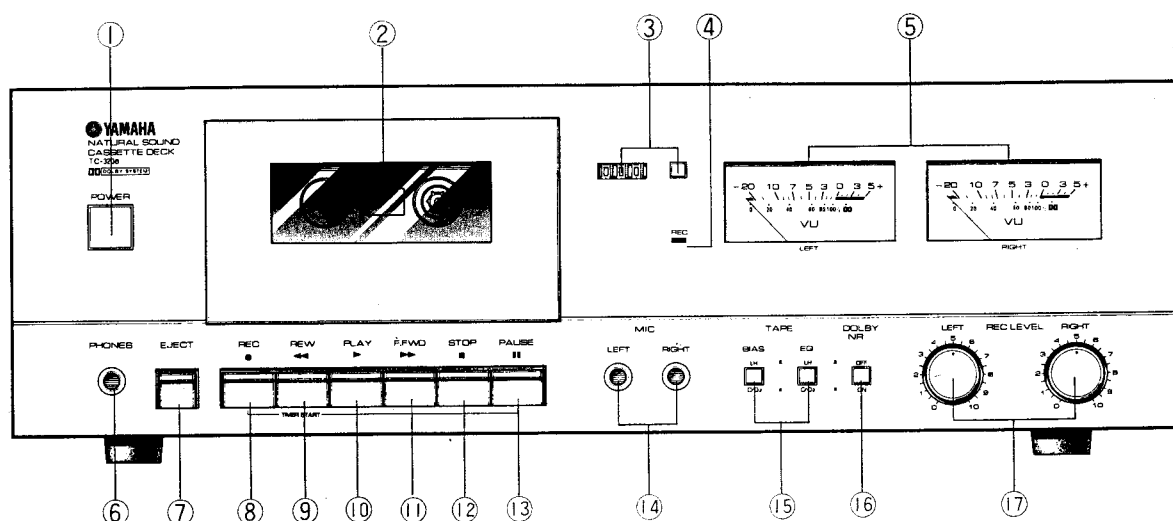


TC-320a

SERVICE MANUAL

■ FRONT PANEL



- ① POWER SWITCH
- ② CASSETTE COMPARTMENT
- ③ TAPE COUNTER/REST PUSH-BUTTON
- ④ RECORDING INDICATOR
- ⑤ LEVEL METERS
- ⑥ PHONES JACK
- ⑦ EJECT KEY
- ⑧ REC (●) RECORDING KEY
- ⑨ REW (◀) REWIND KEY
- ⑩ PLAY (▶) PLAYBACK KEY

- ⑪ F.FWD (▶▶) FAST FORWARD KEY
- ⑫ STOP KEY (■)
- ⑬ PAUSE (||) INSTANTANEOUS PAUSE KEY
- ⑭ LEFT AND RIGHT MIC (MICROPHONE) JACKS
- ⑮ TAPE SELECTOR SWITCHES
- ⑯ DOLBY NR SWITCH
- ⑰ REC LEVEL CONTROLS

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004389

SINCE 1887



YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

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■ DISASSEMBLY PROCEDURES

1. Top cover removal

Remove 4 screws from both sides and then remove the top cover.

2. Bottom cover removal

Remove tapping screws (1) to (8) in Photo 1 and then remove the bottom cover.

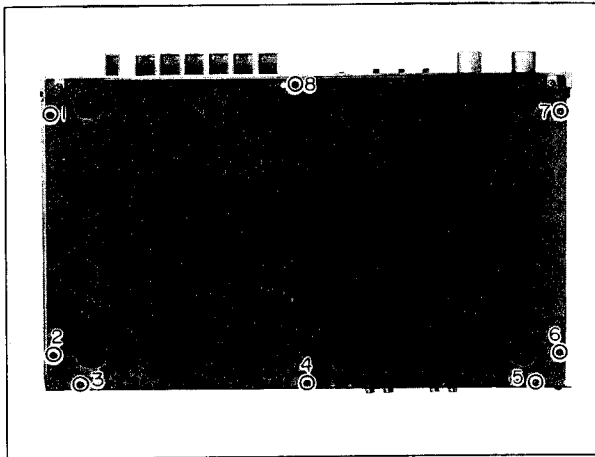


Photo 1

3. Front panel removal

- (1) Remove the top cover. (Refer to Step 1.)
- (2) Remove the bottom cover. (Refer to Step 2.)
- (3) Remove screws (1) to (3) in Photo 2 and screws (1) and (2) in Photo 3. Now pull out the front panel gently toward you.

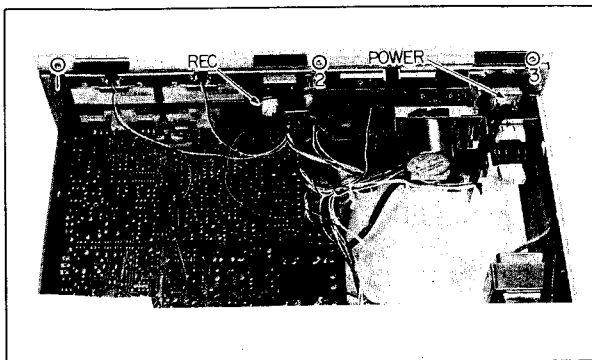


Photo 2

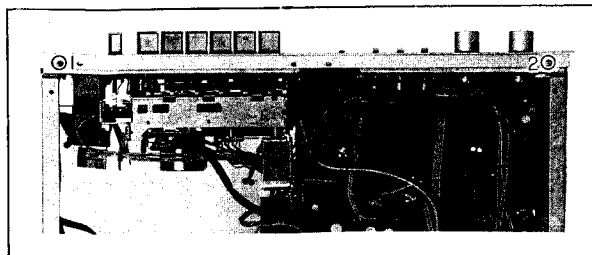


Photo 3

4. Tape mechanism unit removal

- (1) Remove the front panel. (Refer to Step 3.)
- (2) Disconnect the lead wires which are connected to the tape mechanism unit.
- (3) Remove the cassette door as in Fig. 1 so that it is not removed due to carelessness.
- (4) Remove screws (3) to (6) in Photo 4 and then remove the tape mechanism unit.

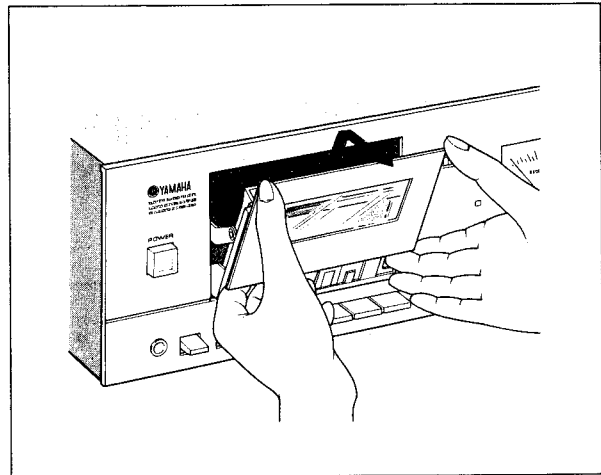


Fig. 1

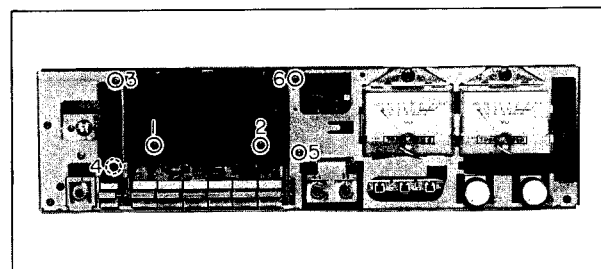


Photo 4

5. PB/REC circuit board removal

- (1) Remove the front panel.
- (2) Disconnect all the leads which are connected to the PB/REC circuit board.
- (3) Grasp the PB/REC switch flexible wire between your fingers as in Photo 5 and remove it. Depress the REC button and check that the PB/REC switch functions properly after remounting the flexible wire.

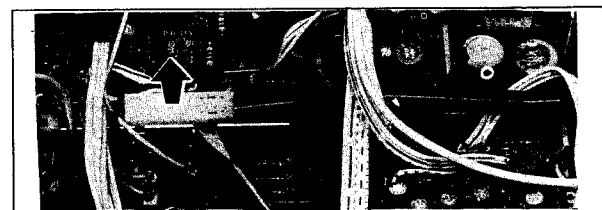


Photo 5

- (4) Push down on plastic rivets (1) to (3) in Photo 8 from the rear and remove them.
- (5) Remove nuts (3) to (4) in Photo 6 and also stopper (5) and (6).
- (6) Remove screws (1) to (3) in Photo 7 and then remove the PB/REC circuit board.

Note: Before removing the circuit board, be careful not to force the pin connectors, variable resistors and switch shafts.

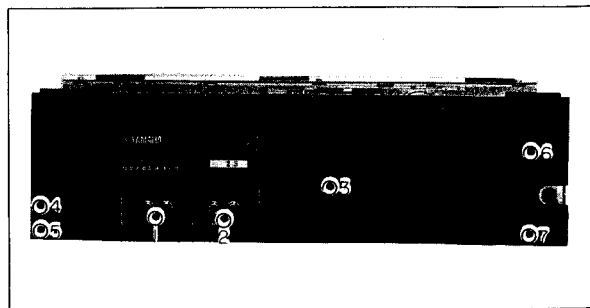


Photo 8

6. Level meter removal

- (1) Remove the front panel. (Refer to Step 3.)
- (2) Disconnect the lead wires which are connected to the level meters.
- (3) If the both ends (A) and (B) of the meter cover in Photo 6 are held lightly from the rear back panel and the meter cover is then pulled forward, both the meter cover and the level meters can be removed.

7. Power switch removal

- (a) Remove the front panel. (Refer to Step 3.)
- (b) Remove screws (7) and (8) in Photo 6 and then remove the power switch.

8. PHONES jack removal

- (a) Remove the front panel. (Refer to Step 3.)
- (b) Remove the stopper (9) in Photo 6 and then remove the PHONES jack.

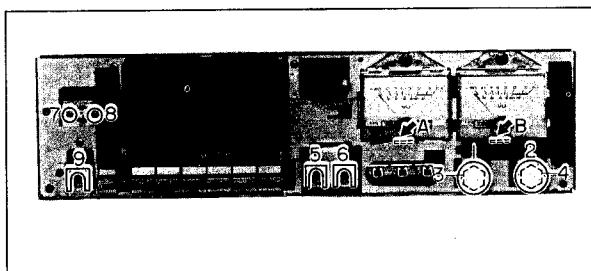


Photo 6

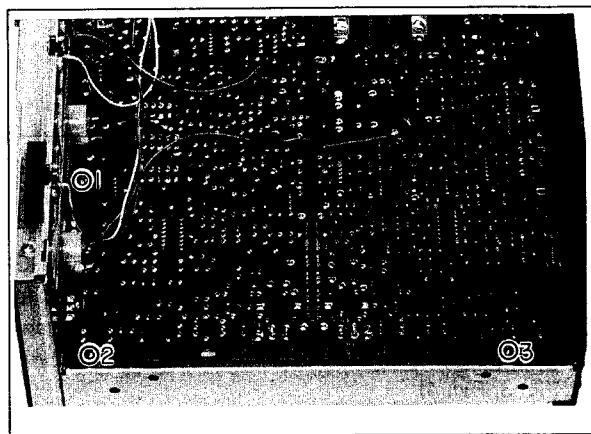


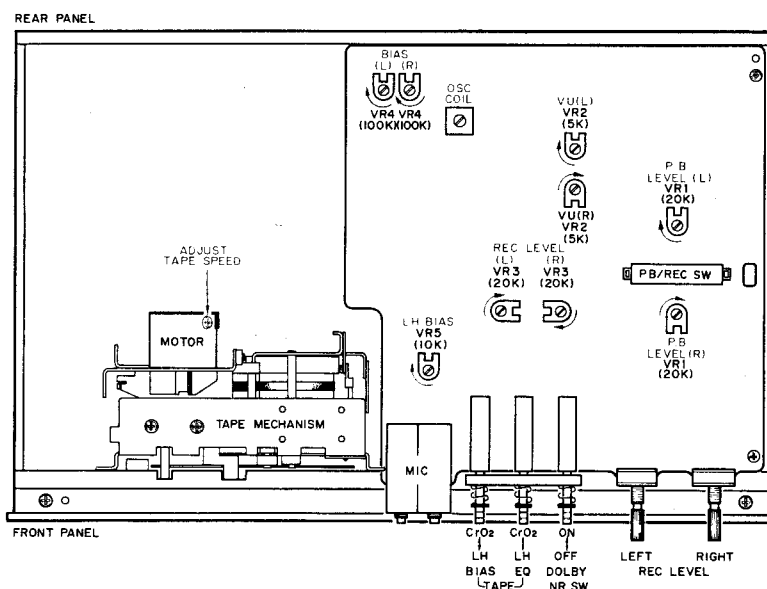
Photo 7

ELECTRICAL ADJUSTMENTS

* Before electrical adjustments

1. Demagnetize the recording tape with a tape eraser.
2. Do not bring the standard tape into contact with a magnet or place it in the sun.
3. Do not scratch or otherwise damage the heads during adjustment.
4. Take steps to safeguard against external induction and noise during the measurements.
5. Connect a 100-k ohm load resistance for the LINE OUT and a 8-ohm load resistance for the PHONES.

● PB/REC CIRCUIT BOARD ADJUSTMENT LOCATIONS



1. Head azimuth adjustment

Play back the LCT-3013 test tape (10 kHz 250 nWb/m, -10 dB) and adjust the angle of the PB/REC head adjustment screw so that the output of both channels is brought to the maximum and the phase is identical. (Fig. 1, Fig. 2)

* Note: Lock the screw after adjustment.

Use the LCT-3004 (6.3 kHz 250 nWb/m, -10 dB) test tape and measure the amplitude of the level fluctuations.

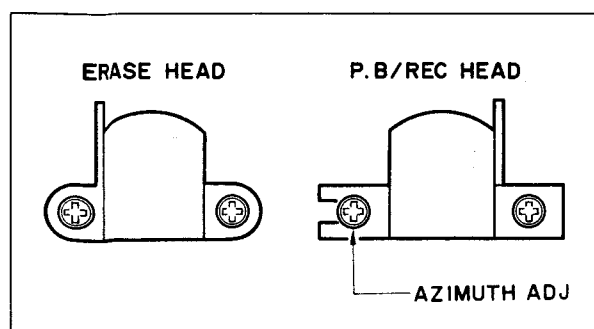


Fig. 1

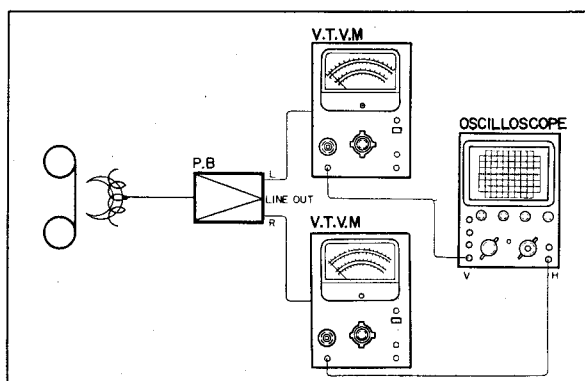


Fig. 2

2. Tape speed adjustment

Play back the center portion of the LCT-3001 (3 kHz 250 nWb/m, -10 dB) test tape and adjust the speed of the monitor so that the playback frequency response is 3 kHz $\pm$ 10 Hz with specification. (Fig. 3, Fig. 4)

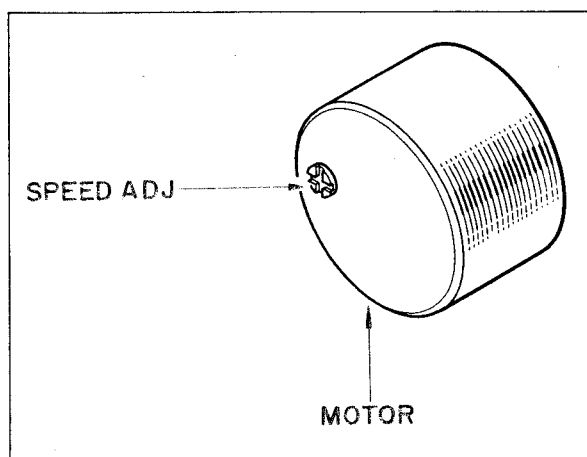


Fig. 3

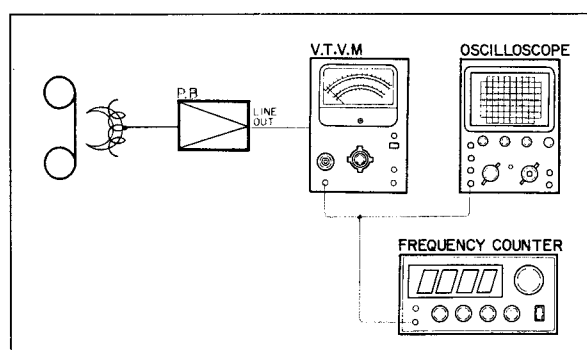


Fig. 4

3. Wow/flutter measurement

Play back the LCT-3001 (3 kHz 250 nWb/m, -10 dB) test tape and measure the wow/flutter at the start, center and end of the tape. Check that the measured values are within the specified range (JIS, less than 0.085% WRMS). (Fig. 5)

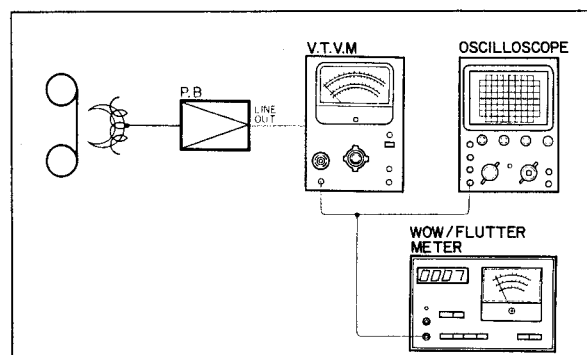


Fig. 5

4. Playback level adjustment

Play back the LCT-3003-160 (333 Hz, 160 nWb/m) test tape and adjust VR1 (20 kohms) for both channels so that the output at the LINE OUT terminals is $-5.5 \text{ dBm} \pm 0.5 \text{ dB}$. (Fig. 6)

5. Playback Signal-to-Noise ratio measurement

Play back the LCT-3003S test tape and check that the LINE OUT terminal output is -5.5 dBm for the both LH and CrO₂ tapes.

Next, depress the PAUSE button and check that the noise level is within the specified range.

6. Dolby level check

Play back the LCT-7001 (400 Hz, 200 nWb/m) test tape and check that the output is $-2.5 \text{ dBm} \pm 1.5 \text{ dB}$. (Fig. 6)

Note: Set the Dolby NR switch to ON.

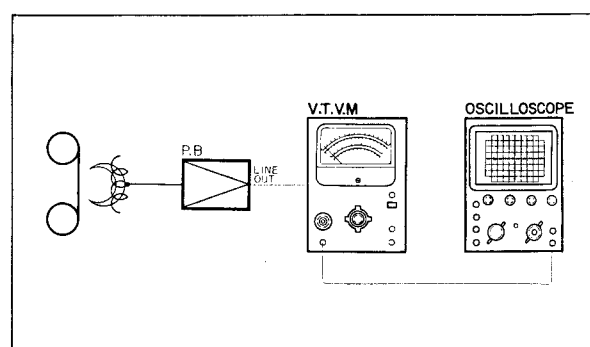


Fig. 6

7. Dolby effect measurement

Play back the Dolby effect measurement tape (5 kHz, -30 dB) and check that the deviation in the output when the Dolby NR switch is set to both ON and OFF is less than -8 dB. (Fig. 8)

Note: Connect the specified Dolby filter.

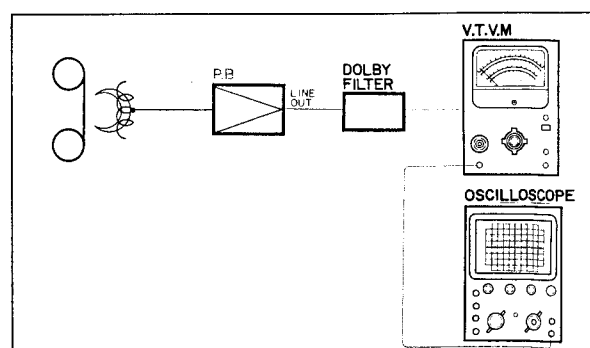


Fig. 7

8. Playback frequency response measurement

Play back the LCT-3031C test tape and check that the frequency response is within the specified zone in Fig. 8. Set the TAPE switch to the LH position. Now set the position of the switch from LH to

CrO₂ and check that the deviation at 10 kHz is $-4.5 \text{ dBm} \pm 1 \text{ dB}$. (Fig. 7, Fig. 8)

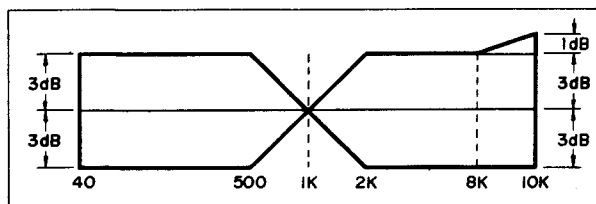


Fig. 8

9. VU meter adjustment

Apply a 1 kHz -20 dBm signal to the LINE IN terminals and adjust the REC LEVEL controls for both channels so that a signal of -5.5 dBm is produced at the LINE OUT terminals. (Fig. 9) and adjust VR 2 (5 k-ohms) for both channels at the VU meter deflects to 0VU.

10. Headphone output measurement

Apply a 1 kHz -20 dBm signal to the LINE IN terminals and adjust the REC LEVEL controls for both channels so that a signal of -5.5 dBm is produced at the LINE OUT terminals. Check that the output level of the PHONES jack is $-23 \text{ dBm} \pm 2 \text{ dB}$ (at 8-ohm load) and that the channel balance is less than 3 dB. (Fig. 9)

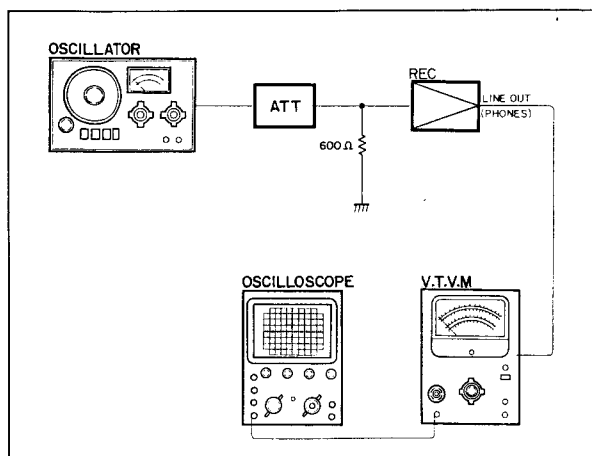


Fig. 9

11. Bias current temporary adjustment

Set to the recording mode but do not apply a signal. Adjust VR4 (100 kohms) for both channels to set the bias current at the end of R1 (10 ohms) resistor of the PB/REC head. (Fig. 10)

12. Bias oscillator frequency measurement

Set to the recording mode but do not apply a signal. Measure the bias oscillator frequency at the end of R1 (10 ohms) resistor of the PB/REC head and

check that it is $85 \text{ kHz} \pm 3 \text{ kHz}$ (specification: $85 \text{ kHz} \pm 8 \text{ kHz}$). If the frequency deviates widely rotate the oscillator coil core and adjust to 85 kHz. (Fig. 11)

Note: Lock the screw after adjustment.

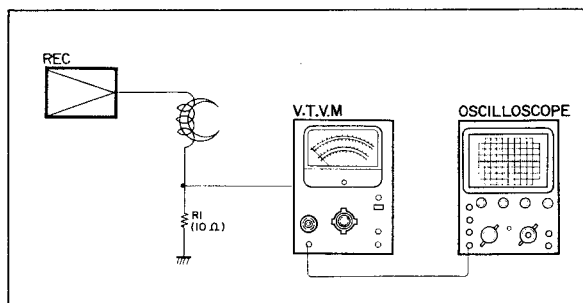


Fig. 10

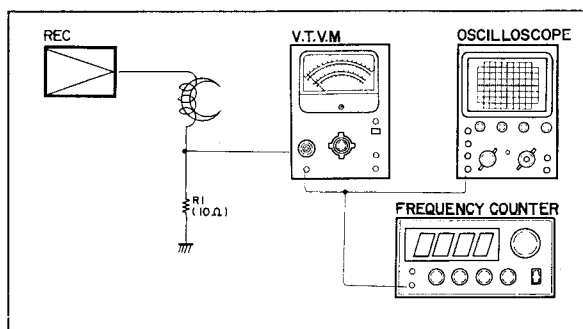


Fig. 11

13. Recording level adjustment

Apply a 1 kHz -20 dBm signal to the LINE IN terminals and adjust the REC LEVEL controls for both channels for a level of $-5.5 \text{ dBm} \pm 0.5 \text{ dB}$ at the LINE OUT terminals.

Now record and play back, and adjust VR3 (20 kohms) so that the output at the LINE OUT terminals is -5.5 dBm for both channels. (Fig. 12)

Use an LH tape for the adjustment. Make the channel deviation less than 3 dB.

14. Overall frequency response

1) When the Dolby NR switch is set to OFF

Apply a 333 Hz, -20 dBm signal to the LINE IN terminals. Adjust the REC LEVEL controls for both channels for a level of -5.5 dBm at the LINE OUT terminals.

Now make the input level -40 dBm . With an LH tape, apply a 63 Hz to 12 kHz signal and with a CrO₂ tape, apply a 63 Hz to 14 kHz signal. Record and play back the signals and check that the output level at each of the frequencies is within the specified zone in Fig. 13

Make the channel balance less than 6 dB with 12 kHz frequency.

- 2) When the Dolby NR switch is set to ON
Apply a 333 Hz -20 dBm signal to the LINE IN terminals and adjust the REC LEVEL controls for both channels for a level of -5.5 dBm at the LINE OUT terminals.
Now make the input level -40 dBm. Record and play back 63 Hz to 12 kHz signals on both the LH and CrO₂ tapes and check that the output level at each of the frequencies is within the specified zone in Fig. 14.
Make the channel balance less than 6 dB with 12 kHz frequency.

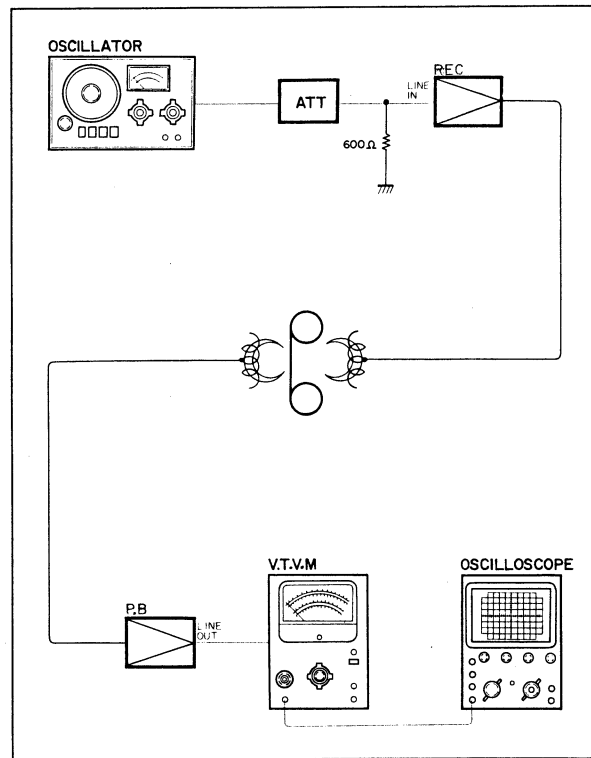


Fig. 12

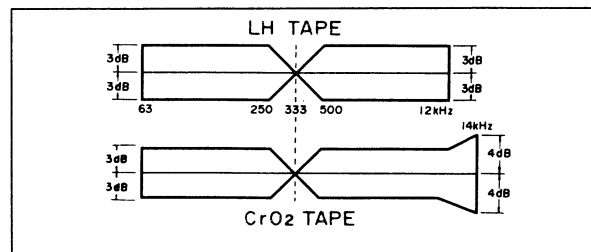


Fig. 13

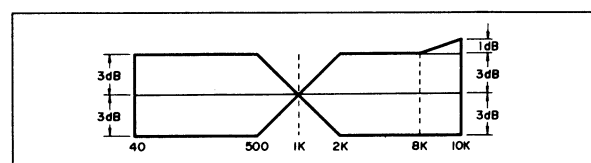


Fig. 14

15. Overall distortion measurement

Apply a 1 kHz -20 dBm signal to the LINE IN terminals and adjust the REC LEVEL controls for both channels for a level of -5.5 dBm at the LINE OUT terminals.
Check that the distortion is less than 2.0% for the LH tape and less than 2.5% for the CrO₂ tape. (Fig. 15)

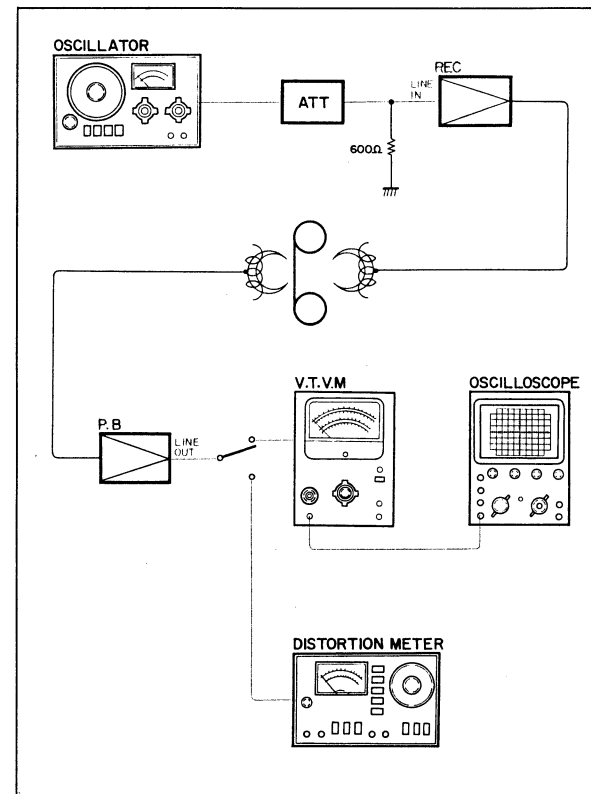


Fig. 15

16. Overall Signal-to-Noise ratio measurement

Apply a 1 kHz -20 dBm signal to the LINE IN terminals and adjust the REC LEVEL controls for both channels for a level of -5.5 dBm at the LINE OUT terminals, and record.
Now short the LINE IN terminals and record without applying a signal.

Rewind the tape and play it back. Check that the difference in the signal-recorded and non-signal-recorded section levels is:

- * More than 40 dB for the LH tape when the Dolby NR switch is set to OFF.
- * More than 44 dB for the CrO₂ tape when the Dolby NR switch is set to ON.

Note: The connections are the same as those in Fig. 12.

SPECIFICATIONS

Track Configuration : 4-track 2-channel stereo cassette deck

MECHANICAL

Wow & flutter : Less than 0.06% (WRMS)
Less than 0.2 % (DIN)
Tape speed : 4.8 cm/sec. ±2%
Rapid transport (F. FWD/REW) : Within 90 sec. (for C-60)
Motor : 1-DC motor with electronic governor

Recording/Playback head

Erase head : Hard-Permalloy
Operation : Full auto stop system

ELECTRICAL

Recording/Playback frequency response

40 to 14,000 Hz ±3 dB (LH TAPE)
40 to 15,000 Hz ±3 dB (CrO₂ TAPE)

Input sensitivity : Mic 0.3 mV/5 kΩ
Line 50 mV/90 kΩ

Output level/Impedance

Line 400 mV/at 50 kΩ (0 VU)
Phone 3 mW/at 150Ω (0 VU)

Bias frequency : 85 kHz

Signal to noise ratio : 57 dB without Dolby (LH tape)
Dolby NR effect : 9 dB
Overall distortion : Less than 1.5% at 1 kHz (LH tape)
Less than 2.0% at 1 kHz (CrO₂ tape)

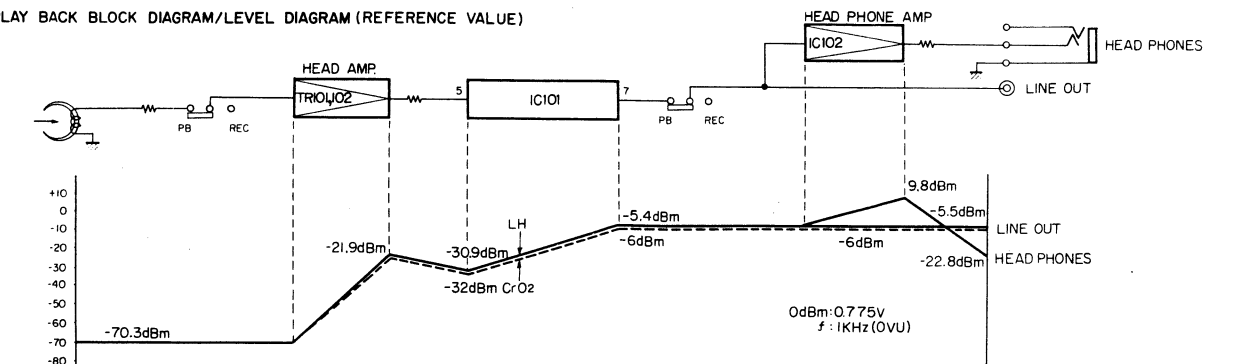
GENERAL

Semiconductors : 18 transistors
6 ICs
11 diodes
1 LED
Power consumption : 12W
Dimensions (W x H x D) : 435 x 140 x 286 mm
(17-1/8 x 5-1/2 x 11-1/4")
Weight : 5.7 kg (12 lb 9 oz)
Power supplies :
Canadian model 120V 60 Hz
North European model 220V 50 Hz
General Model 110~130V/220~240V
50/60 Hz
British & Australian model 240V 50 Hz

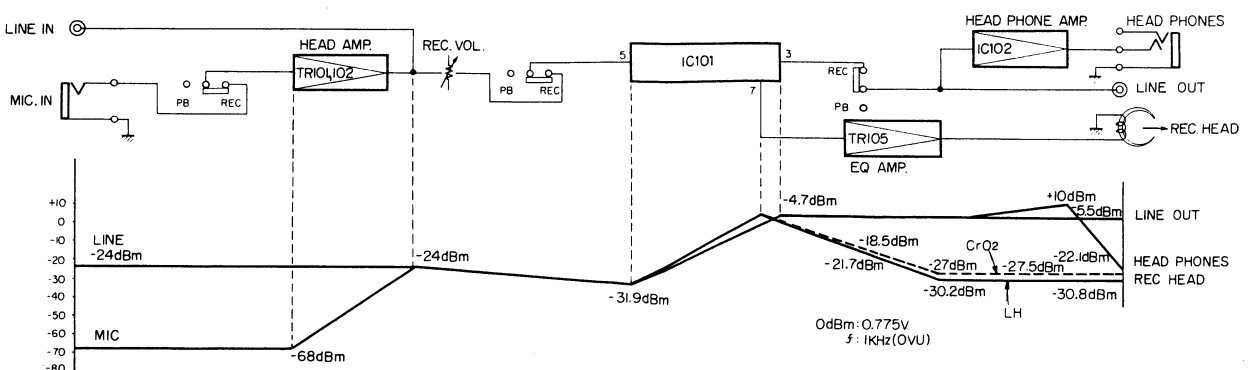
Specifications subject to change without notice.

BLOCK DIAGRAM/LEVEL DIAGRAM

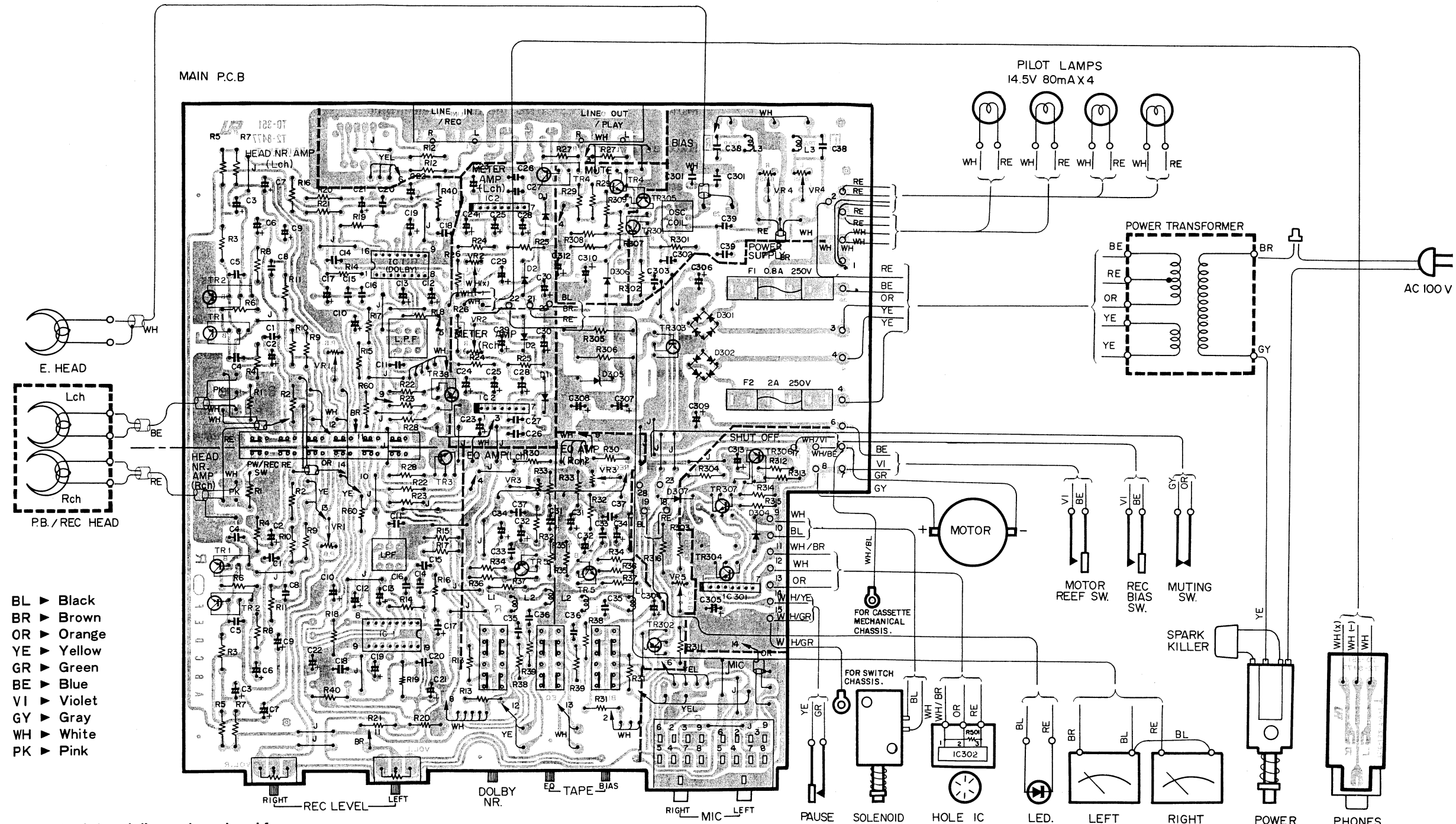
PLAY BACK BLOCK DIAGRAM/LEVEL DIAGRAM (REFERENCE VALUE)



REC BLOCK DIAGRAM/LEVEL DIAGRAM (REFERENCE VALUE)



WIRING DIAGRAM



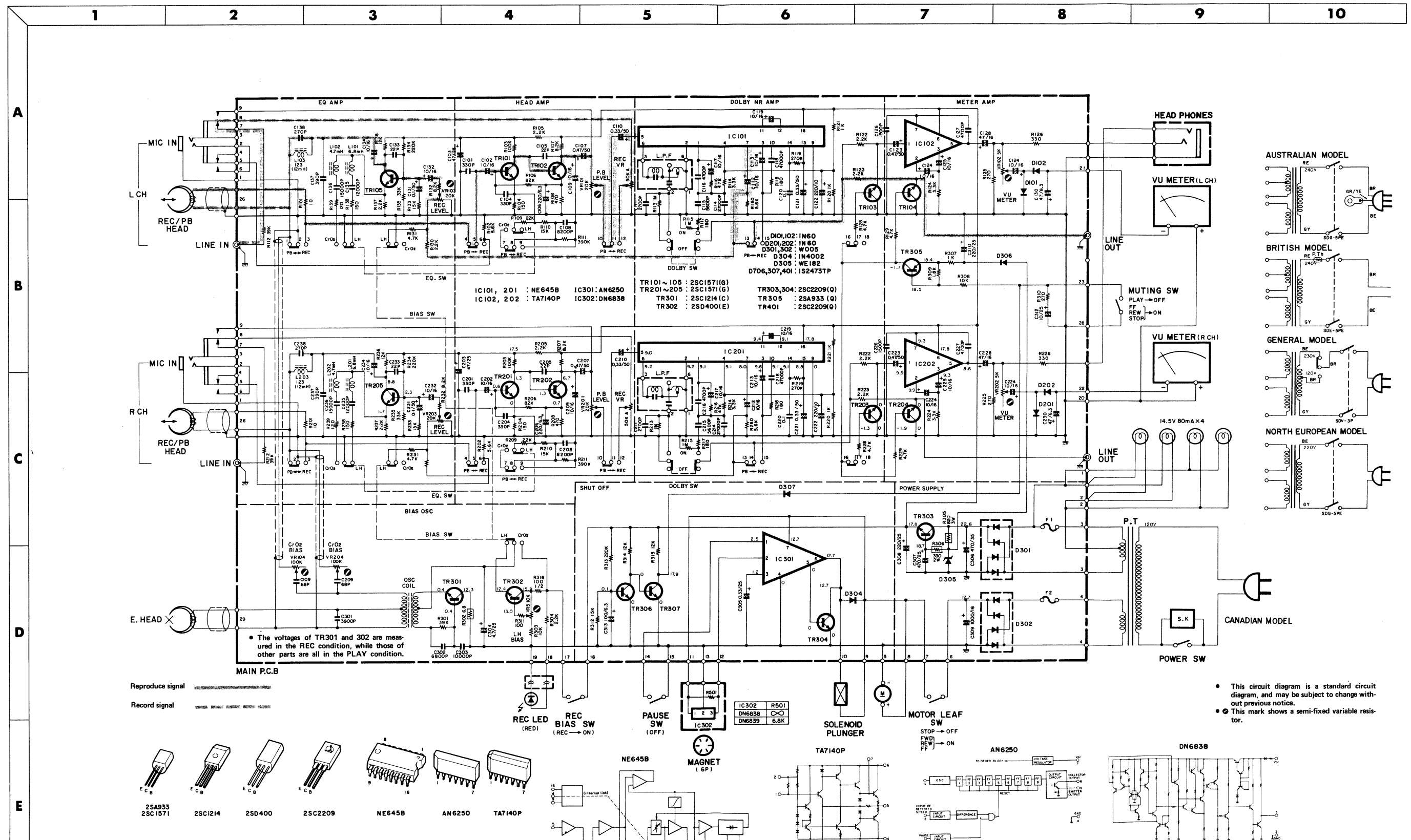
- BL ▶ Black
- BR ▶ Brown
- OR ▶ Orange
- YE ▶ Yellow
- GR ▶ Green
- BE ▶ Blue
- VI ▶ Violet
- GY ▶ Gray
- WH ▶ White
- PK ▶ Pink

- The circuit board diagram is as viewed from the parts' side.
- In the circuit diagram, parts with the same circuit numbers for the left and right channels are numbered by 100s for the left channel's and by 200s for the right channel's.

	CIRCUIT BOARD	SCHEMATIC DIAGRAM
Lch	TR1, TR2	TR101, TR102
	R1, R2	R101, R102
	C1, C2	C101, C102
Rch	TR1, TR2	TR201, TR202
	R1, R2	R201, R202
	C1, C2	C201, C202

- This circuit board diagram is a standard diagram, and may be subject to change for improvement.

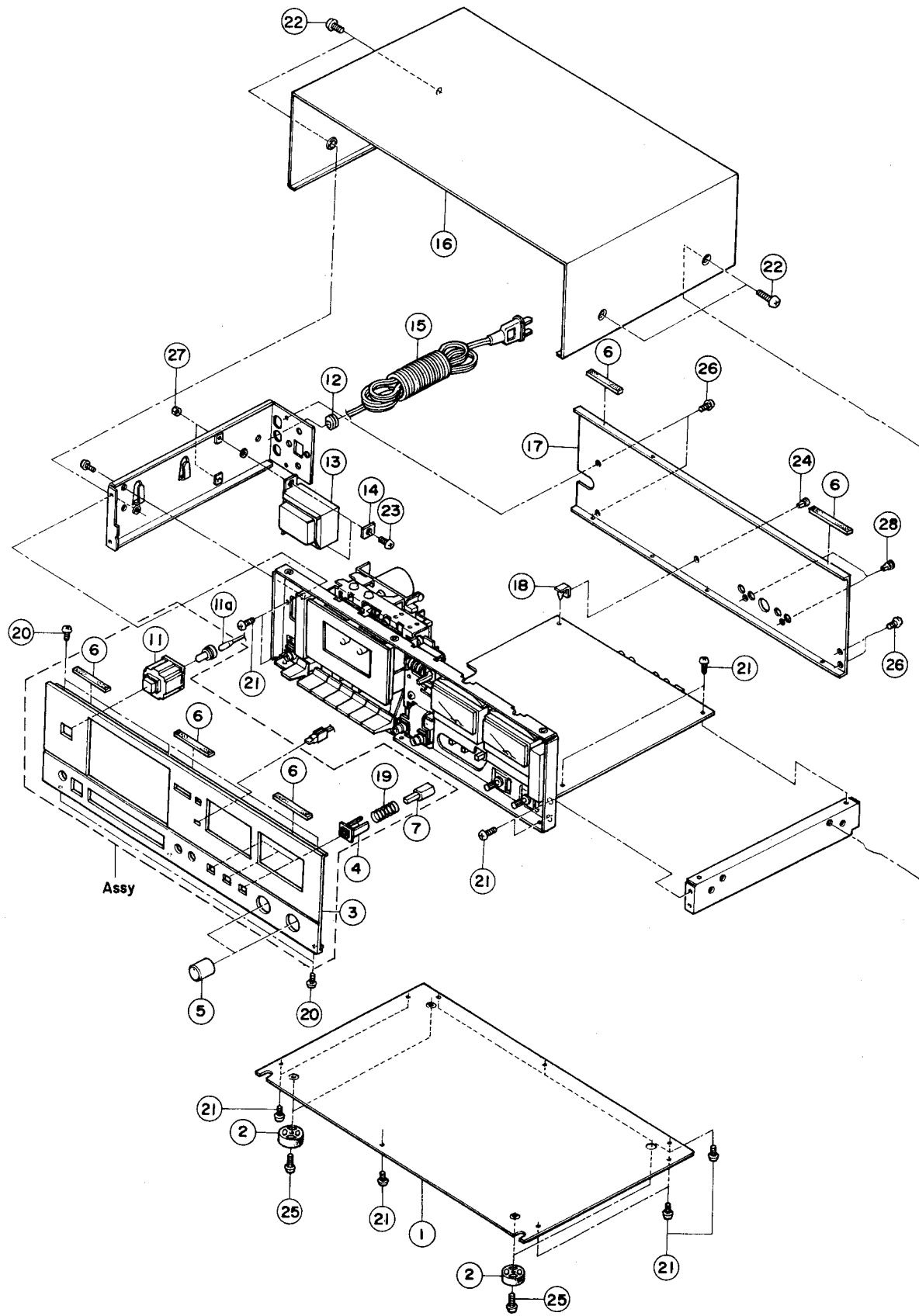
■ SCHEMATIC DIAGRAM



PARTS LIST

TC-320α

TC-320a EXPLODED VIEW(1)

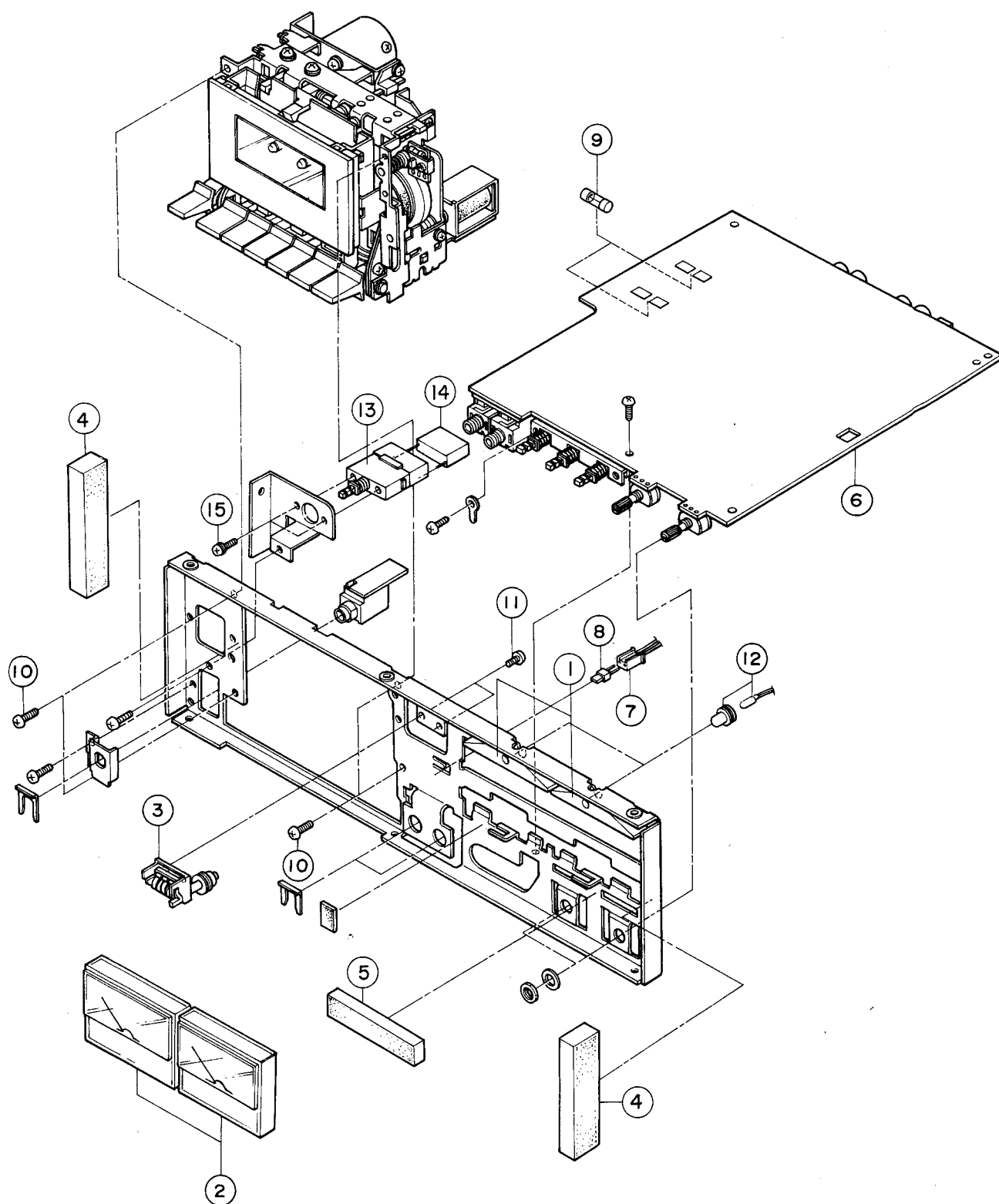


TC-320a

※ : New Part (新部品)

R:General A:Australian C:Canadian B:British G:North European

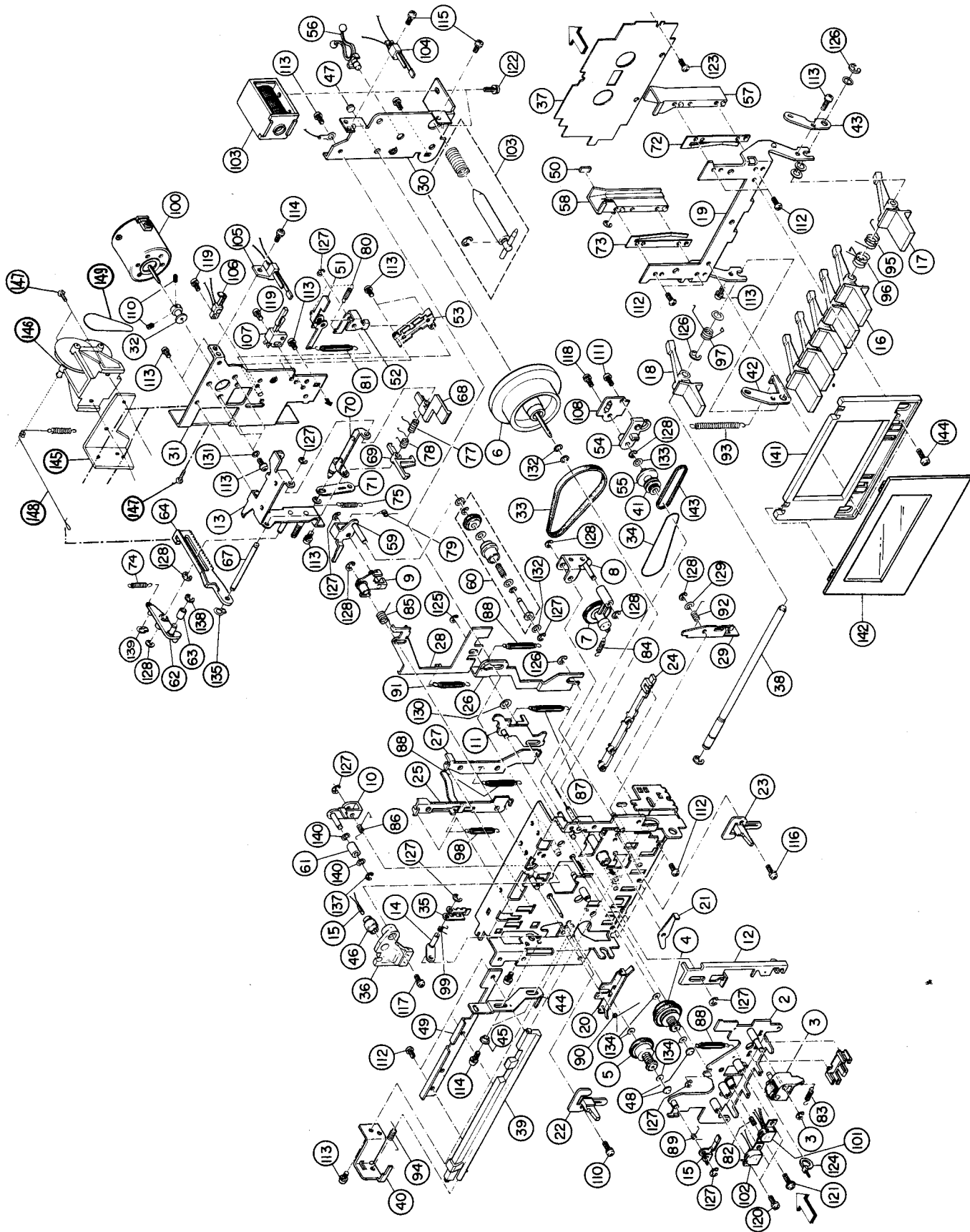
TC-320α EXPLODED VIEW(2)



TC-320c

※: New Part (新部品)

TC-320a EXPLODED VIEW(3)



PARTS LIST

TC-320a

Ref. No.	Part No.	Description	(部 品 名)	Remarks	Common model	Markets
2	32 00 00 SX 70 08 30	Head Base Assembly	ヘッドベース組立			
3	32 00 00 SX 70 08 40	Pinch Roller Arm Assembly	ピンチローラーアーム組立			
4	32 00 00 SX 70 08 50	Reel Base Assembly (Take-up)	リール受台組立 (A)			
5	32 00 00 SX 70 08 60	" (Supply)	" (B)			
6	32 00 00 SX 70 08 70	Flywheel Assembly	フライホイール組立			
7	32 00 00 SX 70 08 80	Take-up Idler Assembly	TUアイドラー組立			
8	32 00 00 SX 70 08 90	Take-up Lever Assembly	TUレバー組立			
9	32 00 00 SX 70 09 00	F.R Lever Assembly	FRレバー組立			
10	32 00 00 SX 70 09 10	Idler B Lever Assembly	アイドラーBレバー組立			
11	32 00 00 SX 70 09 20	Head Base Actuating Assembly	ヘッドベース作動板組立			
12	32 00 00 SX 70 09 30	Pause Interlocking Lever Assembly	ポーズ連動レバー組立			
13	32 00 00 SX 70 09 40	Cassette Holding Mounting Plate Assembly	カセット押え取付板組立			
14	32 00 00 SX 70 09 50	REC Stopper Mounting Assembly	RECストッパー取付組立			
15	32 00 00 JB 00 06 80	Pilot Lamp 14.5V 80mA	パイロットランプ			
16	32 00 00 SX 70 09 70 SX 00 09 80	Push Button Lever (Silver) " (Black)	押ボタンレバー			
17	32 00 00 SX 70 09 90 SX 70 10 00	PAUSE Button Lever Assembly (Silver) " (Black)	PAUSEボタンレバー組立			
18	32 00 00 SX 70 10 10 SX 70 10 20	EJECT Button Lever (Silver) " (Black)	EJECTボタンレバー			
19	32 00 00 SX 70 10 30	Cassette Holder	カセットホルダー			
20	32 00 00 SX 70 10 40	Brake Lever	ブレーキレバー			
21	32 00 00 SX 70 10 50	Pinch Roller Actuating Plate	ピンチローラー作動板			
22	32 00 00 SX 70 10 60	Head Base Holding (LEFT)	ヘッドベース押え (L)			
23	32 00 00 SX 70 10 70	" (RIGHT)	" (R)			
24	32 00 00 SX 70 10 80	Stopper Push Button	押ボタンストッパー			
25	32 00 00 SX 70 10 90	REC Lever	RECレバー			
26	32 00 00 SX 70 11 00	F.F Lever	F.Fレバー			
27	32 00 00 SX 70 11 10	REW Lever	REWレバー			
28	32 00 00 SX 70 11 20	Brake Actuating Lever	ブレーキ作動レバー			
29	32 00 00 SX 70 11 30	Pause Lock Plate	ポーズロック板			
30	32 00 00 SX 70 11 40	Flywheel Base	フライホイール受板			
31	32 00 00 SX 70 11 50	Motor Base Assembly	モーター受板組立			
32	32 00 00 SX 70 11 60	Motor Pulley	モータープーリー			
33	32 00 00 SX 70 11 70	Belt Motor $\phi 66.9 \times 0.4$	平ベルト			
34	32 00 00 SX 70 75 80	Belt Index Counter	カウンターベルト			
35	32 00 00 SX 70 11 90	REC Stopper	レックストッパー			
36	32 00 00 SX 70 77 10	Prism, Pilot Lamp (Tape)	照明プリズム			
37	32 00 00 SX 70 12 10	Cassette Guide Plate	化粧板			
38	32 00 00 SX 70 12 20	Shaft, Push Button	押ボタン軸			
39	32 00 00 SX 70 12 30	Lock Plate, Push Button	押ボタンロック板			
40	32 00 00 SX 70 12 40	Holder Push Button Lock Plate	押ボタンロック板ホルダー			
41	32 00 00 SX 70 12 50	INDEX Idler, Counter	カウンターアイドラー			
42	32 00 00 SX 70 12 60	Mounting Plate for Cassette Holder (Left)	カセットホルダー固定板 (L)			
43	32 00 00 SX 70 12 70	" (Right)	" (R)			
44	32 00 00 SX 70 12 80	EJECT Lever	EJECTレバー			
45	32 00 00 SX 70 12 90	Spacer, EJECT Lever	EJECTレバーカラン			
46	32 00 00 SX 70 77 20	Holder, Pilot Lamp	ランプチューブ			
47	32 00 00 SX 70 77 30	Flywheel Adjust Screw	フライホイール調整ネジ			
48	32 00 00 SX 98 83 90	Cap, Reel Shaft	リール軸キャップ			
49	32 00 00 SX 70 13 10	Spacer, Lock Plate	ロック板補強板			
50	32 00 00 SX 70 13 20	Damper	ビリ止めクッション			
51	32 00 00 SX 70 13 30	Over Stroke Lever (A)	オーバーストロークレバー (A)			
52	32 00 00 SX 70 13 40	" (B)	" (B)			
53	32 00 00 SX 70 13 50	Cable Holder	ケーブルホルダー			
54	32 00 00 SX 70 13 60	Holder, Hole Element	ホール素子固定板			

※ : New Part (新部品)

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Ref. No.	Part No.			Description	(部 品 名)	Remarks	Common model	Markets
55	32:00:00	SX	70:13:60	Magnet	終端検出マグネット			
56	32:00:00	SX	98:30:60	Lead Lock	バースロック			
57	32:00:00	SX	70:13:80	Cassete Guide (Right)	カセットガイド(R)			
58	32:00:00	SX	70:13:90	" (Left)	" (L)			
59	32:00:00	SX	70:14:00	Idler Lever Assembly	アイドラーレバー組立			
60	32:00:00	SX	70:14:10	Idler Assembly (A)	アイドラーA組立			
61	32:00:00	SX	70:14:20	" (B)	アイドラーB組立			
62	32:00:00	SX	70:14:30	Hook Lever Assembly	フックレバー組立			
63	32:00:00	SX	70:14:40	Roller	ローラー			
64	32:00:00	SX	70:14:50	Lock Plate, Cassete Holder	カセットホルダーロック板			
67	32:00:00	SX	70:14:80	Shaft, Detection Record Lock	録音防止レバー軸			
68	32:00:00	SX	70:14:90	Cassete Holding	カセット押え			
69	32:00:00	SX	70:15:00	Detection Record Lock	録音防止レバー			
70	32:00:00	SX	70:15:10	EJECT Lever (B) Assembly	EJECTレバーB組立			
71	32:00:00	SX	70:15:20	EJECT Interlocking Lever	EJECT連動レバー			
72	32:00:00	SX	70:15:30	Cassete Holding Spring (Right)	カセット押えバネ(R)			
73	32:00:00	SX	70:15:40	" (Left)	" (L)			
75	32:00:00	SX	70:15:60	EJECT Interlocking Lever Spring	EJECT連動レバーバネ			
76	32:00:00	SX	70:15:70	Spring	圧着バネ			
77	32:00:00	SX	70:15:80	" Cassete Holding	カセット押えバネ			
78	32:00:00	SX	70:15:90	" Detection Record Lock	録音防止レバーバネ			
79	32:00:00	SX	70:16:00	" Idler Lever	アイドラーレバーバネ			
80	32:00:00	SX	70:16:10	" Over Stroke	オーバーストロークバネ			
81	32:00:00	SX	70:16:20	"	"			
82	32:00:00	SX	98:87:10	Spring, Head Adjust	ヘッド調整バネ			
83	32:00:00	SX	70:16:30	" Pinch Roller	ピンチローラーバネ			
84	32:00:00	SX	70:16:40	" Take-up Lever	TUレバーバネ			
85	32:00:00	SX	70:16:50	" F.R Lever	F.Rレバーバネ			
86	32:00:00	SX	70:16:60	" Idler (B)	アイドラー(B)バネ			
87	32:00:00	SX	70:16:70	" Head Base Actuating	ヘッドベース作動板バネ			
88	32:00:00	SX	70:16:80	" Head Base	ヘッドベースバネ			
89	32:00:00	SX	70:16:90	" Tension Lever	テンションレバーバネ			
90	32:00:00	SX	70:17:00	" Brake Lever	ブレーキレバーバネ			
91	32:00:00	SX	70:17:10	" Brake Actuating Lever	ブレーキ作動板バネ			
92	32:00:00	SX	70:17:20	" PAUSE Lock Plate	PAUSEロック板バネ			
93	32:00:00	SX	70:17:30	" Cassete Holder	カセットホルダーバネ			
94	32:00:00	SX	70:17:40	" Push Button Lock Plate	押ボタンロック板バネ			
95	32:00:00	SX	70:17:50	" PAUSE Button	PAUSEボタンバネ			
96	32:00:00	SX	70:17:60	" STOP Button	STOPボタンバネ			
97	32:00:00	SX	70:17:70	" EJECT Button	EJECTボタンバネ			
98	32:00:00	SX	70:17:80	" REC Lever	RECレバーバネ			
99	32:00:00	SX	70:17:90	" REC Stopper	RECストッパーバネ			
100	32:00:00	SX	70:18:00	Motor (MH15R2CHA)	モーター			
101	32:00:00	SX	70:00:10	Recording / Playback Head	録再ヘッド			
102	32:00:00	SX	70:00:20	Erase Head	消去ヘッド			
103	32:00:00	SX	70:61:00	Plunger	プランジャー			
104	32:00:00	SX	70:00:40	Leaf Switch (MSW-0038)	リーフスイッチ			
105	32:00:00	SX	70:00:50	" (MSW-0058G)	"			
106	32:00:00	SX	70:00:60	" (MSW-0044)	"			
107	32:00:00	SX	70:18:10	" (BSW-81)	"			

※ : New Part (新部品)

※: New Part (新部品)

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Ref. No.	Part No.			Description	(部 品 名)	Remarks	Common model	Markets
				Main Circuit Board	メイン基板			
TR101 TR102	42 00 00	iC 99 02 00		Transistor 2SC2634C(S.T)	トランジスター			
TR103	42 00 00	iC 13 27 00		" 2SC1327(S.T)	"	inter-changeable		
	42 00 00	iC 99 02 00		" 2SC2634C(S.T)	"			
	42 00 00	iC 08 28 00		" 2SC828 (R.S)	"			
	42 00 00	iC 99 00 40		" 2SC536 (F.G)	"			
TR201 TR202	42 00 00	iC 99 02 00		" 2SC2634C(S.T)	"	inter-changeable		
TR203	42 00 00	iC 13 27 00		" 2SC1327 (S.T)	"			
	42 00 00	iC 99 02 00		" 2SC2634C(S.T)	"			
	42 00 00	iC 08 28 00		" 2SC828 (R.S)	"			
	42 00 00	iC 99 00 40		" 2SC536 (F.G)	"			
TR301	42 00 00	iC 99 00 70		" 2SC1214 (C)	"			
TR302	42 00 00	iD 04 00 00		" 2SD400 (E)	"			
TR303 TR304	42 00 00	iC 99 00 60		" 2SC2209 (Q)	"			
TR305	42 00 00	iA 99 00 10		" 2SA564 (R)	"			
TR306 TR307	42 00 00	iC 99 02 00		" 2SC2634C (S.T)	"			
D101 D102	42 00 00	iF 00 03 30		Diode 1S188AMTP	ダイオード			
D201 D202	42 00 00	iF 00 03 30		"	"			
D301 D302	32 00 00	SX 70 01 80		Bridge Diode W005 G.I	ブリッジダイオード			
D304	42 00 00	iH 00 00 60		Diode 1N4002 (1N4003)G.I	ダイオード			
D305	42 00 00	iF 99 01 00		Zener Diode WZ-182	ツェナーダイオード			
D306 D307	42 00 00	iF 00 06 70		Diode 1N2473TP	ダイオード			
IC101	42 00 00	iG 99 00 90		IC NE646B	IC			
IC102	42 00 00	iG 00 24 50		" TA7140P	"			
IC201	42 00 00	iG 99 00 90		" NE646B	"			
IC202	42 00 00	iG 00 24 50		" TA7140P	"			
IC301	42 00 00	iG 99 00 50		" AN6250				
L101	32 00 00	SX 70 20 80		Fixed Inductor 6.8mH	固定インダクター			
L102	32 00 00	SX 70 20 70		" 4.7mH	"			
L103	32 00 00	SX 70 20 90		" #7106 12mH	"			
L201	32 00 00	SX 70 20 80		" 6.8mH	"			
L202	32 00 00	SX 70 20 70		" #7106 4.7mH	"			
L203	32 00 00	SX 70 20 90		" #7106 12mH	"			
	32 00 00	SX 70 01 90		Low Pass Filter VSL 221G85	ローパスフィルター			
	32 00 00	SX 70 20 60		OSC Coil	バイアスOSCコイル			
	32 00 00	SX 70 21 00		Slide Switch CL212R	録再スイッチ			
	32 00 00	SX 70 21 10		Variable Resistor 50KA 16φ	単連ボリューム			
	42 00 00	KA 99 00 10		Push Switch 12J-8S193	3連プッシュSW			
	42 00 00	EH 03 00 60		Sems Screw M3×6	バネ座付セムスネジ			
	42 00 00	LB 99 00 10		Mic Jack (Silver)	マイクジャック			
	32 00 00	SX 70 81 70		" (Black)	"			
	42 00 00	LB 99 00 20		Phones Jack (Black)	ヘッドホーンジャック			
	32 00 00	SX 70 81 80		" (Silver)	"			
	32 00 00	SX 70 75 90		Heat Sink	電源放熱板			
	42 00 00	EK 39 00 20		⊕ Bind Head Tap-Tight Screw M3×8	⊕バインドタッブタイト			
VR101	42 00 00	SX 98 40 20		Semi Fixed Variable Resistor 8φ20KB	半固定ボリューム			
VR102	42 00 00	SX 98 40 10		" 5KB	"			
VR103	42 00 00	SX 98 40 20		" 20KB	"			
VR104	42 00 00	SX 99 67 90		" 100KB	"			

※ : New Part (新部品)

Ref. No.	Part No.			Description	(部 品 名)	Remarks	Common model	Markets
VR201	42:00:00	SX:98:40:20		Semi Fixed Variable Resistor 8 ϕ 20KB	半固定ボリューム			
VR202	42:00:00	SX:98:40:10		" 5KB	"			
VR203	42:00:00	SX:98:40:20		" 20KB	"			
VR204	42:00:00	SX:99:67:90		" 100KB	"			
VR305	42:00:00	SX:99:69:10		" 10KB	"			
	32:00:00	SX:70:22:30		4P Pin Jack	4Pピンジャック			
R101	42:00:00	HJ:35:41:00		Carbon Resistor ERD14PJV RD $\frac{1}{4}$ ST 10 Ω	カーボン抵抗			
R102	42:00:00	HJ:35:62:20		" 2.2K Ω	"			
R103	42:00:00	HJ:35:81:00		" 100K Ω	"			
R104	42:00:00	HJ:35:51:50		" 150 Ω	"			
R105	42:00:00	HJ:35:62:20		" 2.2K Ω	"			
R106	42:00:00	HJ:35:78:20		" 82K Ω	"			
R107	42:00:00	HJ:35:68:20		" 8.2K Ω	"			
R108	42:00:00	HJ:35:54:70		" 470 Ω	"			
R109	42:00:00	HJ:35:72:20		" 22K Ω	"			
R110	42:00:00	HJ:35:71:50		" 15K Ω	"			
R111	42:00:00	HJ:35:83:90		" 390K Ω	"			
R112	42:00:00	HJ:35:73:90		" 39K Ω	"			
R113	42:00:00	HJ:35:91:00		" 1M Ω	"			
R114	42:00:00	HJ:35:63:30		" 3.3K Ω	"			
R115	42:00:00	HJ:35:91:00		" 1M Ω	"			
R116	42:00:00	HJ:35:74:70		" 47K Ω	"			
R117	42:00:00	HJ:35:51:80		" 180 Ω	"			
R118	42:00:00	HJ:35:65:60		" 5.6K Ω	"			
R119	42:00:00	HJ:35:82:70		" 270K Ω	"			
R120 R121	42:00:00	HJ:35:61:00		" 1K Ω	"			
R122 R123	42:00:00	HJ:35:62:20		" 2.2K Ω	"			
R124	42:00:00	HJ:35:63:30		" 3.3K Ω	"			
R125	42:00:00	HG:10:52:70		Carbon Resistor SR $\frac{1}{2}$ w 270 Ω	"			
R126	42:00:00	HJ:35:53:30		Carbon Resistor ERD14PJV RD $\frac{1}{4}$ ST 330 Ω	"			
R127 R128	42:00:00	HJ:35:64:70		" 4.7K Ω	"			
R130	42:00:00	HJ:35:62:20		" 2.2K Ω	"			
R131	42:00:00	HJ:35:64:70		" 4.7K Ω	"			
R132	42:00:00	HJ:35:68:20		" 8.2K Ω	"			
R133	42:00:00	HJ:35:71:50		" 15K Ω	"			
R134	42:00:00	HJ:35:82:20		" 220K Ω	"			
R135	42:00:00	HJ:35:73:30		" 33K Ω	"			
R136	42:00:00	HJ:35:71:20		" 12K Ω	"			
R137	42:00:00	HJ:35:62:20		" 2.2K Ω	"			
R138	42:00:00	HJ:35:51:50		" 150 Ω	"			
R139	42:00:00	HJ:35:51:20		" 120 Ω	"			
R140	42:00:00	HJ:35:81:80		" 180K Ω	"			
R201	42:00:00	HJ:35:41:00		" 10 Ω	"			
R202	42:00:00	HJ:35:62:20		" 2.2K Ω	"			
R203	42:00:00	HJ:35:81:00		" 100K Ω	"			
R204	42:00:00	HJ:35:51:50		" 150 Ω	"			
R205	42:00:00	HJ:35:62:20		" 2.2K Ω	"			
R206	42:00:00	HJ:35:78:20		Carbon Resistor SR $\frac{1}{4}$ w 82K Ω	"			
R207	42:00:00	HJ:35:68:20		Carbon Resistor ERD14PJV RD $\frac{1}{4}$ ST 8.2K Ω	"			
R208	42:00:00	HJ:35:54:70		" 470 Ω	"			
R209	42:00:00	HJ:35:72:20		" 22K Ω	"			

※ : New Part (新部品)

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Ref. No.	Part No.				Description	(部 品 名)	Remarks	Common model	Markets
R210	42:00:00	HJ	35	71:50	Carbon Resistor ERD14PJV RD $\frac{1}{4}$ ST 15K Ω	カーボン抵抗			
R211	42:00:00	HJ	35	83:90	" 390K Ω	"			
R212	42:00:00	HJ	35	73:90	" 39K Ω	"			
R213	42:00:00	HJ	35	91:00	" 1M Ω	"			
R214	42:00:00	HJ	35	63:30	" 3.3K Ω	"			
R215	42:00:00	HJ	35	91:00	" 1M Ω	"			
R216	42:00:00	HJ	35	74:70	" 47K Ω	"			
R217	42:00:00	HJ	35	51:80	" 180 Ω	"			
R218	42:00:00	HJ	35	65:60	" 5.6K Ω	"			
R219	42:00:00	HJ	35	82:70	" 270K Ω	"			
R220 R221	42:00:00	HJ	35	61:00	" 1K Ω	"			
R222 R223	42:00:00	HJ	35	62:20	" 2.2K Ω	"			
R224	42:00:00	HJ	35	63:30	" 3.3K Ω	"			
R225	42:00:00	HJ	35	52:70	Carbon Resistor SR J $\frac{1}{2}$ w 270 Ω	"			
R226	42:00:00	HJ	35	53:30	Carbon Resistor ERD14PJV RD $\frac{1}{4}$ ST 330 Ω	"			
R227 R228	42:00:00	HJ	35	64:70	" 4.7K Ω	"			
R230	42:00:00	HJ	35	62:20	" 2.2K Ω	"			
R231	42:00:00	HJ	35	64:70	" 4.7K Ω	"			
R232	42:00:00	HJ	35	68:20	" 8.2K Ω	"			
R233	42:00:00	HJ	35	71:50	" 15K Ω	"			
R234	42:00:00	HJ	35	82:20	" 220K Ω	"			
R235	42:00:00	HJ	35	73:30	" 33K Ω	"			
R236	42:00:00	HJ	35	71:20	" 12K Ω	"			
R237	42:00:00	HJ	35	62:20	" 2.2K Ω	"			
R238	42:00:00	HJ	35	51:50	" 150 Ω	"			
R239	42:00:00	HJ	35	51:20	" 120 Ω	"			
R240	42:00:00	HJ	35	81:80	" 180K Ω	"			
R260	42:00:00	HJ	35	65:60	" 5.6K Ω	"			
R301	42:00:00	HJ	35	73:90	Carbon Resistor ERD14PJV RD $\frac{1}{4}$ ST 39K Ω	"			
R302	42:00:00	HJ	35	42:20	Carbon Resistor SRJ $\frac{1}{4}$ w 22 Ω	"			
R303	42:00:00	HJ	35	71:00	Carbon Resistor ERD14PJV RD $\frac{1}{4}$ ST 10K Ω	"			
R304	42:00:00	HJ	35	62:20	" 2.2K Ω	"			
R305	42:00:00	HL	43	58:20	Metal Oxide Film Resistor J3W 820 Ω	"			
R306	42:00:00	HL	42	53:30	" 330 Ω	"			
R307	42:00:00	HJ	35	61:00	Carbon Resistor ERD14PJV RD $\frac{1}{4}$ ST 1K Ω	"			
R308	42:00:00	HJ	35	71:00	" 10K Ω	"			
R309	42:00:00	HJ	35	61:80	" 1.8K Ω	"			
R310	42:00:00	HK	15	52:70	" 270 Ω	"			
R311	42:00:00	HJ	35	51:00	" 100 Ω	"			
R312	42:00:00	HJ	35	71:50	" 15K Ω	"			
R313	42:00:00	HJ	35	82:20	" 220K Ω	"			
R314 R315	42:00:00	HJ	35	71:20	" 12K Ω	"			
R316	42:00:00	HV	99	00:10	Carbon Resistor J $\frac{1}{2}$ w 100 Ω	不燃性カーボン抵抗			
C101	42:00:00	FG	21	23:30	Ceramic Capacitor (SL) 330pF 50V	セラミックコンデンサ (SL)			
C102	42:00:00	FZ	00	04:70	Electrolytic Capacitor (MS) 10 μ F 16V	ケミコン (MS)			
C103	42:00:00	FJ	15	74:70	" 47 μ F 25V	"			
C104	42:00:00	FG	21	23:30	Ceramic Capacitor (SL) 330pF 50V	セラミックコンデンサ (SL)			
C105	42:00:00	FG	21	12:20	" 22pF 50V	"			
C106	42:00:00	FJ	11	82:20	Electrolytic Capacitor 220 μ F 6.3V	ケミコン			
C107	42:00:00	FJ	16	54:70	" 0.47 μ F 50V	"			
C108	42:00:00	FA	41	38:20	Mylar Capacitor 0.0082 μ F J50V	マイラーコンデンサ			
C109	42:00:00	FJ	33	71:00	Electrolytic Capacitor 10 μ F 16V	ケミコン			

* : New Part (新部品)

Ref. No.	Part No.				Description	(部 品 名)	Remarks	Common model	Markets
C100	42:00:00	FZ:99:00:10			Electrolytic Capacitor (LR) 0.33 μ F 50V	ケミコン(LR)			
C111	42:00:00	FG:71:32:70			Ceramic Capacitor (B) 2700pF 50V	セラミックコンデンサ			
C112 C113	42:00:00	FZ:00:04:70			Electrolytic Capacitor (MS) 10pF 16V	ケミコン(MS)			
C114	42:00:00	FA:15:42:70			Mylar Capacitor 0.027 μ F J50V	マイラーコンデンサ			
C115	42:00:00	FA:41:35:60			" 0.0056 μ F	"			
C116	42:00:00	FA:41:34:70			" 0.0047 μ F	"			
C117	42:00:00	FJ:33:71:00			Electrolytic Capacitor 10 μ F 16V	ケミコン			
C118	42:00:00	FA:41:44:70			Mylar Capacitor 0.047 μ F	マイラーコンデンサ			
C119	42:00:00	FJ:33:71:00			Electrolytic Capacitor 10 μ F 16V	ケミコン			
C120	42:00:00	FA:41:51:00			Mylar Capacitor 0.1 μ F J50V	マイラーコンデンサ			
C121	42:00:00	FM:42:53:30			Electrolytic Capacitor (Z) 0.33 μ F 50V	ケミコン(Z)			
C122	42:00:00	FJ:13:82:20			Electrolytic Capacitor 220 μ F 10V	ケミコン			
C123	42:00:00	FJ:46:54:70			" 0.47 μ F 50V	"			
C124 C125	42:00:00	FJ:33:71:00			" 10 μ F 16V	"			
C126	42:00:00	FG:24:41:00			Ceramic Capacitor 10000pF (B) 50V	セラミックコンデンサ			
C127	42:00:00	FG:21:34:70			" 4700pF (B) 50V	"			
C128	42:00:00	FJ:33:74:70			Electrolytic Capacitor 47 μ F 16V	ケミコン			
C129	42:00:00	FJ:33:71:00			" 10 μ F 16V	"			
C130	42:00:00	FJ:31:74:70			" 47 μ F 6.3V	"			
C131	42:00:00	FM:42:51:00			Electrolytic Capacitor (Z) 0.1 μ F 50V	ケミコン(Z)			
C132	42:00:00	FJ:33:71:00			Electrolytic Capacitor 10 μ F 16V	ケミコン			
C133	42:00:00	FG:21:12:20			Ceramic Capacitor (SL) 22pF 50V	セラコン(SL)			
C134	42:00:00	FZ:00:04:70			Electrolytic Capacitor (MS) 10 μ F 16V	ケミコン(MS)			
C135	42:00:00	FA:41:41:20			Mylar Capacitor 0.012 μ F J50V	マイラーコンデンサ			
C136	42:00:00	FA:41:41:50			" 0.015 μ F J50V	"			
C137	42:00:00	FG:21:23:90			Ceramic Capacitor (SL) 390pF 50V	セラミックコンデンサ			
C138	42:00:00	SX:70:23:10			Mica Capacitor 270pF J50V	マイカコンデンサ			
C139	42:00:00	SX:70:23:20			" 68pF J50V	"			
C201	42:00:00	FG:21:23:30			Ceramic Capacitor (SL) 330pF 50V	セラミックコンデンサ			
C202	42:00:00	FZ:00:04:70			Electrolytic Capacitor (MS) 10 μ F 16V	ケミコン			
C203	42:00:00	FJ:15:74:70			Electrolytic Capacitor 47 μ F 25V	"			
C204	42:00:00	FG:21:23:30			Ceramic Capacitor (SL) 330pF 50V	セラミックコンデンサ			
C205	42:00:00	FG:71:12:20			" 22pF 50V	"			
C206	42:00:00	FJ:31:82:20			Electrolytic Capacitor 220 μ F 6.3V	ケミコン			
C207	42:00:00	FJ:26:54:70			" 0.47 μ F 50V	"			
C208	42:00:00	FA:41:38:20			Mylar Capacitor 0.0082 μ F J50V	マイラーコンデンサ			
C209	42:00:00	FJ:23:71:00			Electroly Capacitor 10 μ F 16V	ケミコン			
C210	42:00:00	FZ:99:00:10			" (MS) 0.33 μ F 50V	"			
C211	42:00:00	FG:71:32:70			Ceramic Capacitor (B) 2700pF 50V	セラミックコンデンサ			
C212 C213	42:00:00	FZ:00:04:70			Electrolytic Capacitor (MS) 10 μ F 16V	ケミコン			
C214	42:00:00	FA:15:42:70			Mylar Capacitor 0.027 μ F J50V	マイラーコンデンサ			
C215	42:00:00	FA:41:35:60			" 0.0050 μ F J50V	"			
C216	42:00:00	FA:41:34:70			" 0.0047 μ F J50V	"			
C217	42:00:00	FJ:33:71:00			Electrolytic Capacitor 10 μ F 16V	ケミコン			
C218	42:00:00	FA:41:44:70			Mylar Capacitor 0.047 μ F J50V	マイラーコンデンサ			
C220	42:00:00	FA:15:51:00			" 0.1 μ F J50V	"			
C221	42:00:00	FM:42:53:30			Electrolytic Capacitor (Z) 0.33 μ F 50V	ケミコン			
C222	42:00:00	FJ:23:82:20			Electrolytic Capacitor 220 μ F 10V	"			
C223	42:00:00	FJ:26:54:70			" 0.47 μ F 50V	"			
C224 C225	42:00:00	FJ:23:71:00			" 10 μ F 16V	"			
C226	42:00:00	FG:24:41:00			Ceramic Capacitor 10000pF 50V	セラミックコンデンサ			
C227	42:00:00	FG:21:34:70			" (B) 4700pF 50V	"			

※ : New Part (新部品)

TC-320a

[illegible]

※: New Part (新部品)