

TEAC®



SERVICE MANUAL

V-9

Stereo Cassette Deck

1 SPECIFICATIONS AND SERVICE DATA

SPECIFICATIONS

Track System 4-track, 2-channel stereo

2 Heads Erase, record /playback

Type of Tape Cassette tape, C-60 and C-90 (Phillips type)

Tape Speed 4.8 cm/s (1-7/8 ips)

Input (Level and impedance)

MIC: Specified input level; -57 dB (1.09 mV)/10 kohms
Min. input level; -67 dB (346 μ V)

LINE IN: Specified input level; -9 dB (275 mV)/50 kohms
Min. input level; -19 dB (86.9 mV)

DIN*: Min. input level; -45 dB (4.36 mV)
*Pursuant to DIN standards (Europe model only)

Output (level and load impedance)

OUTPUT: Spec. output level; -5 dB (436 mV)/50 kohms

PHONES: Spec. output level; -18 dB (97.5 mV)/8 ohms

Equalization

METAL: 3180 μ s + 70 μ s

Co (CrO₂): 3180 μ s + 70 μ s

NORMAL: 3180 μ s + 120 μ s

Head Configuration

1/2-track, 1-channel erase head

1/4-track, 2-channel record/playback head

3 Motors 1 DC servo motor (for capstan drive)

1 DC motor (for reel drive)

1 DC motor (for mechanism control)

Bias Frequency 100 kHz \pm 5 kHz

Operation Position Horizontal

Power Requirements

100/120/220/240V AC, 50/60 Hz, 30W (General Export Model)

120V AC, 60 Hz, 30W (U.S.A./Canada)

220V AC, 50 Hz, 30W (Europe)

240V AC, 50 Hz, 30W (U.K./Australia)

Weight 5.5 kg (12-2/16 lbs.) net

Dimensions See Fig. 2-2

SERVICE DATA

MECHANICAL

Tape Speed Deviation 3,000 Hz \pm 70 Hz

Tape Speed Drift 70 Hz

Wow and Flutter

Playback: 0.06% (WRMS)

Record/Playback: 0.25% (RMS)

Pinch Roller Pressure 400 g to 490 g (14.1 oz to 17.3 oz)

Reel Torque

Take-up: 50 to 65 g-cm (0.69 to 0.90 oz-inch)

Supply: 1.5 to 3 g-cm (0.021 to 0.042 oz-inch)

F.F.: More than 55 g-cm (0.76 oz-inch)

REW: 80 to 150 g-cm (1.1 to 2.1 oz-inch)

Fast Wind Time

85 sec. or less for MTT-501 (C-60)

Auto End-stop Time 3 sec. or less

TIMER activate Time 3 sec. or less

ELECTRICAL

Frequency Response

See Figs. 5-6 to 5-8.

Signal-to-noise Ratio

Playback **NORMAL:** 46 dB min.

Record/Playback

METAL, Co (CrO₂): 45 dB min.

NORMAL: 44 dB min.

S/N is improved by 5 dB at 1 kHz and 10 dB above 5 kHz when Dolby NR** is used.

Erase Efficiency 65 dB min. at 1 kHz (measured with input 10 dB higher than the specified input level).

Channel Separation 30 dB min. at 1 kHz

Adjacent Track Crosstalk 40 dB min. at 125 Hz

Total Harmonic Distortion 2.2% or less with METAL/Co(CrO₂)
2.0% or less with NORMAL

NOTES:

- Improvements may result in SPECIFICATIONS AND SERVICE DATA changes.
- Value of "dB" in the data refers to 0 dB (0.775 V), except where specified.

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.

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

2 CASE AND FRONT PANEL REMOVAL

Disassemble in number-order

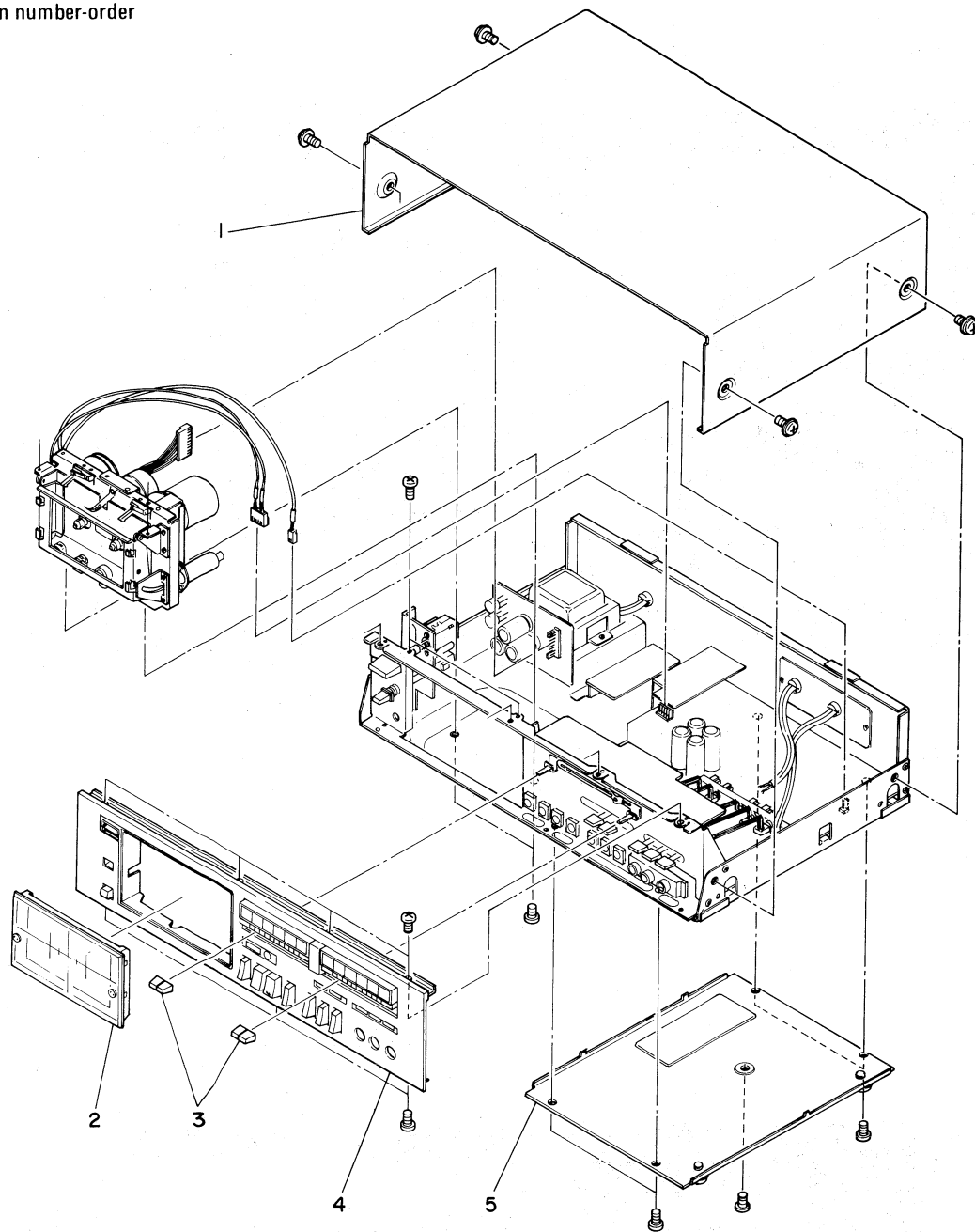


Fig. 2-1

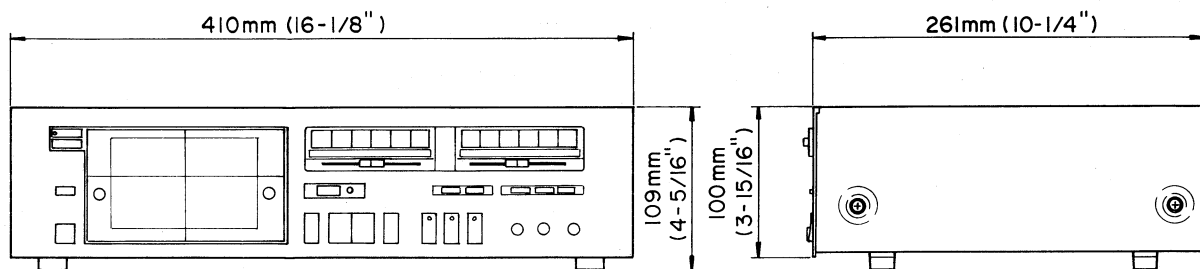


Fig. 2-2 Dimensions

3 PARTS LOCATION

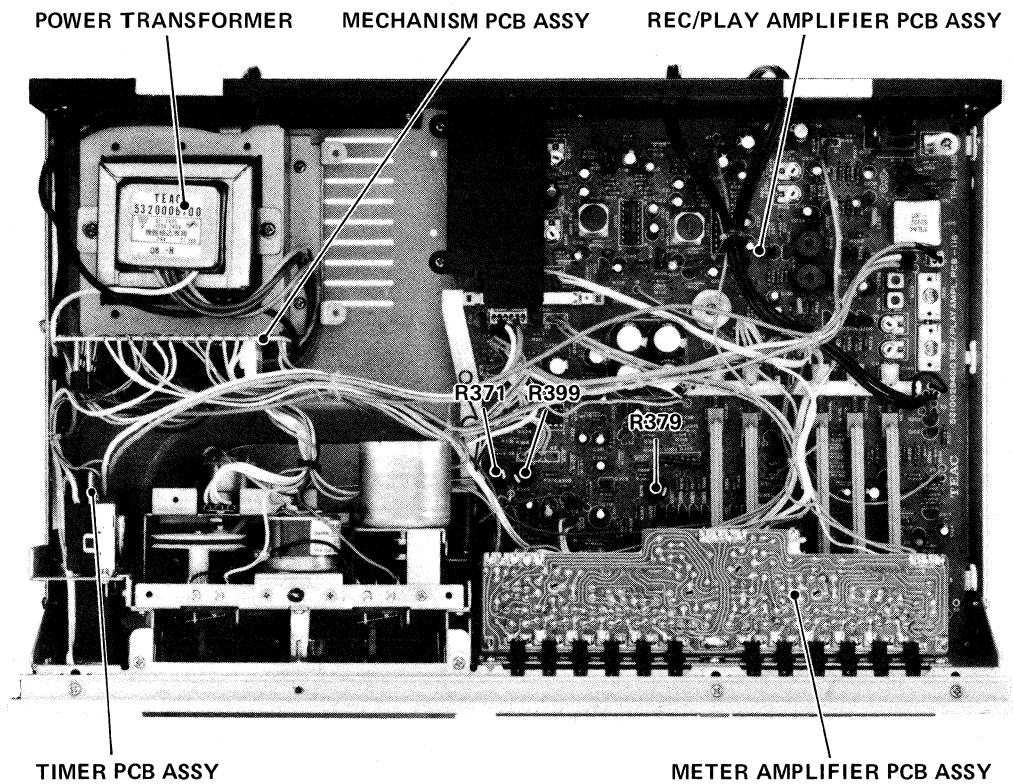


Fig. 3-1 Top view

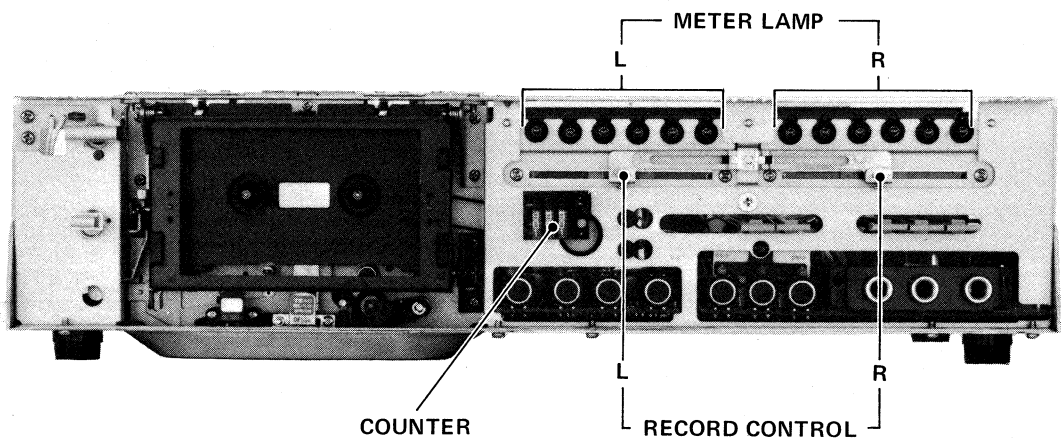
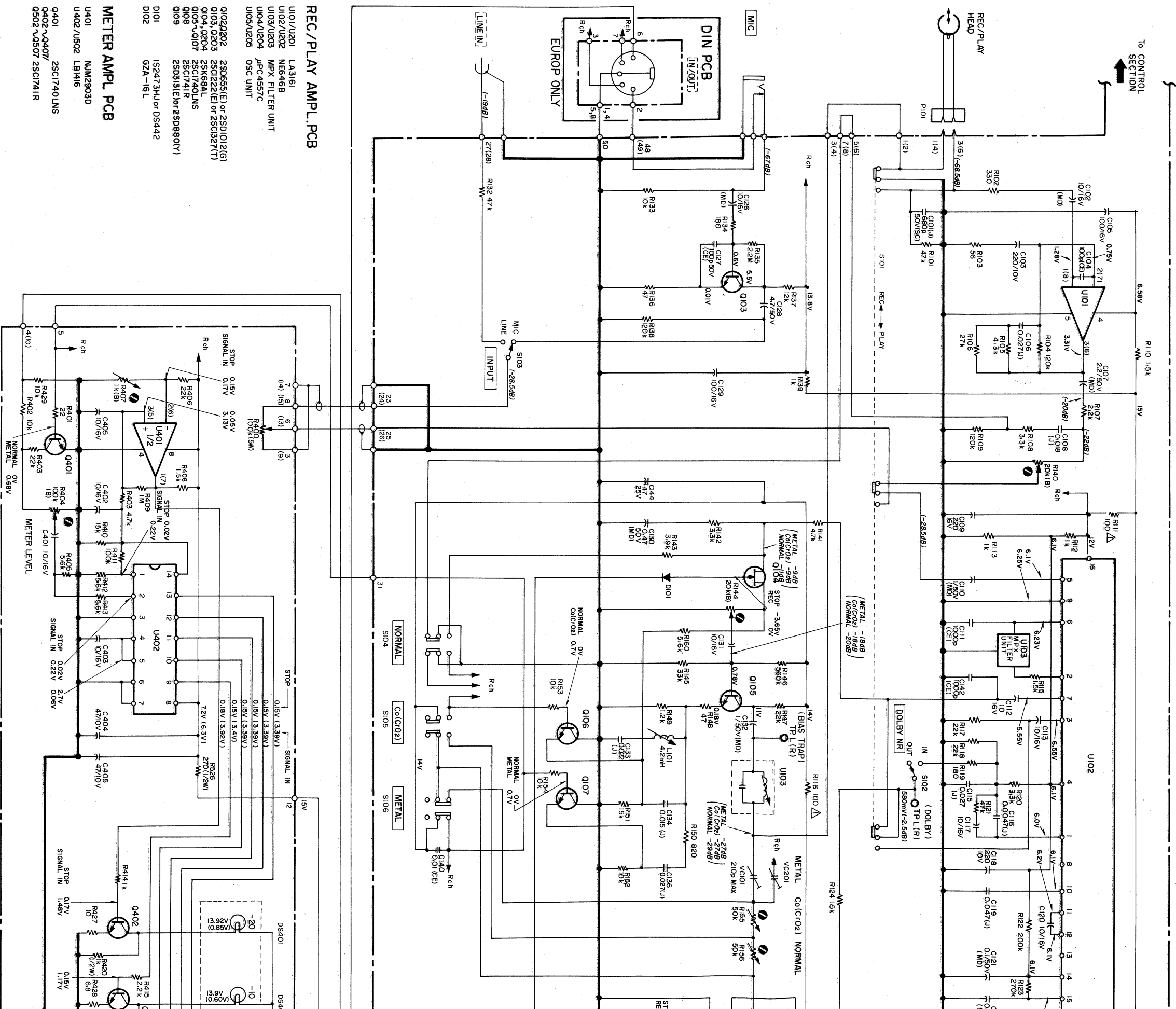
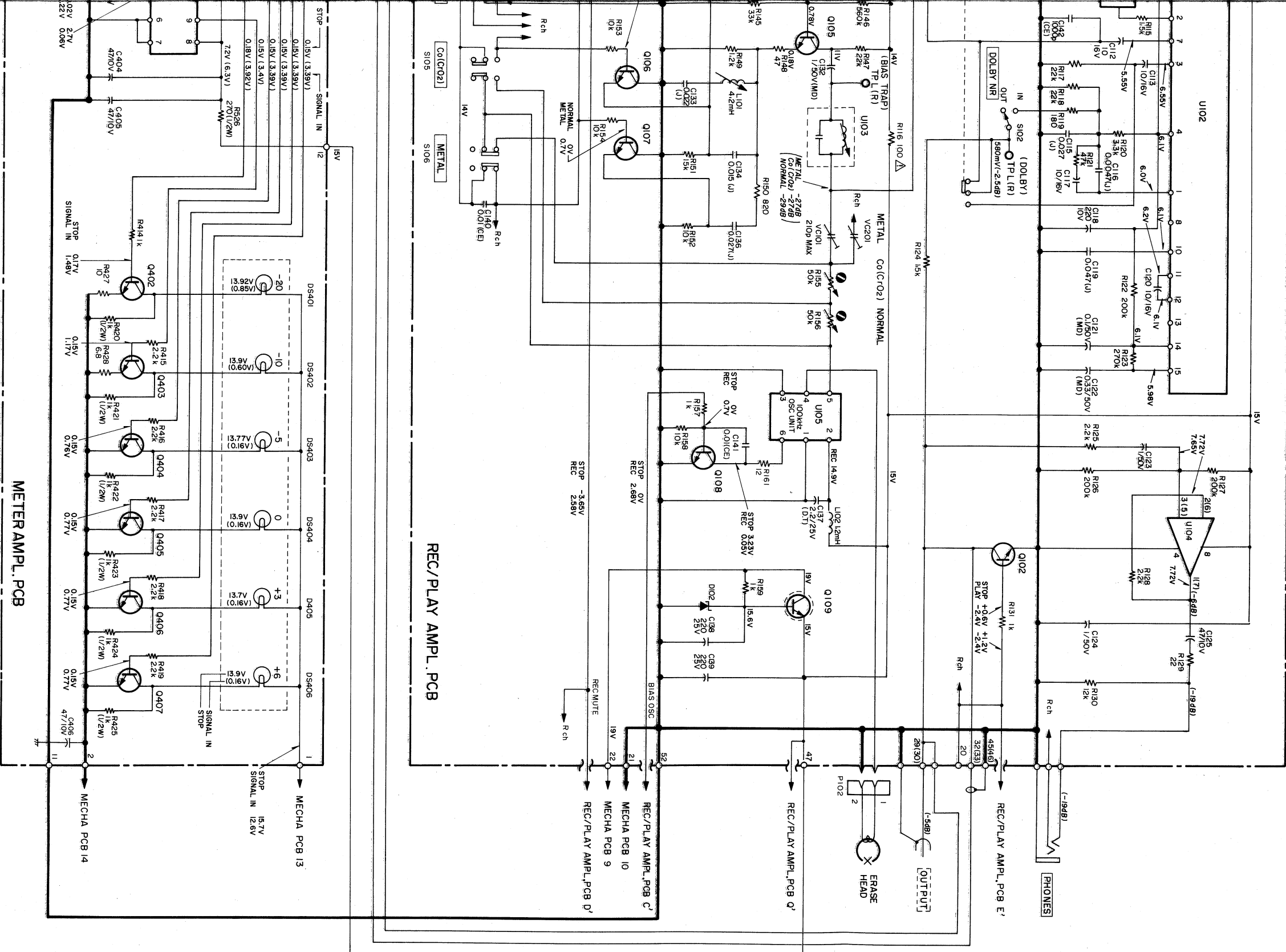


Fig. 3-2 Front view



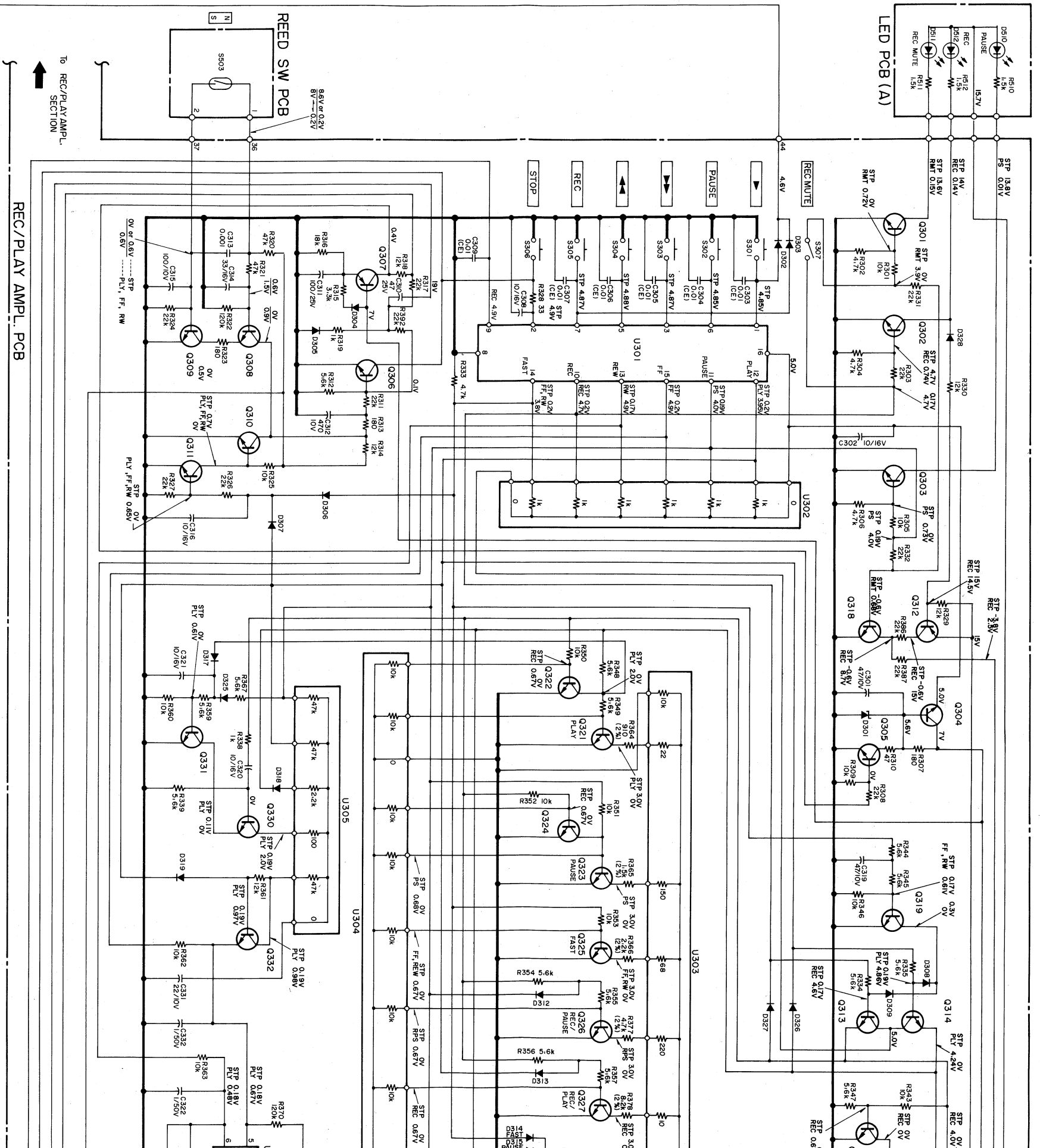
NOTES

1. Schematic diagram shown for left channel unless otherwise noted. Numbers in parenthesis indicate right channel terminals.
 2. All resistors are 1/2 W, ±5%, unless otherwise noted. Resistor values are in ohms (K=1,000 ohms, M=1,000,000 ohms).
 3. Capacitor values are in microfarads (p=picofarads).
 - (MD) : Electrolytic capacitor MD series
 - (CE) : Ceramic
 - (SC) : Polystyrene
 - (DT) : Dipped Tantalum
- All non-polarized capacitors are ±5% Mylar unless otherwise noted.



4. 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.

5. Voltage and level values are for reference only.
6. 0 dB=0.775V
7. Front panel indication
8. Rear panel indication
9. +B power supply circuit
10. Ceramic
11. Electrolytic capacitor MD series
12. Polystyrene
13. Dipped Tantalum
14. Non-polarized capacitors are ±5% M/yar unless otherwise noted.



REC/PLAY AMPL. PCB

U301	M54A10P	Q301 ~ Q303	25C1815 or 25C1740 or 25C945AK
U302	01-0187	Q304	25C9651Y1
U303	01-0187	Q305, Q306	25C1815 or 25C1740 or 25C945AK
U304	01-0188	Q307	25A733(P)
U305	01-0189	Q308 ~ Q311	25C1815 or 25C1740 or 25C945AK
U306	JPC4357C	Q312	25A733(P)

TIMER PCB

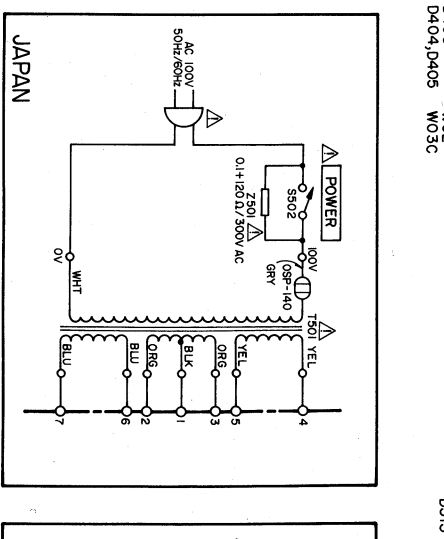
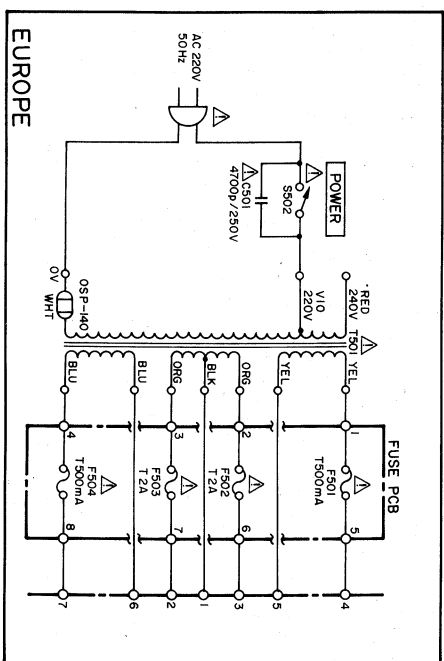
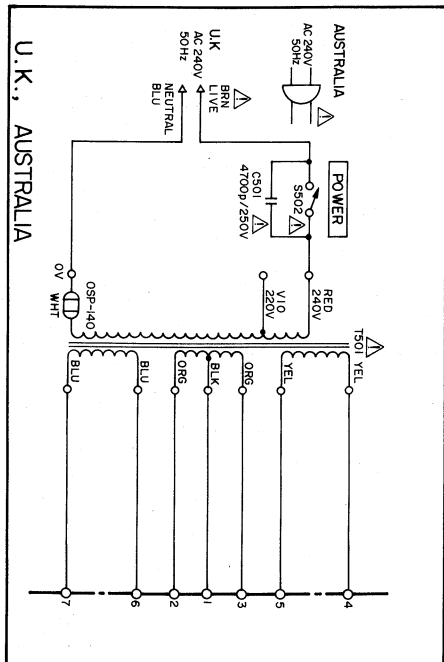
D301	G2A8 6U	D301 ~ D311	DS-442 or IS2473HJ
D302	D311	D312, D313	DS-442 or IS2473HJ
D303	D311	D314 ~ D319	DS-442 or IS2473HJ
D304	D311	D320	GZAS 6U
D305	D311	D321, D322	GZAI 1U

MECHA PCB

D401	W02	D402	K9PC102
D403	W02	D404, D405	W03C

LED PCB

D510	SLEF	D511	SLEF
D512	SLEF	D513	SLEF



NOTES

- All resistors are 1/4 watt, ±5%, unless otherwise noted. Resistor values are in ohms (k=1,000 ohms).
- All capacitor values are in microfarads. (CE): Ceramic (B.P.): Bipolar
- All non-polarized capacitors are ±5% Mylar unless otherwise specified as follows.
 REC: RECORD RPS: REC PAUSE RMT: REWIND
 PLY: PLAY PS: PAUSE
 FF: FAST FORWARD RW: REWIND

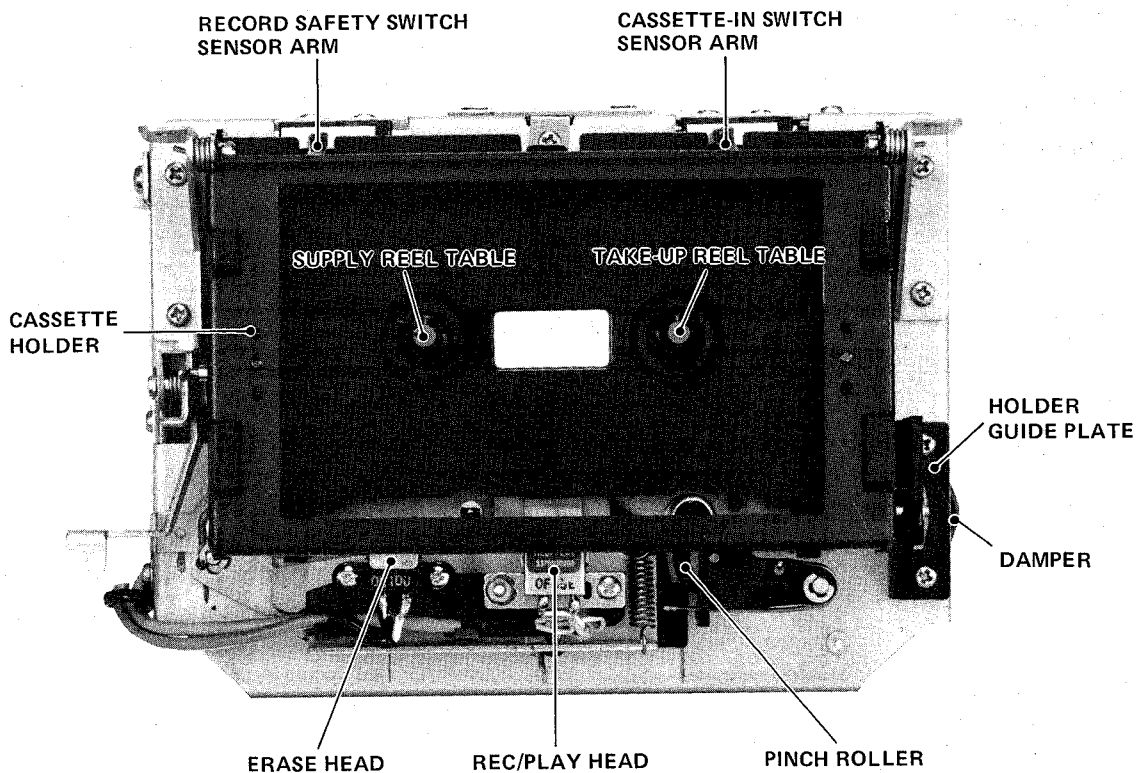


Fig. 3-3 Transport front view

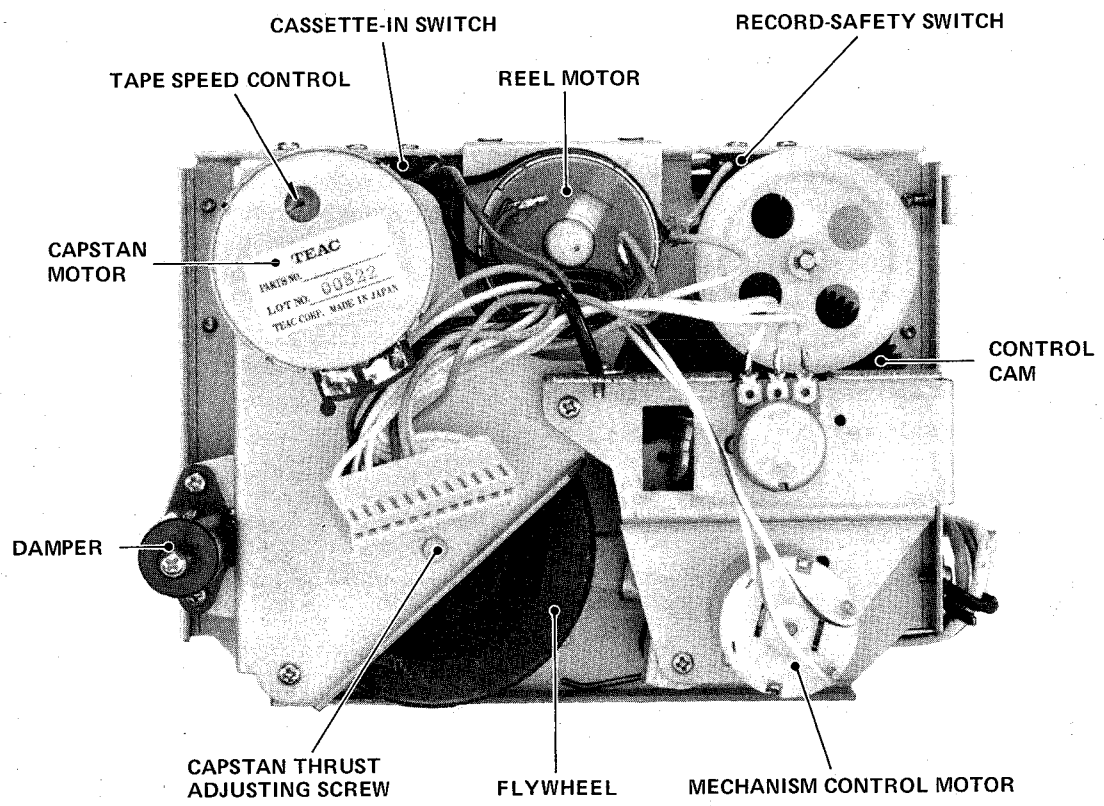


Fig. 3-4 Transport rear view

4 MECHANICAL ADJUSTMENT AND CHECKS

4-1 CAPSTAN ASSEMBLY THRUST

1. Turn the thrust adjusting screw so that thrust of the capstan shaft is from 0.1 mm to 0.2 mm. For the thrust adjusting screw location, see Fig. 3-4.

4-2 CASSETTE HOLDER

1. Adjust the holder guide plate position so that when the cassette holder in which the cassette tape is loaded is closed, the parallel condition shown in Fig. 4-1 is obtained.

Viewed from right side

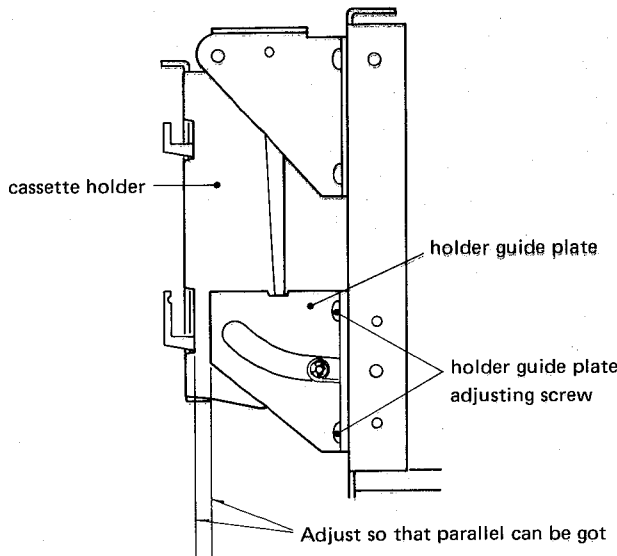


Fig. 4-1

4-3 DAMPER ADJUSTMENT

1. Load a TEAC MTT-506 tape (C-60) or equivalent and close the cassette holder.
2. Turn the air adjusting screw so that after pushing the EJECT button, the cassette holder opens completely, taking 0.5 to 1.5 seconds.

Note: Be careful not to turn the screw beyond permissible adjustment limit shown in Fig. 4-2.

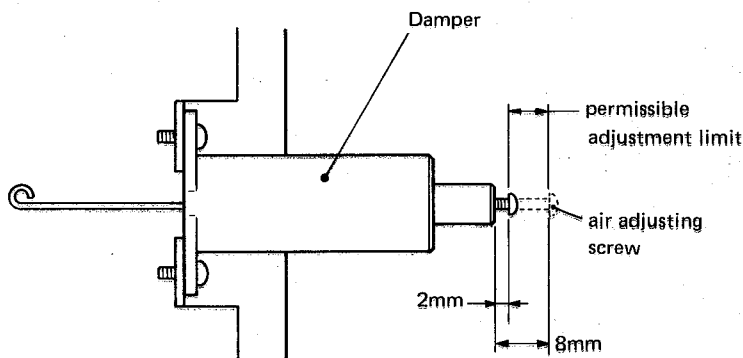


Fig. 4-2

4-4 MICRO SWITCH

1. Load any standard cassette and close the cassette holder.
2. Adjust mounting position of two micro switches, cassette-in switch (S401) and record safety switch (S402), so that the actuator position is in the setting range shown by Fig. 4-3.

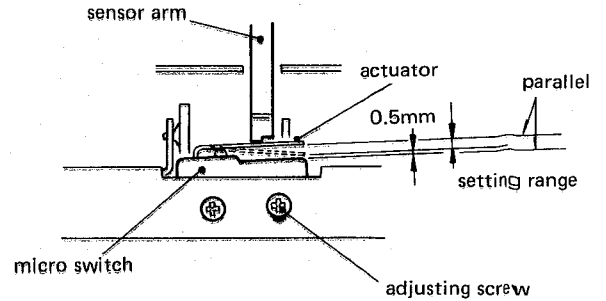


Fig. 4-3

4-5 CONTROL CAM

Note: For adjustor (R371, R379, R399) locations, see Fig. 3-1.

1. Load any cassette tape with the appropriate record-protect tab attached.
2. Push PLAY (▶) button together with REC button, then check that the center of marker ① coincides with position indicator of the reel motor mounting plate. If not, adjust by using R399.
3. After pushing STOP button, depress the PLAY button. Then check the center of marker ⑥ agrees with the indicator. R371 is provided for this adjustment.
4. Pushing the STOP button, check that the center of marker ③ coincides with the indicator as shown in Fig. 4-4. R379 is for this adjustment.
5. Check that when in REC/PAUSE mode the indicator is within range of marker ②.
6. In the same way as above, check the following.
F. FWD and REW modes: marker ④.
PLAY/PAUSE mode: marker ⑤.

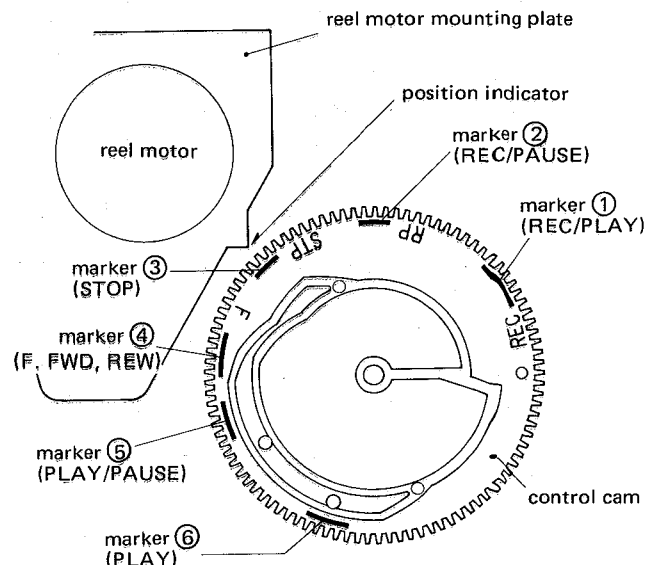


Fig. 4-4 Control cam positioning

4-6 PINCH ROLLER PRESSURE

1. With the cassette holder shut and no tape loaded, put the deck in play mode after pushing the cassette-in switch sensor arm upwards and holding it.
2. Hook a spring scale on the pinch roller assembly, as shown in the illustration.
3. Pull the scale down until there is sufficient force to separate the pinch roller from the capstan shaft.
4. Ease pressure until the pinch roller makes just enough contact with the capstan shaft so that the pinch roller just begins to turn. At this point, note the reading on the scale. It should be from 400 g to 490 g (14.1 oz. to 17.3 oz.)

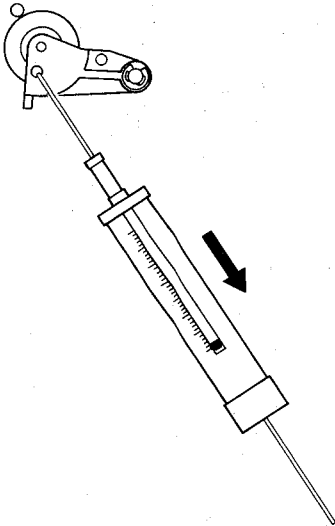


Fig. 4-5

4-7 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 values:
 Take-up: 50 to 65 g-cm (0.69 to 0.90 oz-inch)
 Supply: 1.5 to 3 g-cm (0.021 to 0.042 oz-inch)
 F.F.: More than 55 g-cm (0.76 oz-inch)
 REW: 80 to 150 g-cm (1.1 to 2.1 oz-inch)
2. Take-up torque may be adjusted if required. Within the take-up reel table you will notice three small "teeth" located at 120° around the hub and one marker "tooth" on the periphery. Torque is adjusted by pushing and slightly lifting the "tooth" (A) on the ramp* near the marker up or down. The ramps are like a three step stairway. Maximum torque is when the teeth sit on the highest steps.
 * This ramp has catches on each step.

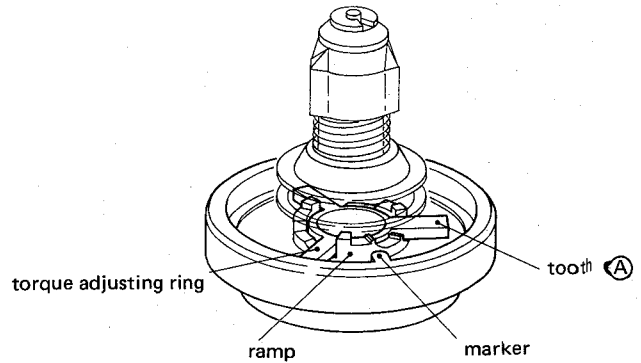


Fig. 4-6 Take-up reel table

4-8 TAPE SPEED

1. Connect a frequency counter to the deck as shown in Fig. 4-7.
2. Play a tape for more than five minutes to warm up the deck, then load a TEAC MTT-111 test tape containing a 3000-Hz test tone and play the test tape from the beginning.
3. While the tape is playing, use a common slotted screwdriver with the handle completely insulated from the blade, and adjust the control on the capstan motor (see Fig. 3-4) for a reading of 3015 to 3025 Hz on the frequency counter.
4. Play the tape at the beginning and at the end, and check that the speed deviation is within the prescribed limits by observing that the reading on the frequency counter never deviates more than ±70 Hz from 3000 Hz, nor drifts more than 70 Hz at any given time.

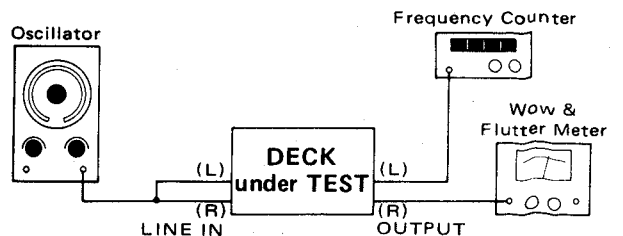


Fig. 4-7

4-9 WOW AND FLUTTER

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

- 1) **PLAYBACK**
 1. Connect a wow-and-flutter meter to the deck as shown in Fig. 4-7.
 2. Load and play a TEAC MTT-111 test tape.
 3. Check that the reading on the wow-and-flutter meter is within 0.06% (WRMS).
- 2) **RECORD/PLAYBACK**
 4. Load a TEAC MTT-501 test tape (blank) and record a 3000-Hz signal.
 5. Rewind the tape to the beginning of the recorded section, and play it.
 6. The wow and flutter should not be more than 0.25% (RMS).

4-10 LUBRICATION

Lubrication is only required when parts are replaced. For this purpose, use the oil and grease specified below.

- Oil: TEAC spindle oil (from TEAC TZ-255 oil kit), Mobil D.T.E. Oil Light, or equivalent
- Grease: ORE-LUBE G1/3 or equivalent

1. Apply a drop of oil with an oil applicator to a point about 1/3 the way down the shaft (from the free end) of the flywheel, then insert the shaft into the capstan housing.
2. Apply a suitable amount of light grease to the well of the flywheel bearing.

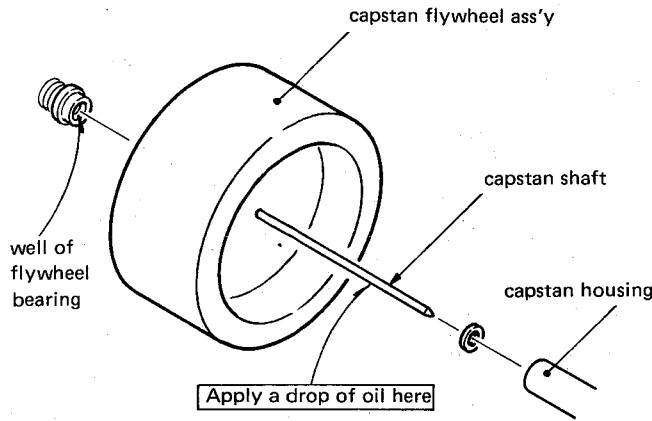


Fig. 4-8

4-11 VOLTAGE SELECTION (FOR GENERAL EXPORT MODELS)

1. Always disconnect the power line cord before making these adjustments.
2. Remove the top cover of the deck by removing the screws from the sides.
3. Locate the voltage selector, shown in the illustration (near the power transformer).
4. Loosen the two screws in the jumper bar and move the bar so that it jumpers the opposing terminals marked with the required voltage (100, 120, 220 or 240).
5. Retighten the screws and replace the top cover.

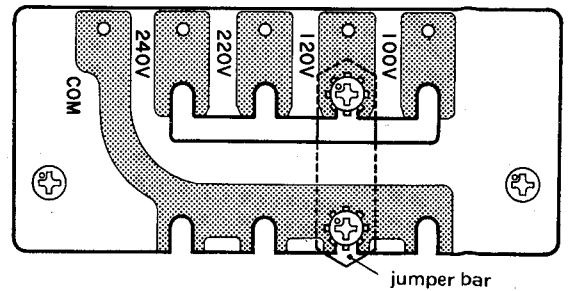


Fig. 4-9

5 ELECTRICAL ADJUSTMENT AND CHECKS

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. and test point designations indicate L-ch/R-ch. (Example: R404/R504)
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 1M-ohms or more.
6. Note the "Deck settings" at the top of each chart. The settings apply to all checks for a specific chart unless explicitly stated otherwise.

-70 dB or more ... What does it mean?
 In reference to some specifications, you may come across an expression like: "-70 dB or more". This means that the lower the value of this specification, the greater the absolute value of the specification and the better the performance of the deck. For instance, a noise floor of -76 dB is better than -70 dB, because this means that the level of noise is lower. So in this case, "-70 dB or more" means at least as good a value as -70 dB and maybe even better, i.e., -71 dB.

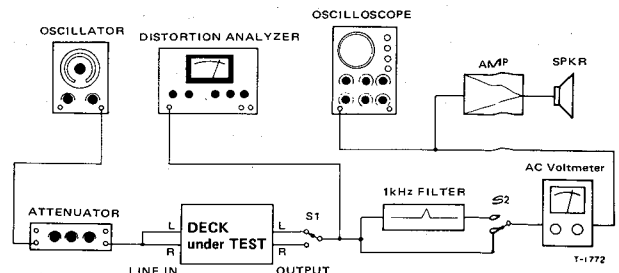


Fig. 5-1 Basic test setup

TEAC test tapes:

MTT-150: For Dolby level calibration
 MTT-316: For playback frequency response check for METAL, Co(CrO₂)
 MTT-501: For S/N check with NORMAL

Deck settings:
 DOLBY NR sw: OUT
 TAPE (BIAS/EQ) sw: METAL

5-1 PLAYBACK PERFORMANCE

ITEM	SETTING	INPUT SIGNAL	ADJUST (or CHECK)	MEASURING POINT: RESULT	REMARKS
1. REC/PLAY head azimuth	Connection: Fig. 5-2 OUTPUT cont.: convenient output level position	MTT-150	Check	OUTPUT: Phase: within 45°	Refer to Fig. 5-4
		MTT-316 (10 kHz)	Azimuth nut of R/P heads (Fig. 5-3)	OUTPUT: Max. output at L- & R-ch's (on VTVM)	
2. Specified output level	—	MTT-150	R140/R240	TP. L/TP. R (DOLBY) 580 mV (-2.5 dB)	Spec. output level
	—	MTT-150	Check	OUTPUT: -5 dB ± 1 dB (388 to 489 mV)	
3. Peak level meter	TAPE sw: Co(CrO ₂)	MTT-150	R404/R504	Peak level meter: "0 dB" light: to go ON	
	TAPE sw: METAL	MTT-150	Check	Peak level meter: "0 dB" light: to go OFF	
4. Frequency response	TAPE sw: METAL If 10 kHz output is lower than spec., cut R106 and/or R206 on R/P PCB.	MTT-316	Check	OUTPUT: Fig. 5-6	
	TAPE sw: NORMAL	MTT-316	Check	OUTPUT: At 10 kHz should be approx. 4 dB higher than measured in above step.	
5. Signal-to-noise ratio	TAPE sw: NORMAL	Fully-erased tape: (Use bulk tape eraser)	Check	OUTPUT: 46 dB min.	Ratio of spec. output of -5 dB to noise

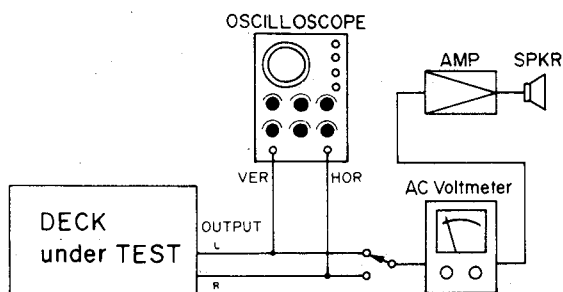


Fig. 5-2 Test setup for azimuth check

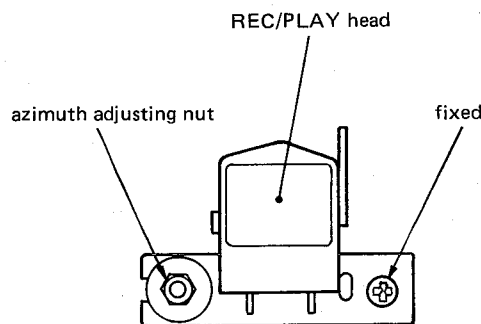


Fig. 5-3 Azimuth nut location

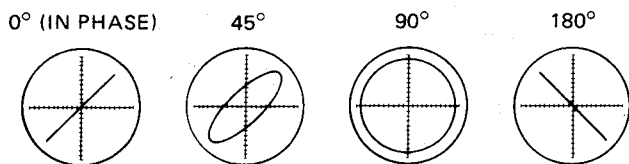


Fig. 5-4 Confirming phase relationship

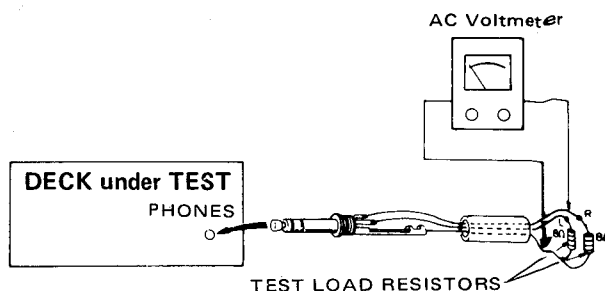


Fig. 5-5 Test setup for headphone check

5-2 MONITOR PERFORMANCE

Deck setting:
 REC-PAUSE mode
 DOLBY NR sw.: OUT
 INPUT sw.: LINE

ITEM	SETTING		INPUT SIGNAL	ADJUST (or CHECK)	MEASURING POINT:		REMARKS		
					RESULT				
6. Min. input level	RECORD cont.: Max.	INPUT sw: MIC	MIC: 400 Hz/-67 dB (346 μV)	Check	OUTPUT: -5 dB ±3 dB (308 to 615 mV)		MIC min. input level		
		INPUT sw: MIC	DIN IN: 400 Hz/-45 dB (4.36 mV)	Check	OUTPUT: -5 dB ±3 dB (308 to 615 mV)		DIN min. input level (For European models)		
		INPUT sw: LINE	LINE IN: 400 Hz/-19 dB (86.9 mV)	Check	OUTPUT: -5 dB ±3 dB (308 to 615 mV)		LINE min. input level		
7. Specified LINE input level	—		LINE IN: 400 Hz/-9 dB (275 mV)	RECORD cont. (L/R)	TP. L/TP. R (DOLBY) 580 mV (-2.5 dB)		Specified setting of RECORD cont.		
	—		LINE IN: 400 Hz/-9 dB (275 mV)	Check	OUTPUT: -5 dB ±1 dB (388 to 489 mV)				
IMPORTANT: Do not change the setting of the Record controls after establishing their setting as above.									
8. Headphone output level	Connection: Fig. 5-5		LINE IN: 400 Hz/-9 dB (275 mV)	Check	PHONES: -18 dB ±3 dB (69.0 to 138 mV)		8 ohm load		
9. Peak level meter	TAPE sw: Co (CrO ₂) or NORMAL	LINE IN 400 Hz	LINE IN: 400 Hz/-9 dB (275 mV)	Check	Peak level meter: "0 dB" light: to go ON				
			LINE IN: 400 Hz/-29 dB (27.5 mV)	R407/R507	Peak level meter: "-20 dB" light: to go ON				
				Check	Peak level meter: When TAPE switch is changed to METAL, "-20" light is to go OFF.				
			Level at which peak level meter's light goes ON when input level is raised.						
			P. l. meter's light	Input level					
			-20 dB	-29 dB ±3 dB (19.5 to 38.8 mV)					
			-10 dB	-19 dB ±2 dB (69.0 to 109 mV)					
			-5 dB	-14 dB ±1.5 dB (130 to 184 mV)					
0 dB	-9 dB ±1.5 dB (231 to 327 mV)								
+3 dB	-6 dB ±1.5 dB (327 to 461 mV)								
OVER	-3 dB ±1.5 dB (461 to 652 mV)								

DECK settings:
DOLBY NR sw.: OUT
INPUT sw.: LINE

TEAC test tapes:
MTT-5061: For record test with **Co (CrO₂)**
MTT-501: For record test with **NORMAL**
MTT-5072: For record test with **METAL**

5-3 RECORDING PERFORMANCE

Record Controls (L/R): Specified position (item 7)

ITEM	SETTING	INPUT SIGNAL	ADJUST (or CHECK)	MEASURING POINT: RESULT	REMARKS
10. BIAS trap	Record-pause mode	LINE IN: No signal	U106/U206	TP. L/TP. R (BIAS TRAP TP) Min. reading	
11. Record bias	1) Turn trim pots R155 and R156 fully clockwise for each trim pot to have minimum value. Then adjust in the order of steps (2) (3) (4).				
	2) TAPE sw.: METAL Tape: MTT-5072	LINE IN: 400Hz & 6.3 kHz alternately/-42 dB (6.15 mV)	C145/C245	OUTPUT: Nearly equal level at both frequencies	
	3) TAPE sw.: Co (CrO ₂) Tape: MTT-5061	LINE IN: 400 Hz & 6.3 kHz alternately/-42 dB (6.15 mV)	R155.....	OUTPUT: Nearly equal level at both frequencies	... For L- & R-ch's
	4) TAPE sw.: NORMAL Tape: MTT-501	LINE IN: 400 Hz & 6.3 kHz alternately/-42 dB (6.15 mV)	R156.....	OUTPUT: Nearly equal level at both frequencies	... For L- & R-ch's
12. Record level	TAPE sw.: METAL Tape: MTT-5072	LINE IN: 400 Hz/-12 dB (195 mV)	R144/R244	OUTPUT: -8 dB (308 mV)	
	TAPE sw.: Co(CrO ₂) Tape: MTT-5061	LINE IN: 400 Hz/-12 dB (195 mV)	Check	OUTPUT: -8 dB ±1.5 dB (259 to 367 mV)	
	TAPE sw.: NORMAL Tape: MTT-501	LINE IN: 400 Hz/-12 dB (195 mV)	Check	OUTPUT: -8 dB ±1.5 dB (259 to 367 mV)	
13. Frequency response	TAPE sw.: METAL Tape MTT-5072	LINE IN: Required signal/ -42 dB (6.15 mV)	L101/L201	OUTPUT: Fig. 5-7	
	TAPE sw.: Co(CrO ₂) Tape: MTT-5061	LINE IN: Required signal/ -42 dB (6.15 mV)		OUTPUT: Fig. 5-7	
	TAPE sw.: NORMAL Tape: MTT-501	LINE IN: Required signal/ -42 dB (6.15 mV)		OUTPUT: Fig. 5-8	
If frequency response is out of specification, recheck #11. "Record bias".					
14. Total harmonic distortion	Same as 12 above.	LINE IN: 400 Hz/-12 dB (195 mV)	Check	OUTPUT: 2.2% or less with METAL, Co(CrO ₂) 2.0% or less with NORMAL	
15. Signal-to-noise ratio	TAPE sw.: METAL Tape: MTT-5072	LINE IN: 1 kHz/-9 dB (275 mV) ↓ no signal	Check	OUTPUT: 45 dB min.	Ratio of specified output of -5 dB to noise
	TAPE sw.: Co(CrO ₂) Tape: MTT5061	LINE IN: 1 kHz/-9 dB (275 mV) ↓ no signal	Check	OUTPUT: 45 dB min.	
	TAPE sw.: NORMAL Tape: MTT-501	LINE IN: 1 kHz/-9 dB (275 mV) ↓ no signal	Check	OUTPUT: 44 dB min.	

ITEM	SETTING	INPUT SIGNAL	ADJUST (or CHECK)	MEASURING POINT: RESULT	REMARKS
16. Erase efficiency	<ul style="list-style-type: none"> • Connection is same as in Fig. 5-1, but engage 1-kHz filter. • Record a 1-kHz signal. Rewind tape to midpoint of recorded portion. Record a "no signal" portion. Find the difference between the 1-kHz portion and the "no-signal" portion. 				
	TAPE sw.: METAL Tape: MTT-5072	LINE IN: 1 kHz/+1 dB (0.869 V) ↓ no signal	Check	OUTPUT: 65 dB min. ratio	Ref. Output level: +5 dB (1.38 V)
17. REC MUTE function	<ul style="list-style-type: none"> • Connection: Fig. 5-1, but engage 1-kHz filter. • Record a 1-kHz signal. Push REC MUTE button for several seconds. (At this time, make sure LED on the button lights). Rewind and play the tape. Find the difference between the 1-kHz portion and the "no-signal" portion. 				
	TAPE sw.: Co(CrO ₂) Tape: MTT-5061	LINE IN: 1 kHz/+1 dB (0.869 V) ↓ no signal	Check	OUTPUT: 65 dB min. ratio	Ref. Output level: +5 dB (1.38 V)
18. Channel separation	<ul style="list-style-type: none"> • Connection Fig. 5-1, but do not connect LINE IN (R), and engage 1-kHz filter. • Set the deck to record mode. Find the difference between the 1-kHz recorded portion (L-ch) and the "no signal" portion (R-ch). 				
	TAPE sw.: Co(CrO ₂) Tape: MTT-5061	LINE IN: L-ch 1 kHz/-9 dB (275 mV) R-ch No signal	Check	OUTPUT: 30 dB min. ratio	
19. Adjacent track crosstalk	<ul style="list-style-type: none"> • Connection: Fig. 5-1, but do not connect LINE IN (L) and OUTPUT (L). • Record a 125-Hz signal on R-ch and note output level. Invert tape and play R-ch track. Check leakage level against the output reference of previously recorded portion. 				
	TAPE sw.: Co(CrO ₂) Tape: MTT-5061	LINE IN: L-ch No signal R-ch 125 Hz/-9 dB (275 mV)	Check	OUTPUT: 40 dB min. ratio	
20. Dolby NR effect	<ul style="list-style-type: none"> • Record a 1-kHz signal with DOLBY NR switch OUT. Play this portion with DOLBY NR switch set to OUT and set to IN. Obtain the difference in output level between OUT and IN positions. Repeat the above process using a 10-kHz signal. 				
	TAPE sw.: Co(CrO ₂) Tape: MTT-5061	LINE IN: 1 kHz/-32 dB (19.5 mV)	Check	OUTPUT: Variation 3 dB ~ 8 dB	
	TAPE sw.: Co(CrO ₂) Tape: MTT-5061	LINE IN: 10 kHz/-42 dB (6.15 mV)	Check	OUTPUT: Variation 8 dB ~ 12 dB	

5-4 FREQUENCY RESPONSE

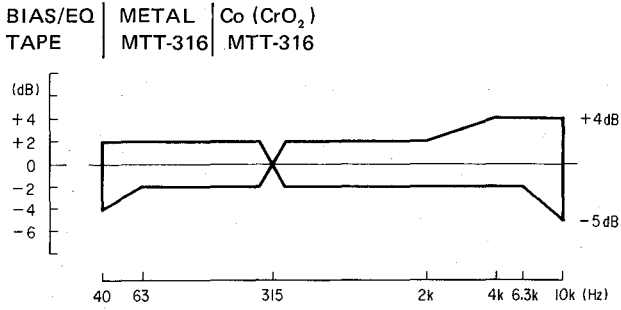


Fig. 5-6 Playback frequency response

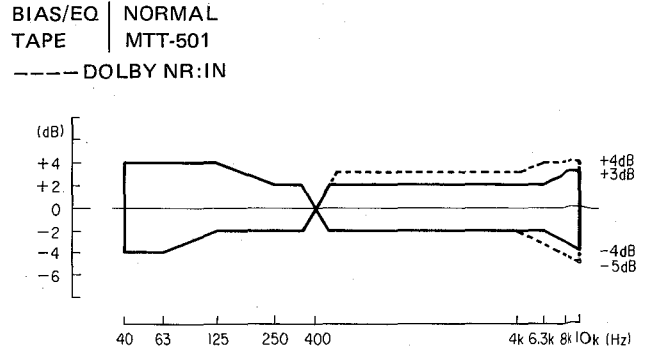


Fig. 5-8 Overall frequency response [NORMAL]

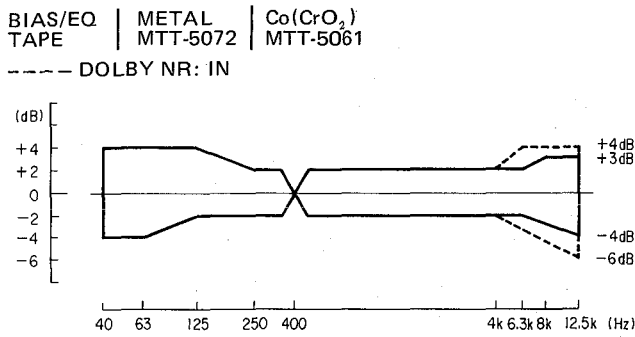


Fig. 5-7 Overall frequency response [METAL, Co (CrO₂)]

5-5 ADJUSTMENT AND TEST POINT LOCATIONS

REC/PLAY AMPL. PCB

R140/R240	Playback level
R144/R244	Record level
R155	Record bias - Co(CrO ₂)
R156	Record bias - NORMAL
C145/C245	Record bias - METAL
L101/L201	Record frequency response
U106/U206	Bias trap

METER AMPL. PCB

R404/R504	Peak level meter - playback
R407/R507	Peak level meter - monitor

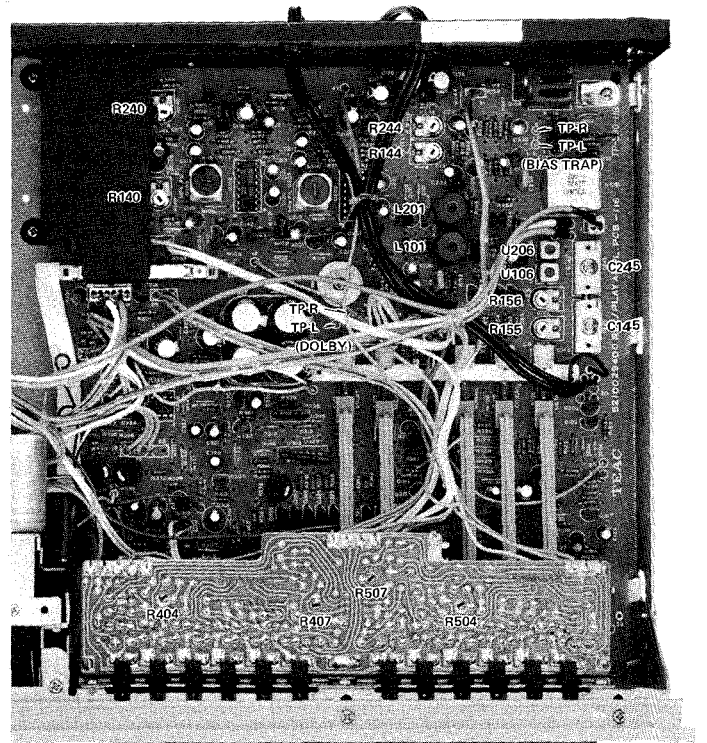
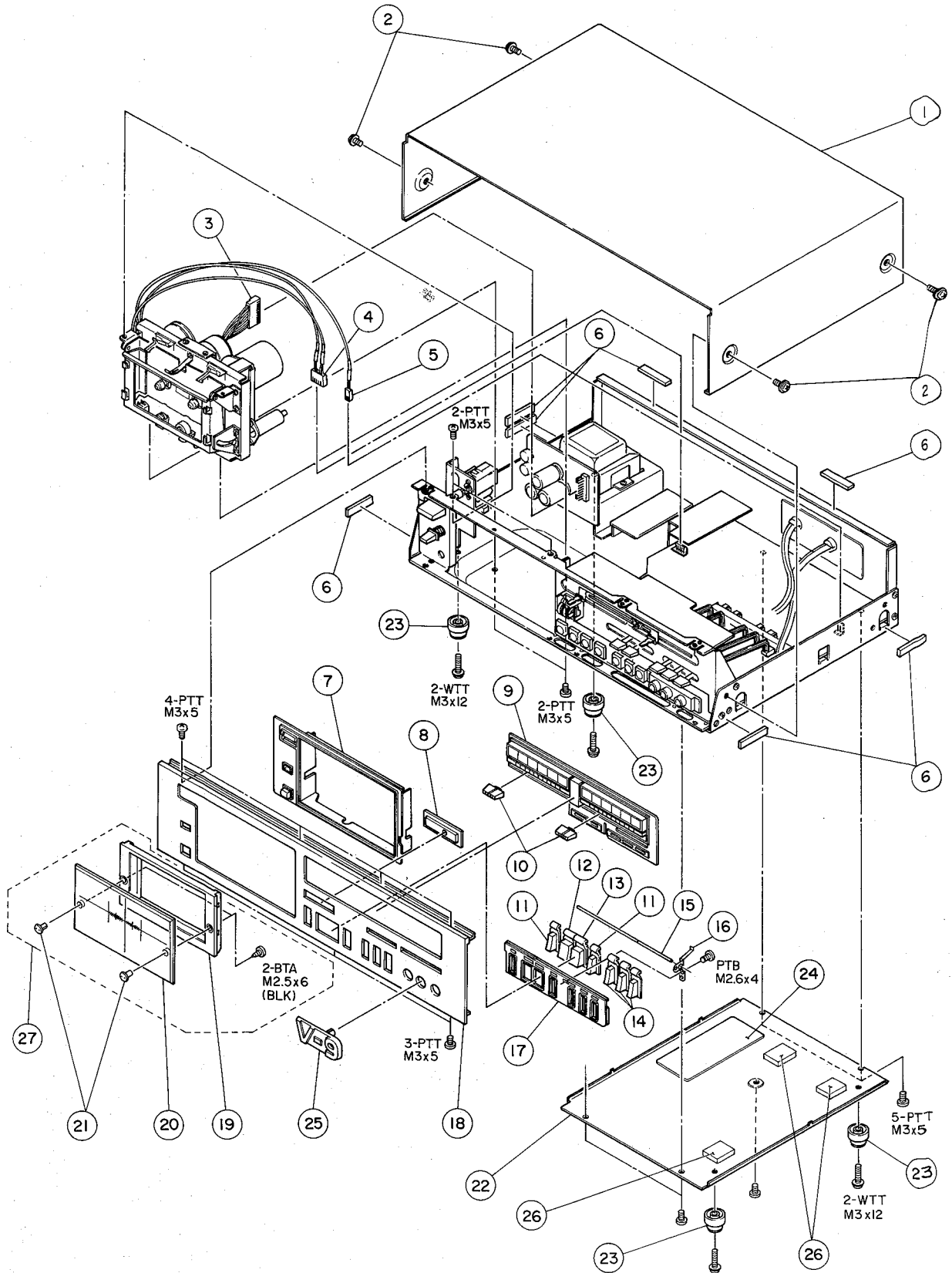


Fig. 5-9

6 EXPLODED VIEWS AND PARTS LIST

EXPLODED VIEW - 1



Parts marked with *require longer delivery time.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1 - 1	*5800119500	Cover, Top	
1 - 2	*5783114006	Screw, M4 x 6 (BLK Ni)	
1 - 3	*5122174000	Connector Socket, 12P (WHT)	
1 - 4	*5122168000	Connector Socket, 6P (WHT)	
1 - 5	*5122164000	Connector Socket, 2P (WHT)	
1 - 6	*5555570000	Cushion, Top Cover; B	
1 - 7	*5800112701	Escutcheon Assy, Cassete	
1 - 8	*5800118001	Escutcheon, Counter	
1 - 9	*5800111201	Escutcheon Assy, Meter [All except US]	
	*5800145901	Escutcheon Assy, Meter [US]	
1 - 10	5800118100	Knob, VR; A	
1 - 11	5800113501	Button, B	
1 - 12	5800113701	Button, D	
1 - 13	5800113601	Button, C	
1 - 14	5800113402	Button, A	
1 - 15	*5800113901	Shaft, Button	
1 - 16	*5800114001	Plate, GND; A	
1 - 17	*5800113800	Escutcheon, Control	
1 - 18	*5640012700	Panel Assy, Front [All except US]	
	*5640012710	Panel Assy, Front [US]	
1 - 19	*5800122500	Cover, Cassete; (2)	Part of 1-27
1 - 20	*5800123200	Cover, Cassete; (1)	Part of 1-27
1 - 21	*5800116800	Bushing	Part of 1-27
1 - 22	*5800112301	Cover, Bottom	
1 - 23	*5800116100	Foot	
1 - 24	*5800125901	Plate, Shield; B	
1 - 25	*5800142300	Cover, Jack	
1 - 26	*5800148500	Spacer	
1 - 27	5640012800	Cover Assy, Cassete	

INCLUDED ACCESSORIES

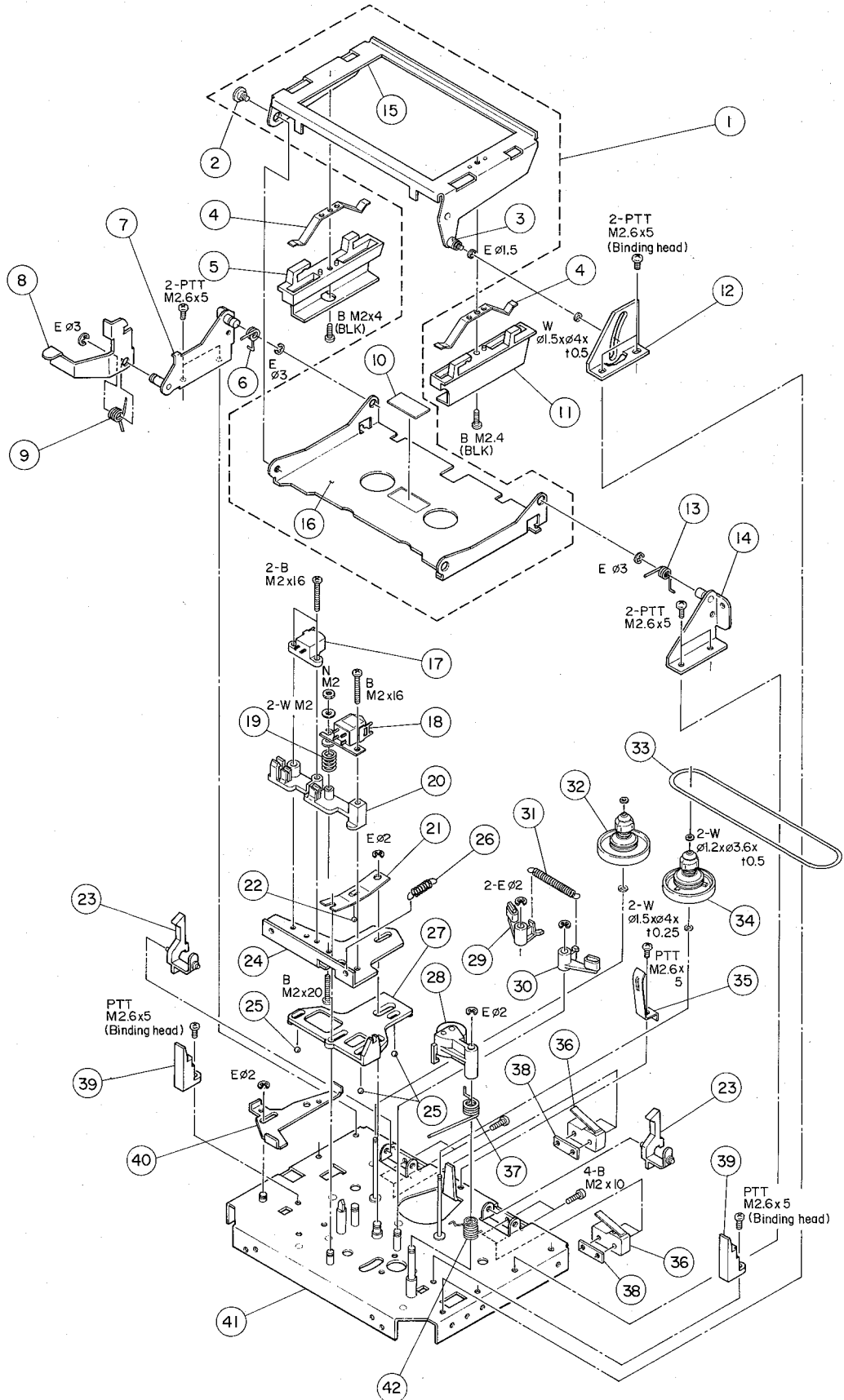
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	5700011100	V-9 Owner's manual [J]	
	5700011200	V-9 Owner's manual [US]	
	5700011300	V-9 Owner's manual [All except J, US]	
	5101369000	Information Supplement [J]	
	5101345000	Information Supplement [US]	
	5101495000	Information Supplement [All except J, US]	

[US]: U.S.A.
 : AUSTRALIA
 [J]: JAPAN

[C]: CANADA
 [E]: EUROPE

[GE]: GENERAL EXPORT
 [UK]: U.K.

EXPLODED VIEW - 2

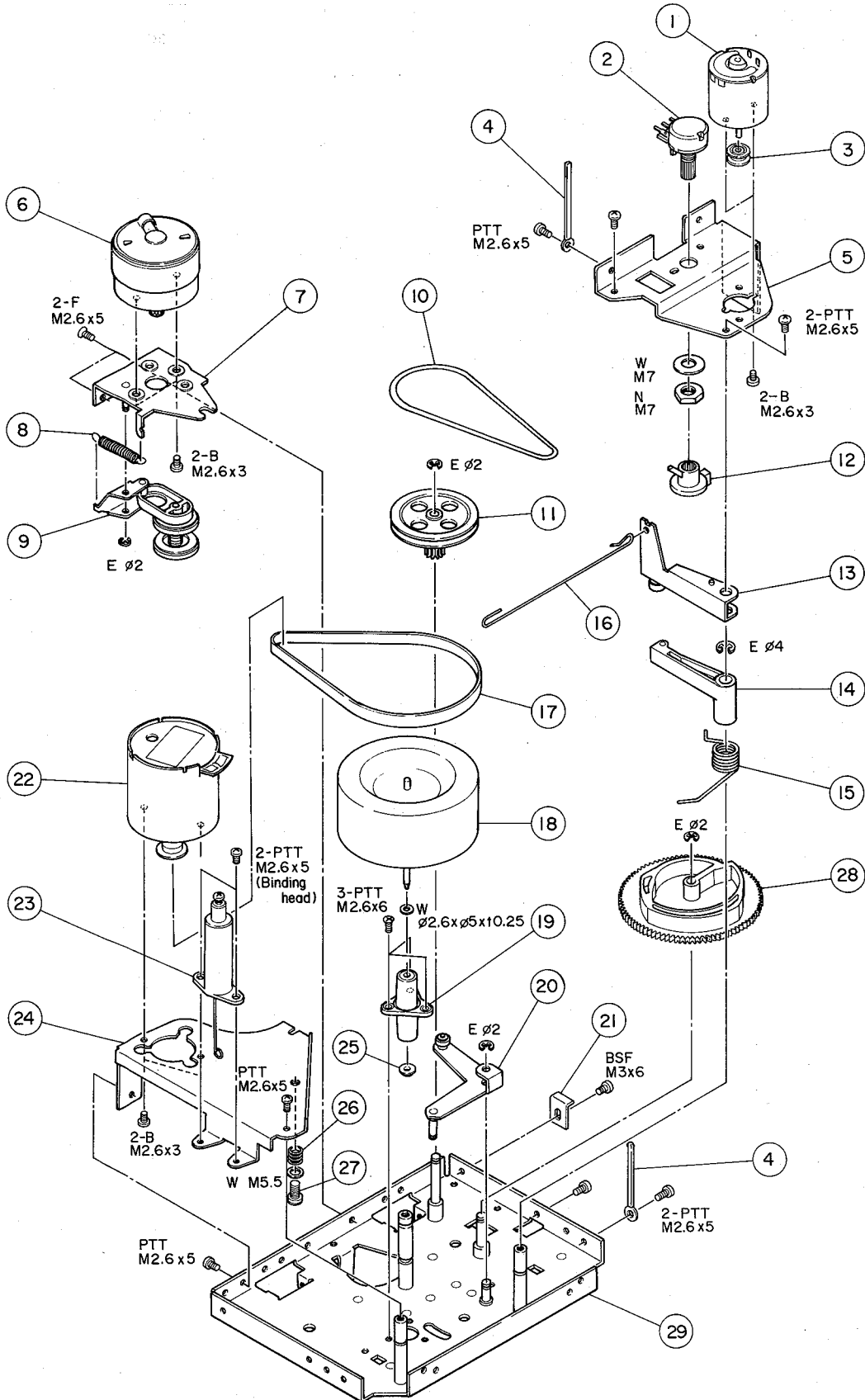


Parts marked with *require longer delivery time.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
2 - 1	*5800131902	Holder Sub-assy, Cassette	Part of 2-1 A-304
2 - 2	*5581056000	Screw, Shoulder; A	
2 - 3	*5800120100	Roller, Guide	
2 - 4	*5800115400	Spring, Cassette Pressure	
2 - 5	*5800109600	Holder, L	
2 - 6	*5800115500	Spring, Holder; L	Part of 2-1
2 - 7	*5800121300	Bracket Assy, Holder; L	
2 - 8	*5800119100	Arm, Eject	
2 - 9	*5800115700	Spring, Lock	
2 - 10	*5800117500	Seal, Cassette	
2 - 11	*5800122100	Holder, R	Part of 2-1
2 - 12	*5800119000	Bracket, Holder Guide	
2 - 13	*5800115600	Spring, Holder; R	
2 - 14	*5800121400	Bracket Assy, Holder; R	
2 - 15	*5800122901	Holder Sub-assy, Cassette; (1)	
2 - 16	*5800122400	Holder, Cassette; (2)	Part of 2-1
2 - 17	5378900300	Head, Erase	A-450
2 - 18	5378600200	Head, REC/PLAY	
2 - 19	*5800114700	Spring, Head	
2 - 20	*5800122600	Stand, Head	
2 - 21	*5800114900	Spring, Base Plat Pressure	
2 - 22	5540055000	Steel Ball, ϕ 2	A-450
2 - 23	*5800117301	Arm, Sensor	
2 - 24	*5800119300	Plate, Head Base	
2 - 25	5540056000	Steel Ball, ϕ 3	A-450
2 - 26	*5800114100	Spring, Head Base	A-400
2 - 27	*5800122800	Plate, Slider	
2 - 28	5800120400	Arm Assy, Pinch Roller	
2 - 29	*5800131601	Arm Assy, Brake; L	
2 - 30	*5800131701	Arm Assy, Brake; R	
2 - 31	*5800114800	Spring, Brake	
2 - 32	5800107300	Table Assy, Reel; Supply	
2 - 33	5800106700	Belt, Counter	
2 - 34	5800108701	Table Assy, Reel, Take-up	
2 - 35	*5800115002	Spring, Cassette Pressure	
2 - 36	5301455300	Switch, Micro	A-400
2 - 37	*5800115300	Spring, Pinch Roller Arm	
2 - 38	*5554447000	Plate, Micro Switch	
2 - 39	*5800117400	Guide, Cassette	
2 - 40	*5800119200	Plate, Stopper	
2 - 41	*5800109701	Chassis Assy, Mechanism	
2 - 42	*5800152600	Spring, Arm Return	

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

EXPLODED VIEW - 3



Parts marked with *require longer delivery time.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
3 - 1	5370001400	Motor, Control; DC	
3 - 2	5282009601	Var. Res., 10k Ω (B)	
3 - 3	*5800123300	Pulley, V	
3 - 4	*5581038000	Clamper, Cord; A	
3 - 5	*5800122200	Bracket, Motor	
3 - 6	5370001200	Motor Assy, Reel; DC	
3 - 7	*5800121800	Bracket Assy, Reel Motor	
3 - 8	*5800115800	Spring, Idler Arm	
3 - 9	5800107800	Idler Assy	
3 - 10	5800106800	Belt, Reduction Pulley	
3 - 11	*5800117200	Pulley, Reduction	
3 - 12	*5800116700	Joint	
3 - 13	*5800107001	Lever Sub-assy, Record	
3 - 14	*5800105400	Arm Assy, Balance	
3 - 15	*5800114600	Spring, Balance Arm	
3 - 16	*5800114400	Rod, Record	
3 - 17	5800106900	Belt, Capstan Drive	
3 - 18	5800106401	Flywheel Assy, Capstan	
3 - 19	*5800106200	Housing Assy, Capstan	
3 - 20	*5800105801	Arm Assy, Base Plate Actuating	
3 - 21	*5800148600	Stopper	
3 - 22	5370001100	Motor Assy, Capstan; DC	
3 - 23	*5800131802	Damper Assy	
3 - 24	*5800122301	Bracket, Flywheel	
3 - 25	*5534130000	Retainer, Oil	
3 - 26	*5800161400	Spring, Thrust	
3 - 27	*5800156300	Screw, Thrust	
3 - 28	*5800122700	Cam, Control	
3 - 29	*5800109701	Chassis Assy, Mechanism	

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

Parts marked with *require longer delivery time.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
4 - 1	*5800112502	Panel Rear	
4 - 2	*5534660000	Strain Relief, AC Power Cord [All except UK]	
	*5534661000	Strain Relief, AC Power Cord [UK]	
4 - 3	△*5128034000	Cord, AC Power [J]	
	△*5128075000	Cord, AC Power [US, C, GE]	
	△*5128047000	Cord, AC Power [UK]	
	△*5350008200	Cord, AC Power [E]	
	△*5350008300	Cord, AC Power [A]	
4 - 4	*5534660000	Strain Relief, Cord	
4 - 5	*5350008600	Cord, In-output [All except US]	
	*5350008700	Cord, In-output [US]	
4 - 6	*5800117801	Plate, In-output; A [All except E]	
	*5800117901	Plate, In-output; B [E]	
4 - 7	*5200034900	PCB Assy, VOLTAGE SELECTOR [GE]	
4 - 8	*5555062000	Bar, Jumper; A [GE]	
4 - 9	△ 5320005800	Transformer, Power [J]	
	△ 5320005900	Transformer, Power [US]	
	△ 5320006000	Transformer, Power [C]	
	△ 5320006100	Transformer, Power [GE]	
	△ 5320006201	Transformer, Power [E, UK, A]	
4 - 10	*5800118600	Bracket, Transformer	
4 - 11	*5200029701	PCB Assy, MECHANISM	
4 - 12	△ 5052905000	Spark Killer, 0.1μF + 120Ω/300V [J]	
	△ 5052906000	Spark Killer, 0.33μF + 120Ω/250V [US]	
	△ 5052911000	Spark Killer, 0.033μF + 120Ω/250V [C]	
	△ 5292002500	Spark Killer, 0.01μF/300Ω [GE]	
	△ 5267702500	Spark Killer, 0.047μF/250V [E, UK, A]	
4 - 13	△ 5134018000	Switch, Power [US, C]	
	△ 5134120000	Switch, Power [J]	
	△ 5134044000	Switch, Power [E, UK, A]	
	△ 5134009000	Switch, Power [GE]	
4 - 14	*5200029800	PCB Assy, TIMER	
4 - 15	*5800118400	Bracket, Switch	
4 - 16	*5800116200	Rod, A	
4 - 17	*5800115200	Spring, Record	
4 - 18	*5800116600	Arm Record	
4 - 19	*5800112100	Shaft, Record Arm	
4 - 20	*5800125801	Plate, Shield; A	
4 - 21	5800119801	Knob, A	
4 - 22	*5200029405	PCB Assy, REC/PLAY [All except US]	
	*5200029415	PCB Assy, REC/PLAY [US]	
4 - 23	*5580007000	Washer, φ3.2 x φ17.8 x t0.8	
4 - 24	*5800009000	Bracket, PCB	
4 - 25	*5786700300	Lug, GND	
4 - 26	*5800112201	Chassis, Left	
4 - 27	*5200030300	PCB Assy, LED (B)	
4 - 28	5800119700	Button, P	
4 - 29	5800119600	Button, T	
4 - 30	*5800130200	Spring, GND; B	
4 - 31	*5800119900	Counter, Tape	
4 - 32	*5800145502	Slider Assy	
4 - 33	*5581055000	Screw, Shoulder; D	
4 - 34	*5534118000	Push Rivet	A-400
4 - 35	*5800112401	Chassis, Front	
4 - 36	*5534448000	Cushion, Rubber	A-103
4 - 37	*5200029900	PCB Assy, REED SWITCH	
4 - 38	*5200030200	PCB Assy, LED (A)	
4 - 39	*5800119402	Bracket, VR	
4 - 40	*5200029601	PCB Assy, METER	
4 - 41	5310005300	Lamp, DC14V	
4 - 42	*5800112600	Chassis, Right	
4 - 43	*5200030100	PCB Assy, FUSE [E]	
4 - 44	*5200030000	PCB Assy, DIN [E]	
4 - 45	5284005200	Var. Res., Slide	

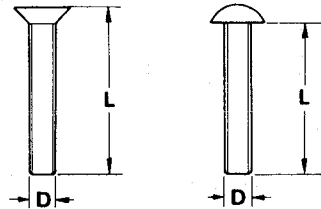
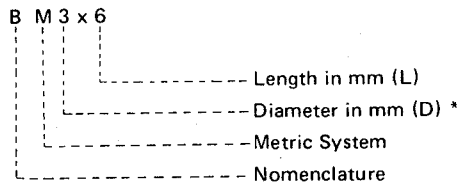
[US]: U.S.A. [C]: CANADA [GE]: GENERAL EXPORT
 [A]: AUSTRALIA [E]: EUROPE [UK]: U.K.
 [J]: JAPAN

ASSEMBLING HARDWARE CODING LIST

All screws conform to ISO standards, and have crossrecessed heads, unless otherwise noted. ISO screws have the head inscribed with a point as in the figure to the right.



FOR EXAMPLE:



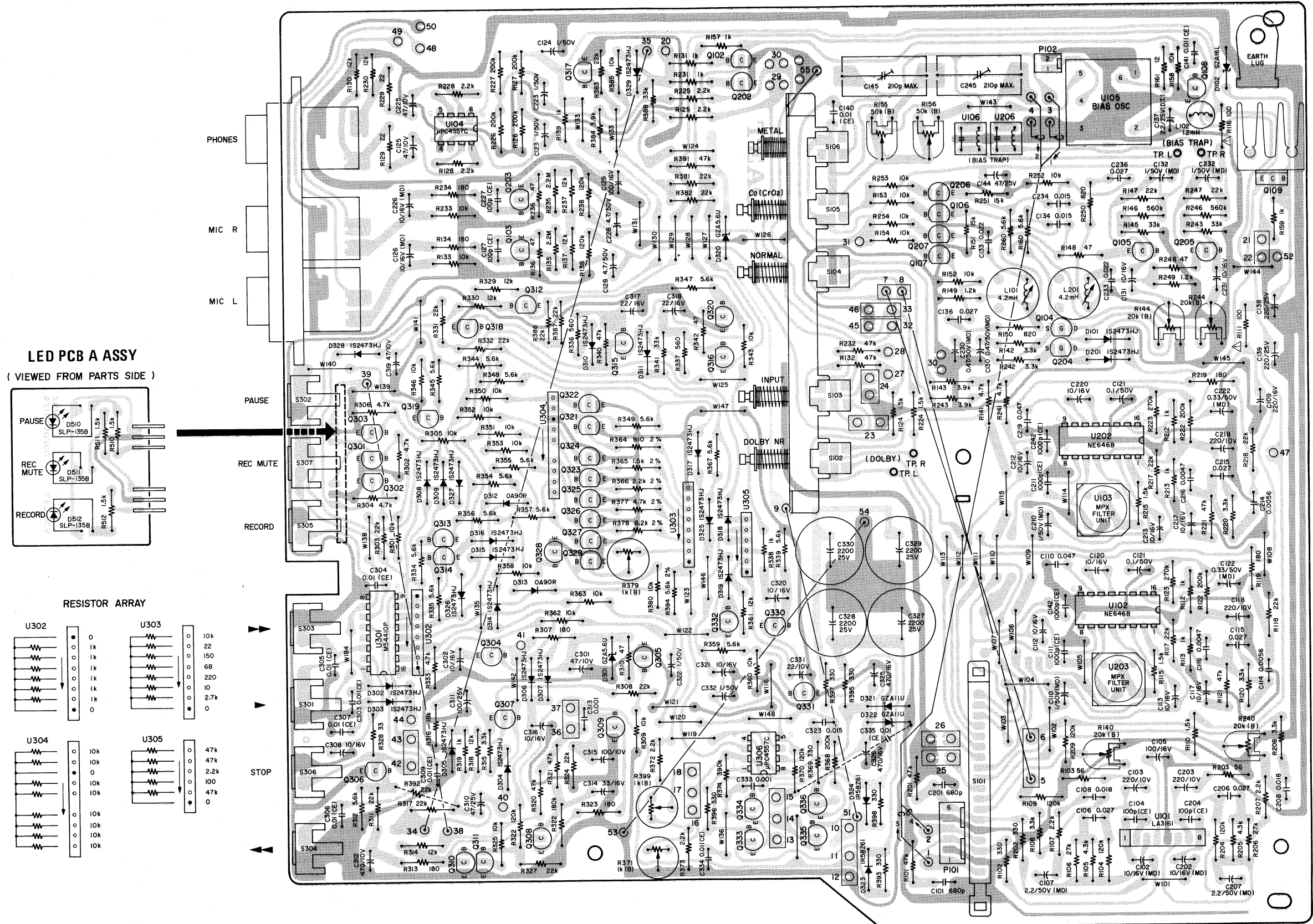
* Inner dia. for washers and nuts

	Code	Name	Type		Code	Name	Type
MACHINE SCREW	R	Round Head Screw		TAPPING SCREW	BTA	Binding Head Tapping Screw(A Type)	
	P	Pan Head Screw			BTB	Binding Head Tapping Screw(B Type)	
	T	Stove Head Screw (Truss)			RTA	Round Head Tapping Screw(A Type)	
	B	Binding Head Screw			RTB	Round Head Tapping Screw(B Type)	
	F	Flat Countersunk Head Screw		SETSCREW	SF	Hex Socket Setscrew(Flat Point)	
	O	Oval Countersunk Head Screw			SC	Hex Socket Setscrew(Cup Point)	
WOOD SCREW	RW	Round Head Wood Screw		SS	Slotted Socket Setscrew(Flat Point)		
TAPTITE SCREW	PTT	Pan Head Taptite Screw		WASHER	E	E-Ring (Retaining Washer)	
	WTT	Washer Head Taptite Screw			W	Flat Washer (Plain)	
SEMS SCREW	BSA	Binding Head SEMS Screw(A Type)			SW	Lock Washer (Spring)	
	BSB	Binding Head SEMS Screw(B Type)			LWI	Lock Washer (Internal Teeth)	
	BSF	Binding Head SEMS Screw(F Type)			LWE	Lock Washer (External Teeth)	
	PSA	Pan Head SEMS Screw(A Type)		TW	Trim Washer (Countersunk)		
	PSB	Pan Head SEMS Screw(B Type)		NUT	N	Hex Nut	

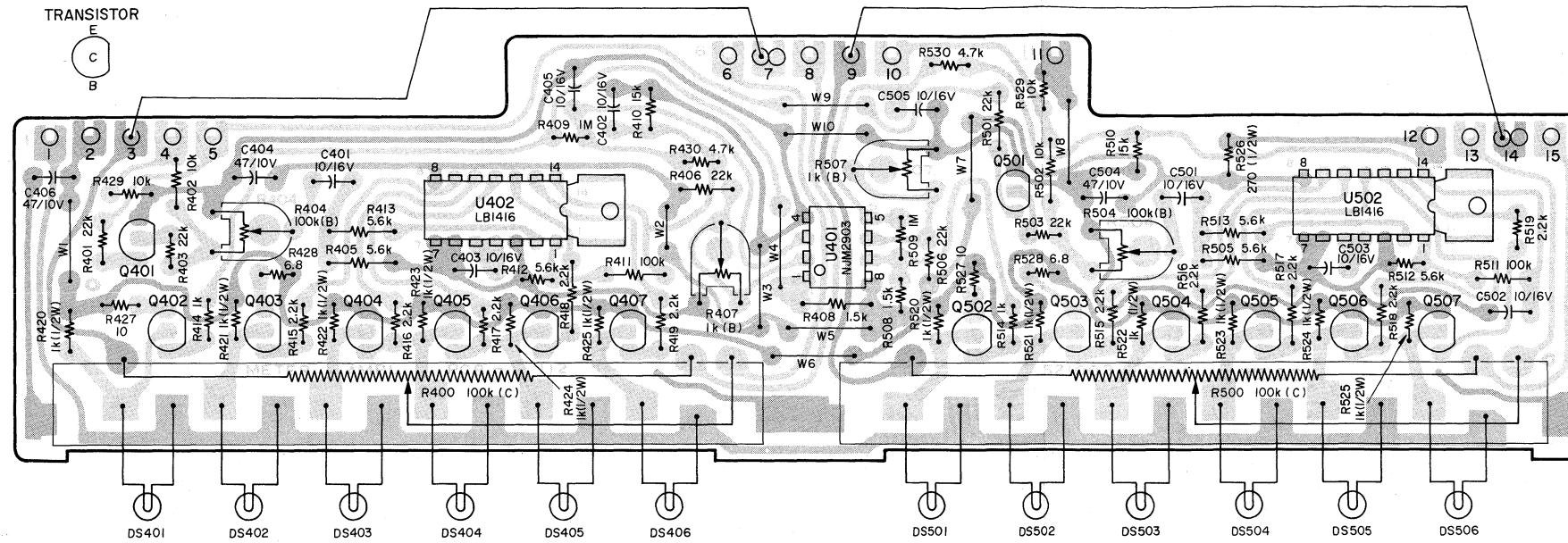
7 PC BOARDS AND PARTS LIST

PC Boards shown viewed from foil side except LED PCB A ASSY

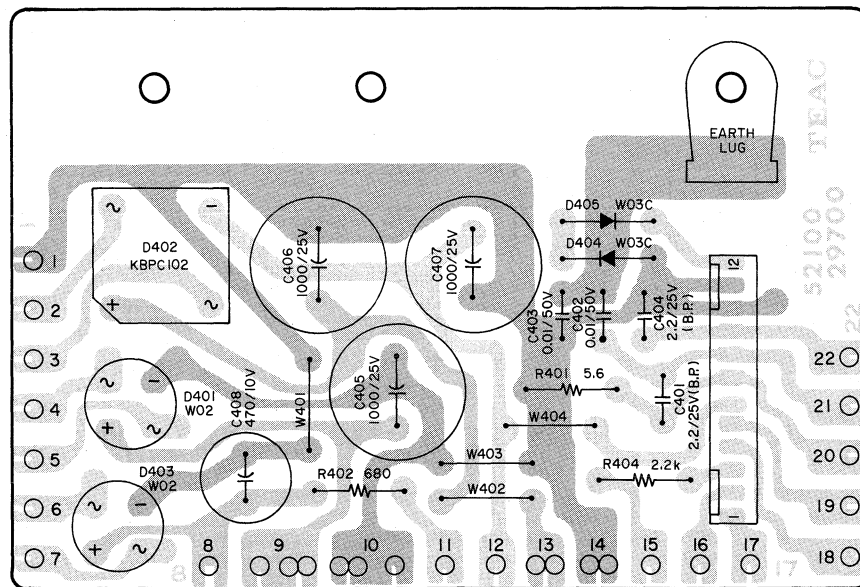
REC/PLAY AMP PCB ASSY



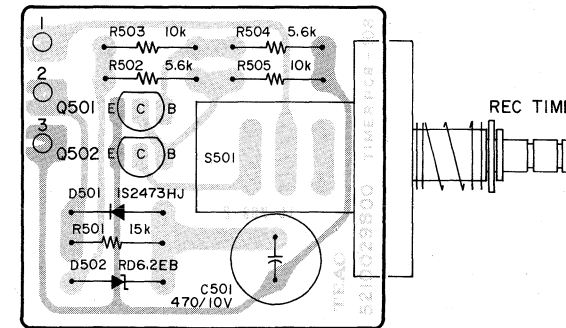
METER PCB ASSY



MECHANISM PCB ASSY



TIMER SW PCB ASSY



NOTES

1. The colors used on the PCB illustrations have the following significance:

- : +B power supply circuit
- : -B power supply circuit
- : GND
- : Other

2. Resistor values are in ohms (k=1,000 ohms, M=1,000,000 ohms).

3. Capacitor values are in microfarads (p=picofarads).

(MD) : Electrolytic capacitor MD series

(CE) : Ceramic

(SC) : Polystyrene

(DT) : Dipped Tantalum

(BP) : Bipolar

All non-polarized capacitors are ±5% Mylar unless otherwise noted.

4. 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.

REC/PLAY AMP PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	5200029405	PCB Assy [All except US]
	5200029415	PCB Assy [US]
	5210029400	PCB [All except US]
	5210029410	PCB [US]
IC's		
U101	5147062000	LA3161
U102, U202	5147046000	NE646B
U104	5220405000	μ PC4557C
U301	5147047000	M54410P
U306	5220405000	μ PC4557C
TRANSISTORS		
Q102, Q202	5145185000	2SD655E
Q103, Q203	5042495000	2SC1222E
Q104, Q204	5145102000	FET 2SK68AL
Q105, Q205	5145092000	2SC1740LNS
Q106, Q206	5145092000	2SC1740LNS
Q107, Q207	5145092000	2SC1740LNS
Q108	5145099000	2SC1741R
Q109	5145087000	2SD313E
Q301~Q303	5145151000	2SC1815GR
Q304	5230773800	2SC2655Y
Q305, Q306	5145151000	2SC1815GR
Q307	5042553000	2SA733P
Q308~Q311	5145151000	2SC1815GR
Q312	5042553000	2SA733P
Q313~Q332	5145151000	2SC1815GR
Q333	5230773800	2SC2655Y
Q334	5230014000	2SA1020Y
Q335	5230773800	2SC2655Y
Q336	5230014000	2SA1020Y
DIODES		
D101, D201	5143118000	1S2473HJ
D102	5224521700	Zener, GZA16L
D301	5224519600	Zener, GZA5.6U
D302~D311	5143118000	1S2473HJ
D312, D313	5224012800	0A90R
D314~D319	5143118000	1S2473HJ
D320	5224519600	Zener, GZA5.6U
D321, D322	5224521000	Zener, GZA11U
D323, D324	5224014000	1R5BZ61
D325~D329	5143118000	1S2473HJ
CARBON RESISTORS		
All resistors are rated $\pm 5\%$ tolerance and $\frac{1}{4}$ watt unless otherwise noted.		
R101, R201	5183122000	47k Ω
R102, R202	5183070000	330 Ω
R103, R203	5183052000	56 Ω
R104, R204	5183132000	120k Ω
R105, R205	5183097000	4.3k Ω
R106, R206	5183116000	27k Ω
R107, R207	5183090000	2.2k Ω
R108, R208	5183094000	3.3k Ω
R109, R209	5183132000	120k Ω
R110	5183086000	1.5k Ω
R111	Δ 5184249000	100 Ω Nonflammable
R112, R212	5183082000	1k Ω
R113, R213	5183082000	1k Ω
R115, R215	5183086000	1.5k Ω
R116	Δ 5184249000	100 Ω Nonflammable

REF. NO.	PARTS NO.	DESCRIPTION
R117, R217	5183114000	22k Ω
R118, R218	5183114000	22k Ω
R119, R219	5183064000	180 Ω
R120, R220	5183094000	3.3k Ω
R121, R221	5183122000	47k Ω
R122, R222	5183137000	200k Ω
R123, R223	5183140000	270k Ω
R124, R224	5183086000	1.5k Ω
R125, R225	5183090000	2.2k Ω
R126, R226	5183137000	200k Ω
R127, R227	5183137000	200k Ω
R128, R228	5183090000	2.2k Ω
R129, R229	5183042000	22 Ω
R130, R230	5183108000	12k Ω
R131, R231	5183082000	1k Ω
R132, R232	5183122000	47k Ω
R133, R233	5183106000	10k Ω
R134, R234	5183064000	180 Ω
R135, R235	5183162000	2.2M Ω
R136, R236	5183050000	47 Ω
R137, R237	5183108000	12k Ω
R138, R238	5183132000	120k Ω
R139	5183082000	1k Ω
R141, R241	5183098000	4.7k Ω
R142, R242	5183094000	3.3k Ω
R142, R243	5183096000	3.9k Ω
R145, R245	5183118000	33k Ω
R146, R246	5183148000	560k Ω
R147, R247	5183114000	22k Ω
R148, R248	5183050000	47 Ω
R149, R249	5183084000	1.2k Ω
R150, R250	5183080000	820 Ω
R151, R251	5183110000	15k Ω
R152, R252	5183106000	10k Ω
R153, R253	5183106000	10k Ω
R154, R254	5183106000	10k Ω
R157	5183082000	1k Ω
R158	5183106000	10k Ω
R159	5183082000	1k Ω
R160, R260	5183100000	5.6k Ω
R161	5183036000	12 Ω
R301	5183106000	10k Ω
R302	5183098000	4.7k Ω
R303	5183114000	22k Ω
R304	5183098000	4.7k Ω
R305	5183106000	10k Ω
R306	5183098000	4.7k Ω
R307	5183064000	180 Ω
R308	5183114000	22k Ω
R309	5183106000	10k Ω
R310	5183050000	47 Ω
R311	5183114000	22k Ω
R312	5183100000	5.6k Ω
R313	5183064000	180 Ω
R314	5183108000	12k Ω
R315	5183094000	3.3k Ω
R316	5183112000	18k Ω
R317	5183114000	22k Ω
R318	5183108000	12k Ω
R319	5183082000	1k Ω
R320	5183122000	47k Ω
R321	5183122000	47k Ω
R322	5183132000	120k Ω

[US]: U.S.A.
[A]: AUSTRALIA
[J]: JAPAN

[C]: CANADA
[E]: EUROPE

[GE]: GENERAL EXPORT
[UK]: U.K.

REF. NO.	PARTS NO.	DESCRIPTION
R323	5183064000	180Ω
R324	5183114000	22kΩ
R325	5183106000	10kΩ
R326	5183114000	22kΩ
R327	5183114000	22kΩ
R328	5183046000	33Ω
R329	5183108000	12kΩ
R330	5183108000	12kΩ
R331	5183114000	22kΩ
R332	5183114000	22kΩ
R333	5183098000	4.7kΩ
R334	5183100000	5.6kΩ
R335	5183100000	5.6kΩ
R336	5183076000	560Ω
R337	5183076000	560Ω
R338	5183082000	1kΩ
R339	5183100000	5.6kΩ
R340	5183122000	47kΩ
R341	5183118000	33kΩ
R342	5183050000	47Ω
R343	5183106000	10kΩ
R344, R345	5183100000	5.6kΩ
R346	5183106000	10kΩ
R347~R349	5183100000	5.6kΩ
R350~R353	5183106000	10kΩ
R354~R357	5183100000	5.6kΩ
R358	5183106000	10kΩ
R359, R360	5183100000	5.6kΩ
R361	5183108000	12kΩ
R362, R363	5183100000	5.6kΩ
R364	5185091000	910Ω 2%
R365	5185096000	1.5kΩ 2%
R366	5185100000	2.2kΩ 2%
R367	5183100000	5.6kΩ
R368	5183137000	200kΩ
R369	5183070000	330Ω
R370	5183132000	120kΩ
R372, R373	5183090000	2.2kΩ
R374	5183144000	390kΩ
R377	5185108000	4.7kΩ 2%
R378	5185114000	8.2kΩ 2%
R380	5183106000	10kΩ
R381~R383	5183114000	22kΩ
R384	5183096000	3.9kΩ
R385	5183106000	10kΩ
R386, R387	5183114000	22kΩ
R388	5183118000	33kΩ
R391	5183122000	47kΩ
R392	5183114000	22kΩ
R393	5183070000	330Ω
R394	5185110000	5.6kΩ 2%
R395~R398	5183070000	330Ω
CAPACITORS		
C101, C201	5059827000	Polyst. 680pF 50V 10%
C102, C202	5173571800	Elec. 10μF 16V
C103, C203	5173053800	Elec. 220μF 10V
C104, C204	5172312000	Ceramic 100pF 50V 10%
C105	5173045800	Elec. 100μF 16V
C106, C206	5170435000	Mylar 0.027μF 100V 5%
C107, C207	5173480800	Elec. 2.2μF 50V
C108, C208	5170431000	Mylar 0.018μF 100V 5%
C109	5173054800	Elec. 220μF 16V

REF. NO.	PARTS NO.	DESCRIPTION
C110, C210	5173556800	Elec. 1μF 50V
C111, C211	5172324000	Ceramic 0.001μF 50V 10%
C112, C212	5173010800	Elec. 10μF 16V
C113, C213	5173010800	Elec. 10μF 16V
C114, C214	5170419000	Mylar 0.0056μF 100V 5%
C115, C215	5170435000	Mylar 0.027μF 100V 5%
C116, C216	5170417000	Mylar 0.0047μF 100V 5%
C117, C217	5173010800	Elec. 10μF 16V
C118, C218	5173053800	Elec. 220μF 10V
C119, C219	5170441000	Mylar 0.047μF 100V 5%
C120, C220	5173010800	Elec. 10μF 16V
C121, C221	5173550800	Elec. 0.1μF 50V
C122, C222	5173553800	Elec. 0.33μF 50V
C123, C223	5172992800	Elec. 1μF 50V
C124	5172992800	Elec. 1μF 50V
C125, C225	5173035800	Elec. 47μF 10V
C126, C226	5173571800	Elec. 10μF 16V
C127, C227	5172312000	Ceramic 100pF 50V 10%
C128, C228	5173006800	Elec. 4.7μF 50V
C129	5173045800	Elec. 100μF 16V
C130, C230	5173554800	Elec. 0.47 50V
C131, C231	5173010800	Elec. 10μF 16V
C132, C232	5173556800	Elec. 1μF 50V
C133, C233	5170433000	Mylar 0.022μF 100V 5%
C134, C234	5170429000	Mylar 0.015μF 100V 5%
C136, C236	5170435000	Mylar 0.027μF 100V 5%
C137	5171659000	Dip. Tant. 2.2μF 25V
C138	5173055800	Elec. 220μF 25V
C139	5173055800	Elec. 220μF 25V
C140	5172336000	Ceramic 0.01μF 50V 10%
C141	5172336000	Ceramic 0.01μF 50V 10%
C142, C242	5172324000	Ceramic 0.001μF 50V 10%
C144	5173037800	Elec. 47μF 25V
C301	5173035800	Elec. 47μF 10V
C302	5173010800	Elec. 10μF 16V
C303~C307	5172336000	Ceramic 0.01μF 50V 10%
C308	5173010800	Elec. 10μF 16V
C309	5172336000	Ceramic 0.01μF 50V 10%
C310	5173037800	Elec. 47μF 25V
C311	5173046800	Elec. 100μF 25V
C312	5173071800	Elec. 470μF 10V
C313	5170401000	Mylar 0.001μF 100V 5%
C314	5173027800	Elec. 33μF 16V
C315	5173044800	Elec. 100μF 10V
C316	5173010800	Elec. 10μF 16V
C317, C318	5173018800	Elec. 22μF 16V
C319	5173035800	Elec. 47μF 10V
C320, C321	5173010800	Elec. 10μF 16V
C322	5172992800	Elec. 1μF 50V
C323	5170429000	Mylar 0.015μF 100V 5%
C325	5173072800	Elec. 470μF 16V
C326	5173072800	Elec. 470μF 16V
C327~C330	5172978800	Elec. 2200μF 25V
C331	5173017800	Elec. 22μF 10V
C332	5172992800	Elec. 1μF 50V
C333	5170401000	Mylar 0.001μF 100V 5%
C334, C335	5172336000	Ceramic 0.01μF 50V 5%
VARIABLE RESISTORS		
R140, R240	5280003602	Semi-fixed 20kΩ (B)
R144, R244	5280003602	Semi-fixed 20kΩ (B)
R155	5280004002	Semi-fixed 50kΩ (B)
R156	5280004002	Semi-fixed 50kΩ (B)

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

REF. NO.	PARTS NO.	DESCRIPTION
R371	5280025603	Semi-fixed 1kΩ(B)
R379	5280025603	Semi-fixed 1kΩ(B)
R399	5280025603	Semi-fixed 1kΩ(B)
TRIMMER CAPACITORS		
C145, C245	5267205300	30—210pF
COILS		
L101, L201	5286000100	Choke 4.2mH (Variable)
L102	5160151000	Choke 1.2mH (fixed)
MISCELLANEOUS		
U103, U203	5292802500	Filter, Low-pass
U105	5292200700	OSC Unit, 100kHz
U106, U206	5286000200	Coil, Trap; 100kHz
U302	5293000300	Resistor Array
U303	5293000400	Resistor Array
U304	5293000500	Resistor Array
U305	5293000800	Resistor Array
S101	5300907800	Switch, Slide; 6-2
S102~S105	5300020600	Switch, Push; 8-2 (5-gang)
S301~S307	5302100500	Switch, Tact
P101	5122130000	Connector Plug, 6P (WHT)
P102	5122126000	Connector Plug, 2P (WHT)
TP1~TP4	5544750000	Pin (4 used)
	5124063000	Jack, 3-gang
	5555590000	Plate, GND; A
	5553132000	Heatsink

METER PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	5200029601	PCB Assy
	5210029600	PCB
IC's		
U401	5147059000	NJM2903D
U402, U502	5220405800	LB1416
TRANSISTORS		
Q401, Q501	5145092000	2SC1740LNS
Q402, Q502	5145099000	2SC1741R
Q403, Q503	5145099000	2SC1741R
Q404, Q504	5145099000	2SC1741R
Q405, Q505	5145099000	2SC1741R
Q406, Q506	5145099000	2SC1741R
Q407, Q507	5145099000	2SC1741R
CARBON RESISTORS		
All resistors are rated ±5% tolerance and ¼ watt unless otherwise noted.		
R401, R501	5240171400	22kΩ
R402, R502	5240170600	10kΩ
R403, R503	5240171400	22kΩ
R405, R505	5240170000	5.6kΩ
R406, R506	5240171400	22kΩ
R408, R508	5240168600	1.5kΩ
R409, R509	5240175400	1MΩ

REF. NO	PARTS NO.	DESCRIPTION
R410, R510	5240171000	15kΩ
R411, R511	5240173000	100kΩ
R412, R512	5240170000	5.6kΩ
R413, R513	5240170000	5.6kΩ
R414, R514	5240168200	1kΩ
R415, R515	5240169000	2.2kΩ
R416, R516	5240169000	2.2kΩ
R417, R517	5240169000	2.2kΩ
R418, R518	5240169000	2.2kΩ
R419, R519	5240169000	2.2kΩ
R420, R520	5180082000	1kΩ ½W
R421, R521	5180082000	1kΩ ½W
R422, R522	5180082000	1kΩ ½W
R423, R523	5180082000	1kΩ ½W
R424, R524	5180082000	1kΩ ½W
R425, R525	5180082000	1kΩ ½W
R526	5180068000	270Ω ½W
R427, R527	5240163400	10Ω
R428, R528	5240163000	6.8Ω
R429, R529	5240170600	10kΩ
R430, R530	5240169800	4.7kΩ
CAPACITORS		
C401, C501	5173010800	Elec. 10μF 16V
C402, C502	5173010800	Elec. 10μF 16V
C403, C503	5173010800	Elec. 10μF 16V
C404, C504	5173035800	Elec. 47μF 10V
C405, C505	5173010800	Elec. 10μF 16V
C406	5173035800	Elec. 47μF 10V
MISCELLANEOUS		
R400, R500	5284005200	Var. Res., 100kΩ(C)
R404, R504	5280004202	Var. Res., Semi-fixed; 100kΩ(B)
R407, R507	5280002802	Var. Res., Semi-fixed; 1kΩ(B)

MECHANISM PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	5200029701	PCB Assy
	5210029700	PCB
DIODES		
D401	5228005000	W02
D402	5228005100	KBPC102
D403	5228005000	W02
D404, D405	5143315000	W03C
CARBON RESISTORS		
R401	5183028000	5.6Ω ¼W 5%
R402	5183078000	680Ω ¼W 5%
R404	5183090000	2.2kΩ ¼W 5%
CAPACITORS		
C401	5171472000	Elec. 2.2μF 25V (B.P.)
C402, C403	5172336000	Ceramic 0.01μF 50V 10%
C404	5171472000	Elec. 2.2μF 25V (B.P.)
C405	5173082800	Elec. 1000μF 25V
C406, C407	5173082800	Elec. 1000μF 25V
C408	5173071800	Elec. 470μF 10V

[US]: U.S.A.
[A]: AUSTRALIA
[J]: JAPAN

[C]: CANADA
[E]: EUROPE

[GE]: GENERAL EXPORT
[UK]: U.K.

REF. NO.	PARTS NO.	DESCRIPTION
MESCELLANEOUS		
	5122136000	Connector Plug, 12P (WHT)
	5555590000	Plate, GND; A

TIMER SW PCB ASSY

REF. NO.	PARTS NO.	DESCRIPTION
	5200029800	PCB Assy
	5210029800	PCB
TRANSISTORS		
Q501, Q502	5145092000	2SC1740LNS
DIODES		
D501	5143118000	1S2473HJ
D502	5224519700	Zener, GZA6.2L
CARBON RESISTORS		
R501	5183110000	15kΩ ¼W 5%
R502	5183100000	5.6kΩ ¼W 5%
R503	5183106000	10kΩ ¼W 5%
R504	5183100000	5.6kΩ ¼W 5%
R505	5183106000	10kΩ ¼W 5%
MISCELLANEOUS		
C501	5173071800	Capacitor, Elec. 470μF 10V
C501	5134092000	Switch, Push 2-2

LED PCB A ASSY

REF. NO	PARTS NO.	DESCRIPTION
	5200030200	PCB Assy
	5210030200	PCB
R510~R512	5183086000	Carbon Res. 1.5kΩ ¼W 5%
	5122403000	Pin, Connector
D510~D512	5225005400	LED, SLP-135B (Red)
	5800115900	Spacer, LED; A

LED PCB B ASSY (PC Board Omitted)

REF. NO.	PARTS NO.	DESCRIPTION
	5200030300	PCB Assy
	5210030300	PCB
	5225005400	LED, SLP-135B (Red)
	5800116000	Spacer, LED; B

REED SW PCB ASSY (PC Board Omitted)

REF. NO.	PARTS NO.	DESCRIPTION
	5200029900	PCB Assy
	5210029900	PCB
	5138006000	Switch, Reed
	5534448000	Cushion, Rubber

DIN PCB ASSY [E] (PC Board Omitted)

REF. NO	PARTS NO.	DESCRIPTION
	5200030000	PCB Assy
	5210030000	PCB
	5334010400	Socket, DIN; 5P

FUSE PCB ASSY [E] (PC Board Omitted)

REF. NO	PARTS NO.	DESCRIPTION
	5200030100	PCB Assy
	5210030100	PCB
F501	△ 5041138000	Fuse, T500mA 250V
F502, F503	△ 5142189000	Fuse, T2A 250V
F504	△ 5041138000	Fuse, T500mA 250V
	5142087000	Holder, Fuse (8 used)

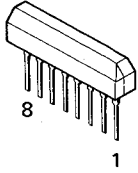
[US]: U.S.A.
 [A]: AUSTRALIA
 [J]: JAPAN

[C]: CANADA
 [E]: EUROPE

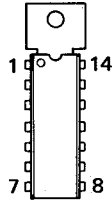
[GE]: GENERAL EXPORT
 [UK]: U.K.

SEMICONDUCTOR ELECTRODES

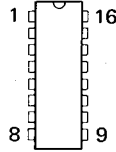
LA3161



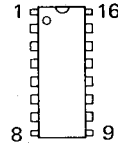
LB1416
(TOP VIEW)



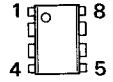
M54410P
(TOP VIEW)



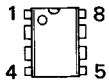
NE646B
(TOP VIEW)



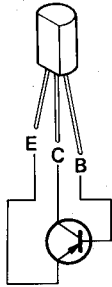
NJM2903D
(TOP VIEW)



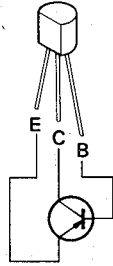
μ PC4557C
(TOP VIEW)



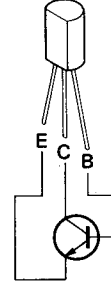
2SA1020Y



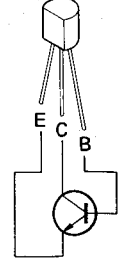
2SA733P



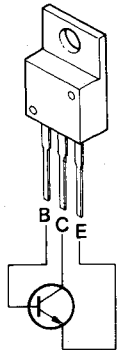
2SC2655Y



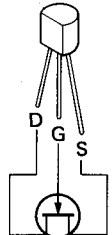
2SC1222E
2SC1740LNS
2SC1741R
2SC1815GR
2SD655E



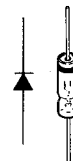
2SD313E



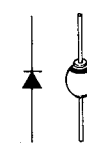
2SK68AL



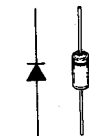
0A90R



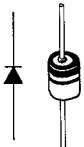
1R5BZ61



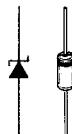
1S2473HJ



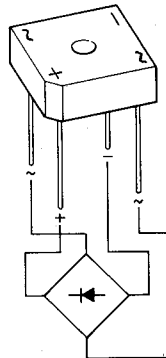
W03C



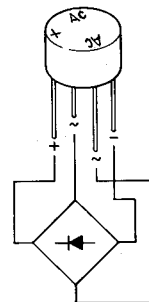
GZA5.6U
GZA6.2L
GZA11U
GZA16L



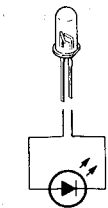
KBPC102



W02



SLP-135B



V-9

TEAC®

TEAC CORPORATION

3-7-3 NAKA-CHO MUSASHINO TOKYO PHONE (0422) 53-1111

TEAC CORPORATION OF AMERICA

7733 TELEGRAPH ROAD MONTEBELLO CALIFORNIA 90640 PHONE (213) 726-0303

TEAC AUSTRALIA PTY., LTD.

115 WHITEMAN STREET SOUTH MELBOURNE VICTORIA 3205 PHONE 699-6000
