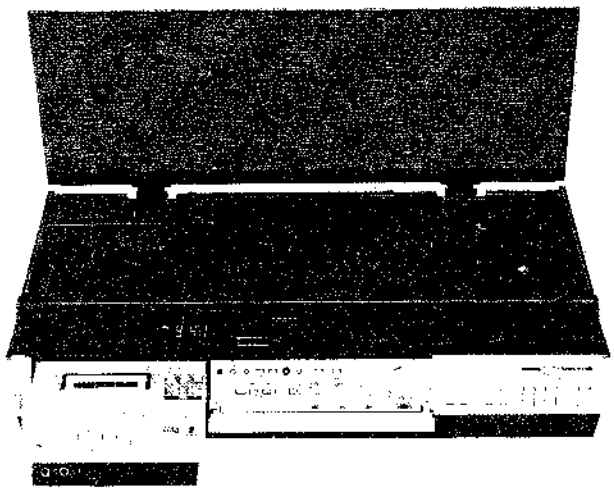
HMK-7000/7000B

HMK-7000: Silver Type
UK Model

HMK-7000B: Black Type
AEP Model



'Dolby' and the double-D symbol are the trade marks of Dolby Laboratories. Noise reduction system manufactured under license from Dolby Laboratories.

STEREO MUSIC SYSTEM

SPECIFICATIONS

GENERAL

Power Requirements: 240 V ac, 50 Hz (UK model)
220 V ac, 50 Hz (AEP model)

Power Consumption: 300 W

Dimensions: Approx. 688 (w) x 160 (h) x 500 (d) mm
27 1/8 (w) x 6 1/4 (h) x 19 5/8 (d) inches
(UK model)
Approx. 690 (w) x 160 (h) x 500 (d) mm
27 1/8 (w) x 6 1/4 (h) x 19 5/8 (d) inches
(AEP model)
including projecting parts and controls

Weight: Approx. 24 kg, 52 lb 15 oz (net)
Approx. 27.5 kg, 60 lb 10 oz (in shipping carton)

FM SECTION

Tuning Range: 87.5 – 108 MHz

Antenna Terminals: 300 Ω balanced
75 Ω unbalanced (UK model)

Intermediate Frequency: 10.7 MHz

Usable Sensitivity: 1.8 μV, S/N = 30 dB

Sensitivity at 50dB Quieting: 3.5 μV, 16.1 dBf (mono)
10 μV, 25 dBf (stereo)

S/N Ratio: 75 dB (mono)

Harmonic Distortion: at 400 Hz
0.1 % (mono)
0.5 % (stereo)

Separation: Better than 40 dB

Frequency Response: 30 Hz – 15 kHz ±3 dB

Muting Threshold: Approx. 7 μV

	Specification	Test Equipment
Forward Torque	30–55 g · cm (0.42–0.76 oz · inch)	Sony torque meter CQ-102C
Back Tension Torque	2.5–4.5 g · cm (0.04–0.06 oz · inch)	Sony torque meter CQ-102C
Pinch Roller Pressure	280–380 g (10–13 oz)	Spring scale or tension gauge

– Continued on page 2 –

SAFETY-RELATED COMPONENT WARNING!! COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SONY®
SERVICE MANUAL

HMK-7000/7000B

MW/LW SECTION

	MW	LW
Tuning range	522 kHz – 1,602 kHz	150 kHz – 350 kHz
Antenna	Built-in ferrite-rod antenna, External antenna terminal	
Intermediate frequency	450 kHz	
Usable sensitivity	50 dB/m, built-in antenna (1,000 kHz) 150 μV, external antenna (1,000 kHz)	55 dB/m, built-in antenna (250 kHz) 150 μV, external antenna (250 kHz)
S/N ratio	55 dB (50 mV/m)	
Harmonic distortion	0.5 % (50 mV/m 400 Hz)	
Selectivity	30 dB (9 kHz)	

CASSETTE RECORDER SECTION

Fast-forward and Rewind Time: Approx. 70 sec. (with C-60)

Recording System: 4-track 2-channel stereo

Bias Frequency: 105 kHz

S/N Ratio: DOLBY NR OFF
- With TYPE III cassette (Sony FeCr cassette)
  58 dB (NAB)
  56 dB (DIN, 1975 rev.)
- With TYPE II cassette (Sony CD-α cassette)
  56 dB (NAB)

DOLBY NR ON
Improved by 5 dB at 1 kHz, 10 dB above 5 kHz

Total Harmonic Distortion: 1.5 % (with Sony FeCr cassette)

Frequency Response: DOLBY NR OFF
- With TYPE IV cassette (Sony METALLIC cassette)
  20 – 19,000 Hz
  30 – 17,000 Hz (±3 dB)
  30 – 13,000 Hz (±3 dB, 0 VU recording)
- With TYPE III cassette (Sony FeCr cassette)
  30 – 17,000 Hz (±3 dB)
- With TYPE II cassette (Sony CD-α cassette)
  30 – 16,000 Hz (±3 dB)
- With TYPE I cassette (Sony BHF cassette)
  20 – 15,000 Hz

Wow and Flutter: 0.04 % WRMS (NAB)
±0.14 % (DIN)

TURNTABLE

Platter: 31.2 cm (12 3/8 inches) dia.
Aluminium-alloy diecast

Motor: DC servo-controlled (brushless and slotless) motor

Drive System: Direct drive

Speeds: 33 1/3 rpm, 45 rpm

Wow and Flutter: Less than 0.06 % (DIN)

S/N Ratio: Better than 68 dB (DIN-B)

TONEARM

Type: Statically balanced, universal type

Pivot to Stylus Length: 216.5 mm (8 1/2 inches)

Overhang: 16.5 mm (3/32 inch)

Tracking-force Adjustment Range: 0 – 3 g

Shell Weight: 10.5 g

Cartridge Weight Range: 4 – 12 g

CARTRIDGE (VL-34G)

Type: Moving-magnet type

Frequency Response: 10 Hz – 30 kHz

Channel Separation: Better than 25 dB at 1 kHz

Output Voltage: 3 mV at 1 kHz, 5 cm/sec, 45°

Tracking Force: 1.5 – 2.5 g (2 g recommended)

Stylus: Sony ND-134G (Conical 0.6 mil diamond)

Weight: 5.5 g

AMPLIFIER SECTION

Continuous RMS Power Output: (less than 0.2% THD, both channels driven simultaneously) at 20 Hz – 20 kHz
30 W + 30 W (8 Ω)
40 W + 40 W (4 Ω)

Music Power: 90 W (8 Ω, THD 0.2 %)

Power Bandwidth (IHF): 20 Hz – 20 kHz

Inputs:

	Sensitivity	Impedance	S/N
PHONO (phono jacks)	3.5 mV (–47 dB)	47 kΩ	65 dB
AUX (phono jacks)	250 mV (–10 dB)	47 kΩ	70 dB
MIC (phone jacks)	1 mV (–57.5 dB)	for low-impedance microphone	60 dB

Outputs:

REC OUT (phono jacks)	output voltage 250 mV (–10 dB)	impedance 10 kΩ
HEADPHONES	Accepts headphones of 8 Ω or more	
SPEAKER	Accepts speakers of 4 – 8 Ω	

Frequency Response: PHONO: RIAA curve ±2 dB
AUX: 20 Hz – 50 kHz ±2 dB

Tone Controls: BASS: ±10 dB at 100 Hz
TREBLE: ±10 dB at 10 kHz

Loudness Control: (att. 30dB) +7 dB at 100 Hz
+2 dB at 10 kHz

TIMER SECTION

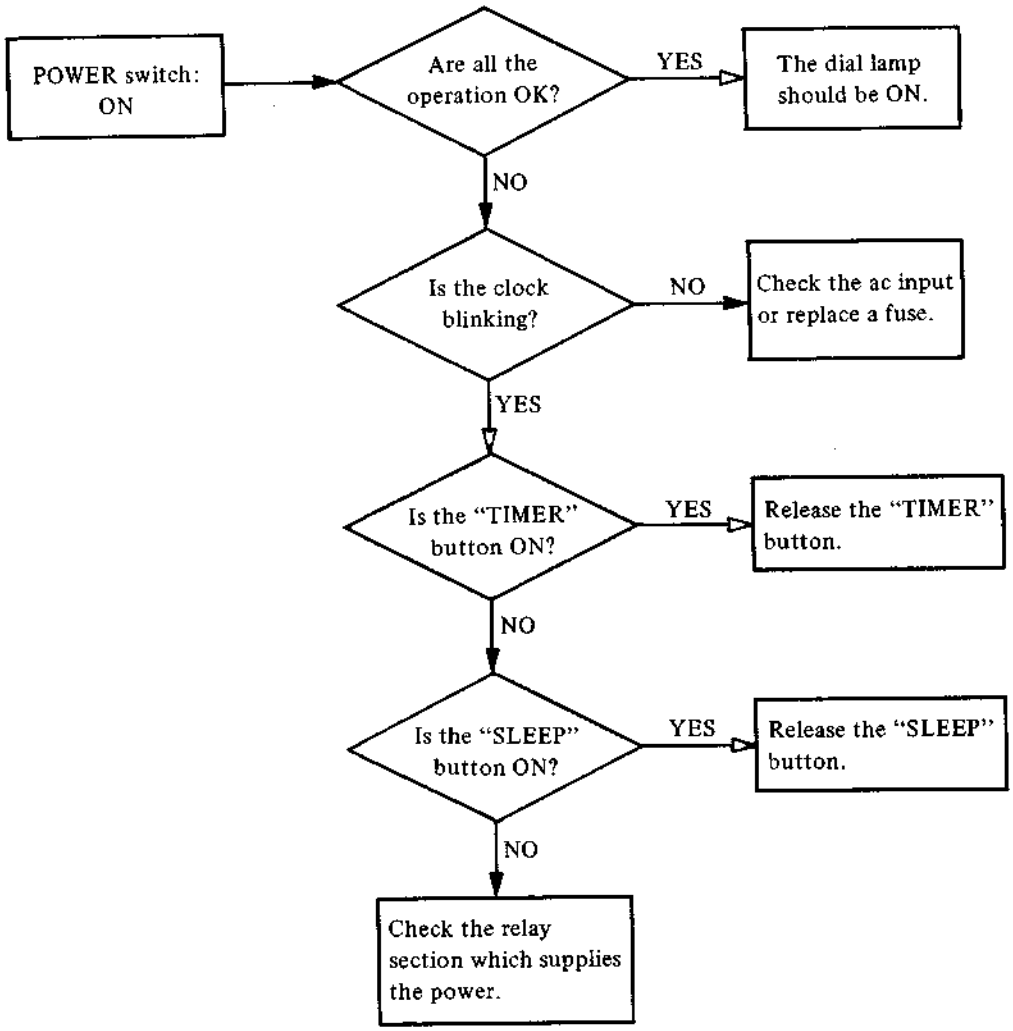
Clock System: Synchronized with power line frequency

Control Time: 12-hour system (UK model)
24-hour system (AEP model)

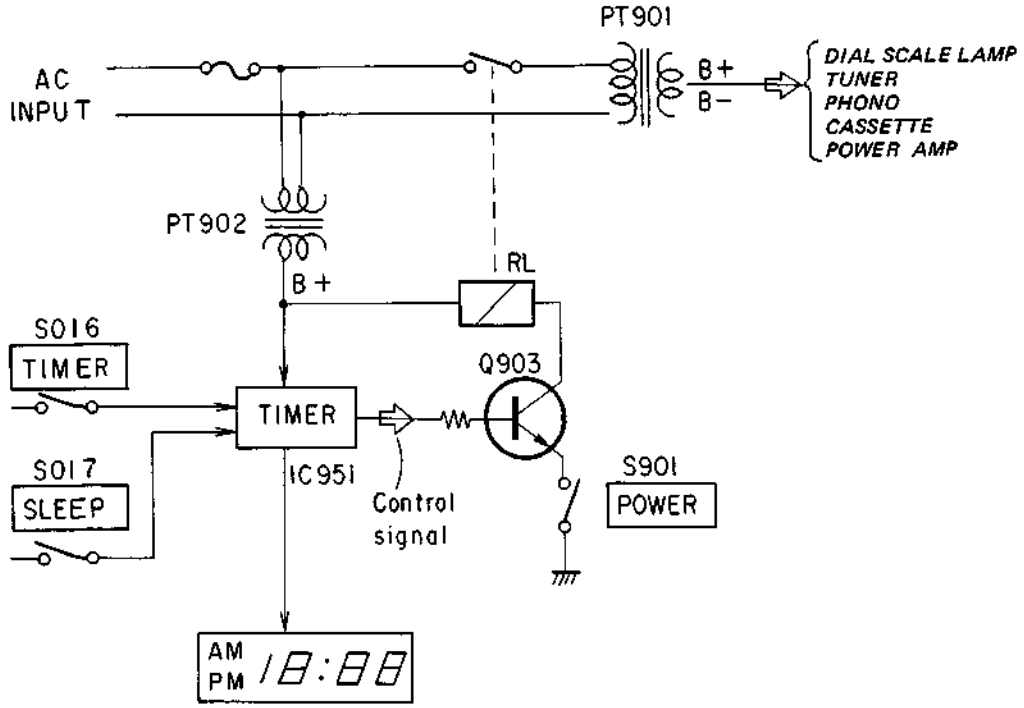
0 dB = 0.775 V

• SERVICING NOTE

1. Although this set is equipped with a dc motor, the clock section corresponds with the frequency of the ac line. Therefore, the frequency must be selected by the frequency selector switch (S013).
2. As this set is equipped with a clock section, other functions may not operate when the "TIMER" or "SLEEP" button is pushed. That is, other functions may not operate just by turning the power switch on.
   Check the set according to the following chart.



The related circuit is as shown below.



3. When "SLEEP" operation does not function, check also D955.
   The control signal, which turns the relay on during the "SLEEP" operation (0 – 59 minutes), is supplied to Q903 as shown in Fig. 1.

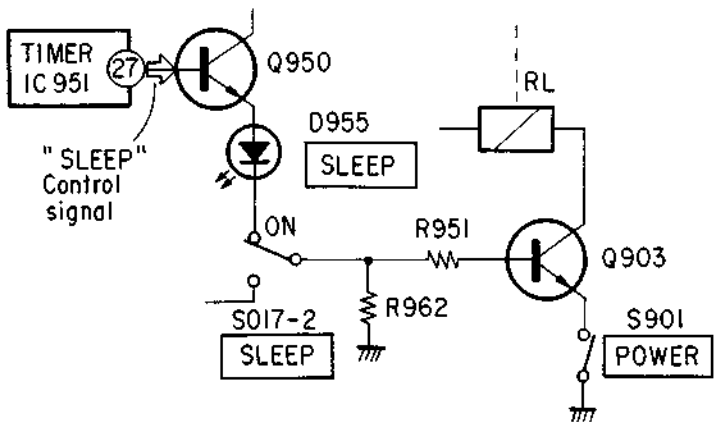


Fig. 1

Handling Precautions for MOS ICs

Generally, the insulation resistance of the oxide layer in MOS IC structures is very high, and the oxide layer is very thin. Because of this, it is possible that the static voltages usually present on clothes and the human body will be enough to generate a potential difference across the insulator, high enough to cause a breakdown of the insulating layer.

The following precautions should be taken while handling these ICs.

(Particular care should be taken under conditions of low humidity.)

Precautions in Replacing MOS ICs

1. Store new ICs by inserting them into a urethane-polyester cushion (which is somewhat conductive), or wrapping it in aluminum foil, so that all the pins are at the same potential.
   (The ICs should be stored in that manner until mounted on the circuit board.)

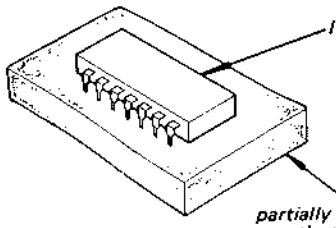


Fig. A

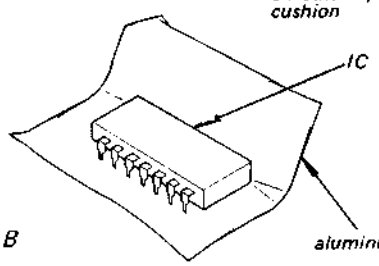


Fig. B

2. Check the soldering iron for possible power-line leakage current. Make sure that there is no leakage path by connecting an ohmmeter to the tip of the soldering iron and the plug as shown in Fig. C. If there is a leakage path, use some other soldering iron.

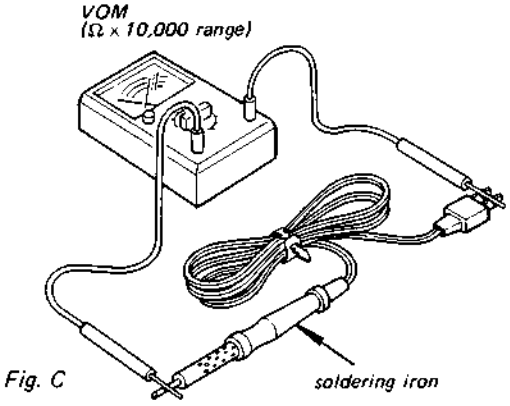


Fig. C

3. Equalize any potential difference between the clothes, the tools in use, the work bench, the set being worked on, and the packaged IC by touching them all in succession with the hands or a conductive wire or tool.
4. The following are effective methods for handling ICs that remove the potential difference across the oxide layer.
   - Use a paper clip modified by soldering in a wire braid insert.

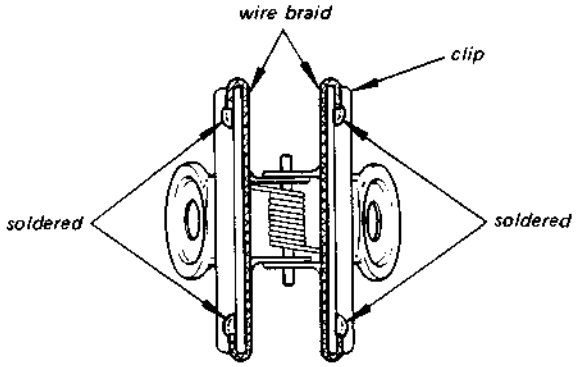


Fig. D

Make sure that there is no solder on the inside.

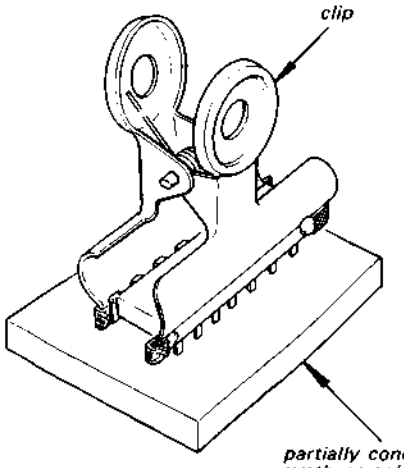
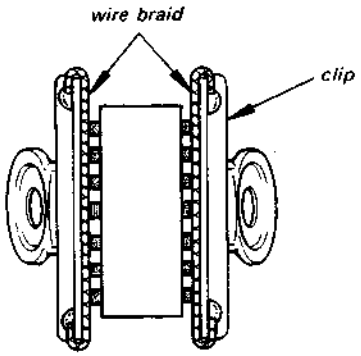


Fig. E



Make sure that all the pins are in contact with the wire braid (all the pins will then be at the same potential.).

Fig. F

- Take a short length of fine bare wire and wind it around the IC so that it shorts all the pins of the IC, while it is still in the urethane-polyester cushion or aluminum foil. This ensures that all the pins are at the same potential.

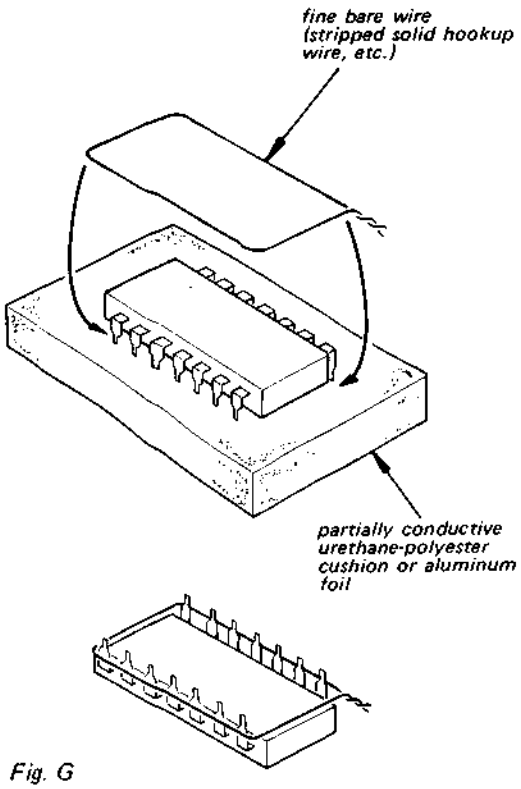


Fig. G

- When it is necessary to handle the IC with the fingers, do not touch any pin, and hold the IC at the ends of its plastic-package case as shown in Fig. H.

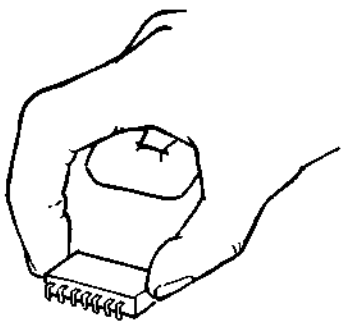


Fig. H

5. Method of Mounting
Insert the IC while holding it with the modified clip, and solder all the pins with the clip still shorting the pins. (Similarly, solder all the pins while the bare shorting wire is still wound around them.). Remove the clip or the bare shorting wire only after all the pins have been soldered.

Precaution while Checking C-MOS ICs

The C-MOS ICs (Complementary MOS) are MOS ICs that have their output sections made up of N-channel and P-channel push-pull stages to increase their speed of operation. If the output terminal of these ICs comes into contact with B+ or B- voltage, then the FET which is ON at that time will either become shorted or open.

This is valid for all the output sections that are connected together by the interconnections. Even the circuits that are physically separated (and not on the same board) can be destroyed simultaneously.

Example:

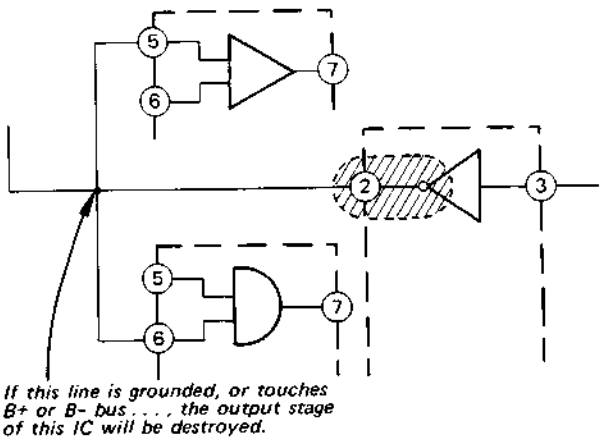
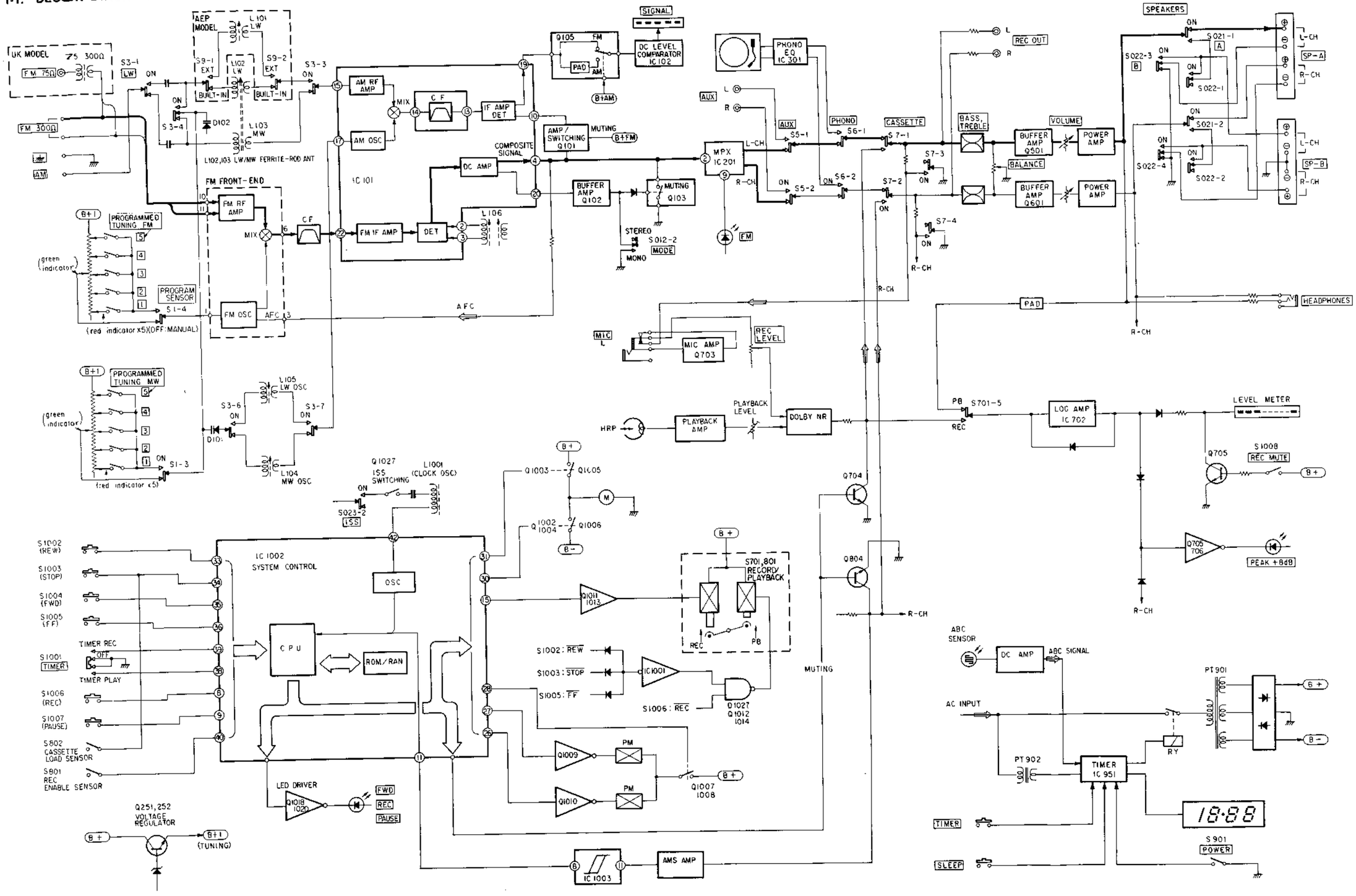


Fig. I

SECTION 1
OUTLINE

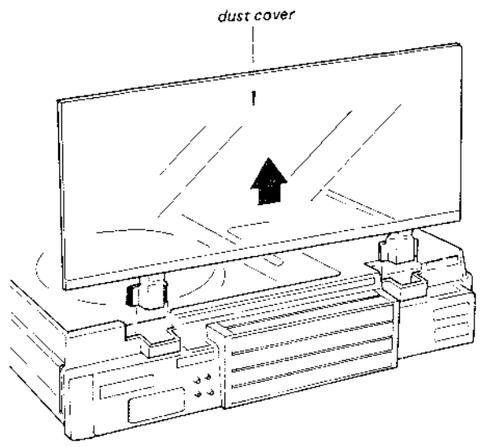
1-1. BLOCK DIAGRAM



SECTION 2
DISASSEMBLY

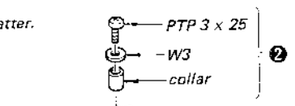
Note: Follow the disassembly procedure in the numerical order given.

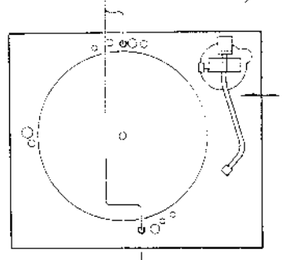
DUST COVER



RECORD PLAYER SECTION

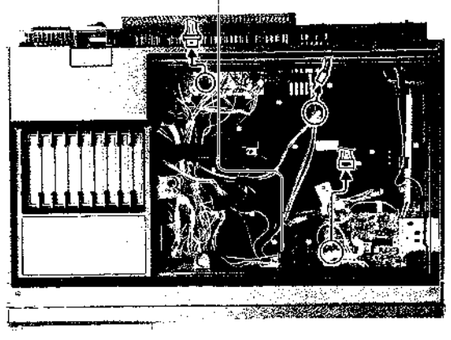
❶ *Remove the rubber mat and the platter.*



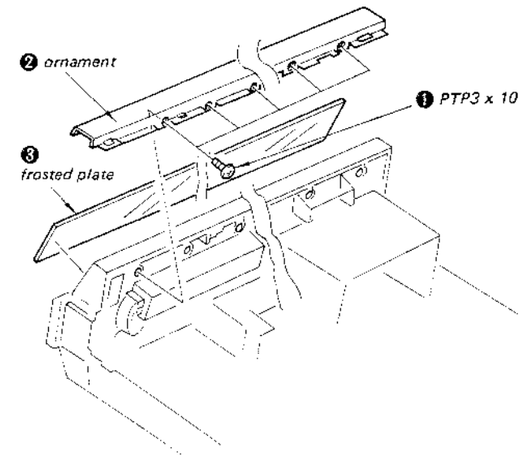


❸ *Lift up the record player section about 10cm and remove three connectors.*

❹ *Remove the record player section.*



FROSTED PLATE

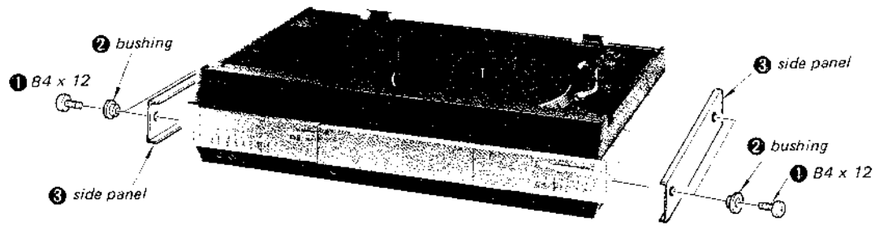


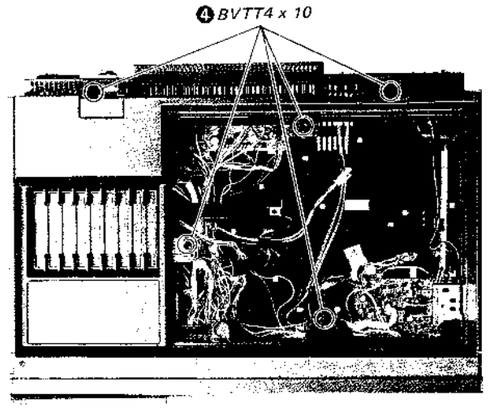
CIRCUIT BOARD
- See page 13.

DIAL CORD STRINGING
- See page 17.

LOADING CORD STRINGING
- See page 16.

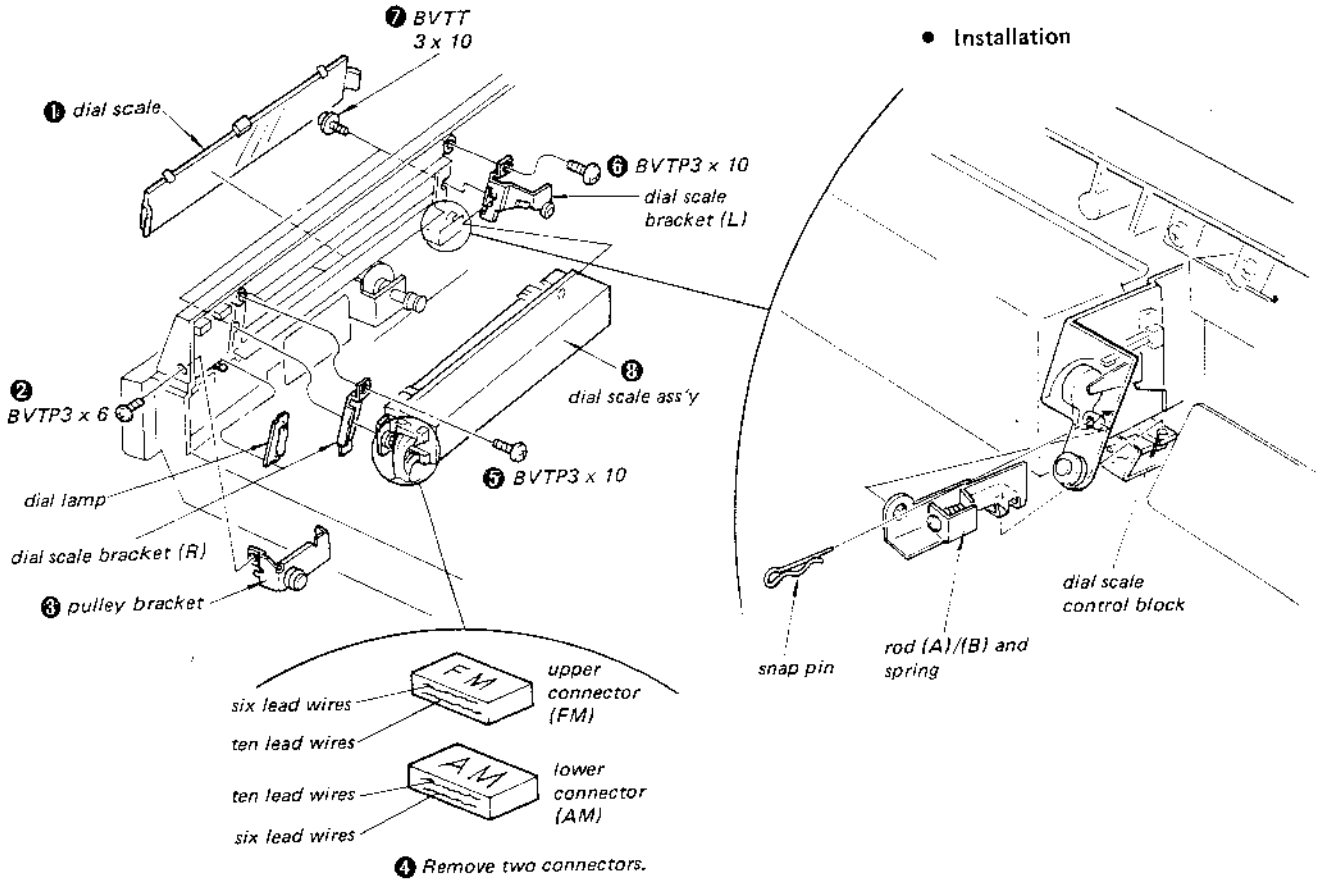
CASE





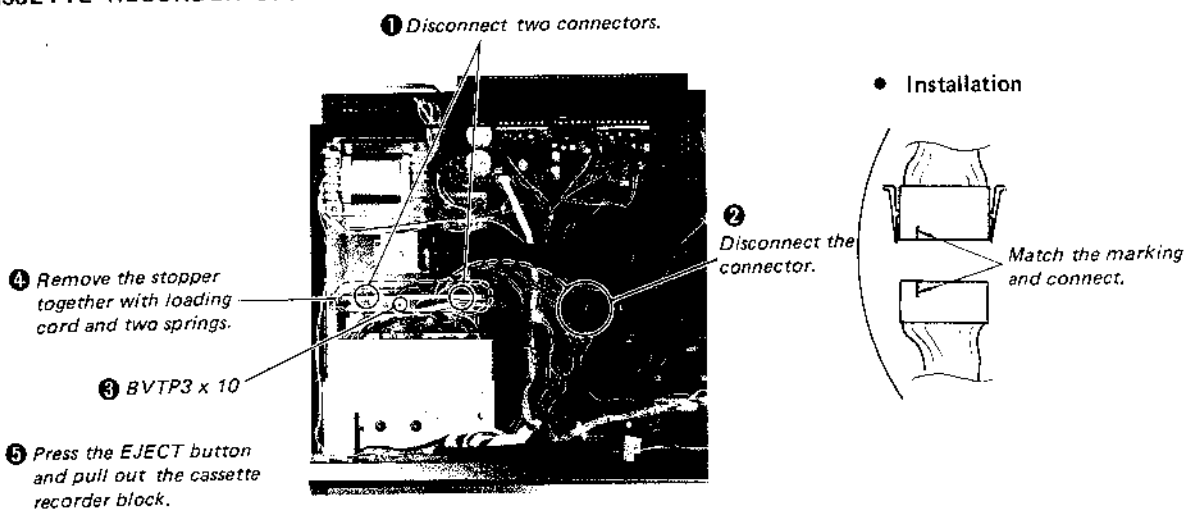
❺ *Lift up the case and remove it.*

DIAL SCALE

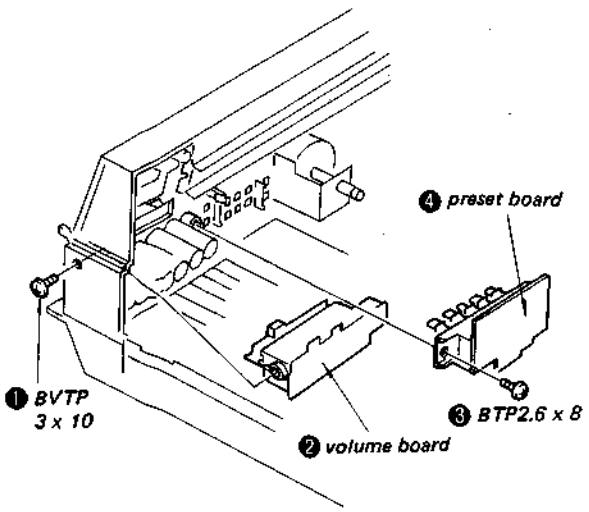


UPPER CASSETTE CASE
• See page 14.

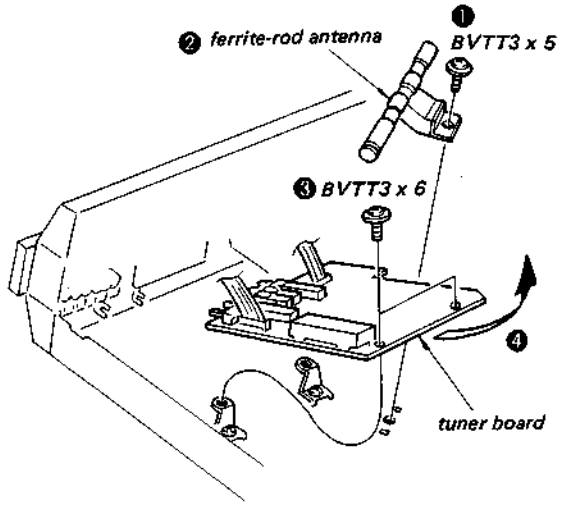
CASSETTE RECORDER SECTION



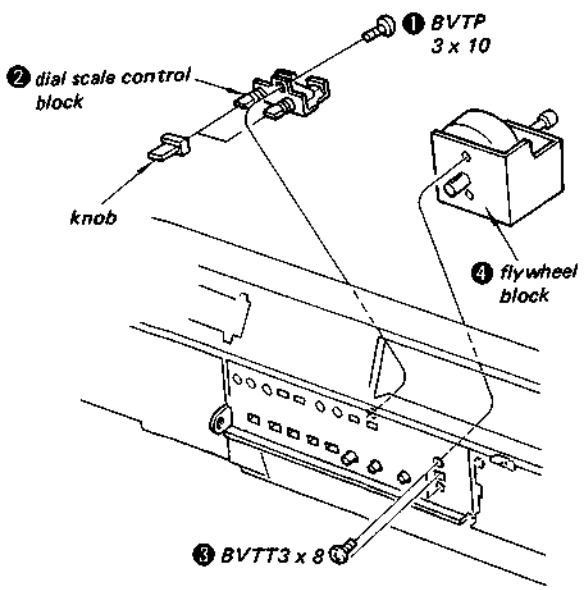
VOLUME and PRESET BOARD



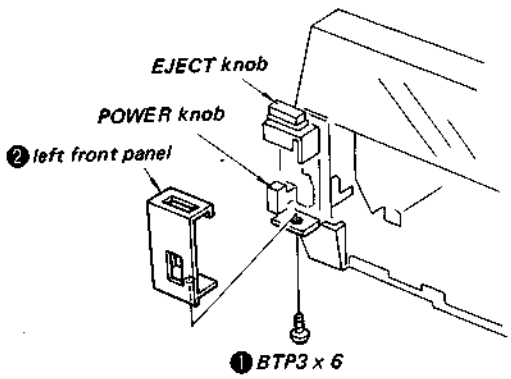
TUNER BOARD



FLYWHEEL BLOCK



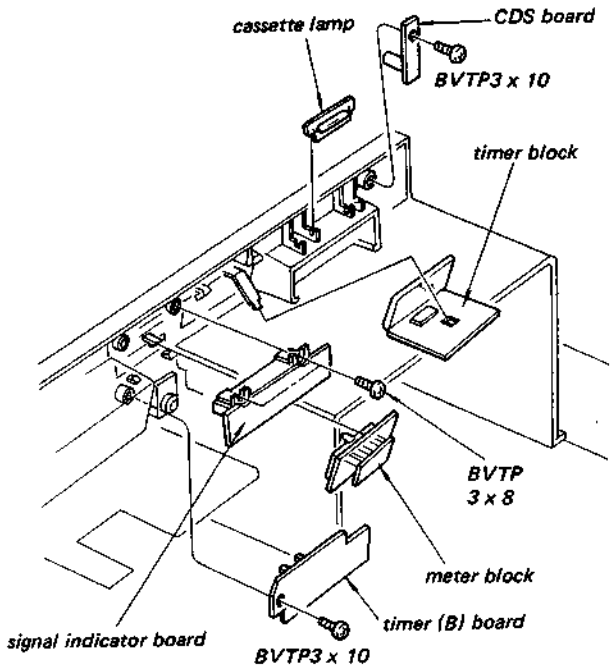
LEFT FRONT PANEL



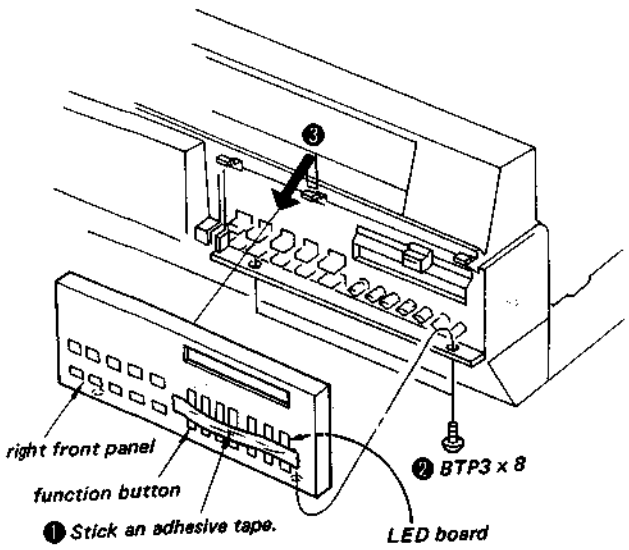
FROSTED PLATE

- See page 10.

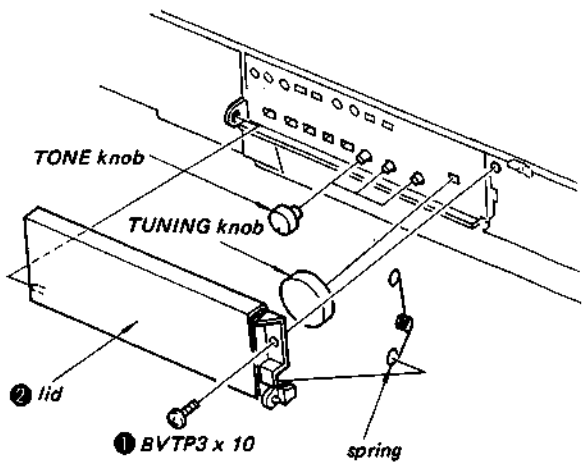
CIRCUIT BOARD



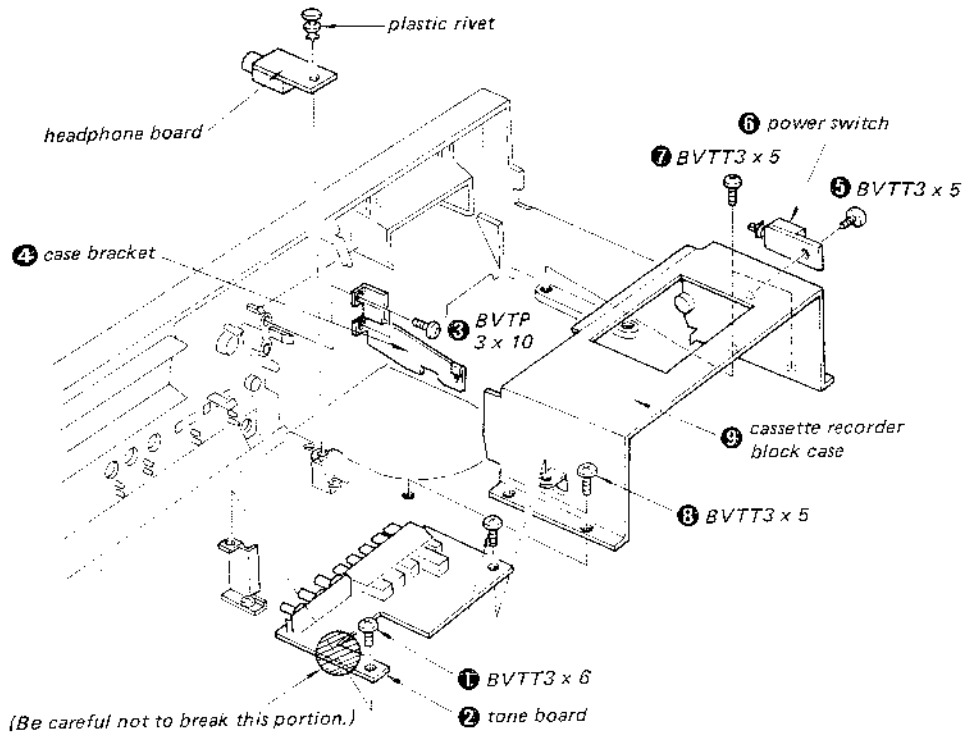
RIGHT FRONT PANEL



LID



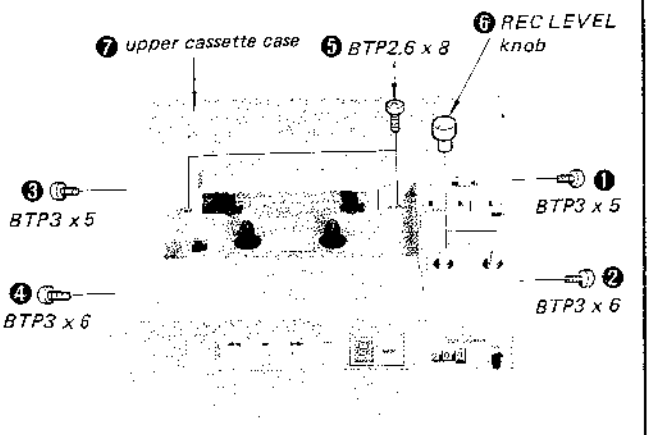
CASSETTE RECORDER BLOCK CASE



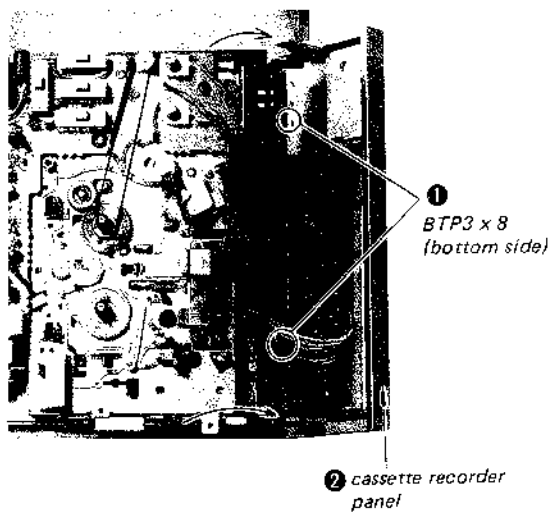
CASSETTE RECORDER SECTION

• See page 11.

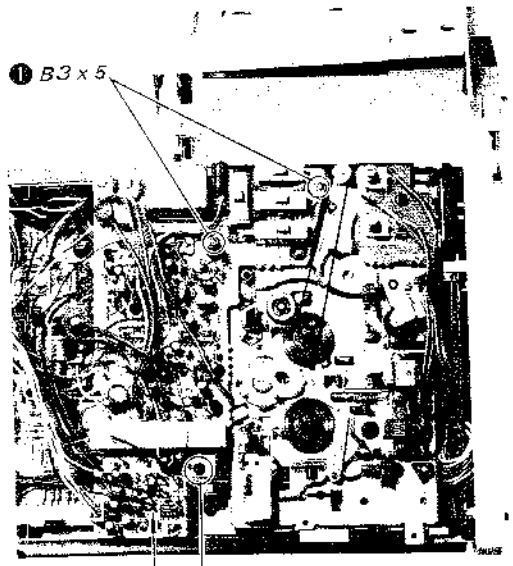
UPPER CASSETTE CASE



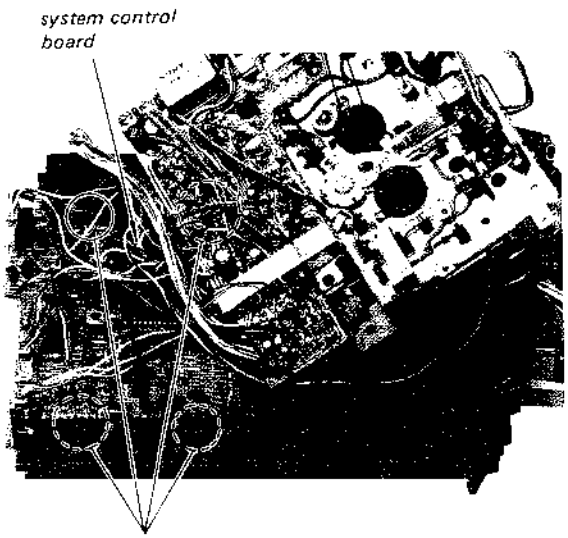
CASSETTE RECORDER PANEL



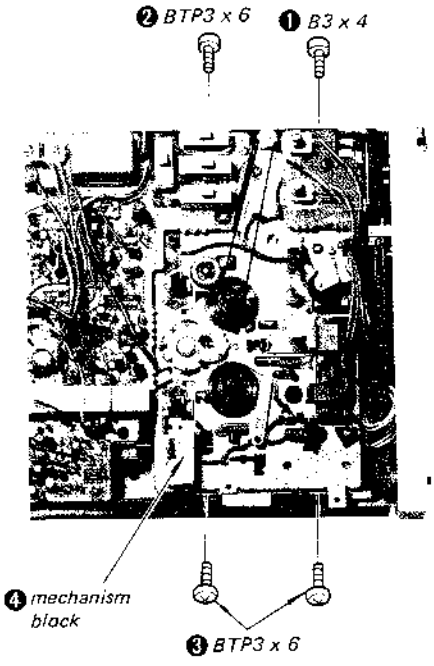
CASSETTE AMP BOARD



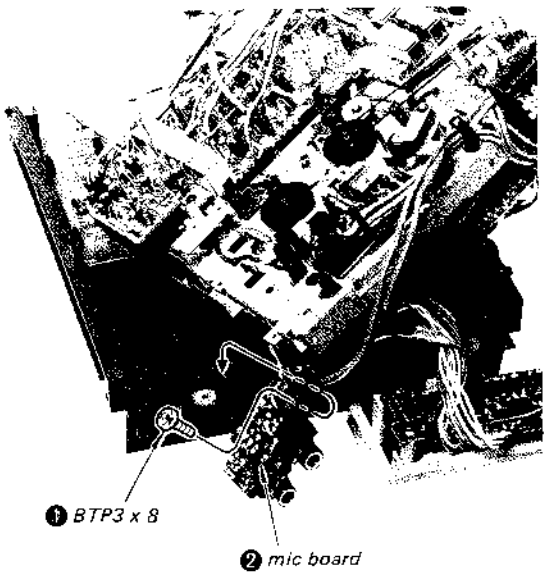
SYSTEM CONTROL BOARD



MECHANISM BLOCK

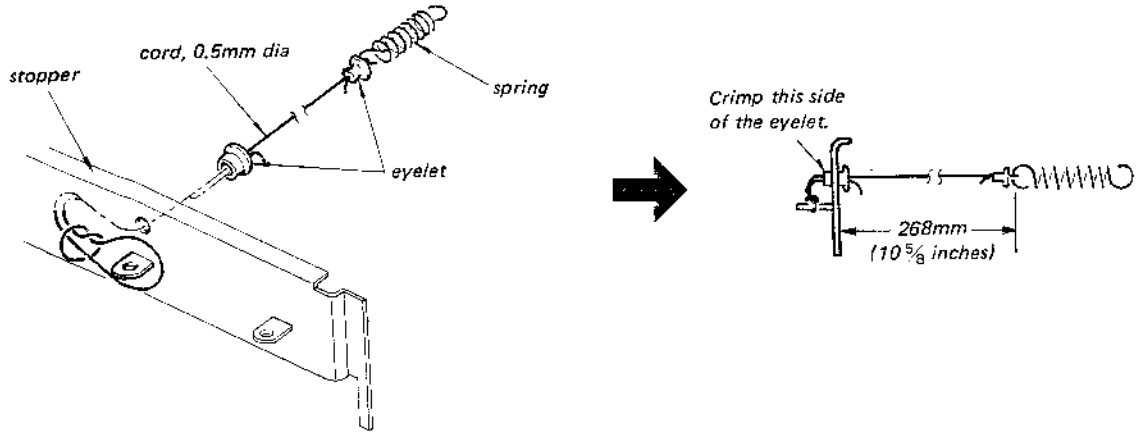


MIC BOARD

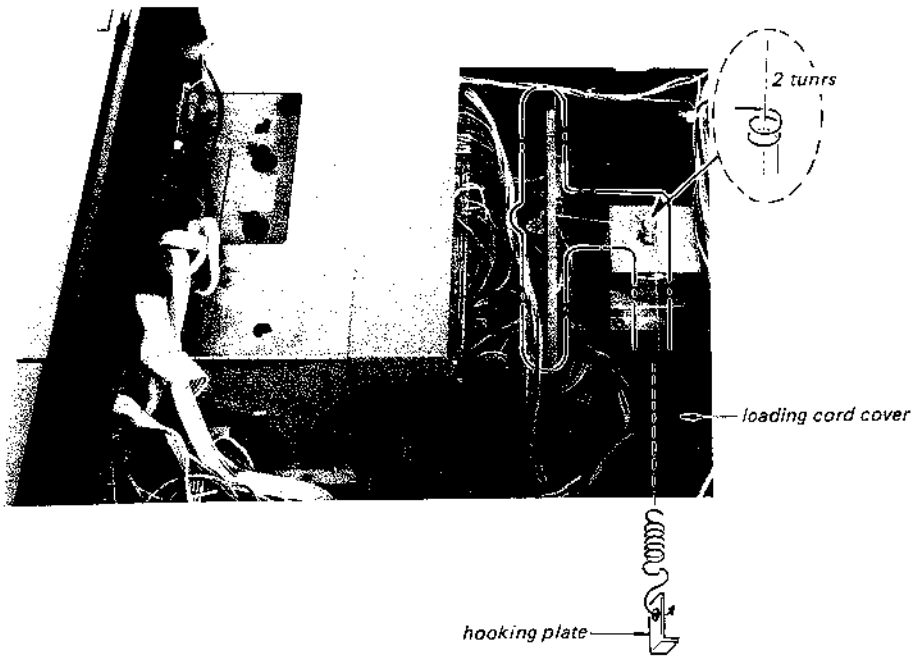


LOADING CORD STRINGING

- **Preparation**

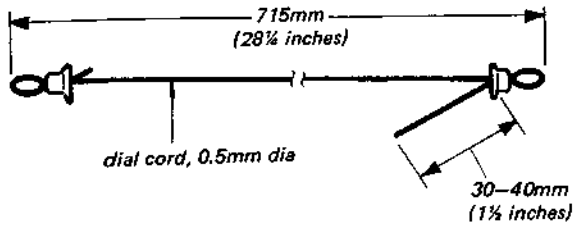


- **Stringing**

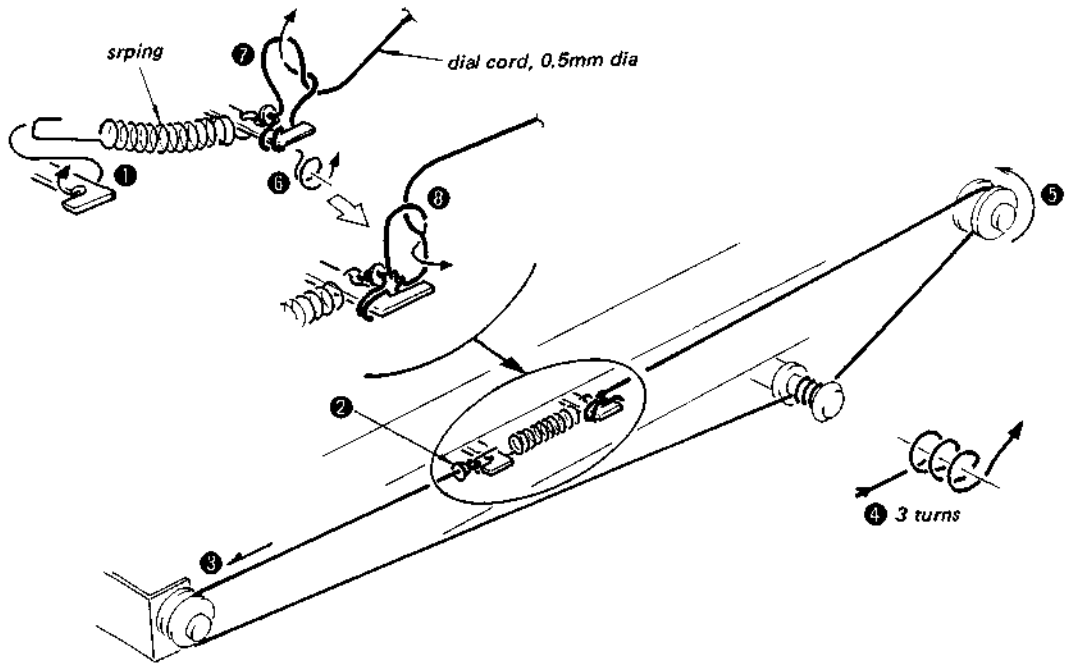


DIAL CORD STRINGING

- **Preparation**



- **Stringing**



SECTION 3
ADJUSTMENTS

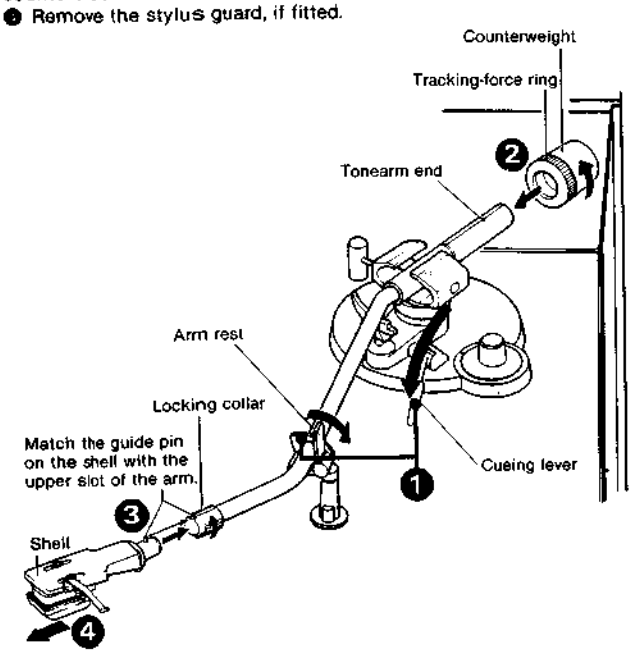
3-1. MECHANICAL ADJUSTMENTS

• RECORD PLAYER SECTION

The following procedures should be performed on a level surface. Be careful not to damage the stylus tip while making adjustments.

Preparation

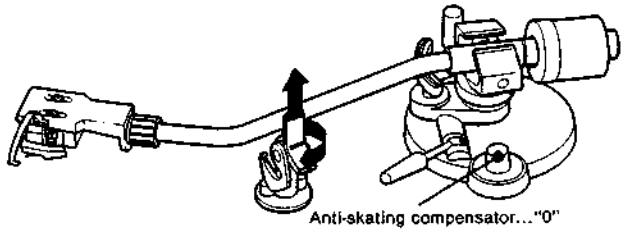
❶ Release the tonearm from the arm rest and bring the tonearm end towards the corner of the cabinet. Lower the cueing lever.
❷ Insert and turn the counterweight counterclockwise several turns. (The tracking-force ring turns simultaneously.)
❸ Plug the shell into the tonearm and turn the locking collar counterclockwise until the shell is firmly locked.
❹ Remove the stylus guard, if fitted.



Longitudinal balance adjustment *1

Before adjusting the longitudinal balance of the tonearm, lower the tonearm platform located in front of the arm base as follows:
❶ Set the record size selector [SIZE SELECT] to MANUAL.
❷ Push the START/STOP button.
❸ Turn the turntable more than four times clockwise by your hand. The tonearm platform will be lowered.

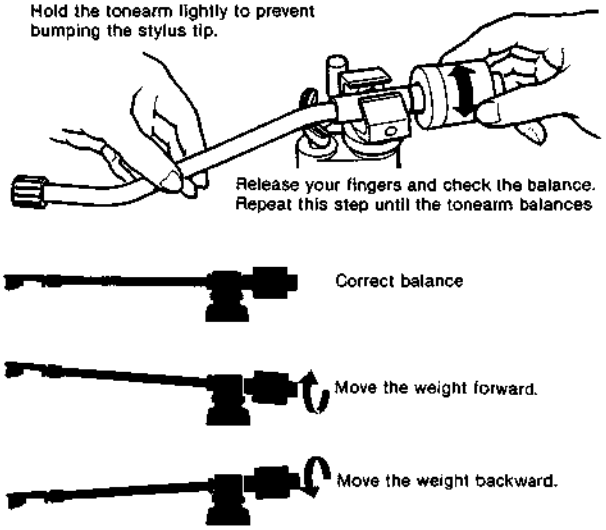
Then adjust the longitudinal balance as follows:
❶ Be sure that the anti-skating compensator is set at "0". Be sure to release the tonearm from the arm rest. Pull up the upper portion of the arm rest and turn it 180 degrees clockwise so as to lower it.



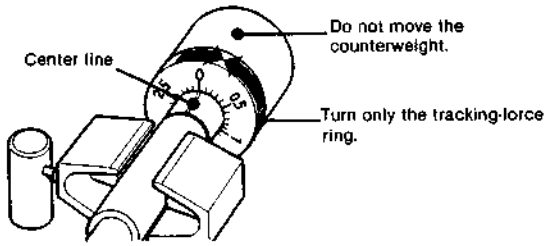
***1 Longitudinal balance adjustment**

While playing the record, the weight of the tonearm is supported by the arm pivot and only tracking force is applied to the stylus tip. To accomplish this, the tonearm must first be balanced horizontally, with the tracking force indicator set at "0".

❷ Turn the counterweight as required until the tonearm is in a horizontally balanced position. (The tracking-force ring turns simultaneously.)

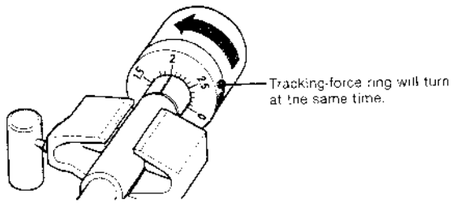


❸ While holding the counterweight at the balanced position, separately turn the tracking-force ring until the "0" indication meets the center line on the tonearm. Recheck the balance.

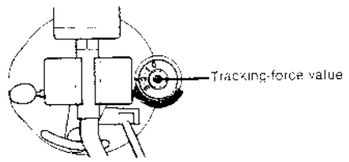


❹ Pull up the arm rest and turn it counterclockwise so that the arm rest returns to its original position.
Secure the tonearm to the arm rest again, and install the stylus guard.
❺ After the longitudinal balance adjustment has completed, be sure to lift up the tonearm platform to the original position by pressing the START/STOP button and turning the turntable more than four times clockwise by your hand.

Tracking-force adjustment *2
Turn the counterweight counterclockwise so that the recommended tracking-force figure for your cartridge is aligned with the center line on the tonearm. The maximum tracking force available is 3 grams.
● The recommended tracking force for the supplied cartridge is 2 g.



Anti-skating compensation *3
Turn the anti-skating compensator so that the guide mark meets the tracking-force value used.



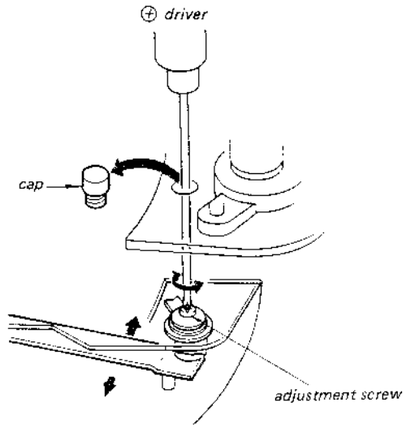
***2 Tracking force**
After the longitudinal balance adjustment, apply the recommended tracking force weight so that the stylus tip will trace the music groove accurately.

***3 Anti-skating compensation**
While the record is being played, the frictional force between the record groove and the stylus produces a force that tends to drive the tonearm toward the center of the record.
The anti-skating compensation cancels the above mentioned force, and is applied in accordance with the tracking force.
Incorrect anti-skating compensation results in sound distortion and uneven wear on both the stylus and the record.

Tonearm Drop-point Adjustment

Setting:

POWER switch: ON



1. Set the record size selector lever to the 30 (12") position and make sure that the stylus drops on the specified point of the test record.

   test record: YFSC-16

Record size selector lever position	Count of drop-point
30 (12")	7 to 13

2. If necessary, insert the screw-driver into the hole and adjust the drop-point by turning the adjustment screw.

   To change the drop-point outward:
   Turn the adjustment screw slightly counterclockwise.
   To change the drop-point inward:
   Turn the adjustment screw slightly clockwise.

3. Once it is properly adjusted with a 30 cm (12") record, the drop-point will be correct for both 17 cm (7") and 25 cm (10") records.

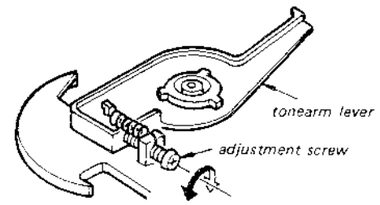
   Note: The stylus drop-point changes about 12 mm (½") by one turn of the adjustment screw.

Automatic Return Position Adjustment

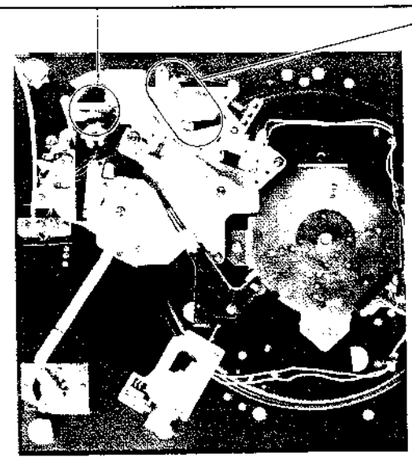
Setting:

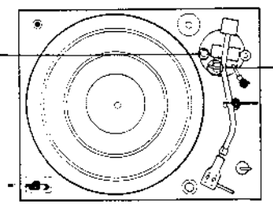
POWER switch: ON

1. Set the stylus on the groove of the test record (YFSB-6).
2. Turn the adjustment screw so that the tonearm starts to return at count of 15 – 17.



Turning direction	Count of return point
clockwise	down
counterclockwise	up



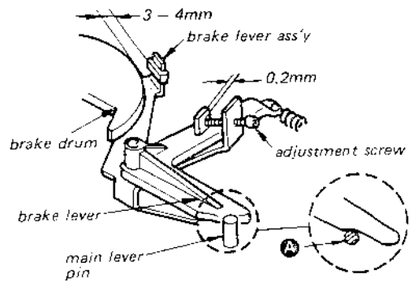


Brake Lever Position Adjustment

Setting:

POWER switch: OFF

1. Secure the tonearm to the arm rest.
2. Rotate the drive gear by hand and set the main lever pin to the position Ⓐ.
3. Turn the adjustment screw so that the clearance between the brake drum and the brake lever ass'y is 3 – 4mm as shown below.



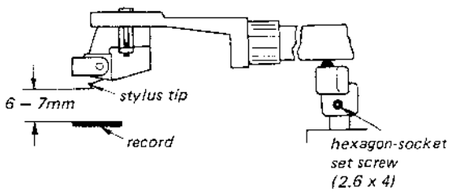
Tonearm Height Adjustment

Setting:

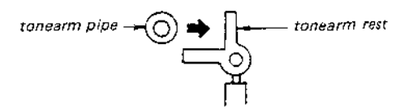
POWER switch: OFF

Procedure:

1. Bring the tonearm toward the center of the record and put the stylus in the last groove of the record.
2. Slowly turn the turntable by hand to lift the tonearm.
3. Confirm that the clearance between the stylus tip and the record is 6 7mm as shown below. If necessary, adjust the height of the arm lifter by loosening the hexagon-socket set screw.



4. After the adjustment, confirm that the tonearm smoothly returns to the tonearm rest as shown below.



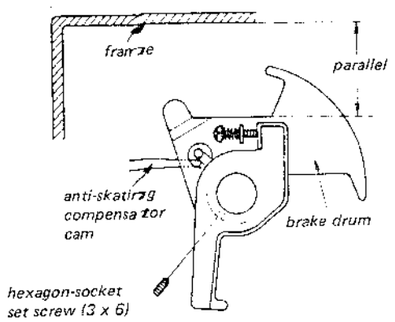
Brake Drum Position Adjustment

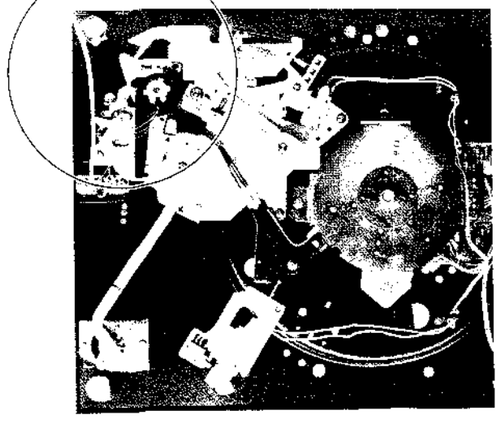
Setting:

POWER switch: OFF

Procedure:

1. Secure the tonearm to the arm rest.
2. Adjust the position of the brake drum by loosening the hexagon-socket set screw as shown below.





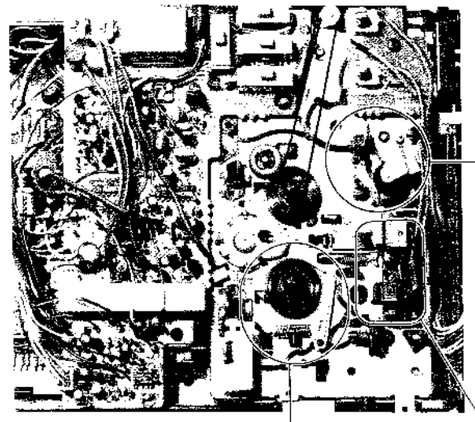
• CASSETTE RECORDER SECTION

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

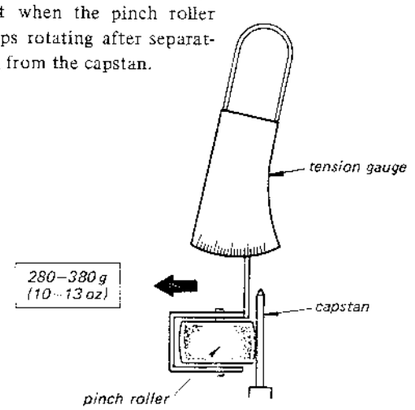
record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply a suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.



Pinch Roller Pressure Measurement
— Forward Mode —

Slowly pull the pinch roller and read the tension gauge just when the pinch roller stops rotating after separating from the capstan.

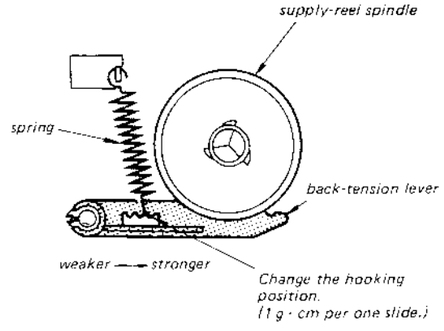


Torque Measurement and Back Tension Torque Adjustment

1.

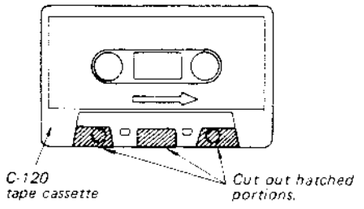
Torque	Torque meter	Meter reading
Forward	CQ-102C	30–55 g · cm (0.42–0.76 oz · inch)
Back tension	CQ-102C	2.5–4.5 g · cm (0.04–0.06 oz · inch)

2. If the specified back-tension torque is not obtained, change the hooking position.

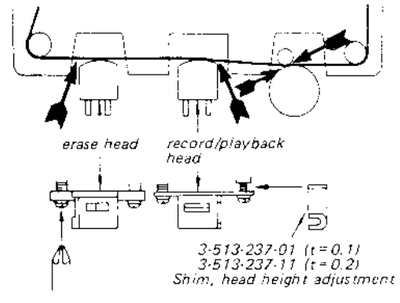


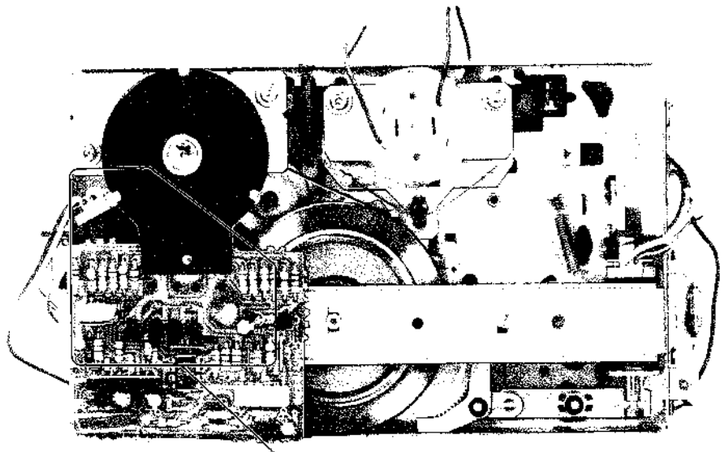
Head Height Adjustment

1. Prepare an adjustment cassette as shown below.



2. In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at portions shwon by arrow.





Brake Solenoid (PM1) Position Adjustment

– Stop Mode –

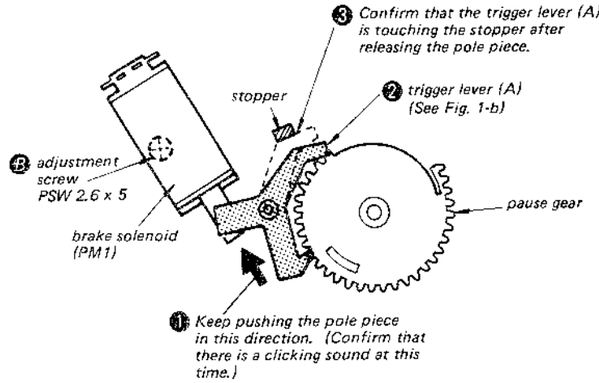


Fig. 1-a.

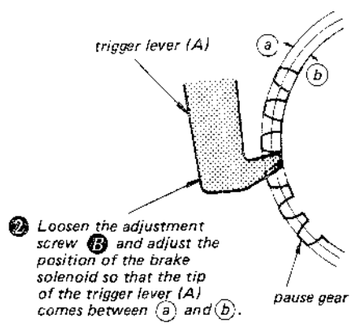
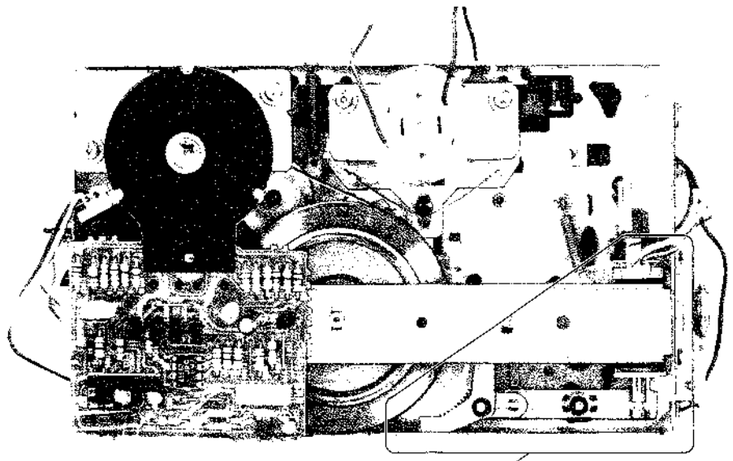


Fig. 1-b.



Head Solenoid (PM2) Position Adjustment

– Stop Mode –

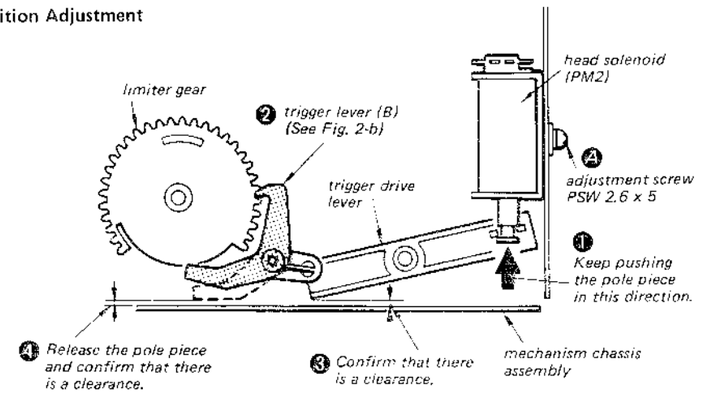


Fig. 2-a

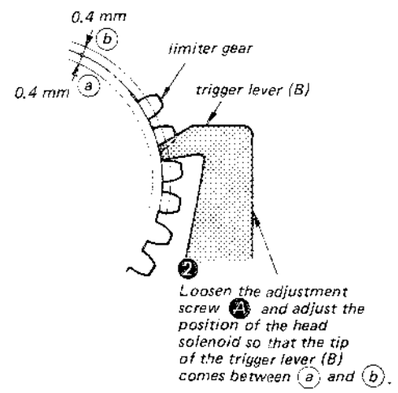


Fig. 2-b

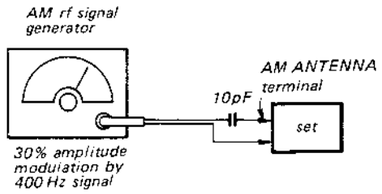
3-2. ELECTRICAL ADJUSTMENTS

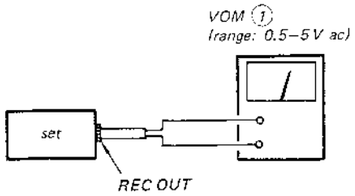
• TUNER SECTION

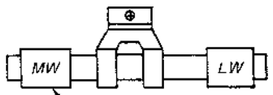
MW/LW SECTION

Setting:

Function switch: MW or LW





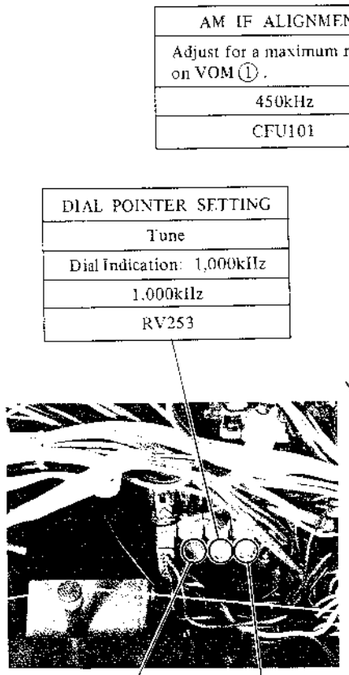


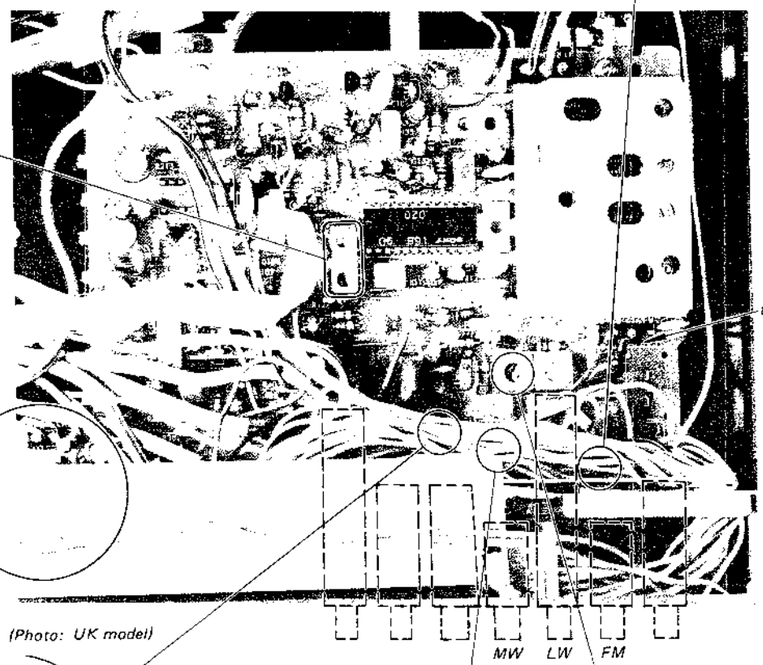
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
600kHz	1,400kHz
L103	CT102

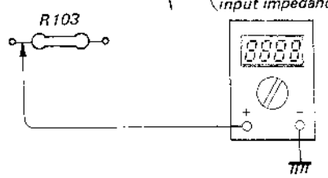
AM IF ALIGNMENT
Adjust for a maximum reading on VOM ①.
450kHz
CFU101

DIAL POINTER SETTING
Tune
Dial Indication: 1,000kHz
1,000kHz
RV253

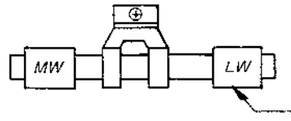




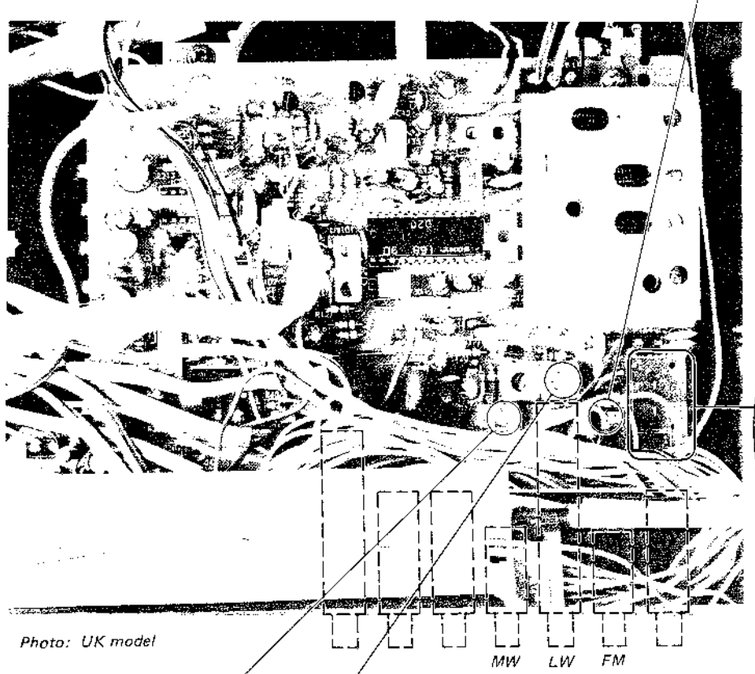
RV256	RV252
2.00V	25.0V
Dial Indication: fmin	Dial Indication: fmax
Adjust for a specified reading on digital tester ②.	
TUNING CONTROL VOLTAGE ADJUSTMENT	

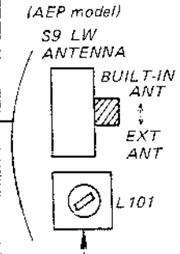


CT104	L104
1,660kHz	515kHz
Dial Indication: fmax	Dial Indication: fmin
Adjust for a maximum reading on VOM ①.	
MW FREQUENCY COVERAGE ADJUSTMENT	



LW TRACKING ADJUSTMENT 1	
Adjust for a maximum reading on VOM ①.	
LW ANTENNA switch: BUILT-IN position	
170kHz	320kHz
L102	CT101





CT103	L105
365kHz	145kHz
Dial Indication: fmax	Dial Indication: fmin
Adjust for a maximum reading on VOM ①.	
LW FREQUENCY COVERAGE ADJUSTMENT	

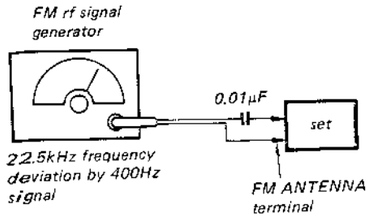
L101
170kHz
LW ANTENNA switch: EXT position
Adjust for a maximum reading on VOM ①.
LW TRACKING ADJUSTMENT 2

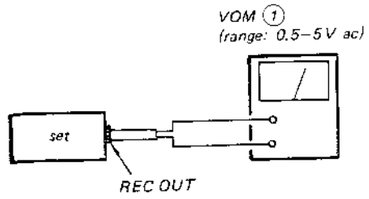
(AEP model)

FM SECTION

Setting :

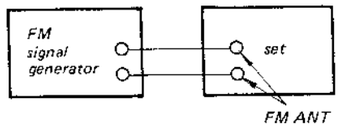
Function switch: FM





VCO Adjustment

A) With Frequency Counter

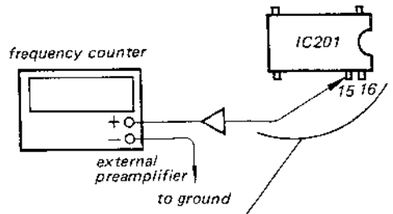


FM Signal Generator Setting:

Carrier frequency: 98 MHz
Modulation: no modulation
Output level: 1 mV (60 dB)

Procedure:

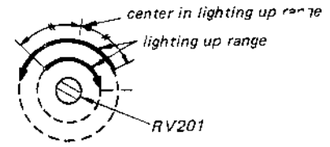
1. Tune the set to 98 MHz.
2. Adjust RV201 for 76 kHz ± 50 Hz on the counter.



B) Without Frequency Counter

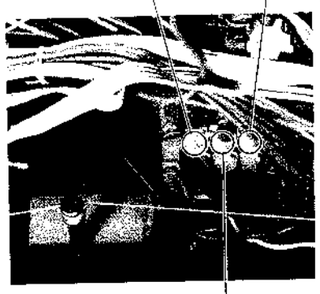
Procedure:

1. Tune the set to FM stereo signals.
2. Turn RV201 clockwise or counterclockwise and secure RV201 at the center in lighting-up range of stereo lamp as shown below.

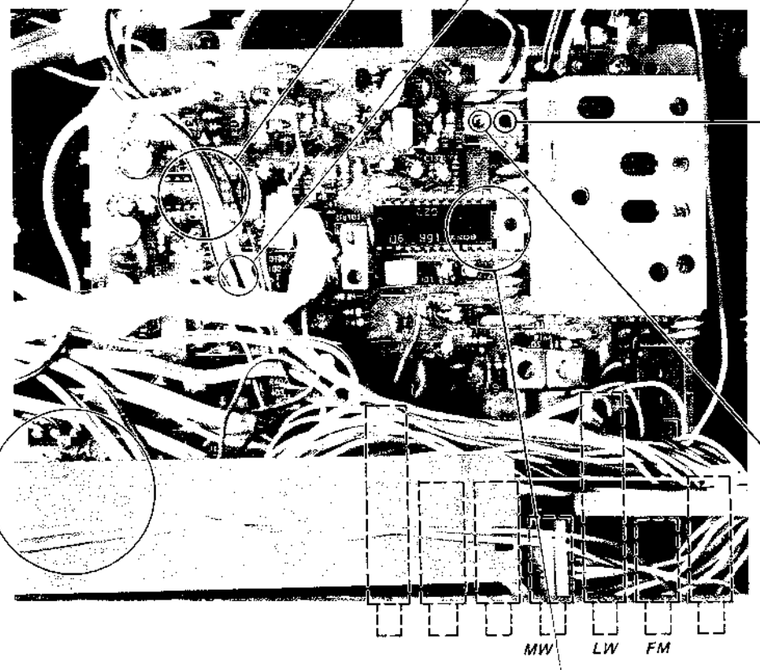


FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
Set RV255 to mechanical-mid position	
Dial Indication: fmin	Dial Indication: fmax
87.1MHz (87.5MHz)	108.5MHz (108MHz)
RV254	RV251

( ): in West Germany



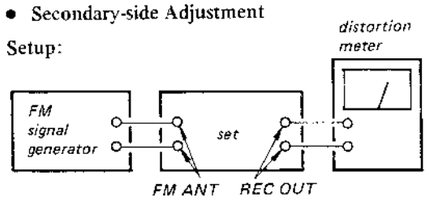
RV255
98MHz
Dial Indication: 98MHz
Tune
DIAL POINTER SETTING



Discriminator Adjustment

• Secondary-side Adjustment

Setup:

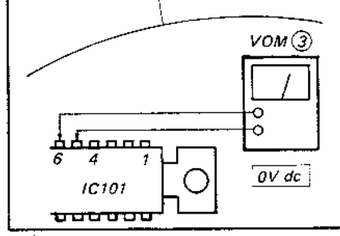


FM Signal Generator Setting:

Carrier frequency: 98 MHz
Output level: 1 mV (60 dB)
Modulation: 400 Hz, 75 kHz deviation (100%)

Procedure:

1. Tune the set to 98 MHz.
2. Adjust the secondary-side core (white) of L106 for a minimum reading on the distortion meter.



• Primary-side Adjustment

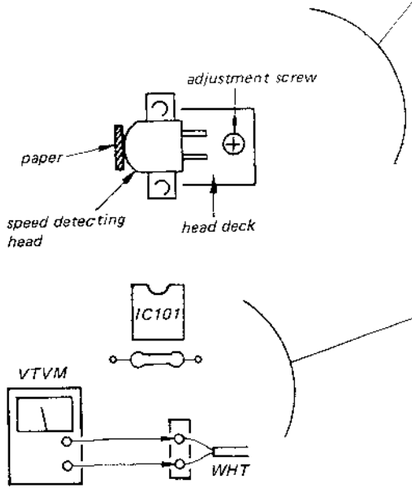
Procedure:

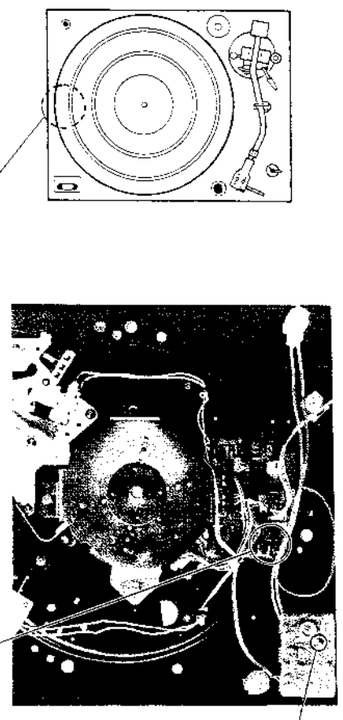
1. Detune the set.
2. Adjust the primary-side core (yellow) of L106 so that the voltage between terminals ④ and ⑥ of IC101 reads 0V.

• RECORD PLAYE R SECTION

Speed Detecting Head Position Adjustment

1. Remove the platter.
2. Loosen the adjustment screw.
3. Slide the head deck backwards.
4. Fix a sheet of paper (0.3mm thick) to the head tip.
5. Install the platter and slide the head deck forwards so that the paper touches the platter.
6. Remove the platter and tighten the adjustment screw.
7. Remove the paper and install the platter.
8. Make sure that the VTVM reading is 10–50mV ac at "33" rpm.
9. If necessary, adjust the position of the head deck.





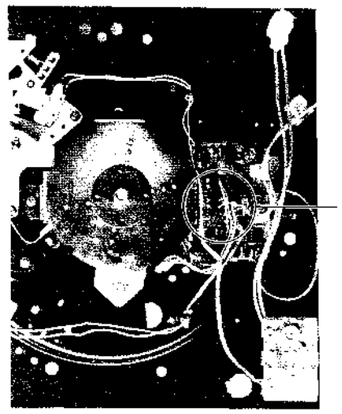
Turntable Speed Adjustment

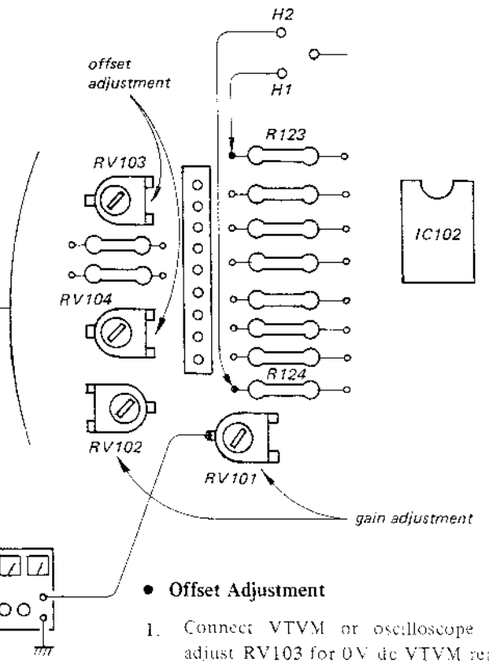
If correct speed cannot be obtained by adjusting the PITCH controls, adjust RV201.

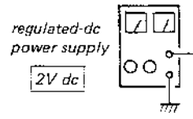
1. Set the two PITCH control knobs (33 and 45) to the mechanical-mid position.
2. Set the SPEED selector switch (S201) to "33" position and adjust RV201 so that the stroboscope pattern appears stationary.

Gain/Offset Adjustment

• Connect the regulated power supply as shown below.

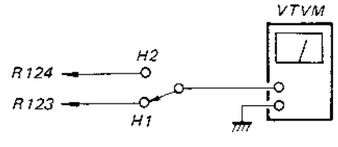






• **Gain Adjustment**

1. Connect VTVM to H1 and adjust RV101 for 2V ac reading on VTVM.
2. Connect VTVM to H2 and adjust RV102 for 2V ac reading on VTVM.

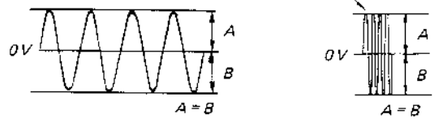


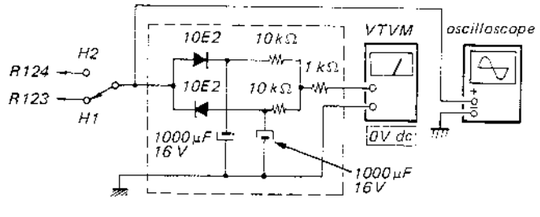
• **Offset Adjustment**

1. Connect VTVM or oscilloscope to H1 and adjust RV103 for 0V dc VTVM reading or for the waveform on oscilloscope as shown below.
2. Connect VTVM or oscilloscope to H2 and adjust RV104 for 0V dc VTVM reading or for the waveform on oscilloscope as shown below.

Waveform on Oscilloscope:

Note: Set the sweep time longer for easy waveform checking.





• CASSETTE RECORDER SECTION

3-2. ELECTRICAL ADJUSTMENTS

Note: The adjustment should be performed in the order given in this service manual. The adjustments should be performed for both L-CH and R-CH.

• Set the BIAS and EQ switches according to the tape as follows.

Tape	BIAS switch	EQ switch
CS-10	MED	TYPE I
CS-20	HIGH	TYPE II
CS-30	MED	TYPE III
CS-40	METAL	TYPE IV

• Switches and controls should be set as follows unless otherwise specified.

DOLBY NR. . . . . .OFF
EQ. . . . . .TYPE
BIAS. . . . . .MED
TIMER REC . . . . . .OFF
REC MUTE. . . . . .OFF

• Standard Record:

Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

Standard Input Level

	MIC	AUX IN
source impedance	600Ω	600Ω
input level	0.77mV (−60dB)	25mV (−30dB)

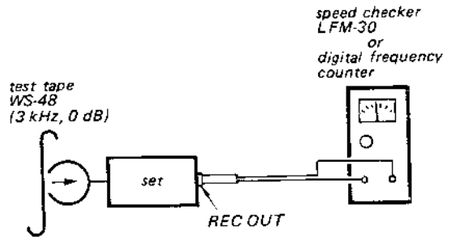
Standard Output Level

	REC OUT
load impedance	47kΩ
output level	0.14V (−15dB)

Tape Speed Adjustment

Procedure:

Mode: playback



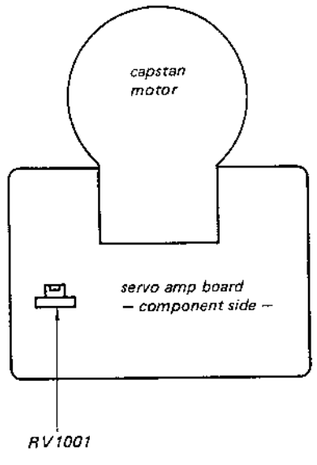
Specification:

Speed checker	Digital frequency counter
-0.7 to +0.7%	2,980 to 3,020Hz

Frequency difference between the beginning and the end of the tape should be within 0.7% (20 Hz).

Adjustment Location:

— servo amp board —

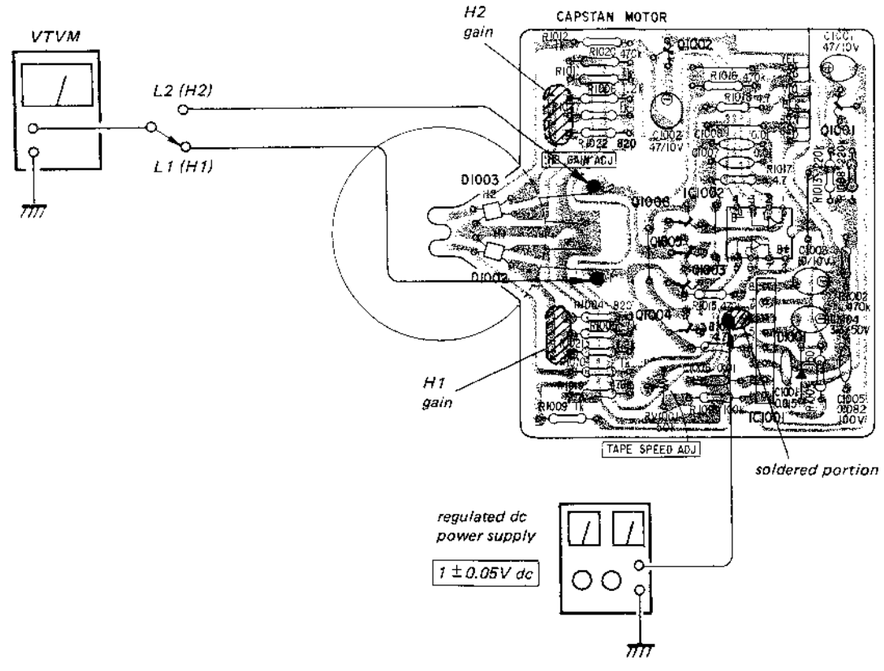


Capstan Motor Gain Adjustment

Procedure:

Mode: playback

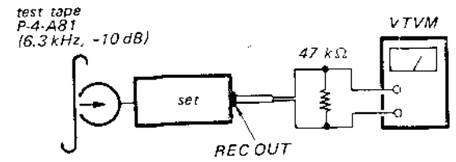
1. Unsolder the soldered portion as shown below and connect the regulated power supply.
2. Connect VTVM to L1 or L2 and adjust.
3. Change the pattern connection and adjust for 2.83 ± 0.25V ac on the VTVM.
4. Solder the portion which has been unsoldered in step 1.



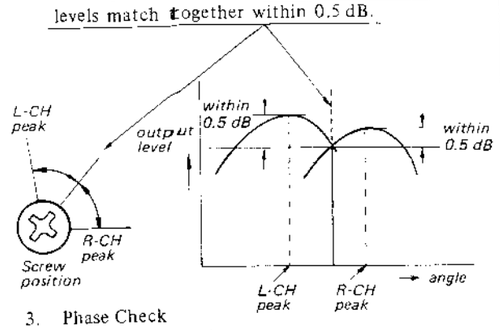
Record/playback Head Azimuth Adjustment

Procedure:

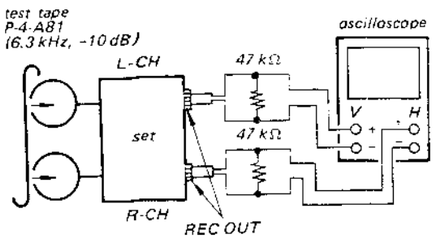
1. Mode: play back

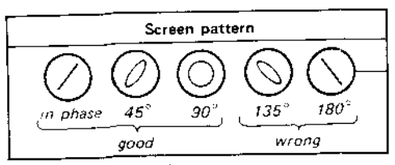


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw where both of output levels match together within 0.5 dB.

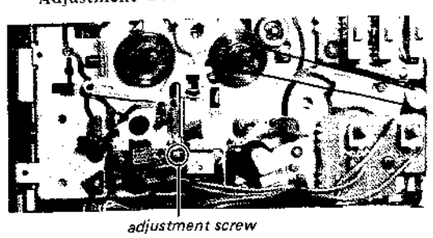


3. Phase Check
   Mode: play back





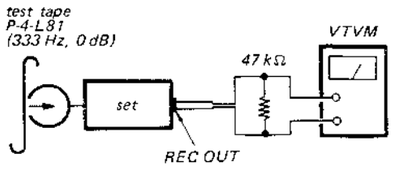
Adjustment Location:



Playback Level Adjustment

Procedure:

Mode: playback

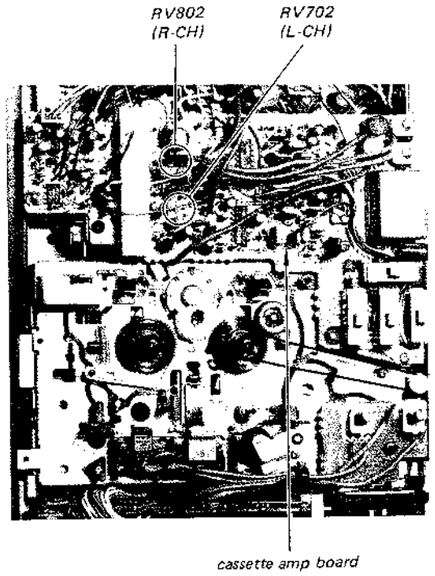


Specification:

REC OUT level: 0.52 – 0.59 V
(–3.5 to –2.5 dB)
Level difference between channels:
less than 0.5 dB
Check that the REC OUT level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location:

– cassette amp board –



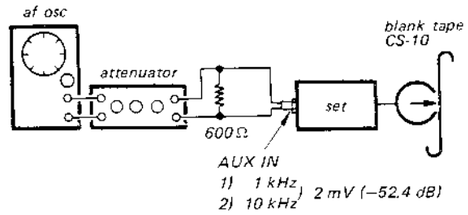
Record Bias Adjustment

Setting:

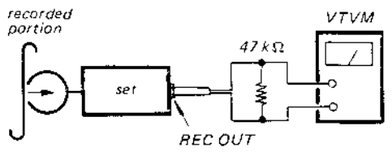
REC LEVEL control: standard record
(See page 31.)

Procedure:

1. Mode: record



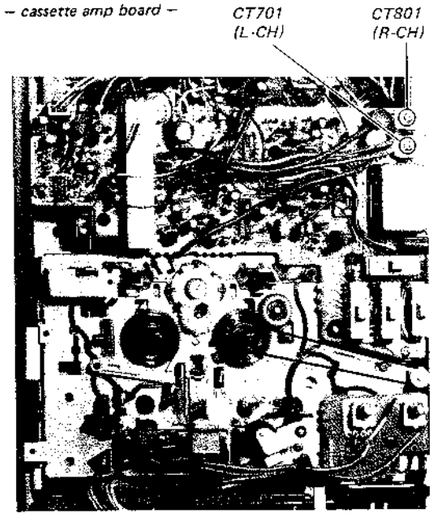
2. Mode: playback



Confirm that the LINE OUT level of 10 kHz signal is –0.5 ± 0.5 dB relative to that of 1 kHz.
If necessary, adjust CT701 (L-CH) and CT801 (R-CH) and repeat steps 1 and 2.

Adjustment Location:

– cassette amp board –



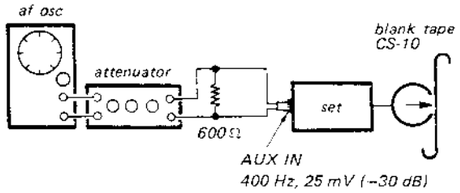
Record Level Adjustment

Setting:

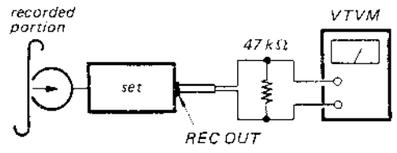
DOLBY switch: OFF
REC LEVEL control: standard record
(See page 31.)

Procedure:

1. Mode: record



2. Mode: playback

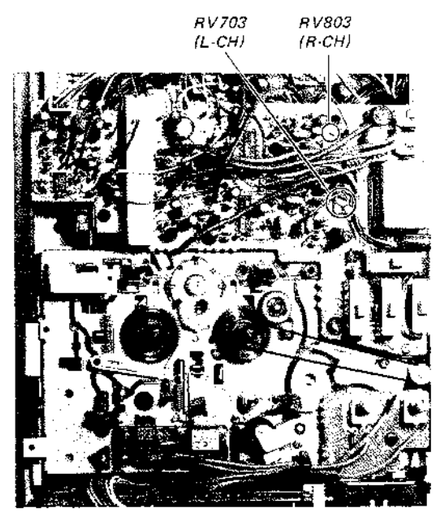


Specification:

REC OUT level: 0.14V (–15dB)

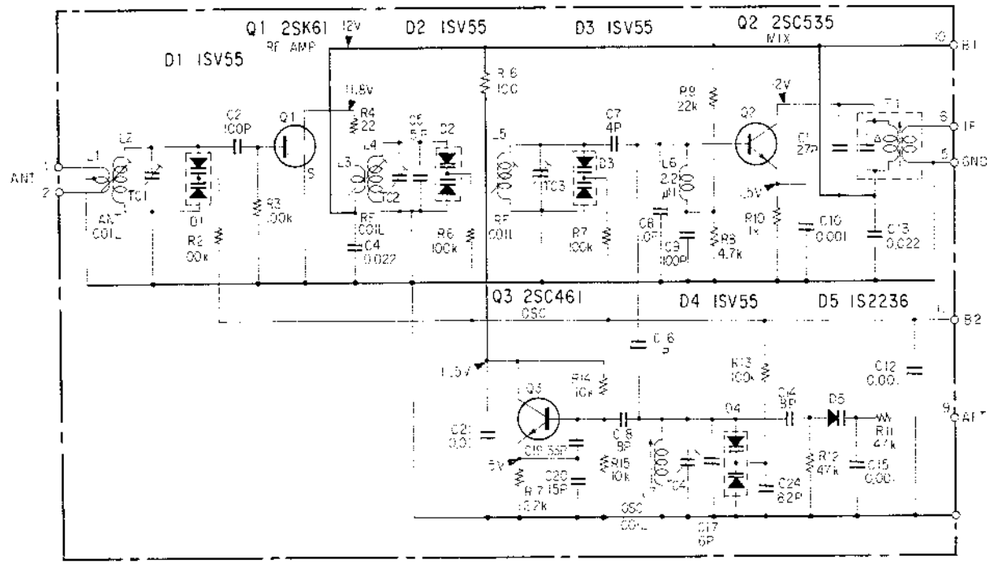
Adjustment Location:

– cassette amp board –



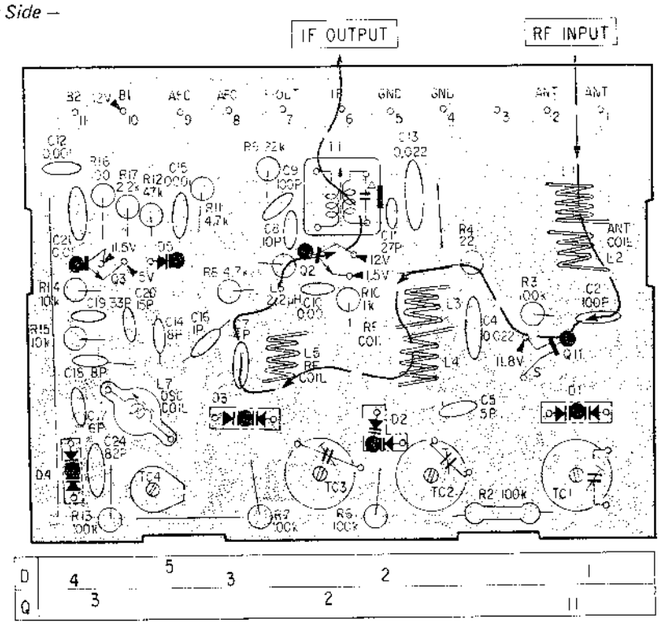
SECTION 4
DIAGRAMS

4-1. SCHEMATIC DIAGRAM (FM FRONT-END)



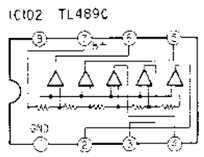
4-2. MOUNTING DIAGRAM (FM FRONT-END)

– Component Side –

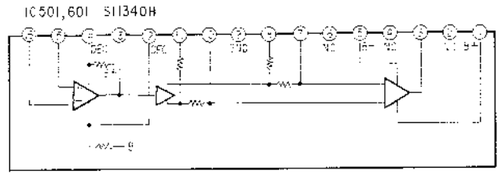


4-3. BLOCK DIAGRAM OF ICs

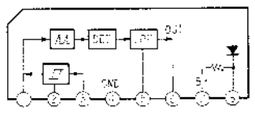
IC102 TL489C



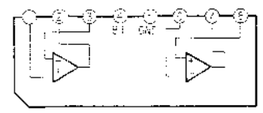
IC501, 601 SI1340H



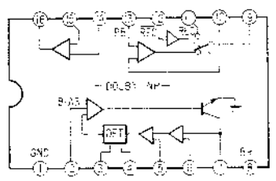
IC100: CX069



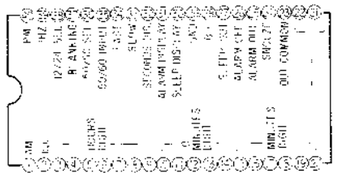
IC301 BA328



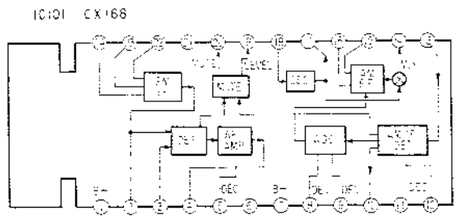
IC701, 801 CX174



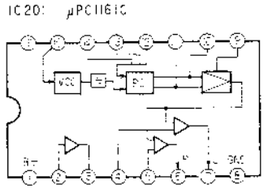
IC951 TMS1943N2L



IC101 CX168



IC201 μPC1161C

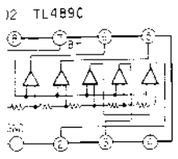


Note:

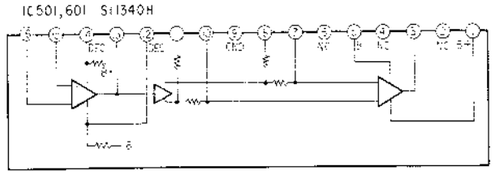
- All capacitors are in μF unless otherwise noted. pF : μμF
  50WV or less are not indicated except for electrolytics and tantalum.
- All resistors are in ohms, ¼W unless otherwise noted.
  kΩ : 1000Ω, MΩ : 1000kΩ
- ▬▶▬ : signal path

)CK DIAGRAM OF ICs

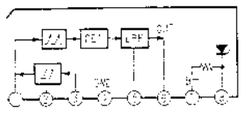
)2 TL489C



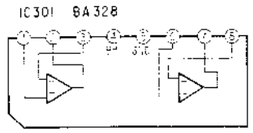
IC501,601 SI1340H



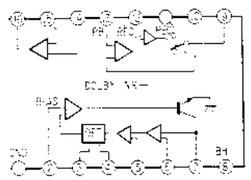
IC1001 CX069



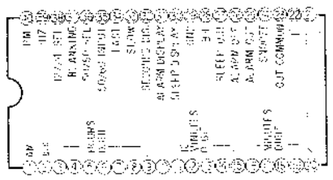
IC301 BA328



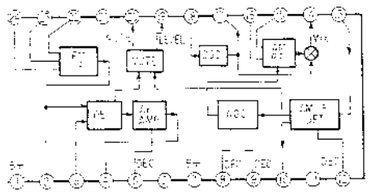
'01,801 CX174



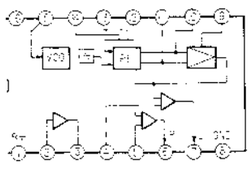
IC951 TMS1943N2L



X168



201 μPC1161C



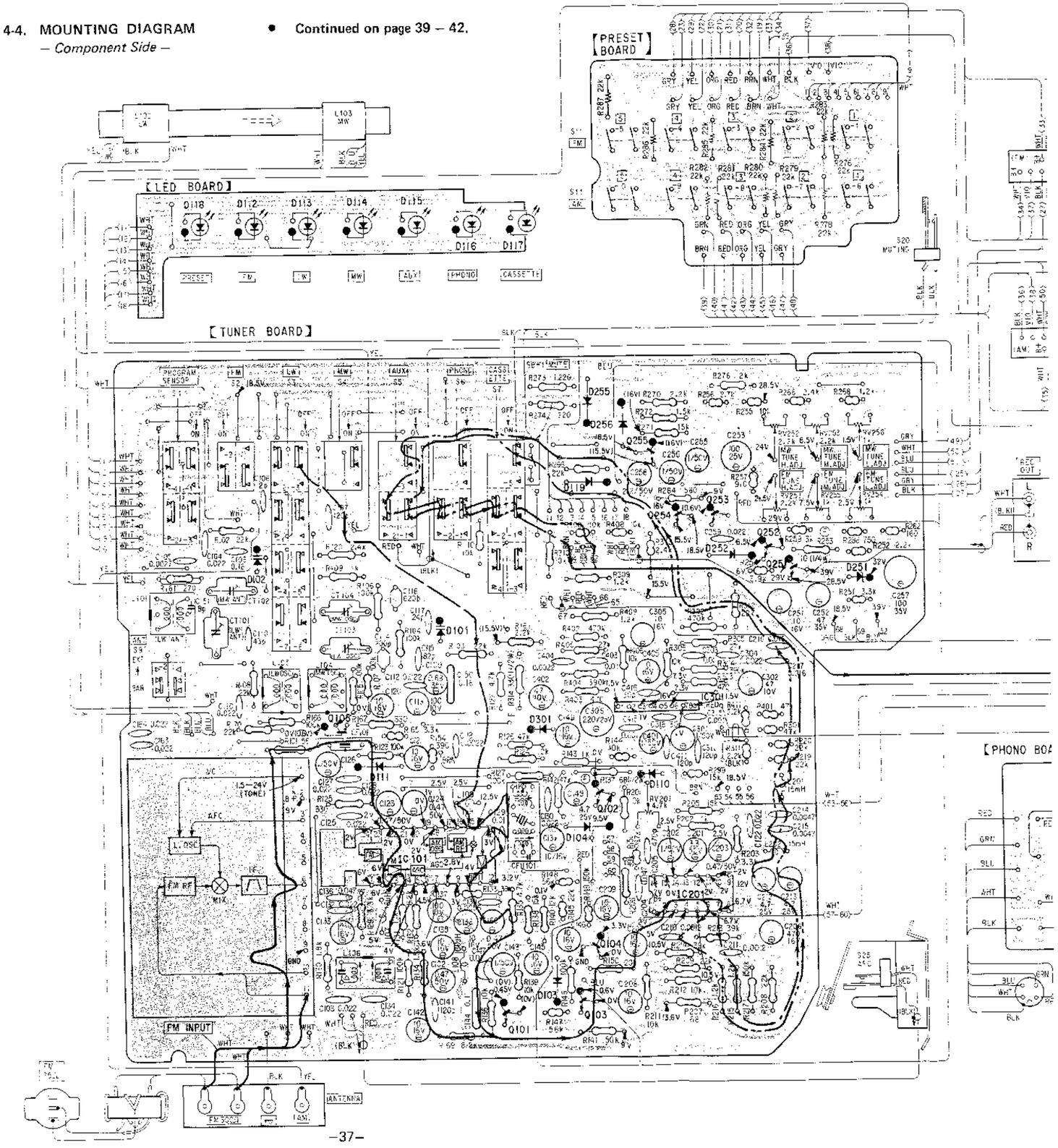
pF : μF
ctrolytics

se noted.

4-4. MOUNTING DIAGRAM

– Component Side –

• Continued on page 39 – 42.



MOUNTING DIAGRAM

– Component Side –

• Continued on page 39 – 42.

• Color code of sleeving over the end of the jacket.

【PRESET BOARD】

【LED BOARD】

【TUNER BOARD】

【SIG IND BOARD】

【PL A BOARD】

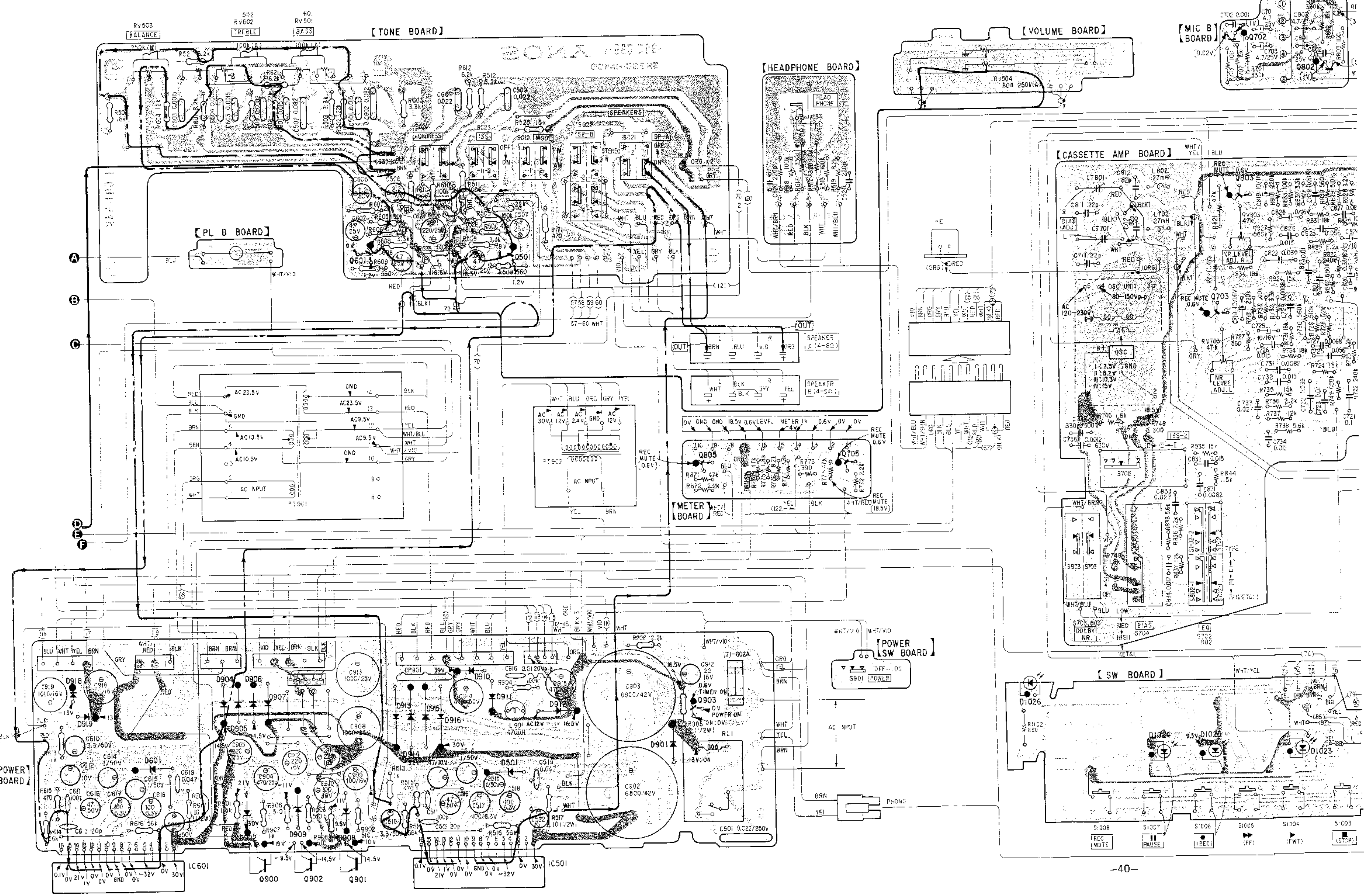
【TIMER B BOARD】

【PHONO BOARD】

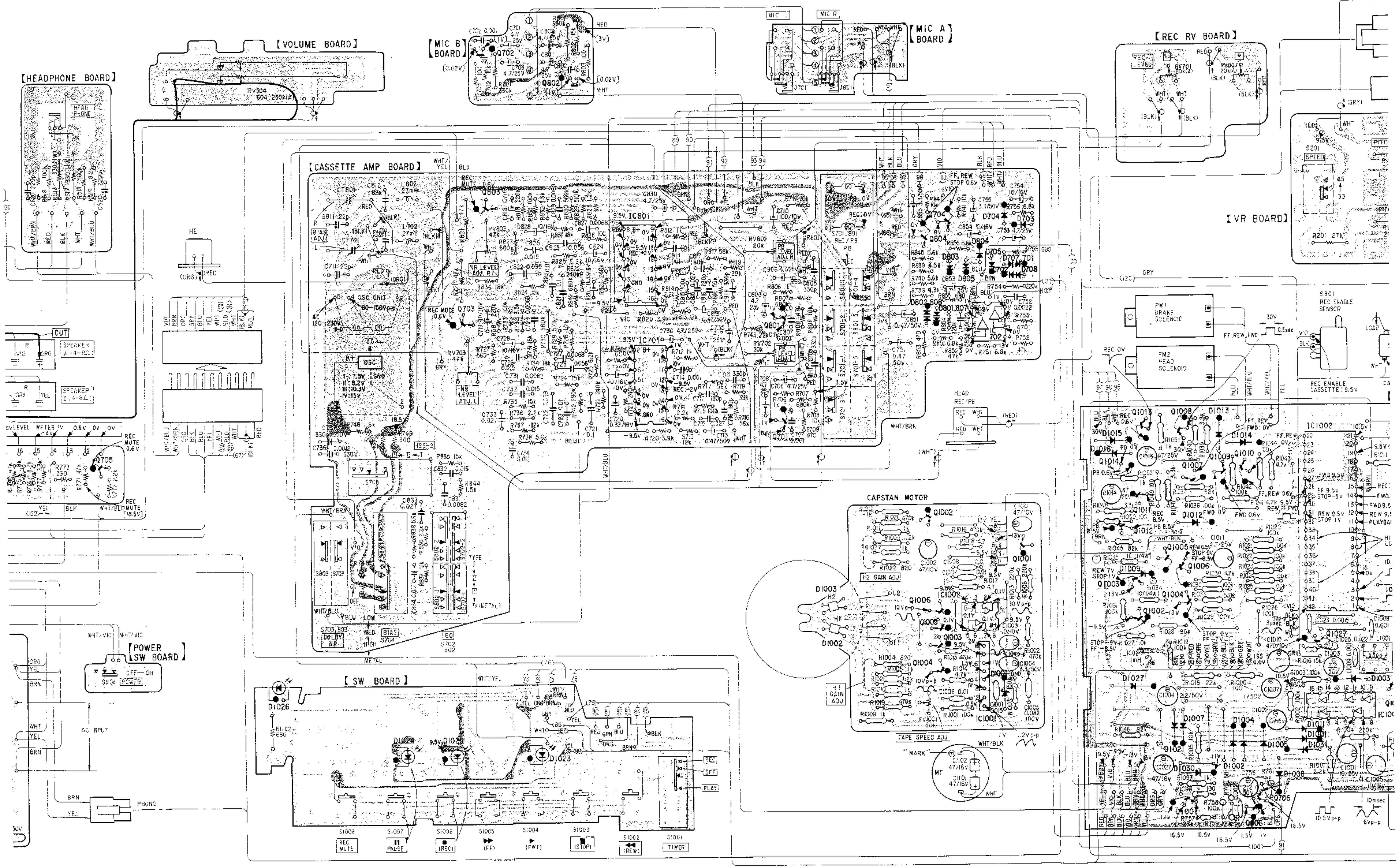
【TIMER A BOARD】

【CDS BOARD】

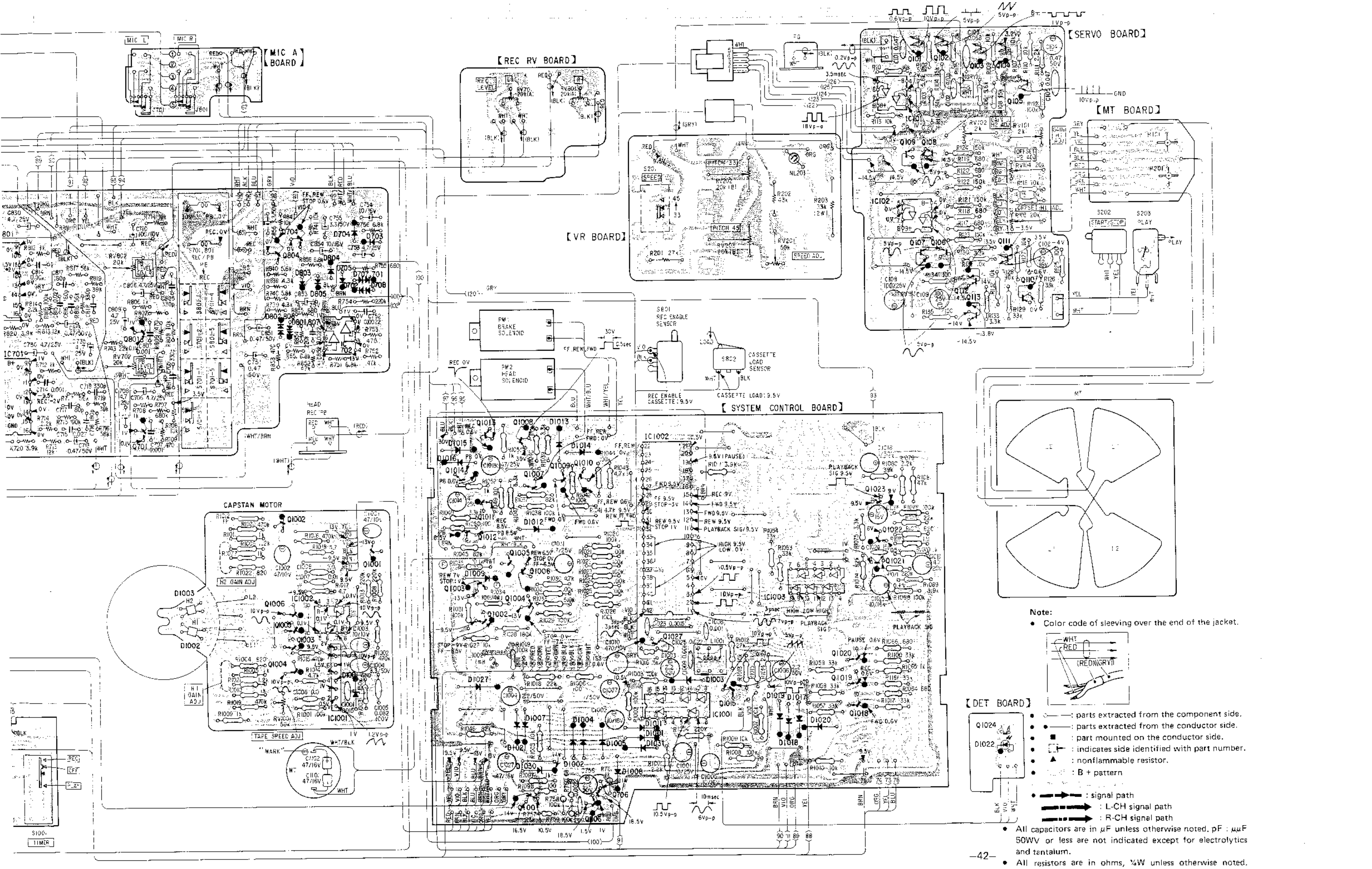
- : S – pattern
- : signal path
- : L-CH signal path
- : R-CH signal path
- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- [ ]– : indicates side identified with part number.
- ▲ : nonflammable resistor.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ



TONE BOARD
VOLUME BOARD
MIC B BOARD
HEADPHONE BOARD
PL B BOARD
CASSETTE AMP BOARD
METER BOARD
POWER SW BOARD
SW BOARD
POWER BOARD
SPEAKERS
IC601
IC501
Q900
Q902
Q901



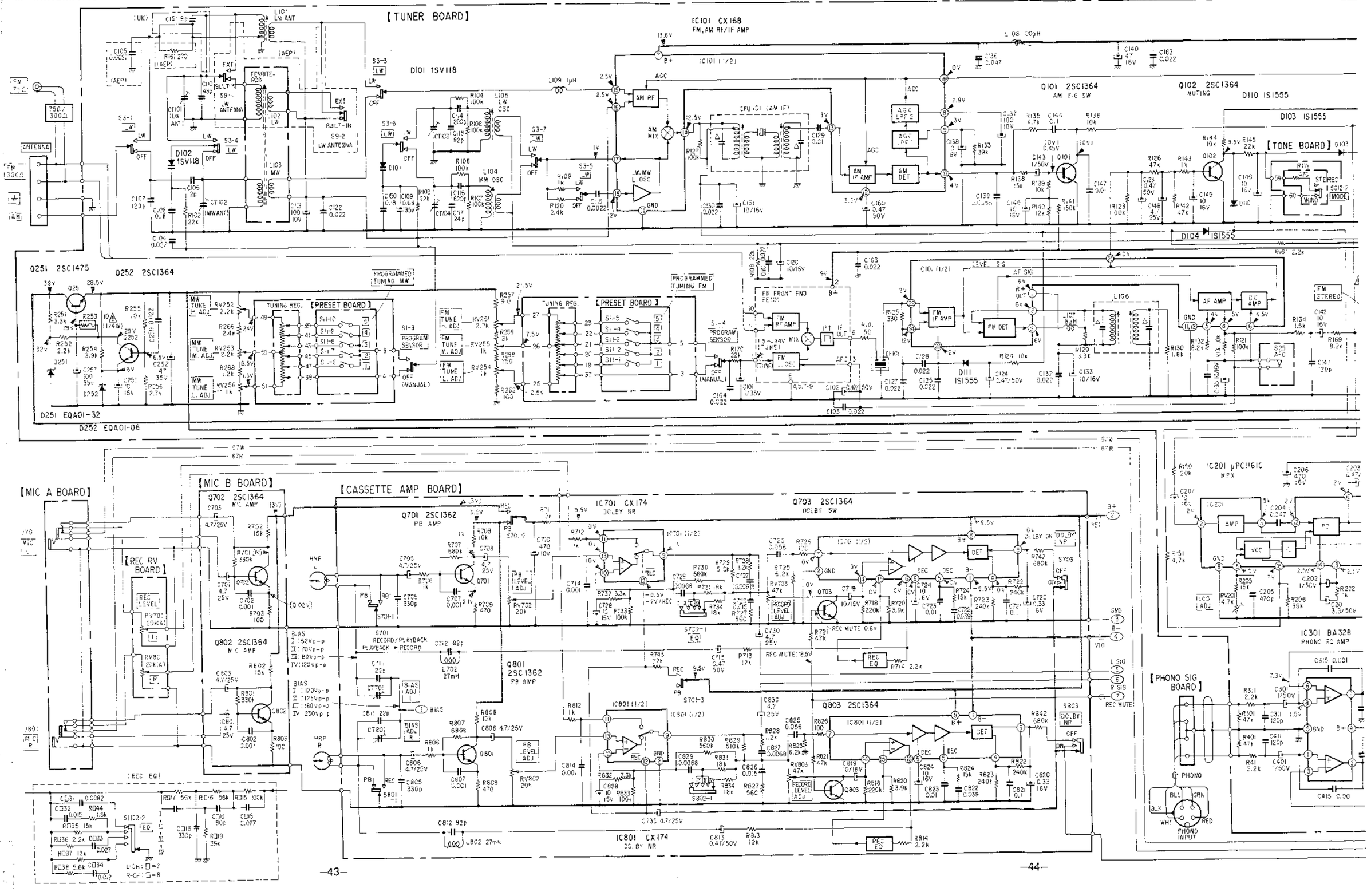
【VOLUME BOARD】
【HEADPHONE BOARD】
【MIC B BOARD】
【MIC A BOARD】
【REC RV BOARD】
【VR BOARD】
【CASSETTE AMP BOARD】
CAPSTAN MOTOR
【POWER SW BOARD】
【SW BOARD】
PM1 BRAKE SOLENOID
PM2 HEAD SOLENOID
S801 REC ENABLE SENSOR
REC ENABLE CASSETTE : 9.5V
H2 GAIN ADJ
TAPE SPEED ADJ
REC MUTE
PAUSE
(REC)
(FF)
(FWD)
(STOP)
(REW)
TIMER



Note:

- Color code of sleeving over the end of the jacket.
- : parts extracted from the component side.
- : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- : indicates side identified with part number.
- ▲ : nonflammable resistor.
- : B + pattern
- : signal path
- : L-CH signal path
- : R-CH signal path
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalum.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ

3. SCHEMATIC DIAGRAM



【SIG IND. BOARD】

【VR BOARD】

【SERVO BOARD】

【TONE BOARD】

【SIG IND BOARD】

【PRESET BOARD】

【VOLUME BOARD】

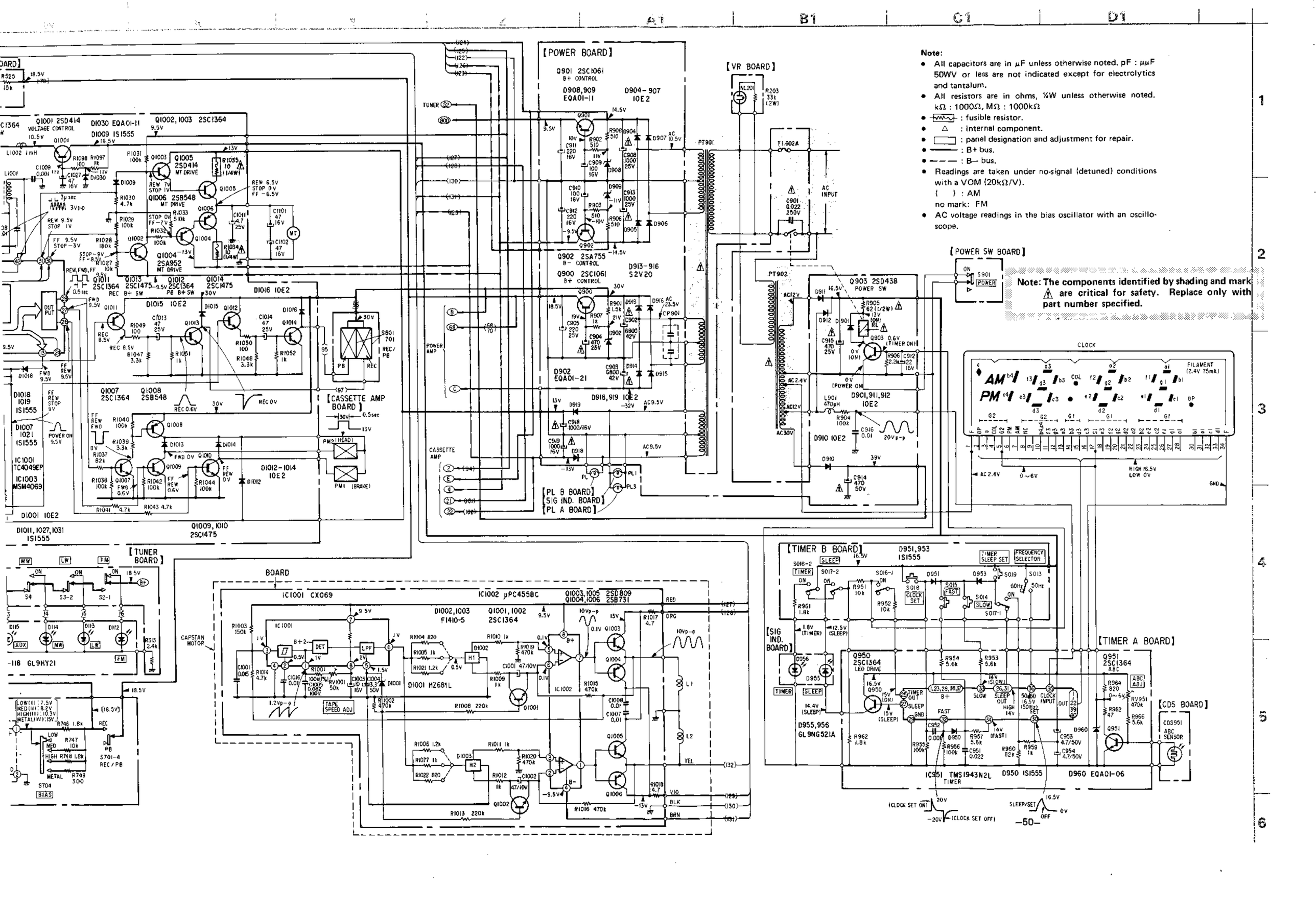
【POWER BOARD】

【HEADPHONE BOARD】

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

• Switch

Ref. No.	Switch	Position
S1	PROGRAM SENSOR	OFF
S2	FM	ON
S3	LW	OFF
S4	MW	OFF
S5	AUX	OFF
S6	PHONO	OFF
S7	CASSETTE	OFF
S8	(MUTE)	OFF
S9	LW ANTENNA	BUILT-IN (AEP ONLY)
S11	PROGRAMMED TUNING FM, MW	FM: OFF AM: OFF
S20	(MUTING)	OFF
S25	(AFC)	OFF
S012	MODE	STEREO
S013	FREQUENCY SELECTOR	60Hz
S014	SLOW	OFF
S015	FAST	OFF
S016	TIMER	OFF
S017	SLEEP	OFF
S018	CLOCK SET	OFF
S019	TIMER SLEEP/SET	OFF
S021	SPEAKER-A	OFF
S022	SPEAKER-B	OFF
S023	ISS-1	OFF
S024	LOUDNESS	OFF
S901	POWER	ON
S702, S802	EQ	I
S703, S803	DOLBY NR	OFF
S704	BIAS	LOW
S705	ISS-2	I
S701, S801	(REC/PB)	PB
S1001	TIMER	OFF
S1002	(REW)	OFF
S1003	(STOP)	OFF
S1004	(FWD)	OFF
S1005	(FF)	OFF
S1006	(REC)	OFF
S1007	PAUSE	OFF
S1008	REC MUTE	OFF
S801	(REC, ENABLE SENSOR)	cassette recorder section
S802	(CASSETTE LOAD SENSOR)	
S201	SPEED	player section
S702	(START/STOP)	
S203	(PLAY)	



Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalum.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- ⏦ : fusible resistor.
- △ : internal component.
- ▭ : panel designation and adjustment for repair.
- ——— : B+ bus.
- – – – : B– bus.
- Readings are taken under no-signal (detuned) conditions with a VOM (20kΩ/V).
  ( ) : AM
  no mark: FM
- AC voltage readings in the bias oscillator with an oscilloscope.

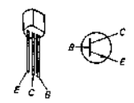
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Replacement Semiconductors

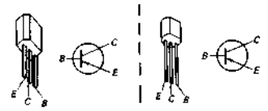
For replacement, use semiconductors except in ( ).

RECEIVER SECTION

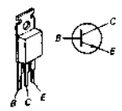
Q101–103, Q252–255, Q501, 601, Q950, 951 : 2SC1364
Q105 : 2SC1362
Q251 : 2SC1475
Q903 : 2SC1475 (2SD438)



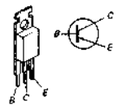
Q104: 2SA1027R (2SA733)



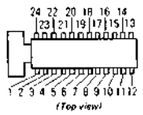
Q900, 901: 2SC1061



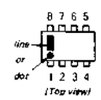
Q902: 2SA671 (2SA755)



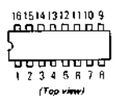
IC101: CX168



IC102: TL489CP (TL489C)

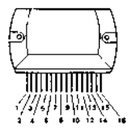


IC201: μPC1161C



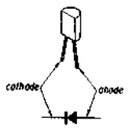
IC301: BA328

IC501, 601: SI1340H

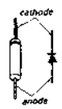


IC951: TMS1943N2L

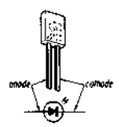
D101, 102: 1SV118



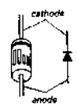
D103, 104, D110, 111, D119, D255, 256, D950, 951, 953 : 1S1555
D301, 901, D904–907, D910–912, D917, 918 : 10E2



D105–109, D955, 956 : GL9NG521
D112–118 : GL9HY21
D201 : GL9PR21



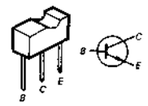
D251 : EQB01-33 (EA01-32)
D252, 960 : EQB01-06 (EQA01-06)
D501, 601, D902 : EQB01-21 (EQA01-21)
D908, 909 : EQB01-11Z (EQA01-11)



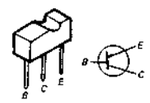
D913–916: U05G

RECORD PLAYER SECTION

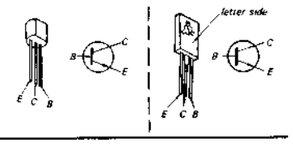
Q101–104, Q111, 113 : 2SC2021 (2SD637)



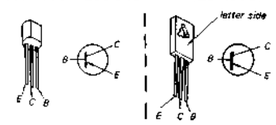
Q105, 110, 112: 2SA786



Q106, 108: 2SC1475 (2SC495)



Q107, 109: 2SB648 (2SA505)

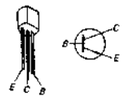


IC101, 102: μPC4558C

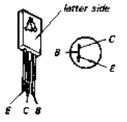
H201, 202: F1409

CASSETTE RECORDER SECTION

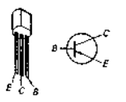
Q701, 801 : 2SC1362
Q702–706, Q802–806, Q1002, 1003, Q1007, 1011, Q1012, 1015, Q1018–1022, Q1027, Q1009, 1010, Q1013, 1014 : 2SC1475



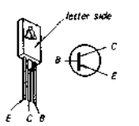
Q1001, 1005: 2SD414



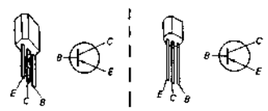
Q1004: 2SA952



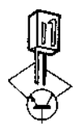
Q1006, 1008



Q1023: 2SA1027R (2SA733)

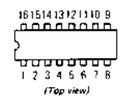


Q1024: PH103 (PH103-2M)

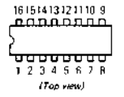


IC701, 801: CX174

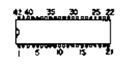
IC702: μPC4558C



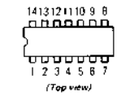
IC1001: TC4049BP



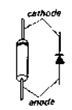
IC1002: μPD547C042



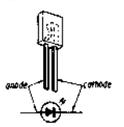
IC1003: MSM4069 (TC4069)



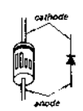
D701, 702, D705, 707, D708, D801, 802, D805, 807, D808, D1002–1005, D1007–1009, D1017–1021, D1027 : 1S1555
D703, 704, D803, 804 : 1T22AM (1T22)
D1001, D1012–1016 : 10E2



D1023, 1024, D1026 : GL9HY21
D1025 : GL9PR21

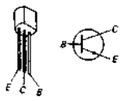


D1030, 1031: EQB01-11Z (EQA01-11)

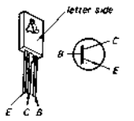


CASSETTE RECORDER SECTION — Servo Board — (included in reel motor)

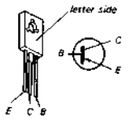
Q1001, 1002: 2SC1364



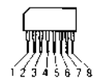
Q1003, 1005: 2SD809



Q1004, 1006: 2SB731

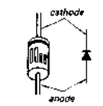


IC1001: CX069

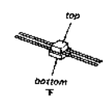


IC1002: μPC4558C

D1001: HZ6B2L (HZ6B1L)

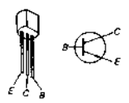


D1002, 1003: F1410

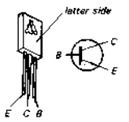


CASSETTE RECORDER SECTION
– Servo Board –
(included in reel motor)

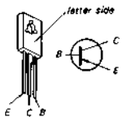
Q1001, 1002: 2SC1364



Q1003, 1005: 2SD809



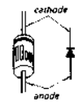
Q1004, 1006: 2SB731



IC1001: CX069

IC1002: μPC4558C

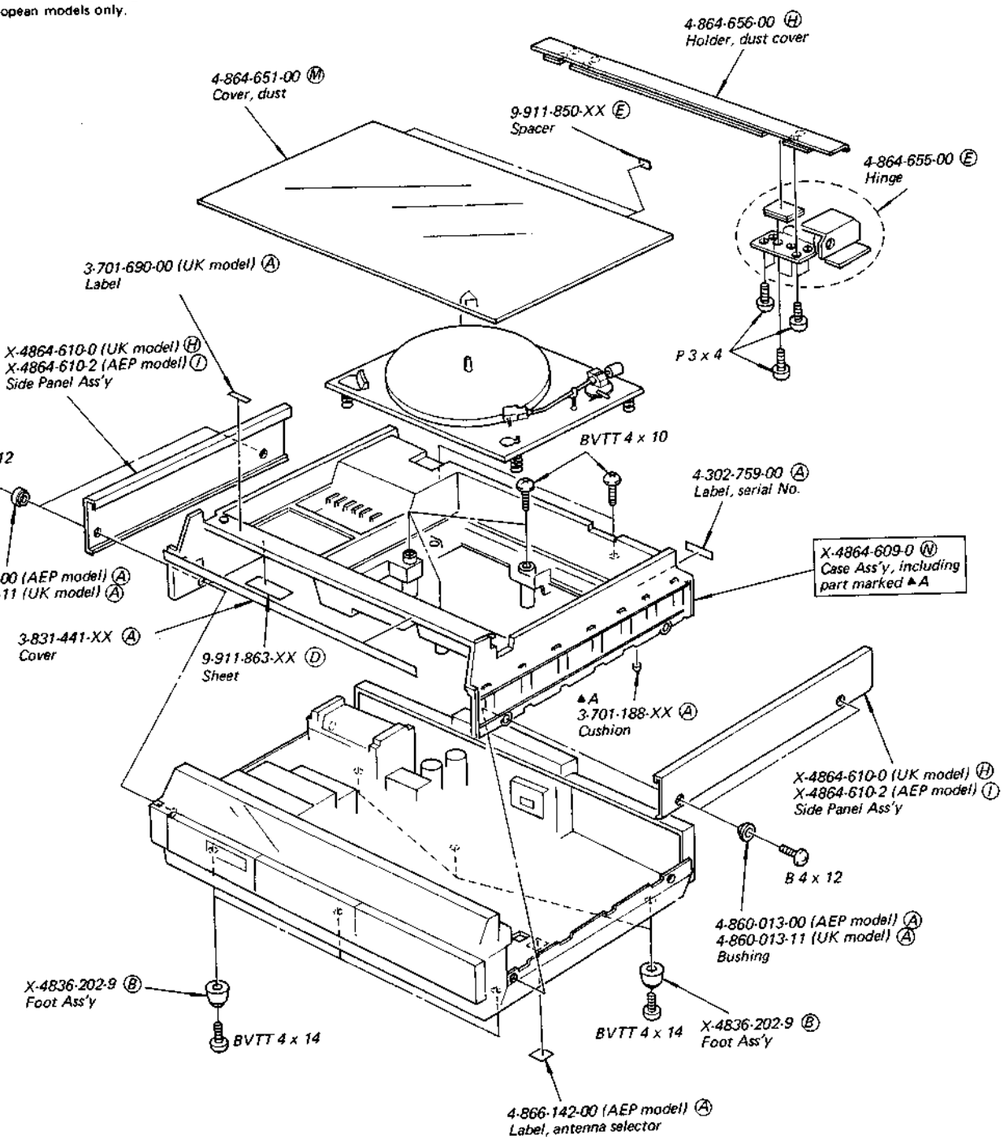
D1001: HZ6B2L (HZ6B1L)



D1002, 1003: F1410

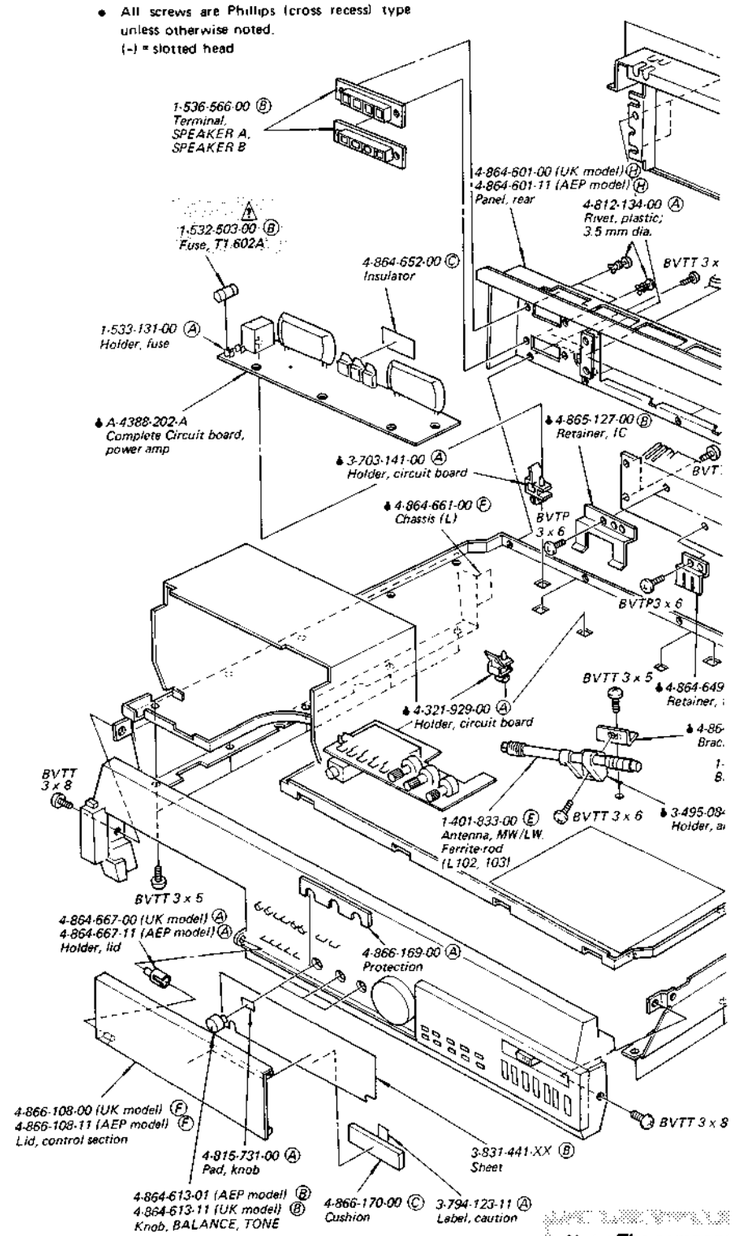
5-1.

- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



Note:

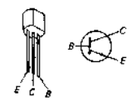
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applic European models only.



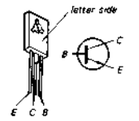
Note: The compone
⚠ are critic
part number

CASSETTE RECORDER SECTION
– Servo Board –
(included in reel motor)

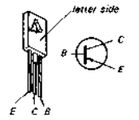
Q1001, 1002: 2SC1364



Q1003, 1005: 2SD809



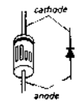
Q1004, 1006: 2SB731



IC1001: CX069

IC1002: μPC4558C

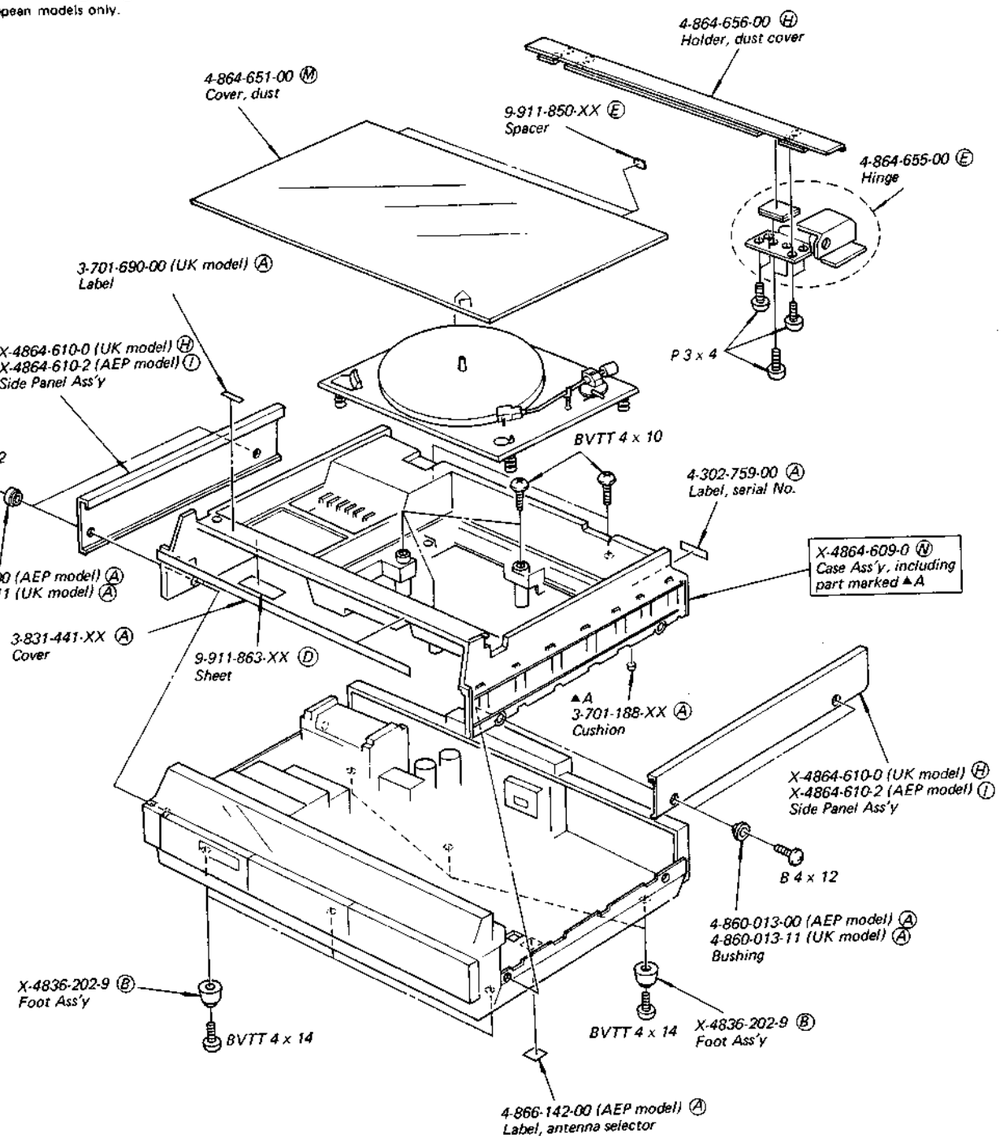
D1001: HZ6B2L (HZ6B1L)



D1002, 1003: F1410

5-1.

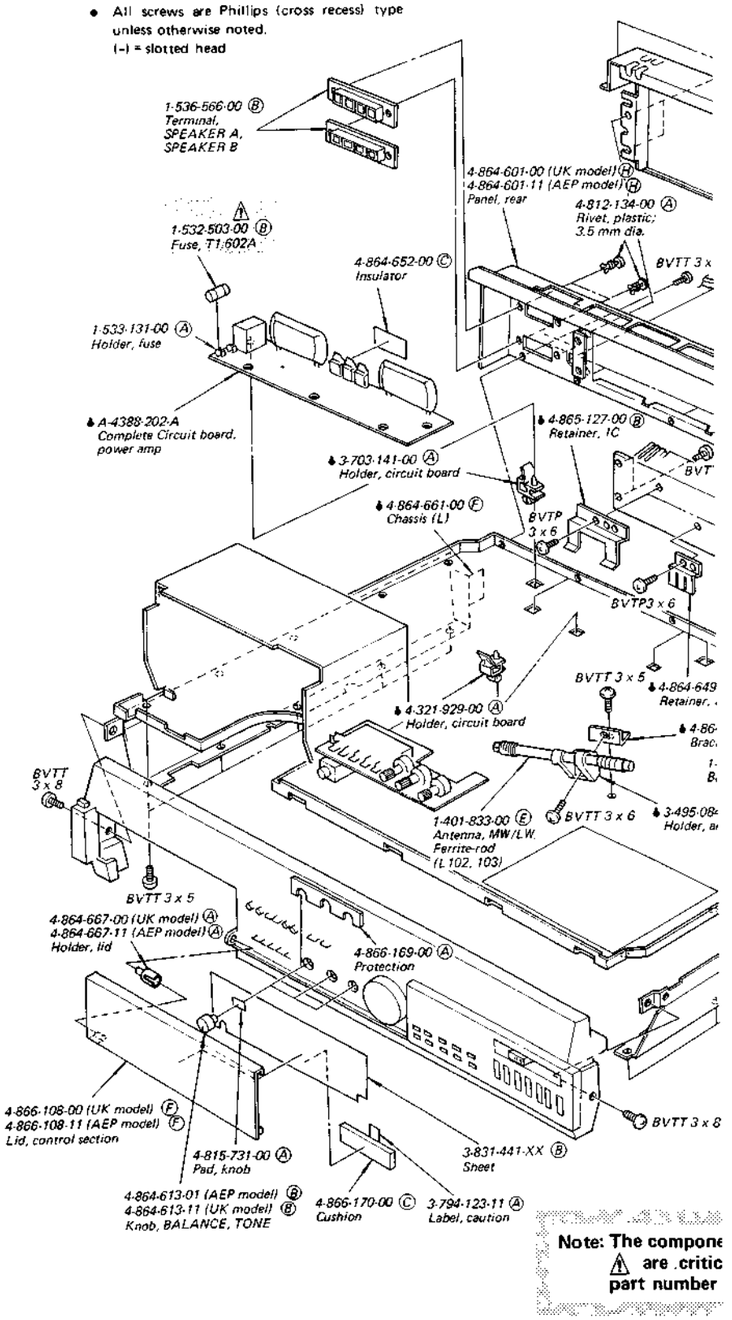
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



5-2.

Note:

- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applic European models only.



Note: The compone
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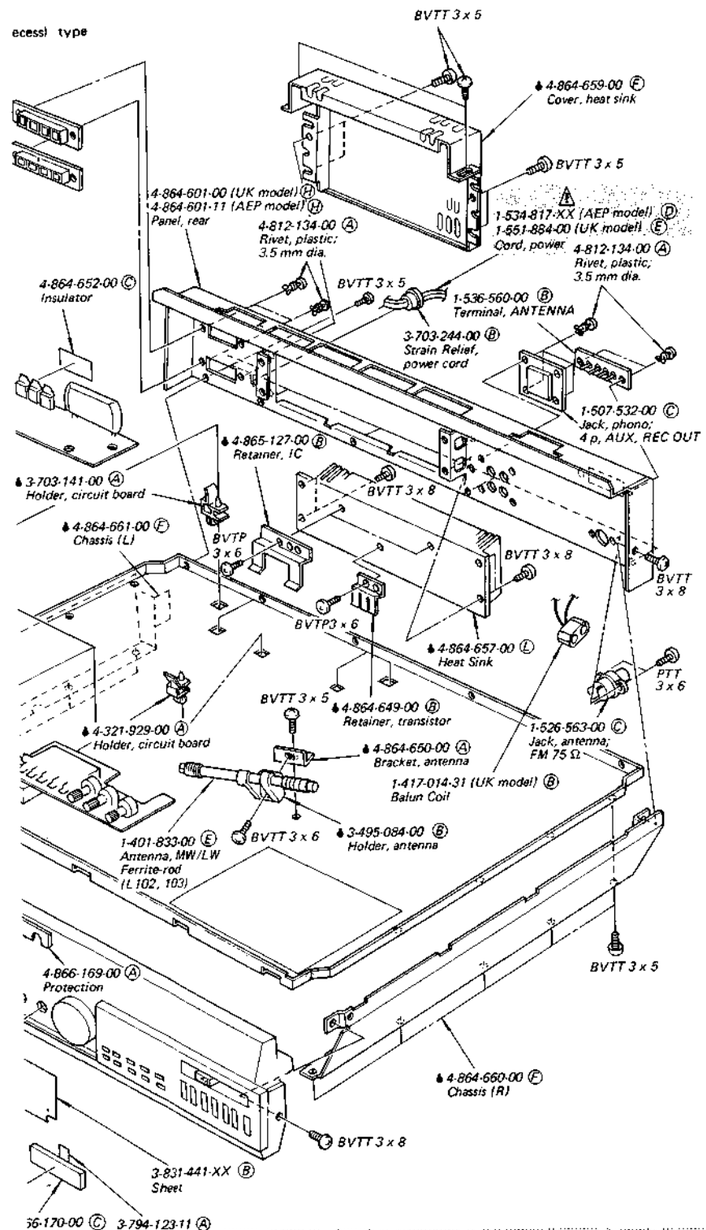
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



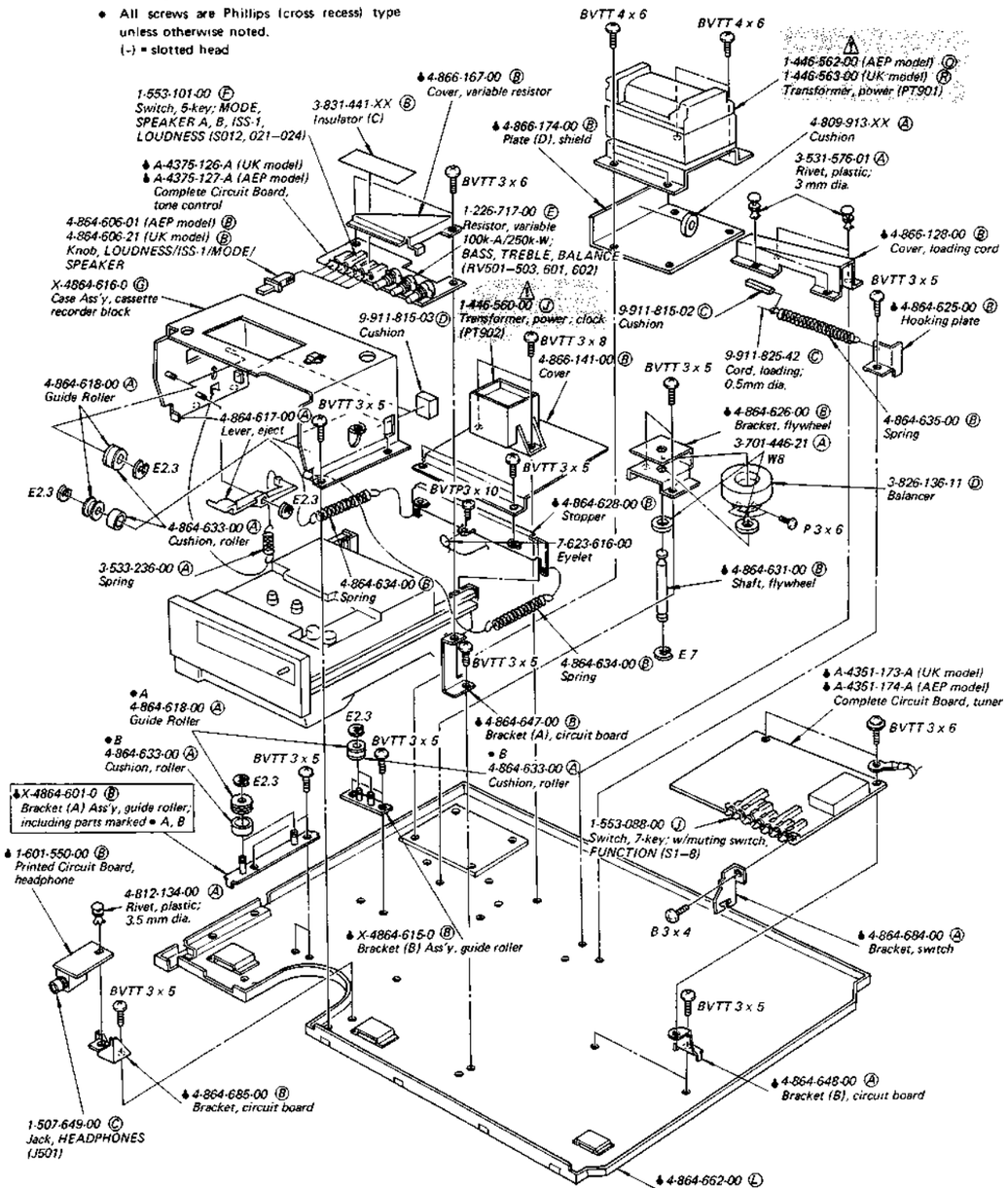
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

A B C D

5-3.

Note:

- Items marked "•" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

BASE POST, CONNECTOR ETC.

– tuner board –

Part No.	Description	Fig.
•1-560-126-00	connector plug 6P	A
•1-560-281-00	connector pin 5P	B
•1-561-439-00	connector socket 3P	C
•1-561-440-00	connector socket 4P	C
•1-561-442-00	connector socket 6P	C
•1-561-444-00	connector socket 8P	C
•1-561-445-00	connector socket 9P	C
•1-508-704-00	connector pin	D

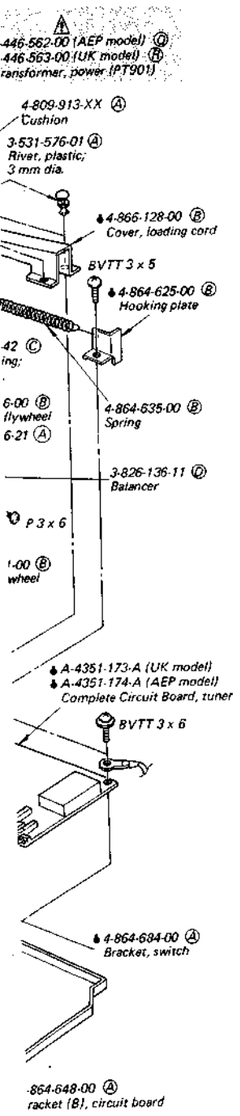
– tone board –

Part No.	Description	Fig.
•1-508-822-00	17mm base post	E
•1-508-823-00	17mm base post	E
•1-535-116-00	terminal with base 3P	D
•1-535-117-00	terminal with base 4P	D
•1-535-118-00	terminal with base 5P	D
•1-535-119-00	terminal with base 6P	D
•1-560-286-00	connector pin 2P	B
•1-561-439-00	connector socket 3P	C
•1-561-440-00	connector socket 4P	C

– power board –

Part No.	Description	Fig.
•1-535-116-00	terminal with base 3P	D
•1-535-117-00	terminal with base 4P	D
•1-535-118-00	terminal with base 5P	D
•1-535-121-00	terminal with base 8P	D
•1-560-281-00	connector pin 5P	B
•1-561-440-00	connector socket 4P	C

D



BASE POST, CONNECTOR ETC.

— tuner board —

Part No.	Description	Fig.
1-560-126-00	connector plug 6P	A
1-560-281-00	connector pin 5P	B
1-561-439-00	connector socket 3P	C
1-561-440-00	connector socket 4P	C
1-561-442-00	connector socket 6P	C
1-561-444-00	connector socket 8P	C
1-561-445-00	connector socket 9P	C
1-508-704-00	connector pin	D

— tone board —

Part No.	Description	Fig.
1-508-822-00	17mm base post	E
1-508-823-00	17mm base post	E
1-535-116-00	terminal with base 3P	D
1-535-117-00	terminal with base 4P	D
1-535-118-00	terminal with base 5P	D
1-535-119-00	terminal with base 6P	D
1-560-286-00	connector pin 2P	B
1-561-439-00	connector socket 3P	C
1-561-440-00	connector socket 4P	C

— power board —

Part No.	Description	Fig.
1-535-116-00	terminal with base 3P	D
1-535-117-00	terminal with base 4P	D
1-535-118-00	terminal with base 5P	D
1-535-121-00	terminal with base 8P	D
1-560-281-00	connector pin 5P	B
1-561-440-00	connector socket 4P	C

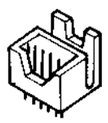


Fig. A

Fig. B

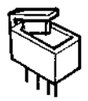


Fig. C

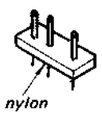


Fig. D

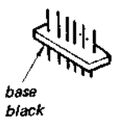


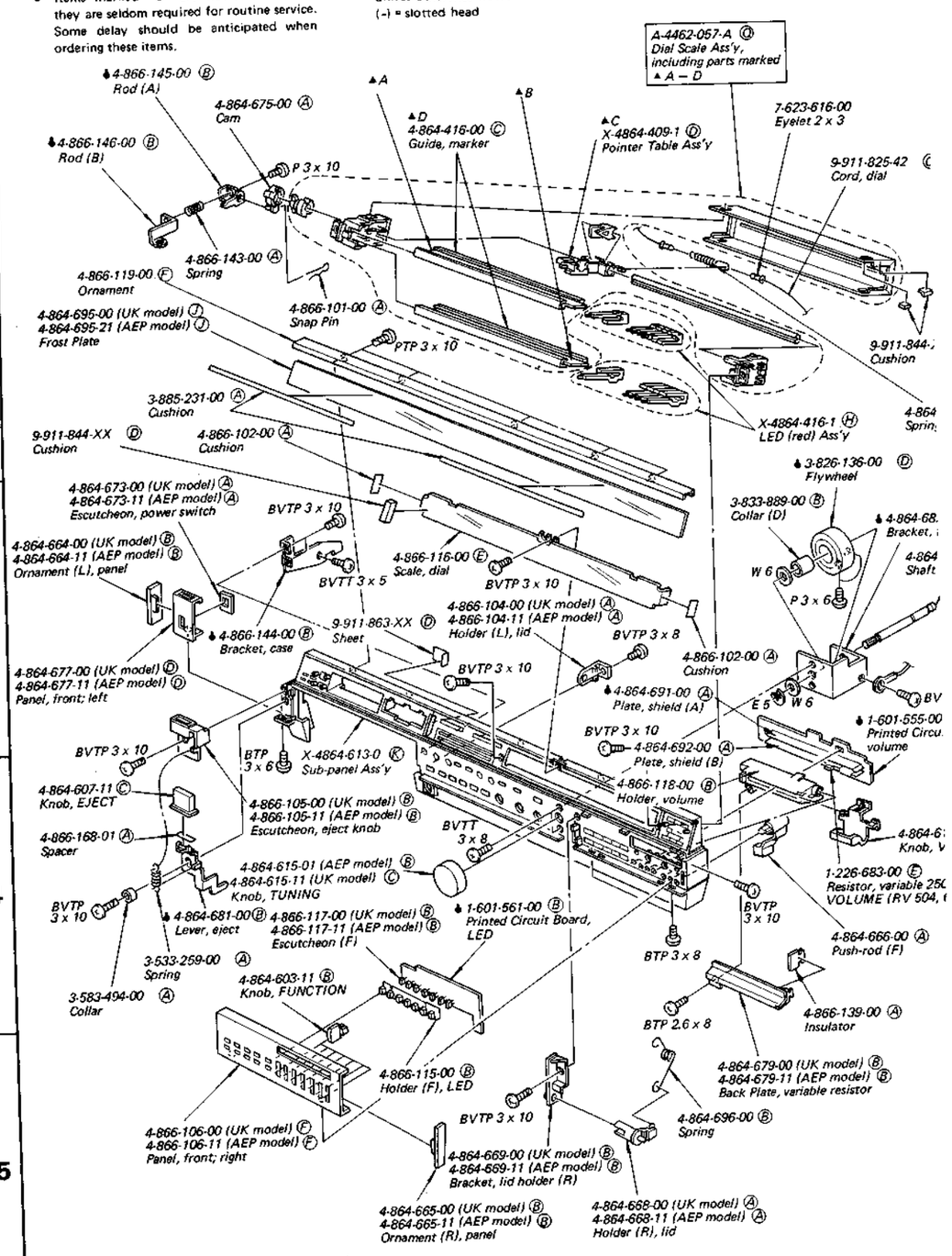
Fig. E

A B C

5-4.

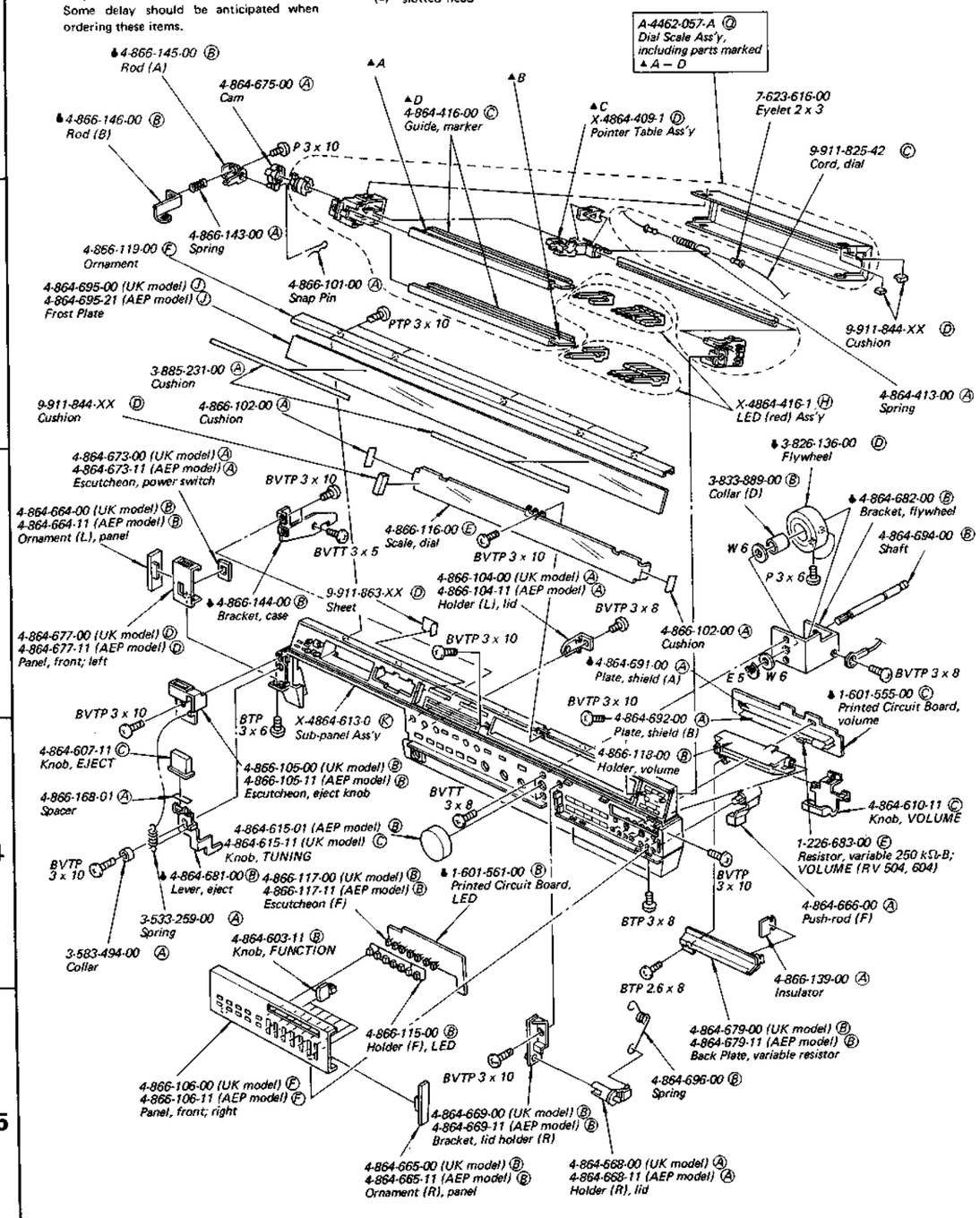
Note:

- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applic European models only.



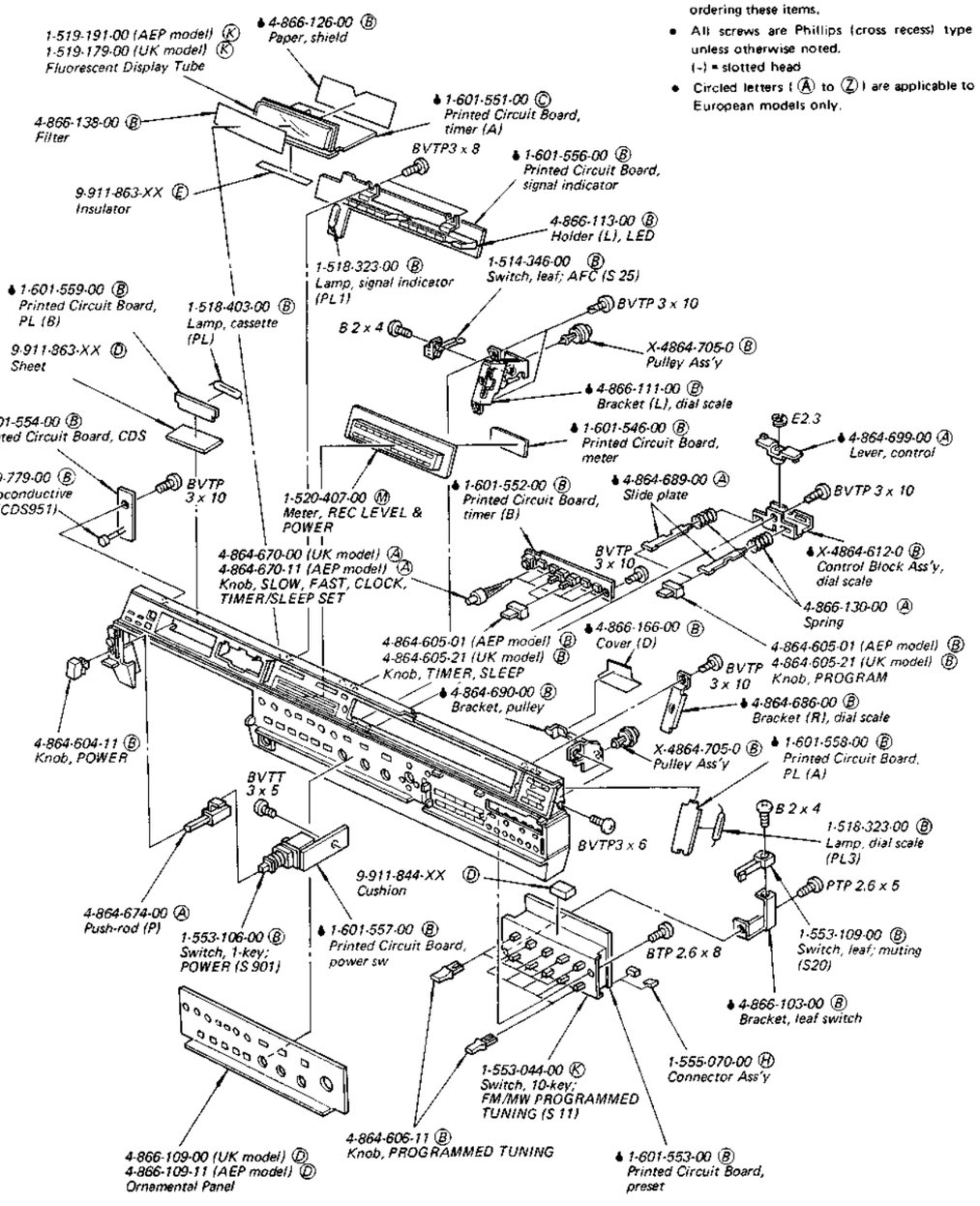
5-4.

Note:
- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



5-5.

Note:
- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



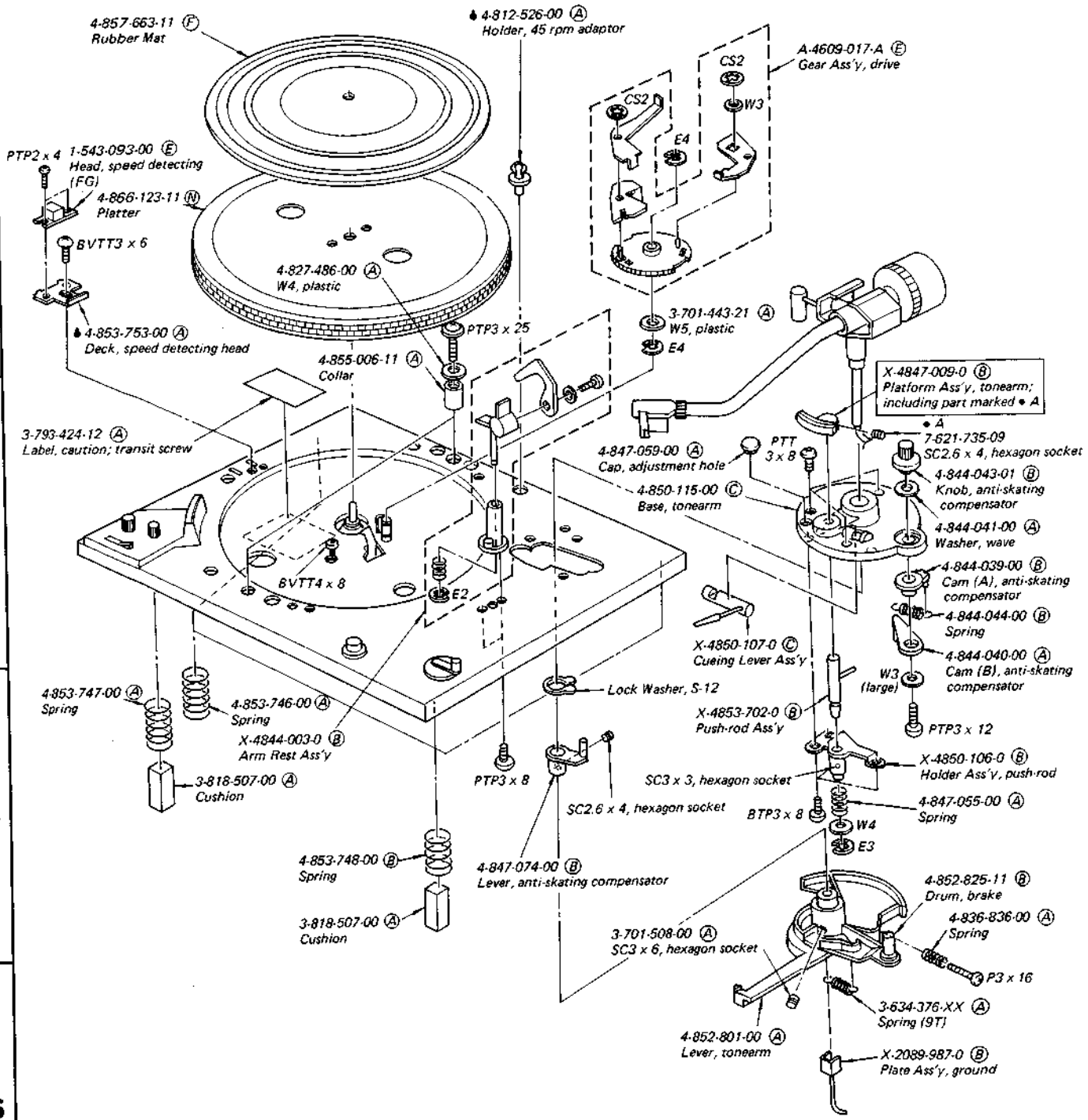
A B C D

1 2 3 4 5

5-6.

Note:

- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

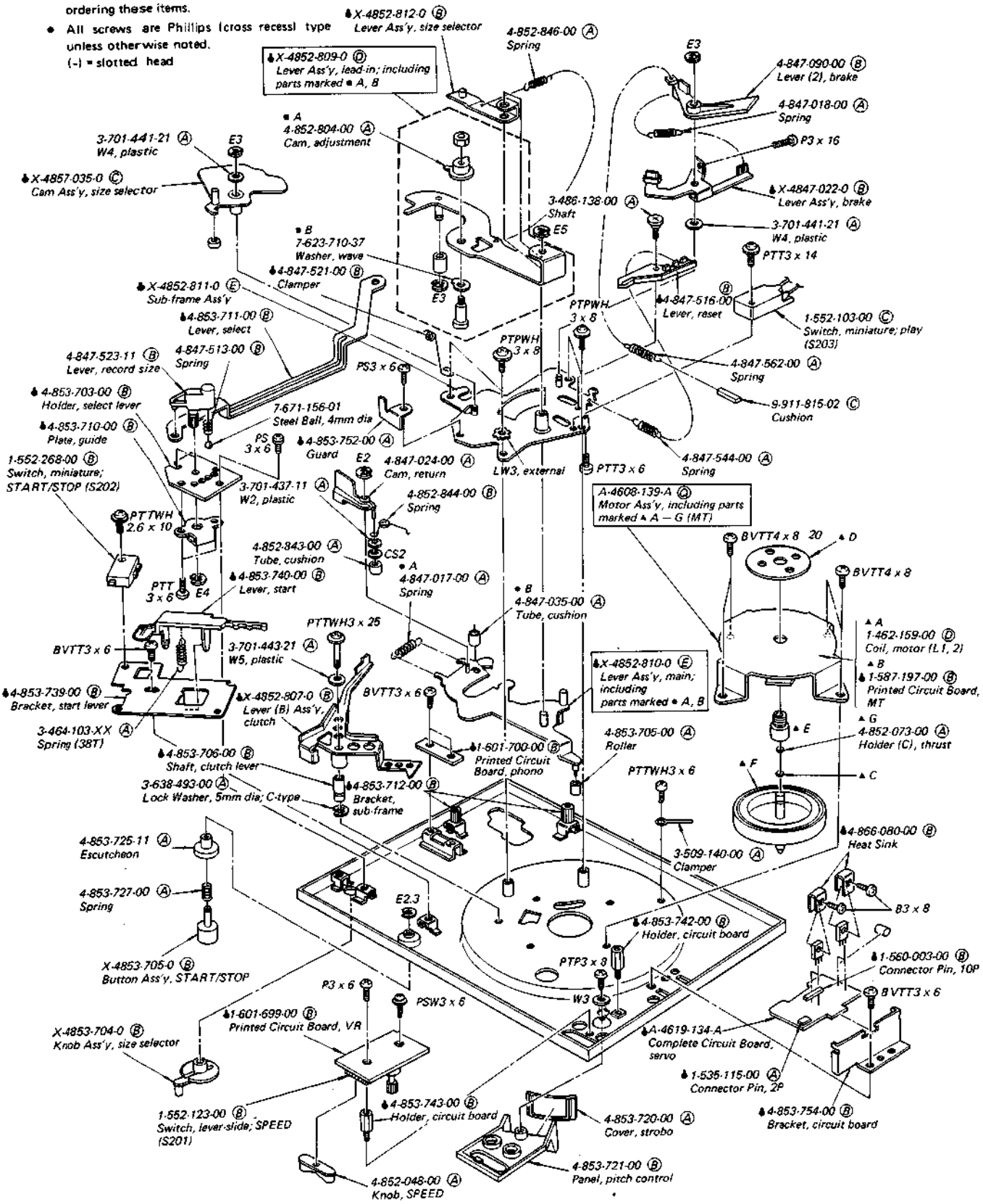


A B C D

1 2 3 4 5

5-7. Note:

- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted. (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



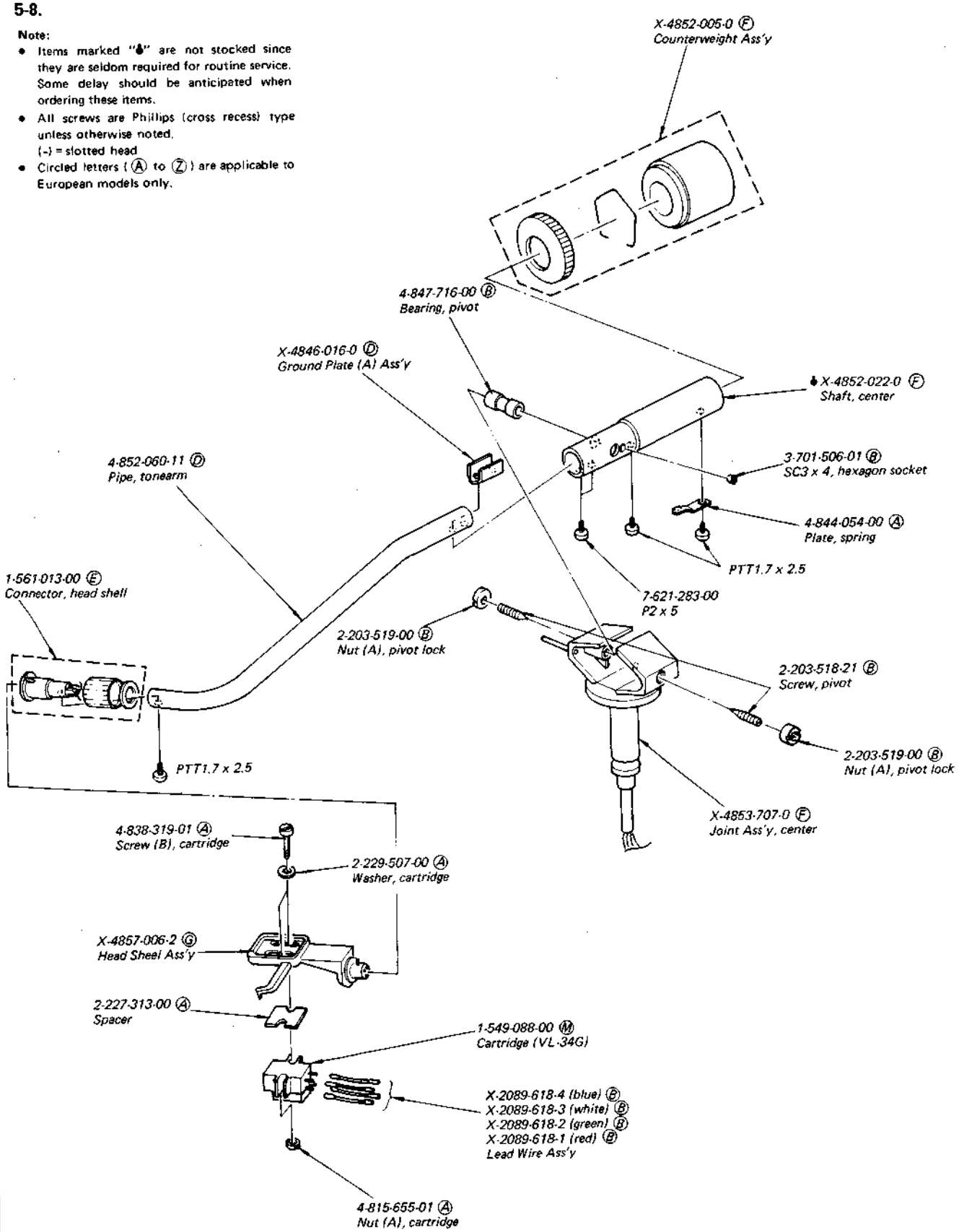
A B C D

1 2 3 4 5

5-8.

Note:

- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



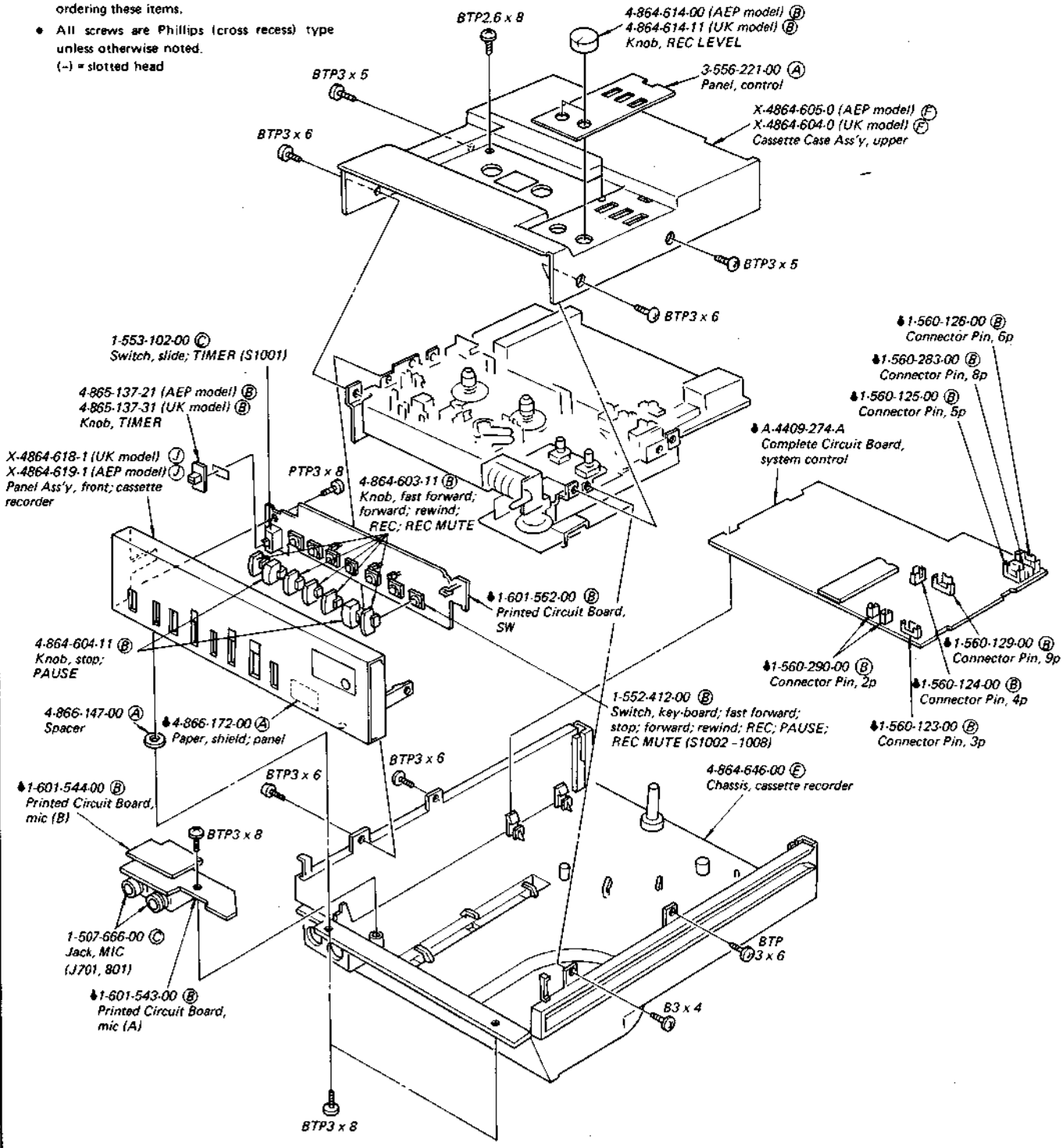
A B C D

1 2 3 4 5

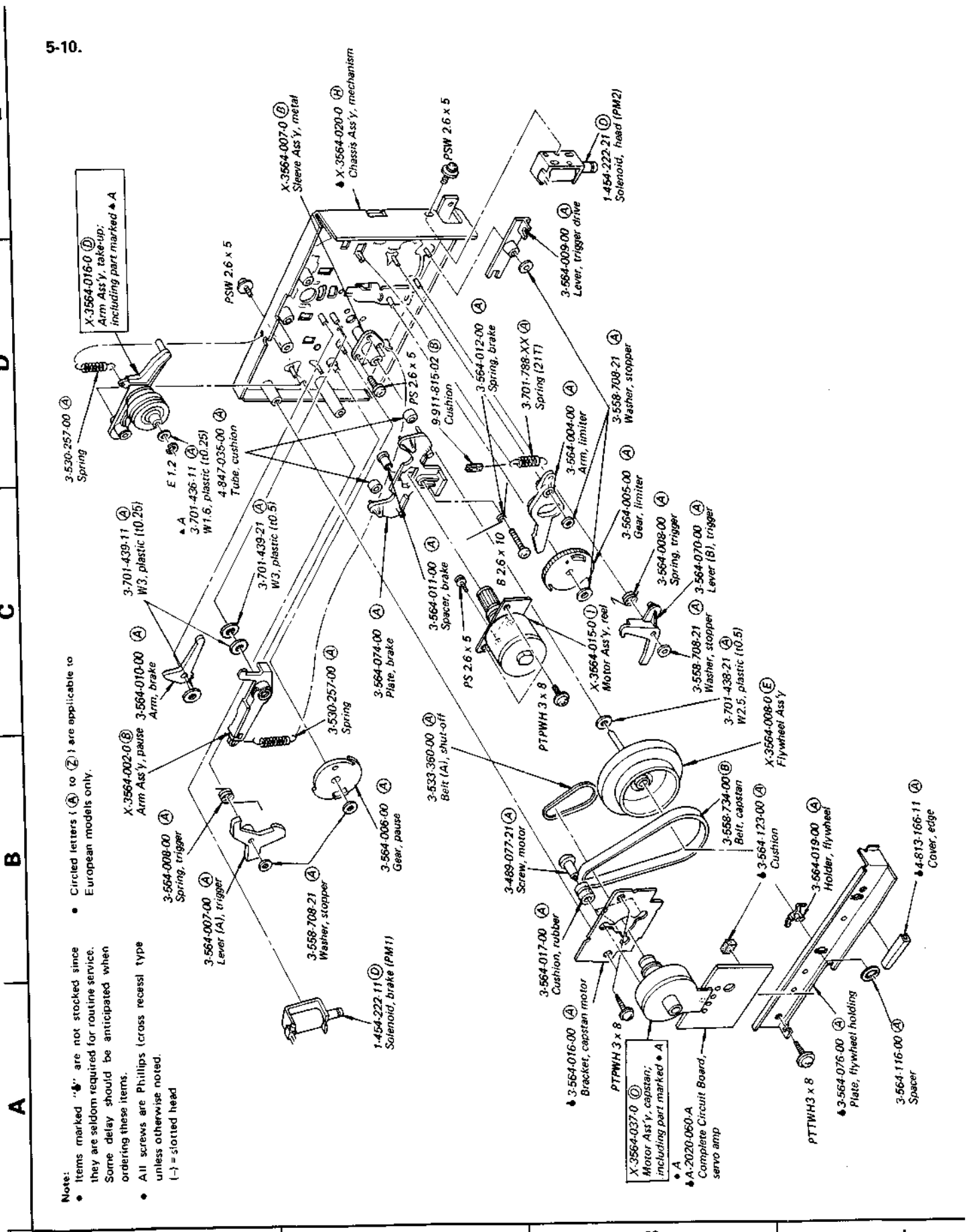
5-9.

Note:

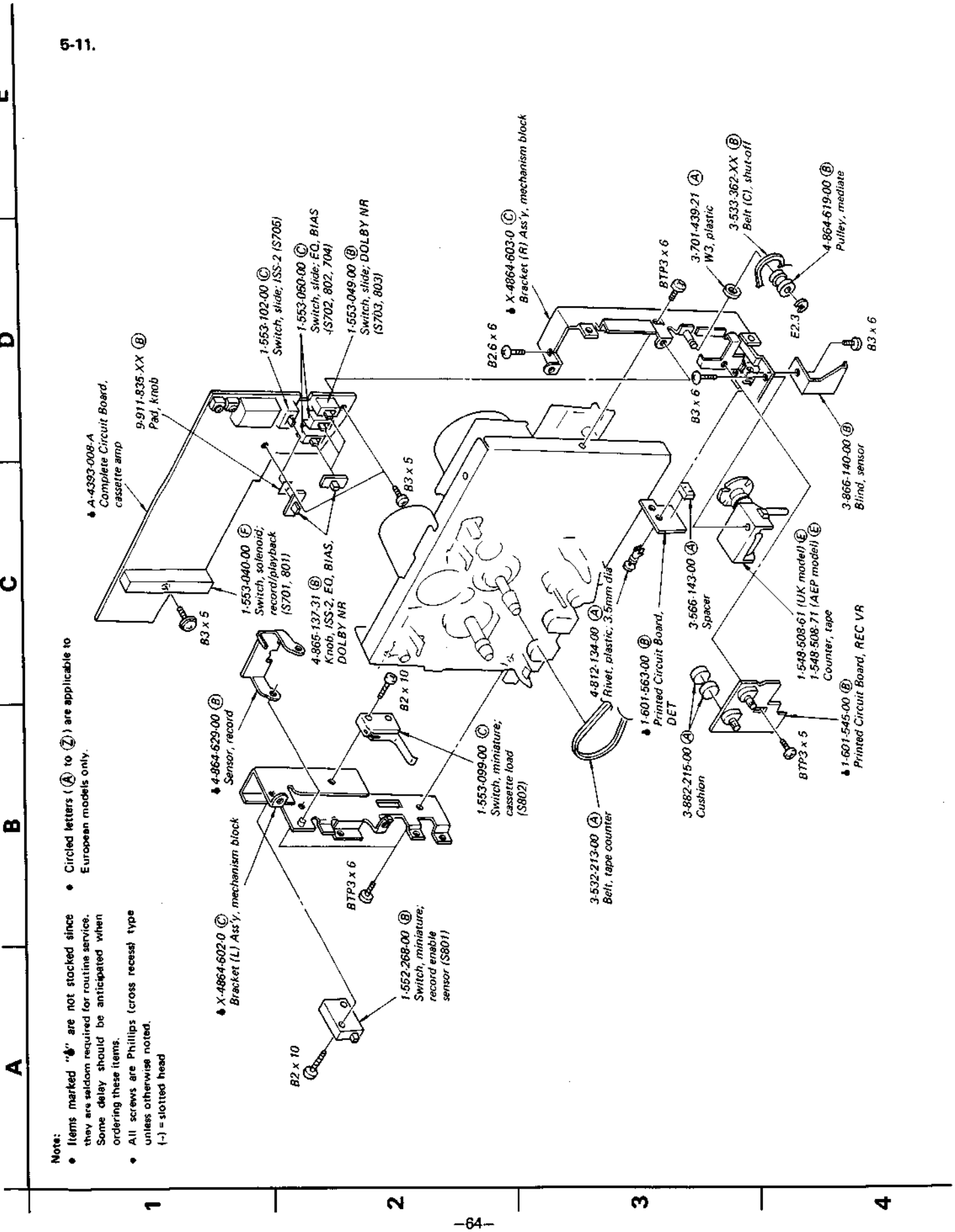
- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



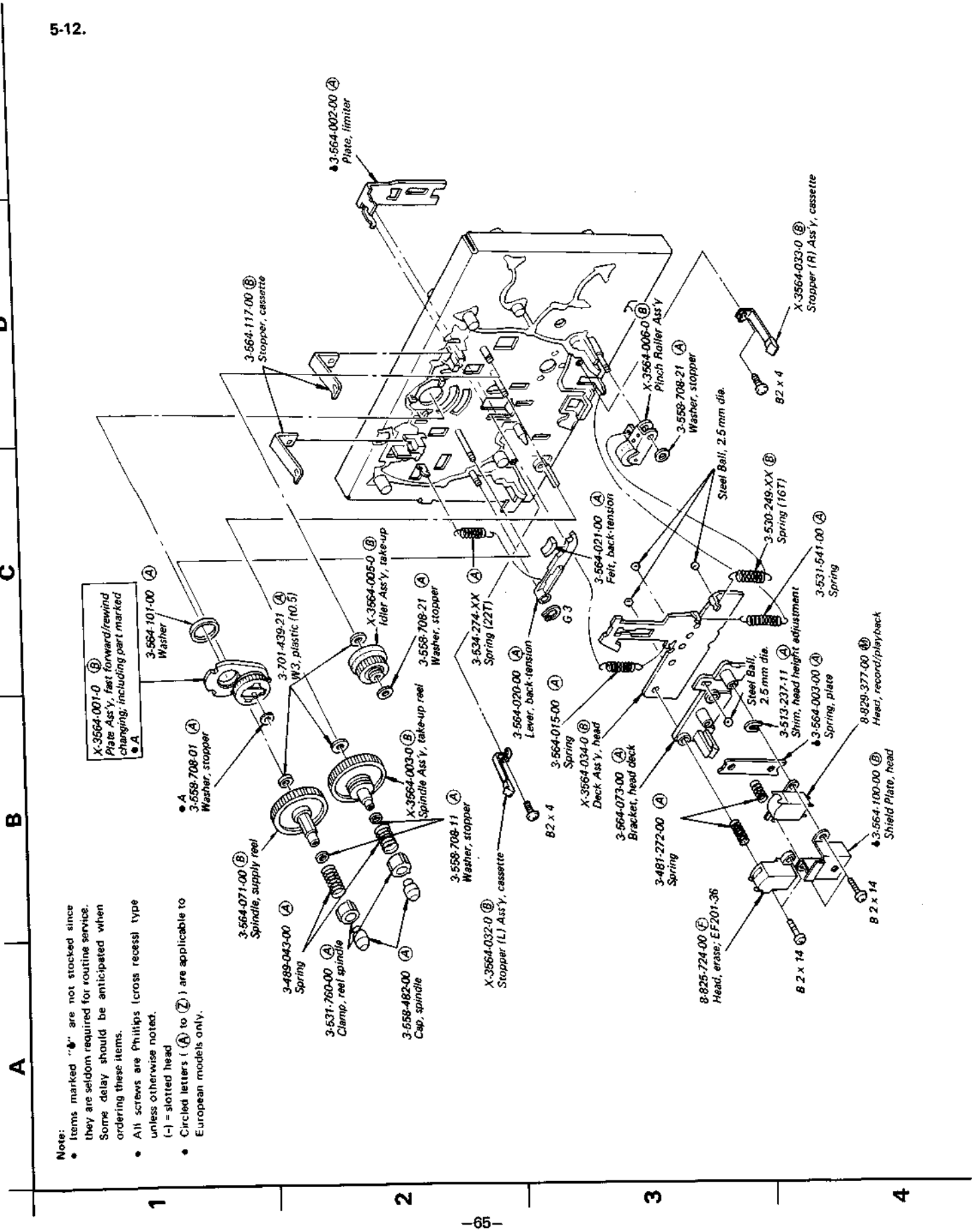
5-10.


A
B
C
D
E
1
2
3
4
Note:
• Items marked "♣" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
• All screws are Phillips (cross recessi type unless otherwise noted.
(–) = slotted head
• Circled letters (Ⓐ to Ⓩ) are applicable to European models only.
X-3564-016-0 Ⓓ Arm Ass'y, take-up; including part marked ♣ A
3-530-257-00 Ⓐ Spring
E 1.2
♣ A 3-701-436-11 Ⓐ W1.6, plastic (t0.25)
4-947-035-00 Ⓐ Tube, cushion
PSW 2.6 x 5
X-3564-007-0 Ⓑ Sleeve Ass'y, metal
♣ X-3564-020-0 Ⓗ Chassis Ass'y, mechanism
PSW 2.6 x 5
1-454-222-21 Ⓓ Solenoid, head (PM2)
3-564-009-00 Ⓐ Lever, trigger drive
3-701-439-11 Ⓐ W3, plastic (t0.25)
3-564-010-00 Ⓐ Arm, brake
X-3564-002-0 Ⓑ Arm Ass'y, pause
3-564-008-00 Ⓐ Spring, trigger
3-564-007-00 Ⓐ Lever (A), trigger
3-558-708-21 Ⓐ Washer, stopper
1-454-222-11 Ⓓ Solenoid, brake (PM11)
3-701-439-21 Ⓐ W3, plastic (t0.5)
3-530-257-00 Ⓐ Spring
3-564-074-00 Ⓐ Plate, brake
3-564-006-00 Ⓐ Gear, pause
3-533-360-00 Ⓐ Belt (A), shut-off
3-564-011-00 Ⓐ Spacer, brake
PS 2.6 x 5
B 2.6 x 10
PS 2.6 x 5
9-911-815-02 Ⓑ Cushion
3-564-012-00 Ⓐ Spring, brake
3-701-788-XX Ⓐ Spring (21T)
3-564-004-00 Ⓐ Arm, limiter
3-558-708-21 Ⓐ Washer, stopper
3-564-005-00 Ⓐ Gear, limiter
3-564-008-00 Ⓐ Spring, trigger
3-564-070-00 Ⓐ Lever (B), trigger
3-558-708-21 Ⓐ Washer, stopper
3-701-438-21 Ⓐ W2.5, plastic (t0.5)
X-3564-015-0 Ⓘ Motor Ass'y, reel
PTPWH 3 x 8
X-3564-008-0 Ⓔ Flywheel Ass'y
3-489-077-21 Ⓐ Screw, motor
3-564-017-00 Ⓐ Cushion, rubber
♣ 3-564-016-00 Ⓐ Bracket, capstan motor
PTPWH 3 x 8
X-3564-037-0 Ⓒ Motor Ass'y, capstan; including part marked ♣ A
♣ A A-2020-060-A Complete Circuit Board, servo amp
3-558-734-00 Ⓑ Belt, capstan
♣ 3-564-123-00 Ⓐ Cushion
3-564-019-00 Ⓐ Holder, flywheel
PTTWH3 x 8
♣ 3-564-076-00 Ⓐ Plate, flywheel holding
3-564-116-00 Ⓐ Spacer
♣ 4-813-166-11 Ⓐ Cover, edge

5-11.


A
B
C
D
E
1
2
3
4
Note:
• Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
• All screws are Phillips (cross recess) type unless otherwise noted. (-) = slotted head
• Circled letters (Ⓐ to Ⓩ) are applicable to European models only.
♦ A-4393-008-A Complete Circuit Board, cassette amp
9-911-835-XX Ⓑ Pad, knob
1-553-102-00 Ⓒ Switch, slide; ISS-2 (S705)
1-553-050-00 Ⓒ Switch, slide; EQ, BIAS (S702, 802, 704)
1-553-049-00 Ⓑ Switch, slide; DOLBY NR (S703, 803)
♦ X-4864-603-0 Ⓒ Bracket (R) Ass'y, mechanism block
B2.6 x 6
BTP3 x 6
3-701-439-21 Ⓐ W3, plastic
3-533-362-XX Ⓑ Belt (C), shut-off
4-864-619-00 Ⓑ Pulley, mediate
E2.3
B3 x 6
B3 x 6
3-866-140-00 Ⓑ Blind, sensor
B3 x 5
1-553-040-00 Ⓕ Switch, solenoid; record/playback (S701, 801)
4-865-137-31 Ⓑ Knob, ISS-2, EQ, BIAS, DOLBY NR
B3 x 5
♦ 4-864-629-00 Ⓑ Sensor, record
B2 x 10
1-553-099-00 Ⓒ Switch, miniature; cassette load (S802)
4-812-134-00 Ⓐ Rivet, plastic, 3.5mm dia
♦ 1-601-563-00 Ⓑ Printed Circuit Board, DET
3-566-143-00 Ⓐ Spacer
1-548-508-61 (UK model) Ⓔ
1-548-508-71 (AEP model) Ⓔ
Counter, tape
♦ X-4864-602-0 Ⓒ Bracket (L) Ass'y, mechanism block
BTP3 x 6
3-532-213-00 Ⓐ Belt, tape counter
3-882-215-00 Ⓐ Cushion
BTP3 x 5
♦ 1-601-545-00 Ⓑ Printed Circuit Board, REC VR
1-552-268-00 Ⓑ Switch, miniature; record enable sensor (S801)
B2 x 10

5-12.



Note:
- Items marked "•" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (-) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

SECTION 6
ELECTRICAL PARTS LIST

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

RECEIVER SECTION

SEMICONDUCTORS

Transistors

Ref. No.	Part No.		Description
Q101–103	8-729-663-47	Ⓒ	2SC1364
⇒ Q104	8-729-612-77	Ⓑ	2SA1027R
Q105	8-729-665-47	Ⓒ	2SC1362
Q251	8-760-413-10	Ⓑ	2SC1475
Q252–255	8-729-663-47	Ⓒ	2SC1364
Q501, 601	8-729-663-47	Ⓒ	2SC1364
Q900, 901	8-729-316-12	Ⓓ	2SC1061
⇒ Q902	8-729-317-12	Ⓔ	2SA671
⇒ Q903	8-760-413-10	Ⓑ	2SC1475
Q950, 951	8-729-663-47	Ⓒ	2SC1364

ICs

IC101	8-751-680-01	Ⓘ	CX168
⇒ IC102	8-759-904-89	Ⓓ	TL489CP
IC201	8-759-111-61	Ⓕ	μPC1161C
IC301	8-759-932-80	Ⓒ	BA328
IC501, 601	8-759-313-40	Ⓜ	SI1340H
IC951	8-759-994-32	Ⓕ	TMS1943N2L

Diodes

D101, 102	8-719-100-81	Ⓓ	1SV118
D103, 104	8-719-815-55	Ⓑ	1S1555
D105–109	8-719-909-24	Ⓑ	GL9NG521
D110, 111	8-719-815-55	Ⓑ	1S1555
D112–118	8-719-909-23	Ⓑ	GL9HY21
D119	8-719-815-55	Ⓑ	1S1555
D201	8-719-909-21	Ⓑ	GL9PR21
⇒ D251	8-719-931-33	Ⓑ	EQB01-33
⇒ D252	8-719-931-06	Ⓑ	EQB01-06
D255, 256	8-719-815-55	Ⓑ	1S1555
D301	8-719-200-02	Ⓑ	10E2
⇒ D501, 601	8-719-931-21	Ⓑ	EQB01-21
D901	8-719-200-02	Ⓑ	10E2
⇒ D902	8-719-931-21	Ⓑ	EQB01-21
D904–907	8-719-200-02	Ⓑ	10E2
⇒ D908, 909	8-719-930-11	Ⓑ	EQB01-11Z
D910–912	8-719-200-02	Ⓑ	10E2
⇒ D913–916	8-719-911-55	Ⓑ	U05G
D917, 918	8-719-200-02	Ⓑ	10E2
D950, 951, D953	8-719-815-55	Ⓑ	1S1555
D955, 956	8-719-909-24	Ⓑ	GL9NG521
⇒ D960	8-719-931-06	Ⓑ	EQB01-06
CDS951	1-800-779-00	Ⓑ	Photoconductive Cell

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

CAPACITORS

All capacitors are in μF. Common capacitors are omitted. Refer to the lists on pages 72 and 73 for their part numbers.

C901	⚠ 1-130-456-00	Ⓒ	0.022	250V	film
C902, 903	⚠ 1-125-157-00	Ⓓ	6800	42V	elect
C904	⚠ 1-123-336-00	Ⓑ	470	25V	elect
C906	1-123-363-00	Ⓒ	470	50V	elect
C908, 913	⚠ 1-123-337-00	Ⓑ	1000	25V	elect
C914	⚠ 1-123-363-00	Ⓒ	470	50V	elect
C915	⚠ 1-123-336-00	Ⓑ	470	25V	elect
C918, 919	⚠ 1-123-324-00	Ⓑ	1000	16V	elect
CP901	1-102-355-00	Ⓑ	0.01 x 2	500V	ceramic
CT101–104	1-141-171-00	Ⓑ	Trimmer		

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Refer to the list on page 71 for their part numbers.

R137	⚠ 1-217-444-00	Ⓑ	68	½W	fusible
R253	⚠ 1-212-857-00	Ⓐ	10	¼W	fusible
R314	⚠ 1-211-626-00	Ⓑ	330	½W	fusible
R517, 617	⚠ 1-212-958-00	Ⓐ	10	½W	fusible
R625	⚠ 1-212-999-00	Ⓑ	510	½W	fusible
R905	⚠ 1-212-977-00	Ⓐ	62	½W	fusible
RV201	1-226-235-00	Ⓐ	5k-B, adjustable; VCO		
RV251–253	1-226-664-00	Ⓑ	2.2k-B, adjustable; FM/MW tune		
RV254–256	1-226-663-00	Ⓑ	1k-B, adjustable; FM/MW tune		
RV501–503, RV601, 602	1-226-717-00	Ⓔ	100k-A/250k-W; variable; BASS, TREBLE, BALANCE		
RV504, 604	1-226-683-00	Ⓔ	250k-B, variable; VOLUME		
RV951	1-226-686-00	Ⓔ	470k-B, adjustable; ABC		

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description
			MISCELLANEOUS
CF101	1-527-248-XX	(H)	Filter, solid state
CFU101	1-404-226-00	(C)	AM IFT
FE101	1-463-287-00	(M)	FM Front-end
J501	1-507-649-00	(C)	Jack, HEADPHONES
L101	1-401-834-00	(B)	Coil, LW antenna (AEP model)
L102, 103	1-401-833-00	(E)	Coil, MW/LW ferrite-rod antenna
L104	1-405-890-00	(B)	Coil, MW osc
L105	1-405-891-00	(B)	Coil, LW osc
L106	1-404-157-00	(C)	FM IFT
L107	1-407-741-00	(B)	Coil, 18μH; microinductor
L108	1-407-169-XX	(A)	Coil, 100μH; microinductor
L109	1-408-171-XX	(B)	Coil, 1μH; microinductor
L201, 202	1-407-963-XX	(B)	Coil, 15mH; microinductor
L901	1-408-203-00	(B)	Coil, 470μH; microinductor
PL	1-518-403-00	(B)	Lamp, pilot; cassette
PL1, 3	1-518-323-00	(B)	Lamp, pilot; signal indicator, dial scale
PT901	⚠1-446-562-00	(Q)	Transformer, power (AEP model)
	⚠1-446-563-00	(R)	Transformer, power (UK model)
PT902	⚠1-446-560-00	(J)	Transformer, power; clock
RL	⚠1-515-357-00	(G)	Relay
S012 S021–024	1-553-101-00	(F)	Switch, 5-key; MODE, SPEAKER A, B, ISS-1, LOUDNESS
S014, 015	1-552-539-00	(B)	Switch, keyboard; FAST, SLOW
S016, 017	1-552-737-00	(B)	Switch, keyboard; TIMER, SLEEP
S018, 019	1-552-539-00	(B)	Switch, keyboard; CLOCK SET, TIMER/SLEEP SET
S1–8	1-553-088-00	(J)	Switch, 7-key; w/muting switch, FUNCTION
S9	1-552-334-00	(B)	Switch, 1-key; LW ANTENNA (AEP model)
S11	1-553-044-00	(K)	Switch, 10-key; FM/MW PROGRAMMED TUNING
S20	1-553-109-00	(B)	Switch, leaf; muting
S25	1-514-346-00	(B)	Switch, leaf; AFC
S901	1-553-106-00	(B)	Switch, 1-key; POWER
	1-417-014-31	(B)	Balun Coil (UK model)
	1-507-532-00	(C)	Jack, phono; 4P, AUX, REC OUT
	•1-508-704-00	(B)	Connector Pin
	•1-508-822-00	(A)	Connector Pin
	•1-508-823-00	(B)	Connector Pin
	1-519-179-00	(K)	Fluorescent Display Tube (UK model)
	1-519-191-00	(K)	Fluorescent Display Tube (AEP model)
	1-520-407-00	(M)	Meter, REC LEVEL & POWER
	1-526-563-00	(C)	Jack, antenna; FM 75Ω (UK model)
	⚠1-532-503-00	(B)	Fuse, T1.602A
	1-533-131-00	(A)	Holder, fuse
	⚠1-534-817-XX	(D)	Cord, power (AEP model)
	•1-535-116-00	(A)	Connector Pin, 3P
	•1-535-117-00	(A)	Connector Pin, 4P
	•1-535-118-00	(A)	Connector Pin, 5P
	•1-535-119-00	(A)	Connector Pin, 6P
	•1-535-121-00	(B)	Connector Pin, 8P
	1-536-560-00	(B)	Terminal, ANTENNA
	1-536-566-00	(B)	Terminal, SPEAKER A, B
	⚠1-551-884-31	(E)	Cord, power (UK model)
	1-555-070-00	(H)	Connector Ass'y
	•1-560-126-00	(B)	Connector Pin, 6P
	•1-560-281-00	(B)	Connector Pin, 5P
	•1-560-286-00	(B)	Connector Pin, 2P
	•1-561-439-00	(B)	Connector Pin, 3P
	•1-561-440-00	(B)	Connector Pin, 4P
	•1-561-442-00	(B)	Connector Pin, 6P
	•1-561-444-00	(B)	Connector Pin, 8P
	•1-561-445-00	(B)	Connector Pin, 9P
			COMPLETE CIRCUIT BOARD
	•A-4351-173-A		Tuner (UK model)
	•A-4351-174-A		Tuner (AEP model)
	•A-4375-126-A		Tone Control (UK model)
	•A-4375-127-A		Tone Control (AEP model)
	•A-4388-202-A		Power Amp
			PRINTED CIRCUIT BOARD
	•1-601-546-00	(B)	Meter
	•1-601-550-00	(B)	Headphone
	•1-601-551-00	(C)	Timer (A)
	•1-601-552-00	(B)	Timer (B)
	•1-601-553-00	(B)	Preset
	•1-601-554-00	(B)	CDS
	•1-601-555-00	(C)	Volume
	•1-601-556-00	(B)	Signal Indicator
	•1-601-557-00	(B)	Power Sw
	•1-601-558-00	(B)	PL (A)
	•1-601-559-00	(B)	PL (B)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

• Items marked "•" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

RECORD PLAYER SECTION

Ref. No.	Part No.		Description
			SEMICONDUCTORS
			Transistors
⇒ Q101–104	8-729-902-11	(B)	2SC2021
Q105	8-729-978-62	(B)	2SA786
⇒ Q106	8-760-413-10	(B)	2SC1475
⇒ Q107	8-729-364-81	(C)	2SB648
⇒ Q108	8-760-413-10	(B)	2SC1475
⇒ Q109	8-729-364-81	(C)	2SB648
Q110	8-729-978-62	(B)	2SA786
⇒ Q111	8-729-902-11	(B)	2SC2021
Q112	8-729-978-62	(B)	2SA786
⇒ Q113	8-729-902-11	(B)	2SC2021
			ICs
IC101, 102	8-759-145-58	(D)	μPC4558C
			Hall Devices
H201, 202	8-719-814-09	(D)	F1409

CAPACITORS

All capacitors are in μF. Common capacitors are omitted. Refer to the lists on pages 72 and 73 for their part numbers.

C103	1-130-367-00	(B)	0.068	100V	film

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Refer to the list on page 71 for their part numbers.

RV101, 102	1-226-234-00	(B)	2k-B, adjustable; gain
RV103, 104	1-226-237-00	(B)	20k-B, adjustable; offset
RV201	1-226-238-00	(B)	50k-B, adjustable; speed
RV202, 203	1-226-062-00	(C)	20k-B, variable; PITCH

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description
			MISCELLANEOUS
FG	1-543-093-00	(E)	Head, speed detecting
L1, 2	1-462-159-00	(D)	Coil, motor
MT	A-4608-139-A	(Q)	Motor Ass'y
	including:		
	1-462-159-00	(D)	Coil, motor
	•1-587-197-00	(B)	Printed Circuit Board, MT
NL201	1-519-135-11	(B)	Lamp, neon
S201	1-552-123-00	(B)	Switch, lever-slide; SPEED
S202	1-552-268-00	(B)	Switch, miniature; START/STOP
S203	1-552-103-00	(C)	Switch, miniature; play
	•1-535-115-00	(A)	Connector Pin, 2P
	1-549-088-00	(M)	Cartridge, VL-34G
	•1-560-003-00	(B)	Connector Pin, 10P
	1-561-013-00	(E)	Connector, head shell
	X-2089-618-1	(B)	Lead Wire Ass'y (red)
	X-2089-618-2	(B)	Lead Wire Ass'y (green)
	X-2089-618-3	(B)	Lead Wire Ass'y (white)
	X-2089-618-4	(B)	Lead Wire Ass'y (blue)
			COMPLETE CIRCUIT BOARD
	•A-4619-134-A		Servo
			PRINTED CIRCUIT BOARD
	•1-587-197-00	(B)	MT
	•1-601-699-00	(B)	VR
	•1-601-700-00	(B)	Phono sig

CASSETTE RECORDER SECTION

Ref. No.	Part No.		Description
			SEMICONDUCTORS
			Transistors
Q701, 801	8-729-665-47	(B)	2SC1362
Q702–706 Q802–806	8-729-663-47	(B)	2SC1364
Q1001	8-729-141-43	(B)	2SD414
Q1002,1003	8-729-663-47	(B)	2SC1364
Q1004	8-729-195-23	(B)	2SA952
Q1005	8-729-141-43	(B)	2SD414
Q1006	8-729-154-83	(B)	2SB548
Q1007	8-729-663-47	(B)	2SC1364

• Items marked "•" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description
Q1008	8-729-154-83	Ⓑ	2SB548
Q1009,1010	8-760-413-10	Ⓑ	2SC1475
Q1011,1012	8-729-663-47	Ⓑ	2SC1364
Q1013,1014	8-760-413-10	Ⓑ	2SC1475
Q1015	8-729-663-47	Ⓑ	2SC1364
Q1018–Q1022	8-729-663-47	Ⓑ	2SC1364
➡ Q1023	8-729-612-77	Ⓑ	2SA1027R
⇒ Q1024	8-729-101-13	Ⓒ	PH103
Q1027	8-729-663-47	Ⓑ	2SC1364
ICs			
IC701, 801	8-759-101-74	Ⓚ	CX174
IC702	8-759-145-58	Ⓓ	μPC4558C
IC1001	8-759-240-49	Ⓔ	TC4049BP
IC1002	8-759-147-42	Ⓛ	μPD547C042
IC1003	8-759-904-69	Ⓒ	MSM4069
Diodes			
D112–118	8-719-909-23	Ⓑ	GL9HY21
D701, 801, D702, 802	8-719-815-55	Ⓑ	1S1555
⇒ D703, 803, ➡ D704, 804	8-719-422-21	Ⓑ	1T22AM
D705, 805	8-719-815-55	Ⓑ	1S1555
D707, 807, D708, 808	8-719-815-55	Ⓑ	1S1555
D1001	8-719-200-02	Ⓑ	10E2
D1002–D1005	8-719-815-55	Ⓑ	1S1555
D1007–D1009	8-719-815-55	Ⓑ	1S1555
D1012–D1016	8-719-200-02	Ⓑ	10E2
D1017–D1021	8-719-815-55	Ⓑ	1S1555
D1023,1024	8-719-909-23	Ⓑ	GL9HY21
D1025	8-719-909-21	Ⓑ	GL9PR21
D1026	8-719-909-23	Ⓑ	GL9HY21
D1027	8-719-815-55	Ⓑ	1S1555
➡ D1030,1031	8-719-930-11	Ⓑ	EQB01-11Z

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.		Description
Servo Board (included in capstan motor)			
Transistors			
Q1001,1002	8-729-663-47	Ⓑ	2SC1364
Q1003	8-729-180-93	Ⓑ	2SD809
Q1004	8-729-173-13	Ⓑ	2SB731
Q1005	8-729-180-93	Ⓑ	2SD809
Q1006	8-729-173-13	Ⓑ	2SB731
ICs			
IC1001	8-750-690-00	Ⓕ	CX069
IC1002	8-759-145-58	Ⓓ	μPC4558C
Diodes			
➡ D1001	8-719-910-65	Ⓑ	HZ6B2L
⇒ D1002,1003	8-719-841-01	Ⓓ	F1410
CAPACITORS			

All capacitors are in μF. Common capacitors are omitted. Refer to the lists on pages 70 and 71 for their part numbers.

C1005	1-130-134-00	Ⓑ	0.082	100V	plastic
CT701, 801	1-141-215-00	Ⓑ	Trimmer		

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Refer to the list on page 72 for their part numbers.

R1001	1-214-777-00	Ⓐ	100k	¼W	metal oxide (1%)
R1034, 1035	⚠1-212-857-00	Ⓐ	10	¼W	fusible
RV701, 801	1-226-677-00	Ⓒ	20k-A, variable; REC LEVEL		
RV702, 802	1-226-237-00	Ⓑ	20k-B, adjustable; playback level		
➡ RV703, 803	1-226-238-00	Ⓐ	50k-B, adjustable; record level		
RV1001	1-226-433-00	Ⓓ	50k-B, adjustable; speed		

MISCELLANEOUS

HE	8-825-724-00	Ⓕ	Head, erase; EF201-36
HRP	8-829-377-00	Ⓜ	Head, record/playback
J701, 801	1-507-666-00	Ⓒ	Jack, MIC
L702, 802	1-407-878-XX	Ⓑ	Coil, 27mH; microinductor
L1001	1-405-800-00	Ⓑ	Osc

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Ref. No.	Part No.		Description
L1002	1-408-209-00	Ⓑ	Coil, 1mH, microinductor
PM1	1-454-222-11	Ⓓ	Solenoid, brake
PM2	1-454-222-21	Ⓓ	Solenoid, head
S701, 801	1-553-040-00	Ⓕ	Switch, solenoid; record/playback
S702, 802	1-553-050-00	Ⓒ	Switch, slide; EQ
S703, 803	1-553-049-00	Ⓑ	Switch, slide; DOLBY NR
S704	1-553-050-00	Ⓒ	Switch, slide; BIAS
S705	1-553-102-00	Ⓒ	Switch, slide; ISS-2
S801	1-552-268-00	Ⓑ	Switch, miniature; record enable sensor
S802	1-553-099-00	Ⓒ	Switch, miniature; cassette load
S1001	1-553-102-00	Ⓒ	Switch, slide; TIMER
S1002–S1008	1-552-412-00	Ⓑ	Switch, keyboard; rewind, stop, forward, fast forward, REC, PAUSE, REC MUTE
	X-3564-015-0	Ⓘ	Motor Ass'y, reel
	X-3564-037-0	Ⓞ	Motor Ass'y, capstan
	1-464-099-00	Ⓕ	Bias Osc Unit
•	1-560-123-00	Ⓑ	Connector Pin, 3P
•	1-560-124-00	Ⓑ	Connector Pin, 4P
•	1-560-125-00	Ⓑ	Connector Pin, 5P
•	1-560-126-00	Ⓑ	Connector Pin, 6P
•	1-560-129-00	Ⓐ	Connector Pin, 9P
•	1-560-280-00	Ⓑ	Connector Pin, 3P
•	1-560-283-00	Ⓑ	Connector Pin, 8P
•	1-560-290-00	Ⓑ	Connector Pin, 2P
COMPLETE CIRCUIT BOARD			
A-4393-008-A	Cassette Amp		
A-4409-274-A	System Control		
PRINTED CIRCUIT BOARD			
•	1-601-543-00	Ⓑ	Mic (A)
•	1-601-544-00	Ⓑ	Mic (B)
•	1-601-545-00	Ⓑ	REC RV
•	1-601-562-00	Ⓑ	SW
•	1-601-563-00	Ⓑ	DET

• Items marked "•" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

ACCESSORIES AND PACKING MATERIALS

Part No.		Description
1-501-161-00	Ⓒ	Antenna, ribbon
3-701-630-00	Ⓐ	Bag, plastic
3-701-806-00	Ⓑ	Adaptor, 45 rpm
3-783-009-11	Ⓔ	Manual, instruction (AEP model)
3-783-009-41	Ⓒ	Manual, instruction (UK model)
3-794-123-11	Ⓐ	Label, caution
4-834-105-00	Ⓐ	Sheet, polyethylene
4-834-720-00	Ⓐ	Cover, turntable
4-853-189-00	Ⓑ	Screw, transit
4-862-043-00	Ⓐ	Cushion, tonearm
4-866-154-00	Ⓚ	Carton (UK model)
4-866-155-00	Ⓚ	Carton (AEP model)
4-866-156-00	Ⓐ	Sheet, protection; cassette panel
4-866-157-00	Ⓐ	Sheet, protection; control panel
4-866-158-00	Ⓓ	Cushion, upper (front)
4-866-159-00	Ⓓ	Cushion, upper (back)
4-866-160-00	Ⓓ	Cushion, lower (front)
4-866-161-00	Ⓓ	Cushion, lower (back)
4-866-162-00	Ⓒ	Holder, turntable
4-866-163-00	Ⓓ	Bag, protection
4-866-169-00	Ⓐ	Sheet, protection

1/4 WATT CARBON RESISTORS Ⓐ

Note: Circled letter Ⓐ is applicable to European models only.

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-576-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-577-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-578-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-579-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-580-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-581-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-582-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-583-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-584-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-585-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-586-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-587-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw:

P 3 x 10
- *L: Length in mm*
- *D: Diameter in mm*
- *Type of head*
- *Indicated slotted-head only. Unless otherwise indicated, it means cross-recessed head (Phillips type).*

Nut, Washer, Retaining ring:

N 3
- *Diameter of usable screw or shaft*
- *Reference designation*

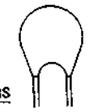
Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

MYLAR CAPACITORS Ⓐ

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

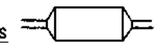
CAP. (μF)	RATING 50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				



TANTALUM CAPACITORS

→: Use the high voltage rated one.

CAP. (μF)	RATING 3.15 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.
0.01					→	→	1-131-396-00 Ⓑ
0.015						→	1-131-397-00 Ⓑ
0.022						→	1-131-398-00 Ⓑ
0.033						→	1-131-399-00 Ⓑ
0.047						→	1-131-400-00 Ⓑ
0.068					→	→	1-131-401-00 Ⓑ
0.1					→	→	1-131-402-00 Ⓑ
0.15					→	→	1-131-403-00 Ⓑ
0.22					→	→	1-131-404-00 Ⓑ
0.33					→	1-131-409-00 Ⓑ	1-131-405-00 Ⓑ
0.47	–	–	–	–	1-131-412-00 Ⓑ	→	1-131-406-00 Ⓑ
0.68	–	–	–	1-131-415-00 Ⓑ	→	1-131-410-00 Ⓑ	1-131-407-00 Ⓑ
1.0	–	–	1-131-418-00 Ⓑ	–	1-131-413-00 Ⓑ	→	1-131-408-00 Ⓑ
1.5	–	1-131-421-00 Ⓑ	–	1-131-416-00 Ⓑ	→	1-131-411-00 Ⓑ	1-131-348-00 Ⓑ
2.2	1-131-424-00 Ⓑ	–	1-131-419-00 Ⓑ	–	1-131-414-00 Ⓑ	1-131-355-00 Ⓑ	1-131-349-00 Ⓑ
3.3	–	1-131-422-00 Ⓑ	–	1-131-417-00 Ⓑ	1-131-362-00 Ⓑ	1-131-356-00 Ⓑ	1-131-350-00 Ⓑ
4.7	1-131-425-00 Ⓑ	–	1-131-420-00 Ⓑ	1-131-369-00 Ⓑ	1-131-363-00 Ⓑ	1-131-357-00 Ⓑ	1-131-351-00 Ⓒ
6.8	–	1-131-423-00 Ⓑ	1-131-376-00 Ⓑ	1-131-370-00 Ⓑ	1-131-364-00 Ⓑ	1-131-358-00 Ⓒ	1-131-352-00 Ⓒ
10	1-131-426-00 Ⓑ	1-131-383-00 Ⓑ	1-131-377-00 Ⓑ	1-131-371-00 Ⓑ	1-131-365-00 Ⓒ	1-131-359-00 Ⓒ	1-131-353-00 Ⓓ
15	1-131-390-00 Ⓑ	1-131-384-00 Ⓑ	1-131-378-00 Ⓑ	1-131-372-00 Ⓑ	1-131-366-00 Ⓒ	1-131-360-00 Ⓓ	–
22	1-131-391-00 Ⓑ	1-131-385-00 Ⓑ	1-131-379-00 Ⓒ	1-131-373-00 Ⓒ	1-131-367-00 Ⓓ		
33	1-131-392-00 Ⓑ	1-131-386-00 Ⓒ	1-131-380-00 Ⓒ	1-131-374-00 Ⓓ			
47	1-131-393-00 Ⓒ	1-131-387-00 Ⓒ	1-131-381-00 Ⓓ	–			
68	1-131-394-00 Ⓑ	1-131-388-00 Ⓒ	–	–			
100	1-131-395-00 Ⓓ	–	–	–			



TANTALUM CAPACITORS

CAP. (μF)	RATING 3 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	35 VOLT. PART No.
0.033						1-131-273-00 Ⓔ
0.047						1-131-274-00 Ⓔ
0.068						1-131-275-00 Ⓔ
0.1						1-131-276-00 Ⓓ
0.15						1-131-277-00 Ⓓ
0.22			–	–	1-131-262-00 Ⓓ	1-131-278-00 Ⓓ
0.33			–	–	1-131-263-00 Ⓓ	1-131-279-00 Ⓓ
0.47			1-131-169-00 Ⓓ	–	1-131-264-00 Ⓓ	1-131-280-00 Ⓓ
0.68			–	1-131-258-00 Ⓓ	1-131-265-00 Ⓓ	1-131-281-00 Ⓓ
1.0			1-131-254-00 Ⓓ	–	1-131-266-00 Ⓓ	1-131-282-00 Ⓓ
1.5		1-131-250-00 Ⓓ	–	–	1-131-267-00 Ⓓ	1-131-283-00 Ⓔ
2.2		–	–	1-131-259-00 Ⓓ	1-131-268-00 Ⓓ	1-131-284-00 Ⓔ
3.3		–	1-131-255-00 Ⓓ	–	1-131-269-00 Ⓓ	–
4.7		1-131-251-00 Ⓔ	1-131-171-00 Ⓓ	–	1-131-270-00 Ⓓ	–
6.8		–	–	1-131-260-00 Ⓓ	1-131-271-00 Ⓔ	–
10	–	–	1-131-256-00 Ⓓ	–	1-131-272-00 Ⓔ	–
15	–	1-131-252-00 Ⓓ	–	1-131-261-00 Ⓔ		
22	–	–	1-131-257-00 Ⓔ	–		
33	1-131-176-00 Ⓓ	1-131-253-00 Ⓔ	1-131-173-00 Ⓒ	–		
47	1-131-288-00 Ⓕ	1-131-174-00 Ⓓ	–	–		
100	1-131-177-00 Ⓓ					

ELECTROLYTIC CAPACITORS

Note: Circled letter (Ⓐ to Ⓩ) are applicable to European models only.

CAP. (μF)	RATING → : Use the high voltage rated one.					
	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00 Ⓐ
1.0					→	1-121-391-00 Ⓐ
2.2					→	1-121-450-00 Ⓐ
3.3	→	→	→	1-121-392-00 Ⓐ	→	1-121-393-00 Ⓐ
4.7	→	→	→	1-121-395-00 Ⓐ	→	1-121-396-00 Ⓐ
10	→	→	1-121-651-00 Ⓐ	1-121-398-00 Ⓐ	→	1-121-738-00 Ⓐ
22	→	→	1-121-479-00 Ⓐ	1-121-480-00 Ⓐ	1-121-662-00 Ⓐ	1-121-152-00 Ⓐ
33	→	→	1-121-403-00 Ⓐ	1-121-404-00 Ⓐ	1-121-652-00 Ⓑ	1-121-405-00 Ⓐ
47	→	1-121-352-00 Ⓐ	1-121-409-00 Ⓐ	1-121-410-00 Ⓐ	1-121-653-00 Ⓑ	1-121-411-00 Ⓐ
100	→	1-121-414-00 Ⓐ	1-121-415-00 Ⓐ	1-121-416-00 Ⓐ	1-121-357-00 Ⓑ	1-121-417-00 Ⓑ
220	1-121-419-00 Ⓑ	1-121-420-00 Ⓑ	1-121-421-00 Ⓐ	1-121-422-00 Ⓑ	1-121-261-00 Ⓒ	1-121-423-00 Ⓑ
330	1-121-751-00 Ⓑ	1-121-805-00 Ⓑ	1-121-521-00 Ⓒ	1-121-654-00 Ⓑ	1-121-655-00 Ⓓ	1-121-656-00 Ⓒ
470	1-121-424-00 Ⓑ	1-121-425-00 Ⓒ	1-121-426-00 Ⓒ	1-121-733-00 Ⓑ	1-121-361-00 Ⓔ	1-121-810-00 Ⓓ
1000	–	1-121-736-00 Ⓒ	1-121-245-00 Ⓓ	1-121-657-00 Ⓓ	1-121-388-00 Ⓔ	1-123-061-00 Ⓕ
2200	1-121-658-00 Ⓑ	1-121-659-00 Ⓒ	1-121-660-00 Ⓓ	1-123-067-00 Ⓕ	1-121-984-00 Ⓕ	–
3300	1-121-661-00 Ⓓ	1-123-075-00 Ⓔ	1-123-071-00 Ⓔ	–	–	–

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00 Ⓐ	1-123-252-00 Ⓐ	1-123-003-00 Ⓑ	1-121-168-00 Ⓑ
2.2	1-123-250-00 Ⓐ	1-123-026-00 Ⓑ	–	1-123-028-00 Ⓑ
3.3	1-121-995-00 Ⓐ	–	1-123-004-00 Ⓑ	1-123-006-00 Ⓒ
4.7	1-123-255-00 Ⓐ	1-121-246-00 Ⓑ	1-121-759-00 Ⓑ	1-123-007-00 Ⓓ
10	1-121-126-00 Ⓑ	1-121-999-00 Ⓑ	1-123-254-00 Ⓒ	1-123-008-00 Ⓓ
22	1-121-996-00 Ⓒ	1-123-253-00 Ⓒ	1-123-005-00 Ⓓ	1-123-022-00 Ⓓ
33	1-121-997-00 Ⓒ	1-121-757-00 Ⓒ	–	–
47	1-123-251-00 Ⓒ	1-121-919-00 Ⓒ	–	–
100	1-123-084-00 Ⓔ	–	–	–

CERAMIC CAPACITORS Ⓐ

CAP. (pF)	RATING	CAP. (pF)	RATING	CAP. (pF)	RATING	CAP. (μF)	RATING
	50 VOLT.		50 VOLT.		50 VOLT.		50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS Ⓐ

CAP. (μF)	RATING → : Use the high voltage rated one.		CAP. (μF)	RATING	
	25 VOLT.	50 VOLT.		25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

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Sony Corporation

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