



Electro-Voice®

600 Cecil Street
 Buchanan, Michigan 49107
 Phone: 616-695-6831
 TWX: 810-270-3135

SERVICE DATA

MODEL 61PM

The following component value changes were made to the main board (#4003514600) in the 61PM. These changes improve the sound of the reverb, and also stop oscillations in some units. Table 1 lists the components affected and their new values. Figure 1 shows the locations of the components on the schematic.

COMPONENT REFERENCE	OLD VALUE	NEW VALUE
C253	0.033 μ F	0.068 μ F
C255	120 pF	100 pF
C288	120 pF	100 pF
C286	0.033 μ F	0.068 μ F
R259	33 k Ω	47 k Ω

Table 1

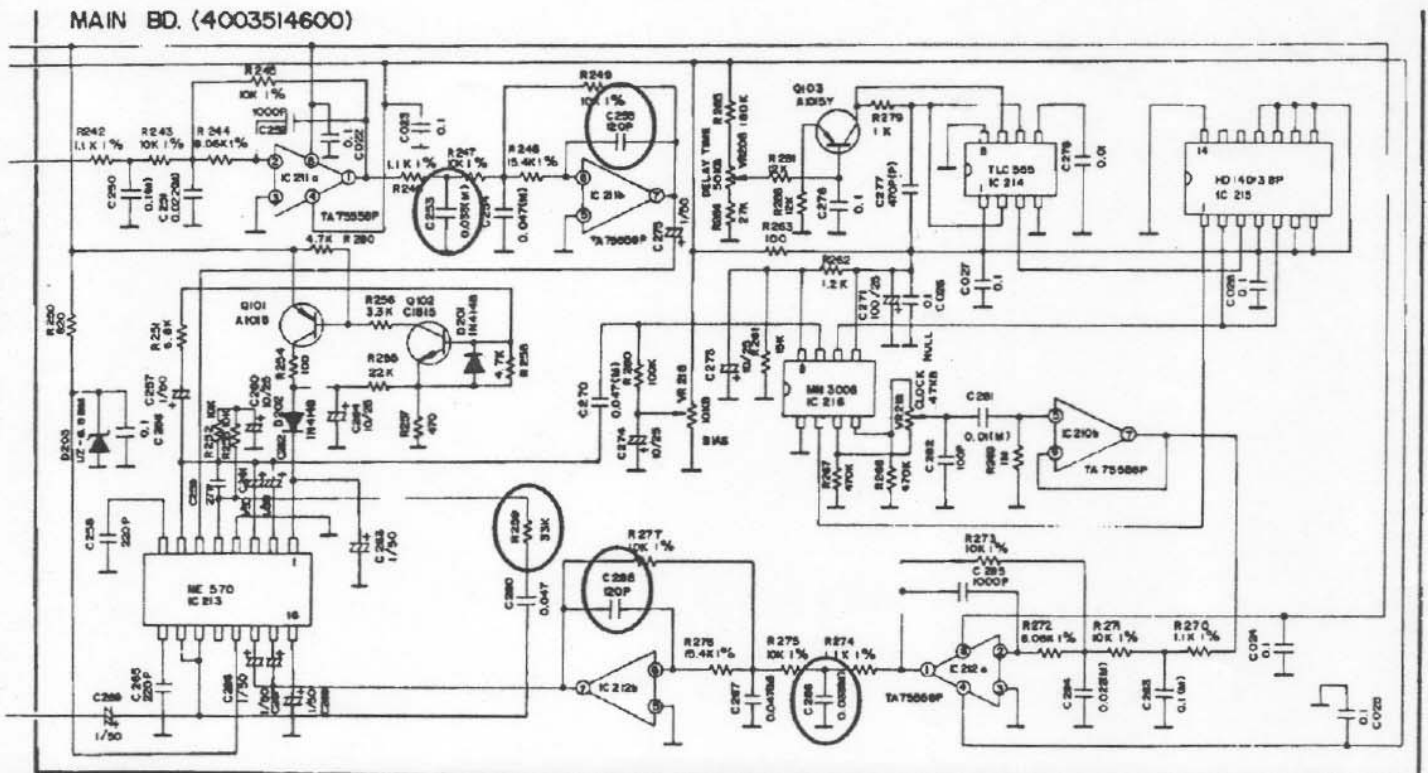
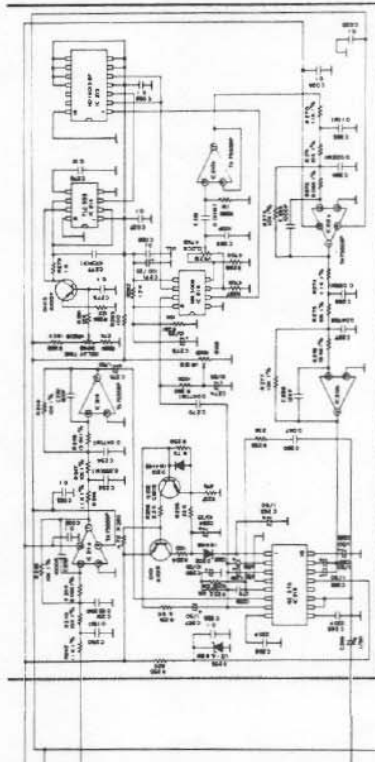
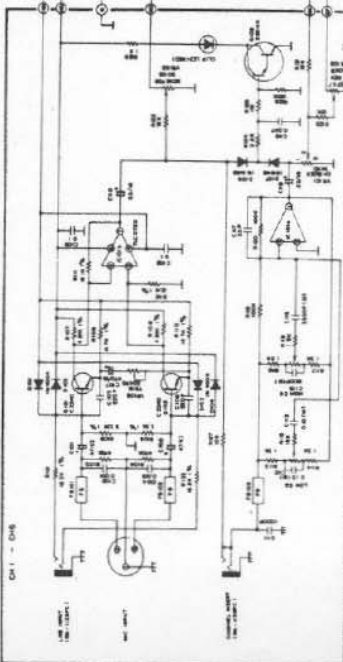


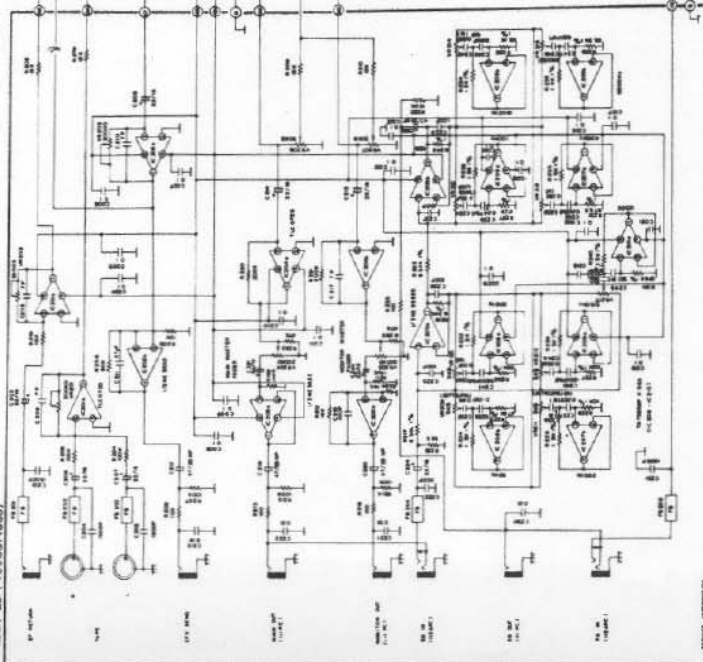
Figure 1

SCHEMATIC DIAGRAM

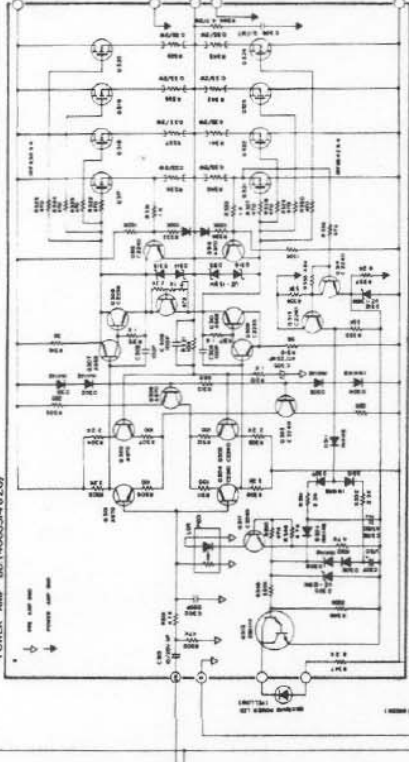
INPUT BD. (4003314610)



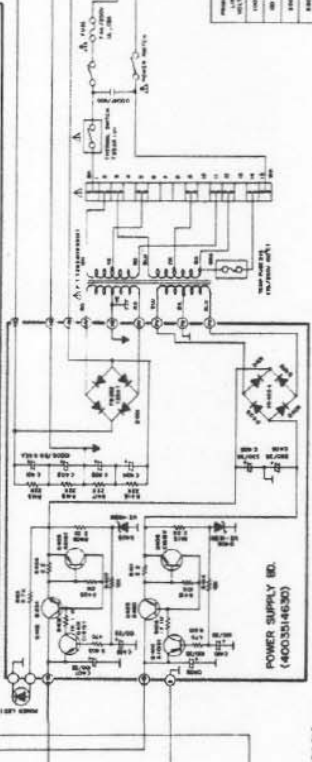
MAIN BD. (4003314600)



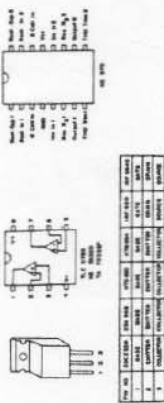
POWER AMP BD. (400324620)



POWER SUPPLY BD. (4003314630)



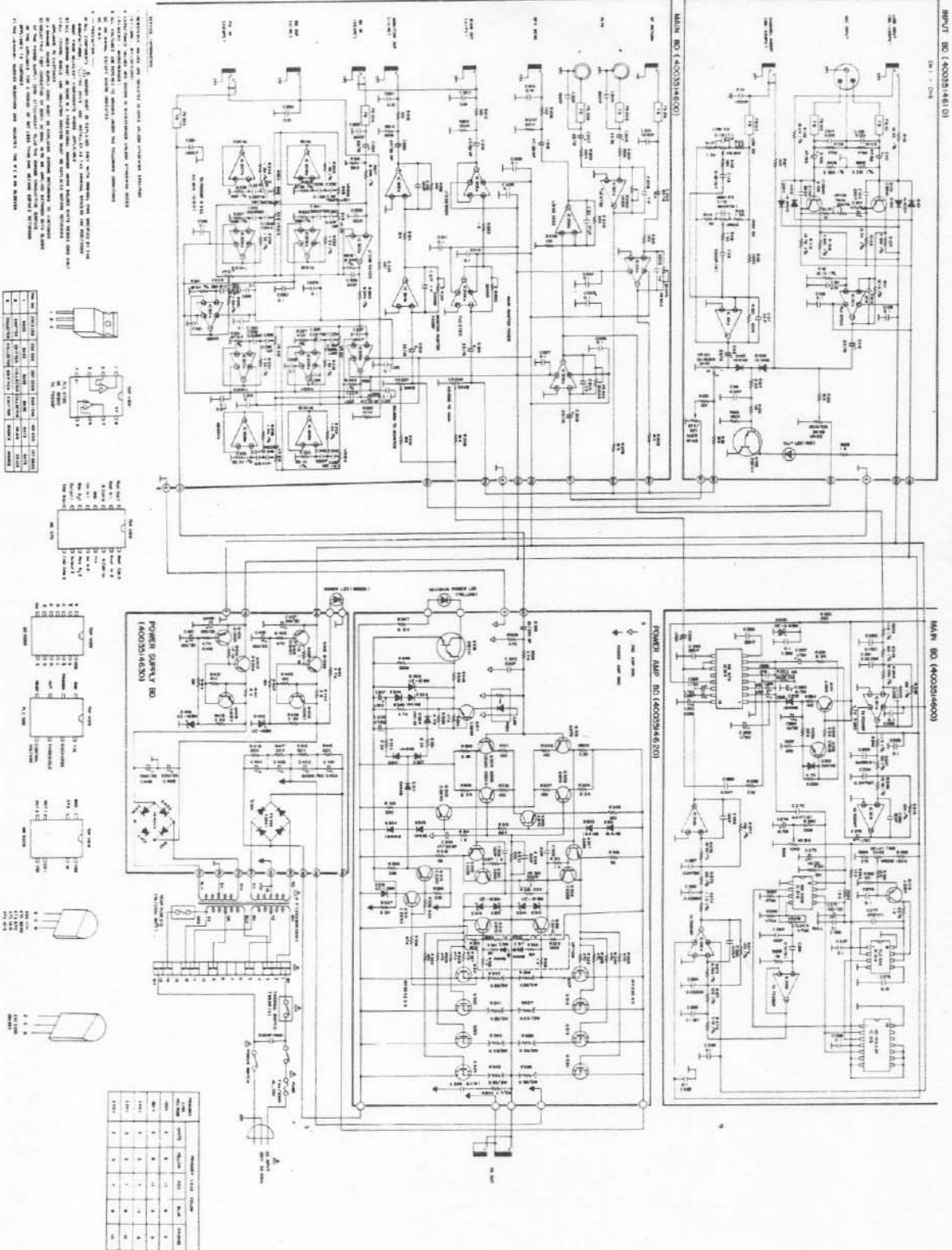
PREPARED BY	DESIGNED BY	APPROVED BY	DATE	ISSUE NO.
1000	1000	1000	1000	1000
1000	1000	1000	1000	1000
1000	1000	1000	1000	1000
1000	1000	1000	1000	1000
1000	1000	1000	1000	1000



NOTES:
 1. THIS SCHEMATIC DIAGRAM IS SUBJECT TO CHANGE WITHOUT NOTICE.
 2. THE PARTS LISTED IN THIS SCHEMATIC DIAGRAM ARE SUBJECT TO CHANGE WITHOUT NOTICE.
 3. THE PARTS LISTED IN THIS SCHEMATIC DIAGRAM ARE SUBJECT TO CHANGE WITHOUT NOTICE.
 4. THE PARTS LISTED IN THIS SCHEMATIC DIAGRAM ARE SUBJECT TO CHANGE WITHOUT NOTICE.
 5. THE PARTS LISTED IN THIS SCHEMATIC DIAGRAM ARE SUBJECT TO CHANGE WITHOUT NOTICE.

EQUIPMENT	POWER WIRE	MODEL	DATE	ISSUE NO.
4003314610	4003314610	4003314610	4003314610	4003314610
4003314610	4003314610	4003314610	4003314610	4003314610
4003314610	4003314610	4003314610	4003314610	4003314610
4003314610	4003314610	4003314610	4003314610	4003314610
4003314610	4003314610	4003314610	4003314610	4003314610

SCHEMATIC DIAGRAM



REVISIONS:

1. ORIGINAL DESIGN AND CONSTRUCTION OF THE SYSTEM.

2. REVISIONS TO THE SCHEMATIC DIAGRAM AND PART LIST.

3. REVISIONS TO THE SCHEMATIC DIAGRAM AND PART LIST.

4. REVISIONS TO THE SCHEMATIC DIAGRAM AND PART LIST.

5. REVISIONS TO THE SCHEMATIC DIAGRAM AND PART LIST.

6. REVISIONS TO THE SCHEMATIC DIAGRAM AND PART LIST.

7. REVISIONS TO THE SCHEMATIC DIAGRAM AND PART LIST.

8. REVISIONS TO THE SCHEMATIC DIAGRAM AND PART LIST.

9. REVISIONS TO THE SCHEMATIC DIAGRAM AND PART LIST.

10. REVISIONS TO THE SCHEMATIC DIAGRAM AND PART LIST.

REV.	DATE	DESCRIPTION
1	10/15/68	ORIGINAL DESIGN
2	11/10/68	REVISIONS TO SCHEMATIC
3	12/05/68	REVISIONS TO SCHEMATIC
4	01/20/69	REVISIONS TO SCHEMATIC
5	02/15/69	REVISIONS TO SCHEMATIC
6	03/10/69	REVISIONS TO SCHEMATIC
7	04/05/69	REVISIONS TO SCHEMATIC
8	05/01/69	REVISIONS TO SCHEMATIC
9	06/01/69	REVISIONS TO SCHEMATIC
10	07/01/69	REVISIONS TO SCHEMATIC

REV.	DATE	DESCRIPTION
1	10/15/68	ORIGINAL DESIGN
2	11/10/68	REVISIONS TO SCHEMATIC
3	12/05/68	REVISIONS TO SCHEMATIC
4	01/20/69	REVISIONS TO SCHEMATIC
5	02/15/69	REVISIONS TO SCHEMATIC
6	03/10/69	REVISIONS TO SCHEMATIC
7	04/05/69	REVISIONS TO SCHEMATIC
8	05/01/69	REVISIONS TO SCHEMATIC
9	06/01/69	REVISIONS TO SCHEMATIC
10	07/01/69	REVISIONS TO SCHEMATIC

REV.	DATE	DESCRIPTION
1	10/15/68	ORIGINAL DESIGN
2	11/10/68	REVISIONS TO SCHEMATIC
3	12/05/68	REVISIONS TO SCHEMATIC
4	01/20/69	REVISIONS TO SCHEMATIC
5	02/15/69	REVISIONS TO SCHEMATIC
6	03/10/69	REVISIONS TO SCHEMATIC
7	04/05/69	REVISIONS TO SCHEMATIC
8	05/01/69	REVISIONS TO SCHEMATIC
9	06/01/69	REVISIONS TO SCHEMATIC
10	07/01/69	REVISIONS TO SCHEMATIC

REV.	DATE	DESCRIPTION
1	10/15/68	ORIGINAL DESIGN
2	11/10/68	REVISIONS TO SCHEMATIC
3	12/05/68	REVISIONS TO SCHEMATIC
4	01/20/69	REVISIONS TO SCHEMATIC
5	02/15/69	REVISIONS TO SCHEMATIC
6	03/10/69	REVISIONS TO SCHEMATIC
7	04/05/69	REVISIONS TO SCHEMATIC
8	05/01/69	REVISIONS TO SCHEMATIC
9	06/01/69	REVISIONS TO SCHEMATIC
10	07/01/69	REVISIONS TO SCHEMATIC

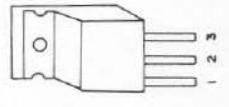
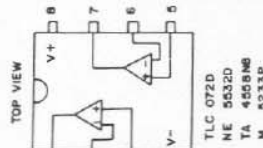
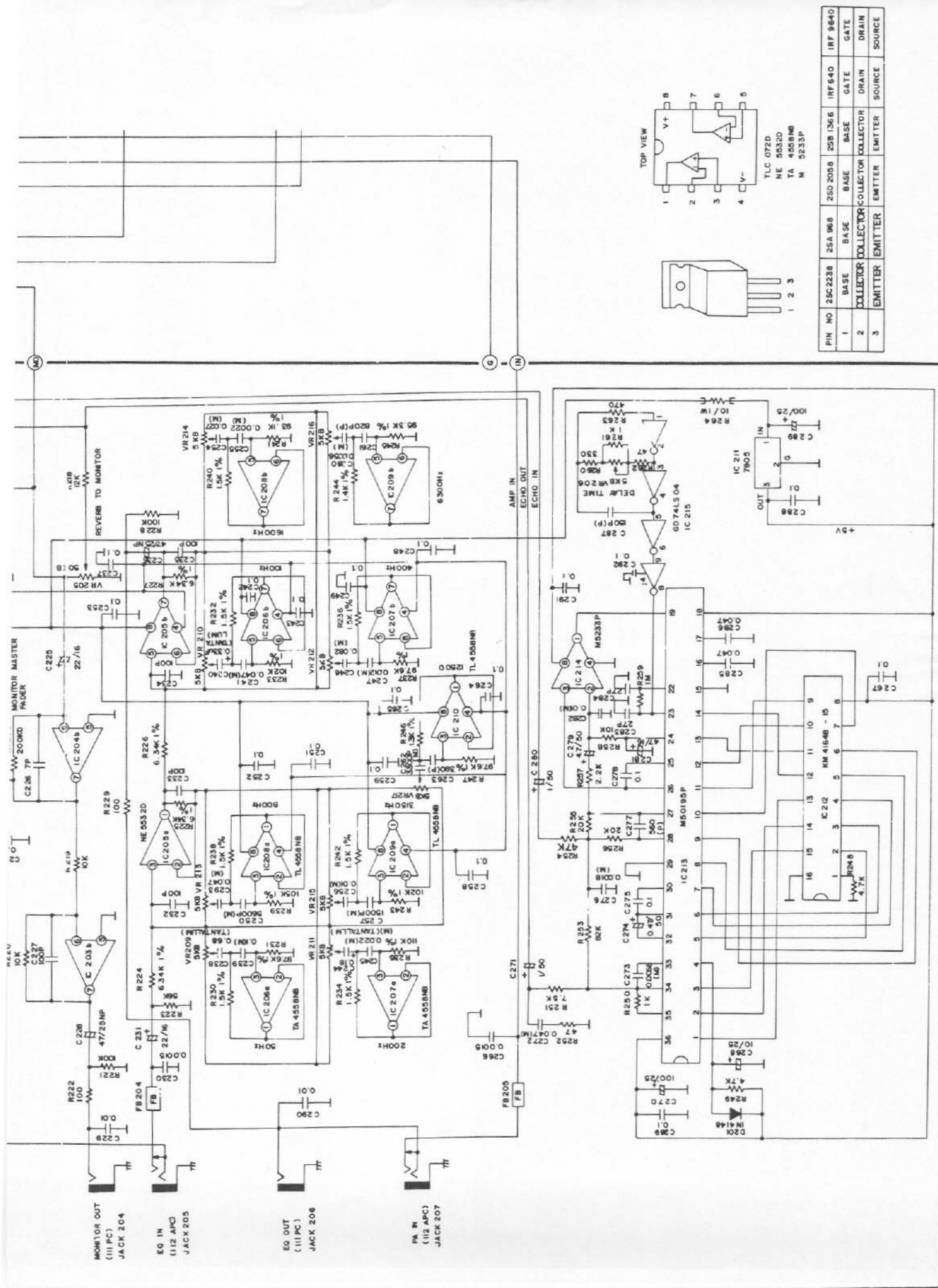
REV.	DATE	DESCRIPTION
1	10/15/68	ORIGINAL DESIGN
2	11/10/68	REVISIONS TO SCHEMATIC
3	12/05/68	REVISIONS TO SCHEMATIC
4	01/20/69	REVISIONS TO SCHEMATIC
5	02/15/69	REVISIONS TO SCHEMATIC
6	03/10/69	REVISIONS TO SCHEMATIC
7	04/05/69	REVISIONS TO SCHEMATIC
8	05/01/69	REVISIONS TO SCHEMATIC
9	06/01/69	REVISIONS TO SCHEMATIC
10	07/01/69	REVISIONS TO SCHEMATIC

REV.	DATE	DESCRIPTION
1	10/15/68	ORIGINAL DESIGN
2	11/10/68	REVISIONS TO SCHEMATIC
3	12/05/68	REVISIONS TO SCHEMATIC
4	01/20/69	REVISIONS TO SCHEMATIC
5	02/15/69	REVISIONS TO SCHEMATIC
6	03/10/69	REVISIONS TO SCHEMATIC
7	04/05/69	REVISIONS TO SCHEMATIC
8	05/01/69	REVISIONS TO SCHEMATIC
9	06/01/69	REVISIONS TO SCHEMATIC
10	07/01/69	REVISIONS TO SCHEMATIC

REV.	DATE	DESCRIPTION
1	10/15/68	ORIGINAL DESIGN
2	11/10/68	REVISIONS TO SCHEMATIC
3	12/05/68	REVISIONS TO SCHEMATIC
4	01/20/69	REVISIONS TO SCHEMATIC
5	02/15/69	REVISIONS TO SCHEMATIC
6	03/10/69	REVISIONS TO SCHEMATIC
7	04/05/69	REVISIONS TO SCHEMATIC
8	05/01/69	REVISIONS TO SCHEMATIC
9	06/01/69	REVISIONS TO SCHEMATIC
10	07/01/69	REVISIONS TO SCHEMATIC

REV.	DATE	DESCRIPTION
1	10/15/68	ORIGINAL DESIGN
2	11/10/68	REVISIONS TO SCHEMATIC
3	12/05/68	REVISIONS TO SCHEMATIC
4	01/20/69	REVISIONS TO SCHEMATIC
5	02/15/69	REVISIONS TO SCHEMATIC
6	03/10/69	REVISIONS TO SCHEMATIC
7	04/05/69	REVISIONS TO SCHEMATIC
8	05/01/69	REVISIONS TO SCHEMATIC
9	06/01/69	REVISIONS TO SCHEMATIC
10	07/01/69	REVISIONS TO SCHEMATIC

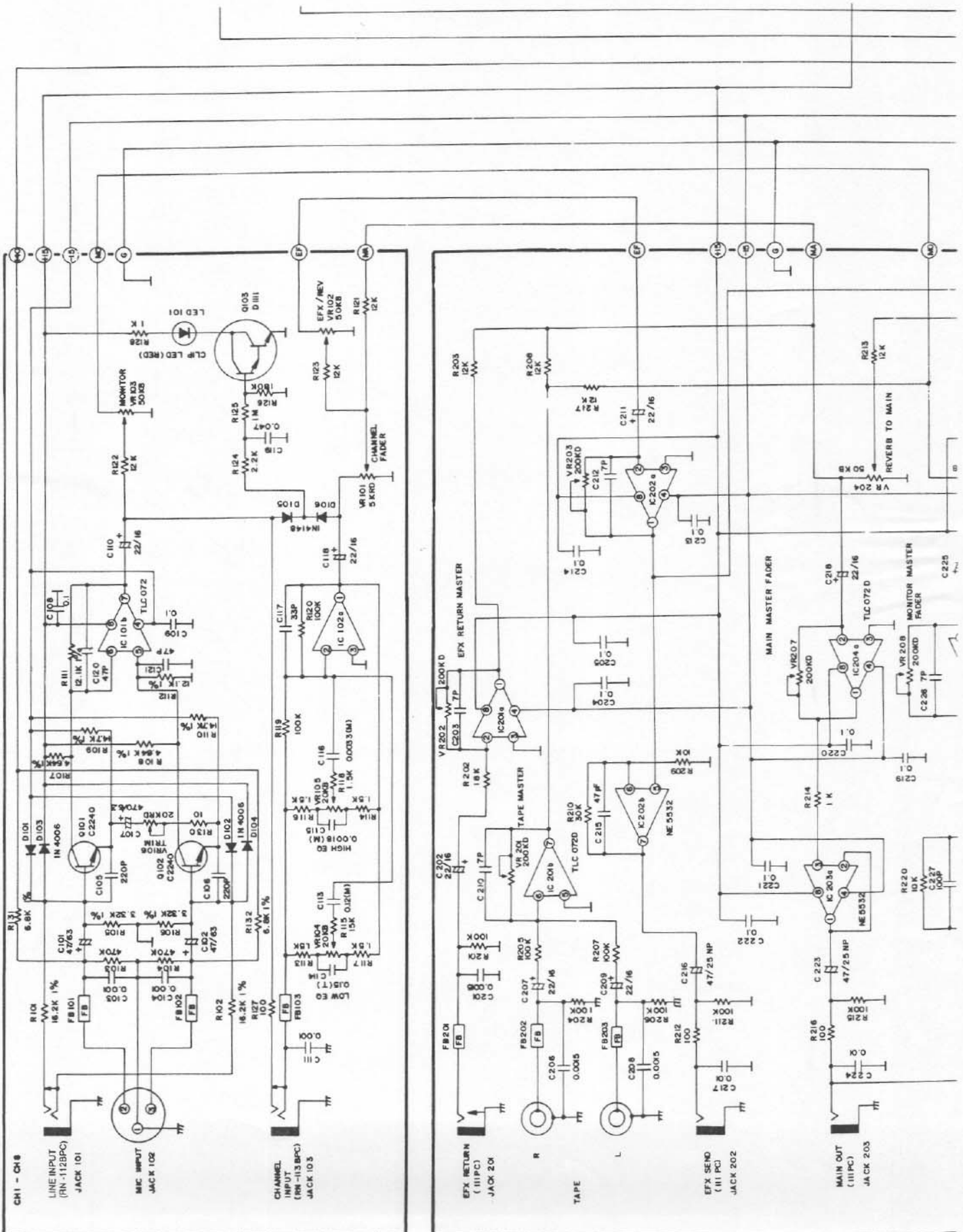
REV.	DATE	DESCRIPTION
1	10/15/68	ORIGINAL DESIGN
2	11/10/68	REVISIONS TO SCHEMATIC
3	12/05/68	REVISIONS TO SCHEMATIC
4	01/20/69	REVISIONS TO SCHEMATIC
5	02/15/69	REVISIONS TO SCHEMATIC
6	03/10/69	REVISIONS TO SCHEMATIC
7	04/05/69	REVISIONS TO SCHEMATIC
8	05/01/69	REVISIONS TO SCHEMATIC
9	06/01/69	REVISIONS TO SCHEMATIC
10	07/01/69	REVISIONS TO SCHEMATIC

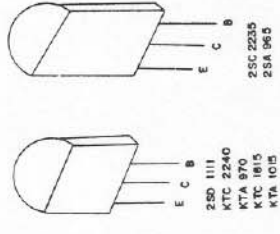
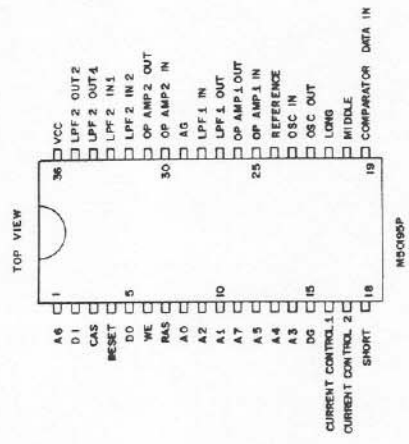
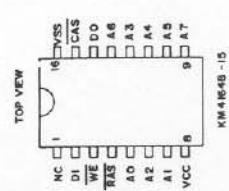
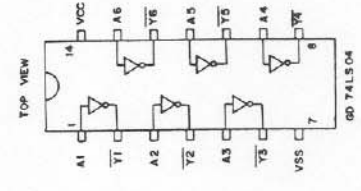
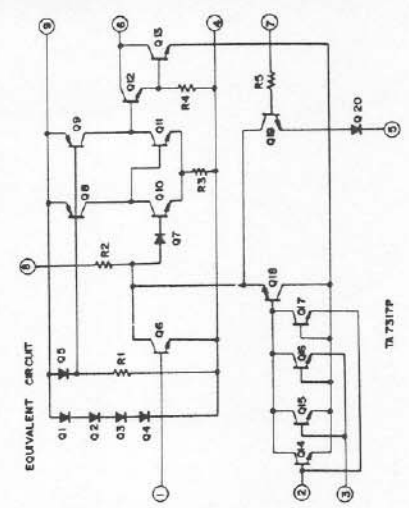
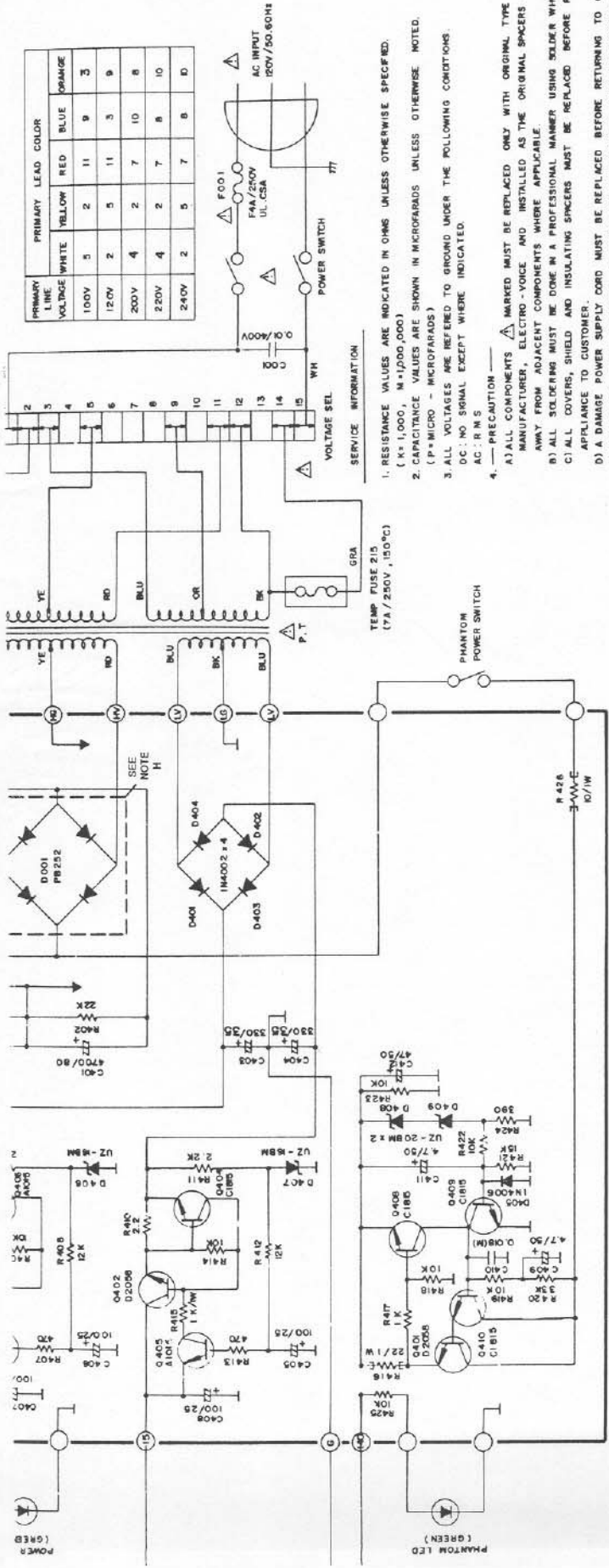


PIN NO	25C2238	25A 968	25D 209 B	25B 136 6	IRF 640	IRF 9640
1	BASE	BASE	BASE	BASE	GATE	GATE
2	COLLECTOR	COLLECTOR	COLLECTOR	COLLECTOR	EMITTER	EMITTER
3	EMITTER	EMITTER	EMITTER	EMITTER	DRAIN	DRAIN
					SOURCE	SOURCE

Page 2 Bottom

Page 2 Top





250 1111
KTC 2240
KTA 970
KTC 1815
KTA 1015

Page 1 Bottom

PMX 61481

REPLACEMENT PARTS LIST

INTEGRATED CIRCUITS (ICs) & TRANSISTORS

<u>No.</u>	<u>Description</u>	<u>Part No.</u>
1	BUCKET BRIGADE DEVICE	MN 3008
2	COMPANDER	NE 570
3	DUAL D FLIP FLOP	GD 4013B
4	OP AMP	NE 5532D
5	OP AMP	TA 75558P
6	OP AMP	TLC 072D
7	TIMER	TLC 555
8	TRANSISTOR	IRF 630
9	TRANSISTOR	IRF 9642
10	TRANSISTOR	KTA 970
11	TRANSISTOR	KTA 1015
12	TRANSISTOR	KTB 834
13	TRANSISTOR	KTC 1815
14	TRANSISTOR	KTC 2240
15	TRANSISTOR	KTD 880
16	TRANSISTOR	2SA 965
17	TRANSISTOR	2SA 968
18	TRANSISTOR	2SC 2235
19	TRANSISTOR	2SC 2238
20	TRANSISTOR	2SD 1111
	Main output	47-06-037.227; 200k Ω

**ELECTRO-VOICE
ENGINEERING FIELD NOTICE #2**

DATE: 18 NOVEMBER 1991

DISTRIBUTION: ELECTRO-VOICE FIELD SERVICE REPRESENTITIVES

ITEM: 61PM (ALL SERIAL NUMBERS)

SUBJECT: POWER AMPLIFIER FAILURE

PROBLEM: THE POWER AMPLIFIER MAY SHORT THE OUTPUT DEVICES IF DRIVEN INTO TO LOW AN IMPEDANCE.

SOLUTION: INSTALL A REDESIGNED POWER AMPLIFIER MODULE.

MATERIALS REQUIRED: 1 - 61PM AMPLIFIER CONVERSION KIT
P/N A11-01-037576I

TIME REQUIRED: ~ 60 MINUTES

PROCEDURE: REMOVE THE POWER AMPLIFIER ASSEMBLY (HEAT-SINK, CLAMPS AND CIRCUITBOARD) AND SHIELD.

1. REMOVE THE OLD THERMAL SWITCH, CUT, STRIP AND TWIST LEADS TOGETHER, AND ATTACH A 22/14 NYLON INSULATED CLOSED END CONNECTOR (CRIMP CAP).

2. INSTALL NEW POWER AMPLIFIER MODULE.

A. REMOVE ONE OF THE WIRES LEADING FROM THE POWER TRANSFORMER TO THE BRIDGE RECTIFIER. THIS IS THE AC SIDE OF THE BRIDGE. SLIP THE CLEAR PLASTIC INSULATOR BACK. TAKE THE SIX INCH, SINGLE CONDUCTOR RED-WIRED CONNECTOR AND SLIDE THE WIRE THROUGH THE CLEAR PLASTIC INSULATOR AND SOLDER IT TO THE LUG. SLIP THE INSULATOR BACK OVER BOTH WIRES AND ATTACH TO THE BRIDGE RECTIFIER. THE OTHER END OF THIS CONNECTOR GOES TO THE AMPLIFIER ASSEMBLY, CON302.

NOTE: THE NEW AMPLIFIER HAS DIFFERENT CONNECTOR TERMINALS; THE OLD CONNECTORS MUST BE REPLACED.

B: TAKE THE RED AND WHITE WIRES LEADING FROM THE MAX POWER LED AND CUT THEM ABOUT THREE INCHES FROM THE OLD WHITE TERMINAL. STRIP ONE HALF INCH AND TIN. TAKE THE NEW CONNECTOR WITH THE RED AND WHITE WIRES AND SOLDER RED TO RED AND WHITE TO WHITE. INSULATE THE BARE WIRE. THIS CONNECTOR GOES TO THE AMPLIFIER ASSEMBLY, CON303.

C: TAKE THE LAST CONNECTOR CABLE (GREEN SHIELDED) AND CUT OFF ONE END CLOSE TO THE WHITE CONNECTOR. STRIP 1/4 INCH AND TIN. FOLLOW THE GREY "AMP IN" SHIELDED WIRE BACK TO THE MAIN PCB. DESOLDER THE WHITE PART OF THIS WIRE AND SOLDER THE WHITE HALF OF THE NEW GREEN SHIELDED WIRE IN ITS PLACE. THEN SOLDER THE BLACK WIRE TO THE POINT WHERE THE BLACK WIRE IS CONNECTED. THE OTHER END OF THIS GREEN SHIELDED WIRE GOES TO THE AMPLIFIER ASSEMBLY, CON304. THIS IS THE AMPLIFIER INPUT.

D: APPLY POWER AND ADJUST OUTPUT FOR 1 WATT INTO 4 OHMS AT 20 KHZ. ADJUST BIAS CONTROL FOR MINIMUM CROSS-OVER DISTORTION.

61PM Power Amp Test 8-15-89
to be added to existing documentation for servicing.

A. AMPLIFIER BIAS ADJUSTMENT PROCEDURE

NOTE: This procedure MUST BE DONE WITH A COLD HEATSINK (ROOM TEMPERATURE). If the heatsink is warm, let it cool to room temperature before starting! A fan may be used to speed the cooling process.

- a) Rotate VR301 to fully counter-clockwise (minimum bias) position.
- b) Connect 4 ohm test load to the TO SPEAKERS jack
- c) Power up unit with variac set at 120VAC
- d) Connect test leads across R336 and set meter to read millivolts
- e) set bias pot (VR301) for 1mV across R336
- f) Measure voltages across R336, R337, R338, R339, R340, R341, R342 and R343
- g) Connect voltmeter across resistor with the highest measured voltage value from the last step
- h) Set bias pot (VR301) for 10mV across that resistor
- i) Measure voltages again across R336-R343 and write down measurements.
- j) Add all eight voltage readings together for a total
- k) Now divide 10mV by the total; $10\text{mV}/\text{Total mV} = ?$
- l) If the number from step k) is larger than 0.20 then change the device that corresponds with the resistor from step g) and repeat this whole process and make sure that the heatsink is cold (room temperature). If the number is 0.20 or less then continue to step m).
- m) turn off unit, connect the distortion analyzer oscillator to the POWER AMP IN jack and set the oscillator to 1kHz. Connect the analyzer input to the other TO SPEAKERS jack.
- n) Turn on the unit. Adjust the generator output for 200W output from the amplifier.
- o) Distortion should be less than 0.5%. (Typically 0.1%)

REPLACEMENT PARTS LIST

INTEGRATED CIRCUITS (ICs) & TRANSISTORS

<u>No.</u>	<u>Description</u>	<u>Part No.</u>
1	BUCKET BRIGADE DEVICE	MN 3008
2	COMPANDER	NE 570
3	DUAL D FLIP FLOP	GD 4013B
4	OP AMP	NE 5532D
5	OP AMP	TA 75558P
6	OP AMP	TLC 072D
7	TIMER	TLC 555
8	TRANSISTOR	IRF 630
9	TRANSISTOR	IRF 9642
10	TRANSISTOR	KTA 970
11	TRANSISTOR	KTA 1015
12	TRANSISTOR	KTB 834
13	TRANSISTOR	KTC 1815
14	TRANSISTOR	KTC 2240
15	TRANSISTOR	KTD 880
16	TRANSISTOR	2SA 965
17	TRANSISTOR	2SA 968
18	TRANSISTOR	2SC 2235
19	TRANSISTOR	2SC 2238
20	TRANSISTOR	2SD 1111
	Main out pot	47-06-037.227; 200KB