

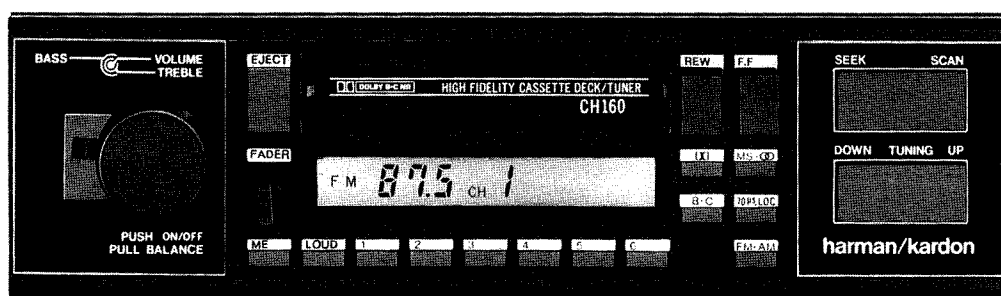
The Harman Kardon Model CH160

Manual 88A

HIGH FIDELITY CASSETTE DECK/TUNER

CH160

Technical Manual



harman/kardon

240 Crossways Park West, Woodbury, N.Y. 11797
1112-H15288A2 P-088503 1450 Printed in Japan

SPECIFICATIONS

● FM SECTION

| | Nominal | Limit |
|--------------------------------------|--------------------|-------|
| Tuning Range | 87.5MHz ~ 107.9MHz | |
| Usable Sensitivity | 12dBf ≤ 18dBf | |
| Quieting Sensitivity | | |
| Mono | 17dBf ≤ 23dBf | |
| Stereo | 35dBf ≤ 40dBf | |
| Signal to Noise Ratio | | |
| Mono | 72dB ≥ 66dB | |
| Stereo | 65dB ≥ 60dB | |
| IF Rejection (88.1MHz) | 100dB ≥ 90dB | |
| Image Rejection (98.1MHz) | 60dB ≥ 55dB | |
| AM Suppression | 50dB ≥ 44dB | |
| Capture Ratio | 1.5dB ≤ 3dB | |
| Selectivity (±400kHz) | 70dB ≥ 60dB | |
| Distortion (Stereo) (65dBf, 100%) | 0.22% ≤ 0.4% | |
| Frequency Response (+0, -3dB) | 20Hz ~ 15kHz | |
| MPX Separation at 1kHz | 44dB ≥ 35dB | |
| Output Level (75kHz dev.) | 775mV ± 3dB | |

● AM SECTION

| | | |
|---------------------------|------------------|--|
| Tuning Range | 530kHz ~ 1620kHz | |
| Signal to Noise Ratio | 50dB ≥ 45dB | |
| IF Rejection (600kHz) | 100dB ≥ 90dB | |
| Image Rejection (1400kHz) | 55dB ≥ 50dB | |
| Selectivity (±9kHz) | 50dB ≥ 45dB | |

● AUDIO SECTION

| | Nominal | Limit |
|------------------------------|----------------------|-------|
| Tone Control Action | | |
| Bass (50Hz) | 11dB ± 1.5dB | |
| Treble (10kHz) | 11dB ± 1.5dB | |
| Loudness Action (80Hz/10kHz) | 10dB ± 3dB/3dB ± 2dB | |
| Output Impedance | 500Ω | |

● CASSETTE TAPE DECK SECTION

| | | |
|-------------------------------------|-------------------|--|
| Wow and Flutter | 0.1% ≤ 0.2% | |
| Tape Speed (4.75cm/sec.) | +1% ≤ +3% -1% | |
| FF and REW Time (for C-60 tape) | 125sec. ≤ 150sec. | |
| Signal to Noise Ratio (LN Position) | | |
| Dolby* NR Off | 55dB ≥ 50dB | |
| Dolby NR Type B | 64dB ≥ 58dB | |
| Dolby NR Type C | 70dB ≥ 64dB | |
| Distortion | 1% ≤ 2% | |
| Frequency Response | 20Hz ~ 20kHz | |
| Separation | 40dB ≥ 35dB | |
| Crosstalk | 70dB ≥ 60dB | |
| Output Level (Volume Max.) | 610mV ± 3dB | |

This specification is the target of servicing. But, there is a case that the specification is not applicable to the measurement condition and instrument.

Specifications and components subject to change without notice. Overall performance will be maintained or improved.

*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

DISASSEMBLY PROCEDURES (REFER TO PAGES 10 AND 13)

① CASSETTE TAPE PLAYER MECHANICAL ASSEMBLY (104) REMOVAL

1. Remove 4 screws **A** and then remove the Bracket (173).
2. Pull out the Fader Knob (158).
3. Remove 4 screws **B** and then remove the Center Panel Assembly (101).
4. Remove 4 screws **C** and then remove the Cassette Tape Player Mechanical Assembly (104) with the NAB AMP, MSS/Mecha Control and Dolby P.C. Boards (PCB-2, PCB-3 and PCB-9) and the Brackets (171 and 168). Also, disconnect the lead wires connected to the Main P.C. Board (PCB-1).
5. Disconnect the lead wires connected to the Dolby P.C. Board (PCB-9).
6. Remove 2 screws **D** and then remove the Dolby P.C. Board (PCB-9).
7. Disconnect the lead wires connected to the NAB AMP P.C. Board (PCB-2).
8. Remove 2 screws **E** and then remove the NAB AMP P.C. Board (PCB-2).

9. Disconnect the lead wires connected to the MSS/Mecha control P.C. Board (PCB-3).
10. Remove the screw **F** and then remove the MSS/Mecha control P.C. Board (PCB-3).
11. Remove 4 screws **G** and then remove the Cassette Tape Player Mechanical Assembly (104) from the Bracket (171).

② MAIN P.C. BOARD (PCB-1) REMOVAL

1. Remove 4 screws **H** and then remove the Bracket (177) and the Insulator (183).
2. Remove the Center Panel Assembly (101). (Refer to step ①-2 and 3.)
3. Pull out 9 Push Buttons (153).
4. Remove the screw **I** and then remove the Bracket (169).
5. Remove 6 screws **J** and then remove the Main P.C. Board (PCB-1) with the Buffer AMP P.C. Board (PCB-4). Also, disconnect the lead wires connected to the Main P.C. Board (PCB-1).

ALIGNMENT PROCEDURES (REFER TO PAGES 7 ~ 12)

■ ELECTRICAL ADJUSTMENT

1. Before adjustment

- Connect a 14V power supply to the Power Supply Lead (+ACC, +B and GND).
- Since head magnetization, dust accumulations, etc. are likely to introduce errors in the various characteristics, it is very important that the heads are properly demag-netized and cleaned before commencing any adjustment, particularly frequency response and head azimuth adjustment.

2. Instruments required

- Low frequency oscillator
- AC VTVM or dual channel AC VTVM
- Oscilloscope
- Wow/flutter meter
- Frequency counter

3. Test tapes

- Dolby NR level adjustment MTT-150 or TCC-130
- Azimuth adjustment TCC-153

4. General conditions (unless otherwise noted).

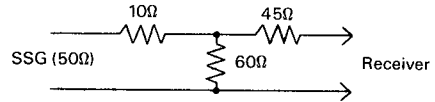
| CONTROLS AND SWITCHES | SETTINGS |
|------------------------|----------|
| Balance | center |
| Bass | center |
| Treble | center |
| Fader | center |
| Dolby NR | off |
| 70 μ sec./LOCAL-DX | off |
| MS/MONO | off |
| Loudness | off |

5. Standard load

- Connect the resistor (10k Ω) and the capacitor (1000pF) to the line output.
- Standard output 200mV

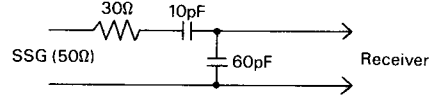
6. Dummy antenna

- FM : IHF



Measurement at receiver input level interm of available power.

- AM : IEC



Measurement at SSG terminal voltage (open).

■ TUNER SECTION

| Step | Alignment | Connection Equipments | Mode | Measurement Frequency | Station display | Adjustment | For |
|------|-----------------------|---|-----------|--|-----------------|----------------------|--|
| 1 | Standard frequency | ●Connect the Frequency Counter to TP4 (+) and ground (-). | FM | 98.3MHz | 98.3MHz | TC 701 | 109MHz \pm 30Hz |
| 2 | IF | ●Connect the FM Signal Generator (1kHz 100% modulation) to the Antenna jack through the FM dummy antenna. ●Connect Oscilloscope, Distortion Meter and AC Voltmeter to the line output. | FM | 98.1MHz (17dBf) | 98.1MHz | VR101 | Maximum output |
| 3 | | | | 98.1MHz (6dBf) | 98.1MHz | IFT (built in TU701) | Maximum output |
| 4 | | | | 98.1MHz (65dBf) | 98.1MHz | T101 | Adjust so that the same and maximum output is obtained on both Low Frequency side and High Frequency side when the FM Signal Generator is shifted to both sides by the same amount from 98.1MHz (65dBf). |
| 5 | | | | 98.1MHz (65dBf) | 98.1MHz | T102 | Minimum distortion |
| 6 | Free run frequency | ●Connect the Frequency Counter to TP3 (+) and ground (-). | FM | 98.1MHz (65dBf) (unmodulation) | 98.1MHz | VR153 | 76kHz \pm 50Hz |
| 7 | Sub-carrier rejection | ●Connect the Stereo Modulator to FM Signal Generator. Connect the FM Signal Generator to the Antenna jack through the FM dummy antenna. | Stereo FM | 98.1MHz (65dBf) | 98.1MHz | VR152 | Minimum output at 19kHz pilot signal only by stereo Modulator. |
| 8 | Separation | ●Connect Oscilloscope, Distortion Meter and AC Voltmeter to the line output. | Stereo FM | 98.1MHz (65dBf) | 98.1MHz | VR151 | Adjust so that the right channel output becomes minimum when only the left channel of the Stereo Modulator is modulated. |
| 9 | | | | | | VR151 | Adjust so that the left channel output becomes minimum when only the right channel of the Stereo Modulator is modulated. |
| 10 | | | | 98.1MHz (30dBf) | 98.1MHz | VR101 | Adjust so that the separation becomes 10dB. |
| 11 | | | | Repeat step 8. | | | |
| | | | | Repeat step 9 for optimum sensitivity. | | | |

■ TAPE SECTION

| Step | Alignment | Connection Equipments | Test Tape | Mode | Adjustment | For |
|------|----------------|--|--------------------|------|----------------------------|--|
| 1 | Dolby NR level | ●Connect the AC VTVM or dual channel AC VTVM to TP1 (Lch), TP2 (Rch) and ground. | MTT-150 or TCC-130 | PB | VR251 (Lch) VR252 (Rch) | - 10dBm |
| 2 | Azimuth | | TCC-153 | PB | Azimuth screw | Maximum output (Refer to the next page for the details.) |

HEAD REPLACEMENT AND ADJUSTMENT

1 Head replacement

1. Remove the Cassette Tape Player Mechanical Assembly from the main unit according to the disassembly procedure.
2. Remove the **A** portion of the Loading Link. (See Fig.1)
3. Remove the 2 screws **B** in Fig.1 and remove the Frame Assembly, Cassette Pack Guide and Guide Arm Assembly, and then replace the head.

2 Head height confirmation

1. Install the M-300 Head Gauge plate.
2. Release the Lock Link to allow the head and pinch roller to lift up (in the same state as when playing back).
3. Check to make sure that the adjustment chip does not contact the tape guide of the head. (See Fig.2)

- After the head replacement and height confirmation, clean the head and pinch roller where the tape runs against and then install them.

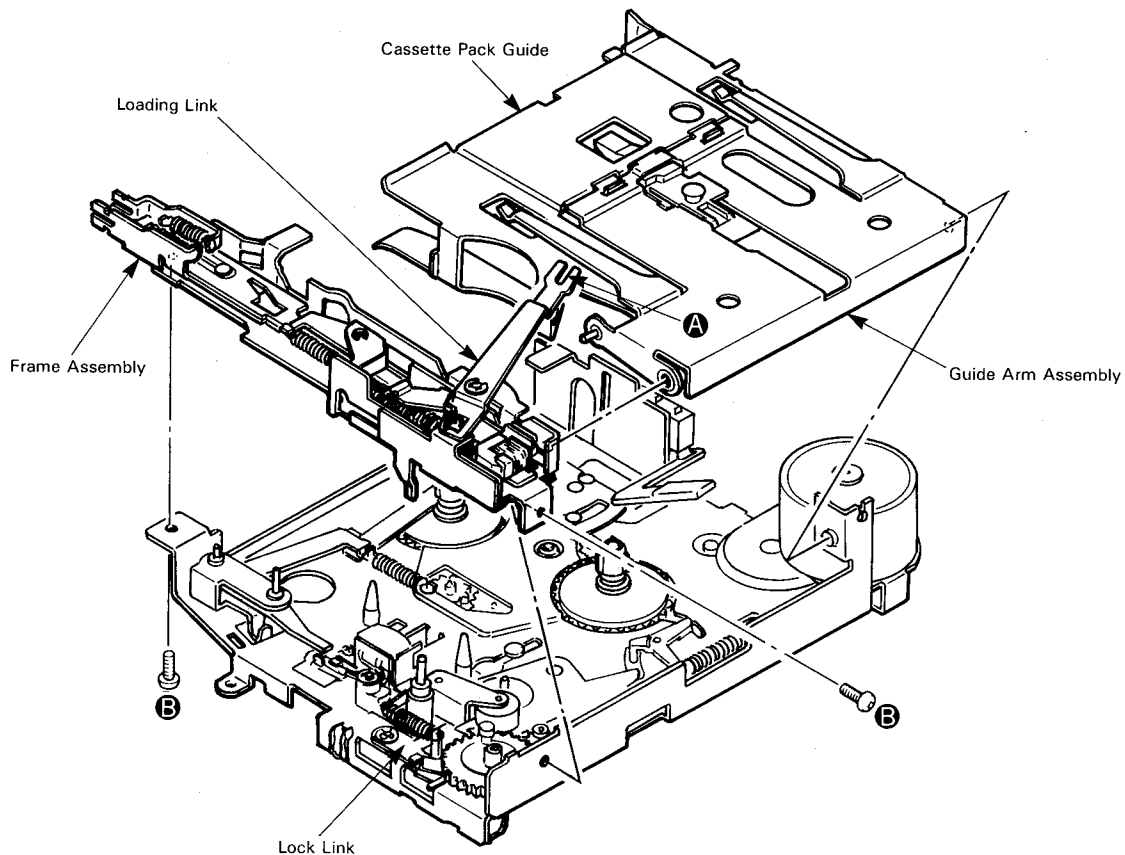


Fig. 1

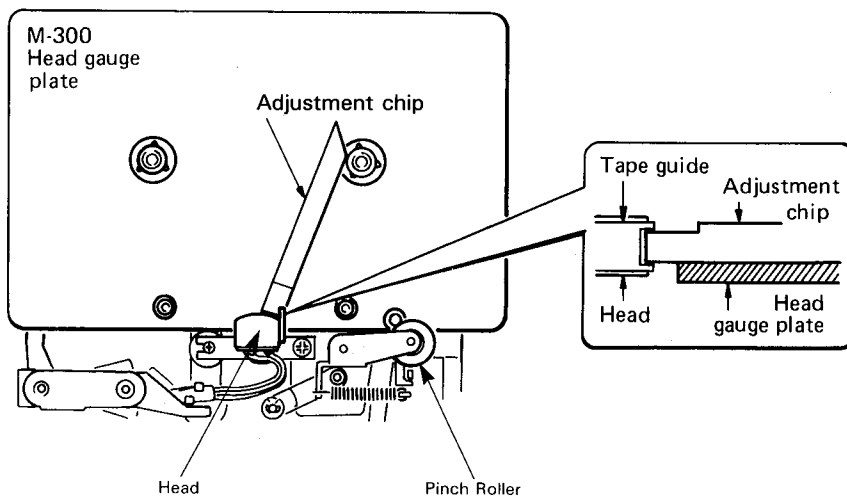


Fig.2

3 Azimuth adjustment

- Adjust the azimuth upon completion of the main unit assembly (with both upper and lower covers installed).
1. Connect the power source (DC14V) to the power supply lead to make the main unit ready to operate.

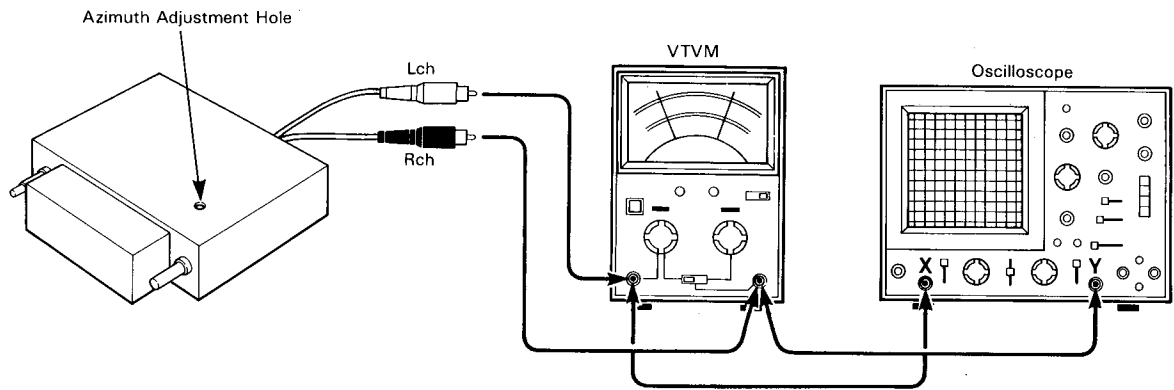


Fig.3

2. Connect the dual channel AC VTVM and 2ch oscilloscope to the line output.
3. Play back the test tape (TCC-153) and adjust the azimuth screw with a phillips screwdriver inserted into the azimuth adjustment hole in the upper cover. Adjust so that the same maximum VTVM value is indicated on both left channel and right channel and also so that the phase is within $0^\circ \pm 90^\circ$ while watching the lissajous's waveform.

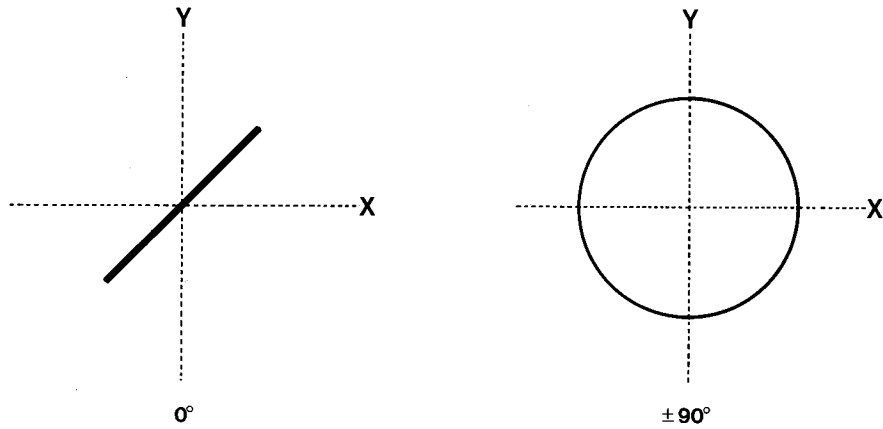


Fig.4

CIRCUIT DESCRIPTION

1. Signal path

● FM signal

The FM signal is mixed with the output of the local oscillator in the super heterodyne circuit in the front end (TU701) and is output from 8 pin as a 10.7MHz intermediate frequency signal (IF signal). After passing through the Q101 and ceramic filter (CF101), the IF signal is amplified in the sextuple IF amplifiers in the IC101, detected in the quadrature and output. The ignition noise of the signal is suppressed in the FM noise canceller (IC151) and the signal is sent to the IC152, where it is demodulated into the stereo signal and fed to the audio amplifier.

● AM signal

The AM signal is high frequency amplified (RF AMP), mixed (MIXER), intermediate frequency amplified (IF AMP) and then demodulated into the audio signal in the IC (LA1135) in the AM section (TU702). This signal is output through 10 pin of the AM section and fed to 2 pin of the IC152.

● Muting while operating tape

One of the TG CONT signals actuates the switch in the IC501 to cut off the playback signal and the signal from the tuner. Then as in muting during tuning, it makes Q409 (front Lch), Q411 (rear Lch), Q410 (front Rch) and Q412 (rear Rch) low level and thus muting is completed. The other makes Q265 (Lch) and Q266 (Rch) low level to perform muting.

3. Playback signal

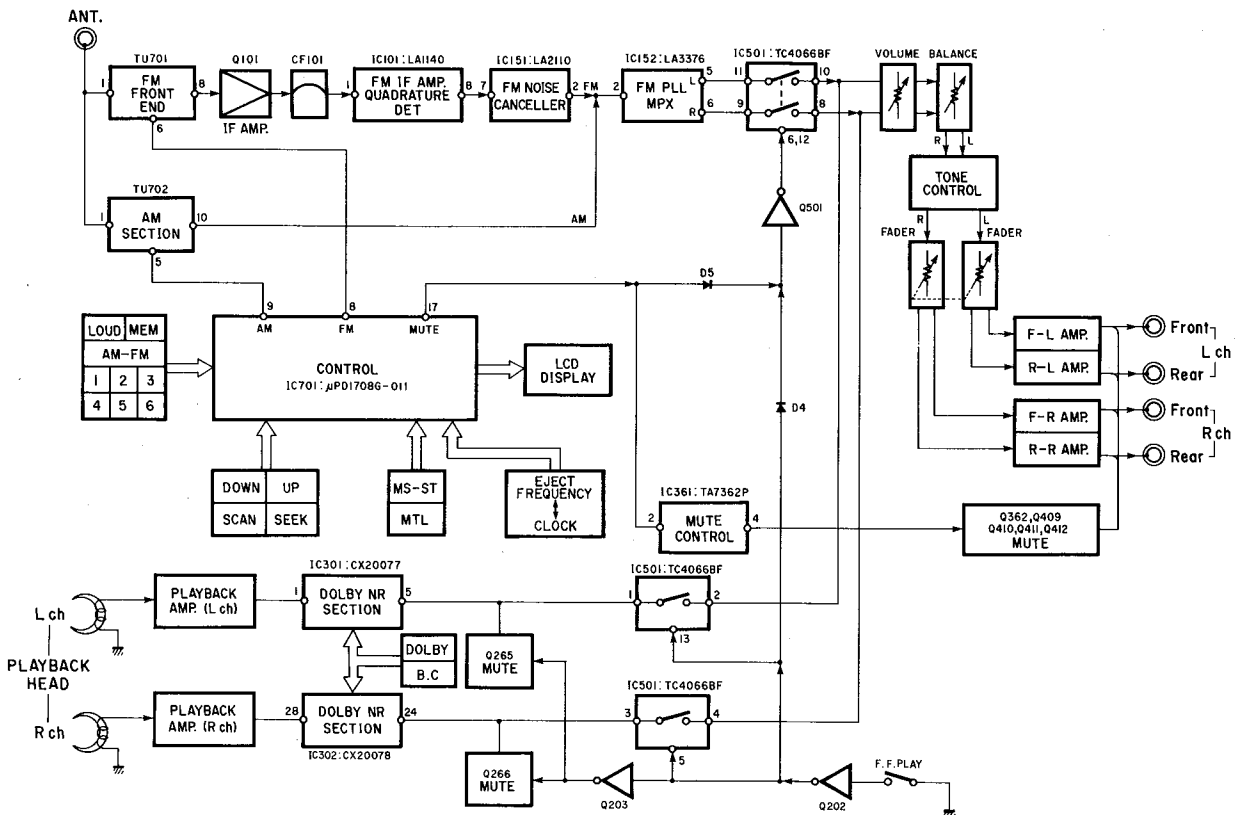
The playback signal taken out of the playback head is amplified in the playback amplifier. Then it is elongated in the Dolby circuit (B/C) of the IC301 (IC302) when the dolby switch is ON and fed to the audio amplifier. When the dolby switch is OFF, it passes through the IC301 (IC302) and fed to the audio amplifier.

2. Muting circuit

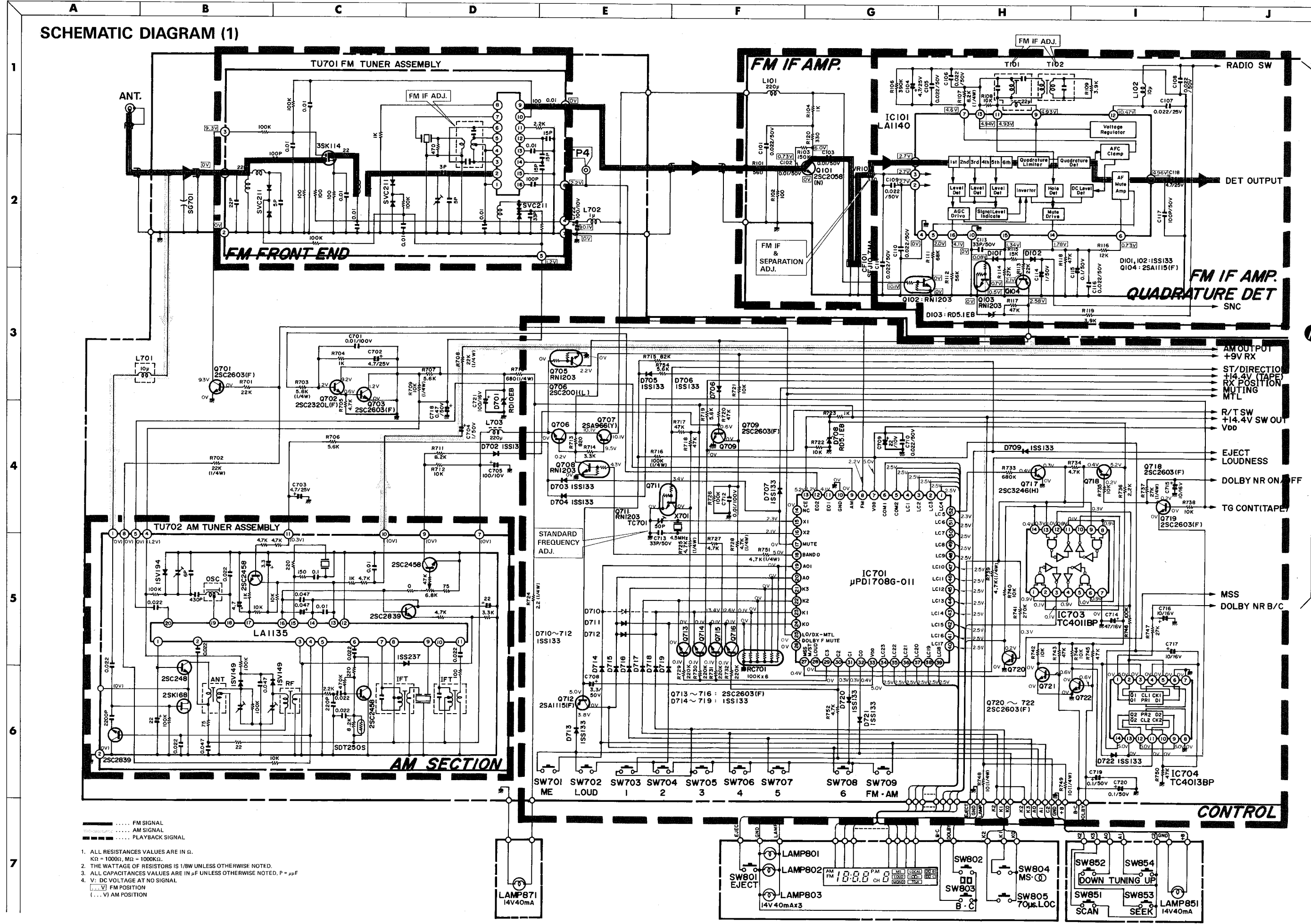
● Muting during tuning

One of the muting signals emitted from 17 pin of the IC701 actuates the switch in the IC501 to cut off the signal from the tuner. The other is input to 2 pin of the IC361 (IC for muting) and makes Q409 (front Lch), Q411 (rear Lch), Q410 (front Rch) and Q412 (rear Rch) all low level by making 4 pin low level and Q362 high level. Thus the muting is completed.

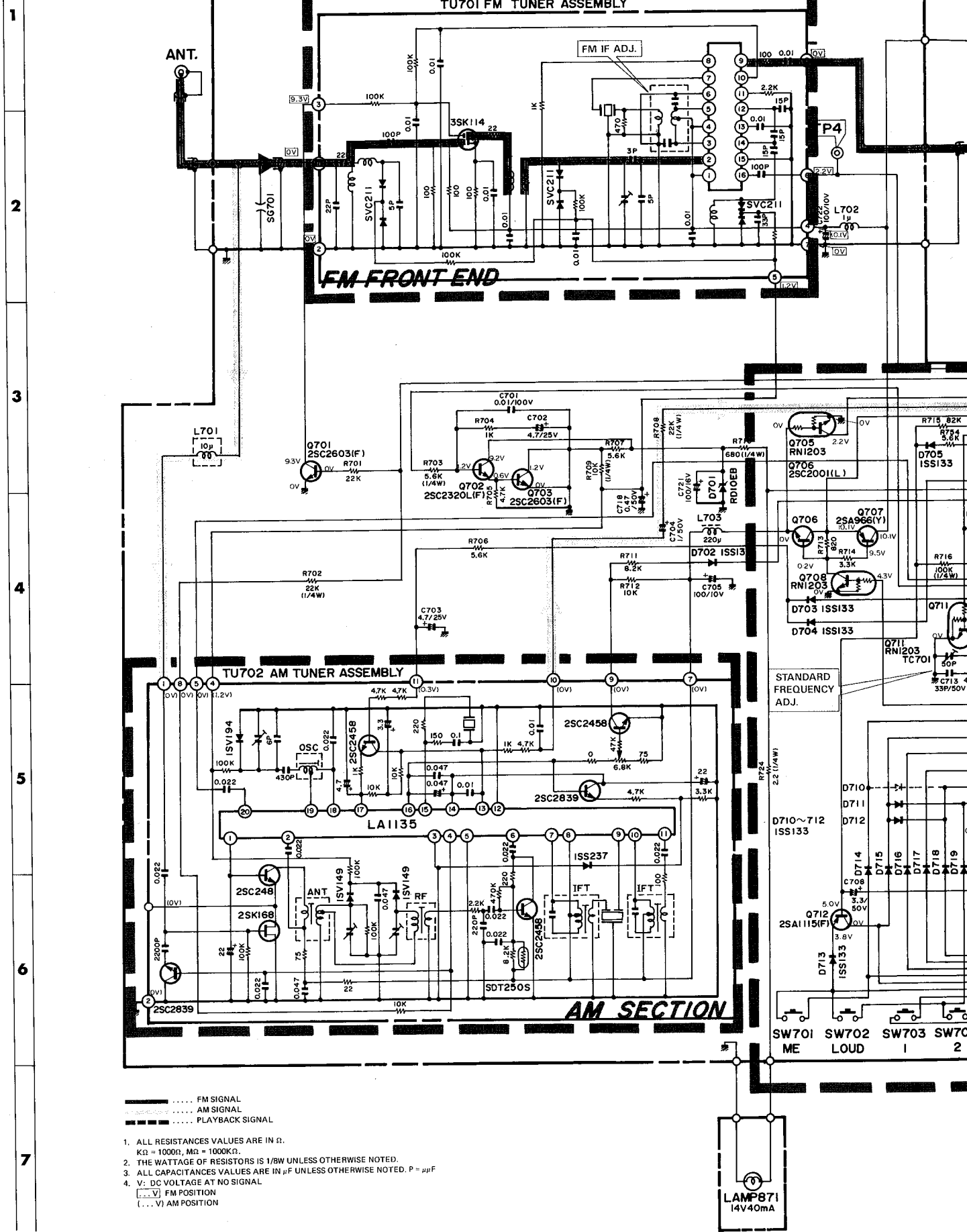
BLOCK DIAGRAM



SCHEMATIC DIAGRAM (1)

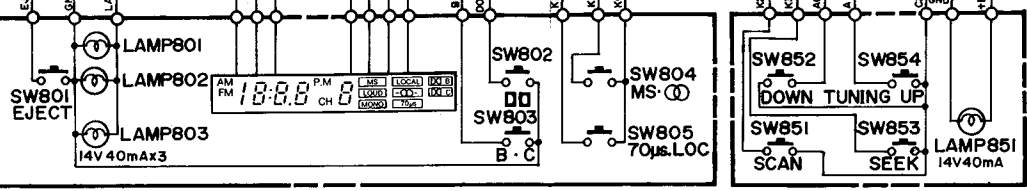
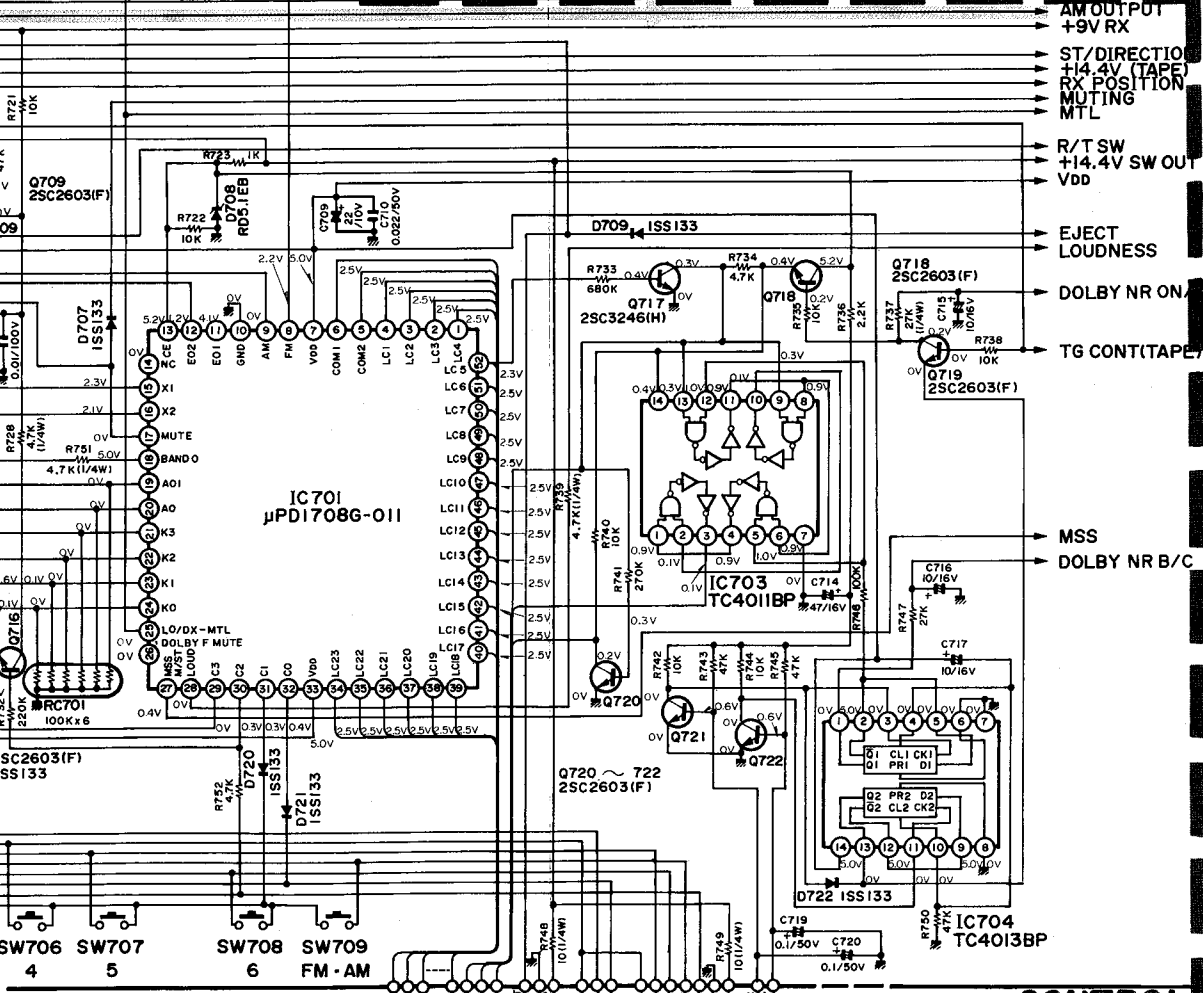
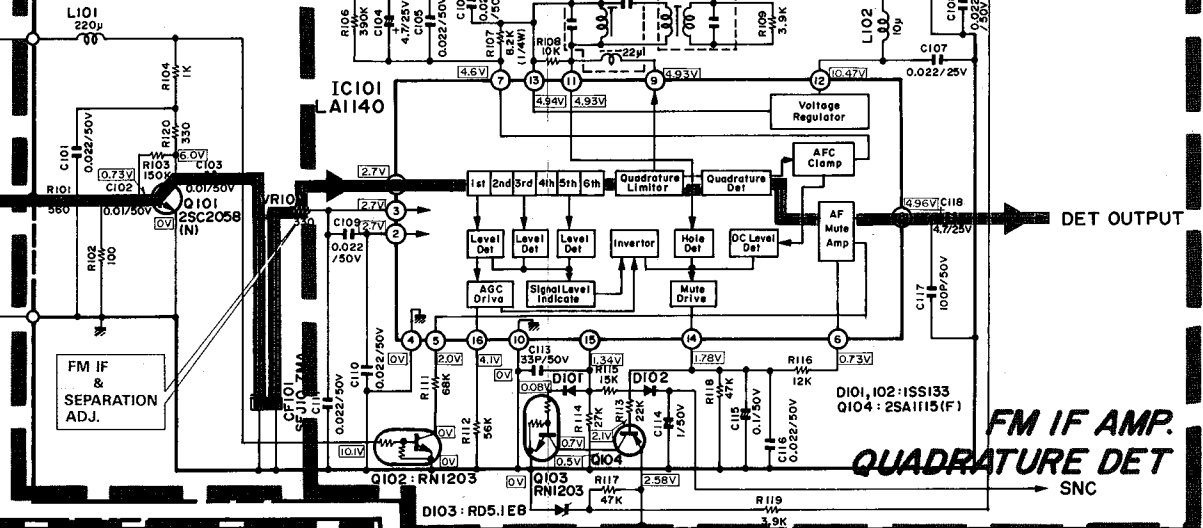


SCHEMATIC DIAGRAM (1)



F G H I J

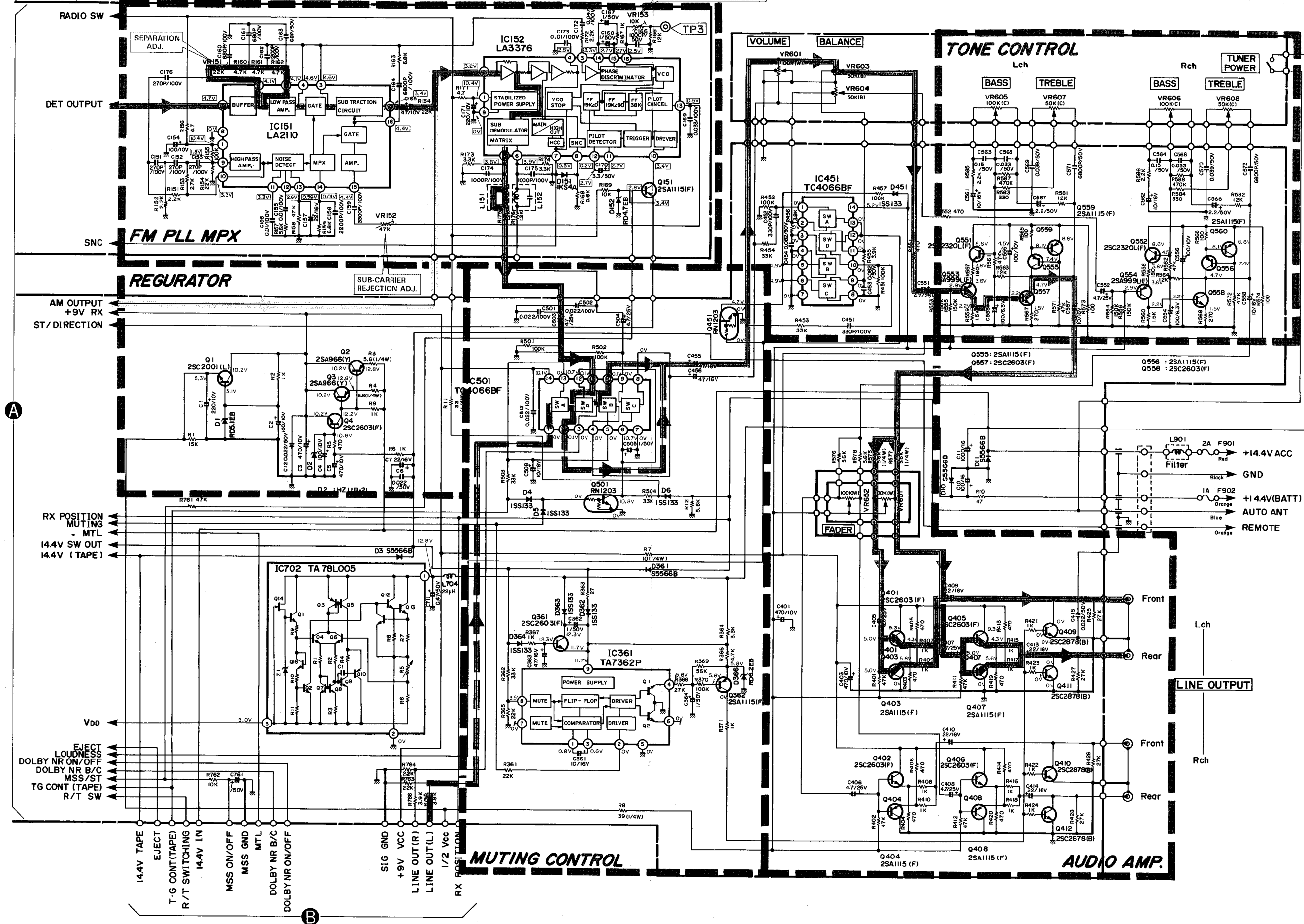
FM IF AMP.



A

SCHEMATIC DIAGRAM (2)

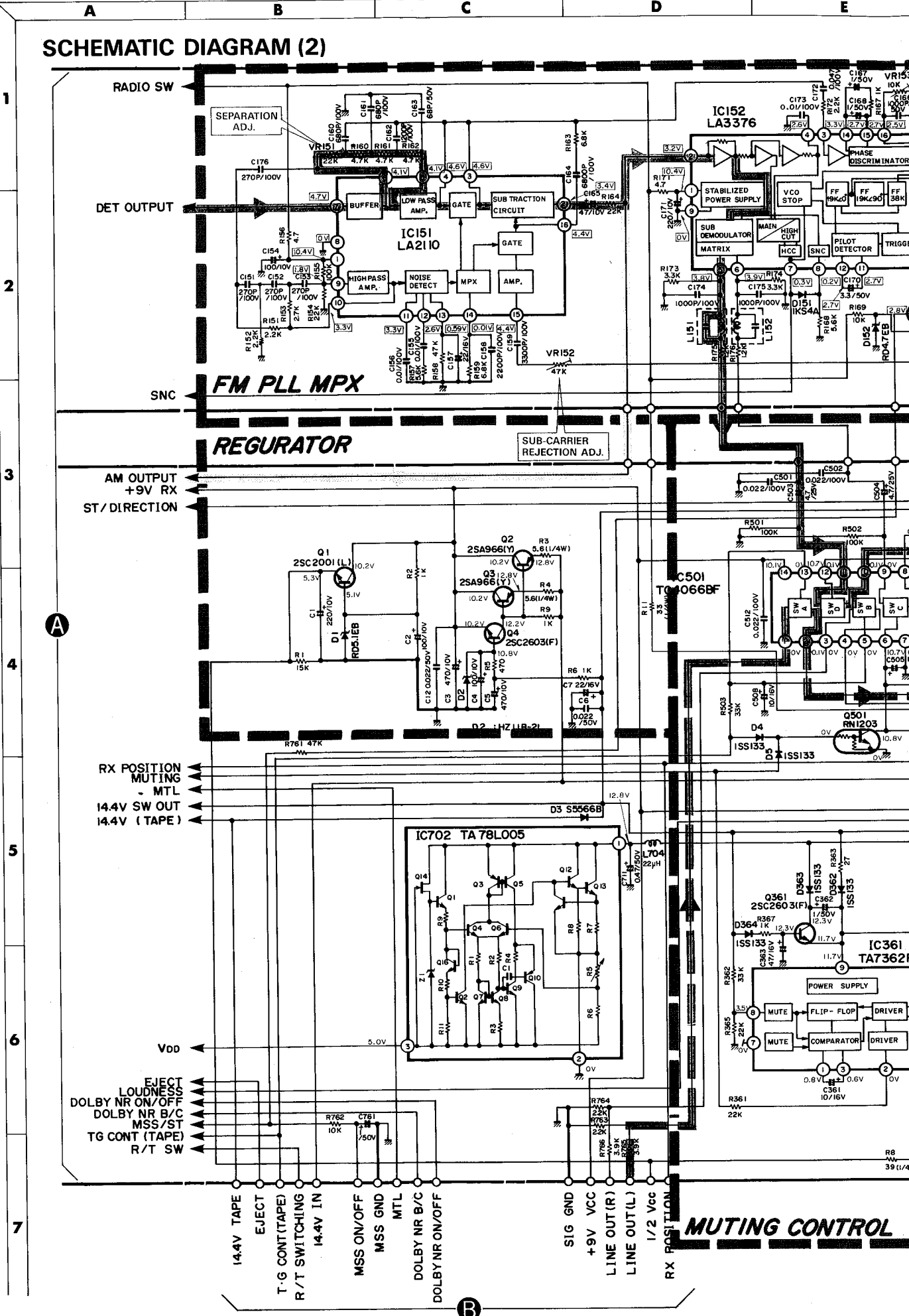
FREE RUN FREQUENCY ADJ.



Filter
 2A F901 +14.4V ACC
 Black → GND
 1A F902 +1.44V(BATT)
 Orange → AUTO ANT
 Blue → REMOTE
 Orange →

Front
 Rear
 Lch
 Rch
 LINE OUTPUT
 Front
 Rear

SCHEMATIC DIAGRAM (2)



F

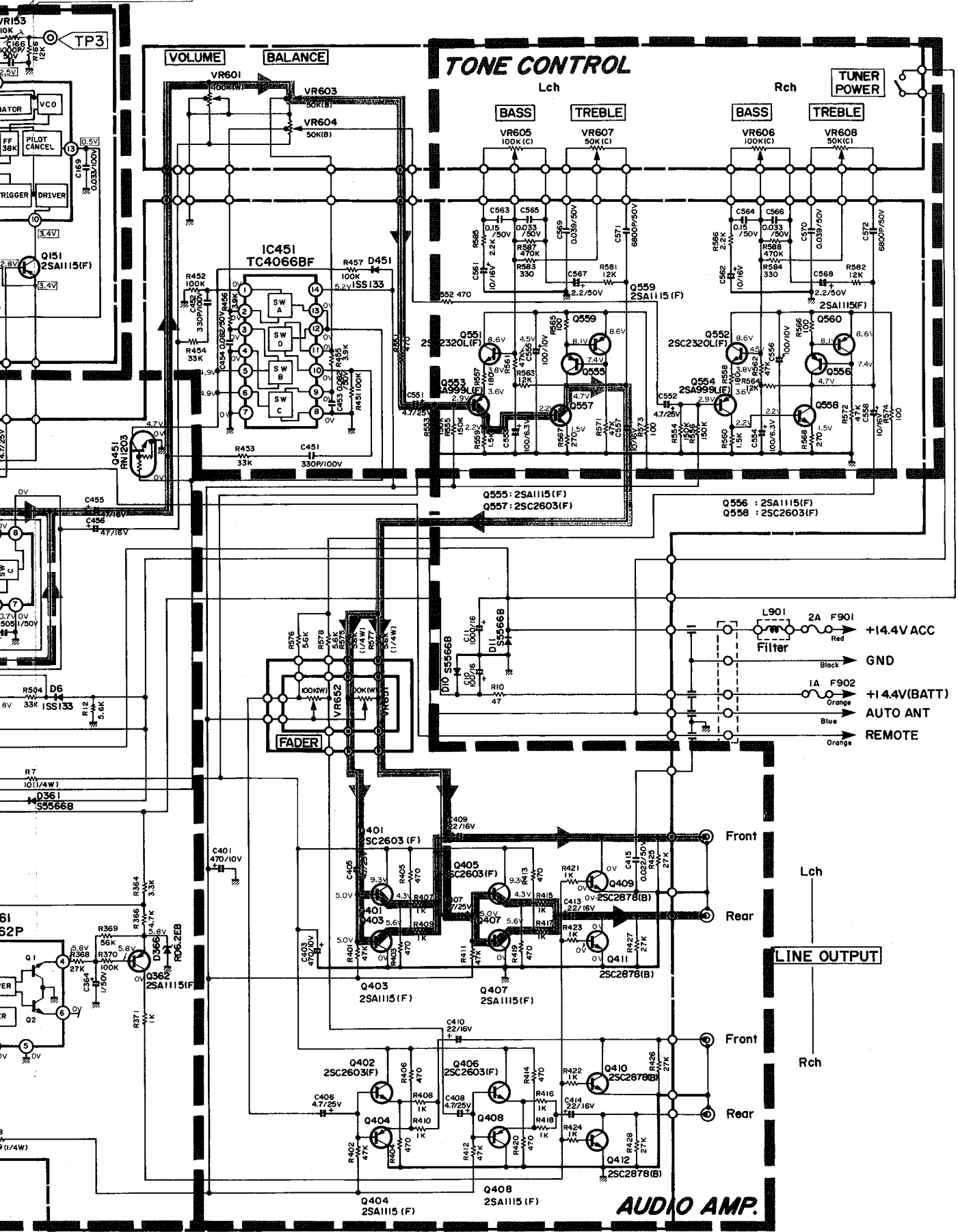
G

H

I

J

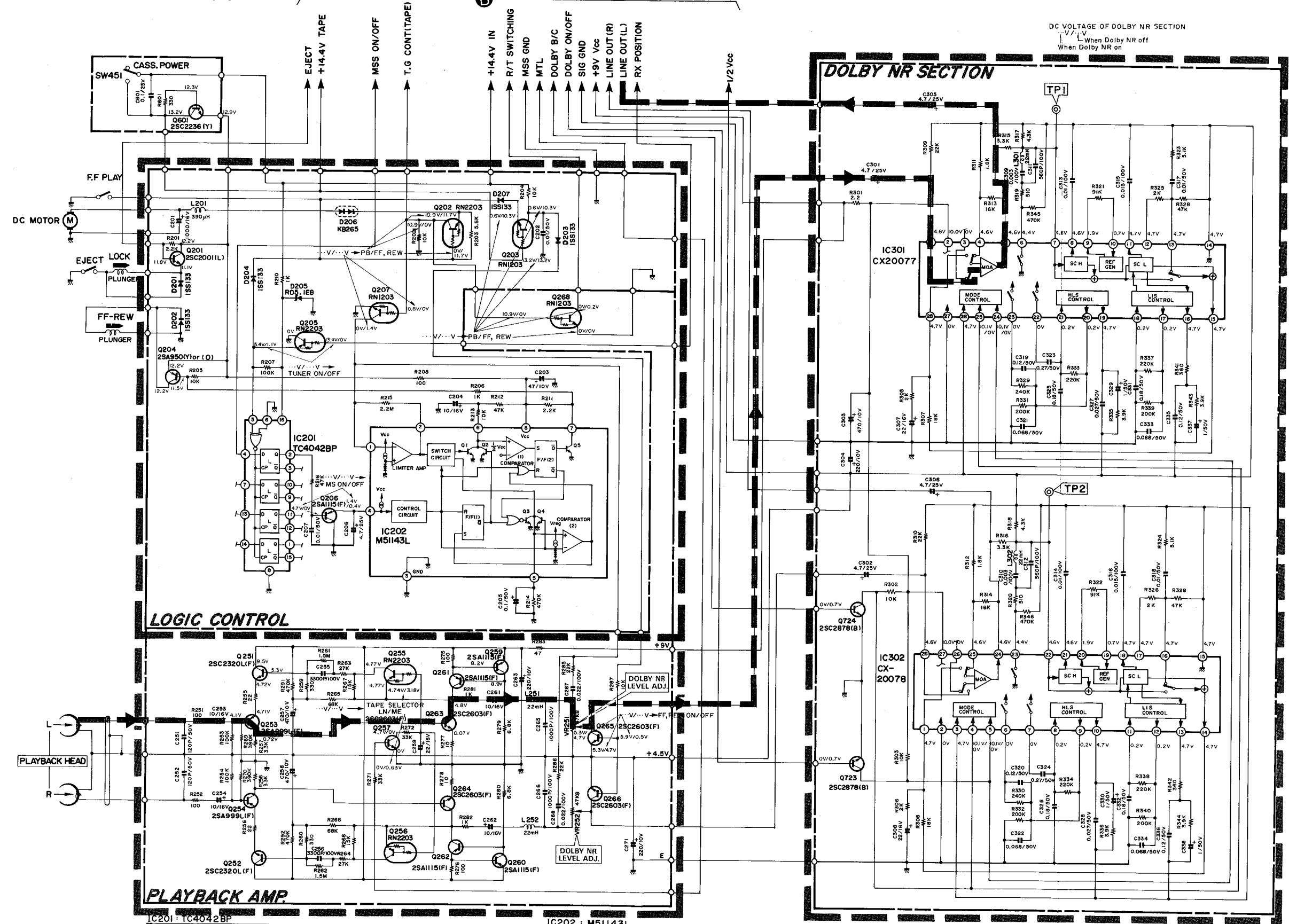
FREE RUN FREQUENCY ADJ.



LINE OUTPUT

AUDIO AMP.

SCHEMATIC DIAGRAM (3)



DC VOLTAGE OF DOLBY NR SECTION
 When Dolby NR off
 When Dolby NR on

LOGIC CONTROL

PLAYBACK AMP

DOLBY NR SECTION

IC201: TC4042BP

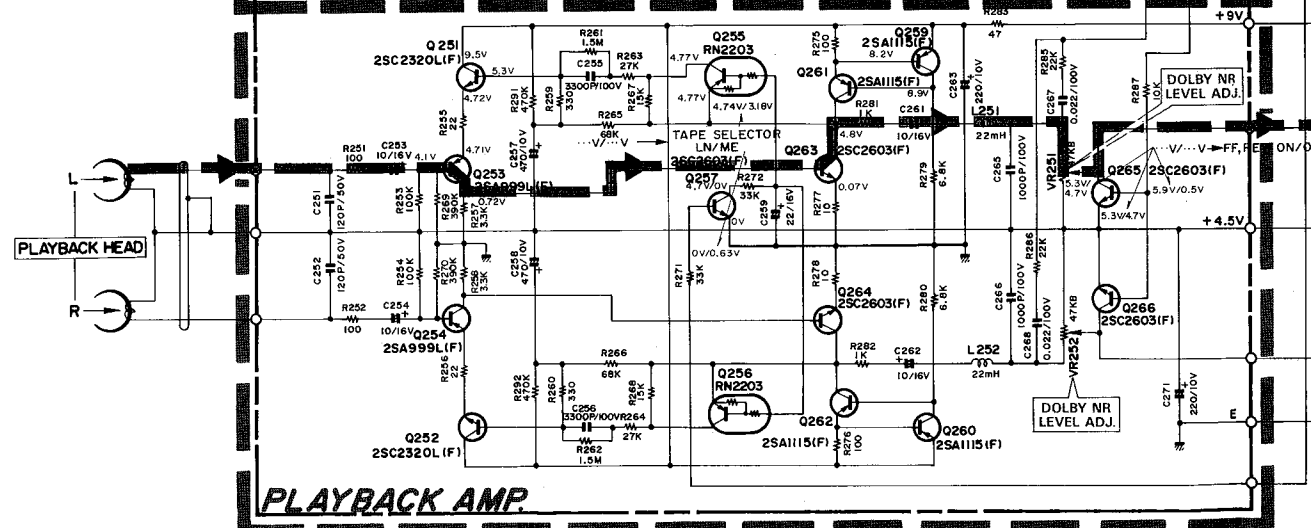
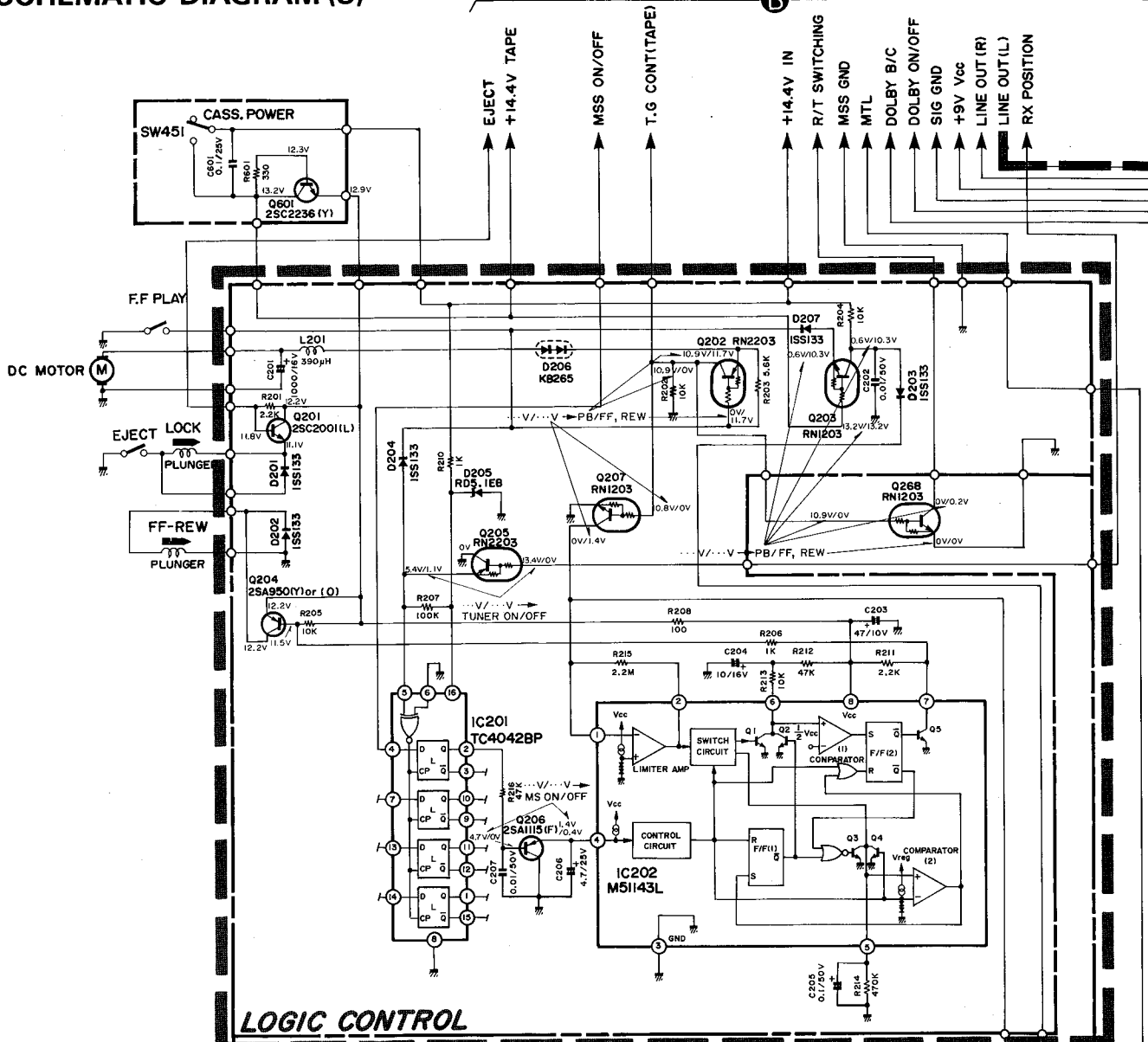
| PIN NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|--------------------------|------|------|------|------|------|----|----|----|----|------|------|----|----|----|------|------|
| PB | 4.8V | 0V | 4.8V | 0.2V | 0.4V | 0V | 0V | 0V | 0V | 4.8V | 4.8V | 0V | 0V | 0V | 4.8V | 4.8V |
| TUNER OFF FF, REW MS OFF | 4.8V | 0V | 4.8V | 0.2V | 1.2V | 0V | 0V | 0V | 0V | 4.8V | 4.8V | 0V | 0V | 0V | 4.8V | 4.8V |
| TUNER OFF FF, REW MS ON | 4.8V | 4.8V | 0V | 5.0V | 1.2V | 0V | 0V | 0V | 0V | 4.8V | 4.8V | 0V | 0V | 0V | 4.8V | 4.8V |
| TUNER ON FF, REW MS ON | 4.8V | 4.8V | 0V | 0.4V | 5.4V | 0V | 0V | 0V | 0V | 4.8V | 4.8V | 0V | 0V | 0V | 4.8V | 4.8V |

IC202: M51143L

| PIN NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|----------------|------|------|----|------|----|------|------|-------|
| PB | 0V | 2.7V | 0V | 0.5V | 0V | 0V | 0.2V | 11.1V |
| FF, REW MS OFF | 1.4V | 1.4V | 0V | 0.5V | 0V | 0V | 0.2V | 11.1V |
| FF, REW MS ON | 1.4V | 1.4V | 0V | 1.4V | 0V | 1.7V | 0.2V | 11.2V |

- FM SIGNAL
 - AM SIGNAL
 - PLAYBACK SIGNAL
- ALL RESISTANCE VALUES ARE IN Ω.
KΩ = 1000Ω, MΩ = 1000Ω.
 - THE WATTAGE OF RESISTORS IS 1/8W UNLESS OTHERWISE NOTED.
 - ALL CAPACITANCE VALUES ARE IN μF UNLESS OTHERWISE NOTED. P = pF
 - V: DC VOLTAGE AT NO SIGNAL
[]: FM POSITION
[]: AM POSITION

SCHEMATIC DIAGRAM (3)



IC201: TC4042BP

| | PIN NO. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|--------------------------|---------|------|------|------|------|------|----|----|----|----|------|------|----|----|----|------|------|
| PB | | 4.8V | 0V | 4.8V | 0.2V | 0.4V | 0V | 0V | 0V | 0V | 4.8V | 4.8V | 0V | 0V | 0V | 4.8V | 4.8V |
| TUNER OFF FF, REW MS OFF | | 4.8V | 0V | 4.8V | 0.2V | 1.2V | 0V | 0V | 0V | 0V | 4.8V | 4.8V | 0V | 0V | 0V | 4.8V | 4.8V |
| TUNER OFF FF, REW MS ON | | 4.8V | 4.8V | 0V | 5.0V | 1.2V | 0V | 0V | 0V | 0V | 4.8V | 4.8V | 0V | 0V | 0V | 4.8V | 4.8V |
| TUNER ON FF, REW MS ON | | 4.8V | 4.8V | 0V | 0.4V | 5.4V | 0V | 0V | 0V | 0V | 4.8V | 4.8V | 0V | 0V | 0V | 4.8V | 4.8V |

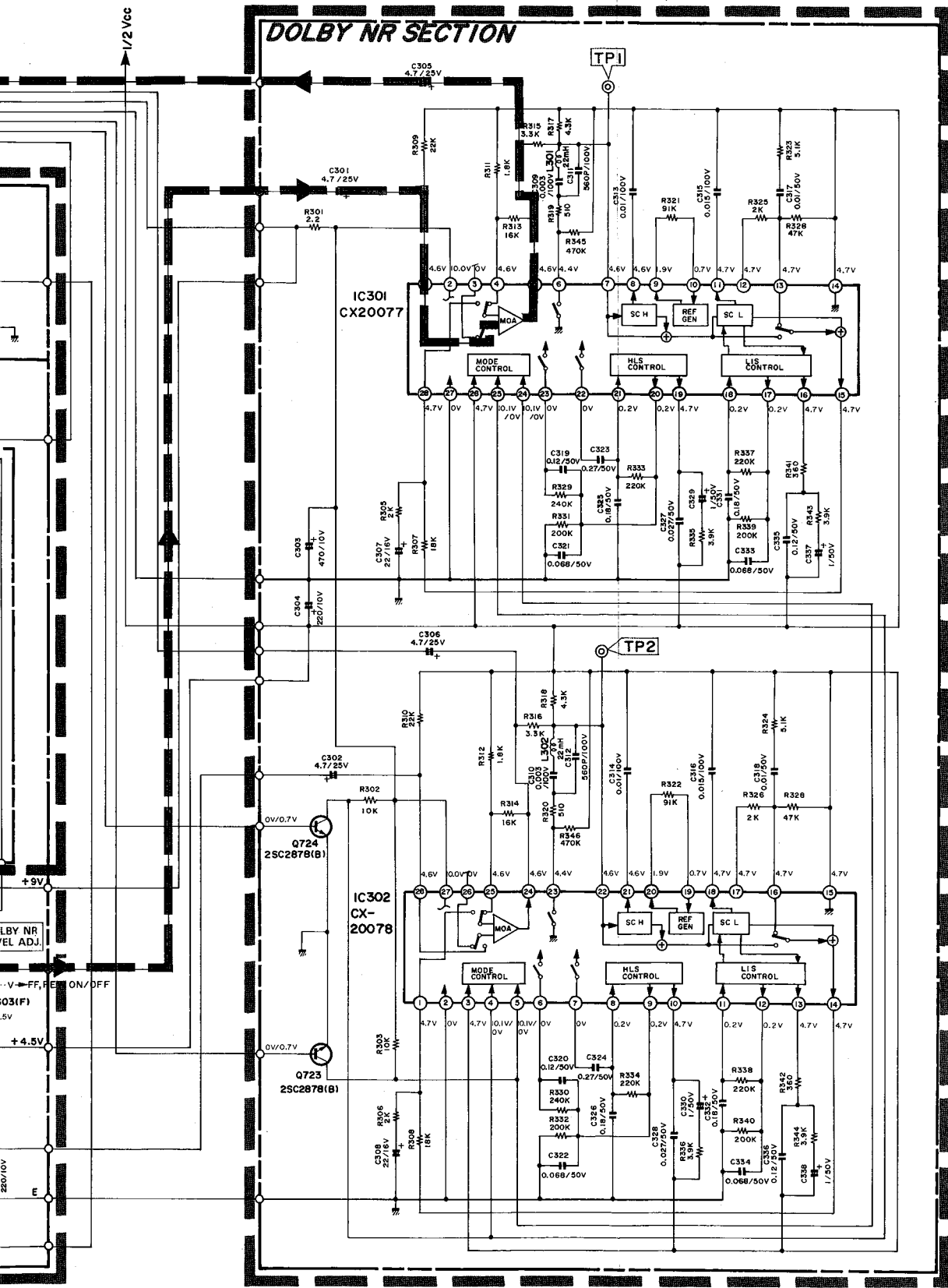
IC202: M51143L

| | PIN NO. | 1 | 2 | 3 | 4 | 5 | 6 |
|----------------|---------|------|------|----|------|----|------|
| PB | | 0V | 2.7V | 0V | 0.5V | 0V | 0V |
| FF, REW MS OFF | | 1.4V | 1.4V | 0V | 0.5V | 0V | 0V |
| FF, REW MS ON | | 1.4V | 1.4V | 0V | 1.4V | 0V | 1.7V |

F G H I J

DC VOLTAGE OF DOLBY NR SECTION

When Dolby NR off
When Dolby NR on

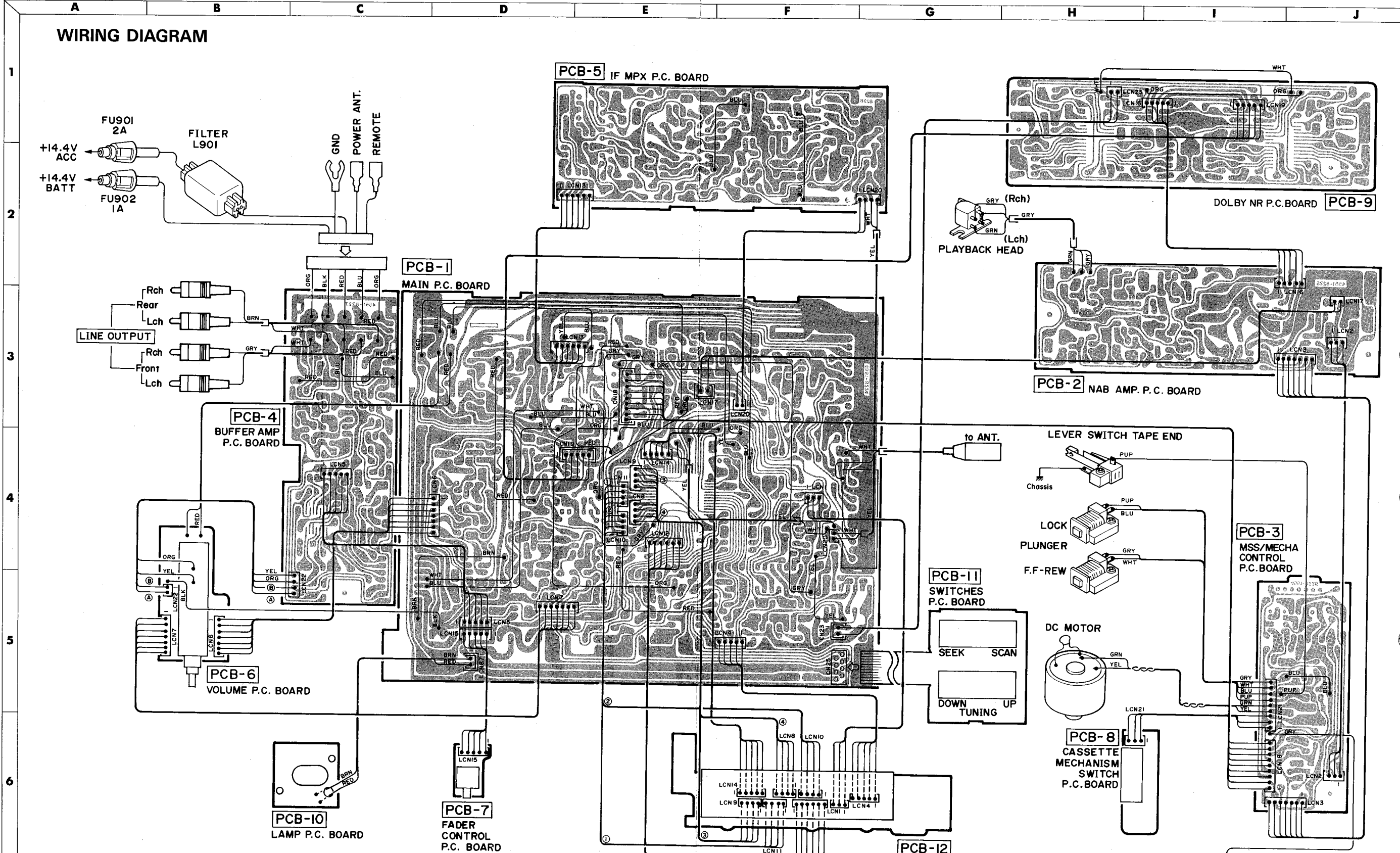


| | 3 | 4 | 5 | 6 | 7 | 8 |
|-----------------|----|------|----|------|------|-------|
| FM SIGNAL | 0V | 0.5V | 0V | 0V | 0.2V | 11.1V |
| AM SIGNAL | 0V | 0.5V | 0V | 0V | 0.2V | 11.1V |
| PLAYBACK SIGNAL | 0V | 1.4V | 0V | 1.7V | 0.2V | 11.2V |

..... FM SIGNAL
..... AM SIGNAL
..... PLAYBACK SIGNAL

- ALL RESISTANCES VALUES ARE IN Ω.
KΩ = 1000Ω, MΩ = 1000KΩ.
- THE WATTAGE OF RESISTORS IS 1/8W UNLESS OTHERWISE NOTED.
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- V: DC VOLTAGE AT NO SIGNAL
V: FM POSITION
V: AM POSITION

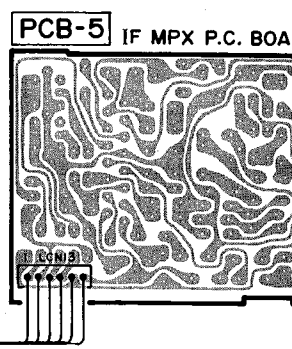
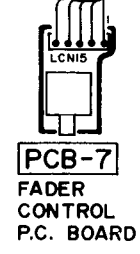
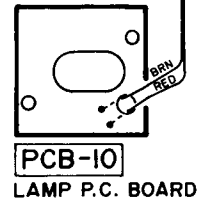
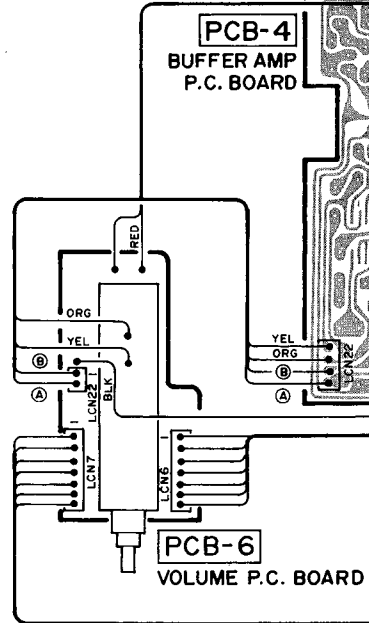
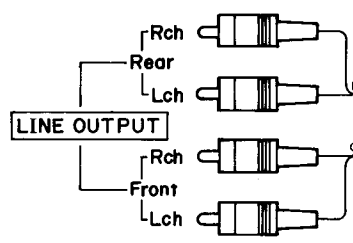
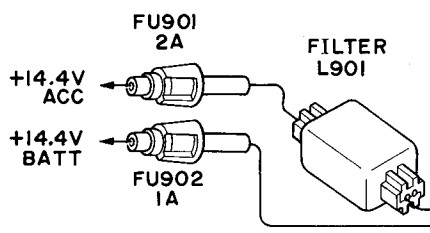
WIRING DIAGRAM



- WIRE COLOR ABBREVIATIONS
- RED : Red
 - ORG : Orange
 - BLU : Blue
 - WHT : White
 - GRN : Green
 - BLK : Black
 - YEL : Yellow
 - PUP : Purple
 - PIK : Pink

WIRING DIAGRAM

1
2
3
4
5
6
7



- WIRE COLOR ABBREVIATIONS
- RED : Red
 - ORG : Orange
 - BLU : Blue
 - WHT : White
 - GRN : Green
 - BLK : Black
 - YEL : Yellow
 - PUP : Purple
 - PIK : Pink

F

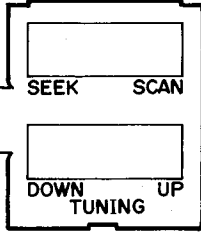
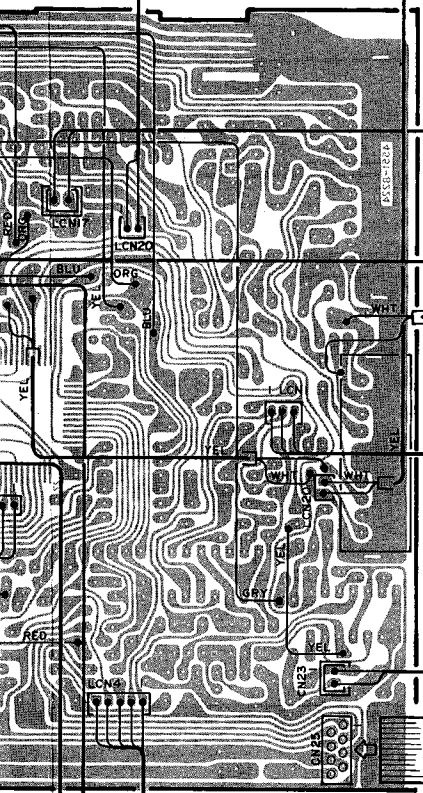
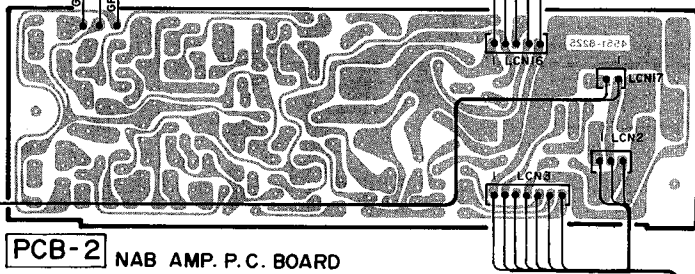
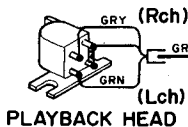
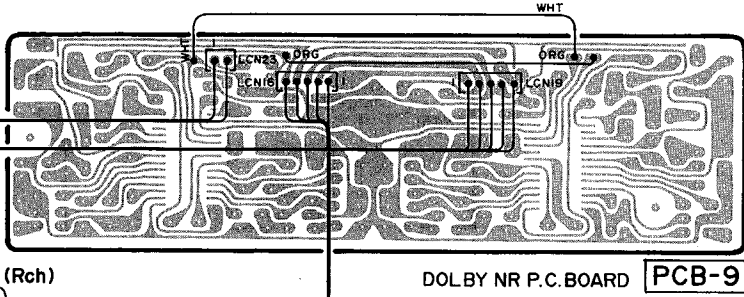
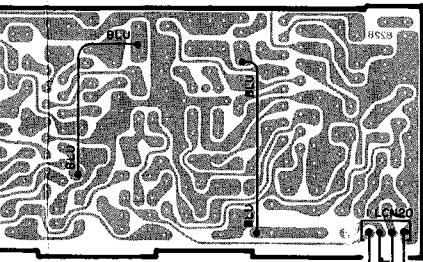
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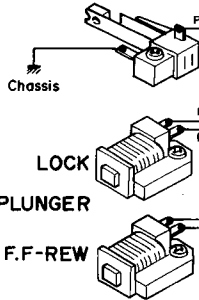
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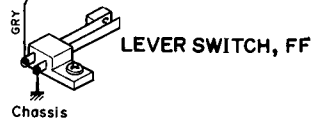
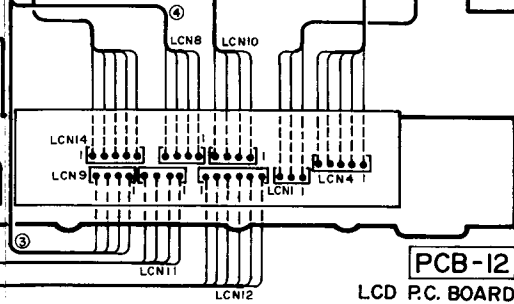
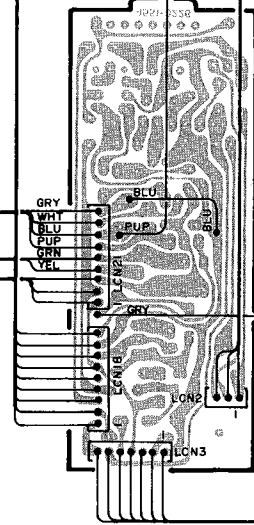
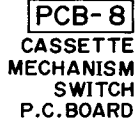
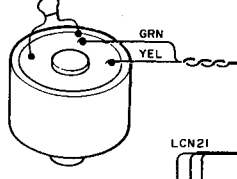
BOARD



LEVER SWITCH TAPE END



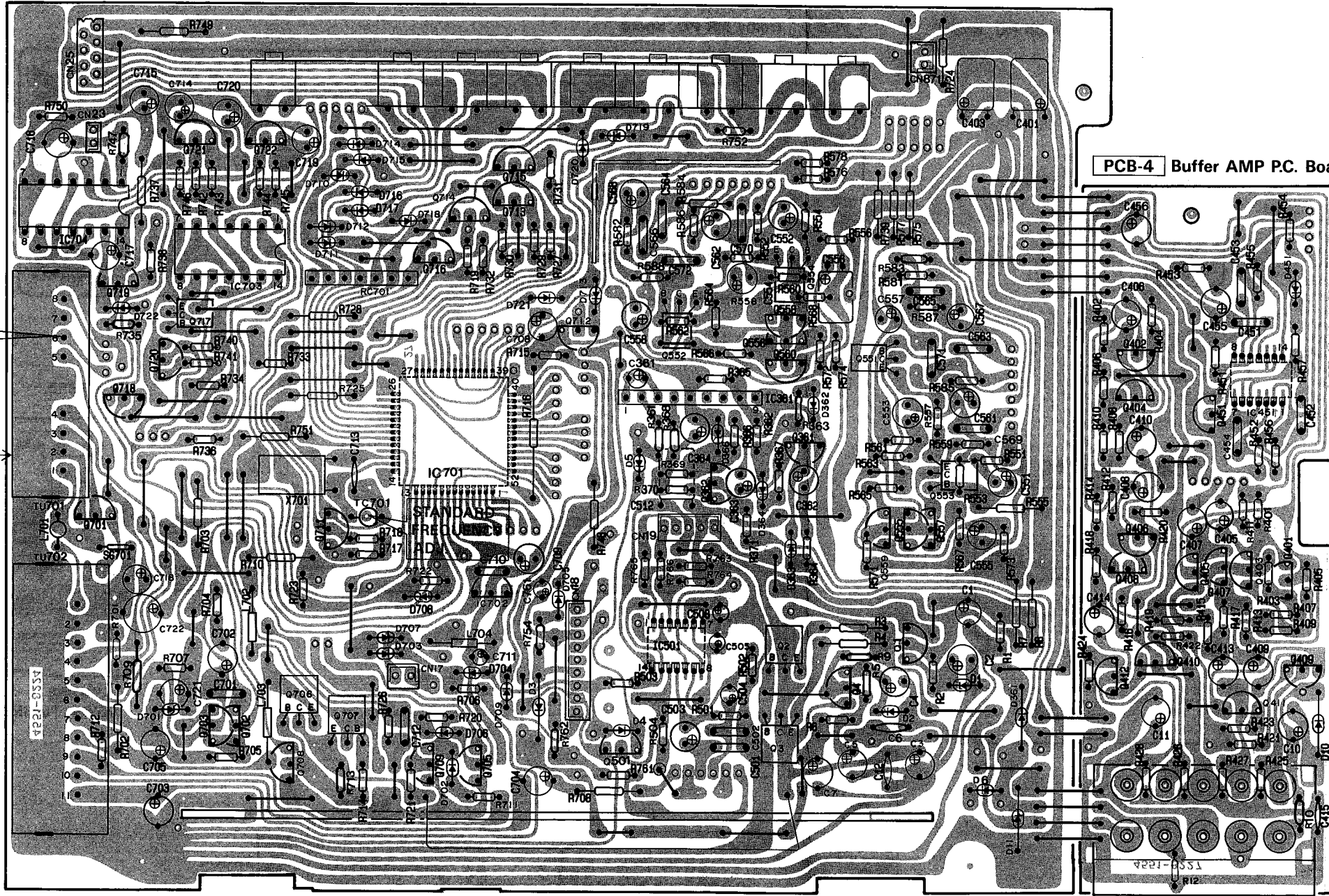
DC MOTOR



P.C. BOARDS (1)

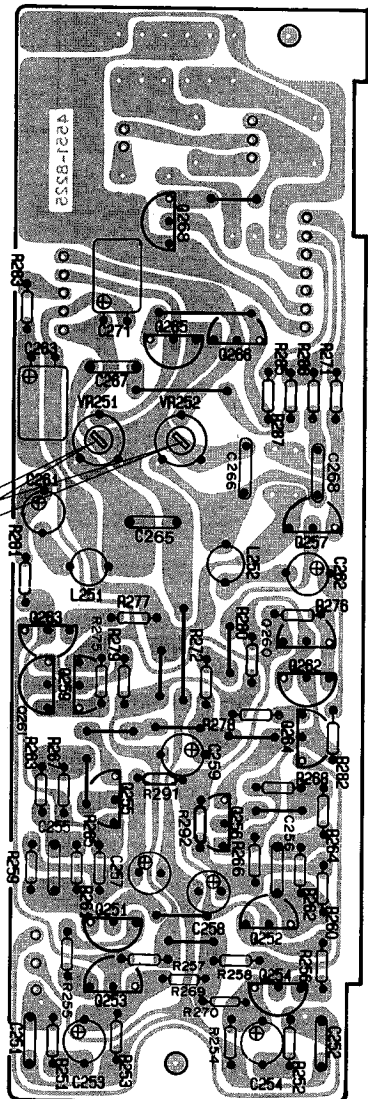
| | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| SW709 | SW708 | SW707 | SW706 | SW705 | SW704 | SW703 | SW702 | SW701 |
| FM·AM | 6 | 5 | 4 | 3 | 2 | 1 | LOUD | ME |

PCB-1 Main P.C. Board



PCB-4 Buffer AMP P.C. Board

PCB-2 NAB AMP P.C. Board

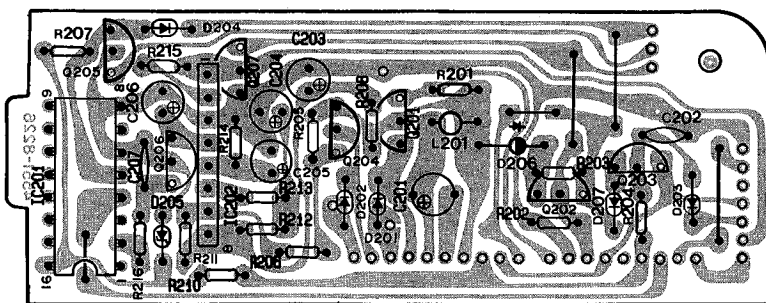


DOLBY NR LEVEL ADJ.

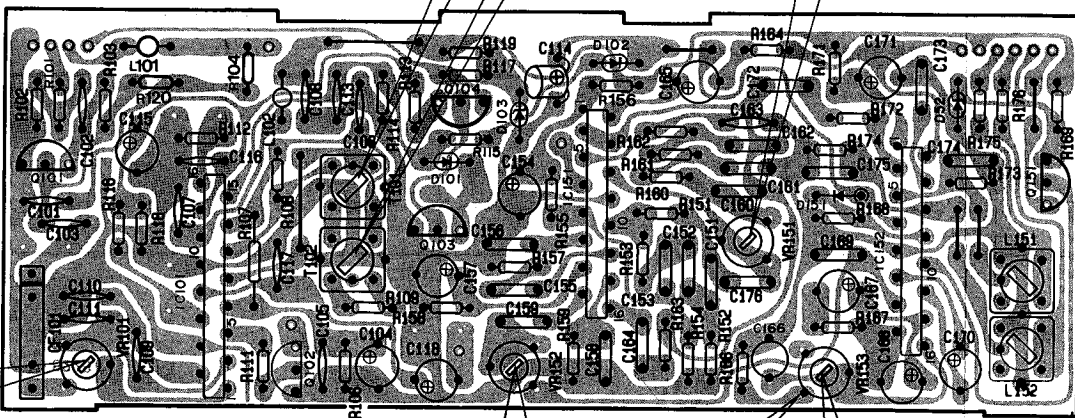
TP4

FM IF ADJ.

PCB-3 MSS/Mecha Control P.C. Board



PCB-5 IF MPX P.C. Board



FM IF ADJ.

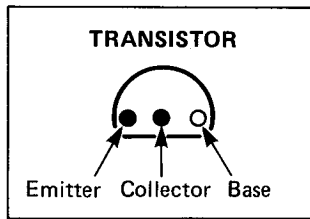
SEPARATION ADJ.

FM IF & SEPARATION ADJ.

SUB-CARRIER REJECTION ADJ.

TP3

FREE RUN FREQUENCY ADJ.

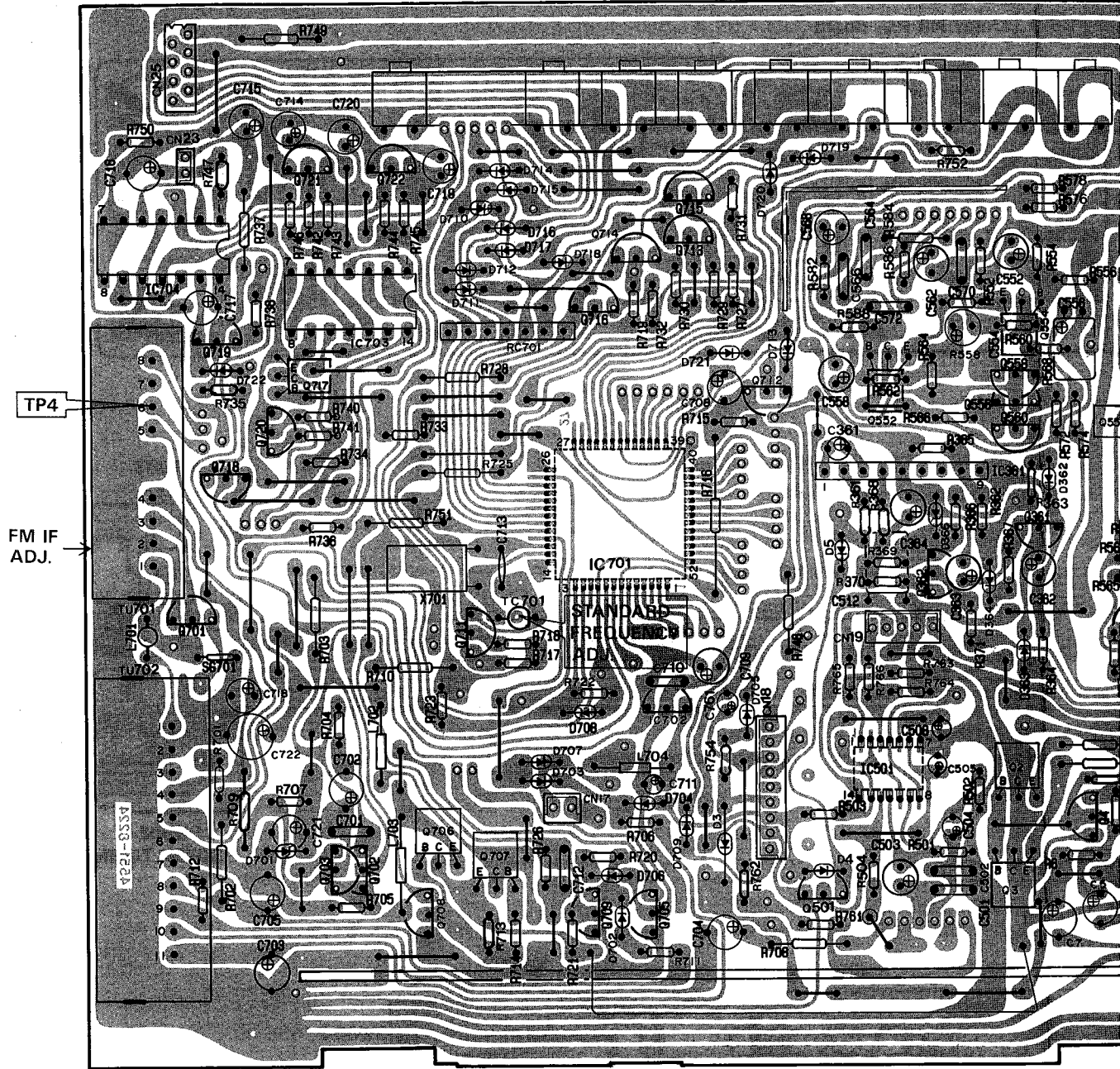


PC. BOARDS (1)

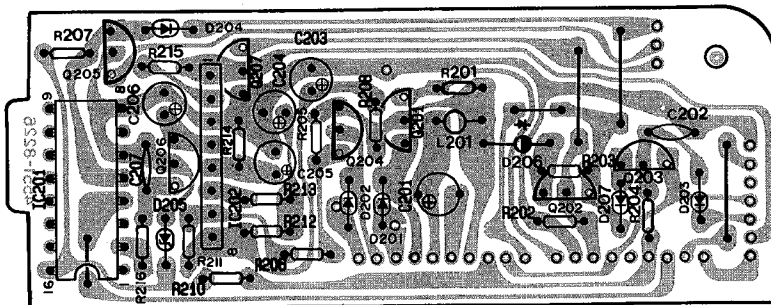
PCB-1 Main P.C. Board

SW709
FM·AM

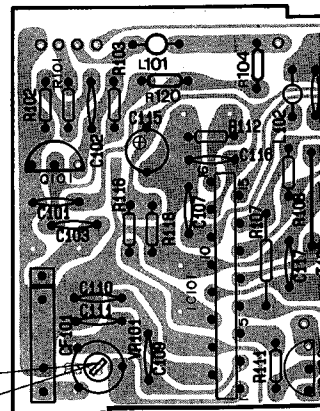
SW708 SW707 SW706 SW705 SW704 SW703 SW702 SW701
6 5 4 3 2 1 LOUD ME



PCB-3 MSS/Mecha Control P.C. Board



PCB-5 IF MPX P.C. Board



FM IF
&
SEPARATION
ADJ.

702 SW701
UD ME

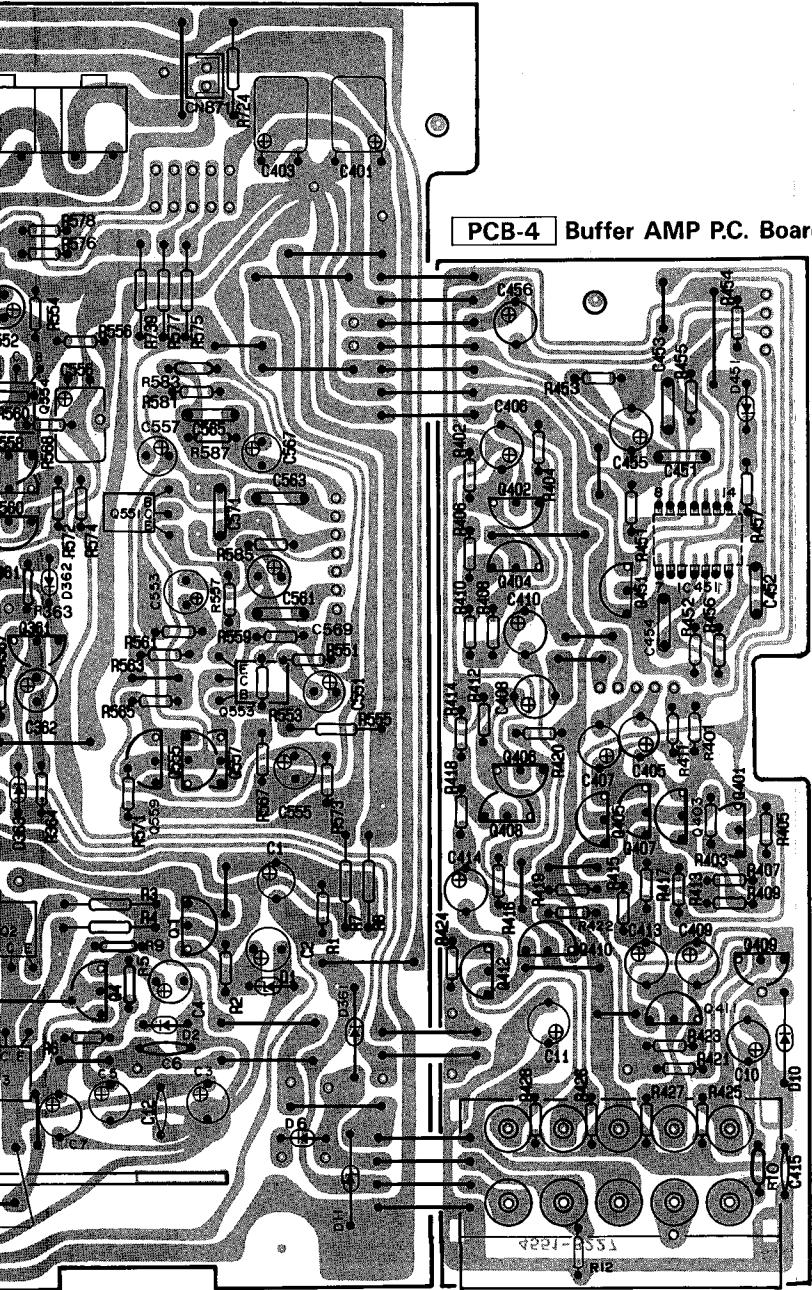
F

G

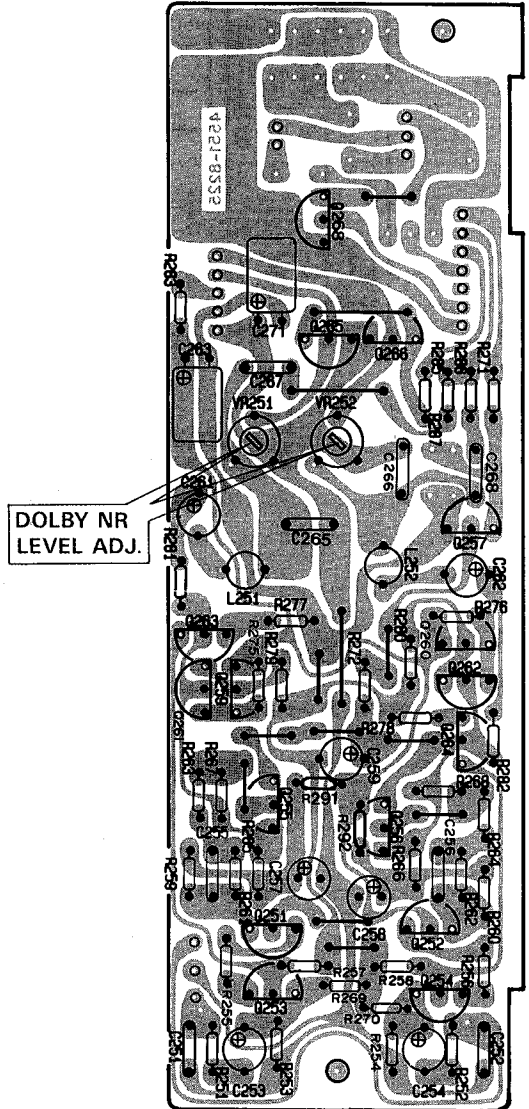
H

I

J



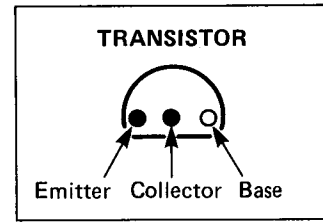
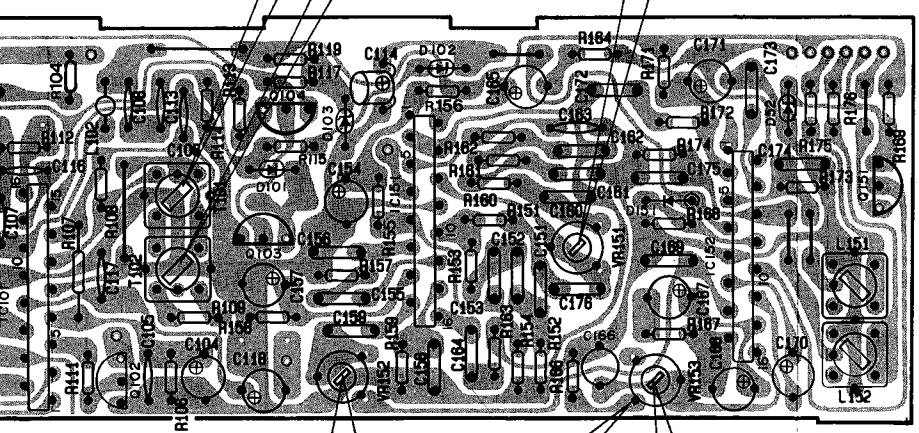
PCB-2 NAB AMP P.C. Board



PC Board

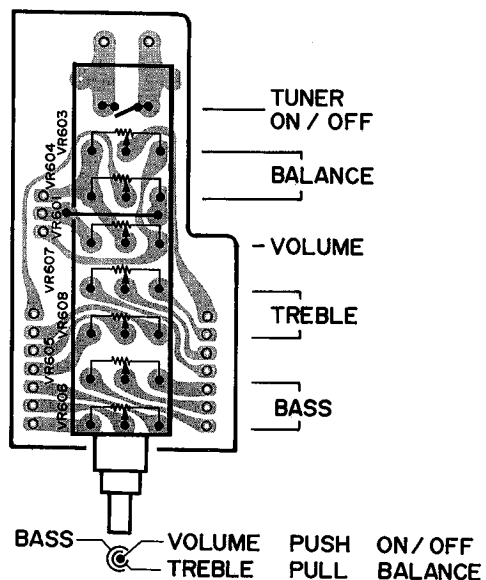
FM IF ADJ.

SEPARATION ADJ.

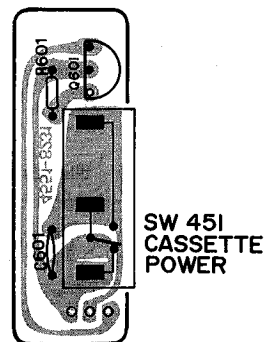


PC. BOARDS (2)

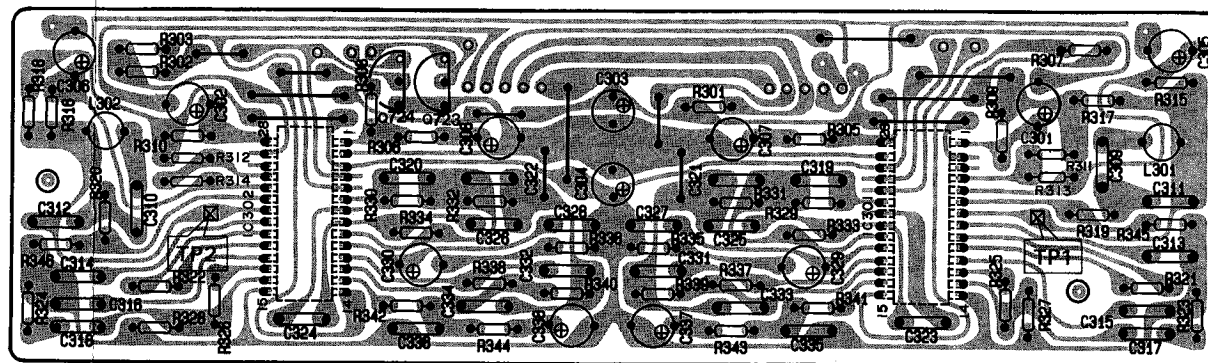
PCB-6 Volume P.C. Board



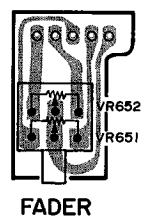
PCB-8 Cassette Mechanism Switch P.C. Board



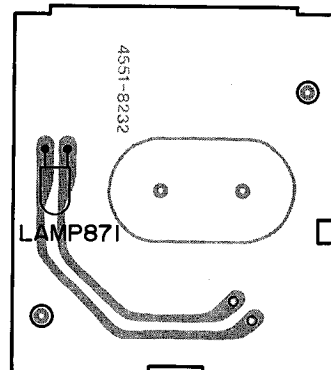
PCB-9 Dolby NR P.C. Board



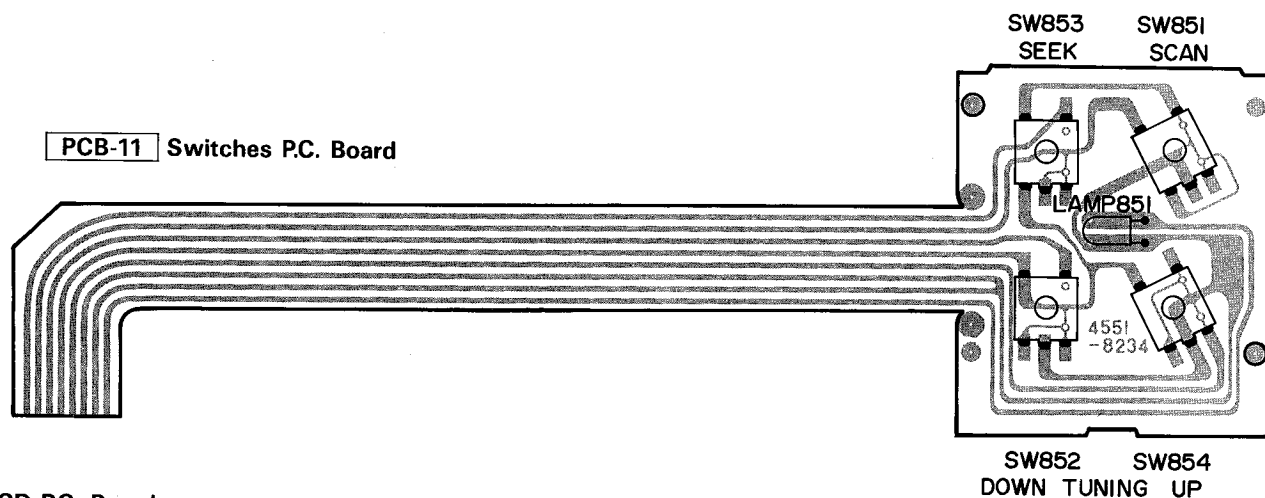
PCB-7 Fader Control P.C. Board



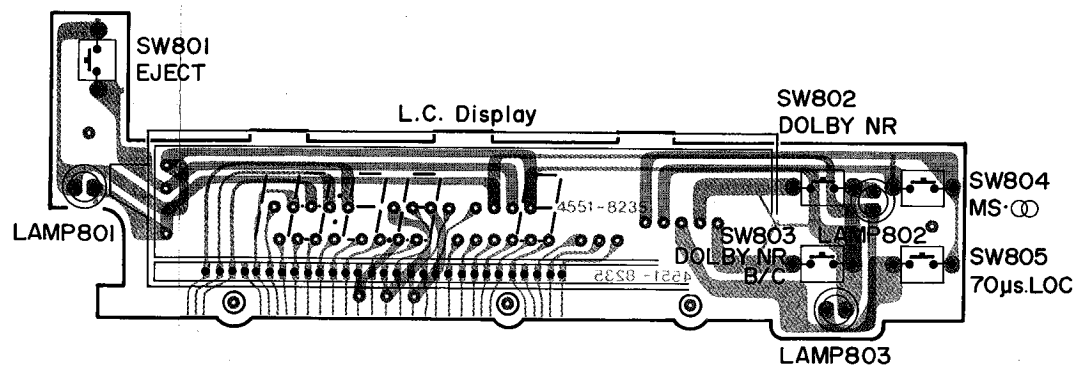
PCB-10 Lamp P.C. Board



PCB-11 Switches P.C. Board



PCB-12 LCD P.C. Board



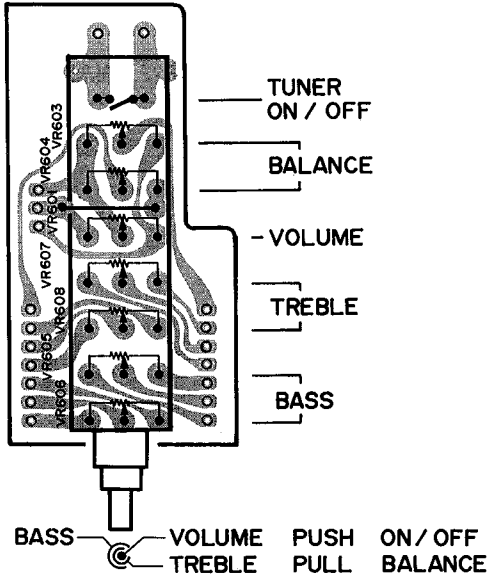
PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICS.

| | | | | | | | | |
|--|------------------------|--|--------------------------|-------------|--------------|------------------------|--------------|------------------|
| 2SC2001 2SA966 2SC2320L 2SA999L 2SC3246 2SA950 2SC2878 | 2SC2058 2SC2236 | 2SC2603 2SA1115 RN1203 RN2203 | TA78L005 | TA7362P | TC4013BP | LA3376 | TC4042BP | µPD1708G-011 |
| RD5.1EB HZ11B-2L S5566B 1SS133 RD6.2EB RD10EB 1K34A RD4.7EB | KB265 | M51143L | TC4066BF TC4011BP | LA2110 | LA1140 | CX20077 CX20078 | | |

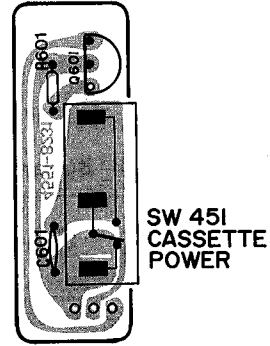
P.C. BOARDS (2)

1
2
3
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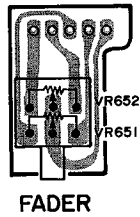
PCB-6 Volume P.C. Board



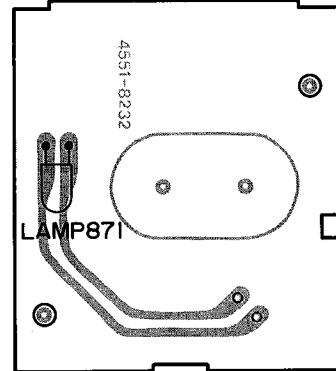
PCB-8 Cassette Mechanism Switch P.C. Board



PCB-7 Fader Control P.C. Board



PCB-10 Lamp P.C. Board



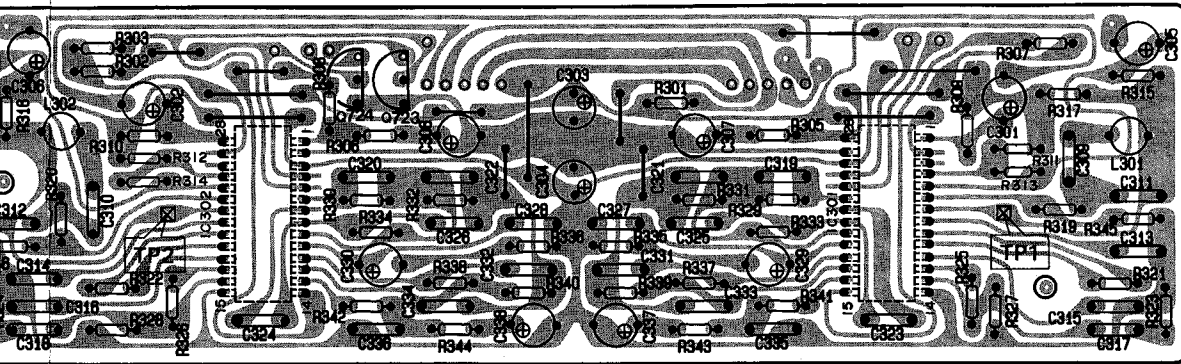
PCB-12



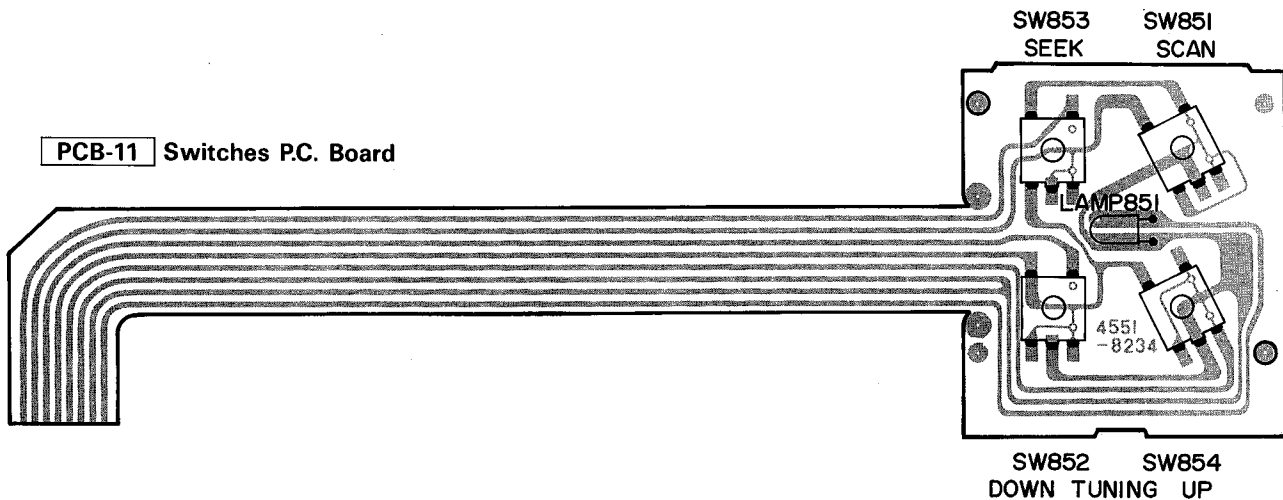
PIN CONNECTION DIAGRAM OF TRANSISTORS, DIODES AND ICs.

| | | | | | | |
|--|------------------------|--|--------------------------|-------------|--------------|------------|
| 2SC2001 2SA966 2SC2320L 2SA999L 2SC3246 2SA950 2SC2878 | 2SC2058 2SC2236 | 2SC2603 2SA1115 RN1203 RN2203 | TA78L005 | TA7362P | TC4013BP | LA3376 |
| RD5.1EB HZ11B-2L S5566B 1SS133 RD6.2EB RD10EB 1K34A RD4.7EB | KB265 | M51143L | TC4066BF TC4011BP | LA2110 | LA1140 | |

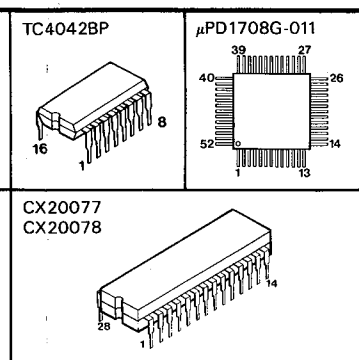
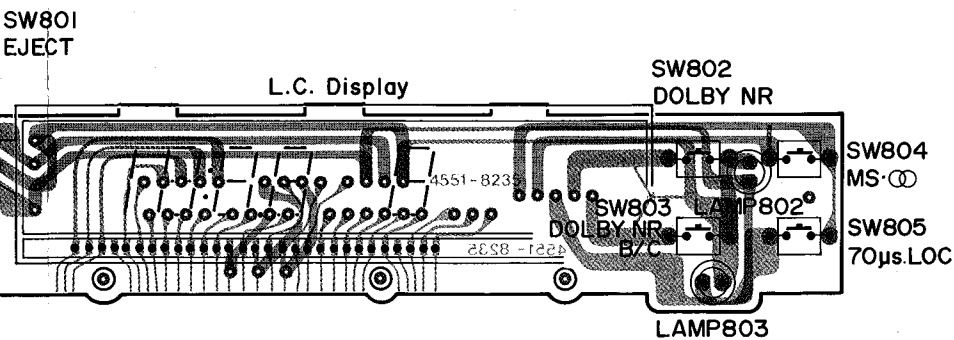
CB-9 Dolby NR P.C. Board



PCB-11 Switches P.C. Board

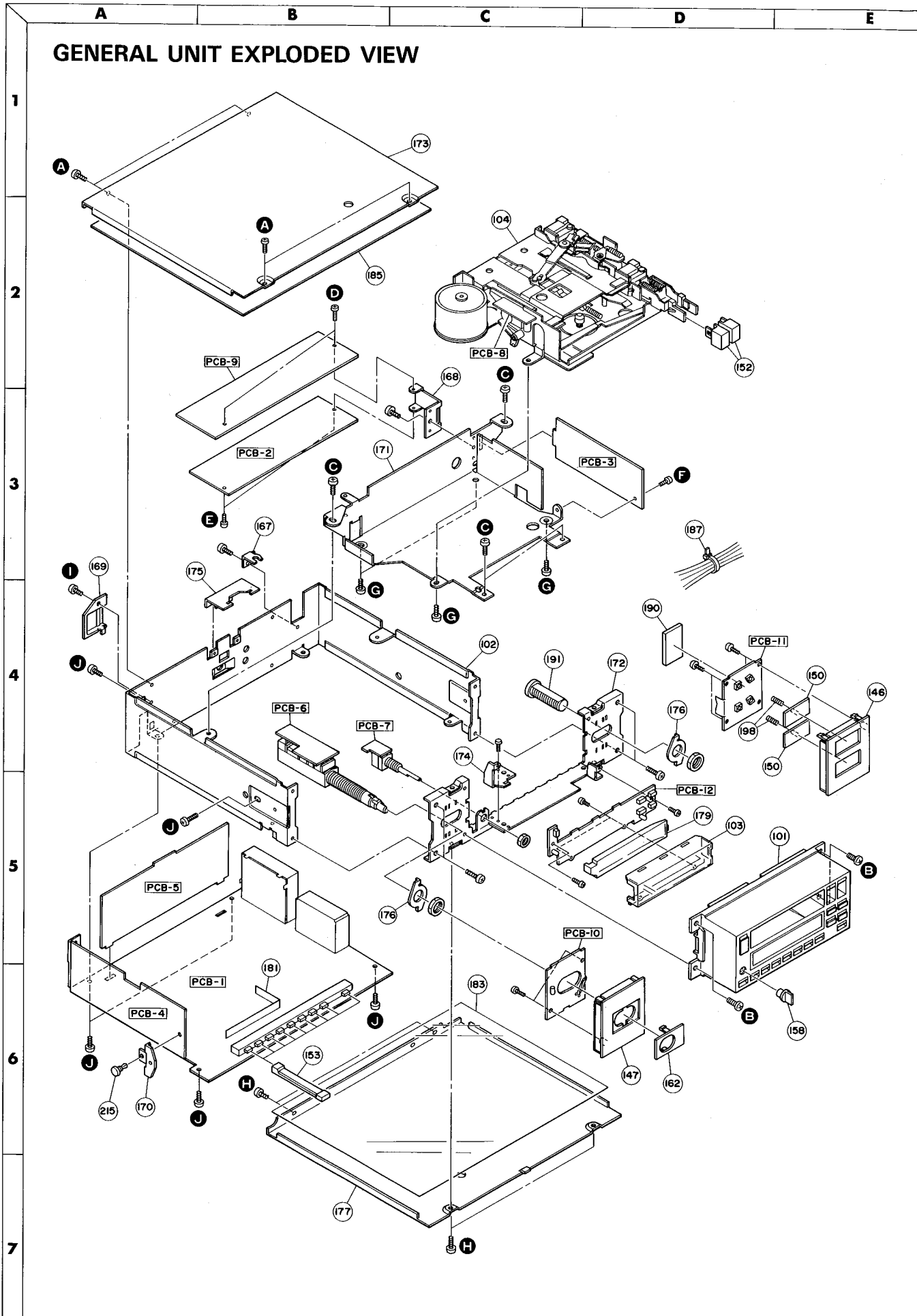


2 LCD P.C. Board



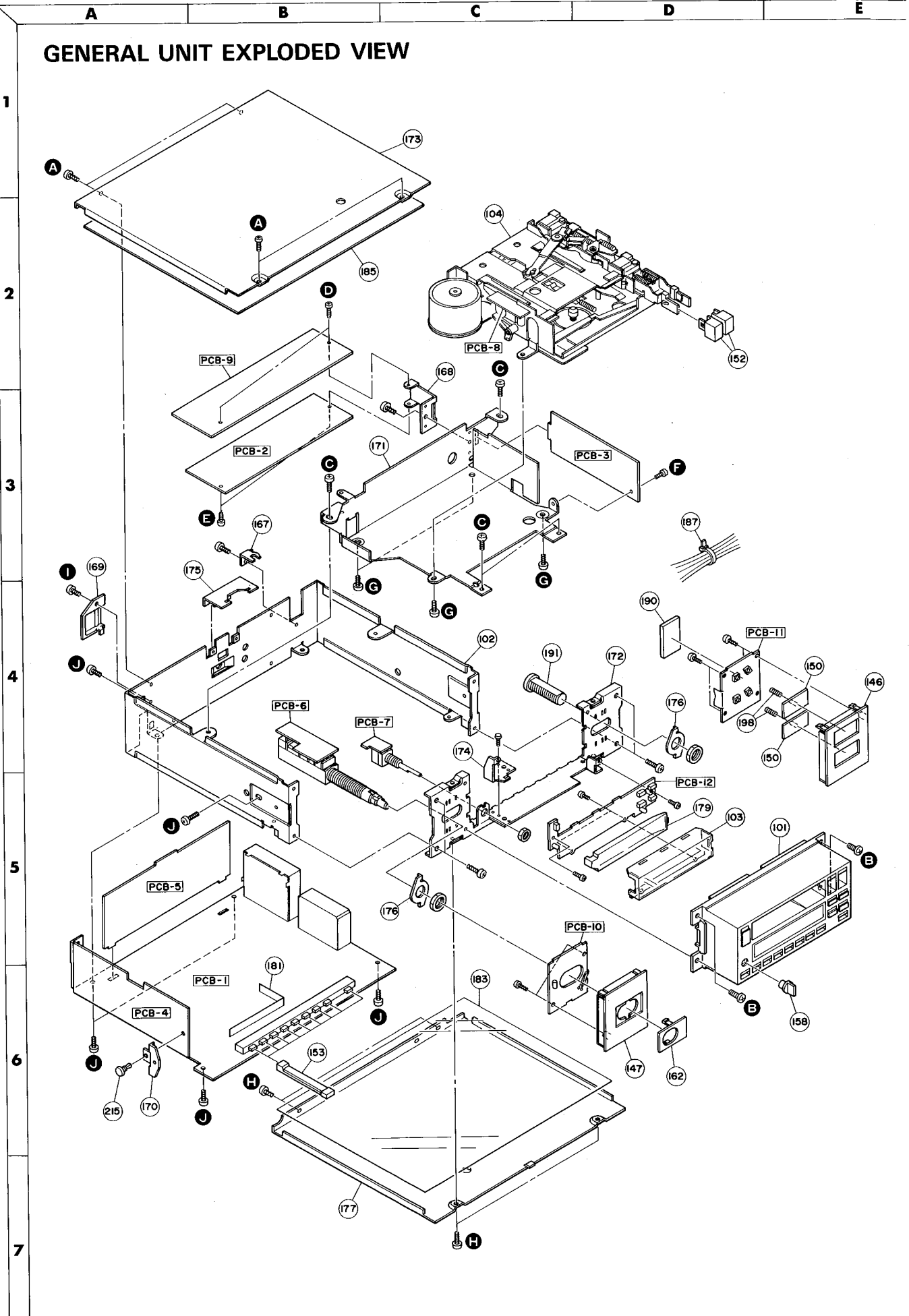
GENERAL UNIT PARTS LIST

GENERAL UNIT EXPLODED VIEW



| Ref. No. | Part No. | Description |
|----------|--------------|--|
| 101 | A442-CH160C | Center Panel Assembly |
| 102 | B211-CH160A | Chassis Assembly |
| 103 | B240-CH160A | Holder Assembly |
| 104 | C112-CH160A | Cassette Tape Player Mechanical Assembly |
| 146 | 1442-10101 | Right Side Panel |
| 147 | 1442-10201 | Left Side Panel |
| 150 | 1662-17401 | Push Button, Tuning Up, Tuning Down |
| 152 | 1662-17601 | Push Button, F.F., Rew. |
| 153 | 1662-17701 | Push Button, Memory, Loudness, Preset |
| 158 | 1632-14101 | Knob, Fader |
| 162 | 1742-04001 | Ornament |
| 167 | 2219-1859 | Bracket |
| 168 | 2219-1861 | Bracket |
| 169 | 2219-1862 | Bracket |
| 170 | 2219-1863 | Bracket |
| 171 | 2219-1864 | Bracket |
| 172 | 2219-1865 | Bracket |
| 173 | 2219-1866 | Bracket |
| 174 | 2219-1868 | Bracket |
| 175 | 2219-8054 | Bracket |
| 176 | 2219-8029 | Bracket |
| 177 | 2219-1866 | Bracket |
| 179 | 2223-39 | Reflector |
| 181 | 2216-7158 | Shield Plate |
| 183 | 2224-7103 | Insulator |
| 185 | 2224-7107 | Insulator |
| 187 | 2240-7120 | Holder |
| 190 | 2224-01412 | Insulator |
| 191 | 2360-4 | Shaft |
| 198 | 2651-2101722 | Spring |
| 215 | 2459-3005511 | Snap-in-fastener |

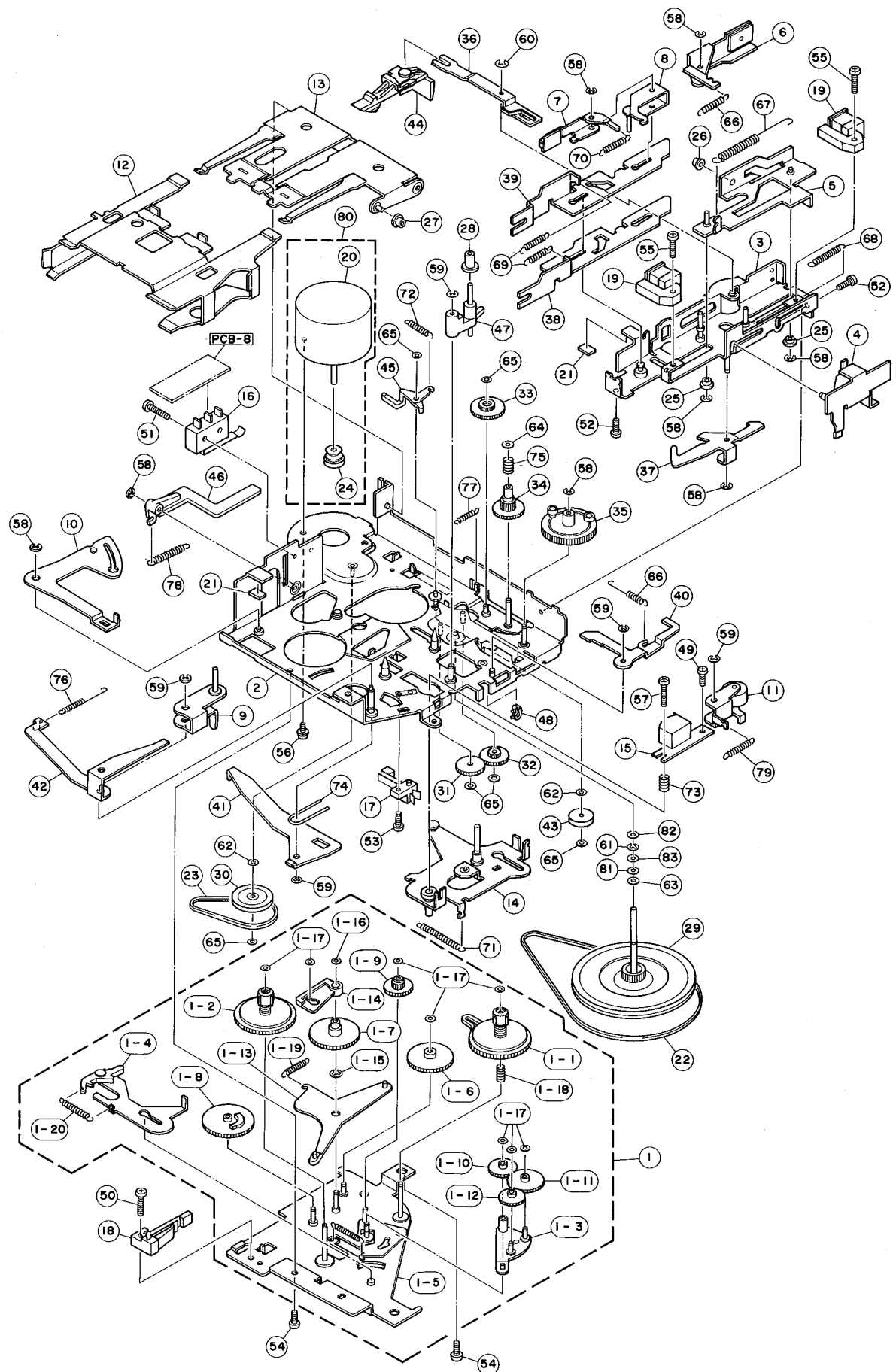
GENERAL UNIT EXPLODED VIEW



GENERAL UNIT PARTS LIST

| Ref. No. | Part No. | Description |
|----------|--------------|--|
| 101 | A442-CH160C | Center Panel Assembly |
| 102 | B211-CH160A | Chassis Assembly |
| 103 | B240-CH160A | Holder Assembly |
| 104 | C112-CH160A | Cassette Tape Player Mechanical Assembly |
| 146 | 1442-10101 | Right Side Panel |
| 147 | 1442-10201 | Left Side Panel |
| 150 | 1662-17401 | Push Button, Tuning Up, Tuning Down |
| 152 | 1662-17601 | Push Button, F.F., Rew. |
| 153 | 1662-17701 | Push Button, Memory, Loudness, Preset |
| 158 | 1632-14101 | Knob, Fader |
| 162 | 1742-04001 | Ornament |
| 167 | 2219-1859 | Bracket |
| 168 | 2219-1861 | Bracket |
| 169 | 2219-1862 | Bracket |
| 170 | 2219-1863 | Bracket |
| 171 | 2219-1864 | Bracket |
| 172 | 2219-1865 | Bracket |
| 173 | 2219-1866 | Bracket |
| 174 | 2219-1868 | Bracket |
| 175 | 2219-8054 | Bracket |
| 176 | 2219-8029 | Bracket |
| 177 | 2219-1866 | Bracket |
| 179 | 2223-39 | Reflector |
| 181 | 2216-7158 | Shield Plate |
| 183 | 2224-7103 | Insulator |
| 185 | 2224-7107 | Insulator |
| 187 | 2240-7120 | Holder |
| 190 | 2224-01412 | Insulator |
| 191 | 2360-4 | Shaft |
| 198 | 2651-2101722 | Spring |
| 215 | 2459-3005511 | Snap-in-fastener |

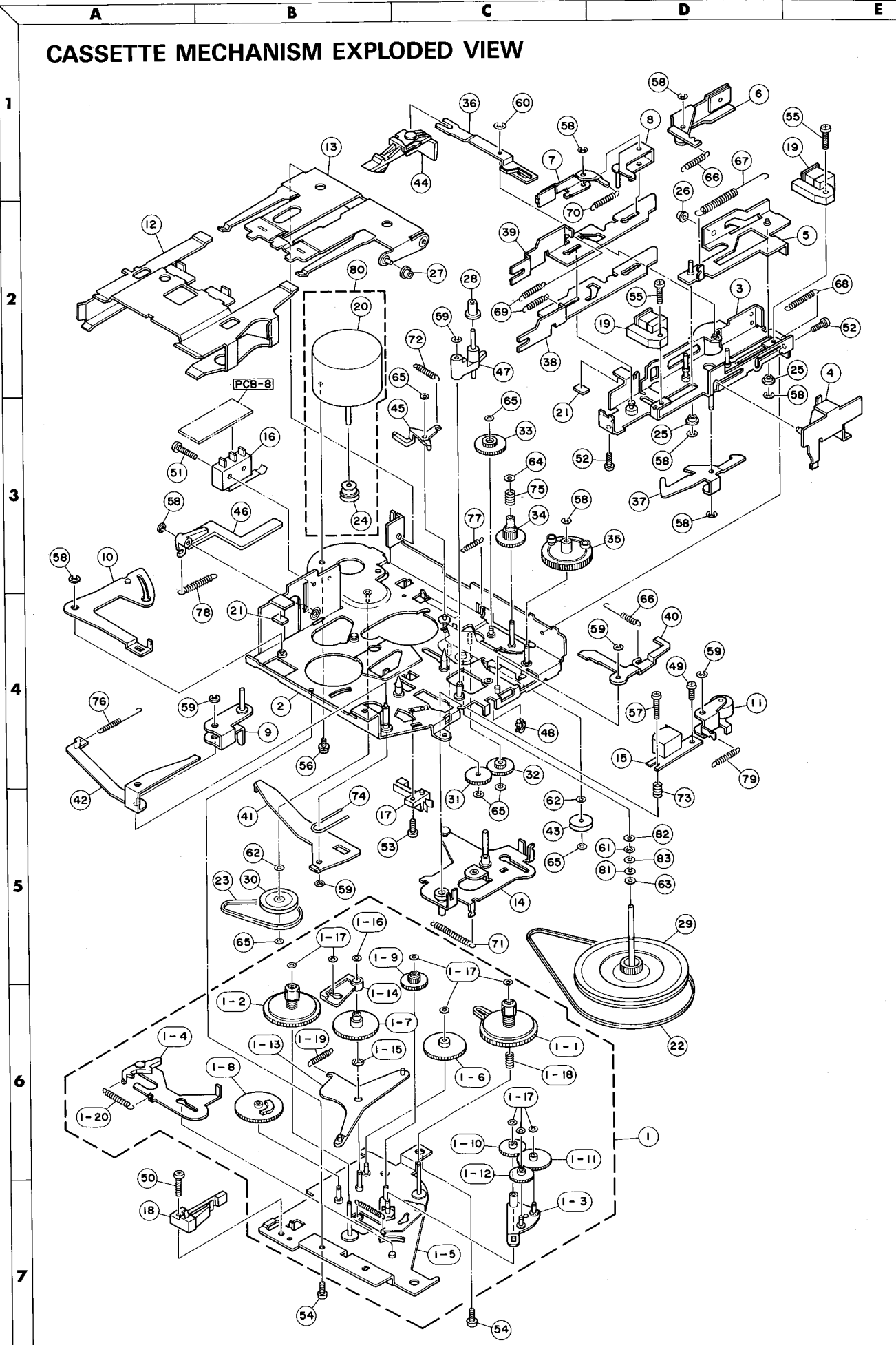
CASSETTE MECHANISM EXPLODED VIEW



CASSETTE MECHANISM PARTS LIST

| Ref. No. | Part No. | Description |
|----------|-------------|--------------------------------------|
| 1 | 960-3420-03 | Bottom Sub Assembly |
| 1-1 | 960-3421-01 | Reel Base Assembly |
| 1-2 | 960-3422-01 | Reel Base Assembly |
| 1-3 | 960-3433-03 | FF Gear Plate Assembly |
| 1-4 | 960-3434-01 | SW Plate Assembly |
| 1-5 | 960-3455-03 | Bottom Plate Assembly |
| 1-6 | 613-0022-01 | Gear A |
| 1-7 | 613-0022-00 | Gear B |
| 1-8 | 613-0024-01 | Cam Gear |
| 1-9 | 613-0025-00 | Idle Gear |
| 1-10 | 613-0026-01 | FF Base Gear |
| 1-11 | 613-0027-00 | FF Gear |
| 1-12 | 613-0028-00 | REW Gear |
| 1-13 | 631-0396-01 | Sensing Link |
| 1-14 | 631-0397-01 | Replay Sensing |
| 1-15 | 744-0006-01 | Special E-stop Ring |
| 1-16 | 745-0647-00 | Special Washer |
| 1-17 | 746-0628-01 | Special Washer |
| 1-18 | 750-2155-00 | Spring |
| 1-19 | 750-2217-00 | Spring |
| 1-20 | 750-2218-00 | Spring |
| 1-21 | 750-2219-00 | Spring |
| 2 | 960-3423-03 | Deck Plate Assembly |
| 3 | 960-3424-06 | Frame Assembly |
| 4 | 960-3425-03 | Loading Plate Assembly |
| 5 | 960-3426-06 | Eject Plate Assembly |
| 6 | 960-3427-02 | Plunger Plate A Assembly |
| 7 | 960-3428-00 | Plunger Plate B Assembly |
| 8 | 960-3429-02 | Lock Plate Assembly |
| 9 | 960-3430-02 | FF Link A Assembly |
| 10 | 960-3431-01 | Replay Lever A Assembly |
| 11 | 960-3437-00 | Pinch Roller Assembly |
| 12 | 606-0075-03 | Cassette Pack Guide |
| 13 | 960-3439-02 | Guide Arm Assembly |
| 14 | 960-3440-02 | Head Plate Assembly |
| 15 | 011-0293-00 | Playback Head |
| 16 | 013-2690-03 | Lever Switch, Cassette Power (SW451) |
| 17 | 013-3470-05 | Lever Switch, FF |
| 18 | 013-3558-02 | Lever Switch, Tape End |
| 19 | 015-0232-00 | Plunger |
| 20 | 020-0366-00 | DC Motor |
| 21 | 340-0398-00 | Spacer |
| 22 | 602-0074-00 | Belt A |
| 23 | 602-0075-00 | Belt B |
| 24 | 603-0083-07 | Motor Pulley |
| 25 | 610-0225-00 | Guide Roller |
| 26 | 610-0225-01 | Guide Roller |
| 27 | 610-0226-00 | Guide Arm Roller |
| 28 | 610-0227-01 | Eject Roller |
| 29 | 611-0065-01 | Flywheel |
| 30 | 613-0021-01 | Pulley Gear |
| 31 | 613-0029-00 | Loading Gear A |
| 32 | 613-0030-00 | Loading Gear B |
| 33 | 613-0031-00 | Loading Gear C |
| 34 | 613-0032-00 | Loading Gear D |
| 35 | 613-0033-00 | Power Gear |
| 36 | 630-1511-03 | Loading Link |
| 37 | 630-1513-01 | Lock Link |
| 38 | 630-1514-11 | FF Lever |
| 39 | 630-1515-11 | REW Lever |
| 40 | 630-1518-00 | Lock Arm |
| 41 | 630-1512-01 | FF Link B |
| 42 | 630-1526-00 | Replay Link B |
| 43 | 631-0370-00 | Tension Pulley |

CASSETTE MECHANISM EXPLODED VIEW



CASSETTE MECHANISM PARTS LIST

| Ref. No. | Part No. | Description |
|----------|-------------|--------------------------------------|
| 1 | 960-3420-03 | Bottom Sub Assembly |
| 1-1 | 960-3421-01 | Reel Base Assembly |
| 1-2 | 960-3422-01 | Reel Base Assembly |
| 1-3 | 960-3433-03 | FF Gear Plate Assembly |
| 1-4 | 960-3434-01 | SW Plate Assembly |
| 1-5 | 960-3455-03 | Bottom Plate Assembly |
| 1-6 | 613-0022-01 | Gear A |
| 1-7 | 613-0022-00 | Gear B |
| 1-8 | 613-0024-01 | Cam Gear |
| 1-9 | 613-0025-00 | Idle Gear |
| 1-10 | 613-0026-01 | FF Base Gear |
| 1-11 | 613-0027-00 | FF Gear |
| 1-12 | 613-0028-00 | REW Gear |
| 1-13 | 631-0396-01 | Sensing Link |
| 1-14 | 631-0397-01 | Replay Sensing |
| 1-15 | 744-0006-01 | Special E-stop Ring |
| 1-16 | 745-0647-00 | Special Washer |
| 1-17 | 746-0628-01 | Special Washer |
| 1-18 | 750-2155-00 | Spring |
| 1-19 | 750-2217-00 | Spring |
| 1-20 | 750-2218-00 | Spring |
| 1-21 | 750-2219-00 | Spring |
| 2 | 960-3423-03 | Deck Plate Assembly |
| 3 | 960-3424-06 | Frame Assembly |
| 4 | 960-3425-03 | Loading Plate Assembly |
| 5 | 960-3426-06 | Eject Plate Assembly |
| 6 | 960-3427-02 | Plunger Plate A Assembly |
| 7 | 960-3428-00 | Plunger Plate B Assembly |
| 8 | 960-3429-02 | Lock Plate Assembly |
| 9 | 960-3430-02 | FF Link A Assembly |
| 10 | 960-3431-01 | Replay Lever A Assembly |
| 11 | 960-3437-00 | Pinch Roller Assembly |
| 12 | 606-0075-03 | Cassette Pack Guide |
| 13 | 960-3439-02 | Guide Arm Assembly |
| 14 | 960-3440-02 | Head Plate Assembly |
| 15 | 011-0293-00 | Playback Head |
| 16 | 013-2690-03 | Lever Switch, Cassette Power (SW451) |
| 17 | 013-3470-05 | Lever Switch, FF |
| 18 | 013-3558-02 | Lever Switch, Tape End |
| 19 | 015-0232-00 | Plunger |
| 20 | 020-0366-00 | DC Motor |
| 21 | 340-0398-00 | Spacer |
| 22 | 602-0074-00 | Belt A |
| 23 | 602-0075-00 | Belt B |
| 24 | 603-0083-07 | Motor Pulley |
| 25 | 610-0225-00 | Guide Roller |
| 26 | 610-0225-01 | Guide Roller |
| 27 | 610-0226-00 | Guide Arm Roller |
| 28 | 610-0227-01 | Eject Roller |
| 29 | 611-0065-01 | Flywheel |
| 30 | 613-0021-01 | Pulley Gear |
| 31 | 613-0029-00 | Loading Gear A |
| 32 | 613-0030-00 | Loading Gear B |
| 33 | 613-0031-00 | Loading Gear C |
| 34 | 613-0032-00 | Loading Gear D |
| 35 | 613-0033-00 | Power Gear |
| 36 | 630-1511-03 | Loading Link |
| 37 | 630-1513-01 | Lock Link |
| 38 | 630-1514-11 | FF Lever |
| 39 | 630-1515-11 | REW Lever |
| 40 | 630-1518-00 | Lock Arm |
| 41 | 630-1512-01 | FF Link B |
| 42 | 630-1526-00 | Replay Link B |
| 43 | 631-0370-00 | Tension Pulley |

| Ref. No. | Part No. | Description |
|----------|-------------|-----------------------|
| 44 | 631-0392-04 | Cassette Pack Stopper |
| 45 | 631-0394-00 | Cancel Link |
| 46 | 631-0395-01 | SW Link |
| 47 | 631-0398-00 | Eject Link |
| 48 | 631-0419-00 | Clump |
| 49 | 714-2003-81 | Screw |
| 50 | 714-2360-81 | Screw |
| 51 | 714-2380-81 | Screw |
| 52 | 714-2360-81 | Screw |
| 53 | 714-2604-11 | Screw |
| 54 | 714-2604-81 | Screw |
| 55 | 714-2606-11 | Screw |
| 56 | 716-0347-00 | Screw |
| 57 | 716-0482-01 | Screw |
| 58 | 743-1500-10 | E-stop Ring |
| 59 | 743-2000-10 | E-stop Ring |
| 60 | 744-0006-01 | Special E-stop Ring |
| 61 | 744-0024-01 | Special E-stop Ring |
| 62 | 745-0645-00 | Special Washer |
| 63 | 745-0646-00 | Special Washer |
| 64 | 745-0647-00 | Special Washer |
| 65 | 746-0628-01 | Special Washer |
| 66 | 750-2219-00 | Spring |
| 67 | 750-2220-01 | Spring |
| 68 | 750-2221-01 | Spring |
| 69 | 750-2222-00 | Spring |
| 70 | 750-2223-01 | Spring |
| 71 | 750-2224-01 | Spring |
| 72 | 750-2225-00 | Spring |
| 73 | 750-2226-00 | Spring |
| 74 | 750-2227-00 | Spring |
| 75 | 750-2228-00 | Spring |
| 76 | 750-2229-00 | Spring |
| 77 | 750-2230-01 | Spring |
| 78 | 750-2231-00 | Spring |
| 79 | 750-2232-00 | Spring |
| 80 | 960-3528-00 | Motor Assembly |
| 81 | 746-0730-00 | Special Washer |

ELECTRICAL PARTS LIST

| Ref. No. | Part No. | Description |
|--|---------------|---|
| CHASSIS MISCELLANEOUS | | |
| | 4161-71188 | Connector with Lead Wire |
| | 4163-701121 | Antenna Cord |
| | 5791-6TS01A01 | Liquid Crystal Display |
| | 4443-ZZ0666 | Connector, Liquid Crystal Display |
| | 4163-701123 | Connector with Lead Wire (Includes: FU901, FU902, L901) (Accessory) |
| LCN1 | 4163-0312017 | Connector with Lead Wire, 3 Pos. |
| LCN2 | 4163-0323017 | Connector with Lead Wire, 3 Pos. |
| LCN3 | 4163-0723017 | Connector with Lead Wire, 7 Pos. |
| LCN4,5 | 4163-0510017 | Connector with Lead Wire, 5 Pos. |
| LCN6,7 | 4163-0711017 | Connector with Lead Wire, 7 Pos. |
| LCN8,9,10,11 | 4163-0411017 | Connector with Lead Wire, 4 Pos. |
| LCN12,13 | 4163-0613017 | Connector with Lead Wire, 6 Pos. |
| LCN14,15 | 4163-0513017 | Connector with Lead Wire, 5 Pos. |
| LCN16 | 4163-0516017 | Connector with Lead Wire, 5 Pos. |
| LCN17 | 4163-0216018 | Connector with Lead Wire, 2 Pos. |
| LCN18 | 4163-0920018 | Connector with Lead Wire, 9 Pos. |
| LCN19 | 4163-0516018 | Connector with Lead Wire, 5 Pos. |
| LCN20 | 4163-701124 | Connector with Lead Wire, 4 Pos. |
| LCN21 | 4163-701125 | Connector with Lead Wire, 9 Pos. |
| LCN22 | 4163-701126 | Connector with Lead Wire, 4 Pos. |
| LCN23 | 4163-0222018 | Connector with Lead Wire, 2 Pos. |
| LCN871 | 4163-701132 | Connecotr with Lead Wire, 2 Pos. |
| PCB-1 MAIN P.C. BOARD | | |
| CAPACITORS | | |
| C1 | 5345-227B0962 | 220 μ F, \pm 20%, 10V, Electrolytic |
| C2,4,705,722 | 5345-107B043 | 100 μ F, \pm 20%, 10V, Electrolytic |
| C3,5 | 5345-477B0962 | 470 μ F, \pm 20%, 10V, Electrolytic |
| C7 | 5345-226C043 | 22 μ F, \pm 20%, 16V, Electrolytic |
| C361,508,557,558,561, 562,715,716,717 | 5345-106C0961 | 10 μ F, \pm 20%, 16V, Electrolytic |
| C362,364,761 | 5345-105F0961 | 1 μ F, \pm 20%, 50V, Electrolytic |
| C363,714 | 5345-476C0961 | 47 μ F, \pm 20%, 16V, Electrolytic |
| C501,502,512 | 5359-223541 | 0.022 μ F, \pm 5%, 100V, Polypropylene |
| C503,504,551,552 | 5345-475D0961 | 4.7 μ F, \pm 20%, 25V, Electrolytic |
| C553,554 | 5345-107A0961 | 100 μ F, \pm 20%, 6.3V, Electrolytic |
| C555,556 | 5345-107B0962 | 100 μ F, \pm 20%, 10V, Electrolytic |
| C567,568 | 5345-225F0961 | 2.2 μ F, \pm 20%, 50V, Electrolytic |
| C571,572 | 5359-682541 | 6800pF, \pm 5%, 100V, Polypropylene |
| C701,712 | 5359-103541 | 0.01 μ F, \pm 5%, 100V, Polypropylene |
| C702,703 | 5345-475D043 | 4.7 μ F, \pm 20%, 25V, Electrolytic |
| C704 | 5345-105F043 | 1 μ F, \pm 20%, 50V, Electrolytic |
| C708 | 5345-335F0961 | 3.3 μ F, \pm 20%, 50V, Electrolytic |
| C709 | 5345-226B0961 | 22 μ F, \pm 20%, 10V, Electrolytic |
| C711,718 | 5345-474F0961 | 0.47 μ F, \pm 20%, 50V, Electrolytic |
| C719,720 | 5345-104F0961 | 0.1 μ F, \pm 20%, 50V, Electrolytic |
| C721 | 5345-107C0962 | 100 μ F, \pm 20%, 16V, Electrolytic |
| TC701 | 5371-610 | Trimmer Capacitor |
| INTEGRATED CIRCUITS | | |
| IC361 | 5652-TA7362P | TA7362P |
| IC501 | 5652-TC4066BF | TC4066BF |
| IC701 | 5654-D1708G-1 | μ PD1708G-011 |
| IC702 | 5652-TA78L005 | TA78L005 |
| IC703 | 5654-TC4011BP | TC4011BP |
| IC704 | 5654-TC4013BP | TC4013BP |

| Ref. No. | Part No. | Description |
|--|---------------|--|
| TRANSISTORS | | |
| Q1,706 | 5613-2001(L) | 2SC2001(L) |
| Q2,3,707 | 5611-966(Y) | 2SA966(Y) |
| Q4,361,557,558,701,703, 709,713,714,715,716, 718,719,729,721,722 | 5613-2603(F) | 2SC2603(F) |
| Q362,555,556,559,560, 712 | 5611-1115(F) | 2SA1115(F) |
| Q501,705,708,711 | 5613-RN1203 | RN1203 |
| Q551,552,702 | 5613-2320L(F) | 2SC2320L(F) |
| Q553,554 | 5611-999L(F) | 2SA999L(F) |
| Q717 | 5613-3246(H) | 2SC3246(H) |
| DIODES | | |
| D1,708 | 5635-RD5R1EB | Zener, RD5.1EB |
| D2 | 5635-HZ11B-2L | Zener, HZ11B-2L |
| D3,361 | 5632-S5566B | S5566B |
| D4,5,6,362,363,364,702, 703,704,705,706,707, 709,711,712,713,714, 715,716,717,718,719, 720,721,722 | 5631-1SS133 | 1SS133 |
| D366 | 5635-RD6R2EB | Zener, RD6.2EB |
| D701 | 5635-RD10EB | Zener, RD10EB |
| COILS | | |
| L701 | 5995-100269 | |
| L702 | 5995-1R0K82 | |
| L703 | 5995-221K82 | |
| L704 | 5995-220K82 | |
| MISCELLANEOUS | | |
| TU701 | 6114-7132 | FM Tuner Assembly |
| TU702 | 6110-1 | AM Tuner Assembly |
| X701 | 5691-00450026 | Crystal Osc. |
| RC701 | 5212-104J0601 | R Composite |
| SG701 | 5481-1 | Spark Gap |
| SW701/702/703/704/705, 706/707/708/709 | 4431-0909718 | Push Switch, Memory, Loudness, Preset, FM/AM |
| CN17,23,871 | 4443-0271119 | Connector, 2 Pos. |
| CN18 | 4443-0971119 | Connector, 9 Pos. |
| CN19 | 4443-0571119 | Connector, 5 Pos. |
| CN25 | 4443-0871121 | Connector, 8 Pos. |

PCB-2 NAB AMP. P.C. BOARD

| | | |
|----------------------|---------------|---|
| CONTROLS | | |
| VR251,252 | 5101-47370715 | 47k Ω |
| CAPACITORS | | |
| C251,252 | 5359-121541 | 120pF, \pm 5%, 100V, Polypropylene |
| C253,254,261,262 | 5345-106C043 | 10 μ F, \pm 20%, 16V, Electrolytic |
| C255,256 | 5359-332541 | 3300pF, \pm 5%, 100V, Polypropylene |
| C257,258 | 5345-477B0962 | 470 μ F, \pm 20%, 10V, Electrolytic |
| C259 | 5345-226C043 | 22 μ F, \pm 20%, 16V, Electrolytic |
| C263,271 | 5345-227B0962 | 220 μ F, \pm 20%, 10V, Electrolytic |
| C265,266 | 5359-102541 | 1000pF, \pm 5%, 100V, Polypropylene |
| C267,268 | 5359-223541 | 0.022 μ F, \pm 5%, 100V, Electrolytic |
| TRANSISTORS | | |
| Q251,252 | 5613-2320L(F) | 2SC2320L(F) |
| Q253,254 | 5611-999L(F) | 2SA999L(F) |
| Q255,256 | 5611-RN2203 | RN2203 |
| Q257,263,264,265,266 | 5613-2603(F) | 2SC2603(F) |
| Q259,260,261,262 | 5611-1115(F) | 2SA1115(F) |
| Q268 | 5613-RN1203 | RN1203 |

| Ref. No. | Part No. | Description |
|----------|-----------------------------|-------------|
| L251,252 | COILS 5995-223256 | |

PCB-3 MSS/MECHA CONTROL P.C. BOARD

| CAPACITORS | | |
|-------------------|--------------|--|
| C201 | 5345-108C046 | 1000 μ F, \pm 20%, 16V, Electrolytic |
| C203 | 5345-476B043 | 47 μ F, \pm 20%, 10V, Electrolytic |
| C204 | 5345-106C043 | 10 μ F, \pm 20%, 10V, Electrolytic |
| C205 | 5345-104F043 | 0.1 μ F, \pm 20%, 50V, Electrolytic |
| C206 | 5345-475D043 | 4.7 μ F, \pm 20%, 25V, Electrolytic |

| INTEGRATED CIRCUITS | | |
|----------------------------|---------------|----------|
| IC201 | 5654-TC4042BP | TC4042BP |
| IC202 | 5652-M51143L | M51143L |

| TRANSISTORS | | |
|--------------------|--------------|------------------------|
| Q201 | 5613-2001(L) | 2SC2001(L) |
| Q202,205 | 5611-RN2203 | RN2203 |
| Q203,207 | 5613-RN1203 | RN1203 |
| Q204 | 5611-950(Y) | 2SA950(Y) or 2SA950(O) |
| Q206 | 5611-1115(F) | 2SA1115(F) |

| DIODES | | |
|----------------------|--------------|-----------------|
| D201,202,203,204,207 | 5631-1SS133 | 1SS133 |
| D205 | 5635-RD5R1EB | Zener, RD5.1EB |
| D206 | 5641-KB265 | Varistor, KB265 |

| | | |
|------|-----------------------------|--|
| L201 | COILS 5995-391269 | |
|------|-----------------------------|--|

PCB-4 BUFFER AMP. P.C. BOARD

| CAPACITORS | | |
|-------------------|---------------|--|
| C10 | 5345-107C0962 | 100 μ F, \pm 20%, 16V, Electrolytic |
| C11 | 5345-108C046 | 1000 μ F, \pm 20%, 16V, Electrolytic |
| C401,403 | 5345-477B0962 | 470 μ F, \pm 20%, 10V, Electrolytic |
| C405,406,407,408 | 5345-475D043 | 4.7 μ F, \pm 20%, 25V, Electrolytic |
| C409,410,413,414 | 5345-226C043 | 22 μ F, \pm 20%, 16V, Electrolytic |
| C451,452 | 5359-331541 | 330pF, \pm 5%, 100V, Polypropylene |
| C455 | 5345-476B043 | 47 μ F, \pm 20%, 10V, Electrolytic |
| C456 | 5345-476C0961 | 47 μ F, \pm 20%, 16V, Electrolytic |

| INTEGRATED CIRCUIT | | |
|---------------------------|---------------|----------|
| IC451 | 5652-TC4066BF | TC4066BF |

| TRANSISTORS | | |
|--------------------|--------------|------------|
| Q401,402,405,406 | 5613-2603(F) | 2SC2603(F) |
| Q403,404,407,408 | 5611-1115(F) | 2SA1115(F) |
| Q409,410,411,412 | 5613-2878(B) | 2SC2878(B) |
| Q451 | 5613-RN1203 | RN1203 |

| DIODES | | |
|---------------|-------------|--------|
| D10,11 | 5632-S5566B | S5566B |
| Q451 | 5631-1SS133 | 1SS133 |

PCB-5 IF MPX P.C. BOARD

| CONTROLS | | |
|-----------------|---------------|--------------|
| VR101 | 5101-33170715 | 330 Ω |
| VR151 | 5101-22370715 | 22k Ω |
| VR152 | 5101-47370715 | 47k Ω |
| VR153 | 5101-10370715 | 10k Ω |

| Ref. No. | Part No. | Description |
|----------------------------|---------------|--|
| CAPACITORS | | |
| C104,118 | 5345-475D043 | 4.7 μ F, \pm 20%, 25V, Electrolytic |
| C107 | 5369-223244 | 0.022 μ F, \pm 20%, 25V, Semiconductor |
| C114,167,168 | 5345-105F043 | 1 μ F, \pm 20%, 50V, Electrolytic |
| C115 | 5345-104F043 | 0.1 μ F, \pm 20%, 50V, Electrolytic |
| C151,152,153,176 | 5359-271541 | 270pF, \pm 5%, 100V, Polypropylene |
| C154 | 5345-107B043 | 100 μ F, \pm 20%, 10V, Electrolytic |
| C155,156,173 | 5359-103541 | 0.01 μ F, \pm 5%, 100V, Polypropylene |
| C157 | 5345-226C043 | 22 μ F, \pm 20%, 16V, Electrolytic |
| C158 | 5359-222541 | 2200pF, \pm 5%, 100V, Polypropylene |
| C159 | 5359-332541 | 3300pF, \pm 5%, 100V, Polypropylene |
| C160,161 | 5359-681541 | 680pF, \pm 5%, 100V, Polypropylene |
| C162 | 5359-122541 | 1200pF, \pm 5%, 100V, Polypropylene |
| C164 | 5359-682541 | 6800pF, \pm 5%, 100V, Polypropylene |
| C165 | 5345-476B043 | 47 μ F, \pm 20%, 10V, Electrolytic |
| C169 | 5359-333541 | 0.033 μ F, \pm 5%, 100V, Polypropylene |
| C170 | 5345-335F043 | 3.3 μ F, \pm 20%, 50V, Electrolytic |
| C171 | 5345-227B0962 | 220 μ F, \pm 20%, 10V, Electrolytic |
| C172 | 5359-473541 | 0.047 μ F, \pm 5%, 100V, Polypropylene |
| C174,175 | 5359-102541 | 1000pF, \pm 5%, 100V, Polypropylene |
| INTEGRATED CIRCUITS | | |
| IC101 | 5652-LA1140 | LA1140 |
| IC151 | 5652-LA2110 | LA2110 |
| IC152 | 5652-LA3376 | LA3376 |
| TRANSISTORS | | |
| Q101 | 5613-2058(N) | 2SC2058(N) |
| Q102,103 | 5613-RN1203 | RN1203 |
| Q104,151 | 5611-1115(F) | 2SA1115(F) |
| DIODES | | |
| D101,102 | 5631-1SS133 | 1SS133 |
| D103 | 5635-RD5R1EB | Zener, RD5.1EB |
| D151 | 5631-1K34A | 1K34A |
| D152 | 5635-RD4R7EB | Zener, RD4.7EB |
| COILS | | |
| L101 | 5995-221269 | |
| L102 | 5995-100269 | |
| TRANSFORMERS | | |
| T101 | 5572-00111 | |
| T102 | 5572-00112 | |
| MISCELLANEOUS | | |
| CF101 | 5671-7151A | Ceramic Filter |
| L151,152 | 5214-70 | LC Composite |

PCB-6 VOLUME P.C. BOARD

| | | |
|-----------------------------------|--------------|--|
| VR601/603/604/605/606/ 607/608 | 5112-1040117 | Control, 100k Ω , Volume, Balance, Bass, Treble |
|-----------------------------------|--------------|--|

PCB-7 FADER CONTROL P.C. BOARD

| | | |
|-----------|-------------|--------------------------------|
| VR651/652 | 5110-104012 | Control, 100k Ω , Fader |
|-----------|-------------|--------------------------------|

PCB-8 CASSETTE MECHANISM SWITCH P.C. BOARD

| | | |
|-------|--------------|---|
| C601 | 5369-104244 | Capacitor, 0.1 μ F, \pm 20%, 25V, Semiconductor |
| Q601 | 5613-2236(Y) | Transistor, 2SC2236(Y) |
| SW451 | 013-2690-03 | Lever Switch, Cassette Power |

| Ref. No. | Part No. | Description |
|----------|----------|-------------|
|----------|----------|-------------|

PCB-9 DOLBY NR P.C. BOARD

RESISTORS

| | | |
|------------------|-------------|---------------------------------------|
| R305,306,325,326 | 5178-202481 | 2k Ω , \pm 2%, 1/6W, Metal |
| R313,314 | 5178-163481 | 16k Ω , \pm 2%, 1/6W, Metal |
| R317,318 | 5178-432481 | 4.3k Ω , \pm 2%, 1/6W, Metal |
| R319,320 | 5178-511481 | 510 Ω , \pm 2%, 1/6W, Metal |
| R321,322 | 5178-913481 | 91k Ω , \pm 2%, 1/6W, Metal |
| R323,324 | 5178-512481 | 5.1k Ω , \pm 2%, 1/6W, Metal |
| R329,330 | 5178-244481 | 240k Ω , \pm 2%, 1/6W, Metal |
| R331,332,339,340 | 5178-204481 | 200k Ω , \pm 2%, 1/6W, Metal |
| R341,342 | 5178-361481 | 360 Ω , \pm 2%, 1/6W, Metal |

CAPACITORS

| | | |
|------------------|---------------|--|
| C301,302,305,306 | 5345-475D043 | 4.7 μ F, \pm 20%, 25V, Electrolytic |
| C303 | 5345-477B0962 | 470 μ F, \pm 20%, 10V, Electrolytic |
| C304 | 5345-227B041 | 220 μ F, \pm 20%, 10V, Electrolytic |
| C307,308 | 5345-226C043 | 22 μ F, \pm 20%, 16V, Electrolytic |
| C309,310 | 5359-302741 | 3000pF, \pm 2%, 100V, Polypropylene |
| C311,312 | 5359-561541 | 560pF, \pm 5%, 100V, Polypropylene |
| C313,314 | 5359-103741 | 0.01 μ F, \pm 2%, 100V, Polypropylene |
| C315,316 | 5359-153741 | 0.015 μ F, \pm 2%, 100V, Polypropylene |
| C329,330,337,338 | 5345-105F043 | 1 μ F, \pm 20%, 50V, Electrolytic |

INTEGRATED CIRCUITS

| | | |
|-------|--------------|---------|
| IC301 | 5652-CX20077 | CX20077 |
| IC302 | 5652-CX20078 | CX20078 |

TRANSISTORS

| | | |
|----------|--------------|------------|
| Q723,724 | 5613-2878(B) | 2SC2878(B) |
|----------|--------------|------------|

COILS

| | | |
|----------|-------------|--|
| L301,302 | 5995-223256 | |
|----------|-------------|--|

PCB-10 LAMP P.C. BOARD

| | | |
|---------|--------------|-----------------|
| LAMP871 | 5731-1407170 | Lamp, 14V, 40mA |
|---------|--------------|-----------------|

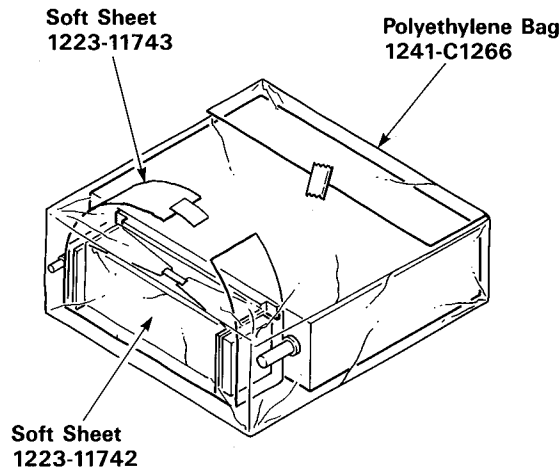
PCB-11 SWITCHES P.C. BOARD

| | | |
|-------------------|--------------|---|
| SW851,852,853,854 | 4431-A017162 | Push Switch, Scan, Seek, Tuning Up/Down |
| LAMP851 | 5731-1407170 | Lamp, 14V, 40mA |

PCB-12 LCD P.C. BOARD

| | | |
|-----------------------|--------------|---|
| SW801,802,803,804,805 | 4431-A017163 | Push Switch, Eject, Dolby NR, Dolby NR Type, Music Search/Mono, Tape/LOCAL-DX selector |
| LAMP801,802,803 | 5731-1407170 | Lamp, 14V, 40mA |

PACKAGE



***Accessory**

- Boss (10mm) (1 pc.)
- Flat Washer (4 pcs.)
- Hex. Nut (4 pcs.)
- Bolt (2 pcs.)
- Tapping Screw (1 pc.)
- Spring Washer (1 pc.)

