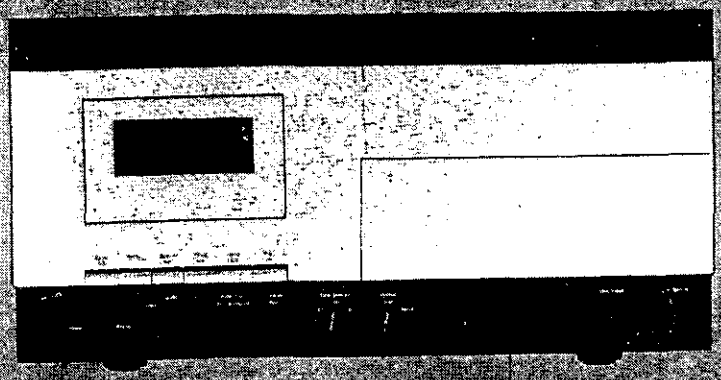
Nakamichi

Service Manual

Nakamichi 700ZXE

Auto Tuning Cassette Deck



700ZXE

CONTENTS

1. GENERAL

1.1. Control Functions

The Nakamichi 700ZXE control functions are shown below:

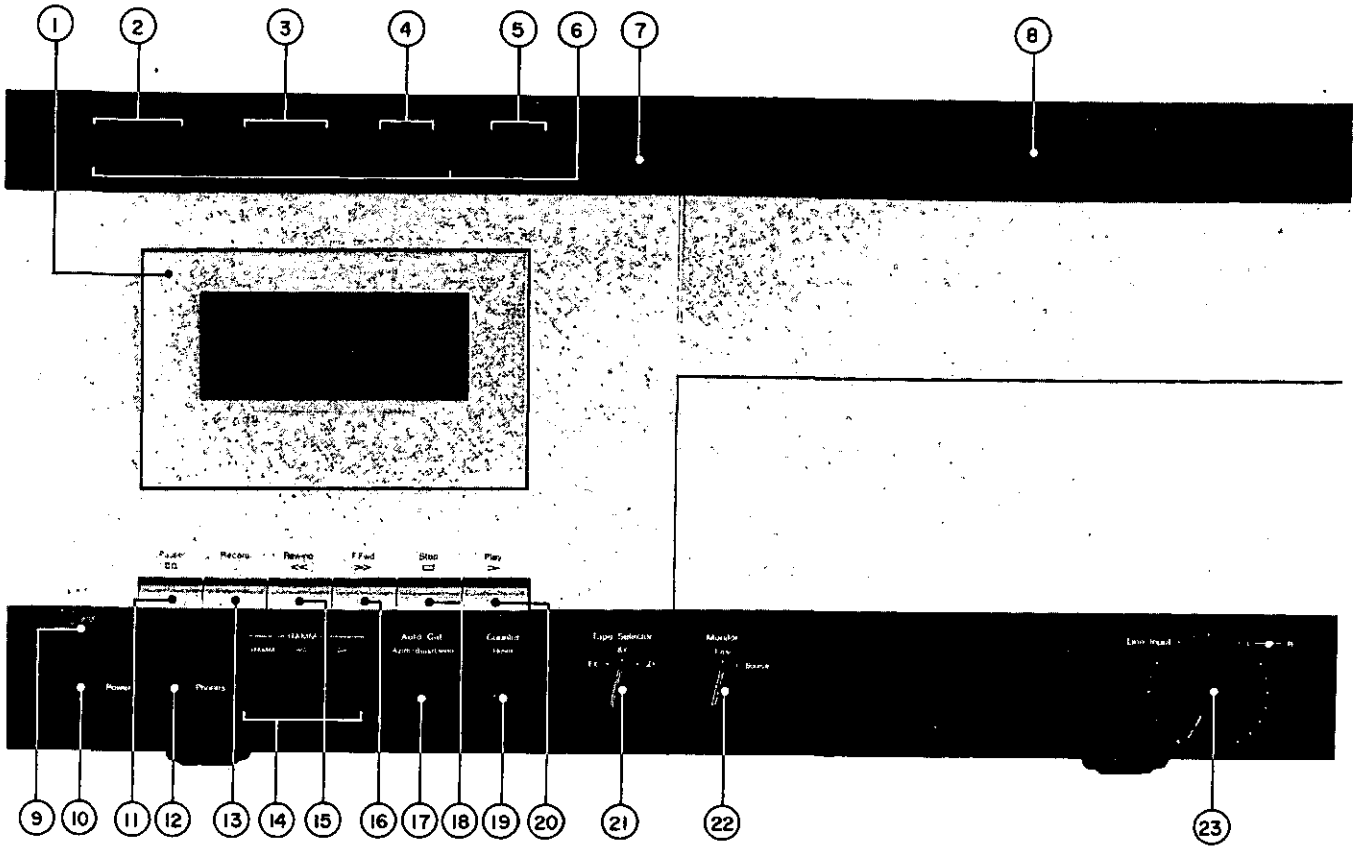


Fig. 1.1 Front View

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

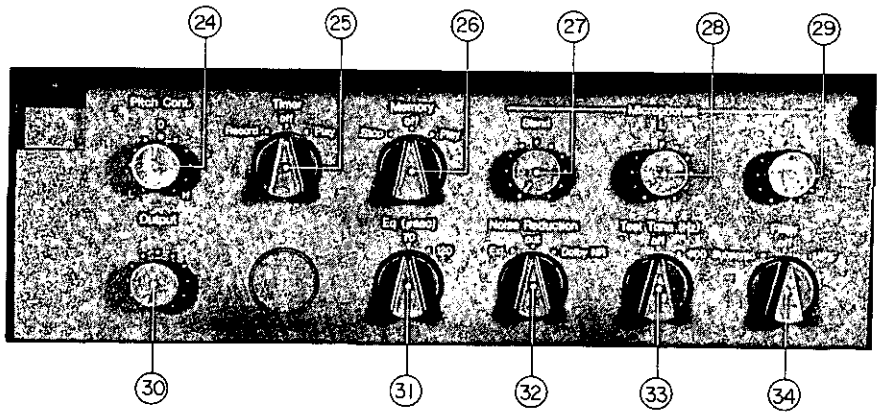


Fig. 1.2 Adjustment Panel

24. Pitch Control
25. Timer Switch
26. Memory Switch
27. Blend MIC Level Control
28. MIC Level Control (L ch.)
29. MIC Level Control (R ch.)
30. Output Level Control
31. Equalizer Switch
32. Noise Reduction Switch
33. Test Tone Switch
34. Filter Switch

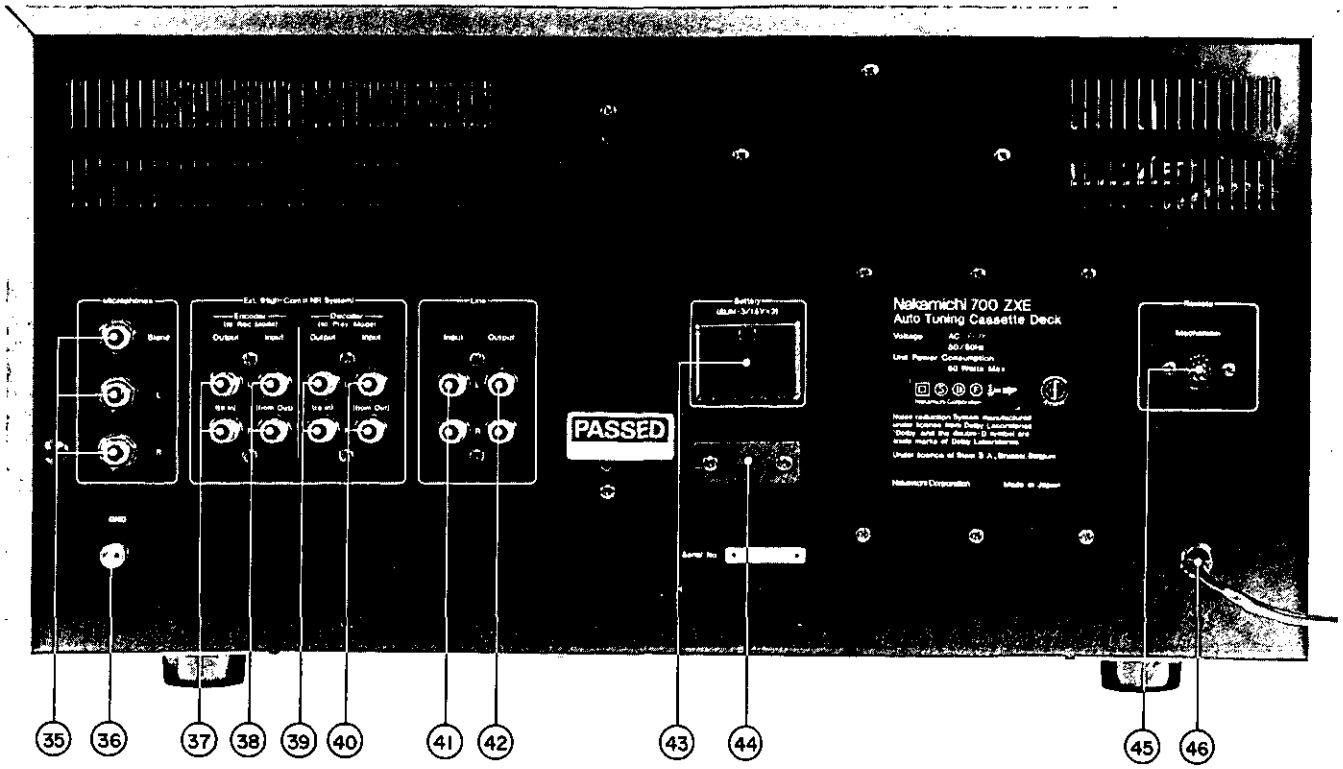


Fig. 1.3 Rear View

35. Microphone Jacks
36. Ground Terminal
37. Encoder Output Jacks
38. Encoder Input Jacks
39. Decoder Output Jacks
40. Decoder Input Jacks
41. Line Input Jacks
42. Line Output Jacks
43. Battery Compartment
44. Voltage Selector
45. Remote Control Jack
46. Power Cord

1.2. Voltage Selector

Voltage selector is installed on the rear panel for Other Version of the Nakamichi 700ZXE.
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-700ZXE 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).

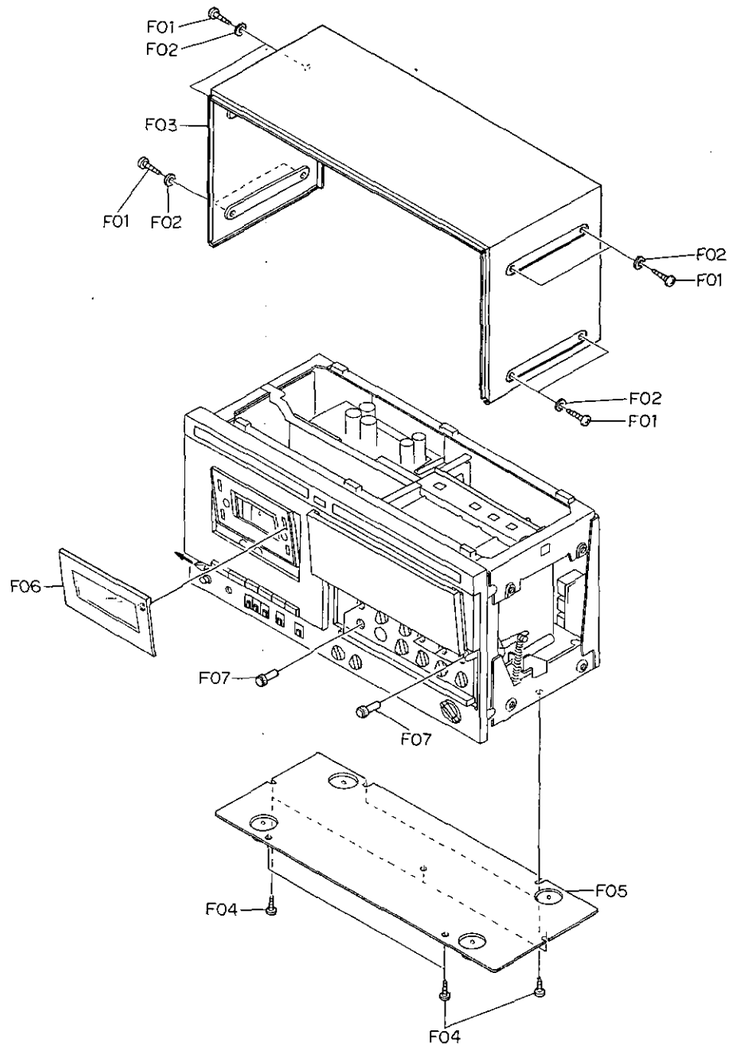


Fig. 2.1

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).

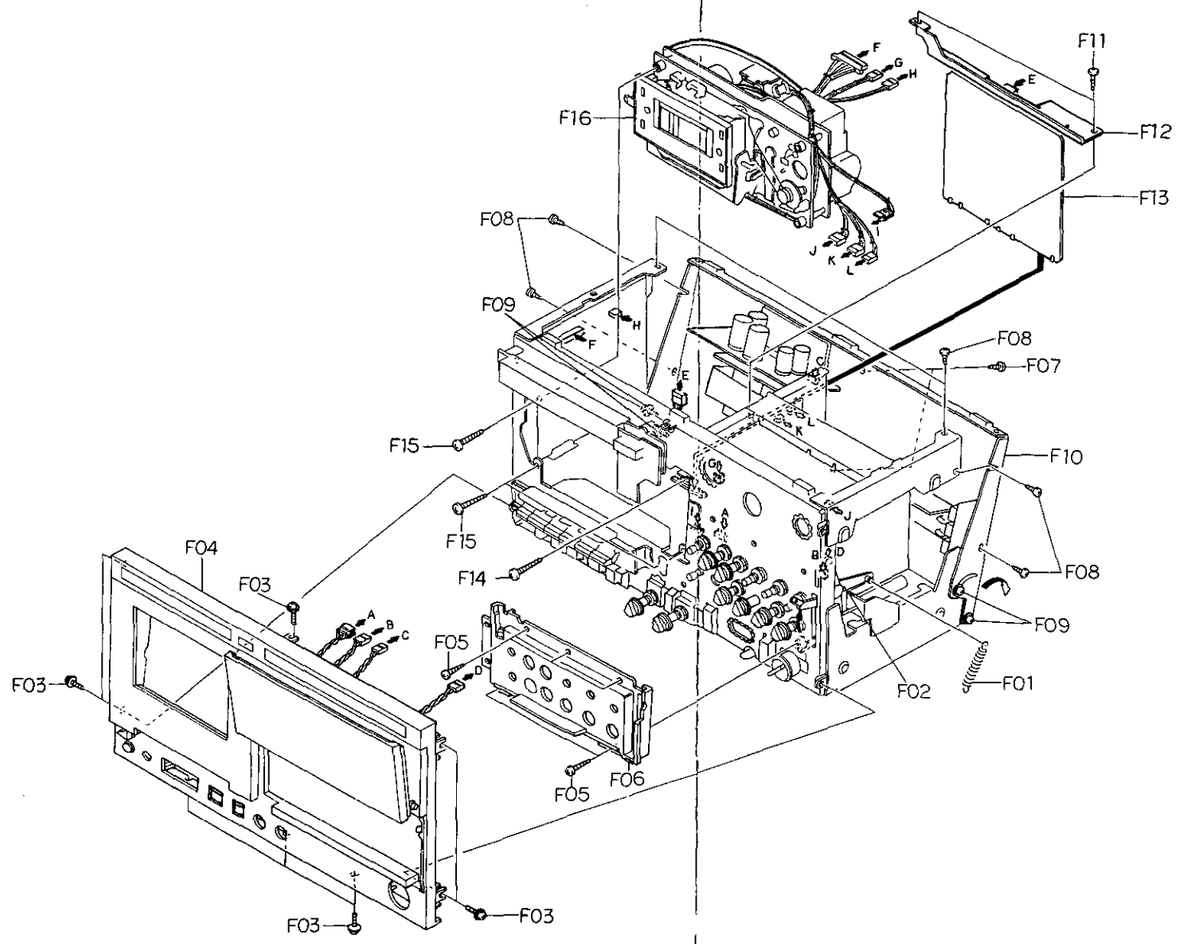


Fig. 2.2

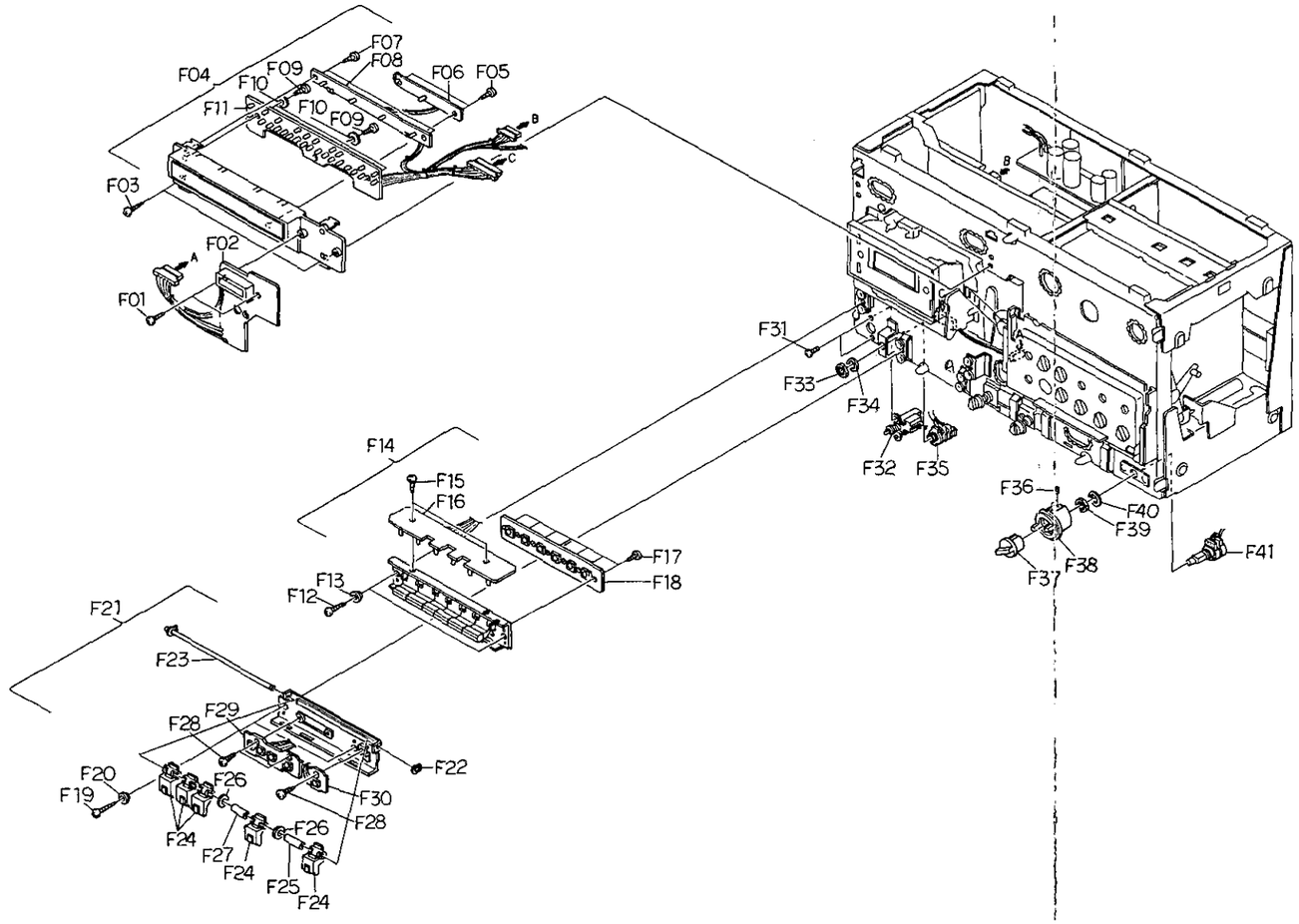

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Fig. 2.3

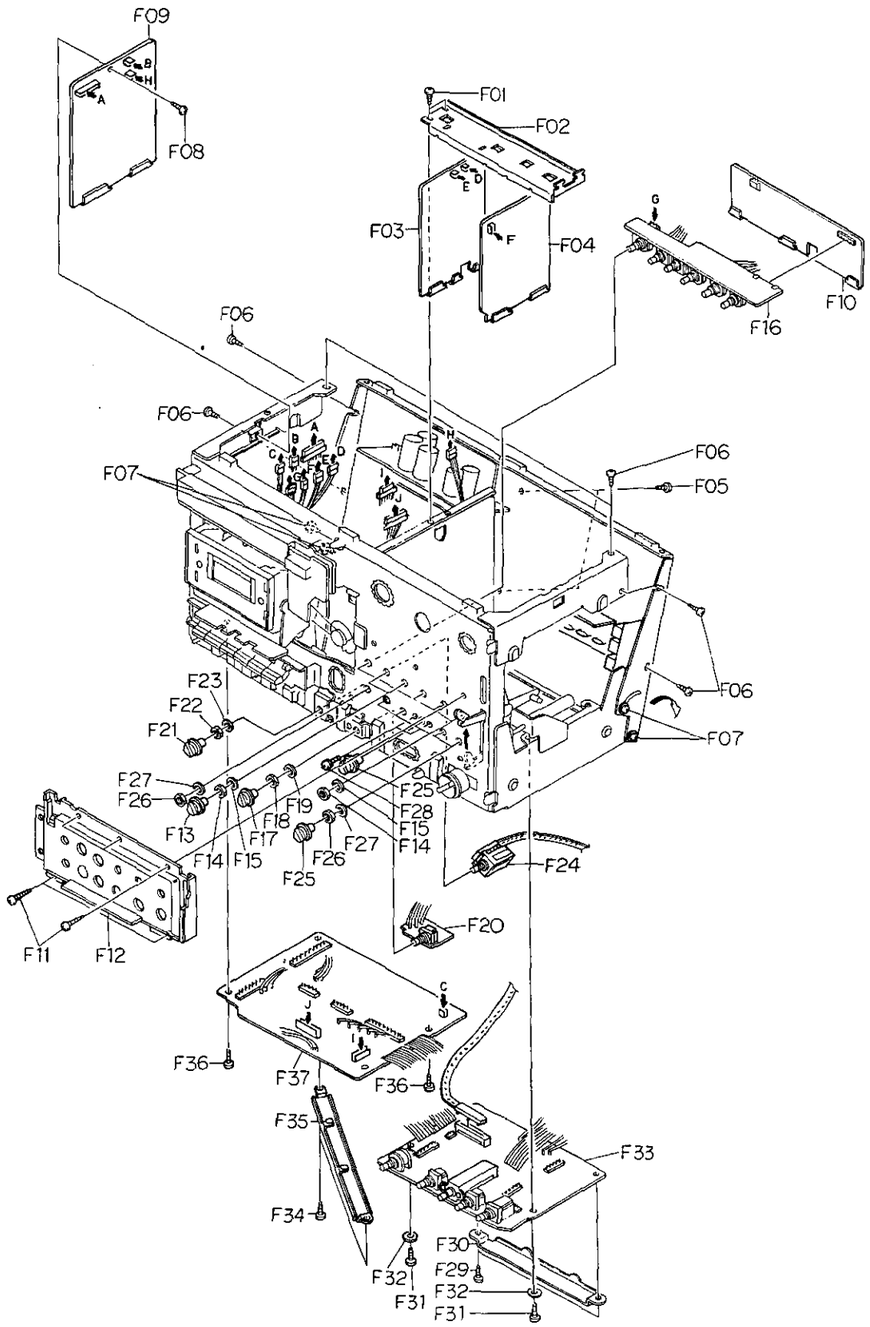
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Fig. 2.4

2.9. Counter P.C.B. Ass'y, Lighting House Ass'y, Lamp A P.C.B. Ass'y, Lamp S P.C.B. Ass'y and Lamp E 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 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 S P.C.B. Ass'y).
(6) Remove F09 and F10, then disassemble F11 (Lamp E P.C.B. Ass'y).

2.10. Control Button Ass'y, Control Switch Lamp P.C.B. Ass'y and Control Switch 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 F12 and F13, then disassemble F14 (Control Button Ass'y including 3 connectors).
(3) Remove F15, then disassemble F16 (Control Switch Lamp P.C.B. Ass'y).
(4) Remove F17, then disassemble F18 (Control Switch P.C.B. Ass'y).

2.11. Push Button A Ass'y, RAMM Switch P.C.B. Ass'y and Counter Reset 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 F19 and F20, then disassemble F21 (Push Button A Ass'y including 2 connectors).
(3) Remove F22 and F23 (Button Shaft A), then disassemble F24 (Push Button A), F25 (Button Sleeve B), F26 and F27 (Button Sleeve A).
(4) Remove F28, then disassemble F29 (RAMM Switch P.C.B. Ass'y) and F30 (Counter Reset P.C.B. Ass'y).

2.12. 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 F31, then disassemble F32 (Power Switch Ass'y).
(3) Remove F33 and F34, then disassemble F35 (Headphone Jack Ass'y).
(4) Remove F36, then disassemble F37 (Volume Knob R Ass'y), F38 (Volume Knob L Ass'y), F39, F40 and F41 (Line Input Volume).

2.13. Bias Oscillator 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 F01 and F02 (P.C.B. Holder A Ass'y), then disassemble F03 (Bias Oscillator P.C.B. Ass'y) and F04 (Playback Amp. & Dolby NR P.C.B. Ass'y).

2.14. Logic 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, then disassemble F09 (Logic P.C.B. Ass'y).

2.15. MIC Amp. & Detector P.C.B. Ass'y, Control Panel Ass'y, MIC B P.C.B. Ass'y, Monitor Switch P.C.B. Ass'y, Tape Selector Switch and Main 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 Bias Oscillator P.C.B. Ass'y and Playback Amp. & Dolby NR P.C.B. Ass'y referring to item 2.13.
(3) Remove F05 and F06, then loosen F07.
(4) Turn over Rear Panel Ass'y as an arrow head.
(5) Disconnect F10 (MIC Amp. & Detector P.C.B. Ass'y) from F16 (MIC B P.C.B. Ass'y).
(6) Remove F11, then disassemble F12 (Control Panel Ass'y).
(7) Remove F13 (Switch Knob), F14 and F15, then disassemble F16 (MIC B P.C.B. Ass'y).
(8) Remove F17, F18 and F19, then disassemble F20 (Monitor Switch P.C.B. Ass'y).
(9) Remove F21 (Switch Knob), F22 and F23, then disassemble F24 (Tape Selector Switch).
(10) Remove F25, F26, F27 and F28.
(11) Remove F24, F29, F30 (P.C.B. Stopper), F31 and F32, then disassemble F33 (Main P.C.B. Ass'y).

2.16. RAMM & Auto Azimuth 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 F05 and F06, then loosen F07.
(4) Turn over Rear Panel Ass'y as an arrow mark.
(5) Remove F34, F35 (P.C.B. Stopper) and F36, then disassemble F37 (RAMM & Auto Azimuth P.C.B. Ass'y).

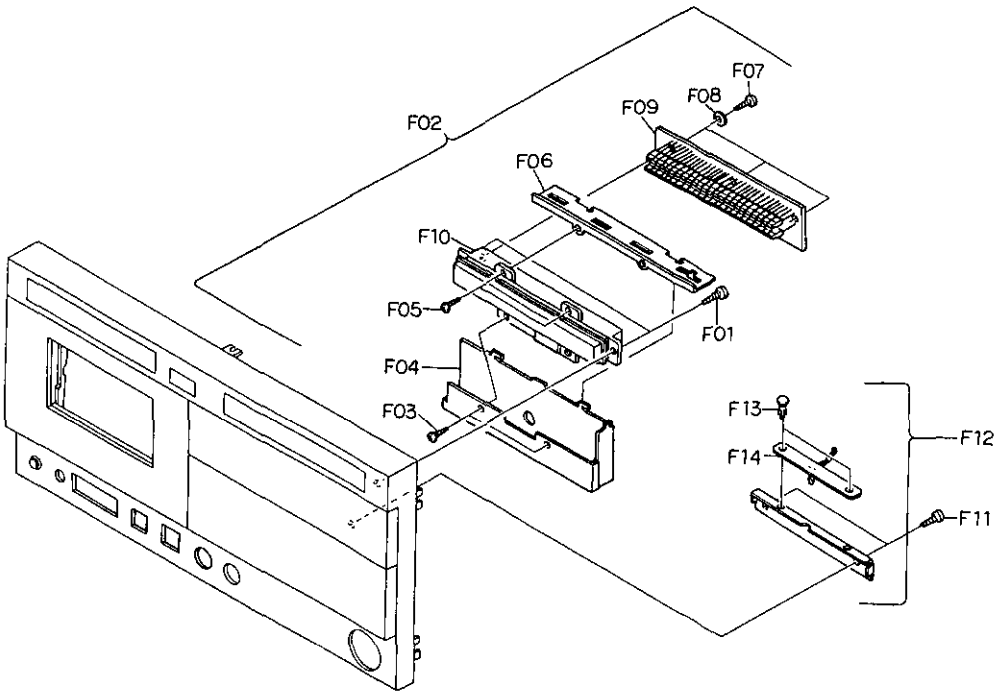
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Fig. 2.5

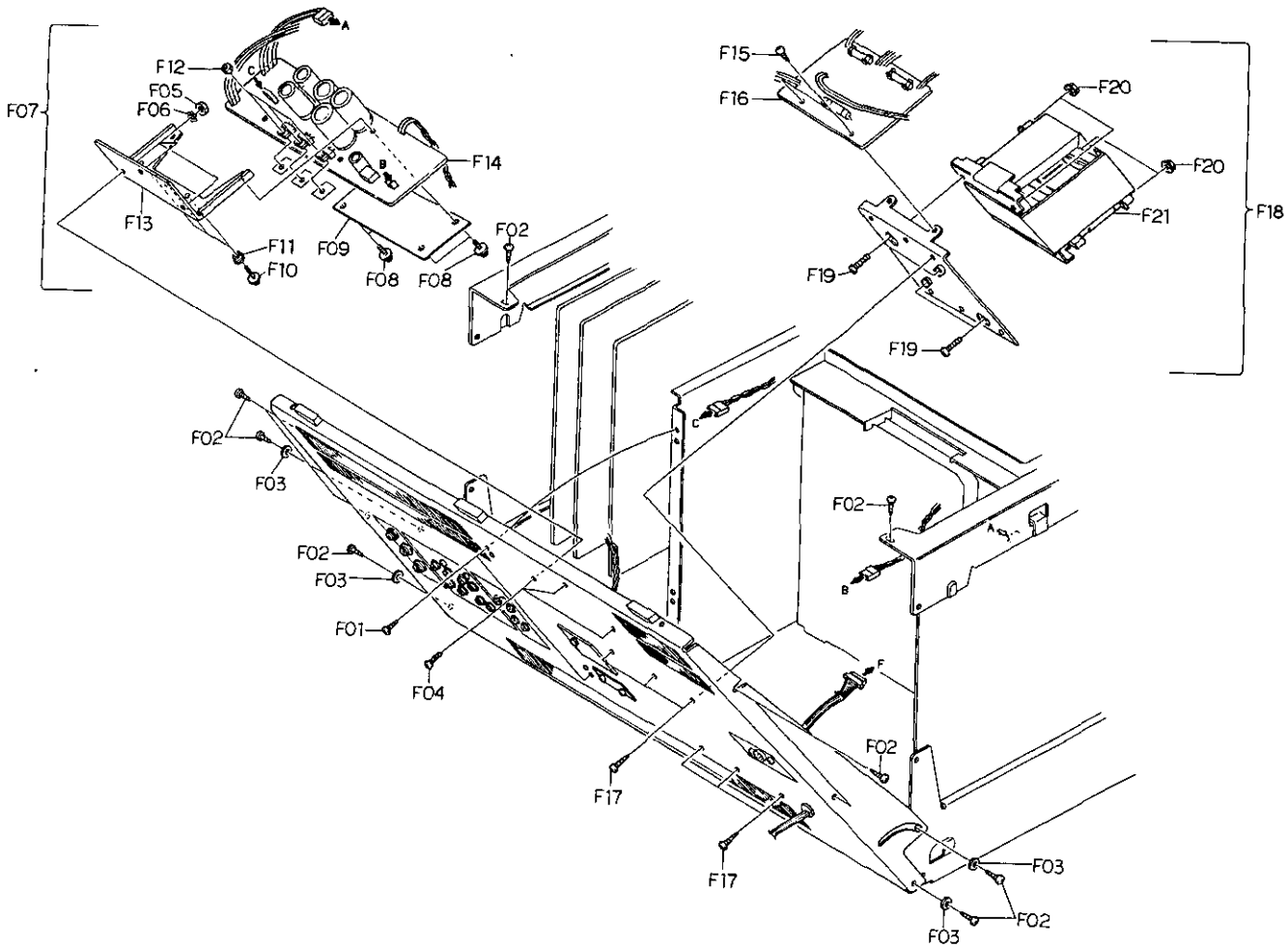
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Fig. 2.6

2.17. 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).

2.18. 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, F05 and F06, then disassemble F07 (Power Supply Ass'y).
(4) Remove F08, then disassemble F09 (Insulator).
(5) Remove F10, F11 and F12, then disassemble F13 (Heat Sink) and F14 (Power Supply P.C.B. Ass'y).
(6) Remove F15, then disassemble F16 (Fuse P.C.B. Ass'y).
(7) Remove F17, then disassemble F18 (Power Transformer Ass'y).
(8) Remove F19 and F20, then disassemble F21 (Power Transformer) and Transformer Holder.

2.19. 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).

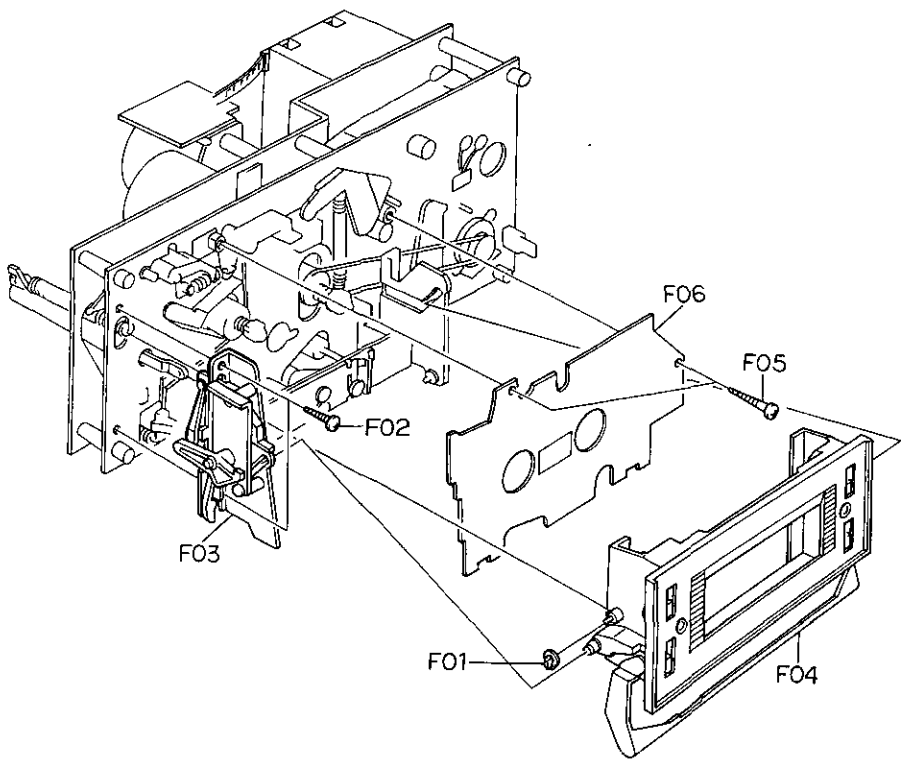


Fig. 2.7

2.20. 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).

2.21. 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).

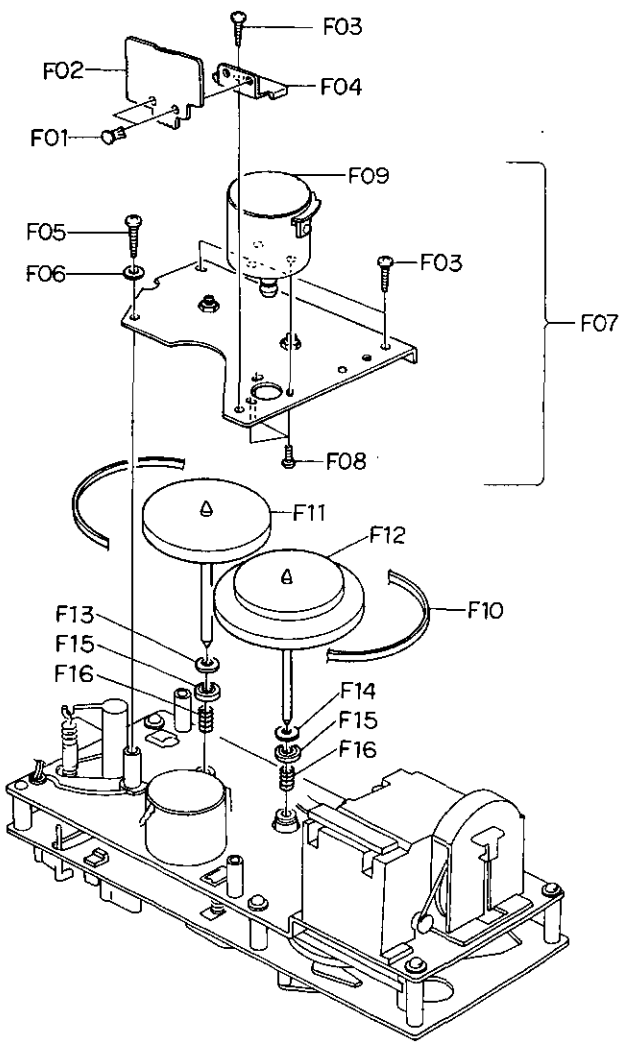


Fig. 2.8

2.22. Sub Mechanism Chassis Ass'y

Refer to Fig. 2.9.

(1) Refer to Fig. 2.8. Remove Flywheel Ass'y referring to item 2.21.
(2) Remove F01 and F02, then disassemble F03 (Sub Mechanism Chassis Ass'y).

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

Refer to Fig. 2.9.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.22.
(2) Remove F04, then disassemble F05 (Control Motor Ass'y).
(3) Remove F06, then disassemble F07 (Reel Motor Ass'y).

2.24. Cam Control Volume

Refer to Fig. 2.9.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.22.
(2) Remove F08, then disassemble F09 (Volume Coupler).
(3) Remove F10, then disassemble F11 (Cam Control Volume).

2.25. Azimuth Motor Ass'y

Refer to Fig. 2.9.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.22.
(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).

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

Refer to Fig. 2.9.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.22.
(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).

2.27. Cam Drive Gear and Control Cam

Refer to Fig. 2.9.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.22.
(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).

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

Refer to Fig. 2.9.

(1) Remove Sub Mechanism Chassis Ass'y referring to item 2.22.

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

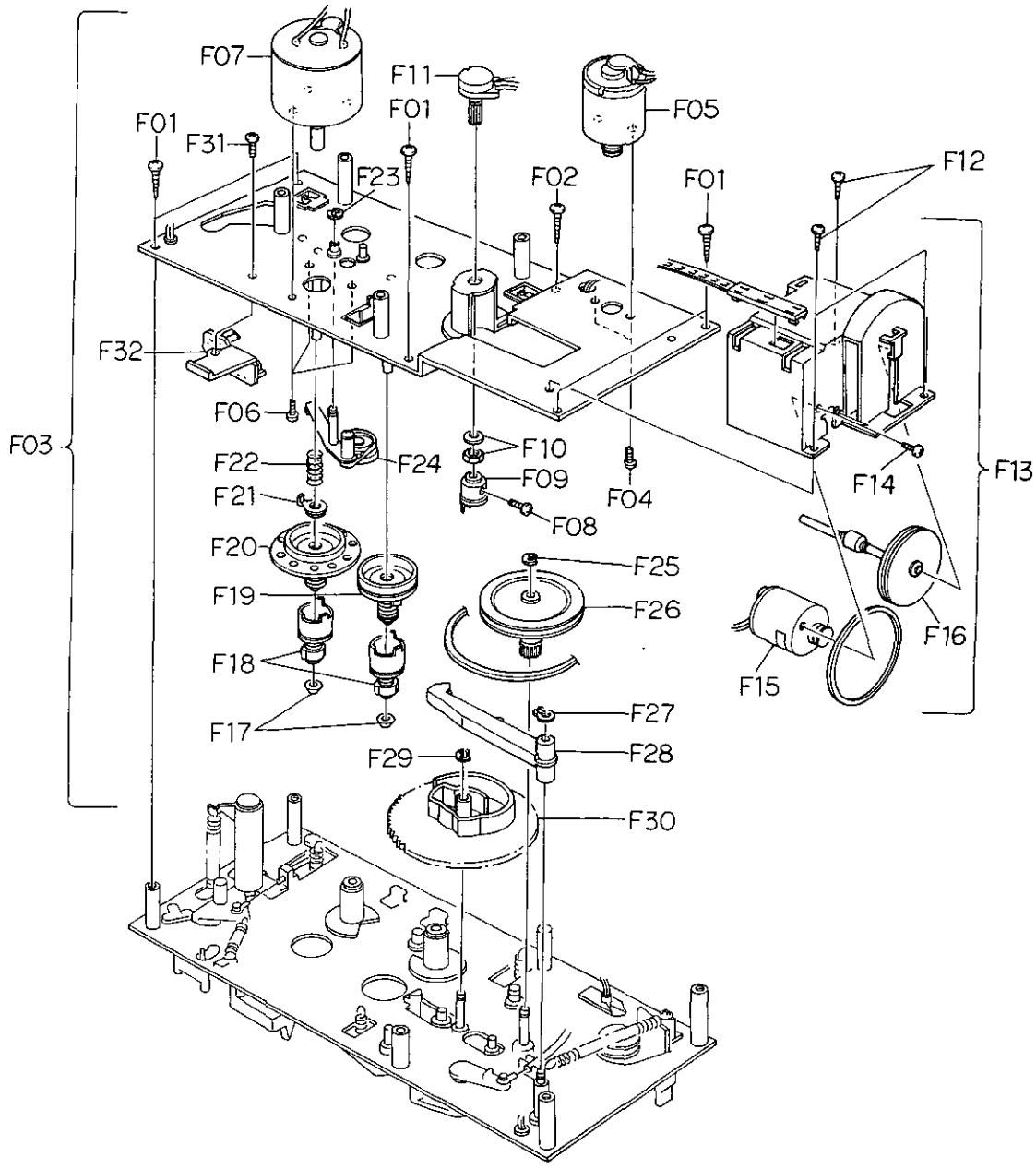


Fig. 2.9

2.29. Head Mount Base Ass'y

Refer to Fig. 2.10.

(1) Refer to Fig. 2.7. Remove Cassette Case Ass'y referring to item 2.19.
(2) Remove F01, then disassemble F02 (Head Mount Base Ass'y).

2.30. Pressure Roller Ass'y and Erase Head

Refer to Fig. 2.10.

(1) Remove Head Mount Base Ass'y referring to item 2.29.
(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).

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

Refer to Fig. 2.10.

(1) Remove Head Mount Base Ass'y referring to item 2.29.
(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).

2.32. 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.

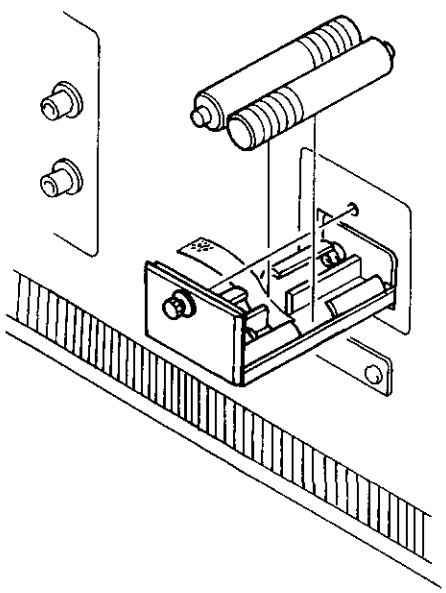


Fig. 2.11

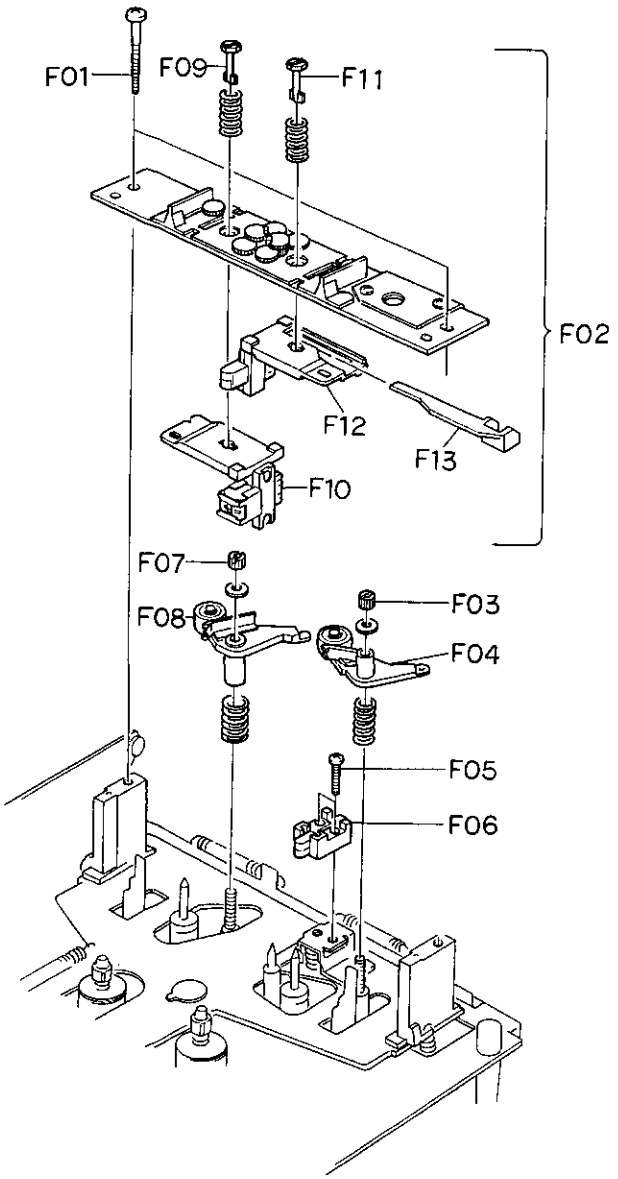


Fig. 2.10

3. MEASUREMENT AND MAINTENANCE INSTRUMENTS

(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 – 1 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) Audio Analyzer T-100
(including Distortion, Wow/Flutter, Speed, Oscillator and dB meter)

Note: (10) – (28) are the products of Nakamichi Corporation.

4. MECHANICAL ADJUSTMENTS

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 2.19.

(1) Offset Adjustment of Control Motor Driver

(a) Refer to Figs. 4.1 and 4.2.
Adjust VR503 and VR504 on the Logic P.C.B. Ass'y to locate approximately at the middle of the variable range. Then press the Power switch.
VR503 (for Cam position stop)
VR504 (for Cam position play)

(b) Press the Stop button to set the N-700ZXE in Stop mode.
Adjust VR503 (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-700ZXE 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.)

(e) Set the N-700ZXE in F.F., Pause, or Cue mode by pressing each button (press F.F. and Pause buttons to set the N-700ZXE 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.

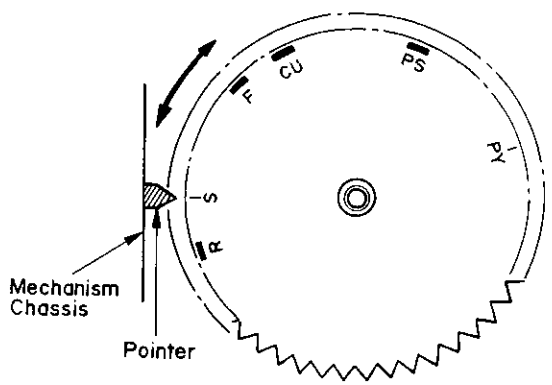


Fig. 4.1

(2) Offset Fine Adjustment of Control Motor Driver

Adjust only if a satisfactory result is not obtained in "(1) Offset Adjustment of Control Motor Driver". This adjustment is made by changing the value of the fixed resistors on the Logic 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 VR508 (10 kΩ) in Stop, Fast (F.F. or Rewind), Pause and Playback modes.

(b) Reference Voltage

Reference voltage at the sliding contact of VR508 (Cam Control Volume) in each mode is as follows:

Mode	Reference Voltage (Typical Value)	
Stop	3.0 V	1.7 V ±0.25 V
Fast (F.F./Rew.)	1.3 V	
Pause	−2.8 V	2.6 V ±0.4 V
Play	−5.4 V	

(c) Resistors for Adjustment

Mode	Ref. No.	Typical Value
Stop	R533	9.1 kΩ (F)
Fast (F.F./Rew.)	R552	4.32 kΩ (F)
Pause	R541	287 kΩ (F)
Play	R540	174 kΩ (F)

(d) Adjustment Procedures

1) Press the Stop button to set the N-700ZXE in Stop mode.
Adjust the value of R533 to obtain 3.0 V (±0.6 V) at the sliding contact of VR508.
Note: When R533 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

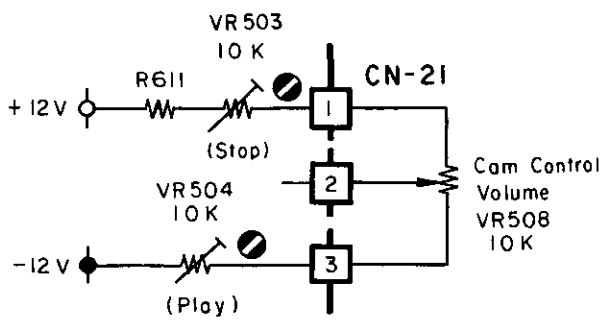


Fig. 4.2

voltage is out of the range, re-adjustment of R552 according to next step 2) is necessary.

2) Set the N-700ZXE in F.F. mode, then adjust the value of R552 so that the voltage of VR508 will become lower by 1.7 V (±0.25 V) than in Stop mode.
3) Press the Pause button to set the N-700ZXE in Pause mode.
   Adjust the value of R541 to obtain −2.8 V (+0.4, −0.15 V) at the sliding contact of VR508.
4) Set the N-700ZXE in Playback mode, then adjust the value of R540 so that the voltage of VR508 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-700ZXE 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 R569 and R570 so that the voltage at the sliding contact of VR508 becomes −3.6 V (±0.3 V) when Reel Motor starts rotation.
(d) Observe the mute signal at the Q511 collector.
   Turn the Cam referring to above step (c) and check to insure that the voltage at the sliding contact of VR508 is −3.8 V (±0.3 V) when mute is released (mute signal changes from H to L).
   (This voltage is determined by the adjustment of R569 and R570 in above step (c).)
(e) Observe the $\overline{\text{Rec.}}$ signal at the Q512 collector. Turn the Cam referring to above step (c) and adjust the value of R618 to obtain −2.1 V (±0.4 V) at the sliding contact of VR508 when $\overline{\text{Rec.}}$ signal changes from H to L (bias oscillation will begin).
(f) 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-700ZXE in Play mode.
(3) Adjust VR502 on the Logic P.C.B. Ass'y to obtain 4 V on the DC voltmeter.

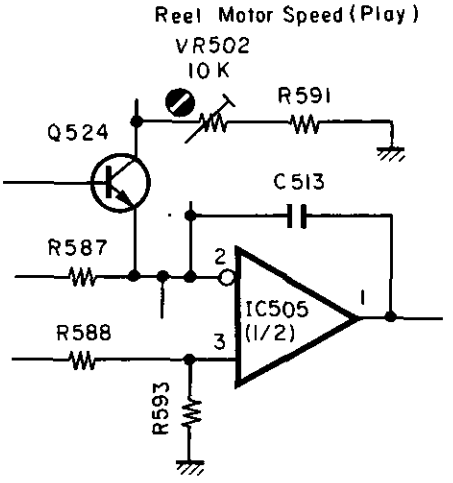


Fig. 4.3

4.3. Record Head and Playback Head Tilt Adjustment

Note: On items 4.3 – 4.9, refer to Fig. 4.4 flow chart.
Refer to Figs. 4.5 and 4.6.

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

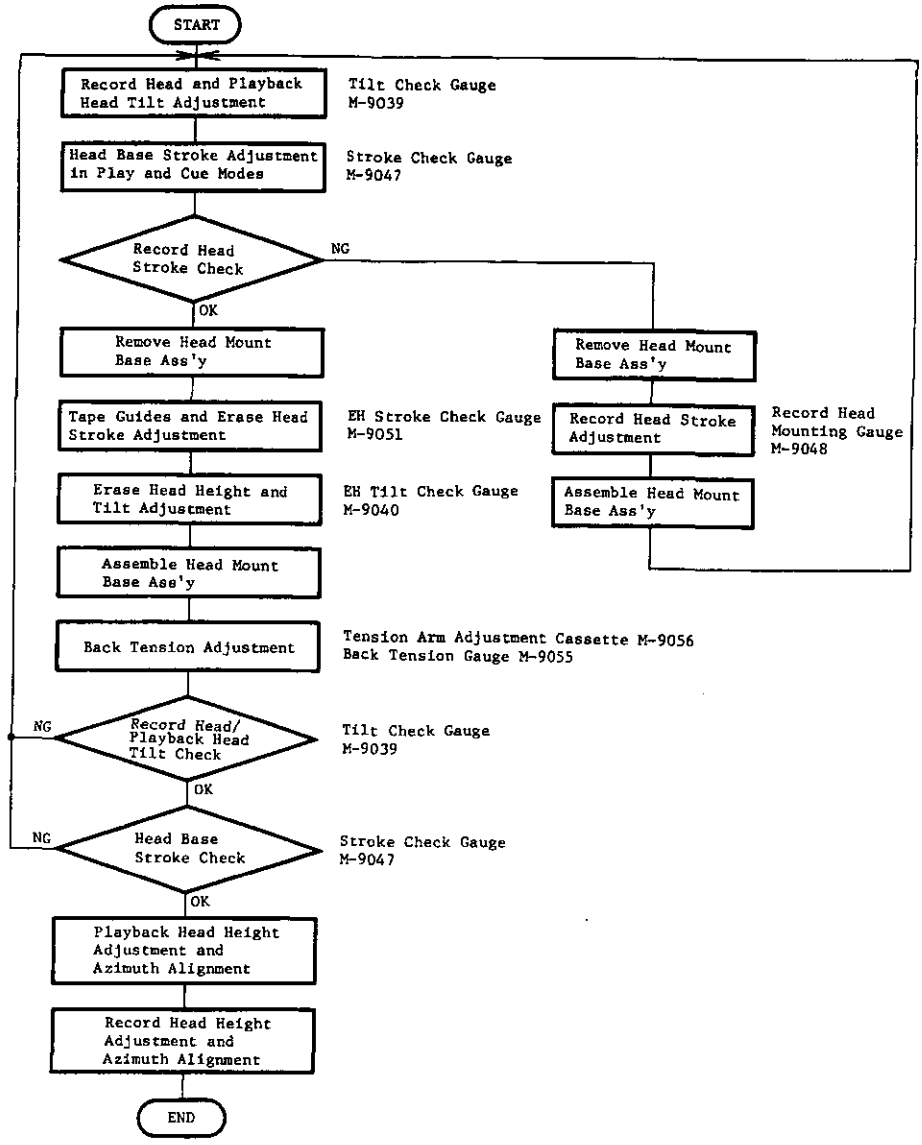


Fig. 4.4

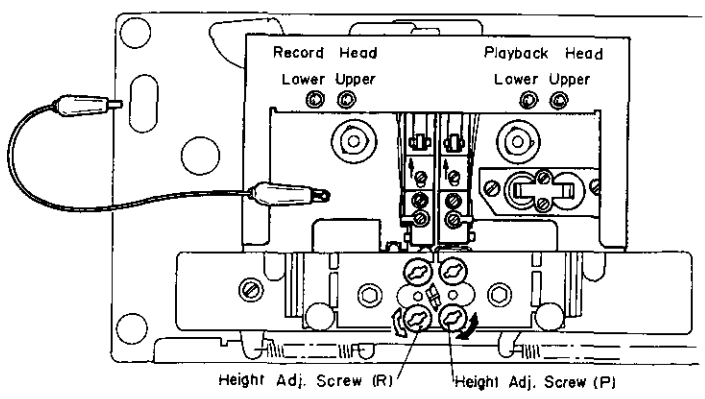


Fig. 4.5

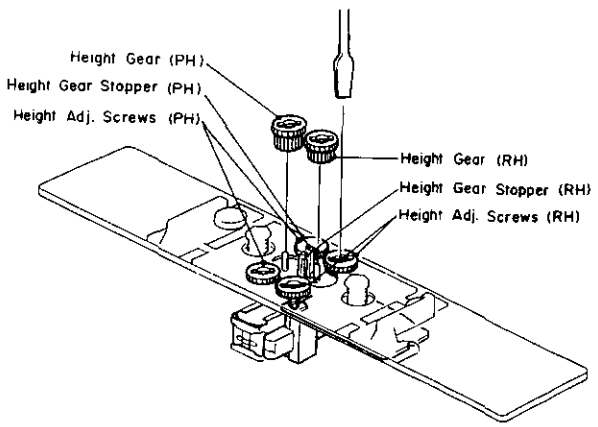


Fig. 4.6

4.4. 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. 4.7.

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

(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-700ZXE in Play mode. Then slowly release the Indicators and insure whether each of the Indicators is in contact with record and playback heads.

(c) Check to insure whether the "P" pointer on the Playback Head Indicator locates between the 2 lines on the Indicator Plate.

(d) If the playback head stroke is noted to be misaligned, adjustment can be made by moving the stroke adjuster assembled in the head base assembly (either forwardly or backwardly).

(e) Check to insure whether the "P" pointer on the Playback Head Indicator locates between the 2 lines on the Record Head Indicator, thus check can be made on record head stroke.

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

(2) Head Base Stroke Adjustment in Cue Mode

Refer to Figs. 4.7 and 4.8.

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

(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-700ZXE 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 VR501 on the 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.

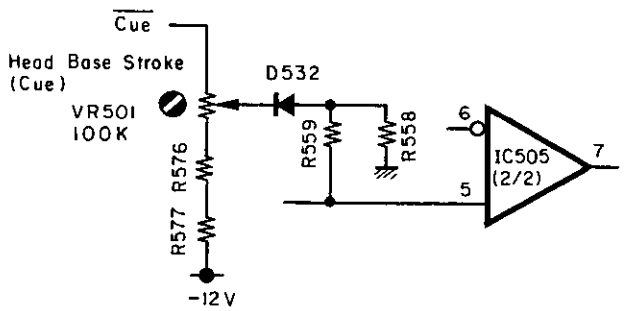


Fig. 4.8

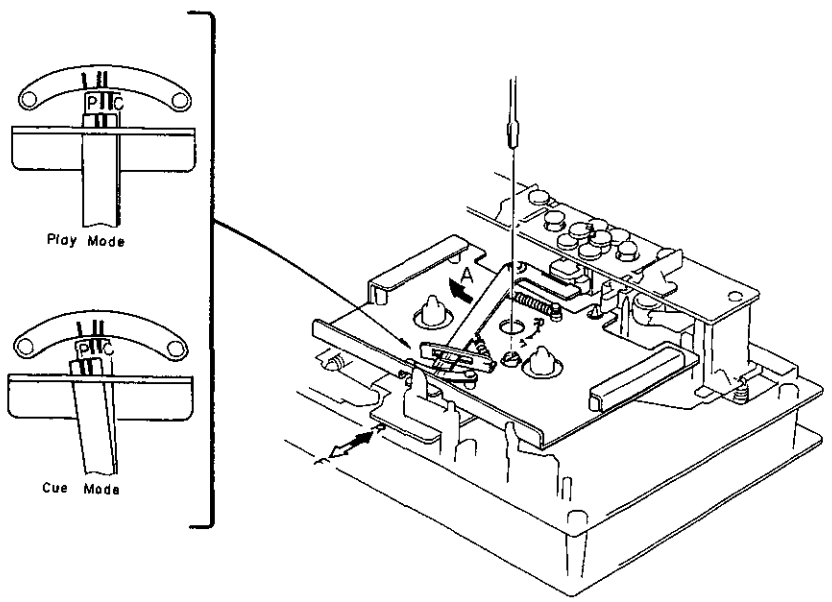


Fig. 4.7

4.5. Tape Guides Adjustment and Erase Head Stroke Adjustment

Remove Head Mount Base Ass'y referring to item 2.29. Refer to Figs. 4.9 and 4.10.

(1) Supply Tape Guide Height Adjustment

(a) Load an EH Stroke Check Gauge M-9051 (DA0-9051A) in the N-700ZXE.
(b) Set the N-700ZXE 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-700ZXE 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 (DA0-9051A) in the N-700ZXE.
(b) Set the N-700ZXE 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-700ZXE 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 (DA0-9051A) in the N-700ZXE.
(b) Set the N-700ZXE 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 should be locked with lock tight paint.

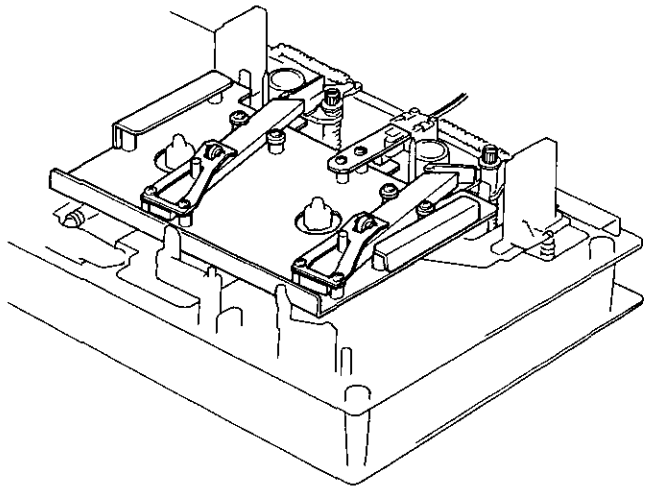


Fig. 4.9

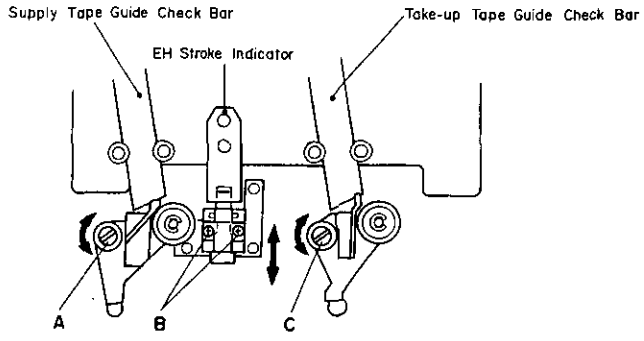


Fig. 4.10

4.6. Erase Head Height and Tilt Adjustment

Refer to Figs. 4.11 and 4.12.

(1) *Remove Head Mount Base Ass'y referring to item* 2.29.
(2) Load an EH Tilt Check Gauge M-9040 (DA09040A) in the N-700ZXE.
(3) Set the N-700ZXE 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 turnig 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.

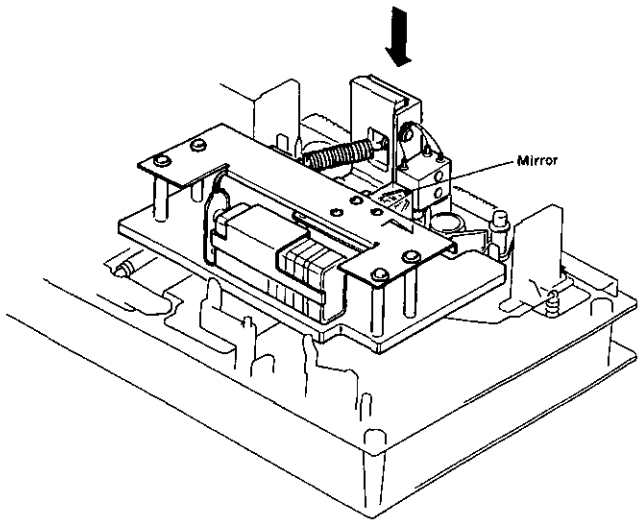


Fig. 4.11

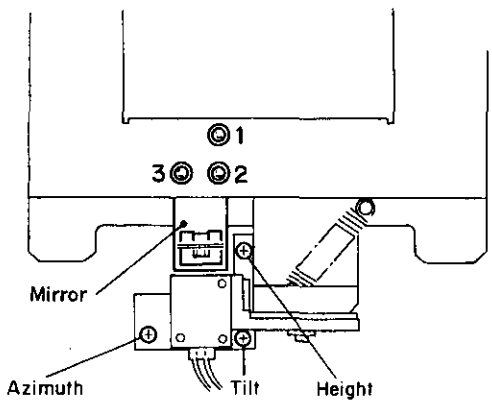


Fig. 4.12

4.7. Back Tension Adjustment

Refer to Figs. 4.13 – 4.16.

(1) Load a Tension Arm Adjustment Cassette (DA0-9056A) in the N-700ZXE referring to Fig. 4.13.

(2) Set the N-700ZXE 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. 4.14. Do not bend the top of the Back Tension Arm.

(4) Set the N-700ZXE in Stop mode, and remove the Tension Arm Adjustment Cassette (DA09056A), then set the N-700ZXE 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 shwon in Fig. 4.15.

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

(6) Set the N-700ZXE 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. 4.16, and obtain the torque of 7 g-cm to 9 g-cm range.

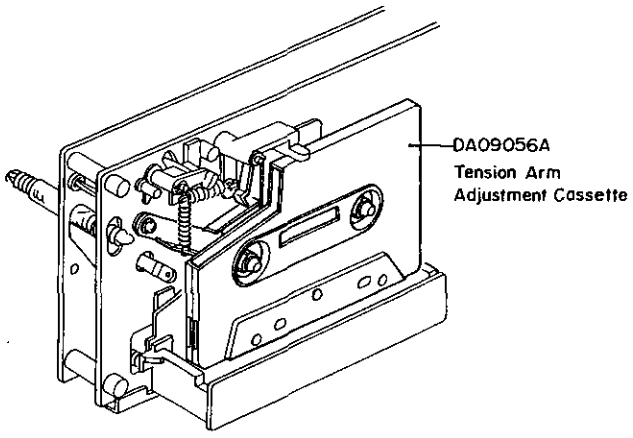


Fig. 4.13

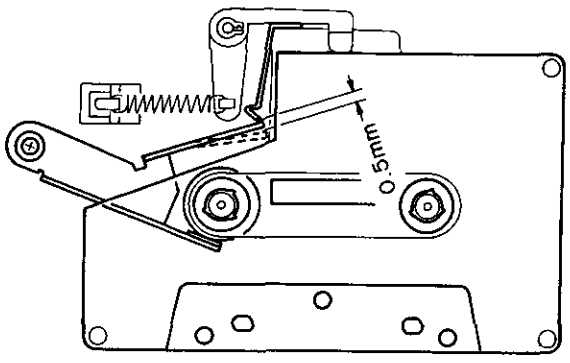


Fig. 4.14

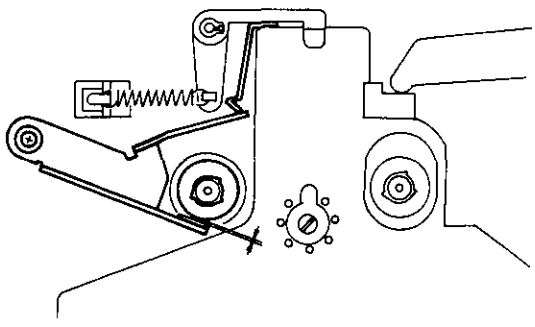


Fig. 4.15

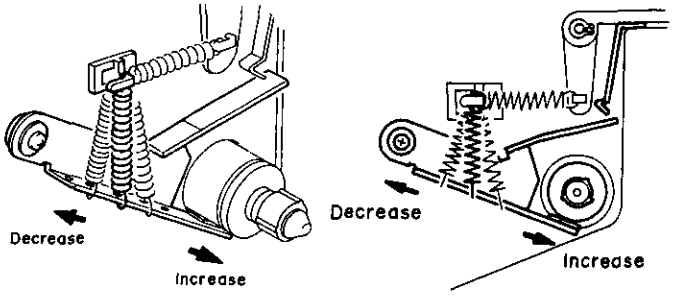


Fig. 4.16

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

(1) Playback Head Height Adjustment and Azimuth Alignment

Refer to Fig. 4.17.

(a) Set the Monitor switch to Tape, then connect a VTVM to the Line Output Jacks.

(b) Load a 1 kHz Track Alignment Tape (DA09007A), then set the N-700ZXE in Play mode.

(c) Turn the PH Height Gear until the outputs of both channels become minimum.

(d) Load a 15 kHz Azimuth Tape (DA09004A), then set the N-700ZXE in Play mode.

(e) Turn the PH Azimuth Alignment Screw until the outputs of both channels become maximum.

(f) Repeat above steps (b) through (e) one or two times to obtain optimum performance.

(2) Record Head Height Adjustment and Azimuth Alignment

Refer to Figs. 4.17 – 4.21.

(a) Set the N-700ZXE 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. 4.18. 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, Tape switch to SX and Noise Reduction switch to Out.

(d) Short TP3 and TP4 on the Auto Cal. P.C.B. Ass'y. (N-700ZXE will remain in Azimuth Alignment mode

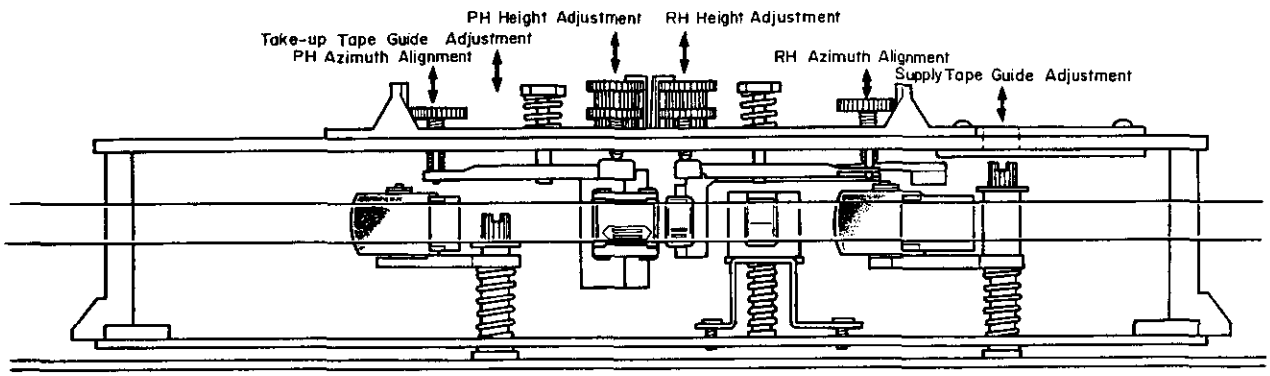


Fig. 4.17

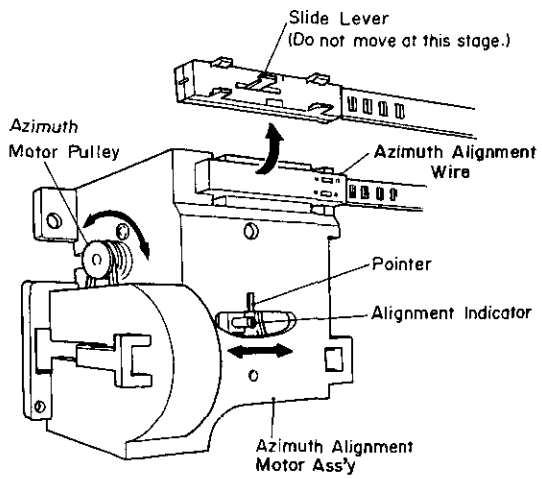


Fig. 4.18

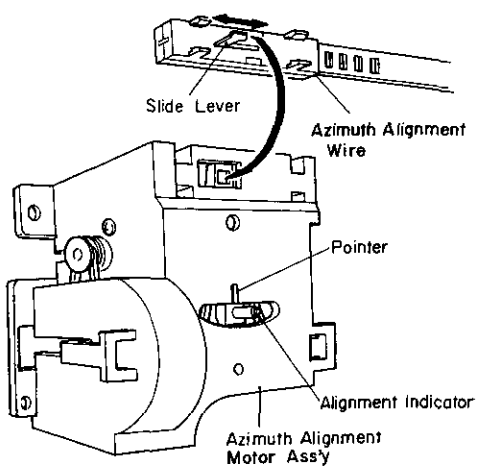


Fig. 4.19

when Auto Calibration mode is performed in the following manner.)

(e) Load a Reference SX Tape (DA09025A). Then set the N-700ZXE in Record and Pause mode.

(f) With pressing the Auto Calibration button, press the Play button to set the N-700ZXE in Auto Calibration mode.
Auto Calibration Indicator Panel light starts flashing and Azimuth Alignment operation begins.
Referring to Fig. 4.20, adjust VR801 on the RAMM & Auto Azimuth 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. 4.18.

(g) Remove the short between TP3 and TP4.

(h) After completion of the Auto Calibration function, set the Test Tone switch to 400 Hz, then set the N-700ZXE in Record and Play mode.
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-700ZXE 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-700ZXE in Stop mode, then again set in Record and Pause mode.

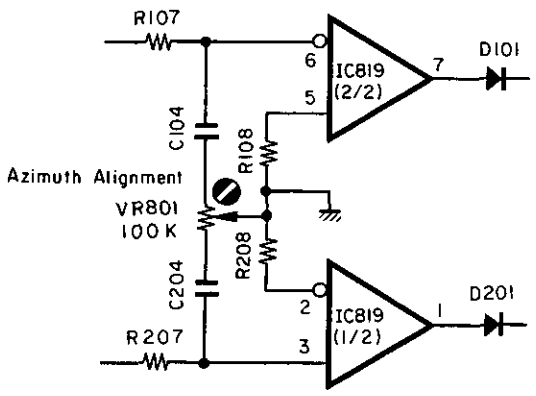


Fig. 4.20

(l) With pressing the Auto Calibration button, press the Play button to set the N-700ZXE in Auto Calibration mode.
Check to insure whether the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y in the position of VR801 as adjusted in above step (f). If not, re-adjust VR801 to correspond the Alignment Indicator to the pointer of the Azimuth Alignment Motor Ass'y

(m) Set the N-700ZXE in Stop mode.
Mount the Azimuth Alignment Wire on the Azimuth Alignment Motor Ass'y referring to Fig. 4.19. (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. 4.21.

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.

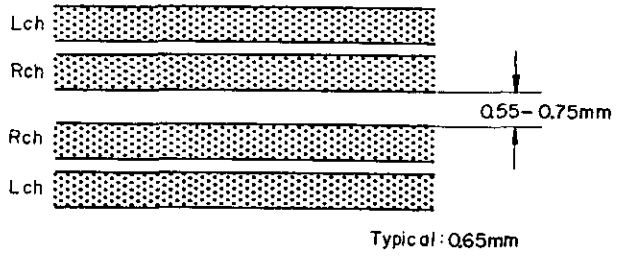


Fig. 4.21

4.9. Record Head Stroke Adjustment

Refer to Figs. 4.22 and 4.23.

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 2.29.

(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. 4.22 hold the Gauges (3.05 mm and 0.1 mm thickness) between the Block A and Block B, and fix the Block A with screws, pushing the Block A to the 2 guide pins.

(5) Remove the Block B from the Mounting Gauge Plate.

(6) As shown in Fig. 4.23, 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. 4.22 hold the Gauges (3.05 mm and either one of 0.05, 0.15, 0.2, 0.25, 0.3 or 0.35 mm thickness) between the Block A and Block B, and fix the Block A with screws, pushing the Block A to the 2 guide pins.

(9) Remove the Block B from the Mounting Gauge Plate.

(10) Mount the R-8L record head assembly onto the Mounting Gauge Plate.

(11) As shown in the Fig. 4.23, 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.

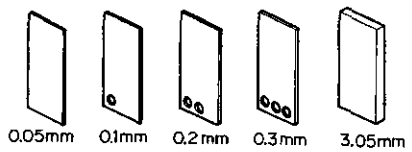
(13) Remove the R-8L record head assembly from the Mounting Gauge Plate.

(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.



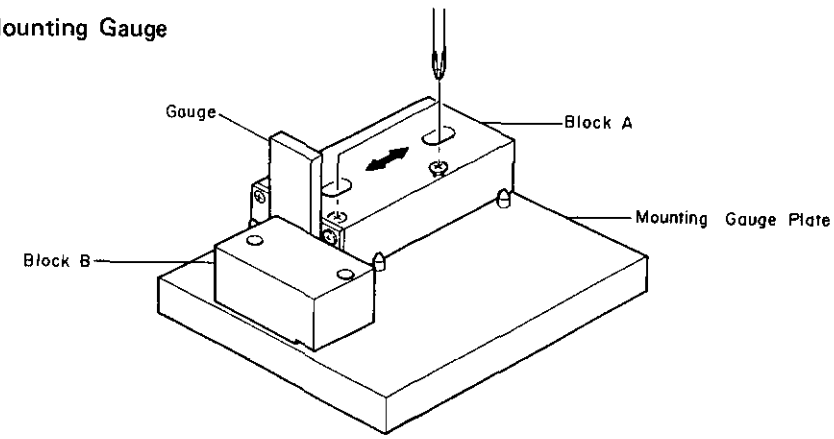


Fig. 4.22

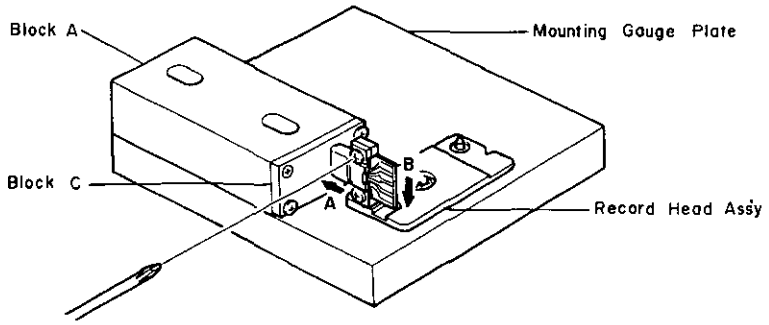


Fig. 4.23

4.10. Tape Travelling Adjustment

The adjustment shall be made with a modified version of the current type EXII C-90 as shown in Fig. 4.24 (error will be made if a previous 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-700ZXE.
(2) Release the back-tension (rotate the Supply Reel and feed out some length of tape) and set the N-700ZXE 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 "4.3. Record Head and Playback Head Tilt Adjustment", "4.4. Head Base Stroke Adjustment", "4.5. Tape Guides Adjustment and Erase Head Stroke Adjustment", "4.6. Erase Head Height and Tilt Adjustment, "4.7. Back Tension Adjustment", "4.8. Playback Head and Record Head Height Adjustment and Azimuth Alignment", "4.9. 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-700ZXE is intended to be an adjustment-free mode, however if the similar matters as above should be noted, please replace the Reel Hub Ass'y to obtain appropriate take-up torque.

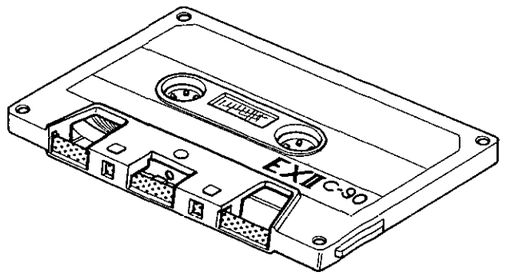


Fig. 4.24

4.11. Flywheel Holder Adjustment

(1) Refer to Fig. 4.25.
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.

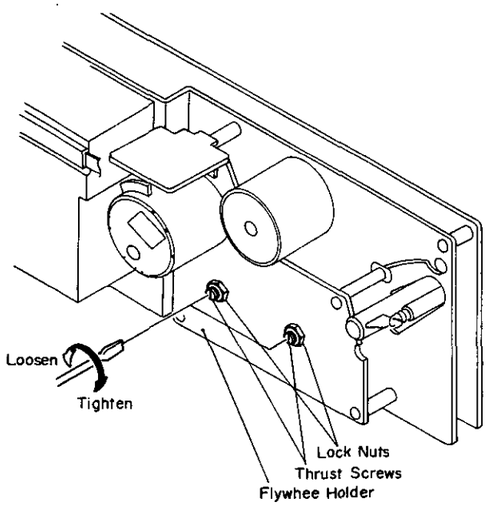


Fig. 4.25

4.12. 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. 4.26, 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).

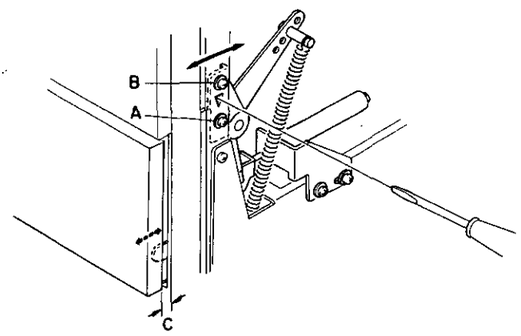


Fig. 4.26

4.13 Tape Speed Adjustment

(1) Remove the Top Cover Ass'y, referring to item 2.1.
(2) Connect a Frequency Counter to Line Output Jacks.
(3) Load a 3 kHz Speed Wow/Flutter Tape (DA09006A) and play it back.
(4) Referring to Fig. 4.27, 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.

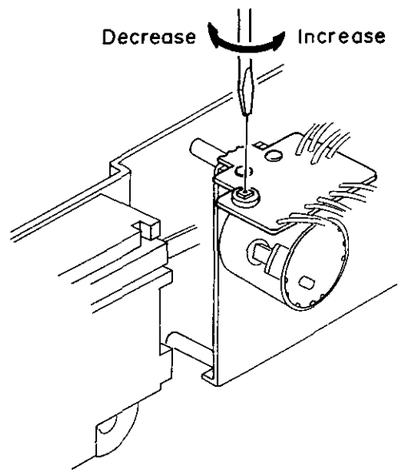


Fig. 4.27

4.14. Lubrication

N-700ZXE 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 0.2^{ϕ} hole at the end of the cylinder may be filled with oil.

5. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

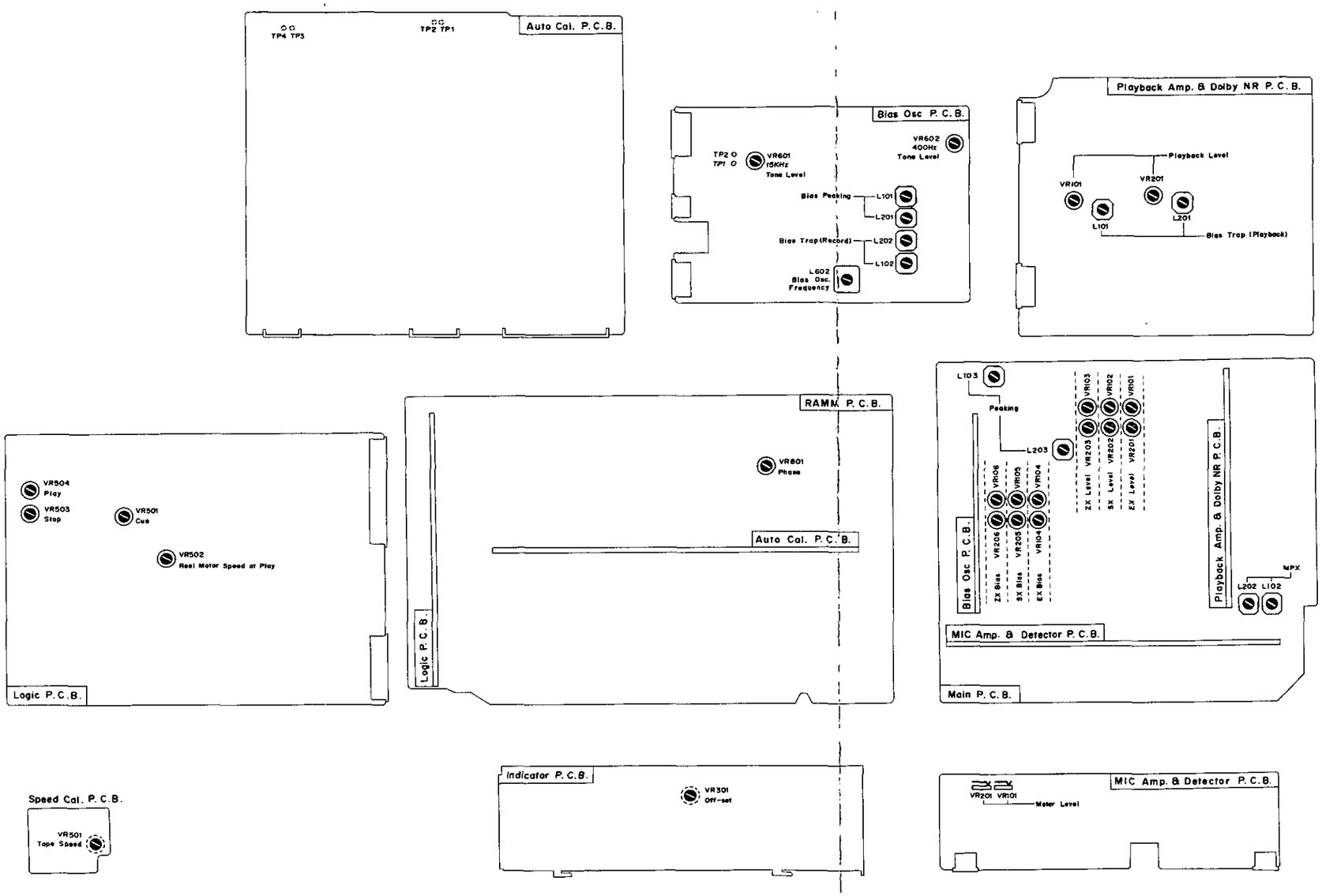


Fig. 5

6. ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

6.1. Introduction

The 700ZXE has the auto calibration function which automatically performs the azimuth alignment, level (sensitivity) calibration and bias calibration.
To adjust the following steps manually, it is necessary to perform the following procedure.

Step 13: Record Amp. Equalizer Adjustment
Step 15: Record Level Calibration and Recording Bias Current Adjustment

Procedure:

(1) Set the Tape Selector, Equalizer and Noise Reduction switches to the desired position depending upon the tape to be used.
(2) Momentarily short TP1 and TP2 on the Auto Cal. P.C.B. Ass'y with a clip.
(Warning: TP2 is connected to +12V DC directly.)
Then, the fixed level and bias data is set to the RAM (Random Access Memory) IC707 and IC708 on the Auto Cal. P.C.B. Ass'y, respectively.
The following shows the output condition of ICs.

(Level)		(Bias)	
IC707–13 (2^3)=0	R ch.	IC708–13=1	R ch.
IC707–14 (2^2)=1		IC708–14=1	
IC707–15 (2^1)=1		IC708–15=1	
IC707–16 (2^0)=1		IC708–16=0	
IC707–17 (2^3)=0	L ch.	IC708–17=1	L ch.
IC707–18 (2^2)=1		IC708–18=1	
IC707–19 (2^1)=1		IC708–19=1	
IC707–20 (2^0)=1		IC708–20=0	

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	Tone Level Calibration	None	VTVM and Distortion Meter to Encoder Output Jacks	Monitor SW — Source Test Tone SW — 400 Hz/OFF	Bias Oscillator P.C.B. VR602 (for 400 Hz) VR601 (for 15 kHz)	1. Set the Test Tone switch to 400 Hz. 2. Adjust VR602 to obtain 90 mV ±0.1 dB on the VTVM. 3. Check to insure that the distortion is less than 0.35% on the distortion meter. 4. Set the Test Tone switch to OFF. 5. Short TP1 and TP2 on the Bias Oscillator P.C.B. Ass'y with a clip (15 kHz oscillation will begin). 6. Adjust VR601 to obtain 9 mV ±0.1 dB on the VTVM. 7. Remove the clip from TP1 and TP2.
3	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 Amp. & Detector 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 (—10 dB segment) to the 16th segment (right hand segment). 3. Adjust VR301 so that the indication shift from the 15th segment (—10 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.
4	Meter Level Calibration	400 Hz (0 dB) to Line Input Jacks	VTVM to Encoder Output Jacks	Monitor SW — Source Test Tone SW — OFF	MIC Amp. & Detector P.C.B. VR101, VR201	1. Ground the pin No. 3 of CN-10 (Reset signal) on the MIC Amp. & Detector 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.
5	MPX Filter Adjustment	19 kHz ±100 Hz to Line Input Jacks	VTVM to Line Output Jacks	Monitor SW — Source Test Tone SW — OFF Noise Reduction SW — OUT Filter SW — OFF/MPX	Main P.C.B. L102, L202	1. Set the Output level control 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).

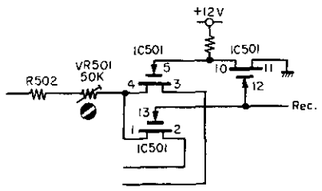


Fig. 6.1
1. Tape Speed

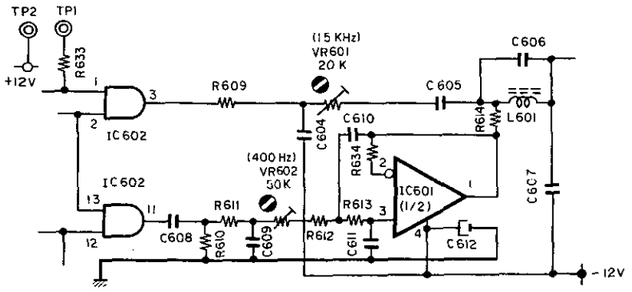


Fig. 6.2
2. Tone Level

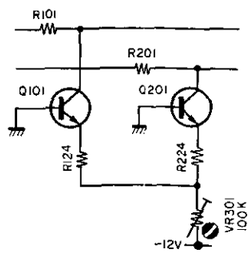


Fig. 6.3
3. Meter Offset

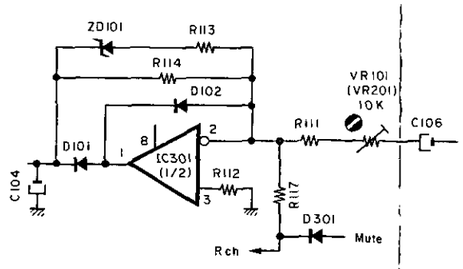


Fig. 6.4
4. Meter Level

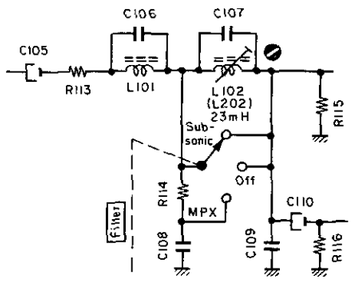


Fig. 6.5
5. MPX Filter

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
6	Playback Head Track Alignment	1 kHz Track Alignment Tape (DA09007A)	VTVM to Line Output Jacks	Playback Monitor SW — Tape Tape SW — ZX Eq. SW — 70 μs Noise Reduction SW — OUT Filter SW — OFF	PH Height Gear	Adjust the PH Height Gear to obtain the minimum readings of both channels on the VTVM. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 4.8.
7	Playback Head Azimuth Alignment	15 kHz Azimuth Tape (DA09004A)	VTVM to Line Output Jacks	Same as above	Playback Head Azimuth Alignment Screw	1. 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 4.8. 2. Repeat above steps 6 and 7 one or two times to obtain optimum performance.
8	Playback Level Adjustment	400 Hz Level Tape (DA09005A)	VTVM to Decoder Output Jacks	*Same as above*	Playback Amp. & Dolby NR P.C.B. VR101, VR201	*Adjust VR101 (VR201) to obtain 90 mV on the VTVM.*
9	*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. Load a 400 Hz level tape and play it back. Set the Output level control to a certain level (0 dB for example). 2. Load 10 kHz, 15 kHz and 20 kHz PB frequency response tapes, then adjust *the playback head azimuth to obtain maximum levels on the VTVM* with each tape. 3. 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 +3 dB 20 kHz: −20 dB −1 dB to +4 dB 4. Conduct step 7 "Playback Head Azimuth Alignment". 5. *If above is not sufficient, refer to "Playback Frequency Response Adjustment"* in item 6.3.
10	*Bias Oscillation* Frequency and Erase Current Measurement	Connect an additional resistor in series to Erase Head	*Frequency Counter* to CN-5-1 on Bias Oscillator P.C.B. and VTVM across an additional resistor	Record, Pause Monitor SW — Source Tape SW — ZX Eq. SW — 70 μs Noise Reduction SW — OUT	Bias Oscillator P.C.B. L602	1. Connect an additional 0.1 Ω resistor in series to the Erase Head. 2. Adjust L602 to obtain 105 kHz ±1 kHz on the frequency counter. 3. Check to insure that the erase current is in a range of 310 mA to 400 mA by using the VTVM. 4. Remove the additional 0.1 Ω resistor.
11	*Bias Trap (Record)* Adjustment	None	*VTVM to CN-6-2, CN-6-3* on Bias Oscillator P.C.B.	Same as above	*Bias Oscillator P.C.B.* L102, L202	Adjust L102 (L202) to obtain the maximum reading on the VTVM.

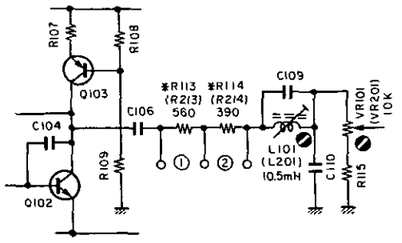


Fig. 6.6
8. Playback Level

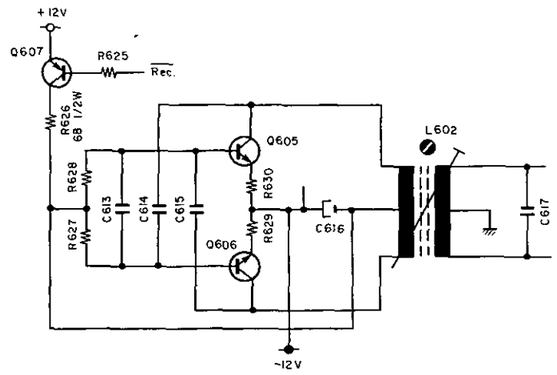


Fig. 6.7
10. Bias Oscillation Frequency

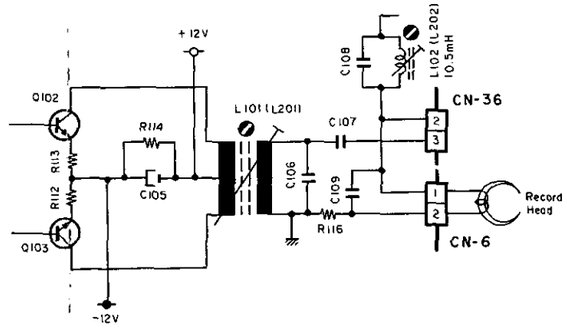


Fig. 6.8
11. Bias Trap (Record)
12. *Maximum Bias Current*

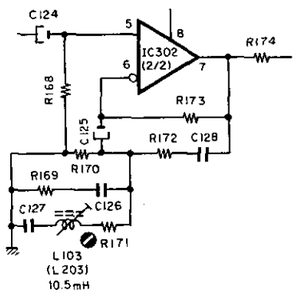


Fig. 6.9
13. Record Amp. Equalizer

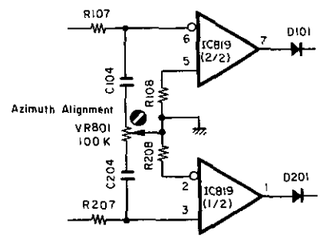


Fig. 6.10
14. Record Head Azimuth

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
12	Maximum Bias Current Adjustment	None	VTVM to CN-6-2, CN-6-3 on Bias Oscillator P.C.B.	Record, Pause Monitor SW – Source Tape SW – ZX Eq. SW – 70 μs Noise Reduction SW – OUT	Bias Oscillator P.C.B. L101, L201	Adjust L101 (L201) to obtain the maximum reading on the VTVM.
13	Record Amp. Equalizer Adjustment	400 Hz (–20 dB) and 20 kHz (–20 dB) to Line Input Jacks	VTVM to CN-6-2, CN-6-3 on Bias Oscillator P.C.B.	Record, Pause Monitor SW – Source Tape SW – SX Eq. SW – 70 μs Noise Reduction SW – OUT Filter SW – OFF	Main P.C.B. L103, L203	1. Press the Record and Pause buttons. 2. Momentarily short TP1 and TP2 on the Auto Cal. P.C.B. Ass'y. 3. Feed in 400 Hz –20 dB, then note the readings of both channels on the VTVM. 4. Feed in 20 kHz –20 dB, then adjust L103 (L203) to obtain approx. 14 dB higher reading than the reading in 3.
14	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 – 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 RAMM & Auto Azimuth P.C.B. VR801	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. 4.18. 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. Short TP3 and TP4 on the Auto Cal. P.C.B. Ass'y with a clip. 3. Load a reference SX tape (DA09025A), then perform the auto calibration function as follows: a. Press the Record and Pause buttons. b. Pressing the Auto Calibration button, press the Play button. Tape counter becomes "0000" and Auto Calibration Indicator Panel light starts flashing. (After disappearing flashing, Bias and Level will go to performance automatically, then the tape is rewound to "0000".) 4. During the azimuth alignment operation in 3, adjust VR801 on the RAMM & Auto Azimuth 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. 4.18. 5. Remove the clip from TP3 and TP4. 6. After completion of the auto calibration function, perform the followings. 7. Record Head Height Adjustment: a. Set the Test Tone switch to 400 Hz. Record signals on the reference SX tape (DA09025A), and then play it back. b. Adjust the RH Height Gear to obtain the maximum readings of both channels on the VTVM. 8. Record Head Azimuth Alignment: a. Set the Test Tone switch to OFF, then feed in 15 kHz –20 dB. Record signals on the reference SX tape (DA09025A) 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 7 and 8 one or two times to obtain optimum performance. 9. Short TP3 and TP4 on the Auto Cal. P.C.B. Ass'y with a clip. 10. Perform the auto calibration function referring to above 3. 11. During the auto azimuth alignment operation in 10, check to insure whether the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y at the position of VR801 as adjusted in 4. If not, re-adjust VR801 to correspond the Alignment Indicator to the pointer of the Azimuth Alignment Motor Ass'y. 12. Press the Stop Button. 13. Remove the clip from TP3 and TP4. 14. Mount the Azimuth Alignment wire on the Azimuth Alignment Motor Ass'y referring to Fig. 4.19. 15. Perform the auto calibration function referring to 3. During the auto azimuth alignment operation, check to insure that the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y. 16. Feed in 15 kHz –20 dB. Record signals on the reference SX tape (DA09025A) 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
15	Record Level Calibration and Recording Bias Current Adjustment	400 Hz (0 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*	Main P.C.B. (Level) ZX: VR103, VR203 SX: VR102, VR202 EX: VR101, VR201 (Bias Current) ZX: VR106, VR206 SX: VR105, VR205 EX: VR104, VR204	1. Adjustment for ZX tape (Tape switch: ZX, Eq. switch: 70 μs): a. Load a reference ZX tape (DA09037A), then perform the auto calibration function referring to 14-3. b. After completion of the function, momentarily short TP1 and TP2 on the Auto Cal. P.C.B. Ass'y. c. *Feed in 400 Hz 0 dB, then record and play it back.* d. Adjust VR103 (VR203) to obtain the same readings with the Monitor switch Source and Tape on the VTVM. e. Feed in 15 kHz –20 dB, then record and play it back. f. Adjust VR106 (VR206) to obtain 1 dB higher reading with the Monitor switch Tape than the reading with the Monitor switch Source on the VTVM. g. Repeat e and f once. 2. Adjustment for SX tape (Tape switch: SX, Eq. switch: 70 μs): a. Load a reference SX tape (DA09025A), then perform the auto calibration function referring to 14-3. b. After completion of the function, momentarily short TP1 and TP2 on the Auto Cal. P.C.B. Ass'y. c. *Feed in 400 Hz 0 dB, then record and play it back.* d. Adjust VR102 (VR202) to obtain the same readings with the Monitor switch Source and Tape on the VTVM. e. Feed in 15 kHz –20 dB, then record and play it back. f. Adjust VR105 (VR205) to obtain the same readings with the Monitor switch Tape and Source. g. Repeat e and f once. 3. Adjustment for EXII tape (Tape switch: EX, Eq. switch: 120 μs): a. Load a reference EXII tape (DA09066A), then perform the auto calibration function referring to 14-3. b. After completion of the function, momentarily short TP1 and TP2 on the Auto Cal. P.C.B. Ass'y. c. Feed in 400 Hz 0 dB, then record and play it back. d. *Adjust VR101 (VR201) to obtain 1 dB higher reading with the Monitor* switch Tape than the reading with the Monitor switch Source on the VTVM. e. Feed in 15 kHz –20 dB, then record and play it back. f. Adjust VR104 (VR204) to obtain 4 dB higher reading with the Monitor switch Tape than the reading with the Monitor switch Source on the VTVM. g. Repeat e and f once.
16	Bias Trap (Playback) Adjustment	None	VTVM to Line Output Jacks	Record, Pause Monitor SW – Tape Test Tone SW – OFF Tape SW – ZX Eq. SW – 70 μs *Noise Reduction SW -- Dolby NR* Filter SW -- OFF	Playback Amp. & Dolby NR P.C.B. L101, L201	Adjust L101 (L201) to obtain the minimum reading on the VTVM.

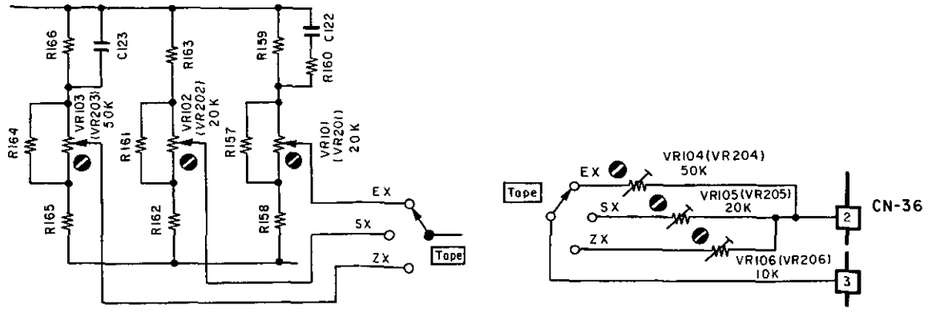


Fig. 6.11
15. Record Level and Recording Bias Current

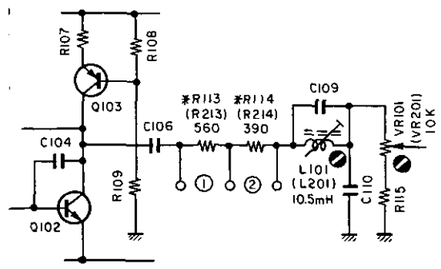


Fig. 6.12
16. Bias Trap (Playback)

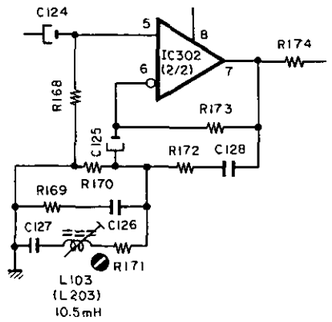


Fig. 6.13
17. Overall Frequency

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
17	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	Main P.C.B. L103, L203	For each tape to be used, perform the auto calibration function referring to step 14-3. 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 ±2 dB on the VTVM. 6. If above is not sufficient, adjust L103 (L203) to obtain –20 dB ±2 dB output level on the VTVM. 7. If a satisfactory result is not obtained, precise re-adjustment of step 9 "Playback Frequency Response", replacement of Playback Head or Record Head, check on item 4.10 "Tape Travelling Adjustment", or frequency adjustment according to item 6.3 will be required.
18	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 14-3. 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.
19	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 14-3. 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.
20	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 14-3. 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.
21	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 14-3. 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.
22	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 14-3. 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.
23	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 control to max. 2. Adjust the Line Input level controls to obtain 1 V 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.
24	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		Play back and read the wow/flutter meter.

6.3. Frequency Response Adjustment

(1) Playback Frequency Response Adjustment

Refer to Figs. 6.14 and 6.15.

(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 9 in 6.1. "Adjustment and Measurement Instructions".

Playback equalization level is varied by the modification of R110 (R210) on the Playback Amp. & Dolby NR P.C.B. Ass'y.

Following are the details for level modification:

Approx. +1 dB	R110 (R210): 7.34K
0 dB	R110 (R210): 8.06K
Approx. −1 dB	R110 (R210): 8.76K

(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 9 in 6.1. "Adjustment and Measurement Instructions".

Peaking portion compensates the gap loss of the playback head.

Peaking level is varied by the short circuit of R113 (R213) or R114 (R214) on the Playback Amp. & Dolby NR P.C.B. Ass'y as illustrated in Fig. 6.15.

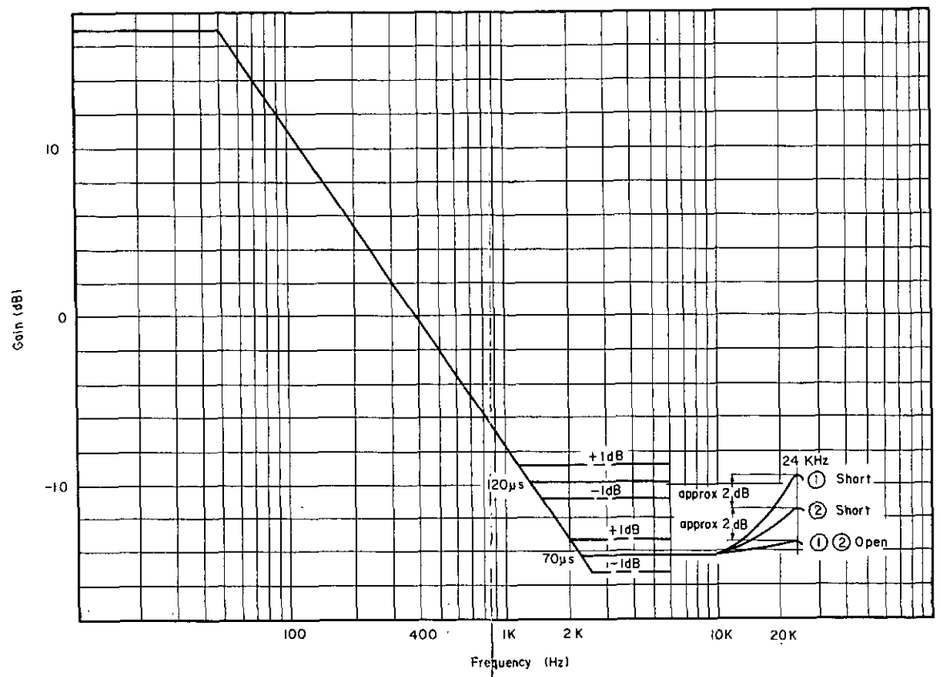


Fig. 6.15 Playback Equalization Curve

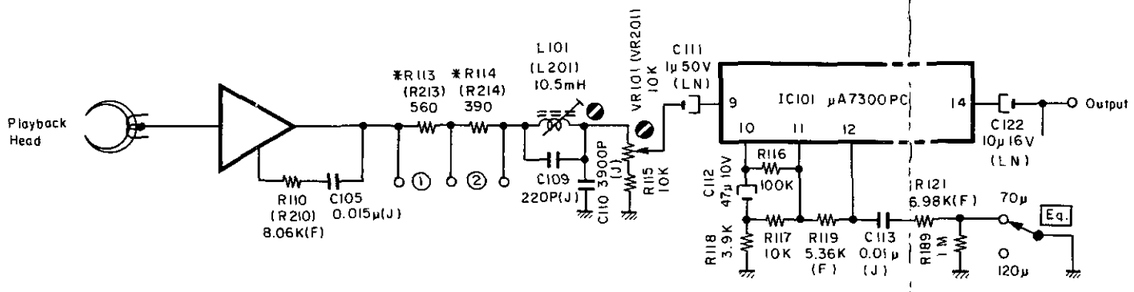


Fig. 6.14 Playback Amp.

(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 2 in item 6.1
  Each oscillator level of the 400 Hz 0 dB and 15 kHz −20 dB should be accurate.
- ○ Record head azimuth alignment on step 15 in item 6.1
  No misalignment is found when auto azimuth alignment function is completed.
- ○ Tape travelling adjustment in item 4.10
  Tape travelling should be accurate.

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

Fig. 6.16 shows the record peaking curve and Fig. 6.17 shows the record eq. peaking circuit.

Peaking frequency is adjusted by the adjustment of L103 (L203) on the Main P.C.B. Ass'y.

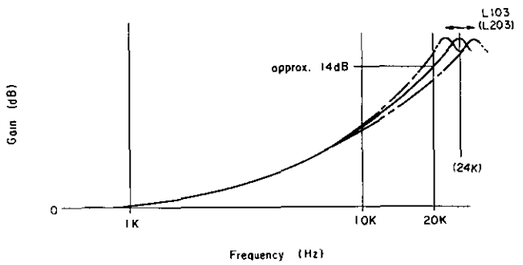


Fig. 6.16 Record Peaking Curve

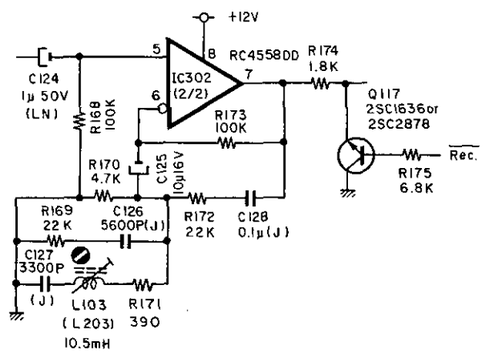


Fig. 6.17

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. 9 of IC101 and IC201
Output Connection: VTVM to the Decoder Output Jacks.
Mode: Stop
Monitor SW — Tape
Noise Reduction SW — Out/Dolby NR

(a) Connect a VTVM to the Decoder Output Jacks. Feed in 5 kHz to pin No. 9 of IC101 (IC201) and adjust the generator output control so that the VTVM may read 7.6 mV.
(b) Set the Noise Reduction switch to Dolby NR. Check to insure that the level on the VTVM 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 C133 (C233) on the Playback Amp. and Dolby NR P.C.B. Ass'y.
Mode: Stop
Monitor SW — Source

(a) Connect a VTVM to the Encoder Output Jacks. Feed in 5 kHz and adjust the Line Input level controls so that the VTVM may read 90 mV (0 dB). Level meter will indicate 0 dB.
(b) Remove the VTVM from the Encoder Output Jacks and reconnect it to the output side of C133 (C233). Check to insure that the VTVM indicates approx. 560 mV.
(c) Decrease the input level (0 dB) by 20 dB and 30 dB. Check to insure that the level at output side of C133 (C233) 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

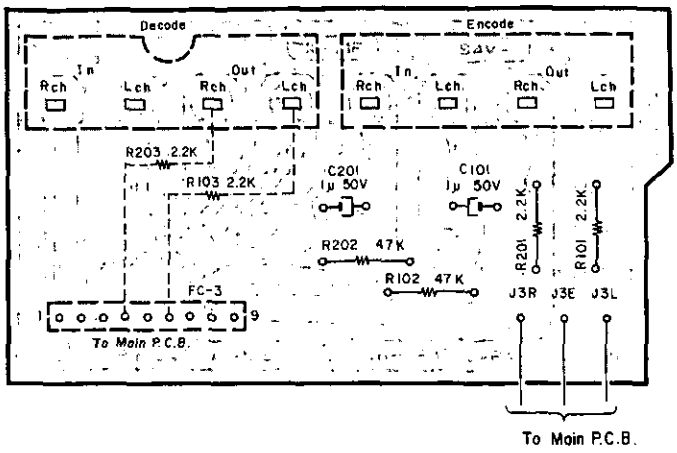


Fig. 7.1

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

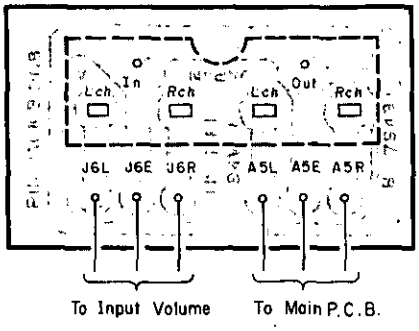


Fig. 7.2

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

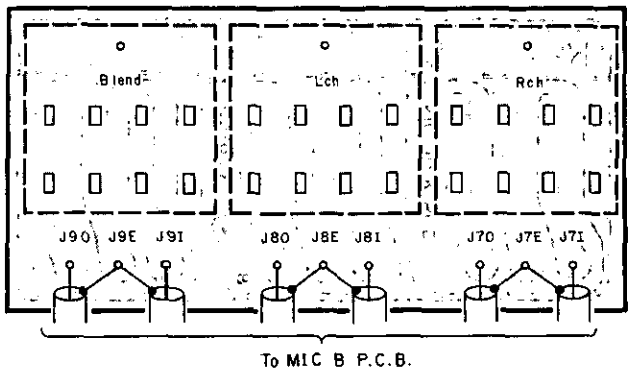


Fig. 7.3

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

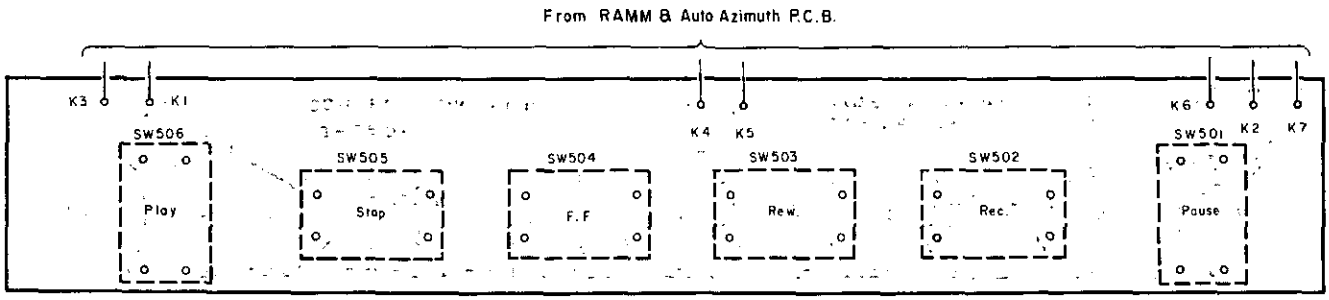


Fig. 7.4

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

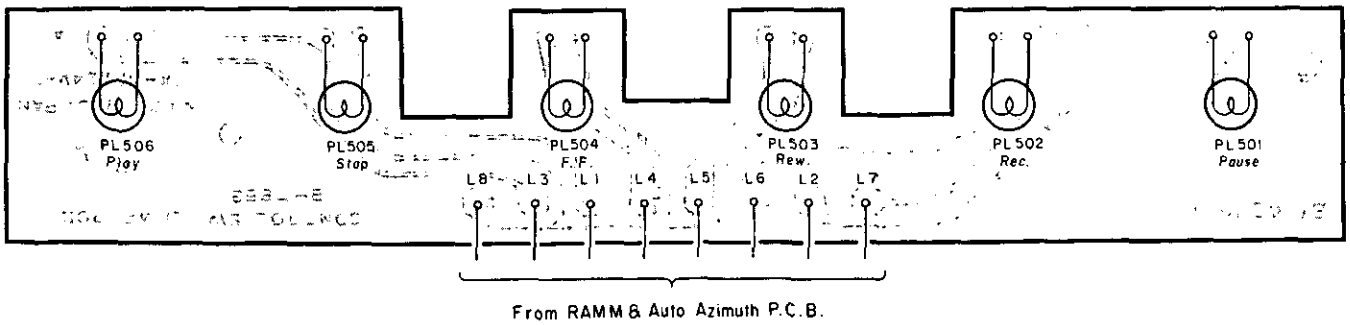


Fig. 7.5

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

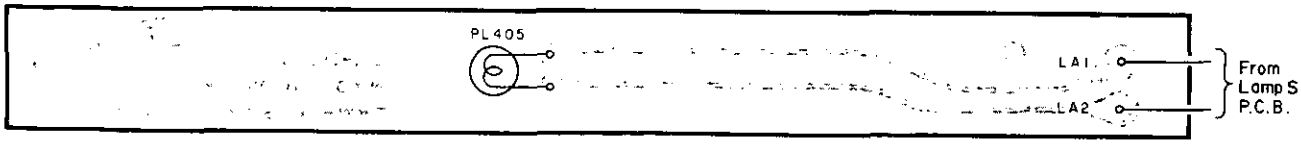


Fig. 7.6

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

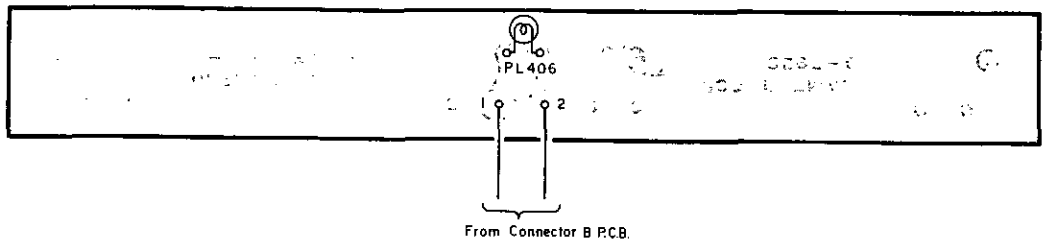


Fig. 7.7

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

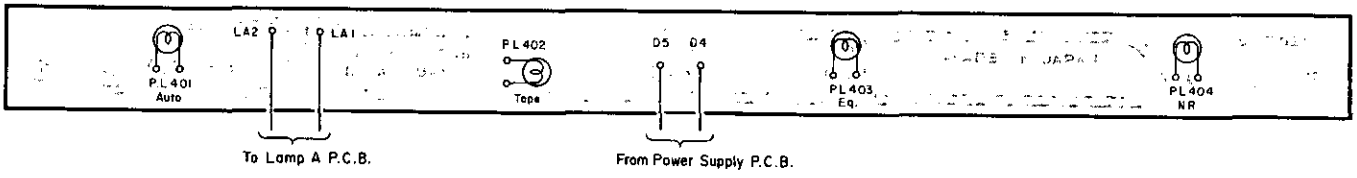


Fig. 7.8

Schematic Ref. No.	Part No.	Description
	BA04390A	**Pin Jack A P.C.B. Ass'y**
	0B07942A	Pin Jack A P.C.B.
R101,103 201,203	0B05622A	Carbon Resistor 2.2K ERD-25T J
R102,202	0B05641A	Carbon Resistor 47K ERD-25T J
C101,201	0B01405A	Electrolytic Capacitor 1μ 50V
FC3	0B05254A	9P Flat Cable
	0B08726A	Mounting Pin Jack (2 pcs.)
	0E00037A	Earth Lug B-5 (1 pce.)
	BA04391A	**Pin Jack B P.C.B. Ass'y**
	0B07943A	Pin Jack B P.C.B.
	0B08726A	Mounting Pin Jack (1 pce.)
	0E00037A	Earth Lug B-5 (1 pce.)
	BA04386A	**MIC Jack P.C.B. Ass'y**
	0B07947B	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
	BA04399A	**Control Switch Lamp P.C.B. Ass'y**
	0B07953A	Control Switch Lamp P.C.B.
PL501-506	0B08851A	Lamp 12V 30mA (6 pcs.)
	0J04283A	Lamp Holder Rubber 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**
	0B07921A	Lamp S P.C.B.
PL401-404	0B08838A	Lamp 6.3V 100mA

7.9. Lamp E P.C.B. Ass'y

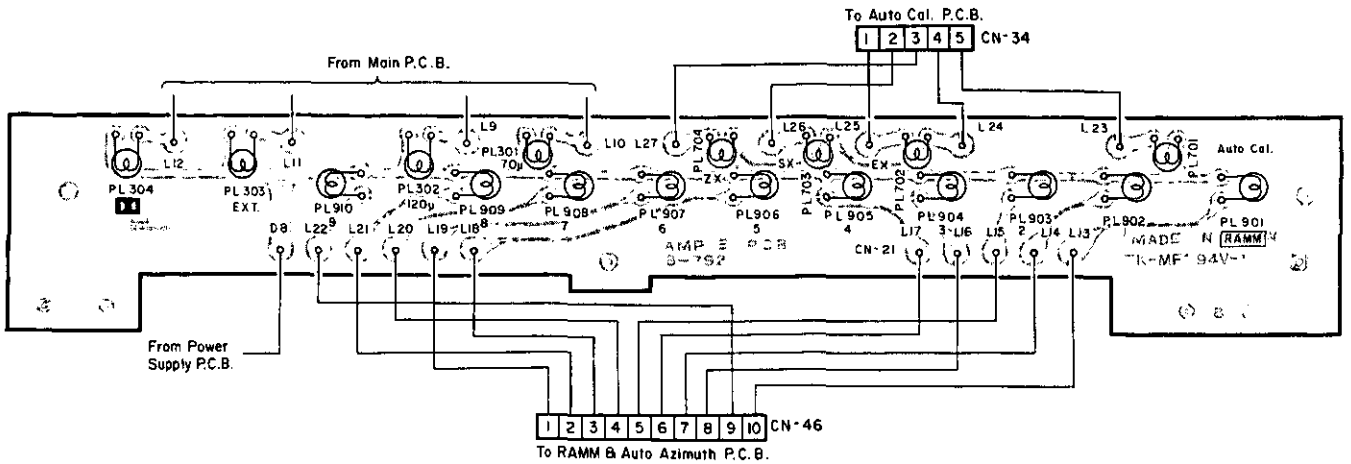


Fig. 7.9

7.10. Monitor Switch P.C.B. Ass'y

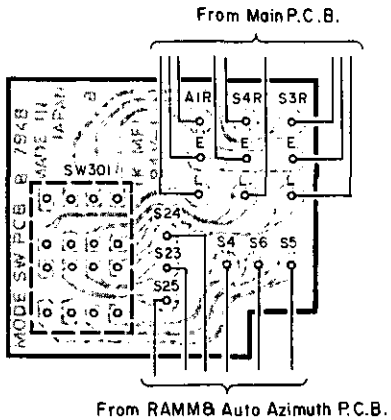


Fig. 7.10

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

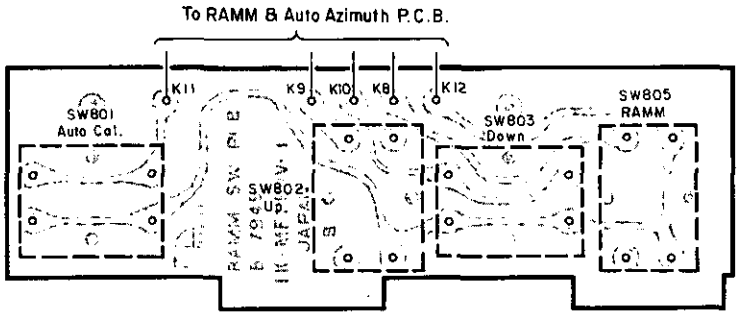


Fig. 7.11

7.12. Counter Reset P.C.B. Ass'y

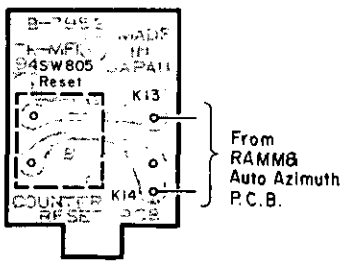


Fig. 7.12

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

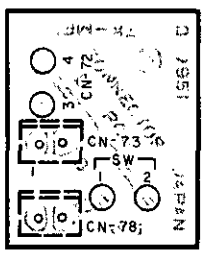


Fig. 7.13

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

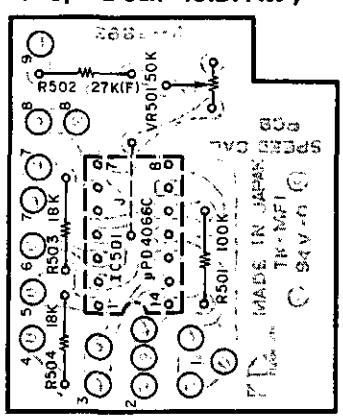


Fig. 7.14

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

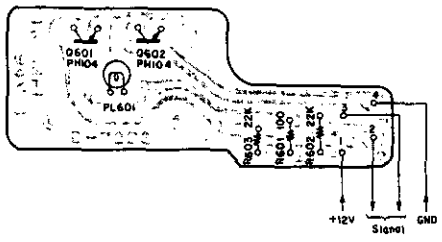


Fig. 7.15

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

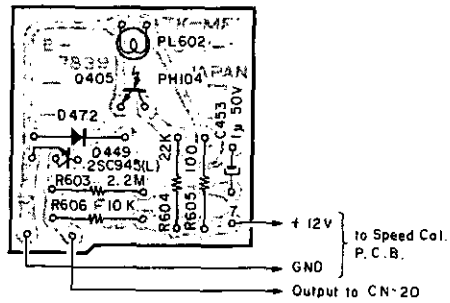


Fig. 7.16

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04392A	**Lamp E P.C.B. Ass'y**
	0B07938B	Lamp E P.C.B.
PL301-304	0B08851A	Lamp 12V 30mA (18 pcs.)
701-704		
901-910		
CN34	0B08855A	5P-H Connector
CN46	0B08856A	10P-H Connector
	BA04385A	**Monitor Switch P.C.B. Ass'y**
	0B07948B	Monitor Switch P.C.B.
SW301	0B07324A	Rotary Switch 4-2N
	BA04387A	**RAMM Switch P.C.B. Ass'y**
	0B07949B	RAMM Switch P.C.B.
SW801-804	0B07219A	Switch AKC8S
	BA04388A	**Counter Reset P.C.B. Ass'y**
	0B07952B	Counter Reset P.C.B.
SW805	0B07219A	Switch AKC8S
	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

Schematic Ref. No.	Part No.	Description
	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 RDF-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.)
	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

Schematic Ref. No.	Part No.	Description
	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
	BA04389A	**MIC B P.C.B. Ass'y**
	0B07941C	MIC B P.C.B.
VR1	0B07345A	Pitch Control Volume 20K (B)
VR2,3,4	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)
SW1,2	0B07350A	Rotary Switch 2-3
CN17	0B08804A	4P-B Post
CN42	0B08731A	10P-S Connector
	BA04384A	**MIC Amp. & Detector P.C.B. Ass'y**
	0B07944C	MIC Amp. & Detector P.C.B.
IC301	0B06216A	IC μPC4556C
Q101,201 301	0B06062A	Transistor 2SC1222 (2)
Q102,202 302	0B06013A	Transistor 2SA733
Q103,203 303,314 315,316 317	0B01872A	Transistor 2SC945 (L)
ZD101,201	0B06058A	Zener Diode 5.1V YZ051
D101,102 201,202 301,302	0B06181A	Silicon Diode 1SS53
VR101,201	0B07215A	Semi-fixed Volume 20K
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
R106,206 306,314 319,320	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
R110,210 310,315 316	0B01846A	Carbon Resistor 4.7K ERD-25T J
R111,211	0B01683A	Carbon Resistor 15K ERD-25T J
R112,212	0B01888A	Carbon Resistor 10K ERD-25T J
R113,213	0B09432A	Metal Film Resistor 8.25K SN14K2E F
R114,214	0B05620A	Carbon Resistor 270K ERD-25T J
R115,215	0B09497A	Metal Film Resistor 11.3K SN14K2E F
R116,216	0B09510A	Metal Film Resistor 66.5K SN14K2E F
R117,217	0B01682A	Carbon Resistor 6.8K ERD-25T J
R118,218 317,318 322	0B05627A	Carbon Resistor 330K ERD-25T J
R311,312	0B09508A	Fail Safe Type Resistor 56 RDF-25S J
R313	0B05625A	Carbon Resistor 220K ERD-25T J
R321,322	0B09215A	Fail Safe Type Resistor 100 RDF-25S J
C101,201 301	0B09282A	Ceramic Capacitor 100P 50V K
C102,202 302	0B01412A	Electrolytic Capacitor 10μ 16V (LN)
C104,204	0B09549A	Electrolytic Capacitor 100μ 16V
C105,205	0B09223A	Electrolytic Capacitor 1μ 50V (LN)
C106,206	0B09332A	Electrolytic Capacitor 2.2μ 50V (LN)
C115,215	0B01913A	Mylar Capacitor 1800P 50V J
C304,305	0B01398A	Electrolytic Capacitor 220μ 16V
C306	0B09218A	Electrolytic Capacitor 47μ 16V (LN)
C307,308	0B01403A	Electrolytic Capacitor 47μ 16V
C315	0B01802A	Mylar Capacitor 2200P 50V J
CN10	0B08184A	3P-S Post
CN42	0B08615A	10P-T Post
CN43,44 45	0B08801A	4P-S Connector

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

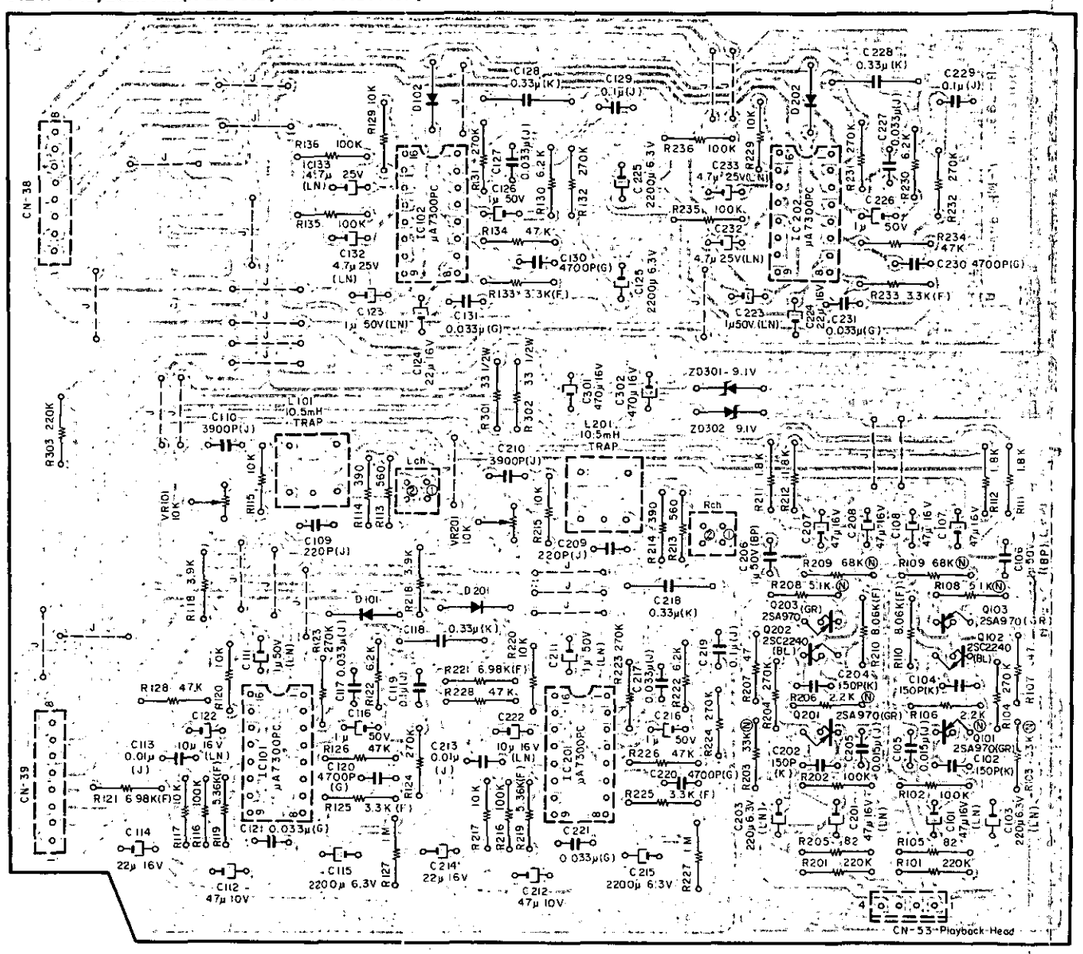


Fig. 7.21 Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description		Schematic Ref. No.	Part No.	Description	
	BA04377A	Playback Amp. & Dolby NR P.C.B. Ass'y		207,208			
				C109,209	0B09247A	Mica Capacitor	220P 50V J
				C110,210	0B01804A	Mylar Capacitor	3900P 50V J
	0B07937B	Playback Amp. & Dolby NR P.C.B.		C111,123	0B09223A	Electrolytic Capacitor	1μ 50V (LN)
IC101,102	0B06200A	IC	μA7300PC	211,223			
201,202				C112,212	0B01836A	Electrolytic Capacitor	47μ 10V
Q101,103	0B06180A	Transistor	2SA970 (GR)	C113,213	0B05681A	Mylar Capacitor	0.01μ 50V J
201,203				C114,124	0B01862A	Electrolytic Capacitor	22μ 16V
Q102,202	0B06142A	Transistor	2SC2240 (BL)	214,224			
ZD301,302	0B06232A	Zener Diode 9.1V	RD9.1EB2	C115,125	0B09257A	Electrolytic Capacitor	2200μ 6.3V
D101,102	0B06181A	Silicon Diode	1SS53	215,225			
201,202				C116,126	0B01405A	Electrolytic Capacitor	1μ 50V
L101,201	0B00068A	Trap Coil	10.5mH	216,226			
VR101,201	0B07256A	Semi-fixed Volume	10K	C117,127	0B05583A	Mylar Capacitor	0.033μ 50V J
R101,201	0B05625A	Carbon Resistor	220K ERD-25T J	217,227			
303				C118,128	0B09399A	Mylar Capacitor	0.33μ 100V K
R102,116	0B01889A	Carbon Resistor	100K ERD-25T J	218,228			
135,136				C119,129	0B01780A	Mylar Capacitor	0.1μ 50V J
202,216				219,229			
235,236				C120,130	0B09191A	PP Capacitor	4700P 100V G
R103,203	0B09310A	Carbon Resistor (Noiseless)	33K ERD-25TS J	220,230			
				C121,131	0B09240A	PP Capacitor	0.033μ 100V G
R104,123	0B05620A	Carbon Resistor	270K ERD-25T J	221,231			
124,131				C122,222	0B09386A	Electrolytic Capacitor	10μ 16V (LN)
132,204				C132,133	0B09333A	Electrolytic Capacitor	4.7μ 25V (LN)
223,224				232,233			
231,232				C301,302	0B01392A	Electrolytic Capacitor	470μ 16V
R105,205	0B05631A	Carbon Resistor	82 ERD-25T J	CN38,39	0B08730A	8P-S Connector	
R106,206	0B09309A	Carbon Resistor (Noiseless)	2.2K ERD-25TS J	CN53	0B08654A	4P-T Post	
					0B08714A	IC Socket 16P	(4 pcs.)
R107,207	0B01706A	Carbon Resistor	47 ERD-25T J				
R108,208	0B09388A	Carbon Resistor (Noiseless)	5.1K ERD-25TS J				
R109,209	0B09311A	Carbon Resistor (Noiseless)	68K ERD-25TS J				
R110,210	0B09431A	Metal Film Resistor	8.06K SN14K2E F				
R111,112	0B05614A	Carbon Resistor	1.8K ERD-25T J				
211,212							
R113,213	0B05575A	Carbon Resistor	560 ERD-25T J				
R114,214	0B05691A	Carbon Resistor	390 ERD-25T J				
R115,117	0B01888A	Carbon Resistor	10K ERD-25T J				
120,129							
215,217							
220,229							
R118,218	0B05675A	Carbon Resistor	3.9K ERD-25T J				
R119,219	0B09426A	Metal Film Resistor	5.36K SN14K2E F				
R121,221	0B09537A	Metal Film Resistor	6.98K SN14K2E F				
R122,130	0B09271A	Carbon Resistor	6.2K ERD-25TJ				
222,230							
R125,133	0B09317A	Metal Film Resistor	3.3K SN14K2E F				
225,233							
R126,128	0B05641A	Carbon Resistor	47K ERD-25T J				
134,226							
228,234							
R127,227	0B05776A	Carbon Resistor	1M ERD-25T J				
R301,302	0B09532A	Fail Safe Type Resistor	33 RSF-1/2B J				
C101,201	0B09218A	Electrolytic Capacitor	47μ 16V (LN)				
C102,104	0B09281A	Ceramic Capacitor	150P 50V K				
202,204							
C103,203	0B09151A	Electrolytic Capacitor	220μ 6.3V (LN)				
C105,205	0B05557A	Mylar Capacitor	0.015μ 50V J				
C106,206	0B09187A	Electrolytic Capacitor	1μ 50V (BP)				
C107,108	0B01403A	Electrolytic Capacitor	47μ 16V				

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

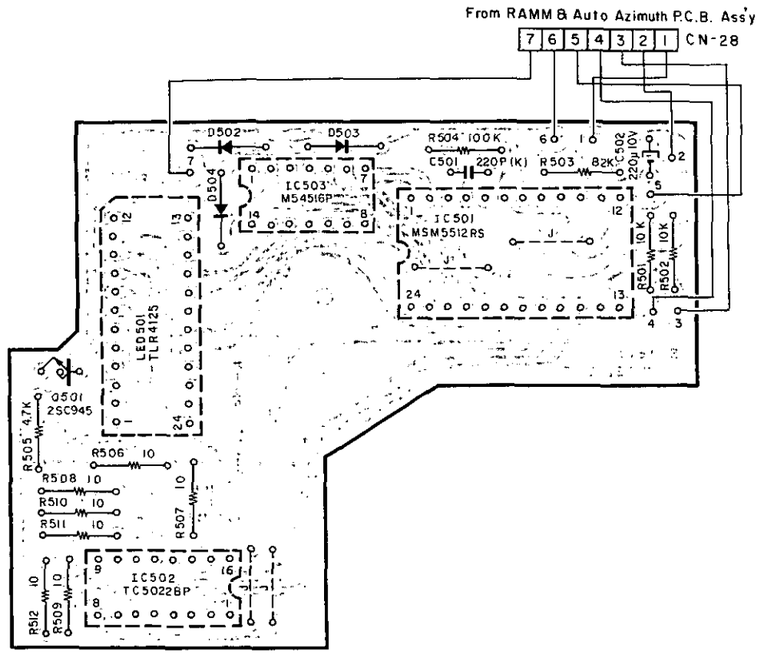


Fig. 7.17

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	

7.18. MIC B P.C.B. Ass'y

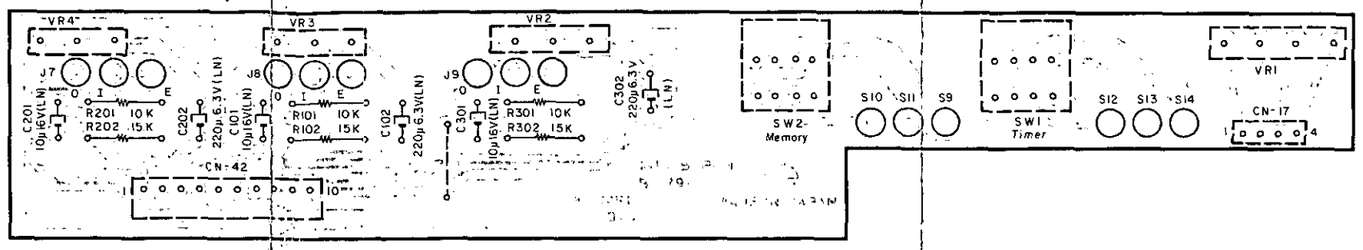


Fig. 7.18

7.19. MIC Amp. & Detector P.C.B. Ass'y

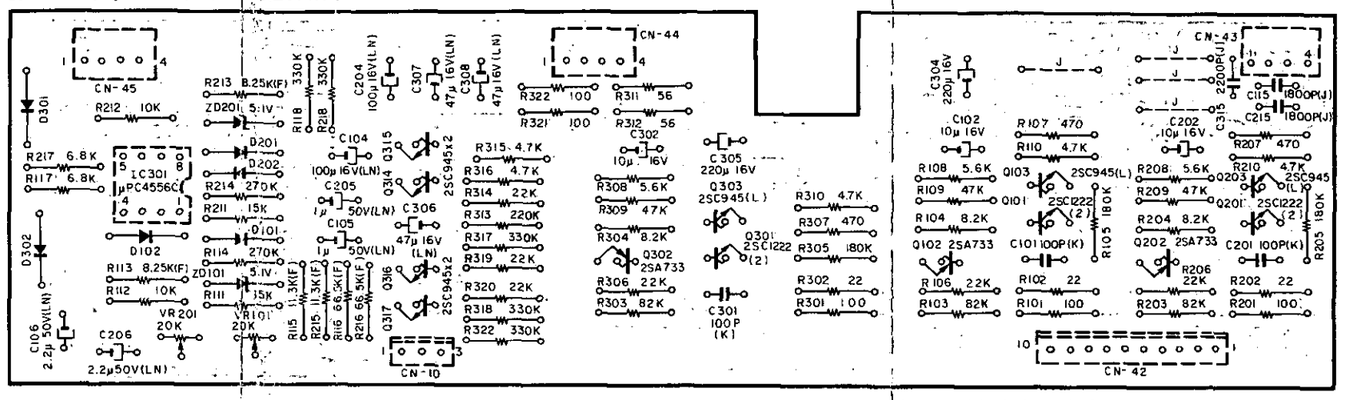


Fig. 7.19

Note: Diode is 1SS53 unless otherwise specified.

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

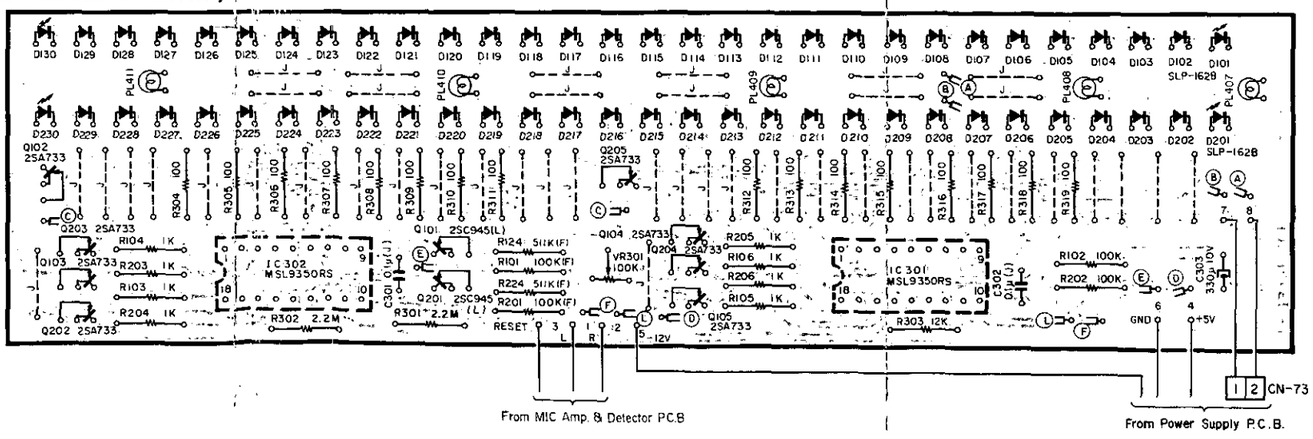


Fig. 7.20

7.22. Bias Oscillator P.C.B. Ass'y

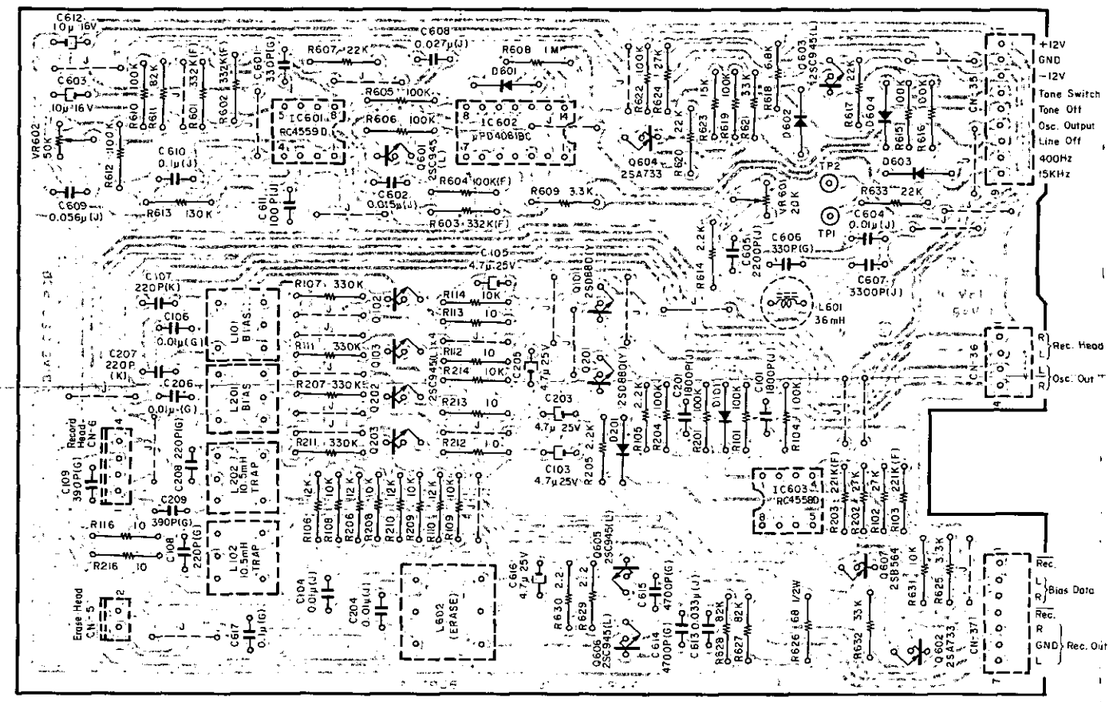


Fig. 7.22 Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description		Schematic Ref. No.	Part No.	Description	
	BA04379A	**Bias Oscillator P.C.B. Ass'y**		203,205 616			
	0B07936D	Bias Oscillator P.C.B.		C104,204 604	0B05681A	Mylar Capacitor	0.01μ 50V J
IC601	0B06127A	IC	RC4559D	C106,206	0B09312A	PP Capacitor	0.01μ 100V G
IC602	0B06219A	IC	μPD4081BC	C107,207	0B09283A	Ceramic Capacitor	220P 50V K
IC603	0B06124B	IC	RC4558D	C108,208	0B09515A	Mica Capacitor	220P 50V G
Q101,201	0B06255A	Transistor	2SD880 (Y)	C109,209	0B09511A	PP Capacitor	390P 100V G
Q102,103 202,203 601,603 605,606	0B01872A	Transistor	2SC945 (L)	C601,606	0B09545A	Mica Capacitor	330P 50V G
				C602	0B09584A	PP Capacitor	0.018μ 100V G
				C603,612	0B01412A	Electrolytic Capacitor	10μ 16V
Q602,604	0B06013A	Transistor	2SA733	C605	0B01802A	Mylar Capacitor	2200P 50V J
Q607	0B06069A	Transistor	2SB564	C607	0B01914A	Mylar Capacitor	3300P 50V J
D101,201 601,602 603,604	0B06181A	Silicon Diode	1SS53	C608	0B09045A	Mylar Capacitor	0.027μ 50V J
				C609	0B05813A	Mylar Capacitor	0.056μ 50V J
				C610	0B01780A	Mylar Capacitor	0.1μ 50V J
L101,201	0B06646A	Bias Transformer		C611	0B09302A	Mica Capacitor	100P 100V J
L102,202	0B00068A	Trap Coil	10.5mH	C613	0B05583A	Mylar Capacitor	0.033μ 50V J
L601	0B03919B	Inductor	36mH	C614,615	0B09191A	PP Capacitor	4700P 100V G
L602	0B06647A	Erase Transformer		C617	0B09406A	PP Capacitor	0.1μ 100V J
VR601	0B07270A	Semi-fixed Volume	20K	CN5	0B08656A	2P-T Post	
VR602	0B07269A	Semi-fixed Volume	50K	CN6	0B08654A	4P-T Post	
R101,104 201,204 605,606 610,612 615,616 619,622	0B01889A	Carbon Resistor	100K ERD-25T J	CN35	0B08814A	9P-S Connector	
				CN36	0B08801A	4P-S Connector	
				CN37	0B08729A	7P-S Connector	
R102,202 624	0B05743A	Carbon Resistor	27K ERD-25T J				
R103,203	0B09506A	Metal Film Resistor	221K SN14K2E F				
R105,205 614	0B05622A	Carbon Resistor	2.2K ERD-25T J				
R106,110 206,210	0B09263A	Carbon Resistor	12K ERD-25T J				
R107,111 207,211	0B05627A	Carbon Resistor	330K ERD-25T J				
R108,109 114,208 209,214 631	0B01888A	Carbon Resistor	10K ERD-25T J				
R112,113 212,213	0B09216A	Fail Safe Type Resistor	10 RDF-25S J				
R116,216	0B05936A	Carbon Resistor	10 ERD-25T J				
R601,602 603	0B09315A	Metal Film Resistor	332K SN14K2E F				
R604,617	0B09583A	Metal Film Resistor	97.6K SN14K2E F				
R607,613 620,633	0B05615A	Carbon Resistor	22K ERD-25T J				
R608	0B05776A	Carbon Resistor	1M ERD-25T J				
R609,625	0B01681A	Carbon Resistor	3.3K ERD-25T J				
R611,627 628	0B05668A	Carbon Resistor	82K ERD-25T J				
R613	0B09527A	Carbon Resistor	130K ERD-25T J				
R618	0B01682A	Carbon Resistor	6.8K ERD-25T J				
R621,632	0B05509A	Carbon Resistor	33K ERD-25T J				
R623	0B01683A	Carbon Resistor	15K ERD-25T J				
R624	0B05743A	Carbon Resistor	27K ERD-25T J				
R626	0B09193A	Fail Safe Type Resistor	68 RSF-1/2B J				
R629,630	0B09212A	Fail Safe Type Resistor	2.2 RDF-25S J				
C101,201	0B01913A	Mylar Capacitor	1800P 50V J				
C103,105	0B01402A	Electrolytic Capacitor	4.7μ 25V				

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

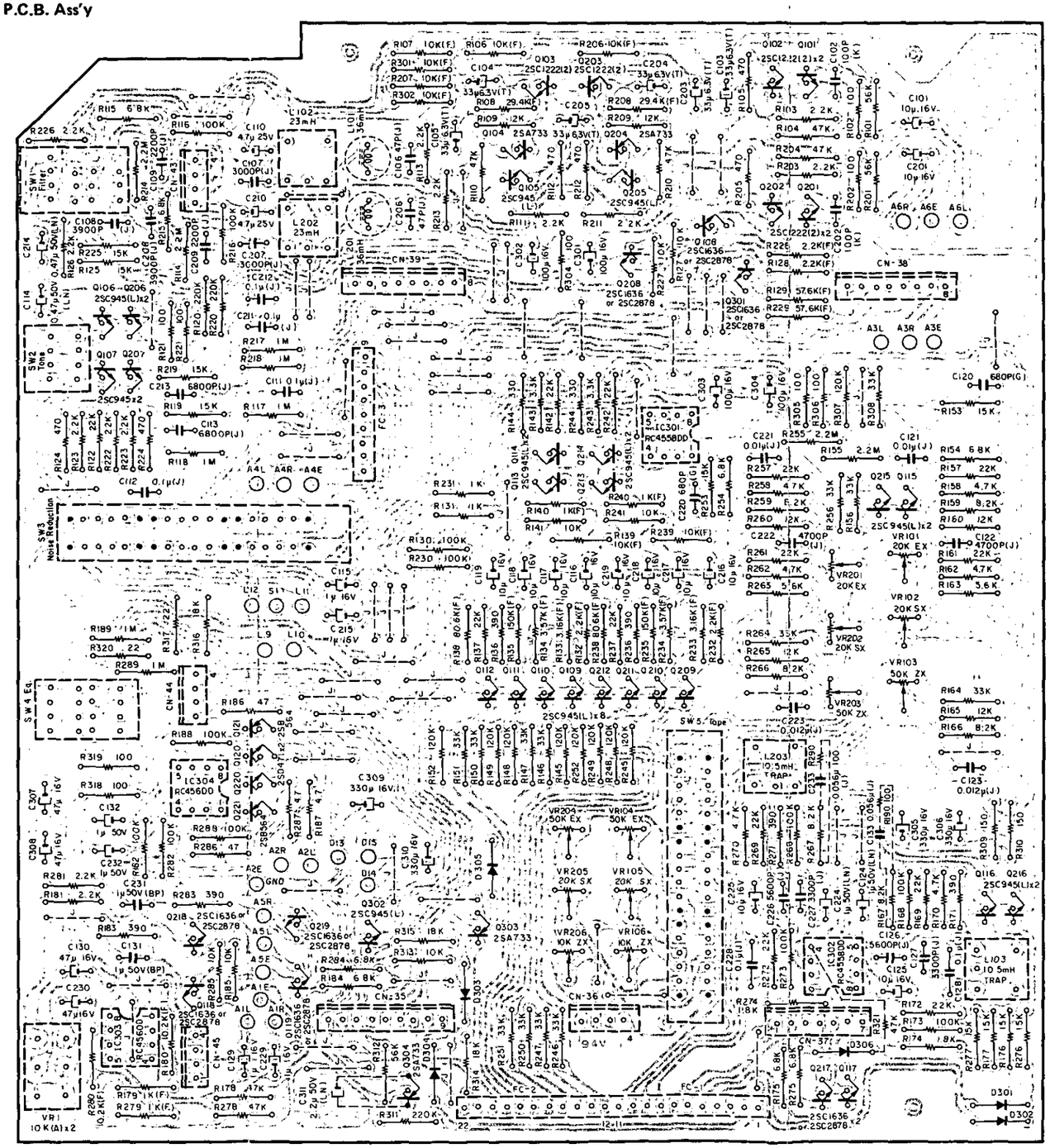


Fig. 7.23 Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description	
	BA04380A	Main P.C.B. Ass'y	
	0B07939D	Main P.C.B.	
IC301,302	0B06146A	IC	RC4558DD
IC303,304	0B06217A	IC	RC4560D
Q101,102	0B06062A	Transistor	2SC1222 (2)
103,201			
202,203			
Q104,204	0B06013A	Transistor	2SA733
303,304			
Q105-107	0B01872A	*Transistor*	2SC945 (L) (23 pcs.)
109-116			
205-207			
209-216			
302			
Q108,117	0B06070A	Transistor	2SC1636
118,119	(0B06299A)		(2SC2878)
208,217			
218,219			
301			
Q120,220	0B06066A	Transistor	2SD471
Q121,221	0B06069A	Transistor	2SB564
D301,302	0B06181A	Silicon Diode	1SS53
303,304			
305,306			
L101,201	0B03919B	Inductor	36mH
L102,202	0B03563A	19 kHz Coil	23mH
L103,203	0B00068A	Trap Coil	10.5mH
VR1	0B07347A	*Volume* 10K(A)x2	
VR101,102	0B07270A	Semi-fixed Volume 20K	
105,201			
202,205			
VR103,104	0B07269A	Semi-fixed Volume 50K	
203,204			
VR106,206	0B07256A	Semi-fixed Volume 10K	
R101,201	0B05508A	Carbon Resistor 56K	ERD-25T J
312			
R102,121	0B01679A	Carbon Resistor 100	ERD-25T J
190,202			
221,290			
R103,111	0B05622A	Carbon Resistor 2.2K	ERD-25T J
113,123			
126,181			
203,211			
213,223			
226,281			
R104,110	0B05641A	Carbon Resistor 47K	ERD-25T J
178,204			
210,278			
321			
R105,112	0B05576A	Carbon Resistor 470	ERD-25T J
124,205			
212,224			
R106,107	0B09203A	*Metal Film Resistor* 10K	SN14K2E F
139,206			
207,239			
301,302			
R108,208	0B09563A	Metal Film Resistor 29.4K	SN14K2E F
R109,160	0B09263A	Carbon Resistor 12K	ERD-25T J
165,209			
260,265			
R114,155	0B05671A	Carbon Resistor 2.2M	ERD-25T J
214,255			

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
R115,154	0B01682A	Carbon Resistor 6.8K ERD-25T J	R163,263	0B01887A	Carbon Resistor 5.6K ERD-25T J
175,184			R174,274	0B09518A	Carbon Resistor 1.8K ERD-25T J
215,254			R180,280	0B09503A	Metal Film Resistor 10.2K SN14K2E F
275,284			R186,286	0B01706A	Carbon Resistor 47 ERD-25T J
R116,130	0B01889A	Carbon Resistor 100K ERD-25T J	R187,287	0B09321A	Fail Safe Type Resistor 4.7RDF-25S J
168,173			R303,304	0B09215A	Fail Safe Type Resistor 100 RDF-25S J
182,188			305,306		
216,230			318,319		
268,273			R309,310	0B09213A	Fail Safe Type Resistor 150 RDF-25S J
282,288			R314,315	0B05560A	Carbon Resistor 18K ERD-25T J
R117,118	0B05776A	Carbon Resistor 1M ERD-25T J	316		
189,217			R317,320	0B09049A	Fail Safe Type Resistor 22 RDF-25S J
218,289			C101,116	0B01412A	Electrolytic Capacitor 10μ 16V
R119,125	0B01683A	Carbon Resistor 15K ERD-25T J	117,118		
153,176			119,125		
177,219			201,216		
225,253			217,218		
276,277			219,225		
R120,220	0B05625A	Carbon Resistor 220K ERD-25T J	C102,202	0B09282A	Ceramic Capacitor 100P 50V K
311			C103,104	0B09033A	Tantalum Capacitor 33μ 6.3V
R122,137	0B05615A	Carbon Resistor 22K ERD-25T J	105,203		
142,157			204,205		
161,169			C106,206	0B09242A	Mica Capacitor 47P 50V J
172,222			C107,207	0B09262A	PP Capacitor 3000P 50V J
237,242			C108,208	0B01804A	Mylar Capacitor 3900P 50V J
257,261			C109,209	0B01802A	Mylar Capacitor 2200P 50V J
269,272			C110,210	0B01402A	Electrolytic Capacitor 4.7μ 25V
R127,141	0B01888A	Carbon Resistor 10K ERD-25T J	C111,112	0B01780A	Mylar Capacitor 0.1μ 50V J
185,227			211,212		
241,285			C113,213	0B05530A	Mylar Capacitor 6800P 50V J
313			C114,214	0B09222A	Electrolytic Capacitor 0.47μ 50V (LN)
R128,132	0B09420A	Metal Film Resistor 2.2K SN14K2E F	C115,129	0B01405A	Electrolytic Capacitor 1μ 50V
228,232			132,215		
R129,229	0B09454A	Metal Film Resistor 57.6K SN14K2E F	229,232		
R131,231	0B01857A	Carbon Resistor 1K ERD-25T J	C120,220	0B09485A	PP Capacitor 680P 100V G
R133,233	0B09422A	Metal Film Resistor 3.16K SN14K2E F	C121,221	0B05681A	Mylar Capacitor 0.01μ 50V J
R134,234	0B09507A	Metal Film Resistor 3.57K SN14K2E F	C122,222	0B05652A	Mylar Capacitor 4700P 50V J
R135,235	0B09300A	Metal Film Resistor 150K SN14K2E F	C123,223	0B05843A	Mylar Capacitor 0.012μ 50V J
R136,171	0B05691A	Carbon Resistor 390 ERD-25T J	C124,224	0B09223A	Electrolytic Capacitor 1μ 50V (LN)
183,236			C126,226	0B05659A	Mylar Capacitor 5600P 50V J
271,283			C127,227	0B01914A	Mylar Capacitor 3300P 50V J
R138,238	0B09459A	Metal Film Resistor 80.6K SN14K2E F	C128,228	0B01780A	Mylar Capacitor 0.1μ 50V J
R140,179	0B09491A	Metal Film Resistor 1K SN14K2E F	C130,230	0B01403A	Electrolytic Capacitor 47μ 16V
240,279			307,308		
R143,243	0B01681A	Carbon Resistor 3.3K ERD-25T J	C131,231	0B09187A	Electrolytic Capacitor 1μ 50V (BP)
R144,244	0B05577A	Carbon Resistor 330 ERD-25T J	C133,233	0B05813A	Mylar Capacitor 0.056μ 50V J
R145,148	0B05621A	Carbon Resistor 120K ERD-25T J	C301,302	0B01400A	Electrolytic Capacitor 100μ 16V
149,152			303,304		
245,248			C305,306	0B01502A	Electrolytic Capacitor 330μ 16V
249,252			309,310		
307			C311	0B09332A	Electrolytic Capacitor 2.2μ 50V (LN)
R146,147	0B05509A	Carbon Resistor 33K ERD-25T J	SW1	0B07348A	Rotary Switch 4-3
150,151			SW2	0B07349A	Rotary Switch 2-2
156,164			SW3	0B07364A	Rotary Switch 6-3
246,247			SW4	0B07370A	Rotary Switch
250,251			SW5	0B07363A	Switch SSR26402D
256,264			CN35	0B08614A	9P-T Post
308			CN36,43	0B08236A	4P-T Post
R158,162	0B01846A	Carbon Resistor 4.7K ERD-25T J	44,45		
170,258			CN37	0B08302A	7P-T Post
262,270			CN38,39	0B08334A	8P-T Post
R159,166	0B01856A	Carbon Resistor 8.2K ERD-25T J	FC1,2	0B05253A	11P Flat Cable
167,259					
266,267					

7.24. Logic P.C.B. Ass'y

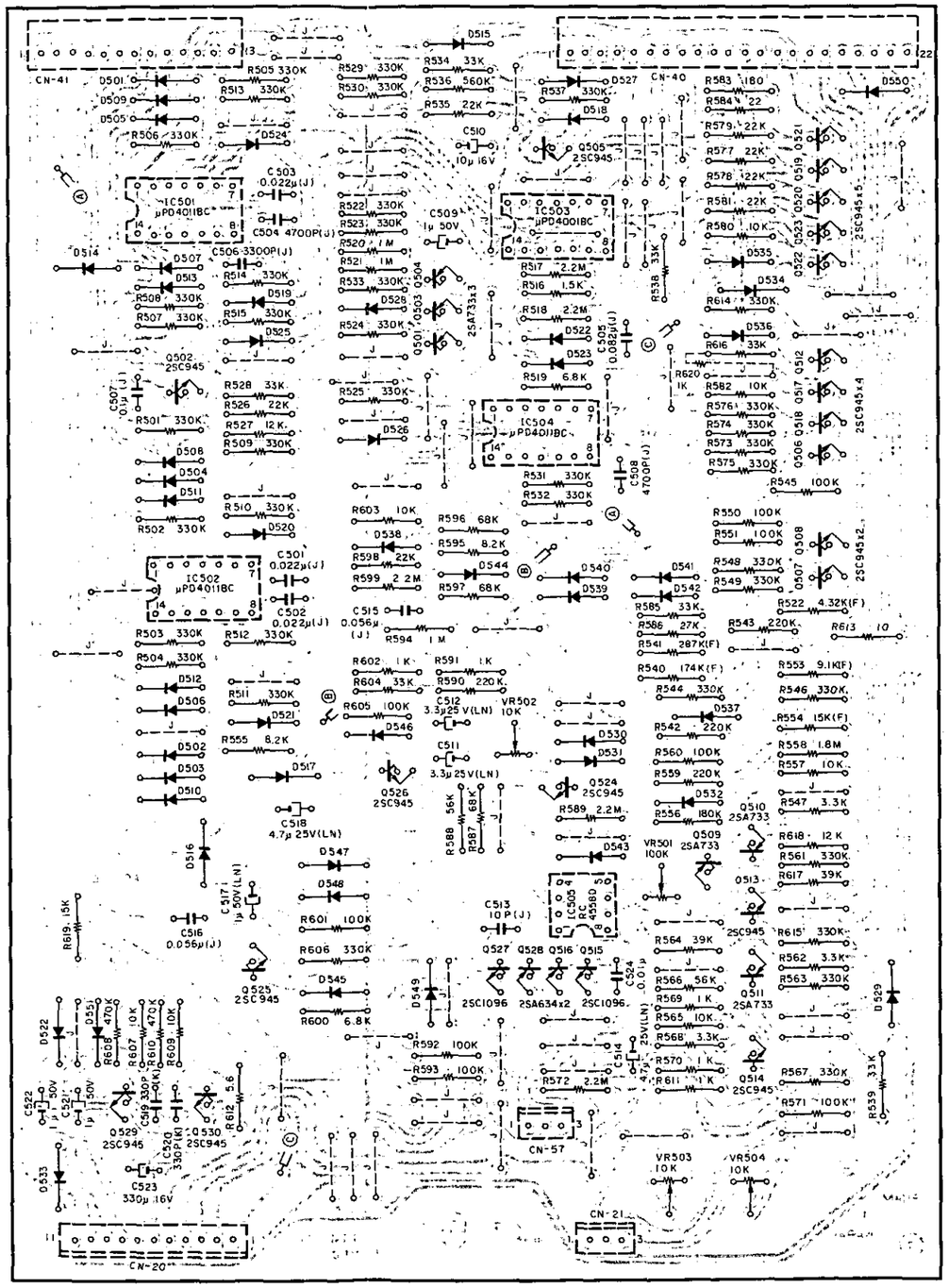


Fig. 7.24.1 Serial No.: A11902000 — Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description		Schematic Ref. No.	Part No.	Description	
	8A04381A	**Logic P.C.B. Ass'y**		R547,562	0B01681A	Carbon Resistor	3.3K ERD-25T J
		Serial No.: A11902000 —		568			
				R552	0B09365A	Metal Film Resistor	4.32K SN14K2E F
	0B07940C	Logic P.C.B.		R553	0B09328A	Metal Film Resistor	9.1K SN14K2E F
IC501,502	0B06178A	IC	μPD4011BC	R554	0B09340A	Metal Film Resistor	15K SN14K2E F
504				R555,595	0B01856A	Carbon Resistor	8.2K ERD-25T J
IC503	0B06143A	IC	μPD4001BC	R556	0B05640A	Carbon Resistor	180K ERD-25T J
IC505	0B06124B	IC	RC4558D	R557,565	0B01888A	Carbon Resistor	10K ERD-25T J
Q501,503	0B06013A	Transistor	2SA733	580,582			
504,509				603,607			
510,511				609			
Q502,505	0B06100A	Transistor	2SC945 (A)	R558	0B05680A	Carbon Resistor	1.8M ERD-25T J
506,507			(20 pcs.)	R564,617	0B01854A	Carbon Resistor	39K ERD-25T J
508,512				R566,588	0B05508A	Carbon Resistor	56K ERD-25T J
513,514				R569,570	0B01857A	Carbon Resistor	1K ERD-25T J
517-526				591,602			
529,530				611,620			
Q515,527	0B06020A	Transistor	2SC1096	R583	0B05578A	Carbon Resistor	180 ERD-25T J
Q516,528	0B06012A	Transistor	2SA634	R584	0B09049A	Fail Safe Type Resistor	22 RDF-25S J
D501-552	0B06181A	Silicon Diode	1SS53 (52 pcs.)	R586	0B05743A	Carbon Resistor	27K ERD-25T J
VR501	0B07257A	Semi-fixed Volume	100K	R587,596	0B05692A	Carbon Resistor	68K ERD-25T J
VR502,503	0B06178A	Semi-fixed Volume	10K	597			
504				R608,610	0B01684A	Carbon Resistor	470K ERD-25T J
R501-515	0B05627A	Carbon Resistor	330K ERD-25T J	R612	0B09217A	Fail Safe Type Resistor	5.6 RDF-25S J
522,523			(39 pcs.)	R613	0B09216A	Fail Safe Type Resistor	10 RDF-25S J
524,525				R619	0B01683A	Carbon Resistor	15K ERD-25T J
529,530				C501,502	0B05582A	Mylar Capacitor	0.022μ 50V J
531,532				503			
533,537				C504,508	0B05652A	Mylar Capacitor	4700P 50V J
544,546				C505	0B05685A	Mylar Capacitor	0.082μ 50V J
548,549				C506	0B01914A	Mylar Capacitor	3300P 50V J
561,563				C507	0B01780A	Mylar Capacitor	0.1μ 50V J
567,573				C509,521	0B01405A	Electrolytic Capacitor	1μ 50V
574,575				522			
576,606				C510	0B01412A	Electrolytic Capacitor	10μ 16V
614,615				C511,512	0B09147A	Electrolytic Capacitor	3.3μ 25V (LN)
R516	0B05698A	Carbon Resistor	1.5K ERD-25T J	C513	0B09277A	Ceramic Capacitor	10P 50V J
R517,518	0B05671A	Carbon Resistor	2.2M ERD-25T J	C514,518	0B09333A	Electrolytic Capacitor	4.7μ 25V (LN)
572,589				C515,516	0B05813A	Mylar Capacitor	0.056μ 50V J
599				C517	0B09223A	Electrolytic Capacitor	1μ 50V (LN)
R519,600	0B01682A	Carbon Resistor	6.8K ERD-25T J	C519,520	0B09285A	Ceramic Capacitor	330P 50V K
R520,521	0B05776A	Carbon Resistor	1M ERD-25T J	C523	0B01502A	Electrolytic Capacitor	330μ 16V
594				C524	0B09091A	Mylar Capacitor	0.01μ 25V
R526,535	0B05615A	Carbon Resistor	22K ERD-25T J	CN20	0B08655A	11P-T Post	
577,578				CN21,57	0B08653A	3P-T Post	
579,581				CN40	0B08857A	22P-S Connector	
598				CN41	0B08805A	13P-S Connector	
R527,618	0B09263A	Carbon Resistor	12K ERD-25T J				
R528,534	0B05509A	Carbon Resistor	33K ERD-25T J				
538,539							
585,604							
616							
R536	0B05784A	Carbon Resistor	560K ERD-25T J				
R540	0B09367A	Metal Film Resistor	174K SN14K2E F				
R541	0B09366A	Metal Film Resistor	287K SN14K2E F				
R542,543	0B05625A	Carbon Resistor	220K ERD-25T J				
559,590							
R545,550	0B01889A	Carbon Resistor	100K ERD-25T J				
551,560							
571,592							
593,601							
605							

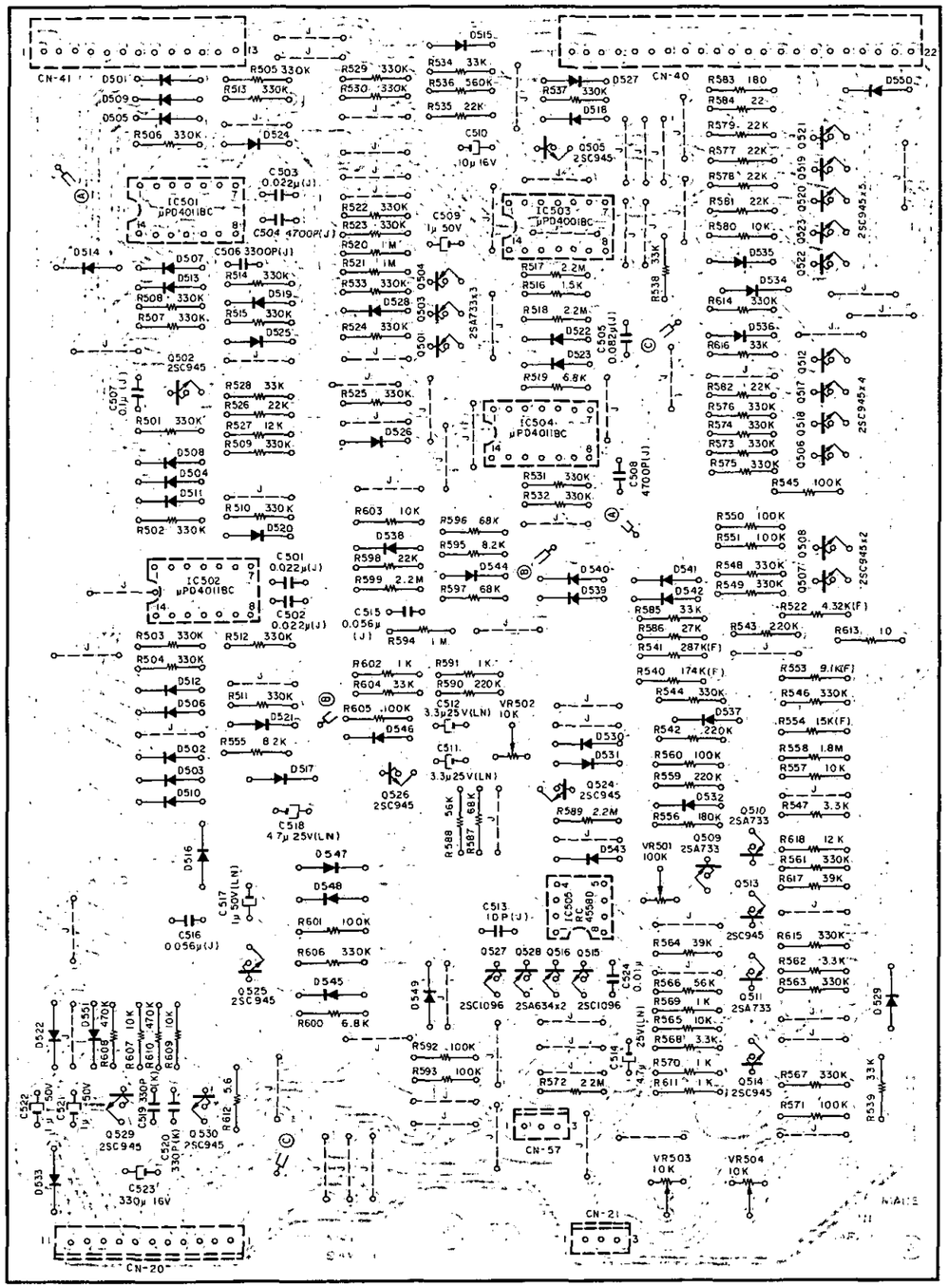


Fig. 7.24.2 Serial Nos.: A11901001 – A11901999 Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description			Schematic Ref. No.	Part No.	Description			
	BA04381A	**Logic P.C.B. Ass'y** Serial Nos.: A11901001 – A11901999			R552	0B09365A	Metal Film Resistor	4.32K	SN14K2E	F
					R553	0B09328A	Metal Film Resistor	9.1K	SN14K2E	F
	0B07940B	Logic P.C.B.			R554	0B09340A	Metal Film Resistor	15K	SN14K2E	F
IC501,502	0B06178A	IC	μPD4011BC		R555,595	0B01856A	Carbon Resistor	8.2K	ERD-25T	J
504					R556	0B05640A	Carbon Resistor	180K	ERD-25T	J
IC503	0B06143A	IC	μPD4001BC		R557,565	0B01888A	Carbon Resistor	10K	ERD-25T	J
IC505	0B06124B	IC	RC4558D		580,603					
Q501,503	0B06013A	Transistor	2SA733		607,609					
504,509					R558	0B05680A	Carbon Resistor	1.8M	ERD-25T	J
510,511					*R564,617*	*0B01854A*	*Carbon Resistor*	*39K*	*ERD-25T*	*J*
Q502,505	0B06100A	Transistor	2SC945 (A)		R566,588	0B05508A	Carbon Resistor	56K	ERD-25T	J
506,507				(20 pcs.)	R569,570	0B01857A	Carbon Resistor	1K	ERD-25T	J
508,512					591,602					
513,514					611					
517-526					R583	0B05578A	Carbon Resistor	180	ERD-25T	J
529,530					R584	0B09049A	Fail Safe Type Resistor	22	RDF-25S	J
Q515,527	0B06020A	Transistor	2SC1096		*R586*	*0B05743A*	*Carbon Resistor*	*27K*	*ERD-25T*	*J*
Q516,528	0B06012A	Transistor	2SA634		R587,596	0B05692A	Carbon Resistor	68K	ERD-25T	J
D501-552	0B06181A	Silicon Diode	1SS53	(52 pcs.)	597					
VR501	0B07257A	Semi-fixed Volume	100K		R608,610	0B01684A	Carbon Resistor	470K	ERD-25T	J
VR502,503	0B06178A	Semi-fixed Volume	10K		R612	0B09217A	Fail Safe Type Resistor	5.6	RDF-25S	J
504					R613	0B09216A	Fail Safe Type Resistor	10	RDF-25S	J
R501-515	0B05627A	Carbon Resistor	330K	ERD-25T J	C501,502	0B05582A	Mylar Capacitor	0.022μ	50V	J
522,523				(39 pcs.)	503					
524,525					C504,508	0B05652A	Mylar Capacitor	4700P	50V	J
529,530					C505	0B05685A	Mylar Capacitor	0.082μ	50V	J
531,532					C506	0B01914A	Mylar Capacitor	3300P	50V	J
533,537					C507	0B01780A	Mylar Capacitor	0.1μ	50V	J
544,546					C509,521	0B01405A	Electrolytic Capacitor	1μ	50V	
548,549					522					
561,563					C510	0B01412A	Electrolytic Capacitor	10μ	16V	
567,573					C511,512	0B09147A	Electrolytic Capacitor	3.3μ	25V	(LN)
574,575					C513	0B09277A	Ceramic Capacitor	10P	50V	J
576,606					C514,518	0B09333A	Electrolytic Capacitor	4.7μ	25V	(LN)
614,615					C515,516	0B05813A	Mylar Capacitor	0.056μ	50V	J
R516	0B05698A	Carbon Resistor	1.5K	ERD-25T J	C517	0B09223A	Electrolytic Capacitor	1μ	50V	(LN)
R517,518	0B05671A	Carbon Resistor	2.2M	ERD-25T J	C519,520	0B09285A	Ceramic Capacitor	330P	50V	K
572,589					C523	0B01502A	Electrolytic Capacitor	330μ	16V	
599					C524	0B09091A	Mylar Capacitor	0.01μ	25V	
R519,600	0B01682A	Carbon Resistor	6.8K	ERD-25T J	CN20	0B08655A	11P-T Post			
R520,521	0B05776A	Carbon Resistor	1M	ERD-25T J	CN21,57	0B08653A	3P-T Post			
594					CN40	0B08857A	22P-S Connector			
R526,535	0B05615A	Carbon Resistor	22K	ERD-25T J	CN41	0B08805A	13P-S Connector			
577,578										
579,581										
582,598										
R527,618	0B09263A	Carbon Resistor	12K	ERD-25T J						
R528,534	0B05509A	Carbon Resistor	33K	ERD-25T J						
538,539										
585,604										
616										
R536	0B05784A	*Carbon Resistor*	560K	ERD-25T J						
R540	0B09367A	Metal Film Resistor	174K	SN14K2E F						
R541	0B09366A	Metal Film Resistor	287K	SN14K2E F						
R542,543	0B05625A	Carbon Resistor	220K	ERD-25T J						
559,590										
R545,550	0B01889A	Carbon Resistor	100K	ERD-25T J						
551,560										
571,592										
593,601										
605										
R547,562	0B01681A	Carbon Resistor	3.3K	ERD-25T J						
568										

7.25. RAMM & Auto Azimuth P.C.B. Ass'y

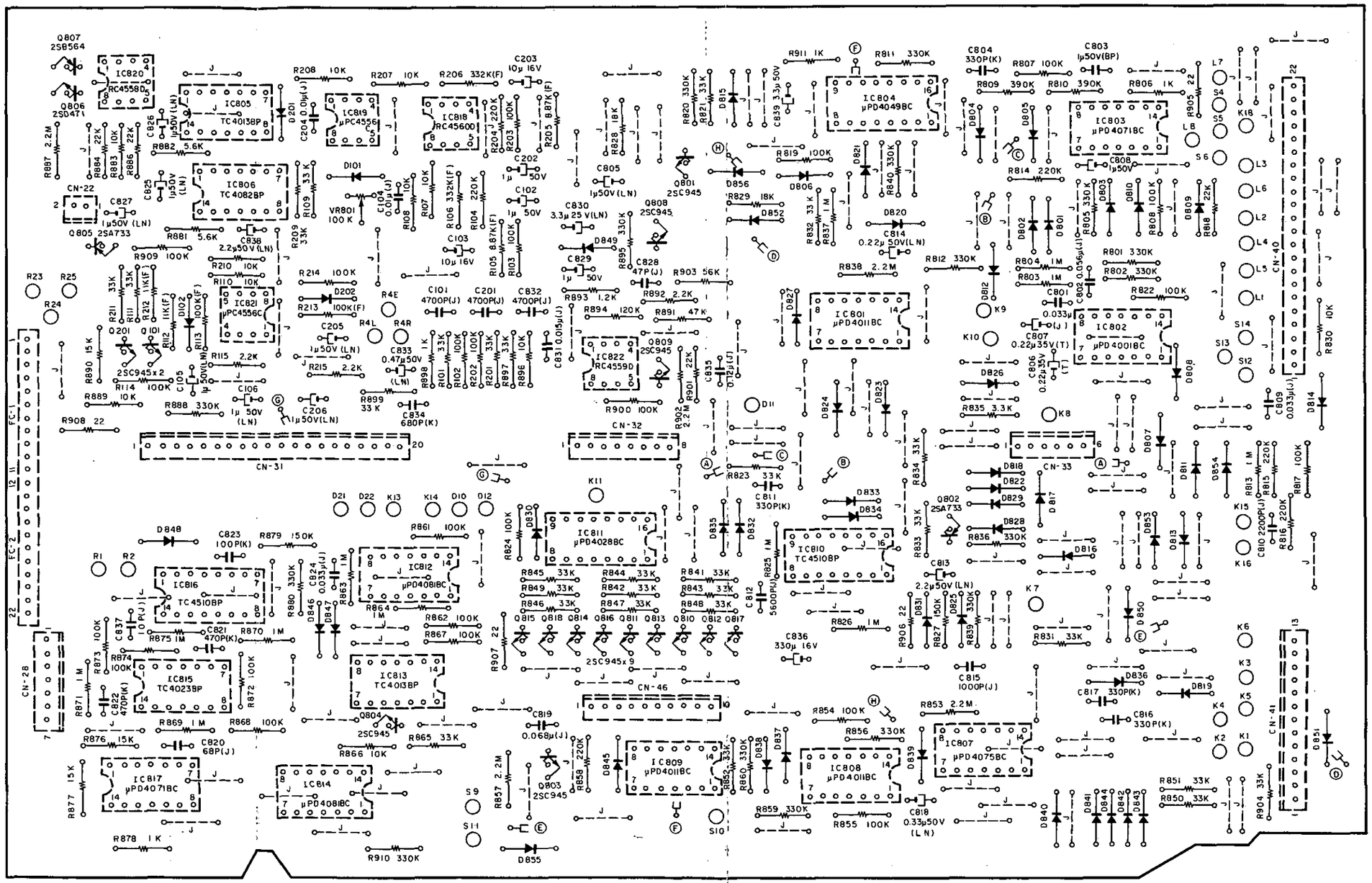


Fig. 7.25.1 Serial No.: A11901907 –

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04553A	RAMM & Auto Azimuth P.C.B. Ass'y
		Serial No.: A11901907 –
	0B07945D	RAMM & Auto Azimuth P.C.B.
IC801,808 809	0B06178A	IC μPD4011BC
IC802	0B06143A	IC μPD4001BC
IC803,817	0B06214A	IC μPD4071BC
IC804	0B06249A	IC μPD4049BC
IC805,813	0B06213A	IC TC4013BP
IC806	0B06286A	IC TC4082BP
IC807	0B06294A	IC μPD4075BC
IC810,816	0B06212A	IC TC4510BP
IC811	0B06293A	IC μPD4028BC
IC812,814	0B06219A	IC μPD4081BC
IC815	0B06224A	IC TC4023BP
IC818	0B06217A	IC RC4560D
IC819,821	0B06216A	IC μPC4556C
IC820	0B06124B	IC RC4558D
IC822	0B06127A	IC RC4559D
Q101,201 801,803 804 808-818	0B06100A	Transistor 2SC945 (A) (16 pcs.)
Q802,805	0B06013A	Transistor 2SA733
Q806	0B06066A	Transistor 2SD471
Q807	0B06069A	Transistor 2SB564
D101,102 201,202 801-856	0B06181A	Silicon Diode 1SS53 (60 pcs.)
VR801	0B07257A	Semi-fixed Volume 100K
R101,109 111,201 209,211 821,823 831-834 841-852 865,897 899,904	0B05509A	Carbon Resistor 33K ERD-25T J (28 pcs.)
R102,103 114,202 203,214 807,808 817,819 822,824 854,855 861,862 867,868 872,873 874,900 909	0B01889A	Carbon Resistor 100K ERD-25T J
R104,204 814,815 816,858	0B05625A	Carbon Resistor 220K ERD-25T J
R105,205	0B09579A	Metal Film Resistor 8.87K SN14K2E F
R106,206	0B09315A	Metal Film Resistor 332K SN14K2E F
R107,108 110,207 208,210 830,866 883,886 889,896	0B01888A	Carbon Resistor 10K ERD-25T J
R112,212	0B09504A	Metal Film Resistor 11K SN14K2E F
R113,213	0B09305A	Metal Film Resistor 100K SN14K2E F
R115,215 892	0B05622A	Carbon Resistor 2.2K ERD-25T J
R801,802 805,811 812,820 836,839 840,856 859,860 880,888 895,910	0B05627A	Carbon Resistor 330K ERD-25T J
R803,804 813,825 826,837 863,864 869,870 871,875	0B05776A	Carbon Resistor 1M ERD-25T J
R806,878 898,911	0B01857A	Carbon Resistor 1K ERD-25T J
R809,810	0B05676A	Carbon Resistor 390K ERD-25T J
R818,884 901	0B05615A	Carbon Resistor 22K ERD-25T J
R827,879	0B05626A	Carbon Resistor 150K ERD-25T J
R828,829	0B05560A	Carbon Resistor 18K ERD-25T J
R835	0B01681A	Carbon Resistor 3.3K ERD-25T J
R838,853 857,887 902	0B05671A	Carbon Resistor 2.2M ERD-25T J
R876,877 890	0B01683A	Carbon Resistor 15K ERD-25T J
R881,882	0B01887A	Carbon Resistor 5.6K ERD-25T J
R891	0B05641A	Carbon Resistor 47K ERD-25T J
R893	0B05623A	Carbon Resistor 1.2K ERD-25T J
R894	0B05621A	Carbon Resistor 120K ERD-25T J
R903	0B05508A	Carbon Resistor 56K ERD-25T J
R905,906 907,908	0B09049A	Fail Safe Type Resistor 22 RDF-25S J
C101,201 832	0B05652A	Mylar Capacitor 4700P 50V J
C102,202 808,829	0B01405A	Electrolytic Capacitor 1μ 50V
C103,203	0B01412A	Electrolytic Capacitor 10μ 16V
C104,204	0B05681A	Mylar Capacitor 0.01μ 50V J
C105,106 205,206 805,825 826,827	0B09223A	Electrolytic Capacitor 1μ 50V (LN)
C801,809 824	0B05583A	Mylar Capacitor 0.033μ 50V J
C802	0B05813A	Mylar Capacitor 0.056μ 50V J
C803	0B09187A	Electrolytic Capacitor 1μ 50V (BP)
C804,811 816,817	0B09285A	Ceramic Capacitor 330P 50V K
C806,807	0B09361A	Tantalum Capacitor 0.22μ 35V
C810	0B01802A	Mylar Capacitor 2200P 50V J
C812	0B05659A	Mylar Capacitor 5600P 50V J
C813,838	0B09332A	Electrolytic Capacitor 2.2μ 50V (LN)
C814	0B09144A	Electrolytic Capacitor 0.22μ 50V (LN)
C815	0B05550A	Mylar Capacitor 1000P 50V J
C818	0B09327A	Electrolytic Capacitor 0.33μ 50V (LN)
C819	0B05682A	Mylar Capacitor 0.068μ 50V J
C820	0B09393A	Ceramic Capacitor 68P 50V J
C821,822	0B09286A	Ceramic Capacitor 470P 50V K
C823	0B09282A	Ceramic Capacitor 100P 50V K
C828	0B09280A	Ceramic Capacitor 47P 50V J
C830	0B09324A	Electrolytic Capacitor 3.3μ 50V (LN)
C831	0B05557A	Mylar Capacitor 0.015μ 50V J
C833	0B09145A	Electrolytic Capacitor 0.47μ 50V (LN)
C834	0B09287A	Ceramic Capacitor 680P 50V K
C835	0B05909A	Mylar Capacitor 0.12μ 50V J
C836	0B01502A	Electrolytic Capacitor 330μ 16V
C837	0B09277A	Ceramic Capacitor 10P 50V J
C839	0B01863A	Electrolytic Capacitor 3.3μ 50V
CN22	0B08656A	2P-T Post
CN28	0B08643A	7P-T Post
CN31	0B08860A	20P-T Post
CN32	0B08334A	8P-T Post
CN33	0B08182A	6P-T Post
CN40	0B08859A	22P-T Post
CN41	0B08506A	13P-T Post
CN46	0B08646A	10P-T Post

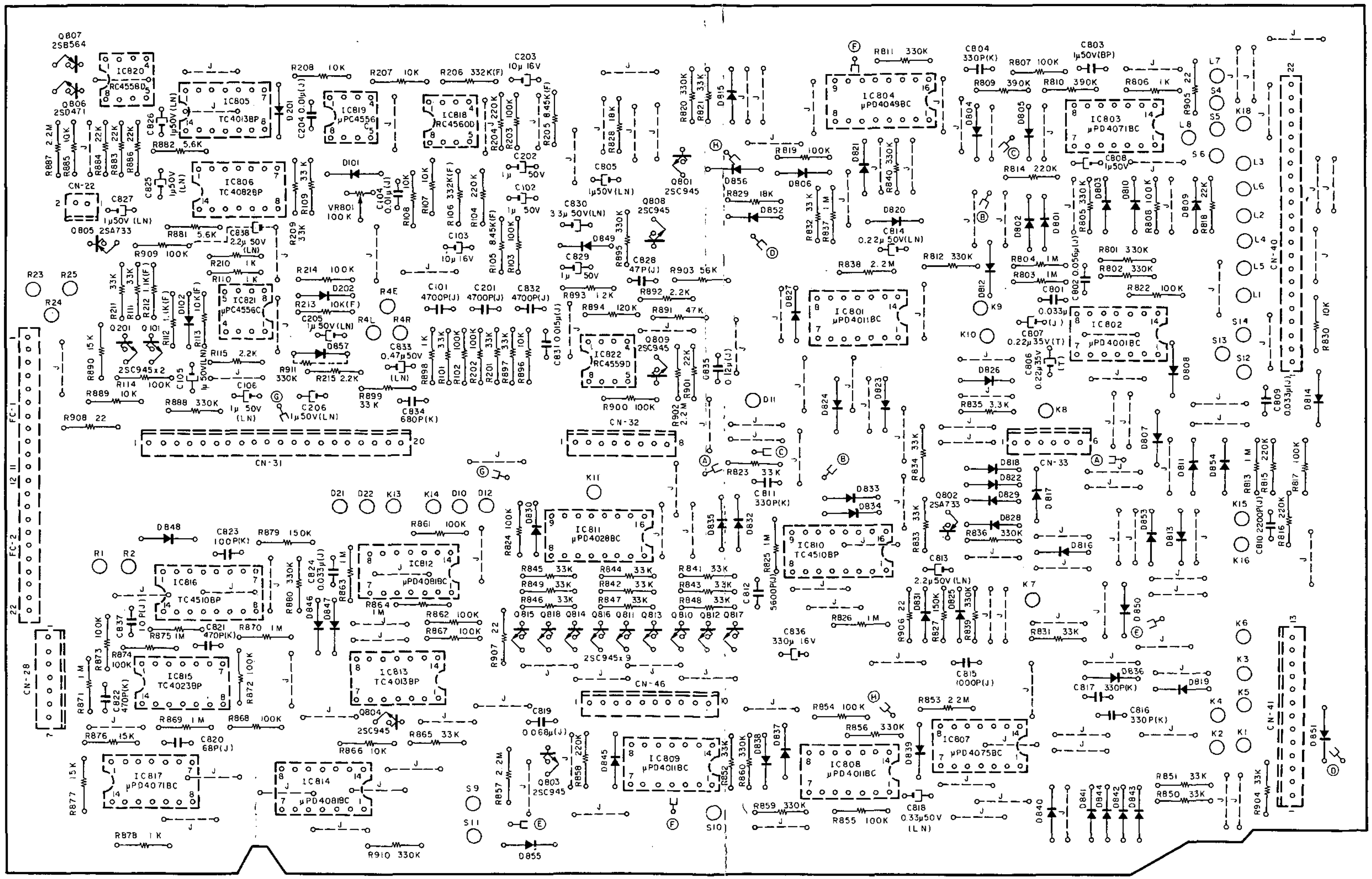
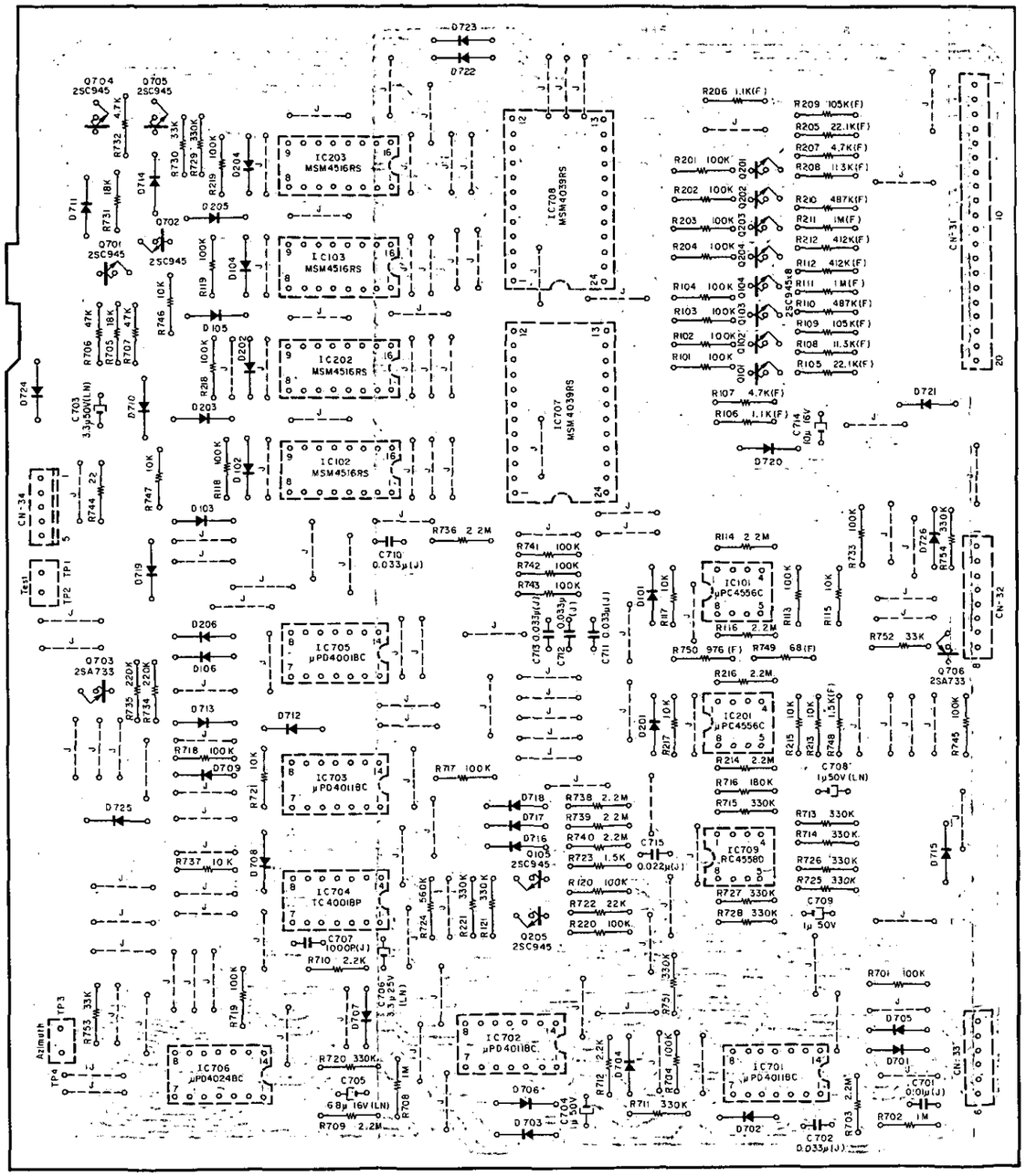


Fig. 7.25.2 Serial Nos.: A11901001 – A11901906

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04382A	**RAMM & Auto Azimuth P.C.B. Ass'y** Serial Nos.: A11901001 – A11901906
	0B07945B	RAMM & Auto Azimuth P.C.B.
IC801,808 809	0B06178A	IC μPD4011BC
IC802	0B06143A	IC μPD4001BC
IC803,817	0B06214A	IC μPD4071BC
IC804	0B06249A	IC μPD4049BC
IC805,813	0B06213A	IC TC4013BP
IC806	0B06286A	IC TC4082BP
IC807	0B06294A	IC μPD4075BC
IC810,816	0B06212A	IC TC4510BP
IC811	0B06293A	IC μPD4028BC
IC812,814	0B06219A	IC μPD4081BC
IC815	0B06224A	IC TC4023BP
IC818	0B06217A	IC RC4560D
IC819,821	0B06216A	IC μPC4556C
IC820	0B06124B	IC RC4558D
IC822	0B06127A	IC RC4559D
Q101,201 801,803 804 808-818	0B06100A	Transistor 2SC945 (A) (16 pcs.)
Q802,805	0B06013A	Transistor 2SA733
Q806	0B06066A	Transistor 2SD471
Q807	0B06069A	Transistor 2SB564
D101,102 201,202 801-857	0B06181A	Silicon Diode 1SS53 (61 pcs.)
VR801	0B07257A	Semi-fixed Volume 100K
R101,109 111,201 209,211 821,823 831-834 841-852 865,897 899,904	0B05509A	Carbon Resistor 33K ERD-25T J (28 pcs.)
R102,103 114,202 203,214 807,808 817,819 822,824 854,855 861,862 867,868 872,873 874,900 909	0B01889A	Carbon Resistor 100K ERD-25T J
R104,204 814,815 816,858	0B05625A	Carbon Resistor 220K ERD-25T J
R105,205	0B09564A	Metal Film Resistor 8.45K SN14K2E F
R106,206	0B09315A	Metal Film Resistor 332K SN14K2E F
R107,108 207,208 830,866 885,889 896	0B01888A	Carbon Resistor 10K ERD-25T J
R110,210 806,878 898	0B01857A	Carbon Resistor 1K ERD-25T J
R112,212	0B09505A	Metal Film Resistor 1.1K SN14K2E F
R113,213	0B09203A	Metal Film Resistor 10K SN14K2E F
R115,215 892	0B05622A	Carbon Resistor 2.2K ERD-25T J
R801,802 805,811 812,820 836,839 840,856 859,860 880,888 895,910 911	0B05627A	Carbon Resistor 330K ERD-25T J
R803,804 813,825 826,837 863,864 869,870 871,875	0B05776A	Carbon Resistor 1M ERD-25T J
R809,810	0B05676A	Carbon Resistor 390K ERD-25T J
R818,883 884,886 901	0B05615A	Carbon Resistor 22K ERD-25T J
R827,879	0B05626A	Carbon Resistor 150K ERD-25T J
R828,829	0B05560A	Carbon Resistor 18K ERD-25T J
R835	0B01681A	Carbon Resistor 3.3K ERD-25T J
R838,853 857,887 902	0B05671A	Carbon Resistor 2.2M ERD-25T J
R876,877 890	0B01683A	Carbon Resistor 15K ERD-25T J
R881,882	0B01887A	Carbon Resistor 5.6K ERD-25T J
R891	0B05641A	Carbon Resistor 47K ERD-25T J
R893	0B05623A	Carbon Resistor 1.2K ERD-25T J
R894	0B05621A	Carbon Resistor 120K ERD-25T J
R903	0B05508A	Carbon Resistor 56K ERD-25T J
R905,906 907,908	0B09049A	Fail Safe Type Resistor 22 RDF-25S J
C101,201 832	0B05652A	Mylar Capacitor 4700P 50V J
C102,202 808,829	0B01405A	Electrolytic Capacitor 1μ 50V
C103,203	0B01412A	Electrolytic Capacitor 10μ 16V
C104,204	0B05681A	Mylar Capacitor 0.01μ 50V J
C105,106 205,206 805,825 826,827	0B09223A	Electrolytic Capacitor 1μ 50V (LN)
C801,809 824	0B05583A	Mylar Capacitor 0.033μ 50V J
C802	0B05813A	Mylar Capacitor 0.056μ 50V J
C803	0B09187A	Electrolytic Capacitor 1μ 50V (BP)
C804,811 816,817	0B09285A	Ceramic Capacitor 330P 50V K
C806,807	0B09361A	Tantalum Capacitor 0.22μ 35V
C810	0B01802A	Mylar Capacitor 2200P 50V J
C812	0B05659A	Mylar Capacitor 5600P 50V J
C813,838	0B09332A	Electrolytic Capacitor 2.2μ 50V (LN)
C814	0B09144A	Electrolytic Capacitor 0.22μ 50V (LN)
C815	0B05550A	Mylar Capacitor 1000P 50V J
C818	0B09327A	Electrolytic Capacitor 0.33μ 50V (LN)
C819	0B05682A	Mylar Capacitor 0.068μ 50V J
C820	0B09393A	Ceramic Capacitor 68P 50V J
C821,822	0B09286A	Ceramic Capacitor 470P 50V K
C823	0B09282A	Ceramic Capacitor 100P 50V K
C828	0B09280A	Ceramic Capacitor 47P 50V J
C830	0B09324A	Electrolytic Capacitor 3.3μ 50V (LN)
C831	0B05557A	Mylar Capacitor 0.015μ 50V J
C833	0B09145A	Electrolytic Capacitor 0.47μ 50V (LN)
C834	0B09287A	Ceramic Capacitor 680P 50V K
C835	0B05909A	Mylar Capacitor 0.12μ 50V J
C836	0B01502A	Electrolytic Capacitor 330μ 16V
C837	0B09277A	Ceramic Capacitor 10P 50V J
CN22	0B08656A	2P-T Post
CN28	0B08643A	7P-T Post
CN31	0B08860A	20P-T Post
CN32	0B08334A	8P-T Post
CN33	0B08182A	6P-T Post
CN40	0B08859A	22P-T Post
CN41	0B08506A	13P-T Post
CN46	0B08646A	10P-T Post

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



Fgi. 7.26.1 Serial No.: A11901907 –

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description		Schematic Ref. No.	Part No.	Description	
	BA04552A	**Auto Cal. P.C.B. Ass'y**		R723	0B05698A	Carbon Resistor	1.5K ERD-25T J
		Serial No.: A11901907 –		R724	0B09320A	Carbon Resistor	820K ERD-25T J
				R730,752	0B05509A	Carbon Resistor	33K ERD-25T J
	0B07935C	Auto Cal. P.C.B.		753			
IC101, 201	0B06216A	IC	μPC4556C	R732	0B01846A	Carbon Resistor	4.7K ERD-25T J
IC102,103	0B06279A	IC	MSM4516RS	R734,735	0B05625A	Carbon Resistor	220K ERD-25T J
202,203				R744	0B09049A	Fail Safe Type Resistor	22 RDF-25S J
IC701,702	0B06178A	IC	μPD4011BC	R748	0B09230A	Metal Film Resistor	1.5K SN14K2E F
703				R749	0B09415A	Metal Film Resistor	68 SN14K2E F
IC704	0B06302A	IC	TC4001BP	R750	0B09416A	Metal Film Resistor	976 SN14K2E F
IC705	0B06143A	IC	μPD4001BC	C701	0B05681A	Mylar Capacitor	0.01μ 50V J
IC706	0B06281A	IC	μPD4024BC	C702,710	0B05583A	Mylar Capacitor	0.033μ 50V J
IC707,708	0B06278A	IC	MSM4039RS	711,712			
IC709	0B06124B	IC	RC4558D	713			
Q101-105	0B06100A	Transistor	2SC945 (A)	C703,706	0B09147A	Electrolytic Capacitor	3.3μ 25V (LN)
201-205			(14 pcs.)	C704,709	0B01405A	Electrolytic Capacitor	1μ 50V
701,702				C705	0B09219A	Electrolytic Capacitor	6.8μ 16V (LN)
704,705				C707	0B05550A	Mylar Capacitor	1000P 50V J
Q703,706	0B06013A	Transistor	2SA733	C708	0B09223A	Electrolytic Capacitor	1μ 50V (LN)
D101-106	0B06181A	Silicon Diode	1SS53 (38 pcs.)	C714	0B01412A	Electrolytic Capacitor	10μ 16V
201-206				C715	0B05582A	Mylar Capacitor	0.022μ 50V J
701-726				CN31	0B08858A	20P-S Connector	
R101-104	0B01889A	Carbon Resistor	100K ERD-25T J	CN32	0B08730A	8P-S Connector	
118-120			(24 pcs.)	CN33	0B08728A	6P-S Connector	
201-204				CN34	0B08724A	5P-T Post	
218-220							
701,704							
717,718							
719,733							
741,742							
743,745							
R105,205	0B09498A	Metal Film Resistor	22.1K SN14K2E F				
R106,206	0B09505A	Metal Film Resistor	1.1K SN14K2E F				
R107,207	0B09356A	Metal Film Resistor	4.7K SN14K2E F				
R108,208	0B09497A	Metal Film Resistor	11.3K SN14K2E F				
R109,209	0B09500A	Metal Film Resistor	105K SN14K2E F				
R110,210	0B09501A	Metal Film Resistor	487K SN14K2E F				
R111,211	0B09502A	Metal Film Resistor	1M SN14K2E F				
R112,212	0B09478A	Metal Film Resistor	412K SN14K2E F				
R113,115	0B01888A	Carbon Resistor	10K ERD-25T J				
117,213							
215,217							
721,737							
746,747							
R114,116	0B05671A	Carbon Resistor	2.2M ERD-25T J				
214,216							
703,709							
736,738							
739,740							
R121,221	0B05627A	Carbon Resistor	330K ERD-25T J				
711,713							
714,715							
720,725							
726,727							
728,729							
751,754							
R702,708	0B05776A	Carbon Resistor	1M ERD-25T J				
R705,731	0B05560A	Carbon Resistor	18K ERD-25T J				
R706,707	0B05641A	Carbon Resistor	47K ERD-25T J				
R710,712	0B05622A	Carbon Resistor	2.2K ERD-25T J				
R716	0B05640A	Carbon Resistor	180K ERD-25T J				
R722	0B05615A	Carbon Resistor	22K ERD-25T J				

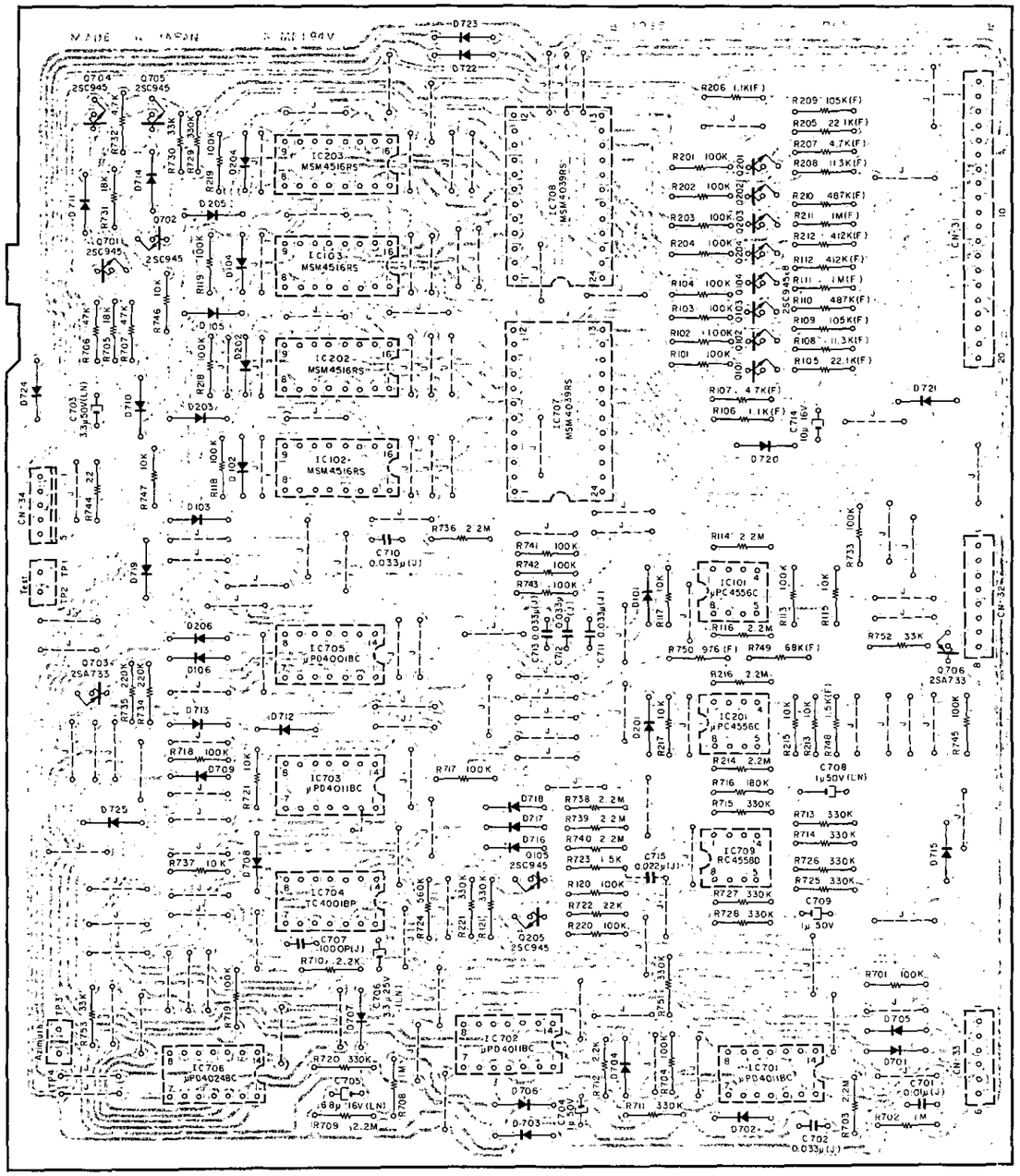


Fig. 7.26.2 Serial Nos.: A11901001 – A11901906

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04378A	**Auto Cal. P.C.B. Ass'y** Serial Nos.: A11901001 – A11901906	R723	0B05698A	Carbon Resistor 1.5K ERD-25T J
			R724	0B09320A	Carbon Resistor 820K ERD-25T J
	0B07935B	Auto Cal. P.C.B.	R730,752 753	0B05509A	Carbon Resistor 33K ERD-25T J
IC101,201	0B06216A	IC μPC4556C	R732	0B01846A	Carbon Resistor 4.7K ERD-25T J
IC102,103 202,203	0B06279A	IC MSM4516RS	R734,735	0B05625A	Carbon Resistor 220K ERD-25T J
			R744	0B09049A	Fail Safe Type Resistor 22 RDF-25S J
IC701,702 703	0B06178A	IC μPD4011BC	R748	0B09230A	Metal Film Resistor 1.5K SN14K2E F
			R749	0B09415A	Metal Film Resistor 68 SN14K2E F
IC704	0B06302A	IC TC4001BP	R750	0B09416A	Metal Film Resistor 976 SN14K2E F
IC705	0B06143A	IC μPD4001BC	C701	0B05681A	Mylar Capacitor 0.01μ 50V J
IC706	0B06281A	IC μPD4024BC	C702,710 711,712 713	0B05583A	Mylar Capacitor 0.033μ 50V J
IC707,708	0B06278A	IC MSM4039RS			
IC709	0B06124B	IC RC4558D			
Q101-105 201-205 701,702 704,705	0B06100A	Transistor 2SC945 (A) (14 pcs.)	C703,706	0B09147A	Electrolytic Capacitor 3.3μ 25V (LN)
			C704,709	0B01405A	Electrolytic Capacitor 1μ 50V
			C705	0B09219A	Electrolytic Capacitor 6.8μ 16V (LN)
			C707	0B05550A	Mylar Capacitor 1000P 50V J
Q703,706	0B06013A	Transistor 2SA733	C708	0B09223A	Electrolytic Capacitor 1μ 50V (LN)
D101-106 201-206 701-725	0B06181A	Silicon Diode 1SS53 (37 pcs.)	C714	0B01412A	Electrolytic Capacitor 10μ 16V
			C715	0B05582A	Mylar Capacitor 0.022μ 50V J
			CN31	0B08858A	20P-S Connector
R101-104 118-120 201-204 218-220 701,704 717,718 719,733 741,742 743,745	0B01889A	Carbon Resistor 100K ERD-25T J (24 pcs.)	CN32	0B08730A	8P-S Connector
			CN33	0B08728A	6P-S Connector
			CN34	0B08724A	5P-T Post
R105,205	0B09498A	Metal Film Resistor 22.1K SN14K2E F			
R106,206	0B09505A	Metal Film Resistor 1.1K SN14K2E F			
R107,207	0B09356A	Metal Film Resistor 4.7K SN14K2E F			
R108,208	0B09497A	Metal Film Resistor 11.3K SN14K2E F			
R109,209	0B09500A	Metal Film Resistor 105K SN14K2E F			
R110,210	0B09501A	Metal Film Resistor 487K SN14K2E F			
R111,211	0B09502A	Metal Film Resistor 1M SN14K2E F			
R112,212	0B09478A	Metal Film Resistor 412K SN14K2E F			
R113,115 217,213 215,217 721,737 746,747	0B01888A	Carbon Resistor 10K ERD-25T J			
R114,116 214,216 703,709 736,738 739,740	0B05671A	Carbon Resistor 2.2M ERD-25T J			
R121,221 711,713 714,715 720,725 726,727 728,729 751	0B05627A	Carbon Resistor 330K ERD-25T J			
R702,708	0B05776A	Carbon Resistor 1M ERD-25T J			
R705,731	0B05560A	Carbon Resistor 18K ERD-25T J			
R706,707	0B05641A	Carbon Resistor 47K ERD-25T J			
R710,712	0B05622A	Carbon Resistor 2.2K ERD-25T J			
R716	0B05640A	Carbon Resistor 180K ERD-25T J			
R722	0B05615A	Carbon Resistor 22K ERD-25T J			

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

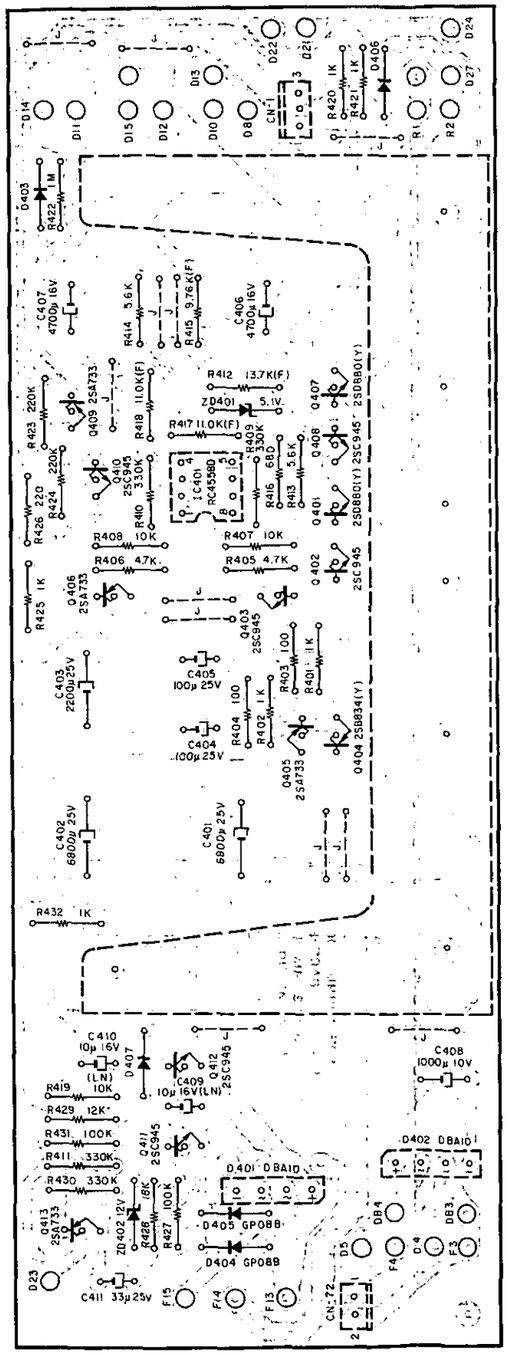


Fig. 7.27.1 Serial No.: A11901907 –

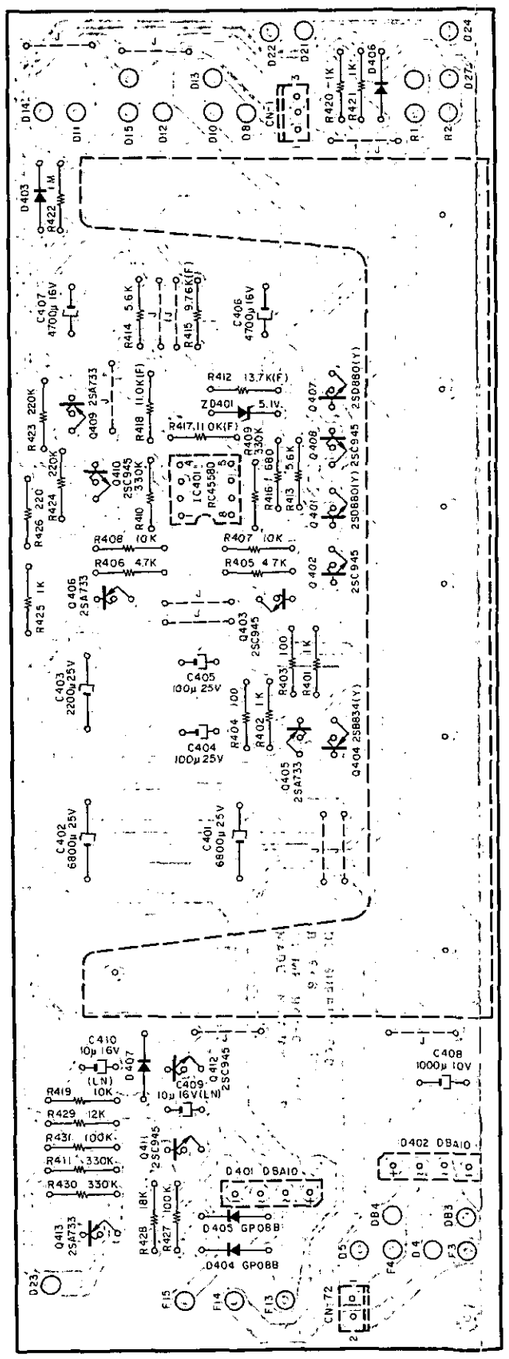


Fig. 7.27.2 Serial Nos.: A11901001 – A11901906

Schematic Ref. No.	Part No.	Description		Schematic Ref. No.	Part No.	Description	
	BA04383A	**Power Supply P.C.B. Ass'y** **Serial No.: A11901907 –**			**BA04383A**	**Power Supply P.C.B. Ass'y** **Serial Nos.: A11901001 – A11901906**	
	0B07946C	Power Supply P.C.B.			0B07946B	Power Supply P.C.B.	
IC401	0B06124B	IC	RC4558D	IC401	0B06124B	IC	RC4558D
Q401,407	0B06255A	Transistor	2SD880 (Y)	Q401,407	0B06255A	Transistor	2SD880 (Y)
Q402,403 408,410 411,412	0B06100A	Transistor	2SC945 (A)	Q402,403 408,410 411,412	0B06100A	Transistor	2SC945 (A)
Q404	0B06256A	Transistor	2SB834 (Y)	Q404	0B06256A	Transistor	2SB834 (Y)
Q405,406 409,413	0B06013A	Transistor	2SA733	Q405,406 409,413	0B06013A	Transistor	2SA733
ZD401	0B06230A	Zener Diode 5.1V	RD5.1EB2	ZD401	0B06230A	Zener Diode 5.1 V	RD5.1EB2
ZD402	0B06123A	Zener Diode 12V	RD12EB3	D401,402	0B06282A	Diode Bridge	DBA10
D401,402	0B06282A	Diode Bridge	DBA10	D403,406 407	0B06181A	Silicon Diode	1SS53
D403,406 407	0B06181A	Silicon Diode	1SS53	D404,405	0B06109A	Silicon Diode	GB08B
D404,405	0B06109A	Silicon Diode	GP08B	R401,402 420,421 425	0B01857A	Carbon Resistor	1K ERD-25T J
R401,402 420,421 425,432	0B01857A	Carbon Resistor	1K ERD-25T J	R403,404	0B01679A	Carbon Resistor	100 ERD-25T J
R403,404	0B01679A	Carbon Resistor	100 ERD-25T J	R405,406	0B01846A	Carbon Resistor	4.7K ERD-25T J
R405,406	0B01846A	Carbon Resistor	4.7K ERD-25T J	R407,408 419	0B01888A	Carbon Resistor	10K ERD-25T J
R407,408 419	0B01888A	Carbon Resistor	10K ERD-25T J	R409,410 411,430	0B05627A	Carbon Resistor	330K ERD-25T J
R409,410 411,430	0B05627A	Carbon Resistor	330K ERD-25T J	R412	0B09528A	Metal Film Resistor	13.7K SN14K2E F
R412	0B09528A	Metal Film Resistor	13.7K SN14K2E F	R413,414	0B01887A	Carbon Resistor	5.6K ERD-25T J
R413,414	0B01887A	Carbon Resistor	5.6K ERD-25T J	R415	0B09535A	Metal Film Resistor	9.76K SN14K2E F
R415	0B09535A	Metal Film Resistor	9.76K SN14K2E F	R416	0B05794A	Carbon Resistor	680 ERD-25T J
R416	0B05794A	Carbon Resistor	680 ERD-25T J	R417,418	0B09504A	Metal Film Resistor	11K SN14K2E F
R417,418	0B09504A	Metal Film Resistor	11K SN14K2E F	R422	0B05776A	Carbon Resistor	1M ERD-25T J
R422	0B05776A	Carbon Resistor	1M ERD-25T J	R423,424	0B05625A	Carbon Resistor	220K ERD-25T J
R423,424	0B05625A	Carbon Resistor	220K ERD-25T J	R426	0B01933A	Carbon Resistor	220 ERD-25T J
R426	0B01933A	Carbon Resistor	220 ERD-25T J	R427,431	0B01889A	Carbon Resistor	100K ERD-25T J
R427,431	0B01889A	Carbon Resistor	100K ERD-25T J	R428	0B05560A	Carbon Resistor	18K ERD-25T J
R428	0B05560A	Carbon Resistor	18K ERD-25T J	R429	0B09263A	Carbon Resistor	12K ERD-25T J
R429	0B09263A	Carbon Resistor	12K ERD-25T J	C401,402	0B09374A	Electrolytic Capacitor	6800µ 25V
C401,402	0B09374A	Electrolytic Capacitor	6800µ 25V	C403	0B05654A	Electrolytic Capacitor	2200µ 25V
C403	0B05654A	Electrolytic Capacitor	2200µ 25V	C404,405	0B01272A	Electrolytic Capacitor	100µ 25V
C404,405	0B01272A	Electrolytic Capacitor	100µ 25V	C406,407	0B09377A	Electrolytic Capacitor	4700µ 16V
C406,407	0B09377A	Electrolytic Capacitor	4700µ 16V	C408	0B05852A	Electrolytic Capacitor	1000µ 10V
C408	0B05852A	Electrolytic Capacitor	1000µ 10V	C409,410	0B09148A	Electrolytic Capacitor	10µ 16V (LN)
C409,410	0B09148A	Electrolytic Capacitor	10µ 16V (LN)	CN1	0B08653A	3P-T Post	
C411	0B09251A	Electrolytic Capacitor	33µ 25V	CN47	0B08864A	3P-H Connector	
CN1	0B08653A	3P-T Post		CN72	0B08656A	2P-T Post	
CN47	0B08864A	3P-H Connector			0B08759D	Heat Sink	(1 pce.)
CN72	0B08656A	2P-T Post			0E00507A	Nut Hex. M3	(3 pcs.)
	0B08759D	Heat Sink	(1 pce.)		0E00607A	Screw M3x8 Philips Pan Head (3A)	(4 pcs.)
	0E00507A	Nut Hex. M3	(3 pcs.)		0E00608A	Screw M3x10 Philips Pan Head (3A)	(3 pcs.)
	0E00607A	Screw M3x8 Philips Pan Head (3A)	(4 pcs.)		0J04311A	Power Supply Fiber	(1 pce.)
	0E00608A	Screw M3x10 Philips Pan Head (3A)	(3 pcs.)		0B08601A	Transistor Mica	(3 pcs.)
	0J04311A	Power Supply Fiber	(1 pce.)		0B08602A	Transistor Bushing	(3 pcs.)
	0B08601A	Transistor Mica	(3 pcs.)				
	0B08602A	Transistor Bushing	(3 pcs.)				

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

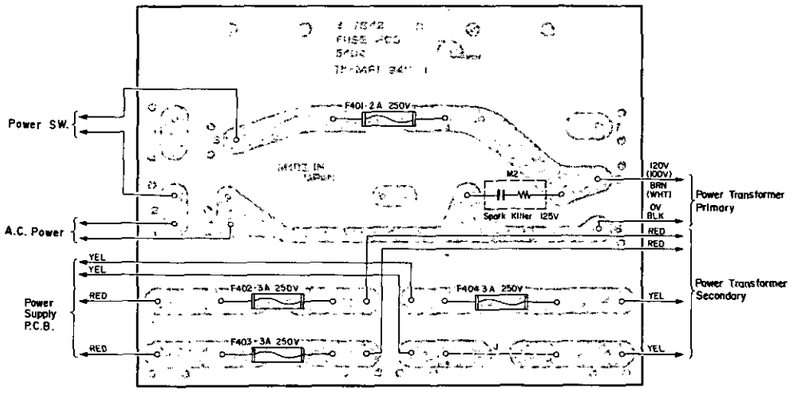


Fig. 7.28.1 U.S.A., Canada & Japan

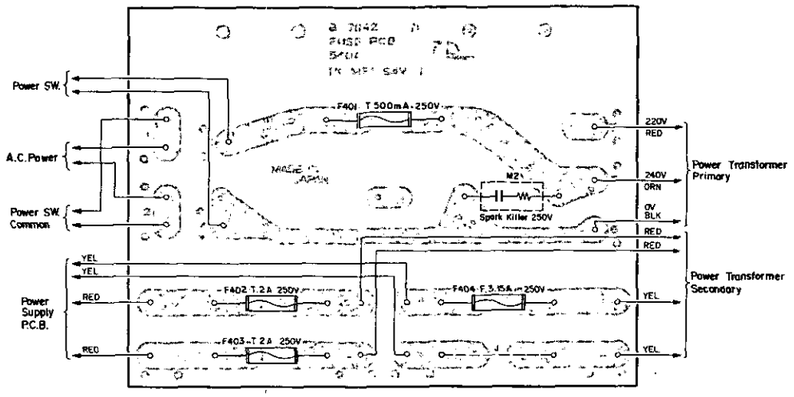


Fig. 7.28.3 UK & Australia

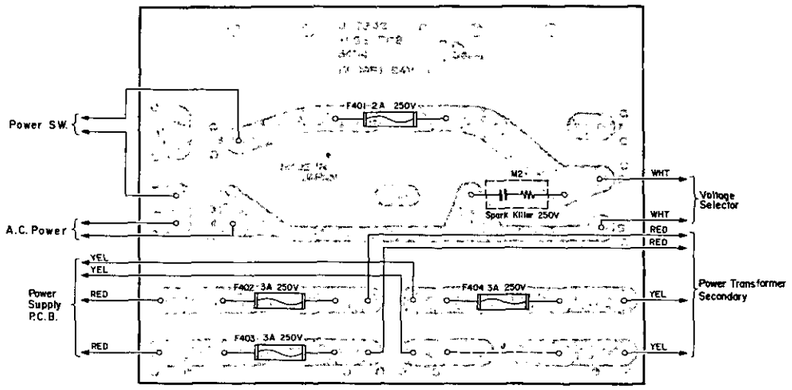


Fig. 7.28.2 Others

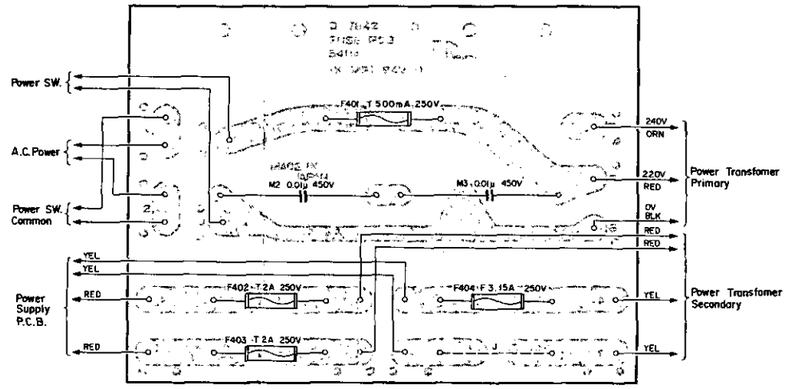


Fig. 7.28.4 220V Class 2

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	
F402,403 404	0B08369A	Fuse 3A 250V	
	0B08342A	Spark Killer 125V	(1 pce.)
	0M03937A	Fuse Label 2A 250V	(1 pce.)
	0B04187A	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	
F402,403 404	0B08781A	Fuse 3A 250V	
	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	
F402,403 404	0B08369A	Fuse 3A 250V	
	0B08240A	Spark Killer	(1 pce.)
	0B03937A	Fuse Label 2A 250V	(1 pce.)
	0M04187A	Fuse Label 3A 250V	(2 pcs.)
	0E00752A	Eyelet 2x3	(6 pcs.)
	BA04263A	**Fuse P.C.B. Ass'y (UK & Australia)**	
	0B07842D	Fuse P.C.B.	
F401	0B08457A	Fuse T500mA 250V	
F402,403	0B08853A	Fuse T2A 250V	
F404	0B08230U	Fuse F3.15A 250V	
	0B08240A	Spark Killer AC250V	(1 pce.)
	0B04254A	Fuse Label F3.15A 250V	(1 pce.)
	0B04255A	Fuse Label T2A 250Vx2	(1 pce.)
	0M04096C	Fuse Label T500mA 250V	(1 pce.)
	0B08349A	Fuse Clip	(8 pcs.)
	0E00752A	Eyelet 2x3	(6 pcs.)
	BA04262A	**Fuse P.C.B. Ass'y (220V Class 2)**	
	0B07842D	Fuse P.C.B.	
F401	0B08457A	Fuse T500mA 250V	
F402,403	0B08853A	Fuse T2A 250V	
F404	0B08230U	Fuse F3.15A 250V	
	0B08445A	Spark Killer 450V	(2 pcs.)
	0M04254A	Fuse Label F3.15A 250V	(1 pce.)
	0M04255A	Fuse Label T2A 250Vx2	(1 pce.)
	0B08349A	Fuse Clip	(8 pcs.)
	0E00752A	Eyelet 2x3	(6 pcs.)

8. MECHANISM ASS'Y AND PARTS LIST

8.1. Synthesis

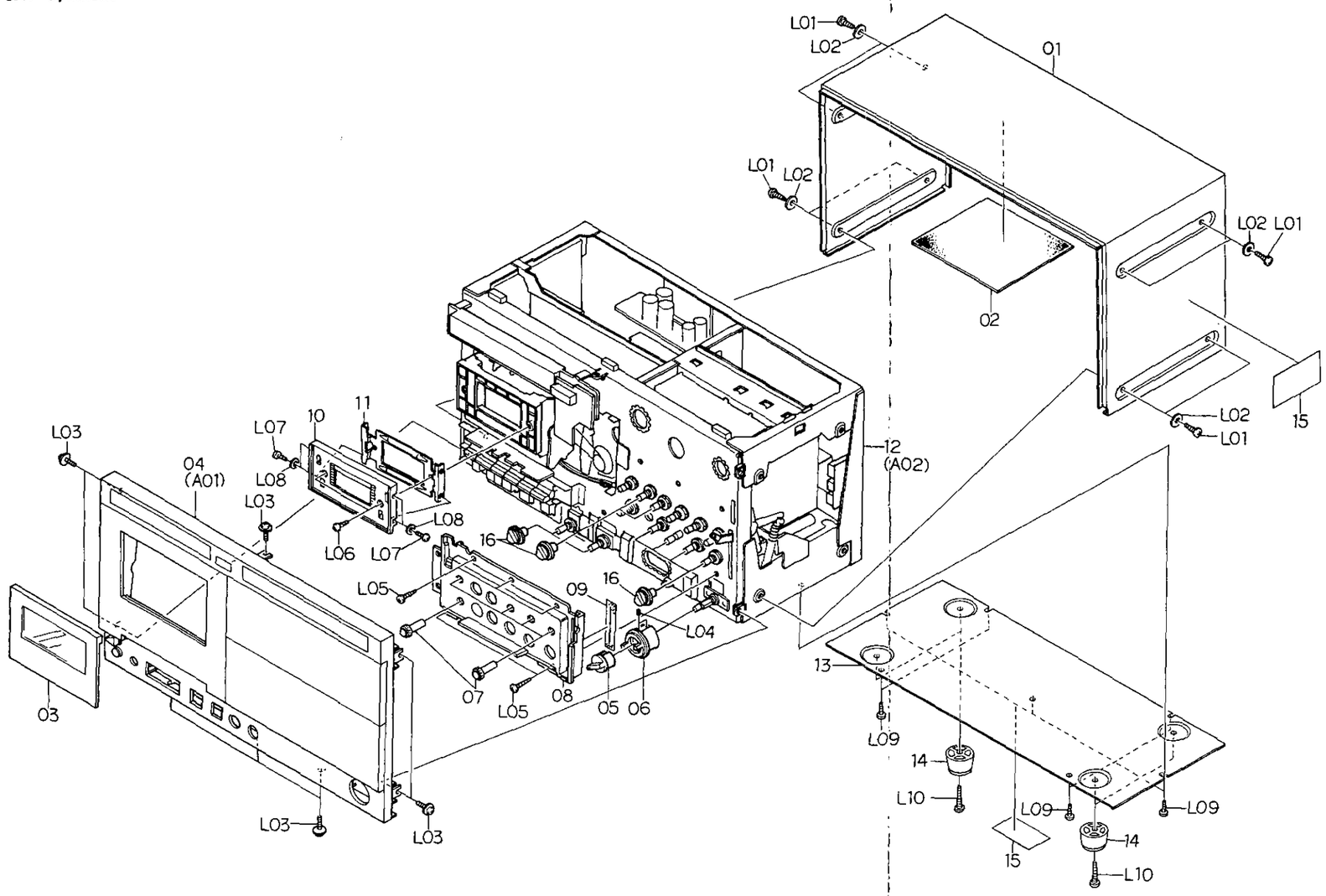


Fig. 8.1

Schematic Ref. No.	Part No.	Description	Q'ty
	HA04144A	**Synthesis (U.S.A. & Canada)**	1
	HA04145A	***Synthesis (Japan)***	1
	HA04147A	**Synthesis (220V Class 2)**	1
	HA04148A	***Synthesis (UK)***	1
	HA04149A	**Synthesis (Australia)**	1
	HA04146A	***Synthesis (Others)***	1
		Serial No.: *A11901001 –*	
01	0H03902A	Top Cover	1
02	0J04194C	Absorber Rubber	1
03	HA04048A	Cassette Case Cover Ass'y	1
04	HA04150A	Front Panel Ass'y	1
05	HA04063C	Volume Knob R Ass'y	1
06	HA04064C	Volume Knob L Ass'y	1
07	0H03891A	Volume Knob	5
08	HA04151A	Control Panel Ass'y	1
09	0J04231B	Damper Himelon	1
10	0H03914B	Cassette Case Escutcheon	1
11	0J04254A	Cassette Case Plate	1
12	JA03839A	Chassis Ass'y (U.S.A. & Canada)	1
	JA03840A	Chassis Ass'y (Japan)	1
	JA03842A	Chassis Ass'y (220V Class 2)	1
	JA03843A	Chassis Ass'y (UK)	1
	JA03844A	Chassis Ass'y (Australia)	1
	JA03841A	Chassis Ass'y (Others)	1
13	0H03905A	Bottom Cover	1
14	0J03825A	Leg S	4
15	0M04101B	Caution Label	1
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 (Bronze)	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)

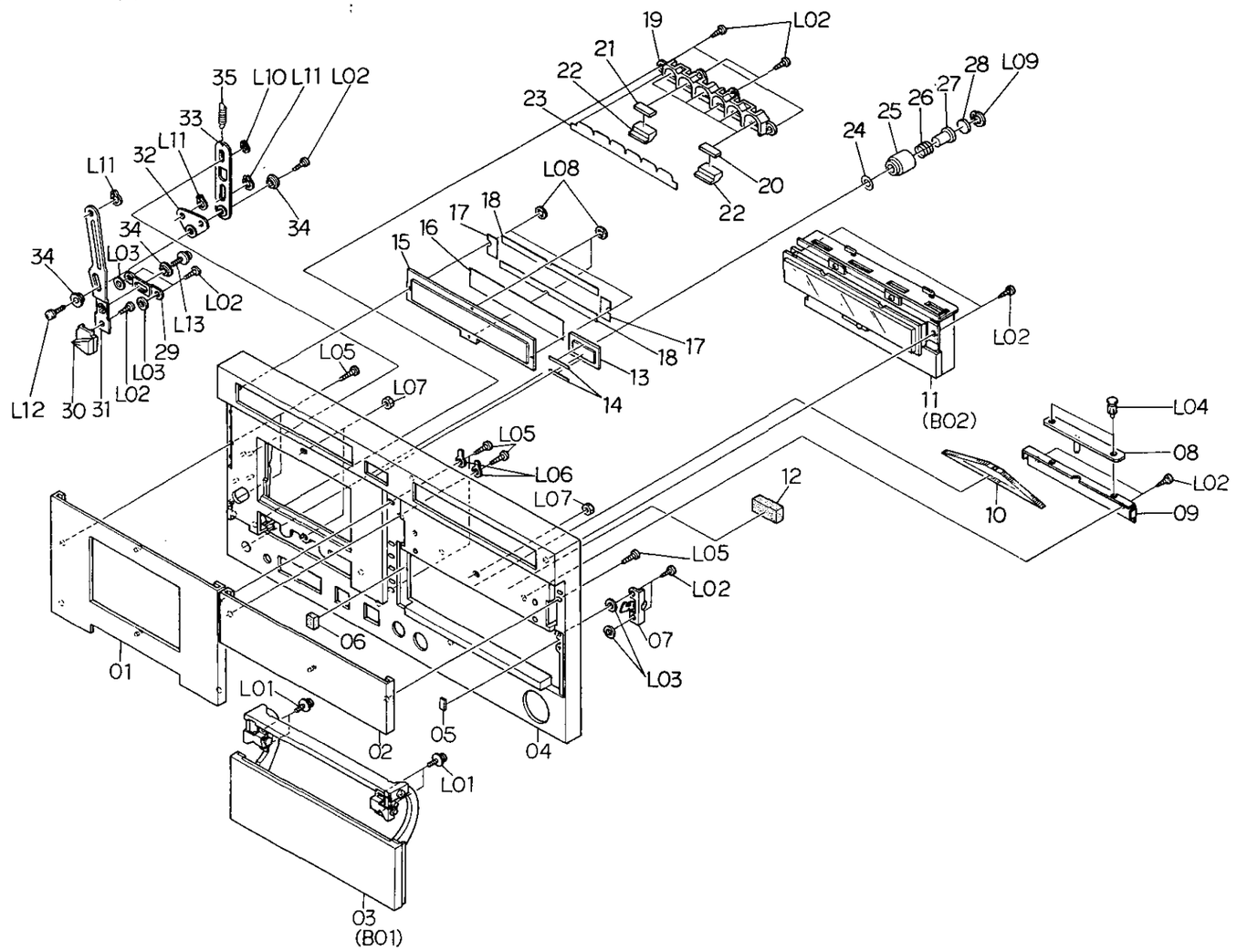


Fig. 8.2

Schematic Ref. No.	Part No.	Description	Q'ty
A01	**HA04150A**	**Front Panel Ass'y** Serial No.: A11901001 –	1
01	HA04067B	Front Panel L Sub Ass'y	1
02	HA04068B	Front Panel R Sub Ass'y	1
03	HA04152B	Adjustment Lid Ass'y	1
04	HA04066A	Front Panel Escutcheon Sub Ass'y	1
05	0J04306B	Cushion A	1
06	0J04343A	Cushion C	1
07	JA03759A	Lock Lever Holder Ass'y	1
08	BA04268A	Lamp B P.C.B. Ass'y	1
09	0J04250A	P.C.B. Holder	1
10	0H03674D	Lamp House	1
11	BA04350A	LED Level Indicator Ass'y	1
12	0J04202A	Cushion B	1
13	0H03901B	Tape Counter Lens	1
14	0J04331A	Double-faced Tape for Counter Lens	2
15	0H03939A	Indicator Cover	1
16	0J04345A	Red Seal	1
17	0J04334A	Black Seal C	2
18	0J04333A	Black Seal B	2
19	0J04209A	Reflector C	1
20	0J04210A	Filter Green A	5
21	0J04211A	Filter Red	1
22	0H03910A	Lens A	6
23	0J04320B	Reflector Seal C	1
24	0J04338A	Double-faced Tape for Power Switch	1
25	0H03908A	Power Switch Escutcheon	1
26	0J04203A	Power Switch Spring	1
27	0H03907A	Power Switch Knob	1
28	0J04282A	Power Switch Knob Plate	1
29	0J04175A	Eject Lever Guide	1
30	0H03889A	Eject Knob	1
31	0J04172B	Eject Lever	1
32	0J04173B	Joint Plate	1
33	0J04174A	Spring Hook	1
34	0J04219B	Eject Lever Collar	3
35	0J04177A	Eject Spring	1
L01	0E00606A	Screw M3x6 Philips Binding Head (3A)	4
L02	0E00857A	BT Screw M3x6 Philips Binding Head	17
L03	0E00157A	Washer 3mm	4
L04	0B08539A	Plastic Rivet	2
L05	0E00868A	BT Screw M3x8 Philips Binding Head	6
L06	0E00895A	Earth Lug 3mm	2
L07	0E00669A	Nut Hex. M4	3
L08	0E00874A	Stopper Ring CS 2mm	4
L09	0E00942A	C-Ring	1
L10	0E00837A	Stopper Ring 3mm	1
L11	0E00838A	Stopper Ring 4mm	3
L12	0E00510A	Screw M3x8 Philips Binding Head (2A)	1
L13	0E00607A	Screw M3x8 Philips Binding Head (3A)	1

8.3. Chassis Ass'y (A02)

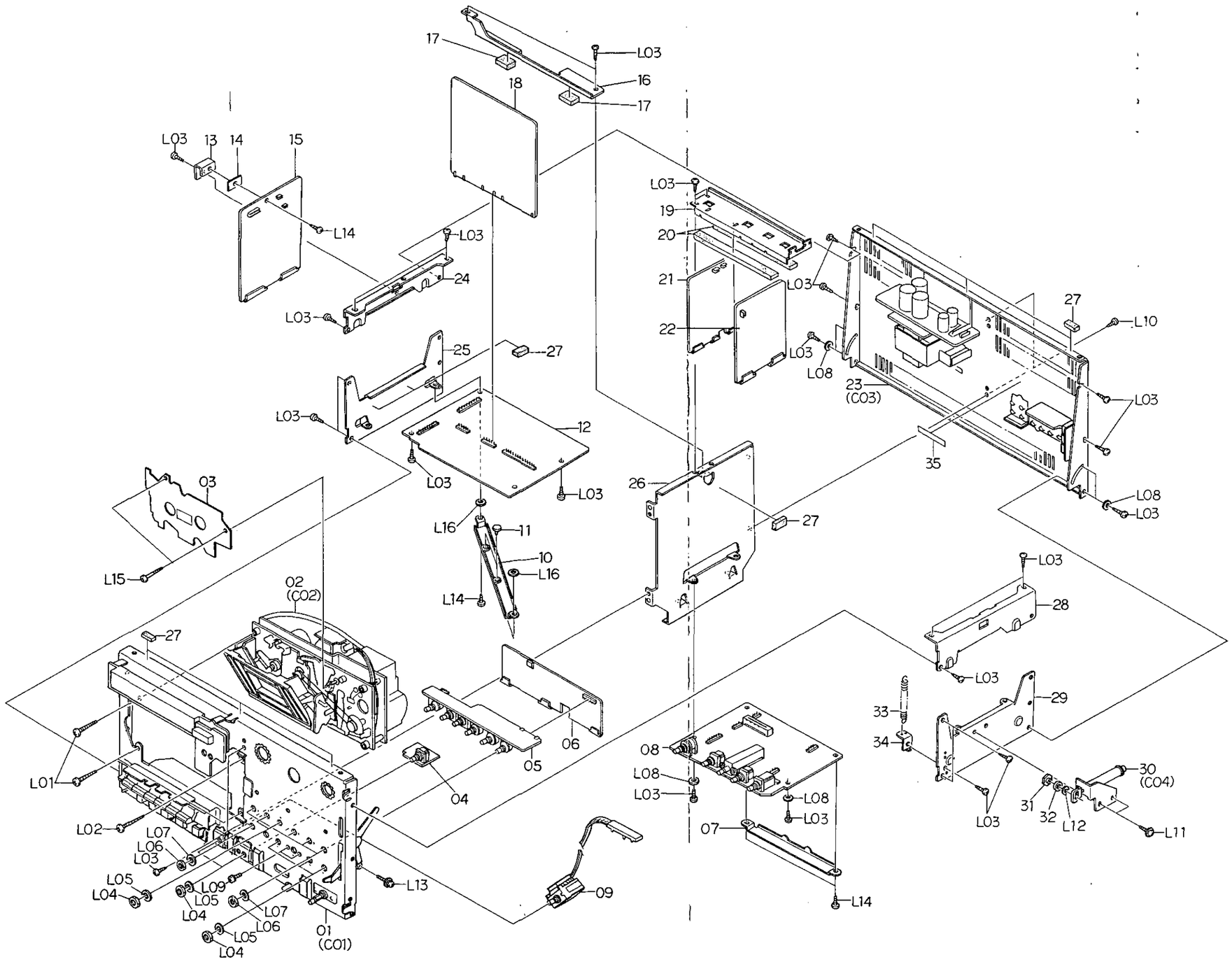


Fig. 8.3

Schematic Ref. No.	Part No.	Description	Q'ty
A02	JA03839A	Chassis Ass'y (U.S.A. & Canada)	1
	JA03840A	Chassis Ass'y (Japan)	1
	JA03842A	Chassis Ass'y (220V Class 2)	1
	JA03843A	Chassis Ass'y (UK)	1
	JA03844A	Chassis Ass'y (Australia)	1
	JA03841A	Chassis Ass'y (Others)	1
		Serial No.: A11901907 –	
01	JA03845A	Front Chassis Ass'y (U.S.A. & Canada)	1
	JA03846A	Front Chassis Ass'y (Japan)	1
	JA03847A	Front Chassis Ass'y (220V Class 2, UK, Australia & Others)	1
02	CA08279A	Mechanism Ass'y N-700ZXE	1
03	CA08259A	Cover Plate Ass'y	1
04	BA04385A	Monitor Switch P.C.B. Ass'y	1
05	BA04389A	MIC B P.C.B. Ass'y	1
06	BA04384A	MIC Amp. & Detector P.C.B. Ass'y	1
07	0J04277A	P.C.B. Stopper	1
08	BA04380A	Main P.C.B. Ass'y	1
09	0B07361A	Flex Switch with wire	1
10	0J04339A	P.C.B. Stopper	1
11	0H03920A	Remote Lug	2
12	BA04553A	RAMM & Auto Azimuth P.C.B. Ass'y	1
13	0J04186A	RAMM P.C.B. Holder	1
14	0J04276A	Insulator	1
15	BA04381A	Logic P.C.B. Ass'y	1
16	0J04358A	P.C.B. Holder E	1
17	0J04361A	P.C.B. Cushion E	2
18	BA04552A	Auto Cal. P.C.B. Ass'y	1
19	0J04359A	P.C.B. Holder F	1
20	0J04190B	P.C.B. Cushion A	2
21	BA04377A	Playback Amp. & Dolby NR P.C.B. Ass'y	1
22	BA04379A	Bias Oscillator P.C.B. Ass'y	1
23	HA04153A	Rear Panel Ass'y (U.S.A. & Canada)	1
	HA04154A	Rear Panel Ass'y (Japan)	1
	HA04138A	Rear Panel Ass'y (220V Class 2)	1
	HA04139A	Rear Panel Ass'y (UK)	1
	HA04140A	Rear Panel Ass'y (Australia)	1
	HA04155A	Rear Panel Ass'y (Others)	1
24	0J04184B	Chassis Bracket L	1
25	0J04181A	Side Chassis L	1
26	0J04183B	Center Chassis	1
27	0J04342A	Top Cover Cushion	9
28	0J04185B	Chassis Bracket R	1
29	0J04182A	Side Chassis R	1
30	JA03753A	Pneumatic Damper Ass'y	1
31	0J04238A	Damper Collar	1
32	0J04284A	Damper Sleeve	1
33	0J04189A	Spring	1
34	0J04270A	Spring Hook	1
L01	0E00944A	BT Screw M4x15 Philips Binding Head	3
L02	0E00924A	BT Screw M4x16 Philips Binding Head (Black Chromate)	1
L03	0E00857A	BT Screw M3x6 Philips Binding Head	29
L04	–	Switch Nut	(7)
L05	–	Switch Washer	(7)
L06	–	Volume Nut	(5)
L07	–	Volume Washer	(5)
L08	0E00157A	Washer 3mm (Plastics)	4
L09	0E00622A	Screw M3x5 Philips Binding Head (2A)	2
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	5
L15	0E00832A	BT Screw M3x14 Philips Pan Head	2
L16	0J04340B	Fiber Washer for P.C.B. Stopper	2

Schematic Ref. No.	Part No.	Description	Q'ty
A02	JA03839A	Chassis Ass'y (U.S.A. & Canada)	1
	JA03840A	Chassis Ass'y (Japan)	1
	JA03842A	Chassis Ass'y (220V Class 2)	1
	JA03843A	Chassis Ass'y (UK)	1
	JA03844A	Chassis Ass'y (Australia)	1
	JA03841A	Chassis Ass'y (Others)	1
		Serial Nos.: A11901001 – A11901906	
01	JA03845A	Front Chassis Ass'y (U.S.A. & Canada)	1
	JA03846A	Front Chassis Ass'y (Japan)	1
	JA03847A	Front Chassis Ass'y (220V Class 2, UK, Australia & Others)	1
02	CA08279A	Mechanism Ass'y N-700ZXE	1
03	CA08259A	Cover Plate Ass'y	1
04	BA04385A	Monitor Switch P.C.B. Ass'y	1
05	BA04389A	MIC B P.C.B. Ass'y	1
06	BA04384A	MIC Amp. & Detector P.C.B. Ass'y	1
07	0J04277A	P.C.B. Stopper	1
08	BA04380A	Main P.C.B. Ass'y	1
09	0B07361A	Flex Switch with wire	1
10	0J04339A	P.C.B. Stopper	1
11	0H03920A	Remote Lug	2
12	BA04382A	RAMM & Auto Azimuth P.C.B. Ass'y	1
13	0J04186A	RAMM P.C.B. Holder	1
14	0J04276A	Insulator	1
15	BA04381A	Logic P.C.B. Ass'y	1
16	0J04358A	P.C.B. Holder E	1
17	0J04361A	P.C.B. Cushion E	2
18	BA04378A	Auto Cal. P.C.B. Ass'y	1
19	0J04359A	P.C.B. Holder F	1
20	0J04190B	P.C.B. Cushion A	2
21	BA04377A	Playback Amp. & Dolby NR P.C.B. Ass'y	1
22	BA04379A	Bias Oscillator P.C.B. Ass'y	1
23	HA04153A	Rear Panel Ass'y (U.S.A. & Canada)	1
	HA04154A	Rear Panel Ass'y (Japan)	1
	HA04138A	Rear Panel Ass'y (220V Class 2)	1
	HA04139A	Rear Panel Ass'y (UK)	1
	HA04140A	Rear Panel Ass'y (Australia)	1
	HA04155A	Rear Panel Ass'y (Others)	1
24	0J04184B	Chassis Bracket L	1
25	0J04181A	Side Chassis L	1
26	0J04183B	Center Chassis	1
27	0J04342A	Top Cover Cushion	9
28	0J04185B	Chassis Bracket R	1
29	0J04182A	Side Chassis R	1
30	JA03753A	Pneumatic Damper Ass'y	1
31	0J04238A	Damper Collar	1
32	0J04284A	Damper Sleeve	1
33	0J04189A	Spring	1
34	0J04270A	Spring Hook	1
L01	0E00944A	BT Screw M4x15 Philips Binding Head	3
L02	0E00924A	BT Screw M4x16 Philips Binding Head (Black Chromate)	1
L03	0E00857A	BT Screw M3x6 Philips Binding Head	29
L04	–	Switch Nut	(7)
L05	–	Switch Washer	(7)
L06	–	Volume Nut	(5)
L07	–	Volume Washer	(5)
L08	0E00157A	Washer 3mm (Plastics)	4
L09	0E00622A	Screw M3x5 Philips Binding Head (2A)	2
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	5
L15	0E00832A	BT Screw M3x14 Philips Pan Head	2
L16	0J04340B	Fiber Washer for P.C.B. Stopper	2

8.4. Adjustment Lid Ass'y (B01)

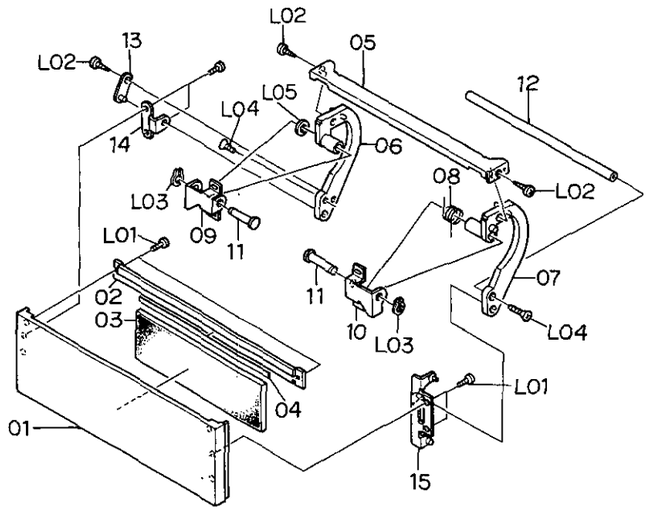


Fig. 8.4

8.5. LED Level Indicator Ass'y (B02)

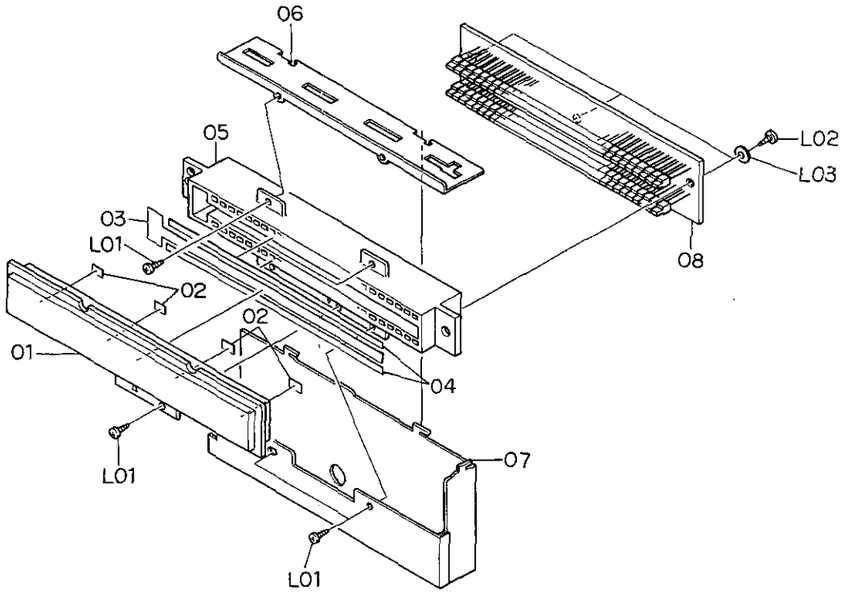


Fig. 8.5

Schematic Ref. No.	Part No.	Description	Q'ty
B01	**HA04051A**	**Adjustment Lid Ass'y** Serial No.: A11901001 –	**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
B02	**BA04350A**	**LED Level Indicator Ass'y** Serial No.: A11901001 –	**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
C01	**JA03845A**	**Front Chassis Ass'y (U.S.A. & Canada)**	**1**
	JA03846A	**Front Chassis Ass'y (Japan)**	**1**
	JA03847A	**Front Chassis Ass'y (220V Class 2, UK, Australia & Others)** Serial No.: A11901001 –	**1**
01	BA04275A	Counter P.C.B. Ass'y	1
02	JA03848A	Lighting House Ass'y	1
03	0J04219B	Button Bracket Collar	4
04	0H03912A	Push Button	5
05	0J04229A	Button Sleeve C	2
06	BA04388A	Counter Reset P.C.B. Ass'y	1
07	BA04387A	RAMM Switch P.C.B. Ass'y	1
08	0J04322A	Switch P.C.B. Holder	1
09	0J04226B	Push Button Bracket B	1
10	0J04227A	Button Shaft B	1
11	0J04228B	Push Button Cushion B	2
12	HA04137A	Control Button Ass'y	6
13	0J04352A	Control Button Cushion C-46	1
14	0J04218B	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	0J04232B	Bracket Holder L	1
21	0J04233B	Bracket Holder R	1
22	0J04205B	Volume Holder	1
23	0B07351A	Line Input Volume	1
24	0J04206B	Switch Holder A	1
25	0J04207C	Switch Holder B	1
26	0J04135C	Mechanism Bracket	1
27	0J04235A	Headphone Jack Holder	1
28	0B08511A	Headphone Jack	1
29	JA03763A	Damper Arm Ass'y	1
30	0B07253A	Power Switch (U.S.A. & Canada)	1
	0B07271A	Power Switch (Japan)	1
	0B07252A	Power Switch (220V Class 2, UK, Australia & Others)	1
31	0J04268C	Front Chassis	1
32	0J04178A	Front Chassis Cushion	8
33	0J04291A	Free Bushing 87mm	3
34	0J04294A	Free Bushing 58mm	1
35	0J04292A	Free Bushing 75mm	1
36	0M04200A	Counter P.C.B. Seal A	1
37	0M04202A	Counter P.C.B. Seal B	1
L01	0E00857A	BT Screw M3x6 Philips Binding Head	29
L02	0E00868A	BT Screw M3x8 Philips Binding Head	4
L03	0E00837A	Stopper Ring 3mm	4
L04	0J04354A	Washer FT30	2
L05	–	Volume Nut	(1)
L06	–	Volume Washer	(1)
L07	–	Headphone Jack Nut	(1)
L08	–	Headphone Jack Washer	(1)
L09	0E00920A	Screw M3x6 Philips Pan Head Polywave	2
L10	0E00622A	Screw M3x5 Philips Pan Head	2

8.6. Front Chassis Ass'y (C01)

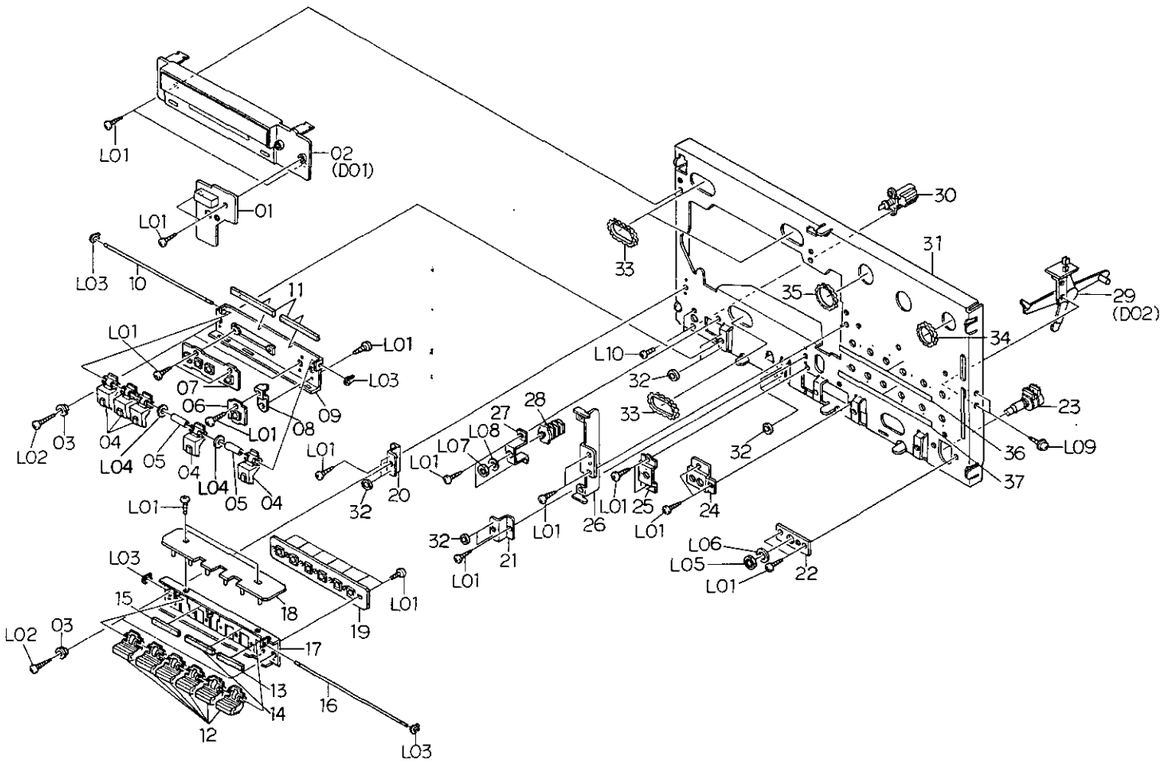


Fig. 8.6

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

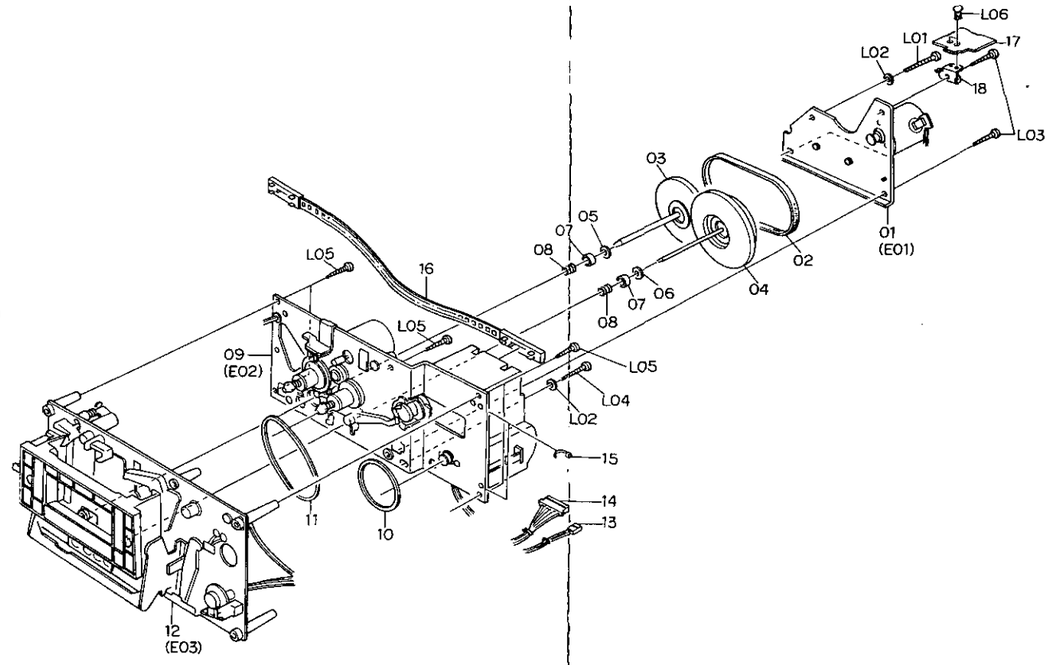
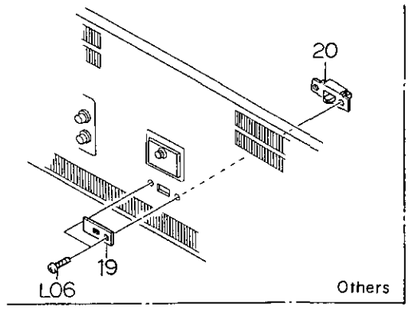


Fig. 8.7

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
C02	**CA08279A**	**Mechanism Ass'y N-700ZXE** Serial No.: A11901001 –	1	L01	0E00834A	BT Screw M3x30 Philips Pan Head	1
				L02	0E00178A	Washer 3mm	2
				L03	0E00833A	BT Screw M3x20 Philips Pan Head	3
01	CA08265B	Flywheel Holder Ass'y	1				
02	0C08096C	Capstan Belt	1	L04	0E00835A	BT Screw M3x25 Philips Pan Head	1
03	CA08173A	Supply Flywheel Ass'y	1				
04	CA08015A	Take-up Flywheel Ass'y	1	L05	0E00883A	BT Screw M3x8 Philips Pan Head	5
05	0C08021B	Thrust Washer 3.1mm	1				
06	0C08020B	Thrust Washer 2.6mm	1	L06	0B08861A	Plastic Rivet	2
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	CA08287A	Main Mechanism Chassis Ass'y	1				
13	0B08765A	3P-H Connector	1				
14	0B08867B	11P-H Connector	1				
15	0B08515A	Insu-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				
–	0M04264A	Mechanism No. Seal	1				

8.8. Rear Panel Ass'y (C03)



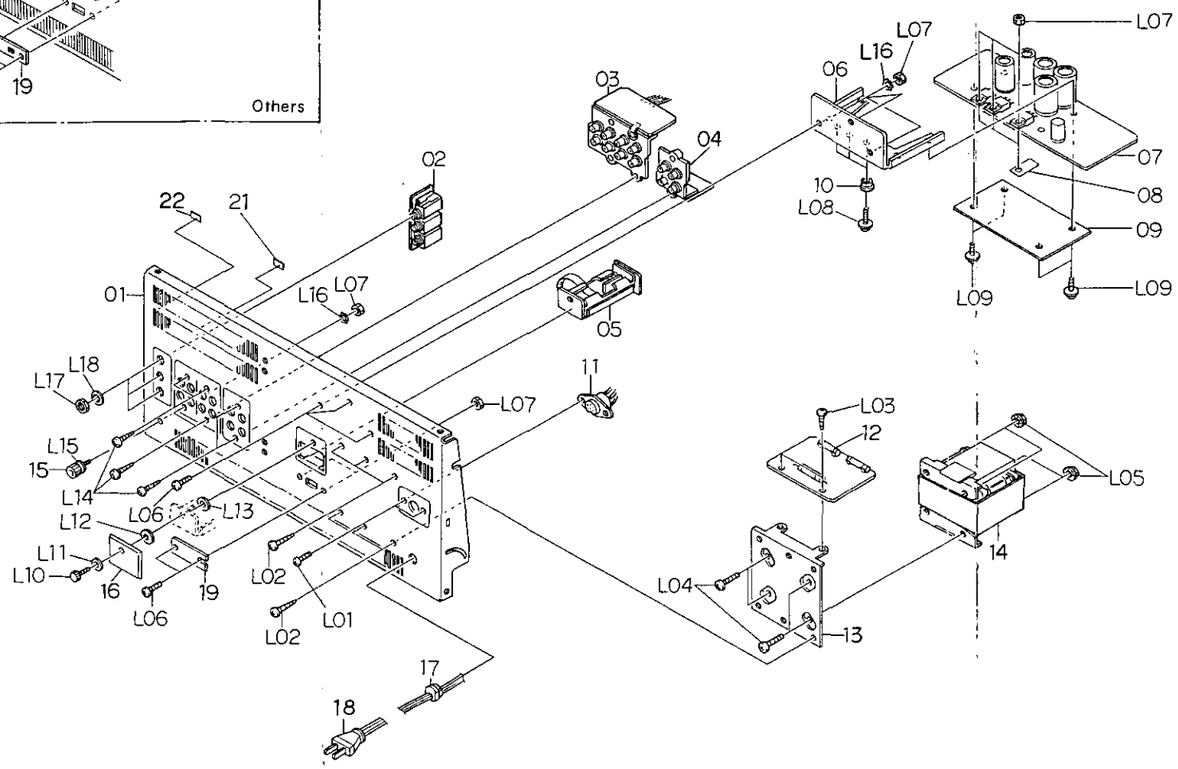


Fig. 8.8

8.9. Pneumatic Damper Ass'y (C04)

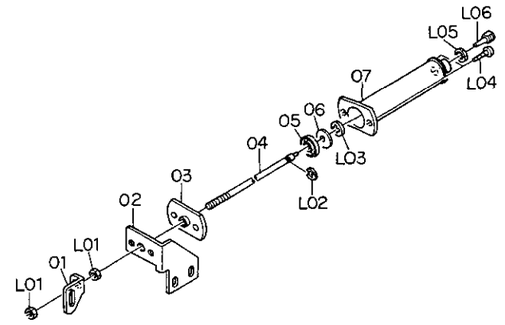


Fig. 8.9

8.10. Lighting House Ass'y (D01)

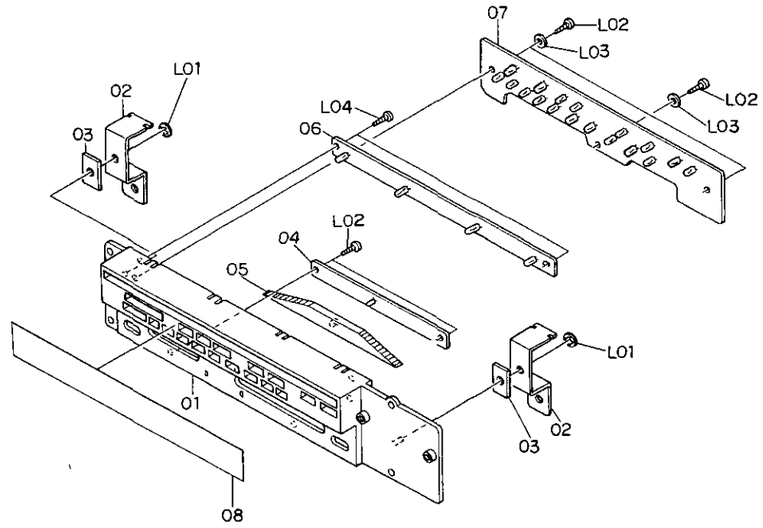


Fig. 8.10

Schematic Ref. No.	Part No.	Description	Q'ty
C03	HA04153A	**Rear Panel Ass'y (U.S.A. & Canada)**	1
	HA04154A	**Rear Panel Ass'y (Japan)**	1
	HA04138A	**Rear Panel Ass'y (220V Class 2)**	1
	HA04139A	**Rear Panel Ass'y (UK)**	1
	HA04140A	**Rear Panel Ass'y (Australia)**	1
	HA04155A	**Rear Panel Ass'y (Others)**	1
		Serial No.: A11901001 –	
01	0H03947A	Rear Panel	1
02	BA04386A	MIC Jack P.C.B. Ass'y	1
03	BA04390A	Pin Jack A P.C.B. Ass'y	1
04	BA04391A	Pin Jack B P.C.B. Ass'y	1
05	JA03733A	Battery Case Ass'y	1
06	0B08759D	Heat Sink	1
07	BA04383A	Power Supply P.C.B. Ass'y	1
08	0B08601A	Insulator Mica T0220	3
09	0B04311A	Insulator	1
10	0B08602A	Transistor Bushing T0220	3
11	0B08584A	8P DIN Socket	1
12	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
13	0J04147B	Transformer Plate	1
14	0B06639B	Power Transformer (U.S.A. & Canada)	1
	0B06640B	Power Transformer (Japan)	1
	0B06638B	Power Transformer (UK, 220V Class 2 & Australia)	1
	0B06637B	Power Transformer (Others)	1
15	0B03920B	Ground Terminal	1
16	0H03882A	Battery Case Cover	1
17	0B08037U	Cord Bushing (U.S.A., Canada, Japan, 220V Class 2, Australia & Others)	1
	0B08351A	Cord Bushing (UK)	1
18	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
19	0J03663C	Switch Cover C (U.S.A., Canada, Japan, 220V Class , UK & Australia)	1
	0M03948A	Voltage Lock Plate (Others)	1
20	0B07092U	Voltage Selector (Others)	1
21	0M04276A	P.C.B. Seal B	1
22	0M04277A	P.C.B. Seal C	1
–	0M04265A	Amp. No. Seal	1
–	0M04253A	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 100 V (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)	2
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	0E00594A	Screw M3x8 Philips Binding Head (Bronze)	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.: A11901001 –	
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	**JA03848A**	**Lighting House Ass'y**	**1**
		Serial No.: A11901001 –	
01	0J04324A	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	BA04392A	Lamp E P.C.B. Ass'y	1
08	0J04307A	Deflecting Seal	1
L01	0E00252A	C-Ring 3mm	2
L02	0E00857A	BT Screw M3x6 Philips Binding Head	5
L03	0E00157A	Washer 3mm (Plastics)	3
L04	0E00941A	BT Screw M3x5 Philips Binding Head	2

8.11. Damper Arm Ass'y (D02)

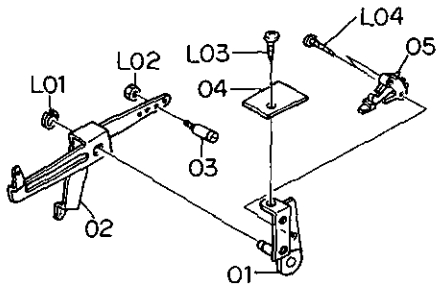


Fig. 8.11

8.12. Flywheel Holder Ass'y (E01)

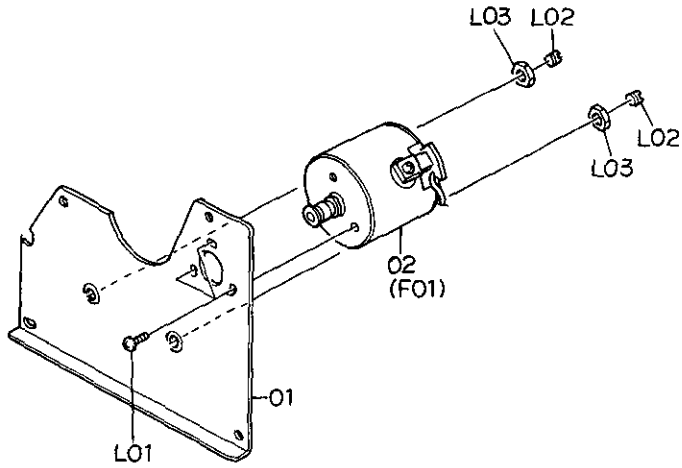


Fig. 8.12

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
D02	**JA03763A**	**Damper Arm Ass'y** Serial No.: A11901001 –	**1**	**E01**	**CA08265B**	**Flywheel Holder Ass'y** Serial No.: A11901001 –	**1**
01	JA03769A	Damper Arm Holder Ass'y	1	01	0C080131	Flywheel Holder	1
02	0J04237A	Damper Arm	1	02	CA08246A	Capstan Motor Ass'y	1
03	0J04271A	Spring Hook	1	L01	0E00226A	Screw M2.6x4 Philips Pan Head	3
04	BA04310A	Connector B P.C.B. Ass'y	1	L02	0C08068C	*Thrust Screw*	2
05	0C08133A	Eject Sensor	1	L03	0C03857A	Lock Nut	2
L01	0E00104A	E-Ring 5mm	1				
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)

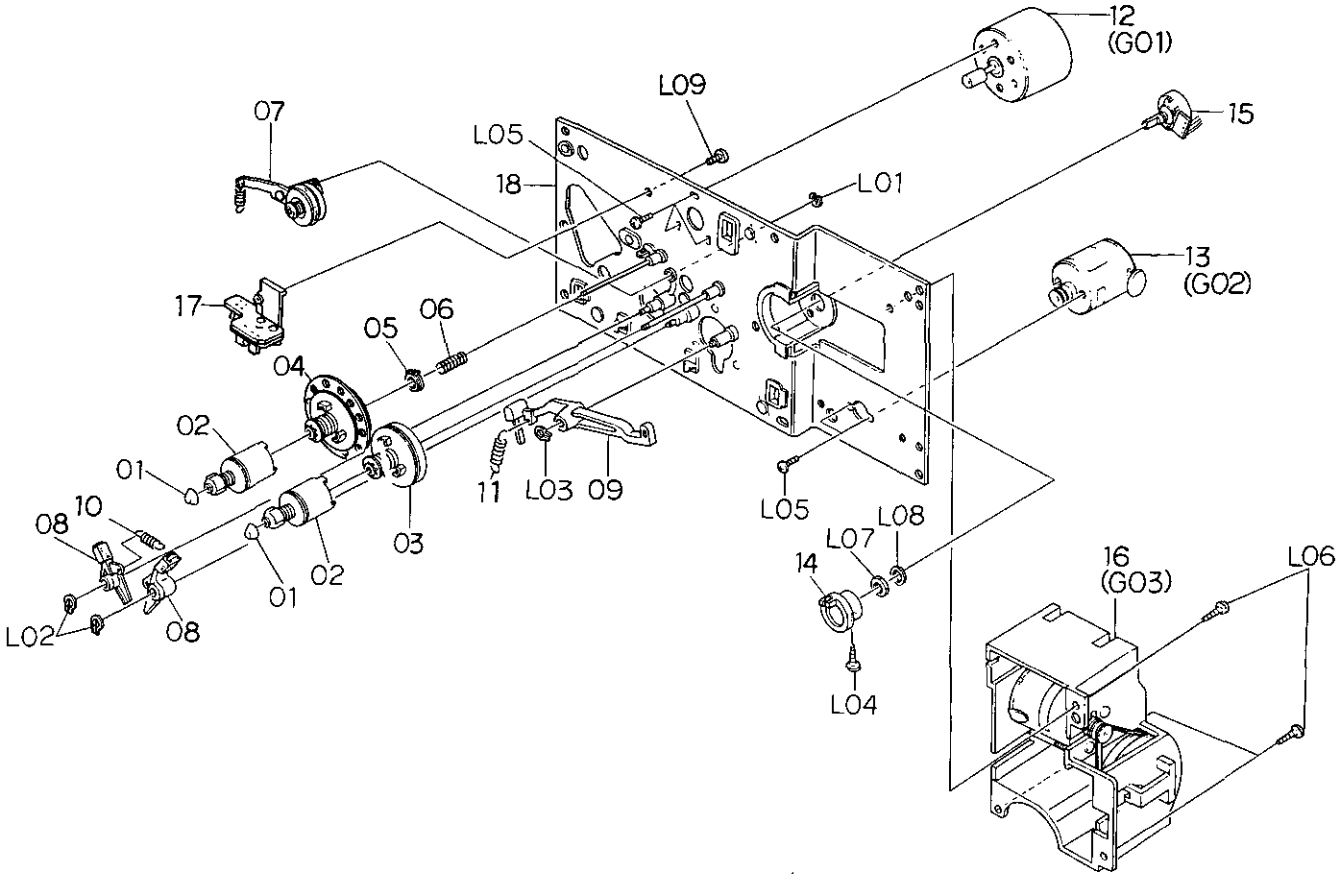


Fig. 8.13

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.: A11901001–	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	**CA08287A**	**Main Mechanism Chassis Ass'y** Serial No.: A11901001 –	**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	CA08288A	Head Mount Base Ass'y	1
06	0C08250A	Supply Pressure Roller Spring B	1
07	0C08121A	Supply Pressure Roller Spring	1
08	CA08053B	Supply Pressure Roller Ass'y	1
09	0C08122B	Supply Pressure Roller Thrust Spring	1
10	CA08079B	Take-up Pressure Roller Ass'y	1
11	0C08183B	Take-up Pressure Roller Thrust Spring	1
12	CA08260B	Head Base Ass'y F	1
13	0C08182A	Pressure Roller Drive Bar B	1
14	0C08086B	Head Base Roller	3
15	0C08050B	Record Sensor	1
16	0C08051E	Cassette Hold Arm	1
17	0C08120A	Cassette Hold Spring	1
18	CA08196A	Back Tension Arm Ass'y	1
19	0C08254A	Tension Arm Collar	1
20	CA08027A	Head Base Drive Arm Ass'y	1
21	0C08143C	Head Base Drive Arm Spring	1
22	CA08026A	Pressure Roller Drive Arm Ass'y	1
23	CA08237A	Auto Shut-off Ass'y	1
24	0C08119A	Record Protector	1
25	0C08194C	Damper Lock Arm	1
26	0C08153A	Damper Lock Arm Spring Tube	1
27	0C08116A	Record Arm Spring	2
28	CA08030A	Pneumatic Damper Ass'y	1
29	CA08023A	Supply Capstan Flange Ass'y	1
30	CA08024A	Take-up Capstan Flange Ass'y	1
31	0C08186A	Cam Drive Gear	1
32	0C08029H	Control Cam	1
33	0C08117A	Counter-Load Arm Spring	1
34	0C08152A	Counter-Load Arm Spring Tube	1
35	CA08028A	Counter-Load Arm Ass'y	1
36	CA08183A	Main Chassis Ass'y	1
L01	0E00837A	Stopper Ring 3mm	9
L02	0E00834A	BT Screw M3x30 Philips Pan Head	2
L03	0E00831A	BT Screw M3x10 Philips Pan Head	3
L04	0E00254A	Washer 3.1mm (Plastics)	2
L05	0E00222A	E-Ring 2mm	2
L06	0E00876A	BT Screw M2.6x8 Philips Pan Head	8
L07	0C08060B	Height Adjustment Nut	2
L08	0E00142A	Washer 2.6mm	2
L09	0E00879A	BT Screw M2x15 Philips Pan Head	1
L10	0E00838A	Stopper Ring 4mm	3
L11	0E00846A	BT Screw M3x8 Philips Pan Head	3
L12	0E00895A	Earth Lug 3mm	2
L13	0E00859A	BT Screw M2.6x6 Philips Binding Head	1
L14	0C08255A	Washer 2.6mm	1

8.14. Main Mechanism Chassis Ass'y (E03)

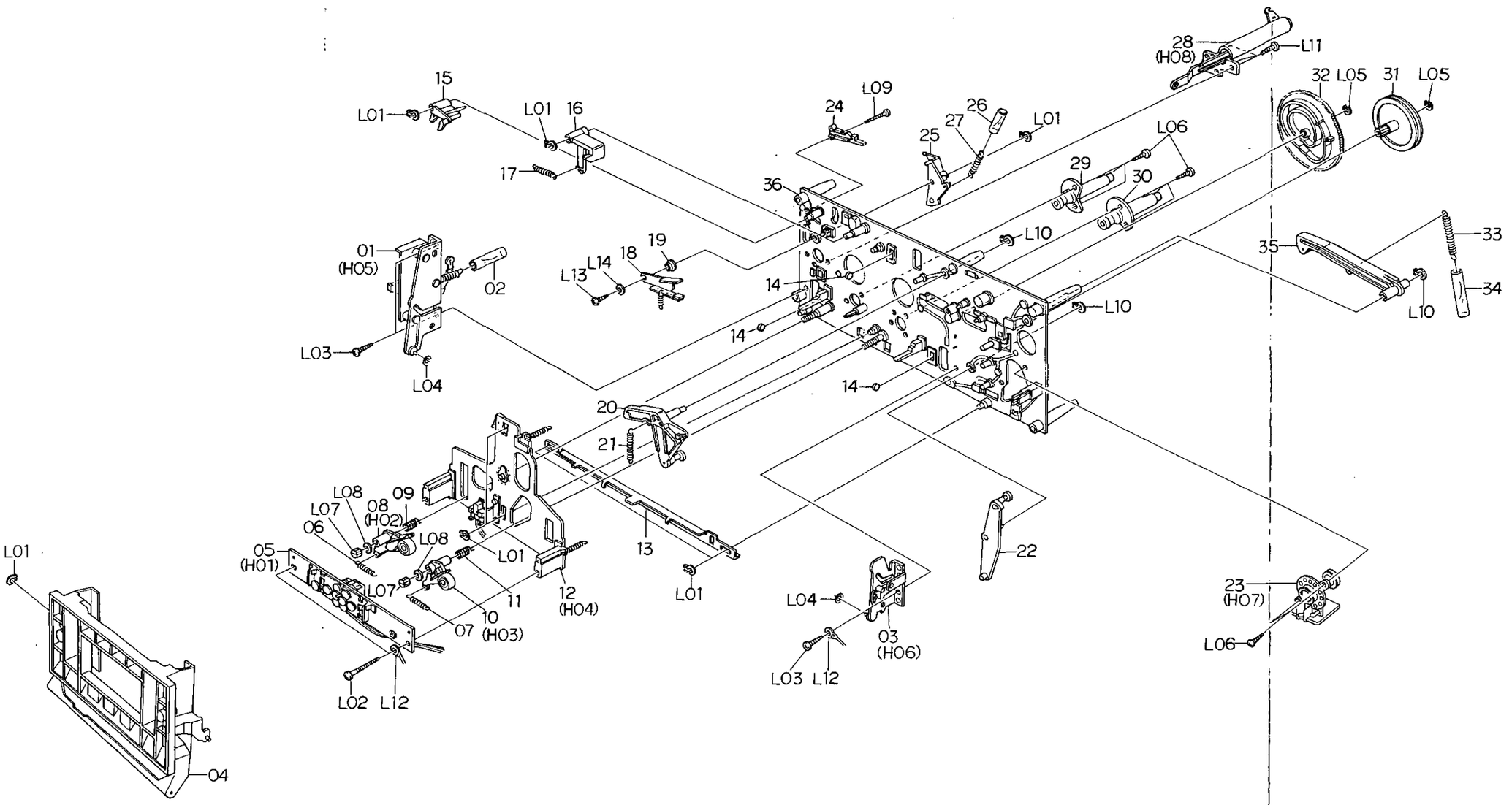


Fig. 8.14

8.15. Capstan Motor Ass'y (F01)

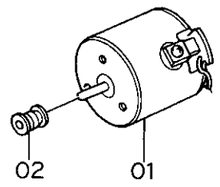


Fig. 8.15

8.16. Reel Motor Ass'y (G01)

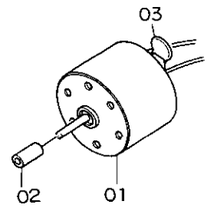


Fig. 8.16

8.17. Control Motor Ass'y (G02)

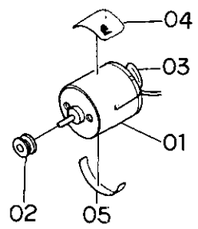


Fig. 8.17

8.18. Azimuth Alignment Motor Ass'y (G03)

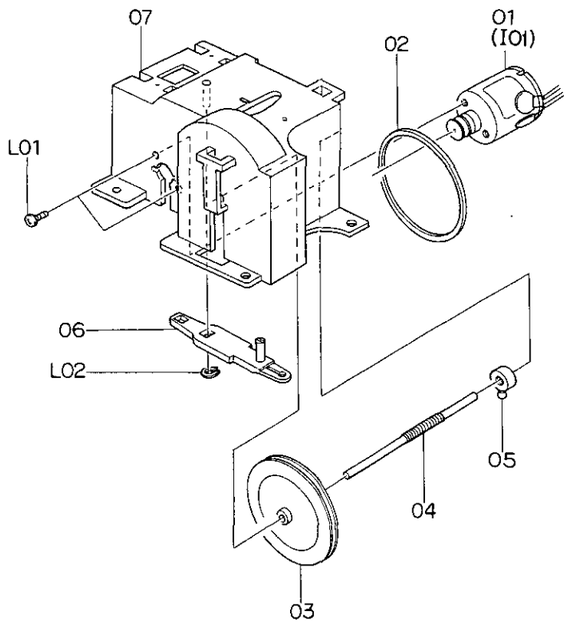


Fig. 8.18

8.19. Head Mount Base Ass'y (H01)

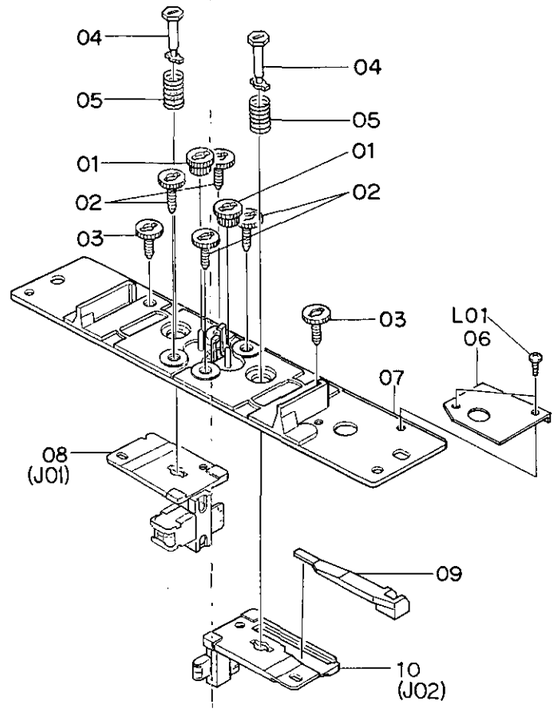


Fig. 8.19

8.20. Supply Pressure Roller Ass'y (H02)

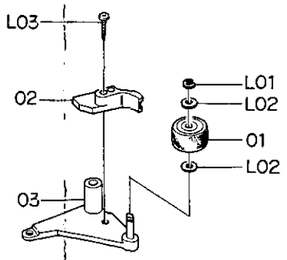


Fig. 8.20

8.21. Take-up Pressure Roller Ass'y (H03)

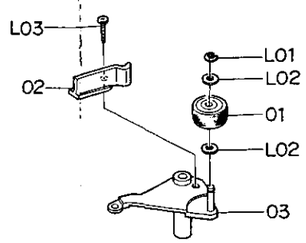


Fig. 8.21

8.22. Head Base Ass'y F (H04)

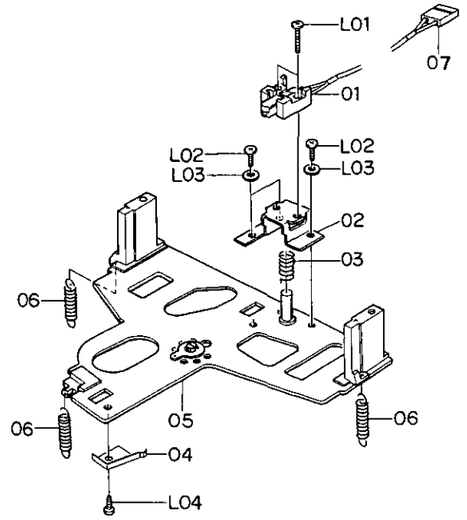


Fig. 8.22

8.23. Cassette Case Holder L Ass'y (H05)

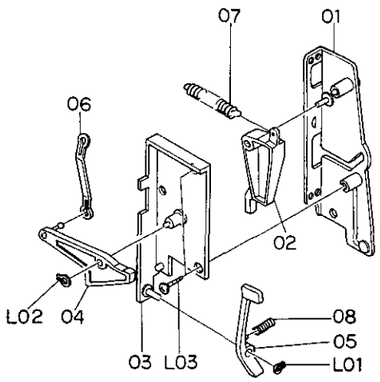


Fig. 8.23

Schematic Ref. No.	Part No.	Description	Q'ty
F01	**CA08246A**	**Capstan Motor Ass'y** Serial No.: A11901001 –	1
01	0C08271A	Capstan Motor	1
02	0C08079G	Capstan Motor Pulley	1
G01	**CA08242A**	**Reel Motor Ass'y** Serial No.: A11901001 –	1
01	0C08272A	Reel Motor	1
02	0C08063F	Reel Motor Pulley	1
03	0B09290A	Ceramic Capacitor 0.01μ 50V Z	1
G02	**CA08034A**	**Control Motor Ass'y** Serial No.: A11901001 –	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
G03	**CA08148A**	**Azimuth Alignment Motor Ass'y** Serial No.: A11901001 –	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
H01	**CA08262A**	**Head Mount Base Ass'y** Serial No.: A11901001 –	1
01	0C08028C	Head Height Adjustment Gear	2
02	0C08027F	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

Schematic Ref. No.	Part No.	Description	Q'ty
H02	**CA08053B**	**Supply Pressure Roller Ass'y** Serial No.: A11901001 –	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
H03	**CA08079B**	**Take-up Pressure Roller Ass'y** Serial No.: A11901001 –	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
H04	**CA08260B**	**Head Base Ass'y F** Serial No.: A11901001 –	1
01	GA02103A	E0K 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
H05	**CA08125A**	**Cassette Case Holder L Ass'y** Serial No.: A11901001 –	1
01	CA08090F	Cassette Case L Sub Ass'y	
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

8.24. Cassette Case Holder R Ass'y (H06)

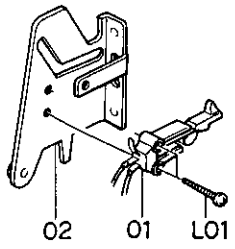


Fig. 8.24

8.25. Auto Shut-off Ass'y (H07)

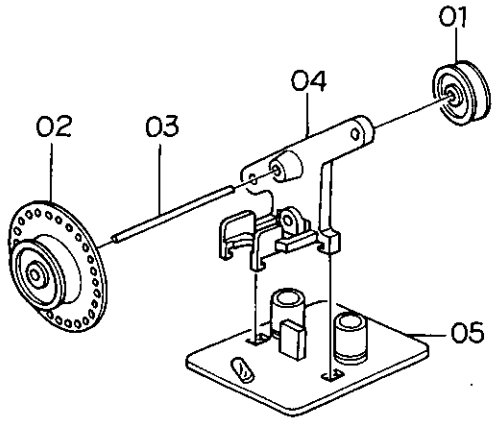


Fig. 8.25

8.26. Pneumatic Damper Ass'y (H08)

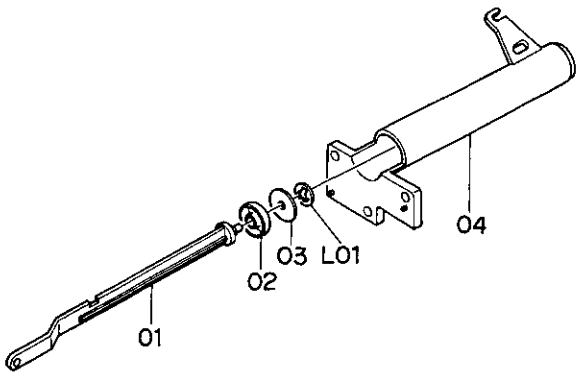


Fig. 8.26

8.27. Azimuth Motor Ass'y (I01)

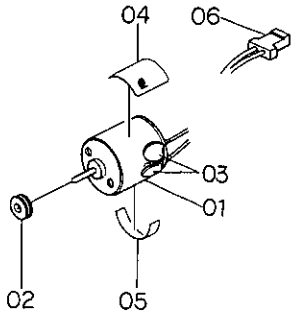


Fig. 8.27

8.28. P-8L Playback Head Ass'y (J01)

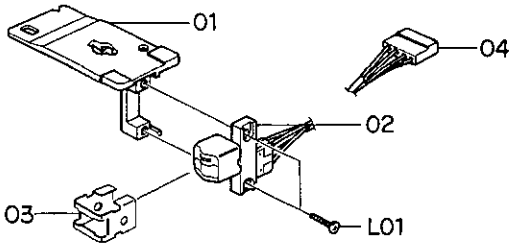


Fig. 8.28

8.29. R-8L Record Head Ass'y (J02)

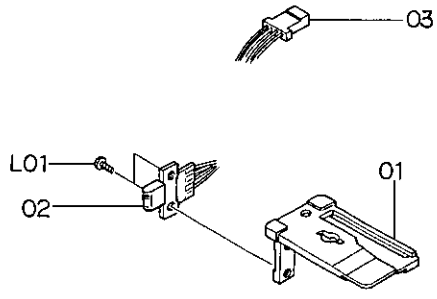


Fig. 8.29

Schematic Ref. No.	Part No.	Description	Q'ty
H06	**CA08022A**	**Cassette Case Holder R Ass'y** Serial No.: A11901001 –	**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
H07	**CA08237A**	**Auto Shut-off Ass'y** Serial No.: A11901001 –	**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
H08	**CA08030A**	**Pneumatic Damper Ass'y** Serial No.: A11901001 –	**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
I01	**CA08149A**	**Azimuth Motor Ass'y** Serial No.: A11901001 –	**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
J01	**CA08261A**	**P-8L Playback Head Ass'y** Serial No.: A11901001 –	**1**
01	CA08307A	Head Plate Ass'y	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
J02	**CA08263A**	**R-8L Record Head Ass'y** Serial No.: A11901001 –	**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

9.1. Overall Timing Chart

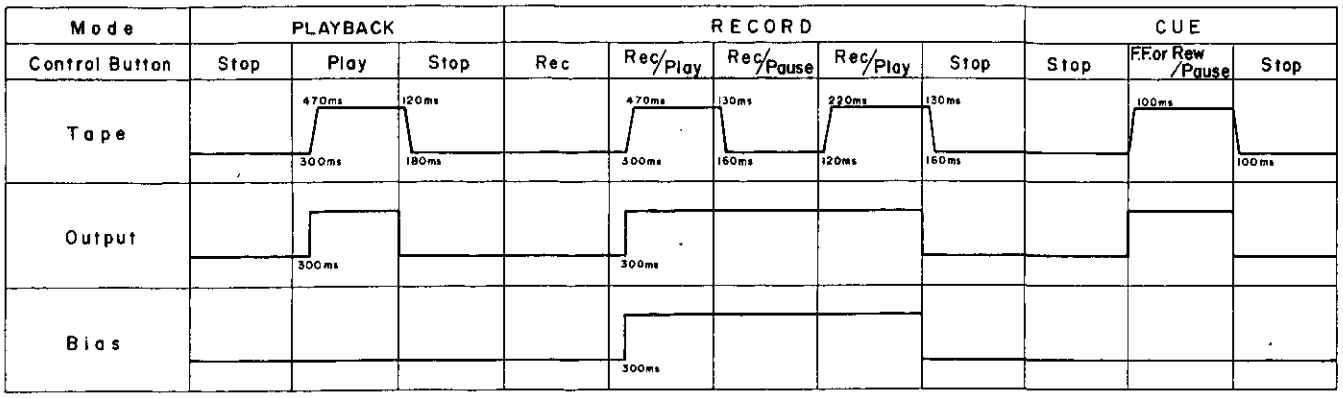


Fig. 9.1

9.2. Auto Calibration and RAMM Control

(1) Auto Calibration Timing Chart

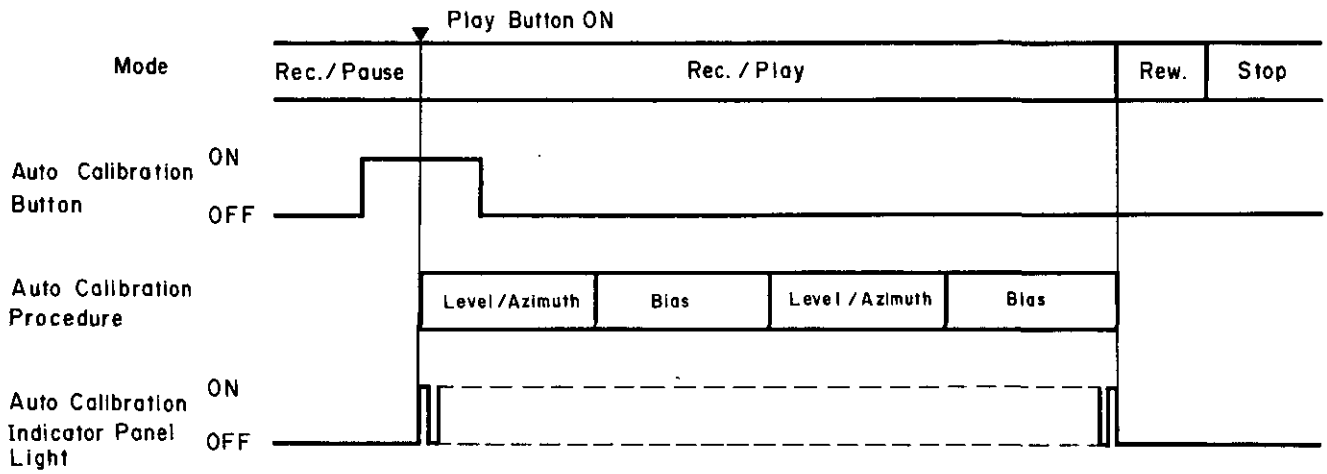


Fig. 9.2

(2) Auto Calibration Flow Chart

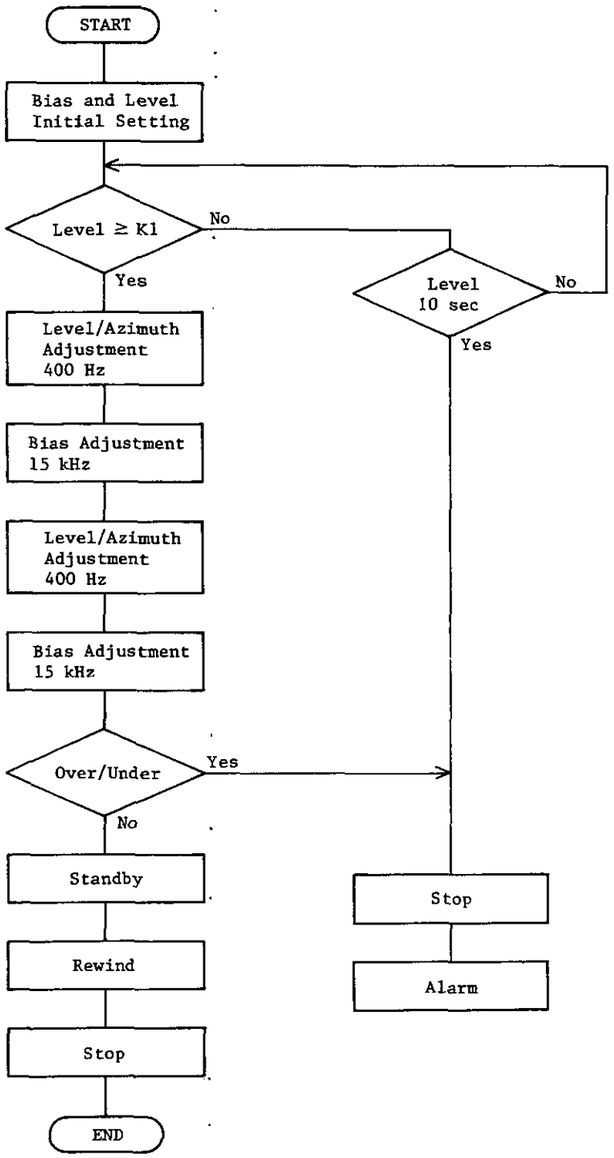


Fig. 9.3

(3) RAMM Search

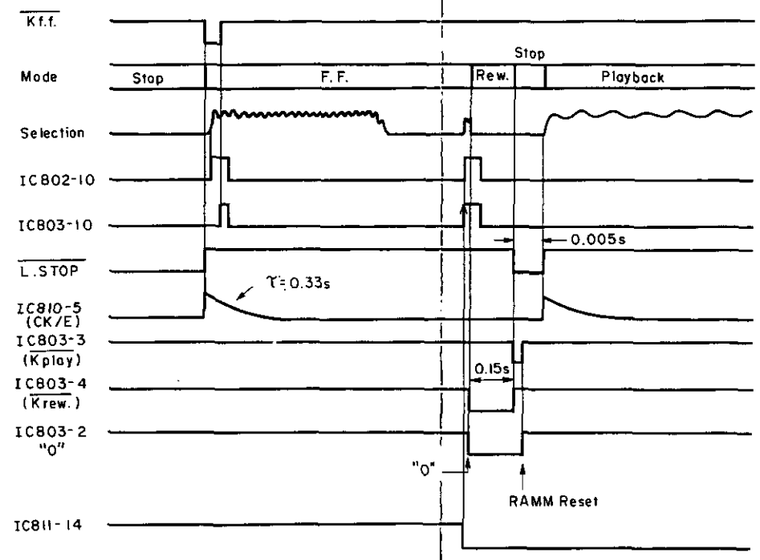


Fig. 9.4

Note: Elements are located on the Auto Cal. P.C.B. Ass'y.

(4) RAMM Control By Remote Control

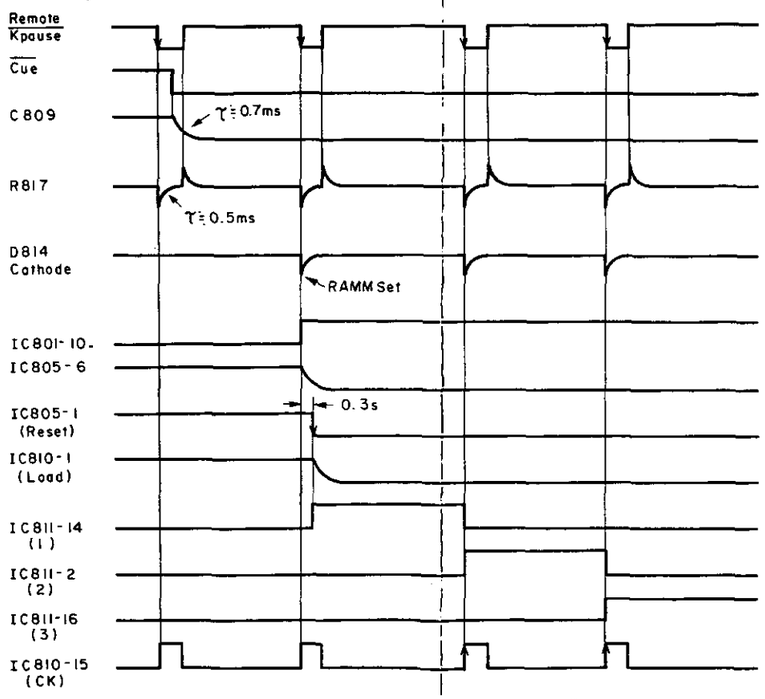


Fig. 9.5

Note: Elements are located on the RAMM & Auto Azimuth P.C.B. Ass'y.

10. BLOCK DIAGRAMS

10.1. Amplifier Section

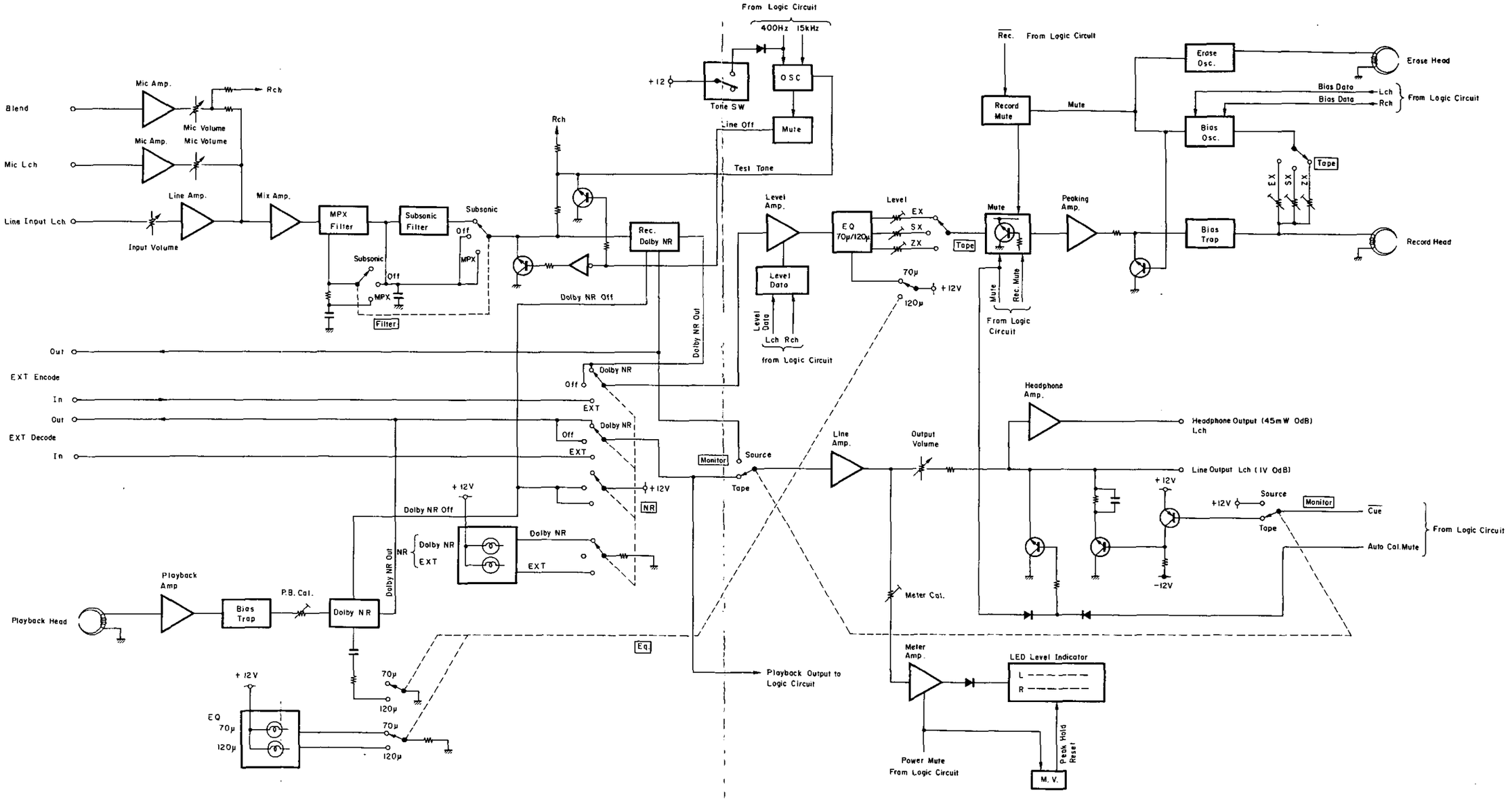


Fig. 10.1

10.2. Mechanism Control, RAMM and Auto Calibration Section

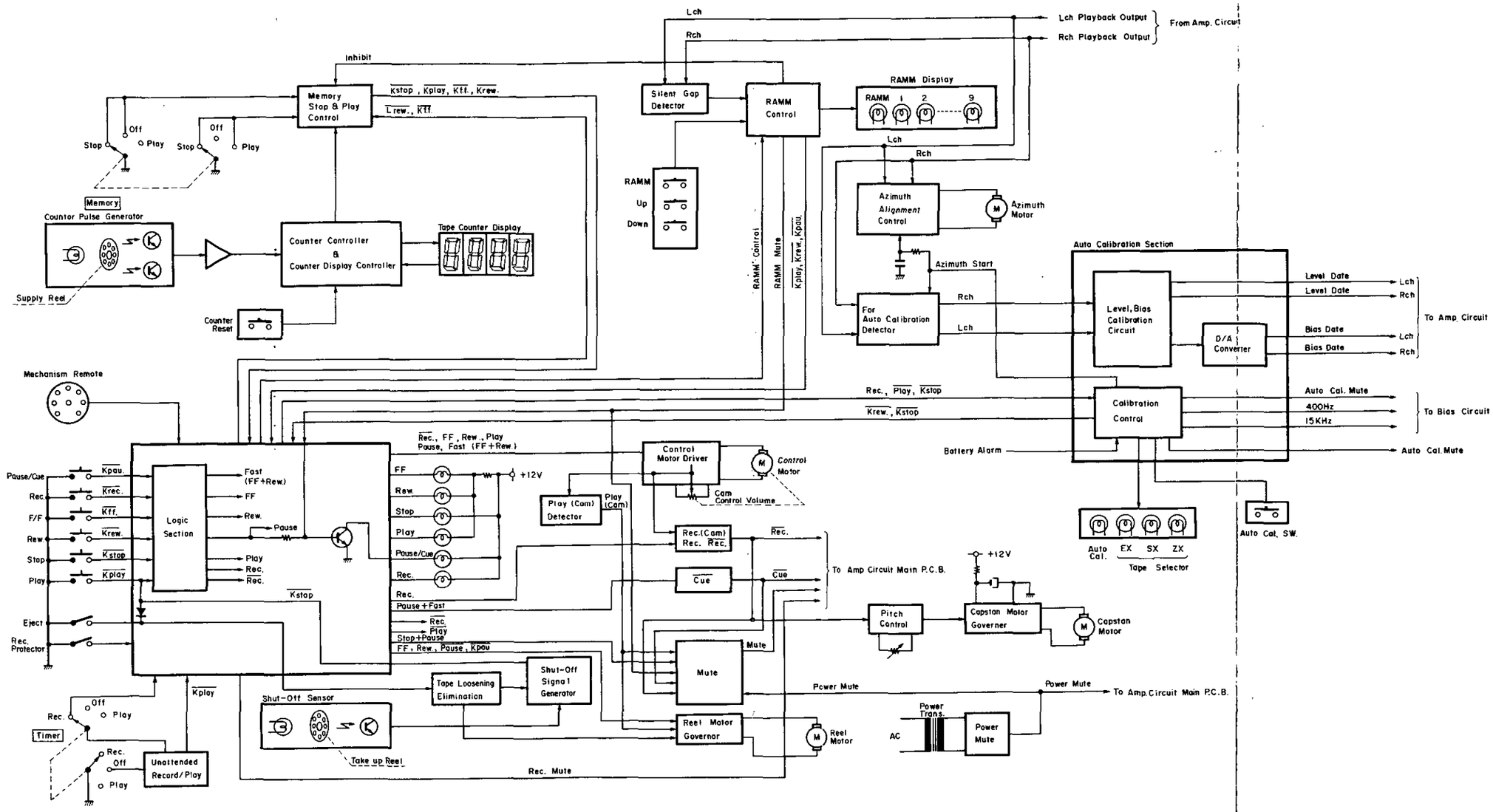


Fig. 10.2

11. EQ. AMP. FREQUENCY RESPONSE

11.1. Playback Frequency Response

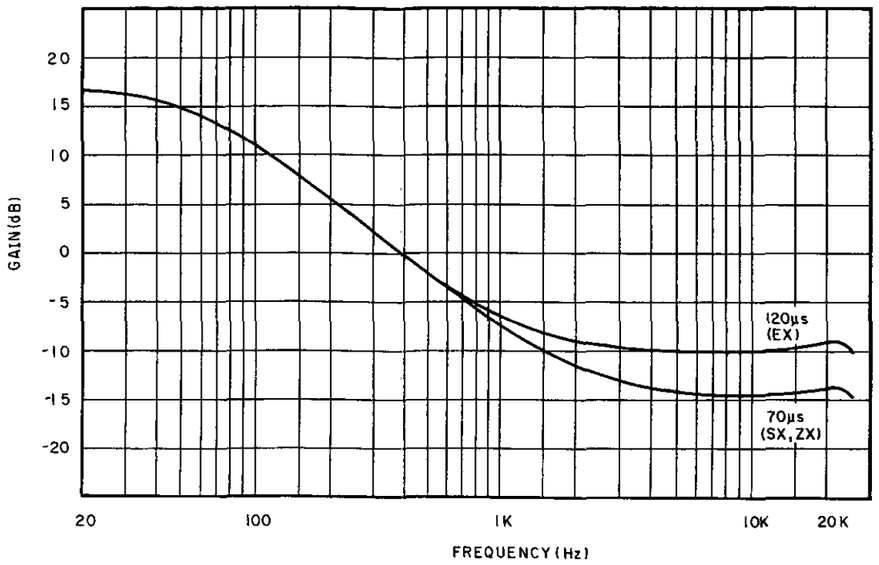


Fig. 11.1

11.2. Record Current Frequency Response

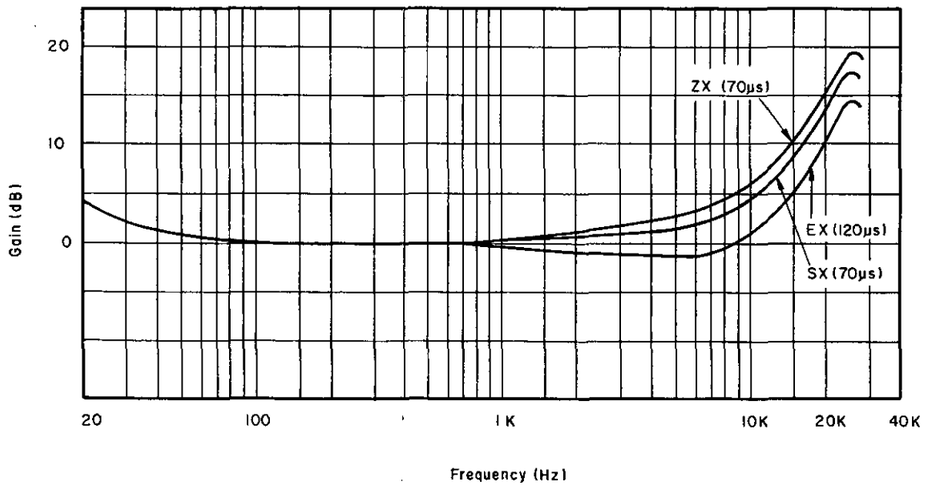


Fig. 11.2

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

12. WIRING DIAGRAM

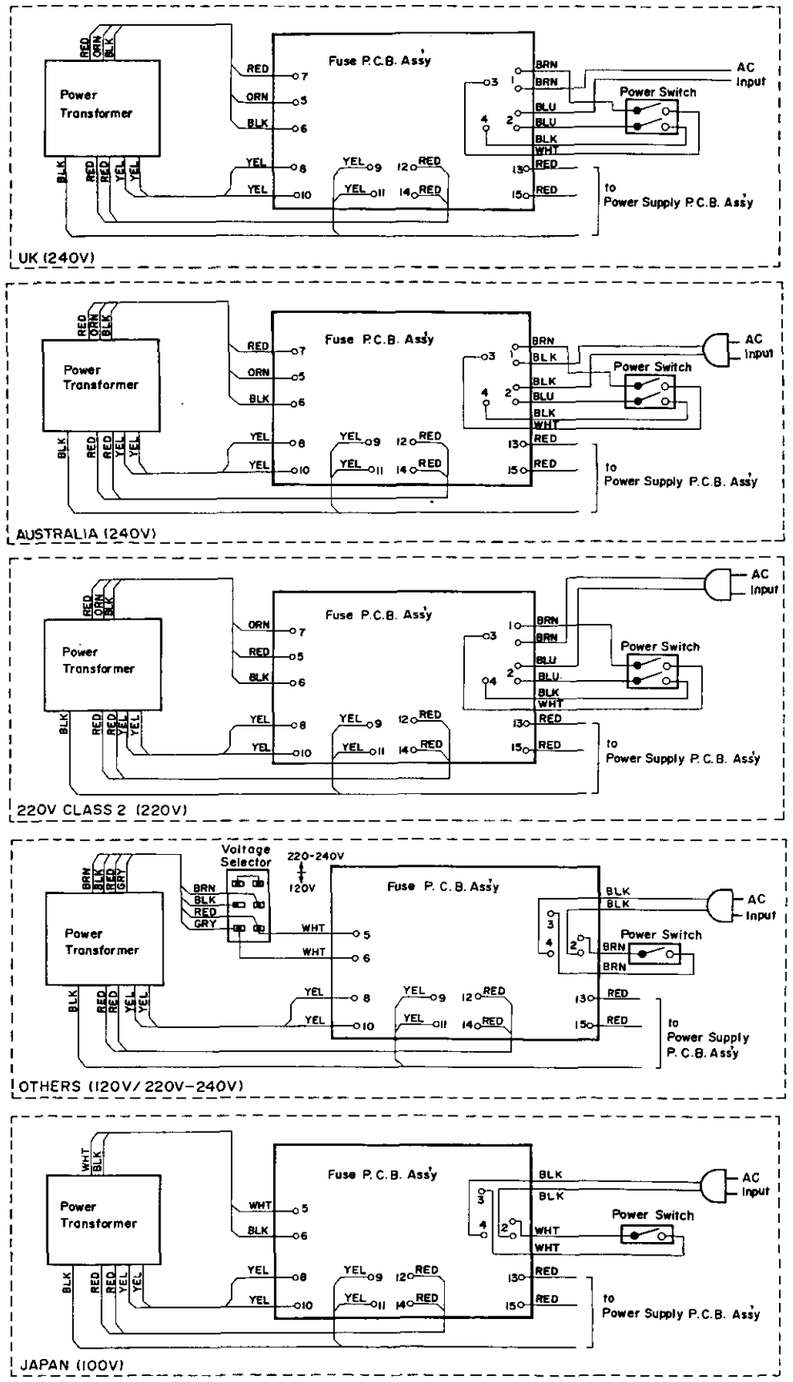


Fig. 12.1

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

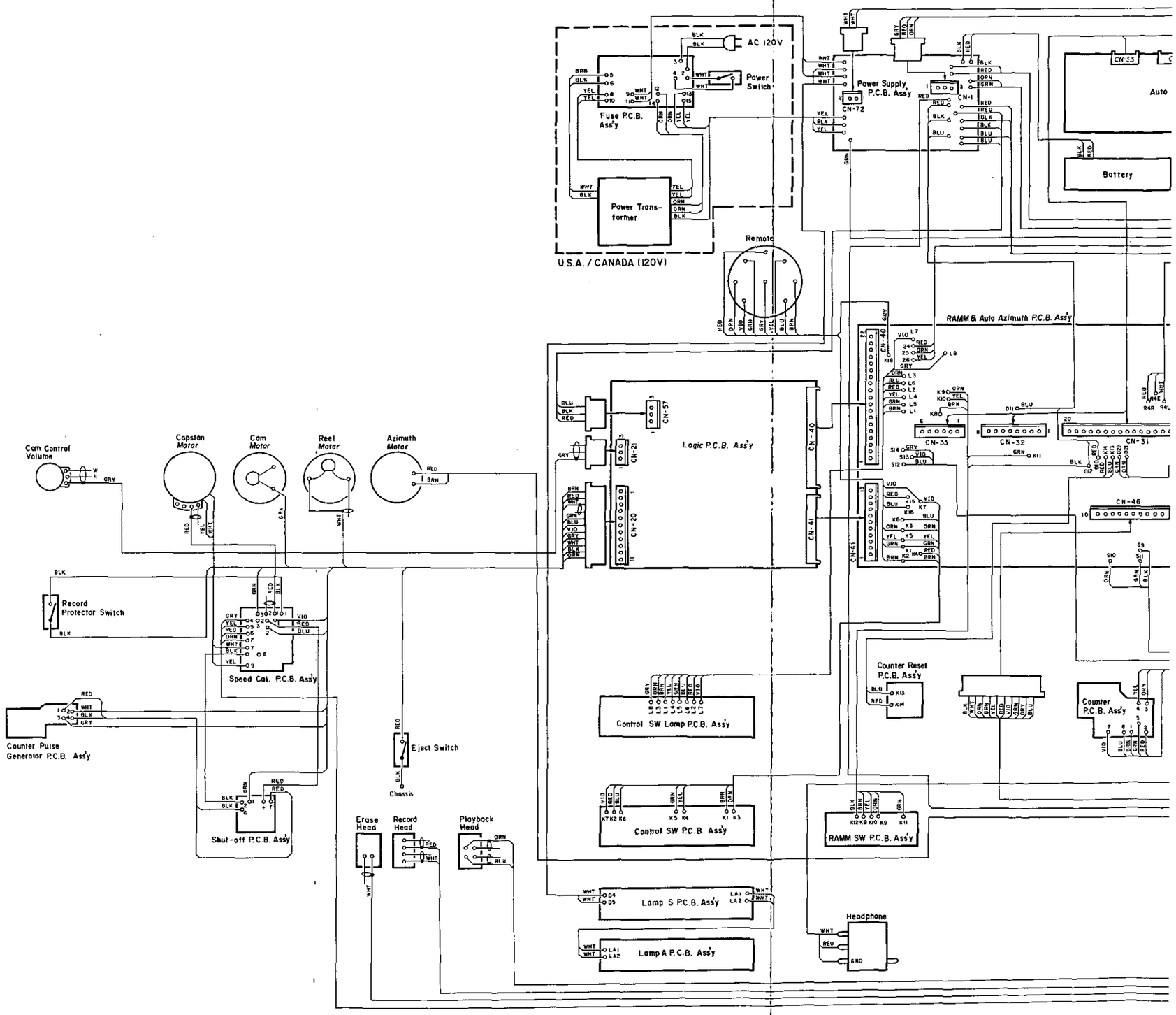


Fig. 12.2

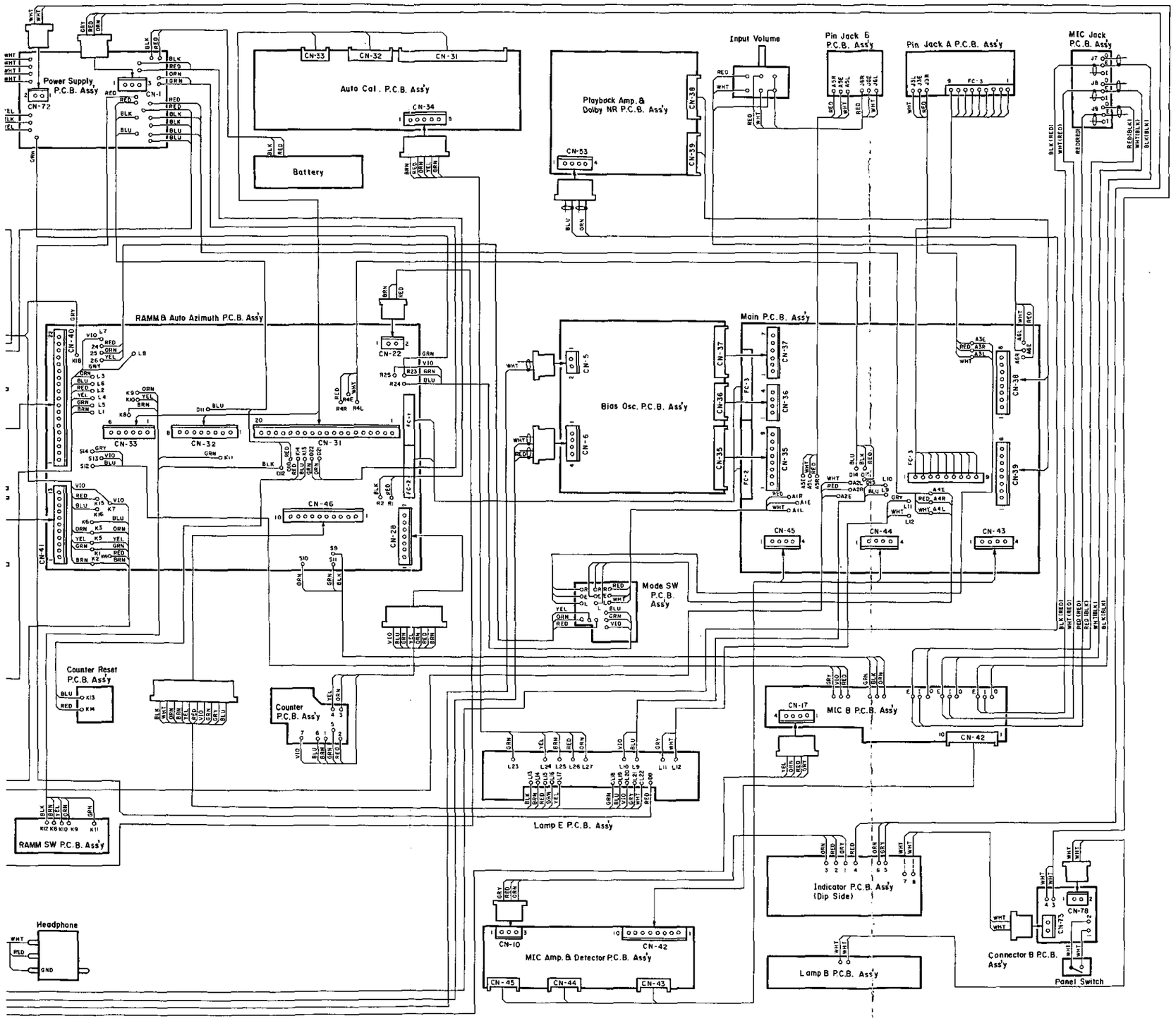
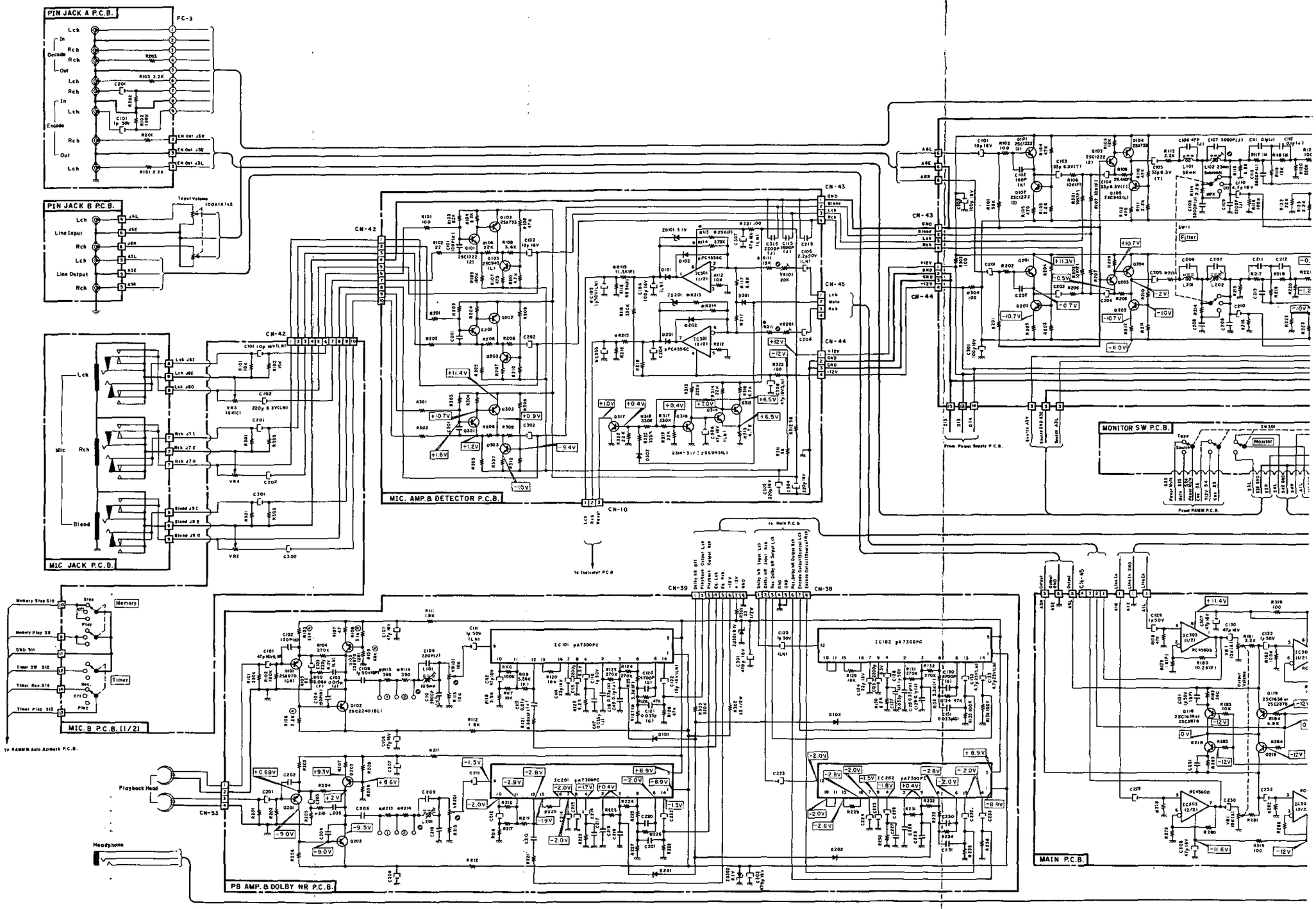

Power Supply P.C.B. Assy
CN-72
CN-1
Auto Cal. P.C.B. Assy
CN-33
CN-32
CN-31
CN-34
Battery
Playback Amp.& Dolby NR P.C.B. Ass'y
CN-38
CN-39
CN-53
Input Volume
Pin Jack B P.C.B. Ass'y
Pin Jack A P.C.B. Ass'y
FC-3
MIC Jack P.C.B. Assy
RAMM & Auto Azimuth P.C.B. Ass'y
CN-40
CN-41
CN-22
CN-33
CN-32
CN-31
CN-46
CN-28
Bias Osc. P.C.B. Ass'y
CN-5
CN-6
Main P.C.B. Ass'y
CN-37
CN-36
CN-35
CN-45
CN-44
CN-43
Mode SW P.C.B. Assy
Counter Reset P.C.B. Ass'y
Counter P.C.B. Ass'y
MIC B P.C.B. Ass'y
CN-17
CN-42
Lamp E P.C.B. Ass'y
RAMM SW P.C.B. Ass'y
Indicator P.C.B. Ass'y (Dip Side)
Lamp B P.C.B. Ass'y
CN-10
MIC Amp. & Detector P.C.B. Ass'y
Connector B P.C.B. Ass'y
CN-75
CN-78
Panel Switch
Headphone
GND

Fig. 12.2

13. SCHEMATIC DIAGRAMS

13.1. Amplifier Section



Notes:

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

Fig. 13.1

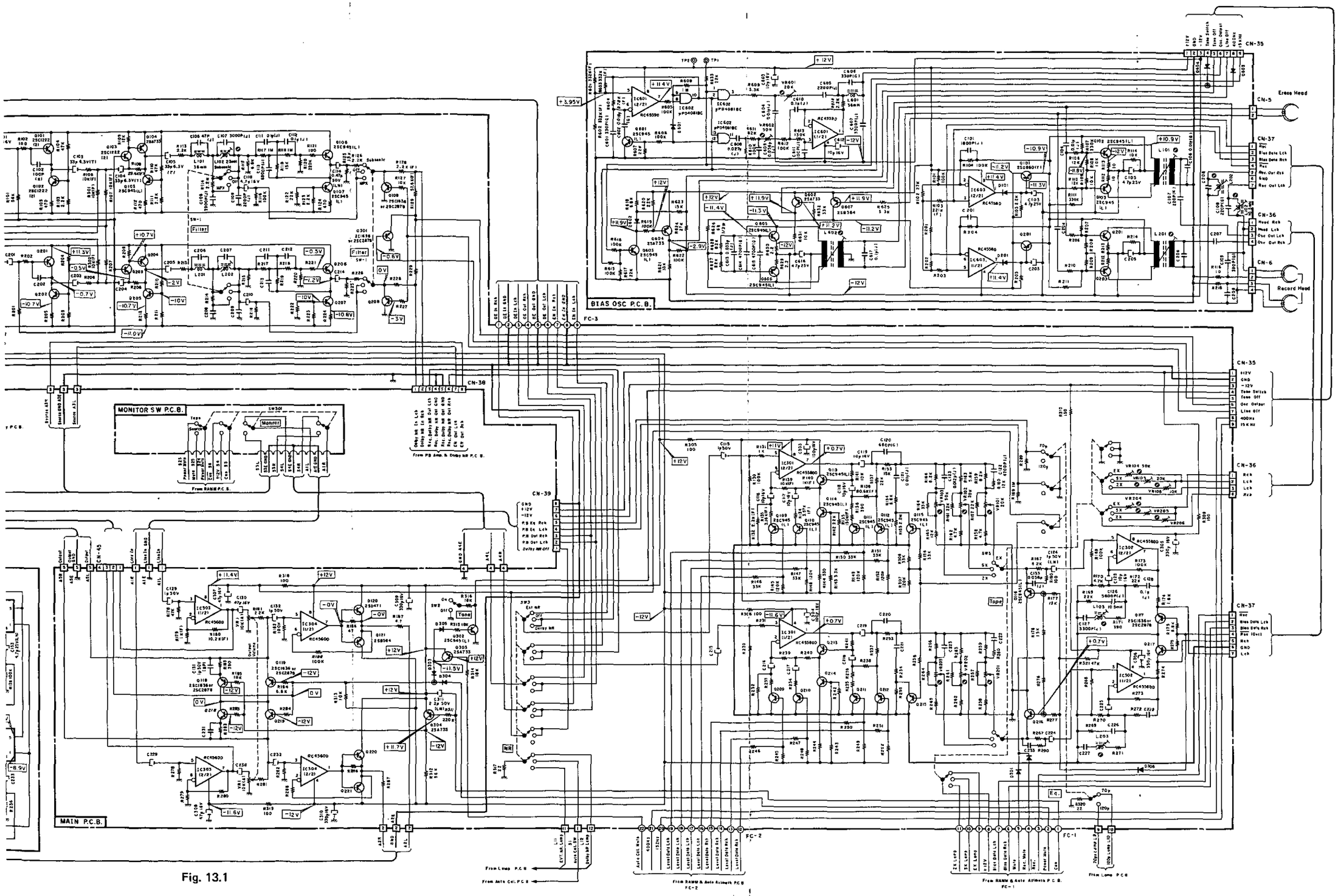
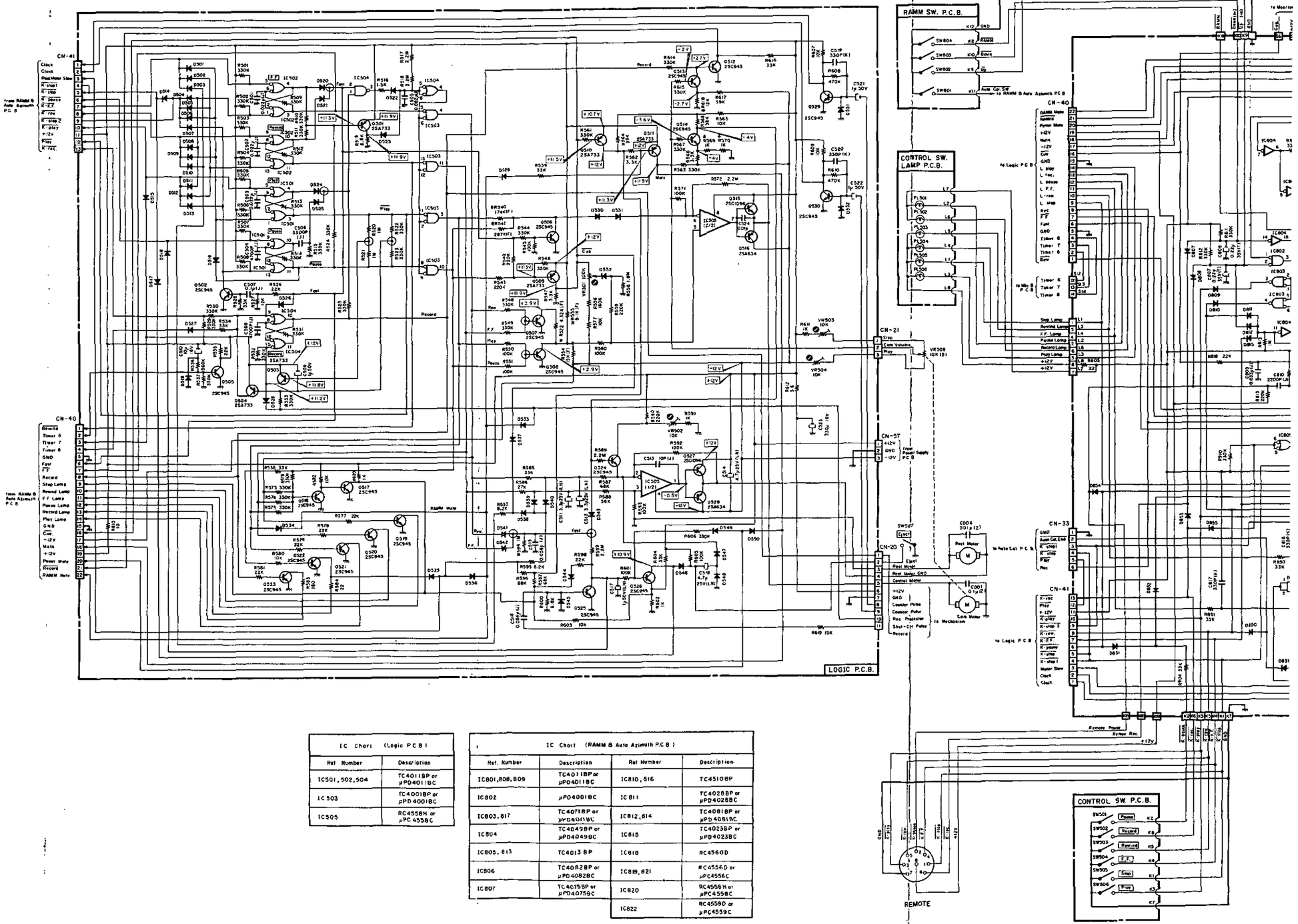

BIAS OSC P.C.B.
MONITOR SW P.C.B.
MAIN P.C.B.
CN-35
CN-36
CN-37
CN-5
CN-6
CN-39
CN-45
Erase Head
Record Head
Tape
Eq.
NR
Filter
Tone
Monitor
From RAMM P.C.B.
From PB Amp. & Dolby NR P.C.B.
From Loop P.C.B
From Auto Rev. P.C.B
From RAMM & Auto Azimuth P.C.B
From RAMM & Auto Azimuth P.C.B.
From Loop P.C.B

Fig. 13.1

13.2. Mechanism Control and RAMM Section

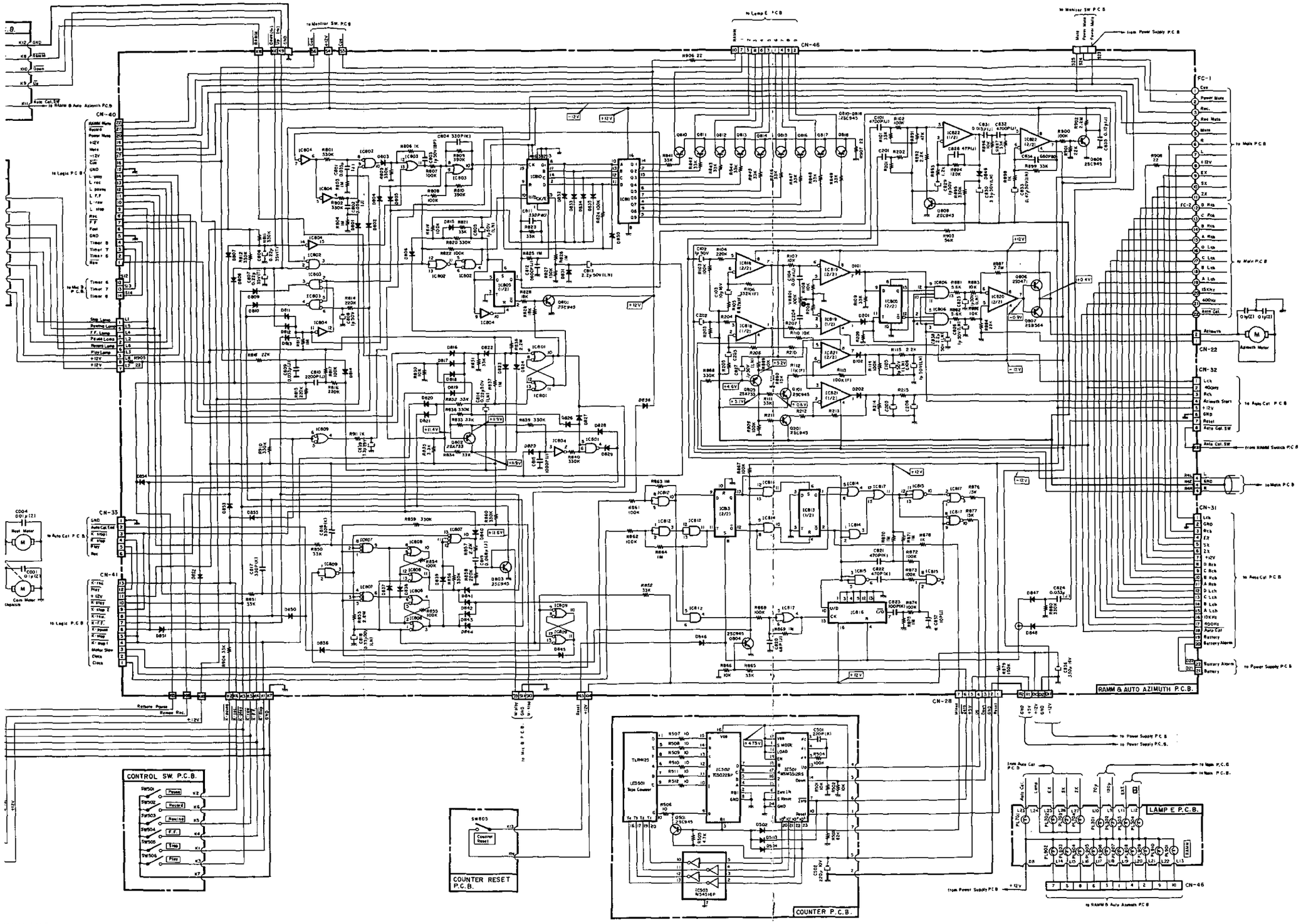


IC Chart (Logic P.C.B.)	
Ref. Number	Description
IC501, 502, 504	TC4011BP or μPD4011BC
IC503	TC4001BP or μPD4001BC
IC505	RC4558H or μPC4558C

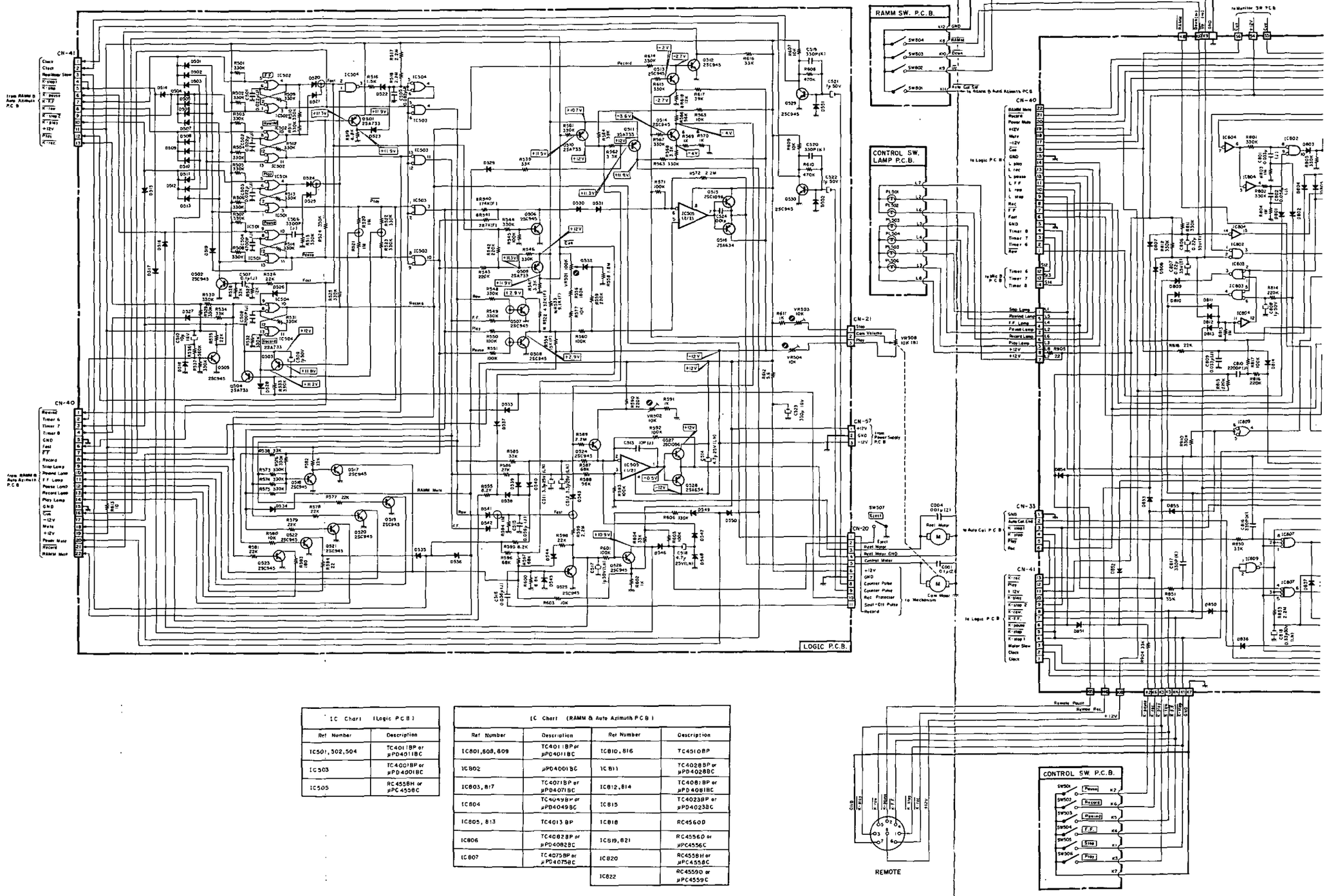
IC Chart (RAMM & Auto Azimuth P.C.B.)			
Ref. Number	Description	Ref. Number	Description
IC801, 808, 809	TC4011BP or μPD4011BC	IC810, 816	TC4510BP
IC802	μPD4001BC	IC811	TC4028BP or μPD4028BC
IC803, 817	TC4071BP or μPD4011BC	IC812, 814	TC4081BP or μPD4081BC
IC804	TC4049BP or μPD4049BC	IC815	TC4023BP or μPD4023BC
IC805, 813	TC4013BP	IC818	RC4560D
IC806	TC4082BP or μPD4082BC	IC819, 821	RC4556D or μPC4556C
IC807	TC4075BP or μPD4075BC	IC820	RC4558H or μPC4558C
		IC822	RC4559D or μPC4559C

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

Fig. 13.2.1 Serial No.: A11901907 –


CN-46
CN-40
CN-41
CN-33
CN-28
CN-22
CN-32
CN-31
FC-1
FC-2
RAMM & AUTO AZIMUTH P.C.B.
CONTROL SW. P.C.B.
COUNTER RESET P.C.B.
COUNTER P.C.B.
LAMP E P.C.B.
to Monitor SW. P.C.B
to Lamp E P.C.B
from Power Supply P.C.B
to Main P.C.B
to Auto Cat P.C.B
to Logic P.C.B
to Power Supply P.C.B
from RAMM Switch P.C.B
Azimuth Motor
Head Motor
Cam Motor
Counter Reset
Power
Record
Rewind
F.F.
Stop
Play

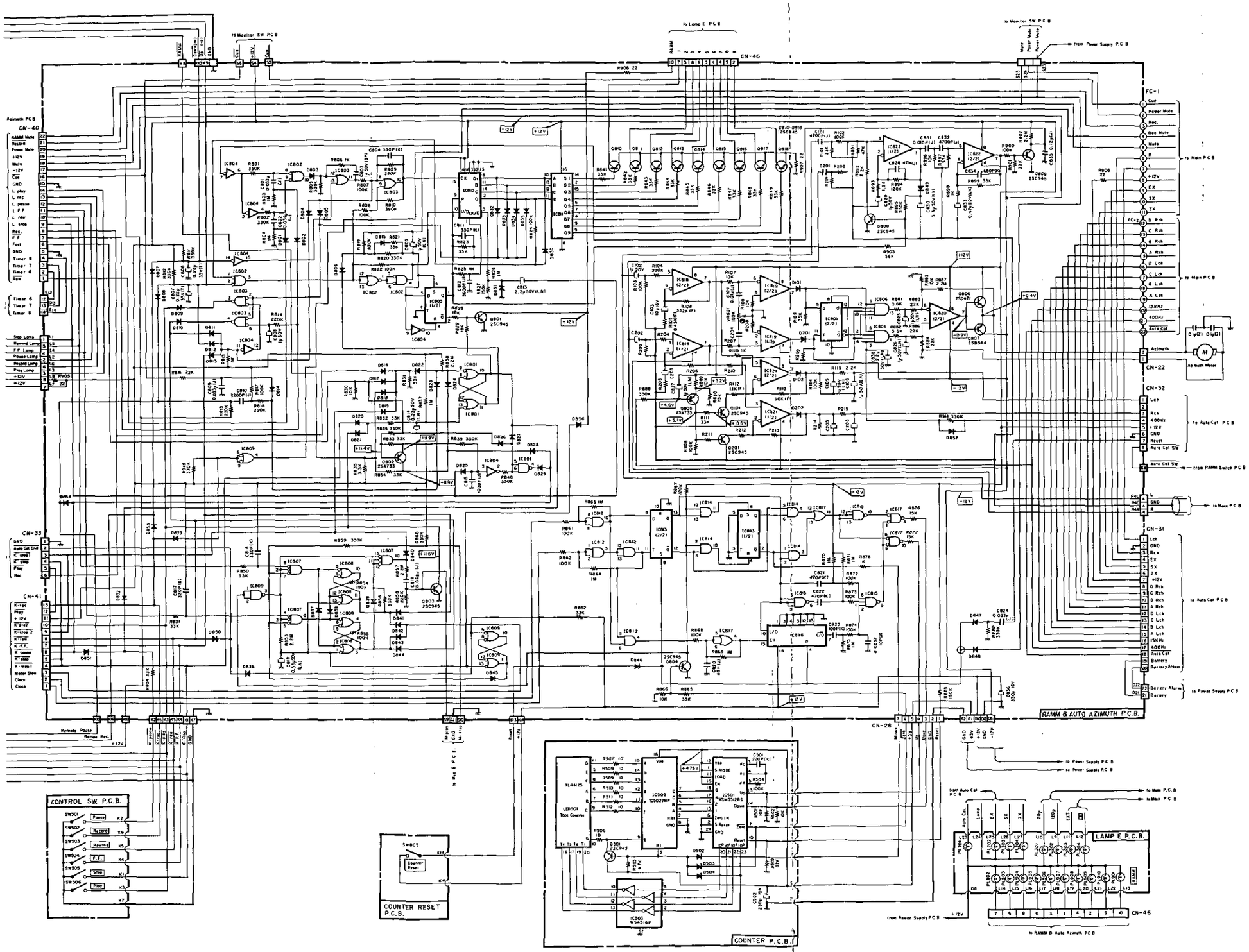
1901907 —



IC Chart (Logic P.C.B.)	
Ref. Number	Description
IC501, 502, 504	TC4011BP or μPD4011BC
IC503	TC4001BP or μPD4001BC
IC505	RC4558H or μPC4558C

IC Chart (RAMM & Auto Azimuth P.C.B.)			
Ref. Number	Description	Ref. Number	Description
IC801, 808, 809	TC4011BP or μPD4011BC	IC810, 816	TC4510BP
IC802	μPD4001BC	IC811	TC4028BP or μPD4028BC
IC803, 817	TC4071BP or μPD4071BC	IC812, 814	TC4081BP or μPD4081BC
IC804	TC4049BP or μPD4049BC	IC815	TC4023BP or μPD4023BC
IC805, 813	TC4013BP	IC818	RC4560D
IC806	TC4082BP or μPD4082BC	IC819, 821	RC4556D or μPC4556C
IC807	TC4075BP or μPD4075BC	IC820	RC4558H or μPC4558C
		IC822	RC4559D or μPC4559C

Fig. 13.2.2 Serial No.: A11901001 – A11901906

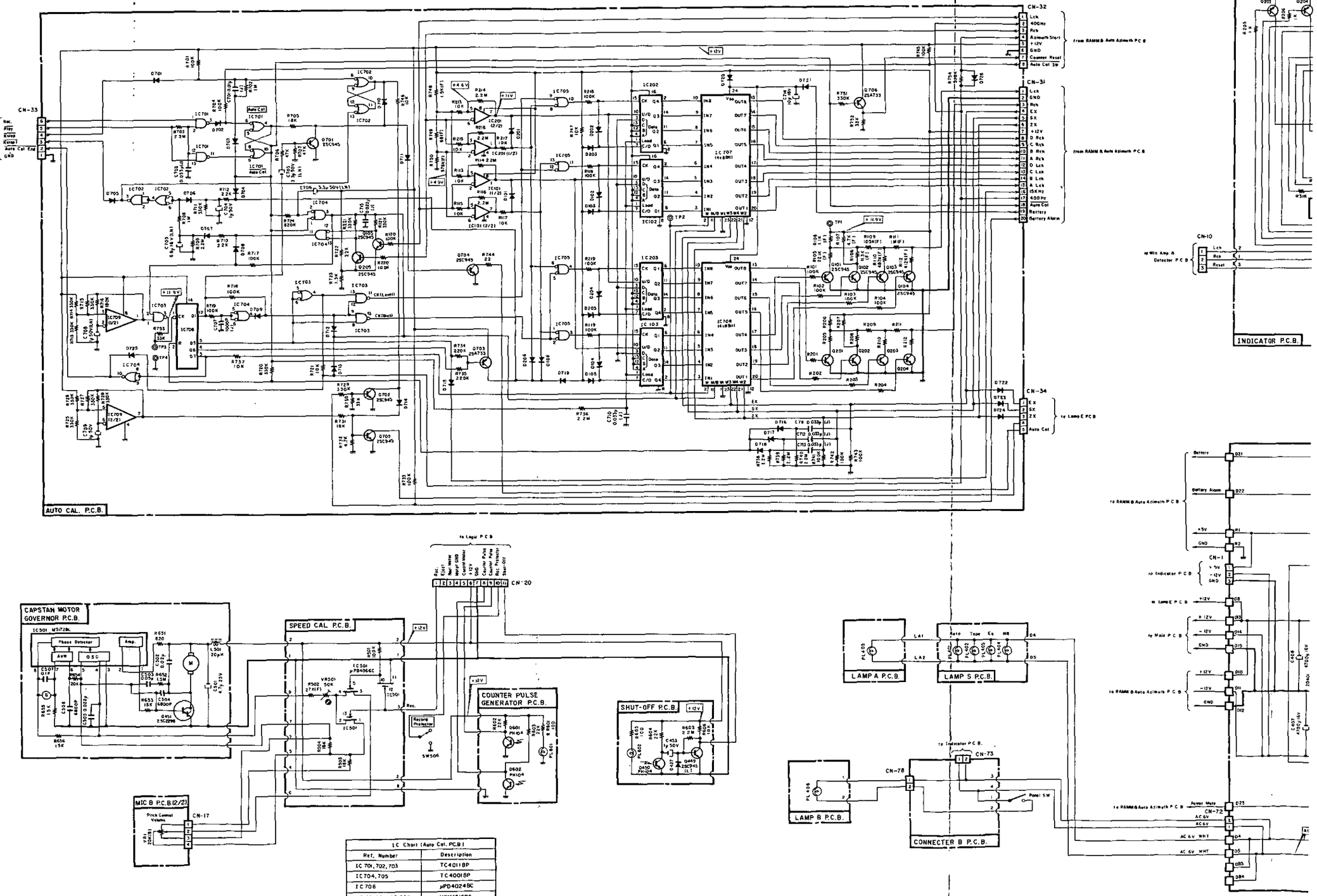


Notes:

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

13.2.2 Serial No.: A11901001 – A11901906

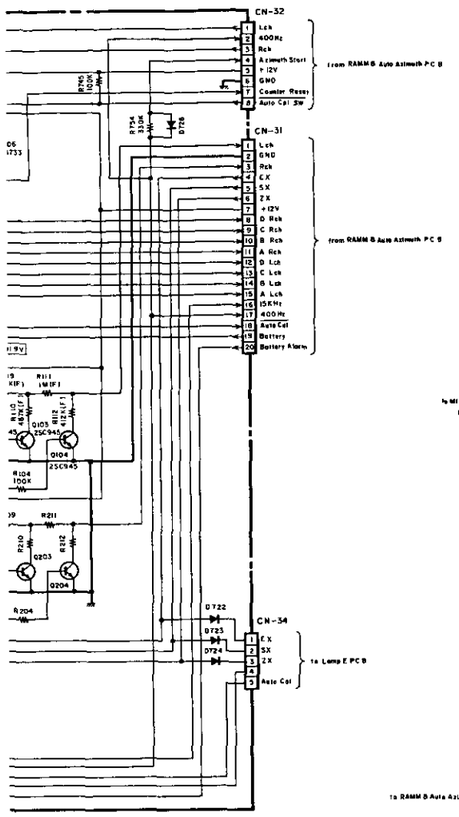
13.3. Auto Calibration Section

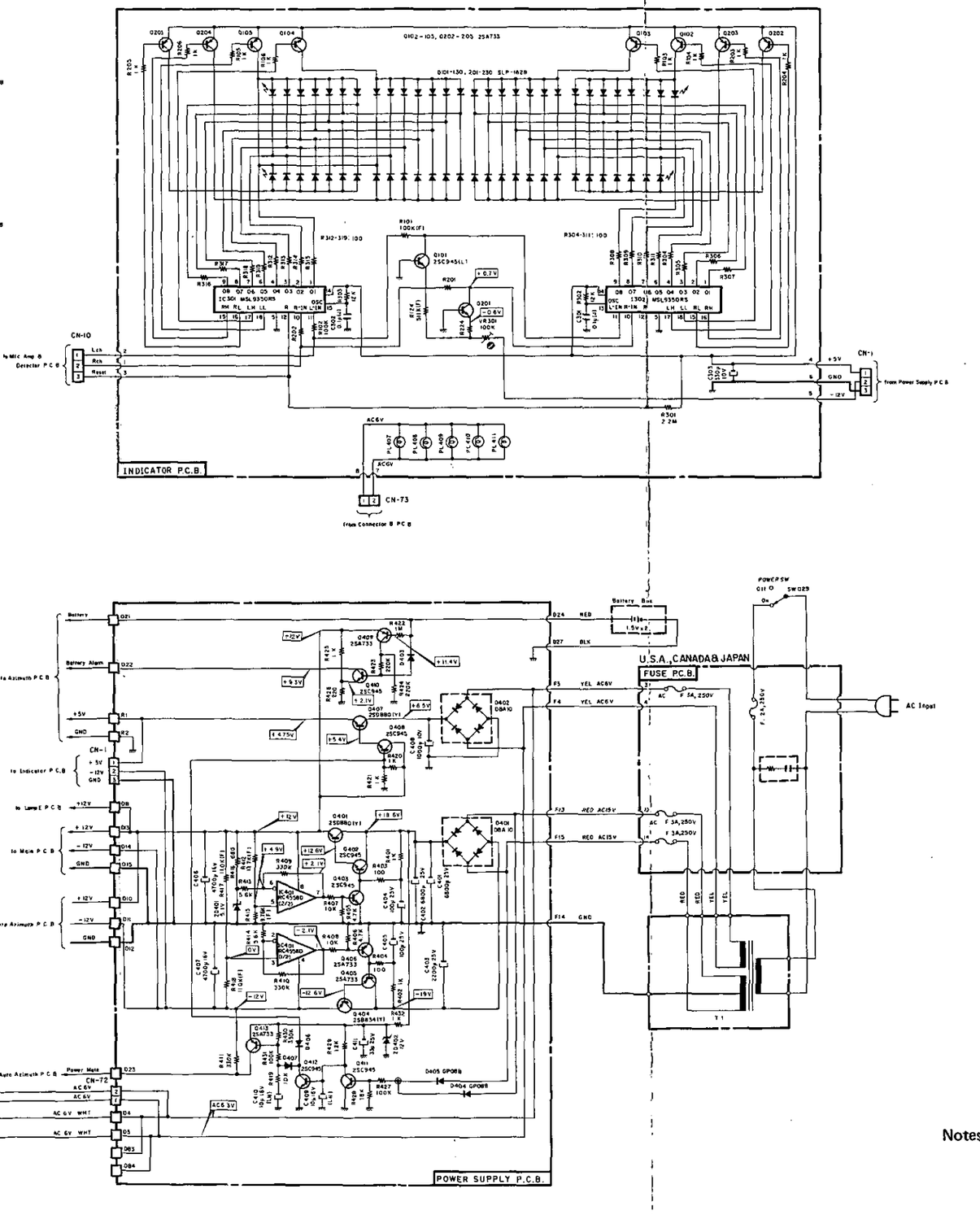


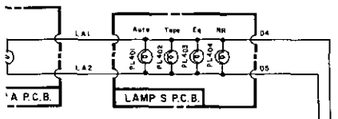
IC Chart (Auto Cal. PC.B.)	
Ref. Number	Description
IC 701, 702, 703	TC4011BP
IC 704, 705	TC4001BP
IC 708	μPD4024BC
IC102, 202, 103, 203	MSM4516RS
IC 707, 708	MSM4039RS
IC 709	RC4558 H
IC201, 101	μPC 4556C

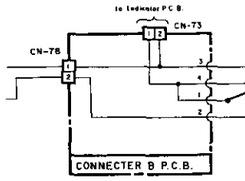
Fig. 13.3.1 Serial No.: A11901907 –

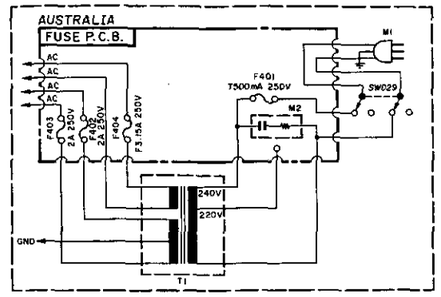
NAKA-00078 / Druck 1

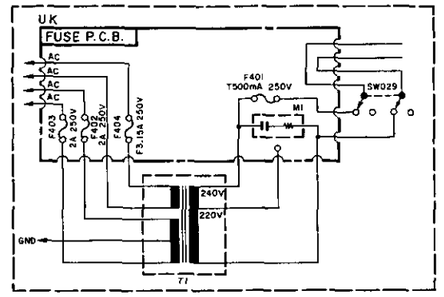


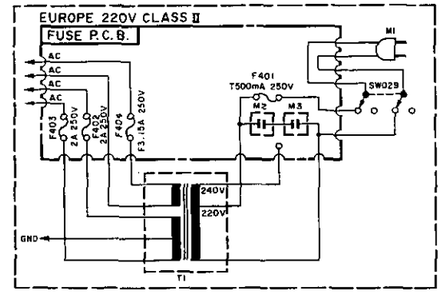


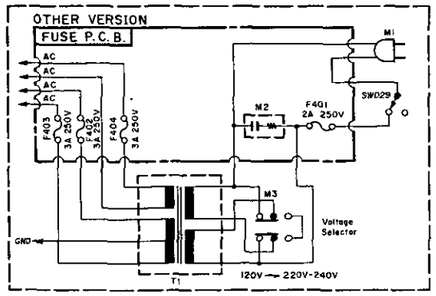












Notes: 1. Diode is 1SS53, 1S953, or 1S1555 unless otherwise specified.
2. *Resistor and capacitor marked with * show typical value.*

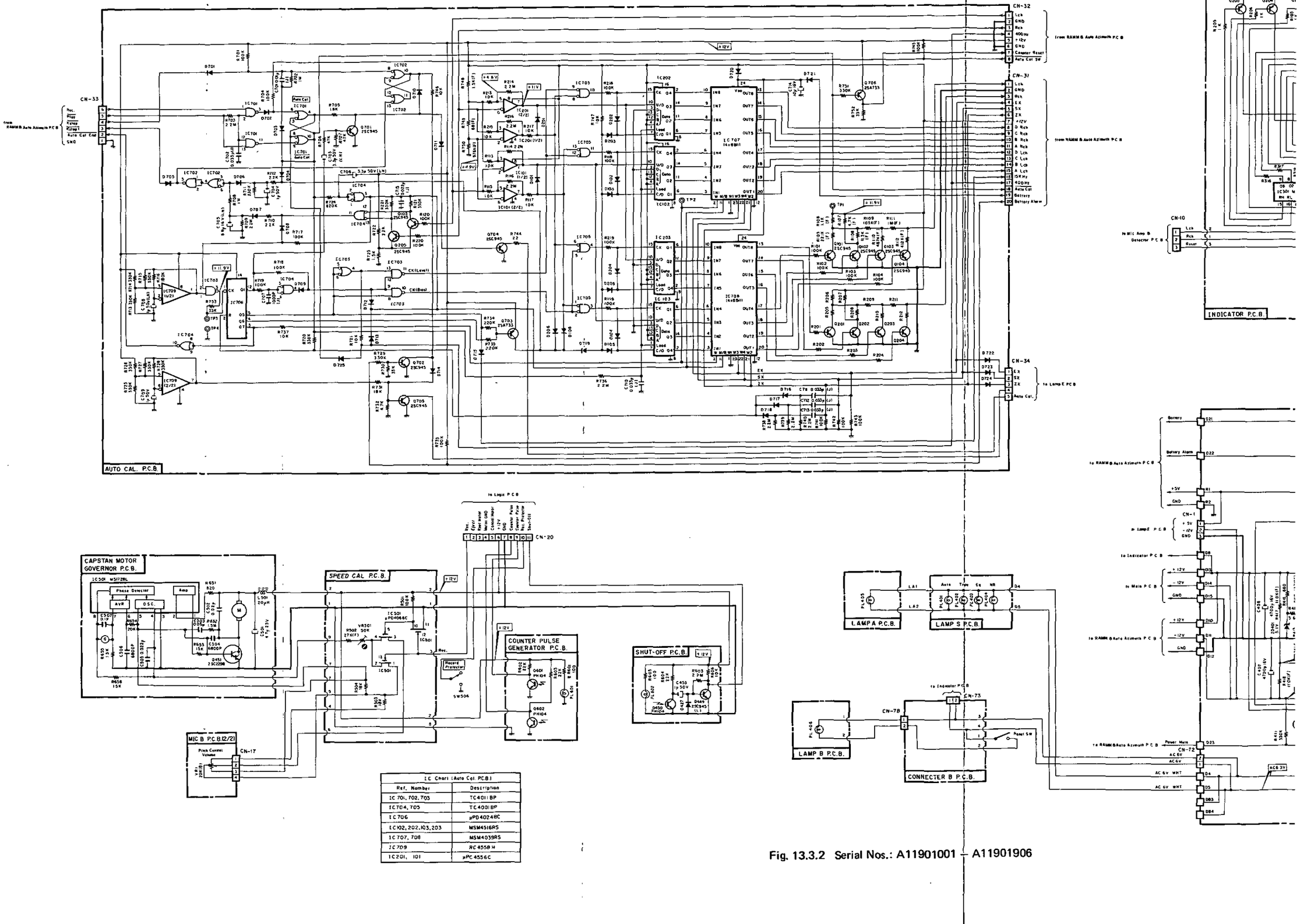
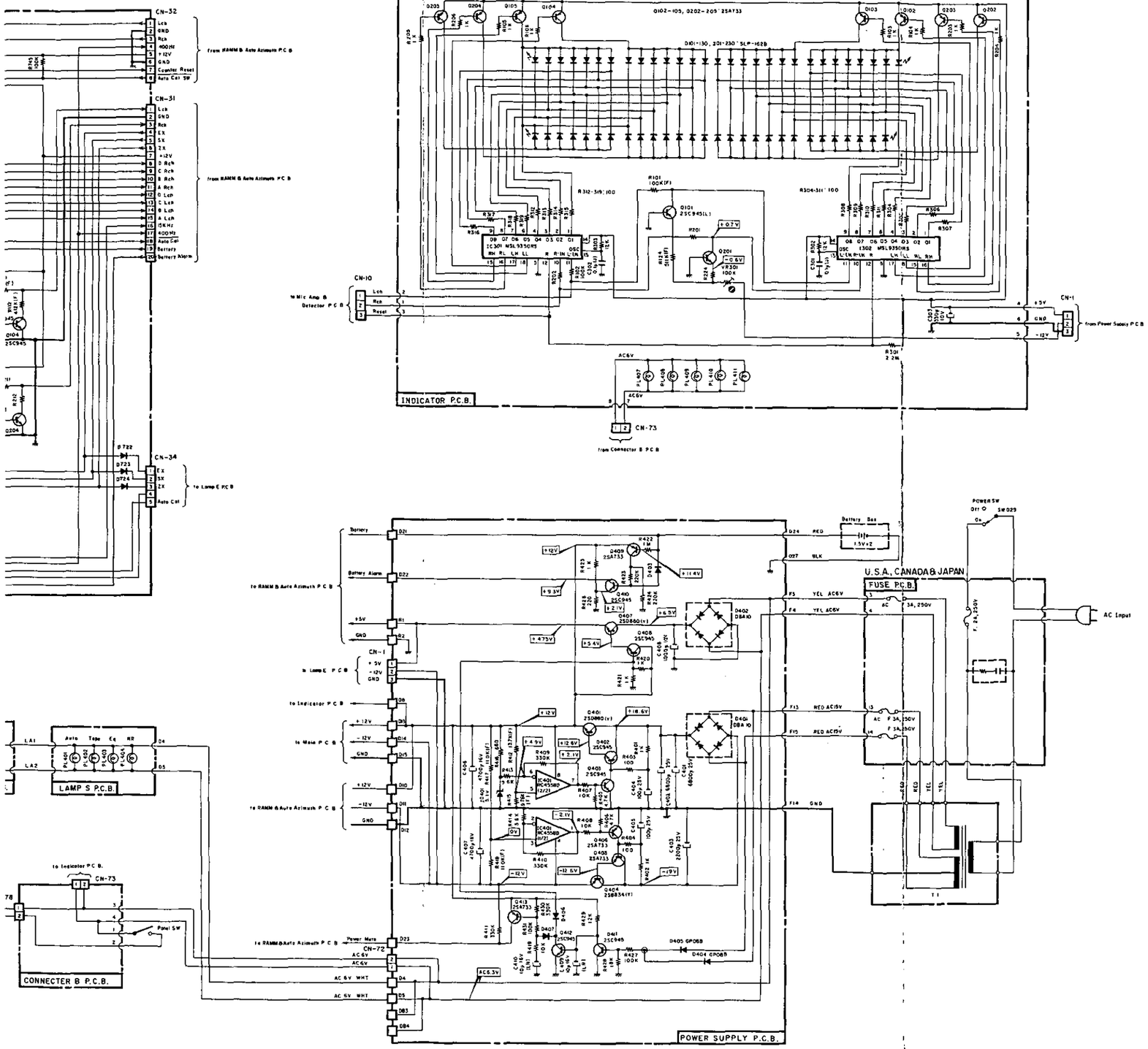
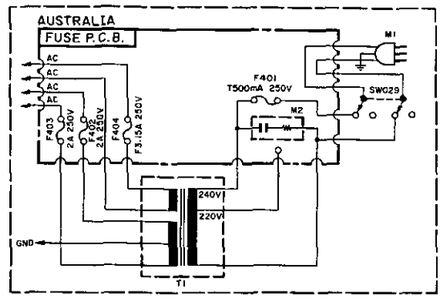
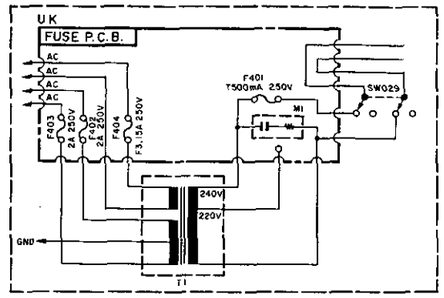
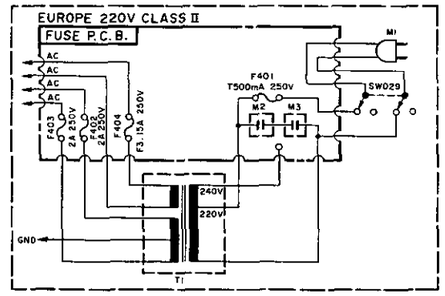


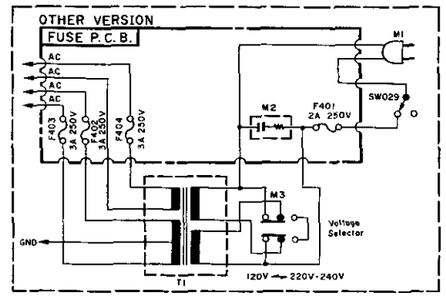
Fig. 13.3.2 Serial Nos.: A11901001 – A11901906











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

A11901001 – A11901906

13.4. IC Block Diagrams

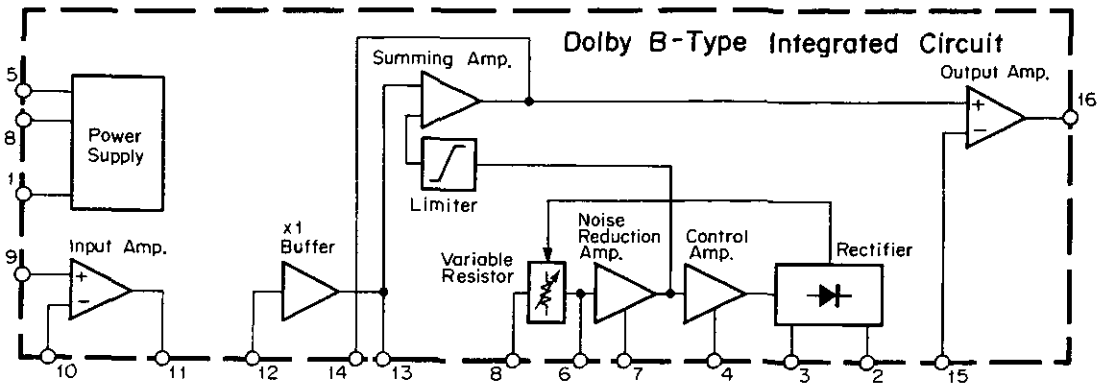


Fig. 13.4 Dolby NR IC μA7300PC

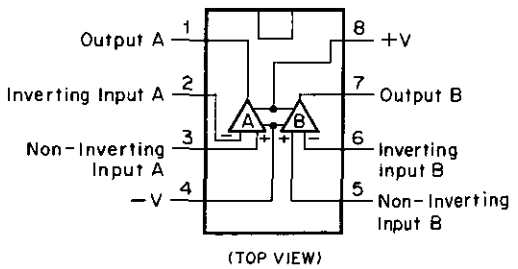


Fig. 13.5 OP Amp. IC 4558, 4559, 4560, 4556

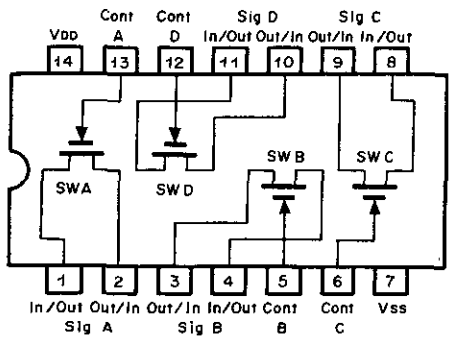


Fig. 13.7 Bilateral Switch C-MOS IC μPD4066C

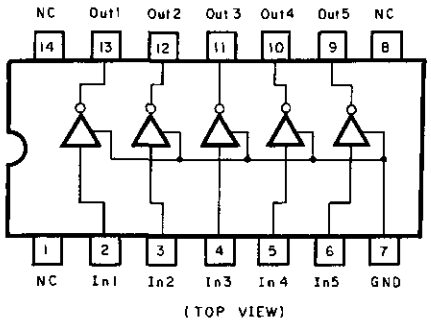


Fig. 13.6 Transistor Array M54516P

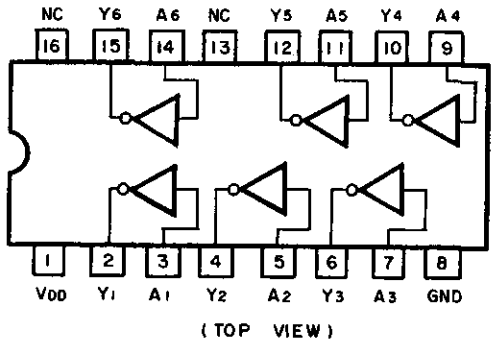


Fig. 13.8 Inverter C-MOS IC μPD4049BC

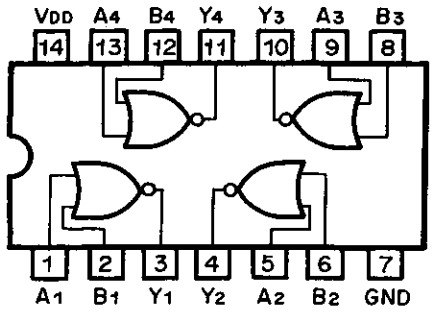


Fig. 13.9 NOR Gate C-MOS IC μPD4001BC

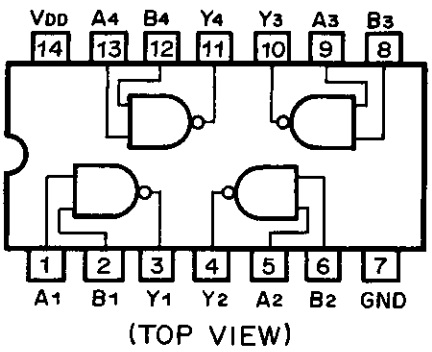


Fig. 13.10 NAND Gate C-MOS IC μPD4011BC

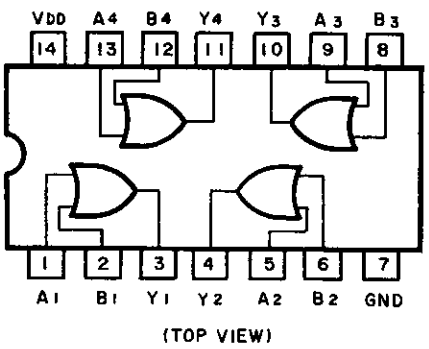


Fig. 13.11 OR Gate C-MOS IC μPD4071BC

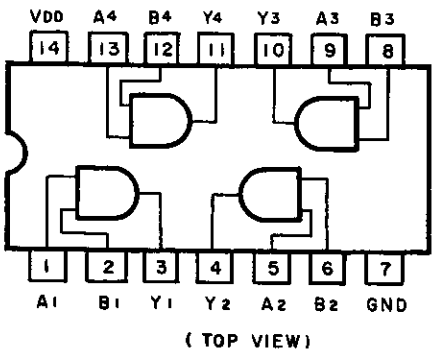


Fig. 13.12 AND Gate C-MOS IC μPD4081BC

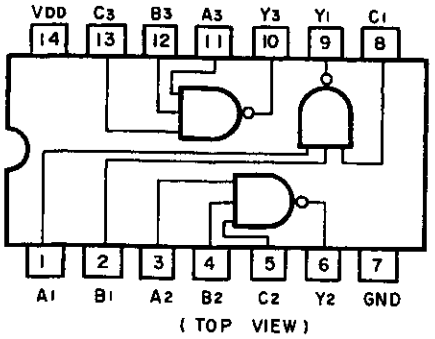


Fig. 13.13 NAND Gate C-MOS IC TC4023BP

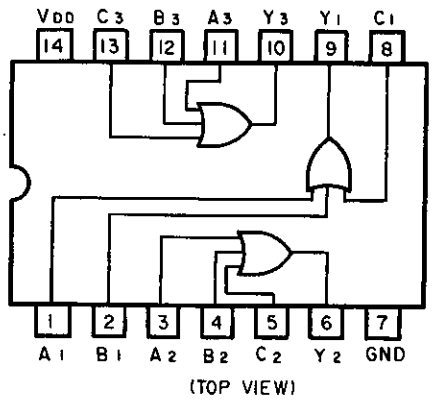


Fig. 13.14 OR Gate C-MOS IC μPD4075BC

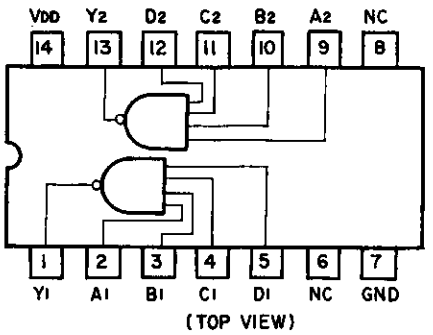


Fig. 13.15 AND Gate C-MOS IC μPD4082BC

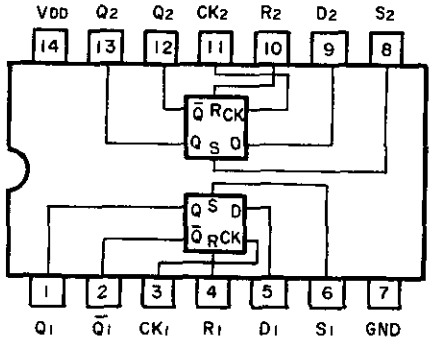


Fig. 13.16 D-Type Flip-Flop C-MOS IC TC4013BP

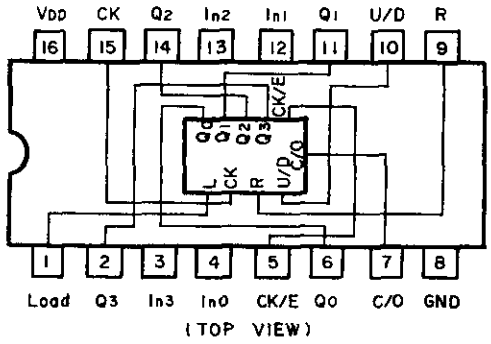


Fig. 13.17 BCD Up/Down Counter C-MOS IC TC4510BP

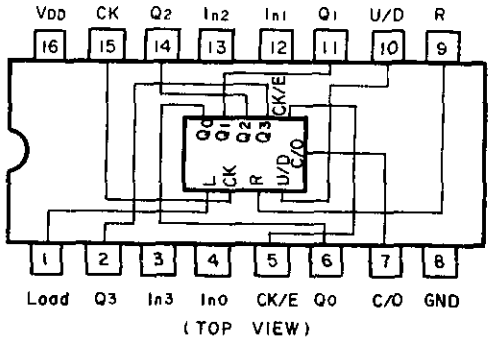


Fig. 13.18 Binary Up/Down Counter C-MOS IC MSM4516RS

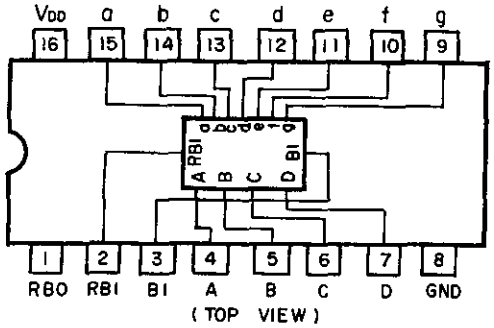


Fig. 13.19 BCD to 7-Segment Decoder/Driver C-MOS IC TC5022BP

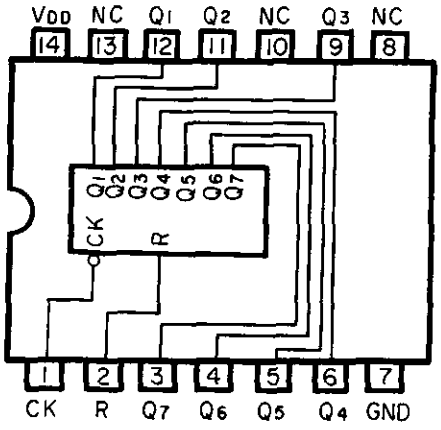


Fig. 13.20 7-Stage Binary Counter C-MOS IC μPD4024BC

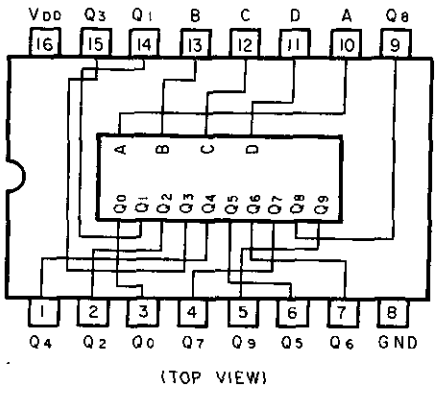


Fig. 13.21 BCD to Decimal Decoder C-MOS IC μPD4028BC

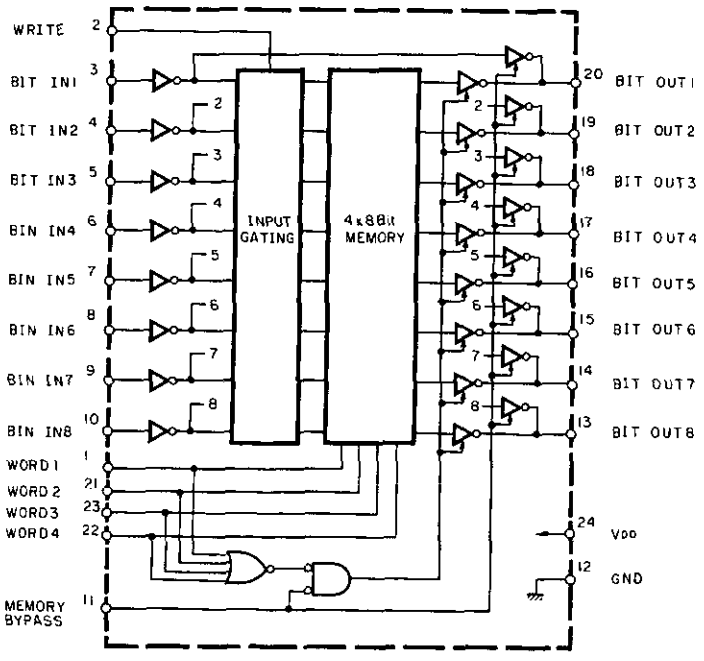


Fig. 13.22 4-Word x 8-Bit Static RAM C-MOS IC MSM4039RS

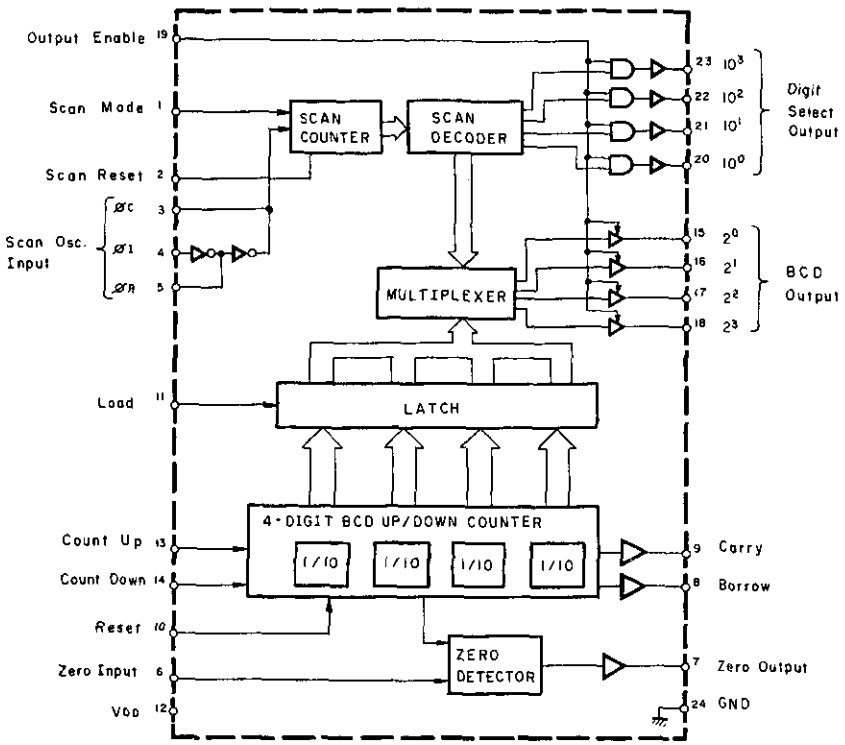


Fig. 13.23 4-Digit BCD Up/Down Counter C-MOS IC MSM5512RS

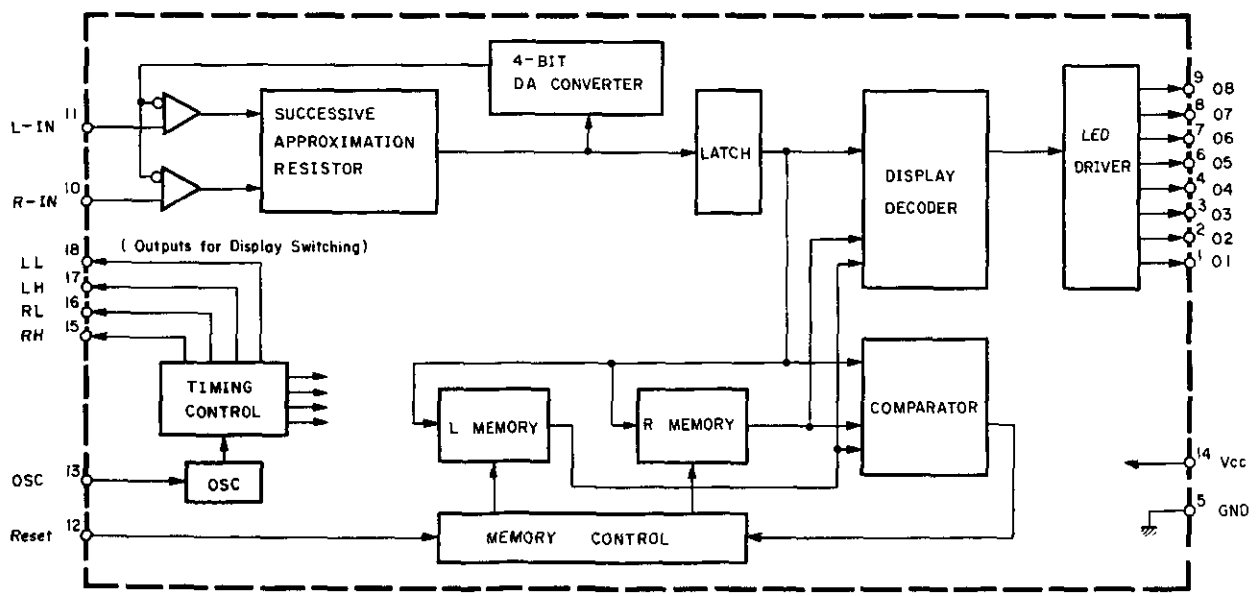


Fig. 13.24 Level Meter Control IC MSL9350RS

14. SPECIFICATIONS

Power Source	100, 120, 120/220-240, 220 or 240 V AC ; 50/60 Hz (According to country of sale)
Power Consumption	50 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 ±2 dB (Nakamichi EX, EXII, SX, ZX tape) 18–23,000 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 mV (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

- Specification and appearance design are subject to change for further improvement without notice.
- Dolby NR under license from Dolby Laboratories Licensing Corporation.
- The word "DOLBY" and the Double-D-Symbol are trademarks of Dolby Laboratories Licensing Corporation.
- High-Com II 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.