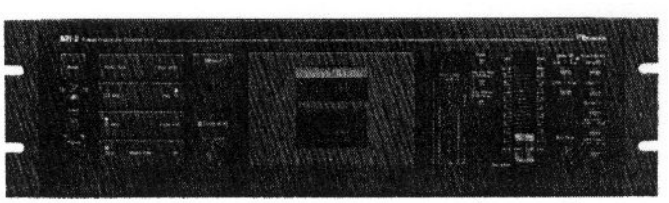
Nakamichi

Nakamichi
MR-2

2 Head Professional Cassette Deck



3. TEST TAPES AND GAUGES

(1) 400 Hz Level Tape (DA09005B)
(2) 1 kHz Track Alignment Tape (DA09007B)
(3) 15 kHz Azimuth Tape (DA09004B)
(4) 3 kHz Speed and Wow/Flutter Tape (DA09006C)
(5) 10 kHz PB Frequency Response Tape (DA09003B)
(6) 15 kHz PB Frequency Response Tape (DA09002B)
(7) 20 kHz PB Frequency Response Tape (DA09001B)
(8) Tape Travelling Cassette (DA09027B)
(9) Reference EXII Tape (DA09102A) for Normal Position
(10) Reference SX Tape (DA09103A) for High Position
(11) Reference ZX Tape (DA09100A) for Metal Position
(12) Head Alignment Gauge (DA09092A)
(13) Torque Gauge FWD Play (DA09082A)
(14) Torque Gauge F.F./Rew. (DA09084A)

4. MECHANICAL ADJUSTMENTS

4.1. Tape Guide Height Check for Record/Playback Head and Erase Head

With use of a Head Alignment Gauge, tape guide height check for the Record/Playback and Erase Heads shall be made, wherein a small block shall be pushed straight down to the base while in use of the Head Alignment Gauge. Refer to Fig. 4.1.

(1) Record/Playback Head Tape Guide Height

(a) Load the base of the Head Alignment Gauge carefully and set the cassette deck in Play mode.
(b) Place the small block of the Head Alignment Gauge on the base.
(c) Slide the small block against the tape guide of the Record/Playback Head, and check to insure that the block is accepted by the tape guide.
(d) If not, loosen the screw and insert a shim (either 30 μm (0C80048A), 60 μm (0C80038A), or 100 μm (0C80039A)) to raise the Record/Playback Head, then tighten and apply a quantity of lock tight paint to the screw.

(2) Erase Head Tape Guide Height

(a) Load the base of the Head Alignment Gauge carefully and set the cassette deck in Play mode.
(b) Place the small block of the Head Alignment Gauge on the base.
(c) Slide the small block against the tape guide of the Erase Head, and check whether the block is accepted by the tape guide.

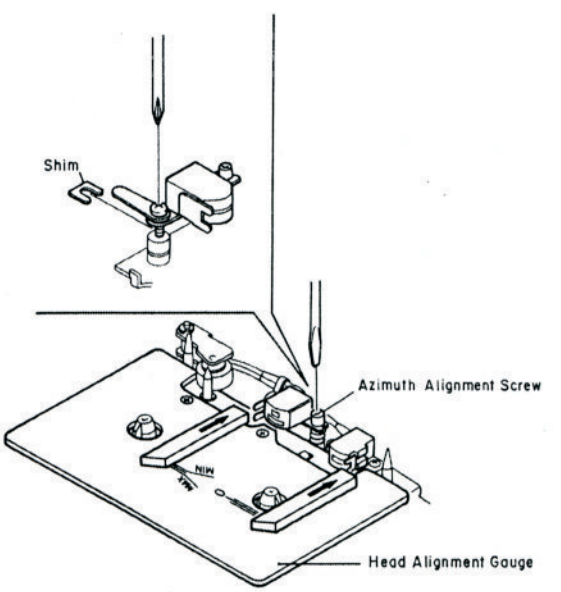


Fig. 4.1

4.2. Head Base Stroke Check

Refer to Fig. 4.2.

(1) Load the base of the Head Alignment Gauge carefully, then push the base toward the Record/Playback Head to eliminate the clearance between the reference pin and the base.
(2) Set the cassette deck in Play mode.
(3) Place the small block of the Head Alignment Gauge on the base.
(4) Contact the small block with the Record/Playback Head surface and the Erase Head surface, and check whether the end of the small block is located within the specified tolerance as shown in Fig. 4.2.

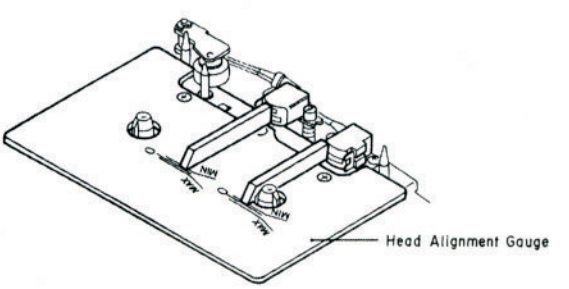


Fig. 4.2

4.3. Record/Playback Head Azimuth Alignment and Height Check

Refer to Fig. 4.1.

(1) Connect a VTVM to the Output Jacks.
(2) Load a 15 kHz Azimuth Tape and set the cassette deck in Play mode.
(3) Turn the Azimuth Alignment Screw until the outputs of both channels become maximum.
(4) Load a 1 kHz Track Alignment Tape and set the cassette deck in Play mode.
(5) Check to insure that the readings of both channels on the VTVM are below −25 dB.
If not, replacement of the Record/Playback Head will be required.
(6) Apply a quantity of lock tight paint to the Azimuth Alignment Screw.

4.4. Tape Travelling Check

Load a Tape Travelling Cassette and set the cassette deck in Play mode to check the followings:

(1) After more than 2 seconds, the fluctuation of the tape travelling on the Record/Playback Head is small.
(2) Tape is in contact with the head sufficiently.
(3) Tape waving is small on the heads and pressure roller.

4.5. Eject Damper Adjustment

Refer to Fig. 4.3. Load a cassette tape and with opening and closing the Cassette Case Ass'y, adjust the speed of damper action by the Damper Adjustment Screw.

CCW: Damper moves fast;
CW: Damper moves slowly.

4.6. Reel Motor Speed Adjustment in Play Mode

(1) To warm-up the cassette deck, load a C-60 cassette tape and play it back for more than four minutes.
(2) Load a torque gauge FWD Play (DA09082A) or equivalent and set the cassette deck in Play mode.
(3) Adjust VR601 on the Main P.C.B. Ass'y to obtain exactly 50 g-cm on the torque gauge.

4.7. Tape Speed Adjustment

(1) Set the Pitch Control on the Front Panel to its mechanical center position.
(2) Connect a frequency counter to the Output Jacks.
(3) Load a 3 kHz Speed and Wow/Flutter Tape and play it back.
(4) Adjust VR603 on the Pitch Control P.C.B. Ass'y to obtain 3,000 Hz ±15 Hz on the frequency counter.

4.8. Lubrication

The tape transport is of a lubrication-free type mechanism. When the folloiwng parts are replaced, apply the specified lubricant.

(1) Molykote Ⓡ Grease (X5-6020)
Cam Motor Pulley
Thruse portion on the Capstan Shaft
(2) FLOIL GB-TS-1
Washer between Reel Hub Ass'y and Back Tension Spring
(3) Diamond Oil (EP56)
Reel Hub Shaft
(4) Anderol 456
Capstan Shaft

Note: We suggest that you use the above specified lubricant or equivalent type.
The company dealing in the above lubricant is as follows:
(a) Molykote Ⓡ Grease (X5-6020)
Dowcorning Co., Ltd., 1-15-1 Nishishinbashi, Minato-ku, Tokyo, Japan
(b) FLOIL GB-TS-1
Kanto Chemicals Co., Ltd., 2-7 Kanda Sakuma-cho, Chiyoda-ku, Tokyo, Japan
(c) Diamond Oil (EP-56)
Mitsubishi Oil Co., Ltd., 1-2-4 Toranomon, Minato-ku, Tokyo, Japan
(d) Anderol 456
Toyo Kokusai Oil Co., Ltd., 3-3-5 Hatchobori, Chuo-ku, Tokyo, Japan

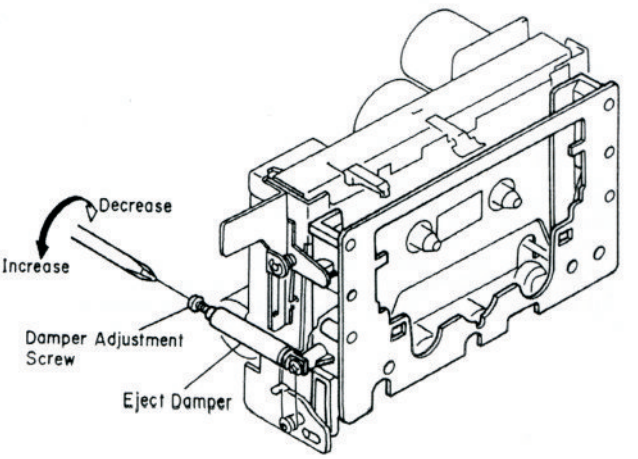


Fig. 4.3

5. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

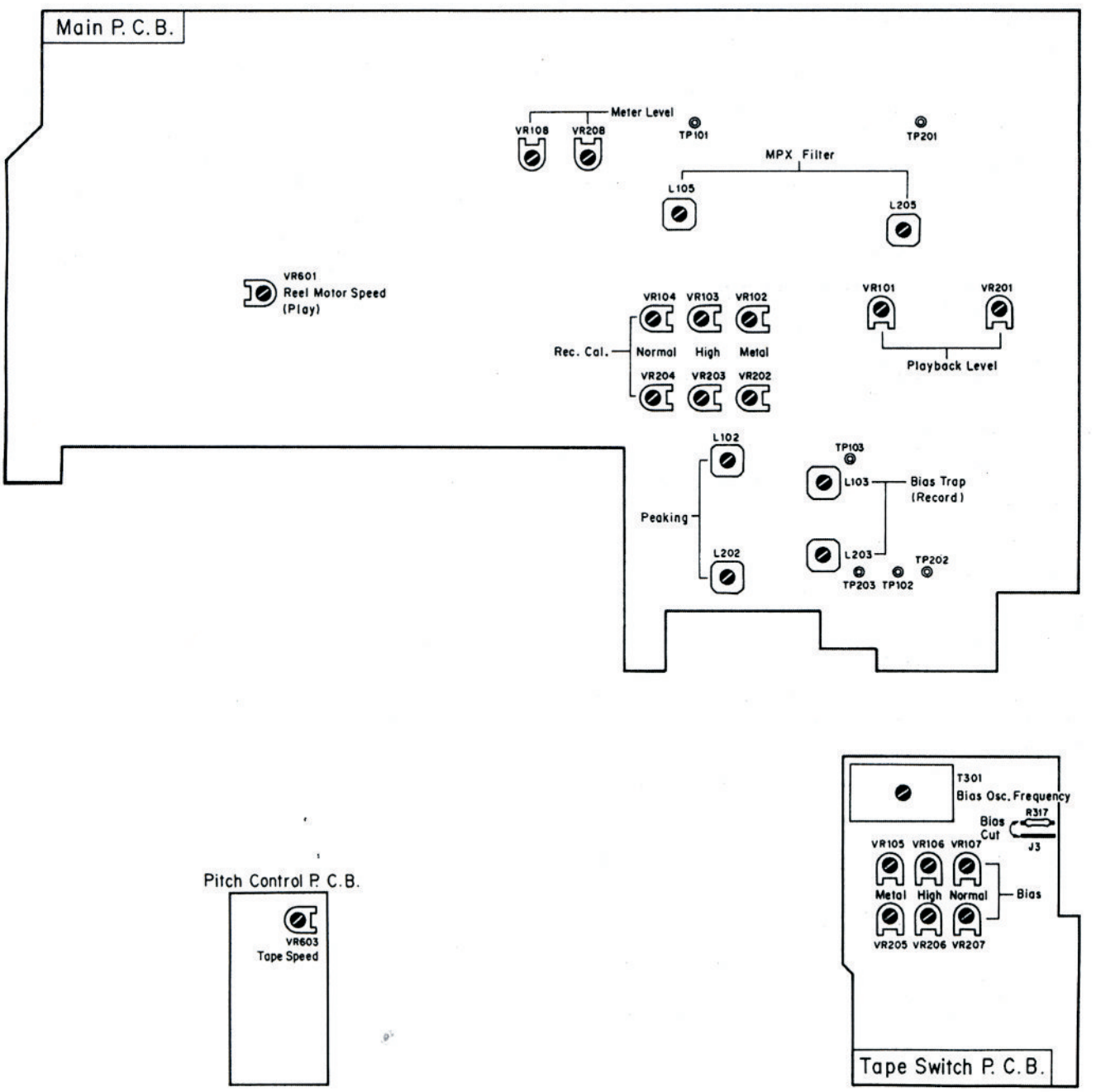


Fig. 5

6. ELECTRICAL ADJUSTMENTS

Notes: 1. Electrical adjustment should be performed after mechanical adjustment is completed.
2. Before adjustment, set the Bias Tune control and the Pitch control on the Front Panel to their mechanical center positions.

6.1. Adjustment Instructions

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST-MENT	REMARKS
1	Tape Speed Adjustment	3 kHz Speed and Wow/ Flutter Tape	Frequency Counter to Output Jacks	Playback Eq. - 70 μs	Pitch Control P.C.B. VR603	Adjust VR603 to obtain 3 kHz ±15 Hz on the frequency counter.
2	Meter Level Calibration	400 Hz to Input Jacks	VTVM to TP101 TP201 on Main P.C.B.	Record, Pause	Main P.C.B. VR108 VR208	1. Set the Output Level control to max. 2. Feed in 400 Hz and adjust the Input Level controls to obtain 350 mV -0.6 dB on the VTVM. 3. Adjust VR108 (VR208) so that the 0 dB segment of the level meter starts illuminating. 4. Adjust the Input Level controls to obtain 35 mV on the VTVM, and check to insure that the segment for -20 dB lights up.
3	MPX Filter Adjustment	19 kHz ±100 Hz to Input Jacks	VTVM to Output Jacks	Record, Pause MPX - OFF/ON	Main P.C.B. L105 L205	1. Set the Output Level control to max. Adjust the Input Level controls to obtain 0 dBV (1 V) on the VTVM. 2. Set the MPX Filter switch to ON and adjust L105 (L205) to obtain minimum reading on the VTVM (the minimum reading will be less than -30 dBV (31.6 mV)).
4	Record/ Playback Head Azimuth Alignment	15 kHz Azimuth Tape	VTVM to Output Jacks	Playback Eq. - 70 μs Dolby NR - OFF MPX - OFF	Record/ Playback Head Azimuth Align-ment Screw	Adjust the Record/Playback Head Azimuth Alignment Screw to obtain maximum readings for both channels on the VTVM.
5	Playback Level Calibration	400 Hz Level Tape	VTVM to TP101, TP201 on Main P.C.B.	Same as above	Main P.C.B. VR101 VR201	Adjust VR101 (VR201) to obtain 350 mV on the VTVM.
6	Playback Frequency Response Adjustment	400 Hz Level Tape 10 kHz PB Frequency Response Tape 15 kHz PB Frequency Response Tape 20 kHz PB Frequency Response Tape	VTVM to Output Jacks	Same as above	Main P.C.B. R110 R210 R195 R295	1. Load a 400 Hz level tape and play it back. Adjust the Output Level control to a certain level (for example 0 dBV (1 V)). 2. Load 10 kHz, 15 kHz and 20 kHz PB frequency response tapes and play them back. Adjust the record/play-back head azimuth screw to obtain maximum readings for both channels on the VTVM with each tape. Check that the playback levels are within the following ranges: For IEC/Nakamichi Standard: 10 kHz: -20 dB -2 to +2 dB 15 kHz: -20 dB -2 to +3 dB 20 kHz: -20 dB -2 to +4 dB For IEC March 1981 Standard: 10 kHz: -20 dB -2.5 to +1.5 dB 15 kHz: -20 dB -4.5 to +0.5 dB 20 kHz: -20 dB -6 to 0 dB (to be continued)

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST-MENT	REMARKS
						If the level for the 20 kHz tape is insufficient, adjust it by referring to "Playback Frequency Response Adjustment" in item 6.2. 3. Conduct step 4 "Record/Playback Head Azimuth Alignment".
7	Bias Oscillation Frequency Adjustment	None	Frequency Counter to CN2-2 on Tape Switch P.C.B.	Record, Pause Tape - Metal Eq. - 70 μs Dolby NR - MPX - OFF	Tape Switch P.C.B. T301	Adjust T301 to obtain 105 kHz ±1 kHz on the frequency counter.
8	Record Amplifier Equalizer Adjustment	21 kHz (-20 dBV) to Input Jacks	VTVM to TP102,TP202 on Main P.C.B.	Same as above	Main P.C.B. L102 L202	1. Short the bias cut points indicated in Fig. 5 with a clip to stop bias oscillation. 2. Adjust L102 (L202) to obtain peak reading at 21 kHz on the VTVM. 3. Remove the clip.
9	Bias Trap Adjustment (Record Amp.)	None (remove input signals)	VTVM to TP103,TP203 on Main P.C.B.	Same as above	Main P.C.B. L103 L203	Adjust L103 (L203) to obtain minimum reading on the VTVM.
10	Record Level Calibration and Recording Bias Current Adjustment	400 Hz (0 dBV) and 15 kHz (-20 dBV) to Input Jacks	VTVM and Distortion Meter to Output Jacks	Record and Playback Tape - Metal/ High/Normal Eq. - 70 μs (Metal/High) 120 μs (Normal) Dolby NR - OFF MPX - OFF	Main P.C.B. (Level) Metal: VR102 VR202 High: VR103 VR203 Normal: VR104 VR204 Tape Switch P.C.B. (Bias) Metal: VR105 VR205 High: VR106 VR206 Normal: VR107 VR207	Adjustment should be made in the order of Metal, High and Normal. 1. Set the Bias Tune Control to its mechanical center position. 2. Set the Output Level control to max. 3. Load a reference ZX tape, reference SX tape and reference EXII tape. 4. Set the cassette deck in Record/Pause mode. 5. Feed in 400 Hz and adjust the Input Level controls to obtain 0 dBV (1 V) on the VTVM, and record, rewind and play it back. Adjust VR102 (VR202) for ZX tape, VR103 (VR203) for SX tape and VR104 (VR204) for EXII tape so that the playback output levels are 0 dBV (1 V) on the VTVM. 6. Feed in 15 kHz (-20 dBV: 100 mV) and record, rewind and play it back. Adjust VR105 (VR205) for ZX tape, VR106 (VR206) for SX tape and VR107 (VR207) for EXII tape so that the playback output levels are -20 dBV (100 mV) on the VTVM. 7. Repeat above 5 and 6 two or three times to obtain optimum performance. 8. Feed in 400 Hz (0 dBV: 1 V) and record, rewind and play it back. Check to insure whether the total harmonic distortion is less than 1.0% for ZX and EXII tapes and 1.2% for SX tape. If the total harmonic distortion exceeds the specified value, repeat above steps till satisfactory results are obtained.

8. MOUNTING DIAGRAMS AND PARTS LIST

Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.
2. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
3. Following transistors are interchangeable with each other.
   a. 2SA733, 2SA608SP, 2SA1048, 2SA1175
   b. 2SC945, 2SC536SP, 2SC2458, 2SC2785
4. Abbreviation for part name:
   TR — Transistor, SiD — Silicon Diode, GD — Germanium Diode, ZD — Zener Diode
   RK — Carbon Resistor, RM — Metal Film Resistor, RF — Fail Safe Type Resistor, RW — Wire Wound Resistor
   CE — Electrolytic Capacitor, CM — Mylar Capacitor, CC — Ceramic Capacitor, CP — PP Capacitor,
   CF — Film Capacitor

8.1. Power Switch P.C.B. Ass'y

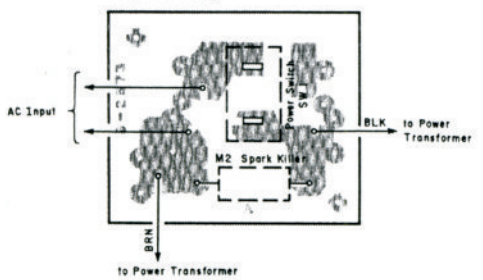


Fig. 8.1

8.2. Shut-off P.C.B. Ass'y

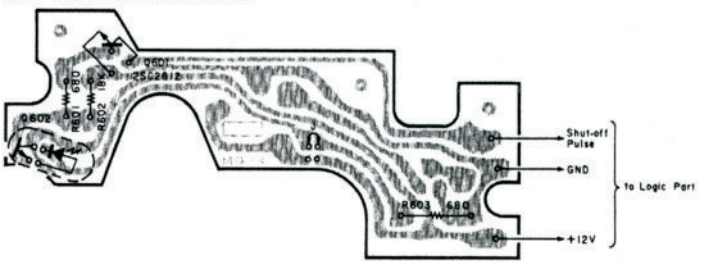


Fig. 8.2

8.3. LED P.C.B. Ass'y

Fig. 8.3

8.4. Timer Switch P.C.B. Ass'y

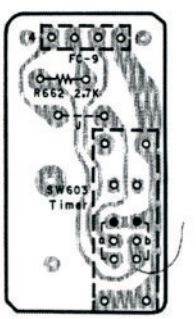


Fig. 8.4

8.5. Headphone Volume P.C.B. Ass'y

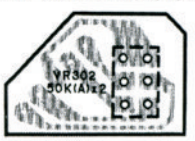


Fig. 8.5

8.6. Pitch Control P.C.B. Ass'y

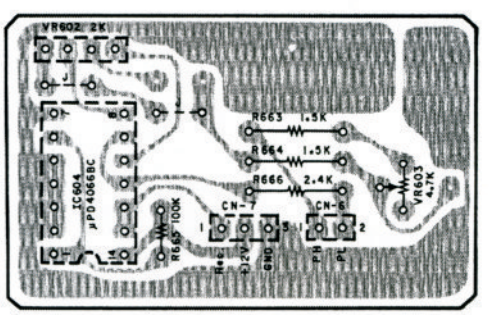


Fig. 8.6

Schematic Ref. No.	Part No.	Description
	BA05230A	Power Switch P.C.B. Ass'y (U.S.A. & Canada)
	BA06067A	Power Switch P.C.B. Ass'y (Australia & Others)
	BA05229A	Power Switch P.C.B. Ass'y (Europe)
	0B02573D	Power Switch P.C.B.
SW1	0B70002A	Power Switch
M2	0B08342A	Spark Killer (U.S.A. & Canada)
M2	0B08955A	Spark Killer (Australia & Others)
M2	0B08445A	Spark Killer (Europe)
	0B90059A	Spark Killer Cover (Europe) (1)
	0J04763A	Power Switch Holder (1)
	0E00612A	M3x6 ⊕Pan (2A) (2)
	0E00752A	Eyelet 2x3 (2)
	CA80011A	Shut-off P.C.B. Ass'y
	0C80047A	Shut-off P.C.B.
Q601	0B06388A	TR 2SC2812
Q602	0B06389A	Photo Reflector NJL5141
R601,603	0B09840A	RK 680 Leadless
R602	0B09841A	RK 18K Leadless
	BA06131A	LED P.C.B. Ass'y
	0B60342A	LED P.C.B.
LED302	0B06333A	LED (Red) TLR124A
FC21	0B81065A	Wire Mate 2P
FC21	0B82116B	Ribbon Cable 2P
	BA06128A	Timer Switch P.C.B. Ass'y
	0B60332A	Timer Switch P.C.B.
R662	0B09687A	RK 2.7K 1/6W J
SW603	0B07437A	Slide Switch 2-3
FC9	0B82126B	Ribbon Cable 4P
	BA06122A	Headphone Volume P.C.B. Ass'y
	0B60202A	Headphone Volume P.C.B.
VR302	0B30020A	Volume 50K(A)x2
	0J04842C	Pitch Control Holder (1)
	BA06124A	Pitch Control P.C.B. Ass'y
	0B60337A	Pitch Control P.C.B.
IC604	0B06144A	IC μPD4066BC
VR602 (2)	0B30057A	Pitch Control Volume 2K(B)
VR603	0B32043A	Semi VR 4.7K
R663,664	0B05698A	RK 1.5K 1/4W J
R665	0B09725A	RK 100K 1/6W J
R666	0B09588A	RK 2.4K 1/4W J
CN6	0B81366A	2P-S Post
CN7	0B08971A	3P-S Post

8.7. 6P Pin Jack P.C.B. Ass'y

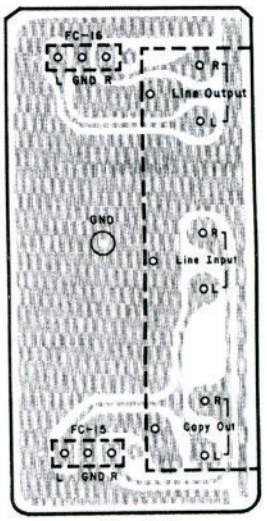


Fig. 8.7

8.8. Remote Socket P.C.B. Ass'y

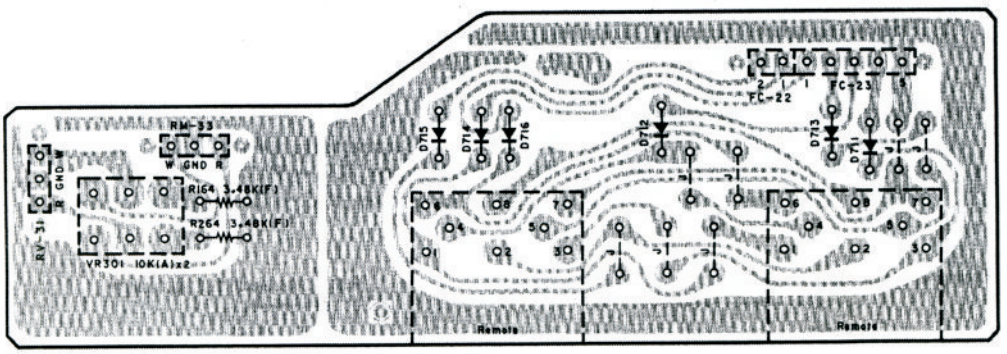


Fig. 8.8

8.9. 1/4" Jack Input P.C.B. Ass'y

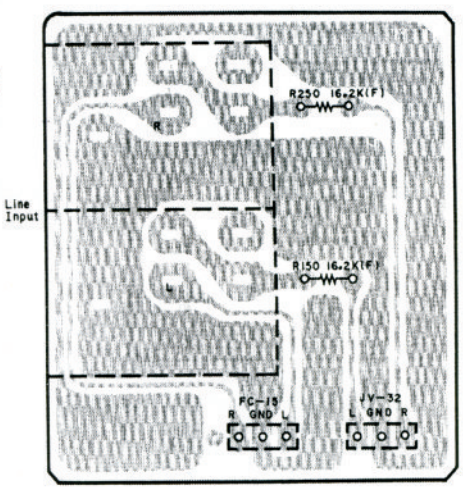


Fig. 8.9

8.10. 1/4" Jack Output P.C.B. Ass'y

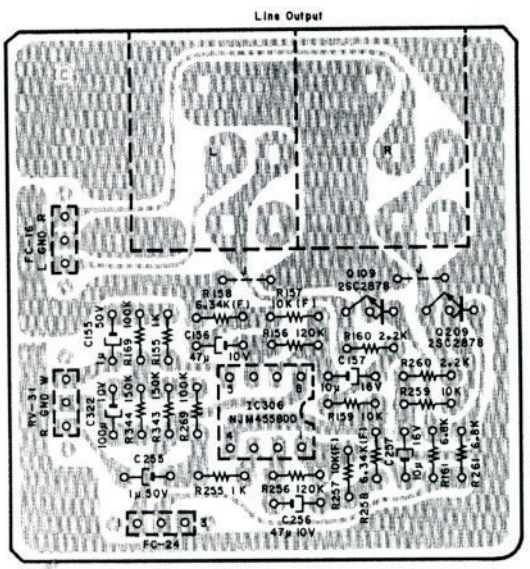


Fig. 8.10

8.11. Dolby NR Switch P.C.B. Ass'y

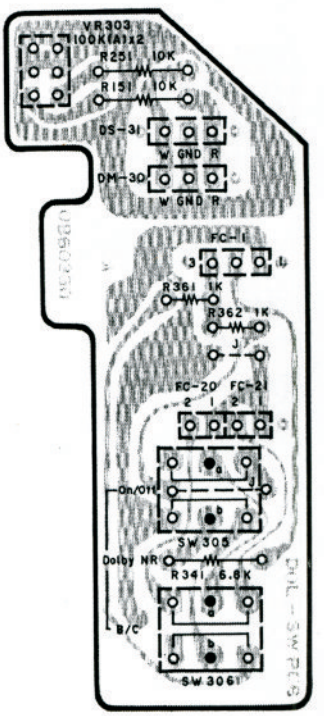


Fig. 8.11

Schematic Ref. No.	Part No.	Description
	BA06115A	**6P Pin Jack P.C.B. Ass'y**
FC16	0B60333A	6P Pin Jack P.C.B.
	0B82591A	Ribbon Cable 3P
	0B81538A	6P Pin Jack (1)
	BA06082A	Earth Lug Ass'y (1)
	0B81010A	Dip Mate 3P (2)
	BA06123A	**Remote Socket P.C.B. Ass'y**
	0B60336A	Remote Socket P.C.B.

Schematic Ref. No.	Part No.	Description
D711,712 713,714 715,716	0B06398A	SiD 1SS176
VR301	0B30058A	Volume 10K (A)x2
R164,264	0B22289A	RM 3.48K 1/6W F
FC22/23	0B81395A	7P-JP Connector
RM33/RV31	0B81010A	Dip Mate 3P (2)
	0B81479A	8P DIN Socket (2)
	0J05159A	Remote Socket Holder (1)

Schematic Ref. No.	Part No.	Description
	BA06120A	**1/4" Jack Input P.C.B. Ass'y**
	0B60334A	1/4" Jack Input P.C.B.
R150,250	0B22365A	RM 16.2K 1/6W F
	0B02348A	3P-JP Connector (1)
	0B81539A	Phone Jack (1)
	0B81010A	Dip Mate 3P (1)

Schematic Ref. No.	Part No.	Description
	BA06121A	**1/4" Jack Output P.C.B. Ass'y**
	0B60335A	1/4" Jack Output P.C.B.
IC306	0B06146A	IC NJM4558DD
Q109,209	0B06299A	TR 2SC2878
R155,255	0B09677A	RK 1K 1/6W J
R156,256	0B09727A	RK 120K 1/6W J
R157,257	0B22343A	RM 10K 1/6W F
R158,258	0B22321A	RM 6.34K 1/6W F
R159,259	0B09701A	RK 10K 1/6W J
R160,260	0B09685A	RK 2.2K 1/6W J
R161,261	0B09697A	RK 6.8K 1/6W J
R169,269	0B09725A	RK 100K 1/6W J
R343,344	0B09729A	RK 150K 1/6W J
C155,255	0B01405A	CE 1μ 50V
C156,256	0B01836A	CE 47μ 10V
C157,257 324	0B01412A	CE 10μ 16V
	0B02348A	3P-JP Connector (1)
	0B81010A	Dip Mate 3P (2)
	0B82119B	Ribbon Cable 3P (1)
	0B81539A	Phone Jack (1)
	BA06112A	**Dolby NR Switch P.C.B. Ass'y**
	0B60330A	Dolby NR Switch P.C.B.
VR303	0B30016A	Volume 100K (A)x2
R151,251	0B01888A	RK 10K 1/4W J
R341	0B01682A	RK 6.8K 1/4W J
R361,362	0B09677A	RK 1K 1/6W J
SW305,306	0B70027A	Push Switch 2-Key
FC1,DM30 DS31	0B81010A	Dip Mate 3P
FC20/21	0B02349A	4P-JP Connector (1)
	BA06130A	**Volume P.C.B. Ass'y**
	0B60341A	Volume P.C.B.
LED301	0B06333A	LED (Red) TLR124A
VR110,210	0B31002A	Slide Volume 100K (A)
R172,272	0B09719A	RK 56K 1/6W J
C171,271	0B09282A	CC 100P 50V K
SW601,602	0B07462A	Push Switch
Cds301	0B06325B	Photocoupler MCD7214F
FC8 VM25/26	0B81011A	Dip Mate 4P
FC17/JP32	0B81012A	Dip Mate 5P
FC20	0B81002A	Dip Mate 2P
	BA06129A	**Indicator P.C.B. Ass'y**
	0B60340A	Indicator P.C.B.
IC301	0B06369A	IC TA7612AP
IC701	0B11031A	IC TL092
Q701	0B06013A	TR 2SA733 (P,Q)
ZD701,702	0B06191A	ZD 2.7V RD2.7E
D301,302	0B06181A	SiD 1SS53
D703,704 705,706	0B06398A	SiD 1SS176
R301	0B01888A	RK 10K 1/4W J
R302	0B01887A	RK 5.6K 1/4W J
R303	0B01857A	RK 1K 1/4W J
R304	0B09797A	RK 120 1/4W J
R305-314	0B09681A	RK 1.5K 1/6W J (10)
R701	0B09677A	RK 1K 1/6W J
R702,703 704,709 711,715	0B09725A	RK 100K 1/6W J
R705	0B09709A	RK 22K 1/6W J
R706	0B09685A	RK 2.2K 1/6W J
R707	0B09701A	RK 10K 1/6W J
R712	0B09749A	RK 1M 1/6W J
R713,714	0B09737A	RK 330K 1/6W J
R716	0B09717A	RK 47K 1/6W J
R717	0B09713A	RK 33K 1/6W J
C301	0B09281A	CC 150P 50V K
C701	0B09868A	CF 0.1μ 50V J
C702	0B09163A	CE 10μ 16V (BP)
FC3/12	0B81012A	Dip Mate 5P
FC6/17,16	0B81011A	Dip Mate 4P
FC18/19	0B02356A	12P-JP Connector

Schematic Ref. No.	Part No.	Description
	BA06114A	**Control Switch P.C.B. Ass'y**
	0B60331A	Control Switch P.C.B.
Q702	0B10039A	TR 2SC1740S (S,E)
Q703	0B10003A	TR 2SA1345
Q704	0B10007A	TR 2SC3399
Q705	0B10026A	TR 2SA933S (Q,R,S)
D701,702	0B06181A	SiD 1SS53
D707,708 709	0B06398A	SiD 1SS176
LED701 703,704	0B06334A	LED (Green) TLG124A
LED702 705,706	0B06333A	LED (Red) TLR124A
R718,719	0B09657A	RK 150 1/6W J
R720	0B09667A	RK 390 1/6W J
R721	0B09663A	RK 270 1/6W J
R722	0B09693A	RK 4.7K 1/6W J
R723,725	0B09677A	RK 1K 1/6W J
R724	0B01888A	RK 10K 1/4W J
C703	0B05557A	CM 0.015μ 50V J
SW701-708	0B70004A	Touch Switch 4.3mm
	0J04747B	LED Reflector (6)
	BA06113A	**Tape Switch P.C.B. Ass'y**
	0B60339A	Tape Switch P.C.B.
Q304	0B06069A	TR 2SB564 (L,M)
T301	0B51232A	Bias Osc. Unit
VR105,106 205,206	0B32009A	Semi VR 22K
VR107,207	0B32010A	Semi VR 47K
R138,238	0B09653A	RK 100 1/6W J
R139,239 351,352 353	0B09695A	RK 5.6K 1/6W J
R140,240	0B09707A	RK 18K 1/6W J
R197,297	0B09705A	RK 15K 1/6W J
R317	0B09263A	RK 12K 1/4W J
R318	0B09831A	RF 22 1W J
R350	0B09837A	RF 10 1W J
C118,218	0B41219A	CP 560P 100V J
C305	0B01403A	CE 47μ 16V
C306	0B09828A	CP 8200P 100V J
C327	0B41223A	CP 820P 100V J
C330,331 332	0B05796A	CM 0.047μ 50V J
C333,334	0B09187A	CE 1μ 16V (BP)
SW301,302 303,304	0B70072A	Push Switch 5-Key (1)
CN2	0B81051A	2P-S Post
SD29	0B81010A	Dip Mate 3P
FC2 SM27/28	0B81011A	Dip Mate 4P
FC5	0B81012A	Dip Mate 5P
	0J04768B	Earth Plate A (1)

8.12. Volume P.C.B. Ass'y

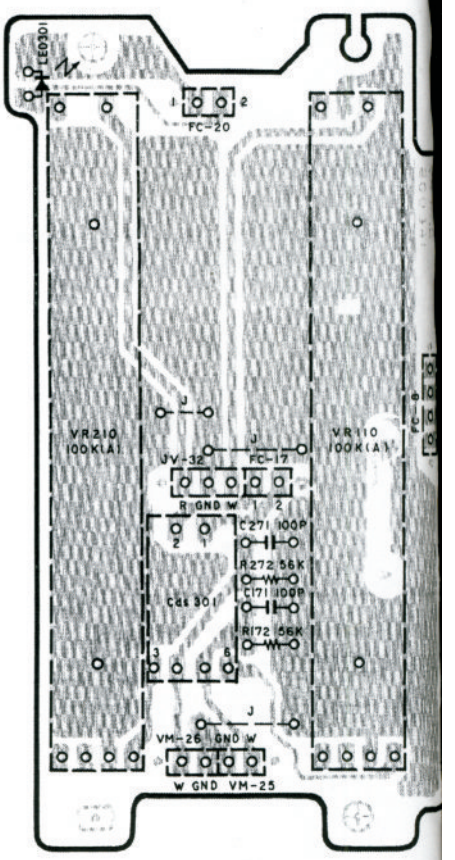


Fig. 8.12

8.14. Control Switch P.C.B. Ass'y

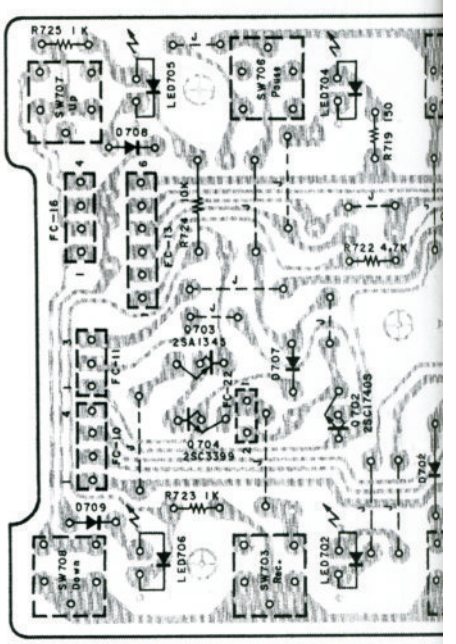


Fig. 8.14

. Ass'y

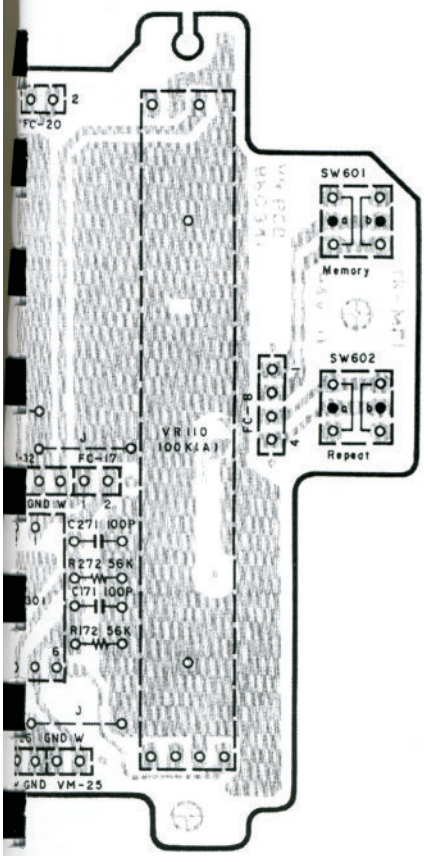


Fig. 8.12

8.13. Indicator P.C.B. Ass'y

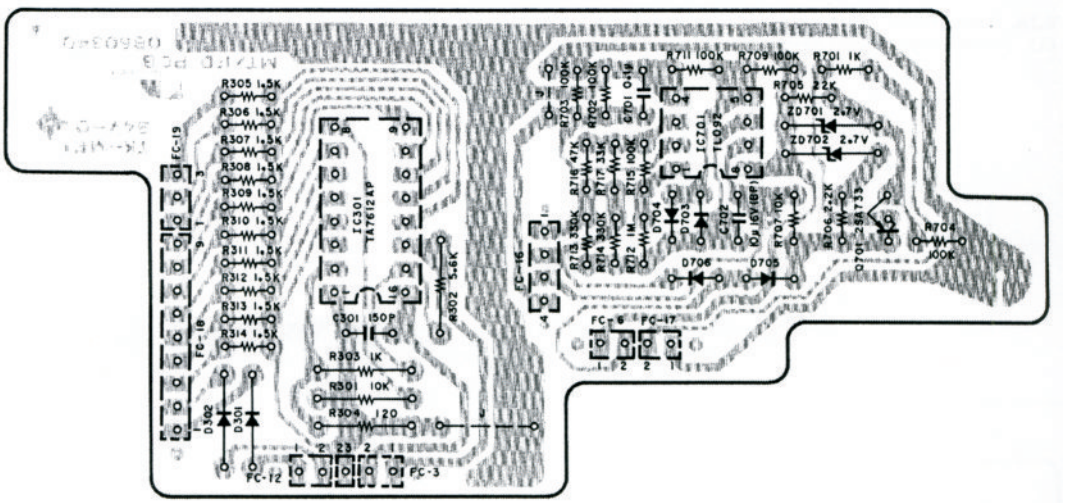


Fig. 8.13

8.15. Tape Switch P.C.B. Ass'y

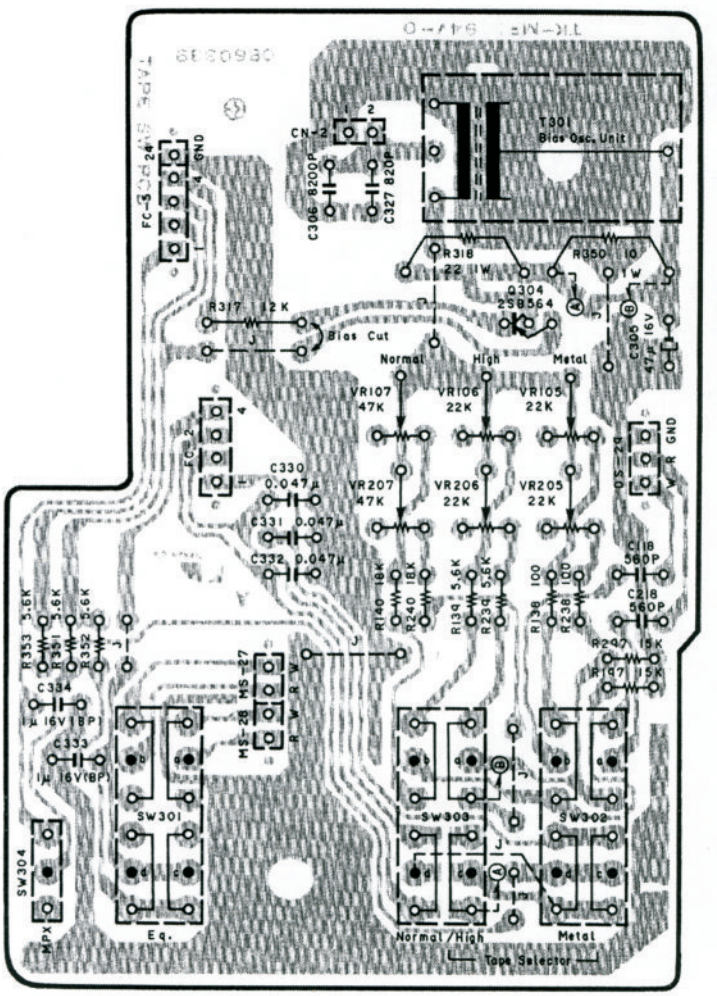


Fig. 8.15

ch P.C.B. Ass'y

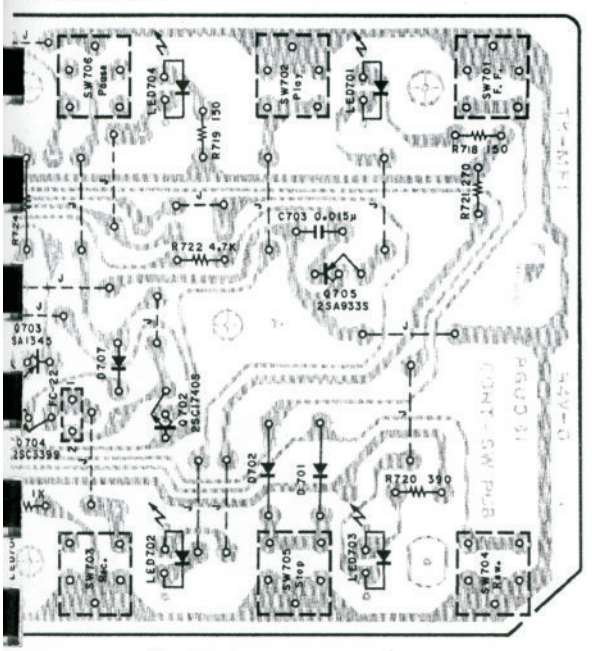


Fig. 8.14

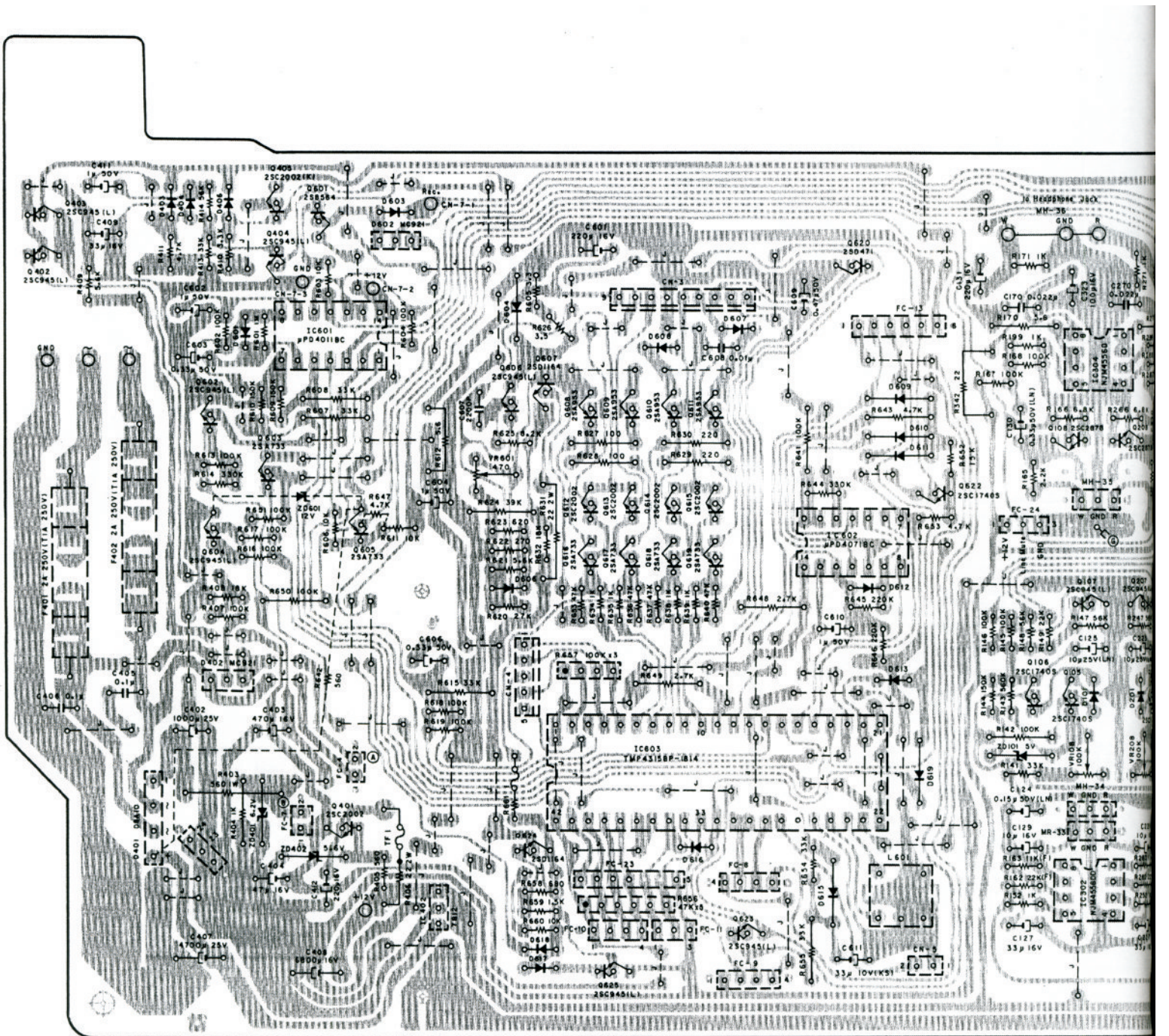
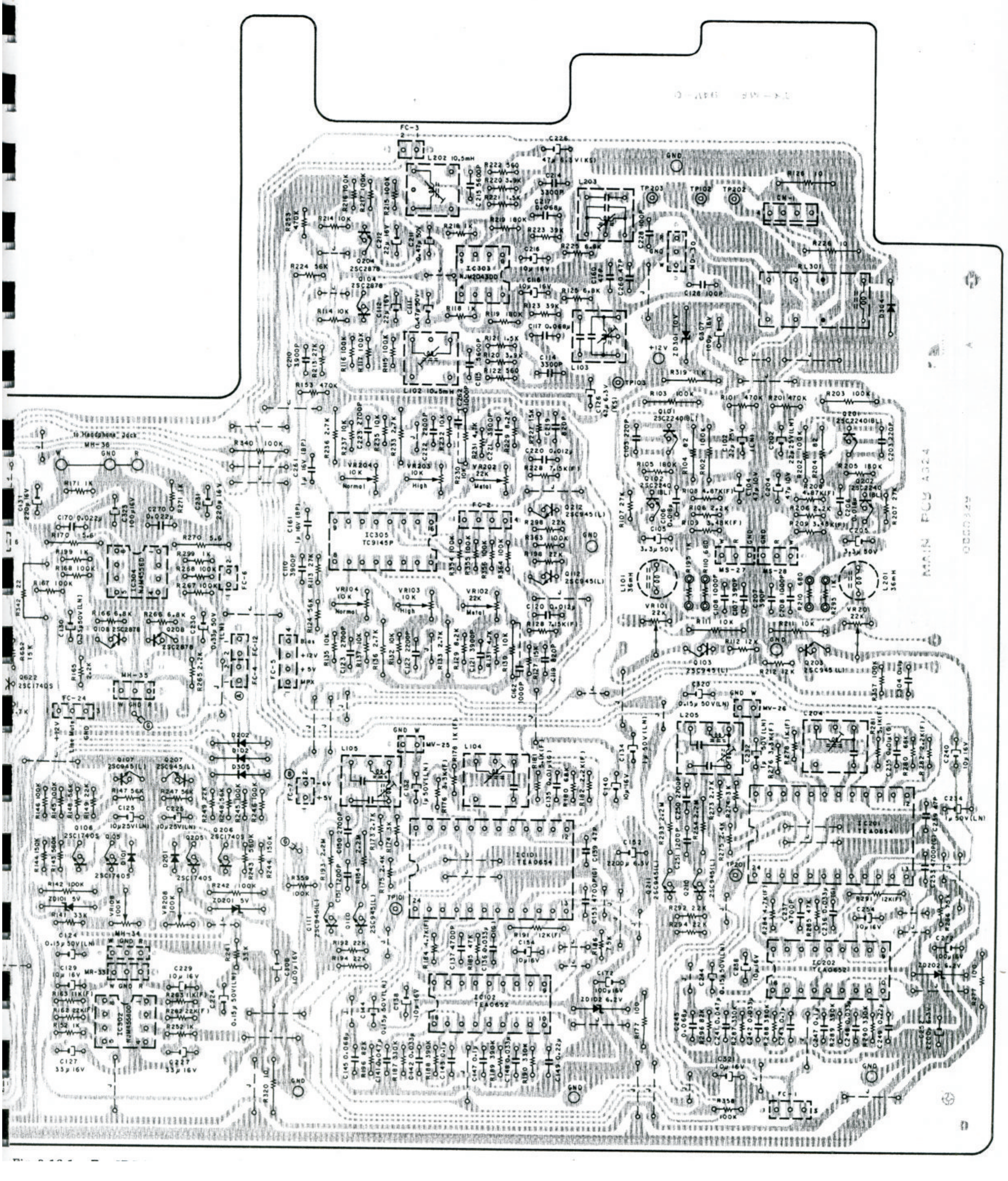
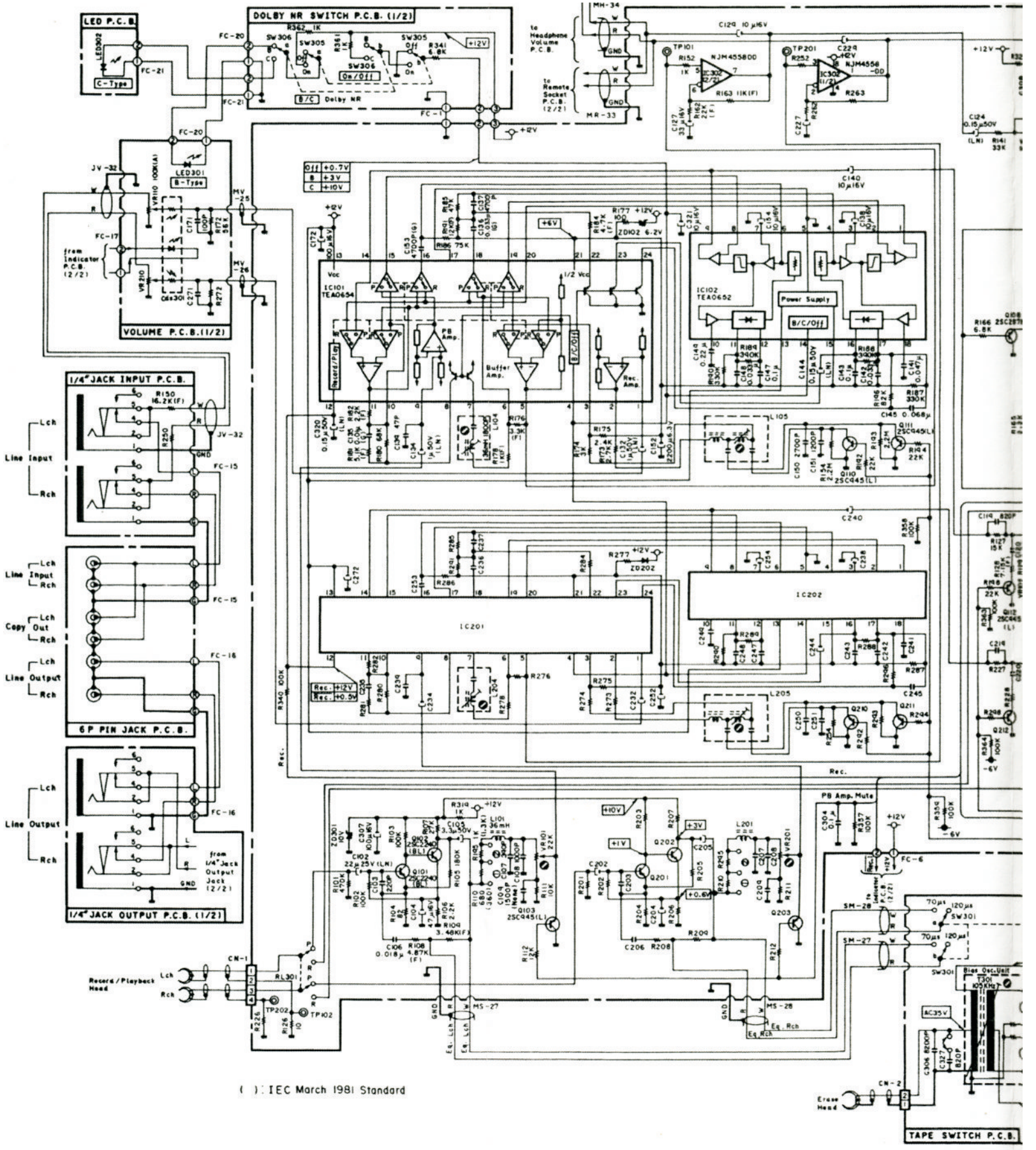
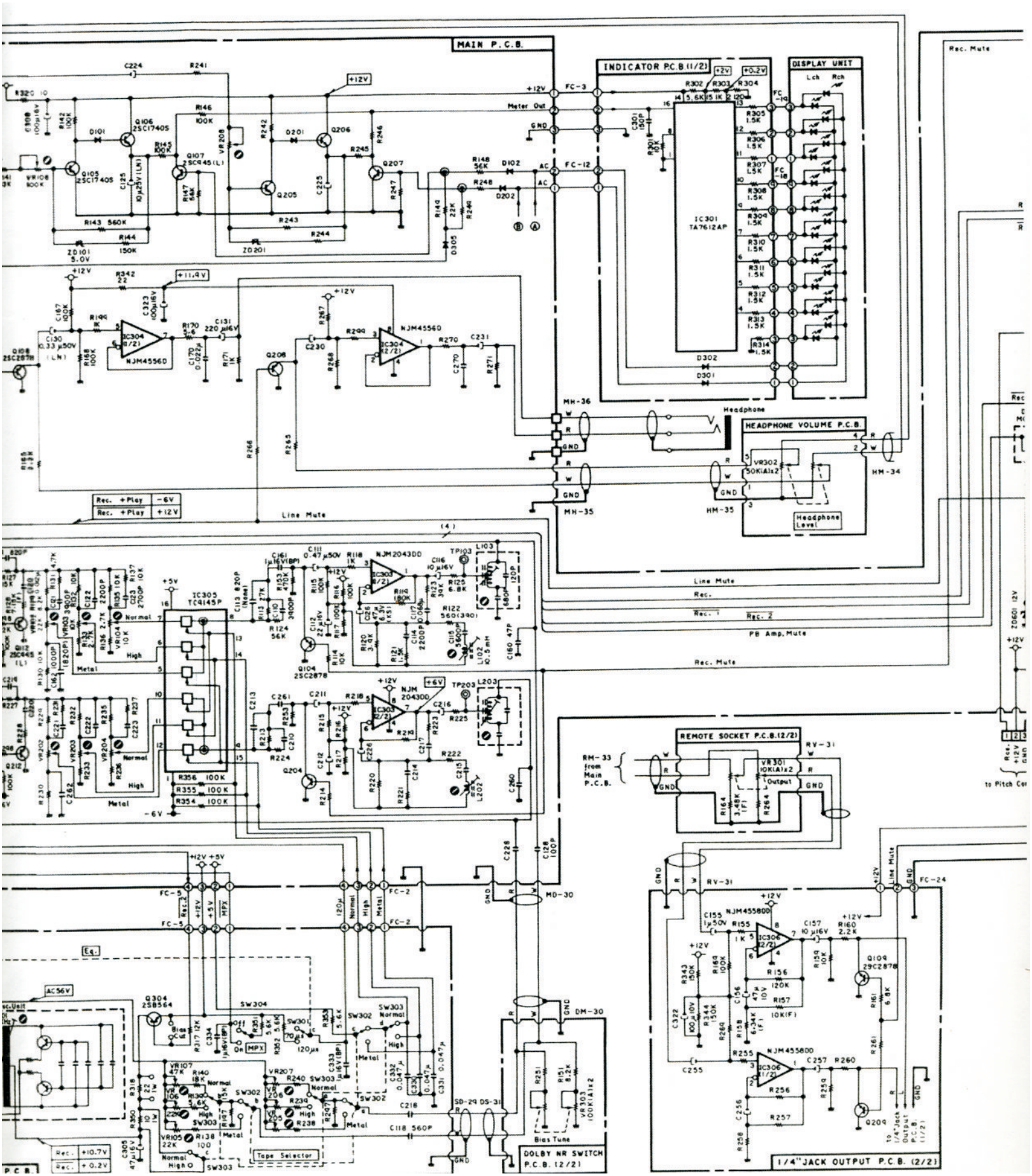
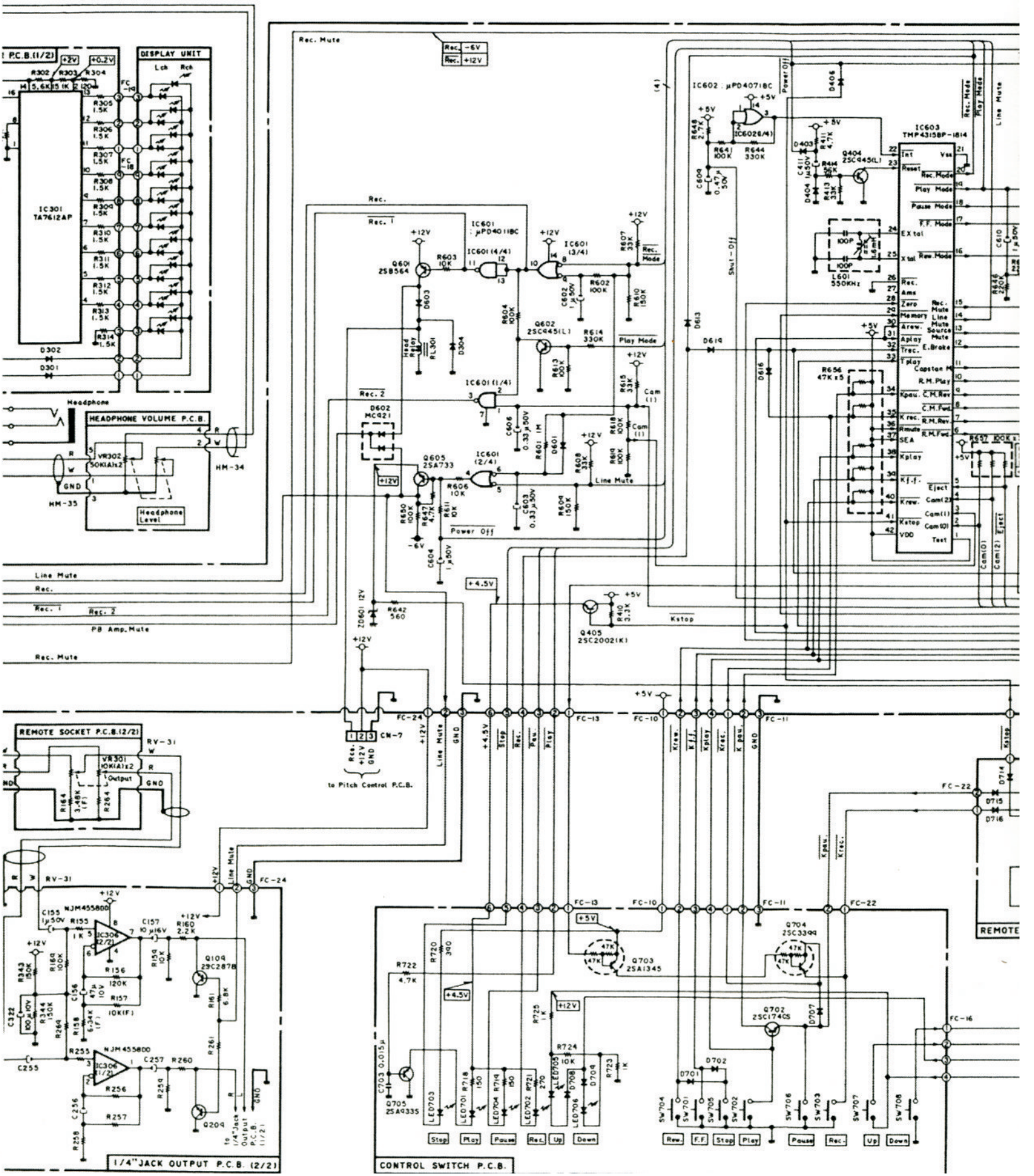


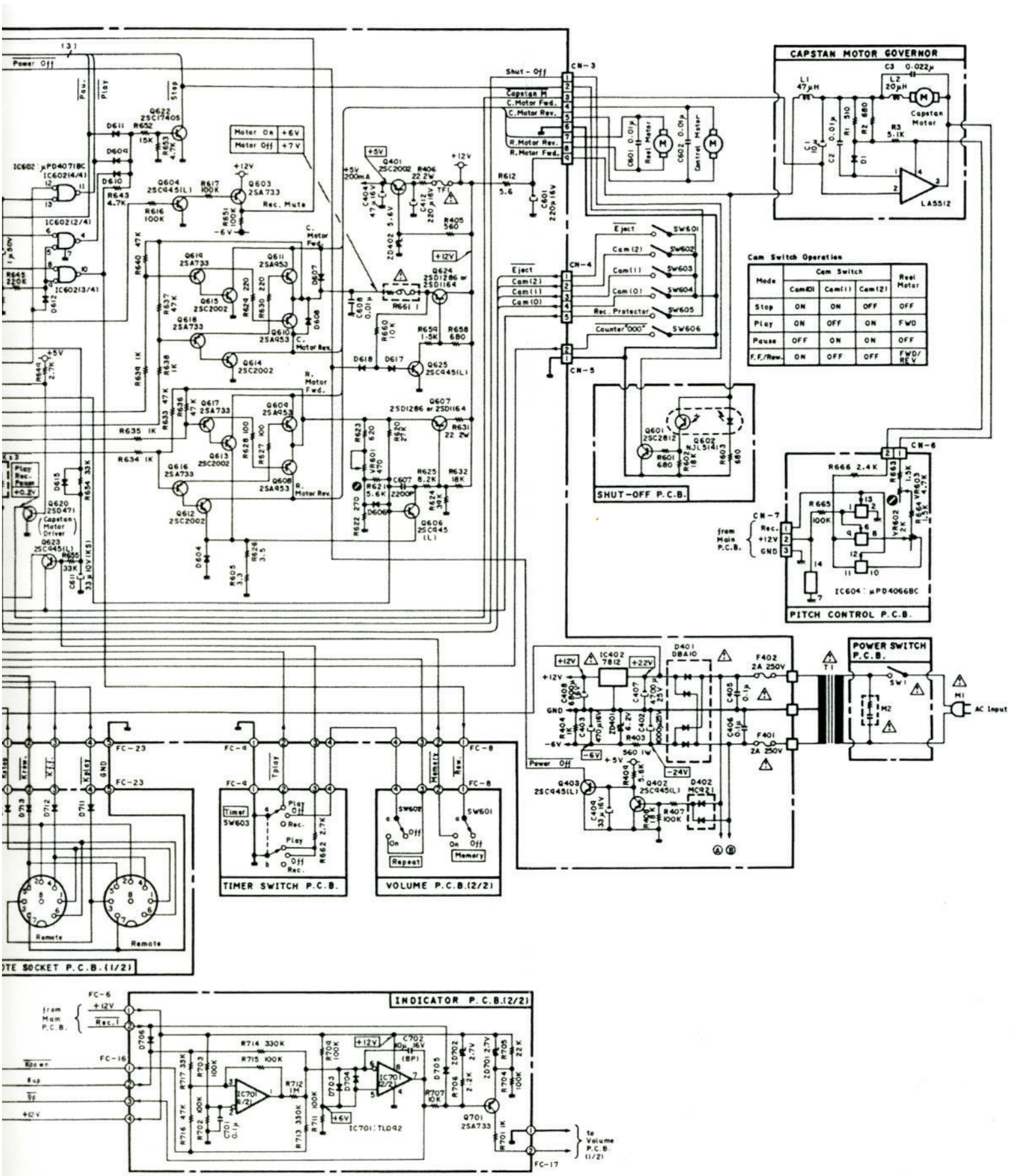
Fig. 8.16.1 For IEC/Nakam

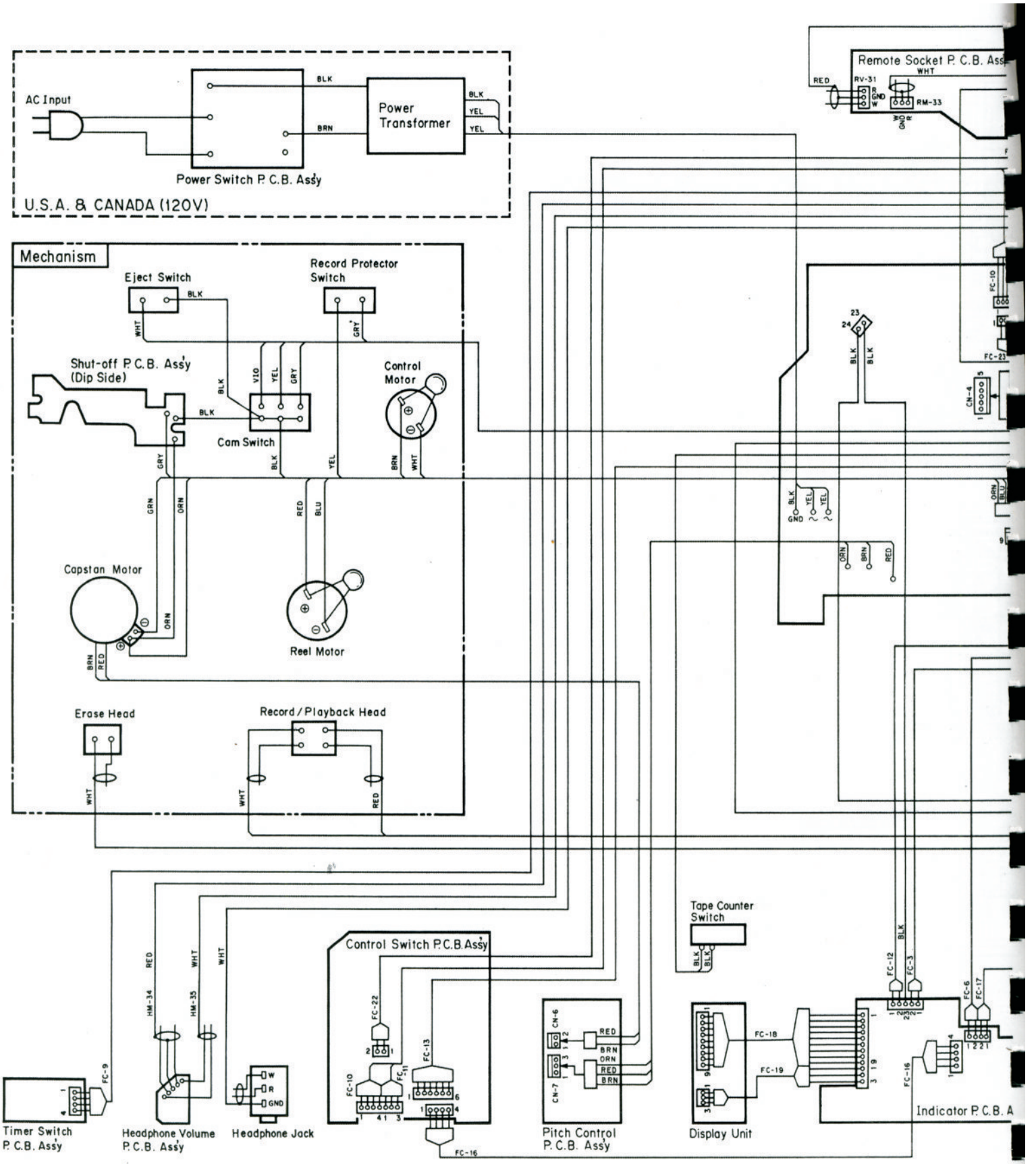

MAIN PCB A324
To Headphone Jack
MH-36
FC-3
L202 10.5mH
L203
L102 10.5mH
L103
IC303 NJM2043DD
IC305 TC9145P
IC304 NJM4558D
IC302 NJM4558D
IC101 TEA0654
IC201 TEA0654
IC102 TEA0652
IC202 TEA0652
RL301
CN-1
MS-27
MS-28
MV-25
MV-26
MH-35
MH-34
MR-33
FC-1
FC-2
FC-4
FC-5
FC-6
FC-7
FC-12
FC-24
L101 36mH
L201 36mH
L104
L105
L204
L205
TP101
TP102
TP103
TP201
TP202
TP203
GND
+12V
Normal
High
Metal


LED P.C.B.
C-Type
DOLBY NR SWITCH P.C.B. (1/2)
B/C Dolby NR
VOLUME P.C.B.(1/2)
1/4" JACK INPUT P.C.B.
6P PIN JACK P.C.B.
1/4" JACK OUTPUT P.C.B. (1/2)
TAPE SWITCH P.C.B.
IC101 TEA0654
IC102 TEA0652
IC201
IC202
Power Supply
PB Amp.
Buffer Amp.
Rec. Amp.
Line Input
Copy Out
Line Output
Record / Playback Head
Erase Head
from Indicator P.C.B. (2/2)
from 1/4" Jack Output Jack (2/2)
to Headphone Volume P.C.B.
to Remote Socket P.C.B. (2/2)
PB Amp. Mute
Bias Osc. Unit
( ) : IEC March 1981 Standard


MAIN P.C.B.
INDICATOR P.C.B.(1/2)
DISPLAY UNIT
Lch
Rch
IC301 TA7612AP
HEADPHONE VOLUME P.C.B.
Headphone
Headphone Level
REMOTE SOCKET P.C.B.(2/2)
1/4" JACK OUTPUT P.C.B. (2/2)
DOLBY NR SWITCH P.C.B. (2/2)
Tape Selector
Bias Tune
Line Mute
Rec. Mute
PB Amp. Mute
Rec.
Rec. 1
Rec. 2
Rec. +Play -6V
Rec. +Play +12V
Rec. +10.7V
Rec. +0.2V
Normal
High
Metal
MH-36
MH-34
MH-35
MD-30
DM-30
SD-29 DS-31
RM-33 from Main P.C.B.
to Pitch Con
to 1/4" Jack Output P.C.B. (1/2)


DISPLAY UNIT
IC301 TA7612AP
HEADPHONE VOLUME P.C.B.
Headphone Level
HM-34
HM-35
Rec. Mute
Rec. -6V
Rec. +12V
IC602 : μPD4071BC
IC603 TMP43158P-1814
IC601 : μPD4011BC
Power Off
Shut-Off
Rec.
Rec. 1
Rec. 2
Play Mode
Line Mute
PB Amp. Mute
Kstop
REMOTE SOCKET P.C.B.(2/2)
RV-31
VR301 10K(A)x2
Output
to Pitch Control P.C.B.
CN-7
1/4"JACK OUTPUT P.C.B. (2/2)
NJM4558DD
to 1/4"Jack Output P.C.B. (1/2)
CONTROL SWITCH P.C.B.
Stop
Play
Pause
Rec.
Up
Down
Rew.
F.F.

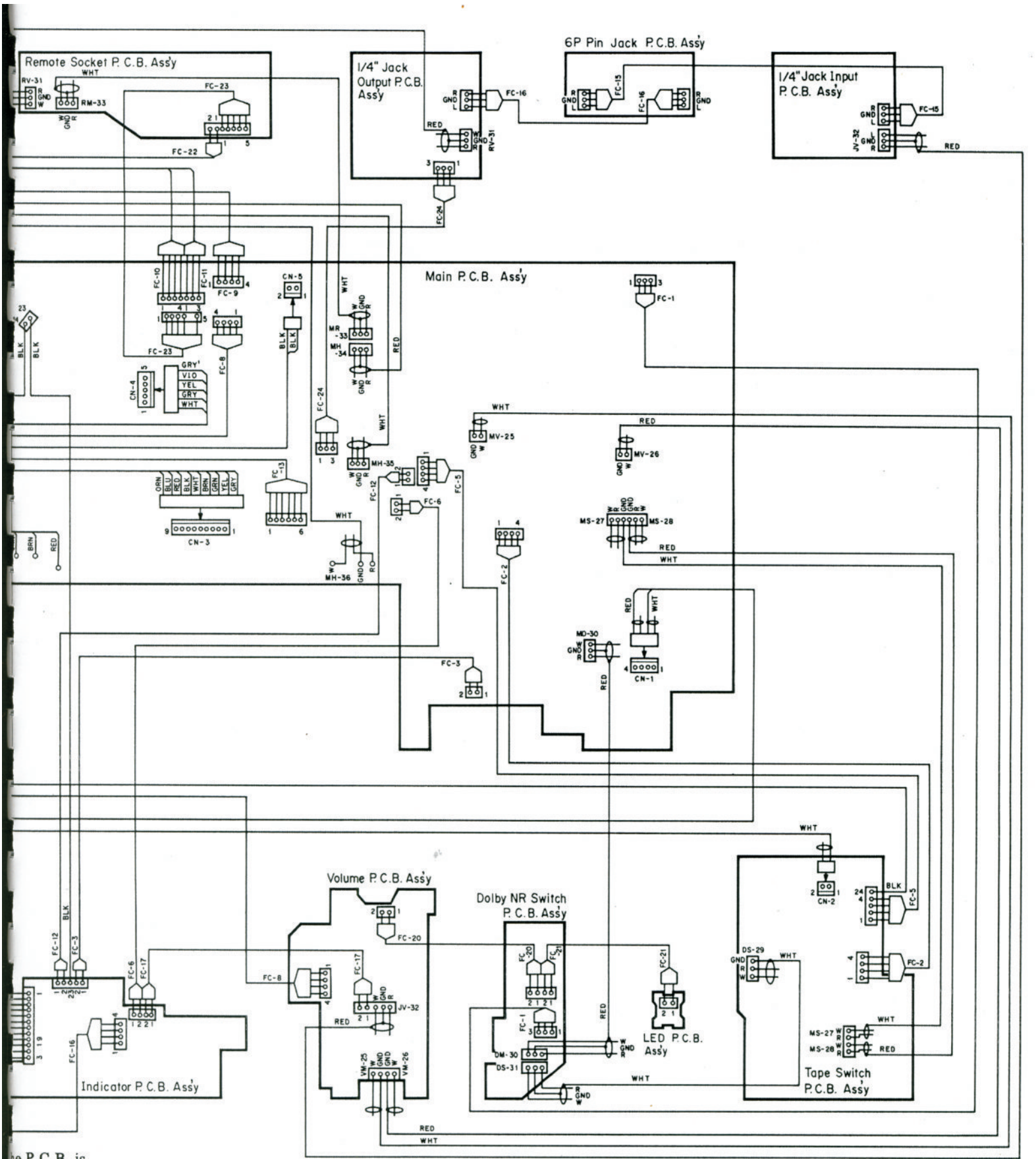

CAPSTAN MOTOR GOVERNOR
Capstan Motor
LA5512
Cam Switch Operation
Mode
Cam Switch
Reel Motor
Cam(2)
Cam(1)
Cam(0)
Stop
Play
Pause
F.F./Rew.
SHUT-OFF P.C.B.
PITCH CONTROL P.C.B.
IC604 : μPD4066BC
POWER SWITCH P.C.B.
AC Input
TIMER SWITCH P.C.B.
VOLUME P.C.B.(2/2)
TE SOCKET P.C.B.(1/2)
Remote
INDICATOR P.C.B.(2/2)
IC701 : TL092
to Volume P.C.B. (1/2)
from Main P.C.B.
Shut - Off
Capstan M
C. Motor Fwd.
C. Motor Rev.
R. Motor Rev.
R. Motor Fwd.
Eject
Rec. Protector
Counter "000"
Rec. Mute
Motor On +6V
Motor Off +7V



Notes: 1. Table of wire colors

BRN — Brown	YEL — Yellow	VIO — Violet	BLK — Black
RED — Red	GRN — Green	GRY — Gray	
ORN — Orange	BLU — Blue	WHT — White	

2. Component side view of the P.C.B. is illustrated unless otherwise specified.



...e P.C.B. is
...e specified.

Fig. 10.1