



KENWOOD
HI/FI STEREO COMPONENTS

SERVICE MANUAL

KW-8077



**6 HEAD 3 MOTOR
AUTO REVERSE STEREO TAPE DECK**

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■ PARTS LIST

Symbol No.	Description	Part No.	Remarks
MECHANISM ASSEMBLY (UA0202K)			
—	Endless Flat Belt	D16-0001-13	
—	Housing Base	F08-0001-05	
—	Housing Pin (A) x 2	J12-0002-04	
—	Housing Pin (B)	J12-0003-04	
—	Housing (A) Assembly	F08-0025-03	
—	Badge	B43-0009-04	
—	Housing (B) Lower	F08-0024-03	
—	Housing Guide x 2	J90-0001-04	
—	Sheet	G16-0025-04	
—	Decorated Screw x 4	N08-0020-04	
—	Loading Knob Assembly	K20-0003-04	
MECHANISM CHASSIS ASSEMBLY (A70-0011-00)			
—	Main Chassis Assembly	A10-0207-01	
—	Lead Holder	J21-0392-04	
—	Bearing Plate	J09-0015-04	
—	Wheel Bearing Disc	J09-0005-04	
—	Legs (A) x 2	J01-0001-03	
—	Legs (B) x 2	J01-0002-03	
—	Panel Holder x 4	J21-0023-04	
—	Cord Bushing	J41-0004-05	
—	Legs (C)	J01-0003-13	
S13	AC Hz Selector (Slide)	S31-2011-05	
—	Trans. Holder	J21-0078-03	
—	Rear Panel Holder	J21-0035-04	
—	Rear Panel Stud x 3	J32-0013-04	
—	Chassis Holder x 6	J21-0026-04	
—	Feeder Consent	E08-0201-05	
—	Switch Holder x 2	J21-0027-04	
S6	TIME LAG Switch (Micro) x 3	S50-1002-05	
—	Actuator x 2	D10-0004-05	
CR7, 8	C-R Composite Parts 0.1 μ F + 120 Ω (DC250WV)	R90-0001-05	
—	Eccentric Cam Stopper	D32-0002-04	
—	Eccentric Cam Shaft	D21-0009-04	
—	Eccentric Cam Bearing Assembly	D23-0009-14	
—	TIME LAG Pulley Assembly	D15-0005-04	
—	Magnet	J18-0001-05	
—	Round Belt	D16-0002-04	
—	Lever (C) Assembly	D10-0005-04	
—	Lever (B)	D10-0007-04	
—	Switching Lot	D17-0002-04	
—	Cam	D12-0007-04	
—	Coil Spring	G01-0009-14	
—	Lever (A)	D10-0009-04	
—	Arm Shaft	D21-0013-04	
—	Loading Lot (A)	D17-0003-14	
—	Coil Spring	G01-0010-04	
—	Shaft Holder	J21-0028-14	
—	Knob Shaft	D21-0014-14	
—	Loading Lot (B)	D17-0004-04	
—	Loading Lot (C)	D17-0005-04	

■ PARTS LIST

Symbol No.	Description	Part No.	Remarks
—	Lot	D19-0001-14	
—	Tape Counter	B35-0003-05	
—	Counter Reseter	K29-0010-14	
—	Tape Counter Holder	J21-0032-04	
—	Counter Shaft Assembly	D23-0007-04	
—	Counter Pulley	D15-0009-04	
—	Counter Pulley	D15-0010-04	
—	Pulley Shaft	D21-0023-04	
—	Round Belt (104.6 ϕ x 1.4 ϕ)	D16-0015-04	
—	Round Belt (76.7 ϕ x 1.5 ϕ)	D16-0006-04	
SOL1	Brake Solenoid	T94-0007-05	
—	Metal Holder (A)	J21-0672-04	
—	Metal Holder (B)	J21-0673-04	
—	Joint Pin	J12-0001-05	
—	Metal Holder (C)	J21-0074-04	
—	Metal Holder (D)	J21-0675-04	
—	Spring Hook x 2	J19-0058-04	
—	Coil Spring	G01-0062-04	
—	Metal Holder (E) x 2	J21-0676-04	
—	Band Brake	J61-0020-04	
—	Brake Lining	D33-0003-04	
—	Brake Arm Assembly (L)	D11-0082-04	
—	Brake Arm Assembly (R)	D11-0083-04	
—	Lever Switch	D10-0039-04	
—	Band Stopper x 2	J19-0059-04	
SOL2	Capstan Solenoid	T94-0006-05	
—	Spacer	J30-0001-04	
—	Lot Stopper	D32-0007-04	
—	Rubber Cushion	G13-0001-04	
—	Screw (for Lot)	N09-0005-04	
—	Connecting Lot	D17-0010-04	
—	Lot Stopper	D32-0008-04	
—	Coil Spring	G01-0018-04	
—	Special Nut	N14-0005-04	
S8	MUTING Switch (Leaf)	S46-2003-13	
—	Lug	E22-0206-05	
C1, 2	Phase Advancer Capacitor 2.8 μ F + 1 μ F 200WV	C90-0003-05	
—	Metal Fixture	F31-0051-04	
C5, 7	Phase Advancer Capacitor 2.5 μ F 250WV	C90-0016-05	
R2	Wire Wound 100 Ω	R92-0001-05	
R3	Cement Coated 2k Ω 20W	R92-0009-05	
R4	Cement Coated 300 Ω 40W	R92-0010-05	
R5	Cement Coated 300 Ω 40W	R92-0012-05	
R6, 7	Wire Wound 300 Ω 18W	R92-0011-05	
M2	LEFT REEL MOTOR	T40-0004-05	
M3	RIGHT REEL MOTOR	T40-0004-05	
—	Brake Dram x 2	D15-0055-03	
—	Reel Disc x 2	D03-0002-15	
—	Rubber Sheet x 2	G16-0001-04	
—	CAPSTAN MOTOR (synchronous)	T41-0001-15	
—	Belt Stopper x 2	J19-0060-04	
—	Belt Stopper x 2	J09-0007-04	

■ PARTS LIST

Symbol No.	Description	Part No.	Remarks
—	Motor Pulley	D15-0056-04	
T1	Power Transfromer	L09-0088-05	
HEAD CHASSIS ASSEMBLY (A70-0004-00)			
—	Head Chassis Assembly	A70-0008-03	
—	Head Chassis Stud x 4	J32-0004-04	
—	Arm Guide	J90-0002-05	
—	Weight Holder	J21-0011-04	
—	Weight	D91-0001-04	
—	Arm	D11-0002-04	
—	Boss (for Cam Supporter) x 2	J32-0005-14	
—	Cam Guide Plate Assembly	J90-0003-04	
—	Coil Spring	G01-0002-14	
—	Cam Plate Assembly	D12-0001-04	
—	Shifter Arm (L)	D11-0003-14	
—	Shifter Arm (R)	D11-0004-14	
—	Shifter Pin (A) x 2	J12-0005-04	
—	Shifter Guide x 2	J90-0004-04	
—	Shifter Assembly	J90-0005-04	
—	Cap Holder (L)	J19-0001-04	
—	Cap Holder (R)	J19-0002-04	
—	Screw (for Cap Holder) x 2	N09-0003-04	
—	Coil Spring	G01-0003-14	
—	Coil Spring	G01-0004-14	
—	Head Cap x 2	F19-0011-05	
—	Nut Plate x 2	N14-0001-04	
—	Pinch Roller Shaft	D21-0003-04	
—	Collar	J31-0001-04	
—	Pinch Roller Assembly	D14-0001-04	
—	Packing Felt x 2	G50-0002-04	
—	Cap (for Pinch Roller)	F19-0002-04	
—	Switching Arm (A)	D11-0005-04	
—	Arm Holder (A)	J21-0014-04	
—	Switch Shaft	D21-0005-04	
—	Shutter	F15-0004-04	
—	Switching Arm (B)	D11-0006-04	
—	Arm Holder (B)	J21-0015-04	
—	Switch Shaft	D21-0004-04	
—	Button Switch (B)	K29-0002-05	
—	Shutter	F15-0005-04	
—	Switching Arm (C)	D11-0007-04	
—	Arm Holder (C)	J21-0016-04	
—	Switch Shaft (B)	D21-0006-04	
—	Button Switch (C)	K29-0003-05	
—	Shutter	F15-0006-04	
S7	SEARCH (Leaf)	S46-2003-13	
—	Plate (for Head) x 2	J20-0003-04	
—	Erase Head (for FWD)	J32-0001-05	
—	Spring (for Adjusting the Head) x 9	G01-0005-14	
—	Record Head (for FWD)	T30-0001-05	
—	Playback Head (for FWD)	T31-0003-05	
—	Tape Guide x 2	J90-0006-04	
—	Tape Guide x 2	J90-0015-14	

■ PARTS LIST

Symbol No.	Description	Part No.	Remarks
—	Sensing Pole x 2	T99-0001-14	
—	Insulating Washer x 8	F29-0001-04	
—	Lug for GND x 3	E23-0015-04	
—	Erase Head (for REV)	T32-0002-05	
—	Spring (for Adjusting the Head) x 9	G01-0036-04	
—	Record Head (for REV)	T30-0002-05	
—	Playback (for REV)	T31-0004-05	
—	Lead Holder x 6	J19-0003-04	
SEARCH MECHANISM ASSEMBLY (D40-0001-00)			
—	Search Assembly	D40-0003-00	
—	Coil Spring x 2	G01-0006-14	
—	Search Arm	D11-0008-04	
—	Search Stopper	D32-0001-04	
—	Push-Button (A) Assembly	K29-0004-04	
FLYWHEEL ASSEMBLY (D40-0002-00)			
—	Flywheel	D01-0001-04	
—	Flywheel Shaft	D21-0051-04	
—	Packing Felt (20 x 30 x 2)	G50-0001-04	
—	Packing Felt (7 x 12 x 1.5)	G50-0005-04	
—	Pulley (B)	D15-0001-04	
—	Steel Ball (3.9688)	D90-0001-04	
—	Bearing Assembly	D23-0003-04	
—	Packing Felt	G50-0003-04	
—	Bearing Cap	F19-0003-04	
—	Packing	G51-0001-04	
—	Packing		
REAR PANEL ASSEMBLY (A70-0012-00)			
—	Rear Panel (Input, Output Assembly)	A23-0025-22	
—	Rear Panel (Power Supply Assembly)	A29-0002-03	
—	Fuse Holder	J13-0007-05	
		or J13-0016-05	
F	Fuse (2A)	F05-2023-05	
—	Cord Bushing	J42-0022-03	
—	AC Cord (with Plug)	E30-0046-05	
—	GND Terminal	E21-0202-05	
—	AC VOLTAGE SELECTOR Socket	E06-0701-05	
—	AC VOLTAGE SELECTOR Plug	E06-0303-05	
—	Connector Plug (11P)	E07-1101-05	
—	Connector Socket (11P)	E06-1101-05	
J	Pin Jack x 3	E13-0204-05	
—	Lug	E22-0405-05	
L1, 2	Ferri-Inductor	L33-0001-05	
C9, 10	Polyester 0.0047μF ±10%	CQ93M1H472K	
—	Insulating Sleeve	212-0603-00	
—	Connector Plug (11P) Assembly	E19-1101-05	
SWITCH PANEL ASSEMBLY (A70-0006-00)			
—	Lug	E22-0104-04	
—	Flat Revet	N81-3004-50	
C3	Electrolytic Tubular 47μF 35WV	CE02A1V470	
R1	Insulated Carbon Film 120Ω ±10% 1/2W	PD14BY2H121K	

PARTS LIST

Symbol No.	Description	Part No.	Remarks
S11	POWER Switch (Push-Button)	S39-1001-05	
S9	RECORD Switch (Push-Button)	S40-6001-05	
S10	REPEAT Switch (Push-Button)	S40-6002-05	
—	Button (D) Assembly	K29-0008-04	
S2	STOP Switch (Micro)	S50-1001-05	
S3	REVERSE Switch (Micro)	S50-1001-05	
S4	FAST Switch (Micro)	S50-1001-05	
S5	FORWARD Switch (Micro)	S50-1001-05	
—	Switch Holder x 4	J21-0018-04	
C4	Oil Impregnated 0.047 μ F $\pm$ 20%	CP02B2J473M	
PANEL ASSEMBLY (A70-0013-00)			
—	Panel Assembly	A20-0002-21	
—	Impedance Roller (R)	D14-0018-03	
—	Roller Assembly	D14-0019-04	
—	Roller Base Assembly	J09-0002-14	
—	Tension Arm Assembly	D11-0009-14	
—	Tape Guide x 2	J90-0008-04	
—	Spacer	J31-0003-04	
—	Coil Spring (R)	G01-0063-04	
—	Special Nut x 2	N14-0002-04	
—	Impedance Roller (L)	D14-0021-04	
—	Roller Assembly (L)	D14-0019-04	
—	Roller Base Assembly	J09-0002-14	
—	Tension Arm Assembly	D11-0009-14	
—	Coil Spring	G01-0064-04	
—	Switch Holder (B)	J21-0022-04	
—	Plate (for Nut)	N14-0003-04	
—	Feeder Plug	E09-0201-05	
—	Reel Escutcheon x 2	B07-0001-03	
—	Plate (for Nut) x 6	N14-0004-04	
—	Search Escutcheon Assembly	B01-0002-04	
AMP ASSEMBLY (CC2K)			
—	Knob (MIC INPUT, LINE INPUT, OUTPUT) x 6	K27-0011-04	
—	Knob (RECORD, SPEED, EQUALIZER) x 3	K20-0002-14	
—	Panel	A20-0315-02	
—	Record Indicator	B08-2006-04	
—	Phone Jack (MIC)	E11-0021-05	
—	Insulator x 6	J41-0008-04	
—	Head Phone Jack	E11-0001-15	
—	Decorated Nut (Headphone, MIC)	N13-0001-14	
—	Coil Spring	G01-0001-04	
—	Sole Plate	A40-0001-03	
—	Top Plate	A52-0001-13	
AMP CHASSIS ASSEMBLY (A70-0010-00)			
—	Chassis Assembly	A10-0001-01	
—	Plate x 3	J20-0002-04	
—	Dust Sheet x 3	F15-0001-04	
SVR1, 2	MIC INPUT (Slide) 10k Ω (A)	R13-3001-05	
SVR3, 4	LINE INPUT (Slide) 10k Ω (A)	R13-3001-05	
SVR5, 6	OUTPUT (slide) 10k Ω (A)	R13-3001-05	

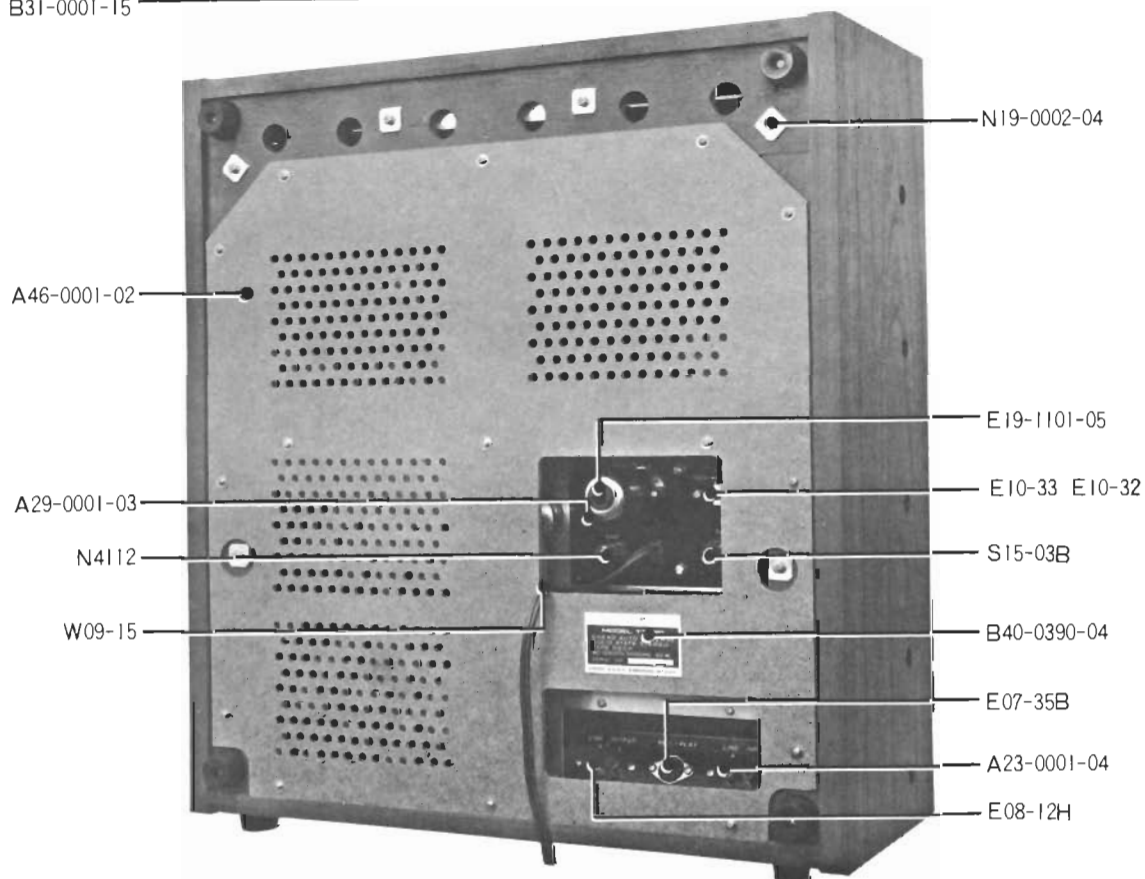
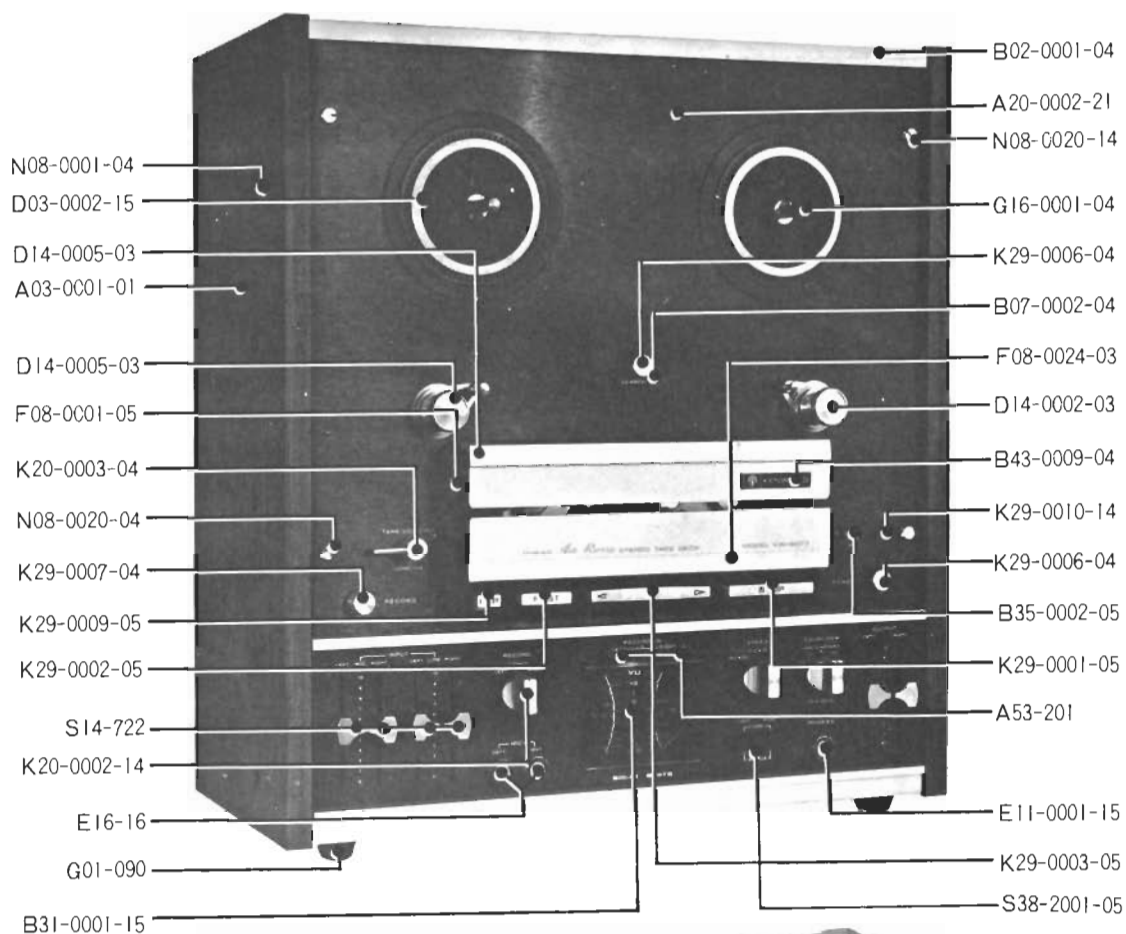
■ PARTS LIST

Symbol No.	Description	Part No.	Remarks
S5	RECORD CHANNEL SELECTOR (Rotary) Y · 3 · 9 · 3	S10-3001-15	
S3	TAPE SPEED Switch (Rotary) F · 2 · 8 · 2	S04-2001-15	
CR1, 2	C-R Composite Parts 0.1 μ F + 120 Ω (DC 250WV)	R90-0001-05	
S6	EQUALIZATION CONTROL	S04-2002-15	
R3, 4	Insulated Carbon Film 33k Ω $\pm$ 5% 1/4W	PD14BY2E333J	
R5, 6	Insulated Carbon Film 470 Ω $\pm$ 5% 1/4W	PD14BY2E471J	
R7, 8	Insulated Carbon Film 1.2k Ω $\pm$ 5% 1/4W	PD14BY2E122J	
R9, 10	Insulated Carbon Film 33k Ω $\pm$ 5% 1/4W	PD14BY2E333J	
C1, 2	Polyester 0.047 μ F $\pm$ 20%	CQ93M1H473M	
C3, 4	Polyester 0.068 μ F $\pm$ 20%	CQ93M1H683M	
S4	MONITOR Switch (Lever)	S38-2001-05	
—	Shielding Plate x 2	F10-0001-04	
—	Shielding Case	F11-0001-04	
—	Metal Holder (D) x 2	J21-0004-04	
—	Metal Holder (E)	J21-0010-04	
—	Metal Holder (F)	J21-0005-04	
—	Lamp Cover	F07-0001-04	
—	Fuse Holder	J13-0012-05	
PL3	Pilot Lamp	B30-0015-15	
—	Reflector	A33-0001-04	
PL1, 2	Pilot Lamp	B30-0026-15	
—	Rubber Bushing	J42-0010-04	
—	Lug	E22-0603-05	
R14, 15	Metal Film 560 Ω $\pm$ 10% 2W	RN14AB3D561K	
—	Metal Holder (G)	J21-0006-03	
—	Rear Panel	A23-0001-04	
—	Pin Jack (2P)	E13-0204-05	
—	Lead Holder	J21-0392-04	
—	Lug	E22-0405-05	
R1, 2	Insulated Carbon Film 150k Ω $\pm$ 5% 1/4W	RD14AY2E154J	
R65, 66	Insulated Carbon Film 1k Ω $\pm$ 5% 1/4W	PD14BY2E102J	
—	Lug x 4	E22-0207-05	
—	5P Connector (DIN)	E06-0501-05	
—	Amature	F31-0001-04	
—	Metal Holder (H)	J21-0007-04	
—	Metal Holder (I)	J21-0008-04	
—	PC Board Holder (A)	J21-0499-94	
—	PC Board Holder (B)	J21-0500-04	
—	Metal Holder (J)	J21-0009-03	
—	Shaft x 2	D21-0001-04	
—	Spacer	J30-0001-04	
SOL1	Solenoid	T94-0001-15	
—	Terminal Assembly x 2	E20-0401-05	
—	Slide Arm	D11-0001-04	
—	Joint Pin	J12-0001-05	
—	Nylon Washer	N19-0001-04	
—	Lug	E22-0501-05	
—	Flat Revet x 2	N81-3004-50	
—	Lug	E22-0206-05	
R13	Wire Wound 330 Ω $\pm$ 10% 4W	RW14AG3G331K	
—	Rubber Bushing x 2	J42-0001-05	
—	Rubber Bushing x 3	J42-0002-05	

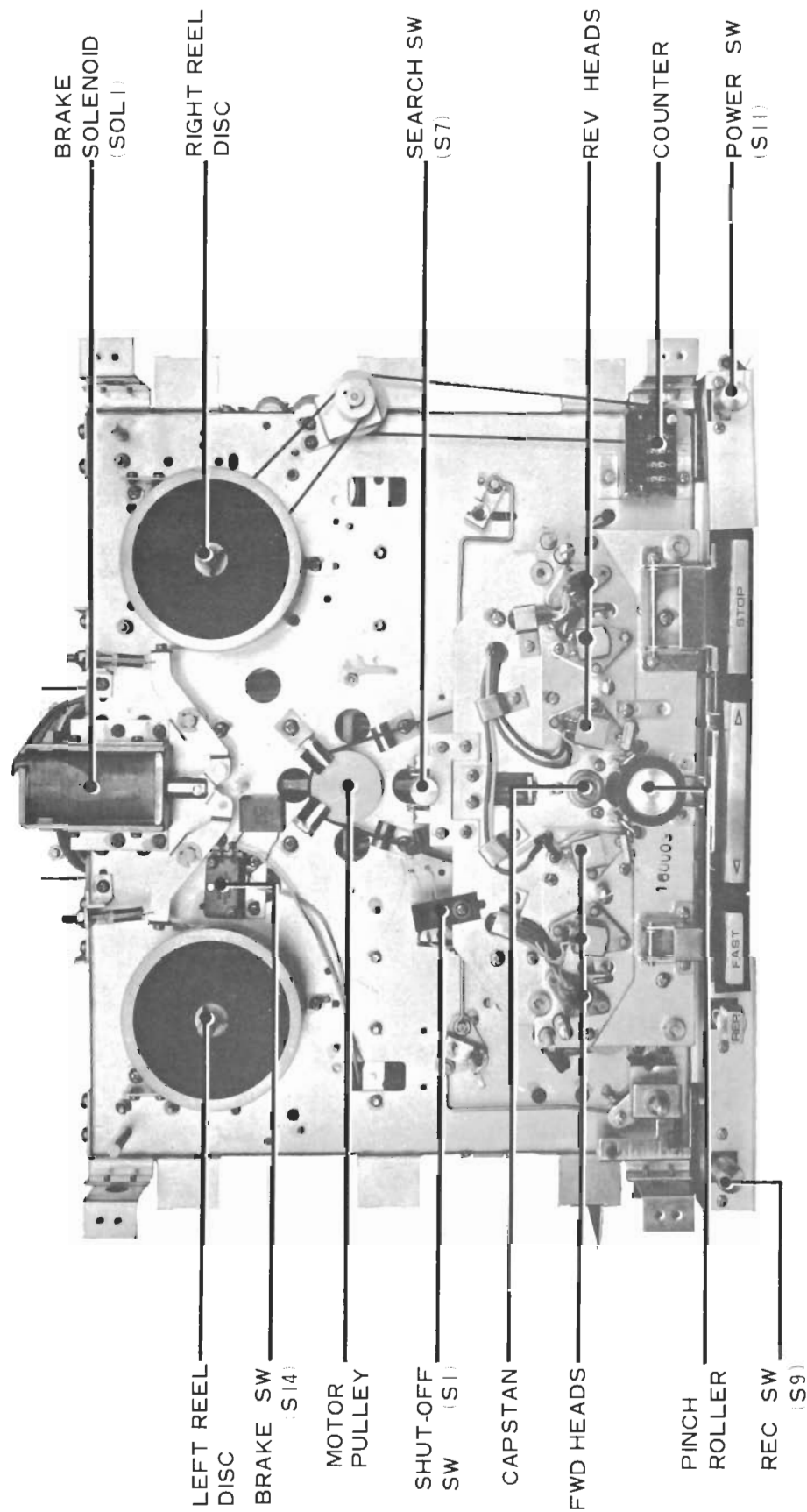
PARTS LIST

Symbol No.	Description	Part No.	Remarks
—	Cushion x 4	G11-0001-04	
M1, 2	Meter	B31-0001-15	
—	Blind (A)	F15-0002-14	
—	Blind (B)	F15-0003-14	
C5, 6	Polyester 0.0015 μ F $\pm$ 10%	CQ93M1H152K	
—	Cord (for 11P Connector Socket) Assembly	E30-0001-15	
—	Lead Holder (B) x 2	J11-0002-04	
—	Cord (for 11P Connector Plug) Assembly	E30-0002-15	
—	Audio Cord Assembly x 3	E30-0003-05	
—	Lead Holder (A) x 3	J11-0001-04	
—	Beaded Band	J61-0017-05	

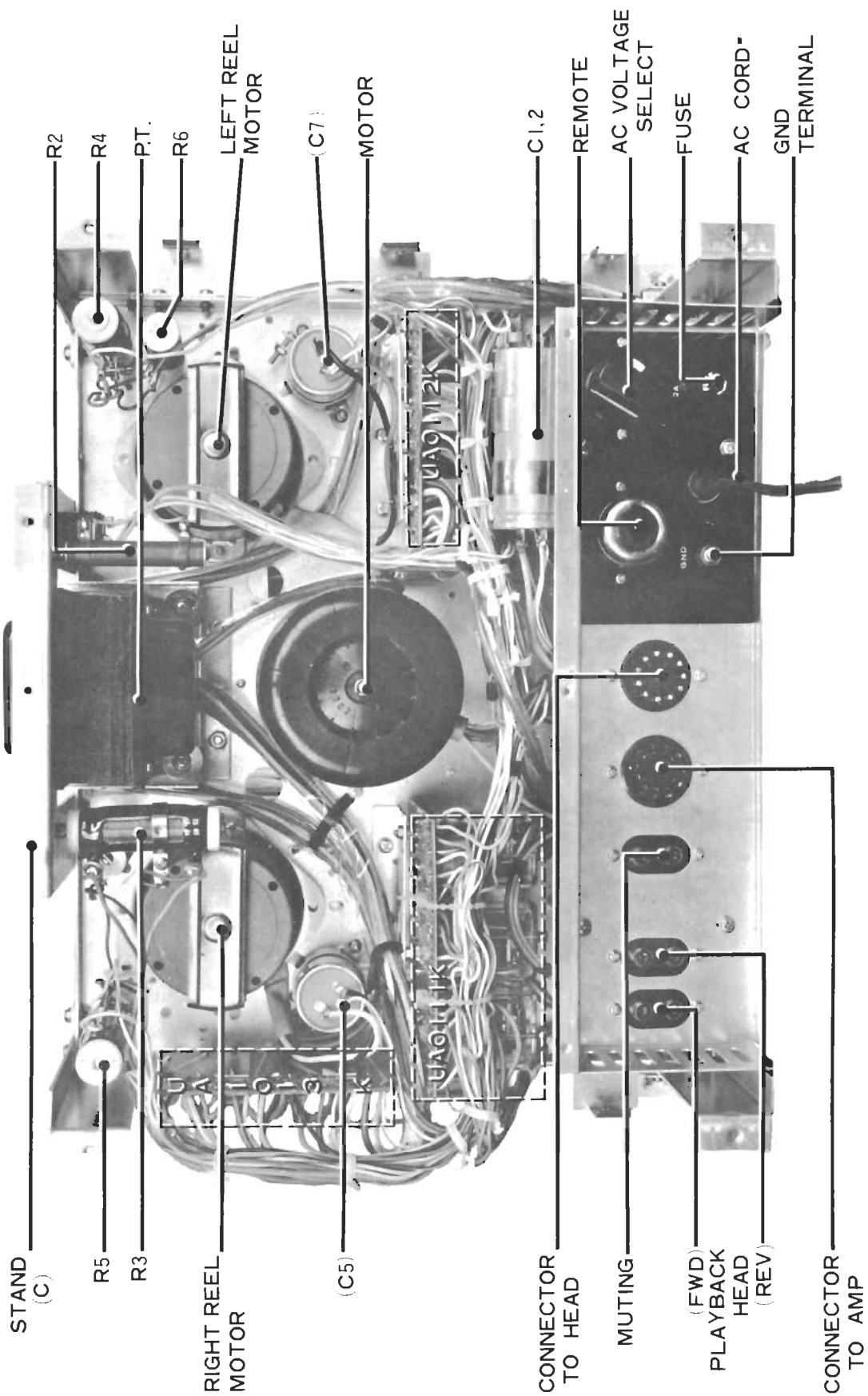
■ EXTERNAL VIEW



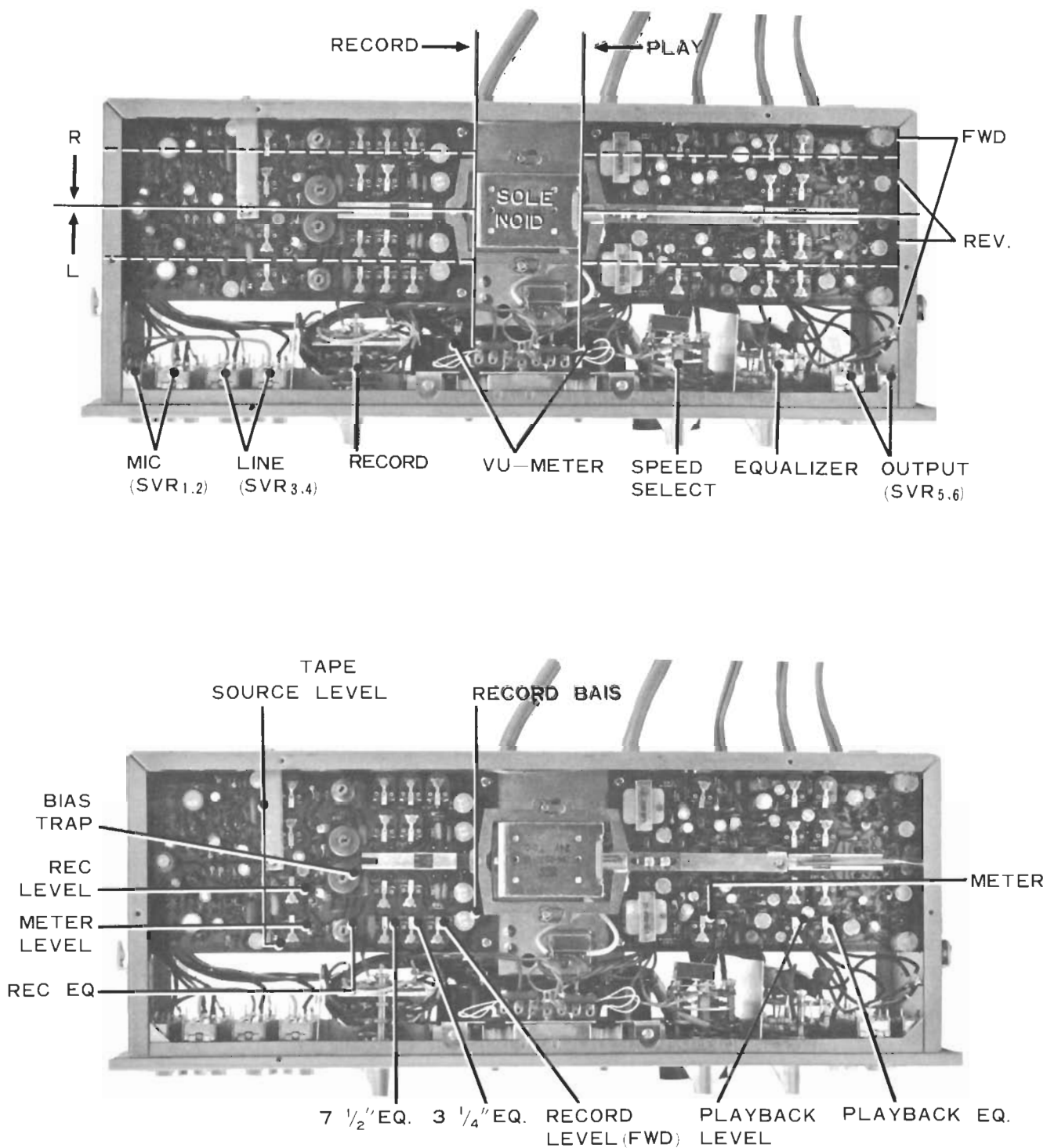
■ TOP VIEW



■ BOTTOM VIEW



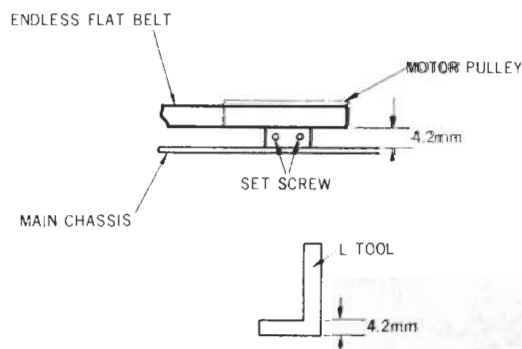
■ PHOTO OF AMP



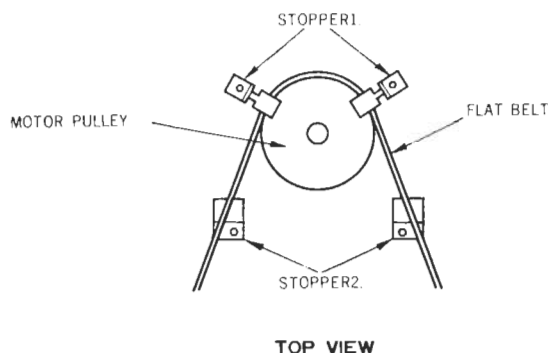
■ ADJUSTMENT OF MECHANISM

1) Adjustment of Motor Pulley Height

Place the tape deck in the horizontal position. Adjust motor pulley until its bottom side is set to a height of 4.2 mm the surface of main chassis as shown to the below. It is recommendable to manufacture "L" tool shown below for convenient performance of the above adjustment.



If the pulley is positioned too high, then there arises such fear that the flat belt may be brought in contact with STOPPER 1 to result in generation of wow and flutter or be damaged when the motor reverses the direction of its rotation. If the pulley is positioned too low, on the contrary, it causes the belt to come in contact with STOPPER 2, thereby turning into a cause for wow and flutter.



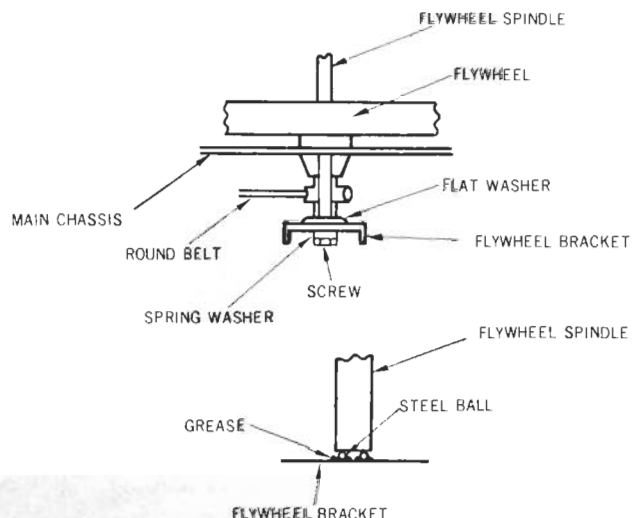
Note: Adjustment may be accepted as satisfactory if the flat belt touches the stopper slightly to such extent that there is no distorted sound output.

2) Adjustment of Vertical and Horizontal Flywheel Plays

Adjust the number of flat washers on the flywheel mounting bracket as shown to the below until the flywheel provides its vertical playback of 0.1 to 0.2 mm. If the flywheel provides a larger vertical play, the deck may generate an abnormal sound.

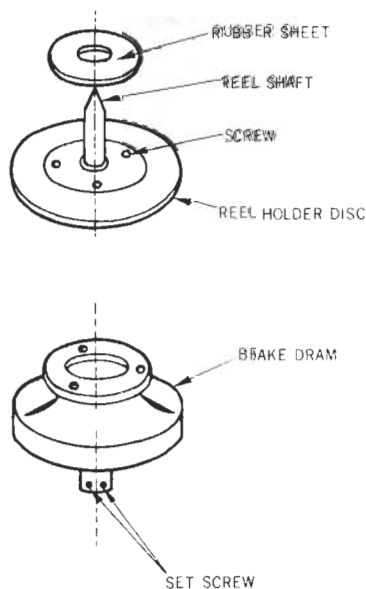
Note: 1. Mind that there are steel balls inserted between the flywheel spindle and the flywheel mounting bracket.

2. Perform adjustment works while taking care not to scratch the flywheel-spindle and the capstan. Otherwise, the sound may sometimes suffer from wow and flutter.



3) Adjustment of Reel Holder Disc Assembly

The figure shown to the below indicates the reel holder disc assembly expanded.



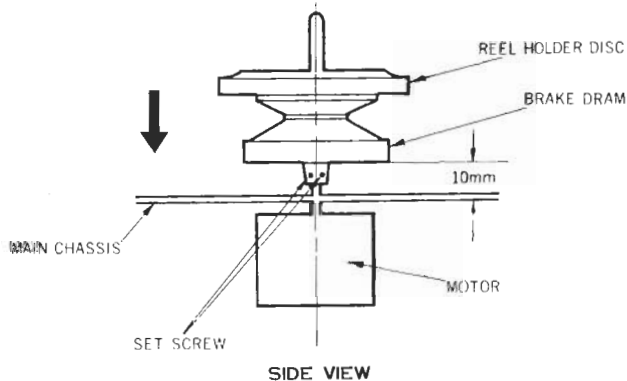
Loosen the setscrew for the brake drum. Position the drum around 10 mm above the surface of main chassis and temporarily fix it in that position by means of the setscrew as shown in the figure below.

If the adjustment is to be made on the tape deck placed in its vertical position, perform the above step while pushing the reel holder disc toward the chassis as indicated by the arrow, to thrust the motor shaft into the motor.

Then, mount the reels on the left and right reel holder discs respectively and, with the FWD (or REV) button pushed, finely adjust the discs until the tape is fed out and

■ ADJUSTMENT OF MECHANISM

taken up without rubbing its edges to the discs and fix the temporarily-fixed setscrew securely in position.

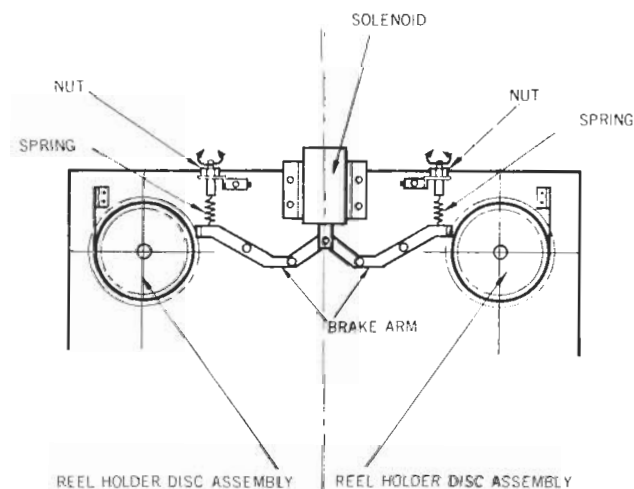


4) Adjustment of Brake Mechanism

If the tape becomes loose or suffers from an abnormal tension when its transport mechanism is changed from the running to the stop conditions, the brake mechanism must be adjusted.

Prior to proceed to adjustment of the brake mechanism, however, clean the painted surface of brake drum thoroughly with cloth impregnating alcohol since the above-mentioned symptoms of the tape may be caused that the painted surface of brake drum is stained with dust, oil and etc. If the above step fails to recover the tape to its normal operating condition, then proceed to adjustment of the brake mechanism.

As shown in the figure below, there are provided two nuts on the tape deck. These nuts, when turned clockwise or counterclockwise, allow their associated springs to extend or contract to vary the pressures applied to the brake drums, thereby providing means to adjust the braking torques.

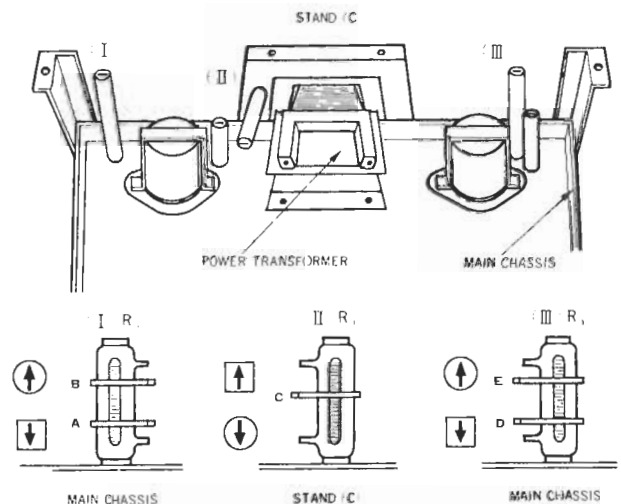


To adjust the braking torques, therefore, locate the above-mentioned nuts and turn them clockwise or counterclockwise until the brake drums provide a braking torque of 300 to 400 g-cm for the direction of taking up the tape and of 700 to 1,000 g-cm for the direction of feeding out the tape.

Note, however, that the values of braking torques described above are solely the reference values. So, there is no trouble to use the braking torques outside the above ranges provided that the tape is driven normally in the actual operation of its transport mechanism.

5) Adjustment of Take-up Torques

The take-up torques can be adjusted by changing the rotating torques of the motors directly coupled to the reel holder disc spindles. This in turn is accomplished by increasing or decreasing the voltages supplied to the motors through the use of variable resistors R5 (I) and R4 (III) shown in the figure below.



Note: When moving the band of a variable resistor, once loosen the setscrew of band, shift the position of the band until the motor provides the specified take-up torque, and then fix the band in that position by tightening the setscrew.

The arrows $\leftarrow$ and $\rightarrow$ shown in the above figure indicate that moving the band of resistor in the direction of $\leftarrow$ increases the take-up torque and moving the band in the direction of $\rightarrow$ decreases the torque.

(a) Adjustment of take-up torque during FWD operation

Move band B of variable resistor R5 (I) in either direction as shown by the arrows until the motor provides a take-up torque of 400 to 450 g-cm and fix the band in that position.

(b) Adjustment of take-up torque during REVERSE operation

Move band E of variable resistor R4 (III) in either direction until the motor provides a take-up torque of 400 to 450 g-cm as in case of the adjustment during the FWD operation and fix the band in that position.

6) Adjustment of Back Tension

The back tension to the tape holder disc can be adjusted by means of variable resistors R5 (I), R3 (II) and R4 (III) in the same manner as in the adjustment of the take-up torque. (Refer to the figure in the preceding page.)

■ ADJUSTMENT OF MECHANISM

(a) Adjustment of back tension during FWD operation

Move band D of variable resistor R4 (III) in either direction as shown by the arrows until the motor provides a torque of 175 to 225 g-cm and fix the band in that position.

(b) Adjustment of back tension during REVERSE operation

Move band A of variable resistor R5 (I) in either direction until the motor provides a torque of 175 ~ 225 g-cm in the same manner as in the adjustment under the FWD operation.

(c) Adjustment of back tension during FAST FORWARD operation

To adjust the back tension during the FAST FORWARD operation, adjust band C of variable resistor R3 (II) as follows:

Place the tape transport mechanism in the fast forward condition. With the reel holder disc manually held in its stopped condition temporarily, adjust band C of variable resistor R3 until the motor provides a torque which is large enough to allow the reel holder disc to slowly start in rotation when the hand holding the disc is released. Note, however, that the take-up torque during the FAST FORWARD operation cannot be adjusted.

7) Reel Motor Voltages Under Various Operations

Operation	Motor voltage (V)	
	Left motor	Right Motor
Forward	40	70
Reverse	70	40
Fast Forward	25	117
Rewind	117	25

Note: The above voltage values are the standard values under the normal running condition of the tape. The left and right described in the table indicate the corresponding motors when looked the set from the front side.

The above table shows the values of the voltages supplied to the reel motors after adjustment of the take-up and back-tension torques. These values are the standard values and differs more or less from the actual values depending on the error and frequency (50 or 60 Hz) of line voltage.

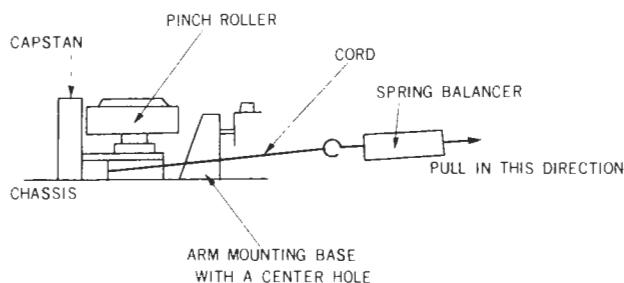
If the tape transport mechanism fails to provide normal operations despite of the fact that the reel motors are supplied with the voltages shown in the table, it suggests a faulty motor and, therefore, replace the faulty motor.

8) Adjustment of Capstan Solenoid

To make adjustment of the capstan solenoid, proceed as follows:

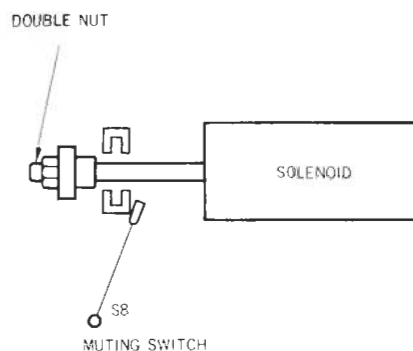
Loosen the double nut of the capstan solenoid. Slowly tighten the nut until the solenoid exerts a pressure of

1.6 ~ 1.8 kg to the capstan, as measured using a spring balancer.



To accomplish the above measurement, follow the steps given below. Place the tape deck in the horizontal position. Fix a line of thin cord to the pinch roller as shown to the below and pass the free end of the cord through the center hole of arm mounting base to the right. Fix the free end of cord to the hook of a spring balancer. Place the tape deck in its playing condition and slowly pull the balancer in the direction of arrow until the running tape is brought in a standstill. Read the setting of the balancer and it gives the pressure of the pinch roller exerted to the capstan.

Be sure that the pinch roller exerts the specified pressure to the capstan. Otherwise, the tape may suffer a varied speed. Also, adjust MUTING switch S8 in such manner that its four contacts are opened when the capstan solenoid is energized. This is necessary because the switch is interlocked with the solenoid and disables the left- or right-hand or both playback amplifiers if its contacts are closed under the above condition.



9) Switchover of Tape Deck for 50 or 60 Hz Operation

To switch the tape deck from 60 to 50 Hz operation or *vice versa*, proceed as follows:

Replace the 60 Hz motor pulley having a larger diameter with the 50 Hz motor pulley of a smaller diameter. Adjust the replaced pulley for proper height.

Loosen four mounting screws for the motor provided on the main chassis. Move the motor down in its bottom position (Heads and chassis side). Fix the motor in that position using the screws loosened.

Set the slide switch S13 for selecting a capacitor located close to the power transformer at position 50 Hz.

■ ADJUSTMENT OF MECHANISM

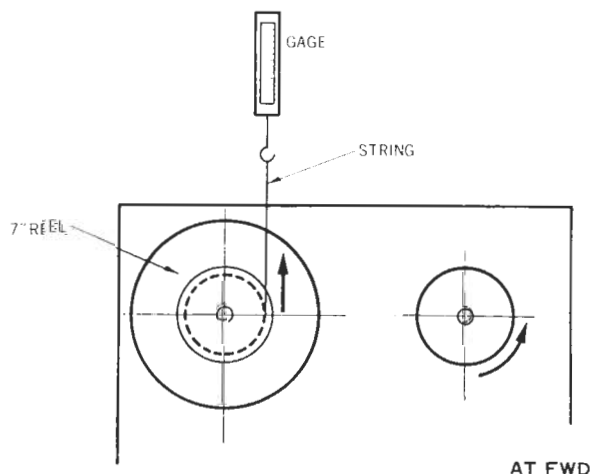
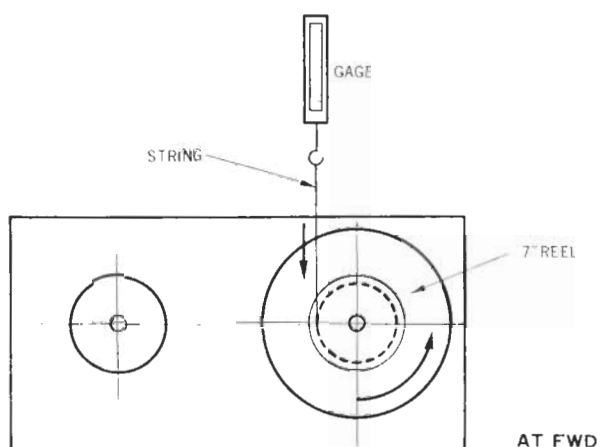
To switch the deck from 50 to 60 Hz operation, proceed in the same manner as described above using the motor pulley with the motor set at its uppermost position and the slide switch S13 at the 60 Hz position.

The above completes the adjustment works.

10) Measurement of Take-up Torque

To make measurement of a take-up torque, proceed as follows:

Tie one end of a line of thread wound several turns around the hub (6 cm dia.) of 7-inch reel to the hook of a bar type spring tension gage held in one hand. Hold the other end of the thread in the other hand and start the tape transport mechanism in its PLAY operation. Move the hand so as to allow the reel slowly turn in its take-up direction while taking up the thread at a speed of about 1/5 turns per second and read the indication of the tension gage in g-cm under that condition.



Note: Torque = Reading of gage (g) x 3 (cm) (radius of reel hub)

11) Measurement of Back-tension Torque

Set up the bar type spring tension gage to the 7-inch reel just in the same manner as in the measurement of the take-up torque. Start the tape transport mechanism in its PLAY operation and, while moving the gage slowly so as to allow the reel to feed out the thread at a speed of about 1/5 turns per second, read the indication of the gage in g-cm. Note that the above steps also applicable to measurement of a braking torque.

■ ADJUSTMENT OF AMP

Because of its reversible mechanism, tape deck model KW-8077 is provided with two amplifiers each for the record and playback systems.

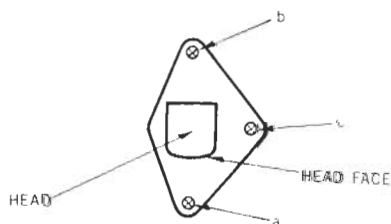
The alignment procedure given here-in includes only the adjustment works concerning with the amplifiers working with the tape running in the forward direction. For this reason, the adjustment works should be performed without fail on the amplifiers working with the tape running in the reverse direction.

1. Playback System

To make adjustment of the playback system, prepare an Ampex's Test tape 01-31321-04 and proceed as follows:

1-1 Adjustment of Playback Head for Proper Mounting Height and Azimuth

To adjust the playback head for proper mounting height, proceed as follows:



TOP VIEW

Play back the test tape bearing the recorded 3 kHz, 0 dB signal and adjust adjustment screws (a) and (b) shown in the figure above bit by bit until the playback system provides a maximum output. To adjust the head for proper mounting azimuth, proceed in the same manner as mentioned above using adjustment screws (a), (b) and (c) excepting that the test tape to be used should be the one bearing the recorded 15 kHz, -10 dB signal.

Note that in the above adjustments the head should be so positioned that its surface is in parallel with the tape.

1-2 Adjustment of Output Level

Play back the recorded 700 Hz, -10 dB signal with OUTPUT VR set fully clockwise and adjust VR5 and VR6 (or VR7 and VR8 for REV) until the playback system provides an output having a level of 0 dB (0.775 V).

Note: The output terminal should be terminated with a 100 kilo resistor.

Note: The output terminal should be terminated with a 100,000-ohm resistor.

1-3 Adjustment of Standard Output

Play back the recorded 700 Hz, -10 dB signal and adjust OUTPUT VR until the output is set to -10 dB.

1-4 Adjustment of Playback Equalization

With the recorded 12 kHz, -10 dB signal played back, adjust VR1 and VR2 (or VR3 and VR4 for REV) until the system delivers the standard output.

1-5 Adjustment of VU Meter

Play back the recorded 700 Hz, 0 dB signal and adjust VU meter level adjustments VR9 and VR10 (used commonly for FWD and REV operations) until VU meter is zero set.

1-6 Measurement of S/N

Play back the recorded 700 Hz, 0 dB signal and measure the level of output signal.

With the blank-recorded tape played back, measure the level of the output.

Find the ratio of the former level to the latter level and it gives the S/N of the system.

1-7 Repeat the above Steps to adjust the playback system for the REV operation

1-8 Leave OUTPUT VR as it is in its position (or the standard playback condition) after completion of the above adjustments and measurements and then proceed to adjustment of record systems.

2. Record Adjustment

Scotch #150 tape shall be used in the record adjustment.

The playback system shall be in the standard playback condition.

2-1 Adjustment of Record Head for Proper Mounting Height and Azimuth

With the playback system kept in the standard playback condition, apply an input to the line input in such manner that the playback system delivers an output at -10 dB.

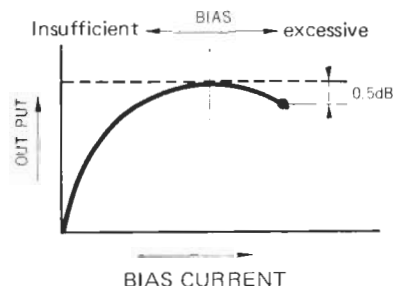
Adjust the mounting height of record head until the playback system delivers a maximum output, as measured using the recorded 3 kHz signal. Also, adjust the mounting azimuth of record head until the playback system delivers a maximum output, as measured using the recorded 15 kHz signal.

To accomplish the above adjustments, adjust three adjustment screws of the record head in the same manner as described for adjustment of the playback head.

2-2 Bias Adjustment

Apply the 1 kHz, -10 dB signal to the line input. Turn bias adjustments VR15 ~ VR18 (100 k Ω) fully clockwise and then turn them counterclockwise bit by bit until the playback system provides an output 0.5 dB lower than the maximum output level. Then fix the adjustments in their respective positions.

■ ADJUSTMENT OF AMP



2-3 Adjustment of Bias Trap Coil

Connect an oscilloscope to *the test point* for the trap coil. Turn the core of the coil until the oscilloscope displays no bias waveform.

2-4 Adjustment of Record Current and VU Meter

Set the LINE input controls to minimum and MIC controls to the maximum and top positions respectively. With the monitor switch placed in the SOURCE position, apply the 1 kHz, -70 dB signal to the microphone and lower the MIC control to a position for which the line output delivers an output 5 dB below the maximum output. With the LINE control set to the maximum and the monitor switch to the SOURCE position, apply the 1 kHz, -10 dB input to the line input and lower the LINE control to a position for which the line output delivers an output 10 dB below the maximum output. Adjust the SOURCE level variable resistors VR19 and VR20 under the above condition until the tape deck provides a line output of 0 dB. Also, adjust meter level variable resistors VR3 and VR4 until VU meter indicates zero. Next, record and playback the 1 kHz signal and adjust record level variable resistors VR1 and VR2 (REV) and VR13 and VR14 (FWD) in the order named until the tape deck provides a playback output of 0 dB.

2-5 Adjustment of High-Region Correction

Apply the 10 kHz, -30 dB signal to the line input while driving the tape at a tape speed of 3 3/4 ips and adjust correction coils L1 and L2 until the tape deck provides a maximum record and playback outputs. Adjust the 3 3/4 ips high-region correction (record equalization) adjustment variable resistors VR7, VR8, VR11 and VR12 under the above condition until the tape deck provides an output having a level of 0 to -1 dB with respect to the level at 1 kHz. Then, with the tape runned at a tape speed of 7 1/2 ips, adjust the 7 1/2 ips high-region correction (record equalization) adjustment variable resistors VR5, VR6, VR9 and VR10 until the tape deck provides an output having a level of 0 to -1 dB at 10 kHz with respect to the level at 1 kHz.

Note: If the above adjustments fail to adjust the high region characteristic as described above, reduce the bias current a little. When the output characteristic provides a peak in the region from 5 to 10 kHz, increase the bias current a little since the above characteristic means a bias applied less.

2-6 Perform Above Adjustments for FWD and REV Operations as well as Left and Right Channels. After the above adjustments are all over, check to see that the frequency response and output levels for the FWD and REV operations and the left and right channels are similar at each of tape speeds 7 1/2 and 3 3/4 ips.

3. Check Item

3-1 S/N Check

3-2 Tone Quality Adjustment

With the EQUALIZER switch set at positions -2, -4, +2 and +4 dB, check to see that the tape deck delivers an output of -2, -4, +2 and +4 dB at 10 kHz with the LINE OUT terminal terminated with a resistor of 100,000-ohm.

3-3 RECORD Switch

3-4 PHONES

3-5 Does the tape deck circuit start in oscillation when all controls are placed in their maximum positions?

3-6 Does a recorded tape remain unerased when the tape is recorded under the forward operation, erased under the reverse operation, and then played back?

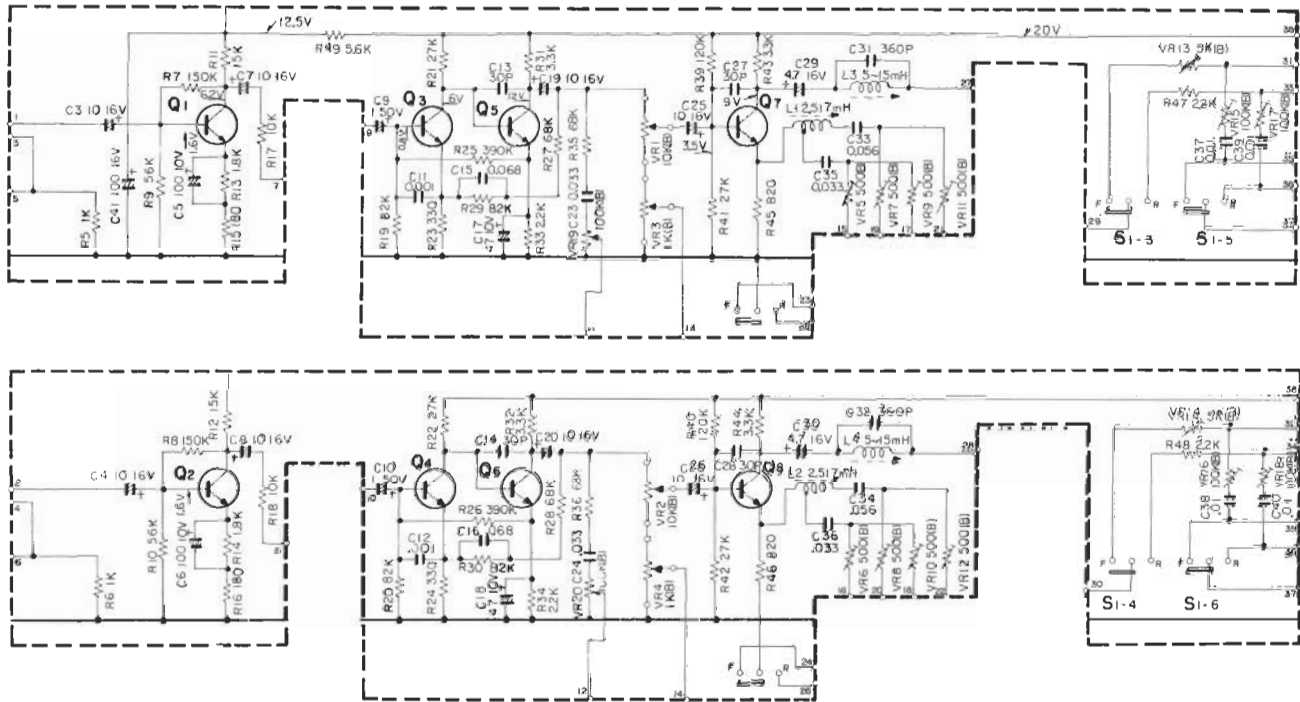
3-7 Crosstalk

- (a) Between channels L → R and R → L (As checked using recorded 1 kHz, 0 dB signal)
- (b) Between tracks Track 1 or 3 to track 4 or track 1 or 3 to track 2 (As checked using recorded 100 Hz, 0 dB signal)

3-8 DIN Input and Output Operations

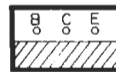
3-9 Phase —

SCHEMATIC DIAGRAM

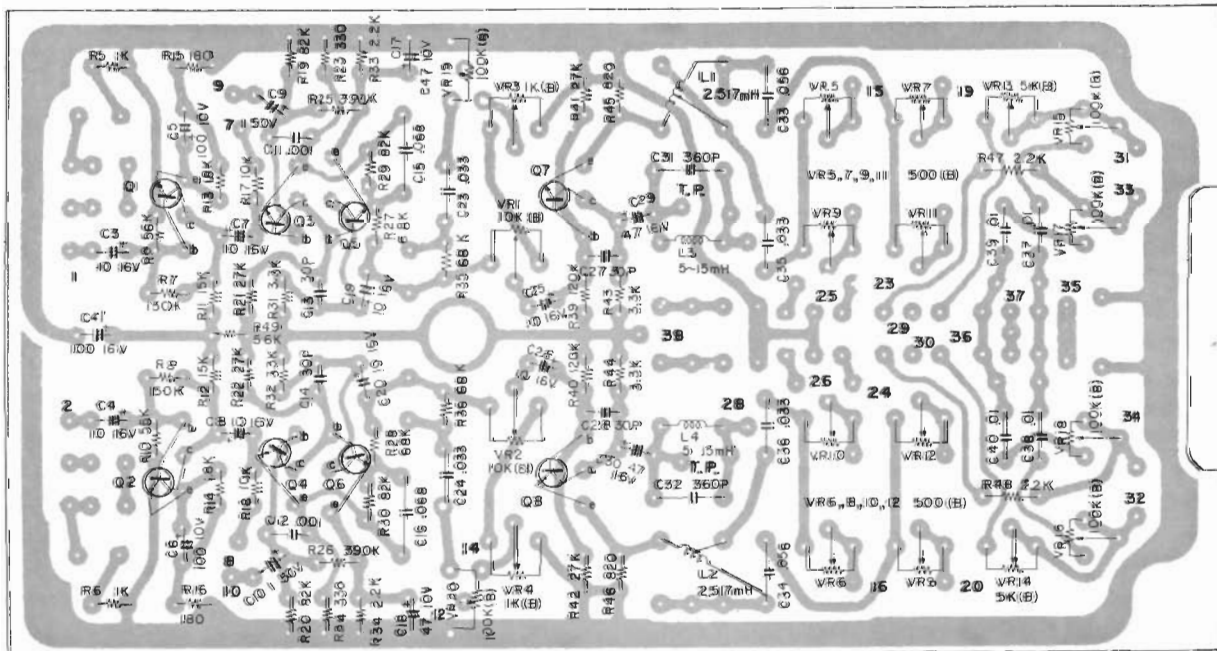


BOTTOM VIEW OF
TRANSISTORS

2SC458LG (C)



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS

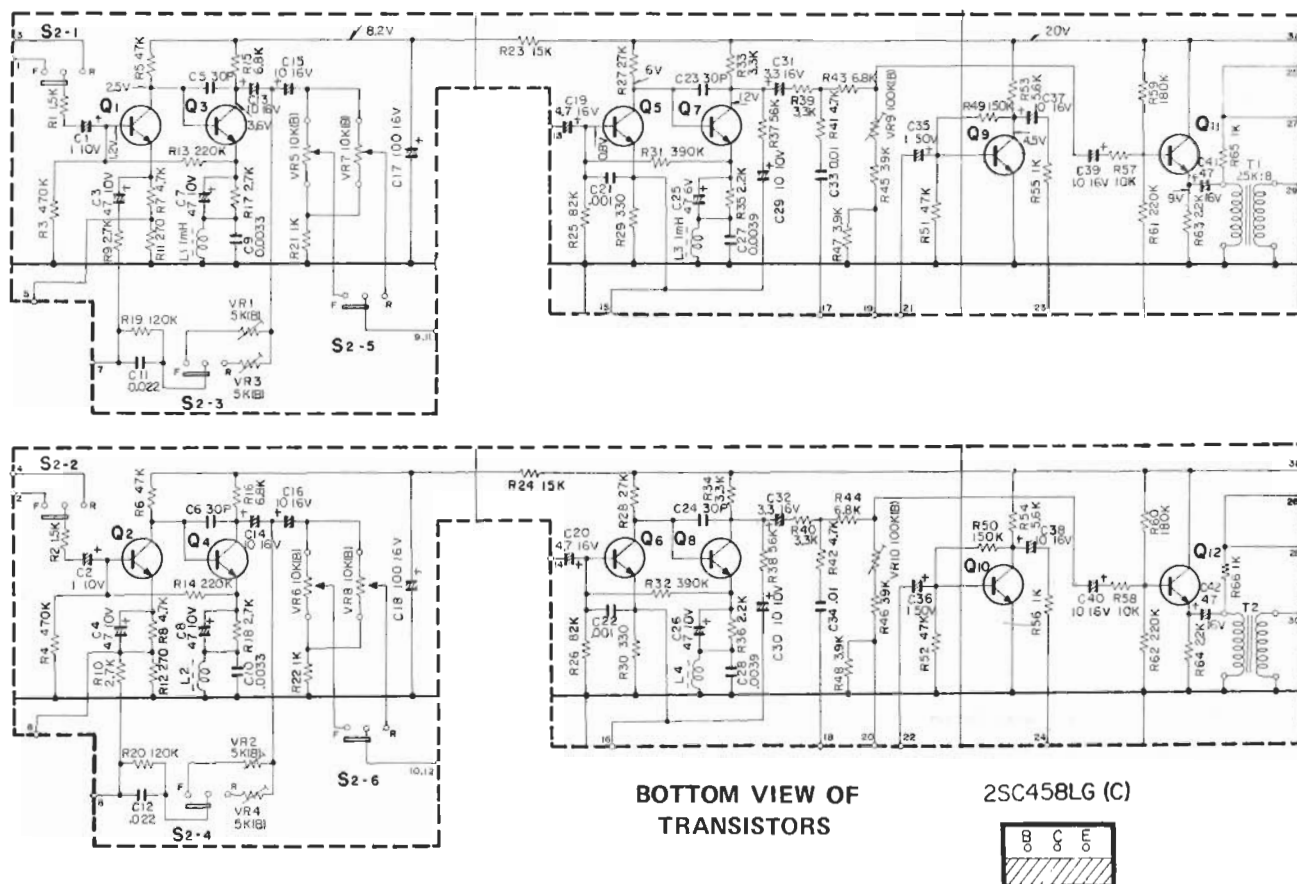


Q1~8 2SC458LG (C)

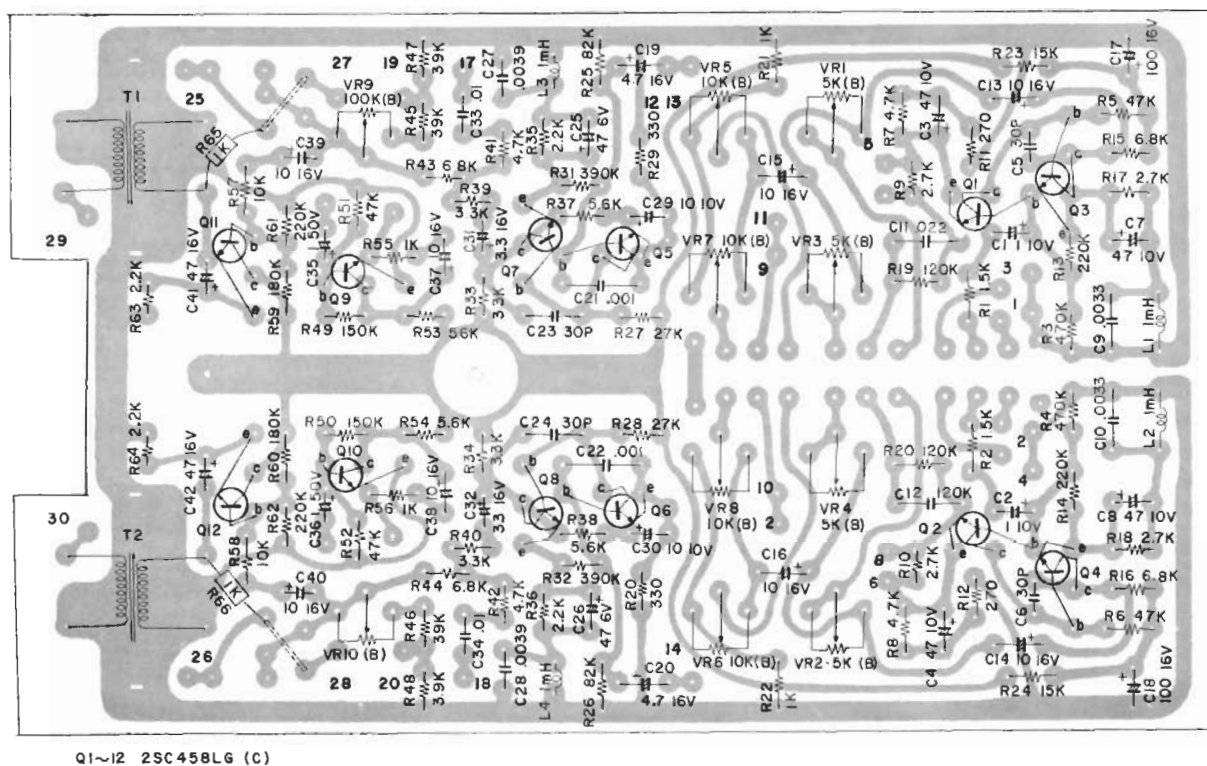
PARTS DESCRIPTION LIST

Symbol No.	Description				Part No.	Remarks
CAPACITOR						
C3, 4	Electrolytic Tubular	10 μ F	16WV		CE04W1C100	
C5, 6	Electrolytic Tubular	100 μ F	10WV		CE04W1A101	
C7, 8	Electrolytic Tubular	10 μ F	16WV		CE04W1C100	
C9, 10	Electrolytic Tubular	1 μ F	50WV		CE04W1H010	
C11, 12	Plastics Film	0.001 μ F	$\pm 10\%$		CQ93M1H102K	
C13, 14	Ceramic	30pF	$\pm 10\%$		CC94SL1H300K	
C15, 16	Plastics Film	0.068 μ F	$\pm 10\%$		CQ93M1H683K	
C17, 18	Electrolytic Tubular	47 μ F	10WV		CE04W1A470	
C19, 20	Electrolytic Tubular	10 μ F	16WV		CE04W1C100	
C23, 24	Plastics Film	0.033 μ F	$\pm 10\%$		CQ93M1H333K	
C25, 26	Electrolytic Tubular	10 μ F	16WV		CE04W1C100	
C27, 28	Ceramic	30pF	$\pm 10\%$		CC94SL1H300K	
C29, 30	Tantalum	4.7 μ F	+40%, -20%		CS04E1C4R7X	
C31, 32	Ceramic	360pF	$\pm 10\%$		CC94SL1H361K	
C33, 34	Plastics Film	0.056 μ F	$\pm 10\%$		CQ93M1H563K	
C35, 36	Plastics Film	0.033 μ F	$\pm 10\%$		CQ93M1H333K	
C37 ~ 40	Plastics Film	0.01 μ F	$\pm 10\%$		CQ93M1H103K	
C41	Electrolytic Tubular	10 μ F	16WV		CE04W1C101	
RESISTOR						
R5, 6	Insulated Carbon Film	1k Ω	$\pm 5\%$	1/4W	PD14CY2E102J	
R7, 8	Insulated Carbon Film	150k Ω	$\pm 5\%$	1/4W	PD14CY2E154J	
R9, 10	Insulated Carbon Film	56k Ω	$\pm 5\%$	1/4W	PD14CY2E563J	
R11, 12	Insulated Carbon Film	15k Ω	$\pm 5\%$	1/4W	PD14CY2E153J	
R13, 14	Insulated Carbon Film	1.8k Ω	$\pm 5\%$	1/4W	PD14CY2E182J	
R15, 16	Insulated Carbon Film	180 Ω	$\pm 5\%$	1/4W	PD14CY2E181J	
R17, 18	Insulated Carbon Film	10k Ω	$\pm 5\%$	1/4W	PD14CY2E103J	
R19, 20	Insulated Carbon Film	82k Ω	$\pm 5\%$	1/4W	PD14CY2E823J	
R21, 22	Insulated Carbon Film	27k Ω	$\pm 5\%$	1/4W	PD14CY2E273J	
R23, 24	Insulated Carbon Film	330 Ω	$\pm 5\%$	1/4W	PD14CY2E331J	
R25, 26	Insulated Carbon Film	390k Ω	$\pm 5\%$	1/4W	PD14CY2E394J	
R27, 28	Insulated Carbon Film	68k Ω	$\pm 5\%$	1/4W	PD14CY2E683J	
R29, 30	Insulated Carbon Film	82k Ω	$\pm 5\%$	1/4W	PD14CY2E823J	
R31, 32	Insulated Carbon Film	3.3k Ω	$\pm 5\%$	1/4W	PD14CY2E332J	
R33, 34	Insulated Carbon Film	2.2k Ω	$\pm 5\%$	1/4W	PD14CY2E222J	
R35, 36	Insulated Carbon Film	68k Ω	$\pm 5\%$	1/4W	PD14CY2E683J	
R39, 40	Insulated Carbon Film	120k Ω	$\pm 5\%$	1/4W	PD14CY2E124J	
R41, 42	Insulated Carbon Film	27k Ω	$\pm 5\%$	1/4W	PD14CY2E273J	
R43, 44	Insulated Carbon Film	3.3k Ω	$\pm 5\%$	1/4W	PD14CY2E332J	
R45, 46	Insulated Carbon Film	820 Ω	$\pm 5\%$	1/4W	PD14CY2E821J	
R47, 48	Insulated Carbon Film	2.2k Ω	$\pm 5\%$	1/4W	PD14CY2E222J	
R49	Insulated Carbon Film	5.6k Ω	$\pm 5\%$	1/4W	PD14CY2E562J	
VR1, 2	Potentiometer	10k Ω	(B)		R12-3001-05	
VR3, 4	Potentiometer	1k Ω	(B)		R12-1001-05	
VR5 ~ 12	Potentiometer	500 Ω	(B)		R12-0001-05	
VR13, 14	Potentiometer	5k Ω	(B)		R12-2001-05	
VR15 ~ 18	Potentiometer	100k Ω	(B)		R12-5002-05	
VR19, 20	Potentiometer	100k Ω	(B)		R12-5004-05	
MISCELLANEOUS						
Q1 ~ 8	2SC458LG(C)					
S1	Forward-Reverse Switch of Recording Amp		(Slide)		S31-6001-05	
L1, 2	Recording Equalization Coil				L13-115	
L3, 4	Bias Trap Coil				L13-114	
—	PC Board				J25-0001-13	
—	Stud				J32-0001-04	

SCHEMATIC DIAGRAM



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS

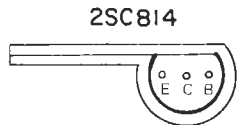


PARTS DESCRIPTION LIST

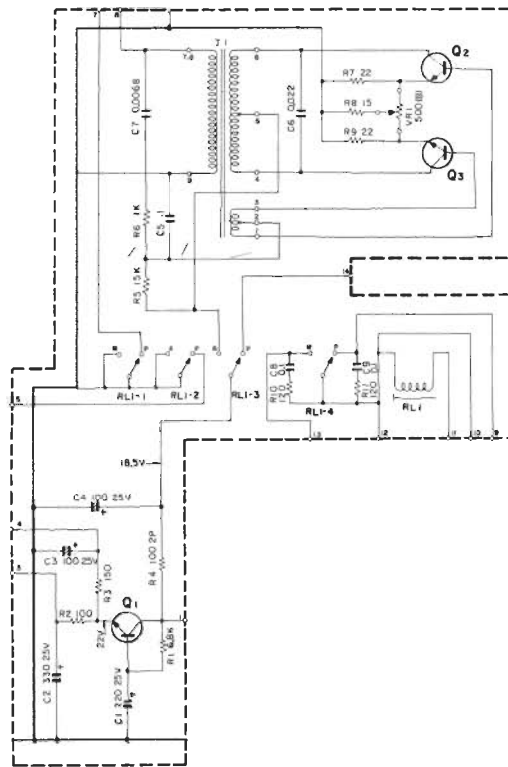
Symbol No.	Description				Part No.	Remarks
CAPACITOR						
C1, 2	Tantalum	1 μ F	+40%, -20%		CS04E1A1R0X	
C3, 4	Electrolytic Tubular	47 μ F	10WV		CE04W1A470	
C5, 6	Ceramic	30pF	$\pm$ 10%		CC94SL1H300K	
C7, 8	Electrolytic Tubular	47 μ F	10WV		CE04W1A470	
C9, 10	Plastics Film	0.033 μ F	$\pm$ 10%		CQ93M1H332K	
C11, 12	Plastics Film	0.022 μ F	$\pm$ 10%		CQ93M1H223K	
C13 ~ 16	Electrolytic Tubular	10 μ F	16WV		CE04W1C100	
C17, 18	Electrolytic Tubular	100 μ F	16WV		CE04W1C101	
C19, 20	Electrolytic Tubular	4.7 μ F	16WV		CE04W1C4R7	
C21, 22	Plastics Film	100pF	$\pm$ 10%		CQ93M1H102K	
C23, 24	Ceramic	30pF	$\pm$ 10%		CC94SL1H300K	
C25, 26	Electrolytic Tubular	47 μ F	10WV		CE04W1A470	
C27, 28	Plastics Film	0.0039 μ F	$\pm$ 10%		CQ93M1H392K	
C29, 30	Electrolytic Tubular	10 μ F	16WV		CE04W1C100	
C31, 32	Electrolytic Tubular	3.3 μ F	16WV		CE04W1C3R3	
C33, 34	Plastics Film	0.01 μ F	$\pm$ 10%		CQ93M1H103K	
C35, 36	Electrolytic Tubular	1 μ F	50WV		CE04W1H010	
C37 ~ 40	Electrolytic Tubular	10 μ F	16WV		CE04W1C100	
C41, 42	Electrolytic Tubular	47 μ F	16WV		CE04W1C470	
RESISTOR						
R1, 2	Insulated Carbon Film	1.5k Ω	$\pm$ 5%	1/4W	PD14CY2E152J	
R3, 4	Insulated Carbon Film	470k Ω	$\pm$ 5%	1/4W	PD14CY2E474J	
R5, 6	Insulated Carbon Film	47k Ω	$\pm$ 5%	1/4W	PD14CY2E473J	
R7, 8	Insulated Carbon Film	4.7k Ω	$\pm$ 5%	1/4W	PD14CY2E472J	
R9, 10	Insulated Carbon Film	2.7k Ω	$\pm$ 5%	1/4W	PD14CY2E272J	
R11, 12	Insulated Carbon Film	270 Ω	$\pm$ 5%	1/4W	PD14CY2E271J	
R13, 14	Insulated Carbon Film	220k Ω	$\pm$ 5%	1/4W	PD14CY2E224J	
R15, 16	Insulated Carbon Film	6.8k Ω	$\pm$ 5%	1/4W	PD14CY2E682J	
R17, 18	Insulated Carbon Film	2.7k Ω	$\pm$ 5%	1/4W	PD14CY2E272J	
R19, 20	Insulated Carbon Film	120k Ω	$\pm$ 5%	1/4W	PD14CY2E124J	
R21, 22	Insulated Carbon Film	1k Ω	$\pm$ 5%	1/4W	PD14CY2E103J	
R23, 24	Insulated Carbon Film	15k Ω	$\pm$ 5%	1/4W	PD14CY2E153J	
R25, 26	Insulated Carbon Film	82k Ω	$\pm$ 5%	1/4W	PD14CY2E823J	
R27, 28	Insulated Carbon Film	27k Ω	$\pm$ 5%	1/4W	PD14CY2E273J	
R29, 30	Insulated Carbon Film	330 Ω	$\pm$ 5%	1/4W	PD14CY2E331J	
R31, 32	Insulated Carbon Film	390k Ω	$\pm$ 5%	1/4W	PD14CY2E394J	
R33, 34	Insulated Carbon Film	3.3k Ω	$\pm$ 5%	1/4W	PD14CY2E332J	
R35, 36	Insulated Carbon Film	2.2k Ω	$\pm$ 5%	1/4W	PD14CY2E222J	
R37, 38	Insulated Carbon Film	56k Ω	$\pm$ 5%	1/4W	PD14CY2E563J	
R39, 40	Insulated Carbon Film	3.3k Ω	$\pm$ 5%	1/4W	PD14CY2E332J	
R41, 42	Insulated Carbon Film	4.7k Ω	$\pm$ 5%	1/4W	PD14CY2E472J	
R43, 44	Insulated Carbon Film	6.8k Ω	$\pm$ 5%	1/4W	PD14CY2E682J	
R45, 46	Insulated Carbon Film	39k Ω	$\pm$ 5%	1/4W	PD14CY2E393J	
R47, 48	Insulated Carbon Film	3.9k Ω	$\pm$ 5%	1/4W	PD14CY2E392J	
R49, 50	Insulated Carbon Film	150k Ω	$\pm$ 5%	1/4W	PD14CY2E154J	
R51, 52	Insulated Carbon Film	47k Ω	$\pm$ 5%	1/4W	PD14CY2E473J	
R53, 54	Insulated Carbon Film	5.6k Ω	$\pm$ 5%	1/4W	PD14CY2E562J	
R55, 56	Insulated Carbon Film	1k Ω	$\pm$ 5%	1/4W	PD14CY2E102J	
R57, 58	Insulated Carbon Film	10k Ω	$\pm$ 5%	1/4W	PD14CY2E103J	
R59, 60	Insulated Carbon Film	180k Ω	$\pm$ 5%	1/4W	PD14CY2E184J	
R61, 62	Insulated Carbon Film	220k Ω	$\pm$ 5%	1/4W	PD14CY2E224J	
R63, 64	Insulated Carbon Film	2.2k Ω	$\pm$ 5%	1/4W	PD14CY2E223J	
R65, 66	Insulated Carbon Film	1k Ω	$\pm$ 5%	1/4W	PD14CY2E102J	
POTENTIOMETERS						
VR1 ~ 4	Potentiometer	5k Ω	(B)		R12-2001-05	
VR5 ~ 8	Potentiometer	10k Ω	(B)		R12-2001-05	
VR9, 10	Potentiometer	100k Ω	(B)		R12-5001-05	
MISCELLANEOUS						
Q1 ~ 12	2SC458LG	(C)			L33-0108-05	
L1 ~ 4	Ferri-Inductor	(FL-7H 102J)			S31-6001-05	
S2	Forward-Reverse Switch of Playback Amp.	(Slide)			H10-0001-05	
T1, 2	Output Transformer	(2.5k Ω : 8 Ω)			J32-0001-04	
-	Stud				J25-0002-03	
-	PC Board					

SCHEMATIC DIAGRAM

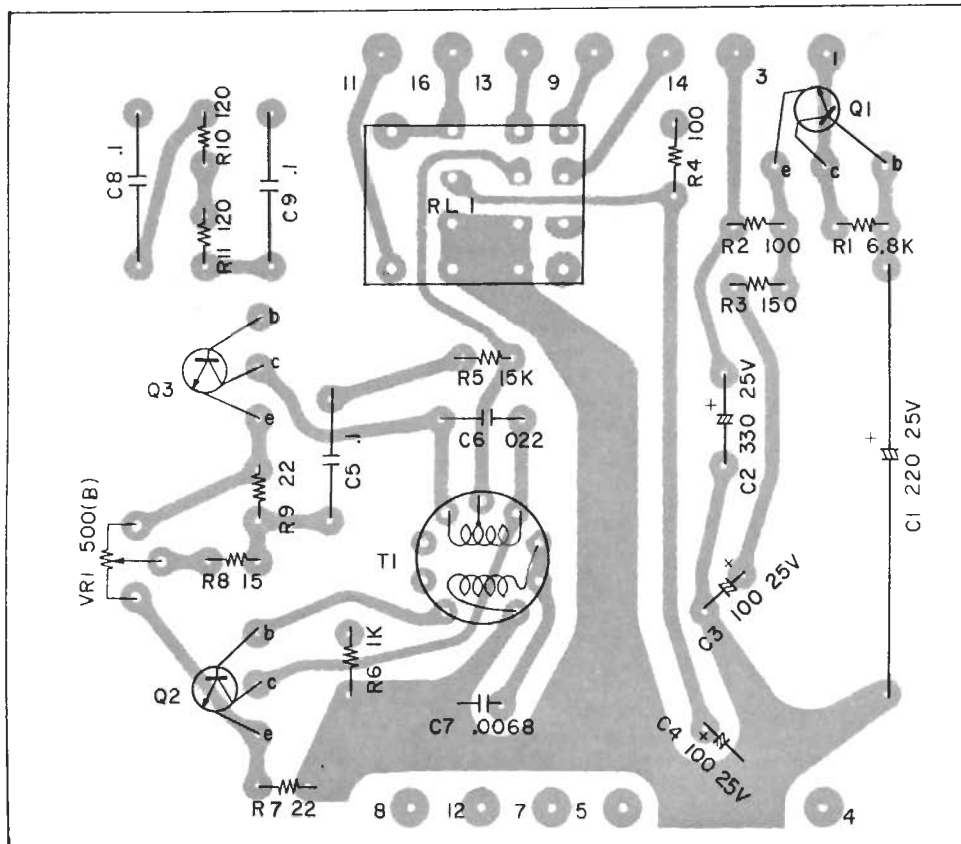
BOTTOM VIEW OF TRANSISTORS



2SC734



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS

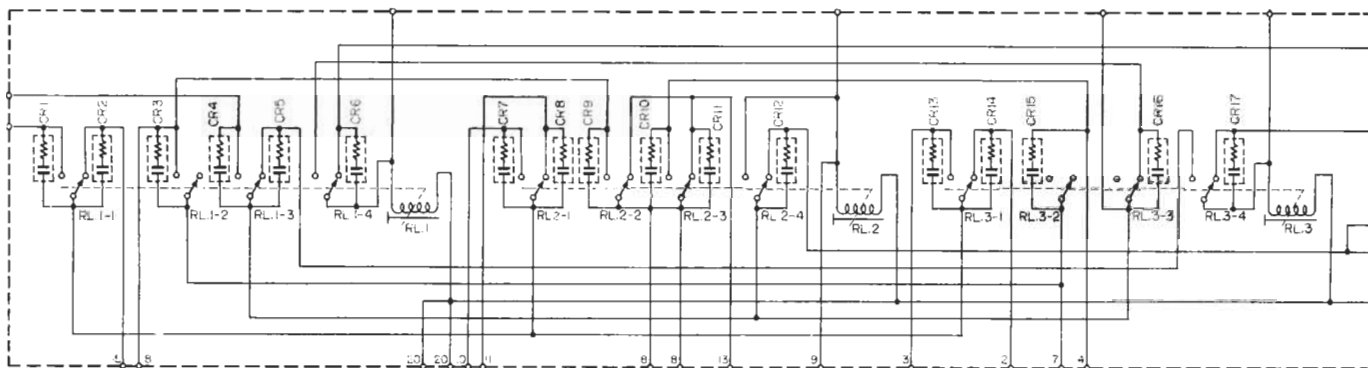


PARTS DESCRIPTION LIST

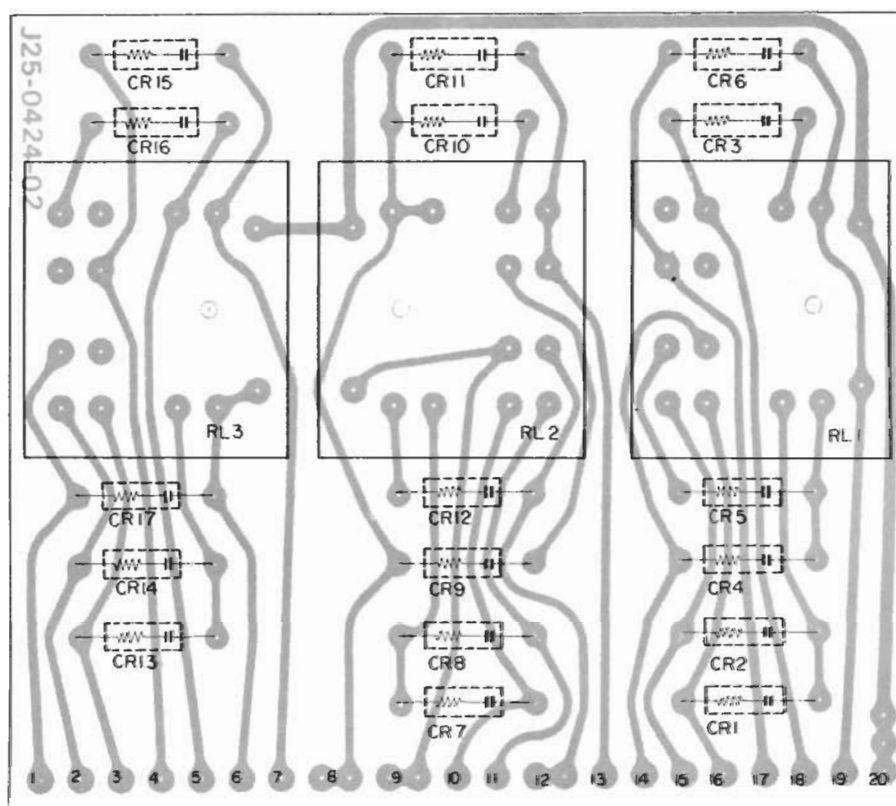
Symbol No.	Description				Part No.	Remarks
CAPACITOR						
C1	Electrolytic Tubular	220μF	25WV		CE02W1E221	
C2	Electrolytic Tubular	330μF	25WV		CE04W1E331	
C3, 4	Electrolytic Tubular	100μF	25WV		CE04W1E101	
C5	Plastics Film	0.1μF	±10%		CQ93M1H104K	
C6	Plastics Film	0.022μF	±10%		CQ93M1H223K	
C7	Plastics Film	0.0068μF	±10%		CQ93M1H682K	
C8, 9	Plastics Film	0.1μF	±20%		CQ93M1H104M	
RESISTOR						
R1	Insulated Carbon Film	6.8kΩ	±5%	1/4W	PD14CY2E682J	
R2	Insulated Carbon Film	100Ω	±5%	1/4W	PD14CY2E101J	
R3	Insulated Carbon Film	150Ω	±5%	1/4W	PD14CY2E151J	
R4	Resin Coated Wire Wound	100Ω	±10%	2W	RW14AG3D101J	
R5	Insulated Carbon Film	15kΩ	±5%	1/4W	PD14CY2E153J	
R6	Insulated Carbon Film	1kΩ	±5%	1/4W	PD14CY2E102J	
R7	Insulated Carbon Film	22Ω	±5%	1/4W	PD14CY2E220J	
R8	Insulated Carbon Film	15Ω	±5%	1/4W	PD14CY2E150J	
R9	Insulated Carbon Film	22Ω	±5%	1/4W	PD14CY2E220J	
R10, 11	Insulated Carbon Film	120Ω	±10%	1/2W	PD14BY2H121K	
VR1	Potentiometer	500Ω	(B)		R12-0001-05	
MISCELLANEOUS						
Q1	2SC734					
Q2, 3	2SC814					
RL1	4P Relay				S51-4001-05	
T1	Oscillator Transformer				T01-27	
—	PC Board				J25-0003-03	

UA0111K

SCHEMATIC DIAGRAM



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS

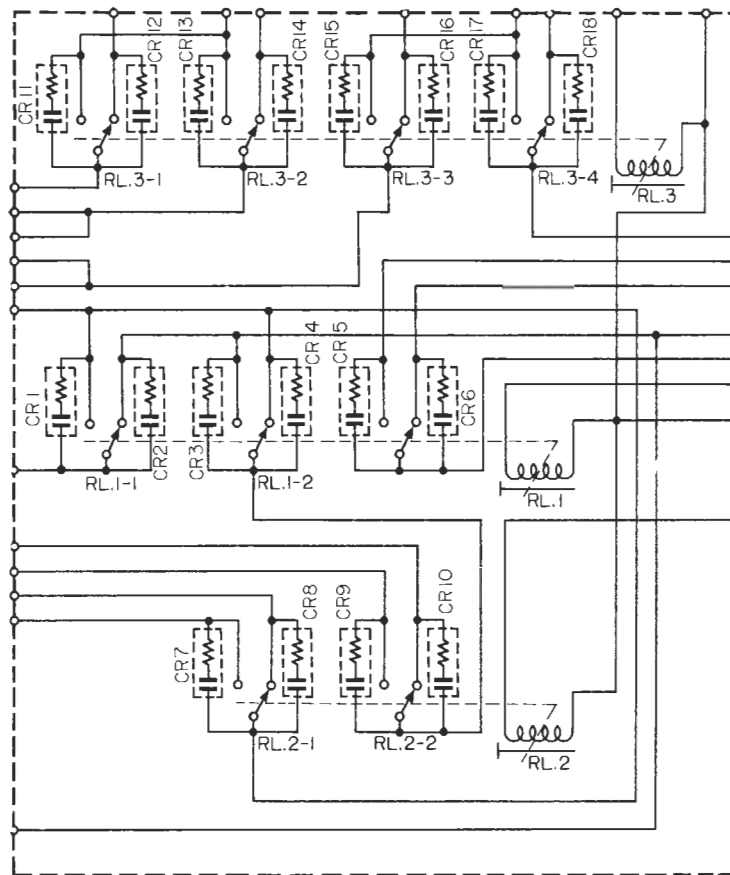


CR1~17 $0.1\mu F+120\Omega(250WV)$.

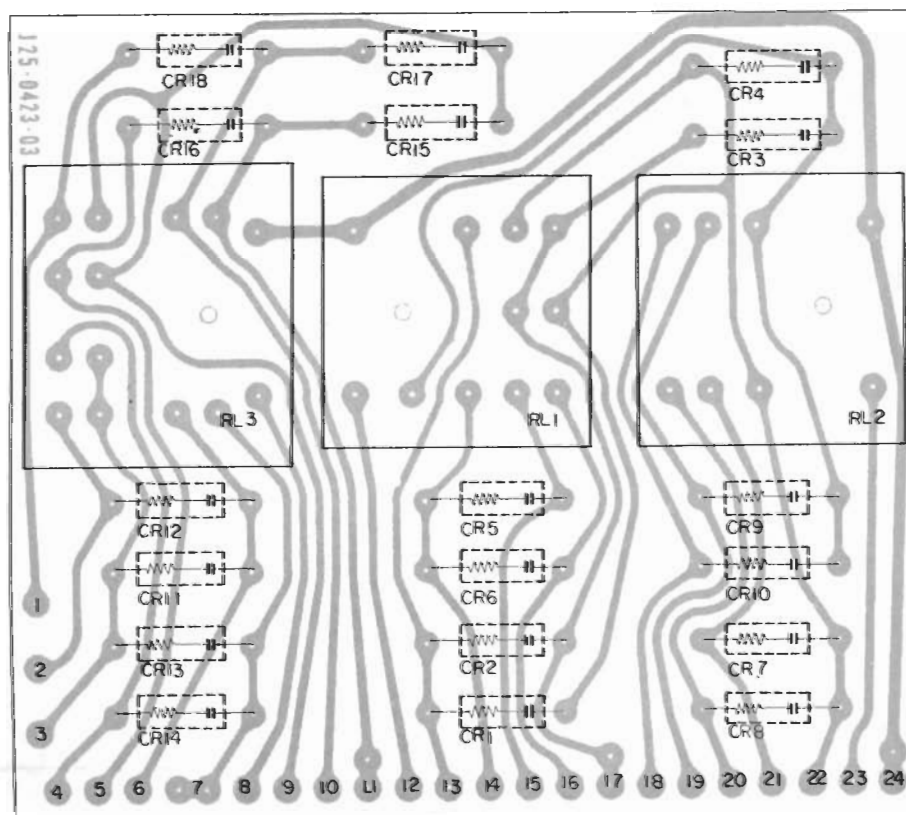
PARTS DESCRIPTION LIST

Symbol No.	Description	Part No.	Remarks
CR1 ~ 17	C-R Composite Parts	R90-0001-05	
—	PC Board Holder	J21-0019-04	
—	Lead Holder	J21-0392-04	
—	PC Board	J25-0242-02	
—	Power Relay (4P)	S51-4002-15	
—	Insulating Sleeve (Transparency, 6.5 mm)	212-0603-00	

SCHEMATIC DIAGRAM



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS

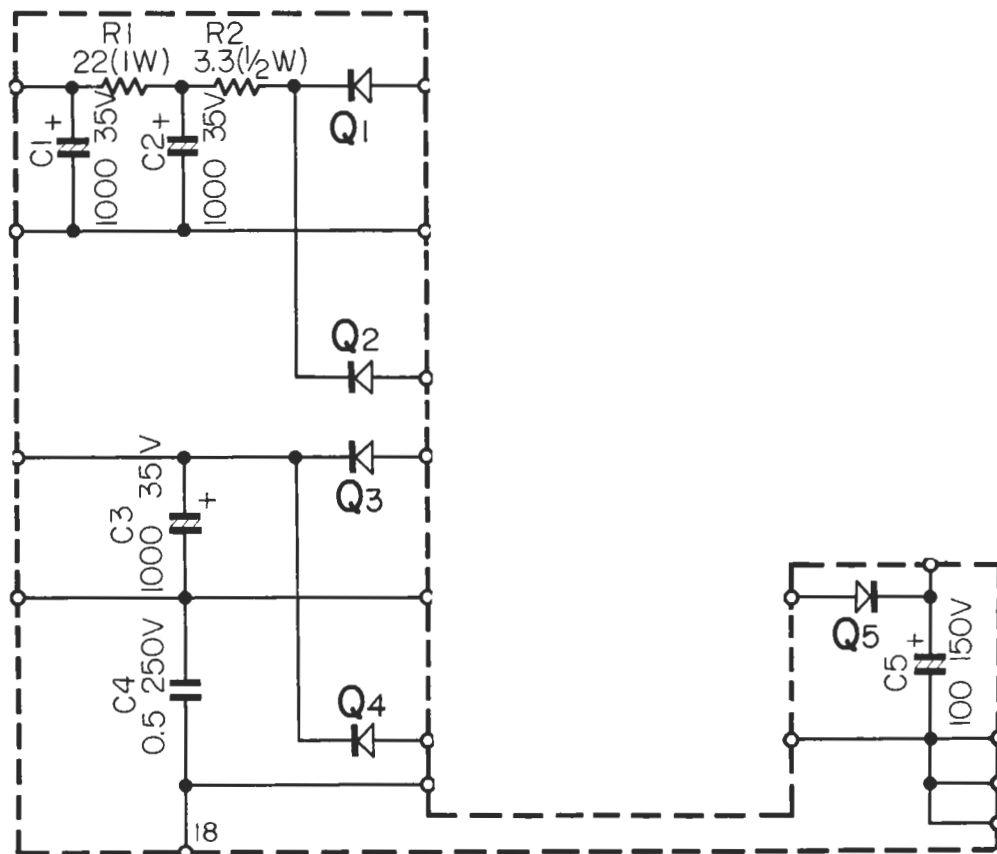


CR1-4,9,10 0.1 μ F + 120 Ω (250WV), CR5-8 0.1 μ F + 120 Ω (500WV)

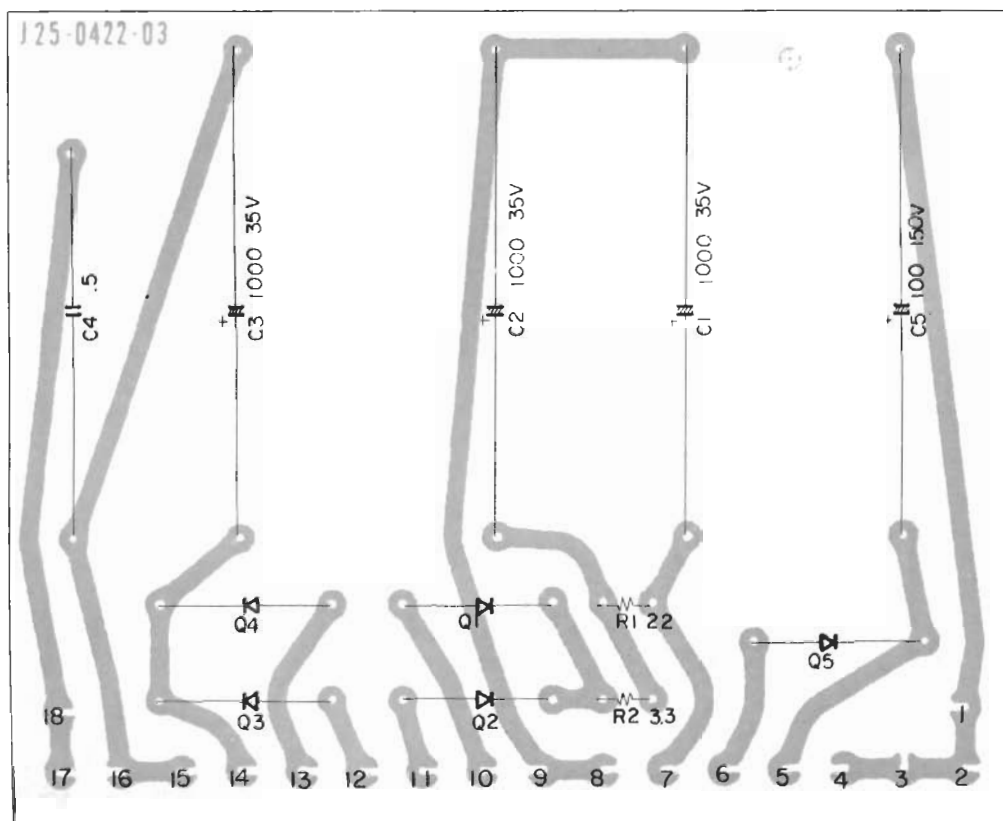
PARTS DESCRIPTION LIST

Symbol No.	Description	Part No.	Remarks
CR1 ~ 4	C-R Composite Parts 0.1 μ F +120 Ω (DC500WV)	R90-0068-05	
CR5 ~ 8	C-R Composite Parts 0.1 μ F +120 Ω (DC250WV)	R90-0001-05	
CR9 ~ 10	C-R Composite Parts 0.1 μ F +120 Ω (DC500WV)	R90-0068-05	
CR11 ~ 18	C-R Composite Parts 0.1 μ F +120 Ω (DC250WV)	R90-0001-05	
—	PC Board	J25-0423-03	
—	PC Board Holder (A)	J21-0019-04	
—	Lead Holder	J21-0392-04	
RL1	Power Relay (3P)	S51-3001-15	
RL2	Power Relay (2P)	S51-2001-15	
RL3	Power Relay (4P)	S51-4001-15	
—	Insulating Sleeve (Transparency, 6.5 mm)	212-0603-00	

SCHEMATIC DIAGRAM



SEALED CIRCUIT ASSEMBLIES-PHANTOM VIEWS



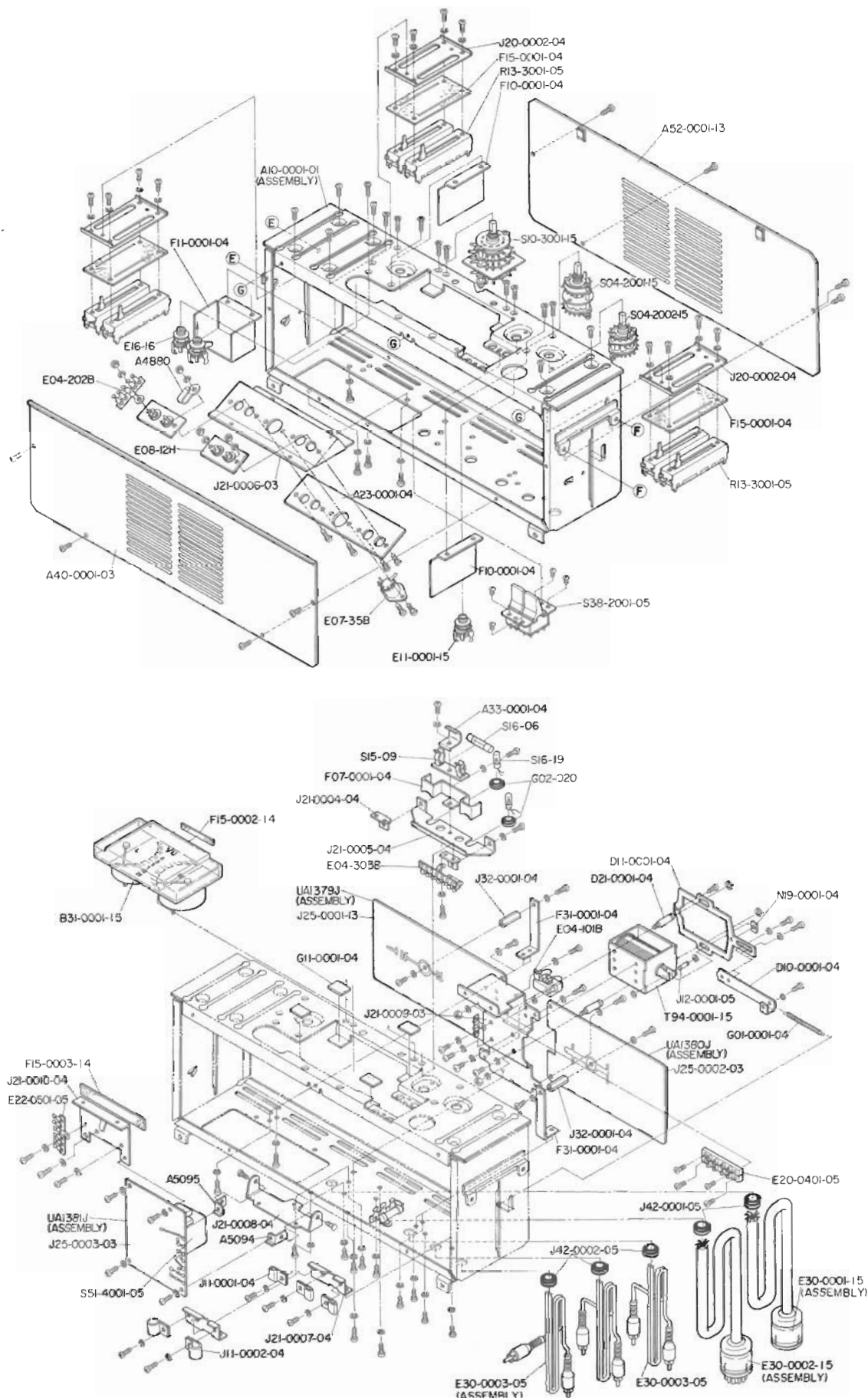
Q1,2 SM-150-01. Q3~5 FR1K.

PARTS DESCRIPTION LIST

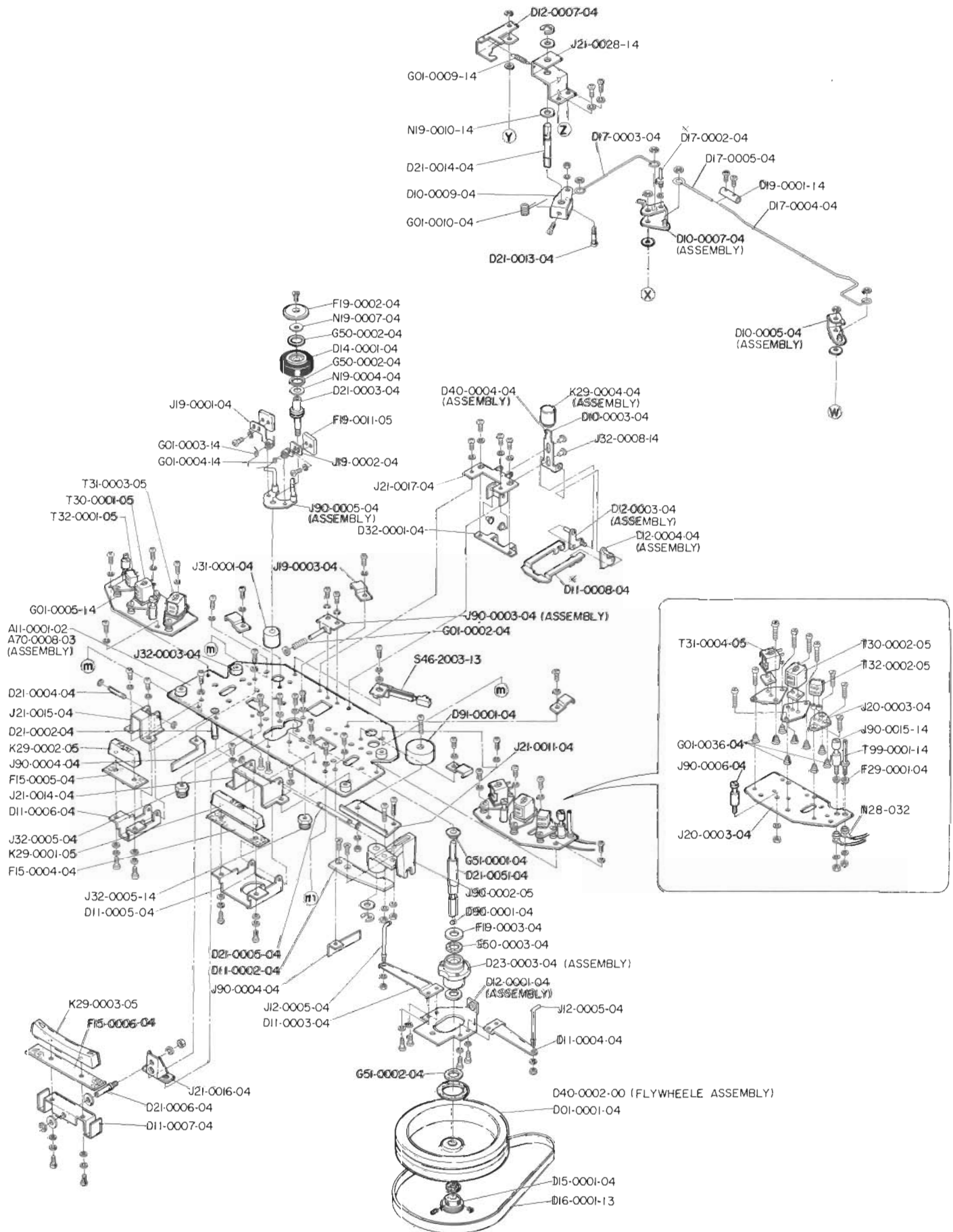
Symbol No.	Description				Part No.	Remarks
Q1, 2	SM-150-01					
Q3 ~5	FR1K					
C1 ~3	Electrolytic Tubular	1000 μ F	35WV		CE02A1V102	
C4	MP Capacitor	0.5 μ F	$\pm$ 20%		CH02S2E0R5M	
C5	Electrolytic Tubular	100 μ F	160WV		CE02A2C101	
R1	Fixed Carbon Composition	22 Ω	$\pm$ 10%	1/2W	RC05GF3A220K	
R2	Fixed Carbon Composition	3.3 Ω	$\pm$ 10%	1/2W	RC05GF2H3R3K	
—	PC Board Holder				J21-0671-04	
—	PC Board				J25-0422-03	

[illegible]

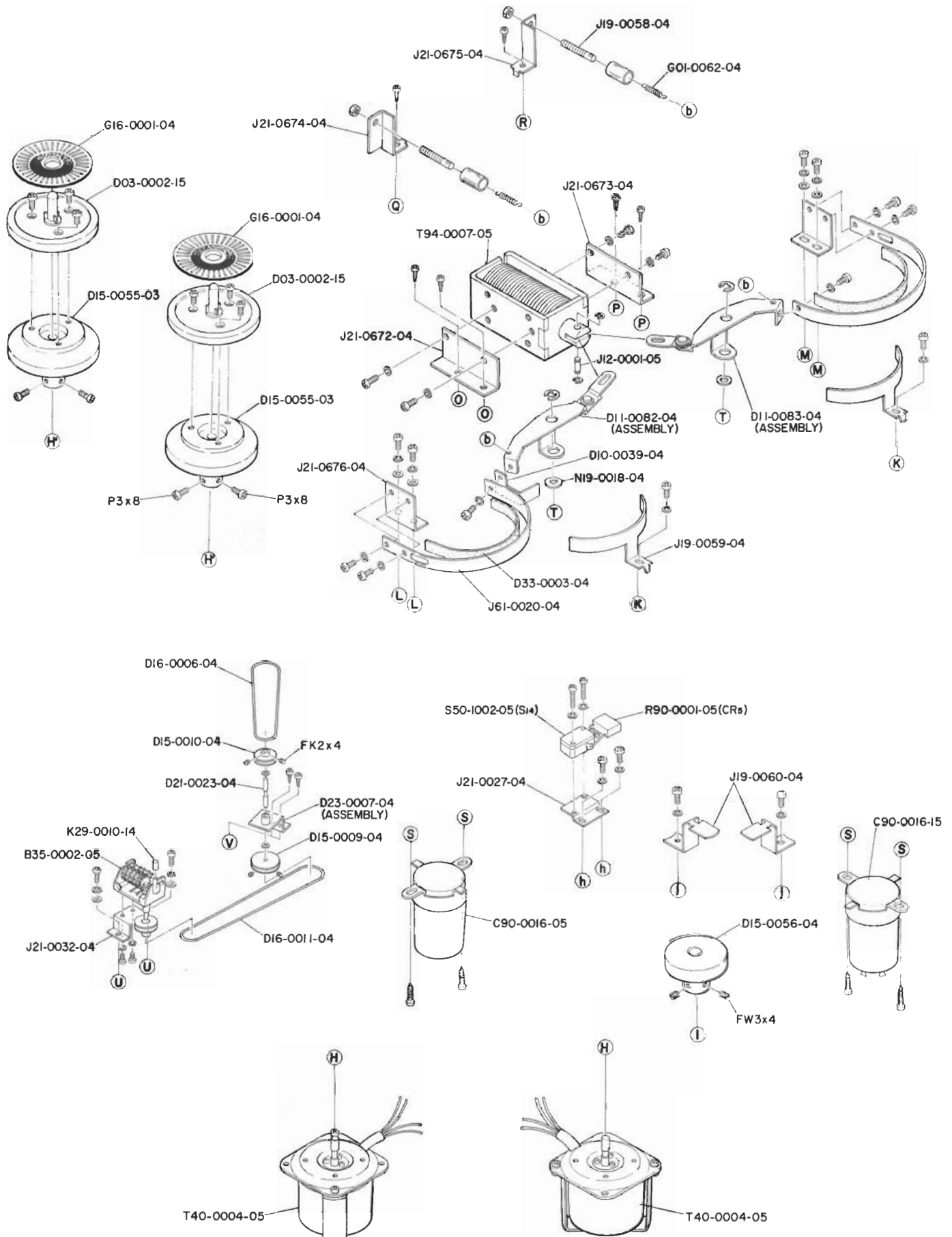
EXPANDED VIEW



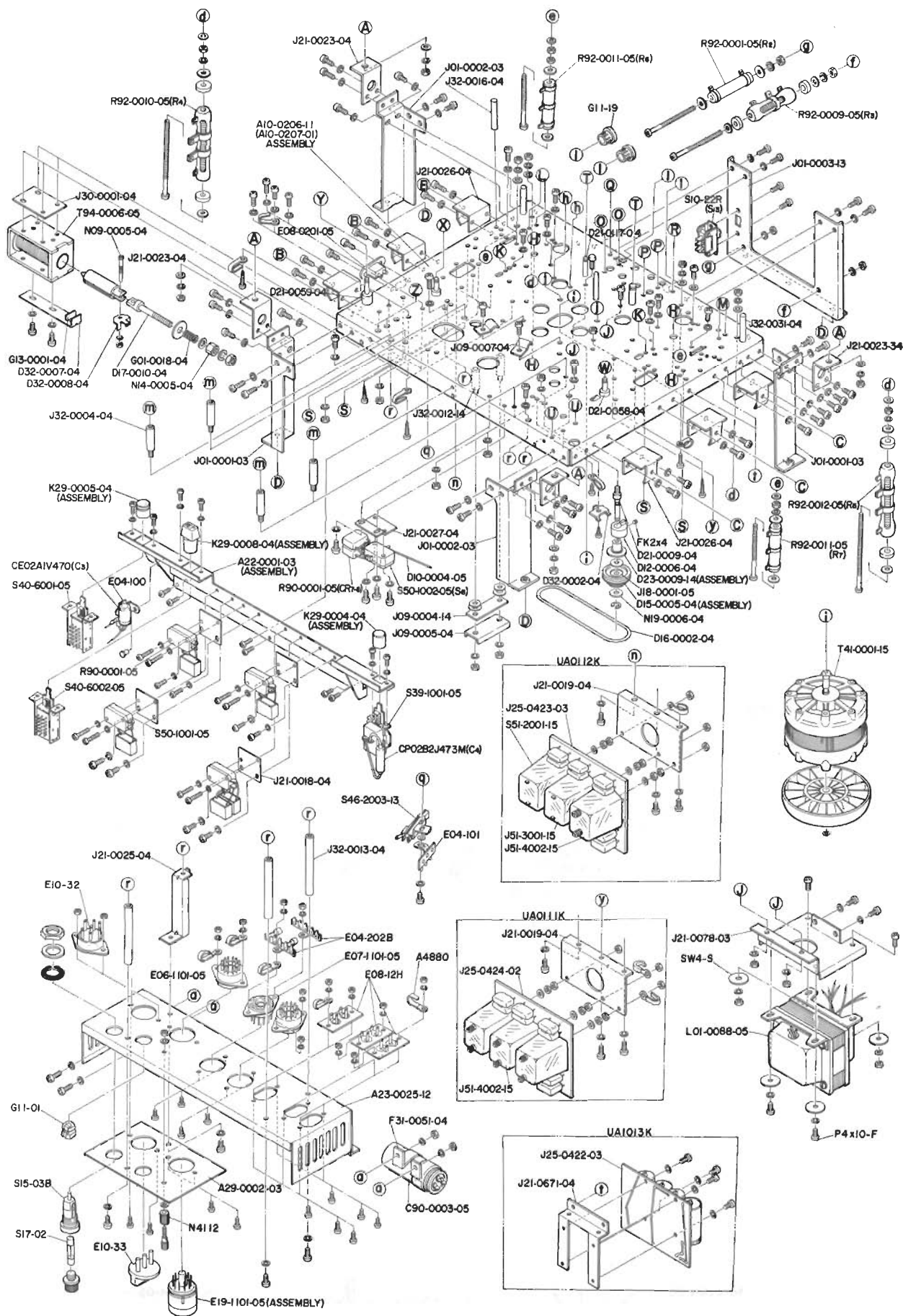
EXPANDED VIEW



EXPANDED VIEW



EXPANDED VIEW



■ TROUBLE SHOOTING

Symptom	Probable cause	Correction
Reel motor fails to operate.	1. Faulty power switch 2. Faulty phase advancer capacitor 3. Open motor winding 4. Sticked motor shaft 5. Off-set rotor shaft	Check continuity. Check continuity. Replace. Disassemble and lubricate. Replace.
Reel motor revolves with weak rotary torque	1. Faulty or short-circuited phase advancer capacitor 2. Sticked motor shaft	Check continuity. Overhaul and lubricate. (Apply 1 to 2 oil drops)
Capstan does not rotate	1. Failed capstan drive motor 2. Flat belt slipping owing to oil applied Disengaged flat belt 3. Broken flat belt 4. Idled drive motor pulley 5. Sticked or clogged capstan shaft	Check drive motor. Wipe oil off the belt using alcohol. Replace the belt and adjust motor pulley height. Replace. Tighten setscrew for pulley. Disassemble and clean.
Slow and unsteady tape speed	1. Slipping flat belt 2. Idled motor pulley 3. Sticked or clogged capstan shaft 4. Insufficient pressure of pinch roller to capstan 5. Capstan stained with oil 6. Supply reel permanently engaged with its brake 7. Excessive backtension 8. Improper capstan solenoid or solenoid shaft failed to enter its cylinder fully.	If the belt slips after cleaning it with alcohol, replace. Tighten setscrew of pulley. Disassemble and clean. Adjust double nut of capstan solenoid. Wipe capstan clean with alcohol. Adjust brake mechanism. Adjust reel motor torque. Adjust double nut or adjust solenoid for proper mounting angle.
Take-up reel fails to take up tape under playback condition	1. Insufficient take-up torque 2. Idled reel holder disc 3. Reel permanently engaged with brake 4. Sticked reel motor	Adjust reel motor torque. Tighten setscrews. Adjust brake mechanism. Disassemble and lubricate.
No sound output under playback condition (Sound output delivered with TAPE switch placed in SOURCE position)	Switch S8 interlocked with capstan solenoid is kept permanently in ON.	Adjust S8 for proper mounting position.

■ TROUBLE SHOOTING

Symptom	Probable cause	Correction
Tape becomes loose when tape transport mechanism is brought in STOP from FF or REW operation.	Ineffective reel brake	Adjust brake mechanism.
Auto stopper switch opened by tension arm released during FF operation	Weak backtension during FF operation.	Adjust reel motor torque.
Sound output trembles (Wow, flutter)	1. Stained capstan or pinch roller surface 2. Deformed or bent capstan or pinch roller or stuck capstan or pinch roller shaft. 3. Capstan or pinch roller stained with oil 4. Insufficient pressure of pinch roller to capstan 5. Slipping or faulty flat belt. 6. Excessive takeup torque 7. Excessive backtension 8. Motors and capstan shaft bearing suffering from shortage of oil	Wipe the surface clean with alcohol or carbon tetrachloride. (But, never use carbon tetrachloride for rubber items). Disassemble, clean and lubricate, or replace. Wipe with alcohol. Adjust capstan solenoid double nut. Wipe with alcohol or replace. Adjust reel motor torque. Adjust reel motor torque. Lubricate.
Tape not taken up neatly under FF or REW operation	Weak backtension	Adjust reel motor torque.
Tape comes into touch with reel disc	Bent reel disc or reel disc with non-uniform thickness	Replace reel. Adjust reel holder disc for normal height.
No sound output under playback condition despite of tape and amplifier operating normally	1. Playback head stained with dust 2. Faulty playback head 3. MUTING switch S8 remaining in its operated position	Wipe playback head clean with alcohol. Replace. Adjust S8 for proper mounting position.
No sound output with SEARCH button pushed	Faulty SEARCH switch (S7)	Adjust the switch for proper mounting position.
Large dropout	1. Weak backtension	Adjust reel motor torque

■ TROUBLE SHOOTING

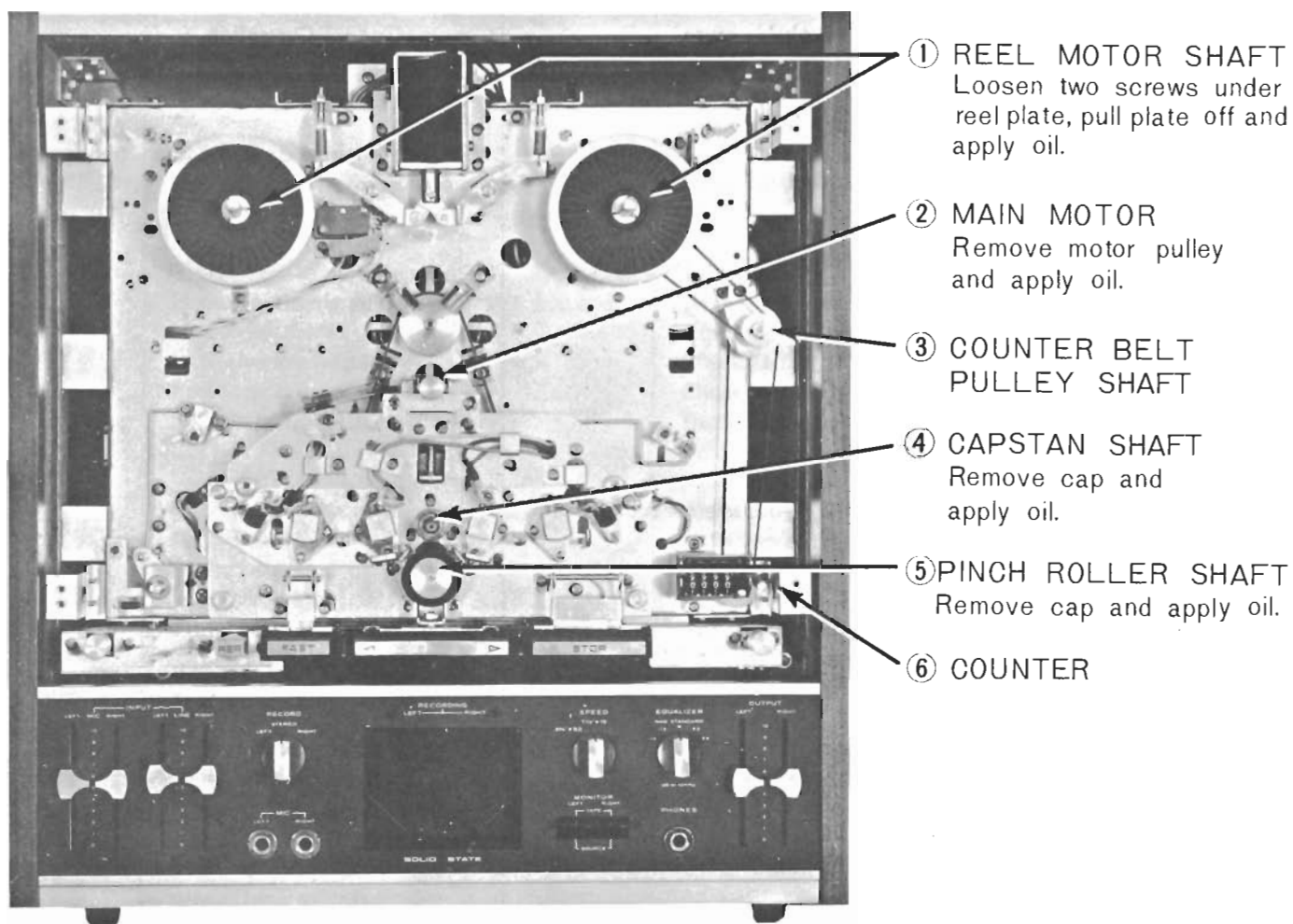
Symptom	Probable cause	Correction
	2. Inclined head 3. Stained belt with dust 4. Inclined shifter pin	Adjust the head for proper mounting azimuth. Wipe with alcohol. Adjust the pin.
Solenoid fails to operate even if capstan motor reverses its rotation during playback operation	1. Disabled eccentric cam 2. Slipping, disengaged, loosened or broken round eccentric cam belt 3. Faulty microswitch interlocked with the eccentric cam	Check and lubricate (apply 1 to 2 oil drops). Wipe the belt with alcohol, restore to original position, or replace. Replace.
Tape fails to run even when all of switches are pushed (despite of motor running normally and meter lamp illuminating)	1. Faulty microswitch S1 (interlocked with tension arm). 2. Easy loading mechanism left engaged (with tension arm opened)	Continuity check. Check and adjust easy loading mechanism.
Capstan motor failed to reverse its revolving direction	1. Faulty motor control circuit	Check.
Reel motor failed to revolve	1. Open coil 2. Sticked motor shaft 3. Faulty brake switch (interlocked with brake arm) 4. Faulty motor control circuit	Check. Lubricate. Check. Check.

■ TROUBLE SHOOTING

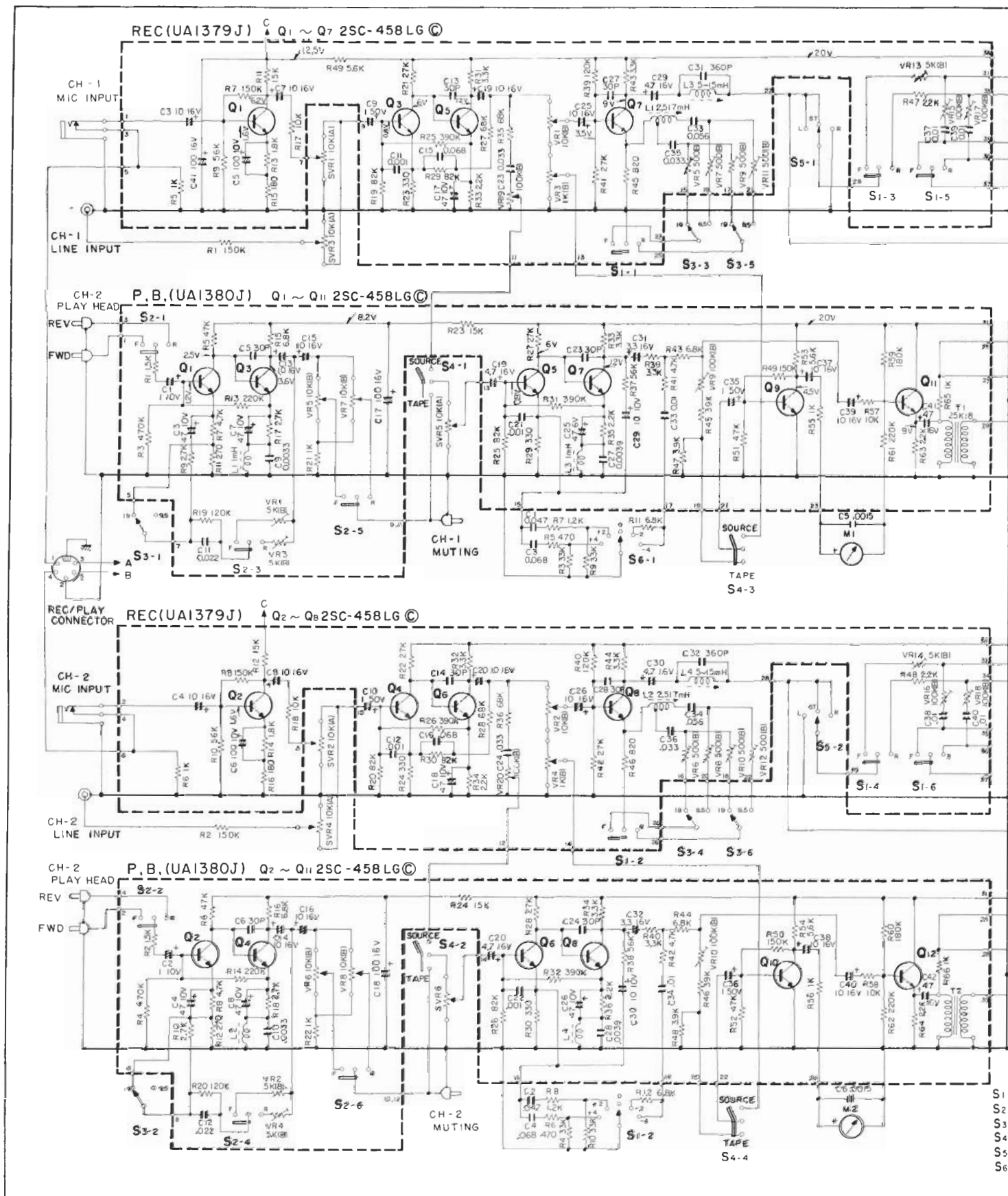
Symptom	Probable cause	Correction
Tape transport mechanism fails to be turned on	Blown fuse Faulty power switch Faulty AC cord plug Open-circuited power transformer winding	Check power line system for any trouble and, if normal, replace fuse. Continuity check. Continuity check. Replace.
No recording	Improper contact of tape and head or stained head with dust. Excessive low bias current Faulty record amplifier Faulty record head	Wipe surface of record head clean with cloth impregnating alcohol. Check and adjust oscillator circuit. Check and adjust record amplifier. Replace.
No erasing	Improper contact of tape and head or stained ERASE head with dust Faulty oscillator Faulty erase head	Wipe surface of erase head clean with cloth impregnating alcohol. Check oscillator operation. Replace.
No playing back	Improper contact of tape and head or stained playback head with dust Faulty playback amplifier Faulty playback head	Wipe surface of playback head with cloth impregnating alcohol. Check playback amplifier operation. Replace.
Lowered output	Improper contact of tape and head or stained head with dust Lowered amplifier gain Lowered power supply voltage (Rectifier supply) Varied bias current Improper or degraded tape characteristic	Wipe surface of head clean with alcohol. Check amplifier. Check power supply circuit. Check oscillator. Replace tape.
Degraded frequency characteristic	Improper contact of tape and head or stained head with dust. Worn head (especially worn playback head) Improperly adjusted head (especially about azimuth angle) Excessive large bias current Improper amplifier characteristic Improper or degraded tape characteristic	Wipe surface of head clean with alcohol. Replace. Readjust. Adjust oscillator circuit. Check amplifier operation. Replace tape.
Excessive distortion	Excessively high recording level Excessively low bias current Faulty amplifier Excessive high input level	Check recording level. Check and readjust oscillator circuit. Recheck amplifier. Check input terminal.

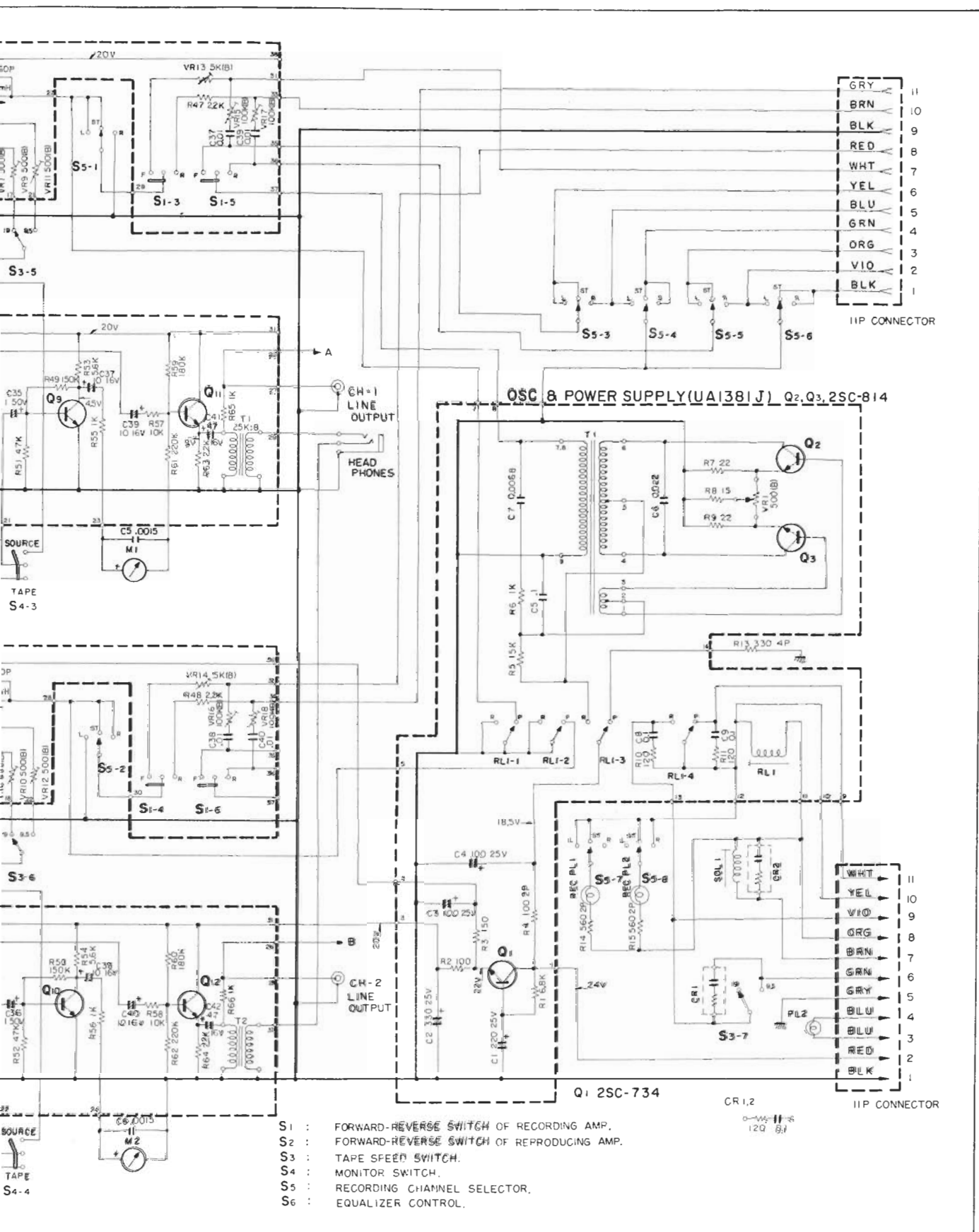
■ TROUBLE SHOOTING

Symptom	Probable cause	Correction
Large crosstalk	Faulty head Improperly positioned heads Improper tape run	Replace Readjust Replace tape and adjust tape transport mechanism.
No meter deflection	Faulty meter Faulty meter circuit	Replace meter. Check meter circuit.
Improper operation of equalization	Faulty rotary switch Faulty circuit element	Replace. Check circuit element.
Improper operation of monitor	Faulty SOURCE-TAPE selector switch	Replace
Fails to reverse or repeat	Stained sensing pole with dust Improperly plastered sensing fail	Wipe sensing pole clean with alcohol. Replace or replaster.

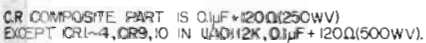


SCHEMATIC DIAGRAM









■ MEMO

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