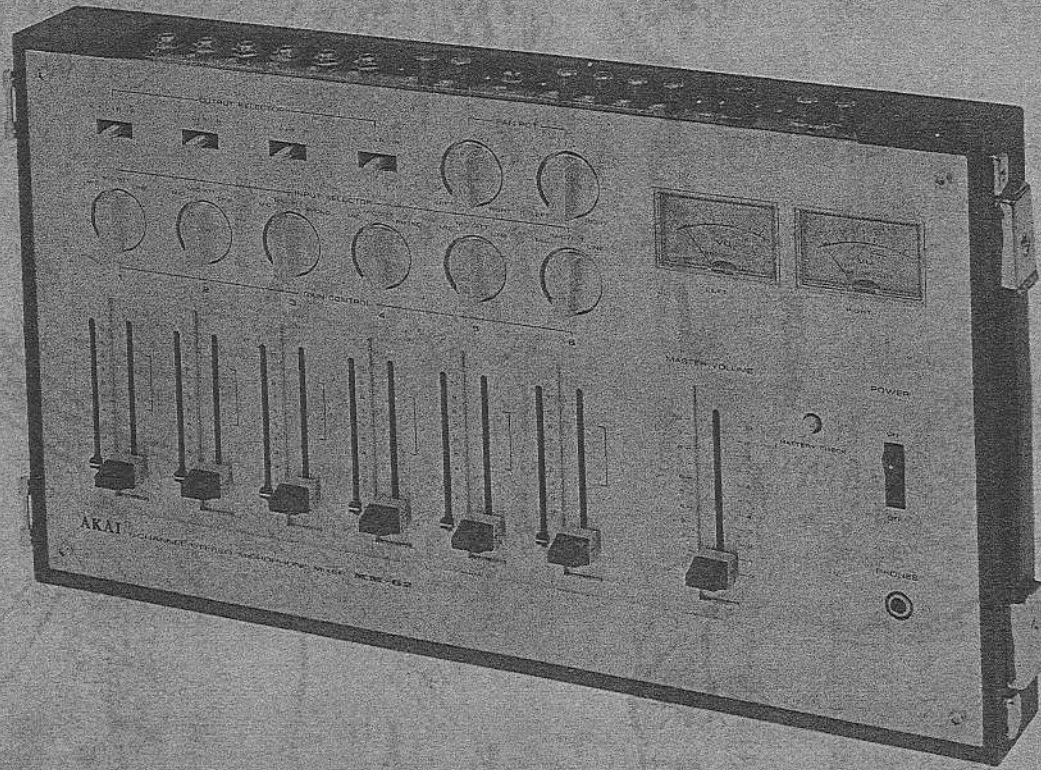


SERVICE MANUAL

PARTS LIST

MODEL MM-62





AKAI MICROPHONE MIXER

MODEL **MM-62**

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SECTION 1

SERVICE MANUAL

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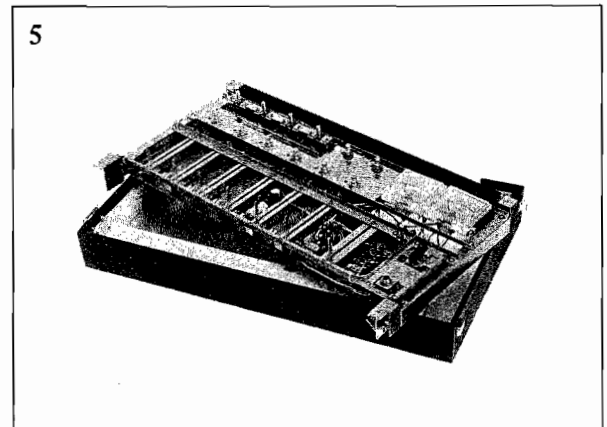
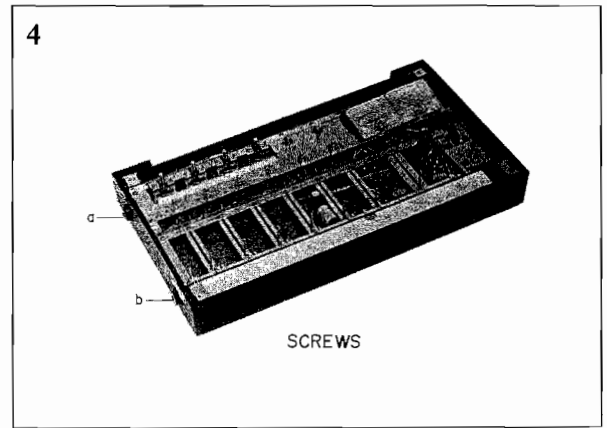
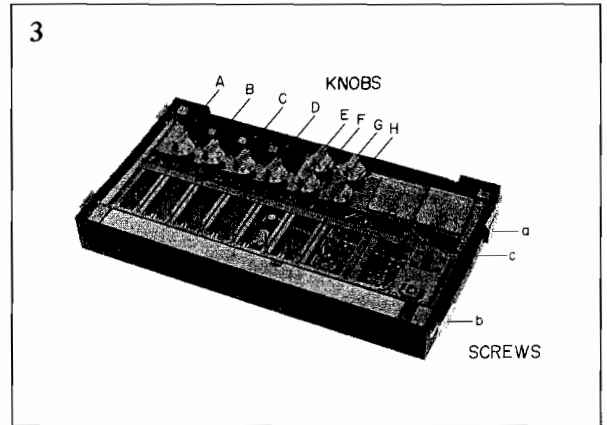
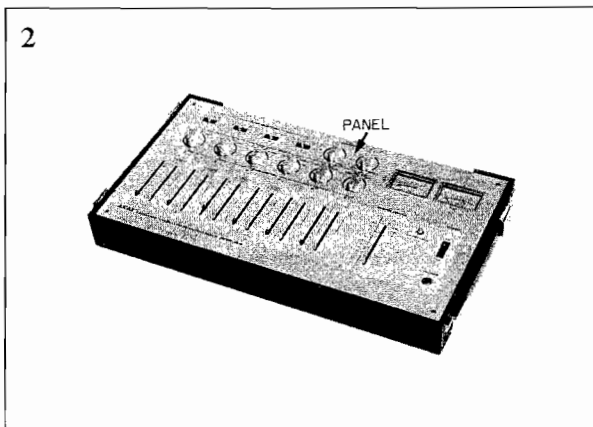
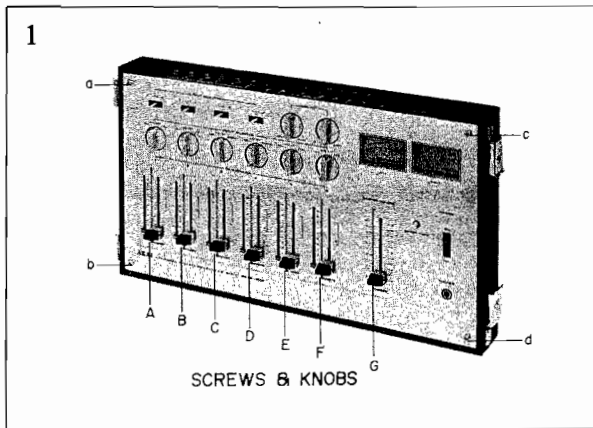
I. TECHNICAL DATA

POWER SOURCE	DC12V Battery UM-2x8 or AC Adapter
POWER CONSUMPTION	0.4W
BATTERY USING TIME	Approximately 40 hours of continuous operation
SEMI-CONDUCTORS	25 transistors, 5 diodes
INPUT JACKS	<p>A) Microphone: 6 channels Sensitivity: 0.2 mV (-72 dB) low impedance microphones recommended Microphone Attenuation: -20 dB, 2.0 mV (-52 dB)</p> <p>B) Phono: 2 channels Sensitivity: 1.5 mV (-54 dB) based on RIAA Curve Impedance: 50 k ohms</p> <p>C) Line: 4 channels Sensitivity: 40 mV (-26 dB) Impedance: 20 k ohms</p>
OUTPUT JACKS	<p>A) Line: 2 (Left/Right) channels Load Impedance: More than 10 k ohms Rated Output Level: 0.435V (-5 dB)</p> <p>B) Headphone: 1 stereo jack Load Impedance: 8 ohms Rated Output Level: 50 mV (-24 dB)</p>
FREQUENCY RESPONSE	<p>Mic: 20 to 20,000 Hz ± 3 dB Line: 20 to 50,000 Hz ± 1 dB</p>
DISTORTION FACTOR	Less than 0.3%
SIGNAL-TO-NOISE RATIO	Better than 55 dB (DIN A)
DIMENSIONS	450(W) \times 80(H) \times 250(D) mm (17.7 \times 3.1 \times 9.8")
WEIGHT	3.7 kg (incl. batteries) 8.1 lbs

* For improvement purposes, specifications and design are subject to change without notice.

II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating disassembly, please disassemble in the order shown in photographs. Re-assemble in reverse order.



III. CONTROLS

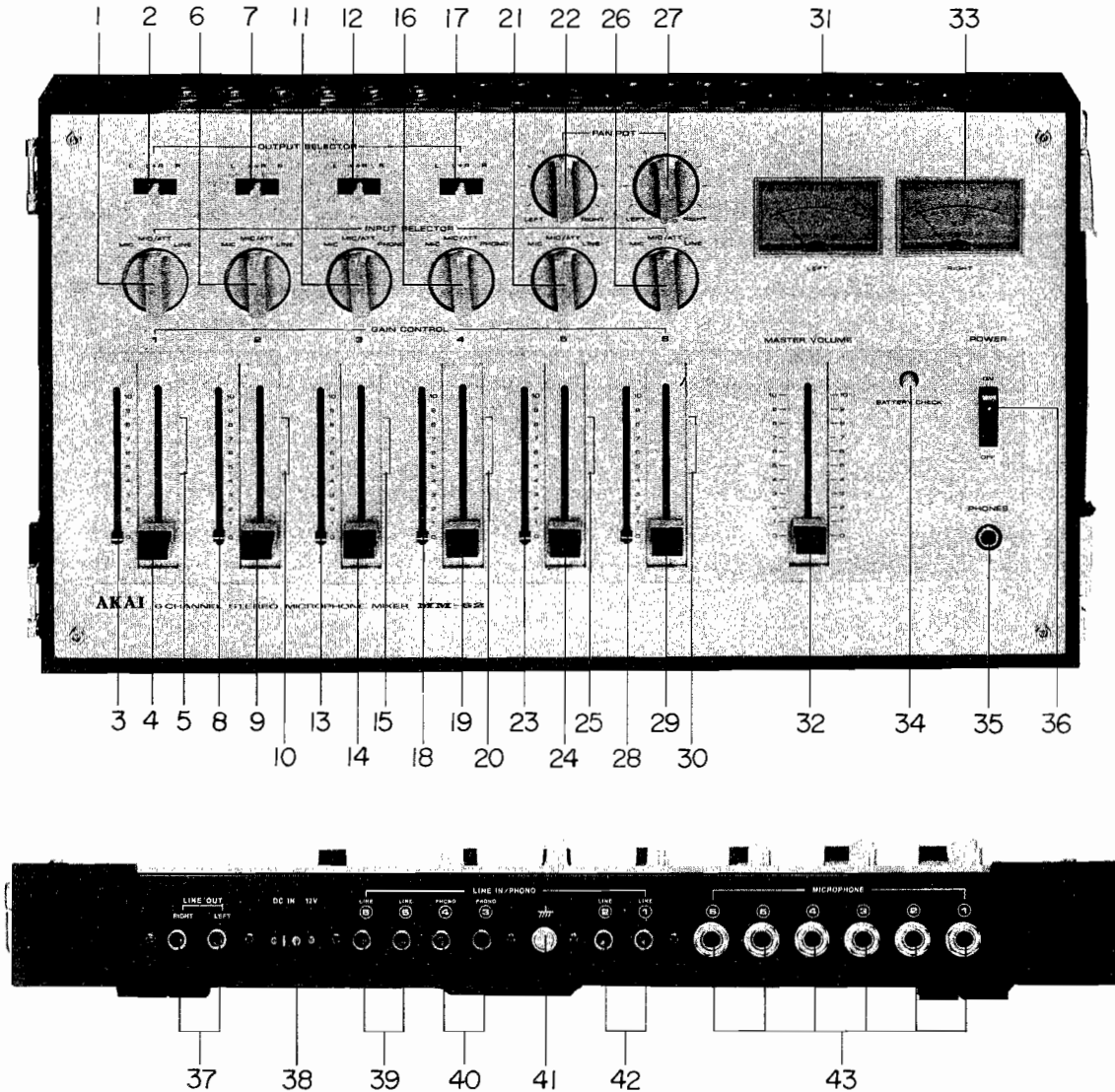


Fig. 1 Controls

- | | |
|---|--|
| 1. INPUT SELECTOR CHANNEL 1 | 24. GAIN CONTROL CHANNEL 5 |
| 2. OUTPUT SELECTOR CHANNEL 1 | 25. IDEAL RANGE INDICATOR CHANNEL 5 |
| 3. GAIN CONTROL LEVEL MARKER CHANNEL 1 | 26. INPUT SELECTOR CHANNEL 6 |
| 4. GAIN CONTROL CHANNEL 1 | 27. PANPOT CONTROL CHANNEL 6 |
| 5. IDEAL RANGE INDICATOR CHANNEL 1 | 28. GAIN CONTROL LEVEL MARKER CHANNEL 6 |
| 6. INPUT SELECTOR CHANNEL 2 | 29. GAIN CONTROL CHANNEL 6 |
| 7. OUTPUT SELECTOR CHANNEL 2 | 30. IDEAL RANGE INDICATOR CHANNEL 6 |
| 8. GAIN CONTROL LEVEL MARKER CHANNEL 2 | 31. LEFT VU METER |
| 9. GAIN CONTROL CHANNEL 2 | 32. MASTER VOLUME CONTROL |
| 10. IDEAL RANGE INDICATOR CHANNEL 2 | 33. RIGHT VU METER AND BATTERY LEVEL INDICATOR METER |
| 11. INPUT SELECTOR CHANNEL 3 | 34. BATTERY CHECK BUTTON |
| 12. OUTPUT SELECTOR CHANNEL 3 | 35. HEADPHONE JACK |
| 13. GAIN CONTROL LEVEL MARKER CHANNEL 3 | 36. POWER SWITCH |
| 14. GAIN CONTROL CHANNEL 3 | 37. LEFT/RIGHT LINE OUTPUT JACKS |
| 15. IDEAL RANGE INDICATOR CHANNEL 3 | 38. ALTERNATE POWER SOURCE CONNECTION JACK |
| 16. INPUT SELECTOR CHANNEL 4 | 39. LINE INPUT JACKS CHANNEL 6 and CHANNEL 5 |
| 17. OUTPUT SELECTOR CHANNEL 4 | 40. PHONO INPUT JACKS CHANNEL 4 and CHANNEL 3 |
| 18. GAIN CONTROL LEVEL MARKER CHANNEL 4 | 41. PHONO GROUND TERMINAL |
| 19. GAIN CONTROL CHANNEL 4 | 42. LINE INPUT JACKS CHANNEL 2 and CHANNEL 1 |
| 20. IDEAL RANGE INDICATOR CHANNEL 4 | 43. MICROPHONE INPUT JACKS CHANNEL 1 to CHANNEL 6 |
| 21. INPUT SELECTOR CHANNEL 5 | |
| 22. PANPOT CONTROL CHANNEL 5 | |
| 23. GAIN CONTROL LEVEL MARKER CHANNEL 5 | |

IV. PRINCIPAL PARTS LOCATION

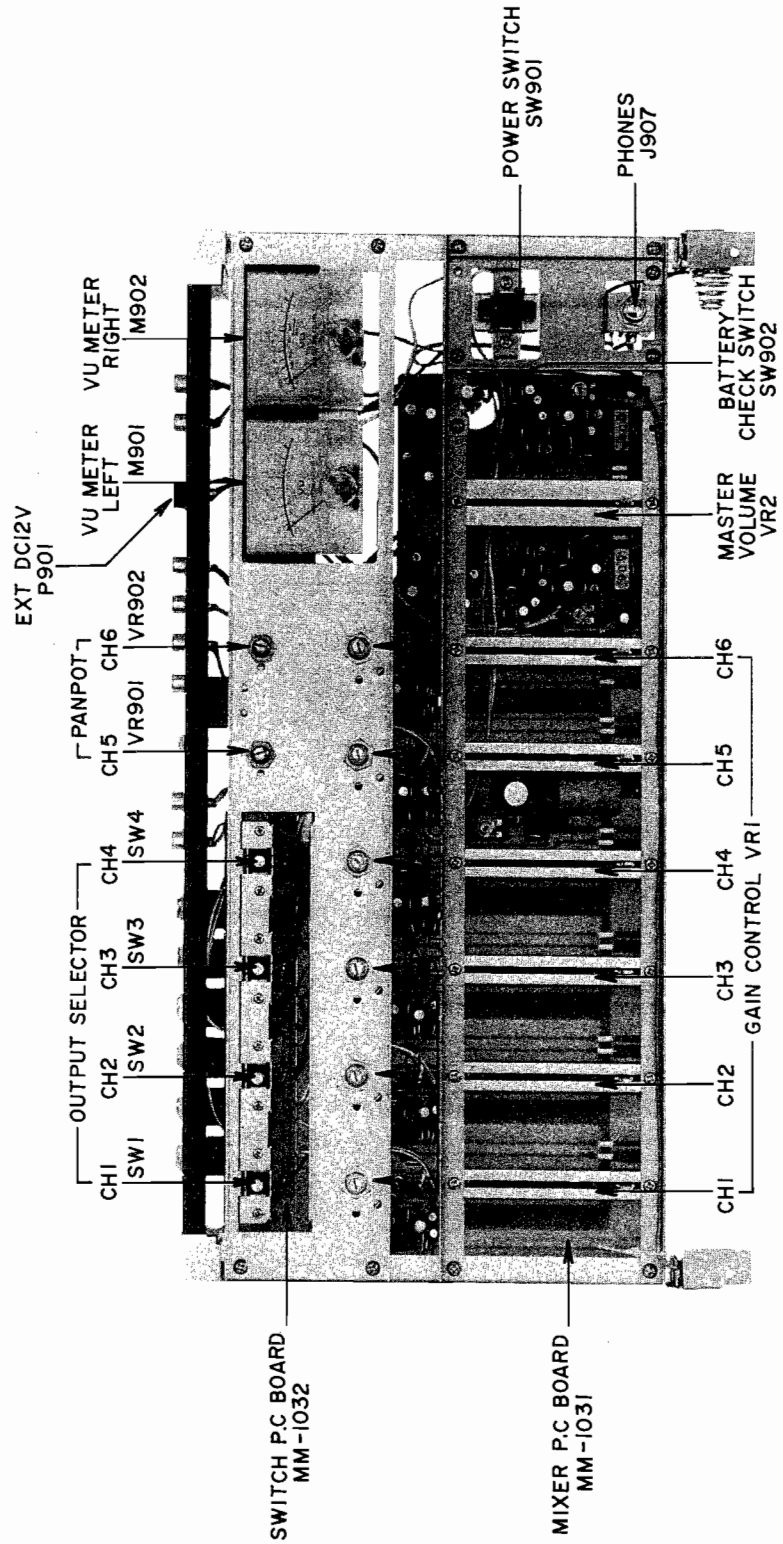


Fig. 2 Top View

V. AMPLIFIER ADJUSTMENT

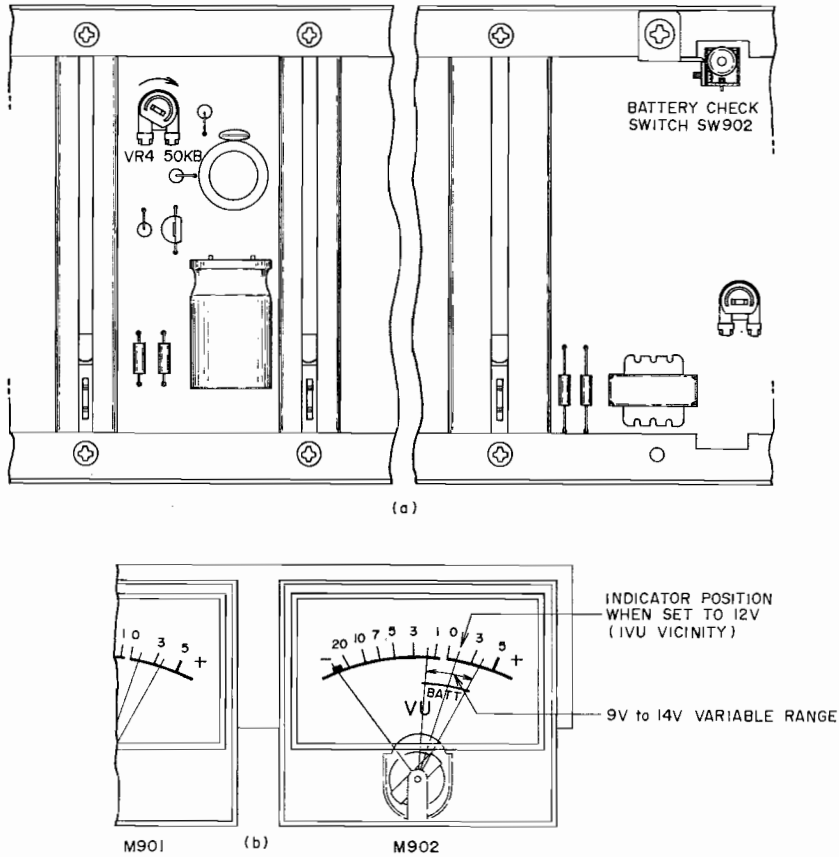


Fig. 3 Battery Check Level Adjustment

1. BATTERY CHECK LEVEL ADJUSTMENT (Refer to Fig. 3)

Adjust VR4 50 k Ω so that when DC 12V is supplied from the external power source terminal and the battery check switch depressed, VU meter indication is in the vicinity of 1 VU.

Vary the external power source within DC 9V–14V and confirm that the VU meter indication is within the battery check level indicator range.

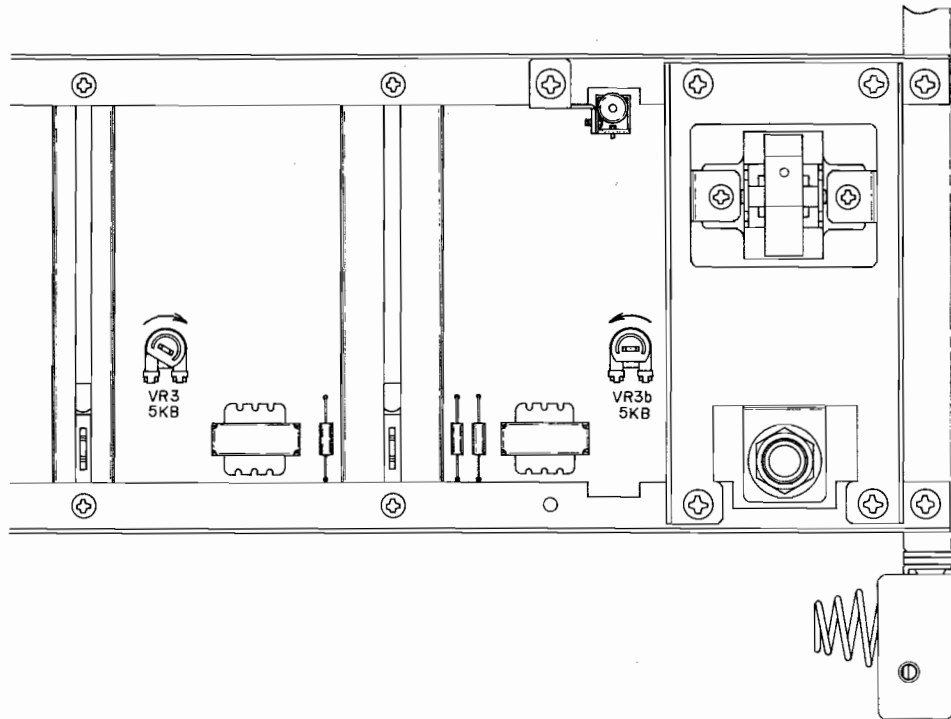


Fig. 4 VU Meter Sensitivity Adjustment

2. VU METER SENSITIVITY ADJUSTMENT (Refer to Fig. 4)

Supply a 1 kHz signal to CH1 line input. Set Input Selector to LINE and Output Selector to L + R, and set the Master Volume to maximum. Set Gain Control for a -5 ± 0.3 dBm output at the line out, and at this time adjust VR3 5 kB so that the VU meter indication is 0 VU.

Note: Do not supply input to the other channels.

VI. CLASSIFICATION OF VARIOUS P.C BOARDS

1. RELATION OF P.C BOARD TITLE AND NUMBER

P.C Board	Number of P.C Board
Mixer P.C Board	MM-1031
Switch P.C Board	MM-1032

Chart 1

MEMO

SECTION 2

PARTS LIST

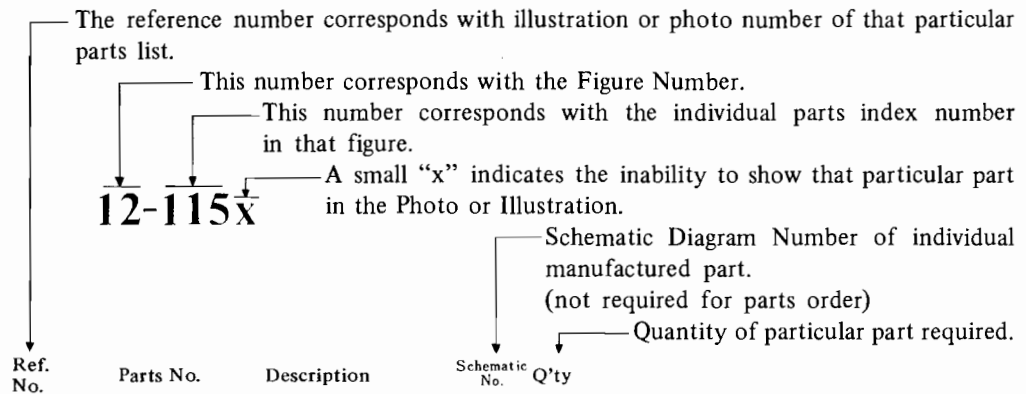
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Resistor and Capacitor which is not listed in this parts list, please refer to COMMON LIST FOR SERVICE PARTS.

HOW TO USE THIS PARTS LIST

1. This parts list is compiled by various individual blocks based on assembly process.
2. When ordering parts, please describe parts number, serial number, and model number in detail.
3. How to read List



Ref. No.	Parts No.	Description	Schematic No.	Q'ty
FLYWHEEL BLOCK #13				
12-115x	800425	Flywheel Block Assy. Comp.	RDG #13	1
12-116	244506	Flywheel Only	RD-233	1
12-117x	244754	Felt, Flywheel	RD-275	1
12-118	251324	Main Metal Case	RD-236	1
12-119	253080	Main Metal	RD-237	1

4. The symbol numbers shown on the P.C. Board list can be matched with the Composite Views of Components of the Schematic Diagram or Service Manual.
5. Please utilize separate "Common List for Service Parts" for Resistor Parts orders.
6. The shape of the parts and parts name, etc. can be confirmed by comparing them with the parts shown on the Electrical Parts Table of P.C. Board.
7. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List.
It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index. (meaning of ref. no. outlined in Item 3 above).
8. Utilize separate "Price List for Parts" to determine unit price. The most simple method of finding parts Price is to utilize the reference number.

CAUTION:

1. When placing an order for parts, be sure to list the parts no. model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.

1. RECOMMENDED SPARE PARTS LIST

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

Parts No.	Description	Note
BA299878	Mixer P.C Board Comp. MM-1031	
BA299880	Switch P.C Board Comp. MM-1032	
BC299777	Case Block Comp.	
BD299801	Front Panel Block Comp.	
ED219464	Germanium Diode 1N34A	D1, D2
ED224526	Silicon Diode 10D1	D3
EJ297958	Mic Jack 2PMJ2B	J901 to J906
EJ275220	Jack Plate	4P
EJ275231	Jack Plate	2P
EJ290092	Power Connector EC342-1-3	P901
EJ391083	Mic Jack 3PMJ1P	J907
EM275185	VU Meter	M901 (Left)
EM275196	VU Meter	M902 (Right, Battery Check)
ES275218	Rotary SW. SRM-1043	SW1
ES285592	Seesaw SW. SDE2SCBU	SW901 (Power)
ES290081	Push SW. UEK11G	SW902 (Battery Check)
ES677305	Lever SW. SLE54305	SW1 to 4
ET398788	Transistor 2SC945L(R)	TR5 to 9
ET495426	Transistor 2SC1222(E)	TR1 to 4
EV265544	Slide Vol. MDE4R0002 20 kA×2	VR2
EV265566	Slide Vol. LDE4R0002 20 kA	VR1 (Ch1 to 6)
EV275207	Vol. GM70E696 50kMN	VR901, 902
SK274836	Selector Knob	
SK569237	Slide Knob CG-8	

2. MIX P.C. BOARD (MM-1031) BLOCK

Symbol No.	Parts No.	Description	Schematic No.	Q'ty
2-1	BA299878	MIX P.C Board Comp. (MM-1031)		1
2-TR1to4	ET495426	Transistor 2SC1222 (E)	45-1-110	16
2-TR5to9	ET398788	Transistor 2SC945 (R)	45-1-85	9
2-D1,2	ED219464	Germanjum Diode 1N34A	45-3-1	4
2-D3	ED224526	Silicon Diode 10D1	45-2-11	1
2-T1	BT557144	Headphone Trans. S16-508	38-2-36	2
2-VR3	EV464207	Semi-fixed/Vol. V8K4-1 5 kB	36-10-266	2
2-VR4	EV464220	Semi-fixed/Vol. V8K4-1 50 kB	36-10-266	1

3. SW. P.C BOARD (MM-1032) BLOCK

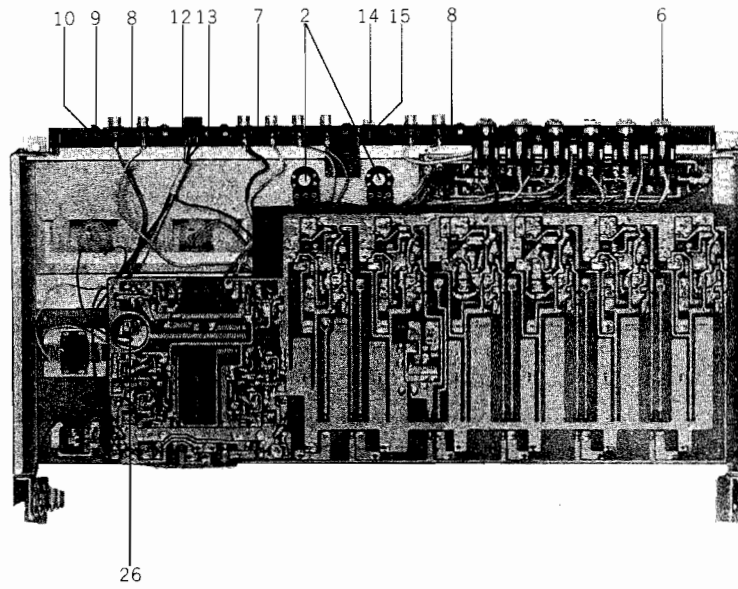
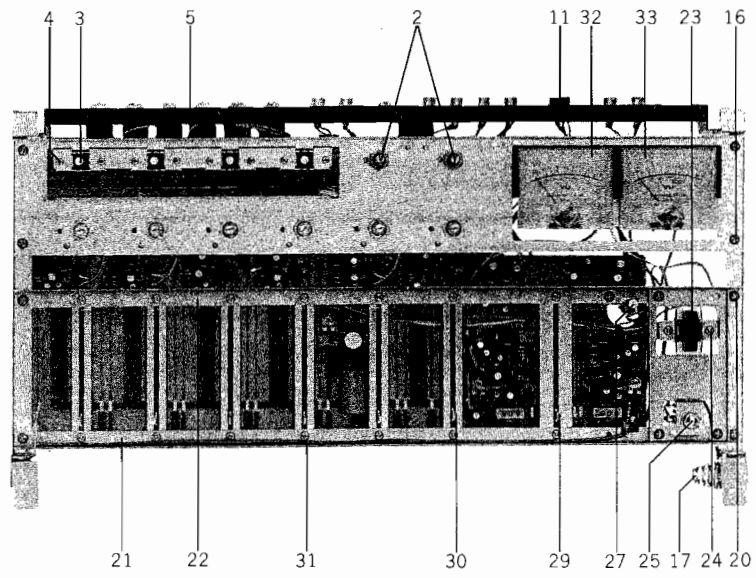
Symbol No.	Parts No.	Description	Schematic No.	Q'ty
3-1	BA299880	SW. P.C Board Comp. (MM-1032)		1
3-SW1to4	ES677305	Lever SW. SLE54305	25-12-24	4

4) ASSEMBLY BLOCK

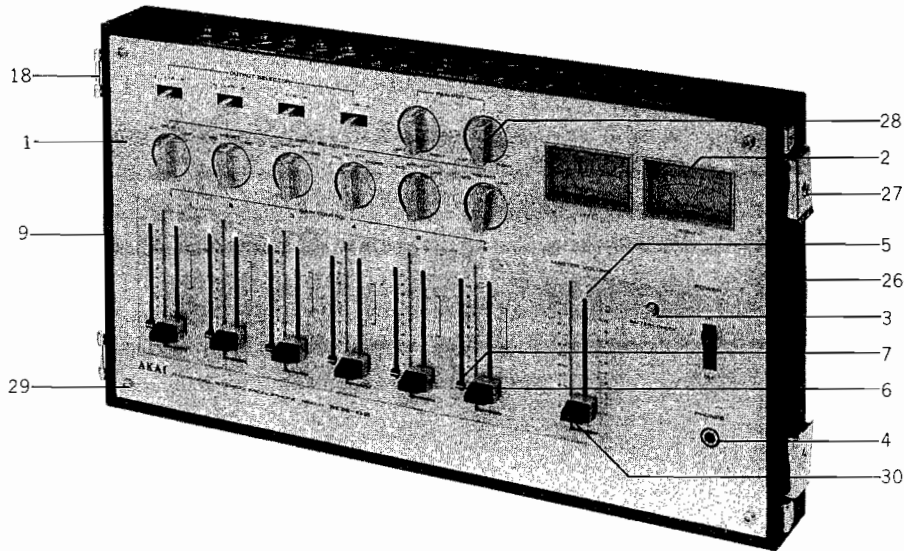
Ref. No.	Parts No.	Description	Schematic No.	Q'ty
SW. MT. PLATE BLOCK				
4-1 x	EZ274814	Meter Cushion	MM-1009	1
4-2	EV275207	Vol. GM70E696-50kMN	36-22-23	2
4-3	ES275218	Rotary SW. SRM1043	25-6-105	6
4-4	ZS432843	Screw, pan head 2.6x4		8
REAR PANEL BLOCK				
4-5	SP275016	Rear Panel	MM-1014/1015	1
4-6	EJ237958	Mic. Jack 2PMJ2B	31-2-80	6
4-7	EJ275220	Jack Plate JPJ004-1-1	31-1-194	1
4-8	EJ275231	Jack Plate JPJ087-1	31-1-193	2
4-9	ZS201150	Screw, truss head 3x6(Black)		6
4-10	ZW273756	Nut M3, #1		6
4-11	EJ290092	Power Connector EC342-1-3	31-1-195	1
4-12	ZS484918	Screw, pan head 2x8		2
4-13	ZW609311	Nut M2, #1		2
4-14	ZS675382	Earth Screw	AA-52103	1
4-15	ZW259626	Washer (BSP) D3.6x10x0.5t		1
ASSEMBLY BLOCK				
4-16	ZS447840	Tapping Screw #2 3x8 (BR)		4
4-17	ZG274757	Spring	MM-1005	1
4-18x	ZS379350	Screw, pan head 3x6		1
4-19x	ZW318341	Earth Lug M3 (Special)		1
4-20	ZS325495	Tapping Screw #2 3x6 (BR)		19
4-21	ML274994	Angle (A)	MM-1011	1
4-22	ML275084	Angle (B)	MM-1011	1
4-23	ES285592	Seesaw SW. SDE2SCBU	25-2-44	1
4-24	ZS379350	Screw, pan head 3x6		2
4-25	EJ391083	Mic. Jack 3PMJ1P	31-2-28	1
4-26	ES290081	Push SW. UEK11G	25-5-244	1
4-27	SZ645221	Memory Cap CA	CA-6010	1
4-28x	ZS477876	Screw, pan head 2x3		2
4-29	EV265544	Slide Vol. MDE4R0002-20 kAx2	36-27-6	1
4-30	EV265566	Slide Vol. LDE4R2002-20 kA	36-16-10	6
4-31	ZS422076	Screw, pan head 3x5		14
4-32	EM275185	VU Meter	46-1-150	1
4-33	EM275196	VU Meter	46-1-151	1

When ordering parts, Please describe Parts Number, Description, and Model Number in detail.

4. PHOTO OF ASSEMBLY BLOCK



5. PHOTO OF FINAL ASSEMBLY BLOCK



5) FINAL ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
FRONT PANEL BLOCK				
5-1	BD299801	Front Panel Block Comp.		1
5-2	SE659654	VU Escutcheon B	CA-6004	2
5-3	SE631585	Button Escutcheon D	CG-6814	1
5-4	EZ436217	Collar, Jack	MC-5006	1
5-5	SP631528	Volume Panel A	CG-6804	7
5-6	SK274858	Memory Knob	MM-1020	6
	ZW274860	Slide Washer	MM-1021	6
5-8x	ZW274871	Lock Washer	MM-1022	6
CASE BLOCK				
5-9	BC299777	Case Block Comp.		1
5-10x	SA609952	Tran Leg D	2-6-11	4
5-11x	ZS413234	Screw, pan head 4x12		4
5-12x	ZW439604	Washer (SPC) D4.2x9x0.5t		4
5-13x	ZW416698	Nut M4		4
5-14x	SP274904	Rear Plate (Battery case lid)	MM-1026	1
5-15x	SZ275264	Hooking Set C-48-D		2
5-16x	ZS380046	Screw, pan head 3x10		8
5-17x	ZW273756	Nut M3, #1		12
5-18	SZ290035	Hinge Set B-6-5		2
5-19	ZS290024	Screw, oval countersunk head 2.6x12		2
5-20x	ZW265026	Washer D3.1x7x0.5t		2
5-21x	ZS290013	Screw, oval countersunk head 2.6x10		4
5-22x	ZW609322	Nut M2.6, #1		4
5-23x	TA274882	SW. Change Boss	MM-1024	1
5-24x	ZS427026	Screw, countersunk head 4x10		1
5-25x	SM274893	Name Plate (AKA1)	MM-1025	1
ASSEMBLY BLOCK				
5-26	SZ275174	Handle Set A-164		1
5-27	ZS462161	Screw, oval countersunk head 4x20		2
5-28	SK274836	Selector Knob	MM-1016	8
5-29	ZS613901	Panel Screw	CW-6031	4
5-30	SK569237	Slide Knob CG-8	CP-6024	8

When ordering parts, Please describe Parts Number Description, and Model Number in detail.

6. LIST OF INTERCHANGEABLE SEMICONDUCTORS

As far as service is concerned, in case the original parts cannot be obtained, the interchangeable parts listed below can be substituted.

Original Parts			Interchangeable Parts	
Description	Parts No.	Utilizing P.C Board	Description	Parts No.
2SC945L (R)	ET398788	MM-1031	2SC711 (E) (F) 2SC1641 (R) (S) (E)	ET453486 ET603843
2SC1222 (E)	ET495426	MM-1031	2SC458LG (C) 2SC1000GR (BL)	ET234854 ET622181
1N34A	ED219464	MM-1031	1S188AM 1N60	ED562386 ED428264
10D1	ED224526	MM-1031	1N4002	ED511907

INDEX

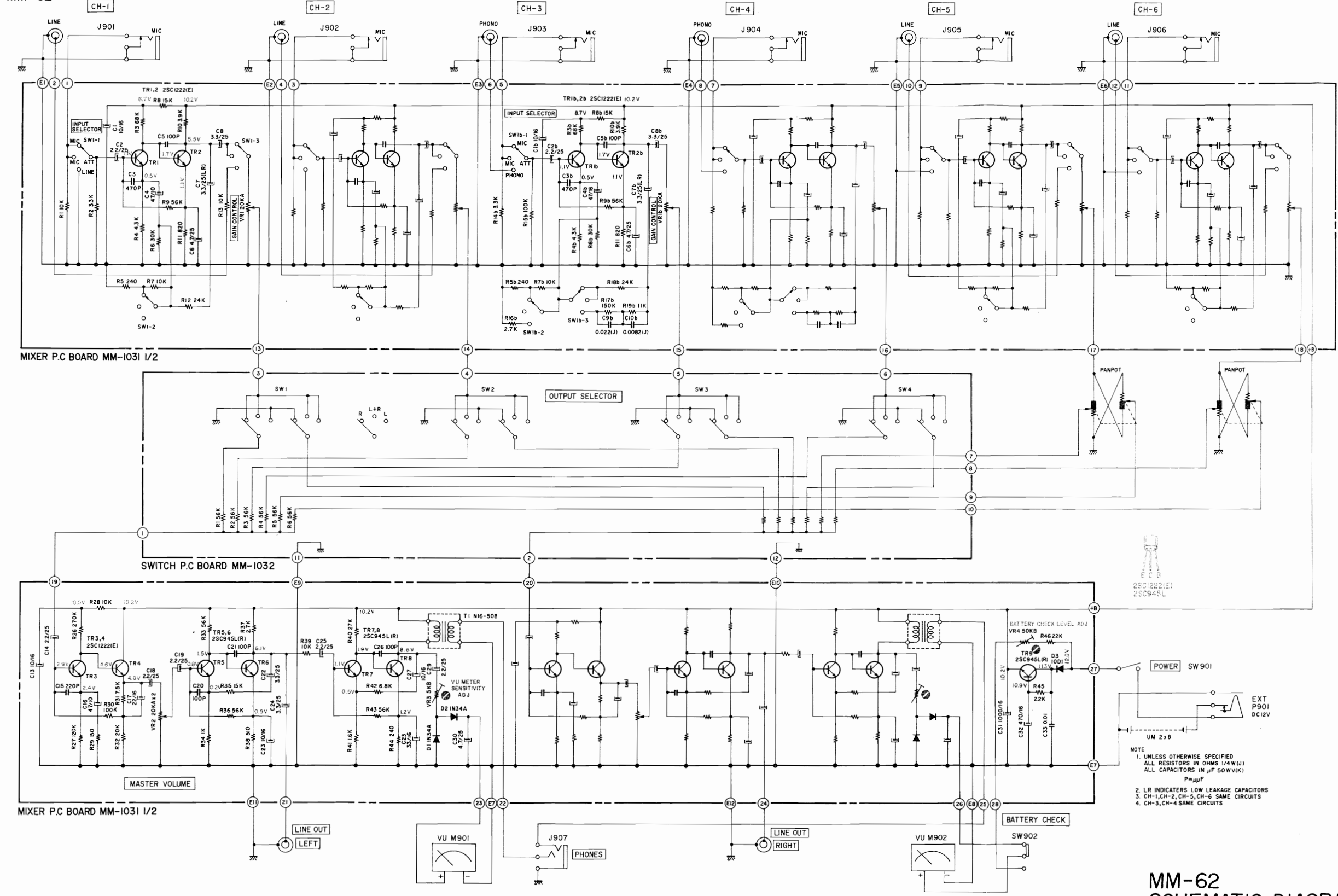
Parts No.	Ref. No.	Parts No.	Ref. No.	Parts No.	Ref. No.	Parts No.	Ref. No.	Parts No.	Ref. No.
BA299878	2-1	EV265544	4-29	SZ275264	5-15x	ZS613901	5-29		
BA299880	3-1	EV265566	4-30	SZ290035	5-18	ZS675382	4-14		
BC299777	5-9	EV275207	4-2	SZ645221	4-27	ZW259626	4-15		
BD299801	5-1	EV464207	2-VR3	TA274882	5-23x	ZW265026	5-20x		
BT557144	2-T1	EV464220	2-VR4	ZG274757	4-17	ZW273756	4-10		
ED219464	2-D1, 2	EZ274814	4-1x	ZS201150	4-9	ZW273756	5-17x		
ED224526	2-D3	EZ436217	5-4	ZS290013	5-21x	ZW274860	5-7		
EJ237958	4-6	ML274994	4-21	ZS290024	5-19	ZW274871	5-8x		
EJ275220	4-7	ML275084	4-22	ZS325495	4-20	ZW318341	4-19x		
EJ275231	4-8	SA609952	5-10x	ZS379350	4-18x	ZW416698	5-13x		
EJ290092	4-11	SE631585	5-3	ZS379350	4-24	ZW439604	5-12x		
EJ391083	4-25	SE659654	5-2	ZS380046	5-16x	ZW609311	4-13		
EM275185	4-32	SK274836	5-28	ZS413234	5-11x	ZW609322	5-22x		
EM275196	4-33	SK274858	5-6	ZS422076	4-31				
ES275218	4-3	SK569237	5-30	ZS427026	5-24x				
ES285592	4-23	SM274893	5-25x	ZS432843	4-4				
ES290081	4-26	SP274904	5-14x	ZS447840	4-16				
ES677305	3-SW1to4	SP275016	4-5	ZS462161	5-27				
ET398788	2-TR5to9	SP631528	5-5	ZS477876	4-28x				
ET495426	2-TR1to4	SZ275174	5-26	ZS484918	4-12				

SECTION 3

SCHEMATIC DIAGRAM

1. MM-62 No. 1540450A SCHEMATIC DIAGRAM

MM-62

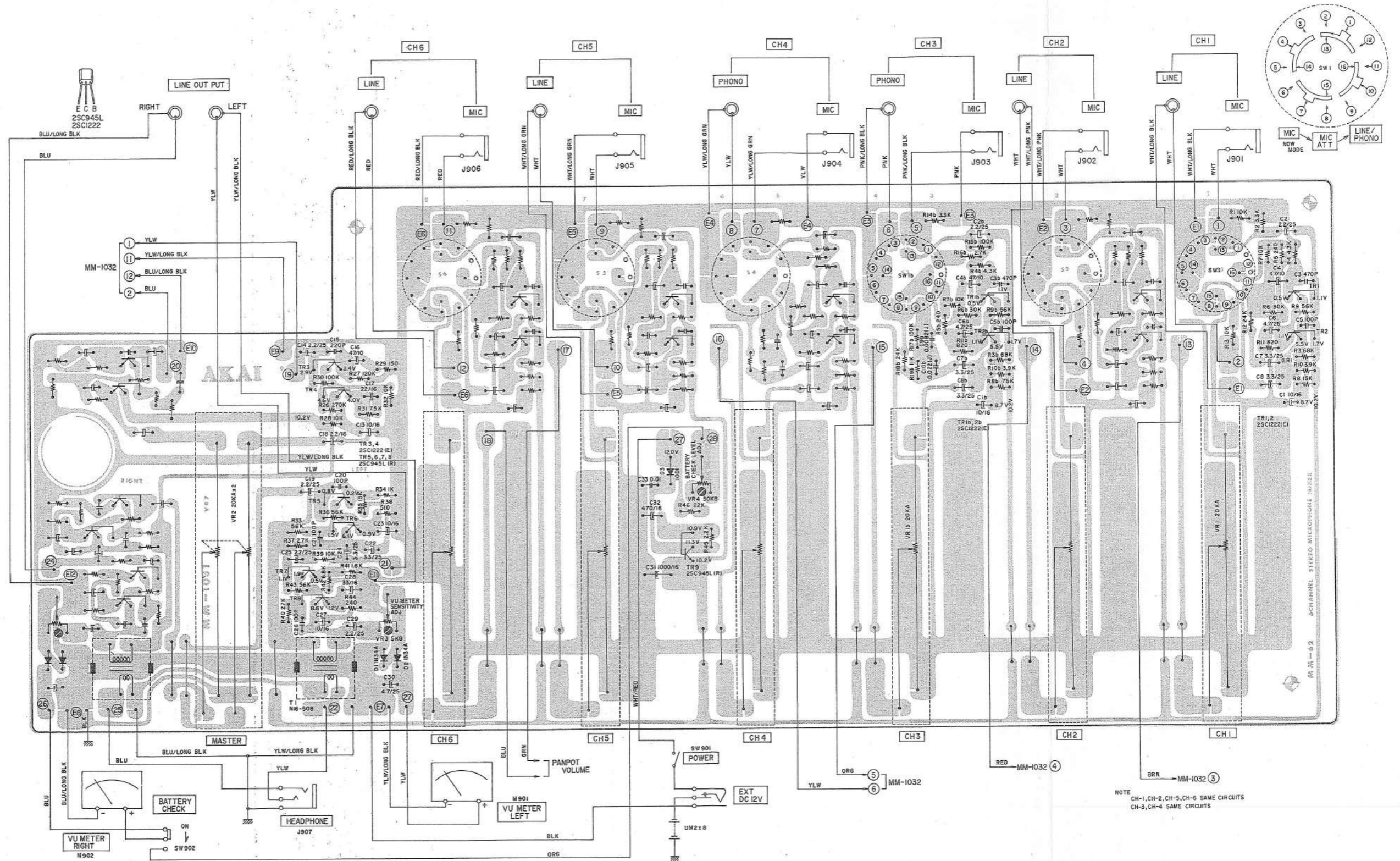


- NOTE
1. UNLESS OTHERWISE SPECIFIED ALL RESISTORS IN OHMS 1/4W(1/2) ALL CAPACITORS IN μF 50WV(1K) P=μF
 2. LR INDICATES LOW LEAKAGE CAPACITORS
 3. CH-1, CH-2, CH-5, CH-6 SAME CIRCUITS
 4. CH-3, CH-4 SAME CIRCUITS

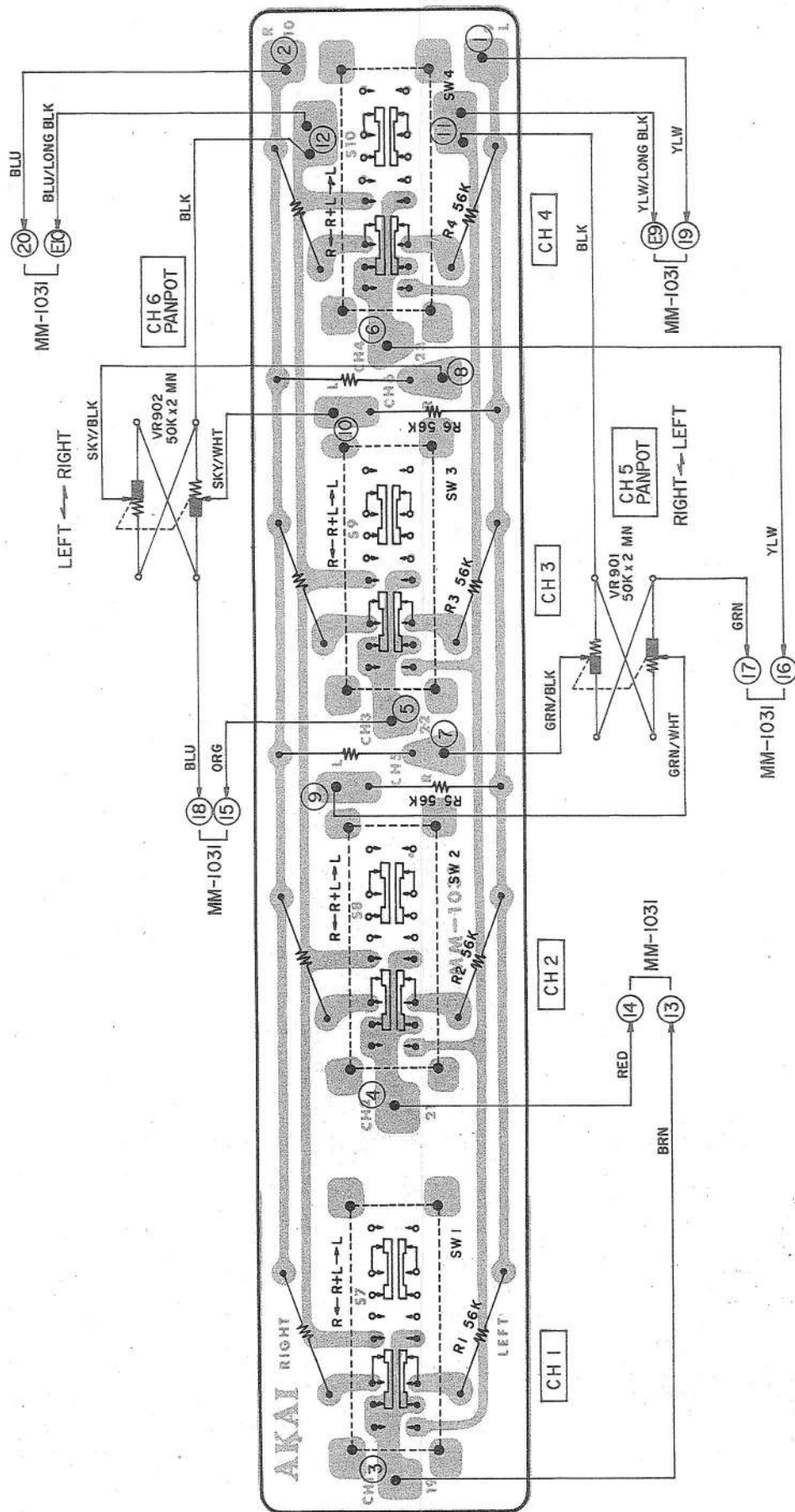
MM-62
SCHEMATIC DIAGRAM
NO. 1540450A

2. COMPOSITION OF VARIOUS P.C BOARDS

1) MIXER P.C BOARD MM-1031



2) SWITCH P.C BOARD MM-1032



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AKAI TRADING CO., LTD.

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