HITACHI
Hitachi, Ltd. Tokyo Japan

TRANSISTOR TAPE RECORDER

MODEL TRQ-710

SERVICE MANUAL

No. 198 1968

SPECIFICATIONS

ELECTRICAL CHARACTERISTICS

POWER SUPPLY RATING ..... AC:120V 50/60Hz(A)
AC:210V/230V 50Hz(E)
POWER CONSUMPTION 55W
RECORDING SYSTEM ..... AC bias
ERASING SYSTEM ..... AC erasing
FREQUENCY RANGE ..... 50-15,000Hz at 7½ ips speed
50-9,500Hz at 3¾ ips speed
CONTINUOUS R.M.S. AUDIO OUTPUT ..... 2.5W or more
PEAK AUDIO OUTPUT ..... 5W or more
INPUT&OUTPUT IMPEDANCE ... MIC. JACK 10Kohms
RADIO JACK 120Kohms
EXT. SP. JACK 8 ohms
TRQ-710 (E) only ..... REC./P.B. SOCKET
LINE INPUT 1.2Kohms
LINE OUTPUT 15Kohms

MECHANICAL CHARACTERISTICS

TAPE SPEED ..... 7½ ips (19cm/s)
3¾ ips (9.5cm/s)
1⅞ ips (4.75cm/s)
TAPE REEL ..... 7″ (18cm), 5″ (13cm) & 3⅓ ″(8.5cm)
RECORDING OR PLAYING TIME
60 min. using 7″ (50μ) tape at 7½ ips speed
120 min. using 7″ (50μ) tape at 3¾ ips speed
240 min. using 7″ (50μ) tape at 1⅞ ips speed
REWINDING TIME ..... 4 min. using 7″, 50μ tape
FAST FORWARDING TIME ..... 4 min. using 7″, 50μ tape
COMPONENTS USED
TRANSISTORS ..... 2SB 73(B)×1, 2SC281(C)×2,
2SB 77(B)×4, 2SB367(B)×2
DIODES ..... 1N34A×2, 1S310×4
THEMISTORS ..... D-1E×2
LOUDSPEAKER ..... 6″×4″ (15×10cm) PM
MICROPHONE ..... Dynamic microphone
MISCELLANEOUS
TRACK SYSTEM ..... Monaural dual track
DIMENSIONS ..... 13 5/16″(H)×15¾″(W)×7 5/16″(D)
(35×40×18.5cm)
WEIGHT ..... 24 lbs (11kg)

ACCESSORIES

TRQ-710(A) ..... MICROPHONE 1
5″ REEL 1
REEL HOLDER 2
EXTENSION CORD ... 1

TRQ-710(E) ..... MICROPHONE 1
5″ REEL 2
REEL HOLDER 2

CONTROLS AND JACKS

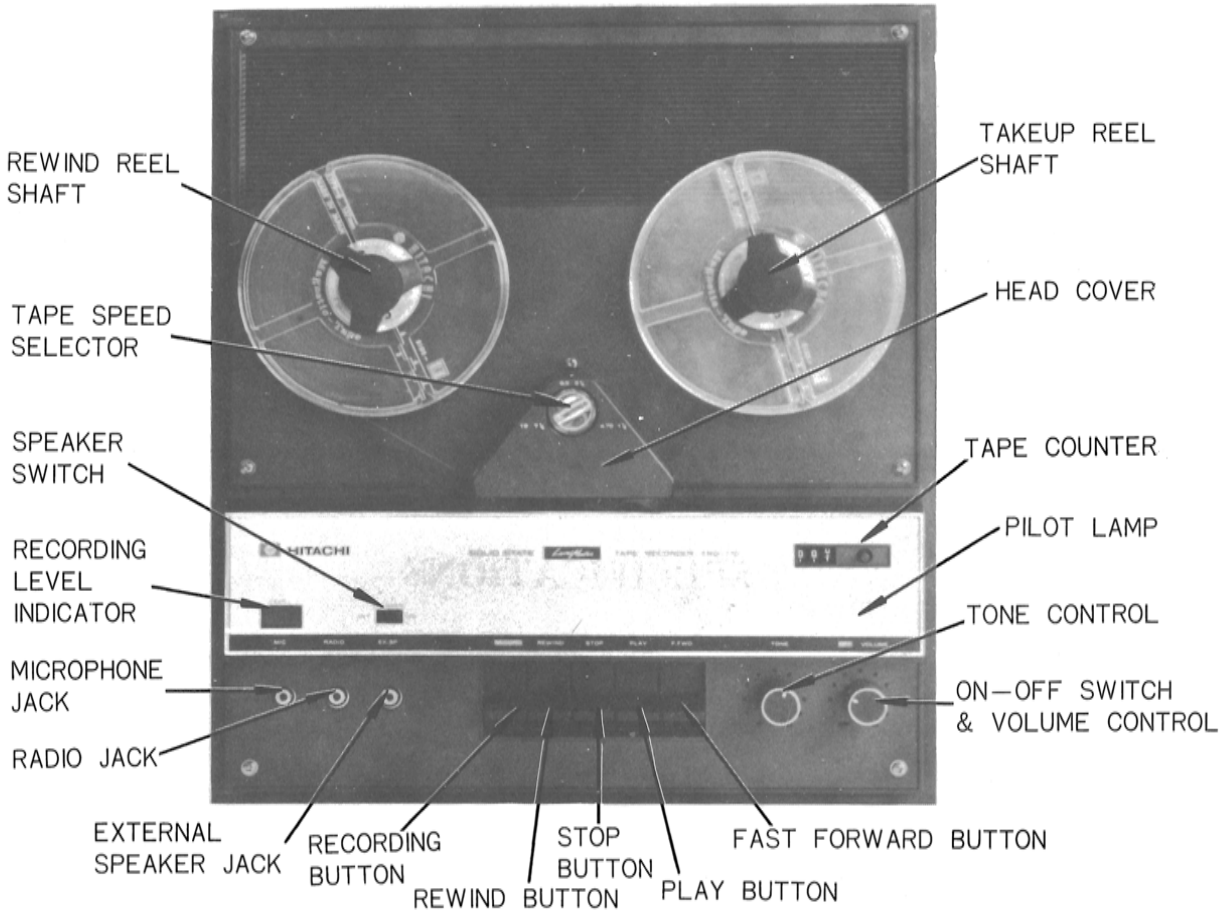


Fig. 1

TO CHANGE OVER POWER VOLTAGE

(In case of TRQ-710E)

1. Voltage change-over plug is provided in the accessory compartment and covered with the panel.

2. Remove two screws holding the panel.

3. Reinsert the voltage change-over plug to jacks of suitable voltage as shown in Fig. 2.

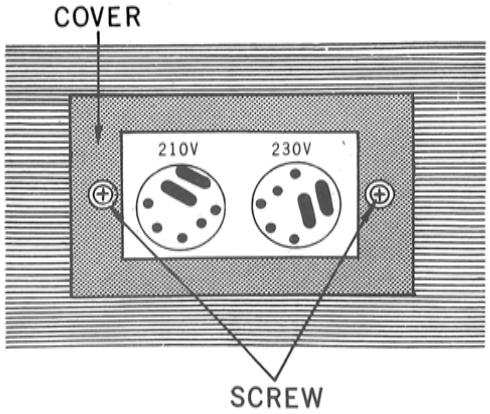


Fig. 2

DISASSEMBLY

When inspecting, repairing and lubricating, disassemble the recorder in the following manner :

1. Removal of front panel
   Remove seven front panel holding screws shown in Fig.3, after removing the TONE CONTROL knob and VOLUME CONTROL knob.

2. Pulling out the chassis
   Remove four legs holding screws and two sling band holding screws shown in Fig. 4. The chassis can be removed from the cabinet.

3. Removal of printed circuit board
   Remove six printed circuit board holding screws shown in Fig. 5.

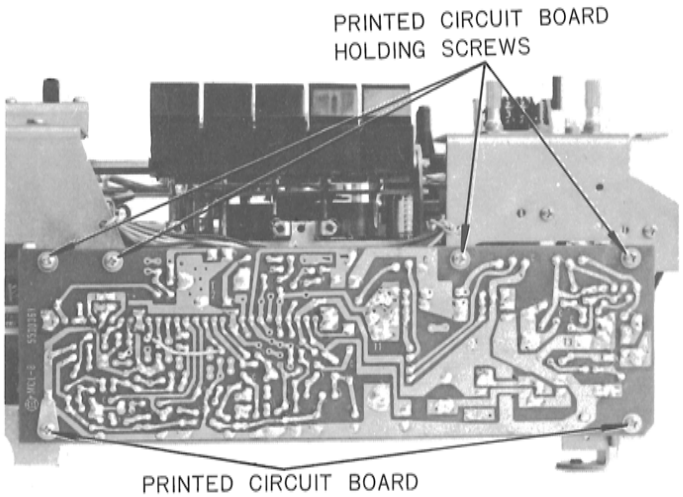


Fig. 5

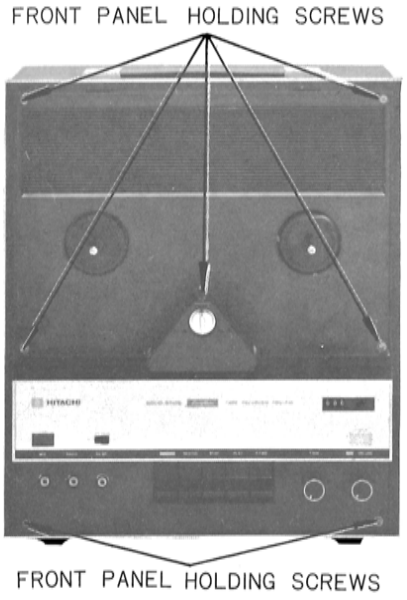


Fig. 3

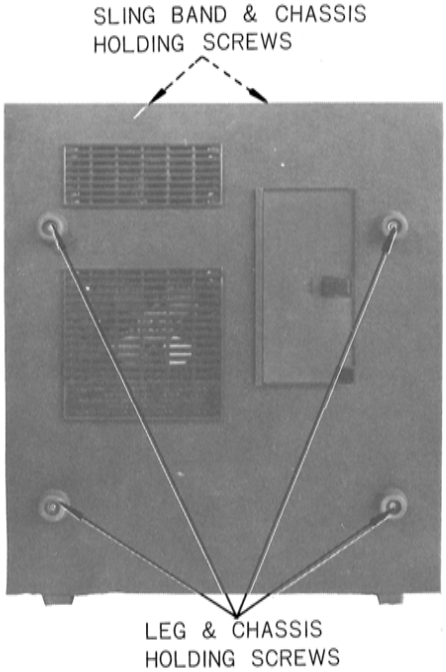


Fig. 4

LUBRICATING

At servicing, perform lubrication according to Fig. 6. Lubricate a drop of SAE grade #30 or its equivalent oil to rotating parts respectively.

To idler, pressure roller and capstan shaft, it is not always necessary to lubricate.

Lubrication point

1. Reel base shaft ·····Remove the screw and reel base to lubricate around shaft.
2. Idler ····· Spread on felt.
3. Fly wheel shaft·····Open oil cap and lubricate.
4. Sliding portion ····· Wipe dirty oil and lubricate while pushing the push-button.

Caution

Belt, idler, capstan and pinch roller may slip, When the catch oil. Wipe them alway alcohol.

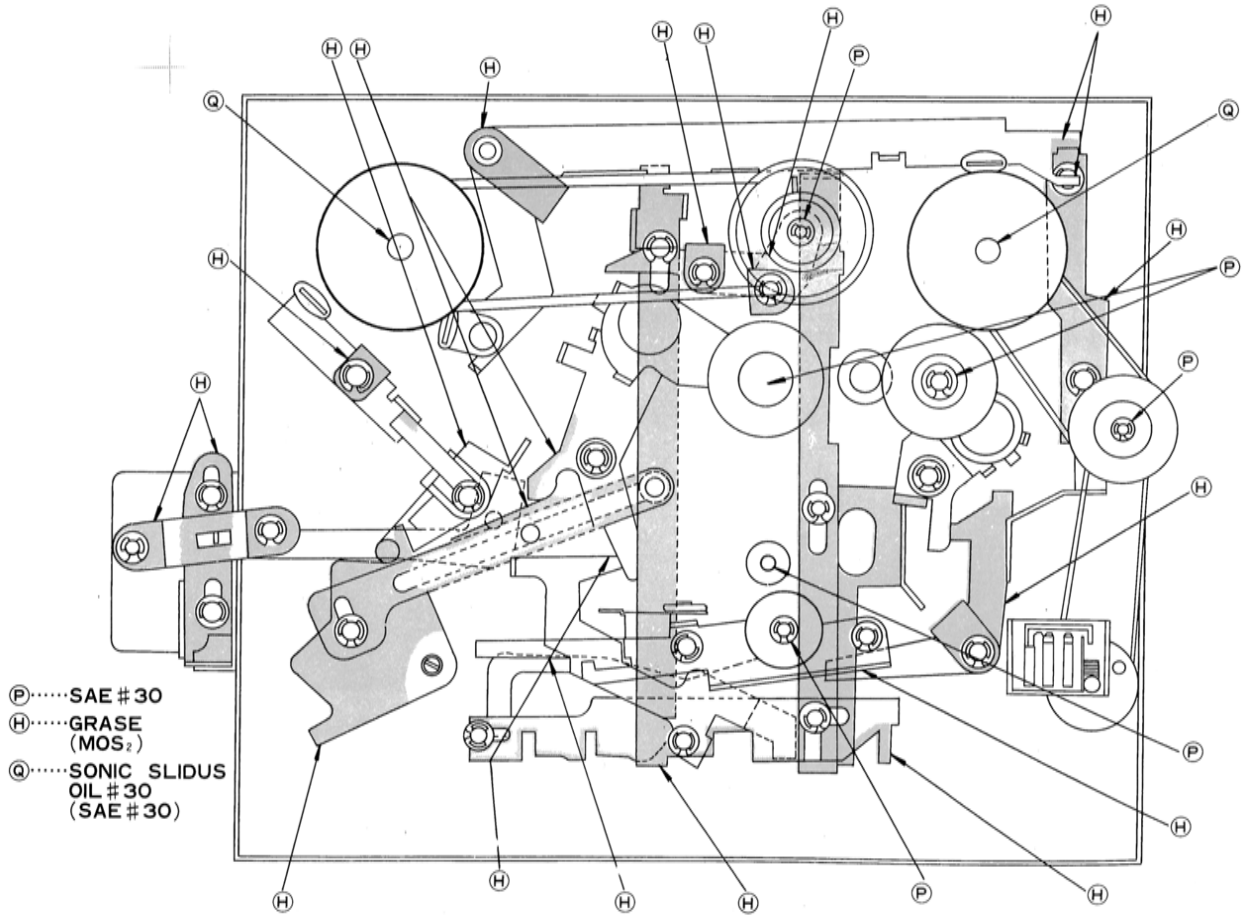


Fig. 6

ADJUSTMENT OF ELECTRIC CIRCUIT

1. Angle adjustment of recording and playback head

a) Adjustment of tape position

Check whether or not the tape is correctly positioned on the recording and playback head. This adjustment can be made by regulating the height of the tape guide (-screw).

b) Angle adjustment of record/playback head

Prepare a standard tape for angle adjustment (NAB standard, 2-tack) and adjust the screw for angle adjustment so that the voltage of the reproducing output reaches the maximum.

After the adjustment, the output level should not change excessively if the pad is slightly pressed manually.

When using an ordinary recorded tape, adjustment should be made under conditions of maximum sound volume and high-pitched by turning the volume and tone control knobs fully clockwise.

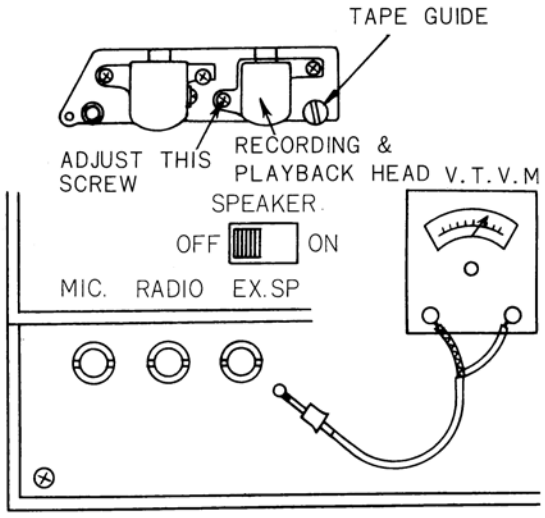


Fig. 7

2. Bias adjustment

Bias oscillating frequency of TRQ-710 is aprox. 60KHz. Adjust the bias in the following way:

a) Place the machine in a recording condition.

b) Remove the ground side lead wire of the recording and playback head terminals, then connect the resistor (100 ohm) and connect the resistor to the ground side.

c) Measure the voltage after connecting V.T.V.M (vacuum tube voltmeter) as shown in Fig. 8. and adjust the semi-fixed resistor (VR4) so that the voltage shows the value indicated 40mV.

Erasing current of the erasing head is normal when it is within 13-30mA.

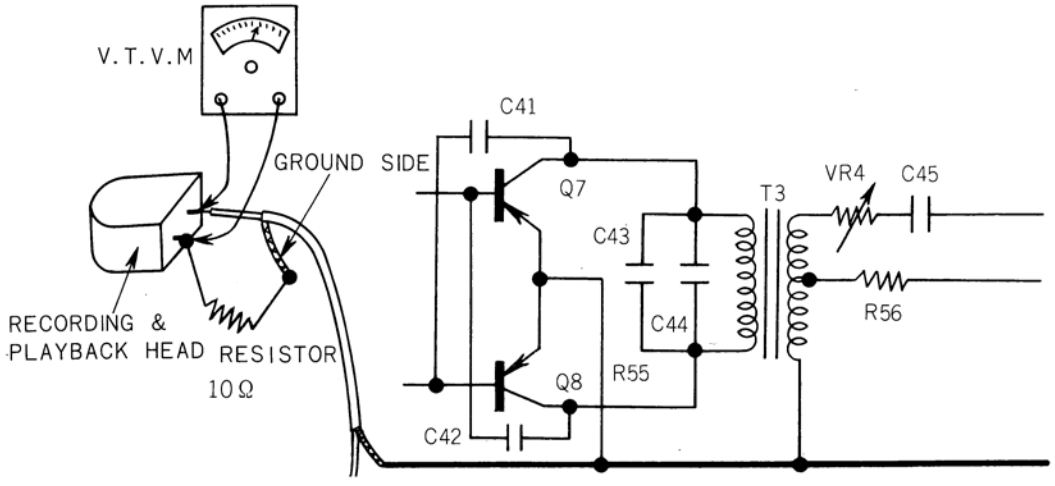


Fig. 8

ADJUSTMENT FOR MECHANICAL SECTIONS

1) Pressing force on each section

a) Pinch roller Pressing force·····1. 0kg$^{+0.2}_{-0.1}$kg.

Measuring method

Arrange so that the pinch roller presses against the capstan shaft (playback condition), and pull the pinch roller in a right angle direction against the pinch roller arm. Then measure the slight value remaining, occasioned by the pressure of the pinch roller against the capstan shaft, by using a bar gauge (rating 3kg or 5kg).

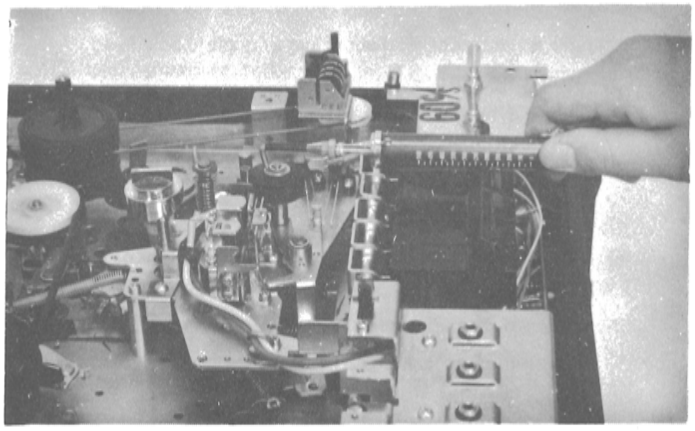


Fig. 9

b) Pad pressing force 50gr±10gr

Measuring method

The value is measured when the pad is disengaged from the head surface by applying the tension gauge (rating 100gr) to the pad center and upper end.

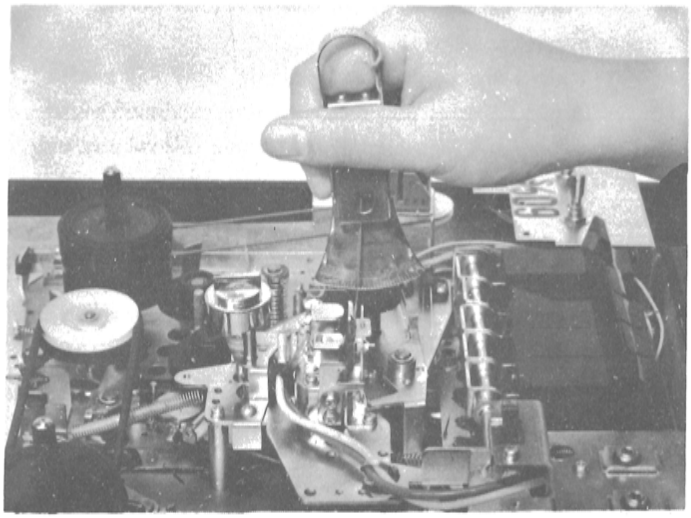


Fig. 10

c) Winding idler pressing force 150gr±30gr

Measuring method

Lock the machine by depressing the play button (PLAY) (play condition).

Measure the value when the winding idler disengages from the motor pulley and the winding pulley at the same time.

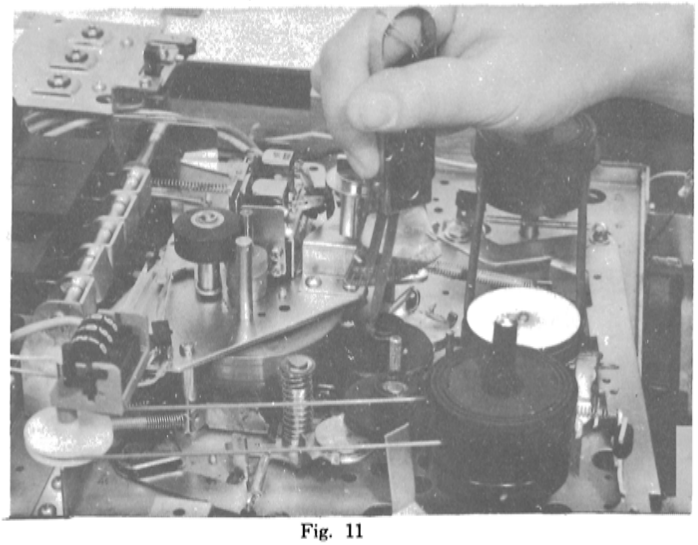


Fig. 11

d) Playback idler pressing force
When the tape speed is 19 cm/sec……200gr±40gr
When the tape speed is 9.5 cm / sec…175gr±40gr
When the tape speed is 4.75 cm/sec…150gr±40gr
Measuring method
Lock the machine by depressing the play button (PLAY) (play condition). Measure the value when the playback idler disengages from the flywheel and the motor pulley at the same time.

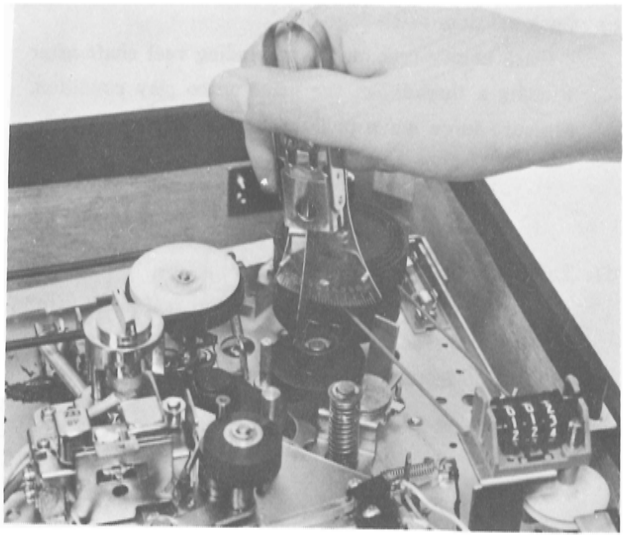


Fig. 12

e) Rewinding (R) idler pressing force……450gr±50gr
Measuring method
Lock the machine by depressing the rewinding button (REWIND) (rewinding condition). Measure the value when the rewinding idler disengages from the motor pulley.

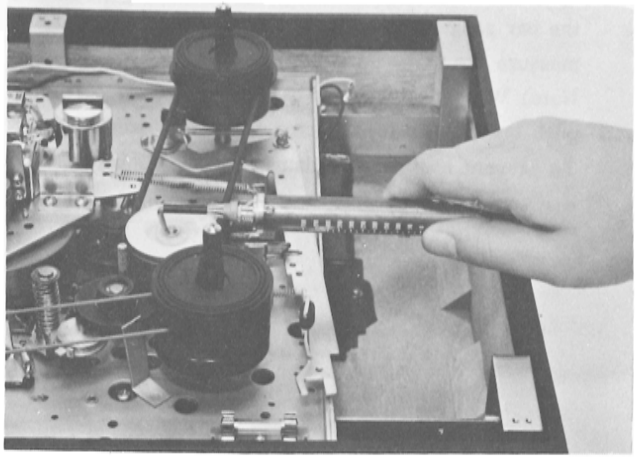


Fig. 13

2) Torque of each section
a) Winding torque……45～80gr-cm
Measuring method
Place the machine in a horizontal position and turn the power source to ON position: then place the 7″ empty reel on the winding side reel shaft. Wind a thread inside it and measure the winding torque in a play condition (PLAY).

b) Winding and supplying friction coupling torque
Takeup or rewinding torque…200～300gr-cm
Measuring method
Place the machine in a vertical position, and turn the power source to ON position. Wind a turn inside the 7″ empty reel and measure the torque in a fast forwarding condition of the takeup. Place in a rewinding condition for the rewinding.

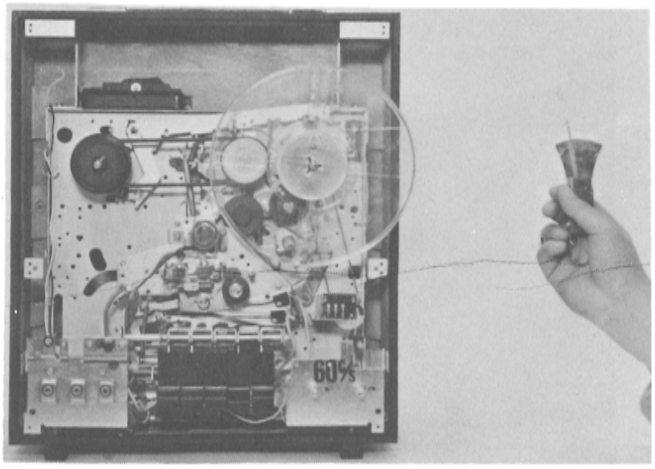


Fig. 14

c) Back tension·····15-36gr-cm

Place empty reel on the rewinding reel shaft after winding a thread. Set the machine to play condition. Measure force when pulling out the thread.

d) Takeup back tension·····15~35gr

Place 7″ empty reel on the takeup reel shaft after winding a thread. Set the machine to rewinding condition. Measure the force when pulling out the thread.

e) Push button operating force·····Under 3. 2kg

Place the machine in a horizontal position. Apply the bar gauge to the tip of the push button and measure the force until the button is locked.
Note) When applying the bar gauge directly to the push button, the push button may be damaged. To prevent any possible damage, use a rubber sheet between the gauge and the button.

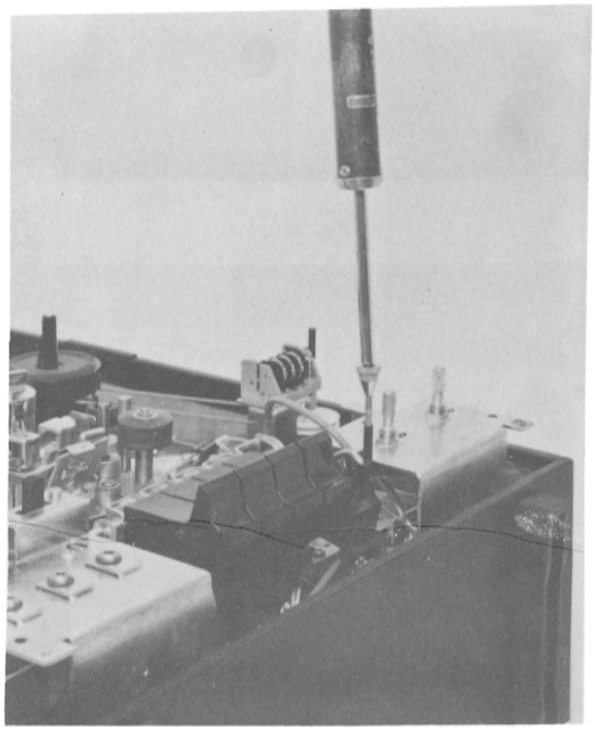


Fig. 17

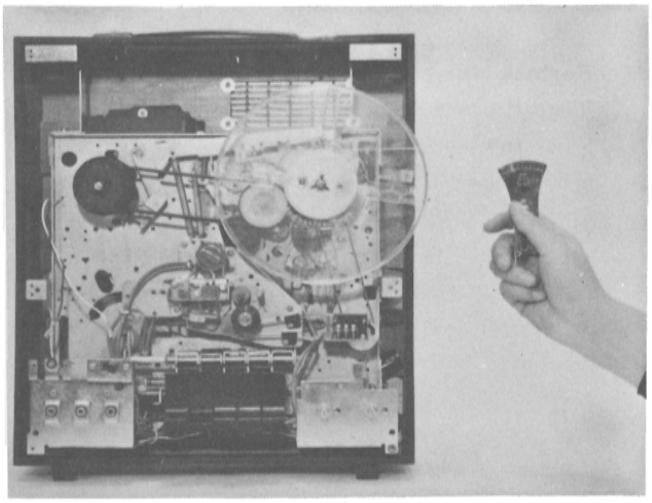


Fig. 15

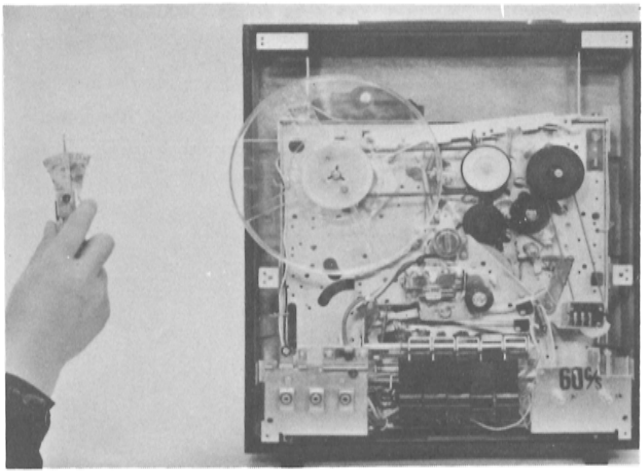


Fig. 16

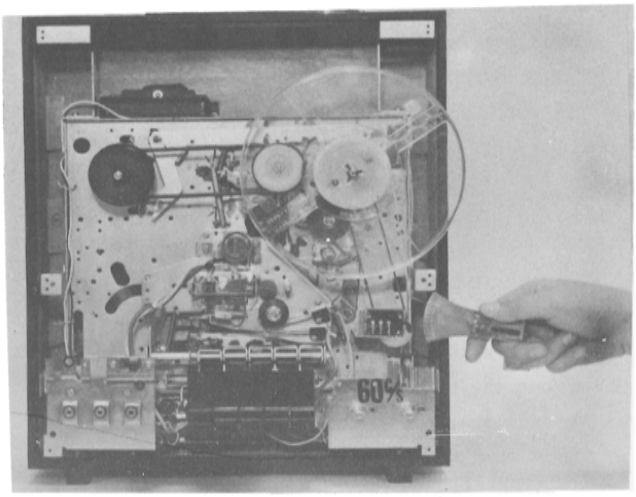


Fig. 18

3) Adjustment of installation position

a) Installation position of the muting switch (Fig. 19)

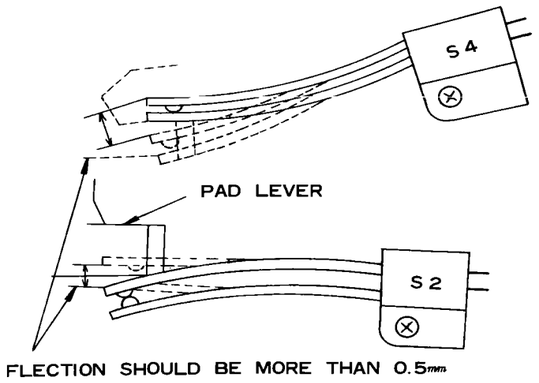


Fig. 19

b) Installation position of motor pulley (Fig. 20)

The standard distance between the chassis and the motor pulley is 2 ±0.1mm. After installing the pulley in this position, try the speed change and adjust the position, while confirming that the playback idler correctly enters each stage of the motor pulley.

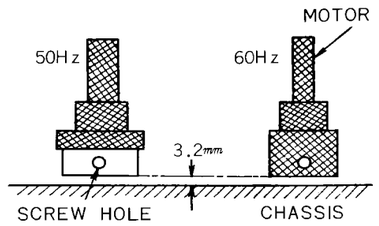


Fig. 20

TROUBLE-SHOOTING

The followings are important malfunctions and their countermeasures.

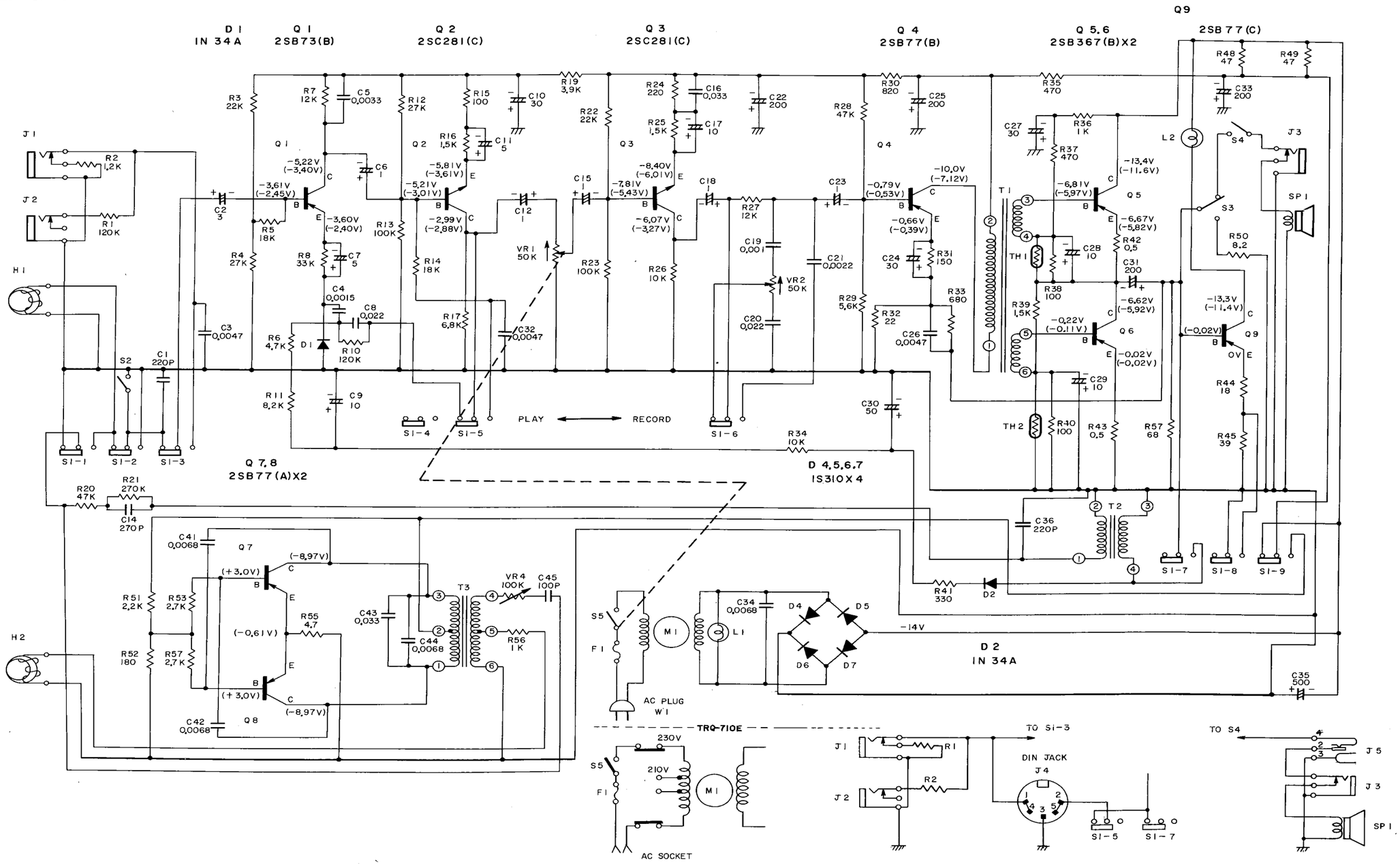
While reproducing	Cause	Countermeasures
Tape does not run.	Pinch roller does not press, or it slips.	Is pressing force normal? Is the spring disconnected? Does oil adhere to the pinch roller and the capstan?
Speeds do not coincide. Unstable revolution	Heights of the playback idler and the motor pulley do not coincide. Winding torque is large. Insufficient oil on the capstan shaft.	Pulley is lowered because of loose screwing of the motor pulley. Check the pressing force on each section. Check relative mechanisms of the winding reel base. Oiling.
Disabled fast forward	Check the supply back tension. Check the winding coupling torque.	Oiling. When the torque and tension are too weak, replace the assembly.
Disabled rewinding	Check slipping portion. Check the supply coupling torque and winding side back tension. Check the pressing force of playback idler.	When they are weak and do not conform to designated value, replace the assembly. Oiling. Confirm any deformation of the spring.

REPLACEMENT PARTS

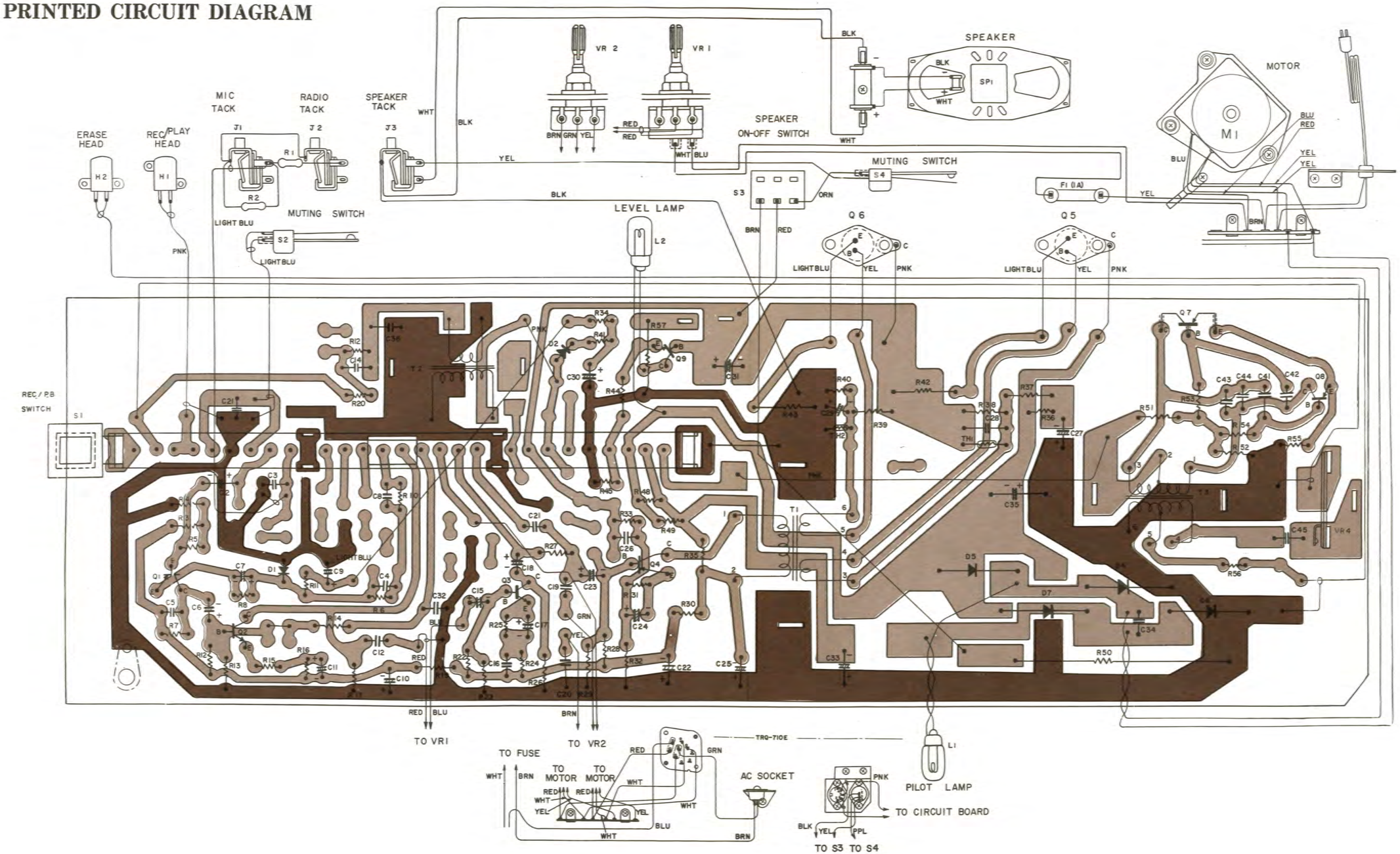
Symbol No.	Stock No.	Description		
CAPACITORS:				
C 1	0248732	Ceramic	220pF ±10%	50WV
C 2	0252213	Electrolytic	3μF	6WV
C 3	0274015	Polyester film	0.0047μF ±10%	
C 4	0274012	Polyester film	0.0015μF ±10%	
C 5	0274014	Polyester film	0.0033μF ±10%	
C 6	0252211	Electrolytic	1μF	6WV
C 7	0252215	Electrolytic	5μF	6WV
C 8	0275013	Polyester film	0.022μF ±10%	
C 9	0252221	Electrolytic	10μF	6WV
C 10	0252323	Electrolytic	30μF	10WV
C 11	0252215	Same as C7		6WV
C 12	0252211	Same as C6		6WV
C 13	0274015	Same as C3		
C 14	0248734	Ceramic	270pF ±10%	50WV
C 15	0252311	Electrolytic	1μF	10WV
C 16	0275014	Polyester film	0.033μF ±10%	
C 17	0252221	Same as C9		
C 18	0252211	Same as C6		
C 19	0274011	Polyester film	0.001μF ±10%	
C 20	0275013	Same as C8		
C 21	0274014	Same as C5		
C 22	0252532	Electrolytic	200μF	15WV
C 23	0252211	Same as C6		6WV
C 24	0252223	Electrolytic	30μF	6WV
C 25	0252532	Same as C22		
C 26	0274115	Polyester film	0.0047μF ±20%	
C 27	0252523	Electrolytic	30μF	15WV
C 28	0252221	Same as C9		
C 29	0252221	Same as C9		
C 30	0252225	Electrolytic	50μF	6WV
C 31	0252532	Same as C22		
C 32	0274115	Same as C26		
C 33	0252532	Same as C22		
C 34	0274116	Polyester film	0.0068μF ±20%	
C 35	0252535	Electrolytic	500μF	15WV
C 41	0274016	Polyester film	0.0068μF ±10%	
C 42	0274016	Same as C41		
C 43	0275014	Same as C16		
C 44	0274016	Same as C41		
C 45	0247894	Ceramic	100pF ±10%	500WV
RESISTORS:				
R 1	0137952	Carbon film	120KΩ ±10%	SRD¼SD
R 2	0122369	Composition	1.2KΩ ±10%	RD¼L
R 3	0137905	Carbon film	22KΩ ±10%	SRD¼SD
R 4	0137906	Carbon film	27KΩ ±10%	SDR¼SD
R 5	0137904	Carbon film	18KΩ ±10%	SRD¼SD
R 6	0137859	Carbon film	4.7KΩ ±10%	SRD¼SD
R 7	0137902	Carbon film	12KΩ ±10%	SRD¼SD
R 8	0137907	Carbon film	33KΩ ±10%	SRD¼SD
R 10	0137952	Carbon film	120KΩ ±10%	SRD¼SD
R 11	0137862	Carbon film	8.2KΩ ±10%	SRD¼SD
R 12	0137906	Same as R4		
R 13	0137951	Carbon film	100KΩ ±10%	SRD¼SD
R 14	0137904	Same as R5		
R 15	0137801	Carbon film	100Ω ±10%	SRD¼SD
R 16	0137853	Carbon film	1.5KΩ ±10%	SRD¼SD
R 17	0137861	Carbon film	6.8KΩ ±10%	SRD¼SD
R 18	0137901	Carbon film	10KΩ ±10%	SRD¼SD

Symbol No.	Stock No.	Description		
R 19	0137858	Carbon film	3.9KΩ ±10%	SRD¼SD
R 20	0137909	Carbon film	47KΩ ±10%	SRD¼SD
R 21	0137956	Carbon film	270KΩ ±10%	SRD¼SD
R 22	0137905	Same as R3		
R 23	0137951	Same as R13		
R 24	0137805	Carbon film	220Ω ±10%	SRD¼SD
R 25	0137853	Same as R16		
R 26	0137901	Same as R18		
R 27	0137902	Same as R7		
R 28	0137909	Same as R20		
R 29	0137860	Carbon film	5.6KΩ ±10%	SRD¼SD
R 30	0137812	Carbon film	820Ω ±10%	SRD¼SD
R 31	0137803	Carbon film	150Ω ±10%	SRD¼SD
R 32	0137759	Carbon film	10Ω ±10%	SRD¼SD
R 33	0137808	Carbon film	390Ω ±10%	SRD¼SD
R 34	0137901	Same as R18		
R 35	0137809	Carbon film	470Ω ±10%	SRD¼SD
R 36	0137851	Carbon film	1KΩ ±10%	SRD¼SD
R 37	0137809	Same as R35		
R 38	0137801	Same as R15		
R 39	0137853	Same as R16		
R 40	0137801	Same as R15		
R 41	0137807	Carbon film	330Ω ±10%	SRD¼SD
R 42	0149101	Wire wound	0.5Ω ±10%	RU½
R 43	0149101	Same as R42		
R 44	0137762	Carbon film	18Ω ±10%	SRD¼SD
R 45	0137766	Carbon film	39Ω ±10%	SRD¼SD
R 46	0134285	Composition	8.2Ω ±10%	RC½GF
R 48	0134297	Composition	47Ω ±10%	RC½GF
R 49	0134297	Same as R48		
R 50	0190046	Wire wound	8.2Ω ±10%	RG5
R 51	0137855	Carbon film	2.2KΩ ±10%	SRD¼SD
R 52	0137804	Carbon film	180Ω ±10%	SRD¼SD
R 53	0137856	Carbon film	2.7KΩ ±10%	SRD¼SD
R 54	0137856	Same as R53		
R 55	0137755	Carbon film	4.7Ω ±10%	SRD¼SD
R 56	0137851	Same as R36		
VR 1	0153606	Variable	50KΩ (A)	VR-24
VR 2	0153058	Variable	50KΩ (A)	VR-24
RV 4	0159023	Adjustable	100KΩ (B)	RV-S
TRANSISTORS:				
Q 1	0573018			2SB73 (B)
Q 2	0573066			2SC281 (C)
Q 3	0573066	Same as Q2		
Q 4	0573004			2SB77 (B)
Q 5	0573049			2SB370 (B)
Q 6	0573049	Same as Q5		
Q 7	0573003			2SB77 (A)
Q 8	0573003	Same as Q7		
Q 9	0573119			2SB77 (C)
D 1	0575001	Diode		1N34A
D 2	0575001	Same as D1		
D 4~7	0552010	Silicon rectifire		1S310
TH 1	0576056	Thermistor		D-1E
TH 2	0576056	Same as TH1		

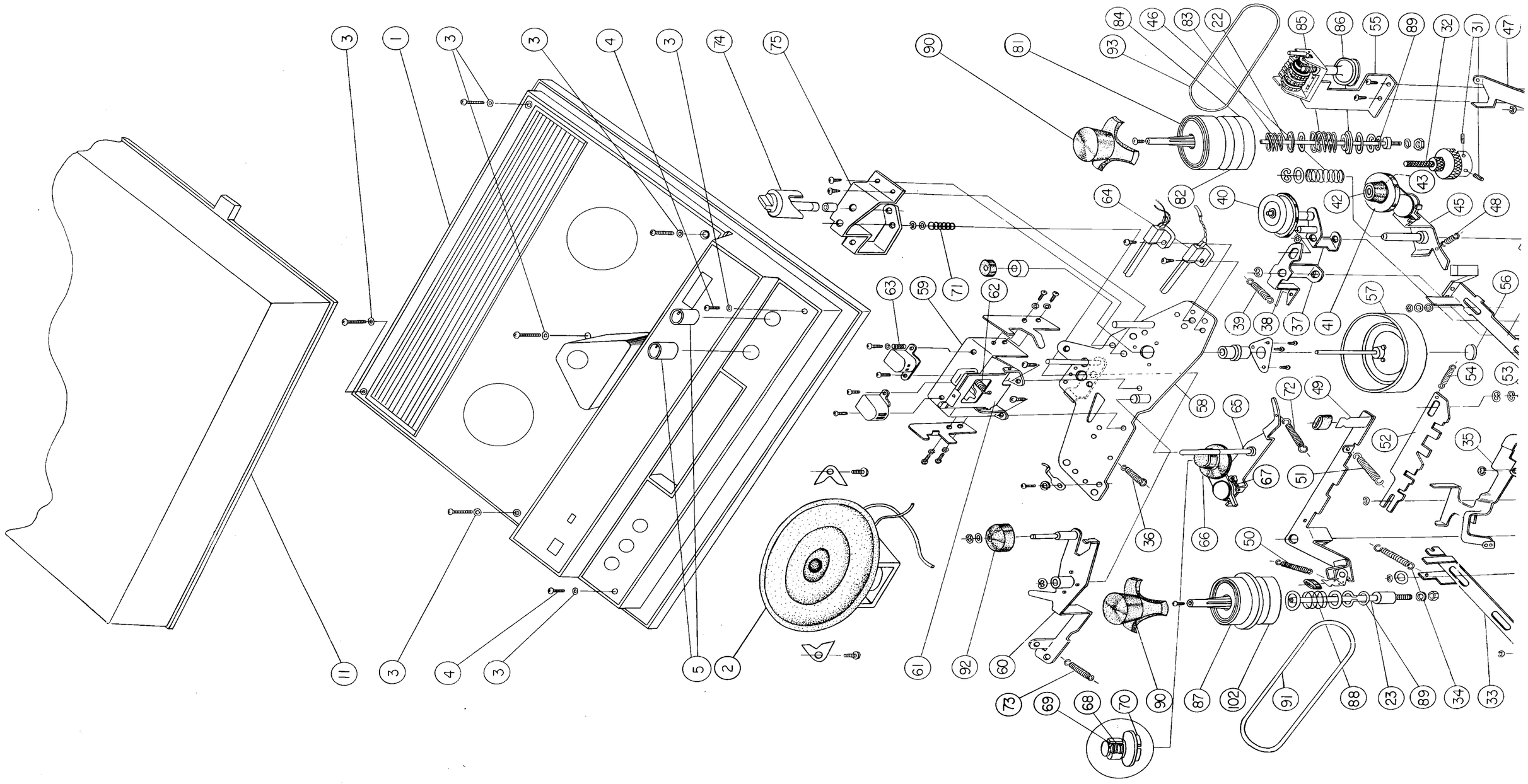
CIRCUIT DIAGRAM

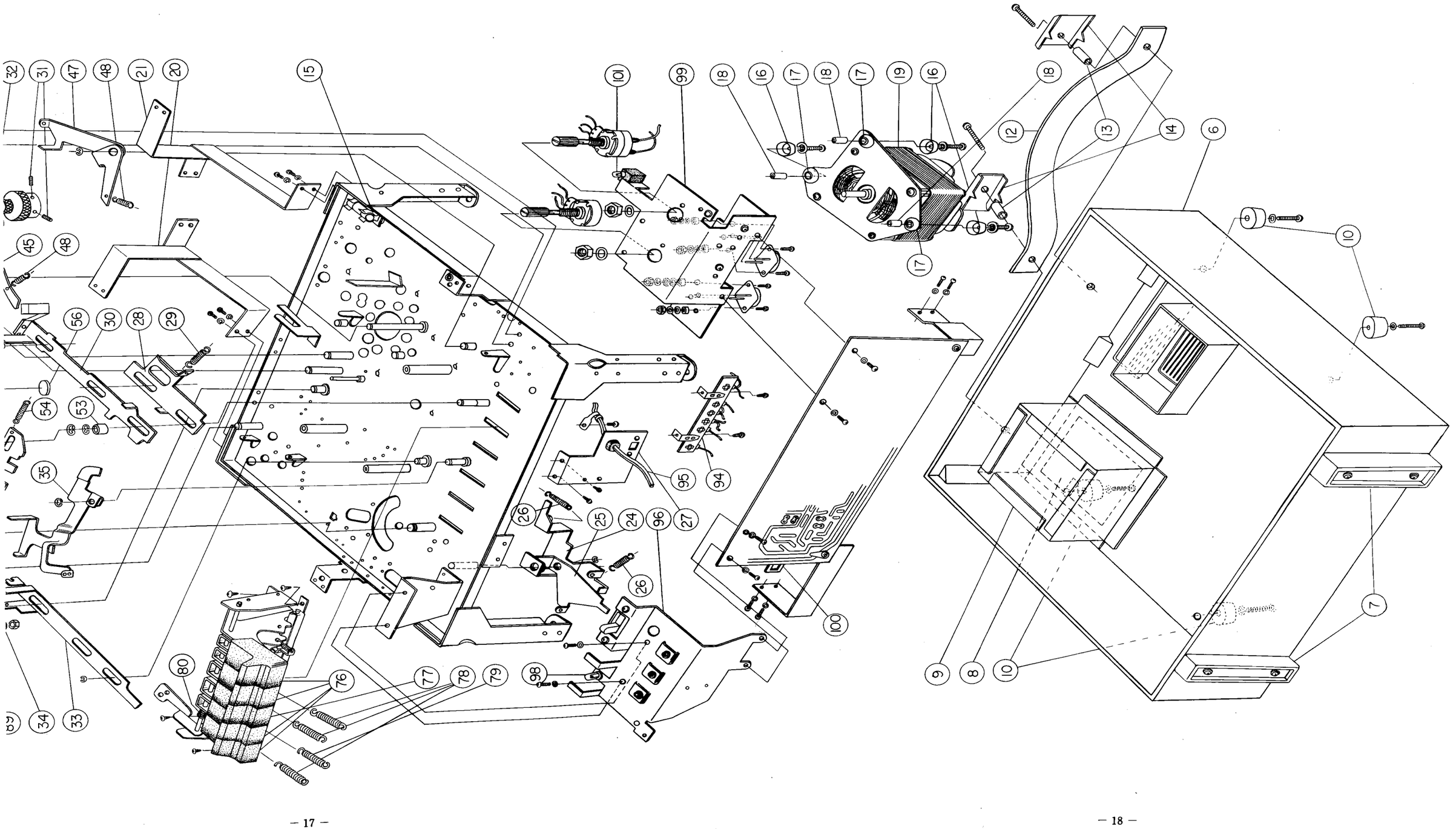


PRINTED CIRCUIT DIAGRAM



DISASSEMBLED DIAGRAM

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REPLACEMENT PARTS

Symbol No.	Stock No.	Description
		TRANSFORMERS:
T 1	0441054	Audio input
T 2	0451107	Audio output
T 3	0316532	Oscillator coil
		MISCELLANEOUS:
		for Final assembly
	0592105	Microphone
	0593454	Cord-external cord
①	6112091	Deck assembly
	0544547	Terminal
	8781436	Screw-3㎜φ×6㎜ tapping screw
	8811114	Washer-3㎜φwasher
②	0526161	Speaker
	8711406	Screw-3㎜φ×6㎜ pan head screw } (4 req'd)for
	8811114	Washer-3㎜φ washer } (4 req'd)for
	8813124	Washer-3㎜φ washer } (4 req'd)for
		speaker mounting
③	0941277	Washer } (7 req'd) for deck plate mounting
④	0954041	Screw } (7 req'd) for deck plate mounting
⑤	6600932	Knob assembly
⑥	6112143	Cabinet assembly (210/230V)
	6112142	Cabinet assembly (120V)
⑦	7660461	Rubber base (2 req'd)
⑧	0015464	Storage cover assembly
	8811114	Washer-3㎜φ washer } (3 req'd)
	8755413	Screw-3. 1㎜φ×13㎜ wood screw } (3 req'd)
		for storage cover mounting
⑨	7710213	Accessory compartment (210/230V)
	7710212	Accessory compartment (120V)
⑩	0971196	Rubber base (4 req'd)
	8812116	Washer-4㎜φ washer } (4 req'd)
	0711630	Screw-4㎜φ×30㎜ pan head screw } (4 req'd)
		for rubber base mounting
⑪	6112111	Upper cover assembly
⑫	0015307	Handle
	0736620	Screw-4㎜φ×20㎜ oval screw (2 req'd) for
		handle mounting
⑬	7500171	Collar-handle collar
⑭	0945062	Metal-metal for handle
		for Chassis assembly
	0591167	Fuse-1A fuse
⑮	0591157	Holder-fuse holder
	8813126	Washer-4㎜φ spring washer (3 req'd)
	0954020	Screw-4㎜φ×18㎜ pan head screw (3 req'd)
⑯	0941291	Holder-motor holder
	0942184	Plate-motor plate
	0711608	Screw-4㎜φ×8㎜ pan head screw } (4 req'd)
		Washer-4㎜φ spring washer } (4 req'd)
⑰	0971120	Cushion-motor cushion
⑱	7500212	Collar-motor collar
⑲	0514138	2P induction motor (210/230V, 50/60Hz)
	0514137	2P induction motor (120V)
	0711406	Screw-3㎜φ×6㎜ pan head screw } (4 req'd)
	8813124	Washer-3㎜φ spring washer } (4 req'd)
⑳	7163611	Handle plate assembly (left)
㉑	7163621	Handle plate assembly (right)
	0941796	Printed circuit board holder (let)
	0711406	Screw-3㎜φ×6㎜ pan head screw } f(2 req'd)
	8813124	Washer-3㎜φ spring washer } f(2 req'd)
		for printed circuit board holder mounting
	0941795	Printed circuit board holder (right)
		Screw-3㎜φ×6㎜ pan head screw } (2req'd)for
		Washer-3㎜φ spring washer } (2req'd)for
		printed circuit board holder mounting
	0941435	Fuse holder assembly
	8781436	Screw-3㎜φ×6㎜ tapping screw
㉒	7500501	Shaft-shaft for takeup plate
㉓	7500521	Shaft-shaft for sending reel base
	0821116	Nut-4㎜φ nut } (2 req'd)
	8813126	Warher-4㎜φ spring washer } (2 req'd)
㉔	0941759	Lever-recording lever (1)
㉕	0941760	Lever-recording lever (2)
㉖	0662187	Spring-slide switch spring
	0948537	Felt
㉗	0941801	Holder-speaker switch holder
	0711405	Screw-3㎜φ×5㎜ pan head screw } (2 req'd)
	8813124	Washer-3㎜φ spring washer } (2 req'd)
		for switch holder mounting
	0541355	Socket-2P socket
	0541358	Socket-5P socket
	7164561	Holder-socket holder
	0711406	Screw-3㎜φ×6㎜ pan screw (4 req'd)
	0711406	Screw-3㎜φ×6㎜ tapping screw (2req'd)
㉘	0941141	Lever-fast forward lever
㉙	0662124	Sprng-spring for fast forward
㉚	0941144	Lever-brake lever
	0948544	Washer-fibber washer
	0941259	Washer-"E" type retaining washer
㉛	0944452	Screw
㉜	0944779	Pulley-motor pulley (50Hz)
	0944780	Pulley-motor pulley (60Hz)
㉝	0941150	Rewinding idler lever

REPLACEMENT PARTS

Symbol No.	Stock No.	Description
	0948544	Washer-fibber washer
	0941259	Washer-"E" type retaining washer
㉞	0948637	Spring-rewinding lever spring
㉟	0941829	Playing lever assembly
㊱	0948316	Sprig-playing lever spring
㊲	0941726	Rewinding idler lever assembly
㊳	0941170	Lever-rewinding idler lever (2)
㊴	0662257	Spring
㊵	0015408	Rewinding idler assembly
	0636553	Washer-rewinding washer
	0948578	Washer-nylon washer
	0948755	Felt
	0941258	Washer-"E" type retaining washer
㊶	0971150	Idler wheel
	0948595	Washer-nylon washer
㊷	0971105	Cap-idler cap
㊸	0958067	Felt-felt for push button
㊺	0941159	Fast forward idler assembly
㊻	0948631	Spring-fast forward spring
㊼	0941162	Lever-fast forward lever
㊽	0662126	Spring
㊾	7160951	Brake lever assembly
㊿	0662130	Spring-brake spring
(51)	0662222	Spring-brake lever spring
(52)	0941175	Timing plate
(53)	0944467	Collar
(54)	0639391	Spring-spring for timing plate
(55)	7162322	Counter assembly
	8781436	Screw-3㎜φ×6㎜ tapping screw (2 req'd)
(56)	0630564	Pad-flywheel pad
(57)	0971258	Flywheel assembly
(58)	7163081	Sub chassis assembly
(59)	0941430	Head plate assembly
(60)	0941176	Pressure roller arm assembly
(61)	0941178	Pad assembly
(62)	0948461	Spring-pad spring
H1	5440012	Head-recording playback head
H2	0513233	Head-erase head
	8811233	Washer-2. 6㎜φ washer
	0711306	Screw-2. 6㎜φ×6㎜ pan head screw (3 req'd)
(63)	0948102	Spring-head adjust spring
	0711314	Screw-2. 6㎜φ×14㎜ pan head screw
S2	0539063	Switch-muting switch
	8781438	Screw-3㎜φ×8㎜ tapping screw
(64)	0539087	Switch-muting switch
(65)	7163021	Playback lever assembly
(66)	0971223	Idler wheel (R)
(67)	0662128	Spring
(68)	0948601	Washer- idler oil washer
	0948727	Washer-nylon washer
	0941258	Washer-"E" type retaining washer
(69)	0971215	Cap-idler cap
(70)	0958067	Felt-felt for push button
(71)	6310721	Spring-spring for tape speed selector
(72)	0662129	Spring
	0948634	Washer-flywheel washer
	0941183	Cap-oil cap
	0948753	Washer-flywheel washer
(73)	0662199	Spring-spring for pressure roller arm
	8813124	Washer-3㎜φ spring washer } (3 req'd)
	0711408	Screw-3㎜φ×8㎜ pan head screw } (3 req'd)
		for sub chassis mounting
(74)	6701211	Knob-tape speed selector knob
(75)	7171581	Holder-knob holder
	8781436	Screw-3㎜φ×6㎜ tapping screw (2 req'd)
		for holder mounting
(76)	6260701	Button-push button
(77)	6260711	Button-push button (s)
(78)	0662131	Spring-push lever spring
(79)	0662062	Spring-spring for record, playback switch
(80)	0662132	Spring-shaft spring
	8781436	Screw-3㎜φ×6㎜ tapping screw (4 req'd)
	0711406	Screw-3㎜φ×6㎜ pan head screw
	8813124	Washer-3㎜φ spring washer
(81)	6410052	Takeup reel stand assembly
(82)	6410661	Takeup pulley assembly
(83)	6310301	Spring-spring for reel stand
	7710151	Washer
(84)	6700751	Pulley-takeup pulley (B)
(85)	6310311	Spring
(86)	7500511	Collar-takeup collar
	7660241	Washer-nylon washer
	7161437	Washer-"E" type retaining washer
(87)	6410082	Supply reel stand assmbly
(88)	0948234	Spring-spring for supply reel stand
	0940048	Washer
	0948662	Snap

REPLACEMENT PARTS

Symbol No.	Stock No.	Descripton
⑧⑨	0948544	Washer-fibber washer
	0944493	Screw
⑨⓪	7660261	Supporter-reel supporter
⑨①	0971126	Belt-rewinding belt
⑨②	0971104	Roller-pressure roller
	0636553	Washer
	0941258	Washer- 'E' type retaining washer
⑨③	6350001	Belt-counter belt
⑨④	0544404	Terminal- 6P terminal
	8781436	Screw-3mmφ×6mm tapping screw (2 req'd) for terminal mounting
⑨⑤	5740481	Cord-power cord (210/230V)
	0593464	Cord-power cord (120V)
	0711406	Screw-3mmφ×6mm pan head screw } (4req'd)for
	8811114	Washer-3mmφ washer } (4req'd)for
	8813124	Washer-3mmφ spring washer } (4req'd)for jack plate mountjng
	8781436	Screw-3mmφ×6mm tapping screw (2 req'd) for volume holder mounting

Symbol No.	Stock No.	Descripton
		for Printed circuit board assembly
	8811114	Washer-3mmφ washer (4 req'd)
	8813124	Washer-3mmφ spring washer (4 req'd)
	0711406	Screw-3mmφ×6mm pan head screw (4 req'd)
⑨⑥	7164251	Plate-jack plate
⑨⑦	0544186	Terminal- lug terminal
T1,T2,T3	0543082	Jack-jack (red)
	0635594	Washer-jack washer
	0948772	Washer
S3	0532158	Switch-slide switch for speaker
⑨⑧	0594088	Lamp-pilot lamp
	0711406	Screw-3mmφ×6mm pan head screw } (2 req'd)
	8813124	Washer-spring washer } (2 req'd) for switch mounting
⑨⑨	7164261	Holder-volume holder
⑩⓪	5620011	Switch-slide switch
⑩①	0594111	Lamp-pilot lamp
⑩②	0015171	Pulley-Rewinding pulley

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Cable Address: "HITACHY" TOKYO
Codes: All Codes Used

Printed in Japan