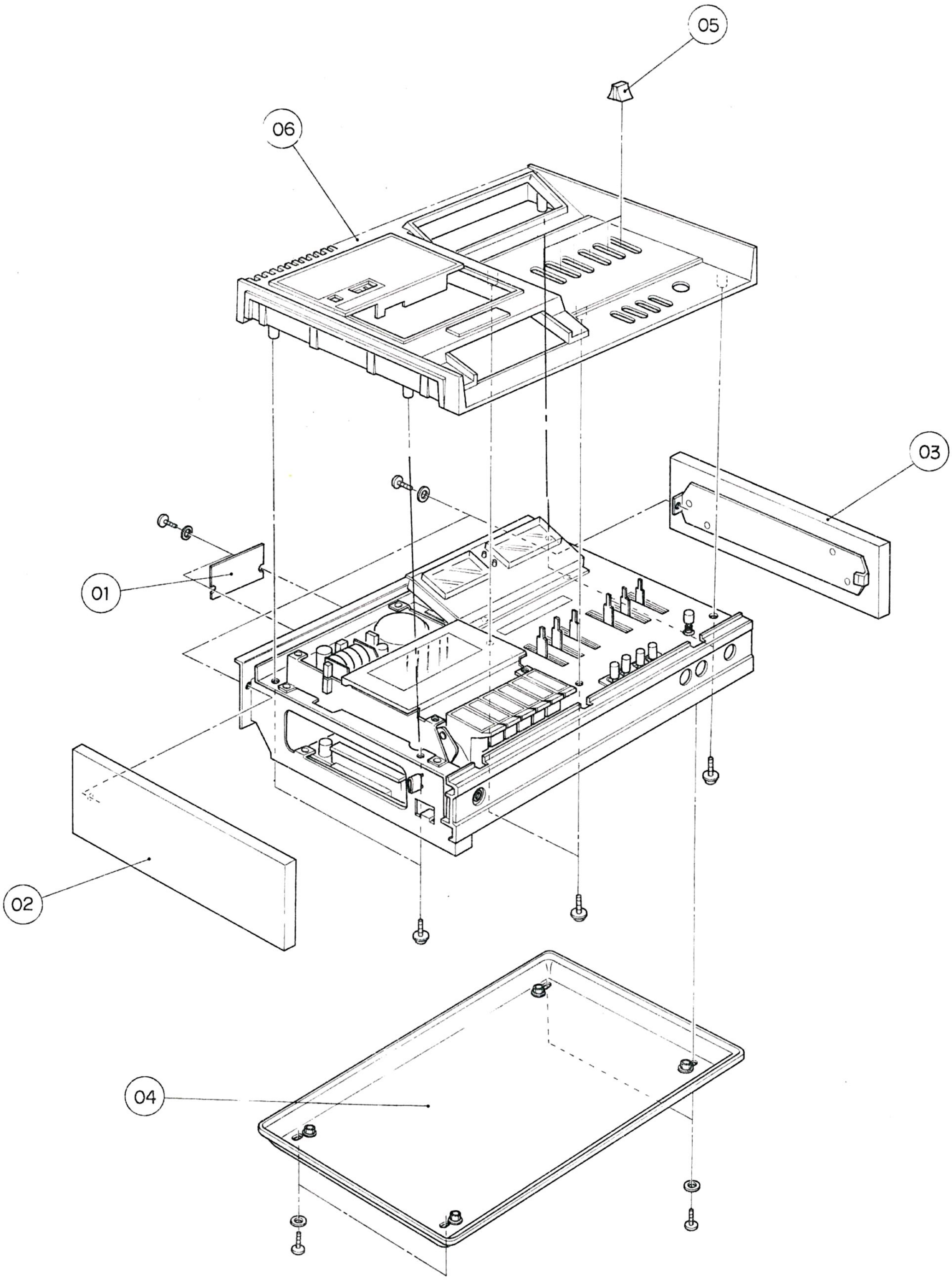
Goodmans
SCD100

STEREO CASSETTE TAPE DECK

Service Manual

CABINET DISMANTLING

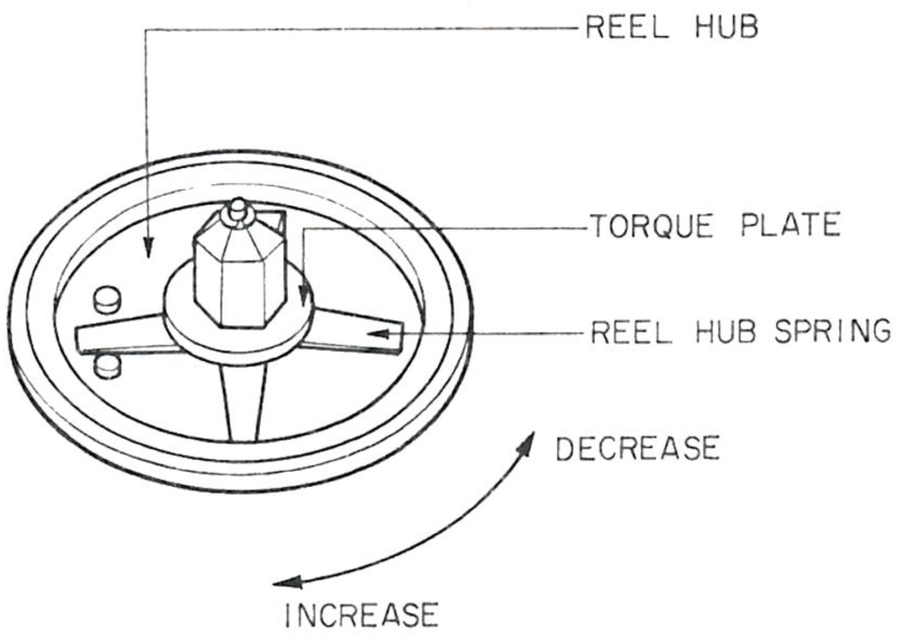


(1) Remove control knobs 05 from the Cabinet Top.
(2) Remove 4 screws from the Cabinet Baseplate 04.
(3) Remove the Cabinet Baseplate 04.
(4) Remove 2 screws from Rear Panel.
(5) Pull forward the woodframes 02, 03.
(6) Remove 6 screws from the studs under the Cabinet Top 06.
(7) Lift off the Plastic Cabinet Top 06.
(8) All Mechanisms and Circuitry are now accessible.
(9) Dismantling of individual Mechanisms and Electronic circuit boards are shown on later pages.

MECHANISM ADJUSTMENT PROCEDURES

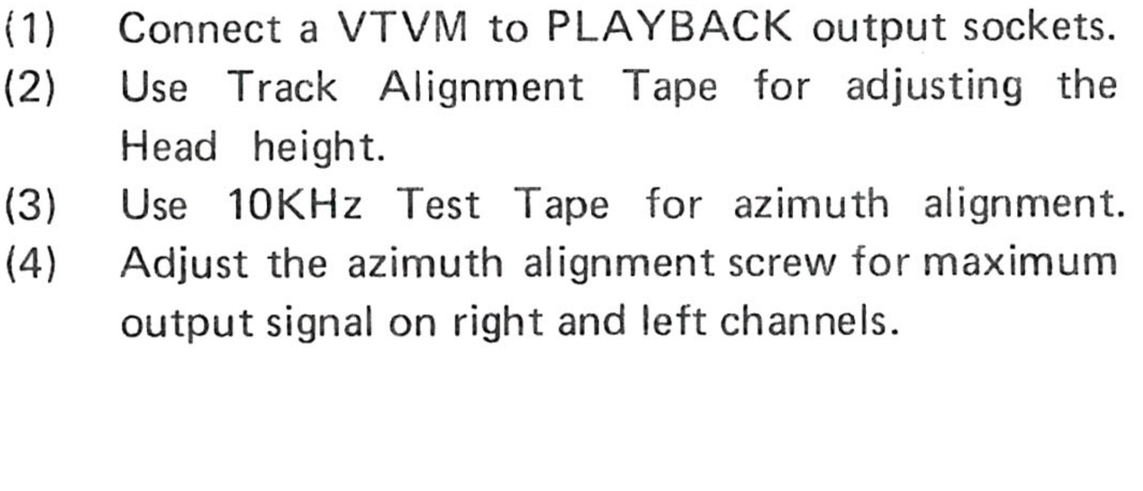
TAKEUP TORQUE AND SUPPLY TORQUE ADJUSTMENT

(1) Remove top and baseplates of the cassette recorder.
(2) Remove cassette compartment.
(3) To adjust torque, move Torque Plate as shown below.
(4) The Takeup Torque should be 45g ± 10g.
(5) The Supply Torque should be 35g to 60g.



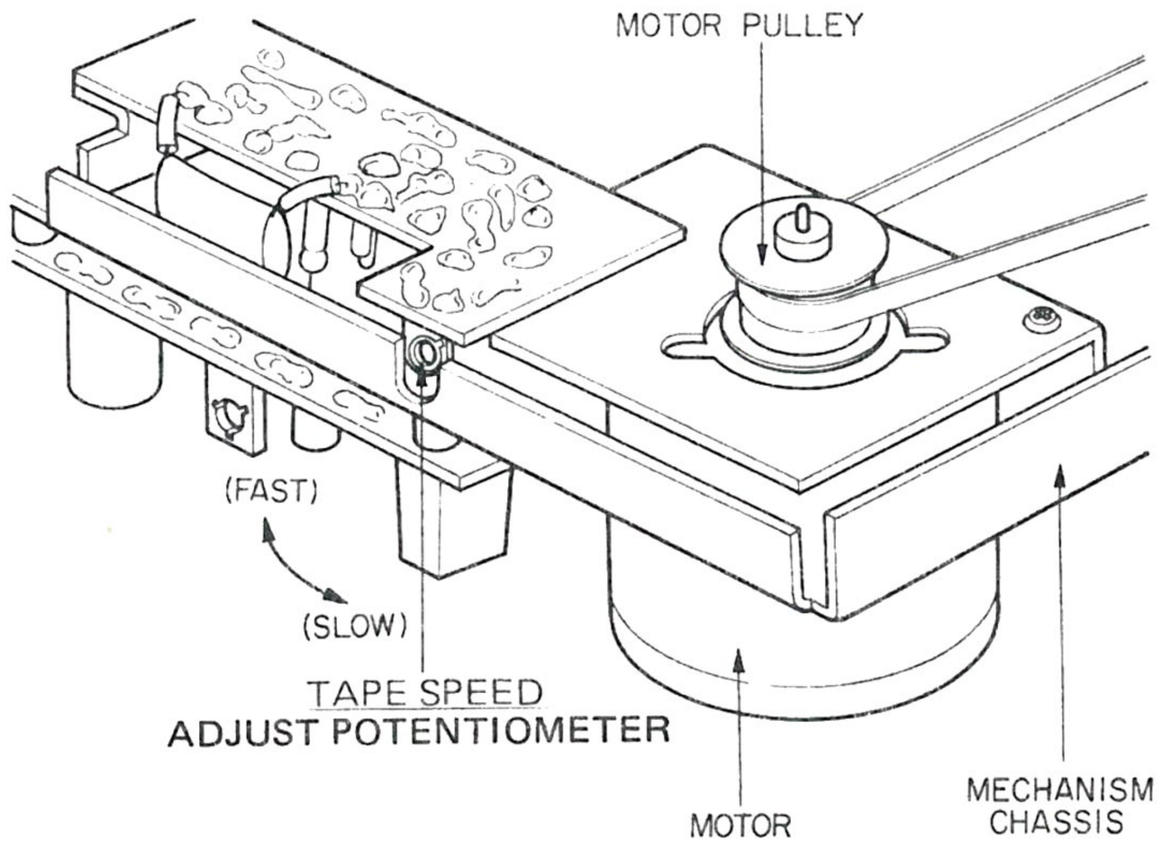
RECORD/PLAYBACK HEAD HEIGHT ADJUSTMENT AND AZIMUTH ALIGNMENT

(1) Connect a VTVM to PLAYBACK output sockets.
(2) Use Track Alignment Tape for adjusting the Head height.
(3) Use 10KHz Test Tape for azimuth alignment.
(4) Adjust the azimuth alignment screw for maximum output signal on right and left channels.



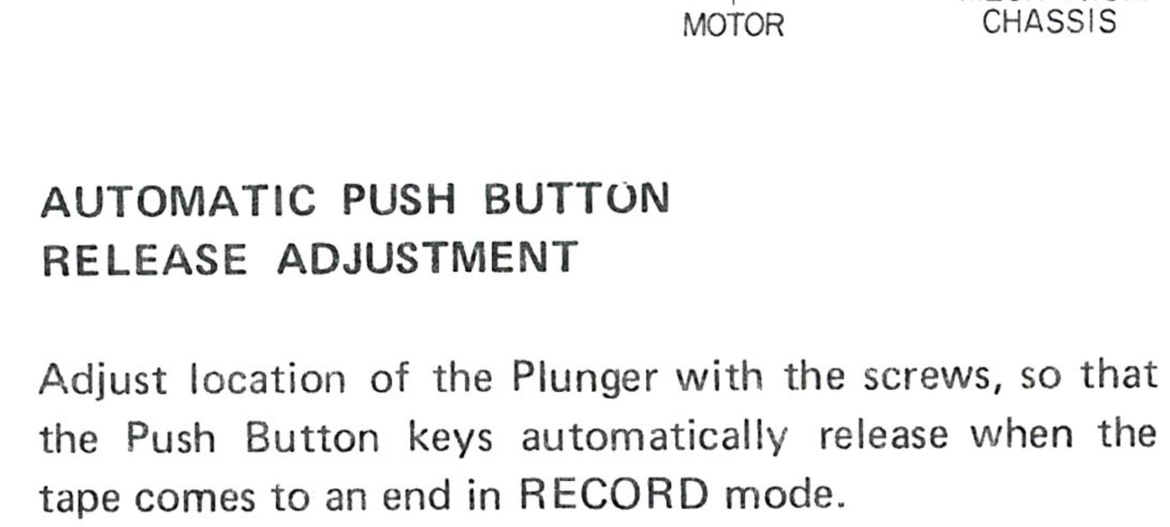
TAPE SPEED ADJUSTMENT

(1) Connect a frequency counter to either the Left or Right PLAYBACK output jack sockets.
(2) Insert the alignment cassette and play the 3KHz reference level portion of the tape.
(3) Adjust the Tape Speed Adjust potentiometer (accessible through the rear apron of the cassette recorder) for an average reading of 3KHz on the frequency counter.



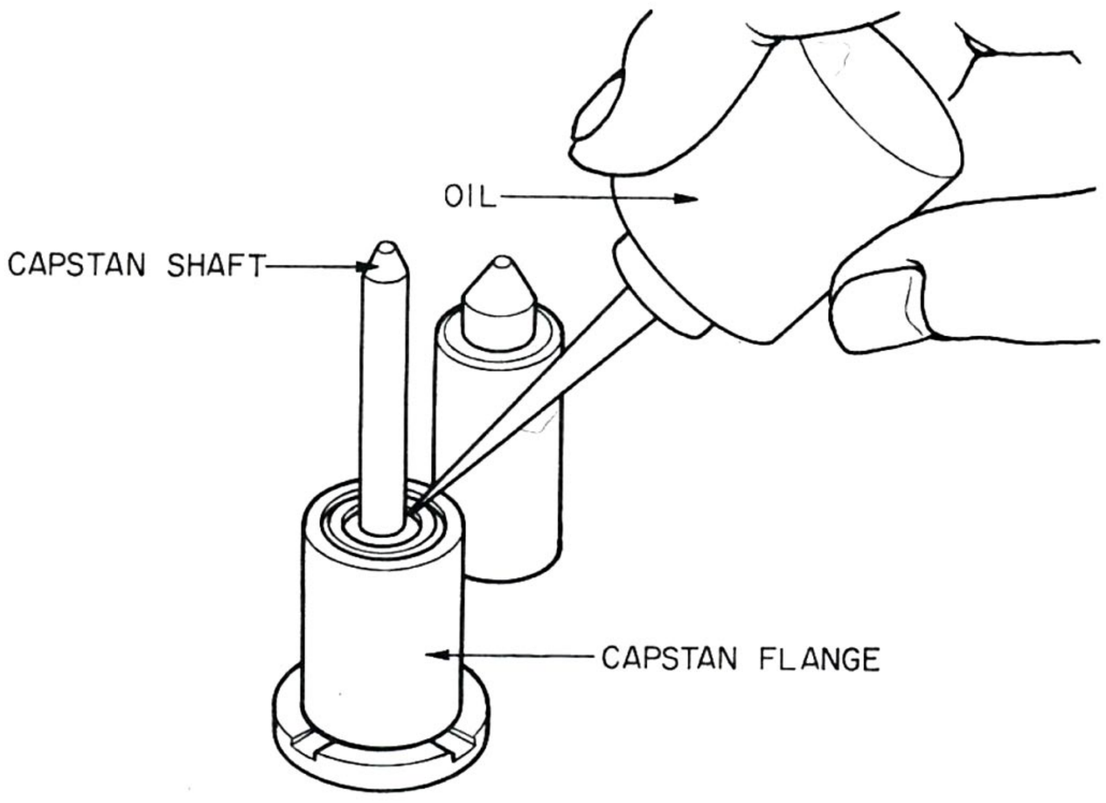
AUTOMATIC PUSH BUTTON RELEASE ADJUSTMENT

Adjust location of the Plunger with the screws, so that the Push Button keys automatically release when the tape comes to an end in RECORD mode.
(See illustration below)



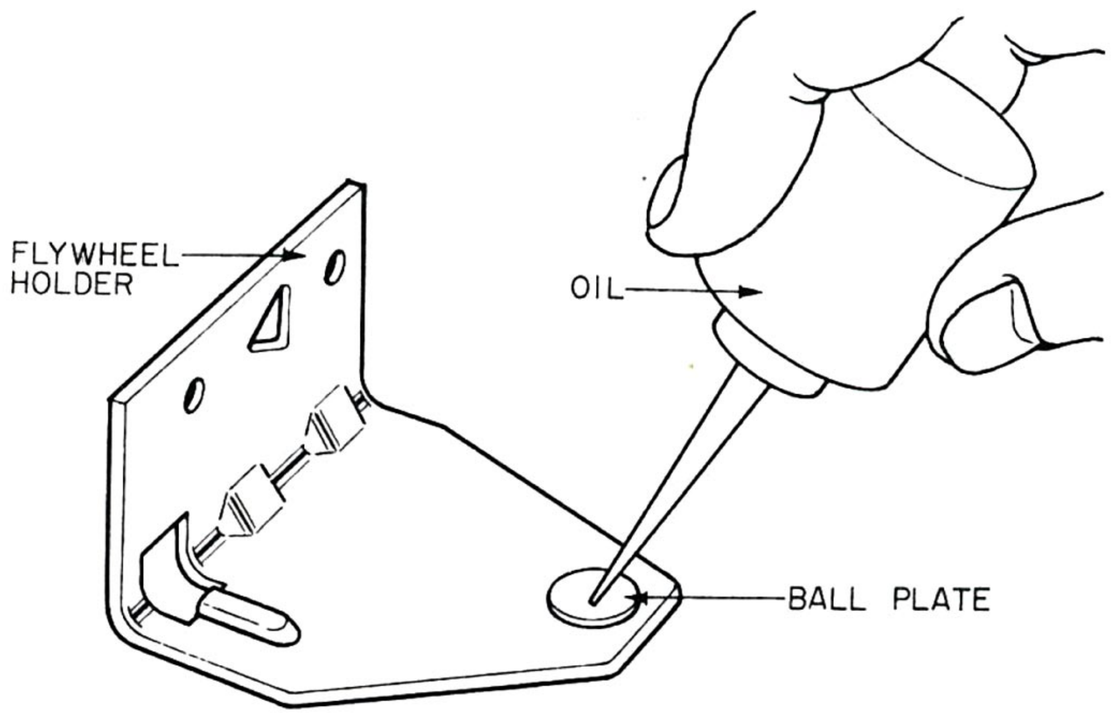
LUBRICATION

(1) Remove plastic top panel and take out mechanism sub-chassis.
(2) After 500 hours of use apply two drops of light machine oil (Mobil DTE Oil or equivalent) between capstan and capstan bearing. See illustration below.



CAUTION: Do not allow oil to reach the pressure roller, counter belt, other rubber parts or tape channel. If oil touches any of these parts, wipe the parts clean.

NOTE: When mounting the Flywheel Holder, allow the flywheel 0.1mm to 0.5mm vertical end float.



ELECTRICAL ADJUSTMENT PROCEDURE

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST	REMARKS
1	Tape Speed	3 KHz Pre-recorded Test Tape	Wow/Flutter Meter or Frequency Counter to OUTPUT Jack	Playback	Governor Board VR501	Adjust VR501 to obtain 3 KHz
2	Head Azimuth Alignment	10 KHz Pre-recorded Test Tape	VTVM to OUTPUT Jack	Playback	Azimuth Alignment Screw	Adjust the Screw to obtain maximum reading on the VTVM
3	Playback Output Level	400 Hz 20mM/mm Alignment Test Tape	VTVM to Pin 3 & 12 of Connector CN 3 and Chassis Ground	Playback	Main Board VR101 VR201	Adjust VR101,201 to obtain 580mV on the VTVM
4	Meter Level	400Hz, 0.5V to INPUT Jack	As above	Record Pause	Main Board VR102 VR202	1. Adjust VR1,2, Record Level Controls to obtain 580 mV on the VTVM 2. Adjust VR 102, 202 to obtain OdB on VU meters
5	MPX Filter	19 KHz to INPUT Jack	VTVM to OUTPUT Jack	Record Pause	Main Board L102 L202 MPXSW ON	Adjust the Coils to obtain minimum reading on the VTVM
6	Record Amplifier Equalizer	17 KHz to INPUT Jack	VTVM across R101, 201	Record Pause	Main Board L103 L203	Adjust the Coils to obtain peak readings at 17 KHz Note: Stop Bias Oscillation
7	Bias Frequency	105 KHz Generator Signal to Oscilloscope Horizontal Terminal	Bias Oscillator Signal at Erase Head to the 'Scope Vertical Terminal	Record Pause	Main Board T301	Adjust the Coil until a circle pattern appears on the Oscilloscope
			Coupling Erase Head to Frequency Counter	Record Pause	Main Board T301	Adjust the Coil to obtain 105 KHz on the Frequency Counter
8	Bias Trap		VTVM across X109, 209 Collector and Ground	Record Pause	Main Board L104 L204	Adjust the Coils to obtain less than 1V on the VTVM
9	Recording Bias Current	400Hz, 0.5V to INPUT Jack	VTVM to OUTPUT Jack	Record and Playback	Volume Sub Board TR702 802 703 803 704 804	1. Adjust VR1, 2, Record Input Level Controls to obtain O dB on the Level Meters 2. Record the signal on blank tape and playback 3. Repeating Step 2 adjust VR 702, 802 to obtain maximum output on the VTVM (Normal) 4. Repeating Step 2 adjust VR703, 803 to obtain maximum output on the VTVM (High) 5. Repeating Step 2 adjust VR704, 804 to obtain maximum output on the VTVM (CrO_2)

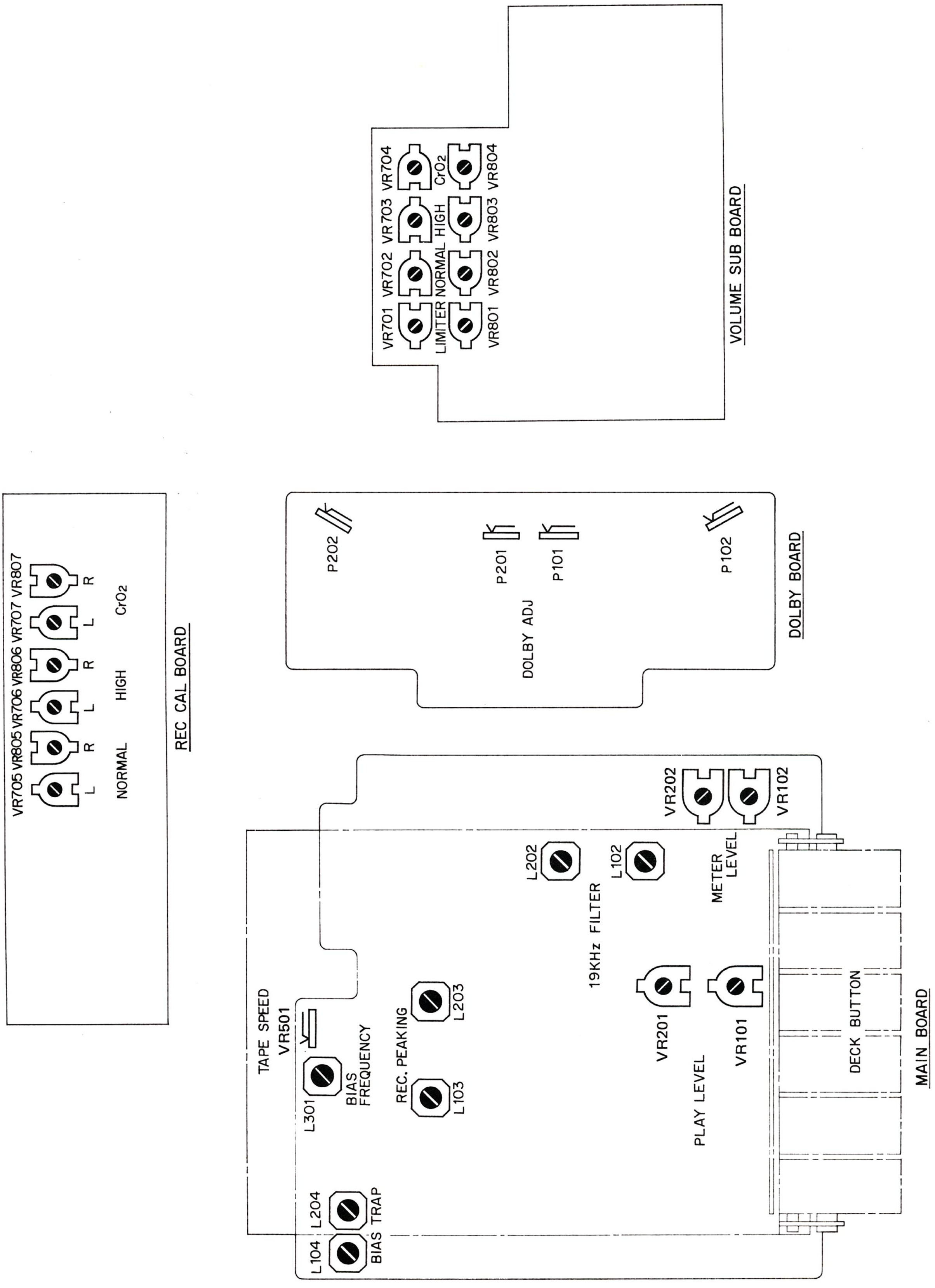
ELECTRICAL ADJUSTMENT PROCEDURE

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST	REMARKS
10	Record/ Playback Output Level	400Hz, 0.5V to INPUT Jack	VTVM to OUTPUT Jack	Record and Playback	REC. CAL. Board VR705 805 706 806 707 807	1. Adjust VR1, 2 Record Input Level Controls to obtain 0dB on the Level Meters 2. Record the signal on blank tape and play back, noting VTVM reading 3. Repeating Step 2, adjust VR705, 805 to obtain 1 volt on the VTVM, or 0dB on the Level Meters (Normal) 4. Repeating Step 2, adjust VR706, 806 to obtain 1 volt on the VTVM, or 0dB on the Level Meters (High) 5. Repeating Step 2, adjust VR707, 807 to obtain 1 volt on the VTVM, or 0dB on the Level Meters (Cr02)
11	Limiter Level	1KHz, 0.5V to INPUT Jack	VTVM to OUTPUT Jack	Record Pause	Volume sub Board VR701 VR801	1. Adjust VR 1. 2 Record Level Controls to obtain 0dB on the Level Meter. 2. Set Limiter SW to ON position. 3. Adjust VR701, 801, so that the Output Level may be decreased by 1dB.

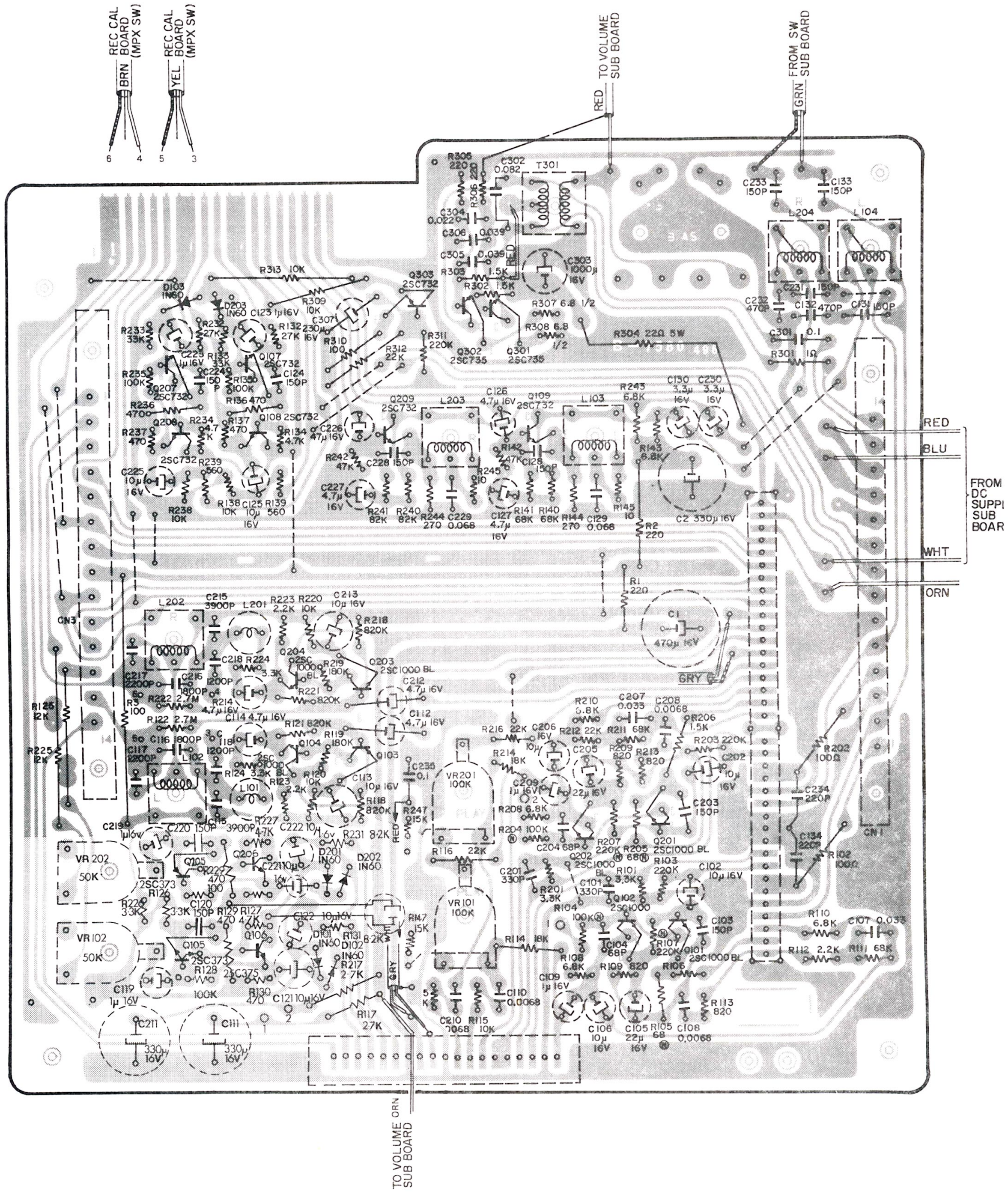
DOLBY CIRCUIT ALIGNMENT PROCEDURE

(1) Turn LAW Controls VR101, 201 fully counterclockwise.
(2) Turn GAIN Controls VR102 and VR202 fully counterclockwise.
(3) Set Dolby Switch (IN-OUT) to OUT position and ground FET Gate Terminal with a jumper wire.
(4) Connect an AC VTVM to METERING Terminal 3 for the Right channel or 12 for the Left channel.
(5) Apply 5KHz signals having a proper level to INPUT Terminal 2 for the Right channel or 13 for the Left channel, so that the VTVM reads 17.5mV in each channel.
(6) Remove the VTVM from Terminal 3 or 12 and reconnect it to OUTPUT Terminal 6 or 9. Note the output voltage on VTVM.
(7) Set DOLBY Switch to IN position and adjust GAIN Controls (P102 and P202) so that the VTVM indicates 10dB over the noted voltage in Step (6).
(8) Set DOLBY Switch to IN position. Note the voltage at OUTPUT Terminal 6 for the Right channel or 9 for the Left channel.
(9) Remove the jumper wire from the FET Gate Terminal. Adjust the LAW Controls (P101 and P201) so that the voltages at OUTPUT Terminals 6 and 9 read 2dB below the noted voltage in step (8).

PARTS LOCATION



COMPONENT LAYOUT



— MAIN CIRCUIT BOARD —

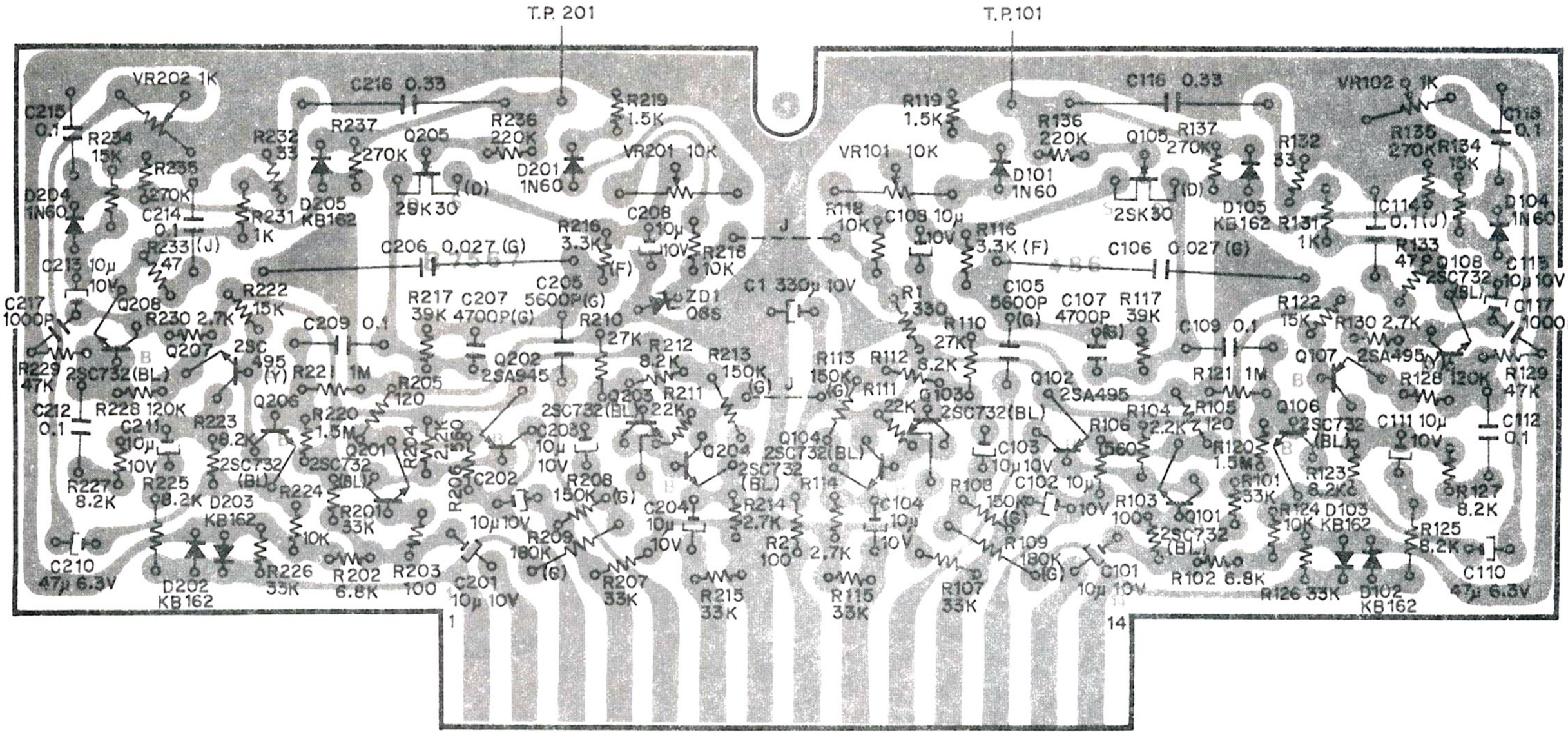
PARTS LIST

Schematic Ref. No.	Part No.	Description
	4710037 Main Board Ass'y	
	— Pre. AMP —	
Q101, 201	4738608	Transistor 2SC1000 (BL)
102, 202		
R101, 201	4936000	Carbon Resistor 3.3K ELR¼, J
R102, 202	4924126	Carbon Resistor 100Ω ELR¼, J
R103, 203	4950720	Carbon Resistor 220K N ELR¼, J
107, 207		
R104, 204	4948122	Carbon Resistor 100K N ELR¼, J
R105, 205	4922638	Carbon Resistor 68Ω N ELR¼, J
R106, 206	4933508	Carbon Resistor 1.5K ELR¼, J
R108, 208	4938607	Carbon Resistor 6.8K ELR¼, J
110, 210		
R109, 209	4931408	Carbon Resistor 820Ω ELR¼, J
113, 213		
R111, 211	4946618	Carbon Resistor 68K ELR¼, J
R112, 212	4934709	Carbon Resistor 2.2K ELR¼, J
R114, 214	4942000	Carbon Resistor 18K ELR¼, J
R115, 215	4940105	Carbon Resistor 10K ELR¼, J
R116, 216	4942701	Carbon Resistor 22K ELR¼, J
R117, 217	4935306	Carbon Resistor 2.7K ELR¼, J
R147, 247	4941500	Carbon Resistor 15K ELR¼, J
R148, 248	4948106	Carbon Resistor 100K ELR¼, J
C101, 201	4828003	Ceramic Capacitor 330P, 50V, M
C102, 202	4864107	Electrolytic Capacitor 10μ 16V
106, 206		
C103, 203	4825500	Ceramic Capacitor 150P, 50V, M
C104, 204	4822609	Ceramic Capacitor 68P, 50V, M
C105, 205	4866703	Electrolytic Capacitor 22μ, 16V
C107, 207	4844009	Mylar Capacitor 0.033μ, 50V, K
C108, 208	4838602	Mylar Capacitor 0.0068μ, 50V, K
110, 210		
C109, 209	4856104	Electrolytic Capacitor 1μ, 16V
C111, 211	4876008	Electrolytic Capacitor 330μ, 16V
C134, 234	4826701	Ceramic Capacitor 220P 50V, M
C135, 235	4848101	Mylar Capacitor 0.1μ 50V, K
VR101, 201	4948246	Semi-fixed Volume 100K
	— Buffer AMP —	
Q103, 203	4738608	Transistor 2SC1000 (BL)
104, 204		
L101, 201	4781643	Inductor 36mH
L102, 202	4781600	19KHz Coil 23mH
R1	4926706	Carbon Resistor 220Ω ELR¼, J
R118, 218	4955404	Carbon Resistor 820K ELR¼, J
121, 221		
R119, 219	4950003	Carbon Resistor 180K ELR¼, J
R120, 220	4940105	Carbon Resistor 10K ELR¼, J
R122, 222	4959302	Carbon Resistor 2.7M ELR¼, J
R123, 223	4934709	Carbon Resistor 2.2K ELR¼, J
R124, 224	4936000	Carbon Resistor 3.3K ELR¼, J
C1	4877500	Electrolytic Capacitor 470μ 16V
C112, 212	4861507	Electrolytic Capacitor 4.7μ 16V
114, 214		
C113, 213	4864107	Electrolytic Capacitor 10μ 16V
C115, 215	4836707	Mylar Capacitor 3900P, 50V, J
C116, 216	4834003	Mylar Capacitor 1800P, 50V, K
C117, 217	4834704	Mylar Capacitor 2200P 16V, J
C118, 218	4832906	Mylar Capacitor 1200P 16V, K
	— Meter AMP —	
R3	4924126	Carbon Resistor 100Ω R¼, J
R125, 225	4940938	Carbon Resistor 12K R¼, J
C3	4872118	Electrolytic Capacitor 100μ 16V
C119, 219	4856104	Electrolytic Capacitor 1μ 16V
VR102, 202	4945956	Semi-fixed Volume 50K
	— Meter Circuit —	
Q105, Q205	4738543	Transistor 2SC 373
Q106, Q206	4738543	Transistor 2SC 373
D101, D201	4758102	Silicon Diode in 60P
D102, D202	458102	Silicon Diode in 60P
R126, R226	4937000	Carbon Resistor 3.3K ELR¼,J
R127, R227	4937503	Carbon Resistor 4.7K ELR¼, J
R128, R228	4948106	Carbon Resistor 100K ELR¼, J
R129, R229	4929500	Carbon Resistor 470 Ohms ELR¼, J
R130, R230	4929500	Carbon Resistor 470 Ohms ELR¼, J
R131, R231	4939409	Carbon Reistor 8.2K ELR¼, J

Schematic Ref. No.	Part No.	Description
C120, C220	4825500	Ceramic Capacitor 150PF 50V M
C121, C221	4864107	Electrolytic Capacitor 10μ 16V
C122, C222	4864107	Electrolytic Capacitor 10μ 16V
	— Line AMP —	
Q107, 207	4738578	Transistor 2SC732 (BL)
108, 208		
R132, 232	4943309	Carbon Resistor 27K ELR¼, J
R133, 233	4944003	Carbon Resistor 33K ELR¼, J
R134, 234	4937503	Carbon Resistor 4.7K ELR¼, J
R135, 235	4948106	Carbon Resistor 100K ELR¼, J
R136, 236	4929500	Carbon Resistor 470Ω ELR¼, J
137, 237		
R138, 238	4940105	Carbon Resistor 10K ELR¼, J
R139, 239	4930207	Carbon Resistor 560Ω ELR¼, J
C123, 223	4856104	Electrolytic Capacitor 1μ 16V
C124, 224	4825500	Ceramic Capacitor 150P, 50V, M
C125, 225	4864107	Electrolytic Capacitor 10μ 16V
	— REC. AMP —	
Q109, 209	4738578	Transistor 2SC732 BL
L103, 203	4781619	Peaking Coil 1.14mH
L104, 204	4781627	Bias Trap Coil 10.5mH
R2	4926722	Carbon Resistor 220Ω R¼, J
R140, 240	4947401	Carbon Resistor 82K ELR¼, J
141, 241		
R142, 242	4945506	Carbon Resistor 47K ELR¼, J
R143, 243	4938607	Carbon Resistor 6.8K ELR¼, J
R144, 244	4927303	Carbon Resistor 270Ω ELR¼, J
R145, 245	4916107	Carbon Resistor 10Ω ELR¼, J
C2	4876008	Electrolytic Capacitor 330μ 16V
C126, 226	4861507	Electrolytic Capacitor 4.7μ 16V
127, 227		
C128, 228	4825500	Ceramic Capacitor 150P, 50V, M
131, 231		
C129, 229	4846605	Mylar Capacitor 0.068μ 50V, K
C130, 230	4860004	Electrolytic Capacitor 3.3μ 25V
C132, 232	4829506	Ceramic Capacitor 470P, 50V, M
	— BIAS OSC —	
Q301, 302	4738586	Transistor 2SC735 (Y)
T301	4781635	BIAS, OSC Coil
R301	4908104	Carbon Resistor 1Ω ELR¼, J
R302, 303	4933508	Carbon Resistor 1.5K ELR¼, J
R304	4918738	Cement Resistor 22Ω 5W
R305, 306	4926706	Carbon Resistor 220Ω ELR¼, J
R307, 308	4914627	Carbon Resistor 6.8Ω R50, J
C301	4848101	Mylar Capacitor 0.1μ 50V, K
C302	4847407	Mylar Capacitor 0.082μ 50V, K
C303	4872118	Electrolytic Capacitor 100μ 16V
C304	4842707	Mylar Capacitor 0.022μ 50V, K
C305, 306	4844718	Mylar Capacitor 0.039μ 50V, K
C133, 233	4825500	Ceramic Capacitor 150P, 50V, M
	— Muting Circuit —	
Q303	4738578	Transistor 2SC732 BL
D103, 203	4758293	Silicon Diode 151555
R309	4940105	Carbon Resistor 10K ELR¼, J
R310	4924118	Carbon Resistor 100Ω ELR¼, J
R311	4950704	Carbon Resistor 220K ELR¼, J
R312	4942728	Carbon Resistor 22K R¼, J
R313	4940121	Carbon Resistor 10K R¼, J
C307	4866703	Electrolytic Capacitor 22μ 16V
	— Miscellaneous —	
	4720032	Main Board
SW1	4210182	Record Switch
	4175336	Record Switch Spring
	4268016	Record Switch Spring Insulator
	4150112	Shield Plate
	4264029	14P Connector
	4264037	19P Connector
	4180003	Connector Pin
	4499107	Screw M2x6 Cylinder Head
	4497511	Nut 2m/m
	4498585	Washer 2m/m Steel

COMPONENT LAYOUT

from copper side

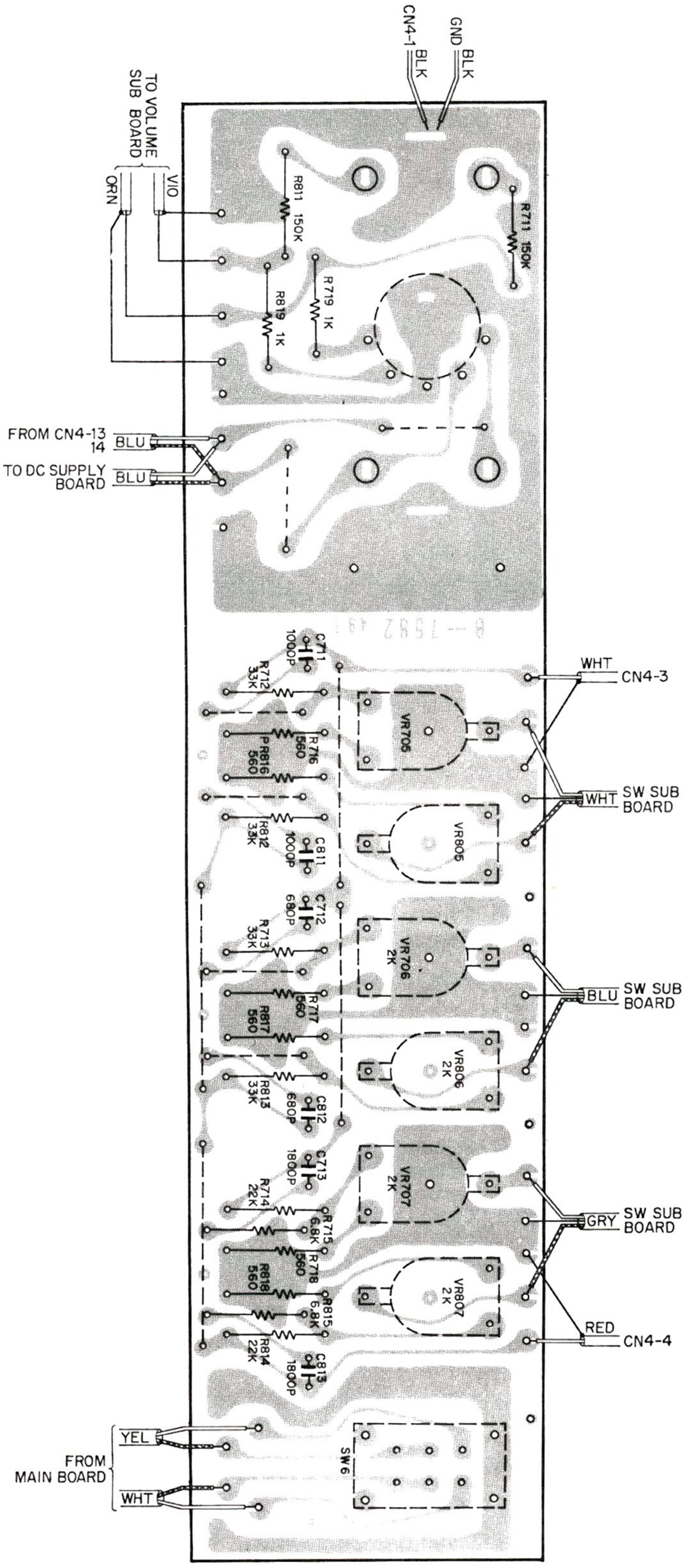


–DOLBY CIRCUIT BOARD–

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	4710029	**Dolby Board Ass'y**	R116, 216	4936027	Carbon Resistor 3.3K RD¼, F
			R117, 217	4944704	Carbon Resistor 39K ELR¼, J
	4720024	Dolby PC Board	R118, 218	4940105	Carbon Resistor 10K ELR¼, J
Q101, 201	4738578	Transistor 2SC732 (BL)	124, 224		
103, 203			R119, 219	4933508	Carbon Resistor 1.5K ELR¼, J
104, 204			R120, 220	4957504	Carbon Resistor 1.5M ELR¼, J
106, 206			R121, 221	4956109	Carbon Resistor 1M ELR¼, J
108, 208	4738500		R122, 222	4941500	Carbon Resistor 15K ELR¼, J
Q102, 202		Transistor 2SA495 (Y)	134, 234		
107, 207	4738667		R128, 228	4948904	Carbon Resistor 120K ELR¼, J
Q105, 205	4758102	FET 2SK30 (D)	R129, 229	4945506	Carbon Resistor 47K ELR¼, J
D101, 201		Germanium Diode 1N60P	R131, 231	4932102	Carbon Resistor 1K ELR¼, J
104, 204	4754824		R132, 232	4920007	Carbon Resistor 33Ω ELR¼, J
D102, 202		Silicon Diode KB162	R133, 233	4921518	Carbon Resistor 47Ω ELR¼, J
103, 203			R135, 235	4951301	Carbon Resistor 270K ELR¼, J
105, 205			137, 237		
DZ1	4755618	Zener Diode 08S	R136, 236	4950704	Carbon Resistor 220K ELR¼, J
R1	4928008	Carbon Resistor 330Ω ELR¼, J	C1	4876008	Electrolytic Capacitor 330μ 16V
R2, 103, 203	4924118	Carbon Resistor 100Ω ELR¼, J	C101, 201	4864115	Electrolytic Capacitor 10μ 10V
			102, 202		
R101, 201	4944003	Carbon Resistor 33K ELR¼, J	103, 203		
107, 207			104, 204		
115, 215			108, 208		
126, 226			111, 211		
R102, 202	4938607	Carbon Resistor 6.8K ELR¼, J	113, 213		
R104, 204	4934709	Carbon Resistor 2.2K ELR¼, J	C105, 205	4838203	P.P. Capacitor 5600P, 50V, G
R105, 205	4924908	Carbon Resistor 120Ω ELR¼, J	C106, 206	4843304	P.P. Capacitor 0.027μ, 50V, G
R106, 206	4930207	Carbon Resistor 560Ω ELR¼, J	C107, 207	4837509	P.P. Capacitor 4700P, 50V, G
R108, 208	4949536	Carbon Resistor 150K RD¼, G	C109, 209	4848101	Mylar Capacitor 0.1μ, 50V, K
113, 213			112, 212		
R109, 209	4950038	Carbon Resistor 180K RD¼, G	115, 215		
R110, 210	4943309	Carbon Resistor 27K ELR¼, J	C110, 210	4869516	Electrolytic Capacitor 47μ 6.3V
R111, 211	4942701	Carbon Resistor 22K ELR¼, J	C114, 214	4848128	Mylar Capacitor 0.1μ 50V, J
R112, 212	4939409	Carbon Resistor 8.2K ELR¼, J	C116, 216	4852001	Mylar Capacitor 0.33μ 50V, K
123, 223			C117, 217	4832108	Mylar Capacitor 0.001μ 50V, K
125, 225			VR101, 201	4940229	Semi-fixed Volume 10K
127, 227			VR102, 202	4932226	Semi-fixed Volume 1K
R114, 214	4935306	Carbon Resistor 2.7K ELR¼, J	TP101, 201	4165039	FET Gate Pin
130, 230					

COMPONENT LAYOUT

from copper side

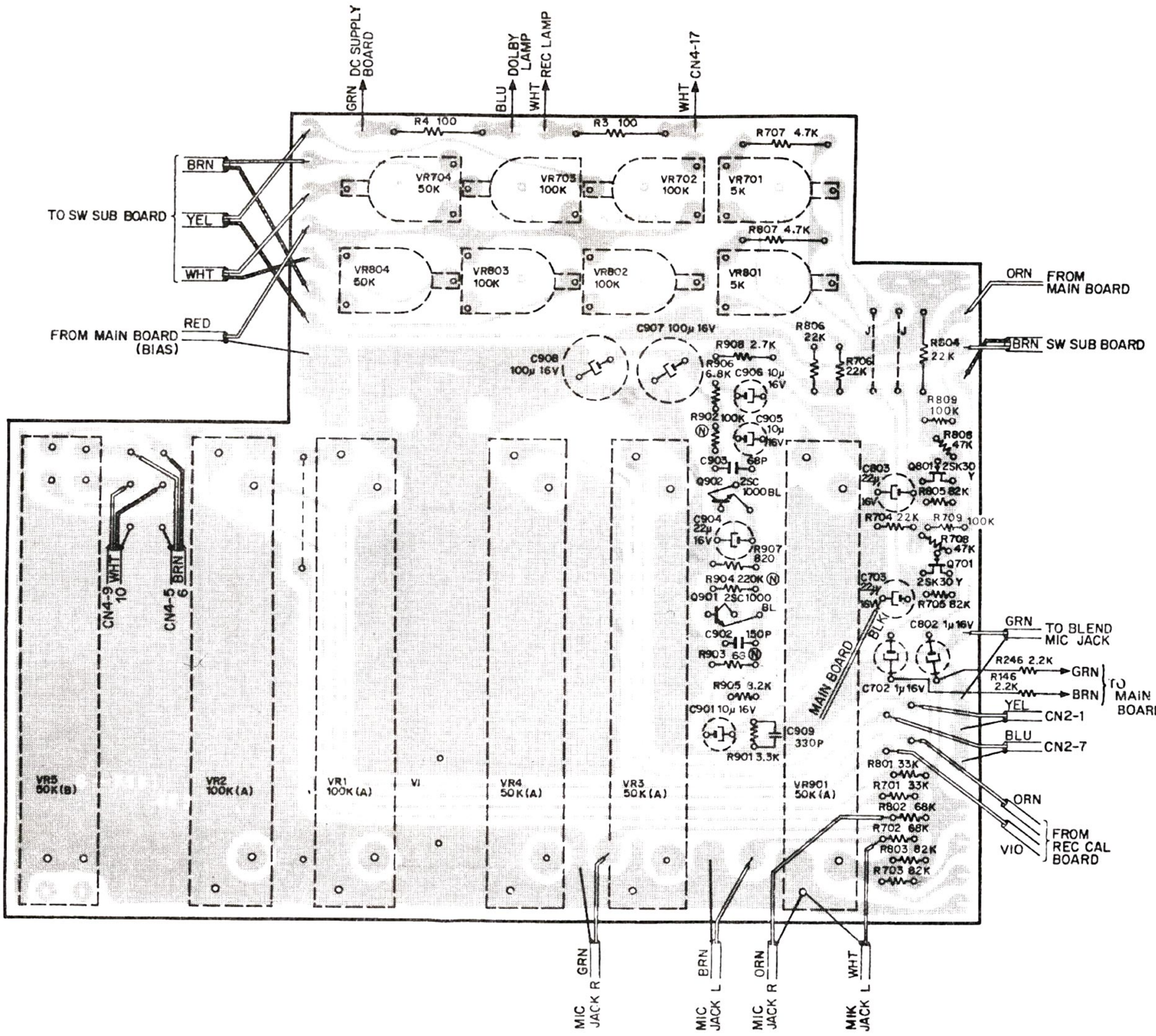


–REC. CAL CIRCUIT BOARD–

Schematic Ref. No.	Part No.	Description	
	4710053	**REC. CAL. Board Ass'y.**	
	4720059	REC. CAL. Board	
R711, 811	4949528	Carbon Resistor	150K R¼ J
R712, 812	4942728	Carbon Resistor	22K R¼ J
713, 813			
R714, 814	4942027	Carbon Resistor	18K R¼ J
R715, 815	4944720	Carbon Resistor	39K R¼ J
R716, 816	4930223	Carbon Resistor	560Ω R¼ J
717, 817			
718, 818			
R719, 819	4932129	Carbon Resistor	1K R¼ J
R720, 820	4932927	Carbon Resistor	1.2K R¼ J
721, 821			
R722, 822	4935322	Carbon Resistor	2.7K R¼ J
C711, 811	4832108	Mylar Capacitor	0.001μ 50V, K
C712, 812	4830628	Mylar Capacitor	680P 50V, M
C713, 813	4834712	Myler Capacitor	2200P 50V, K
C714, 814	4833503	Mylar Capacitor	1500P 50V, K
C715, 815	4856112	Tantal	1μ 35V
716, 816			
717, 817			
VR705, 805	4934520	Semi-fixed Volume	2K
706, 806			
707, 807			
SW6	4210107	Filter Switch (SL222B4)	
JA5~9	4266005	Jack Unit	

COMPONENT LAYOUT

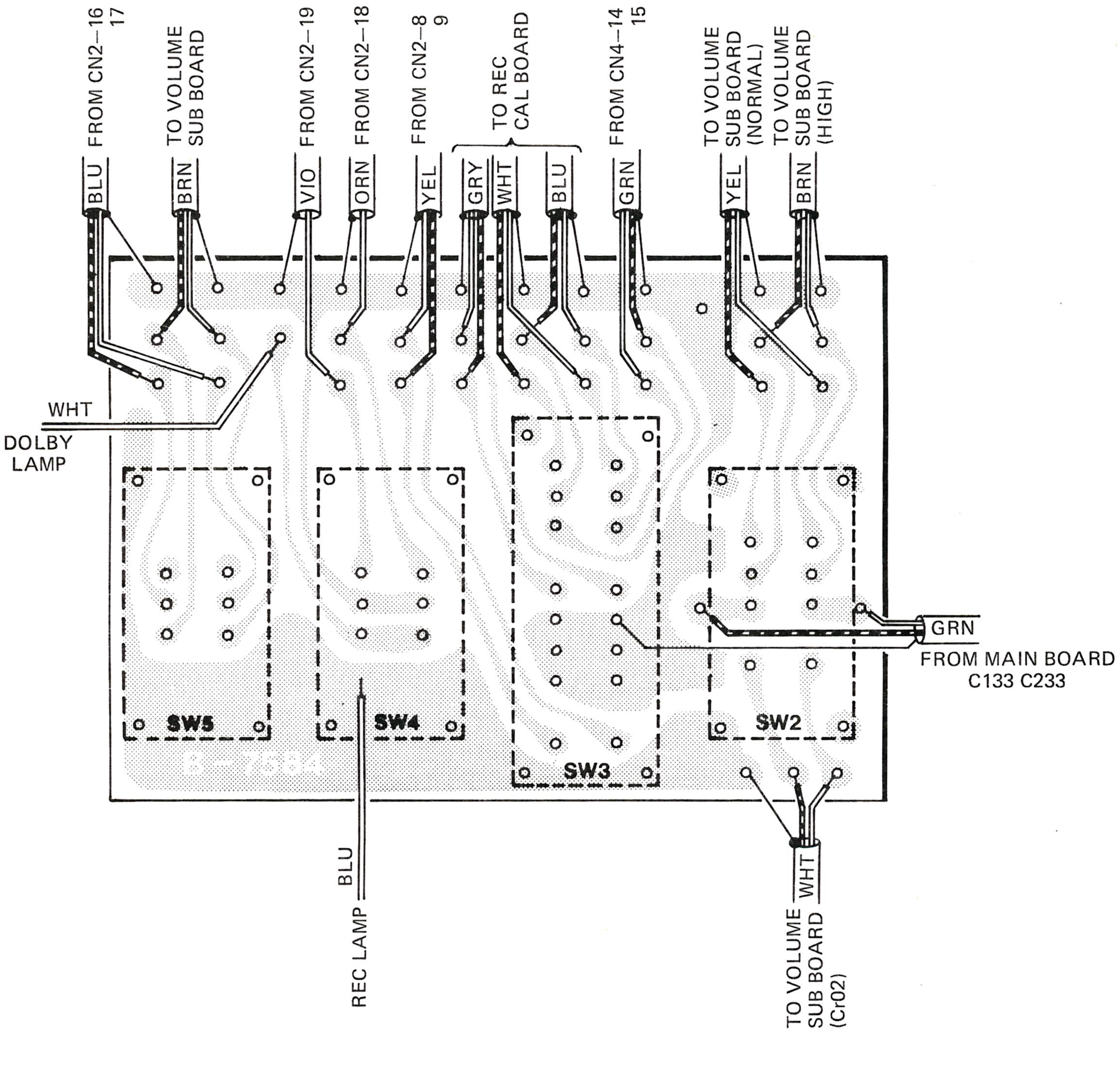
from copper side



–VOLUME SUB CIRCUIT BOARD–

Schematic Ref. No.	Part No. No.	Description	Schematic Ref. No.	Part No.	Description
	4710088	**Volume Sub Board Ass'y**			**— Limiter —**
	4720075	Volume Sub Board	Q701, 801	4738683	FET 2SK30(Y)
VR1, 2	4948238	Slide Volume 100K (A)	R704, 804 706, 806	4942701	Carbon Resistor 22K ELR¼, J
VR3, 4 901	4945921	Slide Volume 50K (A)	R705, 805	4947401	Carbon Resistor 82K ELR¼, J
VR5	4945948	Slide Volume 50K (B)	R707, 807	4937538	Carbon Resistor 4.7K R¼, J
R701, 801	4944003	Carbon Resistor 33K ELR¼, J	R708, 808	4945506	Carbon Resistor 47K ELR¼, J
R702, 802 703, 803	4946618	Carbon Resistor 68K ELR¼, J	R709, 809	4948106	Carbon Resistor 100K ELR¼, J
R3, 4	4924126	Carbon Resistor 100Ω R¼, J	C702, 802	4856112	Tantal Capacitor 1µ 35V
		— Blend Mic AMP —	C703, 803	4866703	Electrolytic Capacitor 22µ 16V
Q901, 902	4738608	Transistor 2SC1000BL	VR701, 801	4937929	Semi-fixed Volume 5K
R901	4936000	Carbon Resistor 3.3K ELR¼, J			**— BIAS Adj. Volume —**
R902	4948122	Carbon Resistor 100K N ELR¼, J	VR702, 802 703, 803	4948246	Semi-fixed Volume 100K
R903	4922638	Carbon Resistor 68Ω N ELR¼, J	VR704, 804	4945956	Semi-fixed Volume 50K
R904	4950720	Carbon Resistor 220K N ELR¼, J			
R905	4939409	Carbon Resistor 8.2K ELR¼, J			
R906	4938607	Carbon Resistor 6.8K ELR¼, J			
R907	4931408	Carbon Resistor 820Ω ELR¼, J			
R908	4935306	Carbon Resistor 2.7K ELR¼, J			
C901, 905 906	4864107	Electrolytic Capacitor 10µ 16V			
C902	4825500	Ceramic Capacitor 150P, 50V, M			
C903	4822609	Ceramic Capacitor 68P, 50V, M			
C904	4866703	Electrolytic Capacitor 22µ 16V			
C907, 908	4872118	Electrolytic Capacitor 100µ 16V			
C909	4828003	Ceramic 330P, 50V, M			

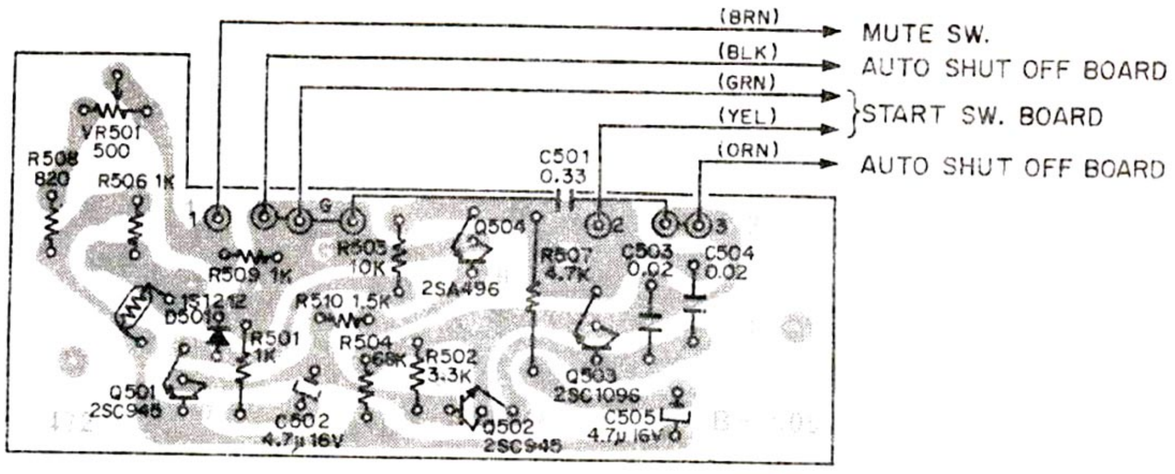
COMPONENT LAYOUT
from copper side



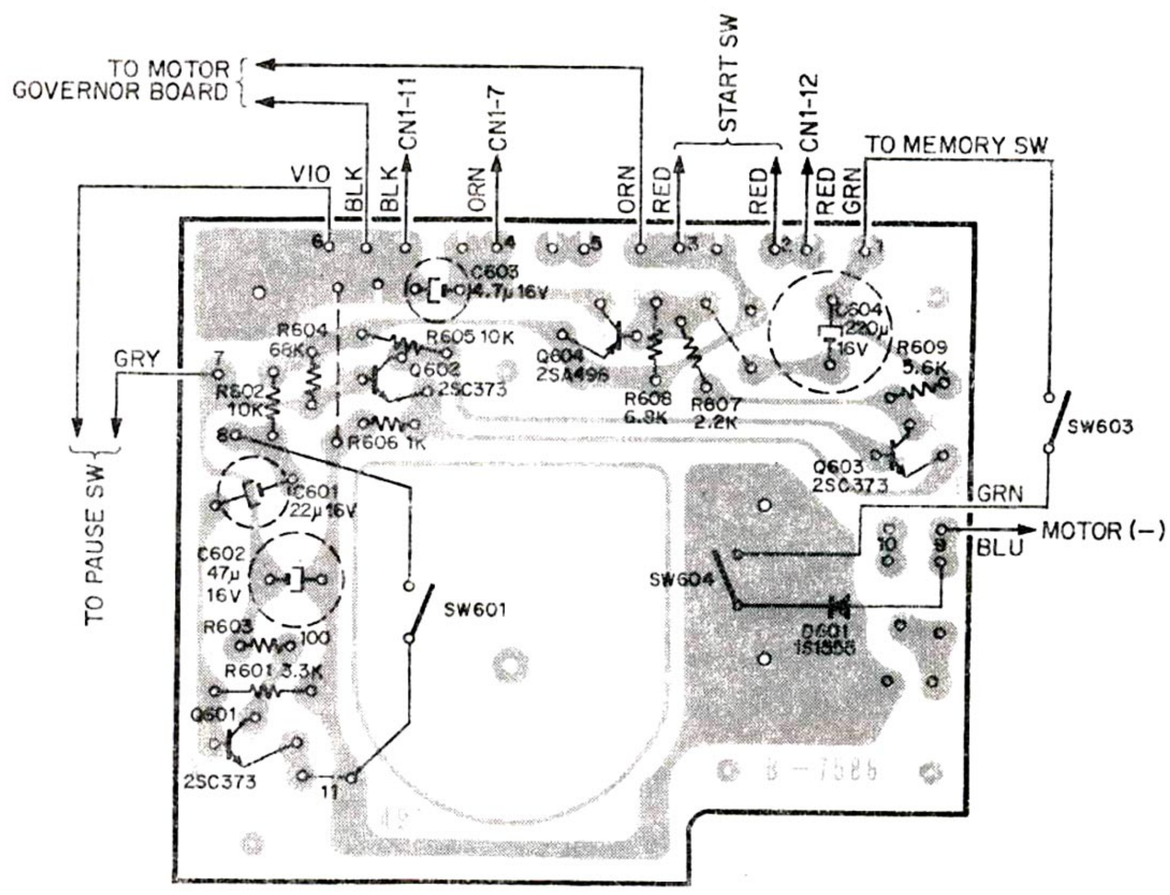
Schematic Ref. No.	Part No.	Description
	4710061	**Switch Board Ass'y**
	4720067	Switch Sub Board (NR)
SW2	4210123	Lever Switch (SLE12303)
SW3, 4	4210131	Lever Switch (SLE14303)
SW5	4210115	Lever Switch (SLE12202)

COMPONENT LAYOUT

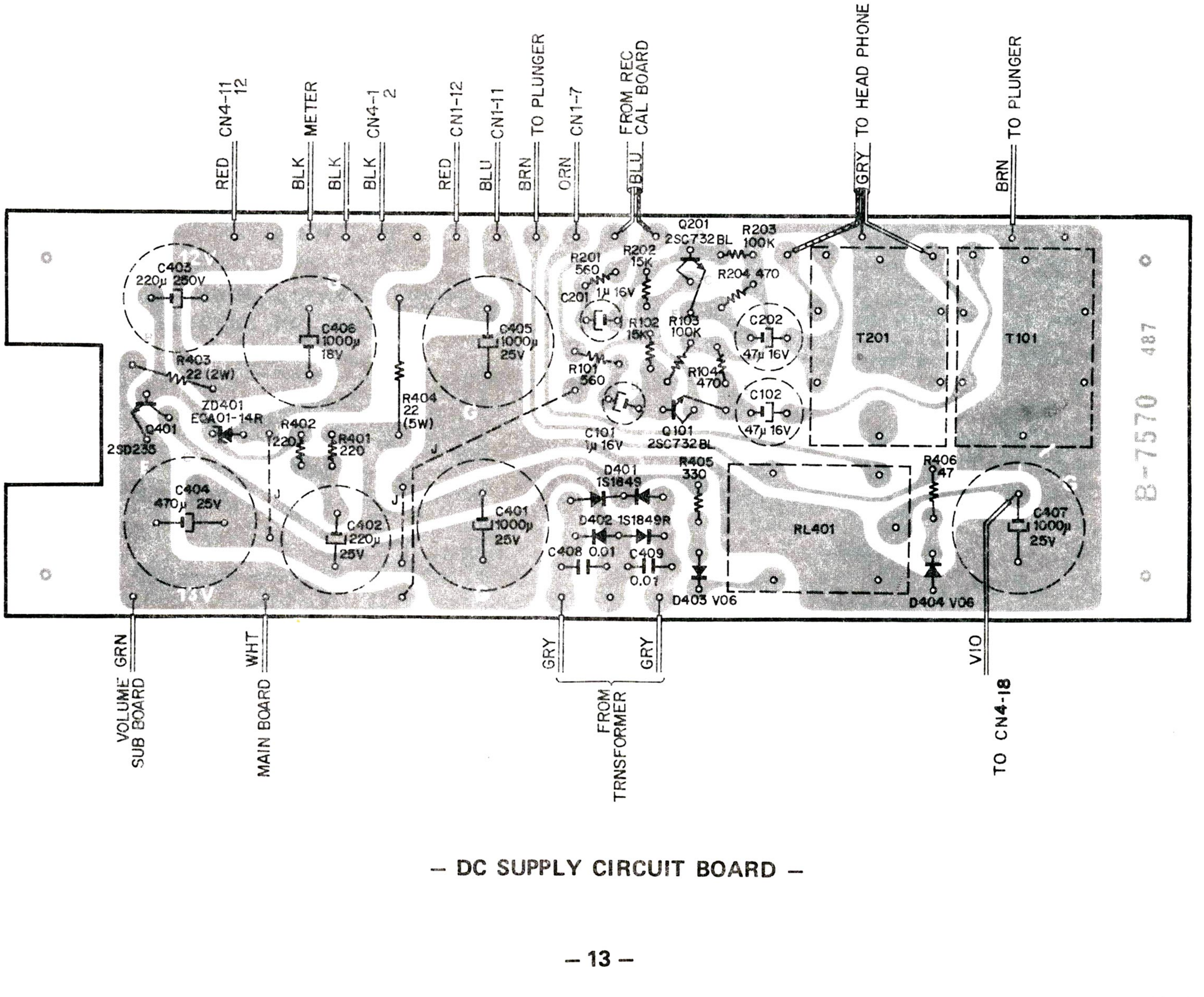
from copper side



— MOTOR GOVERNOR CIRCUIT BOARD —



— AUTO SHUT-OFF CIRCUIT BOARD —

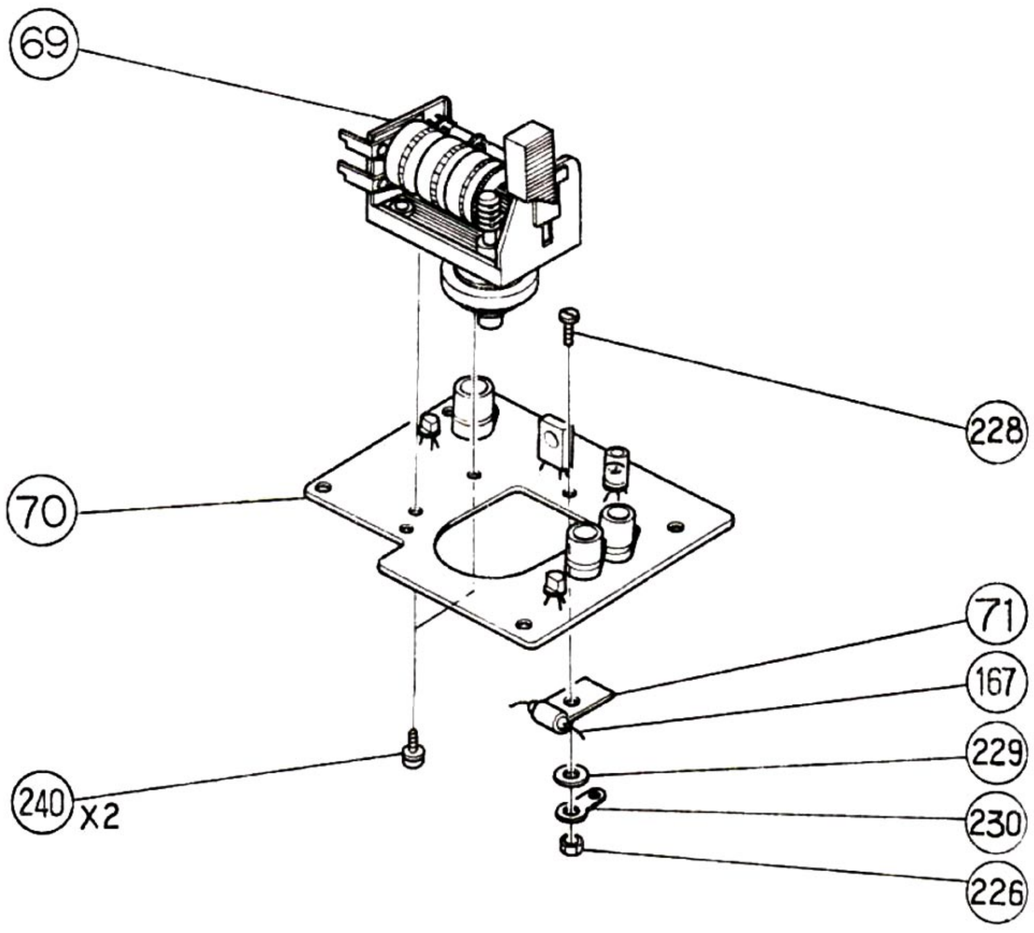


— DC SUPPLY CIRCUIT BOARD —

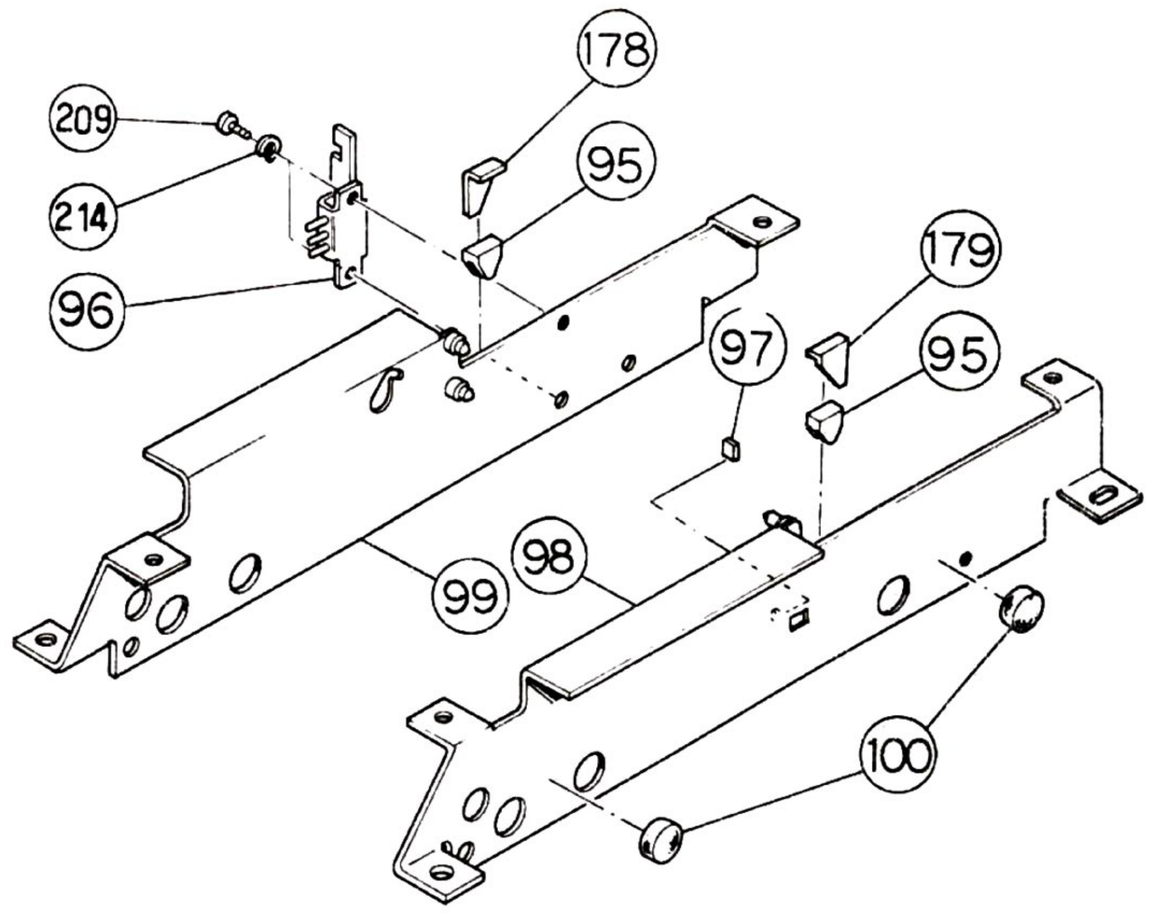
PARTS LIST

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	4710045	**Motor Governor Board Ass'y**			
Q501, 502	4738543	Transistor 2SC373			
Q503	4738624	Transistor 2SC1096			
Q504	4738527	Transistor 2SA496			
D501	4758277	Silicon Diode 1S1212			
TH501	4772008	Thermistor 5B-27 (700 ohm)			
R501, 505 506, 509	4932102	Carbon Resistor 1K ELR¼, J			
R502	4936000	Carbon Resistor 3.3K ELR¼, J			
R503	4940105	Carbon Resistor 10K ELR¼, J			
R504	4946618	Carbon Resistor 68K ELR¼, J			
R507	4937538	Carbon Resistor 4.7K R¼, J			
R508	4931408	Carbon Resistor 820Ω ELR¼, J			
R510	4933508	Carbon Resistor 1.5K ELR¼, J			
C501	4852001	Mylar Capacitor 0.33μ 50V, K			
C502, 505	4861507	Electrolytic Capacitor 4.7μ 16V			
C503, 504	4842405	Ceramic Capacitor 0.02μ 50V, M			
VR501	4929926	Semi-fixed Volume 500 ohm			
	4710002	**Auto Shut-off Board Ass'y**			
Q601, 602 603	4738543	Transistor 2SC373			
Q604	4738527	Transistor 2SA496			
D601	4758293	Silicon Diode 1S1555			
R601	4936000	Carbon Resistor 3.3K ELR¼, J			
R602, 605	4940105	Carbon Resistor 10K ELR¼, J			
R603	4924118	Carbon Resistor 100Ω ELR¼, J			
R604	4946618	Carbon Resistor 68K ELR¼, J			
R606	4932102	Carbon Resistor 1K ELR¼, J			
R607	4934709	Carbon Resistor 2.2K ELR¼, J			
R608	4938607	Carbon Resistor 6.8K ELR¼, J			
R609	4938208	Carbon Resistor 5.6K ELR¼, J			
C601	4866703	Electrolytic Capacitor 22μ 16V			
C602	4869524	Electrolytic Capacitor 47μ 16V			
C603	4861507	Electrolytic Capacitor 4.7μ 16V			
C604	4874706	Electrolytic Capacitor 220μ 16V			
	4710010	**D.C. Supply Board Ass'y**			
		— D.C. Supply Circuit —			
Q401	4738640	Transistor 2SD235			
D401	4758315	Silicon Diode 1S1849			
D402	4758323	Silicon Diode 1S1849R			
ZD401	4753607	Zener Diode EQA01-14R			
R401, 402	4926706	Carbon Resistor 220Ω ELR¼, J			
R403	4918746	Metal Film Resistor 22Ω 2W			
R404	4918738	Cement Resistor 22Ω 5W			
C401, 405	4880102	Electrolytic Capacitor 1000μ 25V			
C402, 403	4874714	Electrolytic Capacitor 220μ 25V			
C404	4877519	Electrolytic Capacitor 470μ 25V			
C406	4880110	Electrolytic Capacitor 1000μ 18V			
C408, 409	4840100	Ceramic Capacitor 0.01μ 50V, M			
		— Relay Circuit —			
D403, 404	4757009	Silicon Diode V06-C			
R405	4928024	Carbon Resistor 330Ω, R50, J			
R406	4921518	Carbon Resistor 47Ω ELR¼, J			
C407	4880102	Electrolytic Capacitor 1000μ 25V			
RL401	4210018	Micro Relay LC1			
		— Head Phone Circuit—			
Q101, 201	4738578	Transistor 2SC732 BL			
R101, 201	4930207	Carbon Resistor 560Ω ELR¼, J			
R102, 202	4941500	Carbon Resistor 15K ELR¼, J			
R103, 203	4948106	Carbon Resistor 100K ELR¼, J			
R104, 204	4929527	Carbon Resistor 470Ω, R50, J			
C101, 201	4856104	Electrolytic Capacitor 1μ 16V			
C102, 202	4869524	Electrolytic Capacitor 47μ 16V			
T101, 201	4781651	Headphone Transformer			
	4720016	D.C. Supply Board			
	4154002	Heat Sink GM			
	4165004	Earth Lug B-5			
	4499360	Screw M3x8 Philips Pan Head			
	4499379	Screw M3x10 Philips Pan Head			
	4497538	Nut 3m/m			

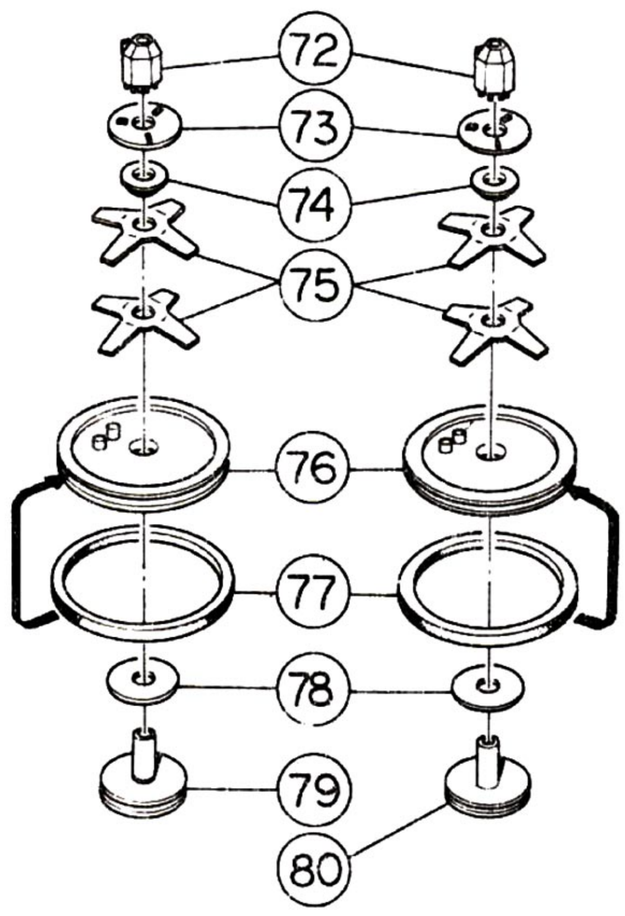
SUB ASSEMBLY MECHANISM



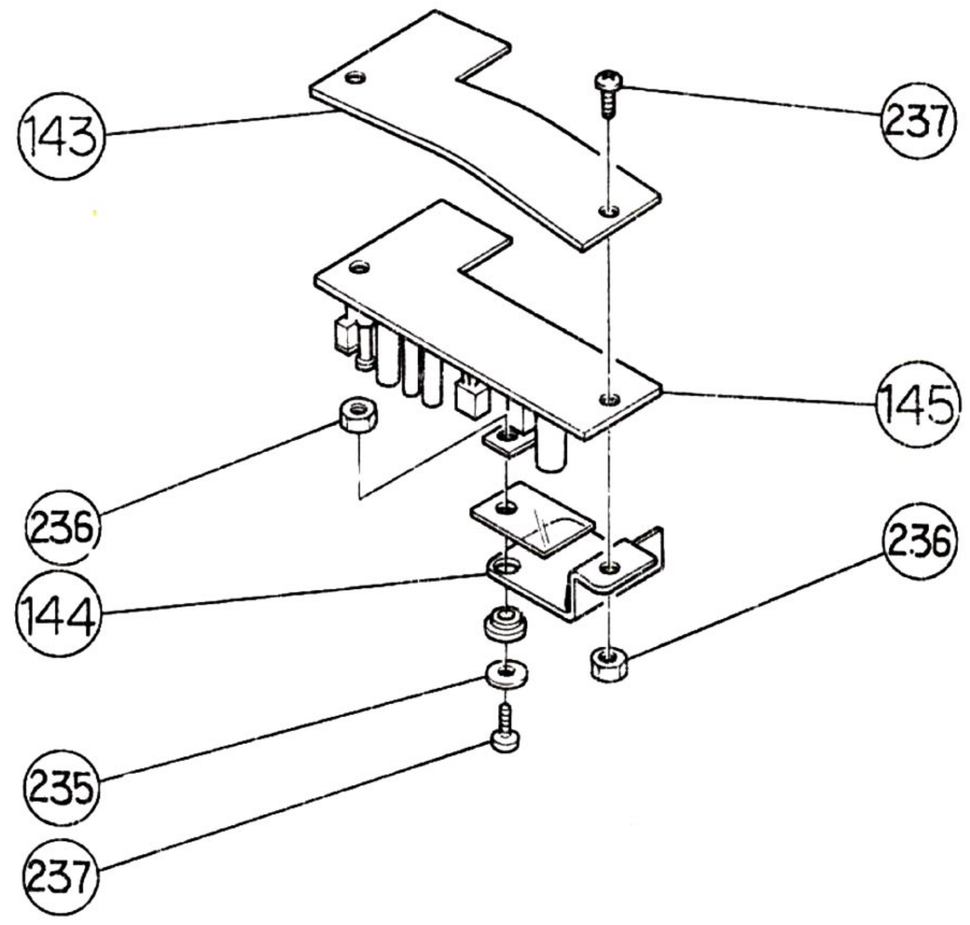
④ 4129008 AUTO SHUT-OFF ASS'Y.



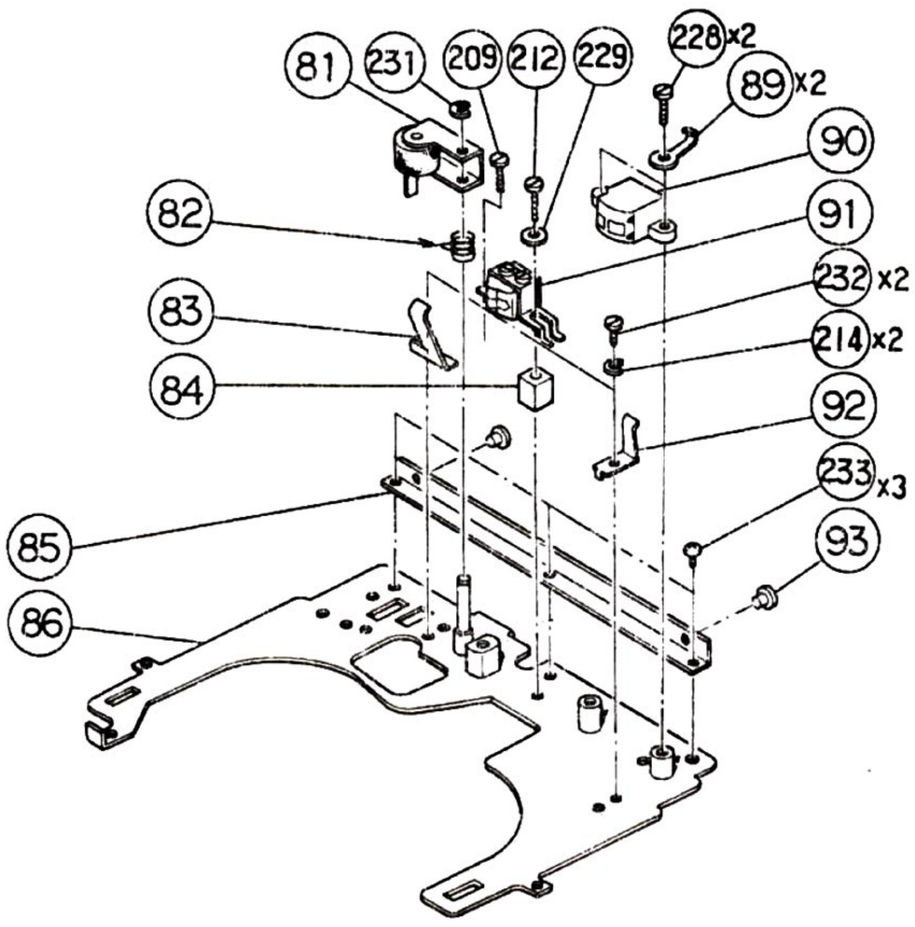
⑭ 4140044 MECHANISM BRACKET L ASS'Y
㉔ 4140052 MECHANISM BRACKET R ASS'Y



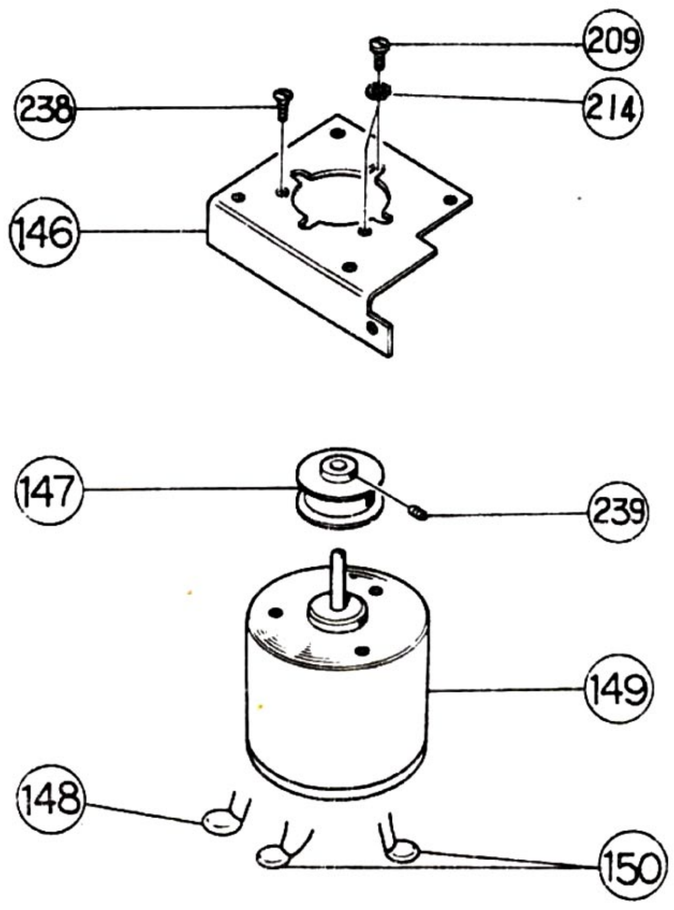
⑦ 4184130 REEL HUB ASS'Y. (SUPPLY)
⑳ 4184149 REEL HUB ASS'Y. (TAKE UP)



㊸ 4129040 MOTOR GOVERNOR ASS'Y. (JA)

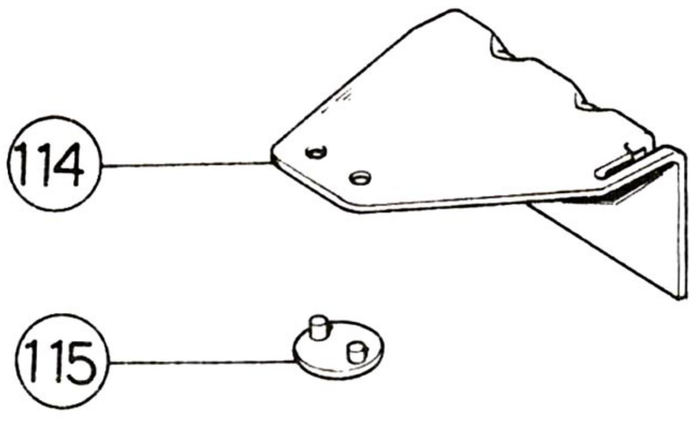


⑫ 4140001 HEAD BASE ASS'Y.

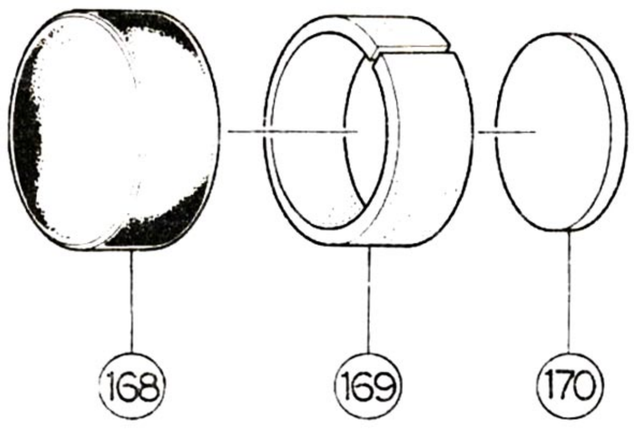


㊺ 4270010 MOTOR ASS'Y. (JA)

SUB ASSEMBLY MECHANISM/PARTS LIST



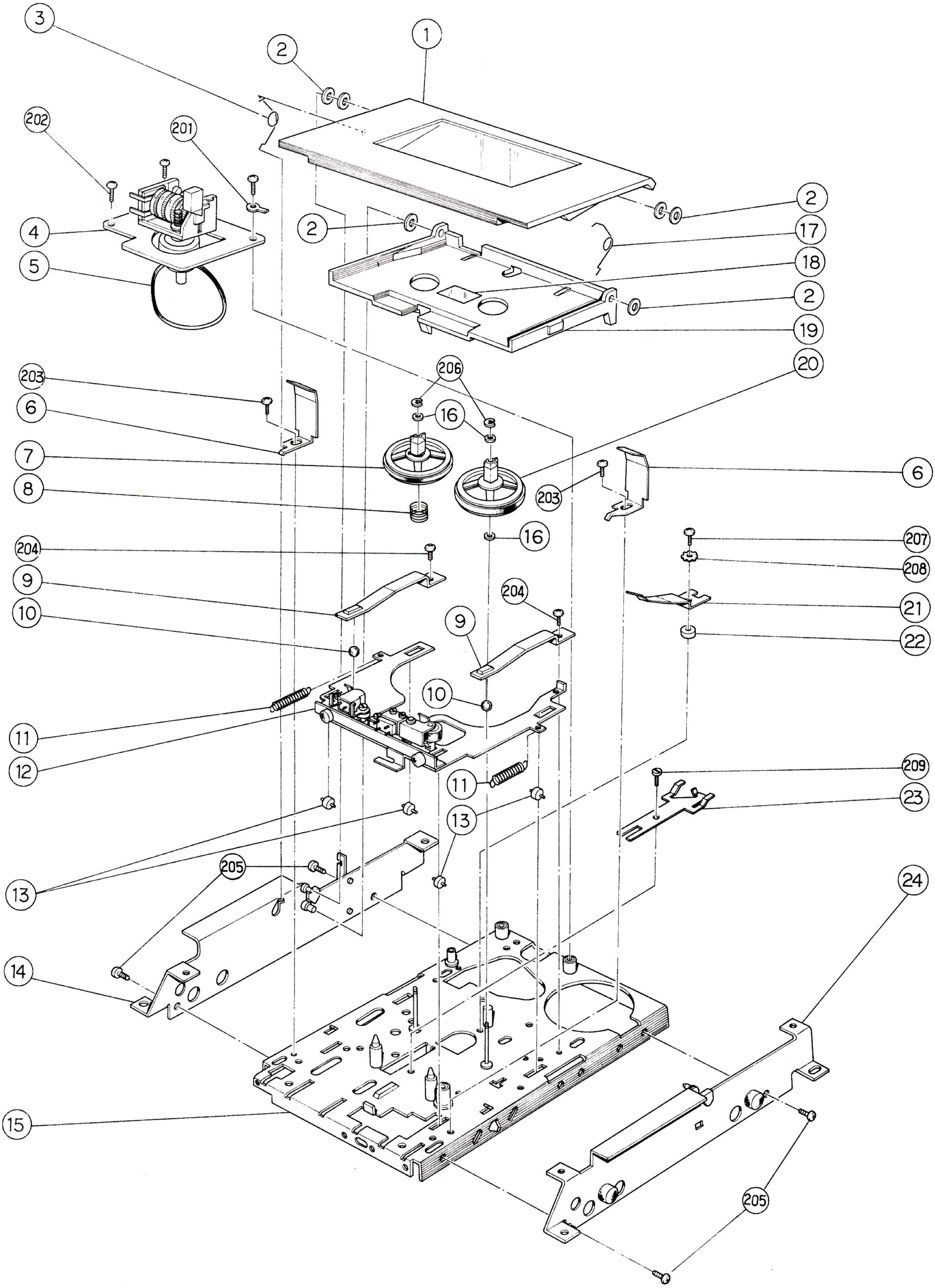
(28) 4160029 FLYWHEEL HOLDER ASS'Y. B



(68) 4150023 MOTOR COVER ASS'Y.

Schematic Ref. No.	Part No.	Description
(4)	**4129008**	**Auto Shut-off Ass'y.**
69	4129032	Tape Counter
70	4720008	Auto Shut Off PC Board
71	4160126	Reed Switch Holder
167	4215001	Reed Switch
226	4497511	Nut 2m/m
228	4499107	Screw M2x6 Cylinder Head
229	4498623	Washer 2.3m/m Steel
230	4165004	Earth Lug B-5
240	4499387	Screw M3x6 Philips Pan Head
(7)	**4184130**	**Reel Hub Ass'y (Supply)**
72	4184122	Sprocket B
73	4140257	Torque Plate
74	4182014	Thrust Bearing
75	4175220	Reel Hub Spring
76	4184106	Pulley G } CA-3196 Reel Hub Pulley G Ass'y
77	4183053	Reel Hub Ring }
78	4498550	Reel Hub Felt }
79	4184084	Pulley C
(20)	**4184149**	**Reel Hub Ass'y (Take up)**
72	4184122	Sprocket B
73	4140257	Torque Plate
74	4182014	Thrust Bearing
75	4175220	Reel Hub Spring
76	4184106	Pulley G } CA-3196 Reel Hub Pulley G Ass'y
77	4183053	Reel Hub Ring }
78	4498550	Reel Hub Felt }
80	4184092	Pulley F
(12)	**4140001**	**Head Base Ass'y**
81	4186001	Pressure Roller Ass'y B
82	4175212	Pressure Roller Spring B
83	4175077	Cassette Retainer Spring R
84	4170032	Azimuth Adjust Rubber
85	4140141	Base Angle Bracket
86	4140028	Head Base Sub Ass'y.
89	4160010	Cable Clamp
90	4129059	Erase Head Ass'y (E-50)
91	4129067	REC/Play Head Ass'y (RP-52)
92	4175069	Cassette Retainer Spring L
93	4170067	Base Stopper Rubber
209	4499085	Screw M2x4 Cylinder Head
212	4499115	Screw M2x10 Cylinder Head
214	4498526	Washer 2m/m Spring
228	4499034	Screw M2x6 Cylinder Head
229	4498534	Washer 2.3 m/m Steel
231	4160169	E Ring E-1.5
232	4499018	Screw M2x3 Cylinder Head
233	4499026	Screw M2.6x3 Philips Pan Head
(81)	**4186001**	**Pressure Roller Ass'y B**
	4498542	Washer 2.1 m/m Mylar
	4186036	Pressure Roller B
	4180178	Roller Shaft
	4145046	Pressure Roller Arm C
(86)	**4140028**	**Head Base Sub Ass'y**
	4180186	Pressure Roller Arm Shaft
	4169107	RH Stud
	4169093	LH Stud
	4140036	Head Base B
	4180054	Mute Switch Pin
(14)	**4140044**	**Mechanism Bracket L Ass'y**
95	4170075	Lid Stopper
96	4210158	Memory Switch
99	4140060	SS Mechanism Bracket L Sub Ass'y
209	4499085	Screw M2x4 Cylinder Head
214	4498585	Washer 2m/m Steel
(99)	**4140060**	**SS Mechanism Bracket L Sub Ass'y.**
	4140087	SS Mechanism Bracket L
	4180194	Well Shaft B
	4180127	Lid Shaft
(24)	**4140052**	**Mechanism Bracket R Ass'y**
95	4170075	Lid Stopper
97	4170059	Well Stopper Rubber
98	4140079	SS Mechanism Bracket R Sub Ass'y
100	4170040	Board Stopper B
(98)	**4140079**	**SS Mechanism Bracket R Sub Ass'y**
	4140095	SS Mechanism Bracket R
	4180194	Well Shaft B
	4180127	Lid Shaft
(53)	**4129040**	**Motor Governor Ass'y (JA)**
143	4268008	Governor Insulation Fiber B
144	4154010	Governor Heat Sink
145	4720040	Governor PC Board JA
235	4498593	Washer 3 m/m Steel
236	4497538	Nut 3 m/m
237	4499263	Screw M3x8 Philips Pan Head
(55)	**4270010**	**Motor Ass'y (JA)**
146	4140168	Motor Bracket C
147	4184114	Motor Pulley JA
148	4842405	Ceramic Capacitor 0.02μ 50V
149	4270002	Motor J
150	4832116	Ceramic Capacitor 0.001μ 50V
209	4499085	Screw M2x4 Cylinder Head
214	4498585	Washer 2 m/m Spring
238	4499069	Screw M2x3
239	4499166	Screw M2x3
(28)	**4160029**	**Flywheel Holder Ass'y B**
114	4160037	Flywheel Holder B
115	4140222	Ball Plate B
(68)	**4150023**	**Motor Cover Ass'y**
168	4150015	Motor Cap
169	4150031	Motor Cover A
170	4150058	Motor Cover B

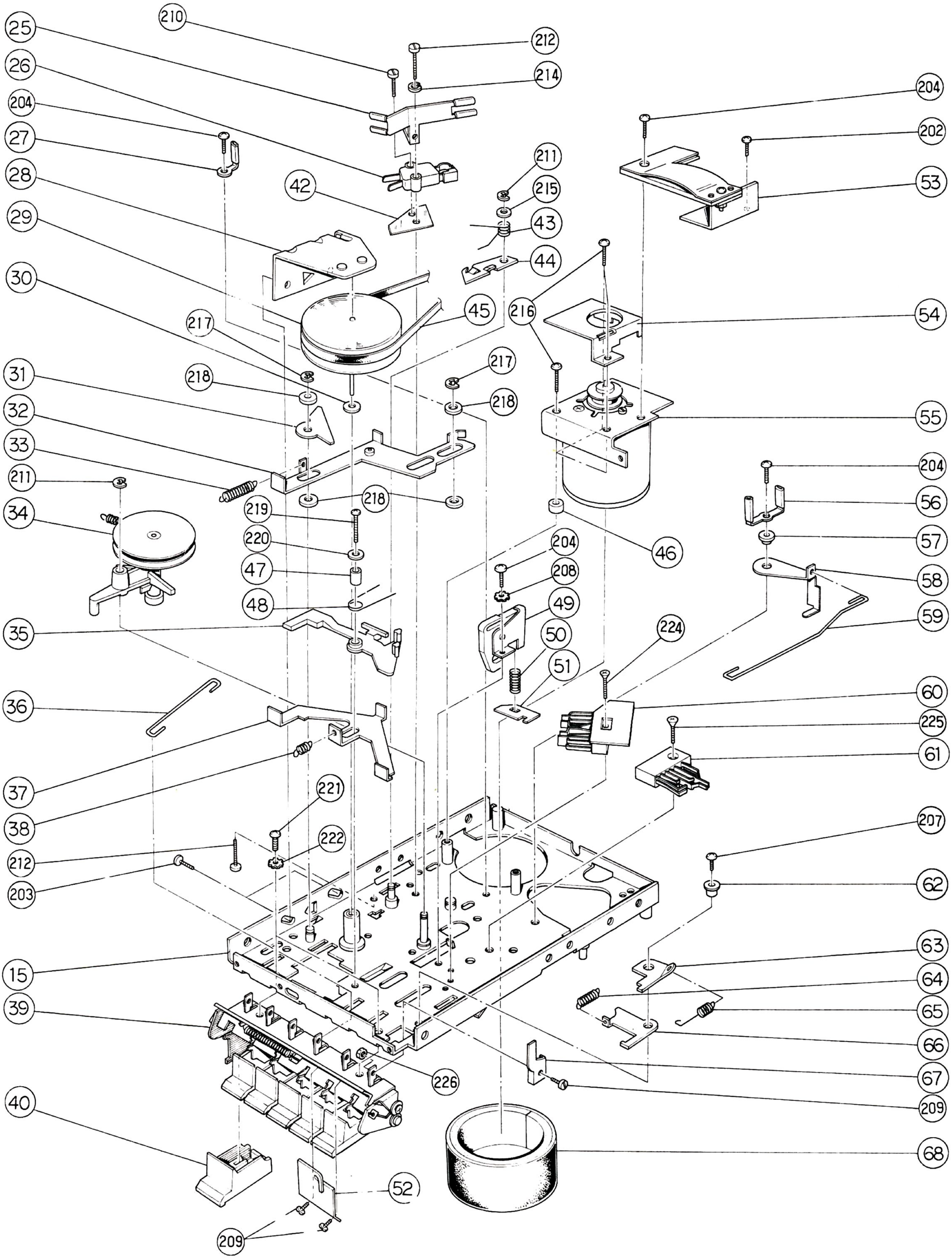
EXPLODED VIEW OF TRANSPORT-MECHANISM



PARTS LIST ——— TRANSPORT

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
1	4119045	Cassette Lid			
2	4498690	Washer 3.1 m/m Plastics			
3	4175107	SS Lid Spring L			
4	4129008	Auto Shut off Ass'y			
5	4184009	Counter Belt E			
6	4145062	Cassette Guide C			
7	4184130	Reel Hub Ass'y (Supply)			
8	4175018	Back Tension Spring			
9	4175026	Ball Retainer Spring			
10	4182006	3 m/m Steel Ball			
11	4175034	Base Return Spring			
12	4140001	Head Base Ass'y			
13	4186028	Head Base Guide Roller			
14	4140044	Mechanism Bracket L Ass'y			
15	4123018	Mechanism Chassis Ass'y B			
16	4498569	Washer 1.6 m/m Plastics			
17	4175115	SS Lid Spring R			
18	4510062	Silver Seal B			
19	4140265	Cassette Well			
20	4184149	Reel Hub Ass'y (Take-up)			
21	4175247	Cassette Well Spring B			
22	4169115	Cassette Well Spring Stud			
23	4129024	Brake Ass'y			
24	4140052	Mechanism Bracket R Ass'y			
201	4165012	Earth Lug 2.6 m/m			
202	4499123	Screw M2.6x5 Philips Pan Head			
203	4499174	Screw M2.6x4 Philips Pan Head			
204	4499182	Screw M2.6x6 (FT) Philips Pan Head			
205	4499220	Screw M3x5 Philips Pan Head			
206	4160177	E Ring E-1.2			
207	4499204	Screw M2.6x8 (7.7) Philips Pan Head			
208	4498666	Washer 2.6 m/m Toothed Lock			
209	4499085	Screw m2x4 Cylinder Head			
(15)	**4123018**	**Mechanism Sub Ass'y.**			
	4169026	Counter Stud			
	4169034	Counter Stud B			
	4180143	Reel Hub Shaft			
	4180151	Reel Hub Shaft			
	4180038	Reference Pin			
	4123026	Mechanism Chassis B			
	4169050	Cassette Stud			
	4180216	Capstan Sleeve Ass'y			
	4169042	Motor Stud B			
	4180208	Pause Lock Plate Shaft			
	4180062	Slide Guide Pin A			
	4180070	Slide Guide Pin B			
	4180089	Drive Arm Shaft			

EXPLODED VIEW OF TRANSPORT MECHANISM



PARTS LIST——TRANSPORT

Schematic Ref. No.	Part No.	Description
25	4145089	Belt Guide
26	4210166	Pause Switch
27	4160010	Cable Clamp
28	4160029	Flywheel Holder Ass'y B
29	4184068	Flywheel Ass'y
30	4498542	Washer 2.1 m/m Plastics
31	4145054	Pause Bar
32	4140206	Slide Plate Ass'y
33	4175263	Slide Plate Spring
34	4184025	Idler Pulley Ass'y
35	4145100	FRP Lever B
36	4145135	Eject Linkage Wire
37	4145011	See-Saw Arm
38	4175298	See-Saw Arm Spring
39	4240022	Button Bracket Ass'y
40	4240006	Deck Button (SS)
42	4140230	Pause Switch Mylar
43	4175255	Lock Lever Spring
44	4145097	Pause Lock Lever
45	4184017	Driving Belt
46	4183029	Motor Stud Collar
47	4183045	See-Saw Arm Pipe
48	4145003	Lever Spring
49	4245003	Eject Arm Ass'y
50	4175093	Eject Spring
51	4145186	Spring Stopper
52	4140249	Solenoid Connection Plate C
53	4129040	Motor Governor Ass'y JA
54	4150171	Motor Shield
55	4270010	Motor Ass'y
56	4160002	Cable Clamp
57	4180135	Record Lock Shaft
58	4145178	Record Sensor B
59	4145143	Record Sensor Linkage B
60	4210034	Start Switch Ass'y
61	4210026	Mute Switch Ass'y
62	4180100	Base Cam Shaft
63	4145151	Record Lock B
64	4175328	Base Cam Spring
65	4175301	Record Lock Spring B
66	4183002	Base Cam
67	4183061	Record Cam Ring
68	4150023	Motor Cover Ass'y
210	4499042	Screw M2x8 Cylinder Head
211	4160207	E Ring E-2
212	4499115	Screw M2x10 Cylinder Head
214	4498585	Washer 2m/m Spring
215	4498682	Washer 3.3m/m Steel
216	4499131	Screw M2.6x8 Philips Pan Head
217	4160185	E-Ring E-3
218	4498607	Washer 4m/m Steel
219	4499190	Screw M2.6x10 Philips Pan Head
220	4498615	Washer 2.6m/m Steel
221	4499239	Screw M3x6 Philips Pan Head
222	4498658	Washer 3m/m Toothed Lock
224	4499158	Screw M2x10 Flat Head
225	4499050	Screw M2.6x8 Flat Head
226	4497511	Nut 2m/m

(32) 4140206 Slide Plate Ass'y.

4180011	Pause Lock Pin
4140214	Pause Slide Plate

(34) 4184025 Idler Pulley Ass'y

4184033	Idler Pulley B
4175085	Earth Spring C
4145038	Idler Pulley Arm B
4184041	Drive Pulley
4498569	Washer 1.6m/m Plastic
4183037	Idler Pulley Metal
4498577	Earth Washer
4180119	Drive Pulley Shaft

(39) 4240022 Push Button Ass'y.

4175123	Lock Spring A
4145194	Lock Plate Stopper
4180097	Button Shaft
4175042	Cam Spring
4140109	Button Bracket
4183010	Button Cam
4175050	Cam Spring B
4140176	Lock Plate Ass'y
4169018	Stud B
4499085	Screw M2x4 Cylinder Head
4160185	E-Ring E-3
4499093	Screw M2.6x6 Flat Head
4498593	Washer 3m/m Steel

(49) 4145003 Eject Arm Ass'y.

4180046	Eject Pin
4145119	Eject Lever B
4140133	Eject Bracket

(60) 4210034 Start Switch Ass'y.

4720083	Start Switch Board
4175158	Mother Spring B
4210042	Start Switch A
4210050	Start Switch B
4210069	Start Switch C
4150007	Switch Case
4210093	Start Switch F
4210085	Start Switch E
4210077	Start Switch D

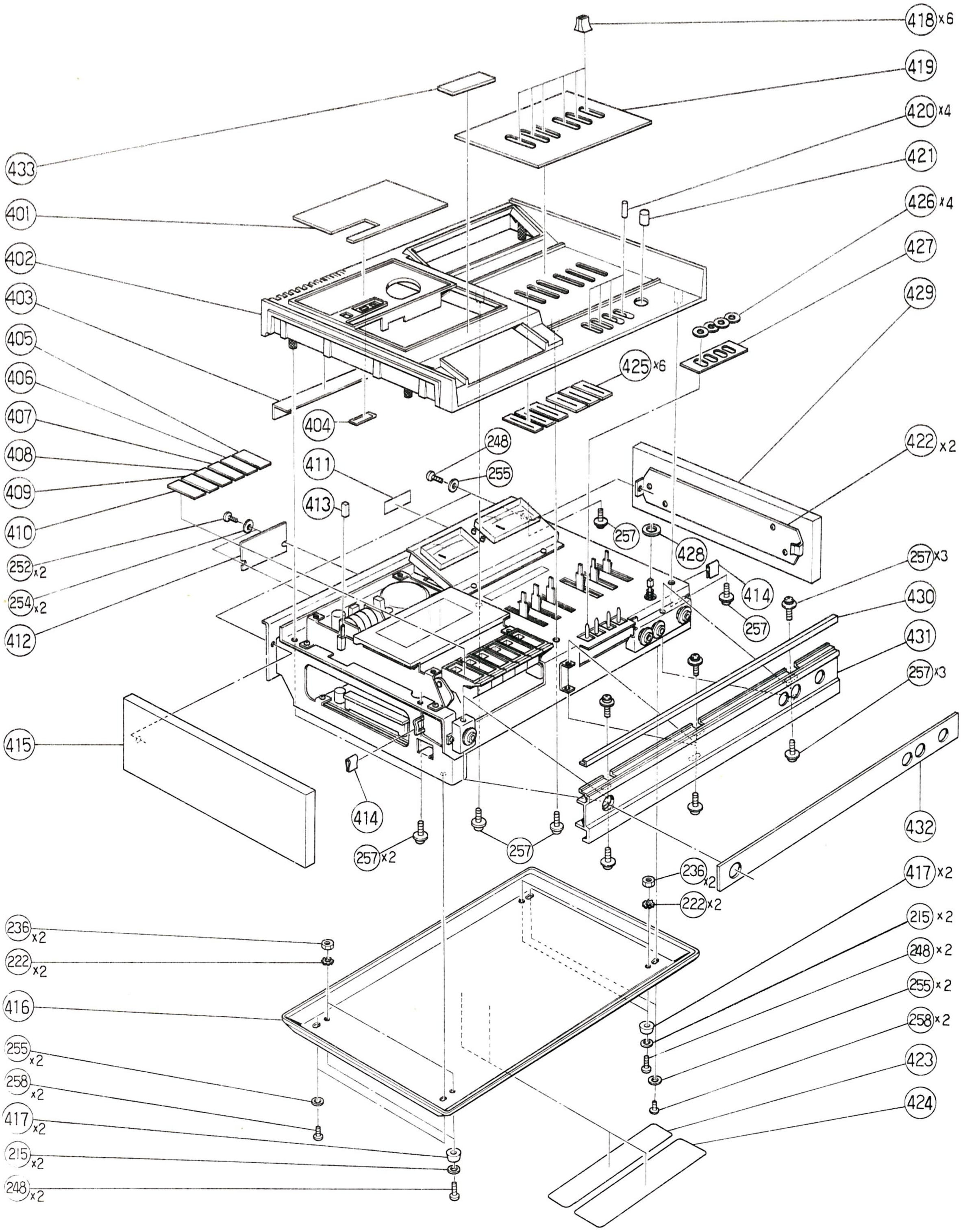
(61) 4210026 Mute Switch Ass'y.

4145208	Mute Switch Spring Stopper
4175182	Mute Switch Spring E
4175174	Mute Switch Spring D
4175190	Mute Switch Spring L
4175204	Mute Switch Spring R
4160088	Mute Switch Holder B
4175166	Mute Switch Spring B

(135) 4140176 Lock Plate Ass'y.

4140184	Lock Plate C
4175131	Lock Spring B
4145070	Lock Plate B Guide
4140192	Lock Plate B

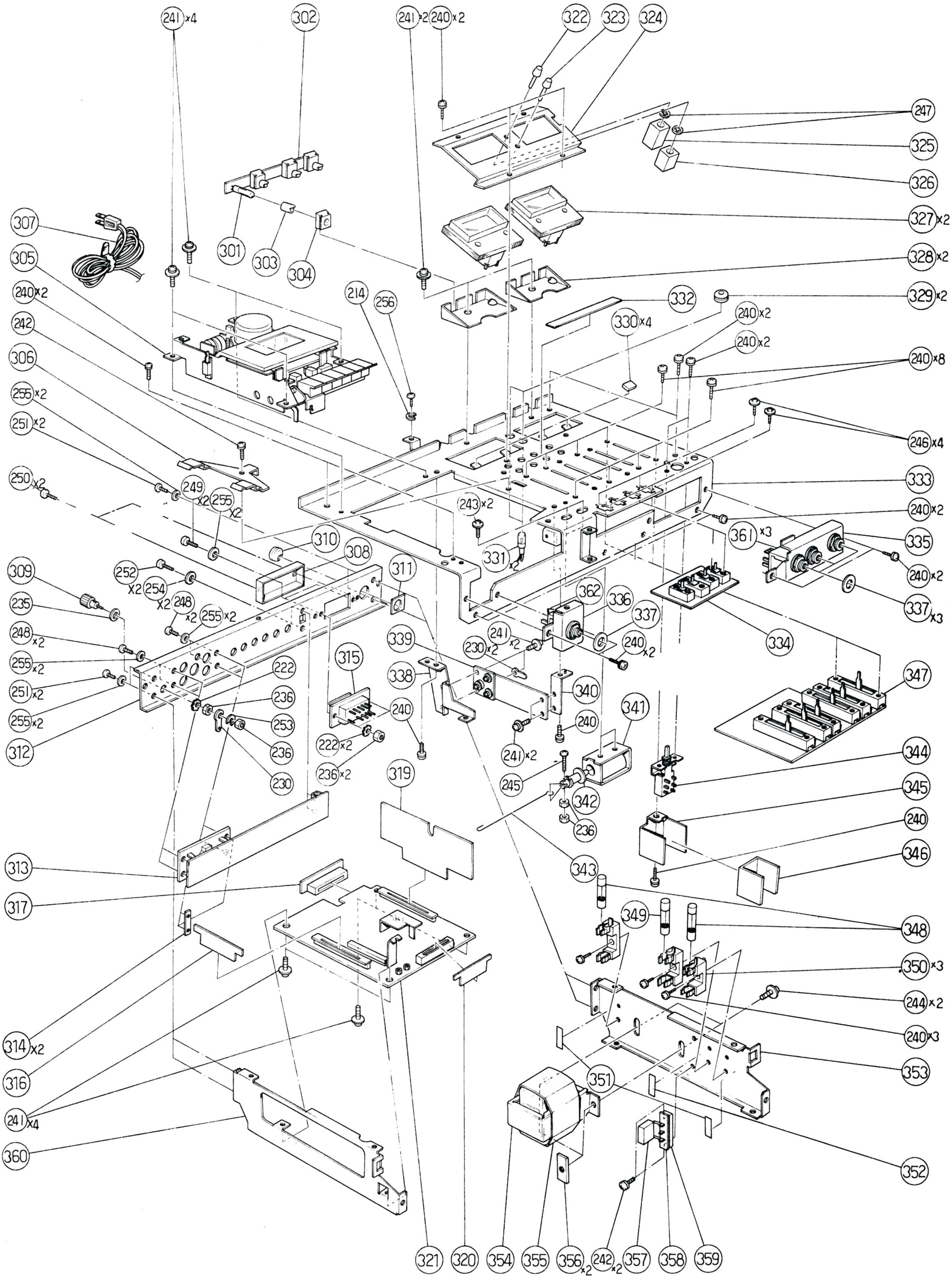
EXPLODED VIEW OF CABINET



PARTS LIST—CABINET

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	—4119029	**Top Cover Ass'y (NR) —**			
401	4119061	Counter Panel			
402	4119037	Top Cover			
	4169069	Stud e			
	4169077	Stud g			
	4169085	Stud h			
403	4140125	Top Cover strip			
404	4157079	Counter Lens			
419	4515005	Control Name escutcheon			
425	4150139	Volume shroud			
	—4119002	**Bottom Cover Ass'y —**			
416	4119010	Bottom Cover			
417	4124006	Rubber Foot			
423	4510038	Dolby Label			
424	4510011	Caution Label			
215	4498682	Washer 3m/m Steel			
222	4498658	Washer 3m/m Toothed Lock			
236	4497538	Nut 3m/m			
248	4499271	Screw M3x8 Philips Pan Head			
	—4119053	**Front Panel Ass'y —**			
430	4124014	Trim SM			
431	4119088	Front Panel			
432	4515013	Front Name Plate			
405	4515080	PAUSE Name Plate			
406	4515072	FF Name Plate			
407	4515064	PLAY Name Plate			
408	4515056	STOP Name Plate			
409	4515048	REW Name Plate			
410	4515021	REC Name Plate			
412	4515099	Serial Name Plate			
413	4240014	Memory Switch Button			
414	4175239	Side Plate Spring			
415	4119118	Side Plate L			
418	4240057	Slide Volume Knob			
420	4240030	Switch Cap			
421	4240049	Switch Button			
422	4140117	CN Bracket			
426	4150163	Switch shroud B			
427	4150155	Switch shroud A			
428	4150147	Switch shroud			
429	4119096	Side Plate R			
248	4499271	Screw M3x8 Philips Pan Head			
252	4499336	Screw M2.6x4 Philips Pan Head			
254	4498712	Washer 2.6m/m Plastic			
255	4498631	Washer 3m/m Plastic			
257	4499360	Screw M3x8 (3A) Philips Pan Head			
258	4499344	Screw M3x6 Philips Pan Head			

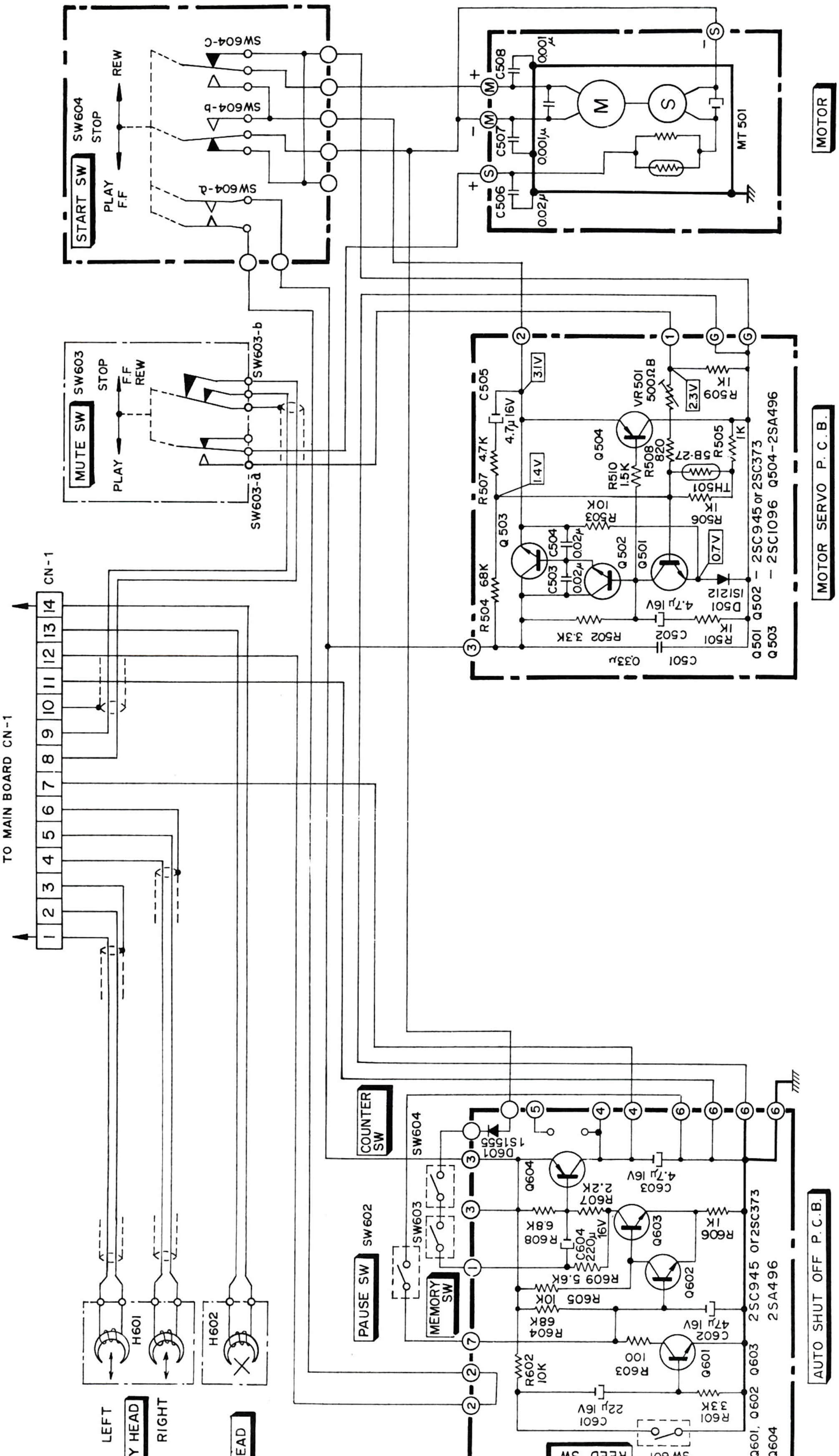
EXPLODED VIEW OF CHASSIS



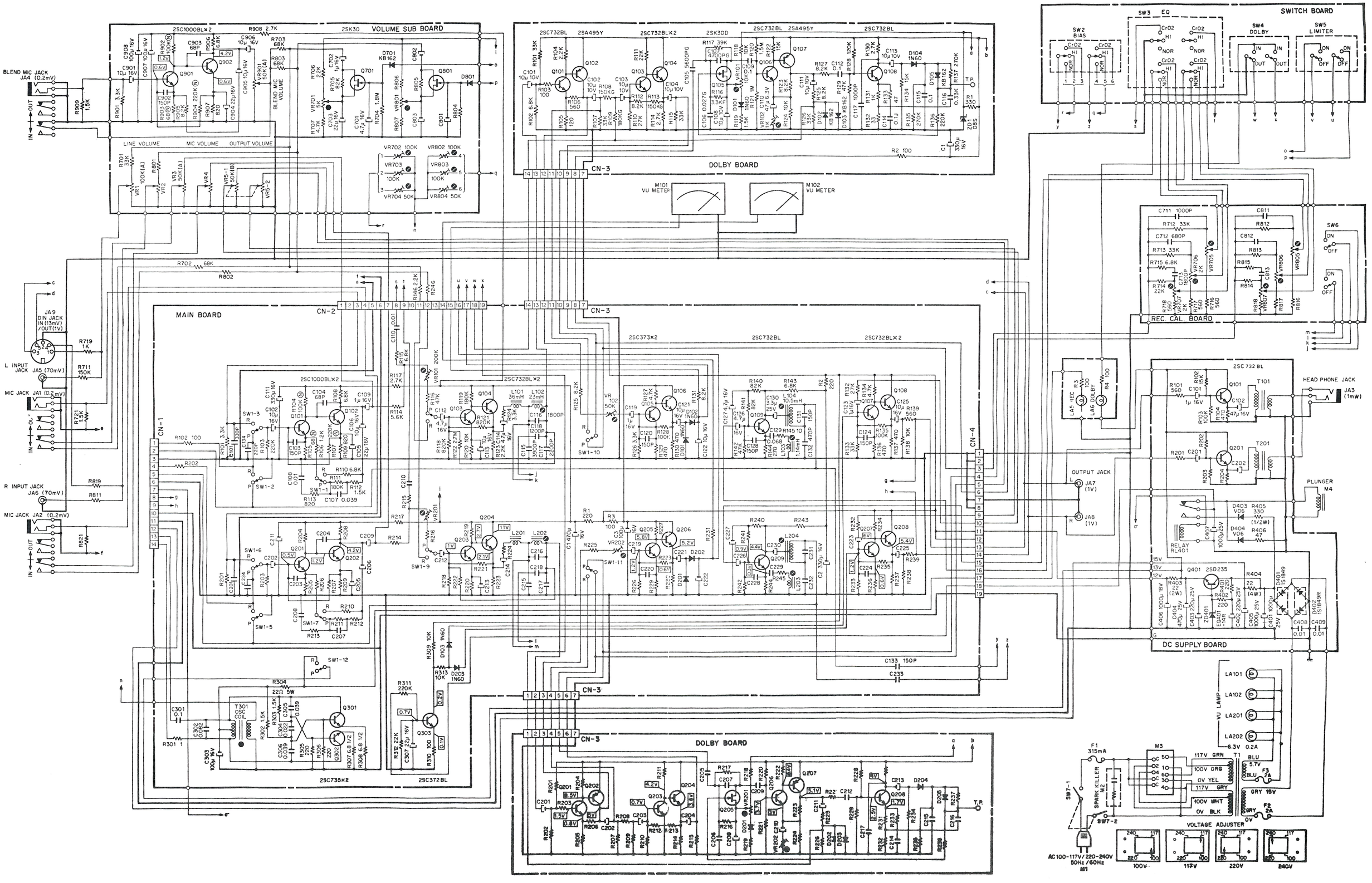
PARTS LIST—CHASSIS

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
301	4220013	Meter Lamp 6.3V, 0.2A	243	4499395	Screw M3x4 (Triple) Philips Pan Head
302	4157001	Lamp PC Board	244	4499409	Screw M4x8 (3A) Philips Pan Head
303	4157060	Lamp Shield	245	4499255	Screw M3x15 Philips Pan Head
304	4160150	Meter Lamp Holder	246	4499212	Screw M2.6x4 (Triple) Philips Pan Head
305	4129091	Mechanism Ass'y	247	4498674	Washer 3m/m CS type
306	4160142	Dolby PC Board Holder	248	4499271	Screw M3x8 Philips Pan Head
307	4295005	Power Cord	249	4499301	Screw M3x12 Philips Pan Head
308	4150104	Voltage Selector Socket Cover	251	4499298	Screw M3x6 Philips Pan Head
309	4165047	Ground Terminal	252	4499336	Screw M2.6x4 Philips Pan Head
310	4170024	Cord Bushing C	253	4498704	Washer 3m/m Spring
311	4183088	Cord Spacer	254	4498712	Washer 2.6m/m Plastic
312	4123050	Rear Panel	255	4498631	Washer 3m/m Plastic
313	4710053	Record CAL. Board Ass'y	256	4499077	Screw M2x4 Philips Pan Head
314	4497546	Metal Seat Nut	257	4499328	Screw M3x20 Philips Pan Head
315	4266048	Voltage Selector Socket			
316	4264002	14P Plug Board			
317	4264045	19P Sub Board Ass'y			
318					
319	4710029	Dolby Board Ass'y			
320	4264010	19P Plug Board			
321	4710037	Main Board Ass'y			
322	4157028	Lamp Cover CN1 (RED)			
323	4157036	Lamp Cover CN2 (Green)			
324	4160061	Meter Holder (DT-500)			
325	4157044	Light Intercepting Pipe GA			
326	4157087	Light Intercepting Pipe GB			
327	4789008	Level Meter			
328	4157052	Reflecting Plate			
329	4170008	Rubber Bush			
330	4170016	Meter Cushion			
331	4220005	Pilot Lamp 12V, 25mA			
332	4510003	Adj. Indicator Label			
333	4122003	Main Chassis			
334	4710061	Switch Sub Board Ass'y			
335	4160053	Jack Holder			
336	4160134	Head Phone Holder			
337	4150066	Jack Cover			
338	4160118	Main PC Board Holder			
339	4710010	D.C. Supply Board Ass'y			
340	4160096	D.C. Supply Board Holder			
341	4790006	Solenoid			
342	4498518	Solenoid Mylar			
343	4145127	Solenoid Connection Plate			
344	4210174	Power Switch			
345	4150082	Power Switch Cover			
346	4150120	Shield Plate			
347	4710088	Volume Sub Board Ass'y			
348	4230019	Fuse 250V, 2A			
349	4230000	Fuse 250V, 315mA			
350	4160045	Fuse Holder			
351	4510054	Fuse Label 2A			
352	4510046	Fuse Label 315mA			
353	4123034	Chassis Right			
354	4788001	Power Transformer			
355	4150074	Trans Shield Plate			
356	4497503	Metal Seat Nut			
357	4790014	Spark Killer			
358	4268024	3P Terminal Insulator			
359	4264053	3P Terminal Strip			
360	4123042	Chassis Left			
361	4266021	Mic Jack			
362	4266013	Headphone Jack			
	4165020	3P Lug Terminal			
R146, 246	4934709	Carbon Resistor 2.2K ELR¼, J			
R721, 821 909	4933524	Carbon Resistor 1.5K R¼, J			
C718, 818 910	4830601	Ceramic Capacitor 680P, 50V, M			
214	4498585	Washer 2m/m Spring			
222	4498658	Washer 3m/m Toothed Lock			
230	4165004	Earth Lug B-5			
235	4498593	Washer 3m/m Steel			
236	4497538	Nut 3m/m			
240	4499387	Screw M3x6 (2A) Philips Pan Head			
241	4499352	Screw M3x6 (3A) Philips Pan Head			

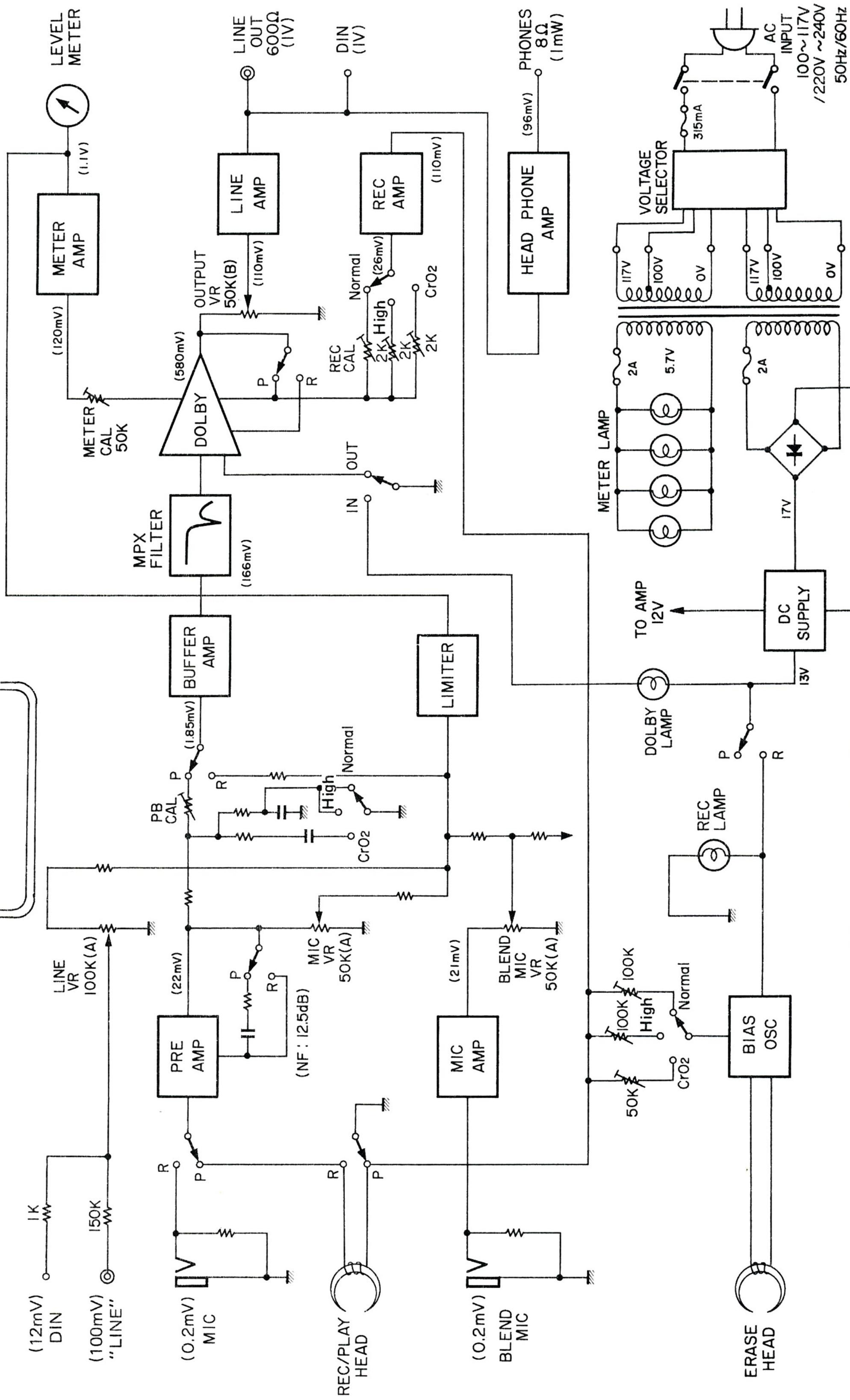
MECHANISM WIRING DIAGRAM



SCHEMATIC DIAGRAM



BLOCK DIAGRAM



Specification

Heads	Two: hard permalloy record/ playback and erase heads. 4—track, 2 — channel stereo.
Tape speed	1⅞ ins/second (4.8 cms/second)
Motor	Closed-loop DC servo controlled motor
Wow and flutter	Less than 0.16% (DIN weighted)
Frequency response	CrO_2 Tape: 40Hz — 15kHz ±2¼dB Low Noise Tape: 40Hz — 15kHz ±3dB
Signal/noise ratio	CrO_2 Tape: (DOLBY NR Out) 50dB Wtd. (DOLBY NR In) 56dB Wtd. Low Noise and Normal Tape: (DOLBY NR Out) 48dB Wtd. (DOLBY NR In) 54dB Wtd.
T.H.D.	Less than 2% at '0' recording level
Input sensitivity	Line: 100mV into 100k Ohms DIN: 12mV into 24k Ohms MIC: 0.2mV into 10k Ohms
Output	DIN and Line: 1V at '0' recording level into 10k Ohms or more Headphones: 8 Ohms
Bias frequency	105kHz
Erase ratio	better than 64dB at 1kHz
Channel separation	better than 32dB
Power required	110V, 117V, 220V or 240V, AC, 50/60 Hz 23 Watts
Dimensions	385 x 255 x 120mm. 15¼ x 10 x 4½ ins.
Weight	5.5 kg (12¼ lb)
Accessories supplied	— DIN-DIN connection cord — Head cleaning cassette

NOTE: Where there is no schematic reference number quoted the part cannot be obtained separately from its assembly.

Ordering Spare Parts

When ordering spare parts, please quote only the Part Number and quantity. Schematic references and component values are not necessary and may cause confusion.

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Heads	Two: hard permalloy record/ playback and erase heads. 4—track, 2 — channel stereo.
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Erase ratio	better than 64dB at 1kHz
Channel separation	better than 32dB
Power required	110V, 117V, 220V or 240V, AC, 50/60 Hz 23 Watts
Dimensions	385 x 255 x 120mm. 15¼ x 10 x 4½ ins.
Weight	5.5 kg (12¼ lb)
Accessories supplied	— DIN-DIN connection cord — Head cleaning cassette

NOTE: Where there is no schematic reference number quoted the part cannot be obtained separately from its assembly.

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Dolby Noise Reduction System
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The specifications printed in this leaflet are correct at the time of going to press but, as Goodmans policy is one of continual development, the right to modify them is reserved.

Goodmans

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