

1. GENERAL

1.1. Voltage Selector

Voltage selector is installed on the rear panel for Other version of the Nakamichi ZX-9. This voltage selector can select either 120 V or 220-240 V at customer's disposal.

1.2. Parts List for Carton and Packing

Part No.	Description	Q'ty
0F03671A	Inner Carton	1
0F03672A	Outer Carton	1
0F03629A	Packing	2

2. MECHANICAL ADJUSTMENTS

2.1. Mechanism Control Cam Adjustment

Before adjustment, remove the Front Panel Ass'y and the Cover Plate.

(1) Offset Adjustment of Control Motor Driver

(a) Refer to Fig. 2.1.

Adjust VR602 and VR603 on the Logic & Power P.C.B. Ass'y to locate approximately at the middle of the variable range. Then turn ON the Power switch.

VR602 (for Cam position stop)

VR603 (for Cam position play)

(b) Press the Stop button to set the cassette deck in Stop mode. Adjust VR602 (for stop) so that the "S" mark on the Cam corresponds to the pointer on the mechanism chassis.

(c) Press the Play button to set the cassette deck in Playback mode. (Cam will rotate, and the position marked with "PY" comes to the pointer.) Adjust VR603 (for play) so that the "PY" mark on the Cam corresponds to the pointer.

(d) Repeat above (b) and (c) 2 - 3 times so that the "S" and "PY" marks on the Cam correspond to the pointer accurately in Stop and Playback modes respectively.

(This adjustment is required because the position adjusted by one volume will be slightly changed when the other volume is adjusted.)

(e) Set the cassette deck in F.F., Pause, or Cue mode by pressing each button (press F.F. and Pause buttons to set the cassette deck in Cue mode) and check to insure that the pointer is in a range of "F", "PS", or "CU" mark respectively.

(f) If out of the range, precise adjustment for each position according to "(2) Offset Fine Adjustment of Control Motor Driver" will be required.

(2) Offset Fine Adjustment of Control Motor Driver

Adjust only if a satisfactory result is not obtained in "(1) Offset Adjustment of Control Motor Driver". This adjustment is made by changing the value of the fixed resistors on the Logic & Power P.C.B. Ass'y.

Note: The value of voltage is typical value.

(a) Observation Point of Reference Voltage

Observe the each voltage at the sliding contact of the Cam Control Volume VR604 (10 k Ω) in Stop, Fast (F.F. or Rew.), Pause and Playback modes.

(b) Reference Voltage

Reference voltage at the sliding contact of VR604 (Cam Control Volume) in each mode is as follows:

Mode	Reference Voltage (Typical Value)
Stop	0 V
Fast (F.F./Rew.)	-2.0 V \pm 0.25 V
Pause	-6.5 V \pm 0.4 V
Play	-9.1 V \pm 0.4 V

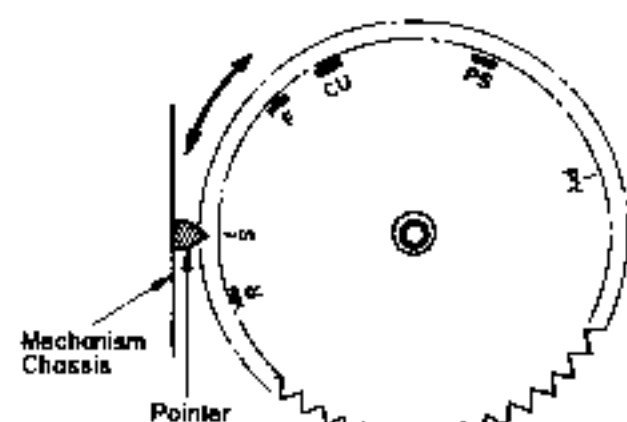


Fig. 2.1

(c) Resistors for Adjustment

Mode	Ref. No.	Typical Value
Fast (F.F./Rew)	R647	22 k Ω
Pause	R649	76.8 k Ω (F)
Play	R648	10 k Ω

(d) Adjustment Procedures

1) Set the cassette deck in Stop mode, then check to insure that the voltage at the sliding contact of VR604 is 0 V (\pm 0.3 V).

2) Set the cassette deck in F.F. mode, then adjust the value of R647 so that the voltage at the sliding contact of VR604 will become lower by 2.0 V (\pm 0.25 V) than in Stop mode.

3) Press the Pause button to set the cassette deck in Pause mode. Adjust the value of R649 to obtain -6.5 V (\pm 0.4, -0.15 V) at the sliding contact of VR604.

4) Set the cassette deck in Playback mode, then adjust the value of R648 so that the voltage at the sliding contact of VR604 will become lower by 2.6 V (\pm 0.4 V) than in Pause mode.

2.2. Reel Motor Speed Adjustment in Play Mode

(1) Connect a DC voltmeter to TP1 and GND on the Logic & Power P.C.B. Ass'y.

(2) Without loading a cassette tape, set the cassette deck in Play mode.

(3) Adjust VR601 on the Logic & Power P.C.B. Ass'y to obtain -4 V on the DC voltmeter.

2.3. Record Head and Playback Head Tilt Adjustment

Note: On items 2.3 - 2.9, refer to Fig. 2.2 flow chart.

Refer to Figs. 2.3 and 2.4.

(1) Load a Tilt Check Gauge M-9039 (DA09039A) in the cassette deck.

(2) Clip the grounding terminal of the Tilt Check Gauge with one end of the cord with clip, and the chassis of the cassette deck with the other end.

(3) Remove both of the Height Gears.

(4) Set the cassette deck in Play mode. Check to insure whether the Beacons Playback Head "Upper" or "Lower" and Record Head "Upper" or "Lower" are illuminating. In order not to give damages onto the head surfaces, push both of slide knobs of the Gauge to the direction of arrow marks, then return them to the original place to be in contact with record head and playback head surfaces after Play mode is securely locked.

(5) Check to insure freedom from contact between the Gauge and pad lifter.

(6) Beacon Playback Head "Lower" will light on when height adjustment screw (P) turned clockwise but Playback Head "Upper" when counterclockwise. Adjust so that both "Upper" and "Lower" will light on even when you move the slide knob to the direction of an arrow mark and then return it to the original place.

(7) Same procedures will apply to the Beacons Record Head "Upper" and "Lower", except for the height adjustment screw (R).

(8) Set the cassette deck in Stop mode and fit both of the serrated Height Gears. Then set the cassette deck again in Play mode and insure all of the 4 Beacons are illuminating. If not, (3) through (7) will have to be repeated till satisfactory results are obtained.

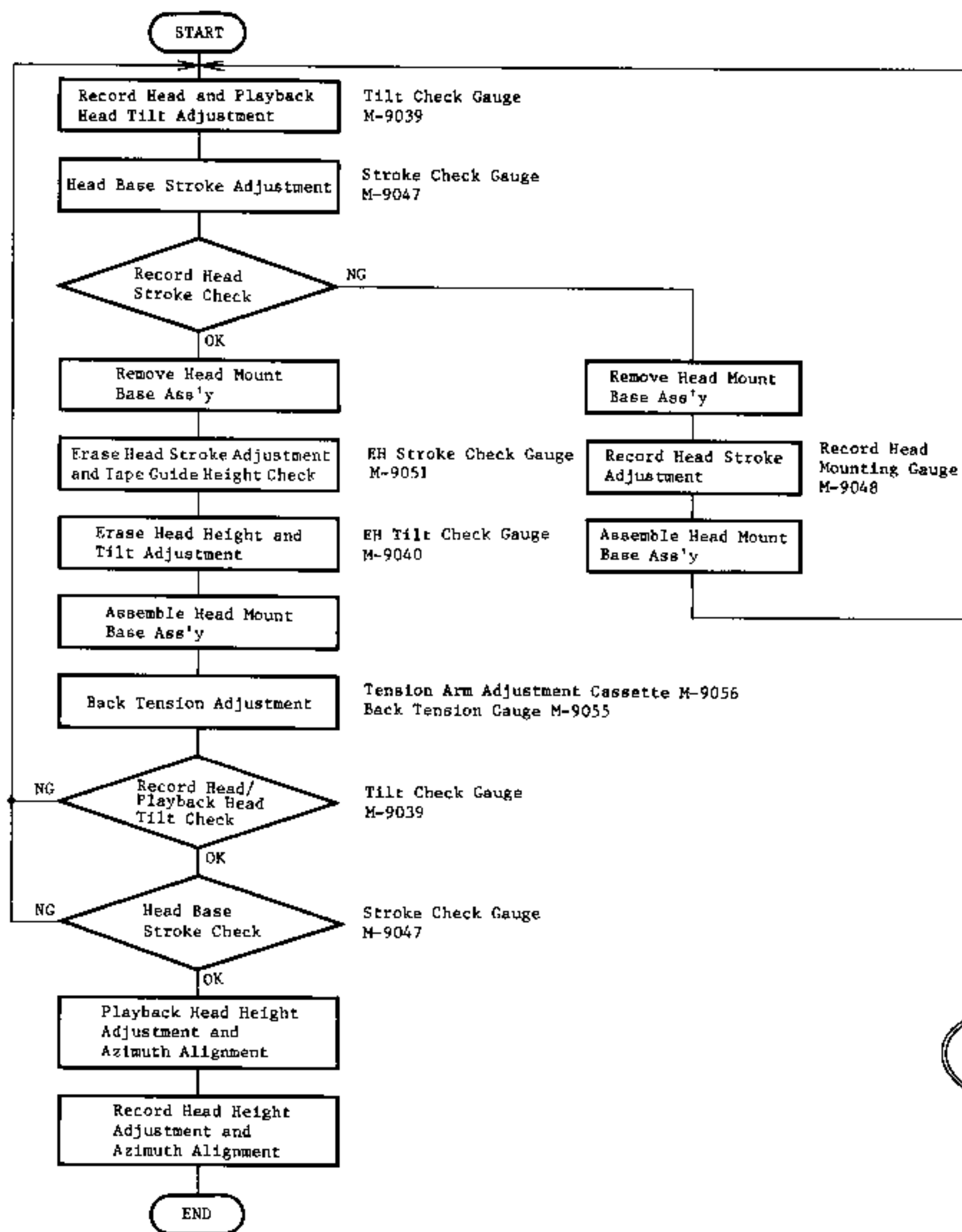


Fig. 2.2

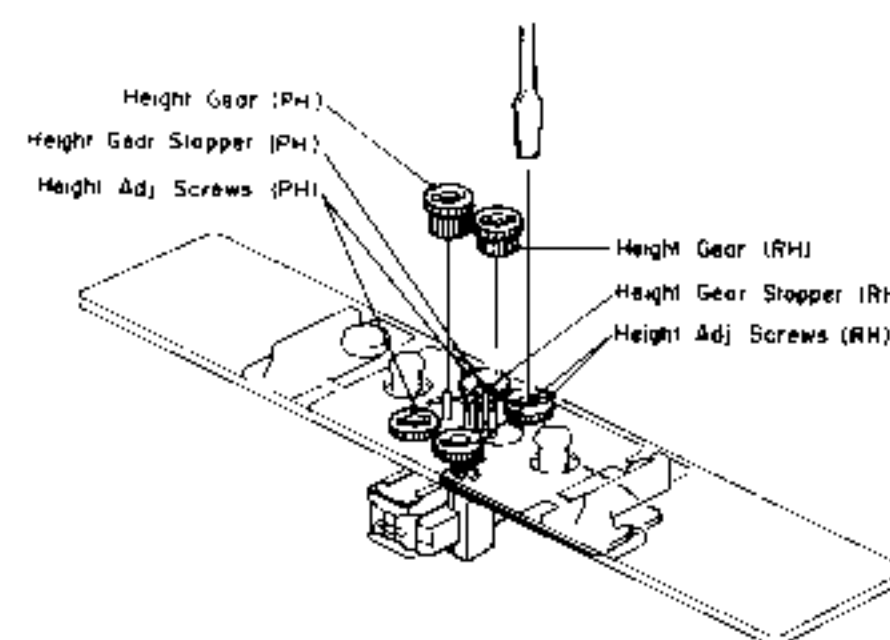


Fig. 2.3

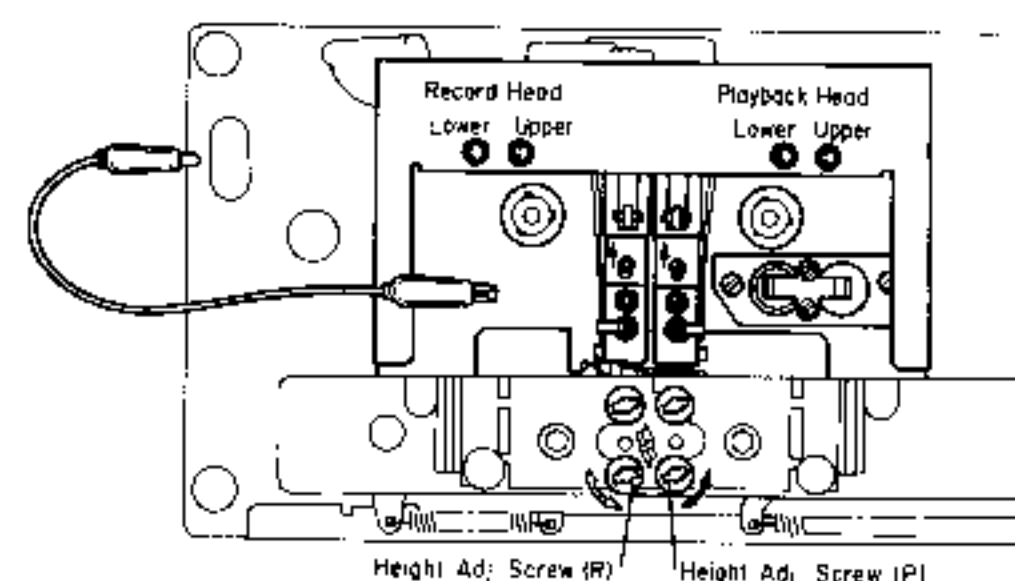


Fig. 2.4

2.4. Head Base Stroke Adjustment

Refer to Fig. 2.5.

Note: Before you conduct this adjustment, adjust with a "Tilt Check Gauge" to insure freedom from tilt on the playback head and record head.

(1) Head Base Stroke Adjustment in Play Mode

- (a) Load a Stroke Check Gauge M-9047 (DA09047B) in the cassette deck.
- (b) Move Record Head Indicator and Playback Head Indicator to the direction of arrow mark "A" with your finger tip and then set the cassette deck in Play mode. Then slowly release the Indicators and insure whether each of the Indicators is in contact with record and playback heads.
- (c) Check to insure whether the "P" pointer on the Playback Head Indicator locates between the 2 lines on the Indicator Plate.
- (d) If the playback head stroke is noted to be misaligned, adjustment can be made by moving the stroke adjuster assembled in the head base assembly (either forwardly or backwardly).
- (e) Check to insure whether the "P" pointer on the Playback Head Indicator locates between the 2 lines on the Record Head Indicator, thus check can be made on record head stroke.

- (f) If the record head stroke is noted to be misaligned, adjustment can be made with a Record Head Mounting Gauge M-9048 (DA09048A).

(2) Head Base Stroke Adjustment in Cue Mode

- (a) Load a Stroke Check Gauge M-9047 (DA09047B) in the cassette deck.
- (b) Move Record Head Indicator and Playback Head Indicator to the direction of arrow mark "A" with your finger tip and then set the cassette deck in Cue (F.F. and Pause) mode. Then slowly release the Indicators and insure whether each of the Indicators is in contact with record and playback heads.
- (c) Check to insure whether the "C" pointer on the Playback Head Indicator locates between the 2 lines on the Indicator Plate.
- (d) If the playback head stroke is noted to be misaligned, adjust VR610 on the Logic & Power P.C.B. Ass'y till satisfactory results are obtained.
- (e) After completion of the Head Base Stroke Adjustment, check to insure accuracy of the Head Base Stroke Adjustment in Play mode. If the above are inaccurate, items (1) and (2) will have to be repeated till satisfactory results are obtained.

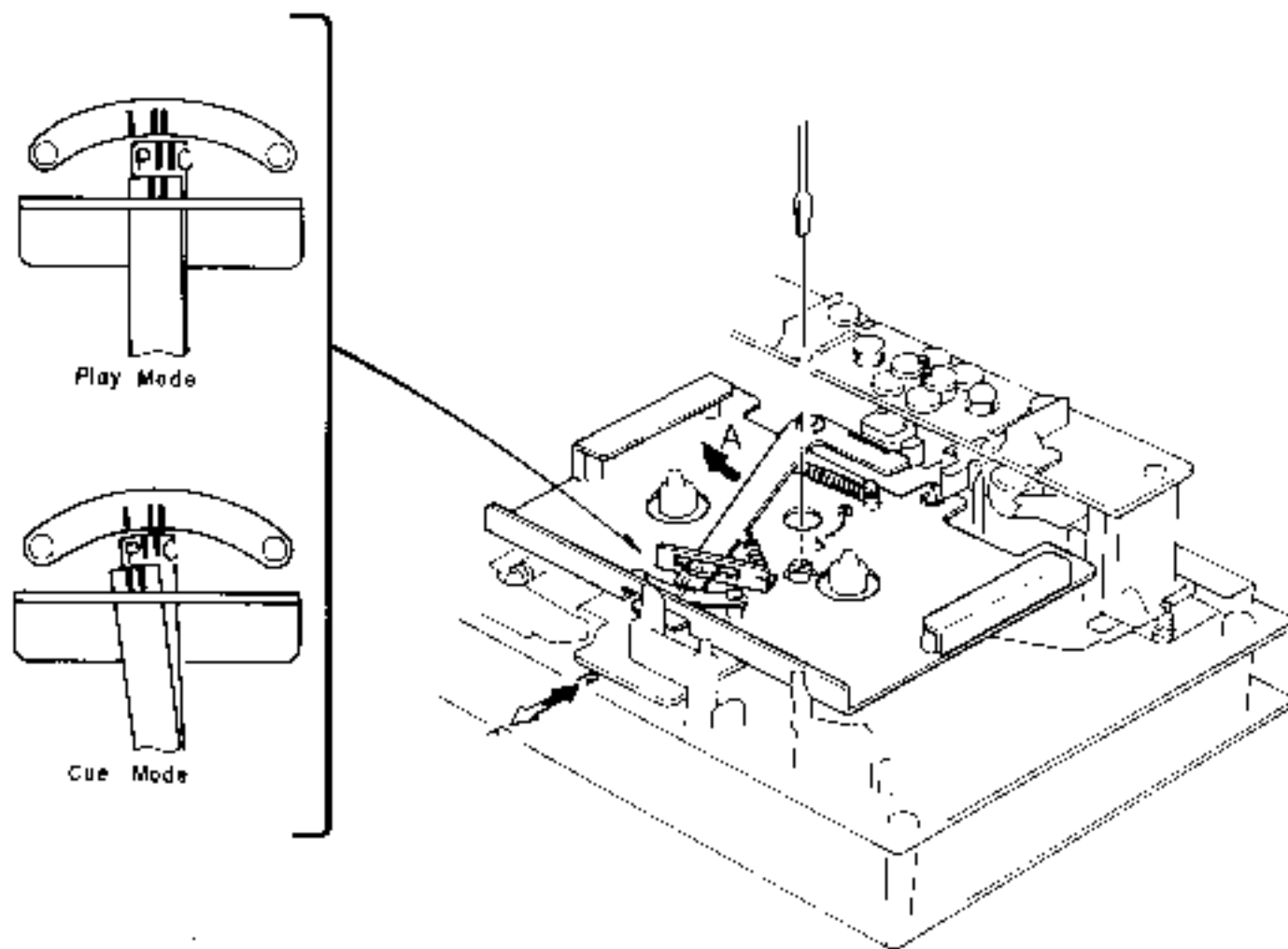


Fig. 2.5

2.5. Erase Head Stroke Adjustment and Tape Guide Height Check

Remove the Head Mount Base Ass'y.
Refer to Figs. 2.6 and 2.7.

- (1) Erase Head Stroke Adjustment
 - (a) Load an EH Stroke Check Gauge M-9051 (DA09051A) in the cassette deck.
 - (b) Set the cassette deck in Play mode, thus check can be made on erase head stroke through the EH Stroke Indicator.
 - (c) Check to insure whether the erase head surface is aligned with red line on the EH Stroke Indicator. If not, adjust the erase head stroke by loosening 2 screws A that assemble erase head and erase head plate.
 - (d) After completion of adjustment, 2 pcs. of screws shall be locked with lock tight paint.
- (2) Supply Tape Guide Height Check
 - (a) Load an EH Stroke Check Gauge M-9051 (DA09051A) in the cassette deck.
 - (b) Set the cassette deck in Play mode.
 - (c) Slide the Supply Tape Guide Check Bar down against the supply tape guide, and check to insure that the Supply Tape Guide Check Bar is accepted by the supply tape guide.
- (3) Take-up Tape Guide Height Check
 - (a) Load an EH Stroke Check Gauge M-9051 (DA09051A) in the cassette deck.
 - (b) Set the cassette deck in Play mode.
 - (c) Slide the Take-up Tape Guide Check Bar against the take-up tape guide, and check to insure that the Take-up Tape Guide Check Bar is accepted by the take-up tape guide.

2.6. Erase Head Height and Tilt Adjustment

Refer to Figs. 2.8 and 2.9.

- (1) Remove Head Mount Base Ass'y.
- (2) Load an EH Tilt Check Gauge M-9040 (DA09040A) in the cassette deck.
- (3) Set the cassette deck in Stop mode.
- (4) Check to insure whether one of the 3 Beacons is illuminating. Look down the mirror as shown by an arrow mark and slowly turn the Screw "Height" counterclockwise (or clockwise) so that the two horizontal lines on the mirror will become superposed on the line (in different color) of the erase head, and check to insure whether Beacon "1" is illuminating.
- (5) Turn Screw "Tilt" counterclockwise (or clockwise) to light on Beacon "2". Excessive turning will cause the Beacon "1" to light off. Adjustments of Screw "Tilt" will therefore be conducted till both of the Beacons "1" and "2" illuminate.
- (6) Turn Screw "Azimuth" counterclockwise (or clockwise) to light on Beacon "3". Excessive turning will cause either Beacon "1" or "2" to light off, and therefore adjust Screw "Azimuth" until all of the 3 Beacons "1", "2" and "3" illuminate.

- (7) Check to insure whether the horizontal line on the mirror corresponds to that on the erase head. If not, (4) through (7) will have to be repeated till satisfactory results are obtained.
- (8) After completion of adjustment, 3 pcs. of screws shall be locked with lock tight paint.

Note: Before use of this gauge, check to insure freedom from dust or dirt, or overflow in the groove of the erase head surface.

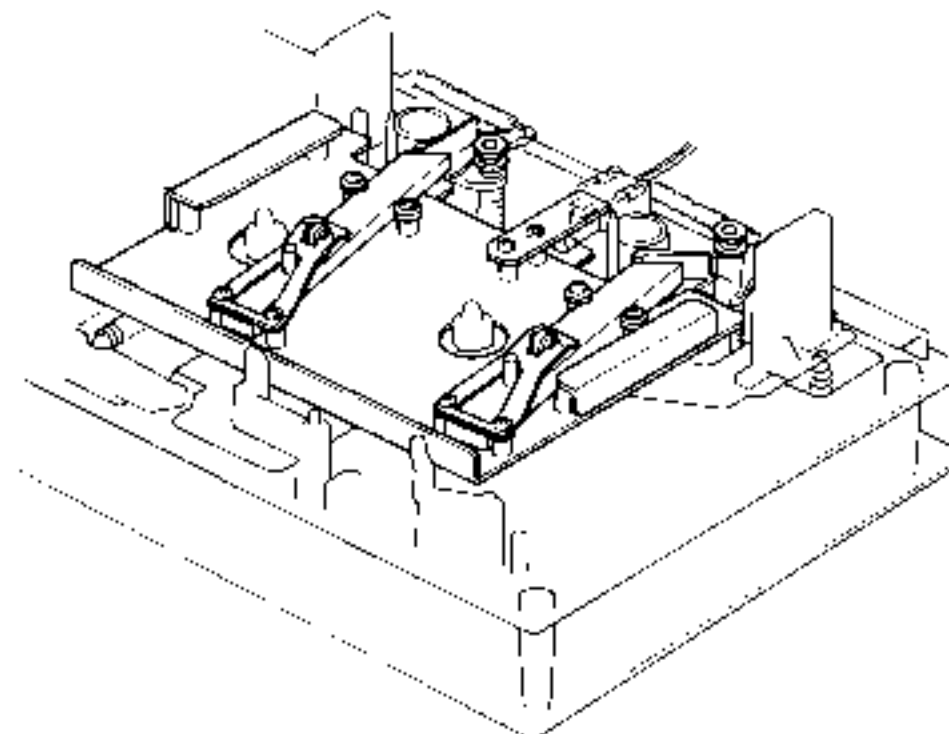


Fig. 2.6

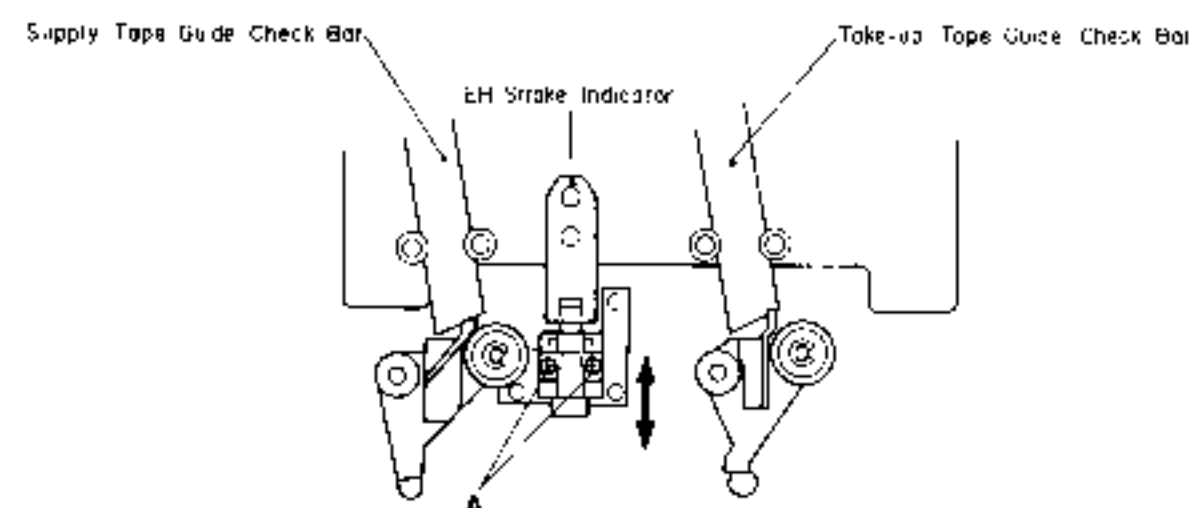


Fig. 2.7

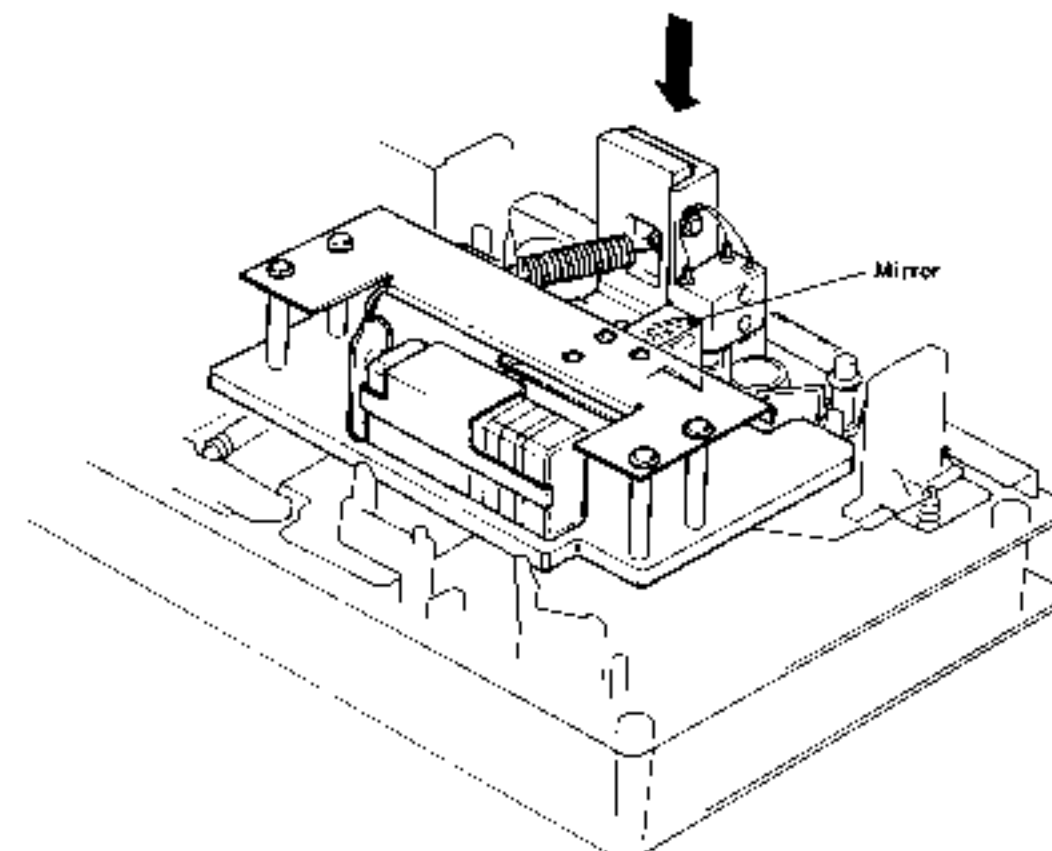


Fig. 2.8

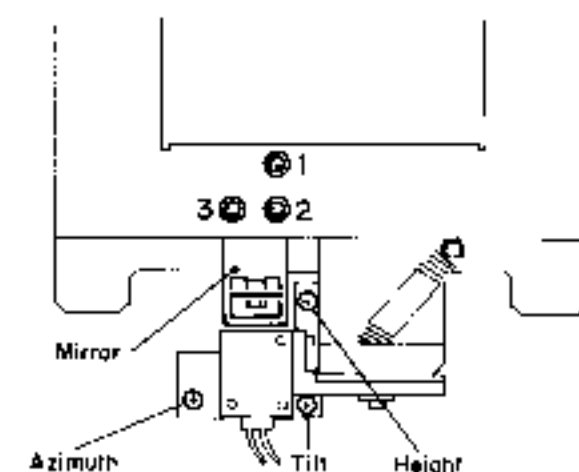


Fig. 2.9

2.7. Back Tension Adjustment

Refer to Figs. 2.10 — 2.13.

- (1) Load a Tension Arm Adjustment Cassette (DA09056A) in the cassette deck referring to Fig. 2.10.
- (2) Set the cassette deck in Play mode.
- (3) Bend the Back Tension Arm with pliers so that the gap between the Cassette Holding Spring assembled on the Head Base Ass'y and the Back Tension Arm becomes 0.5 mm as shown in Fig. 2.11. Do not bend the top of the Back Tension Arm.
- (4) Set the cassette deck in Stop mode, and remove the Tension Arm Adjustment Cassette (DA09056A), then set the cassette deck in Cue mode.
In Cue mode, check to insure that the gap is found between the Supply Reel Hub B Ass'y and the Felt of Back Tension Ass'y as shown in Fig. 2.12.
- (5) Load the Back Tension Gauge (DA09055A) in the cassette deck.
- (6) Set the cassette deck in Play mode and read the torque value of Back Tension Gauge.
If the value is in a range of 6 g-cm to 10 g-cm, adjustment is not necessary. If not, change the installation point of the Back Tension Spring as shown in Fig. 2.13, and obtain the torque of 7 g-cm to 9 g-cm range.

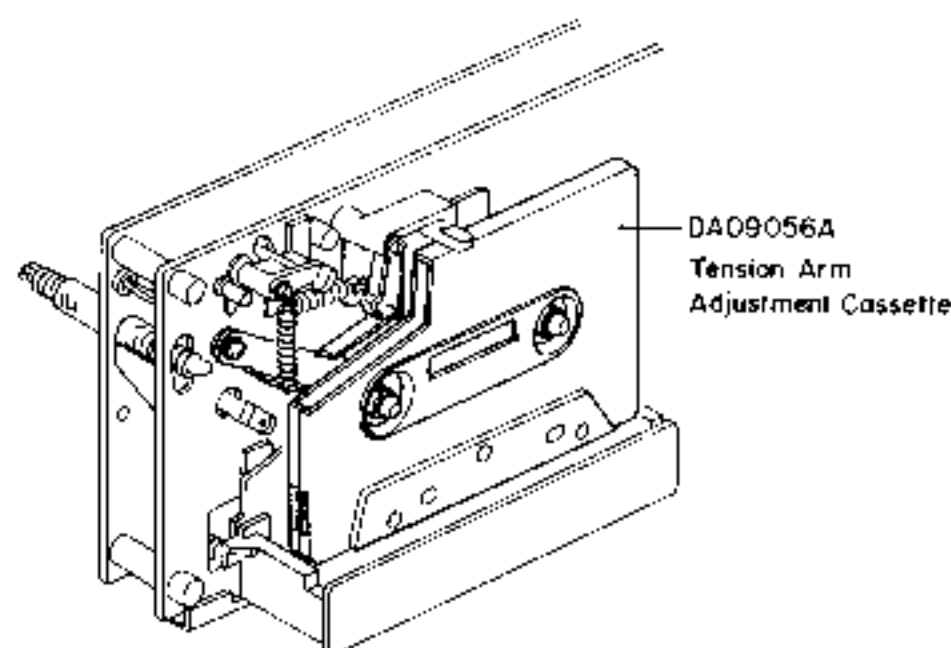


Fig. 2.10

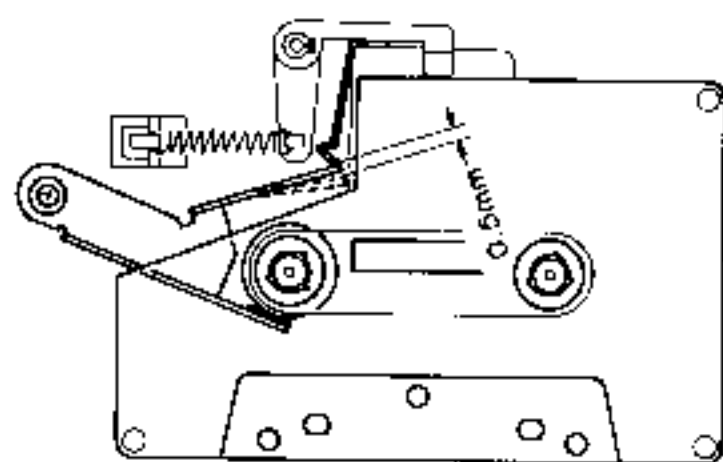


Fig. 2.11

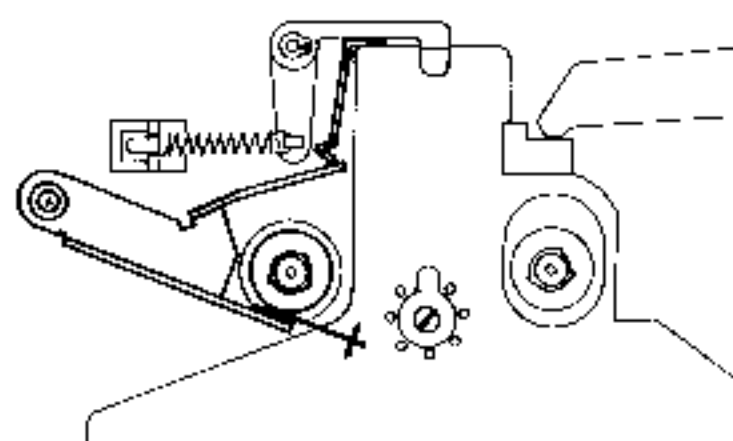


Fig. 2.12

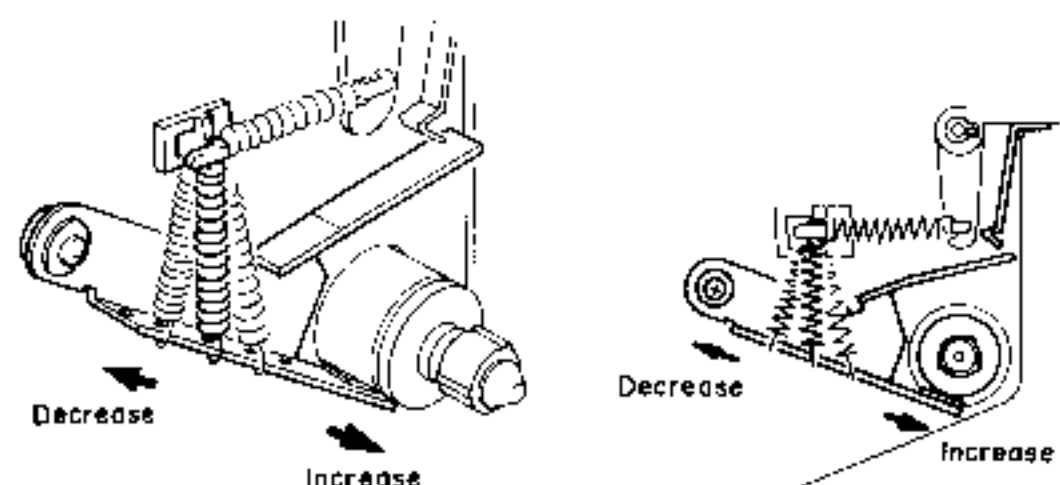


Fig. 2.13

2.8. Playback Head and Record Head Height Adjustment and Azimuth Alignment

(1) Playback Head Height Adjustment and Azimuth Alignment

Refer to Fig. 2.15.

- (a) Set the Monitor switch to Tape, then connect a VTVM to the Output Jacks.
- (b) Load a 1 kHz Track Alignment Tape (DA09007A), then set the cassette deck in Play mode.
- (c) Turn the PH Height Gear until the outputs of both channels become minimum.
- (d) Load a 15 kHz Azimuth Tape (DA09004A), then set the cassette deck in Play mode.
- (e) Turn the PH Azimuth Alignment Screw until the outputs of both channels become maximum.
- (f) Repeat above steps (b) through (e) one or two times to obtain optimum performance.

(2) Record Head Height Adjustment and Azimuth Alignment

Refer to Figs. 2.14 — 2.16.

- (a) Set the cassette deck in Stop mode.
- (b) Press the Azimuth Alignment Start button to ON.
- (c) Adjust the Azimuth Alignment Knob so that the Slide Lever of the Azimuth Alignment Wire is located at the center of the slit of the Azimuth Alignment Wire as shown in Fig. 2.14.
- (d) Press the Azimuth Alignment Start button to OFF.
- (e) Set the Monitor switch to Tape, Eq. switch to 70 μ s and Tape Selector button to SX.
- (f) Load a reference SX tape (DA09025A) and connect a VTVM to Output Jacks.
- (g) Press the Record and Play buttons, then press the Level Calibration Start button to oscillate 400 Hz.
Turn the RH Height Gear until the outputs of both channels become maximum.
- (h) Press the Bias Calibration Start button to oscillate 15 kHz, then turn the RH Azimuth Alignment Screw until the outputs of both channels become maximum.
- (i) Repeat (g) and (h) one or two times to obtain optimum performance.
- (j) Press the Record and Play buttons, then press the Azimuth Alignment Start button to ON.
Adjust VR304 on the Main P.C.B. Ass'y so that the red indicator in the middle of the Azimuth Indicator is lit up.
Note: Use the same side of the tape as used in the above steps.
- (k) After completion of the above adjustment, press the Record and Play buttons, then press the Level Calibration Start button to oscillate 400 Hz.
Record 400 Hz tone to the same portion of both sides A and B of the tape.
- (l) Immerse the recorded tape in a magnetized developing solution. In turn, check to insure that the recording head tracks across the center are separated with a distance of 0.55 to 0.75 mm (typically 0.65 mm) as illustrated in Fig. 2.16.
Note: Liquid for tape magnetized development solution "MAGNA-SEE SOUND CRAFT a product of CBS RECORDS a division of Columbia Broadcasting System, Inc., Danbury, Conn. 06810 U.S.A., or equivalent".
After development, clean the tape otherwise pressure rollers and heads will become dirty.

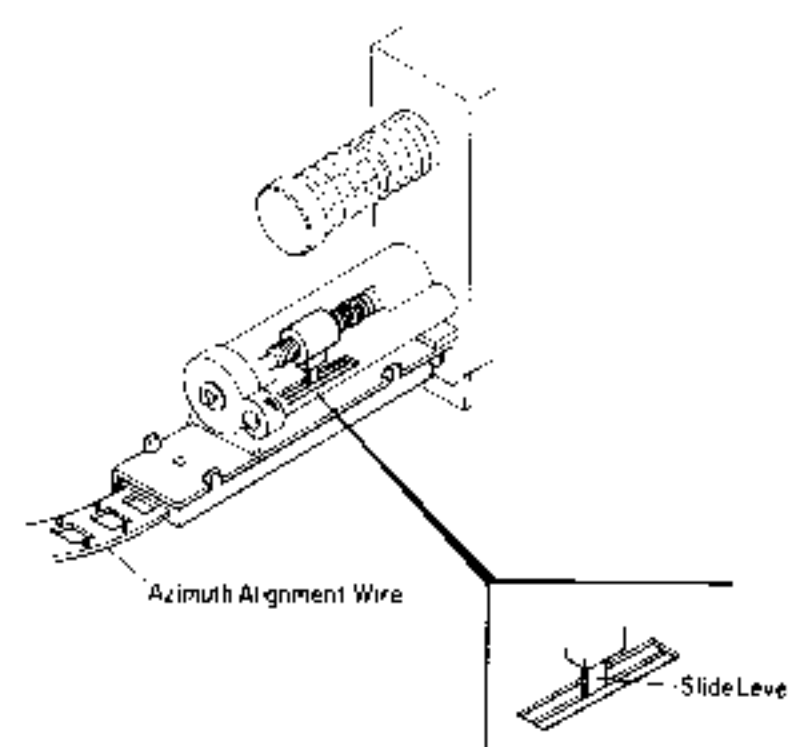
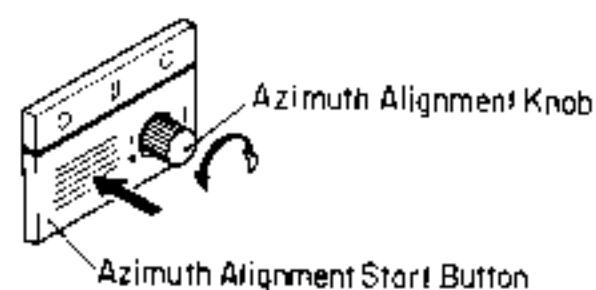


Fig. 2.14

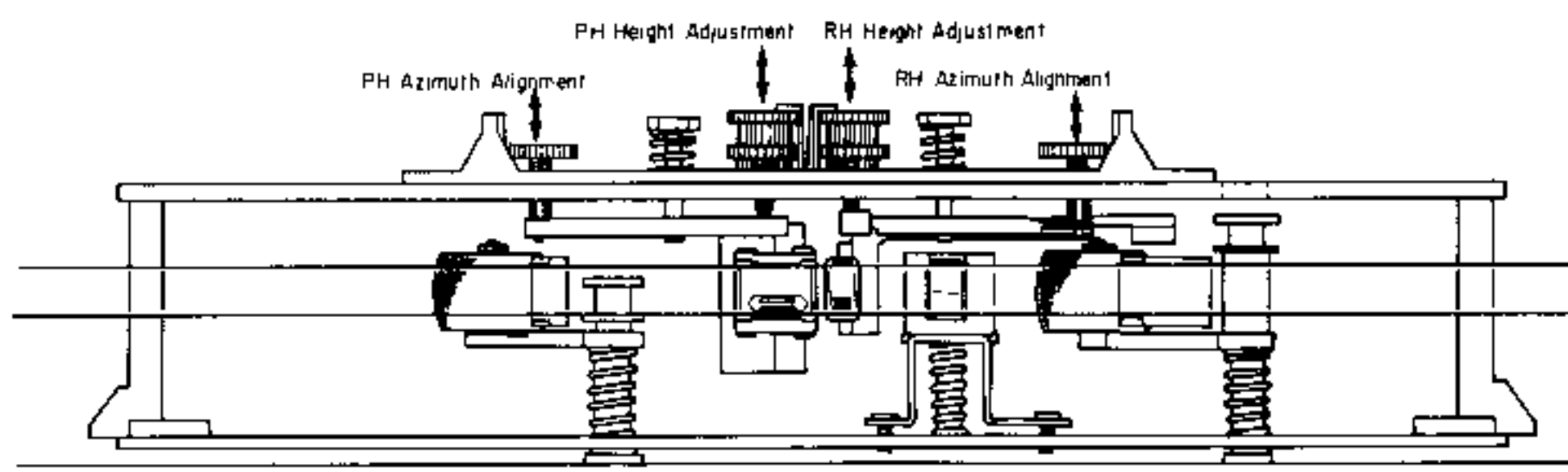


Fig. 2.15

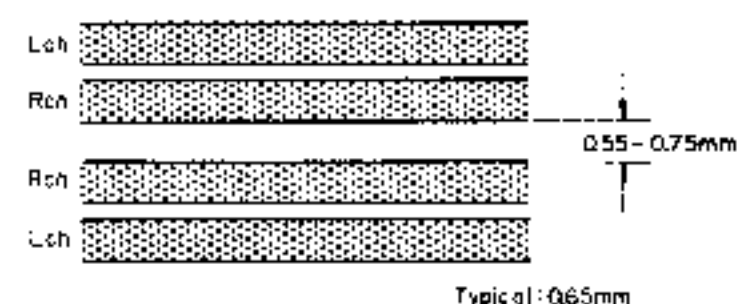


Fig. 2.16

2.9. Record Head Stroke Adjustment

Refer to Figs. 2.17 and 2.18.

Note: This adjustment will be required only to insure freedom from misalignment of the record head stroke in the record head stroke check mode.

- (1) Check the accuracy of the record head stroke.
 - (2) Remove Head Mount Base Ass'y.
 - (3) Remove the record head assembly.
 - (4) Adjustment of Record Head Mounting Gauge M-9048 (DA0-9048A)
 - (a) Mount the Block B onto the Mounting Gauge Plate.
 - (b) Loosen the 2 screws fixing the Block A.
 - (c) As shown in Fig. 2.17, hold the Gauges (3.05 mm and 0.1 mm thickness) between the Block A and Block B, and fix the Block A with screws, pushing the Block A to the 2 guide pins.
 - (5) Remove the Block B from the Mounting Gauge Plate.
 - (6) As shown in Fig. 2.18, mount the R-8L record head assembly onto the Mounting Gauge Plate, then check the location of the R-8L record head surface. (If record head touches the Block C, loosen 2 pcs. of screws that assemble record head and record head plate, then place the R-8L record head assembly onto the Plate.)
 - (7) Remove the R-8L record head assembly from the Mounting Gauge Plate.
 - (8) Readjustment of Record Head Mounting Gauge M-9048 (DA09048A)
 - (a) Mount the Block B onto the Mounting Gauge Plate.
 - (b) Loosen the 2 screws fixing the Block A.
 - (c) As shown in Fig. 2.17, hold the Gauges (3.05 mm and either one of 0.05, 0.15, 0.2, 0.25, 0.3 or 0.35 mm thickness) between the Block A and Block B, and fix the Block A with screws, pushing the Block A to the 2 guide pins.
 - (9) Remove the Block B from the Mounting Gauge Plate.
 - (10) Mount the R-8L record head assembly onto the Mounting Gauge Plate.
 - (11) As shown in Fig. 2.18, loosen 2 pcs. of screws that assemble record head and record head plate.

As the location of the Block A is secured by the item (8)-(c), push the record head to the directions A and B, then tighten 2 pcs. of screws.
 - (12) Check to insure freedom from gap between the Block C and record head surface, then tighten the 2 pcs. of screws on the record head assembly with lock tight paint.
 - (13) Remove the R-8L record head assembly from the Mounting Gauge Plate.
 - (14) Assemble the record head assembly to the head mount base assembly.
 - (15) Assemble the head mount base assembly to the mechanism assembly.
 - (16) Check the record head stroke.
- If the above are inaccurate, items (1) through (16) will have to be repeated till satisfactory results are obtained.

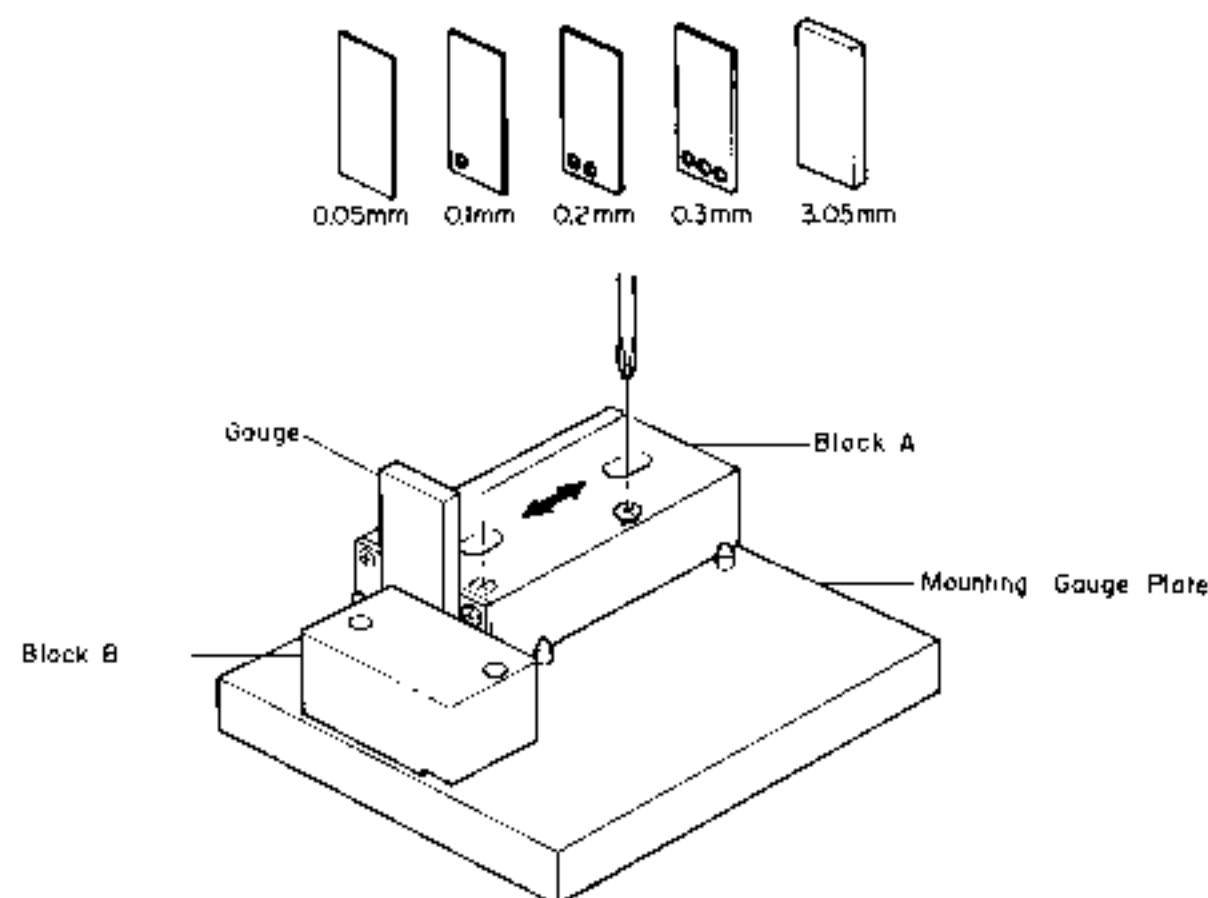


Fig. 2.17

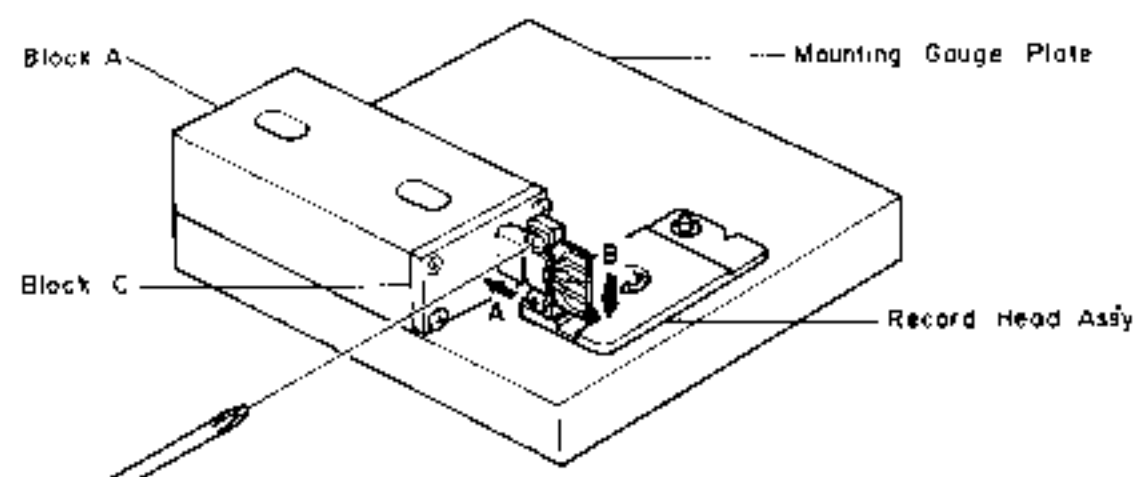


Fig. 2.18

2.10. Tape Travelling Adjustment

The adjustment shall be made with a modified version of the current type EXII C-90 as shown in Fig. 2.19. (error will be made if a current type Tape Travelling Cassette (DA09011A) should be used for this purpose).

While modifying an EXII C-90, the tape guides in the cassette housing shall be kept protected to avoid tilt.

Check shall be made in the following procedures:

- (1) An EXII C-90 tape thus modified shall be loaded onto the cassette deck.
- (2) Release the back-tension (rotate the Supply Reel and feed out some length of tape) and set the cassette deck in Play mode.
- (3) In this juncture, check to insure whether the tape is free from waving or slippage from the tape guide.
- (4) When the modified EXII C-90 is played back, check to insure whether the tape is freedom from waving from head surface or at pressure rollers.
- (5) If either of waving or slippage from the tape guide should be noted, adjustments of items 2.3 to 2.9, etc. will be required.

As a case may be, the said waving or slippage may have been caused from defective Supply Pressure Roller Ass'y or Take-up Pressure Roller Ass'y without parallel contact with capstans. If such are noted, the Pressure Roller Assemblies will have to be replaced.

Further, excessively weak take-up torque or strong take-up torque may cause defective tape travelling.

The cassette deck is intended to be an adjustment-free model, however if the similar matters as above should be noted, please replace the Reel Hub Ass'y to obtain appropriate take-up torque.

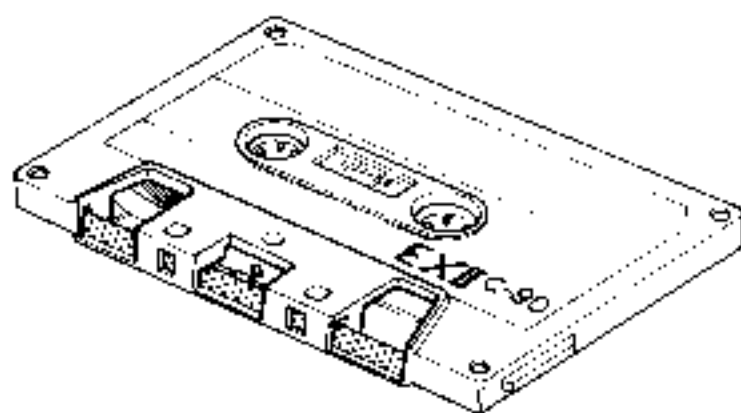


Fig. 2.19

2.11. Flywheel Ass'y Height Adjustment

Refer to Fig. 2.20.

- (1) Adjust the Thrust Screw so that the gap between the Motor Coil Ass'y and the Take-up Flywheel Ass'y becomes 0.7 mm.
- (2) Connect a synchroscope to the CN22-1 of the D/D Motor control P.C.B. Ass'y. Set the synchroscope to AC input.
- (3) Check to insure that the peak to peak level of sine waveform is greater than 20 mV.
- (4) Adjust the Thrust Screw until the height of the Supply Flywheel Ass'y becomes equal to that of the Take-up Flywheel Ass'y.
- (5) Apply a quantity of lock tight paint to the Thrust Screws.

Note: Perform the following procedures, if the Flywheel Ass'y is replaced.

- (a) Turn the Thrust Screw so that the gap between the Motor Coil Ass'y and the Flywheel Ass'y becomes approx. 1 mm.
- (b) From the front side of the cassette deck, insert the Washer 3.1 mm FT (2.6 mm FT), then press the Washer 3 mm (Washer 2.5 mm) into the capstan shaft for supply (take-up) until the washer contacts with the flange sufficiently. Refer to Fig. 5.8.
- (c) Perform the "Flywheel Ass'y Height Adjustment" in item 2.11. •

2.12. Lubrication

ZX-9 is a lubrication-free cassette deck except when parts are replaced. Apply the following lubricant for each replaced part:

- (1) LAUNA #100
Capstan Shaft
Pressure Roller Shaft
Thrust Cap
- (2) FLOIL GB-TS-1
Reel Hub Shaft
Thrust portion on the Capstan Shaft
FLOIL GB-TS-1, made by Kanto Chemicals Co., Ltd. in Japan.
We suggest that you use the above or equivalent type. If unavailable please contact Kanto Chemicals Co., Ltd., 2-7 Kanda Suda-cho Chiyoda-ku, Tokyo 101 Japan.
- (3) Silicon Oil #3000 CST
Air Damper Piston

Note: Excessive lubrication may cause defective damper action as the 0.2ϕ hole at the end of the cylinder may be filled with oil.

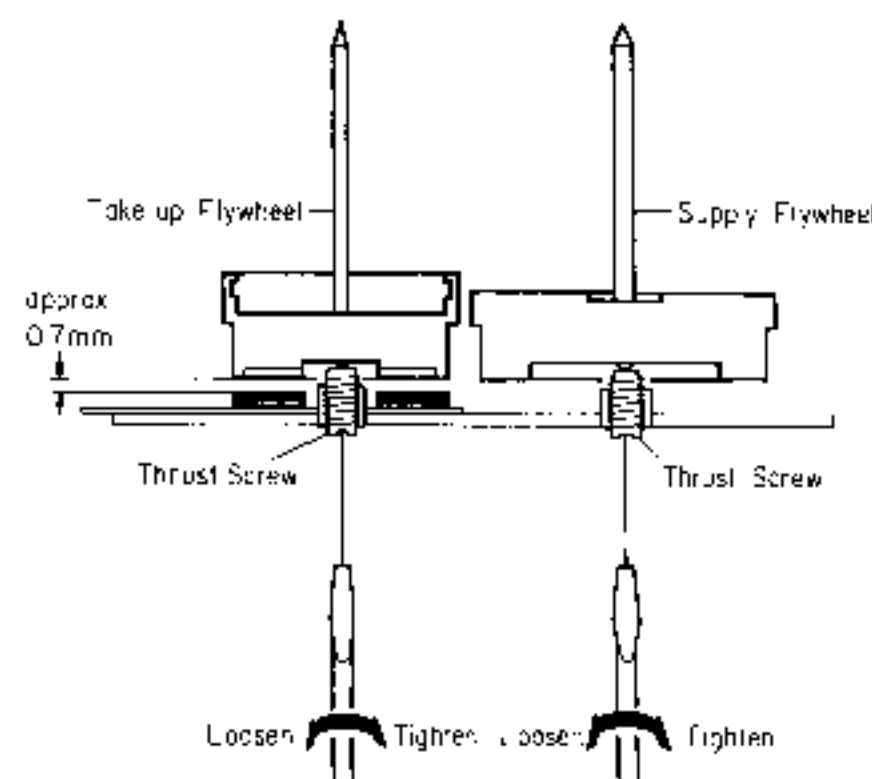


Fig. 2.20

3. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

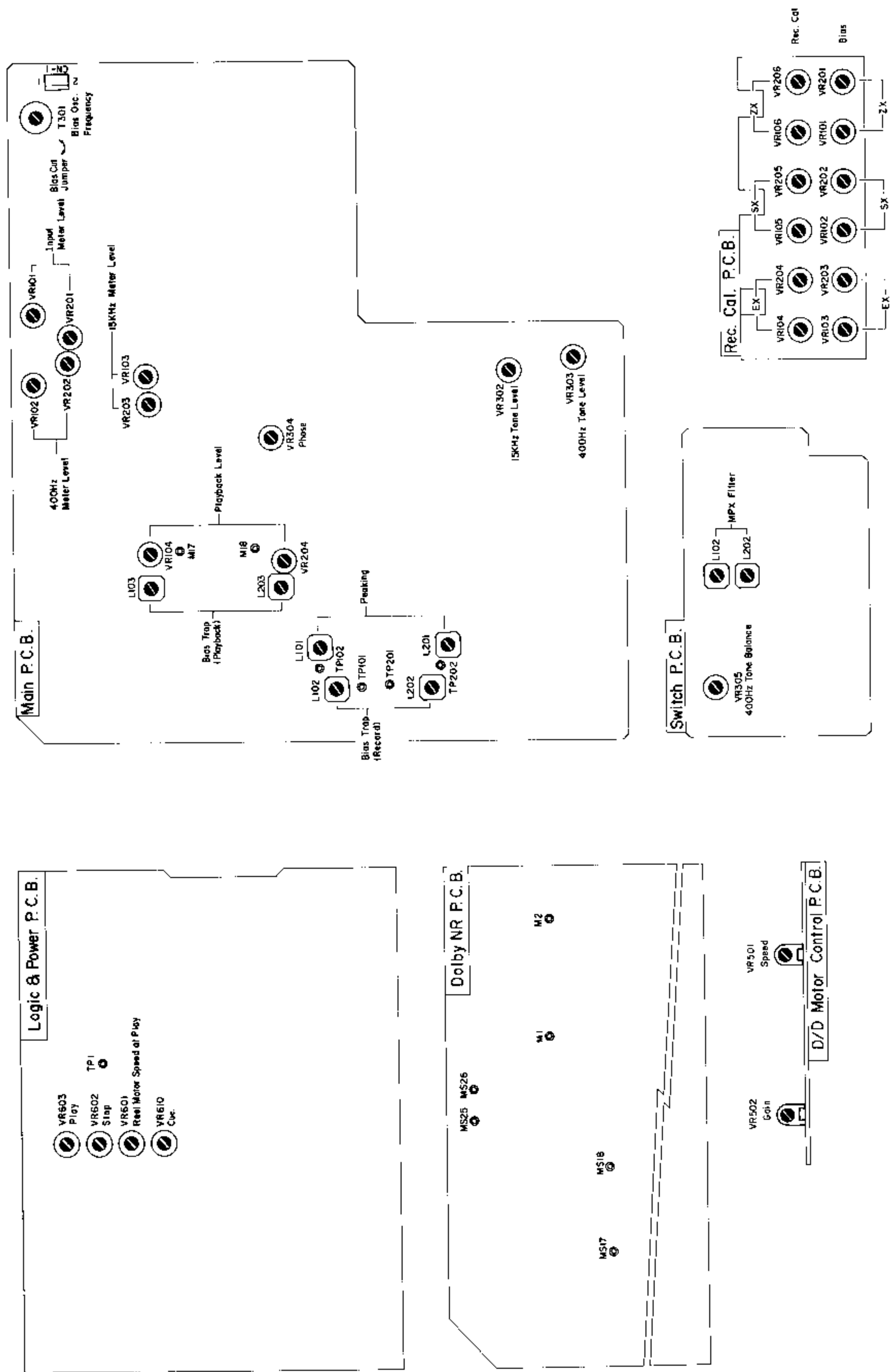


Fig. 3

4. ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

Note: Electrical adjustment should be performed after mechanical adjustment is completed.

4.1. Adjustment and Measurement Instructions

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
1	Tape Speed and Motor Gain Adjustment	3 kHz Speed and Wow/Flutter Tape (DA09006B)	Frequency Counter and Wow/Flutter Meter to Output Jacks	Playback	D/D Motor Control P.C.B. VR501 (Speed) VR502 (Gain)	1. Adjust VR501 to obtain 3 kHz $\pm 0.5\%$ on the frequency counter. 2. Adjust VR502 to obtain the minimum reading on the wow/flutter meter. 3. Check to insure that the tape speed is 3 kHz $\pm 0.5\%$ on the frequency counter.
2	Tone Level Calibration	Tone 400 Hz and 15 kHz	VTVM to MS25, MS26 on Dolby NR P.C.B. and Output Jacks	Tone — 400 Hz/15 kHz Monitor SW — Source	Main P.C.B. VR303 (400 Hz) VR302 (15 kHz) Switch P.C.B. VR305 (400 Hz Balance)	1. Press the Level Calibration Start button to oscillate 400 Hz. 2. Adjust VR303 to obtain 90 mV on the VTVM at MS26 (R ch). 3. Adjust VR305 to obtain the same level as R ch on the VTVM at MS25. 4. Measure the reading on the VTVM at the Output Jacks. 5. Press the Bias Calibration Start button to oscillate 15 kHz. 6. Adjust VR302 to obtain 20 dB lower level than in 4 on the VTVM at the Output Jacks. 7. Press the Calibration Reset button to stop the tone oscillation.
3	Meter Level Calibration	400 Hz to Input Jacks and Tone 400 Hz and 15 kHz	VTVM to MS25, MS26 on Dolby NR P.C.B.	Tone — OFF/400 Hz/15 kHz Monitor SW — Source	Main P.C.B. VR101, VR201 VR102, VR202 VR103, VR203 VR303 (400 Hz) VR302 (15 kHz)	1. Feed in 400 Hz, then adjust the Input Level controls to obtain 90 mV -1.3 dB on the VTVM. 2. Adjust VR101 (VR201) so that the 0 dB segment of the level meter starts illuminating. 3. Press the Level Calibration Start button to oscillate 400 Hz, then adjust VR303 to obtain 90 mV -0.5 dB on the VTVM. 4. Adjust VR102 (VR202) so that the 0 dB segment of the level meter starts illuminating. 5. Press the Bias Calibration Start button to oscillate 15 kHz, then adjust VR302 to obtain 9 mV -0.5 dB on the VTVM. 6. Adjust VR103 (VR203) so that the 0 dB segment of the level meter starts illuminating. 7. Press the Calibration Reset button. 8. Re-adjust the tone level according to step 2 "Tone Level Calibration".
4	MPX Filter Adjustment	19 kHz ± 100 Hz to Input Jacks	VTVM to Output Jacks	Monitor SW — Source Dolby NR SW — OFF MPX SW — IN	Switch P.C.B. L102, L202	1. Turn the Output level control fully clockwise (maximum position). 2. Adjust the Input Level controls to obtain 1 V on the VTVM. 3. Set the MPX Filter switch to IN, then adjust L102 (L202) to obtain the minimum reading on the VTVM (the minimum reading will be less than -30 dB).
5	Playback Head Track Alignment	1 kHz Track Alignment Tape (DA09007A)	VTVM to Output Jacks	Playback Monitor SW — Tape Eq. SW — $70 \mu s$ Dolby NR SW — OFF MPX SW — OUT	PH Height Gear	Adjust the PH Height Gear to obtain minimum readings of both channels on the VTVM. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 2.8.
6	Playback Head Azimuth Alignment	15 kHz Azimuth Tape (DA09004A)	VTVM to Output Jacks	Playback Monitor SW — Tape Eq. SW — $70 \mu s$ Dolby NR SW — OFF MPX SW — OUT	Playback Head Azimuth Alignment Screw	Adjust the Playback Head Azimuth Alignment Screw to obtain maximum readings of both channels on the VTVM. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 2.8. Note: Repeat steps 5 and 6 one or two times to obtain optimum performance.
7	Playback Level Calibration	400 Hz Level Tape (DA09005A)	VTVM to MS25, MS26 on Dolby NR P.C.B.	Same as above	Main P.C.B. VR104, VR204	Adjust VR104 (VR204) to obtain 90 mV on the VTVM.
8	Playback Frequency Response Adjustment	400 Hz Level Tape (DA09005A) 10 kHz PB Frequency Response Tape (DA09003A) 15 kHz PB Frequency Response Tape (DA09002A) 20 kHz PB Frequency Response Tape (DA09001A)	VTVM to Output Jacks	Playback Monitor SW — Tape Tape SW — SX Eq. SW — $70 \mu s$ Dolby NR SW — OFF MPX SW — OUT	Main P.C.B. R155, R255 R156, R256	1. Load a 400 Hz level tape and play it back. Adjust the Output level control to a certain level (0 dB for example). 2. Load 10 kHz, 15 kHz and 20 kHz PB frequency response tapes and adjust the playback head azimuth to obtain maximum levels on the VTVM with each tape. Short R155 (R255) or R156 (R256) to obtain the following levels against the level for the 400 Hz level tape. 10 kHz: -20 dB -1 dB to $+2$ dB 15 kHz: -20 dB -1 dB to $+3$ dB 20 kHz: -20 dB -1 dB to $+4$ dB 3. Conduct step 6 "Playback Head Azimuth Alignment". 4. If above is not sufficient, refer to "Playback Frequency Response Adjustment" in item 4.2.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
9	Bias Oscillation Frequency and Erase Current Adjustment		VTVM across the additional 0.1 Ω resistor and Frequency Counter to CN1-1 on Main P.C.B.	Record, Pause Monitor SW — Source Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — OFF MPX SW — OUT	Main P.C.B. T301 R309,R310	<ol style="list-style-type: none"> 1. Connect an additional 0.1 Ω resistor in series to the Erase Head, then connect a VTVM across it. 2. Adjust T301 to obtain 105 kHz on the frequency counter. 3. Check the erase current by the VTVM. Erase current will be in a range of 310 mA to 400 mA (typically approx. 350 mA). If erase current is not sufficient, increase it by shorting R309 or R310. 4. After completion of the erase current adjustment, re-check the bias oscillation frequency. 5. Remove the additional 0.1 Ω resistor.
10	Record Amplifier Equalizer Adjustment	23 kHz (-20 dB) to Input Jacks	VTVM to TP101, TP201 on Main P.C.B.	Same as above	Main P.C.B. L101,L201	<ol style="list-style-type: none"> 1. Remove the bias-cut-jumper from the dip side of the Main P.C.B. Ass'y. 2. Adjust L101 (L201) to obtain approx. +16 dB at 23 kHz on the VTVM. 3. Re-solder the bias-cut-jumper.
11	Bias Trap Adjustment (Record Amp.)	Remove input signals	VTVM to TP102, TP202 on Main P.C.B.	Same as above	Main P.C.B. L102,L202	Adjust L102 (L202) to obtain minimum reading on the VTVM.
12	Bias Trap Adjustment (Playback Amp.)	Remove input signals	VTVM to M17, M18 on Main P.C.B.	Record, Pause Monitor SW — Tape Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — OFF	Main P.C.B. L103,L203	Adjust L103 (L203) to obtain minimum reading on the VTVM.
13	Record Head Height Adjustment and Azimuth Alignment	Tone 400 Hz and 15 kHz	VTVM to Output Jacks	Record, Playback Monitor SW — Tape Tape SW — SX Eq. SW — 70 μ s Dolby NR SW — OFF	PH Height Gear Record Head Azimuth Alignment Screw Rec. Cal. P.C.B. (Level) VR105,VR205 (Bias Current) VR102,VR202 Main P.C.B. VR304 (Phase)	<ol style="list-style-type: none"> 1. In Stop mode, press the Azimuth Alignment Start button to ON. Then adjust the Azimuth Alignment knob so that the Slide Lever of the Azimuth Alignment Wire is located at the center of the slit of the Azimuth Alignment Wire as shown in Fig. 2.14. After above adjustment, press the Azimuth Alignment Start button to OFF. 2. Record Head Height Adjustment: <ol style="list-style-type: none"> a. Load a reference SX tape (DA09025A), then press the Record and Play buttons. b. Press the Level Calibration Start button to oscillate 400 Hz. c. Adjust the Sensitivity Control VR105 (VR205) and Bias Control VR102 (VR202) to the center position. d. Adjust the RH Height Gear to obtain maximum readings of both channels on the VTVM. 3. Record Head Azimuth Alignment: <ol style="list-style-type: none"> a. Load a reference SX tape (DA09025A), then press the Record and Play buttons. b. Press the Bias Calibration Start button to oscillate 15 kHz. c. Adjust the Record Head Azimuth Alignment Screw to obtain maximum readings of both channels on the VTVM. d. Repeat 2 and 3 one or two times to obtain optimum performance. 4. Azimuth Phase Adjustment: <ol style="list-style-type: none"> a. Press the Record and Play buttons. b. Press the Azimuth Alignment Start button to ON, then adjust VR304 on the Main P.C.B. Ass'y so that the red indicator in the middle of the Azimuth Indicator is lit up.
14	Record Level Calibration and Recording Bias Current Adjustment	Tone 400 Hz and 15 kHz and 10 kHz/20 kHz (-20 dB) to Input Jacks	VTVM and Distortion Meter to Output Jacks	Record, Playback Tone — 400 Hz/ 15 kHz Monitor SW — Tape Tape SW — ZX/SX/ EX Eq. SW — 70 μ s (ZX/SX) 120 μ s (EX) Dolby NR SW — C-Type/B-Type/ OFF MPX SW — OUT	Rec. Cal. P.C.B. (Level) ZX: VR106,VR206 SX: VR105,VR205 EX: VR104,VR204 (Bias) ZX: VR101,VR201 SX: VR102,VR202 EX: VR103,VR203	Adjustment should be made in the order of ZX, SX and EX. <ol style="list-style-type: none"> 1. Set the Dolby NR switch to C-Type. 2. Load a reference ZX tape (DA09037A), reference SX tape (DA09025A) and reference EXII tape (DA09066A). 3. Adjust Sensitivity Controls VR106 (VR206) for ZX, VR105 (VR205) for SX and VR104 (VR204) for EXII to the maximum position. 4. Adjust Bias Controls VR101 (VR201) for ZX, VR102 (VR202) for SX and VR103 (VR203) for EXII to the maximum position. 5. Press the Record and Play buttons, then press the Azimuth Alignment Start button to ON. Turn the Azimuth Alignment Knob so that the red indicator in the middle of the Azimuth Indicator is lit up. After above adjustment, press the Azimuth Alignment Start button to OFF.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
14 (continued)						<ol style="list-style-type: none"> Press the Record and Play buttons, then press the Level Calibration Start button to oscillate 400 Hz. Adjust Sensitivity Controls VR106 (VR-206), VR105 (VR205) and VR104 (VR-204) to obtain 0 dB on the level meters. Press the Bias Calibration Start button to oscillate 15 kHz. Adjust Bias Controls VR101 (VR201), VR102 (VR202) and VR103 (VR203) to obtain 0 dB on the level meters. Repeat 6 to 9 as above two or three times to obtain optimum performance. Set the Dolby NR switch to B-Type/OFF. Feed in 10 kHz (-20 dB) and 20 kHz (-20 dB), then record and play it back. Check to insure that the levels are within -20 dB \pm 2 dB against the levels in Dolby NR C-Type. Check to insure whether the total harmonic distortion is less than 0.8% for ZX tape and 1.0% for SX and EXII tapes.
15	Overall Frequency Response Adjustment	400 Hz (0 dB) and 20 Hz to 20 kHz (-20 dB) to Input Jacks	VTVM to Output Jacks	Record, Playback Monitor SW — Source/ Tape Tape SW — ZX/SX/EX Eq. SW — 70 μ s (ZX/SX) 120 μ s (EX) Dolby NR SW — OFF MPX SW — OUT	Main P.C.B. L101, L201	<ol style="list-style-type: none"> Perform the Azimuth Alignment operation as follows: <ol style="list-style-type: none"> Press the Record and Play buttons. Press the Azimuth Alignment Start button to ON. Turn the Azimuth Alignment Knob so that the red indicator in the middle of the Azimuth Indicator is lit up. After above adjustment, press the Azimuth Alignment Start button to OFF. Set the Monitor switch to Source. Feed in 400 Hz (0 dB) and adjust the Input Level controls to obtain 0 dB on the level meters. Switch the Generator output level to -20 dB. Set the Monitor switch to Tape, then record and play it back. Feed in 20 Hz to 20 kHz (-20 dB), and check to insure whether the output levels are within -20 dB \pm 3 dB. If above is not sufficient, adjust L101 (L201) to obtain approx. -20 dB on the VTVM at 20 kHz. Conduct step 14 "Record Level Calibration and Recording Bias Current Adjustment". If above is not sufficient, precise re-adjustment of step 8 "Playback Frequency Response", replacement of Playback Head or Record Head, check on item 2.10 "Tape Travelling Adjustment" or frequency response adjustment according to item 4.2 will be required.
16	Crosstalk Measurement	1 kHz to Input Jacks	1 kHz Band Pass Filter and VTVM to Output Jacks	Record and Playback Monitor SW — Tape Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — OFF		<ol style="list-style-type: none"> Perform the Azimuth Alignment operation referring to step 15-1. Erase a reference ZX tape with bulk eraser. Adjust the Input Level controls to obtain 0 dB on the level meters, and record the signals on the reference tape. Turn the cassette tape the other way round and play it back. Measure the difference between 3 and 4.
17	Channel Separation Measurement	1 kHz to Input Jacks	Same as above	Same as above		<ol style="list-style-type: none"> Perform the Azimuth Alignment operation referring to step 15-1. Erase a reference ZX tape with bulk eraser. Adjust the L ch (R ch) Input Level control to obtain 0 dB on the level meters, and close the R ch (L ch) Input Level control. Record and play it back, then measure the R ch (L ch) level.
18	Erasure Measurement	1 kHz to Input Jacks	Same as above	Same as above		<ol style="list-style-type: none"> Perform the Azimuth Alignment operation referring to step 15-1. Erase a reference ZX tape with bulk eraser. Adjust the Input Level controls to obtain 0 dB on the level meters, and record the signals on the reference tape. Rewind the tape then close the Input Level controls. Record and play it back, then measure the difference between 3 and 4.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUST- MENT	REMARKS
19	Signal to Noise Ratio Measurement	400 Hz to Input Jacks	VTVM and Distortion Meter to Output Jacks	Record and Playback Monitor SW — Tape Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — B-Type/C-Type		1. Perform the Azimuth Alignment operation referring to step 15-1. 2. Feed in 400 Hz and record and play it back. 3. Adjust the Input Level controls to obtain 3% total harmonic distortion in Playback mode. 4. Close the Input Level controls, then record. 5. After rewind, play back and check the output level difference between 3 and 4. Note: The filter of IHF-A curve shall be used in the measurements.
20	Total Harmonic Distortion Measurement	400 Hz to Input Jacks	Distortion Meter to Output Jacks	Record and Playback Monitor SW — Tape Tape SW — ZX/SX/EX Eq. SW — 70 μ s (ZX/SX) 120 μ s (EX) Dolby NR SW — OFF		1. Perform the Azimuth Alignment operation referring to step 15-1. 2. Adjust the Input Level controls to obtain 0 dB on the level meters. 3. Record and play it back. 4. Read the distortion meter and check to insure that the distortion is less than 0.8% for ZX tape and 1.0% for SX and EXII tapes.
21	Wow/Flutter Measurement	3 kHz Speed and Wow/Flutter Tape (DA09006B)	Wow/Flutter Meter to Output Jacks	Playback Monitor SW — Tape Eq. SW — 70 μ s		Play back and read the wow/flutter meter.

4.2. Frequency Response Adjustment

(1) Playback Frequency Response Adjustment

Refer to Figs. 4.2.1 and 4.2.2.

(a) Level Adjustment (for middle frequency response)

This adjustment will be required if playback level is not sufficient when 10 kHz PB frequency response tape is played back as referred to step 8 in 4.1 "Adjustment and Measurement Instructions".

Playback equalization level is varied by the modification of R159 (R259) on the Main P.C.B. Ass'y and R154 (R254) on the Dolby NR P.C.B. Ass'y.

Following are the details for level modifications:

Approx. +1 dB R159 (R259): 8.66K

R154 (R254): 6.49K

0 dB R159 (R259): 8.06K

R154 (R254): 6.98K

Approx. -1 dB R159 (R259): 7.32K

R154 (R254): 7.87K

(b) Peaking Adjustment (for high frequency response)

This adjustment will be required if playback level is not sufficient when 20 kHz PB frequency response tape is played back as referred to step 8 in 4.1 "Adjustment and Measurement Instructions". Peaking portion compensates the gap loss of the playback head. Peaking level is varied by the short circuit of R155 (R255) or R156 (R256) on the Main P.C.B. Ass'y as illustrated in Fig. 4.2.2.

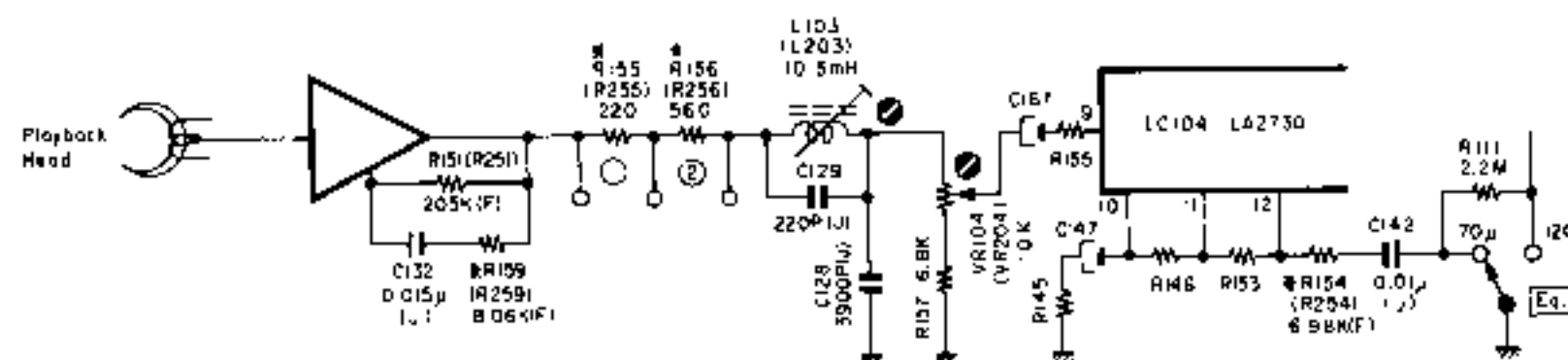


Fig. 4.2.1 Playback Amp.

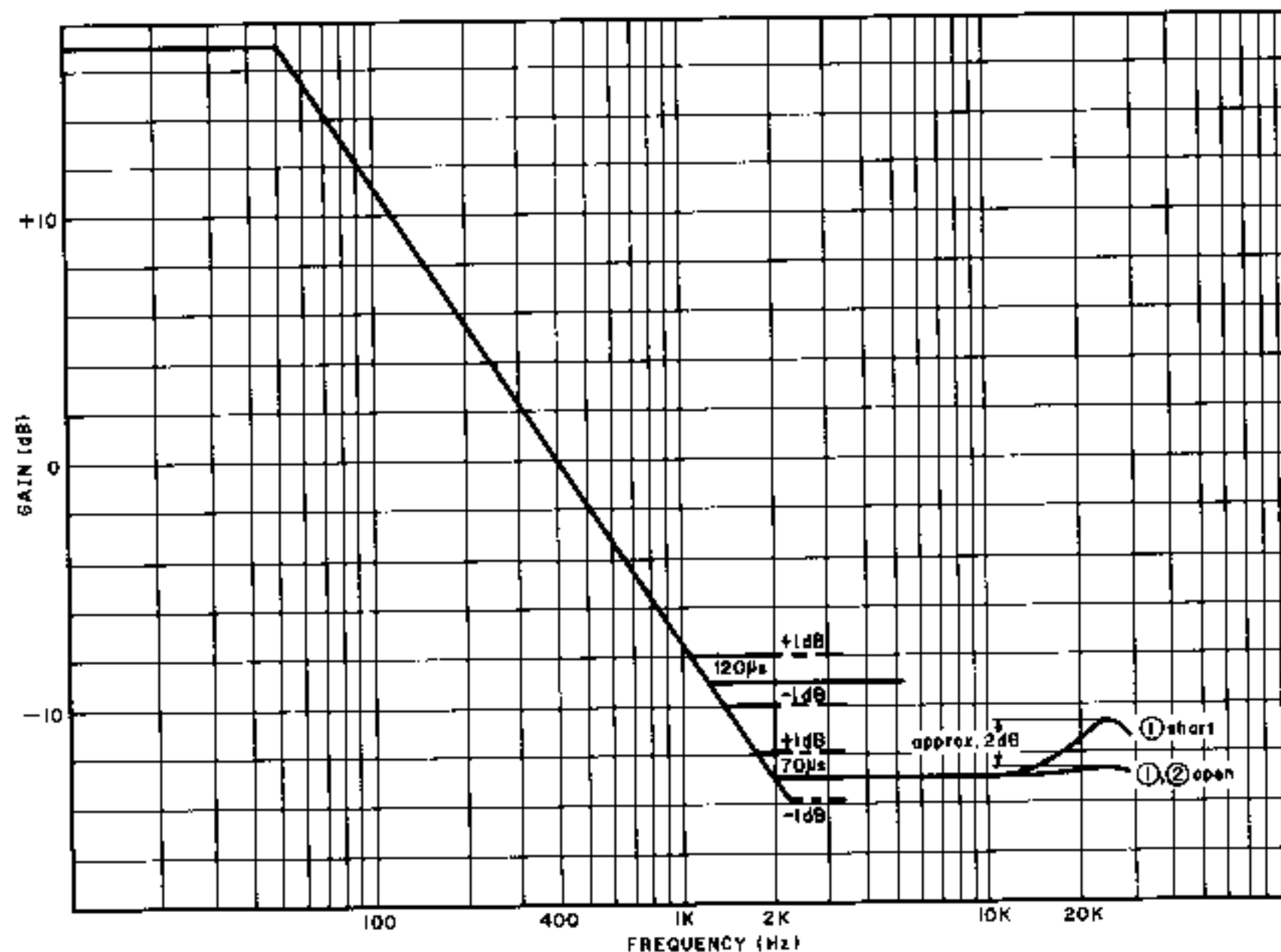


Fig. 4.2.2 Playback Equalization Curve

(2) Record Current Frequency Response Adjustment

Record eq. peaking is adjusted for compensating the overall frequency response when playback frequency response is completed.

Normally however peaking frequency is pre-adjusted to approx. 23 kHz in Record mode. Refer to Fig. 4.2.3.

(a) For ZX Tape

- 1) Feed in 400 Hz (0 dB), then record and play it back. Adjust bias current by VR106 (VR206) on the Record Cal. P.C.B. Ass'y to obtain a 0.8% distortion.
- 2) Feed in 10 kHz and 400 Hz (-20 dB), then record and play them back.
Check the difference of the levels between 10 kHz and 400 Hz, and mount an additional capacitor in parallel with C101 (C201) on the Main P.C.B. Ass'y from the dip side of the printed circuit board depending upon the difference of the levels against 400 Hz.
Refer to Fig. 4.2.4.

Level Difference	Addition	Total
0 dB	0	820 pF
-1 dB	220 pF	1040 pF

- 3) Feed in 22 kHz (-20 dB), then record and play it back.
Adjust record peaking coil L101 (L201) to obtain flat overall frequency response.

(b) For SX Tape

- 1) Feed in 15 kHz and 400 Hz (-20 dB), then record and play them back.
Adjust Bias current by VR105 (VR205) on the Record Cal. P.C.B. Ass'y to obtain flat overall frequency response.
- 2) Feed in 20 kHz and 400 Hz (-20 dB), then record and play them back.
And check to insure that the overall frequency response is flat.

(c) For EXII Tape

- 1) Feed in 15 kHz and 400 Hz (-20 dB), then record and play them back.
Adjust bias current by VR104 (VR204) on the Record Cal. P.C.B. Ass'y to obtain flat overall frequency response.
- 2) Feed in 20 kHz and 400 Hz (-20 dB), then record and play them back.
And check to insure that the overall frequency response is flat.

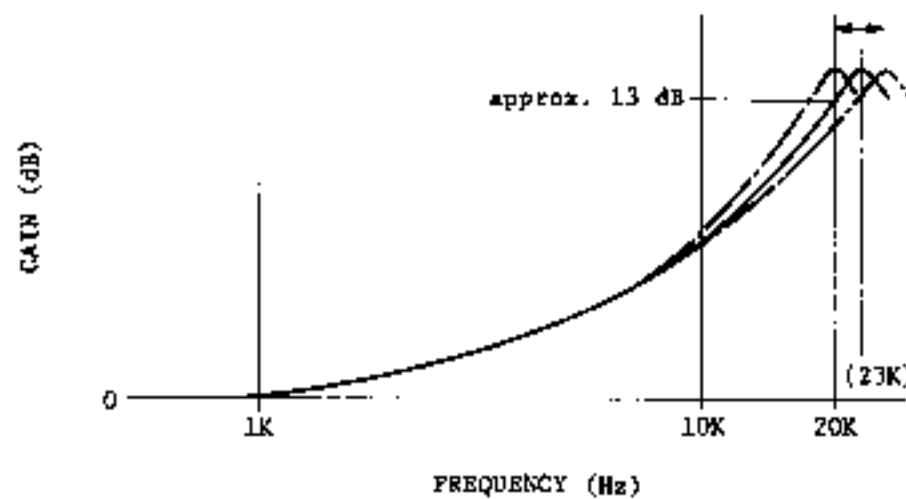


Fig. 4.2.3

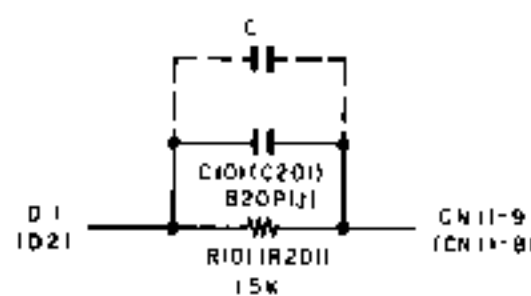


Fig. 4.2.4

4.3. Dolby NR Circuit Check

Dolby NR circuit incorporates Dolby NR ICs which have no adjustment point.

Perform the following checks and make sure that the IC operates accurately, i.e., accuracy of frequency response through IC.

4.3.1. Dolby NR B-Type Circuit Check

(1) Playback Dolby NR Circuit

Signal Source: 1.4 kHz to pin No. M17 (M18) on Dolby NR P.C.B.
Output Connection: VTVM to MS25 (MS26) on Dolby NR P.C.B.
Mode: Stop
Monitor SW - Tape
Dolby NR SW - B-Type/OFF

- (a) Connect a VTVM to MS25 (MS26) on the Dolby NR P.C.B. Ass'y.
- (b) Set the Dolby NR switch to B-Type.
Feed in 1.4 kHz to pin No. M17 (M18) and adjust the generator output control to obtain 9 mV on the VTVM.
- (c) Set the Dolby NR switch to OFF.
Check to insure that the reading is +3.2 dB \pm 1.5 dB on the VTVM.

(2) Record Dolby NR Circuit

Signal Source: 1.4 kHz to Input Jacks
Output Connection: VTVM to MS25 (MS26) and M1 (M2) on Dolby NR P.C.B.
Mode: Stop
Monitor SW - Source
Dolby NR SW - B-Type/OFF

- (a) Connect a VTVM to MS25 (MS26) on the Dolby NR P.C.B. Ass'y.
- (b) Feed in 1.4 kHz and adjust the Input Level controls to obtain 9 mV/2.85 mV on the VTVM.
- (c) Remove the VTVM from MS25 (MS26) and reconnect it to M1 (M2) on the Dolby NR P.C.B. Ass'y.
- (d) Check to insure that the reading at M1 (M2) corresponds to the following with Dolby NR switch OFF and B-Type.

Input Level at MS25, MS26	Level at M1 (IC102-16), M2 (IC202-16)	
	Dolby NR OFF	Dolby NR B-Type
9 mV	0 dB	+3.2 dB \pm 1.5 dB
2.85 mV	0 dB	+8.2 dB \pm 1.5 dB

4.3.2. Dolby NR C-Type Circuit Check

(1) Playback Dolby NR Circuit

Signal Source: 1.4 kHz to pin No. M17 (M18) on Dolby NR P.C.B.
Output Connection: VTVM to MS25 (MS26) on Dolby NR P.C.B.
Mode: Stop
Monitor SW - Tape
Dolby NR SW - C-Type/OFF

- (a) Connect a VTVM to MS25 (MS26) on the Dolby NR P.C.B. Ass'y.
- (b) Set the Dolby NR switch to C-Type.
Feed in 1.4 kHz to pin No. M17 (M18) and adjust the generator output control to obtain 9 mV on the VTVM.
- (c) Set the Dolby NR switch to OFF.
Check to insure that the reading is +6.5 dB \pm 1.5 dB on the VTVM.

(2) Record Dolby NR Circuit

Signal Source: 1.4 kHz to Input Jacks
Output Connection: VTVM to MS25 (MS26) and M1 (M2) on Dolby NR P.C.B.
Mode: Stop
Monitor SW - Source
Dolby NR SW - C-Type/OFF

- (a) Connect a VTVM to MS25 (MS26) on the Dolby NR P.C.B. Ass'y.
- (b) Feed in 1.4 kHz and adjust the Input Level controls to obtain 9 mV/2.85 mV on the VTVM.
- (c) Remove the VTVM from MS25 (MS26) and reconnect it to M1 (M2) on the Dolby NR P.C.B. Ass'y.
- (d) Check to insure that the reading at M1 (M2) corresponds to the following with Dolby NR switch OFF and C-Type.

Input Level at MS25, MS26	Level at M1 (IC102-16), M2 (IC202-16)	
	Dolby NR OFF	Dolby NR C-Type
9 mV	0 dB	+6.5 dB \pm 1.5 dB
2.85 mV	0 dB	+11.4 dB \pm 1.5 dB

5. MECHANISM ASS'Y AND PARTS LIST

5.1. Synthesis

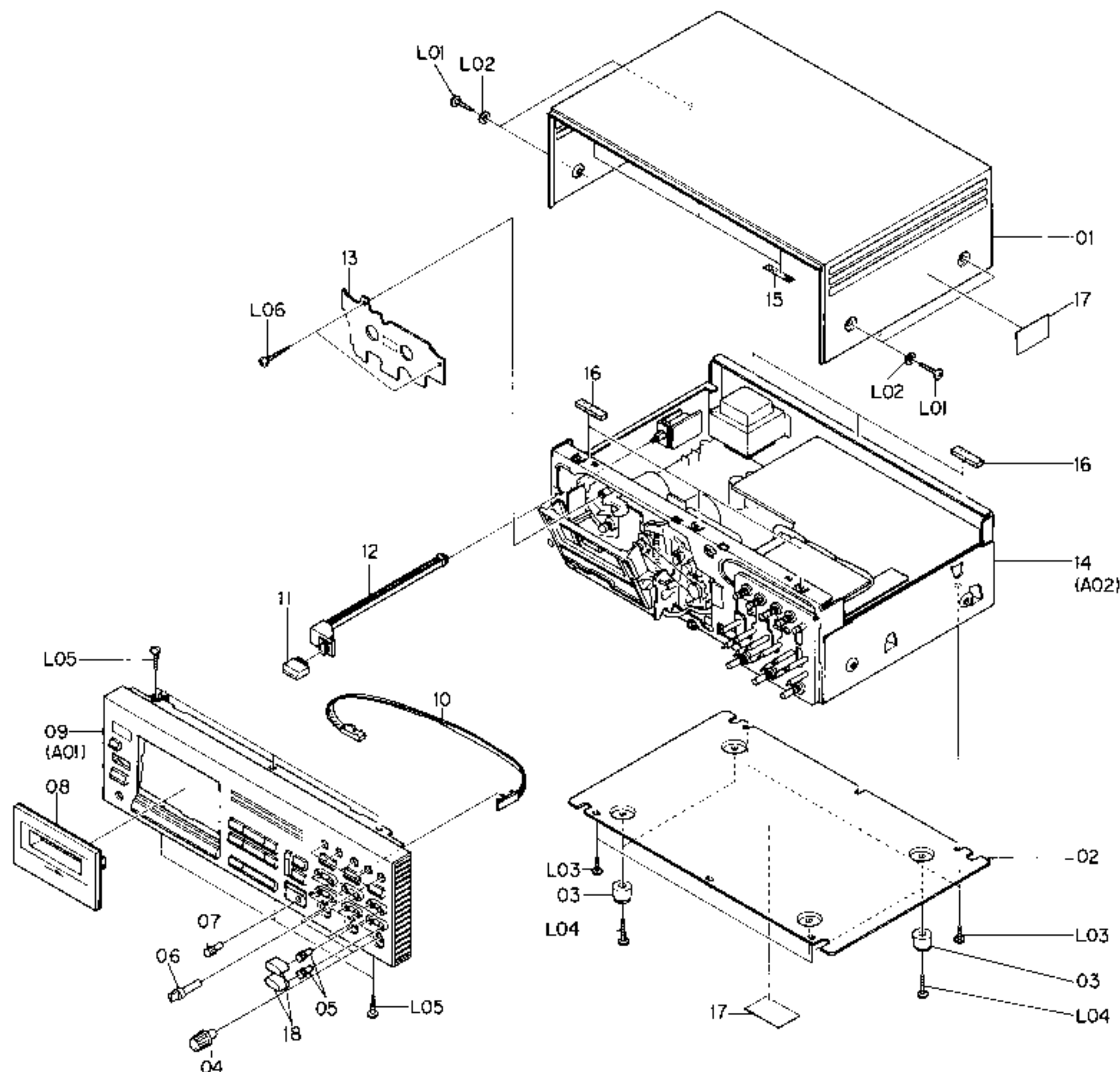
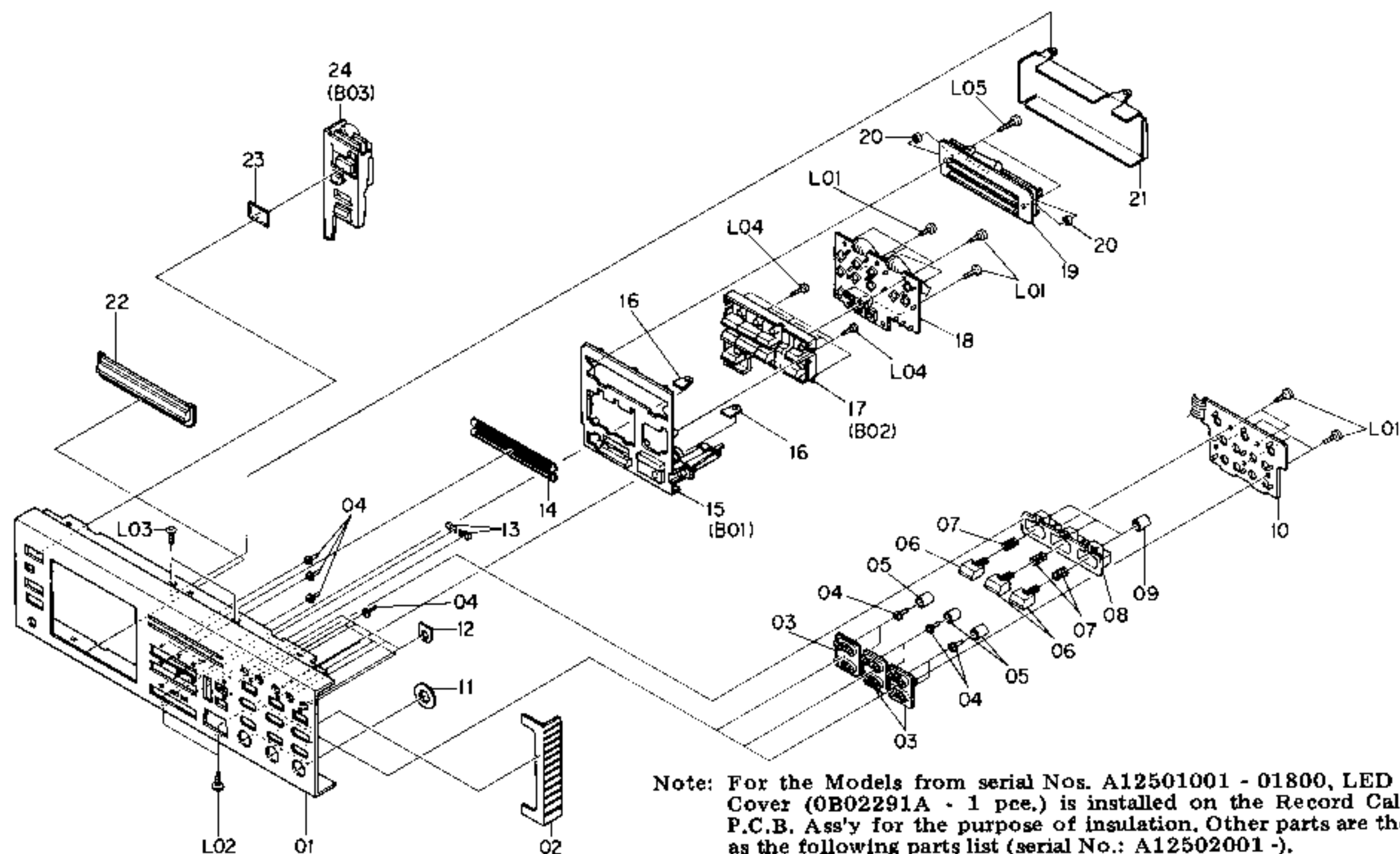


Fig. 5.1

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
	HA04315A	Synthesis (Japan)	1	16	0J04550A	Top Cover Cushion	6
	HA04319A	Synthesis (U.S.A. & Canada)	1	17	0M04377A	Caution Label (U.S.A. & Canada)	2
	HA04318A	Synthesis (220V Class 2)	1	18	0H04065C	Control Volume Cap	6
	HA04314A	Synthesis (UK)	1	L01	0E00915A	BT M4x8 ⊕ Binding (Black Chromate)	4
	HA04317A	Synthesis (Australia)	1	L02	0E00736A	Washer 4mm (Black Chromate)	4
	HA04316A	Synthesis (Others)	1	L03	0E00857A	BT M3x6 ⊕ Binding	9
		Serial No.: A12501001 -		L04	0E00865A	BT M3x10 ⊕ Binding	4
01	0H04010A	Top Cover	1	L05	0E00921A	BT M3x8 ⊕ Binding (Black Chromate)	5
02	0J04477A	Bottom Cover	1	L06	0E00950A	BT M3x14 ⊕ Pan (Black Chromate)	2
03	0J03564A	Leg T-H	4				
04	0H04097A	Control Volume Knob	3				
05	HA04093A	Calibration Volume Knob	12				
06	HA04096A	Function Knob	5				
07	0H04083A	Azimuth Alignment Knob	1				
08	HA04321A	Cassette Case Ass'y	1				
09	HA04320A	Front Panel Ass'y	1				
10	0C08311A	Azimuth Wire	1				
11	HA04091A	Power Switch Knob	1				
12	0J04490B	Power Switch Joint	1				
13	HA04329A	Cover Plate Ass'y	1				
14	JA03938A	Synthesis Mechanism Ass'y (Japan)	1				
	JA03942A	Synthesis Mechanism Ass'y (U.S.A. & Canada)	1				
	JA03941A	Synthesis Mechanism Ass'y (220V Class 2)	1				
	JA03937A	Synthesis Mechanism Ass'y (UK)	1				
	JA03940A	Synthesis Mechanism Ass'y (Australia)	1				
	JA03939A	Synthesis Mechanism Ass'y (Others)	1				
15	0J04080A	Top Cover Himelon	3				

5.2. Front Panel Ass'y (A01)



Note: For the Models from serial Nos. A12501001 - 01800, LED P.C.B. Cover (0B02291A - 1 pce.) is installed on the Record Cal. LED P.C.B. Ass'y for the purpose of insulation. Other parts are the same as the following parts list (serial No.: A12502001 -).

Fig. 5.2

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
A01	HA04320A	Front Panel Ass'y Serial No.: A12502001 -	1	07	BA04547A	Azimuth Switch P.C.B. Ass'y	1
01	OH04095A	Front Panel	1	08	OJ04502B	Cal. Volume Joint	12
02	OH04001B	Side Cover	1	09	BA04542A	Record Cal. P.C.B. Ass'y	1
03	OH04056B	Cal. Volume Flange	3	10	0B0228B	Cassette Case Lamp	1
04	OH03999A	LED Lens	12	11	OJ04506C	Lamp Holder	1
05	OJ04496A	Cal. Volume Reflector	6	12	OJ04469A	Cassette Case Plate	1
06	OH04089A	Selector Knob	3	13	CA08389A	Mechanism Ass'y ZX-9	1
07	OJ04497A	Selector Spring	3	14	BA04618A	Power Switch P.C.B. Ass'y (U.S.A. & Canada)	1
08	OH04055B	Selector Flange	1		BA04620A	Power Switch P.C.B. Ass'y (UK, 220V Class 2, Australia & Others)	1
09	OJ04541A	Selector Reflector	3		BA04594A	Power Switch P.C.B. Ass'y (Japan)	1
10	BA04545A	Record Cal. LED P.C.B. Ass'y	1	15	BA04763A	Main P.C.B. Ass'y	1
11	OH04002A	Volume Flange	3	16	OJ04470B	Side Chassis L	1
12	OH04029A	Function Flange	5	17	OJ04472B	Center Chassis	1
13	OH04031A	Fader Lens	2	18	OJ04471B	Side Chassis R	1
14	OH04000A	Meter Cover	1	19	BA04766A	Dolby NR P.C.B. Ass'y	1
15	HA04328A	Front Escutcheon A Ass'y	1	20	0B08771A	Hinge	2
16	OJ04486A	Panel Holder	2	21	BA04774A	Logic & Power P.C.B. Ass'y (Japan)	1
17	HA04311A	Control House Ass'y	1		BA04775A	Logic & Power P.C.B. Ass'y (U.S.A., Canada & Others)	1
18	BA04544A	Control Switch P.C.B. Ass'y	1		BA04776A	Logic & Power P.C.B. Ass'y (UK, 220V Class 2 & Australia)	1
19	BA04543A	Indicator P.C.B. Ass'y	1	22	HA04323A	Rear Panel Ass'y (Japan)	1
20	OJ04454A	Indicator P.C.B. Stud	2		HA04327A	Rear Panel Ass'y (U.S.A. & Canada)	1
21	OJ04458A	Meter Shield Case	1		HA04326A	Rear Panel Ass'y (220V Class 2)	1
22	OH04023B	Cover Escutcheon	1		HA04322A	Rear Panel Ass'y (UK)	1
23	OH04030A	Counter Lens	1		HA04325A	Rear Panel Ass'y (Australia)	1
24	HA04310A	Front Escutcheon B Ass'y	1		HA04324A	Rear Panel Ass'y (Others)	1
L01	OE00862A	BT M3x6 ⊕ Pan	11	23	0B08515A	Insu-Lock	25
L02	OE00593A	M3x6 ⊕ Binding (Bronze)	2	24	0B02542A	Cassette Case Lamp P.C.B.	1
L03	OE00505A	M3x6 ⊕ Countersunk	2	25	OJ04561A	Headphone Jack Cover	1
L04	OE00859A	BT M2.6x6 ⊕ Binding	6	L01	OE00857A	BT M3x6 ⊕ Binding	31
L05	OE00831A	BT M3x10 ⊕ Pan	2	L02	OE00944A	BT M4x15 ⊕ Binding (Black Chromate)	3
A02	JA03938A	Chassis Ass'y (Japan)	1	L03	OE00924A	BT M4x16 ⊕ Binding (Chromate)	1
	JA03942A	Chassis Ass'y (U.S.A. & Canada)	1	L04	OE00078A	Washer 4mm Toothed Lock	4
	JA03941A	Chassis Ass'y (220V Class 2)	1	L05	OE00612A	BT M3x6 ⊕ Pan (2A)	5
	JA03937A	Chassis Ass'y (UK)	1	L06	OE00962A	BT M2x6 ⊕ Binding (Black Chromate)	1
	JA03940A	Chassis Ass'y (Australia)	1	L07	OE00860A	BT M3x6 ⊕ Binding (Black Chromate)	4
	JA03939A	Chassis Ass'y (Others) Serial No.: A12501001 -	1	L08	—	Switch Nut A	(6)
01	JA03893A	Headphone Holder Ass'y	1				
02	OJ04135C	Mechanism Bracket	1				
03	OJ04478A	Sub Chassis	1				
04	BA04546A	Volume P.C.B. Ass'y	1				
05	BA04770A	Switch P.C.B. Ass'y	1				
06	OJ04476C	Front Chassis	1				

5.3. Chassis Assy (A02)

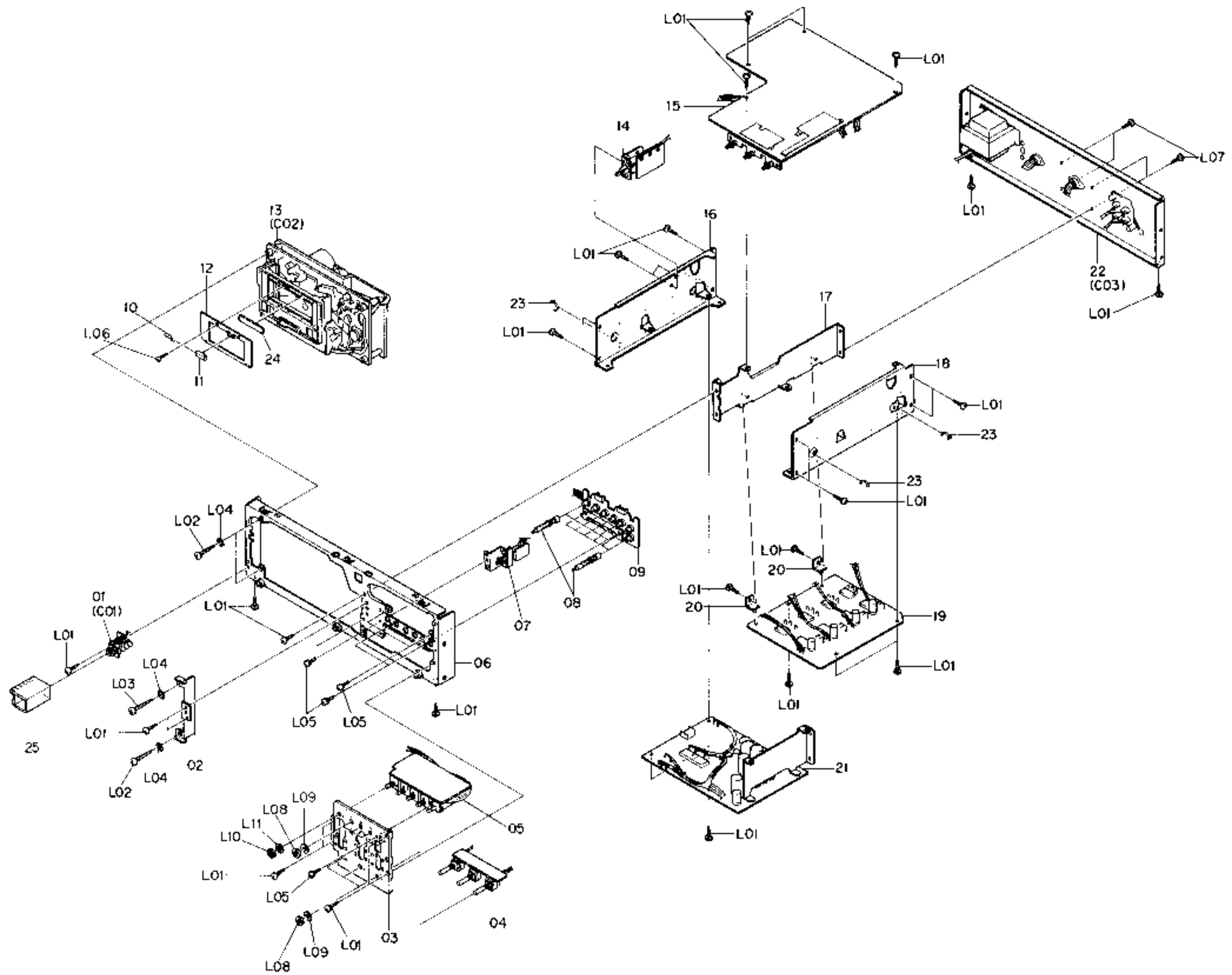


Fig. 5.3

Schematic Ref. No.	Part No.	Description	Qty
L09	—	Switch Washer A	(6)
L10	—	Switch Nut B	(1)
L11	—	Switch Washer B	(1)

5.4. Front Escutcheon A Ass'y (B01)

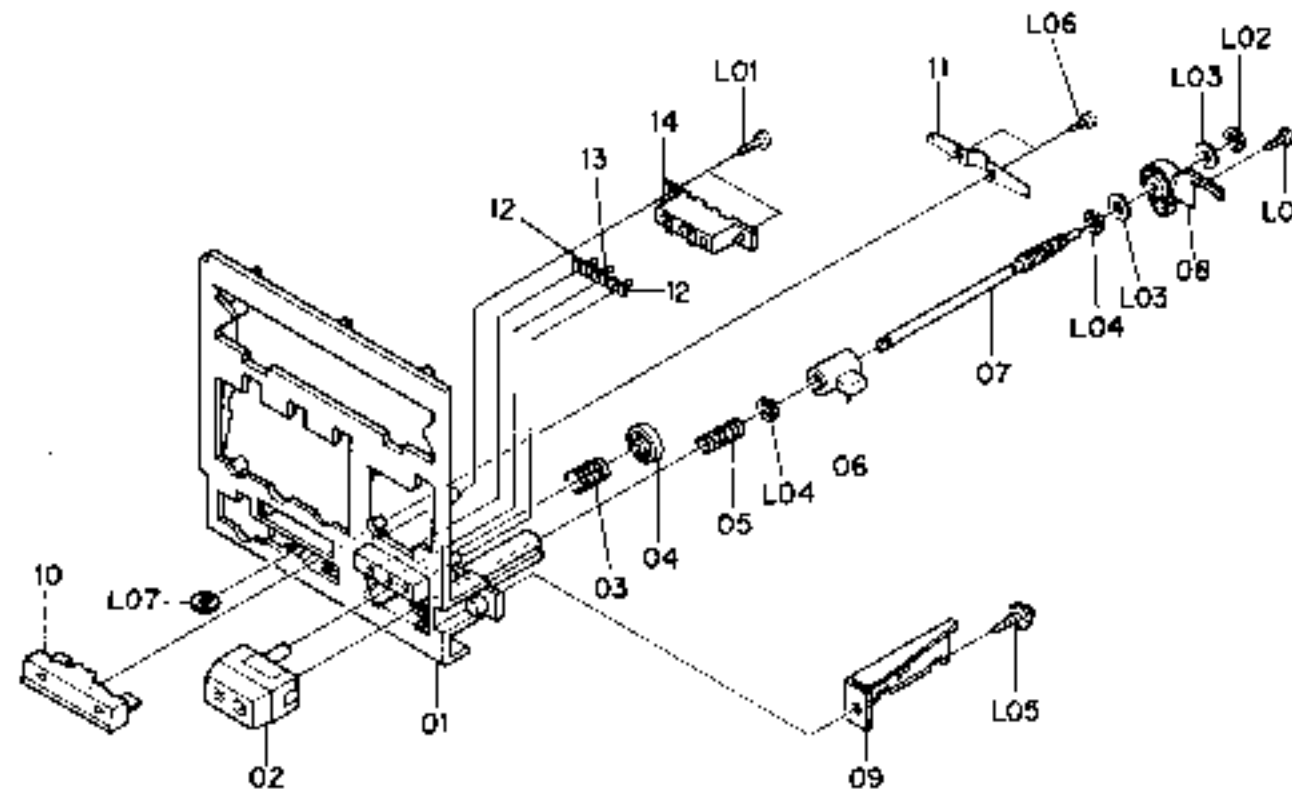


Fig. 5.4

5.5. Control House Ass'y (B02)

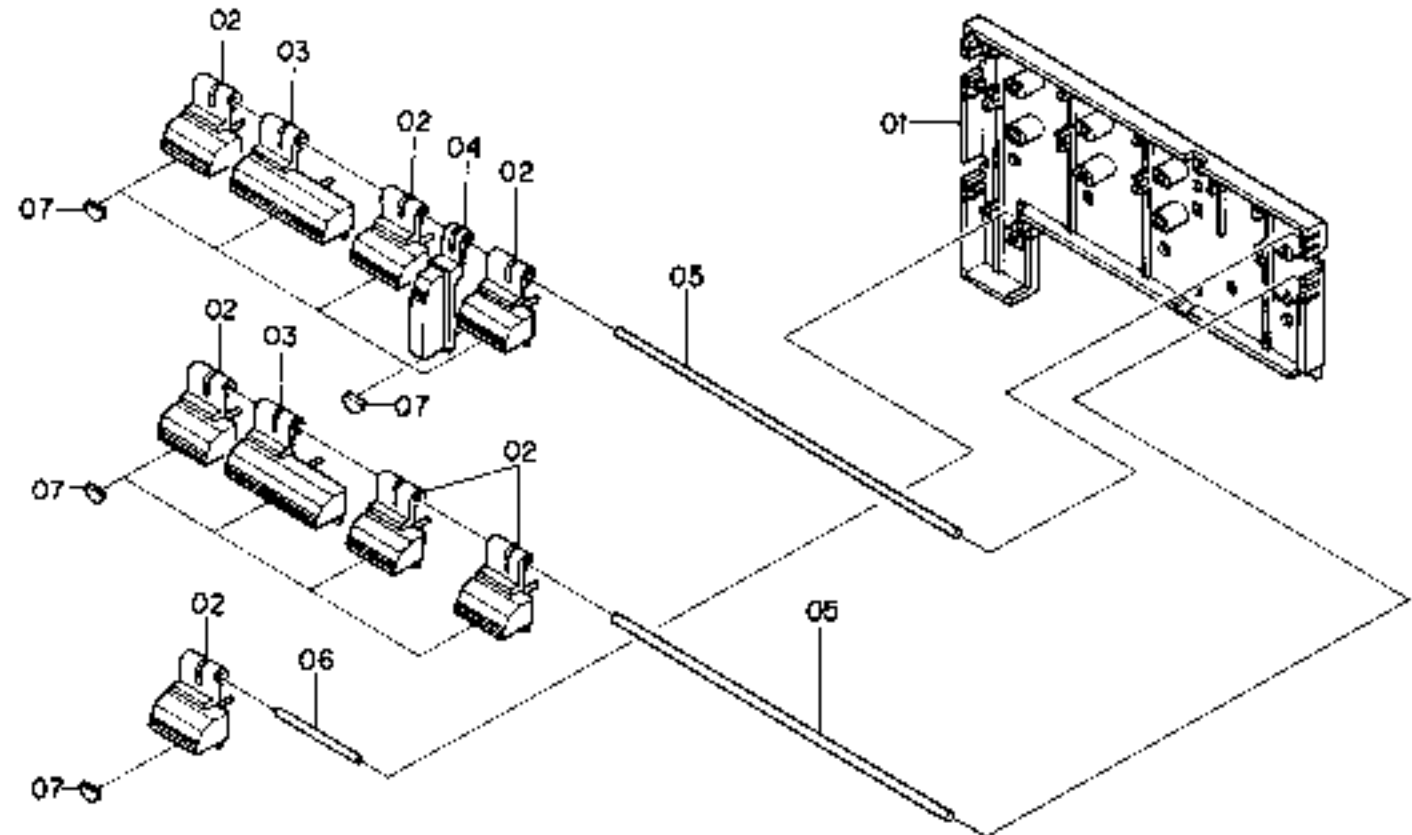


Fig. 5.5

Schematic Ref. No.	Part No.	Description	Qty
B01	HA04328A	Front Escutcheon A Ass'y Serial No.: A12501001 -	1
01	OH04099A	Front Escutcheon G	1
02	HA04232A	Adjustment Cover Ass'y	1
03	OJ04459A	Adjustment Knob Spring	1
04	OJ04460B	Adjustment Flange Stopper	1
05	OJ04464A	Adjustment Bar Spring	1
06	OJ04462B	Adjustment Slide Joint	1
07	OJ04463A	Adjustment Rod	1
08	OJ04461B	Adjustment Rod Stopper	1
09	OJ04465A	Adjustment Wire Holder	1
10	OH04090A	Fader Knob	1
11	OJ04467B	Fader Spring	1
12	OH04005A	Adjustment Lens A	2
13	OH04006A	Adjustment Lens B	1
14	OJ04466A	Adjustment Lamp House	1
L01	OE00961A	BT M2x5 ⊕ Binding (Chromate)	3
L02	OE00874A	Stopper Ring CS 2mm	1
L03	OJ04061A	Washer FT20	2
L04	OE00222A	E-Ring 2mm	2
L05	OE00920A	M3x6 ⊕ Pan Polywave	1
L06	OE00853A	BT M2x3 ⊕ Pan	2
L07	OJ04586A	Fader Washer	1
B02	HA04311A	Control House Ass'y Serial No.: A12501001 -	1
01	OH04016A	Control House	1
02	OH04086A	Control Knob A	7
03	OH04087A	Control Knob B	2
04	OH04088A	Control Knob C	1
05	OJ04493A	Shaft A	2
06	OJ04494A	Shaft B	1
07	OJ04495A	Control Cushion	10
B03	HA04310A	Front Escutcheon B Ass'y Serial No.: A12501001 -	1
01	OH04012C	Front Escutcheon B	1
02	OH04085A	Eject Knob	1
03	OJ04488A	Eject Spring	1
04	OJ04487B	Eject Stopper	1
05	OH04084A	Reset Switch Knob	1
06	OJ04489B	Reset Cushion	2
07	BA04548A	Counter P.C.B. Ass'y	1
08	BA04642A	Counter Control P.C.B. Ass'y	1
09	OJ04491A	Counter P.C.B. Stud	1
10	OJ04492B	Counter Shield Case	1
11	OJ04327A	Counter Himelon	1
12	OJ04563C	Counter P.C.B. Insulator	1
L01	OE00862A	BT M3x6 ⊕ Pan	2
L02	OE00883A	BT M3x18 ⊕ Pan	1
L03	OE00037A	Earth Lug B-5	1
C01	JA03893A	Headphone Holder Ass'y Serial No.: A12501001 -	1
01	OB08511A	Headphone Jack	1
02	OJ04474A	Headphone Jack Holder	1
L01	—	Headphone Jack Washer	(1)
L02	—	Headphone Jack Nut	(1)

5.6. Front Escutcheon B Ass'y (B03)

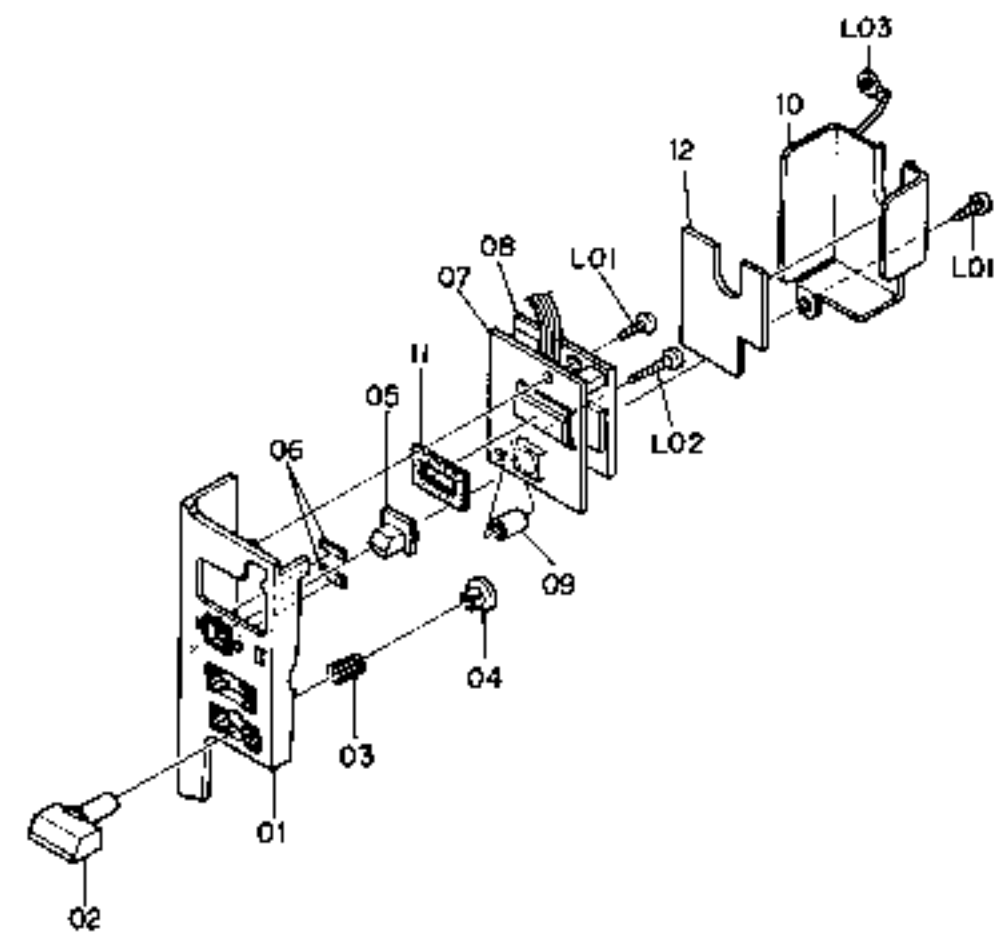


Fig. 5.6

5.7. Headphone Holder Ass'y (C01)

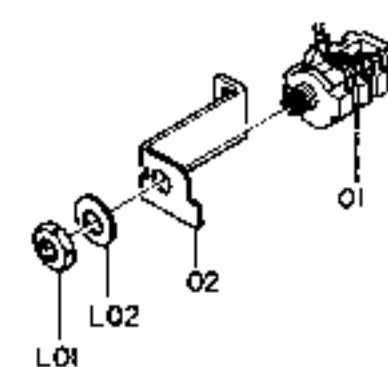


Fig. 5.7

5.8. Mechanism Ass'y ZX-9 (C02)

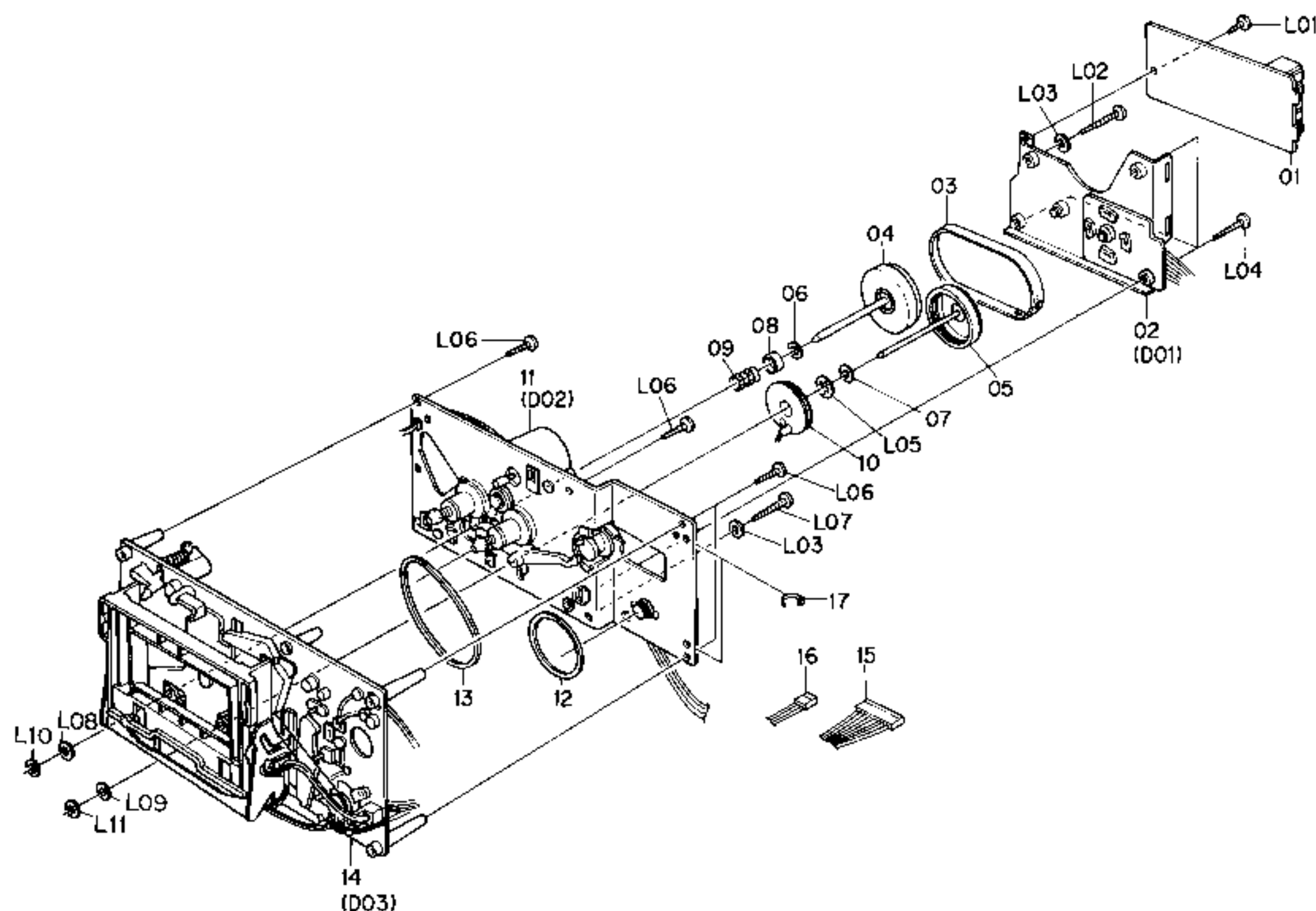


Fig. 5.8

Schematic Ref. No.	Part No.	Description	Q'ty
C02	CA08389A	Mechanism Ass'y ZX-9 Serial No.: A12501001 -	1
01	BA04777A	D/D Motor Control P.C.B. Ass'y	1
02	CA08384A	Flywheel Holder Ass'y	1
03	OC08334A	Capstan Belt	1
04	CA08380B	Supply Flywheel Ass'y	1
05	CA08390B	Take-up Flywheel Ass'y	1
06	OC08021B	Thrust Washer 3.1mm	1
07	OC08020B	Thrust Washer 2.6mm	1
08	OC08243A	Flange Thrust Cap	1
09	OC08244A	Flange Thrust Spring	1
10	CA08391A	Sensor Coil Sub Ass'y	1
11	CA08343A	Sub Mechanism Chassis Ass'y	1
12	OC08099B	Control Motor Belt	1
13	OC08098B	Counter Belt B	1
14	CA08385A	Main Mechanism Chassis Ass'y	1
15	OB08943B	9P-H Connector	1
16	OB08672A	3P-H Connector	1
17	OB08515A	Insu-Lock	10
-	OM04388A	Mechanism Serial No. Seal	1
L01	OE00857A	BT M3x6 @ Binding	1
L02	OE00834A	BT M3x30 @ Pan	1
L03	OE00178A	Washer 3mm	2
L04	OE00833A	BT M3x20 @ Pan	3
L05	OE03023A	Stopper Ring CS 8mm	1
L06	OE00883A	BT M3x18 @ Pan	5
L07	OE00835A	BT M3x25 @ Pan	1
L08	OC08347A	Washer 3.1 mm FT	1
L09	OC08348A	Washer 2.6 mm FT	1
L10	OC08345A	Capstan Washer 3 mm	1
L11	OC08346A	Capstan Washer 2.5 mm	1

5.9. Rear Panel Ass'y (C03)

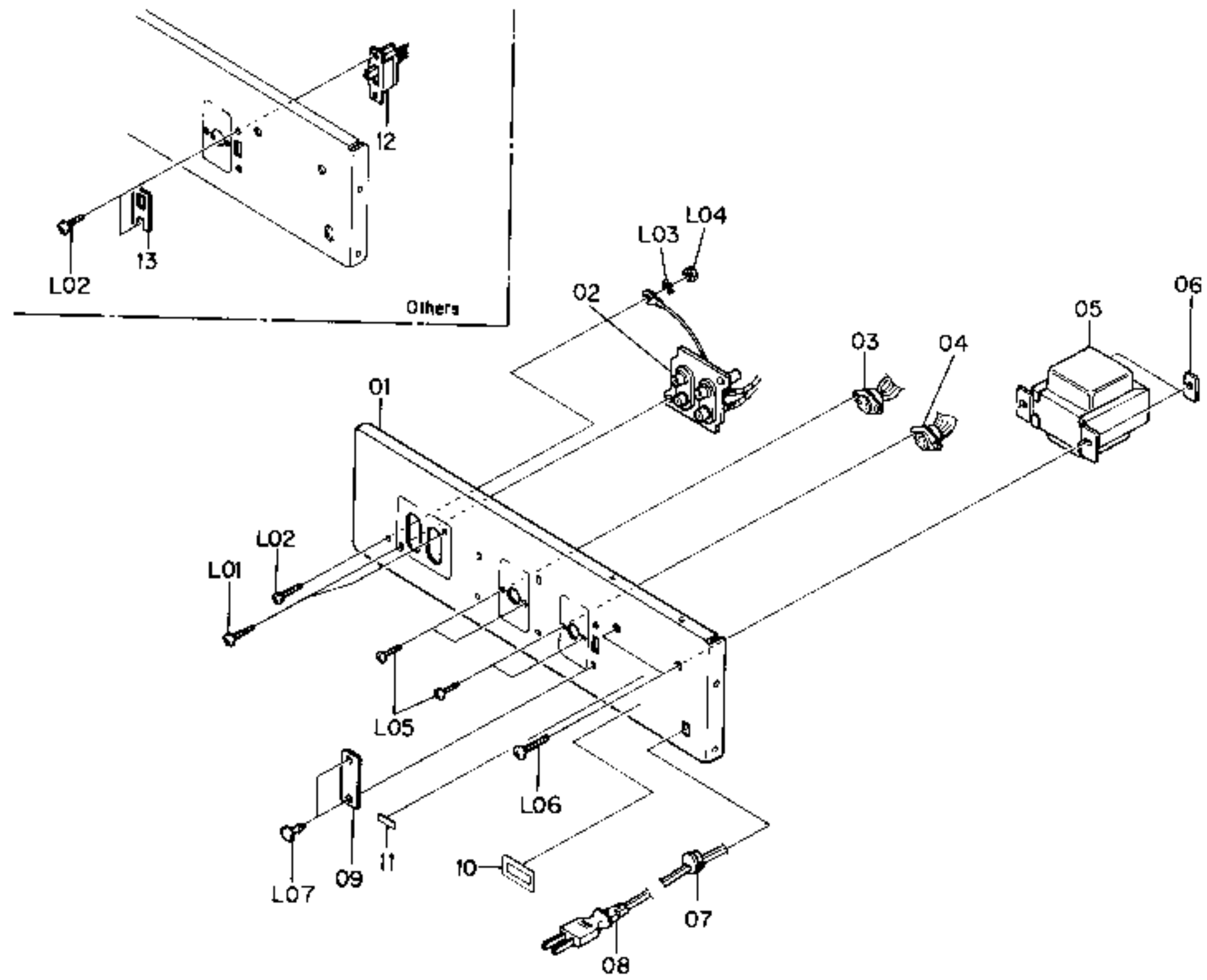


Fig. 5.9

5.10. Flywheel Holder Ass'y (D01)

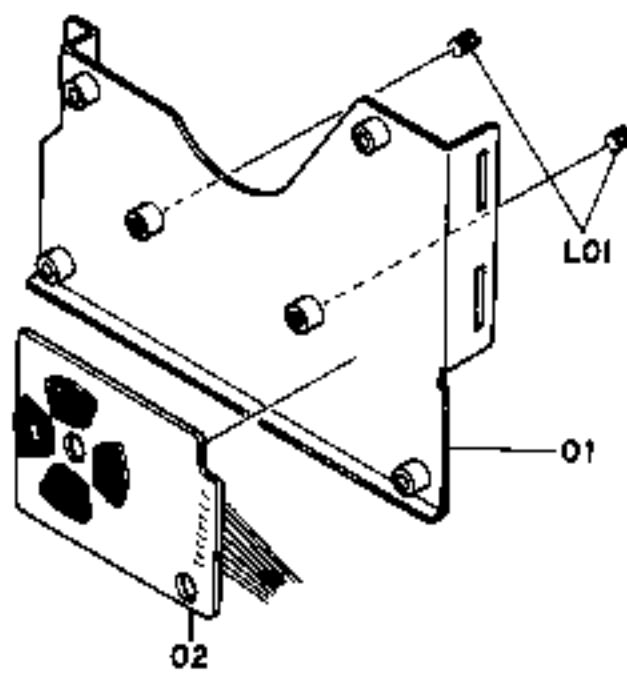


Fig. 5.10

5.11. Sub Mechanism Chassis Ass'y (D02)

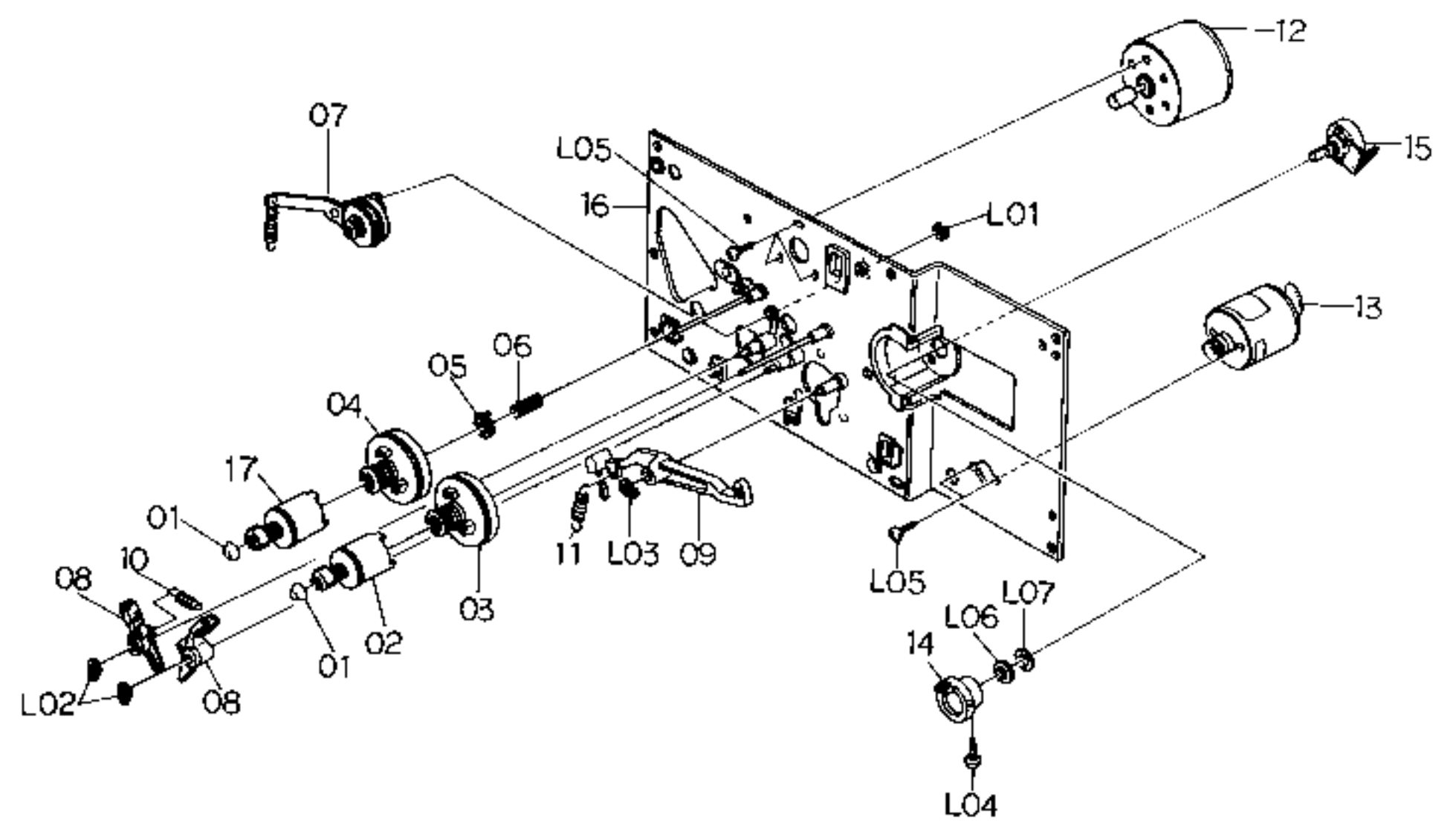


Fig. 5.11

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
C03	HA04327A	Rear Panel Ass'y (U.S.A. & Canada)	1	L04	OE00859A	BT M2.6x6 ⊕ Binding	1
	HA04323A	Rear Panel Ass'y (Japan)	1	L05	OE00226A	M2.6x4 ⊕ Pan	5
	HA04324A	Rear Panel Ass'y (Others)	1	L06	—	Volume Nut	(1)
	HA04322A	Rear Panel Ass'y (UK)	1	L07	—	Volume Washer	(1)
	HA04326A	Rear Panel Ass'y (220V Class 2)	1				
	HA04325A	Rear Panel Ass'y (Australia)	1				
		Serial No.: A12501001 -					
01	OH04100A	Rear Panel	1				
02	BA04785A	Pin Jack P.C.B. Ass'y	1				
03	BA04595A	4P DIN Socket Ass'y	1				
04	BA04596A	8P DIN Socket Ass'y	1				
05	OB06695A	Power Transformer (U.S.A. & Canada)	1				
	OB06693A	Power Transformer (Japan)	1				
	OB06694A	Power Transformer (Others)	1				
	OB06692A	Power Transformer (UK, Australia & 220V Class 2)	1				
06	OC01162B	Bolt Receptacle Plate	2				
07	OB08037U	Cord Bushing C (U.S.A., Canada, Japan, 220V Class 2, Australia & Others)	1				
	OB08351A	Cord Bushing 4K-4 (UK)	1				
08	OB08533A	Power Cord (U.S.A., Canada & Others)	1				
	OB08219B	Power Cord (Japan)	1				
	OB08348A	Power Cord (UK)	1				
	OB08093U	Power Cord (220V Class 2)	1				
	OB05241A	Power Cord (Australia)	1				
09	OJ04601A	Switch Cover (U.S.A., Canada, Japan, 220V Class 2, UK & Australia)	1				
10	OM03551B	Pass Label	1				
11	OM03797A	Voltage Label 240V (UK & Australia)	1				
	OM03796A	Voltage Label 220V (220V Class 2)	1				
	OM04293A	Voltage Label 120V/220-240V (Others)	1				
12	OB07092U	Voltage Selector (Others)	1				
13	OM03946A	Voltage Selector Lock Plate C (Others)	1				
L01	OE00921A	BT M3x8 ⊕ Binding (Black Chromate)	2				
*L02	OE00594A	M3x8 ⊕ Binding (Bronze)	3				
L03	OE00172A	Washer 3mm Toothed Lock	1				
L04	OE00507A	Nut Hex. M3	1				
L05	OE00714A	M2.6x6 ⊕ Binding (Bronze)	4				
L06	OE00953A	M4x10 ⊕ Binding Head (Black Chromate)	2				
L07	OB08583A	Plastic Rivet	2				
—	OJ03644A	Chobert Rivet	2				
—	OM04387A	Serial Number Plate	1				
—	OF01071A	Free-up Belt (UK, Australia & 220V Class 2)	1				
—	OM04185A	Fuse Mark Label (220V Class 2)	1				
—	OM04113A	LA Label (U.S.A. & Canada)	1				
		*: Depends on the versions.					
D01	CA08384A	Flywheel Holder Ass'y Serial No.: A12501001 -	1				
01	CA08382A	Flywheel Holder Sub Ass'y	1				
02	BA04759A	Motor P.C.B. Ass'y	1				
L01	OC08329A	Thrust Screw	2				
D02	CA08343A	Sub Mechanism Chassis Ass'y Serial No.: A12501001 -	1				
01	OC08039B	Reel Hub Head	2				
02	CA08038B	Reel Hub B Pulley Ass'y	1				
03	CA08037A	Reel Hub Take-up Ass'y	1				
04	CA08064A	Reel Hub Supply Ass'y	1				
05	CA08039A	Back Tension Ass'y	1				
06	OC08269A	Back Tension Spring C	1				
07	CA08193A	Idler Ass'y	1				
08	CA08042A	Brake Ass'y	2				
09	OC08030C	Brake Drive Arm	1				
10	OC08129A	Brake Arm Spring	1				
11	OC08128A	Brake Drive Arm Spring	1				
12	CA08242A	Reel Motor Ass'y	1				
13	CA08034A	Control Motor Ass'y	1				
14	OC08053B	Volume Coupler	1				
15	OB07240A	Volume Control 10K (B)	1				
16	CA08194A	Sub Chassis Ass'y	1				
17	CA08397A	Reel Hub S Pulley Ass'y	1				
L01	OE00698A	E-Ring 2.5 mm	1				
L02	OE00837A	Stopper Ring 3mm	2				
L03	OE00838A	Stopper Ring 4mm	1				

5.12. Main Mechanism Chassis Ass'y (D03)

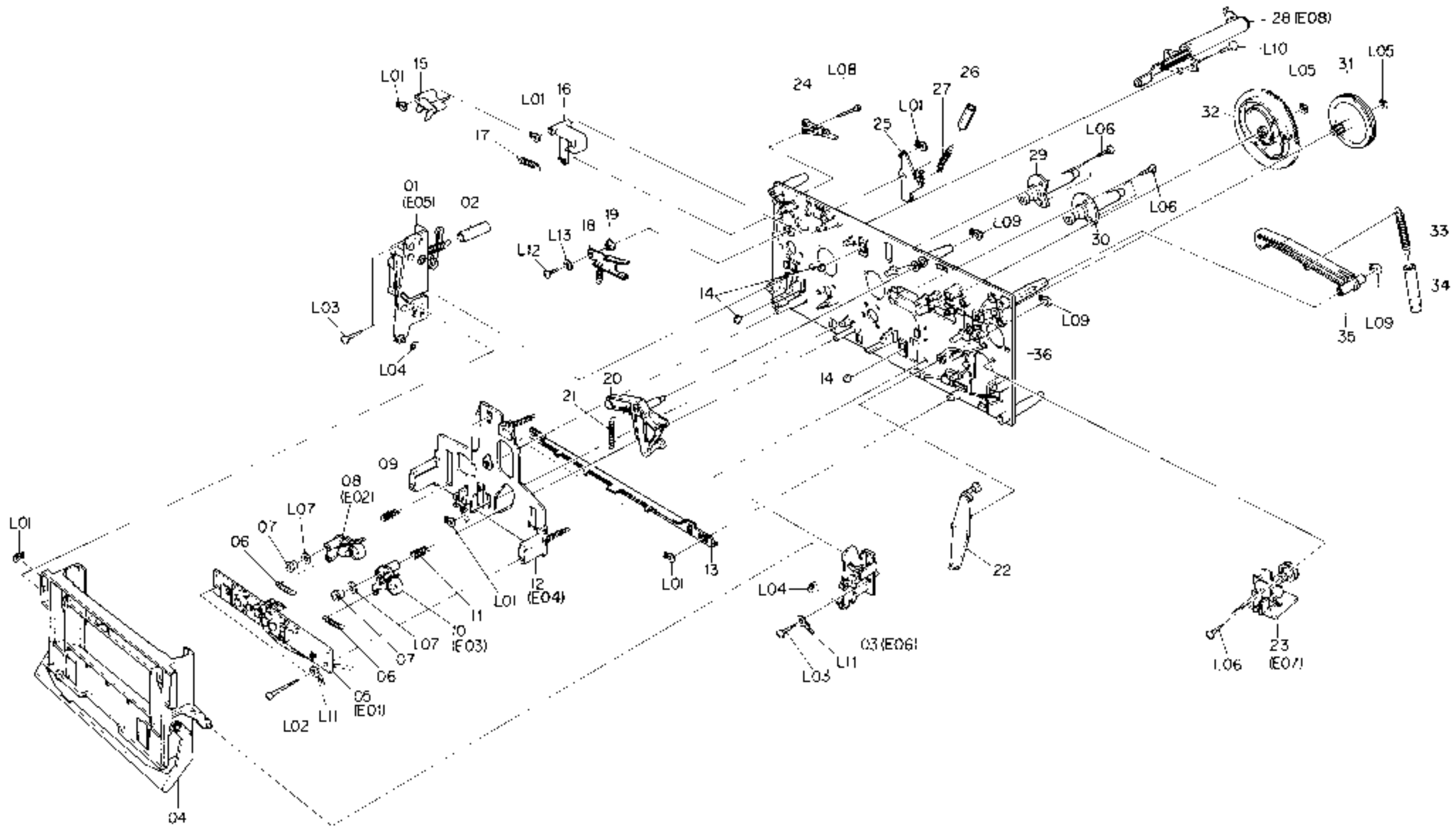


Fig. 5.12

5.13. Head Mount Base Ass'y (E01)

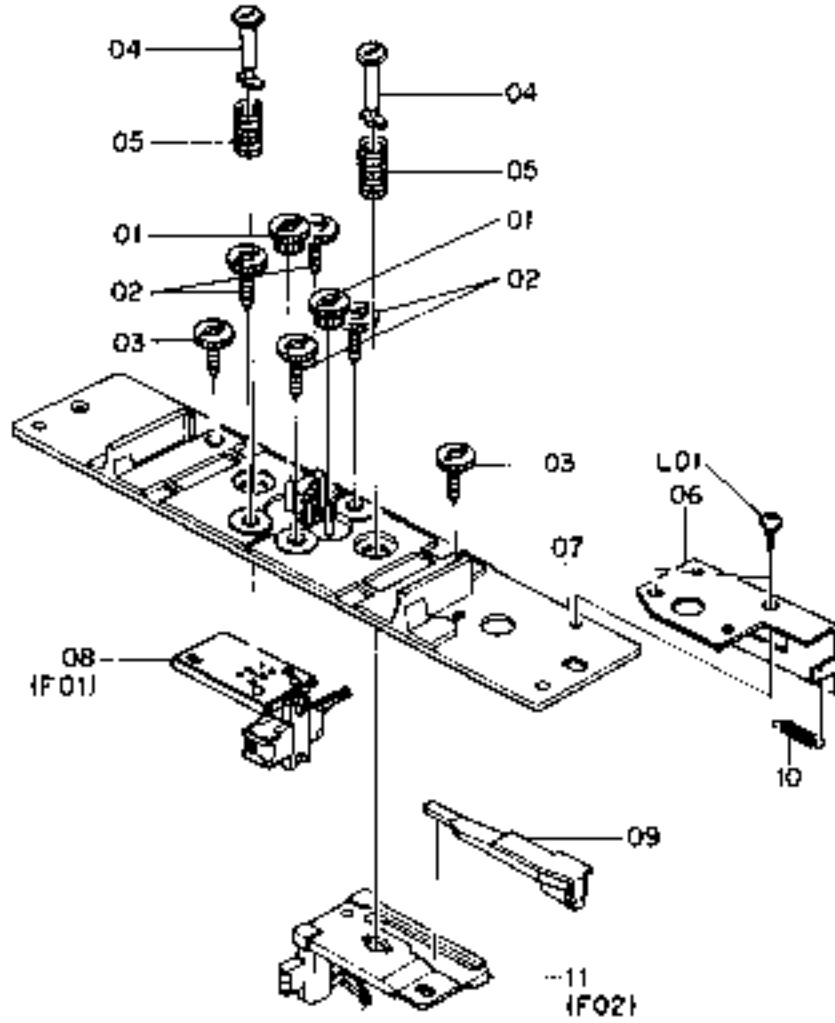


Fig. 5.13

5.14. Supply Pressure Roller Ass'y (E02)

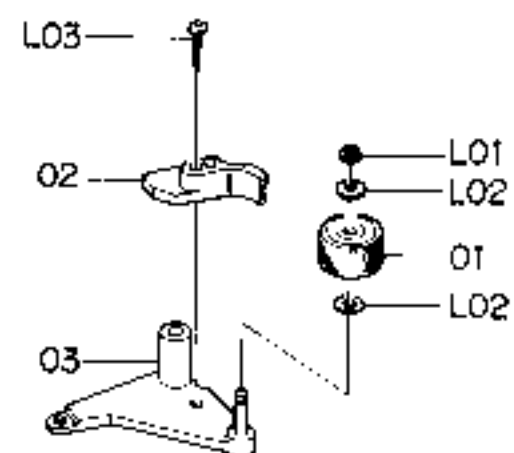


Fig. 5.14

5.15. Take-up Pressure Roller Ass'y (E03)

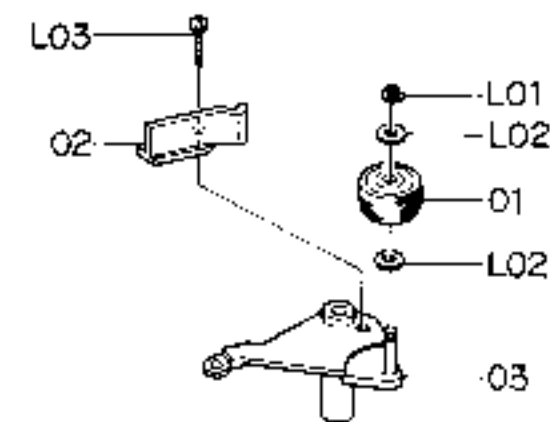


Fig. 5.15

5.16. Head Base Ass'y (E04)

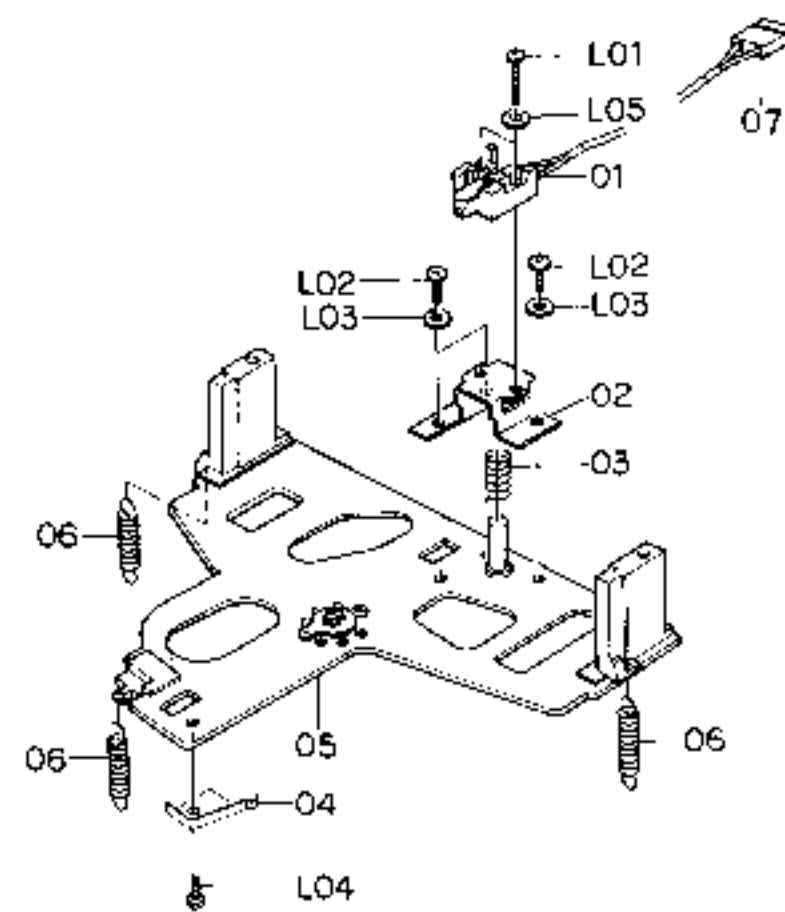


Fig. 5.16

5.17. Cassette Case Holder L Ass'y (E05)

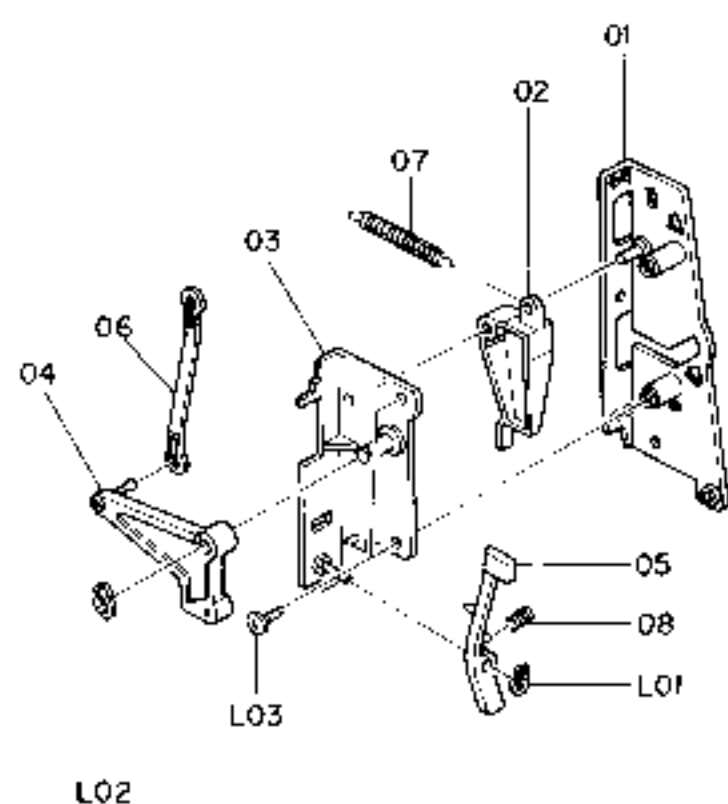


Fig. 5.17

5.18. Cassette Case Holder R Ass'y (E06)

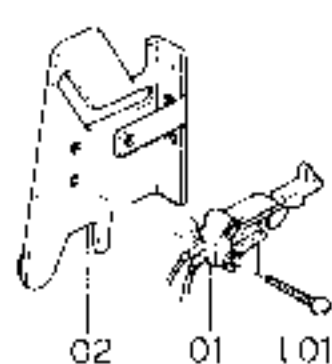


Fig. 5.18

5.19. Auto Shut-off Ass'y (E07)

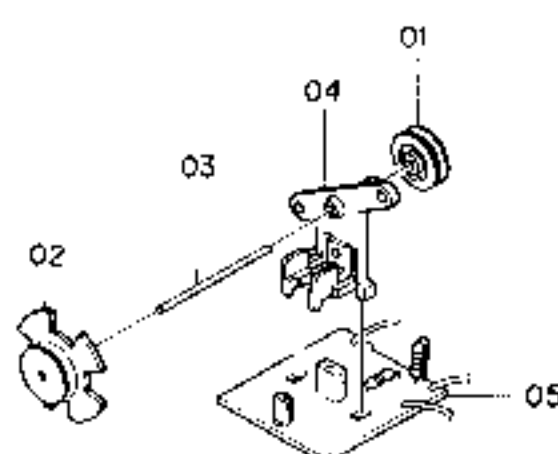


Fig. 5.19

Schematic Ref. No.	Part No.	Description	Q'ty
D03	CA08385A	Main Mechanism Chassis Ass'y Serial No.: A12501001 -	1
01	CA08350A	Cassette Case Holder L Ass'y	1
02	OC08151A	Lid Arm Spring Tube	1
03	CA08022A	Cassette Case Holder R Ass'y	1
04	CA08349A	Cassette Case Ass'y	1
05	CA08345A	Head Mount Base Ass'y	1
06	OC08121A	Supply Pressure Roller Spring	2
07	OC08313A	Pressure Roller Arm Bushing	2
08	CA08053B	Supply Pressure Roller Ass'y	1
09	OC08122B	Supply Pressure Roller Thrust Spring	1
10	CA08079B	Take-up Pressure Roller Ass'y	1
11	OC08183B	Take-up Pressure Roller Thrust Spring	1
12	CA08339A	Head Base Ass'y	1
13	OC08182A	Pressure Roller Drive Bar B	1
14	OC08086B	Head Base Roller	3
15	OC08050B	Record Sensor	1
16	OC08051E	Cassette Hold Arm	1
17	OC08120A	Cassette Hold Arm Spring	1
18	CA08196A	Back Tension Ass'y	1
19	OC08254A	Back Tension Arm Collar	1
20	CA08027A	Head Base Drive Arm Ass'y	1
21	OC08143C	Head Base Drive Arm Spring	1
22	CA08026A	Pressure Roller Drive Arm Ass'y	1
23	CA08396A	Auto Shut-off Ass'y	1
24	OC08119A	Record Protector	1
25	OC08194C	Damper Lock Arm	1
26	OC08153A	Damper Lock Arm Spring Tube	1
27	OC08116A	Record Arm Spring	1
28	CA08030A	Pneumatic Damper Ass'y	1
29	CA08388B	Supply Capstan Flange Ass'y	1
30	CA08383B	Take-up Capstan Flange Ass'y	1
31	OC08186A	Cam Drive Gear	1
32	OC08029H	Control Cam	1
33	OC08117A	Counter-Load Arm Spring	1
34	OC08152A	Counter-Load Arm Spring Tube	1
35	CA08028A	Counter-Load Arm Ass'y	1
36	CA08347A	Main Chassis Ass'y	1
L01	OE00837A	Stopper Ring 3mm	9
L02	OE00834A	BT M3x30 ⊕ Pan	2
L03	OE00831A	BT M3x10 ⊕ Pan	3
L04	OE00254A	Washer 3.1mm	2
L05	OE00222A	E-Ring 2mm	2
L06	OE00876A	BT M2.6x8 ⊕ Pan	8
E01	CA08345A	Head Mount Base Ass'y Serial No.: A12501001 -	1
01	OC08028C	Head Height Adjustment Gear	2
02	OC08027F	Head Height Adjustment Screw	4
03	OC08026D	Azimuth Alignment Screw	2
04	OC08161B	Spring Stopper	2
05	OC08187B	Head Plate Spring	2
06	OC08315A	Azimuth Alignment Wire Hold Plate	1
07	CA08083D	Head Mount Base Sub Ass'y	1
08	CA08341A	P-8L Playback Head Ass'y	1
09	OC08316A	Azimuth Alignment Plate	1
10	OC08317A	Azimuth Spring	1
11	CA08340A	R-8L Record Head Ass'y	1
L01	OE00917A	BT M2.6x5 ⊕ Pan	2
E02	CA08053B	Supply Pressure Roller Ass'y Serial No.: A12501001 -	1
01	OC08164G	Pressure Roller	1
02	OC08189C	Supply Tape Guide	1
03	CA08061A	Supply Pressure Roller Arm Ass'y	1
L01	OE00042A	E-Ring 1.5mm	1
L02	OC08024A	Washer 2mm	2
L03	OE00788A	BT M2x8 ⊕ Pan (Black Chromate)	1
E03	CA08079B	Take-up Pressure Roller Ass'y Serial No.: A12501001 -	1
01	OC08164G	Pressure Roller	1
02	OC08181C	Take-up Tape Guide	1
03	CA08073B	Take-up Pressure Roller Arm Ass'y	1
L01	OE00042A	E-Ring 1.5mm	1
L02	OC08024A	Washer 2mm	2
L03	OE00788A	BT M2x8 ⊕ Pan (Black Chromate)	1
E04	CA08339A	Head Base Ass'y Serial No.: A12501001 -	1
01	GA02103A	EOK Erase Head	1
02	OC08158D	Erase Head Hold Plate	1
03	OC08166A	Erase Head Hold Plate Spring	1
04	OC08174D	Cassette Hold Spring	1
05	CA08003R	Head Base Ass'y	1
06	OC08175A	Head Base L Spring	3
07	OB08944A	2P-H Connector	1
L01	OE00951A	M1.7x7 ⊕ Pan (Black Chromate)	2
L02	OE00909A	M2x6 ⊕ Pan	3
L03	OE00117A	Washer 2mm	3
L04	OE00853A	BT M2x3 ⊕ Pan	1
L05	OE00952A	Washer 1.7mm	2
E05	CA08350A	Cassette Case Holder L Ass'y Serial No.: A12501001 -	1
01	CA08326A	Cassette Case Holder L Sub Ass'y	1
02	OC08073C	Lid Arm A	1
03	OC08306A	Eject Arm Holder	1
04	OC08307A	Eject Arm A	1
05	OC08197C	Eject Arm B	1
06	OC08199B	Eject Arm Joint	1
07	OC08114A	Lid Arm Spring	1
08	OC08211C	Eject Arm Spring	1
L01	OE00837A	Stopper Ring 3mm	1
L02	OE00838A	Stopper Ring 4mm	1
L03	OE00865A	BT M3x10 ⊕ Binding	2
E06	CA08022A	Cassette Case Holder R Ass'y Serial No.: A12501001 -	1
01	OC08133A	Eject Sensor	1
02	CA08044A	Cassette Case Holder R Sub Ass'y	1
L01	OE00840A	BT M2x8 ⊕ Pan	2
E07	CA08396A	Auto Shut-off Ass'y Serial No.: A12501001 -	1
01	OC08047A	Shut-off Pulley A	1
02	OC08309B	Shut-off Pulley B	1
03	OC08088B	Shut-off Pulley Shaft	1
04	OC08207B	Shut-off Pulley Holder	1
05	BA04852A	Shut-off P.C.B. Ass'y	1

5.20. Pneumatic Damper Ass'y (E08)

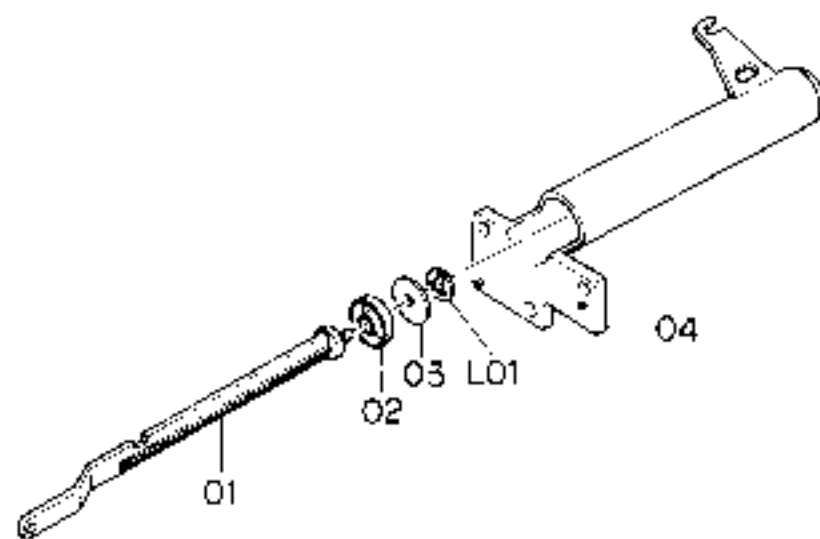


Fig. 5.20

5.21. P-8L Playback Head Ass'y (F01)

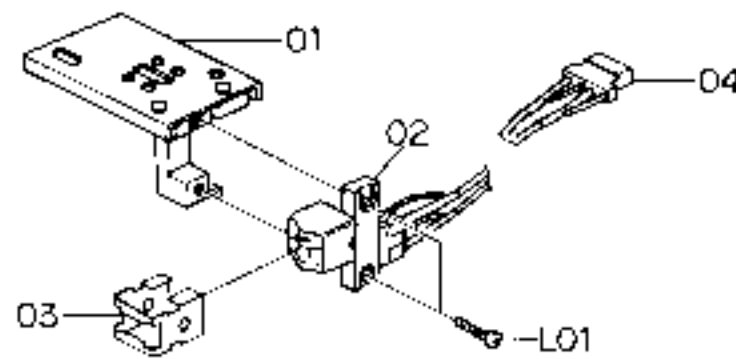


Fig. 5.21

5.22. R-8L Record Head Ass'y (F02)

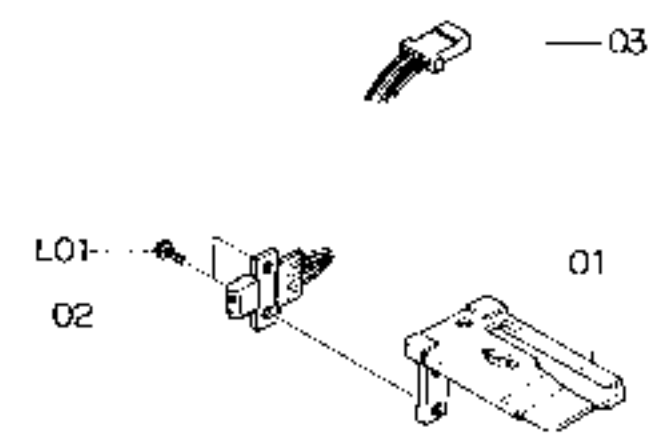


Fig. 5.22

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
E08	CA08030A	Pneumatic Damper Ass'y Serial No.: A12501001 -	1	03	0C08169D	Pad Lifter 54	1
01	0C08058C	Damper Piston	1	04	0B08946A	4P-H Connector	1
02	0C08102C	Damper Ring	1	L01	0E00886A	M1.7x6.5 ⊕ Pan	2
03	0C08010C	Damper Plate	1	F02	CA08340A	R-8L Record Head Ass'y Serial No.: A12501001 -	1
04	0C08059D	Sylinder	1	01	0C08234B	Record Head Plate	1
L01	0E00874A	Stopper Ring CS 2mm	1	02	GA01050A	R-8LH Record Head	1
F01	CA08341A	P-8L Playback Head Ass'y Serial No.: A12501001 -	1	03	0B02274A	4P-H Connector RED	1
01	CA08307A	Playback Head Plate Ass'y	1	L01	0E00887A	M1.7x4 ⊕ Pan	2
02	GA02034A	P-8LH Playback Head	1				

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
SW1 SW1 SW1 M2 M2 M2	BA04618A	Power Switch P.C.B. Ass'y (U.S.A. & Canada)	LED601-609 CN10	BA04545A	Record Cal. LED P.C.B. Ass'y	Q405 R604 R605 PL407	BA04852A	Shut-off P.C.B. Ass'y
	BA04594A	Power Switch P.C.B. Ass'y (Japan)		0B02509D	Record Cal. LED P.C.B.		0B07839B	Shut-off P.C.B. Photo TR PH104
	BA04620A	Power Switch P.C.B. Ass'y (UK, Australia, 220V Class 2 & Others)		0B06333A	LED RED TLR124A		0B06228A	Photo TR PH104
	0B08956C	Power Switch P.C.B. Power Switch (U.S.A. & Canada)	VR001,002 VR003	0B08923B	6P-H Connector		0B05615A	RK 22K 1/4W J
	0B07407A	Power Switch (Japan)		BA04546A	Volume P.C.B. Ass'y		0B09215A	RF 100 1/4W J
	0B07406A	Power Switch (Japan)		0B02510A	Volume P.C.B. VR 100K (A)		0B08552A	Lamp 12V 25mA
	0B07408A	Power Switch (UK, Australia, 220V Class 2 & Others)	IC601 X601 R612 C601,602 C603 CN14 CN16 FC601 FC602	BA04642A	Counter Control P.C.B. Ass'y			
	0B08342A	Spark Killer (U.S.A. & Canada)		0B02514A	Counter Control P.C.B.			
	0B08363A	Spark Killer (Japan)		0B06320A	IC LM6402A-048			
	0B08955A	Spark Killer (UK, Australia, 220V Class 2 & Others)		0B08908A	Xtal KBR400BT			
	0E00622A	M3x5 ⊕ Pan (2A)		0B09749A	RK 1M 1/6W J			
	0E00752A	Eyelet 2x3		0B05879A	CC 220P 50V K			
	0J04475A	Power Switch Holder		0B01836A	CE 47μ 10V			
	0J04555A	Power Switch Insulator		0B08939B	7P-H Connector			
				0B08940B	11P-H Connector			
				0B05265A	7P Flat Cable			
				0B05262A	6P Flat Cable			
	BA04547A	Azimuth Switch P.C.B. Ass'y	Q601,602 603,604 LED601	BA04548A	Counter P.C.B. Ass'y			
	0B02511A	Azimuth Switch P.C.B.		0B02513B	Counter P.C.B. TR 2SA608SP			
	0B07394A	Push Switch (1)		0B06319A	Counter LED SL1405 20			
	0E00622A	M3x5 ⊕ Pan (2A)		0B06326A	Counter LED SL1405 20			
	0J04473A	Adjustment Switch Holder		0B05629A	RK 2.7K 1/4W J			
			R601,602 603,604 R605-611	0B01933A	RK 220 1/4W J (7)			
			SW601	0B07219A	Switch AKC8S			

6. MOUNTING DIAGRAMS AND PARTS LIST

Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.

2. Diode is 1SS53, 1S953, or 1S1555 unless otherwise specified.

3. 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, RC — Cement Resistor

CE — Electrolytic Capacitor, CM — Mylar Capacitor, CC — Ceramic Capacitor, CP — PP Capacitor,

CT — Tantalum Capacitor, C — Mica Capacitor

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

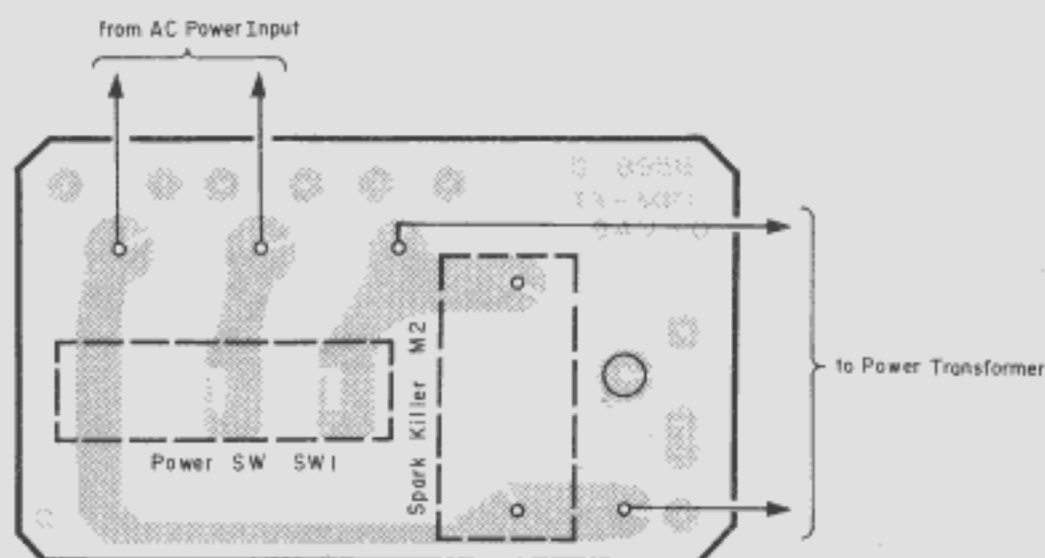


Fig. 6.1

6.2. Azimuth Switch P.C.B. Ass'y

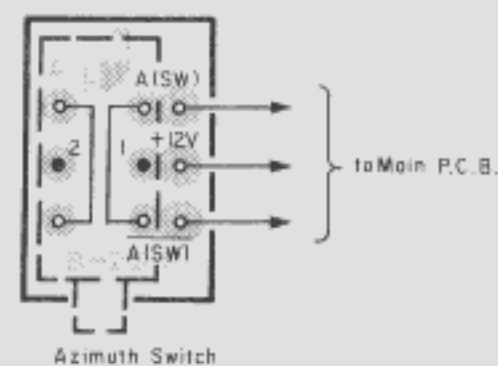


Fig. 6.2

6.3. Record Cal. LED P.C.B. Ass'y

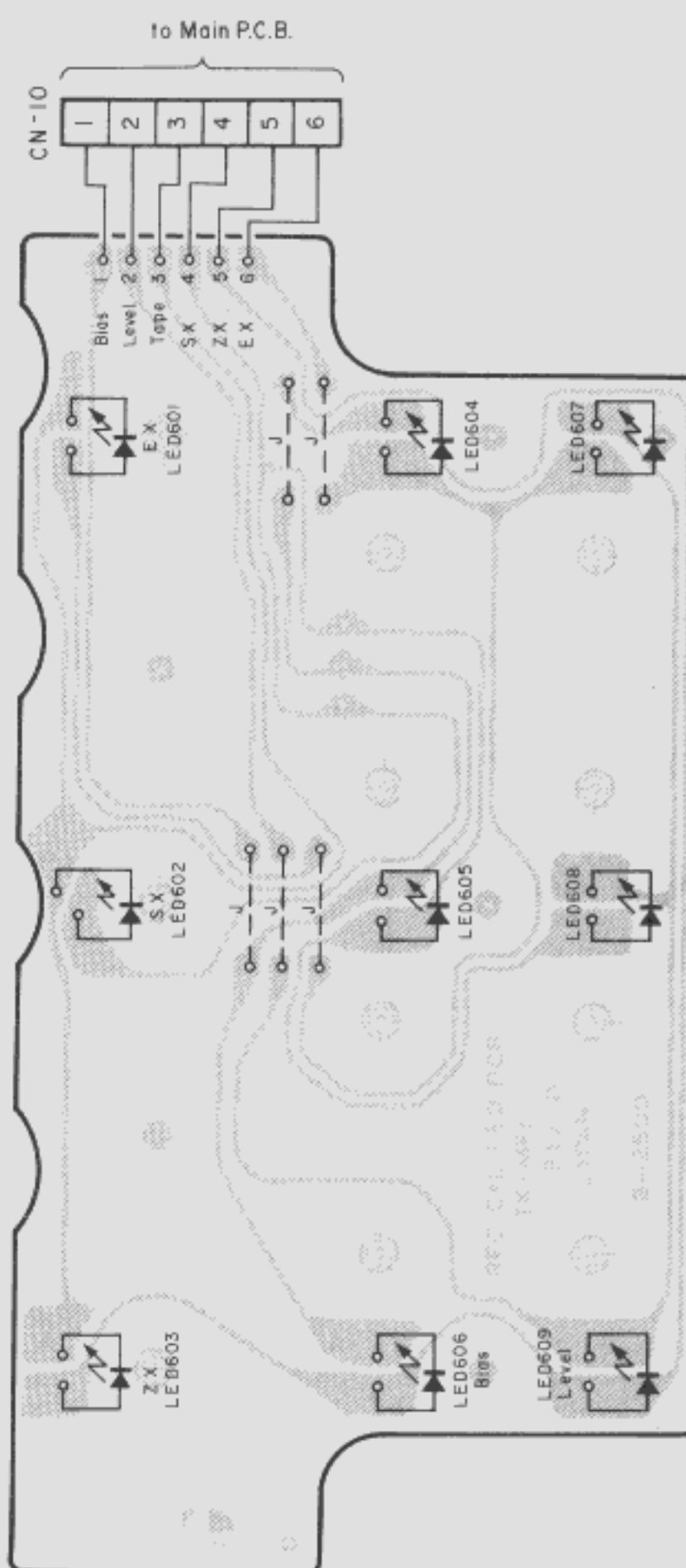


Fig. 6.3

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

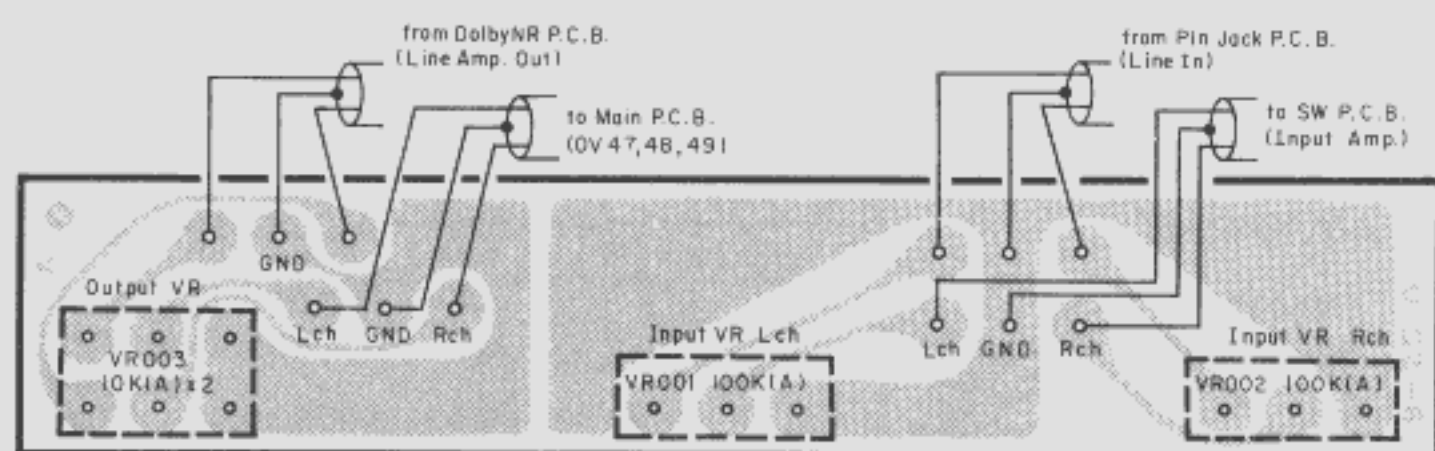


Fig. 6.4

6.5. Counter Control P.C.B. Ass'y

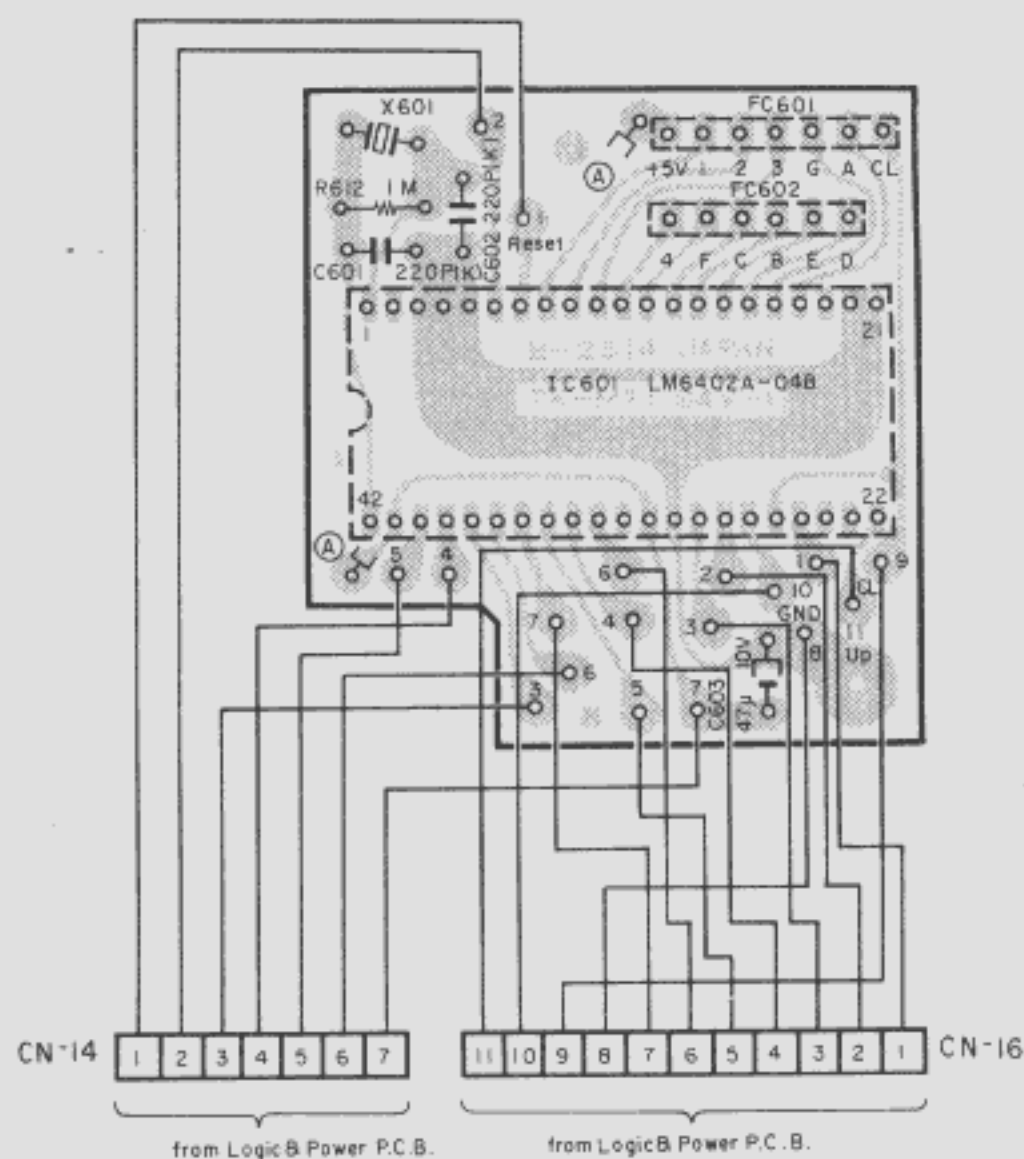


Fig. 6.5

6.6. Counter P.C.B. Ass'y

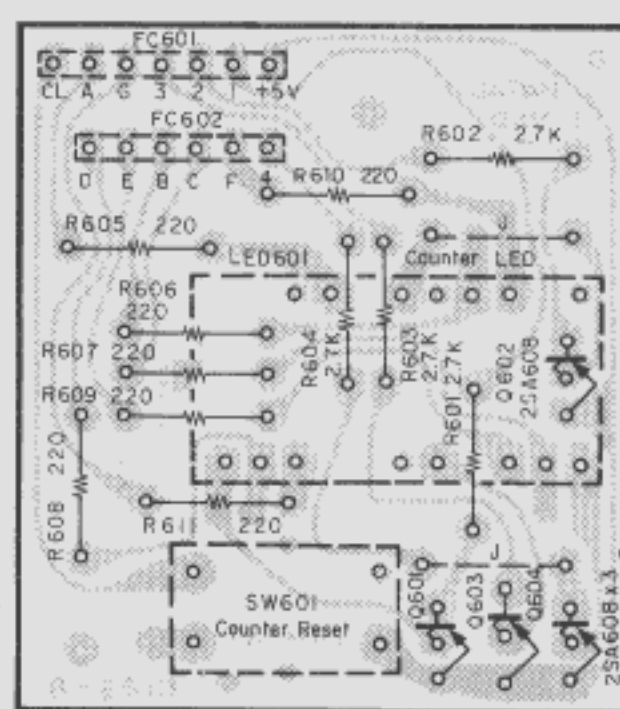


Fig. 6.6

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

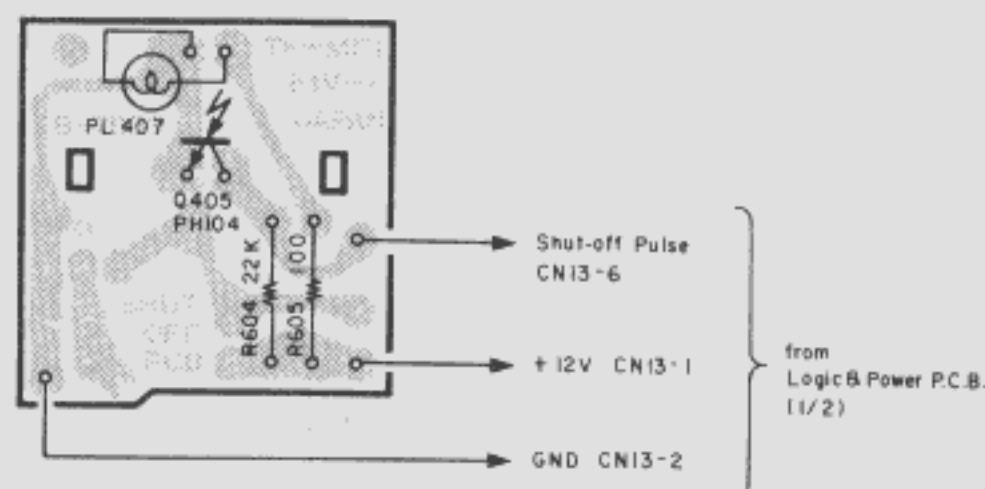


Fig. 6.7

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

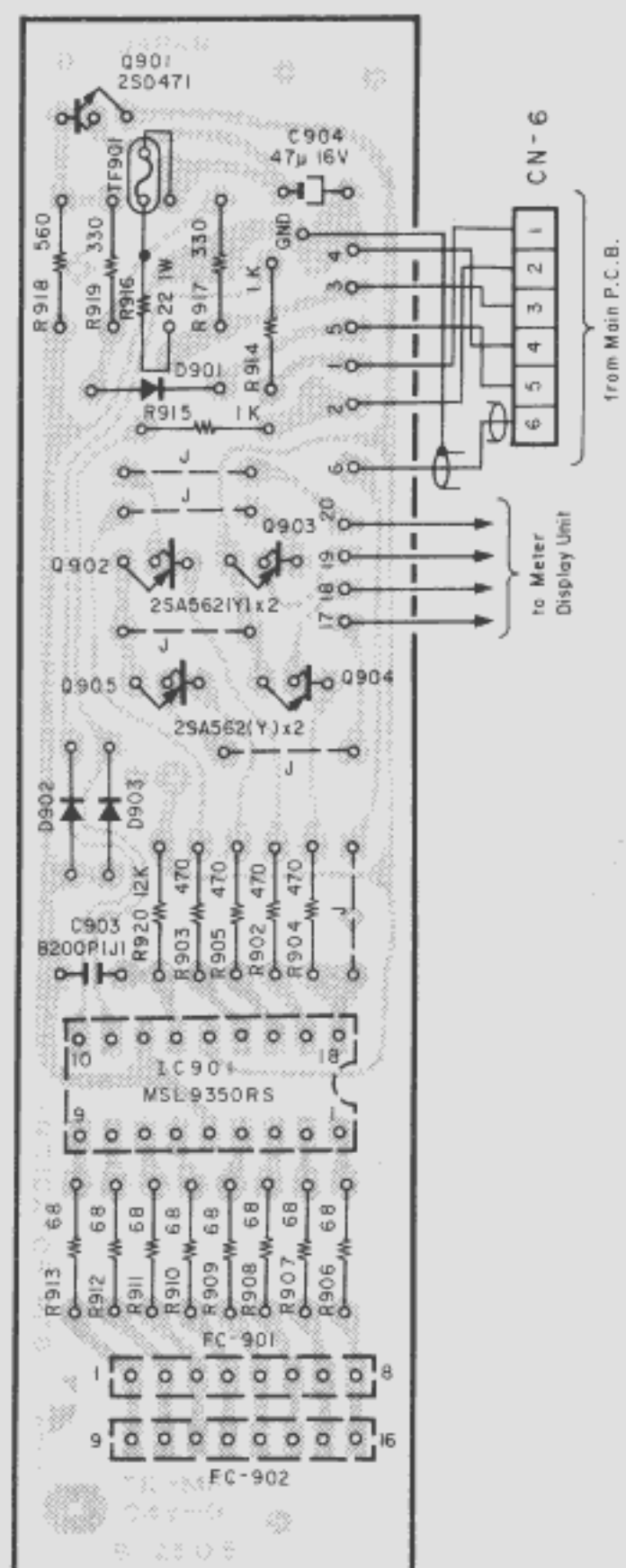


Fig. 6.8

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

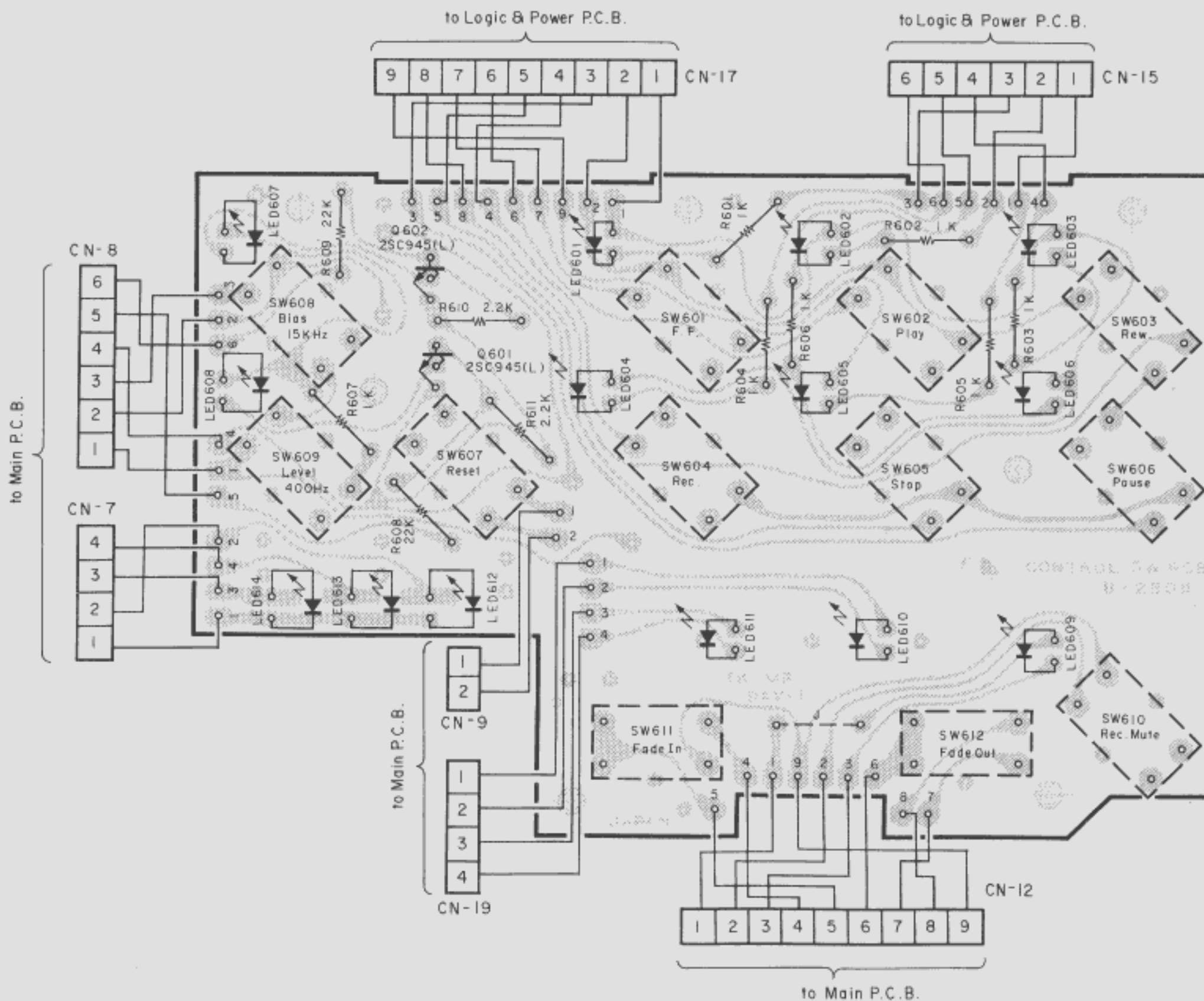


Fig. 6.9

6.10. Switch P.C.B. Ass'y

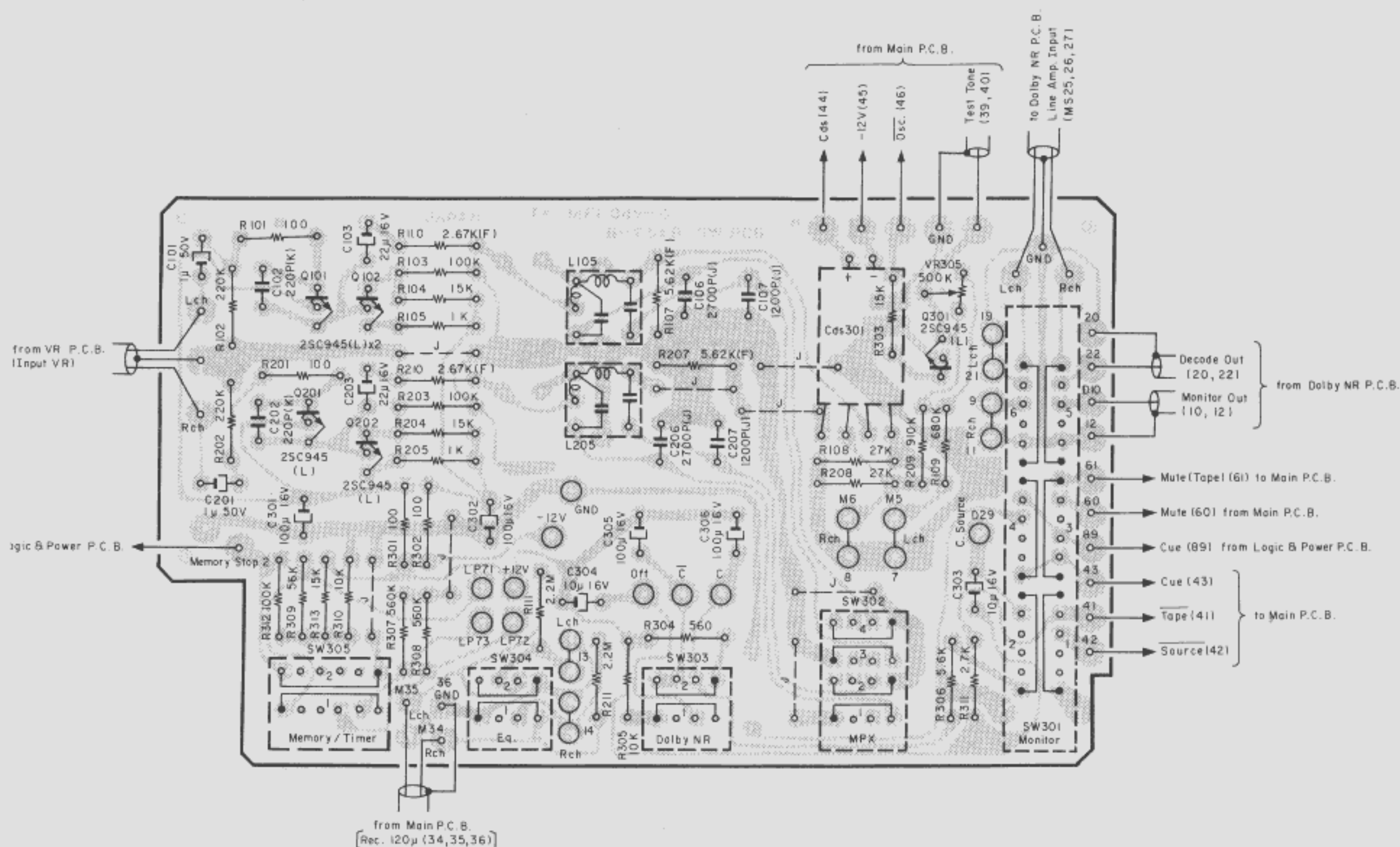


Fig. 6.10

6.11. Record Cal. P.C.B. Ass'y

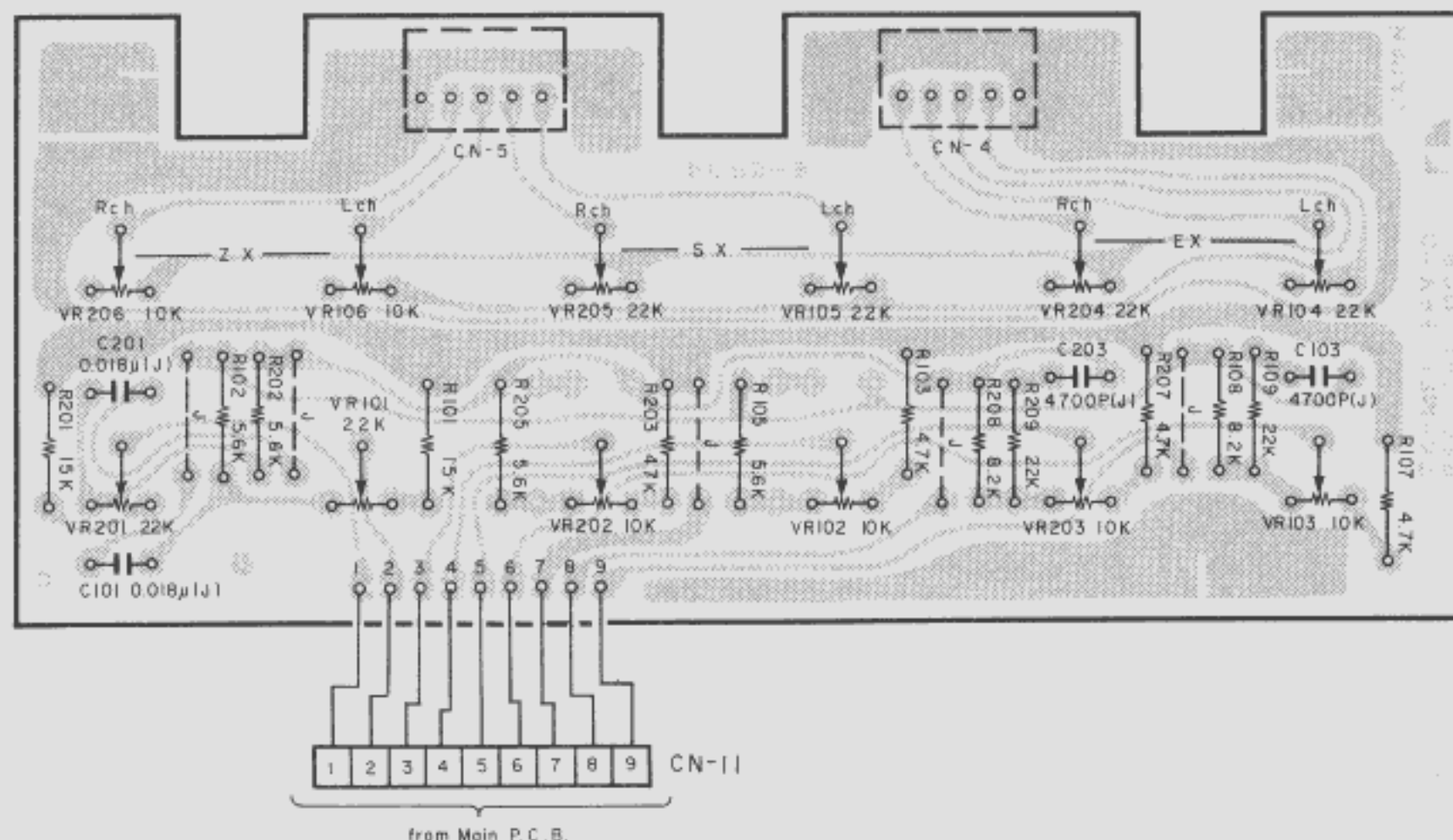


Fig. 6.11

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04543A	Indicator P.C.B. Ass'y		OJ04580A OJ04534B	P.C.B. Himelon (1) Fader House (1)		BA04542A	Record Cal. P.C.B. Ass'y
IC901	OB02505D	Indicator P.C.B. IC MSL9350RS		BA04770A	Switch P.C.B. Ass'y	VR101,104	OB02504D	Record Cal. P.C.B. Semi-fixed VR 22K
Q901	OB06284A	TR 2SD471		OB02549A	Switch P.C.B. TR 2SC945 (L)	105,201	OB07277A	
Q902,903	OB06202A	TR 2SA562 (Y)	Q101,102	OB01872A		204,205		
904,905			201,202			VR102,103	OB07404A	Semi-fixed VR 10K
D901-903	OB01909A	SiD 1S1555	301			106,202		
R902,903	OB05576A	RK 470 1/4W J	Cds301	OB06325B	Photocoupler MCD7214F	203,206		
904,905						R101,201	OB01683A	RK 15K 1/4W J
R906-913	OB01704A	RK 68 1/4W J (8)	L105,205	OB06690A	L-C Block	R102,105	OB01887A	RK 5.6K 1/4W J
R914,915	OB01857A	RK 1K 1/4W J	VR305	OB07330A	Semi-fixed VR 500K	202,205		
R916	OB09378A	RF 22 1W J	R101,201	OB01679A	RK 100 1/4W J	R103,107	OB01846A	RK 4.7K 1/4W J
R917,919	OB05577A	RK 330 1/4W J	R102,202	OB05625A	RK 220K 1/4W J	203,207		
R918	OB05575A	RK 560 1/4W J	R103,203	OB01889A	RK 100K 1/4W J	R108,208	OB01856A	RK 8.2K 1/4W J
R920	OB09263A	RK 12K 1/4W J	312			R109,209	OB05615A	RK 22K 1/4W J
C903	OB05814A	CM 8200P 50V J	R104,204	OB01683A	RK 15K 1/4W J	C101,201	OB05832A	CM 0.018μ 50V J
C904	OB01403A	CE 47μ 16V	303,313			C103,203	OB05652A	CM 4700P 50V J
F901	OB08715A	Thermal Fuse 129	R105,205	OB01857A	RK 1K 1/4W J	CN4,5	OB08727A	5P-S Connector
CN6	OB02276A	6P-H Connector RED	R107,207	OB09427A	RM 5.62K 1/4W F	CN11	OB08920B	9P-H Connector
	OB05236A	8P Flat Cable (1)	R108,208	OB05743A	RK 27K 1/4W J		OE00612A	M3x6 ⊕ Pan (2A) (2)
	OB05264A	Flat Cable (1)	R109	OB05868A	RK 680K 1/4W J			
	OB06336A	Meter Display (1)	R110,210	OB09421A	RM 2.67K 1/4W F		OJ04481B	Shield Case C (1)
			R111,211	OB05671A	RK 2.2M 1/4W J		OJ04483A	Record Cal. P.C.B. Holder (1)
			R209	OB05960A	RK 910K 1/4W J			
			R301,302	OB09215A	RF 100 1/4W J			
			R304	OB05575A	RK 560 1/4W J			
			R305,310	OB01888A	RK 10K 1/4W J			
			R306	OB01887A	RK 5.6K 1/4W J			
			R307,308	OB05784A	RK 560K 1/4W J			
			R309	OB05508A	RK 56K 1/4W J			
			R311	OB05629A	RK 2.7K 1/4W J			
			C101,201	OB01405A	CE 1μ 50V			
			C102,202	OB09283A	CC 220P 50V K			
			C103,203	OB01862A	CE 22μ 16V			
			C106,206	OB09189A	CM 2700P 50V J			
			C107,207	OB05687A	CM 1200P 50V J			
			C301,302	OB01400A	CE 100μ 16V			
			305,306					
			C303,304	OB01412A	CE 10μ 16V			
			SW301	OB07393A	Rotary Switch 6-2NS			
			SW302	OB07428A	Rotary Switch 4-2S			
			SW303	OB07350A	Rotary Switch 2-3			
			SW304	OB07392A	Rotary Switch 2-2S			
			SW305	OB07391A	Rotary Switch 2-4NS			
				OB08515A	Insu-Lock (4)			
CN7	OB02273A	4P-H Connector BLU						
CN8	OB02275A	6P-H Connector BLU						
CN9	OB02272A	2P-H Connector BLU						
CN12	OB02279A	9P-H Connector BLU						
CN15	OB02277A	6P-H Connector GRN						
CN17	OB02278A	9P-H Connector GRN						
CN19	OB08935B	4P-H Connector						
	OE00857A	BT M3x6 ⊕ Binding (1)						

6.12. D/D Motor Control P.C.B. Ass'y

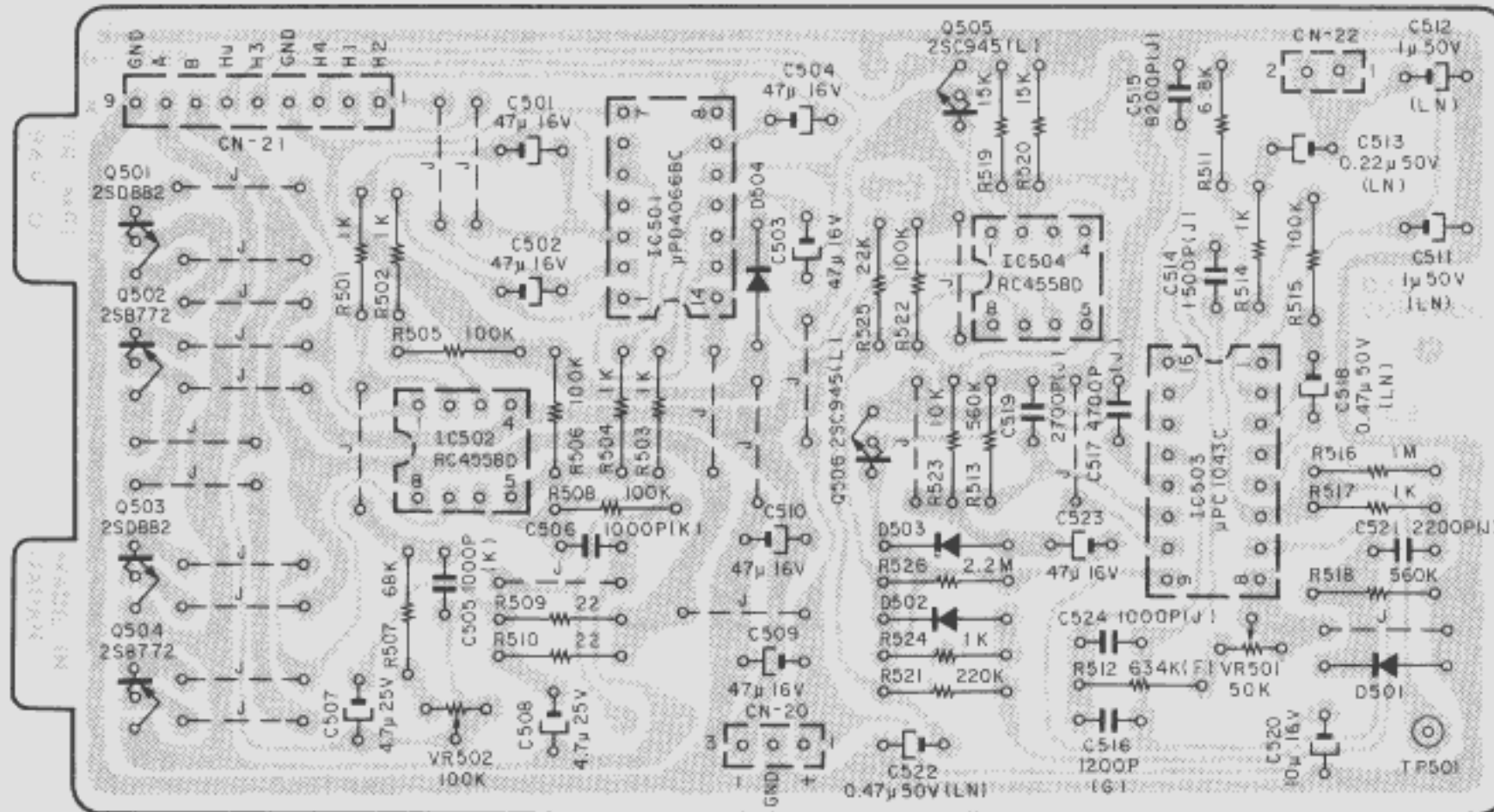


Fig. 6.12

6.13. Motor P.C.B. Ass'y

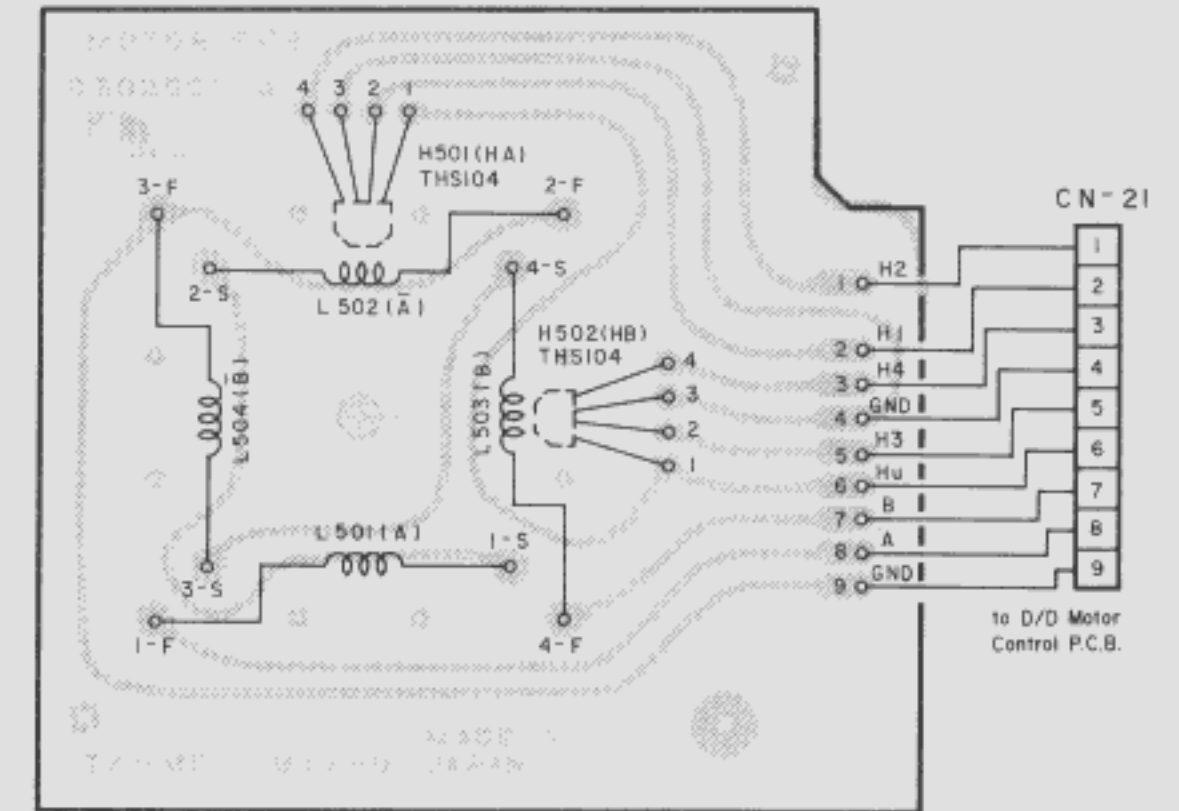


Fig. 6.13

6.14. Dolby NR P.C.B. Ass'y

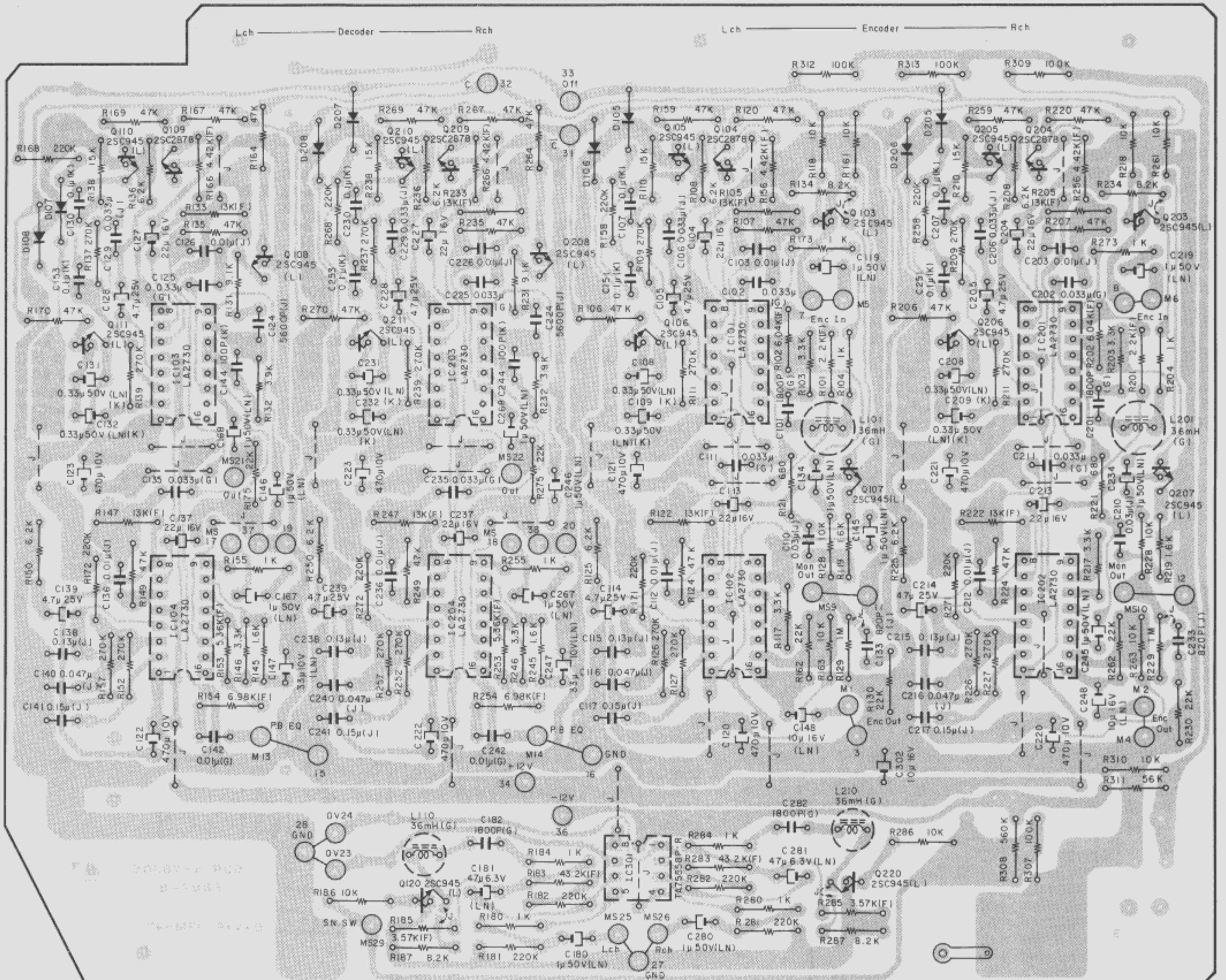


Fig. 6.14

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description																																																																												
IC501 IC502,504 IC503 Q501,503 Q502,504 Q505,506 D501-504 VR501 VR502 R501,502 503,504 514,517 524 R505,506 508,515 522 R507 R509,510 R511 R512 R513,518 R516 R519,520 R521 R523 R525 R526 C501,502 503,504 509,510 523,525 C505,506 C507,508 C511,512 C513 C514 C515 C516 C517 C518,522 C519 C520 C521 C524 CN20 CN21 CN22	BA04777A	D/D Motor Control P.C.B. Ass'y	IC103,104 203,204 Q108,110 111,208 210,211 Q109,209 D107,108 207,208 R131,231 R132,232 R133,147 233,247 R135,149 164,167 169,170 235,249 264,267 269,270 R136,150 236,250 R137,139 152,157 237,239 252,257 R138,238 R145,245 R146,246 R153,253 R154,254 R155,255 R166,266 R168,172 268,272 R175,275 C122,123 222,223 C124,224 C125,135 225,235 C126,136 226,236 C127,137 227,237 C128,139 228,239 C129,229 C130,153 230,253 C131,132 231,232 C138,238 C140,240 C141,241 C142,242 C144,244 C146,167 168,246 267,268 C147,247 IC101,102 201,202 Q103,105 106,107 203,205 206,207 Q104,204 D105,106 205,206 L101,201 R101,201 R102,202 R103,117 203,217 R104,173 204,273 R105,122 205,222 R106,107 120,124	BA04766A	Dolby NR P.C.B. Ass'y	R159,206 207,220 224,259 R108,125 208,225 R109,111 126,127 209,211 226,227 R110,210 R118,128 161,163 218,228 261,263 R119,219 R121,221 R129,229 R130,162 230,262 R134,234 R156,256 R158,171 258,271 C101,201 C102,111 202,211 C103,112 203,212 C104,113 204,213 C105,114 205,214 C106,206 C107,151 207,251 C108,109 208,209 C110,210 C115,215 C116,216 C117,217 C119,134 219,234 C120,121 220,221 C133,233 C145,245 C148,248	OB05641A	RK 47K 1/4W J	OB09271A OB05620A OB01683A OB01888A OB09565A OB05794A OB05776A OB05615A OB01856A OB09558A OB05625A OB09409A OB09240A OB05681A OB01862A OB01402A OB05583A OB01603A OB09567A OB09594A OB09566A OB05796A OB05914A OB09223A OB05884A OB09783A OB09814A OB09816A OB08714A — Line Amp. — OB06287A OB01872A OB06676A OB01857A OB05625A OB09582A OB09507A OB01888A OB01856A OB01889A OB05784A OB05508A OB09814A OB09815A OB09409A OB01412A — Miscellaneous — OB07992E	OB02552A	D/D Motor Control P.C.B.	— PB Dolby NR —	OB06388A	IC LA2730	OB01872A	TR 2SC945 (L)	OB06299A	TR 2SC2878	OB01909A	SiD 1S1555	OB05694A	RK 9.1K 1/4W J	OB05675A	RK 3.9K 1/4W J	OB09557A	RM 13K 1/4W F	OB05641A	RK 47K 1/4W J	OB09271A	RK 6.2K 1/4W J	OB05620A	RK 270K 1/4W J	OB01683A	RK 15K 1/4W J	OB09565A	RK 1.6K 1/4W J	OB05794A	RK 680 1/4W J	OB05776A	RK 1M 1/4W J	OB05615A	RK 22K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB09558A	RM 4.42K 1/4W F	OB05625A	RK 220K 1/4W J	OB09409A	CP 1800P 100V G	OB09240A	CP 0.033μ 100V G	OB05681A	CM 0.01μ 50V J	OB01862A	CE 22μ 16V	OB01402A	CE 4.7μ 25V	OB05583A	CM 0.033μ 50V J	OB01603A	CM 0.1μ 50V K	OB09567A	CE 0.33μ 50V K (LN)	OB09594A	CM 0.03μ 50V J	OB09566A	CM 0.13μ 50V J	OB05796A	CM 0.047μ 50V J	OB05914A	CM 0.15μ 50V J	OB09223A	CE 1μ 50V (LN)	OB05884A	CE 470μ 10V	OB09783A	CP 820P 100V J	OB09814A	CE 1μ 50V (LN)	OB09816A	CE 10μ 16V (LN)	OB08714A	IC Socket 16P (4)
	OB06144A	IC μPD4066BC		OB06388A	IC LA2730	OB09271A	RK 6.2K 1/4W J	OB06124B		IC RC4558D	OB05620A	RK 270K 1/4W J	OB01872A	TR 2SC945 (L)	OB05681A	CM 0.01μ 50V J	OB06377A	IC μPC1043C	OB01857A	RK 1K 1/4W J	OB05615A	RK 22K 1/4W J	OB01888A	RK 10K 1/4W J	OB01889A	RK 100K 1/4W J	OB09271A	RK 6.2K 1/4W J	OB06316A	TR 2SD882	OB05675A	RK 3.9K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB05794A	RK 680 1/4W J	OB05776A	RK 1M 1/4W J	OB09558A	RM 4.42K 1/4W F	OB05625A	RK 220K 1/4W J	OB09409A	CP 1800P 100V G	OB09240A	CP 0.033μ 100V G	OB05681A	CM 0.01μ 50V J	OB01862A	CE 22μ 16V	OB01402A	CE 4.7μ 25V	OB05583A	CM 0.033μ 50V J	OB01603A	CM 0.1μ 50V K	OB09567A	CE 0.33μ 50V K (LN)	OB09594A	CM 0.03μ 50V J	OB09566A	CM 0.13μ 50V J	OB05796A	CM 0.047μ 50V J	OB05914A	CM 0.15μ 50V J	OB09223A	CE 1μ 50V (LN)	OB05884A	CE 470μ 10V	OB09783A	CP 820P 100V J	OB09814A	CE 1μ 50V (LN)	OB09816A	CE 10μ 16V (LN)	OB08714A	IC Socket 16P (4)						
	OB06124B	IC RC4558D		OB01872A	TR 2SC945 (L)	OB05620A	RK 270K 1/4W J	OB06377A		IC μPC1043C	OB01857A	RK 1K 1/4W J	OB01888A	RK 10K 1/4W J	OB09271A	RK 6.2K 1/4W J	OB06316A	TR 2SD882	OB05675A	RK 3.9K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB05794A	RK 680 1/4W J	OB05776A	RK 1M 1/4W J	OB09558A	RM 4.42K 1/4W F	OB05625A	RK 220K 1/4W J	OB09409A	CP 1800P 100V G	OB09240A	CP 0.033μ 100V G	OB05681A	CM 0.01μ 50V J	OB01862A	CE 22μ 16V	OB01402A	CE 4.7μ 25V	OB05583A	CM 0.033μ 50V J	OB01603A	CM 0.1μ 50V K	OB09567A	CE 0.33μ 50V K (LN)	OB09594A	CM 0.03μ 50V J	OB09566A	CM 0.13μ 50V J	OB05796A	CM 0.047μ 50V J	OB05914A	CM 0.15μ 50V J	OB09223A	CE 1μ 50V (LN)	OB05884A	CE 470μ 10V	OB09783A	CP 820P 100V J	OB09814A	CE 1μ 50V (LN)	OB09816A	CE 10μ 16V (LN)	OB08714A	IC Socket 16P (4)																		
	OB06377A	IC μPC1043C		OB06299A	TR 2SC2878	OB01857A	RK 1K 1/4W J	OB06316A		TR 2SD882	OB05675A	RK 3.9K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB09271A	RK 6.2K 1/4W J	OB06316A	TR 2SD882	OB05675A	RK 3.9K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB05794A	RK 680 1/4W J	OB05776A	RK 1M 1/4W J	OB09558A	RM 4.42K 1/4W F	OB05625A	RK 220K 1/4W J	OB09409A	CP 1800P 100V G	OB09240A	CP 0.033μ 100V G	OB05681A	CM 0.01μ 50V J	OB01862A	CE 22μ 16V	OB01402A	CE 4.7μ 25V	OB05583A	CM 0.033μ 50V J	OB01603A	CM 0.1μ 50V K	OB09567A	CE 0.33μ 50V K (LN)	OB09594A	CM 0.03μ 50V J	OB09566A	CM 0.13μ 50V J	OB05796A	CM 0.047μ 50V J	OB05914A	CM 0.15μ 50V J	OB09223A	CE 1μ 50V (LN)	OB05884A	CE 470μ 10V	OB09783A	CP 820P 100V J	OB09814A	CE 1μ 50V (LN)	OB09816A	CE 10μ 16V (LN)	OB08714A	IC Socket 16P (4)																		
	OB06377A	IC μPC1043C		OB01909A	SiD 1S1555	OB05694A	RK 9.1K 1/4W J	OB06316A		TR 2SD882	OB05675A	RK 3.9K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB09271A	RK 6.2K 1/4W J	OB06316A	TR 2SD882	OB05675A	RK 3.9K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB05794A	RK 680 1/4W J	OB05776A	RK 1M 1/4W J	OB09558A	RM 4.42K 1/4W F	OB05625A	RK 220K 1/4W J	OB09409A	CP 1800P 100V G	OB09240A	CP 0.033μ 100V G	OB05681A	CM 0.01μ 50V J	OB01862A	CE 22μ 16V	OB01402A	CE 4.7μ 25V	OB05583A	CM 0.033μ 50V J	OB01603A	CM 0.1μ 50V K	OB09567A	CE 0.33μ 50V K (LN)	OB09594A	CM 0.03μ 50V J	OB09566A	CM 0.13μ 50V J	OB05796A	CM 0.047μ 50V J	OB05914A	CM 0.15μ 50V J	OB09223A	CE 1μ 50V (LN)	OB05884A	CE 470μ 10V	OB09783A	CP 820P 100V J	OB09814A	CE 1μ 50V (LN)	OB09816A	CE 10μ 16V (LN)	OB08714A	IC Socket 16P (4)																		
	OB06377A	IC μPC1043C		OB01909A	SiD 1S1555	OB05694A	RK 9.1K 1/4W J	OB06316A		TR 2SD882	OB05675A	RK 3.9K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB09271A	RK 6.2K 1/4W J	OB06316A	TR 2SD882	OB05675A	RK 3.9K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB05794A	RK 680 1/4W J	OB05776A	RK 1M 1/4W J	OB09558A	RM 4.42K 1/4W F	OB05625A	RK 220K 1/4W J	OB09409A	CP 1800P 100V G	OB09240A	CP 0.033μ 100V G	OB05681A	CM 0.01μ 50V J	OB01862A	CE 22μ 16V	OB01402A	CE 4.7μ 25V	OB05583A	CM 0.033μ 50V J	OB01603A	CM 0.1μ 50V K	OB09567A	CE 0.33μ 50V K (LN)	OB09594A	CM 0.03μ 50V J	OB09566A	CM 0.13μ 50V J	OB05796A	CM 0.047μ 50V J	OB05914A	CM 0.15μ 50V J	OB09223A	CE 1μ 50V (LN)	OB05884A	CE 470μ 10V	OB09783A	CP 820P 100V J	OB09814A	CE 1μ 50V (LN)	OB09816A	CE 10μ 16V (LN)	OB08714A	IC Socket 16P (4)																		
	OB06377A	IC μPC1043C		OB01909A	SiD 1S1555	OB05694A	RK 9.1K 1/4W J	OB06316A		TR 2SD882	OB05675A	RK 3.9K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB09271A	RK 6.2K 1/4W J	OB06316A	TR 2SD882	OB05675A	RK 3.9K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB05794A	RK 680 1/4W J	OB05776A	RK 1M 1/4W J	OB09558A	RM 4.42K 1/4W F	OB05625A	RK 220K 1/4W J	OB09409A	CP 1800P 100V G	OB09240A	CP 0.033μ 100V G	OB05681A	CM 0.01μ 50V J	OB01862A	CE 22μ 16V	OB01402A	CE 4.7μ 25V	OB05583A	CM 0.033μ 50V J	OB01603A	CM 0.1μ 50V K	OB09567A	CE 0.33μ 50V K (LN)	OB09594A	CM 0.03μ 50V J	OB09566A	CM 0.13μ 50V J	OB05796A	CM 0.047μ 50V J	OB05914A	CM 0.15μ 50V J	OB09223A	CE 1μ 50V (LN)	OB05884A	CE 470μ 10V	OB09783A	CP 820P 100V J	OB09814A	CE 1μ 50V (LN)	OB09816A	CE 10μ 16V (LN)	OB08714A	IC Socket 16P (4)																		
	OB06377A	IC μPC1043C		OB01909A	SiD 1S1555	OB05694A	RK 9.1K 1/4W J	OB06316A		TR 2SD882	OB05675A	RK 3.9K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB09271A	RK 6.2K 1/4W J	OB06316A	TR 2SD882	OB05675A	RK 3.9K 1/4W J	OB01856A	RK 8.2K 1/4W J	OB05794A	RK 680 1/4W J	OB05776A	RK 1M 1/4W J	OB09558A	RM 4.42K 1/4W F	OB05625A	RK 220K 1/4W J	OB09409A	CP 1800P 100V G	OB09240A	CP 0.033μ 100V G	OB05681A	CM 0.01μ 50V J	OB01862A	CE 22μ 16V	OB01402A	CE 4.7μ 25V	OB05583A	CM 0.033μ 50V J	OB01603A	CM 0.1μ 50V K	OB09567A	CE 0.33μ 50V K (LN																																						

6.15. Logic & Power P.C.B. Ass'y

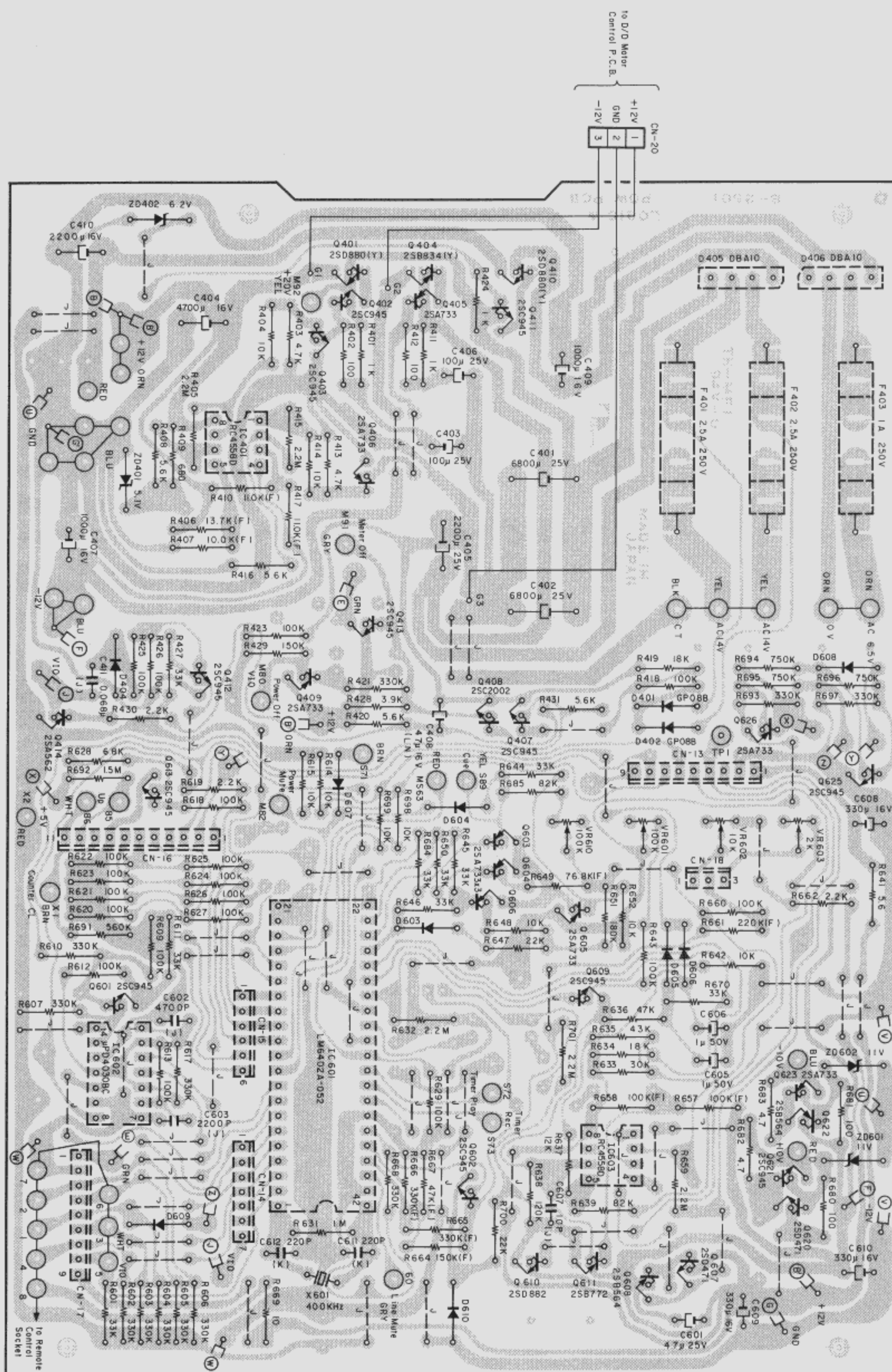
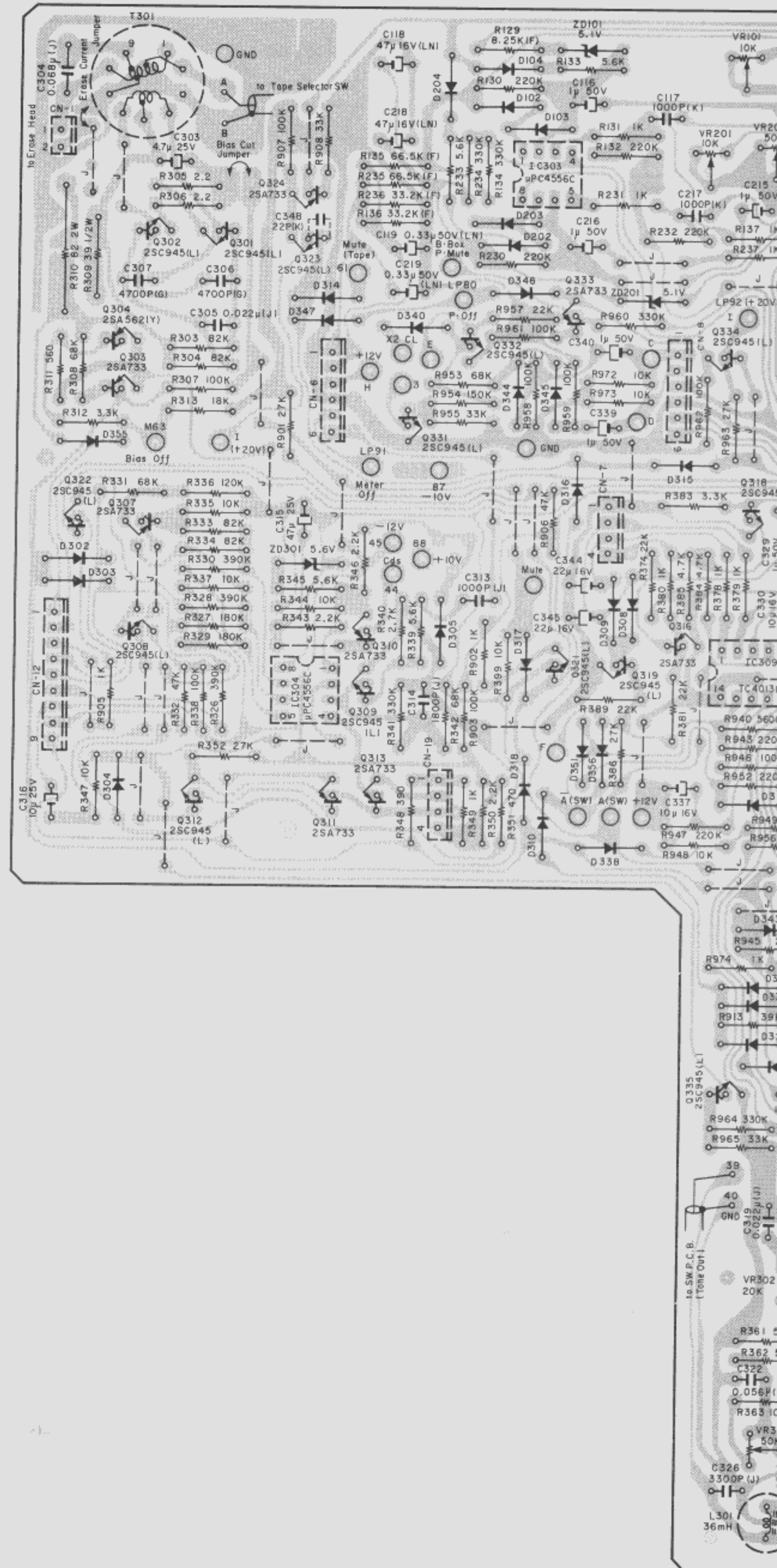


Fig. 6.15

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04763A	Main P.C.B. Ass'y	R905	OB01857A	RK 1K 1/4W J	C317	OB09836A	CP 360P 100V J
	— PB Eq. Amp. —		C303	OB01402A	CE 4.7 μ 25V	C318	OB09584A	CP 0.018 μ 100V G
Q106,206	OB06376A	FET 2SK170 (GR)	C304	OB09254A	CP 0.068 μ 100V J	C319	OB05582A	CM 0.022 μ 50V J
Q107,207	OB06180A	TR 2SA970 (GR)	C305	OB09405A	CP 0.022 μ 100V J	C320	OB01802A	CM 2200P 50V J
Q108,208	OB06142A	TR 2SC2240 (BL)	C306,307	OB09191A	CP 4700P 100V G	C321	OB09045A	CM 0.027 μ 50V J
L103,203	OB00068A	Trap Coil 10.5mH		OJ04450A	Osc. Coil Cap (1)	C322	OB05813A	CM 0.056 μ 50V J
VR104,204	OB07233A	Semi-fixed VR 10K		— Meter Amp. —		C323	OB01780A	CM 0.1 μ 50V J
R147,154	OB01889A	RK 100K 1/4W J	IC303	OB06216A	IC μ PC4556C	C324	OB09302A	C 100P 100V J
247,254			IC312,313	OB06280A	IC MSM4066RS	C325	OB09322A	CP 330P 100V J
R148,248	OB09810A	RM 82 1/4W F	Q105,205	OB01872A	TR 2SC945 (L)	C326	OB01914A	CM 3300P 50V J
R150,250	OB09768A	RM 3.92K 1/4W F	305			C327,328	OB01412A	CE 10 μ 16V
R151,251	OB09471A	RM 205K 1/4W F	ZD101,201	OB06058A	ZD 5.1V YZ051		— Azimuth —	
R152,252	OB01857A	RK 1K 1/4W J	D102,103	OB06181A	SiD 1SS53	IC307	OB06124B	IC RC4558D
R153,157	OB01888A	RK 10K 1/4W J	104,202			IC308	OB06216A	IC μ PC4556C
253,257			203,204			IC309	OB06213A	IC TC4013BP
R155,255	OB01933A	RK 220 1/4W J	354			Q316,333	OB06013A	TR 2SA733
R156,256	OB05575A	RK 560 1/4W J	VR101,201	OB07256A	Semi-fixed VR 10K	Q317,318	OB01872A	TR 2SC945 (L)
R158,160	OB09162A	RF 82 1/4W J	VR102,202	OB07269A	Semi-fixed VR 50K	319,330		
258,260			VR103,203	OB07341A	Semi-fixed VR 5K	331,332		
R159,259	OB09431A	RM 8.06K 1/4W F	R123,124	OB01856A	RK 8.2K 1/4W J	334,335		
C123,223	OB05885A	CE 100 μ 10V	223,224			D105,106	OB06181A	SiD 1SS53 (26)
C124,224	OB09281A	CC 150P 50V K	R125,126	OB01889A	RK 100K 1/4W J	205,206		
C125,225	OB05841A	CE 330 μ 10V	225,226			308,309		
C126,226	OB09812A	CC 2P 50V C	316,317			310		
C127,227	OB09833A	CE 4.7 μ 25V (LN)	318			335-349		
C128,228	OB01804A	CM 3900P 50V J	R127,165	OB01920A	RK 100K 1/4W VJ	351,352		
C129,229	OB09247A	C 220P 50V J	227,265			353,356		
C130,131	OB01392A	CE 470 μ 16V	R128,228	OB05615A	RK 22K 1/4W J	VR304	OB07270A	Semi-fixed VR 20K
230,231			319			R138,139	OB01889A	RK 100K 1/4W J
C132,232	OB09490A	CP 0.015 μ 100V G	R129,229	OB09432A	RM 8.25K 1/4W F	238,239		
	— Rec. Amp. —		R130,132	OB05625A	RK 220K 1/4W J	935,937		
IC301	OB06387A	IC RC2043DD	230,232			939,942		
Q101,102	OB06299A	TR 2SC2878	R131,137	OB01857A	RK 1K 1/4W J	946,956		
201,202			231,237			958,959		
D101,201	OB06181A	SiD 1SS53	R133,233	OB01887A	RK 5.6K 1/4W J	961		
L101,102	OB06705A	Trap Coil 1.05mH	R134,234	OB05627A	RK 330K 1/4W J	R140,240	OB01846A	RK 4.7K 1/4W J
201,202			R135,235	OB09510A	RM 66.5K 1/4W F	384,385		
R101,103	OB01683A	RK 15K 1/4W J	R136,236	OB09446A	RM 33.2K 1/4W F	R141,241	OB05625A	RK 220K 1/4W J
114,201			R975	OB05509A	RK 33K 1/4W J	934,941		
203,214			C114,115	OB01405A	CE 1 μ 50V	943,944		
R102,202	OB09604A	RM 6.98K 1/4W F	116,214			945,947		
R104,106	OB05640A	RK 180K 1/4W J	215,216			952		
204,206			C117,217	OB09288A	CC 1000P 50V K	R142,144	OB01888A	RK 10K 1/4W J
R105,116	OB01679A	RK 100 1/4W J	C118,218	OB09218A	CE 47 μ 16V (LN)	145,242		
205,216			C119,219	OB09385A	CE 0.33 μ 50V (LN)	244,245		
R107,207	OB01854A	RK 39K 1/4W J	C310,311	OB01403A	CE 47 μ 16V	377,382		
R108,208	OB05675A	RK 3.9K 1/4W J	C347	OB01862A	CE 22 μ 16V	938,948		
R109,209	OB05560A	RK 18K 1/4W J		— Headphone Amp. —		949		
R110,210	OB05691A	RK 390 1/4W J	IC302	OB06217A	IC RC4560D	R143,243	OB05622A	RK 2.2K 1/4W J
R111,211	OB09230A	RM 1.5K 1/4W F	Q103,203	OB06069A	TR 2SB564	R374,375	OB05615A	RK 22K 1/4W J
R112,212	OB01888A	RK 10K 1/4W J	Q104,204	OB06066A	TR 2SD471	376,381		
R113,213	OB05560A	RK 18K 1/4W J	R119,120	OB01889A	RK 100K 1/4W J	389,950		
R115,215	OB01682A	RK 6.8K 1/4W J	219,220			957		
R117,217	OB05936A	RK 10 1/4W J	R121,221	OB01706A	RK 47 1/4W J	R378,379	OB01857A	RK 1K 1/4W J
R970	OB01933A	RK 220 1/4W J	R122,222	OB09331A	RF 8.2 1/4W J	380,974		
C101,201	OB09783A	CP 820P 100V J	R314,315	OB09216A	RF 10 1/4W J	R383,971	OB01681A	RK 3.3K 1/4W J
C102,202	OB05681A	CM 0.01 μ 50V J	C113,213	OB09586A	CC 2200P 50V K	R386,963	OB05743A	RK 27K 1/4W J
C103,203	OB05583A	CM 0.033 μ 50V J	C308,309	OB01400A	CE 100 μ 16V	R936,955	OB05509A	RK 33K 1/4W J
C104,204	OB09814A	CE 1 μ 50V (LN)		— Tone Osc. —		965		
C105,205	OB09815A	CE 47 μ 6.3V (LN)	IC305	OB06127A	IC RC4559D	R940	OB05784A	RK 560K 1/4W J
C106,206	OB05685A	CM 0.082 μ 50V J	IC306	OB06219A	IC μ PD4081BC	R951,953	OB09311A	RK 68K 1/4W J
C107,207	OB05659A	CM 5600P 50V J	Q314	OB01872A	TR 2SC945 (L)	R954	OB05626A	RK 150K 1/4W J
C108,208	OB01914A	CM 3300P 50V J	Q315	OB06013A	TR 2SA733	R960,964	OB05627A	RK 330K 1/4W J
C109,209	OB09834A	CP 2200P 100V J	D306	OB06181A	SiD 1SS53	C120,121	OB01405A	CE 1 μ 50V
C110,210	OB09286A	CP 470P 50V K	L301	OB03919B	Inductor 36mH	220,221		
C111,211	OB09322A	CP 330P 100V J	VR302	OB07270A	Semi-fixed VR 20K	329,332		
C301,302	OB01502A	CE 330 μ 16V	VR303	OB07269A	Semi-fixed VR 50K	C122,222	OB05796A	CM 0.047 μ 50V J
	— Bias Osc. —		R353,354	OB09315A	RM 332K 1/4W F	C330,337	OB01412A	CE 10 μ 16V
Q301,302	OB01872A	TR 2SC945 (L)	359			341		
Q303	OB06013A	TR 2SA733	R355	OB09583A	RM 97.6K 1/4W F	C338,346	OB09372A	CE 2.2 μ 50V
Q304	OB06202A	TR 2SA562 (Y)	R356,363	OB01889A	RK 100K 1/4W J	C344,345	OB01862A	CE 22 μ 16V
D355	OB06181A	SiD 1SS53	367,371				— Fader —	
T301	OB06613A	Osc. Coil	R357,368			IC304	OB06216A	IC μ PC4556C
R303,304	OB05668A	RK 82K 1/4W J	R358	OB05615A	RK 22K 1/4W J	Q307,310	OB06013A	TR 2SA733
R305,306	OB09212A	RF 2.2 1/4W J	R360	OB01888A	RK 10K 1/4W J	311,313		
R307	OB01889A	RK 100K 1/4W J	R361,362	OB01682A	RK 6.8K 1/4W J	Q308,309	OB01872A	TR 2SC945 (L)
R308	OB05692A	RK 68K 1/4W J	969	OB05508A	RK 56K 1/4W J	312		
R309	OB09296A	RF 39 1/2W J	R364	OB09527A	RK 130K 1/4W J	ZD301	OB06290A	ZD 5.6V RD5.6EB2
R310	OB09295A	RF 82 2W J	R365	OB05676A	RK 390K 1/4W J	D302,303	OB06181A	SiD 1SS53
R311	OB05575A	RK 560 1/4W J	R366	OB05622A	RK 2.2K 1/4W J	304,305		
R312	OB01681A	RK 3.3K 1/4W J	R369	OB09263A	RK 12K 1/4W J	R326,328	OB05676A	RK 390K 1/4W J
R313	OB05560A	RK 18K 1/4W J	R370	OB05509A	RK 33K 1/4W J	330		
			R372,373	OB09215A	RF 100 1/4W J	R327,329	OB05640A	RK 180K 1/4W J
						R331,342	OB05692A	RK 68K 1/4W J
						R332	OB05641A	RK 47K 1/4W J

6.16. Main P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description
R333,334	OB05668A	RK 82K 1/4W J
R335,337	OB01888A	RK 10K 1/4W J
344,347		
R336	OB05621A	RK 120K 1/4W J
R338	OB01889A	RK 100K 1/4W J
R339,345	OB01887A	RK 5.6K 1/4W J
R340	OB05629A	RK 2.7K 1/4W J
R341	OB05627A	RK 330K 1/4W J
R343,346	OB05622A	RK 2.2K 1/4W J
350		
R348	OB05691A	RK 390 1/4W J
R349	OB01857A	RK 1K 1/4W J
R351	OB05576A	RK 470 1/4W J
R352	OB05743A	RK 27K 1/4W J
C313	OB05550A	CM 1000P 50V J
C314	OB01913A	CM 1800P 50V J
C315	OB01409A	CE 47μ 25V
C316	OB01674A	CE 10μ 25V
— Miscellaneous —		
IC310	OB02548A	Main P.C.B.
Q109,110	OB06143A	IC μPD4001BC
209,210	OB06299A	TR 2SC2878
Q320,324	OB06013A	TR 2SA733
Q321,322	OB01872A	TR 2SC945 (L)
323,326		
327,328		
D314-318	OB06181A	SiD 1SS53 (16)
320-324		
327-332		
R161,261	OB05622A	RK 2.2K 1/4W J
R162,262	OB01887A	RK 5.6K 1/4W J
916,917		
920,921		
R163,263	OB05691A	RK 390 1/4W J
R164,264	OB01846A	RK 4.7K 1/4W J
R397,903	OB01889A	RK 100K 1/4W J
907,909		
962		
R398,906	OB05641A	RK 47K 1/4W J
R399,972	OB01888A	RK 10K 1/4W J
973		
R901,932	OB05743A	RK 27K 1/4W J
R902	OB01857A	RK 1K 1/4W J
R908	OB05509A	RK 33K 1/4W J
R912,913	OB01854A	RK 39K 1/4W J
R914,915	OB05675A	RK 3.9K 1/4W J
R918,922	OB05629A	RK 2.7K 1/4W J
R919,923	OB05577A	RK 330 1/4W J
924		
R925,927	OB05776A	RK 1M 1/4W J
R926,928	OB05671A	RK 2.2M 1/4W J
R967,968	OB09214A	RF 1 1/4W J
C133,233	OB09187A	CE 1μ 50V (BP)
C335	OB09286A	CC 470P 50V K
C339,340	OB01405A	CE 1μ 50V
C342,343	OB01397A	CE 1000μ 16V
C348	OB09279A	CC 22P 50V K
CN1	OB08656A	2P-T Post
CN2	OB02281A	4P-T Post RED
CN3,19	OB08654A	4P-T Post
CN4,5	OB08183A	5P-T Post
CN6	OB02284A	6P-T Post RED
CN7	OB02283A	4P-T Post BLU
CN8	OB02286A	6P-T Post BLU
CN9	OB02280A	2P-T Post BLU
CN10	OB08642A	6P-T Post
CN11	OB08645A	9P-T Post
CN12	OB02288A	9P-T Post BLU
	OB07395A	Push Switch 6-6-0
		(1)
	OE00507A	Nut Hex. M3 (2)
	OE00510A	M3x8 ⊕ Pan (2A)
		(2)
	OJ04479A	Shield Case A (1)
	OJ04480A	Shield Case B (1)



7. SCHEMATIC DIAGRAMS

7.1. Attention to Servicemen

(1) Parts Replacement

Following parts shall be replaced with the specified ones.
Refer to the parts list.

- (a) Power Supply Circuit
Power Cord
Power Transformer: T1
- (b) Power Switch P.C.B. Ass'y
Power Switch: SW1
Spark Killer: M2
- (c) Logic & Power P.C.B. Ass'y
Fuses: F401, 402, 403
Power Transistors: Q401, 404, 408, 410, 414, 607, 608, 610, 611, 620, 622
Diode Bridges: D405, 406
Fail Safe Type Resistors: R641, 669, 680, 681, 682, 683
- (d) Main P.C.B. Ass'y
Power Transistors: Q103, 104, 203, 204, 304
Fail Safe Type Resistors: R122, 158, 160, 222, 258, 260, 301, 302, 305, 306, 309, 310, 314, 315, 372, 373, 967, 968
- (e) Shut-off P.C.B. Ass'y
Fail Safe Type Resistor: R605
Lamp: PL407
- (f) Indicator P.C.B. Ass'y
Power Transistors: Q901, 902, 903, 904, 905
Fail Safe Type Resistor: R916
Thermal Fuse: TF901
- (g) Switch P.C.B. Ass'y
Fail Safe Type Resistors: R301, 302
- (h) D/D Motor Control P.C.B. Ass'y
Power Transistors: Q501, 502, 503, 504
Fail Safe Type Resistors: R509, 510
- (i) Cassette Case Lamp

(2) Insulation Check

Before returning the repaired ZX-9 to a customer, check to insure that the exposed part is accurately insulated from the AC line by measuring the leakage current or the insulation resistance between them.

7.2. IC Block Diagrams

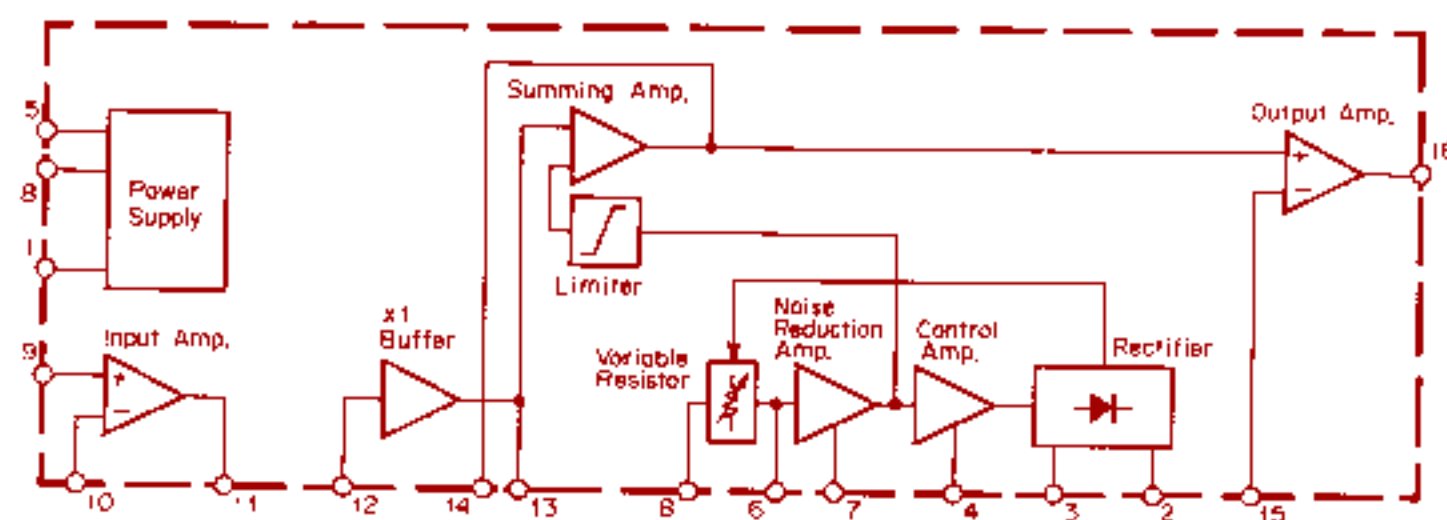


Fig. 7.2.1 Dolby NR IC LA2730

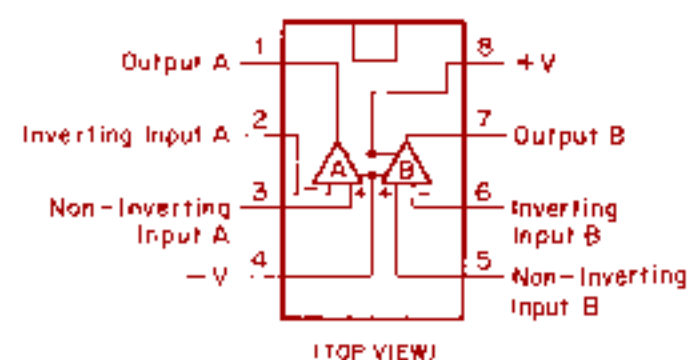


Fig. 7.2.2 Operational Amp. IC RC4558D, RC2043DD, μPC4556C, RC4560D, RC4559D, TA75558P-R

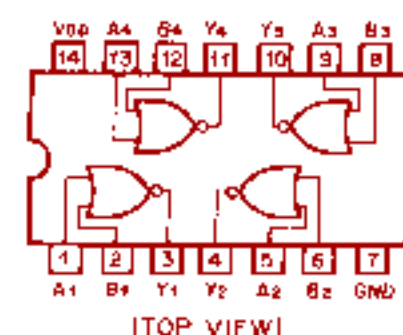


Fig. 7.2.3 NOR Gate C-MOS IC

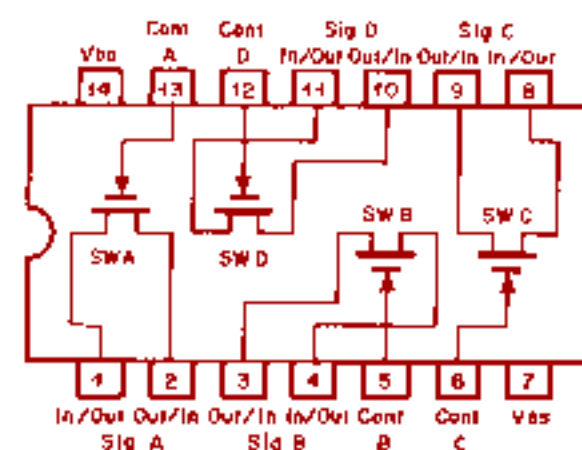


Fig. 7.2.4 Bilateral Switch C-MOS IC μPD4066BC, MSM4066RS

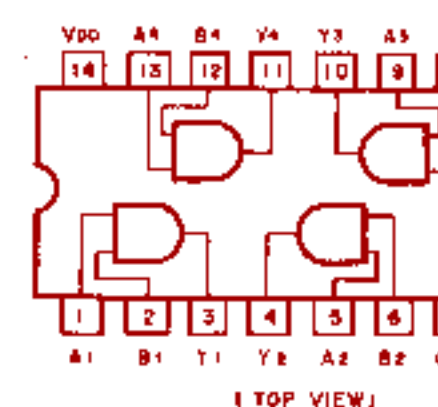


Fig. 7.2.5 AND Gate C-MOS IC

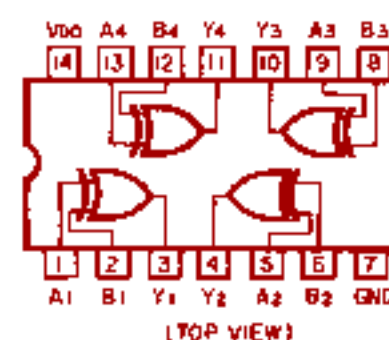


Fig. 7.2.6 Exclusive OR Gate C-MOS IC μPD4030BC

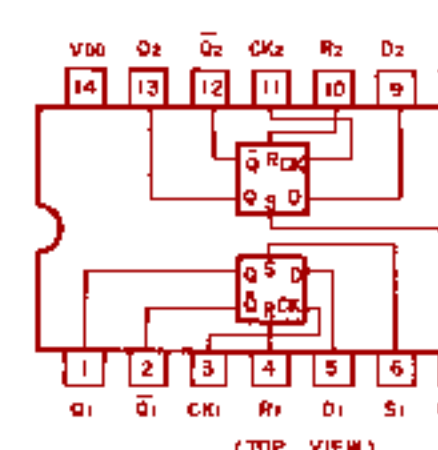


Fig. 7.2.7 D-Type Flip-Flop C TC4013BP

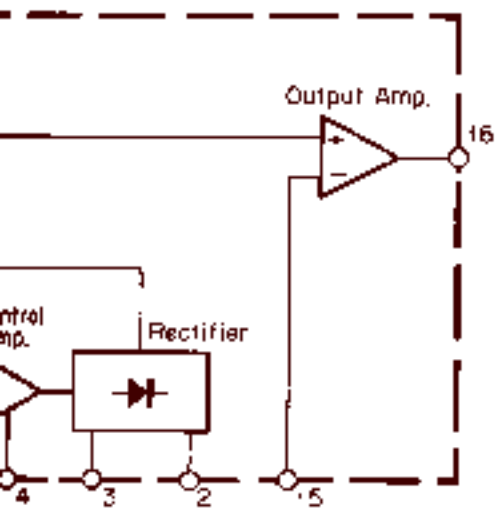


Fig. 7.2.3

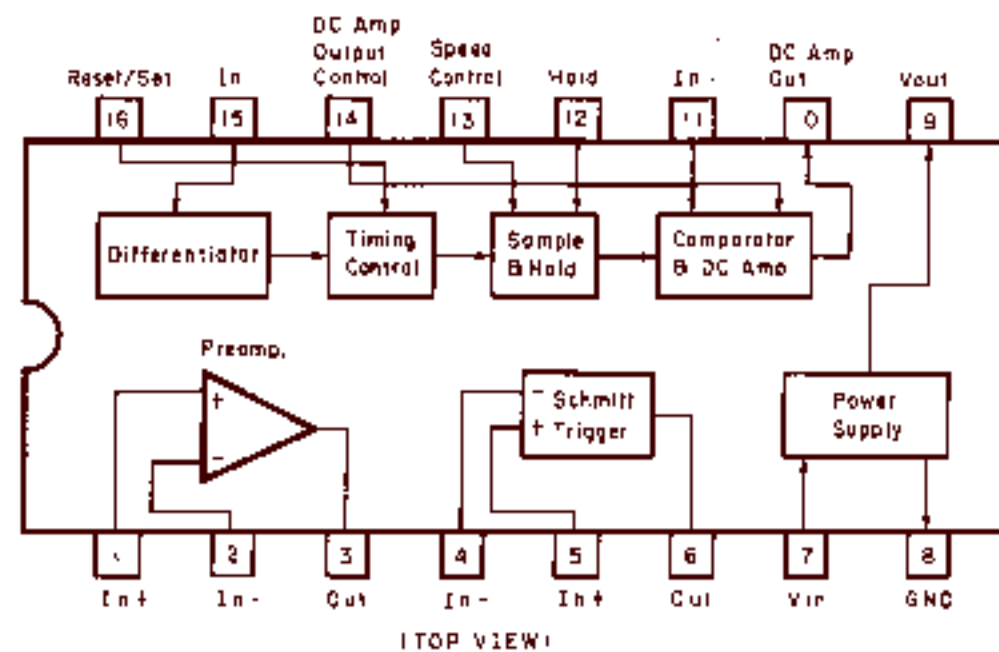


Fig. 7.2.8 Motor Control IC μ PC1043C

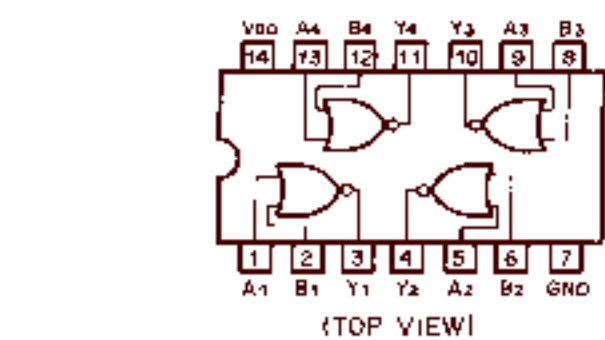


Fig. 7.2.3 NOR Gate C-MOS IC μ PD4001BC

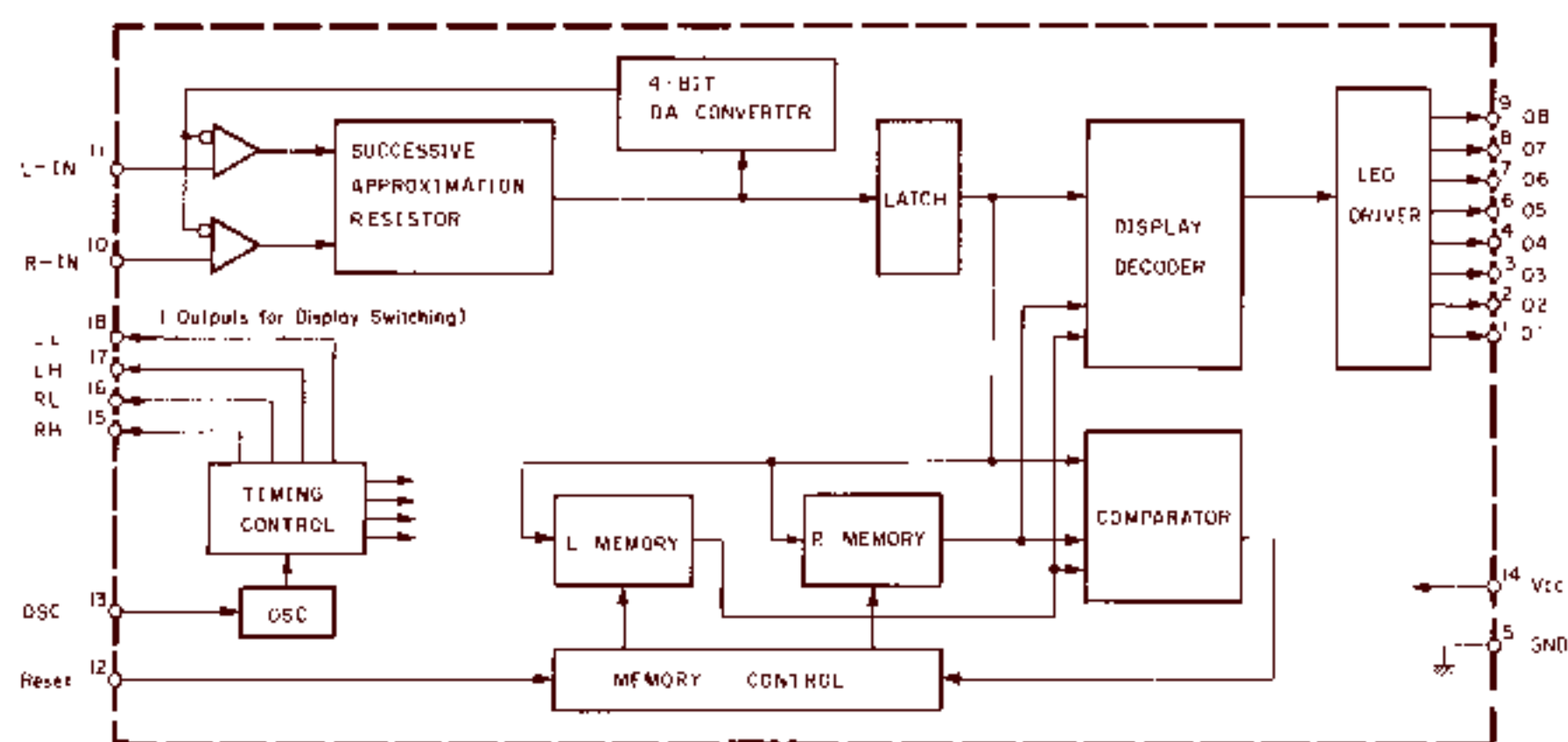


Fig. 7.2.9 Level Meter Control IC MSL9350RS

Fig. 7.2.5 AND Gate C-MOS IC μ PD4081BC

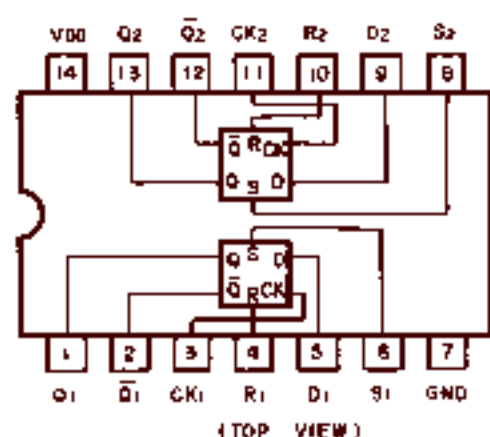


Fig. 7.2.7 D-Type Flip-Flop C-MOS IC TC4013BP

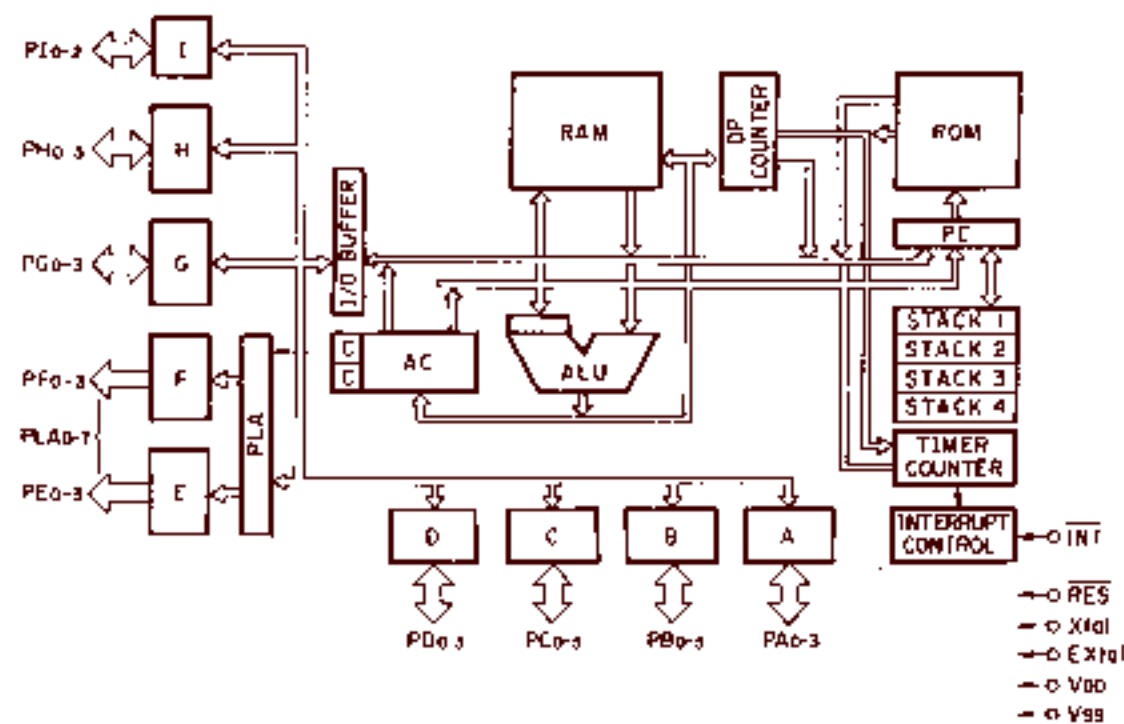
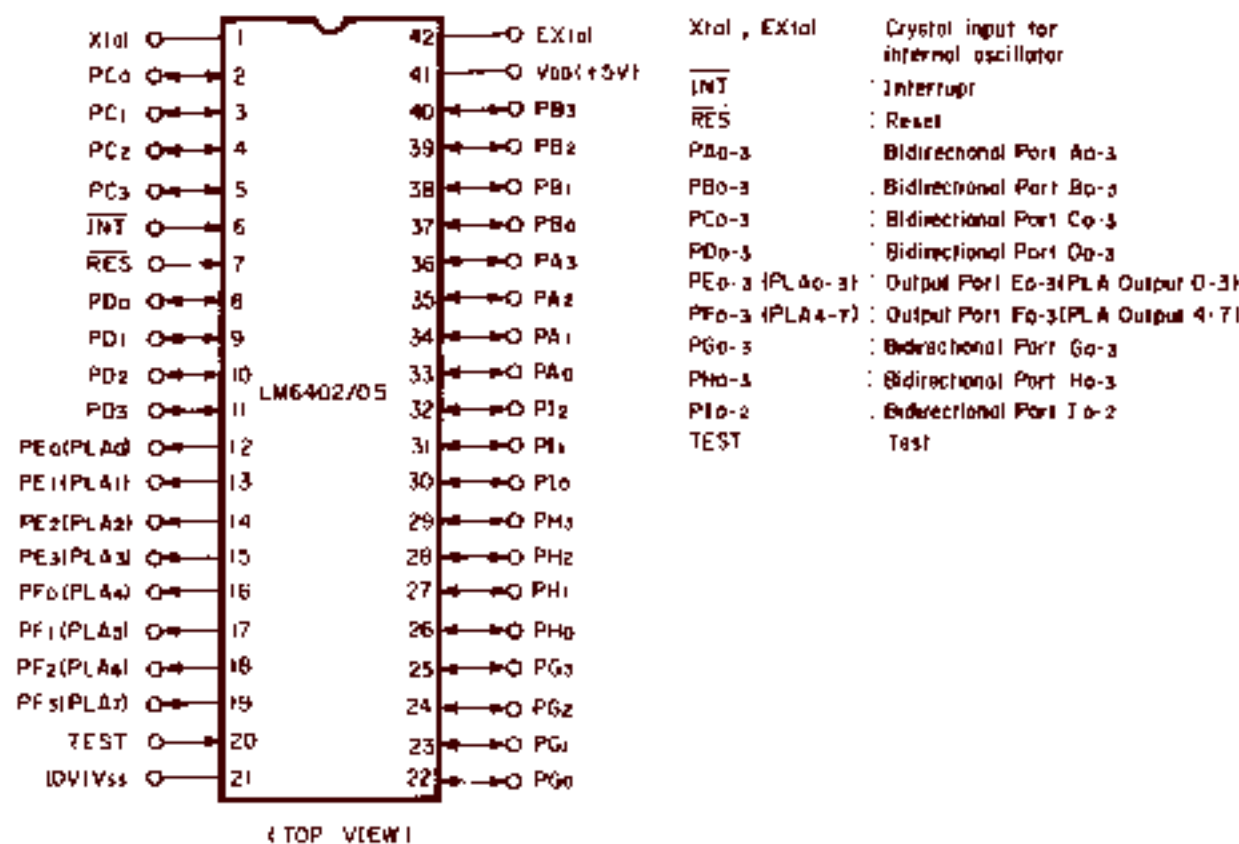


Fig. 7.2.10 4-Bit Micro-processor LM6402A-052/048



From Log (B Power P.C.B. 12/2) (DC Supply Port)



Power P.C.B. (2/2) IEC Supply Part:

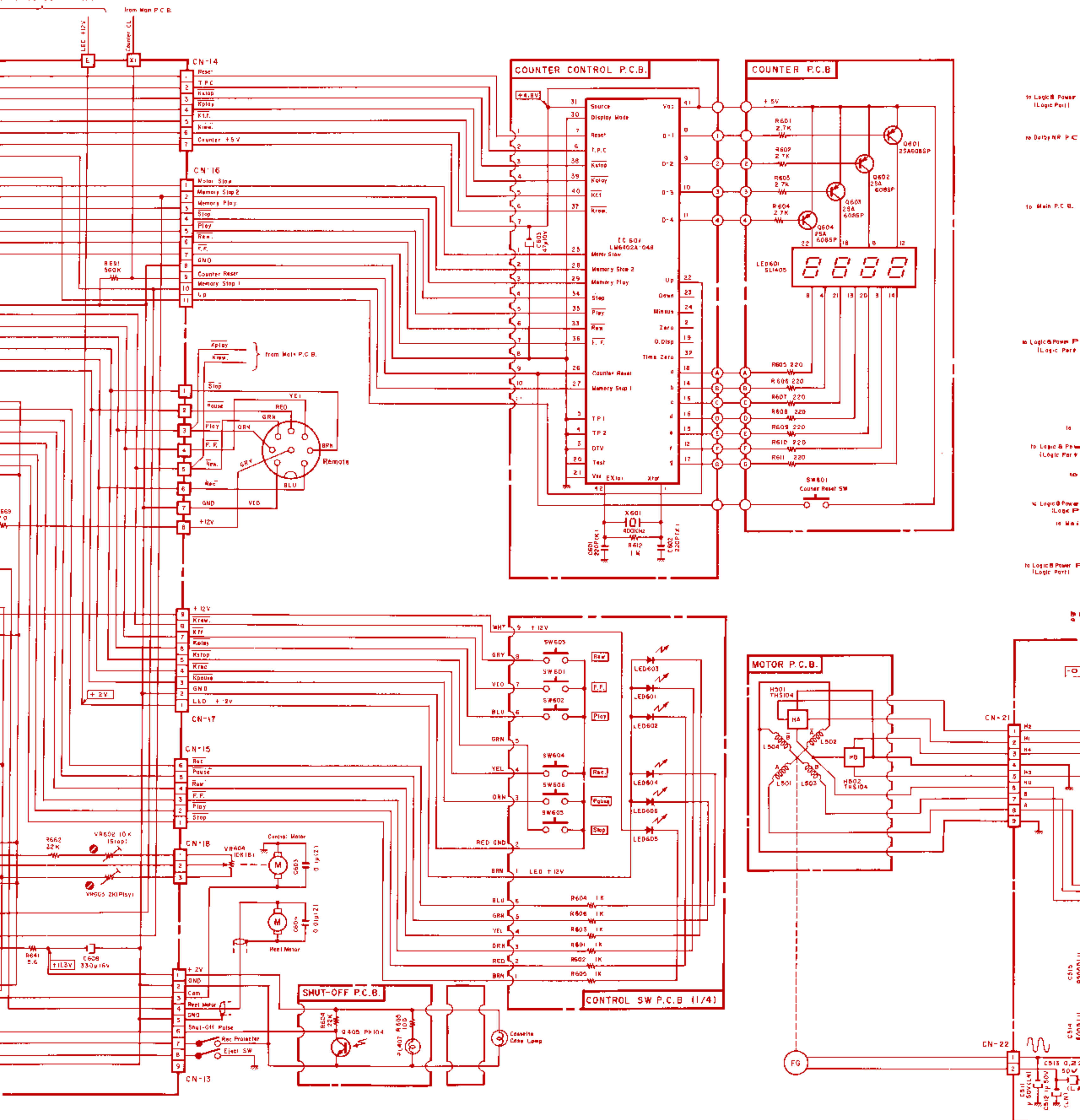
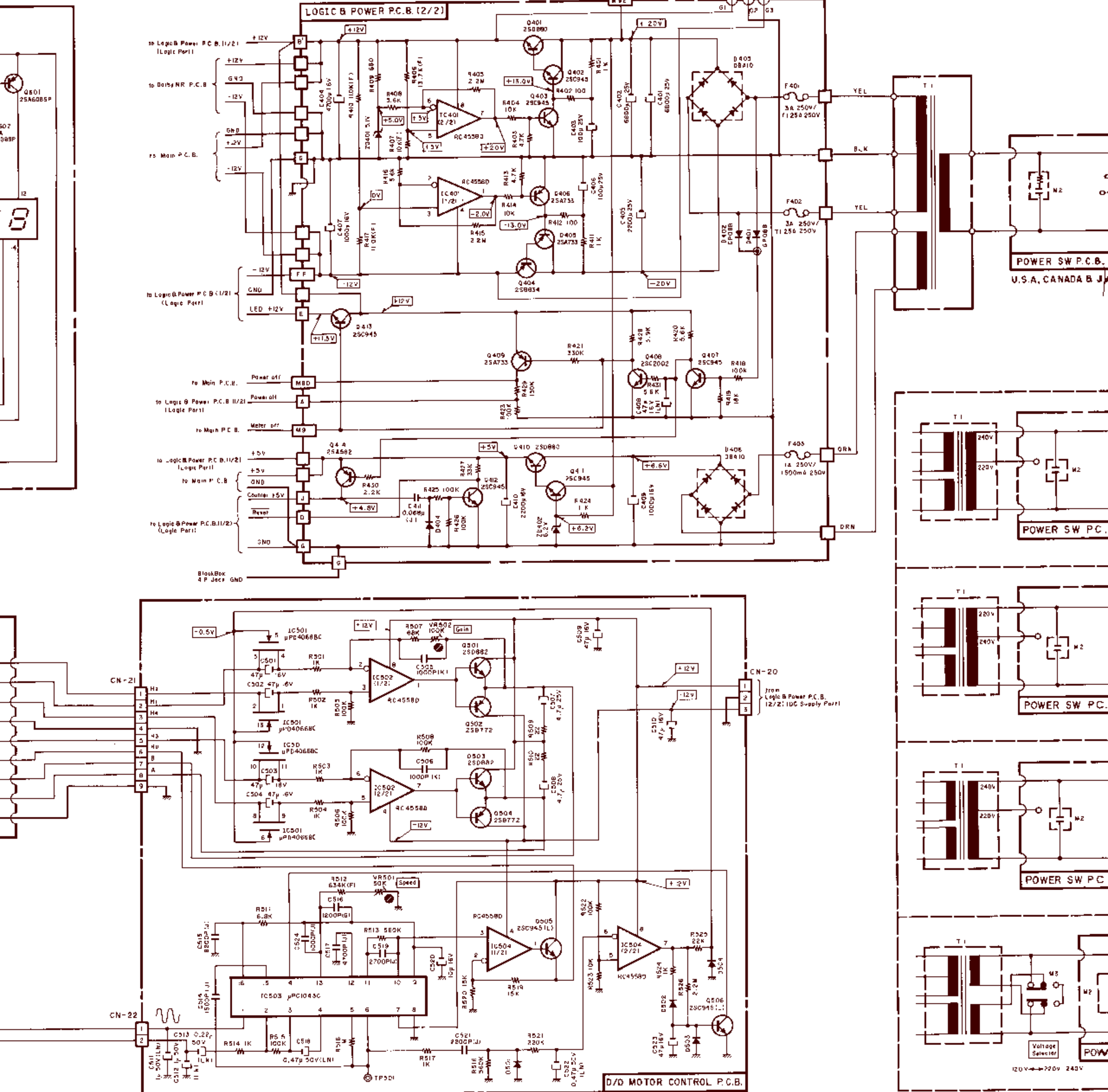
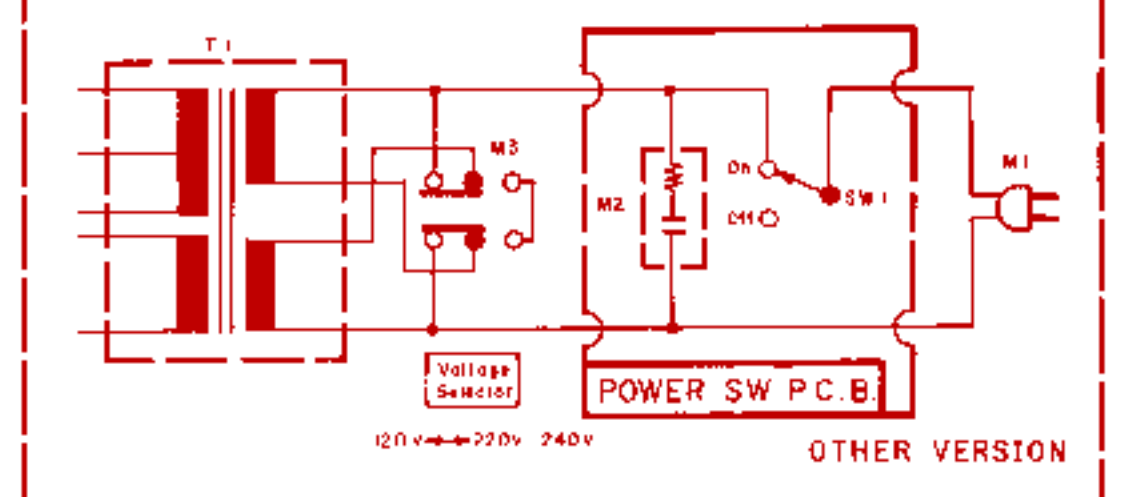
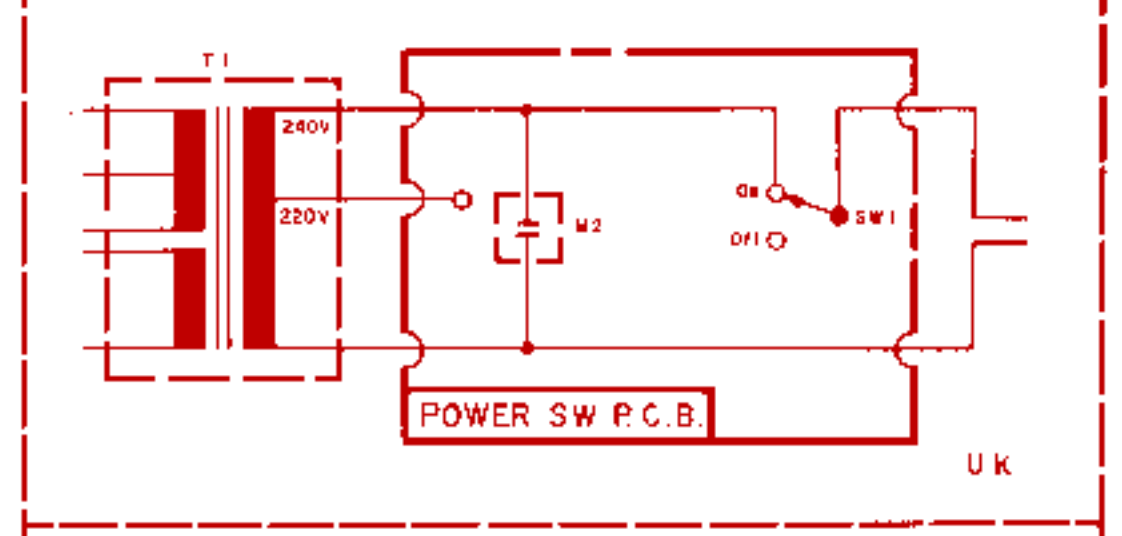
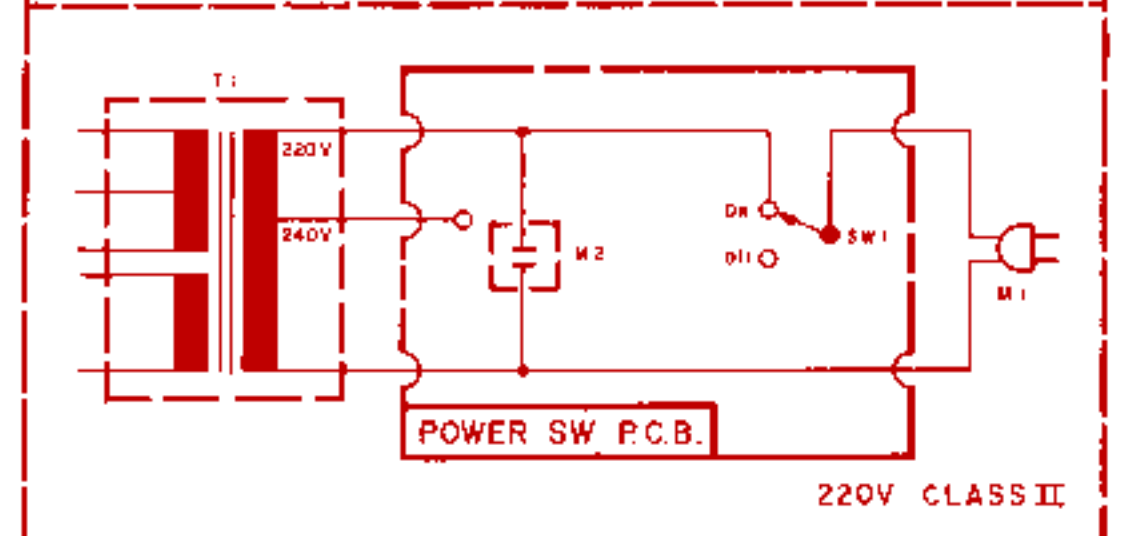
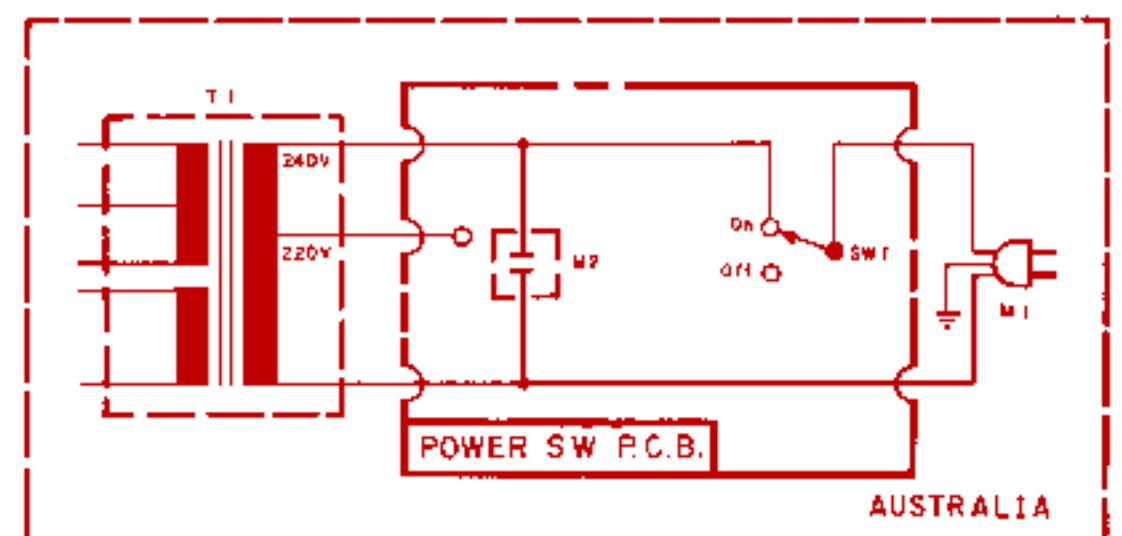
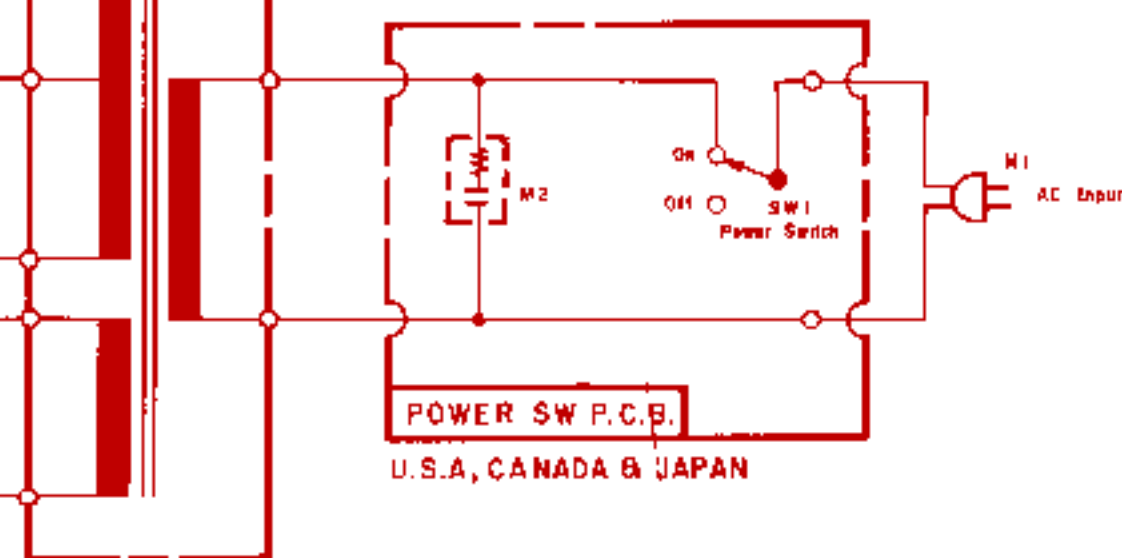
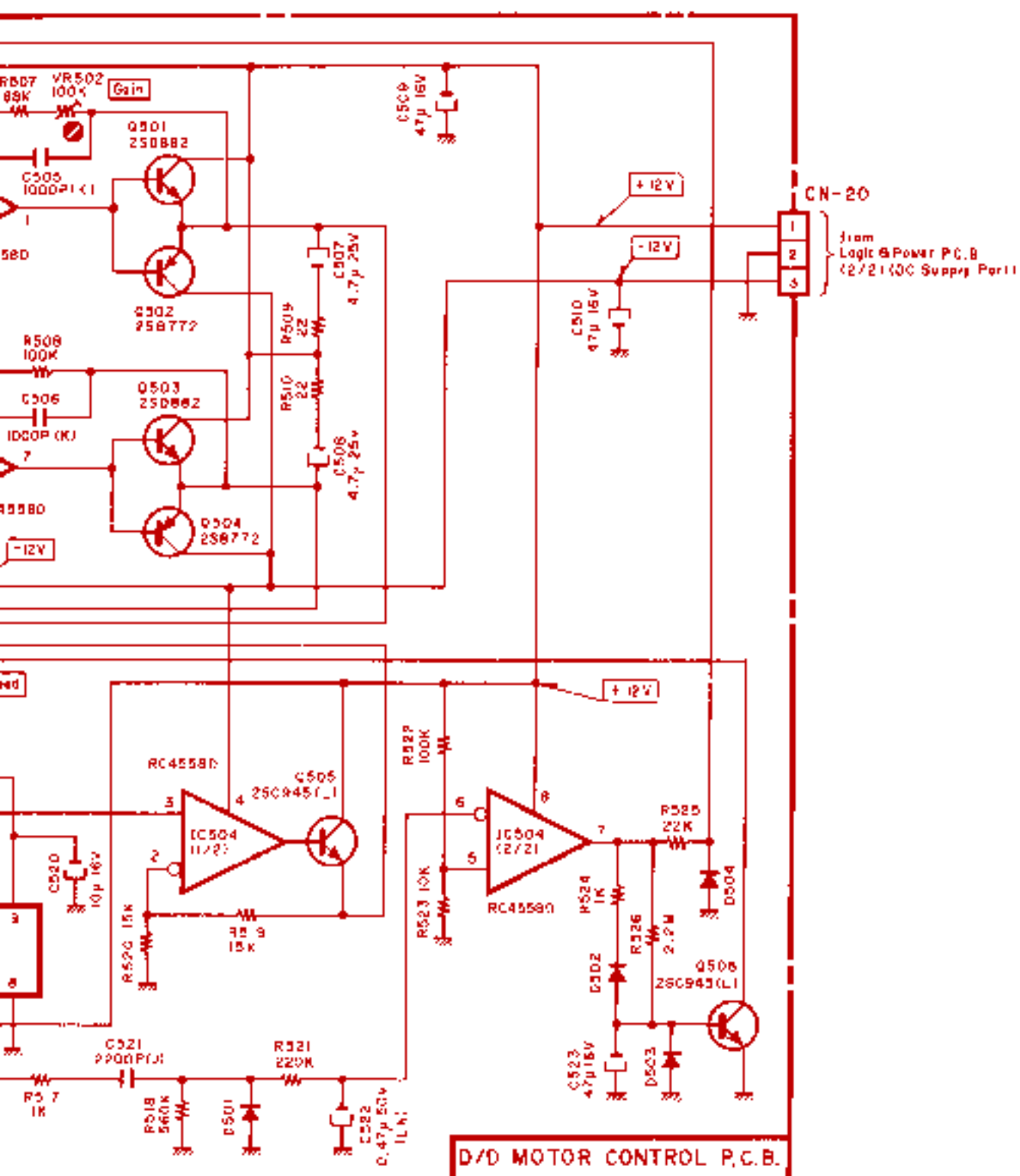
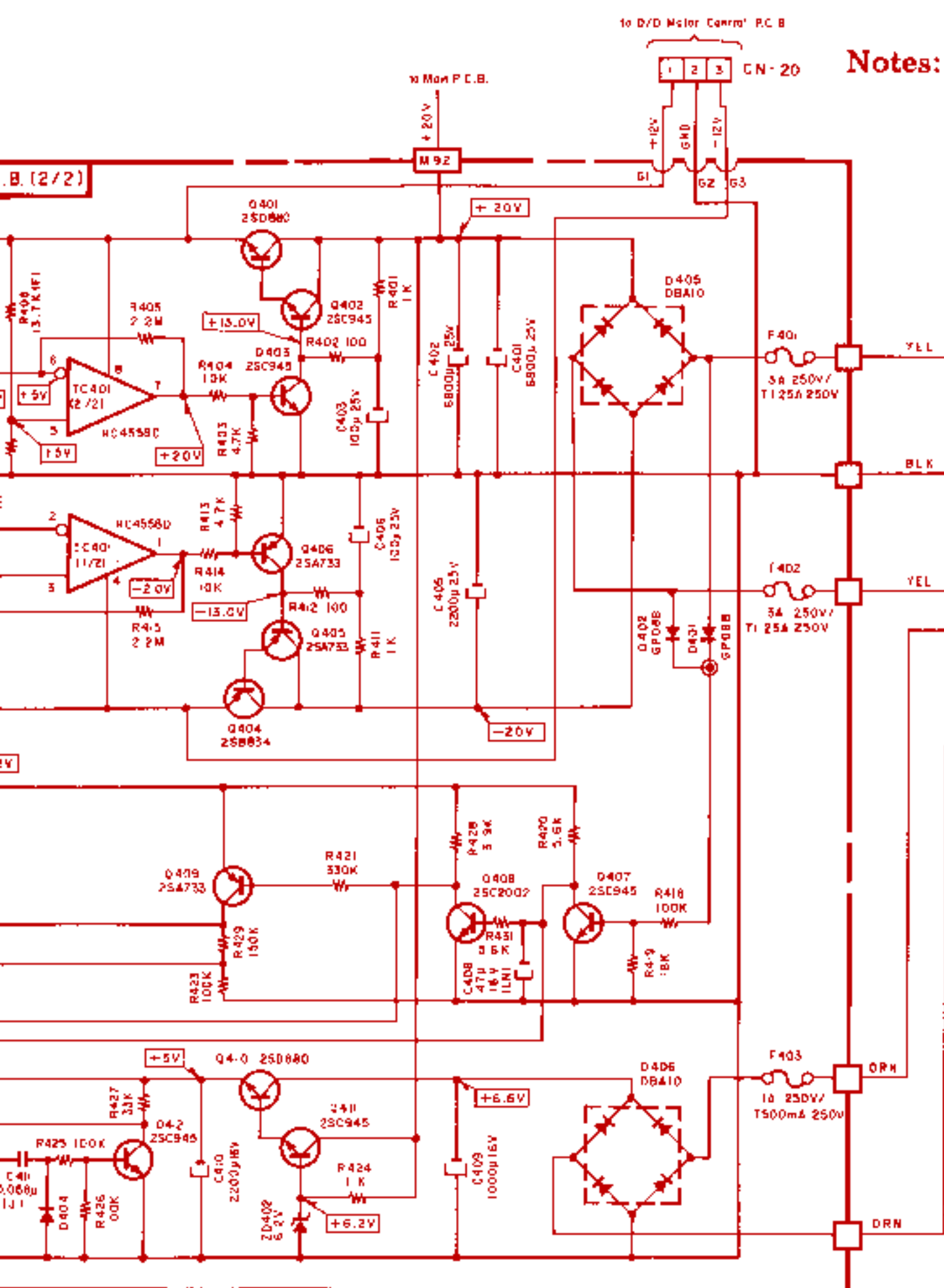


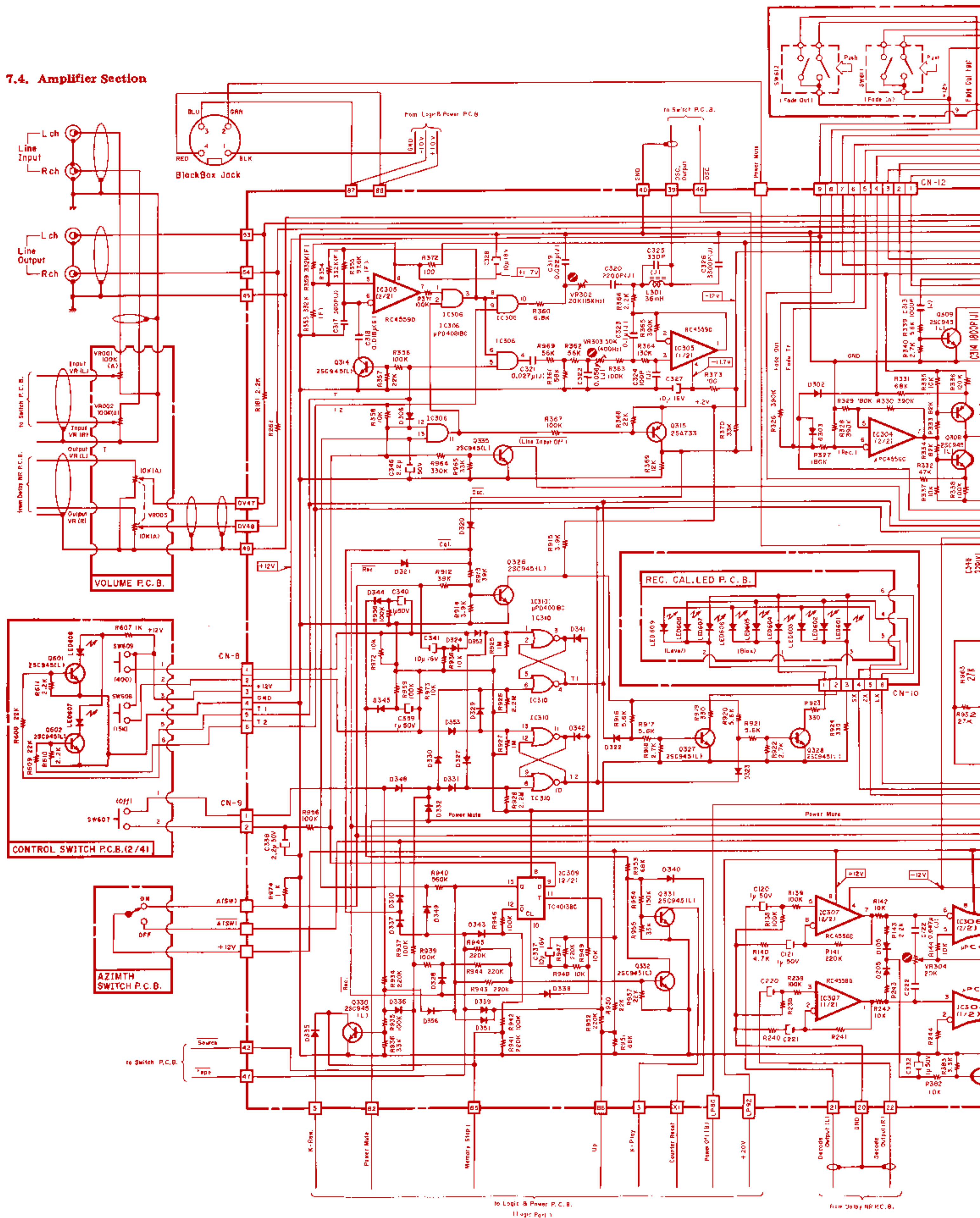
Fig. 7.3

- Notes: 1. Diode is 18S53, 18953, or 18953.
2. Resistor and capacitor markings are in parentheses.





7.4. Amplifier Section



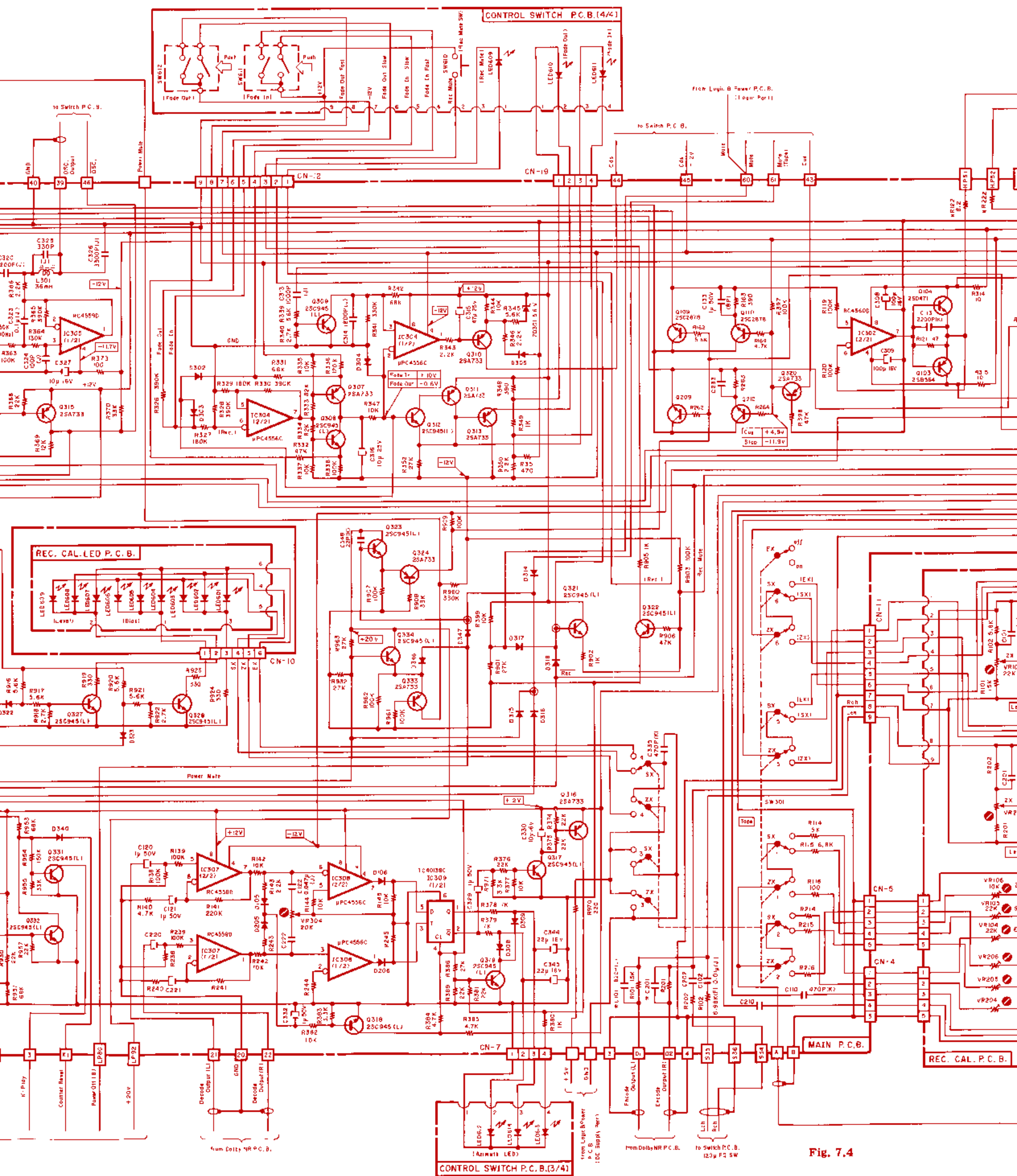
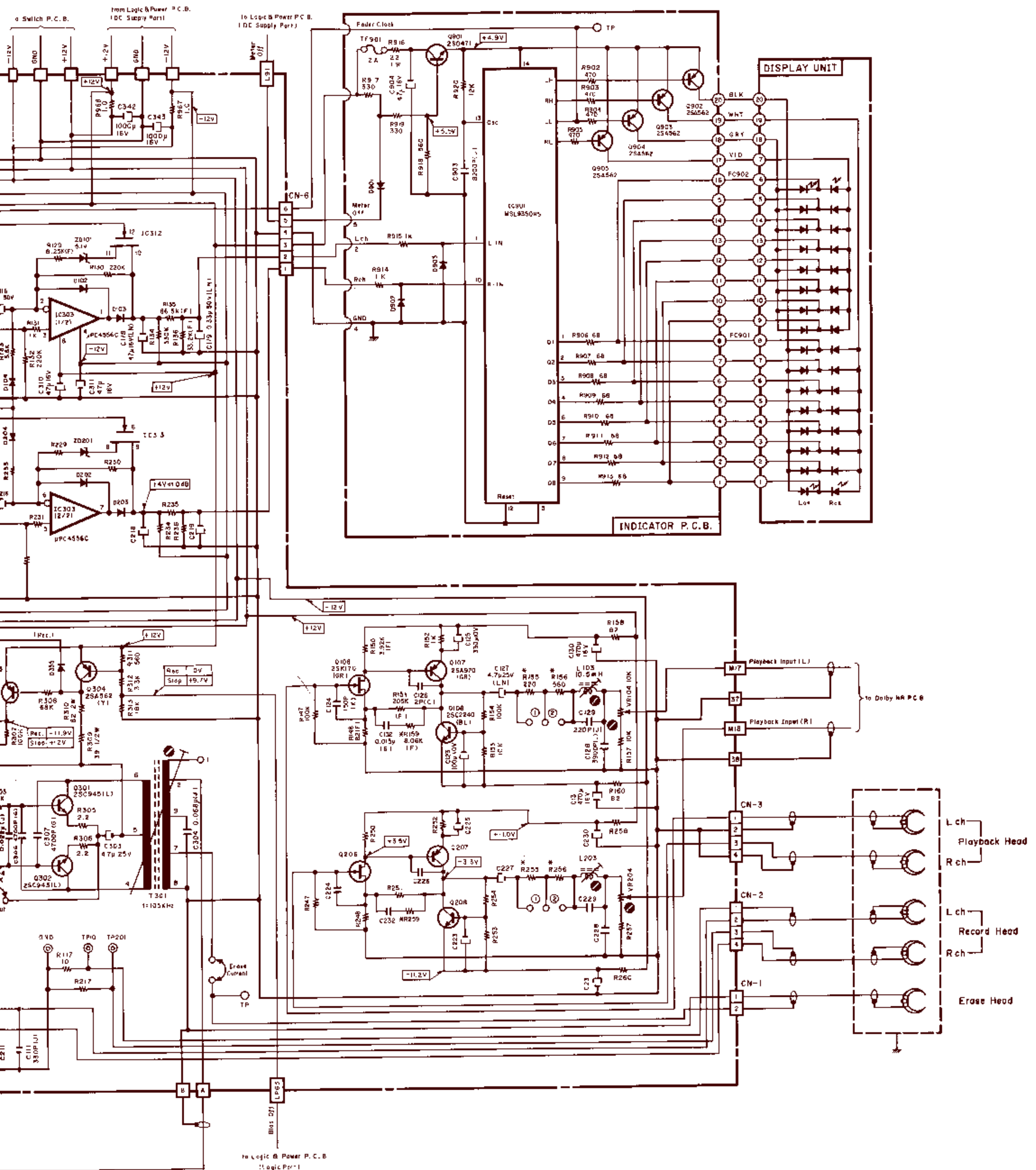
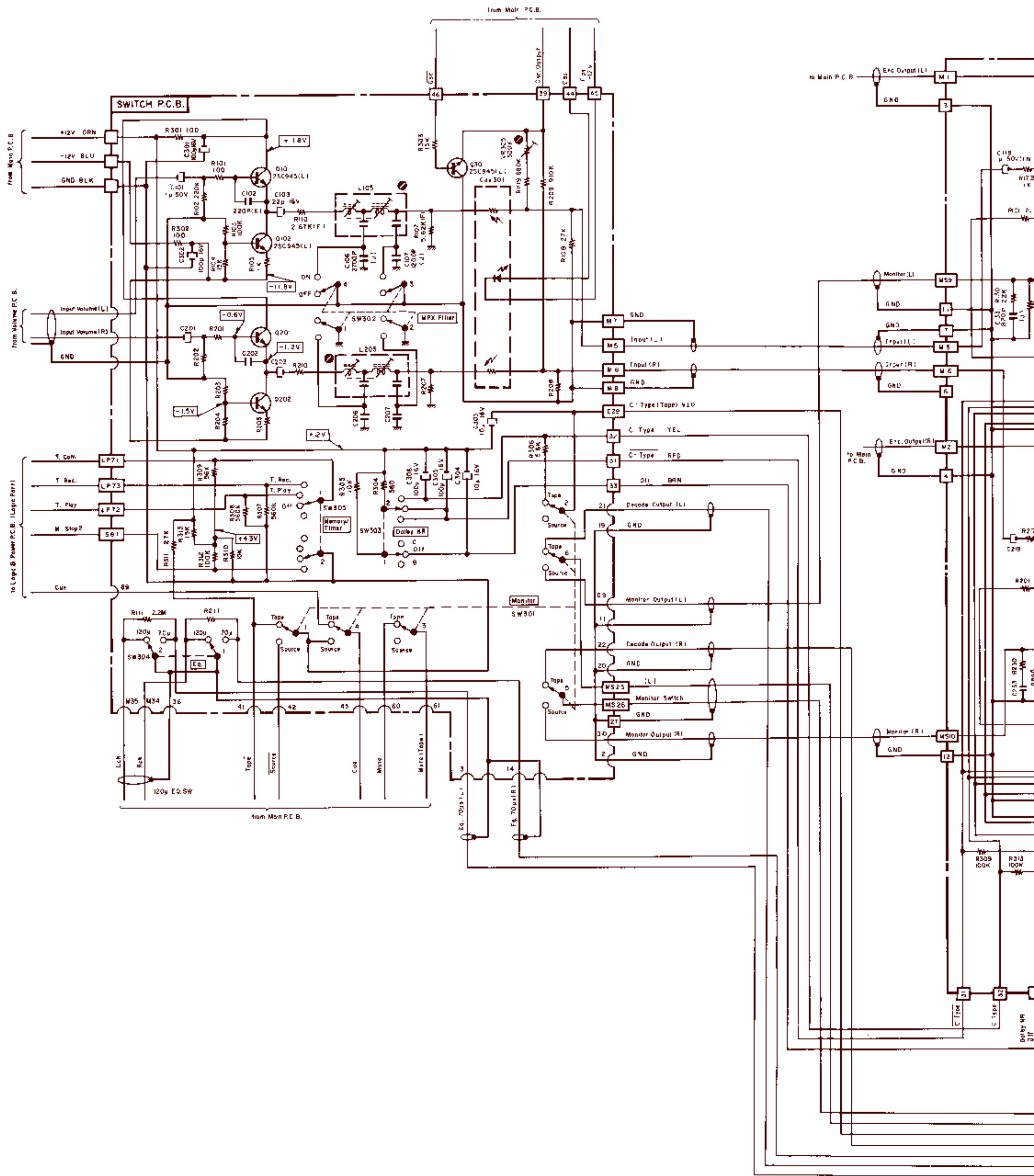


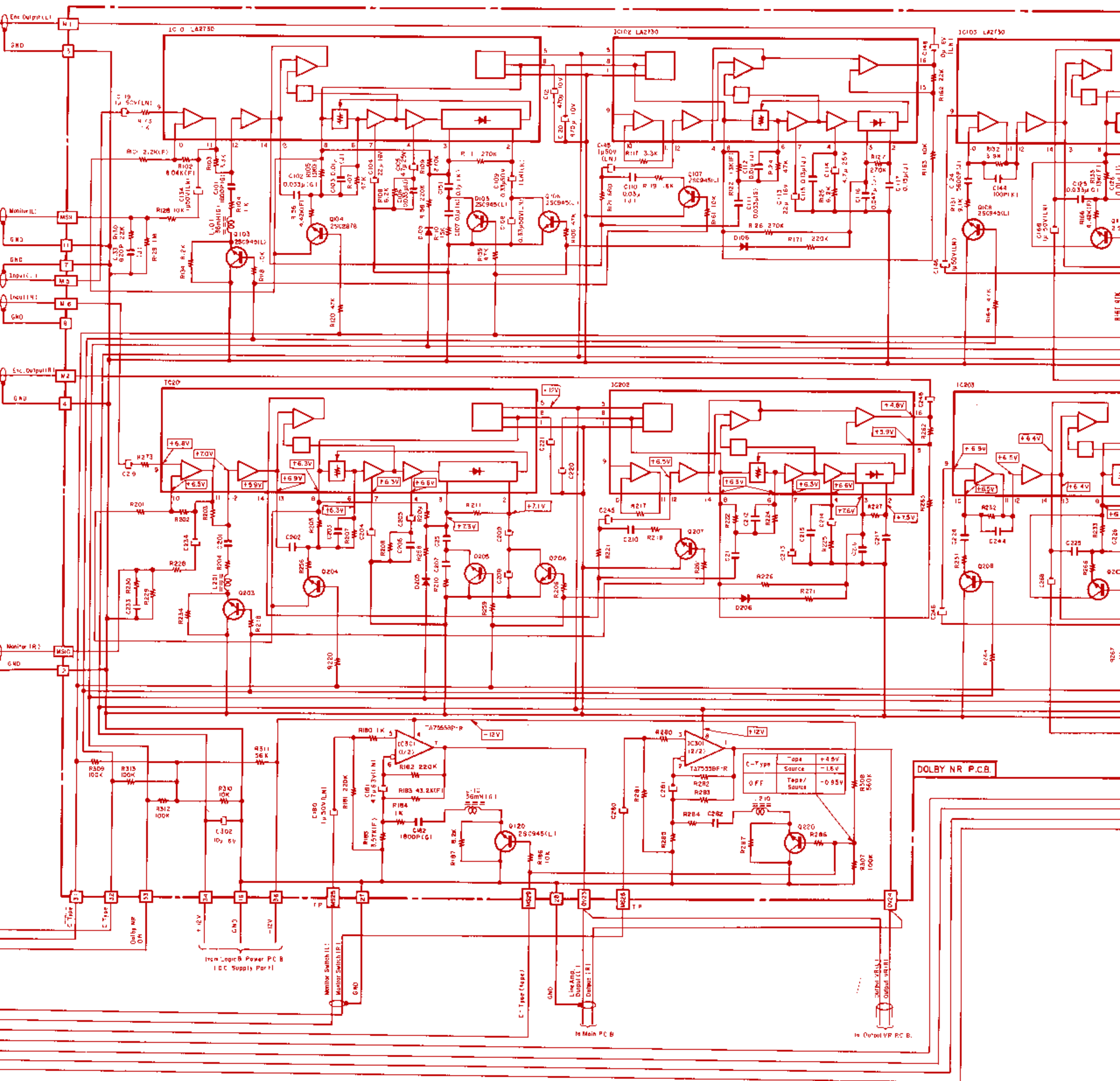
Fig. 7.4

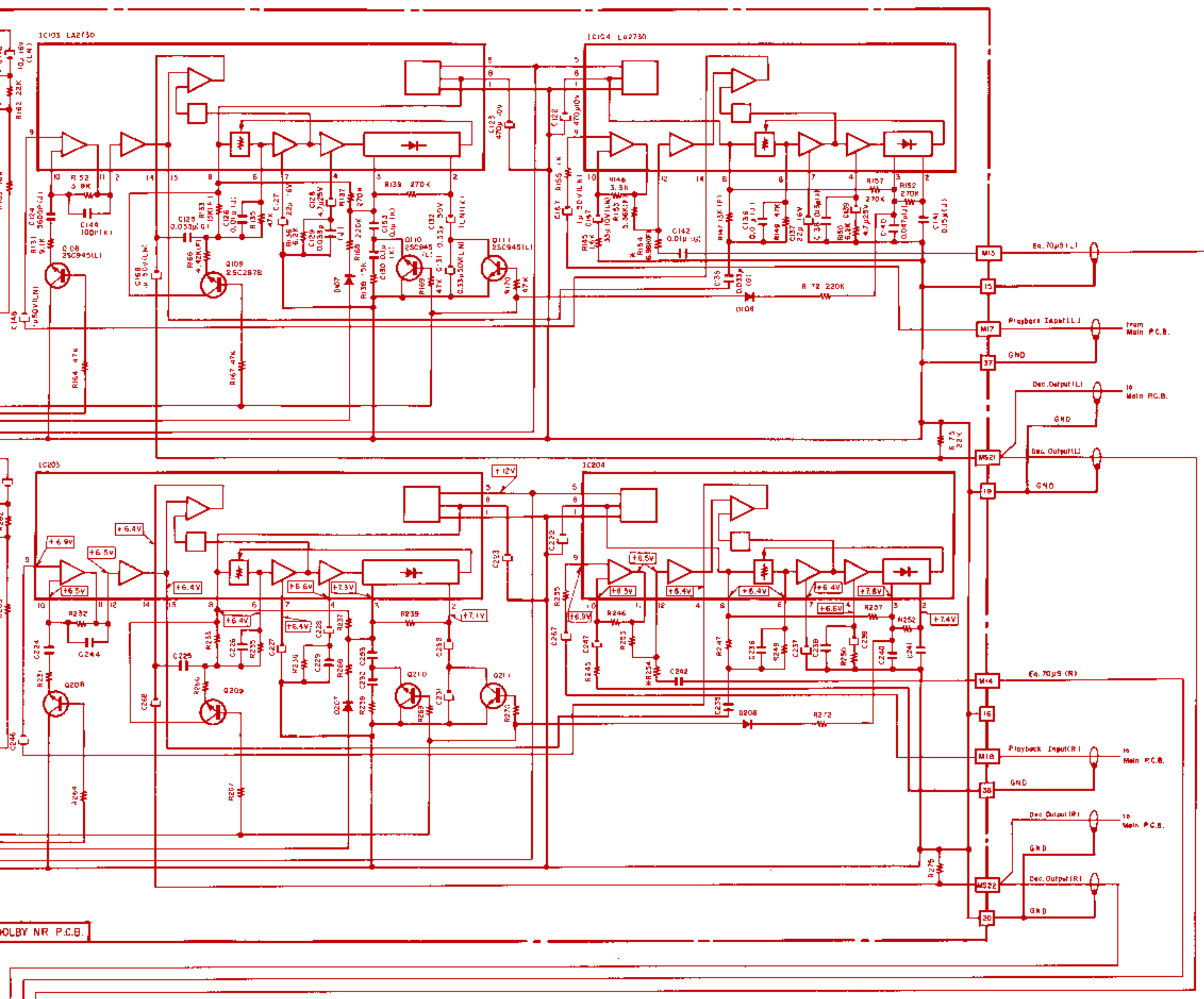
- Notes: 1. Diode is 1SS53, 1S953, or 1S1555 unless otherwise specified.
2. Resistor and capacitor marked with * show typical value.



7.5. Dolby NR Section

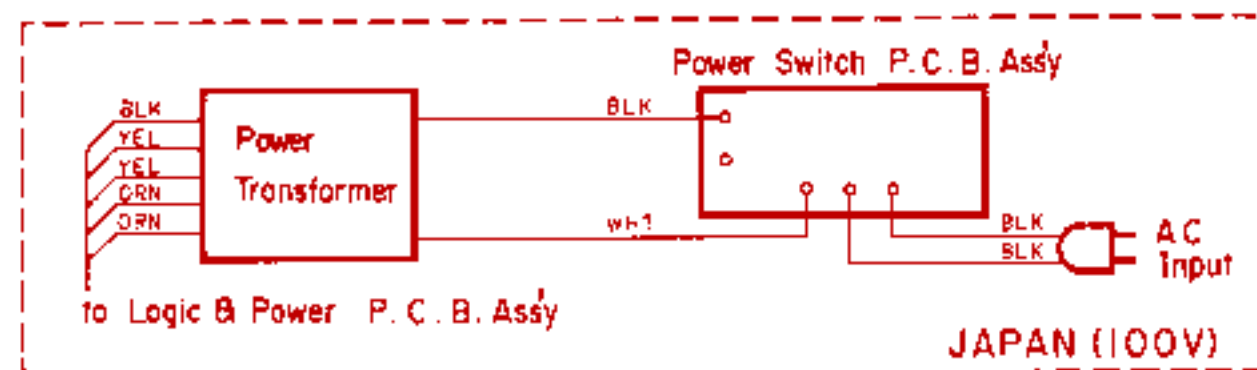
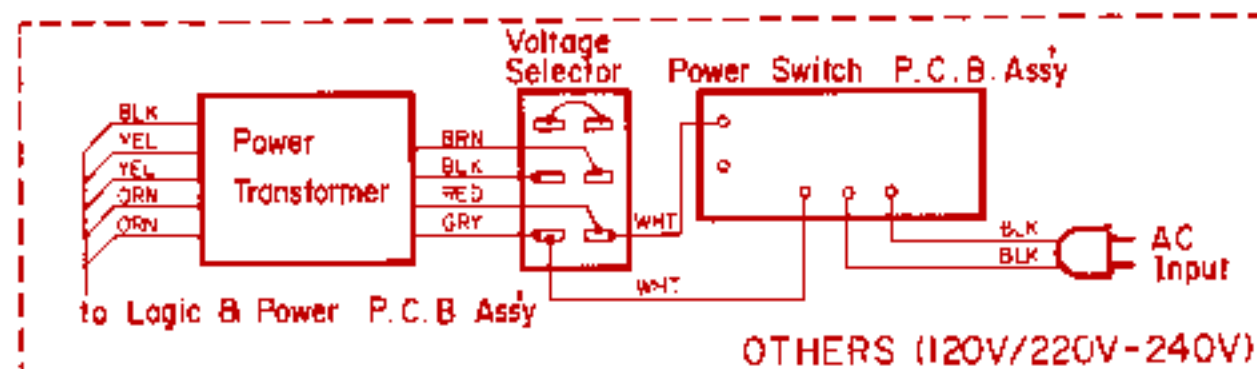
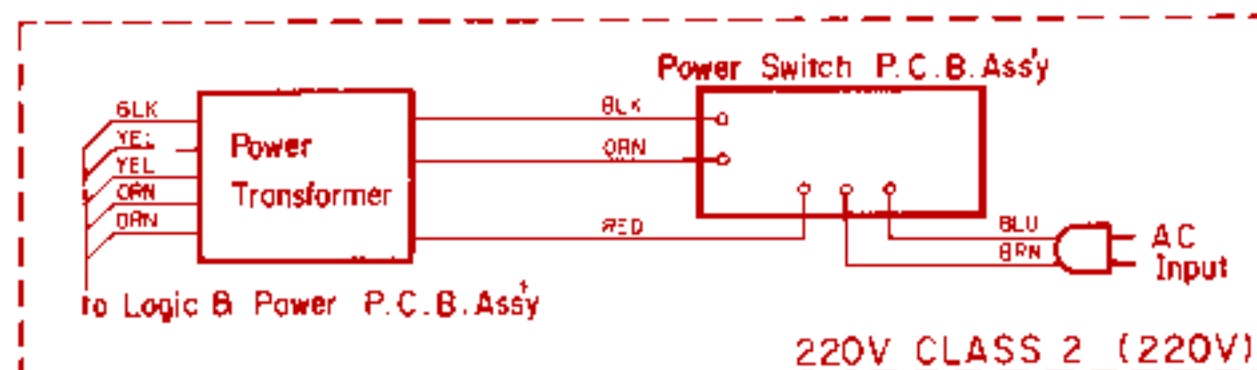
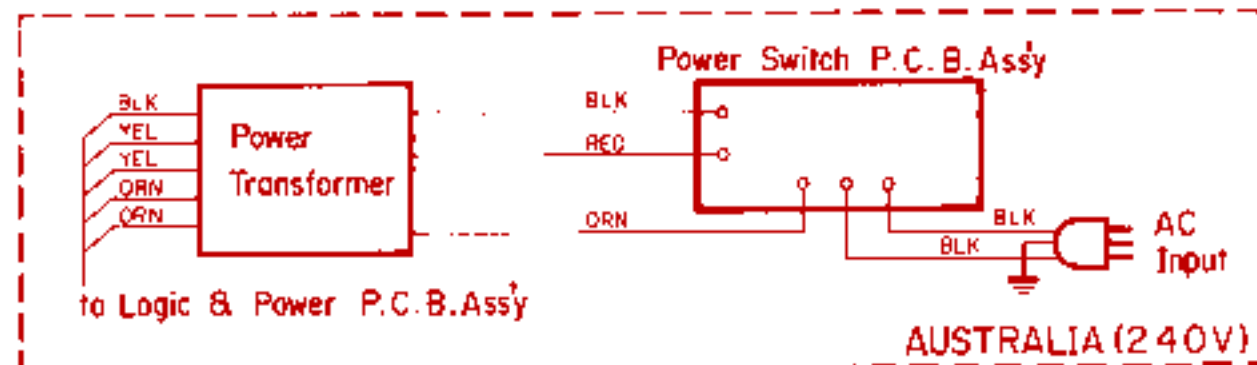
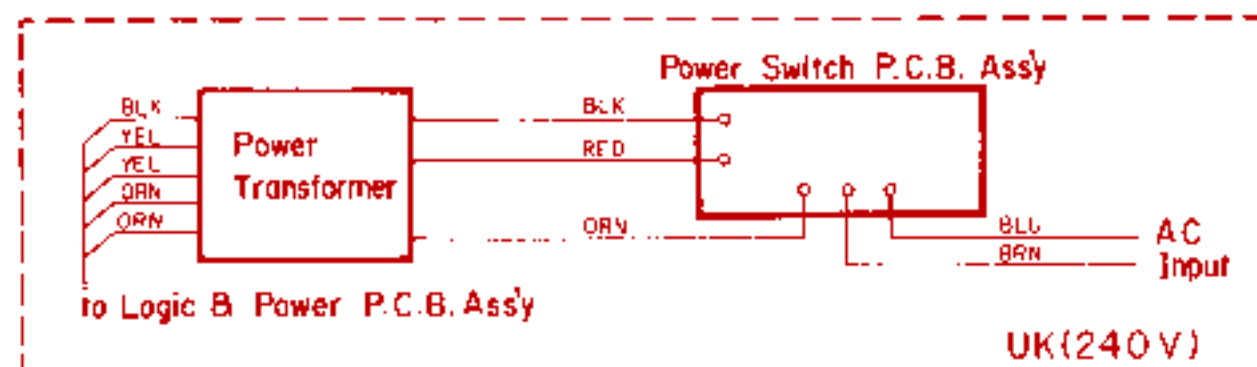






- Notes: 1. Diode is 1SS53, 1S953, or 1S1555 unless otherwise specified.
 2. Resistor and capacitor marked with * show typical value.

8. WIRING DIAGRAM

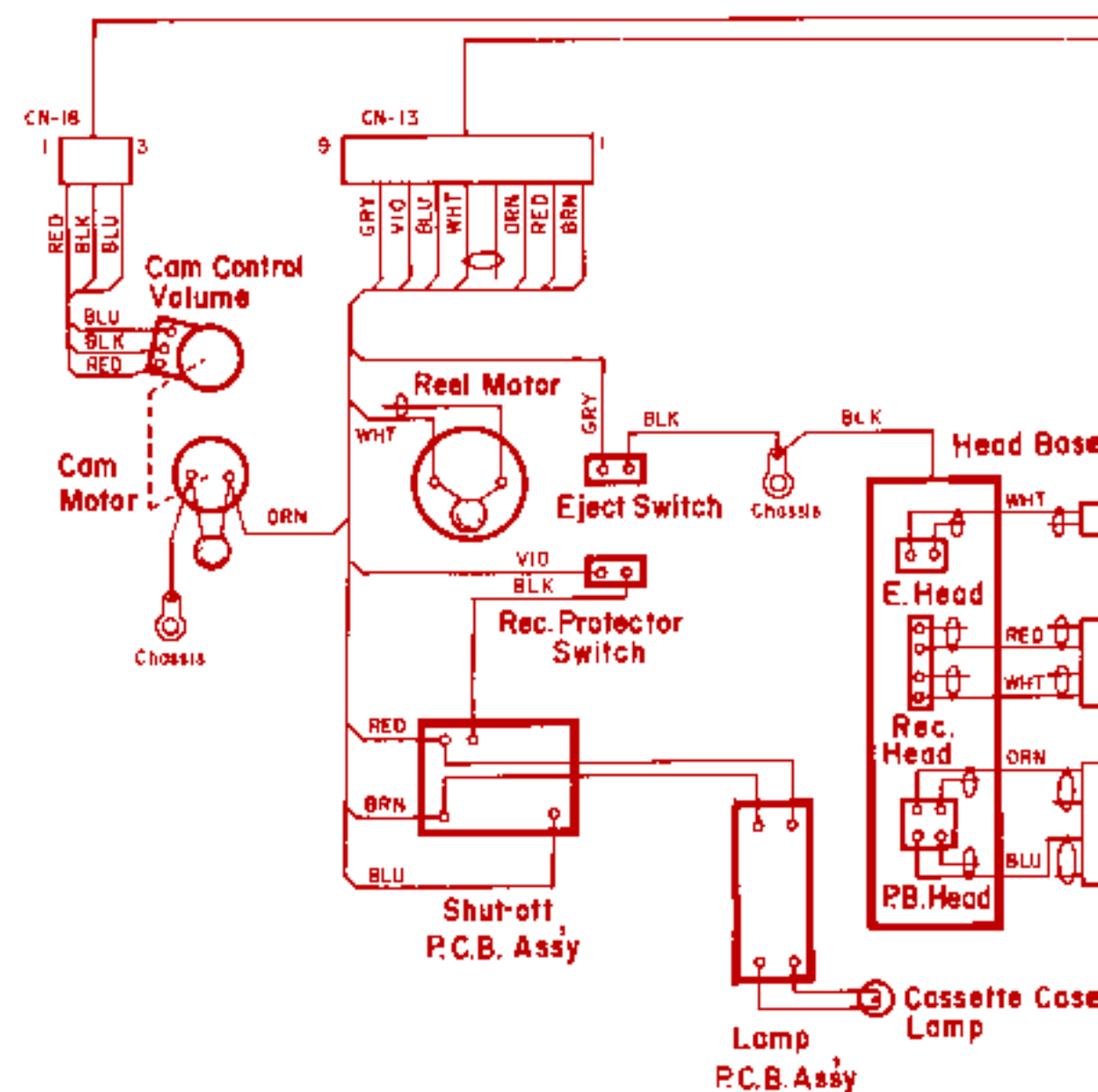
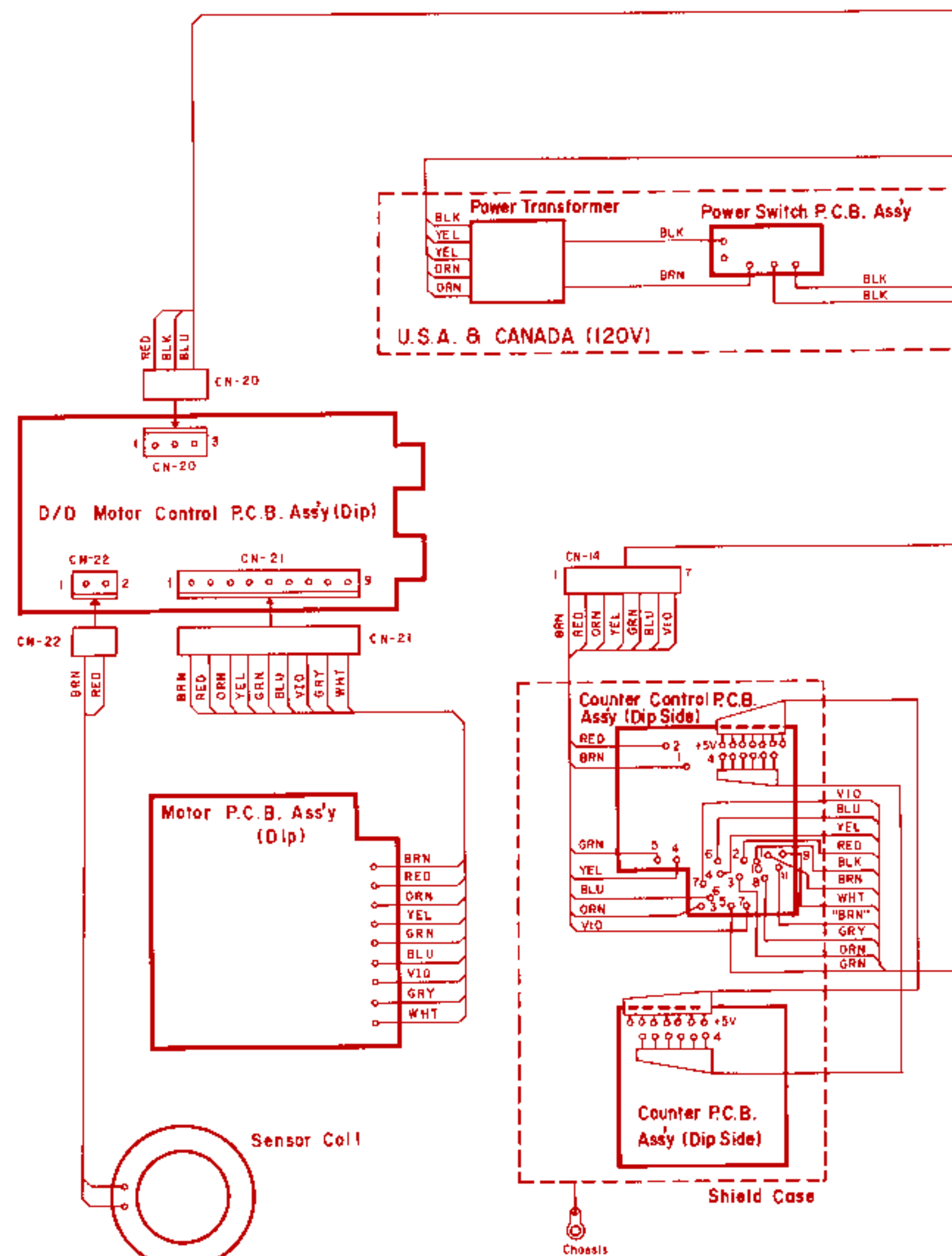


Notes: 1. Table of wire colors

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

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

3. Wire tube color is shown in ().



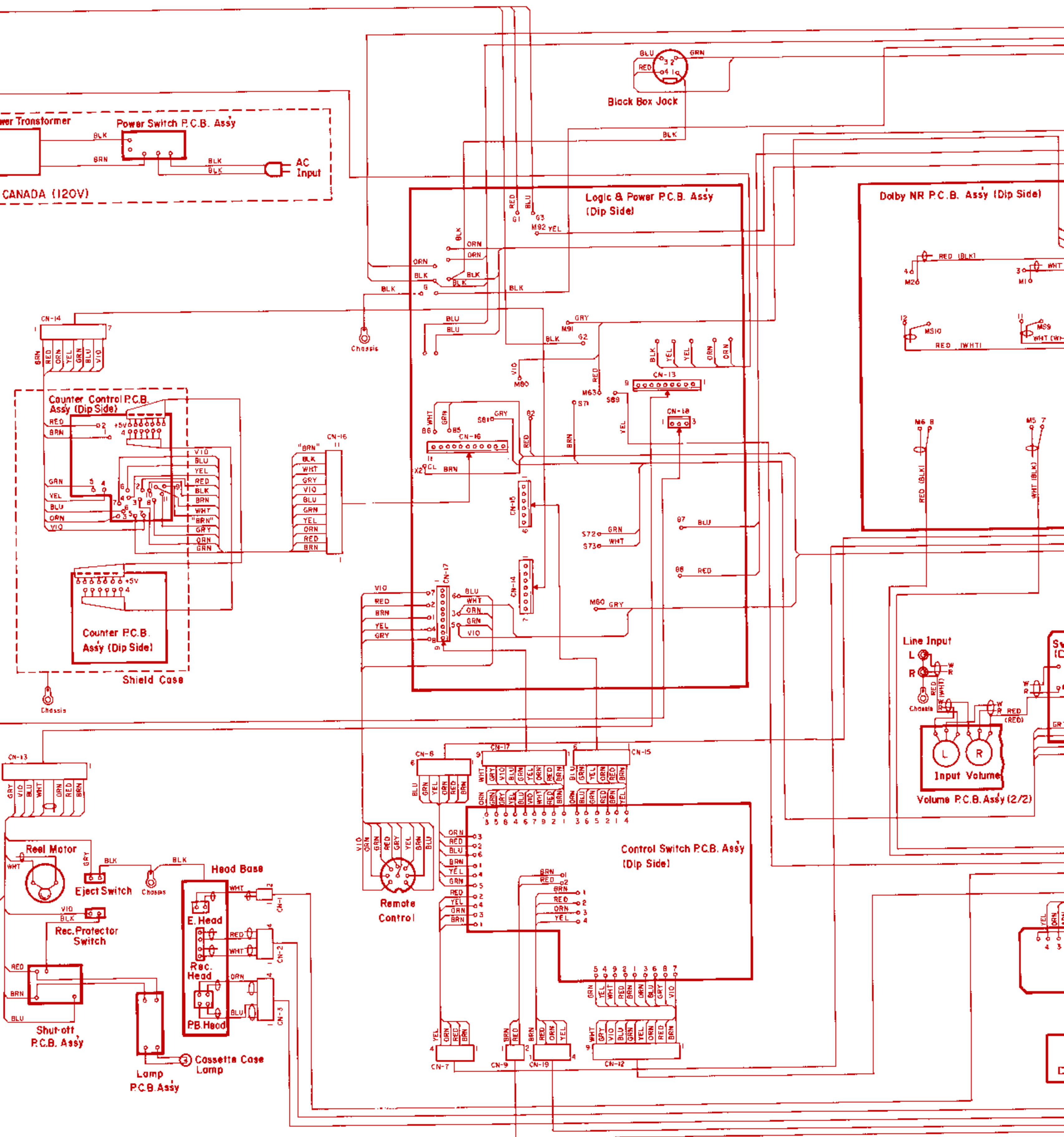


Fig. 8

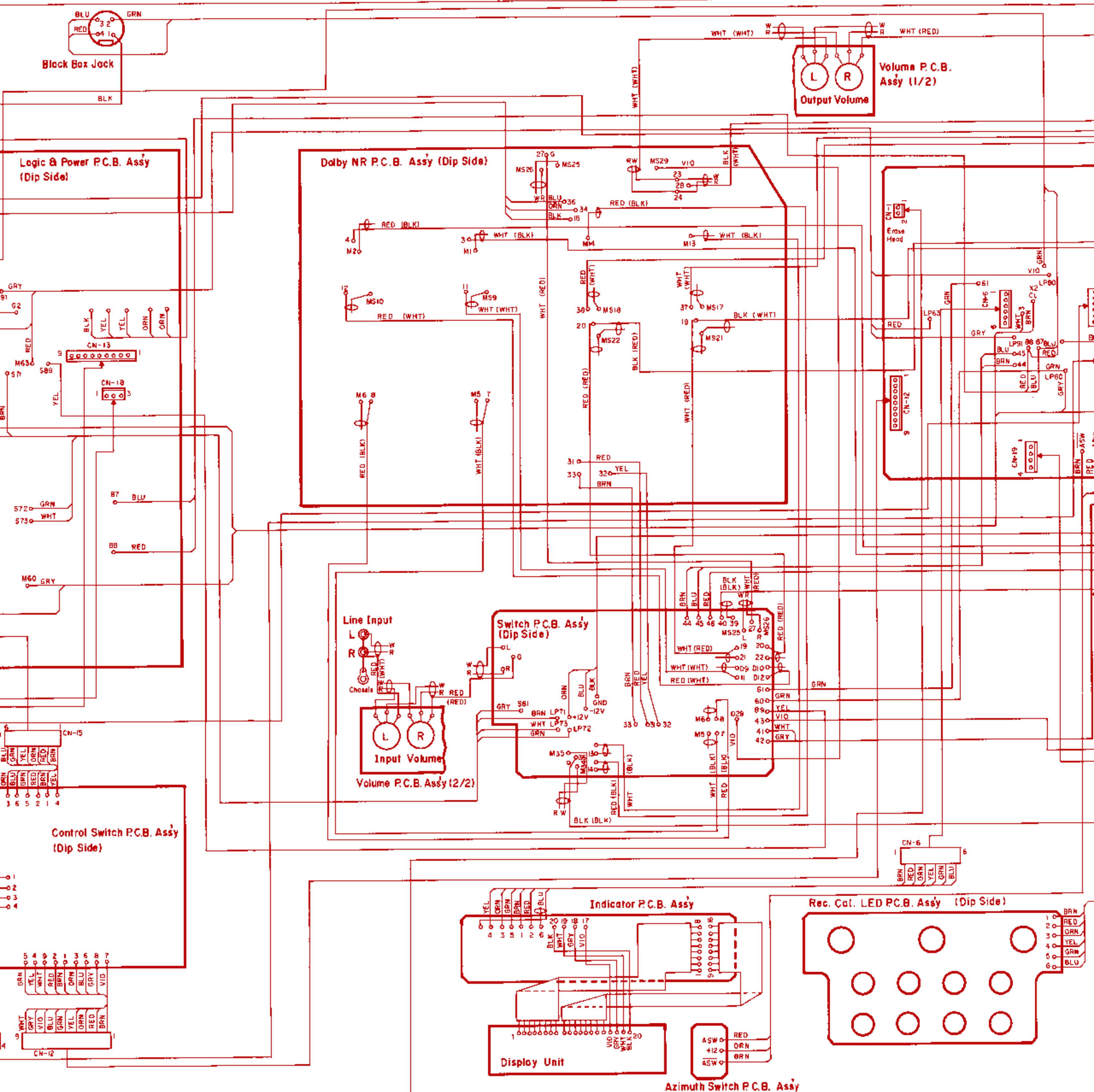


Fig. 8

