

SERVICE MANUAL

PARTS LIST

MODEL GX-267D

AKAI



AKAI STEREO TAPE DECK

MODEL GX-267D

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SECTION 1
SERVICE MANUAL

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For basic adjustments, measuring methods, and operating principles, refer to GENERAL OPERATING PRINCIPLES AND ADJUSTMENTS.

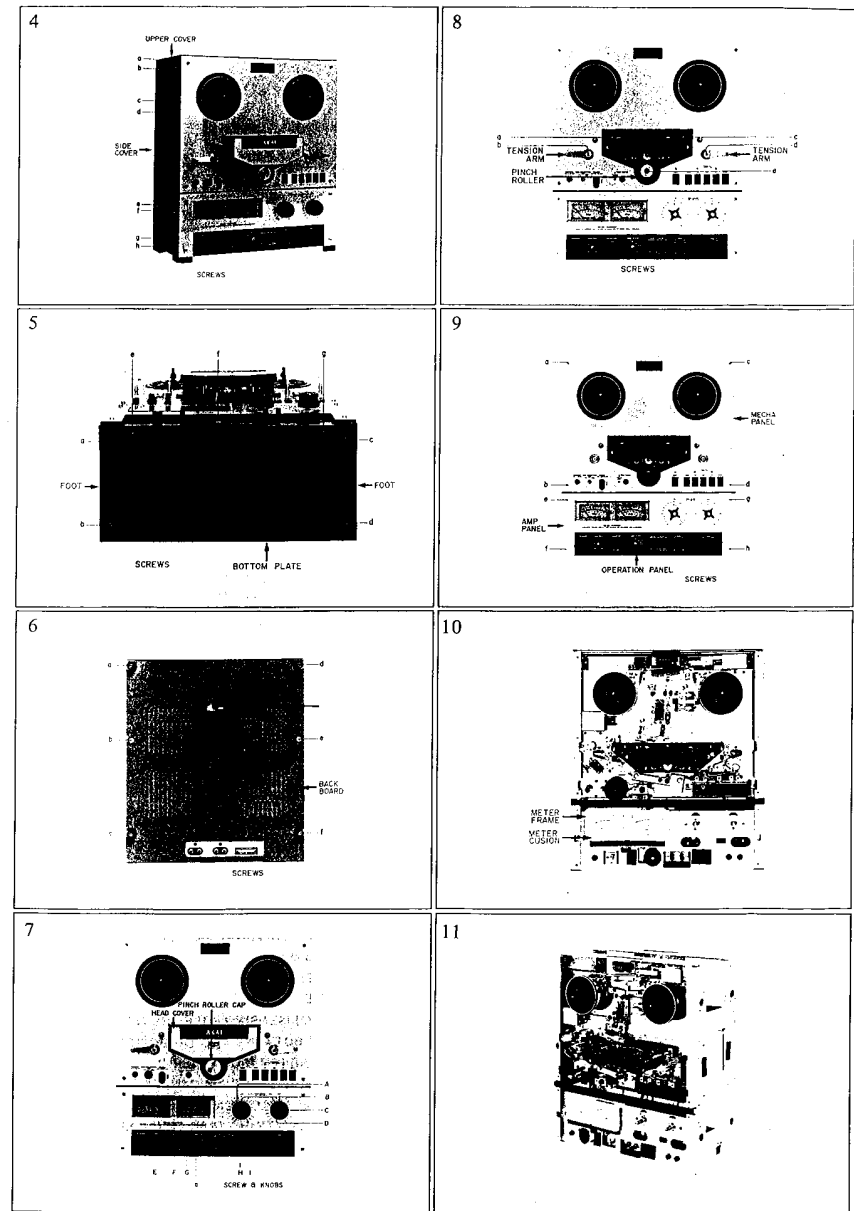
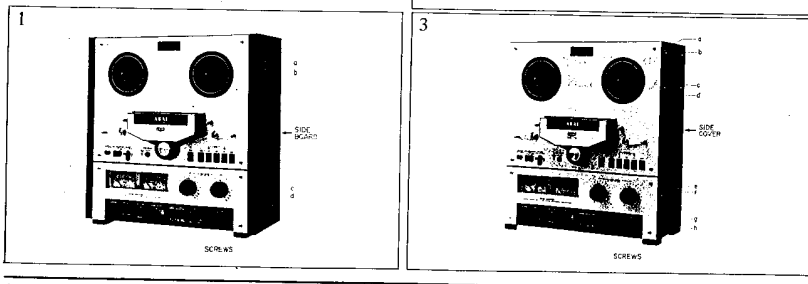
I. TECHNICAL DATA

TRACK SYSTEM	4 track 2 channel stereo/monaural system
REEL CAPACITY	Up to 7" reel
TAPE SPEED	7-1/2 and 3-3/4 ips. ($\pm 0.5\%$)
WOW & FLUTTER	Less than 0.06% at 7-1/2 ips. Less than 0.09% at 3-3/4 ips.
FREQUENCY RESPONSE	30 to 25,000 Hz ± 3 dB at 7-1/2 ips. using LN tape 30 to 19,000 Hz ± 3 dB at 3-3/4 ips. using LN tape 30 to 26,000 Hz ± 3 dB at 7-1/2 ips. using WR tape 30 to 20,000 Hz ± 3 dB at 3-3/4 ips. using WR tape
DISTORTION (1,000 Hz "0" VU)	Less than 0.5% at 7-1/2 ips. Less than 1.0% at 3-3/4 ips.
SIGNAL TO NOISE RATIO	Better than 56 dB (Measured via tape with peak recording level of +6 VU)
ERASE RATIO	Better than 70 dB
BIAS FREQUENCY	100 kHz
HEADS	(6): Two GX Playback Heads, Two GX Recording heads, Two Erase heads
MOTORS	(3): One AC Servo Capstan Motor Two Eddy Current Reel Motor
F.F. & Rewind Time	90 sec. using 1,200 ft. tape
OUTPUT JACKS	Line (2): 0-0.775V (MAX 0 VU) required load impedance: more than 20 k ohms Phone (1): 0-100 mV/8 ohms (MAX 0 VU)
INPUT JACKS	Microphone (2): 0.25 mV/2.4 k ohms required microphone impedance: 600 ohms Line (2): 70 mV/100 k ohms
SEMICONDUCTORS	Transistors: 61, Diodes: 92 IC: 1
DIMENSIONS	440 (W) x 470 (H) x 250 (D)mm (17.3 x 18.5 x 9.8")
WEIGHT	20.6 kg (45.5 lbs.)
POWER REQUIREMENTS	120V 60Hz

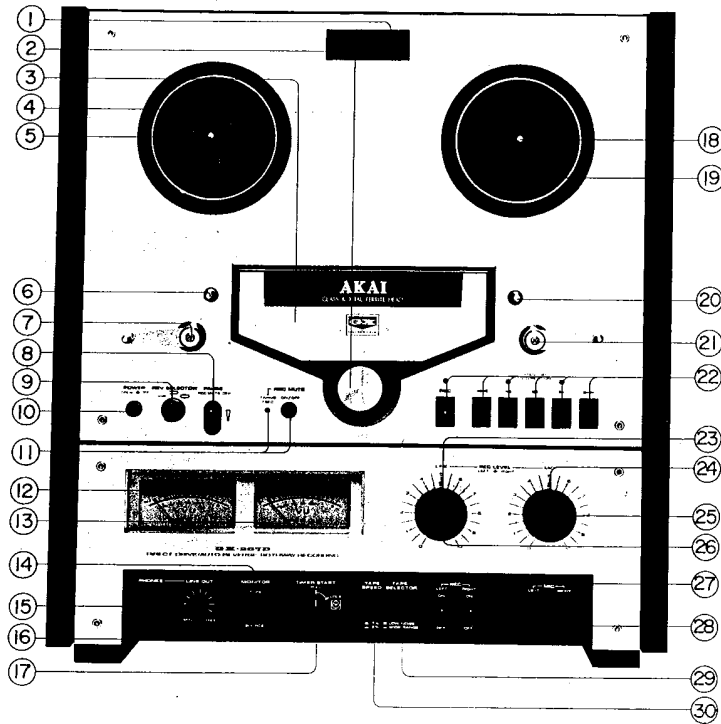
* For improvement purposes, specification and design are change without notice.

II. DISMANTLING OF UNIT

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

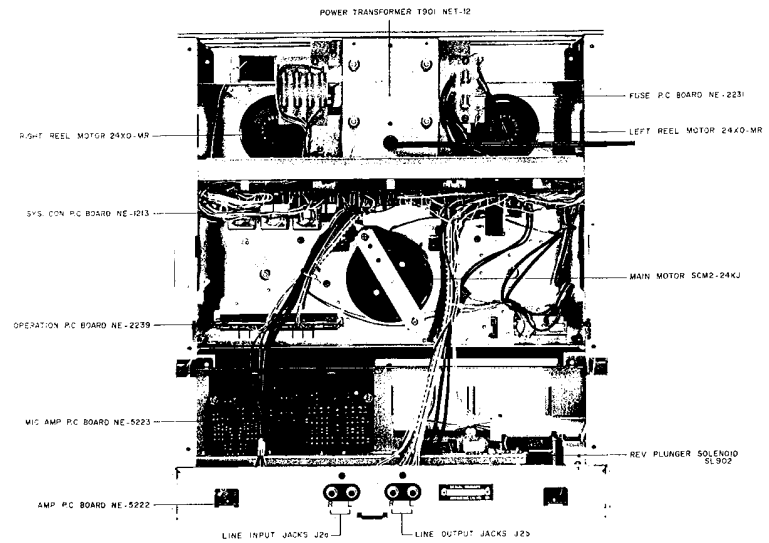
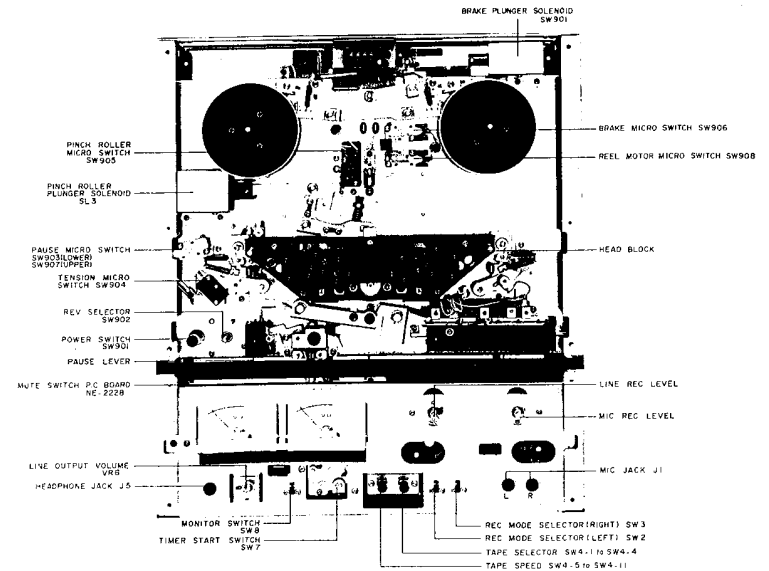


III. CONTROLS



- | | |
|--|--|
| <ol style="list-style-type: none"> 1. INDEX COUNTER AND RESET BUTTON 2. PINCH ROLLER 3. HEAD COVER 4. SUPPLY REEL TABLE 5. REEL RETAINER 6. TAPE GUIDE (SENSING POLE: FORWARD→REVERSE) 7. TENSION ARM 8. PAUSE LEVER (PAUSE)/REC MUTE OFF 9. REVERSE SELECTOR (REV SELECTOR) 10. POWER SWITCH (POWER) 11. RECORDING MUTE SWITCH/TIMING LAMP 12. VU METER (FOR LEFT CHANNEL) 13. VU METER (FOR RIGHT CHANNEL) 14. MONITOR SWITCH (MONITOR) 15. HEADPHONE JACK (PHONES) | <ol style="list-style-type: none"> 16. LINE OUTPUT/HEADPHONE OUTPUT CONTROLS (LINE OUT-PHONES) 17. TIMER START SWITCH (TIMER START) 18. REEL RETAINER 19. TAKE-UP REEL TABLE 20. TAPE GUIDE 21. TENSION ARM (SENSING POLE: REVERSE→FORWARD) 22. OPERATION BUTTONS AND DIRECTION LAMPS 23. MEMORY MARKER (FOR LINE-IN) 24. MEMORY MARKER (FOR MIC-IN) 25. MICROPHONE INPUT CONTROLS (REC LEVEL-MIC) 26. LINE INPUT CONTROLS (REC LEVEL-LINE) 27. MICROPHONE JACK (MIC) 28. RECORDING LEVER (REC) 29. TAPE SELECTOR 30. TAPE SPEED SELECTOR |
|--|--|

IV. PRINCIPAL PARTS LOCATION



V. MECHANISM ADJUSTMENT

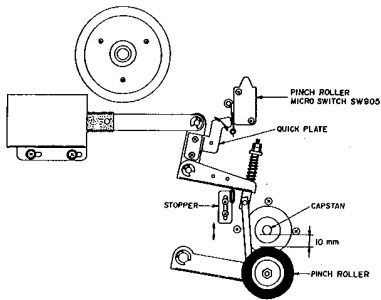


Fig. 1

1. PINCH ROLLER POSITION ADJUSTMENT AT STOP MODE (Refer to Fig. 1)

- 1) Remove head block.
- 2) Adjust Stopper so that the clearance between Pinch Roller and Capstan Shaft is 10mm.

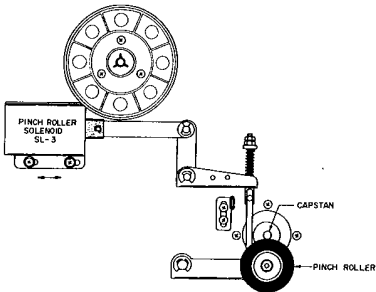


Fig. 2

2. POSITION ADJUSTMENT OF PINCH ROLLER SOLENOID SL-3 (Refer to Fig. 2)

- 1) Remove head block.
- 2) Insert a 4.2 mm gauge (a U type washer etc.) between the P Plunger Lever and P Joint (Refer to Fig. 3).
- 3) Set the deck to playback mode and fix Pinch Roller Solenoid at position at which the pinch Roller begins to rotate.

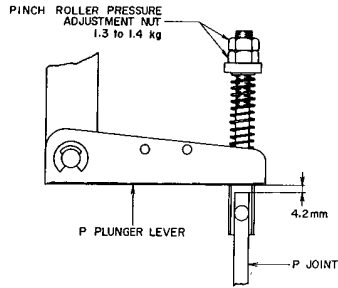


Fig. 3

3. PINCH ROLLER PRESSURE ADJUSTMENT (Refer to Fig. 3)

Adjust Pinch Roller Pressure Adjustment Nut so that pinch roller pressure is 1.2 kg.

4. POSITION ADJUSTMENT OF QUICK PLATE (Refer to Fig. 1)

Adjust Quick Plate position so that at stop mode, the Pinch Roller Microswitch operates properly, and the Quick Plate does not strongly hit against the body of the microswitch.

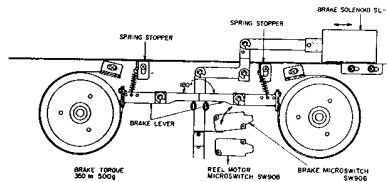


Fig. 4

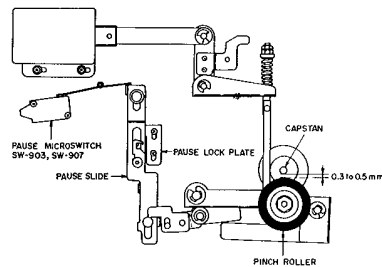


Fig. 5

5. POSITION ADJUSTMENT OF BRAKE SOLENOID SL-1 (Refer to Fig. 4)

Set the deck to playback mode, and fix Brake Solenoid at position at which the left and right brake levers display 180° angle relativity.

6. POSITION ADJUSTMENT OF BRAKE MICROSWITCH SW-906 (Refer to Fig. 4)

Set the deck to playback mode, and adjust Brake Solenoid Microswitch position so that the microswitch operates properly.

7. BRAKE TENSION ADJUSTMENT (Refer to Fig. 4)

Adjust Spring Stopper position so that the brake tension is 350 to 500g.

8. PAUSE ADJUSTMENT (Refer to Fig. 5)

- 1) At playback mode, lock Pause Lever.
- 2) Adjust Pause Lock Plate position to obtain a 0.3 to 0.5 mm clearance between Pinch Roller and Capstan.
- 3) When making this adjustment, be careful that the clearance between Pinch Roller and Capstan does not exceed 0.5 mm.

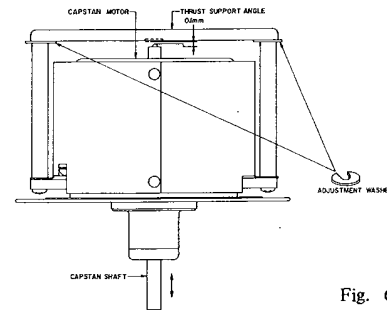


Fig. 6

9. CAPSTAN SHAFT LOOSE PLAY ADJUSTMENT (Refer to Fig. 6)

Adjust to obtain a clearance of about 0.1mm between the capstan shaft and thrust support angle.

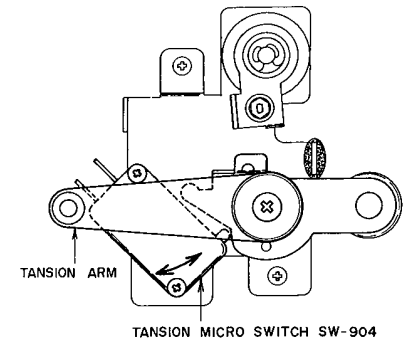
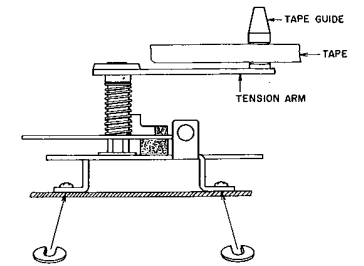


Fig. 7

10. OPERATING POSITION ADJUSTMENT OF TENSION MICROSWITCH SW-904 (Refer to Fig. 7)

Adjust Tension Microswitch position so that when the Tension Arm drops, the microswitch operates perfectly to effect stop mode.



ADJUSTMENT WASHER * LOWER THE GUIDE DOWN A LITTLE * LIFT THE GUIDE UP A LITTLE

Fig. 8

11. TAPE GUIDE HEIGHT ADJUSTMENT (Refer to Fig. 8)

- 1) Adjust Tape Guide height so that the tape does not curl between tape guides on Head Base.
- 2) In case the tape guide is low, adjust by inserting a U Type Washer on the right side in Fig. 8, and in case it is high, adjust by inserting a washer on the left side.

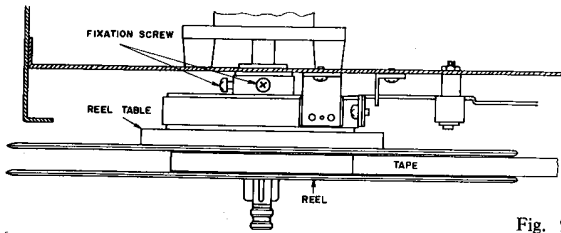


Fig. 9

12. REEL TABLE HEIGHT ADJUSTMENT
(Refer to Fig. 9)

- 1) Load a tape and set the deck to F.FWD and REV modes. Adjust Reel Table height so that the tape winds on the center of the reels at both modes.
- 2) Tape should wind on center of reel regardless of type of reel used.

VI. HEAD ADJUSTMENT

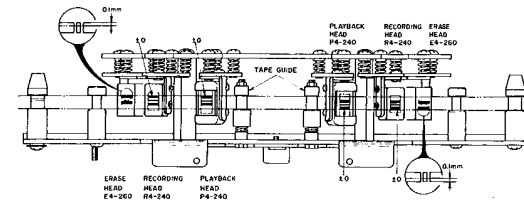
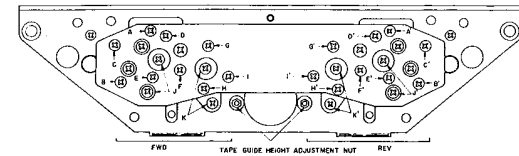


Fig. 10

Step	Adjustment Item	Test Tape Supply Signal	Mode	Adjustment Point	Remarks
1	Tape Guide Height	Optional	FWD	Tape Guide Height Adjustment Nut	1) Adjust so that tape travels smoothly and does not twist. 2) Do not thread tape over tension arm.
2	FWD Erase Head Height	Optional	FWD	(A)(B)(C)	Upper edge of channel 1 head core is 0.1mm higher than upper edge of tape.
3	FWD Recording Head Height	Optional	FWD	(D)(E)(F)	Upper edges of channel 1 head core and tape are the same height.
4	FWD Playback Head Height	Optional	FWD	(G)(H)(I)	Upper edges of channel 1 head core and tape are the same height.
5	FWD Playback Head Azimuth Alignment	8,000 Hz 3-3/4 ips Test Tape	FWD	(I)	Maximum output, both channels.
6	FWD Playback Head Gap Alignment	8,000 Hz 3-3/4 ips Test Tape	FWD	(K)	Adjust head gap surface so that there is no change in output level when tension is applied to the supply reel side.
7	FWD Recording Head Azimuth Alignment	Scotch #211 Tape, 15,000 Hz -20 dBm	REC	(F)	Maximum output, both channels.
8	FWD Recording Head Gap Alignment	Scotch #211 Tape, 15,000 Hz -20 dBm	REC	(J)	Adjust head gap surface so that there is no change in output level when tension is applied to the supply reel side.

Chart 1

- NOTES:
- 1) As perfect head adjustments are vital to tape deck performance, be sure that these adjustments are carried out properly.
 - 2) Be careful not to use a magnetized driver or other magnetized tools in the vicinity of the heads.
 - 3) Use only new tape as level variation is likely to occur when using old tape.
 - 4) Demagnetize heads with head demagnetizer before and after head adjustment.
 - 5) Set tape speed to 7-1/2 ips except in steps 7 and 8.
 - 6) Adjustments outlined in Chart 1 are only for FWD side heads. However, adjustments for REV side heads are exactly the same.

VII. ELECTRICAL ADJUSTMENT

1. DC POWER SUPPLY AND TAPE SPEED ADJUSTMENT

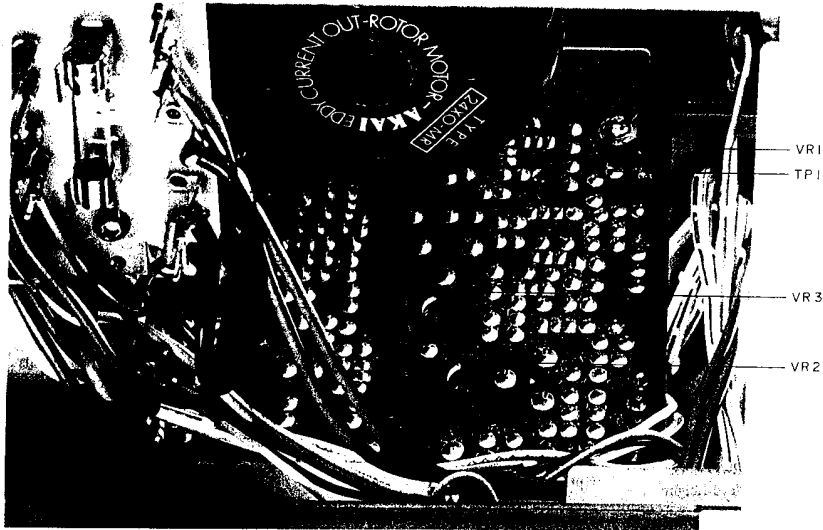


Fig. 11

- VR-1 1 kB DC Voltage Adj.
- VR-2 50 kB 3-3/4 ips Tape Speed Adj.
- VR-3 10 kB 7-1/2 ips Tape Speed Adj.

Step	Adjustment Item	Mode	Adjustment Point	Result	Remarks
1	DC Voltage	Stop	VR-1 1 kB	24.0V	Measured at TP-1 on Sys. Con P.C Board
2	3-3/4 ips Tape Speed	FWD	VR-2 50 kB	500 Hz ±0.5%	1,000 Hz, 7-1/2 ips Test Tape. Tape Speed 3-3/4 ips.
3	7-1/2 ips Tape Speed	FWD	VR-3 10 kB	1,000 Hz ±0.5%	1,000 Hz, 7-1/2 ips Test Tape. Tape Speed 7-1/2 ips.

Chart 2

2. AMPLIFIER ADJUSTMENT

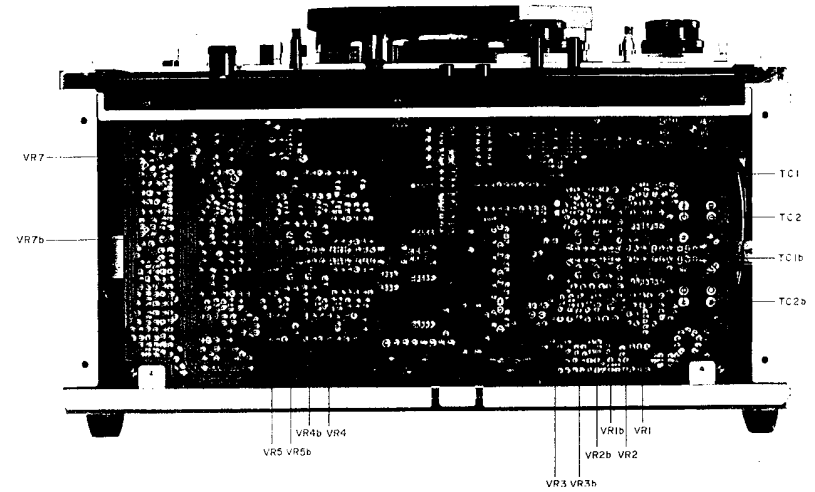


Fig. 12

- VR-4 50 kB FWD Playback Level Adj.
- VR-5 50 kB REV Playback Level Adj.
- VR-7 1 kB VU Meter Sensitivity Adj.
- VR-1 1 kB Monitor Level Adj.
- VR-2 10 kB FWD Recording Level Adj.
- VR-3 10 kB REV Recording Level Adj.
- TC-2 80 PF FWD Frequency Response Adj.
- TC-1 80 PF REV Frequency Response Adj.

* The letter "b" following an adjustment part number indicates "RIGHT CHANNEL".

Step	Adjustment Item	Test Tape Supply Signal	Mode	Adjustment Item	Result	Remarks
1	FWD Playback Level	700 Hz 7-1/2 ips 0 VU Test Tape	FWD	VR4 50 kB	0 ± 0.5 dB (0.775V)	
2	REV Playback Level	700 Hz 7-1/2 ips 0 VU Test Tape	REV	VR5 50 kB	0 ± 0.5 dB (0.775V)	
3	VU Meter Sensitivity	700 Hz 7-1/2 ips 0 VU Test Tape	FWD	VR7 1 kB	0 VU	
4	Monitor Level	1,000 Hz -21 dB (70 mV) Signal to Line Input	STOP	VR1 5 kB	0 dB (0 VU)	Line REC Volume maximum. Monitor Switch "SOURCE".
5	FWD Recording Level	Scotch #211 Tape 1,000 Hz 0 VU recording	FWD- REC	VR2 10 kB	0 ± 0.5 dB (0.775V)	Monitor Switch "TAPE".
6	REV Recording Level	Scotch #211 Tape 1,000 Hz 0 VU recording	REV- REC	VR3 10 kB	0 ± 0.5 dB (0.775V)	Monitor Switch "TAPE".
7	FWD Frequency Response	Scotch #211 Tape 1.5 kHz, 15 kHz -20 VU recording	FWD- REC	TC2 80 PF	1.5 kHz, 15 kHz flat	Tape Speed 3-3/4 ips. Recheck Recording Level.
8	REV Frequency Response	Scotch #211 Tape 1.5 kHz, 15 kHz -20 VU recording	REV- REC	TC1 80 PF	1.5 kHz, 15 kHz flat	Tape Speed 3-3/4 ips. Recheck Recording Level.

Chart 3

- NOTES:
- 1) Set tape speed to 7-1/2 ips except in Steps 7 and 8.
 - 2) Tape Selector at "LOW NOISE"
 - 3) Monitor Switch at "TAPE" except in Step 4.
 - 4) Output Volume at maximum.
 - 5) New test tape should be used.

VIII DC RESISTANCE OF VARIOUS COILS'

Part	Designation	DC Resistance
Main Motor	SCM2-24KJ	Between BLU-RED: 100 ohms
		Between YLW-GRN: 180 ohms Pick-up Coil: 635 ohms
Reel Motor	24XO-MR	Between BLU-RED: 74 ohms
		Between YLW-GRN: 1,660 ohms
Pinch Roller Solenoid	1660PTHT3	700 ohms
Brake Solenoid, REV Solenoid	1240PHT	590 ohms
Relay	L-24	1,600 ohms
Relay	MY4-0-US-AD4 DC24V	650 ohms
Oscillator Coil	0T-204	Between 1-3: 0.3 ohms
		Between 4-6: 0.7 ohms
		Between 7-9: 8.2 ohms
Erase Head	E4-260	3.5 ohms
Recording Head	R4-240	6.2 ohms
Playback Head	P4-240	220 ohms

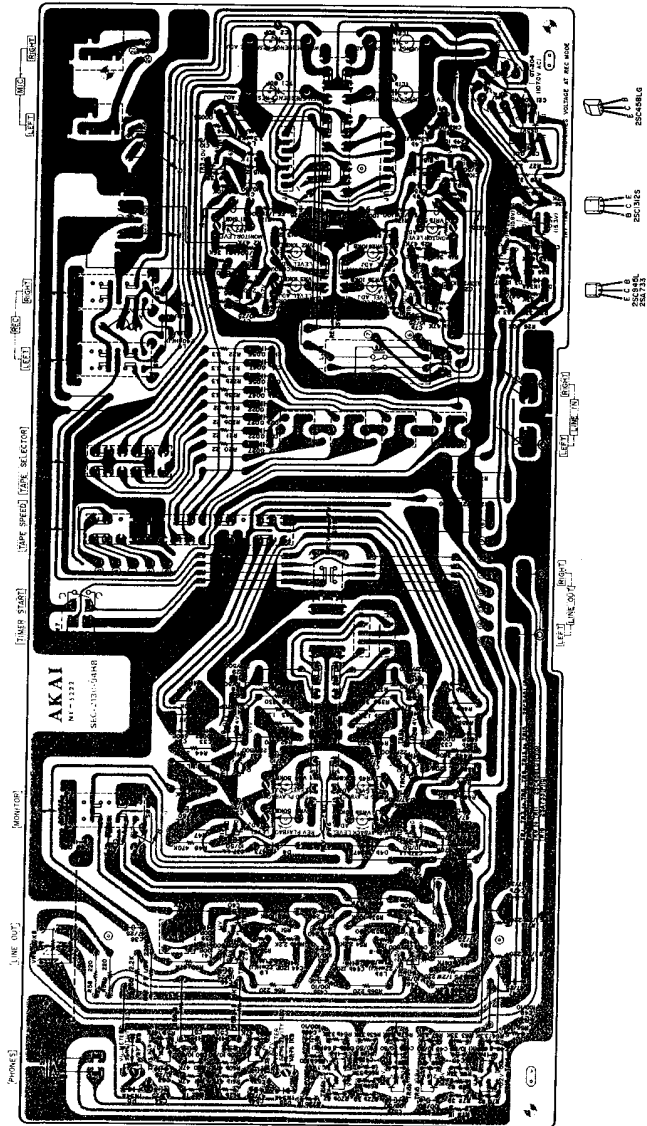
Chart 4

* The resistance values shown in this chart are average values.

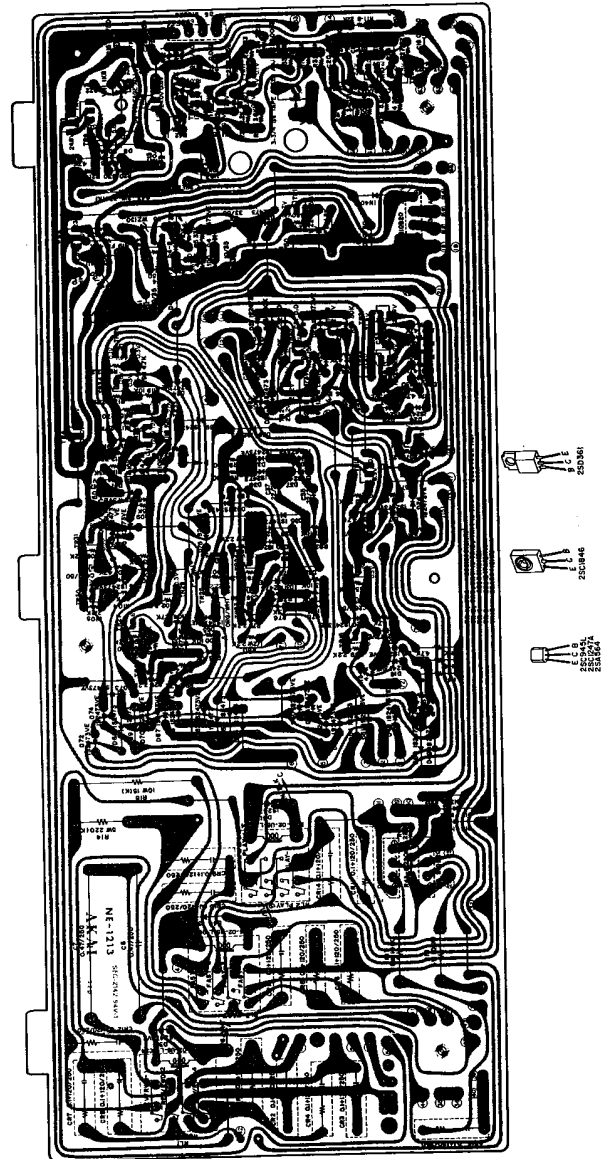
IX. CLASSIFICATION OF VARIOUS P.C BOARDS

1. COMPOSITION OF VARIOUS P.C BOARDS

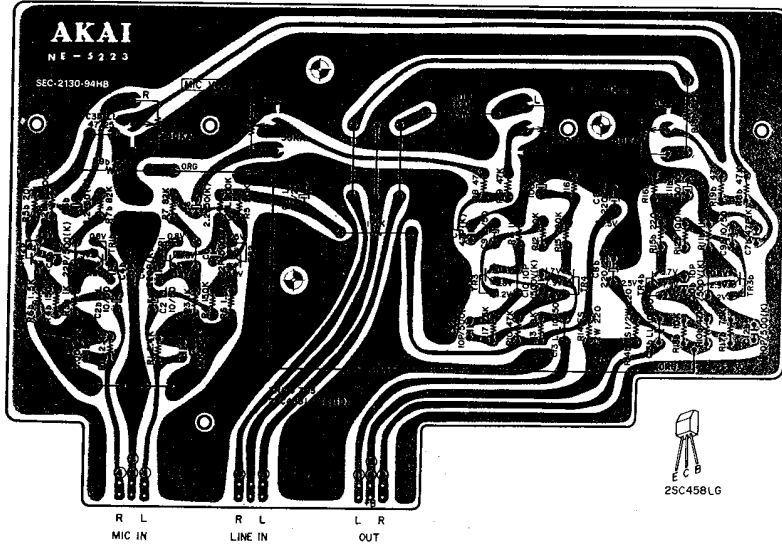
1) AMP P.C BOARD NE-5222



2) SYS. CON P.C BOARD NE-1213 2ED



3) MIC AMP P.C BOARD NE-5223



SECTION 2
PARTS LIST
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(2) SYS. CON P.C BOARD (NE-1213) BLOCK	32
(3) MIC AMP P.C BOARD (NE-5223) BLOCK	33
9. POWER SUPPLY BLOCK	35
10. AMP ASSEMBLY BLOCK	37
11. FINAL ASSEMBLY BLOCK	38
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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.

The reference number corresponds with illustration or photo number of that particular parts list.

This number corresponds with the Figure Number.

This number corresponds with the individual parts index number in that figure.

A small "x" indicates the inability to show that particular part in the Photo or Illustration.

12-115x

Schematic Diagram Number of individual manufactured part.
(not required for parts order)

Quantity of particular part required.

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
FLYWHEEL BLOCK #13				
12-115x	800425	Flywheel Block Assy. Comp.	FDG #13	1
12-116	244506	Flywheel Only	RD 233	1
12-117x	244754	Felt, Flywheel	RD 235	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. The indications of Resistors and Capacitors in the photos of P.C. Board are being eliminated.
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.

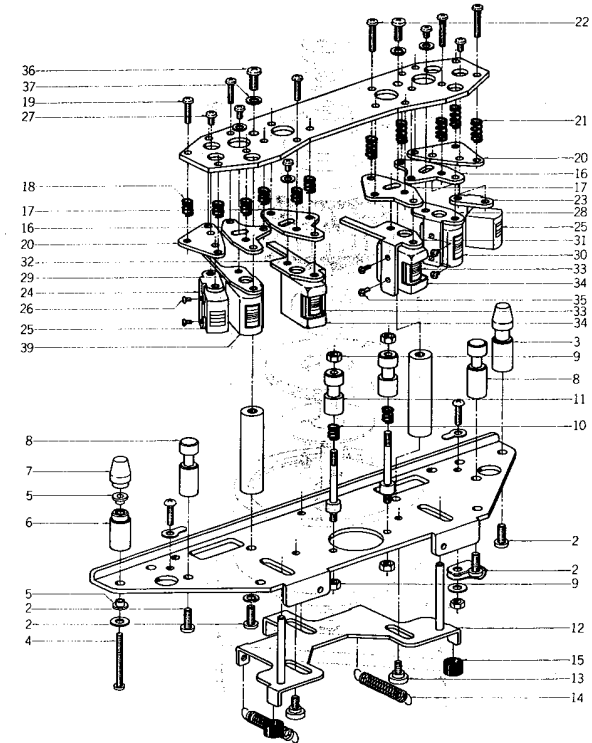
CAUTION:

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.
3. Because parts number and parts unit supply in the Preliminary Service Manual (Basic Parts List) may be partially changed, please use this parts list for all future reference.

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: Δ IL INDIQU LES COMPOSANTS CRITIQUES DE SURETE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.

1. ILLUSTRATION OF HEAD BLOCK

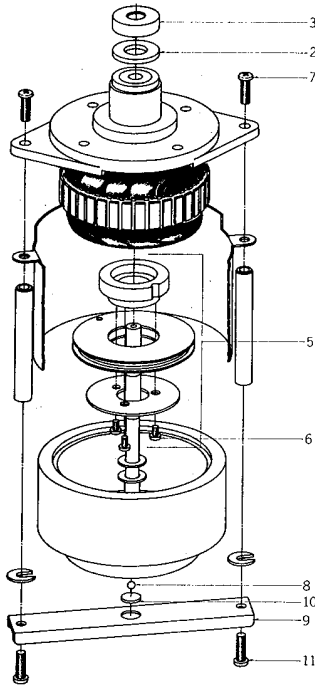


1) HEAD BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty	Ref. No.	Parts No.	Description	Schematic No.	Q'ty
1-1x	BA300995	Head Block Comp.		1	1-23	HA301032	Erase Head Angle (A)	NE-0205	1
1-2	ZS413201	Screw, pan head 4x8		7	1-24	HA301033	Erase Head Angle (B)	NE-0205	1
1-3	MS643048	Tape Guide	NE-0002	1	1-25	HE563220	ERASE HEAD E4-260		2
1-4	ZS608264	Screw, pan head 3x2.5		1	1-26	ZS300626	Screw, pan head 2x2.5 (camera standard)		12
1-5	HZ527455	Sensing Spacer	ND-0011	2					
1-6	MS643050	Sensing Guide A	NE-0003	1	1-27	ZS608477	Screw, pan head 3x4		4
1-7	MS643061	Sensing Guide B	NE-0004	1	1-28	HA301029	REC Head Angle (A)	NE-0203	1
1-8	HZ528581	Tape Guide A	ND-0005	2	1-29	HA301030	REC Head Angle (B)	NE-0203	1
1-9	ZW265522	M3 Nut, #2		4	1-30	HR271980	REC HEAD (R4-240)		2
1-10	ZG466312	Angle Adjust Spring E	BS-0018	2			GX-215D(R)		2
1-11	HZ301777	Tape Guide (C)	NE-0212	2	1-31	HA301027	PB Head Angle (A)	NE-0202	1
1-12	ML301289	Shifter Slide Part GX-266D	NE-0208	1	1-32	HA301028	PB Head Angle (B)	NE-0202	1
1-13	ZS469710	MR Graduated Screw	MR-254	3	1-33	HP271978	PB HEAD (P4-240)		2
1-14	ZG527477	Shifter Spring	ND-0024	2			GX-215D(P)		2
1-15	MB428343	Stopper Rubber, KD	KD-1088	2	1-34	HZ301366	Head Shield	NE-0211	2
1-16	HB301025	Rec Head Base	NE-0201	2	1-35	ZS201508	Screw, pan head 2x4		4
1-17	HB301365	PB Head Base	NE-0213	2	1-36	ZS201978	Screw, pan head 4x8		2
1-18	ZG364656	Angle Adjust Spring C	RD-57	9	1-37	ZW273914	Spring Washer		2
1-19	ZS417407	Screw, pan head 3x10		9	1-38x	EJ303566	Micro Connector 4P Assy		2
1-20	HZ301031	Erase Head Base	NE-0204	2	1-39x	EJ303567	Micro Connector 7P Assy		2
1-21	ZG466312	Angle Adjust Spring E	BS-0018	9	1-40x	ZS608321	Screw, pan head 3x6, w/washer		2
1-22	ZS608512	Screw, pan head 3x13		9					

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

2. ILLUSTRATION OF MAIN MOTOR BLOCK

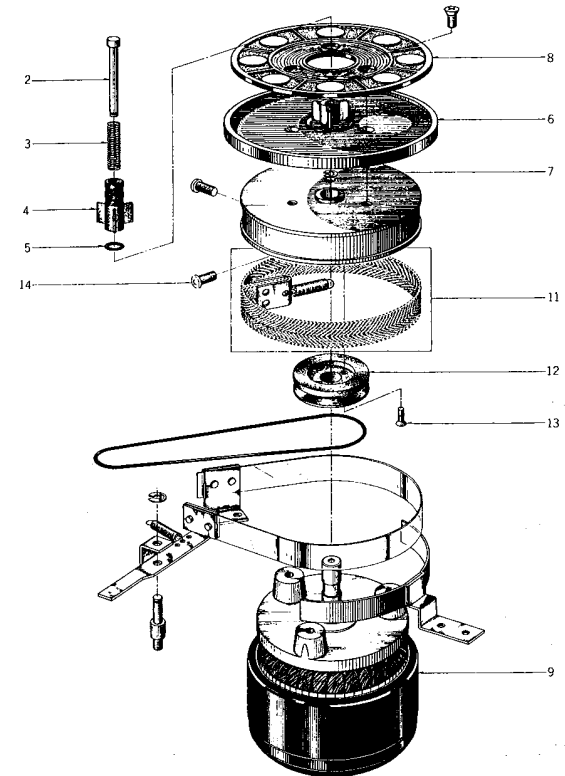


2) MAIN MOTOR BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
2-1x	BM636704	Main Motor (SCM2-24KJ) Block Comp.		1
2-2	ZW597622	Felt Washer	KJ-7022	1
2-3	SK597633	Cap	KJ-7023	1
2-4x	ZS608308	Screw, pan head 3x18, w/washer		3
2-5	BZ600300	Detector Gear Block Comp.		1
2-6	ZS477876	Screw, pan head 2x3		3
2-7	ZS424056	Screw, pan head 4x10		2
2-8	MV368886	Steel Ball D3		1
2-9	MZ597644	Thrust Angle	KJ-7024	1
2-10	MZ597690	Ball Holder	KJ-7029	1
2-11	ZS413201	Screw, pan head 4x8		2

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

3. ILLUSTRATION OF REEL MOTOR/TABLE BLOCK

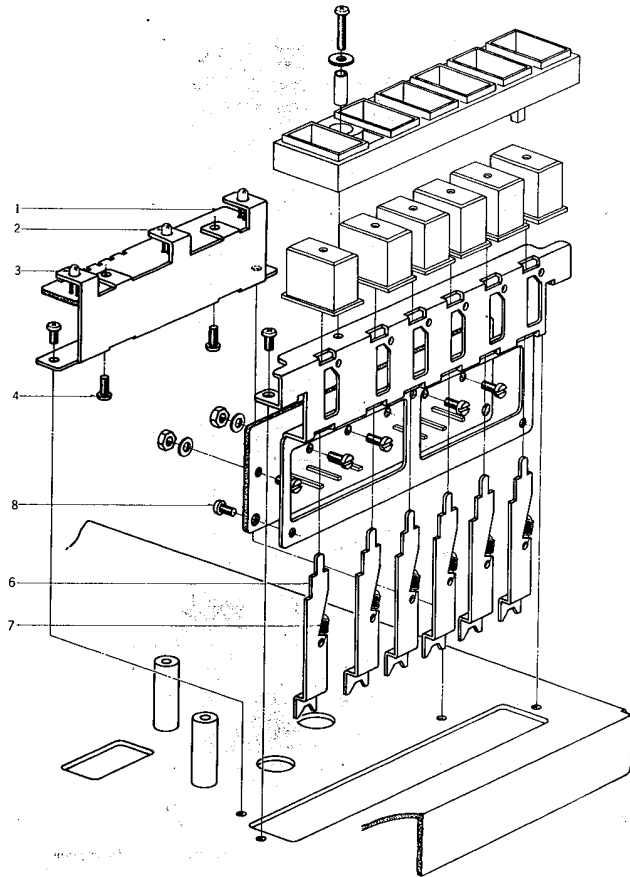


3) REEL MOTOR/TABLE BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty	Ref. No.	Parts No.	Description	Schematic No.	Q'ty
3-1x	BR482400	Supply Reel Table Block Comp.		2	BRAKE DRUM BLOCK				
3-2	MS342000	Reel Shaft	3R-108	1	3-10x	ZS479350	Screw, pan head 3x6		1
3-3	ZG255633	Reel Spring	3R-109	1	3-11	MT436860	Brake Cloth Comp. MR	MR-269	1
3-4	MT255420	Reel Retainer	3R-102	1	3-12	MR317507	Counter Pulley (Take-up)	MR-217	1
3-5	MT516565	O' Ring 2.8x1.9	3R-139	1	3-13	ZS433315	Screw, countersunk head 2.3x8		2
3-6	MT488147	Reel Table Disk B, RD	RD-272	1	3-14	ZS424056	Screw, pan head 4x10		2
3-7	ZW270088	E' Ring 1.9M	6-1-9	1					
3-8	MT473422	Reel Table Rubber, KH	KH-3042	1					
3-9	BM314741	Motor Block Comp. (24XO-MR) MU		2					

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

4. ILLUSTRATION OF OPERATION BLOCK

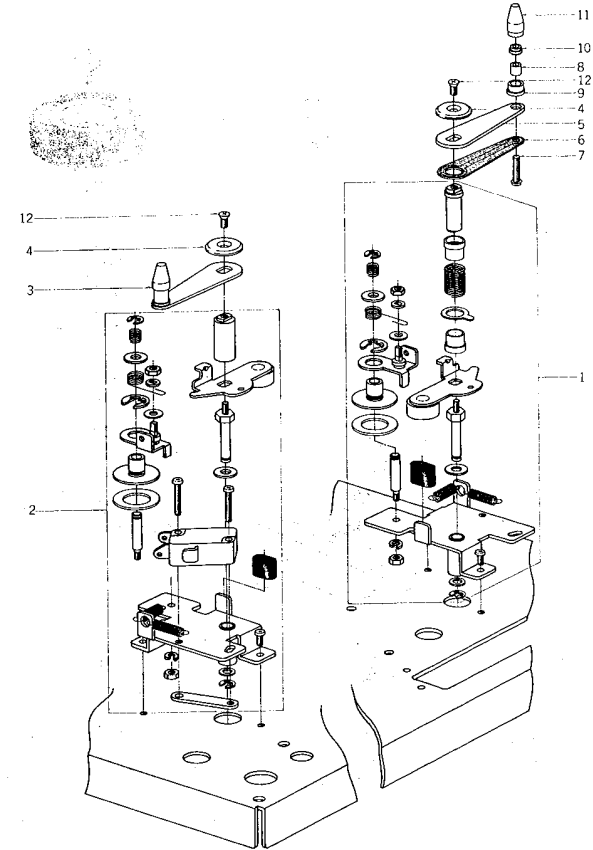


4) OPERATION BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
DIRECTION P.C BOARD BLOCK				
4-1	EA301281	Lamp P.C Board	NE-2229	1
4-2	ED283138	LED GL-3PGI	45-15-15	2
4-3	ED249377	LED GL-3ARI	45-15-14	1
4-4	ZS325495	Tapping Screw #2, 3x6(BR)		2
OPERATION BLOCK				
4-5	BK301003	Operation Block Comp.		1
4-6	ML301056	Operation Lever	NE-2214	6
4-7	ZG456120	Setting Lever Spring	CS-1187	6
4-8	ZS422076	Screw, pan head 3x5		3

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

5. ILLUSTRATION OF TENSION BLOCK

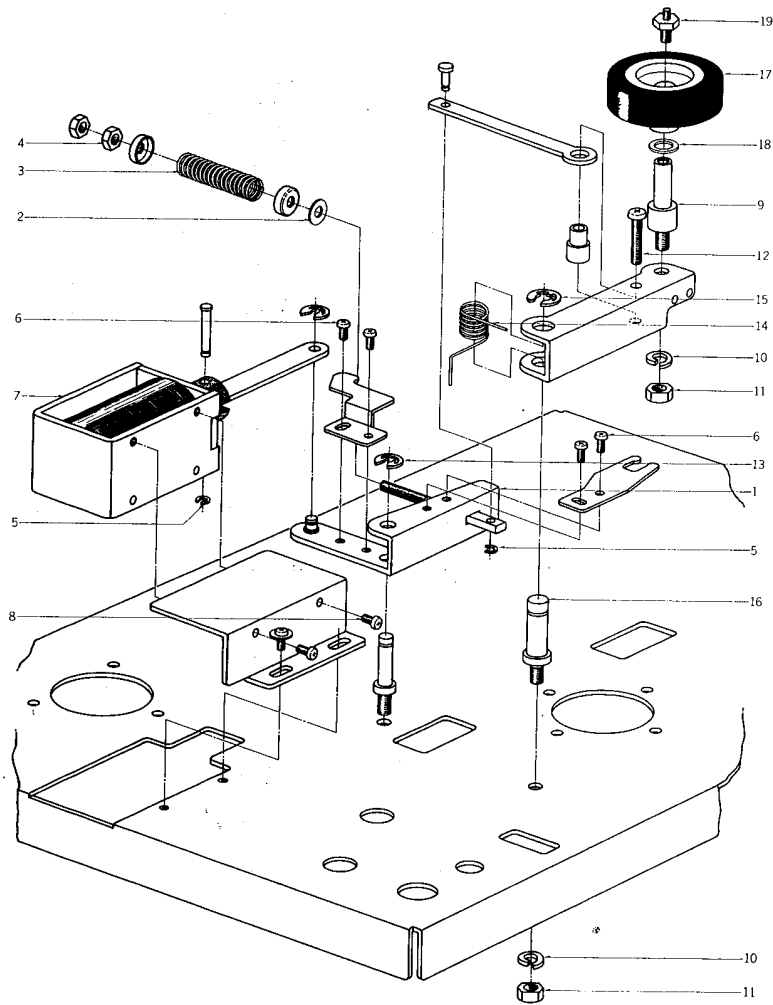


5) TENSION BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
5-1	BL301287	Tension (R) Block Comp.		1
5-2	BL301288	Tension (L) Block Comp.		1
MECHA ASSEMBLY BLOCK				
5-3	ML301270	Tension Arm Part NE-2	NE-2226	1
5-4	ZW302052	Decorative Washer	NE-1212	2
5-5	MZ301067	Tension Arm	NE-2226	1
5-6	EA301047	Tension Arm P.C Board	NE-2206	1
5-7	ZS419670	Screw, pan head 3x12		1
5-8	MZ535083	Insulator Bush B	TW-2076	1
5-9	HZ301037	Tape Guide (B)	NE-0210	1
5-10	MZ535072	Insulator Bush A	TW-2075	1
5-11	HZ301049	Tape Guide (A)	NE-2207	1
5-12	ZS203084	Screw, oval countersunk head 3x8		2

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

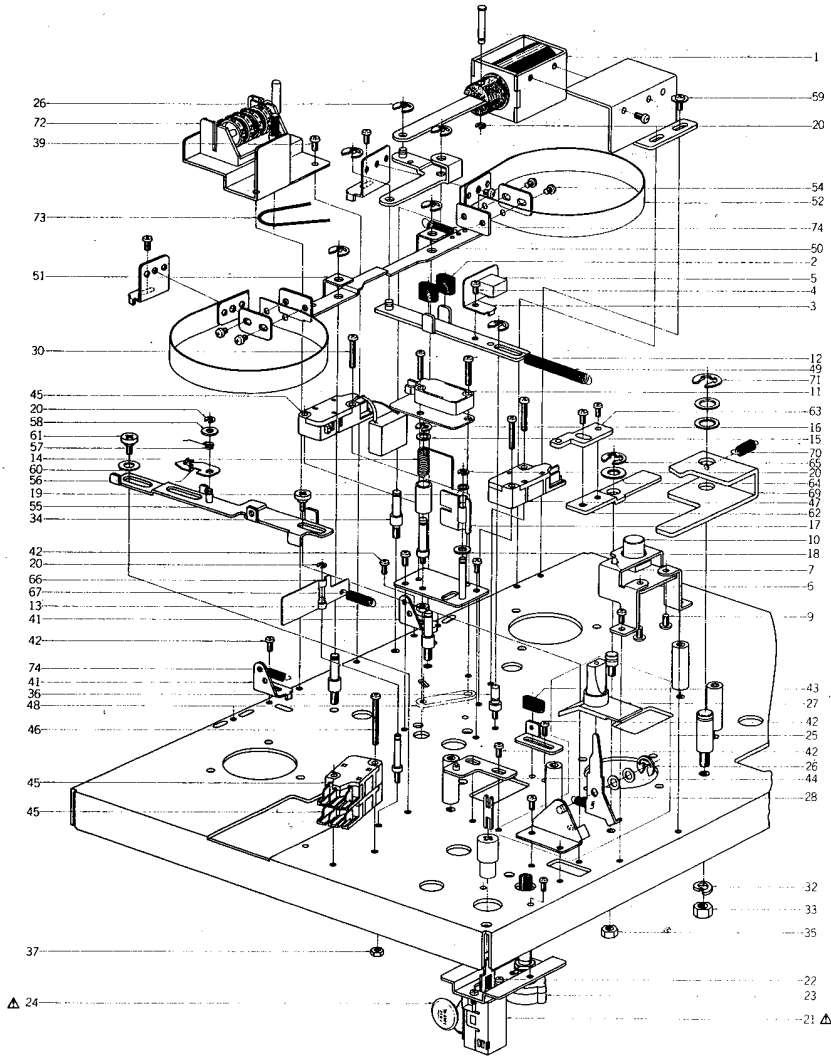
6. ILLUSTRATION OF PINCH ROLLER PLUNGER BLOCK



6) PINCH ROLLER PLUNGER BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
6-1	ML301453	P Plunger Lever (B)		
		Part NE-2	NE-2027	1
6-2	ZW450753	Washer (Nylon) D4.1x9x1t		1
6-3	ZG644095	Cramp Spring	NE-2028	1
6-4	ZW413188	Nut M4, #1		2
6-5	ZW270088	'E' Ring 1.9M	6-1-9	2
6-6	ZS323728	Screw, binding head 3x5		6
6-7	EP638706	Plunger Solenoid 1660PHT	44-1-74	1
6-8	ZS422076	Screw, pan head 3x5		2
6-9	MS527591	Pinch Roller Shaft	ND-1030	1
6-10	ZW274026	Spring Washer		2
6-11	ZW413278	Nut M5, #1		2
6-12	ZS444262	Screw, binding head 4x8		1
6-13	ZW290283	'U' Ring 2.85M	6-1-1	2
6-14	ZG301340	Pinch Roller Spring	NE-2237	1
6-15	ZW270156	'E' Ring 6M	6-1-9	1
6-16	MS528456	Pinch Roller Arm Shaft	ND-1010	1
6-17	MP275984	Pinch Roller RD D=40	RD-231	1
6-18	ZW376391	Washer (Rolyslider)		
		D6.1x10x0.13t		2
6-19	ZS527681	Pinch Roller Set Screw	ND-6019	1

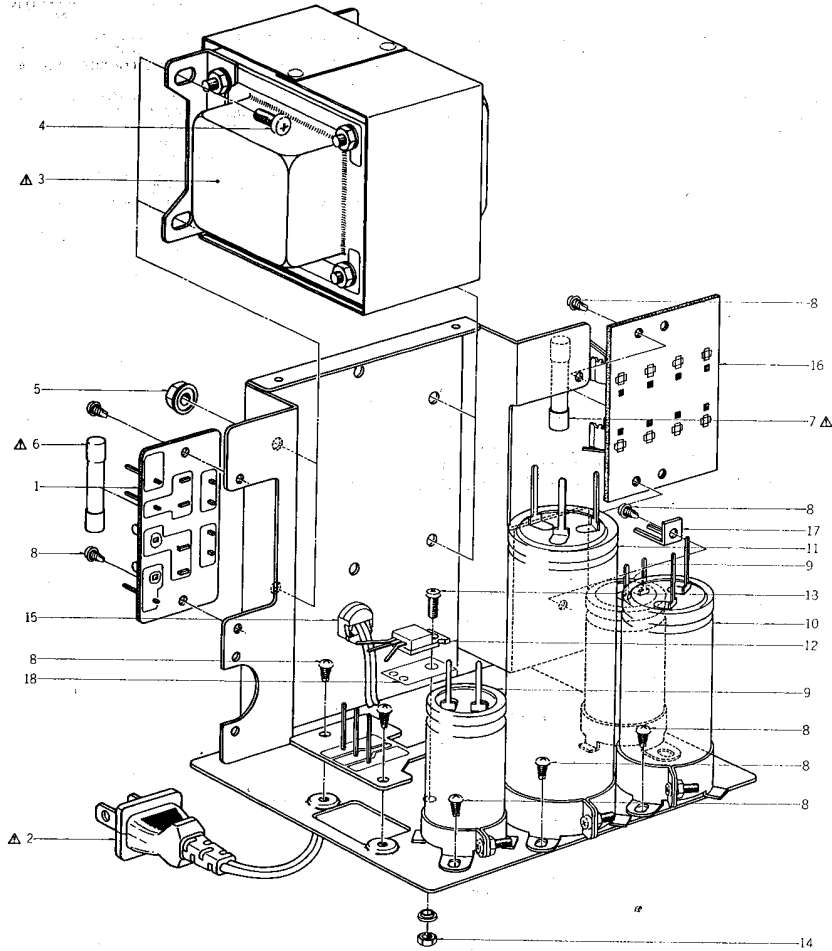
7. ILLUSTRATION OF MECHA ASSEMBLY BLOCK



7) MECHA ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty	Ref. No.	Parts No.	Description	Schematic No.	Q'ty
BRAKE PLUNGER BLOCK									
7-1	EP638695	Plunger Solenoid 1240PHT	44-1-73	1	7-51	ML396810	Brake Lever B	KD-1038	2
7-2	MB606712	Stopper Rubber KJ	KJ-2060	2	7-52	MT314987	Brake Band	MR-213	2
7-3	MZ529244	SW. Plate	ND-1061	1	7-53x	ZS432674	Screw, pan head 3x3		6
7-4	ZS417216	Screw, pan head 3x4		1	7-54	ZS417216	Screw, pan head 3x4		4
7-5	MZ669532	Cushion, prevention shock	NE-1069	1	7-55	ML301274	Pause Arm (3) Part NE-2	NE-1204	1
REC MUTE BLOCK									
7-6	EA301282	Mute SW. P.C Board	NE-2228	1	7-56	TC515575	SW. Lock Cam B	CG-2301	1
7-7	ED249377	LED GL-3ARI	45-15-14	1	7-57	ZG514440	Button Lock Spring B	CG-2303	1
7-8x	ZS301205	Tentacle SW. SCM81002	25-9-4	1	7-58	ZW616004	Washer (SPC) D3.2x8x11		1
7-9	ZS325495	Tapping Screw #2, 3x6(BR)		11	7-59	ZS608321	Screw, pan head 3x6		2
7-10	SB301065	Mute Button	NE-2222	1			w/washer		2
QUICK SW. BLOCK									
7-11	ES422111	Micro SW. MT-10AT	25-1-21	1	7-60	ZW374545	Washer (PBP) D5.1x10.3x0.41		1
7-12	ZS608512	Screw, pan head 3x13		2	7-61	ZS469710	MR Grduated Screw	MR-254	2
7-13	ZW273756	Nut M3, #1		1	7-62	ML301038	Pause Arm (1)	NE-1202	1
7-14	ZG529211	SW. Spring	ND-1053	1	7-63	ML301039	Pause Arm (2)	NE-1203	1
7-15	ZW487811	Washer (Polyslider) D4.1x7x.05t		1	7-64	ZW260188	Washer (Nylon) D6.2x13x0.5t		1
7-16	ZW270101	'E' Ring 3M	6-1-9	1	7-65	ZW270134	'E' Ring 5M	6-1-9	1
7-17	MZ529391	Quick Plate	ND-1063	1	7-66	MZ640080	Quick Plate	NE-1039	1
7-18	ZW550642	Washer (SPC) D3.1x7.9x0.5t		1	7-67	ZG232121	Tension Lever Spring	MH-143	1
7-19	ZW438928	Washer (PBP) D3.5x5x0.2t		1	7-68x	ZS608310	Screw, pan head 3x5, w/lug		1
7-20	ZW270088	'E' Ring 1.9M	6-1-9	5	7-69	ML301103	Pause Arm (B-2)	NE-1012	1
POWER SW. BASE BLOCK									
7-21	ES280258	△Push SW. SDV1P TV-5 (w/label)	25-5-243	1	7-70	ZG516418	Eject Spring	CG-1238	1
7-22	ZS422076	Screw, pan head 3x5		2	7-71	ZW334653	'E' Ring 7M	6-1-9	1
7-23	ES301207	Rotary SW. SRN1023SA1	25-6-110	1	7-72	MC638684	Counter MP490-23	9-1-43	1
7-24	EC294118	△ Ceramic/C. DPN6600 YM 0.01μF(P) 125WV	24-5-70	1	7-73	MB527556	Counter Belt D93x1.5	ND-1022	1
PAUSE SW. BLOCK									
7-25	BS636805	Pause SW. Block Comp.	NE-1072	1	7-74	ZG315011	Brake Lever Spring	MR-116	2
7-26	ZW290283	'U' Ring 2.85M	6-1-1	5					
7-27	SK644117	Pause Knob	NE-2030	1					
7-28	ZG567696	Azimuth Spring 2	CP-0041	1					
MECHA ASSEMBLY BLOCK									
7-29x	ZS413201	Screw, pan head 4x8		14					
7-30	ZS422965	Screw, pan head 3x15		5					
7-31x	MH528107	Lever Pin	ND-1005	1					
7-32	ZW274026	Spring Washr		2					
7-33	ZW413278	Nut M1, #1		4					
7-34	MS397012	Brake Lever Shaft	KD-1003	1					
7-35	ZW413188	Nut M1, #1		4					
7-36	MS65480	Brake Lever Shaft B	KD-1093	1					
7-37	ZW273756	Nut M3, #1		2					
7-38x	ML301219	Center Parts	NE-1209	1					
7-39	ZS422076	Screw, pan head 3x5		29					
7-40x	ZS447840	Tapping Screw #2, 3x8(BR)		6					
7-41	MZ247825	Spring Hanger	MU-1306	2					
7-42	ZS323728	Screw, binding head 3x5		10					
7-43	MZ810191	Cushion Rubber, RD	RD-278	1					
7-44	MZ673165	Pause Lock Base Part NE	NE-1010	1					
7-45	ES573456	Micro SW. K-2	25-1-30	3					
7-46	ZS608264	Screw, pan head 3x25		2					
7-47	ES562465	Micro SW. K-1	25-1-26	1					
7-48	ZW397146	Micro SW. Nut	KD-1057	1					
7-49	ZG527938	FF Resot Spring	ND-1024	1					
7-50	ML314976	Brake Lever A	MR-210	1					

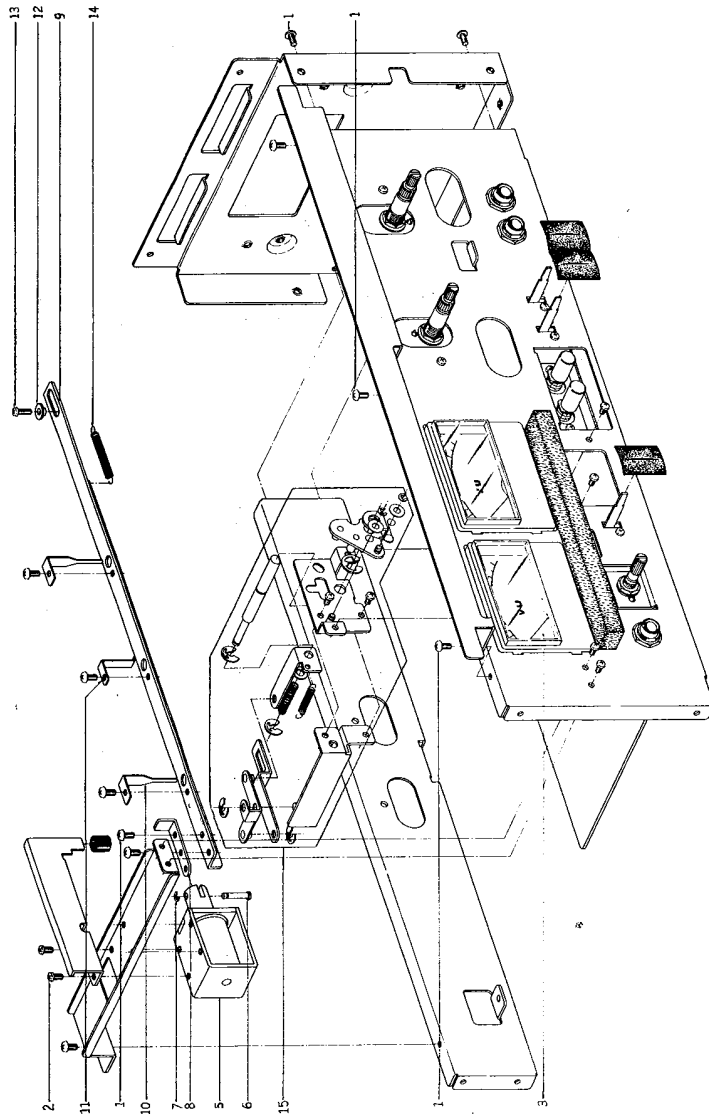
9. ILLUSTRATION OF POWER SUPPLY BLOCK



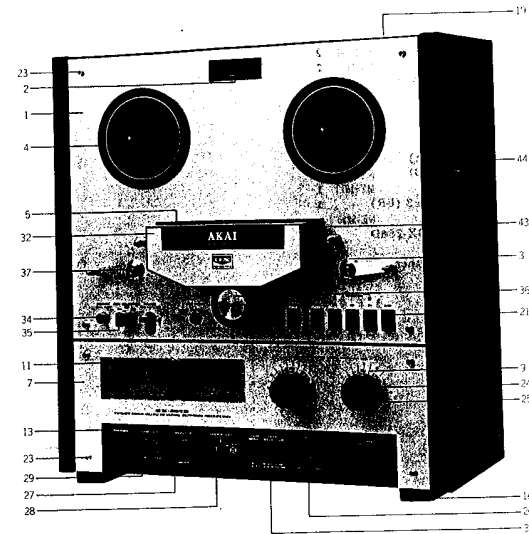
9) POWER SUPPLY BLOCK

Ref. No.	Parts No.	Description	Qty
FUSE P.C. BOARD BLOCK			
9-1	BA301336	Fuse P.C. Board Comp. GX-266D(JFN) (AAL) NE-251	1
POWER SUPPLY BLOCK			
9-2	EW305691	△ AC Cord CUL	25-3-65 1
9-3	BT305693	△ Power Trans. NET-12	38-4-617 1
9-4	ZS424056	Screw, pan head 4x10	4
9-5	ZW413267	Flange Nut M4	4
9-6	EF511637	△ Fuse ULMF61M 250V 1A 39-1-45	4
9-7	EF624543	△ Fuse ULMF61M 250V 2A 39-1-45	1
9-8	ZS325495	Tapping Screw #2, 3x6(BR)	14
9-9	EC301412	Elect./C. 220μF 160WV	24-10-120 2
9-10	EC305694	MP/C. (Wrapping Type) 3.5μF 150WV	24-9-125 1
9-11	EC249592	MP/C. 4+4μF 250WV	24-9-116 1
9-12	ET621775	Transistor TIP-47	45-1-196 1
9-13	ZS421806	Screw, pan head 3x8	1
9-14	ZW516993	Nut M3, #1	1
9-15	EZ631945	Strain Relief SR-4N-4	2-7-49 1
9-16	EJ301250	4P Fuse Holder (large) (B) (Wrapping Type)	40-1-103 1
9-17	EJ539447	Earth Terminal 2P T4460	32-1-32 1
9-18	EZ260381	Mylar Sheet P103KA	45-16-8 1

10. ILLUSTRATION OF AMP ASSEMBLY BLOCK



11. PHOTO OF FINAL ASSEMBLY BLOCK



11) FINAL ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty	Ref. No.	Parts No.	Description	Schematic No.	Q'ty
MECHA PANEL BLOCK					AMP PANEL BLOCK				
11-1	BD301257	Mecha Panel Block Comp. GX-266D			11-7	SP306312	Amp Panel	NE8254	
11-2	SE626951	Counter Escutcheon	MY-6006	1	11-8x	SZ301100	Ring Felt	NE-6228	2
11-3	SZ301096	Decorative Ring	NE-6219	2	11-9	SZ301090	Memory Ring	NE-6204	2
11-4	SE301134	Reel Table Escutcheon (2-B)	TD-6021	2	11-10x	SZ301132	Ring Retainer	NE-6223	2
11-5	SC301213	Head Cover Base	NE-6217	1	11-11	SE301115	Meter Cover	NE-6206	1
11-6x	ZS462194	Tapping Screw #2, 3x8 (PAN) w/washer		2	FINAL ASSEMBLY BLOCK				
					11-12x	ZS325495	Tapping Screw #2, 3x6 (BR)	NE-6210	6
					11-13	SP301113	Operation Panel	NE-6210	1
					11-14x	ZS447761	Tapping Screw #2, 3x6 (BR) (Black)	NE-6202	3
					11-15x	SP301232	Bottom Plate	NE-6202	1
					11-16	SA301411	Square Foot Part GX-215D	2-6-15	2
					11-17x	ZS447480	Screw, binding head 4x12		4
					11-18x	ZS201341	Screw, truss head 4x8		16
					11-19	SP301231	Upper Cover	NE-6201	1
					11-20x	SP301255	Side Cover	NE-6203	2
					11-21	BZ301755	Button Escutcheon Assy NE-2		1
					11-22x	ZS483502	Screw, pan head 3x13		1
					11-23	ZS413901	Panel Screw	CW-6031	8
					11-24	SK301098	Double Knob (Lower)	NE-6221	2
					11-25	SK301097	Double Knob (Upper)	NE-6220	2
					11-26	SK301092	Lever Knob (A)	NE-6214	2
					11-27	SK301093	Lever Knob (B)	NE-6214	1
					11-28	SK301083	Timer Knob	NE-6217	1
					11-29	SK301099	Single Knob	NE-6222	1
					11-30	SK607127	Push Knob A (Black)	AS-5022	2
					11-31x	MH642857	Head Cover Prop	NE-6009	1
					11-32	SM305598	Head Cover Name Plate(B)	NE-6250/6251	1
					11-33x	ZG301758	Head Cover Spring	NE-6240	2
					11-34	SK236970	Power Knob BL	MU-6320	1
					11-35	SK300983	Tape Knob	NE-6234	1
					11-36	SK646053	Pinch Roller Cap B NE	ND-6028	1
					11-37	ZS203084	Screw, oval countersunk head 3x8		2
					11-38x	SP305599	Back Board (B)	NE-6252	1
					11-39x	ZS290597	Tapping Screw #2, 3x8 (BR) (W=10)	/6233	2
					11-40x	SA679285	LM Rubber Foot	3-18-5	1
					11-41x	ZW419646	Washer (SPC) D4.5x9.8x0.5t		1
					11-42x	ZS201251	Screw, truss head 4x20		1
					FINAL ASSEMBLY BLOCK				
					11-43	SC301102	Head Cover	NE-6216	1
					11-44	SP305597	Side Board	NE-6249	2

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

10) AMP ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
10-1	ZS325495	Tapping Screw #2,3x6(BR)		19
10-2	ZS422076	Screw, pan head 3x5		14
10-3	EM301277	VU Meter KL-250S-9	46-1-167	2
10-4x	ZW260370	Nylon Rivet 3.4x5.5	2-7-56	2
10-5	EP638695	Plunger Solenoid 1240PHT	44-1-73	1
10-6	MH257477	Connecting pin	RD-211	1
10-7	ZW270088	'E' Ring 1.9M	6-1-9	1
10-8	MZ301084	Reverse Joint	NE-5219	1
10-9	ML301123	Reverse Arm	NE-5218	1
10-10	ZG301072	Reverse SW. Spring (A)	NE-5206	2
10-11	ZG301073	Reverse SW. Spring (B)	NE-5207	1
10-12	ZW625241	Graduated Washer	MY-1013	1
10-13	ZS447840	Tapping Screw #2, 3x8 (BR)		1
10-14	ZG301089	Reverse Arm Spring	NE-5226	1
10-15	BZ301009	Timer Block Comp. GX-266D		1
10-16x	ZS58101	Screw, pan head 3x6 w/washer		2

11 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.
2SA564(Q)(R)	ET538154	NE-1213	2SA733(Q)(R)	ET557965
2SA733(Q)(R)	ET554657	NE-5222	2SA564(Q)(R)	ET538154
2SC881G(C)(D)	ET391768	NE-5223	2SC693U(F)	ET315472
		NE-5222	2SC1312(G)(H)	ET517263
2SC693U(F)	ET639437	NE-5222	2SC536(F)(G)(H)	ET632215
		NE-1213	2SC1647(S)(E)	ET592424
2SC1247A(B)(V)	ET511920	NE-1213	2SC1175(E)(F)	ET622080
			2SC1211(E)(F)	ET666393
2SC1312(G)(H)	ET603257	NE-5222	2SC1312(G)(H)	ET517263
			2SC458LG(C)(D)	ET391768
2SC1647(S)(E)	ET301249	NE-1213		
2SD361(D)(E)	ET537300	NE-1213	2SC1098(L)(M)	ET476886
2SD470	ET621775		2SC1683(P)(Q)	ET635826
1N34	ED219464	NE-5222	1S188AM	ED562386
			1N60	ED428264
1S2473	ED624903	NE-1213	1S1588	ED557447
			WG599	ED514721
1S2473VE	ED560913	NE-1213	1S1588	ED557447
		NE-5222	WG599	ED514721
1S1588	ED557447	NE-1213	1S2473	ED624903
			WG599	ED514721
WZ-240	ED521918	NE-1213	RD24A	ED229072
WZ-130	ED539976	NE-1213		
10D2	ED224548	NE-1213	1N4003	ED570295

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