TC-44

US Model
Canadian Model
UK Model
AEP Model
E Model

CASSETTE-CORDER

SPECIFICATIONS

Power Requirements: 6V dc, four batteries size AA (IEC designation R6), Rechargeable Battery Pack BP-23 (optional)
120V ac, 60Hz with optional Sony AC Adaptor & Charger AC-9W (US model) or AC-9 (Canadian model)
240V ac, 50Hz with optional Sony AC Adaptor & Charger AC-15A (UK model)
110V or 220V ac, 50Hz with optional AC power Pack AC-456C (AEP model)
120V ac (100V, 110–127V, 220–240V adjustable by the Sony personnel), 50/60Hz with optional Sony AC Adaptor & Charger AC-4W (E model) or 12V car battery with Sony Car Battery Cord DCC-127H (optional)

Power Consumption: 6W ac (60Hz) with Sony AC Adaptor & Charger AC-9W or AC-9 (US and Canadian model)
9VA with the AC-456C (AEP model)
9W with the AC-15A (UK model)
7.4VA (50Hz) with Sony AC Adaptor & Charger AC-4W } (E model)
6.8VA (60Hz) with Sony AC Adaptor & Charger AC-4W }

Power Output: 450mW (max.) (US, Canadian, AEP and E model)
340mW (with 10% harmonic distortion) (UK model)

Speaker: 7cm (2¾ inches) dia.

Recording System: 2-track 1-channel monaural

Fast Winding Time: Approx. 2 min. 10 sec. with Sony Cassette C-60

Frequency Response: 70–8,000Hz (US, Canadian, AEP and E model)
80–8,000Hz (UK model)

Input: Microphone input jack ..... 1 (minijack) sensitivity 0.2mV (–72dB) for low impedance microphone

Output: Earphone jack ..... 1 (minijack) 8-ohm earphone or load impedance 10 kilohms or higher

Other Jack: Remote control jack 1

Battery Life: Continuous recording hours:
Approx. 2 hours with Sony Super Batteries size AA
Approx. 3 hours with Eveready Heavy Duty Batteries No. 1215
Approx. 6 hours with Eveready Alkaline Batteries No. E91

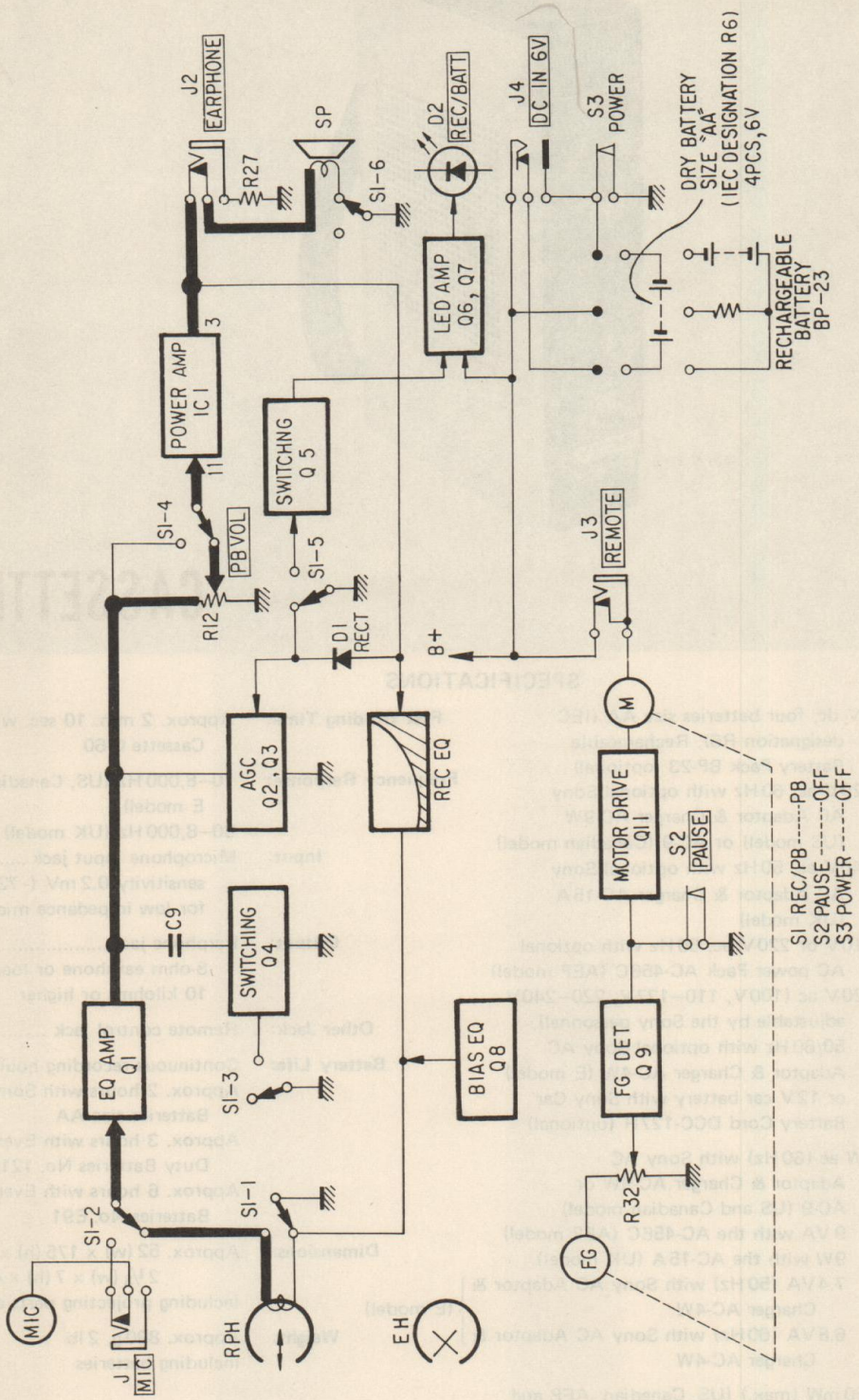
Dimensions: Approx. 52 (w) x 175 (h) x 113 (d) mm
2 1/8 (w) x 7 (h) x 4 1/2 (d) inches
including projecting parts and controls

Weight: Approx. 890g, 2lb
including batteries

SONY®
SERVICE MANUAL

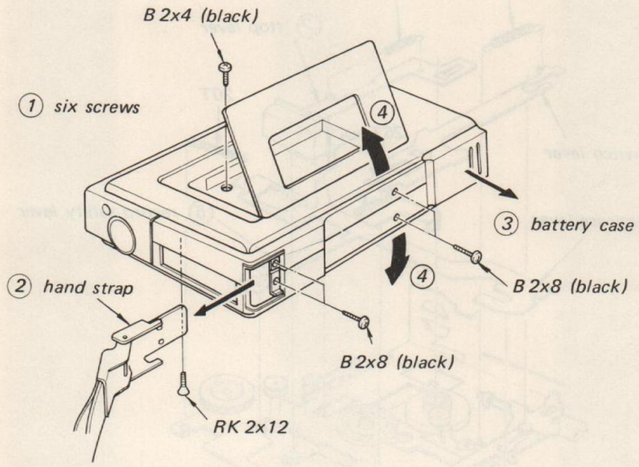
SECTION 1
OUTLINE

BLOCK DIAGRAM

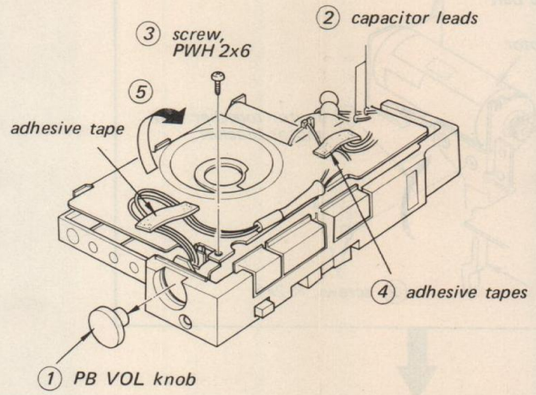


SECTION 2
DISASSEMBLY

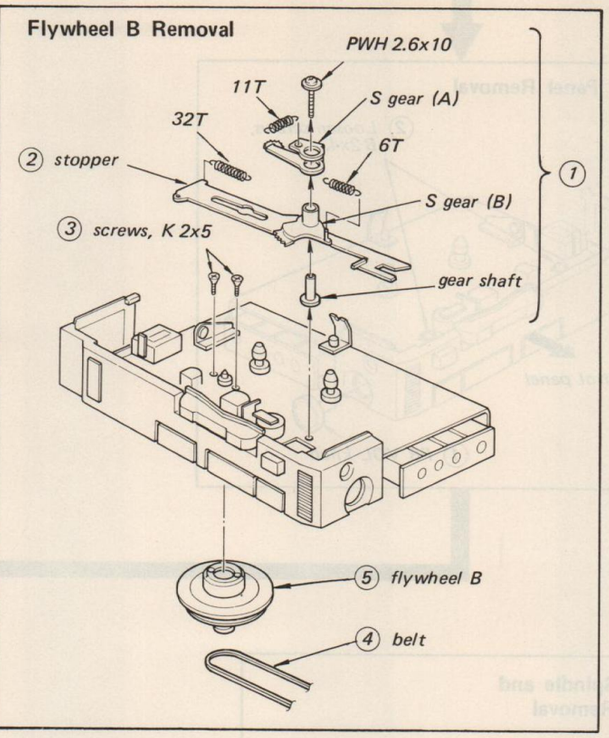
Case Removal



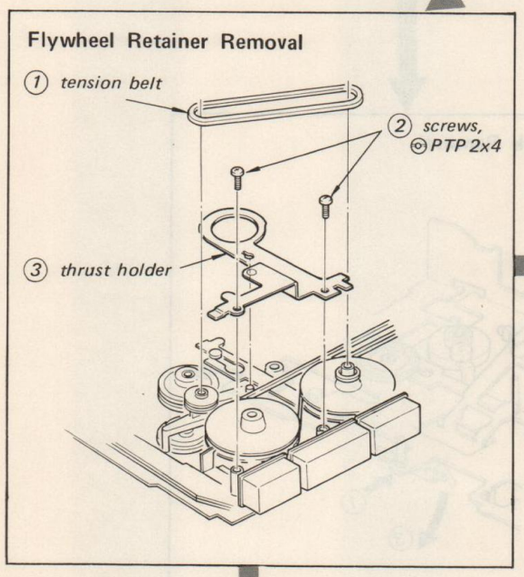
Audio Amp Board Removal



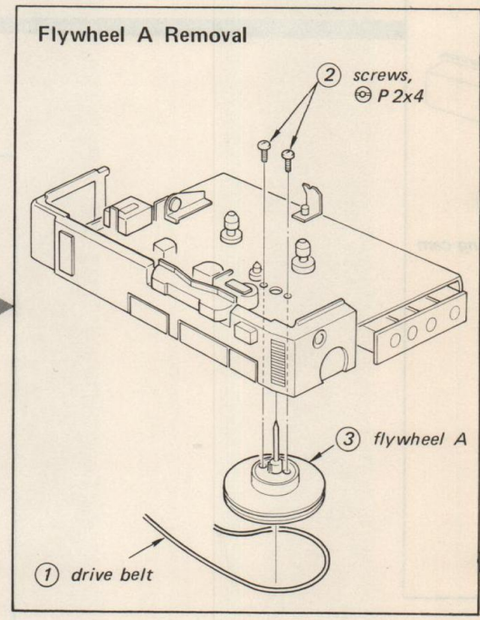
Flywheel B Removal



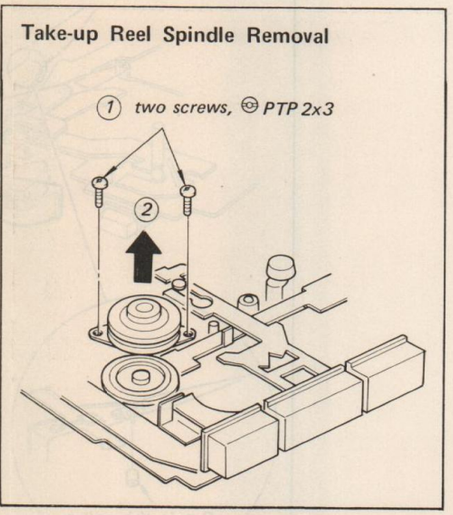
Flywheel Retainer Removal



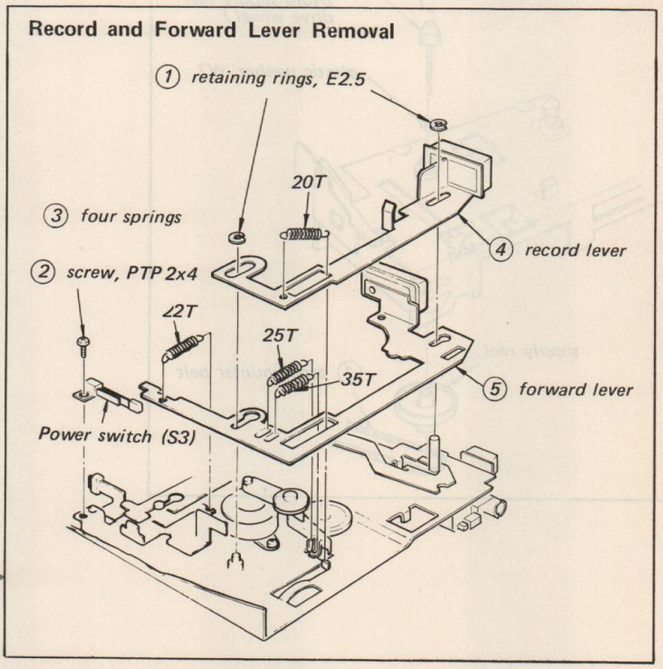
Flywheel A Removal



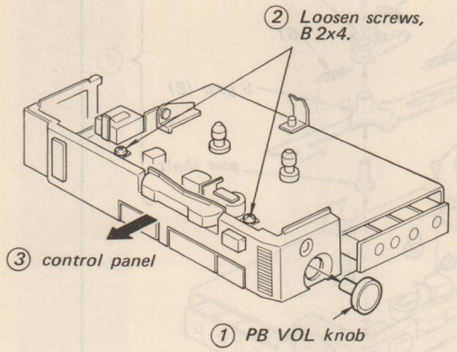
Take-up Reel Spindle Removal



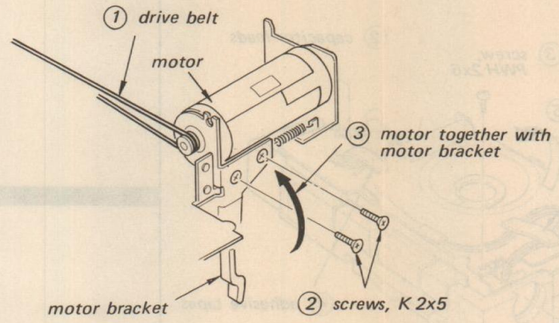
Record and Forward Lever Removal



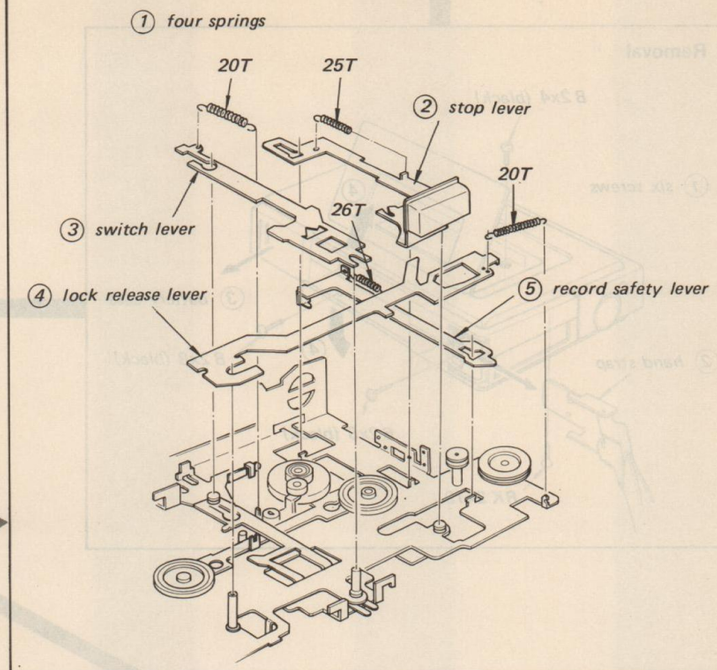
Control Panel Removal



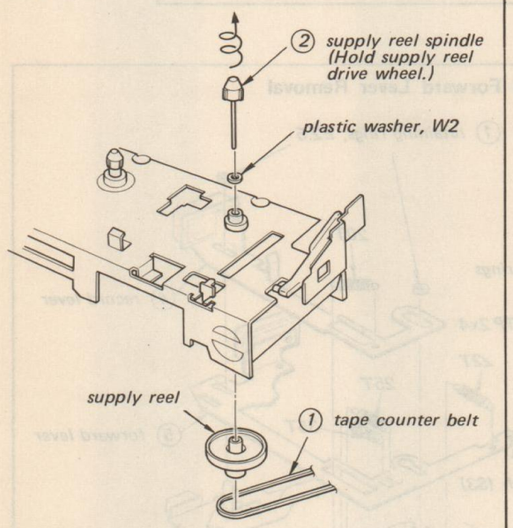
Motor Removal



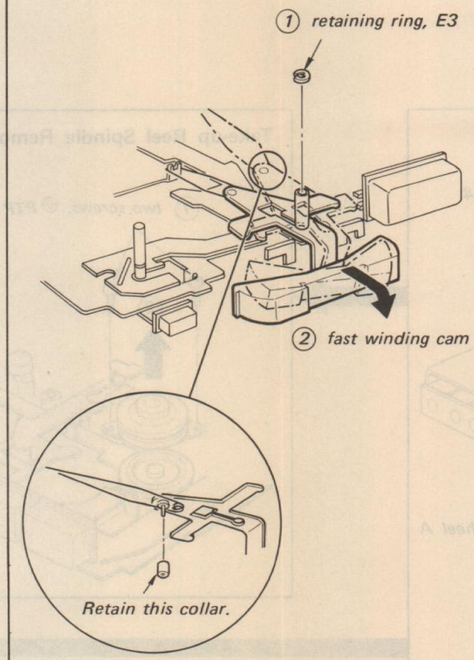
Stop Lever, Switch Lever, Lock Release Lever and Record Safety Lever Removal



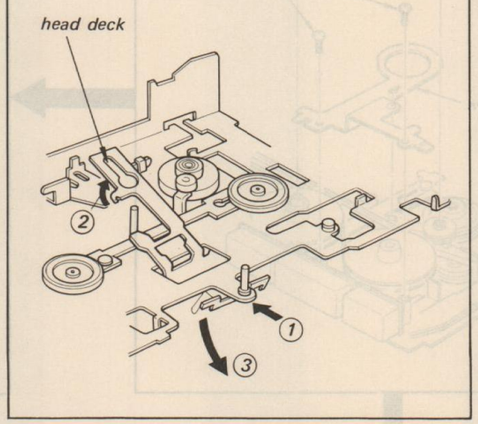
Supply Reel Spindle and Supply Reel Removal



Fast Winding Cam Removal



Head Deck Removal



SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

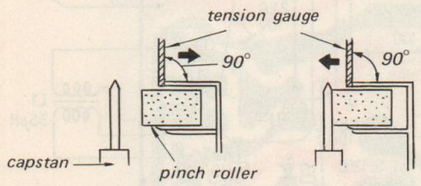
1. Clean the following parts with a denatured-alcohol-moistened swab:
   record/playback head
   erase head — rubber belts
   capstan — idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply a suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

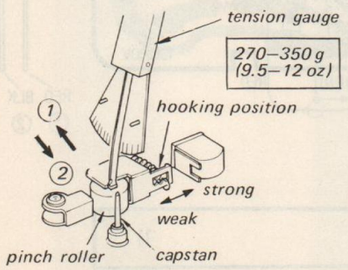
Pinch Roller Pressure Adjustment

— Playback Mode —

Note: This adjustment can be made with the cassette lid opened.

1. Push the tension gauge.
2. Slowly return the pinch roller and read the tension gauge just when the pinch roller starts to rotate.





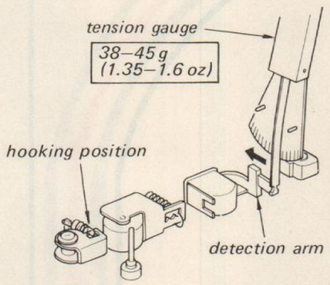
3. Change the hooking position.

Shut-off Spring Adjustment

— Playback Mode —

Note: This adjustment can be made with the cassette lid opened.

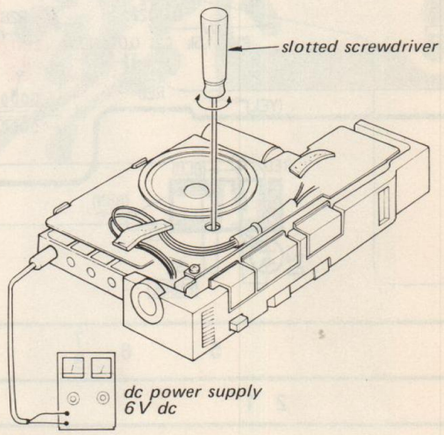
1. Push the detection arm with a tension gauge and read the tension just when the shut-off mechanism shuts off.
2. Change the hooking position.



Flywheel Thrust Play Adjustment

— Playback Mode —

1. Place the set horizontally reel-spindle-side-down.
2. Loosen the screw.
3. Carefully tighten the screw until current suddenly increases. Then loosen the screw ¼ turn.
4. Secure the screw with a suitable locking compound.



3-2. ELECTRICAL ADJUSTMENTS

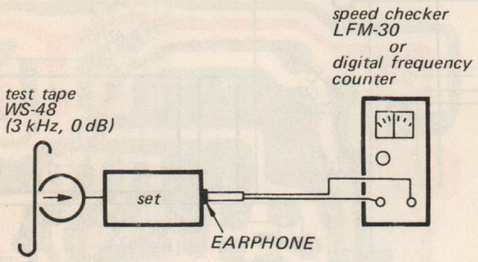
Tape Speed Adjustment

Setting:

PB VOL control: mechanical mid

Procedure:

Mode: playback



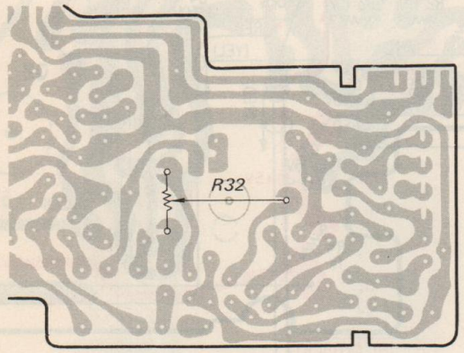
Adjust resistor at the beginning of the tape.

Specification:

Speed Checker	Digital Frequency Counter
$^{+0.8}_{-0.2}$ %	2,995–3,025 Hz

Frequency difference between beginning and end of tape should be within 2% (±60 Hz).

Adjustment Location:



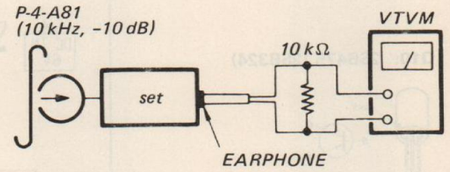
Record/playback Head Azimuth Adjustment

Setting:

PB VOL control: mechanical mid
Open the cassette lid.

Procedure:

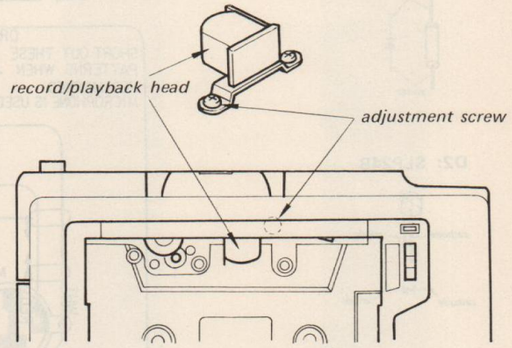
1. Mode: playback



2. Turn the adjustment screw for the highest VTVM reading.

   Note: Several peaks may appear, take the highest.
3. After the adjustment, secure the screw with a suitable locking compound.

Adjustment Location:



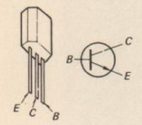
SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM

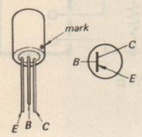
– Conductor Side –

( ): Replacement Semiconductors

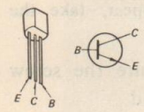
Q1: 2SC631A (2SC632A)
Q2~9: 2SC633A (2SC634A)



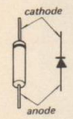
Q10: 2SB475 (2SB324)



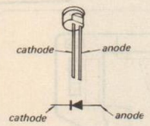
Q11: 2SC1474



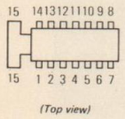
D1, D3: 1T40 (1S1555)



D2: SLP24B



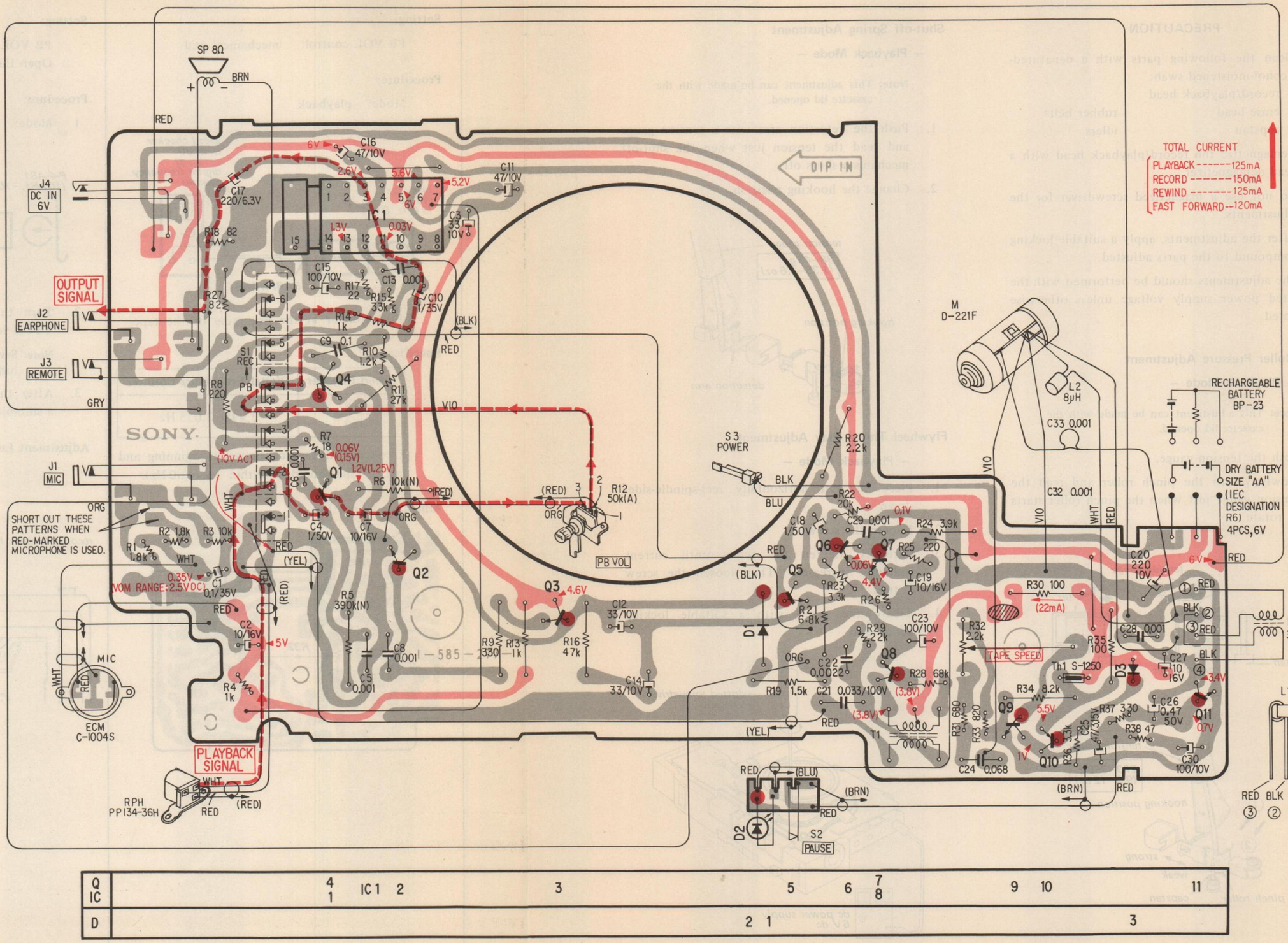
IC1: CX170



(Top view)

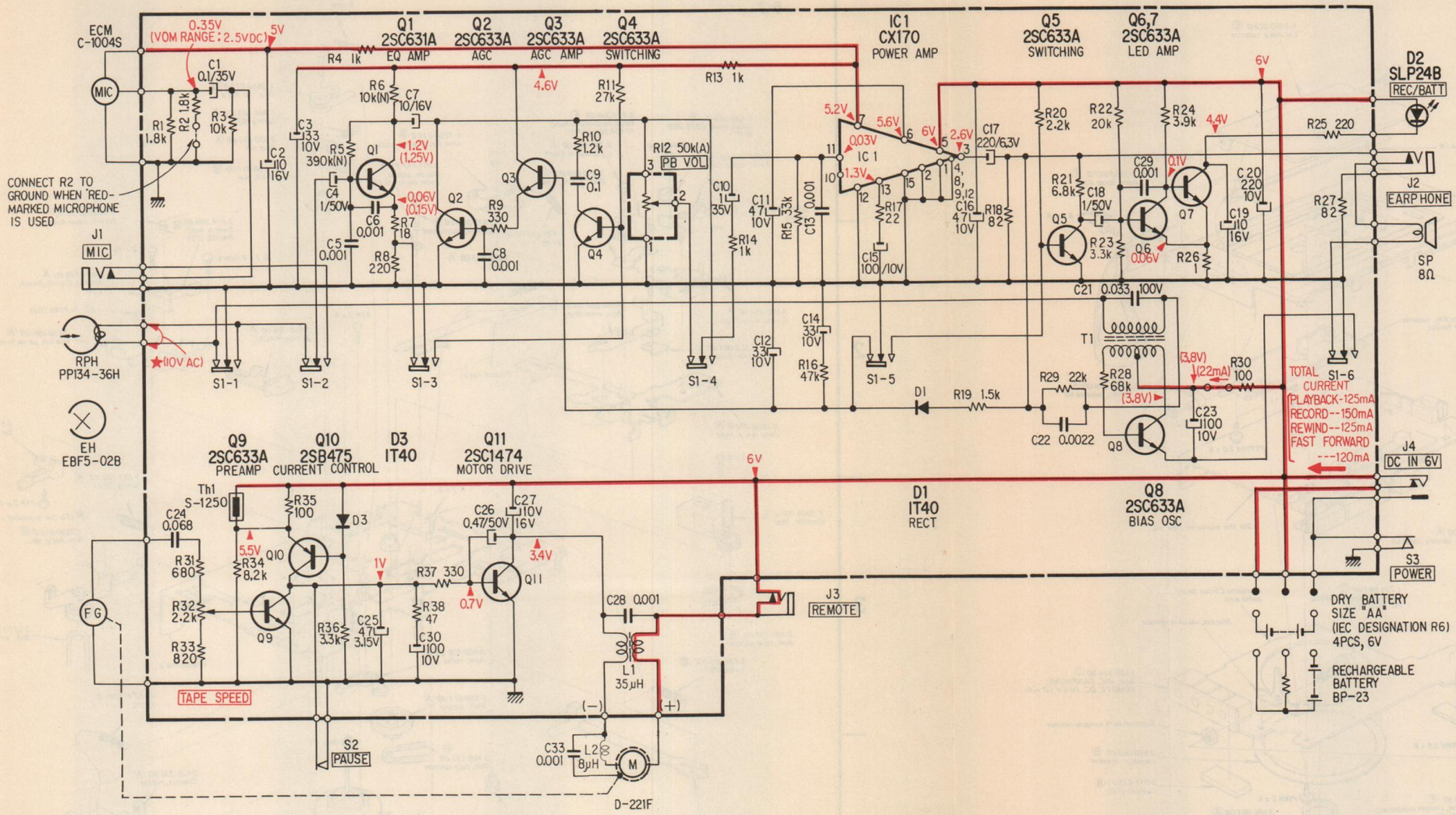
Note:

- ■ indicates parts on the conductor side.
- ●— indicates lead wire connection on the conductor side.
- ○— indicates lead wire connection through the component side.
- ▬ indicates B+ pattern.
- - - →: signal path.



Q / IC		4 / 1	IC1	2	3		5	6	7 / 8	9	10	11
D					2	1						3

4-2. SCHEMATIC DIAGRAM



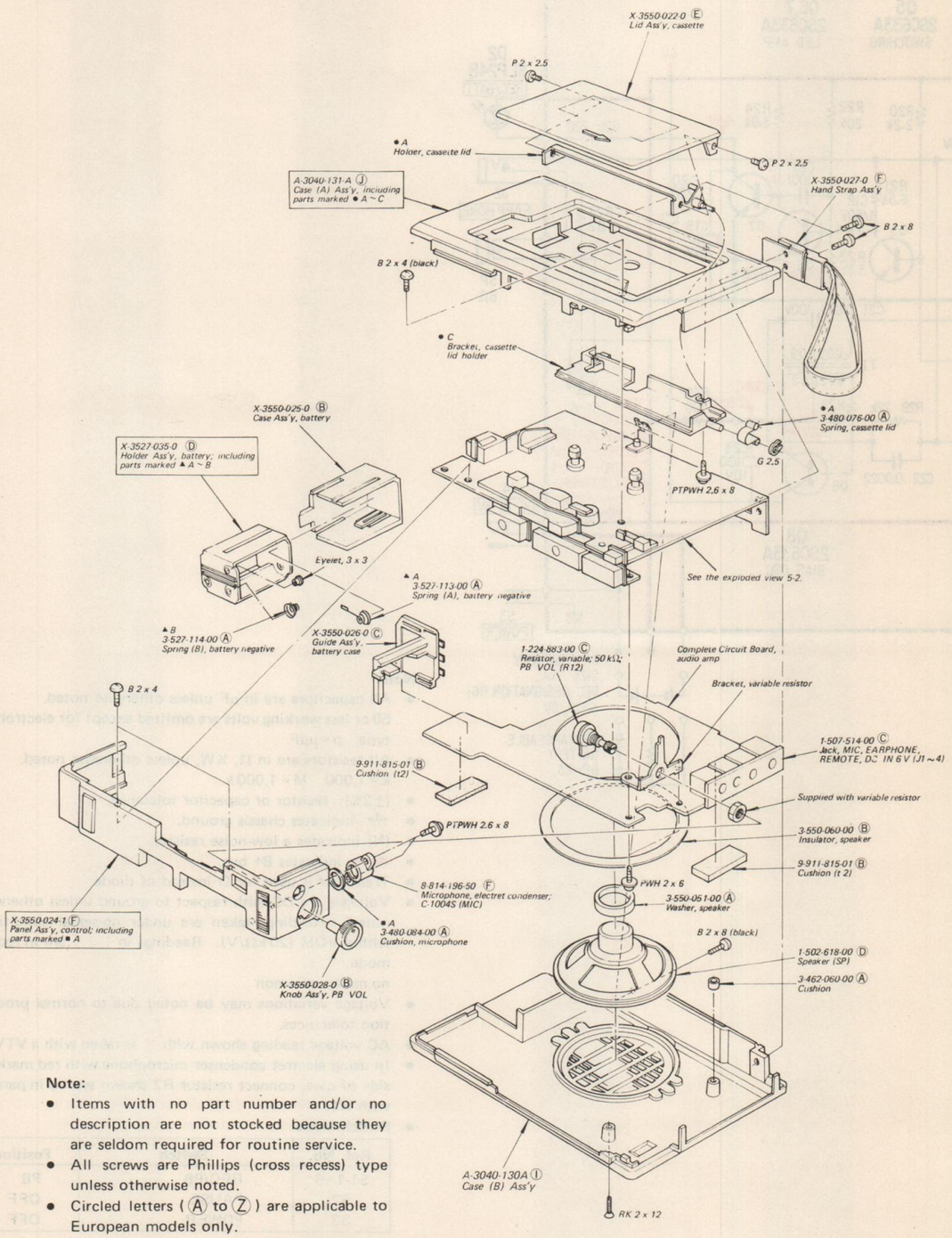
Note:

- All capacitors are in μF unless otherwise noted. 50 or less working volts are omitted except for electrolytic type. p = μμF
- All resistors are in Ω, ¼W, unless otherwise noted. k = 1,000 M = 1,000 k
- (±2%): resistor or capacitor tolerance.
- ⏚ indicates chassis ground.
- (N) indicates a low-noise resistor.
- ▬ indicates B+ bus.
- Transistor is used for D instead of diode.
- Voltages are DC with respect to ground unless otherwise noted. Readings taken are under no-signal conditions with a VOM (20 kΩ/V). Readings in ( ) are in record mode.
  no mark: common
- Voltage variations may be noted due to normal production tolerances.
- AC voltage reading shown with ★ is taken with a VTVM.
- In using electret condenser microphone with red mark on side of case, connect resistor R2 shown with ※ in parallel with R1.
- Switch Mode:

Ref. No.	Switch	Position
S1-1~6	REC/PB	PB
S2	PAUSE	OFF
S3	POWER	OFF

SECTION 5
EXPLODED VIEWS

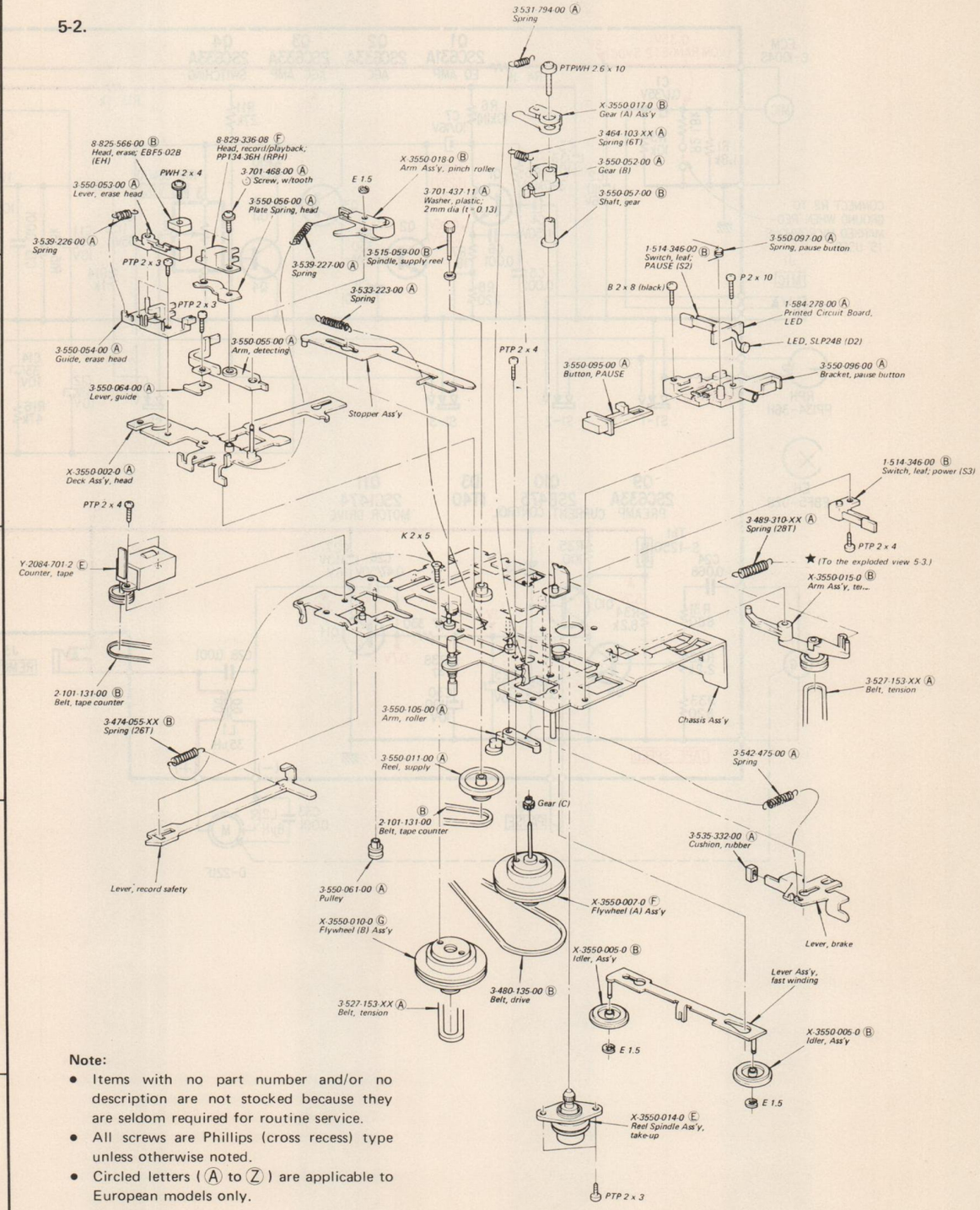
5-1.



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- Circled letters ((A) to (Z)) are applicable to European models only.

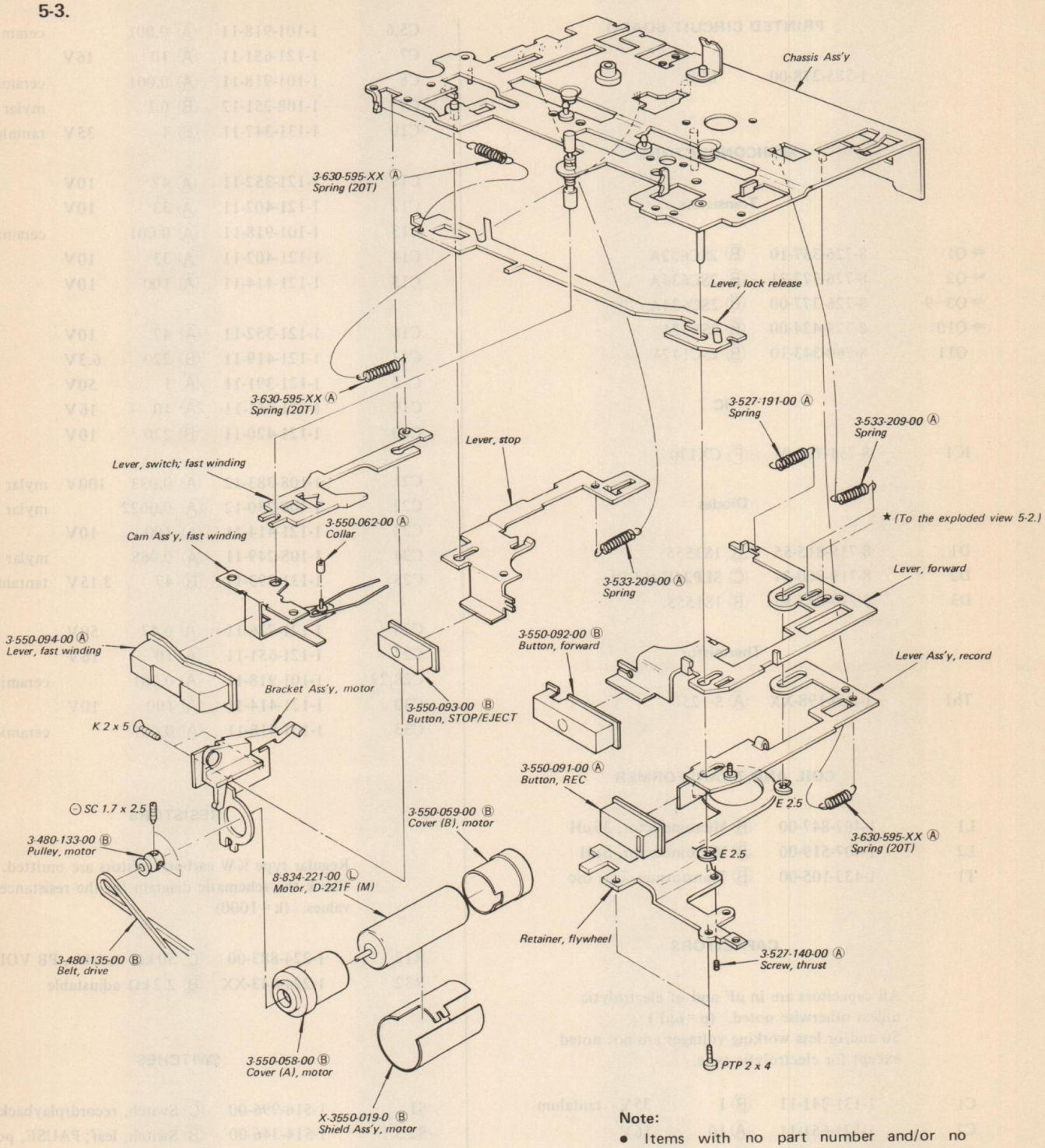
5-2.



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- Circled letters ((A) to (Z)) are applicable to European models only.

5-3.



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

SECTION 6
ELECTRICAL PARTS LIST

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

Ref. No.	Part No.		Description
		PRINTED CIRCUIT BOARD	
	1-585-278-00		LED
		SEMICONDUCTORS	
		Transistors	
⇒Q1	8-726-357-10	Ⓑ	2SC632A
⇒Q2	8-726-377-31	Ⓑ	2SC634A
⇒Q3~9	8-726-377-00	Ⓑ	2SC634A
⇒Q10	8-729-424-00	Ⓑ	2SB324
Q11	8-760-343-10	Ⓑ	2SC1474
		IC	
IC1	8-751-700-01	Ⓕ	CX170
		Diodes	
D1	8-719-815-55	Ⓑ	1S1555
D2	8-719-900-24	Ⓒ	SLP24B (LED)
D3	8-719-815-55	Ⓑ	1S1555
		Thermistor	
Th1	1-800-198-XX	Ⓐ	S-1250
		COIL AND TRANSFORMER	
L1	1-407-847-00	Ⓑ	Microinductor, 35 μH
L2	1-407-519-00	Ⓑ	Microinductor, 8 μH
T1	1-433-105-00	Ⓑ	Transformer, bias osc
		CAPACITORS	

All capacitors are in μF and of electrolytic unless otherwise noted. (p = μμF)
50 and/or less working voltages are not noted except for electrolytic type.

C1	1-131-341-11	Ⓑ	1	35V	tantalum
C2	1-121-651-11	Ⓐ	10	16V	
C3	1-121-402-11	Ⓐ	33	10V	
C4	1-121-391-11	Ⓐ	1	50V	
C5,6	1-101-918-11	Ⓐ	0.001		ceramic
C7	1-121-651-11	Ⓐ	10	16V	
C8	1-101-918-11	Ⓐ	0.001		ceramic
C9	1-108-251-12	Ⓑ	0.1		mylar
C10	1-131-347-11	Ⓑ	1	35V	tantalum
C11	1-121-352-11	Ⓐ	47	10V	
C12	1-121-402-11	Ⓐ	33	10V	
C13	1-101-918-11	Ⓐ	0.001		ceramic
C14	1-121-402-11	Ⓐ	33	10V	
C15	1-121-414-11	Ⓐ	100	10V	
C16	1-121-352-11	Ⓐ	47	10V	
C17	1-121-419-11	Ⓑ	220	6.3V	
C18	1-121-391-11	Ⓐ	1	50V	
C19	1-121-651-11	Ⓐ	10	16V	
C20	1-121-420-11	Ⓑ	220	10V	
C21	1-108-383-12	Ⓐ	0.033	100V	mylar
C22	1-108-230-12	Ⓐ	0.0022		mylar
C23	1-121-414-11	Ⓐ	100	10V	
C24	1-108-249-11	Ⓐ	0.068		mylar
C25	1-131-393-11	Ⓑ	47	3.15V	tantalum
C26	1-121-726-11	Ⓐ	0.47	50V	
C27	1-121-651-11	Ⓐ	10	16V	
C28,29	1-101-918-11	Ⓐ	0.001		ceramic
C30	1-121-414-11	Ⓐ	100	10V	
C33	1-101-918-11	Ⓐ	0.001		ceramic

RESISTORS

Regular type ¼W carbon resistors are omitted. Check the schematic diagram for the resistance values. (k = 1000)

R12	1-224-883-00	Ⓒ	50 kΩ variable, PB VOL
R32	1-224-643-XX	Ⓑ	2.2 kΩ adjustable

SWITCHES

S1	1-516-996-00	Ⓒ	Switch, record/playback
S2,3	1-514-346-00	Ⓑ	Switch, leaf; PAUSE, power

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

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

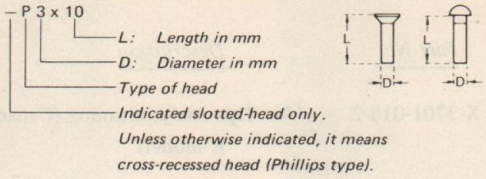
Ref. No.	Part No.		Description
		MISCELLANEOUS	
EH	8-825-566-00	Ⓑ	Head, erase; EBF5-02B
J1~4	1-507-514-00	Ⓒ	Jack, MIC, EARPHONE, REMOTE, DC IN 6V
M	8-834-221-00	Ⓛ	Motor, D-221F
MIC	8-814-196-50	Ⓕ	Microphone, electret condenser; C-1004S
RPH	8-829-336-08	Ⓕ	Head, record/playback; PP134-36H
SP	1-502-618-00	Ⓓ	Speaker

ACCESSORIES AND PACKING MATERIALS

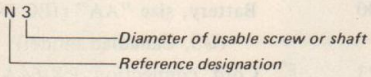
Part No.		Description
X-3701-018-2	Ⓐ	Tips Ass'y, cleaning (Canadian, UK, AEP, E model)
1-504-059-11	Ⓒ	Earphone, ME-20
1-528-027-00		Battery, size "AA" (IEC Designation R6) (US, Canadian model)
1-534-237-23	Ⓔ	Cord, connection; RK-64A (Canadian, UK, AEP, E model)
3-550-107-00	Ⓙ	Case, carrying (UK, E model)
3-550-122-00	Ⓙ	Case, carrying (US, Canadian, AEP model)
3-550-108-00	Ⓑ	Cushion
3-550-110-00	Ⓑ	Sheet, plastic
3-550-111-00	Ⓐ	Cushion, upper
3-550-112-00	Ⓑ	Carton
3-770-021-11	Ⓓ	Manual, instruction (UK, AEP model)
3-770-021-23		Manual, instruction (US model)
3-770-021-23 3-794-015-31		Manual, instruction (Canadian model)
3-770-021-51		Manual, instruction (E model)
3-793-828-11	Ⓐ	Card, caution; cassette
3-793-963-21		Card, caution; tape (US model)
3-793-965-21		Pamphlet, business machine (BM series) (US model)
3-794-053-11	Ⓑ	Leaflet, specifications (AEP model)
3-794-053-41	Ⓑ	Leaflet, specifications (UK model)
8-893-506-00	Ⓕ	Tape, demonstration; CD-803

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



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	