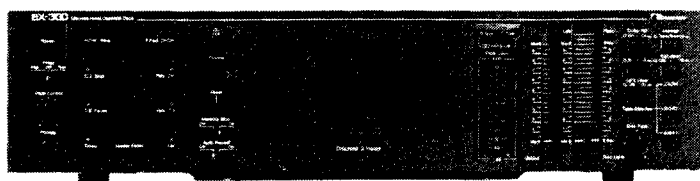




Service Manual

Nakamichi BX-300 BX-300E

Discrete Head Cassette Deck



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1. GENERAL

1.1. Voltage Selector

Voltage selector is installed on the rear panel for Other version of the Nakamichi BX-300. This voltage selector can select either 120 V or 220—240 V at customer's disposal.

1.2. Packing Materials and Owner's Manual

| <u>Part No.</u> | <u>Description</u> | <u>Q'ty</u> |
|-----------------|--|-------------|
| 0F03812A | Carton Box BX-300 (U.S.A., Canada, Australia & Others) | 1 |
| 0F03821A | Carton Box BX-300 (Japan) | 1 |
| 0F03813A | Carton Box BX-300E | 1 |
| 0F03674C | Packing | 2 |
| DA03800A | Extension Cord | 1 |
| 0D04450A | Owner's Manual BX-300 (U.S.A., Canada & Australia) | 1 |
| 0D04451A | Owner's Manual BX-300 (Japan) | 1 |
| DA03801A | Owner's Manual BX-300E & BX-300 (Others) | 1 |

2. TEST TAPES AND GAUGES

- (1) 400 Hz Level Tape (DA09005B)
- (2) 1 kHz Track Alignment B Tape (DA09087B)
- (3) 10 kHz PB Frequency Response Tape (DA09003B)
- (4) 15 kHz PB Frequency Response Tape (DA09002B)
- (5) 20 kHz PB Frequency Response Tape (DA09001B)
- (6) 15 kHz Azimuth Tape (DA09004B)
- (7) 3 kHz Speed and Wow/Flutter Tape (DA09006C)
- (8) Tape Travelling Cassette (DA09071A)
- (9) Reference EXII Tape (DA09066B)
- (10) Reference SX Tape (DA09025B)
- (11) Reference SX-E Tape (DA09086A)
- (12) Reference ZX Tape (DA09037B)
- (13) EH Tilt Check Gauge S (DA09088A)
- (14) Stroke Check Gauge S (DA09090A)
- (15) Tape Guide Height Check Gauge S (DA09091A)
- (16) Tilt Check Gauge S (DA09039B)

3. MECHANICAL ADJUSTMENT

3.1. Record Head and Playback Head Tilt Adjustment

Remove the Cover Plate Ass'y by loosening two screws. Refer to Fig. 3.1.

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

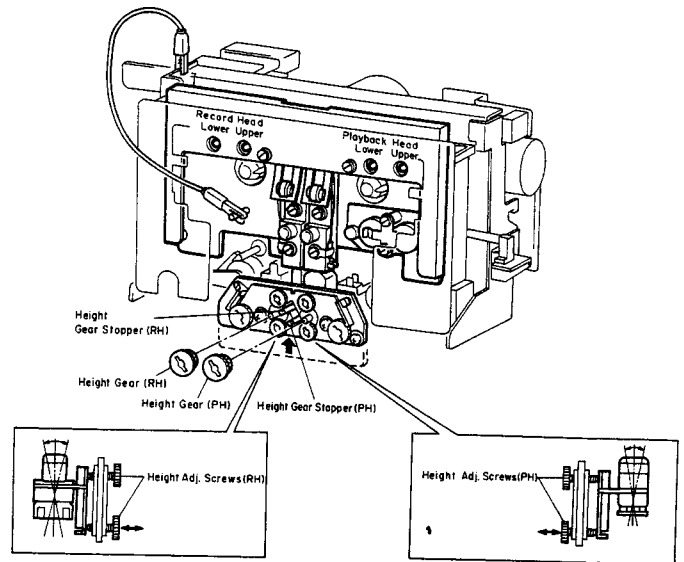


Fig. 3.1

3.2. Head Base Stroke Check

Remove the Cover Plate Ass'y. Refer to Fig. 3.2.

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

- (1) Load a Stroke Check Gauge S in the cassette deck.
- (2) Move Record Head Indicator and Playback Head Indicator to the direction of arrow mark "A" with your finger tip and then set the cassette deck in Play mode. Then slowly release the Indicators and insure whether each of the Indicators is in contact with record and playback heads.
- (3) Check to insure whether the line "P" on the Playback Head Indicator meets the central line on the Indicator Plate.
- (4) Check to insure whether the line "P" on the Playback Head Indicator locates between the 2 lines on the Record Head Indicator, thus check can be made on record head stroke.

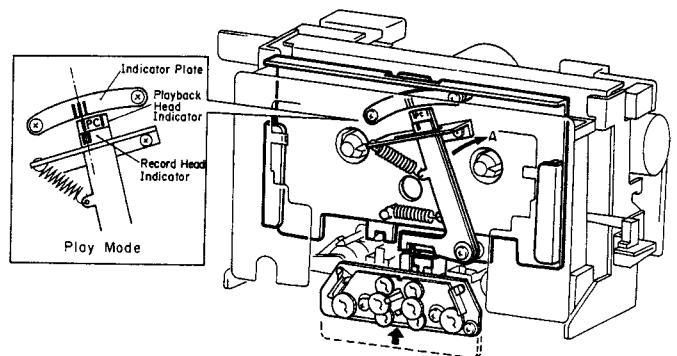


Fig. 3.2

3.3. Erase Head Stroke Adjustment and Tape Guide Height Check

Remove the Head Mount Base Ass'y and the Cover Plate Ass'y. Refer to Fig. 3.3.

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

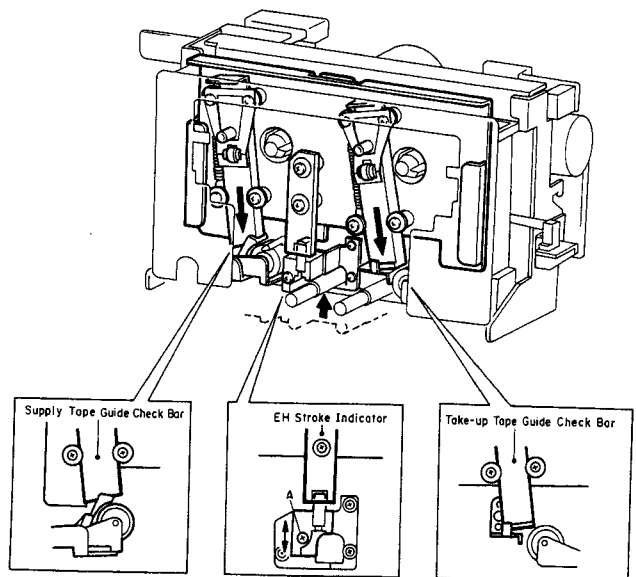


Fig. 3.3

3.4. Erase Head Height and Tilt Adjustment

Refer to Fig. 3.4.

- (1) Remove the Cassette Case Ass'y, Head Mount Base Ass'y and Cover Plate Ass'y.
- (2) Load an EH Tilt Check Gauge S in the cassette deck.
- (3) Set the cassette deck in Stop mode.
- (4) Check to insure whether one of the 3 Beacons is illuminating. Look down the mirror 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 the first Beacon is illuminating.
- (5) Turn Screw "Tilt" counterclockwise (or clockwise) to light on the second Beacon. Excessive turning will cause the first

Beacon to light off. Adjustments of Screw "Tilt" will therefore be conducted till both of the first and the second Beacons illuminate.

- (6) Turn Screw "Azimuth" counterclockwise (or clockwise) to light on the third Beacon. Excessive turning will cause either the first or the second Beacon to light off, and therefore adjust Screw "Azimuth" until all of the 3 Beacons illuminate.
- (7) Check to insure whether the horizontal line on the mirror corresponds to that on the erase head. If not, (4) through (7) will have to be repeated till satisfactory results are obtained.
- (8) After completion of adjustment, 3 pcs. of screws shall be locked with lock tight paint.

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

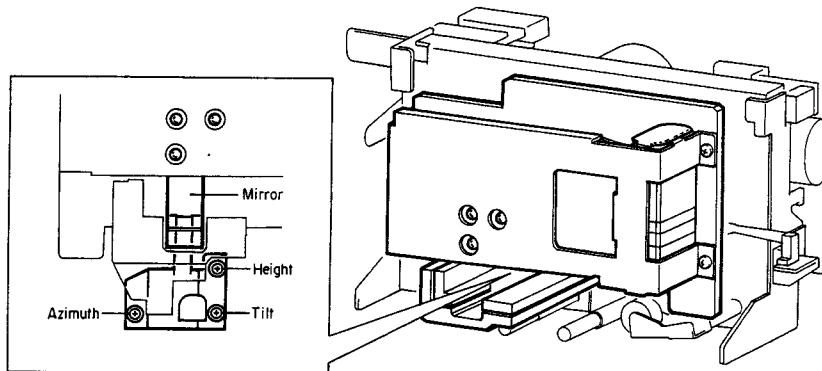


Fig. 3.4

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

Refer to Fig. 3.5.

(1) Playback Head Height Adjustment and Azimuth Alignment

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

(2) Record Head Height Adjustment and Azimuth Alignment

- (a) Set the cassette deck in Stop mode.
- (b) Set the Monitor switch to Tape, Eq. switch to 70 μ s and Tape Selector switch to ZX.
- (c) Load a reference ZX tape and connect a VTVM to Output Jacks.
- (d) Feed in 400 Hz (0 dB) to the Input Jacks.
- (e) Set the cassette deck in Record and Play mode and turn the RH Height Gear until the outputs of both channels become maximum.
- (f) Feed in 15 kHz (-20 dB) to the Input Jacks and turn the RH Azimuth Alignment Screw until the outputs of both channels become maximum.
- (g) Repeat (d) to (f) one or two times to obtain optimum performance.

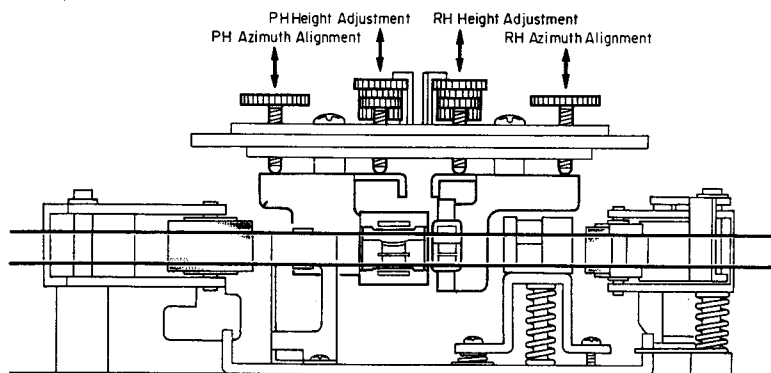


Fig. 3.5

3.6. Pressure Adjustment of Take-up Pressure Roller

Refer to Fig. 3.6.

- (1) Set the cassette deck in Play mode.
- (2) Measure the torque of the Take-up Pressure Roller and check whether the torque is in a range of 320 ± 50 g-cm.
- (3) If torque is out of the range, correct it by changing the installation point of the Pressure Roller Spring.

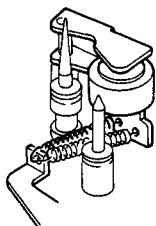


Fig. 3.6

3.7. Tape Travelling Check

Load and playback a Tape Travelling Cassette and check the following:

- (1) Tape is in contact with heads sufficiently.
- (2) Tape waviness is small on the heads and pressure rollers.
- (3) Tape is free from waviness or slippage from the tape guides.

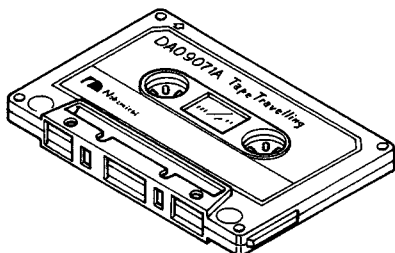


Fig. 3.7

3.8. Eject Damper Adjustment

Refer to Fig. 3.8. Load a cassette tape, and with opening the Cassette Case by pressing the Eject button and closing it by hand, adjust the speed of damper action by the Adjustment Screw.

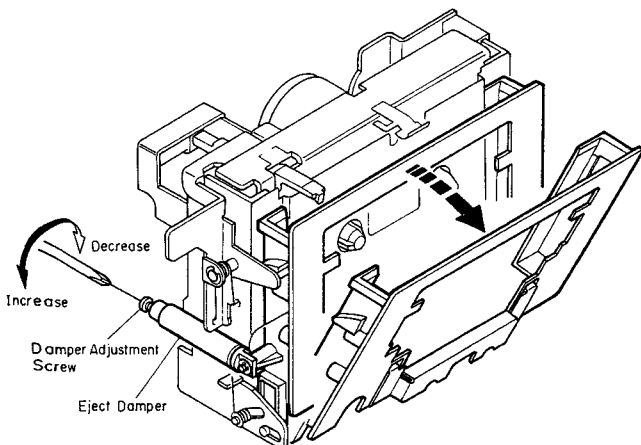


Fig. 3.8

3.9. Reel Motor Speed Adjustment in Play Mode

- (1) To warm-up the cassette deck, load a C-60 cassette tape and set the cassette deck in Play mode.
- (2) After more than four minutes, load a torque meter TW-211 (made by Sony) and set the cassette deck in Play mode.
- (3) Adjust VR601 on the Main P.C.B. Ass'y to obtain exactly 50 g-cm on the torque meter.

3.10. Tape Speed Adjustment

Refer to Fig. 3.9.

- (1) Set the Pitch Control Knob on the Front Panel to its mechanical center position.
- (2) Connect a frequency counter to the Output Jacks.
- (3) Load a 3 kHz Speed and Wow/Flutter Tape and play it back.
- (4) Adjust VR101 on the Motor P.C.B. Ass'y to obtain 3,000 Hz on the frequency counter.
CCW: Motor drives fast.
CW: Motor drives slowly.

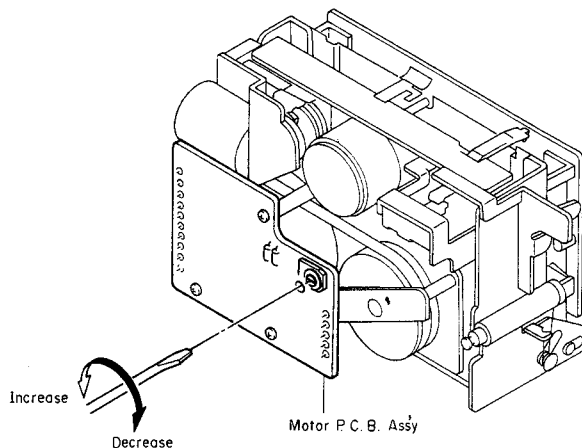


Fig. 3.9

3.11. Lubrication

The tape transport is of a lubrication-free type mechanism. When the following parts are replaced, apply the specified lubricant.

- (1) Molykote (R) Grease (X5-6020)
Cam Motor Pulley
Thrust portion on the Capstan Shaft
- (2) FLOIL GB-TS-1
Washer between Reel Hub Ass'y and Back Tension Spring
- (3) Diamond Oil (EP56)
Reel Hub Shaft
- (4) Anderol 456
Capstan Shaft

Note: We suggest that you use the above specified lubricant or equivalent type.

The company dealing in the above lubricant is as follows:

- (a) Molykote (R) Grease (X5-6020)
Dowcorming Co., Ltd., 1-15-1 Nishishinbashi, Minato-ku, Tokyo, Japan
- (b) FLOIL GB-TS-1
Kanto Chemicals Co., Ltd., 2-7 Kanda Sakuma-cho, Chiyoda-ku, Tokyo, Japan
- (c) Diamond Oil (EP-56)
Mitsubishi Oil Co., Ltd., 1-2-4 Toranomom, Minato-ku, Tokyo, Japan
- (d) Anderol 456
Toyo Kokusai Oil Co., Ltd., 3-3-5 Hatchobori, Chuo-ku, Tokyo, Japan

4. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

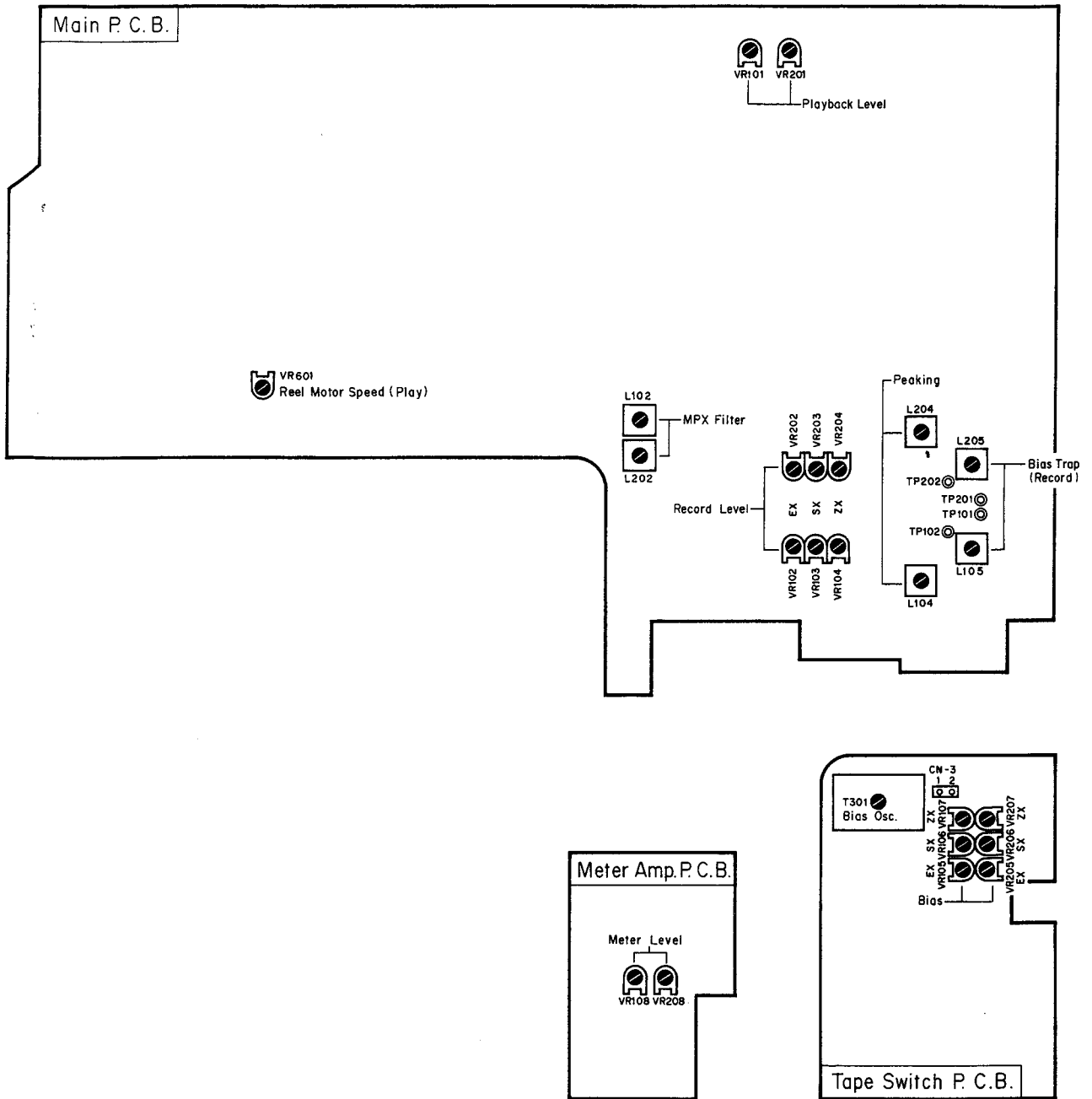


Fig. 4

5. ELECTRICAL ADJUSTMENTS

Notes: 1. Electrical adjustment should be performed after mechanical adjustment is completed.

2. Before adjustment, set the Bias Tune control and the Pitch control on the Front Panel to their mechanical center positions.

5.1. Adjustment Instructions

| STEP | ITEM | SIGNAL SOURCE | OUTPUT CONNECTION | MODE | ADJUSTMENT | REMARKS |
|------|---|--|---|--|---|---|
| 1 | Tape Speed Adjustment | 3 kHz Speed and Wow/Flutter Tape | Frequency Counter to Output Jacks | Playback Eq. SW — 70 μ s | Motor P.C.B. VR101 | 1. Set the Pitch Control to its mechanical center position. 2. Adjust VR101 to obtain 3 kHz \pm 0.5% on the frequency counter. |
| 2 | Meter Level Calibration | 400 Hz to Input Jacks | VTVM to Output Jacks | Monitor SW — Source | Meter Amp. P.C.B. VR108,VR208 | 1. Set the Output Level control to max. 2. Feed in 400 Hz, then adjust the Input Level controls to obtain 1.0 V -4 dB on the VTVM. 3. Adjust VR108 (VR208) so that the 0 dB segment of the level meter starts to illuminate. 4. Adjust the Input Level control to obtain 1.0 V $+1$ dB on the VTVM and check to insure that the upper segment of the 5. 0 dB segment starts to illuminate. |
| 3 | MPX Filter Adjustment | 19 kHz \pm 100 Hz to Input Jacks | VTVM to Output Jacks | Monitor SW — Source Dolby NR SW — OFF MPX SW — ON | Main P.C.B. L102,L202 | 1. Set the Output Level control to max. 2. Adjust the Input Level controls to obtain 1 V on the VTVM. 3. Set the MPX Filter switch to ON, then adjust L102 (L202) to obtain the minimum reading on the VTVM (the minimum reading will be less than -30 dB). |
| 4 | Playback Head Track Alignment | 1 kHz Track Alignment B Tape | VTVM to Output Jacks | Playback Monitor SW — Tape Eq. SW — 70 μ s Dolby NR SW — OFF MPX SW — OFF | PH Height Gear | Adjust the PH Height Gear to obtain minimum readings for both channels on the VTVM. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 3.5. |
| 5 | Playback Head Azimuth Alignment | 15 kHz Azimuth Tape | VTVM to Output Jacks | Playback Monitor SW — Tape Eq. SW — 70 μ s Dolby NR SW — OFF MPX SW — OFF | Playback Head Azimuth Alignment Screw | Adjust the Playback Head Azimuth Alignment Screw to obtain maximum readings of both channels on the VTVM. Refer to "Playback Head Height Adjustment and Azimuth Alignment" in item 3.5. Note: Repeat steps 4 and 5 one or two times to obtain optimum performance. |
| 6 | Playback Level Calibration | 400 Hz Level Tape | VTVM to Output Jacks | Same as above | Main P.C.B. VR101,VR201 | 1. Set the Output Level control to max. 2. Adjust VR101 (VR201) to obtain 1.0 V on the VTVM. |
| 7 | Playback Frequency Response Adjustment | 400 Hz Level Tape 10 kHz PB Frequency Response Tape 15 kHz PB Frequency Response Tape 20 kHz PB Frequency Response Tape | VTVM to Output Jacks | Playback Monitor SW — Tape Tape SW — SX Eq. SW — 70 μ s Dolby NR SW — OFF MPX SW — OFF | Main P.C.B. R109,R209 R110,R210 | 1. Load a 400 Hz level tape and play it back. Adjust the Output Level control to a certain level (0 dB for example). 2. Load 10 kHz, 15 kHz and 20 kHz PB frequency response tapes and adjust the playback head azimuth to obtain maximum levels on the VTVM with each tape. Short R109 (R209) and/or R110 (R210) to obtain the following levels against the level for the 400 Hz level tape. 10 kHz: -20 dB -2 dB to $+2$ dB 15 kHz: -20 dB -2 dB to $+3$ dB 20 kHz: -20 dB -2 dB to $+4$ dB Refer to "Playback Frequency Response Adjustment" in item 5.2. 3. Conduct step 5 "Playback Head Azimuth Alignment". |
| 8 | Bias Oscillation Frequency and Erase Current Adjustment | | VTVM across the additional 0.1 Ω resistor and Frequency Counter to CN3-1 on Tape Switch P.C.B. | Record, Pause Monitor SW — Source Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — OFF MPX SW — OFF | Tape Switch P.C.B. T301 R301,R302 | 1. Connect an additional 0.1 Ω resistor in series to the Erase Head, then connect a VTVM across the resistor. 2. Adjust T301 to obtain 105 kHz on the frequency counter. 3. Check the erase current by the VTVM. Erase current will be in a range of 310 mA to 400 mA (typically approx. 350 mA). If erase current is not sufficient, increase it by shoring either R301 or R302. 4. After completion of the erase current adjustment, re-check the bias oscillation frequency. 5. Remove the additional 0.1 Ω resistor. |
| 9 | Record Amplifier Equalizer Adjustment | 23 kHz (-20 dB) to Input Jacks | VTVM to TP101, TP201 on Main P.C.B. | Same as above | Main P.C.B. L104,L204 | 1. Remove the bias-cut-jumper from the dip side of the Tape Switch P.C.B. Ass'y. 2. Adjust L104 (L204) to obtain approx. $+16$ dB at 23 kHz on the VTVM. 3. Re-solder the bias-cut-jumper. |
| 10 | Bias Trap Adjustment (Record Amp.) | Remove input signals | VTVM to TP102, TP202 on Main P.C.B. | Same as above | Main P.C.B. L105,L205 | Adjust L105 (L205) to obtain minimum reading on the VTVM. |

| STEP | ITEM | SIGNAL SOURCE | OUTPUT CONNECTION | MODE | ADJUSTMENT | REMARKS |
|------|--|---|---|--|---|--|
| 11 | Record Head Height Adjustment | 400 Hz (0 dB) to Input Jacks | VTVM to Output Jacks | Record, Playback Monitor SW — Tape Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — OFF MPX SW — OFF | RH Height Gear | Adjust the RH Height Gear to obtain maximum readings of both channels on the VTVM. Refer to "Record Head Height Adjustment and Azimuth Alignment" in item 3.5. |
| 12 | Record Head Azimuth Alignment | 15 kHz (-20 dB) to Input Jacks | VTVM to Output Jacks | Same as above | Record Head Azimuth Alignment Screw | Adjust the Record Head Azimuth Alignment Screw to obtain maximum readings of both channels on the VTVM. Refer to "Record Head Height Adjustment and Azimuth Alignment" in item 3.5. Note: Repeat steps 11 and 12 one or two times to obtain optimum performance. |
| 13 | Record Level Calibration and Recording Bias Current Adjustment | 400 Hz and 15 kHz and 10 kHz/20 kHz (-20 dB) to Input Jacks | VTVM and Distortion Meter to Output Jacks | Record, Playback Tone — 400 Hz/ 15 kHz Monitor SW — Source/ Tape Tape SW — ZX/SX/ EX Eq. SW — 70 μ s (ZX/SX) 120 μ s (EX) Dolby NR SW — C-Type/B-Type/ OFF MPX SW — OFF | Main P.C.B. (Level) ZX: VR104,VR204 SX: VR103,VR203 EX: VR102,VR202 Tape Switch P.C.B. (Bias) ZX: VR107,VR207 SX: VR106,VR206 EX: VR105,VR205 | Adjustment should be made in the order of ZX, SX and EX. 1. Set the Monitor switch to Source and Dolby NR switch to C-Type. 2. Feed in 400 Hz, then set the Input Level controls to obtain 0 dB (1 V) on the VTVM. 3. Set the Monitor switch to Tape. 4. Load a reference ZX tape, reference SX or SX-E (for BX-300E) tape and reference EXII tape. 5. Adjust Record Cal: VR104 (VR204) for ZX, VR103 (VR203) for SX and VR102 (VR202) for EX to center position. 6. Feed in 400 Hz (0 dB), then record and play it back. Adjust Bias VR107 (VR207) for ZX, VR106 (VR206) for SX and VR105 (VR205) for EX to obtain the maximum readings on the VTVM. 7. Feed in 15 kHz (-20 dB), then adjust Bias VR107 (VR207), VR106 (VR206) and VR105 (VR205) to obtain the same readings as source monitor levels on the VTVM. 8. Feed in 400 Hz (0 dB), then adjust Record Cal. VR104 (VR204), VR103 (VR203) and VR102 (VR202) to obtain 0 dB on the VTVM. 9. Repeat above 7 and 8 two or three times to obtain optimum performance. 10. Set the Dolby NR switch to OFF. 11. Feed in 10 kHz (-20 dB) and 20 kHz (-20 dB), then record and play them back. Check to insure that the levels are within -20 dB \pm 3 dB against the levels in Dolby NR C-Type. 12. Set the Dolby NR switch to B-Type. 13. Feed in 10 kHz (-20 dB) and 20 kHz (-20 dB), then record and play them back. Check to insure that the levels are within -20 dB \pm 3 dB against the levels in Dolby NR OFF. 14. Check to insure whether the total harmonic distortion is less than 0.9% for ZX tape and 1.0% for SX/SX-E and EXII tapes. 15. If above is not sufficient, repeat 6 to 14 till satisfactory results are obtained. |
| 14 | Overall Frequency Response Adjustment | 400 Hz (0 dB) and 20 Hz to 20 kHz (-20 dB) to Input Jacks | VTVM to Output Jacks | Record, Playback Monitor SW — Source/ Tape Tape SW — ZX/SX/EX Eq. SW — 70 μ s (ZX/SX) 120 μ s (EX) Dolby NR SW — OFF MPX SW — OFF | Main P.C.B. L104,L204 | 1. Set the Monitor switch to Source. 2. Feed in 400 Hz (0 dB) and adjust the Input Level controls to obtain 0 dB (1 V) on the VTVM. 3. Switch the Generator output level to -20 dB. 4. Set the Monitor switch to Tape, then record and play it back. 5. Feed in 20 Hz to 20 kHz (-20 dB), and check to insure whether the output levels are within -20 dB \pm 3 dB. 6. If above is not sufficient, adjust L104 (L204) to obtain approx. -20 dB on the VTVM at 20 kHz. 7. Conduct step 13 "Record Level Calibration and Recording Bias Current Adjustment". 8. If above is not sufficient, precise re-adjustment of step 7 "Playback Frequency Response", replacement of Playback Head or Record Head, check on item 3.7 "Tape Travelling Check" will be required. |

5.2. Playback Frequency Response Adjustment

Figs. 5.1 and 5.2 show the playback amp. circuit for adjustment and the playback equalization curve. This adjustment will be required if playback level is not sufficient during playing back a 20 kHz PB frequency response tape.

The peaking portion of the equalization curve compensates the gap loss of the playback head. Peaking level is varied by the short circuit of R109 (R209) and/or R110 (R210) on the Main P.C.B. Ass'y.

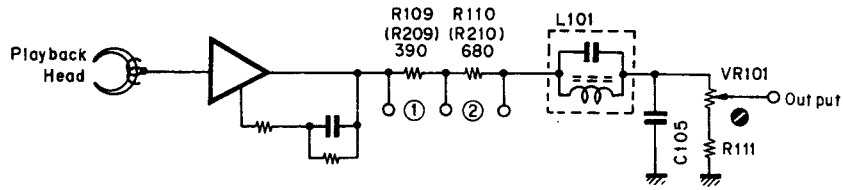


Fig. 5.1

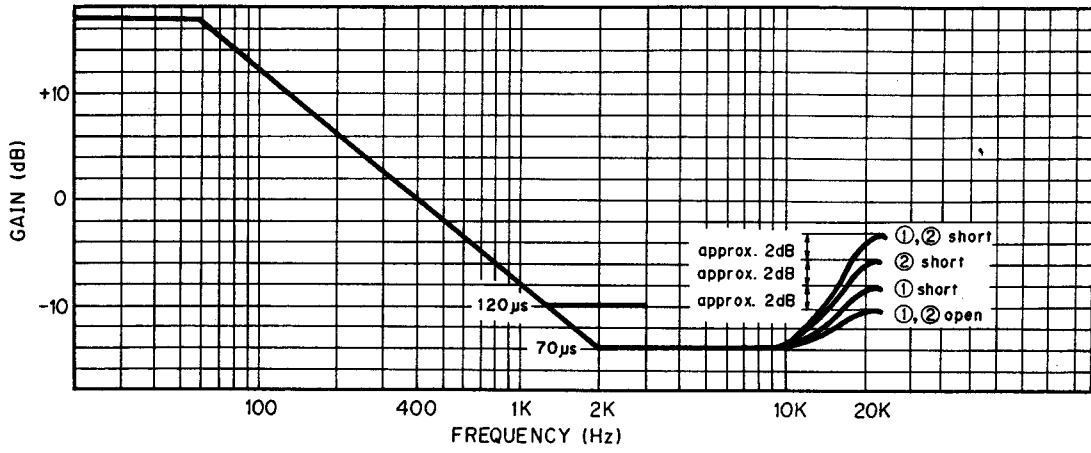


Fig. 5.2

6. MECHANISM ASS'Y AND PARTS LIST

6.1. Synthesis

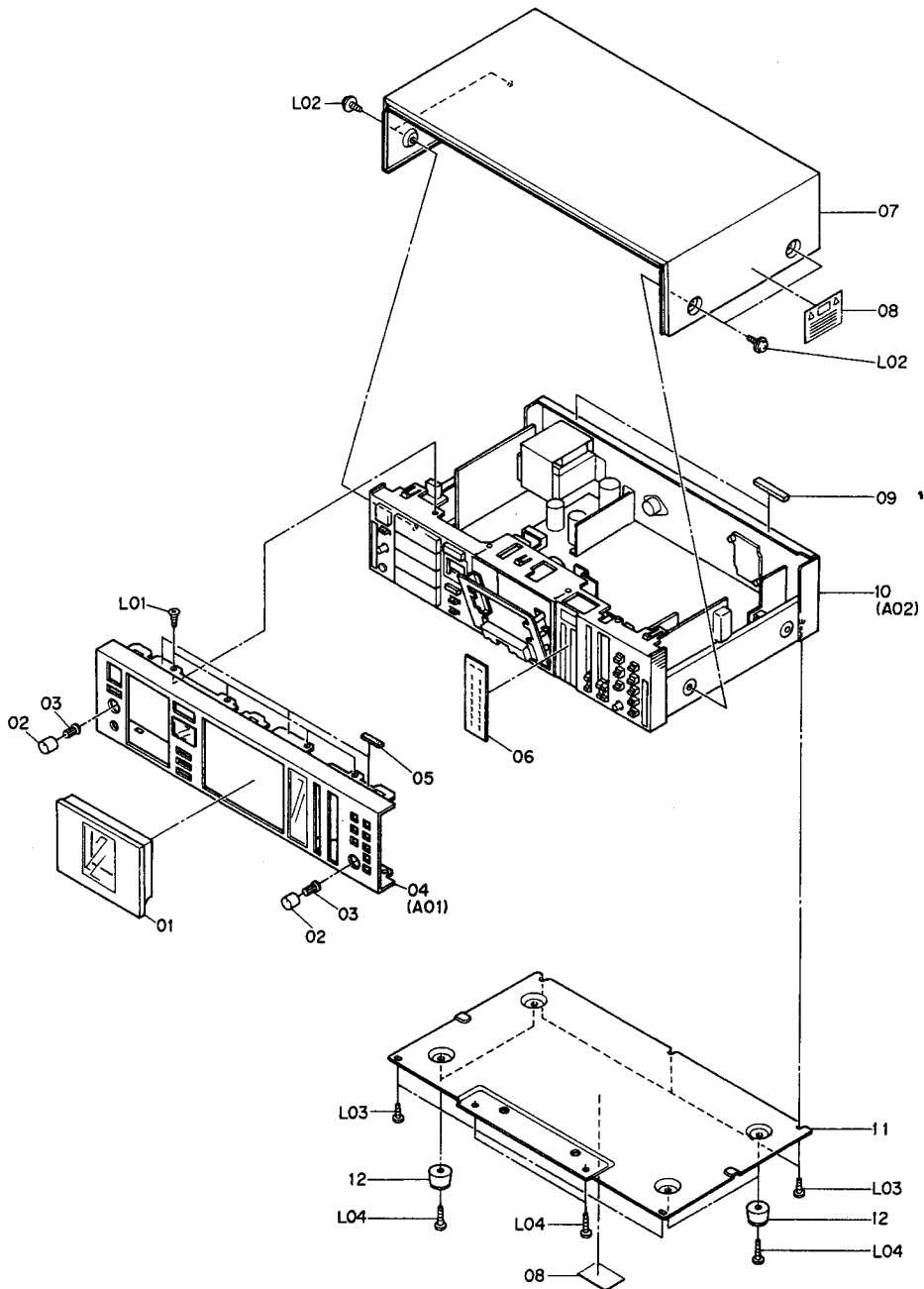


Fig. 6.1

| Schematic Ref. No. | Part No. | Description | Q'ty | Schematic Ref. No. | Part No. | Description | Q'ty |
|--------------------|----------|--|------|--------------------|----------|---------------------------|------|
| 01 | HA04645A | Synthesis Serial No.: A12701001 - | 1 | 05 | 0J04628A | Top Cover Cushion (Front) | 3 |
| | | Cassette Case Cover Ass'y BX-300 (U.S.A., Canada, Australia & Others) & BX-303E | | 06 | 0H04427A | Meter Scale | 1 |
| | HA04644A | Cassette Case Cover Ass'y BX-300 (Japan) | 1 | 07 | 0H04156B | Top Cover | 1 |
| 02 | 0H04342A | Volume Knob | 2 | 08 | 0M04377B | Caution Label | 2 |
| 03 | 0H03737A | Volume Knob Base | 2 | 09 | 0J04629A | Top Cover Cushion (Back) | 2 |
| 04 | HA04662A | Front Panel Ass'y BX-300E | 1 | 10 | - | Synthesis Mechanism Ass'y | 1 |
| | HA04660A | Front Panel Ass'y BX-300 (U.S.A., Canada, Australia & Others) | 1 | 11 | 0J04762A | Bottom Cover | 1 |
| | HA04661A | Front Panel Ass'y BX-300 (Japan) | 1 | 12 | 0J03564A | Leg TH | 4 |
| | | | | L01 | 0E03054A | BT 3x8 @ Countersunk | 4 |
| | | | | L02 | 0E03032A | BT 4x8 @ Pan Washer-faced | 4 |
| | | | | L03 | 0E00868A | BT 3x8 @ Binding | 5 |
| | | | | L04 | 0E00865A | BT 3x10 @ Binding | 4 |

6.2 Front Panel Ass'y (A01)

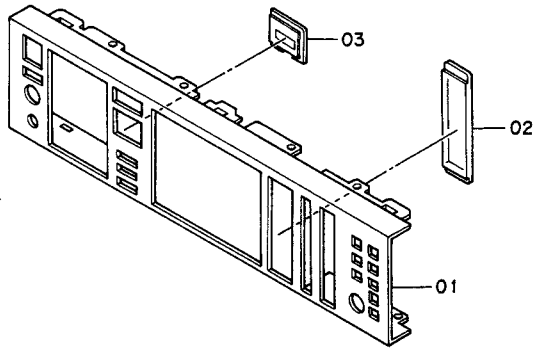


Fig. 6.2

| Schematic Ref. No. | Part No. | Description | Q'ty |
|--------------------|----------|---|------|
| A01 | HA04660A | Front Panel Ass'y BX-300 (U.S.A., Canada, Australia & Others) | 1 |
| | HA04661A | Front Panel Ass'y BX-300 (Japan) | 1 |
| | HA04662A | Front Panel Ass'y BX-300E Serial No.: A12701001 - | 1 |
| 01 | OH04420A | Front Panel BX-300 (U.S.A., Canada, Australia & Others) | 1 |
| | OH04447A | Front Panel BX-300 (Japan) | 1 |
| | OH04421A | Front Panel BX-300E | 1 |
| 02 | OH04251C | Meter Cover | 1 |
| 03 | OH04241A | Counter Cover | 1 |

6.3 Synthesis Mechanism Ass'y (A02)

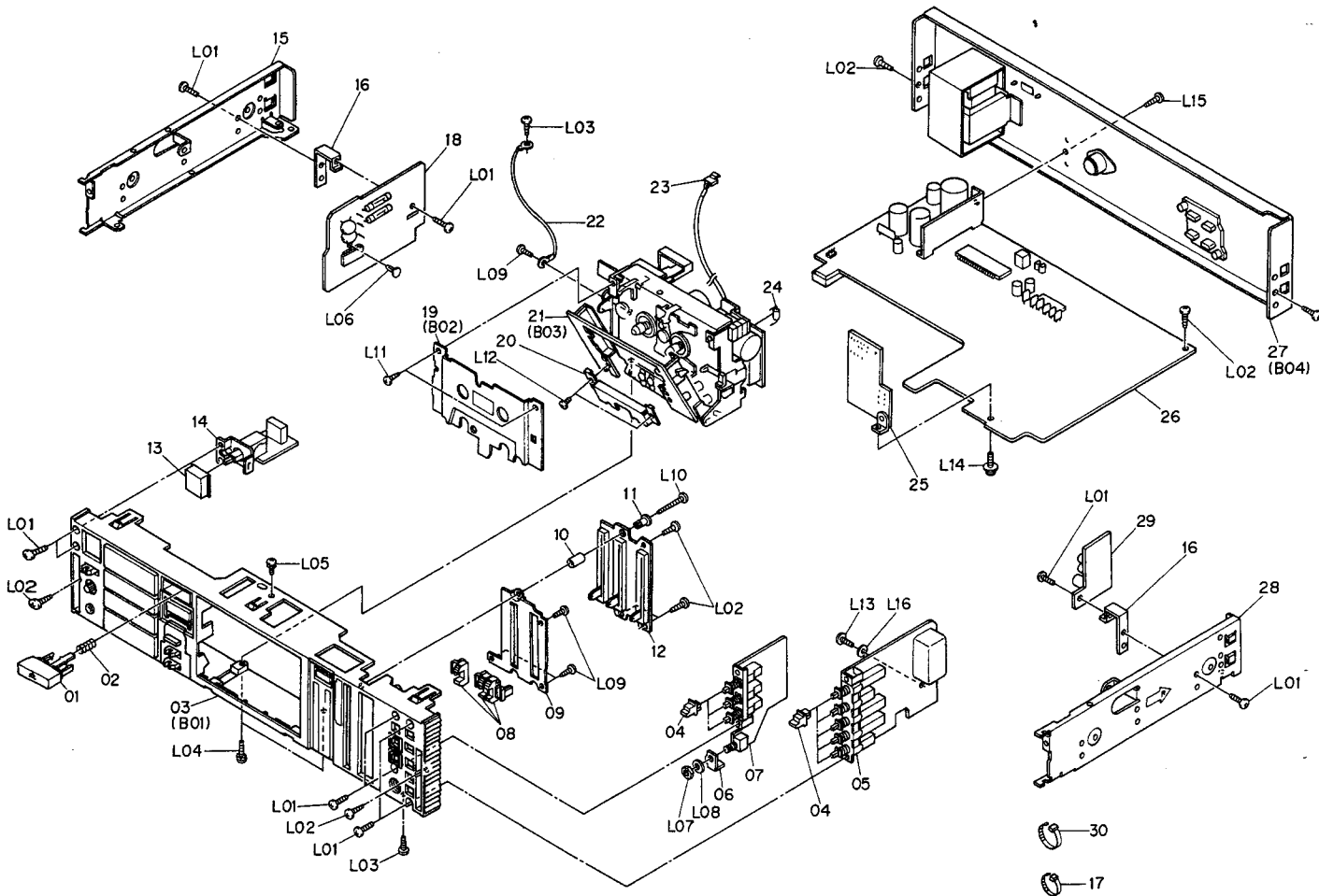


Fig. 6.3

| Schematic Ref. No. | Part No. | Description | Qty | Schematic Ref. No. | Part No. | Description | Qty |
|--------------------|------------|---|-----|--------------------|----------|--|-----|
| A02 | — | Synthesis Mechanism Ass'y Serial No.: A12701001 - | | L13 | 0E03217A | BT 4x8 @ Binding | 1 |
| 01 | HA04570A | Eject Button Ass'y | 1 | L14 | 0E00607A | M3x8 @ Pan (3A) | 1 |
| 02 | OJ04765A | Spring | 1 | L15 | 0E00921A | BT 3x8 @ Binding (Black Chromate) | 1 |
| 03 | HA04632A | Front Chassis Ass'y | 1 | L16 | 0E03238A | Fiber Washer 4x10x1 | 1 |
| 04 | OH04248A | Push Switch Button | 8 | | | Note 1: The old type Main P.C.B. Ass'y is not available as a spare part. If replacement is necessary, please order Input Amp. P.C.B. Ass'y (BA0-5499A) and P.C.B. Holder (OJ04839A) (for mounting Input Amp. P.C.B. Ass'y) together with the new type Main P.C.B. Ass'y (BA05353B/BA05353B-E). | |
| 05 | BA05366A | Tape Switch P.C.B. Ass'y | 1 | | | | |
| 06 | OJ04768A | Earth Plate | 1 | | | | |
| 07 | BA05365A | Dolby NR Switch P.C.B. Ass'y | 1 | | | | |
| 08 | OH04247B | Slide Volume Knob | 3 | | | | |
| 09 | OH04286B | Slide Volume Plate | 1 | | | | |
| 10 | OJ04703A | P.C.B. Spacer A | 1 | | | | |
| 11 | OJ04704A | P.C.B. Spacer B | 1 | | | | |
| 12 | BA05392A | Volume P.C.B. Ass'y | 1 | | | | |
| 13 | OH04243A | Power Switch Button | 1 | | | | |
| 14 | BA05389A | Power Switch P.C.B. Ass'y BX-300 (Australia & Others) & BX-300E | 1 | B01 | HA04632A | Front Chassis Ass'y Serial No.: A12701001 - | 1 |
| | BA05388A | Power Switch P.C.B. Ass'y BX-300 (U.S.A. & Canada) | 1 | 01 | HA04615A | Front Chassis Sub Ass'y | 1 |
| | BA05387A | Power Switch P.C.B. Ass'y BX-300 (Japan) | 1 | 02 | 0B08511A | Headphone Jack | 1 |
| 15 | OJ04841A | Side Chassis (L) | 1 | 03 | OJ04611A | Headphone Plate | 1 |
| 16 | OJ04839A | P.C.B. Holder (Serial No.: A12702001 -) | 2 | 04 | BA05440A | Pitch Controller Ass'y | 1 |
| 17 | 0B08515A | Insu-Lock | 13 | 05 | BA05390A | Control Switch P.C.B. Ass'y | 1 |
| 18 | BA05428A | Fuse P.C.B. Ass'y (Not including fuses) | 1 | 06 | OH04242A | Slide Switch Knob | 3 |
| 19 | HA04631A | Cover Plate Ass'y | 1 | 07 | BA05391A | Counter P.C.B. Ass'y | 1 |
| 20 | OH04415A | Head Mount Cover | 1 | 08 | BA05399A | Indicator Ass'y | 1 |
| 21 | CA08650A | Mechanism Ass'y | 1 | L01 | 0E00868A | BT 3x8 @ Binding | 5 |
| 22 | BA05400A | Earth Wire Ass'y | 1 | L02 | 0E00857A | BT 3x6 @ Binding | 8 |
| 23 | 0B82311A | 3P-H Connector | 1 | | | | |
| 24 | 0B09685A | Carbon Resistor 2.2K 1/6W J | 1 | | | | |
| 25 | BA05361A | Meter Amp. P.C.B. Ass'y | 1 | | | | |
| 26 | BA05353B | Main P.C.B. Ass'y BX-300 (Serial No.: A12702001 -) | 1 | | | | |
| | BA05353B-E | Main P.C.B. Ass'y BX-300E (Serial No.: A12702001 -) | 1 | | | | |
| | BA05353A | Main P.C.B. Ass'y BX-300 (Note 1) (Serial Nos.: A12701001 - 02000) | 1 | | | | |
| | BA05353A-E | Main P.C.B. Ass'y BX-300E (Note 1) (Serial Nos.: A12701001 - 02000) | 1 | | | | |
| 27 | HA04622A | Rear Panel Ass'y BX-300E (UK) | 1 | | | | |
| | HA04623A | Rear Panel Ass'y BX-300 (U.S.A. & Canada) | 1 | | | | |
| | HA04624A | Rear Panel Ass'y BX-300 (Japan) | 1 | | | | |
| | HA04625A | Rear Panel Ass'y BX-300 (Others) | 1 | | | | |
| | HA04626A | Rear Panel Ass'y BX-300 (Australia) | 1 | | | | |
| | HA04627A | Rear Panel Ass'y BX-300E (220V Class 2) | 1 | | | | |
| 28 | OJ04773A | Side Chassis (R) | 1 | | | | |
| 29 | BA05499A | Input Amp. P.C.B. Ass'y (Serial No.: A12702001 -) | 1 | | | | |
| 30 | 0B90012A | Insu-Lock 140mm | 3 | | | | |
| — | 0B02240A | Fuse T1.25A BX-300E & BX-300 (Australia) | 2 | | | | |
| — | 0M04391A | Fuse Label T1.25A BX-300E & BX-300 (Australia) | 1 | | | | |
| — | 0B08349B | Fuse Clip BX-300E & BX-300 (Australia) | 4 | | | | |
| — | 0B08962A | Fuse 2.5A BX-300 (U.S.A., Canada & Others) | 2 | | | | |
| — | 0B08961A | Fuse 2.5A BX-300 (Japan) | 2 | | | | |
| — | 0M04595A | Fuse Caution BX-300 (U.S.A. & Canada) | 1 | | | | |
| L01 | 0E00766A | M3x8 @ Binding | 10 | | | | |
| L02 | 0E00868A | BT 3x8 @ Binding | 8 | | | | |
| L03 | 0E00857A | BT 3x6 @ Binding | 2 | | | | |
| L04 | 0E03074A | BT 2.6x8 @ Binding with Toothed-lock Washer | 2 | | | | |
| L05 | 0E03212A | BT 2.6x6 @ Binding with Toothed-lock Washer | 1 | | | | |
| L06 | 0B08583A | Plastic Rivet | 1 | | | | |
| L07 | — | Nut | (1) | | | | |
| L08 | — | Washer | (1) | | | | |
| L09 | 0E03072A | M2.6x6 @ Binding | 4 | | | | |
| L10 | 0E00835A | BT 3x25 @ Pan | 1 | | | | |
| L11 | 0E00824A | BT 2.6x6 @ Pan (Black Chromate) | 2 | | | | |
| L12 | 0E03202A | M2.6x3 @ Binding (Black Chromate) | 2 | | | | |

6.4. Front Chassis Ass'y (B01)

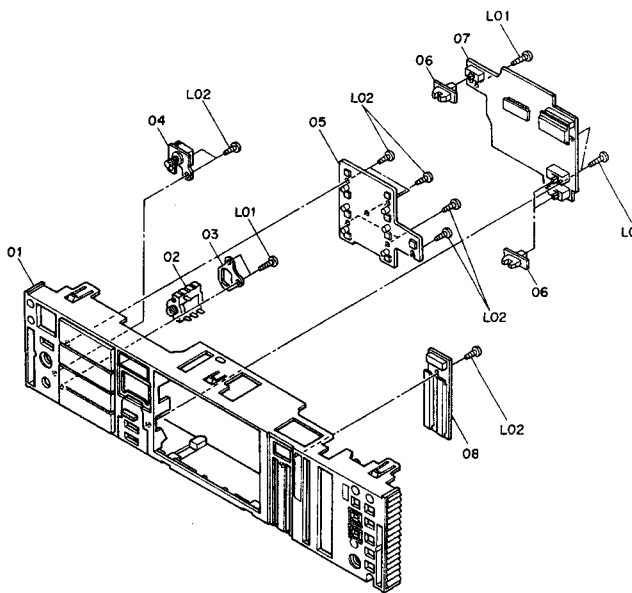


Fig. 6.4

6.5. Cover Plate Ass'y (B02)

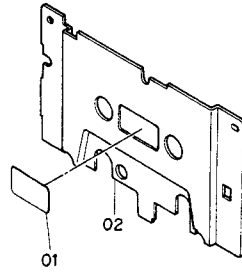


Fig. 6.5

| Schematic Ref. No. | Part No. | Description | Q'ty | Schematic Ref. No. | Part No. | Description | Q'ty |
|--------------------|----------|--|------|--------------------|----------|--------------------------|------|
| B02 | HA04631A | Cover Plate Ass'y Serial No.: A12701001 - | 1 | 60 | OC80017A | Record Protect Lever | 1 |
| 01 | OM04392A | Cassette Label Gold | 1 | 61 | OC80627A | Mechanism Chassis | 1 |
| 02 | OH04437B | Cover Plate | 1 | 62 | OC80022A | Cassette Hold Spring | 1 |
| B03 | CA08650A | Mechanism Ass'y Serial No.: A12701001 - | 1 | 63 | CA80011A | Shut-off P.C.B. Ass'y | 1 |
| 01 | CA80206A | D.D. Motor Ass'y | 1 | 64 | OC80012A | Eject Sensor | 1 |
| 02 | OC80026A | Cam | 1 | 65 | CA80204A | Brake Ass'y | 1 |
| 03 | OC80028A | Control Motor Holder | 1 | 66 | OC80628B | Brake Spring B | 1 |
| 04 | CA80007A | Control Motor Ass'y | 1 | 67 | OC80630A | Brake Arm Collar | 1 |
| 05 | CA80200A | Cassette Case Ass'y | 1 | 68 | OC80629A | Brake Arm | 1 |
| 06 | OC08762A | Head Height Adjustment Gear | 2 | 69 | OC80030A | Reel Motor Holder | 1 |
| 07 | OC08761A | Head Height Adjustment Screw | 4 | 70 | CA80205A | Reel Motor Ass'y | 1 |
| 08 | OC08763A | Azimuth Alignment Screw | 2 | 71 | OC80631A | 5P-H Connector | 1 |
| 09 | OC80605A | Wire Clamper | 1 | 72 | OC80632A | 9P-H Connector | 1 |
| 10 | CA08637A | Head Mount Base Sub Ass'y | 1 | 73 | OC80037A | Insu-Lock | 3 |
| 11 | CA08659B | R-3L Record Head Ass'y | 1 | 74 | OC80635A | Idler Pulley | 1 |
| 12 | OC08776A | Head Plate Spring (L) | 1 | L01 | OC80634A | Capstan Belt | 1 |
| 13 | OC80606A | 4P-H Connector | 1 | L02 | OE03044A | FT2.5x20 @ Pan | 1 |
| 14 | CA08658B | P2H-L Playback Head Ass'y | 1 | L03 | OE00976A | M2x5 @ Pan | 5 |
| 15 | OC08775A | Head Plate Spring (R) | 1 | L04 | OE00025A | Spring Washer 2mm | 2 |
| 16 | OC80607A | 4P-H Connector | 1 | L05 | OE00117A | Washer 2.2x4.3x0.4 | 5 |
| 17 | OC80003A | Head Base Hold Plate | 1 | L06 | OE00866A | M2.6x4 @ Binding | 1 |
| 18 | OC80004A | Steel Ball 3mm | 1 | L07 | OC08774A | Plate Washer L | 1 |
| 19 | GA02201A | E-4F Erase Head | 1 | L08 | OC08773A | Plate Washer R | 1 |
| 20 | OC80608A | 2P-H Connector | 1 | L09 | OE03228A | FT3x4 @ Pan | 1 |
| 21 | OC08768A | E.H. Hold Plate | 1 | L10 | OE03232A | M1.7x7 @ Pan | 1 |
| 22 | OC08889A | E.H. Hold Plate Tapering Spring | 2 | L11 | OE03222A | Washer 1.8x3.8x0.3 | 1 |
| 23 | OC08886A | E.H. Hold Plate Spring | 1 | L12 | OE00691A | M2x3 @ Pan (Chromate) | 2 |
| 24 | OC08771A | Tape Guide Plate | 1 | L13 | OE03234A | M2x3 @ Pan (Nickel) | 2 |
| 25 | CA08638A | Head Base Sub Ass'y | 1 | L14 | OE00222A | E-Ring 2mm | 2 |
| 26 | OC80007A | Steel Ball 2mm | 3 | L15 | OE03035A | TP 2x3.2 Truss | 2 |
| 27 | CA80005A | T. Pressure Roller Arm Ass'y | 1 | L16 | OE03049A | Washer 1.8x3.2x0.5 | 1 |
| 28 | OC80609A | T. Pressure Roller Arm Spring | 1 | L17 | OE03226A | Washer 2.1x4.5x0.1 | 3 |
| 29 | OC80027A | Mode Switch | 1 | L18 | OE00224A | M2x3 Cup Point | 1 |
| 30 | OC80010A | Cassette Case Holder R | 1 | L19 | OE03043A | FT 2.5x10 @ Pan | 2 |
| 31 | OC80610A | Cassette Case Spring | 1 | L20 | OE03225A | Washer 1.8x3.2x0.5 | 1 |
| 32 | OC80611A | Head Base Spring | 1 | L21 | OE00181A | E-Ring 3mm | 1 |
| 33 | CA80201A | T. Reel Hub Ass'y | 1 | L22 | OE03235A | Plastic Washer 2x5x0.25 | 1 |
| 34 | OC80612A | Spring Holder | 2 | L23 | OE03052A | CS Stopper Ring 2.4mm | 2 |
| 35 | OC80613A | T. Reel Hub Spring | 1 | L24 | OE03229A | FT 2.5x6 @ Pan | 13 |
| 36 | CA80202A | S. Reel Hub Ass'y | 1 | L25 | OE03236A | M2x5 @ Pan (2A) | 4 |
| 37 | OC80614A | S. Reel Hub Spring | 1 | L26 | OE03227A | Washer 2.7x5x0.5 | 2 |
| 38 | OC80615A | Pressure Roller Plate | 1 | L27 | OE03231A | M2x30 @ Pan | 2 |
| 39 | CA80203A | S. Pressure Roller Arm Ass'y | 1 | L28 | OE03041A | FT 2.5x4 @ Pan | 2 |
| 40 | OC80616A | S. Pressure Roller Arm Spring | 1 | L29 | OE03237A | Nut Hex. M2.6 | 1 |
| 41 | OC80013A | Lock Lever Spring | 1 | L30 | OE03233A | Washer 2.6x8x1 | 1 |
| 42 | OC80014A | Lock Lever Collar | 1 | L31 | OE03230A | ST 2.6x12 @ Pan | 1 |
| 43 | OC80015A | Lock Lever | 1 | L32 | OE03045A | M2.6x3 @ Binding | 2 |
| 44 | OC80617A | Back Tension Arm Spring | 1 | L33 | OE00694A | Nut Hex. M2 | 1 |
| 45 | OC80618A | Back Tension Arm Collar | 1 | | OE03245A | Mylar Washer 1.3x3.3x0.3 | 1 |
| 46 | OC80619A | Back Tension Arm | 1 | | | | |
| 47 | OC80620A | Back Tension Pulley | 1 | | | | |
| 48 | OC80621A | Back Tension Belt | 1 | | | | |
| 49 | OC80021A | Eject Lever | 1 | | | | |
| 50 | OC80020A | Eject Lever Spring | 1 | | | | |
| 51 | OC80011A | Eject Sensor Holder | 1 | | | | |
| 52 | CA80006A | Pneumatic Damper Ass'y | 1 | | | | |
| 53 | OC80019A | Eject Spring | 1 | | | | |
| 54 | OC80018A | Cassette Case Holder L | 1 | | | | |
| 55 | OC80622A | Switch Hold Plate | 1 | | | | |
| 56 | OC80623A | Switch Plate | 2 | | | | |
| 57 | OC80624A | Switch Collar A | 2 | | | | |
| 58 | OC80626A | Leaf Switch | 1 | | | | |
| 59 | OC80625A | Switch Collar B | 2 | | | | |

6.6. Mechanism Ass'y (B03)

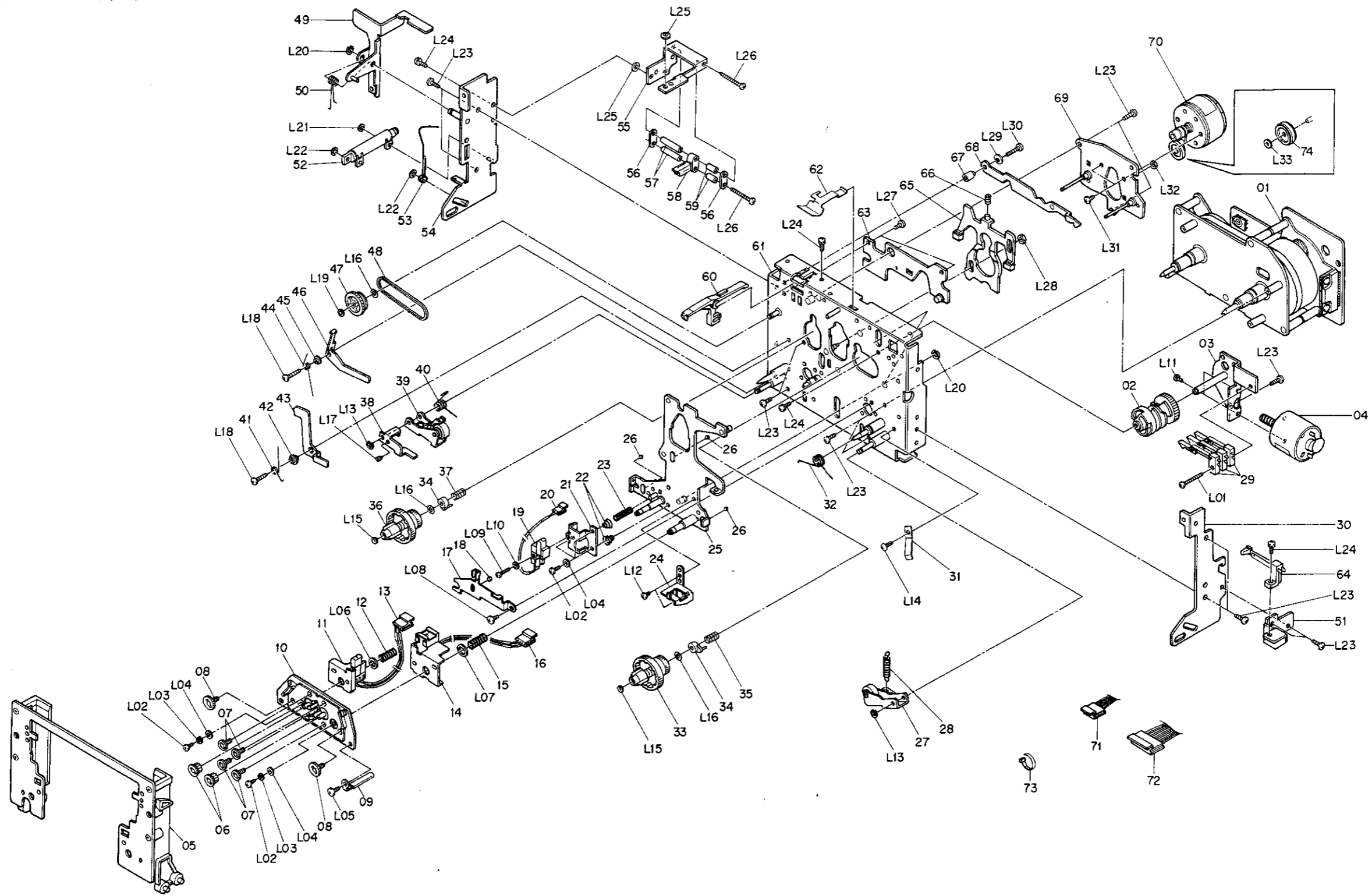


Fig. 6.6

6.7. Rear Panel Ass'y (B04)

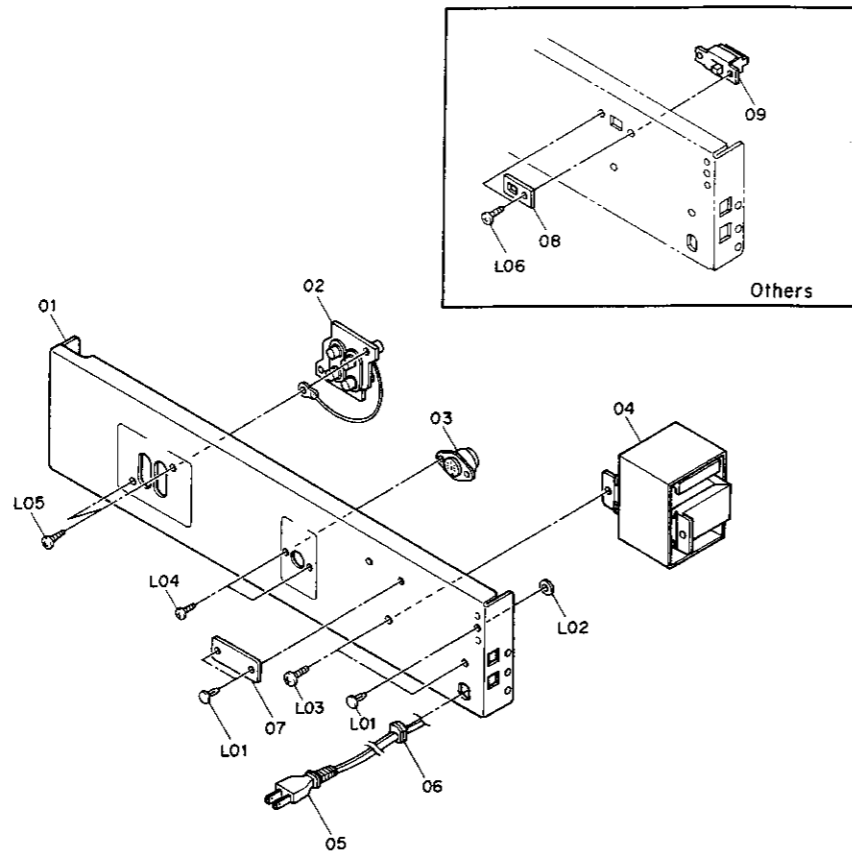


Fig. 6.7

7. MOUNTING DIAGRAMS AND PARTS LIST

- Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.
 2. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
 3. Following transistors are interchangeable with each other.
 a. 2SA733, 2SA608SP, 2SA1048, 2SA1175
 b. 2SC945, 2SC536SP, 2SC2458, 2SC2785
 4. Abbreviation for part name:
 TR - Transistor, SiD - Silicon Diode, GD - Germanium Diode, ZD - Zener Diode
 RK - Carbon Resistor, RM - Metal Film Resistor, RF - Fail Safe Type Resistor
 CE - Electrolytic Capacitor, CM - Mylar Capacitor, CC - Ceramic Capacitor, CP - PP Capacitor,
 CT - Tantalum Capacitor, CF - Film Capacitor, C - Mica Capacitor

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

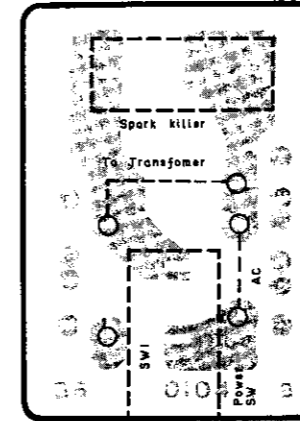


Fig. 7.1

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

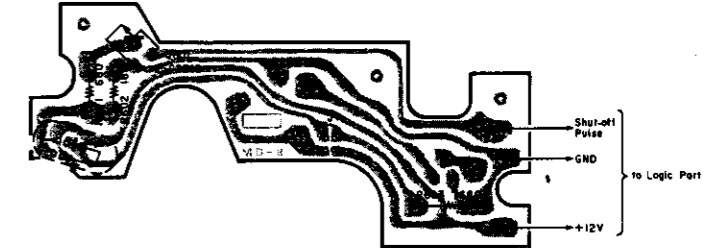


Fig. 7.2

| Schematic Ref. No. | Part No. | Description | Qty | Schematic Ref. No. | Part No. | Description | Qty | Schematic Ref. No. | Part No. | Description | Schematic Ref. No. | Part No. | Description | | |
|--------------------|------------|--|-----|--------------------|----------|---|---|---|-----------------------------------|---|-------------------------|---|--|--|--------------------------|
| B04 | HA04622A | Rear Panel Ass'y BX-300E (UK) | 1 | 07 | OJ04601B | Switch Cover BX-300 (U.S.A., Canada, Japan & Australia) & BX-300E | 1 | | BA05372B | P.C.B. Ass'y BX-300 (U.S.A., Canada & Others) | | BA05371B | P.C.B. Ass'y BX-300E | | |
| | HA04623A | Rear Panel Ass'y BX-300 (U.S.A. & Canada) | 1 | | | BA05374B-E | Set-A P.C.B. Ass'y BX-300E (consists of the followings) | | | BA05389A | | Power Switch P.C.B. Ass'y BX-300 (Australia & Others) & BX-300E | | | |
| | HA04624A | Rear Panel Ass'y BX-300 (Japan) | 1 | | 08 | 0M03948A | Voltage Lock Plate BX-300 (Others) | | 1 | | | BA05388A | Power Switch P.C.B. Ass'y BX-300 (U.S.A. & Canada) | | |
| | HA04625A | Rear Panel Ass'y BX-300 (Others) | 1 | | | | 0B07092U | | Voltage Selector BX-300 (Others) | 1 | | | BA05387A | Power Switch P.C.B. Ass'y BX-300 (Japan) | |
| | HA04626A | Rear Panel Ass'y BX-300 (Australia) | 1 | | L01 | 0B08583A | Plastic Rivet | | 3 | BA05374B | | Set-A P.C.B. Ass'y BX-300 (consists of the followings) | BA05381A | Meter Amp. P.C.B. Ass'y | |
| | HA04627A | Rear Panel Ass'y BX-300E (220V Class 2) Serial No.: A12701001 - | 1 | | | L02 | 0E00637A | | Washer 3.3x7x0.5 | | | 1 | | BA05366A | Tape Switch P.C.B. Ass'y |
| | | | | | | L03 | 0E00907A | | ST 4x8 @ Binding (Black Chromate) | | | 2 | | BA05392A | Volume P.C.B. Ass'y |
| 01 | OH04425A | Rear Panel BX-300E | 1 | L04 | 0E03072A | M2.5x6 @ Binding (Black Chromate) | 2 | BA05353B | Main P.C.B. Ass'y BX-300 | BA05392A | Volume P.C.B. Ass'y | | | | |
| | OH04424A | Rear Panel BX-300 (U.S.A., Canada, Australia & Others) | 1 | | L05 | 0E00921A | BT 3x8 @ Binding (Black Chromate) | 2 | BA05499A | | Input Amp. P.C.B. Ass'y | BA05499A | Input Amp. P.C.B. Ass'y | | |
| 02 | OH04448A | Rear Panel BX-300 (Japan) | 1 | L06 | | 0E00818A | M3x8 @ Binding (Black Chromate) | 2 | BA05361A | Meter Amp. P.C.B. Ass'y | BA05375A | Set-B P.C.B. Ass'y (consists of the followings) | | | |
| | OB81001A | 4P Pin Jack | 1 | | | | | BA05366A | Tape Switch P.C.B. Ass'y | BA05365A | | Dolby NR Switch P.C.B. Ass'y | | | |
| 03 | BA05482A | 8P Din Socket Ass'y (Consisting of the followings) | 1 | | | | BA05392A | Volume P.C.B. Ass'y | BA05390A | Control Switch P.C.B. Ass'y | | | | | |
| | (OB08584A) | 8P Din Socket | (1) | | | | BA05499A | Input Amp. P.C.B. Ass'y | | BA05391A | Counter P.C.B. Ass'y | | | | |
| 04 | (OB82344A) | 8P-H Connector | (1) | | | | BA05375A | Set-B P.C.B. Ass'y (consists of the followings) | BA05428A | Fuse P.C.B. Ass'y | | | | | |
| | OB50029A | Power Transformer BX-300 (Australia) & BX-300E | 1 | | | | BA05365A | Dolby NR Switch P.C.B. Ass'y | | | | | | | |
| 05 | OB50030A | Power Transformer BX-300 (U.S.A. & Canada) | 1 | | | | BA05390A | Control Switch P.C.B. Ass'y | | | | | | | |
| | OB50031A | Power Transformer BX-300 (Japan) | 1 | | | | BA05391A | Counter P.C.B. Ass'y | | | | | | | |
| | OB50032A | Power Transformer BX-300 (Others) | 1 | | | | BA05428A | Fuse P.C.B. Ass'y | | | | | | | |
| | OB08348A | Power Cord BX-300E (UK) | 1 | | | | | | | | | | | | |
| 06 | OB08533A | Power Cord BX-300 (U.S.A., Canada & Others) | 1 | | | | | | | | | | | | |
| | OB08219B | Power Cord BX-300 (Japan) | 1 | | | | | | | | | | | | |
| | OB05241A | Power Cord BX-300 (Australia) | 1 | | | | | | | | | | | | |
| | OB08093U | Power Cord BX-300E (220V Class 2) | 1 | | | | | | | | | | | | |
| 06 | OB08351A | Cord Bushing 4K-4 BX-300E (UK) | 1 | | | | | | | | | | | | |
| | OB08037U | Cord Bushing BX-300 & BX-300E (220V Class 2) | 1 | | | | | | | | | | | | |
| | | | | | | | | | | | CA80011A | Shut-off P.C.B. Ass'y | | | |
| | | | | | | | | | | | Q601 | Shut-off P.C.B. TR 2SC2812 | | | |
| | | | | | | | | | | | Q602 | Photo Reflector NJL5141 | | | |
| | | | | | | | | | | | R601,603 | RK 680 Leadless | | | |
| | | | | | | | | | | | R602 | RK 18K Leadless | | | |

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

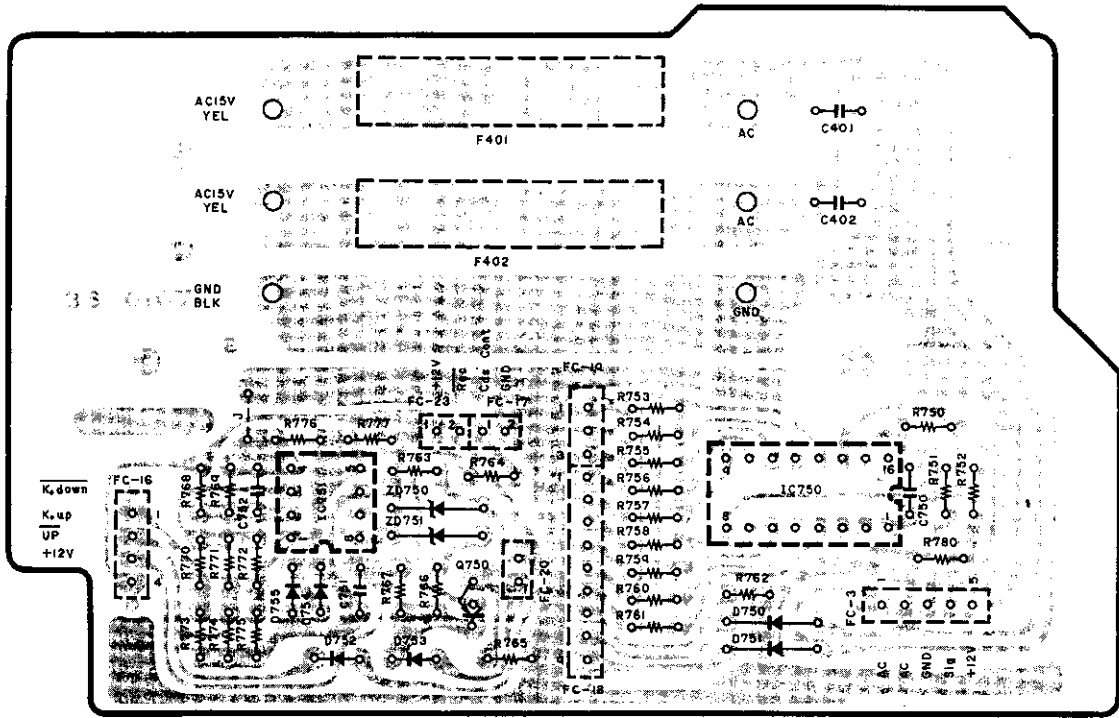


Fig. 7.3

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

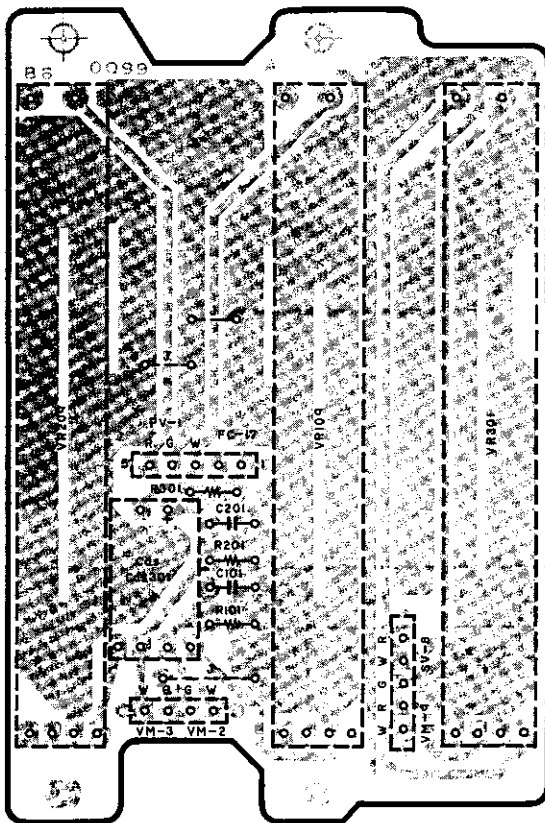


Fig. 7.4

| Schematic Ref. No. | Part No. | Description |
|--------------------|----------|------------------------|
| | BA05428A | Fuse P.C.B. Ass'y |
| IC750 | OB60107B | Fuse P.C.B. |
| IC751 | OB06369A | IC TA7612AP |
| Q750 | OB11031A | IC TL092 |
| ZD750,751 | OB06013A | TR 2SA733 |
| D750,751 | OB06191A | ZD 2.7V RD2.7E |
| D752,753 | OB06181A | SID 1SS53 |
| 754,755 | OB06398A | SID 1SS176 |
| R750 | OB09695A | RK 5.6K 1/6W J |
| R751,764 | OB09677A | RK 1K 1/6W J |
| R752,767 | OB09701A | RK 10K 1/6W J |
| R753-762 | OB09681A | RK 1.5K 1/6W J |
| R763 | OB09709A | RK 22K 1/6W J |
| R765,768 | OB09725A | RK 100K 1/6W J |
| 769,772 | | |
| 776,777 | | |
| R766 | OB09685A | RK 2.2K 1/6W J |
| R770 | OB09717A | RK 47K 1/6W J |
| R771 | OB09713A | RK 33K 1/6W J |
| R773,774 | OB09737A | RK 330K 1/6W J |
| R775 | OB09749A | RK 1M 1/6W J |
| R780 | OB09651A | RK 82 1/6W J |
| C401,402 | OB09292A | CC 0.1μ 50V Z |
| C750 | OB09281A | CC 150P 50V K |
| C751 | OB09163A | CE 10μ 16V (BP) |
| C752 | OB09868A | CF 0.1μ 50V J |
| FC3 | OB02350A | JP Connector 5P |
| FC16, 17,23 | OB02349A | JP Connector 4P |
| FC18,19 | OB02356A | JP Connector 12P |
| FC20 | OB81163A | Wire Trap 2P S |
| | BA05392A | Volume P.C.B. Ass'y |
| Cds301 | OB60099A | Volume P.C.B. |
| | OB06325B | Photocoupler MCD7214F |
| VR109,209 | OB81002A | Slide Volume 100K (A) |
| VR301 | OB81001A | Slide Volume 10K (A)x2 |
| R101,201 | OB09719A | RK 56K 1/6W J |
| R301 | OB09695A | RK 5.6K 1/6W J |
| C101,201 | OB41386A | CP 100P 100V J |
| VM2,3 | OB81011A | Dip Mate 4P |
| PV1,VM9 | OB81012A | Dip Mate 5P |

7.5. Input Amp. P.C.B. Ass'y

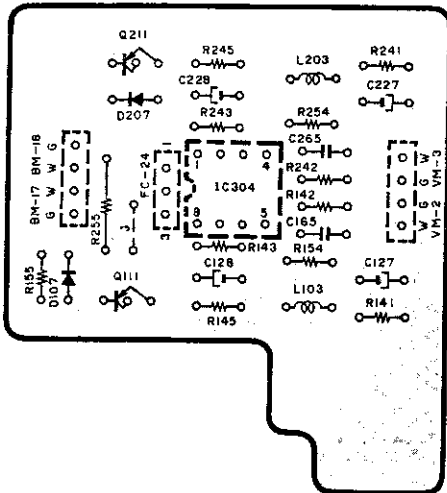


Fig. 7.5 Serial No.: A12702001 -

7.6. Meter Amp. P.C.B. Ass'y

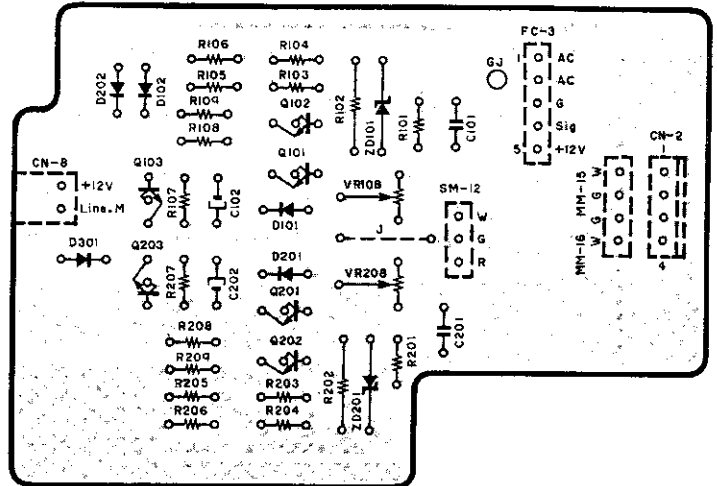


Fig. 7.6

7.7. Dolby NR Switch P.C.B. Ass'y

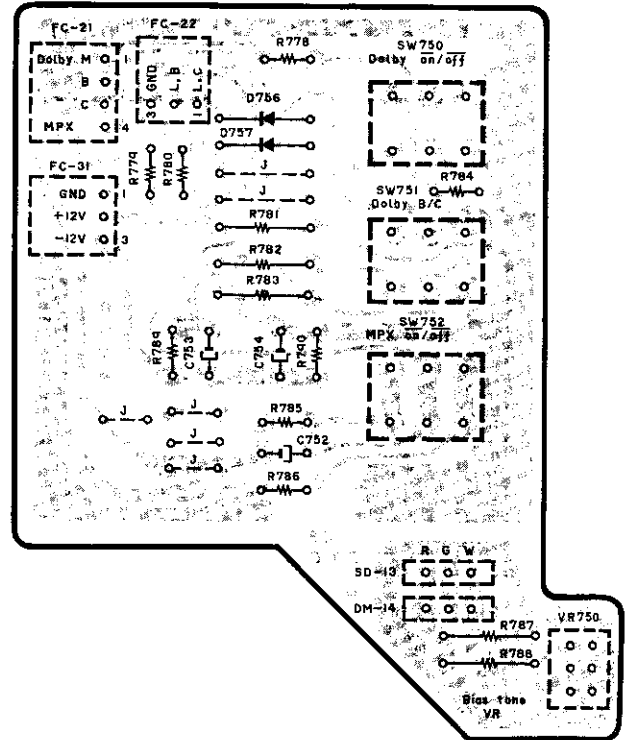


Fig. 7.7

| Schematic Ref. No. | Part No. | Description |
|--------------------|----------|---|
| | BA05499A | Input Amp. P.C.B. Ass'y Serial No.: A12702001 - |
| IC304 | OB60125A | Input Amp. P.C.B. IC 4558DD |
| Q111, 211 | OB06013A | TR 2SA733 (P,Q) |
| D107, 207 | OB06898A | SiD 1SS176 |
| L103, 203 | OB06676B | Inductor 36mH G |
| R141, 241 | OB09733A | RK 220K 1/6W J |
| R142, 242 | OB09653A | RK 100 1/6W J |
| R143, 243 | OB22426A | RM 53.6K 1/6W F |
| R145, 245 | OB22313A | RM 5.49K 1/6W F |
| R154, 254 | OB22396A | RM 30.1K 1/6W F |
| R155 | OB09701A | RK 10K 1/6W J |
| R255 | OB01888A | RK 10K 1/4W J |
| C127, 227 | OB09814A | CE 1μ 50V (LN) |
| C128, 228 | OB09932A | CE 22μ 16V (LN) |
| C165, 265 | OB09409A | CP 1800P 100V G |
| FC24 | OB81010A | Dip Mate 3P |
| | OB81011A | Dip Mate 4P (2) |
| | BA05361A | Meter Amp. P.C.B. Ass'y |
| Q101, 102 | OB60108B | Meter Amp. P.C.B. TR 2SC1740S |
| 201, 202 | OB10039A | TR 2SC945L (P,Q) |
| Q103, 203 | OB1872A | TR 2SC945L (P,Q) |
| ZD101, 201 | OB12101A | ZD 5V 5C-1 |
| D101, 102 | OB06898A | SiD 1SS176 |
| 201, 202 | | |
| 301 | | |
| VR108, 208 | OB32026A | Semi-fixed VR 220K |
| R101, 201 | OB09717A | RK 47K 1/6W J |
| R102, 202 | OB01889A | RK 100K 1/4W J |
| R103, 203 | OB09747A | RK 820K 1/6W J |
| R104, 204 | OB09723A | RK 82K 1/6W J |
| R105, 106 | OB09725A | RK 100K 1/6W J |
| 108, 109 | | |
| 205, 206 | | |
| 208, 209 | | |
| R107, 207 | OB09719A | RK 56K 1/6W J |
| C101, 201 | OB09868A | CF 0.1μ 50V J |
| C102, 202 | OB09148A | CE 10μ 25V (LN) |
| CN2 | OB02242A | 4P-T Post |
| CN8 | OB81175A | B-B Connector 2P |
| SM12 | OB81010A | Dip Mate 3P |
| MM15, 16 | OB81011A | Dip Mate 4P |
| FC3 | OB81012A | Dip Mate 5P |
| | OJ04790A | P.C.B. Holder (1) |
| | OE00607A | M3x8 @ Pan (3A) (1) |

| Schematic Ref. No. | Part No. | Description | Schematic Ref. No. | Part No. | Description |
|--------------------|----------|------------------------------|--------------------|----------|-----------------------|
| | BA05365A | Dolby NR Switch P.C.B. Ass'y | R785 | OB09695A | RK 5.6K 1/6W J |
| | OB60102B | Dolby NR Switch P.C.B. | R786, 789 | OB09701A | RK 10K 1/6W J |
| | OB06181A | SiD 1SS53 | R787, 788 | OB01887A | RK 5.6K 1/4W J |
| | OB30016A | Semi-fixed VR 100Kx2 | C752 | OB01412A | CE 10μ 16V |
| D756, 757 | | | C753, 754 | OB01405A | CE 1μ 50V |
| VR750 | | | FC21 | OB81011A | Dip Mate 4P |
| R778 | OB09697A | RK 6.8K 1/6W J | FC22, 31 | OB81153A | Wire Trap 3P R |
| R779, 780 | OB09677A | RK 1K 1/6W J | SD13, DM14 | OB81010A | Dip Mate 3P |
| R781 | OB09391A | RK 91K 1/4W J | | OB81011A | Dip Mate 4P |
| R782, 783 | OB05575A | RK 560 1/4W J | | OJ04768B | Earth Plate A (1) |
| R784 | OB09713A | RK 33K 1/6W J | | OB70024A | Push Switch 3-Key (1) |

| Schematic Ref. No. | Part No. | Description |
|--------------------|-----------------|------------------------------------|
| | BA05390A | Control Switch P.C.B. Ass'y |
| | OB60100A | Control Switch P.C.B. |
| Q701 | OB10030A | TR 2SC1740S |
| Q702 | OB10007A | TR 2SC3399 |
| Q703 | OB10003A | TR 2SA1345 |
| Q704 | OB10026A | TR 2SA933S |
| LED701 | OB06334A | LED TLG124A (GRN) |
| 703,704 | | |
| LED702 | OB06333A | LED TLR124A (RED) |
| 705,706 | | |
| D701,703 | OB06181A | SiD 1SS53 |
| D702,704 | OB06398A | SiD 1SS176 |
| 705 | | |
| R701 | OB05795A | RK 150 1/4W J |
| R702 | OB0957A | RK 150 1/8W J |
| R703 | OB09667A | RK 390 1/6W J |
| R704 | OB09663A | RK 270 1/6W J |
| R705 | OB09701A | RK 10K 1/6W J |
| R706,707 | OB09677A | RK 1K 1/6W J |
| R716 | OB09693A | RK 4.7K 1/6W J |
| SW701-709 | OB70004A | Touch Switch 4.3mm |
| | QJ04744A | LED Reflector (6) |
| | BA05391A | Counter P.C.B. Ass'y |
| IC701 | OB60101B | Counter P.C.B. |
| Q701,702 | OB06368A | IC LM6416E-106 |
| 703,704 | OB10026A | TR 2SA933S |
| 705 | | |
| LED701 | OB12098A | Counter LED |
| R701,702 | OB05625A | RK 220K 1/4W J |
| 715 | | |
| R703 | OB09701A | RK 10K 1/6W J |
| R704,705 | OB09687A | RK 2.7K 1/6W J |
| 706,707 | | |
| 716 | | |
| R708,709 | OB09661A | RK 220 1/6W J |
| 710,711 | | |
| 712,713 | | |
| 714 | | |
| R717 | OB01846A | RK 4.7K 1/4W J |
| C701 | OB09282A | CC 100P 50V K |
| C702 | OB05557A | CM 0.015μ 50V J |
| C703 | OB05885A | CE 100μ 10V |
| SW701,702 | OB70010A | Slide Switch 2-2 |
| SW703 | OB07437A | Slide Switch 2-3 |
| | OB81016A | 9P Socket (1) |
| | OB81017A | 11P Socket (1) |

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

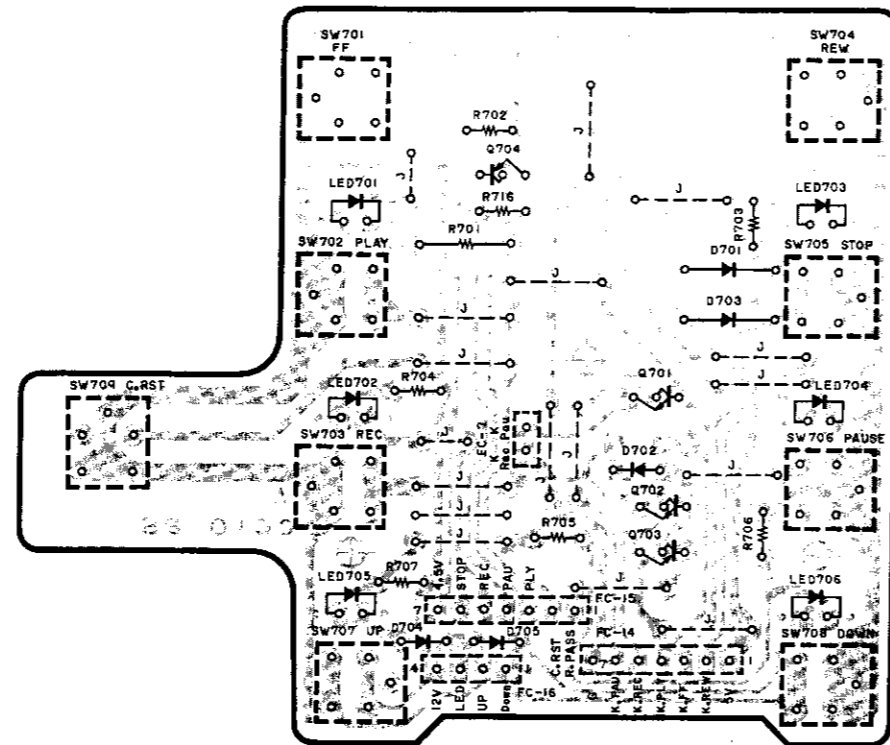


Fig. 7.8

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

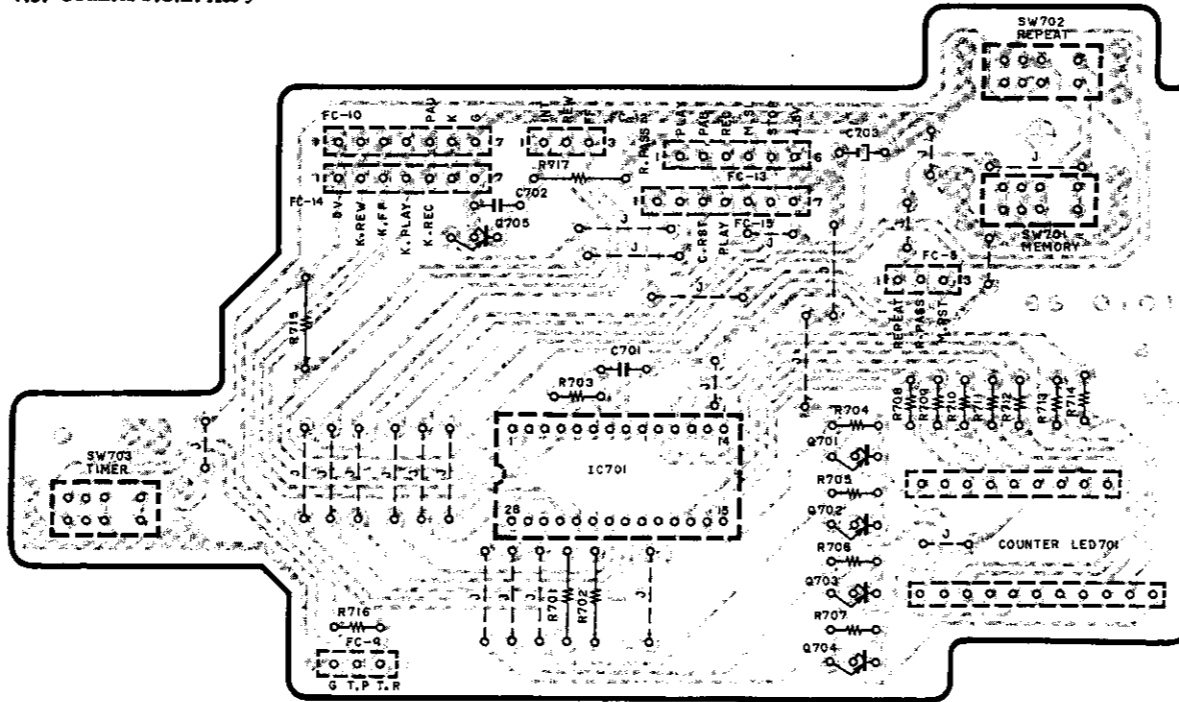


Fig. 7.9

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

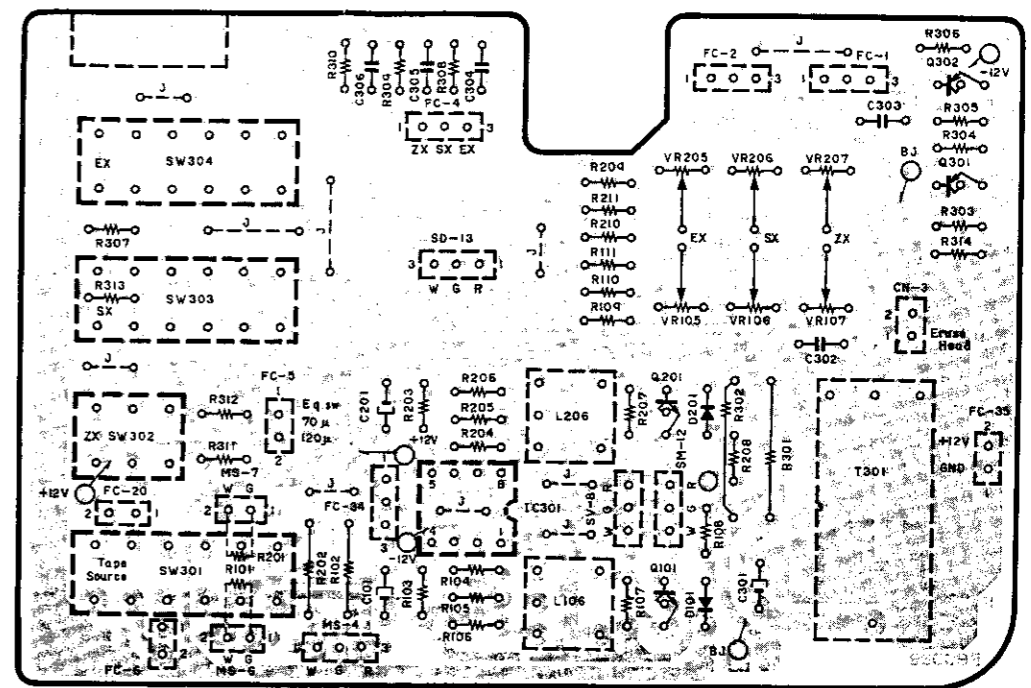


Fig. 7.10

| Schematic Ref. No. | Part No. | Description | Schematic Ref. No. | Part No. | Description |
|--------------------|-------------------|---------------------------------|--------------------|-----------------|-----------------------|
| | BA05366A | Tape Switch P.C.B. Ass'y | C304,305 | OB05681A | CM 0.01μ 50V J |
| | - Line Amp. - | | 306 | OB81051A | 2P-S Post |
| | | | 307 | OB81164A | Wire Trap 3P (1) |
| | | | 308 | OB81010A | Dip Mate 3P (7) |
| | | | 309 | OB81002A | Dip Mate 2P (4) |
| | | | 310 | OB70030A | Push Switch 5-Key (1) |
| | | | 311 | OJ04768B | Earth Plate A (1) |
| | | | | | |
| IC301 | OB06443A | IC NJM082D | | | |
| Q101,201 | OB01872A | TR 2SC945L (P,Q) | | | |
| L106,206 | OB06691A | L-C Block | | | |
| D101,201 | OB06398A | SiD 1SS176 | | | |
| R101,102 | OB09725A | RK 100K 1/6W J | | | |
| 201,202 | | | | | |
| R103,203 | OB09733A | RK 220K 1/6W J | | | |
| R104,204 | OB22342A | RM 9.76K 1/6W F | | | |
| R105,205 | OB22308A | RM 4.99K 1/6W F | | | |
| R106,206 | OB09677A | RK 1K 1/6W J | | | |
| R107,207 | OB09749A | RK 1M 1/6W J | | | |
| R108,208 | OB09701A | RK 10K 1/6W J | | | |
| C101,201 | OB09814A | CE 1μ 50V (LN) | | | |
| C107,207 | OB09270A | CP 470P 100V J | | | |
| | - Miscellaneous - | | | | |
| Q301 | OB60098B | Tape Switch P.C.B. | | | |
| Q302 | OB01426A | TR 2SA562 (O,Y) | | | |
| T301 | OB06013A | TR 2SA733 (P,Q) | | | |
| | OB51047A | Bias Osc. | | | |
| VR105,205 | OB32010A | Semi-fixed VR 47K | | | |
| VR106,206 | OB32009A | Semi-fixed VR 22K | | | |
| VR107,207 | OB32008A | Semi-fixed VR 10K | | | |
| R109,209 | OB09705A | RK 15K 1/6W J | | | |
| R110,210 | OB09697A | RK 6.8K 1/6W J | | | |
| R111,211 | OB09653A | RK 100 1/6W J | | | |
| R301 | OB09936A | RF 10 1/2W J | | | |
| R302 | OB09998A | RF 22 1W J | | | |
| R303 | OB09685A | RK 2.2K 1/6W J | | | |
| R304 | OB09721A | RK 68K 1/6W J | | | |
| R305,306 | OB09701A | RK 10K 1/6W J | | | |
| 313 | | | | | |
| R307 | OB09717A | RK 47K 1/6W J | | | |
| R308,309 | OB09725A | RK 100K 1/6W J | | | |
| 310,311 | | | | | |
| 312 | | | | | |
| R314 | OB09669A | RK 470 1/6W J | | | |
| C301 | OB01403A | CE 47μ 16V | | | |
| C302 | OB09538A | CP 0.018μ 100V J | | | |
| C303 | OB09844A | CF 1000P 50V J | | | |

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

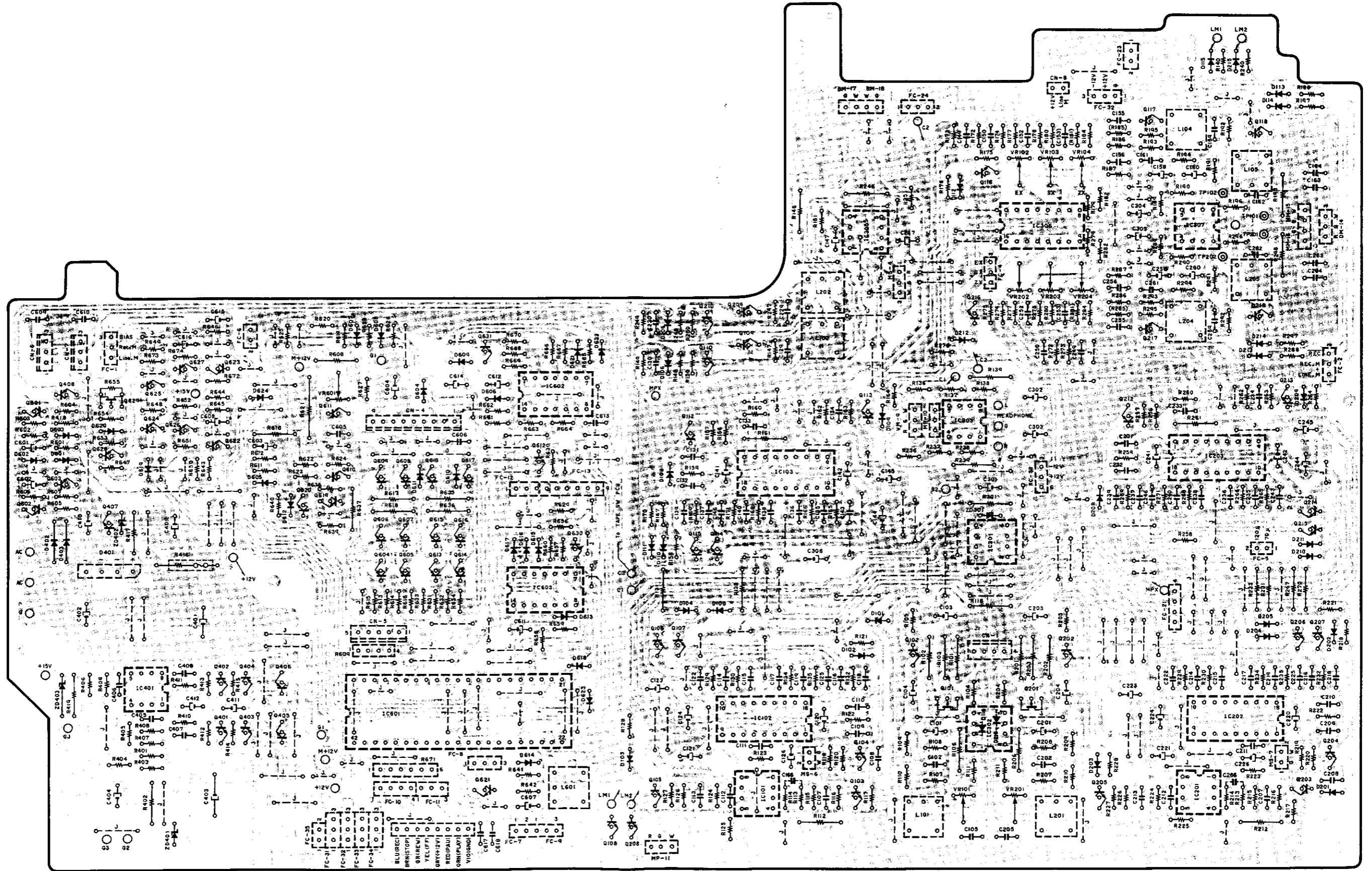


Fig. 7.11.1 Serial No.: A12702001 -

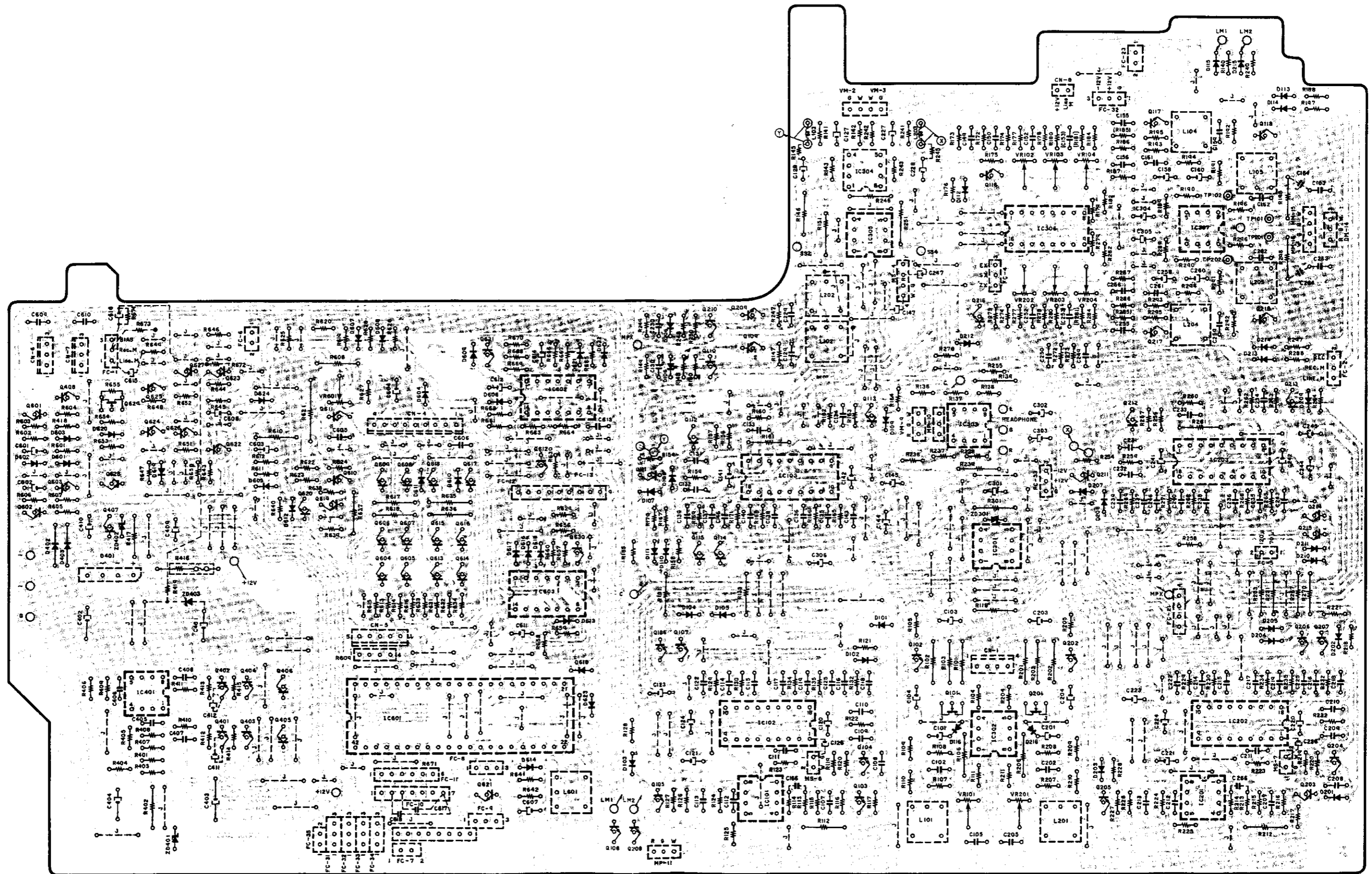


Fig. 7.11.2 Serial Nos.: A12701001 - 02000

8. SCHEMATIC DIAGRAMS

8.1. IC Block Diagrams

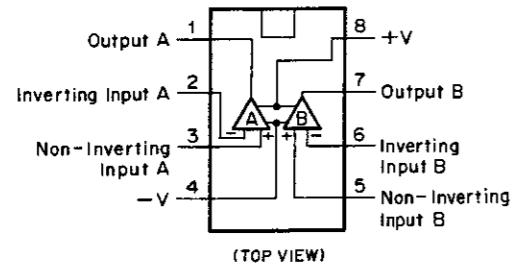


Fig. 8.1.1 Operational Amp. IC 4558DD, 072DE, 4556D, 4556C, 2043DD, 082D, TL092

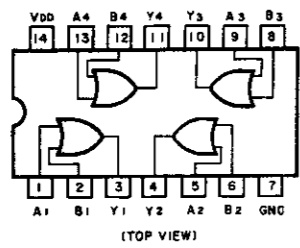


Fig. 8.1.2 OR Gate C-MOS IC μPD4071BC

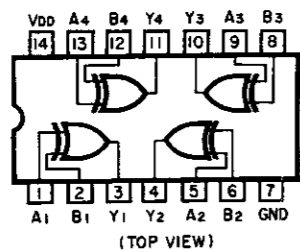


Fig. 8.1.3 Exclusive OR Gate C-MOS IC μPD4030BC

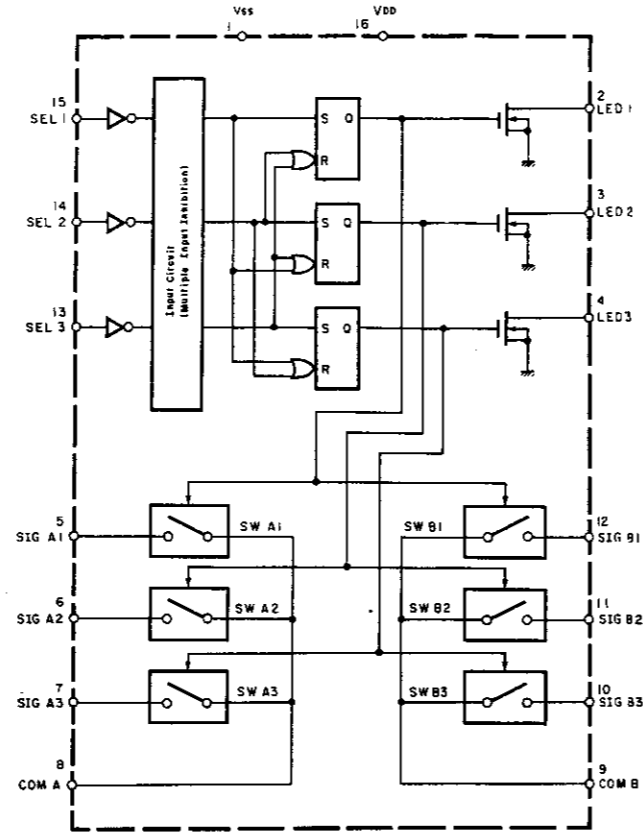


Fig. 8.1.4 Analog Switch Selector TC9145P

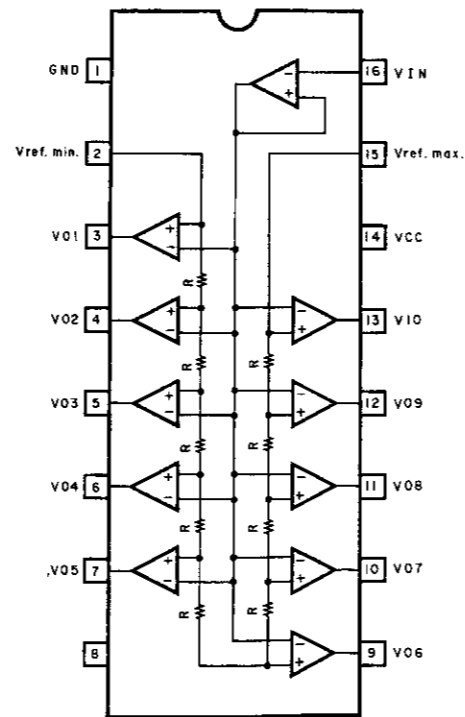


Fig. 8.1.5 Level Meter Driver TA7612AP

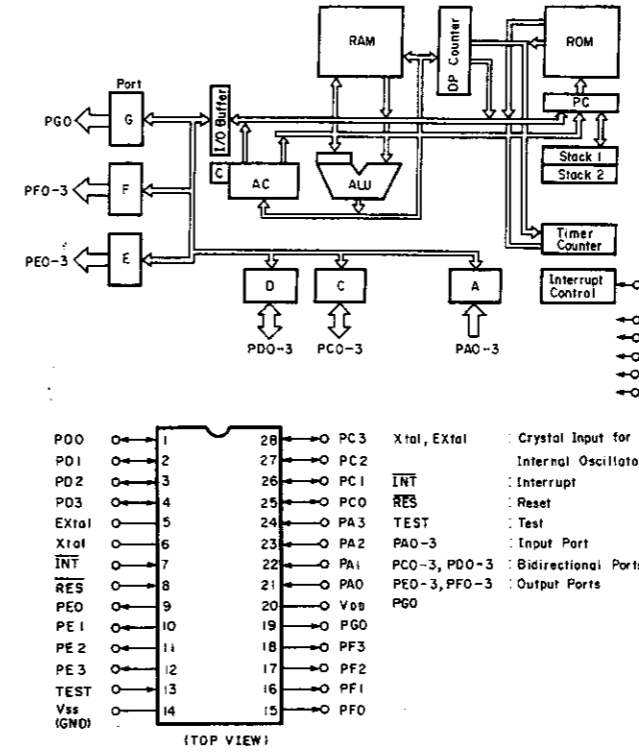


Fig. 8.1.6 4-Bit Micro-processor LM6416E-106

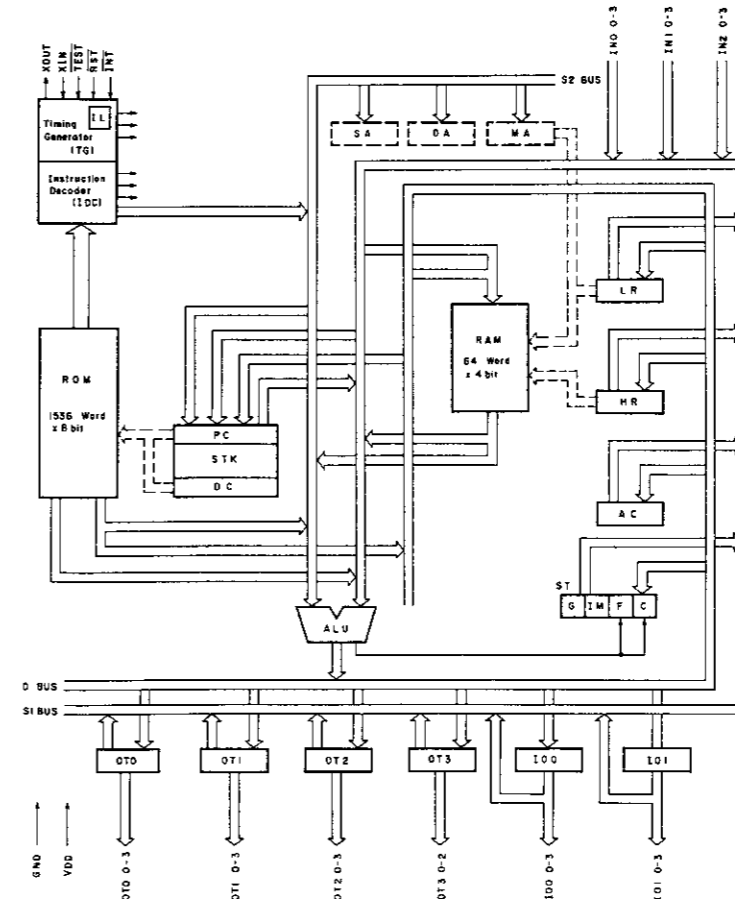


Fig. 8.1.7 4-Bit Micro-processor TMP4315BP-1814

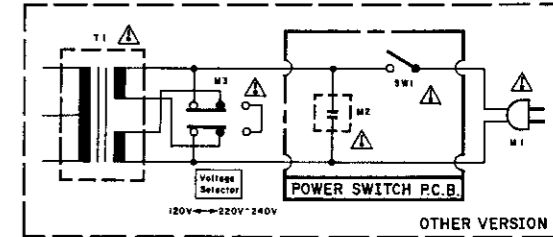
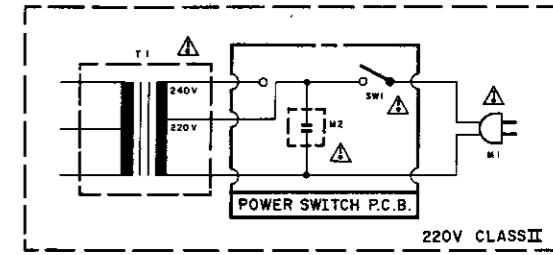
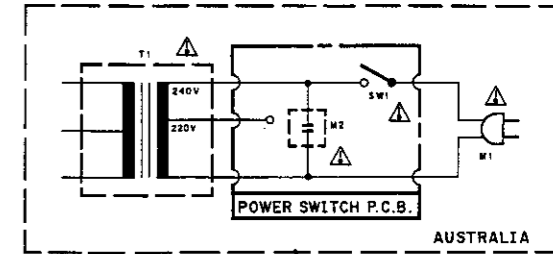
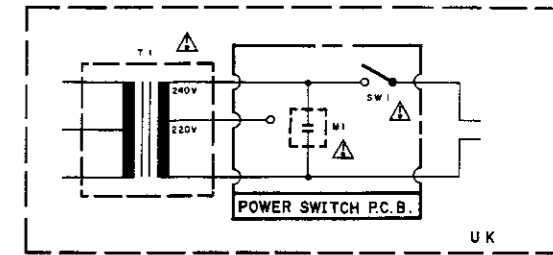
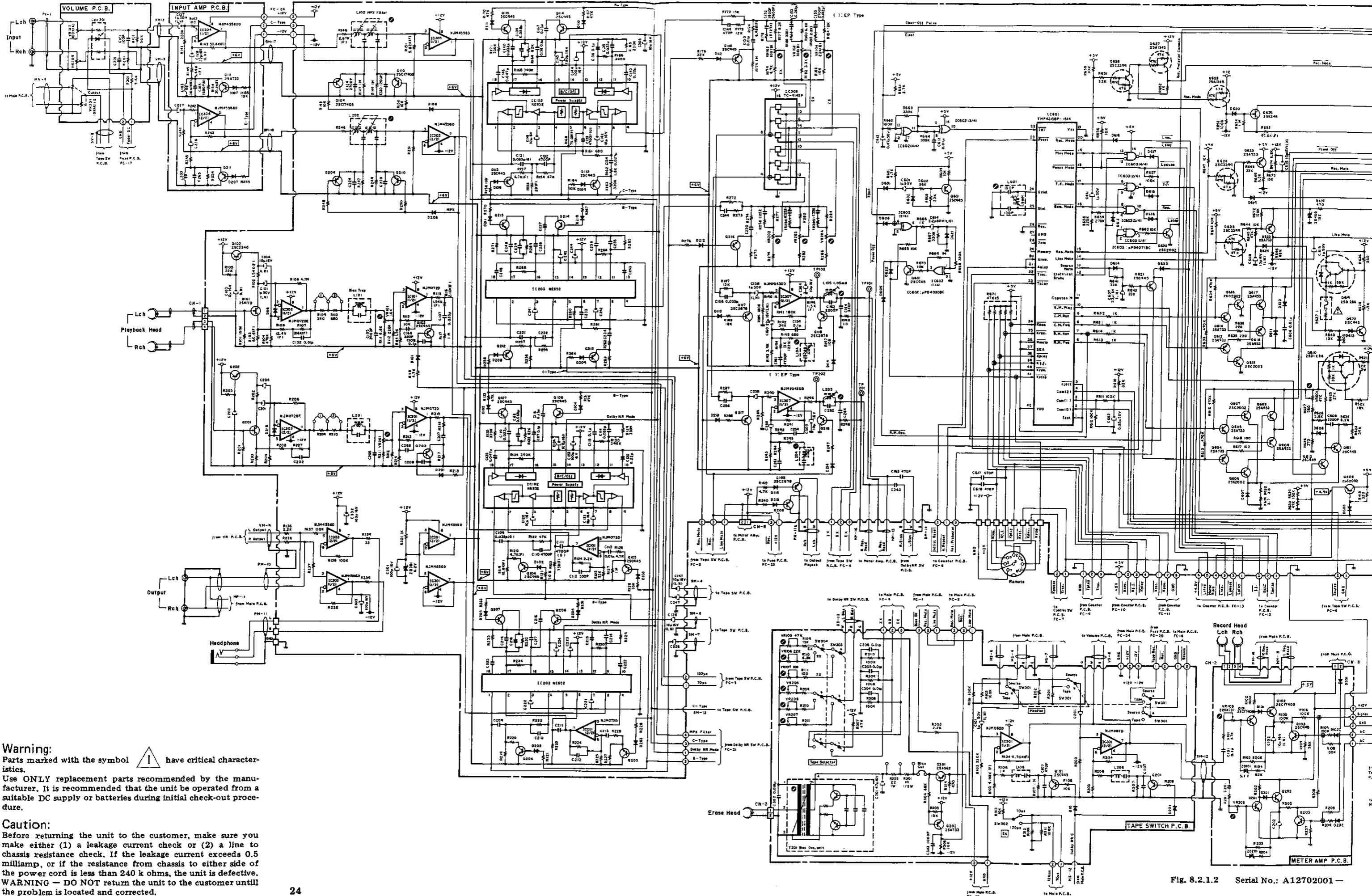



Fig. 8.2.1.1

8.2. Schematic Diagrams



Warning:
Parts marked with the symbol  have critical characteristics. Use ONLY replacement parts recommended by the manufacturer. It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedure.

Caution:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamp, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective. **WARNING — DO NOT** return the unit to the customer until the problem is located and corrected.

Fig. 8.2.1.2 Serial No.: A12702001 —

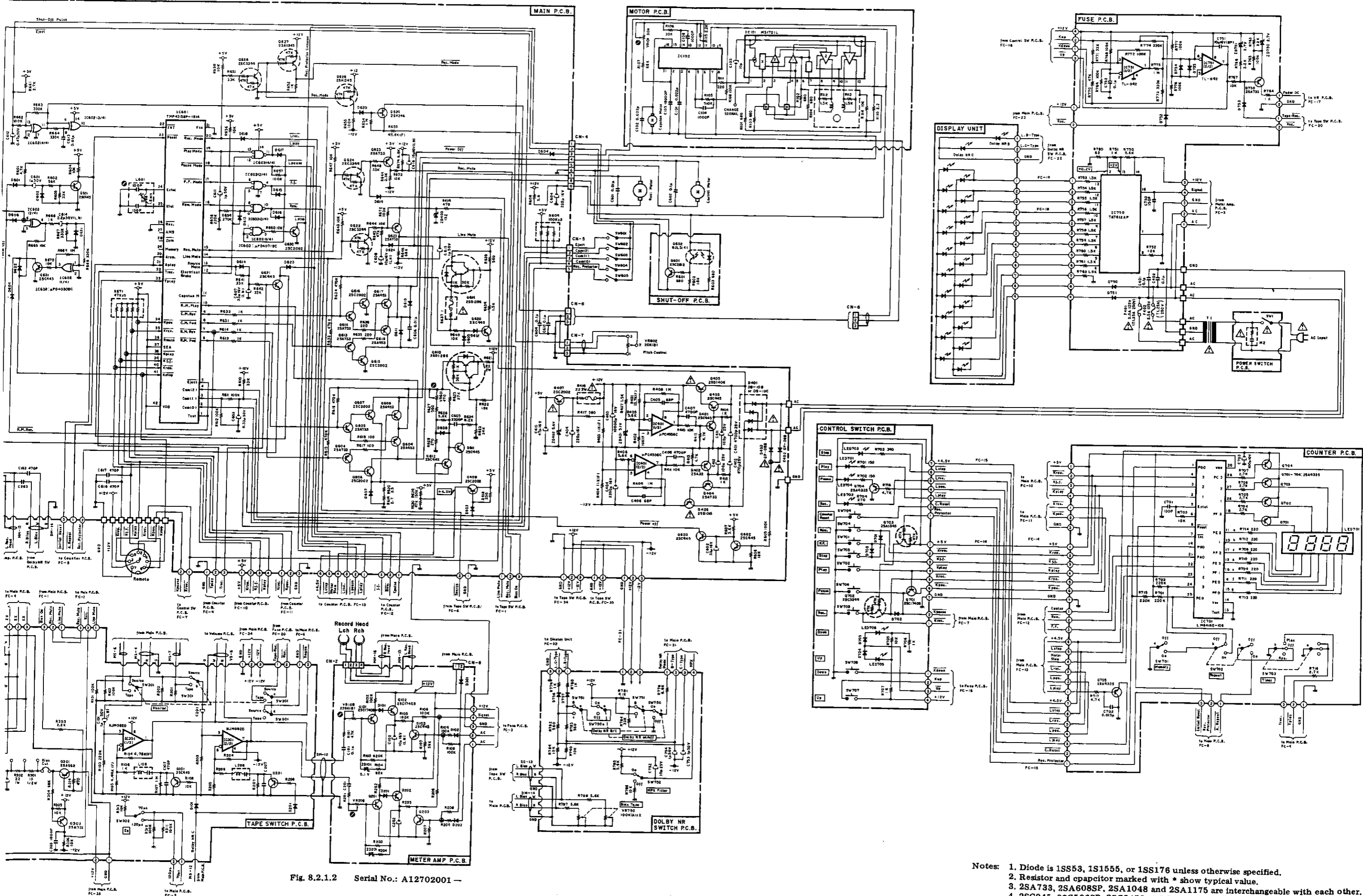


Fig. 8.2.1.2 Serial No.: A12702001 -

- Notes:
1. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
 2. Resistor and capacitor marked with * show typical value.
 3. 2SA733, 2SA608SP, 2SA1048 and 2SA1175 are interchangeable with each other.
 4. 2SC945, 2SC536SP, 2SC2458 and 2SC2785 are interchangeable with each other.

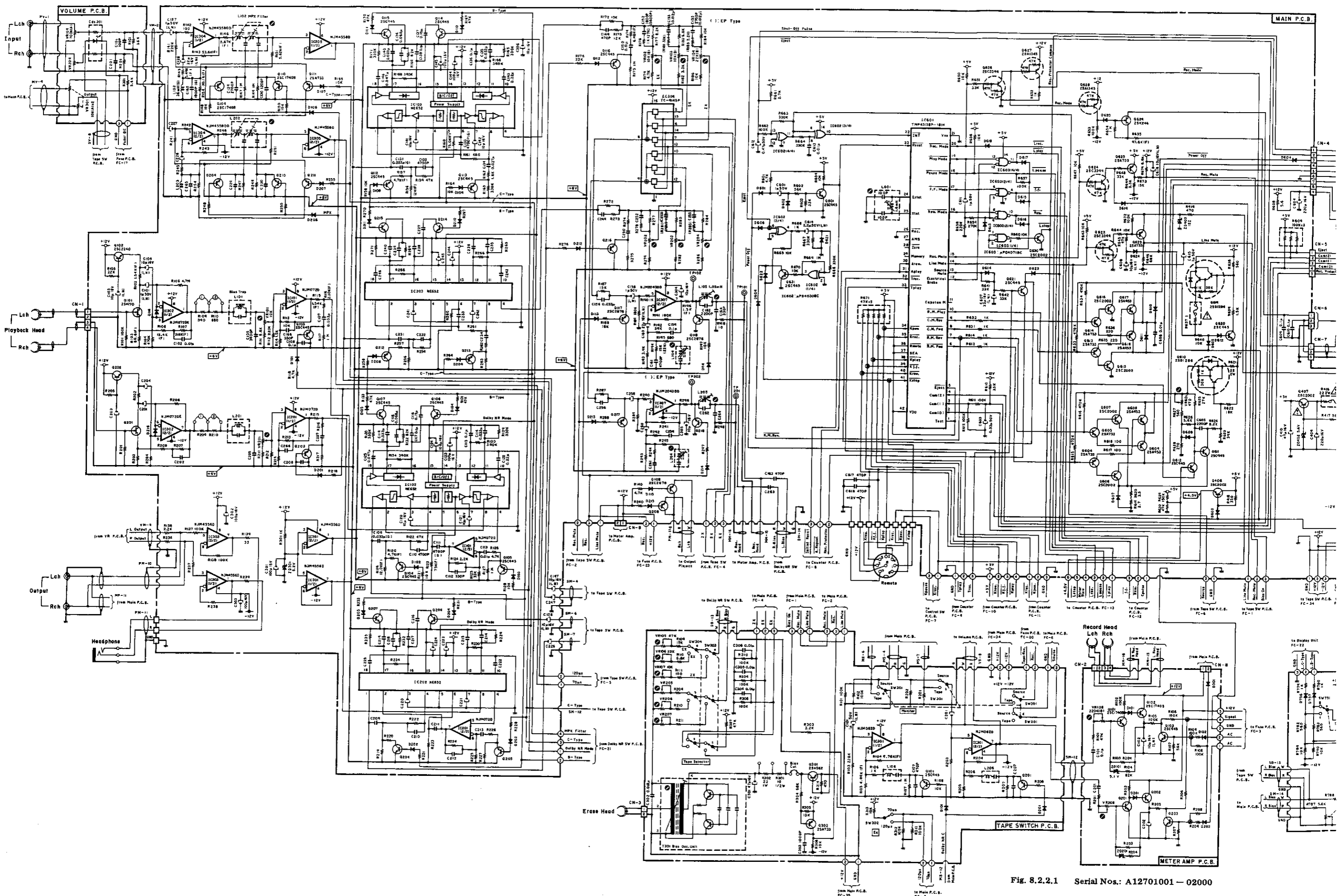


Fig. 8.2.2.1 Serial Nos: A12701001 - 02000

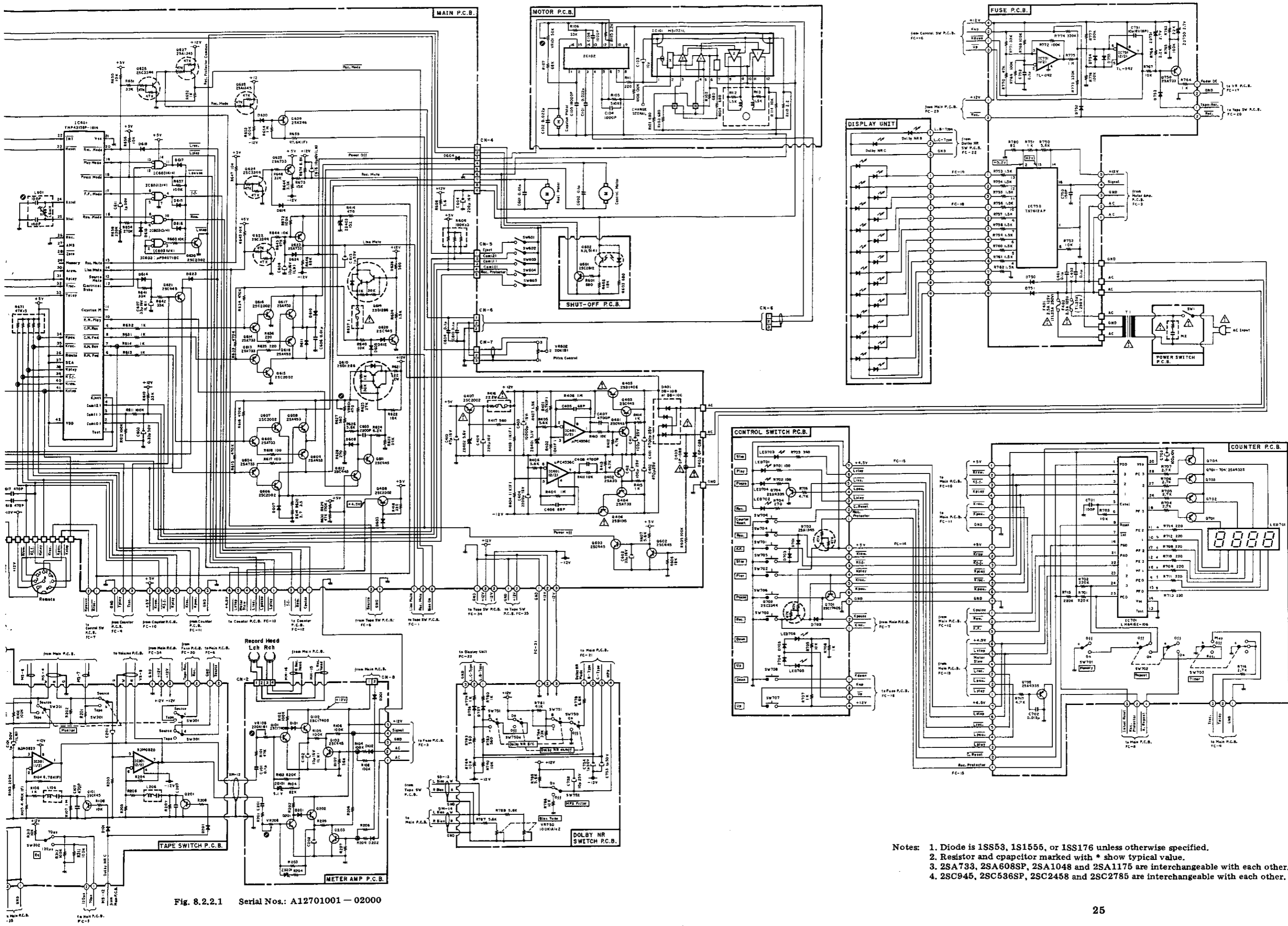


Fig. 8.2.2.1 Serial Nos.: A12701001 - 02000

- Notes:
1. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
 2. Resistor and capacitor marked with * show typical value.
 3. 2SA733, 2SA608SP, 2SA1048 and 2SA1175 are interchangeable with each other.
 4. 2SC945, 2SC536SP, 2SC2458 and 2SC2785 are interchangeable with each other.

9. TIMING CHART AND EQ. AMP. FREQUENCY RESPONSE

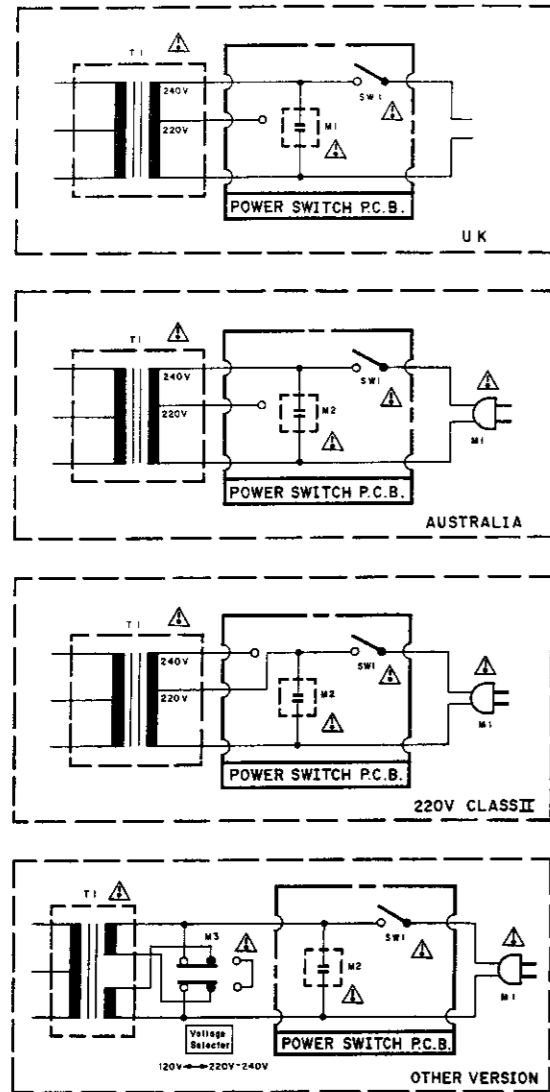



Fig. 8.2.2.2

Warning:
Parts marked with the symbol  have critical characteristics. Use ONLY replacement parts recommended by the manufacturer. It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedure.

Caution:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamp, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective. **WARNING — DO NOT** return the unit to the customer until the problem is located and corrected.

9.1. Timing Chart

(1) Overall Timing Chart

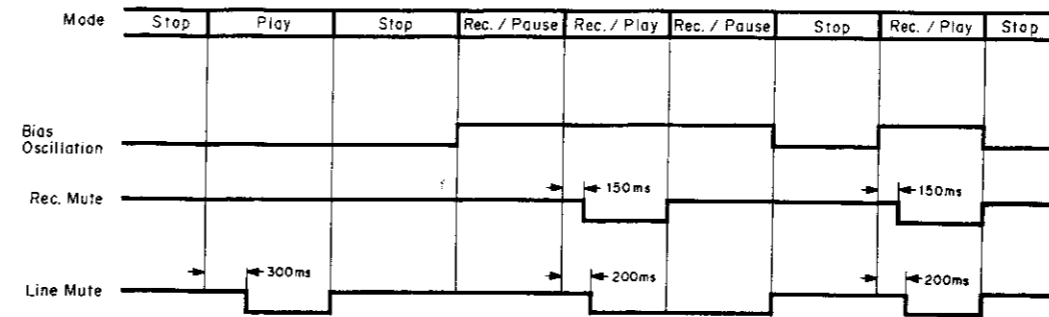


Fig. 9.1.1

(2) Mechanism Control Timing Chart

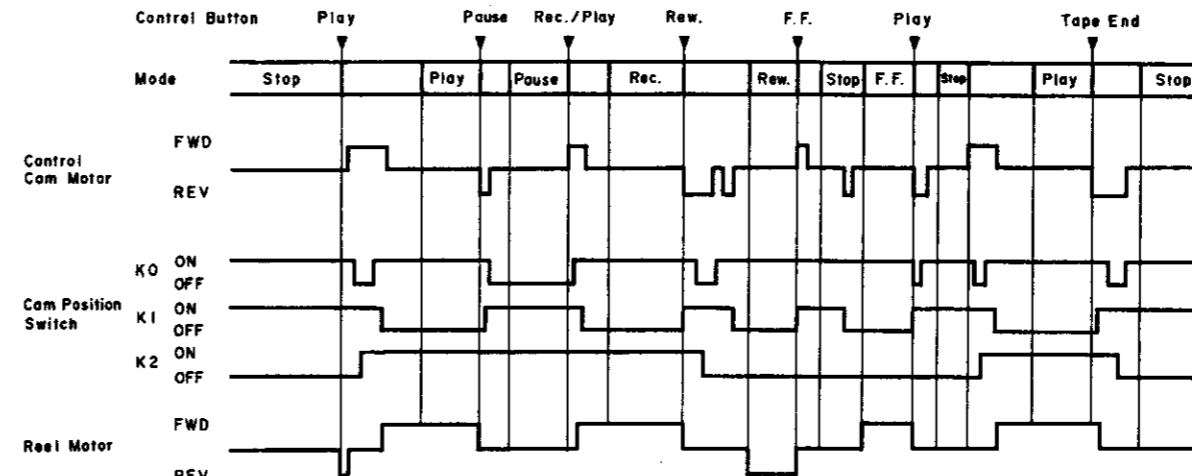


Fig. 9.1.2

9.2. Eq. Amp. Frequency Response

(1) Playback Frequency Response

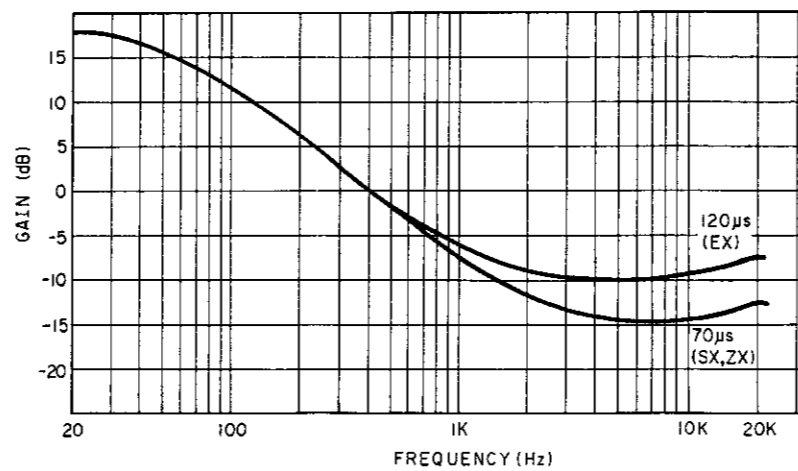


Fig. 9.2.1

(2) Record Current Frequency Response

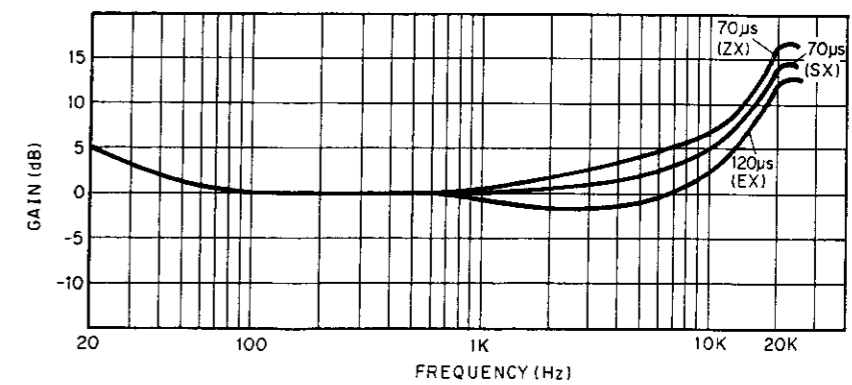


Fig. 9.2.2

10. WIRING DIAGRAM

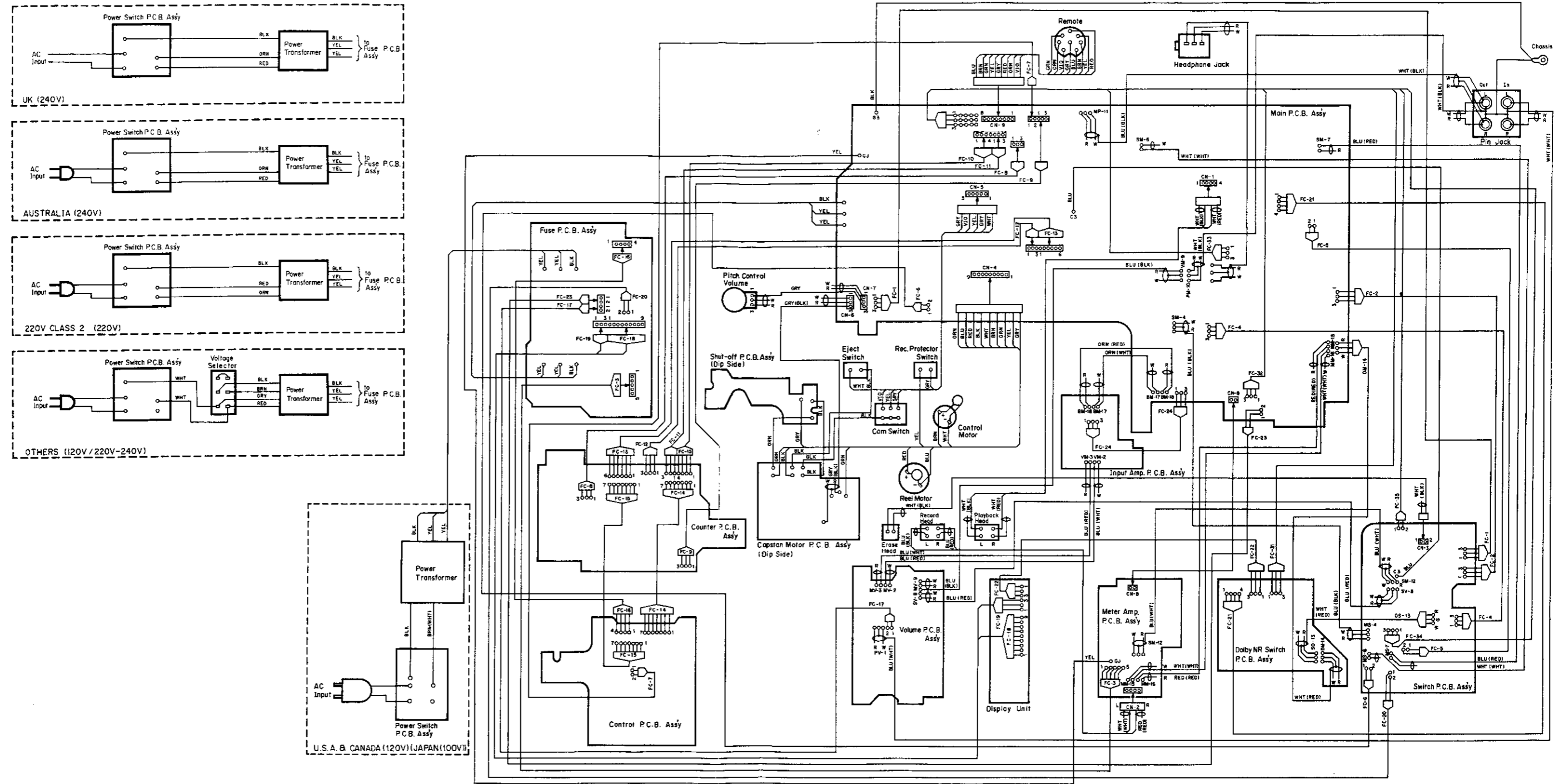


Fig. 10

- Notes: 1 Table of wire colors
- | | |
|--------------|--------------|
| BRN - Brown | BLU - Blue |
| RED - Red | VIO - Violet |
| ORN - Orange | GRY - Gray |
| YEL - Yellow | WHT - White |
| GRN - Green | BLK - Black |
2. Component side view of the P.C.B. is illustrated unless otherwise specified.
 3. Wire tube color is shown in ().

11. BLOCK DIAGRAMS

11.1. Amplifier Section

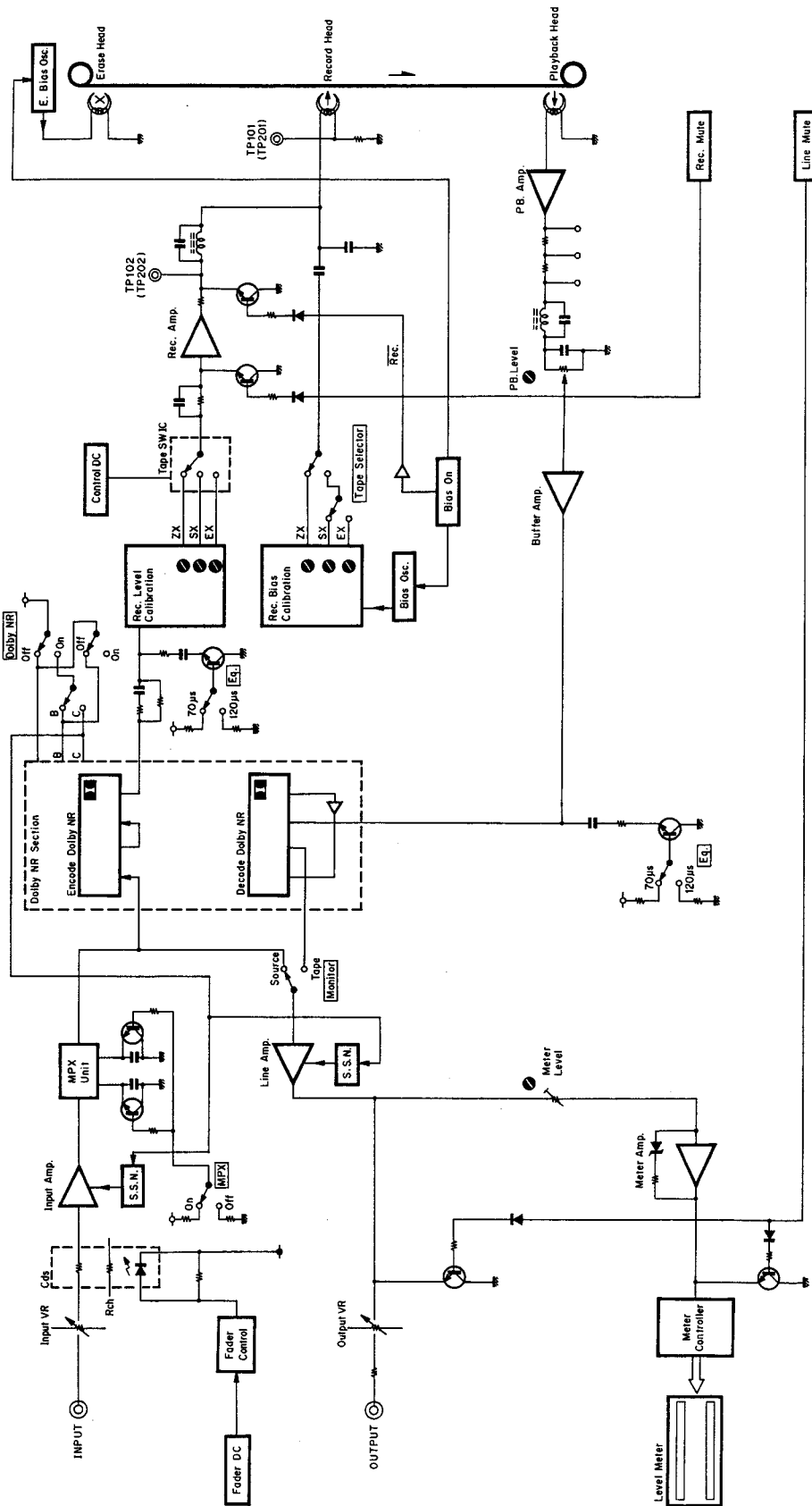


Fig. 11.1

11.2. Mechanism Control Section

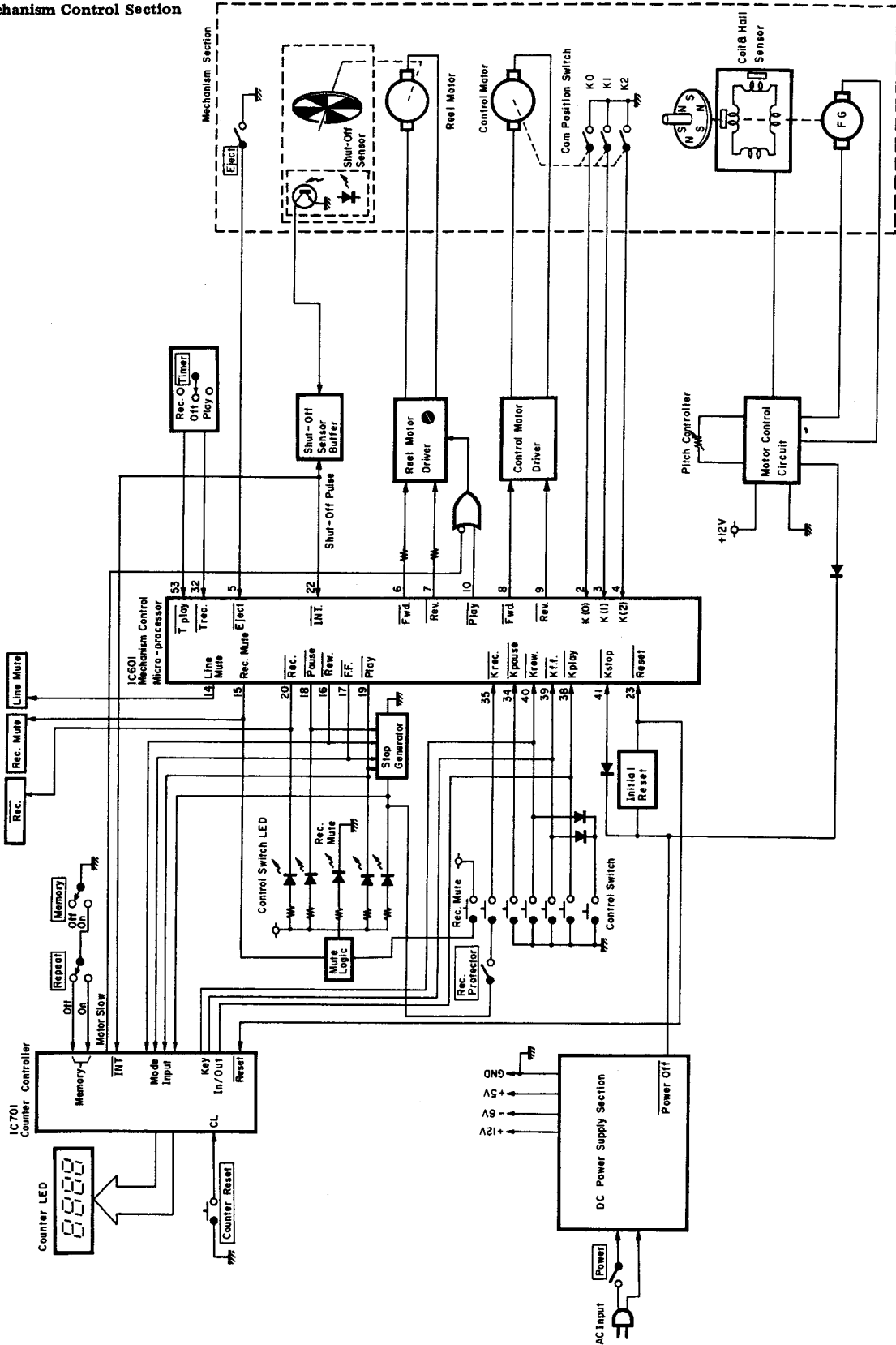


Fig. 11.2

12. SPECIFICATIONS

| | |
|---------------------------|--|
| Track Configuration | 4 tracks/2-channel stereo |
| Heads | 3 (Erase Head x 1, Record Head x 1, Playback Head x 1) |
| Motors | <Tape Transport> FG Servo Brushless, Slotless, Coreless, DD Motor (Capstan Drive) x 1 DC Motor (Reel Drive) x 1 <Mechanism> DC Motor (Cam Drive) x 1 |
| Power Source | 100, 120, 120/220-240, 220 or 240 V AC, 50/60 Hz (According to country of sale) |
| Power Consumption | 27 W max. |
| Tape Speed | 1-7/8 ips. (4.8 cm/sec.) $\pm 0.5\%$ |
| Wow and Flutter | Less than $\pm 0.048\%$ WTD Peak Less than 0.027% WTD RMS |
| Frequency Response | 20 Hz–20,000 Hz ± 3 dB (recording level –20 dB) |
| Signal to Noise Ratio | Dolby C-Type NR on <70 μ s, ZX tape> Better than 70 dB (400 Hz, 3% THD, IHF A-WTD RMS) Dolby B-Type NR on <70 μ s, ZX tape> Better than 64 dB (400 Hz, 3% THD, IHF A-WTD RMS) |
| Total Harmonic Distortion | Less than 0.9% (400 Hz, 0 dB, ZX tape) Less than 1.0% (400 Hz, 0 dB, SX, EXII tape) |
| Erasure | Better than 60 dB (100 Hz, 0 dB) |
| Separation | Better than 36 dB (1 kHz, 0 dB) |
| Crosstalk | Better than 60 dB (1 kHz, 0 dB) |
| Bias Frequency | 105 kHz |
| Input (Line) | 50 mV/30 k Ω |
| Output (Line) | 1.0 V (400 Hz, 0 dB, output level control at max.)/2.2 k Ω |
| (Headphones) | 5 mW into 8 Ω (400 Hz, 0 dB, output level control at max.) |
| Fast Wind Time | Approx. 80 seconds (with C-60 cassette) |
| Dimensions | 430 (W) x 100 (H) x 250 (D) millimeters 16-15/16 (W) x 3-15/16 (H) x 9-7/8 (D) inches |
| Approximate Weight | 5.6 kg 12 lb. 6 oz |

- Specifications and design are subject to change for further improvement without notice.
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