive). When the position selector switch is in position 11 and the function selector switch is in RCVR, the receiver audio can also be read on the test set meter for 20 dB quieting measurements.

NOTE

When in the RCVR position, the transmitter cannot be accidentally keyed.

Transmitter audio input - when the position selector switch is in position 11 and the function selector switch is in XMTR, the audio input to the transmitter can now be monitored on the test set meter. The transmitter can now be keyed by the XMTR ON button on the test set or by a microphone connected to the test set microphone receptacle. When the position selector switch is placed in position 10 the voltage across the keying contact can be read on the 15-volt range of the test set meter. This voltage is the supply voltage to the control socket read through the keying reed switch. When the XMTR ON button is depressed, the reading will drop to zero.

If a microphone is used for the P-T-T actuation, the residual reading on the meter may show the voltage drop through the microphone tinsel cord.

Metering - the seven-pin metering (white) plug is used to interconnect the test set to the various receiver and transmitter circuit boards in the radio. This plug provides meter readings 1, 2, 3, 4, and 5 (also position 6 which is the voltage difference between references "A" and "B" read on the 30-volt scale).

NOTE

Positioning of the switches (REF on the TEK-37A, and REF & SENS on the TEK-37) and the meter reverse switch (located on the test set) will be shown in the alignment charts of the service manuals supplied with the radio equipment.

All positions except 7, 8, and 9 of the position selector switch are used with either test set adapter as shown in the following function table. Positions (12) Mic dc, (13) Int Batt., (14) RF, and (15) Deviation (when used), all function normally as described in the test set manual.

Control - When using the adapters with the portable test set, the control cable (6-pin red plug, free end) is always plugged into the radio set control board receptacle and will remain there during the entire test procedure. This cable provides the main control functions of transmitter audio input, keying of the transmitter and monitoring of the receiver audio on the test set speaker.

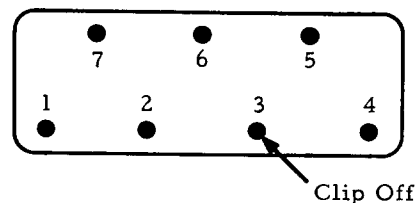
4. SERVICING

Replacement cables may be installed by removing the retaining clip and cables from the

adapter and replacing the clip and two new cables. The two cables are interchangeable since each has a white (7-pin) plug on one end and a red (7-pin) plug on the other. Plug the red end of one cable into the metering socket on the adapter and the white end of the other cable into the control socket. (The identity of the sockets is marked on the retaining clip.) Secure these plugs to the adapter by replacing the retaining clip.

NOTE

If the control cable is replaced by a new TEKA-72 Cable, pin 3 must be clipped off from the red plug to permit proper making to the control board socket of the "Micor" radio set.



Red Molded Plug
Control Cable Radio End

FUNCTION TABLE

TEST SET POSITION SWITCH POSITION	"MICOR" RADIO CIRCUIT MEASURED
1	Circuit Metering
2	Circuit Metering
3	Circuit Metering
4	Circuit Metering
5	Circuit Metering
6	Measures difference in voltage between reference "A" and "B" on the 30-volt scale.
7	Not Used
8	Not Used
9	Not Used
10	Indicates keying voltage at the first P-T-T reed switch which drops to near zero when the transmitter is keyed.
11	Receiver or transmitter audio via the test set AC VOLTMETER feature, depending on position of the RCVR/XMTR/ACCESS switch.
12	Microphone dc
13	6-volt internal test set battery voltage.
14	RF output of i-f oscillator, or rf field strength input.
15	Deviation meter (if so equipped).

REFERENCE SYMBOL	MOTOROLA PART NO.	DESCRIPTION
------------------	-------------------	-------------

PARTS LIST

TEK-37 and TEK-37A Test Set Adapters

PL-1125-O

J1	9C84207B02	<u>CONNECTOR, receptacle:</u> female; 7 contact
J2	9C84207B02	female; 7 contact
P1		<u>CONNECTOR, plug: female;</u> c/o 9P84306A96 CONNECTOR, 10 contact (1-18) 9P84306A97 CONNECTOR, 10 contact (3-20)
R1	6K855330	<u>RESISTOR, fixed:</u> 600K $\pm 2\%$; 1/2 W
R2	6D82475B57	100 $\pm 1\%$; 1 W
R3	6K892470	18K $\pm 1\%$; 1/2 W (TEK-37 only)
S1	40B864400	<u>SWITCH, slide:</u> dpdt
S2	40B864400	dpdt (TEK-37 only)
NON-REFERENCED ITEM		
	42B84820B03	CLAMP, cable retaining

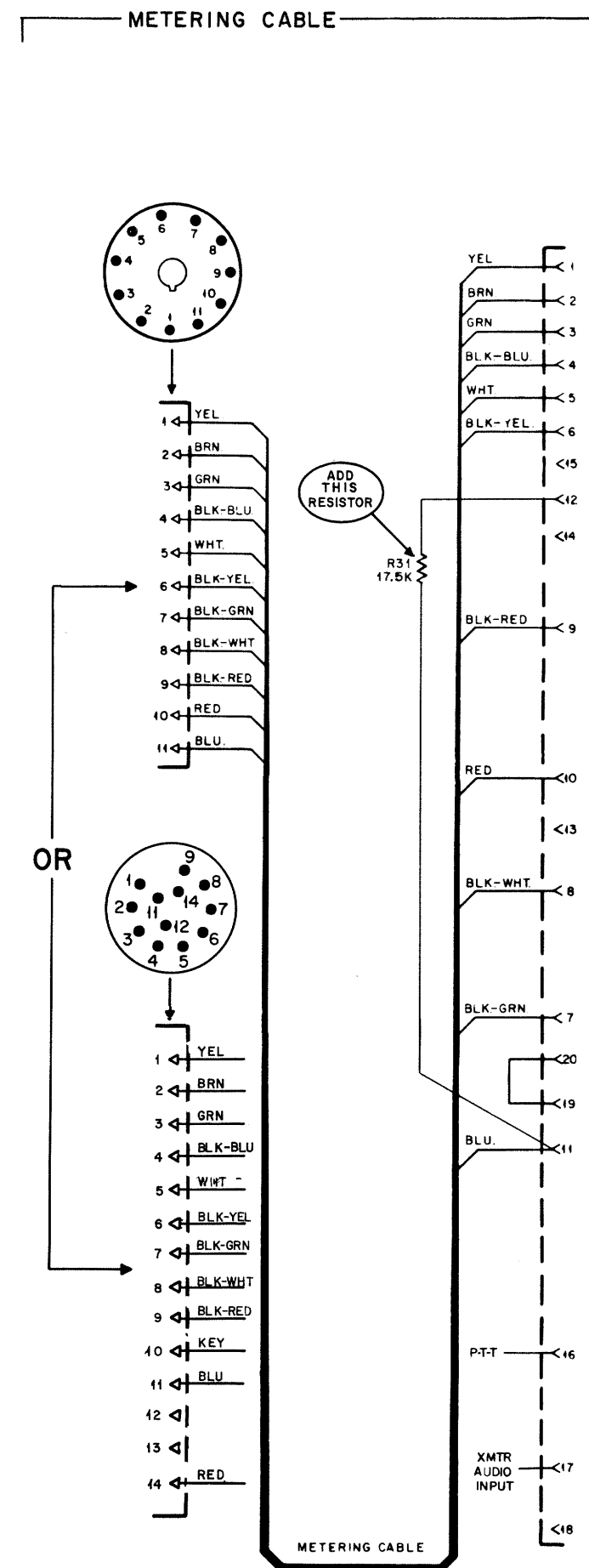
TEKA-72 Cable Kits

PL-1126-O

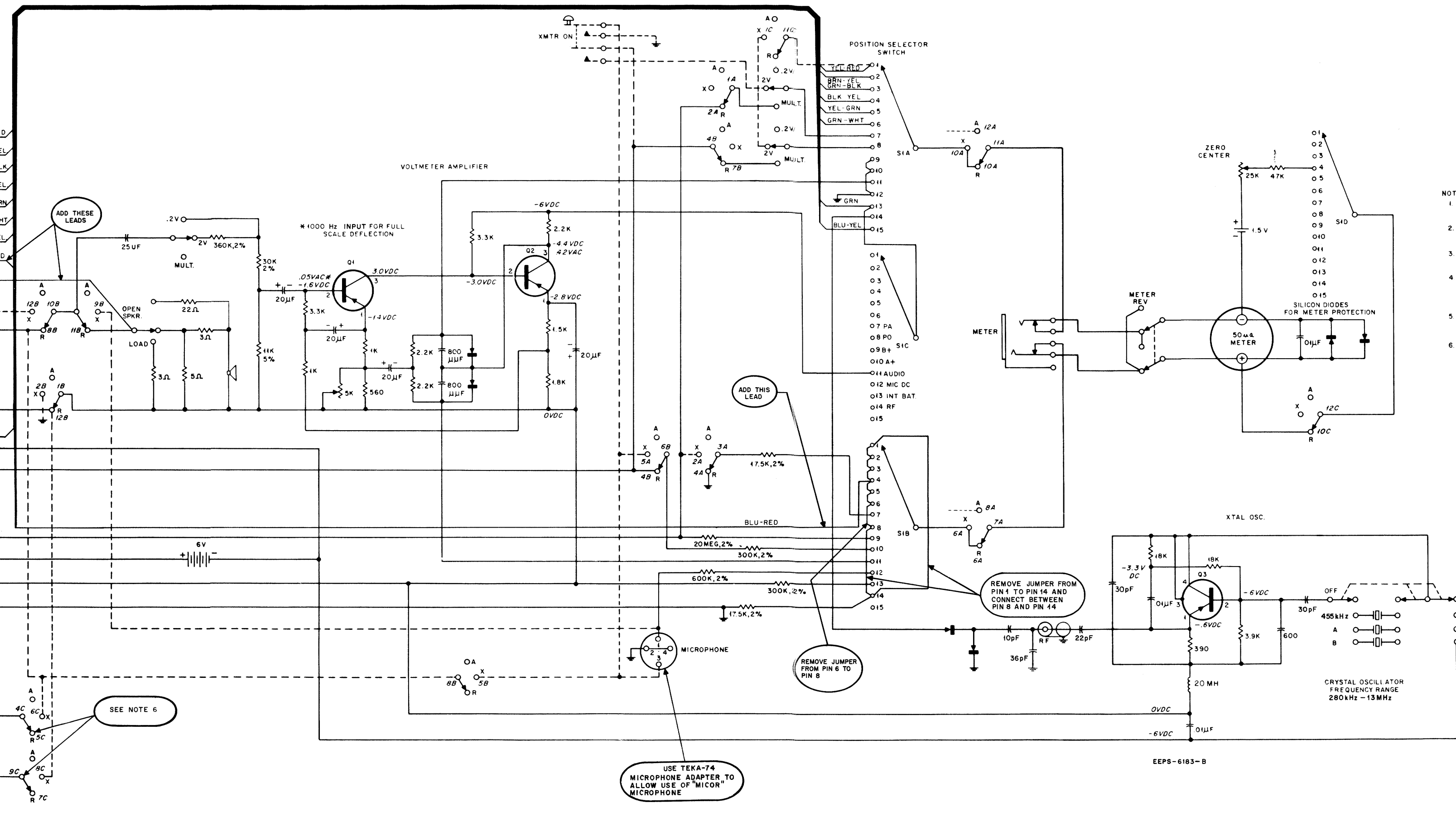
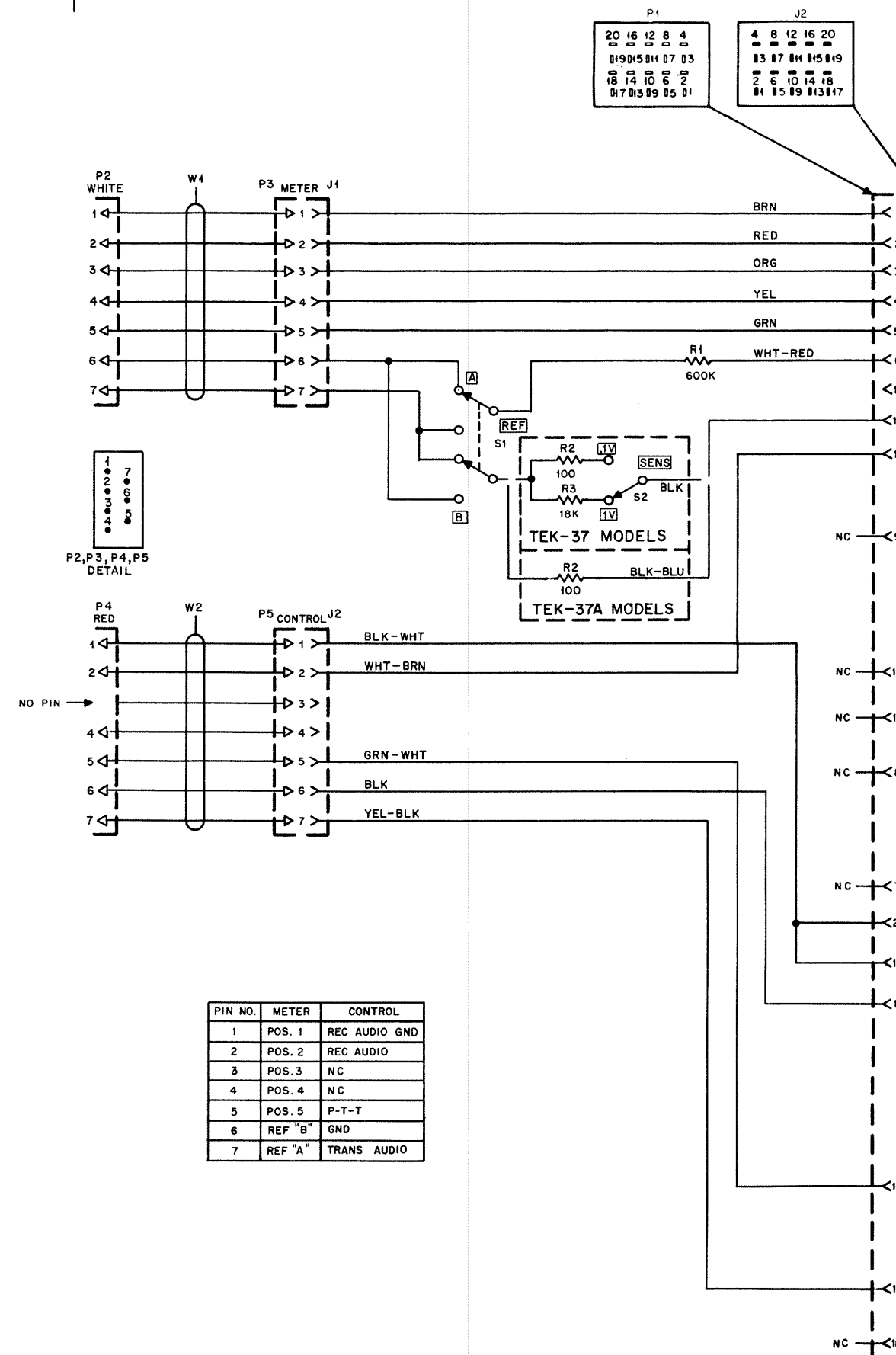
P1, 2		<u>CONNECTOR, plug:</u> male; 7 contact; p/o W1
P3		male; 6 contact; p/o W2
P4		male; 7 contact; p/o W2
W1	30C84805B01	<u>CABLE ASSEMBLY:</u> 7-conductor; 7' length; incl. P1 and P2
W2	30C84805B02	7-conductor; 7' length; incl. P3 and P4

Motorola Portable Test Set and
TEK-37 or TEK-37A Test Set Adapter
Simplified Circuit Diagram
Motorola No. PEPS-4622-O
(Sheet 1 of 2)
11/13/70-NPC

PORTABLE TEST SET



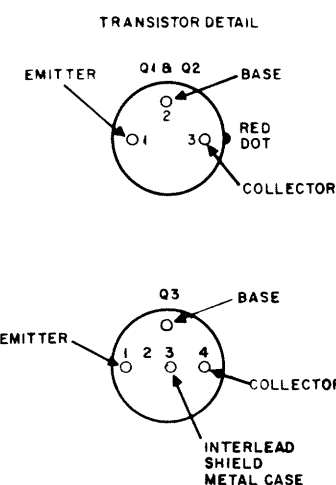
— TEK-37 AND TEK-37A TEST SET ADAPTERS



1. FUNCTION SELECTOR SWITCH (RCVR XMTR. ACCESS) SHOWN IN RCVR POSITION.
2. DASHED LINES INDICATE CIRCUITRY WHEN FUNCTION SELECTOR SWITCH IS IN XMTR POSITION.
3. RF OSCILLATOR VOLTAGES TAKEN WITH OSCILLATOR OPERATING.
4. MEASUREMENTS OF AUDIO VOLTMEETER TAKEN WITH FUNCTION SELECTOR SWITCH IN XMTR. POSITION, 20VAC APPLIED TO PIN 1 OF MICROPHONE RECEPTACLE AND SWITCH 1 IN POSITION 1.
5. REFERENCE NUMBERS ON R-X-A SWITCH REFER TO WAFER SWITCH SECTIONS OF THE FUNCTION SELECTOR SWITCH. 6A REFERS TO WAFER SECTION S2A, TERMINAL 6.
6. ON TUS46 PORTABLE TEST SETS, DISCONNECT THE AUDIO TRANSFORMER FROM THE RCVR-XMTR-ACCESS SWITCH AT TERMINALS C AND B.

IMPORTANT

All portable test sets built before the introduction of "Micror" radio must be modified for compatibility with the "Micror" radio Adapter. The test sets are identified by the stamping on the chassis. Those units stamped SLN6056A-3 or earlier require modification. Those stamped SLN6056A-4 or later do not require modification. They were built to be compatible with the adapter. Once the portable test set is modified, the original metering cable must be modified to accommodate the usage of the testset for servicing other Motorola radio equipment. The SKN6012B Metering Cable, which was supplied with the SKN6012B test set, is a 20-pin connector on one end and which plugs into the 10-pin test set on the other, and the SKN6012A Metering Cable, a 20-pin connector on one end and which plugs into the 10-pin test set on the other, (20-pin connector on the other end) require modification. The SKN6012B and SKN6013B Metering Cables do not require modification. The test sets that have been supplied since the introduction of "Micror" radio. If your test set or cable requires modification, refer to this section for the accompanying instructions for modification details.



EPS-4594-O

Motorola Portable Test Set and
TEK-37 or TEK-37A Test Set Adapter
Simplified Circuit Diagram
Motorola No. PEPS-4622-O
(Sheet 2 of 2)
11/13/70-NPC

END OF DOCUMENT