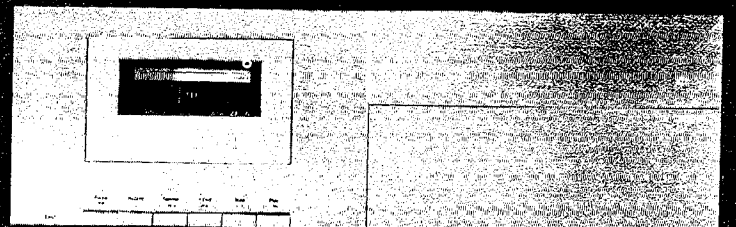


89



CONTENTS

1.	General	4
2.	Removal Procedures	6
2. 1.	Top Cover Ass'y	6
2. 2.	Bottom Cover Ass'y	6
2. 3.	Cassette Case Cover Ass'y	6
2. 4.	Volume Knobs	6
2. 5.	Front Panel Ass'y	6
2. 6.	Control Panel Ass'y	6
2. 7.	Auto Cal. P.C.B. Ass'y	6
2. 8.	Mechanism Ass'y	6
2. 9.	Counter P.C.B. Ass'y and Lighting House Ass'y	7
2. 10.	Control Button Ass'y	7
2. 11.	Push Button A Ass'y, Switch C P.C.B. Ass'y and Switch A P.C.B. Ass'y	8
2. 12.	Push Button B Ass'y	8
2. 13.	Power Switch Ass'y, Headphone Jack Ass'y and Line Input Volume	8
2. 14.	Auto Cal. A P.C.B. Ass'y and Auto Cal. B P.C.B. Ass'y	8
2. 15.	Record Eq. Amp. P.C.B. Ass'y, Oscillator P.C.B. Ass'y, Record Dolby NR P.C.B. Ass'y and Playback Amp. & Dolby NR P.C.B. Ass'y	8
2. 16.	RAMM P.C.B. Ass'y	8
2. 17.	MIC & Meter Amp. P.C.B. Ass'y, MIC Volume & Switch P.C.B. Ass'y, Control Panel Ass'y, Line Amp. P.C.B. Ass'y, Connector P.C.B. Ass'y and Main P.C.B. Ass'y	8
2. 18.	Main Logic P.C.B. Ass'y and Sub Logic P.C.B. Ass'y	8
2. 19.	LED Level Indicator Ass'y, Indicator P.C.B. Ass'y and Lamp B P.C.B. Ass'y	10
2. 20.	Rear Panel Ass'y, Power Supply P.C.B. Ass'y, Fuse P.C.B. Ass'y and Power Transformer	10
2. 21.	Cassette Case Ass'y and Cover Plate Ass'y	10
2. 22.	Speed Cal. P.C.B. Ass'y	11
2. 23.	Capstan Motor Ass'y and Flywheel Ass'y	11
2. 24.	Sub Mechanism Chassis Ass'y	11
2. 25.	Control Motor Ass'y and Reel Motor Ass'y	11
2. 26.	Cam Control Volume	11
2. 27.	Azimuth Motor Ass'y	11
2. 28.	Reel Hub Ass'y and Idler Ass'y	11
2. 29.	Cam Drive Gear and Control Cam	11
2. 30.	Counter Pulse Generator P.C.B. Ass'y	12
2. 31.	Head Mount Base Ass'y	13
2. 32.	Pressure Roller Ass'y and Erase Head	13
2. 33.	Playback Head Ass'y and Record Head Ass'y	13
2. 34.	Battery	13
3.	Measurement and Maintenance Instruments	14
3. 1.	Measurement Instruments	14
3. 2.	Maintenance Instrument	15
4.	Mechanical Adjustment	16
4. 1.	Mechanism Control Cam Adjustment	16
4. 2.	Reel Motor Speed Adjustment in Play Mode	17
4. 3.	RAMM Mode Adjustment	17
4. 4.	Record Head and Playback Head Tilt Adjustment	19
4. 5.	Head Base Stroke Adjustment	21
4. 6.	Tape Guides Adjustment and Erase Head Stroke Adjustment	22
4. 7.	Erase Head Height and Tilt Adjustment	23
4. 8.	Back Tension Adjustment	24
4. 9.	Playback Head and Record Head Height Adjustment and Azimuth Alignment	25
4. 10.	Record Head Stroke Adjustment	27
4. 11.	Tape Travelling Adjustment	28
4. 12.	Flywheel Holder Adjustment	28
4. 13.	Adjustment Lid Gap Adjustment	28
4. 14.	Tape Speed Adjustment	28

- 4. 15. Lubrication 28
- 5. **Parts Location for Electrical Adjustment** 29
- 6. **Electrical Adjustments and Measurements** 29
 - 6. 1. Introduction 29
 - 6. 2. Adjustment and Measurement Instructions 30
 - 6. 3. Frequency Response Adjustment 37
 - 6. 4. Dolby NR Circuit Check 38
- 7. **Mounting Diagrams and Parts List** 39
 - 7. 1. Pin Jack A P.C.B. Ass'y 39
 - 7. 2. Pin Jack B P.C.B. Ass'y 39
 - 7. 3. MIC Jack P.C.B. Ass'y 39
 - 7. 4. Control Switch P.C.B. Ass'y 39
 - 7. 5. Control Switch Lamp P.C.B. Ass'y 39
 - 7. 6. Lamp A P.C.B. Ass'y 40
 - 7. 7. Lamp B P.C.B. Ass'y 40
 - 7. 8. Lamp S P.C.B. Ass'y 40
 - 7. 9. Switch Lamp A P.C.B. Ass'y 41
 - 7. 10. Switch Lamp B P.C.B. Ass'y 41
 - 7. 11. Switch A P.C.B. Ass'y 41
 - 7. 12. Switch B P.C.B. Ass'y 41
 - 7. 13. Connector P.C.B. Ass'y 42
 - 7. 14. Connector B P.C.B. Ass'y 43
 - 7. 15. Speed Cal. P.C.B. Ass'y 43
 - 7. 16. Counter Pulse Generator P.C.B. Ass'y 43
 - 7. 17. Shut-off P.C.B. Ass'y 43
 - 7. 18. Line Amp. P.C.B. Ass'y 44
 - 7. 19. Indicator P.C.B. Ass'y 44
 - 7. 20. MIC Volume & Switch P.C.B. Ass'y 44
 - 7. 21. MIC & Meter Amp. P.C.B. Ass'y 45
 - 7. 22. Record Eq. Amp. P.C.B. Ass'y 47
 - 7. 23. Record Dolby NR P.C.B. Ass'y 49
 - 7. 24. Playback Amp. & Dolby NR P.C.B. Ass'y 50
 - 7. 25. Oscillator P.C.B. Ass'y 51
 - 7. 26. Mother P.C.B. Ass'y 53
 - 7. 27. Main Logic P.C.B. Ass'y 55
 - 7. 28. Sub Logic P.C.B. Ass'y 59
 - 7. 29. Auto Cal. A P.C.B. Ass'y 59
 - 7. 30. Auto Cal. B P.C.B. Ass'y 62
 - 7. 31. RAMM P.C.B. Ass'y 63
 - 7. 32. Lamp L P.C.B. Ass'y 64
 - 7. 33. Counter P.C.B. Ass'y 64
 - 7. 34. Switch C P.C.B. Ass'y 64
 - 7. 35. Power Supply P.C.B. Ass'y 65
 - 7. 36. Fuse P.C.B. Ass'y 66
- 8. **Mechanism Ass'y and Parts List** 68
 - 8. 1. Synthesis 68
 - 8. 2. Front Panel Ass'y (A01) 69
 - 8. 3. Chassis Ass'y (A02) 70
 - 8. 4. Adjustment Lid Ass'y (B01) 71
 - 8. 5. LED Level Indicator Ass'y (B02) 71
 - 8. 6. Front Chassis Ass'y (C01) 72
 - 8. 7. Mechanism Ass'y N-700ZXL (C02) 72
 - 8. 8. Rear Panel Ass'y (C03) 73
 - 8. 9. Pneumatic Damper Ass'y (C04) 73
 - 8. 10. Lighting House Ass'y (D01) 73
 - 8. 11. Damper Arm Ass'y (D02) 75

8. 12.	Flywheel Holder Ass'y (E01)	75
8. 13.	Sub Mechanism Chassis Ass'y (E02)	76
8. 14.	Main Mechanism Chassis Ass'y (E03)	78
8. 15.	Reel Motor Ass'y (F01)	79
8. 16.	Control Motor Ass'y (F02)	79
8. 17.	Azimuth Alignment Motor Ass'y (F03)	79
8. 18.	Head Mount Base Ass'y (G01)	79
8. 19.	Supply Pressure Roller Ass'y (G02)	79
8. 20.	Take-up Pressure Roller Ass'y (G03)	79
8. 21.	Head Base Ass'y E (G04)	79
8. 22.	Cassette Case Holder L Ass'y (G05)	79
8. 23.	Cassette Case Holder R Ass'y (G06)	79
8. 24.	Auto Shut-off Ass'y (G07)	81
8. 25.	Pneumatic Damper Ass'y (G08)	81
8. 26.	Azimuth Motor Ass'y (H01)	81
8. 27.	P-8L Playback Head Ass'y (I01)	81
8. 28.	R-8L Record Head Ass'y (I02)	81
9.	Timing Chart and Flow Chart	83
9. 1.	Overall Timing Chart	83
9. 2.	Auto Calibration and RAMM Control	83
10.	Eq. Amp. Frequency Response	86
10. 1.	Playback Frequency Response	86
10. 2.	Record Current Frequency Response	86
11.	Block Diagrams	87
11. 1.	Amplifier and Auto Calibration Control Section	87
11. 2.	Mechanism Control and RAMM Control Section	88
12.	Wiring Diagram	89
13.	Schematic Diagrams	91
13. 1.	Amplifier Section	91
13. 2.	Mechanism Control Section	92
13. 3.	RAMM Control Section	93
13. 4.	IC Block Diagrams	93
14.	Remote Controller RM-300 (Optional)	97
14. 1.	Schematic Diagram	97
14. 2.	Mounting Diagrams and Parts List	98
14. 3.	Mechanism Ass'y and Parts List	99
15.	Specifications	100

1. GENERAL

1.1. Control Functions

The Nakamichi 700ZXL control functions are shown below:

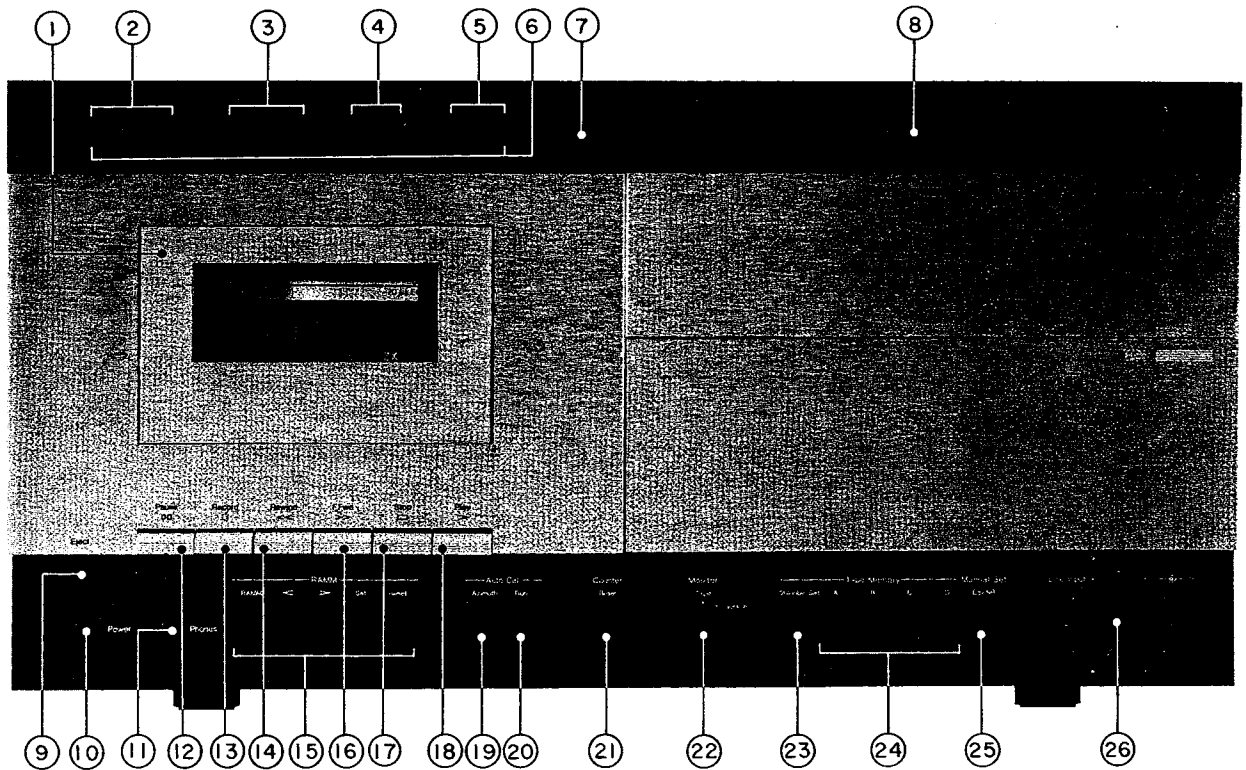


Fig. 1.1 Front View

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

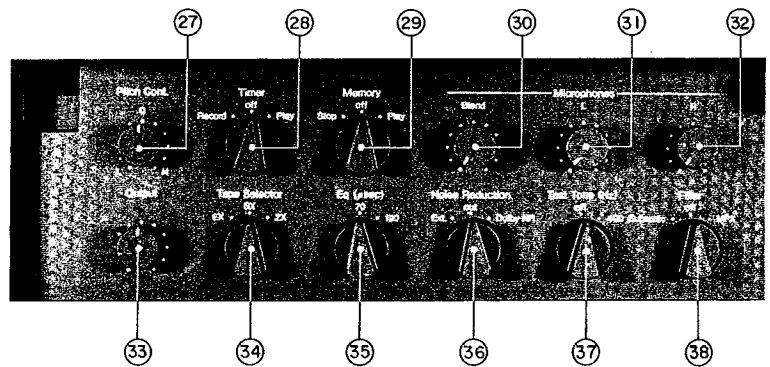


Fig. 1.2 Adjustment Panel

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

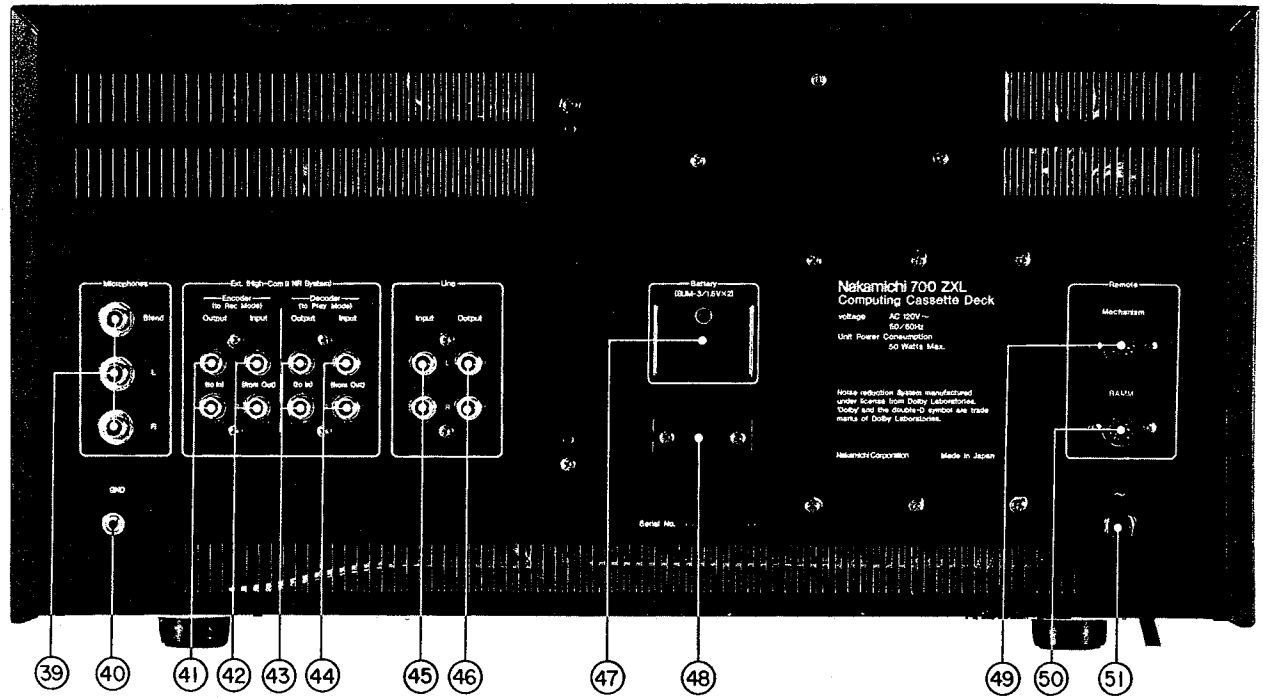


Fig. 1.3 Rear View

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

1.2. Voltage Selector

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

1.3. Attention to Servicemen

Before returning the repaired N-700ZXL to a customer, check to insure that the exposed part is accurately insulated from the AC line by measuring the leakage current or the insulation resistance between them.

2. REMOVAL PROCEDURES

2.1. Top Cover Ass'y

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

2.2. Bottom Cover Ass'y

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

2.3. Cassette Case Cover Ass'y

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

2.4. Volume Knobs

- Refer to Fig. 2.1.
 (1) Pull out F07 (Prich Control Knob, Output Level Control Knob and MIC Input Level Control Knob).

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).

2.7. 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).

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).

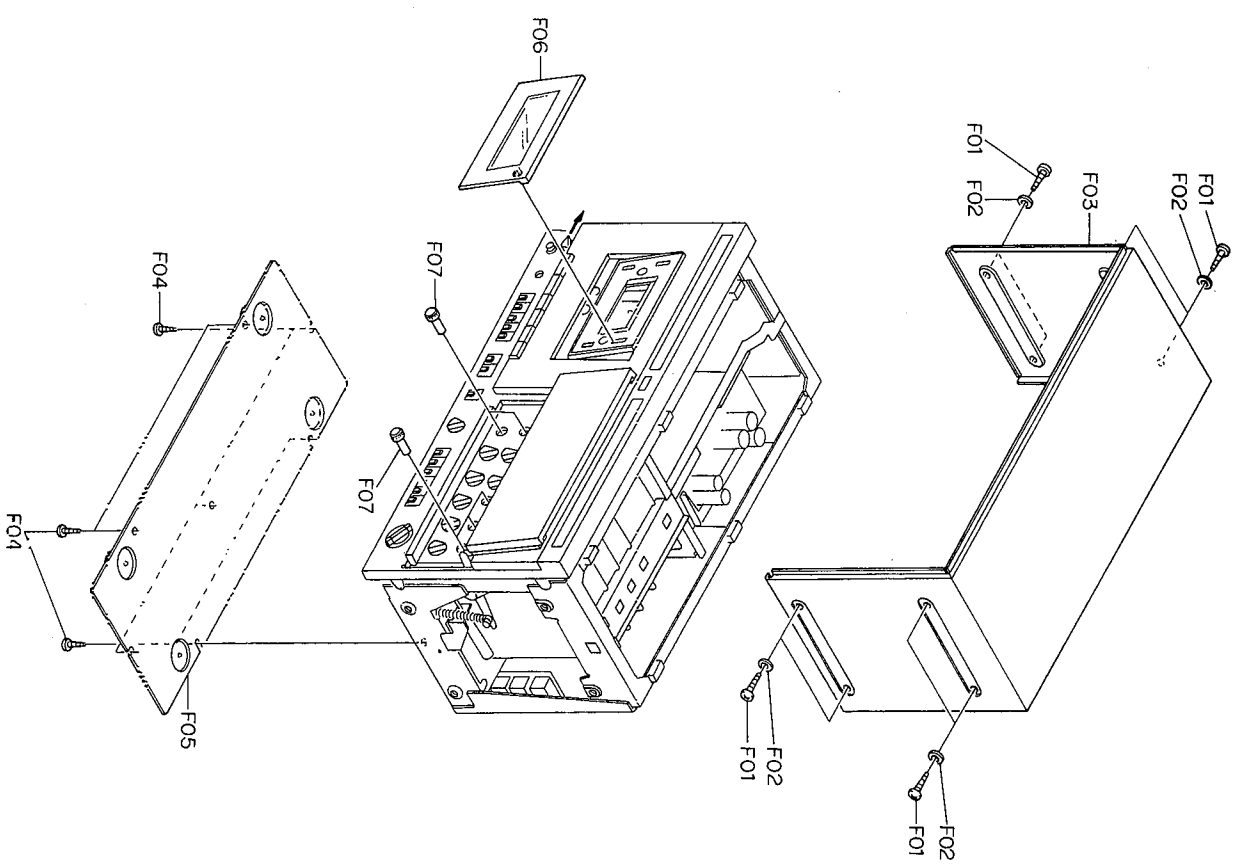


Fig. 2.1

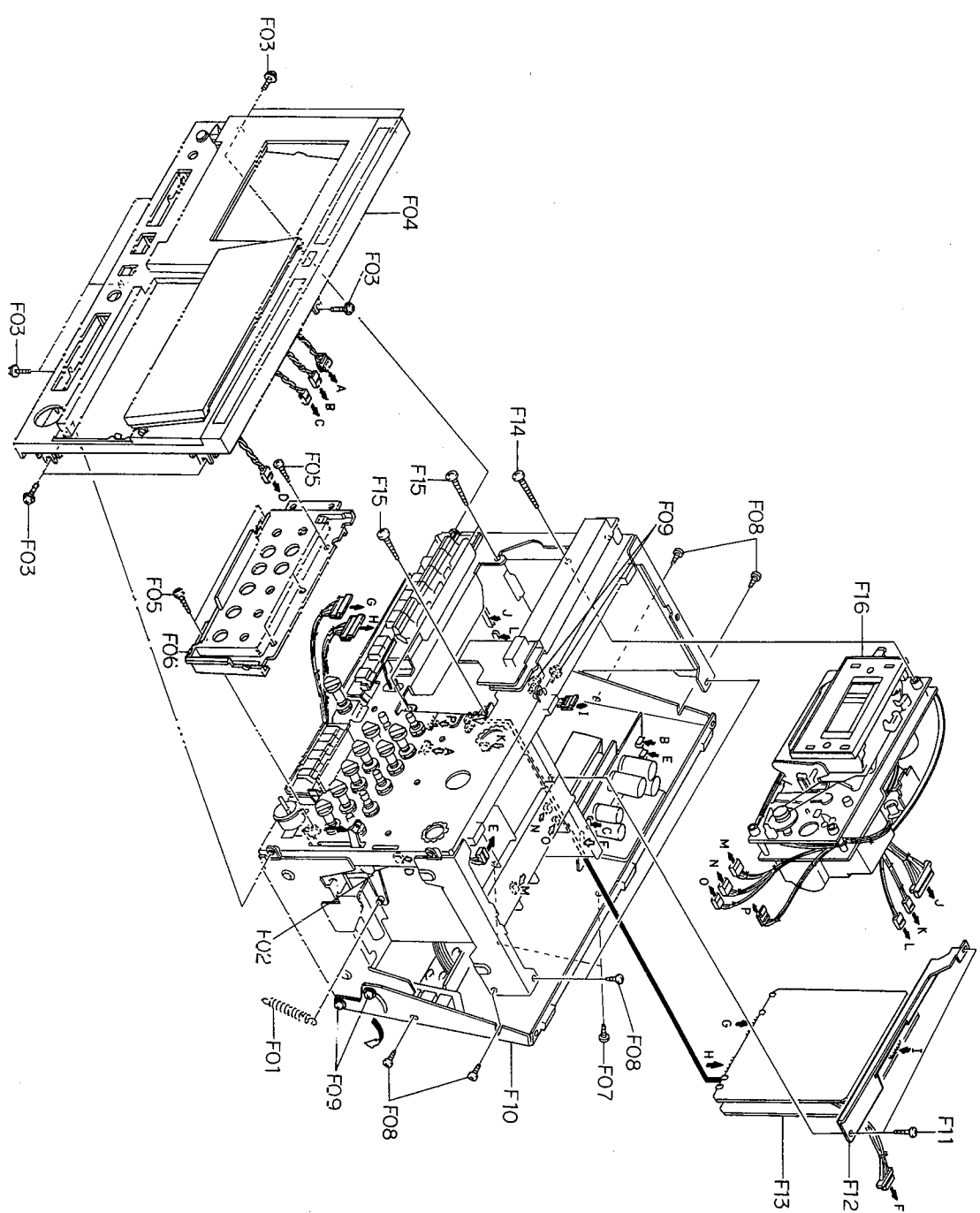
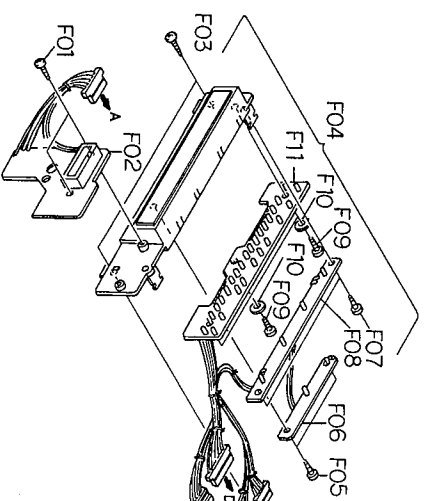


Fig. 2.2

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

Refer to Fig. 2.3.

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



2.10. Control Button Ass'y

Refer to Fig. 2.3.

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

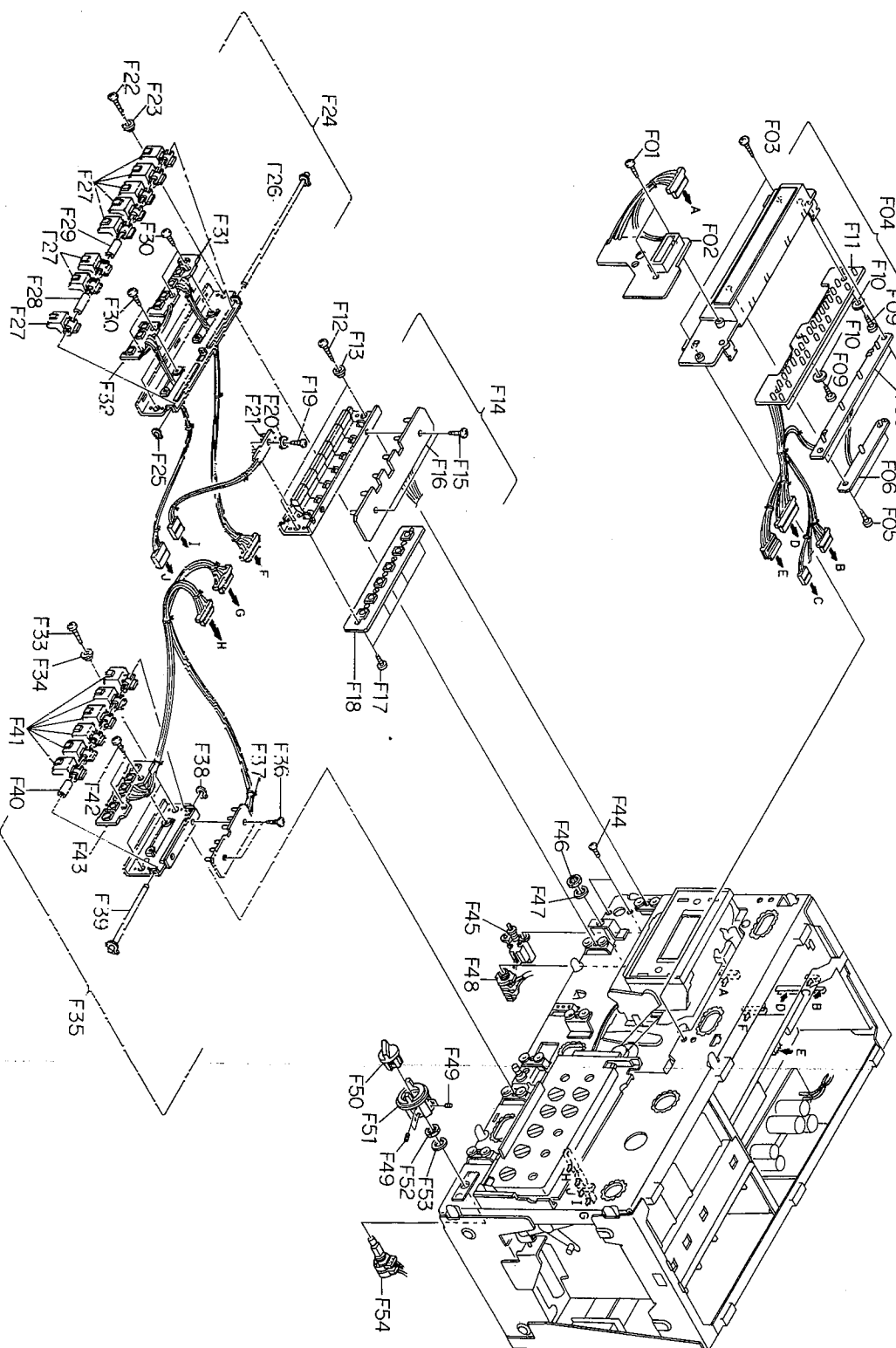


Fig. 2.3

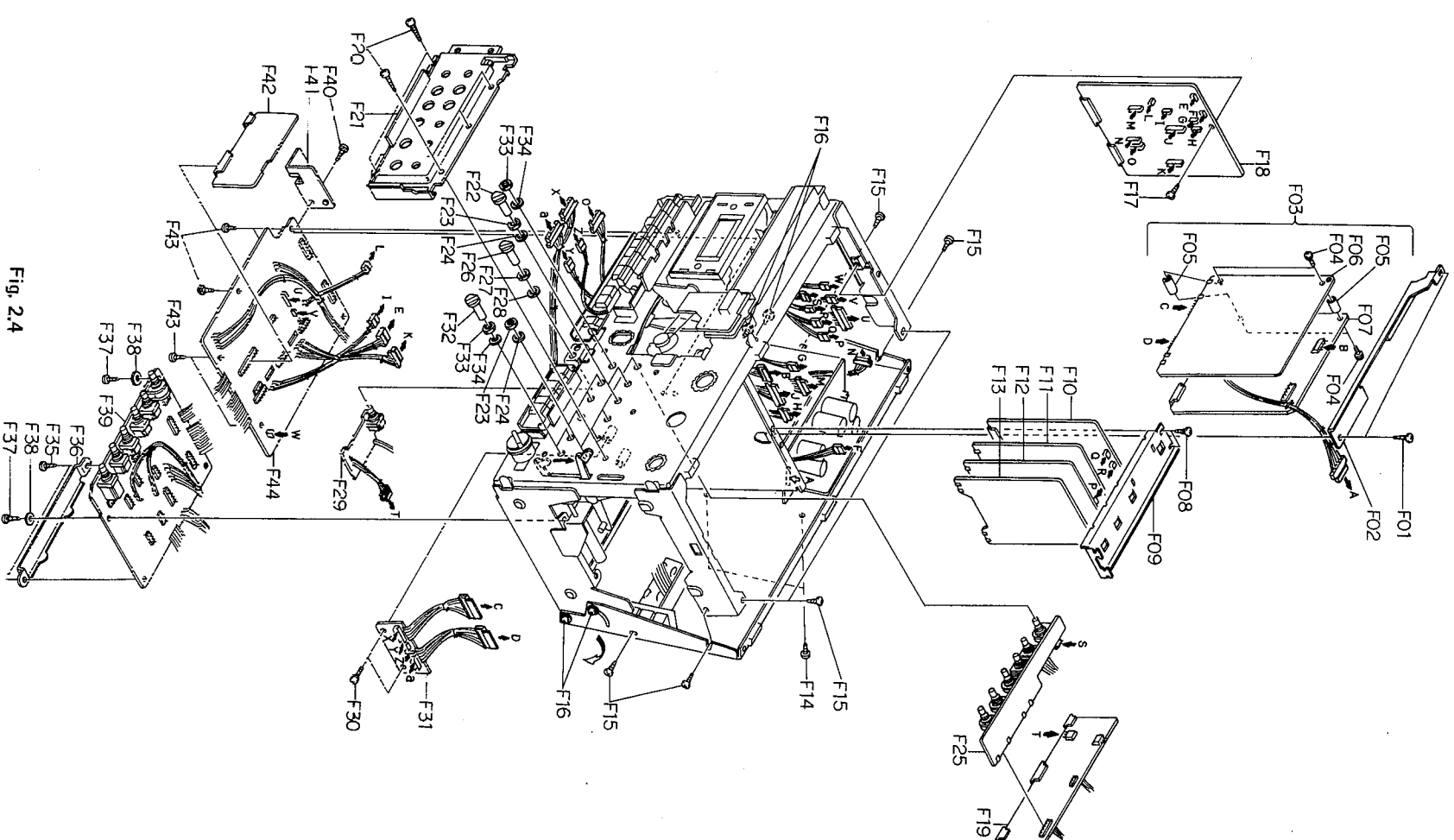


Fig. 2.4

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

Refer to Fig. 2.3.

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

2.12. Push Button B Ass'y

Refer to Fig. 2.3.

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

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

Refer to Fig. 2.3.

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

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

Refer to Fig. 2.4.

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

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

Refer to Fig. 2.4.

- (1) Refer to Fig. 2.1. Remove Top Cover Ass'y referring to item 2.1.

- (2) Remove F08 and F09 (P.C.B. Holder A Ass'y), then disassemble F10 (Oscillator P.C.B. Ass'y), F11 (Record Eq. Amp. P.C.B. Ass'y), F12 (Playback Amp & Dolby NR P.C.B. Ass'y) and F13 (Record Dolby NR P.C.B. Ass'y).

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

Refer to Fig. 2.4.

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

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

Refer to Fig. 2.4.

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

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

Refer to Fig. 2.4.

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

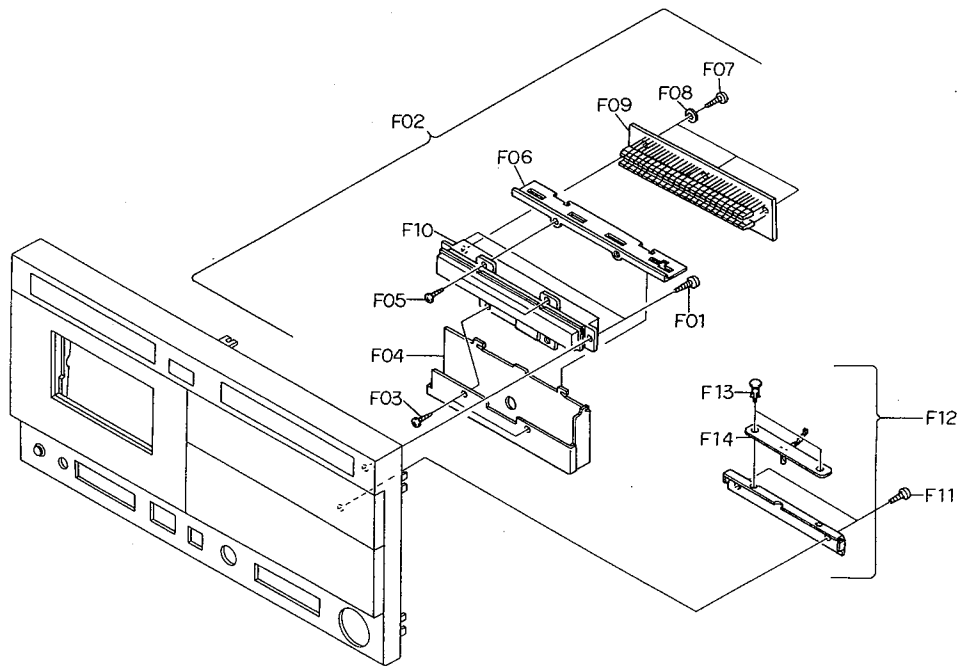


Fig. 2.5

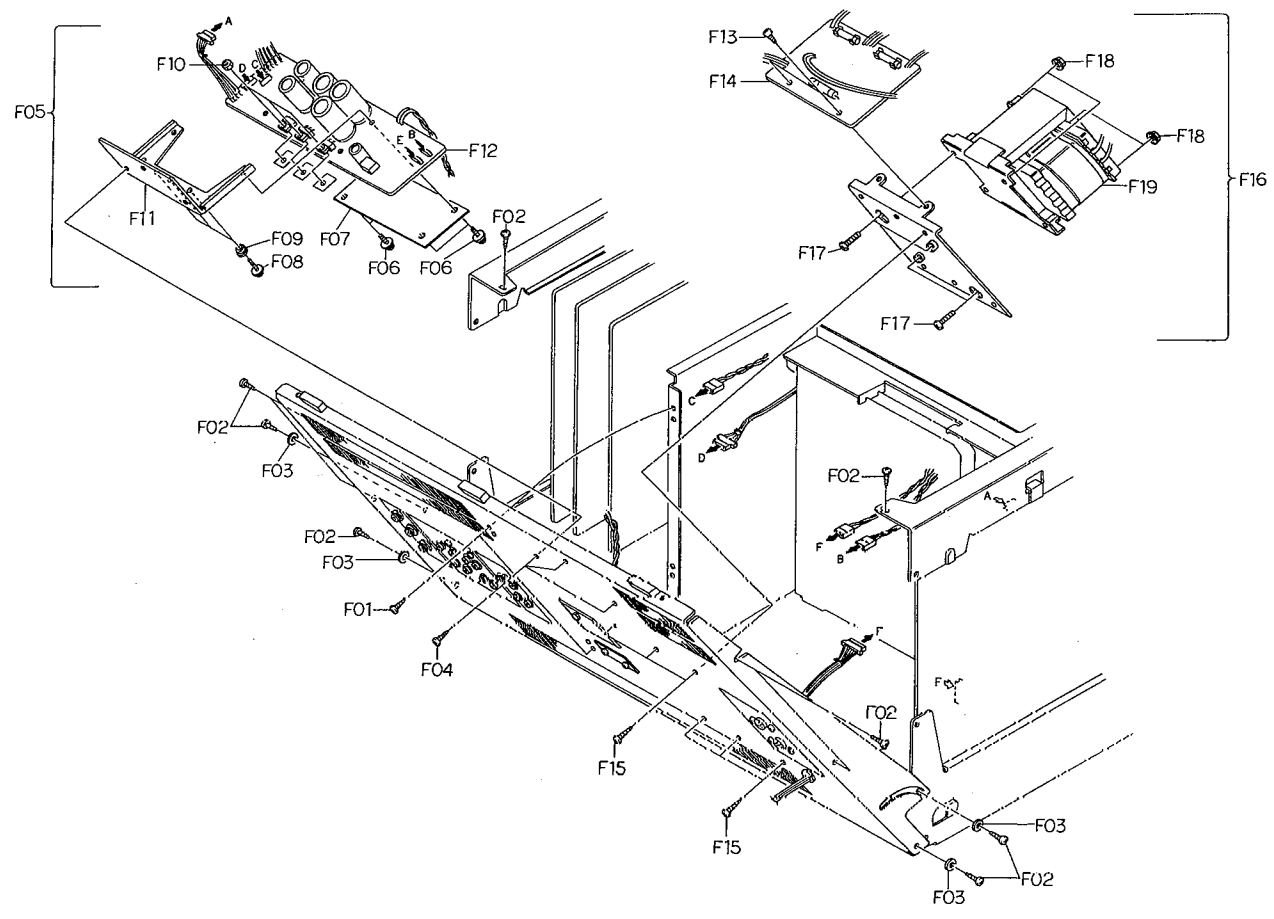


Fig. 2.6

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

Refer to Fig. 2.5.

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

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

Refer to Fig. 2.6.

- (1) Refer to Fig. 2.1. Remove Top Cover Ass'y and Bottom Cover Ass'y referring to items 2.1 and 2.2.
- (2) Remove F01, F02 and F03, then disassemble Rear Panel Ass'y.

- (3) Remove F04, then disassemble F05 (Power Supply Ass'y).
- (4) Remove F06, then disassemble F07 (Insulator).
- (5) Remove F08, F09 and F10, then disassemble F11 (Heat Sink) and F12 (Power Supply P.C.B. Ass'y).
- (6) Remove F13, then disassemble F14 (Fuse P.C.B. Ass'y).
- (7) Remove F15, then disassemble F16 (Power Transformer Ass'y).
- (8) Remove F17 and F18, then disassemble F19 (Power Transformer) and Transformer Holder.

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

Refer to Fig. 2.7.

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

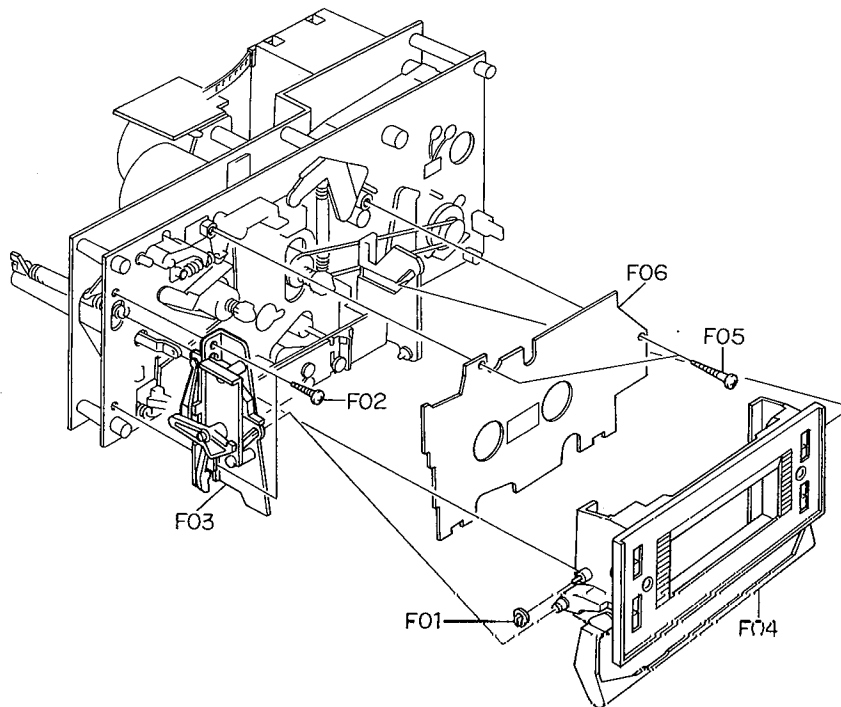


Fig. 2.7

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

Refer to Fig. 2.8.

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

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

Refer to Fig. 2.8.

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

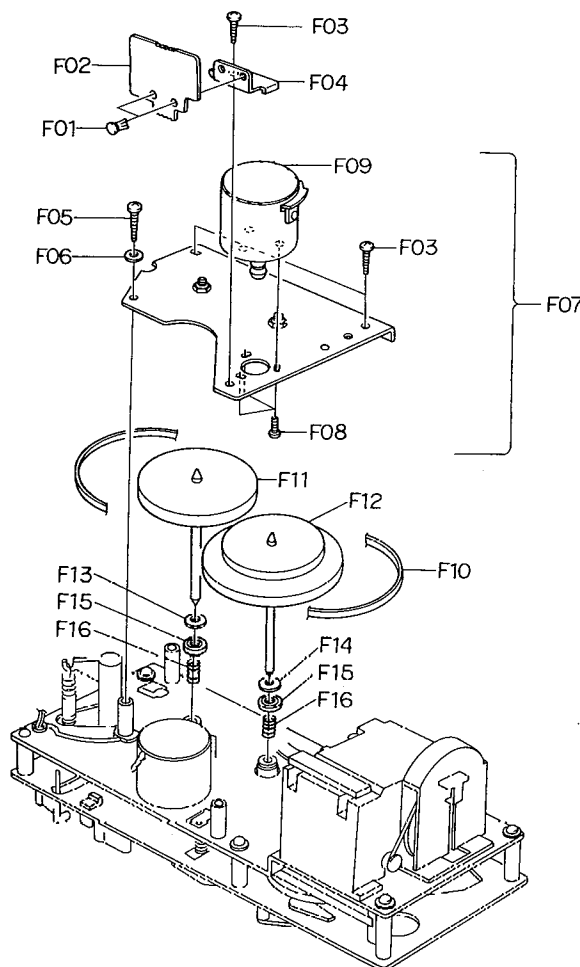


Fig. 2.8

2.24. Sub Mechanism Chassis Ass'y

Refer to Fig. 2.9.

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

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

Refer to Fig. 2.9.

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

2.26. Cam Control Volume

Refer to Fig. 2.9.

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

2.27. Azimuth Motor Ass'y

Refer to Fig. 2.9.

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

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

Refer to Fig. 2.9.

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

2.29. Cam Drive Gear and Control Cam

Refer to Fig. 2.9.

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

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

Refer to Fig. 2.9.

- (1) Remove Sub Mechanism Chassis Ass'y referring to item 2.24.
- (2) Remove F31, then disassemble F32 (Counter Pulse Generator P.C.B. Ass'y).

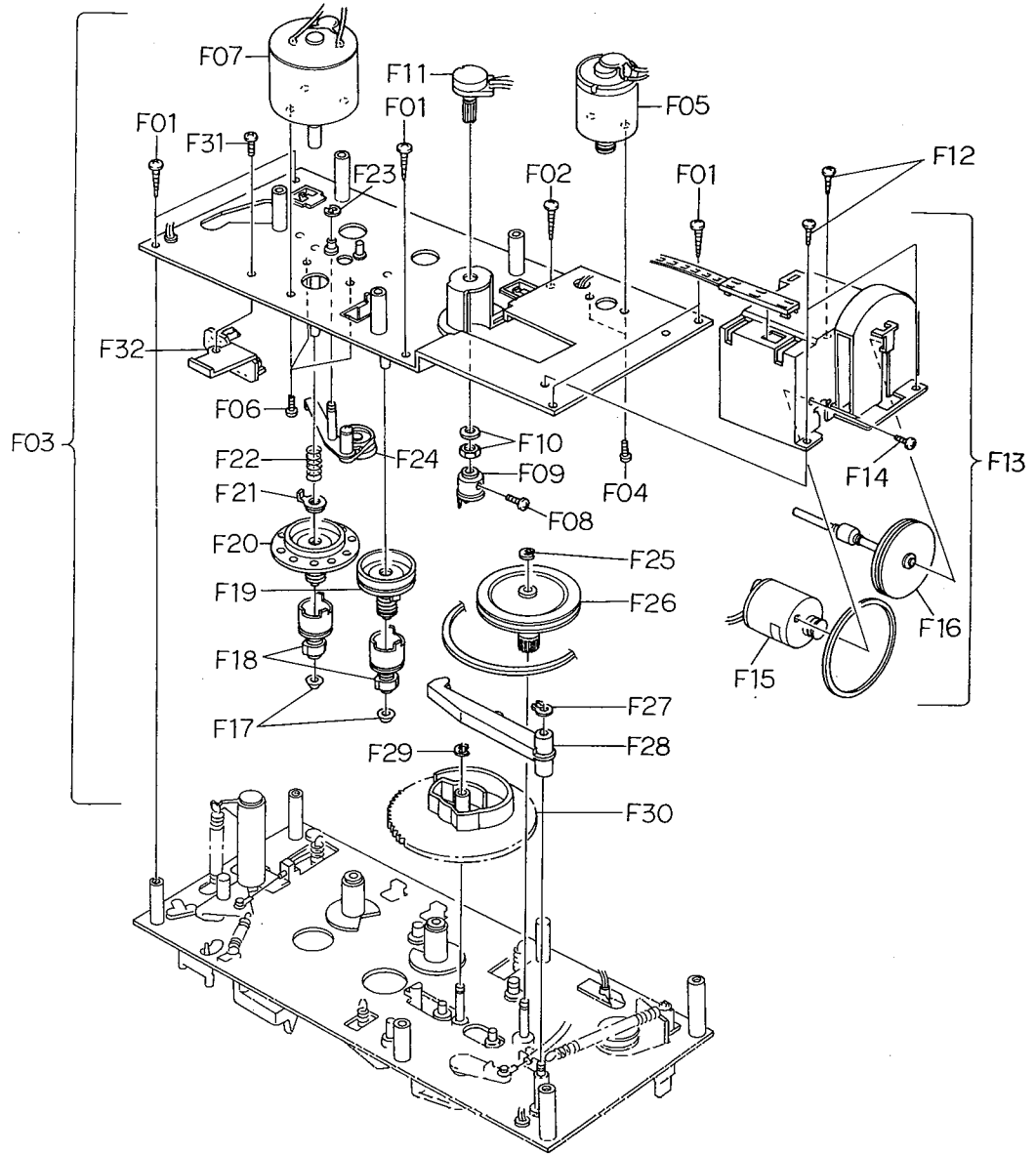


Fig. 2.9

2.31. Head Mount Base Ass'y

Refer to Fig. 2.10.

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

2.32. Pressure Roller Ass'y and Erase Head

Refer to Fig. 2.10.

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

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

Refer to Fig. 2.10.

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

2.34. Battery

Refer to Fig. 2.11.

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

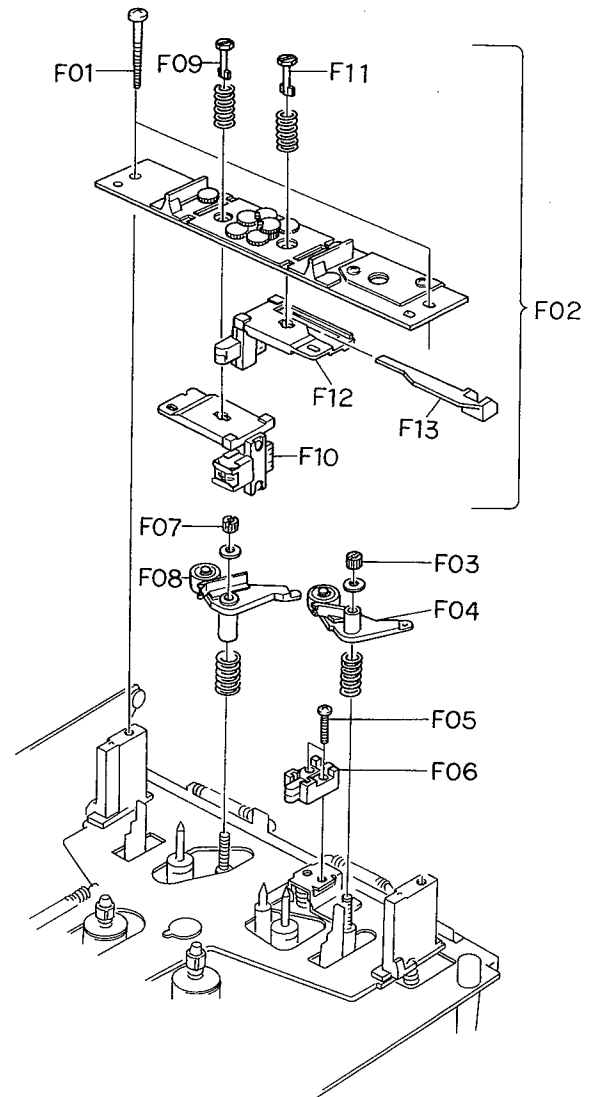


Fig. 2.10

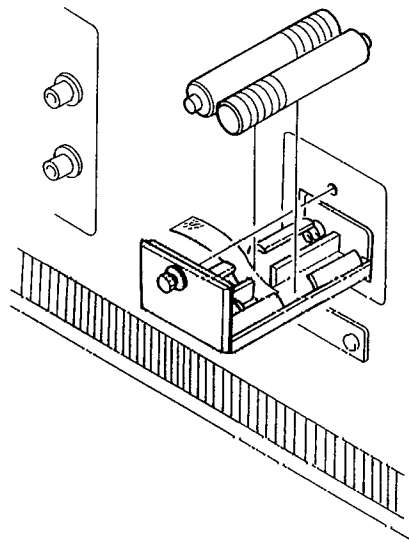


Fig. 2.11

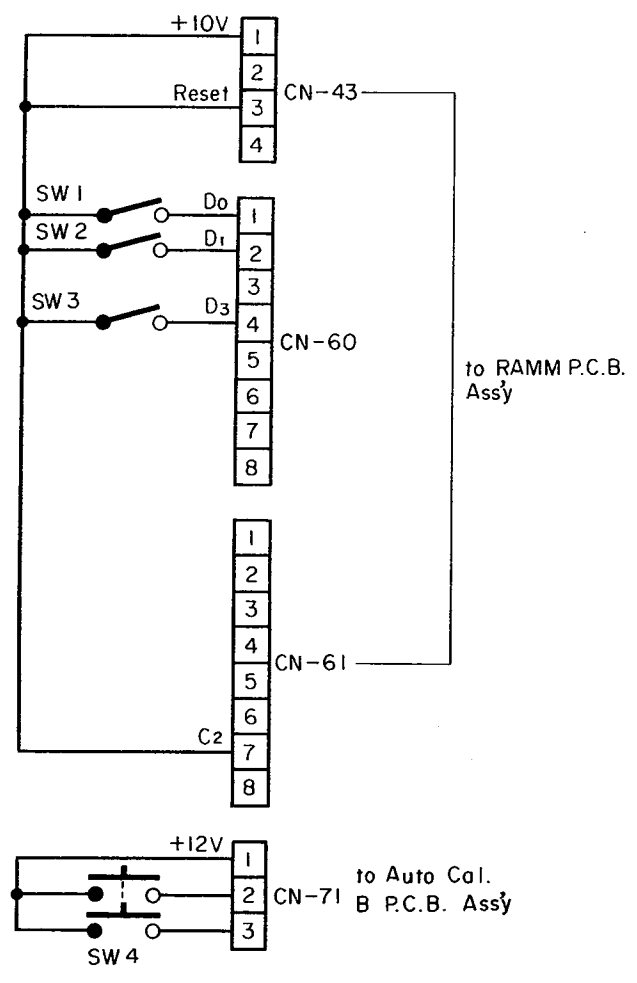
3. MEASUREMENT AND MAINTENANCE INSTRUMENTS

3.1. Measurement Instruments

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

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

3.2. Maintenance Instrument (1) Test Unit



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

Fig. 3

4. MECHANICAL ADJUSTMENT

4.1. Mechanism Control Cam Adjustment

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

(1) Offset Adjustment of Control Motor Driver

(a) Refer to Figs. 4.1 and 4.2.

Adjust VR504 and VR505 on the Main Logic P.C.B. Ass'y to locate approximately at the middle of the variable range. Then press the Power switch.

VR504 (for Cam position play)

VR505 (for Cam position stop)

(b) Press the Stop button to set the N-700ZXL in Stop mode.

Adjust VR505 (for stop) so that the "S" mark on the Cam corresponds to the pointer on the mechanism chassis.

(c) Press the Play button to set the N-700ZXL in Playback mode.

(Cam will rotate, and the position marked with "PY" comes to the pointer.) Adjust VR504 (for play) so that the "PY" mark on the Cam corresponds to the pointer.

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

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

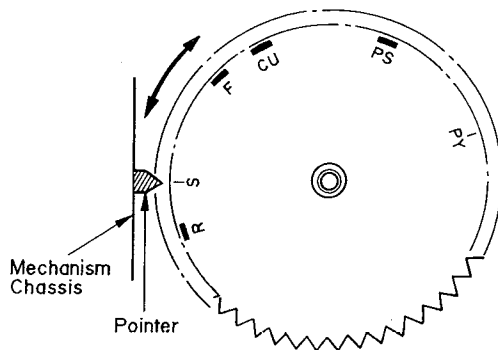


Fig. 4.1

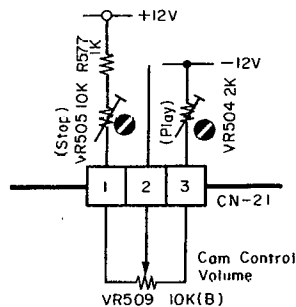


Fig. 4.2

(e) Set the N-700ZXL in F.F., Pause, or Cue mode by pressing each button (press F.F. and Pause buttons to set the N-700ZXL in Cue mode) and check to insure that the pointer is in a range of "F", "PS", or "CU" mark respectively.

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

(2) Offset Fine Adjustment of Control Motor Driver

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

Note: The value of voltage is typical value.

(a) Observation Point of Reference Voltage

Observe the each voltage at the sliding contact of the Cam Control Volume VR509 (10 kΩ) in Stop, Fast (F.F. or Rewind), Pause and Playback modes.

(b) Reference Voltage

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

Mode	Reference Voltage (Typical Value)
Stop	-0.4 V
Fast (F.F./Rew.)	-2.1 V
Pause	-6.2 V
Play	-8.8 V

} 1.7 V ±0.25 V
} 2.6 V ±0.4 V

(c) Resistors for Adjustment

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

(d) Adjustment Procedures

1) Press the Stop button to set the N-700ZXL in Stop mode.

Adjust the value of R691 to obtain -0.4 V (±0.6 V) at the sliding contact of VR509.

Note: When R691 is adjusted, the reference voltage in Fast (F.F. or Rewind) mode is changed.

Therefore, re-check of the reference voltage in Fast mode is required. If the reference voltage is out of the range, re-adjustment of R555 according to next step 2) is necessary.

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

3) Press the Pause button to set the N-700ZXL in Pause mode.

Adjust the value of R546 to obtain -6.2 V (±0.4, -0.15 V) at the sliding contact of VR509.

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

(3) Cam Timing Adjustment

- (a) Remove the wires from the Control Motor terminals to set the motor open.
- (b) Without loading a cassette tape and with pressing the record protecting switch with your finger tip, press the Record and Play buttons to set the N-700ZXL in Record mode.
- (c) Turn the Cam and bring the "PY" mark toward the pointer by hand. Reel Motor will rotate before the "PY" mark reaches the pointer. Adjust the value of R508 and R509 so that the voltage at the sliding contact of VR509 becomes -7 V (± 0.3 V) when Reel Motor starts rotation.
- (d) Observe the mute signal at the Q517 collector. Turn the Cam referring to above step (c) and check to insure that the voltage at the sliding contact of VR509 is -7.2 V (± 0.3 V) when mute is released (mute signal changes from H to L). (This voltage is determined by the adjustment of R508 and R509 in above step (c).)
- (e) Upon completion of the above adjustment, re-connect wires to the motor terminals.

4.2. Reel Motor Speed Adjustment in Play Mode

Refer to Fig. 4.3.

- (1) Connect a DC voltmeter across the Reel Motor terminals.
- (2) Without loading a cassette tape, set the N-700ZXL in Play mode.
- (3) Adjust VR509 on the Main Logic P.C.B. Ass'y to obtain 4 V on the DC voltmeter.

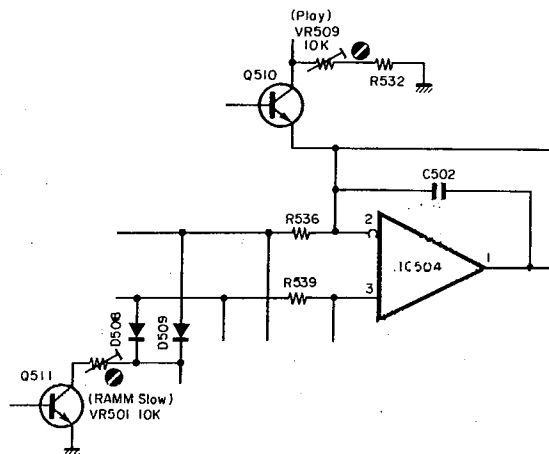


Fig. 4.3

4.3. RAMM Mode Adjustment

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

(1) Head Base Stroke Adjustment in RAMM Cue Mode

Refer to Figs. 4.4 and 4.5

- (a) Load a Stroke Check Gauge M-9047 (DA09047B) in the N-700ZXL.
- (b) Move Record Head Indicator and Playback Head Indicator to the direction of arrow mark "A" with your finger tip and then set the N-700ZXL in RAMM mode. Then slowly release the Indicators and insure whether each of the Indicators is in contact with record and playback heads.
- (c) Check to insure whether the "C" pointer on the Playback Head Indicator indicates the left side line on the Indicator Plate.
- (d) If the playback head stroke is noted to be misaligned, adjust VR502 on the Main Logic P.C.B. Ass'y till satisfactory results are obtained.
- (e) After completion of the above adjustment, set the N-700ZXL in Stop mode, then set in RAMM mode again to see whether the adjustment is appropriately made.

If not, (b) through (e) will have to be repeated till satisfactory result is obtained.

(2) Reel Motor Speed Adjustment in RAMM Slow Mode

Refer to Fig. 4.3.

- (a) Load a 5 Hz RAMM Speed Check Tape (DA09061A) in the N-700ZXL.
- (b) Connect a Frequency Counter to TP1 on the Main Logic P.C.B. Ass'y.
- (c) Set SW1, SW2 and SW3 of the Test Unit to ON.
- (d) Set the N-700ZXL in Fast (F.F. or Rewind) mode, then adjust VR501 on the Main Logic P.C.B. Ass'y so that the reading of the Frequency Counter becomes in a range of 25 – 50 Hz (typically 37.5 Hz). After the adjustment, check to insure that the reading is in a range of 25 – 50 Hz at 3 different portions (beginning, middle and end) of the tape.
- (e) In Fast mode, by setting SW3 of the Test Unit to OFF, set the N-700ZXL in RAMM Fast mode. In this RAMM Fast mode, check to insure that the reading of the Frequency Counter is in a range of 80 – 240 Hz. If not, repeat (b) – (e) till satisfactory result is obtained.
- (f) Set SW1, SW2 and SW3 of the Test Unit to OFF, then set the N-700ZXL in Stop mode.

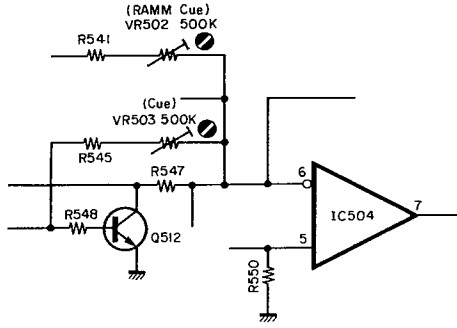


Fig. 4.4

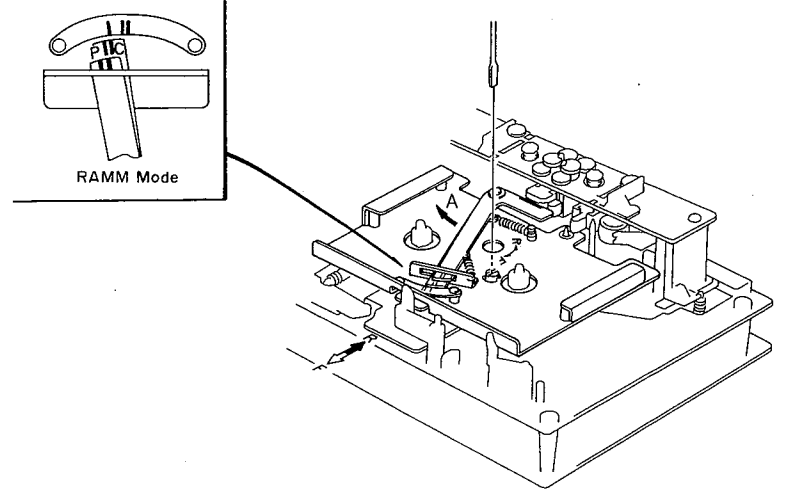


Fig. 4.5

(3) RAMM Detector Amp. Gain Adjustment

Refer to Figs. 4.6 – 4.8.

- (a) Load a 5 Hz RAMM Speed Check Tape (DA09061A) in the N-700ZXL.
- (b) Connect a Synchroscope to TP1 on the Main Logic P.C.B. Ass'y. Set the Synchroscope to DC mode and 1 V/division vertical gain. Check to insure that the minus level (-0.7 to -1.5 V) is observed on the Synchroscope as shown in Fig. 4.6.
- (c) Set SW1, SW2 and SW3 of the Test Unit to ON.
- (d) Set the N-700ZXL in Fast (F.F. or Rewind) mode, then adjust VR506 on the Main Logic P.C.B. Ass'y so that the lowest plus peak value of waveforms does not lower than 2.5 V DC as shown in Fig. 4.7.
- (e) By setting SW3 of the Test Unit to OFF (SW1 and SW2 are ON), set the N-700ZXL in RAMM Fast mode, then check to insure that the lowest plus peak value of waveforms is higher than 0.5 V DC. If not, repeat (c) – (e) till satisfactory result is obtained.
- (f) Set SW1, SW2 and SW3 to OFF, then set the N-700 ZXL in Stop mode.

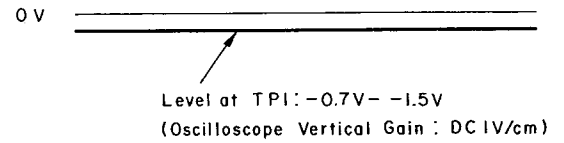


Fig. 4.6

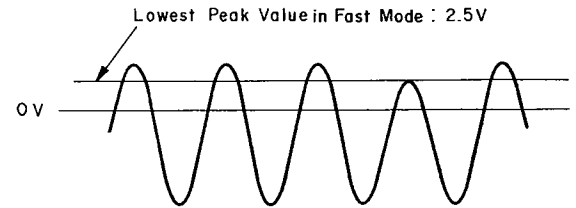


Fig. 4.7

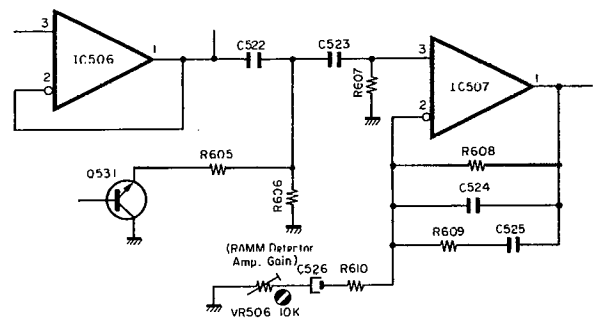


Fig. 4.8

4.4. Record Head and Playback Head Tilt Adjustment

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

- (1) Load a Tilt Check Gauge M-9039 (DA09039A) in the N-700ZXL.
- (2) Clip the grounding terminal of the Tilt Check Gauge with one end of the cord with clip, and the chassis of the N-700ZXL with the other end.
- (3) Remove both of the Height Gears.
- (4) Set the N-700ZXL in Play mode. Check to insure whether the Beacons Playback Head "Upper" or "Lower" and Record Head "Upper" or "Lower" are illuminating. In order not to give damages onto the head surfaces, push both of slide knobs of the Gauge to the direction of arrow marks, then return them to the original place to be in contact with record head and playback head surfaces after Play mode is securely locked.
- (5) Check to insure freedom from contact between the Gauge and pad lifter.
- (6) Beacon Playback Head "Lower" will light on when height adjustment screw (P) turned clockwise but Playback Head "Upper" when counterclockwise. Adjust so that both "Upper" and "Lower" will light on even when you move the slide knob to the direction of an arrow mark and then return them to the original place.
- (7) Same procedures will apply to the Beacons Record Head "Upper" and "Lower", except for the height adjustment screw (R).
- (8) Set the N-700ZXL in Stop mode and fit both of the serrated height gears. Then set the N-700ZXL again in Play mode and insure all of the 4 Beacons are illuminating. If not, (3) through (7) will have to be repeated till satisfactory results are obtained.

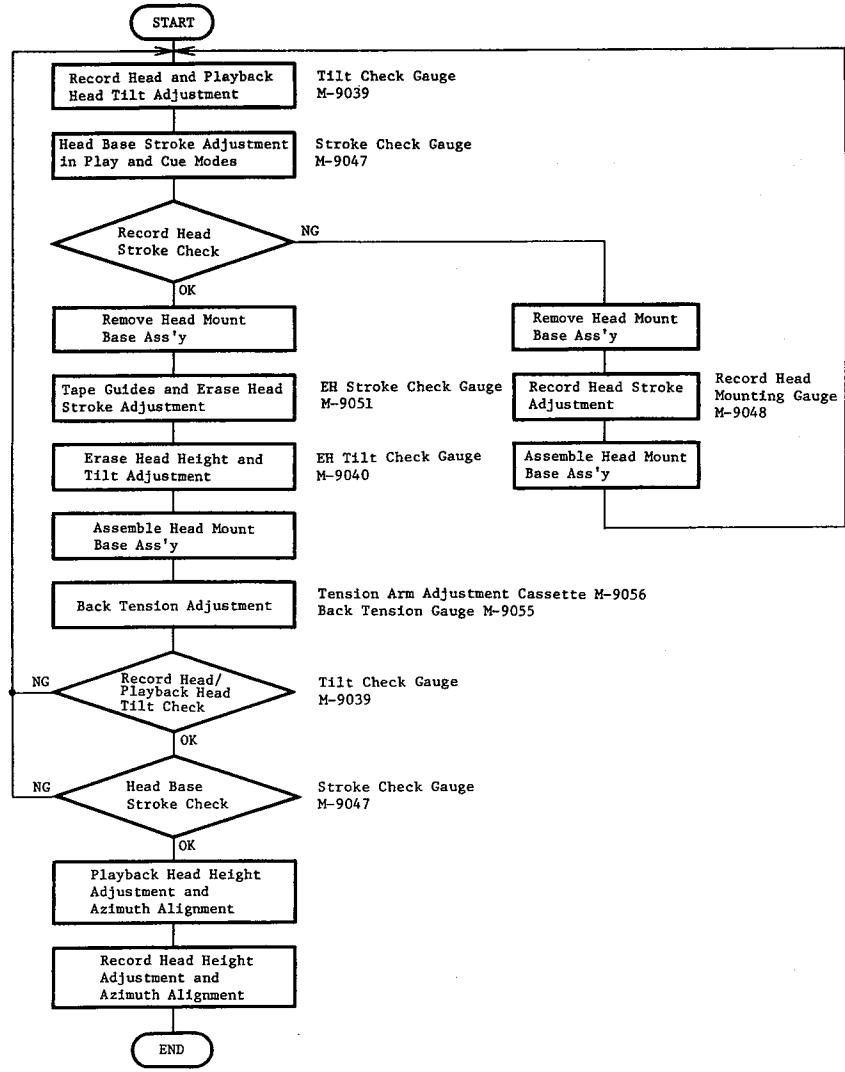


Fig. 4.9

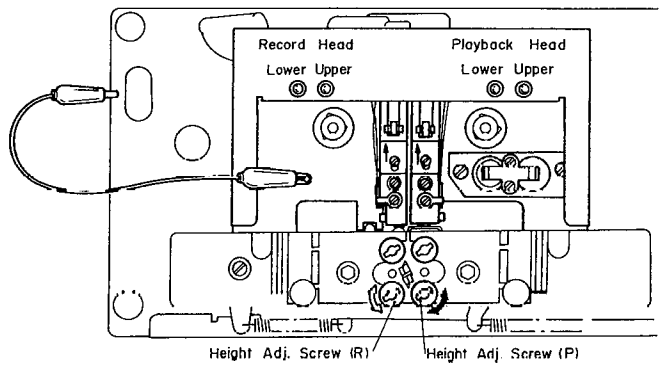


Fig. 4.10

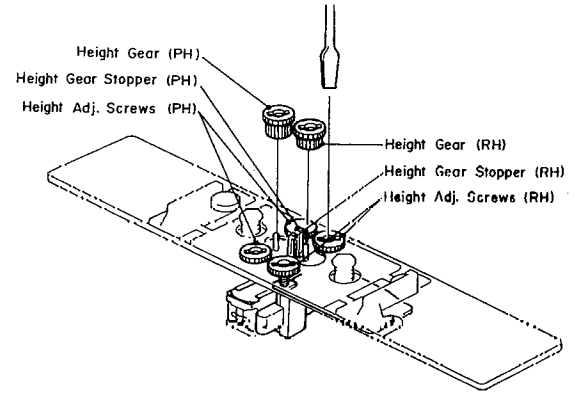


Fig. 4.11

4.5. Head Base Stroke Adjustment

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

(1) Head Base Stroke Adjustment in Play Mode

Refer to Fig. 4.12.

- (a) Load a Stroke Check Gauge M-9047 (DA09047A) in the N-700ZXL.
- (b) Move Record Head Indicator and Playback Head Indicator to the direction of arrow mark "A" with your finger tip and then set the N-700ZXL in Play mode. Then slowly release the Indicators and insure whether each of the Indicators is in contact with record and playback heads.
- (c) Check to insure whether the "P" pointer on the Playback Head Indicator locates between the 2 lines on the Indicator Plate.
- (d) If the playback head stroke is noted to be misaligned, adjustment can be made by moving the stroke adjuster assembled in the head base assembly (either forwardly or backwardly).
- (e) Check to insure whether the "P" pointer on the Playback Head Indicator locates between the 2 lines on the Record Head Indicator, thus check can be made on record head stroke.
- (f) If the record head stroke is noted to be misaligned, adjustment can be made with a Record Head Mounting Gauge M-9048 (DA09048A).

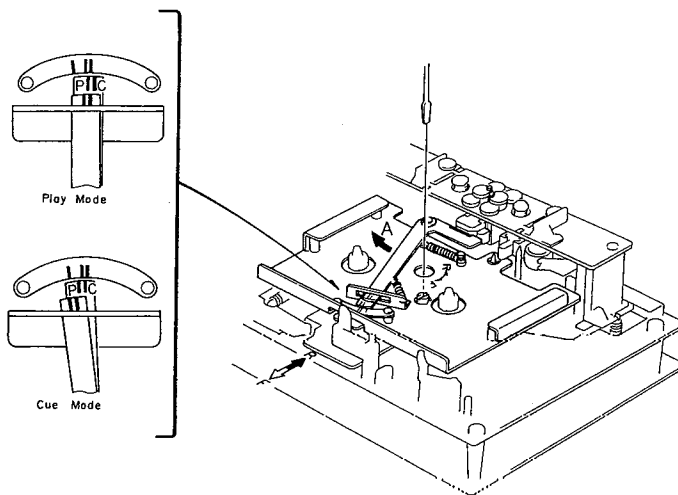


Fig. 4.12

(2) Head Base Stroke Adjustment in Cue Mode

Refer to Figs. 4.12 and 4.13.

- (a) Load a Stroke Check Gauge M-9047 (DA09047B) in the N-700ZXL.
- (b) Move Record Head Indicator and Playback Head Indicator to the direction of arrow mark "A" with your finger tip and then set the N-700ZXL in Cue (F.F. and Pause) mode. Then slowly release the Indicators and insure whether each of the Indicators is in contact with record and playback heads.
- (c) Check to insure whether the "C" pointer on the Playback Head Indicator locates between the 2 lines on the Indicator Plate.
- (d) If the playback head stroke is noted to be misaligned, adjust VR503 on the Main Logic P.C.B. Ass'y till satisfactory results are obtained.
- (e) After completion of the Head Base Stroke Adjustment, check to insure accuracy of the Head Base Stroke Adjustment in Play mode. If the above are inaccurate, items (1) and (2) will have to be repeated till satisfactory results are obtained.

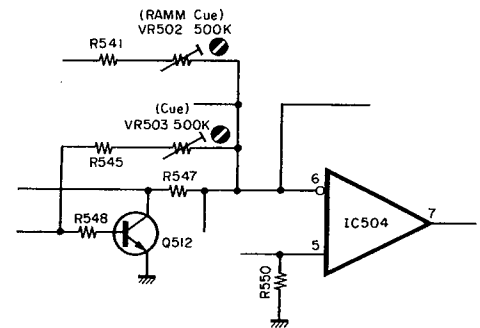


Fig. 4.13

4.6. Tape Guides Adjustment and Erase Head Stroke Adjustment

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

(1) Supply Tape Guide Height Adjustment

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

(2) Take-up Tape Guide Height Adjustment

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

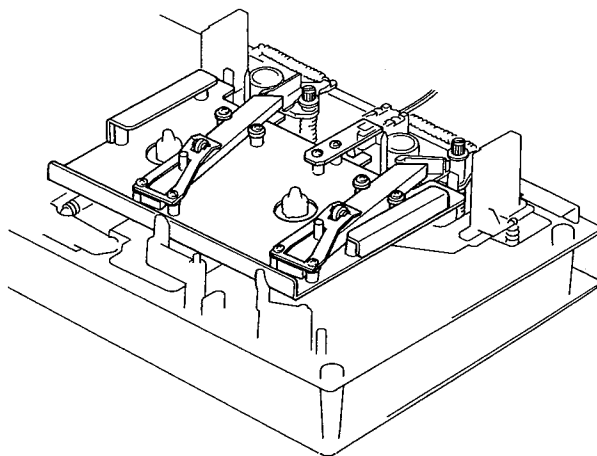


Fig. 4.14

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

(3) Erase Head Stroke Adjustment

- (a) Load an EH Stroke Check Gauge M-9051 (DA-09051A) in the N-700ZXL.
- (b) Set the N-700ZXL in Play mode, thus check can be made on erase head stroke through the EH Stroke Indicator.
- (c) Check to insure whether the erase head surface is aligned with red line on the EH Stroke Indicator. If not, adjust the erase head stroke by loosening 2 screws B that assemble erase head and erase head plate.
- (d) After completion of adjustment, 2 pcs. of screws shall be locked with lock tight paint.

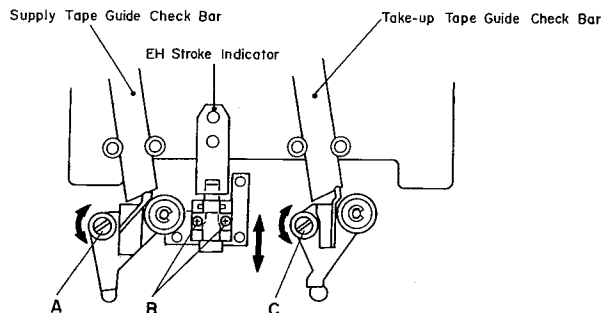


Fig. 4.15

4.7. Erase Head Height and Tilt Adjustment

Refer to Figs. 4.16 and 4.17.

- (1) Remove Head Mount Base Ass'y referring to item 2.31.
- (2) Load an EH Tilt Check Gauge M-9040 (DA09040A) in the N-700ZXL.
- (3) Set the N-700ZXL in Stop mode.
- (4) Check to insure whether one of the 3 Beacons is illuminating. Look down the mirror as shown by an arrow mark and slowly turn the Screw "Height" counterclockwise (or clockwise) so that the two horizontal lines on the mirror will become superposed on the line (in different color) of the erase head, and check to insure whether Beacon "1" is illuminating.
- (5) Turn Screw "Tilt" counterclockwise (or clockwise) to light on Beacon "2". Excessive turning will cause the Beacon "1" to light off. Adjustments of Screw "Tilt" will therefore be conducted till both of the Beacons "1" and "2" illuminate.
- (6) Turn Screw "Azimuth" counterclockwise (or clockwise) to light on Beacon "3". Excessive turning will cause either Beacon "1" or "2" to light off, and therefore adjust Screw "Azimuth" until all of the 3 Beacons "1", "2" and "3" illuminate.
- (7) Check to insure whether the horizontal line on the mirror corresponds to that on the erase head. If not, (4) through (7) will have to be repeated till satisfactory results are obtained.
- (8) After completion of adjustment, 3 pcs. of screws should be locked with lock tight paint.

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

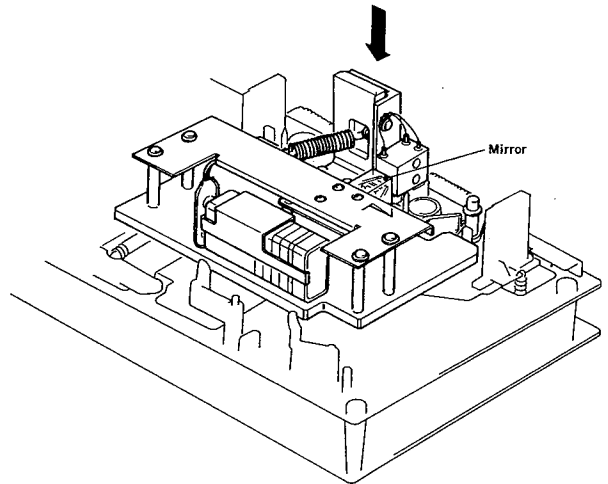


Fig. 4.16

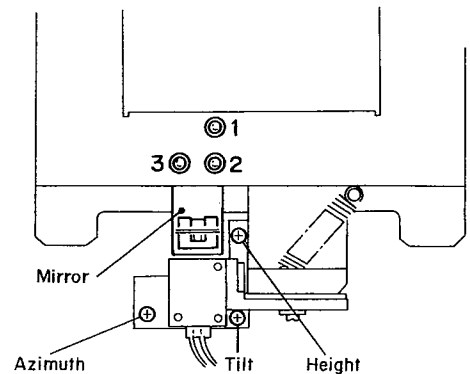


Fig. 4.17

4.8. Back Tension Adjustment

Refer to Figs. 4.18 – 4.21.

- (1) Load a Tension Arm Adjustment Cassette (DA 09056A) in the N-700ZXL referring to Fig. 4.18.
- (2) Set the N-700ZXL in Play mode.
- (3) Bend the Back Tension Arm with pliers so that the gap between the Cassette Holding Spring assembled on the Head Base Ass'y and the Back Tension Arm becomes 0.5 mm as shown in Fig. 4.19. Do not bend the pointed end of the Back Tension Arm.
- (4) Set the N-700ZXL in Stop mode, and remove the Tension Arm Adjustment Cassette (DA09056A), then set the N-700ZXL in Cue mode.

In Cue mode, check to insure that the gap is found between the Supply Reel Hub B Ass'y and the Felt of Back Tension Ass'y as shown in Fig. 4.20.

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

- (6) Set the N-700ZXL in Play mode and read the torque value of Back Tension Gauge.

If the value is in a range of 6 g-cm to 10 g-cm, adjustment is not necessary. If not, change the installation point of the Back Tension Spring as shown in Fig. 4.21, and obtain the torque of 7 g-cm to 9 g-cm range.

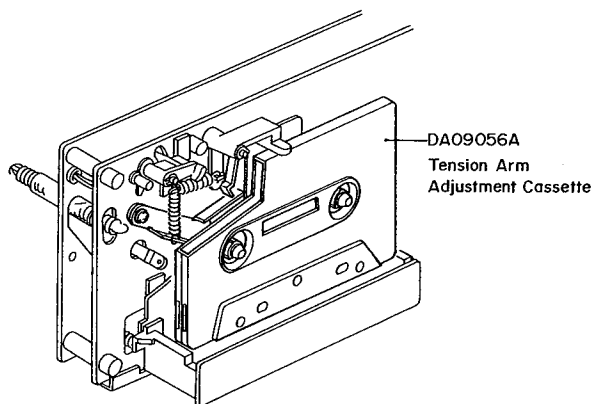


Fig. 4.18

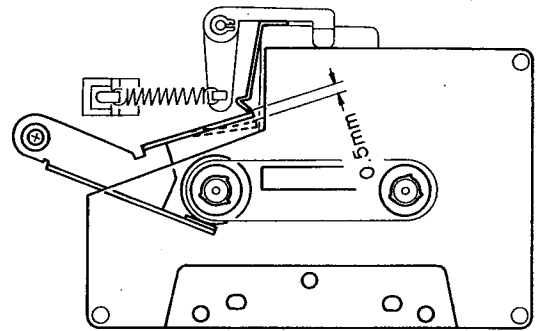


Fig. 4.19

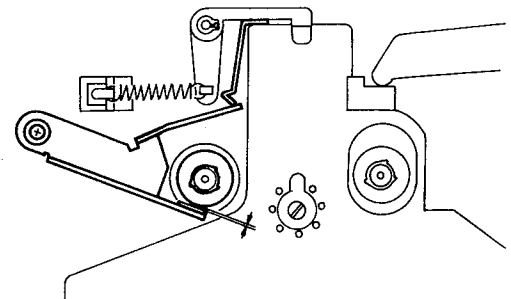


Fig. 4.20

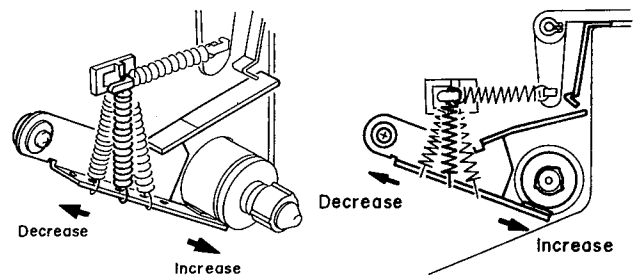


Fig. 4.21

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

(1) Playback Head Height Adjustment and Azimuth Alignment

Refer to Fig. 4.22.

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

(2) Record Head Height Adjustment and Azimuth Alignment

Refer to Figs. 4.22 – 4.26.

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

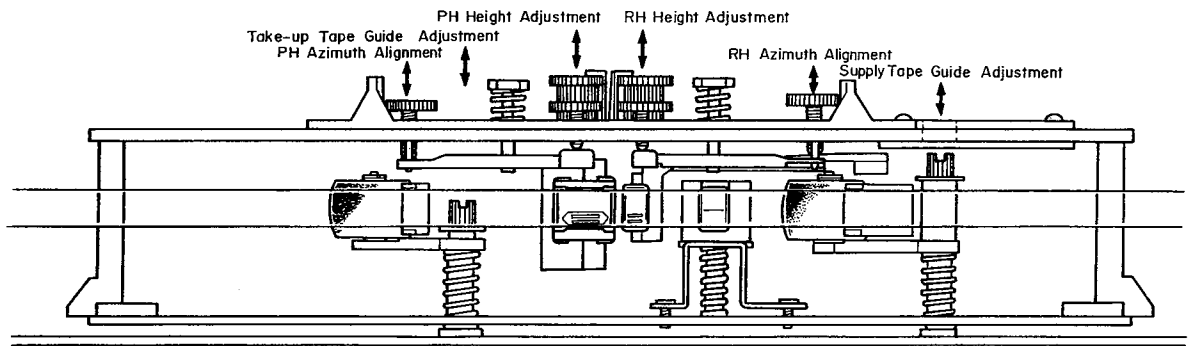


Fig. 4.22

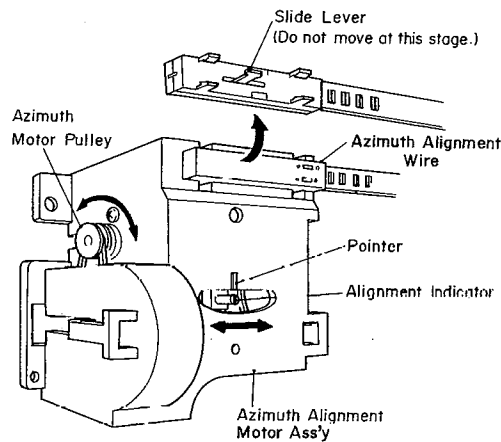


Fig. 4.23

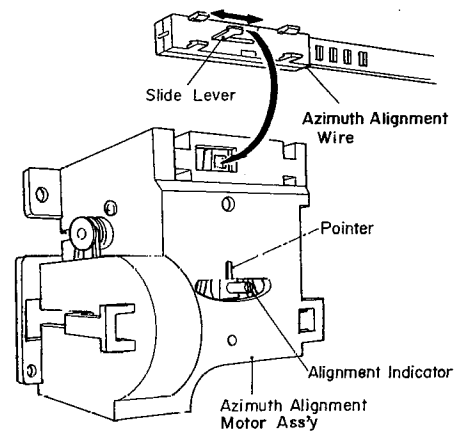


Fig. 4.24

Auto Azimuth button light starts flashing and Azimuth Alignment operation begins.

Referring to Fig. 4.25, adjust VR508 on the Main Logic P.C.B. Ass'y so that the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y as shown in Fig. 4.23.

- (f) When the Auto Azimuth Alignment operation is completed, Auto Azimuth button light goes out, then Auto Calibration of Bias, Level and Equalization is automatically carried out.
- (g) After completion of the above Auto Calibration, tape is automatically rewound to "0000" and the Standby/Set button light is illuminated.
With pressing the Standby/Set button, press the Tape Memory button A, B, C, or D to store the information (Bias, Level and Equalization).
- (h) Set the Test Tone switch to 400 Hz, then turn the RH Height Gear until the outputs of both channels become maximum.
- (i) Feed in 15 kHz (-20 dB) and set the Test Tone switch to OFF, then set the N-700ZXL in Record and Play mode.
Turn the RH Azimuth Alignment Screw until the outputs of both channels become maximum.
- (j) Repeat above steps (h) and (i) one or two times to obtain optimum performance.
- (k) Set the N-700ZXL in Stop mode, then again set in Record and Pause mode.

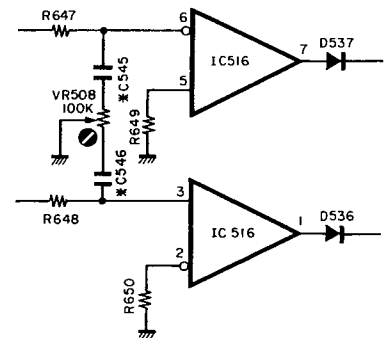


Fig. 4.25

- (l) With pressing the Auto Azimuth button "Azimuth", press the Play button to set the N-700ZXL in Auto Azimuth Alignment mode.
Check to insure whether the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y in the position of VR508 as adjusted in above step (e). If not, re-adjust VR508 to correspond the Alignment Indicator to the pointer of the Azimuth Alignment Motor Ass'y.
- (m) Set the N-700ZXL in Stop mode.
Mount the Azimuth Alignment Wire on the Azimuth Alignment Motor Ass'y referring to Fig. 4.24. (Correct the position of the Slide Lever of the Azimuth Alignment Wire by sliding by hand, then insert the Slide Lever into the receptacle of the Azimuth Alignment Motor Ass'y.)
- (n) After completion of the above adjustment, record 400 Hz tone to the same portion of both sides A and B of the tape.
- (o) Immerse the recorded tape in a magnetized developing solution. In turn, check to insure that the recording head tracks across the center are separated with a distance of 0.55 to 0.75 mm (typically 0.65 mm) as illustrated in Fig. 4.26.

Note: Liquid for tape magnetized development solution
"MAGNA-SEE SOUND CRAFT a product of CBS RECORDS a division of Columbia Broadcasting System, Inc., Danbury, Conn. 06810 U.S.A., or equivalent".
After development, clean the tape otherwise pressure rollers and heads will become dirty.

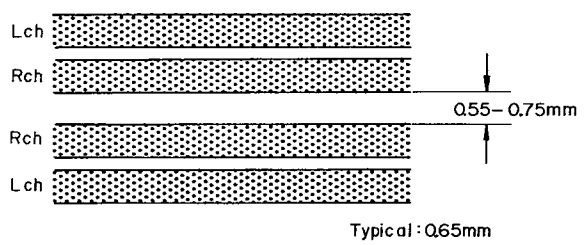


Fig. 4.26

4.10. Record Head Stroke Adjustment

Refer to Figs. 4.27 and 4.28.

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

- (1) Check the accuracy of the record head stroke.
- (2) Remove Head Mount Base Ass'y referring to item 2.31.
- (3) Remove the record head assembly.
- (4) Adjustment of Record Head Mounting Gauge M-9048 (DA09048A)
 - (a) Mount the Block B onto the Mounting Gauge Plate.
 - (b) Loosen the 2 screws fixing the Block A.
 - (c) As shown in Fig. 4.27 hold the Gauges (3.05 mm and 0.1 mm thickness) between the Block A and Block B, fix the Block A with screws, pushing the Block A to the 2 guide pins.
- (5) Remove the Block B from the Mounting Gauge Plate.
- (6) As shown in Fig. 4.28, mount the R-8L record head assembly onto the Mounting Gauge Plate, then check the location of the R-8L record head surface. (If record head contacts to the Block C, loosen 2 pcs. of screws that assemble record head and record head plate, then place the R-8L record head assembly onto the Plate.)
- (7) Remove the R-8L record head assembly from the Mounting Gauge Plate.
- (8) Readjustment of Record Head Mounting Gauge M-9048 (DA09048A)
 - (a) Mount the Block B onto the Mounting Gauge Plate.

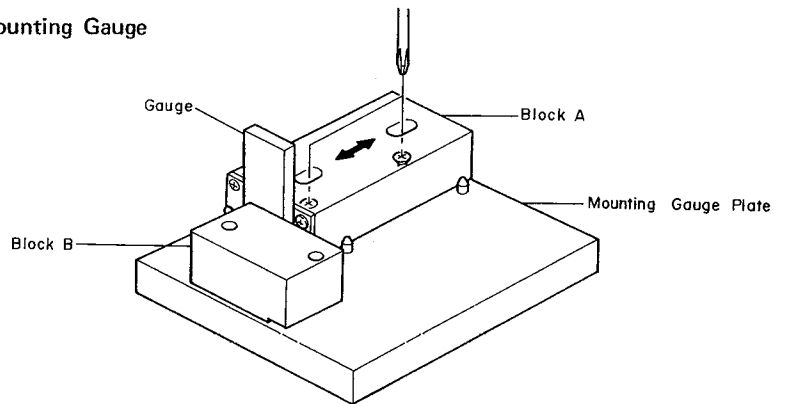
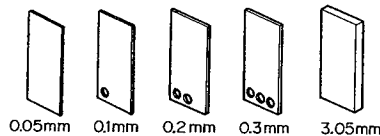


Fig. 4.27

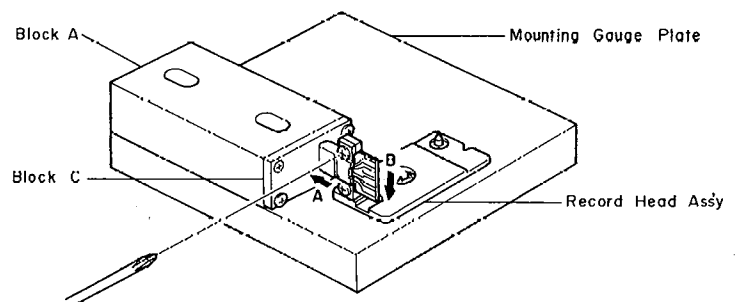


Fig. 4.28

- (b) Loosen the 2 screws fixing the Block A.
- (c) As shown in Fig. 4.27 hold the Gauges (3.05 mm and either one of 0.05, 0.15, 0.2, 0.25, 0.3 or 0.35 mm thickness) between the Block A and Block B, fix the Block A with screw, pushing the Block A to the 2 guide pins.

- (9) Remove the Block B from the Mounting Gauge Plate.
- (10) Mount the R-8L record head assembly onto the Mounting Gauge Plate.
- (11) As shown in the Fig. 4.28, loosen 2 pcs. of screws that assemble record head and record head plate. As the location of the Block A is secured by the item (8)-(c), push the record head to the directions A and B, then tighten 2 pcs. of screws.
- (12) Check to insure freedom from gap between the Block C and record head surface, then tighten the 2 pcs. of screws on the record head assembly with lock tight paint.
- (13) Remove the R-8L record head assembly from the Mounting Gauge Plate.
- (14) Assemble the record head assembly to the head mount base assembly.
- (15) Assemble the head mount base assembly to the mechanism assembly.
- (16) Check the record head stroke.
If the above are inaccurate, items (1) through (16) will have to be repeated till satisfactory results are obtained.

4.11. Tape Travelling Adjustment

The adjustment shall be made with a modified version of the current type EX11 C-90 as shown in Fig. 4.29 (error will be made if a current type Tape Travelling Cassette (DA09011A) should be used for this purpose).

While modifying an EX11 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 EX11 C-90 Tape thus modified shall be loaded onto the N-700ZXL.
 - (2) Release the back-tension (rotate the Supply Reel and feed out some length of tape) and set the N-700ZXL in Play mode.
 - (3) In this juncture, check to insure whether the tape is free from waving or slippage from the tape guide.
 - (4) When the modified EX11 C-90 is played back, check to insure whether the tape is freedom from waving from head surface or at pressure rollers.
 - (5) If either of waving or slippage from the tape guide should be noted, adjustments of "4.4. Record Head and Playback Head Tilt Adjustment", "4.5. Head Base Stroke Adjustment", "4.6. Tape Guides Adjustment and Erase Head Stroke Adjustment", "4.7. Erase Head Height and Tilt Adjustment", "4.8. Back Tension Adjustment", "4.9. Playback Head and Record Head Height Adjustment and Azimuth Alignment", "4.10. Record Head Stroke Adjustment", etc. will be required.
- As a case may be, the said waving or slippage may have been caused from defective Supply Pressure Roller Ass'y or Take-up Pressure Roller Ass'y without parallel contact with capstans. If such is noted, the Pressure Roller Assemblies will have to be replaced.
- Further, excessively weak take-up torque or strong take-up torque may cause defective tape travelling.
- The N-700ZXL is intended to be an adjustment-free model, however if the similar matters as above should be noted, please replace the Reel Hub Ass'y to obtain appropriate take-up torque.

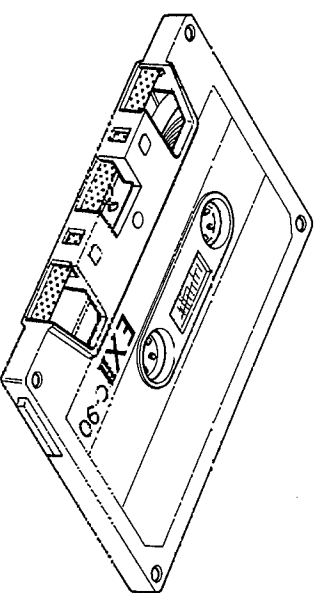


Fig. 4.29

4.12. Flywheel Holder Adjustment

- (1) Refer to Fig. 4.30.

Tighten the Thrust Screws until the gap between the Flywheel Assemblies and Thrust Screws becomes minimized when both of the Capstan Shafts are moved backwardly and forwardly (the Thrust Springs between the Capstan Flanges and Flywheel Thrust Caps are in a flat state).

Excessive tightening of the Thrust Screws however will give damages on the Flywheel Assemblies, to which careful attention is invited.

- (2) Return the Thrust Screws by 1/2 turn.
- (3) Fixing the Thrust Screw with a screwdriver, lock the Lock Nut.
- (4) Apply a quantity of lock tight paint to the Thrust Screws.

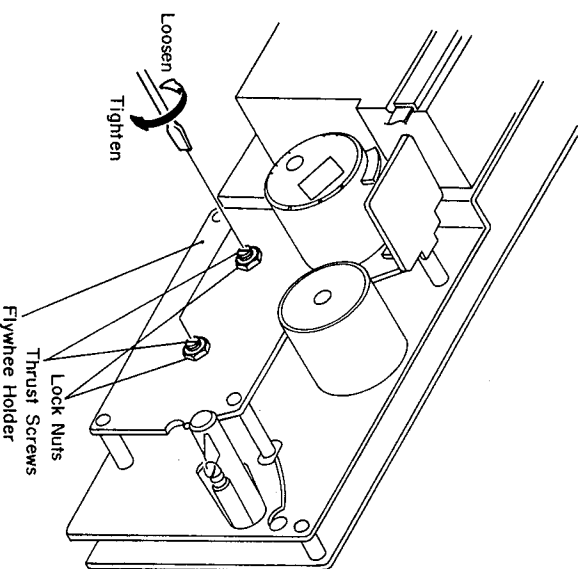


Fig. 4.30

4.13. Adjustment Lid Gap Adjustment

- (1) Remove the Top Cover Ass'y, referring to item 2.1.
- (2) Loosen the screw (A), then slightly loosen the screw (B).

(3) By turning a screwdriver as shown in Fig. 4.31, adjust the gap (C) at the lower part of the Adjustment Lid until it becomes equal to the gap at the upper part of the Adjustment Lid. Clockwise turning will result in decreasing the gap (C) and vice versa.

- (4) Tighten the 2 screws (A and B).

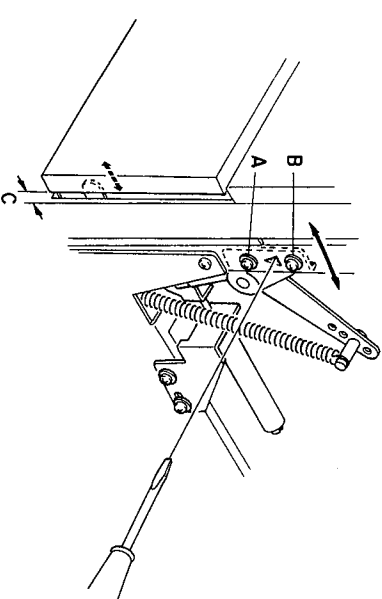


Fig. 4.31

4.14. Tape Speed Adjustment

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

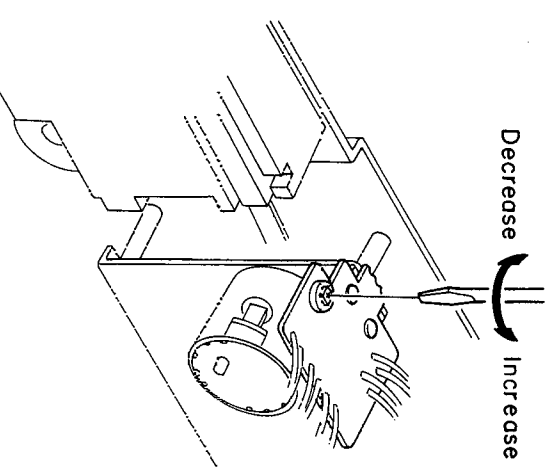


Fig. 4.32

4.15. Lubrication

N-700ZXL is a lubrication-free cassette deck except when parts are replaced. Apply the following lubricant for each replaced part:

- (1) LAUNA #100
Capstan Shaft
Pressure Roller Shaft
Thrust Cap
Thrust Hub Shaft
- (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.
- (3) Silicon Oil #3000CST
Air Damper Piston

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

5. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

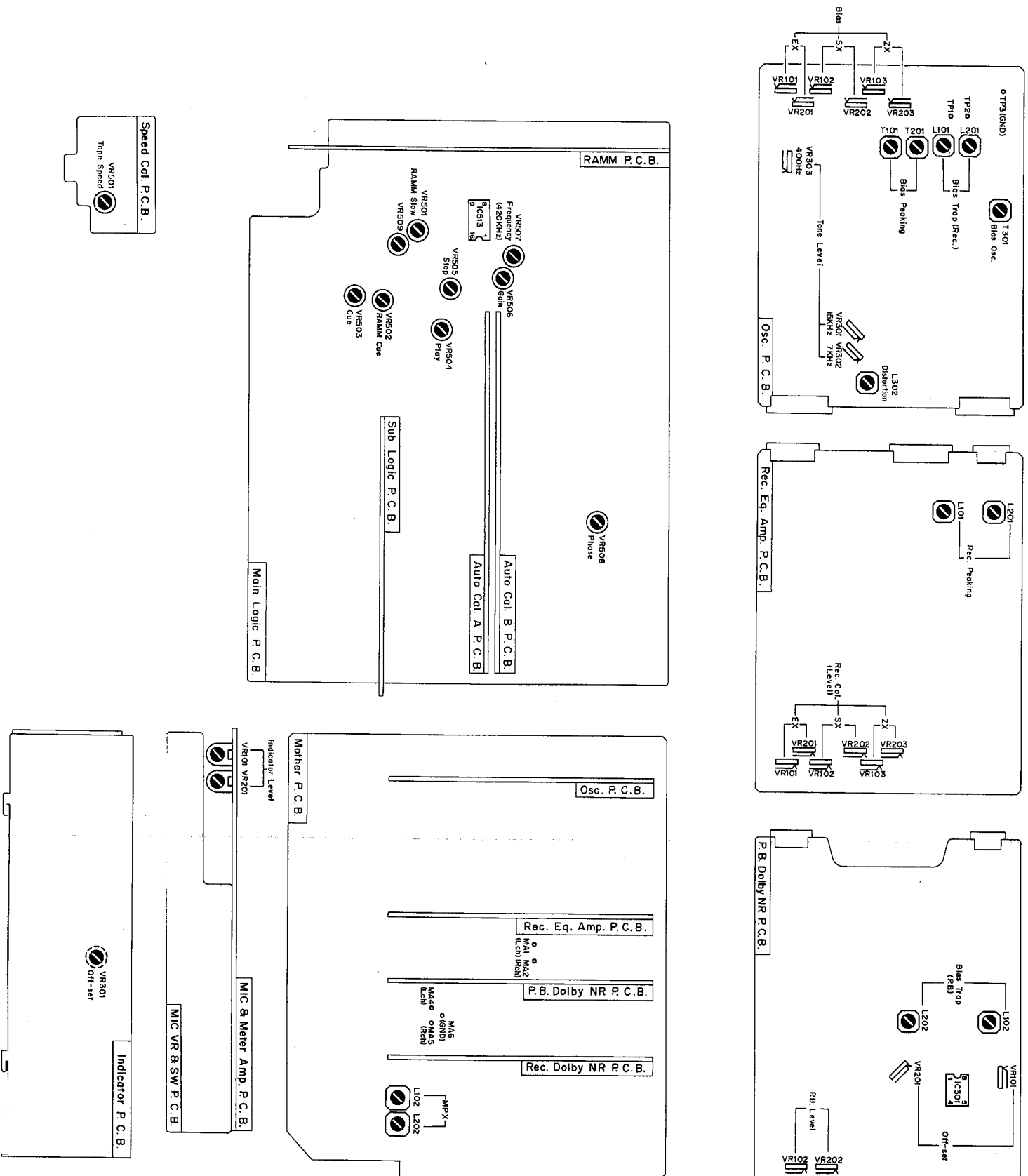


Fig. 5

6. ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

6.1. Introduction

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

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

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

(1) How To Use the Test Unit

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

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

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

Following shows the output conditions of IC510 and IC511:

(Level)	(Bias)
IC510-13 (2 ³)=0	IC511-13=1
IC510-14 (2 ²)=1	IC511-14=1
IC510-15 (2 ¹)=1	IC511-15=1
IC510-16 (2 ⁰)=1	IC511-16=0
IC510-17 (2 ³)=0	IC511-17=1
IC510-18 (2 ²)=1	IC511-18=1
IC510-19 (2 ¹)=1	IC511-19=1
IC510-20 (2 ⁰)=1	IC511-20=0

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

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

6.2. Adjustment and Measurement Instructions Note: Electrical adjustment should be performed after mechanical adjustment is completed.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
1	Tape Speed Adjustment	3 kHz Speed and Wow/Flutter Tape (DA09006A)	Frequency Counter to Line Output Jacks	Playback	Speed Cal. P.C.B. VR501	Adjust VR501 to obtain 3 kHz $\pm 5\%$ on the frequency counter.
2	Playback Amp. Offset Adjustment	None	DC Voltmeter to IC301-7, -1 on Playback Amp. & Dolby NR P.C.B.	Stop	Playback Amp. & Dolby NR P.C.B. VR101, VR201	Adjust VR101 (VR201) to obtain 0 V ± 100 mV on the DC voltmeter.
3	CPU Clock Frequency Adjustment	None	Frequency Counter to IC513-2 (CN54-3) on Main Logic P.C.B.	Stop	Main Logic P.C.B. VR507	Adjust VR507 to obtain 420 kHz $\pm 5\%$ on the frequency counter.
4	Tone Level Calibration	Test Tone 400 Hz	VTVM to MA4, MA5 (and MA6 (GND)) on Mother P.C.B. Oscilloscope to Line Output Jacks	Monitor SW - Source Test Tone SW - 400 Hz	Oscillator P.C.B. VR303 VR302 VR301 L302	<ol style="list-style-type: none"> 1. Ground the pin No. 3 of CN-10 (Reset signal) on the MIC & Meter Amp. P.C.B. Ass'y with a jumper wire (peak level indication will go out). 2. Feed in 400 Hz +15 dB, then increasing the input level by turning the Line Input level controls, observe the shifting of level meter indication from the 15th segment (0 dB segment) to the 16th segment (right hand segment). 3. Adjust VR301 so that the indication shift from the 15th segment (0 dB segment) to the 16th is carried out smoothly. <ol style="list-style-type: none"> 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.
5	Meter Offset Adjustment	400 Hz (+15 dB) to Line Input Jacks	None	Monitor SW - Source Test Tone SW - OFF	Indicator P.C.B. VR301	

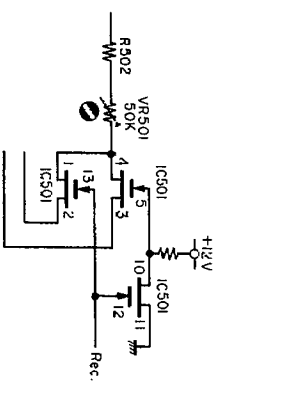


Fig. 6.1
1. Tape Speed

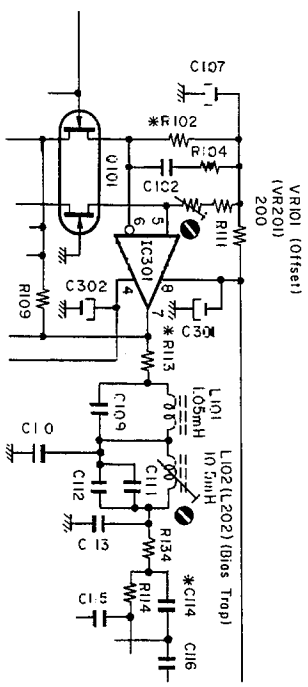


Fig. 6.2
2. Playback Amp. Offset

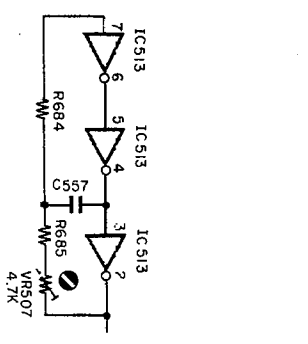


Fig. 6.3
3. CPU Clock Frequency

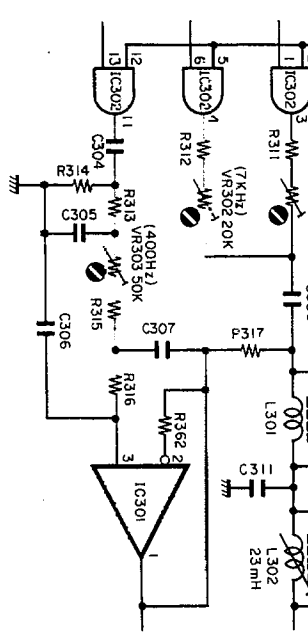
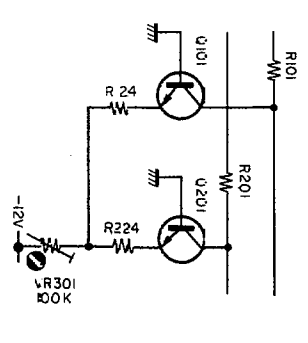


Fig. 6.4
4. Tone Level



STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
6	Meter Level Adjustment	400 Hz (0 dB) to Line Input Jacks	VTVM to MA4, MA5 (and MA6 (GND)) on Mother P.C.B.	Monitor SW — Source Test Tone SW — OFF	MIC & Meter Amp. P.C.B. VR101, VR201	<ol style="list-style-type: none"> 1. Ground the pin No. 3 of CN-10 (Reset signal) on the MIC & Meter Amp. P.C.B. Ass'y with a jumper wire (peak level indication will go out). 2. Feed in 400 Hz, then adjust the Line Input level controls to obtain 90 mV on the VTVM. 3. Adjust VR101 (VR201) to obtain 0 dB on the level meter. 4. Check the accuracy of 0 dB setting as follows, since the 0 dB segment lights up over 0.9 dB level range: Decrease the external generator output level by 0.45 dB, and check if the 0 dB segment goes out. If it does, 0 dB setting is accurate as it will be set in the center of the level range. At the same time, check to insure that the 0 dB segments of L ch. and R ch. light up simultaneously. If satisfactory results are not obtained, repeat 3 and 4. 5. Remove the jumper wire from the pin No. 3 of CN-10.
7	MPX Filter Adjustment	19 KHz \pm 100 Hz to Line Input Jacks	VTVM to Line Output Jacks	Monitor SW — Source Test Tone SW — OFF Filter SW — OFF/MPX Noise Reduction SW — OUT	Mother P.C.B. L102, L202	<ol style="list-style-type: none"> 1. Set the Output level controls to max. 2. Adjust the Line Input level controls to obtain 1 V on the VTVM. 3. Set the Filter switch to MPX, then adjust L102 (L202) to obtain the minimum reading on the VTVM (the minimum reading will be less than -30 dB).
8	Playback Head Track Alignment	1 KHz Track Alignment Tape (DA09007A)	VTVM to Line Output Jacks	Playback Monitor SW — Tape Eq. SW — 70 μ s Noise Reduction SW — OUT Filter SW — OFF	PH Height Gear	<ol style="list-style-type: none"> 1. Press the Manual Set button. 2. Adjust the PH Height Gear to obtain the minimum readings of both channels on the VTVM. 3. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 4.9.
9	Playback Head Azimuth Alignment	15 KHz Azimuth Tape (DA09004A)	VTVM to Line Output Jacks	Same as above	Playback Head Azimuth Alignment Screw	<ol style="list-style-type: none"> 1. Press the Manual Set button. 2. Adjust the Playback Head Azimuth Alignment screw to obtain the maximum readings of both channels on the VTVM. 3. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 4.9. 3. Repeat above steps 8 and 9 one or two times to obtain optimum performance.
10	Playback Level Adjustment	400 Hz Level Tape (DA09005A)	VTVM to MA1, MA2 on Mother P.C.B.	Same as above	Playback Amp. & Dolby NR P.C.B. VR102, VR202	<ol style="list-style-type: none"> 1. Press the Manual Set button. 2. Adjust VR102 (VR202) to obtain 90 mV on the VTVM.
11	Playback Frequency Response Adjustment	400 Hz Level Tape (DA09005A) 10 KHz PB Frequency Response Tape (DA09003A) 15 KHz PB Frequency Response Tape (DA09002A) 20 KHz PB Frequency Response Tape (DA09001A)	VTVM to Line Output Jacks	Same as above		<ol style="list-style-type: none"> 1. Press the Manual Set button. 2. Load a 400 Hz level tape and play it back. Set the Output level controls to a certain level (0 dB for example). 3. Load 10 KHz, 15 KHz and 20 KHz PB frequency response tapes, then adjust the playback head azimuth to obtain maximum levels on the VTVM with each tape. 4. Read the maximum levels with each tape and check to insure that the levels against the 400 Hz level tape are within the following ranges. 10 KHz: -20 dB -1 dB to +2 dB 15 KHz: -20 dB -1 dB to +2 dB 20 KHz: -20 dB -1 dB to +2 dB 5. Conduct step 9 "Playback Head Azimuth Alignment". 6. If above is not sufficient, refer to "Playback Frequency Response Adjustment" in item 6.3.
12	Bias Oscillation Frequency Adjustment	None	Frequency Counter to TP1, TP2 (and TP3 (GND)) (or across R119, R219) on Oscillator P.C.B.	Record, Pause Monitor SW — Source Tape SW — ZX Eq. SW — 70 μ s Noise Reduction SW — OUT	Oscillator P.C.B. T301	<ol style="list-style-type: none"> 1. Connect the connector CN-71 of the test unit to the test connector CN-71 on the Auto Cal. B P.C.B. Ass'y. 2. After setting the Mode switches, press the Tape Memory A button. 3. Press SW4 on the Test Unit to ON. 4. Press the Record and Pause buttons. 5. Adjust T301 to obtain 105 KHz \pm1 KHz on the frequency counter.

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

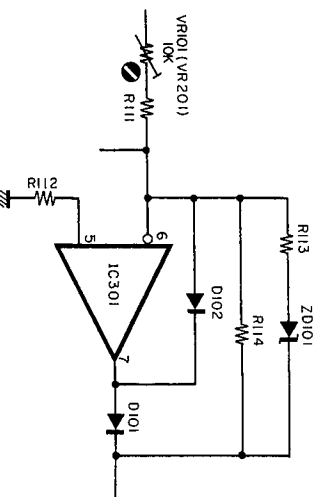


Fig. 6.6

6. Meter Level

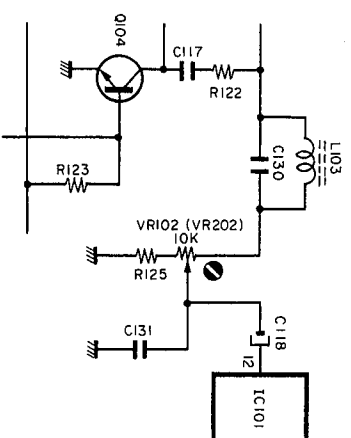


Fig. 6.8

10. Playback Level

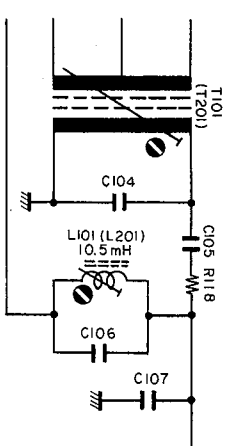


Fig. 6.10

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

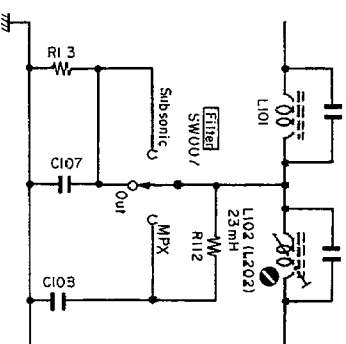


Fig. 6.7

7. MPX Filter

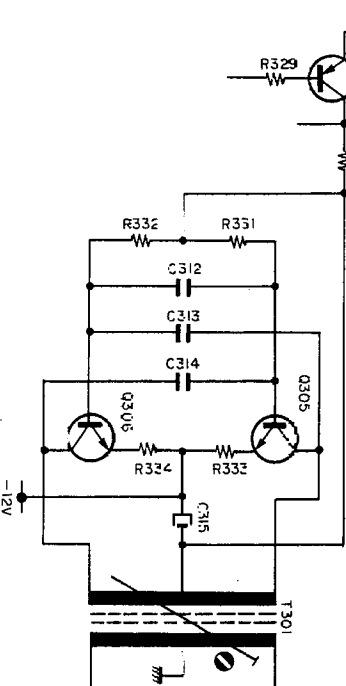


Fig. 6.9

12. Bias Oscillation Frequency

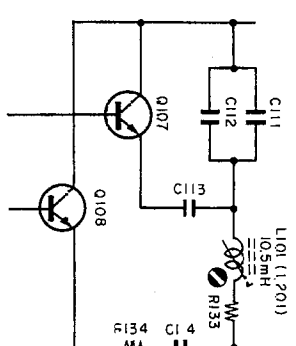


Fig. 6.11

15. Record Amp. Eq.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
16	Record Head Height Adjustment and Azimuth Alignment	Test Tone 400 Hz and 15 kHz (-20 dB) to Line Input Jacks	VTVM to Line Output Jacks	Record, Playback Monitor SW - Source/Tape Test Tone SW - 400 Hz/OFF Tape SW - SX Eq. SW - 70 μ s Noise Reduction SW - OUT Filter SW - OFF	Head Height: RH Height Gear Azimuth Alignment: Record Head Azimuth Alignment Screw Main Logic P.C.B. VR508	<ol style="list-style-type: none"> In stop mode, turn the Azimuth Motor by hand so that the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y as shown in Fig. 4.23. Remove the Azimuth Alignment wire by pulling out from the Azimuth Alignment Motor Ass'y. (In this case, do not move the Slide Lever of the Azimuth Alignment wire.) Load a reference ZX tape (DA09037A), then perform the auto calibration function as follows: <ol style="list-style-type: none"> Press the Record and Pause buttons. Pressing the Auto Calibration button "Run", press the Play button. Tape counter becomes "0000" and Auto Azimuth Alignment button light starts flashing. After disappearing flashing, Bias, Level and Eq. will go to performance automatically. The tape is rewound to "0000", the Standby/Set button light and the Manual Set button light come on, and the auto calibration function is completed. During the azimuth alignment operation in 2, adjust VR508 on the Main Logic P.C.B. so that the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y as shown in Fig. 4.23. Record Head Height Adjustment: <ol style="list-style-type: none"> Set the Test Tone switch to 400 Hz. Record signals on the reference ZX tape (DA09037A), and then play it back. Adjust the RH Height Gear to obtain the maximum readings of both channels on the VTVM. Record Head Azimuth Alignment: <ol style="list-style-type: none"> Set the Test Tone switch to OFF, then feed in 15 kHz -20 dB. Record signals on the reference ZX tape (DA09037A) and then play it back. Adjust the Record Head Azimuth Alignment Screw to obtain the maximum readings of both channels on the VTVM. Repeat 4 and 5 one or two times to obtain optimum performance. Press the Stop button, then perform the auto azimuth alignment function as follows: <ol style="list-style-type: none"> Press the Record and Pause buttons. Pressing the Auto Azimuth Alignment button "Azimuth", press the Play button. The counter becomes "0000" and Auto Azimuth Alignment button light starts flashing. When alignment is completed, the button light goes out and the tape is automatically rewound to "0000". During the auto azimuth alignment operation in 6, check to insure whether the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y at the position of VR508 as adjusted in 3. If not, re-adjust VR508 to correspond the Alignment Indicator to the pointer of the Azimuth Alignment Motor Ass'y. Press the Stop button, then mount the Azimuth Alignment wire on the Azimuth Alignment Motor Ass'y referring to Fig. 4.24. Perform the auto calibration function referring to 2. During the auto azimuth alignment operation, check to insure that the Alignment Indicator corresponds to the pointer of the Azimuth Alignment Motor Ass'y. Feed in 15 kHz -20 dB. Record signals on the reference ZX tape (DA09037A) and then play it back. Check to insure that the playback level is the same as the source monitor level for both channels.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
17	Record Level Calibration and Recording Bias Current Adjustment	400 Hz (-20 dB) and 15 KHz (-20 dB) to Line Input Jacks	VTVM to Line Output Jacks	Record, Playback Monitor SW - Source/Tape Test Tone SW - OFF Tape SW - ZX/SX/EX Eq. SW - 70 μs (ZX/SX) 120 μs (EX) Noise Reduction SW - OUT Filter SW - OFF	Record Eq. Amp. P.C.B. (Level) ZX: VR103, VR203 SX: VR102, VR202 EX: VR101, VR201	<ol style="list-style-type: none"> Connect the connector CN-71 of the Test Unit to the test connector CN-71 on the Auto Cal. B P.C.B. Ass'y. Adjustment for ZX tape: <ol style="list-style-type: none"> After setting the Mode switches (Tape switch: ZX, Eq. switch: 70 μs), press the Tape Memory A button. Press SW4 on the Test Unit to ON. Load a reference ZX tape (DA09037A). Feed in 400 Hz -20 dB, then record and play it back. Adjust VR103 (VR203) on the Record Eq. Amp. P.C.B. Ass'y to obtain the same readings with Monitor switch Source and Tape on the VTVM. Feed in 15 kHz -20 dB, then record and play it back. Adjust VR103 (VR203) on the Oscillator P.C.B. Ass'y to obtain 1 dB higher reading with Monitor switch Tape than the reading with Monitor switch Source on the VTVM. Adjustment for SX tape: <ol style="list-style-type: none"> After setting the Mode switches (Tape switch: SX, Eq. switch: 70 μs), press the Tape Memory A button. Press SW4 on the Test Unit to ON. Load a reference SX tape (DA09025A). Feed in 400 Hz -20 dB, then record and play it back. Adjust VR102 (VR202) on the Record Eq. Amp. P.C.B. Ass'y to obtain the same readings with Monitor switch Source and Tape on the VTVM. Feed in 15 kHz -20 dB, then record and play it back. Adjust VR102 (VR202) on the Oscillator P.C.B. Ass'y to obtain 1 dB higher reading with Monitor switch Tape than the reading with Monitor switch Source on the VTVM. Adjustment for EXII tape: <ol style="list-style-type: none"> After setting the Mode switches (Tape switch: EX, Eq. switch: 120 μs), press the Tape Memory A button. Press SW4 on the Test Unit to ON. Load a reference EXII tape (DA09066A). Feed in 400 Hz -20 dB, then record and play it back. Adjust VR101 (VR201) on the Record Eq. Amp. P.C.B. Ass'y to obtain 1 dB higher reading with Monitor switch Tape than the reading with Monitor switch Source on the VTVM. Feed in 15 kHz -20 dB, then record and play it back. Adjust VR101 (VR201) on the Oscillator P.C.B. Ass'y to obtain 2 dB higher reading with Monitor switch Tape than the reading with Monitor switch Source on the VTVM.

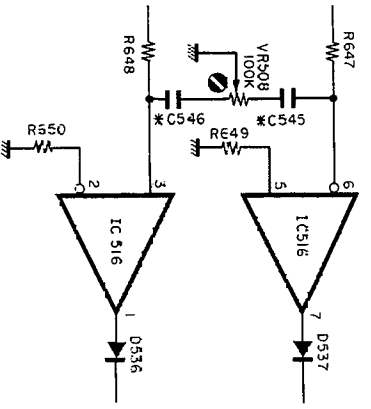


Fig. 6.12
16. Record Head Azimuth

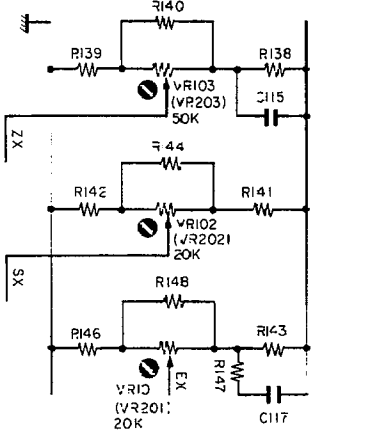
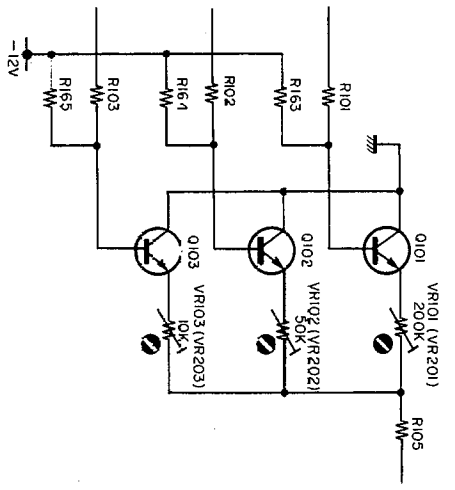


Fig. 6.13
17. Record Level and Recording Bias Current



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

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
24	Total Harmonic Distortion Measurement	400 Hz to Line Input Jacks	Distortion Meter to Line Output Jacks	Record and Playback Monitor SW — Source/Tape Test Tone SW — OFF Tape SW — EX/SX/ZX Eq. SW — 120 μs (EX) 70 μs (SX/ZX) Noise Reduction SW — OUT Filter SW — OFF		<ol style="list-style-type: none"> 1. Load a reference ZX tape (DA09037A), then perform the auto calibration function according to step 18-2. 2. Set the Monitor switch to Source, then adjust the Line Input level controls to obtain 0 dB on the level meters. 3. Set the Monitor switch to Tape, then record and play it back. 4. Read the distortion meter and check to insure that the distortion is less than 0.8% for ZX tape and 1.0% for SX and EXII tapes.
25	Subsonic Filter Measurement	10 Hz ±0.2 Hz to Line Input Jacks	VTVM to Line Output Jacks	Stop Monitor SW — Source Test Tone SW — OFF Eq. SW — 70 μs Noise Reduction SW — OUT Filter SW — OFF/Subsonic		<ol style="list-style-type: none"> 1. Set the Output level controls to max. 2. Adjust the Line Input level controls to obtain 1V on the VTVM. 3. Set the Filter switch to Subsonic, then check to insure that the readings of both channels are less than -55 dB on the VTVM.
26	Wow/Flutter Measurement	3 KHz Speed and Wow/Flutter Tape (DA09006A)	Wow/Flutter Meter to Line Output Jacks	Playback Monitor SW — Tape Test Tone SW — OFF Eq. SW — 70 μs		<ol style="list-style-type: none"> 1. Press the Manual Set button. 2. Play back and read the wow/flutter meter.

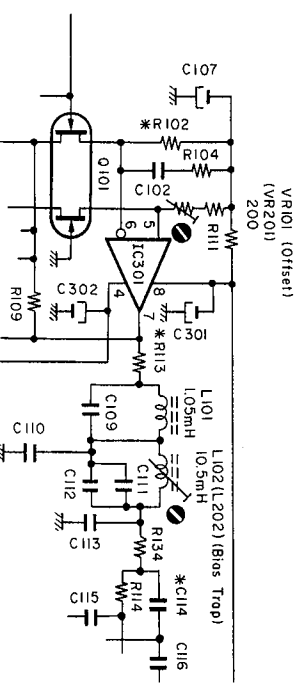


Fig. 6.14
18. Bias Trap (Playback)

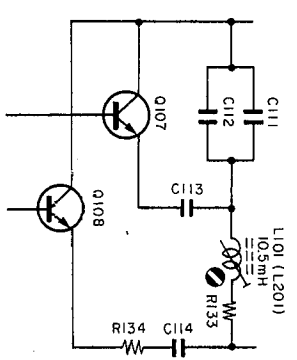


Fig. 6.15
19. Overall Frequency

6.3. Frequency Response Adjustment

(1) Playback Frequency Response Adjustment

Refer to Figs. 6.16 and 6.17.

(a) Level Adjustment (for middle frequency response)

This adjustment will be required if playback level is not sufficient when 10 KHz PB frequency response tape is played back as referred to step 11 in 6.2 "Adjustment and Measurement Instructions".

Playback equalization level is varied by the modification of R121 (R221) and R122 (R222) for 70 μ s equalization and R110 (R210) for 120 μ s equalization on the Playback Amp. & Dolby NR P.C.B. Assy. Following are the details for level modifications:

- For 70 μ s:
 - Approx. +1 dB R121 (R221): 2.3K
 - R122 (R222): 3.51K
 - 0 dB R121 (R221): 2.67K
 - R122 (R222): 3.16K
 - Approx. -1 dB R121 (R221): 3K
 - R122 (R222): 2.67K
- For 120 μ s:
 - Approx. +1 dB R110 (R210): 16.2K
 - 0 dB R110 (R210): 18K
 - Approx. -1 dB R110 (R210): 20.5K

(b) Peaking Adjustment (for high frequency response)

This adjustment will be required if playback level is not sufficient when 20 KHz PB frequency response tape is played back as referred to step 11 in 6.2 "Adjustment and Measurement Instructions".

Peaking portion compensates the gap loss of the playback head.

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

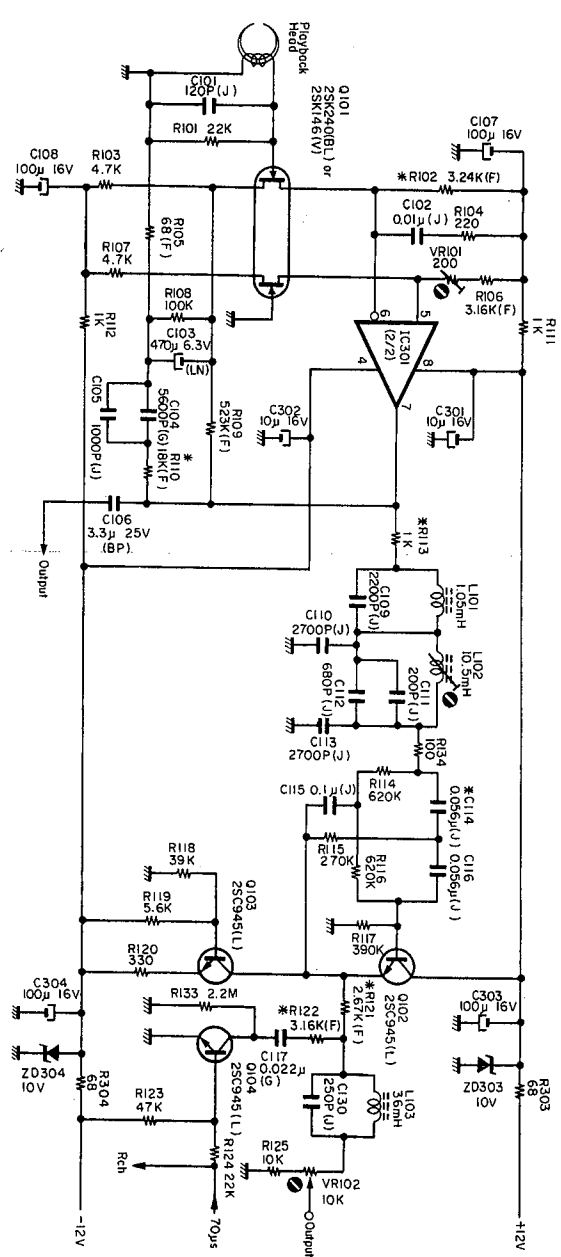


Fig. 6.16 Playback Amp.

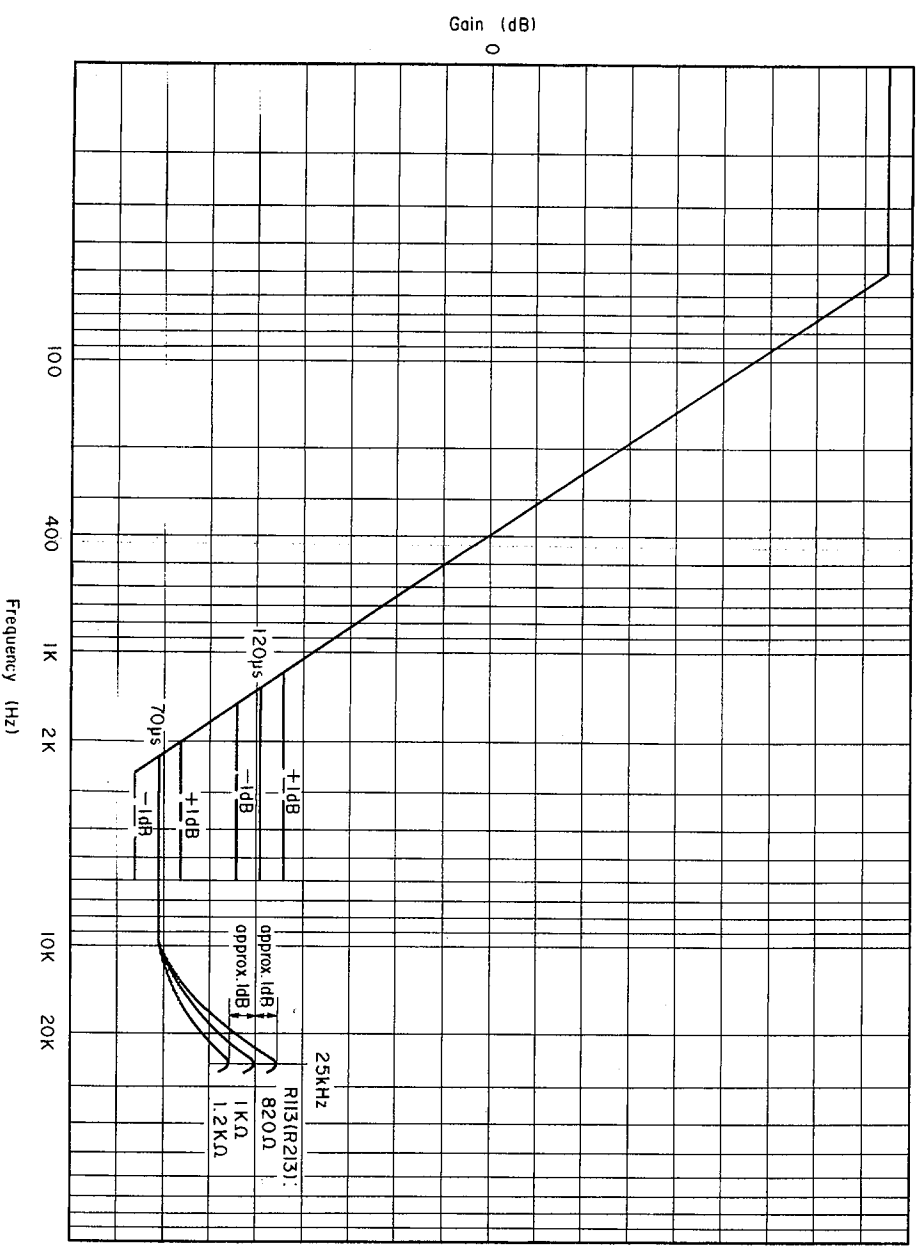


Fig. 6.17 Playback Equalization Curve

(2) Record Current Frequency Response

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

Before this adjustment, the following should be accurately adjusted.

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

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

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

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

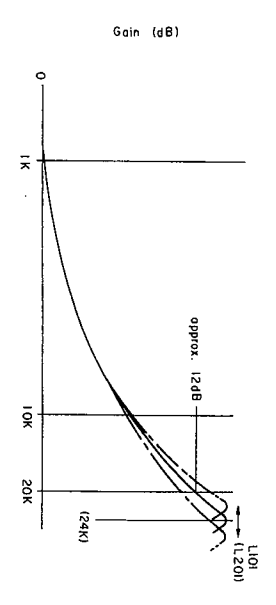


Fig. 6.18 Record Peaking Curve

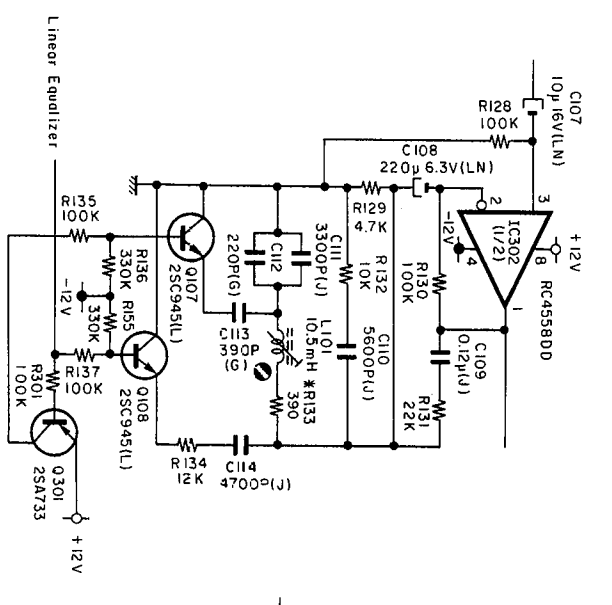


Fig. 6.19

6.4. Dolby NR Circuit Check

Dolby NR circuit incorporates a Dolby B-Type NR IC (μ A7300PC) which has no adjustment point.

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

(1) Playback Dolby NR Circuit

Signal Source: 5 kHz to pin No.12 of IC101 and IC201

Output Connection: VTVM to the test points MA4 and MA5 on the Mother P.C.B.

Mode: Stop
Monitor SW – Tape
Noise Reduction SW – Out/Dolby NR

(a) Connect a VTVM to MA4 (MA5) on the Mother P.C.B.

Feed in 5 kHz to pin No. 12 of IC101 (IC201) and adjust the generator output control so that the VTVM may read 7.6 mV at each test point.

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

(2) Record Dolby NR Circuit

Signal Source: 5 kHz to Line Input Jacks

Output Connection: VTVM to the output side of C121 (C221) on the Record Dolby NR P.C.B.

Mode: Stop
Monitor SW – Source

(a) Connect a VTVM to MA4 (MA5) on the Mother P.C.B.

Feed in 5 kHz and adjust the Line Input level controls so that the VTVM may read 90 mV (0 dB) at each test point.

Level meter will indicate 0 dB.

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

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

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

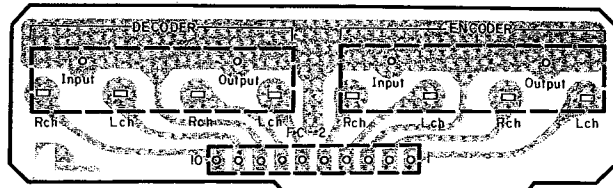


Fig. 7.1

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

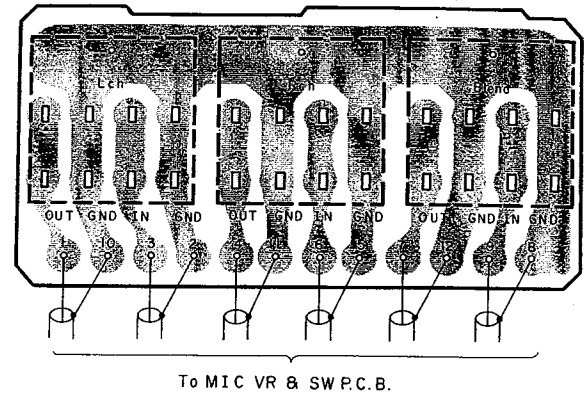


Fig. 7.3

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

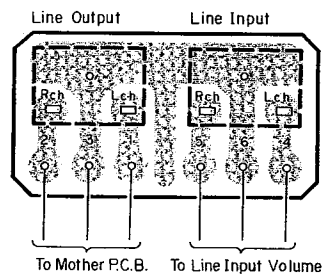


Fig. 7.2

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

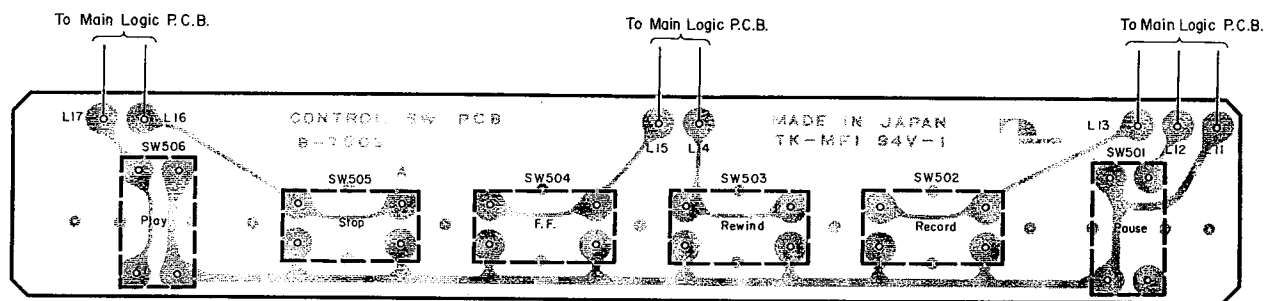


Fig. 7.4

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

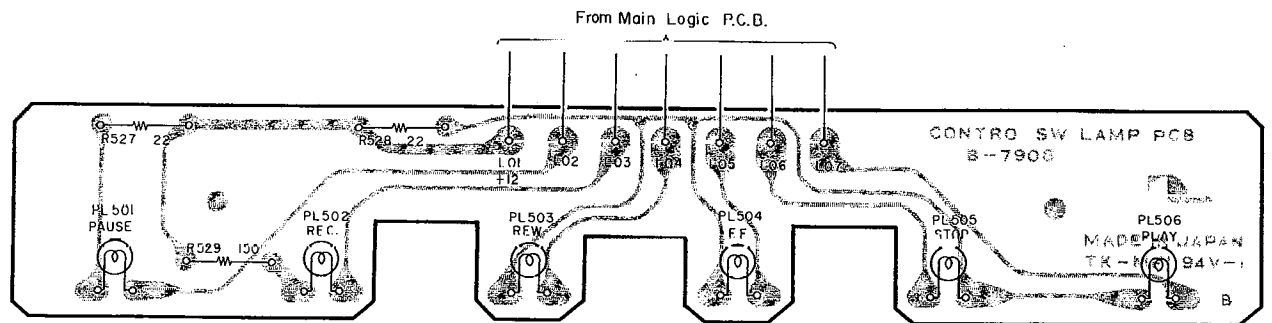


Fig. 7.5

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

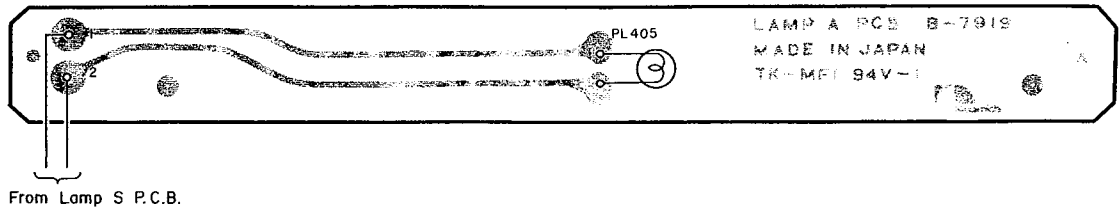


Fig. 7.6

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

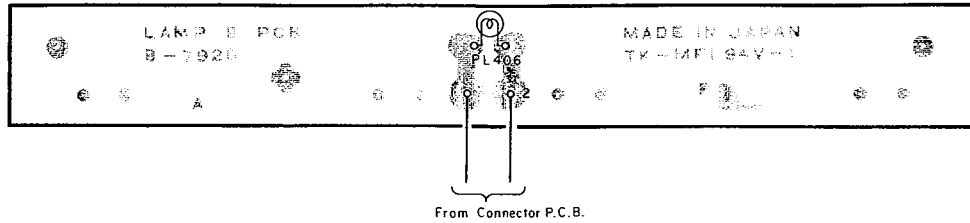


Fig. 7.7

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

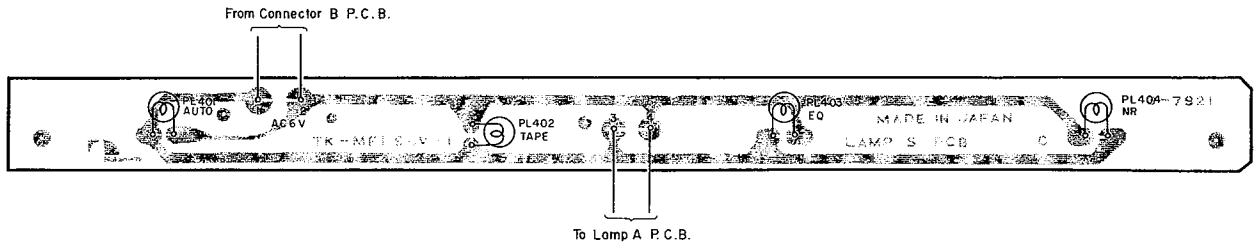


Fig. 7.8

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04298A	Pin Jack A P.C.B. Ass'y		BA04273A	Control Switch Lamp P.C.B. Ass'y
	OB07898A	Pin Jack A P.C.B.	R527,528 R529 PL501-506	OB07908B	Control Switch Lamp P.C.B.
	OB08813A	Mounting Pin Jack (2 pcs.)		OB09049A	Fail Safe Type Resistor 22 RDF-25S J
	BA04299A	Pin Jack B P.C.B. Ass'y		OB05795A	Carbon Resistor 150 ERD-25T J
	OB07899A	Pin Jack B P.C.B.		OB08851A	Lamp 12V 30mA
	OB08813A	Mounting Pin Jack (1 pce.)		OJ04283B	Lamp Holder A (2 pcs.)
	BA04297A	MIC Jack P.C.B. Ass'y		BA04328A	Lamp A P.C.B. Ass'y
	OB07897B	MIC Jack P.C.B.	PL405	OB07919A	Lamp A P.C.B. Lamp 6.3V 70mA
	OB08725A	MIC Jack (3 pcs.)		OB08839A	
	BA04274A	Control Switch P.C.B. Ass'y		BA04268A	Lamp B P.C.B. Ass'y
SW501-506	OB07909A	Control Switch P.C.B.	PL406	OB07920A	Lamp B P.C.B. Lamp 6.3V 100mA
	OD07219A	Switch AKC8S	CN78	OB08838A	2P-H Connector
				OB08836A	
				BA04269A	Lamp S P.C.B. Ass'y
			PL401-404	OB07921C	Lamp S P.C.B. Lamp 6.3V 100mA
				OB08838A	

7.9. Switch Lamp A Ass'y

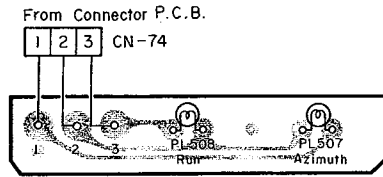


Fig. 7.9

7.10. Switch Lamp B Ass'y

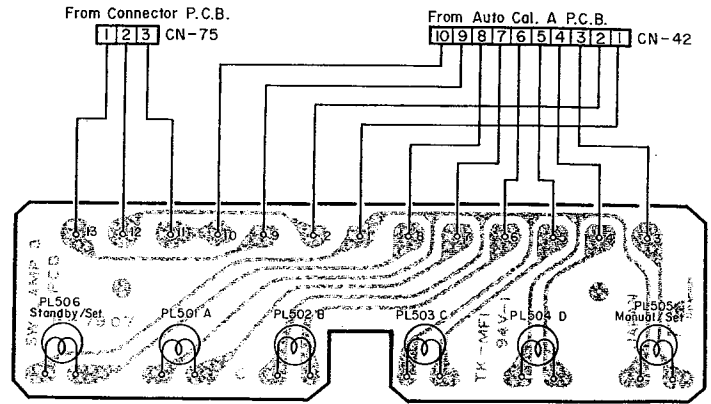


Fig. 7.10.1 2nd Version

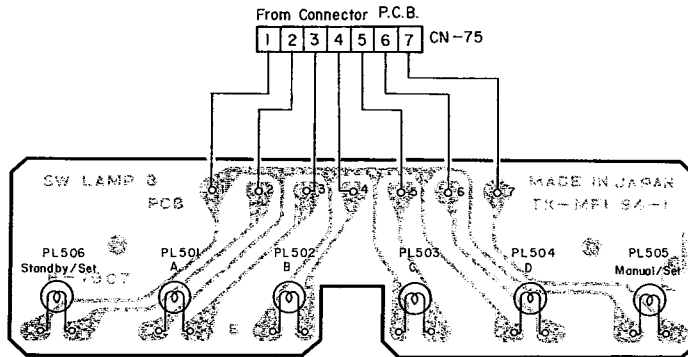


Fig. 7.10.2 1st Version

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

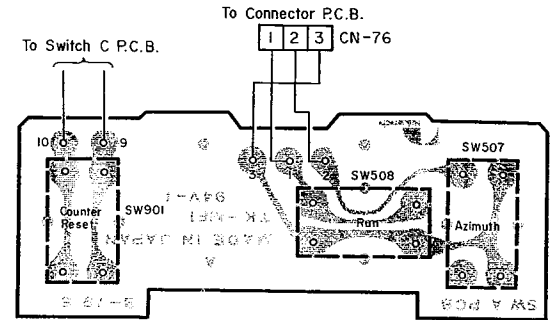


Fig. 7.11

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

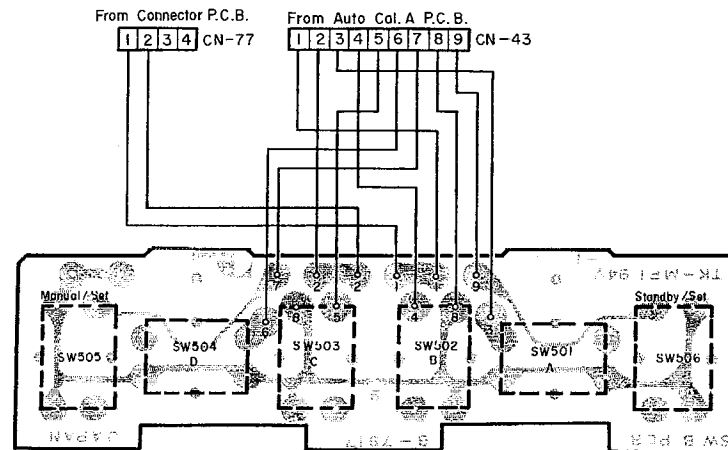


Fig. 7.12.1 2nd Version

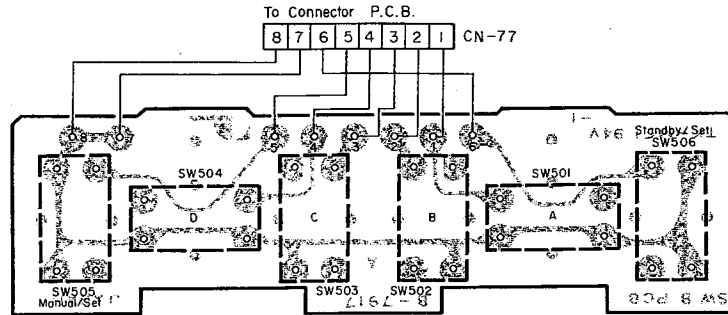


Fig. 7.12.2 1st Version

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

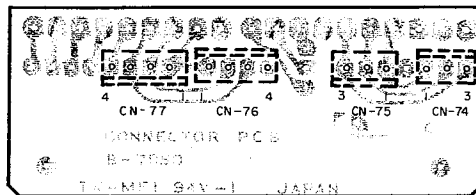


Fig. 7.13.1 2nd Version

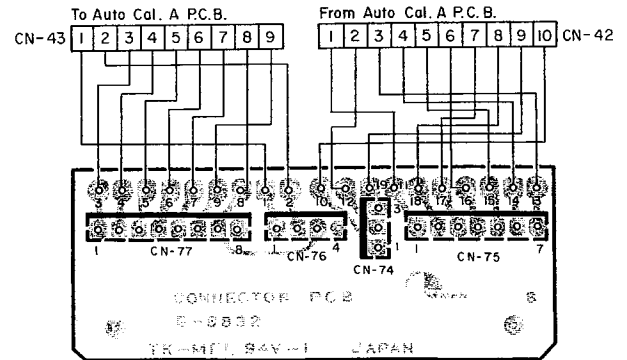


Fig. 7.13.2 1st Version

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
PL507,508 CN74	BA04271A	Switch Lamp A P.C.B. Ass'y	SW501-506 CN43 CN77	BA04326A	Switch B P.C.B. Ass'y 2nd Version
	OB07923A	Switch Lamp A P.C.B.		OB07917B	Switch B P.C.B.
	OB08851A	Lamp 12V 30mA		OB07219A	Switch AKC8S (6 pcs.)
	OB08784B	3P-H Connector		OB08798A	9P-H Connector
PL501-506 CN42 CN75	BA04272A	Switch Lamp B P.C.B. Ass'y 2nd Version	SW501-506 CN77	BA04326A	Switch B P.C.B. Ass'y 1st Version
	OB07907C	Switch Lamp B P.C.B.		OB07917A	Switch B P.C.B.
	OB08851A	Lamp 12V 30mA (6 pcs.)		OB07219A	Switch AKC8S
	OB08798A	10P-H Connector		OB08793B	8P-H Connector
PL501-506 CN75	BA04272A	Switch Lamp B P.C.B. Ass'y 1st Version	CN74,75 CN76,77	BA04301A	Connector P.C.B. Ass'y 2nd Version
	OB07907B	Switch Lamp B P.C.B.		OB07950C	Connector P.C.B.
	OB08851A	Lamp 12V 30mA (6 pcs.)		OB08653A	3P-T Post
SW507,508 901 CN76	BA04325A	Switch A P.C.B. Ass'y	CN42 CN43 CN74 CN75 CN76 CN77	BA04301A	Connector P.C.B. Ass'y 1st Version
	OB07916A	Switch A P.C.B.		OB07950B	Connector P.C.B.
	OB07219A	Switch AKC8S		OB08798A	10P Connector
	OB08834B	4P-H Connector		OB08799B	9P-H Connector
				OB08653A	3P-T Post
				OB08643A	7P-T Post
				OB08654A	4P-T Post
				OB08644A	8P-T Post



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

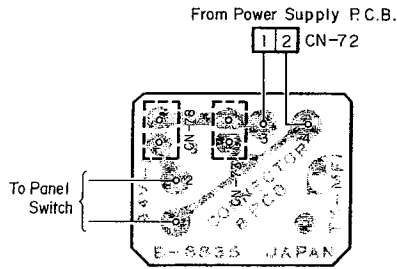


Fig. 7.14

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

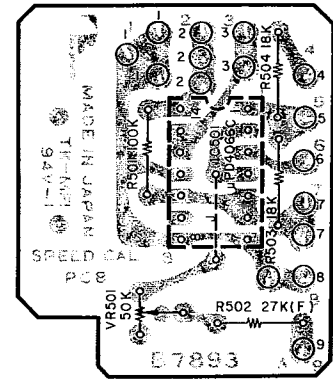


Fig. 7.15

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

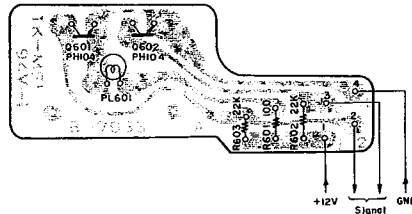


Fig. 7.16

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

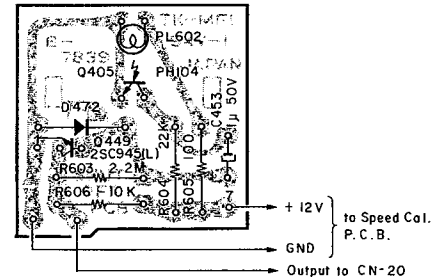


Fig. 7.17

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
CN72 CN73,78	BA04310A	Connector B P.C.B. Ass'y	Q449 Q450 D472 R603 R604 R605 R606 C453 PL602	BA04070A	Shut-off P.C.B. Ass'y
	0B07951B	Connector B P.C.B.		0B07839A	Shut-off P.C.B.
	0B08820B	2P-H Connector		0B01872A	Transistor 2SC945 (L)
0B08656A	2P-T Post	0B06228A		Photo Transistor PH104	
IC501 VR501 R501 R502 R503,504 CN17	BA04308A	Speed Cal. P.C.B. Ass'y		0B06181A	Silicon Diode 1SS53
	0B07893A	Speed Cal. P.C.B.		0B05671A	Carbon Resistor 2.2M ERD-25T J
	0B06144A	IC μ PD4066C		0B05615A	Carbon Resistor 22K ERD-25T J
	0B07269A	Semi-fixed Volume 50K		0B09215A	Fail Safe Type Resistor 100 RDF-25S J
	0B01889A	Carbon Resistor 100K ERD-25T J		0B01888A	Carbon Resistor 10K ERD-25T J
	0B09444A	Metal Film Resistor 27K SN14K2E F		0B01405A	Electrolytic Capacitor 1 μ 50V
Q601,802 R601 R602,603 PL601	BA04237B	Counter Pulse Generator P.C.B. Ass'y		0B08552A	Lamp 12V 25mA
	0B07933A	Counter Pulse Generator P.C.B.		IC301 R101,104 201,204 R102,202 R103,203 R105,205 C101,201 C102,202 301 CN16	BA04266A
	0B06228A	Photo Transistor PH104	0B07906A		Line Amp. P.C.B.
	0B09215A	Fail Safe Type Resistor 100 REF-25S J	0B06146A		IC RC4558DD
	0B05661A	Carbon Resistor 22K ERD-25V J	0B01889A		Carbon Resistor 100K ERD-25T J
	0B08552A	Lamp 12V 25mA	0B01857A		Carbon Resistor 1K ERD-25T J
	0C08281B	P.C.B. Holder (1 pce.)	0B09550A		Metal Film Resistor 887 SN14K2E F
	0E00792A	BT Screw M2.6x6 Philips Pan Head (2 pcs.)	0B09203A		Metal Film Resistor 10K SN14K2E F
		0B01405A	Electrolytic Capacitor 1 μ 50V		
		0B01674A	Electrolytic Capacitor 10 μ 25V		
		0B08815B	5P Connector		
		0B07346A	Rotary Switch (1 pce.)		

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

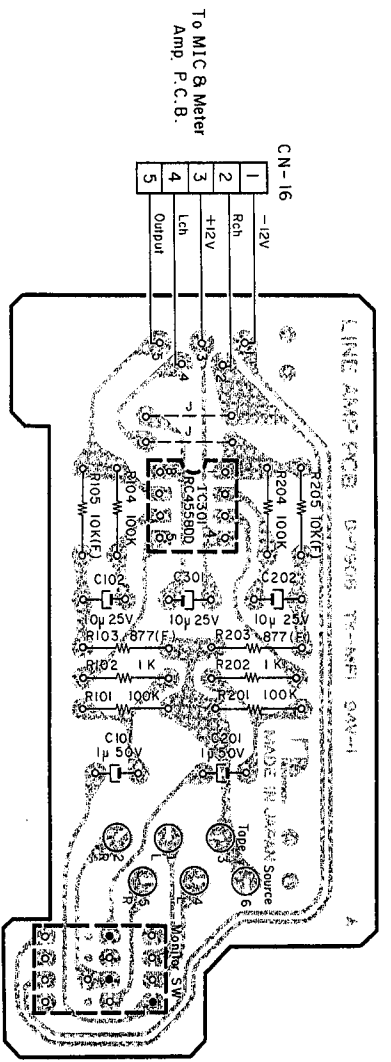


Fig. 7.18

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

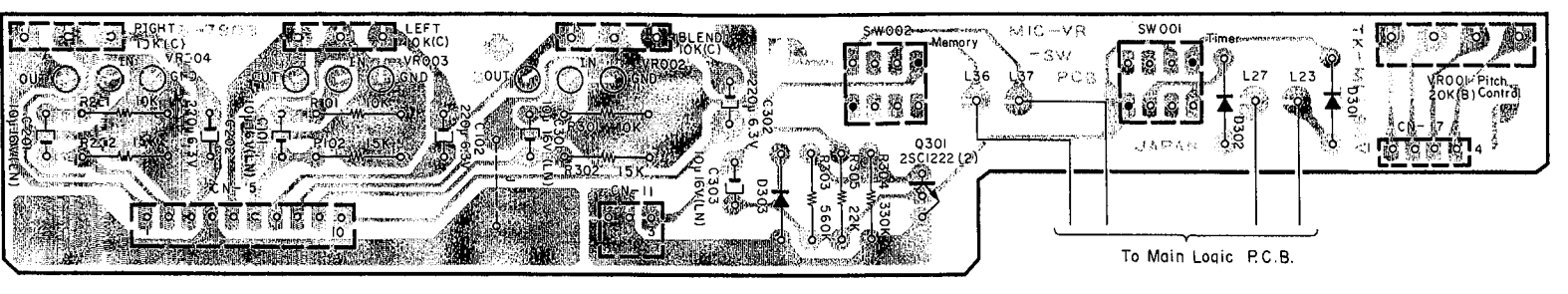


Fig. 7.20

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

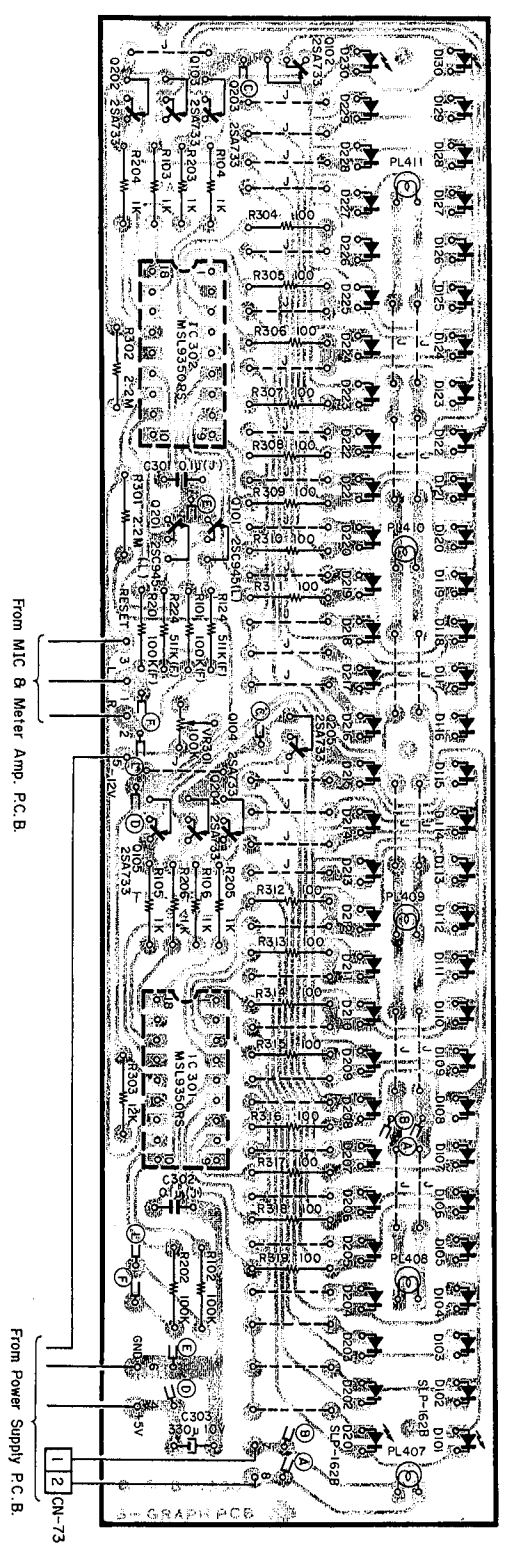


Fig. 7.19

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04300A	Indicator P.C.B. Ass'y
IC301,302	0B07900A	Indicator P.C.B.
Q101,201	0B06284A	IC MSL9350HS
Q102,105	0B01872A	Transistor 2SC945 (L)
202,205	0B06013A	Transistor 2SA733 (8 pcs.)
D101-130	0B06292A	LED SLP-162B (60 pcs.)
201-230	0B07257A	Semi-fixed Volume 100K
VR301	0B09305A	Metal Film Resistor 100K SN14K2E F
R101,201	0B01889A	Carbon Resistor 100K ERD-25T J
R102,202	0B01857A	Carbon Resistor 1K ERD-25T J (8 pcs.)
R103,106	0B09299A	Metal Film Resistor 511K SN14K2E F
203,206	R124,224	Carbon Resistor 2.2M ERD-25T J
R124,224	R301	Carbon Resistor 12K ERD-25T J
R301	R302,303	Carbon Resistor 100 ERD-25T J (16 pcs.)
R302,303	R304,319	Carbon Resistor 0.1μ 50V J
R304,319	C301,302	Mylar Capacitor 0.1μ 50V J
C301,302	C303	Electrolytic Capacitor 330μ 10V
C303	PL407	Lamp 6.3V 50mA
PL407	PL408,409	Lamp 6.3V 100mA
PL408,409	410,411	
410,411	0B08791B	3P-H Connector
CN1	0B08819A	Indicator Connector
CN10	0B08874A	2P-H Connector
CN73		
	BA04293A	MIC Volume & Switch P.C.B. Ass'y
	- MIC Volume -	
VR002,003	0B07344A	MIC Volume 10K (C)
004	0B01888A	Carbon Resistor 10K ERD-25T J
R101,201	0B01683A	Carbon Resistor 15K ERD-25T J
301	C101,201	Electrolytic Capacitor 10μ 16V (LN)
R102,202	302	Electrolytic Capacitor 220μ 6.3V (LN)
302	C102,202	
C101,201	0B09148A	
301	0B09151A	
C102,202		
302		
	- Mechanism Control -	
Q301	0B06062A	Transistor 2SC1222 (2)
D301,302	0B06181A	Silicon Diode 1SS53
303	VR001	Pitch Control Volume 20K (B)
VR001	R400	Carbon Resistor 560K ERD-25T J
R400	R401	Carbon Resistor 330K ERD-25T J
R401	R304	Carbon Resistor 22K ERD-25T J
R304	H:304	Electrolytic Capacitor 10μ 16V (LN)
H:304	0B09148A	
C303	0B07350A	Rotary Switch 2-3
C303		
SW001,002		
SW001,002		
	- Miscellaneous -	
0B07903B		MIC Volume & Switch P.C.B.
0B08812A		3P-S Connector
0B08731A		10P-S Connector
0B08804A		4P-T Post

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

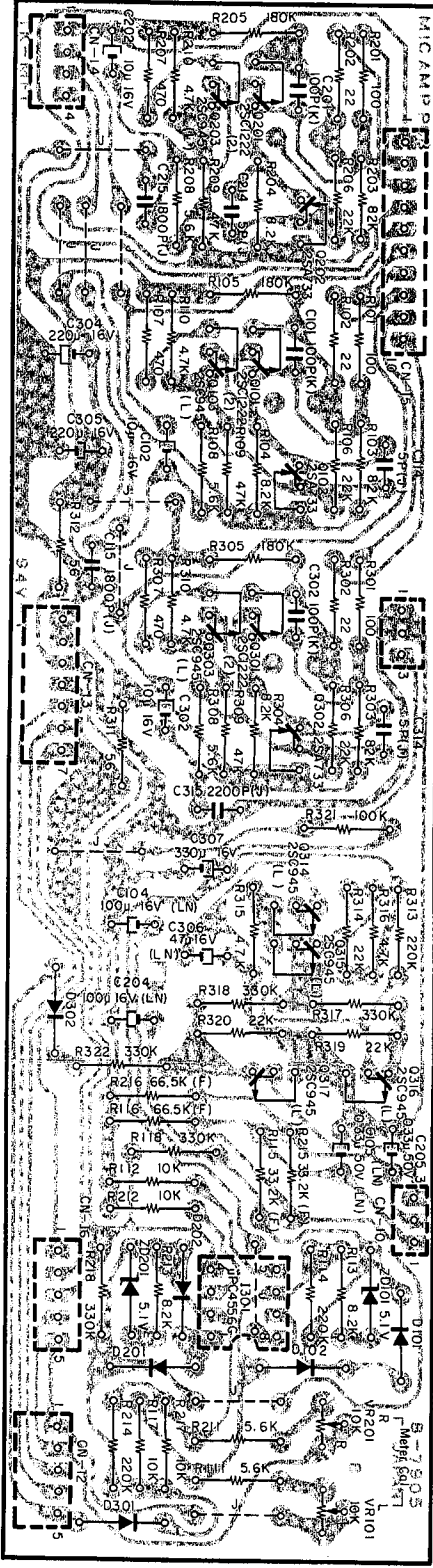


Fig. 7.21.1 2nd Version

Note: Diode is 1SS53 unless otherwise specified.

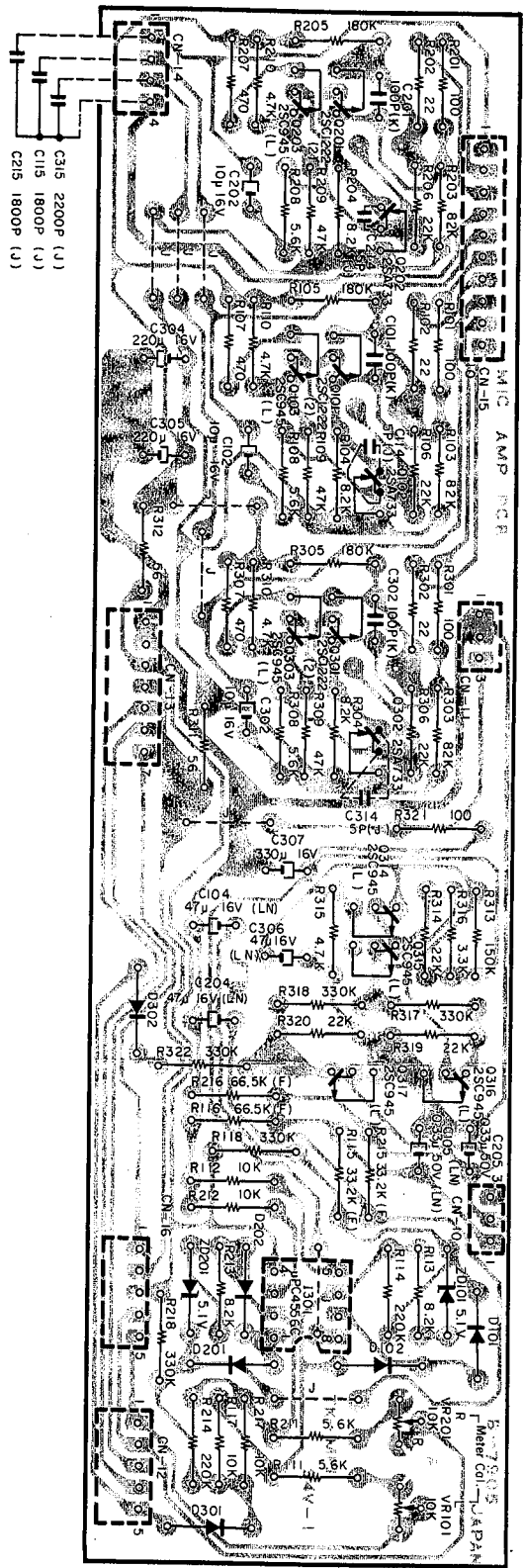


Fig. 7.21.2 1st Version

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04289A	MIC & Meter Amp. P.C.B. Ass'y
		2nd Version
		— MIC Amp. —
Q101,201	OB06062A	Transistor 2SC1222 (2)
Q102,202	OB06013A	Transistor 2SA733
Q103,203	OB01872A	Transistor 2SC945 (L)
R101,201	OB01679A	Carbon Resistor 100 ERD-25T J
R102,202	OB05579A	Carbon Resistor 22 ERD-25T J
R103,203	OB05668A	Carbon Resistor 82K ERD-25T J
R104,204	OB01856A	Carbon Resistor 8.2K ERD-25T J
R105,205	OB05640A	Carbon Resistor 180K ERD-25T J
R106,206	OB05615A	Carbon Resistor 22K ERD-25T J
R107,207	OB05576A	Carbon Resistor 470 ERD-25T J
R108,208	OB01887A	Carbon Resistor 5.6K ERD-25T J
R109,209	OB05641A	Carbon Resistor 47K ERD-25T J
R110,210	OB01846A	Carbon Resistor 4.7K ERD-25T J
R311,312	OB09508A	Fail Safe Type Resistor 56 RDF-25S J
C101,201	OB09282A	Ceramic Capacitor 100P 50V K
C102,202	OB01412A	Electrolytic Capacitor 10 μ 16V
C302	OB09276A	Ceramic Capacitor 5P 50V J
C114,214	OB01913A	Mylar Capacitor 1800P 50V J
C115,215	OB01398A	Electrolytic Capacitor 220 μ 16V
C304,305	OB01802A	Mylar Capacitor 2200P 50V J
C315		
		— Meter Reset —
O314,315	OB01872A	Transistor 2SC945 (L)
D302	OB06181A	Silicon Diode 1SS53
R313	OB05625A	Carbon Resistor 220K ERD-25T J
R314,319	UR05615A	Carbon Resistor 22K ERD-25T J
R315,316	OB01846A	Carbon Resistor 4.7K ERD-25T J
R317,318	OB05627A	Carbon Resistor 330K EHD-25I J
C306	OB09218A	Electrolytic Capacitor 47 μ 16V (LN)
		— Meter Amp. —
IC301	OB06216A	IC μ P C4556C
ZD101,201	OB06058A	Zener Diode 5.1V YZ051
D101,102	OB06181A	Silicon Diode 1SS53
VR101,201	OB07162A	Semi-fixed Volume 10K

7.22. Record Eq. Amp. P.C.B. Assy

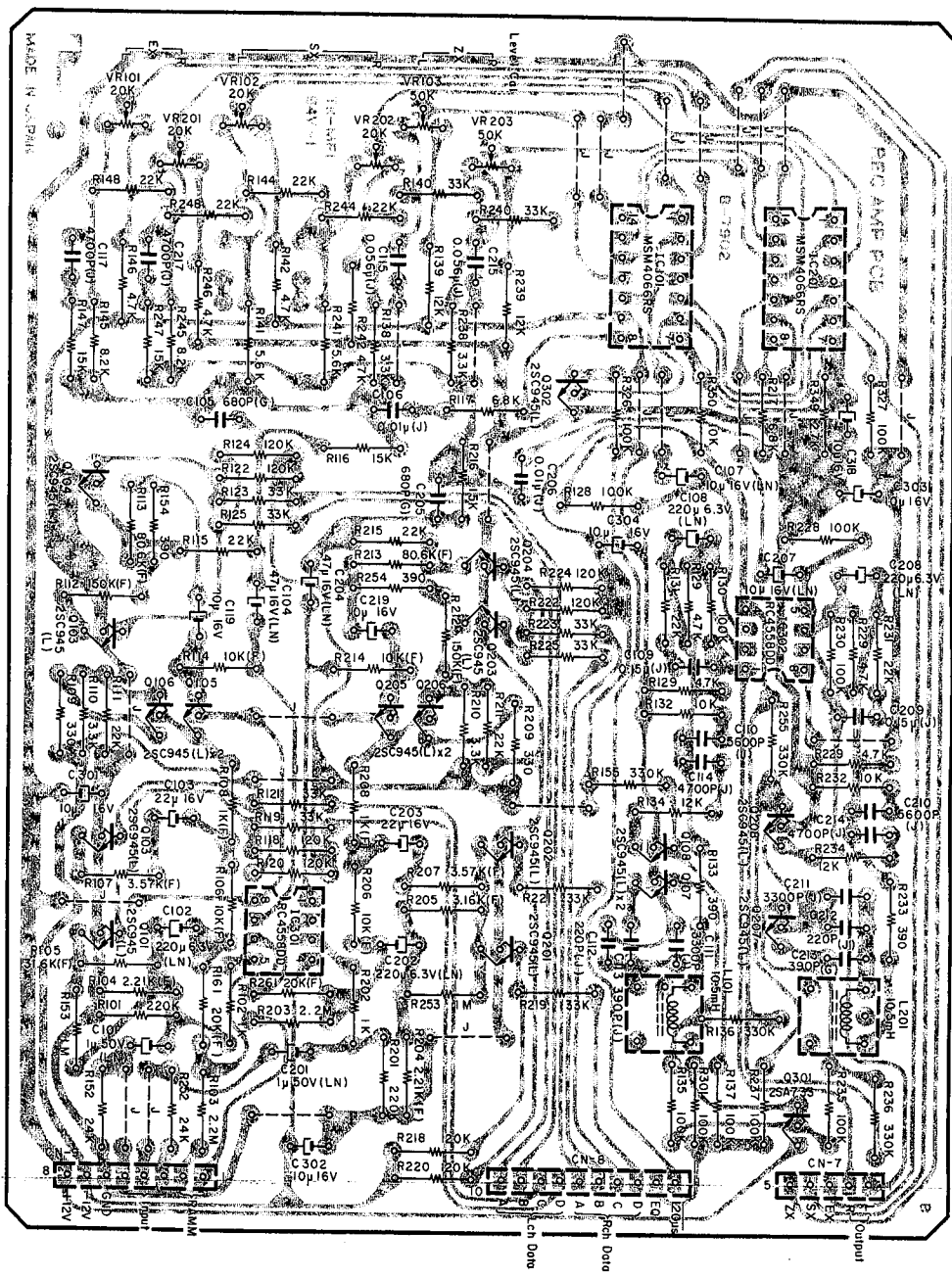


Fig. 7.22.1 2nd Version

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04296A	Record Eq. Amp. P.C.B. Assy 2nd Version			
IC101,201	OB079028	Record Eq. Amp. P.C.B.	R152,252	OB09548A	Carbon Resistor 24K ERD-25T J
IC301,302	OB06146A	MSM4068RS	R153,253	OB05776A	Carbon Resistor 1M ERD-25T J
Q101-108	OB01872A	IC RC4558DD 2SC945 (L) (17 pcs.)	R161,261	OB09439A	Metal Film Resistor 20K SN14K2E F
302		Transistor	R349	OB05629A	Carbon Resistor 2.7K ERD-25T J
Q301	OB06013A	Transistor 2SA733	C101,201	OB09223A	Electrolytic Capacitor 1μ 50V (LN)
L101,201	OB00068A	Trap Coil 10.5mH	C102,108	OB09151A	Electrolytic Capacitor 220μ 6.3V (LN)
VR101,102	OB07215A	Semi-fixed Volume 20K	202,208		
201,202			C103,203	OB01862A	Electrolytic Capacitor 22μ 16V
VR103,203	OB07058A	Semi-fixed Volume 50K	C104,204	OB09218A	Electrolytic Capacitor 47μ 16V (LN)
R101,201	OB05625A	Carbon Resistor 220K ERD-25T J	C105,205	OB09485A	PP Capacitor 680P 100V G
R102,202	OB01857A	Carbon Resistor 1K ERD-25T J	C106,206	OB05681A	Mylar Capacitor 0.01μ 50V J
R103,203	OB05671A	Carbon Resistor 2.2M ERD-25T J	C107,207	OB09148A	Electrolytic Capacitor 10μ 16V (LN)
R104,204	OB09547A	Metal Film Resistor 2.21K SN14K2E F	C109,209	OB09171A	Mylar Capacitor 0.15μ 50V J
R105,205	OB09422A	Metal Film Resistor 3.16K SN14K2E F	C110,210	OB05659A	Mylar Capacitor 5600P 50V J
R106,114	OB09203A	Metal Film Resistor 10K SN14K2E F	C111,211	OB09247A	Mylar Capacitor 3300P 50V J
206,214			C112,212	OB09511A	Mica Capacitor 220P 50V J
R107,207	OB09507A	Metal Film Resistor 3.57K SN14K2E F	C113,213	OB05652A	Mylar Capacitor 4700P 50V J
R108,208	OB09491A	Metal Film Resistor 1K SN14K2E F	C114,117	OB05813A	Mylar Capacitor 0.056μ 50V J
R109,209	OB05577A	Carbon Resistor 330 ERD-25T J	C115,215	OB01412A	Electrolytic Capacitor 10μ 16V
R110,138	OB01681A	Carbon Resistor 3.3K ERD-25T J	303,304		
210,238			CN7	OB08727A	SP-S Connector
R111,115	OB05615A	Carbon Resistor 22K ERD-25T J	CN8	OB08731A	10P-S Connector
148,211			CN9	OB08730A	8P-S Connector
215,231					
244,248					
R112,212	OB09300A	Metal Film Resistor 150K SN14K2E F			
R113,213	OB09459A	Metal Film Resistor 80.6K SN14K2E F			
R116,147	OB01683A	Carbon Resistor 15K ERD-25T J			
216,247					
R117,217	OB01682A	Carbon Resistor 6.8K ERD-25T J			
R118,120	OB05621A	Carbon Resistor 120K ERD-25T J			
122,124					
218,220					
222,224					
R119,121	OB05509A	Carbon Resistor 33K ERD-25T J			
123,125					
140,219					
221,223					
225,240					
R128,130	OB01889A	Carbon Resistor 100K ERD-25T J			
135,137					
228,230					
235,237					
301,326					
327					
R129,142	OB01846A	Carbon Resistor 4.7K ERD-25T J			
146,229					
242,246					
R132,232	UB01888A	Carbon Resistor 10K ERD-25T J			
350					
R133,154	OB05691A	Carbon Resistor 390 EHU-25I J			
233,254					
R134,139	OB09263A	Carbon Resistor 12K ERD-25T J			
234,239					
R136,155	OB05627A	Carbon Resistor 330K ERD-25T J			
236,255					
R141,241	OB01887A	Carbon Resistor 5.6K ERD-25T J			
R145,245	OB01856A	Carbon Resistor 8.2K ERD-25T J			

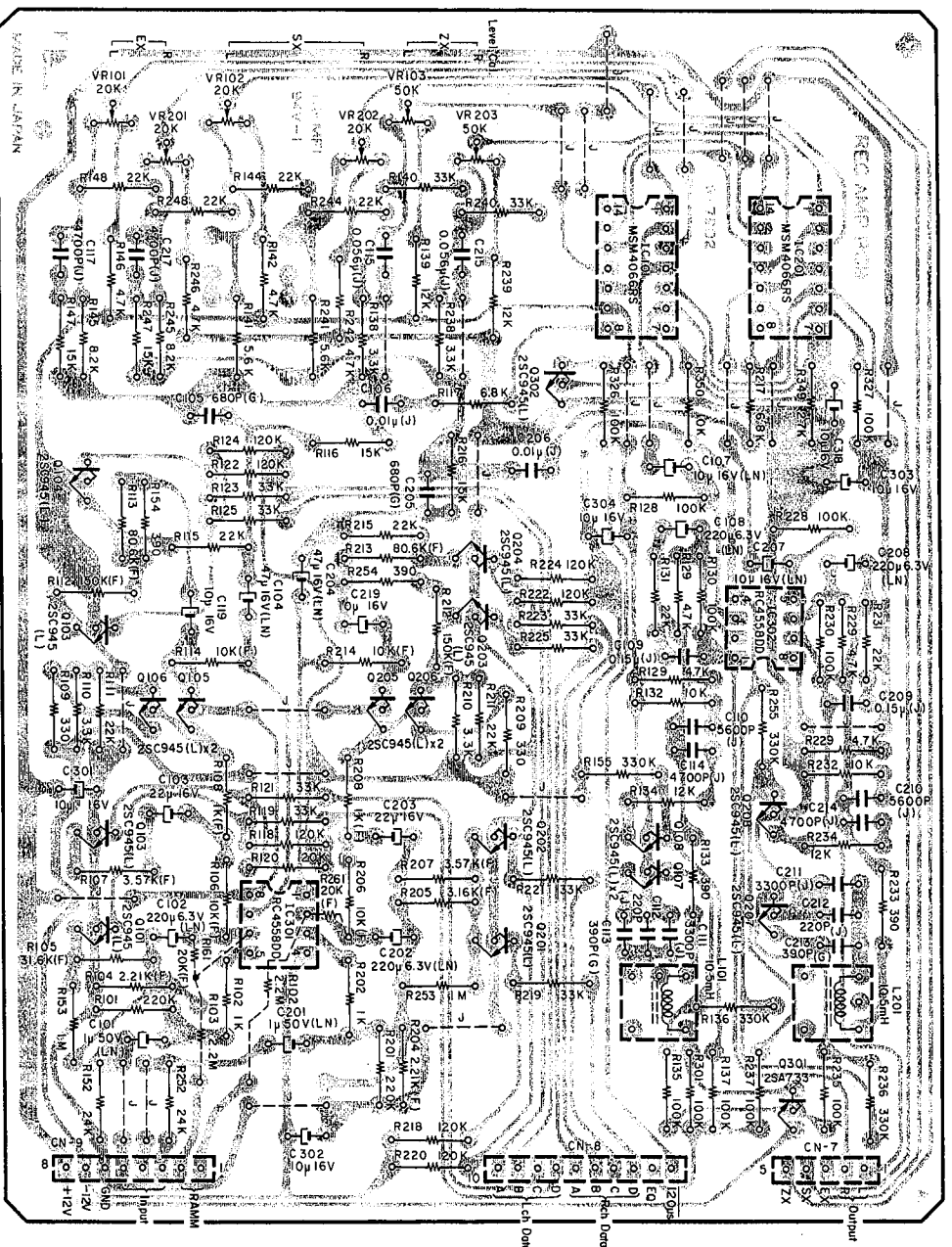


Fig. 7.22.2 1st Version

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04296A	Record Eq. Amp. P.C.B. Ass'y			
		1st Version	R152,252	0B09548A	Carbon Resistor 24K ERD-25T J
IC101,201	0B07902A	Record Eq. Amp. P.C.B.	R153,253	0B05776A	Carbon Resistor 1M ERD-25T J
IC301,302	0B06280A	IC	R161,261	0B09439A	Metal Film Resistor 20K SN14K2E F
IC101-108	0B0146A	MSM4066RS	R349	0B05629A	Carbon Resistor 2.7K ERD-25T J
201-208	0B01872A	Transistor	C101,201	0B09223A	Electrolytic Capacitor 1μ
			C102,108	0B09151A	Electrolytic Capacitor 220μ
			C103,203	0B01862A	Electrolytic Capacitor 22μ
			C104,204	0B09218A	Electrolytic Capacitor 47μ
Q301	0B06013A	Transistor	C105,205	0B09485A	PP Capacitor 680P
L101,201	0B00068A	Trap Coil	C106,206	0B05681A	Mylar Capacitor 0.01μ
VR101,102	0B07215A	Semi-fixed Volume 20K	C107,207	0B09148A	Electrolytic Capacitor 10μ
			C109,209	0B09171A	Mylar Capacitor 0.15μ
			C110,210	0B05659A	Mylar Capacitor 5600P
VR103,203	0B07058A	Semi-fixed Volume 50K	C111,211	0B01914A	Mylar Capacitor 3300P
R101,201	0B05625A	Carbon Resistor 220K ERD-25T J	C112,212	0B09247A	Mylar Capacitor 220P
R102,202	0B01857A	Carbon Resistor 1K ERD-25T J	C113,213	0B09511A	Mica Capacitor 390P
R103,203	0B05671A	Carbon Resistor 2.2M ERD-25T J	C114,117	0B05652A	Mylar Capacitor 4700P
R104,204	0B09547A	Metal Film Resistor 2.21K SN14K2E F	214,217	0B05813A	Mylar Capacitor 0.056μ
R105,205	0B09422A	Metal Film Resistor 3.16K SN14K2E F	C115,215	0B09231A	Electrolytic Capacitor 10μ
R106,114	0B09203A	Metal Film Resistor 10K SN14K2E F	C119,219	0B01412A	Electrolytic Capacitor 10μ
			206,214		
R107,207	0B09507A	Metal Film Resistor 3.57K SN14K2E F	301,302		
R108,208	0B09491A	Metal Film Resistor 1K SN14K2E F	303,304		
R109,209	0B05577A	Carbon Resistor 330 ERD-25T J		0B08727A	SP-S Connector
R110,138	0B01681A	Carbon Resistor 3.3K ERD-25T J	CN7	0B08731A	10P-S Connector
210,238			CN8	0B08730A	8P-S Connector
R111,115	0B05615A	Carbon Resistor 22K ERD-25T J	CN9		
131,144					
148,211					
215,231					
244,248					
R112,212	0B09300A	Metal Film Resistor 150K SN14K2E F			
R113,213	0B09459A	Metal Film Resistor 80.6K SN14K2E F			
R116,147	0B01683A	Carbon Resistor 15K ERD-25T J			
216,247					
R117,217	0B01682A	Carbon Resistor 6.8K ERD-25T J			
R118,120	0B05621A	Carbon Resistor 120K ERD-25T J			
122,124					
218,220					
222,224					
R119,121	0B05509A	Carbon Resistor 33K ERD-25T J			
123,125					
140,219					
221,223					
225,240					
R128,130	0B01889A	Carbon Resistor 100K ERD-25T J			
135,137					
228,230					
236,237					
301,326					
327					
R129,142	0B01846A	Carbon Resistor 4.7K ERD-25T J			
146,229					
242,246					
R132,232	0B01888A	Carbon Resistor 10K ERD-25T J			
350					
R133,154	0B05691A	Carbon Resistor 390 ERD-25T J			
233,254					
R134,139	0B09263A	Carbon Resistor 12K ERD-25T J			
234,239					
R136,156	0B05627A	Carbon Resistor 330K ERD-25T J			
236,255					
R141,241	0B01887A	Carbon Resistor 5.6K ERD-25T J			
R145,245	0B01856A	Carbon Resistor 8.2K ERD-25T J			

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

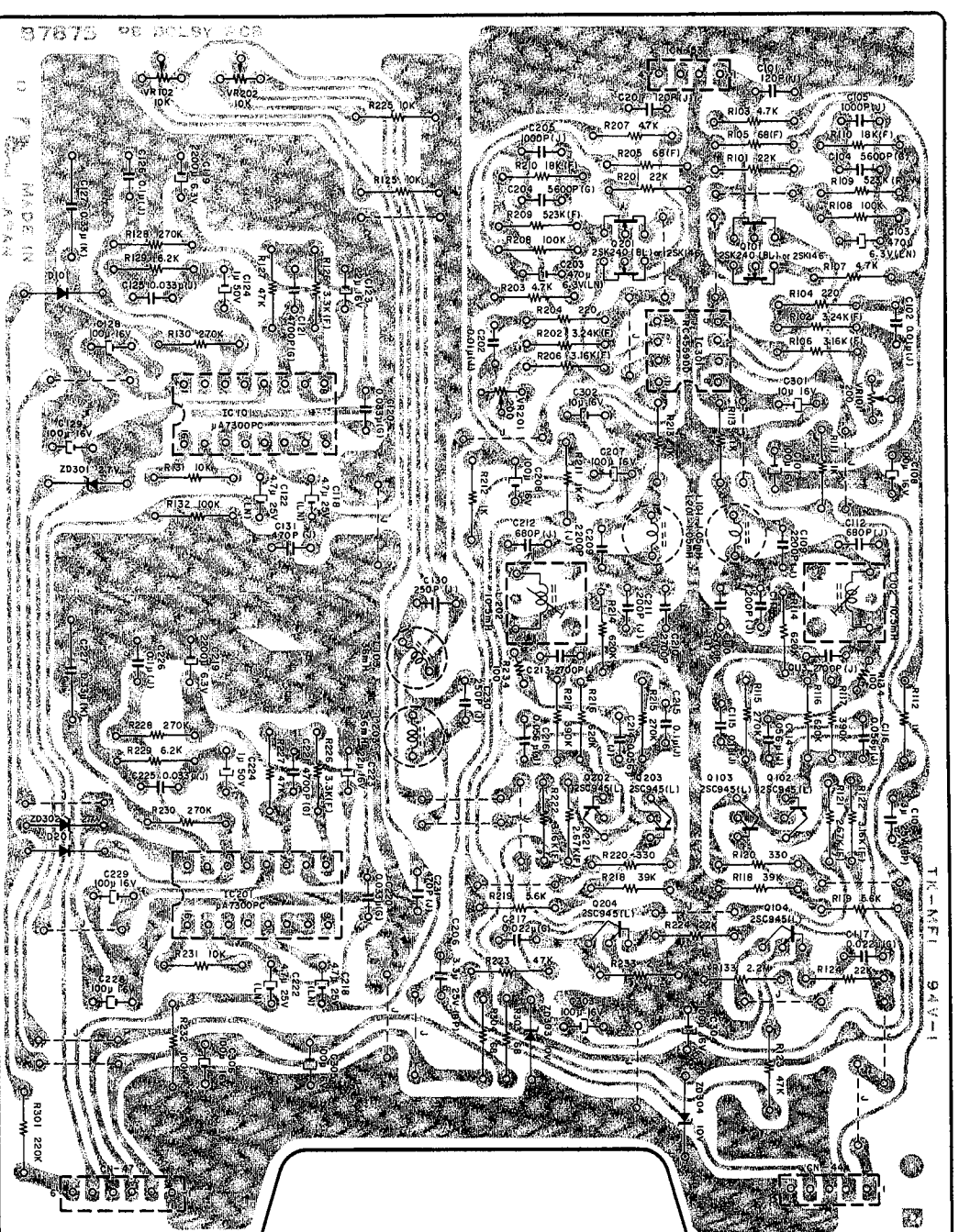


Fig. 7.24

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
R134,234	0B01679A	Carbon Resistor 100 ERD-25T J
R301	0B05625A	Carbon Resistor 220K ERD-25T J
R303,304	0B09306A	Fail Safe Type Resistor 68 R.D.F-25S J
C101,201	0B09486A	Mica Capacitor 120P 50V J
C102,202	0B05681A	Mylar Capacitor 0.01 μ 50V J
C103,203	0B09152A	Electrolytic Capacitor 4.7 μ 6.3V (LN)
C104,204	0B09489A	PP Capacitor 5600P 100V G
C105,205	0B05550A	Mylar Capacitor 1000P 50V J
C106,206	0B09345A	Electrolytic Capacitor 3.3 μ 25V (BP)
C107,108	0B01400A	Electrolytic Capacitor 100 μ 16V
128,129		
207,208		
228,229		
303,304		
305,306		
C109,209	0B09410A	PP Capacitor 2200P 100V J
C110,113	0B09189A	Mylar Capacitor 2700P 50V J
210,213		
C111,211	0B09275A	Mica Capacitor 200P 50V J
C112,212	0B09235A	PP Capacitor 680P 100V J
C114,116	0B05813A	Mylar Capacitor 0.056 μ 50V J
214,216		
C115,126	0B01780A	Mylar Capacitor 0.1 μ 50V J
215,226		
C117,217	0B09413A	PP Capacitor 0.022 μ 100V G
C118,122	0B09333A	Electrolytic Capacitor 4.7 μ 25V (LN)
218,222		
C119,219	0B09257A	Electrolytic Capacitor 2200 μ 6.3V
C120,220	0B09240A	PP Capacitor 0.033 μ 100V G
C121,221	0B09191A	PP Capacitor 4700P 100V G
C123,223	0B01862A	Electrolytic Capacitor 22 μ 16V
C124,224	0B01405A	Electrolytic Capacitor 1 μ 50V
C125,225	0B05683A	Mylar Capacitor 0.033 μ 50V J
C127,227	0B09399A	Mylar Capacitor 0.33 μ 100V K
C130,230	0B09400A	Mica Capacitor 250P 50V J
C131,231	0B09270A	PP Capacitor 470P 50V J
C301,302	0B01412A	Electrolytic Capacitor 10 μ 16V
CN47	0B08727A	5P-S Connector
CN44	0B08728A	6P-S Connector
CN47	0B08654A	4P-T Post
CN53	0B08714A	IC Socket 16P (2 pcs.)

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

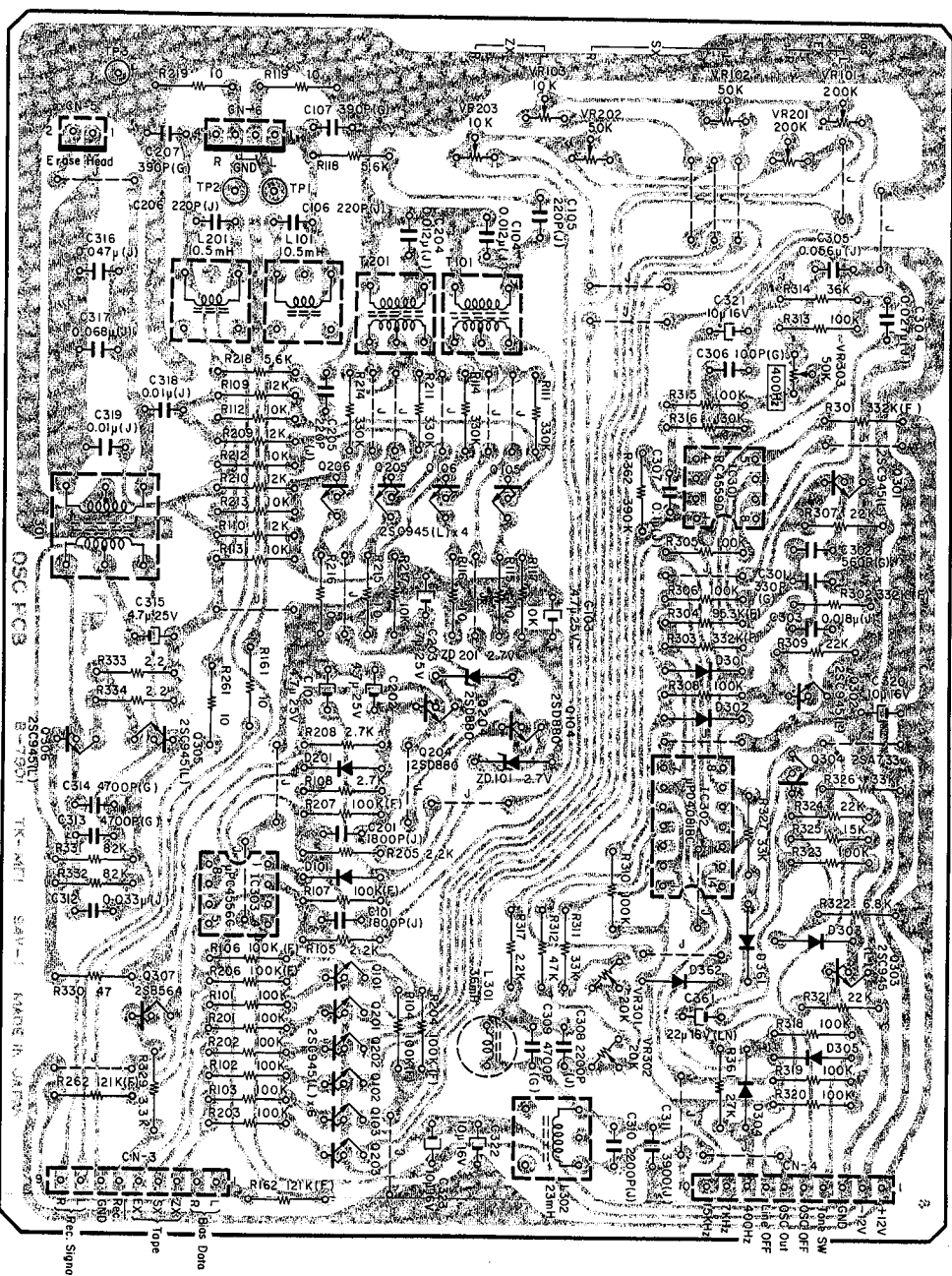


Fig. 7.25.1 2nd Version Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04302A	Oscillator P.C.B. Ass'y 2nd Version			
	- Test Tone -				
IC301	OB06127A	IC RC4559D	IC303	OB06216A	IC μ PC4556C
IC302	OB06129A	IC μ PD4081BC	Q101,103	OB01872A	Transistor 2SC945 (L) (10 pcs.)
Q301,302	OB01872A	Transistor 2SC945 (L)	105,106		
303			201-203		
Q304	OB06013A	Transistor 2SA733	Q104,204	OB06255A	Transistor 2SD880 (V)
D301-304	OB06181A	Silicon Diode 1SS53 (7 pcs.)	ZD101,201	OB06191A	Zener Diode 2.7V 2.7EB
305,361			T101,201	OB06646B	Silicon Diode 1SS53
362			L101,201	OB00068A	Bias Transformer 10.5mH
L301	OB03919B	Inductor 36mH	VR101,201	OB07161A	Semi-fixed Volume 200K
L302	OB03563A	19 kHz Coil 23mH	VR102,202	OB07058A	Semi-fixed Volume 50K
VR301,302	OB07215A	Semi-fixed Volume 20K	VR103,203	OB07162A	Semi-fixed Volume 10K
VR303	OB07058A	Semi-fixed Volume 50K	R101-103	OB01889A	Carbon Resistor 100K ERD-25T J
R301,302	OB09315A	Metal Film Resistor 332K SN14K2E F	201-203		
303			R104,106	OB09305A	Metal Film Resistor 100K SN14K2E F
R304	OB09462A	Metal Film Resistor 95.3K SN14K2E F	107,204		
R305,306	OB01889A	Carbon Resistor 100K ERD-25T J	206,207		
308,310			R105,205	OB05622A	Carbon Resistor 2.2K ERD-25T J
313,315			R108,208	OB05629A	Carbon Resistor 2.7K ERD-25T J
318,319			R109,110	OB09263A	Carbon Resistor 12K ERD-25T J
320,323			209,210		
R307,309			R111,114	OB05627A	Carbon Resistor 330K ERD-25T J
321,324			211,214		
R311,326	OB05509A	Carbon Resistor 33K ERD-25T J	R112,113	OB01888A	Carbon Resistor 10K ERD-25T J
327			117,212		
R312	OB05641A	Carbon Resistor 47K ERD-25T J	213,217		
R314	OB09169A	Carbon Resistor 36K ERD-25T J	R115,116	OB05936A	Carbon Resistor 10 ERD-25T J
R316	OB09527A	Carbon Resistor 130K ERD-25T J	119,161		
R317	OB05622A	Carbon Resistor 2.2K ERD-25T J	215,216		
R322	OB01682A	Carbon Resistor 6.8K ERD-25T J	219,261		
R325	OB01683A	Carbon Resistor 15K ERD-25T J	R118,218	OB01887A	Carbon Resistor 5.6K ERD-25T J
R361	OB05743A	Carbon Resistor 27K ERD-25T J	R162,262	OB09464A	Metal Film Resistor 121K SN14K2E F
R362	OB09325A	Carbon Resistor 390K ERD-25T J	C101,201	OB01913A	Mylar Capacitor 180P 50V J
C301	OB09414A	PP Capacitor 330P 100V G	C102,103	OB01402A	Electrolytic Capacitor 4.7 μ 25V
C302	OB05832A	PP Capacitor 560P 100V G	202,203		
C303	OB05832A	Mylar Capacitor 0.018 μ 50V J	C104,204	OB05843A	Mylar Capacitor 0.012 μ 50V J
C304	OB09045A	Mylar Capacitor 0.027 μ 50V J	C105,106	OB09247A	Mica Capacitor 220P 50V J
C305	OB05813A	Mylar Capacitor 0.056 μ 50V J	205,206		
C306	OB09302A	Mica Capacitor 100P 50V G	C107,207	OB09511A	PP Capacitor 390P 100V G
C307	OB01780A	Mylar Capacitor 0.1 μ 50V J	C318,319	OB05681A	Mylar Capacitor 0.01 μ 50V J
C308,310	OB01802A	Mylar Capacitor 2200P 50V J	C322,323	OB01412A	Electrolytic Capacitor 10 μ 16V
C309	OB09484A	PP Capacitor 4700P 100V G			
C311	OB01804A	Mylar Capacitor 3900P 50V J			
C320,321	OB01412A	Electrolytic Capacitor 10 μ 16V	CN3	OB07901B	Oscillator P.C.B.
C361	OB09137A	Electrolytic Capacitor 22 μ 16V (LN)	CN4	OB08814A	GP-S Connector
	- Erase Osc. -		CN5	OD00731A	10P-S Connector
Q305,306	OB01872A	Transistor 2SC945 (L)	CN6	OB08656A	2P-T Post
Q307	OB06069A	Transistor 2SB564		OB08654A	4P-T Post
T301	OB06647A	Erase Transformer			
R329	OB01681A	Carbon Resistor 3.3K ERD-25T J			
R330	OB09177A	Fail Safe Type Resistor 47 RDF-25S J			
R331,332	OB05668A	Carbon Resistor 82K ERD-25T J			
R333,334	OB09212A	Fail Safe Type Resistor 2.2 RDF-25S J			
C312	OB05583A	Mylar Capacitor 0.033 μ 50V J			
C313,314	OB09191A	PP Capacitor 4700P 100V G			
C315	OB01402A	Electrolytic Capacitor 4.7 μ 25V			
C316	OB09248A	PP Capacitor 0.047 μ 50V J			
C317	OB09254A	PP Capacitor 0.068 μ 50V J			

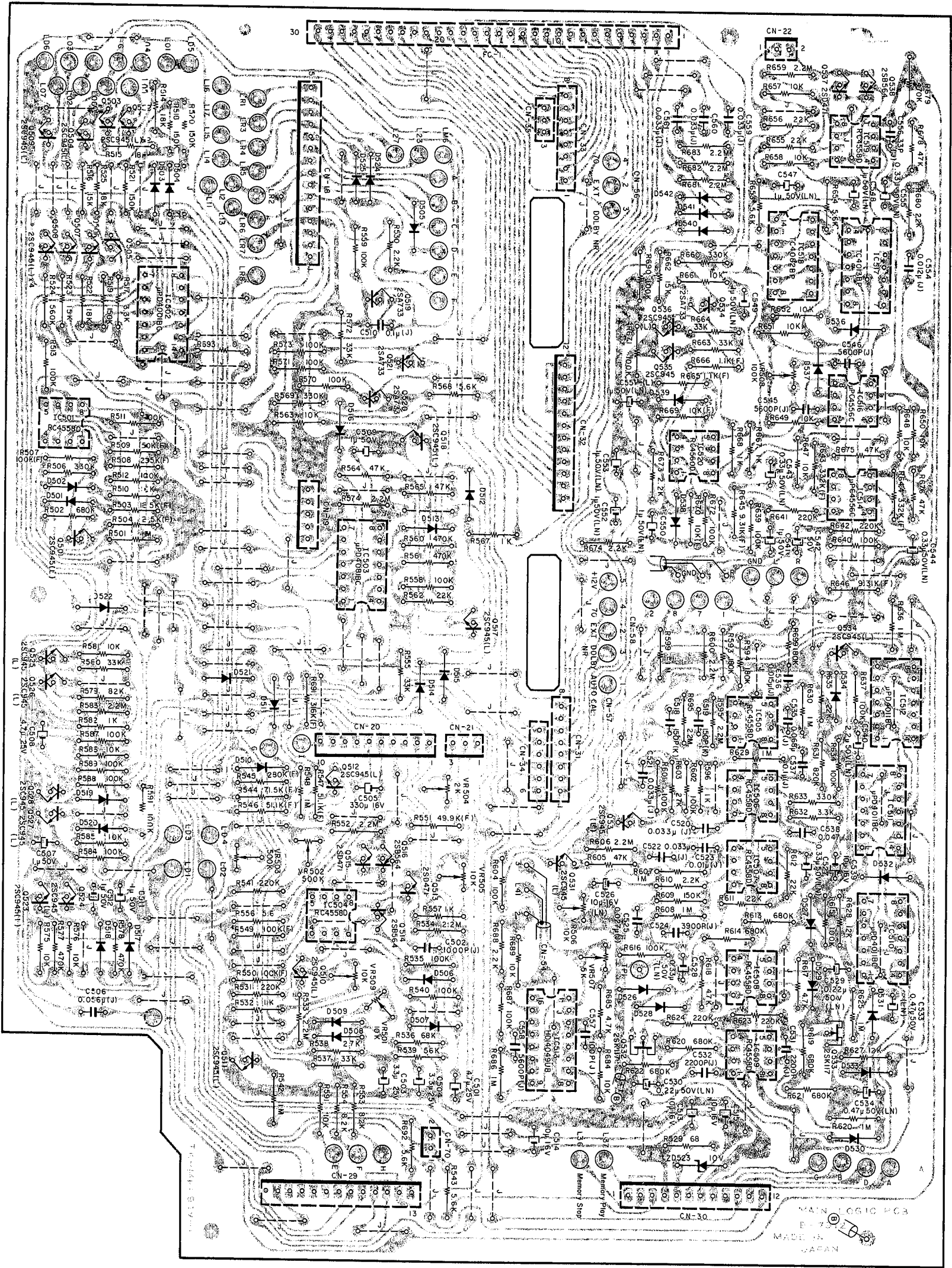


Fig. 7.27.2 1st Version

Note: Diode is 1SS53 unless otherwise specified.

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

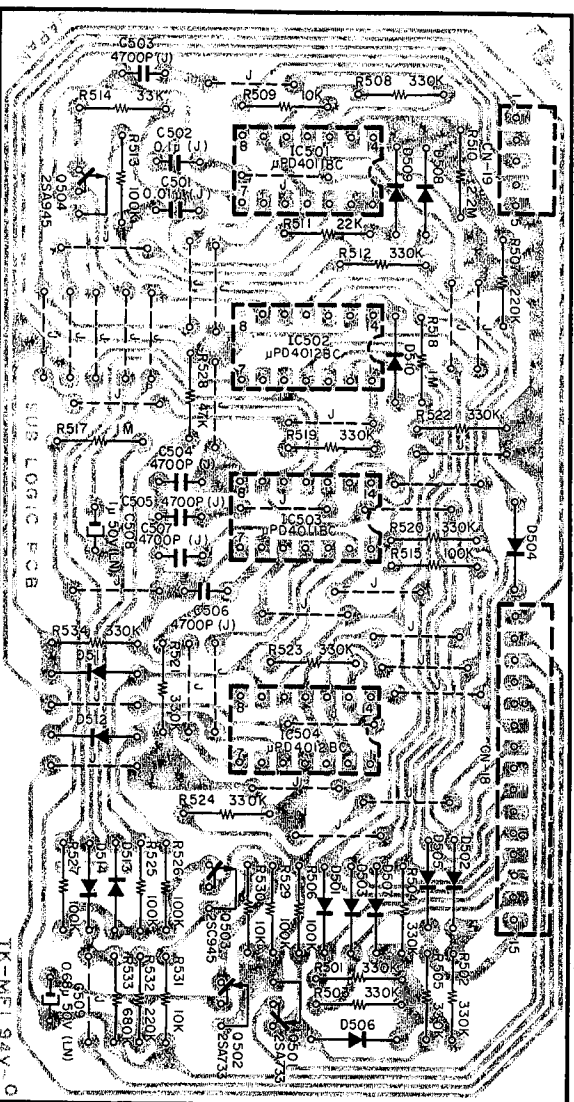


Fig. 7.28 Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04279A	Sub Logic P.C.B. Ass'y
IC501, 503	0B07913A	Sub Logic P.C.B.
IC502, 504	0B06178A	IC μ PD4011BC
Q501, 502	0B06263A	IC μ PD4012BC
Q503, 504	0B06013A	Transistor 2SA733
D501-514	0B06100A	Transistor 2SC945 (A)
R501-505	0B06181A	Silicon Diode 1SS53 (14 pcs.)
508, 512	0B06277A	Carbon Resistor 330K ERD-25T J (15 pcs.)
516		
519-524		
534		
R506, 513	0B01889A	Carbon Resistor 100K ERD-25T J
515, 525		
526, 527		
529		
R507, 532	0B05625A	Carbon Resistor 220K ERD-25T J
R509, 530	0B01888A	Carbon Resistor 10K ERD-25T J
531		
H510	0B05671A	Carbon Resistor 2.2M ERD-25T J
R511	0B05615A	Carbon Resistor 22K ERD-25T J
R514	0B05509A	Carbon Resistor 33K ERD-25T J
R517, 518	0B05776A	Carbon Resistor 1M ERD-25T J
R528	0B05641A	Carbon Resistor 47K ERD-25T J
R533	0B05868A	Carbon Resistor 680K ERD-25T J
C501	0B05681A	Carbon Resistor 0.01 μ
C502	0B01780A	Mylar Capacitor 50V J
C503, 504	0B05652A	Mylar Capacitor 4700P 50V J
505, 506		
h1/		
C508	0B09223A	Electrolytic Capacitor 1 μ 50V (LN)
C509	0B09395A	Electrolytic Capacitor 0.68 μ 50V (LN)
CN18	0B08806A	15P-S Connector
CN19	0B08727A	5P-S Connector

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

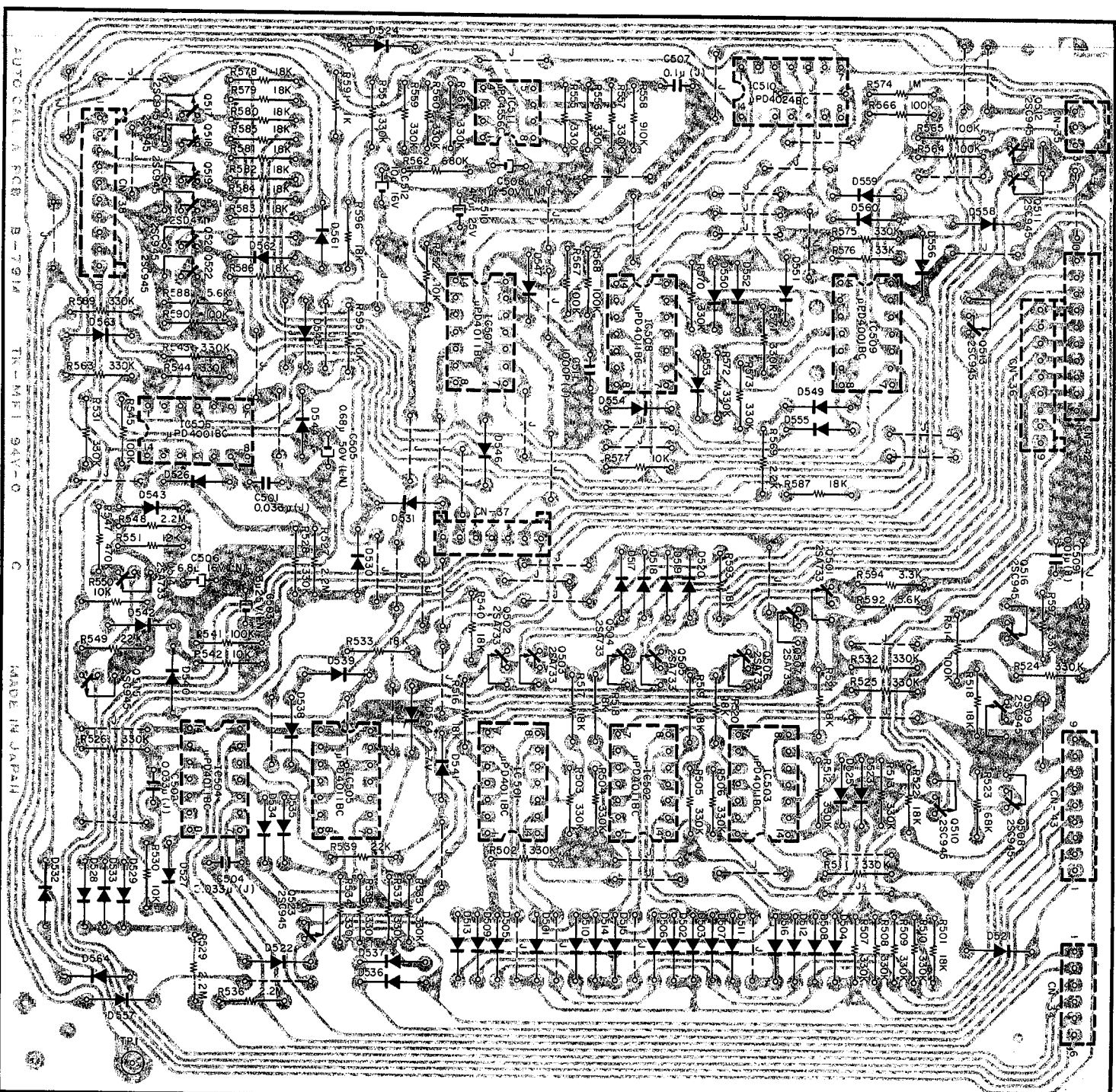


Fig. 7.29.1 2nd Version

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04337A	Auto Cal. A P.C.B. Ass'y 2nd Version	C509	0B05681A	Mylar Capacitor 0.01 μ 50V J
IC501-505	0B07914C	Auto Cal. A P.C.B. IC	C510	0B01402A	Electrolytic Capacitor 4.7 μ 25V
507,508	0B06178A	μ PD40118C (7 pcs.)	C511	0B05550A	Mylar Capacitor 1000P 50V J
IC506,509	0B06143A	IC	C512	0B01412A	Electrolytic Capacitor 10 μ 16V
IC510	0B06281A	μ PD40248C	CN34	0B08728A	6P-S Connector
IC511	0B06216A	IC	CN35	0B08812A	3P-S Connector
OS01-507	0B06013A	Transistor	CN36	0B08808A	9P-T Connector
514			CN37	0B08807A	7P-T Connector
OS08-513	0B06100A	Transistor	CN38	0B08809A	10P-T Connector
515-520			CN42	0B08286A	10P-S Post
522,523			CN43	0B08810A	9P-S Post
OS21	0B06066A	Transistor			
ZD564	0B06191A	Zener Diode 2.7V 2.7EB			
D501-547	0B06181A	Silicon Diode			
549-564					
R501	0B05580A	Carbon Resistor			
515-522		18K ERD-25T J			
533,540		(23 pcs.)			
578-587					
583,596					
R502-513	0B05627A	Carbon Resistor			
524-526		330K ERD-25T J			
528,531		(38 pcs.)			
532,534					
535,537					
538,543					
544					
554-557					
559-561					
563					
570-573					
575,589					
R514,541	0B01889A	Carbon Resistor			
545,564		100K ERD-25T J			
565,566					
568,590					
R523	0B05692A	Carbon Resistor			
R527,529	0B05671A	Carbon Resistor			
536,548		2.2M ERD-25T J			
R530,542					
550,552	0B01888A	Carbon Resistor			
567,577		10K ERD-25T J			
595					
R539,549	0B05615A	Carbon Resistor			
R547	0B01684A	Carbon Resistor			
		22K ERD-25T J			
R551	0B09263A	Carbon Resistor			
		470K ERD-25T J			
R558	0B05960A	Carbon Resistor			
		12K ERD-25T J			
R562	0B05868A	Carbon Resistor			
		910K ERD-25T J			
R569	0B05622A	Carbon Resistor			
		680K ERD-25T J			
R574	0B05776A	Carbon Resistor			
		2.2K ERD-25T J			
R5,6,597	0B05509A	Carbon Resistor			
		1M ERD-25T J			
R588,592	0B01887A	Carbon Resistor			
		33K ERD-25T J			
R591	0B01857A	Carbon Resistor			
		5.6K ERD-25T J			
R594	0B01681A	Carbon Resistor			
		1K ERD-25T J			
CS01,502	0B05583A	Carbon Resistor			
504		3.3K ERD-25T J			
CS03	0B09324A	Mylar Capacitor			
CS05	0B09395A	Electrolytic Capacitor 3.3 μ 25V (LN)			
CS06	0B09219A	Electrolytic Capacitor 0.68 μ 50V (LN)			
CS07	0B01780A	Electrolytic Capacitor 6.8 μ 16V (LN)			
CS08	0B09222A	Mylar Capacitor 0.1 μ 50V J			
		Electrolytic Capacitor 1 μ 50V (LN)			

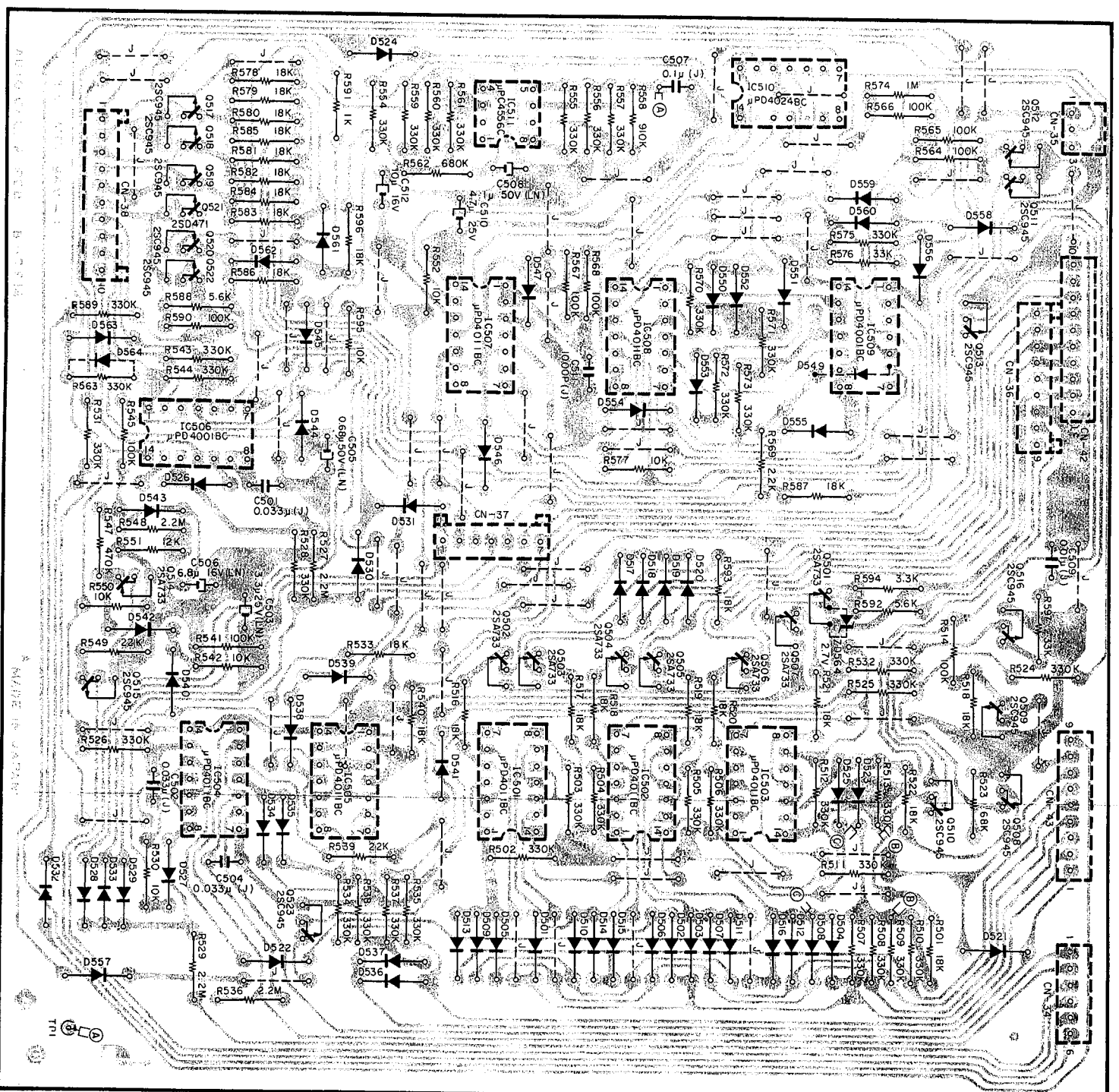


Fig. 7.29.2 1st Version

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
IC501-505	0B07914A	Auto Cal. A.P.C.B.
507,508	0B06178A	IC
IC506,509	0B06143A	IC
IC510	0B06281A	IC
IC511	0B06216A	IC
0501-507	0B06013A	Transistor
514	0B06100A	Transistor
0508-513	0B06100A	Transistor
515-520	0B06100A	Transistor
522,523	0B06066A	Transistor
Q521	0B06191A	Zener Diode 2.7V
ZD564	0B06181A	Silicon Diode
D501-547	0B05560A	Carbon Resistor
549-564	0B05560A	Carbon Resistor
R501	0B05560A	Carbon Resistor
515-522	0B05627A	Carbon Resistor
533,540	0B05627A	Carbon Resistor
578-587	0B05627A	Carbon Resistor
593,596	0B05627A	Carbon Resistor
R502-513	0B05627A	Carbon Resistor
524-526	0B05627A	Carbon Resistor
528,531	0B05627A	Carbon Resistor
532,534	0B05627A	Carbon Resistor
535,537	0B05627A	Carbon Resistor
538,543	0B05627A	Carbon Resistor
544	0B05627A	Carbon Resistor
554-557	0B05627A	Carbon Resistor
559-561	0B05627A	Carbon Resistor
563	0B05627A	Carbon Resistor
570-573	0B05627A	Carbon Resistor
575,589	0B05627A	Carbon Resistor
R514,541	0B01889A	Carbon Resistor
545,564	0B05627A	Carbon Resistor
565,566	0B05627A	Carbon Resistor
568,590	0B05627A	Carbon Resistor
R523	0B05627A	Carbon Resistor
R527,529	0B05627A	Carbon Resistor
536,548	0B05627A	Carbon Resistor
R530,542	0B01888A	Carbon Resistor
550,552	0B01888A	Carbon Resistor
550,552	0B01888A	Carbon Resistor
567,577	0B01888A	Carbon Resistor
595	0B01888A	Carbon Resistor
R539,549	0B05615A	Carbon Resistor
R547	0B01684A	Carbon Resistor
R551	0B09263A	Carbon Resistor
R558	0B05960A	Carbon Resistor
R562	0B05868A	Carbon Resistor
Hb89	0B05868A	Carbon Resistor
R574	0B05778A	Carbon Resistor
R576,597	0B05509A	Carbon Resistor
R588,592	0B01887A	Carbon Resistor
R591	0B01857A	Carbon Resistor
R594	0B01681A	Carbon Resistor
C501,502	0B05583A	Mylar Capacitor
504	0B05583A	Mylar Capacitor
C503	0B09324A	Electrolytic Capacitor 3.3μ
C505	0B09395A	Electrolytic Capacitor 0.68μ
C506	0B09219A	Electrolytic Capacitor 6.8μ
C507	0B01780A	Mylar Capacitor 0.1μ
C508	0B09223A	Electrolytic Capacitor 1μ

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

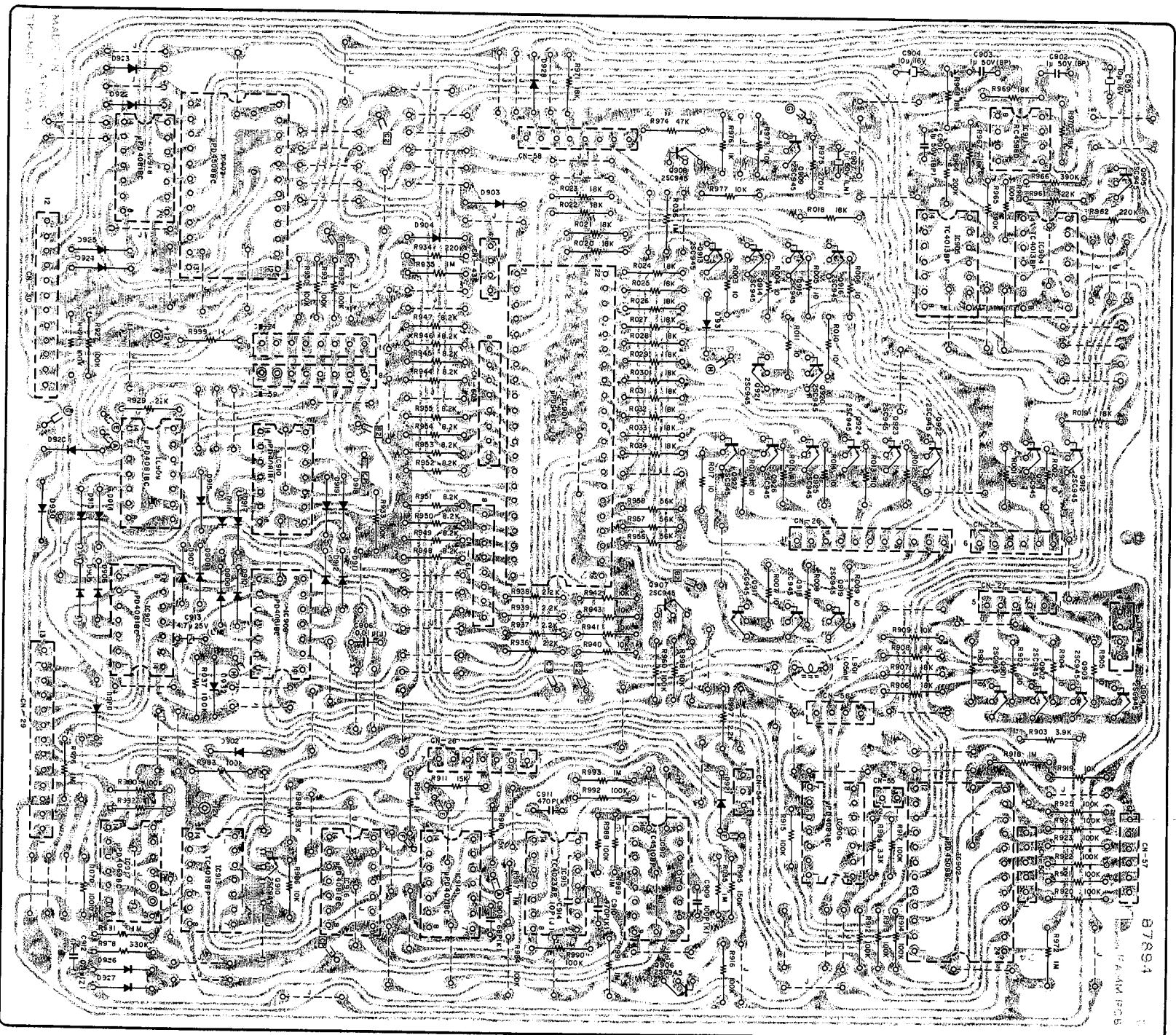


Fig. 7.31 Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04334A	RAMM P.C.B. Ass'y
IC901	OB07894D	RAMM P.C.B.
IC902,903	OB06254A	μPD546C-114
IC904,905	OB06261A	μPD45088C
913	OB06213A	TC4013BP
IC906-910	OB06219A	μPD4081BC (7 pcs.)
916,917		
IC911	OB06124B	RC4558D
IC912	OB06212A	TC4510BP
IC914	OB06214A	μPD4071BC
IC915	OB06224A	TC4023BP
IC918	OB06270A	μPD4069BC
OS01-927	OB06100A	Transistor 2SC945 (A) (27 pcs.)
D902-932	OB06181A	Silicon Diode 1SS53 (31 pcs.)
L901	OB06636A	Inductor 1.05mH
R018-034	OB05560A	Carbon Resistor 18K ERD-25T J (25 pcs.)
906-908		
967-971		
FC035,036	OB05776A	Carbon Resistor 1M ERD-25T J
918,926		
935,972		
981,982		
987,989		
991,993		
FC037	OB01889A	Carbon Resistor 100K ERD-25T J (28 pcs.)
912-917		
920-925		
927,928		
930-933		
960,963		
979,980		
983,984		
988,990		
992		
R903	OB05675A	Carbon Resistor 3.9K ERD-25T J
R909,919	OB01888A	Carbon Resistor 10K ERD-25T J (10 pcs.)
940-943		
973,977		
986,998		
R910,911	OB01683A	Carbon Resistor 15K ERD-25T J
R929,961	OB05615A	Carbon Resistor 22K ERD-25T J
R934,962	OB05625A	Carbon Resistor 220K ERD-25T J
R936-939	OB05622A	Carbon Resistor 2.2K ERD-25T J (5 pcs.)
997		
R944-955	OB01856A	Carbon Resistor 8.2K ERD-25T J (12 pcs.)
R946,957	OB05508A	Carbon Resistor 56K ERD-25T J
958		
R964	OB09392A	Carbon Resistor 200K ERD-25T J
R965,966	OB05676A	Carbon Resistor 390K ERD-25T J
R974	OB05641A	Carbon Resistor 47K ERD-25T J
R975	OB05620A	Carbon Resistor 270K ERD-25T J
R976,994	OB01857A	Carbon Resistor 1K ERD-25T J
999		
R978	UR05627A	Carbon Resistor 330K ERD-25T J
R985	UR05509A	Carbon Resistor 33K ERD-25T J
R995	OB05626A	Carbon Resistor 150K EHD-25 J
R996	OB01681A	Carbon Resistor 3.3K ERD-25T J
C901,902	OB09187A	Electrolytic Capacitor 1μ 50V (8P)
903		
C904,905	OB01412A	Electrolytic Capacitor 10μ 16V
C906	OB05681A	Mylar Capacitor 0.01μ 50V J

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

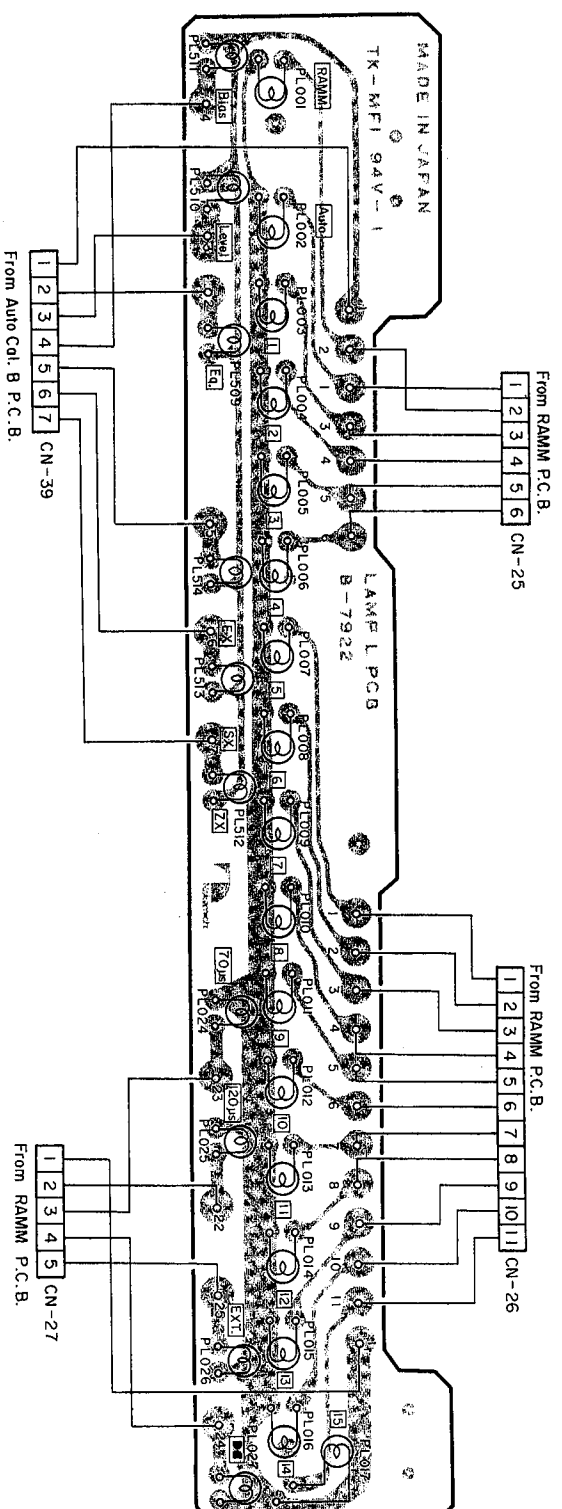


Fig. 7.32

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

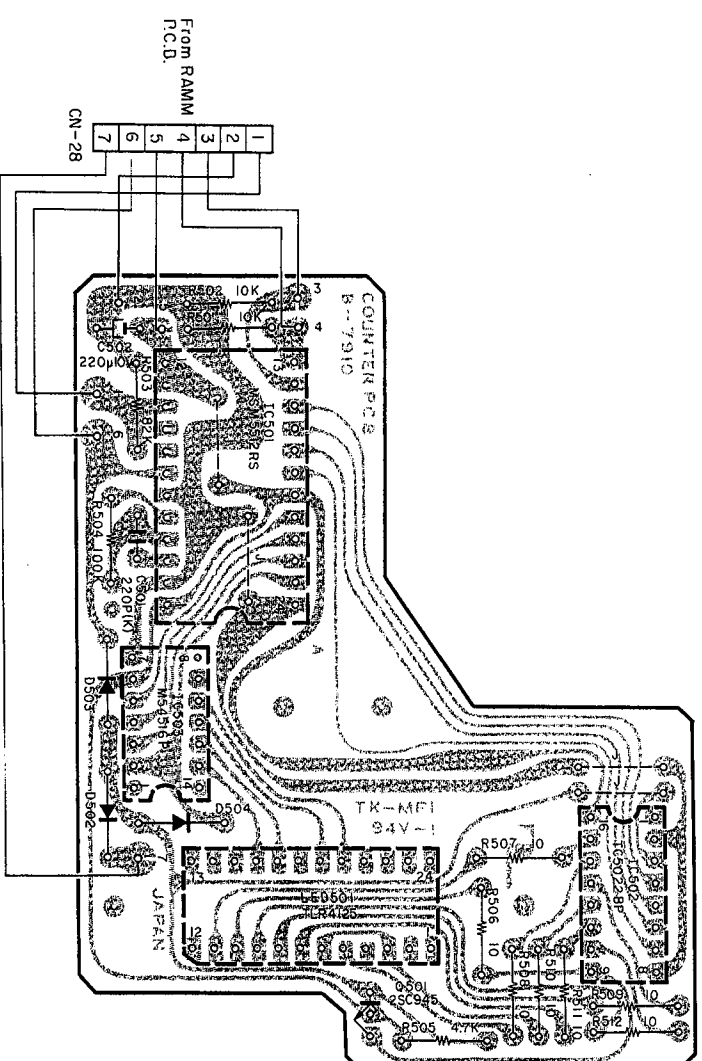


Fig. 7.33 Note: Diode is 1SS53 unless otherwise specified.

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

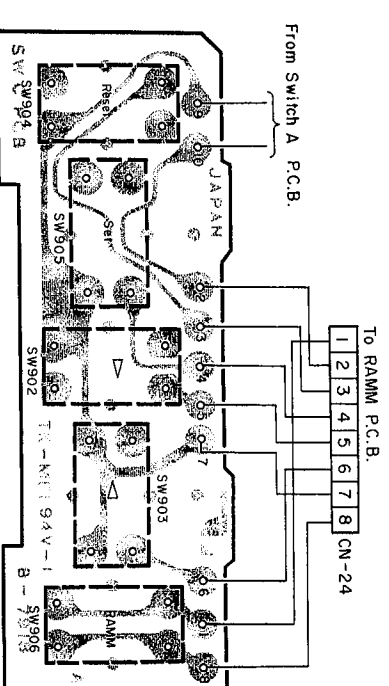


Fig. 7.34

Schematic Ref. No.	Part No.	Description
C907	0B09223A	Electrolytic Capacitor 1 μ 50V (LN)
C908	0B09393A	Ceramic Capacitor 68P 50V J
C909	0B09282A	Ceramic Capacitor 100P 50V K
C910,911	0B09286A	Ceramic Capacitor 470P 50V K
C912	0B09292A	Ceramic Capacitor 0.1 μ 50V Z
C913	0B09333A	Electrolytic Capacitor 4.7 μ 25V (LN)
C914	0B09277A	Electrolytic Capacitor 10P 50V J
CN24,58	0B08644A	8P-T Post
CN25,57	0B08642A	6P-T Post
CN26	0B08655A	11P-T Post
CN27	0B08724A	5P-T Post
CN28	0B08643A	7P-T Post
CN29	0B08732A	12P-S Connector
CN30	0B08805A	13P-S Connector
CN41,56	0B08654A	4P-T Post
CN43	0B08236A	4P-T Post
CN50	0B08183A	5P-T Post
CN54	0B08653A	3P-T Post
CN55	0B08656A	2P-T Post
CN60,61	0B08334A	8P-T Post
BA04270A Lamp L P.C.B. Ass'y		
PL001-017	0B07922B	Lamp L P.C.B.
024-027	0B08837A	Lamp
PL509-514	0B08721A	Lamp
CN25	0B08795B	6P-H Connector
CN26	0B08796B	11P-H Connector
CN27	0B08797B	5P-H Connector
CN39	0B08794A	7P-H Connector
BA04275A Counter P.C.B. Ass'y		
IC501	0B07910A	Counter P.C.B.
IC502	0B06259A	IC
IC503	0B06211A	IC
Q501	0B06258A	IC
Q501	0B06100A	Transistor
LED501	0B06266A	LED
D502,503	0B06181A	Silicon Diode
504		
R501,502	0B01888A	Carbon Resistor
R503	0B05668A	Carbon Resistor
R504	0B01889A	Carbon Resistor
R505	0B01846A	Carbon Resistor
R506-512	0B05936A	Carbon Resistor
C501	0B09283A	Ceramic Capacitor 220P 50V K
C502	0B05899A	Electrolytic Capacitor 220 μ 10V
CN28	0B08785A	7P-H Connector
BA04327A Switch C P.C.B. Ass'y		
SW902-906	0B07918A	Switch C P.C.B.
CN24	0B07219A	Switch
	0B08800A	8P-H Connector
		AKC88

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

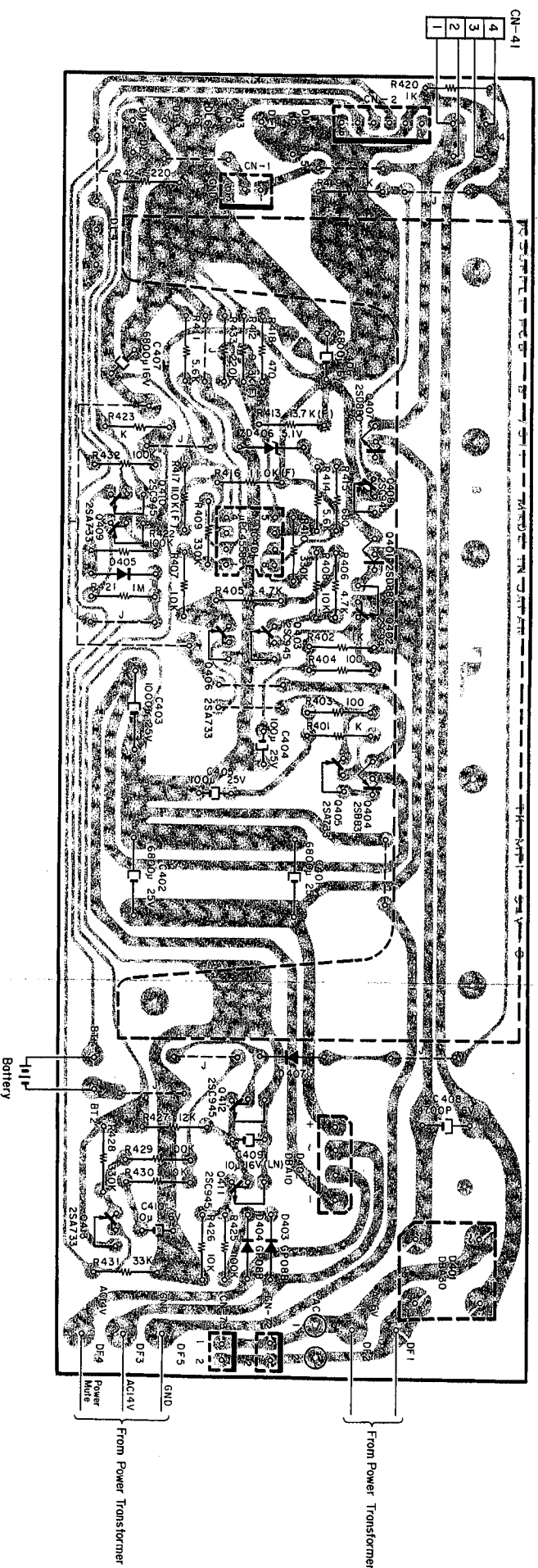


Fig. 7.35

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description
	BA04276A	Power Supply P.C.B. Ass'y
IC401	0B07911B	Power Supply P.C.B.
Q401, 407	0B06124B	IC μ PC4558C
Q402, 403	0B06255A	Transistor 2SD880 (Y)
408, 410	0B06100A	Transistor 2SC945 (A)
411, 412	408, 410	
Q404	0B06256A	Transistor 2SB834 (Y)
Q405, 406	0B06013A	Transistor 2SA733
409, 413		
ZD406	0B06230A	Zener Diode 5.1V RD5.1ER2
D401	0B06283A	Diode Bridge DBA30
D402	0B06282A	Diode Bridge DBA10
D403, 404	0B06109A	Silicon Diode GP088
D405, 407	0B06181A	Silicon Diode 1SS53
R401, 402	0B01857A	Carbon Resistor 1K ERD-25T J
419, 420		
423		
R403, 404	0B01679A	Carbon Resistor 100 ERD-25T J
R405, 406	0B01846A	Carbon Resistor 4.7K ERD-25T J
R407, 408	0B01888A	Carbon Resistor 10K ERD-25T J
430		
R409, 410	0B05627A	Carbon Resistor 330K ERD-25T J
428		
R411, 414	0B01887A	Carbon Resistor 5.6K ERD-25T J
R412	0B09522A	Metal Film Resistor 9.53K SN14K2E F
R413	0B09528A	Metal Film Resistor 13.7K SN14K2E F
R415	0B05794A	Carbon Resistor 680 ERD-25T J
R416, 417	0B09504A	Metal Film Resistor 11.0K SN14K2E F
R418	0B01684A	Carbon Resistor 470K ERD-25T J
R421	0B05776A	Carbon Resistor 1M ERD-25T J
R422, 425	0B01899A	Carbon Resistor 100K ERD-25T J
429, 432		
R424	0B01933A	Carbon Resistor 220 ERD-25T J
R426	0B05560A	Carbon Resistor 18K ERD-25T J
R427	0B09263A	Carbon Resistor 12K ERD-25T J
R431	0B05509A	Carbon Resistor 33K ERD-25T J
R433	0B06625A	Carbon Resistor 220K ERD-25T J
C401, 402	0B09374A	Electrolytic Capacitor 6800 μ 25V
C403	0B01870A	Electrolytic Capacitor 1000 μ 25V
C404, 405	0B01272A	Electrolytic Capacitor 100 μ 25V
C406	0B09398A	Electrolytic Capacitor 6800 μ 16V
C407	0B01397A	Electrolytic Capacitor 1000 μ 16V
C408	0B09377A	Electrolytic Capacitor 4700 μ 16V
C409	0B09148A	Electrolytic Capacitor 10 μ 16V (LN)
C410	0B01412A	Electrolytic Capacitor 10 μ 16V
CN1	0B08653A	3P-T Post
CN2	0B08642A	6P-T Post
CN41	0B08656A	4P-H Connector
CN72, 73	0B08788R	2P-T Post
	0B08759A	Heat Sink A117
	0B08680B	Heat Sink A
	0B00507A	Nut Hex. M3
	0E00607A	Screw M3x8 Phillips Pan Head (3A)
	0E00608A	Screw M3x10 Phillips Pan Head (3A)
	0E00610A	Screw M3x17 Phillips Pan Head (3A)
	0B08601A	Transistor Mica
	0B08602A	Transistor Bushing
	0J04311A	Power Supply Fiber

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

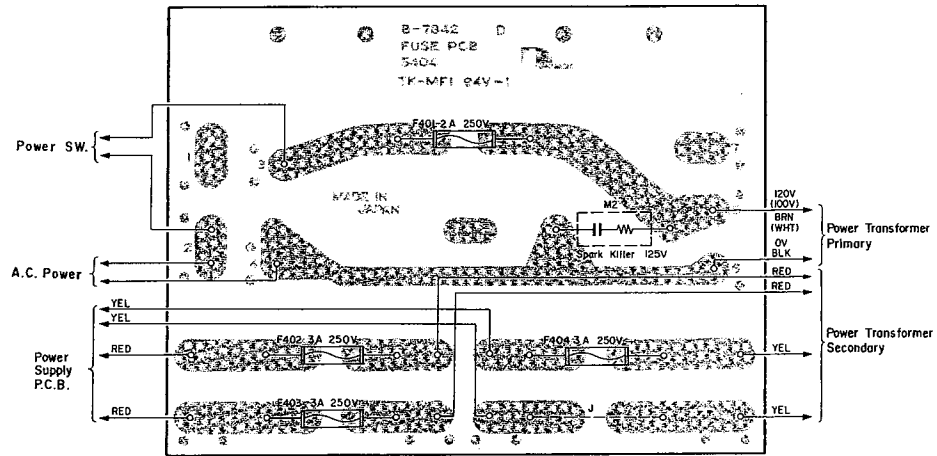


Fig. 7.36.1 U.S.A., Canada & Japan

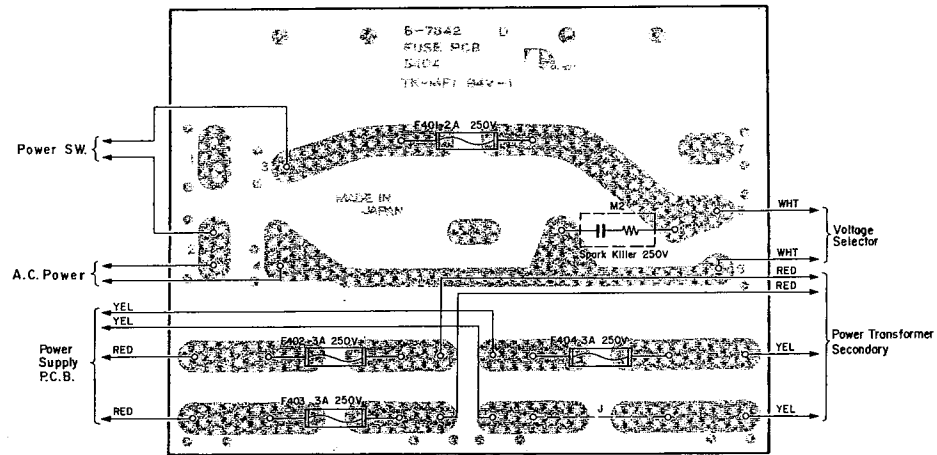


Fig. 7.36.2 Others

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
F401 F402,403 404	BA04260A	Fuse P.C.B. Ass'y (U.S.A. & Canada)	F401 F402,403 404	OB08363A	Spark Killer 125V (1 pce.)
	OB07842D	Fuse P.C.B.		OM03937A	Fuse Label 2A 250V (1 pce.)
	OB08525A	Fuse 2A 250V		OM04187A	Fuse Label 3A 250V (2 pcs.)
	OB08369A	Fuse 3A 250V		OE00752A	Eyelet 2x3 (6 pcs.)
	OB08342A	Spark Killer 125V (1 pce.)		BA04369A	Fuse P.C.B. Ass'y (Others)
	OM03937A	Fuse Label 2A 250V (1 pce.)		OB07842D	Fuse P.C.B.
OM04187A	Fuse Label 3A 250V (2 pcs.)	OB08525A	Fuse 2A 250V		
OE00752A	Eyelet 2x3 (6 pcs.)	OB08369A	Fuse 3A 250V		
F401 F402,403 404	BA04261A	Fuse P.C.B. Ass'y (Japan)	F401 F402,403 404	OB08240A	Spark Killer (1 pce.)
	OB07842D	Fuse P.C.B.		OB03937A	Fuse Label 2A 250V (1 pce.)
	OB08854A	Fuse 2A 250V		OM04187A	Fuse Label 3A 250V (2 pcs.)
	OB08781A	Fuse 3A 250V		OE00752A	Eyelet 2x3 (6 pcs.)

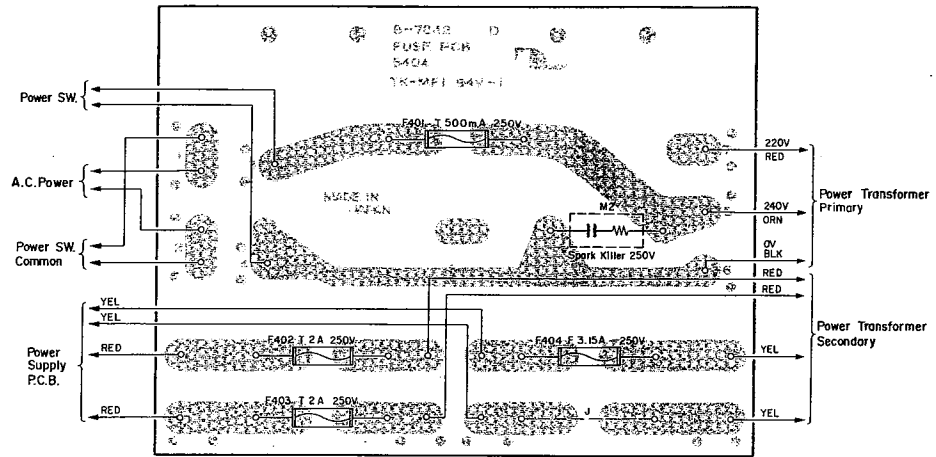


Fig. 7.36.3 UK & Australia

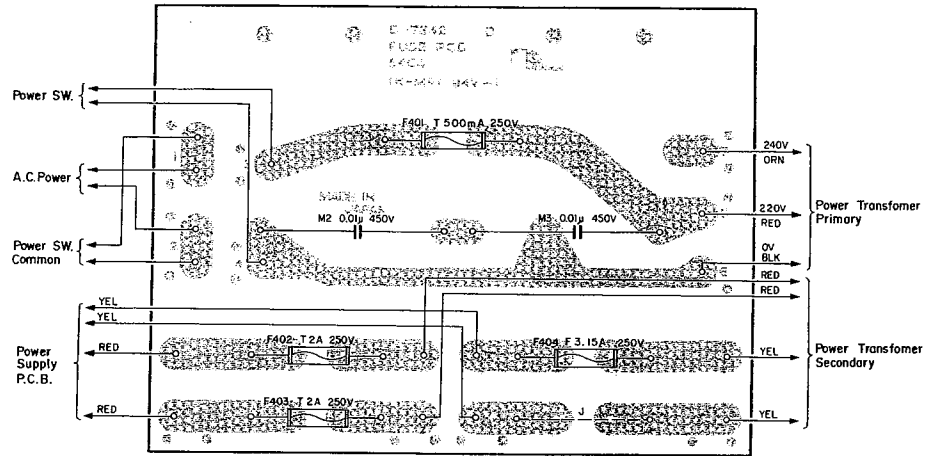


Fig. 7.36.4 220V Class 2

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04263A	Fuse P.C.B. Ass'y (UK & Australia)		BA04262A	Fuse P.C.B. Ass'y (220V Class 2)
F401	0B07842D	Fuse P.C.B.	F401	0B07842D	Fuse P.C.B.
F402,403	0B08457A	Fuse T 500mA 250V	F402,403	0B08457A	Fuse T 500mA 250V
F404	0B08853A	Fuse T 2A 250V	F404	0B08853A	Fuse T 2A 250V
	0B08230U	Fuse F 3.15A 250V		0B08230U	Fuse F 3.15A 250V
	0B08240A	Spark Killer AC250V (1 pce.)		0B08240A	Spark Killer AC250V (2 pcs.)
	0D04254A	Fuse Label F 3.15A 250V (1 pce.)		0M04254A	Fuse Label F 3.15A 250V (1 pce.)
	0R04255A	Fuse Label T 2A 250Vx2 (1 pce.)		0M04255A	Fuse Label T 2A 250Vx2 (1 pce.)
	0M04096C	Fuse Label T 500mA 250V (1 pce.)		0B08349A	Fuse Clip (8 pcs.)
	0D00349A	Fuse Clip (8 pcs.)		0E00752A	Eyelet 2x3 (6 pcs.)
	0E00752A	Eyelet 2x3 (6 pcs.)			

8. MECHANISM ASS'Y AND PARTS LIST

8.1. Synthesis

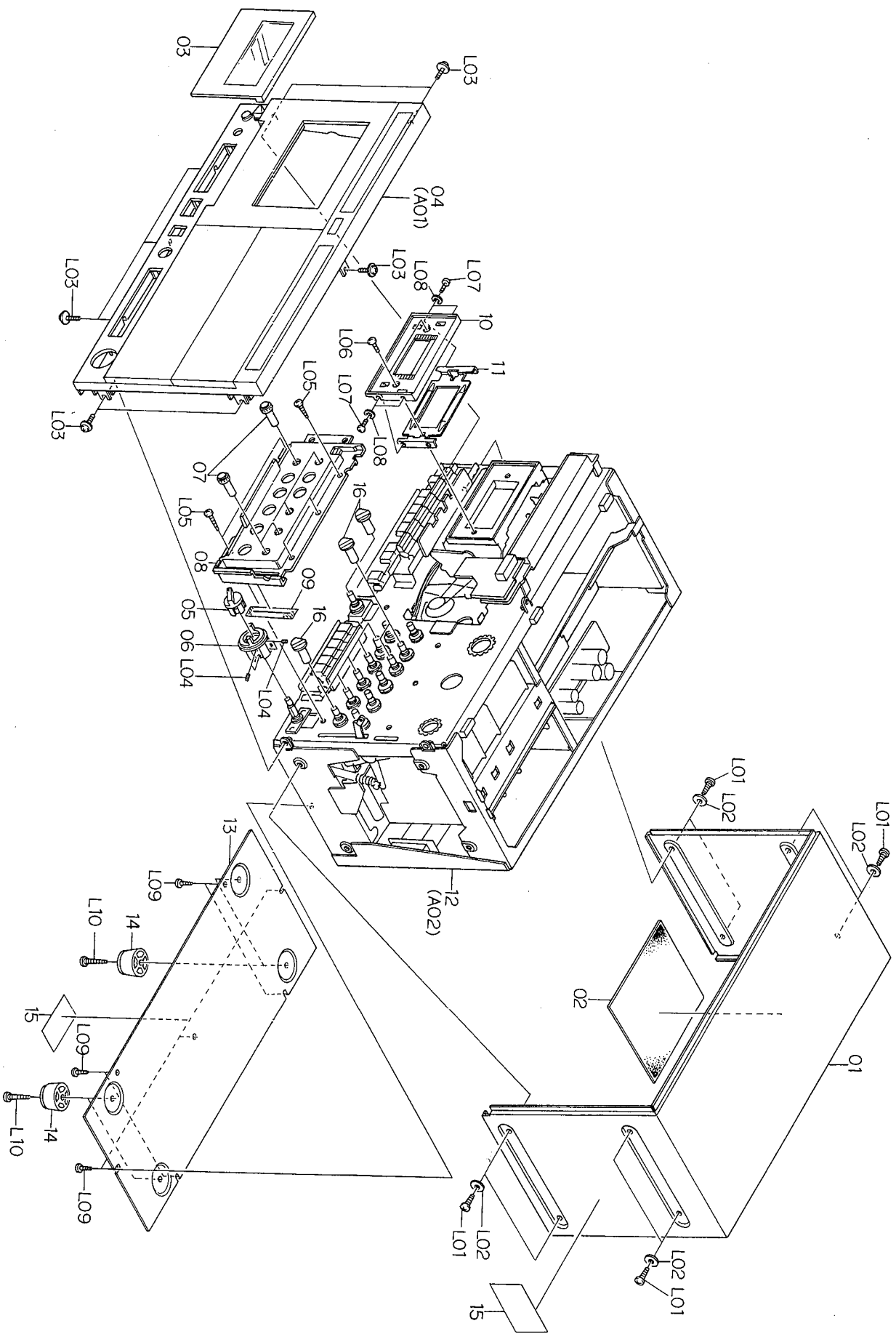


Fig. 8.1

Schematic Ref. No.	Part No.	Description	Qty
01	0H03902A	Top Cover	1
02	0J04194A	Absorber Rubber	1
03	HA04048A	Cassette Case Cover Ass'y	1
04	HA04046A	Front Panel Ass'y	1
05	HA04063B	Volume Knob R Ass'y	1
06	HA04064B	Volume Knob L Ass'y	1
07	0H03891A	Volume Knob	5
08	HA04062A	Control Panel Ass'y	1
09	0J04231B	Damper Himeion	1
10	0H03914A	Cassette Case Escutcheon	1
11	0J04254A	Cassette Case Plate	1
12	JA03742A	Chassis Ass'y (U.S.A. & Canada)	1
	JA03743A	Chassis Ass'y (Japan)	1
	JA03745A	Chassis Ass'y (220V Class 2)	1
	JA03746A	Chassis Ass'y (UK)	1
	JA03747A	Chassis Ass'y (Australia)	1
	JA03744A	Chassis Ass'y (Others)	1
13	0H03905A	Bottom Cover	1
14	0H03825A	Leg S	4
15	0M04101A	Caution Label	2
16	0H03890B	Switch Knob	8
-	0M03458B	PASS Label (U.S.A., Canada, 220V Class 2 & Others)	1
-	0M03458A	PASS Label (Japan, UK & Australia)	1
L01	0E00915A	BT Screw M4x8 Philips Binding Head (Black Chromate)	8
L02	0E00736A	Washer 4mm (Black Chromate)	8
L03	0E00943A	Screw M3x8 Philips Pan Head Polywax	8
L04	0E00785A	Screw M3x4 Cup Point	4
L05	0E00868A	BT Screw M3x8 Philips Binding Head	5
L06	0E00593A	Screw M3x6 Philips Binding Head	2
L07	0E00945A	Screw M2.6x4 Philips Pan Head (Black Chromate)	4
L08	0E00651A	Washer 2.6mm	4
L09	0E00857A	BT Screw M3x6 Philips Binding Head	7
L10	0E00852A	BT Screw M4x12 Philips Binding Head	4

8.2. Front Panel Ass'y (A01)

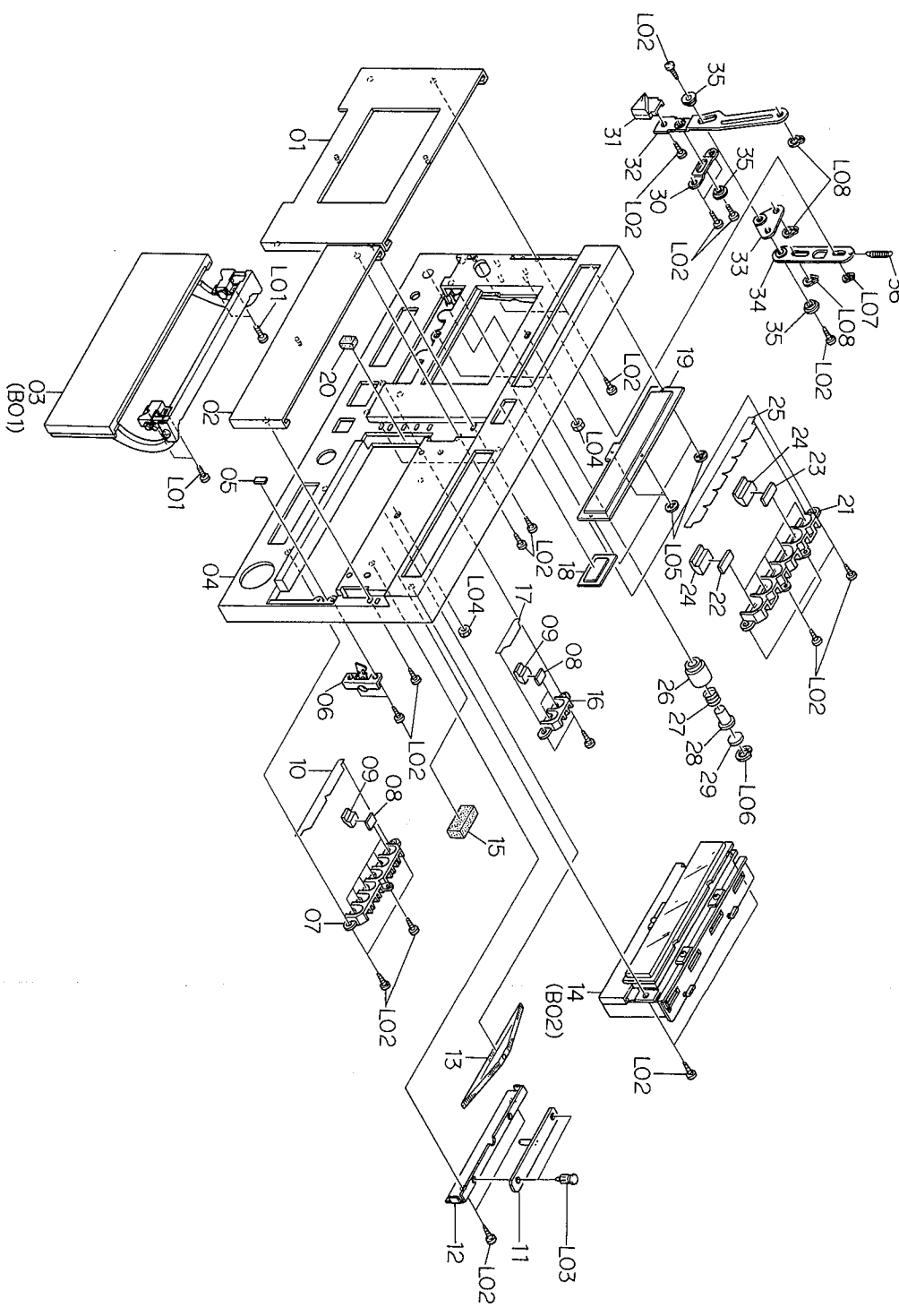


Fig. 8.2

Schematic Ref. No.	Part No.	Description	Qty	Schematic Ref. No.	Part No.	Description	Qty
A01	HA04046A	Front Panel Ass'y Serial No.: A11801001-	1	16	0J04247A	Reflector A	1
01	HA04067A	Front Panel L Sub Ass'y	1	17	0J04320A	Reflector Seal A	1
02	HA04068A	Front Panel R Sub Ass'y	1	18	0H03901A	Tape Counter Lens	1
03	HA04051A	Adjustment Lid Ass'y	1	19	0H03900A	Indicator Cover	1
04	HA04066A	Front Panel Escutcheon Sub Ass'y	1	20	0J04343A	Cushion C	1
05	0J04306B	Cushion A	1	21	0J04209A	Reflector C	1
06	JA03759A	Lock Lever Holder Ass'y	1	22	0J04210A	Filter Green A	5
07	0J01219A	Reflector B	1	23	0J04711A	Filter Red	1
08	0J04248A	Filter Green B	8	24	0H03910A	Lens A	6
09	0H03909A	Lens B	8	25	0J04320A	Reflector Seal C	1
10	0J04319A	Reflector Seal B	1	26	0H03908A	Power Switch Escutcheon	1
11	BA04268A	Lamp B P.C.B. Ass'y	1	27	0J04203A	Power Switch Spring	1
12	0J04250A	P.C.B. Holder	1	28	0H03907A	Power Switch Knob	1
13	0H03674D	Lamp House	1	29	0J04282A	Power Switch Knob Plate	1
14	BA04350A	LED Level Indicator Ass'y	1	30	0J04175A	Eject Lever Guide	1
15	0J04202A	Cushion B	1	31	0H03889A	Eject Knob	1
				32	0J04172A	Eject Lever	1
				33	0J04173A	Joint Plate	1
				34	0J04174A	Spring Hook	1

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

8.3. Chassis Ass'y (A02)

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

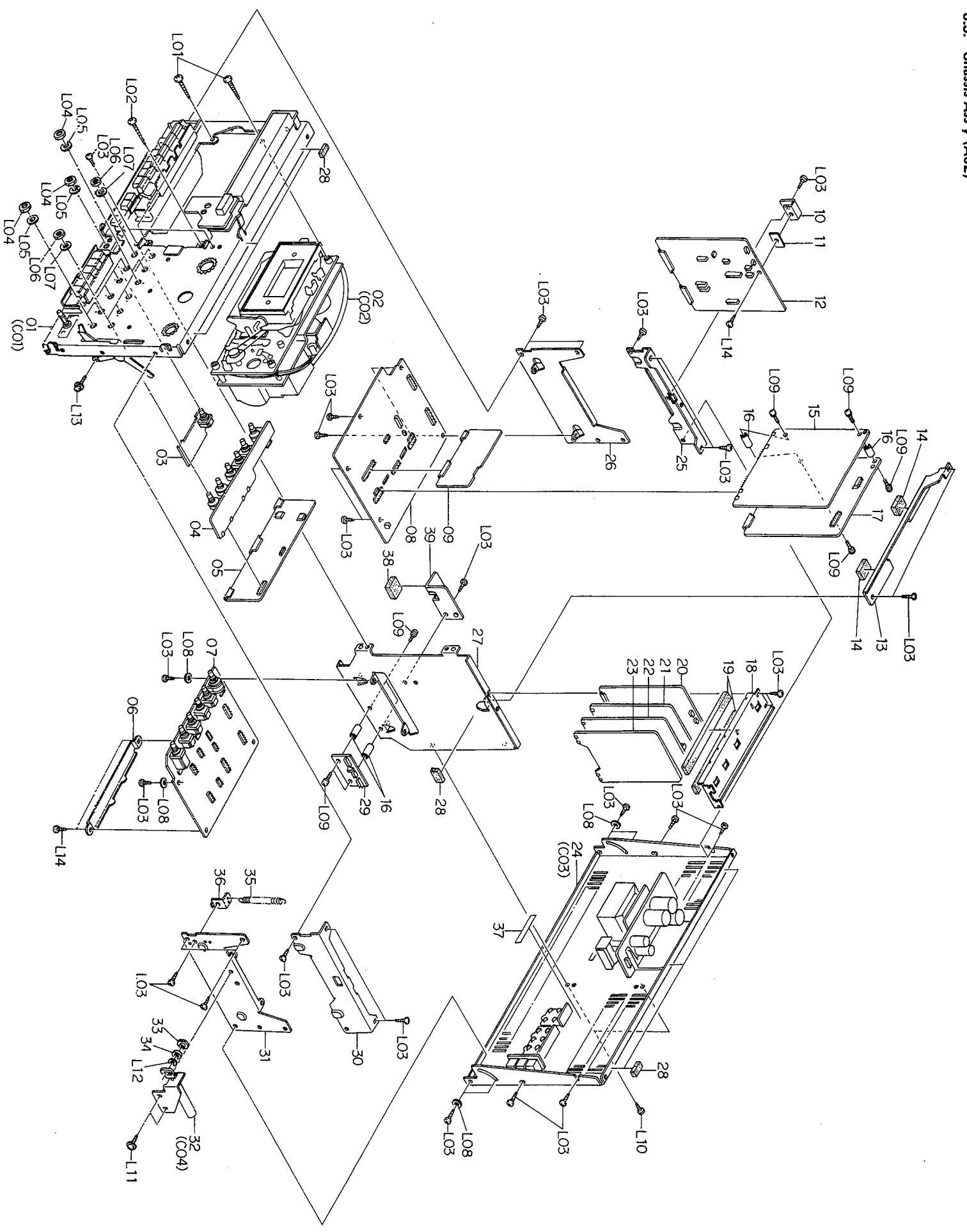


Fig. 8.3

8.4. Adjustment Lid Ass'y (B01)

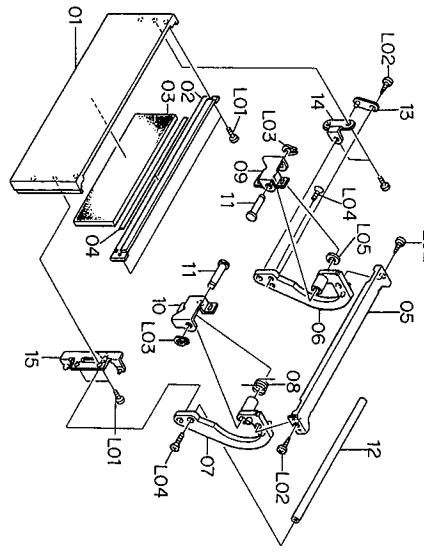


Fig. 8.4

8.5. LED Level Indicator Ass'y (B02)

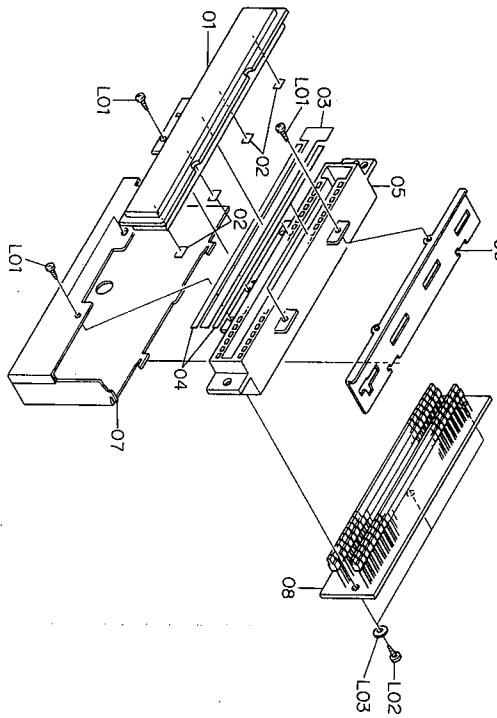


Fig. 8.5

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
B01	HA04051A	Adjustment Lid Ass'y Serial No.: A11801001-	1	B02	BA04350A	LED Level Indicator Ass'y Serial No.: A11801001-	1
01	0H03888A	Adjustment Lid	1	01	0H03916A	Indicator Scale Cover	1
02	0J04166A	Lid Escutcheon	1	02	0J04321A	Deflecting Seal	4
03	0J04195A	Lid Absorber Rubber	1	03	0J04256A	LED Reflector	1
04	0J04279A	Adhesive Tape	1	04	0J04336A	Light Intercepting Seal	2
05	0J04168A	Lid Arm Joint Plate	1	05	0J04253A	LED Indicator Case	1
06	0J04163A	Lid Arm L	1	06	0J04280A	Shield Plate	1
07	0J04164A	Lid Arm R	1	07	0J04281A	LED Indicator Case Holder	1
08	0J04170A	Lid Arm Spring	1	08	0J04281A	Indicator P.C.B. Ass'y	1
09	0J04275A	Lid Arm Holder L	1	09	0E00855A	BT Screw M2x6 Phillips Binding Head	5
10	0J04274A	Lid Arm Holder R	1	10	0E00857A	BT Screw M3x6 Phillips Binding Head	3
11	0J04167A	Lid Arm Rod	2				
12	0J04171A	Lid Arm Joint Rod	1	L03	0E00157A	Washer 3mm (Plastics)	3
13	JA03758A	Lid Arm Plate Ass'y	1				
14	0J04165A	Lid Holder	1				
15	JA03757A	Lid Joint Plate	1				
L01	0E00939A	Screw M2 Rxd Phillips Pan Head (Bunzel)	6				
L02	0E00860A	BT Screw M3x6 Phillips Binding Head	3				
L03	0E00838A	Stopper Ring 4mm	2				
L04	0F00940A	Screw M3x6 Phillips Countersunk	2				
L05	0J04310A	Washer FT40	1				

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
C01	JA03750A	Front Chassis Ass'y (U.S.A. & Canada)	1	L05	0J04061A	Washer FT20	1
01	BA04275A	Counter P.C.B. Ass'y	1	L06	-	Volume Nut	(1)
02	JA03760A	Lighting House Ass'y	1	L07	-	Volume Washer	(1)
03	0J04219B	Button Bracket Collar	6	L08	-	Headphone Jack Nut	(1)
04	0H03912A	Push Button	14	L09	-	Headphone Jack Washer	(1)
05	0J04224A	Button Sleeve A	14	L10	0E00920A	Screw M3x6 Phillips Pan Head	2
06	0J04225A	Button Sleeve B	1	L11	0E00622A	Screw M3x5 Phillips Pan Head Polywave	2
07	BA04325A	Switch A P.C.B. Ass'y	1	C02	CA08252A	Mechanism Ass'y N-700ZXL Serial No.: A11801001-	1
08	BA04327A	Switch C P.C.B. Ass'y	1	01	CA08265A	Flywheel Holder Ass'y	1
09	0J04221A	Push Button Bracket A	1	02	0C08096C	Capstan Belt	1
10	0J04222A	Button Shaft A	1	03	CA08173A	Supply Flywheel Ass'y	1
11	0J04223A	Push Button Cushion A	2	04	CA08015A	Take-up Flywheel Ass'y	1
12	HA04137A	Control Button Cushion A	1	05	0C08021B	Thrust Washer 3.1mm	1
13	BA04271A	Switch Lamp A P.C.B. Ass'y	1	06	0C08020B	Thrust Washer 2.6mm	1
14	0J04218A	Control Button Cushion C	1	07	0C08243A	Flange Thrust Cap	2
15	0J04308A	Control Button Cushion D	1	08	CA08244A	Flange Thrust Spring	2
16	0J04217A	Button Shaft C	1	09	CA08245A	Sub Mechanism Chassis Ass'y	1
17	0J04220A	Control Switch Lamp P.C.B. Ass'y	1	10	0C08099B	Control Motor Belt	1
18	BA04273A	Control Switch Lamp P.C.B. Ass'y	1	11	0C08098B	Counter Belt B	1
19	BA04274A	Control Switch P.C.B. Ass'y	1	12	CA08253A	Main Mechanism Chassis Ass'y	1
20	0J04232A	Bracket Holder L	1	13	0B08844A	10P-H Connector	1
21	0J04233A	Bracket Holder R	1	14	0B08652C	3P-H Connector	1
22	0J04229A	Push Button Sleeve C	1	15	0B08515A	Insh-Lock	16
23	BA04326A	Switch B P.C.B. Ass'y	1	16	0B08515A	Azimuth Alignment Wire	1
24	0J04228A	Push Button Cushion B	1	17	BA04308A	Speed Cal. P.C.B. Ass'y	1
25	0J04227A	Button Shaft B	1	18	0M04169A	P.C.B. Holder	1
26	0J04226A	Push Button Bracket B	1	L01	0E00834A	Mechanism No. Seal	1
27	0J04230A	Switch Lamp B P.C.B. Holder	1	L02	0E00178A	Washer 3mm	2
28	BA04272A	Switch Lamp B P.C.B. Ass'y	1	L03	0E00833A	BT Screw M3x20 Phillips Pan Head	3
29	0J04205A	Volume Holder	1	L04	0E00835A	BT Screw M3x25 Phillips Pan Head	1
30	0B07351A	Line Input Volume	1	L05	0E00883A	BT Screw M3x8 Phillips Pan Head	5
31	0J04206A	Switch Holder	1	L06	0B08861A	Plastic Rivet	2
32	0J04135C	Mechanism Bracket	1				
33	0J04235A	Headphone Jack Holder	1				
34	0B08511A	Headphone Jack	1				
35	JA03763A	Damper Arm Ass'y	1				
36	0B07253A	Power Switch (U.S.A. & Canada)	1				
37	0B07271A	Power Switch (Japan)	1				
38	0J04268A	Power Switch (220V Class 2, UK, Australia & Others)	1				
39	0J04178A	Front Chassis Cushion	14				
40	0J04291A	Free Bushing 87mm	3				
41	0J04294A	Free Bushing 58mm	1				
42	0J04292A	Free Bushing 75mm	1				
43	0J04293A	Free Bushing 63mm	1				
44	0M04200A	Counter P.C.B. Seal A	1				
L01	0M04202A	Counter P.C.B. Seal B	1				
L02	0E00857A	BT Screw M3x6 Phillips Binding Head	28				
L03	0E00837A	Stopper Ring 3mm	6				
L04	0E00855A	BT Screw M2x6 Phillips Binding Head	1				

8.6. Front Chassis Ass'y (C01)

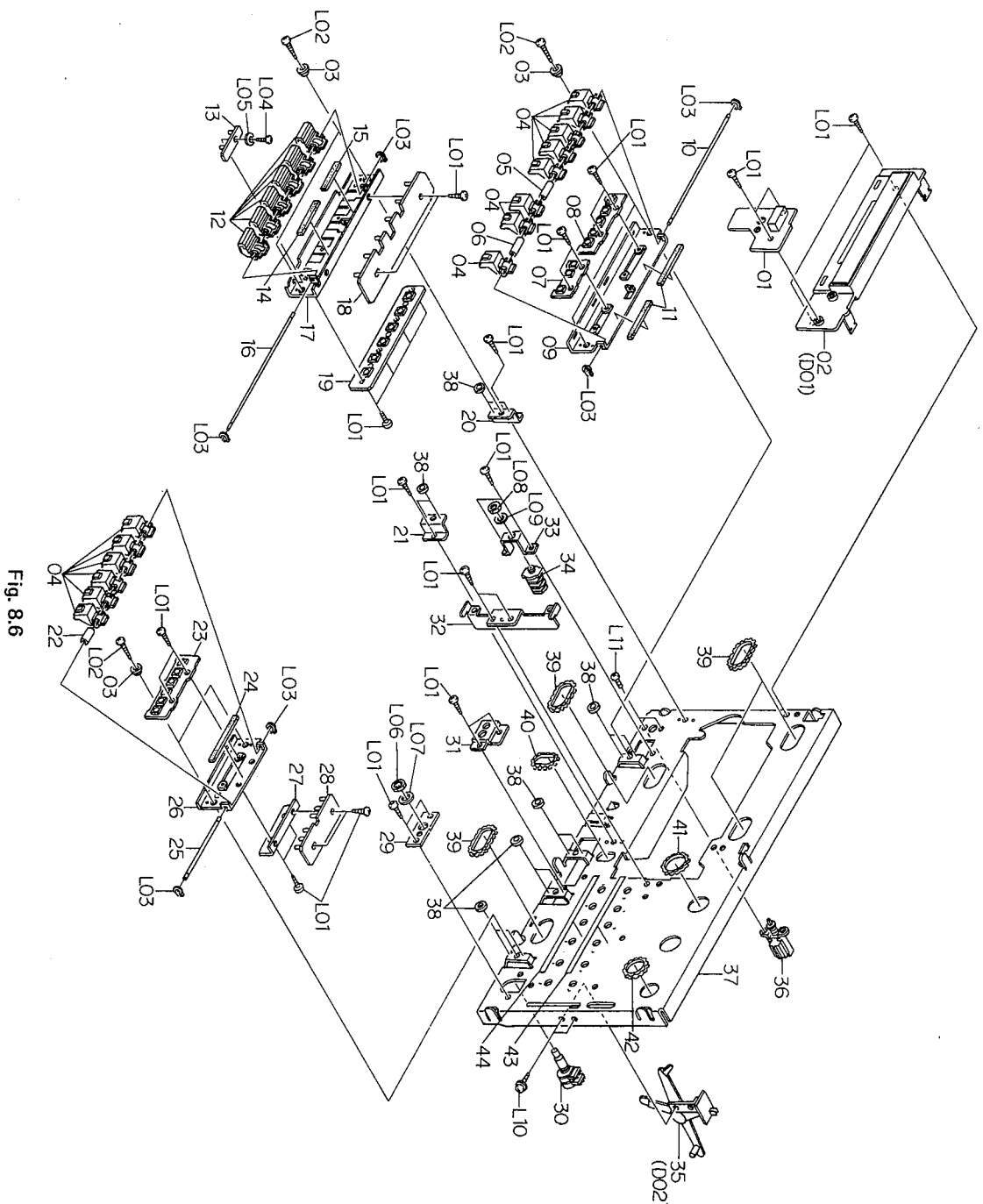


Fig. 8.6

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

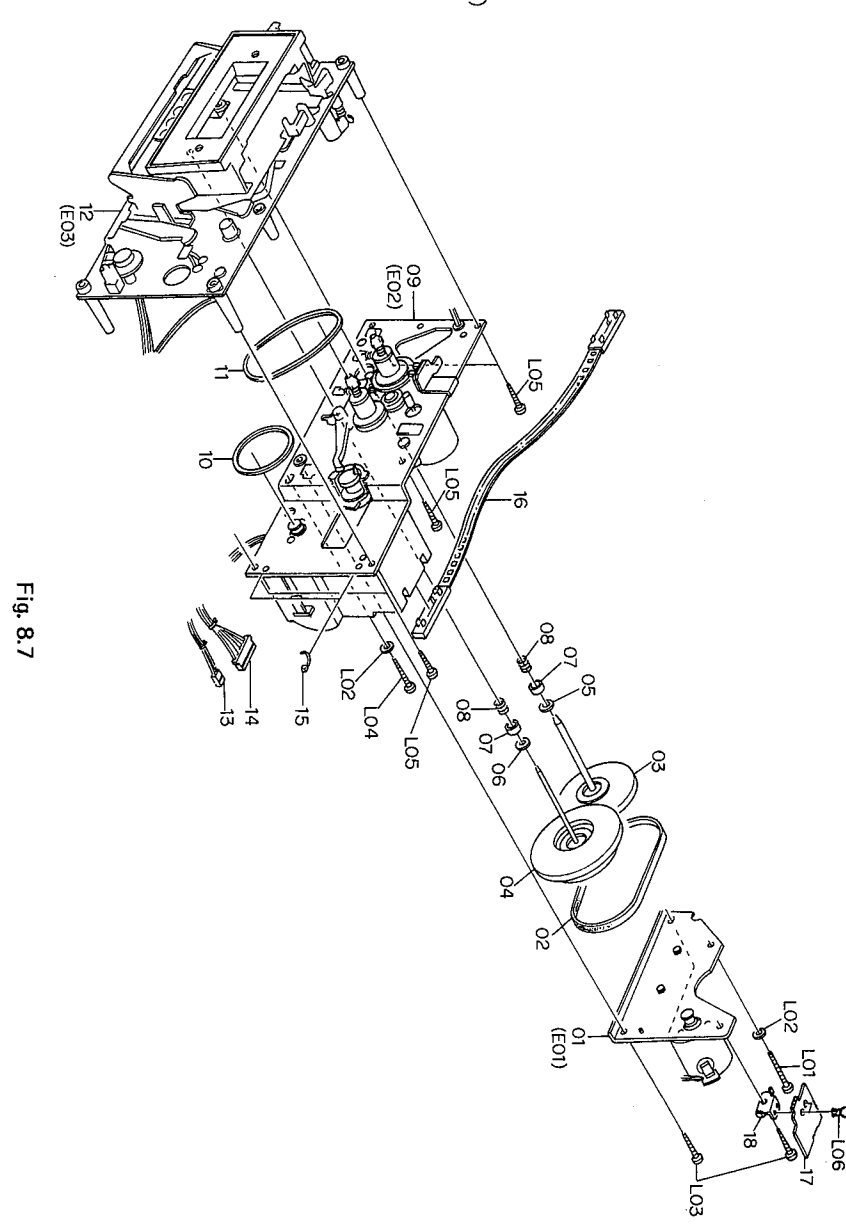


Fig. 8.7

8.8. Rear Panel Ass'y (C03)

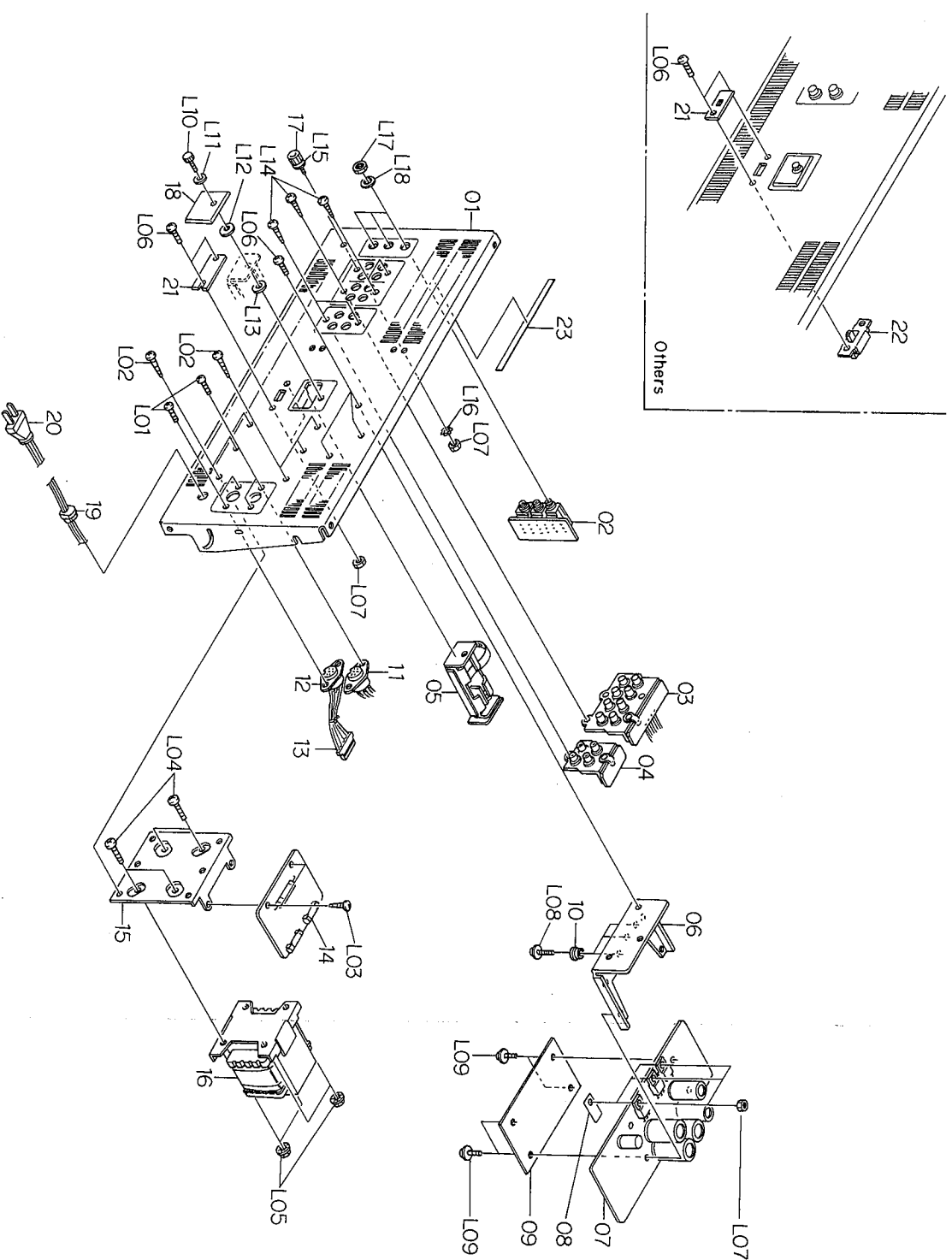


Fig. 8.8

8.9. Pneumatic Damper Ass'y (C04)

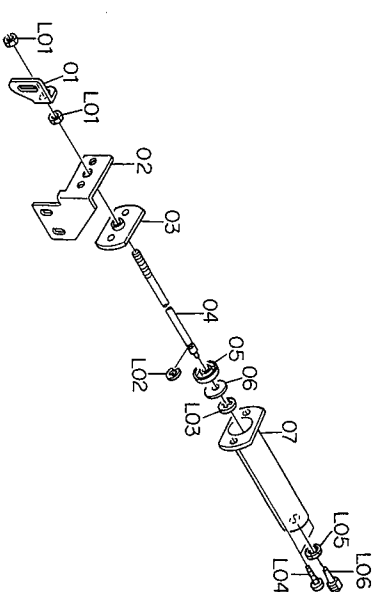


Fig. 8.9

8.10. Lighting House Ass'y (D01)

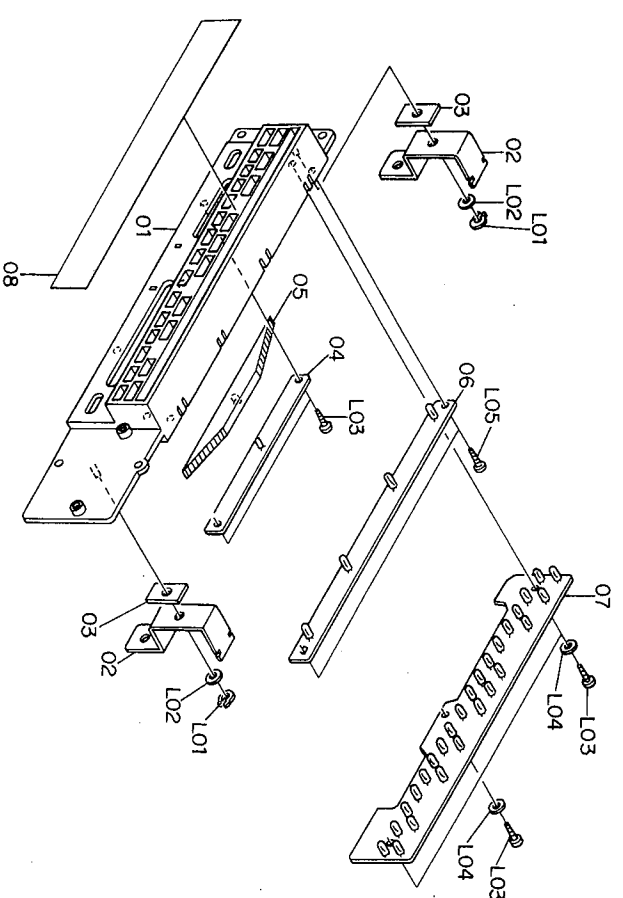


Fig. 8.10

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

8.11. Damper Arm Ass'y (D02)

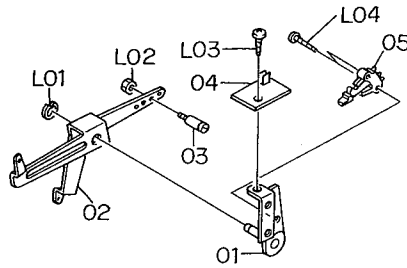


Fig. 8.11

8.12. Flywheel Holder Ass'y (E01)

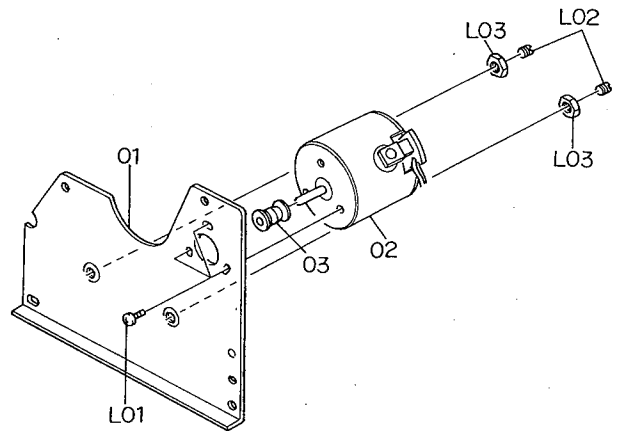


Fig. 8.12

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

8.13. Sub Mechanism Chassis Ass'y (E02)

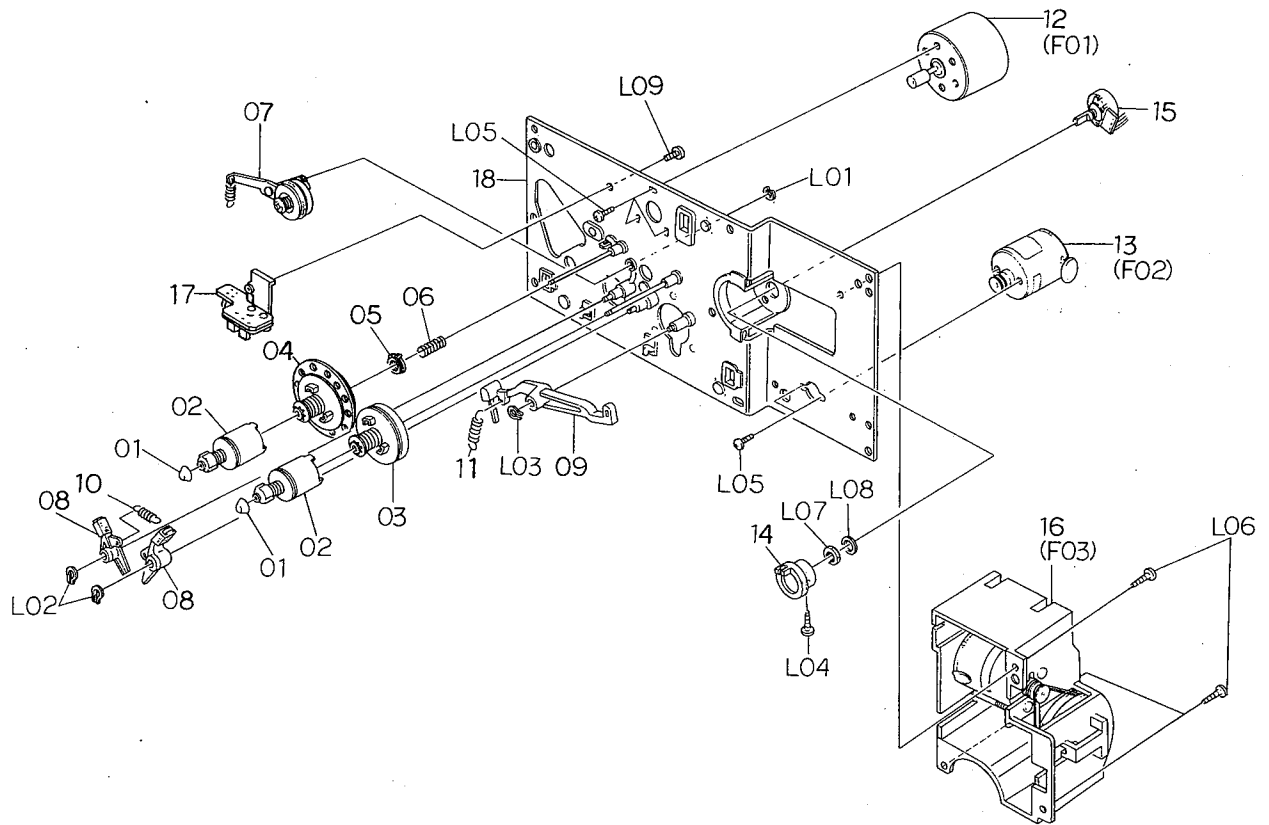


Fig. 8.13

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
E02	CA08245A	Sub Mechanism Chassis Ass'y Serial No.: A11801001-	1	L04	0E00859A	BT Screw M2.6x6 Philips Binding Head	1
				L05	0E00226A	Screw M2.6x4 Philips Pan Head	5
				L06	0E00846A	BT Screw M3x8 Philips Pan Head	3
01	0C08039B	Reel Hub Head	2	L07	-	Volume Nut	(1)
02	CA08038C	Reel Hub B Ass'y	2	L08	-	Volume Washer	(1)
03	CA08037A	Reel Hub Take-up Ass'y	1	L09	0E00792A	BT Screw M2.6x6 Philips Pan Head	1
04	CA08236A	Reel Hub Supply Ass'y	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	Schematic Ref. No.	Part No.	Description	Q'ty
E03	CA08253A	Main Mechanism Chassis Ass'y Serial No.: A11801001-	1	L14	0E00859A	BT Screw M2.6x6 Philips Binding Head	1
				L15	0C08255A	Washer 2.6mm	1
01	CA08125A	Cassette Case Holder L Ass'y	1				
02	0C08151A	Lid Arm Spring Tube	1				
03	CA08022A	Cassette Case Holder R Ass'y	1				
04	CA08240A	Cassette Case Ass'y	1				
05	CA08259A	Cover Plate Ass'y	1				
06	CA08262A	Head Mount Base Ass'y	1				
07	0C08250A	Supply Pressure Roller Spring	1				
08	0C08221A	Supply Pressure Roller Spring B	1				
09	CA08053B	Supply Pressure Roller Ass'y	1				
10	0C08122B	Supply Pressure Roller Thrust Spring	1				
11	CA08079B	Take-up Pressure Roller Ass'y	1				
12	0C08183B	Take-up Pressure Roller Thrust Spring	1				
13	CA08260A	Head Base Ass'y F	1				
14	0C08182A	Pressure Roller Drive Bar B	1				
15	0C08086B	Head Base Roller	3				
16	0C08050B	Record Sensor	1				
17	0C08051E	Cassette Hold Arm	1				
18	0C08120A	Cassette Hold Spring	1				
19	CA08196A	Back Tension Arm Ass'y	1				
20	0C08254A	Tension Arm Collar	1				
21	CA08027A	Head Base Drive Arm Ass'y	1				
22	0C08143C	Head Base Drive Arm Spring	1				
23	CA08026A	Pressure Roller Drive Arm Ass'y	1				
24	CA08237A	Auto Shut-off Ass'y	1				
25	0C08119A	Record Protector	1				
26	0C08194C	Damper Lock Arm	1				
27	0C08153A	Damper Lock Arm Spring Tube	1				
28	0C08116A	Record Arm Spring	2				
29	CA08030A	Pneumatic Damper Ass'y	1				
30	CA08023A	Supply Capstan Flange Ass'y	1				
31	CA08024A	Take-up Capstan Flange Ass'y	1				
32	0C08186A	Cam Drive Gear	1				
33	0C08029H	Control Cam	1				
34	0C08117A	Counter-Load Arm Spring	1				
35	0C08152A	Counter-Load Arm Spring Tube	1				
36	CA08028A	Counter-Load Arm Ass'y	1				
37	CA08183A	Main Chassis Ass'y	1				
L01	0E00837A	Stopper Ring 3mm	9				
L02	0E00832A	BT Screw M3x14 Philips Pan Head	2				
L03	0E00834A	BT Screw M3x30 Philips Pan Head	2				
L04	0E00831A	BT Screw M3x10 Philips Pan Head	3				
L05	0C00254A	Washer 3.1mm (Plastics)	2				
L06	0E00222A	E-Ring 2mm	2				
L07	0E00878A	BT Screw M2.6x8 Philips Pan Head	8				
L08	0C08060B	Height Adjustment Nut	2				
L09	0F00147A	Washer 2.6mm	2				
L10	0E00879A	BT Screw M2x15 Philips Pan Head	1				
L11	0E00838A	Stopper Ring 4mm	3				
L12	0E00846A	BT Screw M3x8 Philips Pan Head	3				
L13	0E00895A	Earth Lug 3mm	2				

8.14. Main Mechanism Chassis Ass'y (E03)

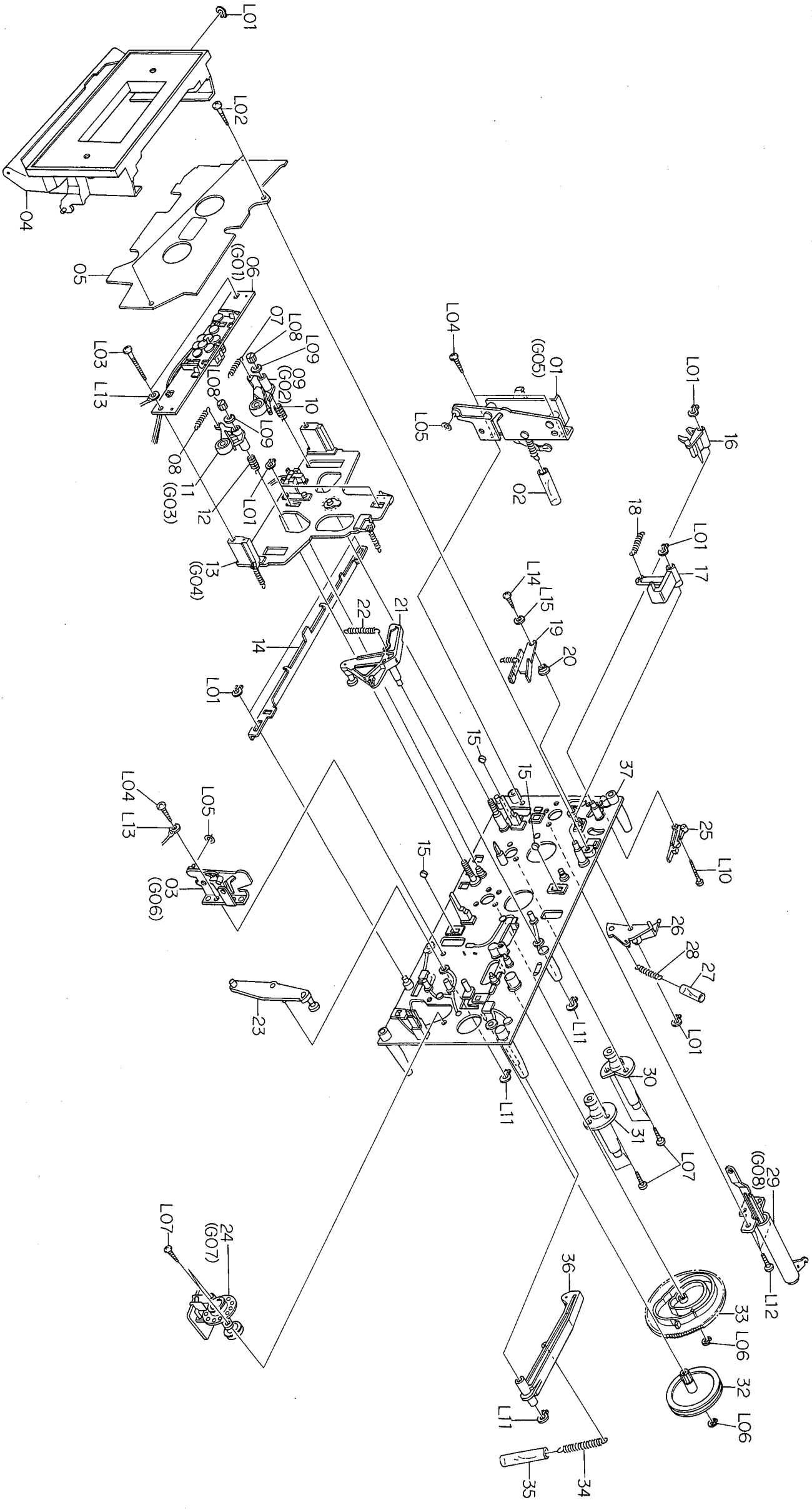


Fig. 8.14

8.15. Reel Motor Ass'y (F01)

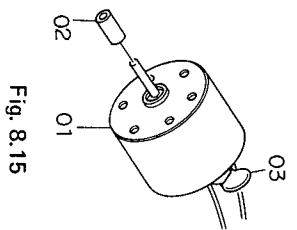


Fig. 8.15

8.16. Control Motor Ass'y (F02)

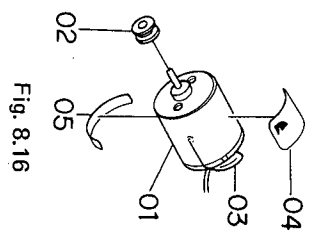


Fig. 8.16

8.17. Azimuth Alignment Motor Ass'y (F03)

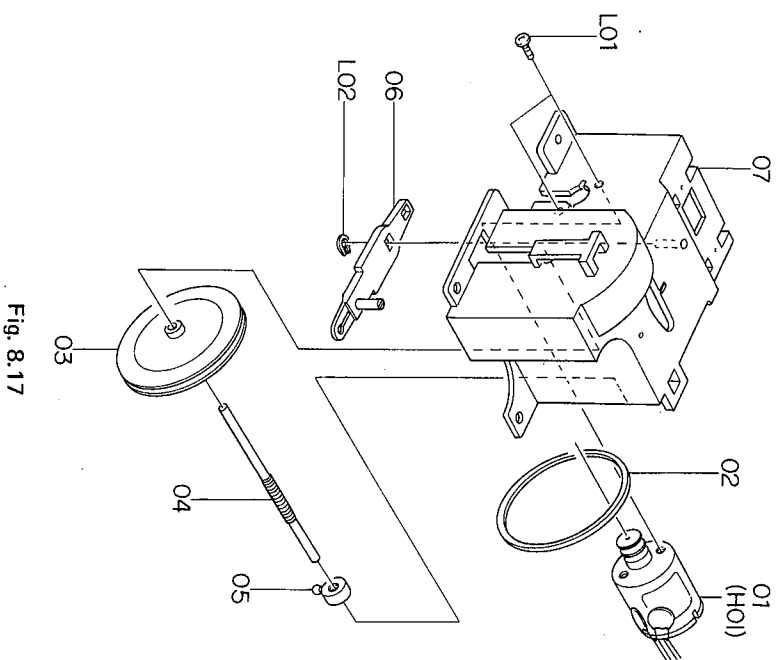


Fig. 8.17

8.18. Head Mount Base Ass'y (G01)

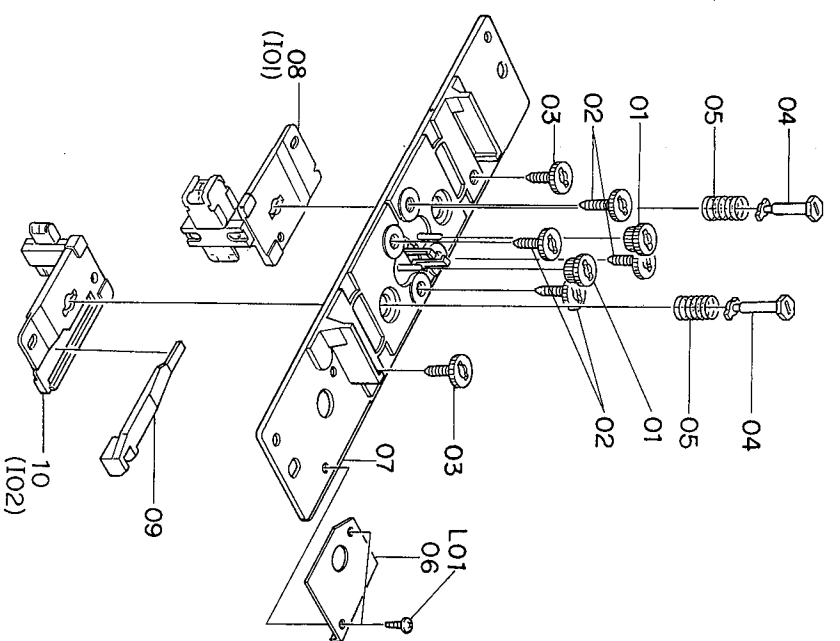


Fig. 8.18

8.21. Head Base Ass'y E (G04)

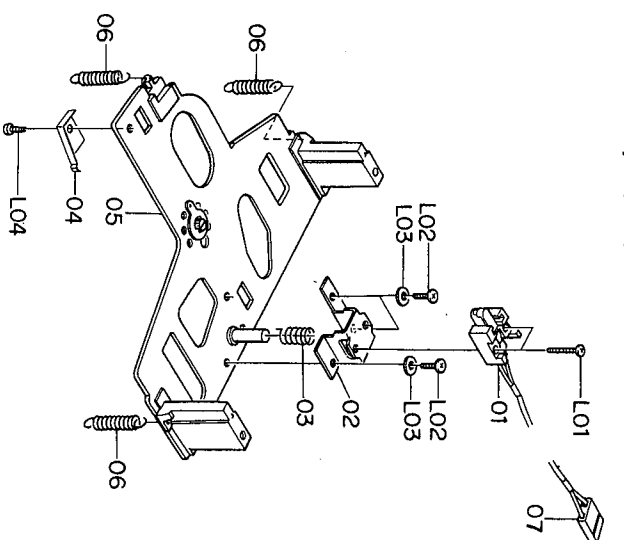


Fig. 8.21

8.19. Supply Pressure Roller Ass'y (G02)

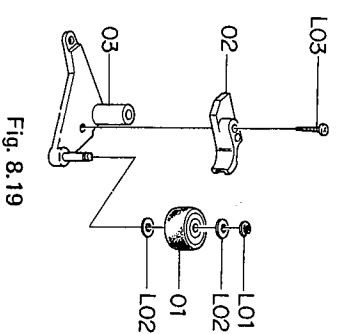


Fig. 8.19

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

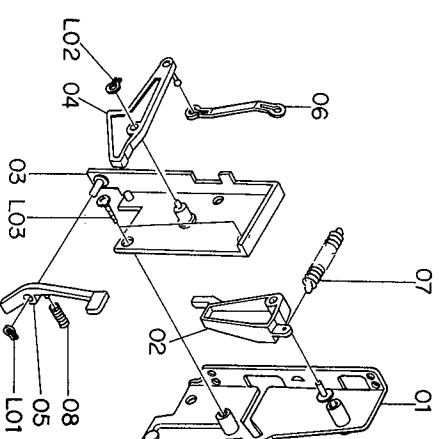


Fig. 8.22

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

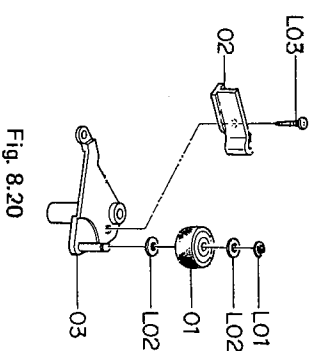


Fig. 8.20

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

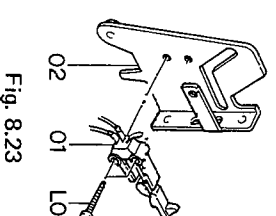


Fig. 8.23

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
F01	CA08242A	Reel Motor Ass'y Serial No.: A11801001-	1	G03	CA08079B	Take-up Pressure Roller Ass'y Serial No.: A11801001-	1
01	0C08272A	Reel Motor	1	01	0C08164G	Pressure Roller	1
02	0C08063F	Reel Motor Pulley	1	02	0C08181C	Take-up Tape Guide	1
03	0B09290A	Ceramic Capacitor 0.01μ 50V Z	1	03	CA08073B	Take-up Pressure Roller Arm Ass'y	1
F02	CA08034A	Control Motor Ass'y Serial No.: A11801001-	1	L01	0E00042A	E-Ring 1.5mm	1
01	0C08137A	Control Motor	1	L02	0C08024A	Washer 2mm	2
02	0C08064A	Control Motor Pulley	1	L03	0E00788A	BT Screw M2x8 Philips Pan Head	1
03	0B09292A	Ceramic Capacitor 0.1μ 50V Z	1	G04	CA08260A	Head Base Ass'y F Serial No.: A11801001-	1
04	0M03985A	Motor Label 730	1	01	GA02083A	E-8LH Erase Head	1
05	0M03988A	Motor Seal B	1	02	0C08158D	EH Hold Plate	1
F03	CA08148A	Azimuth Alignment Motor Ass'y Serial No.: A11801001-	1	03	0C08166A	EH Hold Plate Spring	1
01	CA08149A	Azimuth Motor Ass'y	1	04	0C08174C	Cassette Hold Spring	1
02	0C08099B	Control Motor Belt	1	05	CA08003Q	Head Base Ass'y	1
03	0C08229B	Drive Pulley	1	06	0C08175A	Head Base L Spring	3
04	0C08230B	Drive Pulley Shaft	1	07	0B08816B	2P-H Connector	1
05	0C08231C	Drive Nut	1	L01	0E00889A	Screw M1.7x8 Philips Pan Head	2
06	0C08232C	Drive Bar	1	L02	0E00909A	Screw M2x6 Philips Pan Head	3
07	0C08233G	Drive Unit Base	1	L03	0E00117A	Washer 2mm	3
L01	0E00226A	Screw M2.6x4 Philips Pan Head	2	L04	0E00853A	BT Screw M2x3 Philips Pan Head	1
L02	0E00837A	Stopper Ring 3mm	1	G05	CA08125A	Cassette Case Holder L Ass'y Serial No.: A11801001-	1
G01	CA08262A	Head Mount Base Ass'y Serial No.: A11801001-	1	01	CA08090F	Cassette Case L Sub Ass'y	1
01	0C08028C	Head Height Adjustment Gear	2	02	0C08073C	Lid Arm A	1
02	0C08027E	Head Height Adjustment Screw	4	03	0C08195G	Arm Holder	1
03	0C08026D	Azimuth Alignment Screw	2	04	0C08196B	Eject Arm A	1
04	0C08161B	Spring Stopper	2	05	0C08197C	Eject Arm B	1
05	0C08187B	Head Plate Spring	2	06	0C08199B	Eject Arm Joint	1
06	0C08236A	Azimuth Alignment Wire Hold Plate	1	07	0C08114A	Lid Arm Spring	1
07	CA08083C	Head Mount Base Sub Ass'y	1	08	0C08211C	Eject Arm Spring	1
08	CA08261A	P-8L Playback Head Ass'y	1	L01	0E00837A	Stopper Ring 3mm	1
09	0C08235A	Azimuth Alignment Plate	1	L02	0E00838A	Stopper Ring 4mm	1
10	CA08263A	R-8L Record Head Ass'y	1	L03	0E00865A	BT Screw M3x10 Philips Binding Head	2
L01	0E00917A	BT Screw M2.6x5 Philips Pan Head	2	G06	CA08022A	Cassette Case Holder R Ass'y Serial No.: A11801001-	1
G02	CA08053B	Supply Pressure Roller Ass'y Serial No.: A11801001-	1	01	0C08133A	Eject Sensor	1
01	0C08164G	Pressure Roller	1	02	CA08044A	Cassette Case Holder R Sub Ass'y	1
02	0C08189B	Supply Tape Guide	1	L01	0E00840A	BT Screw M2x8 Philips Pan Head	2
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				

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

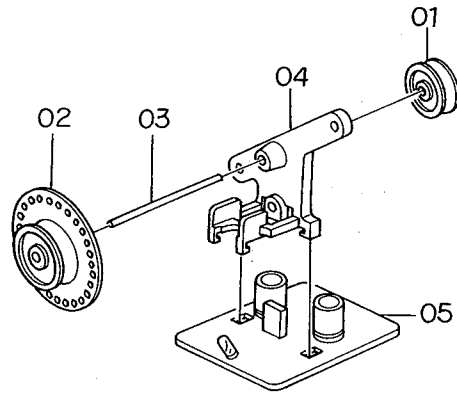


Fig. 8.24

8.25. Pneumatic Damper Ass'y (G08)

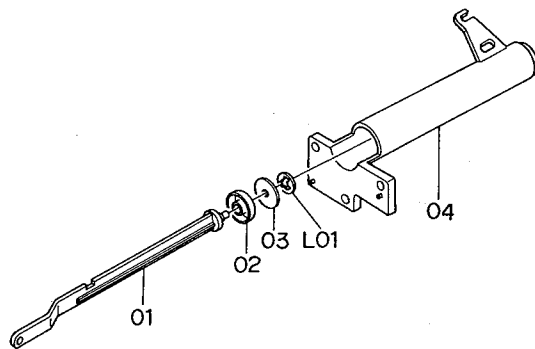


Fig. 8.25

8.26. Azimuth Motor Ass'y (H01)

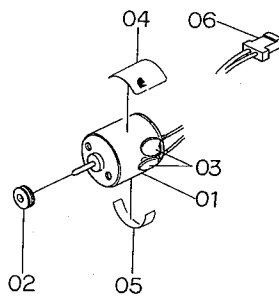


Fig. 8.26

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

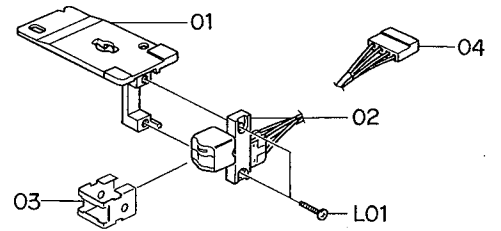


Fig. 8.27

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

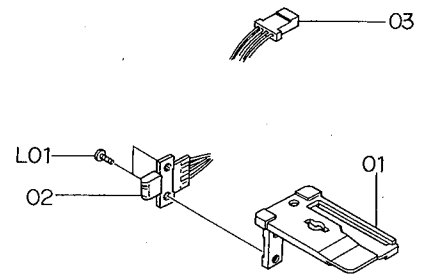


Fig. 8.28

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

9. TIMING CHART AND FLOW CHART

9.1. Overall Timing Chart

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

Fig. 9.1

9.2. Auto Calibration and RAMM Control

(1) Auto Calibration Timing Chart

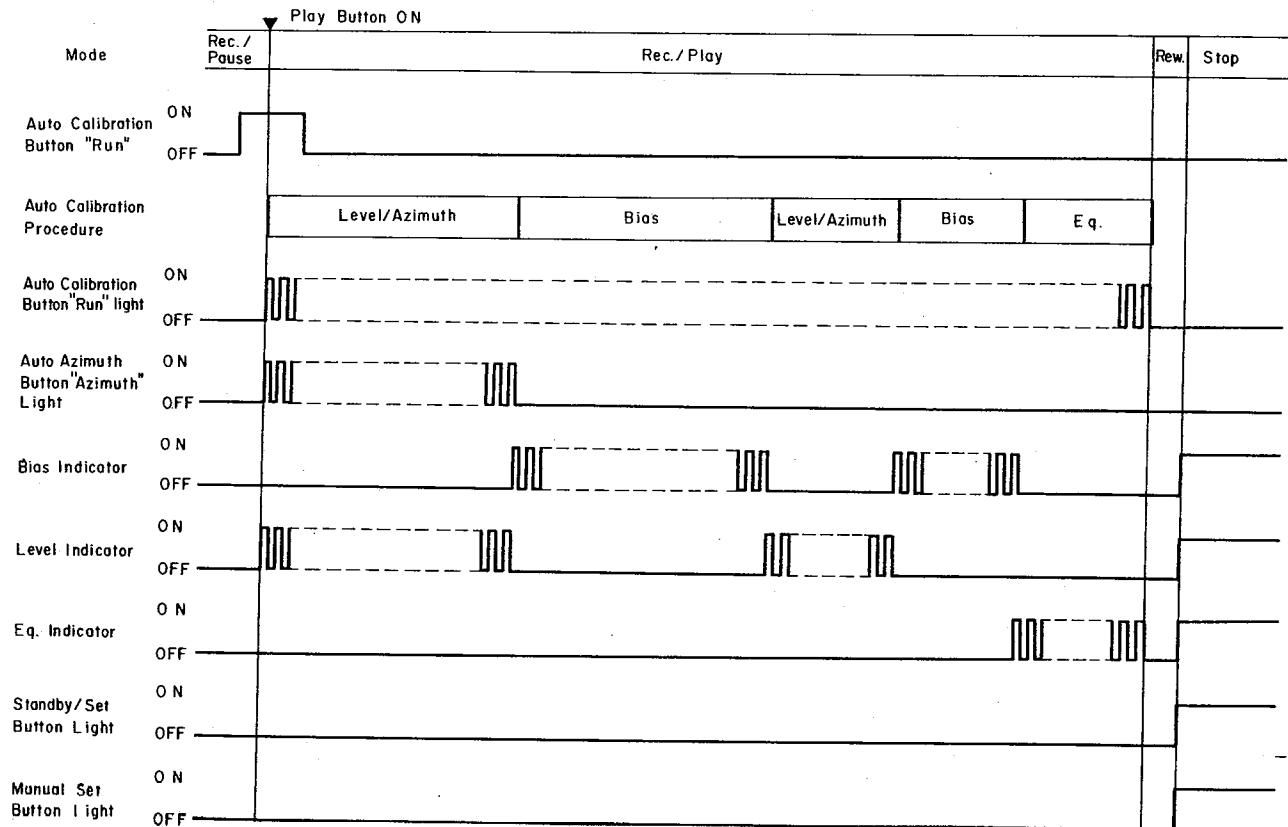


Fig. 9.2

(2) Auto Calibration Flow Chart

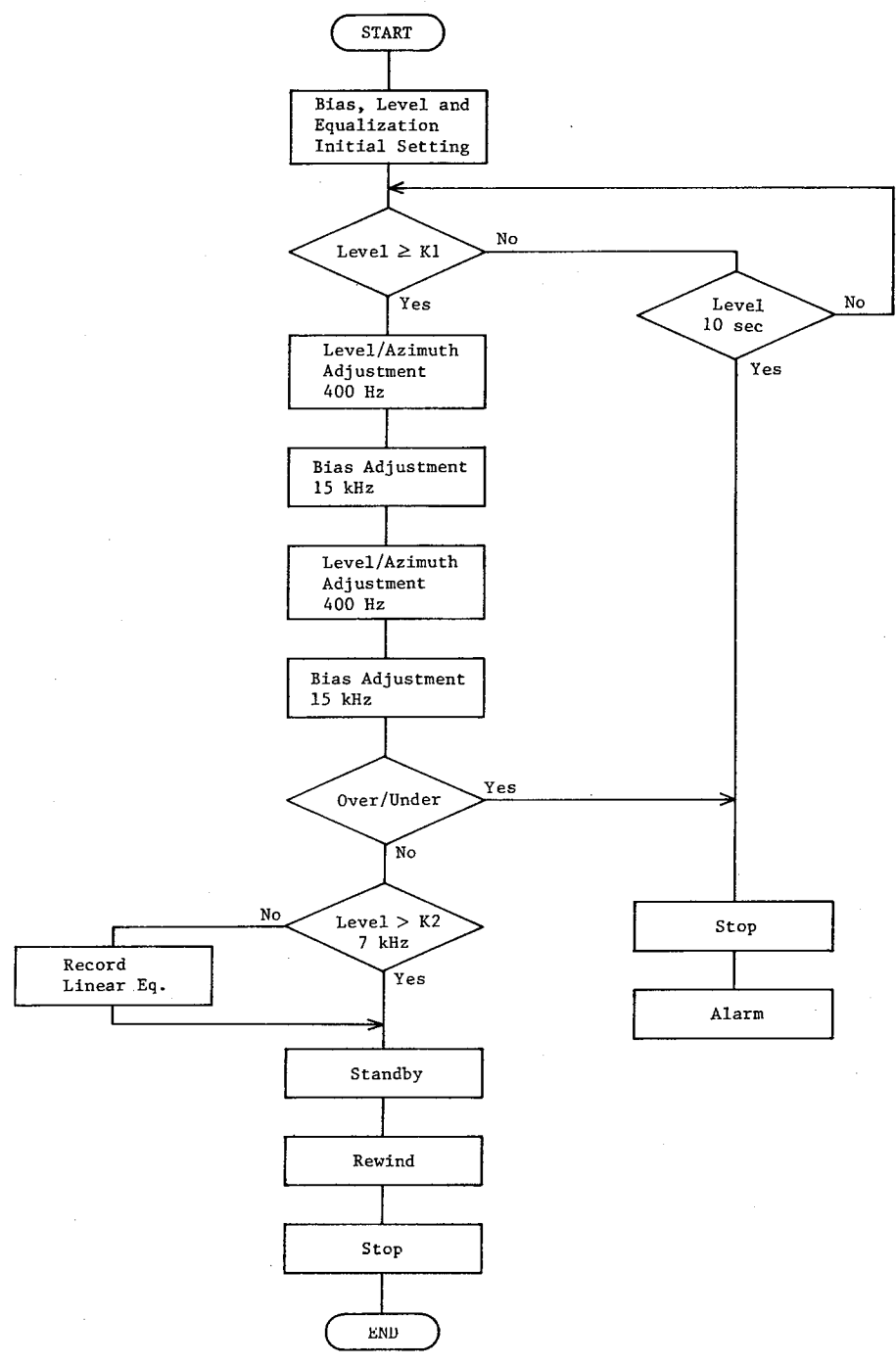


Fig. 9.3

(3) RAMM Coding Timing Chart

(a) Automatic Coding

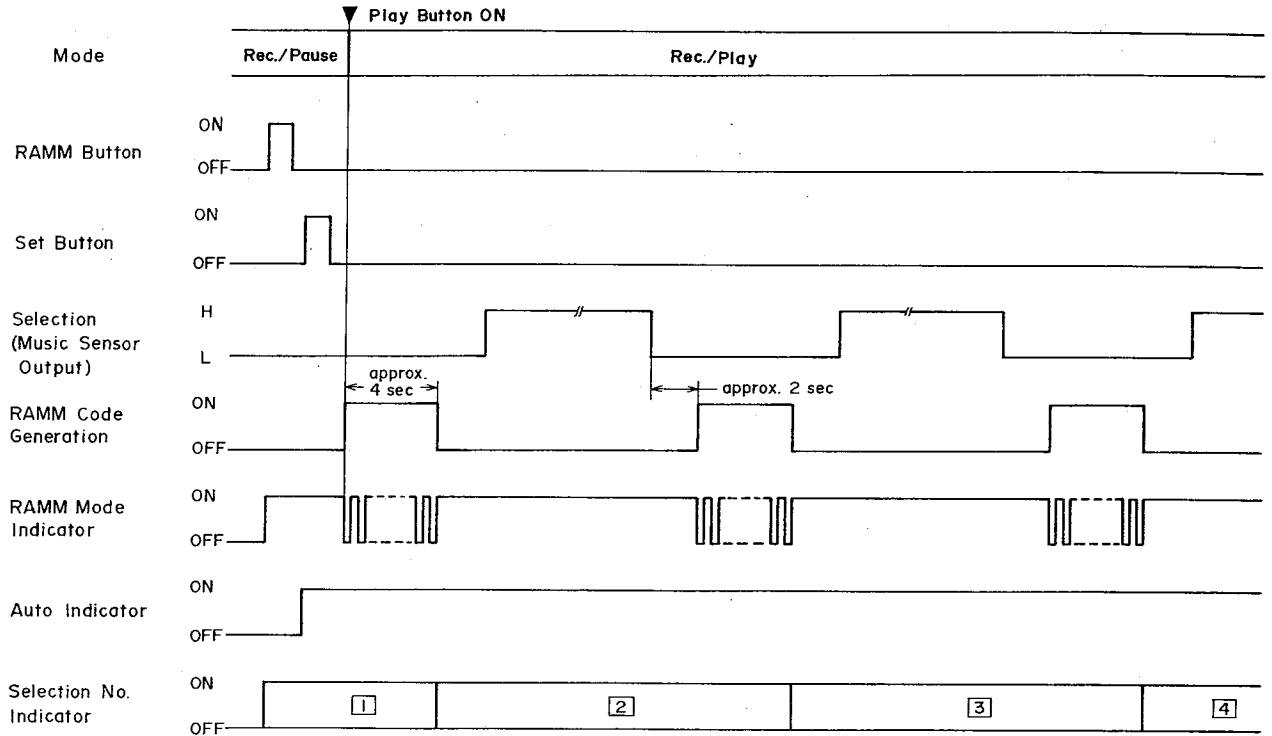


Fig. 9.4

(b) Manual Coding

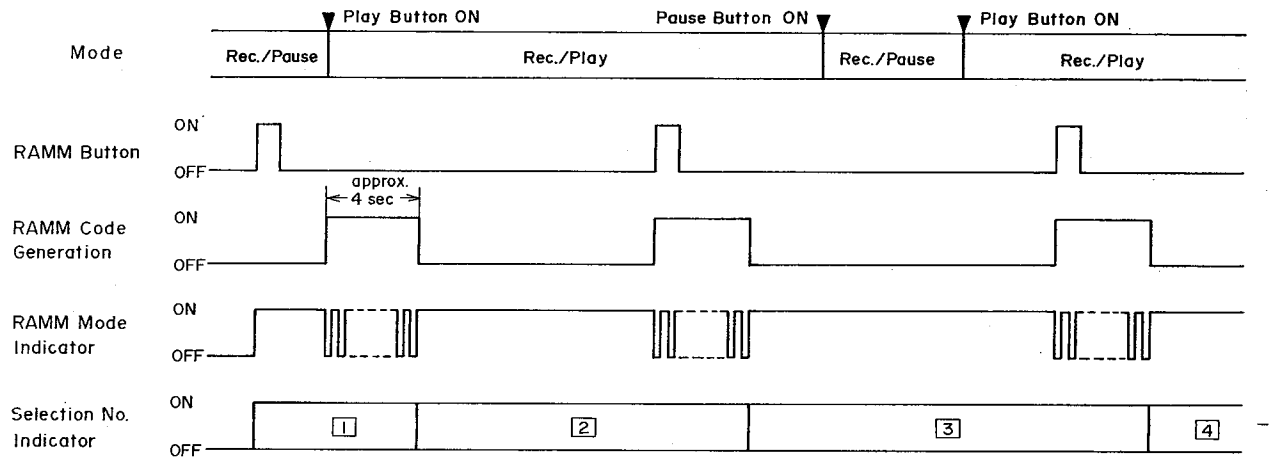


Fig. 9.5

10. EQ AMP. FREQUENCY RESPONSE

10.1. Playback Frequency Response

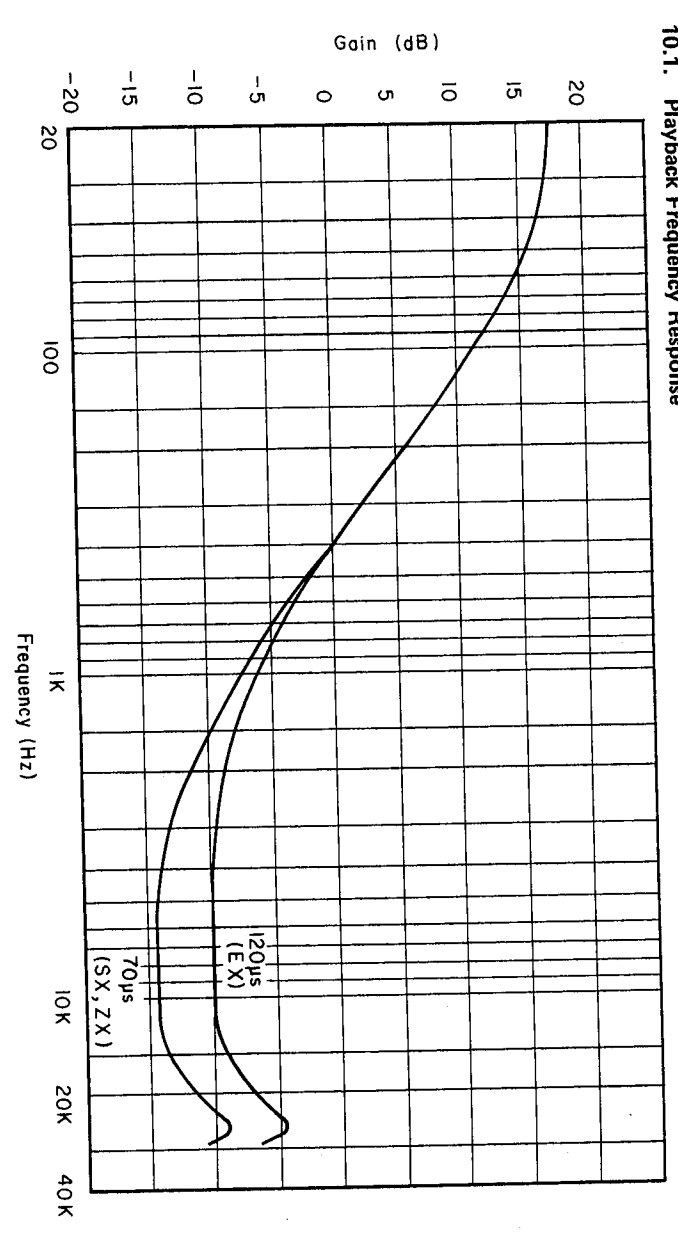


Fig. 10.1

10.2. Record Current Frequency Response

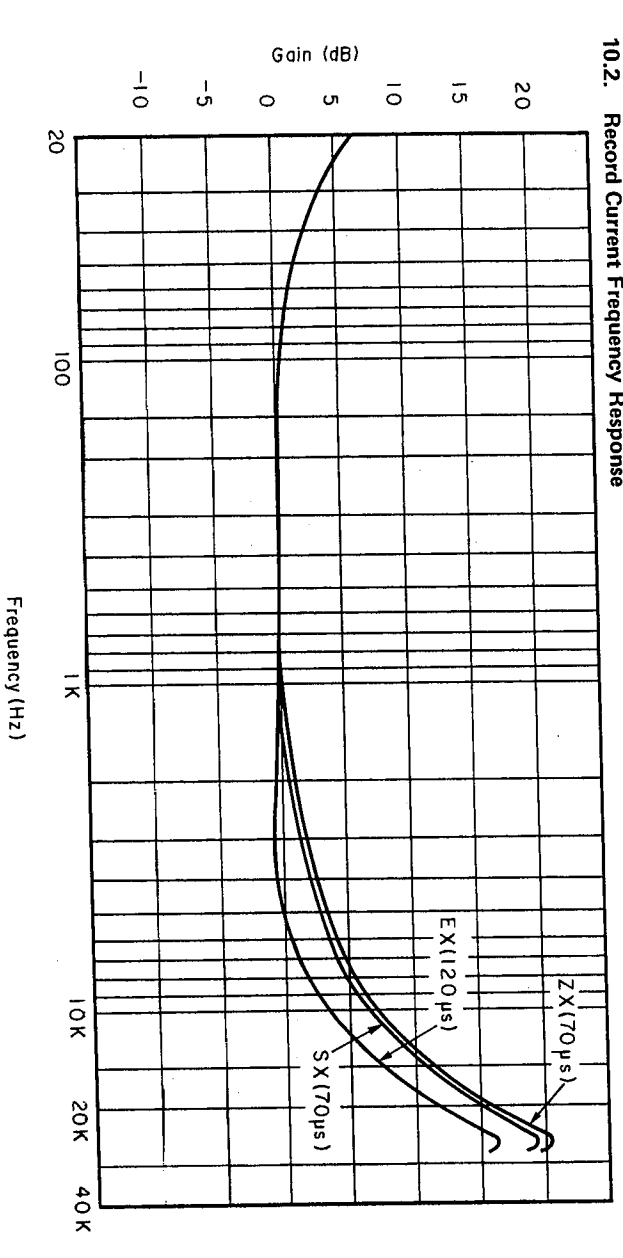


Fig. 10.2

Note: The record current frequency response curve shows the fixed record current frequency response before the auto calibration operation is made in the N-700ZX1 without memory back-up batteries.

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

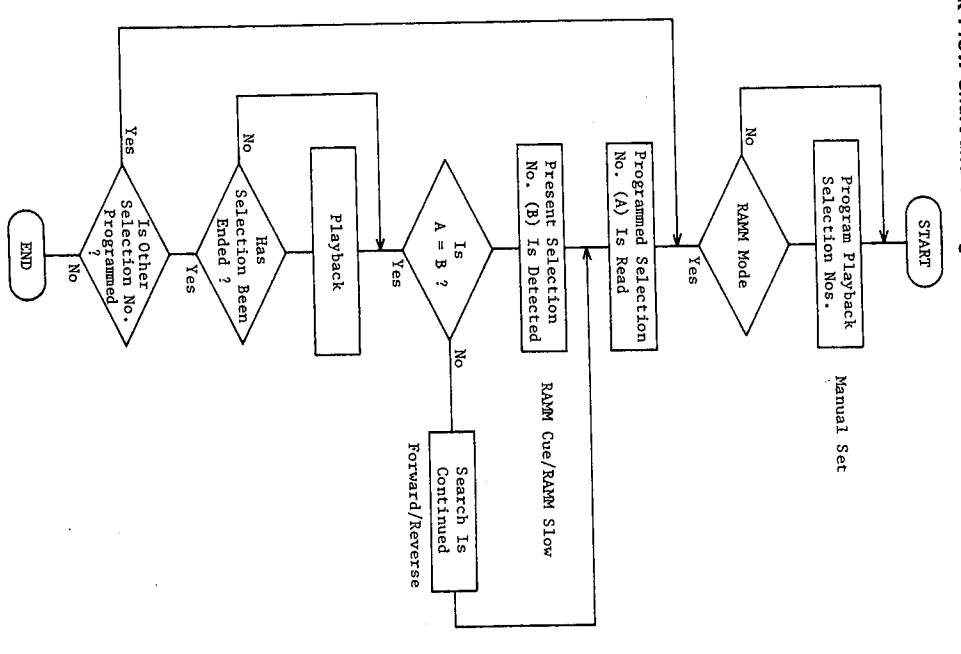


Fig. 9.6

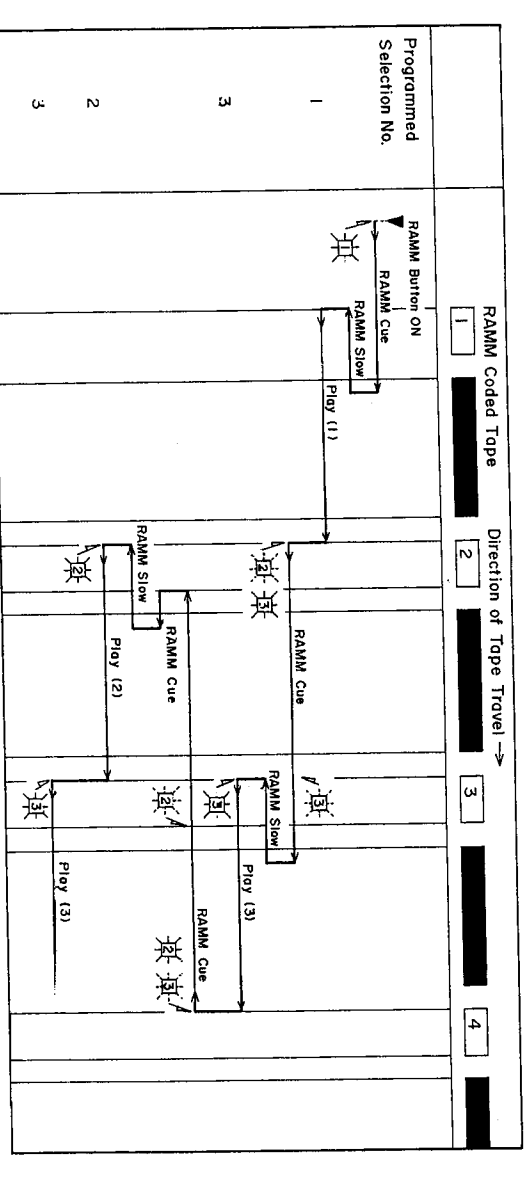


Fig. 9.7

11. BLOCK DIAGRAMS

11.1. Amplifier and Auto Calibration Control Section

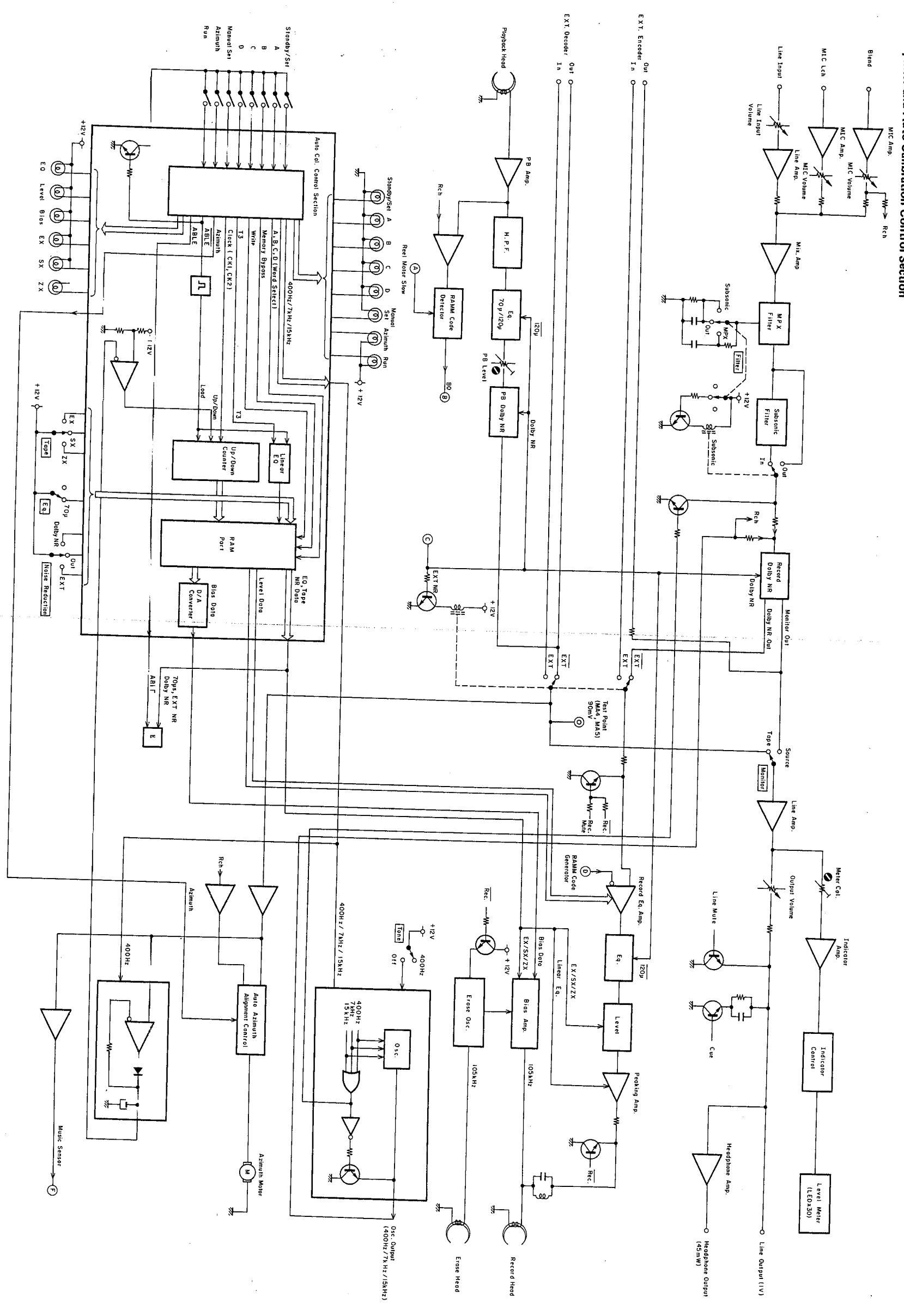


Fig. 11.1

11.2. Mechanism Control and RAMM Control Section

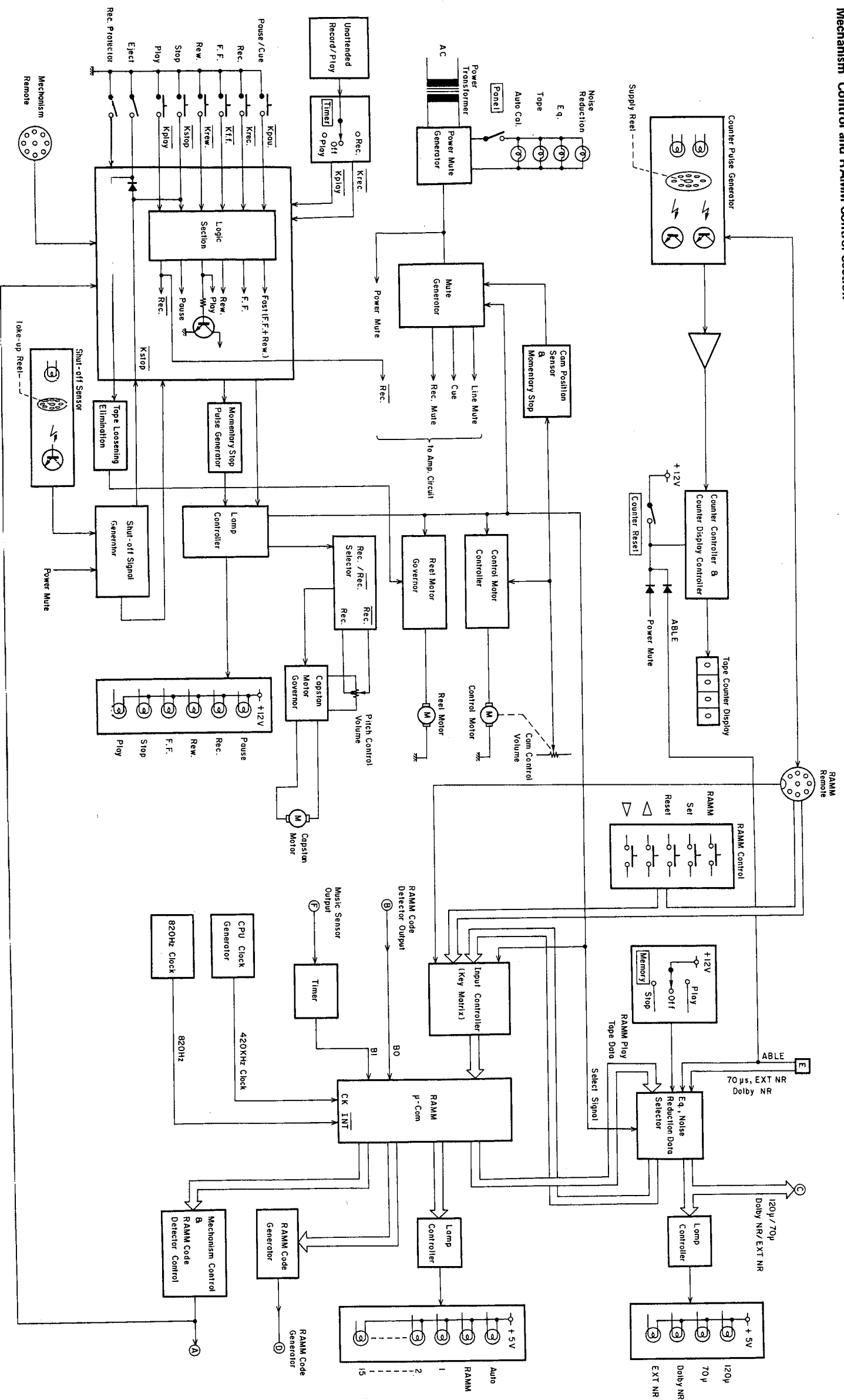


Fig. 11.2

12. WIRING DIAGRAM

Notes: 1. P.C.B. Assy shows the component side unless otherwise specified.
 2. Table of wire colors:

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

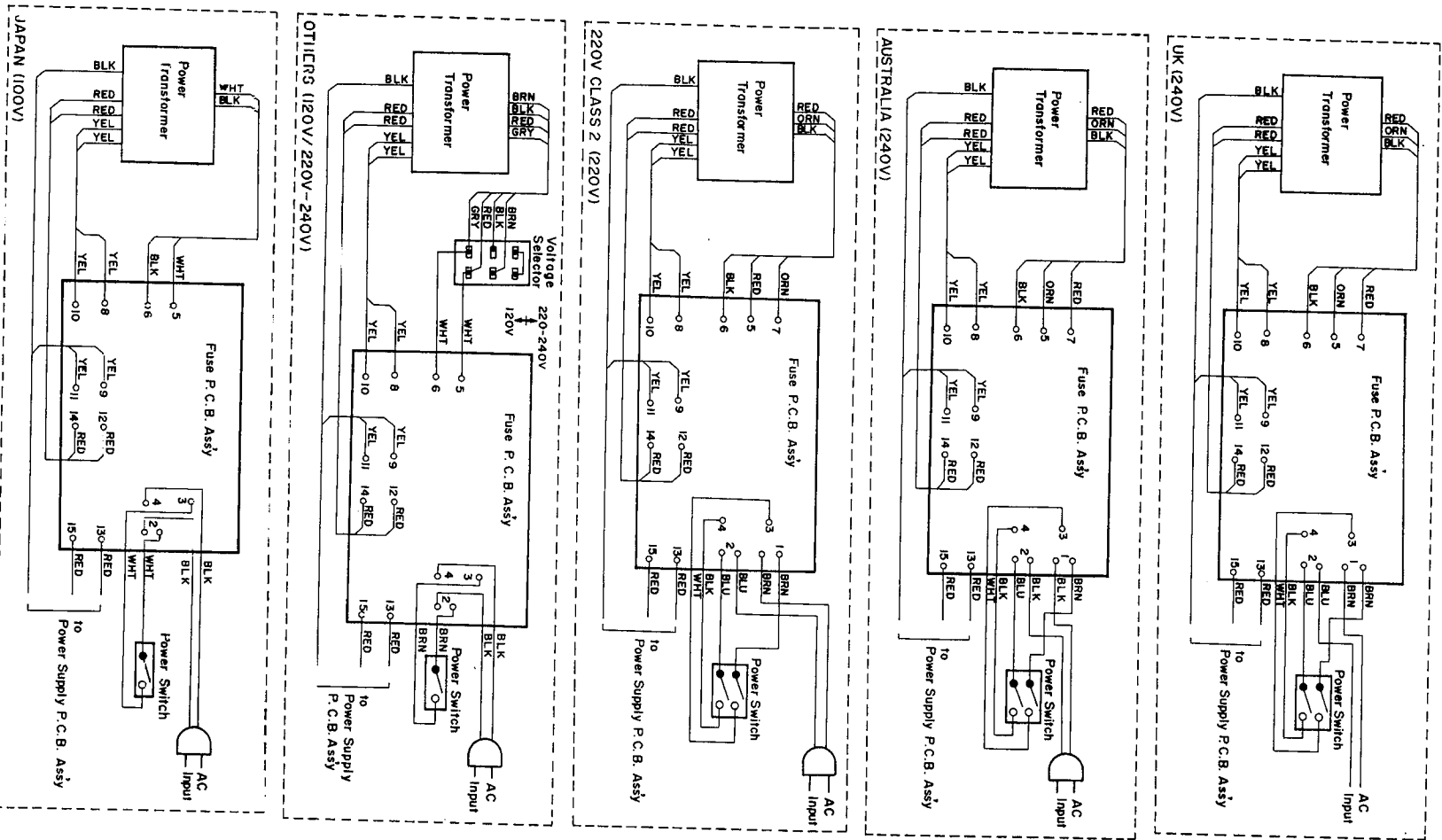


Fig. 12.1

13. SCHEMATIC DIAGRAMS

13.1. Amplifier Section

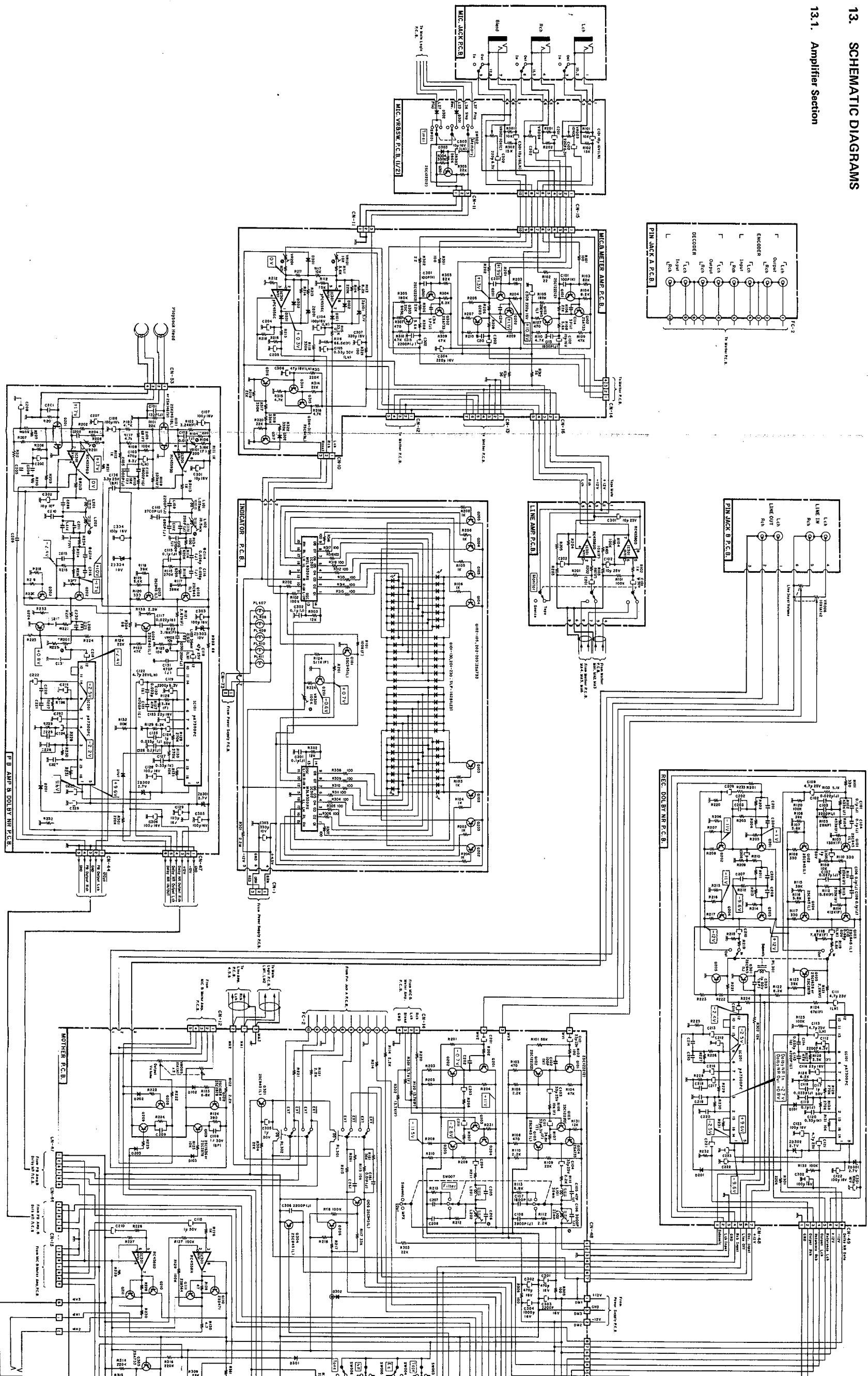


Fig. 13.1

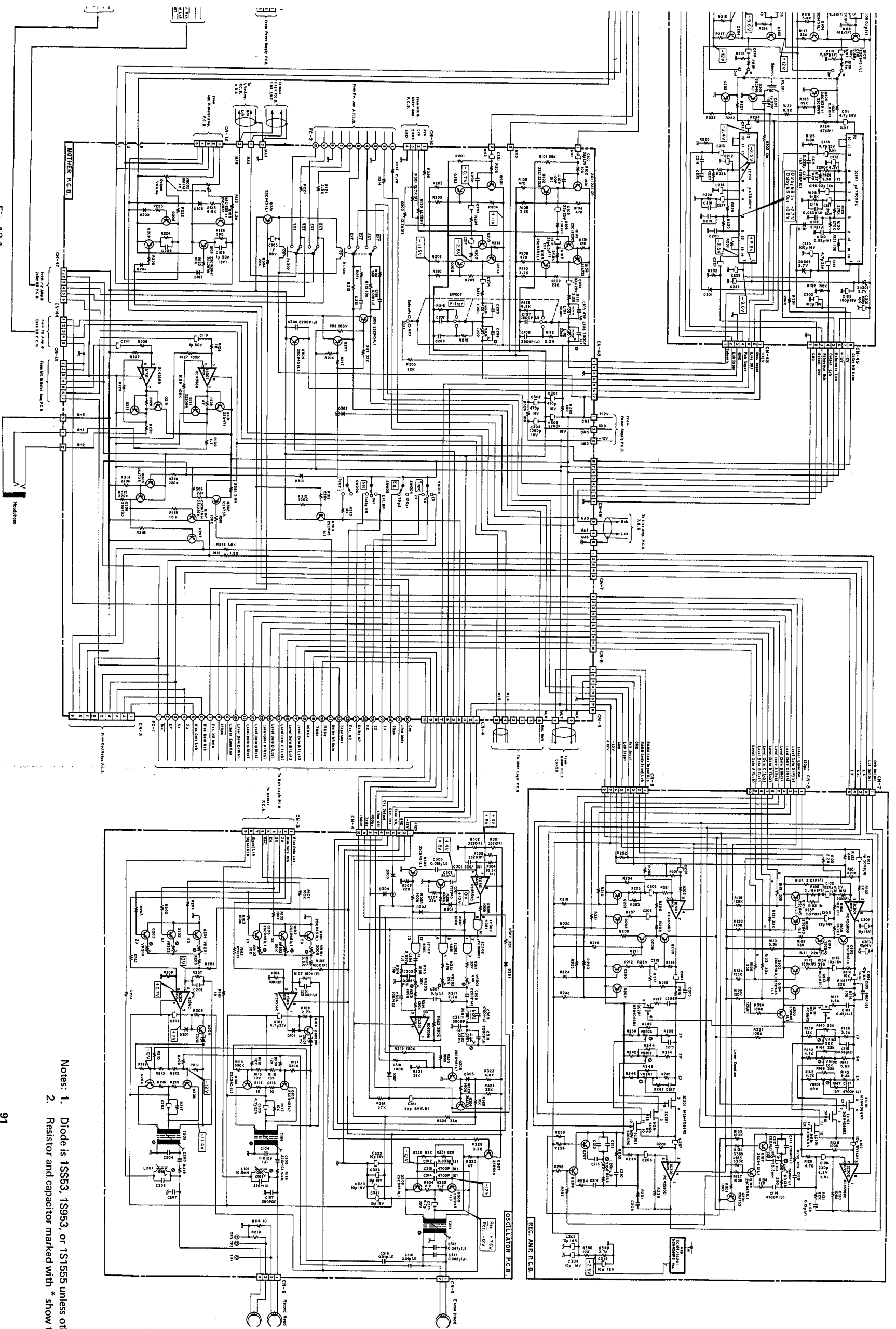
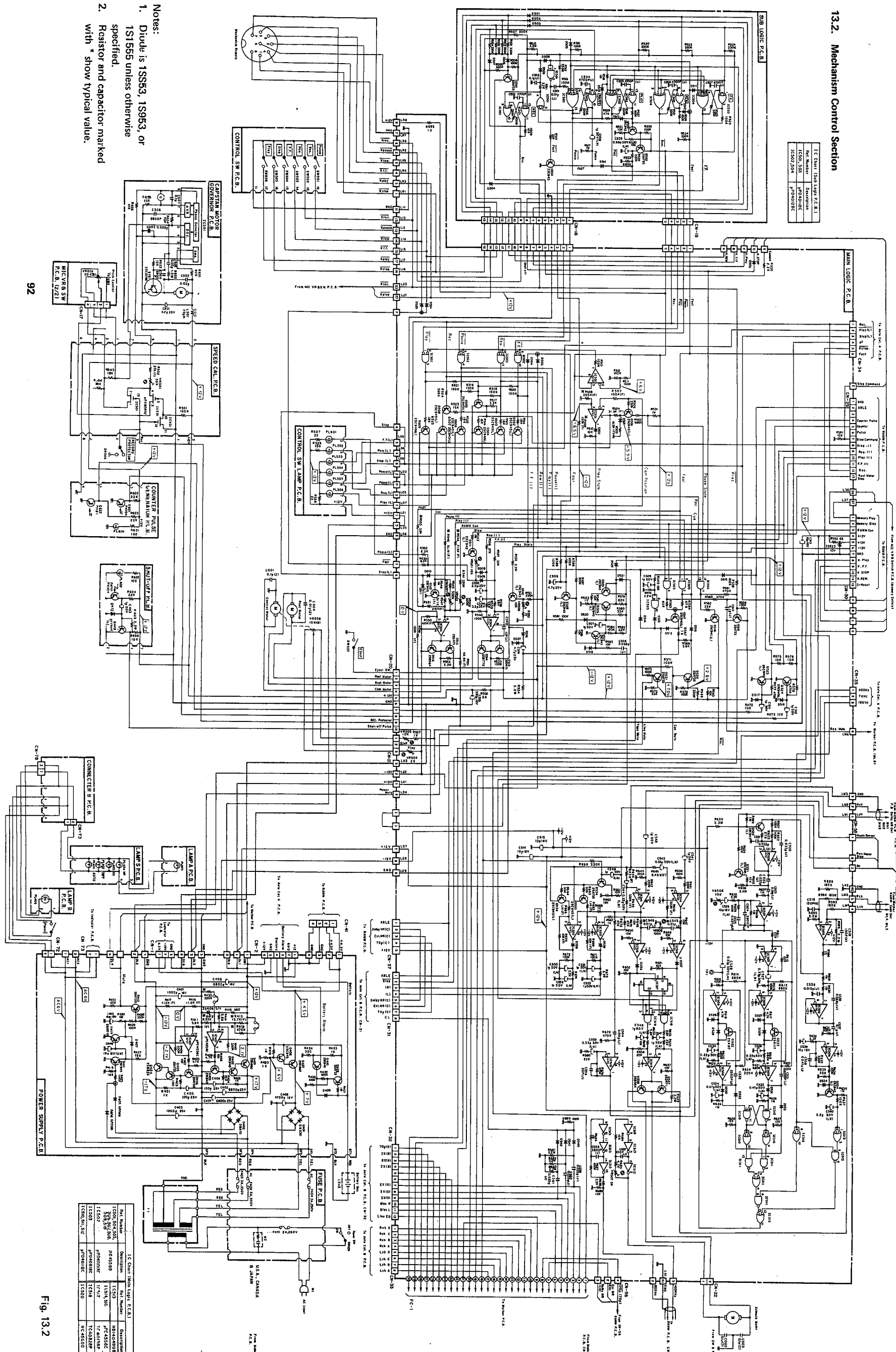


Fig. 13.1

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

13.2 Mechanism Control Section

IC Chart	1598 S997 P.C.B.
Rev. Number	Revisions
IC500.500	PROLOGIC
IC500.504	Y/P/ADDER



- Notes:
1. Diode is 1S563, 1S953, or 1S1555 unless otherwise specified.
 2. Resistor and capacitor marked with * show typical value.

Fig. 13.2

Rel. Number	Description	IC313	Description
IC500.500.500	PROLOGIC	IC313	MONITORING
IC500.500.500	PROLOGIC	IC314	PROLOGIC
IC500.500.500	PROLOGIC	IC315	PROLOGIC
IC500.500.500	PROLOGIC	IC316	PROLOGIC
IC500.500.500	PROLOGIC	IC317	PROLOGIC
IC500.500.500	PROLOGIC	IC318	PROLOGIC
IC500.500.500	PROLOGIC	IC319	PROLOGIC
IC500.500.500	PROLOGIC	IC320	PROLOGIC

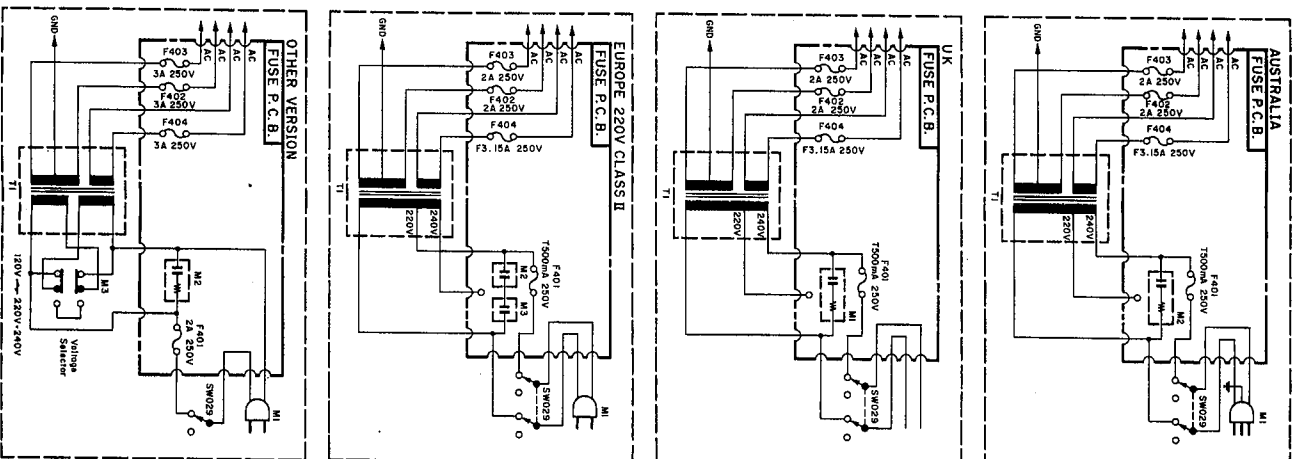


Fig. 13.3

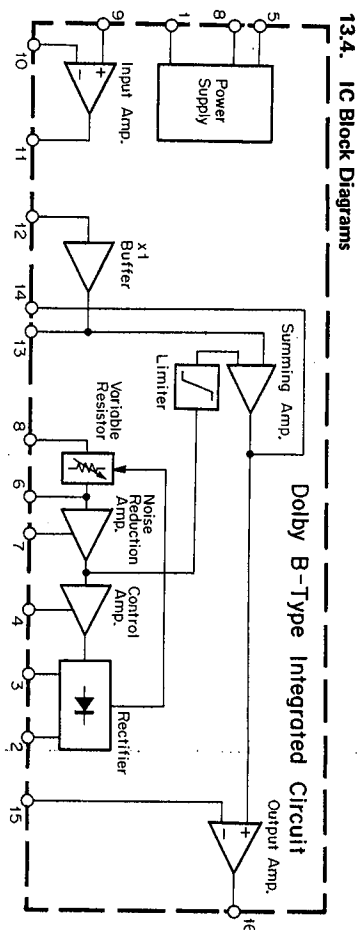


Fig. 13.4 Dolby NR IC μ A7300PC

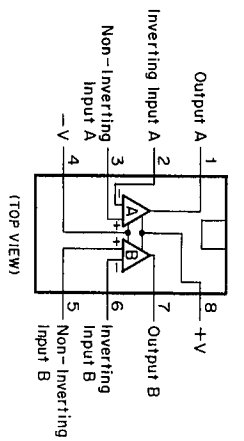


Fig. 13.5 OP Amp. IC 4558, 4559, 4560, 4565

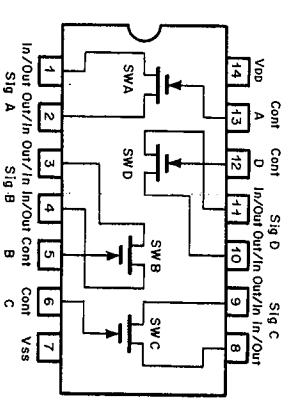


Fig. 13.6 Bilateral Switch C-MOS IC μ PD4066C

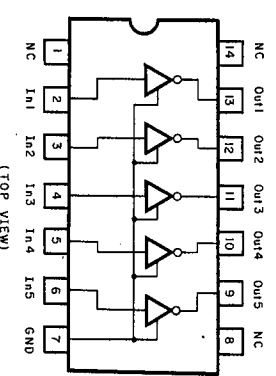


Fig. 13.7 Transistor Array M54516P

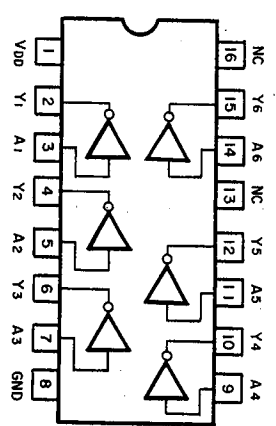


Fig. 13.8 Inverter C-MOS IC HD14049UB

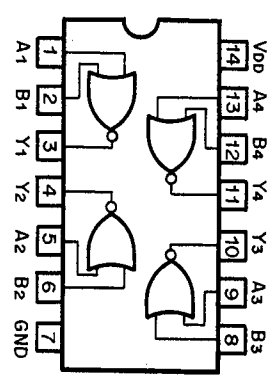


Fig. 13.9 NOR Gate C-MOS IC μ PD4001BC

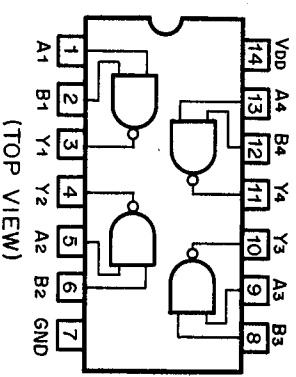


Fig. 13.10 NAND Gate C-MOS IC μ PD4011BC

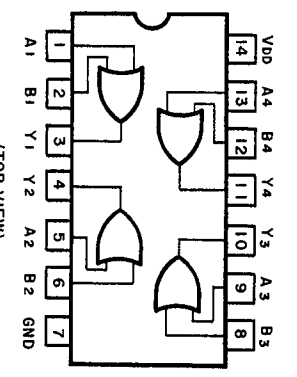


Fig. 13.11 OR Gate C-MOS IC μ PD4071BC

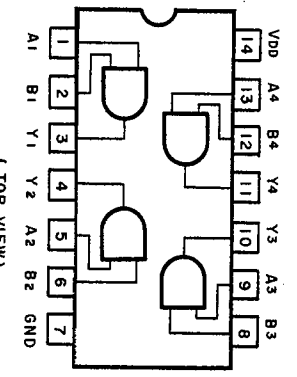


Fig. 13.12 AND Gate C-MOS IC μ PD4081BC

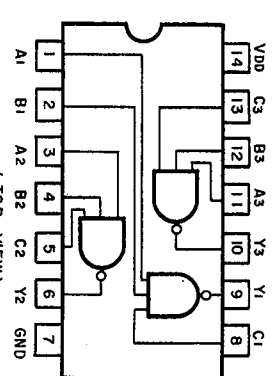


Fig. 13.13 NAND Gate C-MOS IC TC4023BP

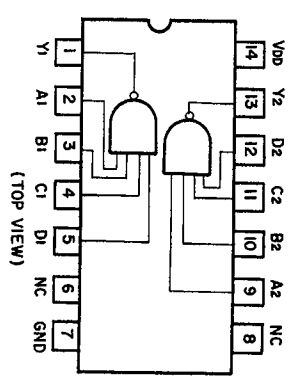


Fig. 13.14 NAND Gate C-MOS IC μ PD4012BC

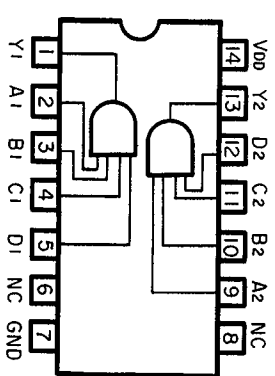


Fig. 13.15 AND Gate C-MOS IC μ PD4082BC

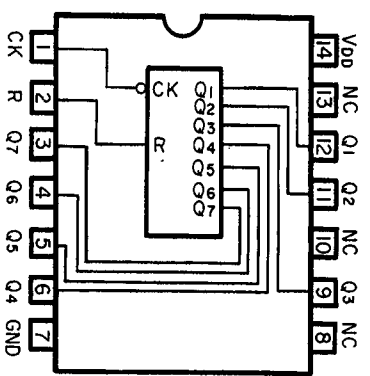


Fig. 13.16 7-Stage Binary Counter C-MOS IC μ PD4024BC

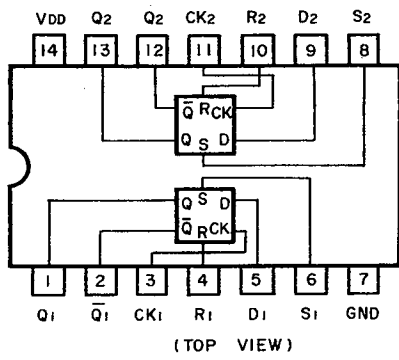


Fig. 13.17 D-Type Flip-Flop C-MOS IC TC4013BP

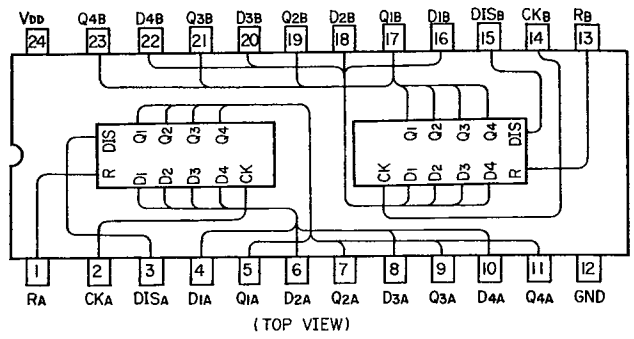


Fig. 13.21 4-Bit Latch C-MOS IC TC4508BP

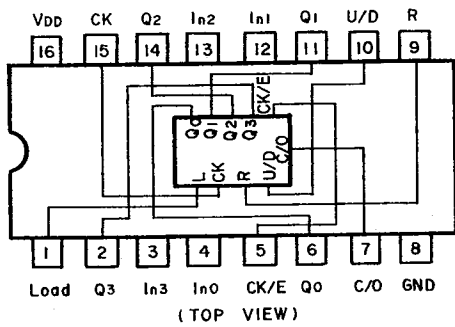


Fig. 13.18 BCD Up/Down Counter C-MOS IC TC4510BP

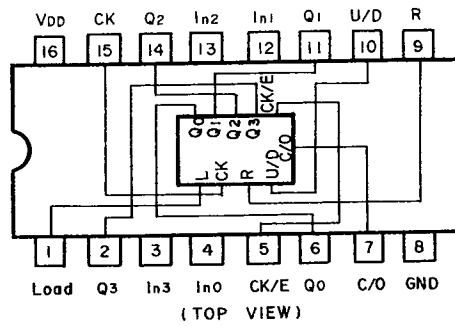


Fig. 13.19 Binary Up/Down Counter C-MOS IC MSM4516RS

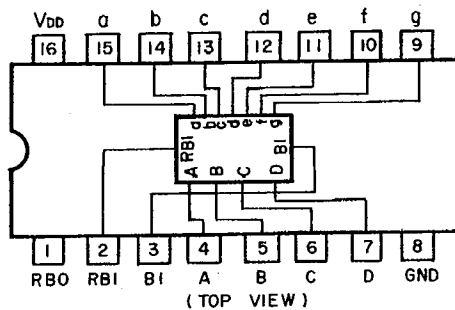


Fig. 13.20 BCD to 7-Segment Decoder/Driver C-MOS IC TC5022BP

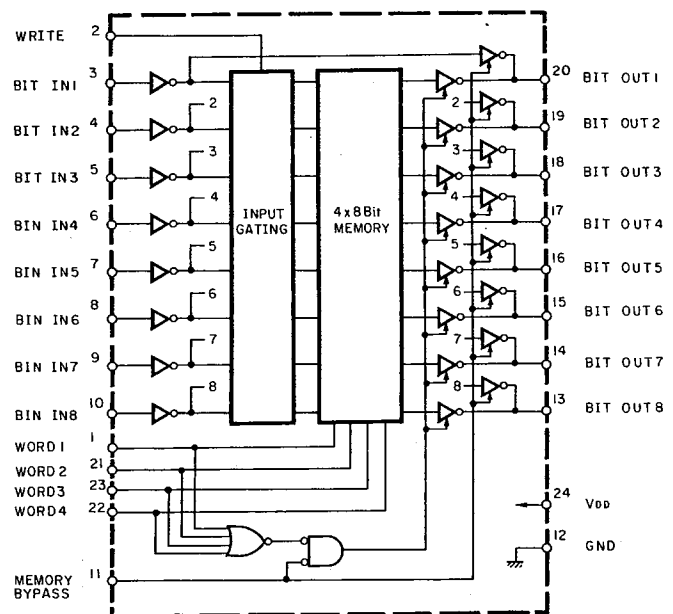


Fig. 13.22 4-Word x 8-Bit Static RAM C-MOS IC MSM4039RS

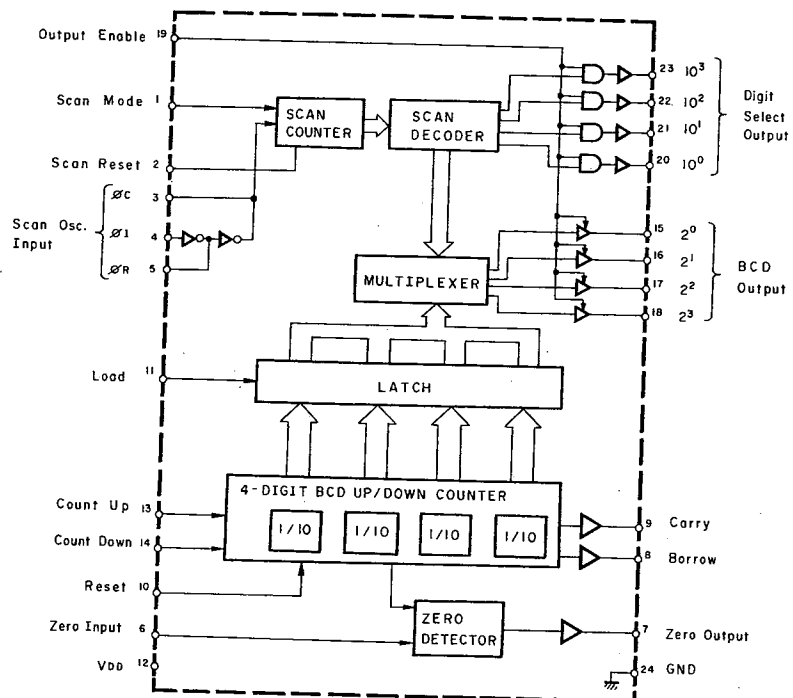


Fig. 13.23 4-Digit BCD Up/Down Counter C-MOS IC MSM5512RS

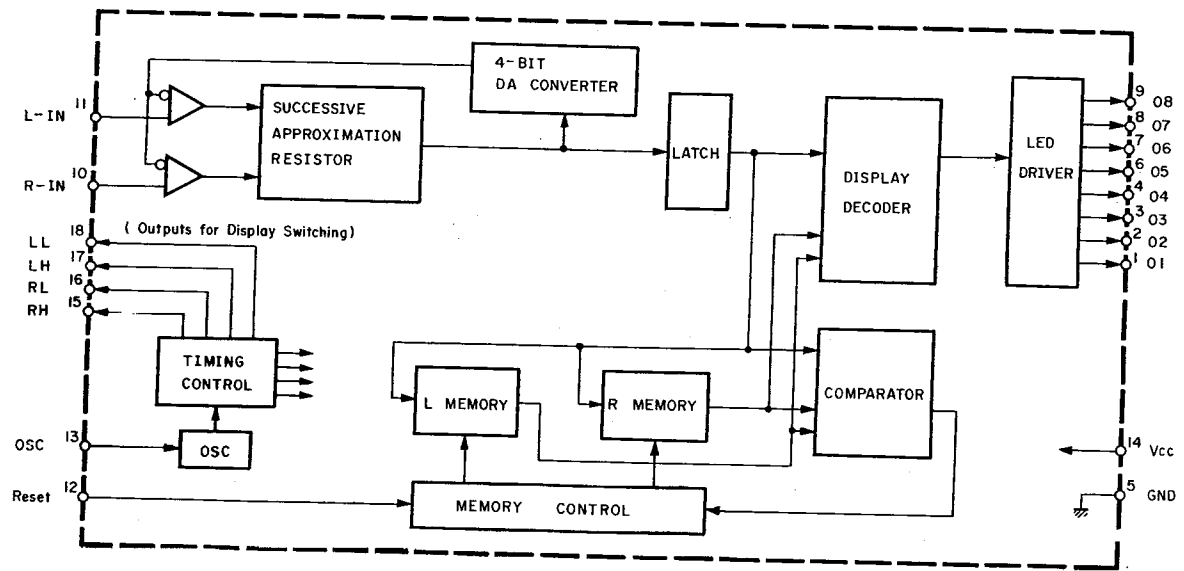
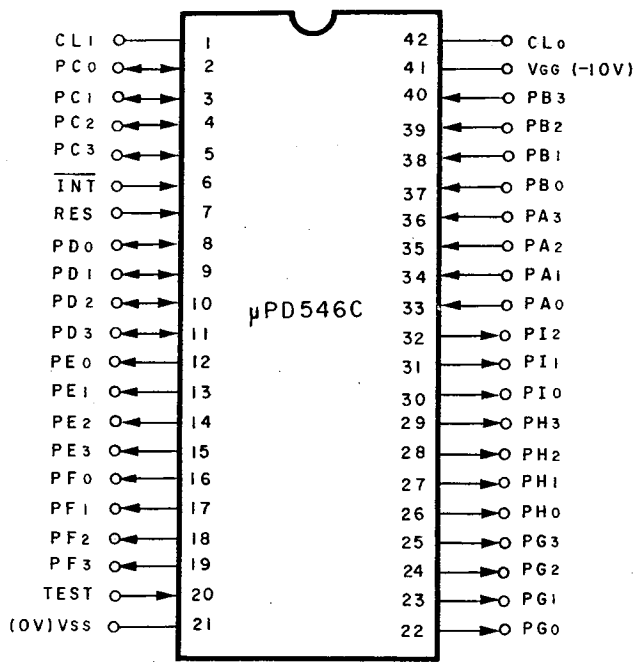
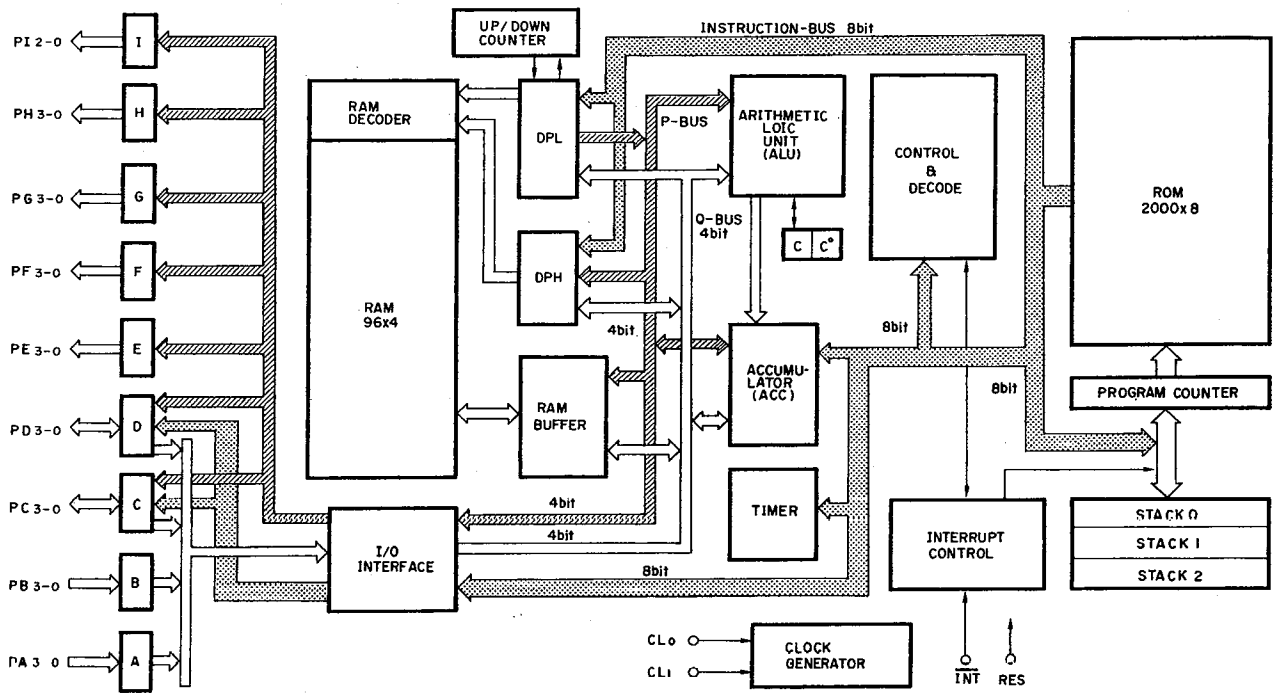


Fig. 13.24 Level Meter Control IC MSL9350RS



- CL_{0,1} : Crystal, inductor, or resistor input for internal oscillator
- INT : Interrupt
- RES : Reset
- PA₃₋₀ : Input port A₃₋₀
- PB₃₋₀ : Input port B₃₋₀
- PC₃₋₀ : Bidirectional port C₃₋₀
- PD₃₋₀ : Bidirectional port D₃₋₀
- PE₃₋₀ : Output port E₃₋₀
- PF₃₋₀ : Output port F₃₋₀
- PG₃₋₀ : Output port G₃₋₀
- PH₃₋₀ : Output port H₃₋₀
- PI₂₋₀ : Output port I₂₋₀
- TEST : Test

(TOP VIEW)



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

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

14. REMOTE CONTROLLER RM-300 (OPTIONAL)

14.1. Schematic Diagram

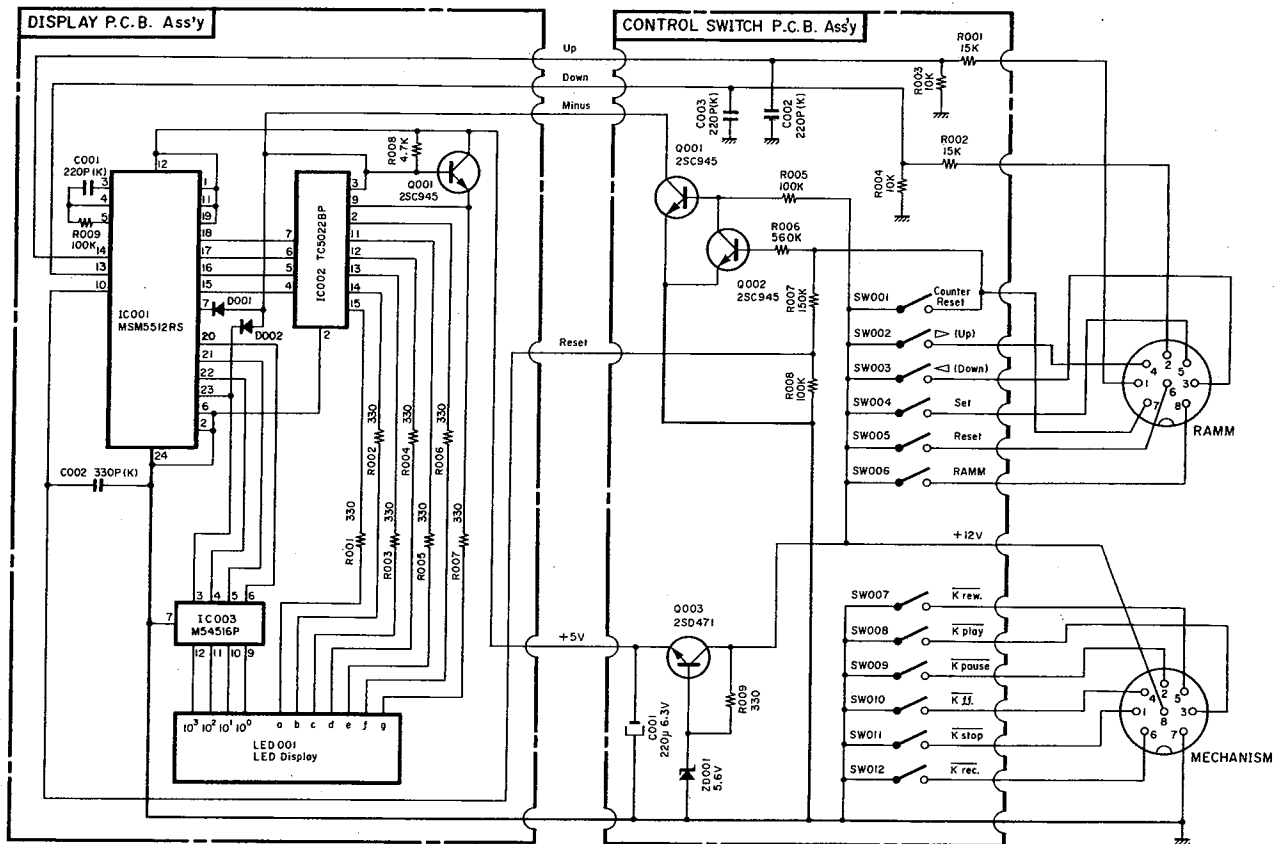


Fig. 14.1 Note: Diode is 1SS53 unless otherwise specified.

14.2. Mounting Diagrams and Parts List

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

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

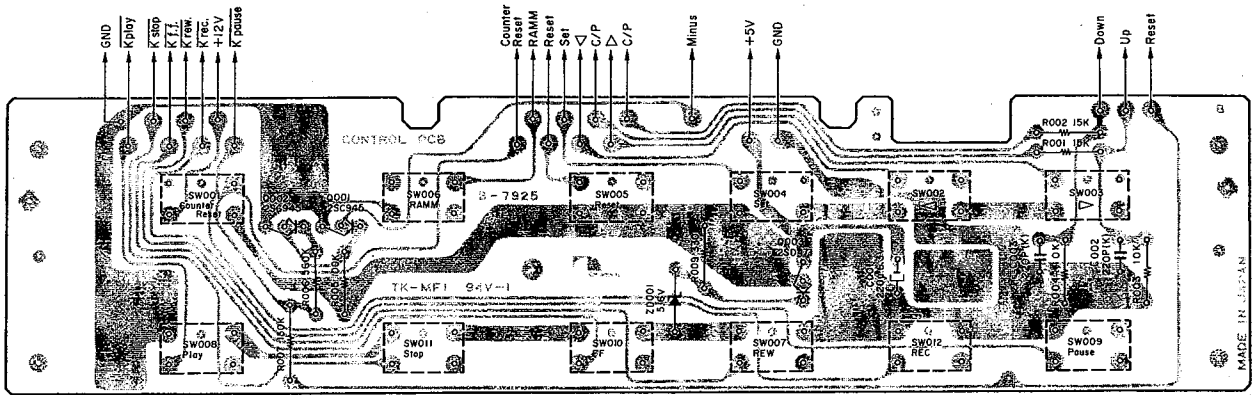


Fig. 14.2

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

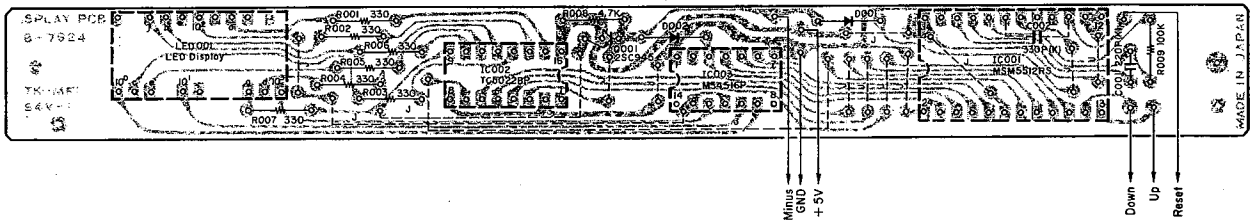


Fig. 14.3

Note: Diode is 1SS53 unless otherwise specified.

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA04307A	Control Switch P.C.B. Ass'y		BA04306A	Display P.C.B. Ass'y
	0B07925B	Control Switch P.C.B.		0B07924B	Display P.C.B.
Q001,002	0B06100A	Transistor 2SC945 (A)	IC001	0B06259A	IC MSM5512RS
Q003	0B06066A	Transistor 2SD471	IC002	0B06211A	IC TC5022BP
ZD001	0B06290A	Zener Diode 5.6V RD5.6VEB2	IC003	0B06258A	IC M45516P
R001,002	0B01683A	Carbon Resistor 15K ERD-25T J	Q001	0B06100A	Transistor 2SC945 (A)
R003,004	0B01888A	Carbon Resistor 10K FRD-25T J	D001,002	0B06181A	Silicon Diode 1SS53
R005	0B01889A	Carbon Resistor 100K ERD-25T J	R001-007	0B05577A	Carbon Resistor 330 ERD-25T J (7 pcs.)
R006	0B05784A	Carbon Resistor 560K ERD-25T J	R008	0B01846A	Carbon Resistor 4.7K ERD-25T J
R007,008	0B05626A	Carbon Resistor 150K ERD-25T J	R009	0B01889A	Carbon Resistor 100K ERD-25T J
R009	0B05577A	Carbon Resistor 330 ERD-25T J	C001	0B09283A	Ceramic Capacitor 220P 50V K
C001	0B09151A	Electrolytic Capacitor 220µ 6.3V	LED001	0B06289A	LED Display Unit
C002,003	0B09283A	Ceramic Capacitor 220P 50V K		0J04237A	Counter Himelon (1 pce.)
SW001-012	0B07354A	Push Switch KHG10901 (12 pcs.)			

14.3. Mechanism Ass'y and Parts List

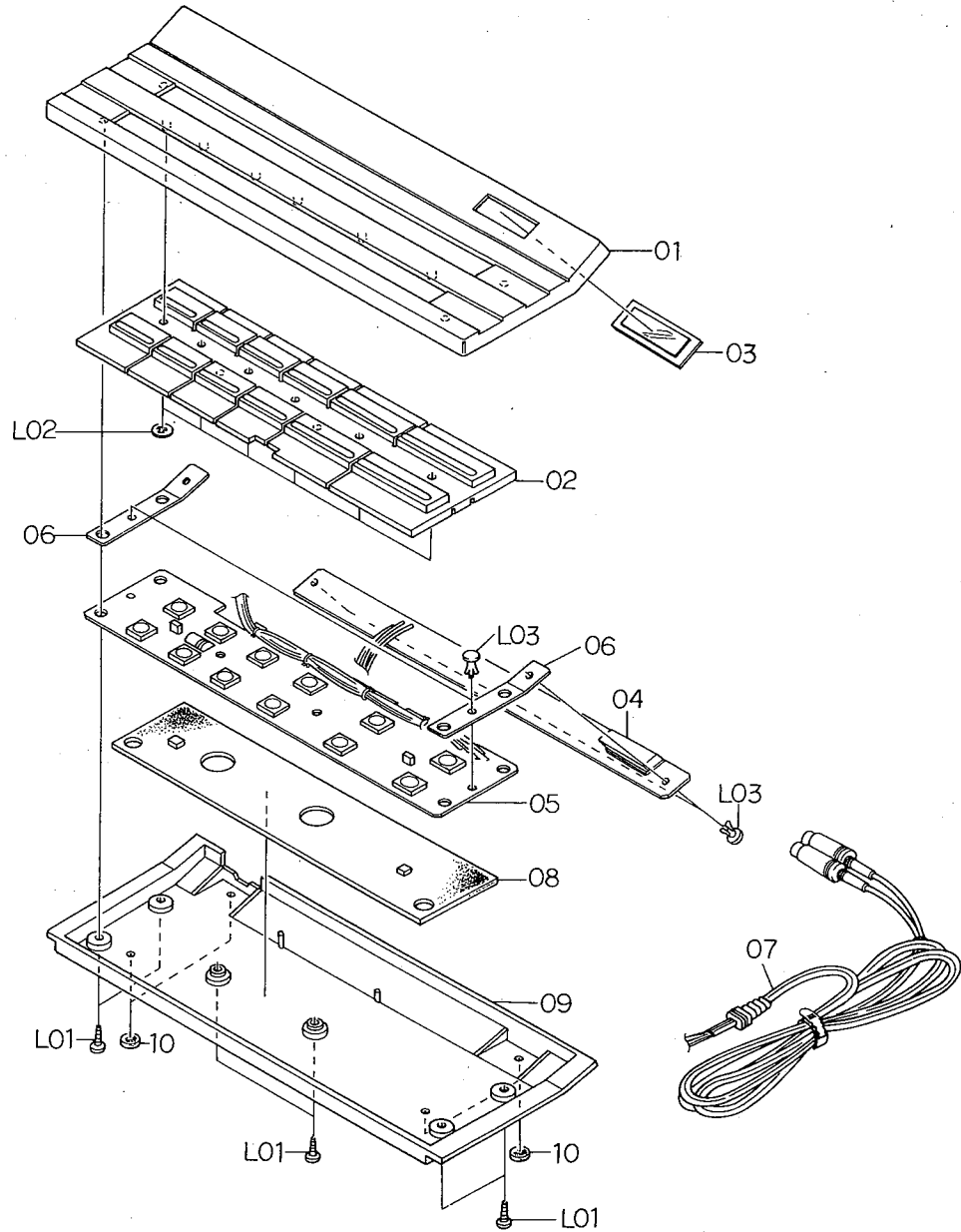


Fig. 14.4

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

15. SPECIFICATIONS

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

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