

STEREO TAPE RECORDER

MODEL M-11

ALSO APPLICABLE TO MODEL
M-11D STEREO TAPE DECK

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SECTION 1

SERVICE MANUAL

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I. SPECIFICATIONS

An asterisk next to a figure indicates the minimum guaranteed performance.

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 $\pm 2\%$	
WOW AND FLUTTER	Less than 0.10% (*0.15%) at 7-1/2 ips Less than 0.14% (*0.25%) at 3-3/4 ips	
FREQUENCY RESPONSE	30 to 25,000 Hz ± 3 dB at 7-1/2 ips (using AKAI S.R.T. Tape) 30 to 23,000 Hz ± 3 dB at 7-1/2 ips 30 to 17,000 Hz ± 3 dB at 3-3/4 ips	
SIGNAL TO NOISE RATIO.	Better than 50 dB (*45 dB)	
DISTORTION	Less than 1.5% (*2.5%) at 7-1/2 ips Less than 4% at 3-3/4 ips	
CROSS TALK	Better than 40 dB (stereo) Better than 60 dB (monaural)	
ERASE RATIO	Better than 70 dB	
INPUTS	Mic input	0.25 mV Impedance : 4.7 k Ω
	Line input	80 mV Impedance : 200 k Ω
	Din input	5 mV
OUTPUTS	Line output	1.228V (+4 dB), using a 250 Hz "0" VU recorded tape
	Din output	0.4V
	Speaker output	5 + 5 W/8 Ω (M-11 only)
RECORDING CAPACITY	60 min. stereo recording, using a 1200' tape at 7-1/2 ips	
FAST FORWARD AND REWIND TIME	120/150 sec., using a 1200' tape at 60/50 Hz	
MOTOR	Hysteresis synchronous 2-speed motor Type : HM2-16BS Revolutions : 1,500/750 r.p.m. at 50 Hz 1,800/900 r.p.m. at 60 Hz	
HEADS	Rec/Playback Head	In-line 4-track 2-channel, Glass and Crystal Ferrite Rec/Playback Head Gap : 1.7 to 2.3 μm Impedance : 750 to 1,300 Ω at 1,000 Hz
	Erase Head	In-line 4-track 2-channel Erase Head Gap : 0.6 mm Impedance : 195 Ω $\pm 10\%$ each core at 100 kHz
BIAS FREQUENCY	80 kHz (*62.5 ± 2.5 kHz)	
TRANSISTORS	4 ... 2SC458LG (B) (D) (E) 2 ... 2SC711 (D) 2 ... 2SC945 (Q) (R)	2 ... 2SC971 (2) (3) (red) 1 ... 2SA634 (M)
I.C.	2 ... LD-3141	2 ... STK-011 (A) (M-11 only)
DIODES	9 ... 10D-1 (7 ... 10D-1 for M-11) 1 ... 10DC-1 (red) (M-11 only)	2 ... 1N34A 1 ... 10DC-1 (black) (M-11 only)
POWER SUPPLY	100 to 240V AC, 50/60 Hz	
POWER CONSUMPTION	M-11 ... 75 W M-11D ... 50 W	
INSULATION RESISTANCE	More than 50 M Ω	
INSULATION DURABILITY	1,000V AC for more tahn 1 minute duration	
DIMENSIONS	M-11 ... 419(W) x 405(H) x 228(D) mm (16.8" x 16" x 9.1") M-11D ... 407(W) x 405(H) x 228 (D) mm (16.2" x 16" x 9.1")	
WEIGHT	M-11 ... 16 kg (35.2 lbs.) M-11D ... 14.5 kg (31.9 lbs.)	

Remark : Specifications are subject to change without notice.

II. MEASURING METHOD

1. TAPE SPEED DEVIATION

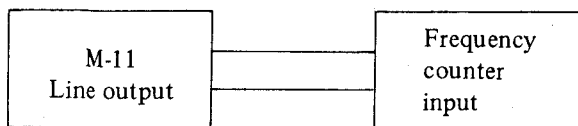


Fig. 1

As shown in Fig. 1, connect a Frequency Counter to the Line Output of Model M-11. Take a Frequency Counter reading at the beginning, middle, and end of tape winding during playback. The maximum value of these respective readings will represent tape speed deviation.

2. WOW AND FLUTTER

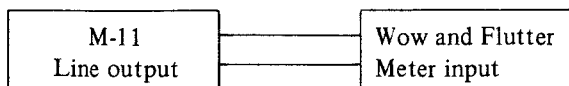


Fig. 2

Method A

As shown in Fig. 2, connect the Line Output of Model M-11 to the Input of a Wow and Flutter Meter. Use a 3,000 Hz pre-recorded test tape and take a Wow and Flutter Meter reading at the beginning, middle, and end of tape winding. The maximum value of these respective readings will represent the Wow and Flutter.

Method B

Supply a 3,000 Hz sine wave signal from an Audio Frequency Oscillator and make a recording on a blank tape at the beginning, middle, and end of tape winding. Rewind and play tape. Measure Wow and Flutter with a Wow and Flutter Meter. (The Wow and Flutter value of Method B will be close to twice that of Method A.)

3. FREQUENCY RESPONSE

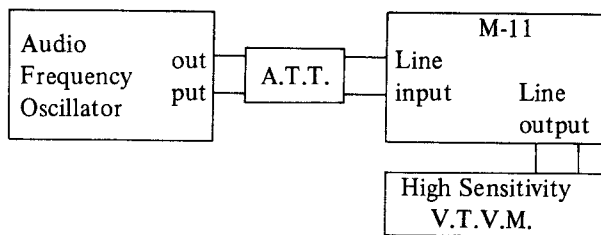


Fig. 3

For measuring Frequency Response, connect instruments as shown in Fig. 3 and proceed as follows :

- 1) Supply a 1,000 Hz sine wave to the Line Input of Model M-11 from an Audio Frequency Oscillator through an Attenuator. Set recorder to recording mode and turn recording level volume control to maximum. Adjust attenuator to obtain a +4 dB V.T.V.M. reading.
- 2) Under conditions described in 1) above, readjust attenuator so that the Line Output is -16 dB, and record 30 to 23,000 Hz spot frequencies.
- 3) Rewind tape and playback from the beginning. Take V.T.V.M. spot frequency readings and plot values on a graph.

Note : When measuring Frequency Response, new tape should be used.

4. SIGNAL TO NOISE RATIO

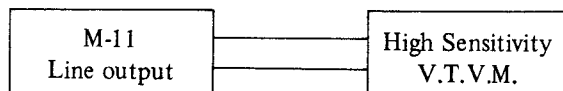


Fig. 4

As shown in Fig. 4, connect a High Sensitivity V.T.V.M. to the Line output of Model M-11. Playback a 250 Hz "0" VU pre-recorded test tape and measure the output. Then remove the tape and measure the noise level under the same condition. Convert each of the measured values into decibels.

5. TOTAL HARMONIC DISTORTION

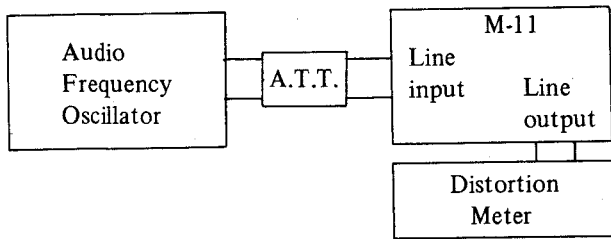


Fig. 5

Connect the measuring instruments as shown in Fig. 5 and record a 1,000 Hz sine wave signal at "0" VU. Playback the resultant signal and measure the overall distortion factor. Measure the noise level of the tape recorder without the tape. Connect the Audio Frequency Oscillator directly to the distortion meter for measurement of the distortion factor of the oscillator. The required distortion factor can be obtained from the results of the above measurement by the following formula :

$$d_0 = d - d_1 - d_2$$

where, d_0 - Required distortion factor
 d - Overall distortion factor
 d_1 - Noise level
 d_2 - Distortion factor of the oscillator

Note : When measuring the distortion factor, new tape should be used.

6. CROSS TALK (Cross talk between the tracks)

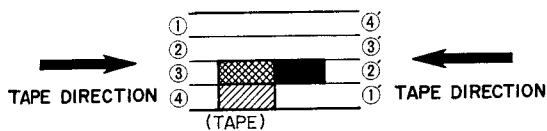


Fig. 6

As shown in Fig. 6, first record a 1,000 Hz sine wave signal on Track No. 3 at +3 VU level. Next, record under a non-input condition. Then, playback the tape on Tracks No. 3 and 1 (reversed condition of tape) through the B.P.F. (band pass filter sensitivity . . . 1 : 1) and obtain a ratio between the two from the following formula :

$$C = 20 \log \frac{E_0}{E_2 - E_1} \text{ (dB)}$$

where, C - Desired cross talk ratio (dB)
 E_0 - 1,000 Hz signal output level
 E_2 - 1,000 Hz cross talk level
 E_1 - Non-input signal recorded level

7. ERASE RATIO

As shown in Fig. 4, connect a High Sensitivity V.T.V.M. to the Line Output of Model M-11. Playback a virgin tape and take a V.T.V.M. reading of the output level. Next, record a 1,000 Hz sine wave signal at +3 dB, then playback this recorded signal and take a V.T.V.M. reading of the output level. Next, using this pre-recorded tape, record under a non-input condition and take a reading of the noise output level of the erased signal and obtain a ratio between the two from the following formula :

$$E_r = 20 \log \frac{E_0}{E_2 - E_1} \text{ (dB)}$$

where, E_r - Desired erase ratio (dB)
 E_0 - 1,000 Hz signal output level
 E_2 - Non-input signal recorded level
 E_1 - Virgin tape noise output level

8. POWER OUTPUT

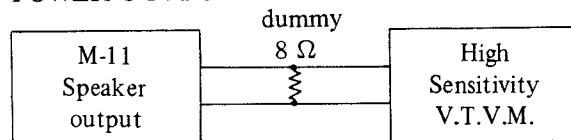


Fig. 7

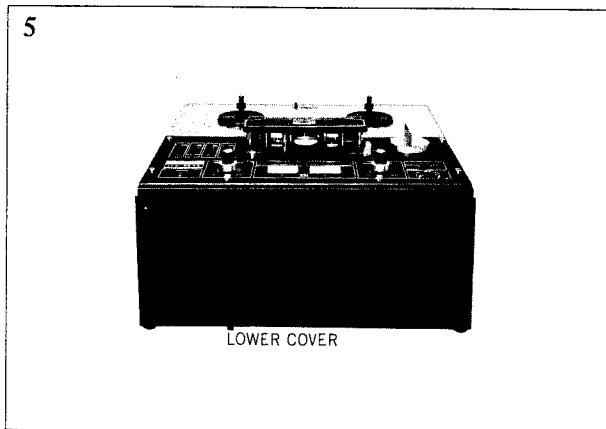
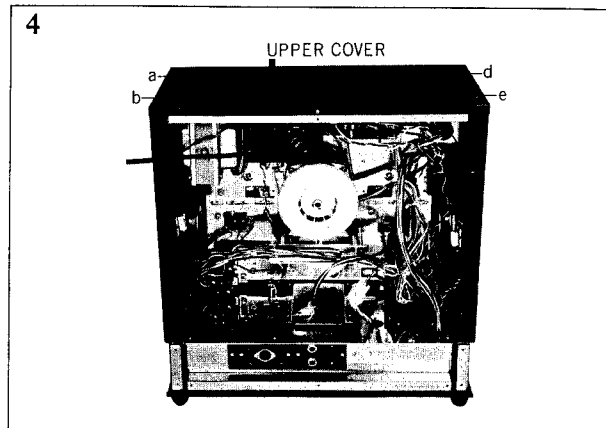
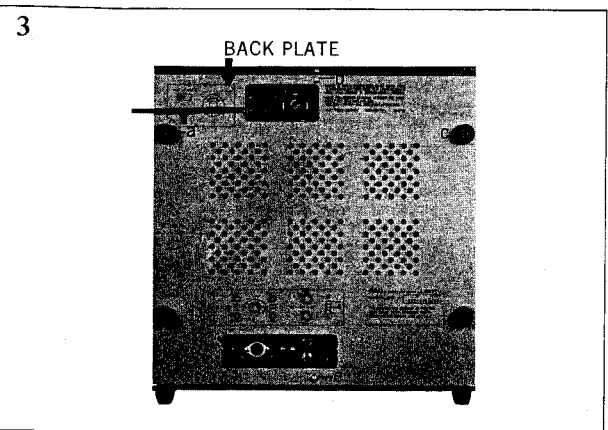
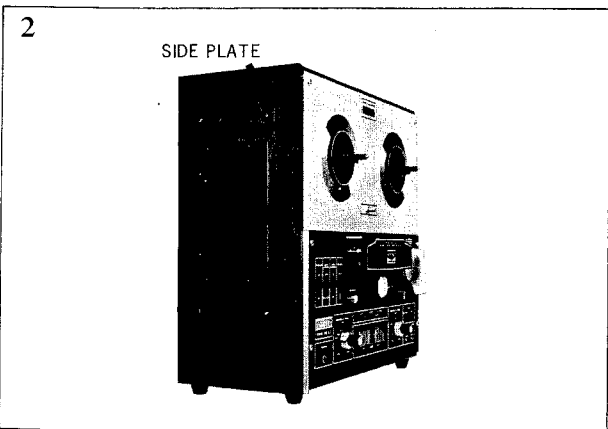
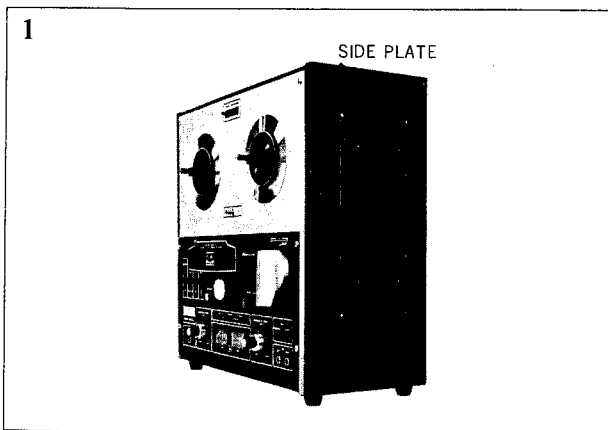
As shown in Fig. 7, connect an 8Ω dummy load resistor to the speaker output of Model M-11 and connect this terminal to a High Sensitivity V.T.V.M. Playback a 250 Hz "0" VU pre-recorded test tape and take a V.T.V.M. reading of the output level. The resultant output can be obtained from the results of the above measurement by using the following formula :

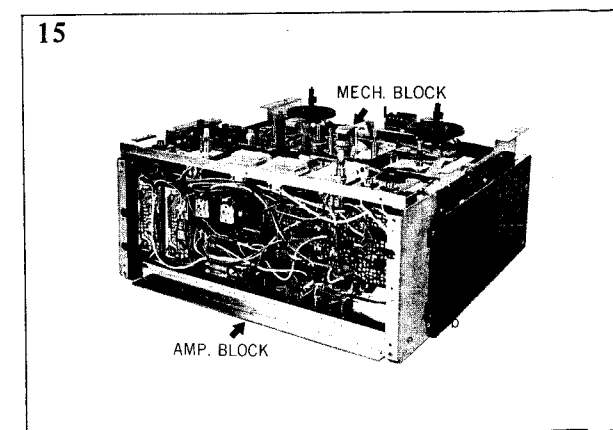
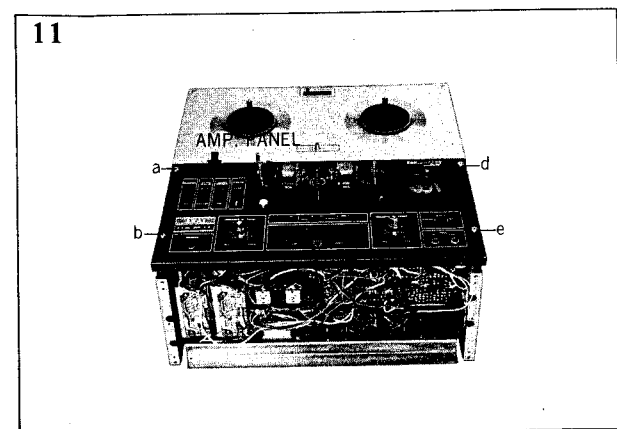
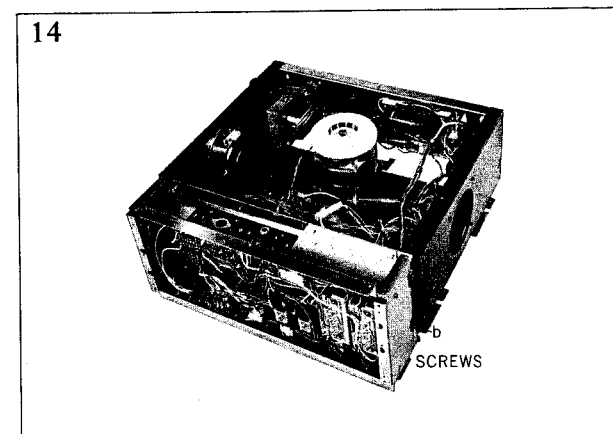
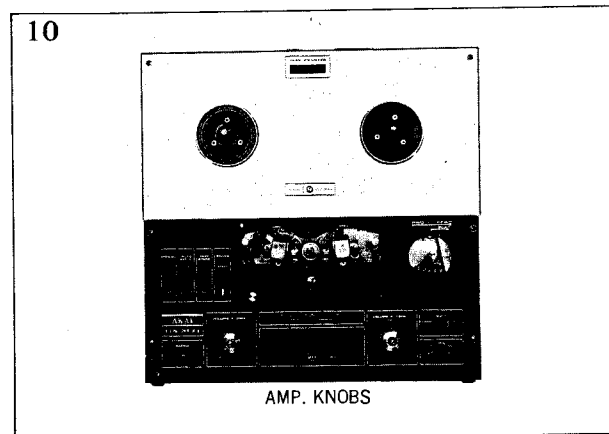
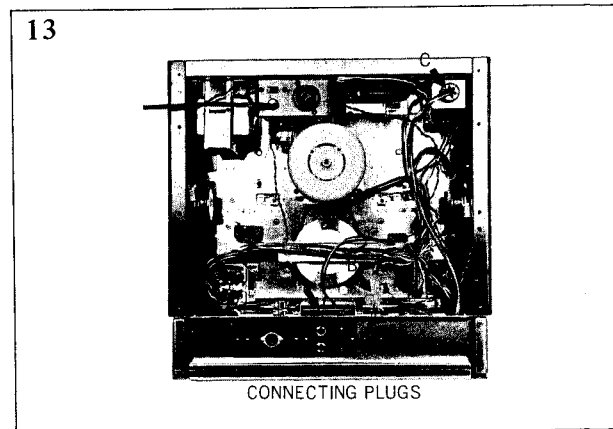
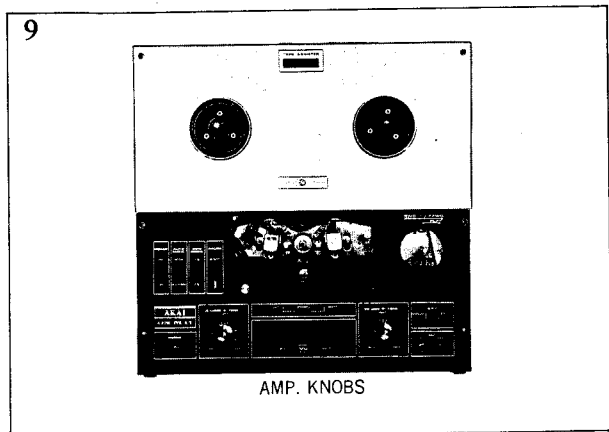
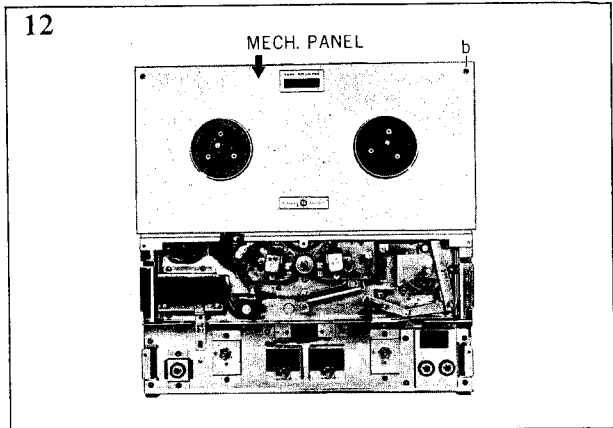
$$P = \frac{E^2}{R} \text{ (W)}$$

where, P - Desired power output (watts)
 E - Measured voltage (R.M.S.)
 R - 8Ω

III. DISMANTLING OF TAPE TRANSPORT UNIT & AMPLIFIER

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





IV. MECHANISM ADJUSTMENTS

1. TENSION ADJUSTMENTS (See Fig. 8)

1) Playback Mode Tension Adjustment

Set Mode Selector to "PLAY" mode and adjust nuts (a), (a') so that the tension of both reels is between 80 to 90 grams.

2) Stop Mode Adjustment

Set Mode Selector to "STOP" mode and adjust screws (b), (b') so that the tension of both reels is between 170 to 190 grams.

3) Fast Forward and Rewind Mode Tension Adjustment.

a) Supply Reel Tension (Free Tension) Adjustment.

Set Mode Selector to "F. FWD" or "RWD" mode and loosen screws (f), (g), (f'), (g') and adjust BS Lever B by moving to right and left. Position so that the supply reel moves freely. After the above adjustment has been carried out, loosen screws (d), (d') and adjust the pressure of BS Lever L (left) and BS Lever K (right) so that the supply reel tension is between 5 to 25 grams.

b) Take up Reel Tension Adjustment

Set Mode Selector to "F. FWD" or "RWD" mode and adjust screws (c), (c') so that the tape up reel tension is between 400 to 420 grams.

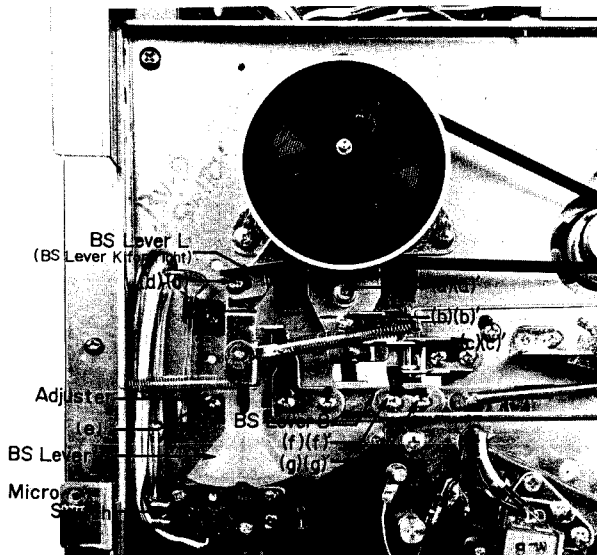


Fig. 8

Note: An apostrophe following a letter in the above diagram indicates that the particular screw or nut adjusts right reel table tension.

2. BS LEVER A POSITION ADJUSTMENTS

(See Fig. 8)

At stop mode, loosen adjuster holding screw (e) and regulate the position of the adjuster so that BS Lever A releases the Micro Switch perfectly. When this adjustment has been completed, check the function of BS Lever A by confirming that it releases the Micro Switch smoothly when the Mode Switch is returned to stop position from Fast Forward or Rewind mode.

3. PINCH WHEEL PRESSURE ADJUSTMENTS

1) With recorder at playback mode, connect a 0 to 2,000 grams spring gauge to the pinch wheel shaft as shown in Fig. 9 and measure the pinch wheel pressure.

2) Correct pinch wheel pressure is 1,600 grams.

3) Pinch wheel pressure can be adjusted with screw (a) shown in Fig. 9.

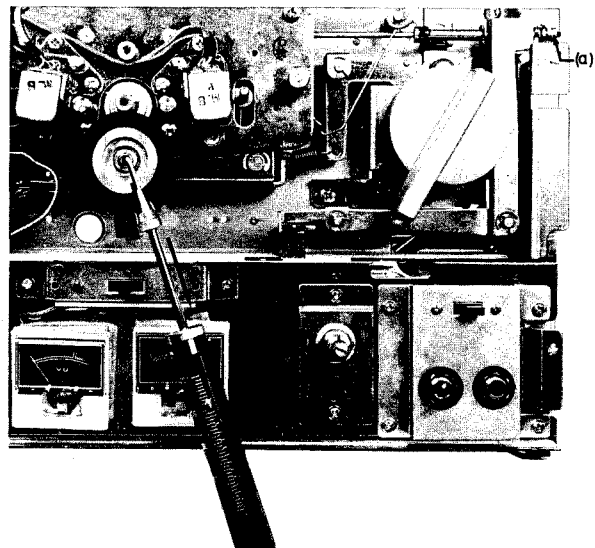


Fig. 9

V. HEAD ADJUSTMENTS

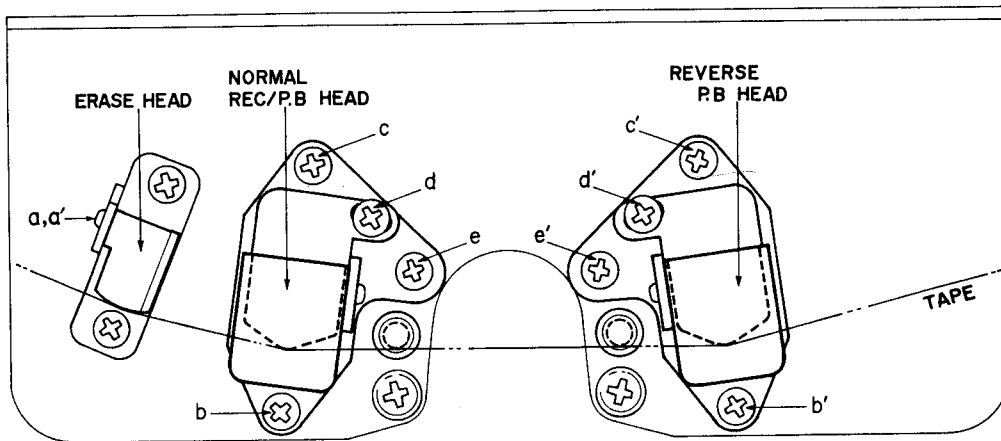


Fig. 10

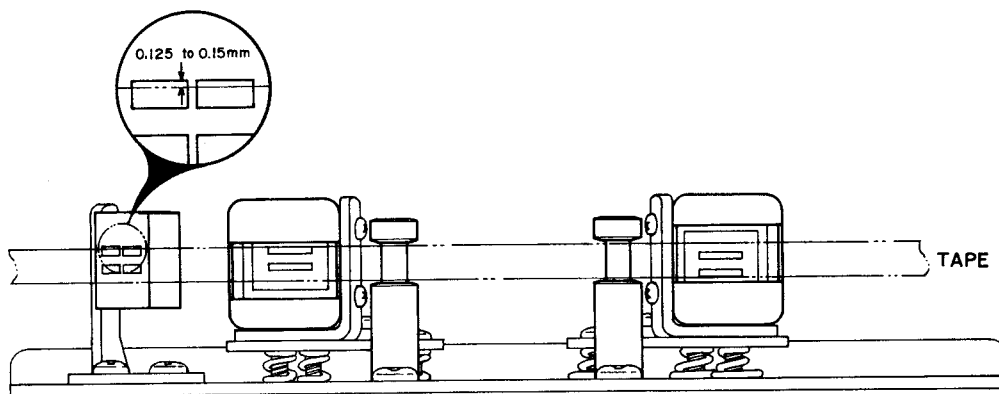


Fig. 11

1. HEAD HEIGHT ADJUSTMENTS

(See Figs. 10, 11)

1) Erase Head

Loosen Erase Head screws (a), (a') and adjust Erase Head Height so that the upper edge of the tape is about 0.125 to 0.15 mm lower than the upper Erase Head core.

2) Rec/Playback Head

During "normal play", adjust Rec/Playback Head Height by turning head height control screws (b), (c) until the upper edge of the tape and upper edge of the CH-1 Rec/Playback Head core is equal.

3) Reverse Playback Head

During "normal play", adjust Rec/Playback Head Height by turning head height control screws (b'), (c') until the lower edge of the tape and lower edge of the CH-1 Rev/Playback Head core is equal.

Note: When making Head Height Adjustments make sure that the front of the head is at right angles with the chassis and the tape firmly contacts both the upper and lower parts of the head.

2. HEAD AZIMUTH ALIGNMENT

ADJUSTMENTS (See Fig. 10)

Connect a High Sensitivity V.T.V.M. (Model 161A) to the line output of the recorder and playback a Head Alignment test tape (8,000 Hz, 3-3/4 ips). Adjust by turning Head Azimuth Alignment screws (e), (e') until the line outputs reach maximum.

3. TAPE TOUCH ADJUSTMENTS (See Fig. 10)

After the Head Azimuth Alignment Adjustment has been carried out, it is necessary to make a tape touch adjustment. Play back a Head Alignment test tape. Loosen screws (d), (d') and move each Playback Head to right and left until the various line outputs reach maximum.

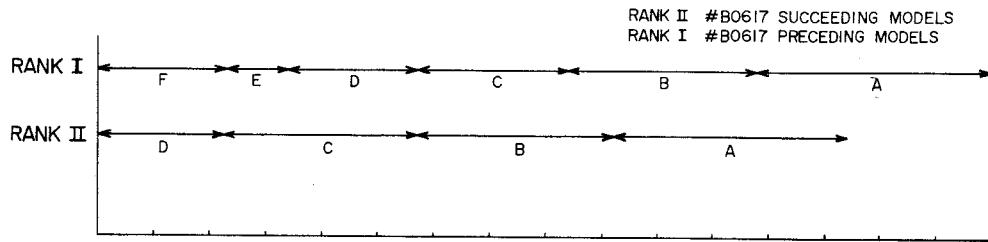


Chart 1

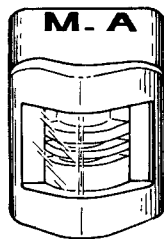


Fig. 12

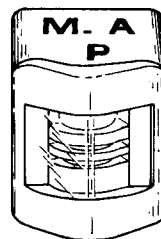


Fig. 13

Fig. 12 . . . A Head for Rec/Playback or Rev/Playback

Fig. 13 . . . An exclusive Head for Rev/Playback

4 Repeat adjustments outlined in 1-3) to 3, two or three times to obtain optimum adjusted condition.

Note : In order to keep the difference in playback level between normal and reverse playback as small as possible, the Rec/Playback and the Rev/Playback Heads are categorized and marked "MA" to "MF" respectively. Further the heads which can be used for Rev/Playback only are marked "MA-P" to "MF-P" (See Figs. 12 and 13).

- 1) When a Rec/Playback Head is replaced, it is imperative that the same rank head be installed as was previously used.
- 2) When a Rev/Playback Head is replaced, replace with a Rev/Playback Head of the same rank as was previously used, or a Rec/Playback Head of the same rank.

- 3) Rank I in Chart I represents the heads installed in succeeding models and Rank II represents the heads installed in preceding models. The replacement heads (heads supplied from service parts) fall under Rank I. According, in case it is necessary to replace the head of a previous model, for instance, if an MA is being replaced, it must be selected from and replaced with a new MA Head from Rank I which includes MA and MB characteristics. GX Heads from a separate GX series are not interchangeable.

VI. AMPLIFIER ADJUSTMENTS

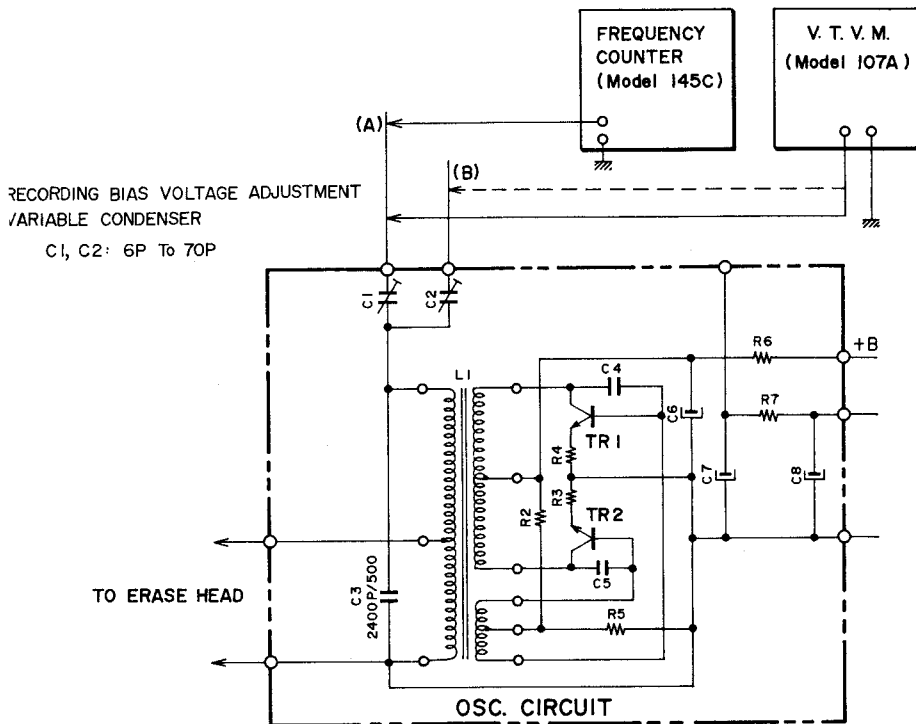


Fig. 14

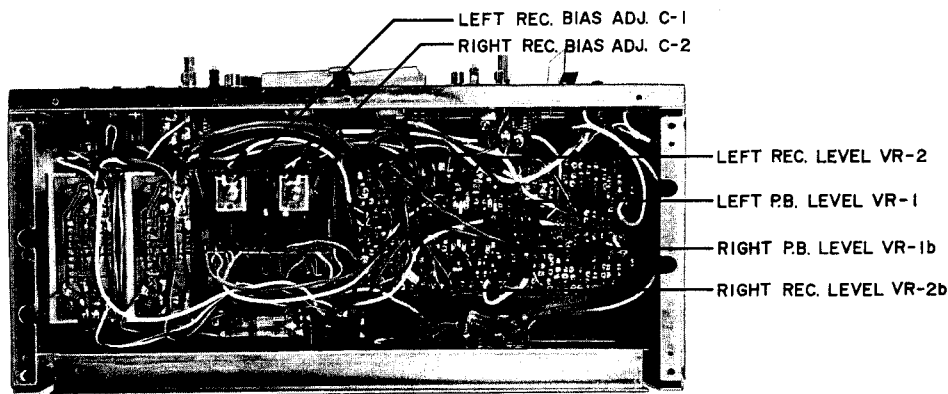


Fig. 15

1. RECORDING BIAS FREQUENCY ADJUSTMENTS

Connect a Frequency Counter (Model 145C) to point (A) as shown in Fig. 14 and take a Frequency Counter reading. If the frequency is 62.5 ± 2.5 kHz, the recording bias frequency is correct. In case the Frequency Counter indication is incorrect, replace condenser C3 (2400PF/100V) or the Oscillation Circuit to obtain proper Oscillation Frequency.

2. RECORDING BIAS VOLTAGE ADJUSTMENTS (See Figs. 14, 15)

Connect a V.T.V.M. (Model 107A) to points (A) and (B) as shown in Fig. 14 and take a V.T.V.M. reading. Ideal recording bias voltage is from 10 to 22V AC. Recording bias voltage is adjusted with variable condensers C1 and C2.

3. Ideal erase voltage is from 40 to 46 V AC.

4. PLAYBACK LEVEL ADJUSTMENTS (See Figs. 15, 16)

- 1) Connect a High Sensitivity V.T.V.M. (Model 161A) to the Line Output and turn Volume Control (VR-1a and VR-2a 50k A) to maximum.
- 2) Playback a 7-1/2 ips 250 Hz "0" VU pre-recorded test tape. Adjust Semi-fixed resistor (VR-1 and VR-1b 30k B) to obtain a V.T.V.M. indication of +4 dB on both channels.

VII. LOCATION OF VARIOUS SWITCHES

5. RECORDING LEVEL ADJUSTMENTS

(See Figs. 15, 16)

- 1) Set recorder to recording mode and turn Volume Control VR-1a and VR-2a to maximum.
- 2) Supply a 1,000 Hz sine wave signal from an Audio Frequency Oscillator to the Line Input through an Attenuator. Adjust Attenuator and set High Sensitivity V.T.V.M. indication to +4 dB. (VU meter indication is "0" VU.)
- 3) After a few seconds of recording on a blank test tape under the conditions described above, rewind tape to starting point. Playback the tape and check the V.T.V.M. indication.
- 4) If the recording level does not reach +4 dB, adjust Recording Level Adjustment Semi-fixed resistor (VR-2 and VR-2b 2k B), repeating item 3 until a +4 dB recording level is attained.

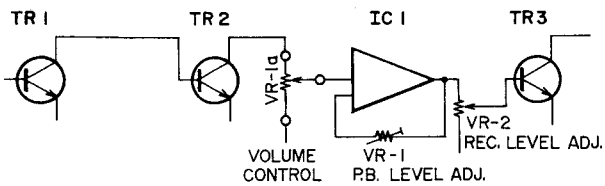


Fig. 16

6. FREQUENCY RESPONSE ADJUSTMENTS

Refer to instructions regarding Frequency Response Measuring Method.

Adjust Recording Bias Adjustment Variable Capacitor for each channel (C1 and C2) to obtain a flat 1,000 Hz and 10,000 Hz Frequency Response.

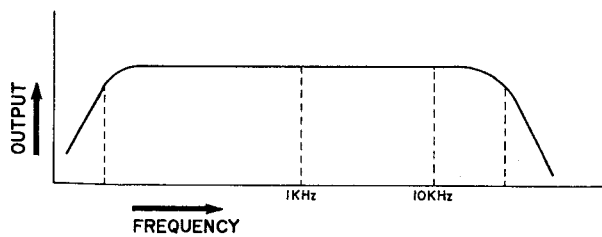


Fig. 17

1. FRONT

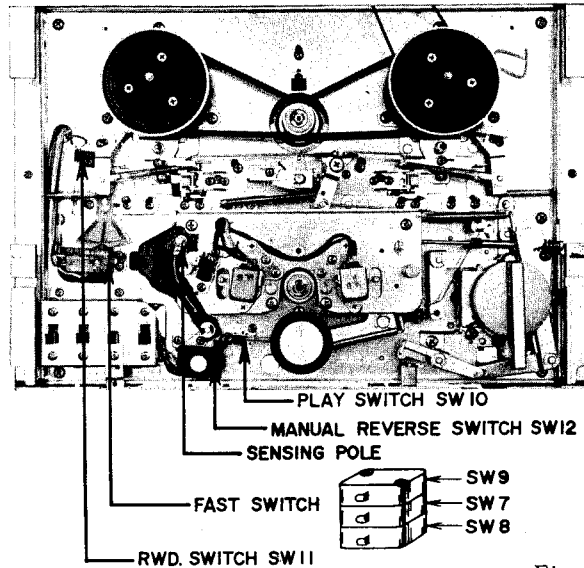


Fig. 18

2. BACK

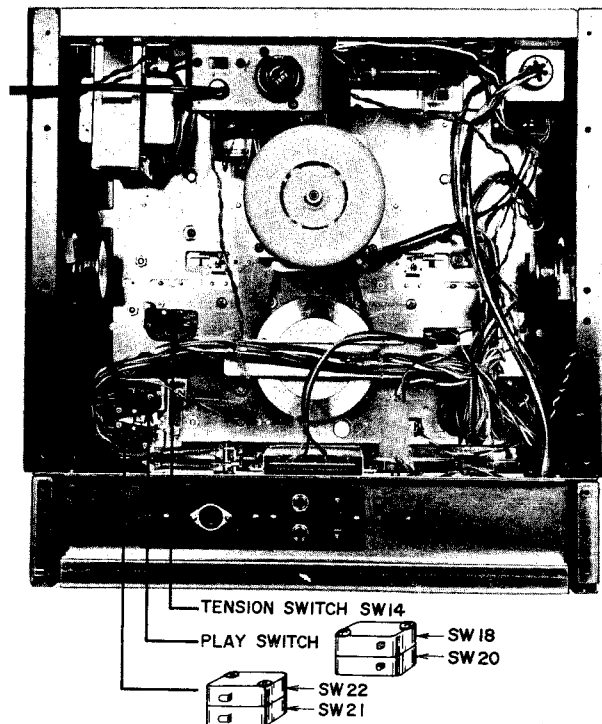
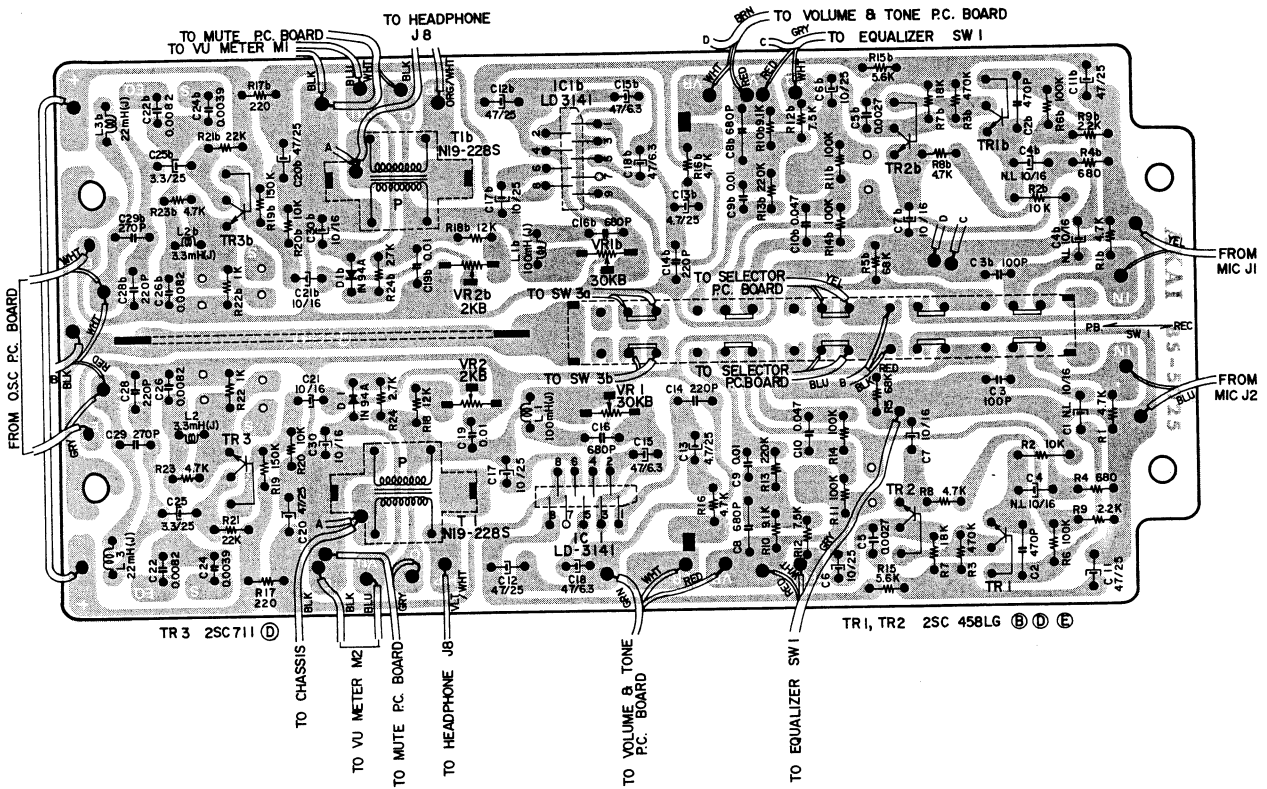


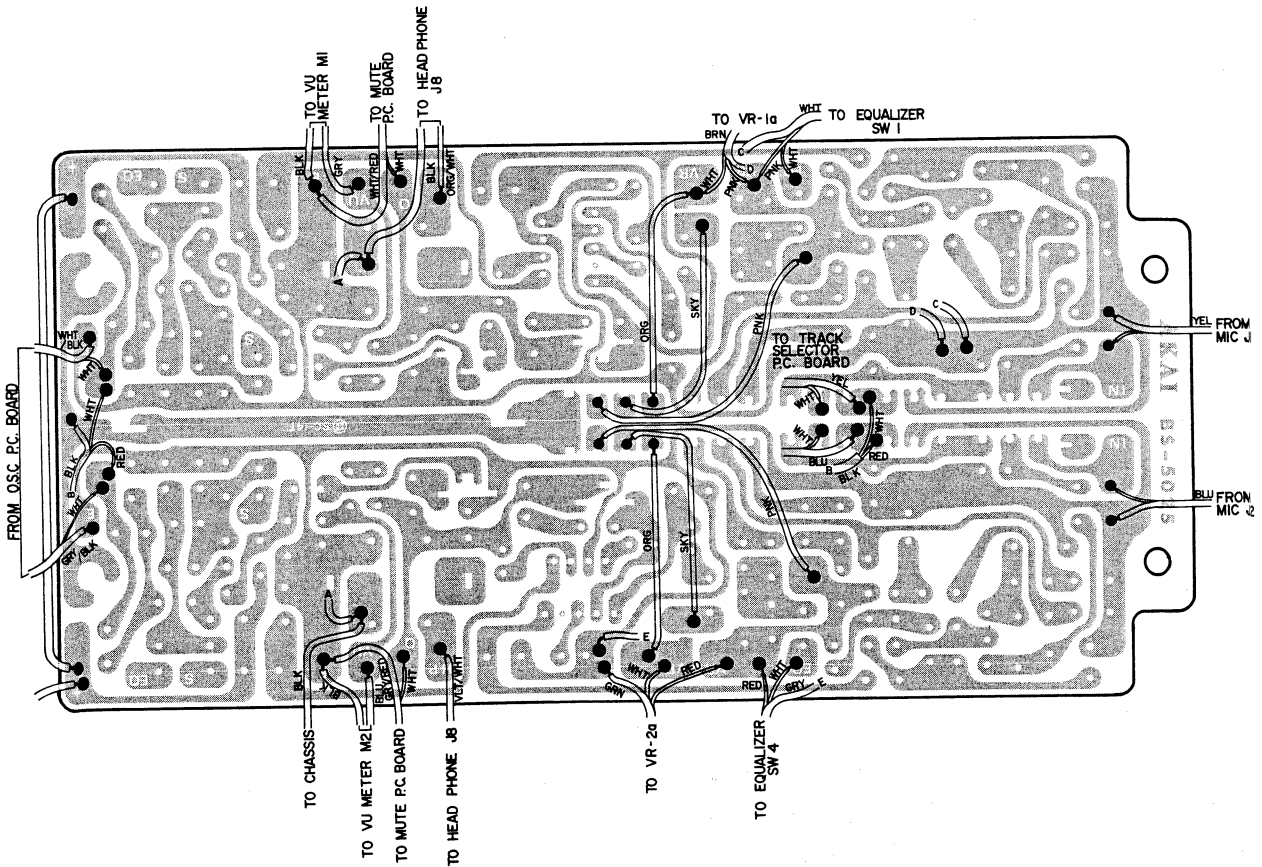
Fig. 19

VIII. COMPOSITE VIEWS OF COMPONENTS

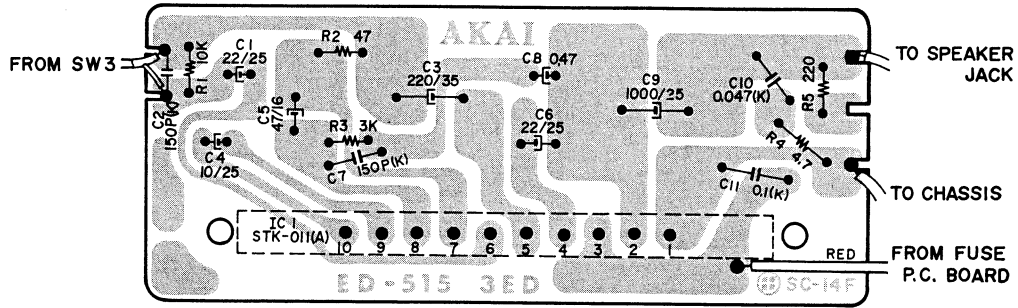
PRE-AMP. P.C. BOARD (BS-5025) M-11



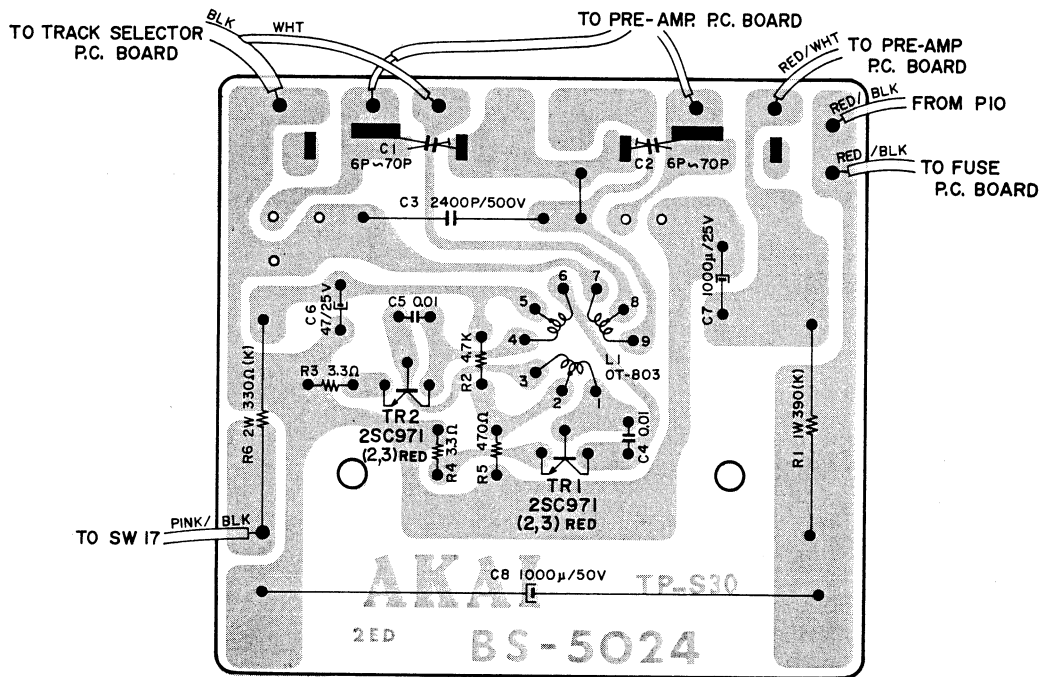
PRE-AMP. P.C. BOARD (BS-5025) M-11D



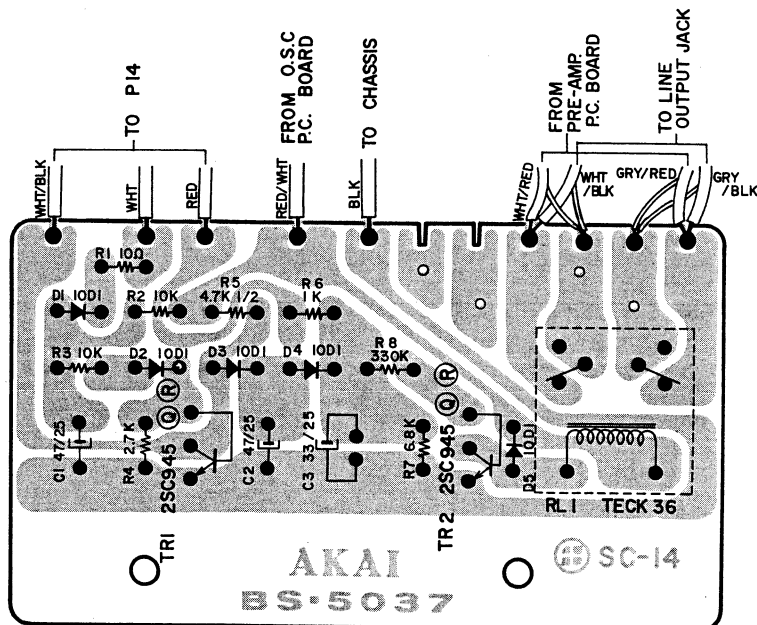
POWER AMP. P.C. BOARD (ED-515 3ED)



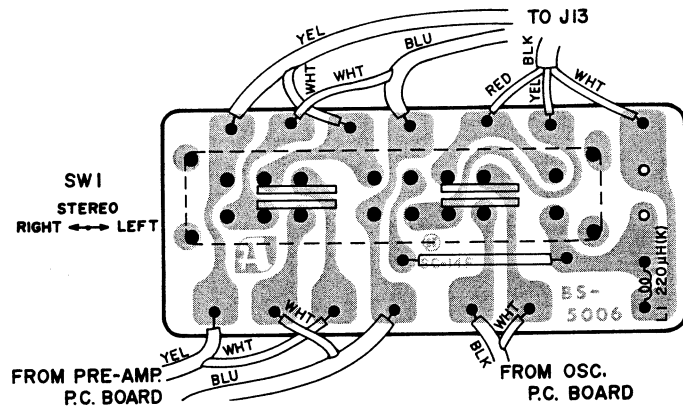
OSC. P.C. BOARD (BS-5024)



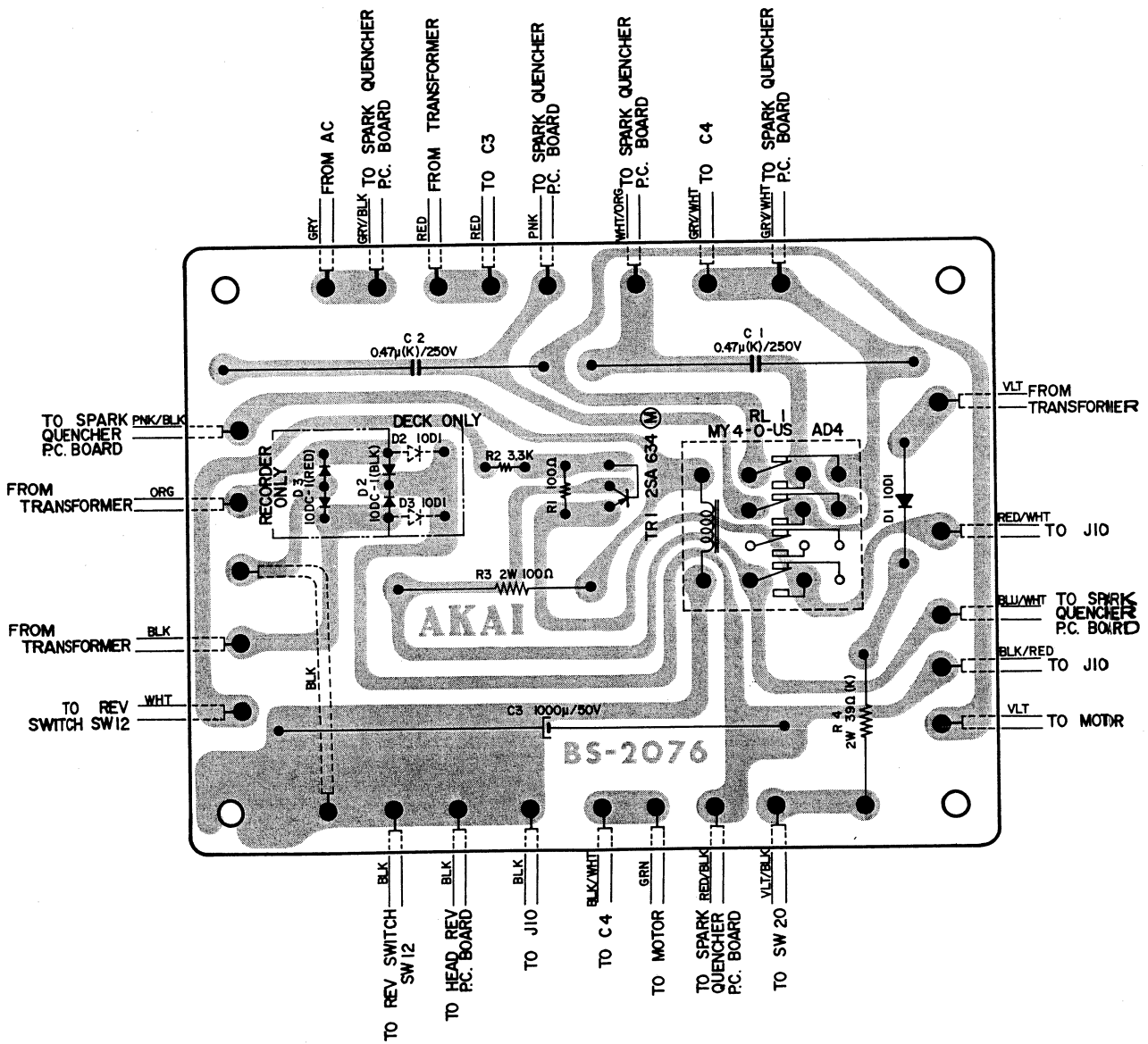
MUTE P.C. BOARD (BS-5037)



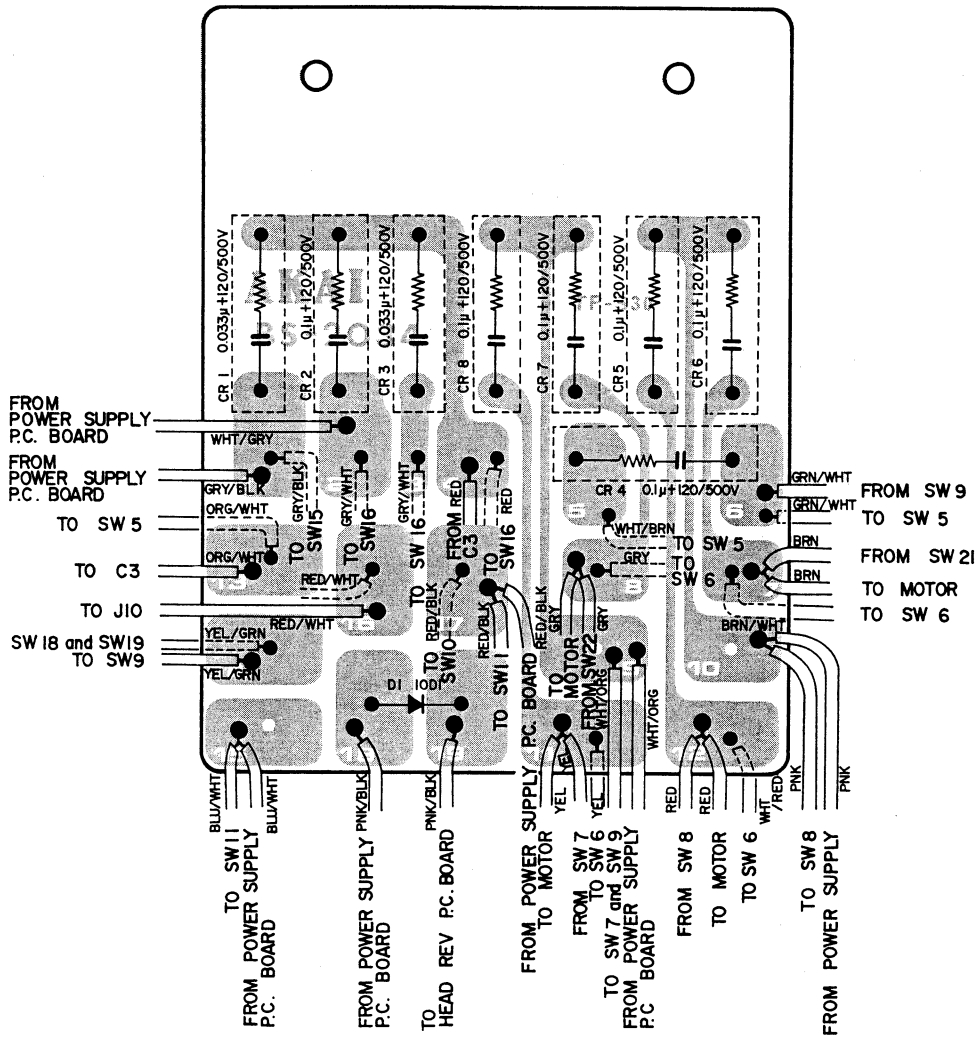
TRACK SELECTOR P.C. BOARD (BS-5006)



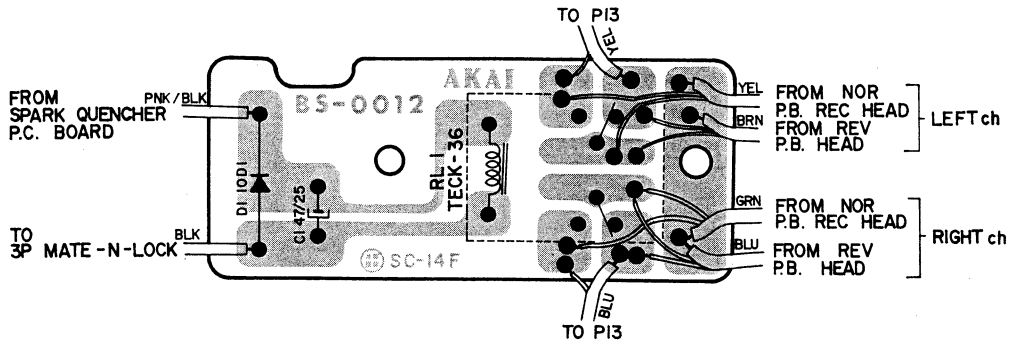
POWER SUPPLY P.C. BOARD (BS-2076)



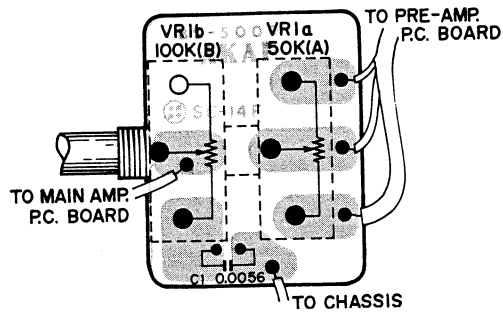
SPARK QUENCHER P.C. BOARD (BS-2034)



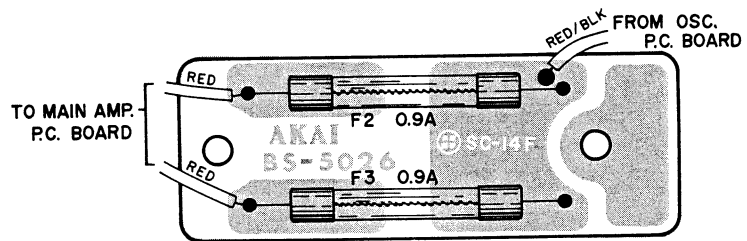
HEAD CHANGE P.C. BOARD (BS-0012)



VOLUME & TONE P.C. BOARD (BS-5009)



FUSE P.C. BOARD (BS-5026)



SECTION 2

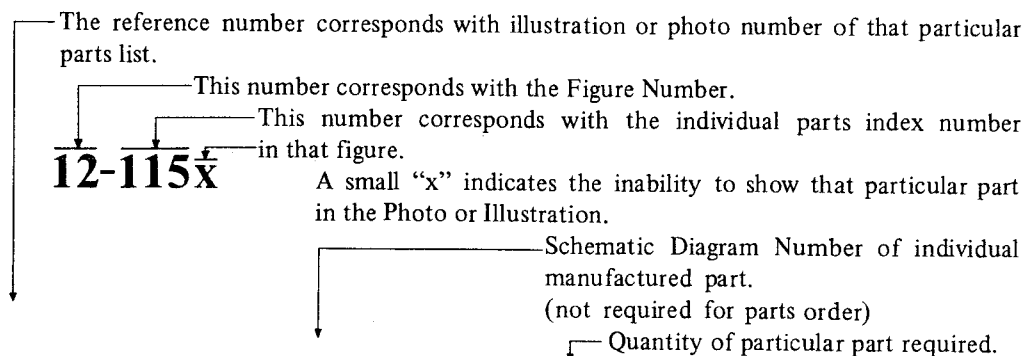
PARTS LIST

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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. 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 List 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.

ELECTRICAL PARTS LIST TABLE

Because the indication of resistors and capacitors in the P.C. Board photos are being eliminated, please confirm parts name and shape by comparing them with the parts shown in this table.

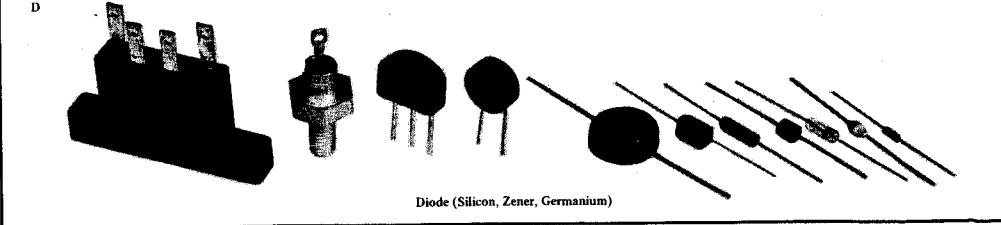
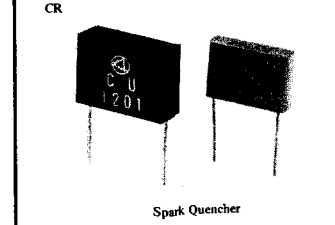
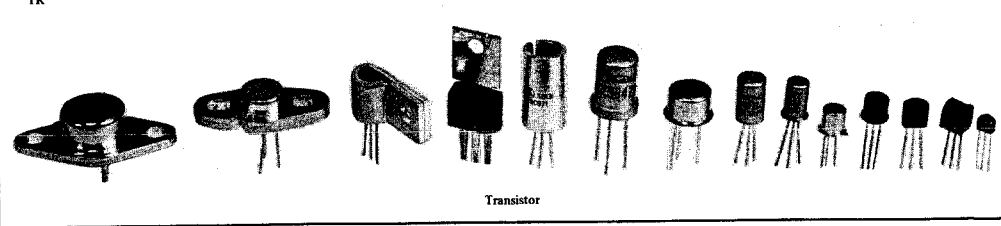
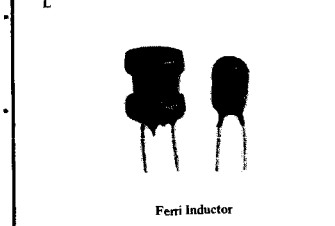
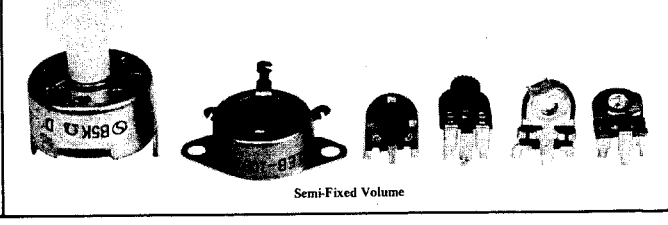
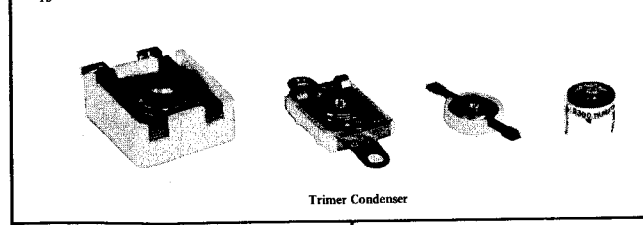
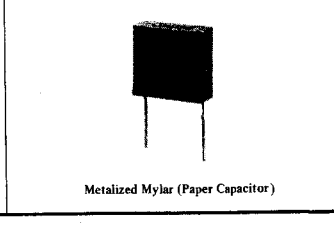
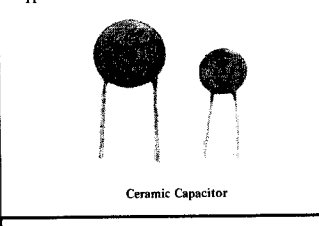
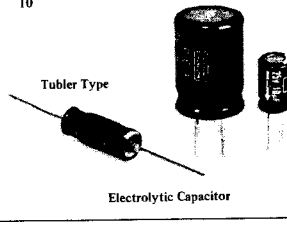
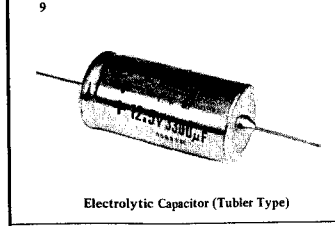
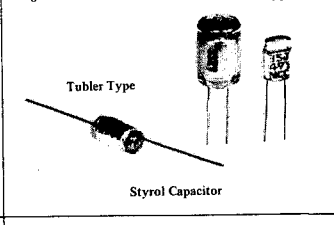
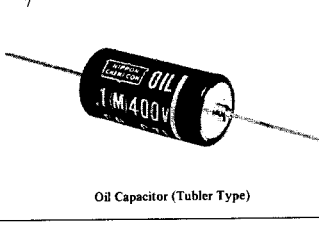
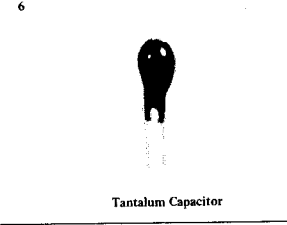
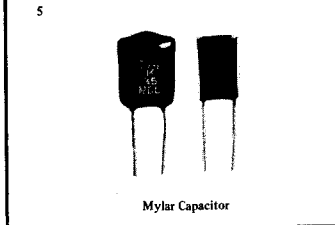
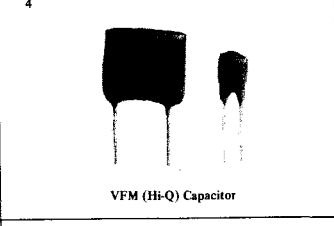
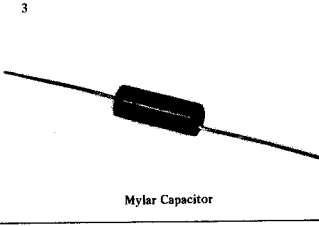
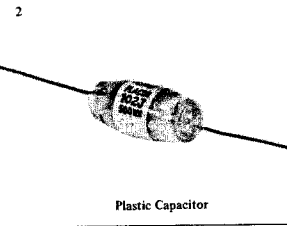
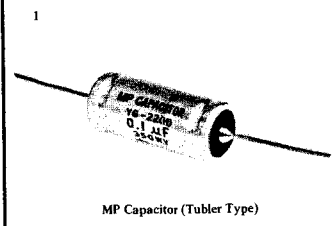
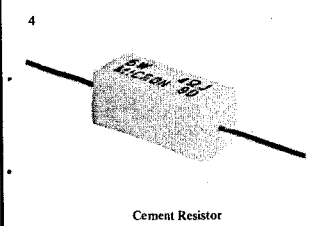
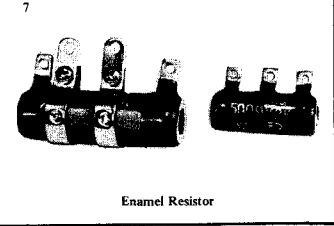
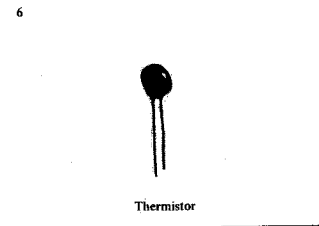
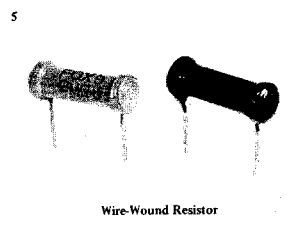
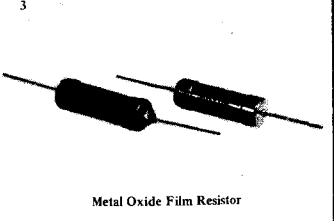
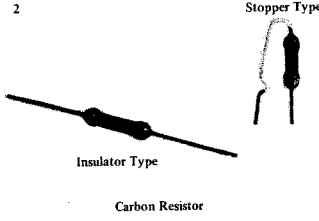
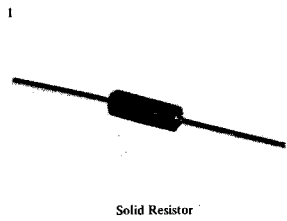
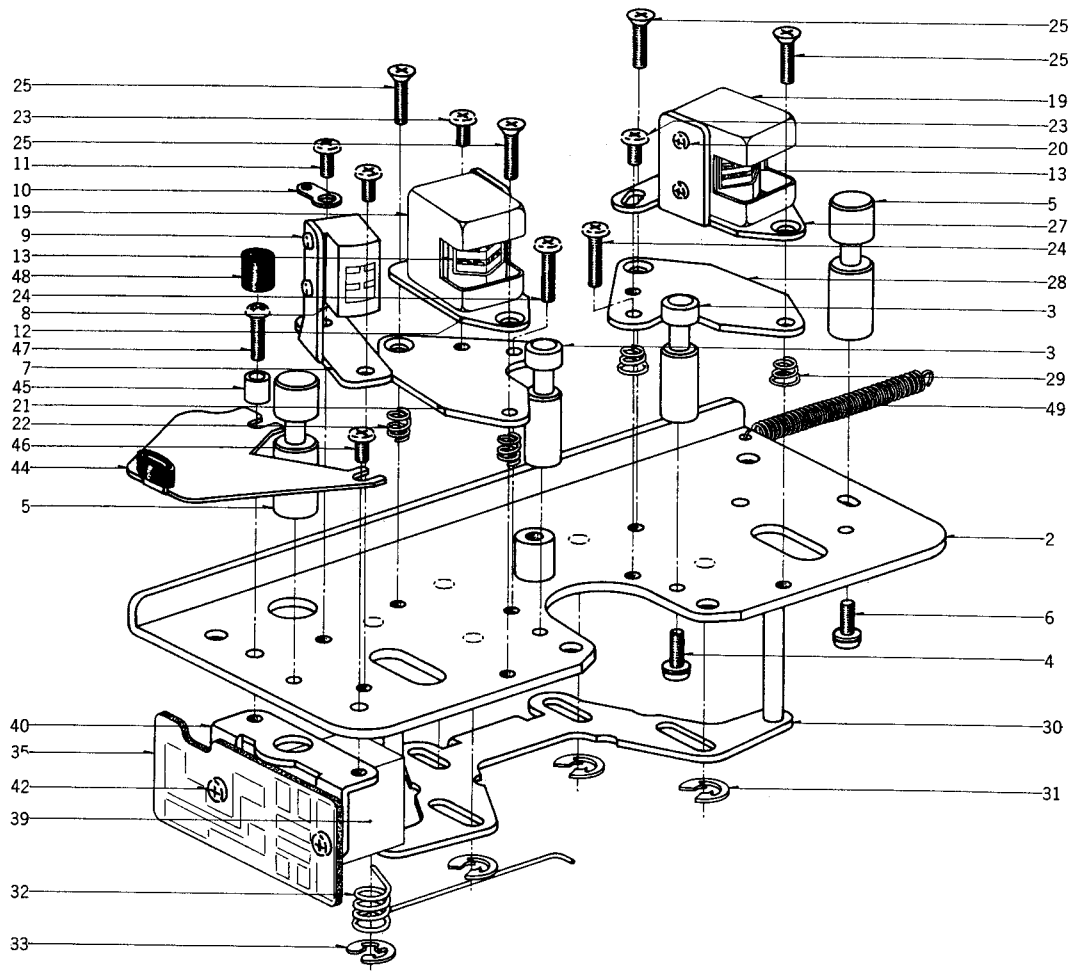


FIG. 1 ILLUSTRATION OF HEAD BLOCK



HEAD BLOCK

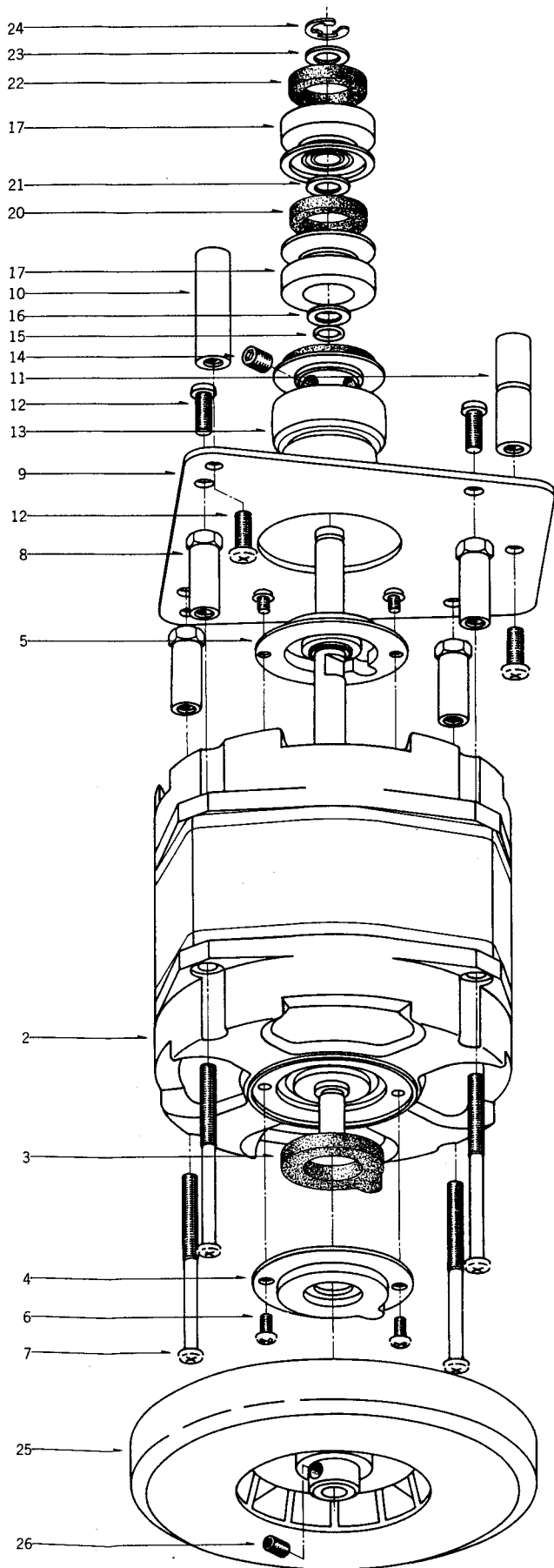
Ref. No.	Parts No.	Description	Schematic No.	Q'ty	Ref. No.	Parts No.	Description	Schematic No.	Q'ty
1-1x	BH451754	Head Block Assy. Comp.	BS	1	1-26x	EA463206	P.C. Board, Terminal A	RD-A36	4
1-2	HZ454410	Head Base	BS-0001	1	1-27	HZ454443	Head Angle (L)	BS-0004	1
1-3	HZ461542	Tape Guide Prop S	BS-0014	2	1-28	HZ454465	Adjust Table (R)	BS-0005	1
1-4	ZW417025	Screw, binding head 3x8, w/washer		2	1-29	ZG396538	Conic Spring	KD-0010	3
1-5	HZ425597	Tape Guide Prop C	MS-0011	2	1-30	MZ454498	Shifter Plate, w/pin	BS-0008	1
1-6	ZW417025	Screw, binding head 3x8, w/washer		2	1-31	ZW290283	"U" Ring 2.85M	6-1-1	4
1-7	HZ454487	EH Head Angle	BS-0007	1	1-32	ZG462734	Shifter Spring	BS-0016	1
1-8	HE412187	ERASE HEAD E4-250		1	1-33	ZW270134	"E" Ring 5M	6-1-9	1
1-9	ZW460438	Screw, binding head 2x3		2	1-34x	HZ460473	Relay Block Comp.	BS-0013	1
1-10	ZW273881	M4 Earth Lug		1	1-35	HZ454533	Head Change P.C. Board	BS-0012	1
1-11	ZW323728	Screw, binding head 3x5		2	1-36x	EP383321	Relay TECK-36 DC22V1000	47-2-20	1
1-12	HZ454454	Head Angle (R)	BS-0004	1	1-37x	ED224526	Silicon Diode 10D1	45-2-11	1
1-13	HP497261	REC./P.B. HEAD P4-201-MA		1	1-38x	EC220151	Elect./C. 100µF25WV (Vert. type)	24-12-9	1
1-14x	HP497272	REC./P.B. HEAD P4-201-MB		1	1-39	BC396764	Relay Shield Case	KD-0033	1
1-15x	HP497283	REC./P.B. HEAD P4-201-MC		1	1-40	HZ454511	Relay Holder	BS-0010	1
1-16x	HP497294	REC./P.B. HEAD P4-201-MD		1	1-41x	EA382713	Head Connector P.C. Board	RD-A8	1
1-17x	HP497305	REC./P.B. HEAD P4-201-ME		1	1-42	ZW413223	Screw, binding head 3x5, w/washer		2
1-18x	HP497316	REC./P.B. HEAD P4-201-MF		1	1-43x	HZ243191	Pin Contact 60511-1	52-1-1	1
1-19	HZ454476	Head Shield	BS-0006	2	1-44	HZ454522	Mask D	BS-0011	1
1-20	ZW460440	Screw, pan head 2x4		4	1-45	HZ245171	Brake Collar	XR-126	1
1-21	HZ451607	Adjust Table (L)	BS-0005	1	1-46	ZW323728	Screw, binding head 3x5		1
1-22	ZG206144	Angle Adjust Spring	RD-16	3	1-47	ZW417418	Screw, round head 3x10		1
1-23	ZW323728	Screw, binding head 3x5		2	1-48	HZ460462	Cushion Rubber (BS)	BS-1053	2
1-24	ZW413785	Screw, binding head 3x12		2	1-49	ZG453813	Cam Lever Spring	BS-1014	1
1-25	ZW419793	Screw, countersunk head 3x12		4					

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

FIG. 2 ILLUSTRATION OF MOTOR BLOCK

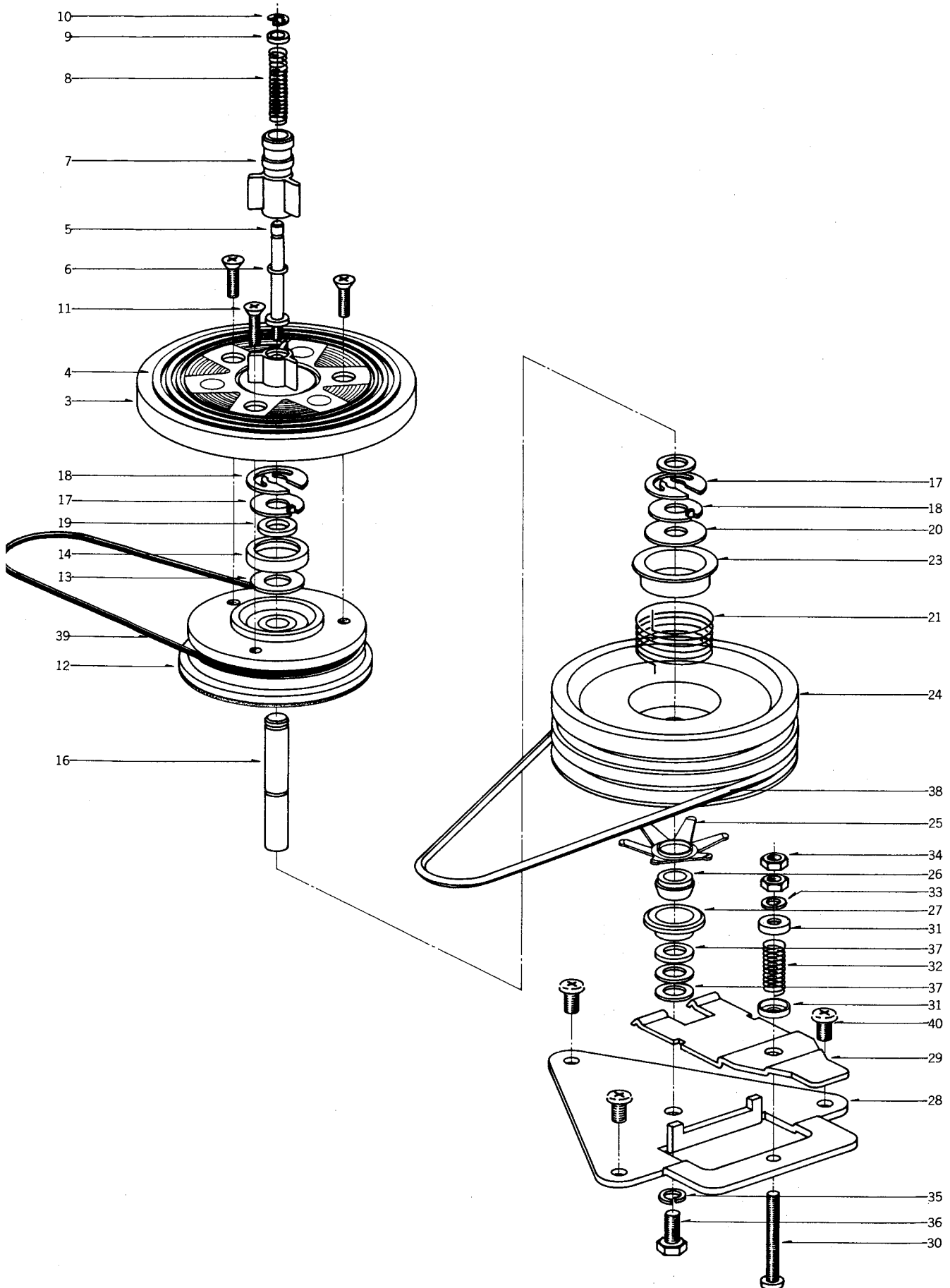
MOTOR BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
2-1x	BM451798	Motor Block Assy. Comp.	BS	1
2-2	MZ448222	24 Motor Hold Cover, w/metal	24X-781	2
2-3	MZ458605	Oil Felt E	BS-7032	1
2-4	ZW459156	48 Seal A	BS-7028	1
2-5	ZW459167	48 Seal B	BS-7029	1
2-6	ZW384131	Screw, round head 3x5		4
2-7	ZW427037	Screw, pan head 4x50, w/washer		4
2-8	MZ254316	24 Motor Prop B	24X-729	4
2-9	MZ450718	Motor Mt. Plate	BS-7011	1
2-10	MZ450707	Motor Prop A	BS-7012	2
2-11	MZ452125	Motor Prop B	BS-7018	1
2-12	ZW424056	Screw, pan head 4x10		7
2-13	MR450551	Motor Pulley, w/oil cut	BS-7001	1
2-14	ZW459033	Set Screw, hexagon socket 5x5 (cup)		3
2-15	ZW470968	"O" Ring D0.9x4.98t	BS-7042	1
2-16	ZW472320	Washer (Polyslider) D6.5x10.3x0.3t		1
2-17	MR470946	Clutch Pulley, w/bearing	BS-7040	2
2-18x	MR470946	Clutch Pulley	BS-7040	2
2-19x	MV470970	Bearing RC-040 708		2
2-20	UM470935	Clutch Felt D-1	BS-7019	1
2-21	ZW472320	Washer (Polyslider) D6.5x10.3x0.3t		1
2-22	UM483153	Clutch Felt D-2	BS-7039	1
2-23	ZW472320	Washer (Polyslider) D6.5x10.3x0.3t		3
2-24	ZW270134	"E" Ring 5M	6-1-9	1
2-25	SZ450720	Motor Fan, w/boss	BS-7015	1
2-26	ZW391476	Set Screw, hexagon socket 4x4 (cup)		1



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

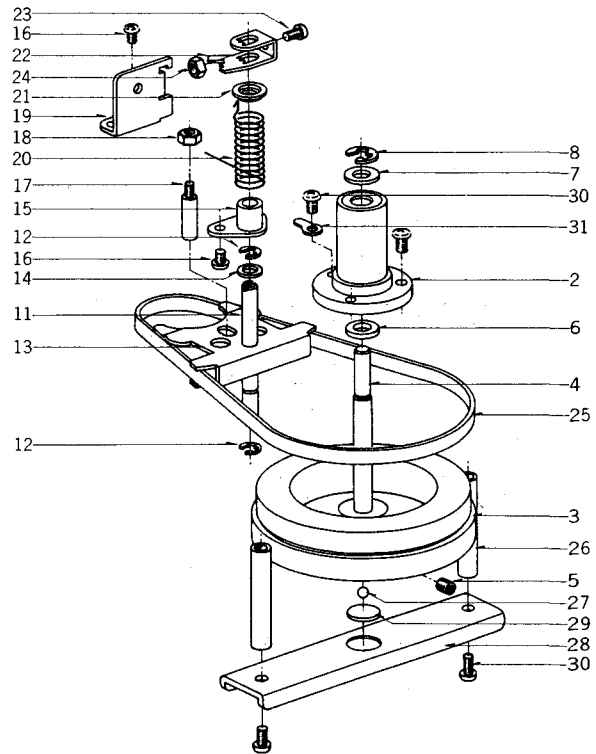
FIG. 3 ILLUSTRATION OF REEL TABLE BLOCK



REEL TABLE BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
3-1x	BR451800	Reel Table Block Assy. Comp. (Supply)	BS	1
3-2x	BR467717	Reel Table Block Assy. Comp. (Take-up)	BS	1
3-3	MT455760	Reel Table Disk	BS-2002	1
3-4	MT448773	BS Reel Table Rubber	BS-2001	1
3-5	MS255600	Reel Shaft B	XR-103	1
3-6	MT297663	3R "O" Ring 2.9x1.65M	3R-139	1
3-7	MT255420	Reel Retainer	3R-102	1
3-8	ZG255633	Reel Spring	3R-109	1
3-9	MT255565	Reel Shaft Ring	XR-177	1
3-10	ZW270088	"E" Ring 1.9M	6-1-9	1
3-11	ZW403222	Screw, countersunk head 3x10		3
3-12	MT455782	Reel Table, w/metal	BS-2017	1
3-13	MT448740	Thrust Plate	BS-2016	1
3-14	MT454667	Reel Metal Cap	BS-2013	1
3-15x	MT470428	Reel Friction Cloth	BS-2087	1
3-16	MS448727	Reel Shaft	BS-2010	1
3-17	ZW231693	Claw Thrust Washer (SUP) 0.25t	900-235	2
3-18	MT255870	Reel Table Thrust Retainer Pin	900-237	2
3-19	ZW462475	Washer (Nylon) D5.9x10x1t		1
3-20	ZW448784	Washer (Lumiler) 0.18t	BS-2014	1
3-21	ZG467774	Compression Spring B (Take-up)	BS-2018	1
3-22x	ZG454702	Compression Spring A (Supply)	BS-2018	1
3-23	MT448795	Spring Cap	BS-2015	1
3-24	MR455758	Reel Table Pulley, w/metal	BS-2003	1
3-25	MT449807	Reel Table Spring Plate D	M8-207	1
3-26	MT448806	Thrust Collar	BS-2075	1
3-27	MT448705	Thrust Sleeve	BS-2008	1
3-28	MT448716	Reel Table Frame	BS-2009	1
3-29	MT448738	Reel Table Lever	BS-2011	1
3-30	ZW414066	Screw, binding head 3x25		1
3-31	ZW448751	Spring Holder	BS-2012	2
3-32	ZG448762	Reel Table Spring	BS-2006	1
3-33	ZW273745	M3 Spring Washer		1
3-34	VM273756	M3 Nut		2
3-35	ZW273914	M4 Spring Washer		1
3-36	ZW472331	Hexagon Bolt 4x8		1
3-37	ZW462475	Washer (Nylon) D5.9x10x1t		2
3-38	MB454217	Reel Belt	BS-1011	1
3-39	MB369663	RCC Counter Belt	RCC-126	1
3-40	ZW419736	Screw, binding head 4x6		6

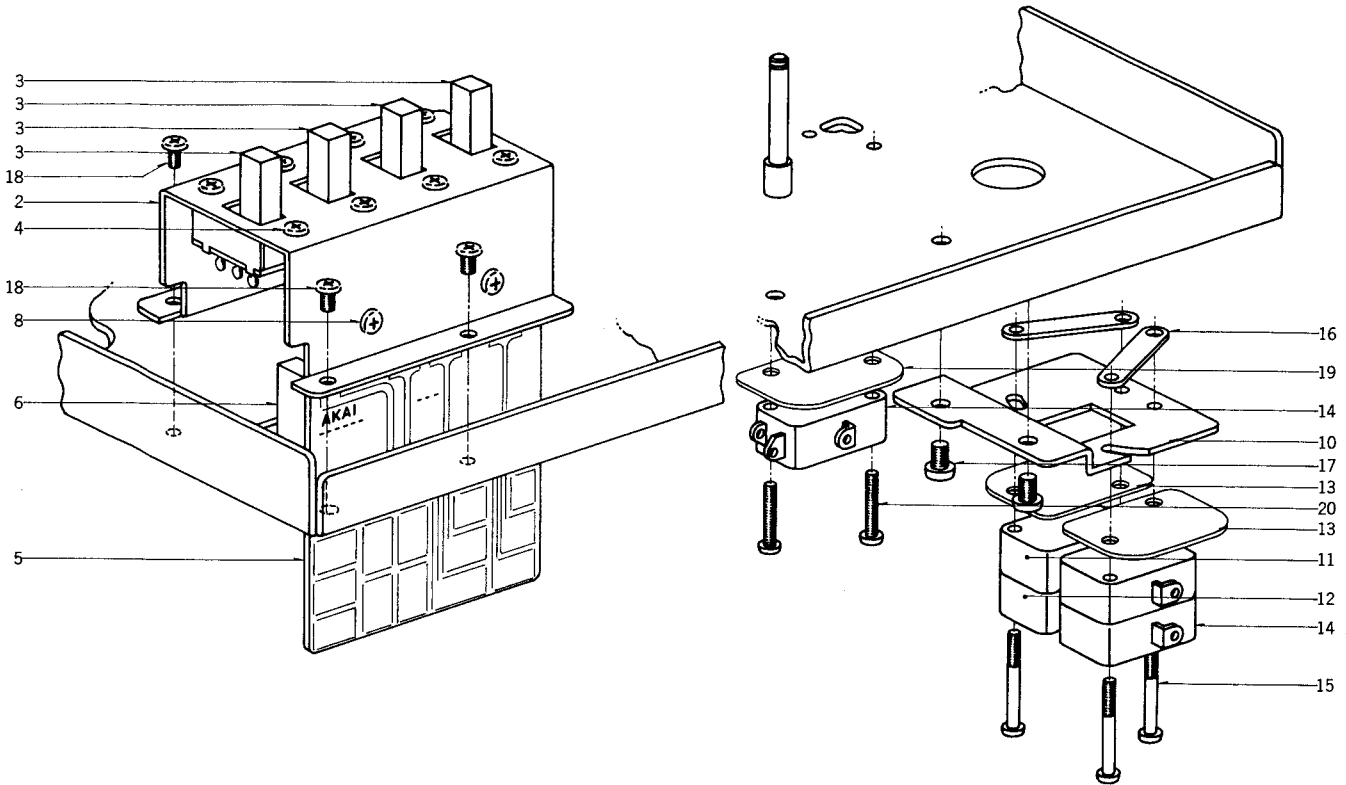
FIG. 4 ILLUSTRATION OF FLYWHEEL/BELT CHANGE BLOCK



FLYWHEEL/BELT CHANGE BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
FLYWHEEL BLOCK				
4-1x	BF451844	Flywheel Block Assy. Comp.	BS	1
4-2	BC455771	Main Case Comp.	BS-209	1
4-3	MI455747	Flywheel	BS-206	1
4-4	MS455736	Capstan Shaft	BS-204	1
4-5	ZW373577	Set Screw, hexagon socket 5x6 (flat)		2
4-6	MZ437804	Flywheel Thrust A D7.9x13x1t	10102	1
4-7	ZW260278	Washer (Nylon) D8.1x13x0.5t		1
4-8	ZW270156	"E" Ring 6M	6-1-9	1
4-9x	MF468821	Flywheel Felt	BS-205	1
BELT CHANGE BLOCK				
4-10x	BS451811	Belt Change Block Comp.	BS	1
4-11	MS448828	Cycle Change Shaft	BS-260	1
4-12	ZW290283	"U" Ring 2.85M	6-1-1	2
4-13	MZ448817	Cycle Change Bracket	BS-259	1
4-14	ZW260010	Washer (PBP) D6.1x10x0.1t		2
4-15	MZ448830	Cycle Metal Table, w/metal	BS-264	1
4-16	ZW323728	Screw, binding head 3x5		2
4-17	ZW454353	Stopper Pin	BS-108	1
4-18	VM273756	M3 Nut		1
4-19	MZ449820	Cycle Change Stopper	BS-263	1
4-20	ZG449831	Cycle Change Spring	BS-261	1
4-21	MZ454408	Spring Holder	BS-247	1
4-22	ML449818	Cycle Change Lever	BS-262	1
4-23	ZW435273	Screw, binding head 4x10		1
4-24	ZW413188	M4 Nut		1
4-25	MB238768	RD Drive Belt (flat) D120x1.6x7	RD-19	1
4-26	MA453756	Thrust Prop	BS-123	2
4-27	MV269965	Ball D4		1
4-28	MZ453767	Thrust Bracket	BS-122	1
4-29	ZW462205	Washer without hole (Nylon) D7.9x1t		1
4-30	ZW416687	Screw, binding head 4x8		5
4-31	ZW273881	M4 Earth Lug		1

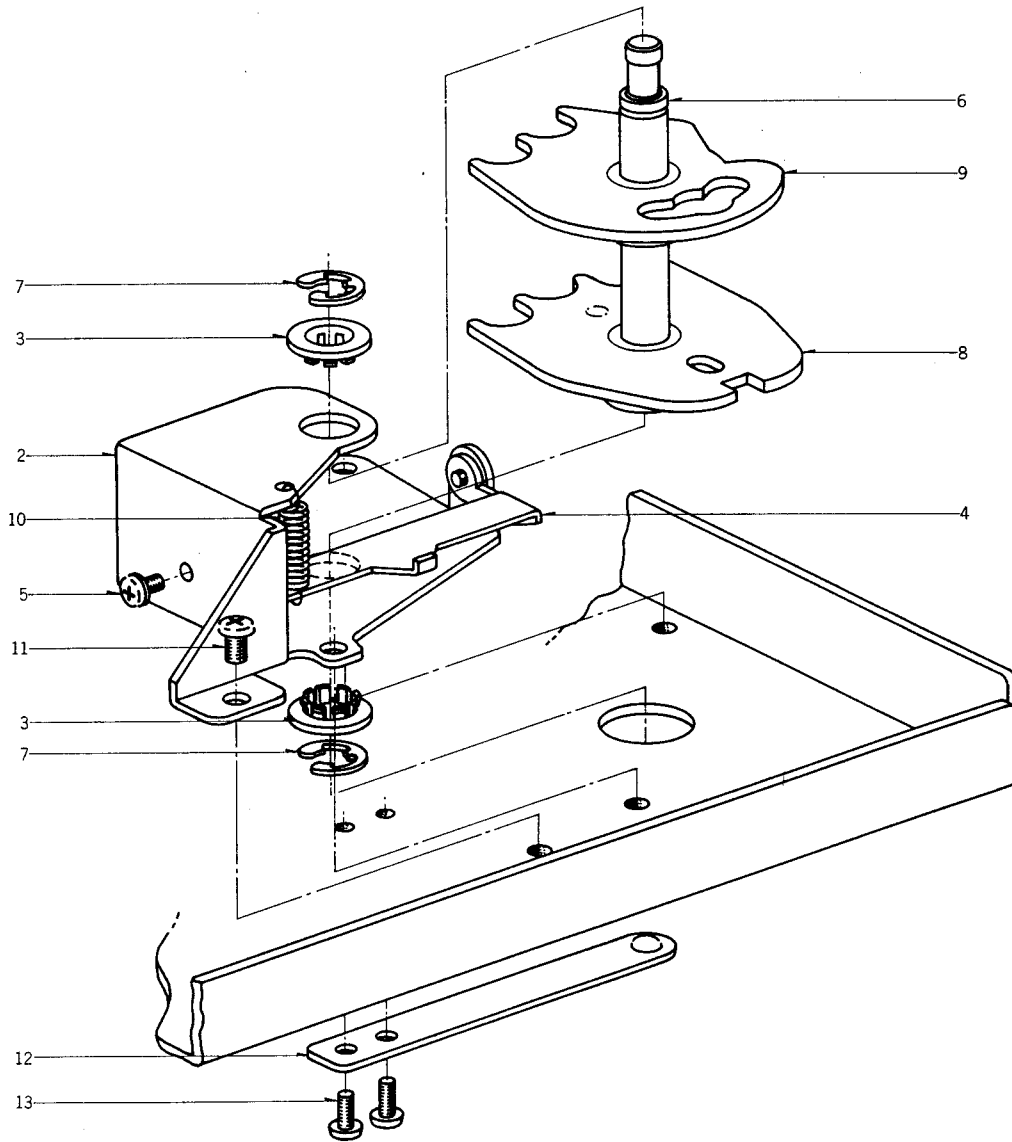
FIG. 5 ILLUSTRATION OF SWITCH TABLE BLOCK



SWITCH TABLE BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty	Ref. No.	Parts No.	Description	Schematic No.	Q'ty
5-1x	BS451787	Switch Table Block Assy. Comp.	BS	1	5-10	EZ475931	Switch Retaining Table	BS-2088	1
5-2	EZ454623	Switch Box	BS-2033	2	5-11	ES250064	Micro Switch V-1A44 U/L	25-1-7	1
5-3	ES479496	Slide Switch S-2	25-3-67	4	5-12	ES250075	Micro Switch V-1A10 U/L	25-1-8	1
5-4	ZW371856	Iso Screw, binding head 3x5		8	5-13	MZ250413	Micro Insulator C	RC-127	2
5-5	EA454612	Spark Quencher P.C. Board	BS-2034	1	5-14	ES438535	Micro Switch V-1A442 U/L	25-1-15	3
5-6	EA454612	Spark Quencher U/L 0.33μ+120 500WV	41-1-37	2	5-15	ZW486314	Screw, binding head 3x28		4
5-7x	ER376424	Spark Quencher U/L 0.1μ+120 500WV	41-1-36	6	5-16	ZW397146	Micro Switch Nut	KD-1057	2
5-8	ZW323728	Screw, binding head 3x5		2	5-17	ZW419736	Screw, binding head 4x6		2
5-9x	VM273756	M3 Nut		2	5-18	ZW413155	Screw, binding head 3x6		5
					5-19	MZ250413	Micro Insulator C	RC-127	1
					5-20	ZW417148	Screw, binding head 3x15		2

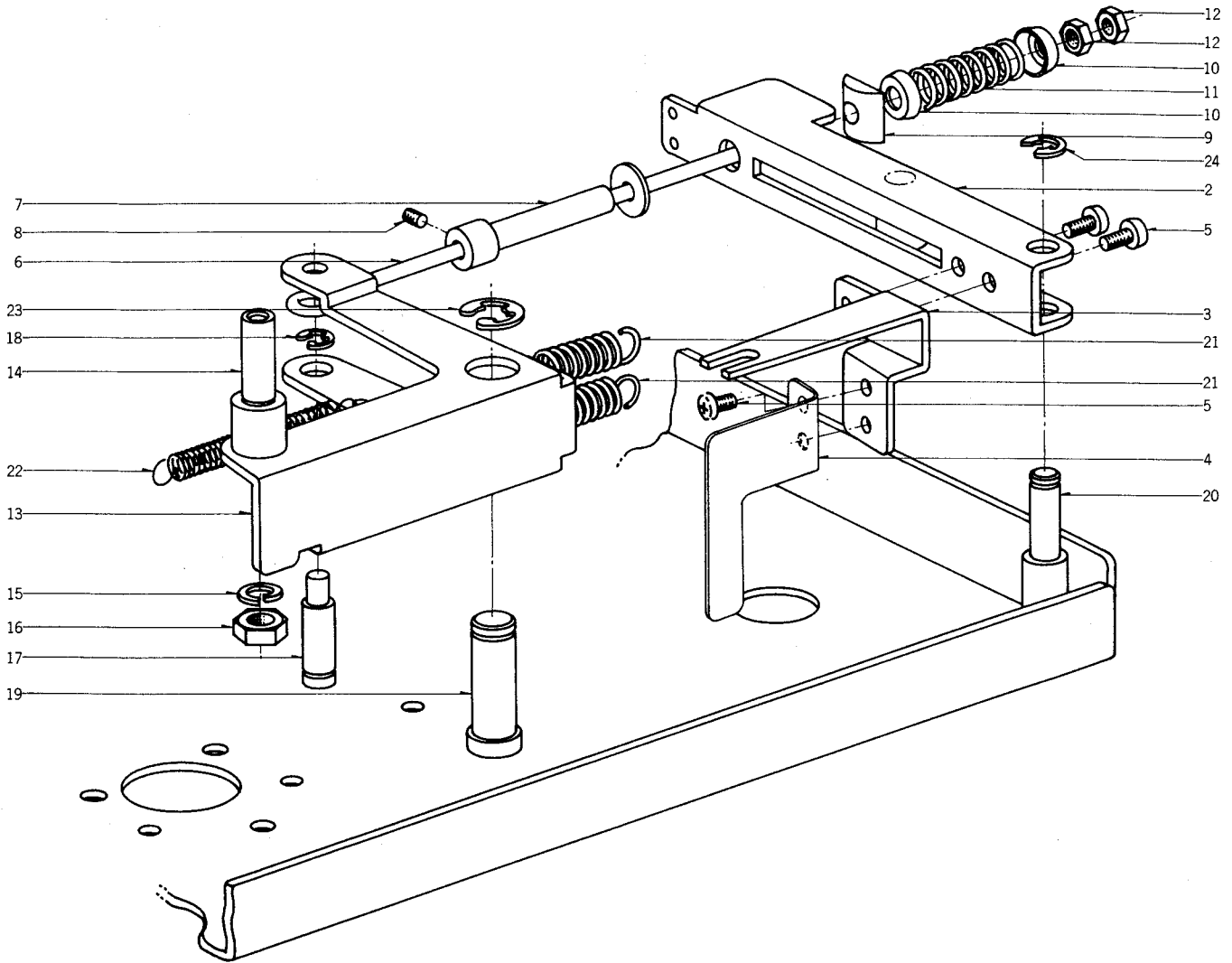
FIG. 6 ILLUSTRATION OF OPERATION CAM BLOCK



OPERATION CAM BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
6-1x	BZ451822	Operation Cam Block Assy. Comp.	BS	1
6-2	MZ449122	Cam Shaft Holder	BS-2051	1
6-3	MZ449133	Bearing	BS-2052	2
6-4	MZ449177	Lock Plate	BS-2057	1
6-5	ZW413223	Screw, binding head 3x5, w/washer		2
6-6	MS449188	Cam Shaft	BS-2058	1
6-7	ZW270156	"E" Ring 6M	6-1-9	2
6-8	MZ449166	Fast Cam, w/metal	BS-2055	1
6-9	MZ449144	Play Cam, w/metal	BS-2053	1
6-10	ZG385986	Safety Lever Return Spring	CS-2539	1
6-11	ZW419736	Screw, binding head 4x6		3
6-12	ZG454116	Reset Spring	BS-1045	1
6-13	ZW413155	Screw, binding head 3x6		2
6-14x	ZW424495	Washer (SPC) D3.1x8x1t		1

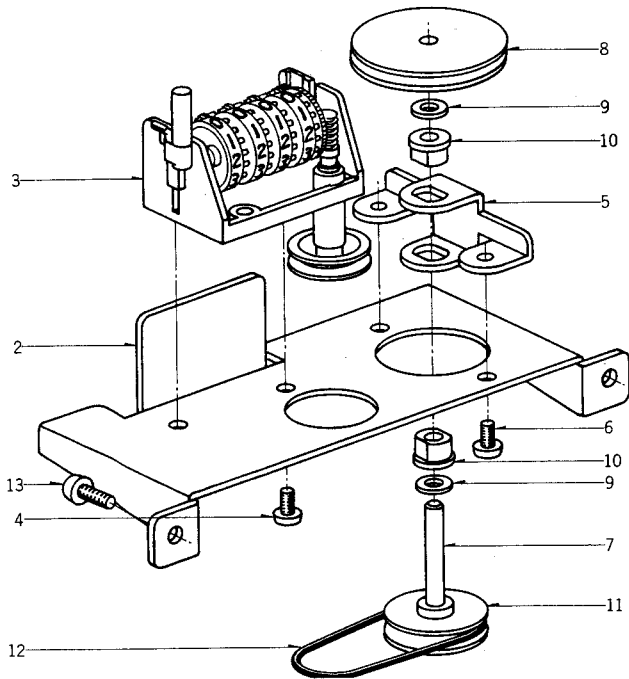
FIG. 7 ILLUSTRATION OF PINCH ROLLER LEVER BLOCK



PINCH ROLLER LEVER BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty	Ref. No.	Parts No.	Description	Schematic No.	Q'ty
7-1x	BL451776	Pinch Roller Lever Block Assy. Comp.	BS	1	7-13	ML454588	Pinch Roller Arm	BS-2048	1
7-2	ML454015	Cam Lever A, w/roller	BS-2040	1	7-14	MS454601	Pinch Roller Shaft	BS-2050	1
7-3	MZ454050	Branch	BS-2038	1	7-15	ZW274026	M5 Spring Washer		1
7-4	ZG454048	Plate Spring	BS-2039	1	7-16	ZW413278	M5 Nut		1
7-5	ZW323728	Screw, binding head 3x5		4	7-17	MZ454590	Joint Pin	BS-2049	1
7-6	MZ454577	Joint	BS-2043	1	7-18	ZW290283	"U" Ring 2.85M	6-1-1	1
7-7	MZ454061	Spring Retainer	BS-2044	1	7-19	MS453791	Pinch Roller Arm Shaft	BS-1017	1
7-8	ZW356804	Set Screw, hexagon socket 3x4 (cup)		1	7-20	MS454004	Cam Lever Shaft	BS-1019	1
7-9	MZ454072	End Tip	BS-2045	1	7-21	ZG453960	Click Spring	BS-1013	2
7-10	MZ802980	Spring Holder	RD-276	2	7-22	ZG453813	Cam Lever Spring	BS-1014	1
7-11	ZG454083	Cramp Spring	BS-2046	1	7-23	ZW270156	"E" Ring 6M	6-1-9	1
7-12	VM273756	M3 Nut		2	7-24	ZW290283	"U" Ring 2.85M	6-1-1	1

**FIG. 8 ILLUSTRATION OF
COUNTER BASE BLOCK**



COUNTER BASE BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
8-1 x	BZ451833	Counter Base Block Assy. Comp.	BS	1
8-2	MZ449190	Counter Base	BS-2028	1
8-3	MC454768	Counter MP-491-01	9-1-20	1
8-4	ZW371856	Iso Screw, binding head 3x5		2
8-5	MZ449201	Middle Pulley Table	BS-2029	1
8-6	ZW323728	Screw, binding head 3x5		2
8-7	MS449234	Pulley Shaft	BS-2032	1
8-8	MR449223	Middle Pulley B	BS-2031	1
8-9	ZW259773	Washer (Nylon) D4.1x7x0.5t		2
8-10	UM385672	Reduction Pulley Metal	CS-2508	2
8-11	MR449212	Middle Pulley A	BS-2030	1
8-12	MB454184	Counter Belt	BS-1050	1
8-13	ZW447840	Tapping Screw #2 3x8 (BR)		2

MECHANISM ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty	Ref. No.	Parts No.	Description	Schematic No.	Q'ty
SENSING ARM BLOCK									
9-1x	BL451765	Sensing Arm Block Assy. Comp.	BS	1	9-64x	ZW330445	Adjust Washer (U) D4x13x0.8t		2
9-2	ML454555	Sensing Arm	BS-1041	1	9-65x	ZW330456	Adjust Washer (U) D4x13x1t		1
9-3x	HZ468281	Sensing Insulator Paper	BS-2086	1	9-66	ML453982	Fast Lever	BS-1047	1
9-4x	ZW462071	Screw, countersunk head 2.3x20		1	9-67	ZW290283	"U" Ring 2.85M	6-1-1	4
9-5	HZ317632	Insulator Collar A	MR-36	2	9-68	ML453936	Click Arm, w/roller	BS-1038	2
9-6	ZW273778	M3 Earth Lug		1	9-69x	ZG453960	Click Spring	BS-1013	2
9-7	HZ317643	Sensing Collar B	MR-35	1	9-70x	ZG453813	Cam Lever Spring	BS-1014	1
9-8	MZ454566	Sensing Top	BS-1042	1	9-71	BL454105	RL Lever, w/pin	BS-1005	1
9-9	MS453925	Shaft C	BS-1043	1	9-72	ZW323728	Screw, binding head 3x5		2
9-10	ZG453892	Sensing Arm Spring	BS-1012	1	9-73	MZ466334	Rotary Joint A	BS-1059	1
9-11	ZW290283	"U" Ring 2.85M	6-1-1	1	9-74	ZG466345	Rotary Spring	BS-1060	2
ROTARY BLOCK									
9-12x	BZ467368	Rotary Block Assy. Comp.	BS	1	9-75	ZG433383	Shifter Spring B	KD-A1008	1
9-13	ML466918	Brake Angle, w/pin	BS-2080	1	9-76	EJ255093	Lug Plate VB1L1	33-4-1	1
9-14	ML466920	Rotary Plate	BS-2081	1	9-77	ER488024	Metal Oxide Film/R. 1W330 (K)	35-15-10	1
9-15	MZ466356	Rotary Joint B	BS-2078	1	9-78	ZW413155	Screw, binding head 3x6		1
9-16	MZ466367	Rotary Joint C	BS-2078	1	9-79x	MB369663	RCC Counter Belt	RCC-126	1
9-17	ZW290283	"U" Ring 2.85M	6-1-1	1	9-80	ES449717	Leaf SW. 1SC-1A-6	25-10-9	1
9-18	ML466378	Rotary Lever, w/pin	BS-2079	1	9-81	ZW417137	Screw, binding head 3x4		1
9-19	ZW376380	Washer (Polyslider) D5.1x10.3x0.13t		1	9-82	ES454680	Leaf SW. LSA-1139	25-10-11	1
9-20	ZW314717	MR Graduated Screw	MR-254	1	9-83	ZW413155	Screw, binding head 3x6		1
9-21	VM273756	M3 Nut		1	9-84x	MZ453868	Reverse SW. Comp.	BS-2070	1
MECHANISM ASSEMBLY BLOCK									
9-22	MZ453701	Mech. Frame, w/shaft	BS-1001	1	9-85	MZ453870	Reverse SW. Base	BS-1021	1
9-23	MZ453835	Shut-off Lever Pin	BS-1006	1	9-86	ES373533	Push SW. (non lock)	25-5-25	1
9-24x	VM273756	M3 Nut		1	9-87x	ZW432843	Screw, pan head 2.6x4		1
9-25	MA453857	Head Base Prop	BS-1010	4	9-88x	MZ396988	Camouflage Cloth B	KD-1022	1
9-26x	ZW416687	Screw, binding head 4x8		4	9-89	SK436252	Knob B, w/bushes	KF-2019	1
9-27	MS453914	Lever Prop B	BS-1048	2	9-90	ZW413155	Screw, binding head 3x6		2
9-28x	ZW413188	M4 Nut		4	9-91	ZW270123	"E" Ring 4M	6-1-9	1
9-29	MA453971	Fast Pin	BS-1018	1	9-92	ML454331	BS Lever J	BS-1015	1
9-30	MS454004	Cam Lever Shaft	BS-1019	1	9-93	ML454320	BS Lever H	BS-1036	1
9-31x	ZW274026	M5 Spring Washer		1	9-94x	MZ454151	Brake Pad A	BS-1034	2
9-32x	ZW413278	M5 Nut		1	9-95	ML454140	BS Lever L	BS-1037	1
9-33	MS453925	Shaft C	BS-1043	1	9-96x	MZ454162	Brake Pad B	BS-1035	2
9-34	MA454318	Lever Prop A	BS-1009	2	9-97	ZW425981	Screw, binding head 3x3		2
9-35	MZ461114	Panel Support Plate	BS-1052	1	9-98	ZW273881	M4 Earth Lug		2
9-36x	MZ461046	Panel Cushion	BS-1051	1	9-99	ZW290283	"U" Ring 2.85M	6-1-1	2
9-37	ZW447772	Tapping Screw 3x6 (BR)		1	9-100	ML454307	BS Lever G	BS-1036	1
9-38	MZ453903	Panel Support	BS-1007	1	9-101	ML454138	BS Lever K	BS-1037	1
9-39x	ZW413785	Screw, binding head 3x12		1	9-102	ZG227452	Spring D	900-118	2
9-40	ML454228	BS Lever A, w/pin	BS-1026	1	9-103	ZW805274	Micro SW. Washer B	RD-208	1
9-41	ML454241	BS Lever B	BS-1028	2	9-104	MZ402377	Micro Insulator D	KD-2050	1
9-42	ZW323728	Screw, binding head 3x5		9	9-105	ES403727	Micro SW. V-1A106 U/L	25-1-20	3
9-43	ML454252	BS Lever C	BS-1029	1	9-106	ZW462216	Screw, round head 3x35		2
9-44	ML454263	BS Lever D	BS-1029	1	9-107	ZW413155	Screw, binding head 3x6		2
9-45	ML454173	Adjustor, w/pin	BS-1030	1	9-108x	ZG453813	Cam Lever Spring	BS-1014	1
9-46	ZW397157	Graduated Washer	KD-1036	1	9-109	ML453824	Shut-off Lever	BS-1044	1
9-47	ZW413741	Screw, binding head 3x8		1	9-110x	ZG454116	Reset Spring	BS-1045	1
9-48	ZW273767	Earth Lug D3x20L		1	9-111	MS453791	Pinch Roller Arm Shaft	BS-1017	1
9-49	ML454386	Shifter Lever A	BS-1049	1	9-112x	MP275984	RD Pinch Roller	RD-231	1
9-50	ML454397	Shifter Lever B	BS-1063	1	9-113x	MZ462903	Nylon Clip HP-11N		1
9-51x	ZW290283	"U" Ring 2.85M	6-1-1	2	9-114x	MC488485	3P Mate-N-Lock Cap Comp. (BS)	BS-1062	1
9-52	ML454274	Lever Support	BS-1031	2					
9-53	ML454285	BS Lever E	BS-1032	1					
9-54	ZW466323	Connecting Pin	BS-1058	2					
9-55	ZW259514	Washer D3.1x8x1t		2					
9-56	ML466086	Brake Adjusting Plate	BS-2082	2					
9-57	ZW425114	Screw, round head 3x10		4					
9-58	VM273756	M3 Nut		4					
9-59	ZW270088	"E" Ring 1.9M	6-1-9	2					
9-60	ZW323728	Screw, binding head 3x5		4					
9-61	ML454296	BS Lever F	BS-1033	1					
9-62x	ZW330412	Adjust Washer (U) D4x13x0.13t		2					
9-63x	ZW330423	Adjust Washer (U) D4x13x0.25t		2					

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

FIG. 9 ILLUSTRATION OF MECHANISM ASSEMBLY BLOCK

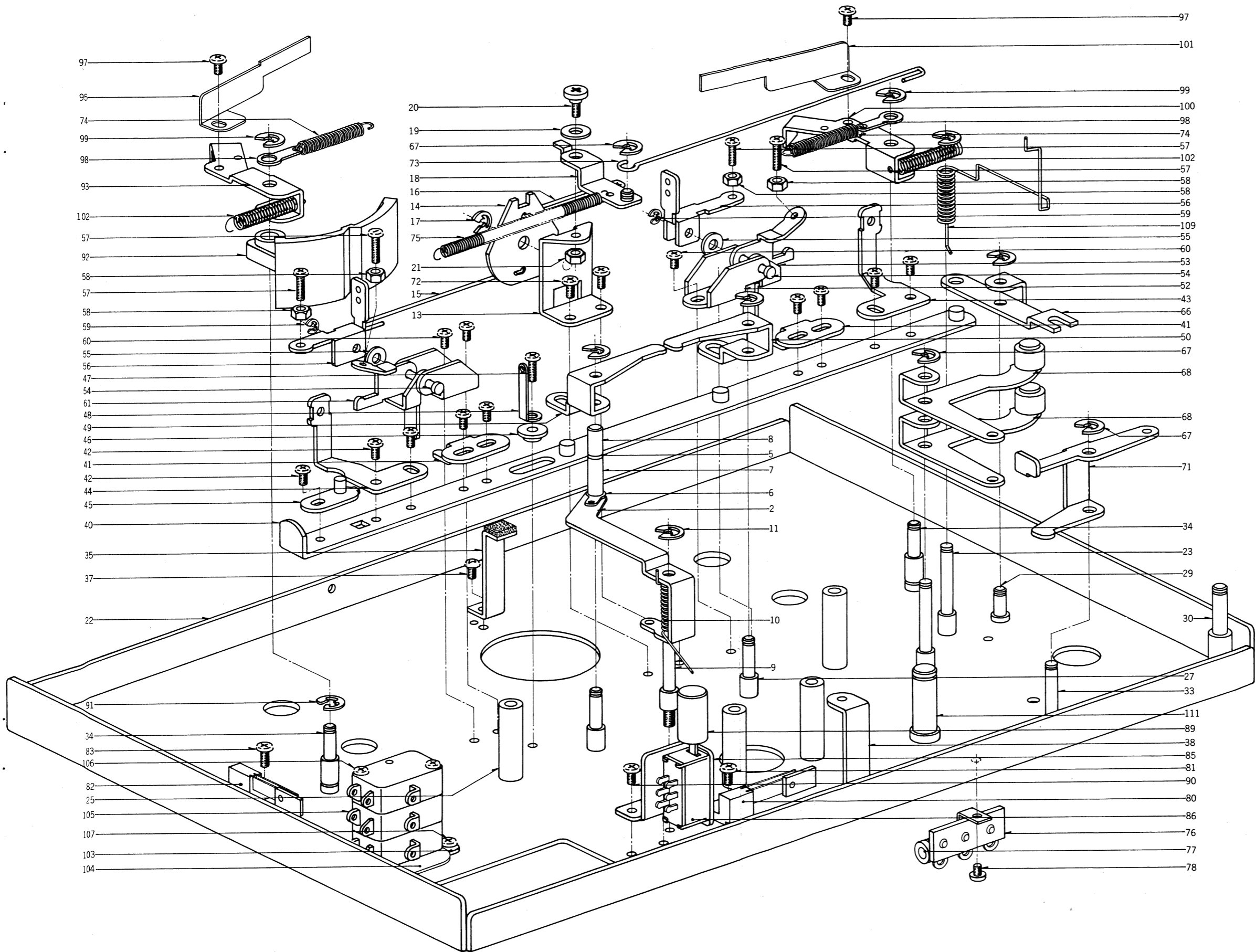
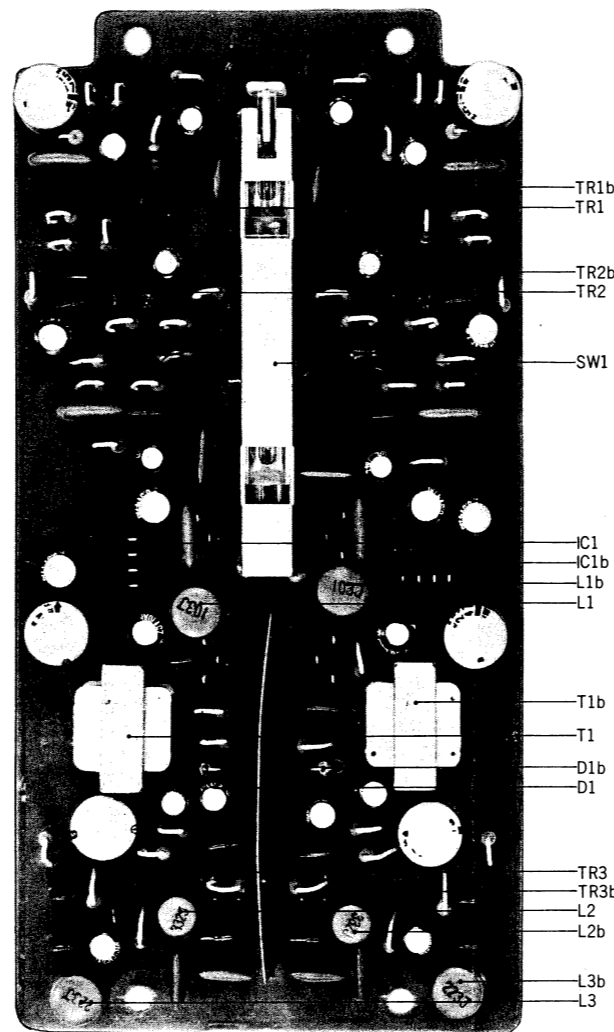


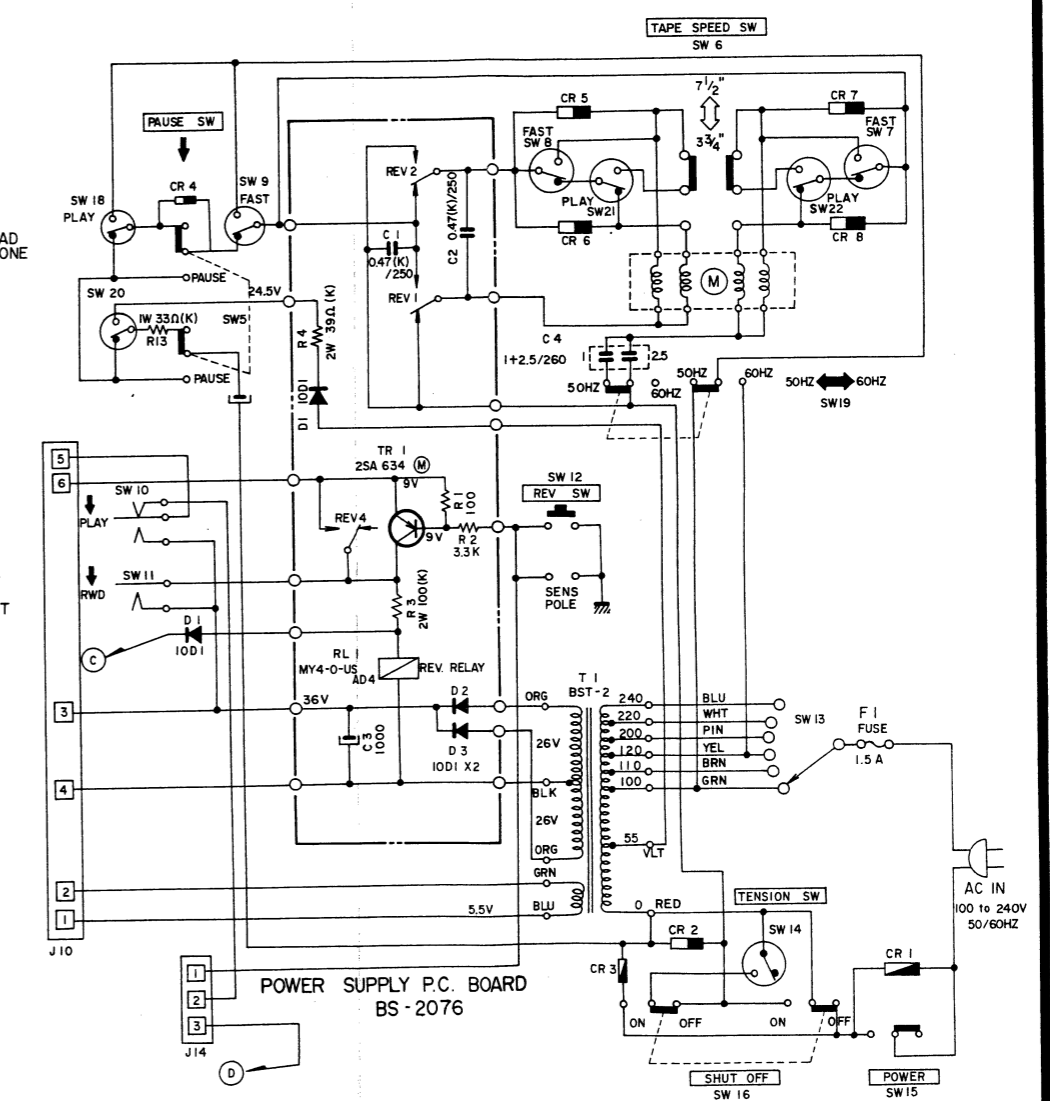
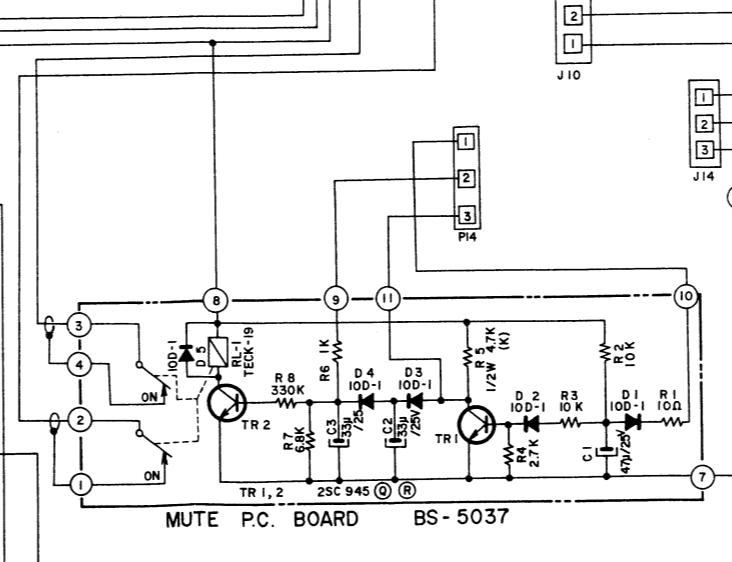
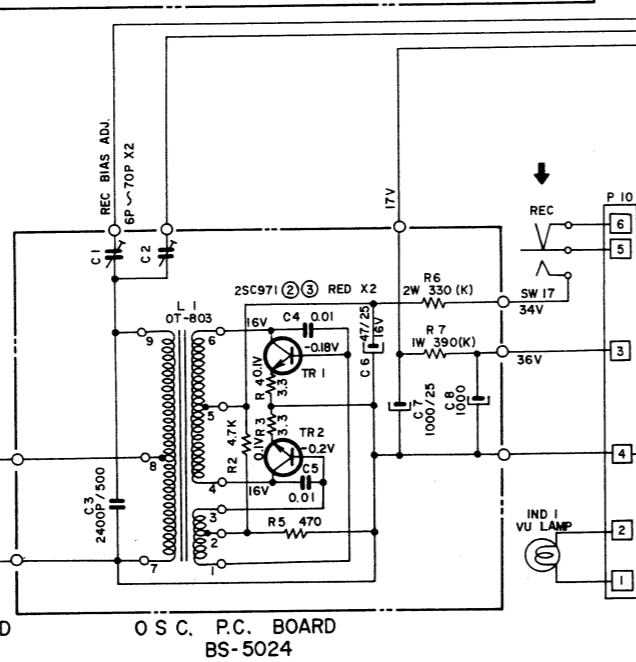
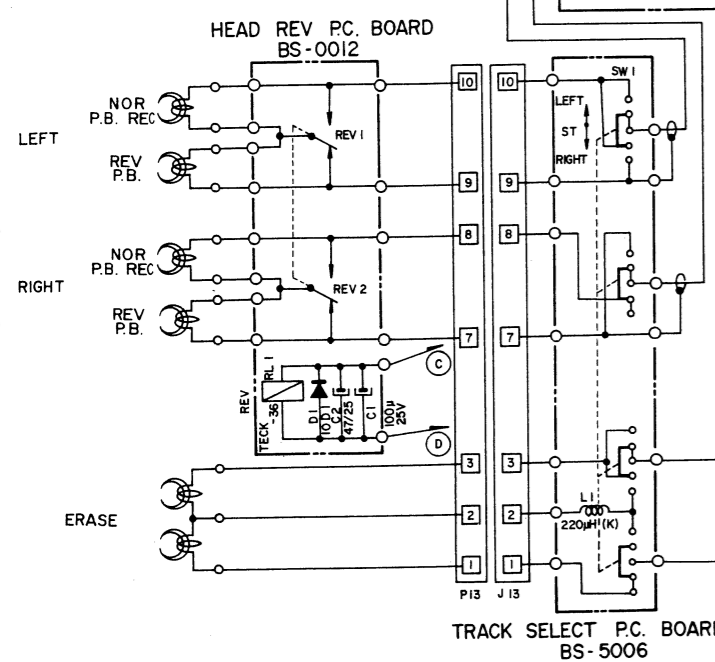
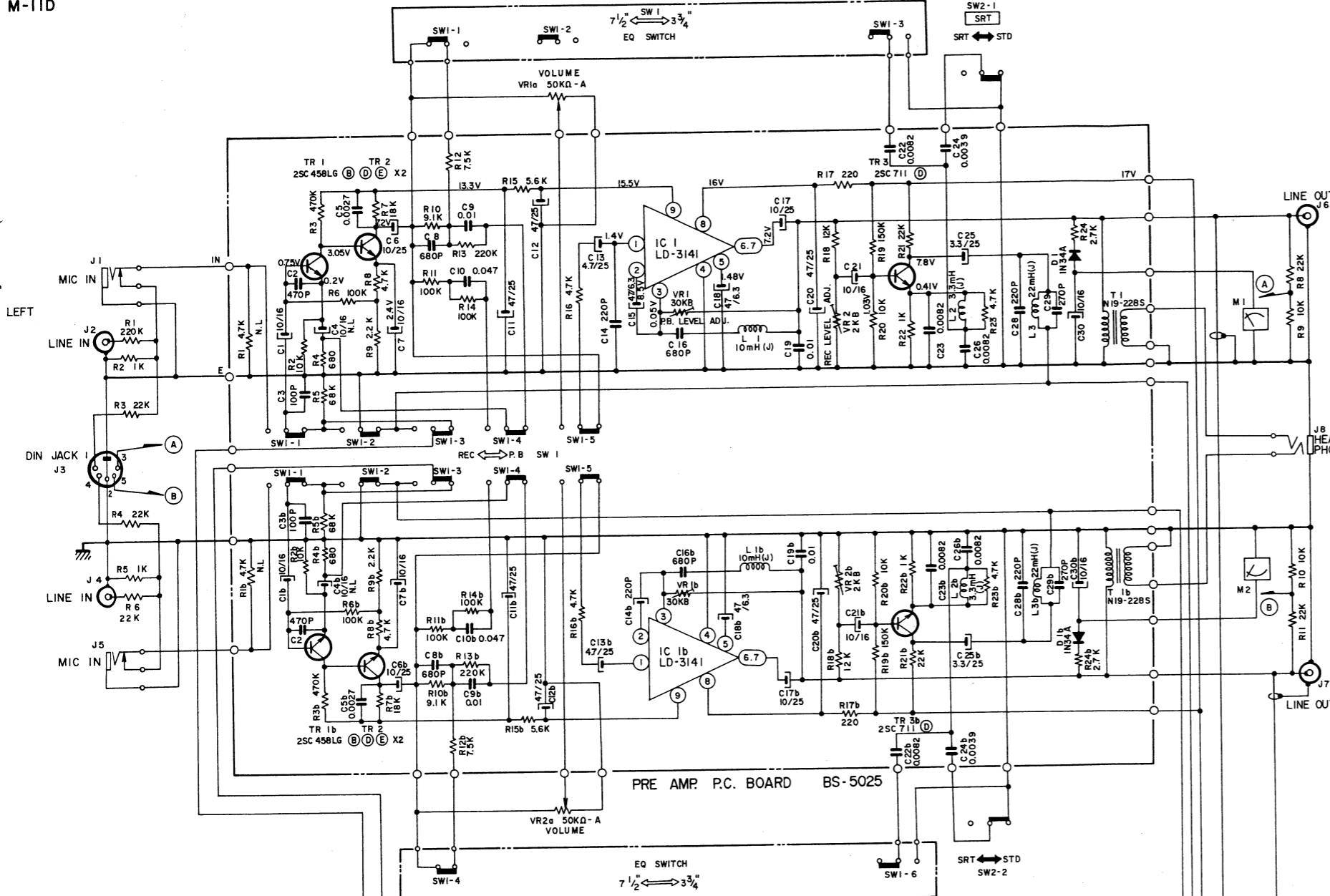
FIG. 10 PHOTO OF
PRE-AMP. P.C. BOARD (BS-5025)



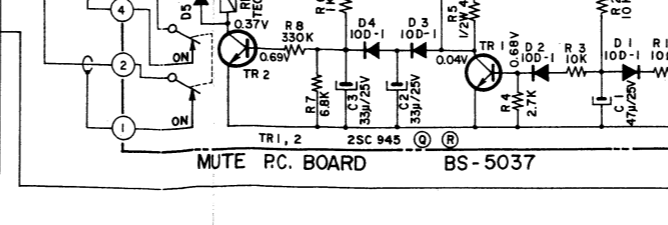
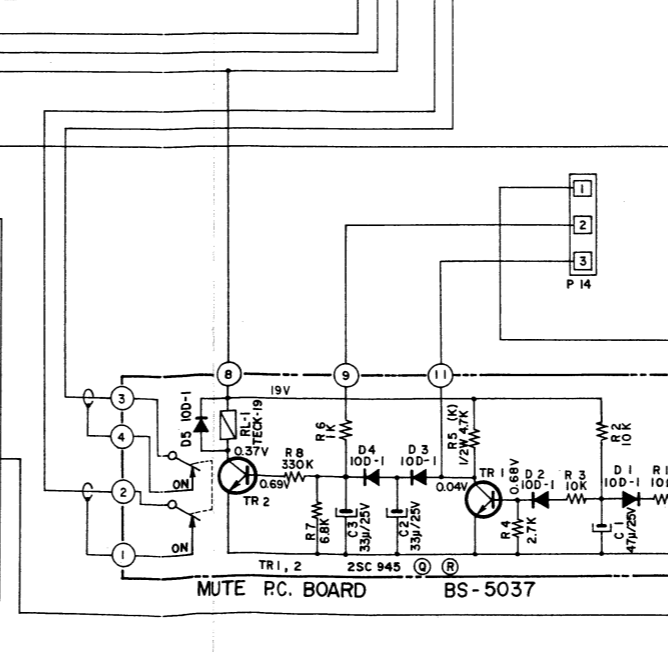
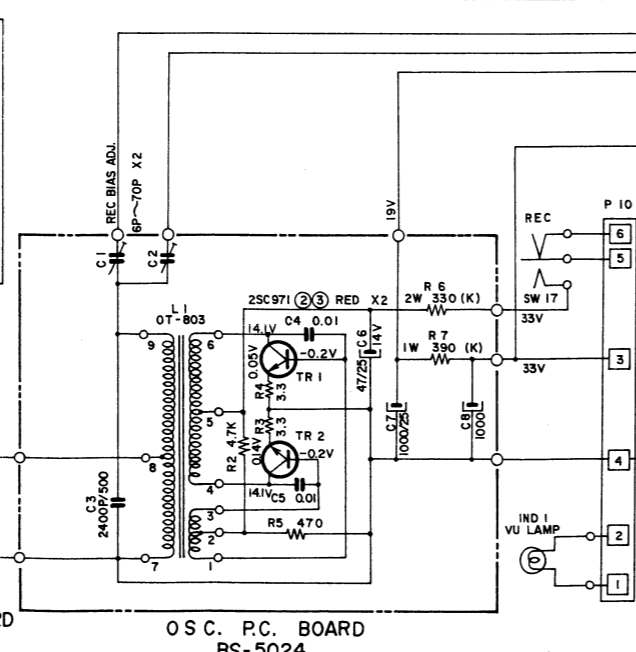
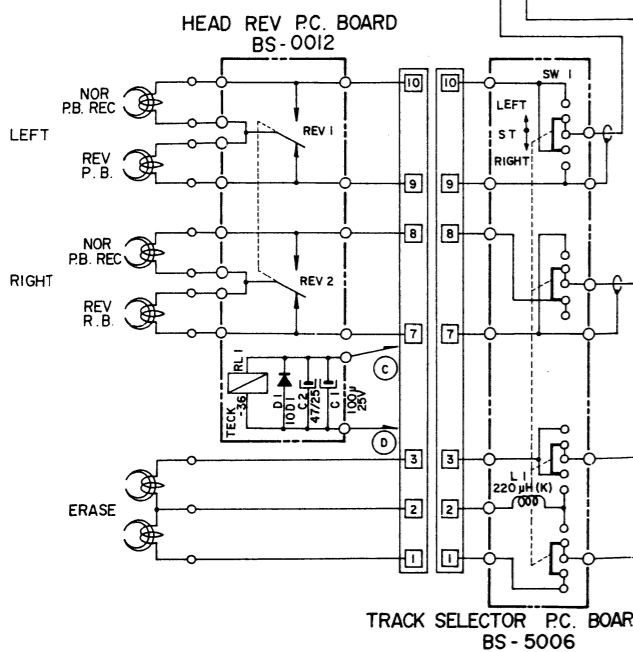
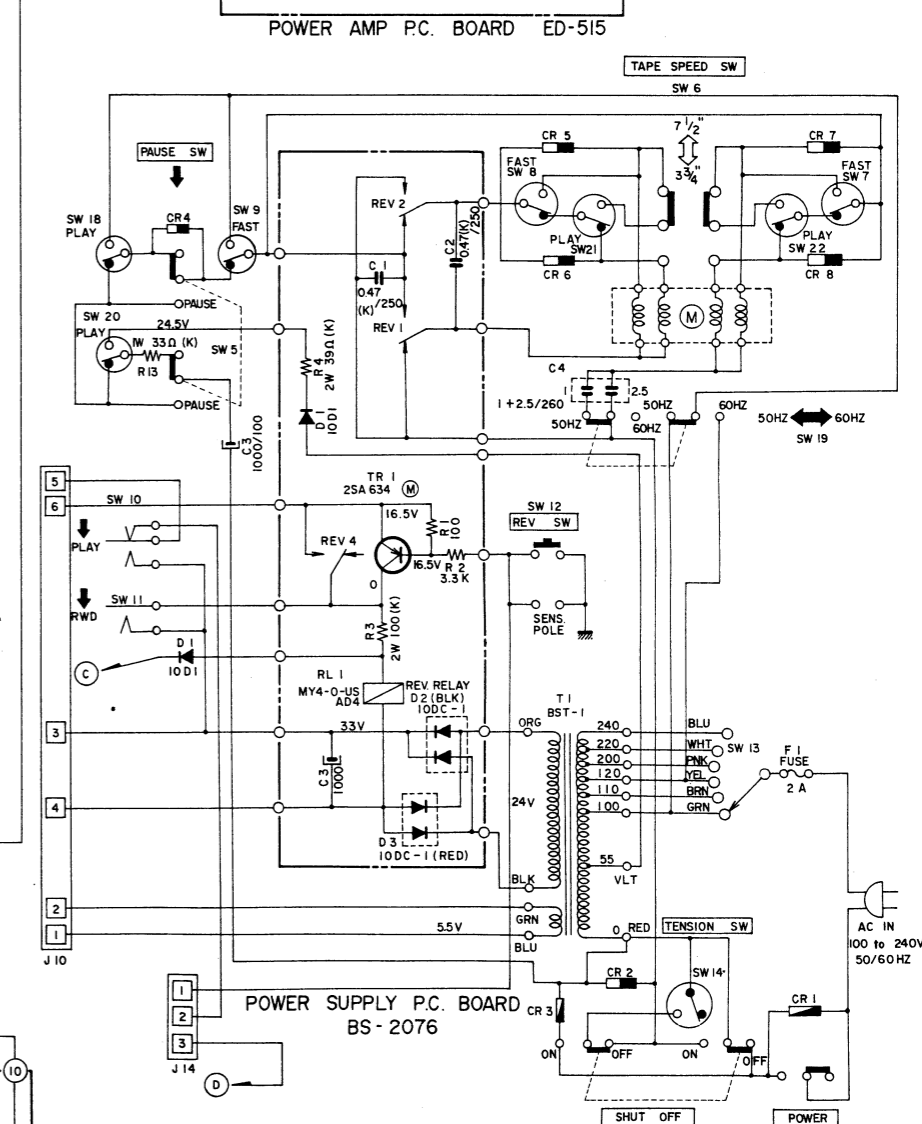
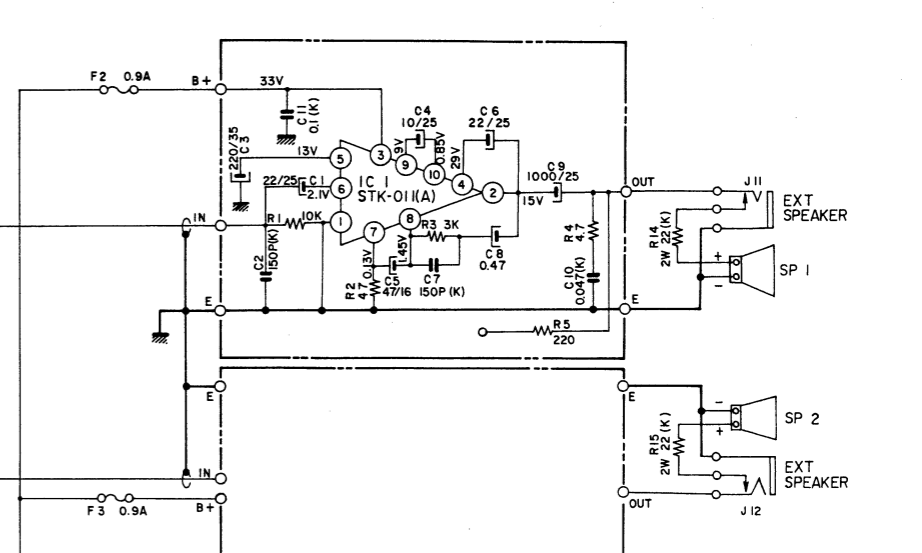
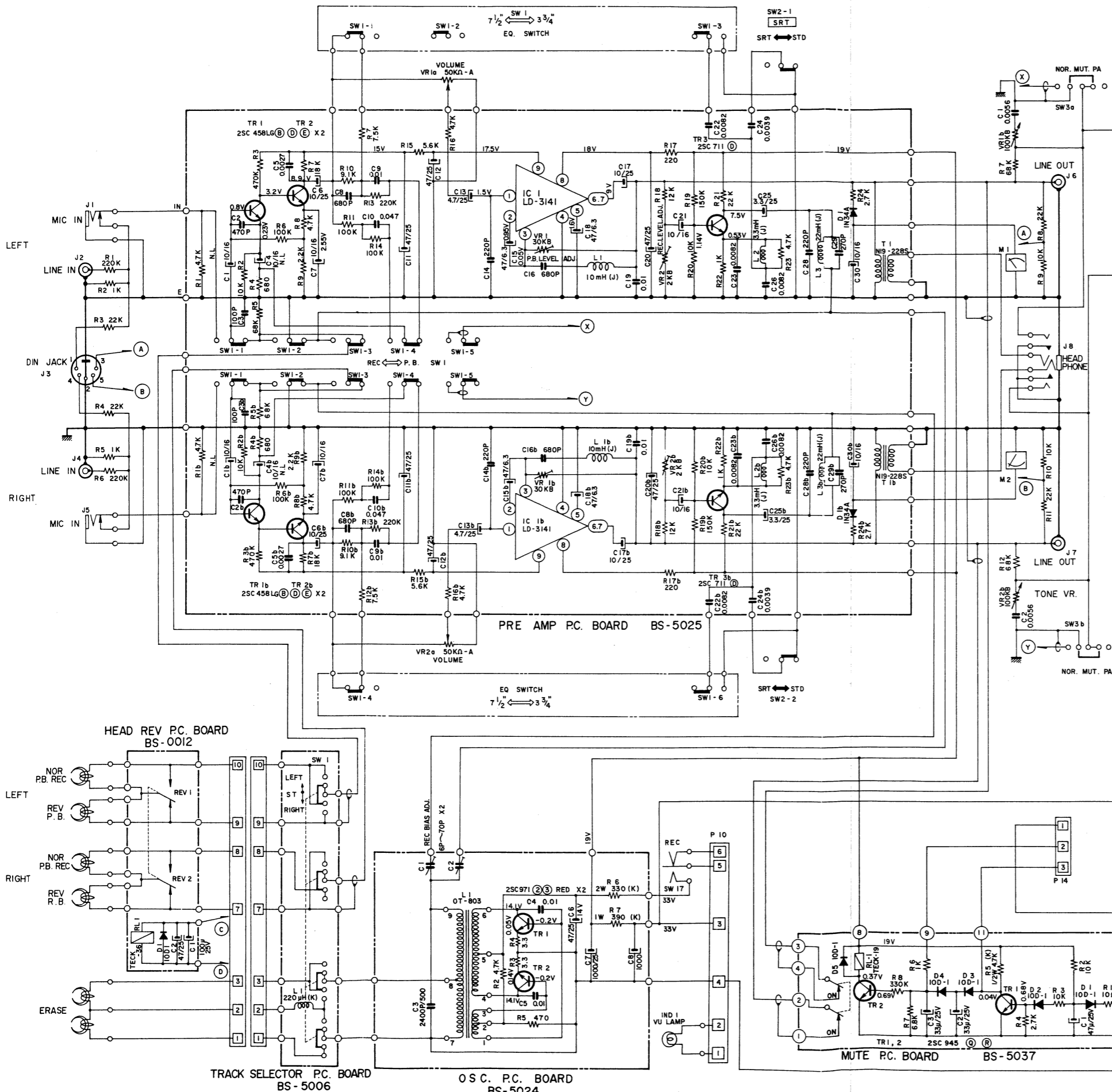
PRE-AMP. P.C. BOARD (BS-5025) BLOCK

Symbol No.	Parts No.	Description	Q'ty
10-1x	BA451877	Pre-amp. P.C. Board Comp. (BS-5025)	1
10-IC1	EI412413	Line Amp. I.C. LD-3141	2
10-TR1	ET234832	Transistor 2SC458LG(B)	2
10-TR2	ET234832	Transistor 2SC458LG(B)	2
10-TR3	ET371935	Transistor 2SC711(D)	2
10-D1	ED219464	Germanium Diode 1N34A	2
10-VR1	EV329152	Semi-fixed/Vol. V10K5-2-4 30k B	2
10-VR2	EV337577	Semi-fixed/Vol. V10K5-2-4 2k B	2
10-L1	EO244001	Ferri Inductor FL9H 10MH(J)	2
10-L2	EO243988	Ferri Inductor FL7H 3.3MH(J)	2
10-L3	EO244012	Ferri Inductor FL9H 22MH(J)	2
10-T1	BT247746	Head Phone Trans. N19-228S	2
10-SW1	ES371924	Slide Switch CLB2102-B4	1
10-2	EZ388451	P.C. Board Shield Plate	1
Capacitor, Vertical Type			
10-C1	EC432810	Elect. 10 μ F 16WV(noiseless)	2
10-C2	EC423562	VFM 470PF(J) 50WV	2
10-C3	EC290520	VFM 100PF(J) 50WV	2
10-C4	EC432810	Elect. 10 μ F 16WV(noiseless)	2
10-C5	EC379765	Mylar 0.0027 μ F(J) 50WV	2
10-C6	EC220994	Elect. 10 μ F 25WV	2
10-C7	EC320051	Elect. 10 μ F 16WV	2
10-C8	EC429851	VFM 680PF(J) 50WV	2
10-C9	EC250841	Mylar 0.01 μ F(J) 50WV	2
10-C10	EC379214	Mylar 0.01 μ F(J) 50WV	2
10-C11	EC336126	Elect. 47 μ F 25WV	2
10-C12	EC336126	Elect. 47 μ F 25WV	2
10-C13	EC450527	Elect. 4.7 μ F 25WV	2
10-C14	EC329850	VFM 220PF(J) 50WV	2
10-C15	EC329771	Elect. 47 μ F 6.3WV	2
10-C16	EC429851	VFM 680PF(J) 50WV	2
10-C17	EC220994	Elect. 10 μ F 25WV	2
10-C18	EC329771	Elect. 47 μ F 6.3WV	2
10-C19	EC250841	Mylar 0.01 μ F(J) 50WV	2
10-C20	EC336126	Elect. 47 μ F 25WV	2
10-C21	EC320051	Elect. 10 μ F 16WV	2
10-C22	EC411827	Mylar 0.0082 μ F(J) 50WV	2
10-C23	EC337500	Mylar 0.0047 μ F(J) 50WV	2
10-C24	EC379787	Mylar 0.0039 μ F(J) 50WV	2
10-C25	EC331828	Elect. 3.3 μ F 25WV	2
10-C26	EC411827	Mylar 0.0082 μ F(J) 50WV	2
10-C28	EC329850	VFM 220PF(J) 50WV	2
10-C29	EC336194	VFM 270PF(J) 50WV	2
10-C30	EC320051	Elect. 10 μ F 16WV	2
Resistor, Stopper Type			
10-R1	ER212883	Carbon RD1/4 4.7k(J)	2
10-R2	ER336442	Carbon RD1/4 10k(J)	2
10-R3	ER429996	Carbon RD1/4 470k(J)	2
10-R4	ER213300	Carbon RD1/4 680(J)	2
10-R5	ER350100	Carbon RD1/4 68k(J)	2
10-R6	ER211757	Carbon RD1/4 100k(J)	2
10-R7	ER346994	Carbon RD1/4 18k(J)	2
10-R8	ER212883	Carbon RD1/4 4.7k(J)	2
10-R9	ER357456	Carbon RD1/4 2.2k(J)	2
10-R10	ER399060	Carbon RD1/4 9.1k(J)	2
10-R11	ER211757	Carbon RD1/4 100k(J)	2
10-R12	ER420232	Carbon RD1/4 7.5k(J)	2
10-R13	ER380711	Carbon RD1/4 220k(J)	2
10-R14	ER211757	Carbon RD1/4 100k(J)	2
10-R15	ER213030	Carbon RD1/4 5.6k(J)	2
10-R16	ER212883	Carbon RD1/4 4.7k(J)	1
10-R17	ER357412	Carbon RD1/4 220(J)	2
10-R18	ER211858	Carbon RD1/4 12k(J)	2
10-R19	ER357570	Carbon RD1/4 150k(J)	2
10-R20	ER336442	Carbon RD1/4 10k(J)	2
10-R21	ER212264	Carbon RD1/4 22k(J)	2
10-R22	ER211465	Carbon RD1/4 1k(J)	2
10-R23	ER212883	Carbon RD1/4 4.7k(J)	2
10-R24	ER343078	Carbon RD1/4 2.7k(J)	2

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



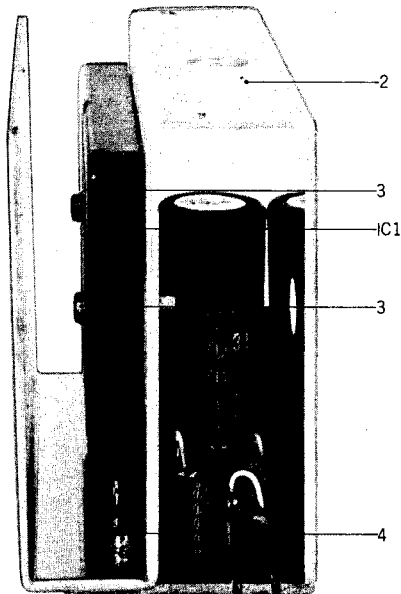
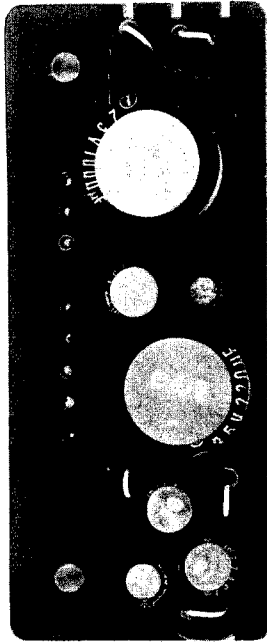
- NOTE-
- UNLESS OTHERWISE SPECIFIED ALL RESISTORS IN OHMS 1/4W (J) ALL CAPACITORS IN MFD (K) 50WV
 - SPARK QUENCHER { ... 0.1+120/500 ... 0.033+120/500
 - ALL SPARK QUENCHERS LOCATED ON THE SPARK QUENCHER P.C. BOARD (BS-2034)
 - INDICATED VOLTAGE MEASURED BY V.T.V.M. MODEL 107A



-NOTE-

- UNLESS OTHERWISE SPECIFIED ALL RESISTORS IN OHMS (1/4W (J)) ALL CAPACITORS IN MFD(K) 50WV
- SPARK QUENCHER () 0.1+120/500 () 0.033+120/500
- ALL SPARK QUENCHERS LOCATED ON THE SPARK QUENCHER P.C. BOARD (BS-2034)
- INDICATED VOLTAGE MEASURED BY V.T.V.M. MODEL 107A

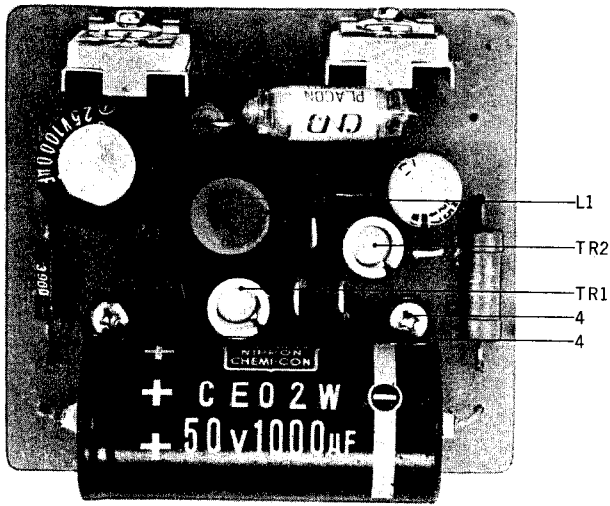
FIG. 11 PHOTO OF
POWER AMP. P.C. BOARD (ED-515)



POWER AMP. P.C. BOARD (ED-515) BLOCK

Symbol No.	Parts No.	Description	Q'ty
11-1x	BA455488	Power Amp. P.C. Board Comp.(ED-515)	1
11-IC1	EI372126	I.C. STK-001(A)	1
11-2	BC371428	Power Amp. Case	1
11-3	ZW375085	Tapping Screw #2 2.6x12 (round)	2
11-4	ZW447772	Tapping Screw 3x6 (BR)	2
Capacitor, Vertical Type			
11-C1	EC350684	Elect. 22 μ F 25WV	1
11-C2	EC290507	VFM 150PF(K) 50WV	1
11-C3	EC372148	Elect. 220 μ F 35WV	1
11-C4	EC220994	Elect. 10 μ F 25WV	1
11-C5	EC320040	Elect. 47 μ F 16WV	1
11-C6	EC350684	Elect. 22 μ F 25WV	1
11-C7	EC290507	VFM 150PF(K) 50WV	1
11-C8	EC450281	Elect. 0.47 μ F 50WV	1
11-C9	EC450270	Elect. 1000 μ F 25WV	1
11-C10	EC308711	Mylar 0.047 μ F(K) 50WV	1
11-C11	EC251291	Mylar 0.1 μ F(K) 50WV	1
Resistor, Stopper Type			
11-R1	ER336442	Carbon RD1/4 10k(J)	1
11-R2	ER361642	Carbon RD1/4 47(J)	1
11-R3	ER346544	Carbon RD1/4 3k(J)	1
11-R4	ER399723	Carbon RD1/4 4.7(J)	1
11-R5	ER357412	Carbon RD1/4 220(J)	1

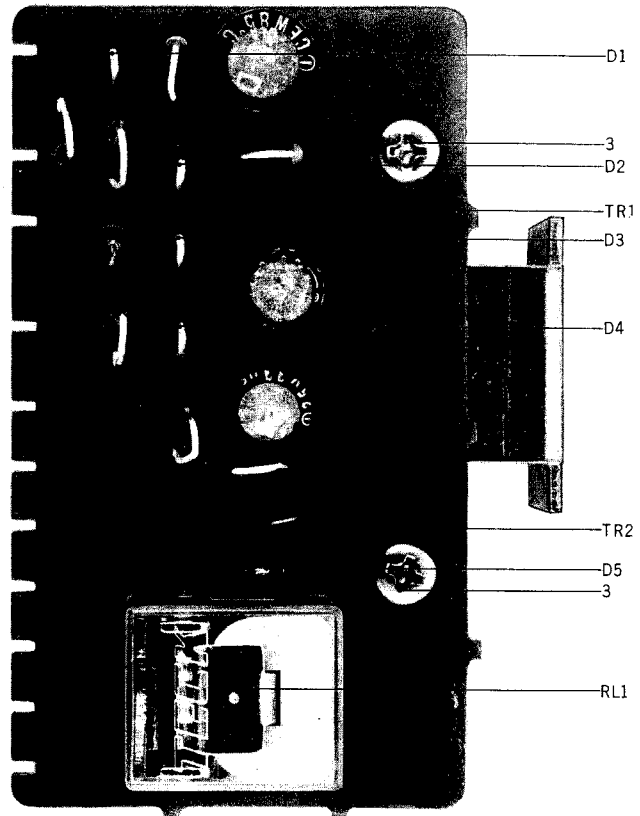
FIG. 12 PHOTO OF
OSC. P.C. BOARD (BS-5024)



OSC. P.C. BOARD (BS-5024) BLOCK

Symbol No.	Parts No.	Description	Q'ty
12-1x	BA451866	OSC. P.C. Board Comp. (BS-5024) (M-11)	1
12-2x	BA462431	OSC. P.C. Board Comp. (BS-5024) (M-11D)	1
12-TR1,2	ET304255	Transistor 2SC971 (2) (3) (red)	2
12-L1	E0453521	OSC. Coil OT-803	1
12-3x	UC449256	P.C. Board Mt. Table B	1
12-4	ZW413155	Screw, binding head 3x6	2
Capacitor, Vertical Type			
12-C1,2	EC425250	Trimmer A-1P3-3 70PF	2
12-C3	EC461057	Plustic Film 2400PF(J) 500WV	1
12-C4,5	EC250841	Mylar 0.01μF(J) 50WV	1
12-C6	EC220678	Elect. 47μF25WV	1
12-C7	EC450270	Elect. 1000μF25WV	1
12-C8	EC365692	Elect. 100μF 50WV (Tubular type)	1
Resistor, Stopper Type			
12-R2	ER212883	Carbon RD1/4 4.7k(J)	1
12-R3,4	ER315944	Carbon RD1/4 3.3(J)	2
12-R5	ER304402	Carbon RD1/4 470(J)	1
12-R6	ER427241	Metal Oxide Film 2W 330(K)	1
12-R7	ER372712	Metal Oxide Film 1W 390(K) (M-11)	1
12-R7	ER449728	Metal Oxide Film 1W 560(K) (M-11D)	1

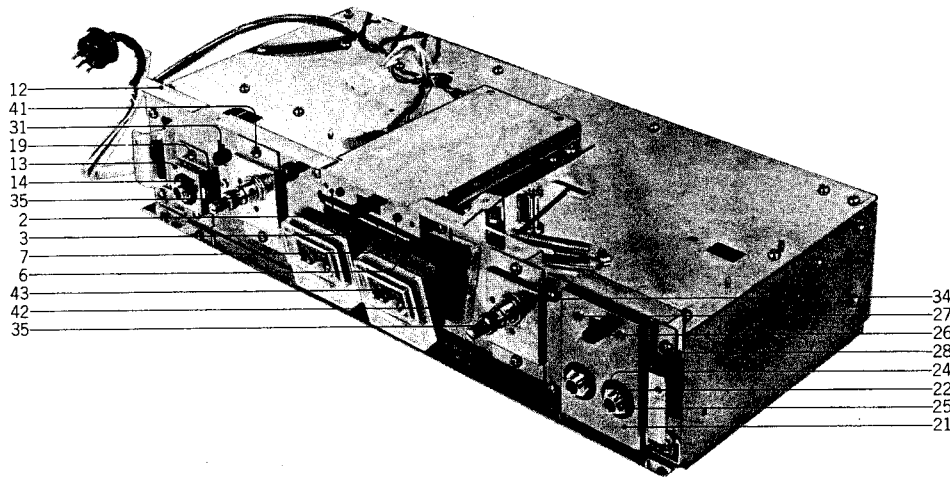
FIG. 13 PHOTO OF
MUTE P.C. BOARD (BS-5037)



MUTE P.C. BOARD (BS-5037) BLOCK

Symbol No.	Parts No.	Description	Q'ty
13-1x	BA488125	Mute-P.C. Board Comp. (BS-5037)	1
13-TR1,2	ET398711	Transistor 2SC945(Q) (R)	2
13-D1,2	ED224526	Silicon Diode 10D1	2
13-D3,4	ED224526	Silicon Diode 10D1	2
13-D5	ED224526	Silicon Diode 10D1	1
13-RL1	EP383321	Relay TECK-36 DC22V1000	1
13-2x	EZ488081	P.C. Board Mt. Table C	1
13-3	ZW413155	Screw, binding head 3x6	2
Capacitor, Vertical Type			
13-C1,2	EC220678	Elect. 47μF 25WV	2
13-C3	EC456041	Elect. 33μF 25WV	1
Resistor, Stopper Type			
13-R1	ER304290	Carbon RD1/4 10(J)	1
13-R2,3	ER336442	Carbon RD1/4 10k(J)	2
13-R4	ER343078	Carbon RD1/4 2.7k(J)	1
13-R5	ER488496	Solid RC1/2W 4.7k(K)	1
13-R6	ER211465	Carbon RD1/4 1k(J)	1
13-R7	ER212545	Carbon RD1/4 3.6k(J)	1
13-R8	ER362485	Carbon RD1/4 330k(J)	1
13-R9,10	ER211667	Carbon RD1/4 100(J)	2

FIG. 14 PHOTO OF SELECTOR SWITCH/FRONT FRAME BLOCK



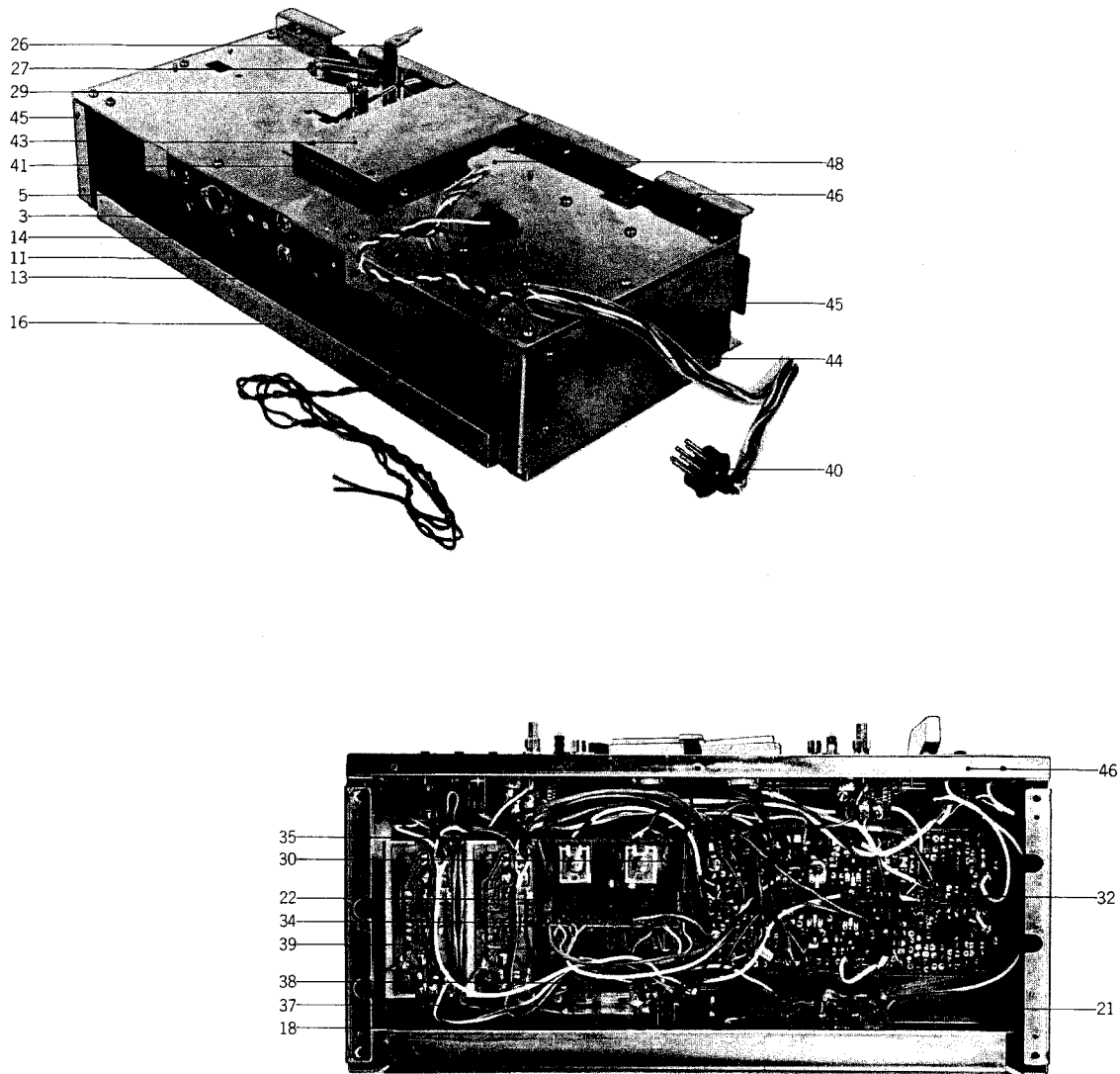
SELECTOR SWITCH BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
14-1x	BS462420	Selector Switch Block Comp.		1
14-2	BS449392	Selector Switch Table	BS-5004	1
14-3	ES368436	Slide Switch SL-243B4D	25-3-33	1
14-4x	EZ449403	Selector P.C. Board	BS-5006	1
14-5x	EO374681	Ferri Inductor FL7H 220 μ H(K)	23-1-3	1
14-6	ZW461935	Screw, round head 2.6x4		2
14-7	EA449414	Lamp P.C. Board	BS-5005	1
14-8x	ZW417227	Screw, binding head 2.3x5		2
14-9x	EL295312	No. 2 Lamp 8V 0.2A	28-2-8	1

FRONT FRAME BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
14-10x	BZ462407	Front Frame Block Assy. Comp. (M-11)	BS	1
14-11x	BZ462418	Front Frame Block Assy. Comp. (M-11D)	BS	1
14-12	EZ449335	Front Frame	BS-5001	1
14-13	EZ449346	Head Phone Jack Stand	BS-5002	1
14-14	EJ454770	Mic. Jack 3PMJ1t	31-2-41	1
14-15x	EJ391083	Mic. Jack 3PMJ1P(D)	31-2-28	1
14-16x	EZ225180	Nylon Collar, Jack	LD-520	1
14-17x	ZW260368	Washer(Fiber) D9.2x18x0.5t		1
14-18x	ZW391680	E Jack Nut	7-1-20	1
14-19	ZW447772	Tapping Screw 3x6(BR)		2
14-20x	BZ449368	Mic. Jack Table Comp.	BS-5030	1
14-21	EZ449357	Mic. Jack Table	BS-5003	1
14-22	EJ391094	Mic. Jack 2PMJ1P	31-2-27	2
14-23x	EZ225180	Nylon Collar, Jack	LD-520	2
14-24	ZW260368	Washer(Fiber) D9.2x18x0.5t		2
14-25	ZW391680	E Jack Nut	7-1-20	2
14-26	ES432213	Slide Switch SL-242B4	25-3-37	1
14-27	ZW461935	Screw, round head 2.6x4		2
14-28	ZW447772	Tapping Screw 3x6(BR)		6
14-29x	BS462420	Selector Switch Block Comp. (BS)		1
14-30x	ZW449504	EQ, Switch Comp.	BS-5034	1
14-31	EJ488970	Slide Switch SL-242B4BF	25-3-76	1
14-32x	ZW442585	Screw, binding head 2.6x4		2
14-33x	EZ449493	Volume Table A Comp.	BS-5028	2
14-34	EZ449447	Volume Table A	BS-5007	2
14-35	EV449695	Double Volume D24R 100k B, 50k A	36-3-35	2
14-36x	EA449460	Volume P.C. Board	BS-5009	2
14-37x	EC329883	Mylar/C. 0.0056 μ F(J) 50WV (Vert. type)	24-1-1	2
14-38x	EZ449482	Volume Table B Comp. (Deck)	BS-5028	2
14-39x	EZ449458	Volume Table B (D)	BS-5008	2
14-40x	EV445590	Volume V24N 50 k A (D)	36-2-23	2
14-41	ZW447772	Tapping Screw 3x6(BR)		2
14-42	EZ449471	VU Mat	BS-5010	2
14-43	EM453688	VU Meter B0391R	46-1-51	2

FIG. 15 PHOTO OF AMP. ASSEMBLY BLOCK



AMP. ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
JACK PLATE BLOCK				
15-1x	BZ462442	Jack Plate Block Comp. (M-11)	BS	1
15-2x	BZ462453	Jack Plate Block Comp. (M-11D)	BS	1
15-3	EJ449673	Jack Plate A	BS-5017	1
15-4x	EJ449684	Jack Plate B (D)	BS-5018	1
15-5	EJ299305	5P Din-Jack	31-1-1	1
15-6x	ER365016	Carbon/R. RD1/4 220k(J) (Insu. type)	35-9-5	2
15-7x	ER324641	Carbon/R. RD1/4 1k(J) (Insu. type)	35-9-5	2
15-8x	ER345712	Carbon/R. RD1/4 22k(J) (Insu. type)	35-9-5	4
15-9x	ER345756	Carbon/R. RD1/4 68k(J) (Insu. type)	35-9-5	2
15-10x	ER213647	Carbon/R. RD1/4 10k(J) (Insu. type)	35-9-5	2
15-11	EJ462025	Mic. Jack 2PMJ3P	31-2-40	2
15-12x	ZW462497	Washer(SPC) D9.2x13x0.5t		2
15-13	ZW375153	E Jack Nut		2
15-14	ES449796	Slide Switch SL-223B4	25-3-59	1
15-15x	ZW317755	Screw, round head 2.6x5		2
15-16	EZ449594	Back Frame A	BS-5019	1
15-17x	EZ449605	Back Frame B (Deck)	BS-5019	1
15-18	EZ488081	P.C. Board Mt. Table C	BS-5038	1
15-19x	ZW447772	Tapping Screw 3x6(BR)		2
15-20x	EJ368853	Lug Plate VB1L (D)	33-4-8	1
AMP. ASSEMBLY BLOCK				
15-21	SZ449515	Upper Frame, w/pins	BS-5011	1
15-22	EZ449548	Rec. Slider	BS-5014	1
15-23x	ZW461913	Washer(Nylon) D5.1x10.3x0.3t		5
15-24x	ZW290283	"U" Ring 2.85M	6-1-1	3
15-25x	ZG449550	Rec. Spring	BS-5015	1
15-26	EZ449561	Rec. Lever	BS-5016	1
15-27	ZW273778	M3 Earth Lug		2
15-28x	ZW447772	Tapping Screw 3x6(BR)		8
15-29	ZG227441	Spring C	900-117	1
15-30	ES449717	Leaf Switch 1SC-1A-6	25-10-9	1
15-31x	UC449572	P.C. Board Mt. Table A	BS-5021	2
15-32	BA451877	Pre-amp'. P.C. Board Comp. (BS-5025)		1
15-33x	ZW413728	Screw, binding head 3x6, w/washer		4
15-34	BA488125	Mute P.C. Board Comp. (BS-5037)		1
15-35	BA451866	OSC. P.C. Board Comp. (BS-5024) (M-11)		1
15-36x	BA462431	OSC. P.C. Board Comp. (BS-5024) (M-11D)		1
15-37	EA449640	Fuse P.C. Board	BS-5026	1
15-38	EF428850	Fuse 0.9A, w/lead	39-1-37	5
15-39	BA455488	Power Amp. Block Assy. Comp.	BSA	2
15-40	EJ299788	6P Plug	42-1-21	1
15-41	EJ292961	10P Multi-Jack 500-010-005	31-4-4	1
15-42x	ZW467796	Screw, pan head 2.6x12		2
15-43	EZ449627	Shield Plate	BS-5023	1
15-44	ZW447772	Tapping Screw 3x6(BR)		8
15-45	EZ449616	Side Frame	BS-5020	2
15-46	BZ462407	Front Frame Block Assy. Comp. (M-11)	BS	1
15-47x	BZ462418	Front Frame Block Assy. Comp. (M-11D)	BS	1
15-48	EJ488474	3P Mate-N-Lock Plug Comp.(BS)	BS-5039	1

FIG. 16 PHOTO OF POWER SUPPLY
P.C. BOARD (BS-2076)

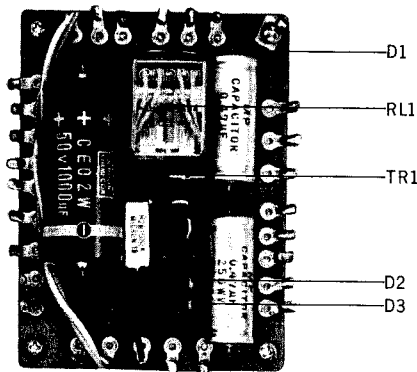


Fig.16

POWER SUPPLY P.C. BOARD (BS-2076) BLOCK

Symbol No.	Parts No.	Description	Q'ty
16-1x	BA462363	Power Supply P.C. Board Comp. (BS-2076) (M-11)	1
16-2x	BA462374	Power Supply P.C. Board Comp. (BS-2076) (M-11D)	1
16-TR1	ET449785	Transistor 2SA634(M)	1
16-D1	ED224526	Silicon Diode 10D1	1
16-D2	ED329130	Silicon Diode 10DC-1 (black) (M-11)	1
16-D2,3	ED224526	Silicon Diode 10D1 (M-11D)	2
16-D3	ED329128	Silicon Diode 10DC-1 (red) (M-11)	1
16-RL1	EP344136	Relay MY4-0-US-AD4-24V	1
Capacitor, Tubular Type			
16-C1,2	EC350987	MP 0.47 μ F(M) 250VAC	2
16-C3	EC365692	Elect. 1000 μ F 50WV	1
Resistor, Stopper Type			
16-R1	ER211667	Carbon RD1/4 100(J)	1
16-R2	ER212477	Carbon RD1/4 3.3k(J)	1
16-R3	ER395098	Cement R2W 100(K) (Metal Ox. Film type) (M-11)	1
16-R3	ER466525	Cement R2W 120(K) (Metal Ox. Film type) (M-11D)	1
16-R4	ER465647	Wire-wound 2WL 39(K) (L type)	1

POWER SUPPLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty
17-1x	BP462341	Power Supply Block Assy. Comp. (M-11)	BS	1
17-2x	BP462352	Power Supply Block Assy. Comp. (M-11D)	BS	1
17-3	MZ449267	Power Chassis	BS-2035	1
17-4	BT449752	Power Trans. BST-1 (M-11)	38-4-138	1
17-5x	BT449763	Power Trans. BST-2 (M-11D)	38-4-137	1
17-6	ZW200700	Tapping Screw #2 4x8(round)		4
17-7x	EJ449291	Volt Selector Comp.	BS-2068	1
17-8	MZ449278	Power Supply Bracket	BS-2036	1
17-9	ES375478	Slide Switch ESD-279DU	25-3-23	1
17-10	EJ233370	Socket S-18010 (Volt. Selector)	40-2-3	1
17-11x	EZ382263	Strain Relief SR-4K-4	2-7-12	1
17-12	ZW462532	Iso Screw, truss head 3x4		4
17-13x	EZ374894	U/L AC Cord 3M	26-3-19	1
17-14	EF277413	Fuse ST-2 2A (M-11)	39-1-26	1
17-15x	EF338387	Fuse ST-2 1.5A (M-11D)	39-1-26	1
17-16	ZW447772	Tapping Screw 3x6(BR)		10
17-17	EC486775	MP 2.5+1 μ F 250WV(Lug type)	24-9-63	1
17-18	BA462363	Power Supply P.C. Board Comp. (BS-2076) (M-11)		1
17-19x	BA462374	Power Supply P.C. Board Comp. (BS-2076) (M-11D)		1
17-20x	EJ453846	6P Socket Comp. (BS)	BS-2069	1
17-21	MZ449280	Connector Base	BS-2037	1
17-22	EJ365703	6P Socket	31-1-67	1
17-23	ZW425981	Screw, binding head 3x3		2
17-24	EC465660	Elect./C. 1000 μ F 100WV (Lug type)	24-10-72	1
17-25	MZ315101	Nylon Clip HP-4N		1
17-26	ZW462194	Tapping Screw #2 3x8(pan), w/washer		1
17-27	EC350987	MP/C. 0.47 μ F(M) 250WV (Tubular type)	24-9-28	1
17-28	EJ255093	Lug Plate VB1L1	33-4-1	2
17-29	ER465647	Wire-wound/R. 2WL39(K)	35-11-7	1
17-30	ZW447772	Tapping Screw 3x6(BR)		2

FIG. 17 ILLUSTRATION OF POWER SUPPLY BLOCK

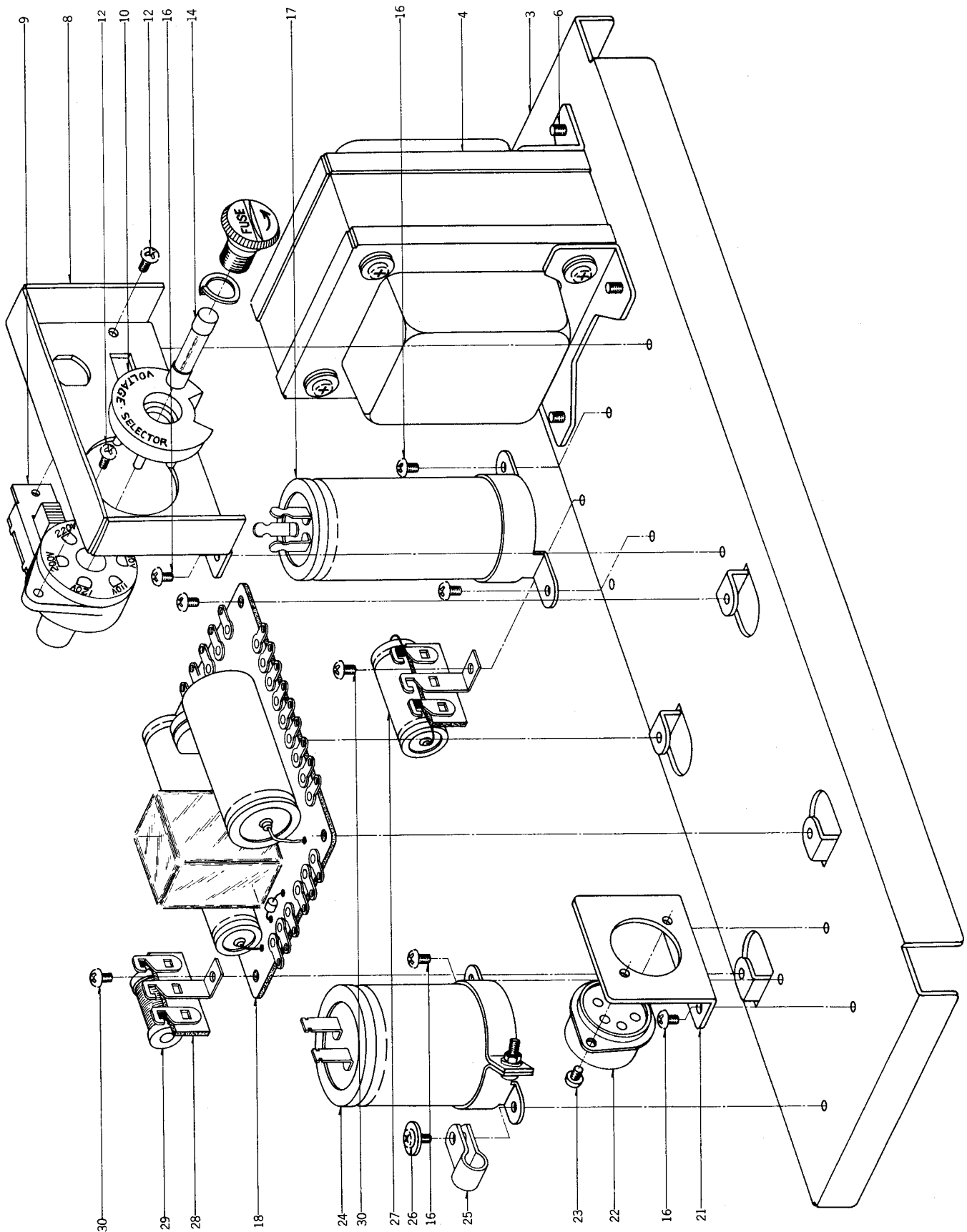
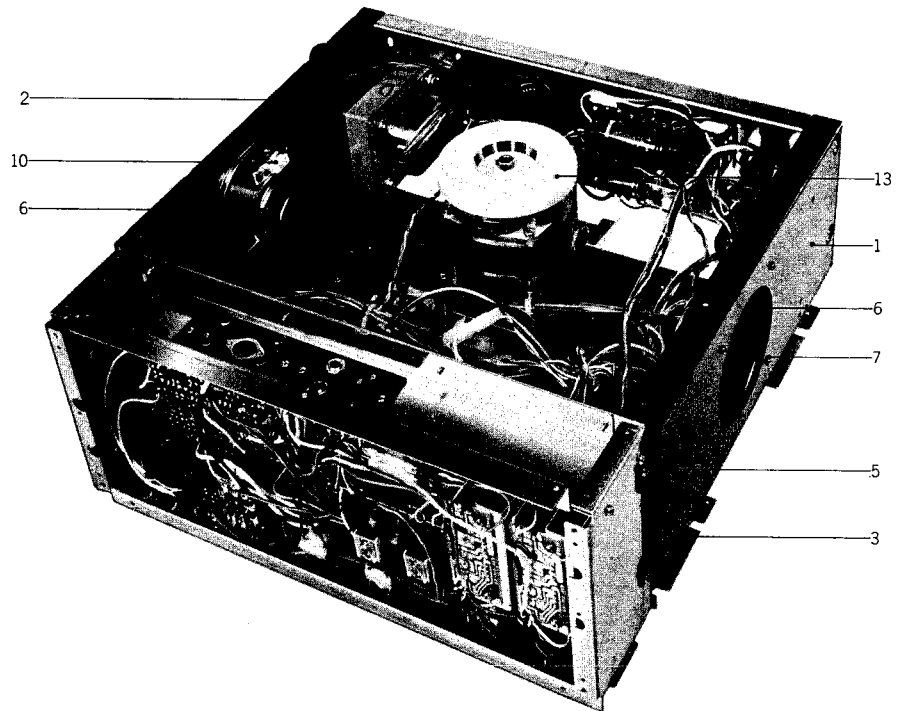
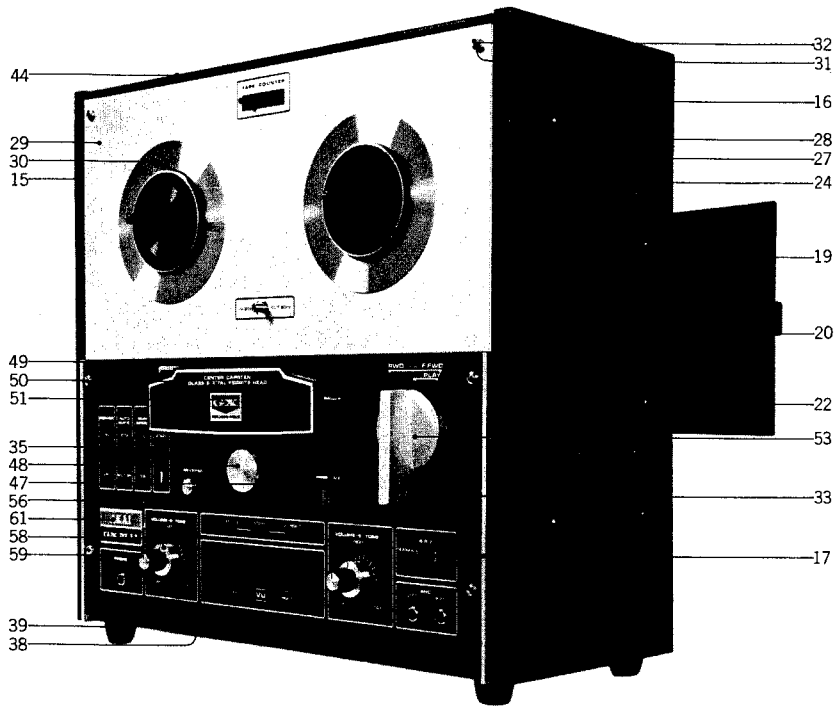


FIG. 18 PHOTO OF FINAL ASSEMBLY BLOCK



FINAL ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.	Q'ty	Ref. No.	Parts No.	Description	Schematic No.	Q'ty
18-1	MZ463072	Side Plate(L), w/angle	BS-1054	1	18-56	SK448920	Rec. Knob	BS-6014	1
18-2	MZ463061	Side Plate(R), w/angle	BS-1055	1	18-57x	ZG448931	Knob Spring	BS-6015	1
18-3	MZ463048	Panel Angle(L)	BS-1056	1	18-58	SK409476	Amp. Knob B Comp.	LF-6023	2
18-4x	MZ463050	Panel Angle(R)	BS-1056	1	18-59	SK409511	Amp. Knob D Comp.	LF-6025	2
18-5	ZW463094	Tapping Screw #2 4x8 (binding)		6	18-60x	SK409386	Amp. Knob A Comp. (Deck)	LF-6022	2
18-6	SS391342	Speaker SK-2187E	29-5-9	2	18-61	SM448907	Name Plate M-11	BS-6009	1
18-7	ZW304784	Screw, truss head 3x10		8	18-62x	SM448918	Name Plate M-11 D	BS-6009	1
18-8x	ZW424495	Washer(SPC) D3.1x8x1t		8	18-63x	EF444183	Fuse 1.5A 250V	39-1-41	1
18-9x	VM273756	M3 Nut		8	18-64x	EF304626	Fuse ST-4 1A	39-1-28	1
18-10	ER454746	Cement/R. S2W 22(K) (Wire-wound type)	35-16-1	2	18-65x	EF338387	Fuse ST-2 1.5A	39-1-26	1
18-11x	SZ454757	Connecting Plate	BS-6020	1	18-66x	EF277413	Fuse ST-2 2A	39-1-26	1
18-12x	ZG245294	Brake Spring	RD-138	1					
18-13	SZ450720	Motor Fan, w/boss	BS-7015	1					
18-14x	ZW391476	Set Screw, hexagon socket 4x4 (cup)		1					
18-15	BC448964	Side Board A(L) (M-11)	BS-6001	1					
18-16	BC448975	Side Board A(R) (M-11)	BS-6001	1					
18-17	SP449008	Sash	BS-6003	2					
18-18x	ZW462126	Wood Screw, round head 2.7x12		6					
18-19	SZ424945	Speaker Grill	MS-6004	2					
18-20	SZ424967	Reflection Plate	MS-6006	2					
18-21x	MS424978	Reflection Plate Shaft	MS-6007	2					
18-22	SZ237508	Reflection Plate Retaining Metal	3A-419	4					
18-23x	ZW201183	Screw, truss head 3x8		4					
18-24	ZW324448	Tapping Screw #1 3x10 (truss)		8					
18-25x	BC448986	Side Board B(L) (M-11 D)	BS-6002	1					
18-26x	BC448997	Side Board B(R) (M-11 D)	BS-6002	1					
18-27	ZW462150	Decorative Washer (BSBM-2) M4		8					
18-28	ZW462161	Screw, oval countersunk head 4x20		8					
18-29	SP448874	Mech. Panel	BS-6004	1					
18-30	SZ413122	Mech. Panel Spin Plate	LF-6054	2					
18-31	ZW408418	Panel Washer	KD-6029	6					
18-32	ZW462137	Screw, oval countersunk head 3x8		6					
18-33	SP448885	Front Panel A	BS-6008	1					
18-34x	SP462148	Front Panel D (Deck)	BS-6008	1					
18-35	SC448896	Head Cover Base	BS-6005	1					
18-36x	ZW417194	Screw, binding head 3x10		1					
18-37x	ZW461305	Screw, countersunk head 3x5		1					
18-38	SP449043	Lower Cover	BS-6023	1					
18-39	SZ428714	LM Rubber Foot, w/screw	LM-404	8					
18-40x	ZW419646	Washer(SPC) D4.5x9.8x0.5t		8					
18-41x	ZW462183	Screw, truss head 4x17		8					
18-42x	SP449054	Back Board A	BS-6024	1					
18-43x	SP449065	Back Board B (Deck)	BS-6024	1					
18-44	SP449032	Upper Cover	BS-6022	1					
18-45x	ZW462172	Decorative Washer (BSBM-2) M3		4					
18-46x	ZW425125	Screw, oval countersunk head 3x6		4					
18-47	MP275984	RD Pinch Roller	RD-231	1					
18-48	SK425158	Pinch Roller Cap, w/screw	MS-6020	1					
18-49	SC448942	Head Cover	BS-6006	1					
18-50	SM448953	Head Cover Name Plate	BS-6007	1					
18-51	SZ382285	GX Symbol Plate	RD-A633	1					
18-52x	ZW201150	Screw, truss head 3x6		2					
18-53	SK454195	Operate Knob	BS-6016	1					
18-54x	ZG454206	Cramp Spring	BS-6018	1					
18-55x	ZW383815	Set Screw 4x6 (cup)		1					

INDEX

Parts No.	Ref. No.	Parts No.	Ref. No.	Parts No.	Ref. No.	Parts No.	Ref. No.	Parts No.	Ref. No.
BA451866	12-1x	EC336126	10-C11	ER211667	16-R1	EZ374894	17-13x	ML454397	9-50
BA451866	15-35	EC336126	10-C12	ER211757	10-R6	EZ382263	17-11x	ML454555	9-2
BA451877	10-1x	EC336126	10-C20	ER211757	10-R11	EZ388451	10-2	ML454588	7-13
BA451877	15-32	EC336194	10-C29	ER211757	10-R14	EZ449335	14-12	ML466086	9-56
BA455488	11-1x	EC337500	10-C23	ER211858	10-R18	EZ449346	14-13	ML466378	9-18
BA455488	15-39	EC350684	11-C1	ER212264	10-R21	EZ449357	14-21	ML466918	9-13
BA462363	16-1x	EC350684	11-C6	ER212477	16-R2	EZ449403	14-4x	ML466920	9-14
BA462363	17-18	EC350987	16-C1,2	ER212545	13-R7	EZ449447	14-34	MP275984	9-112x
BA462374	16-2x	EC350987	17-27	ER212883	10-R1	EZ449458	14-39x	MP275984	18-47
BA462374	17-19x	EC365692	12-C8	ER212883	10-R8	EZ449471	14-42	MR449212	8-11
BA462431	12-2x	EC365692	16-C3	ER212883	10-R16	EZ449482	14-38x	MR449223	8-8
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