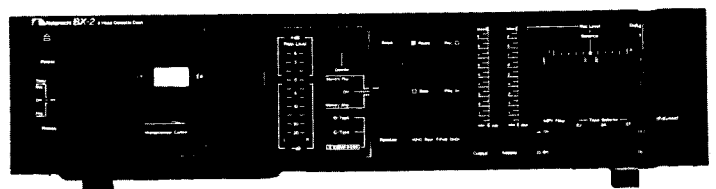




Service Manual

Nakamichi BX-2

2 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-2. This voltage selector can select either 120 V or 220-240 V at customer's disposal.

1.2. Parts List for Carton and Packing

<u>Part No.</u>	<u>Description</u>	<u>Q'ty</u>
OF03673C	Carton	1
OF03674A	Packing	2

1.3. Serial Number

The BX-2 has two versions, Silver and Black.

In the service manual, serial numbers of these versions are identified as follows:

Silver version: A316xxxxx

Black version: A317xxxxx

However, the actual serial number on the serial number plate of the BX-2 is indicated as A316.7xxxxx. The serial number begins with A316.701001.

2. MECHANICAL ADJUSTMENTS

2.1. Tape Guide Height Check for Record/Playback Head and Erase Head

With use of an M-300 produced by Information Terminals, tape guide height check for the Record/Playback Head and Erase Heads shall be made, wherein a small block shall be pushed straight down to the base while in use of the M-300. Refer to Fig. 2.1.

- (1) **Record/Playback Head Tape Guide Height**
 - (a) Load the base of the M-300 carefully, then set the cassette deck in Play mode.
 - (b) Place the small block of the M-300 on the base.
 - (c) Slide the small block against the tape guide of the Record/Playback Head, and check to insure that the block is accepted by the tape guide.
 - (d) If not, loosen the screw and insert a shim (either 30 μm (OC80048A), 60 μm (OC80038A), or 100 μm (OC80039A)) to raise the Record/Playback Head, then tighten and apply a quantity of lock tight paint to the screw.
- (2) **Erase Head Tape Guide Height**
 - (a) Load the base of the M-300 carefully, then set the cassette deck in Play mode.
 - (b) Place the small block of the M-300 on the base.
 - (c) Slide the small block against the tape guide of the Erase Head, and check whether the block is accepted by the tape guide.

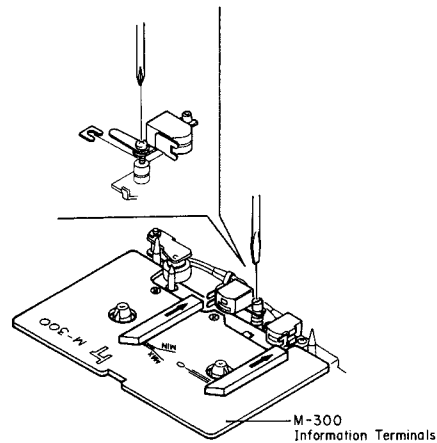


Fig. 2.1

2.2. Head Base Stroke Check

Refer to Fig. 2.2.

- (1) Load the base of the M-300 carefully, then push the base toward the Record/Playback Head to eliminate the clearance between the reference pin and the base.
- (2) Set the cassette deck in Play mode.
- (3) Place the small block of the M-300 on the base.
- (4) Contact the small block with the Record/Playback Head surface and the Erase Head surface, and check whether the end of the small block is located within the specified tolerance as shown in the figure.

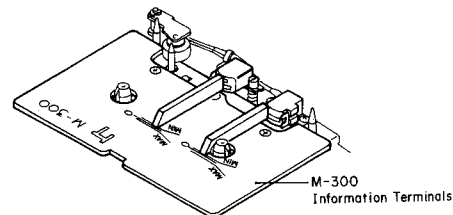


Fig. 2.2

2.3. Record/Playback Azimuth Alignment and Height Check

Refer to Fig. 2.1.

- (1) Connect a VTVM to the Output Jacks.
- (2) Load a 15 kHz Azimuth Tape (DA09004A), then set the cassette deck in Play mode.
- (3) Turn the Azimuth Alignment Screw until the outputs of both channels become maximum.
- (4) Load a 1 kHz Track Alignment Tape (DA09007A), then set the cassette deck in Play mode.
- (5) Check to insure that the readings of both channels on the VTVM are below -25 dB.
If not, replacement of the Record/Playback Head will be required.
- (6) Apply a quantity of lock tight paint to the Azimuth Alignment Screw.

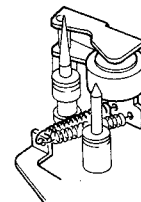


Fig. 2.3

2.4. Pressure Adjustment of Pressure Roller

Refer to Fig. 2.3.

- (1) In Play mode, measure the torque of the Pressure Roller and check whether the torque is in a range of 320 \pm 50 g-cm.
- (2) If torque is out of the range, correct it by changing the installation point of the Pressure Roller Spring.

2.5. Tape Travelling Check

Load the Tape Travelling Cassette (DA09027A), then set the cassette deck in Play mode and check the following:

- (1) After more than 2 seconds, the fluctuation of the tape travelling on the Record/Playback Head is small.
- (2) Tape is in contact with the head sufficiently.
- (3) Tape waving is small on the heads and pressure roller.

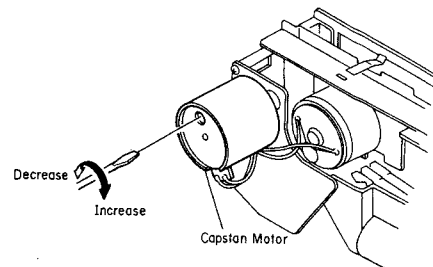


Fig. 2.4

2.6. Eject Damper Adjustment

Refer to Fig. 2.4. 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 movement by the Adjustment Screw.

- CCW: Damper moves fast.
CW: Damper moves slowly.

2.7. Reel Motor Speed Adjustment in Play Mode

- (1) Connect a DC Voltmeter across the Reel Motor terminals.
- (2) Load a C-60 cassette tape, then set the cassette deck in Play mode.
- (3) Adjust VR601 on the Main P.C.B. Ass'y to obtain approx. 3 V on the DC Voltmeter at the beginning of the tape.
- (4) Load a Torque Meter TW-2111 (Made by Sony) and check that the torque is 50 ± 10 g-cm.

2.8. Tape Speed Adjustment

Refer to Fig. 2.5.

- (1) Connect a frequency counter to the Output Jacks.
- (2) Load a 3 kHz Speed and Wow/Flutter Tape (DA09006B) and Play it back.
- (3) Adjust the Tape Speed Adjustment Volume incorporated in the Capstan Motor to obtain 3,000 Hz on the frequency counter.

CCW: Motor drives slowly.

CW: Motor drives fast.

2.9. Lubrication

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

- (1) Molykote® 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® Grease (X5-6020)
Dowcorning 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

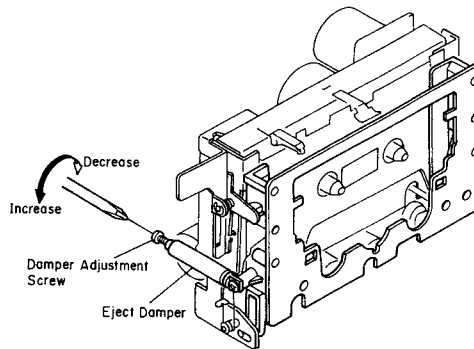


Fig. 2.5

3. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

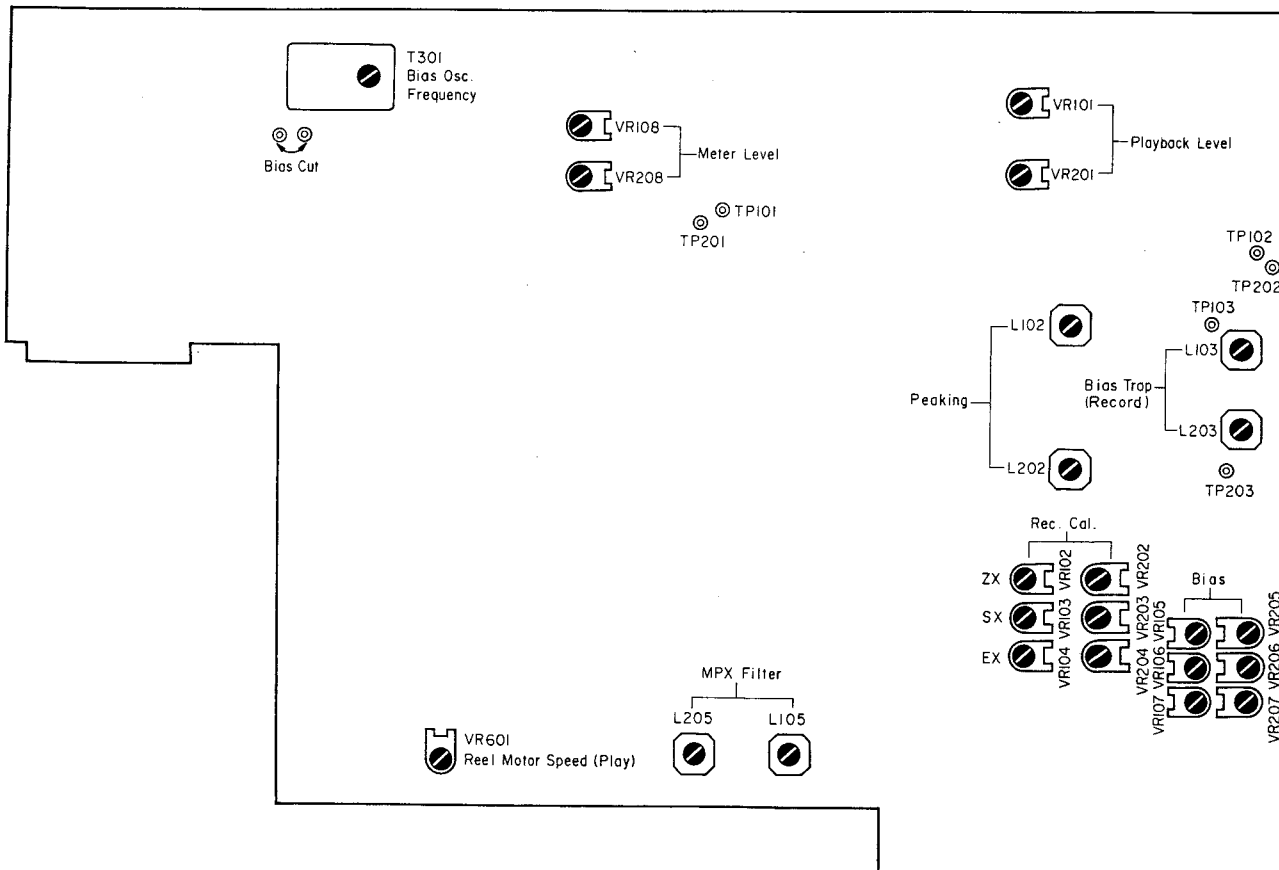


Fig. 3

4. ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

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

4.1. Adjustment and Measurement Instructions

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS						
1	Tape Speed Adjustment	3 kHz Speed and Wow/Flutter Tape (DA09006B)	Frequency Counter to Output Jacks	Playback Eq. SW — 70 μ s	Tape Speed Adjustment Volume	Adjust the volume incorporated in the capstan motor to obtain 3 kHz \pm 0.5% on the frequency counter.						
2	Meter Level Calibration	400 Hz to Input Jacks	VTVM to TP101, TP201 on Main P.C.B.	Record, Pause	Main P.C.B. VR108,VR208	<ol style="list-style-type: none"> 1. Feed in 400 Hz, then adjust the Input Level control to obtain 350 mV -0.9 dB on the VTVM. 2. Adjust VR108 (VR208) so that the 0 dB segment of the level meter starts illuminating. 3. Adjust the Input Level control to obtain 350 mV on the VTVM, then decrease the generator output level by 20 dB. 4. Check to insure that the segment for -20 dB illuminates. 						
3	MPX Filter Adjustment	19 kHz \pm 100 Hz to Input Jacks	VTVM to Output Jacks	Record, Pause MPX SW — OFF/ON	Main P.C.B. L105,L205	<ol style="list-style-type: none"> 1. Adjust the Input Level control to obtain 0 dB (500 mV) on the VTVM. 2. Set the MPX Filter switch to ON, then adjust L105 (L205) to obtain minimum reading on the VTVM (minimum reading will be less than -30 dB). 						
4	Record/Playback Head Azimuth Alignment	15 kHz Azimuth Tape (DA09004A)	VTVM to Output Jacks	Playback Eq. SW — 70 μ s Dolby NR SW — OFF MPX SW — OFF	Record/Playback Head Azimuth Alignment Screw	Adjust the Record/Playback Head Azimuth Alignment Screw to obtain maximum readings of both channels on the VTVM.						
5	Playback Level Calibration	400 Hz Level Tape (DA09005A)	VTVM to TP101, TP201 on Main P.C.B.	Same as above	Main P.C.B. VR101,VR201	Adjust VR101 (VR201) to obtain 350 mV on the VTVM.						
6	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 Output Jacks	Playback Eq. SW — 70 μ s Dolby NR SW — OFF MPX SW — OFF		<ol style="list-style-type: none"> 1. Load a 400 Hz level tape and play it back. 2. Load 10 kHz, 15 kHz and 20 kHz PB frequency response tapes and adjust the record/playback head azimuth to obtain maximum levels on the VTVM with each tape. 3. Read the maximum levels with each tape and check to insure that the levels against the 400 Hz level tape are within the following ranges. <table border="0"> <tr> <td>10 kHz (-20 dB)</td> <td>-2 dB to $+2$ dB</td> </tr> <tr> <td>15 kHz (-20 dB)</td> <td>-2 dB to $+3$ dB</td> </tr> <tr> <td>20 kHz (-20 dB)</td> <td>-2 dB to $+4$ dB</td> </tr> </table> Check to insure that the difference in level between 10 kHz (-20 dB) and 20 kHz (-20 dB) is less than 2 dB. Note: If the playback level of 20 kHz PB frequency response tape is insufficient, add C107 (C207) 150 pF in parallel with C108 (C208) 1200 pF in the playback eq. amp. circuit of the Main P.C.B. Ass'y. 4. Conduct step 4 "Record/Playback Head Azimuth Alignment". 	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
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											
7	Bias Oscillation Frequency and Erase Current Adjustment		Frequency Counter to TP102 on Main P.C.B. and VTVM across the additional 0.1 Ω resistor	Record, Pause Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — OFF MPX SW — OFF	Main P.C.B. T301 R318,R350	<ol style="list-style-type: none"> 1. Adjust T301 to obtain 105 kHz on the frequency counter. 2. Connect an additional 0.1 Ω resistor in series to the Erase Head, then connect a VTVM across it. 3. Check the erase current by the VTVM. Erase current will be in a range of 145 mA to 185 mA (typically approx. 165 mA). If erase current is not sufficient, increase it by shorting R318 or R350. 4. After completion of the erase current adjustment, re-check the bias oscillation frequency. 5. Remove the additional 0.1 Ω resistor. 						
8	Record Amplifier Equalizer Adjustment	21 kHz (-20 dB) to Input Jacks	VTVM to TP102, TP202 on Main P.C.B.	Same as above	Main P.C.B. L102,L202	<ol style="list-style-type: none"> 1. Short both Bias Stop test pins with a clip to stop the bias oscillation. 2. Adjust L102 (L202) to obtain peak reading at 21 kHz on the VTVM. 3. Remove the clip from the test pins. 						
9	Bias Trap Adjustment (Record Amp.)	Remove input signals	VTVM to TP103, TP203 on Main P.C.B.	Same as above	Main P.C.B. L103,L203	Adjust L103 (L203) to obtain maximum reading on the VTVM.						

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
10	Record Level Calibration and Recording Bias Current Adjustment	400 Hz (0 dB), 400 Hz (-20 dB), 10 kHz (-20 dB) and 17 kHz (-20 dB) to Input Jacks	VTVM to TP101, TP201 and TP102, TP202 on Main P.C.B. and VTVM and Distortion Meter to Output Jacks	Record and Playback 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: VR102,VR202 SX: VR103,VR203 EX: VR104,VR204 (Bias) ZX: VR105,VR205 SX: VR106,VR206 EX: VR107,VR207	Adjustment should be made in the order of ZX, SX and EX. <ol style="list-style-type: none"> Set the Dolby NR switch to C-Type. Connect a VTVM to TP101 (TP201) on the Main P.C.B. Ass'y. Set the BX-2 in Record/Pause mode. Feed in 400 Hz, then adjust the Input Level control to obtain 350 mV (0 dB) on the VTVM. Load a reference ZX tape (DA09037A), reference SX tape (DA09025A) and reference EXII tape (DA09066A). Adjust Record Cal. VR102 (VR202) for ZX, VR103 (VR203) for SX and VR104 (VR204) for EXII to center positions. Connect the VTVM to TP102 (TP202) on the Main P.C.B. Ass'y. Adjust Bias VR105 (VR205) for ZX, VR106 (VR206) for SX and VR107 (VR207) for EXII to obtain the following bias current in Record/Pause mode (the VTVM is connected across a 10-ohm resistor). ZX: approx. 1 mA SX: approx. 0.5 mA EXII: approx. 0.3 mA Connect the VTVM to the Output Jacks. Feed in 400 Hz (-20 dB) and 17 kHz (-20 dB), then record, rewind and play them back. Adjust Bias VR105 (VR205) for ZX, VR106 (VR206) for SX and VR107 (VR207) for EXII to obtain the same playback levels at 400 Hz (-20 dB) and 17 kHz (-20 dB) on the VTVM. Feed in 400 Hz (0 dB), then record, rewind and play it back. Adjust Record Cal. VR102 (VR202) for ZX, VR103 (VR203) for SX and VR104 (VR204) for EXII to obtain 0 dB on the VTVM. Repeat above 9 and 10 two or three times to obtain optimum performance. Set the Dolby NR switch to OFF. Feed in 400 Hz (-20 dB), 10 kHz (-20 dB) and 17 kHz (-20 dB), then record, rewind and play them back. Check to insure that the playback levels are within -20 dB \pm 3 dB against the levels in Dolby NR C-Type. Set the Dolby NR switch to B-Type. Feed in 10 kHz (-20 dB) and 17 kHz (-20 dB), then record, rewind and play them back. Check to insure that the levels are within -20 dB \pm 2 dB against the levels in Dolby NR OFF. Check to insure whether the total harmonic distortion is less than 1.0% for ZX and EXII tapes and 1.2% for SX tape. If above is not sufficient, repeat 9 to 16 till satisfactory results are obtained.
11	Overall Frequency Response Adjustment	400 Hz (0 dB) and 20 Hz to 17 kHz (-20 dB) to Input Jacks	VTVM to Output Jacks	Record and Playback 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. L102,L202	<ol style="list-style-type: none"> Set the BX-2 in Record/Pause mode. Feed in 400 Hz, then set the Input Level control to obtain 0 dB (500 mV) on the VTVM. Decrease the generator output control by 20 dB. Feed in 20 Hz to 17 kHz (-20 dB) and record, rewind and play them back, then check to insure whether the output levels are within -20 dB \pm 4 dB. If above is not sufficient, adjust L102 (L202) to obtain approx. -20 dB on the VTVM, then conduct step 10 "Record Level Calibration and Recording Bias Current Adjustment". If above is not sufficient, precise re-adjustment of step 6 "Playback Frequency Response", replacement of Record/Playback Head or check on item 2.6 "Tape Travelling Check" will be required.
12	Crosstalk Measurement	1 kHz to Input Jacks	1 kHz Band Pass Filter and VTVM to Output Jacks	Record and Playback Tape SW - ZX Eq. SW - 70 μ s Dolby NR SW - OFF MPX SW - OFF		<ol style="list-style-type: none"> Erase the tape with bulk eraser. Adjust the Input Level control to obtain 0 dB on the VTVM, and record the signals on the reference ZX tape (DA09037A). Turn the cassette tape the other way round and play it back. Measure the difference between 2 and 3.

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
13	Channel Separation Measurement	1 kHz to Input Jacks	1 kHz Band Pass Filter and VTVM to Output Jacks	Record and Playback Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — OFF MPX SW — OFF		1. Erase the tape with bulk eraser. 2. Adjust the Input Level control to obtain 0 dB on the VTVM, and set the Balance control to the extreme left (right). 3. Record, rewind and play it back, then measure the R ch (L ch) level.
14	Erasure Measurement	100 Hz to Input Jacks	100 Hz Band Pass Filter and VTVM to Output Jacks	Same as above		1. Erase the tape with bulk eraser. 2. Adjust the Input Level control to obtain 0 dB on the VTVM, and record the signals on the reference ZX tape (DA09037A). 3. Rewind the tape, set the Input Level control to minimum, and then record again. 4. Rewind the tape, play it back, and then measure the difference between 2 and 3.
15	Signal to Noise Ratio Measurement	400 Hz to Input Jacks	IHF-A Curve, Filter, VTVM and Distortion Meter to Output Jacks	Record and Playback Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — B-Type/C-Type MPX SW — OFF		1. Set the Dolby NR switch to B-Type/C-Type. 2. Feed in 400 Hz, then record, rewind and play it back. 3. Adjust the Input Level control to obtain 3% total harmonic distortion in Playback mode. 4. Set the Input Level control to minimum then record again. 5. After rewind, play back and check the output level difference between 3 and 4. Note: The filter of IHF-A curve shall be used in the measurements.
16	Total Harmonic Distortion Measurement	400 Hz to Input Jacks	VTVM and Distortion Meter to Output Jacks	Record and Playback Tape SW — ZX/SX/EX Eq. SW — 70 μ s (ZX/SX) 120 μ s (EX) Dolby NR SW — OFF MPX SW — OFF		1. Adjust the Input Level control to obtain 0 dB on the VTVM. 2. Record, rewind and play it back. 3. Read the distortion meter and check to insure that the distortion is as follows: EXII 1.0% or less SX 1.2% or less ZX 1.0% or less
17	Wow/Flutter Measurement	3 kHz Speed and Wow/Flutter Tape (DA09006B)	Wow/Flutter Meter to Output Jacks	Playback Eq. SW — 70 μ s		Play back and read the wow/flutter meter.

4.2. Dolby NR Circuit Check

Dolby NR circuit incorporates Dolby NR ICs which have no adjustment point.

Perform the following checks and make sure that the IC operates accurately, i.e., frequency response through IC is accurate.

4.2.1. Dolby NR B-Type Circuit Check

(1) Playback Dolby NR Circuit

Signal Source: 1.4 kHz to negative side of C134 (C234) on Main P.C.B. (Positive side is connected to IC101-9 (IC201-9)).

Output Connection: VTVM to test point TP101 (TP201) on Main P.C.B.

Mode: Stop
Dolby NR SW — ON (B-Type)/OFF

- Connect a VTVM to TP101 (TP201) on the Main P.C.B. Ass'y.
- Set the Dolby NR switch to B-Type. Feed in 1.4 kHz and adjust the generator output control to obtain 35 mV on the VTVM.
- Set the Dolby NR switch to OFF. Check to insure that the reading is +3.2 dB \pm 1.5 dB on the VTVM.

(2) Record Dolby NR Circuit

Signal Source: 1.4 kHz to Input Jacks

Output Connection: VTVM to test point TP101 (TP201) and negative side of C140 (C240) on the Main P.C.B.

Mode: Record/Pause
Dolby NR SW — ON (B-Type)/OFF

- Connect a VTVM to TP101 (TP201) on the Main P.C.B. Ass'y.
- Feed in 1.4 kHz and adjust the Input level control to obtain 35 mV/11.1 mV on the VTVM.
- Remove the VTVM from TP101 (TP201) and reconnect it to negative side of C140 (C240).
- Check to insure that the reading at C140 (C240) corresponds to the following with Dolby NR switch OFF and B-Type.

Input Level at TP101 (TP201)	Level at negative side of C140 (C240)	
	Dolby NR OFF	Dolby NR B-Type
35 mV	0 dB	+3.2 dB \pm 1.5 dB
11.1 mV	0 dB	+8.2 dB \pm 1.5 dB

4.2.2. Dolby NR C-Type Circuit Check

(1) Playback Dolby NR Circuit

Signal Source: 1.4 kHz to negative side of C134 (C234) on Main P.C.B. (Positive side is connected to IC101-9 (IC201-9)).

Output Connection: VTVM to test point TP101 (TP201) on Main P.C.B.

Mode: Stop
Dolby NR SW — ON (C-Type)/OFF

- Connect a VTVM to TP101 (TP201) on the Main P.C.B. Ass'y.
- Set the Dolby NR switch to C-Type. Feed in 1.4 kHz and adjust the generator output control to obtain 35 mV on the VTVM.
- Set the Dolby NR switch to OFF. Check to insure that the reading is +6.5 dB \pm 1.5 dB on the VTVM.

(2) Record Dolby NR Circuit

Signal Source: 1.4 kHz to Input Jacks

Output Connection: VTVM to test point TP101 (TP201) and negative side of C140 (C240) on the Main P.C.B.

Mode: Record/Pause
Dolby NR SW — ON (C-Type)/OFF

- Connect a VTVM to TP101 (TP201) on the Main P.C.B. Ass'y.
- Feed in 1.4 kHz and adjust the Input level control to obtain 35 mV/11.1 mV on the VTVM.
- Remove the VTVM from TP101 (TP201) and reconnect it to negative side of C140 (C240).
- Check to insure that the reading at C140 (C240) corresponds to the following with Dolby NR switch OFF and C-Type.

Input Level at TP101 (TP201)	Level at negative side of C140 (C240)	
	Dolby NR OFF	Dolby NR C-Type
35 mV	0 dB	+6.5 dB \pm 1.5 dB
11.1 mV	0 dB	+11.4 dB \pm 1.5 dB

5. MECHANISM ASS'Y AND PARTS LIST

5.1. Synthesis

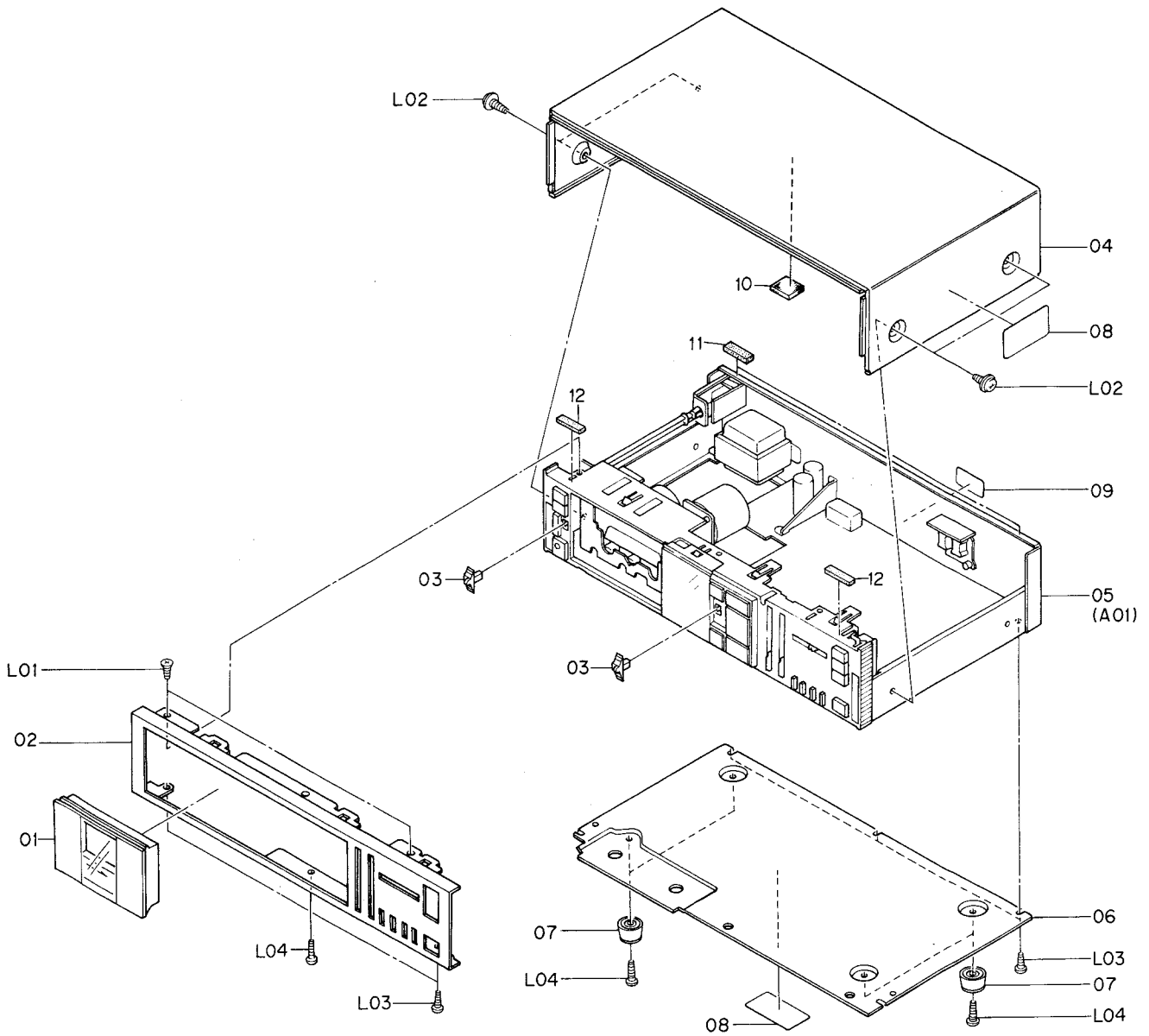


Fig. 5.1

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
	HA04342A	Synthesis (UK)	1		HA04348A	Synthesis (UK)	1
	HA04343A	Synthesis (U.S.A. & Canada)	1		HA04349A	Synthesis (U.S.A. & Canada)	1
	HA04344A	Synthesis (Japan)	1		HA04350A	Synthesis (Japan)	1
	HA04345A	Synthesis (Others)	1		HA04351A	Synthesis (Others)	1
	HA04346A	Synthesis (Australia)	1		HA04352A	Synthesis (Australia)	1
	HA04347A	Synthesis (220V Class 2) Serial No.: A31601001 - (Silver)	1		HA04353A	Synthesis (220V Class 2) Serial No.: A31701001 - (Black)	1
01	HA04362A	Cassette Case Cover Ass'y	1	01	HA04363A	Cassette Case Cover Ass'y	1
02	OH04133B	Front Panel	1	02	OH04134B	Front Panel	1
03	OH04107A	Slide Switch Knob	2	03	OH04108A	Slide Switch Knob	2
04	OH04155B	Top Cover	1	04	OH04156B	Top Cover	1
05	JA03957B	Synthesis Mechanism Ass'y (UK)	1	05	JA03963B	Synthesis Mechanism Ass'y (UK)	1
	JA03958B	Synthesis Mechanism Ass'y (U.S.A. & Canada)	1		JA03964B	Synthesis Mechanism Ass'y (U.S.A. & Canada)	1
	JA03959B	Synthesis Mechanism Ass'y (Japan)	1		JA03965B	Synthesis Mechanism Ass'y (Japan)	1
	JA03960B	Synthesis Mechanism Ass'y (Others)	1		JA03966B	Synthesis Mechanism Ass'y (Others)	1
	JA03961B	Synthesis Mechanism Ass'y (Australia)	1		JA03967B	Synthesis Mechanism Ass'y (Australia)	1
	JA03962B	Synthesis Mechanism Ass'y (220V Class 2)	1		JA03968B	Synthesis Mechanism Ass'y (220V Class 2)	1
06	OJ04605B	Bottom Cover	1	06	OJ04605B	Bottom Cover	1
07	OJ03564A	Leg T-H	4	07	OJ03564A	Leg T-H	4
08	OM04377A	Caution Label	2	08	OM04377A	Caution Label	2
09	OM03551B	Pass Label B	1	09	OM03551B	Pass Label B	1
10	OJ04630A	Rubber	1	10	OJ04630A	Rubber	1
11	OJ04629A	Top Cover Cushion B	2	11	OJ04629A	Top Cover Cushion B	2
12	OJ04628A	Top Cover Cushion A	2	12	OJ04628A	Top Cover Cushion A	2
L01	OE03054A	BT 3x8 @ Countersunk	2	L01	OE03054A	BT 3x8 @ Countersunk	2
L02	OE03033A	BT 4x8 @ Pan Washer Faced (Nickel)	4	L02	OE03032A	BT 4x8 @ Pan Washer Faced (Black Chromate)	4
L03	OE00857A	BT 3x6 @ Binding	5	L03	OE00857A	BT 3x6 @ Binding	5
L04	OE00865A	BT 3x10 @ Binding	5	L04	OE00865A	BT 3x10 @ Binding	5
—	OM03796A	Voltage Label 220V (220V Class 2)	1	—	OM03796A	Voltage Label 220V (220V Class 2)	1
—	OM03797A	Voltage Label 240V (UK & Australia)	1	—	OM03797A	Voltage Label 240V (UK & Australia)	1
—	OM03844B	Cord Label (UK)	1	—	OM03844B	Cord Label (UK)	1
—	OM04397A	Serial Number Plate	1	—	OM04397A	Serial Number Plate	1
—	OM04113A	LA Label (U.S.A. & Canada)	1	—	OM04113A	LA Label (U.S.A. & Canada)	1
—	OM04293A	Voltage Seal (Others)	1	—	OM04293A	Voltage Seal (Others)	1
—	OM04185A	FSZ Mark Label (220V Class 2)	1	—	OM04185A	FSZ Mark Label (220V Class 2)	1

5.2. Synthesis Mechanism Ass'y (A01)

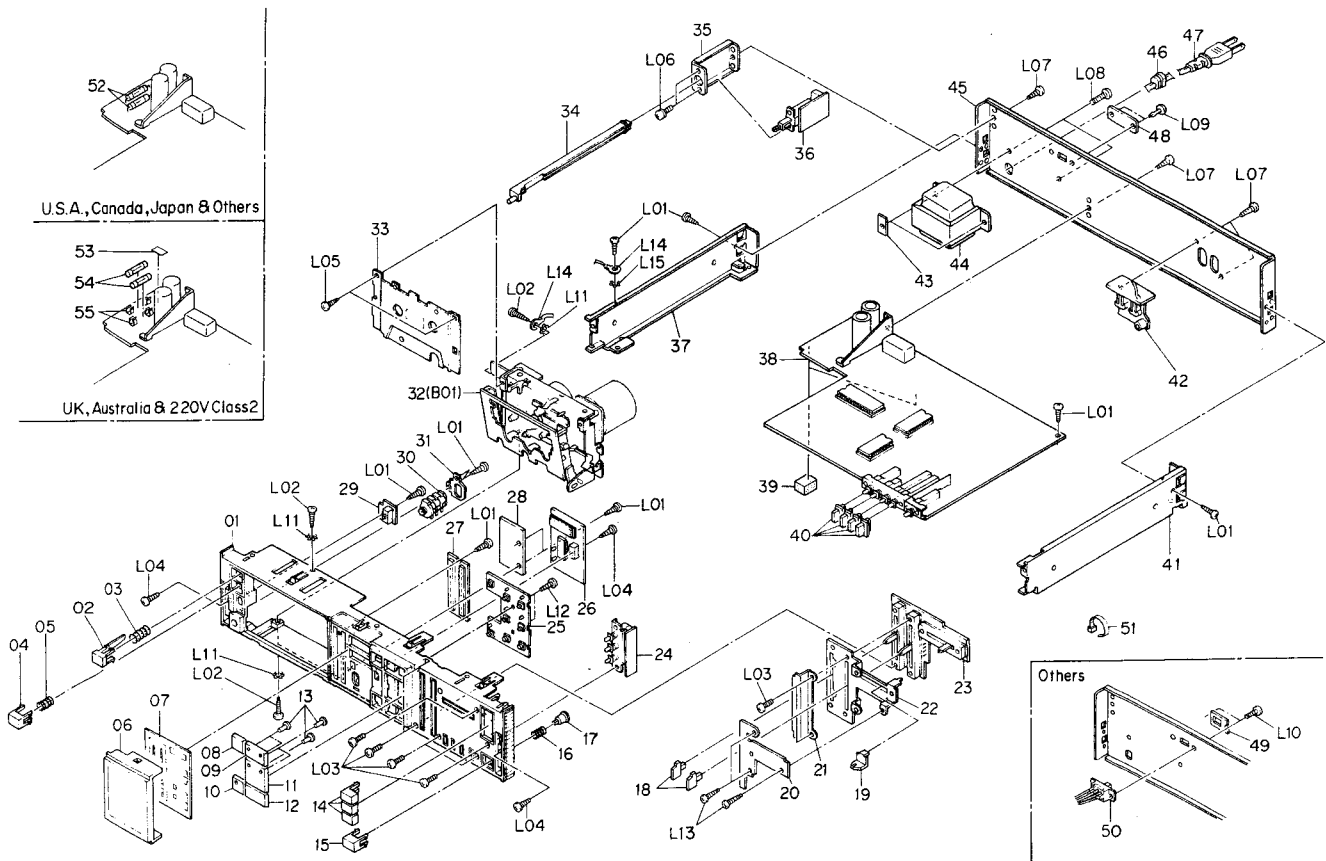


Fig. 5.2

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty	
A01	JA03957B	Synthesis Mechanism Ass'y (UK)	1	24	BA04804A	Dolby NR Switch P.C.B. Ass'y	1	
	JA03958B	Synthesis Mechanism Ass'y (U.S.A. & Canada)	1	25	BA04802A	Control Switch P.C.B. Ass'y	1	
	JA03959B	Synthesis Mechanism Ass'y (Japan)	1	26	BA04905A	Counter P.C.B. Ass'y (2nd Version)	1	
	JA03960B	Synthesis Mechanism Ass'y (Others)	1		BA04800A	Counter P.C.B. Ass'y (1st Version)	1	
	JA03961B	Synthesis Mechanism Ass'y (Australia)	1	27	OB06378A	Display P.C.B.	1	
	JA03962B	Synthesis Mechanism Ass'y (220V Class 2)	1	28	BA04801A	Indicator P.C.B. Ass'y	1	
			Serial No.: A31601001 - (Silver)		29	BA04803A	Timer Switch P.C.B. Ass'y	1
					30	OH08511A	Headphone Jack	1
					31	OJ04611A	Headphone Plate	1
					32	CA08399A	Mechanism Ass'y	1
01	OH04137A	Front Chassis	1	33	HA04390A	Cover Plate Ass'y	1	
02	OH04129A	Eject Button	1	34	OJ04604B	Power Switch Joint	1	
03	OJ04607A	Eject Spring	1	35	OJ04076A	Power Switch Holder	1	
04	OH04125A	Power Switch Button	1	36	BA04823A	Power Switch P.C.B. Ass'y (U.S.A. & Canada)	1	
05	OJ04608A	Power Switch Spring	1		BA04824A	Power Switch P.C.B. Ass'y (UK, Australia, Others & 220V Class 2)	1	
06	OH04112A	Meter Cover	1					
07	OH04110B	Meter Scale	1					
08	OH04139B	Reset Button	1					
09	OH04143A	Control Button A	1	37	BA04825A	Power Switch P.C.B. Ass'y (Japan)	1	
10	OH04141B	Record Mute Button	1		OJ04603D	Side Chassis L	1	
11	OH04116A	Control Button B	1	38	BA04906A	Main P.C.B. Ass'y (2nd Version)	1	
12	OH04118A	Control Button C	1		BA04861A	Main P.C.B. Ass'y (1st Version)	1	
13	OH04120A	Lens	5	39	OJ04581A	Main P.C.B. Cushion	2	
14	OH04123B	Dolby NR Switch Button	3	40	OH04102A	Function Switch Knob	4	
15	OH04121C	Eq. Button	1	41	OJ04602D	Side Chassis R	1	
16	OJ04610A	Eq. Switch Spring	1	42	BA04806A	Pin Jack P.C.B. Ass'y	1	
17	OJ04606A	Button Joint	1	43	OC01162B	Bolt Receptacle Plate	2	
18	OH04105A	Master Volume Knob	2	44	OB06699A	Power Transformer (UK, Australia & 220V Class 2)	1	
19	OH04103B	Balance Volume Knob	1		OB06698A	Power Transformer (U.S.A. & Canada)	1	
20	OH04113A	Volume Plate	1		OB06697B	Power Transformer (Japan)	1	
21	OH04157A	Volume Cover	1		OB06700B	Power Transformer (Others)	1	
22	OH04618A	Volume Shield Plate	1	45	OH04152B	Rear Panel	1	
23	BA04805A	Volume P.C.B. Ass'y	1					

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
46	OB08351A	Cord Bushing 4K-4 (UK)	1	A01	JA03963B	Synthesis Mechanism Ass'y (UK)	1
	OB08037U	Cord Bushing (U.S.A., Canada, Japan, Others, Australia & 220V Class 2)	1		JA03964B	Synthesis Mechanism Ass'y (U.S.A. & Canada)	1
47	OB08348A	Power Cord (UK)	1	JA03965B	Synthesis Mechanism Ass'y (Japan)	1	
	OB08533A	Power Cord (U.S.A., Canada & Others)	1	JA03966B	Synthesis Mechanism Ass'y (Others)	1	
48	OB08219B	Power Cord (Japan)	1	JA03967B	Synthesis Mechanism Ass'y (Australia)	1	
	OB05241A	Power Cord (Australia)	1	JA03968B	Synthesis Mechanism Ass'y (220V Class 2)	1	
	OB08093U	Power Cord (220V Class 2)	1		Serial No.: A31701001 - (Black)		
	OJ04622B	Switch Cover (UK, U.S.A., Canada, Japan, Australia & 220V Class 2)	1				
49	OM04407A	Voltage Selector Lock Plate (Others)	1	01	OH04138A	Front Chassis	1
50	OB07092U	Voltage Selector (Others)	1	02	OH04130A	Eject Button	1
51	OB08515A	Insu-Lock	10	03	OJ04607A	Eject Spring	1
52	OB08525A	Fuse 2A 250V (U.S.A., Canada & Others)	2	04	OH04126A	Power Switch Button	1
	OB08854A	Fuse 2A 250V (Japan)	2	05	OJ04608A	Power Switch Spring	1
53	OM04131B	Fuse Label 1A 250V (UK, Australia & 220V Class 2)	1	06	OH04112A	Meter Cover	1
	OB08347U	Fuse 1A 250V (UK, Australia & 220V Class 2)	2	07	OH04110B	Meter Scale	1
54	OB08349A	Fuse Clip (UK, Australia & 220V Class 2)	4	08	OH04140B	Reset Button	1
	OF01071A	Free-up Belt (UK, Australia & 220V Class 2)	1	09	OH04144A	Control Button A	1
—	OM03954A	Fuse Caution Label (U.S.A. & Canada)	1	10	OH04142B	Record Mute Button	1
	L01	OE00857A	BT 3x6 ⊕ Binding	10	11	OH04117A	Control Button B
L02	OE00954A	BT 2.6x8 ⊕ Binding	4	12	OH04119A	Control Button C	1
L03	OE00509A	M3x6 ⊕ Pan	8	13	OH04120A	Lens	5
L04	OE00868A	BT 3x8 ⊕ Binding	3	14	OH04124B	Dolby NR Switch Button	3
L05	OE00824A	BT 2.6x6 ⊕ Pan	2	15	OH04122C	Eq. Button	1
L06	OE00612A	M3x6 ⊕ Pan (2A)	2	16	OJ04610A	Eq. Switch Spring	1
L07	OE03028A	BT 3x8 ⊕ Binding (Nickel)	4	17	OJ04606A	Button Joint	1
L08	OE03034A	M4x8 ⊕ Binding (Nickel)	2	18	OH04106A	Master Volume Knob	2
L09	OE08583A	Plastic Rivet	2	19	OH04104B	Balance Volume Knob	1
*L10	OE03031A	M3x8 ⊕ Binding (Nickel)	2	20	OH04114A	Volume Plate	1
L11	OE00233A	Washer 3mm Toothed Lock	4	21	OH04158A	Volume Cover	1
L12	OE00862A	BT 3x6 ⊕ Pan	2	22	OH04618A	Volume Shield Plate	1
L13	OE00714A	M2.6x6 ⊕ Binding	2	23	BA04805A	Volume P.C.B. Ass'y	1
L14	OE00037A	Earth Lug B-5	2	24	BA04804A	Dolby NR Switch P.C.B. Ass'y	1
L15	OE00172A	Washer 3mm Toothed Lock	1	25	BA04802A	Control Switch P.C.B. Ass'y	1
—	OB02247A	PD Wire (Pin Jack — Volume)	1	26	BA04905A	Counter P.C.B. Ass'y (2nd Version)	1
—	OB02248A	PD Wire (Main — Volume)	1	27	BA04800A	Counter P.C.B. Ass'y (1st Version)	1
—	OB02256A	PD Wire (Main — Headphone Jack)	1	28	OB06378A	Display P.C.B.	1
—	OB02257A	PD Wire (Main — Volume)	1	29	BA04801A	Indicator P.C.B. Ass'y	1
—	OB02258A	PD Wire (Main — Volume)	1	30	BA04803A	Timer Switch P.C.B. Ass'y	1
—	OB02259A	PD Wire (Main — Pin Jack)	1	31	OH08511A	Headphone Jack	1
—	OB02292A	PD Wire (Pin Jack — Chassis)	1	32	OJ04611A	Headphone Plate	1
—	OB05275B	4P Flat Cable FC5 (Main — Timer Switch)	1	33	CA08399A	Mechanism Ass'y	1
—	OB05276B	4P Flat Cable FC3 (Main — Control Switch)	1	34	HA04390A	Cover Plate Ass'y	1
—	OB05282B	3P Flat Cable FC4 (Main — Control Switch)	1	35	OJ04604B	Power Switch Joint	1
—	OB05285B	5P Flat Cable FC8 (Main — Counter)	1	36	OJ04076A	Power Switch Holder	1
—	OB05287B	5P Flat Cable FC1 (Main — Control Switch)	1		BA04823A	Power Switch P.C.B. Ass'y (U.S.A. & Canada)	1
—	OB05293B	2P Flat Cable FC7 (Main — Counter)	1		BA04824A	Power Switch P.C.B. Ass'y (UK, Australia, Others & 220V Class 2)	1
—	OB05294B	3P Flat Cable FC10 (Main — Dolby NR Switch)	1	37	BA04825A	Power Switch P.C.B. Ass'y (Japan)	1
—	OB05295B	3P Flat Cable FC9 (Counter — Dolby NR Switch)	1	38	OJ04603D	Side Chassis L	1
—	OB05296B	4P Flat Cable FC2,6 (Main — Control Switch, Counter)	2	39	BA04906A	Main P.C.B. Ass'y (2nd Version)	1
—	OB05297B	5P Flat Cable FC11 (Main — Meter IC)	1	40	BA04861A	Main P.C.B. Ass'y (1st Version)	1
—	OB05299B	12P Flat Cable FC12 (Main — Indicator)	1	41	OJ04581A	Main P.C.B. Cushion	2
—	OT15300A	Wire (Main — Counter) (2nd Version)	1	42	OH04102A	Function Switch Knob	4
				43	OJ04602D	Side Chassis R	1
				44	BA04806A	Pin Jack P.C.B. Ass'y	1
					OC01162B	Bolt Receptacle Plate	2
					OB06699A	Power Transformer (UK, Australia & 220V Class 2)	1
					OB06698A	Power Transformer (U.S.A. & Canada)	1
					OB06697B	Power Transformer (Japan)	1
					OB06700B	Power Transformer (Others)	1
				45	OH04152B	Rear Panel	1
				46	OB08351A	Cord Bushing 4K-4 (UK)	1
					OB08037U	Cord Bushing (U.S.A., Canada, Japan, Others, Australia & 220V Class 2)	1
				47	OB08348A	Power Cord (UK)	1
					OB08533A	Power Cord (U.S.A., Canada & Others)	1
					OB08219B	Power Cord (Japan)	1
					OB05241A	Power Cord (Australia)	1
					OB08093U	Power Cord (220V Class 2)	1
				48	OJ04622B	Switch Cover (UK, U.S.A., Canada, Japan, Australia & 220V Class 2)	1
				49	OM03948A	Voltage Selector Lock Plate (Others)	1
				50	OB07092U	Voltage Selector (Others)	1
				51	OB08515A	Insu-Lock	10

*: Depends on the version.

(to be continued)

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
52	OB08525A	Fuse 2A 250V (U.S.A., Canada & Others)	2	—	OB02257A	PD Wire (Main — Volume)	1
	OB08854A	Fuse 2A 250V (Japan)	2	—	OB02258A	PD Wire (Main — Volume)	1
53	OM04131B	Fuse Label 1A 250V (UK, Australia & 220V Class 2)	1	—	OB02259A	PD Wire (Main — Pin Jack)	1
54	OB08347U	Fuse 1A 250V (UK, Australia & 220V Class 2)	2	—	OB02292A	PD Wire (Pin Jack — Chassis)	1
55	OB08349A	Fuse Clip (UK, Australia & 220V Class 2)	4	—	OB05275B	4P Flat Cable FC5 (Main — Timer Switch)	1
—	OF01071A	Free-up Belt (UK, Australia & 220V Class 2)	1	—	OB05276B	4P Flat Cable FC3 (Main — Control Switch)	1
—	OM03954A	Fuse Caution Label (U.S.A. & Canada)	1	—	OB05282B	3P Flat Cable FC4 (Main — Control Switch)	1
L01	OE00857A	BT 3x6 @ Binding	10	—	OB05285B	5P Flat Cable FC8 (Main — Counter)	1
L02	OE00954A	BT 2.6x8 @ Binding	4	—	OB05287B	5P Flat Cable FC1 (Main — Control Switch)	1
L03	OE00509A	M3x6 @ Pan	8	—	OB05293B	2P Flat Cable FC7 (Main — Counter)	1
L04	OE00868A	BT 3x8 @ Binding	3	—	OB05294B	3P Flat Cable FC10 (Main — Dolby NR Switch)	1
L05	OE00824A	BT 2.6x6 @ Pan	2	—	OB05295B	3P Flat Cable FC9 (Counter — Dolby NR Switch)	1
L06	OE00612A	M3x6 @ Pan (2A)	2	—	OB05296B	4P Flat Cable FC2,6 (Main — Control Switch, Counter)	2
L07	OE00921A	BT 3x8 @ Binding (Black Chromate)	4	—	OB05297B	5P Flat Cable FC11 (Main — Meter IC)	1
L08	OE03058A	M4x8 @ Binding (Black Chromate)	2	—	OB05299B	12P Flat Cable FC12 (Main — Indicator)	1
L09	OE08583A	Plastic Rivet	2	—	OT15300A	Wire (Main — Counter) (2nd Version)	1
*L10	OE00818A	M3x8 @ Binding (Bronze)	2				
L11	OE00233A	Washer 3mm Toothed Lock	4				
L12	OE00862A	BT 3x6 @ Pan	2				
L13	OE00714A	M2.6x6 @ Binding	2				
L14	OE00037A	Earth Lug B-5	2				
L15	OE00172A	Washer 3mm Toothed Lock	1				
—	OB02247A	PD Wire (Pin Jack — Volume)	1				
—	OB02248A	PD Wire (Main — Volume)	1				
—	OB02256A	PD Wire (Main — Headphone Jack)	1				

*: Depends on the version.

5.3. Mechanism Ass'y (B01)

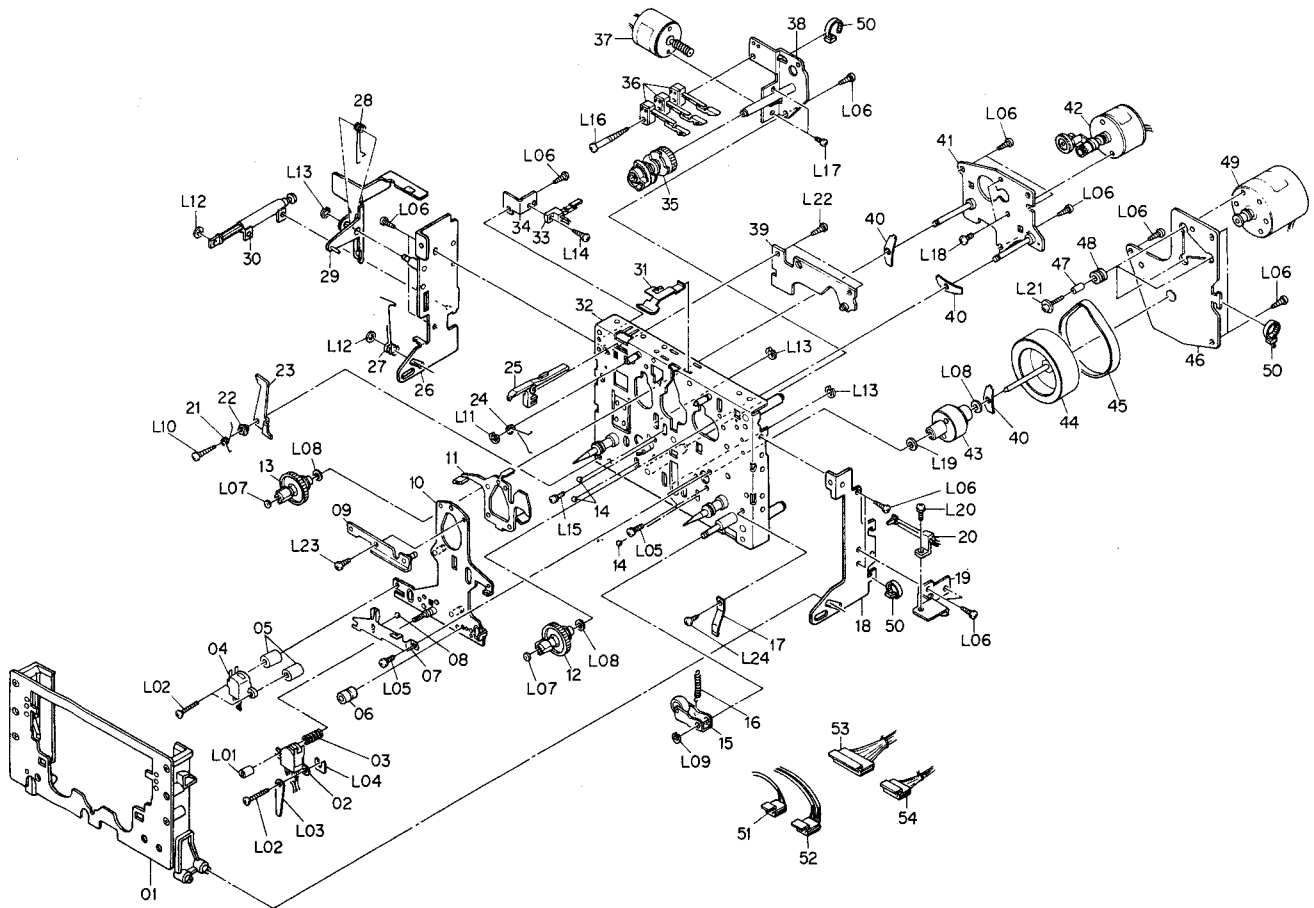


Fig. 5.3

Schematic Ref. No.	Part No.	Description	Q'ty
B01	CA08399A	Mechanism Ass'y Serial No.: A316.701001 -	1
01	CA80001A	Cassette Case Ass'y	1
02	OG01371A	Record/Playback Head RP-2G	1
03	OC80001A	Azimuth Adjust Spring	1
04	OG01365A	Erase Head E-2D	1
05	OC80044A	Erase Head Collar	2
06	OC80045A	Record/Playback Head Collar	1
07	OC80003A	Head Base Hold Plate	1
08	OC80004A	Steel Ball 30	1
09	OC80005A	Reinforce Plate	1
10	OC80006A	Head Base	1
11	CA80002A	Brake Ass'y	1
12	CA80003A	Take-up Reel Hub Ass'y	1
13	CA80004A	Supply Reel Hub Ass'y	1
14	OC80007A	Steel Ball 20	3
15	CA80005A	Pressure Roller Ass'y	1
16	OC80008A	Pressure Roller Spring	1
17	OC80009A	Cassette Case Spring	1
18	OC80010A	Cassette Case Holder R	1
19	OC80011A	Eject Sensor Holder	1
20	OC80012A	Eject Sensor	1
21	OC80013A	Lock Lever Spring	1
22	OC80014A	Lock Lever Collar	1
23	OC80015A	Lock Lever	1
24	OC80016A	Brake Spring	1
25	OC80017A	Record Protector Lever	1
26	OC80018A	Cassette Case Holder L	1
27	OC80019A	Eject Spring	1
28	OC80020A	Eject Lever Spring	1
29	OC80021A	Eject Lever	1
30	CA80006A	Pneumatic Damper Ass'y	1
31	OC80022A	Cassette Hold Spring	1
32	OC80023A	Mechanism Chassis	1
33	OC80024A	Record Protector	1
34	OC80025A	Record Protector Holder	1
35	OC80026A	Cam	1
36	OC80027A	Mode Switch	3
37	CA80007A	Control Motor Ass'y	1
38	OC80028A	Control Motor Holder	1
39	CA80011A	Shut-off P.C.B. Ass'y	1
40	OC80029A	Back Tension Spring	3
41	OC80030A	Reel Motor Holder	1
42	CA80008A	Reel Motor Ass'y	1
43	OC80031A	Capstan Flange	1
44	OC80033A	Flywheel	1
45	OC80034A	Capstan Belt	1
46	CA80009A	Flywheel Holder Ass'y	1
47	OC80035A	Sleeve	3
48	OC80036A	Floating Rubber	3
49	CA80010A	Capstan Motor Ass'y	1
50	OC80037A	Insu-Lock	3
51	OC80040A	2P-H Connector	1
52	OC80041A	4P-H Connector	1
53	OC80042A	9P-H Connector	1
54	OC80043A	5P-H Connector	1
L01	OC80046A	Azimuth Adjust Screw	1
L02	OE03038A	M2x12 @ Binding	3
L03	OE03053A	Wire Holder	1
L04	OC80048A	Shim 0.03T	(1)
	OC80038A	Shim 0.06T	(1)
	OC80039A	Shim 0.1T	(1)
L05	OE03046A	M2.6x6 @ Pan (2A)	3
L06	OE03042A	FT M2.5x5 @ Pan	14
L07	OE03049A	Washer 1.8mm FT	2
L08	OE03050A	Washer 3.1mm FT	3
L09	OE00222A	E-Ring 2mm	1
L10	OE03043A	FT M2.5x10 @ Pan	1
L11	OE00698A	E-Ring 2.5mm	1
L12	OE03052A	Stopper Ring 2.4mm	2
L13	OE00181A	E-Ring 3mm	3
L14	OE03048A	FT M2.6x6 @ Pan	1
L15	OE03036A	M2x4 @ Pan (2A)	1
L16	OE03044A	FT M2.5x20 @ Pan	1
L17	OE00691A	M2x3 @ Pan	2
L18	OE03045A	M2.6x3 @ Binding	2
L19	OE03051A	Capstan Washer	1
L20	OE03037A	M2x5 @ Pan (2A)	1
L21	OE03047A	M2.6x9 @ Pan	3
L22	OE03041A	FT M2.5x4 @ Pan	2
L23	OE03040A	FT M2.5x3.5 @ Pan	1
L24	OE03035A	M2x3.2 @ Truss	1

6. MOUNTING DIAGRAMS AND PARTS LIST

Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.

2. Diode is 1SS53, 1S953, or 1S1555 unless otherwise specified.

3. 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, RC — Cement Resistor,

RW — Wire Wound Resistor

CE — Electrolytic Capacitor, CM — Mylar Capacitor, CC — Ceramic Capacitor, CP — PP Capacitor,

CT — Tantalum Capacitor, C — Mica Capacitor

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

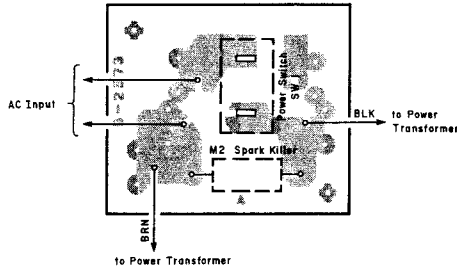


Fig. 6.1

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

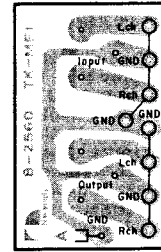


Fig. 6.2

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description		
SW1	BA04823A	Power Switch P.C.B. Ass'y (U.S.A., Canada & Others)	IC301 D101,201 R301 R302 R303 R304 R305-314	BA04801A	Indicator P.C.B. Ass'y	IC601 Q601,602 603,604 LED601 LED602, 603 R602,603 R604 R605 R606,607 608 R609-615 C602 SW601	BA04905A	Counter P.C.B. Ass'y (2nd Version)		
	BA04824A	Power Switch P.C.B. Ass'y (UK, Australia & 220V Class 2)		OB02566A	Indicator P.C.B. IC TA7612AP		OB02564A	Counter P.C.B. IC LM6416E-106		
	BA04825A	Power Switch P.C.B. Ass'y (Japan)		OB01909A	SID 1S1555		OB06368A	TR 2SA608 (SP)		
	OB02573A	Power Switch (Japan)		OB01888A	RK 10K 1/4W J		OB06319A	Counter LED		
	OB07406A	Power Switch (U.S.A., Canada & Others)		OB01887A	RK 5.6K 1/4W J		OB06326A	LED RED TLR124A		
	SW1	OB07407A		Power Switch (U.S.A., Canada & Others)	OB01857A		RK 1K 1/4W J	OB06333A	LED RED TLR124A	
		OB07408A		Power Switch (UK, Australia & 220V Class 2)	OB09797A		RK 120 1/4W J	OB09725A	RK 100K 1/6W J	
	M2	OB08363A		Spark Killer (Japan)	OB05698A		RK 1.5K 1/4W J	OB09701A	RK 10K 1/6W J	
	M2	OB08342A		Spark Killer (U.S.A., Canada & Others)	C301		OB09281A	CC 150P 50V K (10)	OB09687A	RK 2.7K 1/6W J
	M2	OB08955A		Spark Killer (UK, Australia & 220V Class 2)			BA04803A	Timer Switch P.C.B. Ass'y	OB05629A	RK 2.7K 1/4W J
	OE00752A	Eyelet 2x3 (3)	SW601	OB02569A	Timer Switch P.C.B. Slide Switch	OB09661A	RK 220 1/6W J (7)			
	BA04806A	Pin Jack P.C.B. Ass'y		OB07437A		OB09282A	CC 100P 50V K			
	OB02567A	Pin Jack P.C.B. 4P Pin Jack (1)		BA04802A	Control Switch P.C.B. Ass'y	OB07437A	Slide Switch			
	OB02246A					OJ04614A	Shield Plate (1)			
VR301 VR302 VR303	BA04805A	Volume P.C.B. Ass'y	Q601 Q602 LED601, 602,604 LED603 606 D605 R601 R602,603 R604 R605 R606 R607 C601 SW601-608	OB02565A	Control Switch P.C.B. TR 2SC945 (L)	IC601 Q601,602 603,604 LED601 LED602, 603 R601 R602,603 R604 R605 R606,607 608 R609-615 C601 C602 SW601	BA04800A	Counter P.C.B. Ass'y (1st Version)		
	OB02568A	Volume P.C.B. VR 100K (A) x 2	OB01872A	TR 2SA733	OB02564A		Counter P.C.B. IC LM6416E-106			
	OB07431A	VR 100K (MN)	OB06013A	LED GRN TLR124A	OB06319A	TR 2SA608 (SP)	OB06326A	Counter LED		
	OB07433A	VR 10K (A) x 2	OB06334A	LED RED TLR124A	OB06333A	LED RED TLR124A	OB06333A	LED RED TLR124A		
	OB07432A	VR 10K (A) x 2		OB01909A	SID 1S1555	OB09743A	RK 560K 1/6W J			
	OJ04618A	VR Shield Plate (1)		OB05645A	RK 270 1/4W J	OB09725A	RK 100K 1/6W J			
	BA04804A	Dolby NR Switch P.C.B. Ass'y		OB05795A	RK 150 1/4W J	OB09701A	RK 10K 1/6W J			
	OB02570A	Dolby NR Switch P.C.B.		OB05691A	RK 390 1/4W J	OB09687A	RK 2.7K 1/6W J			
R301,302 R341 C321 SW301,302	OB01857A	RK 1K 1/4W J	Q601 Q602	OB01680A	RK 820 1/4W J	OB05629A	RK 2.7K 1/4W J			
	OB01682A	RK 6.8K 1/4W J	R601,603 R602	OB01889A	RK 100K 1/4W J	OB09661A	RK 220 1/6W J (7)			
	OB01412A	CE 10μ 16V		OB01846A	RK 4.7K 1/4W J	OB05796A	CM 0.047μ 50V J			
	OB07430A	Push Switch (1)		OB05557A	CM 0.015μ 50V J	OB09282A	CC 100P 50V K			
	OJ04616A	Shield Plate (1)		OB07438A	Switch	OB07437A	Slide Switch			
				CA80011A	Shut-off P.C.B. Ass'y	OJ04614A	Shield Plate (1)			
				OC80047A	Shut-off P.C.B. TR 2SC2812					
				OB06388A	Photo Reflector NJL5141					
				OB06389A	RK 680 Leadless					
				OB09840A	RK 18K Leadless					
				OB09841A						

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

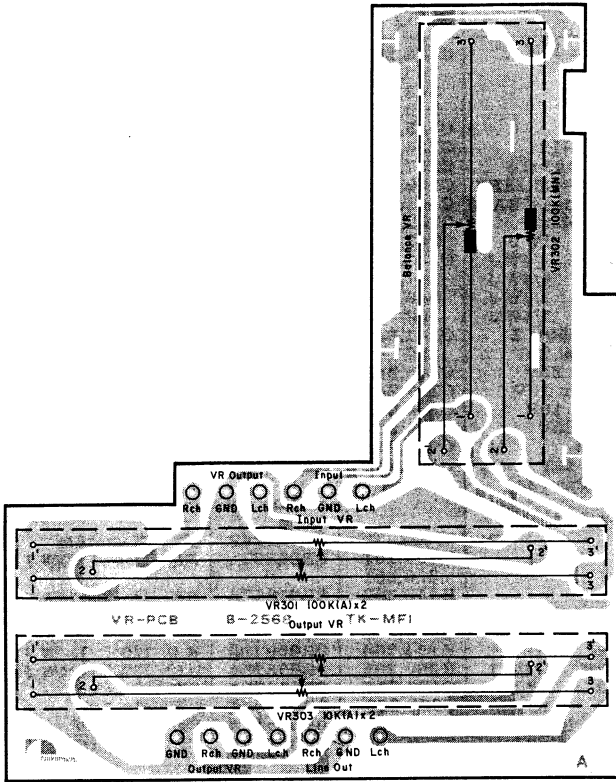


Fig. 6.3

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

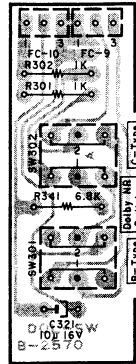


Fig. 6.4

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

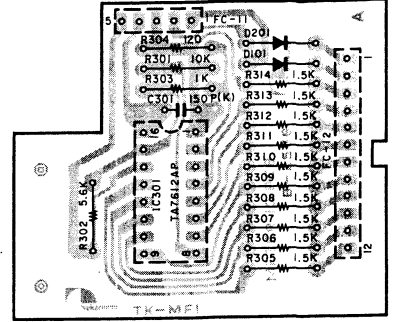


Fig. 6.5

6.6. Timer Switch P.C.B. Ass'y

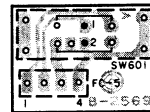


Fig. 6.6

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

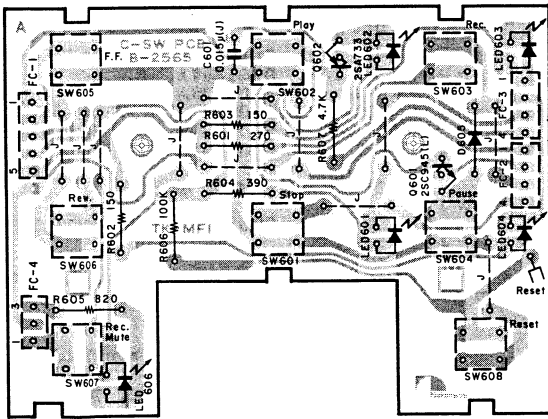


Fig. 6.7

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

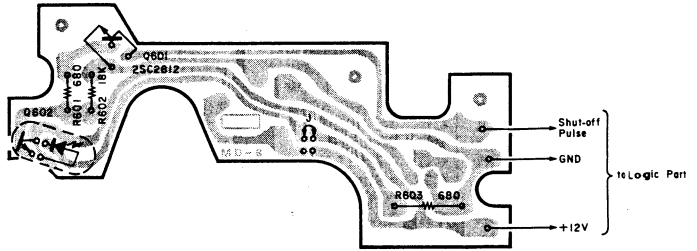


Fig. 6.8

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

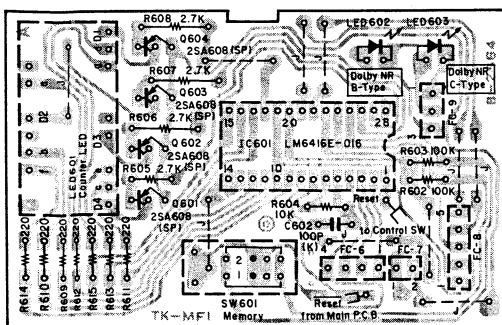


Fig. 6.9.1 2nd Version

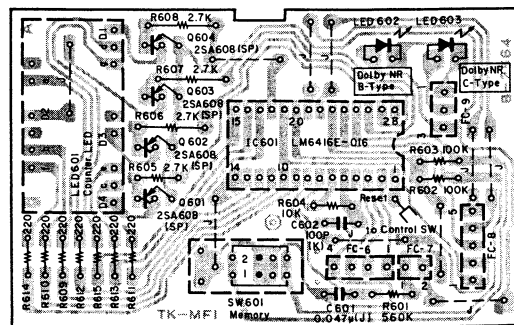


Fig. 6.9.2 1st Version

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description						
	BA04906A	Main P.C.B. Ass'y (2nd Version)	C307 CN1	OB01400A OB02242A	CE 100 μ 16V 4P-T Post	C133,138 140,154 233,238 240,254	OB01412A	CE 10 μ 16V						
	— Rec. Level —			— DC Supply —		C135,235 C136,236 C137,237 C139,239 C141,241 C142,148 242,248 C143,146 147,243 246,247 322	OB09312A OB09240A OB05652A OB09280A OB05796A OB05583A	CP 0.01 μ 100V G CP 0.033 μ 100V G CM 4700P 50V J CC 47P 50V J CM 0.047 μ 50V J CM 0.033 μ 50V J						
VR102,202 VR103,104 203,204 R127,227 R128,228 R129,131 229,231 R130,132 135,137 230,232 235,237 R133,136 233,236 C119,121 219,221 C120,220 C122,222 C123,223	OB07418A OB07417A OB01683A OB09577A OB01856A OB01888A OB05629A OB05571A OB05843A OB05687A OB09189A	Semi-fixed VR 20K Semi-fixed VR 10K RK 15K 1/4W J RM 7.15K 1/4W F RK 8.2K 1/4W J RK 10K 1/4W J RK 2.7K 1/4W J CM 680P 50V J CM 0.012 μ 50V J CM 1200P 50V J CM 2700P 50V J	IC401 Q401,402 ZD401 D401 D402,403 R401 R402 R403 R404 R405 C401,402 C403 C404 C405 C406 C407	OB06380A OB01872A OB06167A OB06282A OB01909A OB09883A OB01889A OB05560A OB01887A OB01857A OB09292A OB09799A OB01401A OB09798A OB01392A OB09251A OB08676A OE00507A OE00612A OE00857A	IC RC7812 TR 2SC945 (L) ZD 6.2V RD6,2EB3 Diode Bridge DBA10 SiD 1S1555 RF 560 1W J RK 100K 1/4W J RK 18K 1/4W J RK 5.6K 1/4W J RK 1K 1/4W J CC 0.1 μ 50V Z CE 4700 μ 25V CE 470 μ 25V CE 6800 μ 16V CE 470 μ 16V CE 33 μ 25V Heat Sink (1) Nut Hex. M3 (1) M3x6 Φ Pan (2A) BT 3x6 Φ Binding (2)	C144,244 320 C145,245 C149,249 C150,250 C151,251 C152,252 C153,253	OB01780A OB09570A OB05682A OB05584A OB09189A OB05687A OB09257A OB09191A	CM 0.1 μ 50V J CE 0.15 μ 50V (LN) CM 0.068 μ 50V J CM 0.22 μ 50V J CM 2700P 50V J CM 1200P 50V J CE 2200 μ 6.3V CP 4700P 100V G						
	— Rec. Eq. Amp. —			— Bias Osc. —		R152,252 R162,262 R163,263 R164,264 R360,361 C126,226 C128,228 C129,229 C327	— Line Amp. — OB06124B OB01889A OB01857A OB05615A OB09263A OB05621A OB05626A OB01405A OB01836A OB01412A OB05885A	IC RC4558D RK 100K 1/4W J RK 1K 1/4W J RK 22K 1/4W J RK 12K 1/4W J RK 120K 1/4W J RK 150K 1/4W J CE 1 μ 50V CE 47 μ 10V CE 10 μ 16V CE 100 μ 10V						
IC303 Q104,204 L102,202 L103,203 VR105,107 205,207 VR106,206 R113,213 R114,214 R115,215 R116,117 119,216 217,219 R118,218 R120,220 R121,221 R122,222 R123,223 R125,225 R126,226 R138,238 R139,239 R140,240 R192,292 C110,210 C111,211 C112,212 C113,213 C114,214 C115,215 C116,216 C117,217 C118,218 C150,250 C161,261	OB06146A OB06299A OB00068A OB06696A OB07419A OB07418A OB05743A OB01888A OB01889A OB05640A OB01857A OB05675A OB05577A OB05575A OB01854A OB01682A OB05936A OB01679A OB01887A OB05560A OB01683A OB01804A OB01405A OB01862A OB01403A OB05659A OB05652A OB01412A OB05682A OB09283A OB09393A OB09281A	IC RC4558DD TR 2SC2878 Trap Coil 10.5mH L-C Block TF10 Semi-fixed VR 50K Semi-fixed VR 20K RK 27K 1/4W J RK 10K 1/4W J RK 100K 1/4W J RK 180K 1/4W J RK 1K 1/4W J RK 3.9K 1/4W J RK 330 1/4W J RK 560 1/4W J RK 39K 1/4W J RK 6.8K 1/4W J RK 10 1/4W J RK 100 1/4W J RK 5.6K 1/4W J RK 18K 1/4W J RK 15K 1/4W J CM 3900P 50V J CE 1 μ 50V CE 22 μ 16V CE 47 μ 16V CM 5600P 50V J CM 4700P 50V J CE 10 μ 16V CM 0.068 μ 50V J CC 220P 50V K CC 68P 50V J CC 150P 50V K	Q304 T301 R317 R318 R350 C305 C306 CN2 IC301 Q301 Q302 Q303 D301,302 303,304 R301,308 311 R302,312 322 R303,306 307,309 310,315 R304,313 314,321 R305 R316 C301,304 C302,303 RL301	OB06332A OB06688A OB09263A OB09831A OB09837A OB01403A OB09838A OB02233A OB06381A OB06332A OB01872A OB06155A OB01909A OB05509A OB05626A OB01889A OB01888A OB05627A OB05776A OB01405A OB09327A OB07420A	TR 2SB564 (M) Bias Osc. Unit RK 12K 1/4W J RF 22 1W J RF 10 1W J CE 47 μ 16V CP 9100P 100V J 2P-T Post IC μ PD4011BC TR 2SB564 (M) TR 2SC945 (L) TR 2SA733 (P) SiD 1S1555 RK 33K 1/4W J RK 150K 1/4W J RK 100K 1/4W J RK 10K 1/4W J RK 330K 1/4W J RK 1M 1/4W J CE 1 μ 50V CE 0.33 μ 50V (LN) Relay 12V	IC303 R150,151 250,251 R152,252 R162,262 R163,263 R164,264 R360,361 C126,226 C128,228 C129,229 C327	— Headphone Amp. — OB06370A OB06299A OB05622A OB01682A OB01889A OB05579A OB01857A OB09049A OB09327A OB01398A OB01400A	IC RC4556D TR 2SC2878 RK 2.2K 1/4W J RK 6.8K 1/4W J RK 100K 1/4W J RK 22 1/4W J RK 1K 1/4W J RF 22 1/4W J CE 0.33 μ 50V (LN) CE 220 μ 16V CE 100 μ 16V						
	— PB Eq. Amp. —			— Mute —		Q105,106 107,205 206,207 ZD101,201 D101,102 201,202 305 VR108,208 R141,241 R142,145 146,242 245,246 R143,243 R144,244 R147,148 247,248 R149,249 R320 C124,224 C125,225 C308	— Meter Amp. — OB01872A OB06384A OB01909A OB07425A OB05509A OB01889A OB05784A OB05626A OB05508A OB05615A OB09216A OB09570A OB09148A OB01400A	TR 2SC2240 (BL) TR 2SC945 (L) ZD 10V RD10EB3 Inductor 36mH Semi-fixed VR 20K RK 470K 1/4W J RK 100K 1/4W J (Noiseless) RK 100K 1/4W J RK 82 1/4W J RK 180K 1/4W J RK 2.2K 1/4W J RK 27K 1/4W J RM 4.87K 1/4W F RM 3.32K 1/4W F RK 820 1/4W J RK 10K 1/4W J RK 12K 1/4W J RK 1K 1/4W J CE 22 μ 25V (LN) CC 220P 50V K CE 47 μ 10V CE 3.3 μ 50V CM 0.018 μ 50V J CC 150P 50V K CM 1200P 50V J	IC101,201 IC102,202 L104,204 L105,205 R173,273 R174,274 R175,275 R176,276 R178,278 R180,280 R181,281 R182,282 R184,284 R185,285 R186,286 R187,190 287,290 R188,189 288,289 R191,291 R340 C132,134 232,234	OB06383A OB06382A OB06691A OB06690A OB05629A OB09826A OB09588A OB09317A OB09491A OB05692A OB09795A OB09420A OB09356A OB05641A OB09517A OB05627A OB05676A OB09796A OB01889A OB09223A	IC TEA0654 IC TEA0652 L-C Block YEL L-C Block BLU RK 2.7K 1/4W J RK 3K 1/4W J RK 2.4K 1/4W J RM 3.3K 1/4W F RM 1K 1/4W F RK 68K 1/4W J RM 5.1K 1/4W F RM 2.2K 1/4W F RM 4.7K 1/4W F RK 47K 1/4W J RK 75K 1/4W J RK 330K 1/4W J RM 12K 1/4W F RK 100K 1/4W J CE 1 μ 50V (LN)	Q105,106 107,205 206,207 ZD101,201 D101,102 201,202 305 VR108,208 R141,241 R142,145 146,242 245,246 R143,243 R144,244 R147,148 247,248 R149,249 R320 C124,224 C125,225 C308	— Logic — IC601 IC602 Q601,618 Q602,603 Q604,605 619,623 624,625 Q606,607 612,613 OB06367A OB06214A OB06066A OB06371A OB01872A OB06372A	IC TMP4315BP-1811 IC μ PD4071C TR 2SD471 (L,M) TR 2SD1286 TR 2SC945 (L) TR 2SA953
Q101,102 201,202 Q103,203 ZD301 L101,201 VR101,201 R101,201 R102,202 R103,203 R104,204 R105,205 R106,206 R107,207 R108,208 R109,209 R110,210 R111,211 R112,212 R319 C102,202 C103,203 C104,204 C105,205 C106,206 C107,207 C108,208	OB06142A OB01872A OB06233A OB03919B OB07418A OB01684A OB09330A OB01889A OB05631A OB05640A OB05622A OB05743A OB09830A OB09829A OB01680A OB01888A OB09263A OB01857A OB09137A OB09283A OB01836A OB01863A OB05832A OB09281A OB05687A	TR 2SC2240 (BL) TR 2SC945 (L) ZD 10V RD10EB3 Inductor 36mH Semi-fixed VR 20K RK 470K 1/4W J RK 100K 1/4W J (Noiseless) RK 100K 1/4W J RK 82 1/4W J RK 180K 1/4W J RK 2.2K 1/4W J RK 27K 1/4W J RM 4.87K 1/4W F RM 3.32K 1/4W F RK 820 1/4W J RK 10K 1/4W J RK 12K 1/4W J RK 1K 1/4W J CE 22 μ 25V (LN) CC 220P 50V K CE 47 μ 10V CE 3.3 μ 50V CM 0.018 μ 50V J CC 150P 50V K CM 1200P 50V J	IC101,201 IC102,202 L104,204 L105,205 R173,273 R174,274 R175,275 R176,276 R178,278 R180,280 R181,281 R182,282 R184,284 R185,285 R186,286 R187,190 287,290 R188,189 288,289 R191,291 R340 C132,134 232,234	OB06383A OB06382A OB06691A OB06690A OB05629A OB09826A OB09588A OB09317A OB09491A OB05692A OB09795A OB09420A OB09356A OB05641A OB09517A OB05627A OB05676A OB09796A OB01889A OB09223A	IC TEA0654 IC TEA0652 L-C Block YEL L-C Block BLU RK 2.7K 1/4W J RK 3K 1/4W J RK 2.4K 1/4W J RM 3.3K 1/4W F RM 1K 1/4W F RK 68K 1/4W J RM 5.1K 1/4W F RM 2.2K 1/4W F RM 4.7K 1/4W F RK 47K 1/4W J RK 75K 1/4W J RK 330K 1/4W J RM 12K 1/4W F RK 100K 1/4W J CE 1 μ 50V (LN)	Q105,106 107,205 206,207 ZD101,201 D101,102 201,202 305 VR108,208 R141,241 R142,145 146,242 245,246 R143,243 R144,244 R147,148 247,248 R149,249 R320 C124,224 C125,225 C308	OB06367A OB06214A OB06066A OB06371A OB01872A OB06372A	IC TMP4315BP-1811 IC μ PD4071C TR 2SD471 (L,M) TR 2SD1286 TR 2SC945 (L) TR 2SA953						

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

Schematic Ref. No.	Part No.	Description
Q608,609	OB06322A	TR 2SC2002
614,615		
620,621		
Q610,611	OB06013A	TR 2SA733
616,617		
622		
ZD601	OB06385A	ZD 5.6V XZ056
D601-618	OB01909A	SD 1S1555 (17)
L601	OB06689A	L-C Block BLK
VR601	OB07421A	Semi-fixed VR 300
R601	OB09803A	R Network 47Kx5
R602	OB09824A	R Network 100Kx3
R603,612	OB01846A	RK 4.7K 1/4W J
614,649		
R604,605	OB01888A	RK 10K 1/4W J
606,629		
R607,608	OB05625A	RK 220K 1/4W J
R609,643	OB05629A	RK 2.7K 1/4W J
R610,611	OB05509A	RK 33K 1/4W J
648		
R613	OB01683A	RK 15K 1/4W J
R615	OB05577A	RK 330 1/4W J
R616,617	OB01857A	RK 1K 1/4W J
618,619		
631		
R620,621	OB01684A	RK 470K 1/4W J
624,625		
R622,623	OB01933A	RK 220 1/4W J
R626,627	OB01679A	RK 100 1/4W J
R628	OB09304A	RK 3.3 1/4W J
R630	OB05698A	RK 1.5K 1/4W J
R632	OB09831A	RF 22 1W J
R633	OB05560A	RK 18K 1/4W J
R635	OB05743A	RK 27K 1/4W J
R636	OB09882A	RK 620 1/4W J
R637	OB01887A	RK 5.6K 1/4W J
R638	OB05645A	RK 270 1/4W J
R639	OB09832A	RF 27 1W J
R640	OB05575A	RK 560 1/4W J
R641	OB09217A	RF 5.6 1/4W J
R642,644	OB01889A	RK 100K 1/4W J
R645	OB05627A	RK 330K 1/4W J
R646	OB05641A	RK 47K 1/4W J
R647	OB05508A	RK 56K 1/4W J
R650	OB01856A	RK 8.2K 1/4W J
R651	OB06706A	RW 3.5
C601	OB01398A	CE 220μ 16V
C602	OB09817A	CE 33μ 10V (LN)
C603,605	OB01405A	CE 1μ 50V
C604	OB09222A	CE 0.47μ 50V (LN)
C607	OB01802A	CM 2200P 50V J
CN3	OB02243A	5P-T Post
CN4	OB02245A	9P-T Post
- Miscellaneous -		
	OB02563B	Main P.C.B.
	OB02249A	PD Wire (1)
	OB02250A	PD Wire (1)
	OB02251A	PD Wire (1)
	OB02255A	PD Wire (1)
	OB02260A	PD Wire (1)
	OB02261A	PD Wire (1)
	OB02262A	PD Wire (1)
	OB02264A	PD Wire (1)
	OB02265A	PD Wire (1)
	OB02266A	PD Wire (1)
	OB02267A	PD Wire (1)
	OB02269A	PD Wire (1)
	OJ04613A	Shield Plate M (1)
	OB07434A	Push Switch (1)
	OB07436A	Push Switch (1)
	OE00509A	M3x6 @ Pan (3)

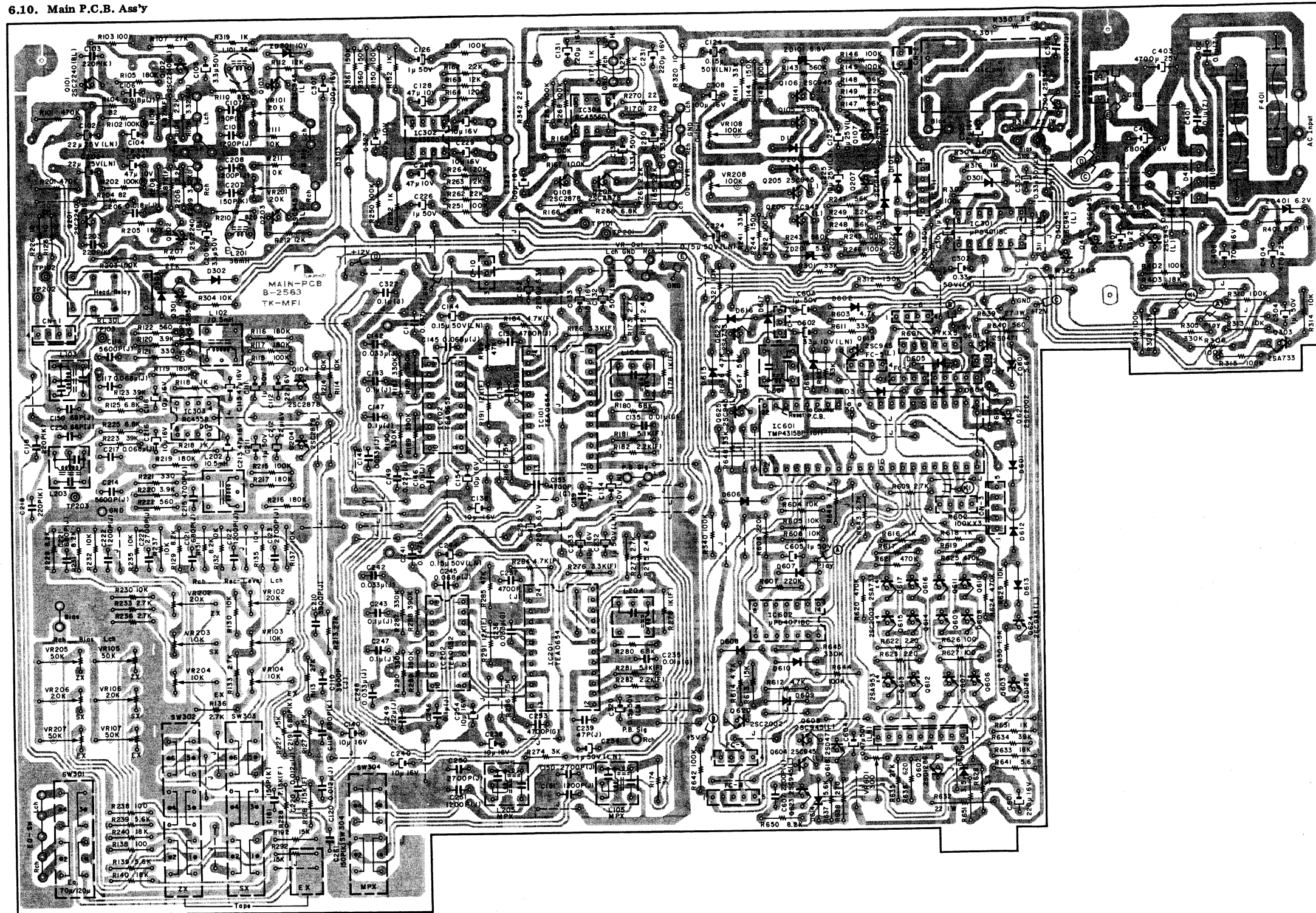


Fig. 6.10.1 2nd Version

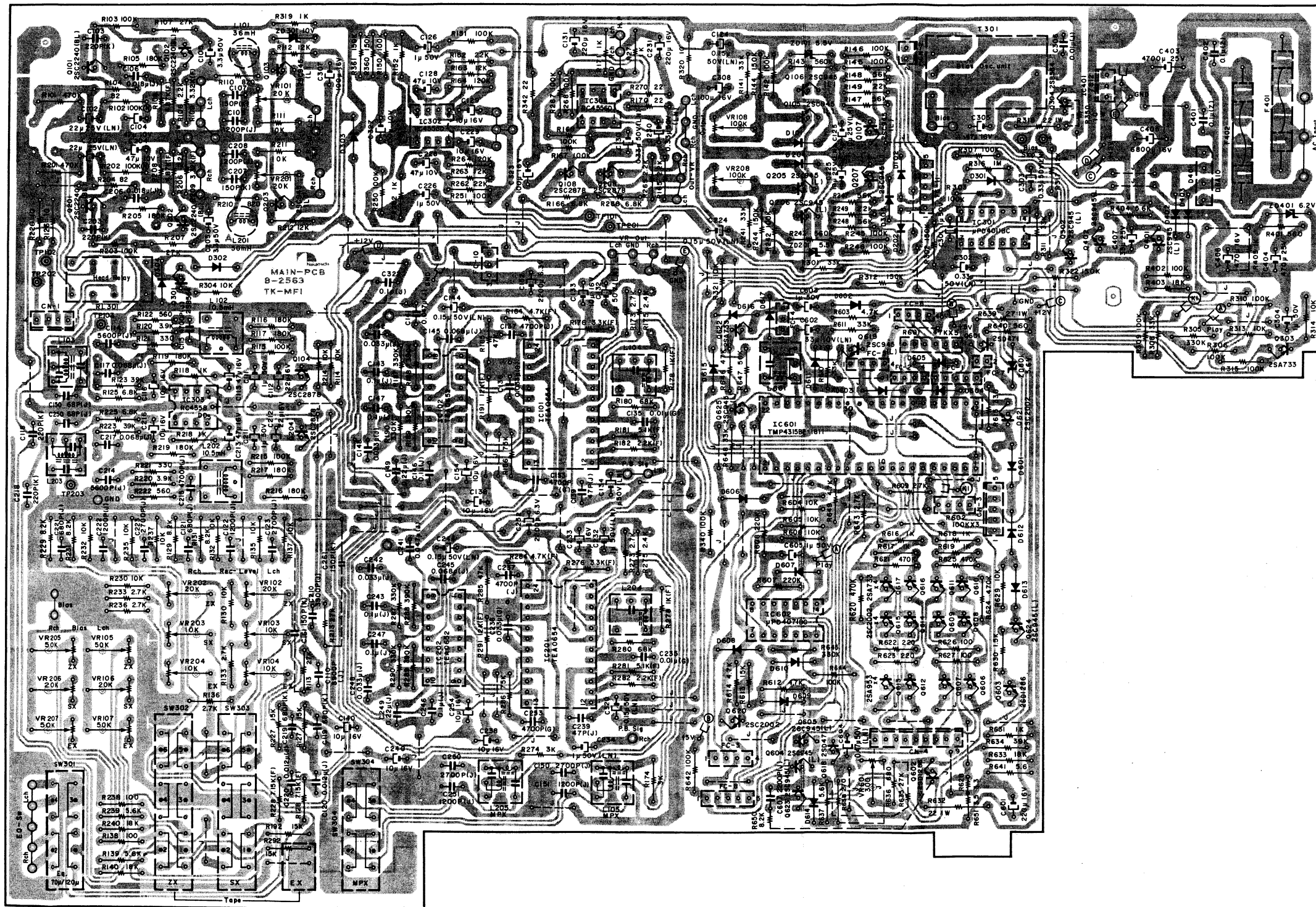


Fig. 6.10.2 1st Version

Schematic Ref. No.	Part No.	Description
	BA04861A	Main P.C.B. Ass'y (1st Version)
- Rec. Level -		
VR102,202	OB07418A	Semi-fixed VR 20K
VR103,104	OB07417A	Semi-fixed VR 10K
203,204		
R127,227	OB01683A	RK 15K 1/4W J
R128,228	OB09577A	RM 7.15K 1/4W F
R129,131	OB01856A	RK 8.2K 1/4W J
229,231		
R130,132	OB01888A	RK 10K 1/4W J
135,137		
230,232		
235,237		
R133,136	OB05629A	RK 2.7K 1/4W J
233,236		
C119,121	OB05571A	CM 680P 50V J
219,221		
C120,220	OB05843A	CM 0.012μ 50V J
C122,222	OB05687A	CM 1200P 50V J
C123,223	OB09189A	CM 2700P 50V J
- Rec. Eq. Amp. -		
IC303	OB06146A	IC RC455DD
Q104,204	OB06299A	TR 2SC2878
L102,202	OB00068A	Trap Coil 10.5mH
L103,203	OB06696A	L-C Block TF10
VR105,107	OB07419A	Semi-fixed VR 50K
205,207		
VR106,206	OB07418A	Semi-fixed VR 20K
R113,213	OB05743A	RK 27K 1/4W J
R114,214	OB01888A	RK 10K 1/4W J
R115,215	OB01889A	RK 100K 1/4W J
R116,117	OB05640A	RK 180K 1/4W J
119,216		
217,219		
R118,218	OB01857A	RK 1K 1/4W J
R120,220	OB05675A	RK 3.9K 1/4W J
R121,221	OB05577A	RK 330 1/4W J
R122,222	OB05575A	RK 560 1/4W J
R123,223	OB01854A	RK 39K 1/4W J
R125,225	OB01882A	RK 6.8K 1/4W J
R126,226	OB05936A	RK 10 1/4W J
R138,238	OB01679A	RK 100 1/4W J
R139,239	OB01887A	RK 5.6K 1/4W J
R140,240	OB05560A	RK 18K 1/4W J
R192,292	OB01683A	RK 15K 1/4W J
C110,210	OB01804A	CM 3900P 50V J
C111,211	OB01405A	CE 1μ 50V
C112,212	OB01862A	CE 22μ 16V
C113,213	OB01403A	CE 47μ 16V
C114,214	OB05659A	CM 5600P 50V J
C115,215	OB05652A	CM 4700P 50V J
C116,216	OB01412A	CE 10μ 16V
C117,217	OB05682A	CM 0.068μ 50V J
C118,218	OB09283A	CC 220P 50V K
C150,250	OB09393A	CC 68P 50V J
C161,261	OB09281A	CC 150P 50V K
- PB Eq. Amp. -		
Q101,102	OB06142A	TR 2SC2240 (BL)
201,202		
Q103,203	OB01872A	TR 2SC945 (L)
ZD301	OB06233A	ZD 10V RD10EB3
L101,201	OB03919B	Inductor 36mH
VR101,201	OB07418A	Semi-fixed VR 20K
R101,201	OB01684A	RK 470K 1/4W J
R102,202	OB09330A	RK 100K 1/4W J (Noiseless)
R103,203	OB01889A	RK 100K 1/4W J
R104,204	OB05631A	RK 82 1/4W J
R105,205	OB05640A	RK 180K 1/4W J
R106,206	OB05622A	RK 2.2K 1/4W J
R107,207	OB05743A	RK 27K 1/4W J
R108,208	OB09830A	RM 4.87K 1/4W F
R109,209	OB09829A	RM 3.32K 1/4W F
R110,210	OB01680A	RK 820 1/4W J
R111,211	OB01888A	RK 10K 1/4W J
R112,212	OB09263A	RK 12K 1/4W J
R319	OB01857A	RK 1K 1/4W J
C102,202	OB09137A	CE 22μ 25V (LN)
C103,203	OB09283A	CC 220P 50V K
C104,204	OB01836A	CE 47μ 10V
C105,205	OB01863A	CE 3.3μ 50V
C106,206	OB05832A	CM 0.018μ 50V J
C107,207	OB09281A	CC 150P 50V K
C108,208	OB05687A	CM 1200P 50V J

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	
C307 CN1	OB01400A OB02242A	CE 100μ 16V 4P-T Post	C133,138 140,154 233,238 240,254 C135,235 C136,236 C137,237 C139,239 C141,241 C142,148 242,248 C143,146 147,243 246,247 322 C144,244 320 C145,245 C149,249 C150,250 C151,251 C152,252 C153,253	OB01412A	CE 10μ 16V	Q608,609 614,615 620,621 Q610,611 616,617 622 ZD601 D601-617 L601 VR601 R601 R602 R603,612 614,649 R604,605 606,629 R607,608 R609,643 R610,611 648 R613 R615 R616,617 618,619 631 R620,621 624,625 R622,623 R626,627 R628 R630 R632 R633 R635 R636 R637 R638 R639 R640 R641 R642,644 R645 R646 R647 R650 R651 C601 C602 C603,605 C604 C607 CN3 CN4	OB06322A	TR 2SC2002	
		— DC Supply —					OB06013A	TR 2SA733	
IC401 Q401,402 ZD401 D401 D402,403 R401 R402 R403 R404 R405 C401,402 C403 C404 C405 C406 C407	OB06380A OB01872A OB06167A OB06282A OB01909A OB05575A OB01889A OB05560A OB01887A OB01857A OB09292A OB09799A OB01401A OB09798A OB01392A OB09251A OB08676A OE00507A OE00612A	IC RC7812 TR 2SC945 (L) ZD 6.2V RD6.2EB3 Diode Bridge DBA10 SID 1S1555 RK 560 1/4W J RK 100K 1/4W J RK 18K 1/4W J RK 5.6K 1/4W J RK 1K 1/4W J CE 0.1μ 50V Z CE 4700μ 25V CE 470μ 25V CE 6800μ 16V CE 470μ 16V CE 33μ 25V Heat Sink (1) Nut Hex. M3 (1) M3x6 ⊕ Pan (2A)	IC302 R150,151 250,251 R152,252 R162,262 R163,263 R164,264 R360,361 C126,226 C128,228 C129,229 C327	OB09312A OB09240A OB05652A OB09280A OB05796A OB05583A	CP 0.01μ 100V G CP 0.033μ 100V G CM 4700P 50V J CC 47P 50V J CM 0.047μ 50V J CM 0.033μ 50V J		OB01780A	CM 0.1μ 50V J	
		OE00857A OE00037A	BT 3x6 ⊕ Binding (2) Earth Lug B-5 (2)					OB01888A	RK 10K 1/4W J
		— Bias Osc. —						OB05625A OB05629A OB05509A	RK 220K 1/4W J RK 2.7K 1/4W J RK 33K 1/4W J
Q304 T301 R317 R318 R350 C305 C306 CN2	OB06332A OB06688A OB09263A OB09831A OB09837A OB01403A OB09519A OB02233A	TR 2SB564 (M) Bias Osc. Unit RK 12K 1/4W J RF 22 1W J RF 10 1W J CE 47μ 16V CP 0.01μ 100V J 2P-T Post	R162,262 R163,263 R164,264 R360,361 C126,226 C128,228 C129,229 C327	OB06124B OB01889A OB01857A OB05615A OB09263A OB05621A OB05626A OB01405A OB01836A OB01412A OB05885A	IC RC4558D RK 100K 1/4W J RK 1K 1/4W J RK 22K 1/4W J RK 12K 1/4W J RK 120K 1/4W J RK 150K 1/4W J CE 1μ 50V CE 47μ 10V CE 10μ 16V CE 100μ 10V			OB01684A	RK 470K 1/4W J
		— Mute —						OB01933A OB01679A OB09304A OB05698A OB09831A OB05560A OB05743A OB05794A OB01887A OB05645A OB09832A OB05575A OB09217A OB01889A OB05627A OB05641A OB05508A OB01856A OB06706A OB01398A OB09817A OB01405A OB09222A OB01802A OB02243A OB02245A	RK 220 1/4W J RK 100 1/4W J RK 3.3 1/4W J RK 1.5K 1/4W J RF 22 1W J RK 18K 1/4W J RK 27K 1/4W J RK 680 1/4W J RK 5.6K 1/4W J RK 270 1/4W J RF 27 1W J RK 560 1/4W J RF 5.6 1/4W J RK 100K 1/4W J RK 330K 1/4W J RK 47K 1/4W J RK 56K 1/4W J RW 3.5 CE 220μ 16V CE 33μ 10V (LN) CE 1μ 50V CE 0.47μ 50V (LN) CM 2200P 50V J 5P-T Post 9P-T Post
IC301 Q301 Q302 Q303 D301,302 303,304 R301,308 311 R302,312 322 R303,306 307,309 310,315 R304,313 314,321 R305 R316 C301,304 C302,303 RL301	OB06381A OB06332A OB01872A OB06155A OB01909A OB05509A OB05626A OB01889A OB01888A OB05627A OB05776A OB01405A OB09327A OB07420A	IC μPD4011BC TR 2SB564 (M) TR 2SC945 (L) TR 2SA733 (P) SID 1S1555 RK 33K 1/4W J RK 150K 1/4W J RK 100K 1/4W J RK 10K 1/4W J RK 330K 1/4W J RK 1M 1/4W J CE 1μ 50V CE 0.33μ 50V (LN) Relay 12V	IC304 Q108,208 R165,265 R166,266 R167,168 267,268 R170,270 R171,271 R342 C130,230 C131,231 C323	OB06370A OB06299A OB05622A OB01682A OB01889A OB05579A OB01857A OB09049A OB09327A OB01398A OB01400A	IC RC4556D TR 2SC2878 RK 2.2K 1/4W J RK 6.8K 1/4W J RK 100K 1/4W J RK 22 1/4W J RK 1K 1/4W J RF 22 1/4W J CE 0.33μ 50V (LN) CE 220μ 16V CE 100μ 16V			OB01872A	TR 2SC945 (L)
		— Dolby NR —						OB06384A OB01909A OB07425A OB05509A OB01889A OB05784A OB05626A OB05508A OB05615A OB09216A OB09570A OB09148A OB01400A	ZD 5.5V XZ055 SID 1S1555 Semi-fixed VR 100K RK 33K 1/4W J RK 100K 1/4W J RK 560K 1/4W J RK 150K 1/4W J RK 56K 1/4W J RK 22K 1/4W J RF 10 1/4W J CE 0.15μ 50V (LN) CE 10μ 25V (LN) CE 100μ 16V
IC101,201 IC102,202 L104,204 L105,205 R173,273 R174,274 R175,275 R176,276 R178,278 R180,280 R181,281 R182,282 R184,284 R185,285 R186,286 R187,190 287,290 R188,189 288,289 R191,291 R340 C132,134 232,234	OB06383A OB06382A OB06691A OB06690A OB05629A OB09826A OB09588A OB09317A OB09491A OB05692A OB09795A OB09420A OB09356A OB05641A OB09517A OB05627A OB05676A OB09796A OB01889A OB09223A	IC TEA0654 IC TEA0652 L-C Block YEL L-C Block BLU RK 2.7K 1/4W J RK 3K 1/4W J RK 2.4K 1/4W J RM 3.3K 1/4W F RM 1K 1/4W F RK 68K 1/4W J RM 5.1K 1/4W F RM 2.2K 1/4W F RM 4.7K 1/4W F RK 47K 1/4W J RK 75K 1/4W J RK 330K 1/4W J RK 390K 1/4W J RM 12K 1/4W F RK 100K 1/4W J CE 1μ 50V (LN)	Q105,106 107,205 206,207 ZD101,201 D101,102 201,202 305 VR108,208 R141,241 R142,145 146,242 245,246 R143,243 R144,244 R147,148 247,248 R149,249 R320 C124,224 C125,225 C308	OB06367A OB06214A OB06066A OB06371A OB01872A OB06372A	IC TMP4315BP-1811 IC μPD4071C TR 2SD471 (L,M) TR 2SD1286 TR 2SC945 (L) TR 2SA953				— Logic —
			IC601 IC602 Q601,618 Q602,603 Q604,605 619,623 624,625 Q606,607 612,613						— Meter Amp. —
									— Headphone Amp. —
									— Miscellaneuous —
									OB02563A Main P.C.B. OB02249A PD Wire (1) OB02250A PD Wire (1) OB02251A PD Wire (1) OB02255A PD Wire (1) OB02260A PD Wire (1) OB02261A PD Wire (1) OB02262A PD Wire (1) OB02264A PD Wire (1) OB02265A PD Wire (1) OB02266A PD Wire (1) OB02267A PD Wire (1) OB02269A PD Wire (1) OJ04613A Shield Plate M (1) OB07434A Push Switch (1) OB07436A Push Switch (1) OE00509A M3x6 ⊕ Pan (3)

7. SCHEMATIC DIAGRAMS

7.1. Attention to Servicemen

(1) Parts Replacement

Following parts shall be replaced with the specified ones. Refer to the parts list.

(a) Power Supply Circuit

Power Cord
Power Transformer: T1
Fuses: F401, 402

(b) Power Switch P.C.B. Ass'y

Power Switch: SW1
Spark Killer: M2

(c) Main P.C.B. Ass'y

Power Transistors: Q301, 304, 601, 602, 603, 606, 607, 608, 609, 612, 613, 614, 615, 618, 620, 621
Diode Bridge: D401
Relay: RL301
Fail Safe Type Resistors: R318, 320, 342, 350, 401, 632, 639, 641
Wire Wound Resistor: R651

(2) Insulation Check

Before returning the repaired BX-2 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.

7.2. IC Block Diagrams

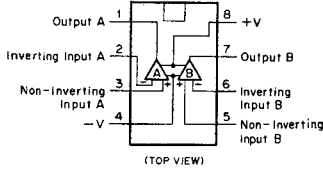


Fig. 7.2.1 Operational Amp. IC 4558, 4556

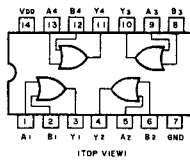


Fig. 7.2.3 OR Gate C-MOS IC μPD4071BC

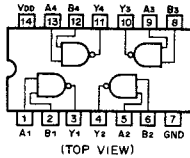


Fig. 7.2.2 NAND Gate C-MOS IC μPD4011BC

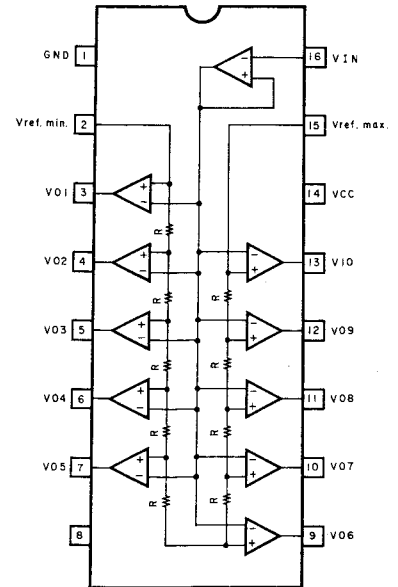


Fig. 7.2.4 Level Meter Driver TA7612AP

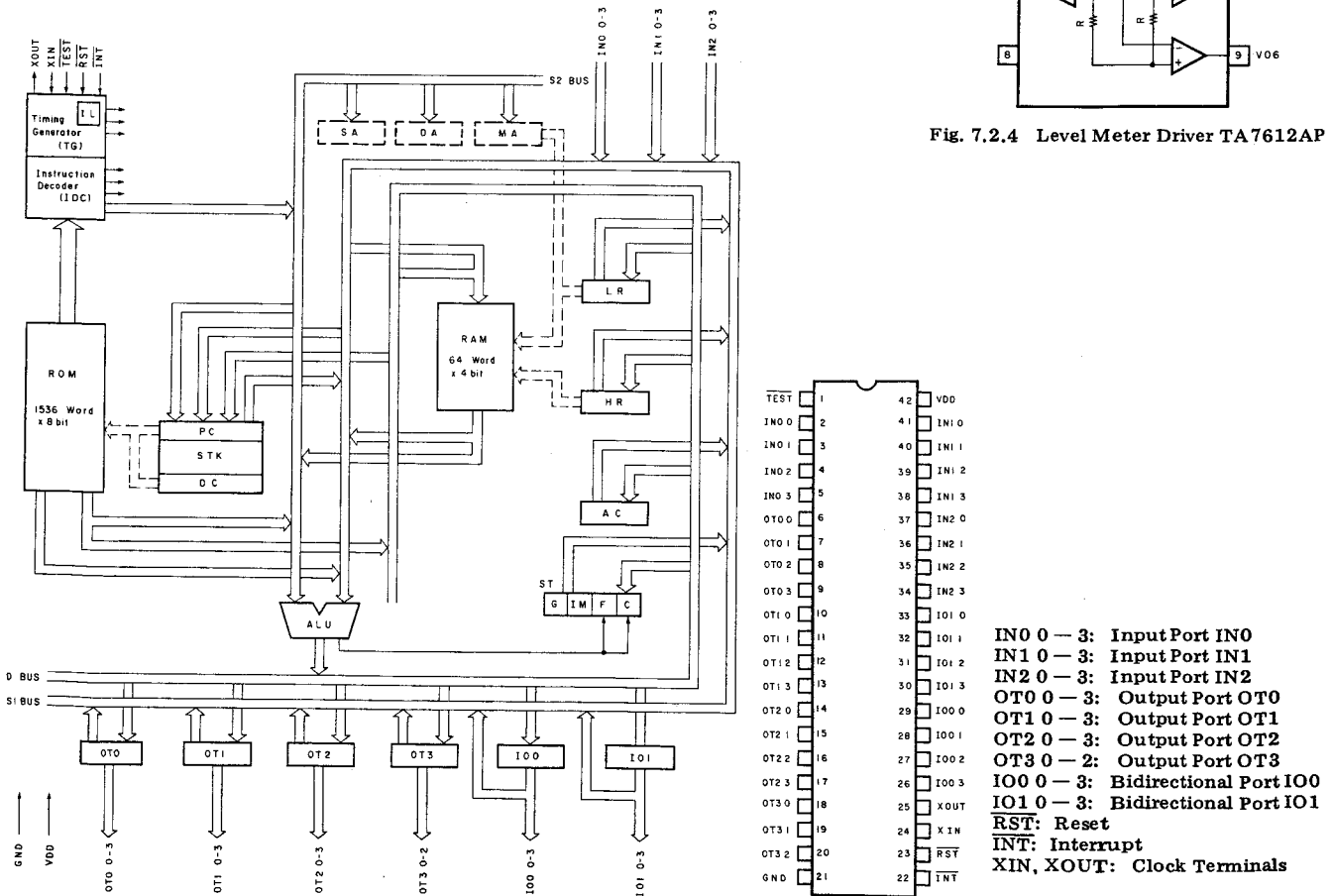


Fig. 7.2.5 4-Bit Micro-processor TMP4315BP-1811

7.3. Schematic Diagrams

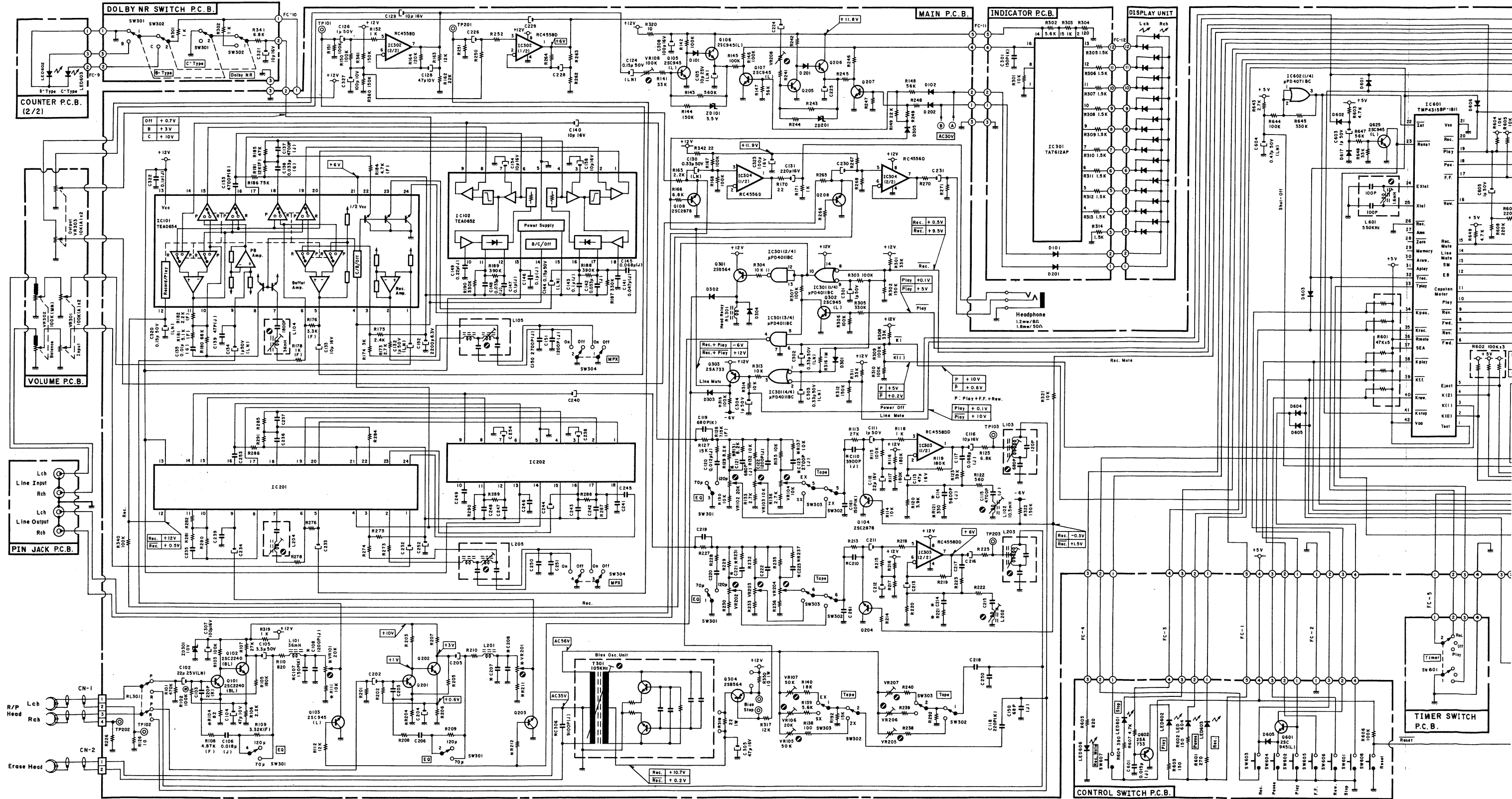


Fig. 7.3.1 2nd Version

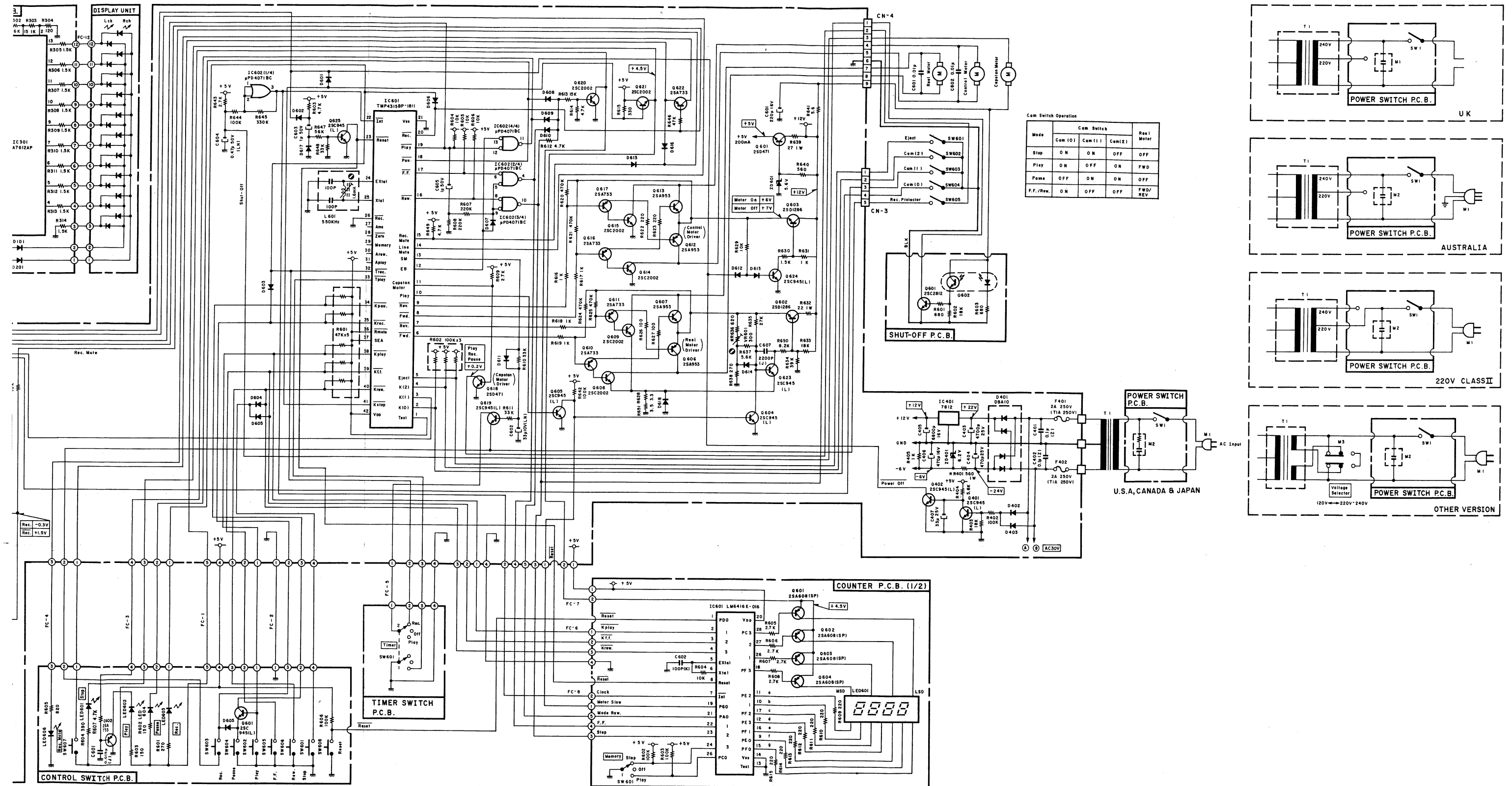


Fig. 7.3.1 2nd Version

Notes: 1. Diode is 1S553, 1S953, or 1S1555 unless otherwise specified.
 2. Resistor and capacitor marked with * show typical value.

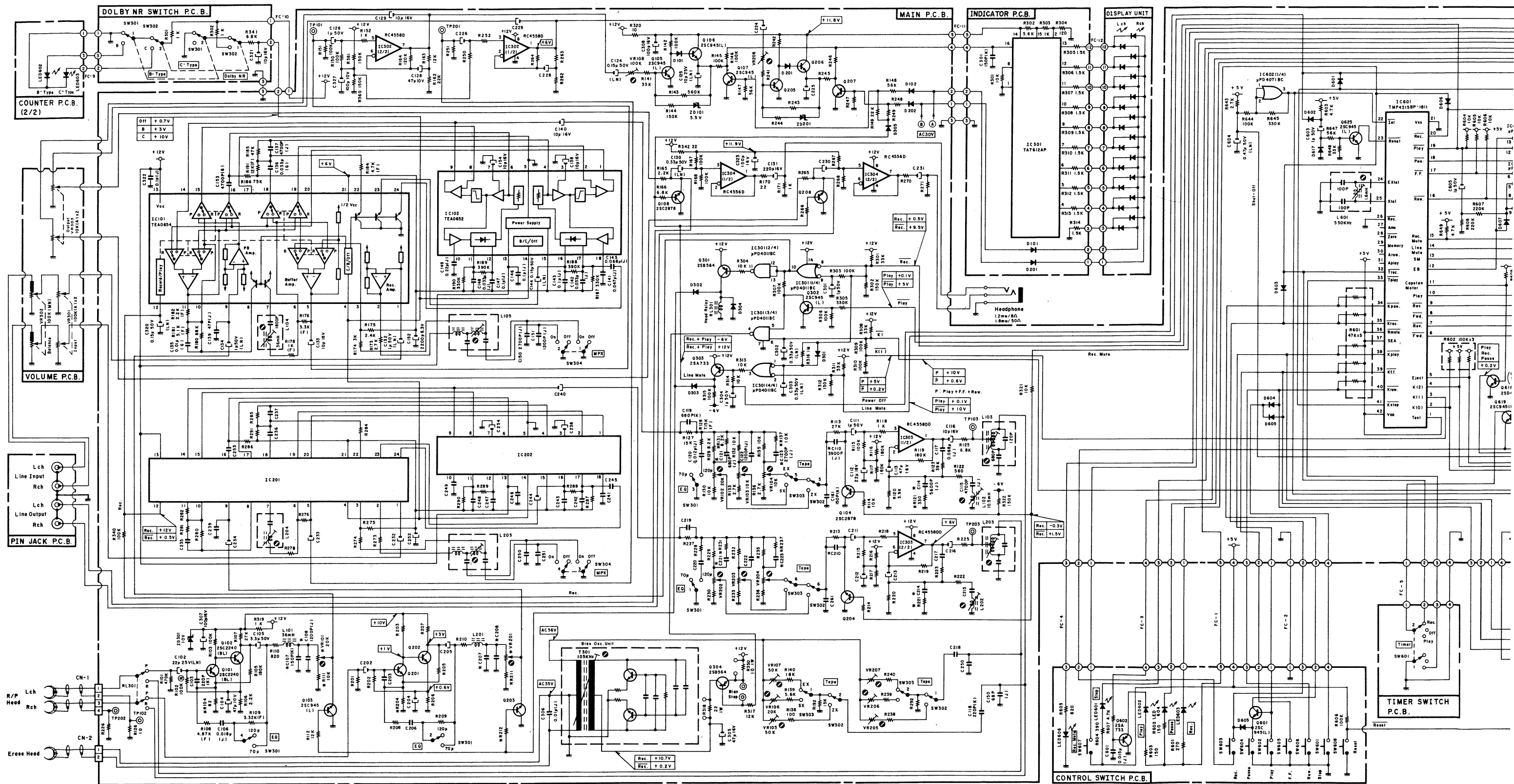


Fig. 7.3.2 1st Version

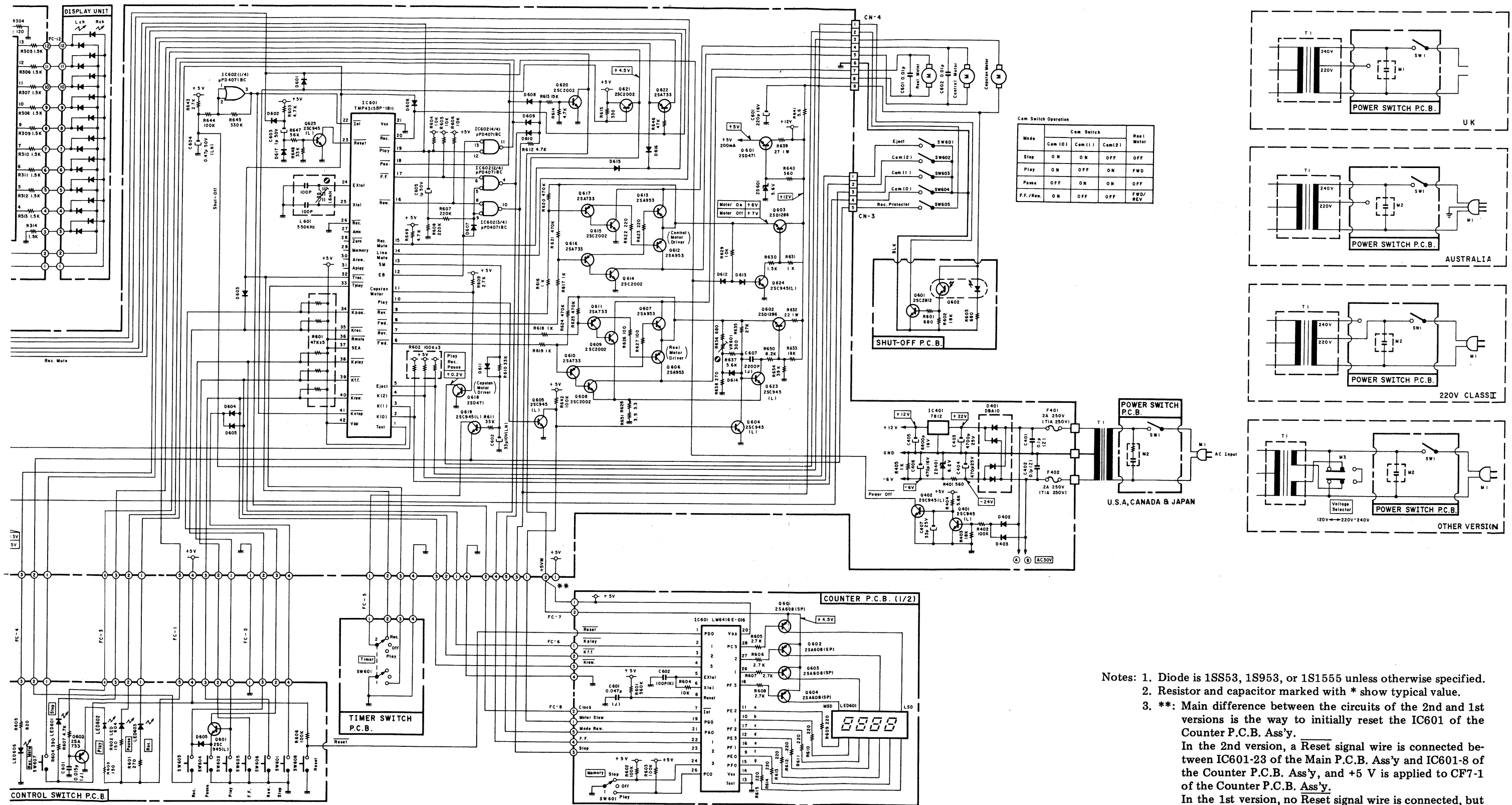


Fig. 7.3.2 1st Version

Cam Switch Operation

Mode	Cam (0)	Cam (1)	Cam (2)	Real Motor
Stop	ON	ON	OFF	OFF
Play	ON	OFF	ON	FWD
Pause	OFF	ON	ON	OFF
F.F./Rev.	ON	OFF	OFF	FWD/REV

Notes: 1. Diode is 1SS53, 1S953, or 1S1555 unless otherwise specified.
 2. Resistor and capacitor marked with * show typical value.
 3. **: Main difference between the circuits of the 2nd and 1st versions is the way to initially reset the IC601 of the Counter P.C.B. Ass'y.
 In the 2nd version, a Reset signal wire is connected between IC601-23 of the Main P.C.B. Ass'y and IC601-8 of the Counter P.C.B. Ass'y, and +5 V is applied to CF7-1 of the Counter P.C.B. Ass'y.
 In the 1st version, no Reset signal wire is connected, but +5 VM is applied to CF7-1 of the Counter P.C.B. Ass'y as shown in the circuit. In some cassette decks, actual wiring is different from the circuit; no connection of FC7-1 between the Main P.C.B. Ass'y and Counter P.C.B. Ass'y is made, but FC7-1 and FC7-2 of the Counter P.C.B. Ass'y is connected.

8. TIMING CHART AND EQ. AMP. FREQUENCY RESPONSE

8.1. Timing Chart

(1) Overall Timing Chart

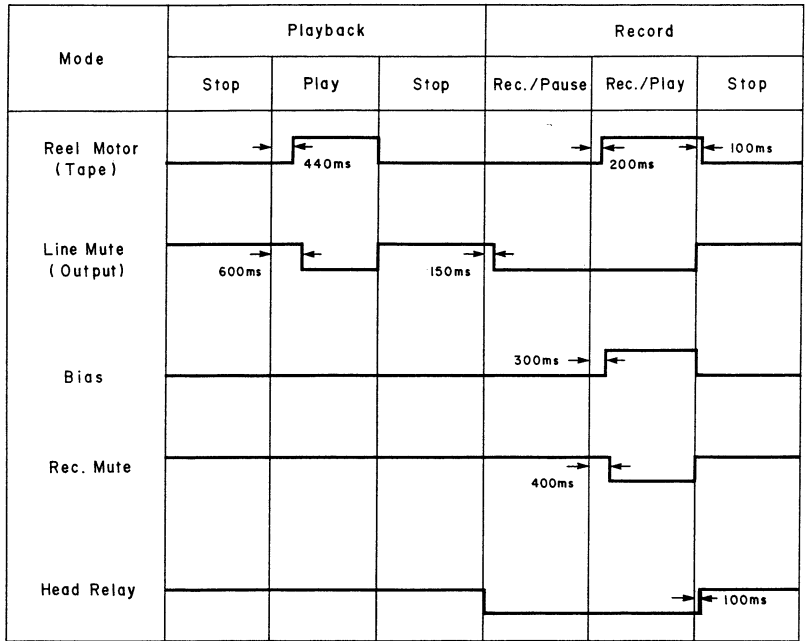


Fig. 8.1.1

(2) Mechanism Control Timing Chart

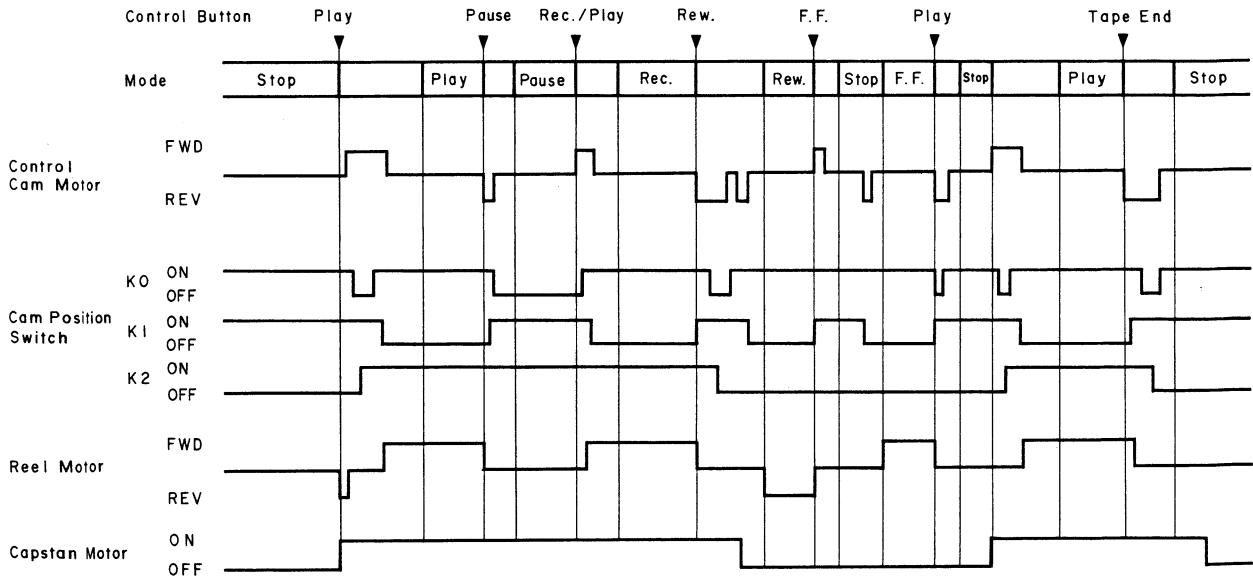


Fig. 8.1.2

8.2. Eq. Amp. Frequency Response
(1) Playback Frequency Response

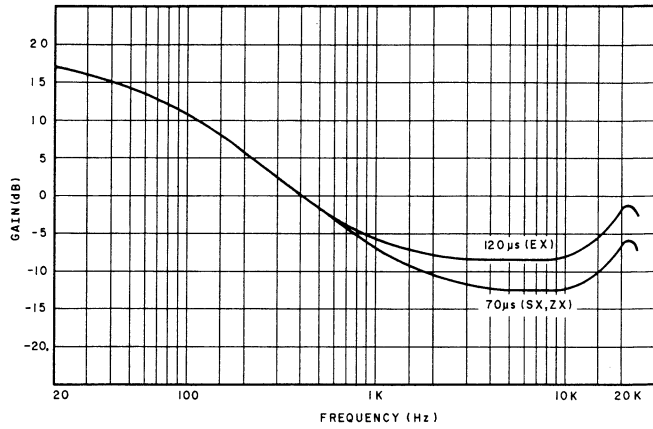


Fig. 8.2.1

(2) Record Current Frequency Response

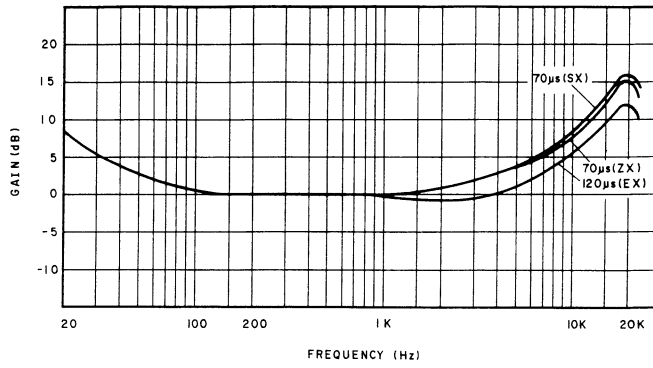


Fig. 8.2.2

Notes: 1. Table of wire colors

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

- 2. Component side view of the P.C.B. is illustrated unless otherwise specified.
- 3. *: Wiring is not made for the 1st version.

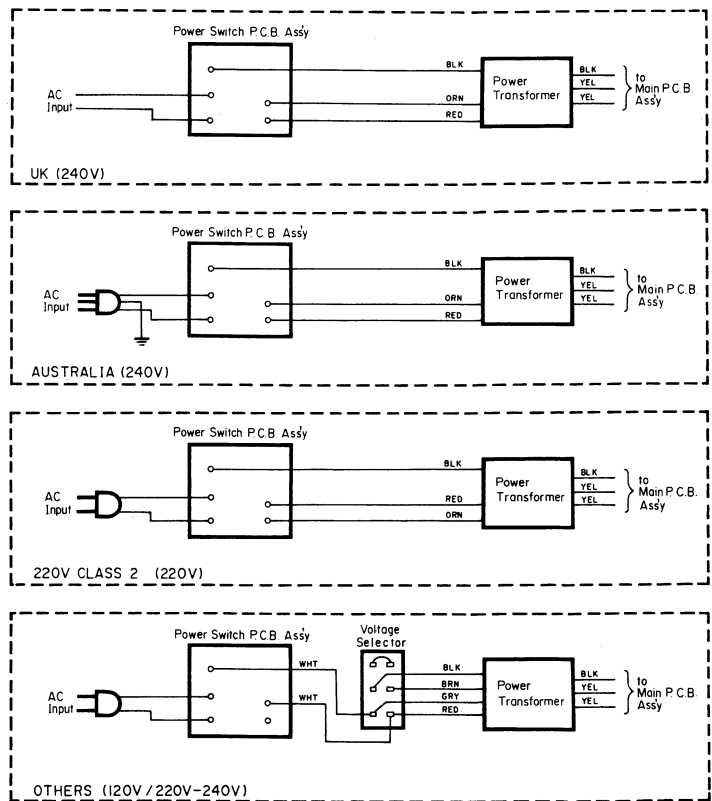


Fig. 9.1

9. WIRING DIAGRAM

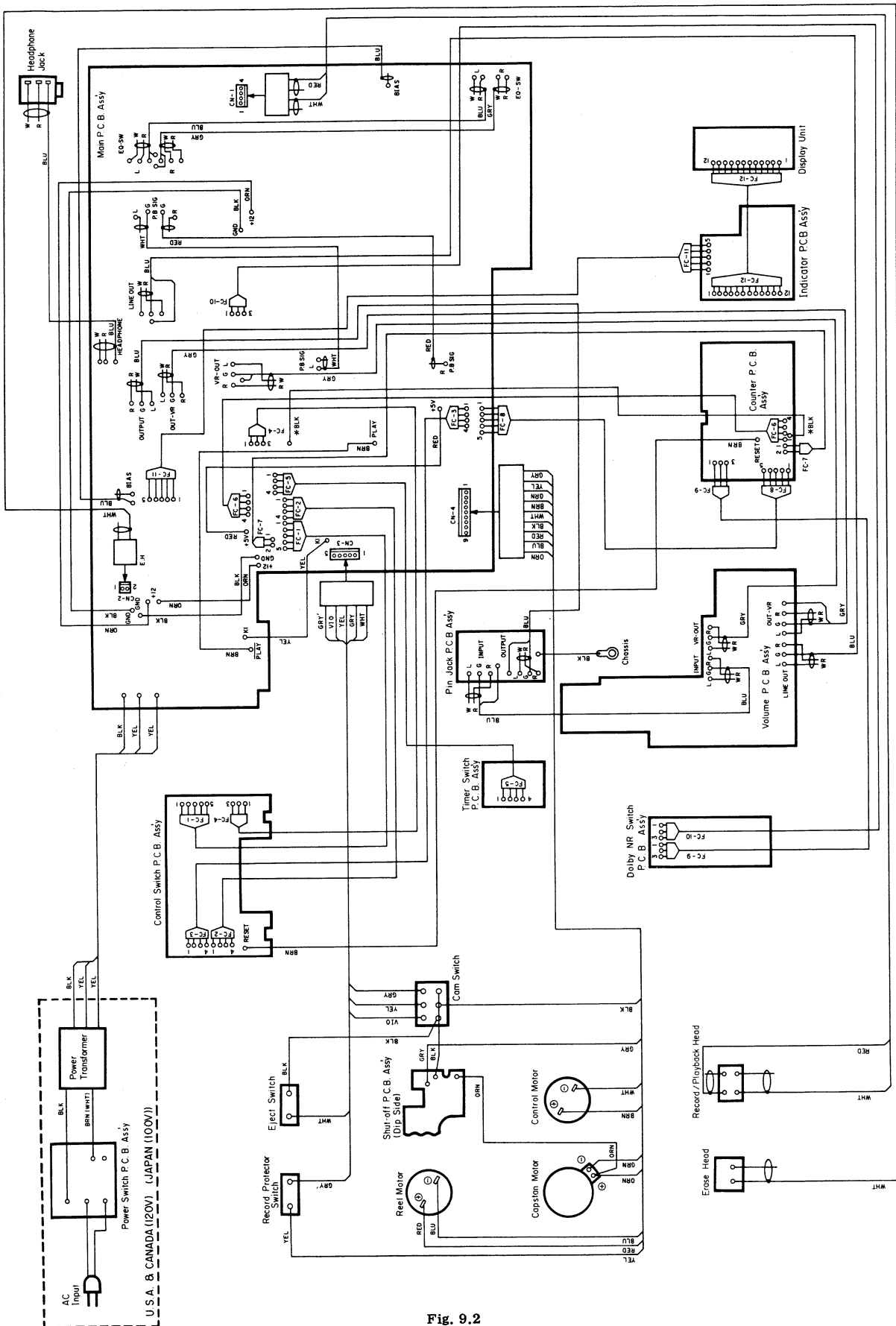


Fig. 9.2

10. BLOCK DIAGRAMS

10.1. Amplifier Section

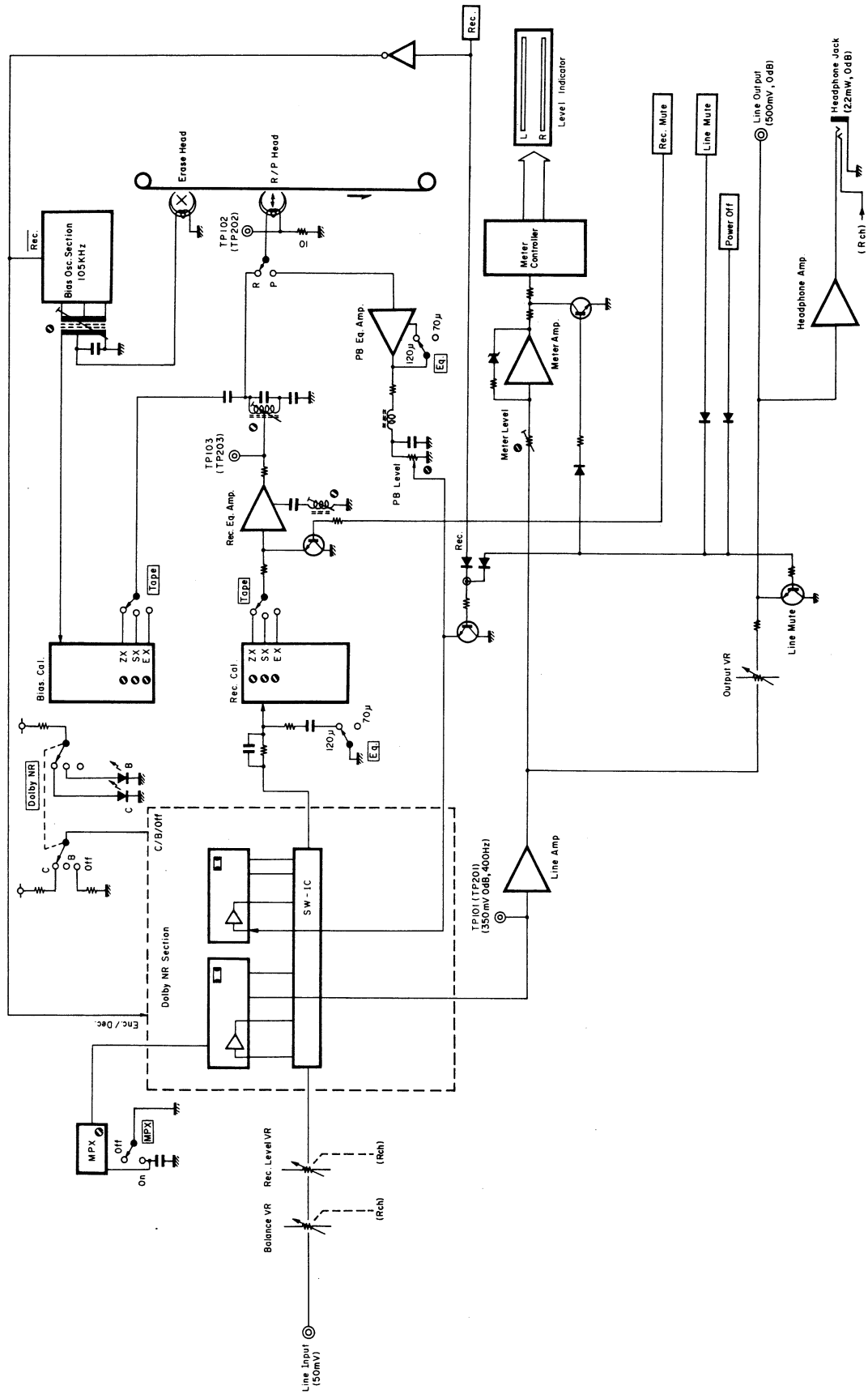


Fig. 10.1

10.2. Mechanism Control Section

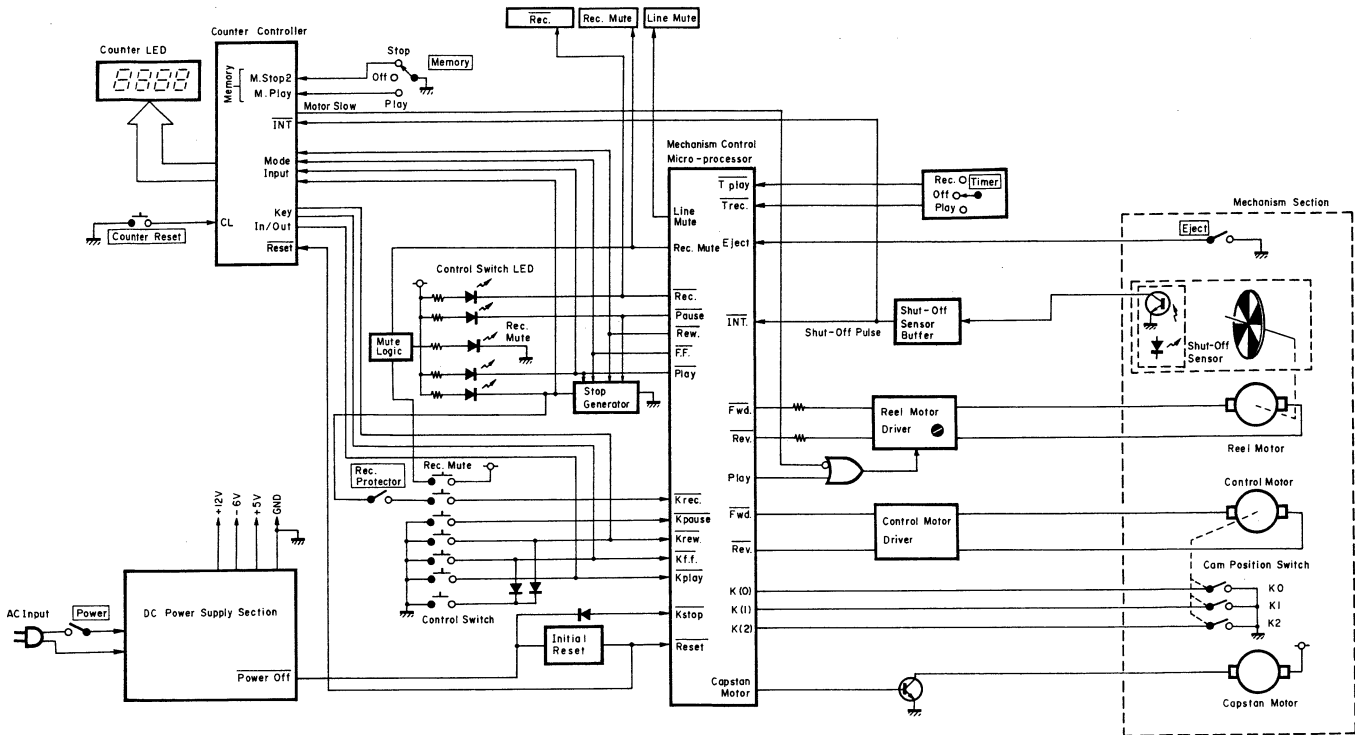


Fig. 10.2

11. SPECIFICATIONS

Track Configuration	4 Tracks/2-Channel Stereo
Heads	2 (Erase Head x 1, Record/Playback Head x 1)
Motors (Tape Transport)	DC Servo Motor (Capstan Drive) x 1 DC Motor (Reel 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	23 W max.
Tape Speed	1-7/8 ips (4.8 cm/sec) ±0.5%
Wow and Flutter	Less than 0.11% Wtd peak Less than 0.06% Wtd rms
Frequency Response	20 Hz—20,000 Hz (recording level -20 dB)
Signal to Noise Ratio	Dolby C-Type NR on <70 μs, ZX tape> Better than 68 dB (400 Hz, 3% THD, IHF A-Wtd rms) Dolby B-Type NR on <70 μs, ZX tape> Better than 62 dB (400 Hz, 3% THD, IHF A-Wtd rms)
Total Harmonic Distortion	Less than 1.0% (400 Hz, 0 dB, ZX, EXII tape) Less than 1.2% (400 Hz, 0 dB, SX 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 ohms
Output (Line)	0.5 V (400 Hz, 0 dB, output level control at max.) 2.2 k ohms
Output (Headphones)	2.2 mW (400 Hz, 0 dB, output level control at max.) 8-ohm load
Dimensions	430 (W) x 110 (H) x 250 (D) millimeters 16-15/16 (W) x 4-5/16 (H) x 9-7/8 (D) inches
Approximate Weight	5.5 kg 12 lb. 2 oz

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