BROADCAST AUDIO EQUIPMENT

RCA

Instructions

RADIO CORPORATION OF AMERICA, Industrial Electronic Products

Type BA-23A
Program Amplifier

MI-11246-A

IB-24768-3

Tmk(s)®

ADDENDA

BA-23A PROGRAM AMPLIFIER INSTRUCTION BOOK

To Include

MI-11246-A and MI-591246-A

The following information adapts the Instruction Book IB-24768-3 for the Program Amplifier MI-11246-A, designed for 105/115/125V, 50/60 cycle operation to include the MI-591246-A Program Amplifier, designed for 115/230 V, 50/60 cycle operation.

PAGE 8: Add the description and stock number for T3 to read ---

T3 Transformer, power, 115/230 V, 50/60 cps 22322

The MI-591246-A amplifier is identical to the MI-11246-A amplifier with the exception of the power transformer T3, which contains *two* separate primary windings whose terminals are designated as follows:

1st Primary		*2nd Primary*	
Terminal	*Designation*	*Terminal*	*Designation*
1	Common	1A	Common
2	105 V	2A	105 V
3	115 V	3A	115 V
4	125 V	4A	125 V

For 115-volt operation, strap terminal 1 to 1A and terminal 3 to 3A; the windings are now connected in parallel.

For 230-volt operation, strap terminal 3 to 1A; the windings are now connected in series.

BROADCAST AUDIO EQUIPMENT

INSTRUCTIONS

Type BA-23A
Program Amplifier

MI-11246-A

RADIO CORPORATION OF AMERICA
BROADCAST AND COMMUNICATIONS PRODUCTS, CAMDEN, N. J.

PRINTED IN U.S.A.
DU 630-631-642-672

IB-24768-3

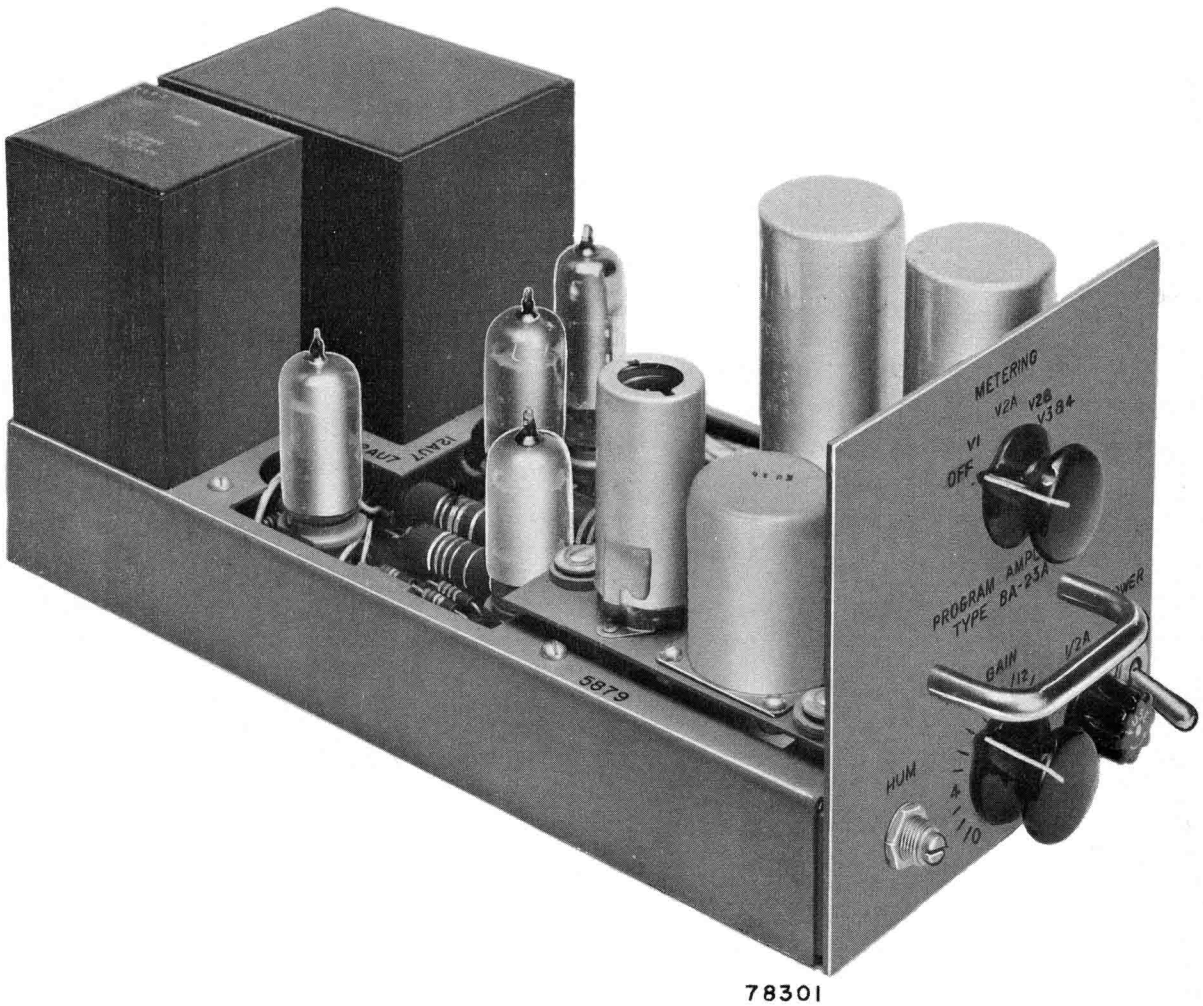


Figure 1 - Type BA 23A Program Amplifier

TECHNICAL DATA

Power Required

100-130 volts, 50/60 cps, 30 watts
(Transformer taps at 105, 115 and 125 v)

Source Impedance

600/150 ohms balanced or unbalanced

Input Impedance

Matching: Connected when shipped for 600 ohms: may be reconnected for 150 ohms.

Bridging: 20,000 ohms

Maximum Input Level

Matching: -10 dbm

Bridging: +27 dbm

Output Impedance

100/25 ohms approximately

Load Impedance

600 ohms when shipped; may be changed to 150 ohms

Harmonic Distortion

0.5% rms max at 30 dbm output
30 to 15,000 cps

Matching Gain

70 ±1 db (high gain connection)
55 ±1 db (low gain connection)

Bridging Gain

33 ±2 db (high gain connection)
18 ±2 db (low gain connection)

Frequency Response

±1 db 30 to 15,000 cps
See figure 2

Noise Level

-47 dbm at 70 db gain
-62 dbm at 55 db gain

Tube Metering Voltage

1.0 volt

Mounting

Plug-in mounting on MI-11597 Type BR-22A Mounting Shelf.

3/10 of shelf space required by one BA-23A; therefore 3 BA-23A Amplifiers plus one BA-21A Preamplifier fill one shelf.

BR-22A shelf may be installed in standard 19-inch rack such as Type BR-84 series; 5-1/4 inch vertical space required.

Mechanical Dimensions

Length - chassis 10-3/8 inches; overall 12-1/2 inches
Height - 4-21/32 inches
Width - 5 inches

Weight - 9 pounds
Finish - Light umber gray lacquer

Tube Complement MI-11480 (Not Supplied)

1 MI-11298 (selected RCA 5879)
1 RCA 12AX7
2 RCA 12AU7
1 RCA 6X4

DESCRIPTION

The Type BA-23A Program Amplifier, MI-11246A, is a high fidelity, high gain, low distortion amplifier capable of 30 dbm (1 w) output over a frequency range from 30 to 15,000 cps. It is designed specifically for use as a program, or line amplifier, bridging or isolation amplifier. The power supply is self-contained. The guide assembly for installation on the BR-22A Mounting Shelf is supplied with the amplifier. The BR-22A shelf will mount three BA-23A amplifiers and one BA-21A preamplifier and may be installed in a standard 19-inch rack such as the BR-84 series. See figure 3.

The controls mounted on the front panel are: GAIN Control, HUM Adjustment, METERING Switch, POWER Switch. The power fuse is also located on the front panel. The metering switch selects the tubes for measuring cathode current. A U-shaped handle on the amplifier front panel makes the unit easily installed or withdrawn.

The input transformer and first amplifier tube V1 are assembled on a shock-mounted plate to minimize microphonics. The power and output transformers, electrolytic capacitors, connector plug and controls are attached to the chassis and front panel. The remaining circuit elements and tube sockets are contained on a printed wiring board. Access to the components is provided through a large cutout in the chassis.

Equipment Supplied

The items shipped with the BA-23A amplifier are as follows:

Qty.	Unit	MI-number
1	Program Amplifier Type BA-23A	MI-11246A
1	Guide Assembly for Mounting Shelf MI-11597	
1	Connector (receptacle)	
1	Container: for necessary mounting hardware	
1	Tube Shield	
1	Instruction Book	IB-24768

Accessories (Not supplied, only tubes required)

Of the following accessories only the tube kit is required for the operation of the amplifier; however, the meter panel and BR-22A mounting shelf are desirable for convenient installation and satisfactory operation. The MI-11730A Step-Attenuator may be installed in place of the continuous control which is supplied with the amplifier.

Qty.	Description	MI-number
1	Tube kit consisting of one MI-11298 (selected 5879), one 12AX7, two 12AU7 and one 6X4	MI-11480
1	Meter Panel Type BI-1B (Tube metering for 17 amplifiers)	MI-11388
1	Mounting Shelf Type BR-22A requires 5-1/4 inches vertical rack space; mounts 3 BA-23A amplifiers	MI-11597
1	Step Attenuator, 20 steps, 2 db/step tapering to infinity	MI-11730A

Circuit

The Type BA-23A amplifier has three stages of amplification including a phase inverter and pushpull output stage and a self-contained power supply. Refer to figure 4.

The input transformer T1, with windings for source impedances of 600 and 150 ohms, supplies the input signal to the control grid of the first stage, the 5879 low noise pentode. This stage is resistance capacitance coupled through a voltage divider to the grid of the first half of the 12AX7 twin triode. By changing a jumper on the voltage divider, the maximum gain may be reduced from 70 db (HI) to 55 db (LO) with a corresponding reduction of 15 db in noise level.

The other half of the 12AX7 twin triode is a phase splitter driving two 12AU7 tubes which are connected in pushpull parallel. An output transformer T2, matches the output stage to a 600-ohm or 150-ohm load. The amplifier is shipped connected for 600-ohm source and load.

The split windings of the input and output transformers are connected in series for a 600-ohm and in parallel for a 150-ohm impedance.

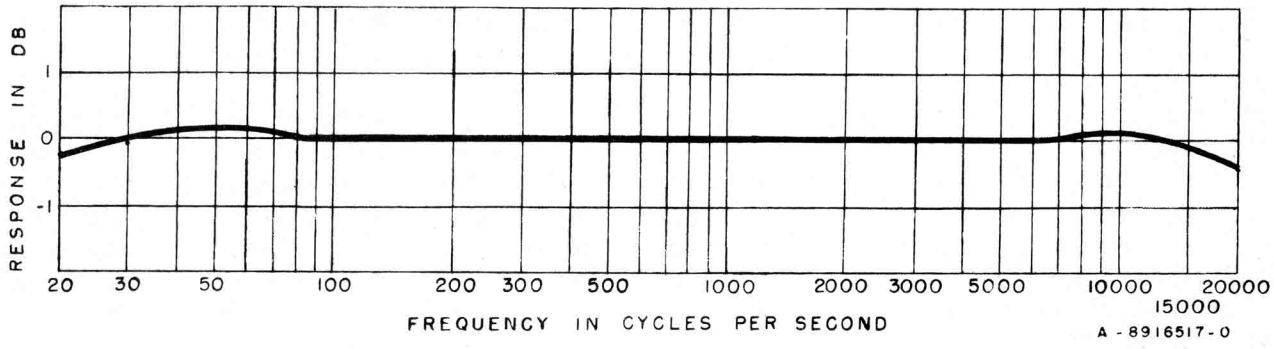


Figure 2 - Frequency Response Curve

A tertiary winding on the output transformer supplies negative feedback through a resistor R23 to the cathode of the second stage. The feedback corrects the frequency response, reduces harmonic distortion and stabilizes the gain of the amplifier.

A tap in the cathode circuit of each amplifier stage provides a metering voltage of one volt selected by means of metering switch S1. A built-in bridging pad has an input impedance of 20,000 ohms and reduces the maximum insertion gain by 37 db when connected by jumpering terminals 1 to 5 and 2 to 6 on plug P1.

The power supply is self-contained with a 6X4 tube as full-wave rectifier.

Guide Assembly

A guide assembly is supplied with each amplifier for mounting the BA-23A on the MI-11597 shelf. The guide assembly holds the connector receptacle and is assembled to the mounting shelf by means of screws. Refer to the *Installation* section for the assembly procedure.

INSTALLATION

Mounting Guide Assembly and Shelf

The guide assembly receptacle and hardware are supplied with MI-11246A as Items 2, 3 and 4 respectively. Mount the guide assembly and shelf as follows:

1. Place the guide assembly on the shelf so that the bracket is at the far or rear end and extends upwards.

2. Install the socket (Item 3) on the near side of the bracket with terminal #1 in the upper left hand corner. Fasten the socket to the bracket on the guide assembly by means of the two #6-32 x 1/2 round head machine screws (Item 4A), two #6 internal teeth lockwashers (Item 4D) and the two #6-32 hex nuts (Item 4C).

3. Secure the guide assembly to the mounting shelf with the five #6-32 x 1/4 binder head machine screws (Item 4B) and five #6 internal teeth lockwashers (Item 4D).

4. Mount the shelf on the rack by means of the hardware supplied with the rack.

Tubes MI-11480 (Not Supplied)

Plug the tubes into the sockets and push the tube shield (Item 5) over the 5879 tube V1 locking the shield in place by twisting.

To obtain a minimum noise level, the MI-11298 RCA selected 5879 should be inserted in the input tube socket XV1 which is the socket just back of the transformer T1. All the other tube sockets are mounted on the printed circuit board and clearly marked.

CAUTION: Before mounting the amplifier on the shelf, check the transformer connections. If correct, as described under the Internal Connections, plug the unit into the receptacle mounted on the guide assembly.

Internal Connections

The Type BA-23A Amplifier is shipped from the factory with the input transformer T1 connected for operation from a balanced 600-ohm source and the output transformer is connected for matching a 600-ohm load. See figure 7.

The amplifier may also be connected to operate from a 150-ohm source and for 150-ohm output.

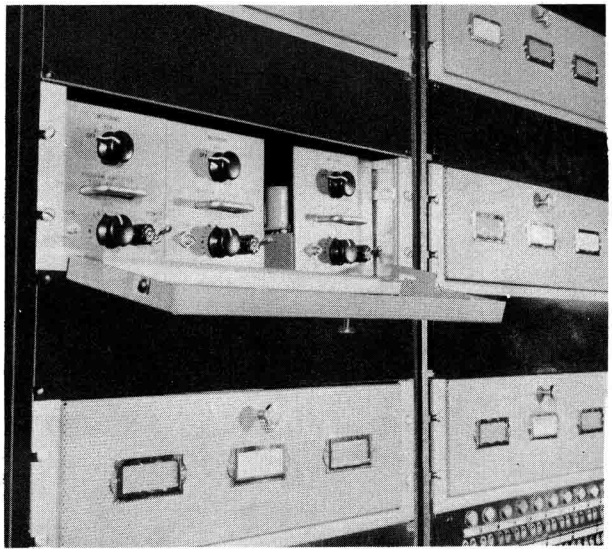
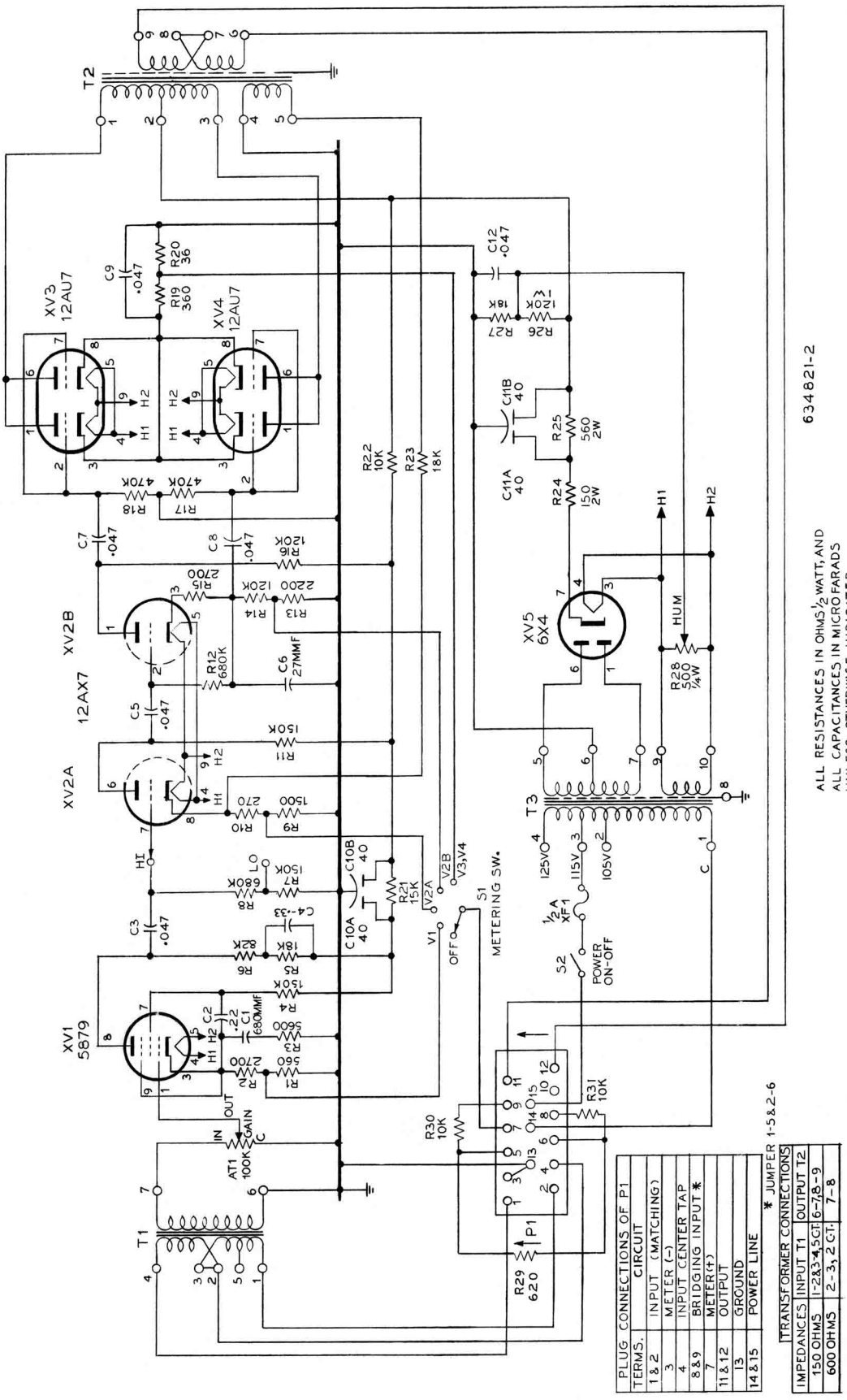


Figure 3 - Type BA-23A Amplifiers Mounted on Type BR-22A Shelf



PLUG CONNECTIONS OF P1	
TERMS.	CIRCUIT
1 & 2	INPUT (MATCHING)
3	METER (-)
4	INPUT CENTER TAP
8 & 9	BRIDGING INPUT *
7	METER (+)
11 & 12	OUTPUT
13	GROUND
14 & 15	POWER LINE

TRANSFORMER CONNECTIONS		
IMPEDANCES	INPUT T1	OUTPUT T2
150 OHMS	1-2 & 3-4, 5 CT.	6-7 & 8-9
600 OHMS	2-3, 2 CT.	7-8

Figure 4 - Schematic Diagram

1. 150-ohm Input

To operate from 150-ohm input, remove the jumper between terminals 2 and 3 of transformer T1 and connect jumpers between terminals 1 and 2, and 3 and 4. Remove the white center tap lead from terminal 3 and connect tap to terminal 5.

2. 150-ohm Output

Remove the jumper between terminals 7 and 8 on transformer T2 and connect jumpers between terminals 6 and 7 and between 8 and 9.

3. Gain Adjustment

If less than 55 db matching or 18 db of bridging gain is required, the maximum amplifier gain may be reduced 15 db by relocating a jumper wire. These terminals are located on the wiring side of the printed wiring board. To reduce the gain, reconnect the jumper from the HI to the center terminal to connect the LO and center terminal.

Installation of MI-11730A Step Attenuator

Disconnect the wires leading to the potentiometer AT1. Remove the gain control knob, nut and lockwasher; the control shaft can now be pulled through the panel to remove the control from the amplifier. Install the step attenuator in place of the potentiometer using the original hardware; replace the control knob. Connect the black wire to terminal C, the green wire to the OUT terminal and the yellow/green wire to the IN terminal.

Power Transformer Primary Connections

The amplifier is shipped with the power transformer connected for operation from a line voltage of 110 to 120 v. If the line voltage is between 100 and 110 v, move the black/red wire from terminal 3 of T3 and connect it to terminal 2 of T3. If the line voltage is between 120 and 130 v, connect this black/red wire to terminal 4 of T3.

External Connections

All external connections are made to the receptacle J1 on the mounting shelf which mates with the plug P1 on the amplifier.

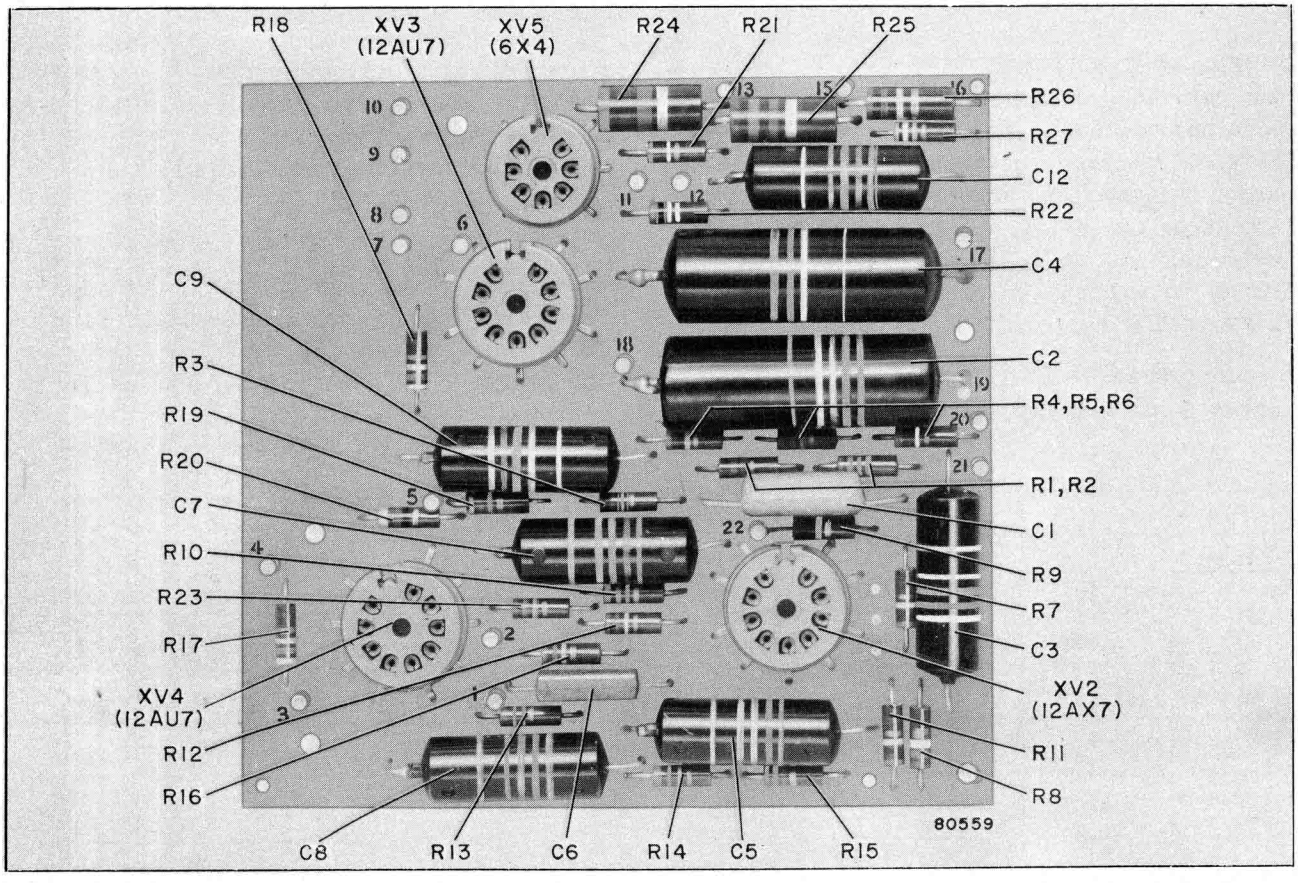


Figure 5 - Circuit Board Showing Components

Input and output leads should be laced in separate cables and should be kept apart from each other and a-c leads. The connections to the receptacle J1 should be made as follows:

Function	Terminals
Input (Matching)	1 and 2
Metering	3 and 7
Center tap, input transformer	4
Bridging Input	8 and 9
Output	11 and 12
Ground	13
Power Line	14 and 15

Shielding

Shielded twisted pairs of wire should be used for the input and output connections. The shields should be securely grounded at one end only. An insulating covering over the shield of the input leads is helpful in reducing noise and crosstalk.

Balanced Bridging Input Connections

A built in bridging pad has an input impedance of 20,000 ohms and reduces the maximum insertion gain by 37 db when connected. The pad may be connected by jumpering terminals 1 and 5 and terminals 2 and 6 on plug J1. The bridging input connections on J1 are terminals 8 and 9.

Metering

The four-position metering switch S1 permits checking of the tube condition. A 20,000-ohm per-volt d-c meter, such as that on the Type BI-1B meter panel, is connected to terminals 3 and 7 on the connector P1. The normal indication is one volt. A variation of more than 0.15 volt indicates a departure from normal tube characteristics which may be caused by defect or aging. Terminal 7 is the positive terminal, 3 the negative.

Hum Adjustment

On the front panel of the amplifier is a screwdriver HUM adjustment. Adjust this control for minimum hum in the amplifier output.

MAINTENANCE

The MI-11246A amplifier should be given the care and checkup usually observed in the maintenance of high quality electronic equipment. A system of checking should be set up and followed. The condition of the tubes should be checked frequently by means of the metering circuits. An additional periodic check on a tube tester is also helpful in discovering an incipient failure.

Components and wiring should also be inspected at regular intervals and any dust which may have collected should be removed. The plug connectors should be cleaned by moving the amplifier in and out of the receptacle several times.

Voltage Readings

The following table shows the typical voltage to ground readings at the tube socket terminals. These readings are obtained with a 20,000-ohm per-volt meter. The values are approximate and may vary because of normal component tolerances.

VOLTAGE CHART

Pin	1	2	3	4	5	6	7	8	9
Socket									
XV1	0	0	5.8±0.15	37±5	37±5	0	165±20	90±15	5.6±0.8
XV2	200±20	-	63±7	37±5	37±5	140±14	0	1.25 ±1	37±5
XV3	280±14	0	11.5±1	37±5	37±5	285±14	0	11.5±1	37±5
XV4	280±14	0	11.5±1	37±5	37±5	285±14	0	11.5±1	37±5
XV5	285±20*	-	37±5	37±5	-	285±20*	305±15	-	-

*AC

Fuse Replacement

When replacing a fuse, make certain that the replacement fuse is of the same type and rating (0.5 ampere, time lag, type 3AG) (Stock #51230) as the one furnished with the amplifier. Do not use a fuse of higher rating for replacement purposes since this will needlessly endanger the windings of the power transformer.

Replacement of Components on Printed Wiring Board

As shown in figure 6 the MI-11246A amplifier has a removable printed wiring board on one side of which numerous components are mounted, on the other, a printed circuitry. Most of the components can be reached through the opening on top of the chassis. If necessary the board may be loosened and turned over to the circuitry side away from the chassis far enough to replace components without damage to the tubes or other components. To replace the circuit components for failure, proceed as follows:

1. Remove the board (CB-1) from the side of the chassis by removing the 5 screws and associated washers.

2. Isolate the defective component.

3. To remove the component, snip the leads off at the component side of the board. See figure 6.

4. Using a small soldering iron (25 w), heat the leads and remove them from the printed wiring side of the board. Be careful not to apply too much heat or force to avoid damage to the thin copper conductors.

5. Clean and preform the leads of the new component and insert through the holes

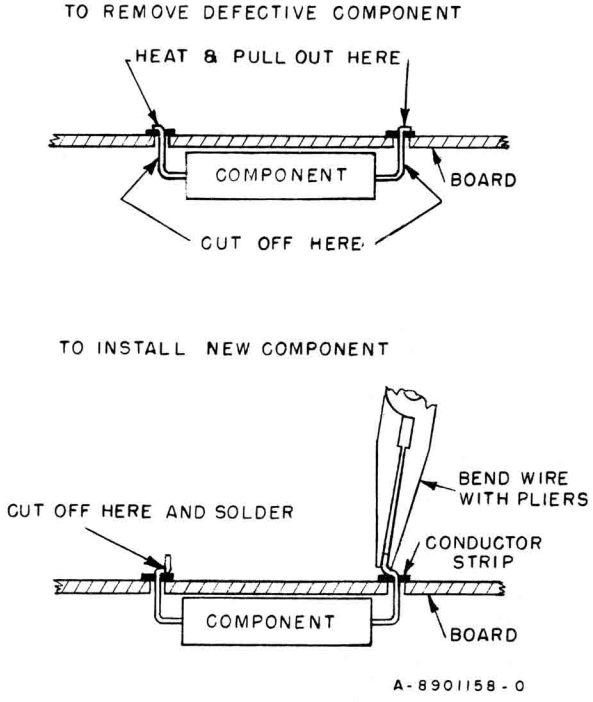


Figure 6 - Method of Replacing Component on Printed Wiring Board

until the component body is tight against the board.

6. On the circuit side, grasp the component lead and bend it over in the direction of the circuit pattern.

7. Crimp the wire tightly against the board (see figure 6), and cut off the excess component lead. Leave about 1/16-inch of wire protruding from the edge of the hole.

8. Heat the lead and apply rosin core solder. DO NOT USE PASTE OR ACID FLUX. Remove excess rosin from the joints with alcohol.

9. Replace the circuit board, using the original hardware.

LIST OF PARTS

Symbol No.	*Description*	*Stock No.*
AT1	Resistor: variable, composition, 100,000 ohm ±10%, 2 w	209286
C1	Capacitor: fixed, mica, 680 mmf ±10%, 400 v	39648
C2	Capacitor: fixed, paper, 0.22 mf ±20%, 400 v	73794
C3	Capacitor: fixed, paper, 0.047 mf ±10%, 400 v	73553
C4	Capacitor: fixed, paper, 0.33 mf ±20%, 200 v	94992
C5	Capacitor: fixed, paper, 0.047 mf ±10%, 400 v	73553
C6	Capacitor: fixed, mica, 27 mmf ±10%, 400 v	98409
C7 to C9	Capacitor: fixed, paper, 0.047 mf ±10%, 400 v	73553
C10A/B, C11A/B	Capacitor: electrolytic, 40/40 mf -10% +50%, 450 v	102913

LIST OF PARTS (Continued)

Symbol No.	Description	Stock No.
C12	Capacitor: fixed, paper, 0.047 mf ±10%, 400 v	73553
F1	Fuse: 1/2 amp, 125 v, slow blow type cartridge	212327
P1	Connector: male, 15 contact, chassis mounting	205330
R1	Resistor: fixed, composition, 560 ohms ±5%, 1/2 w	
R2	Resistor: fixed, composition, 2700 ohm ±5%, 1/2 w	
R3	Resistor: fixed, composition, 5600 ohm ±10%, 1/2 w	
R4	Resistor: fixed, composition, 150,000 ohms ±5%, 1/2 w	
R5	Resistor: fixed, composition, 18,000 ohm ±10%, 1/2 w	
R6	Resistor: fixed, composition, 82,000 ohm ±5%, 1/2 w	
R7	Resistor: fixed, composition, 150,000 ohm ±5%, 1/2 w.	
R8	Resistor: fixed, composition, 680,000 ohms ±5%, 1/2 w	
R9	Resistor: fixed, composition, 1500 ohm ±5%, 1/2 w	
R10	Resistor: fixed, composition, 270 ohm ±5%, 1/2 w	
R11	Resistor: fixed, composition, 150,000 ohm ±5%, 1/2 w.	
R12	Resistor: fixed, composition, 680,000 ohm ±10%, 1/2 w	
R13	Resistor: fixed, composition, 2200 ohm ±5%, 1/2 w	
R14	Resistor: fixed, composition, 120,000 ohm ±5%, 1/2 w	
R15	Resistor: fixed, composition, 2700 ohm ±5%, 1/2 w.	
R16	Resistor: fixed, composition, 120,000 ohm ±5%, 1/2 w. Same as R14	
R17, R18	Resistor: fixed, composition, 470,000 ohm ±10%, 1/2 w	
R19	Resistor: fixed, composition, 360 ohm ±5%, 1/2 w	
R20	Resistor: fixed, composition, 36 ohm ±5%, 1/2 w	
R21	Resistor: fixed, composition, 15,000 ohm ±10%, 1/2 w	
R22	Resistor: fixed, composition, 10,000 ohm ±10%, 1/2 w	
R23	Resistor: fixed, composition, 18,000 ohm ±5%, 1/2 w	
R24	Resistor: fixed, composition, 150 ohm ±10%, 2 w	
R25	Resistor: fixed, composition, 560 ohm ±10%, 2 w	
R26	Resistor: fixed, composition, 120,000 ohm ±10%, 1 w	
R27	Resistor: fixed, composition, 18,000 ohm ±10%, 1/2 w	
R28	Resistor: variable, composition, 500 ohm ±20%, 1/4 w	206037
R29	Resistor: fixed, composition, 620 ohm ±5%, 1/2 w	
R30, R31	Resistor: fixed, composition, 10,000 ohm ±10%, 1/2 w.	
S1	Switch: rotary, wafer type, 1 circuit, 1 section, 5 position, non-shorting contacts	209279
S2	Switch: toggle, S.P.S.T., 3 amp, 250 v, bat handle	48791
T1	Transformer: audio, input	209280
T2	Transformer: audio, output	209281
T3	Transformer: power	209282
XF1	Holder: fuse	205914
XV1	Socket: tube, 9 contact miniature, with shield	94880
XV2 to XV4	Socket: tube, 9 contact miniature	209284
XV5	Socket: tube, 7 contact miniature	209285
	Circuit Board Assembly: etched circuit board complete, including C1 to C9, C12, R1 to R27, XV2 to XV5	209287
	Connector: female, 15 contact, chassis mounting	205331
	Grommet:	37396
	Knob: 1 Knob 1 Screw	30075
	Plate: mounting, for C10, C11	18469
	Screw: shouldered	209283
	Shield: tube	56359

EQUIPMENT LOST OR DAMAGED IN TRANSIT

When delivering the equipment to you, the truck driver or carrier's agent will present a receipt for your signature. Do not sign it until you have (a) inspected the containers for visible signs of damage and (b) counted the containers and compared with the amount shown on the shipping papers. If a shortage or if evidence of damage is noted, insist that notation to that effect be made on the shipping papers before you sign them.

Further, after receiving the equipment, unpack it and inspect thoroughly for concealed damage. If concealed damage is discovered, immediately notify the carrier, confirming the notification in writing, and secure an inspection report. This item should be unpacked and inspected for damage WITHIN 15 DAYS after receipt. Report all shortages and damages to RCA, Broadcast and Television Department, Camden 2, N. J.

Radio Corporation of America will file all claims for loss and damage on this equipment so long as the inspection report is obtained. Disposition of the damaged item will be furnished by RCA.

REPLACEMENT PARTS AND ENGINEERING SERVICE

RCA field engineering service is available at current rates. Requests for field engineering service may be addressed to your RCA Broadcast Field Representative or the RCA Service Company, Inc., Broadcast Service Division, Camden, N. J. Telephone: WOodlawn 3-8000.

When ordering replacement parts, please give symbol, description, and stock number of each item ordered.

The part which will be supplied against an order for a replacement item may not be an exact duplicate of the original part. However, it will be a satisfactory replacement differing only in minor mechanical or electrical characteristics. Such differences will in no way impair the operation of the equipment. Parts with no stock numbers are standard components. They are not stocked by RCA and should be obtained from your local electronic parts distributor.

The following tabulations list service parts and electron tube ordering instructions according to your geographical location.

SERVICE PARTS

LOCATION	ORDER SERVICE PARTS FROM:
Continental United States, including Alaska and Hawaii	RCA Parts and Accessories Department, P.O. Box 654, Camden, New Jersey or through your nearest RCA Regional Office. Emergency orders may be telephoned, telegraphed, or teletyped to RCA Emergency Service, Bldg. 60, Camden, N. J. (Telephone: WO 3-8000).
Dominion of Canada	RCA Victor Company Limited, 1001 Lenoir Street, Montreal, Quebec or through your local Sales Representative or his office.
Outside of Continental United States, Alaska, Hawaii and the Dominion of Canada	RCA International Division, Clark, N. J., U.S.A. or through your local Sales Representative.

ELECTRON TUBES

LOCATION	ORDER ELECTRON TUBES FROM:
Continental United States, including Alaska and Hawaii	Local RCA Tube Distributor.
Dominion of Canada	RCA Victor Company Limited, 1001 Lenoir Street, Montreal, Quebec or through your local Sales Representative or his office.
Outside of Continental United States, Alaska, Hawaii and the Dominion of Canada	Local RCA Tube Distributor or from: Tube Department RCA International Division 30 Rockefeller Plaza New York 20, New York, U.S.A.

RETURN OF ELECTRON TUBES

If for any reason, it is desired to return tubes, please return them through your local RCA tube distributor, RCA Victor Co. Ltd., or RCA International Div., depending on your location.

Please do not return tubes directly to RCA without authorization and shipping instructions.

It is important that complete information regarding each tube (including type, serial number, hours of service and reason for its return) be given. When tubes are returned, they should be shipped to the address specified on the Return Authorization form. A copy of the Return Authorization and also a Service Report for each tube should be packed with the tubes.

LIST OF RCA SALES OFFICES

Atlanta 3, Georgia
1121 Rhodes-Haverty Bldg.
134 Peachtree St. N.W.
524-7703

Dedham, Mass.
Dedham Office Park
866 Washington St.
DAvis 6-8850

Camden 2, N. J.
Building 15
WOodlawn 3-8000

Charlotte 4, N. C.
504 Charlottetown Mall
333-3996

Chicago 54, Ill.
Merchandise Mart Plaza
Room 2000 — 467-5900

Cleveland 15, Ohio
1600 Keith Bldg.
CHerry 1-3450

Dallas, Texas
7901 Carpenter Freeway
MElrose 1-3050

Detroit 39, Mich.
12605 Arnold St.
KEnwood 4-5100

Hollywood 28, Calif.
RCA Bldg., 1560 N. Vine St.
HOllywood 9-2154

Indianapolis, Ind.
501 N. LaSalle St.
MElrose 6-5321

Kansas City 14, Missouri
7711 State Line Road
EMerson 1-6770

Memphis, Tenn.
3189 Summer Ave.
FAirfax 4-4434

New York 20, New York
36 W. 49th St.
JUdson 6-3800

Portland 12, Oregon
1841 N.E. Couch St.
BElmont 4-7297

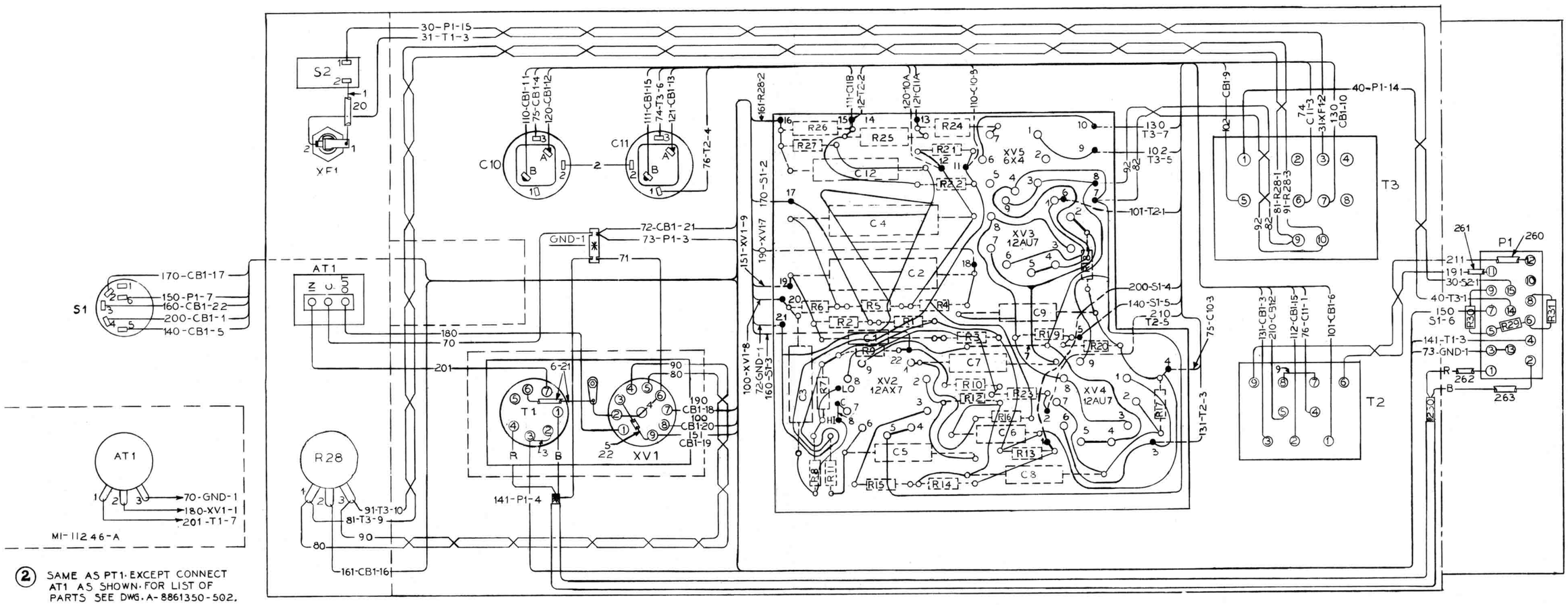
San Francisco 2, Calif.
420 Taylor St.
ORdway 3-8027

Seattle 4, Washington
2250 First Ave., S.
MAin 2-8350

Washington 6, D. C.
1725 K St., N.W.
FEderal 7-8500

West Palm Beach, Fla.
4502 N. Broadway
848-7639

WIRE TABLE			
WIRE NO. INCLUSIVE	DESCRIPTION	PS.OR DWG.NO.	ITEM NO. PT OF DWG 8861350
1 TO 9	TINNED COPPER WIRE 032DIA.	105	75
20TO22	TUBING INSL.BLK.042 I.D.	8	96
30TO31	WIRE, WHT BLK/RED 10/010	724-11	76
40	RED/BLK 10/010	724-11	77
70 — 76	BLACK 7/010	724-1	84
80 — 82	BROWN 7/010	724-1	85
90 — 92	BLK/BRN 7/010	724-1	86
100 — 102	BLUE 10/010	724-16	80
110 — 112	RED		81
120 — 121	ORANGE		82
130 — 131	RED/BLUE 10/010	724-16	83
140 — 141	7/010	724-1	87
150 — 151	YELLOW		88
160 — 161	YEL/BLK		89
170	YEL/RED		90
180	GREEN		91
190 — 191	GRN/RED		92
200 — 201	YEL/GRN		93
210 — 211	WIRE, WHT- GRN/BLK 7/010	724-1	94
250	SHIELDED PR. RED/BLK 7/010	472930-1	95
260 — 263	TUBING, INSL. TRANSP. 106 I.D.	722-9	97



(2) SAME AS PT1 EXCEPT CONNECT AT1 AS SHOWN. FOR LIST OF PARTS SEE DWG. A-8861350-502.

317298-2

(11) FOR LIST OF PARTS OF ITEMS IN THE ABOVE TABLE SEE DWG- A-8861350-501

NOTES
1- SOLDER ALL ELECTRICAL CONNECTIONS USING PT. 73
2- CABLE & LACE WIRES USING PT. 74

Figure 7 - Connection Diagram

RADIO CORPORATION OF AMERICA
INDUSTRIAL ELECTRONIC PRODUCTS, CAMDEN, N. J.