

**TASCAM**  
TEAC Professional Division



**SERVICE MANUAL**

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# 103/102

**Master Cassette Deck**

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# 1 SPECIFICATIONS

## 仕様

**Track System** 4-Track, 2-Channel Stereo

**Heads** – 103 3:1 Erase, 1 Record and 1 Playback (combination)  
– 102 2:1 Erase, 1 Record/Playback

**Type of Tape** Cassette tape C-60 and C-90 (Philips type)

**Tape Speed** 4.76 cm/sec (1-7/8 ips)

**Motors** 2:1 DC servo capstan motor  
1 DC reel motor

**Wow and Flutter** 0.045 % (WRMS)

**Frequency Response (Overall, -20 dB)**

– 103

20 – 21,000 Hz (25 – 20,000 Hz ±3 dB), Metal

20 – 20,000 Hz (25 – 19,000 Hz ±3 dB), CrO<sub>2</sub>

20 – 18,000 Hz (25 – 17,000 Hz ±3 dB), Normal

– 102

25 – 20,000 Hz (30 – 19,000 Hz ±3 dB), Metal

25 – 18,000 Hz (30 – 17,000 Hz ±3 dB), CrO<sub>2</sub>

25 – 17,000 Hz (30 – 16,000 Hz ±3 dB), Normal

**Signal-to-Noise Ratio (Overall)** 60 dB (3 % THD level, Weighted)

70 dB (Dolby B NR In, over 5 kHz)

80 dB (Dolby C NR In, over 1 kHz)

**Fast Winding Time** Approximately 85 seconds for C-60

**Line Input** 60 mV, 50k ohms

**Outputs** Line: 0.43 V for load impedance of 50k ohms or more  
Headphones: 8 ohms

**Power Requirements** 120/220/240 V AC, 50/60 Hz (General Export model)

120 V AC, 60 Hz (U.S.A./Canada model)

220 V AC, 50 Hz (Europe model)

240 V AC, 50 Hz (U.K./Australia model)

**Power Consumption** 15 W

**Dimensions (W x H x D)**

435 x 122 x 275.5 mm

(17-1/8" x 4-13/16" x 10-15/16")

**Weight** 4.0 kg (8.82 lbs) net

- Specifications were determined using metal tape except as noted.
- Improvements may result in specification or feature changing without notice.

### NOTES:

Improvements may result in SPECIFICATIONS changes.

Value of "dB" in the data refers to 0 dB (0.775 V), except where Specified.

### 注

1. 仕様は改善のため、予告なく変更することがあります。
2. 本マニュアルの 0 dB は 0.775 V を基準としています。

### CAUTION

△Parts marked with this sign are safety critical components. They must always be replaced with identical components – refer to the appropriate parts list and ensure exact replacement.

### 注意

△印は安全重要部品です。交換する時は必ずティアック指定の部品を使用してください。

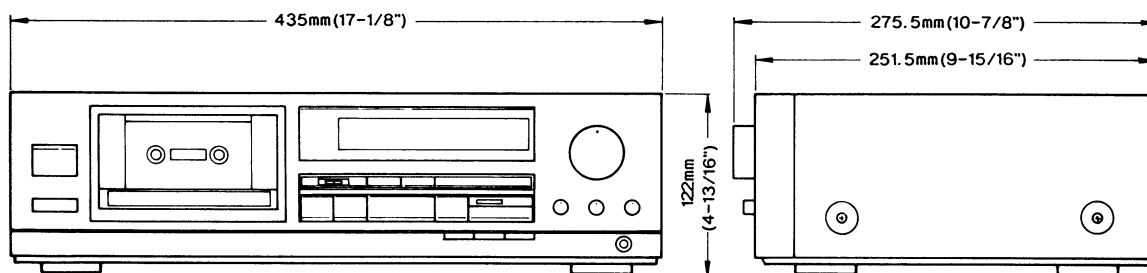
- Dolby Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

- ドルビーノイズリダクションシステムは、ドルビー研究所からの実施権に基づき製造されています。
- ドルビー及び DD は、ドルビー研究所の登録商標です。

トラック形式	4トラック2チャンネル・ステレオホニク方式
ヘッド構成	<103> 消去ヘッド×1, 録音×1・再生×1 コンビネーション・ヘッド <102> 消去ヘッド×1, 録音/再生×1(2ヘッド)
使用テープ	C-60, C-90タイプカセット・テープ
テープ速度	4.8センチ
モーター	キャプスタン: DC サーボモーター×1 リール: DC モーター×1
ワウ・フラッター	0.045%(W.RMS), 0.07%(W.Peak EIAJ)
周波数特性 (総合)	<103> 20Hz~21,000Hz (25Hz~20,000Hz±3dB, EIAJ):メタル 20Hz~20,000Hz (25Hz~19,000Hz±3dB, EIAJ):クローム 20Hz~18,000Hz (25Hz~17,000Hz±3dB, EIAJ):ノーマル <102> 25Hz~20,000Hz (30Hz~19,000Hz±3dB, EIAJ):メタル 25Hz~18,000Hz (30Hz~17,000Hz±3dB, EIAJ):クローム 25Hz~17,000Hz (30Hz~16,000Hz±3dB, EIAJ):ノーマル
総合S/N比	60dB(NR OUT, 3% THDレベル, WTD) 70dB(ドルビーB NR IN 5kHz以上) 80dB(ドルビーC NR IN 1kHz以上)
早巻時間	C-60テープで約85秒
入力	ライン: 60mV(入力インピーダンス50kΩ以上)
出力	ライン: 0.43V(負荷インピーダンス50kΩ以上) ヘッドホン: 2mW/8Ω
電源	100V AC, 50/60Hz
消費電力	15W
外形寸法	435(幅)×122(高さ)×275.5(奥行)mm
重量	4.0kg
付属品	入出力コード 2本(1組)

※この仕様は特に表示した項目を除き、当社基準テープを使用して測定したものです。

※仕様および外観は、改善のため予告なく変更することがあります。

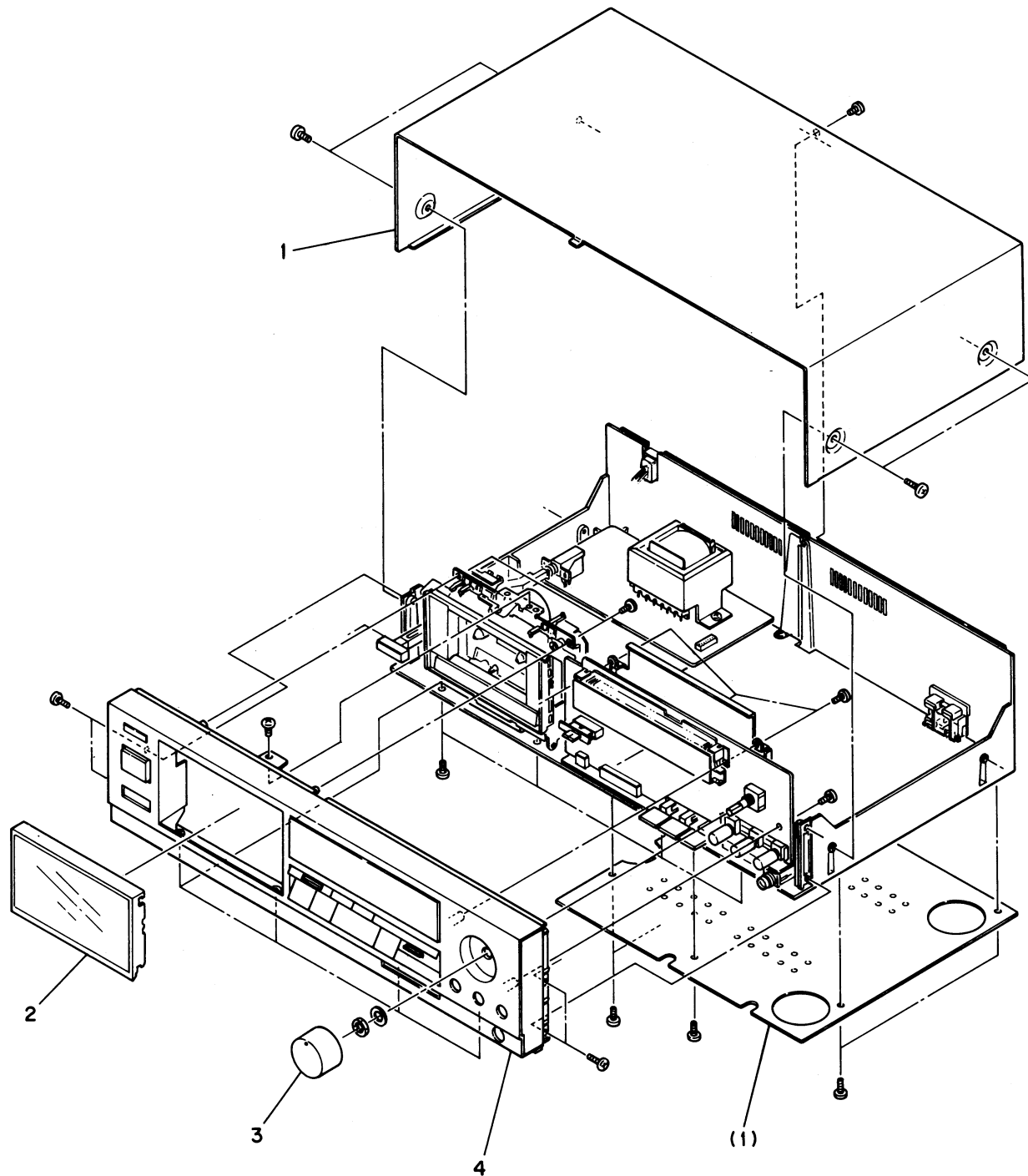


## 2 REMOVAL OF EXTERNAL COMPONENTS

外装部品の外し方

Disassemble in number-order

番号順に外して下さい



### 3 PARTS LOCATION

部品配置図

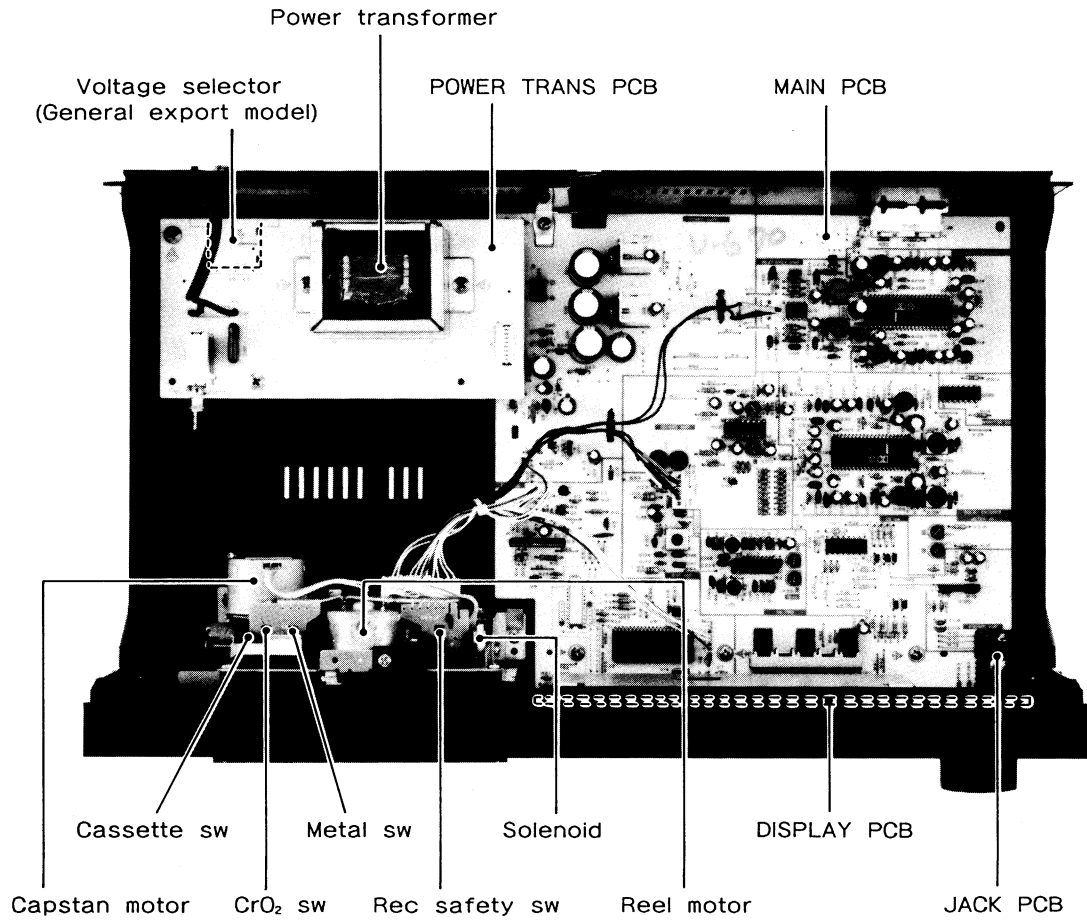


Fig. 3-1 Top view 上面図

## 4 MECHANICAL ADJUSTMENTS AND CHECKS

### 機構部の調整と確認

#### 4-1 TAPE SPEED

- 1) Connect a frequency counter to the deck as shown in Fig.4-1.
- 2) Simply press POWER switch to ON to rotate the motor, then continue the motor rotation for approx. 1 minute for warm-up.
- 3) As soon as the warm-up finishes, load a TEAC MTT-111 test tape with a 3,000 Hz test tone and play the beginning of the test tape.
- 4) Adjust the variable resistor (Fig.4-2) to get the adjustment value of 3,000 Hz to 3010 Hz.
- 5) In play mode, check that the following figures are obtained at the beginning and at the end of the tape.
 

Speed deviation:	3,000 Hz $\pm$ 75 Hz
Speed drifting:	within 75 Hz

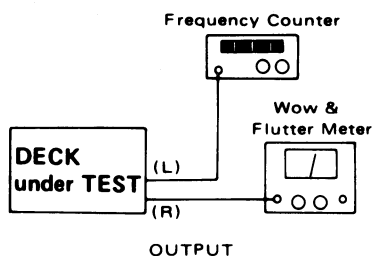


Fig. 4-1

#### 4-2 WOW AND FLUTTER

##### (PLAYBACK METHOD)

Note: These measurements should be made at the beginning, middle, and the end of the tape.

- 1) Connect a wow-and-flutter meter to the deck as shown in Fig.4-1.
- 2) Load and play a TEAC MTT-111 test tape.
- 3) Check that the readings on the wow-and-flutter meter are as follows.
 

Specifications:	0.12 % WRMS
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#### 4-1 テープ・スピード

- 1) 図4-1 のように周波数カウンタを接続する。
- 2) 電源を入れ、約 1分間ウォーミング・アップする。
- 3) テストテープ MTT-111(3kHz) を巻始めの条件で再生する。
- 4) 周波数値が 3,000~3,010 Hz となるよう、Fig.4-2 に示す調整 VR を調整する。
- 5) 巻始めから巻終わりまで再生し、速度偏差および変動幅を確認する。

速度偏差:	3,000 Hz $\pm$ 75 Hz
変動幅:	75 Hz 以内

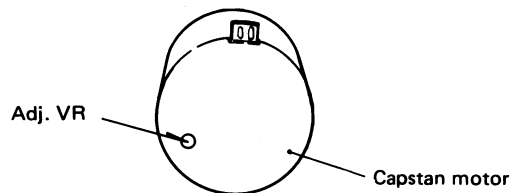


Fig. 4-2

#### 4-2 ワウ・フラッタ

##### (再生法)

注: テープの巻始め、中間、巻終りで測定する。

- 1) 図4-1 のようにワウ・フラッタ・メータを接続する。
- 2) テスト・テープ MTT-111 を再生する。
- 3) ワウ・フラッタ値が下の規格内に入ることを確認する。
 

規格:	0.12 % WRMS
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## 4-3 REEL TORQUE

- 1) Load the cassette torque meter on the deck and read the pointer indication on the dial scale for each tape transport operation. The measured torque should be within the following specified values.

## Specifications:

Take-up : 30 ~ 70 g · cm  
(0.417 ~ 0.972 oz-inch)

Supply : 2.5 ~ 6 g · cm  
(0.035 ~ 0.083 oz-inch)

F.F./REW : 80 ~ 180 g · cm  
(1.111 ~ 2.500 oz-inch)

## 4-3 リール・トルク

- 1) カセット型トルク・メータによる測定値が下表の範囲内であることを確認する。

テイクアップ・トルク : 30 ~ 70 g · cm

バックテンション・トルク : 2.5 ~ 6 g · cm

早送り/巻戻しトルク : 80 ~ 180 g · cm

## 4-4 VOLTAGE CONVERSION

(General Export Models only)

- 1) ALWAYS DISCONNECT THE POWER LINE CORD BEFORE MAKING THESE ADJUSTMENTS !
- 2) Locate the voltage selector on the rear panel.
- 3) Using a regular screwdriver, turn the selector until the numerals corresponding to the voltage requirements of your area appear.

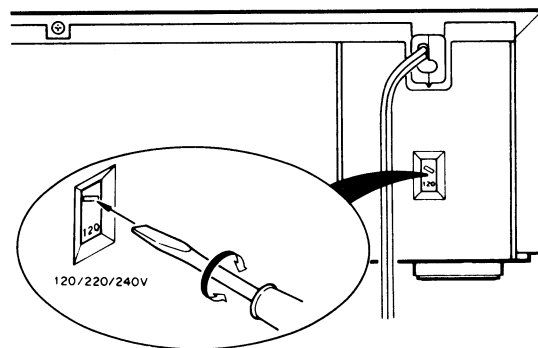


Fig. 4-3

## 5 ELECTRICAL CHECKS AND ADJUSTMENTS

### アンプ部の確認と調整

#### 5-1 PRECAUTIONS

- 1) Before performing adjustments and checks clean and demagnetize the entire tape path.
- 2) Make sure the deck is properly set for the voltage in your locality.
- 3) In general, adjustments and checks are made in the order of L-ch then R-ch. Double REF. Nos. indicate L-ch/R-ch. (Example; R51/R61)
- 4) 0 dB is referenced to 0.775 V. If an AC voltmeter that references 0 dB to 1 V is used, appropriate compensation should be made.
- 5) The AC voltmeter used in the procedures must have an input impedance of 1 M-ohms or more.
- 6) Note the "Deck settings" at the top of each chart. The settings apply to all check for a specific chart unless explicitly stated otherwise.
- 7) Since this deck has an automatic tape selector, be sure to use test tapes that have tape position detecting holes.
- 8) Input terminals and measuring points at each step are the same as previous step, otherwise specified.

#### 5-1 注意

- 1) アンプ部の調整・確認の前に、テープ走行系の消磁と清掃を行なってください。
- 2) 特に指定の無い限り、調整は L ch, R ch の順序で行なってください。  
尚 R51/R61 のように記されている回路番号は Lch/Rchを示します。
- 3) 0 dB = 0.775V
- 4) 測定に使用するレベル計の入力インピーダンスは 1 MΩ以上のものを使用してください。
- 5) 本機はテープ・セレクト自動検出機構になっていますのでテスト・テープは必ずテープ・ポジション検出孔のあるものを使用してください。
- 6) 入力端子及び測定箇所は各ステップに於いて特に明示されている場合を除き、直前のステップと同じです。

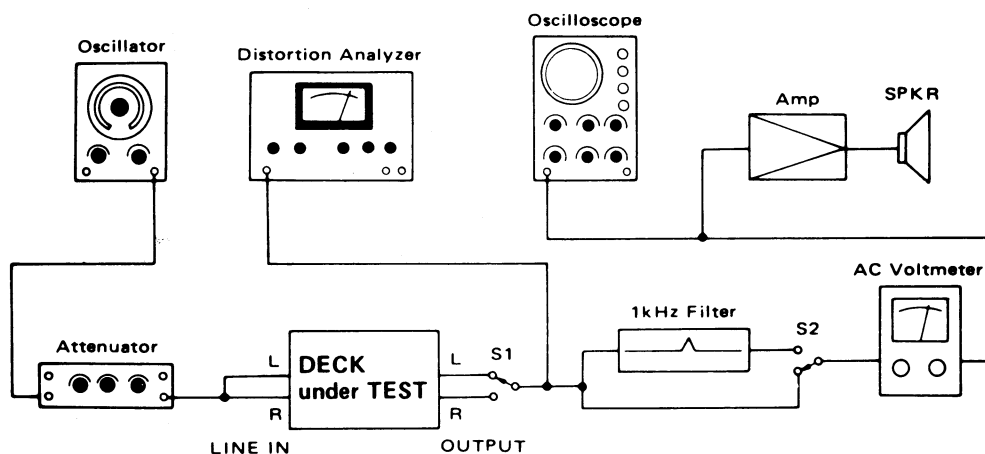
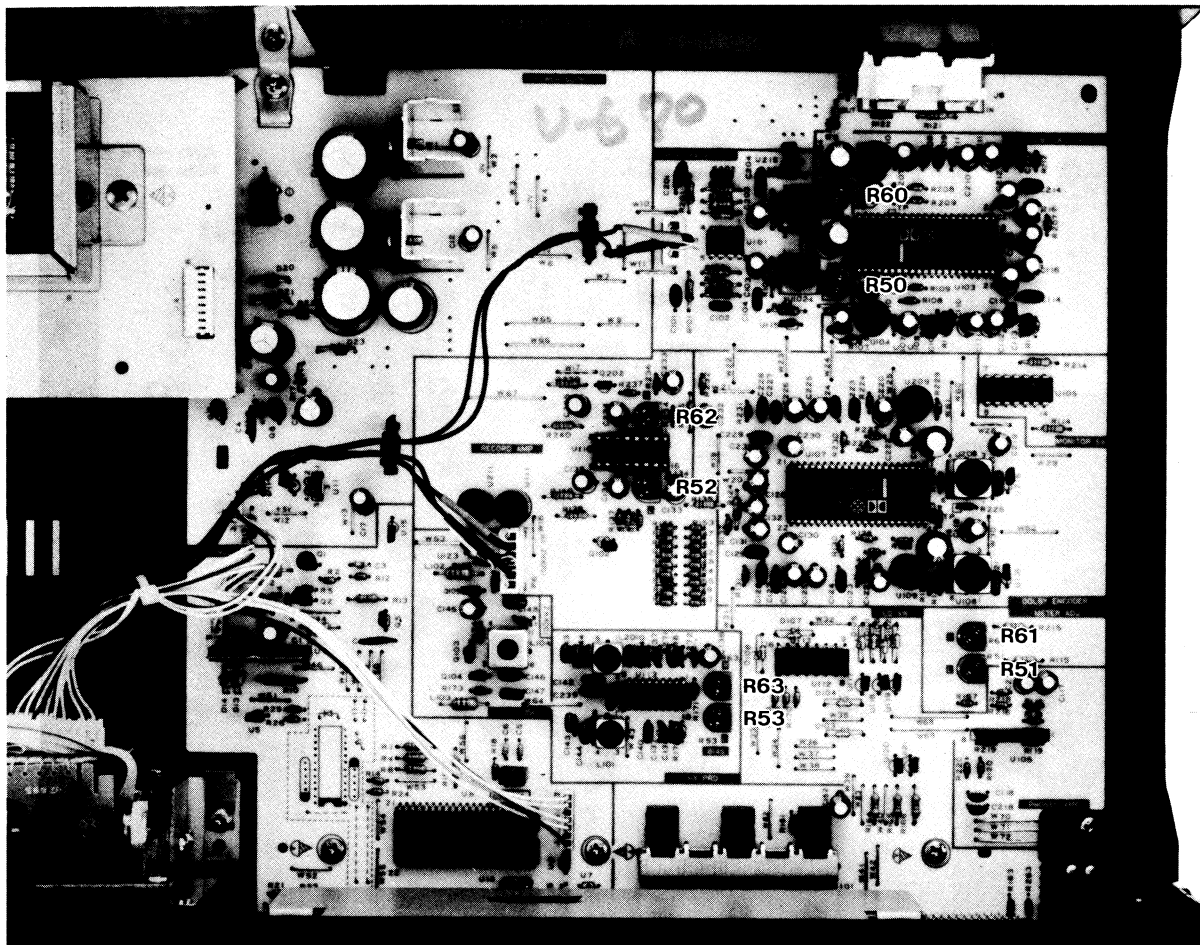


Fig. 5-1 Basic test setup 基本測定接続図

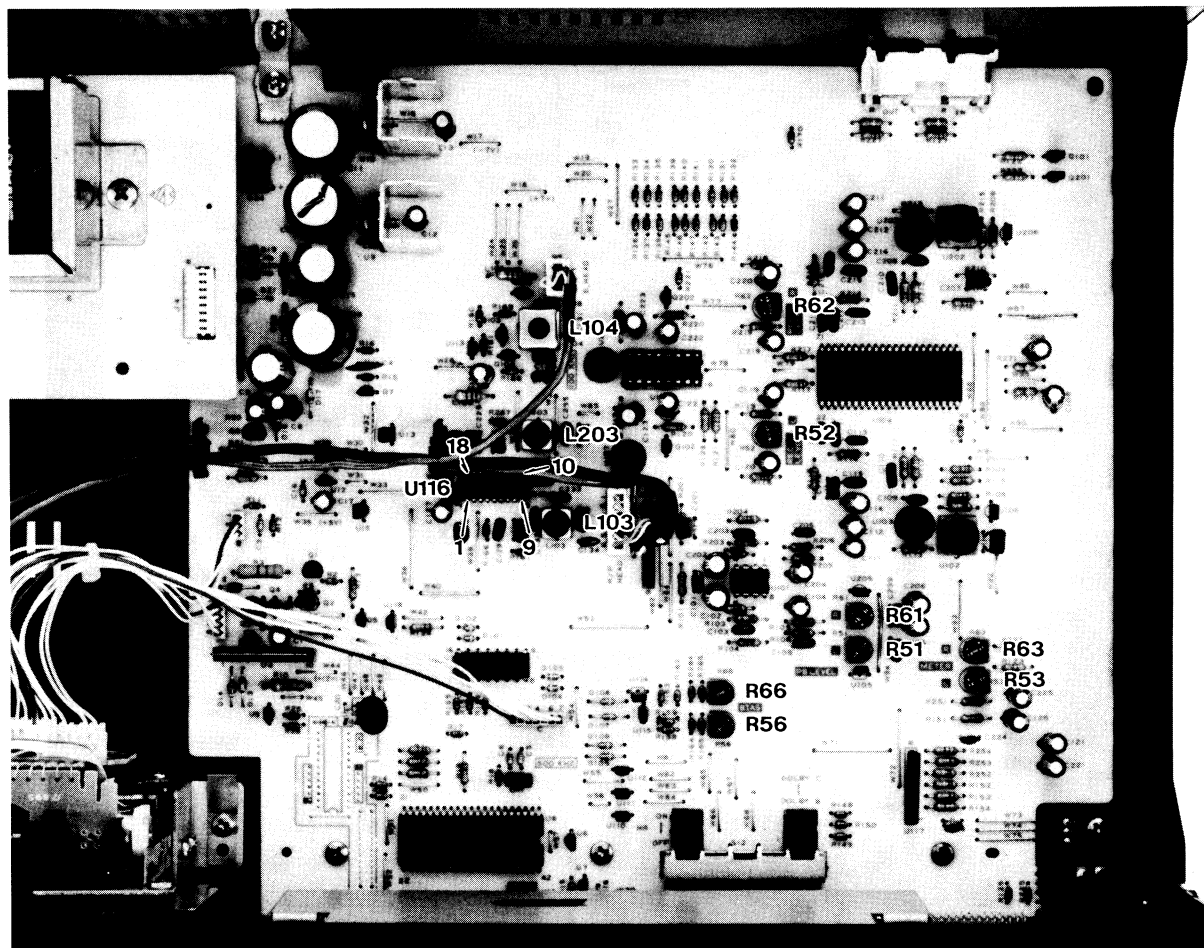
## 5-2. ADJUSTMENT LOCATIONS 調整箇所 (103)



R50 / R60	Playback level	再生レベル
R51 / R61	Meter level	メータ・レベル
R52 / R62	Record level	録音レベル
R53 / R63	Bias setting	バイアス・セット

Fig. 5-2 Adjustment points 調整箇所 (103)

## 5-3. ADJUSTMENT LOCATIONS 調整箇所 (102)



R51 / R61	Playback level	再生レベル
R52 / R62	Record level	録音レベル
R53 / R63	Meter level	メータ・レベル
R56 / R66	Bias setting	バイアス・セット
L103 / L203	Step-up coil	ステップ・アップ・コイル
L104	Bias osc frequency	バイアス発振周波数

Fig. 5-3 Adjustment points 調整箇所 (102)

5-4. PLAYBACK PERFORMANCE  
再生系

Deck settings

Mode : PLAY  
AOTO MONITOR sw. (103) : TAPE  
DOLBY NR sw. : OUT  
MPX FILTER sw. (103) : OUT

TEAC test tapes:

MTT-150 : For Dolby level calibration  
MTT-256 : For playback frequency response check for NORMAL  
MTT-356 : For playback frequency response check for METAL and CrO<sub>2</sub>  
MTT-5511 : For S/N check for NORMAL

ITEM 調整項目	SETTING 設定	INPUT SIGNAL 入力信号	ADJUST (or CHECK) 調整箇所	MEASURING POINT, RESULT 測定箇所・調整値	REMARKS 備考
1. REC · PLAY head azimuth 録・再ヘッド アジマス	Connection : Fig.5-4	MTT-256 or MTT-356 ( 10 kHz )	Azimuth screws of R · P head 録・再ヘッドの アジマス調整ネジ 103 Fig.5-5 102 Fig.5-6	OUTPUT (L/R) : Maximum output at L & R-ch's. L-R 各 ch 共 最大出力	
		MTT-150	Check	OUTPUT (L/R) : Phase : within 45° 位相 : 45° 以内	Fig.5-7
2. Playback output level 再生出力レベル	Same as above 同上	MTT-150	103 R50/R60 102 R51/R61	OUTPUT (L/R) : -5 dB ( 436 mV )	
3. Meter level setting メータ・レベル セット	Same as above 同上	MTT-150	103 R51/R61 102 R53/R63	PEAK LEVEL meter (L/R) : 0 dB (RED) lit 0 dB (赤)点灯	
4. Playback frequency response 再生周波数特性	Same as above 同上	MTT-256 (MTT-356)	Check	OUTPUT (L/R) : Standard 規格 : Fig.5-8	
5. Playback S/N ratio 再生 S/N 比	Same as above 同上	MTT-5511 (fully demagnetized using bulk tape eraser) (バルク・イレーサで 充分消磁されたもの)	Check	OUTPUT (L/R) : S/N 45 dB min. (120μ) 46 dB min. (70μ)	
				-5 dB (436 mV) is reference level 基準レベルは -5 dB (436 mV)	

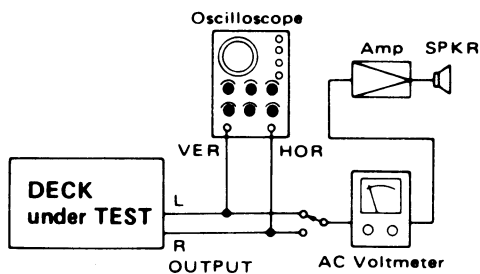


Fig. 5-4 Test setup for azimuth check  
位相測定接続図

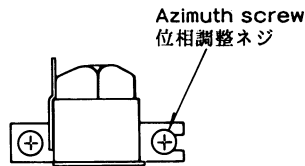


Fig. 5-5 103

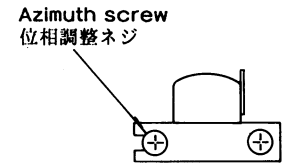


Fig. 5-6 102

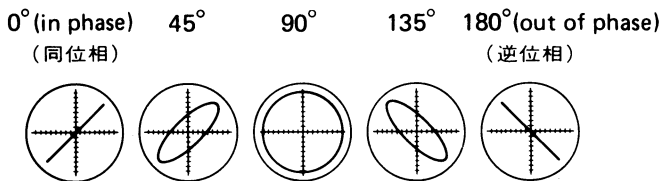


Fig. 5-7 Confirming phase relationship 位相

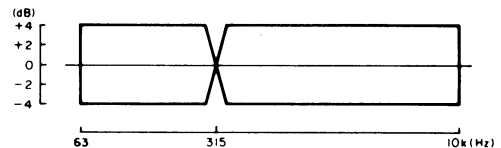


Fig. 5-8 Playback frequency response  
再生周波数特性

## 5-5. MONITOR PERFORMANCE モニター系

Deck settings  
 Mode : RECORD/PAUSE  
 MASTER REC LEVEL cont. : Maximum  
 PRESET cont. L/R : REF position  
 AUTO MONITOR sw. (103) : SOURCE  
 DOLBY NR sw. : OUT  
 MPX FILTER sw. (102) : OUT

ITEM 調整項目	SETTING 設定	INPUT SIGNAL 入力信号	ADJUST (or CHECK) 調整箇所	MEASURING POINT, RESULT 測定箇所・調整値	REMARKS 備考
6. Min. LINE input level ライン 最小入力レベル	Connection : Fig.5-1	LINE IN (L/R) : 400 Hz / -19 dB (86.9 mV)	Check	OUTPUT (L/R) : -5 dB $\pm$ 3 dB (308 mV ~ 615 mV)	
7. Specified LINE input level LINE 規定入力 レベル	Connection : Fig.5-1	LINE IN (L/R) : 400Hz/-9dB(275mV)  After adjusting, do not move the PRESET cont. (L/R). (Specific position) 調整後は PRESET つまみを動かさないこと.	PRESET cont. ( L / R )	OUTPUT (L/R) : -5 dB (436 mV)	
8. Meter level メータ・レベル	Connection : Fig.5-1	LINE IN (L/R) : 400Hz/-9dB(275mV)	Check	REAK LEVEL meter (L/R) : 0 dB (RED)	
9. PHONES output level PHONES 出力レベル	Connection : Fig.5-9 PHONES LEVEL cont. : Max.	LINE IN (L/R) : 400Hz/-9dB(275mV)	Check	PHONES : At each channel 各チャンネルで -15 dB $\pm$ 3 dB (97.5 mV ~ 195 mV)	8 $\Omega$ load

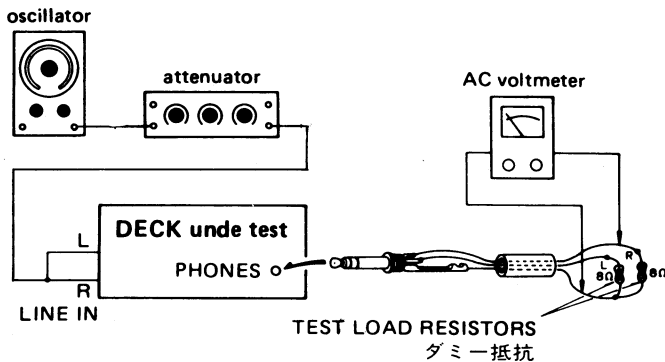


Fig. 5-9 Test setup for PHONES check  
ホーン出力測定接続図

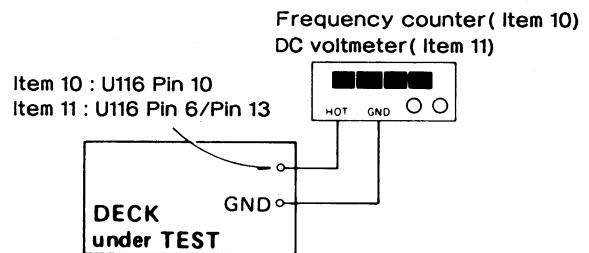


Fig. 5-10 Test setup for  
bias osc. frequency adjustment  
バイアス発振周波数調整用接続図

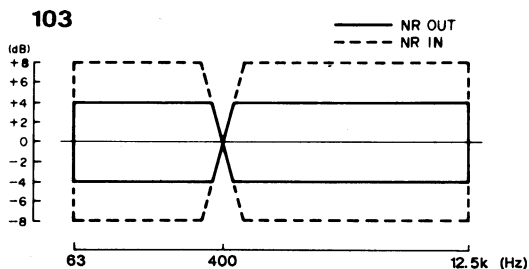


Fig. 5-11 Overall frequency response  
録再周波数特性

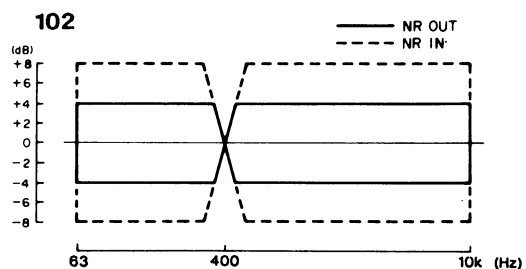


Fig. 5-12 Overall frequency response  
録再周波数特性

## 5-6. RECORDING PERFORMANCE

## 録音系

Deck settings

Mode : Rec/Play (Item 10,11)  
: Record then Playback (Item 12~22)

MASTER REC LEVEL cont. : Maximum

PRESET (L/R) cont. : Specified position(規定位置)

AUTO MONITOR sw. (103) : TAPE

DOLBY NR sw. : OUT

MPX FILTER sw. (103) : OUT

BIAS FINE cont. : REF (center) position

TEAC recording test tapes

MTT-5571 : For METAL

MTT-5561 : For CrO<sub>2</sub>

MTT-5511 : For NORMAL

ITEM 調整項目	SETTING 設定	INPUT SIGNAL 入力信号	ADJUST (or CHECK) 調整箇所	MEASURING POINT, RESULT 測定箇所・調整値	REMARKS 備考
10. Bias osc frequency バイアス 発振周波数 (102 only)	Connection : Fig.5-10 TAPE : MTT-5571 Mode : REC / PLAY	No signal	L104	U116 pin10 : 100 kHz $\pm$ 2 kHz	
11. Step-up coil ステップ・アップ コイル (102 only)	Same as above 同上	No signal	L103/L203	U116 pin 6 / pin 13 : Minimum DC voltage DC 電圧最小値	*
*When the reading of the voltmeter is negative (-), set to the maximum negative voltage. 電圧計がマイナス電圧を指示する場合はマイナス電圧の 最大値にセットする。					
12. Record bias バイアス・セット	Connection : Fig.5-1 TAPE : MTT-5571 BIAS FINE cont.: REF position	LINE IN (L/R) : 400 Hz and 10 kHz alternately / 交互信号 / -42 dB (6.15 mV)	103 R53/R63 102 R56/R66	OUTPUT (L/R) Equal output level (record and playback) between 400 Hz and 10kHz. 400 Hz と 10 kHz の録再出力が等し くなること.	
13. BIAS FINE	Same as above	LINE IN (L/R) : 10 kHz / -42 dB (6.15 mV)	BIAS FINE cont. Min. $\longleftrightarrow$ Max.	OUTPUT (L/R) : Check Recorded signal level variation 録音された信号のレベル変化 5 dB minimum (103) 3 dB minimum (102)	
After checking, set the BIAS FINE cont. to REF (center) position. チェック後 BIAS FINE つまみを REF (センター) 位置に戻しておくこと。					
14. Record level 録音レベル	Connection : Fig.5-1 TAPE : MTT-5511	LINE IN (L/R) : 400 Hz / -12 dB (195 mV)	R52 / R62	Output (L/R) : Output level (record and playback) 録再出力 -8 dB (300 mV)	
	Connection : Fig.5-1 TAPE : MTT-5571, MTT-5561 DOLBY NR sw. : IN / OUT, B / C		Check	Output (L/R) : Output level (record and playback) 録再出力 -10 dB ~ -6 dB (245 mV ~ 388 mV)	
15. Total harmonic distortion 総合歪率	Connection : Fig.5-1 TAPE : MTT-5571 TAPE : MTT-5561 TAPE : MTT-5511	LINE IN (L/R) : 400 Hz / -12 dB (195 mV)	Check	OUTPUT (L/R) : 2.5 % or less 2.5 % 以下	
16. Overall frequency response 録再周波数特性	Connection : Fig.5-1 TAPE : MTT-5571 TAPE : MTT-5561 TAPE : MTT-5511	LINE IN (L/R) : 40 Hz ~ 12.5 kHz/ -42 dB (6.15 mV)	Check	OUTPUT (L/R) : Standard Fig.5-11 (103) Standard Fig.5-12 (102)	

ITEM 調整項目	SETTING 設定	INPUT SIGNAL 入力信号	ADJUST (or CHECK) 調整箇所	MEASURING POINT, RESULT 測定箇所・調整値	REMARKS 備考
17. Overall S/N ratio 総合S/N 比 発振周波数 (102 only)	Connection : Fig.5-1 Tape : MTT-5571 Tape : MTT-5561 Tape : MTT-5511	No signal 無信号	Check	OUTPUT (L/R) : METALL 45 dB min. CrO2 45 dB min. NORMAL 44 dB min.	
				400 Hz / -8 dB (300 mV) is the reference level. 基準レベルは 400 Hz / -8 dB (300 mV)	
18. Erase efficiency 消去効果	Connection : Fig.5-1 but engage 1-kHz filter 1-kHz フィルター使用 Tape : MTT-5571	LINE IN ( L/R ) 1 kHz / +1 dB ( 0.869 V )	Check	OUTPUT (L/R) : 65 dB min. ratio	
				Record a 1 kHz signal. Erase the latter half of the recording. Rewind and play to find the difference between the 1 kHz portion and the erased portion. 録音部分を再生したときのレベルを基準レベルとし、録音部分を消去したときの出力レベルとの差を測定。	
19. REC MUTE function REC MUTE 効果	Same as above 同上	Same as above 同上	Check	OUTPUT (L/R) : 65 dB min. ratio (103) 63 dB min. ratio (102)	
				Record a 1 kHz signal. Push REC MUTE button midway. Rewind and play to find the difference between the 1-kHz portion and the "rec mute" portion. 1 kHz 信号を録音し、途中で REC MUTE 釦を押して無信号録音部分を作る。 このテープを再生し、1 kHz 部分と無信号部分との出力レベル差を測定。	
20. Channel separation チャンネル・ セパレーション	Same as above 同上	LINE IN : L ch 1-kHz/-9dB (275mV) R ch No signal 無信号	Check	OUTPUT ( R ) : 30 dB min. ratio	
		Set the deck to record mode. rewind and play to find the difference between the 1-kHz recorded portion ( L-ch ) and "no signal" portion ( R-ch ). 録音後、再生して 1-kHz 録音部分 ( L-ch ) と無信号録音部分 ( R-ch ) との出力レベル差を測定。			
		Change the above connection and check reverse operation also. L-ch と R-ch を入れ替えた場合についてもチェックすること。			
21. Adjacent track crosstalk トラック間 クロストーク	Connection : Fig.5-1 but not connect LINE (L) and output (L) L ch の入出力の接続不要	LINE IN : L ch No signal 無信号 R ch 125Hz/-9dB (275mV)	Check	OUTPUT ( R ) : 40 dB min. ratio	
		Record a 125 Hz signal on R-ch track and note output level. Invert tape and play R-ch track. Check leakage level against the output reference of previously recorded portion. R-ch トラックに 125 Hz 信号を録音し、その再生出力を基準レベルとする。 次にテープを反転し、再生したときのR-ch 出力レベルと基準レベルとの差を測定。			

## PARTS LIST SECTION

### NOTES:

1. As regards the resistors and capacitors, refer to the circuit diagrams and the PCB ass'y drawings included in this brochure.
2. Parts marked with  $\Delta$  this sign are safety critical components. They must always be replaced with identical components - refer to the appropriate parts list and ensure exact replacement.

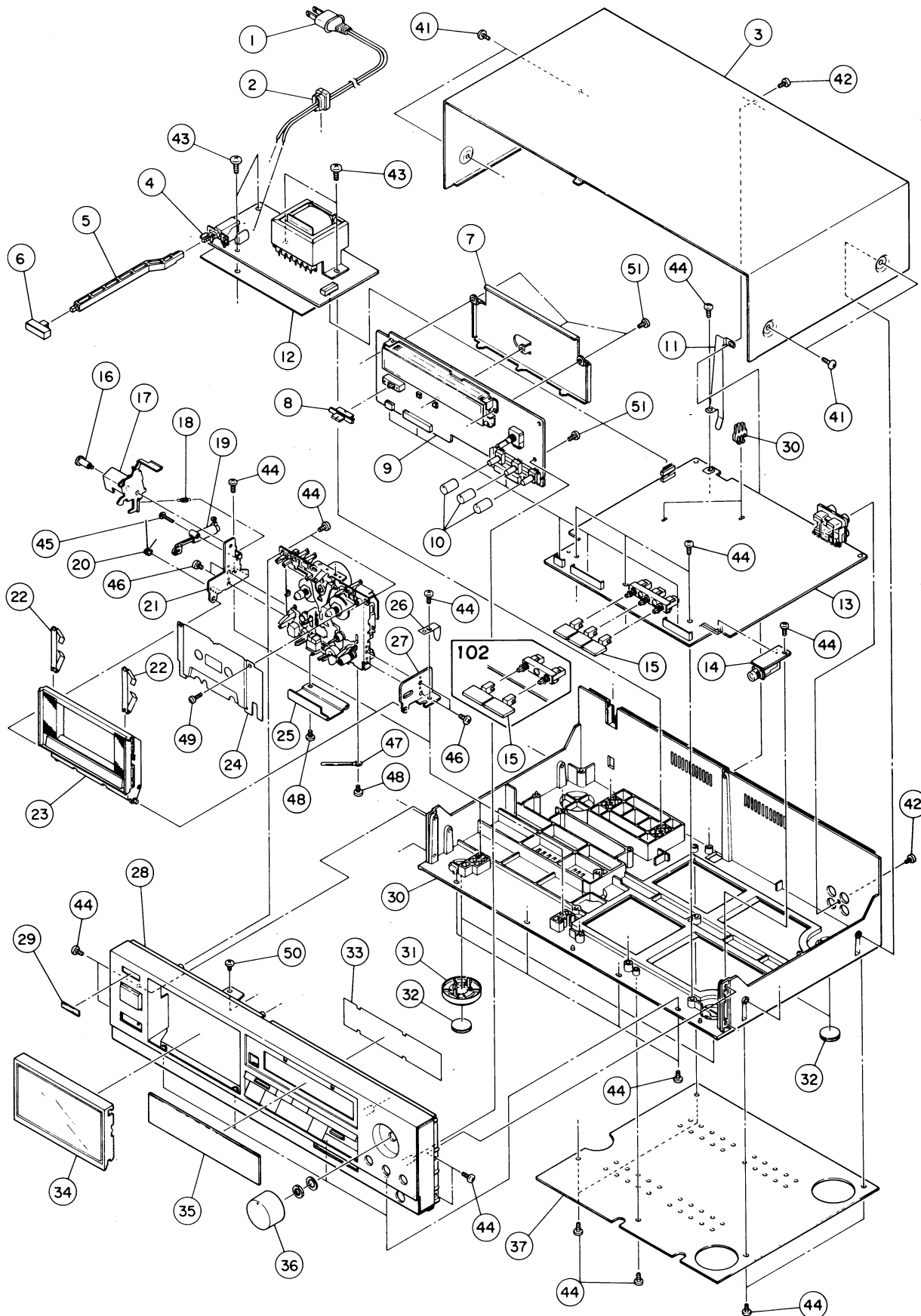
### 注 意

1. 標準の抵抗、コンデンサーは省略してあります。回路図及び基板図を参照してください。
2.  $\Delta$ 印は安全規格重要部品です。交換するときは必ずティアック指定の部品を使用して下さい。

# 6 EXPLODED VIEWS AND PARTS LIST

分解図とパーツ・リスト

## EXPLODED VIEW - 1



EXPLODED VIEW-1

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1- 1	Δ*5128027000	CORD,AC [J]	
	Δ*5350010800	CORD,AC UL SPT-1 [US,C,GE]	
	Δ*5350011700	CORD,AC CEE CLASS-2 [E]	
	Δ*5128047000	CORD,AC [UK]	
	Δ*5350008300	CORD,AC ASS [A]	
1- 2	Δ*5317003400	BUSHING 2271	
1- 3	*5801127500	BONNET	
1- 4	*5200257300	P.TRANS PCB ASSY [J]	Ref. pages 21 & 24
	*5200257310	P.TRANS PCB ASSY [US,C]	Ref. pages 21 & 24
	*5200257320	P.TRANS PCB ASSY [GE]	Ref. pages 21 & 24
	*5200257330	P.TRANS PCB ASSY [E]	Ref. pages 21 & 24
	*5200257340	P.TRANS PCB ASSY [UK]	Ref. pages 21 & 24
	*5200257350	P.TRANS PCB ASSY [A]	Ref. pages 21 & 24
1- 5	*5801125100	ROD,	
1- 6	5800752300	BUTTON,POWER B	
1- 7	*5801126500	BRACKET, PCB	
1- 8	5801127000	KNOB, SLIDE SW.	
1- 9	*5200257100	DISPLAY PCB ASSY (103)	Ref. pages 19 & 22
	*5200257600	DISPLAY PCB ASSY (102)	Ref. pages 20 & 23
1-10	5801179100	KNOB(3)	
1-11	*5801125900	PLATE(2),EARTH	
1-12	*5801149800	SHEET, TRANSFORMER [US]	
1-13	*5200257000	MAIN PCB ASSY (103)	Ref. pages 19 & 22
	*5200257500	MAIN PCB ASSY (102)	Ref. pages 20 & 23
1-14	*5200257200	JACK PCB ASSY (103)	Ref. pages 19 & 22
	*5200257700	JACK PCB ASSY (102)	Ref. pages 20 & 23
1-15	5801124700	BUTTON(B), PUSH (103)	
	5801124600	BUTTON(A), PUSH (102)	
1-16	*5801125300	SCREW,	
1-17	*5801126300	ARM, EJECT	
1-18	*5801125800	SPRING, ARM	
1-19	5730030600	DAMPER F077-016	
1-20	*5800838300	SPRING,DOOR R	
1-21	*5801126400	BRACKET, DAMPER	
1-22	*5800603801	SPRING,CASS.PRESS	
1-23	5801178700	CASSETTE HOLDER(D) (103)	
	5801178600	CASSETTE HOLDER(C) (102)	
1-24	*5801142000	PLATE (L)	
1-25	*5801124500	SHIELD PLATE,HEAD	
1-26	*5801125000	PLATE(1), EARTH	
1-27	*5801126900	BRACKET, MECHANISM	
1-28	*5801178500	PANEL ASSY(D),FRONT (103)	
	*5801178400	PANEL ASSY(C),FRONT (102)	
1-29	*5720207800	EMBLEM,TASCAM	
1-30		MAIN CHASSIS	
1-31	*5801125500	RING, FOOT	
1-32	*5800620400	FOOT,FELT	
1-33	*5801124900	FILTER, DISPLAY	
1-34	5801126700	LID, CASSETTE	
1-35	*5801177600	WINDOW, DISPLAY	
1-36	5801179200	KNOB(4)	
1-37	*5801127400	COVER, BOTTOM	

[US]:U.S.A. [E]:EUROPE [UK]:U.K. [C]:CANADA  
[GE]:GENERAL EXPORT [J]:JAPAN [A]:AUSTRALIA

Parts marked with \*require longer delivery time.

EXPLODED VIEW-1

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1-41	*5800758000	SCREW, M3X10 P TITE(SP)	
1-42	*5783543010	SCREW, BIND T TITE M3X10(BLK NI)	
1-43	*5783604012	SCREW, BIND P TITE M4X12	
1-44	*5783603010	SCREW, BIND P TITE M3X10	
1-45	*5783072012	SCREW, PAN S TITE M2X12	
1-46	*5783003004	SCREW, PAN S TITE M3X4	
1-47	*5786713000	CLIP, HARNESS 3.0X9.1X50	
1-48	*5730017600	SCREW, BIND BR TITE M3X6	
1-49	*5783542612	SCREW, BIND P TITE M2.6X12(BLK NI)	
1-50	*5730017600	SCREW, BIND BR TITE M3X6	
1-51	*5783603012	SCREW, BIND P TITE M3X12	

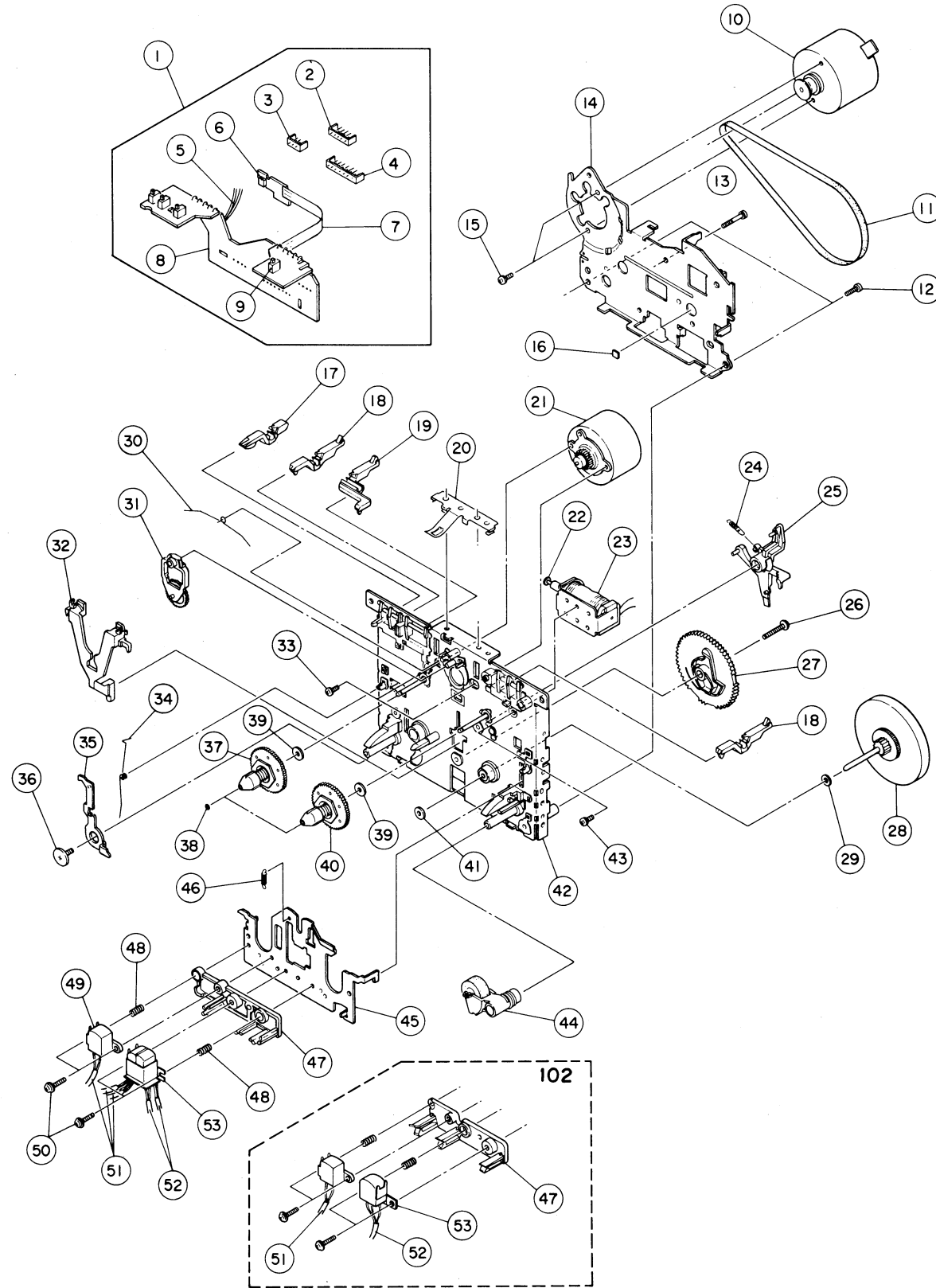
INCLUDED ACCESORIES

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	*5700109600	OWNER'S MANUAL [EXCEPT J]	

[US]:U.S.A. [E]:EUROPE [UK]:U.K. [C]:CANADA  
[GE]:GENERAL EXPORT [J]:JAPAN [A]:AUSTRALIA

Parts marked with \*require longer delivery time.

EXPLODED VIEW - 2



EXPLODED VIEW-2

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
2- 1	*5761769400	CONNECTOR F067-110	
2- 2	*5761769600	B7B-EH UY15B-16	
2- 3	*5761749300	B3B-EH	
2- 4	*5761749100	B5B-EH	
2- 5	*5761769700	JUMPER WG13K-10	
2- 6	*5761748800	GP 2S09B	
2- 7	*5761748900	JUMPER WG46V-06	
2- 8	*5761769500	BOARD FP17E-71	
2- 9	5761748700	SW.,PUSH	
2-10	5761747800	MOTOR,DC W/PULLEY	
2-11	5761769200	BELT, MAIN FF15R-11	
2-12	*5761690900	SCREW, WAVE 2.6X8 UG12H-14	
2-13	*5761769300	SCREW, S TITE M2.6X23.5 UG17H-11	
2-14	*5761768900	F/W BKT FC47D-13	
2-15	*5761746400	SCREW, PAN 2.6X3.5	
2-16	*5761747700	SPACER	
2-17	*5761749500	LEVER, PACK	
2-18	*5761749600	LEVER, RECORD	
2-19	*5761749700	LEVER, METAL	
2-20	*5761750200	SPRING,CASSETTE PRESS	
2-21	5761745800	MOTOR,REEL DC	
2-22	5761746300	PIN, SOLENOID	
2-23	5761746200	PKA16146	
2-24	*5761768800	SPRING,PLAY ARM FK22G-14	
2-25	5761769000	ARM(F),PLAY FD38M-22	
2-26	*5761771000	SCREW, TAP TITE 2X15 UG17L-11	
2-27	5761768700	CAM GEAR(F) FD38P-16	
2-28	5761747200	F/W ASSY	
2-29	*5761689200	POLYSLIDER FJ111-30	
2-30	*5761745400	SPRING,HOLD	
2-31	5761745300	IDLER ASSY	
2-32	*5761745700	HOLD LEVER(C)	
2-33	*5761745900	SCREW, PAN 2.6X6ZN	
2-34	*5761768600	SPRING(L), EJECT FK22P-16	
2-35	*5761768500	ARM(L), EJECT FC39S-33	
2-36	*5761746700	SCREW,	
2-37	5761773700	REEL TABLE ASSY (103)	
	5761686300	REEL TABLE ASSY (102)	
2-38	*5761745600	POLYSLIDER	
2-39	*5761745500	POLYSLIDER	
2-40	5761686400	REEL TABLE ASSY,T.	
2-41	*5761689700	WASHER, OIL SEAL FJ141-11	
2-42		CHASSIS, MECHANISM FI12-110	
2-43	*5761769800	SCREW, PAN 2.6X4 ZN FG114-15	
2-44	5761768300	PINCH ROLLER ASSY FR20L-21	
2-45	*5761768100	BASE, HEAD FC38N-D3	
2-46	*5761744800	SPRING, HEAD BASE	
2-47	*5761770400	SPACER, 3 HEAD FD44N-11 (103)	
	*5761779400	SPACER,HEAD FD45T-12 (102)	
2-48	*5761767500	SPRING, AZIMUTH FK21U-11	
2-49	5761767900	ERASE HEAD FU192-11	
2-50	*5761767400	SCREW, F LOCK FG137-18	
2-51	*5761770300	CONNECT., WIRE WH51L-05 (103)	
	*5761767800	CONNECT., WIRE WH47G-07 (102)	
2-52	*5761770100	CONNECT., WIRE WH51K-03 (103)	
	*5761767600	CONNECT., WIRE WH47F-06 (102)	
2-53	5761770200	H-2371 FU19C-11 (103)	
	5761767700	HAYEH 4406 A FU17A-11B (102)	

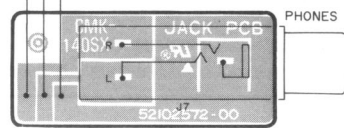
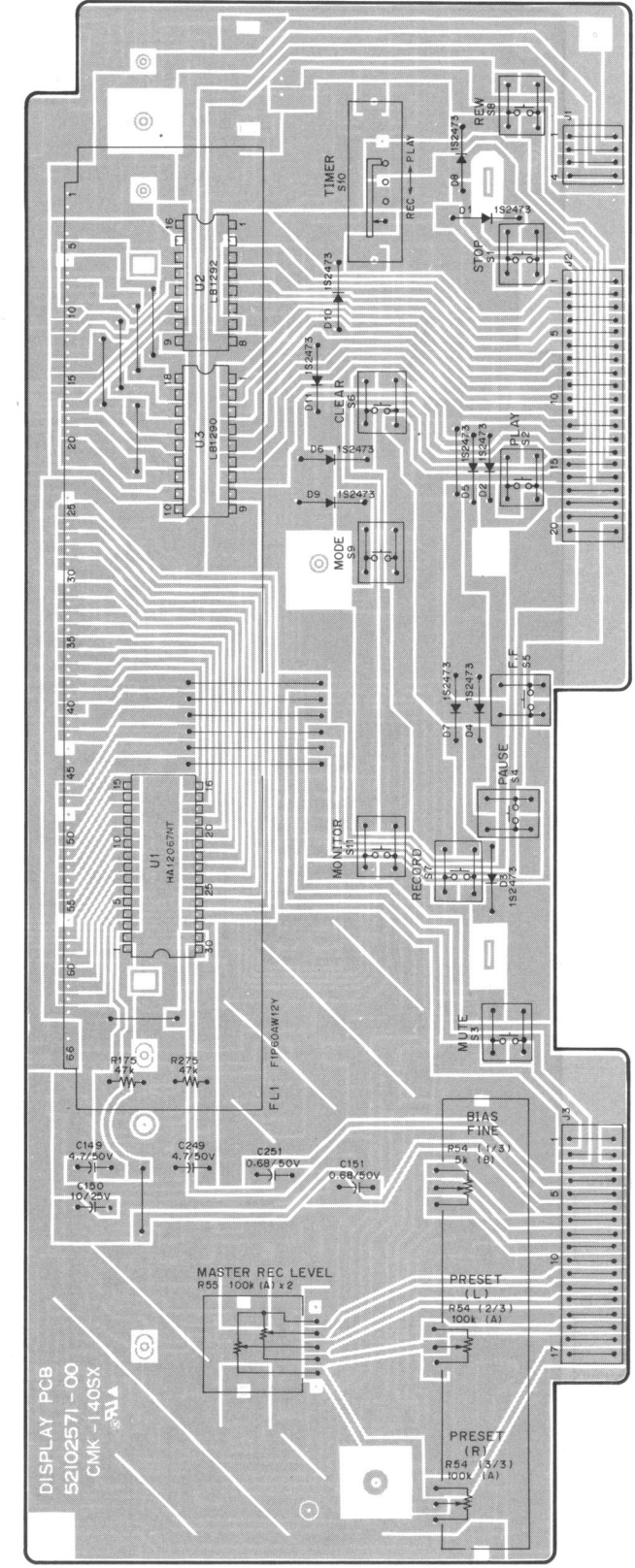
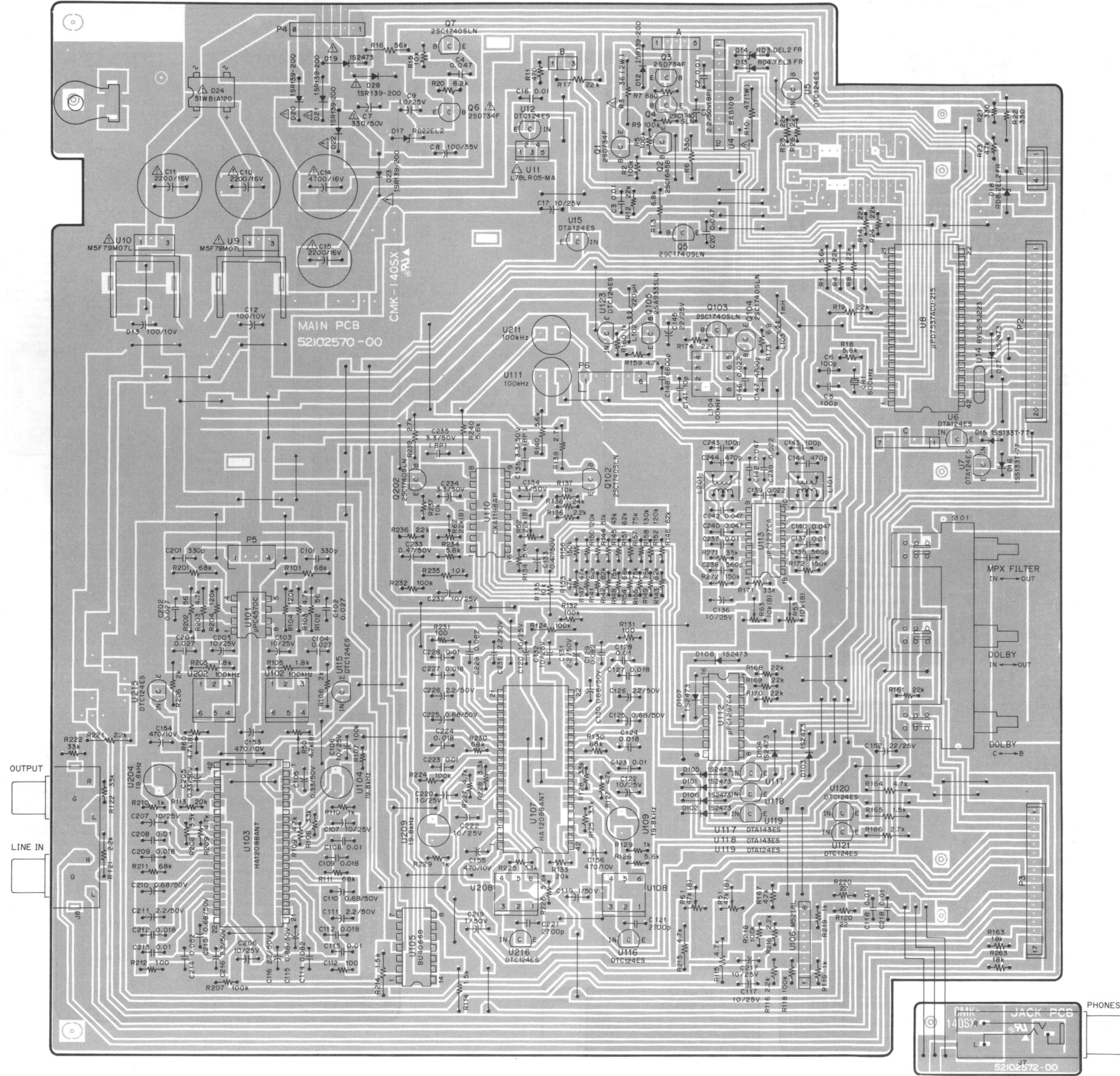
Parts marked with \*require longer delivery time.

# 7 PC BOARDS AND PARTS LIST

基板図とパーツ・リスト

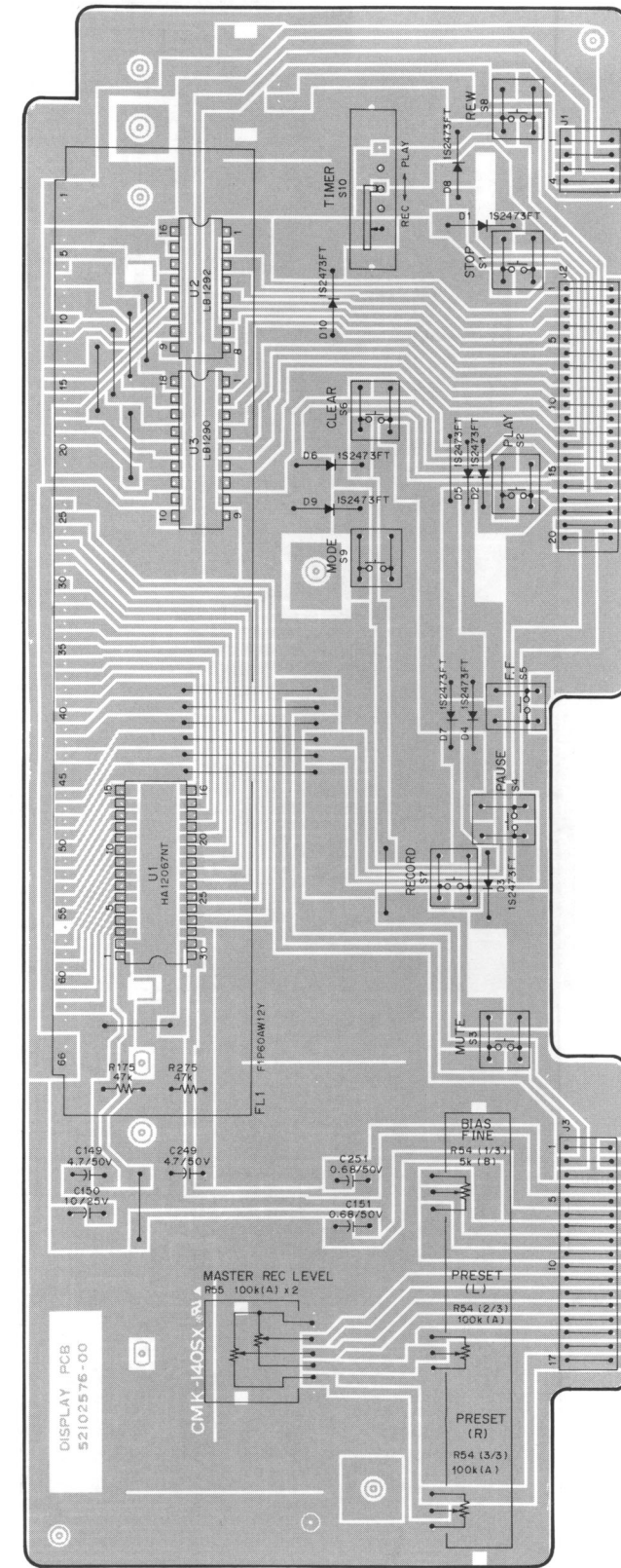
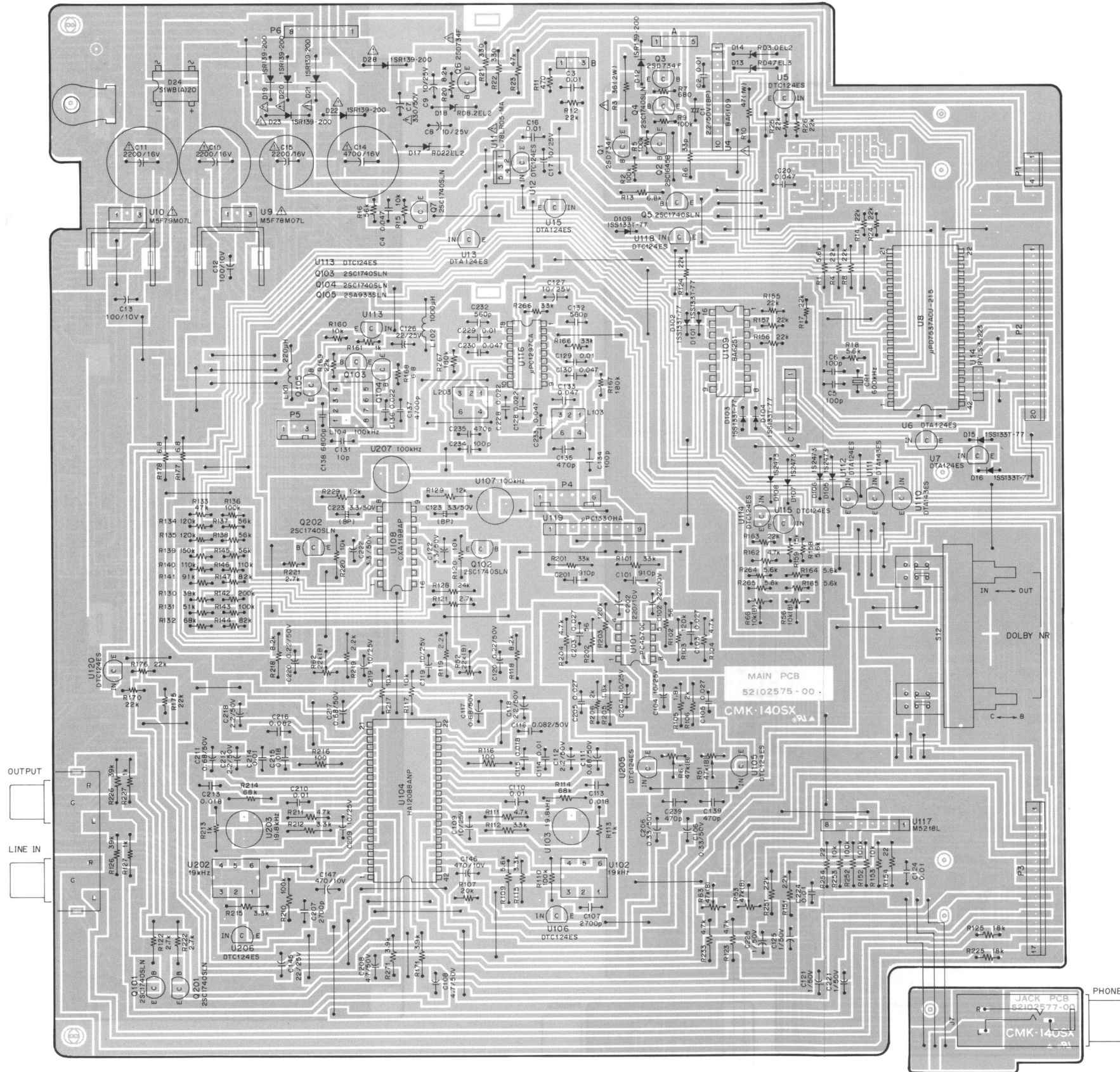
### MAIN PCB ASSY

### DISPLAY PCB ASSY



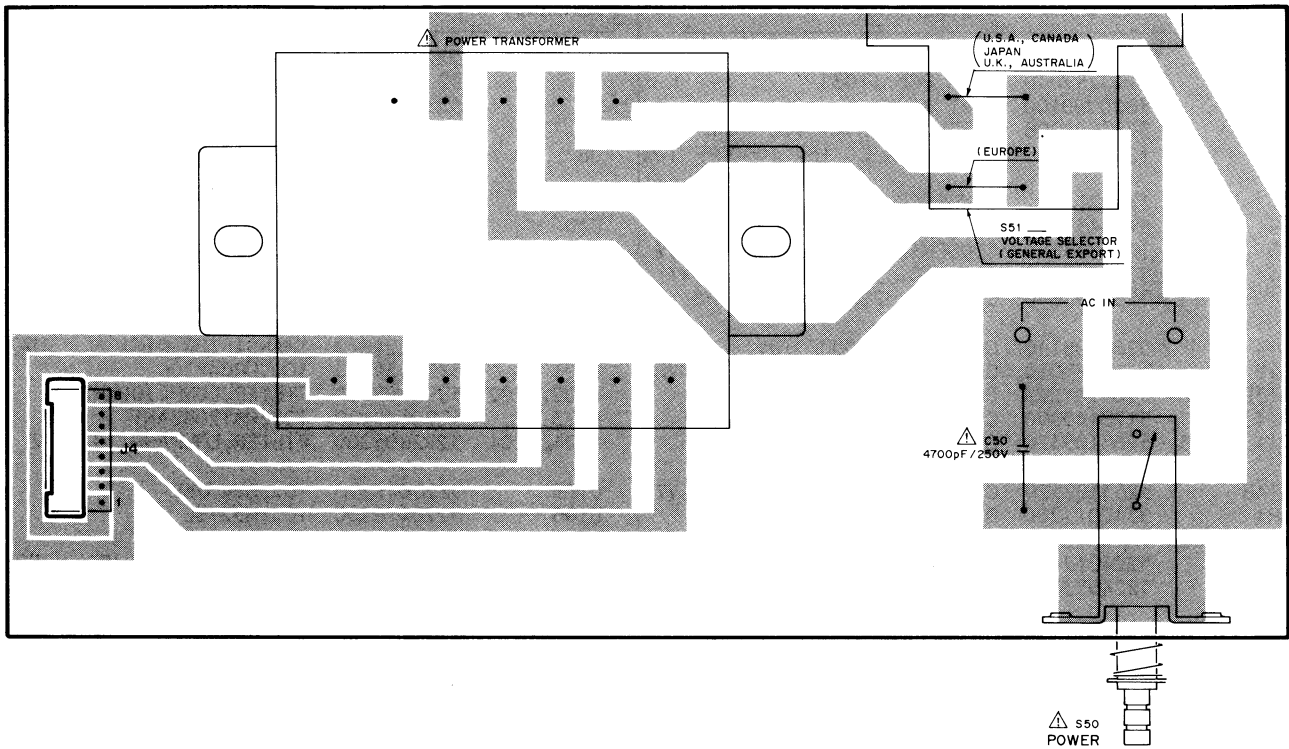
MAIN PCB ASSY

DISPLAY PCB ASSY



JACK PCB ASSY

## POWER TRANS. PCB ASSY



## NOTES

1. PC boards are shown viewed from foil side.
2. Resistor values are in ohms (k=kilo-ohms M=megohms).
3. All capacitor values are in microfarads (p=picofarads).

## 注

1. 基板図はパターン面が示されています。
2. 抵抗の単位は $\Omega$  (k = k $\Omega$ , M = M $\Omega$ )です。
3. コンデンサの単位は $\mu F$  (pF)です。

## MAIN PCB ASSY (103)

REF.NO.	PARTS NO.	DESCRIPTION
	*5200257000	MAIN PCB ASSY (103)
	*5210257000	MAIN PCB (103)
	5800990100	HEAT SINK
	5783603008	SCREW, BIND P TITE M3X8
C2	12907112	CONDENSER CC 16V 10000PF 10%
C3	12907112	CONDENSER CC 16V 10000PF 10%
C4	5173435000	C., CERAMIC 0.047UF 50V Z
C5 -C 6	12907088	CONDENSER CC 50V 100PF 5%
C7	Δ5260425510	C., ELEC. 330UF 50V M AS VT
C10 -C 11	Δ5260308600	C., ELEC. 2200UF/16V M PS
C14	Δ5260428110	C., ELEC. 4700UF 16V
C15	Δ5260427010	C., ELEC. 2200UF 16V M AS VF
C138-C238	5263107220	C., POLY. 560PF/100V J VT
C141	5173445000	C., CERAMIC 10PF 50V D VFT
C143-C243	5263105420	C., POLY. 100PF/100V J VT
C148	5263102520	C., POLY. 0.0068UF 100V J VT
CR1	5347011200	OSC., CERAMIC 600KHZ
D101-D108	5224012920	DIODE, IS2473
D12	5224017120	DIODE, ISR139-200 T-31
D13	5224573001	DIODE, ZENER RD4.7EL3 FR
D14	5224571801	DIODE, ZENER RD3.0EL2 FR
D15 -D 16	5224015020	DIODE, ISS133T-77
D17	5224577901	DIODE, ZENER RD22EL2 FR
D18	5224574701	DIODE, ZENER RD8.2EL2 FR
D19	5224012920	DIODE, IS2473
D20 -D 23	Δ5224017120	DIODE, ISR139-200 T-31
D24	Δ5228010700	SILICON STACK, SIWB8(A)20
D27	5224012920	DIODE, IS2473
D28	Δ5224017120	DIODE, ISR139-200 T-31
J8	5330509600	JACK, PIN 4P
L101 L201	5286025700	COIL, STEP UP
L102	5286031000	COIL, CHOKE 220UH LAL04KB
L103	5286031800	COIL, CHOKE 1000UH LAL04NA
L104	5286035900	COIL, OSC 100KHZ
P1	5336279400	PLUG, CONNECT. 4P
P2	5336281000	PLUG, CONNECT 20P IL-SDA-P
P3	5336280700	PLUG, CONNECT 17P IL-SDA-P
P4	5334055100	PLUG, CONNECT TYC-B08P-11
P5	5336245400	PLUG, CONNECT B04B-XH-A
P6	5336245600	PLUG, CONNECT B06B-XH-A
Q1	5231761300	TRANSISTOR 2SD734F
Q2	5145133000	TRANSISTOR 2SC-1645
Q3 ,Q 6	Δ5231761300	TRANSISTOR 2SD734F
Q4 -Q 5	5230781120	TRANSISTOR 2SC1740SLN
Q7	5230781120	TRANSISTOR 2SC1740SLN
Q102, Q202	5230781120	TRANSISTOR 2SC1740SLN
Q103-Q104	5230781120	TRANSISTOR 2SC1740SLN
Q105	5230019020	TRANSISTOR 2SA933SLN
R3	Δ5241284210	INCOMBUSTBLE 2W 36 OHM J
R10	Δ5241274510	INCOMBUSTBLE 1W 47 OHM J
R50 R60	5280021100	R., TRIMMER 4.7KB
R51 R61	5280021700	R., TRIMMER, 47KB H.
R52 R62	5280021500	R., TRIMMER 22KB H.
R53 R63	5280021300	R., TRIMMER 10KB H.
S101	5300051800	SW., PUSH 3GANG 2-2N

## MAIN PCB ASSY (103)

REF.NO.	PARTS NO.	DESCRIPTION
U4	5220411500	IC., BA6109,
U5	5232255720	TRANSISTOR, DIGITAL DTC124ES
U6	5232254820	TRANSISTOR, DIGITAL DTA124ES
U7	5232254820	TRANSISTOR, DIGITAL DTA124ES
U8	5220813700	IC., UPD7537ACU
U9	Δ5220432200	IC., M5F78M07L
U10	Δ5220432900	IC., M5F78M07L
U11	Δ5220439800	IC., L78LR05
U12	5232255720	TRANSISTOR, DIGITAL DTC124ES
U14	5242122800	R., ARRAY RYLS-3J223
U15	5232254820	TRANSISTOR, DIGITAL DTA124ES
U101	5220439600	IC., UPC4570C
U102, U202	5292805700	FILTER, LOWP. 100KHZ
U103	5220440100	IC., HA12088ANT
U104, U204	5292805200	FILTER, LOWPASS 19.8KHZ
U105	5220041100	IC., BU4066B
U106	5220416200	IC., M5218L
U107	5220440100	IC., HA12088ANT
U108, U208	5292805600	FILTER, LOWPASS MPX R-888X
U109, U209	5292805200	FILTER, LOWPASS 19.8KHZ
U110	5220439700	IC., CXA1198AP
U111, U211	5292805900	FILTER, LOW PASS 100KHZ
U112	5232250900	TRANSISTOR ARRAY BA6251
U113	5220430400	IC., UPC1297CA
U115, U215	5232255720	TRANSISTOR, DIGITAL DTC124ES
U116, U216	5232255720	TRANSISTOR, DIGITAL DTC124ES
U117-U118	5232253020	TRANSISTOR, DIGITAL DTA143ES
U119	5232254820	TRANSISTOR, DIGITAL DTA124ES
U120-U121	5232255720	TRANSISTOR, DIGITAL DTC124ES
U123	5232255720	TRANSISTOR, DIGITAL DTC124ES

## DISPLAY PCB ASSY (103)

REF.NO.	PARTS NO.	DESCRIPTION
	*5200257100	DISPLAY PCB ASSY (103)
	*5210257100	DISPLAY PCB (103)
	5800809101	HOLDER, METER
D1-D11	5224012920	DIODE, IS2473
FL1	5347004000	FL DISPLAY, FIP60AW12Y
J1	5336281400	SOCKET, CONNECT 4P
J2	5336283000	SOCKET, CONNECT 20P IL-SDA-S
J3	5336282700	SOCKET, CONNECT 17P IL-SDA-S
R54	5283506800	3 BLOCKVR 9, 100KAX2, 5KB
R55	5282414800	IS1UVR 14, 100KAX2
S1-S9	5302103200	SW., TACT KHH10910
S10	5300916400	SW., SLIDE 1-3 SSSU01
S11	5302103200	SW., TACT KHH10910
U1	5220041000	IC., HA12067NT
U2	5232252800	TRANSISTOR ARRAY LB1292
U3	5232252900	TRANSISTOR ARRAY LB1290

Parts marked with \*require longer delivery time.

## MAIN PCB ASSY (102)

REF.NO.	PARTS NO.	DESCRIPTION
	*5200257500	MAIN PCB ASSY (102)
	*5210257500	MAIN PCB (102)
	5800990100	HEAT SINK
	5783603008	SCREW, BIND P TITE M3X8
	5330509600	JACK, PIN 4P
	5555590000	PLATE.PCB EARTH A
C2	5173433000	C., CERAMIC 0.01UF 50V T
C3	12907112	CONDENSER CC 16V 10000PF 10%
C5 -C 6	12907088	CONDENSER CC 50V 100PF 5%
C7	△5260425510	C., ELEC. 330UF 50V M AS VT
C10 -C 11	△5260308600	C., ELEC. 2200UF/16V M PS
C14	△5260428110	C., ELEC. 4700UF 16V
C15	△5260427010	C., ELEC. 2200UF 16V M AS VF
C16	12907112	CONDENSER CC 16V 10000PF 10%
C101, C201	5263107720	C., POLY. 910PF/100V J VT
CR1	5347011200	OSC., CERAMIC 600KHZ
D101-D104	5224015020	DIODE, ISS133T-77
D105-D108	5224012920	DIODE, IS2473
D109	5224015020	DIODE, ISS133T-77
D12	5224017120	DIODE, ISR139-200 T-31
D13	5224573001	DIODE, ZENER RD4.7EL3 FR
D14	5224571801	DIODE, ZENER RD3.0EL2 FR
D15 -D16	5224015020	DIODE, ISS133T-77
D17	5224577901	DIODE, ZENER RD22EL2 FR
D18	5224574701	DIODE, ZENER RD8.2EL2 FR
D19 -D23	△5224017120	DIODE, ISR139-200 T-31
D24	△5228010700	SILICON STACK, SIWB8(A)20
D28	△5224017120	DIODE, ISR139-200 T-31
L101	5286031000	COIL, CHOKE 220UH LAL04KB
L102	5286031800	COIL, CHOKE 1000UH LAL04NA
L103, L203	5286036100	COIL, STEP UP
L104	5286035900	COIL, OSC 100KHZ
P1	5336279400	PLUG, CONNECT 4P
P2	5336281000	PLUG, CONNECT 20P IL-SDA-P
P3	5336280700	PLUG, CONNECT 17P IL-SDA-P
P4	5336245600	PLUG, CONNECT B06B-XH-A
P5	5336245300	PLUG, CONNECT B03B-XH-A
P6	5334055100	PLUG, CONNECT TYC-B08P-11
Q1	5231761300	TRANSISTOR 2SD734F
Q2	5145133000	TRANSISTOR 2SC-1645
Q3	5231761300	TRANSISTOR 2SD734F
Q4 -Q 5	5230781120	TRANSISTOR 2SC1740SLN
Q6	△5231761300	TRANSISTOR 2SD734F
Q7	5230781120	TRANSISTOR 2SC1740SLN
Q101, Q201	5230781120	TRANSISTOR 2SC1740SLN
Q102, Q202	5230781120	TRANSISTOR 2SC1740SLN
Q103, Q104	5230781120	TRANSISTOR 2SC1740SLN
Q105	5230019020	TRANSISTOR 2SA933SLN
R3	△5241284210	INCOMBUSTBLE 2W 360HM J FF
R10	△5241274510	INCOMBUSTBLE 1W 470HM J FF
R51 R61	5280021700	R., TRIMMER 47KB H.
R52 R62	5280021500	R., TRIMMER 22KB H.
R53 R63	5280021700	R., TRIMMER 47KB H.

## MAIN PCB ASSY (102)

REF.NO.	PARTS NO.	DESCRIPTION
R56 - R66	5280021300	R., TRIMMER 10KB H.
S12	5300051700	SW., PUSH 2GANG 2-2N
U4	5220411500	IC., BA6109
U5	5232255720	TRANSISTOR, DIGITAL DTC124ES
U6 -U 7	5232254820	TRANSISTOR, DIGITAL DTA124ES
U8	5220813700	IC., UPD7537ACU
U9	△5220432200	IC., M5F78M07L
U10	△5220432900	IC., M5F78M07L
U11	△5220439800	IC., L78LR05
U12	5232255720	TRANSISTOR, DIGITAL DTC124ES
U13	5232254820	TRANSISTOR, DIGITAL DTA124ES
U14	5242122800	R., ARRAY RYLS-3J223
U15	5232254820	TRANSISTOR, DIGITAL DTA124ES
U101	5220439600	IC., UPC4570C
U102, U202	5292806800	FILTER, LOWPASS 19KHZ
U103, U203	5292805200	FILTER, LOWPASS 19.8KHZ
U104	5220440100	IC., HA12088ANT
U105, U205	5232255720	TRANSISTOR, DIGITAL DTC124ES
U106, U206	5232255720	TRANSISTOR, DIGITAL DTC124ES
U107, U207	5292805900	FILTER, LOW PASS 100KHZ
U108	5220439700	IC., CXA1198AP
U109	5232250900	TRANSISTOR ARRAY BA6251
U110, U111	5232253020	TRANSISTOR DIGITAL DTA143ES
U113-U115	5232255720	TRANSISTOR, DIGITAL DTC124ES
U116	5220430400	IC., UPC1297CA
U117	5220416200	IC., M5218L,
U118, U120	5232255720	TRANSISTOR, DIGITAL DTC124ES
U119	5220439900	IC., UPC1330HA

## DISPLAY PCB ASSY (102)

REF.NO.	PARTS NO.	DESCRIPTION
	*5200257600	DISPLAY PCB ASSY (102)
	*5210257600	DISPLAY PCB (102)
D1-D10	5800809101	HOLDER, METER
FL1	5224012920	DIODE, IS2473
	5347004000	FL DISPLAY, FIP60AW12Y
J1	5336281400	SOCKET, CONNECT 4P
J2	5336283000	SOCKET, CONNECT 20P IL-SDA-S
J3	5336282700	SOCKET, CONNECT 17P IL-SDA-S
R54	5283506800	3 BLOCKVR 9, 100KAX2, 5KB
R55	5282414800	1SIUVR 14, 100KAX2
S1-S9	5302103200	SW., TACT KHH10910
S10	5300916400	SW., SLIDE 1-3 SSSU01
U1	5220041000	IC., HA12067NT
U2	5232252800	TRANSISTOR ARRAY LB1292
U3	5232252900	TRANSISTOR ARRAY LB1290

Parts marked with \*require longer delivery time.

## P.TRANS PCB ASSY

REF.NO.	PARTS NO.	DESCRIPTION
	*5200257300	P.TRANS PCB ASSY [J]
	*5200257310	P.TRANS PCB ASSY [US,C]
	*5200257320	P.TRANS PCB ASSY [GE]
	*5200257330	P.TRANS PCB ASSY [E]
	*5200257340	P.TRANS PCB ASSY [UK]
	*5200257350	P.TRANS PCB ASSY [A]
	*5210257300	POWER TRANS PCB
	△ 5320050700	P. TRANSFORMER [J]
	△ 5320050800	P. TRANSFORMER [US,C]
	△ 5320050900	P. TRANSFORMER [GE]
	△ 5320051000	P. TRANSFORMER [E,UK,A]
	5327007200	TERMINAL,2P [E,UK,A]
	△ 5128027000	CORD,AC [J]
	△ 5350010800	CORD,AC UL SPT-1 [US,C,GE]
	△ 5350011700	CORD,AC CEE CLASS-2 [E]
	△ 5128047000	CORD,AC [UK]
	△ 5350008300	CORD,AC ASS [A]
C50	△ 5267704000	SPARK,KILLER 0.0047UF250V
J4	5334049700	SOCKET, CONNECT. 8P
S50	△ 5300051900	SW.,PUSH 1-2
S51	△ 5332019900	VOLTAGE SELECTOR 1-3 FS908E [GE]

## JACK PCB ASSY (103)

REF.NO.	PARTS NO.	DESCRIPTION
	*5200257200	JACK PCB ASSY (103)
	*5210257200	JACK PCB (103)
J7	5330011600	JACK,3P YKB21-5010

## JACK PCB ASSY (102)

REF.NO.	PARTS NO.	DESCRIPTION
	*5200257700	JACK PCB ASSY (102)
	*5210257700	JACK PCB (102)
	5330011600	JACK,3P YKB21-5010

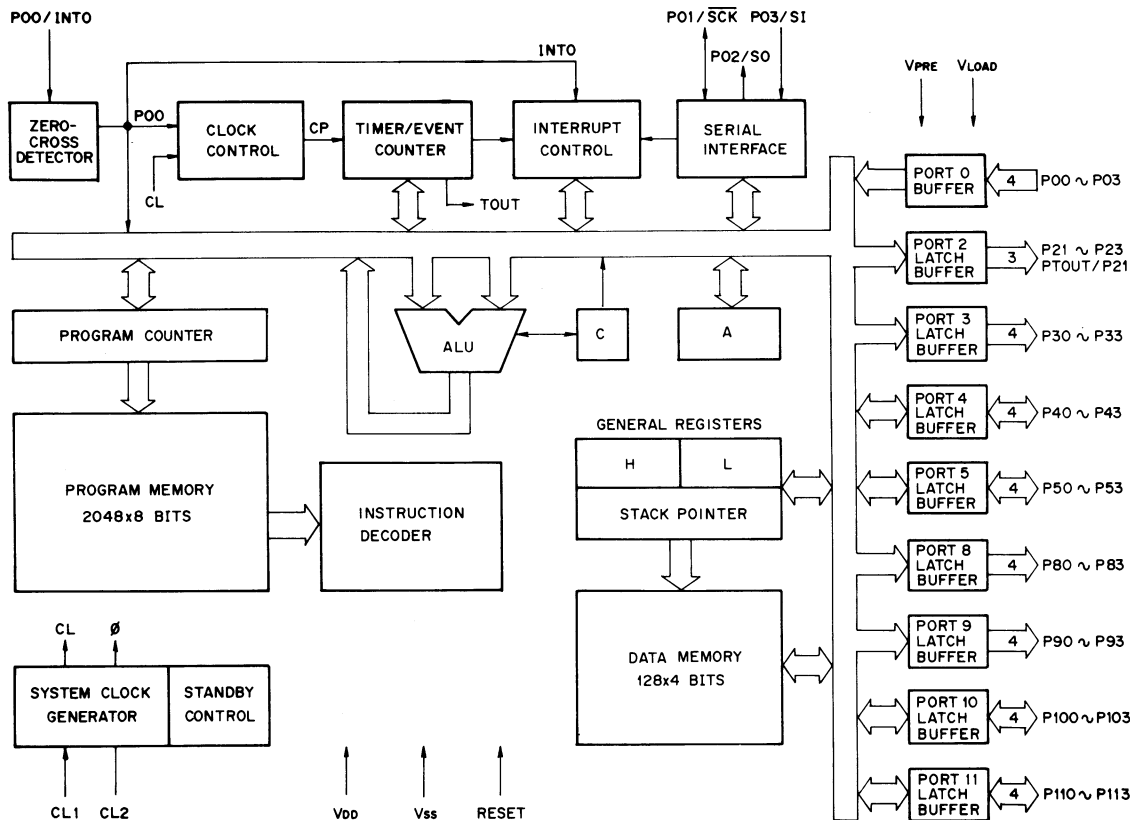
[US]:U.S.A. [E]:EUROPE [UK]:U.K. [C]:CANADA  
 [GE]:GENERAL EXPORT [J]:JAPAN [A]:AUSTRALIA

Parts marked with \*require longer delivery time.

# 8 IC BLOCK DIAGRAMS

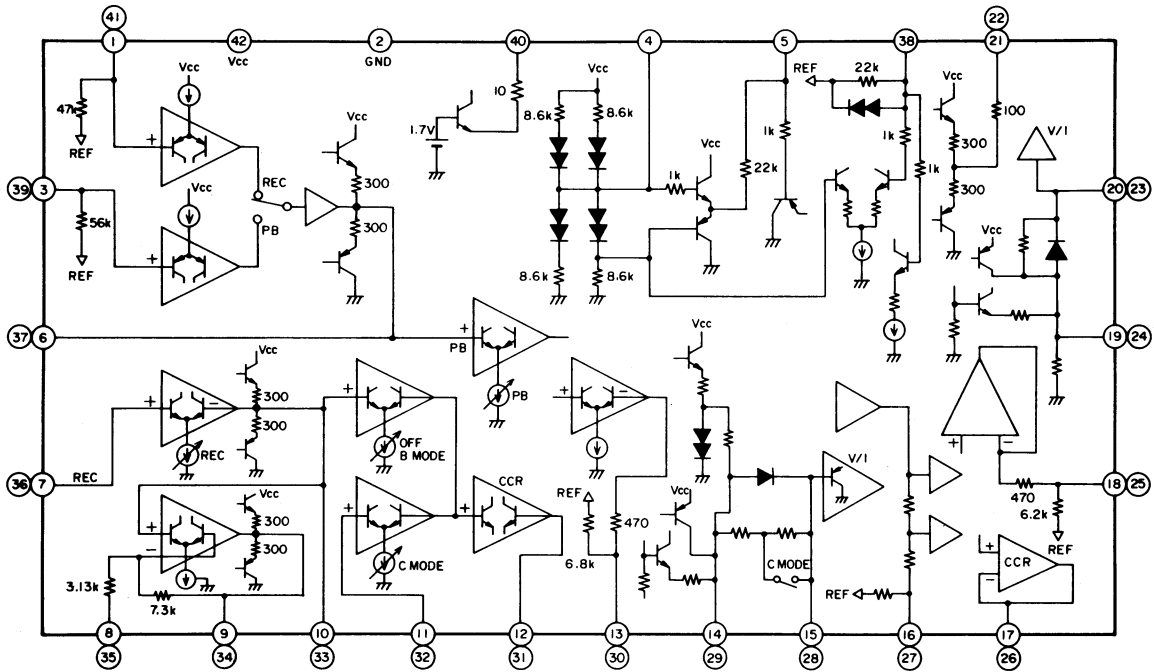
ICブロック・ダイアグラム

## μPD7537ACU

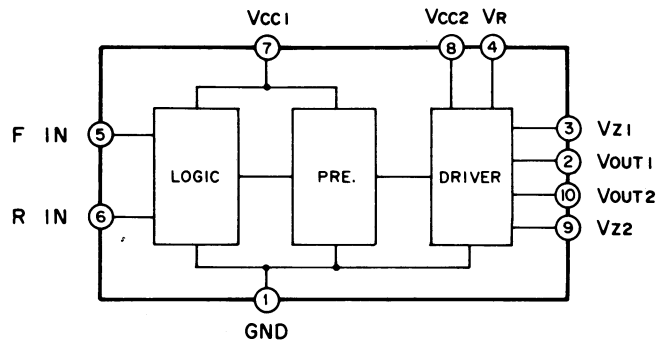


RESET INPUT (H: RESET)	1	RESET	V <sub>SS</sub>	42	GND
CLOCK OSC	2	CL1	INT0	41	50/60Hz INPUT
CLOCK OSC	3	CL2	P01	40	(PLAY, STOP, MUTE, MON)
GND	4	V <sub>PRE</sub>	P02	39	(F.FWD, PAUSE, CLEAR)
-7V	5	V <sub>LOAD</sub>	P03	38	(REW, REC, MODE)
REMOTE DATA INPUT	6	P53	P30	37	Seg. h
	7	P52	P31	36	Seg. g
	8	P51	P32	35	Seg. f
	9	P50	P33	34	Seg. e
CAP. MOTOR OUTPUT (H: ON)	10	P23	P40	33	Seg. d
SOL. HOLD OUTPUT (H: ON)	11	P22	P41	32	Seg. c
SOLENOID OUTPUT (H: ON)	12	P21	P42	31	Seg. b
REMOTE DATA INPUT KEY REQ	13	P103	P43	30	Seg. a
REEL PULSE INPUT	14	P102	P80	29	3G
	15	P101	P81	28	4G
TAPE/SOURCE OUTPUT (L: TAPE)	16	P100	P82	27	6G
BIAS OUTPUT (H: ON)	17	P113	P83	26	7G+5G
PLAY MUTE OUTPUT (L: MUTE)	18	P112	P90	25	2G
REC MUTE OUTPUT (L: MUTE)	19	P111	P91	24	F.FWD OUTPUT (H: ON)
REC OUTPUT (L: REC)	20	P110	P92	23	REW OUTPUT (H: ON)
POWER SUPPLY +5V	21	V <sub>DD</sub>	P93	22	PLAY OUTPUT (H: ON)

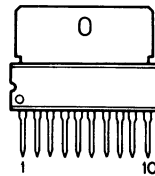
HA12088



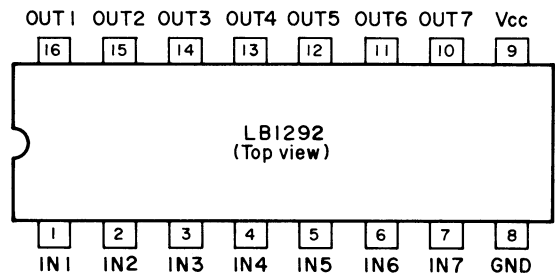
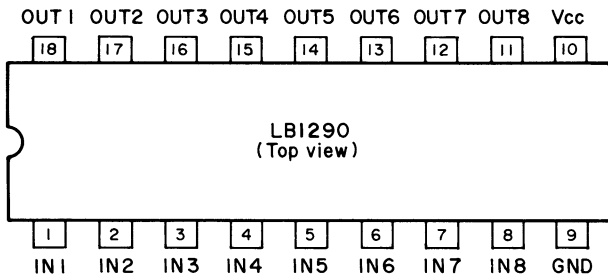
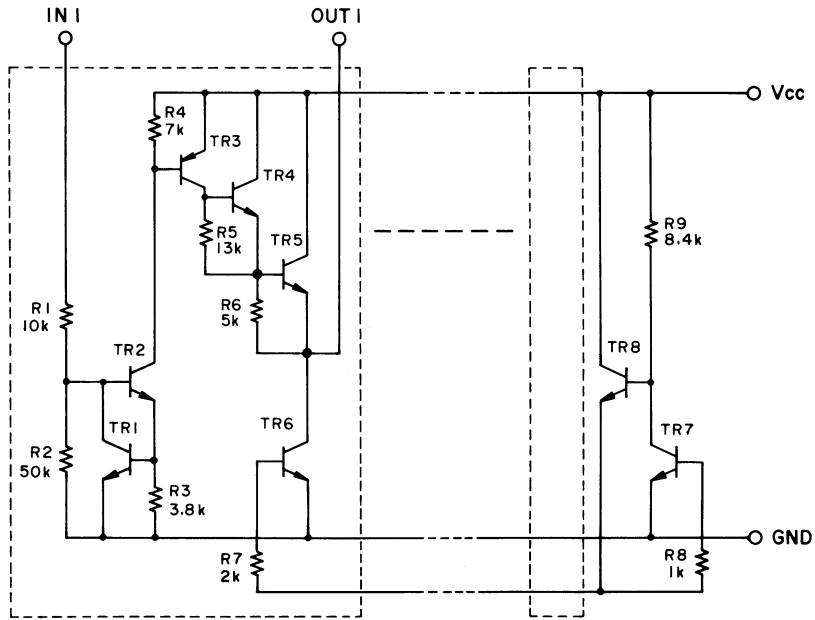
BA6109



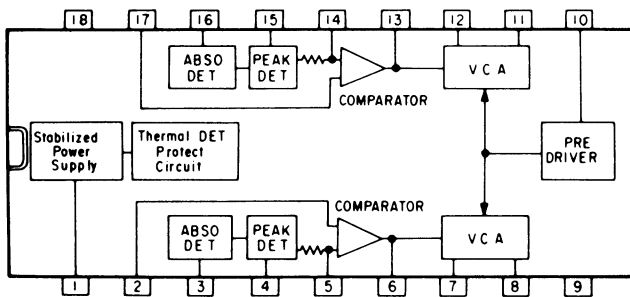
F IN	R IN	Vout1	Vout2
H	H	L	L
L	H	L	H
H	L	H	L
L	L	OPEN	OPEN



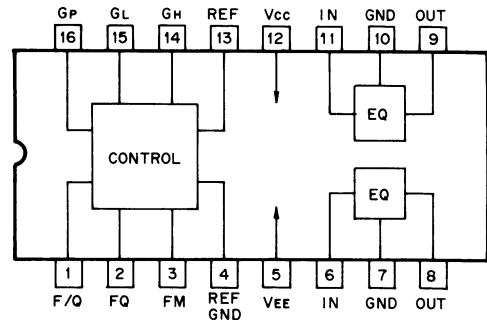
LB1290, LB1292

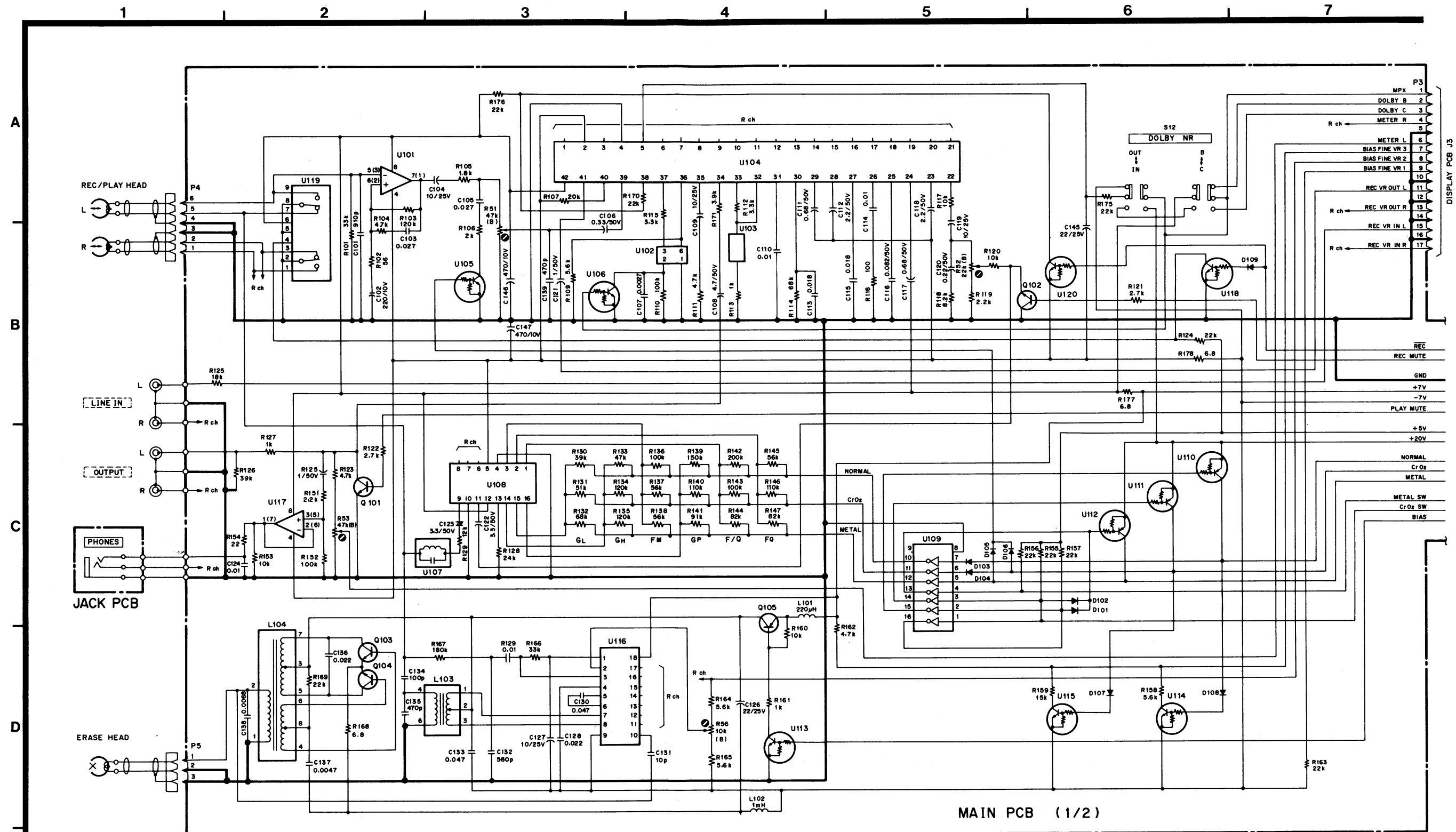


μPC1297CA



CXA1198AP





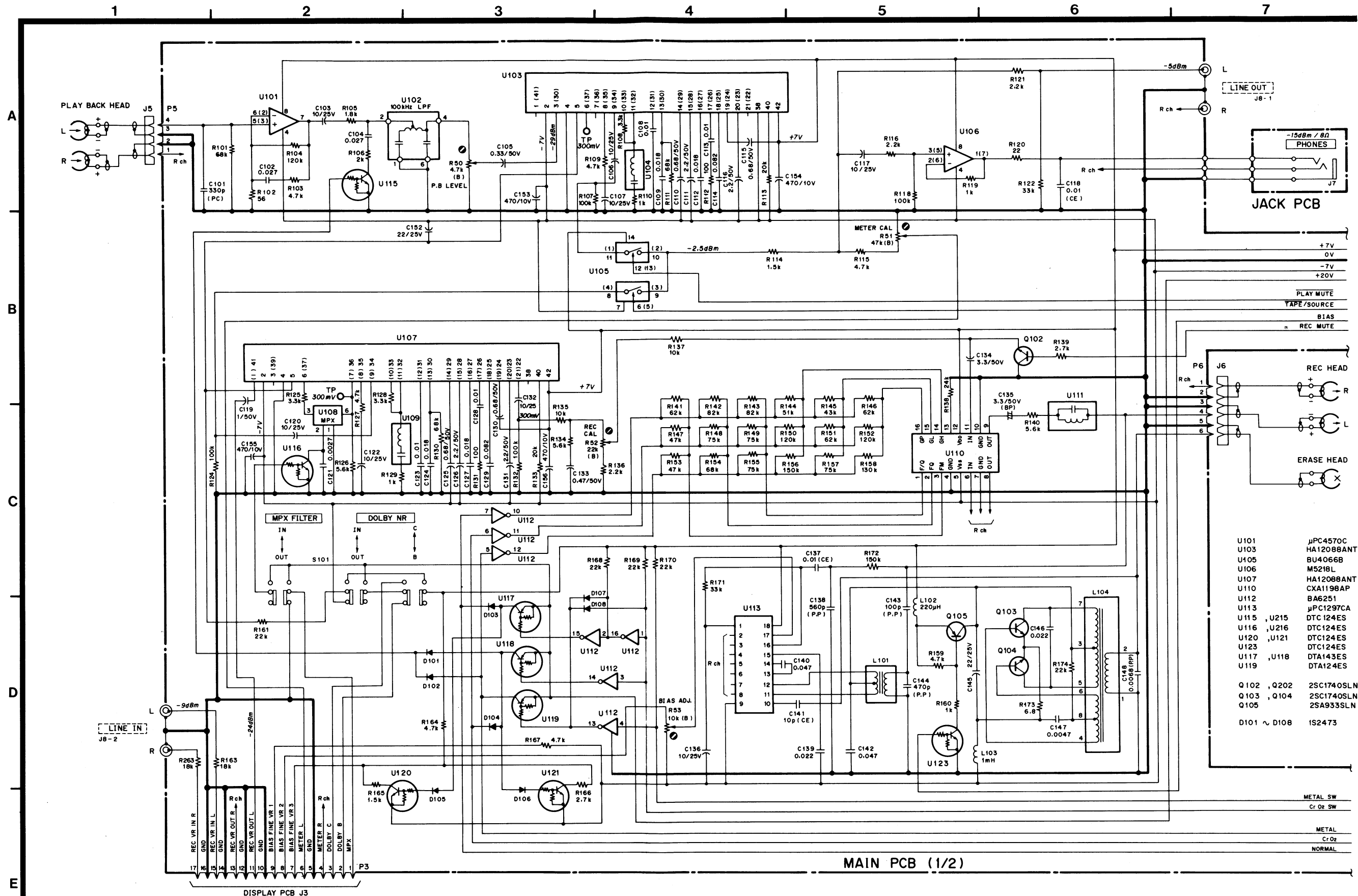
U101	μPC4570C	U110, U111	DTA 143ES	U118	DTC124ES	D101 ~ D104	ISS133T-77	Q101 ~ Q104	2SC1740SLN
U104	HA12088ANT	U112	DTA 124ES	U119	μPC1330HA	D105 ~ D109	IS2473	Q105	2SA933SLN
U105, U106	DTC124ES	U113 ~ U115	DTC 124ES	U120	DTC124ES				
U108	CXA1198AP	U116	μPC1297CA						
U109	BA6251	U117	M5218L						

**INSTRUCTIONS FOR SERVICE PERSONNEL**  
 BEFORE RETURNING APPLIANCE TO THE CUSTOMER, MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT.

**NOTES**  
 1. Resistor values are in ohms (k=kilo-ohms, M=megohms).  
 2. Capacitor values are in microfarads (p=picofarads).  
 3. Δ Parts marked with this sign are safety critical components. They must always be replaced with identical components-refer to the appropriate parts list and ensure exact replacement.

**注意**  
 1. 抵抗の単位はΩ (k=kΩ, M=MΩ)です。  
 2. コンデンサの単位はμF (p=pF)です。  
 3. Δマークのある部品は安全重要部品です。交換するときは必ずティアック指定の部品を使用してください。



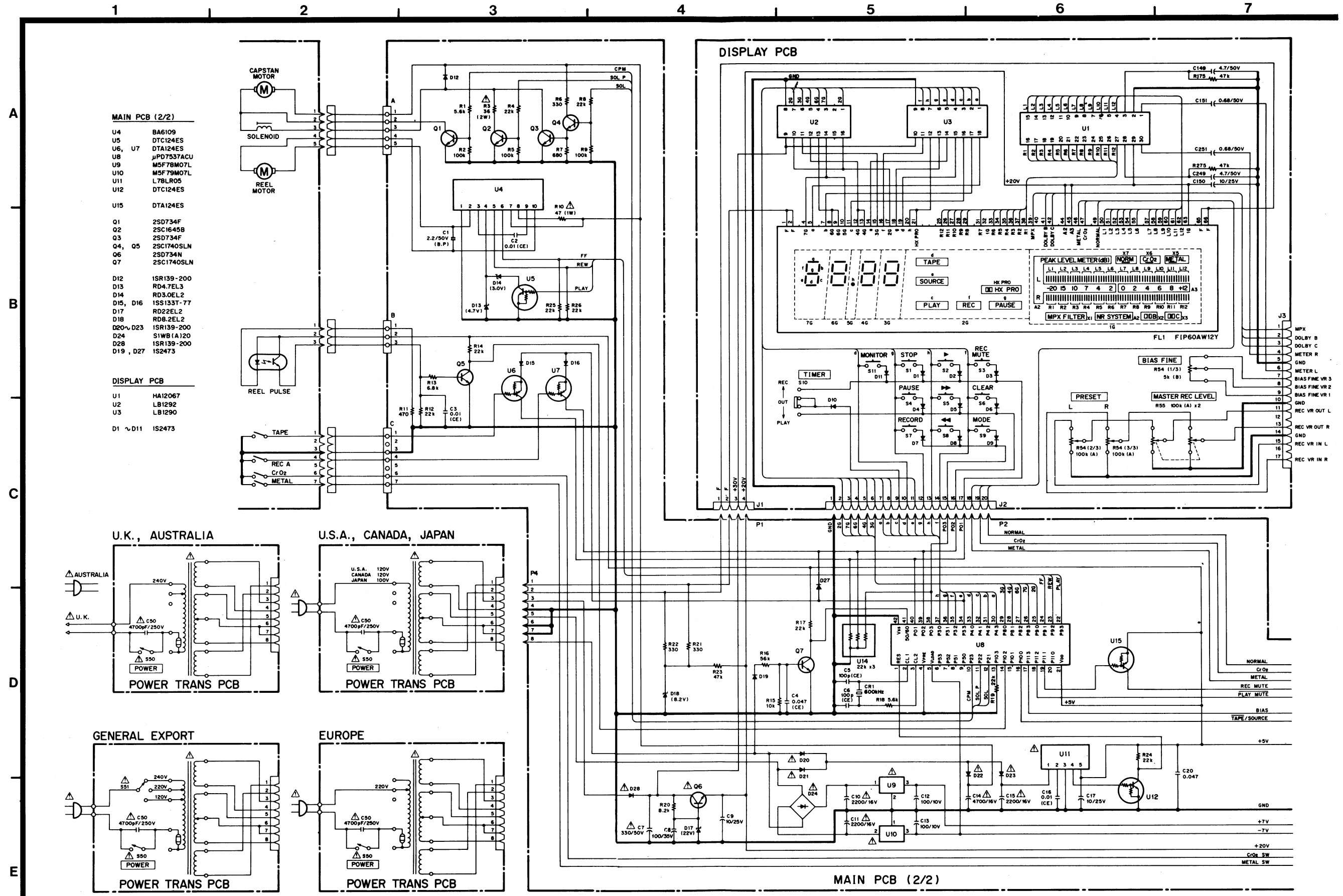


U101	μPC4570C
U103	HA12088ANT
U105	BU4066B
U106	M5218L
U107	HA12088ANT
U110	CXA1198AP
U112	BA6251
U113	μPC1297CA
U115, U215	DTC124ES
U116, U216	DTC124ES
U120, U211	DTC124ES
U123	DTC124ES
U117, U118	DTA143ES
U119	DTA124ES
Q102, Q202	2SC1740SLN
Q103, Q104	2SC1740SLN
Q105	2SA933SLN
D101 ~ D108	1S2473

**INSTRUCTIONS FOR SERVICE PERSONNEL**  
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# 103/102

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営業所にはサービス・センターが併設されています。

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