CONTENTS

1. GENERAL

1.1. Control Functions

The Nakamichi 700ZXL control functions are shown below:

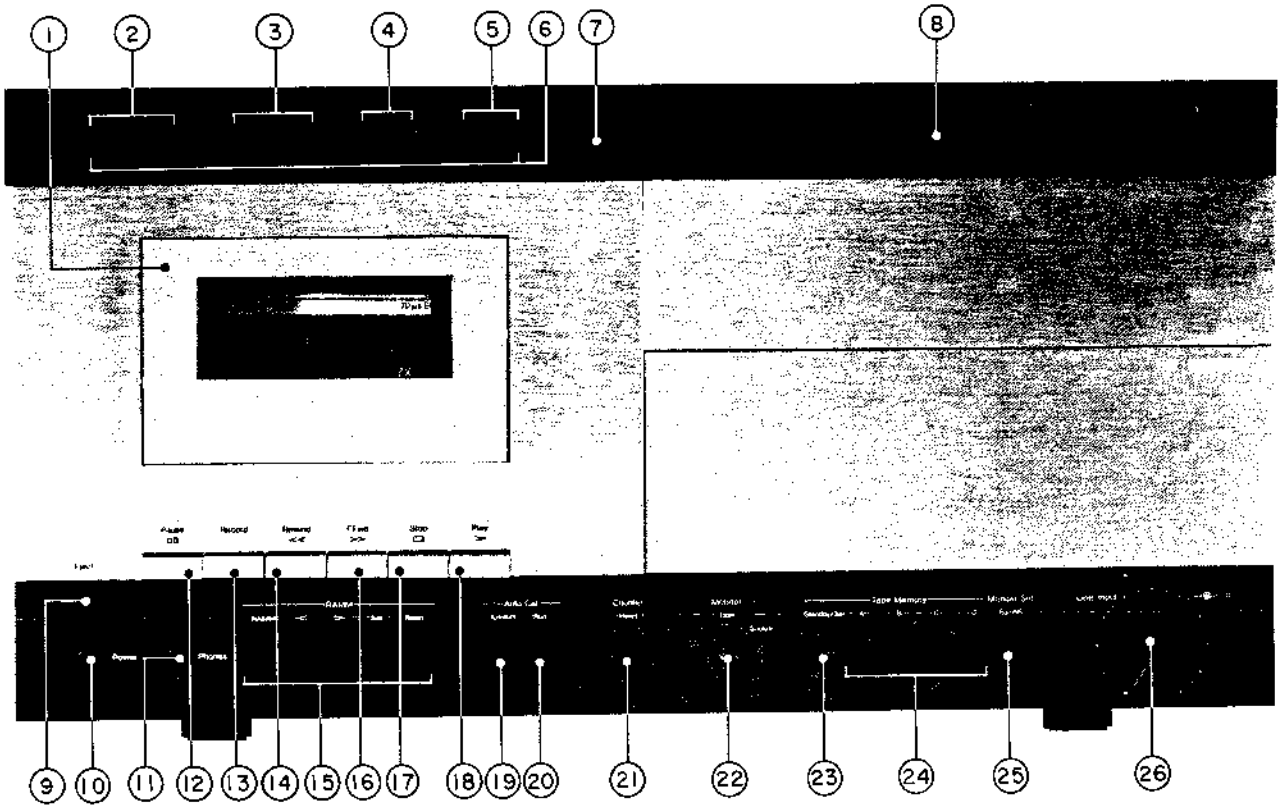


Fig. 1.1 Front View

1. Cassette Holder
2. Auto Calibration Indicator Panel
3. Tape Selector Indicator Panel
4. Playback Equalization Indicator Panel
5. Noise Reduction Indicator Panel
6. RAMM Indicator Panel
7. Tape Counter
8. Level Meters
9. Eject Lever
10. Power Switch
11. Headphone Jack
12. Pause Button
13. Record Button
14. Rewind Button
15. RAMM Control Buttons
16. Fast-Forward Button
17. Stop Button
18. Play Button
19. Auto Azimuth Button
20. Auto Calibration Button
21. Counter Reset Button
22. Monitor Switch
23. Standby/Set Button
24. Tape Memory Buttons
25. Manual Set Button
26. Line Input Level Control

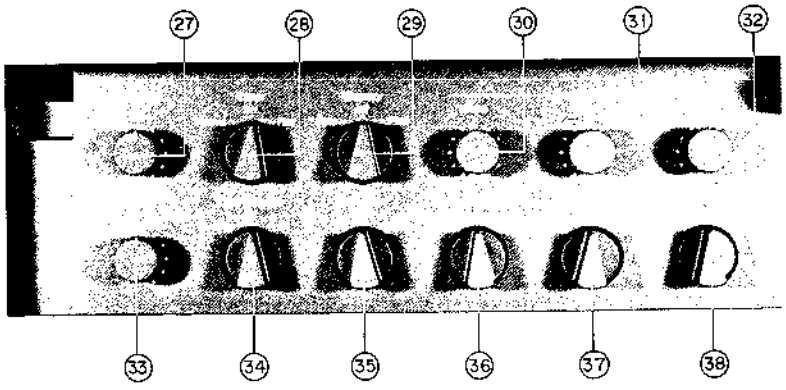


Fig. 1.2 Adjustment Panel

27. Pitch Control
28. Timer Switch
29. Memory Switch
30. Blend MIC Level Control
31. MIC Level Control (Left Channel)
32. MIC Level Control (Right Channel)
33. Output Level Control
34. Tape Selector Switch
35. Playback Equalization Switch
36. Noise Reduction Switch
37. Test Tone Switch
38. Filter Switch

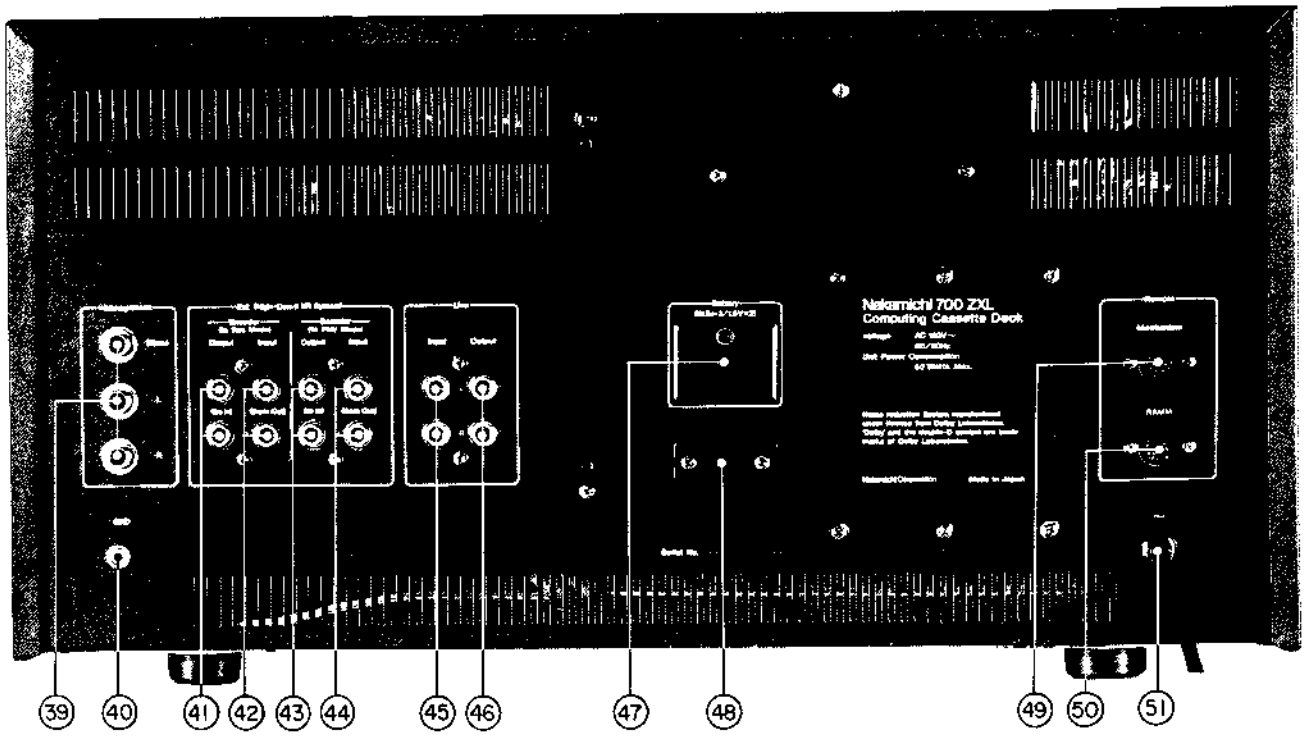


Fig. 1.3 Rear View

39. Microphone Jacks
40. Ground Terminal
41. Encoder Output Jacks
42. Encoder Input Jacks
43. Decoder Output Jacks
44. Decoder Input Jacks
45. Line Input Jacks
46. Line Output Jacks
47. Battery Compartment
48. Voltage Selector
49. Mechanism Remote Control Jack
50. RAMM Remote Control Jack
51. Power Cord

1.2. Voltage Selector

Voltage selector is installed on the rear panel for Other Version of the Nakamichi 700ZXL.
This voltage selector can select either 120 V or 220-240 V at customer's disposal.

1.3. Attention to Servicemen

Before returning the repaired N-700ZXL 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.

2. REMOVAL PROCEDURES

2.1. Top Cover Ass'y
Refer to Fig. 2.1.
(1) Remove F01 and F02, then disassemble F03 (Top Cover Ass'y).

2.2. Bottom Cover Ass'y
Refer to Fig. 2.1.
(1) Remove F04, then disassemble F05 (Bottom Cover Ass'y).

2.3. Cassette Case Cover Ass'y
Refer to Fig. 2.1.
(1) Press the Eject Button as the arrow mark to open the Cassette Case Ass'y.
(2) Pull out F06 (Cassette Case Cover Ass'y) upwardly.

2.4. Volume Knobs
Refer to Fig. 2.1.
(1) Pull out F07 (Pitch Control Knob, Output Level Control Knob and MIC Input Level Control Knob).

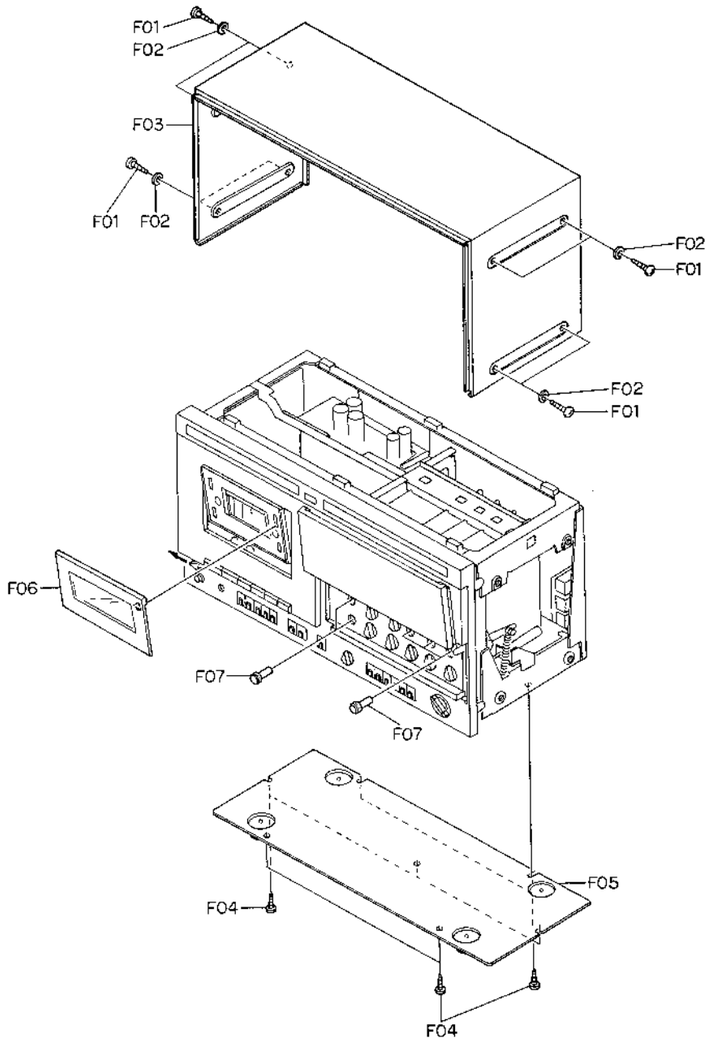


Fig. 2.1

2.5. Front Panel Ass'y
Refer to Fig. 2.2.
(1) Refer to Fig. 2.1. Remove Top Cover Ass'y, Bottom Cover Ass'y and Volume Knobs referring to items 2.1, 2.2 and 2.4.
(2) Open Adjustment Lid.
(3) Remove F01, then disassemble the top of F02 (Damper Arm Ass'y) from Front Panel Ass'y.
(4) Remove F03, then disassemble F04 (Front Panel Ass'y including 4 connectors).

2.6. Control Panel Ass'y
Refer to Fig. 2.2.
(1) Remove Front Panel Ass'y referring to item 2.5.
(2) Remove F05, then disassemble F06 (Control Panel Ass'y).

2.7. Auto Cal. P.C.B. Ass'y
Refer to Fig. 2.2.
(1) Refer to Fig. 2.1. Remove Top Cover Ass'y and Bottom Cover Ass'y referring to items 2.1. and 2.2.
(2) Disconnect 4 connectors from F13 (Auto Cal. P.C.B. Ass'y).
(3) Remove F07 and F08, then loosen F09.
(4) Turn over F10 (Rear Panel Ass'y) as the arrow head.
(5) Remove F11 and F12, then disassemble F13 (Auto Cal. P.C.B. Ass'y).

2.8. Mechanism Ass'y
Refer to Fig. 2.2.
(1) Remove Front Panel Ass'y referring to item 2.5.
(2) Remove F14 and F15, then disassemble F16 (Mechanism Ass'y including 7 connectors).

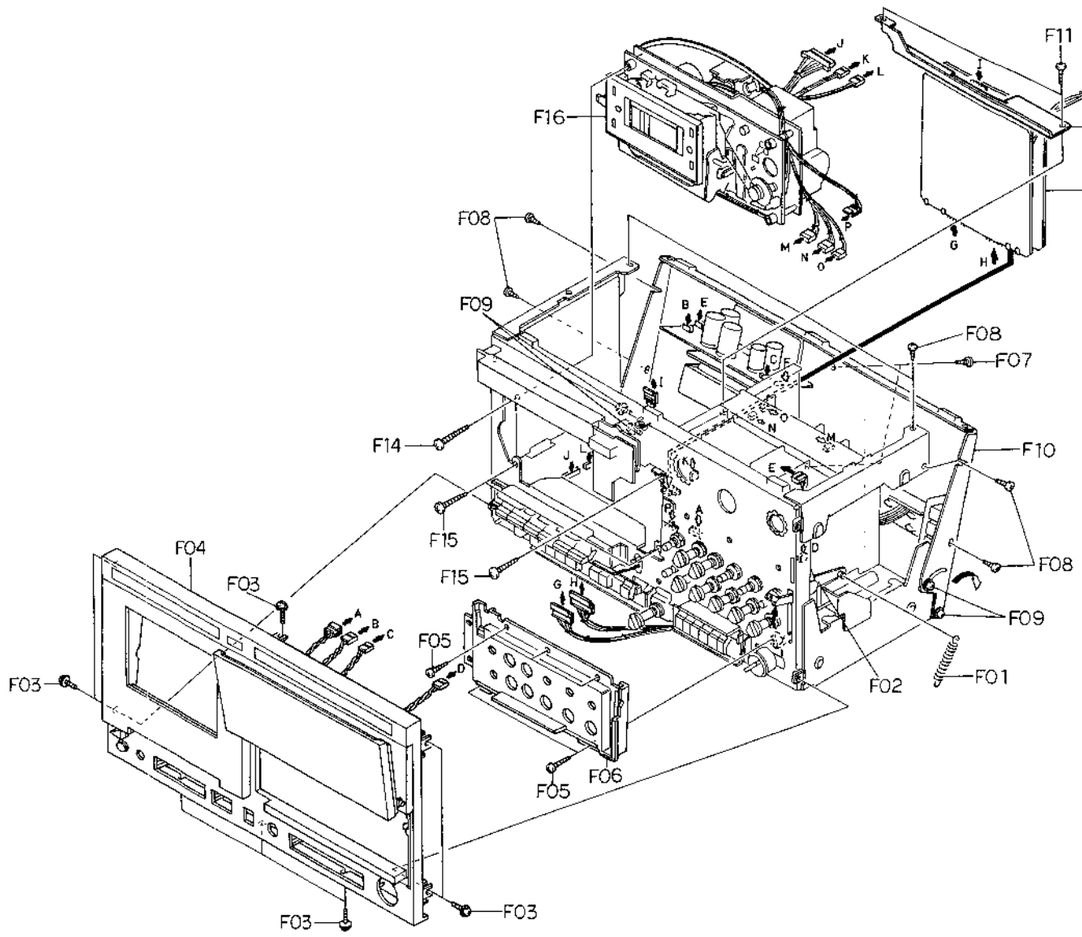


Fig. 2.2

2.9. Counter P.C.B. Ass'y and Lighting House Ass'y

Refer to Fig. 2.3.

(1) Refer to Fig. 2.2. Remove Front Panel Ass'y referring to item 2.5.
(2) Remove F01, then disassemble F02 (Counter P.C.B. Ass'y).
(3) Remove F03, then disassemble F04 (Lighting House Ass'y including 5 connectors).
(4) Remove F05, then disassemble F06 (Lamp A P.C.B. Ass'y).
(5) Remove F07, then disassemble F08 (Lamp B P.C.B. Ass'y).
(6) Remove F09 and F10, then disassemble F11 (Lamp C P.C.B. Ass'y).

2.10. Control Button Ass'y

Refer to Fig. 2.3.

(1) Refer to Fig. 2.2. Remove Front Panel Ass'y referring to item 2.5.
(2) Remove F12 and F13, then disassemble F14 (Control Button Ass'y including 3 connectors).
(3) Remove F15, then disassemble F16 (Control Lamp Ass'y).
(4) Remove F17, then disassemble F18 (Control Switch Ass'y).
(5) Remove F19 and F20, then disassemble F21 (Switch Lamp A P.C.B. Ass'y).

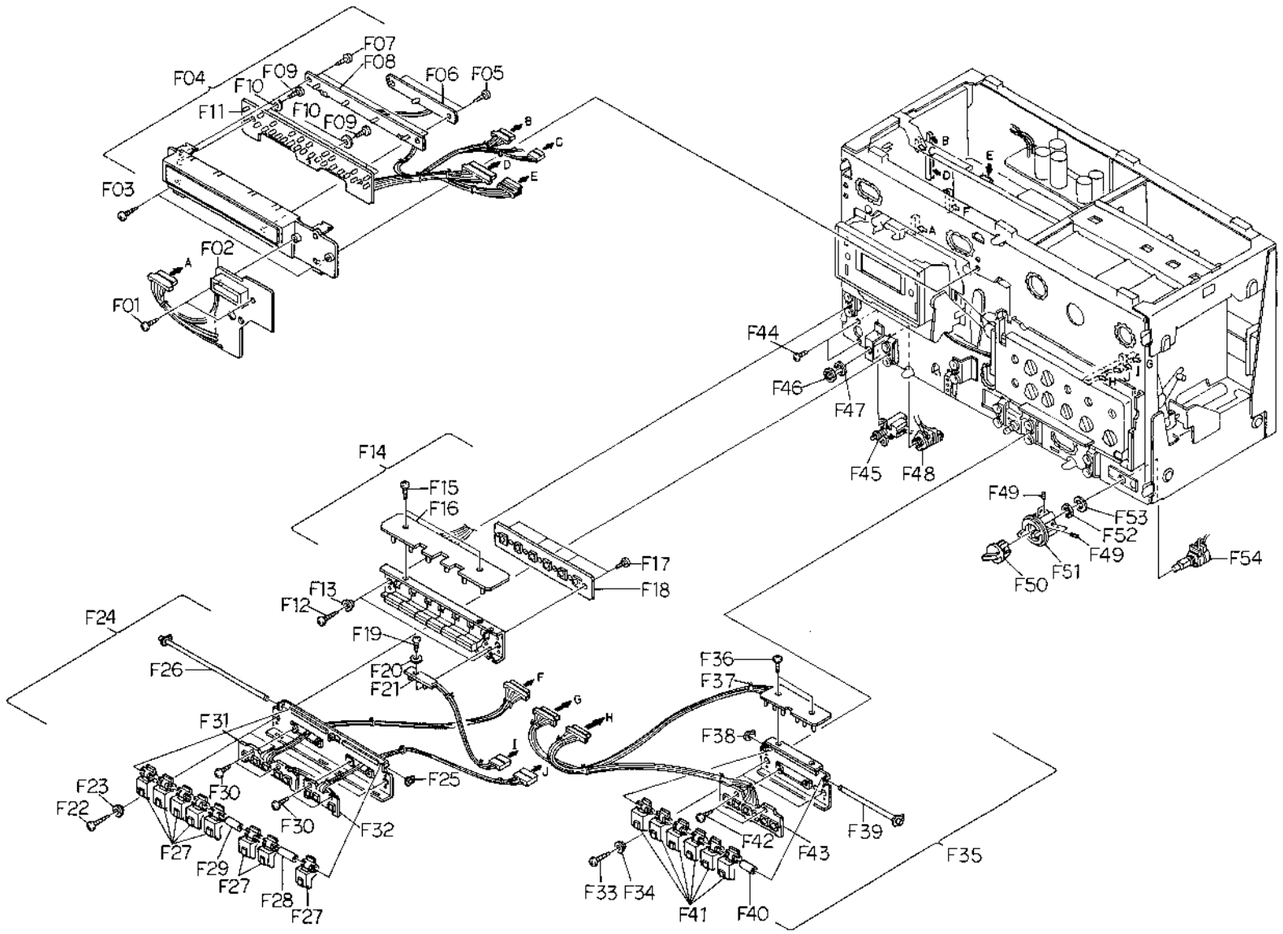


Fig. 2.3

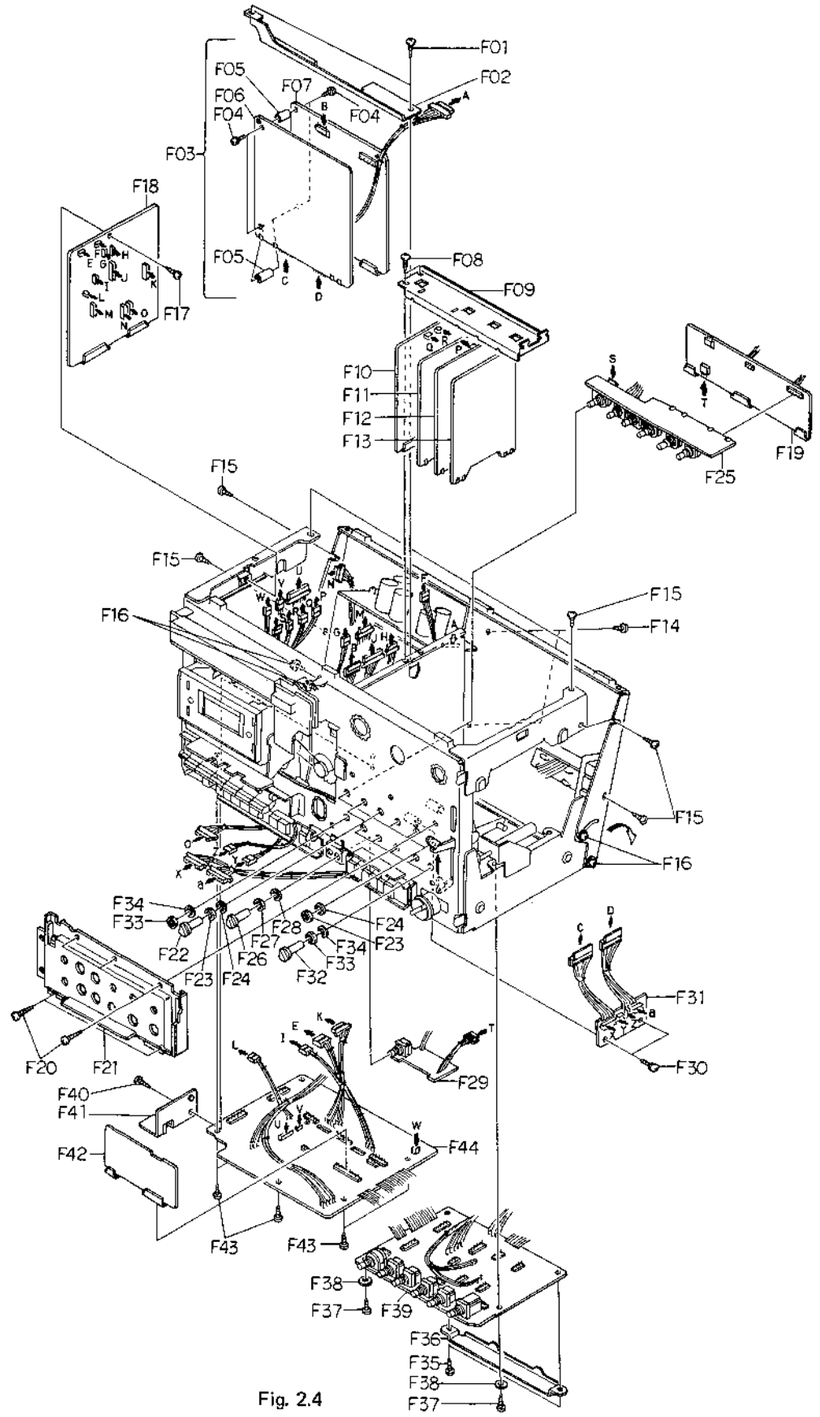


Fig. 2.4

2.11. Push Button A Ass'y, Switch C P.C.B. Ass'y and Switch A P.C.B. Ass'y

Refer to Fig. 2.3.

(1) Refer to Fig. 2.2. Remove Front Panel Ass'y referring to item 2.5.
(2) Remove F22 and F23, then disassemble F24 (Push Button A Ass'y including 2 connectors).
(3) Remove F25 and F26 (Button Shaft A), then disassemble F27 (Push Button A), F28 (Button Sleeve B) and F29 (Button Sleeve A).
(4) Remove F30, then disassemble F31 (Switch C P.C.B. Ass'y) and F32 (Switch A P.C.B. Ass'y).

2.12. Push Button B Ass'y

Refer to Fig. 2.3.

(1) Refer to Fig. 2.2. Remove Front Panel Ass'y referring to item 2.5.
(2) Remove F33 and F34, then disassemble F35 (Push Button B Ass'y including 2 connectors).
(3) Remove F38 and F39 (Button Shaft B), then disassemble F40 (Button Sleeve C) and F41 (Push Button B).
(4) Remove F42, then disassemble F43 (Switch B P.C.B. Ass'y).

2.13. Power Switch Ass'y, Headphone Jack Ass'y and Line Input Volume

Refer to Fig. 2.3.

(1) Refer to Fig. 2.2. Remove Front Panel Ass'y referring to item 2.5.
(2) Remove F44, then disassemble F45 (Power Switch Ass'y).
(3) Remove F46 and F47, then disassemble F48 (Headphone Jack Ass'y).
(4) Remove F49, then disassemble F50 (Volume Knob R Ass'y), F51 (Volume Knob L Ass'y), F52, F53 and F54 (Line Input Volume).

2.14. Auto Cal. A P.C.B. Ass'y and Auto Cal. B P.C.B. Ass'y

Refer to Fig. 2.4.

(1) Refer to Fig. 2.1. Remove Top and Bottom Cover Ass'y referring to items 2.1 and 2.2.
(2) Remove F01 and F02 (P.C.B. Holder B Ass'y), then disassemble F03 (Auto Cal. Ass'y including 4 connectors).
(3) Remove F04 and F05 (P.C.B. Spacer), then disassemble F06 (Auto Cal. A P.C.B. Ass'y) and F07 (Auto Cal. B P.C.B. Ass'y).

2.15. Record Eq. Amp. P.C.B. Ass'y, Oscillator P.C.B. Ass'y, Record Dolby NR P.C.B. Ass'y and Playback Amp. & Dolby NR P.C.B. Ass'y

Refer to Fig. 2.4.

(1) Refer to Fig. 2.1. Remove Top Cover Ass'y referring to item 2.1.
(2) Remove F08 and F09 (P.C.B. Holder A Ass'y), then disassemble F10 (Oscillator P.C.B. Ass'y), F11 (Record Eq. Amp. P.C.B. Ass'y), F12 (Playback Amp & Dolby NR P.C.B. Ass'y) and F13 (Record Dolby NR P.C.B. Ass'y).

2.16. RAMM P.C.B. Ass'y

Refer to Fig. 2.4.

(1) Refer to Fig. 2.1. Remove Top Cover Ass'y referring to item 2.1.
(2) Remove F17, then disassemble F18 (RAMM P.C.B. Ass'y).

2.17. MIC & Meter Amp. P.C.B. Ass'y, MIC Volume & Switch P.C.B. Ass'y, Control Panel Ass'y, Line Amp. P.C.B. Ass'y, Connector P.C.B. Ass'y and Mother P.C.B. Ass'y

Refer to Fig. 2.4.

(1) Refer to Fig. 2.2. Remove Front Panel Ass'y referring to item 2.5.
(2) Remove Record Eq. Amp. P.C.B. Ass'y, Oscillator P.C.B. Ass'y, Record Dolby NR P.C.B. Ass'y and Playback Amp. & Dolby NR P.C.B. Ass'y referring to item 2.15.
(3) Remove F14 and F15, then loosen F16.
(4) Turn over Rear Panel Ass'y as an arrow head.
(5) Disconnect F19 (MIC & Meter Amp. P.C.B. Ass'y) from F25 (MIC Volume & Switch P.C.B. Ass'y).
(6) Remove F20, then disassemble F21 (Control Panel Ass'y).
(7) Remove F22 (Switch Knob), F23 and F24, then disassemble F25 (MIC Volume & Switch P.C.B. Ass'y).
(8) Remove F26, F27 and F28, then disassemble F29 (Line Amp. P.C.B. Ass'y).
(9) Remove F30 (Switch Knob), then disassemble F31 (Connector P.C.B. Ass'y including 6 connectors).
(10) Remove F32, F33 and F34.
(11) Remove F35, F36 (P.C.B. Stopper), F37 and F38, then disassemble F39 (Mother P.C.B. Ass'y).

2.18. Main Logic P.C.B. Ass'y and Sub Logic P.C.B. Ass'y

Refer to Fig. 2.4.

(1) Refer to Fig. 2.2. Remove Front Panel Ass'y referring to item 2.5.
(2) Remove Auto Cal. P.C.B. Ass'y referring to item 2.7.
(3) Remove F15, then loosen F16.
(4) Turn over Rear Panel Ass'y as an arrow mark.
(5) Remove F40 and F41 (Sub Logic Holder), then disassemble F42 (Sub Logic P.C.B. Ass'y).
(6) Remove F43, then disassemble F44 (Main Logic P.C.B. Ass'y including 9 connectors).

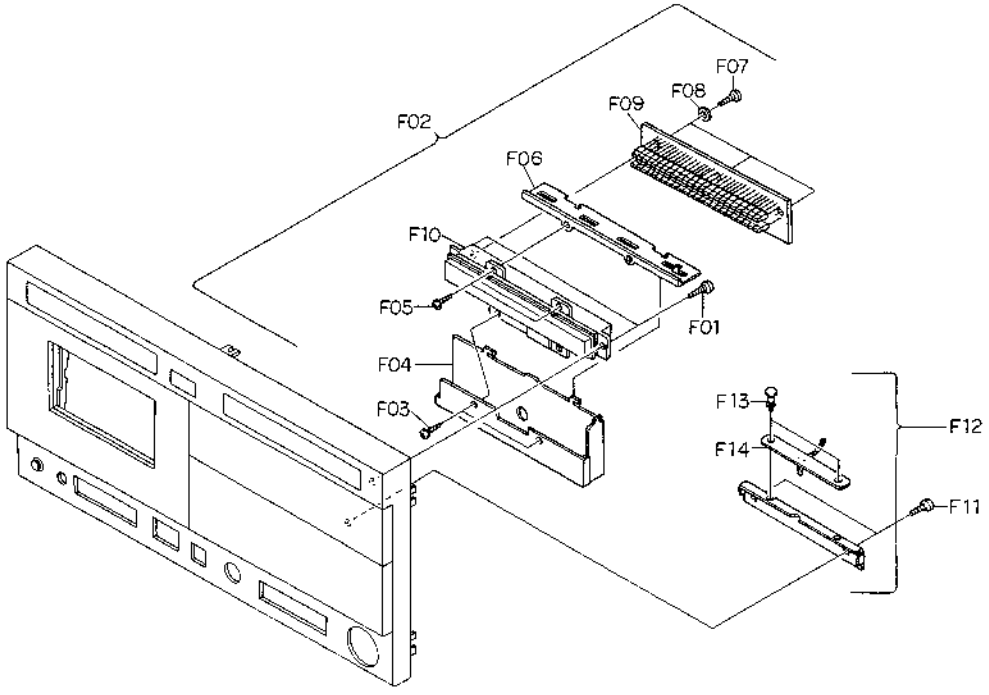

F07
F08
F09
F02
F06
F10
F05
F01
F04
F03
F13
F12
F14
F11

Fig. 2.5

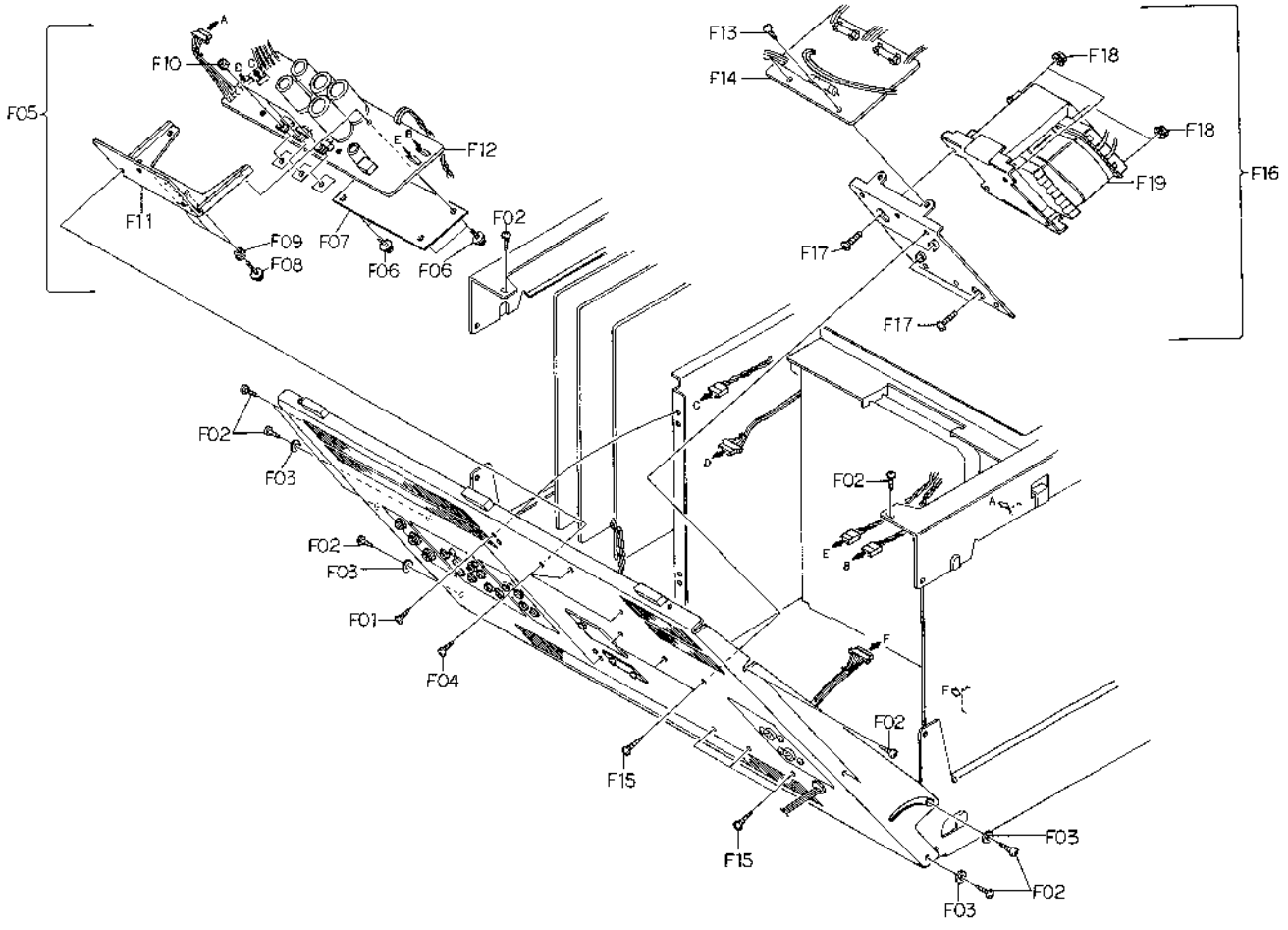

F13
F18
F14
F18
F19
F16
F10
F05
F12
F11
F09
F08
F07
F06
F06
F02
F17
F17
F02
F03
F02
F03
F01
F04
F02
F15
F15
F03
F02
F03

Fig. 2.6

2.19. LED Level Indicator Ass'y, Indicator P.C.B. Ass'y and Lamp B P.C.B. Ass'y

Refer to Fig. 2.5.

(1) Refer to Fig. 2.2. Remove Front Panel Ass'y referring to item 2.5.
(2) Remove F01, then disassemble F02 (LED Level Indicator Ass'y).
(3) Remove F03, then disassemble F04 (LED Indicator Case Holder).
(4) Remove F05, then disassemble F06 (Shield Plate).
(5) Remove F07 and F08, then disassemble F09 (Indicator P.C.B. Ass'y) and F10 (LED Indicator Case).
(6) Remove F11, then disassemble F12 (Lamp B P.C.B. Ass'y).
(7) Remove F13, then disassemble F14 (Lamp B).

2.20. Rear Panel Ass'y, Power Supply P.C.B. Ass'y, Fuse P.C.B. Ass'y and Power Transformer

Refer to Fig. 2.6.

(1) Refer to Fig. 2.1. Remove Top Cover Ass'y and Bottom Cover Ass'y referring to items 2.1 and 2.2.
(2) Remove F01, F02 and F03, then disassemble Rear Panel Ass'y.
(3) Remove F04, then disassemble F05 (Power Supply Ass'y).
(4) Remove F06, then disassemble F07 (Insulator).
(5) Remove F08, F09 and F10, then disassemble F11 (Heat Sink) and F12 (Power Supply P.C.B. Ass'y).
(6) Remove F13, then disassemble F14 (Fuse P.C.B. Ass'y).
(7) Remove F15, then disassemble F16 (Power Transformer Ass'y).
(8) Remove F17 and F18, then disassemble F19 (Power Transformer) and Transformer Holder.

2.21. Cassette Case Ass'y and Cover Plate Ass'y

Refer to Fig. 2.7.

(1) Refer to Fig. 2.2. Remove Mechanism Ass'y referring to item 2.8. Press Eject Lever to open Cassette Case Ass'y.
(2) Remove F01 and F02, then disassemble F03 (Cassette Case Holder L Ass'y) and F04 (Cassette Case Ass'y).
(3) Remove F05, then disassemble F06 (Cover Plate Ass'y).

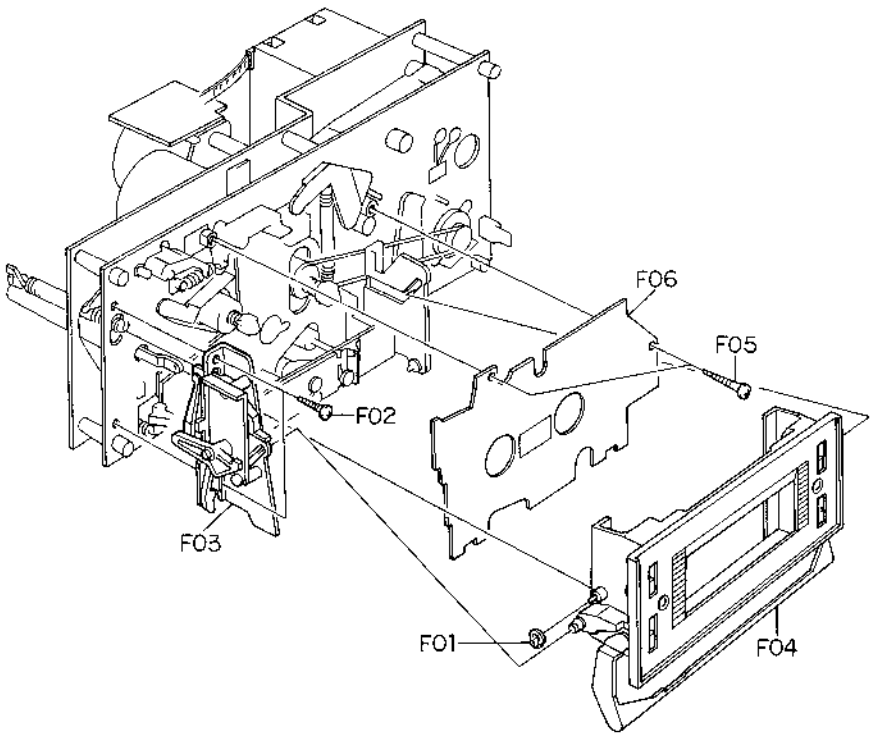


Fig. 2.7

2.22. Speed Cal. P.C.B. Ass'y

Refer to Fig. 2.8.

(1) Refer to Fig. 2.2. Remove Mechanism Ass'y referring to item 2.8.
(2) Remove F01, then disassemble F02 (Speed Cal. P.C.B. Ass'y).
(3) Remove F03, then disassemble F04 (P.C.B. Holder).

2.23. Capstan Motor Ass'y and Flywheel Ass'y

Refer to Fig. 2.8.

(1) Refer to Fig. 2.2. Remove Mechanism Ass'y referring to item 2.8.
(2) Remove F05 and F06, then disassemble F07 (Capstan Motor Ass'y) and F10 (Capstan Belt).
(3) Remove F08, then disassemble F09 (Capstan Motor).
(4) Remove F11 (Supply Flywheel Ass'y), then disassemble F12 (Take-up Flywheel Ass'y).
(5) After removing both Flywheel Assemblies, disassemble F13 (Thrust Washer 3mm), F14 (Thrust Washer 2.6 mm), F15 (Flang Thrust Cap) and F16 (Thrust Spring).

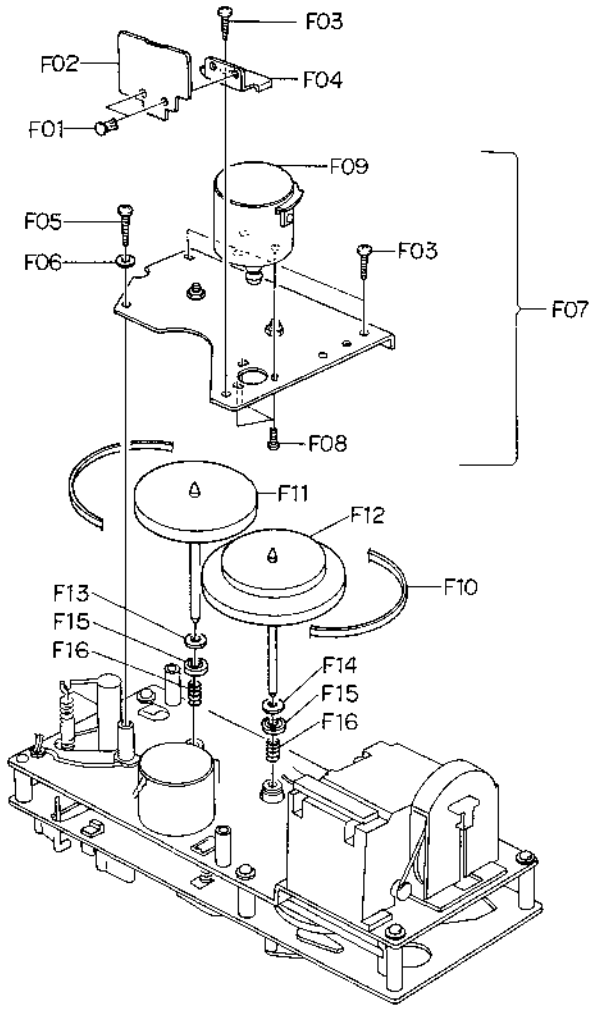


Fig. 2.8

2.24. Sub Mechanism Chassis Ass'y

Refer to Fig. 2.9.

(1) Refer to Fig. 2.8. Remove Flywheel Ass'y referring to item 2.23.
(2) Remove F01 and F02, then disassemble F03 (Sub Mechanism Chassis Ass'y).

2.25. Control Motor Ass'y and Reel Motor Ass'y

Refer to Fig. 2.9.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.24.
(2) Remove F04, then disassemble F05 (Control Motor Ass'y).
(3) Remove F06, then disassemble F07 (Reel Motor Ass'y).

2.26. Cam Control Volume

Refer to Fig. 2.9.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.24.
(2) Remove F08, then disassemble F09 (Volume Coupler).
(3) Remove F10, then disassemble F11 (Cam Control Volume).

2.27. Azimuth Motor Ass'y

Refer to Fig. 2.9.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.24.
(2) Remove F12, then disassemble F13 (Azimuth Alignment Motor Ass'y).
(3) Remove F14, then disassemble F15 (Azimuth Motor Ass'y) and F16 (Drive Pulley Ass'y).

2.28. Reel Hub Ass'y and Idler Ass'y

Refer to Fig. 2.9.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.24.
(2) Remove F17 (Reel Hub Head), then disassemble F18 (Reel Hub B Ass'y), F19 (Reel Hub Take-up Ass'y), F20 (Reel Hub Supply Ass'y), F21 (Back Tension Ass'y) and F22 (Back Tension Spring).
(3) Remove F23, then disassemble F24 (Idler Ass'y).

2.29. Cam Drive Gear and Control Cam

Refer to Fig. 2.9.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.24.
(2) Remove F25, then disassemble F26 (Cam Drive Gear).
(3) Remove F27, then disassemble F28 (Counter-Load Arm Ass'y).
(4) Remove F29, then disassemble F30 (Control Cam).

2.30. Counter Pulse Generator P.C.B. Ass'y

Refer to Fig. 2.9.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.24.

(2) Remove F31, then disassemble F32 (Counter Pulse Generator P.C.B. Ass'y).

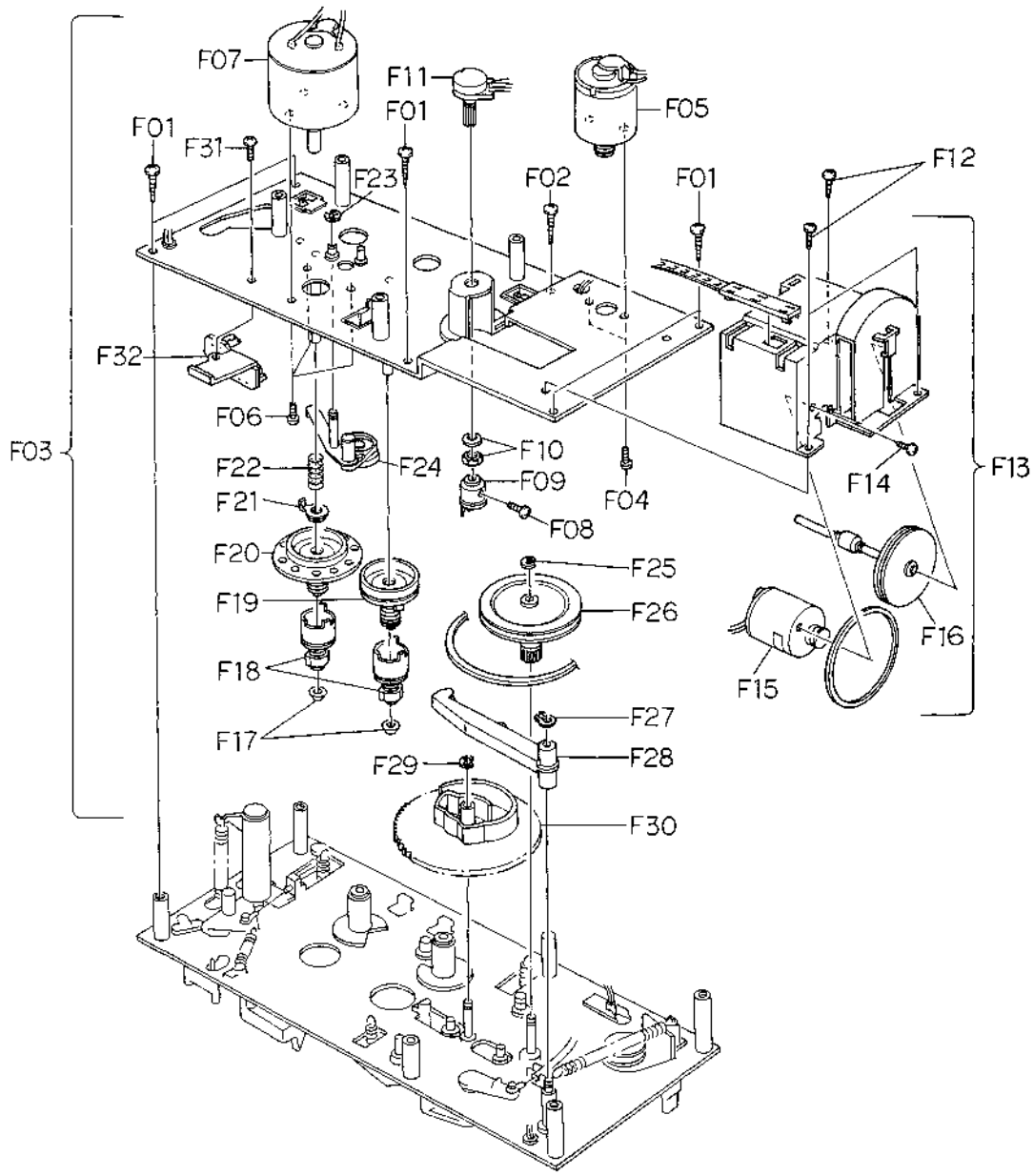


Fig. 2.9

2.31. Head Mount Base Ass'y

Refer to Fig. 2.10.

(1) Refer to Fig. 2.7. Remove Cassette Case Ass'y referring to item 2.21.
(2) Remove F01, then disassemble F02 (Head Mount Base Ass'y).

2.32. Pressure Roller Ass'y and Erase Head

Refer to Fig. 2.10.

(1) Remove Head Mount Base Ass'y referring to item 2.31.
(2) Remove F03, then disassemble F04 (Supply Pressure Roller Ass'y).
(3) Remove F05, then disassemble F06 (Erase Head).
(4) Remove F07, then disassemble F08 (Take-up Pressure Roller Ass'y).

2.33. Playback Head Ass'y and Record Head Ass'y

Refer to Fig. 2.10.

(1) Remove Head Mount Base Ass'y referring to item 2.31.
(2) Turn F09 by 90° by pushing it, then disassemble F10 (Playback Head Ass'y).
(3) Turn F11 by 90° by pushing it, then disassemble F12 (Record Head Ass'y) and F13 (RH Azimuth Alignment Plate).

2.34. Battery

Refer to Fig. 2.11.

(1) Turn fully counterclockwise the screw which is mounted on the Rear Panel Ass'y, then pull out Battery Case Ass'y.
(2) Pull up the Ribbon in Battery Case. Take out Batteries of Battery Case.

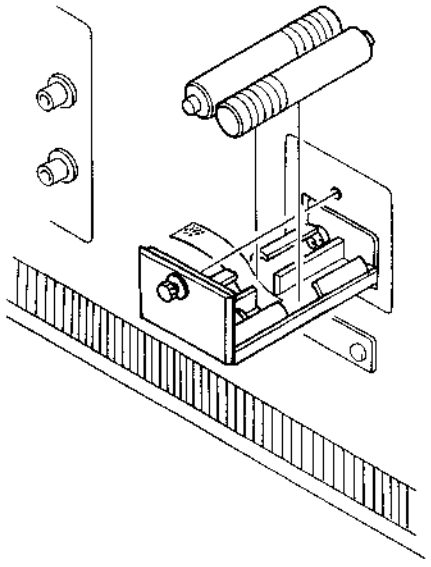


Fig. 2.11

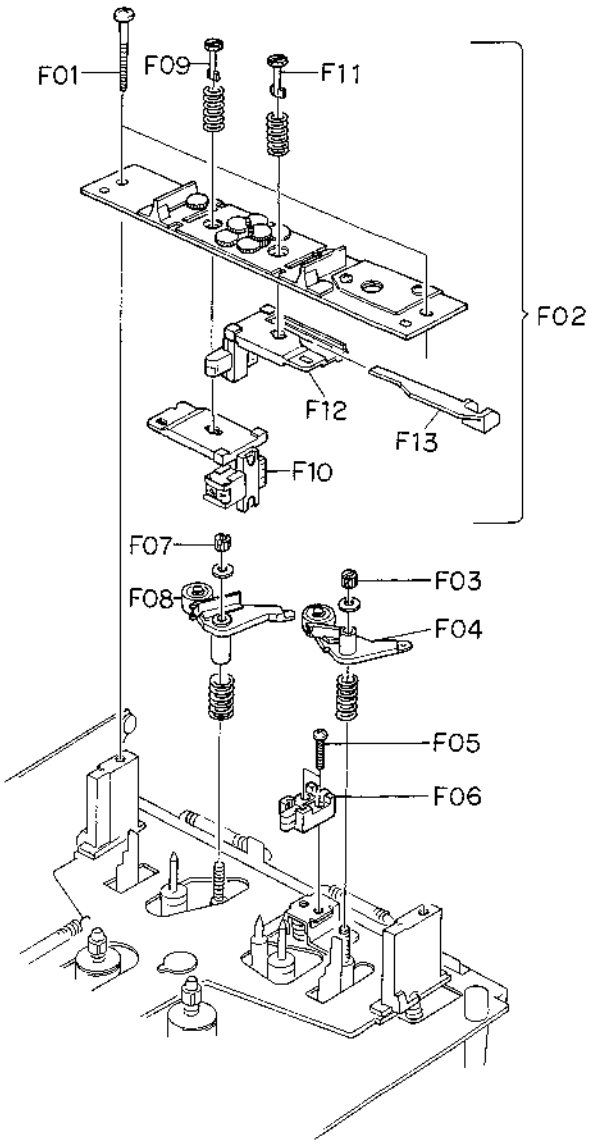


Fig. 2.10

3. MEASUREMENT AND MAINTENANCE INSTRUMENTS

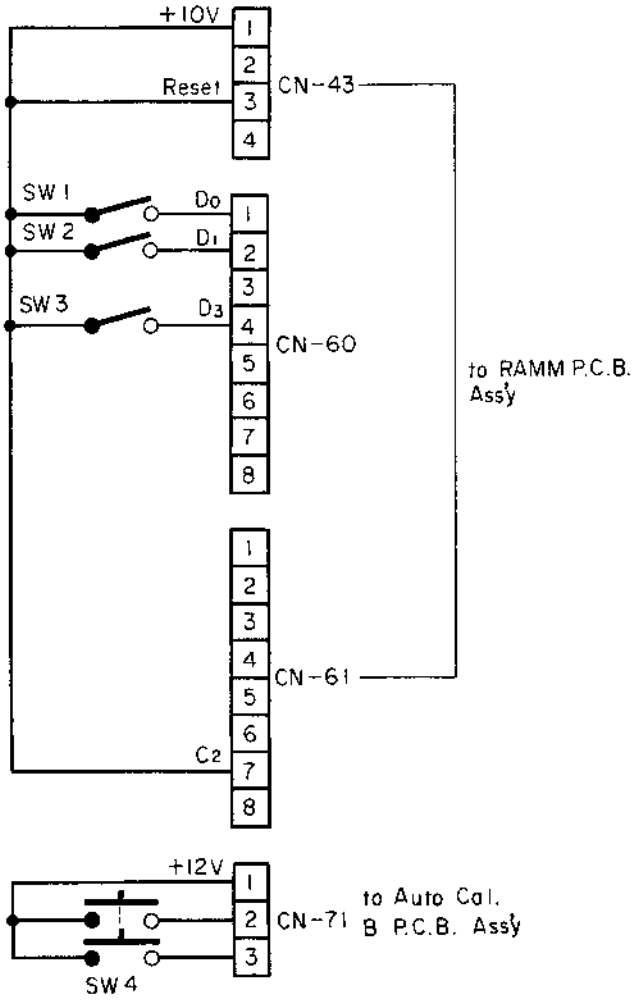
3.1. Measurement Instruments

(1) Audio Generator (20 Hz – 200 kHz)
(2) AC Millivolt Meter (with dB measures)
(3) Oscilloscope (DC – 5 MHz)
(4) Distortion Meter
(5) Speed & Wow/Flutter Meter
(6) Frequency Counter (DC – 10 MHz)
(7) Ohm Meter
(8) DC Volt Meter
(9) AC Volt Meter
(10) Torque Gauge (DA09013A)
(11) 15 kHz Azimuth Tape (DA09004A)
(12) 3 kHz Speed & Wow/Flutter Tape (DA09006A)
(13) 1 kHz Track Alignment Tape (DA09007A)
(14) 400 Hz Level Tape (DA09005A)
(15) 20 kHz PB Frequency Response Tape (DA09001A)
(16) 15 kHz PB Frequency Response Tape (DA09002A)
(17) 10 kHz PB Frequency Response Tape (DA09003A)
(18) Reference EXII Tape (DA09066A)
(19) Reference SX Tape (DA09025A)
(20) Reference ZX Tape (DA09037A)
(21) Tilt Check Gauge M-9039 (DA09039A)
(22) EH Tilt Check Gauge M-9040 (DA09040A)
(23) EH Stroke Check Gauge M-9051 (DA09051A)
(24) Stroke Check Gauge M-9047 (DA09047B)
(25) Record Head Mounting Gauge M-9048 (DA09048A)
(26) Back Tension Gauge (DA09055A)
(27) Tension Arm Adjustment Cassette (DA09056A)
(28) 5 Hz RAMM Speed Check Tape (DA09061A)
(29) Test Unit M-9059 (DA09059A)
(30) Extension Card M-9058 (DA09058A)
(for Playback Amp. & Dolby NR P.C.B. Ass'y)
(31) Extension Card M-9062 (DA09062A)
(for Record Eq. Amp. P.C.B. Ass'y)
(32) Extension Card M-9060 (DA09060A)
(for Oscillator P.C.B. Ass'y)
(33) Audio Analyzer T-100
(including Distortion, Wow/Flutter, Speed, Oscillator and dB meter)

Note: (10) – (33) are the products of Nakamichi Corporation.

3.2. Maintenance Instrument

(1) Test Unit



SW1-3 : Preset Switch (ON/OFF Type)
SW 4 : Trigger Switch (Momentary Type)

Fig. 3

4. MECHANICAL ADJUSTMENT

4.1. Mechanism Control Cam Adjustment

Before adjustment, disassemble the Front Panel Ass'y, then remove the Cover Plate Ass'y referring to items 2.5 and 2.21.

(1) Offset Adjustment of Control Motor Driver

(a) Refer to Figs. 4.1 and 4.2.
Adjust VR504 and VR505 on the Main Logic P.C.B. Ass'y to locate approximately at the middle of the variable range. Then press the Power switch.
VR504 (for Cam position play)
VR505 (for Cam position stop)

(b) Press the Stop button to set the N-700ZXL in Stop mode.
Adjust VR505 (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 N-700ZXL in Playback mode.
(Cam will rotate, and the position marked with "PY" comes to the pointer.) Adjust VR504 (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.)

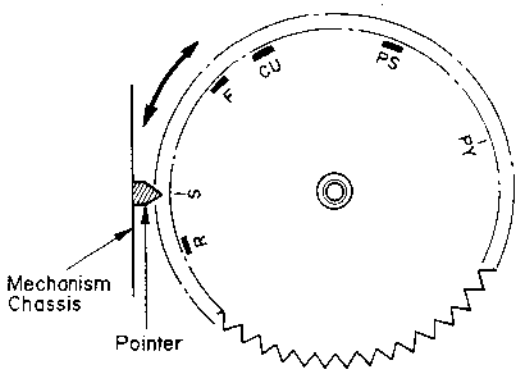


Fig. 4.1

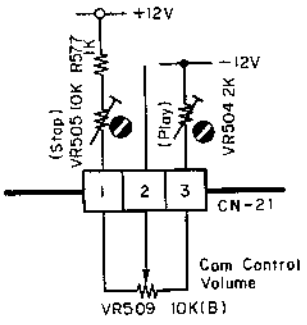


Fig. 4.2

(e) Set the N-700ZXL in F.F., Pause, or Cue mode by pressing each button (press F.F. and Pause buttons to set the N-700ZXL 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 Main Logic 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 VR509 (10 kΩ) in Stop, Fast (F.F. or Rewind), Pause and Playback modes.

(b) Reference Voltage

Reference voltage at the sliding contact of VR509 (Cam Control Volume) in each mode is as follows:

Mode	Reference Voltage (Typical Value)	
Stop	–0.4 V	1.7 V ±0.25 V
Fast (F.F./Rew.)	–2.1 V	
Pause	–6.2 V	2.6 V ±0.4 V
Play	–8.8 V	

(c) Resistors for Adjustment

Mode	Ref. No.	Typical Value
Stop	R691	316 kΩ (F)
Fast (F.F./Rew.)	R555	33 kΩ
Pause	R546	51.1 kΩ (F)
Play	R544	71.5 kΩ (F)

(d) Adjustment Procedures

1) Press the Stop button to set the N-700ZXL in Stop mode.
Adjust the value of R691 to obtain –0.4 V (±0.6 V) at the sliding contact of VR509.
Note: When R691 is adjusted, the reference voltage in Fast (F.F. or Rewind) mode is changed. Therefore, re-check of the reference voltage in Fast mode is required. If the reference voltage is out of the range, re-adjustment of R555 according to next step 2) is necessary.

2) Set the N-700ZXL in F.F. mode, then adjust the value of R555 so that the voltage of VR509 will become lower by 1.7 V (±0.25 V) than in Stop mode.

3) Press the Pause button to set the N-700ZXL in Pause mode.
Adjust the value of R546 to obtain –6.2 V (+0.4, –0.15 V) at the sliding contact of VR509.

4) Set the N-700ZXL in Playback mode, then adjust the value of R544 so that the voltage of VR509 will become lower by 2.6 V (±0.4 V) than in Pause mode.

(3) Cam Timing Adjustment

(a) Remove the wires from the Control Motor terminals to set the motor open.

(b) Without loading a cassette tape and with pressing the record protecting switch with your finger tip, press the Record and Play buttons to set the N-700ZXL in Record mode.

(c) Turn the Cam and bring the "PY" mark toward the pointer by hand. Reel Motor will rotate before the "PY" mark reaches the pointer. Adjust the value of R508 and R509 so that the voltage at the sliding contact of VR509 becomes –7 V (±0.3 V) when Reel Motor starts rotation.

(d) Observe the mute signal at the Q517 collector.
Turn the Cam referring to above step (c) and check to insure that the voltage at the sliding contact of VR509 is –7.2 V (±0.3 V) when mute is released (mute signal changes from H to L).
(This voltage is determined by the adjustment of R508 and R509 in above step (c).)

(e) Upon completion of the above adjustment, re-connect wires to the motor terminals.

4.2. Reel Motor Speed Adjustment in Play Mode

Refer to Fig. 4.3.

(1) Connect a DC voltmeter across the Reel Motor terminals.

(2) Without loading a cassette tape, set the N-700ZXL in Play mode.

(3) Adjust VR509 on the Main Logic P.C.B. Ass'y to obtain 4 V on the DC voltmeter.

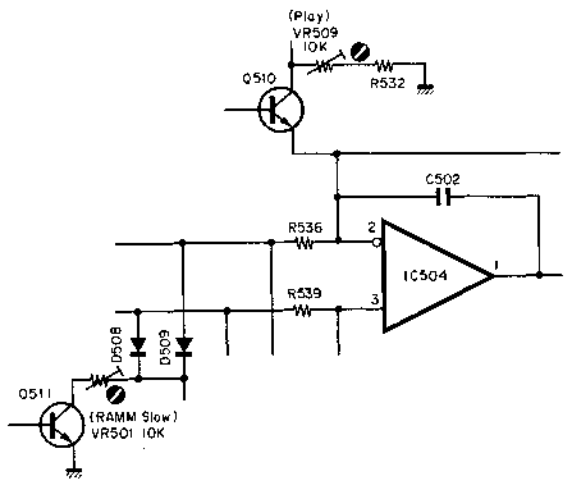


Fig. 4.3

4.3. RAMM Mode Adjustment

Insert connectors CN-43, 60 and 61 of the Test Unit into the connectors CN-43, 60 and 61 of the RAMM P.C.B. Ass'y. After the adjustment is completed, remove the Test Unit.

(1) Head Base Stroke Adjustment in RAMM Cue Mode

Refer to Figs. 4.4 and 4.5

(a) Load a Stroke Check Gauge M-9047 (DA09047B) in the N-700ZXL.

(b) Move Record Head Indicator and Playback Head Indicator to the direction of arrow mark "A" with your finger tip and then set the N-700ZXL in RAMM 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 indicates the left side line on the Indicator Plate.

(d) If the playback head stroke is noted to be misaligned, adjust VR502 on the Main Logic P.C.B. Ass'y till satisfactory results are obtained.

(e) After completion of the above adjustment, set the N-700ZXL in Stop mode, then set in RAMM mode again to see whether the adjustment is appropriately made.
If not, (b) through (e) will have to be repeated till satisfactory result is obtained.

(2) Reel Motor Speed Adjustment in RAMM Slow Mode

Refer to Fig. 4.3.

(a) Load a 5 Hz RAMM Speed Check Tape (DA09061A) in the N-700ZXL.

(b) Connect a Frequency Counter to TP1 on the Main Logic P.C.B. Ass'y.

(c) Set SW1, SW2 and SW3 of the Test Unit to ON.

(d) Set the N-700ZXL in Fast (F.F. or Rewind) mode, then adjust VR501 on the Main Logic P.C.B. Ass'y so that the reading of the Frequency Counter becomes in a range of 25 – 50 Hz (typically 37.5 Hz).
After the adjustment, check to insure that the reading is in a range of 25 – 50 Hz at 3 different portions (beginning, middle and end) of the tape.

(e) In Fast mode, by setting SW3 of the Test Unit to OFF, set the N-700ZXL in RAMM Fast mode.
In this RAMM Fast mode, check to insure that the reading of the Frequency Counter is in a range of 80 – 240 Hz.
If not, repeat (b) – (e) till satisfactory result is obtained.

(f) Set SW1, SW2 and SW3 of the Test Unit to OFF, then set the N-700ZXL in Stop mode.

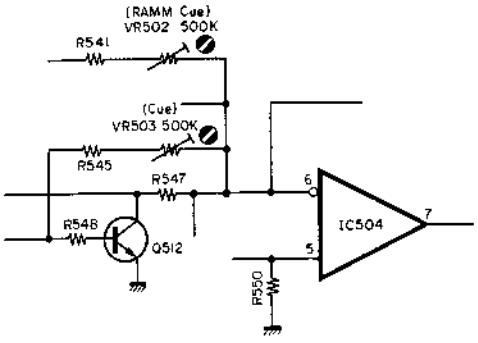


Fig. 4.4

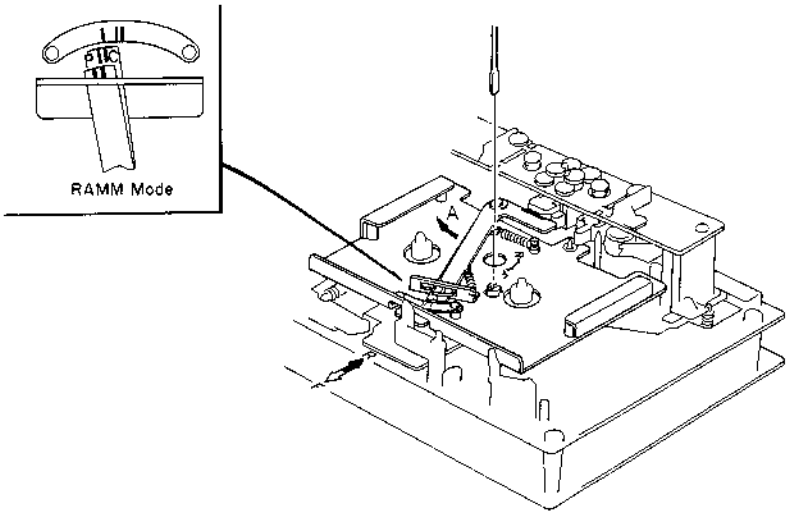


Fig. 4.5

(3) RAMM Detector Amp. Gain Adjustment

Refer to Figs. 4.6 – 4.8.

(a) Load a 5 Hz RAMM Speed Check Tape (DA09061A) in the N-700ZXL.

(b) Connect a Synchroscope to TP1 on the Main Logic P.C.B. Ass'y. Set the Synchroscope to DC mode and 1 V/division vertical gain.
Check to insure that the minus level (–0.7 to –1.5 V) is observed on the Synchroscope as shown in Fig. 4.6.

(c) Set SW1, SW2 and SW3 of the Test Unit to ON.

(d) Set the N-700ZXL in Fast (F.F. or Rewind) mode, then adjust VR506 on the Main Logic P.C.B. Ass'y so that the lowest plus peak value of waveforms does not lower than 2.5 V DC as shown in Fig. 4.7.

(e) By setting SW3 of the Test Unit to OFF (SW1 and SW2 are ON), set the N-700ZXL in RAMM Fast mode, then check to insure that the lowest plus peak value of waveforms is higher than 0.5 V DC.
If not, repeat (c) – (e) till satisfactory result is obtained.

(f) Set SW1, SW2 and SW3 to OFF, then set the N-700 ZXL in Stop mode.

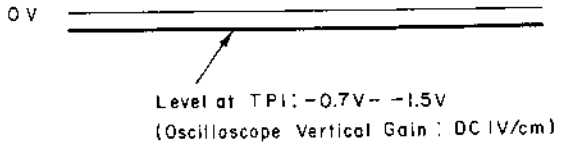


Fig. 4.6

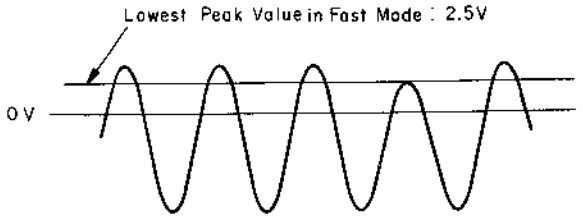


Fig. 4.7

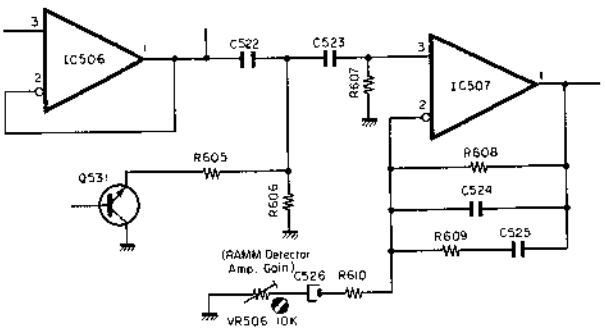


Fig. 4.8

4.4. Record Head and Playback Head Tilt Adjustment

Note: On items 4.4 – 4.10, refer to Fig. 4.9 flow chart.
Refer to Figs. 4.10 and 4.11.

(1) Load a Tilt Check Gauge M-9039 (DA09039A) in the N-700ZXL.
(2) Clip the grounding terminal of the Tilt Check Gauge with one end of the cord with clip, and the chassis of the N-700ZXL with the other end.
(3) Remove both of the Height Gears.
(4) Set the N-700ZXL 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 them 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 N-700ZXL in Stop mode and fit both of the serrated height gears. Then set the N-700ZXL 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.

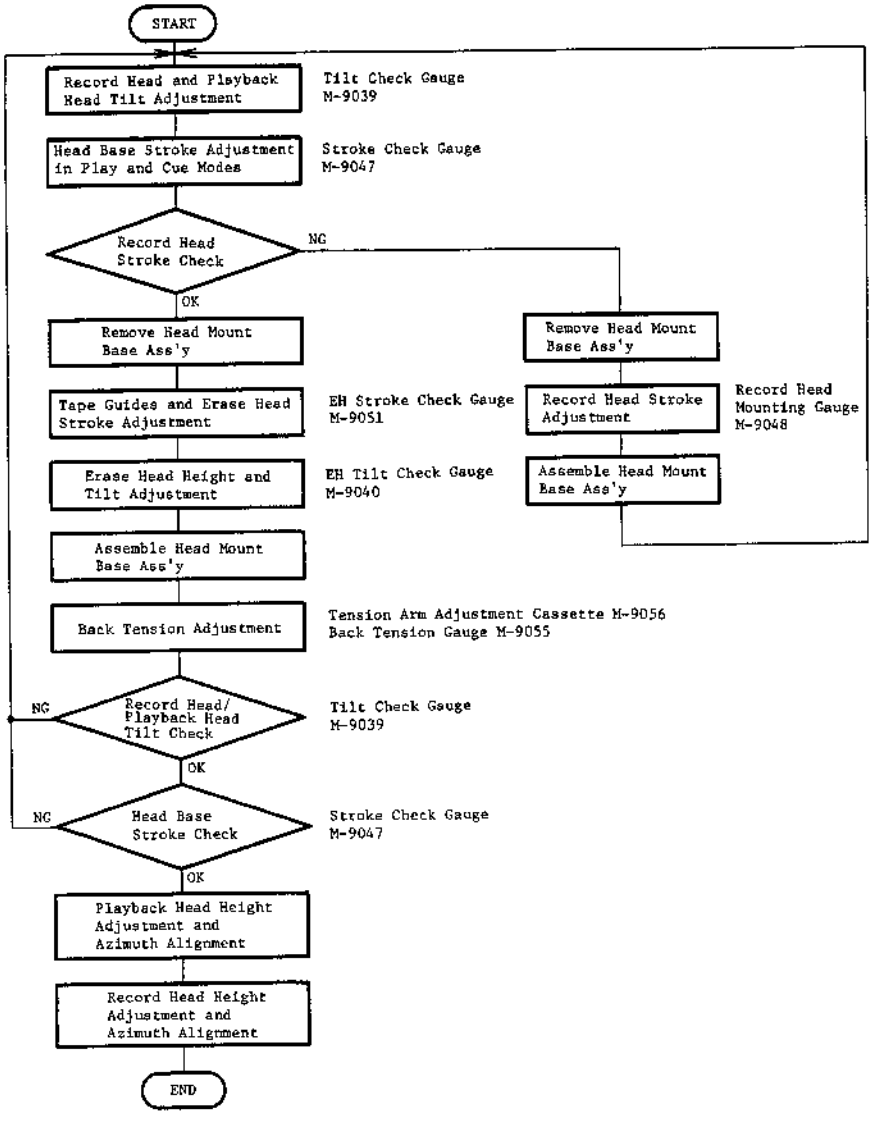


Fig. 4.9

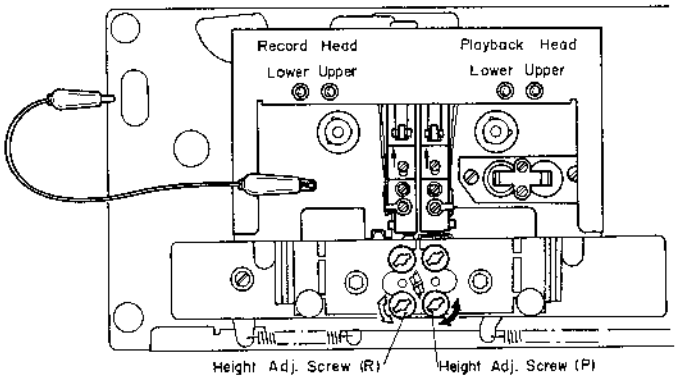


Fig. 4.10

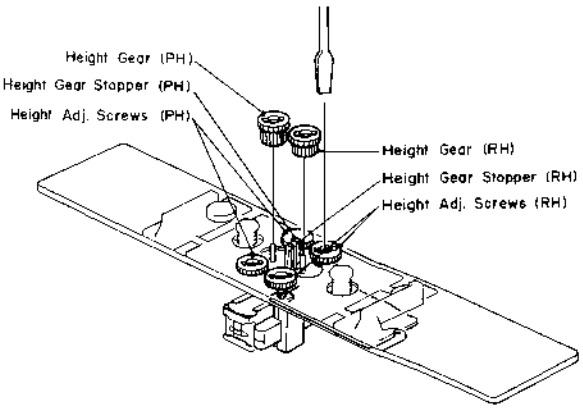


Fig. 4.11

4.5. Head Base Stroke Adjustment

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

Refer to Fig. 4.12.

(a) Load a Stroke Check Gauge M-9047 (DA09047A) in the N-700ZXL.

(b) Move Record Head Indicator and Playback Head Indicator to the direction of arrow mark "A" with your finger tip and then set the N-700ZXL 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).

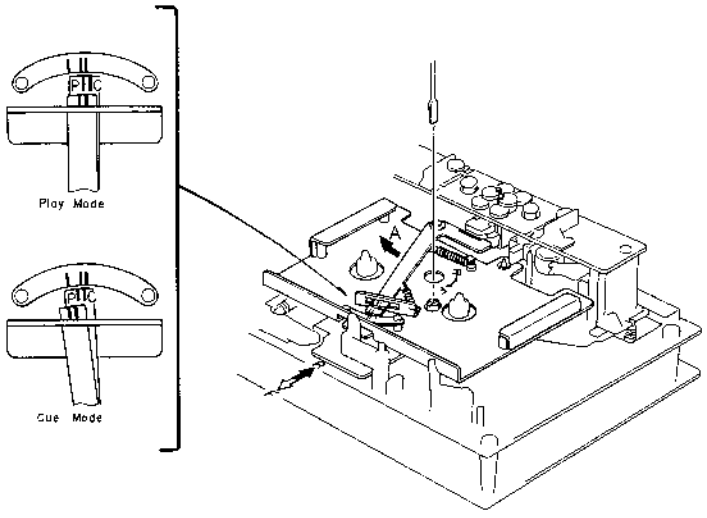


Fig. 4.12

(2) Head Base Stroke Adjustment in Cue Mode

Refer to Figs. 4.12 and 4.13.

(a) Load a Stroke Check Gauge M-9047 (DA09047B) in the N-700ZXL.

(b) Move Recourd Head Indicator and Playback Head Indicator to the direction of arrow mark "A" with your finger tip and then set the N-700ZXL 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 VR503 on the Main Logic 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.

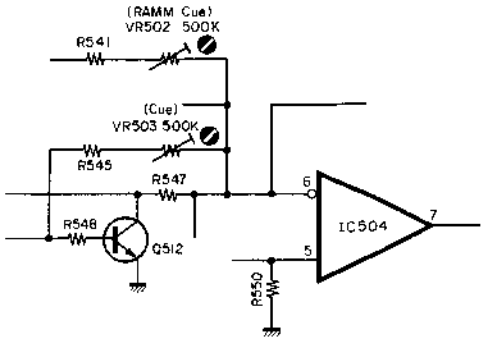


Fig. 4.13

4.6. Tape Guides Adjustment and Erase Head Stroke Adjustment

Remove Head Mount Base Ass'y referring to item 2.31. Refer to Figs. 4.14 and 4.15.

(1) Supply Tape Guide Height Adjustment

(a) Load an EH Stroke Check Gauge M-9051 (DA-09051A) in the N-700ZXL.
(b) Set the N-700ZXL in Play mode.
(c) Slide the Supply Tape Guide Check Bar down against the supply tape guide, thus check can be made on supply tape guide height.
(d) If the supply tape guide is misaligned, the Supply Tape Guide Check Bar will not come into the supply tape guide. If such is noted, turn to adjust the height adjustment nut A till the Supply Tape Guide Check Bar is accepted by the supply tape guide.
(e) If the above are insured, set the N-700ZXL in Pause mode, then in Play mode to see whether adjustments are appropriately made. If not, (b) through (e) will have to be repeated till satisfactory results are obtained.

(2) Take-up Tape Guide Height Adjustment

(a) Load an EH Stroke Check Gauge M-9051 (DA-09051A) in the N-700ZXL.

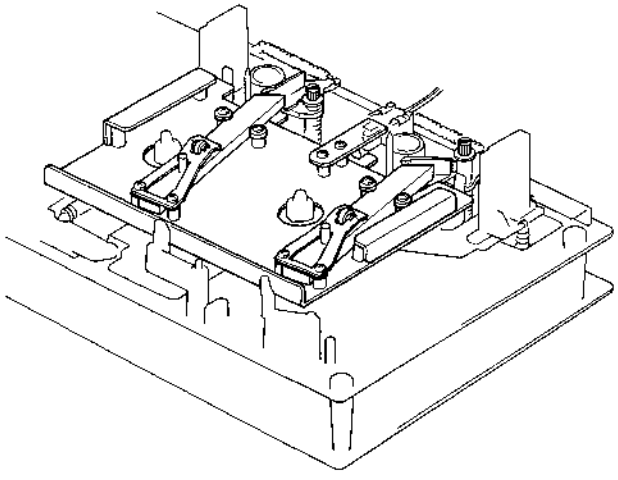


Fig. 4.14

(b) Set the N-700ZXL in Play mode.
(c) Slide the Take-up Tape Guide Check Bar down against the take-up tape guide, thus check can be made on take-up tape guide height.
(d) If the take-up tape guide is misaligned, the Take-up Tape Guide Check Bar will not come into the take-up tape guide. If such is noted, turn to adjust the height adjustment nut C till the Take-up Tape Guide Check Bar is accepted by the take-up tape guide.
(e) If the above are insured, set the N-700ZXL in Pause mode, then in Play mode to see whether adjustments are appropriately made. If not, (b) through (e) will have to be repeated till satisfactory results are obtained.

(3) Erase Head Stroke Adjustment

(a) Load an EH Stroke Check Gauge M-9051 (DA-09051A) in the N-700ZXL.
(b) Set the N-700ZXL 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 B that assemble erase head and erase head plate.
(d) After completion of adjustment, 2 pcs. of screws shall be locked with lock tight paint.

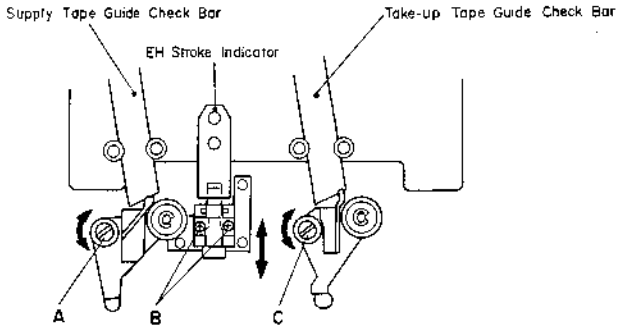


Fig. 4.15

4.7. Erase Head Height and Tilt Adjustment

Refer to Figs. 4.16 and 4.17.

(1) Remove Head Mount Base Ass'y referring to item 2.31.

(2) Load an EH Tilt Check Gauge M-9040 (DA09040A) in the N-700ZXL.

(3) Set the N-700ZXL 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 should be locked with lock tight paint.

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

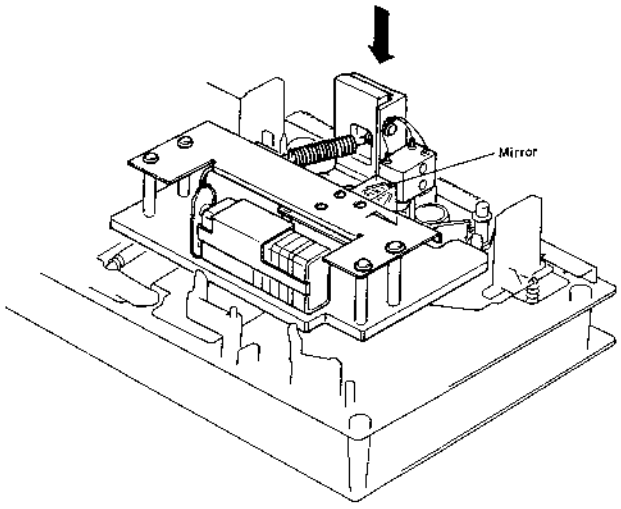


Fig. 4.16

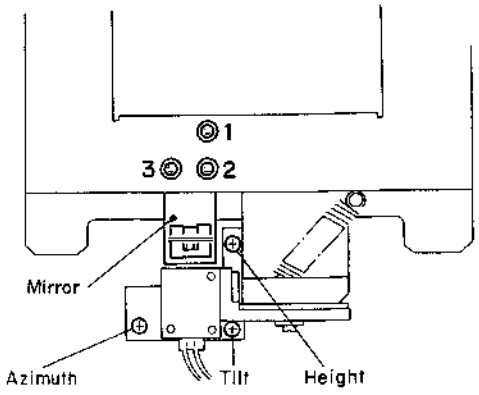


Fig. 4.17

4.8. Back Tension Adjustment

Refer to Figs. 4.18 – 4.21.

(1) Load a Tension Arm Adjustment Cassette (DA 09056A) in the N-700ZXL referring to Fig. 4.18.

(2) Set the N-700ZXL 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. 4.19. Do not bend the pointed end of the Back Tension Arm.

(4) Set the N-700ZXL in Stop mode, and remove the Tension Arm Adjustment Cassette (DA09056A), then set the N-700ZXL 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. 4.20.

(5) Load the Back Tension Gauge (DA09055A) in the N-700ZXL.

(6) Set the N-700ZXL 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. 4. 21, and obtain the torque of 7 g-cm to 9 g-cm range.

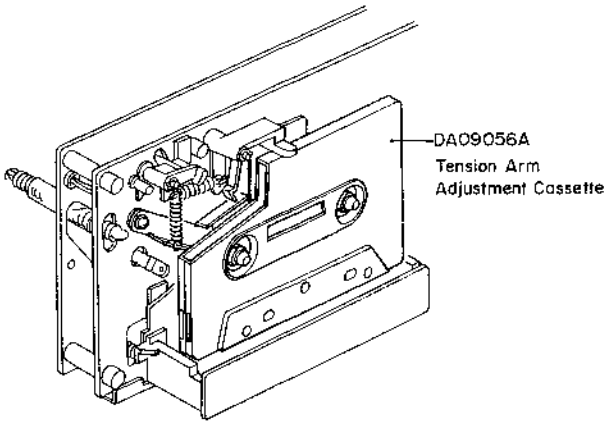


Fig. 4.18

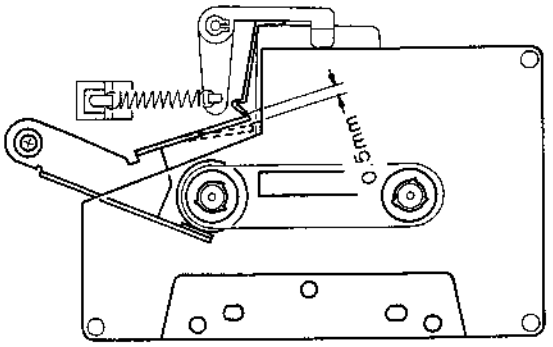


Fig. 4.19

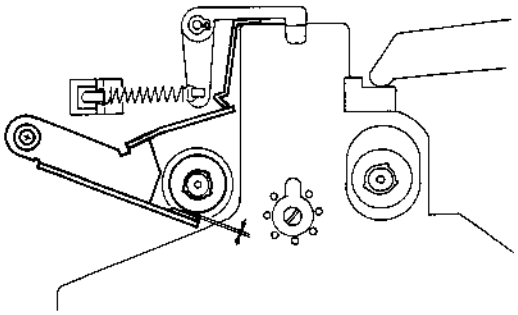


Fig. 4.20

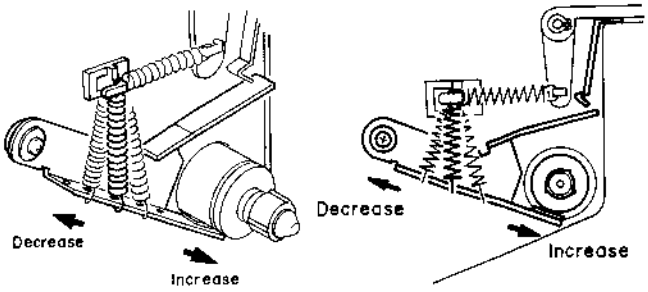


Fig. 4.21

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

(1) Playback Head Height Adjustment and Azimuth Alignment

Refer to Fig. 4.22.

(a) Set the Monitor switch to Tape, then connect a VTVM to the Line Output Jacks.
(b) Set the Manual Set button, then set the Eq. switch to 70 μs and Noise Reduction switch to Out.
(c) Load a 1 kHz Track Alignment Tape (DA09007A), then set the N-700ZXL in Play mode.
(d) Turn the PH Height Gear until the outputs of both channels become minimum.
(e) Load a 15 kHz Azimuth Tape (DA09004A), then set the N-700ZXL in Play mode.
(f) Turn the PH Azimuth Alignment Screw until the outputs of both channels become maximum.
(g) Repeat above steps (c) through (f) one or two times to obtain optimum performance.

(2) Record Head Height Adjustment and Azimuth Alignment

Refer to Figs. 4.22 – 4.26.

(a) Set the N-700ZXL in Stop mode.
Turn the Azimuth Motor in the Azimuth Alignment Motor Ass'y by hand so that the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y as shown in Fig. 4.23. Remove the Azimuth Alignment Wire by pulling out from the Azimuth Alignment Motor Ass'y. In this case, do not move the Slide Lever of the Azimuth Alignment Wire.
(b) Set the Monitor switch to Tape, then connect a VTVM to the Line Output Jacks.
(c) Set the Eq. switch to 70 μs and Noise Reduction switch to Out.
(d) Load a Reference SX Tape (DA09025A). Then set the N-700ZXL in Record and Pause mode.
(e) With Pressing the Auto Calibration button "Run", press the Play button to set the N-700ZXL in Auto Calibration mode.

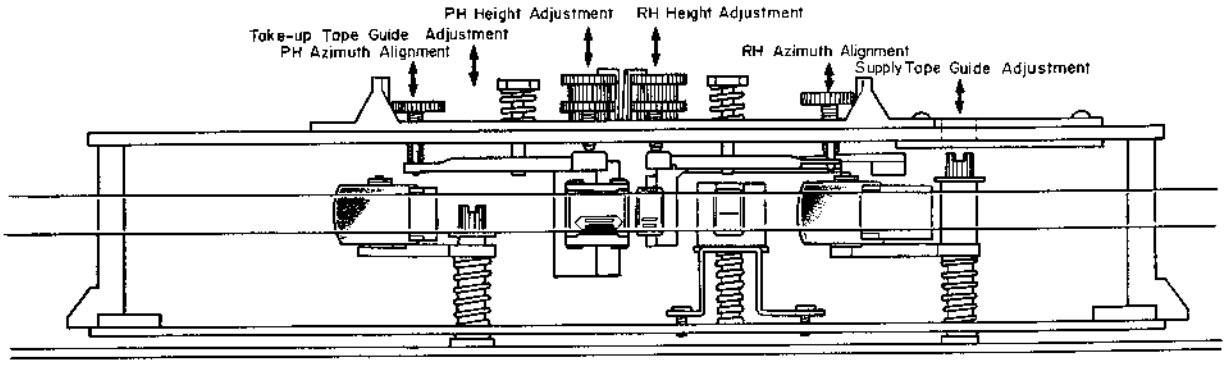


Fig. 4.22

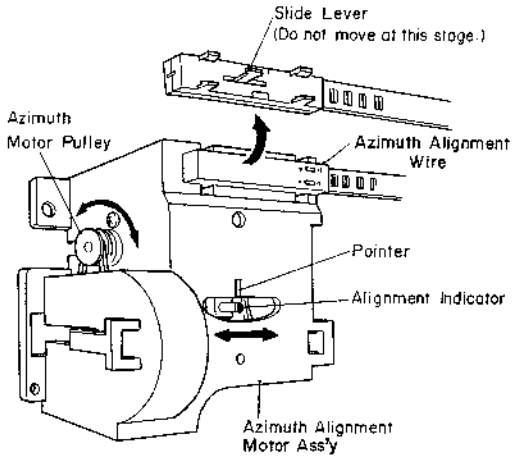


Fig. 4.23

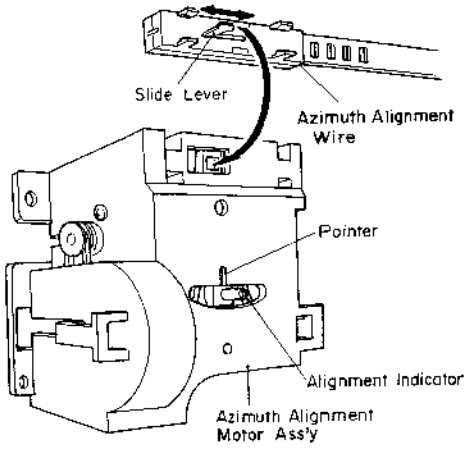


Fig. 4.24

Auto Azimuth button light starts flashing and Azimuth Alignment operation begings.
Referring to Fig. 4.25, adjust VR508 on the Main Logic P.C.B. Ass'y so that the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y as shown in Fig. 4.23.

(f) When the Auto Azimuth Alignment operation is complated, Auto Azimuth button light goes out, then Auto Calibration of Bias, Level and Equalization is automatically carried out.

(g) After completion of the above Auto Calibration, tape is automatically rewound to "0000" and the Standby/Set button light is illuminated.
With pressing the Standby/Set button, press the Tape Memory button A, B, C, or D to store the information (Bias, Level and Equalization).

(h) Set the Test Tone switch to 400 Hz, then turn the RH Height Gear until the outputs of both channels become maximum.

(i) Feed in 15 kHz (−20 dB) and set the Test Tone switch to OFF, then set the N-700ZXL in Record and Play mode.
Turn the RH Azimuth Alignment Screw until the outputs of both channels become maximum.

(j) Repeat above steps (h) and (i) one or two times to obtain optimum performance.

(k) Set the N-700ZXL in Stop mode, then again set in Record and Pause mode.

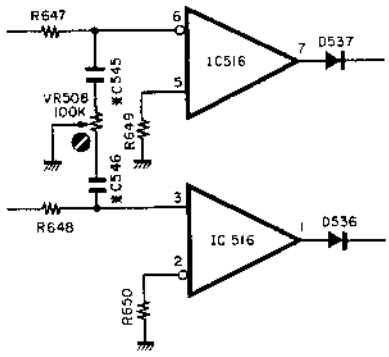


Fig. 4.25

(l) With pressing the Auto Azimuth button "Azimuth", press the Play button to set the N-700ZXL in Auto Azimuth Alignment mode.
Check to insure whether the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y in the position of VR508 as adjusted in above step (e). If not, re-adjust VR508 to correspond the Alignment Indicator to the pointer of the Azimuth Alignment Motor Ass'y.

(m) Set the N-700ZXL in Stop mode.
Mount the Azimuth Alignment Wire on the Azimuth Alignment Motor Ass'y referring to Fig. 4.24. (Correct the position of the Slide Lever of the Azimuth Alignment Wire by sliding by hand, then insert the Slide Lever into the receptacle of the Azimuth Alignment Motor Ass'y.)

(n) After completion of the above adjustment, record 400 Hz tone to the same portion of both sides A and B of the tape.

(o) 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. 4.26.

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.

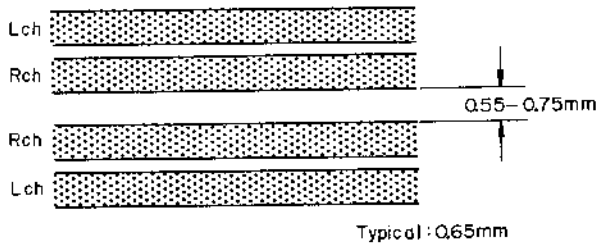


Fig. 4.26

4.10. Record Head Stroke Adjustment

Refer to Figs. 4.27 and 4.28.

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 referring to item 2.31.

(3) Remove the record head assembly.

(4) Adjustment 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. 4.27 hold the Gauges (3.05 mm and 0.1 mm thickness) between the Block A and Block B, 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. 4.28, 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 contacts to 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. 4.27 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, fix the Block A with screw, 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 the Fig. 4.28, 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.

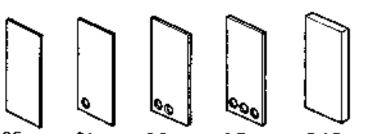
(13) Remove the R-8L record head assembly from the Mounting Gauge Plate.

(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.



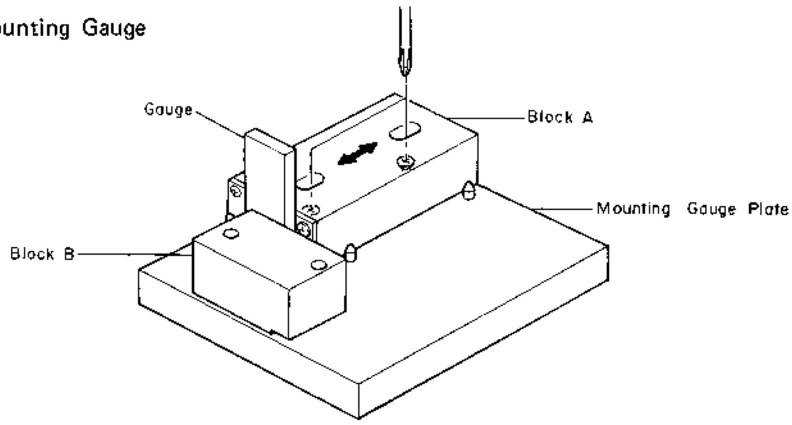


Fig. 4.27

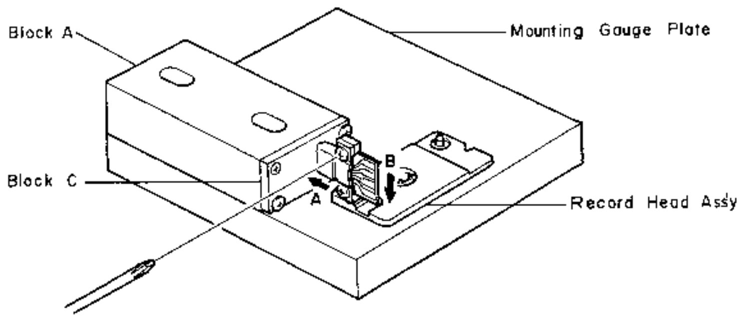


Fig. 4.28

4.11. Tape Travelling Adjustment

The adjustment shall be made with a modified version of the current type EXII C-90 as shown in Fig. 4.29 (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 N-700ZXL.
(2) Release the back-tension (rotate the Supply Reel and feed out some length of tape) and set the N-700ZXL 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 "4.4. Record Head and Playback Head Tilt Adjustment". "4.5. Head Base Stroke Adjustment", "4.6. Tape Guides Adjustment and Erase Head Stroke Adjustment", "4.7. Erase Head Height and Tilt Adjustment", "4.8. Back Tension Adjustment", "4.9. Playback Head and Record Head Height Adjustment and Azimuth Alignment", "4.10. Record Head Stroke Adjustment", 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 is 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 N-700ZXL 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.

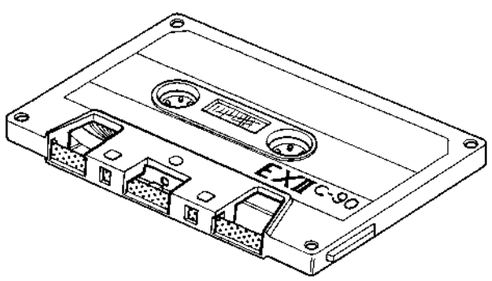


Fig. 4.29

4.12. Flywheel Holder Adjustment

(1) Refer to Fig. 4.30.
Tighten the Thrust Screws until the gap between the Flywheel Assemblies and Thrust Screws becomes minimized when both of the Capstan Shafts are moved backwardly and forwardly (the Thrust Springs between the Capstan Flanges and Flywheel Thrust Caps are in a flat state).
Excessive tightening of the Thrust Screws however will give damages on the Flywheel Assemblies, to which careful attention is invited.
(2) Return the Thrust Screws by 1/2 turn.
(3) Fixing the Thrust Screw with a screwdriver, lock the Lock Nut.
(4) Apply a quantity of lock tight paint to the Thrust Screws.

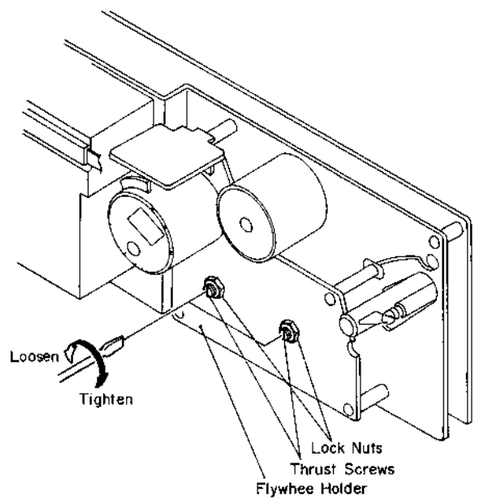


Fig. 4.30

4.13. Adjustment Lid Gap Adjustment

(1) Remove the Top Cover Ass'y, referring to item 2.1.
(2) Loosen the screw (A), then slightly loosen the screw (B).
(3) By turning a screwdriver as shown in Fig. 4.31, adjust the gap (C) at the lower part of the Adjustment Lid until it becomes equal to the gap at the upper part of the Adjustment Lid. Clockwise turning will result in decreasing the gap (C) and vice versa.
(4) Tighten the 2 screws (A and B).

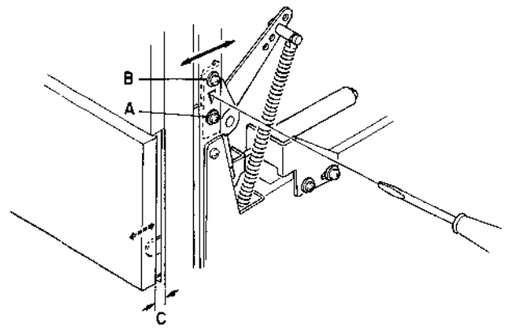


Fig. 4.31

4.14. Tape Speed Adjustment

(a) Remove the Top Cover Ass'y, referring to item 2.1.
(b) Connect a Frequency Counter to Line Output Jacks.
(c) Load a 3 kHz Speed Wow/Flutter Tape (DA09006A) and play it back.
(d) Referring to Fig. 4.32, adjust the Tape Speed Adjustment Volume VR501 on the Speed Cal. P.C.B. Ass'y to obtain 3,000 Hz on the Frequency Counter.

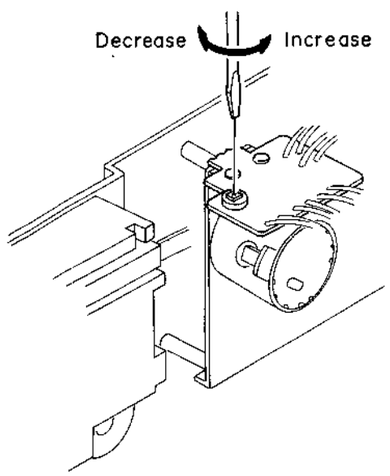


Fig. 4.32

4.15. Lubrication

N-700ZXL 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 #3000CST
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.

5. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

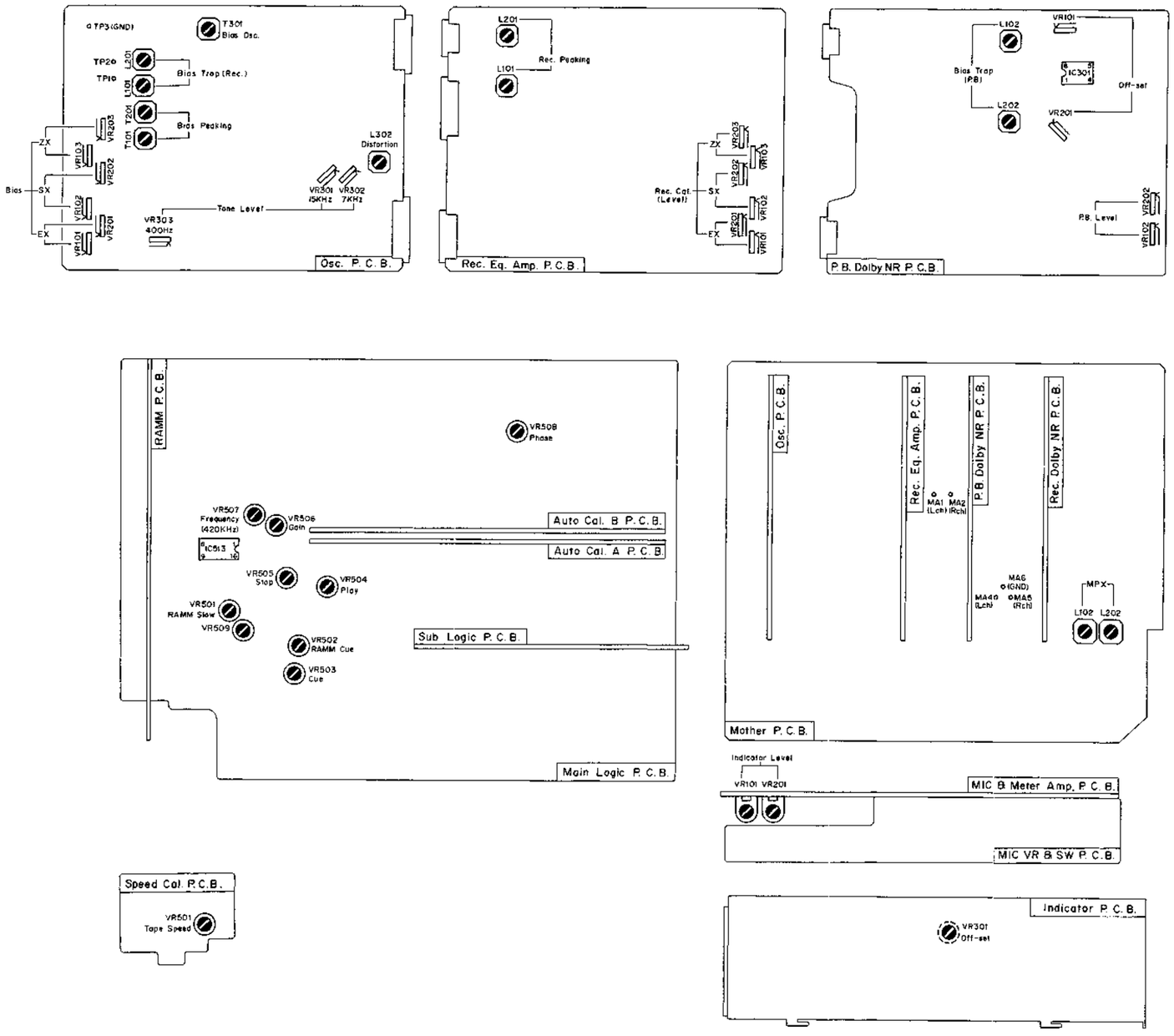


Fig. 5

6. ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

6.1. Introduction

The 700 ZXL incorporates a micro-processor which automatically calibrates the bias, level (sensitivity) and recording equalization to achieve an accurate frequency response over 20 Hz — 20 kHz when the auto calibration function is commanded.

Therefore, to adjust the following steps manually, it is necessary to set the circuit in the adjustment condition by using the Test Unit M-9059 (DA09059A).

Step 12: Bias Oscillation Frequency Adjustment
Step 13: Maximum Bias Current Adjustment
Step 14: Bias Trap (Record) Adjustment
Step 15: Record Amp. Equalizer Adjustment
Step 17: Record Level Calibration and Recording Bias Current Adjustment

(1) How To Use the Test Unit

(a) Connect the connector CN-71 of the Test Unit to the test connector CN-71 on the Auto Cal. B P.C.B. Ass'y.
(b) Set the Tape Selector, Playback Equalization and Noise Reduction switches to the desired position depending upon the tape to be used.
(c) Press the Tape Memory button A, B, C or D.
(d) Press SW4 of the Test Unit to ON.

Once the setting is performed, the conditions of the above function switches is fetched and the fixed data of level and bias is set on the Auto Cal. B P.C.B. Ass'y.

RAM (Random Access Memory) IC509 memorizes the condition of tape, eq. and noise reduction, and RAM IC510 and IC511 memorize the fixed level data and the fixed bias data respectively.

Following shows the output conditions of IC510 and IC511:

(Level)		(Bias)	
IC510–13 (2^3)=0	R ch.	IC511–13=1	R ch.
IC510–14 (2^2)=1		IC511–14=1	
IC510–15 (2^1)=1		IC511–15=1	
IC510–16 (2^0)=1		IC511–16=0	
IC510–17 (2^3)=0	L ch.	IC511–17=1	L ch.
IC510–18 (2^2)=1		IC511–18=1	
IC510–19 (2^1)=1		IC511–19=1	
IC510–20 (2^0)=1		IC511–20=0	

Note: 0: 0 V, 1: +12 V.

(e) After completion of the adjustment of above steps, remove the connector CN-71 of the Test Unit from the test connector CN-71 on the Auto Cal. B P.C.B. Ass'y.

6.2. Adjustment and Measurement Instructions

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

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
1	Tape Speed Adjustment	3 kHz Speed and Wow/Flutter Tape (DA09006A)	Frequency Counter to Line Output Jacks	Playback	Speed Cal. P.C.B. VR501	Adjust VR501 to obtain 3 kHz ±5% on the frequency counter.
2	Playback Amp. Offset Adjustment	None	DC Voltmeter to IC301–7, –1 on Playback Amp. & Dolby NR P.C.B.	Stop	Playback Amp. & Dolby NR P.C.B. VR101, VR201	Adjust VR101 (VR201) to obtain 0 V ±100 mV on the DC voltmeter.
3	CPU Clock Frequency Adjustment	None	Frequency Counter to IC513-2 (CN54-3) on Main Logic P.C.B.	Stop	Main Logic P.C.B. VR507	Adjust VR507 to obtain 420 kHz ±5% on the frequency counter.
4	Tone Level Calibration	Test Tone 400 Hz	VTVM to MA4, MA5 (and MA6 (GND)) on Mother P.C.B. and Oscilloscope to Line Output Jacks	Monitor SW — Source Test Tone SW — 400 Hz	Oscillator P.C.B. VR303 VR302 VR301 L302	1. Remove the Oscillator P.C.B. Ass'y from the Mother P.C.B. Ass'y, then connect them with an Extension Card M-9060 (DA09060A). (Pull out the Head connectors CN-5 and CN-6 from the Oscillator P.C.B. Ass'y.) 2. Set the Oscillation Select switch on the Extension Card to 400 Hz (turn fully counterclockwise). 3. Adjust VR303 to obtain 90 mV ±0.1 dB on the VTVM. 4. Set the Oscillation Select switch on the Extension Card to 7 kHz (center position). 5. Observing the test tone waveform on the oscilloscope, adjust L302 to obtain the minimum distortion. 6. Adjust VR302 to obtain 9 mV ±0.1 dB on the VTVM. 7. Set the Oscillation Select switch on the Extension Card to 15 kHz (turn fully clockwise). 8. Adjust VR301 to obtain 9 mV ±0.1 dB on the VTVM. 9. After completion of above adjustment, reverse the above 1.
5	Meter Offset Adjustment	400 Hz (+15 dB) to Line Input Jacks	None	Monitor SW — Source Test Tone SW — OFF	Indicator P.C.B. VR301	1. Ground the pin No. 3 of CN-10 (Reset signal) on the MIC & Meter Amp. P.C.B. Ass'y with a jumper wire (peak level indication will go out). 2. Feed in 400 Hz +15 dB, then increasing the input level by turning the Line Input level controls, observe the shifting of level meter indication from the 15th segment (0 dB segment) to the 16th segment (right hand segment). 3. Adjust VR301 so that the indication shift from the 15th segment (0 dB segment) to the 16th is carried out smoothly. Note: Shifting shall be free from the following: a. The 16th and the 17th segments light up simultaneously. b. The 16th segment is skipped and the 17th segment lights up. 4. Remove the jumper wire from the pin No. 3 of CN-10.

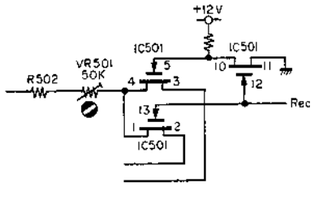


Fig. 6.1
1. Tape Speed

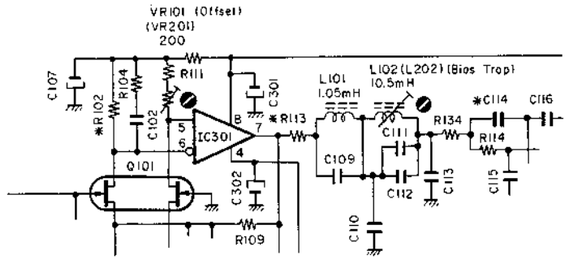


Fig. 6.2
2. Playback Amp. Offset

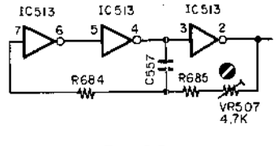


Fig. 6.3
3. CPU Clock Frequency

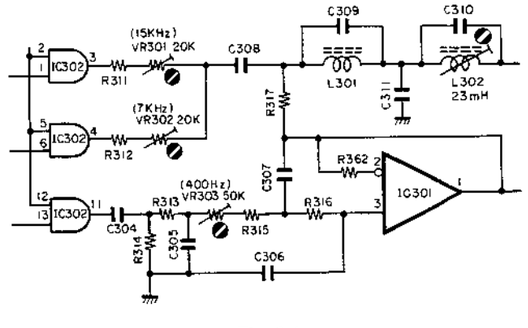


Fig. 6.4
4. Tone Level

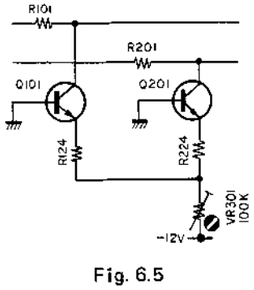


Fig. 6.5
5. Meter Offset

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
6	Meter Level Adjustment	400 Hz (0 dB) to Line Input Jacks	VTVM to MA4, MA5 (and MA6 (GND)) on Mother P.C.B.	Monitor SW – Source Test Tone SW – OFF	MIC & Meter Amp. P.C.B. VR101, VR201	1. Ground the pin No. 3 of CN-10 (Reset signal) on the MIC & Meter Amp. P.C.B. Ass'y with a jumper wire (peak level indication will go out). 2. Feed in 400 Hz, then adjust the Line Input level controls to obtain 90 mV on the VTVM. 3. Adjust VR101 (VR201) to obtain 0 dB on the level meter. 4. Check the accuracy of 0 dB setting as follows, since the 0 dB segment lights up over 0.9 dB level range: Decrease the external generator output level by 0.45 dB, and check if the 0 dB segment goes out. If it does, 0 dB setting is accurate as it will be set in the center of the level range. At the same time, check to insure that the 0 dB segments of L ch. and R ch. light up simultaneously. If satisfactory results are not obtained, repeat 3 and 4. 5. Remove the jumper wire from the pin No. 3 of CN-10.
7	MPX Filter Adjustment	19 kHz ±100 Hz to Line Input Jacks	VTVM to Line Output Jacks	Monitor SW – Source Test Tone SW – OFF Filter SW – OFF/MPX Noise Reduction SW – OUT	Mother P.C.B. L102, L202	1. Set the Output level controls to max. 2. Adjust the Line Input level controls to obtain 1 V on the VTVM. 3. Set the Filter switch to MPX, then adjust L102 (L202) to obtain the minimum reading on the VTVM (the minimum reading will be less than –30 dB).
8	Playback Head Track Alignment	1 kHz Track Alignment Tape (DA09007A)	VTVM to Line Output Jacks	Playback Monitor SW – Tape Eq. SW – 70 μs Noise Reduction SW – OUT Filter SW – OFF	PH Height Gear	1. Press the Manual Set button. 2. Adjust the PH Height Gear to obtain the minimum readings of both channels on the VTVM. 3. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 4.9.
9	Playback Head Azimuth Alignment	15 kHz Azimuth Tape (DA09004A)	VTVM to Line Output Jacks	Same as above	Playback Head Azimuth Alignment Screw	1. Press the Manual Set button. 2. Adjust the Playback Head Azimuth Alignment screw to obtain the maximum readings of both channels on the VTVM. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 4.9. 3. Repeat above steps 8 and 9 one or two times to obtain optimum performance.
10	Playback Level Adjustment	400 Hz Level Tape (DA09005A)	VTVM to MA1, MA2 on Mother P.C.B.	Same as above	Playback Amp. & Dolby NR P.C.B. VR102, VR202	1. Press the Manual Set button. 2. Adjust VR102 (VR202) to obtain 90 mV on the VTVM.
11	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 Line Output Jacks	Same as above		1. Press the Manual Set button. 2. Load a 400 Hz level tape and play it back. Set the Output level controls to a certain level (0 dB for example). 3. Load 10 kHz, 15 kHz and 20 kHz PB frequency response tapes, then adjust the playback head azimuth to obtain maximum levels on the VTVM with each tape. 4. Read the maximum levels with each tape and check to insure that the levels against the 400 Hz level tape are within the following ranges. 10 kHz: –20 dB –1 dB to +2 dB 15 kHz: –20 dB –1 dB to +2 dB 20 kHz: –20 dB –1 dB to +2 dB 5. Conduct step 9 "Playback Head Azimuth Alignment". 6. If above is not sufficient, refer to "Playback Frequency Response Adjustment in item 6.3.
12	Bias Oscillation Frequency Adjustment	None	Frequency Counter to TP1, TP2 (and TP3 (GND)) (or across R119, R219) on Oscillator P.C.B.	Record, Pause Monitor SW – Source Tape SW – ZX Eq. SW – 70 μs Noise Reduction SW – OUT	Oscillator P.C.B. T301	1. Connect the connector CN-71 of the Test Unit to the test connector CN-71 on the Auto Cal. B P.C.B. Ass'y. 2. After setting the Mode switches, press the Tape Memory A button. 3. Press SW4 on the Test Unit to ON. 4. Press the Record and Pause buttons. 5. Adjust T301 to obtain 105 kHz ±1 kHz on the frequency counter.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
13	Maximum Bias Current Adjustment	None	VTVM to TP1, TP2 (and TP3 (GND)) (or across R119, R219) on Oscillator P.C.B.	Record, Pause Monitor SW – Source Tape SW – ZX Eq. SW – 70 μs Noise Reduction SW – OUT	Oscillator P.C.B. T101, T201	1. Connect the connector CN-71 of the Test Unit to the test connector CN-71 on the Auto Cal. B P.C.B. Ass'y. 2. After setting the Mode switches, press the Tape Memory A button. 3. Press SW4 on the Test Unit to ON. 4. Press the Record and Pause buttons. 5. Adjust T101 (T201) to obtain the maximum reading on the VTVM.
14	Bias Trap Adjustment (Record)	None	VTVM to CN3-8, –9 on Oscillator P.C.B.	Same as above	Oscillator P.C.B. L101, L201	1. Connect the connector CN-71 of the Test Unit to the test connector CN-71 on the Auto Cal. B P.C.B. Ass'y. 2. After setting the Mode switches, press the Tape Memory A button. 3. Press SW4 on the Test Unit to ON. 4. Press the Record and Pause buttons. 5. Adjust L101 (L201) to obtain the minimum reading on the VTVM.
15	Record Amp. Equalizer Adjustment	400 Hz (–20 dB) and 20 kHz (–20 dB) to Line Input Jacks	VTVM to CN7-1, -2 on Record Eq. Amp. P.C.B.	Record, Pause Monitor SW – Source Tape SW – SX Eq. SW – 70 μs Noise Reduction SW – OUT Filter SW – OFF	Record Eq. Amp. P.C.B. L101, L201	1. Remove Oscillator P.C.B. Ass'y from Mother P.C.B. Ass'y. (Pull out the Head connectors CN-5 and CN-6 from Oscillator P.C.B. Ass'y). 2. Remove the Record Eq. Amp. P.C.B. Ass'y from the Mother P.C.B. Ass'y, then connect them with an Extension Card M-9062 (DA09062A). 3. Connect the connector CN-71 of the Test Unit to the test connector CN-71 on the Auto Cal. B P.C.B. Ass'y. 4. After setting the Mode switches, press the Tape Memory A button. 5. Press SW4 on the Test Unit to ON. 6. Press the Record and Pause buttons. 7. Feed in 400 Hz –20 dB, then note the readings of both channels on the VTVM. 8. Feed in 20 kHz –20 dB, then adjust L101 (L201) to obtain 16 dB higher reading than the reading in 7. 9. After completion of above adjustment, reverse the above 1, 2 and 3.

L103

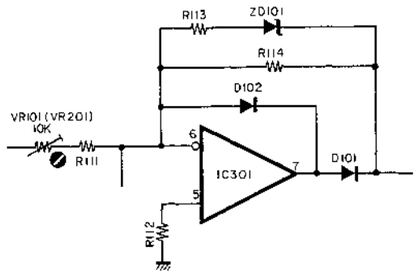


Fig. 6.6
6. Meter Level

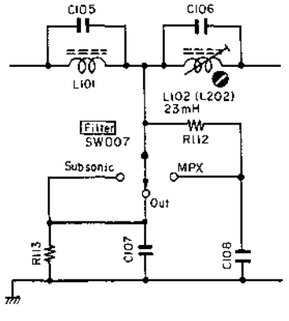


Fig. 6.7
7. MPX Filter

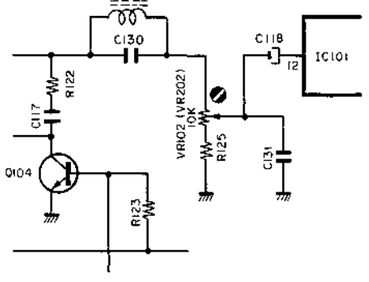


Fig. 6.8
10. Playback Level

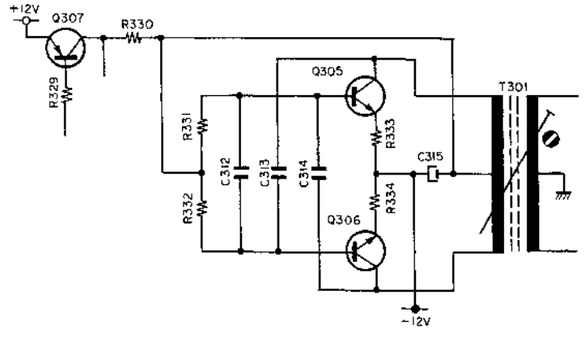


Fig. 6.9
12. Bias Oscillation Frequency

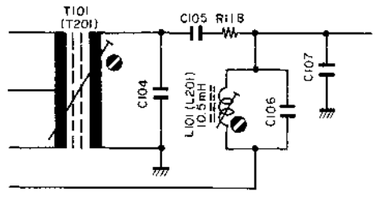


Fig. 6.10
13. Maximum Bias Current
14. Bias Trap (Record)

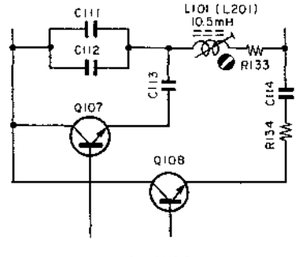


Fig. 6.11
15. Record Amp. Eq.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
16	Record Head Height Adjustment and Azimuth Alignment	Test Tone 400 Hz and 15 kHz (–20 dB) to Line Input Jacks	VTVM to Line Output Jacks	Record, Playback Monitor SW – Source/Tape Test Tone SW – 400 Hz/OFF Tape SW – SX Eq. SW – 70 μs Noise Reduction SW – OUT Filter SW – OFF	Head Height: RH Height Gear Azimuth Alignment: Record Head Azimuth Alignment Screw Main Logic P.C.B. VR508	1. In stop mode, turn the Azimuth Motor by hand so that the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y as shown in Fig. 4.23. Remove the Azimuth Alignment wire by pulling out from the Azimuth Alignment Motor Ass'y. (In this case, do not move the Slide Lever of the Azimuth Alignment wire.) 2. Load a reference ZX tape (DA09037A), then perform the auto calibration function as follows: a. Press the Record and Pause buttons. b. Pressing the Auto Calibration button "Run", press the Play button. Tape counter becomes "0000" and Auto Azimuth Alignment button light starts flashing. After disappearing flashing, Bias, Level and Eq. will go to performance automatically. The tape is rewound to "0000", the Standby/Set button light and the Manual Set button light come on, and the auto calibration function is completed. 3. During the azimuth alignment operation in 2, adjust VR508 on the Main Logic P.C.B. so that the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y as shown in Fig. 4.23. 4. Record Head Height Adjustment: a. Set the Test Tone switch to 400 Hz. Record signals on the reference ZX tape (DA09037A), and then play it back. b. Adjust the RH Height Gear to obtain the maximum readings of both channels on the VTVM. 5. Record Head Azimuth Alignment: a. Set the Test Tone switch to OFF, then feed in 15 kHz –20 dB. Record signals on the reference ZX tape (DA09037A) and then play it back. b. Adjust the Record Head Azimuth Alignment Screw to obtain the maximum readings of both channels on the VTVM. c. Repeat 4 and 5 one or two times to obtain optimum performance. 6. Press the Stop button, then perform the auto azimuth alignment function as follows: a. Press the Record and Pause buttons. b. Pressing the Auto Azimuth Alignment button "Azimuth", press the Play button. The counter becomes "0000" and Auto Azimuth Alignment button light starts flashing. When alignment is completed, the button light goes out and the tape is automatically rewound to "0000". 7. During the auto azimuth alignment operation in 6, check to insure whether the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y at the position of VR508 as adjusted in 3. If not, re-adjust VR508 to correspond the Alignment Indicator to the pointer of the Azimuth Alignment Motor Ass'y. 8. Press the Stop button, then mount the Azimuth Alignment wire on the Azimuth Alignment Motor Ass'y referring to Fig. 4.24. 9. Perform the auto calibration function referring to 2. During the auto azimuth alignment operation, check to insure that the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y. 10. Feed in 15 kHz –20 dB. Record signals on the reference ZX tape (DA09037A) and then play it back. Check to insure that the playback level is the same as the source monitor level for both channels.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
17	Record Level Calibration and Recording Bias Current Adjustment	400 Hz (−20 dB) and 15 kHz (−20 dB) to Line Input Jacks	VTVM to Line Output Jacks	Record, Playback Monitor SW — Source/Tape Test Tone SW — OFF Tape SW — ZX/SX/EX Eq. SW — 70 μs (ZX/SX) 120 μs (EX) Noise Reduction SW — OUT Filter SW — OFF	Record Eq. Amp. P.C.B. (Level) ZX: VR103, VR203 SX: VR102, VR202 EX: VR101, VR201 Oscillator P.C.B. (Bias Current) ZX: VR103, VR203 SX: VR102, VR202 EX: VR101, VR201	1. Connect the connector CN-71 of the Test Unit to the test connector CN-71 on the Auto Cal. B P.C.B. Ass'y. 2. Adjustment for ZX tape: a. After setting the Mode switches (Tape switch: ZX, Eq. switch: 70 μs), press the Tape Memory A button. b. Press SW4 on the Test Unit to ON. c. Load a reference ZX tape (DA09037A). Feed in 400 Hz −20 dB, then record and play it back. d. Adjust VR103 (VR203) on the Record Eq. Amp. P.C.B. Ass'y to obtain the same readings with Monitor switch Source and Tape on the VTVM. e. Feed in 15 kHz −20 dB, then record and play it back. f. Adjust VR103 (VR203) on the Oscillator P.C.B. Ass'y to obtain 1 dB higher reading with Monitor switch Tape than the reading with Monitor switch Source on the VTVM. 3. Adjustment for SX tape: a. After setting the Mode switches (Tape switch: SX, Eq. switch: 70 μs), press the Tape Memory A button. b. Press SW4 on the Test Unit to ON. c. Load a reference SX tape (DA09025A). Feed in 400 Hz −20 dB, then record and play it back. d. Adjust VR102 (VR202) on the Record Eq. Amp. P.C.B. Ass'y to obtain the same readings with Monitor switch Source and Tape on the VTVM. e. Feed in 15 kHz −20 dB, then record and play it back. f. Adjust VR102 (VR202) on the Oscillator P.C.B. Ass'y to obtain 1 dB higher reading with Monitor switch Tape than the reading with Monitor switch Source on the VTVM. 4. Adjustment for EXII tape: a. After setting the Mode switches (Tape switch: EX, Eq. switch: 120 μs), press the Tape Memory A button. b. Press SW4 on the Test Unit to ON. c. Load a reference EXII tape (DA09066A). Feed in 400 Hz −20 dB, then record and play it back. d. Adjust VR101 (VR201) on the Record Eq. Amp. P.C.B. Ass'y to obtain 1 dB higher reading with Monitor switch Tape than the reading with Monitor switch Source on the VTVM. e. Feed in 15 kHz −20 dB, than record and play it back. f. Adjust VR101 (VR201) on the Oscillator P.C.B. Ass'y to obtain 2 dB higher reading with Monitor switch Tape than the reading with Monitor switch Source on the VTVM.

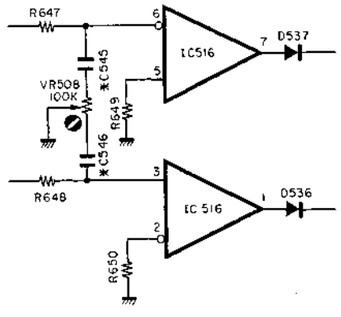


Fig. 6.12
16. Record Head Azimuth

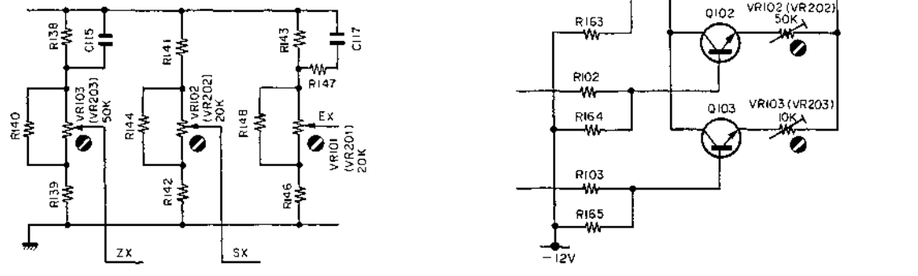


Fig. 6.13
17. Record Level and Recording Bias Current

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
18	Bias Trap Adjustment (Playback)	None	VTVM to Line Output Jacks	Record, Playback Monitor SW – Tape Tape SW – ZX Eq. SW – 70 μs Noise Reduction SW – OUT Filter SW – OFF	Playback Amp. & Dolby NR P.C.B. L102, L202	1. Remove the Playback Amp. & Dolby NR P.C.B. Ass'y from the Mother P.C.B. Ass'y, then connect them with an Extension Card M-9058 (DA-09058A). 2. Load a reference ZX tape (DA09037A), then perform the auto calibration function as follows: a. Press the Record and Pause buttons. b. Pressing the Auto Calibration button "Run", press the Play button. 3. Load a blank tape, then press the Record and Play buttons. 4. Adjust L102 (L202) to obtain the minimum reading on the VTVM. 5. After completion of above adjustment, reverse the above 1.
19	Overall Frequency Response Adjustment	400 Hz (0 dB) and 20 Hz – 20 kHz (–20 dB) to Line Input Jacks	VTVM and Distortion Meter to Line Output Jacks	Record, Playback Monitor SW – Source/Tape Test Tone SW – OFF Tape SW – EX/SX/ZX Eq. SW – 120 μs (EX) 70 μs (SX/ZX) Noise Reduction SW – OUT Filter SW – OFF	Record Eq. Amp. P.C.B. L101, L201	For each tape to be used, perform the auto calibration function referring to step 18-2. 1. Set the Monitor switch to Source. 2. Feed in 400 Hz 0 dB, then adjust the Line Input level controls to obtain 0 dB on the level meters. 3. Switch the generator output level to –20 dB. 4. Set the Monitor switch to Tape, then record and play it back. 5. Feed in 20 Hz – 20 kHz –20 dB, then check to insure that the output levels are within –20 dB ±1.5 dB on the VTVM. 6. If above is not sufficient, adjust L101 (L201) to obtain –20 dB ±1.5 dB output level on the VTVM. 7. If a satisfactory result is not obtained, precise re-adjustment of step 11 "Playback Frequency Response", replacement of Playback Head or Record Head, check on item 4.11 "Tape Travelling Adjustment", or frequency adjustment according to item 6.3 will be required.
20	Crosstalk Measurement	1 kHz to Line Input Jacks	1 kHz Band Pass Filter and VTVM to Line Output Jacks	Record and Playback Monitor SW – Source/Tape Test Tone SW – OFF Tape SW – ZX Eq. SW – 70 μs Noise Reduction SW – OUT Filter SW – OFF		1. Erase a reference ZX tape (DA09037A) with a bulk eraser. 2. Load the tape, then perform the auto calibration function according to step 18-2. 3. Adjust the Line Input level controls to obtain 0 dB on the level meters, then record the signals on the tape. 4. Turn the cassette tape the other way round and play it back. 5. Measure the difference between 3 and 4.
21	Channel Separation Measurement	1 kHz to Line Input Jacks	Same as above	Same as above		1. Erase a reference ZX tape (DA09037A) with a bulk eraser. 2. Load the tape, then perform the auto calibration function according to step 18-2. 3. Adjust the L ch. (R ch.) Line Input level control to obtain 0 dB on the level meter, then close the R ch. (L ch.) Line Input level control. 4. Record and play it back, then measure the R ch. (L ch.) level.
22	Erasure Measurement	1 kHz to Line Input Jacks	Same as above	Same as above		1. Erase a reference ZX Tape (DA09037A) with a bulk eraser. 2. Load the tape, then perform the auto calibration function according to step 18-2. 3. Adjust the Line Input level controls to obtain 0 dB on the level meters, then record the signals on the tape. 4. Rewind the tape then close the Line Input level controls. 5. Record and play it back, then measure the difference between 3 and 4.
23	Signal to Noise Ratio Measurement	400 Hz to Line Input Jacks	VTVM and Distortion Meter to Line Output Jacks	Record and Playback Monitor SW – Tape Test Tone SW – OFF Tape SW – ZX Eq. SW – 70 μs Noise Reduction SW – Dolby NR Filter SW – OFF		1. Load a reference ZX tape (DA09037A), then perform the auto calibration function according to step 18-2. 2. Feed in 400 Hz (0 dB), then record and play it back. 3. Adjust the Line Input level controls to obtain 3% total harmonic distortion in Playback mode. 4. Close the Line Input level controls then record again. 5. After rewound, 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.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
24	Total Harmonic Distortion Measurement	400 Hz to Line Input Jacks	Distortion Meter to Line Output Jacks	Record and Playback Monitor SW – Source/Tape Test Tone SW – OFF Tape SW – EX/SX/ZX Eq. SW – 120 μs (EX) 70 μs (SX/ZX) Noise Reduction SW – OUT Filter SW – OFF		1. Load a reference ZX tape (DA09037A), then perform the auto calibration function according to step 18-2. 2. Set the Monitor switch to Source, then adjust the Line Input level controls to obtain 0 dB on the level meters. 3. Set the Monitor switch to Tape, then 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.
25	Subsonic Filter Measurement	10 Hz ±0.2 Hz to Line Input Jacks	VTVM to Line Output Jacks	Stop Monitor SW – Source Test Tone SW – OFF Eq. SW – 70 μs Noise Reduction SW – OUT Filter SW – OFF/Subsonic		1. Set the Output level controls to max. 2. Adjust the Line Input level controls to obtain 1V on the VTVM. 3. Set the Filter switch to Subsonic, then check to insure that the readings of both channels are less than –55 dB on the VTVM.
26	Wow/Flutter Measurement	3 kHz Speed and Wow/Flutter Tape (DA09006A)	Wow/Flutter Meter to Line Output Jacks	Playback Monitor SW – Tape Test Tone SW – OFF Eq. SW – 70 μs		1. Press the Manual Set button. 2. Play back and read the wow/flutter meter.

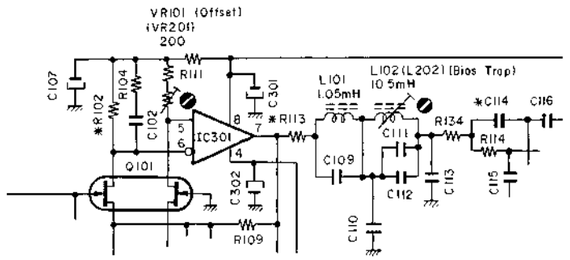


Fig. 6.14
18. Bias Trap (Playback)

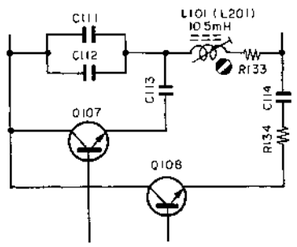


Fig. 6.15
19. Overall Frequency

6.3. Frequency Response Adjustment

(1) Playback Frequency Response Adjustment

Refer to Figs. 6.16 and 6.17.

(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 11 in 6.2 "Adjustment and Measurement Instructions".

Playback equalization level is varied by the modification of R121 (R221) and R122 (R222) for 70 μs equalization and R110 (R210) for 120 μs equalization on the Playback Amp. & Dolby NR P.C.B. Ass'y.

Following are the details for level modifications:

For 70 μs:

Approx. +1 dB	R121 (R221): 2.3K
	R122 (R222): 3.51K
0 dB	R121 (R221): 2.67K
	R122 (R222): 3.16K
Approx. −1 dB	R121 (R221): 3K
	R122 (R222): 2.67K

For 120 μs:

Approx. +1 dB	R110 (R210): 16.2K
0 dB	R110 (R210): 18K
Approx. −1 dB	R110 (R210): 20.5K

(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 11 in 6.2 "Adjustment and Measurement Instructions".

Peaking portion compensates the gap loss of the playback head.

Peaking level is varied by the modification of R113 (R213) on the Playback Amp. & Dolby NR P.C.B. Ass'y as shown in Fig. 6.17. Typical value of R113 (R213) is 1 kΩ. The maximum and the minimum value of R113 (R213) should be 1.2 kΩ and 820 Ω.

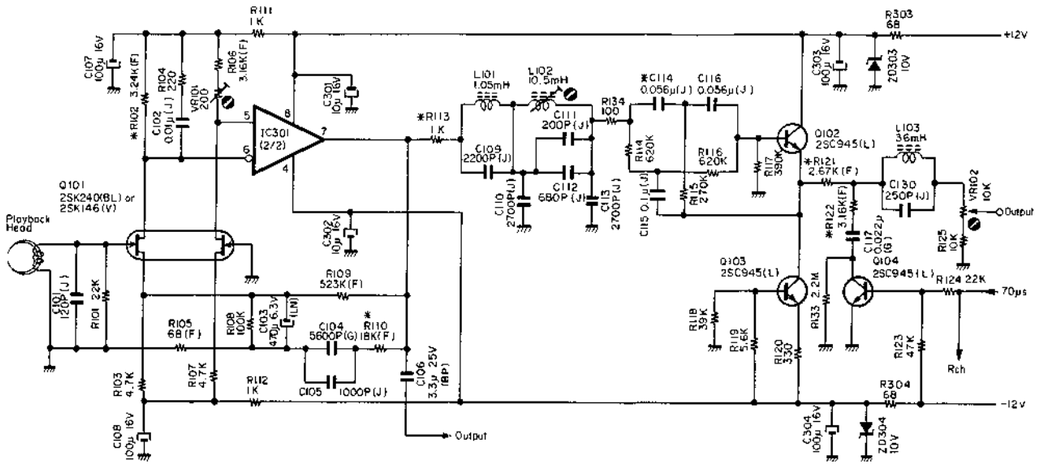


Fig. 6.16 Playback Amp.

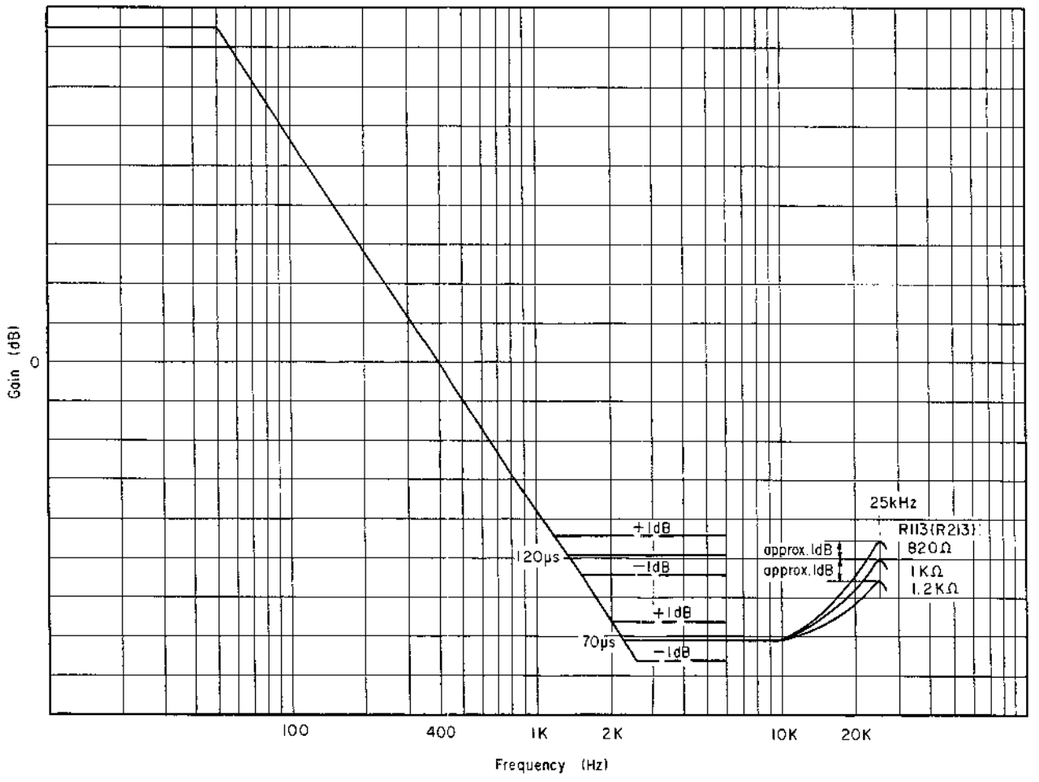


Fig. 6.17 Playback Equalization Curve

(2) Record Current Frequency Response

Record eq. peaking adjustment will be made to compensate the overall frequency response after the playback frequency response adjustment is completed.

Before this adjustment, the following should be accurately adjusted.

- Tone level adjustment on step 4 in item 6.2
  Each oscillator level of the 400 Hz 0 dB, 7 kHz −20 dB and 15 kHz −20 dB should be accurate.
- Record head azimuth alignment on step 16 in item 6.2
  No misalignment is found when auto azimuth alignment function is completed.
- Tape travelling adjustment in item 4.11
  Tape travelling should be accurate.

Note: Cassette tape to be used for frequency response adjustment should satisfy the quality.

Fig. 6.18 shows the record peaking curve and Fig. 6.19 shows the record eq. peaking circuit.

Peaking frequency is adjusted by the adjustment of L101 (L201).

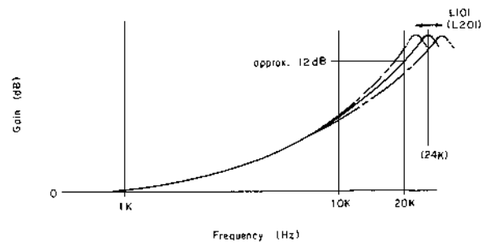


Fig. 6.18 Record Peaking Curve

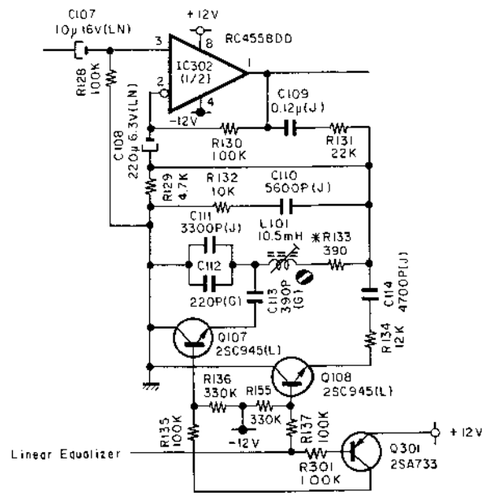


Fig. 6.19

6.4. Dolby NR Circuit Check

Dolby NR circuit incorporates a Dolby B-Type NR IC (μA7300PC) which has no adjustment point.
Perform the following checks and make sure that the IC operates accurately i.e. accuracy of frequency response through IC.

(1) Playback Dolby NR Circuit

Signal Source: 5 kHz to pin No.12 of IC101 and IC201
Output Connection: VTVM to the test points MA4 and MA5 on the Mother P.C.B.
Mode: Stop
Monitor SW – Tape
Noise Reduction SW – Out/Dolby NR

(a) Connect a VTVM to MA4 (MA5) on the Mother P.C.B.
Feed in 5 kHz to pin No. 12 of IC101 (IC201) and adjust the generator output control so that the VTVM may read 7.6 mV at each test point.

(b) Set the Noise Reduction switch to Dolby NR. Check to insure that the level at MA4 (MA5) is 3 mV ±1.5 dB.

(2) Record Dolby NR Circuit

Signal Source: 5 kHz to Line Input Jacks
Output Connection: VTVM to the output side of C121 (C221) on the Record Dolby NR P.C.B.
Mode: Stop
Monitor SW – Source

(a) Connect a VTVM to MA4 (MA5) on the Mother P.C.B.
Feed in 5 kHz and adjust the Line Input level controls so that the VTVM may read 90 mV (0 dB) at each test point.
Level meter will indicate 0 dB.

(b) Remove the VTVM from MA4 (MA5) and reconnect it to the output side of C121 (C221). Check to insure that the VTVM indicates approx. 560 mV.

(c) Decrease the input level (0 dB) by 20 dB or 30 dB. Check to insure that the level at output side of C121 (C221) corresponds to the following with Noise Reduction switch Out (Dolby NR OUT) and Dolby NR (Dolby NR IN).

Input Level	Capacitor Output Level		
(f=5 kHz)	Dolby NR OUT	Dolby NR IN	Difference between IN and OUT
−20 dB	−20 dB	−16.8 dB ± 1.5 dB	3.2 dB ± 1.5 dB
−30 dB	−30 dB	−21.8 dB ± 1.5 dB	8.2 dB ± 1.5 dB

7. MOUNTING DIAGRAMS AND PARTS LIST

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

7.1. Pin Jack A P.C.B. Ass'y

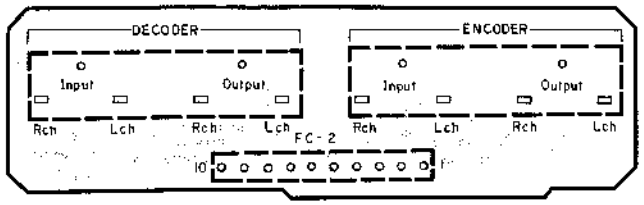


Fig. 7.1

7.2. Pin Jack B P.C.B. Ass'y

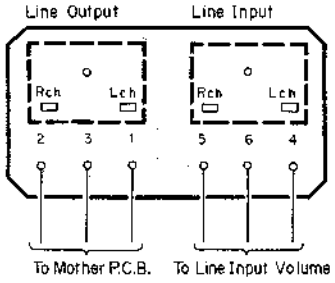


Fig. 7.2

7.3. MIC Jack P.C.B. Ass'y

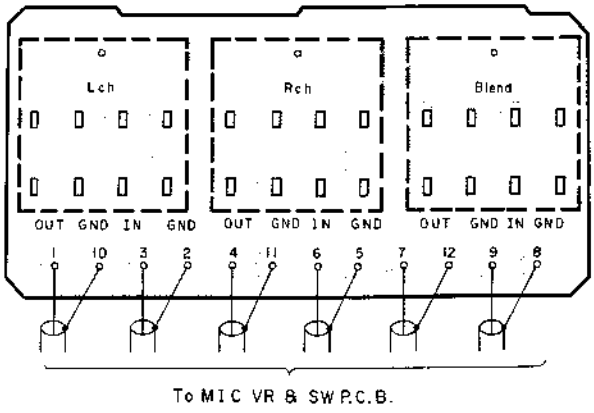


Fig. 7.3

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

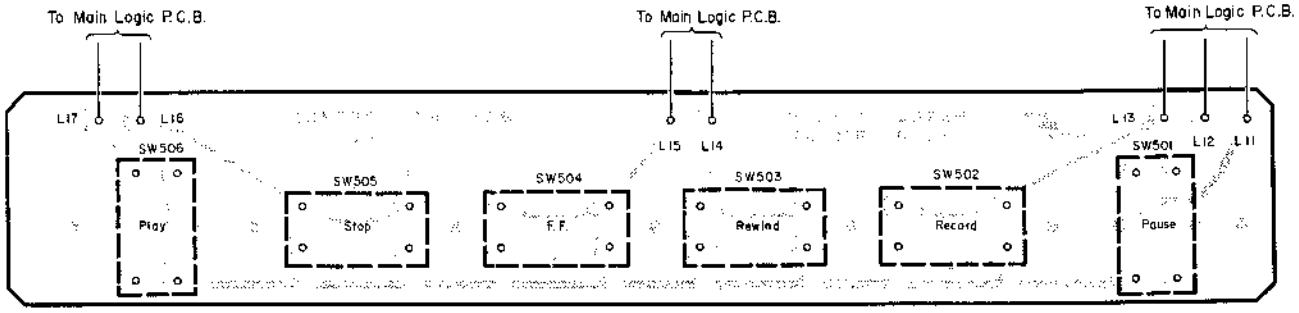


Fig. 7.4

7.5. Control Switch Lamp P.C.B. Ass'y

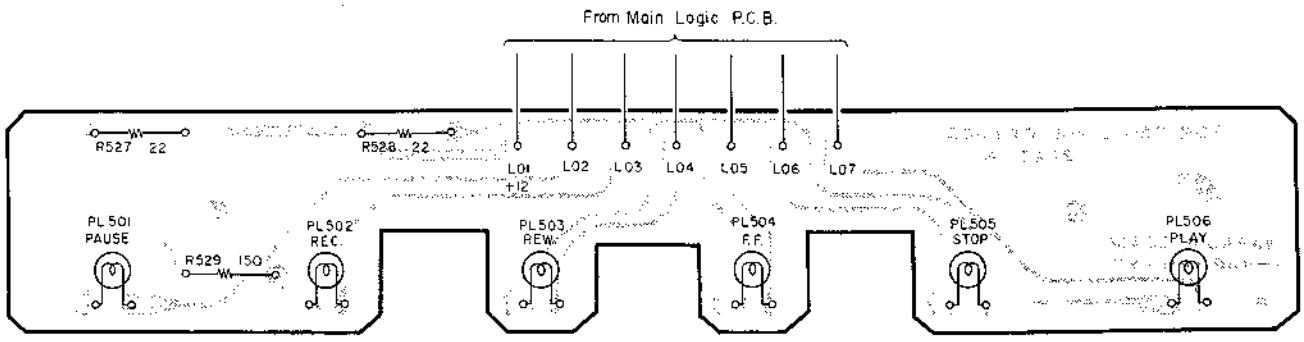


Fig. 7.5

7.6. Lamp A P.C.B. Ass'y

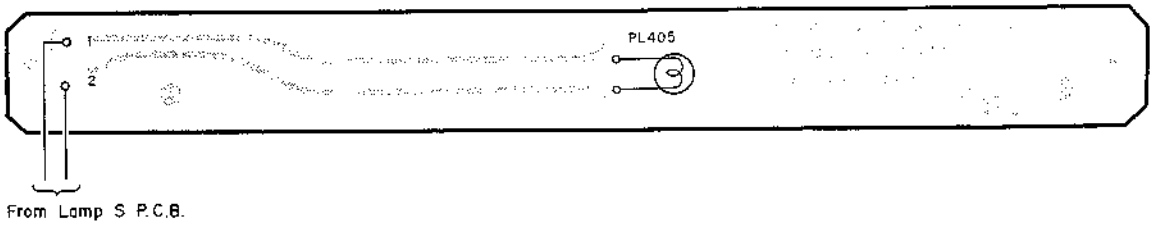


Fig. 7.6

7.7. Lamp B P.C.B. Ass'y

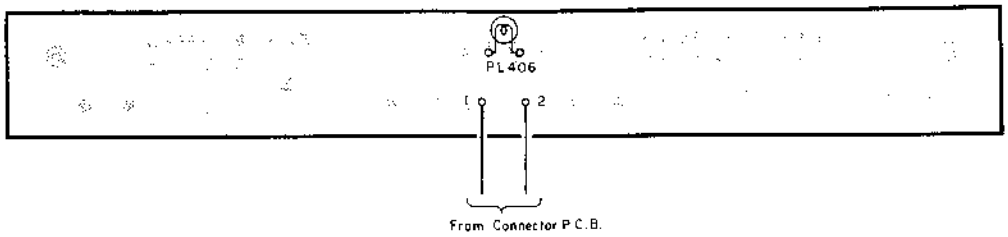


Fig. 7.7

7.8. Lamp S P.C.B. Ass'y

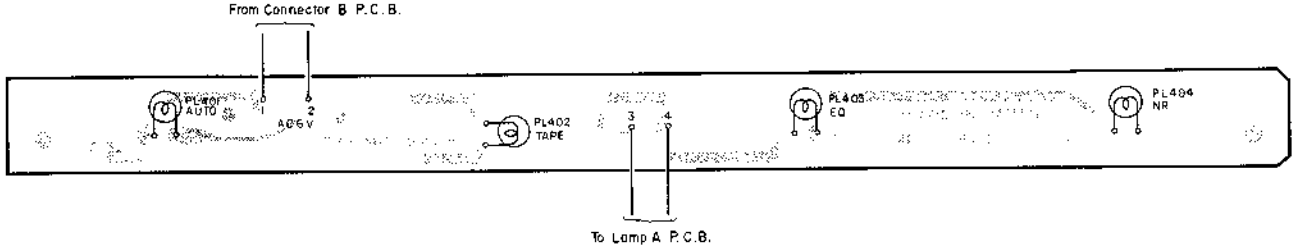


Fig. 7.8

Schematic Ref. No.	Part No.	Description
	BA04298A	**Pin Jack A P.C.B. Ass'y**
	0B07898A	Pin Jack A P.C.B.
	0B08813A	Mounting Pin Jack (2 pcs.)
	BA04299A	**Pin Jack B P.C.B. Ass'y**
	0B07899A	Pin Jack B P.C.B.
	0B08813A	Mounting Pin Jack (1 pce.)
	BA04297A	**MIC Jack P.C.B. Ass'y**
	0B07897B	MIC Jack P.C.B.
	0B08725A	MIC Jack (3 pcs.)
	BA04274A	**Control Switch P.C.B. Ass'y**
	0B07909A	Control Switch P.C.B.
SW501-506	0B07219A	Switch AKC8S

Schematic Ref. No.	Part No.	Description
	BA04273A	**Control Switch Lamp P.C.B. Ass'y**
	0B07908B	Control Switch Lamp P.C.B.
R527,528	0B09049A	Fail Safe Type Resistor 22 RDF-25S J
R529	0B05795A	Carbon Resistor 150 ERD-25T J
PL501-506	0B08851A	Lamp 12V 30mA
	0J04283B	Lamp Holder A (2 pcs.)
	BA04328A	**Lamp A P.C.B. Ass'y**
	0B07919A	Lamp A P.C.B.
PL405	0B08839A	Lamp 6.3V 70mA
	BA04268A	**Lamp B P.C.B. Ass'y**
	0B07920A	Lamp B P.C.B.
PL406	0B08838A	Lamp 6.3V 100mA
CN78	0B08836A	2P-H Connector
	BA04269A	**Lamp S P.C.B. Ass'y**
	0B07921C	Lamp S P.C.B.
PL401-404	0B08838A	Lamp 6.3V 100mA

7.9. Switch Lamp A Ass'y

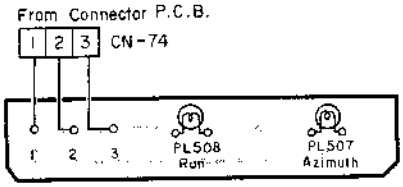


Fig. 7.9

7.10. Switch Lamp B Ass'y

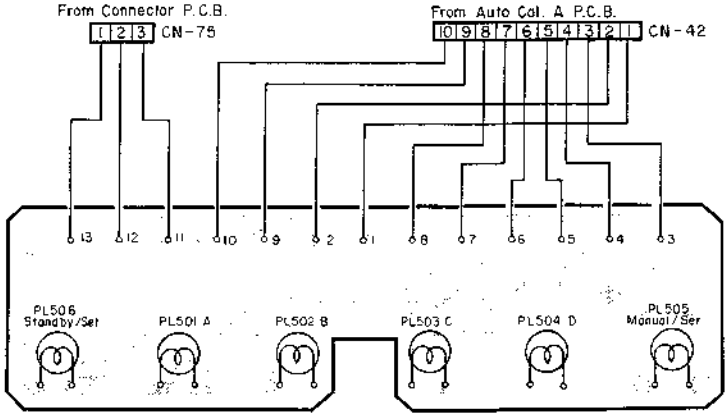


Fig. 7.10.1 2nd Version

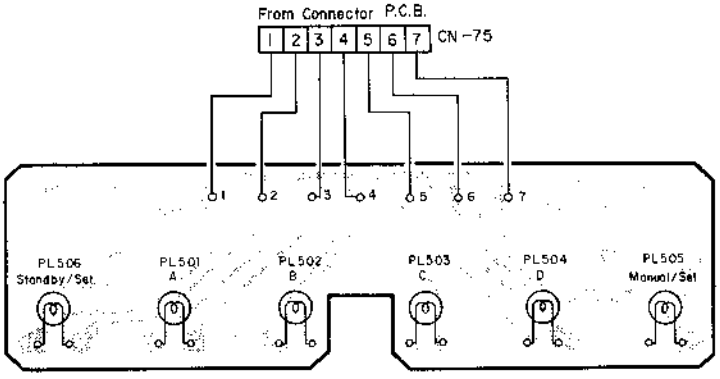


Fig. 7.10.2 1st Version

7.11. Switch A P.C.B. Ass'y

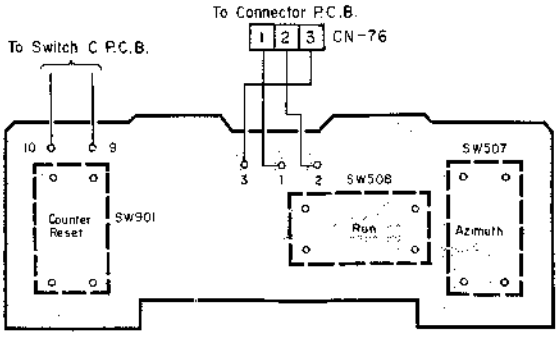


Fig. 7.11

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

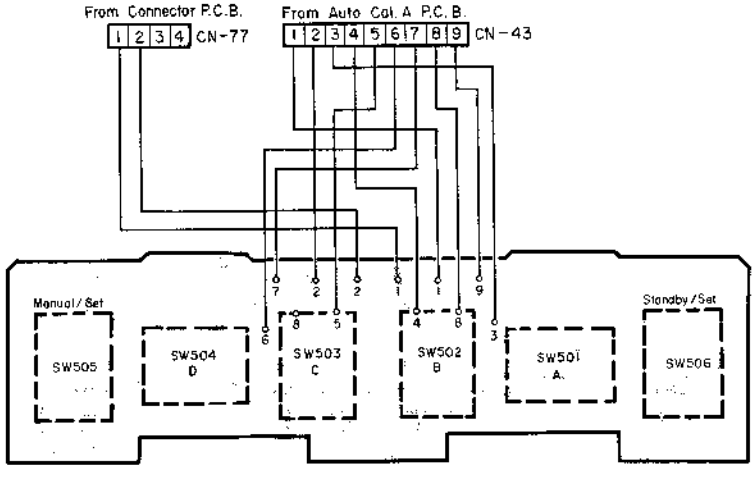


Fig. 7.12.1 2nd Version

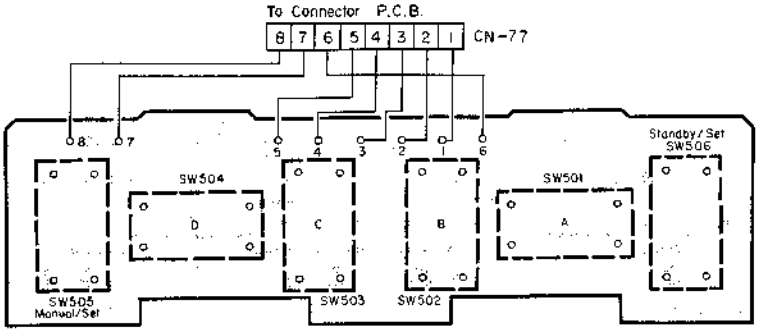


Fig. 7.12.2 1st Version

7.13. Connector P.C.B. Ass'y

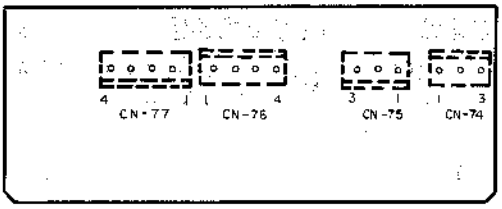


Fig. 7.13.1 2nd Version

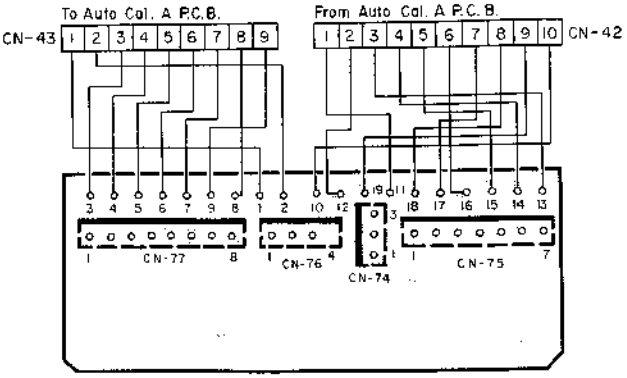


Fig. 7.13.2 1st Version

Schematic Ref. No.	Part No.	Description
	BA04271A	**Switch Lamp A P.C.B. Ass'y**
	0B07923A	Switch Lamp A P.C.B.
PL507,508	0B08851A	Lamp 12V 30mA
CN74	0B08784B	3P-H Connector
	0J04286B	Lamp Holder B (1 pce.)
	BA04272A	**Switch Lamp B P.C.B. Ass'y** 2nd Version
	0B07907C	Switch Lamp B P.C.B.
PL501-506	0B08851A	Lamp 12V 30mA (6 pcs.)
CN42	0B08798A	10P-H Connector
CN75	0B08875A	3P-H Connector
	0J04286B	Lamp Holder B (1 pce.)
	BA04272A	**Switch Lamp B P.C.B. Ass'y** 1st Version
	0B07907B	Switch Lamp B P.C.B.
PL501-506	0B08851A	Lamp 12V 30mA (6 pcs.)
CN75	0B08833B	7P-H Connector
	0J04286B	Lamp Holder B (1 pce.)
	BA04325A	**Switch A P.C.B. Ass'y**
	0B07916A	Switch A P.C.B.
SW507,508	0B07219A	Switch AKC8S
901		
CN76	0B08834B	4P-H Connector

Schematic Ref. No.	Part No.	Description
	BA04326A	**Switch B P.C.B. Ass'y** 2nd Version
	0B07917B	Switch B P.C.B.
SW501-506	0B07219A	Switch AKC8S (6 pcs.)
CN43	0B08798A	9P-H Connector
CN77	0B08876A	4P-H Connector
	BA04326A	**Switch B P.C.B. Ass'y** 1st Version
	0B07917A	Switch B P.C.B.
SW501-506	0B07219A	Switch AKC8S
CN77	0B08793B	8P-H Connector
	BA04301A	**Connector P.C.B. Ass'y** 2nd Version
	0B07950C	Connector P.C.B.
CN74,75	0B08653A	3P-T Post
CN76,77	0B08654A	4P-T Post
	BA04301A	**Connector P.C.B. Ass'y** 1st Version
	0B07950B	Connector P.C.B.
CN42	0B08798A	10P Connector
CN43	0B08799B	9P-H Connector
CN74	0B08653A	3P-T Post
CN75	0B08643A	7P-T Post
CN76	0B08654A	4P-T Post
CN77	0B08644A	8P-T Post

7.14. Connector B P.C.B. Ass'y

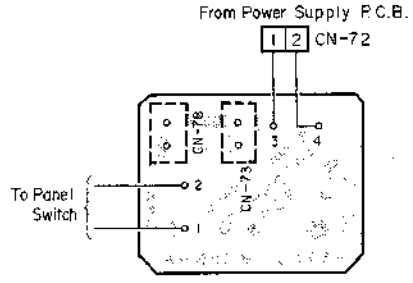


Fig. 7.14

7.15. Speed Cal. P.C.B. Ass'y

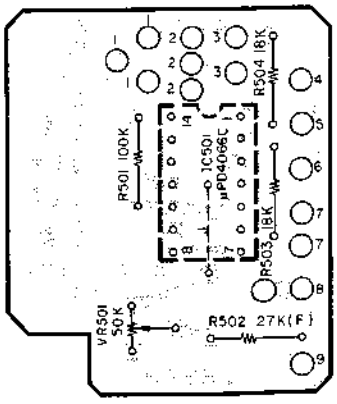


Fig. 7.15

7.16. Counter Pulse Generator P.C.B. Ass'y

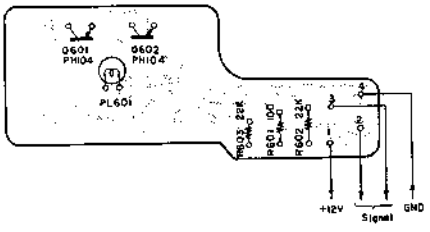


Fig. 7.16

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

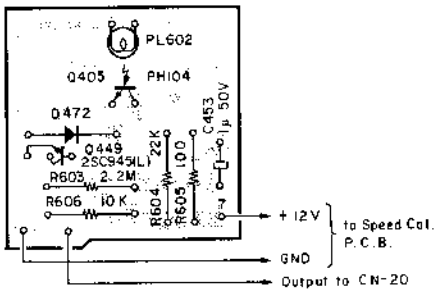


Fig. 7.17

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04310A	**Connector B P.C.B. Ass'y**
	0B07951B	Connector B P.C.B.
CN72	0B08820B	2P-H Connector
CN73,78	0B08656A	2P-T Post
	BA04308A	**Speed Cal. P.C.B. Ass'y**
	0B07893A	Speed Cal. P.C.B.
IC501	0B06144A	IC μPD4066C
VR501	0B07269A	Semi-fixed Volume 50K
R501	0B01889A	Carbon Resistor 100K ERD-25T J
R502	0B09444A	Metal Film Resistor 27K SN14K2E F
R503,504	0B05560A	Carbon Resistor 18K ERD-25T J
CN17	0B08783A	4P Connector
	BA04237B	**Counter Pulse Generator P.C.B. Ass'y**
	0B07933A	Counter Pulse Generator P.C.B.
Q601,602	0B06228A	Photo Transistor PH104
R601	0B09215A	Fail Safe Type Resistor 100 REF-25S J
R602,603	0B05661A	Carbon Resistor 22K ERD-25V J
PL601	0B08552A	Lamp 12V 25mA
	0C08281B	P.C.B. Holder (1 pce.)
	0E00792A	BT Screw M2.6x6 Philips Pan Head (2 pcs.)

Schematic Ref. No.	Part No.	Description
	BA04070A	**Shut-off P.C.B. Ass'y**
	0B07839A	Shut-off P.C.B.
Q449	0B01872A	Transistor 2SC945 (L)
Q450	0B06228A	Photo Transistor PH104
D472	0B06181A	Silicon Diode 1SS53
R603	0B05671A	Carbon Resistor 2.2M ERD-25T J
R604	0B05615A	Carbon Resistor 22K ERD-25T J
R605	0B09215A	Fail Safe Type Resistor 100 RDF-25S J
R606	0B01888A	Carbon Resistor 10K ERD-25T J
C453	0B01405A	Electrolytic Capacitor 1μ 50V
PL602	0B08552A	Lamp 12V 25mA
	BA04266A	**Line Amp. P.C.B. Ass'y**
	0B07906A	Line Amp. P.C.B.
IC301	0B06146A	IC RC4558DD
R101,104	0B01889A	Carbon Resistor 100K ERD-25T J
201,204		
R102,202	0B01857A	Carbon Resistor 1K ERD-25T J
R103,203	0B09550A	Metal Film Resistor 887 SN14K2E F
R105,205	0B09203A	Metal Film Resistor 10K SN14K2E F
C101,201	0B01405A	Electrolytic Capacitor 1μ 50V
C102,202	0B01674A	Electrolytic Capacitor 10μ 25V
301		
CN16	0B08815B	5P Connector
	0B07346A	Rotary Switch (1 pce.)

7.18. Line Amp. P.C.B. Ass'y

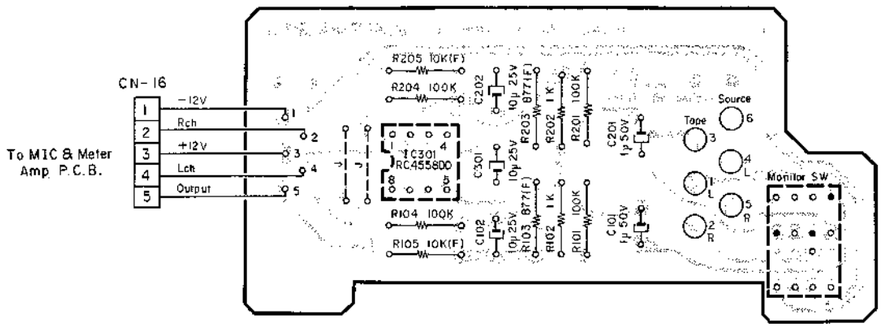


Fig. 7.18

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

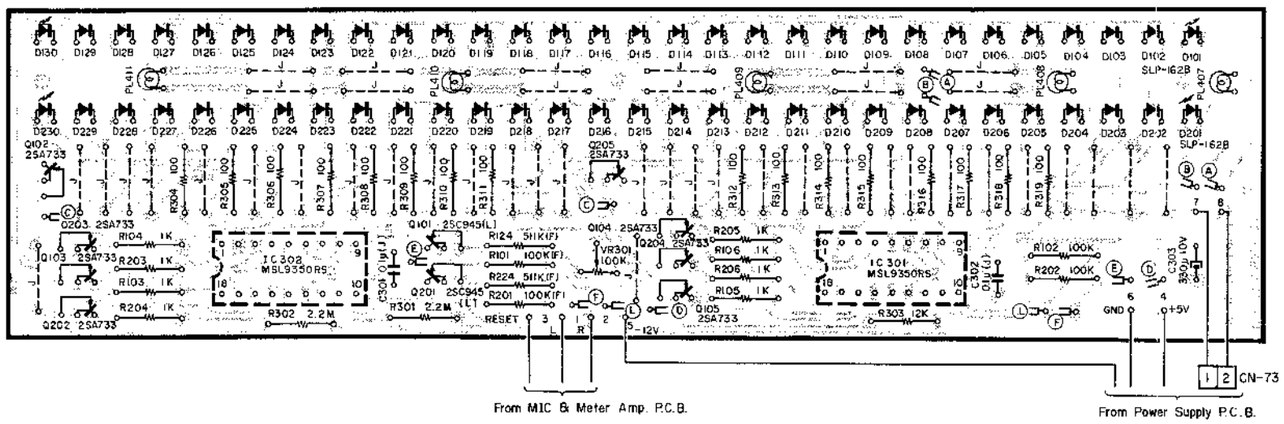


Fig. 7.19

Note: Diode is 1SS53 unless otherwise specified.

7.20. MIC Volume & Switch P.C.B. Ass'y

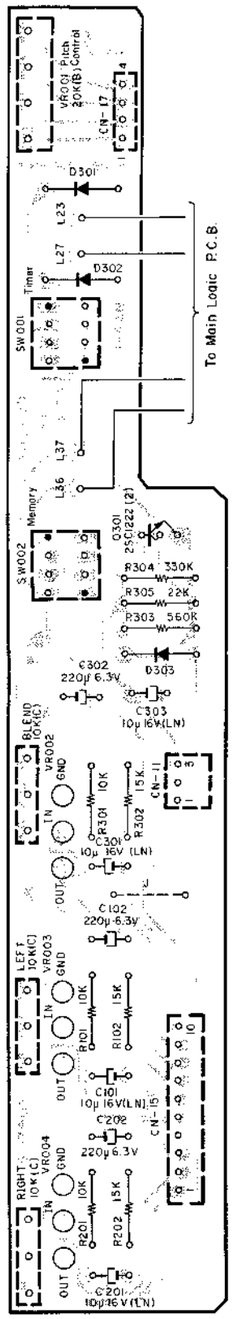


Fig. 7.20

Schematic Ref. No.	Part No.	Description		
	BA04300A	**Indicator P.C.B. Ass'y**		
	0B07900A	Indicator P.C.B.		
IC301,302	0B06284A	IC	MSL9350RS	
Q101,201	0B01872A	Transistor	2SC945 (L)	
Q102-105 202-205	0B06013A	Transistor	2SA733	(8 pcs.)
D101-130 201-230	0B06292A	LED	SLP-162B	(60 pcs.)
VR301	0B07257A	Semi-fixed Volume	100K	
R101,201	0B09305A	Metal Film Resistor	100K	SN14K2E F
R102,202	0B01889A	Carbon Resistor	100K	ERD-25T J
R103-106 203-206	0B01857A	Carbon Resistor	1K	ERD-25T J (8 pcs.)
R124,224	0B09299A	Metal Film Resistor	511K	SN14K2E F
R301	0B05671A	Carbon Resistor	2.2M	ERD-25T J
R302,303	0B09263A	Carbon Resistor	12K	ERD-25T J
R304-319	0B01679A	Carbon Resistor	100	ERD-25T J (16 pcs.)
C301,302	0B01780A	Mylar Capacitor	0.1µ	50V J
C303	0B05841A	Electrolytic Capacitor	330µ	10V
PL407	0B08852A	Lamp	6.3V	50mA
PL408,409 410,411	0B08838A	Lamp	6.3V	100mA
CN1	0B08791B	3P-H Connector		
CN10	0B08819A	Indicator Connector		
CN73	0B08874A	2P-H Connector		
	BA04293A	**MIC Volume & Switch P.C.B. Ass'y**		
		– MIC Volume –		
VR002,003 004	0B07344A	MIC Volume	10K (C)	
R101,201 301	0B01888A	Carbon Resistor	10K	ERD-25T J
R102,202 302	0B01683A	Carbon Resistor	15K	ERD-25T J
C101,201 301	0B09148A	Electrolytic Capacitor	10µ	16V (LN)
C102,202 302	0B09151A	Electrolytic Capacitor	220µ	6.3V (LN)
		– Mechanism Control –		
Q301	0B06062A	Transistor	2SC1222 (2)	
D301,302 303	0B06181A	Silicon Diode	1SS53	
VR001	0B07345A	Pitch Control Volume	20K (B)	
R303	0B05784A	Carbon Resistor	560K	ERD-25T J
R304	0B05627A	Carbon Resistor	330K	ERD-25T J
R305	0B05615A	Carbon Resistor	22K	ERD-25T J
C303	0B09148A	Electrolytic Capacitor	10µ	16V (LN)
SW001,002	0B07350A	Rotary Switch 2-3		
		– Miscellaneous –		
	0B07903B	MIC Volume & Switch P.C.B.		
CN11	0B08812A	3P-S Connector		
CN15	0B08731A	10P-S Connector		
CN17	0B08804A	4P-T Post		

7.21. MIC & Meter Amp. P.C.B. Ass'y

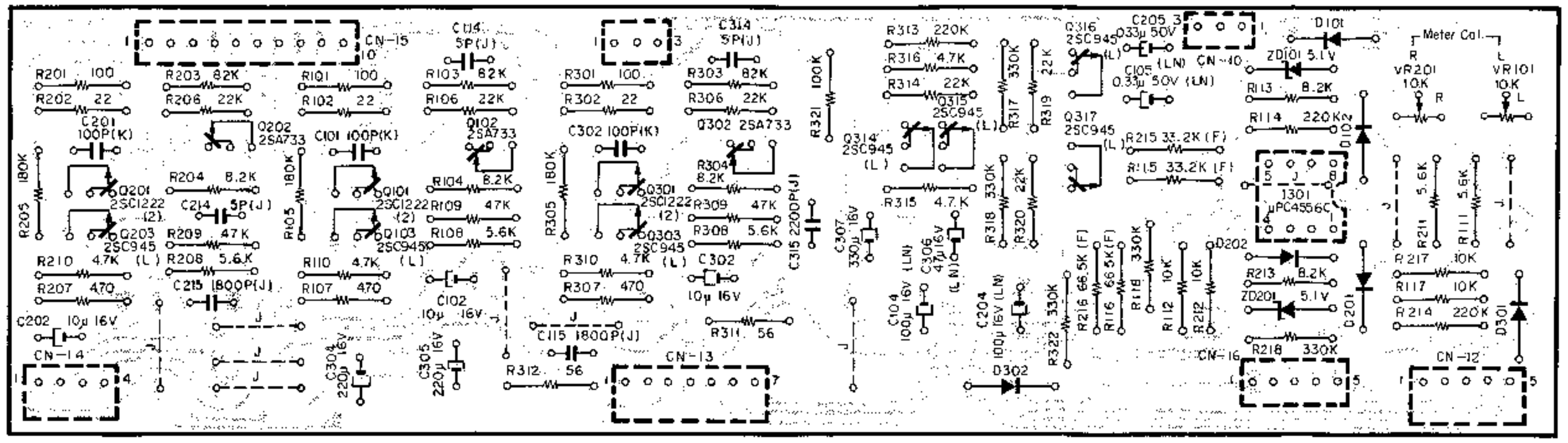


Fig. 7.21.1 2nd Version

Note: Diode is 1SS53 unless otherwise specified.

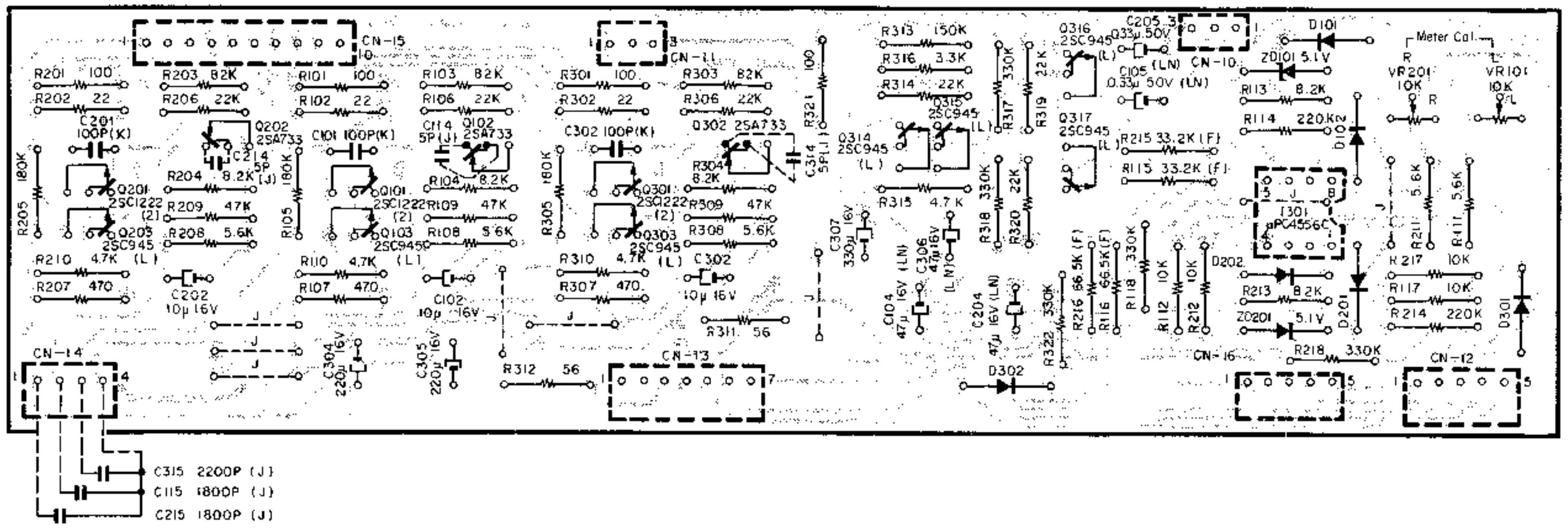


Fig. 7.21.2 1st Version

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04289A	MIC & Meter Amp. P.C.B. Ass'y 2nd Version
	– MIC Amp. –	
Q101,201 301	0B06062A	Transistor 2SC1222 (2)
Q102,202 302	0B06013A	Transistor 2SA733
Q103,203 303	0B01872A	Transistor 2SC945 (L)
R101,201 301	0B01679A	Carbon Resistor 100 ERD-25T J
R102,202 302	0B05579A	Carbon Resistor 22 ERD-25T J
R103,203 303	0B05668A	Carbon Resistor 82K ERD-25T J
R104,204 304	0B01856A	Carbon Resistor 8.2K ERD-25T J
R105,205 305	0B05640A	Carbon Resistor 180K ERD-25T J
R106,206 306	0B05615A	Carbon Resistor 22K ERD-25T J
R107,207 307	0B05576A	Carbon Resistor 470 ERD-25T J
R108,208 308	0B01887A	Carbon Resistor 5.6K ERD-25T J
R109,209 309	0B05641A	Carbon Resistor 47K ERD-25T J
R110,210 310	0B01846A	Carbon Resistor 4.7K ERD-25T J
R311,312	0B09508A	Fail Safe Type Resistor 56 RDF-25S J
C101,201 301	0B09282A	Ceramic Capacitor 100P 50V K
C102,202 302	0B01412A	Electrolytic Capacitor 10μ 16V
C114,214 314	0B09276A	Ceramic Capacitor 5P 50V J
C115,215	0B01913A	Mylar Capacitor 1800P 50V J
C304,305	0B01398A	Electrolytic Capacitor 220μ 16V
C315	0B01802A	Mylar Capacitor 2200P 50V J
	– Meter Reset –	
Q314,315 316,317	0B01872A	Transistor 2SC945 (L)
D302	0B06181A	Silicon Diode 1SS53
R313	0B05625A	Carbon Resistor 220K ERD-25T J
R314,319 320	0B05615A	Carbon Resistor 22K ERD-25T J
R315,316	0B01846A	Carbon Resistor 4.7K ERD-25T J
R317,318 322	0B05627A	Carbon Resistor 330K ERD-25T J
C306	0B09218A	Electrolytic Capacitor 47μ 16V (LN)
	– Meter Amp. –	
IC301	0B06216A	IC μPC4556C
ZD101,201	0B06058A	Zener Diode 5.1V YZ051
D101,102 201,202 301	0B06181A	Silicon Diode 1SS53
VR101,201	0B07162A	Semi-fixed Volume 10K

Schematic Ref. No.	Part No.	Description
R111,211	0B01887A	Carbon Resistor 5.6K ERD-25T J
R112,117 212,217	0B01888A	Carbon Resistor 10K ERD-25T J
R113,213	0B01856A	Carbon Resistor 8.2K ERD-25T J
R114,214	0B05625A	Carbon Resistor 220K ERD-25T J
R115,215	0B09446A	Metal Film Resistor 33.2K SN14K2E F
R116,216	0B09510A	Metal Film Resistor 66.5K SN14K2E F
R118,218	0B05627A	Carbon Resistor 330K ERD-25T J
R321	0B01679A	Carbon Resistor 100 ERD-25T J
C104,204	0B09549A	Electrolytic Capacitor 100μ 16V (LN)
C105,205	0B09327A	Electrolytic Capacitor 0.33μ 50V (LN)
C307	0B01502A	Electrolytic Capacitor 330μ 16V
	— Miscellaneous —	
	0B07905B	MIC & Meter Amp. P.C.B.
CN10	0B08184A	3P-S Post
CN11	0B08185A	3P-T Post
CN12	0B08727A	5P-S Connector
CN13	0B08729A	7P-S Connector
CN14	0B08801A	4P-S Connector
CN15	0B08615A	10-T Post
CN16	0B08303A	5P-S Post

Schematic Ref. No.	Part No.	Description
	BA04289A	MIC & Meter Amp. P.C.B. Ass'y 1st Version
	— MIC Amp. —	
Q101,201 301	0B06062A	Transistor 2SC1222 (2)
Q102,202 302	0B06013A	Transistor 2SA733
Q103,203 303	0B01872A	Transistor 2SC945 (L)
R101,201 301	0B01679A	Carbon Resistor 100 ERD-25T J
R102,202 302	0B05579A	Carbon Resistor 22 ERD-25T J
R103,203 303	0B05668A	Carbon Resistor 82K ERD-25T J
R104,204 304	0B01856A	Carbon Resistor 8.2K ERD-25T J
R105,205 305	0B05640A	Carbon Resistor 180K ERD-25T J
R106,206 306	0B05615A	Carbon Resistor 22K ERD-25T J
R107,207 307	0B05576A	Carbon Resistor 470 ERD-25T J
R108,208 308	0B01887A	Carbon Resistor 5.6K ERD-25T J
R109,209 309	0B05641A	Carbon Resistor 47K ERD-25T J
R110,210 310	0B01846A	Carbon Resistor 4.7K ERD-25T J
R311,312	0B09508A	Fail Safe Type Resistor 56 RDF-25S J
C101,201 301	0B09282A	Ceramic Capacitor 100P 50V K
C102,202 302	0B01412A	Electrolytic Capacitor 10μ 16V
C114,214 314	0B09276A	Ceramic Capacitor 5P 50V J
C115,215	0B01913A	Mylar Capacitor 1800P 50V J
C304,305	0B01398A	Electrolytic Capacitor 220μ 16V
C315	0B01802A	Mylar Capacitor 2200P 50V J
	— Meter Reset —	
Q314,315 316,317	0B01872A	Transistor 2SC945 (L)
D302	0B06181A	Silicon Diode 1SS53
R313	0B05626A	Carbon Resistor 150K ERD-25T J
R314,319 320	0B05615A	Carbon Resistor 22K ERD-25T J
R315	0B01846A	Carbon Resistor 4.7K ERD-25T J
R316	0B01681A	Carbon Resistor 3.3K ERD-25T J
R317,318 322	0B05627A	Carbon Resistor 330K ERD-25T J
C306	0B09218A	Electrolytic Capacitor 47μ 16V (LN)
	— Meter Amp. —	
IC301	0B06216A	IC μPC4556C
ZD101,201	0B06058A	Zener Diode 5.1V YZ051
D101,102 201,202 301	0B06181A	Silicon Diode 1SS53

Schematic Ref. No.	Part No.	Description
VR101,201	0B07162A	Semi-fixed Volume 10K
R111,211	0B01887A	Carbon Resistor 5.6K ERD-25T J
R112,117 212,217	0B01888A	Carbon Resistor 10K ERD-25T J
R113,213	0B01856A	Carbon Resistor 8.2K ERD-25T J
R114,214	0B05625A	Carbon Resistor 220K ERD-25T J
R115,215	0B09446A	Metal Film Resistor 33.2K SN14K2E F
R116,216	0B09510A	Metal Film Resistor 66.5K SN14K2E F
R118,218	0B05627A	Carbon Resistor 330K ERD-25T J
R321	0B01679A	Carbon Resistor 100 ERD-25T J
C104,204	0B09218A	Electrolytic Capacitor 47μ 16V (LN)
C105,205	0B09327A	Electrolytic Capacitor 0.33μ 50V (LN)
C307	0B01502A	Electrolytic Capacitor 330μ 16V
	— Miscellaneous —	
	0B07905A	MIC & Meter Amp. P.C.B.
CN10	0B08184A	3P-S Post
CN11	0B08185A	3P-T Post
CN12	0B08727A	5P-S Connector
CN13	0B08729A	7P-S Connector
CN14	0B08801A	4P-S Connector
CN15	0B08615A	10-T Post
CN16	0B08303A	5P-S Post

7.22. Record Eq. Amp. P.C.B. Ass'y

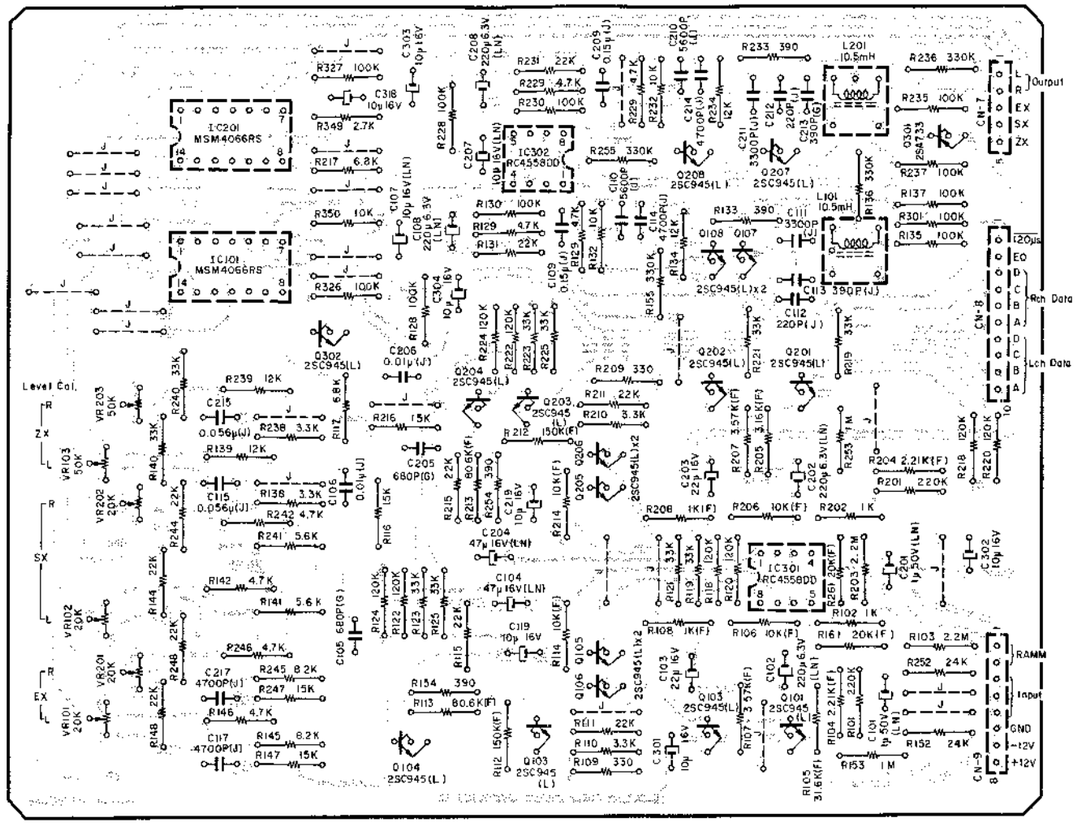


Fig. 7.22.1 2nd Version

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04296A	Record Eq. Amp. P.C.B. Ass'y 2nd Version	R152,252	0B09548A	Carbon Resistor 24K ERD-25T J
			R153,253	0B05776A	Carbon Resistor 1M ERD-25T J
			R161,261	0B09439A	Metal Film Resistor 20K SN14K2E F
	0B07902B	Record Eq. Amp. P.C.B.	R349	0B05629A	Carbon Resistor 2.7K ERD-25T J
IC101,201	0B06280A	IC MSM4066RS	C101,201	0B09223A	Electrolytic Capacitor 1μ 50V (LN)
IC301,302	0B06146A	IC RC4558DD	C102,108	0B09151A	Electrolytic Capacitor 220μ 6.3V (LN)
Q101-108	0B01872A	Transistor 2SC945 (L) (17 pcs.)	202,208		
201-208			C103,203	0B01862A	Electrolytic Capacitor 22μ 16V
302			C104,204	0B09218A	Electrolytic Capacitor 47μ 16V (LN)
Q301	0B06013A	Transistor 2SA733	C105,205	0B09485A	PP Capacitor 680P 100V G
L101,201	0B00068A	Trap Coil 10.5mH	C106,206	0B05681A	Mylar Capacitor 0.01μ 50V J
VR101,102	0B07215A	Semi-fixed Volume 20K	C107,207	0B09148A	Electrolytic Capacitor 10μ 16V (LN)
201,202			C109,209	0B09171A	Mylar Capacitor 0.15μ 50V J
VR103,203	0B07058A	Semi-fixed Volume 50K	C110,210	0B05659A	Mylar Capacitor 5600P 50V J
R101,201	0B05625A	Carbon Resistor 220K ERD-25T J	C111,211	0B01914A	Mylar Capacitor 3300P 50V J
R102,202	0B01857A	Carbon Resistor 1K ERD-25T J	C112,212	0B09247A	Mica Capacitor 220P 50V J
R103,203	0B05671A	Carbon Resistor 2.2M ERD-25T J	C113,213	0B09511A	PP Capacitor 390P 100V G
R104,204	0B09547A	Metal Film Resistor 2.21K SN14K2E F	C114,117	0B05652A	Mylar Capacitor 4700P 50V J
R105,205	0B09422A	Metal Film Resistor 3.16K SN14K2E F	214,217		
R106,114	0B09203A	Metal Film Resistor 10K SN14K2E F	C115,215	0B05813A	Mylar Capacitor 0.056μ 50V J
206,214			C119,219	0B01412A	Electrolytic Capacitor 10μ 16V
R107,207	0B09507A	Metal Film Resistor 3.57K SN14K2E F	301,302		
R108,208	0B09491A	Metal Film Resistor 1K SN14K2E F	303,304		
R109,209	0B05577A	Carbon Resistor 330 ERD-25T J	318		
R110,138	0B01681A	Carbon Resistor 3.3K ERD-25T J	CN7	0B08727A	5P-S Connector
210,238			CN8	0B08731A	10P-S Connector
R111,115	0B05615A	Carbon Resistor 22K ERD-25T J	CN9	0B08730A	8P-S Connector
131,144					
148,211					
215,231					
244,248					
R112,212	0B09300A	Metal Film Resistor 150K SN14K2E F			
R113,213	0B09459A	Metal Film Resistor 80.6K SN14K2E F			
R116,147	0B01683A	Carbon Resistor 15K ERD-25T J			
216,247					
R117,217	0B01682A	Carbon Resistor 6.8K ERD-25T J			
R118,120	0B05621A	Carbon Resistor 120K ERD-25T J			
122,124					
218,220					
222,224					
R119,121	0B05509A	Carbon Resistor 33K ERD-25T J			
123,125					
140,219					
221,223					
225,240					
R128,130	0B01889A	Carbon Resistor 100K ERD-25T J			
135,137					
228,230					
235,237					
301,326					
327					
R129,142	0B01846A	Carbon Resistor 4.7K ERD-25T J			
146,229					
242,246					
R132,232	0B01888A	Carbon Resistor 10K ERD-25T J			
350					
R133,154	0B05691A	Carbon Resistor 390 ERD-25T J			
233,254					
R134,139	0B09263A	Carbon Resistor 12K ERD-25T J			
234,239					
R136,155	0B05627A	Carbon Resistor 330K ERD-25T J			
236,255					
R141,241	0B01887A	Carbon Resistor 5.6K ERD-25T J			
R145,245	0B01856A	Carbon Resistor 8.2K ERD-25T J			

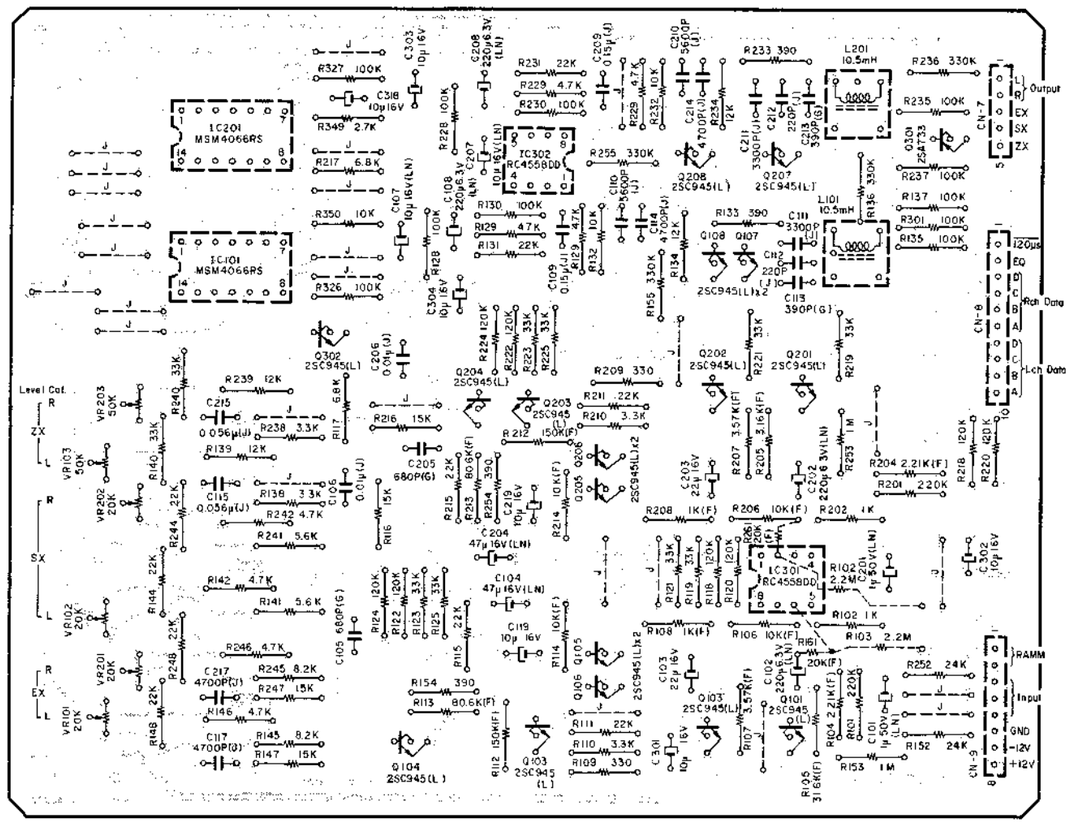


Fig. 7.22.2 1st Version

Schematic Ref. No.	Part No.	Description		Schematic Ref. No.	Part No.	Description		
	BA04296A	Record Eq. Amp. P.C.B. Ass'y 1st Version		R152,252	0B09548A	Carbon Resistor	24K	ERD-25T J
				R153,253	0B05776A	Carbon Resistor	1M	ERD-25T J
				R161,261	0B09439A	Metal Film Resistor	20K	SN14K2E F
	0B07902A	Record Eq. Amp. P.C.B.		R349	0B05629A	Carbon Resistor	2.7K	ERD-25T J
IC101,201	0B06280A	IC	MSM4066RS	C101,201	0B09223A	Electrolytic Capacitor	1μ	50V (LN)
IC301,302	0B06146A	IC	RC4558DD	C102,108	0B09151A	Electrolytic Capacitor	220μ	6.3V (LN)
Q101-108	0B01872A	Transistor	2SC945 (L) (17 pcs.)	202,208				
201-208				C103,203	0B01862A	Electrolytic Capacitor	22μ	16V
302				C104,204	0B09218A	Electrolytic Capacitor	47μ	16V (LN)
Q301	0B06013A	Transistor	2SA733	C105,205	0B09485A	PP Capacitor	680P	100V G
L101,201	0B00068A	Trap Coil	10.5mH	C106,206	0B05681A	Mylar Capacitor	0.01μ	50V J
VR101,102	0B07215A	Semi-fixed Volume	20K	C107,207	0B09148A	Electrolytic Capacitor	10μ	16V (LN)
201,202				C109,209	0B09171A	Mylar Capacitor	0.15μ	50V J
VR103,203	0B07058A	Semi-fixed Volume	50K	C110,210	0B05659A	Mylar Capacitor	5600P	50V J
R101,201	0B05625A	Carbon Resistor	220K ERD-25T J	C111,211	0B01914A	Mylar Capacitor	3300P	50V J
R102,202	0B01857A	Carbon Resistor	1K ERD-25T J	C112,212	0B09247A	Mica Capacitor	220P	50V J
R103,203	0B05671A	Carbon Resistor	2.2M ERD-25T J	C113,213	0B09511A	PP Capacitor	390P	100V G
R104,204	0B09547A	Metal Film Resistor	2.21K SN14K2E F	C114,117	0B05652A	Mylar Capacitor	4700P	50V J
R105,205	0B09422A	Metal Film Resistor	3.16K SN14K2E F	214,217				
R106,114	0B09203A	Metal Film Resistor	10K SN14K2E F	C115,215	0B05813A	Mylar Capacitor	0.056μ	50V J
206,214				C119,219	0B01412A	Electrolytic Capacitor	10μ	16V
R107,207	0B09507A	Metal Film Resistor	3.57K SN14K2E F	301,302				
R108,208	0B09491A	Metal Film Resistor	1K SN14K2E F	303,304				
R109,209	0B05577A	Carbon Resistor	330 ERD-25T J	318				
R110,138	0B01681A	Carbon Resistor	3.3K ERD-25T J	CN7	0B08727A	5P-S Connector		
210,238				CN8	0B08731A	10P-S Connector		
R111,115	0B05615A	Carbon Resistor	22K ERD-25T J	CN9	0B08730A	8P-S Connector		
131,144								
148,211								
215,231								
244,248								
R112,212	0B09300A	Metal Film Resistor	150K SN14K2E F					
R113,213	0B09459A	Metal Film Resistor	80.6K SN14K2E F					
R116,147	0B01683A	Carbon Resistor	15K ERD-25T J					
216,247								
R117,217	0B01682A	Carbon Resistor	6.8K ERD-25T J					
R118,120	0B05621A	Carbon Resistor	120K ERD-25T J					
122,124								
218,220								
222,224								
R119,121	0B05509A	Carbon Resistor	33K ERD-25T J					
123,125								
140,219								
221,223								
225,240								
R128,130	0B01889A	Carbon Resistor	100K ERD-25T J					
135,137								
228,230								
235,237								
301,326								
327								
R129,142	0B01846A	Carbon Resistor	4.7K ERD-25T J					
146,229								
242,246								
R132,232	0B01888A	Carbon Resistor	10K ERD-25T J					
350								
R133,154	0B05691A	Carbon Resistor	390 ERD-25T J					
233,254								
R134,139	0B09263A	Carbon Resistor	12K ERD-25T J					
234,239								
R136,155	0B05627A	Carbon Resistor	330K ERD-25T J					
236,255								
R141,241	0B01887A	Carbon Resistor	5.6K ERD-25T J					
R145,245	0B01856A	Carbon Resistor	8.2K ERD-25T J					

7.23. Record Dolby NR P.C.B. Ass'y

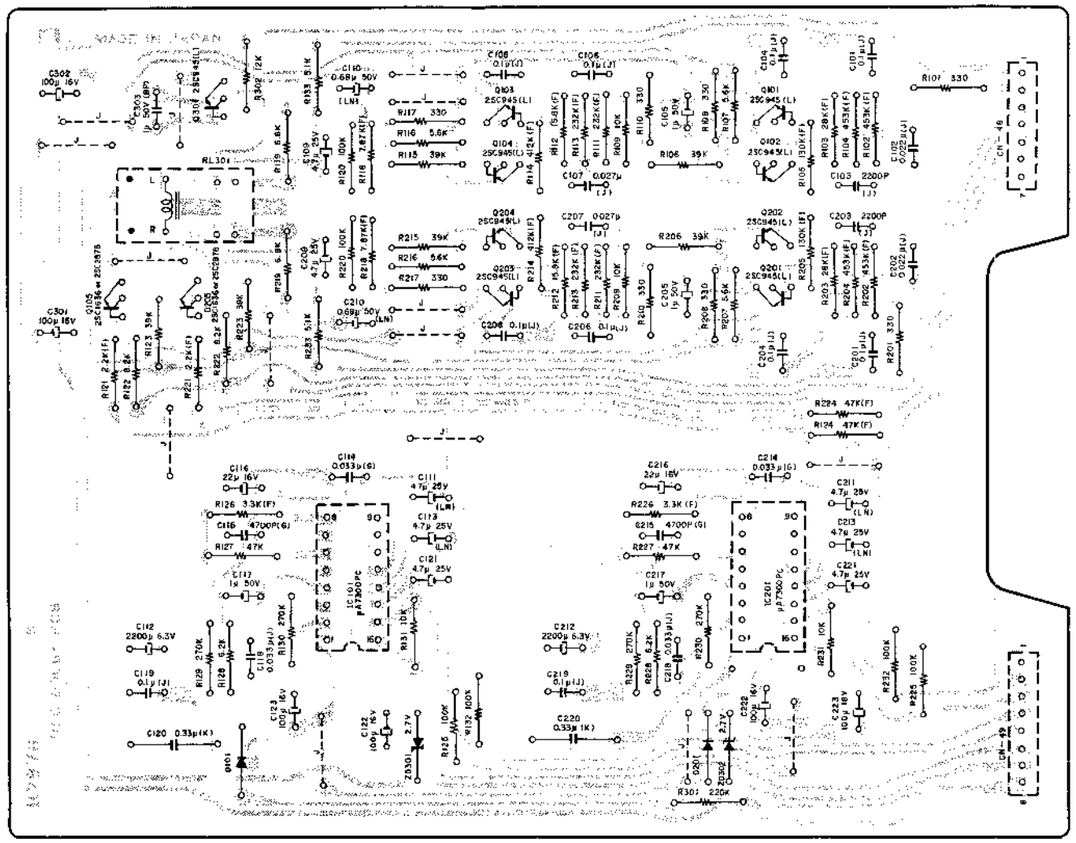


Fig. 7.23 Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04236A	**Record Dolby NR P.C.B. Ass'y**
	0B07876B	Record Dolby NR P.C.B.
IC101,201	0B06200A	IC μA7300PC
Q101-104	0B01872A	Transistor 2SC945 (L) (9 pcs.)
201-204		
301		
Q105,205	0B06070A	Transistor 2SC1636
	(0B06299A)	(2SC2878)
ZD301,302	0B06191A	Zener Diode 2.7V 2.7EB
D101,201	0B01909A	Silicon Diode 1S1555
R101,108	0B05577A	Carbon Resistor 330 ERD-25T J
110,117		
201,208		
210,217		
R102,104	0B09480A	Metal Film Resistor 453K SN14K2E F
202,204		
R103,203	0B09445A	Metal Film Resistor 28K SN14K2E F
R105,205	0B09466A	Metal Film Resistor 130K SN14K2E F
R106,115	0B01854A	Carbon Resistor 39K ERD-25T J
123,206		
215,223		
R107,116	0B01887A	Carbon Resistor 5.6K ERD-25T J
207,216		
R109,131	0B01888A	Carbon Resistor 10K ERD-25T J
209,231		
R111,113	0B09473A	Metal Film Resistor 232K SN14K2E F
211,213		
R112,212	0B09437A	Metal Film Resistor 15.8K SN14K2E F
R114,214	0B09478A	Metal Film Resistor 412K SN14K2E F
R118,218	0B09430A	Metal Film Resistor 7.87K SN14K2E F
R119,219	0B01682A	Carbon Resistor 6.8K ERD-25T J
R120,125	0B01889A	Carbon Resistor 100K ERD-25T J
132,220		
225,232		
R121,221	0B09420A	Metal Film Resistor 2.2K SN14K2E F
R122,222	0B01856A	Carbon Resistor 8.2K ERD-25T J
R124,224	0B09451A	Metal Film Resistor 47K SN14K2E F
R126,226	0B09317A	Metal Film Resistor 3.3K SN14K2E F
R127,227	0B05641A	Carbon Resistor 47K ERD-25T J
R128,228	0B09271A	Carbon Resistor 6.2K ERD-25T J
R129,130	0B05620A	Carbon Resistor 270K ERD-25T J
229,230		
R133,233	0B09314A	Carbon Resistor 5.1K ERD-25T J
R301	0B05625A	Carbon Resistor 220K ERD-25T J
R302	0B09263A	Carbon Resistor 12K ERD-25T J
C101,104	0B01780A	Mylar Capacitor 0.1μ 50V J
106,108		
119,201		
204,206		
208,219		
C102,202	0B05582A	Mylar Capacitor 0.022μ 50V J
C103,203	0B01802A	Mylar Capacitor 2200P 50V J
C105,117	0B01405A	Electrolytic Capacitor 1μ 50V
205,217		
C107,207	0B09045A	Mylar Capacitor 0.027μ 50V J
C109,121	0B01402A	Electrolytic Capacitor 4.7μ 25V
209,221		
C110,210	0B09395A	Electrolytic Capacitor 0.68μ 50V (LN)
C111,113	0B09333A	Electrolytic Capacitor 4.7μ 25V (LN)
211,213		
C112,212	0B09257A	Electrolytic Capacitor 2200μ 6.3V
C114,214	0B09240A	PP Capacitor 0.033μ 100V G
C115,215	0B09191A	PP Capacitor 4700P 100V G
C116,216	0B01862A	Electrolytic Capacitor 22μ 16V
C118,218	0B05583A	Mylar Capacitor 0.033μ 50V J
C120,220	0B09399A	Mylar Capacitor 0.33μ 100V K
C122,123	0B01400A	Electrolytic Capacitor 100μ 16V
222,223		
301,302		
C303	0B09187A	Electrolytic Capacitor 1μ 50V (BP)
RL301	0B07326A	FBR Relay
CN48	0B08729A	7P-S Connector
CN49	0B08730A	8P-S Connector
	0B08714A	IC Socket 16P (2 pcs.)
	BA04235A	**Playback Amp. & Dolby NR P.C.B. Ass'y**
	0B07875C	Playback Amp. & Dolby NR P.C.B.
IC101,201	0B06200A	IC μA7300PC
IC301	0B06205A	IC RC4559DD
Q101,201	0B06257A	FET 2SK240 (BL)
	(0B06300A)	(2SK146 (V))
Q102,103	0B01872A	Transistor 2SC945 (L)
104,202		
203,204		
ZD301,302	0B06191A	Zener Diode 2.7V 2.7EB
ZD303,304	0B06233A	Zener Diode 10V RD10EB3
D101,201	0B01909A	Silicon Diode 1S1555
L101,201	0B06636A	Inductor 1.05mH
L102,202	0B00068A	Trap Coil 10.5mH
L103,203	0B03919B	Inductor 36mH
VR101,201	0B07353A	Semi-fixed Volume 200
VR102,202	0B07162A	Semi-fixed Volume 10K
R101,124	0B05615A	Carbon Resistor 22K ERD-25T J
201,224		
R102,202	0B09540A	Metal Film Resistor 3.24K SN14K2E F
R103,107	0B01846A	Carbon Resistor 4.7K ERD-25T J
203,207		
R104,204	0B01933A	Carbon Resistor 220 ERD-25T J
R105,205	0B09415A	Metal Film Resistor 68 SN14K2E F
R106,122	0B09422A	Metal Film Resistor 3.16K SN14K2E F
206,222		
R108,132	0B01889A	Carbon Resistor 100K ERD-25T J
208,232		
R109,209	0B09521A	Metal Film Resistor 523K SN14K2E F
R110,210	0B09205A	Metal Film Resistor 18K SN14K2E F
R111,112	0B01857A	Carbon Resistor 1K ERD-25T J
113,211		
212,213		
R114,116	0B09520A	Carbon Resistor 620K ERD-25T J
214,216		
R115,128	0B05620A	Carbon Resistor 270K ERD-25T J
130,215		
228,230		
R117,217	0B05676A	Carbon Resistor 390K ERD-25T J
R118,218	0B01854A	Carbon Resistor 39K ERD-25T J
R119,219	0B01887A	Carbon Resistor 5.6K ERD-25T J
R120,220	0B05577A	Carbon Resistor 330 ERD-25T J
R121,221	0B09421A	Metal Film Resistor 2.67K SN14K2E F
R123,127	0B05641A	Carbon Resistor 47K ERD-25T J
223,227		
R125,131	0B01888A	Carbon Resistor 10K ERD-25T J
225,231		
R126,226	0B09317A	Metal Film Resistor 3.3K SN14K2E F
R129,229	0B09271A	Carbon Resistor 6.2K ERD-25T J
R133,233	0B05671A	Carbon Resistor 2.2M ERD-25T J

Schematic Ref. No.	Part No.	Description		
R134,234	0B01679A	Carbon Resistor	100	ERD-25T J
R301	0B05625A	Carbon Resistor	220K	ERD-25T J
R303,304	0B09306A	Fail Safe Type Resistor	68	RDF-25S J
C101,201	0B09486A	Mica Capacitor	120P	50V J
C102,202	0B05681A	Mylar Capacitor	0.01μ	50V J
C103,203	0B09152A	Electrolytic Capacitor	470μ	6.3V (LN)
C104,204	0B09489A	PP Capacitor	5600P	100V G
C105,205	0B05550A	Mylar Capacitor	1000P	50V J
C106,206	0B09345A	Electrolytic Capacitor	3.3μ	25V (BP)
C107,108	0B01400A	Electrolytic Capacitor	100μ	16V
128,129				
207,208				
228,229				
303,304				
305,306				
C109,209	0B09410A	PP Capacitor	2200P	100V J
C110,113	0B09189A	Mylar Capacitor	2700P	50V J
210,213				
C111,211	0B09275A	Mica Capacitor	200P	50V J
C112,212	0B09235A	PP Capacitor	680P	100V J
C114,116	0B05813A	Mylar Capacitor	0.056μ	50V J
214,216				
C115,126	0B01780A	Mylar Capacitor	0.1μ	50V J
215,226				
C117,217	0B09413A	PP Capacitor	0.022μ	100V G
C118,122	0B09333A	Electrolytic Capacitor	4.7μ	25V (LN)
218,222				
C119,219	0B09257A	Electrolytic Capacitor	2200μ	6.3V
C120,220	0B09240A	PP Capacitor	0.033μ	100V G
C121,221	0B09191A	PP Capacitor	4700P	100V G
C123,223	0B01862A	Electrolytic Capacitor	22μ	16V
C124,224	0B01405A	Electrolytic Capacitor	1μ	50V
C125,225	0B05583A	Mylar Capacitor	0.033μ	50V J
C127,227	0B09399A	Mylar Capacitor	0.33μ	100V K
C130,230	0B09400A	Mica Capacitor	250P	50V J
C131,231	0B09270A	PP Capacitor	470P	50V J
C301,302	0B01412A	Electrolytic Capacitor	10μ	16V
CN44	0B08727A	5P-S Connector		
CN47	0B08728A	6P-S Connector		
CN53	0B08654A	4P-T Post		
	0B08714A	IC Socket 16P		(2 pcs.)

7.24. Playback Amp. & Dolby NR P.C.B. Ass'y

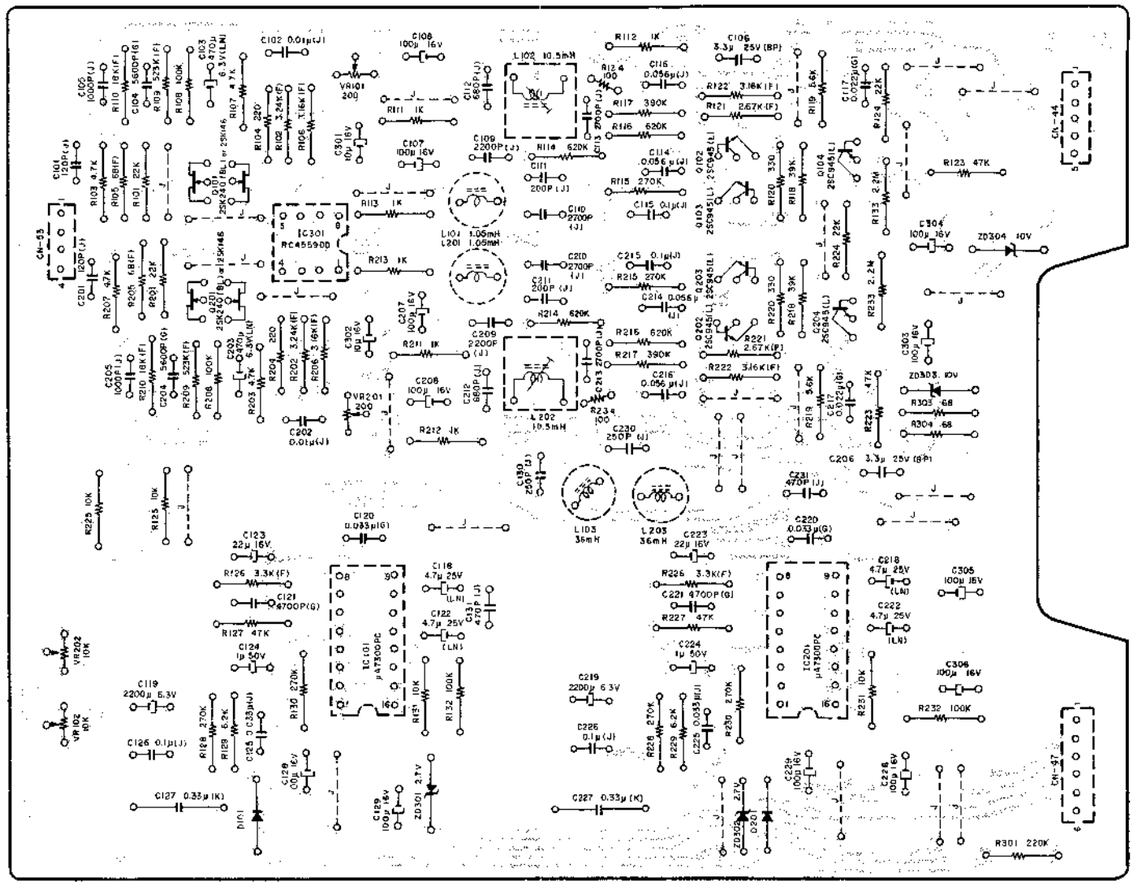


Fig. 7.24 Note: Diode is 1SS53 unless otherwise specified.

7.25. Oscillator P.C.B. Ass'y

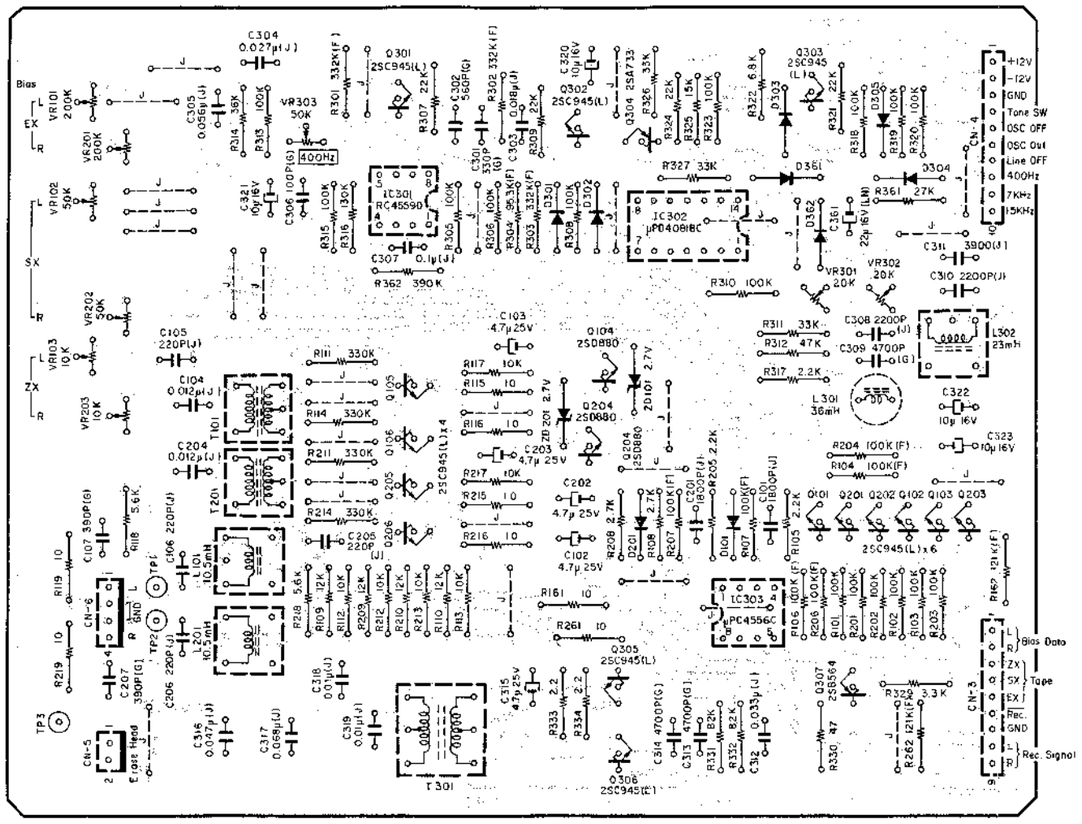


Fig. 7.25.1 2nd Version Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description			Schematic Ref. No.	Part No.	Description		
	BA04302A	**Oscillator P.C.B. Ass'y 2nd Version**				**– Rec. Bias –**			
	– Test Tone –				IC303	0B06216A	IC	μPC4556C	
IC301	0B06127A	IC	RC4559D		Q101-103 105,106	0B01872A	Transistor	2SC945 (L)	(10 pcs.)
IC302	0B06129A	IC	μPD4081BC		201-203 205,206				
Q301,302 303	0B01872A	Transistor	2SC945 (L)		Q104,204	0B06255A	Transistor	2SD880 (Y)	
Q304	0B06013A	Transistor	2SA733		ZD101,201	0B06191A	Zener Diode 2.7V	2.7EB	
D301-304 305,361	0B06181A	Silicon Diode	1SS53	(7 pcs.)	D101,201	0B06181A	Silicon Diode	1SS53	
362					T101,201	0B06646B	Bias Transformer		
L301	0B03919B	Inductor	36mH		L101,201	0B00068A	Trap Coil	10.5mH	
L302	0B03563A	19 kHz Coil	23mH		VR101,201	0B07161A	Semi-fixed Volume	200K	
VR301,302	0B07215A	Semi-fixed Volume	20K		VR102,202	0B07058A	Semi-fixed Volume	50K	
VR303	0B07058A	Semi-fixed Volume	50K		VR103,203	0B07162A	Semi-fixed Volume	10K	
R301,302 303	0B09315A	Metal Film Resistor	332K	SN14K2E F	R101-103 201-203	0B01889A	Carbon Resistor	100K	ERD-25T J (6 pcs.)
R304	0B09462A	Metal Film Resistor	95.3K	SN14K2E F	R104,106 107,204	0B09305A	Metal Film Resistor	100K	SN14K2E F
R305,306 308,310	0B01889A	Carbon Resistor	100K	ERD-25T J	206,207 R105,205	0B05622A	Carbon Resistor	2.2K	ERD-25T J
313,315 318,319					R108,208	0B05629A	Carbon Resistor	2.7K	ERD-25T J
320,323					R109,110 209,210	0B09263A	Carbon Resistor	12K	ERD-25T J
R307,309 321,324	0B05615A	Carbon Resistor	22K	ERD-25T J	R111,114 211,214	0B05627A	Carbon Resistor	330K	ERD-25T J
R311,326 327	0B05509A	Carbon Resistor	33K	ERD-25T J	R112,113 117,212	0B01888A	Carbon Resistor	10K	ERD-25T J
R312	0B05641A	Carbon Resistor	47K	ERD-25T J	213,217 R115,116	0B05936A	Carbon Resistor	10	ERD-25T J
R314	0B09169A	Carbon Resistor	36K	ERD-25T J	119,161				
R316	0B09527A	Carbon Resistor	130K	ERD-25T J	215,216				
R317	0B05622A	Carbon Resistor	2.2K	ERD-25T J	219,261				
R322	0B01682A	Carbon Rssistor	6.8K	ERD-25T J	R118,218	0B01887A	Carbon Resistor	5.6K	ERD-25T J
R325	0B01683A	Carbon Resistor	15K	ERD-25T J	R162,262	0B09464A	Metal Film Resistor	121K	SN14K2E F
R361	0B05743A	Carbon Resistor	27K	ERD-25T J	C101,201	0B01913A	Mylar Capacitor	1800P	50V J
R362	0B05676A	Carbon Resistor	390K	ERD-25T J	C102,103	0B01402A	Electrolytic Capacitor	4.7μ	25V
C301	0B09325A	PP Capacitor	330P	100V G	202,203				
C302	0B09414A	PP Capacitor	560P	100V G	C104,204	0B05843A	Mylar Capacitor	0.012μ	50V J
C303	0B05832A	Mylar Capacitor	0.018μ	50V J	C105,106	0B09247A	Mica Capacitor	220P	50V J
C304	0B09045A	Mylar Capacitor	0.027μ	50V J	205,206				
C305	0B05813A	Mylar Capacitor	0.056μ	50V J	C107,207	0B09511A	PP Capacitor	390P	100V G
C306	0B09302A	Mica Capacitor	100P	50V G	C318,319	0B05681A	Mylar Capacitor	0.01μ	50V J
C307	0B01780A	Mylar Capacitor	0.1μ	50V J	C322,323	0B01412A	Electrolytic Capacitor	10μ	16V
C308,310	0B01802A	Mylar Capacitor	2200P	50V J		**– Miscellaneous –**			
C309	0B09484A	PP Capacitor	4700P	100V G					
C311	0B01804A	Mylar Capacitor	3900P	50V J		0B07901B	Oscillator P.C.B.		
C320,321	0B01412A	Electrolytic Capacitor	10μ	16V		0B08814A	9P-S Connector		
C361	0B09137A	Electrolytic Capacitor	22μ	16V (LN)	CN3	0B08731A	10P-S Connector		
	– Erase Osc. –				CN4	0B08656A	2P-T Post		
					CN5	0B08654A	4P-T Post		
Q305,306	0B01872A	Transistor	2SC945 (L)		CN6				
Q307	0B06069A	Transistor	2SB564						
T301	0B06647A	Erase Transformer							
R329	0B01681A	Carbon Resistor	3.3K	ERD-25T J					
R330	0B09177A	Fail Safe Type Resistor	47	RDF-25S J					
R331,332	0B05668A	Carbon Resistor	82K	ERD-25T J					
R333,334	0B09212A	Fail Safe Type Resistor	2.2	RDF-25S J					
C312	0B05583A	Mylar Capacitor	0.033μ	50V J					
C313,314	0B09191A	PP Capacitor	4700P	100V G					
C315	0B01402A	Electrolytic Capacitor	4.7μ	25V					
C316	0B09248A	PP Capacitor	0.047μ	50V J					
C317	0B09254A	PP Capacitor	0.068μ	50V J					

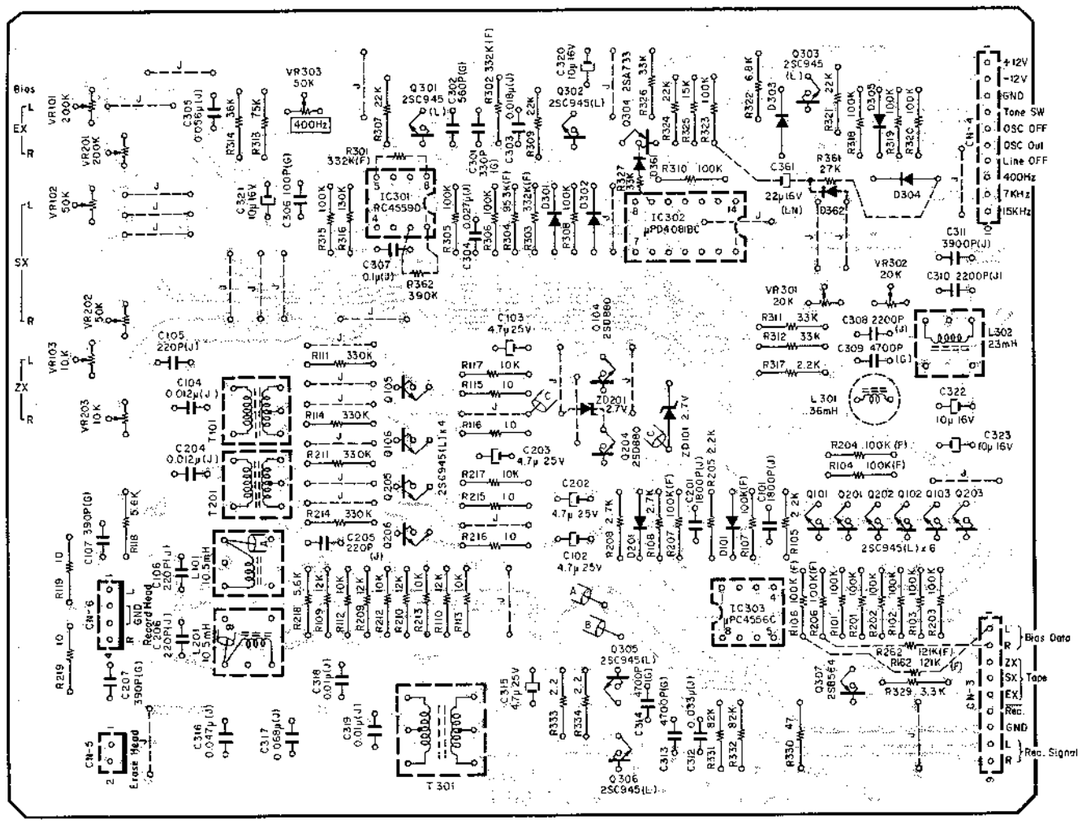


Fig. 7.25.2 1st Version Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description			Schematic Ref. No.	Part No.	Description		
	BA04302A	Oscillator P.C.B. Ass'y 1st Version				– Rec. Bias –			
	– Test Tone –				IC303	0B06216A	IC	μPC4556C	
IC301	0B06127A	IC	RC4559D		Q101-103 105,106	0B01872A	Transistor	2SC945 (L) (10 pcs.)	
IC302	0B06129A	IC	μPD4081BC		201-203 205,206				
Q301,302 303	0B01872A	Transistor	2SC945 (L)		Q104,204	0B06255A	Transistor	2SD880 (Y)	
Q304	0B06013A	Transistor	2SA733		ZD101,201	0B06191A	Zener Diode 2.7V	2.7EB	
D301-304 305,361 362	0B06181A	Silicon Diode	1SS53	(7 pcs.)	D101,201	0B06181A	Silicon Diode	1SS53	
L301	0B03919B	Inductor	36mH		T101,201	0B06646B	Bias Transformer		
L302	0B03563A	19 kHz Coil	23mH		L101,201	0B00068A	Trap Coil	10.5mH	
VR301,302	0B07215A	Semi-fixed Volume	20K		VR101,201	0B07161A	Semi-fixed Volume	200K	
VR303	0B07058A	Semi-fixed Volume	50K		VR102,202	0B07058A	Semi-fixed Volume	50K	
R301,302 303	0B09315A	Metal Film Resistor	332K	SN14K2E F	VR103,203	0B07162A	Semi-fixed Volume	10K	
R304	0B09462A	Metal Film Resistor	95.3K	SN14K2E F	R101-103 201-203	0B01889A	Carbon Resistor	100K	ERD-25T J (6 pcs.)
R305,306 308,310 315,318 319,320 323	0B01889A	Carbon Resistor	100K	ERD-25T J	R104,106 107,204 206,207	0B09305A	Metal Film Resistor	100K	SN14K2E F
R307,309 321,324	0B05615A	Carbon Resistor	22K	ERD-25T J	R105,205 R108,208 R109,110 209,210 R111,114 211,214 R112,113 117,212 213,217 R115,116 119,215 216,219 R118,218	0B05622A	Carbon Resistor	2.2K	ERD-25T J
R311,312 326,327	0B05509A	Carbon Resistor	33K	ERD-25T J		0B05629A	Carbon Resistor	2.7K	ERD-25T J
R313	0B05641A	Carbon Resistor	47K	ERD-25T J		0B09263A	Carbon Resistor	12K	ERD-25T J
R314	0B09169A	Carbon Resistor	36K	ERD-25T J		0B05627A	Carbon Resistor	330K	ERD-25T J
R316	0B09527A	Carbon Resistor	130K	ERD-25T J		0B01888A	Carbon Resistor	10K	ERD-25T J
R317	0B05622A	Carbon Resistor	2.2K	ERD-25T J		0B05936A	Carbon Resistor	10	ERD-25T J
R322	0B01682A	Carbon Rssistor	6.8K	ERD-25T J		0B01887A	Carbon Resistor	5.6K	ERD-25T J
R325	0B01683A	Carbon Resistor	15K	ERD-25T J	R162,262	0B09464A	Metal Film Resistor	121K	SN14K2E F
R361	0B05743A	Carbon Resistor	27K	ERD-25T J	C101,201	0B01913A	Mylar Capacitor	1800P	50V J
R362	0B05676A	Carbon Resistor	390K	ERD-25T J	C102,103 202,203	0B01402A	Electrolytic Capacitor	4.7μ	25V
C301	0B09325A	PP Capacitor	330P	100V G	C104,204	0B05843A	Mylar Capacitor	0.012μ	50V J
C302	0B09414A	PP Capacitor	560P	100V G	C105,106 205,206	0B09247A	Mica Capacitor	220P	50V J
C303	0B05832A	Mylar Capacitor	0.018μ	50V J	C107,207	0B09511A	PP Capacitor	390P	100V G
C304	0B09045A	Mylar Capacitor	0.027μ	50V J	C318,319	0B05681A	Mylar Capacitor	0.01μ	50V J
C305	0B05813A	Mylar Capacitor	0.056μ	50V J	C322,323	0B01412A	Electrolytic Capacitor	10μ	16V
C306	0B09302A	Mica Capacitor	100P	50V G		– Miscellaneous –			
C307	0B01780A	Mylar Capacitor	0.1μ	50V J		0B07901A	Oscillator P.C.B.		
C308,310	0B01802A	Mylar Capacitor	2200P	50V J	CN3	0B08814A	9P-S Connector		
C309	0B09484A	PP Capacitor	4700P	100V G	CN4	0B08731A	10P-S Connector		
C311	0B01804A	Mylar Capacitor	3900P	50V J	CN5	0B08656A	2P-T Post		
C320,321	0B01412A	Electrolytic Capacitor	10μ	16V	CN6	0B08654A	4P-T Post		
C361	0B09137A	Electrolytic Capacitor	22μ	16V (LN)					
	– Erase Osc. –								
Q305,306	0B01872A	Transistor	2SC945 (L)						
Q307	0B06069A	Transistor	2SB564						
T301	0B06647A	Erase Transformer							
R329	0B01681A	Carbon Resistor	3.3K	ERD-25T J					
R330	0B09177A	Fail Safe Type Resistor	47	RDF-25S J					
R331,332	0B05668A	Carbon Resistor	82K	ERD-25T J					
R333,334	0B09212A	Fail Safe Type Resistor	2.2	RDF-25S J					
C312	0B05583A	Mylar Capacitor	0.033μ	50V J					
C313,314	0B09191A	PP Capacitor	4700P	100V G					
C315	0B01402A	Electrolytic Capacitor	4.7μ	25V					
C316	0B09248A	PP Capacitor	0.047μ	50V J					
C317	0B09254A	PP Capacitor	0.068μ	50V J					

7.26. Mother P.C.B. Ass'y

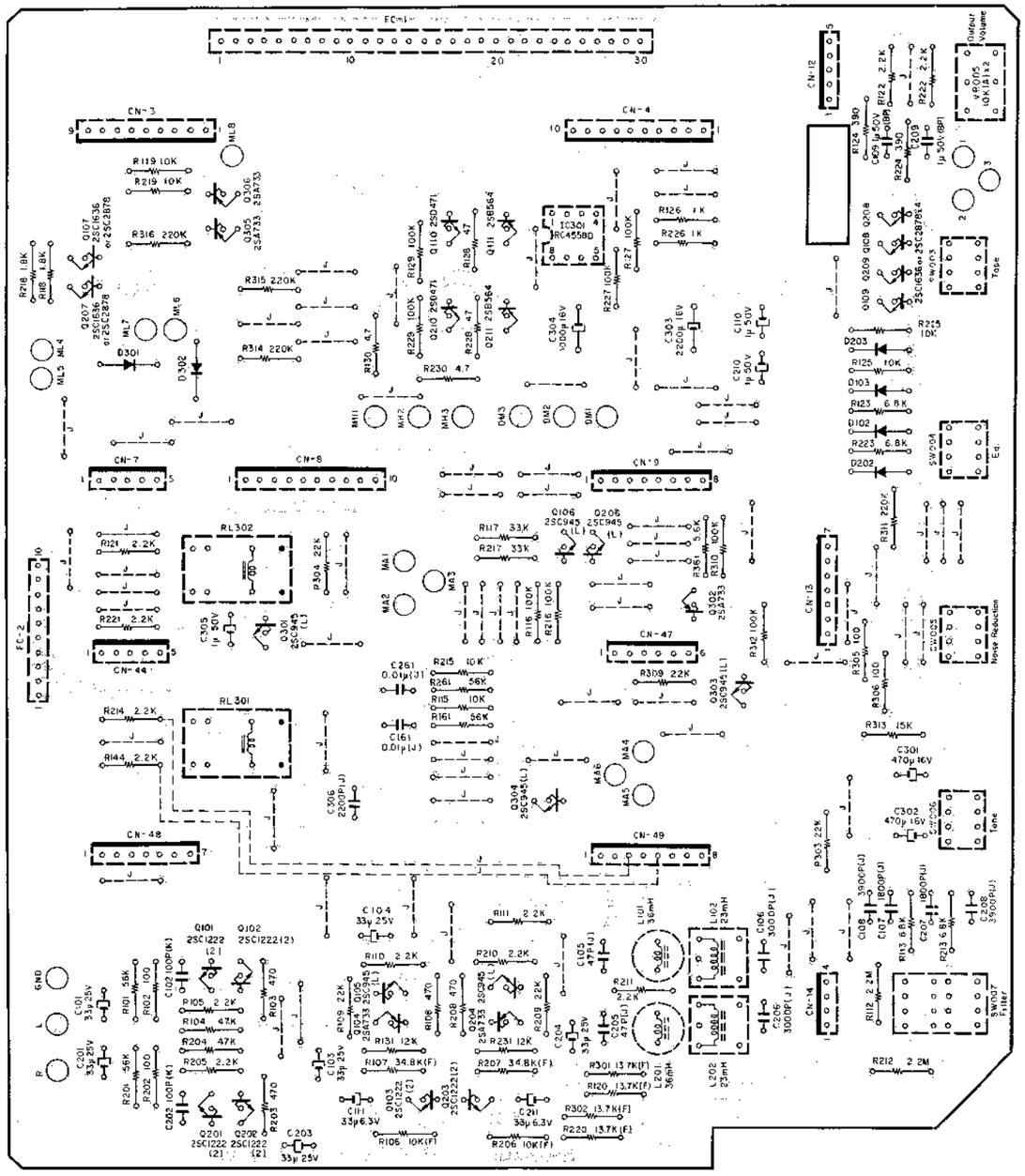


Fig. 7.26.1 2nd Version Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description			Schematic Ref. No.	Part No.	Description		
	BA04281A	Mother P.C.B. Ass'y 2nd Version			R161,261	0B05508A	Carbon Resistor	56K	ERD-25T J
					R314,315 316	0B05625A	Carbon Resistor	220K	ERD-25T J
	– MIX Amp. –				C161,261	0B05681A	Mylar Capacitor	0.01μ	50V J
Q101,102 103,201 202,203	0B06062A	Transistor	2SC1222 (2)			– Line Mute –			
Q104,204	0B06013A	Transistor	2SA733		Q108,109 208,209	0B06070A (0B06299A)	Transistor	2SC1636 (2SC2878)	
Q105,205	0B01872A	Transistor	2SC945 (L)		Q304	0B01872A	Transistor	2SC945 (L)	
L101,201	0B03919B	Inductor	36mH		D102,103 202,203	0B06181A	Silicon Diode	1SS53	
L102,202	0B03563A	19 kHz Coil	23mH		VR005	0B07347A	Volume	10K(A) x 2	
R101,201	0B05508A	Carbon Resistor	56K	ERD-25T J	R122,222	0B05622A	Carbon Resistor	2.2K	ERD-25T J
R102,202	0B01679A	Carbon Resistor	100	ERD-25T J	R123,223	0B01682A	Carbon Resistor	6.8K	ERD-25T J
R103,108 203,208	0B05576A	Carbon Resistor	470	ERD-25T J	R124,224	0B05691A	Carbon Resistor	390	ERD-25T J
R104,204	0B05641A	Carbon Resistor	47K	ERD-25T J	R125,225	0B01888A	Carbon Resistor	10K	ERD-25T J
R105,110 111,205 210,211	0B05622A	Carbon Resistor	2.2K	ERD-25T J	C109,209	0B09187A	Electrolytic Capacitor 1μ		50V (BP)
					C306	0B01802A	Mylar Capacitor	2200P	50V J
R106,206	0B09203A	Metal Film Resistor	10K	SN14K2E F		– HP Amp. –			
R120,220 301,302	0B09523A	Metal Film Resistor	13.7K	SN14K2E F	IC301	0B06124B	IC	RC4558D	
R107,207	0B09447A	Metal Film Resistor	34.8K	SN14K2E F	Q110,210	0B06066A	Transistor	2SD471	
R109,209 303	0B05615A	Carbon Resistor	22K	ERD-25T J	Q111,211	0B06069A	Transistor	2SB564	
					R126,226	0B01857A	Carbon Resistor	1K	ERD-25T J
R112,212	0B05671A	Carbon Resistor	2.2M	ERD-25T J	R127,129 227,229	0B01889A	Carbon Resistor	100K	ERD-25T J
R113,213	0B01682A	Carbon Resistor	6.8K	ERD-25T J					
R131,231	0B09263A	Carbon Resistor	12K	ERD-25T J	R128,228	0B01706A	Carbon Resistor	47	ERD-25T J
C101,103 104,201 203,204	0B09251A	Electrolytic Capacitor	33μ	25V	R130,230	0B09321A	Fail Safe Type Resistor	4.7	RDF-25S J
					C110,210	0B01405A	Electrolytic Capacitor	1μ	50V
C102,202	0B09282A	Ceramic Capacitor	100P	50V K		– Switch –			
C105,205	0B09242A	Mica Capacitor	47P	50V J					
C106,206	0B09262A	PP Capacitor	3000P	100V J	Q303	0B01872A	Transistor	2SC945 (L)	
C107,207	0B01913A	Mylar Capacitor	1800P	50V J	R311	0B05625A	Carbon Resistor	220K	ERD-25T J
C108,208	0B01804A	Mylar Capacitor	3900P	50V J	R312	0B01889A	Carbon Resistor	100K	ERD-25T J
C111,211	0B09033A	Tantalum Capacitor	33μ	6.3V	R313	0B01683A	Carbon Resistor	15K	ERD-25T J
SW007	0B07348A	Rotary Switch 4-3			SW003,005	0B07350A	Rotary Switch 2-3		
					SW004,006	0B07349A	Rotary Switch 2-2		
	– NR Switch –					– Power Supply –			
Q301	0B01872A	Transistor	2SC945 (L)						
Q302	0B06013A	Transistor	2SA733		R305,306	0B09215A	Fail Safe Type Resistor	100	RDF-25S J
R114,121 214,221	0B05622A	Carbon Resistor	2.2K	ERD-25T J	C301,302	0B01392A	Electrolytic Capacitor	470μ	16V
					C303	0B01406A	Electrolytic Capacitor	2200μ	16V
R304,309	0B05615A	Carbon Resistor	22K	ERD-25T J	C304	0B01397A	Electrolytic Capacitor	1000μ	16V
R310	0B01889A	Carbon Resistor	100K	ERD-25T J					
R361	0B01887A	Carbon Resistor	5.6K	ERD-25T J		– Miscellaneous –			
C305	0B01405A	Electrolytic Capacitor	1μ	50V					
RL301,302	0B07326A	FBR Relay				0B07904B	Mother P.C.B.		
					CN3	0B08614A	9P-T Post		
	– Rec. Mute –				CN4,8	0B08615A	10P-T Post		
					CN7,12 44	0B08183A	5P-T Post		
Q106,206	0B01872A	Transistor	2SC945 (L)						
Q107,207	0B06070A (0B06299A)	Transistor	2SC1636 (2SC2878)		CN9,49	0B08334A	8P-T Post		
					CN13,48	0B08302A	7P-T Post		
Q305,306	0B06013A	Transistor	2SA733		CN14	0B08236A	4P-T Post		
D301,302	0B06181A	Silicon Diode	1SS53		CN47	0B08182A	6P-T Post		
R115,119 215,219	0B01888A	Carbon Resistor	10K	ERD-25T J	FC1	0B05250A	10P Flat Cable x 3		80mm
					FC2	0B05249A	10P Flat Cable		120mm
R116,216	0B01889A	Carbon Resistor	100K	ERD-25T J					
R117,217	0B05509A	Carbon Resistor	33K	ERD-25T J					
R118,218	0B09518A	Carbon Resistor	1.8K	ERD-25T J					

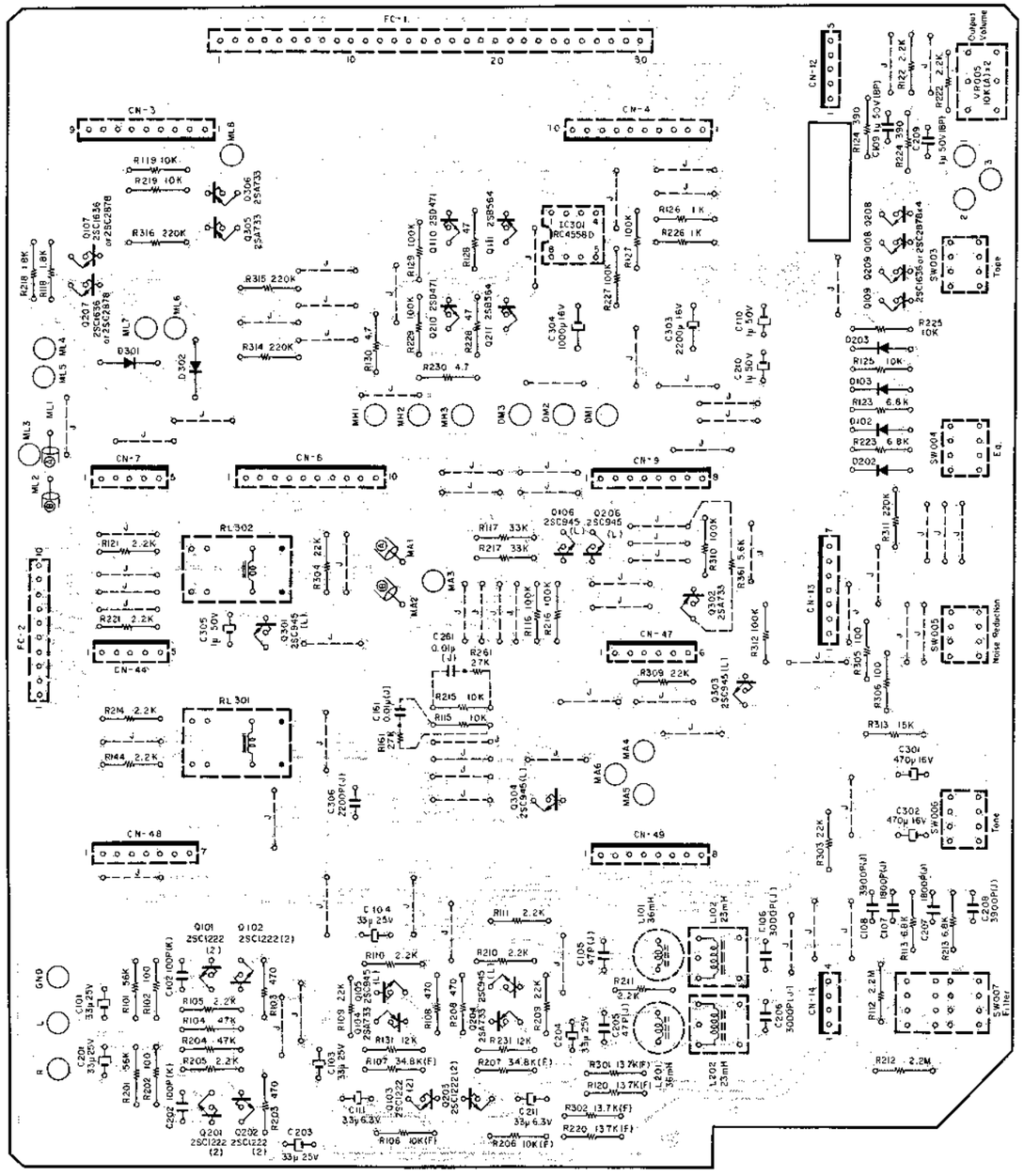


Fig. 7.26.2 1st Version Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description			Schematic Ref. No.	Part No.	Description		
	BA04281A	**Mother P.C.B. Ass'y 1st Version**			R161,261	0B05743A	Carbon Resistor	27K	ERD-25T J
					R314,315 316	0B05625A	Carbon Resistor	220K	ERD-25T J
	– MIX Amp. –				C161,261	0B05681A	Mylar Capacitor	0.01μ 50V J	
Q101,102 103,201 202,203	0B06062A	Transistor	2SC1222 (2)			**– Line Mute –**			
Q104,204	0B06013A	Transistor	2SA733		Q108,109 208,209	0B06070A (0B06299A)	Transistor	2SC1636 (2SC2878)	
Q105,205	0B01872A	Transistor	2SC945 (L)		Q304	0B01872A	Transistor	2SC945 (L)	
L101,201	0B03919B	Inductor	36mH		D102,103 202,203	0B06181A	Silicon Diode	1SS53	
L102,202	0B03563A	19 kHz Coil	23mH		VR005	0B07347A	Volume	10K(A) x 2	
R101,201	0B05508A	Carbon Resistor	56K	ERD-25T J	R122,222	0B05622A	Carbon Resistor	2.2K	ERD-25T J
R102,202	0B01679A	Carbon Resistor	100	ERD-25T J	R123,223	0B01682A	Carbon Resistor	6.8K	ERD-25T J
R103,108 203,208	0B05576A	Carbon Resistor	470	ERD-25T J	R124,224	0B05691A	Carbon Resistor	390	ERD-25T J
R104,204	0B05641A	Carbon Resistor	47K	ERD-25T J	R125,225	0B01888A	Carbon Resistor	10K	ERD-25T J
R105,110 111,205 210,211	0B05622A	Carbon Resistor	2.2K	ERD-25T J	C109,209	0B09187A	Electrolytic Capacitor 1μ		50V (BP)
					C306	0B01802A	Mylar Capacitor	2200P	50V J
R106,206	0B09203A	Metal Film Resistor	10K	SN14K2E F		**– HP Amp. –**			
R120,220 301,302	0B09523A	Metal Film Resistor	13.7K	SN14K2E F					
					IC301	0B06124B	IC	RC4558D	
R107,207	0B09447A	Metal Film Resistor	34.8K	SN14K2E F	Q110,210	0B06066A	Transistor	2SD471	
R109,209 303	0B05615A	Carbon Resistor	22K	ERD-25T J	Q111,211	0B06069A	Transistor	2SB564	
					R126,226	0B01857A	Carbon Resistor	1K	ERD-25T J
R112,212	0B05671A	Carbon Resistor	2.2M	ERD-25T J	R127,129 227,229	0B01889A	Carbon Resistor	100K	ERD-25T J
R113,213	0B01682A	Carbon Resistor	6.8K	ERD-25T J					
R131,231	0B09263A	Carbon Resistor	12K	ERD-25T J	R128,228	0B01706A	Carbon Resistor	47	ERD-25T J
C101,103 104,201 203,204	0B09251A	Electrolytic Capacitor	33μ	25V	R130,230	0B09321A	Fail Safe Type Resistor	4.7	RDF-25S J
					C110,210	0B01405A	Electrolytic Capacitor 1μ		50V
C102,202	0B09282A	Ceramic Capacitor	100P	50V K		**– Switch –**			
C105,205	0B09242A	Mica Capacitor	47P	50V J					
C106,206	0B09262A	PP Capacitor	3000P	100V J	Q303	0B01872A	Transistor	2SC945 (L)	
C107,207	0B01913A	Mylar Capacitor	1800P	50V J	R311	0B05625A	Carbon Resistor	220K	ERD-25T J
C108,208	0B01804A	Mylar Capacitor	3900P	50V J	R312	0B01889A	Carbon Resistor	100K	ERD-25T J
C111,211	0B09033A	Tantalum Capacitor	33μ	6.3V	R313	0B01683A	Carbon Resistor	15K	ERD-25T J
SW007	0B07348A	Rotary Switch 4-3			SW003,005	0B07350A	Rotary Switch 2-3		
					SW004,006	0B07349A	Rotary Switch 2-2		
	– NR Switch –					**– Power Supply –**			
Q301	0B01872A	Transistor	2SC945 (L)						
Q302	0B06013A	Transistor	2SA733		R305,306	0B09215A	Fail Safe Type Resistor	100	RDF-25S J
R114,121 214,221	0B05622A	Carbon Resistor	2.2K	ERD-25T J	C301,302	0B01392A	Electrolytic Capacitor	470μ	16V
					C303	0B01406A	Electrolytic Capacitor	2200μ	16V
R304,309	0B05615A	Carbon Resistor	22K	ERD-25T J	C304	0B01397A	Electrolytic Capacitor	1000μ	16V
R310	0B01889A	Carbon Resistor	100K	ERD-25T J					
R361	0B01887A	Carbon Resistor	5.6K	ERD-25T J		**– Miscellaneous –**			
C305	0B01405A	Electrolytic Capacitor	1μ	50V					
RL301,302	0B07326A	FBR Relay				0B07904A	Mother P.C.B.		
					CN3	0B08614A	9P-T Post		
	– Rec. Mute –				CN4,8	0B08615A	10P-T Post		
					CN7,12 44	0B08183A	5P-T Post		
Q106,206	0B01872A	Transistor	2SC945 (L)						
Q107,207	0B06070A (0B06299A)	Transistor	2SC1636 (2SC2878)		CN9,49	0B08334A	8P-T Post		
Q305,306	0B06013A	Transistor	2SA733		CN13,48	0B08302A	7P-T Post		
D301,302	0B06181A	Silicon Diode	1SS53		CN14	0B08236A	4P-T Post		
R115,119 215,219	0B01888A	Carbon Resistor	10K	ERD-25T J	CN47	0B08182A	6P-T Post		
					FC1	0B05250A	10P Flat Cable x 3		80mm
R116,216	0B01889A	Carbon Resistor	100K	ERD-25T J	FC2	0B05249A	10P Flat Cable		120mm
R117,217	0B05509A	Carbon Resistor	33K	ERD-25T J					
R118,218	0B09518A	Carbon Resistor	1.8K	ERD-25T J					

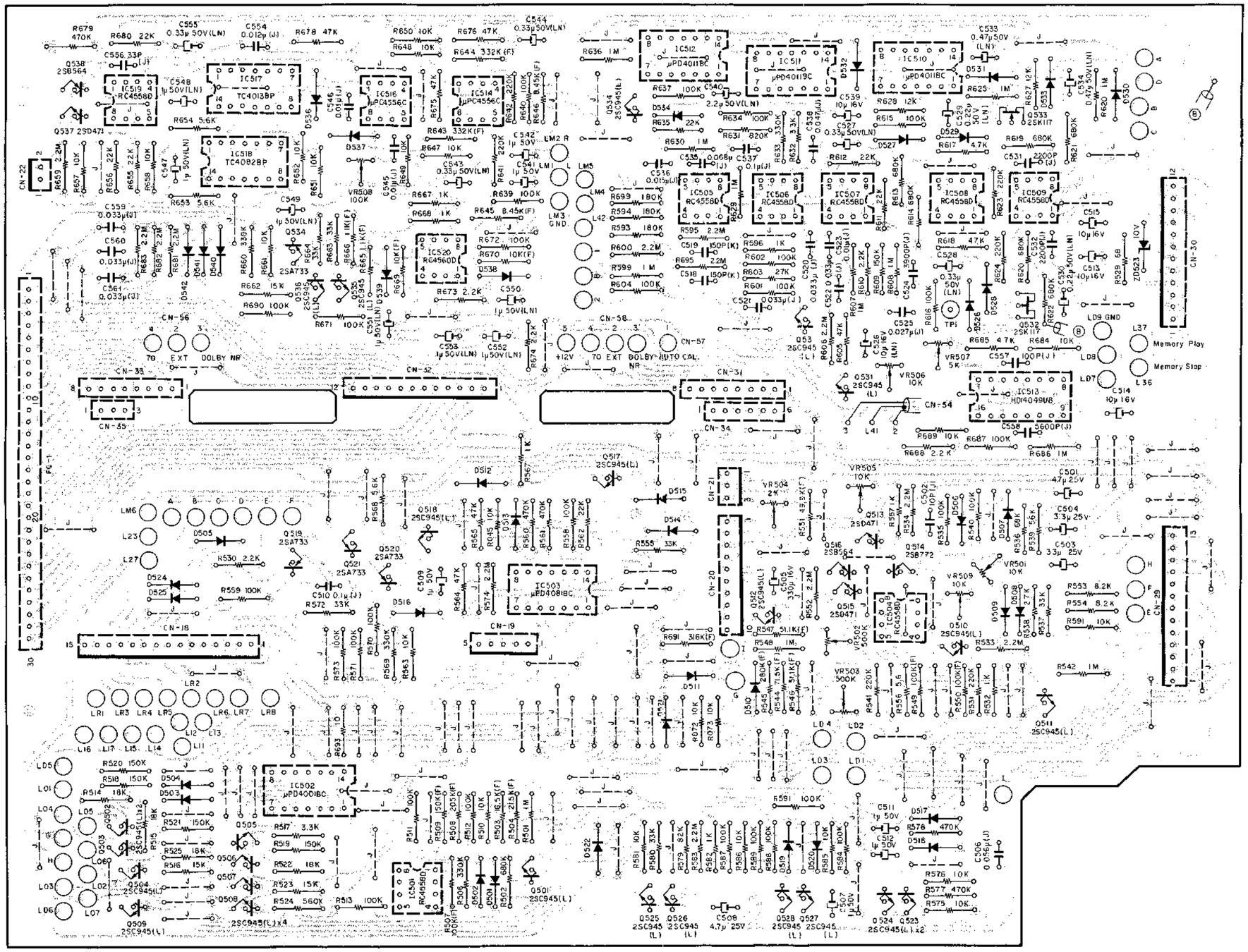


Fig. 7.27.1 2nd Version

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04278A	**Main Logic P.C.B. Ass'y** 2nd Version
		— Lamp Mode —
IC502	0B06143A	IC μPD4001BC
Q502-509	0B01872A	Transistor 2SC945 (L) (8 pcs.)
D503,504	0B06181A	Silicon Diode 1SS53
R514,515	0B05560A	Carbon Resistor 18K ERD-25T J
522,525		
R516,523	0B05591A	Carbon Resistor 15K ERD-25T J
R517	0B01681A	Carbon Resistor 3.3K ERD-25T J
R518,519	0B05626A	Carbon Resistor 150K ERD-25T J
520,521		
R524	0B05784A	Carbon Resistor 560K ERD-25T J
		— Cam Sensor —
IC501	0B06124B	IC RC4558D
Q501	0B01872A	Transistor 2SC945 (L)
D501,502	0B06181A	Silicon Diode 1SS53
R501	0B05776A	Carbon Resistor 1M ERD-25T J
R502	0B05868A	Carbon Resistor 680K ERD-25T J
R503	0B09438A	Metal Film Resistor 16.5K SN14K2E F
R504	0B09440A	Metal Film Resistor 21.5K SN14K2E F
R506	0B05627A	Carbon Resistor 330K ERD-25T J
R507	0B09305A	Metal Film Resistor 100K SN14K2E F
R508	0B09471A	Metal Film Resistor 205K SN14K2E F
R509	0B09300A	Metal Film Resistor 150K SN14K2E F
R510	0B01888A	Carbon Resistor 10K ERD-25T J
R511,512	0B01889A	Carbon Resistor 100K ERD-25T J
513		
		— Counter Pulse —
Q523,524	0B01872A	Transistor 2SC945 (L)
D517,518	0B06181A	Silicon Diode 1SS53
R575,576	0B01888A	Carbon Resistor 10K ERD-25T J
072,073		
R577,578	0B01684A	Carbon Resistor 470K ERD-25T J
C511,512	0B01405A	Electrolytic Capacitor 1μ 50V
		— Shut-off —
Q525,526	0B01872A	Transistor 2SC945 (L)
527,528		
D519,520	0B06181A	Silicon Diode 1SS53
521,522		
R579	0B05668A	Carbon Resistor 82K ERD-25T J
R580	0B05509A	Carbon Resistor 33K ERD-25T J
R581,585	0B01888A	Carbon Resistor 10K ERD-25T J
586		
R582	0B01857A	Carbon Resistor 1K ERD-25T J
R583	0B05671A	Carbon Resistor 2.2M ERD-25T J
R584,587	0B01889A	Carbon Resistor 100K ERD-25T J
588,589		
591		
C506	0B05813A	Mylar Capacitor 0.056μ 50V J
C507	0B01405A	Electrolytic Capacitor 1μ 50V
C508	0B01389A	Electrolytic Capacitor 4.7μ 25V
		— Motor Control —
IC504	0B06124B	IC RC4558D
Q510,511	0B01872A	Transistor 2SC945 (L)
512		

Schematic Ref. No.	Part No.	Description
Q513,515	0B06066A	Transistor 2SD471
Q514	0B06303A	Transistor 2SB772
Q516	0B06069A	Transistor 2SB564
D506-511	0B06181A	Silicon Diode 1SS53 (6 pcs.)
VR501,505	0B07256A	Semi-fixed Volume 10K
509		
VR502,503	0B07330A	Semi-fixed Volume 500K
VR504	0B07329A	Semi-fixed Volume 2K
R531,541	0B05625A	Carbon Resistor 220K ERD-25T J
R532,557	0B01857A	Carbon Resistor 1K ERD-25T J
R533,534	0B05671A	Carbon Resistor 2.2M ERD-25T J
552		
R535,540	0B01889A	Carbon Resistor 100K ERD-25T J
R536	0B05692A	Carbon Resistor 68K ERD-25T J
R537,555	0B05509A	Carbon Resistor 33K ERD-25T J
R538	0B05743A	Carbon Resistor 27K ERD-25T J
R539	0B05508A	Carbon Resistor 56K ERD-25T J
R542,548	0B05776A	Carbon Resistor 1M ERD-25T J
R544	0B09457A	Metal Film Resistor 71.5K SN14K2E F
R545	0B09474A	Metal Film Resistor 280K SN14K2E F
R546,547	0B09453A	Metal Film Resistor 51.1K SN14K2E F
R549,550	0B09305A	Metal Film Resistor 100K SN14K2E F
R551	0B09452A	Metal Film Resistor 49.9K SN14K2E F
R553,554	0B01856A	Carbon Resistor 8.2K ERD-25T J
R556	0B09217A	Fail Safe Type Resistor 5.6 RDF-25S J
R691	0B09475A	Metal Film Resistor 316K SN14K2E F
C501	0B01402A	Electrolytic Capacitor 4.7μ 25V
C502	0B09277A	Ceramic Capacitor 10P 50V J
C503,504	0B01396A	Electrolytic Capacitor 3.3μ 25V
C505	0B01502A	Electrolytic Capacitor 330μ 16V
		— Mute —
IC503	0B06219A	IC μPD4081BC
Q517,518	0B01872A	Transistor 2SC945 (L)
Q519,520	0B06013A	Transistor 2SA733
521		
D512-516	0B06181A	Silicon Diode 1SS53 (5 pcs.)
R558,559	0B01889A	Carbon Resistor 100K ERD-25T J
570,571		
573		
R560,561	0B01684A	Carbon Resistor 470K ERD-25T J
R562	0B05615A	Carbon Resistor 22K ERD-25T J
R563,045	0B01888A	Carbon Resistor 10K ERD-25T J
R564,565	0B05641A	Carbon Resistor 47K ERD-25T J
R567	0B01857A	Carbon Resistor 1K ERD-25T J
R568	0B01887A	Carbon Resistor 5.6K ERD-25T J
R569	0B05627A	Carbon Resistor 330K ERD-25T J
R572	0B05509A	Carbon Resistor 33K ERD-25T J
R574	0B05671A	Carbon Resistor 2.2M ERD-25T J
C509	0B01405A	Electrolytic Capacitor 1μ 50V
C510	0B01780A	Mylar Capacitor 0.1μ 50V J
		— A3 Music —
IC514,516	0B06216A	IC μPC4556C
IC517	0B06213A	IC TC4013BP
IC518	0B06286A	IC TC4082BP
IC519	0B06124B	IC RC4558D
IC520	0B06217A	IC RC4560D
Q534	0B06013A	Transistor 2SA733
Q535,536	0B01872A	Transistor 2SC945 (L)
Q537	0B06066A	Transistor 2SD471
Q538	0B06069A	Transistor 2SB564
D536,537	0B06181A	Silicon Diode 1SS53
538,539		

Schematic Ref. No.	Part No.	Description
VR508	0B07257A	Semi-fixed Volume 100K
R639,640	0B01889A	Carbon Resistor 100K ERD-25T J
671,672		
R641,642	0B05625A	Carbon Resistor 220K ERD-25T J
R643,644	0B09315A	Metal Film Resistor 332K SN14K2E F
R645,646	0B09564A	Metal Film Resistor 8.45K SN14K2E F
R647-652	0B01888A	Carbon Resistor 10K ERD-25T J (9 pcs.)
657,658		
661		
R653,654	0B01887A	Carbon Resistor 5.6K ERD-25T J
R655,656	0B05615A	Carbon Resistor 22K ERD-25T J
680		
R659	0B05671A	Carbon Resistor 2.2M ERD-25T J
R660	0B05627A	Carbon Resistor 330K ERD-25T J
R662	0B01683A	Carbon Resistor 15K ERD-25T J
R663,664	0B05509A	Carbon Resistor 33K ERD-25T J
R665,666	0B09505A	Metal Film Resistor 1.1K SN14K2E F
R667,668	0B01857A	Carbon Resistor 1K ERD-25T J
R669,670	0B09203A	Metal Film Resistor 10K SN14K2E F
R673,674	0B05622A	Carbon Resistor 2.2K ERD-25T J
R675,676	0B05641A	Carbon Resistor 47K ERD-25T J
R678,679	0B01684A	Carbon Resistor 470K ERD-25T J
C541,542	0B01405A	Electrolytic Capacitor 1μ 50V
C543,544	0B09327A	Electrolytic Capacitor 0.33μ 50V (LN)
C545,546	0B05681A	Mylar Capacitor 0.01μ 50V J
C547-553	0B09223A	Electrolytic Capacitor 1μ 50V (LN) (7 pcs.)
C554	0B05843A	Mylar Capacitor 0.012μ 50V J
C555	0B09327A	Electrolytic Capacitor 0.33μ 50V (LN)
C556	0B09370A	Ceramic Capacitor 33P 50V J
		— RAMM Mode —
IC505-509	0B06124B	IC RC4558D (5 pcs.)
IC510,511	0B06178A	IC μPD4011BC
512		
Q530,531	0B01872A	Transistor 2SC945 (L)
534		
Q532,533	0B06129A	FET 2SK117 (Y)
D526-534	0B06181A	Silicon Diode 1SS53 (9 pcs.)
VR506	0B07236A	Semi-fixed Volume 10K
R593,594	0B05640A	Carbon Resistor 180K ERD-25T J
699		
R595,600	0B05671A	Carbon Resistor 2.2M ERD-25T J
606,695		
R596	0B01857A	Carbon Resistor 1K ERD-25T J
R599,607	0B05776A	Carbon Resistor 1M ERD-25T J
608,625		
626,629		
630,636		
R601,602	0B01889A	Carbon Resistor 100K ERD-25T J
604,615		
616,634		
637		
R603	0B05743A	Carbon Resistor 27K ERD-25T J
R605	0B05641A	Carbon Resistor 47K ERD-25T J
R609	0B05626A	Carbon Resistor 150K ERD-25T J
R610	0B05622A	Carbon Resistor 2.2K ERD-25T J
R611,612	0B05615A	Carbon Resistor 22K ERD-25T J
635		
R613,614	0B05868A	Carbon Resistor 680K ERD-25T J
619,620		
621,622		
R617,618	0B01846A	Carbon Resistor 4.7K ERD-25T J
R623,624	0B05625A	Carbon Resistor 220K ERD-25T J
R627,628	0B09263A	Carbon Resistor 12K ERD-25T J

Schematic Ref. No.	Part No.	Description
R631	0B09320A	Carbon Resistor 820K ERD-25T J
R632	0B01681A	Carbon Resistor 3.3K ERD-25T J
R633	0B05627A	Carbon Resistor 330K ERD-25T J
C518,519	0B09281A	Ceramic Capacitor 150P 50V K
C520,521	0B05583A	Mylar Capacitor 0.033μ 50V J
C523	0B05681A	Mylar Capacitor 0.01μ 50V J
C524	0B01804A	Mylar Capacitor 3900P 50V J
C525	0B09045A	Mylar Capacitor 0.027μ 50V J
C526	0B09148A	Electrolytic Capacitor 10μ 16V (LN)
C527,528	0B09327A	Electrolytic Capacitor 0.33μ 50V (LN)
C529,530	0B09144A	Electrolytic Capacitor 0.22μ 50V (LN)
C531,532	0B01802A	Mylar Capacitor 2200P 50V J
C533,534	0B09145A	Electrolytic Capacitor 0.47μ 50V (LN)
C535	0B05682A	Mylar Capacitor 0.068μ 50V J
C536	0B05557A	Mylar Capacitor 0.015μ 50V J
C537	0B01780A	Mylar Capacitor 0.1μ 50V J
C538	0B05796A	Mylar Capacitor 0.047μ 50V J
C539	0B01412A	Electrolytic Capacitor 10μ 16V
C540	0B09396A	Electrolytic Capacitor 2.2μ 50V (LN)
		— CPU Clock —
IC513	0B06249A	IC HD14049UB
VR507	0B09059A	Semi-fixed Volume 5K
R684,689	0B01888A	Carbon Resistor 10K ERD-25T J
R685	0B01846A	Carbon Resistor 4.7K ERD-25T J
R686	0B05776A	Carbon Resistor 1M ERD-25T J
R687	0B01889A	Carbon Resistor 100K ERD-25T J
R688	0B05622A	Carbon Resistor 2.2K ERD-25T J
C557	0B09302A	Mica Capacitor 100P 50V J
C558	0B05659A	Mylar Capacitor 5600P 50V J
		— Miscellaneous —
	0B07912C	Main Logic P.C.B.
ZD523	0B06233A	Zener Diode 10V RD10EB3
D505,524	0B06181A	Silicon Diode 1SS53
525,540		
541,542		
R530	0B05622A	Carbon Resistor 2.2K ERD-25T J
R591	0B01888A	Carbon Resistor 10K ERD-25T J
R592	0B05924A	Fail Safe Type Resistor 68 RDF-25S J
R681,682	0B05671A	Carbon Resistor 2.2M ERD-25T J
683		
R690	0B01889A	Carbon Resistor 100K ERD-25T J
R693	0B09216A	Fail Safe Type Resistor 10 RDF-25S J
C513,514	0B01412A	Electrolytic Capacitor 10μ 16V
515		
C559,560	0B05583A	Mylar Capacitor 0.033μ 50V J
561		
CN18	0B08257A	15P-T Post
CN19	0B08183A	5P-T Post
CN20	0B08646A	10P-T Post
CN21	0B08653A	3P-T Post
CN22	0B08656A	2P-T Post
CN29	0B08506A	13P-T Post
CN30,32	0B08178A	12P-T Post
CN31,33	0B08334A	8P-T Post
CN34	0B08182A	6P-T Post
CN35	0B08185A	3P-T Post
CN54	0B08787B	3P-H Connector
CN56	0B08788C	4P-H Connector
CN57	0B08789B	6P-H Connector
CN58	0B08790C	8P-H Connector

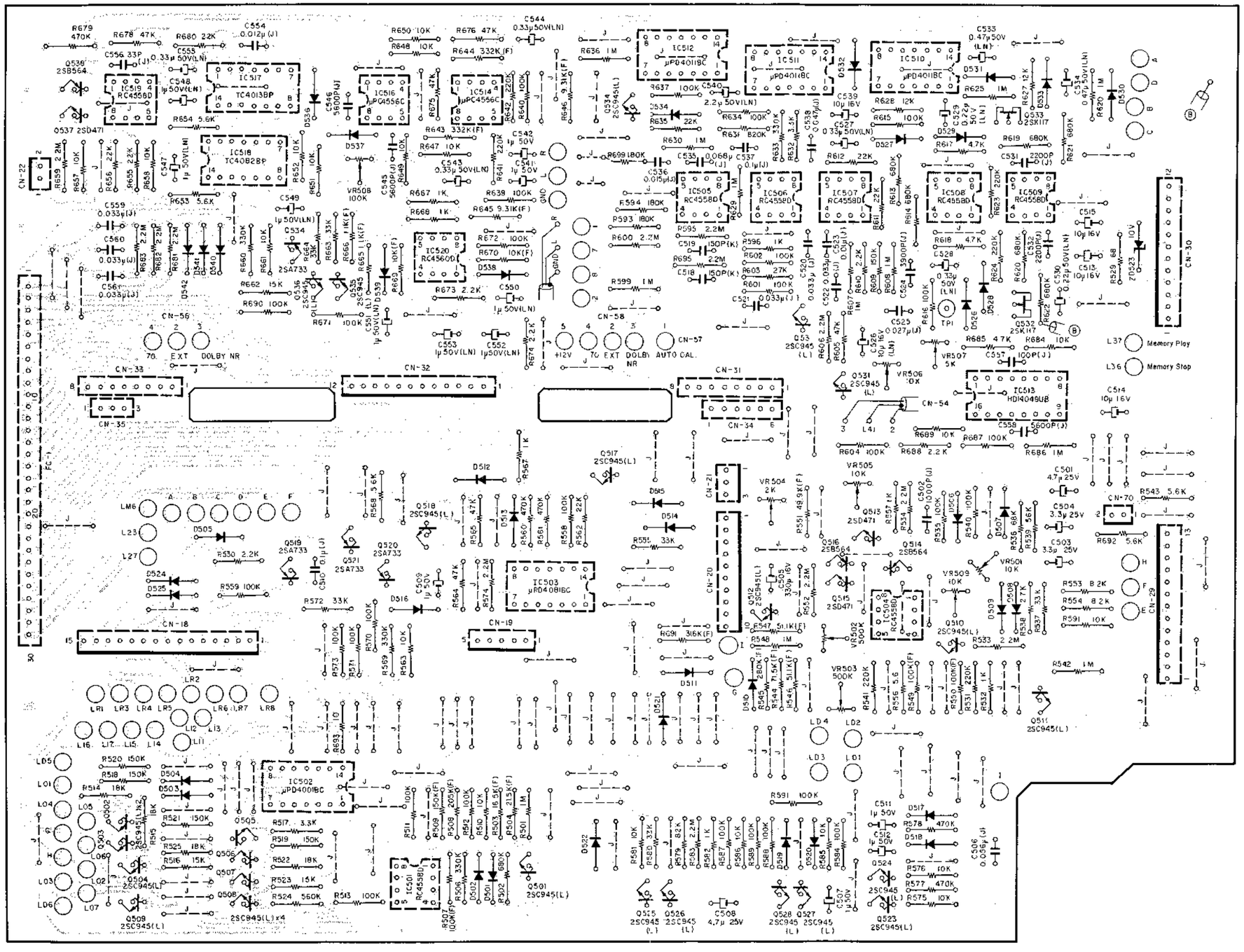


Fig. 7.27.2 1st Version

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04278A	**Main Logic P.C.B. Ass'y 1st Version**
		— Lamp Mode —
IC502	0B06143A	IC μPD40018C
Q502-509	0B01872A	Transistor 2SC945 (L) (8 pcs.)
D503,504	0B06181A	Silicon Diode 1SS53
R514,515 522,525	0B05560A	Carbon Resistor 18K ERD-25T J
R516,523	0B05591A	Carbon Resistor 15K ERD-25T J
R517	0B01681A	Carbon Resistor 3.3K ERD-25T J
R518,519 520,521	0B05626A	Carbon Resistor 150K ERD-25T J
R524	0B05784A	Carbon Resistor 560K ERD-25T J
		— Cam Sensor —
IC501	0B06124B	IC RC4558D
Q501	0B01872A	Transistor 2SC945 (L)
D501,502	0B06181A	Silicon Diode 1SS53
R501	0B05776A	Carbon Resistor 1M ERD-25T J
R502	0B05868A	Carbon Resistor 680K ERD-25T J
R503	0B09438A	Metal Film Resistor 16.5K SN14K2E F
R504	0B09440A	Metal Film Resistor 21.5K SN14K2E F
R506	0B05627A	Carbon Resistor 330K ERD-25T J
R507	0B09305A	Metal Film Resistor 100K SN14K2E F
R508	0B09471A	Metal Film Resistor 205K SN14K2E F
R509	0B09300A	Metal Film Resistor 150K SN14K2E F
R510	0B01888A	Carbon Resistor 10K ERD-25T J
R511,512 513	0B01889A	Carbon Resistor 100K ERD-25T J
		— Counter Pulse —
Q523,524	0B01872A	Transistor 2SC945 (L)
D517,518	0B06181A	Silicon Diode 1SS53
R575,576	0B01888A	Carbon Resistor 10K ERD-25T J
R577,578	0B01684A	Carbon Resistor 470K ERD-25T J
C511,512	0B01405A	Electrolytic Capacitor 1μ 50V
		— Shut-off —
Q525,526 527,528	0B01872A	Transistor 2SC945 (L)
D519,520 521,522	0B06181A	Silicon Diode 1SS53
R579	0B05668A	Carbon Resistor 82K ERD-25T J
R580	0B05509A	Carbon Resistor 33K ERD-25T J
R581,585 586	0B01888A	Carbon Resistor 10K ERD-25T J
R582	0B01857A	Carbon Resistor 1K ERD-25T J
R583	0B05671A	Carbon Resistor 2.2M ERD-25T J
R584,587 588,589 591	0B01889A	Carbon Resistor 100K ERD-25T J
C506	0B05813A	Mylar Capacitor 0.056μ 50V J
C507	0B01405A	Electrolytic Capacitor 1μ 50V
C508	0B01389A	Electrolytic Capacitor 4.7μ 25V
		— Motor Control —
IC504	0B06124B	IC RC4558D
Q510,511 512	0B01872A	Transistor 2SC945 (L)

Schematic Ref. No.	Part No.	Description
Q513,515	0B06066A	Transistor 2SD471
Q514,516	0B06069A	Transistor 2SB564
D506-511	0B06181A	Silicon Diode 1SS53 (6 pcs.)
VR501,505 509	0B07256A	Semi-fixed Volume 10K
VR502,503	0B07330A	Semi-fixed Volume 500K
VR504	0B07329A	Semi-fixed Volume 2K
R531,541	0B05625A	Carbon Resistor 220K ERD-25T J
R532,557	0B01857A	Carbon Resistor 1K ERD-25T J
R533,534 552	0B05671A	Carbon Resistor 2.2M ERD-25T J
R535,540	0B01889A	Carbon Resistor 100K ERD-25T J
R536	0B05692A	Carbon Resistor 68K ERD-25T J
R537,555	0B05509A	Carbon Resistor 33K ERD-25T J
R538	0B05743A	Carbon Resistor 27K ERD-25T J
R539	0B05508A	Carbon Resistor 56K ERD-25T J
R542,548	0B05776A	Carbon Resistor 1M ERD-25T J
R543,692	0B01887A	Carbon Resistor 5.6K ERD-25T J
R544	0B09457A	Metal Film Resistor 71.5K SN14K2E F
R545	0B09474A	Metal Film Resistor 280K SN14K2E F
R546,547	0B09453A	Metal Film Resistor 51.1K SN14K2E F
R549,550	0B09305A	Metal Film Resistor 100K SN14K2E F
R551	0B09452A	Metal Film Resistor 49.9K SN14K2E F
R553,554	0B01856A	Carbon Resistor 8.2K ERD-25T J
R556	0B09217A	Fail Safe Type Resistor 5.6 RDF-25S J
R691	0B09475A	Metal Film Resistor 316K SN14K2E F
C501	0B01402A	Electrolytic Capacitor 4.7μ 25V
C502	0B05550A	Mylar Capacitor 1000P 50V J
C503,504	0B01396A	Electrolytic Capacitor 3.3μ 25V
C505	0B01502A	Electrolytic Capacitor 330μ 16V
		— Mute —
IC503	0B06219A	IC μPD4081BC
Q517,518	0B01872A	Transistor 2SC945 (L)
Q519,520 521	0B06013A	Transistor 2SA733
D512-516	0B06181A	Silicon Diode 1SS53 (5 pcs.)
R558,559 570,571 573	0B01889A	Carbon Resistor 100K ERD-25T J
R560,561	0B01684A	Carbon Resistor 470K ERD-25T J
R562	0B05615A	Carbon Resistor 22K ERD-25T J
R563	0B01888A	Carbon Resistor 10K ERD-25T J
R564,565	0B05641A	Carbon Resistor 47K ERD-25T J
R567	0B01857A	Carbon Resistor 1K ERD-25T J
R568	0B01887A	Carbon Resistor 5.6K ERD-25T J
R569	0B05627A	Carbon Resistor 330K ERD-25T J
R572	0B05509A	Carbon Resistor 33K ERD-25T J
R574	0B05671A	Carbon Resistor 2.2M ERD-25T J
C509	0B01405A	Electrolytic Capacitor 1μ 50V
C510	0B01780A	Mylar Capacitor 0.1μ 50V J
		— A3 Music —
IC514,516	0B06216A	IC μPC4556C
IC517	0B06213A	IC TC4013BP
IC518	0B06286A	IC TC4082BP
IC519	0B06124B	IC RC4558D
IC520	0B06217A	IC RC4560D
Q534	0B06013A	Transistor 2SA733
Q535,536	0B01872A	Transistor 2SC945 (L)
Q537	0B06066A	Transistor 2SD471
Q538	0B06069A	Transistor 2SB564
D536,537 538,539	0B06181A	Silicon Diode 1SS53

Schematic Ref. No.	Part No.	Description
VR508	0B07257A	Semi-fixed Volume 100K
R639,640 671,672	0B01889A	Carbon Resistor 100K ERD-25T J
R641,642	0B05625A	Carbon Resistor 220K ERD-25T J
R643,644	0B09315A	Metal Film Resistor 332K SN14K2E F
R645,646	0B09546A	Metal Film Resistor 9.31K SN14K2E F
R647-652 657,658 661	0B01888A	Carbon Resistor 10K ERD-25T J (9 pcs.)
R653,654	0B01887A	Carbon Resistor 5.6K ERD-25T J
R655,656 680	0B05615A	Carbon Resistor 22K ERD-25T J
R659	0B05671A	Carbon Resistor 2.2M ERD-25T J
R660	0B05627A	Carbon Resistor 330K ERD-25T J
R662	0B01683A	Carbon Resistor 15K ERD-25T J
R663,664	0B05509A	Carbon Resistor 33K ERD-25T J
R665,666	0B09505A	Metal Film Resistor 1.1K SN14K2E F
R667,668	0B01857A	Carbon Resistor 1K ERD-25T J
R669,670	0B09203A	Metal Film Resistor 10K SN14K2E F
R673,674	0B05622A	Carbon Resistor 2.2K ERD-25T J
R675,676	0B05641A	Carbon Resistor 47K ERD-25T J
R678,679	0B01684A	Carbon Resistor 470K ERD-25T J
C541,542	0B01405A	Electrolytic Capacitor 1μ 50V
C543,544	0B09327A	Electrolytic Capacitor 0.33μ 50V (LN)
C545,546	0B05659A	Mylar Capacitor 5600P 50V J
C547-553	0B09223A	Electrolytic Capacitor 1μ 50V (LN) (7 pcs.)
C554	0B05843A	Mylar Capacitor 0.012μ 50V J
C555	0B09327A	Electrolytic Capacitor 0.33μ 50V (LN)
C556	0B09370A	Ceramic Capacitor 33P 50V J
		— RAMM Mode —
IC505-509	0B06124B	IC RC4558D (5 pcs.)
IC510,511 512	0B06178A	IC μPD4011BC
Q530,531 534	0B01872A	Transistor 2SC945 (L)
Q532,533	0B06129A	FET 2SK117 (Y)
D526-534	0B06181A	Silicon Diode 1SS53 (9 pcs.)
VR506	0B07236A	Semi-fixed Volume 10K
R593,594 699	0B05640A	Carbon Resistor 180K ERD-25T J
R595,600 606,695	0B05671A	Carbon Resistor 2.2M ERD-25T J
R596	0B01857A	Carbon Resistor 1K ERD-25T J
R599,607 608,625 626,629 630,636	0B05776A	Carbon Resistor 1M ERD-25T J
R601,602 604,615 616,634 637	0B01889A	Carbon Resistor 100K ERD-25T J
R603	0B05743A	Carbon Resistor 27K ERD-25T J
R605	0B05641A	Carbon Resistor 47K ERD-25T J
R609	0B05626A	Carbon Resistor 150K ERD-25T J
R610	0B05622A	Carbon Resistor 2.2K ERD-25T J
R611,612 635	0B05615A	Carbon Resistor 22K ERD-25T J
R613,614 619,620 621,622	0B05868A	Carbon Resistor 680K ERD-25T J
R617,618	0B01846A	Carbon Resistor 4.7K ERD-25T J
R623,624	0B05625A	Carbon Resistor 220K ERD-25T J
R627,628	0B09263A	Carbon Resistor 12K ERD-25T J

Schematic Ref. No.	Part No.	Description
R631	0B09320A	Carbon Resistor 820K ERD-25T J
R632	0B01681A	Carbon Resistor 3.3K ERD-25T J
R633	0B05627A	Carbon Resistor 330K ERD-25T J
C518,519	0B09281A	Ceramic Capacitor 150P 50V K
C520,521	0B05583A	Mylar Capacitor 0.033μ 50V J
C523	0B05681A	Mylar Capacitor 0.01μ 50V J
C524	0B01804A	Mylar Capacitor 3900P 50V J
C525	0B09045A	Mylar Capacitor 0.027μ 50V J
C526	0B09148A	Electrolytic Capacitor 10μ 16V (LN)
C527,528	0B09327A	Electrolytic Capacitor 0.33μ 50V (LN)
C529,530	0B09144A	Electrolytic Capacitor 0.22μ 50V (LN)
C531,532	0B01802A	Mylar Capacitor 2200P 50V J
C533,534	0B09145A	Electrolytic Capacitor 0.47μ 50V (LN)
C535	0B05682A	Mylar Capacitor 0.068μ 50V J
C536	0B05557A	Mylar Capacitor 0.015μ 50V J
C537	0B01780A	Mylar Capacitor 0.1μ 50V J
C538	0B05796A	Mylar Capacitor 0.047μ 50V J
C539	0B01412A	Electrolytic Capacitor 10μ 16V
C540	0B09396A	Electrolytic Capacitor 2.2μ 50V (LN)
		— CPU Clock —
IC513	0B06249A	IC HD14049UB
VR507	0B09059A	Semi-fixed Volume 5K
R684,689	0B01888A	Carbon Resistor 10K ERD-25T J
R685	0B01846A	Carbon Resistor 4.7K ERD-25T J
R686	0B05776A	Carbon Resistor 1M ERD-25T J
R687	0B01889A	Carbon Resistor 100K ERD-25T J
R688	0B05622A	Carbon Resistor 2.2K ERD-25T J
C557	0B09302A	Mica Capacitor 100P 50V J
C558	0B05659A	Mylar Capacitor 5600P 50V J
		— Miscellaneous —
	0B07912A	Main Logic P.C.B.
ZD523	0B06233A	Zener Diode 10V RD10EB3
D505,524 525,540 541,542	0B06181A	Silicon Diode 1SS53
R530	0B05622A	Carbon Resistor 2.2K ERD-25T J
R591	0B01888A	Carbon Resistor 10K ERD-25T J
R592	0B05924A	Fail Safe Type Resistor 68 RDF-25S J
R681,682 683	0B05671A	Carbon Resistor 2.2M ERD-25T J
R690	0B01889A	Carbon Resistor 100K ERD-25T J
R693	0B09216A	Fail Safe Type Resistor 10 RDF-25S J
C513,514 515	0B01412A	Electrolytic Capacitor 10μ 16V
C559,560 561	0B05583A	Mylar Capacitor 0.033μ 50V J
CN18	0B08257A	15P-T Post
CN19	0B08183A	5P-T Post
CN20	0B08646A	10P-T Post
CN21	0B08653A	3P-T Post
CN22,70	0B08656A	2P-T Post
CN29	0B08506A	13P-T Post
CN30,32	0B08178A	12P-T Post
CN31,33	0B08334A	8P-T Post
CN34	0B08182A	6P-T Post
CN35	0B08185A	3P-T Post
CN54	0B08787B	3P-H Connector
CN56	0B08788C	4P-H Connector
CN57	0B08789B	6P-H Connector
CN58	0B08790C	8P-H Connector

7.28. Sub Logic P.C.B. Ass'y

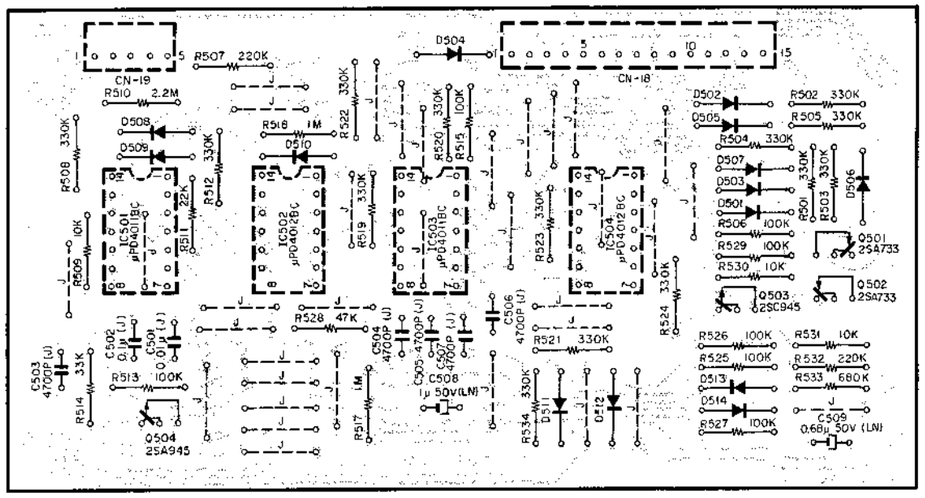


Fig. 7.28 Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description	
	BA04279A	Sub Logic P.C.B. Ass'y	
	0B07913A	Sub Logic P.C.B.	
IC501,503	0B06178A	IC	μPD4011BC
IC502,504	0B06263A	IC	μPD4012BC
Q501,502	0B06013A	Transistor	2SA733
Q503,504	0B06100A	Transistor	2SC945 (A)
D501-514	0B06181A	Silicon Diode	1SS53 (14 pcs.)
R501-505	0B05627A	Carbon Resistor	330K ERD-25T J
508,512			(15 pcs.)
516			
519-524			
534			
R506,513	0B01889A	Carbon Resistor	100K ERD-25T J
515,525			
526,527			
529			
R507,532	0B05625A	Carbon Resistor	220K ERD-25T J
R509,530	0B01888A	Carbon Resistor	10K ERD-25T J
531			
R510	0B05671A	Carbon Resistor	2.2M ERD-25T J
R511	0B05615A	Carbon Resistor	22K ERD-25T J
R514	0B05509A	Carbon Resistor	33K ERD-25T J
R517,518	0B05776A	Carbon Resistor	1M ERD-25T J
R528	0B05641A	Carbon Resistor	47K ERD-25T J
R533	0B05868A	Carbon Resistor	680K ERD-25T J
C501	0B05681A	Mylar Capacitor	0.01μ 50V J
C502	0B01780A	Mylar Capacitor	0.1μ 50V J
C503,504	0B05652A	Mylar Capacitor	4700P 50V J
505,506			
507			
C508	0B09223A	Electrolytic Capacitor 1μ	50V (LN)
C509	0B09395A	Electrolytic Capacitor 0.68μ	50V (LN)
CN18	0B08806A	15P-S Connector	
CN19	0B08727A	5P-S Connector	

7.29. Auto Cal. A P.C.B. Ass'y

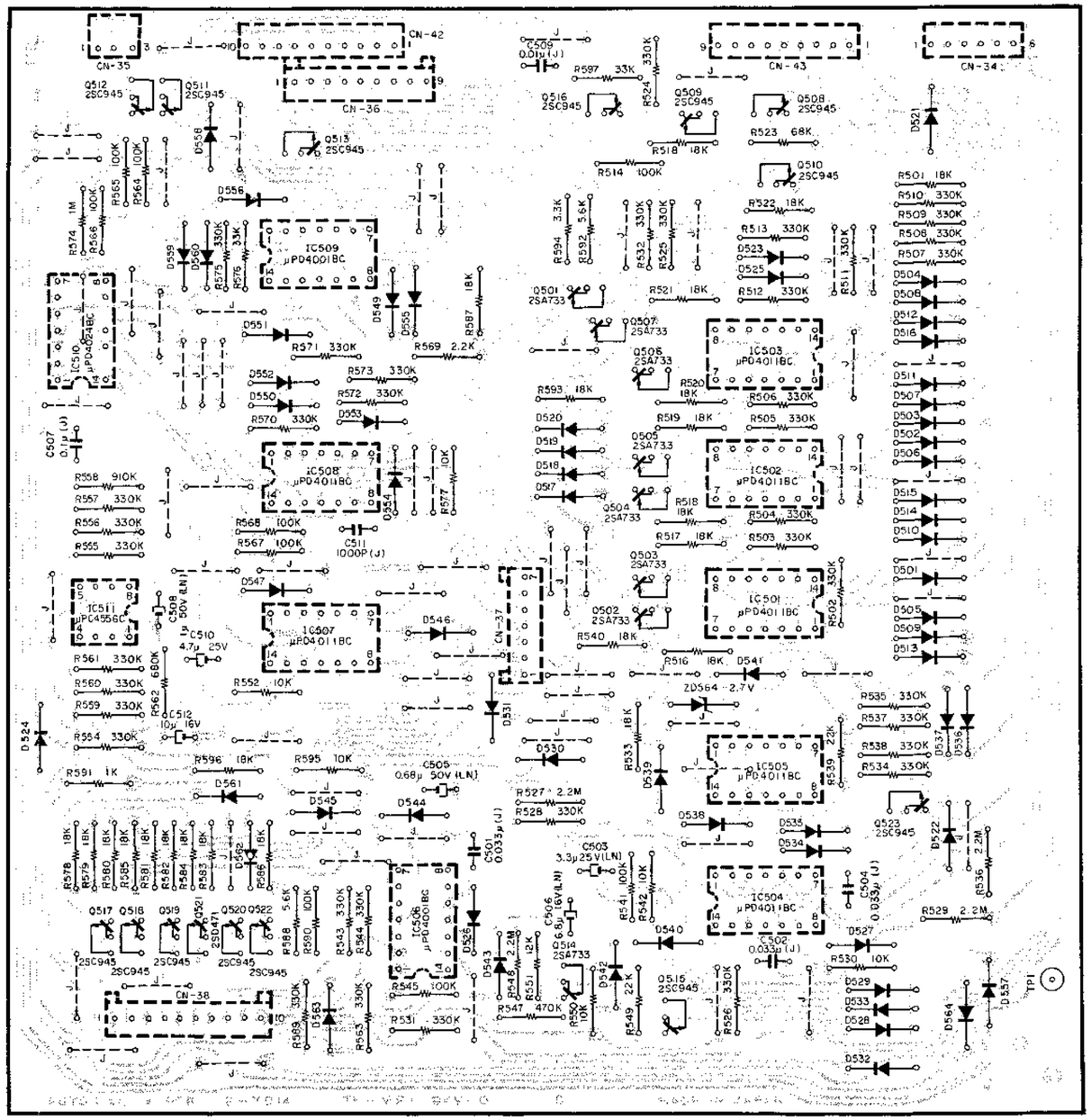


Fig. 7.29.1 2nd Version Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04337A	Auto Cal. A P.C.B. Ass'y 2nd Version	C509	0B05681A	Mylar Capacitor 0.01μ 50V J
			C510	0B01402A	Electrolytic Capacitor 4.7μ 25V
			C511	0B05550A	Mylar Capacitor 1000P 50V J
	0B07914C	Auto Cal. A P.C.B.	C512	0B01412A	Electrolytic Capacitor 10μ 16V
IC501-505	0B06178A	IC μPD4011BC (7 pcs.)	CN34	0B08728A	6P-S Connector
507,508			CN35	0B08812A	3P-S Connector
IC506,509	0B06143A	IC μPD4001BC	CN36	0B08808A	9P-T Connector
IC510	0B06281A	IC μPD4024BC	CN37	0B08807A	7P-T Connector
IC511	0B06216A	IC μPC4556C	CN38	0B08809A	10P-T Connector
Q501-507	0B06013A	Transistor 2SA733 (8 pcs.)	CN42	0B08286A	10P-S Post
514			CN43	0B08810A	9P-S Post
Q508-513	0B06100A	Transistor 2SC945 (A) (14 pcs.)			
515-520					
522,523					
Q521	0B06066A	Transistor 2SD471			
ZD564	0B06191A	Zener Diode 2.7V 2.7EB			
D501-547	0B06181A	Silicon Diode 1SS53 (63 pcs.)			
549-564					
R501	0B05560A	Carbon Resistor 18K ERD-25T J			
515-522		(23 pcs.)			
533,540					
578-587					
593,596					
R502-513	0B05627A	Carbon Resistor 330K ERD-25T J			
524-526		(38 pcs.)			
528,531					
532,534					
535,537					
538,543					
544					
554-557					
559-561					
563					
570-573					
575,589					
R514,541	0B01889A	Carbon Resistor 100K ERD-25T J			
545,564					
565,566					
568,590					
R523	0B05692A	Carbon Resistor 68K ERD-25T J			
R527,529	0B05671A	Carbon Resistor 2.2M ERD-25T J			
536,548					
R530,542	0B01888A	Carbon Resistor 10K ERD-25T J			
550,552					
567,577					
595					
R539,549	0B05615A	Carbon Resistor 22K ERD-25T J			
R547	0B01684A	Carbon Resistor 470K ERD-25T J			
R551	0B09263A	Carbon Resistor 12K ERD-25T J			
R558	0B05960A	Carbon Resistor 910K ERD-25T J			
R562	0B05868A	Carbon Resistor 680K ERD-25T J			
R569	0B05622A	Carbon Resistor 2.2K ERD-25T J			
R574	0B05776A	Carbon Resistor 1M ERD-25T J			
R576,597	0B05509A	Carbon Resistor 33K ERD-25T J			
R588,592	0B01887A	Carbon Resistor 5.6K ERD-25T J			
R591	0B01857A	Carbon Resistor 1K ERD-25T J			
R594	0B01681A	Carbon Resistor 3.3K ERD-25T J			
C501,502	0B05583A	Mylar Capacitor 0.033μ 50V J			
504					
C503	0B09324A	Electrolytic Capacitor 3.3μ 25V (LN)			
C505	0B09395A	Electrolytic Capacitor 0.68μ 50V (LN)			
C506	0B09219A	Electrolytic Capacitor 6.8μ 16V (LN)			
C507	0B01780A	Mylar Capacitor 0.1μ 50V J			
C508	0B09223A	Electrolytic Capacitor 1μ 50V (LN)			

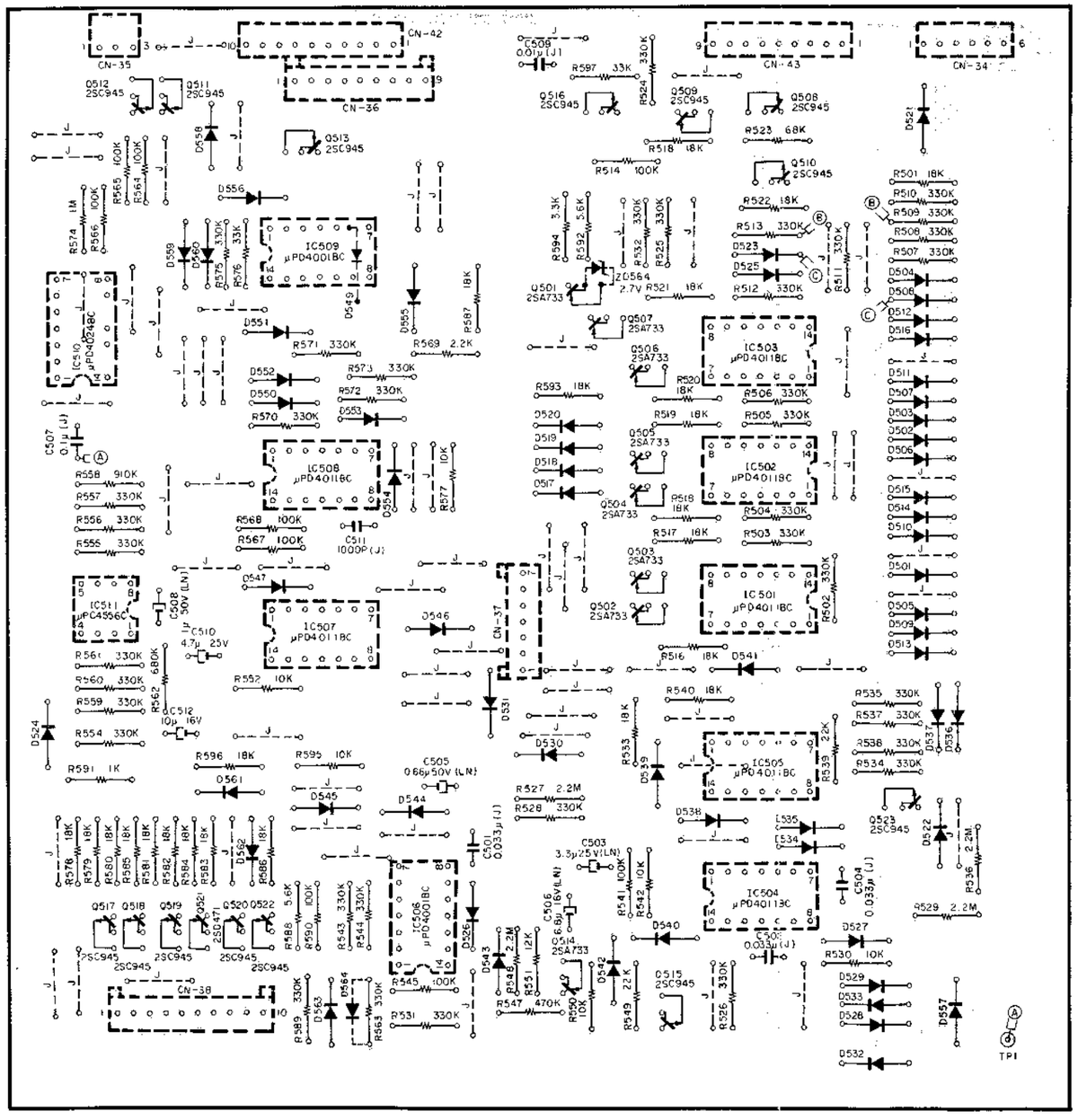


Fig. 7.29.2 1st Version

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description	
	BA04337A	**Auto Cal. A P.C.B. Ass'y 1st Version**	
	0B07914A	Auto Cal. A P.C.B.	
IC501-505 507,508	0B06178A	IC	μPD4011BC (7 pcs.)
IC506,509	0B06143A	IC	μPD4001BC
IC510	0B06281A	IC	μPD4024BC
IC511	0B06216A	IC	μPC4556C
Q501-507 514	0B06013A	Transistor	2SA733 (8 pcs.)
Q508-513 515-520 522,523	0B06100A	Transistor	2SC945 (A) (14 pcs.)
Q521	0B06066A	Transistor	2SD471
ZD564	0B06191A	Zener Diode 2.7V	2.7EB
D501-547 549-564	0B06181A	Silicon Diode	1SS53 (63 pcs.)
R501 515-522 533,540 578-587 593,596	0B05560A	Carbon Resistor	18K ERD-25T J (23 pcs.)
R502-513 524-526 528,531 532,534 535,537 538,543 544 554-557 559-561 563 570-573 575,589	0B05627A	Carbon Resistor	330K ERD-25T J (38 pcs.)
R514,541 545,564 565,566 568,590	0B01889A	Carbon Resistor	100K ERD-25T J
R523	0B05692A	Carbon Resistor	68K ERD-25T J
R527,529 536,548	0B05671A	Carbon Resistor	2.2M ERD-25T J
R530,542 550,552 567,577 595	0B01888A	Carbon Resistor	10K ERD-25T J
R539,549	0B05615A	Carbon Resistor	22K ERD-25T J
R547	0B01684A	Carbon Resistor	470K ERD-25T J
R551	0B09263A	Carbon Resistor	12K ERD-25T J
R558	0B05960A	Carbon Resistor	910K ERD-25T J
R562	0B05868A	Carbon Resistor	680K ERD-25T J
R569	0B05622A	Carbon Resistor	2.2K ERD-25T J
R574	0B05776A	Carbon Resistor	1M ERD-25T J
R576,597	0B05509A	Carbon Resistor	33K ERD-25T J
R588,592	0B01887A	Carbon Resistor	5.6K ERD-25T J
R591	0B01857A	Carbon Resistor	1K ERD-25T J
R594	0B01681A	Carbon Resistor	3.3K ERD-25T J
C501,502 504	0B05583A	Mylar Capacitor	0.033μ 50V J
C503	0B09324A	Electrolytic Capacitor	3.3μ 25V (LN)
C505	0B09395A	Electrolytic Capacitor	0.68μ 50V (LN)
C506	0B09219A	Electrolytic Capacitor	6.8μ 16V (LN)
C507	0B01780A	Mylar Capacitor	0.1μ 50V J
C508	0B09223A	Electrolytic Capacitor	1μ 50V (LN)

Schematic Ref. No.	Part No.	Description
C509	0B05681A	Mylar Capacitor 0.01μ 50V J
C510	0B01402A	Electrolytic Capacitor 4.7μ 25V
C511	0B05550A	Mylar Capacitor 1000P 50V J
C512	0B01412A	Electrolytic Capacitor 10μ 16V
CN34	0B08728A	6P-S Connector
CN35	0B08812A	3P-S Connector
CN36	0B08808A	9P-T Connector
CN37	0B08807A	7P-T Connector
CN38	0B08809A	10P-T Connector
CN42	0B08286A	10P-S Post
CN43	0B08810A	9P-S Post

Schematic Ref. No.	Part No.	Description
	BA04338A	**Auto Cal. B P.C.B. Ass'y**
	0B07915B	Auto Cal. B P.C.B.
IC501,502	0B06143A	IC μPD4001BC
IC503-506	0B06279A	IC MSM4516RS (4 pcs.)
IC507,508	0B06216A	IC μPC4556C
IC509-511	0B06278A	IC MSM4039RS (3 pcs.)
Q501-506	0B06100A	Transistor 2SC945(A) (14 pcs.)
510-517		
Q507-509	0B06062A	Transistor 2SC1222(2) (3 pcs.)
D501-533	0B06181A	Silicon Diode 1SS53 (33 pcs.)
R501-511	0B01889A	Carbon Resistor 100K ERD-25T J (34 pcs.)
520-524		
528,537		
538,546		
549,550		
567-575		
597-599		
R512-514	0B05671A	Carbon Resistor 2.2M ERD-25T J (10 pcs.)
518,519		
527		
533-536		
R515,516	0B05743A	Carbon Resistor 27K ERD-25T J
517		
R525,526	0B01888A	Carbon Resistor 10K ERD-25T J (9 pcs.)
529-532		
539-541		
R542	0B09230A	Metal Film Resistor 1.5K SN14K2E F
R543	0B09496A	Metal Film Resistor 68.1 SN14K2E F
R544	0B09529A	Metal Film Resistor 6.8K SN14K2E F
R545	0B09416A	Metal Film Resistor 976 SN14K2E F
R547	0B05615A	Carbon Resistor 22K ERD-25T J
R548	0B05698A	Carbon Resistor 1.5K ERD-25T J
R551,552	0B09505A	Metal Film Resistor 1.1K SN14K2E F
R553,554	0B01846A	Carbon Resistor 4.7K ERD-25T J
R555,556	0B09498A	Metal Film Resistor 22.1K SN14K2E F
R557,558	0B09497A	Metal Film Resistor 11.3K SN14K2E F
R559,560	0B09500A	Metal Film Resistor 105K SN14K2E F
R561,562	0B09501A	Metal Film Resistor 487K SN14K2E F
R563,564	0B09502A	Metal Film Resistor 1M SN14K2E F
R565,566	0B09478A	Metal Film Resistor 412K SN14K2E F
C501	0B01412A	Electrolytic Capacitor 10μ 16V
C502	0B05583A	Mylar Capacitor 0.033μ 50V J
C503	0B05682A	Mylar Capacitor 0.068μ 50V J
CN2	0B08792A	6P-H Connector
CN31,33	0B08730A	8P-S Connector
CN32	0B08732A	12P-S Connector
CN36	0B08614A	9P-T Post
CN37	0B08302A	7P-T Post
CN38	0B08615A	10P-T Post
CN39	0B08451A	7P-S Post
CN71	0B08184A	3P-S Post

7.30. Auto Cal. B P.C.B. Ass'y

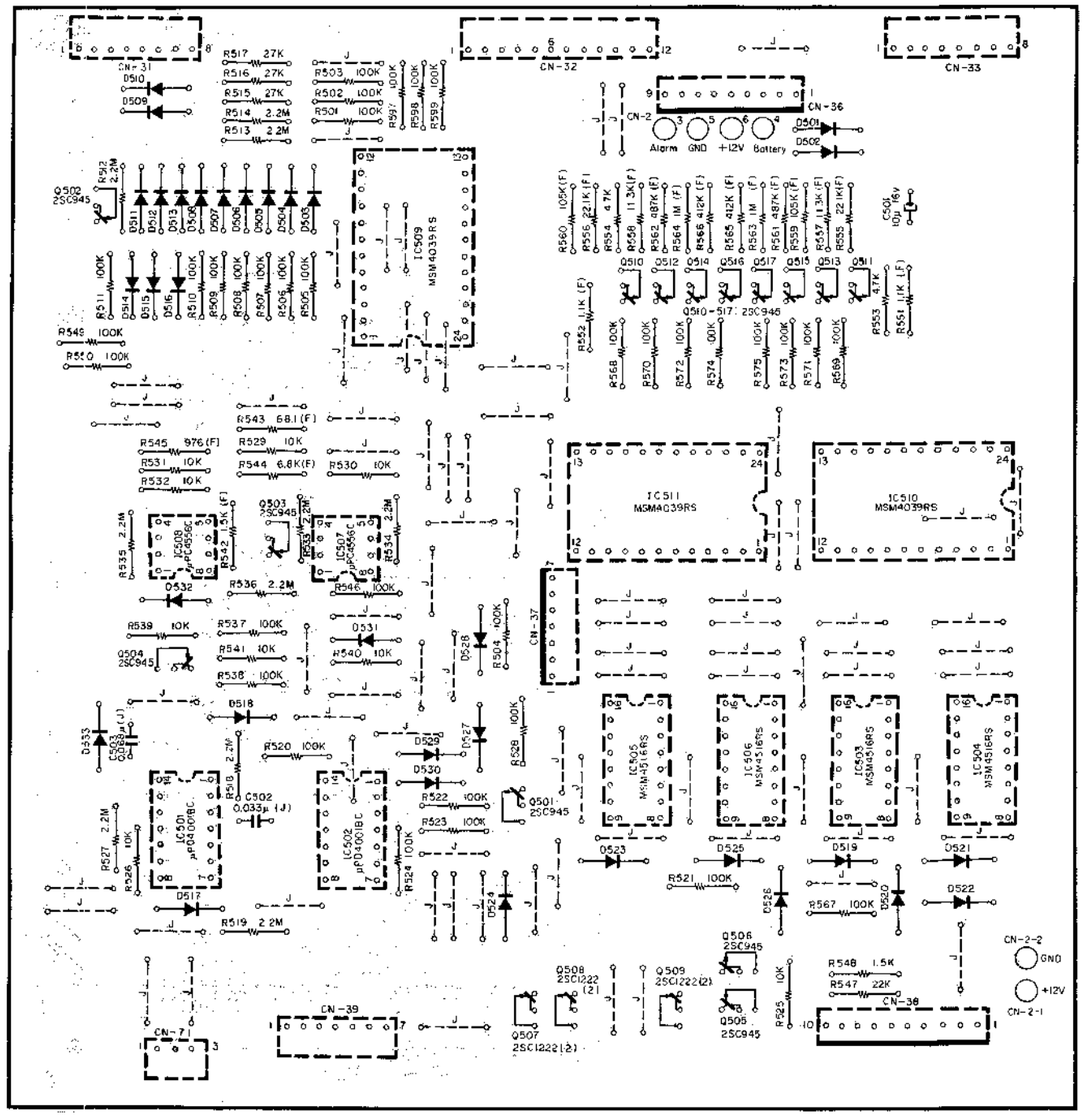


Fig. 7.30 Note: Diode is 1SS53 unless otherwise specified.

7.31. RAMM P.C.B. Ass'y

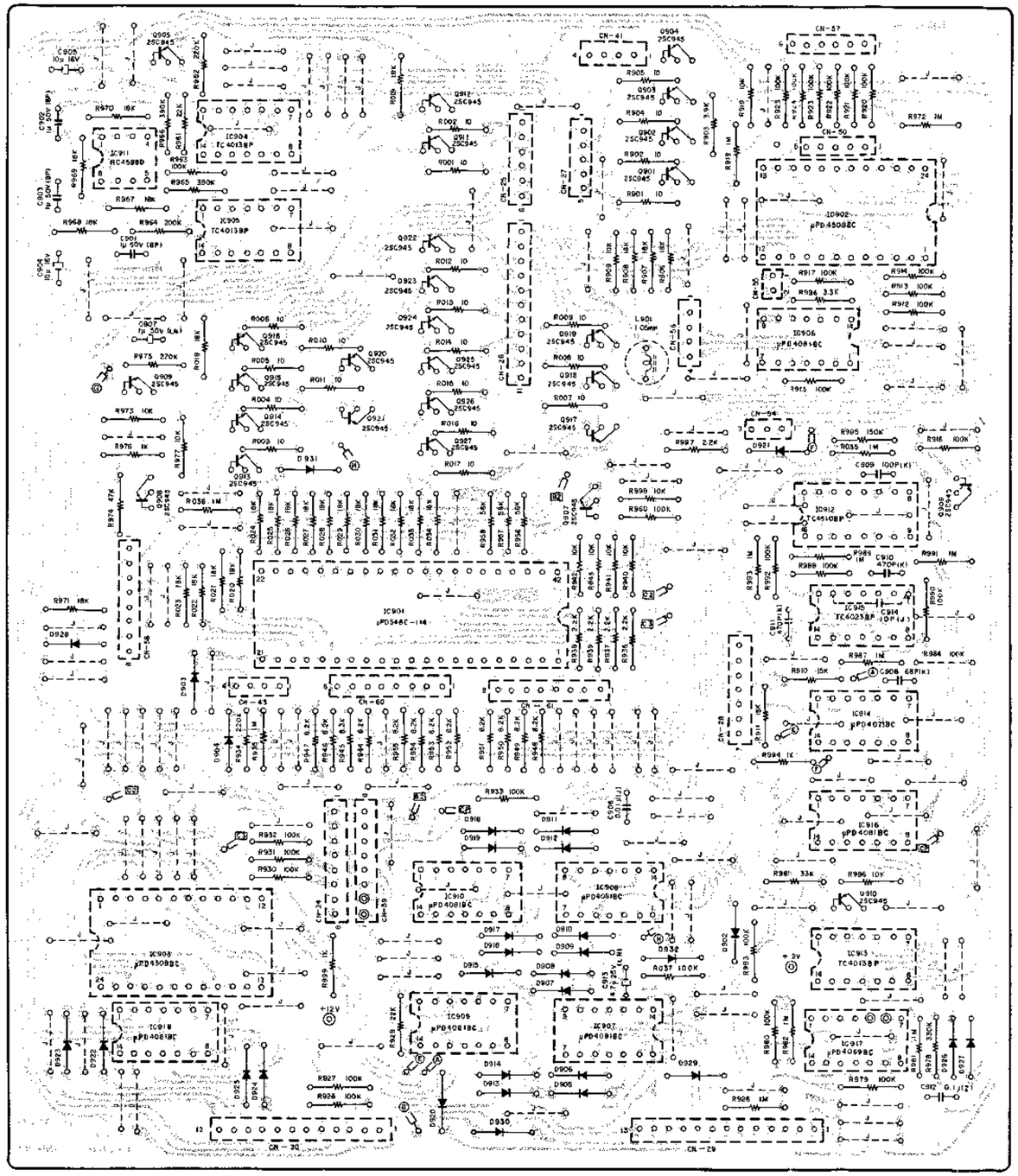


Fig. 7.31 Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description	
	BA04334A	**RAMM P.C.B. Ass'y**	
	0B07894D	RAMM P.C.B.	
IC901	0B06254A	IC	μPD546C-114
IC902,903	0B06261A	IC	μPD4508BC
IC904,905 913	0B06213A	IC	TC4013BP
IC906-910 916,917	0B06219A	IC	μPD4081BC (7 pcs.)
IC911	0B06124B	IC	RC4558D
IC912	0B06212A	IC	TC4510BP
IC914	0B06214A	IC	μPD4071BC
IC915	0B06224A	IC	TC4023BP
IC918	0B06270A	IC	μPD4069BC
Q901-927	0B06100A	Transistor	2SC945 (A) (27 pcs.)
D902-932	0B06181A	Silicon Diode	1SS53 (31 pcs.)
L901	0B06636A	Inductor	1.05mH
R018-034 906-908 967-971	0B05560A	Carbon Resistor	18K ERD-25T J (25 pcs.)
R035,036 918,926 935,972 981,982 987,989 991,993	0B05776A	Carbon Resistor	1M ERD-25T J
R037 912-917 920-925 927,928 930-933 960,963 979,980 983,984 988,990 992	0B01889A	Carbon Resistor	100K ERD-25T J (28 pcs.)
R903	0B05675A	Carbon Resistor	3.9K ERD-25T J
R909,919 940-943 973,977 986,998	0B01888A	Carbon Resistor	10K ERD-25T J (10 pcs.)
R910,911	0B01683A	Carbon Resistor	15K ERD-25T J
R929,961	0B05615A	Carbon Resistor	22K ERD-25T J
R934,962	0B05625A	Carbon Resistor	220K ERD-25T J
R936-939 997	0B05622A	Carbon Resistor	2.2K ERD-25T J (5 pcs.)
R944-955	0B01856A	Carbon Resistor	8.2K ERD-25T J (12 pcs.)
R956,957 958	0B05508A	Carbon Resistor	56K ERD-25T J
R964	0B09392A	Carbon Resistor	200K ERD-25T J
R965,966	0B05676A	Carbon Resistor	390K ERD-25T J
R974	0B05641A	Carbon Resistor	47K ERD-25T J
R975	0B05620A	Carbon Resistor	270K ERD-25T J
R976,994 999	0B01857A	Carbon Resistor	1K ERD-25T J
R978	0B05627A	Carbon Resistor	330K ERD-25T J
R985	0B05509A	Carbon Resistor	33K ERD-25T J
R995	0B05626A	Carbon Resistor	150K ERD-25T J
R996	0B01681A	Carbon Resistor	3.3K ERD-25T J
C901,902 903	0B09187A	Electrolytic Capacitor 1μ	50V (BP)
C904,905	0B01412A	Electrolytic Capacitor 10μ	16V
C906	0B05681A	Mylar Capacitor 0.01μ	50V J

Schematic Ref. No.	Part No.	Description	
C907	0B09223A	Electrolytic Capacitor 1μ	50V (LN)
C908	0B09393A	Ceramic Capacitor 68P	50V J
C909	0B09282A	Ceramic Capacitor 100P	50V K
C910,911	0B09286A	Ceramic Capacitor 470P	50V K
C912	0B09292A	Ceramic Capacitor 0.1μ	50V Z
C913	0B09333A	Electrolytic Capacitor 4.7μ	25V (LN)
C914	0B09277A	Ceramic Capacitor 10P	50V J
CN24,58 59	0B08644A	8P-T Post	
CN25,57	0B08642A	6P-T Post	
CN26	0B08655A	11P-T Post	
CN27	0B08724A	5P-T Post	
CN28	0B08643A	7P-T Post	
CN29	0B08732A	12P-S Connector	
CN30	0B08805A	13P-S Connector	
CN41,56	0B08654A	4P-T Post	
CN43	0B08236A	4P-T Post	
CN50	0B08183A	5P-T Post	
CN54	0B08653A	3P-T Post	
CN55	0B08656A	2P-T Post	
CN60,61	0B08334A	8P-T Post	
	BA04270A	**Lamp L P.C.B. Ass'y**	
	0B07922B	Lamp L P.C.B.	
PL001-017 024-027	0B08837A	Lamp	5V 50mA (21 pcs.)
PL509-514	0B08721A	Lamp	12V 30mA (6 pcs.)
CN25	0B08795B	6P-H Connector	
CN26	0B08796B	11P-H Connector	
CN27	0B08797B	5P-H Connector	
CN39	0B08794A	7P-H Connector	
	BA04275A	**Counter P.C.B. Ass'y**	
	0B07910A	Counter P.C.B.	
IC501	0B06259A	IC	MSM5512RS
IC502	0B06211A	IC	TC5022BP
IC503	0B06258A	IC	M54516P
Q501	0B06100A	Transistor	2SC945 (A)
LED501	0B06266A	LED	TLR4125
D502,503 504	0B06181A	Silicon Diode	1SS53
R501,502	0B01888A	Carbon Resistor	10K ERD-25T J
R503	0B05668A	Carbon Resistor	82K ERD-25T J
R504	0B01889A	Carbon Resistor	100K ERD-25T J
R505	0B01846A	Carbon Resistor	4.7K ERD-25T J
R506-512	0B05936A	Carbon Resistor	10 ERD-25T J (7 pcs.)
C501	0B09283A	Ceramic Capacitor	220P 50V K
C502	0B05899A	Electrolytic Capacitor	220μ 10V
CN28	0B08785A	7P-H Connector	
	BA04327A	**Switch C P.C.B. Ass'y**	
	0B07918A	Switch C P.C.B.	
SW902-906	0B07219A	Switch	AKC8S
CN24	0B08800A	8P-H Connector	

7.32. Lamp L P.C.B. Ass'y

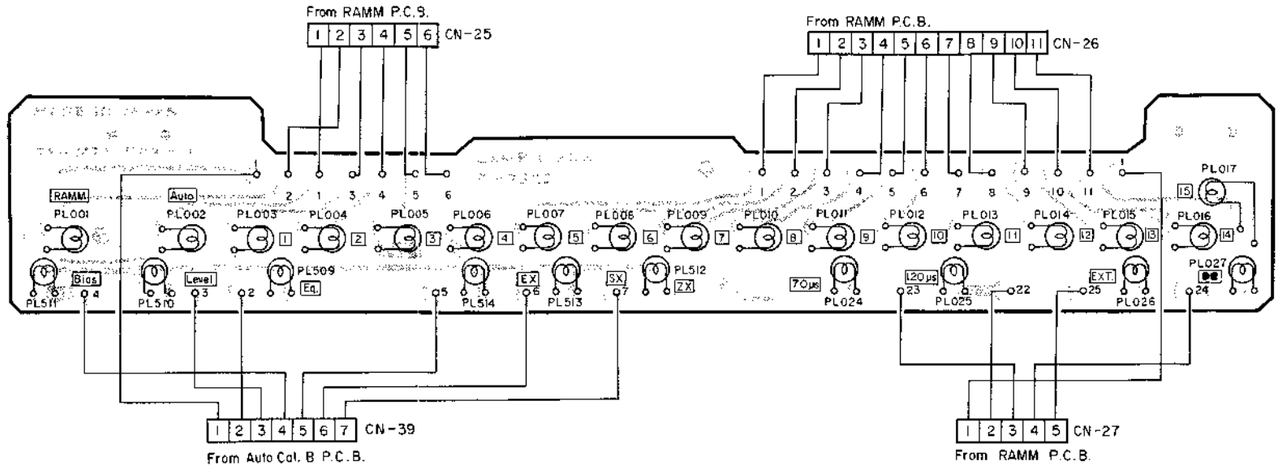


Fig. 7.32

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

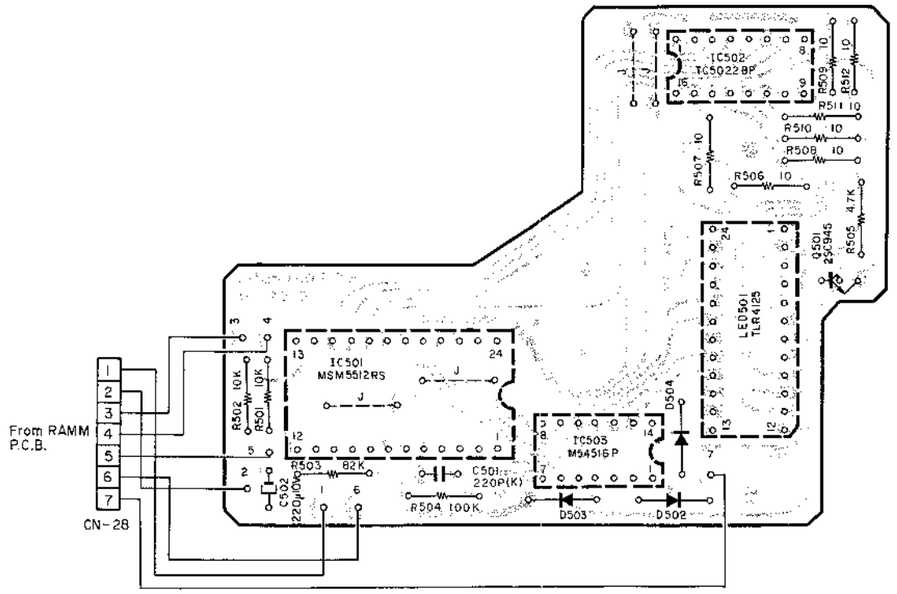


Fig. 7.33 Note: Diode is 1SS53 unless otherwise specified.

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

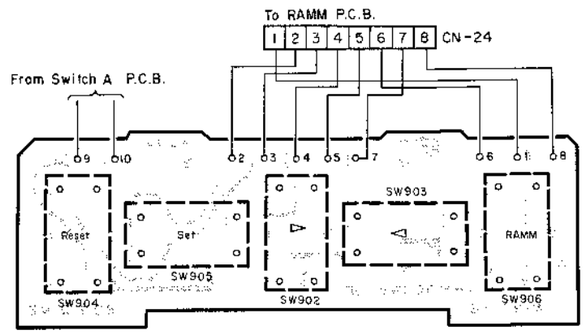


Fig. 7.34

7.35. Power Supply P.C.B. Ass'y

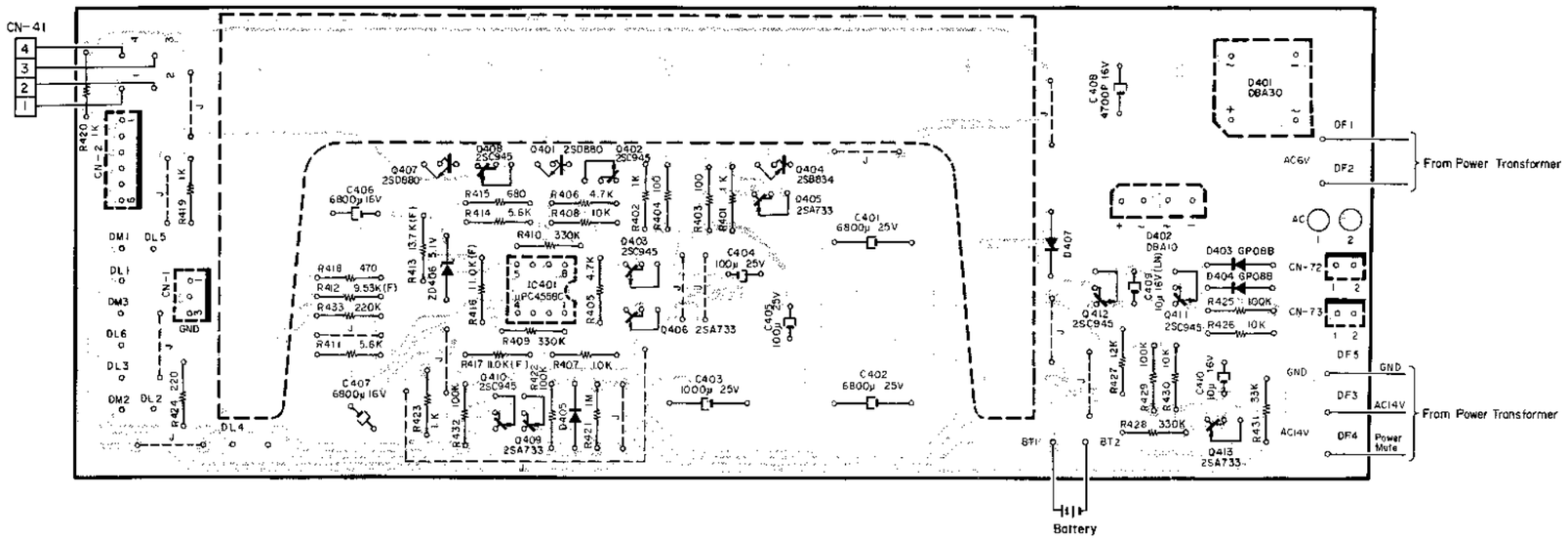


Fig. 7.35

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description		
	BA04276A	**Power Supply P.C.B. Ass'y**		
	0B07911B	Power Supply P.C.B.		
IC401	0B06124B	IC	μPC4558C	
Q401,407	0B06255A	Transistor	2SD880 (Y)	
Q402,403 408,410 411,412	0B06100A	Transistor	2SC945 (A)	
Q404	0B06256A	Transistor	2SB834 (Y)	
Q405,406 409,413	0B06013A	Transistor	2SA733	
ZD406	0B06230A	Zener Diode 5.1V	RD5.1ER2	
D401	0B06283A	Diode Bridge	DBA30	
D402	0B06282A	Diode Bridge	DBA10	
D403,404	0B06109A	Silicon Diode	GP08B	
D405,407	0B06181A	Silicon Diode	1SS53	
R401,402 419,420 423	0B01857A	Carbon Resistor	1K	ERD-25T J
R403,404	0B01679A	Carbon Resistor	100	ERD-25T J
R405,406	0B01846A	Carbon Resistor	4.7K	ERD-25T J
R407,408 430	0B01888A	Carbon Resistor	10K	ERD-25T J
R409,410 428	0B05627A	Carbon Resistor	330K	ERD-25T J
R411,414	0B01887A	Carbon Resistor	5.6K	ERD-25T J
R412	0B09522A	Metal Film Resistor	9.53K	SN14K2E F
R413	0B09528A	Metal Film Resistor	13.7K	SN14K2E F
R415	0B05794A	Carbon Resistor	680	ERD-25T J
R416,417	0B09504A	Metal Film Resistor	11.0K	SN14K2E F
R418	0B01684A	Carbon Resistor	470K	ERD-25T J
R421	0B05776A	Carbon Resistor	1M	ERD-25T J
R422,425 429,432	0B01889A	Carbon Resistor	100K	ERD-25T J
R424	0B01933A	Carbon Resistor	220	ERD-25T J
R426	0B05560A	Carbon Resistor	18K	ERD-25T J
R427	0B09263A	Carbon Resistor	12K	ERD-25T J
R431	0B05509A	Carbon Resistor	33K	ERD-25T J
R433	0B05625A	Carbon Resistor	220K	ERD-25T J
C401,402	0B09374A	Electrolytic Capacitor 6800μ 25V		
C403	0B01870A	Electrolytic Capacitor 1000μ 25V		
C404,405	0B01272A	Electrolytic Capacitor 100μ 25V		
C406	0B09398A	Electrolytic Capacitor 6800μ 16V		
C407	0B01397A	Electrolytic Capacitor 1000μ 16V		
C408	0B09377A	Electrolytic Capacitor 4700μ 16V		
C409	0B09148A	Electrolytic Capacitor 10μ 16V (LN)		
C410	0B01412A	Electrolytic Capacitor 10μ 16V		
CN1	0B08653A	3P-T Post		
CN2	0B08642A	6P-T Post		
CN41	0B08786B	4P-H Connector		
CN72,73	0B08656A	2P-T Post		
	0B08759A	Heat Sink A117		(1 pce.)
	0B08680B	Heat Sink A		(1 pce.)
	0E00507A	Nut Hex. M3		(4 pcs.)
	0E00607A	Screw M3x8 Philips Pan Head (3A)		(4 pcs.)
	0E00608A	Screw M3x10 Philips Pan Head (3A)		(3 pcs.)
	0E00610A	Screw M3x12 Philips Pan Head (3A)		(1 pce.)
	0B08601A	Transistor Mica		(3 pcs.)
	0B08602A	Transistor Bushing		(3 pcs.)
	0J04311A	Power Supply Fiber		(1 pce.)

7.36. Fuse P.C.B. Ass'y

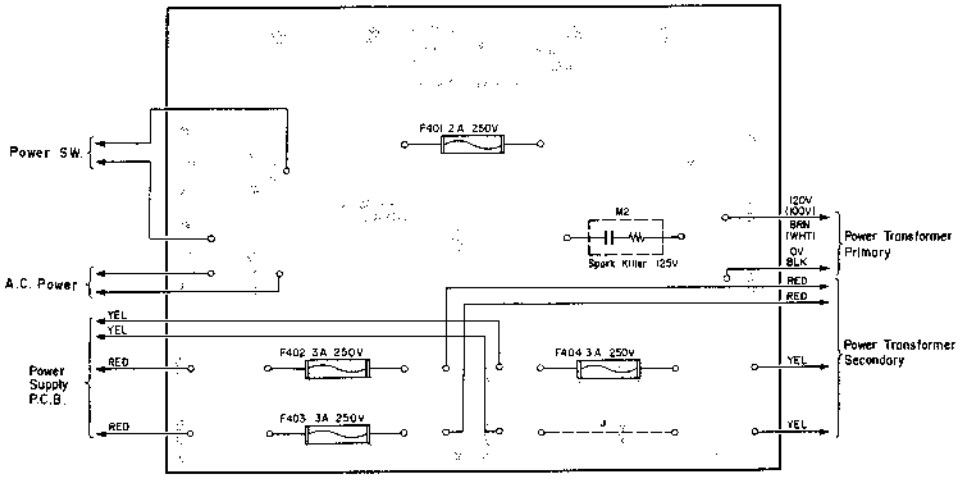


Fig. 7.36.1 U.S.A., Canada & Japan

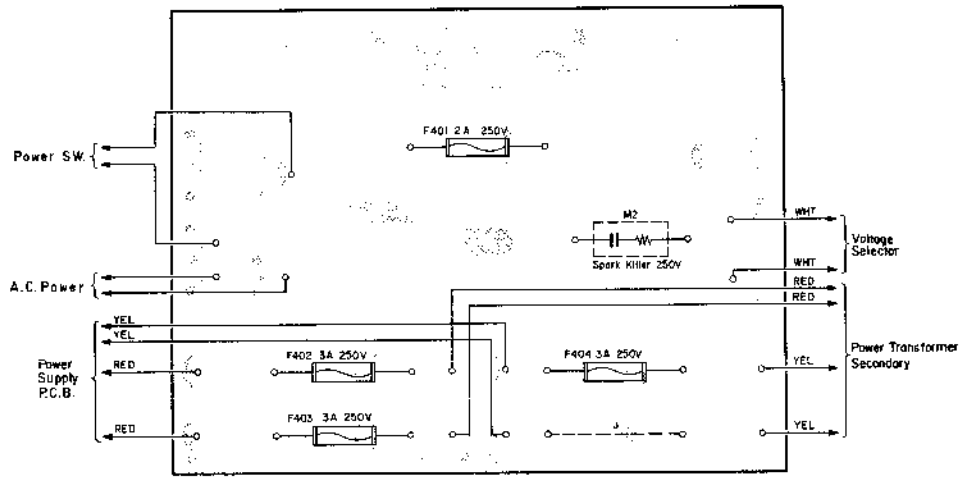


Fig. 7.36.2 Others

Schematic Ref. No.	Part No.	Description	
	BA04260A	**Fuse P.C.B. Ass'y (U.S.A. & Canada)**	
	0B07842D	Fuse P.C.B.	
F401	0B08525A	Fuse 2A 250V	
F402,403	0B08369A	Fuse 3A 250V	
404			
	0B08342A	Spark Killer 125V	(1 pce.)
	0M03937A	Fuse Label 2A 250V	(1 pce.)
	0M04187A	Fuse Label 3A 250V	(2 pcs.)
	0E00752A	Eyelet 2x3	(6 pcs.)
	BA04261A	**Fuse P.C.B. Ass'y (Japan)**	
	0B07842D	Fuse P.C.B.	
F401	0B08854A	Fuse 2A 250V	
F402,403	0B08781A	Fuse 3A 250V	
404			

Schematic Ref. No.	Part No.	Description	
	0B08363A	Spark Killer 125V	(1 pce.)
	0M03937A	Fuse Label 2A 250V	(1 pce.)
	0M04187A	Fuse Label 3A 250V	(2 pcs.)
	0E00752A	Eyelet 2x3	(6 pcs.)
	BA04369A	**Fuse P.C.B. Ass'y (Others)**	
	0B07842D	Fuse P.C.B.	
F401	0B08525A	Fuse 2A 250V	
F402,403	0B08369A	Fuse 3A 250V	
404			
	0B08240A	Spark Killer	(1 pce.)
	0B03937A	Fuse Label 2A 250V	(1 pce.)
	0M04187A	Fuse Label 3A 250V	(2 pcs.)
	0E00752A	Eyelet 2x3	(6 pcs.)

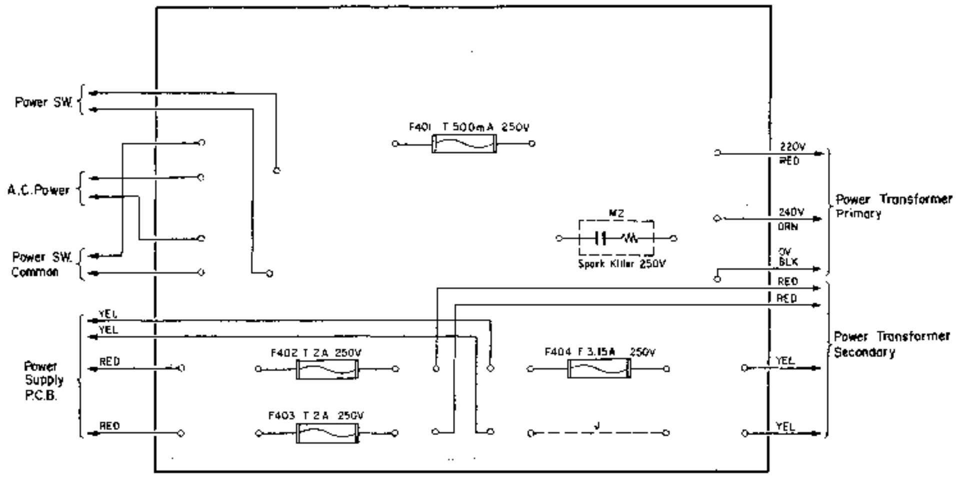


Fig. 7.36.3 UK & Australia

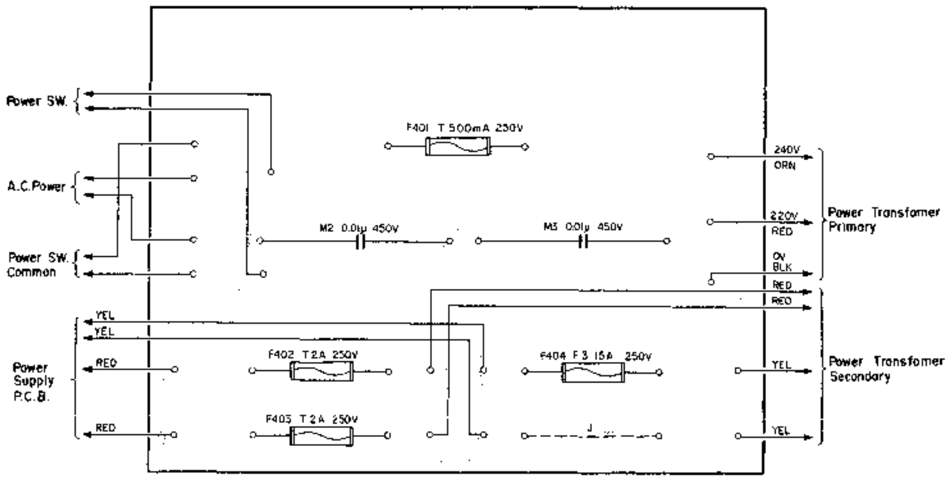


Fig. 7.36.4 220V Class 2

Schematic Ref. No.	Part No.	Description		Schematic Ref. No.	Part No.	Description	
	BA04263A	**Fuse P.C.B. Ass'y (UK & Australia)**			**BA04262A**	**Fuse P.C.B. Ass'y (220V Class 2)**	
	0B07842D	Fuse P.C.B.			0B07842D	Fuse P.C.B.	
F401	0B08457A	Fuse T 500mA 250V		F401	0B08457A	Fuse T 500mA 250V	
F402,403	0B08853A	Fuse T 2A 250V		F402,403	0B08853A	Fuse T 2A 250V	
F404	0B08230U	Fuse F 3.15A 250V		F404	0B08230U	Fuse F 3.15A 250V	
	0B08240A	Spark Killer AC250V	(1 pce.)		0B08445A	Spark Killer 450V	(2 pcs.)
	0B04254A	Fuse Label F 3.15A 250V	(1 pce.)		0M04254A	Fuse Label F 3.15A 250V	(1 pce.)
	0B04255A	Fuse Label T 2A 250V×2	(1 pce.)		0M04255A	Fuse Label T 2A 250V×2	(1 pce.)
	0M04096C	Fuse Label T 500mA 250V	(1 pce.)		0B08349A	Fuse Clip	(8 pcs.)
	0B08349A	Fuse Clip	(8 pcs.)		0E00752A	Eyelet 2x3	(6 pcs.)
	0E00752A	Eyelet 2x3	(6 pcs.)				

8. MECHANISM ASS'Y AND PARTS LIST

8.1. Synthesis

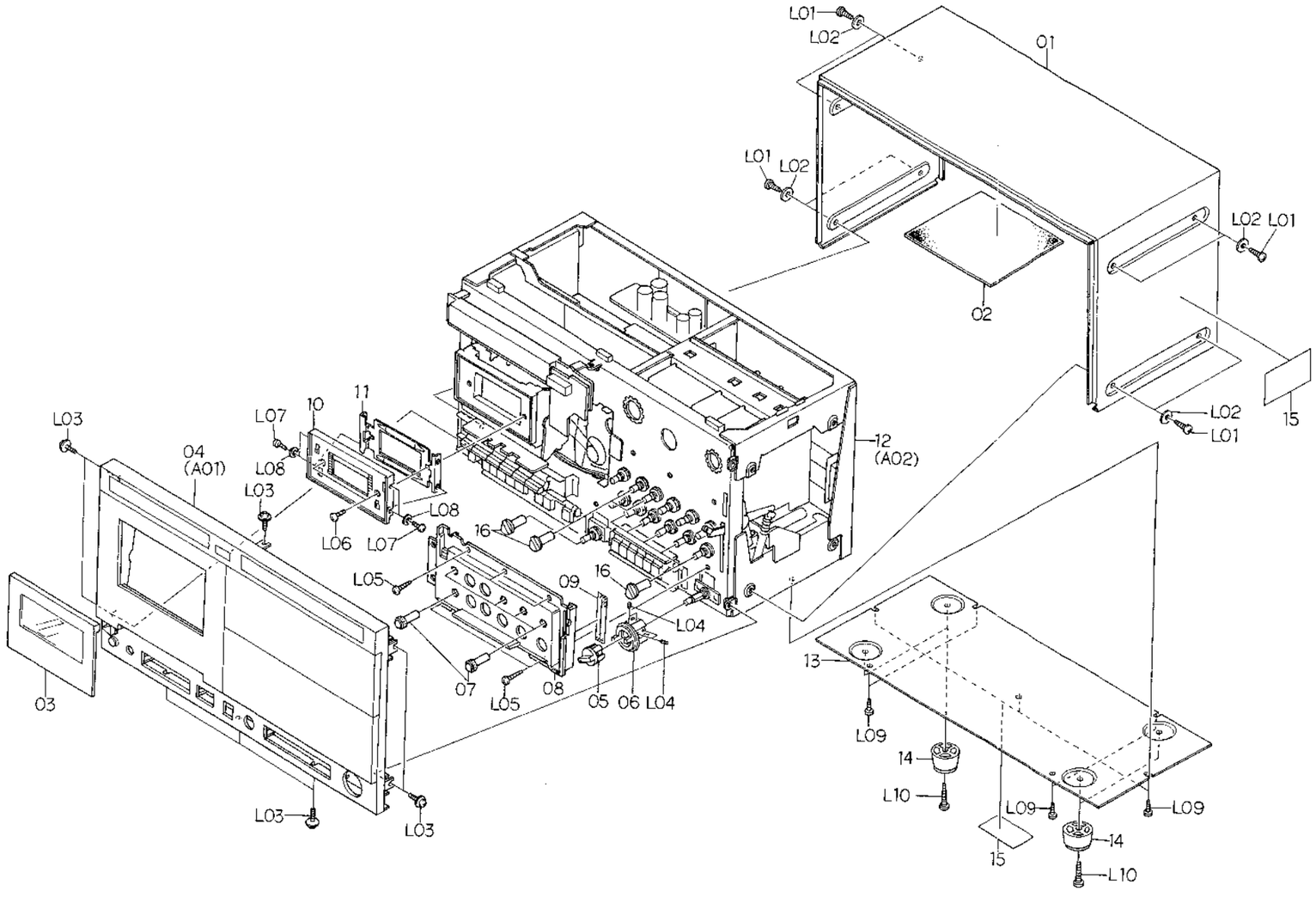


Fig. 8.1

Schematic Ref. No.	Part No.	Description	Q'ty
		Synthesis (U.S A. & Canada)	
		Synthesis (Japan)	
		Synthesis (220V Class 2)	
		Synthesis (UK)	
		Synthesis (Australia)	
		Synthesis (Others)	
		Serial No.: A11801001–	
01	0H03902A	Top Cover	1
02	0J04194A	Absorber Rubber	1
03	HA04048A	Cassette Case Cover Ass'y	1
04	HA04046A	Front Panel Ass'y	1
05	HA04063B	Volume Knob R Ass'y	1
06	HA04064B	Volume Knob L Ass'y	1
07	0H03891A	Volume Knob	5
08	HA04062A	Control Panel Ass'y	1
09	0J04231B	Damper Himelon	1
10	0H03914A	Cassette Case Escutcheon	1
11	0J04254A	Cassette Case Plate	1
12	JA03742A	Chassis Ass'y (U.S.A. & Canada)	1
	JA03743A	Chassis Ass'y (Japan)	1
	JA03745A	Chassis Ass'y (220V Class 2)	1
	JA03746A	Chassis Ass'y (UK)	1
	JA03747A	Chassis Ass'y (Australia)	1
	JA03744A	Chassis Ass'y (Others)	1
13	0H03905A	Bottom Cover	1
14	0J03825A	Leg S	4
15	0M04101A	Caution Label	2
16	0H03890B	Switch Knob	8
–	0M03458B	PASS Label (U.S.A., Canada, 220V Class 2 & Others)	1
–	0M03458A	PASS Label (Japan, UK & Australia)	1
L01	0E00915A	BT Screw M4x8 Philips Binding Head (Black Chromate)	8
L02	0E00736A	Washer 4mm (Black Chromate)	8
L03	0E00943A	Screw M3x8 Philips Pan Head Polywave	8
L04	0E00785A	Screw M3x4 Cup Point	4
L05	0E00868A	BT Screw M3x8 Philips Binding Head	5
L06	0E00593A	Screw M3x6 Philips Binding Head	2
L07	0E00945A	Screw M2.6x4 Philips Pan Head (Black Chromate)	4
L08	0E00651A	Washer 2.6mm	4
L09	0E00857A	BT Screw M3x6 Philips Binding Head	7
L10	0E00852A	BT Screw M4x12 Philips Binding Head	4

8.2. Front Panel Ass'y (A01)

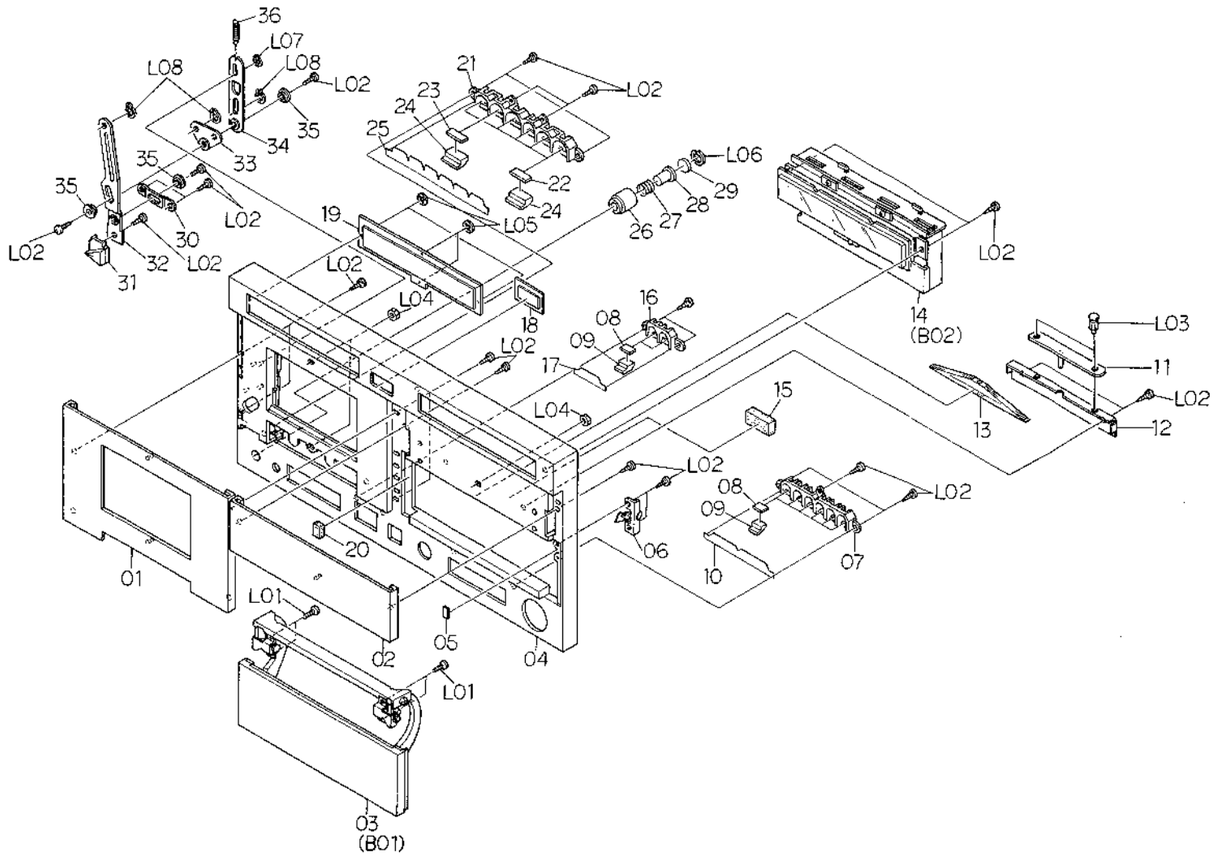


Fig. 8.2

Schematic Ref. No.	Part No.	Description	Q'ty
A01	HA04046A	**Front Panel Ass'y**	1
		Serial No.: A11801001–	
01	HA04067A	Front Panel L Sub Ass'y	1
02	HA04068A	Front Panel R Sub Ass'y	1
03	HA04051A	Adjustment Lid Ass'y	1
04	HA04066A	Front Panel Escutcheon Sub Ass'y	1
05	0J04306B	Cushion A	1
06	JA03759A	Lock Lever Holder Ass'y	1
07	0J04249A	Reflector B	1
08	0J04248A	Filter Green B	8
09	0H03909A	Lens B	8
10	0J04319A	Reflector Seal B	1
11	BA04268A	Lamp B P.C.B. Ass'y	1
12	0J04250A	P.C.B. Holder	1
13	0H03674D	Lamp House	1
14	BA04350A	LED Level Indicator Ass'y	1
15	0J04202A	Cushion B	1
16	0J04247A	Reflector A	1
17	0J04320A	Reflector Seal A	1
18	0H03901A	Tape Counter Lens	1
19	0H03900A	Indicator Cover	1
20	0J04343A	Cushion C	1
21	0J04209A	Reflector C	1
22	0J04210A	Filter Green A	5
23	0J04211A	Filter Red	1
24	0H03910A	Lens A	6
25	0J04320A	Reflector Seal C	1
26	0H03908A	Power Switch Escutcheon	1
27	0J04203A	Power Switch Spring	1
28	0H03907A	Power Switch Knob	1
29	0J04282A	Power Switch Knob Plate	1
30	0J04175A	Eject Lever Guide	1
31	0H03889A	Eject Knob	1
32	0J04172A	Eject Lever	1
33	0J04173A	Joint Plate	1
34	0J04174A	Spring Hook	1
35	0J04219B	Eject Lever Collar	3
36	0J04177A	Eject Spring	1
L01	0E00896A	Screw M3x6 Philips Binding Head	4
L02	0E00857A	BT Screw M3x6 Philips Binding Head	24
L03	0B08539A	Plastic Rivet	2
L04	0E00669A	Nut Hex. M4	3
L05	0E00874A	Stopper Ring CS 2mm	4
L06	0E00942A	C-Ring	1
L07	0E00837A	Stopper Ring 3mm	1
L08	0E00838A	Stopper Ring 4mm	3

Schematic Ref. No.	Part No.	Description	Q'ty
A02	JA03742A	**Chassis Ass'y (U.S.A. & Canada)**	1
	JA03743A	**Chassis Ass'y (Japan)**	1
	JA03745A	**Chassis Ass'y (220V Class 2)**	1
	JA03746A	**Chassis Ass'y (UK)**	1
	JA03747A	**Chassis Ass'y (Australia)**	1
	JA03744A	**Chassis Ass'y (Others)**	
		Serial No.: A11801001 –	
01	JA03750A	Front Chassis Ass'y (U.S.A. & Canada)	1
	JA03751A	Front Chassis Ass'y (Japan)	1
	JA03752A	Front Chassis Ass'y (220V Class 2, UK, Australia & Others)	1
02	CA08252A	Mechanism Ass'y N-700ZXL	1
03	BA04266A	Line Amp. P.C.B. Ass'y	1
04	BA04293A	MIC VR & Switch P.C.B. Ass'y	1
05	BA04289A	MIC & Meter Amp. P.C.B. Ass'y	1
06	0J04277A	P.C.B. Stopper	1
07	BA04281A	Mother P.C.B. Ass'y	1
08	BA04278A	Main Logic P.C.B. Ass'y	1
09	BA04279A	Sub Logic P.C.B. Ass'y	1
10	0J04186A	P.C.B. Holder C	1
11	0J04276A	Insulator	1
12	BA04334A	RAMM P.C.B. Ass'y	1
13	0J04358A	P.C.B. Holder E	1
14	0J04361A	P.C.B. Cushion E	2
15	BA04337A	Auto Cal. A P.C.B. Ass'y	1
16	0J04191B	P.C.B. Spacer	4
17	BA04338A	Auto Cal. B P.C.B. Ass'y	1
18	0J04359A	P.C.B. Holder F	1
19	0J04190B	P.C.B. Cushion A	2
20	BA04302A	Oscillator P.C.B. Ass'y	1
21	BA04296A	Record Eq. Amp. P.C.B. Ass'y	1
22	BA04235A	Playback Amp. & Dolby NR P.C.B. Ass'y	1
23	BA04236A	Record Dolby NR P.C.B. Ass'y	1
24	HA04053A	Rear Panel Ass'y (U.S.A. & Canada)	1
	HA04054A	Rear Panel Ass'y (Japan)	1
	HA04056A	Rear Panel Ass'y (220V Class 2)	1
	HA04057A	Rear Panel Ass'y (UK)	1
	HA04058A	Rear Panel Ass'y (Australia)	1
	HA04055A	Rear Panel Ass'y (Others)	1
25	0J04184B	Chassis Bracket L	1
26	0J04181A	Side Chassis L	1
27	0J04183B	Center Chassis	1
28	0J04278B	Cushion	7
29	BA04301A	Connector P.C.B. Ass'y	1
30	0J04185B	Chassis Bracket R	1
31	0J04182A	Side Chassis R	1
32	JA03753A	Pneumatic Damper Ass'y	1
33	0J04238A	Damper Collar	1
34	0J04284A	Damper Sleeve	1
35	0J04189A	Spring	1
36	0J04270A	Spring Hook	1
37	0M04182A	Amp. No. Seal	1
38	0J04363A	P.C.B. Cushion G	1
39	0J04360A	P.C.B. Holder G	1
L01	0E00944A	BT Screw M4x15 Philips Binding Head	3
L02	0E00924A	BT Screw M4x16 Philips Binding Head (Black Chromate)	1

Schematic Ref. No.	Part No.	Description	Q'ty
L03	0E00857A	BT Screw M3x6 Philips Binding Head	33
L04	–	Switch Nut	(8)
L05	–	Switch Washer	(8)
L06	–	Volume Nut	(5)
L07	–	Volume Washer	(5)
L08	0E00157A	Washer 3mm (Plastics)	6
L09	0E00612A	Screw M3x6 Philips Pan Head (2A)	4
L10	0E00860A	BT Screw M3x6 Philips Binding Head (Black Chromate)	2
L11	0E00920A	Screw M3x6 Philips Pan Head Polywave	2
L12	0E00946A	Washer 5mm	1
L13	0E00607A	Screw M3x8 Philips Pan Head (3A)	1
L14	0E00868A	BT Screw M3x8 Philips Binding Head	3

8.3. Chassis Ass'y (A02)

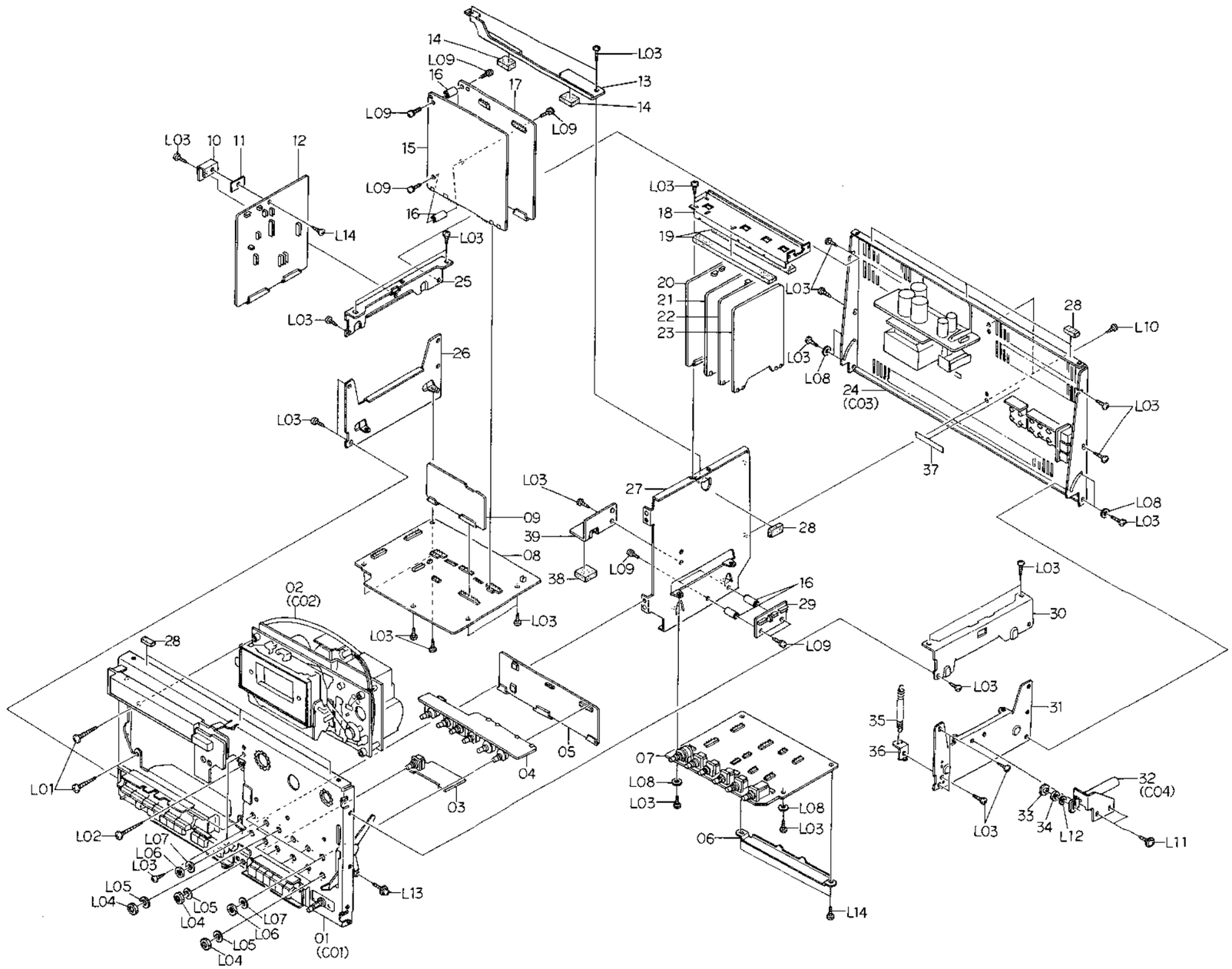


Fig. 8.3

8.4. Adjustment Lid Ass'y (B01)

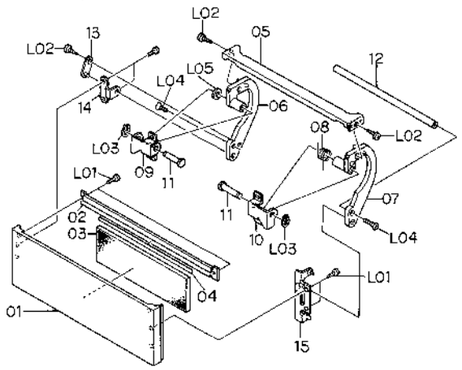


Fig. 8.4

8.5. LED Level Indicator Ass'y (B02)

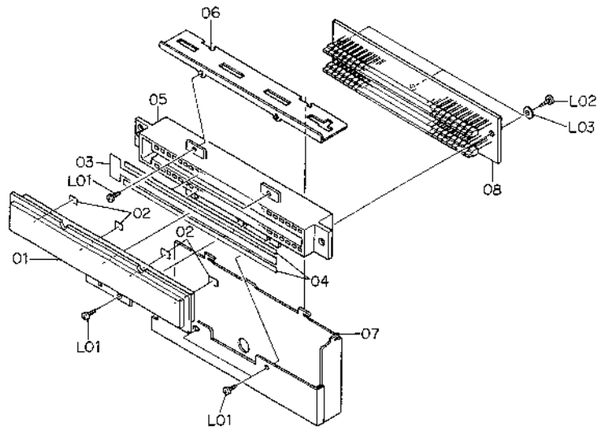


Fig. 8.5

Schematic Ref. No.	Part No.	Description	Q'ty
B01	HA04051A	**Adjustment Lid Ass'y** Serial No.: A11801001—	1
01	0H03888A	Adjustment Lid	1
02	0J04166A	Lid Escutcheon	1
03	0J04195A	Lid Absorber Rubber	1
04	0J04279A	Adhesive Tape	1
05	0J04168A	Lid Arm Joint Plate	1
06	0J04163A	Lid Arm L	1
07	0J04164A	Lid Arm R	1
08	0J04170A	Lid Arm Spring	1
09	0J04275A	Lid Arm Holder L	1
10	0J04274A	Lid Arm Holder R	1
11	0J04167A	Lid Arm Rod	2
12	0J04171A	Lid Arm Joint Rod	1
13	JA03758A	Lid Arm Plate Ass'y	1
14	0J04165A	Lid Holder	1
15	JA03757A	Lid Joint Plate	1
L01	0E00939A	Screw M2.6x4 Philips Pan Head	6
L02	0E00860A	BT Screw M3x6 Philips Binding Head (Bronze)	3
L03	0E00838A	Stopper Ring 4mm	2
L04	0E00940A	Screw M3x6 Philips Countersunk	2
L05	0J04310A	Washer FT40	1

Schematic Ref. No.	Part No.	Description	Q'ty
B02	BA04350A	**LED Level Indicator Ass'y** Serial No.: A11801001—	1
01	0H03916A	Indicator Scale Cover	1
02	0J04321A	Deflecting Seal	4
03	0J04256A	LED Reflector	1
04	0J04336A	Light Intercepting Seal	2
05	0J04253A	LED Indicator Case	1
06	0J04280A	Shield Plate	1
07	0J04281A	LED Indicator Case Holder	1
08	BA04300A	Indicator P.C.B. Ass'y	1
L01	0E00855A	BT Screw M2x6 Philips Binding Head	5
L02	0E00857A	BT Screw M3x6 Philips Binding Head	3
L03	0E00157A	Washer 3mm (Plastics)	3

Schematic Ref. No.	Part No.	Description	Q'ty
C01	JA03750A	**Front Chassis Ass'y (U.S.A. & Canada)**	1
	JA03751A	**Front Chassis Ass'y (Japan)**	1
	JA03752A	**Front Chassis Ass'y (220V Class 2, UK, Australia & Others)** Serial No.: A11801001—	1
01	BA04275A	Counter P.C.B. Ass'y	1
02	JA03760A	Lighting House Ass'y	1
03	0J04219B	Button Bracket Collar	6
04	0H03912A	Push Button	14
05	0J04224A	Button Sleeve A	1
06	0J04225A	Button Sleeve B	1
07	BA04325A	Switch A P.C.B. Ass'y	1
08	BA04327A	Switch C P.C.B. Ass'y	1
09	0J04221A	Push Button Bracket A	1
10	0J04222A	Button Shaft A	1
11	0J04223A	Push Button Cushion A	2
12	HA04137A	Control Button Ass'y	1
13	BA04271A	Switch Lamp A P.C.B. Ass'y	1
14	0J04218A	Control Button Cushion C	1
15	0J04308A	Control Button Cushion D	1
16	0J04217A	Button Shaft C	1
17	0J04220A	Control Button Bracket C	1
18	BA04273A	Control Switch Lamp P.C.B. Ass'y	1
19	BA04274A	Control Switch P.C.B. Ass'y	1
20	0J04232A	Bracket Holder L	1
21	0J04233A	Bracket Holder R	1
22	0J04229A	Push Button Sleeve C	1
23	BA04326A	Switch B P.C.B. Ass'y	1
24	0J04228A	Push Button Cushion B	1
25	0J04227A	Button Shaft B	1
26	0J04226A	Push Button Bracket B	1
27	0J04230A	Switch Lamp B P.C.B. Holder	1
28	BA04272A	Switch Lamp B P.C.B. Ass'y	1
29	0J04205A	Volume Holder	1
30	0B07351A	Line Input Volume	1
31	0J04206A	Switch Holder	1
32	0J04135C	Mechanism Bracket	1
33	0J04235A	Headphone Jack Holder	1
34	0B08511A	Headphone Jack	1
35	JA03763A	Damper Arm Ass'y	1
36	0B07253A	Power Switch (U.S.A. & Canada)	1
	0B07271A	Power Switch (Japan)	1
	0B07252A	Power Switch (220V Class 2, UK, Australia & Others)	1
37	0J04268A	Front Chassis	1
38	0J04178A	Front Chassis Cushion	14
39	0J04291A	Free Bushing 87mm	3
40	0J04294A	Free Bushing 58mm	1
41	0J04292A	Free Bushing 75mm	1
42	0J04293A	Free Bushing 63mm	1
43	0M04200A	Counter P.C.B. Seal A	1
44	0M04202A	Counter P.C.B. Seal B	1
L01	0E00857A	BT Screw M3x6 Philips Binding Head	28
L02	0E00868A	BT Screw M3x8 Philips Binding Head	6
L03	0E00837A	Stopper Ring 3mm	6
L04	0E00855A	BT Screw M2x6 Philips Binding Head	1
L05	0J04061A	Washer FT20	1
L06	—	Volume Nut	(1)
L07	—	Volume Washer	(1)
L08	—	Headphone Jack Nut	(1)
L09	—	Headphone Jack Washer	(1)
L10	0E00920A	Screw M3x6 Philips Pan Head Polywave	2
L11	0E00622A	Screw M3x5 Philips Pan Head	2
C02	CA08252A	**Mechanism Ass'y N-700ZXL** Serial No.: A11801001—	1
01	CA08265A	Flywheel Holder Ass'y	1
02	0C08096C	Capstan Belt	1
03	CA08173A	Supply Flywheel Ass'y	1
04	CA08015A	Take-up Flywheel Ass'y	1
05	0C08021B	Thrust Washer 3.1mm	1
06	0C08020B	Thrust Washer 2.6mm	1
07	0C08243A	Flange Thrust Cap	2
08	0C08244A	Flange Thrust Spring	2
09	CA08245A	Sub Mechanism Chassis Ass'y	1
10	0C08099B	Control Motor Belt	1
11	0C08098B	Counter Belt B	1
12	CA08253A	Main Mechanism Chassis Ass'y	1
13	0B08844A	10P-H Connector	1
14	0B08652C	3P-H Connector	1
15	0B08515A	Insh-Lock	16
16	0C08237A	Azimuth Alignment Wire	1
17	BA04308A	Speed Cal. P.C.B. Ass'y	1
18	0C08282A	P.C.B. Holder	1
—	0M04169A	Mechanism No. Seal	1
L01	0E00834A	BT Screw M3x30 Philips Pan Head	1
L02	0E00178A	Washer 3mm	2
L03	0E00833A	BT Screw M3x20 Philips Pan Head	3
L04	0E00835A	BT Screw M3x25 Philips Pan Head	1
L05	0E00883A	BT Screw M3x8 Philips Pan Head	5
L06	0B08861A	Plastic Rivet	2

8.6. Front Chassis Ass'y (C01)

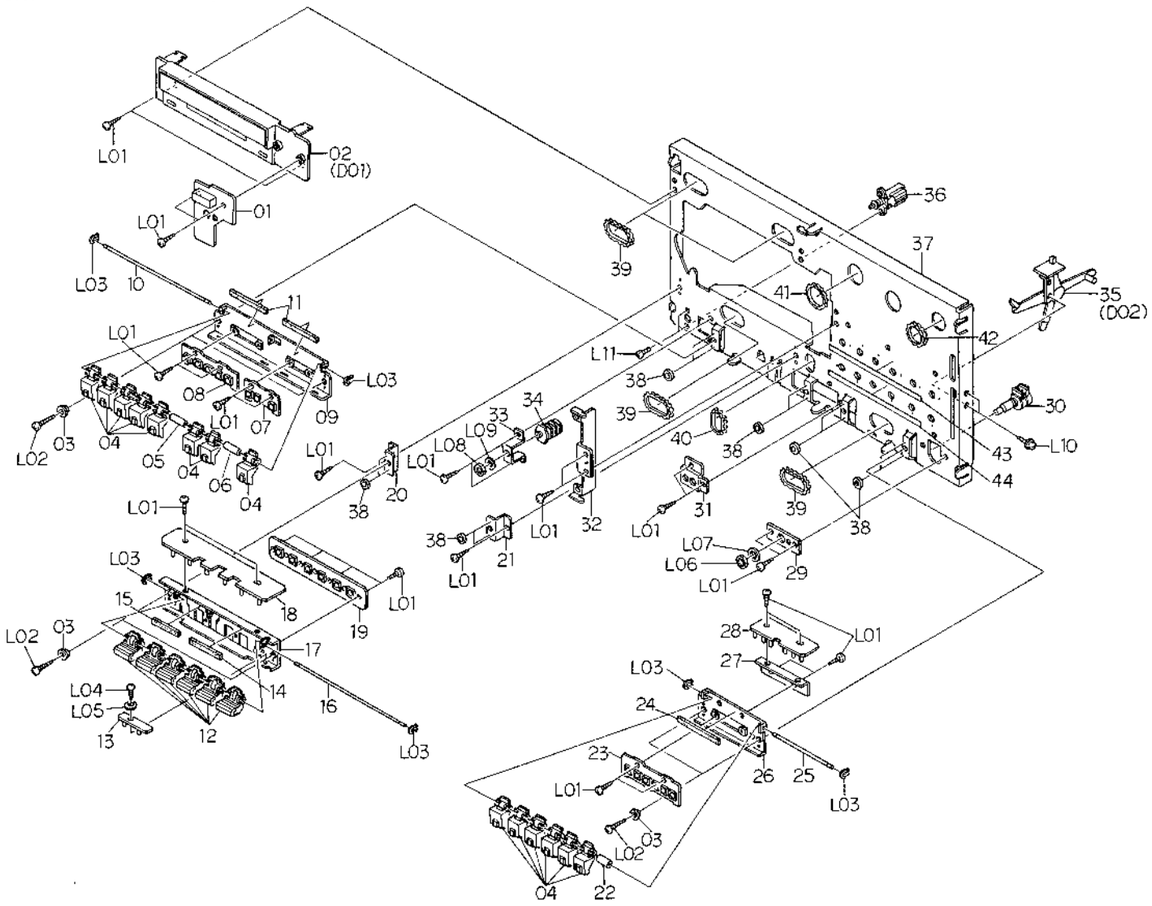


Fig. 8.6

8.7. Mechanism Ass'y N-700ZXL (C02)

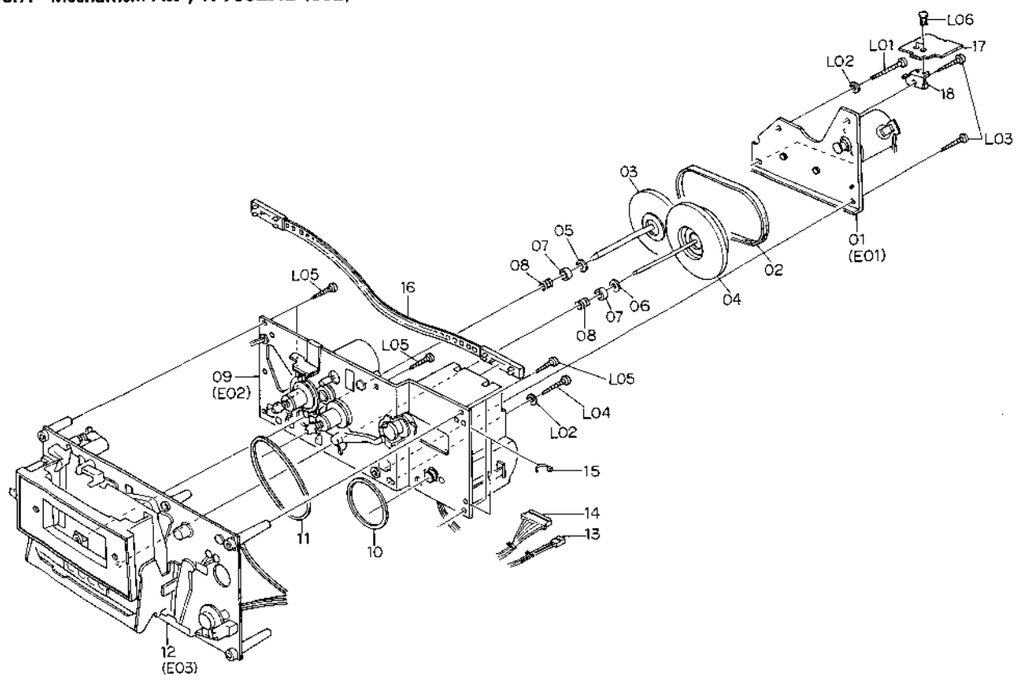


Fig. 8.7

8.8. Rear Panel Ass'y (C03)

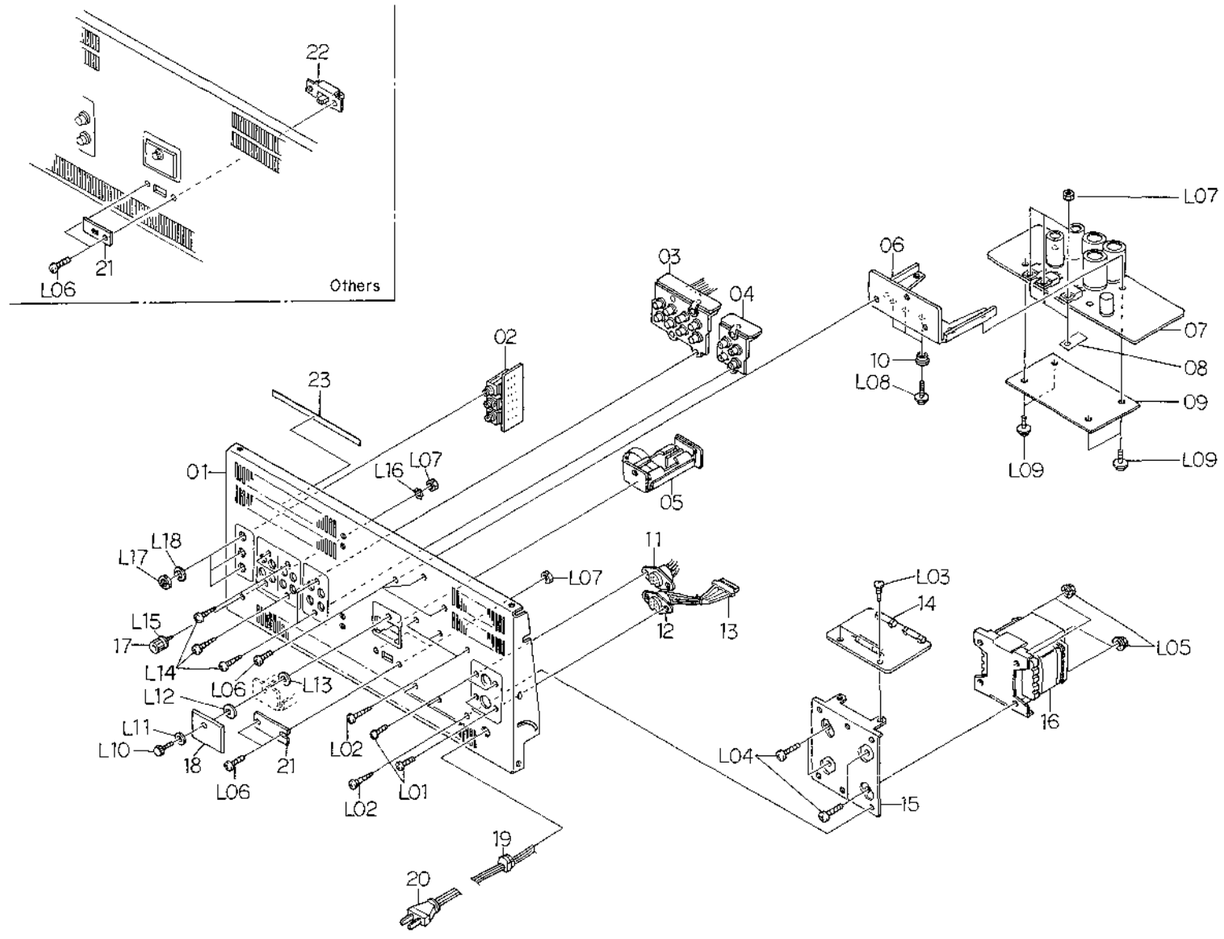


Fig. 8.8

8.9. Pneumatic Damper Ass'y (C04)

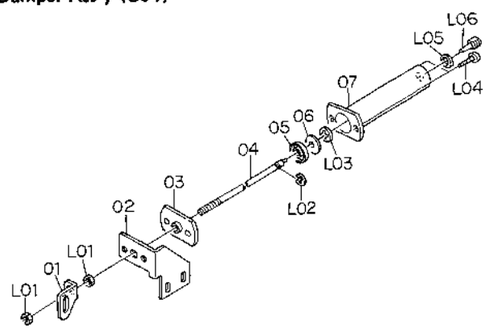


Fig. 8.9

8.10. Lighting House Ass'y (D01)

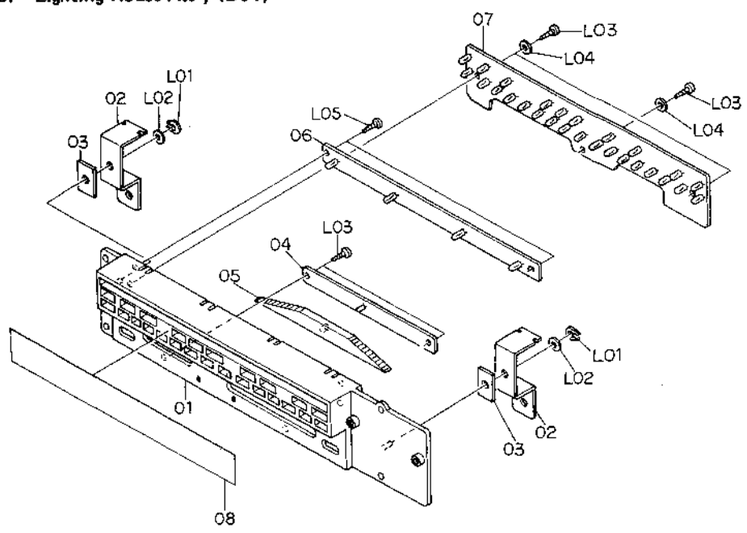


Fig. 8.10

Schematic Ref. No.	Part No.	Description	Q'ty
C03	HA04053A	**Rear Panel Ass'y (U.S.A. & Canada)**	1
	HA04054A	**Rear Panel Ass'y (Japan)**	1
	HA04056A	**Rear Panel Ass'y (220V Class 2)**	1
	HA04057A	**Rear Panel Ass'y (UK)**	1
	HA04058A	**Rear Panel Ass'y (Australia)**	1
	HA04055A	**Rear Panel Ass'y (Others)**	1
		Serial No.: A11801001–	
01	0H03906A	Rear Panel	1
02	BA04297A	MIC Jack P.C.B. Ass'y	1
03	BA04298A	Pin Jack A P.C.B. Ass'y	1
04	BA04299A	Pin Jack B P.C.B. Ass'y	1
05	JA03733A	Battery Case Ass'y	1
06	0B08759A	Heat Sink	1
07	BA04276A	Power Supply P.C.B. Ass'y	1
08	0B08601A	Insulator Mica T0220	3
09	0B06256A	Insulator	1
10	0B08602A	Transistor Bushing T0220	3
11	0B08584A	8P DIN Socket	1
12	0B08495A	8P DIN Socket	1
13	0B08748A	8P-H Connector	1
14	BA04260A	Fuse P.C.B. Ass'y (U.S.A. & Canada)	1
	BA04261A	Fuse P.C.B. Ass'y (Japan)	1
	BA04262A	Fuse P.C.B. Ass'y (220V Class 2)	1
	BA04263A	Fuse P.C.B. Ass'y (UK & Australia)	1
	BA04369A	Fuse P.C.B. Ass'y (Others)	1
15	0J04147A	Transformer Plate	1
16	0B06639A	Power Transformer (U.S.A. & Canada)	1
	0B06640A	Power Transformer (Japan)	1
	0B06638A	Power Transformer (UK, 220V Class 2 & Australia)	1
	0B06637A	Power Transformer (Others)	1
17	0B03920B	Ground Terminal	1
18	JA03733A	Battery Case Cover	1
19	0B08037U	Cord Bushing (U.S.A., Canada, Japan, 220V Class 2, Australia & Others)	1
	0B08351A	Cord Bushing (UK)	1
20	0B08533A	Power Cord (U.S.A., Canada & Others)	1
	0B08219B	Power Cord (Japan)	1
	0B08093U	Power Cord (220V Class 2)	1
	0B08348A	Power Cord (UK)	1
	0B05241A	Power Cord (Australia)	1
21	0J03663C	Switch Cover C (U.S.A., Canada, Japan, 220V Class 2, UK & Australia)	1
	0M03948A	Voltage Lock Plate (Others)	1
22	0B07092U	Voltage Selector (Others)	1
–	0M04182A	Amp. No. Seal	1
–	0M04198A	Fuse Caution Label (U.S.A. & Canada)	1
–	0M04201A	Module Seal	1
–	0M04203A	ABLE Label (U.S.A. & Canada)	1
–	0M03798A	Nakamichi Label (Japan)	1
–	0M03794A	Voltage Label 100V (Japan)	1
–	0M03955A	Voltage Label 120V/220V–240V (Others)	1
–	0M03796A	Voltage Label 220V(220V Class 2)	1
–	0M03797A	Voltage Label 240V (UK & Australia)	1
L01	0E00714A	Screw M2.6x6 Philips Binding Head (Bronze)	4
L02	0E00921A	BT Screw M3x8 Philips Binding Head (Black Chromate)	6
L03	0E00857A	BT Screw M3x6 Philips Binding Head	2
L04	0E00929A	Screw M4x8 Philips Binding Head	4
L05	0E00928A	Nut Hex. M4 Flange	4
L06	0E00593A	Screw M3x6 Philips Binding Head	5
L07	0E00507A	Nut Hex. M3	6
L08	0E00608A	Screw M3x10 Philips Pan Head	3
L09	0E00607A	Screw M3x8 Philips Pan Head	4
L10	0H03825C	Screw M3x5 Sylinder Head	1
L11	0E00157A	Washer 3mm (Black Plastics)	1
L12	0H03760B	Washer A	1
L13	0J04067A	Washer FT40	1
L14	0E00860A	BT Screw M3x6 Philips Binding Head (Bronze)	6
L15	0E00732A	Washer 3mm	1
L16	0E00172A	Washer 3mm Toothed Lock	4
L17	0E00934A	MIC Jack Nut	3
L18	0E00935A	MIC Jack Washer	3
C04	**JA03753A**	**Pneumatic Damper Ass'y**	**1**
		Serial No.: A11801001–	
01	0J04285B	Damper Guide	1
02	0J04200A	Damper Arm Plate	1
03	0J04201A	Damper Holder	1
04	0J04198A	Damper Piston	1
05	0C08102B	Damper Ring	1
06	0C08010C	Damper Plate	1
07	0J04197A	Damper Sylinder	1
L01	0E00507A	Nut Hex. M3	2
L02	0E00698A	E-Ring 2.5mm	1
L03	0E00874A	Stopper Ring CS 2.5mm	1
L04	0E00846A	BT Screw M3x8 Philips Pan Head	2
L05	0C03857A	Lock Nut	1
L06	0J04199A	Pneumatic Adjustment Screw	1
D01	**JA03760A**	**Lighting House Ass'y**	**1**
		Serial No.: A11801001–	
01	0J04212A	Lighting House	1
02	0J04213A	Lamp House Bracket	2
03	0J04234A	Rubber Cushion	2
04	BA04328A	Lamp A P.C.B. Ass'y	1
05	0H03606B	Lamp House	1
06	BA04269A	Lamp S P.C.B. Ass'y	1
07	BA04270A	Lamp L P.C.B. Ass'y	1
08	0J04307A	Deflecting Seal	1
L01	0E00837A	Stopper Ring 3mm	2
L02	0E00597A	Washer 3mm	2
L03	0E00857A	BT Screw M3x6 Philips Binding Head	5
L04	0E00157A	Washer 3mm (Plastics)	3
L05	0E00941A	BT Screw M3x5 Philips Binding Head	2

8.11. Damper Arm Ass'y (D02)

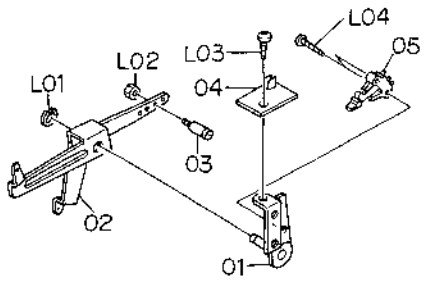


Fig. 8.11

8.12. Flywheel Holder Ass'y (E01)

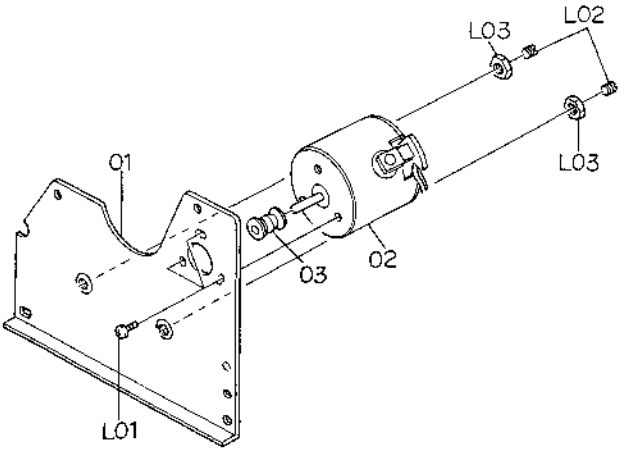


Fig. 8.12

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
D02	**JA03763A**	**Damper Arm Ass'y** Serial No.: A11801001–	**1**	**E01**	**CA08265A**	**Flywheel Holder Ass'y** Serial No.: A11801001–	**1**
01	JA03769A	Damper Arm Holder Ass'y	1	01	0C08013I	Flywheel Holder	1
02	0J04237A	Damper Arm	1	02	0C08271A	Capstan Motor	1
03	0J04271A	Spring Hook	1	03	0C08079G	Capstan Motor Pulley	1
04	BA04310A	Connector P.C.B. B Ass'y	1	L01	0E00226A	Screw M2.6x4 Philips Pan Head	3
05	0C08133A	Eject Sensor	1	L02	0C08068C	Thrust Screw	2
L01	0E00104A	E-Ring 5mm	1	L03	0C03857A	Lock Nut	2
L02	0E00507A	Nut Hex. M3	1				
L03	0E00840A	BT Screw M2x8 Philips Pan Head	2				
L04	0E00857A	BT Screw M3x6 Philips Binding Head	1				

8.13. Sub Mechanism Chassis Ass'y (E02)

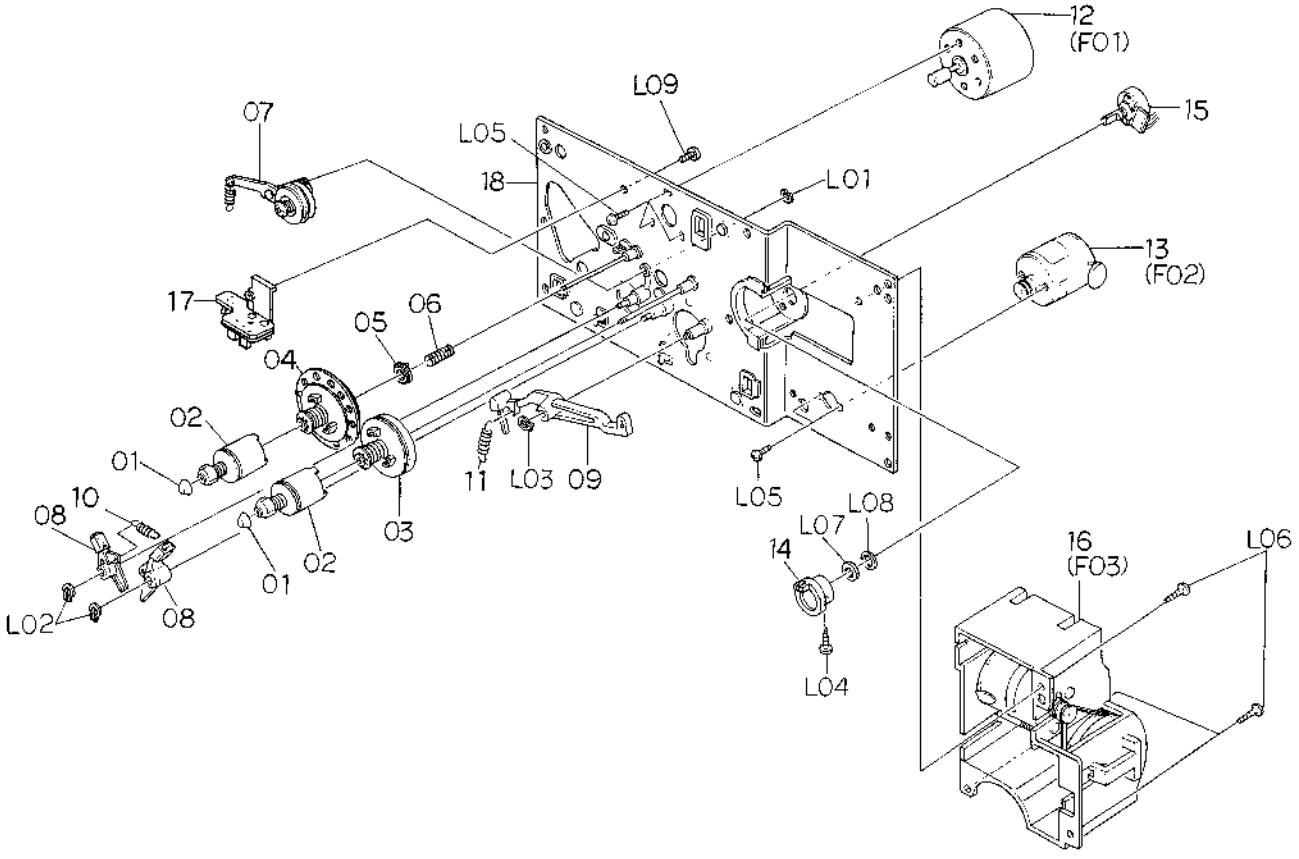


Fig. 8.13

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
E02	CA08245A	Sub Mechanism Chassis Ass'y Serial No.: A11801001–	1	L04	0E00859A	BT Screw M2.6x6 Philips Binding Head	1
				L05	0E00226A	Screw M2.6x4 Philips Pan Head	5
				L06	0E00846A	BT Screw M3x8 Philips Pan Head	3
01	0C08039B	Reel Hub Head	2				
02	CA08038C	Reel Hub B Ass'y	2	L07	–	Volume Nut	(1)
03	CA08037A	Reel Hub Take-up Ass'y	1	L08	–	Volume Washer	(1)
04	CA08236A	Reel Hub Supply Ass'y	1	L09	0E00792A	BT Screw M2.6x6 Philips Pan Head	1
05	CA08039A	Back Tension Ass'y	1				
06	0C08269A	Back Tension Spring	1				
07	CA08193A	Idler Ass'y	1				
08	CA08042A	Brake Ass'y	2				
09	0C08030C	Brake Drive Arm	1				
10	0C08129A	Brake Arm Spring	1				
11	0C08128A	Brake Drive Arm Spring	1				
12	CA08242A	Reel Motor Ass'y	1				
13	CA08034A	Control Motor Ass'y	1				
14	0C08053B	Volume Coupler	1				
15	0B07240A	Volume Control 10kΩ (B)	1				
16	CA08148A	Azimuth Alignment Motor Ass'y	1				
17	BA04237B	Counter Pulse Generator P.C.B. Ass'y	1				
18	CA08194A	Sub Chassis Ass'y	1				
L01	0E00698A	E-Ring 2.5mm	1				
L02	0E00837A	Stopper Ring 3mm	2				
L03	0E00838A	Stopper Ring 4mm	1				

Schematic Ref. No.	Part No.	Description	Q'ty
E03	CA08253A	**Main Mechanism Chassis Ass'y** Serial No.: A11801001–	1
01	CA08125A	Cassette Case Holder L Ass'y	1
02	0C08151A	Lid Arm Spring Tube	1
03	CA08022A	Cassette Case Holder R Ass'y	1
04	CA08240A	Cassette Case Ass'y	1
05	CA08259A	Cover Plate Ass'y	1
06	CA08262A	Head Mount Base Ass'y	1
07	0C08250A	Supply Pressure Roller Spring	1
08	0C08221A	Supply Pressure Roller Spring B	1
09	CA08053B	Supply Pressure Roller Ass'y	1
10	0C08122B	Supply Pressure Roller Thrust Spring	1
11	CA08079B	Take-up Pressure Roller Ass'y	1
12	0C08183B	Take-up Pressure Roller Thrust Spring	1
13	CA08260A	Head Base Ass'y F	1
14	0C08182A	Pressure Roller Drive Bar B	1
15	0C08086B	Head Base Roller	3
16	0C08050B	Record Sensor	1
17	0C08051E	Cassette Hold Arm	1
18	0C08120A	Cassette Hold Spring	1
19	CA08196A	Back Tension Arm Ass'y	1
20	0C08254A	Tension Arm Collar	1
21	CA08027A	Head Base Drive Arm Ass'y	1
22	0C08143C	Head Base Drive Arm Spring	1
23	CA08026A	Pressure Roller Drive Arm Ass'y	1
24	CA08237A	Auto Shut-off Ass'y	1
25	0C08119A	Record Protector	1
26	0C08194C	Damper Lock Arm	1
27	0C08153A	Damper Lock Arm Spring Tube	1
28	0C08116A	Record Arm Spring	2
29	CA08030A	Pneumatic Damper Ass'y	1
30	CA08023A	Supply Capstan Flange Ass'y	1
31	CA08024A	Take-up Capstan Flange Ass'y	1
32	0C08186A	Cam Drive Gear	1
33	0C08029H	Control Cam	1
34	0C08117A	Counter-Load Arm Spring	1
35	0C08152A	Counter-Load Arm Spring Tube	1
36	CA08028A	Counter-Load Arm Ass'y	1
37	CA08183A	Main Chassis Ass'y	1
L01	0E00837A	Stopper Ring 3mm	9
L02	0E00832A	BT Screw M3x14 Philips Pan Head	2
L03	0E00834A	BT Screw M3x30 Philips Pan Head	2
L04	0E00831A	BT Screw M3x10 Philips Pan Head	3
L05	0E00254A	Washer 3.1mm (Plastics)	2
L06	0E00222A	E-Ring 2mm	2
L07	0E00876A	BT Screw M2.6x8 Philips Pan Head	8
L08	0C08060B	Height Adjustment Nut	2
L09	0E00142A	Washer 2.6mm	2
L10	0E00879A	BT Screw M2x15 Philips Pan Head	1
L11	0E00838A	Stopper Ring 4mm	3
L12	0E00846A	BT Screw M3x8 Philips Pan Head	3
L13	0E00895A	Earth Lug 3mm	2
L14	0E00859A	BT Screw M2.6x6 Philips Binding Head	1
L15	0C08255A	Washer 2.6mm	1

8.14. Main Mechanism Chassis Ass'y (E03)

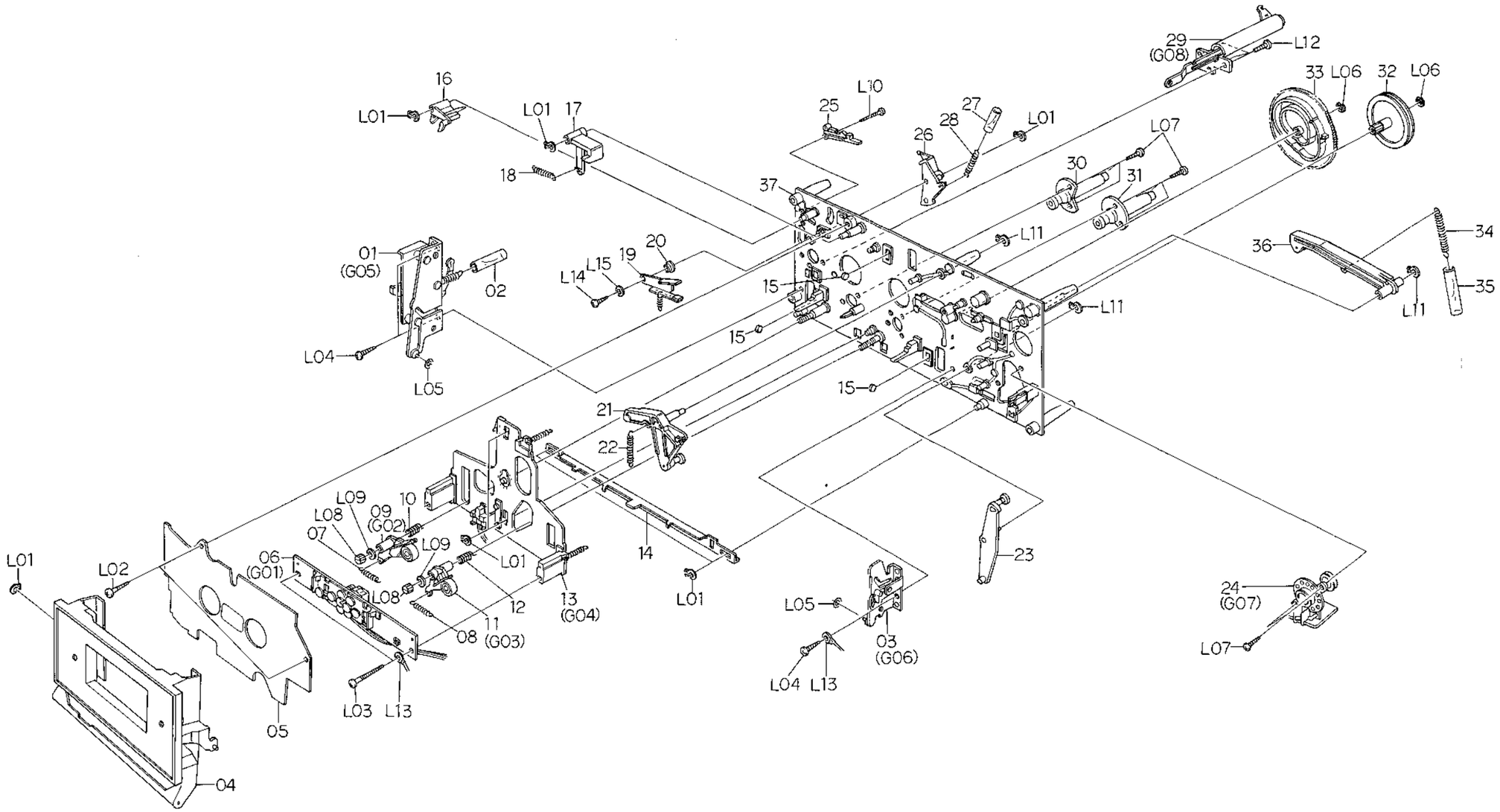


Fig. 8.14

8.15. Reel Motor Ass'y (F01)

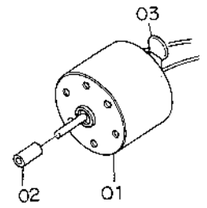


Fig. 8.15

8.16. Control Motor Ass'y (F02)

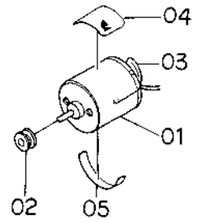


Fig. 8.16

8.17. Azimuth Alignment Motor Ass'y (F03)

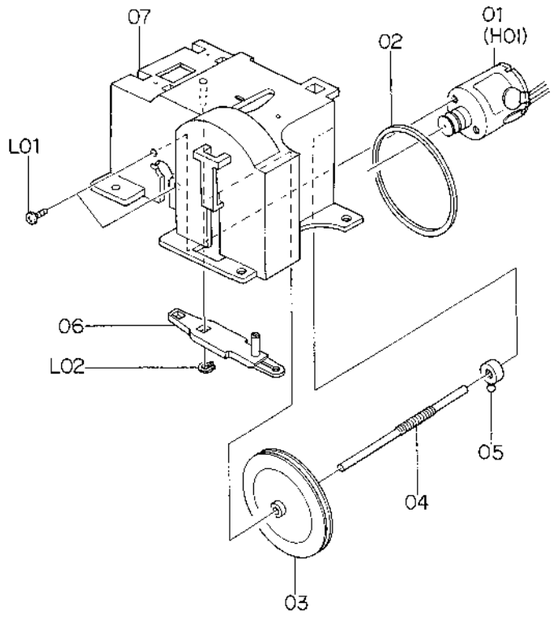


Fig. 8.17

8.18. Head Mount Base Ass'y (G01)

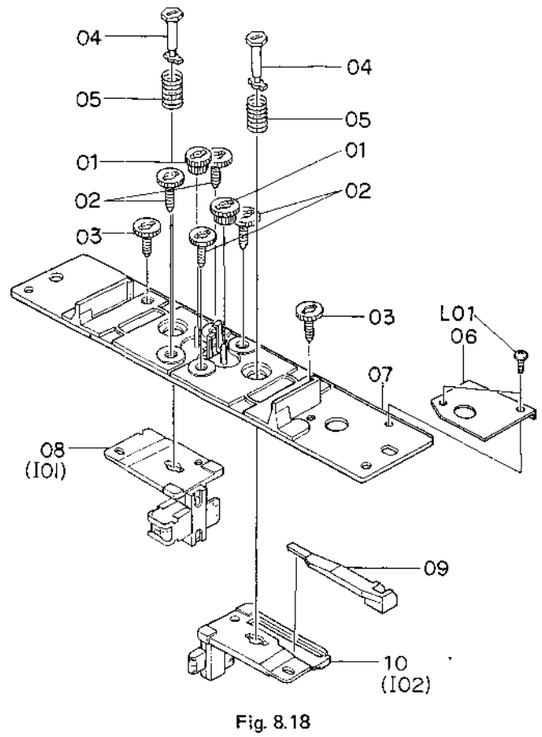


Fig. 8.18

8.19. Supply Pressure Roller Ass'y (G02)

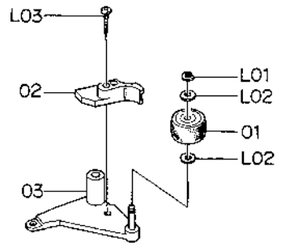


Fig. 8.19

8.20. Take-up Pressure Roller Ass'y (G03)

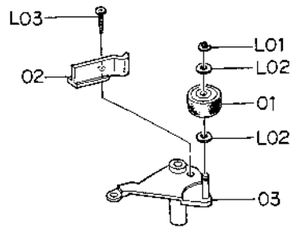


Fig. 8.20

8.21. Head Base Ass'y E (G04)

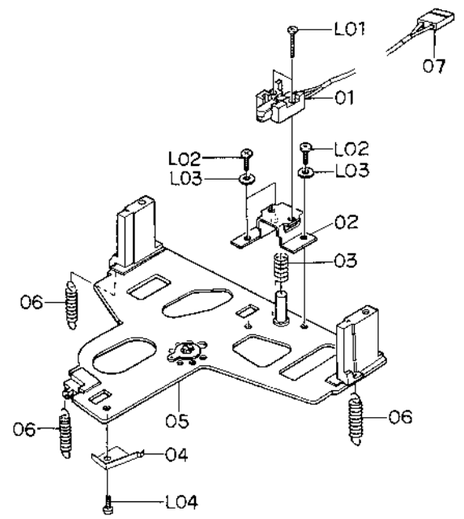


Fig. 8.21

8.22. Cassette Case Holder L Ass'y (G05)

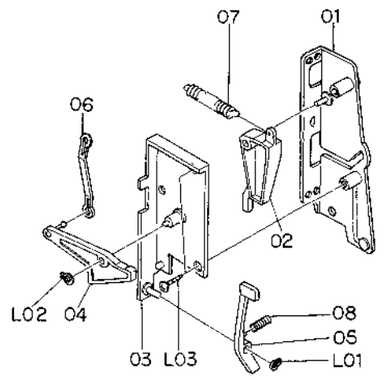


Fig. 8.22

8.23. Cassette Case Holder R Ass'y (G06)

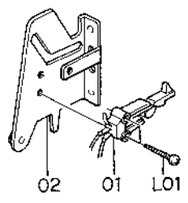


Fig. 8.23

Schematic Ref. No.	Part No.	Description	Q'ty
F01	**CA08242A**	**Reel Motor Ass'y** Serial No.: A11801001–	**1**
01	0C08272A	Reel Motor	1
02	0C08063F	Reel Motor Pulley	1
03	0B09290A	Ceramic Capacitor 0.01μ 50V Z	1
F02	**CA08034A**	**Control Motor Ass'y** Serial No.: A11801001–	**1**
01	0C08137A	Control Motor	1
02	0C08064A	Control Motor Pulley	1
03	0B09292A	Ceramic Capacitor 0.1μ 50V Z	1
04	0M03985A	Motor Label 730	1
05	0M03988A	Motor Seal B	1
F03	**CA08148A**	**Azimuth Alignment Motor Ass'y** Serial No.: A11801001–	**1**
01	CA08149A	Azimuth Motor Ass'y	1
02	0C08099B	Control Motor Belt	1
03	0C08229B	Drive Pulley	1
04	0C08230B	Drive Pulley Shaft	1
05	0C08231C	Drive Nut	1
06	0C08232C	Drive Bar	1
07	0C08233G	Drive Unit Base	1
L01	0E00226A	Screw M2.6x4 Philips Pan Head	2
L02	0E00837A	Stopper Ring 3mm	1
G01	**CA08262A**	**Head Mount Base Ass'y** Serial No.: A11801001–	**1**
01	0C08028C	Head Height Adjustment Gear	2
02	0C08027E	Head Height Adjustment Screw	4
03	0C08026D	Azimuth Alignment Screw	2
04	0C08161B	Spring Stopper	2
05	0C08187B	Head Plate Spring	2
06	0C08236A	Azimuth Alignment Wire Hold Plate	1
07	CA08083C	Head Mount Base Sub Ass'y	1
08	CA08261A	P-8L Playback Head Ass'y	1
09	0C08235A	Azimuth Alignment Plate	1
10	CA08263A	R-8L Record Head Ass'y	1
L01	0E00917A	BT Screw M2.6x5 Philips Pan Head	2
G02	**CA08053B**	**Supply Pressure Roller Ass'y** Serial No.: A11801001–	**1**
01	0C08164G	Pressure Roller	1
02	0C08189B	Supply Tape Guide	1
03	CA08061A	Supply Pressure Roller Arm Ass'y	1
L01	0E00042A	E-Ring 1.5mm	1
L02	0C08024A	Washer 2mm	2
L03	0E00788A	BT Screw M2x8 Philips Pan Head	1

Schematic Ref. No.	Part No.	Description	Q'ty
G03	**CA08079B**	**Take-up Pressure Roller Ass'y** Serial No.: A11801001–	**1**
01	0C08164G	Pressure Roller	1
02	0C08181C	Take-up Tape Guide	1
03	CA08073B	Take-up Pressure Roller Arm Ass'y	1
L01	0E00042A	E-Ring 1.5mm	1
L02	0C08024A	Washer 2mm	2
L03	0E00788A	BT Screw M2x8 Philips Pan Head	1
G04	**CA08260A**	**Head Base Ass'y F** Serial No.: A11801001–	**1**
01	GA02083A	E-8LH Erase Head	1
02	0C08158D	EH Hold Plate	1
03	0C08166A	EH Hold Plate Spring	1
04	0C08174C	Cassette Hold Spring	1
05	CA08003Q	Head Base Ass'y	1
06	0C08175A	Head Base L Spring	3
07	0B08816B	2P-H Connector	1
L01	0E00889A	Screw M1.7x8 Philips Pan Head	2
L02	0E00909A	Screw M2x6 Philips Pan Head	3
L03	0E00117A	Washer 2mm	3
L04	0E00853A	BT Screw M2x3 Philips Pan Head	1
G05	**CA08125A**	**Cassette Case Holder L Ass'y** Serial No.: A11801001–	**1**
01	CA08090F	Cassette Case L Sub Ass'y	1
02	0C08073C	Lid Arm A	1
03	0C08195G	Arm Holder	1
04	0C08196B	Eject Arm A	1
05	0C08197C	Eject Arm B	1
06	0C08199B	Eject Arm Joint	1
07	0C08114A	Lid Arm Spring	1
08	0C08211C	Eject Arm Spring	1
L01	0E00837A	Stopper Ring 3mm	1
L02	0E00838A	Stopper Ring 4mm	1
L03	0E00865A	BT Screw M3x10 Philips Binding Head	2
G06	**CA08022A**	**Cassette Case Holder R Ass'y** Serial No.: A11801001–	**1**
01	0C08133A	Eject Sensor	1
02	CA08044A	Cassette Case Holder R Sub Ass'y	1
L01	0E00840A	BT Screw M2x8 Philips Pan Head	2

8.24. Auto Shut-off Ass'y (G07)

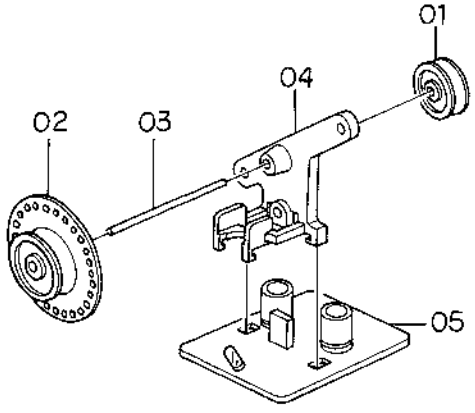


Fig. 8.24

8.25. Pneumatic Damper Ass'y (G08)

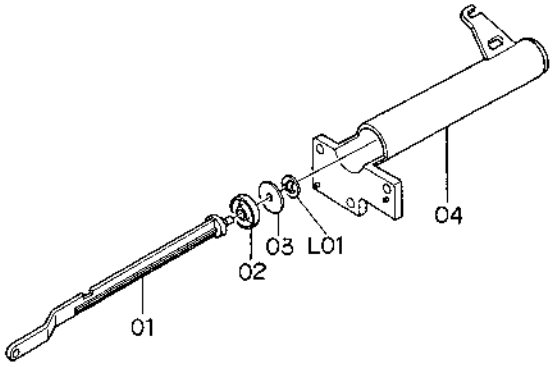


Fig. 8.25

8.26. Azimuth Motor Ass'y (H01)

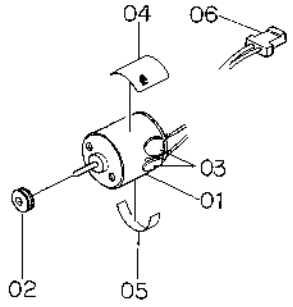


Fig. 8.26

8.27. P-8L Playback Head Ass'y (I01)

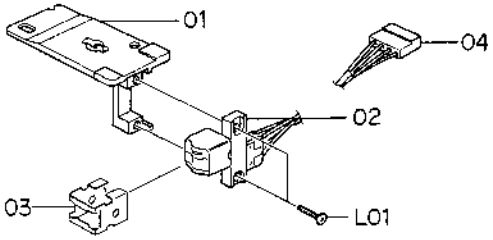
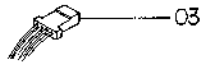


Fig. 8.27

8.28. R-8L Record Head Ass'y (I02)



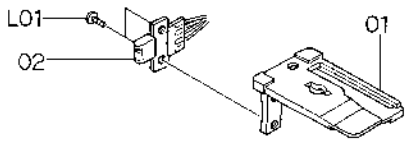


Fig. 8.28

Schematic Ref. No.	Part No.	Description	Q'ty
G07	**CA08237A**	**Auto Shut-off Ass'y** Serial No.: A11801001–	**1**
01	0C08047A	Shut-off Pulley A	1
02	0C08206B	Shut-off Pulley B	1
03	0C08088B	Shut-off Pulley Shaft	1
04	0C08207B	Shut-off Pulley Holder	1
05	BA04070A	Shut-off P.C.B. Ass'y	1
G08	**CA08030A**	**Pneumatic Damper Ass'y** Serial No.: A11801001–	**1**
01	0C08058C	Damper Piston	1
02	0C08102C	Damper Ring	1
03	0C08010C	Damper Plate	1
04	0C08059D	Sylinder	1
L01	0E00874A	Stopper Ring CS 2mm	1
H01	**CA08149A**	**Azimuth Motor Ass'y** Serial No.: A11801001–	**1**
01	0C08137A	Control Motor	1
02	0C08064A	Control Motor Pulley	1
03	0B09292A	Ceramic Capacitor 0.1μ 50V Z	2
04	0M03985A	Motor Label 730	1
05	0M03988A	Motor Seal B	1
06	0B08708A	2P Connector	1
I01	**CA08261A**	**P-8L Playback Head Ass'y** Serial No.: A11801001–	**1**
01	0C08160F	Head Plate	1
02	GA02085A	P-8LZ Playback Head	1
03	0C08169D	Pad Lifter 54	1
04	0B08817B	4P-H Connector	1
L01	0E00886A	Screw M1.7x6.5 Philips Pan Head	2
I02	**CA08263A**	**R-8L Record Head Ass'y** Serial No.: A11801001–	**1**
01	0C08234B	Head Plate	1
02	GA02084A	R-8LZ Record Head	1
03	0B08818B	4P-H Connector	1
L01	0E00887A	Screw M1.7x4 Philips Pan Head	2

9. TIMING CHART AND FLOW CHART

9.1. Overall Timing Chart

Mode	Playback			Record					Cue		
Control Button	Stop	Play	Stop	Rec.	Rec./Play	Rec./Pause	Rec./Play	Stop	Stop	F.F. or Rew. /Pause	Stop
Tape		370ms 300ms	70ms		370ms 300ms	70ms	140ms 70ms	70ms		160ms	60ms
Output		280ms			280ms		50ms			160ms	
Bias					240ms			330ms			

Fig. 9.1

9.2. Auto Calibration and RAMM Control

(1) Auto Calibration Timing Chart

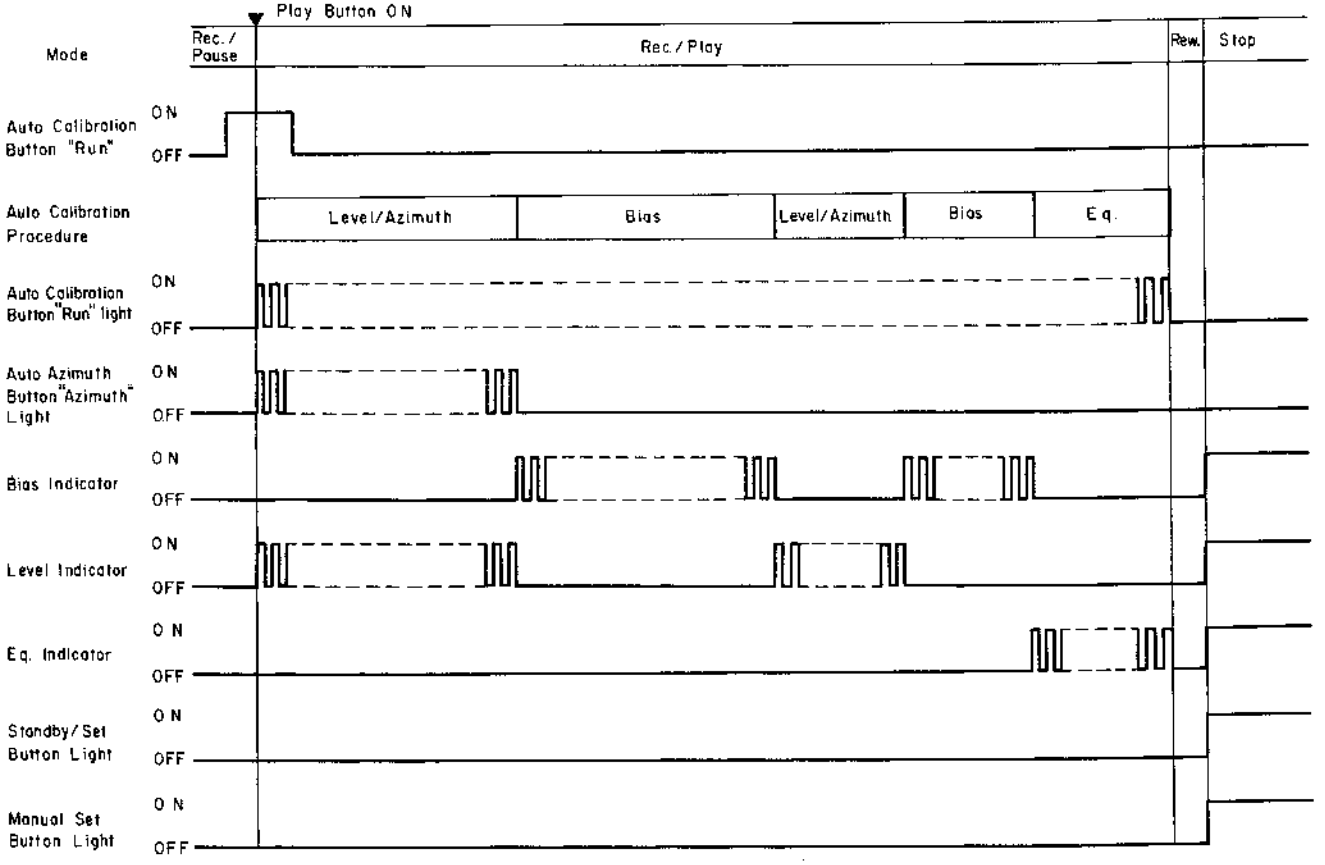


Fig. 9.2

(2) Auto Calibration Flow Chart

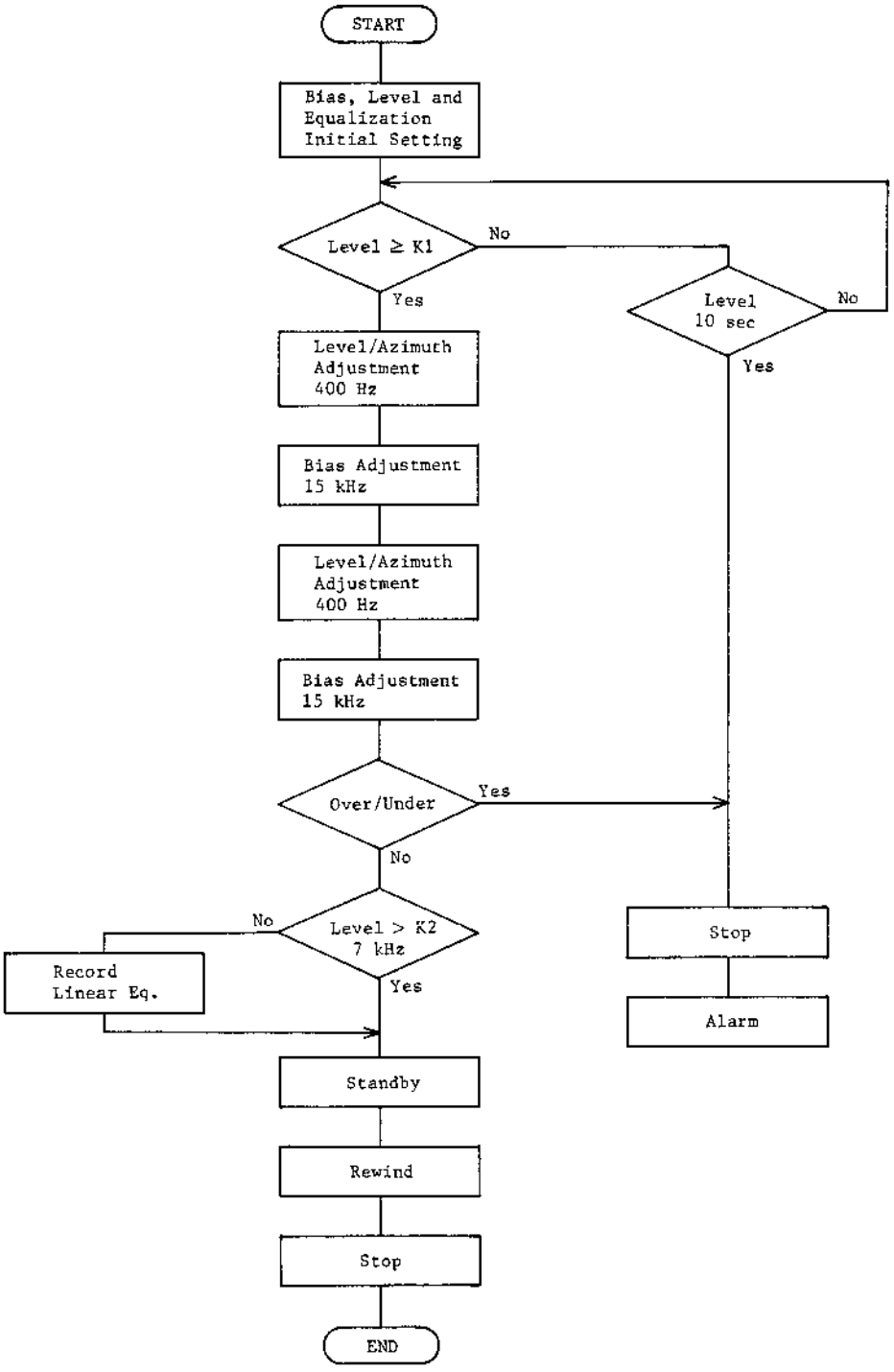


Fig. 9.3

(3) RAMM Coding Timing Chart

(a) Automatic Coding

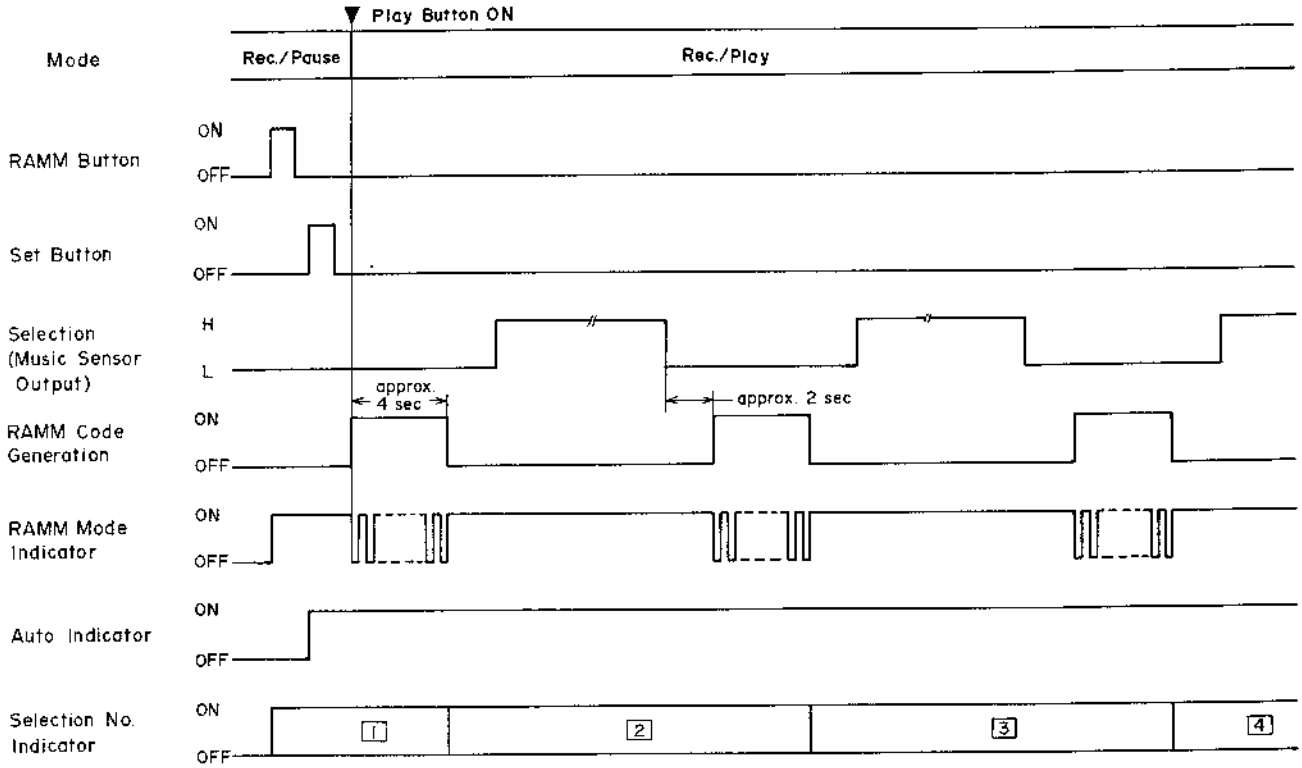


Fig. 9.4

(b) Manual Coding

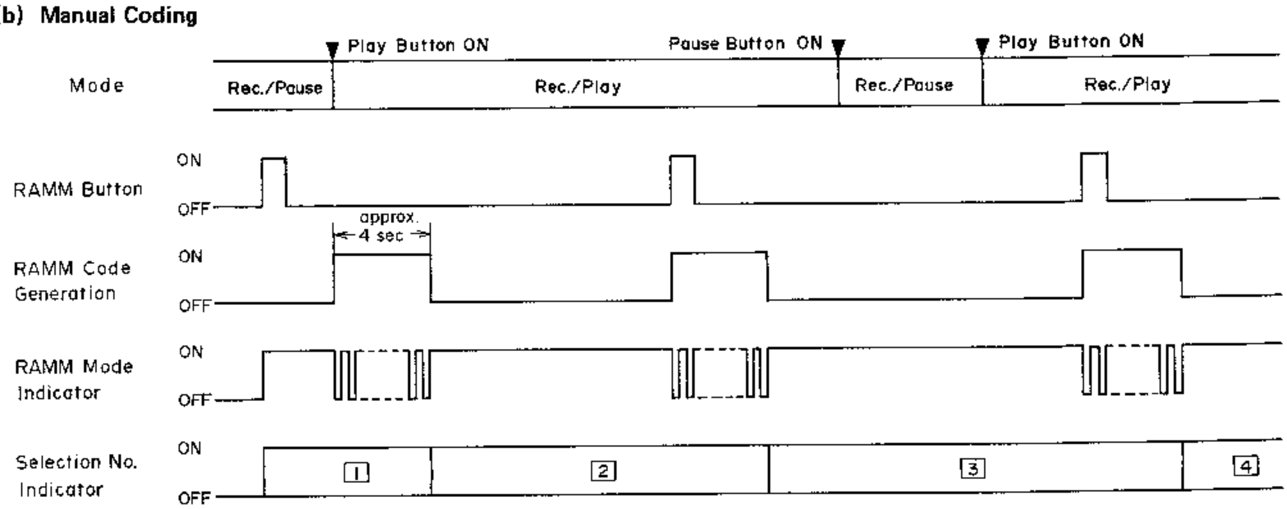


Fig. 9.5

(4) RAMM Code Tape Playback Flow Chart and Timing Chart

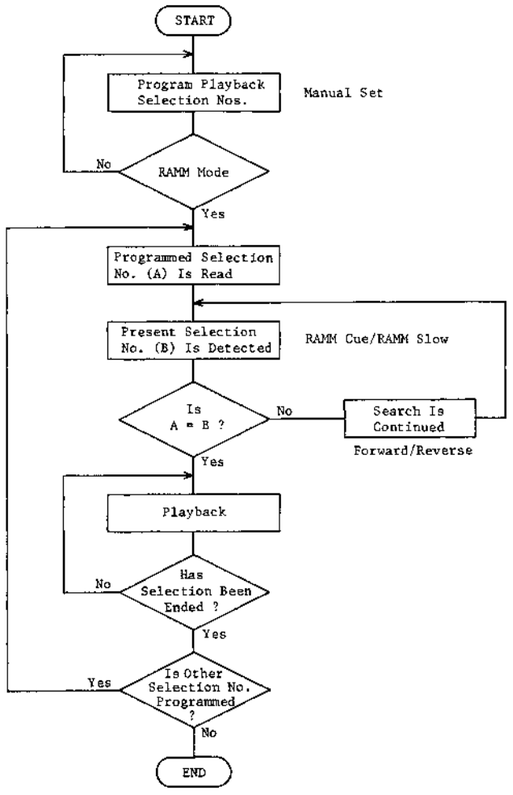


Fig. 9.6

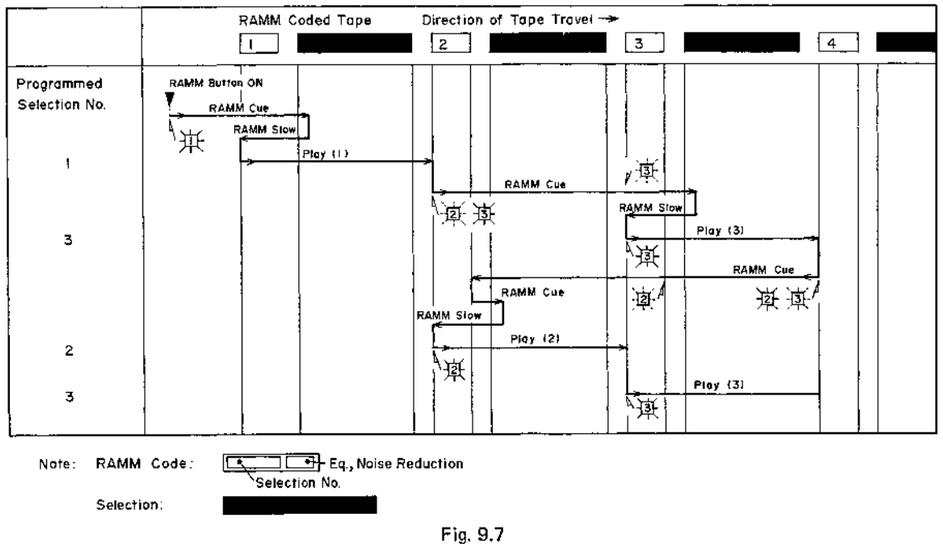


Fig. 9.7

10. EQ. AMP. FREQUENCY RESPONSE

10.1. Playback Frequency Response

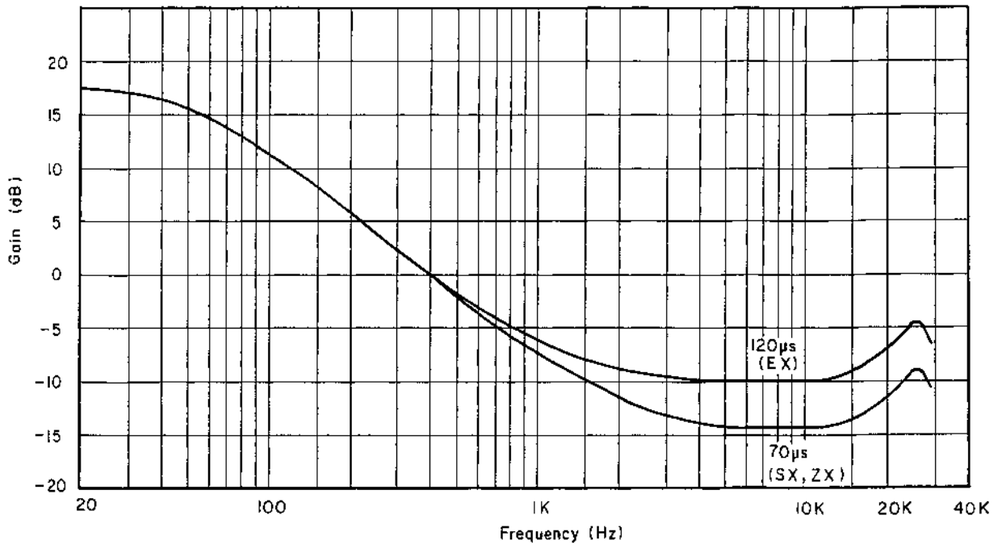


Fig. 10.1

10.2. Record Current Frequency Response

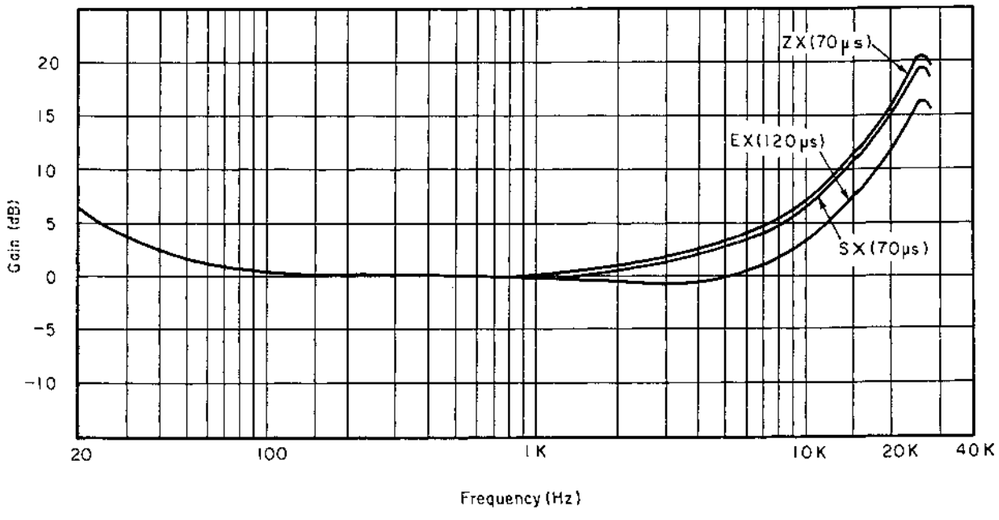


Fig. 10.2

Note: The record current frequency response curve shows the fixed record current frequency response before the auto calibration operation is made in the N-700ZXL without memory back-up batteries.

11. BLOCK DIAGRAMS

11.1. Amplifier and Auto Calibration Control Section

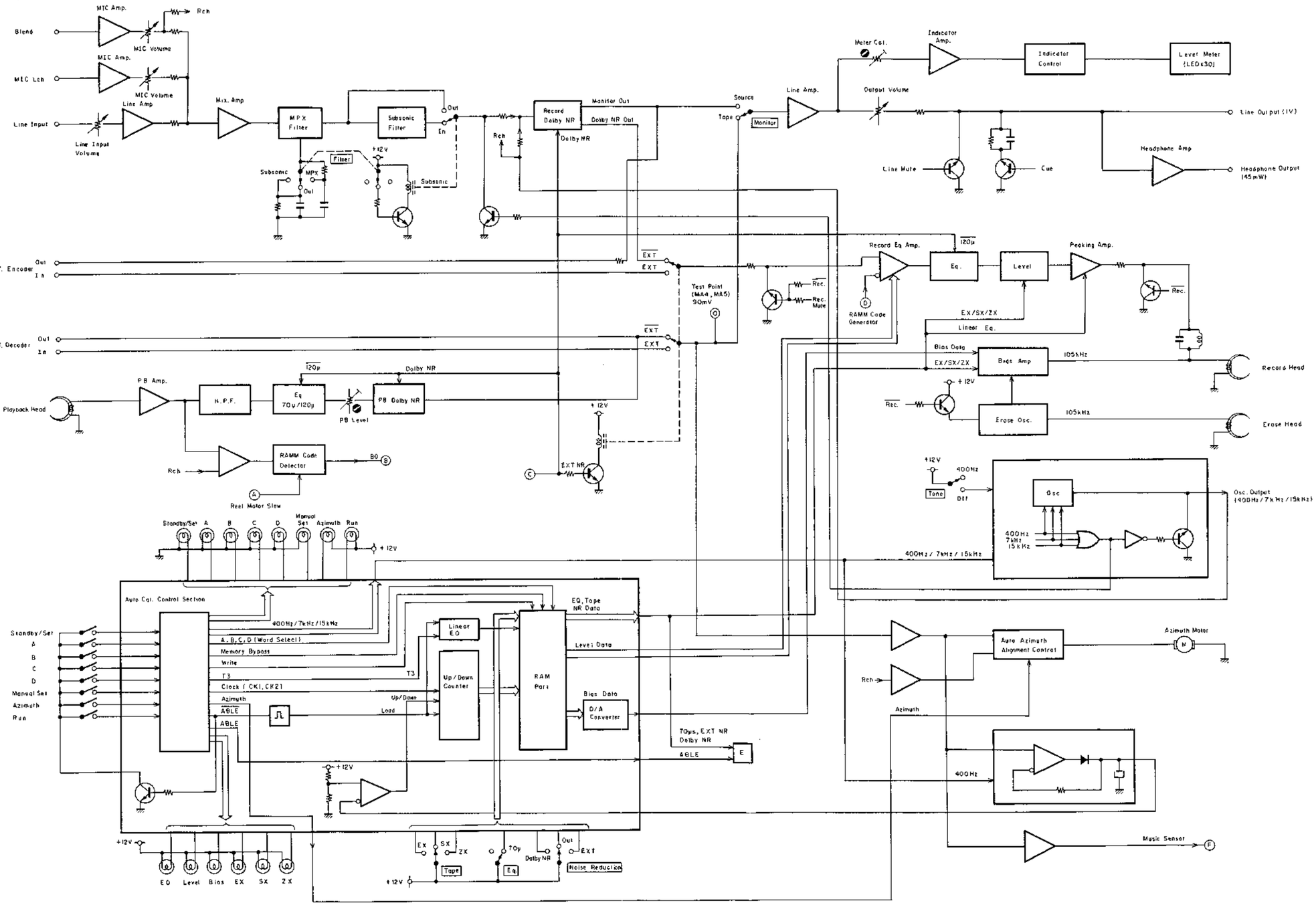


Fig. 11.1

11.2. Mechanism Control and RAMM Control Section

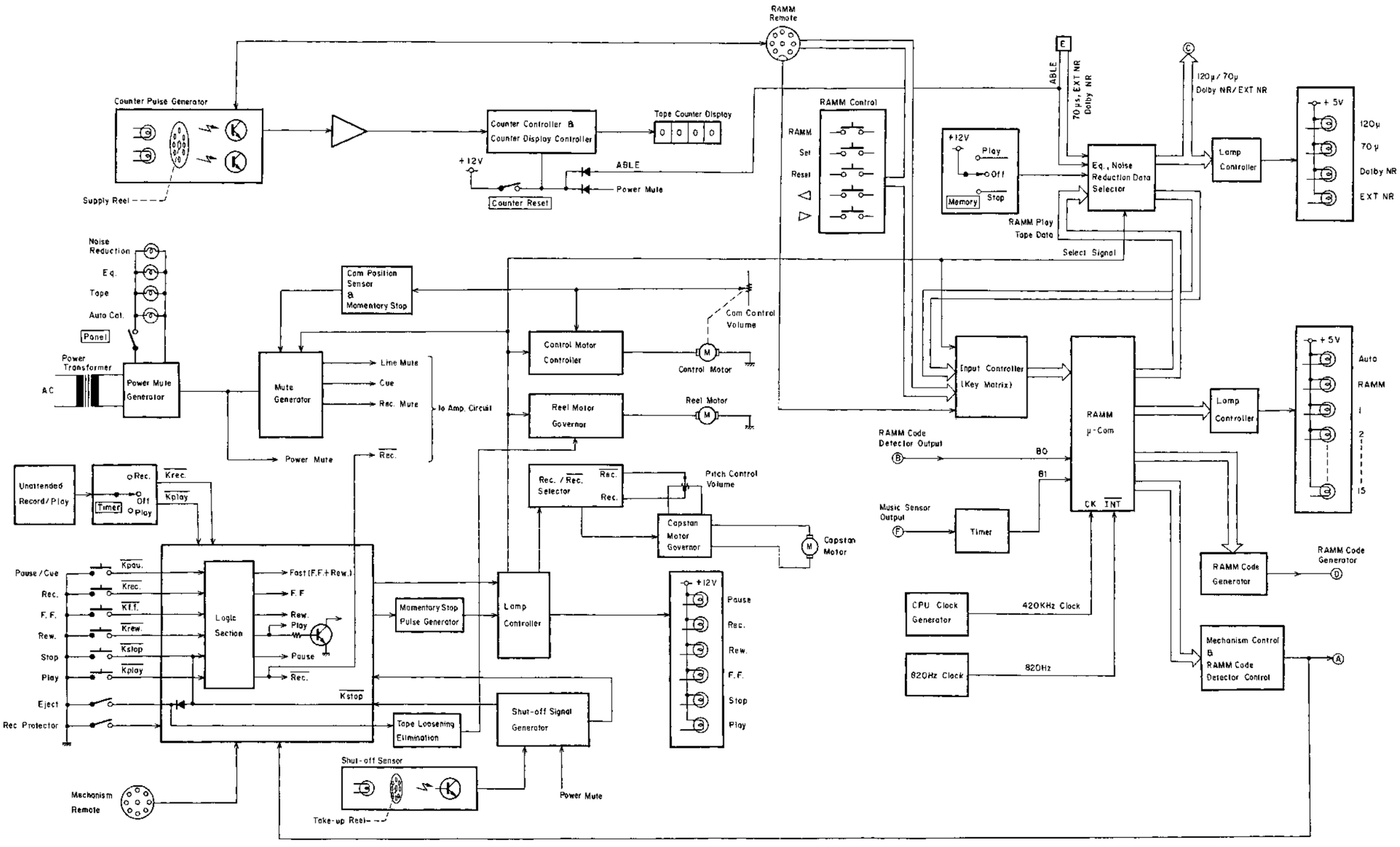


Fig. 11.2

12. WIRING DIAGRAM

Notes: 1. P.C.B. ass'y shows the component side unless otherwise specified.
2. Table of wire colors:
BLK – Black
BLU – Blue
GRN – Green
RED – Red
WHT – White
ORN – Orange
GRY – Gray
BRN – Brown
YEL – Yellow
VIO – Violet

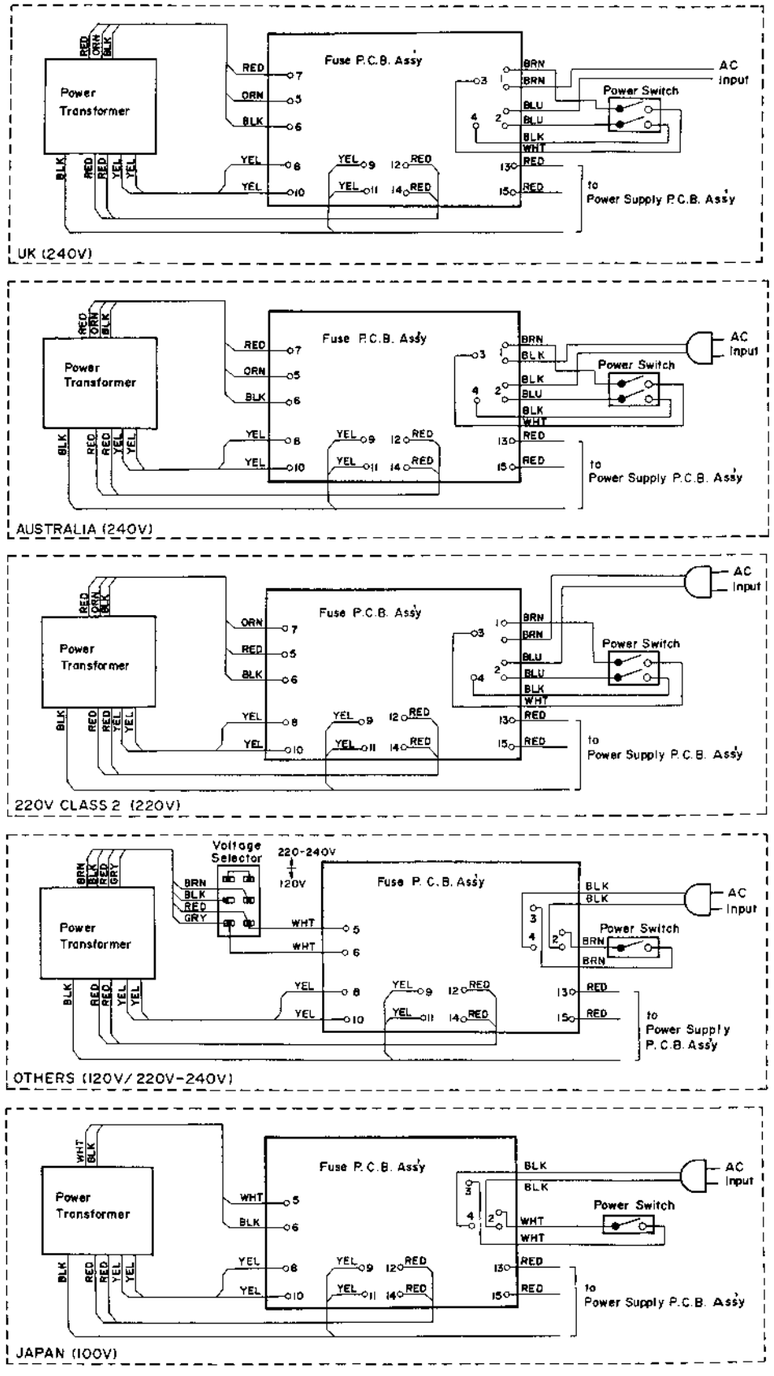


Fig. 12.1

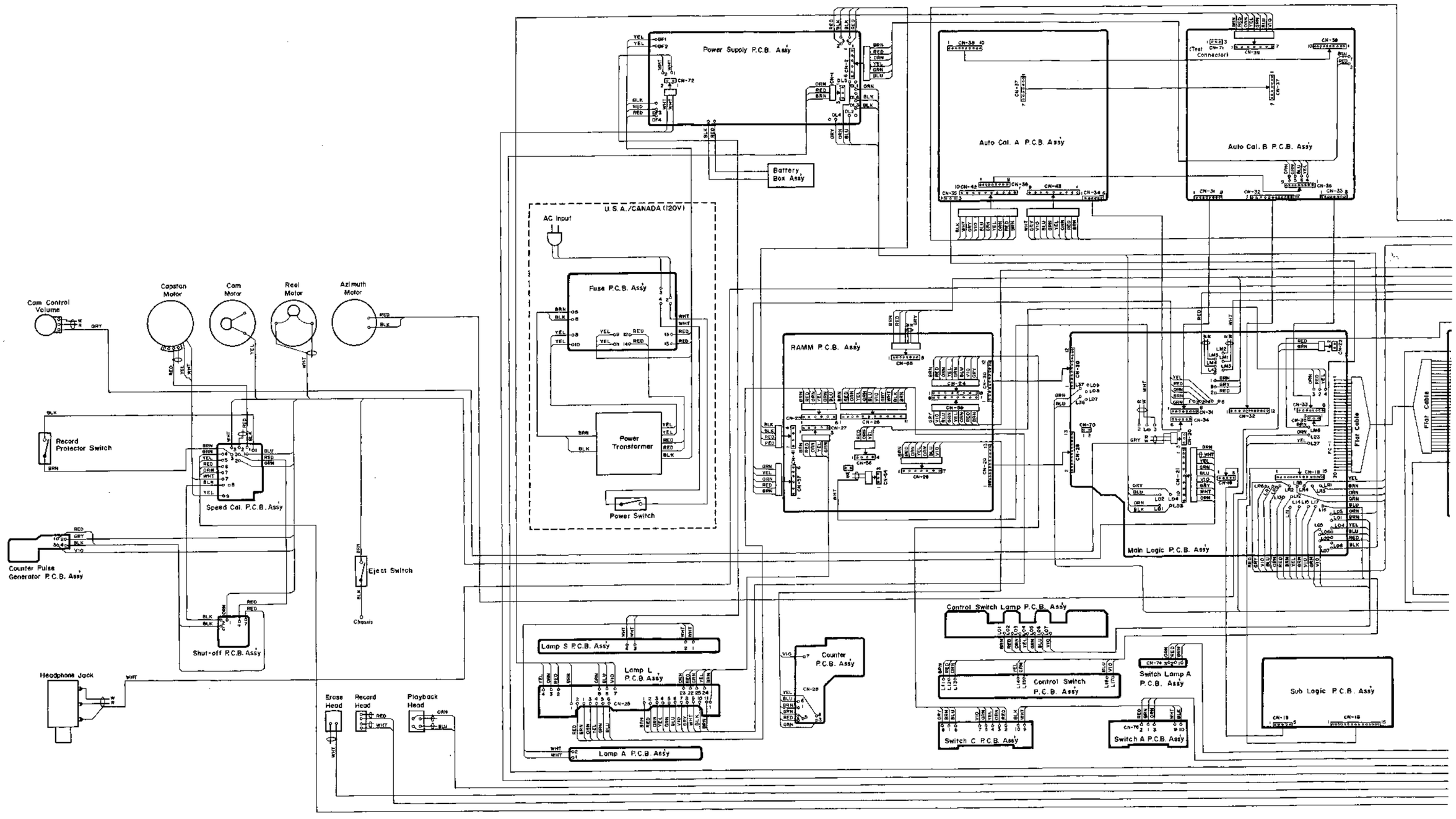

Power Supply P.C.B. Assy
Battery Box Assy
U.S.A./CANADA (120V)
AC Input
Fuse P.C.B. Assy
Power Transformer
Power Switch
Auto Cal. A P.C.B. Assy
Auto Cal. B P.C.B. Assy
(Test Connector)
RAMM P.C.B. Assy
Flat Cable
Main Logic P.C.B. Assy
Cam Control Volume
Capstan Motor
Cam Motor
Reel Motor
Azimuth Motor
Record Protector Switch
Speed Cal. P.C.B. Assy
Counter Pulse Generator P.C.B. Assy
Shut-off P.C.B. Assy
Eject Switch
Chassis
Headphone Jack
Erase Head
Record Head
Playback Head
Lamp S P.C.B. Assy
Lamp L P.C.B. Assy
Lamp A P.C.B. Assy
Counter P.C.B. Assy
Control Switch Lamp P.C.B. Assy
Control Switch P.C.B. Assy
Switch C P.C.B. Assy
Switch Lamp A P.C.B. Assy
Switch A P.C.B. Assy
Sub Logic P.C.B. Assy

Fig. 12.2

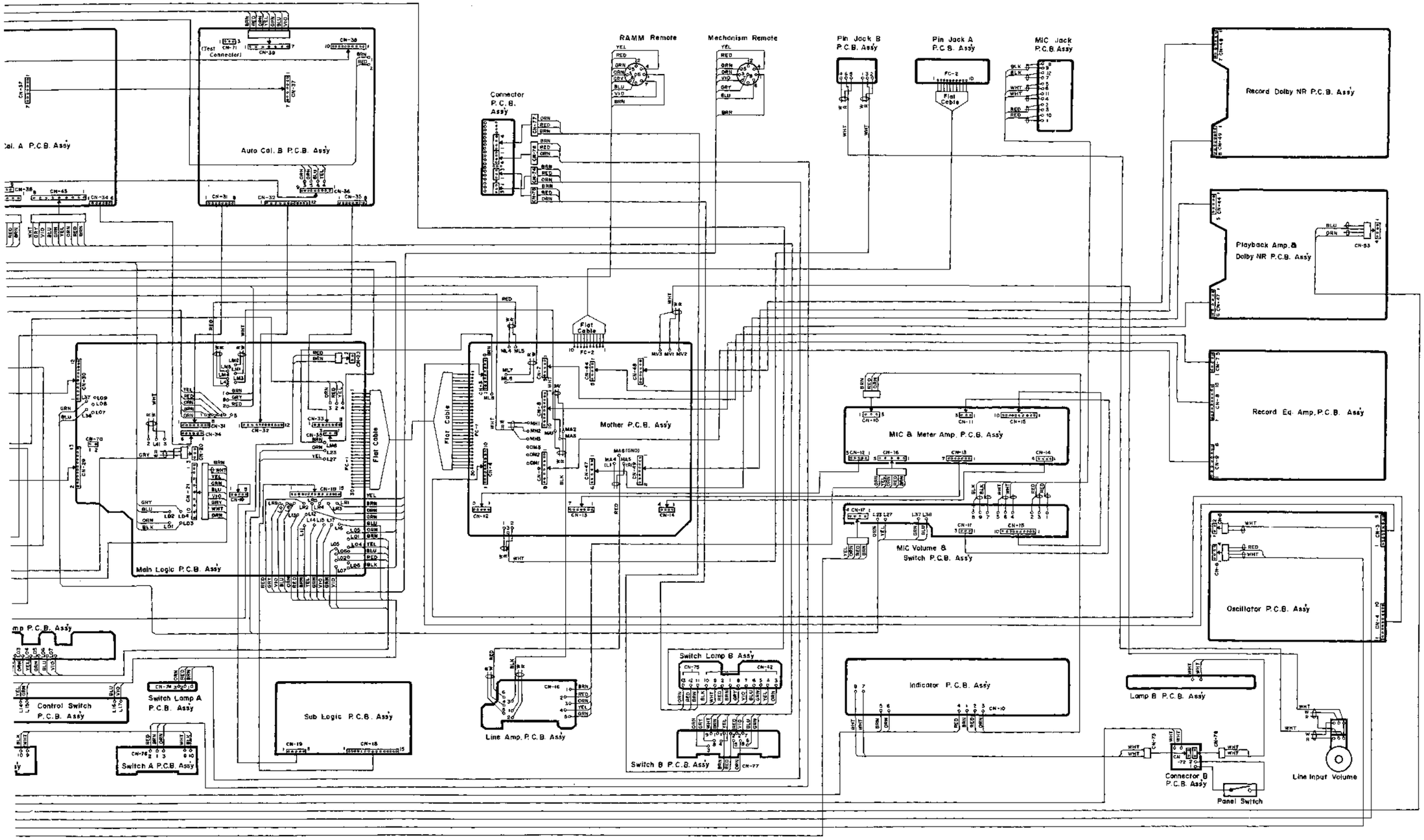

R&MM Remote
Mechanism Remote
Pin Jack B P.C.B. Assy
Pin Jack A P.C.B. Assy
MIC Jack P.C.B.Assy
Connector P.C.B. Assy
Auto Col. B P.C.B. Assy
Record Dolby NR P.C.B. Assy
Playback Amp.& Dolby NR P.C.B. Assy
Record Eq. Amp.P.C.B. Assy
Mother P.C.B. Assy
MIC & Meter Amp. P.C.B. Assy
MIC Volume & Switch P.C.B. Assy
Oscillator P.C.B. Assy
Main Logic P.C.B. Assy
Switch Lamp B Assy
Indicator P.C.B. Assy
Lamp B P.C.B. Assy
Control Switch P.C.B. Assy
Switch Lamp A P.C.B. Assy
Sub Logic P.C.B. Assy
Line Amp. P.C.B. Assy
Switch B P.C.B. Assy
Switch A P.C.B. Assy
Connector B P.C.B. Assy
Line Input Volume
Panel Switch
Flat Cable
Flat Cable

Fig. 12.2

13. SCHEMATIC DIAGRAMS

13.1. Amplifier Section

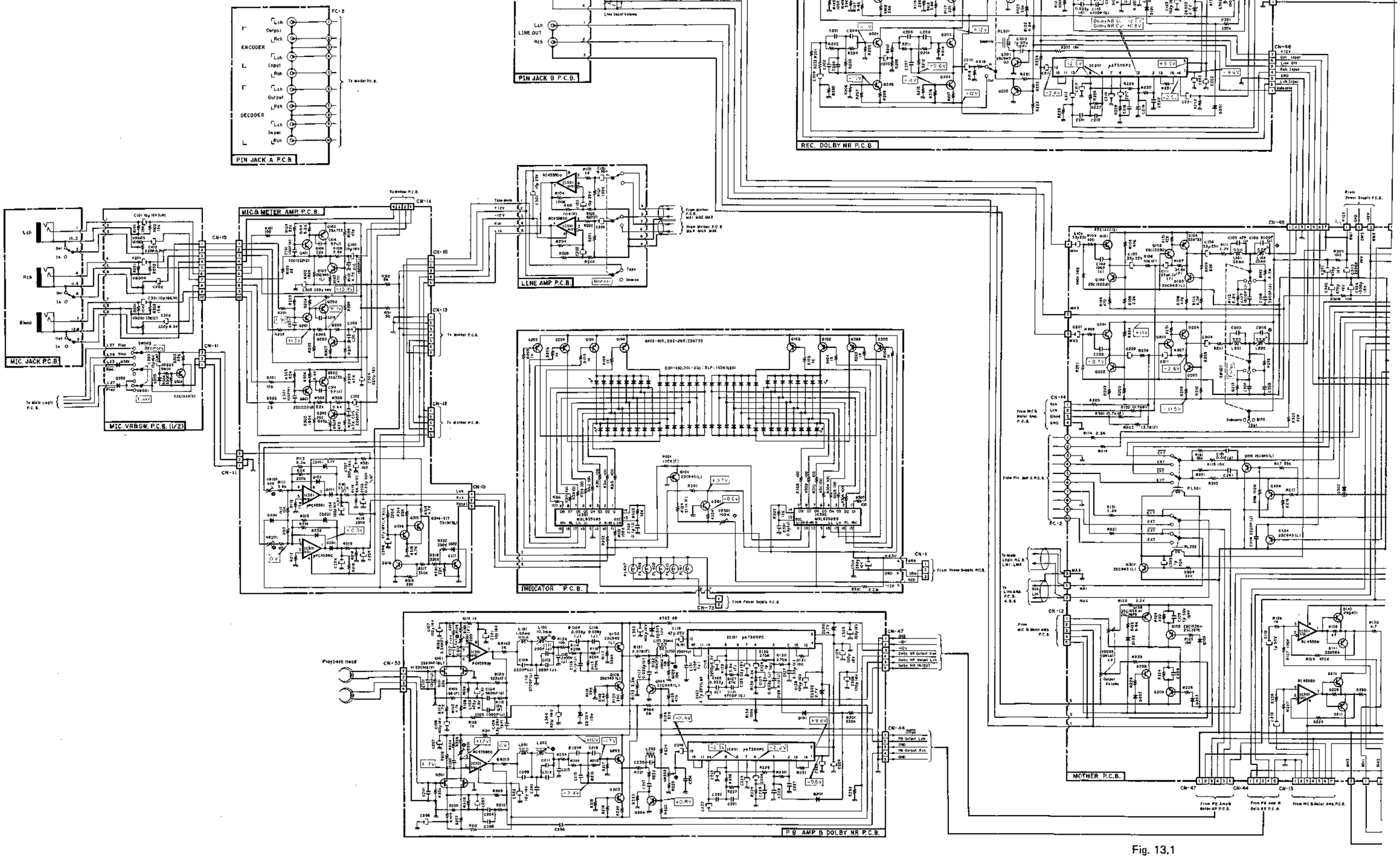


Fig. 13.1

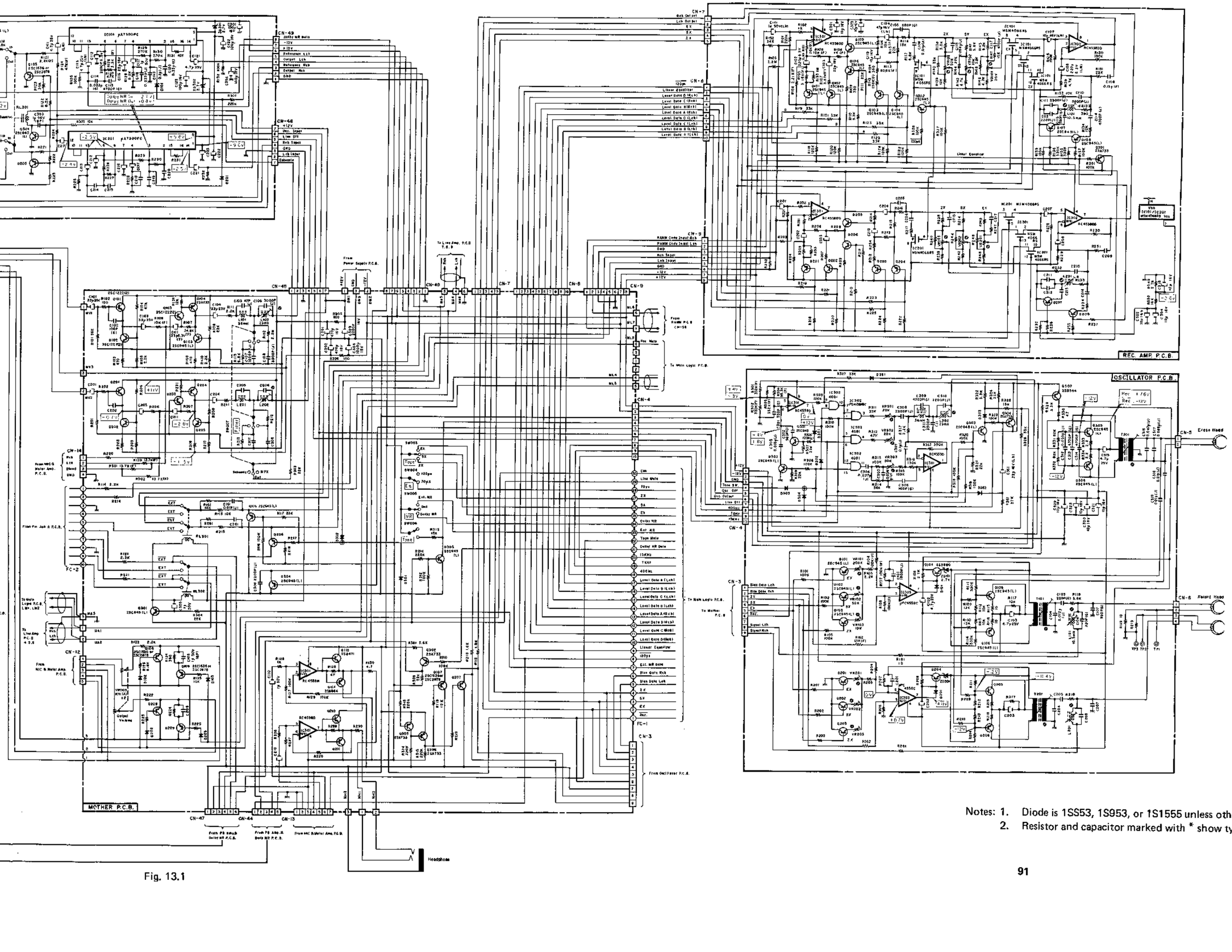
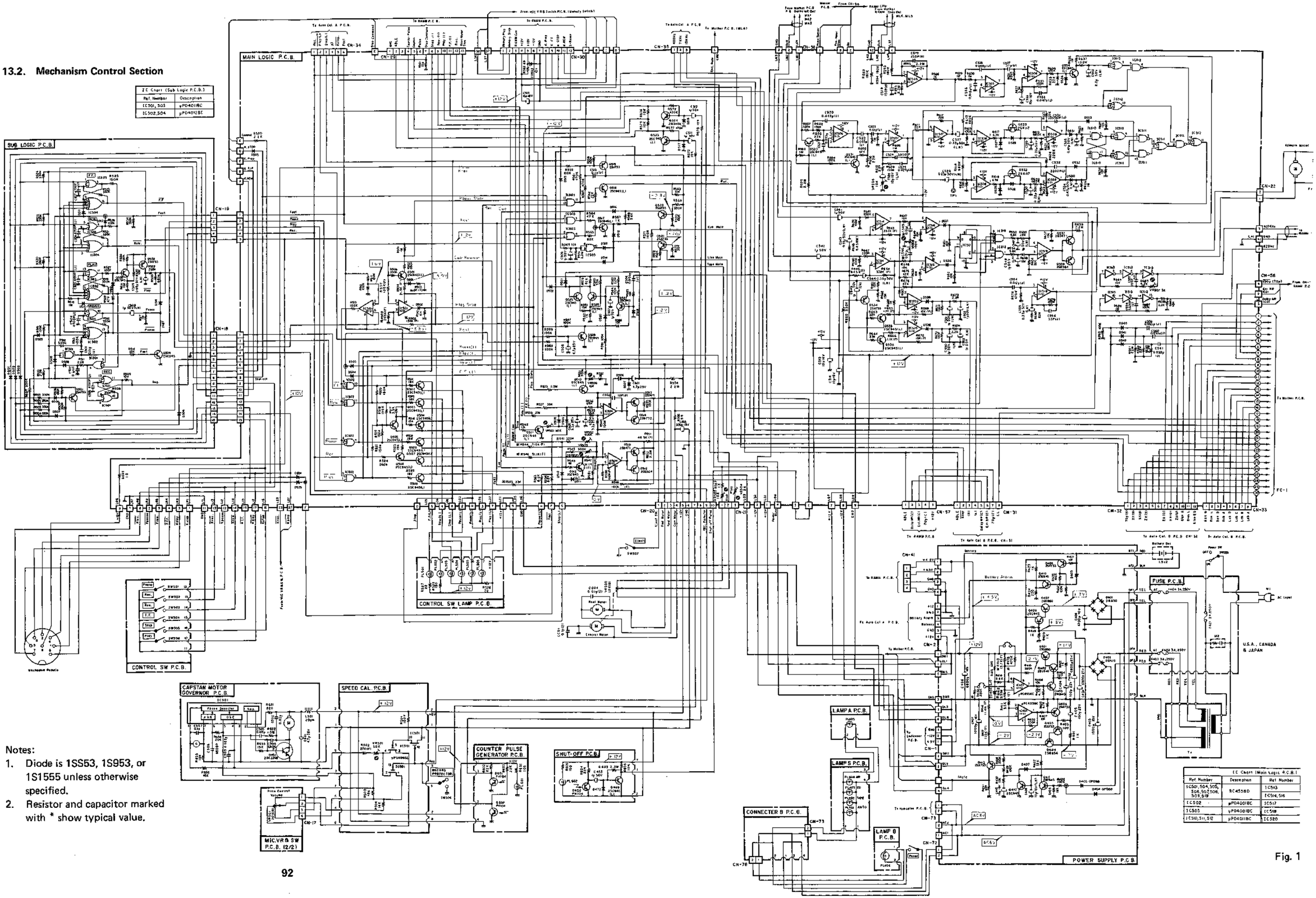


Fig. 13.1

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

13.2. Mechanism Control Section

IC Chart (Sub Logic P.C.B.)	
Ref. Number	Description
IC501, 503	μPD4011BC
IC502, 504	μPD4012BC



Notes:

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

IC Chart (Main Logic P.C.B.)		
Ref. Number	Description	Ref. Number
IC501, 504, 505, 506, 507, 508, 509, 519	BC4538D	IC543
		IC514, 516
IC502	μPD4001BC	IC517
IC503	μPD4081BC	IC518
IC510, 511, 512	μPD4011BC	IC520

Fig. 1

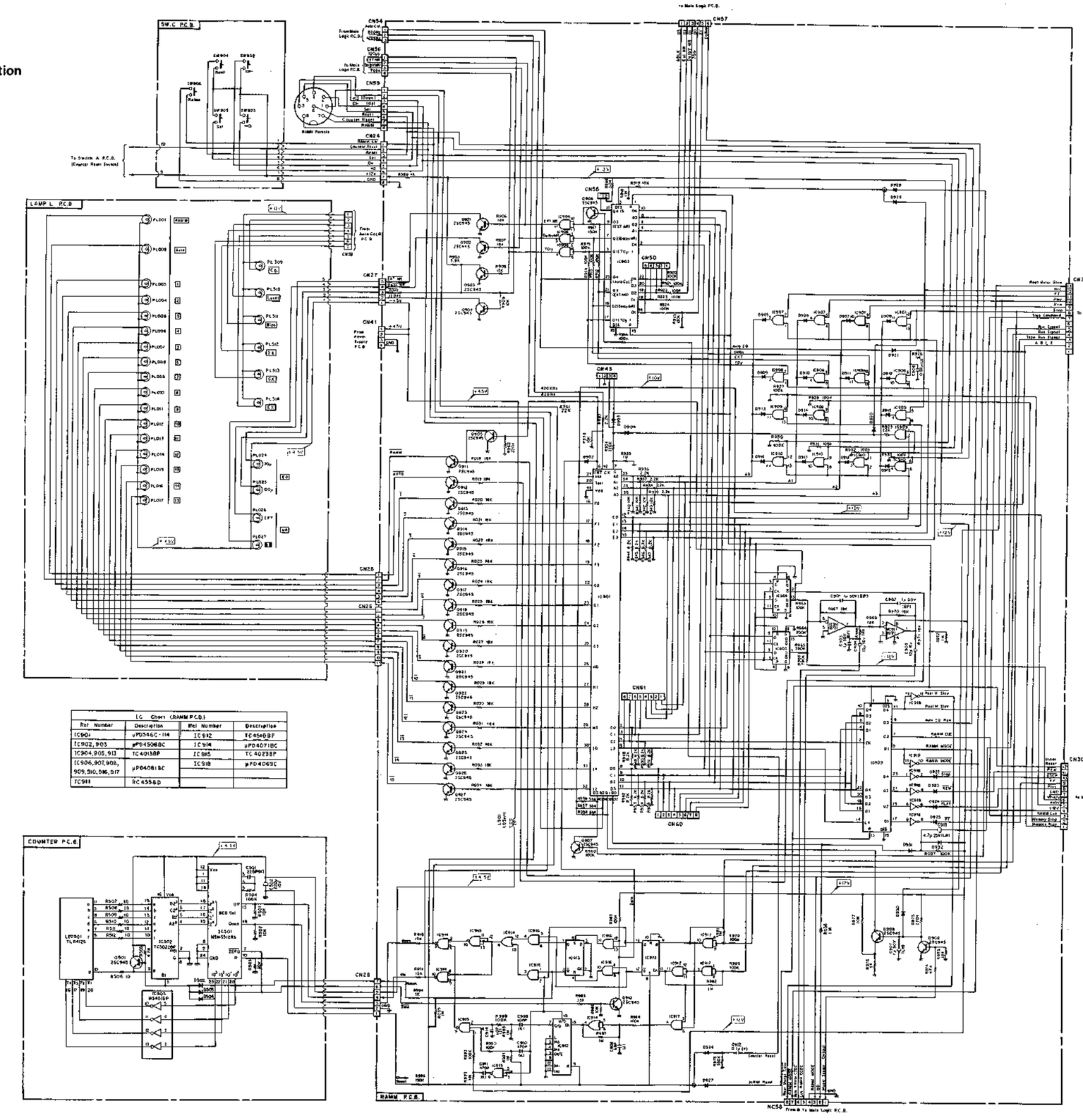
IC Chart (Auto Cal. A P.C.B.)	
Ref. Number	Description
IC501, 502, 503, 504, 505, 507, 508	μPB40L18C
IC506, 509	μPB4020BC
IC510	μPB4020BC
IC511	μPC4556C

IC Chart (Auto Cal. B P.C.B.)	
Ref. Number	Description
IC501, 502	μPB40D18C
IC503, 504, 505, 506	MSM5616RS
IC507, 308	μPC4558C
IC509, 510, 511	MSM6039RS

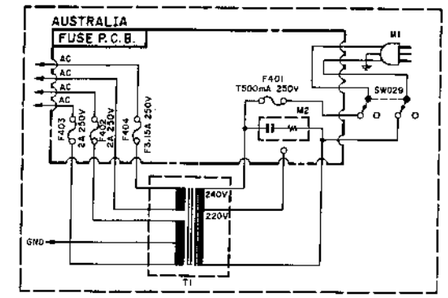
IC Chart (Main Logic P.C.B.)			
Ref. Number	Description	Ref. Number	Description
IC501, 504, 505, 506, 507, 508, 509, 515	#C4538B	IC513	M5140499UB
		IC514, 516	μPC4556C
IC502	μPD4001BC	IC517	TC40138P
IC503	μPD4081BC	IC518	TC4082BP
IC510, 511, 512	μPD4011BC	IC520	#C4569D

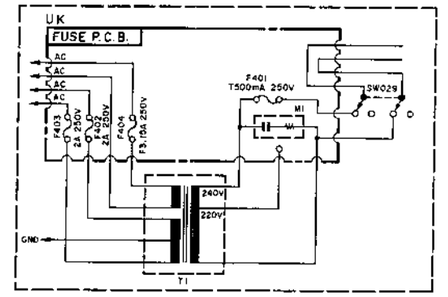
Fig. 13.2

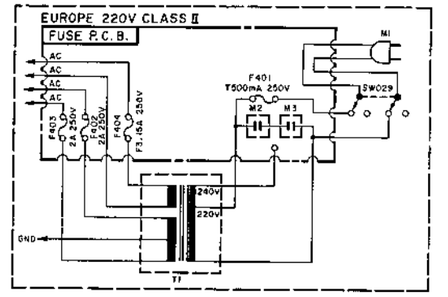
13.3. RAMM Control Section



IC Chart (RAMM P.C.B.)			
Ref. Number	Description	Ref. Number	Description
IC904	uPD546C-114	IC912	TC4540BP
IC902, 903	μPB4506BC	IC914	μPD4071BC
IC904, 905, 913	TC4013BP	IC915	TC4023BP
IC906, 907, 908, 909, 910, 916, 917	μPD4081BC	IC918	μPD4069C
IC911	RC4558D		







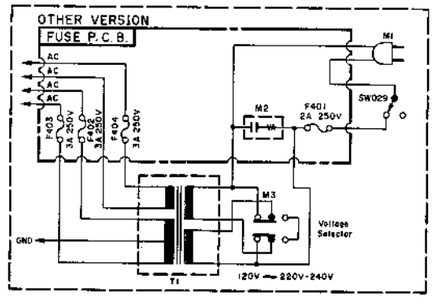
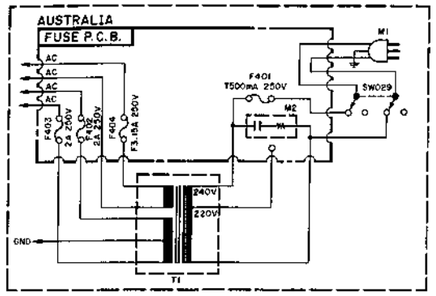
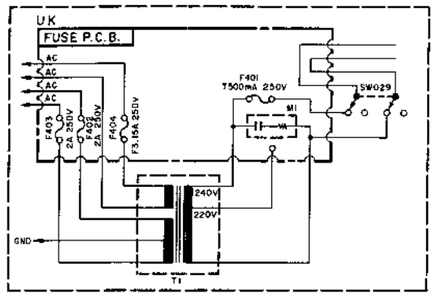
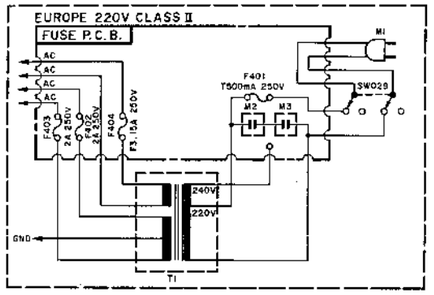


Fig. 13.3







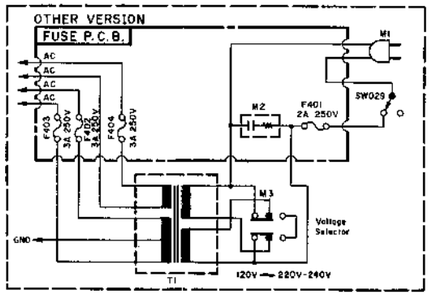


Fig. 13.3

13.4. IC Block Diagrams

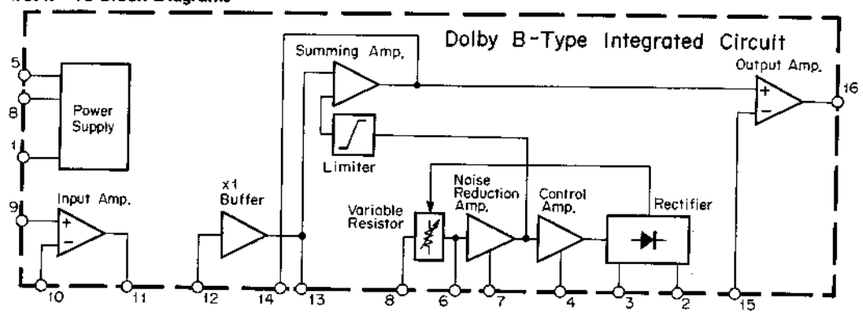


Fig. 13.4 Dolby NR IC μA7300PC

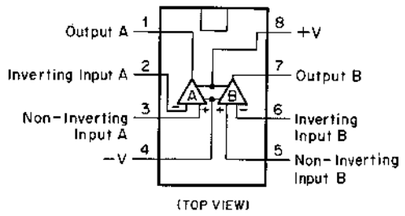


Fig. 13.5 OP Amp. IC 4558, 4559, 4560, 4556

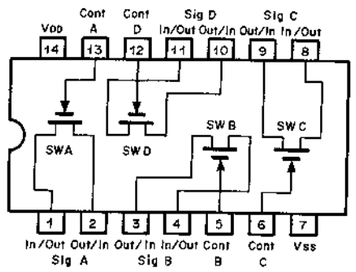


Fig. 13.6 Bilateral Switch C-MOS IC μPD4066C

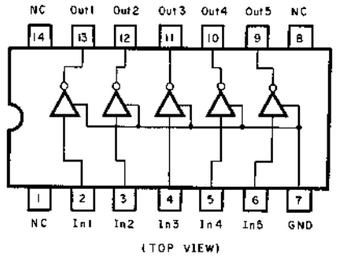


Fig. 13.7 Transistor Array M54516P

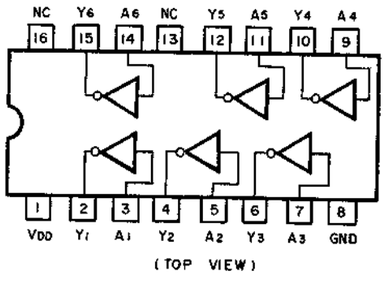


Fig. 13.8 Inverter C-MOS IC HD14049UB

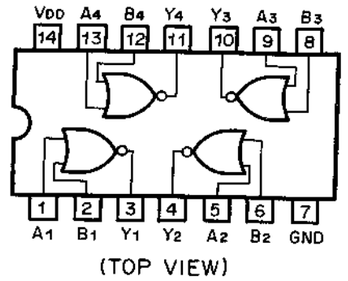


Fig. 13.9 NOR Gate C-MOS IC μPD4001BC

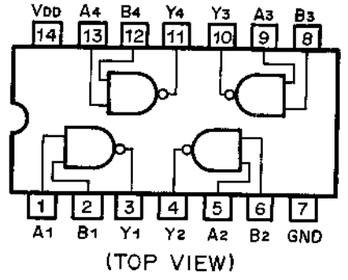


Fig. 13.10 NAND Gate C-MOS IC μPD4011BC

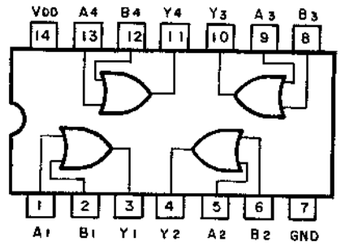


Fig. 13.11 OR Gate C-MOS IC μPD4071BC

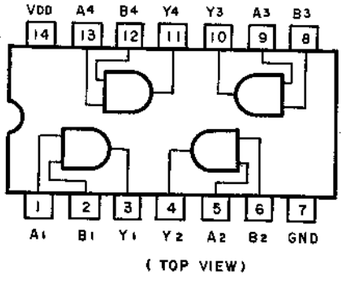


Fig. 13.12 AND Gate C-MOS IC μPD4081BC

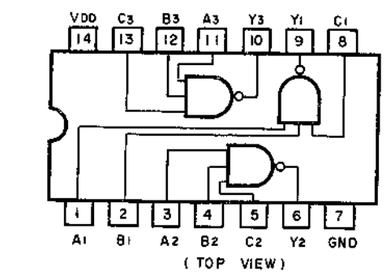


Fig. 13.13 NAND Gate C-MOS IC TC4023BP

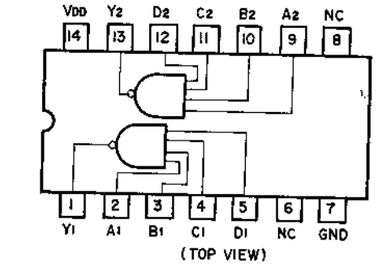


Fig. 13.14 NAND Gate C-MOS IC μPD4012BC

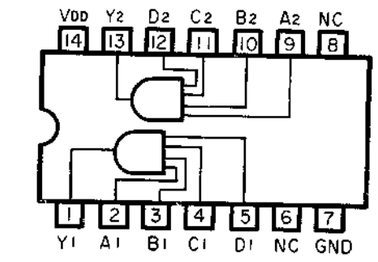


Fig. 13.15 AND Gate C-MOS IC μPD4082BC

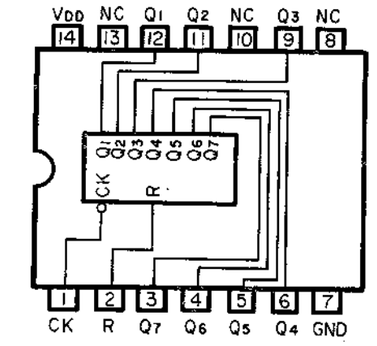


Fig. 13.16 7-Stage Binary Counter C-MOS IC μPD4024BC

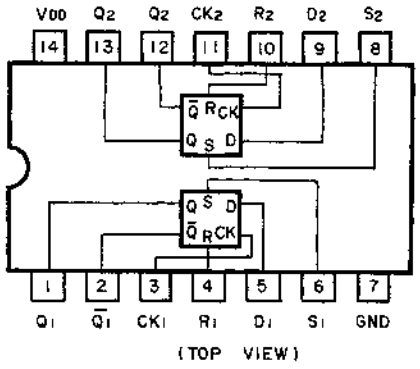


Fig. 13.17 D-Type Flip-Flop C-MOS IC TC4013BP

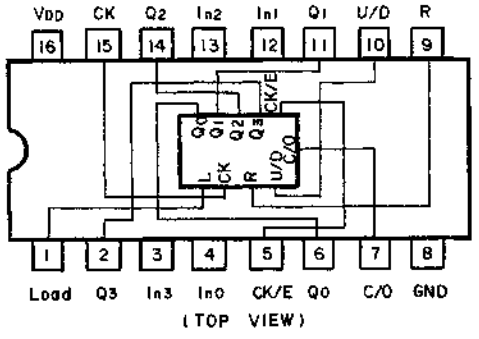


Fig. 13.18 BCD Up/Down Counter C-MOS IC TC4510BP

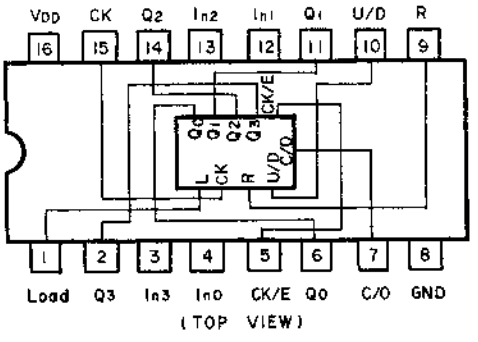


Fig. 13.19 Binary Up/Down Counter C-MOS IC MSM4516RS

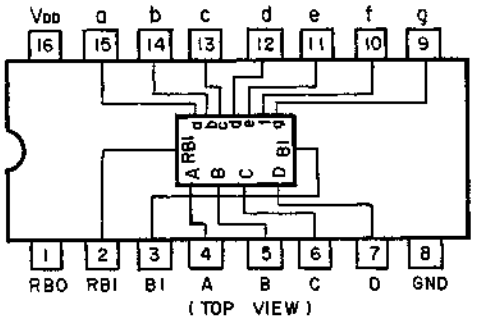


Fig. 13.20 BCD to 7-Segment Decoder/Driver C-MOS IC TC5022BP

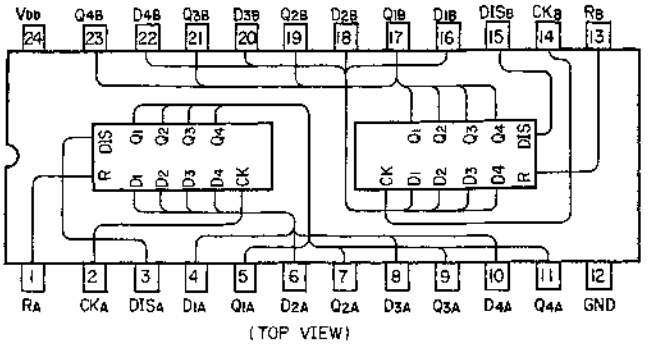


Fig. 13.21 4-Bit Latch C-MOS IC TC4508BP

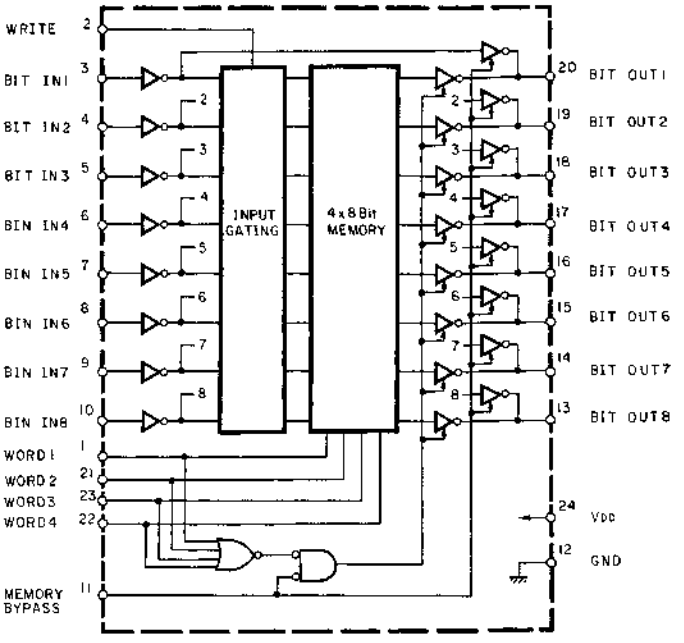


Fig. 13.22 4-Word x 8-Bit Static RAM C-MOS IC MSM4039RS

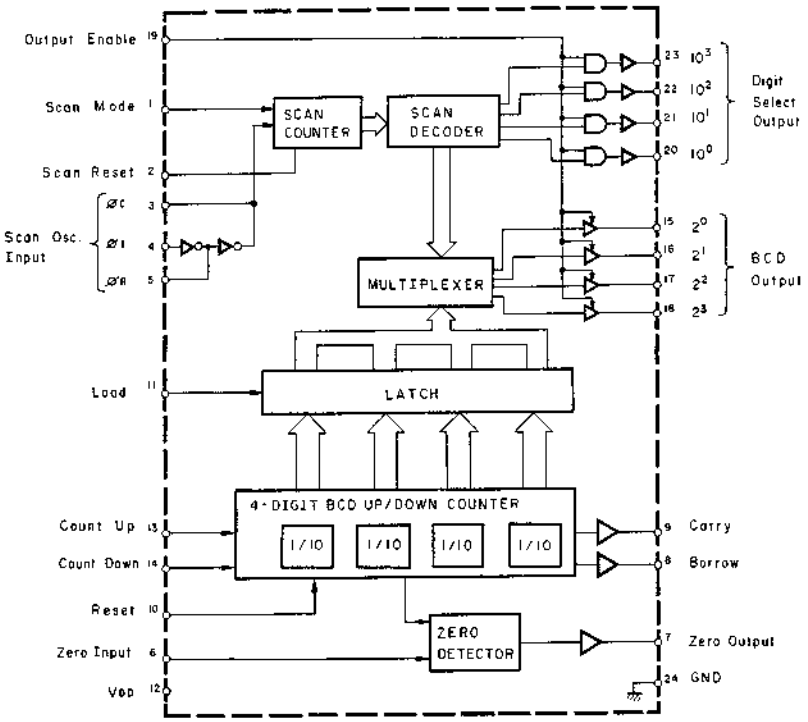


Fig. 13.23 4-Digit BCD Up/Down Counter C-MOS IC MSM5512RS

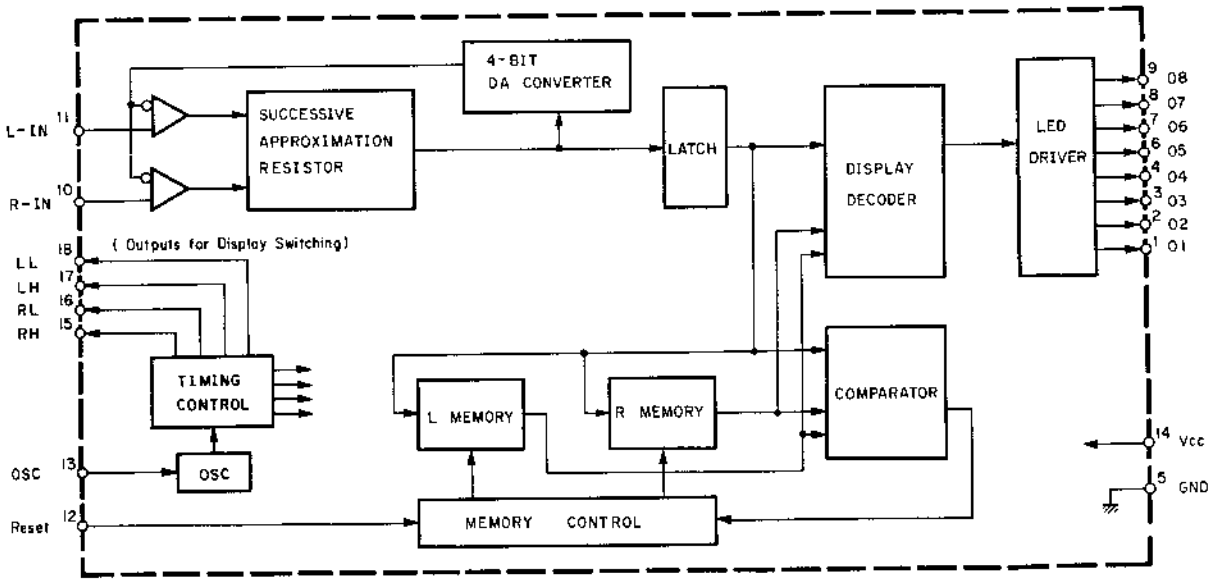
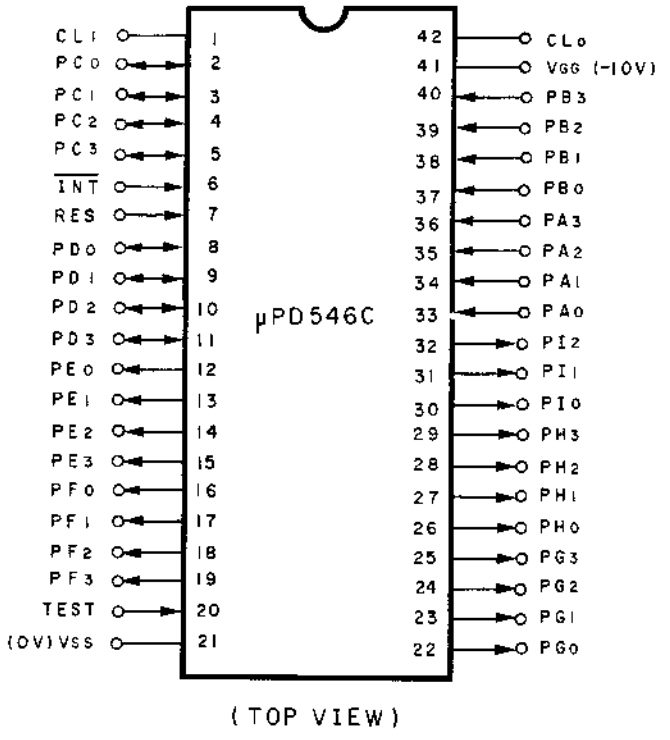
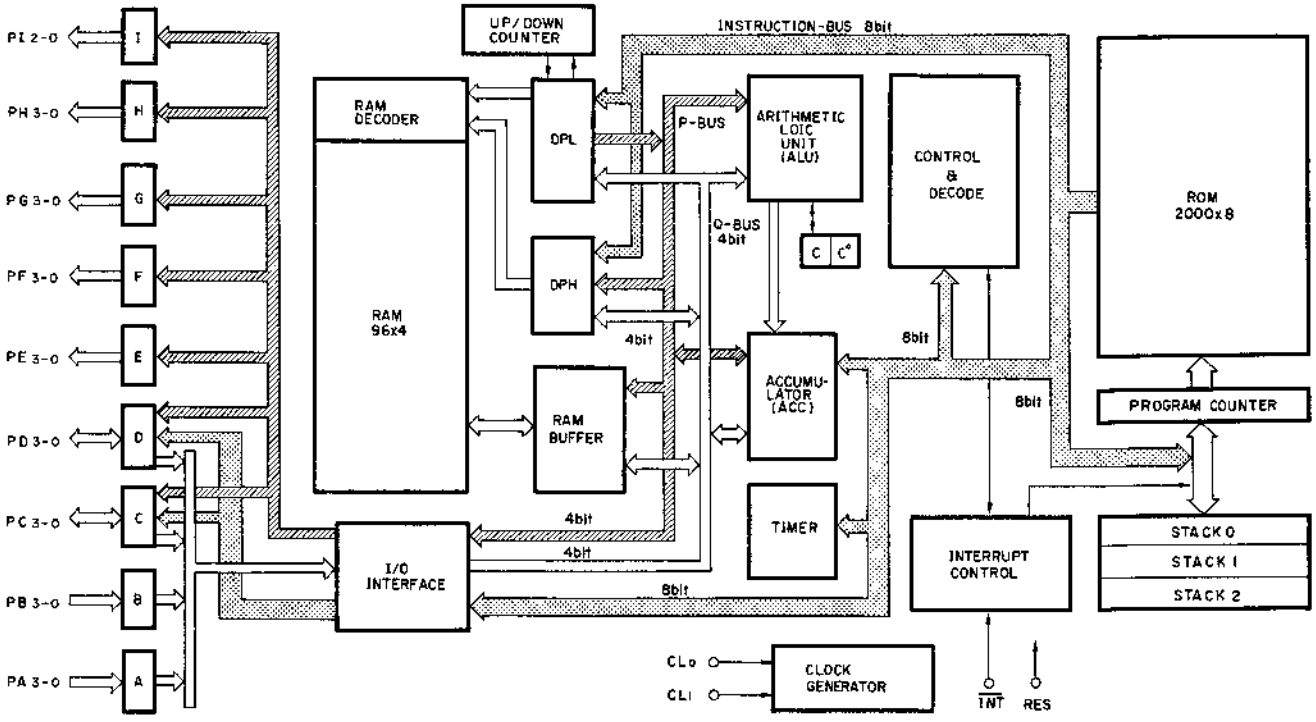


Fig. 13.24 Level Meter Control IC MSL9350RS



(TOP VIEW)

CLo,I : Crystal, inductor, or resistor input for internal oscillator
$\overline{INT}$: Interrupt
RES : Reset
PA3-0 : Input port A3-0
PB3-0 : Input port B3-0
PC3-0 : Bidirectional port C3-0
PD3-0 : Bidirectional port D3-0
PE3-0 : Output port E3-0
PF3-0 : Output port F3-0
PG3-0 : Output port G3-0
PH3-0 : Output port H3-0
PI2-0 : Output port I2-0
TEST : Test



DP : DATA POINTER
C : CARRY Flip-Flop
C* : CARRY STRAGE Flip-Flop

Fig. 13.25 4-Bit Micro-processor μPD546C-114

14. REMOTE CONTROLLER RM-300 (OPTIONAL)

14.1. Schematic Diagram

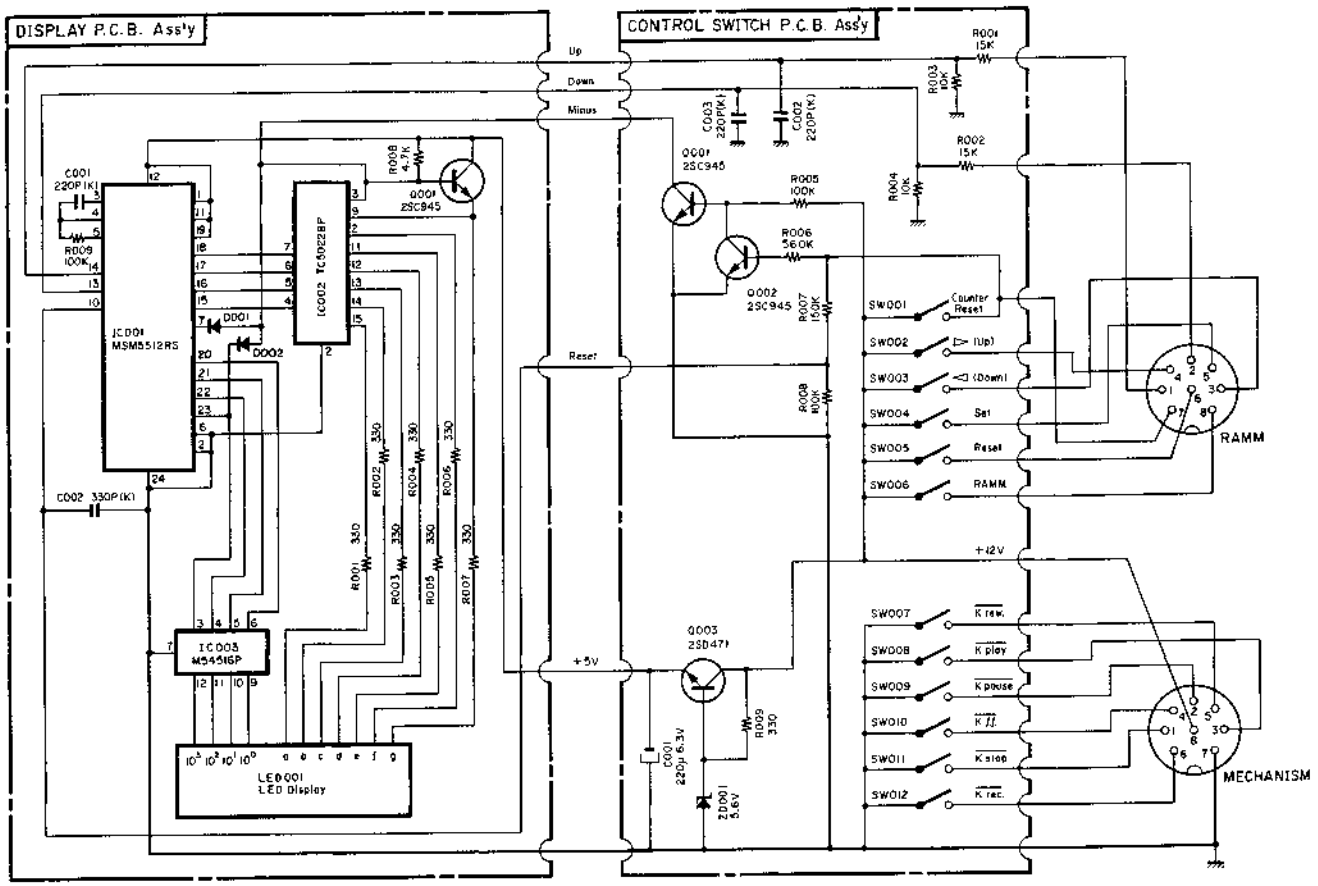


Fig. 14.1 Note: Diode is 1SS53 unless otherwise specified.

14.2. Mounting Diagrams and Parts List

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

(1) Control Switch P.C.B. Ass'y

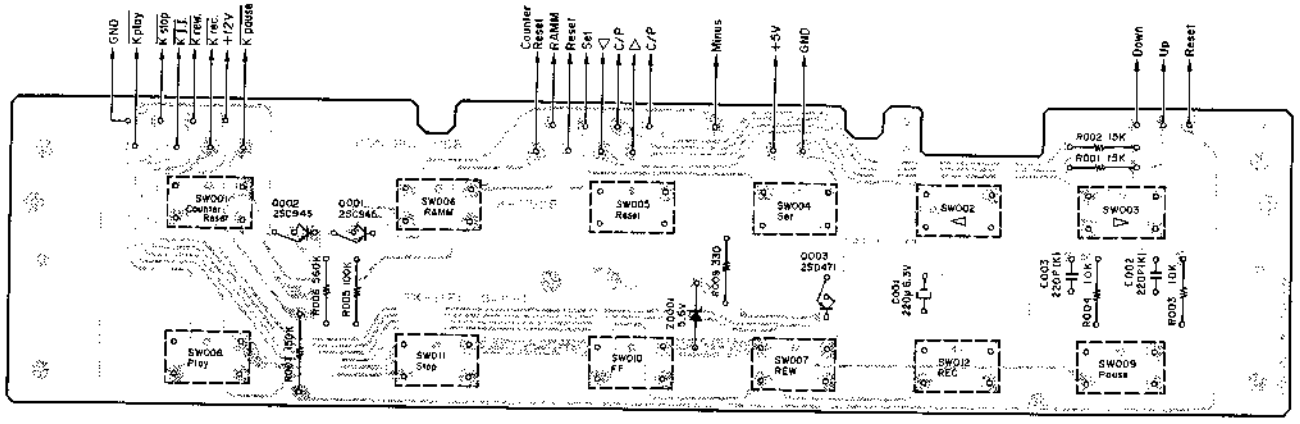


Fig. 14.2

(2) Display P.C.B. Ass'y

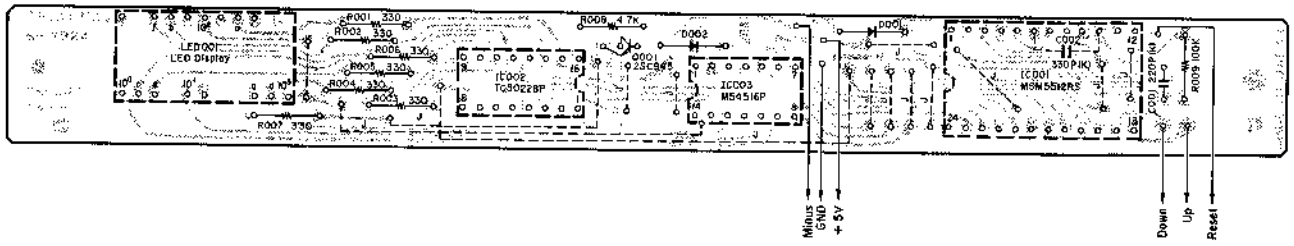


Fig. 14.3 Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04307A	Control Switch P.C.B. Ass'y		BA04306A	Display P.C.B. Ass'y
	0B07925B	Control Switch P.C.B.		0B07924B	Display P.C.B.
Q001,002	0B06100A	Transistor 2SC945 (A)	IC001	0B06259A	IC MSM5512RS
Q003	0B06066A	Transistor 2SD471	IC002	0B06211A	IC TC5022BP
ZD001	0B06290A	Zener Diode 5.6V RD5.6VEB2	IC003	0B06258A	IC M45516P
R001,002	0B01683A	Carbon Resistor 15K ERD-25T J	Q001	0B06100A	Transistor 2SC945 (A)
R003,004	0B01888A	Carbon Resistor 10K ERD-25T J	D001,002	0B06181A	Silicon Diode 1SS53
R005	0B01889A	Carbon Resistor 100K ERD-25T J	R001-007	0B05577A	Carbon Resistor 330 ERD-25T J (7 pcs.)
R006	0B05784A	Carbon Resistor 560K ERD-25T J			
R007,008	0B05626A	Carbon Resistor 150K ERD-25T J	R008	0B01846A	Carbon Resistor 4.7K ERD-25T J
R009	0B05577A	Carbon Resistor 330 ERD-25T J	R009	0B01889A	Carbon Resistor 100K ERD-25T J
C001	0B09151A	Electrolytic Capacitor 220μ 6.3V	C001	0B09283A	Ceramic Capacitor 220P 50V K
C002,003	0B09283A	Ceramic Capacitor 220P 50V K	LED001	0B06289A	LED Display Unit
SW001-012	0B07354A	Push Switch KHG10901 (12 pcs.)		QJ04237A	Counter Himelon (1 pce.)

14.3. Mechanism Ass'y and Parts List

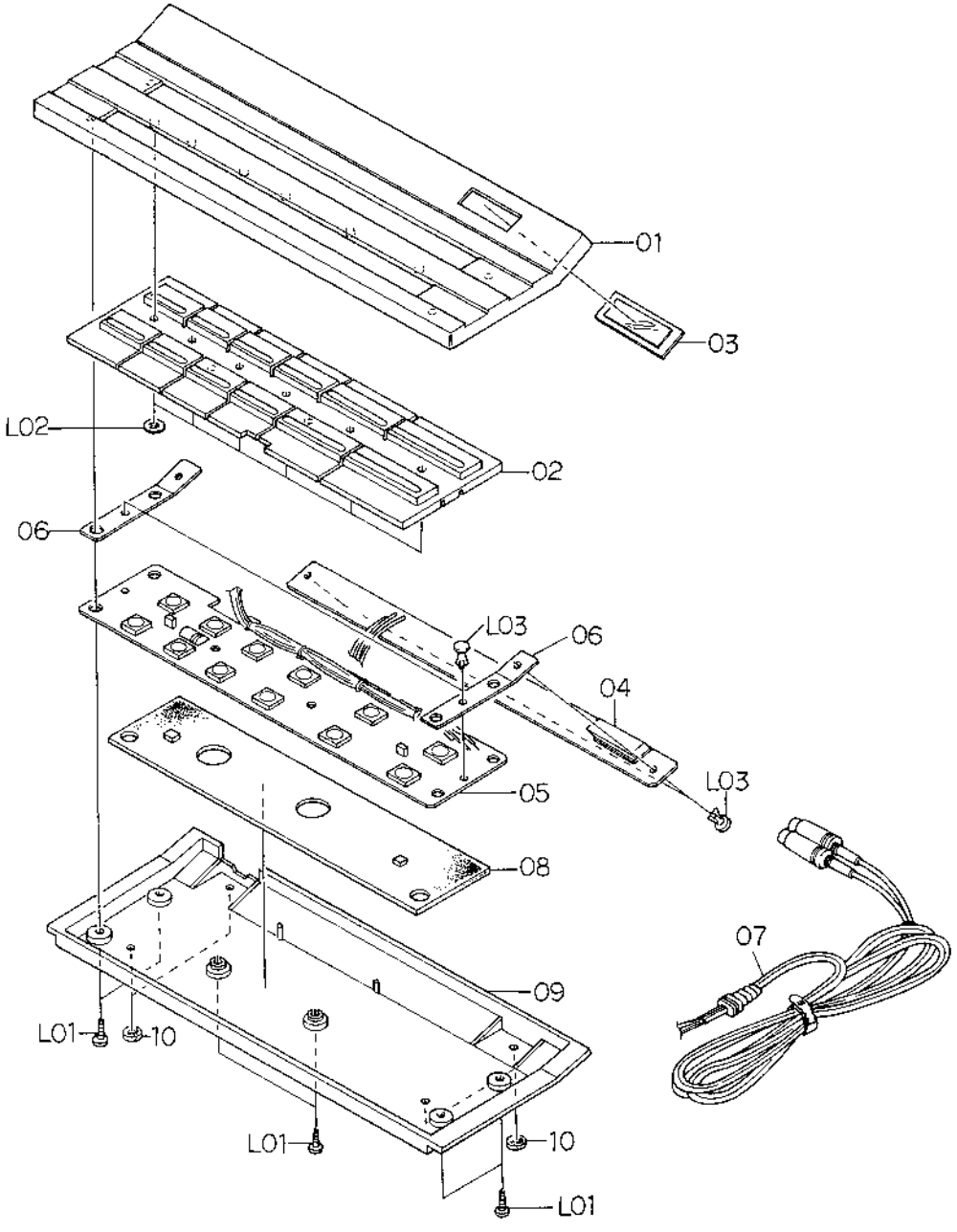


Fig. 14.4

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
		RM-300 Mechanism Ass'y			0B08831A	Cord Stopper	(1)
					0B08496A	8P DIN Plug (RAMM)	(1)
01	0H03917A	Top Case	1		0B08585A	8P DIN Plug (Mechanism)	(1)
02	0H03918A	Switch Knob	1	08	0J04287A	Bottom Case Rubber	1
03	0H03922A	Counter Lens	1	09	0H03918A	Bottom Case	1
04	BA04306A	Display P.C.B. Ass'y	1	10	0H03920A	Leg	4
05	BA04307A	Control Switch P.C.B. Ass'y	1	L01	0E00938A	BT Screw M3x8 Philips Binding Head (Black Chromate)	6
06	0J04266A	P.C.B. Holder	2				
07	BA04309A	Remote Cord Ass'y	1	L02	0E00252A	Stopper Ring CS 3mm	6
	0B08827A	Cord Bushing	(1)	L03	0B08539A	Plastic Rivet	4
	0B08828A	8Px2 Cord	(1)				

15. SPECIFICATIONS

Power Source	100, 120, 120/220-240, 220 or 240 V AC ; 50/60 Hz (According to country of sale)
Power Consumption	65 W max.
Tape Speed	1-7/8 ips (4.75 cm/sec)
Wow and Flutter	Less than 0.04% Wrms Less than 0.08% Wpeak
Frequency Response (w. auto calibration)	20—20,000 Hz ±1.5 dB (Nakamichi EX, EXII, SX, ZX tape) 18—24,000 Hz ±3 dB (Recording level —20 dB)
Signal to Noise Ratio	Better than 66 dB (3% THD) Better than 60 dB (0 dB) (IHF-A, Wrms, 400 Hz, w. Dolby NR, ZX tape, 70 μsec)
Total Harmonic Distortion	Less than 0.8% (ZX tape) Less than 1.0% (SX, EXII tape) (400 Hz, 0 dB)
Erasure	Better than 60 dB (100 Hz)
Separation	Better than 37 dB (1 kHz, 0 dB)
Crosstalk	Better than 60 dB (1 kHz, 0 dB)
Bias Frequency	105 kHz
Input (Line)	50 mV, 50 k ohms
(Microphone)	0.2 mV, 10 k ohms
(Noise Reduction)	100 mV, 50 k ohms
Output (Line)	1 V (400 Hz, 0 dB, output control at max.)
(Headphone)	45 mW (400 Hz, 0 dB, output control at max.)
(Noise Reduction)	100 mV, 2.2 k ohms
Dimensions	500 (W) x 262 (H) x 250 (D) millimeters 19-11/16 (W) x 10-5/16 (H) x 9-27/32 (D) inches
Approximate Weight	14 kg 30 lb. 14 oz

- Specifications and appearance design are subject to change for further improvement without notice.
- Dolby NR under license from Dolby Laboratories.
- The word "DOLBY" and the Double-D-Symbol are trademarks of Dolby Laboratories.
- The High-Com has been manufactured under license from AEG-TELEFUNKEN.
- High-Com is the trademark of AEG-TELEFUNKEN.
- Nakamichi Corporation has the right to manufacture and sell High-Com II throughout the world.