TC-K33

US Model
Canadian Model
AEP Model
UK Model
E Model

STEREO CASSETTE DECK

SPECIFICATIONS

GENERAL

Power Requirements: US, Canadian model:
120 V ac, 60 Hz
AEP model:
220 V ac, 50/60 Hz
(240 V ac adjustable by authorized Sony personnel)
UK model:
240 V ac, 50/60 Hz
(220 V ac adjustable by authorized Sony personnel)
E model:
110, 120, 220, or 240 V ac adjustable, 50/60 Hz

Power Consumption: 12 W

Dimensions: Approx. 430 (w) x 105 (h) x 290 (d) mm
17 (w) x 4¼ (h) x 11½ (d) inches
including projecting parts and controls

Weight: Approx. 4.5 kg, 9 lb 15 oz

— Continued on page 2 —

Tape Transport Mechanism Type	MDS-18S1

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.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SONY®

SERVICE MANUAL

TAPE RECORDER SECTION

Recording System: 4-track 2-channel stereo

Fast-forward and Rewind Time: Approx. 90 sec. (with C-60)

Frequency Response: DOLBY NR OFF

US, Canadian model:

- With TYPE IV cassette (Sony METALLIC)
  20—16,000 Hz
  30—15,000 Hz (±3 dB)
  30—12,500 Hz (± 3 dB, 0 VU recording)
- With TYPE III cassette (Sony Fe-Cr)
  20—16,000 Hz
  30—15,000 Hz (± 3 dB)
- With TYPE II cassette (Sony EHF)
  20—15,000 Hz
  30—14,000 Hz (±3 dB)
- With TYPE I cassette (Sony HFX)
  20—14,000 Hz

AEP, UK, E model:

- With TYPE IV cassette (Sony METALLIC)
  20—16,000 Hz
  30—15,000 Hz (±3 dB)
  30—12,500 Hz (±3 dB, 0 VU recording)
  30—15,000 Hz (DIN)
- With TYPE III cassette (Sony Fe-Cr)
  20—16,000 Hz
  30—15,000 Hz (±3 dB)
  30—15,000 Hz (DIN)
- With TYPE II cassette (Sony CD-α)
  20—15,000 Hz
  30—14,000 Hz (±3 dB)
  30—14,000 Hz (DIN)
- With TYPE I cassette (Sony BHF)
  20—14,000 Hz
  30—12,500 Hz (DIN)

Wow and Flutter: 0.07% WRMS (US, Canadian model)
0.07% WRMS (NAB)
±0.2% (DIN) } (AEP, UK, E model)

S/N Ratio: DOLBY NR OFF

US, Canadian model:

- With TYPE IV cassette (Sony METALLIC)
  58 dB at peak level
- With TYPE III cassette (Sony Fe-Cr)
  58 dB at peak level
- With TYPE II cassette (Sony EHF)
  56 dB at peak level

AEP, UK, E model:

- With TYPE IV cassette (Sony METALLIC)
  58 dB at peak level (NAB)
  56 dB (DIN)
- With TYPE III cassette (Sony Fe-Cr)
  58 dB at peak level (NAB)
  56 dB (DIN)
- With TYPE II cassette (Sony CD-α)
  56 dB at peak level (NAB)

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

Total Harmonic Distortion: 1.0% (with Sony METALLIC and Fe-Cr cassettes)

Bias Frequency: 105 kHz

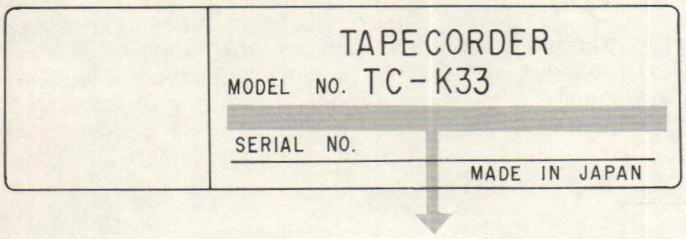
Inputs: MIC (two phone jacks)
sensitivity 0.25 mV (—70 dB)
for a low-impedance microphone
LINE IN (two phono plugs)
sensitivity 77.5 mV (—20 dB)
input impedance 50 kΩ

Outputs: LINE OUT (two phono plugs)
output level 0.435 V (—5 dB) at load impedance 50 kΩ
suitable load impedance more than 10 kΩ
Headphone output (binaural jack)
output level 31 mV (—28 dB) at load impedance 8 Ω

0 dB = 0.775 V

• MODEL IDENTIFICATION

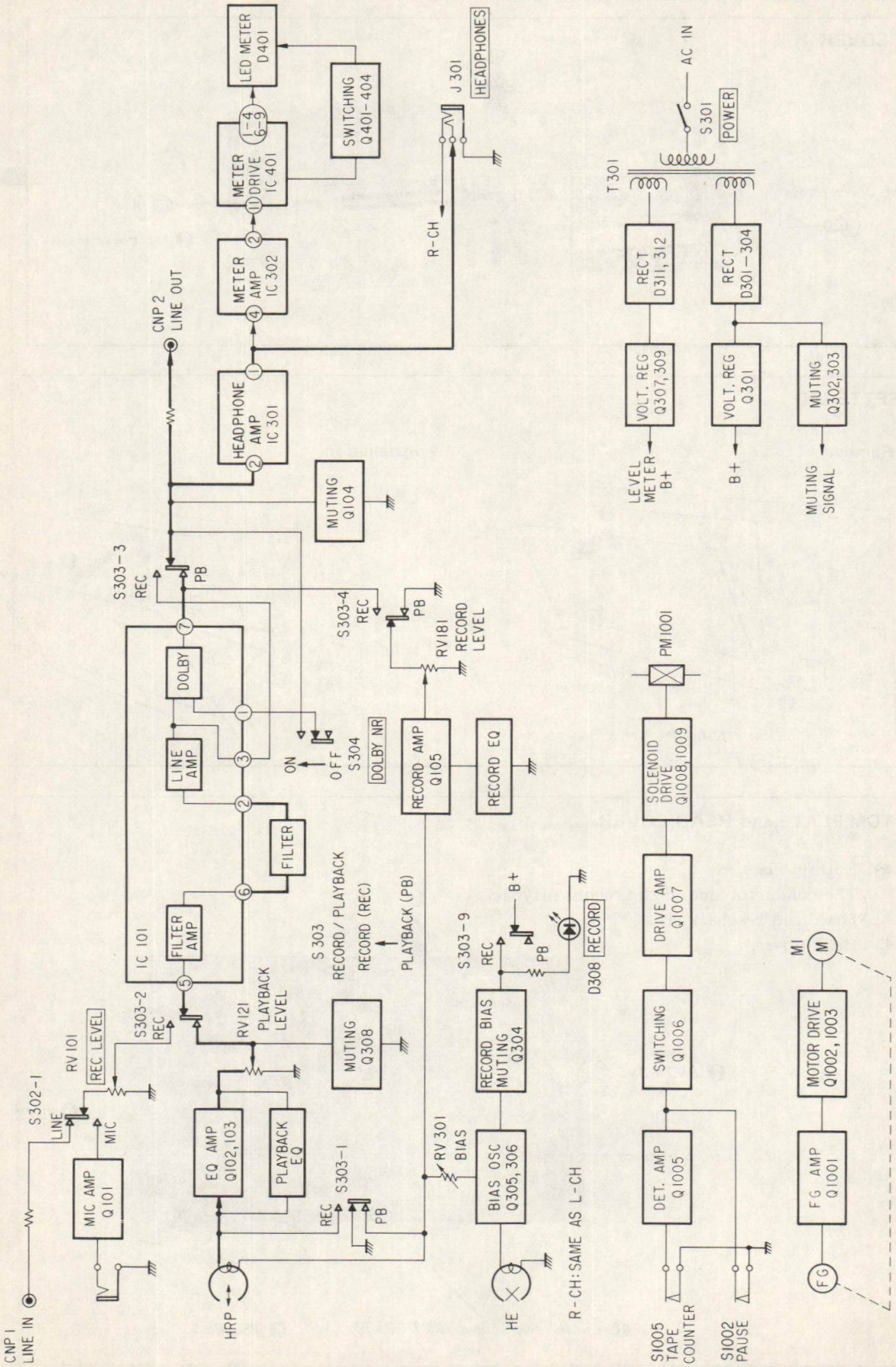
— Specification Label —



AC 120V	*60Hz*	*12W . . . US, Canadian model*
AC 220V ~	*50/60Hz*	*12W . . . AEP model*
AC 240V ~	*50/60Hz*	*12W . . . UK model*
AC 110, 120, 220, 240V ~	*50/60Hz*	*12W . . . E model*

SECTION 1
OUTLINE

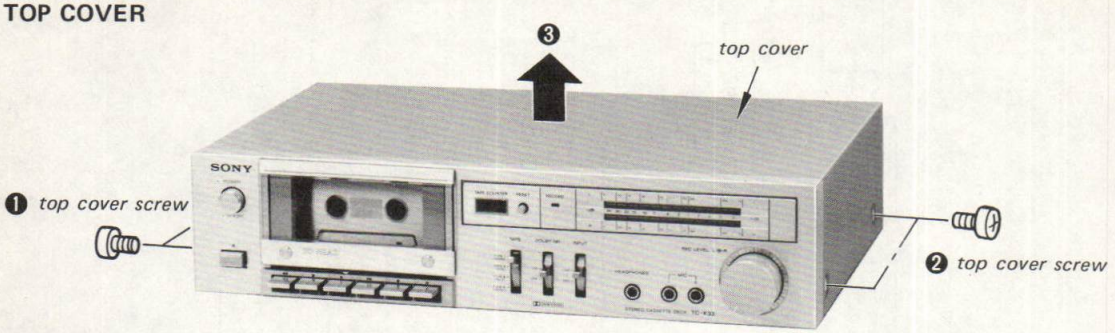
1-1. BLOCK DIAGRAM



SECTION 2
DISASSEMBLY

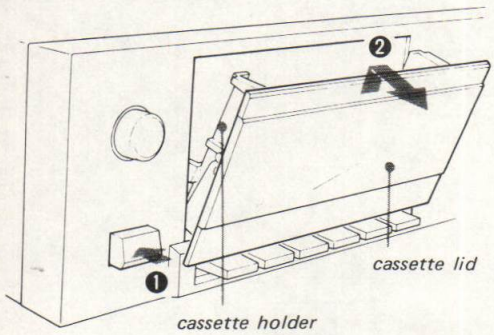
Note: Follow the disassembly procedure in the numerical order given.

TOP COVER

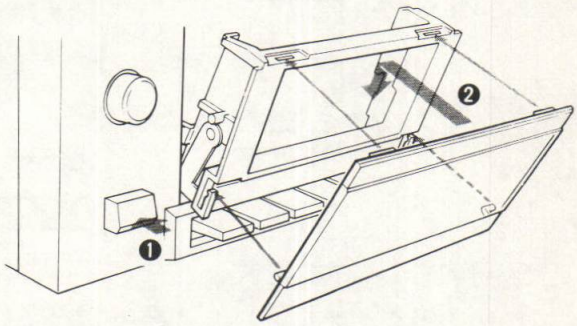


CASSETTE LID

• Removal

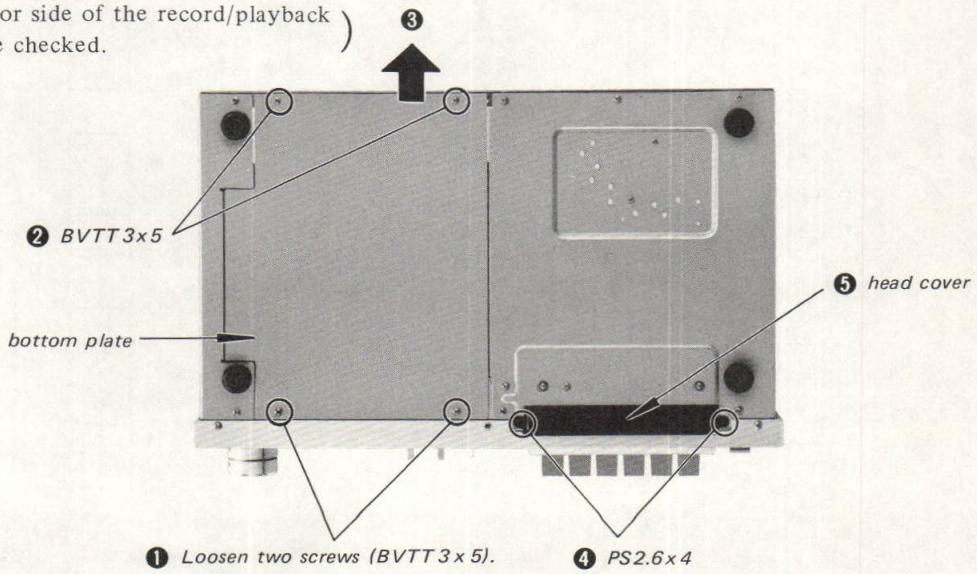


• Installation

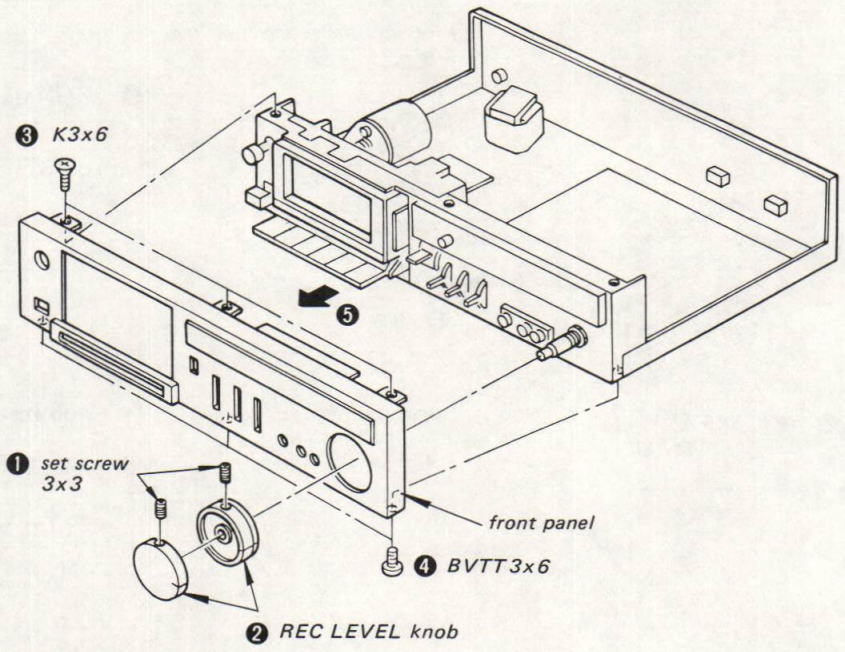


BOTTOM PLATE and HEAD COVER

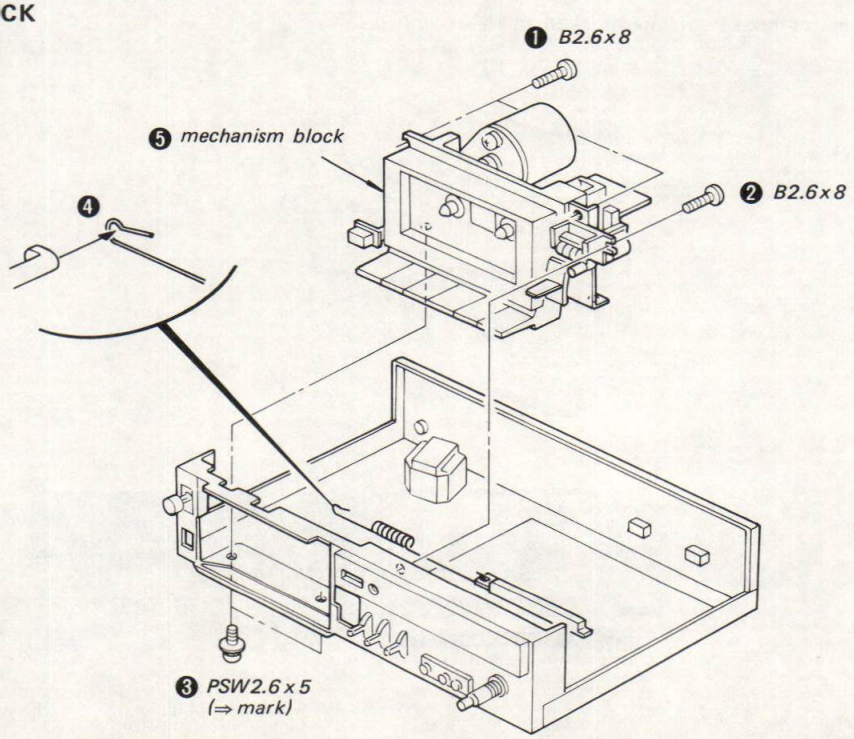
❶ – ❸: Bottom Plate
(The conductor side of the record/playback board can be checked.)
❹, ❺: Head Cover.



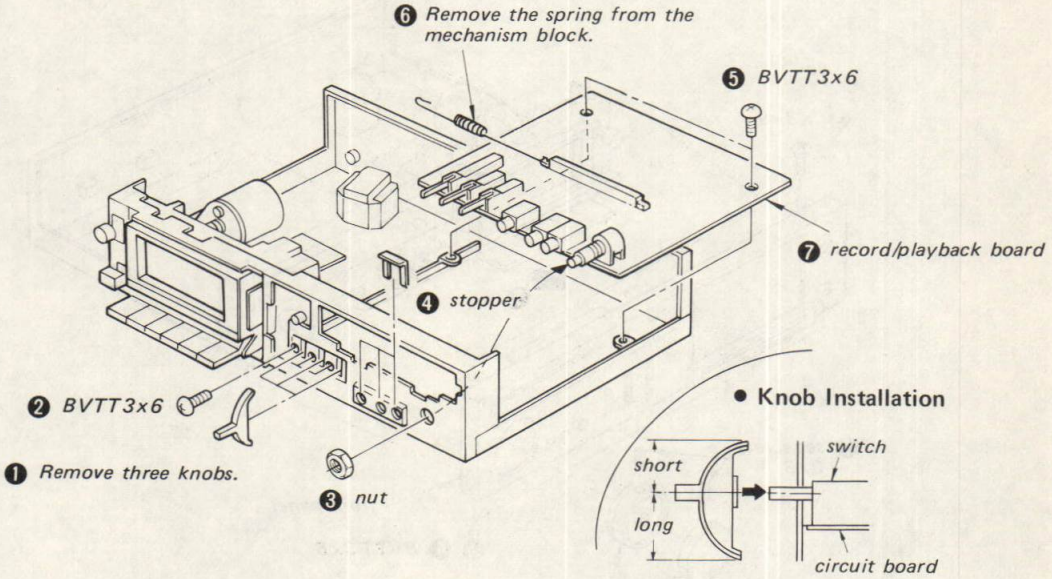
FRONT PANEL



MECHANISM BLOCK

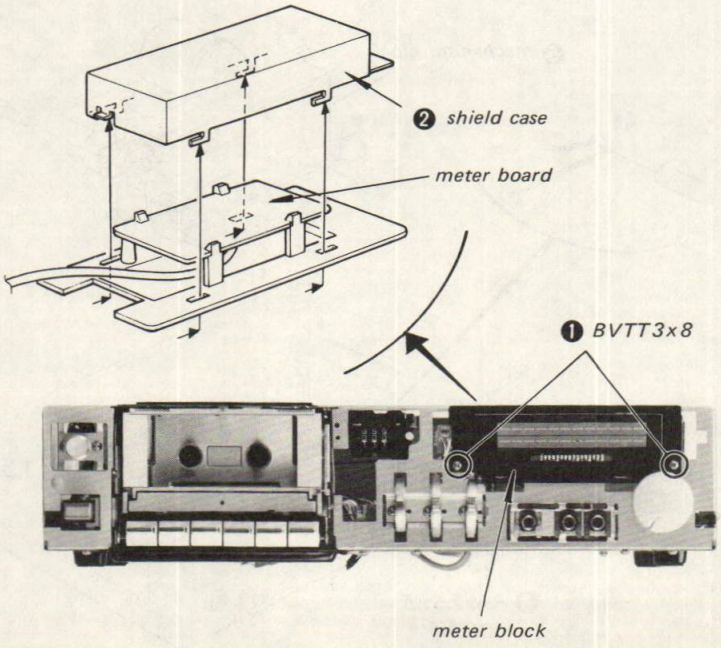


RECORD/PLAYBACK BOARD



METER BOARD

- The meter board can be checked in this condition.



SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

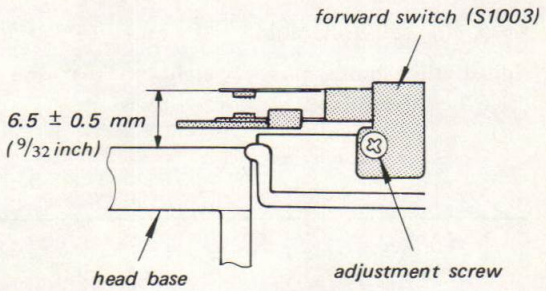
1. Clean the following parts with a denatured-alcohol-moistened swab:

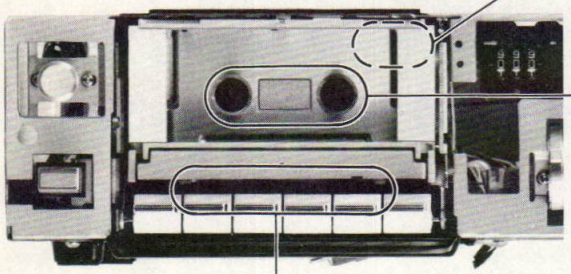
record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

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 suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Forward Switch (S1003) Position Adjustment

– Stop Mode –



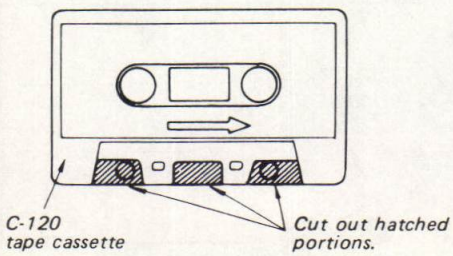


- **Torque/Tape Tension Measurement**

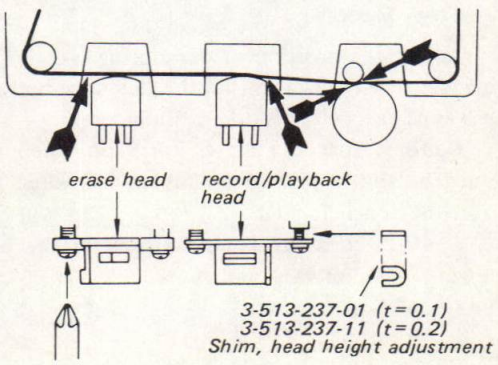
Torque	Torque meter	Meter reading
Forward	CQ-102C	25–50 g · cm (0.35–0.69 oz · inch)
Back Tension	CQ-102C	2–5 g · cm (0.028–0.069 oz · inch)
Fast Forward and Rewind	CQ-201B	60–125 g · cm (0.84–1.73 oz · inch)
Tape Tension	CQ-403	more than 150 g (more than 5.3 oz)

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 shown by arrow.

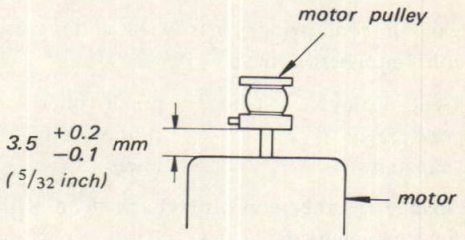


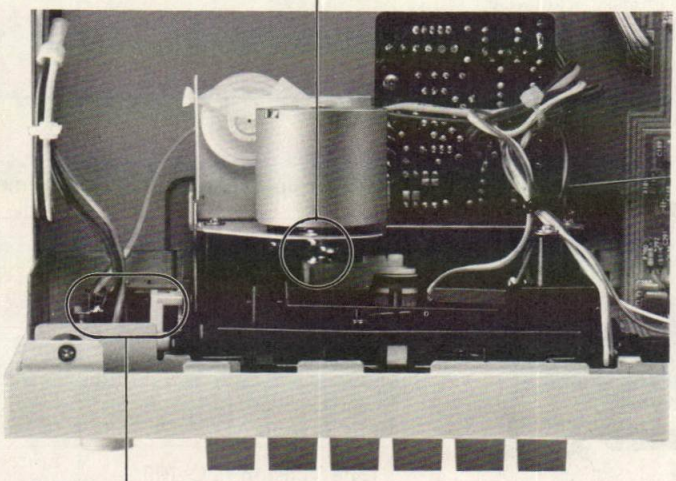
Motor Pulley Height Adjustment

Perform this adjustment, after replacing the motor pulley or the flywheel.

Procedure:

1. Keep the set horizontal.
2. Adjust the motor pulley height so that the drive belt is straight without a twist.





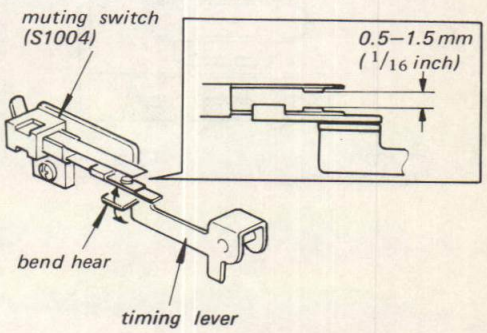
Muting Switch (S1004) Position Adjustment

— Stop Mode —

Adjust the position of the muting switch by bending the timing lever so that the clearance between the leaves of the switch is 0.5—1.5mm.

Confirm that the switch turns on when the forward button is pressed and turns off when the forward button is locked.

Confirm it is the same for each of the buttons: rewind, fast forward and record.



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 TAPE switch according to the tape as follows.

Tape	Position
CS-10	TYPE I (NORM)
CS-25	TYPE II (CrO_2)
CS-30	TYPE III (Fe-Cr)
CS-40	TYPE IV (METAL)

- Switches and controls should be set as follows unless otherwise specified.
  DOLBY NR switch: OFF
  TAPE switch: TYPE I (NORM)
  INPUT switch: LINE

- 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	LINE IN
source impedance	300Ω	10 kΩ
input level	0.77 mV (−60 dB)	0.25 V (−10 dB)

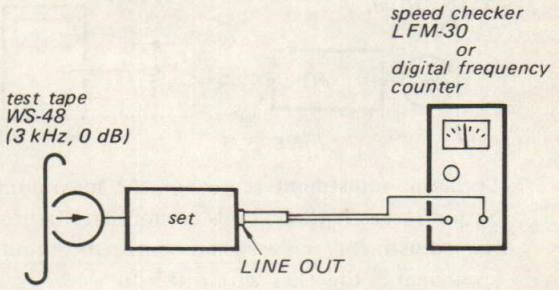
Standard Output Level

	LINE OUT
load impedance	47 kΩ
output level	0.44 V (−5 dB)

Tape Speed Adjustment

Procedure:

Mode: playback



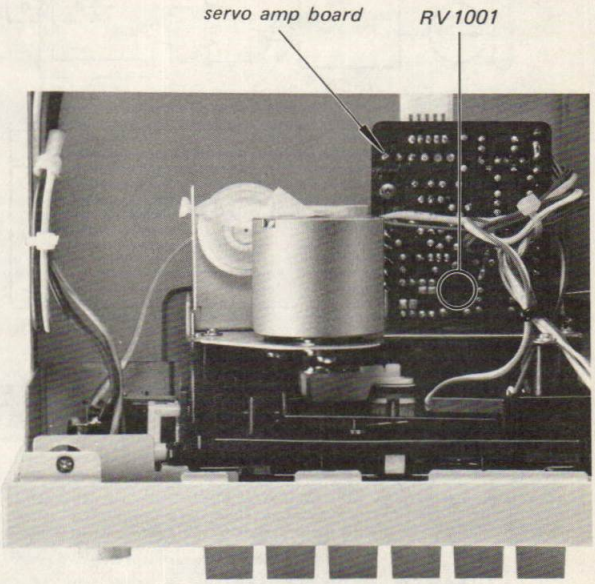
Specification:

Speed checker	Digital frequency counter
−1 to +1 %	2,970 – 3,030 Hz

Frequency difference between the beginning and the end of the tape should be within 1% (30 Hz).

Adjustment Location:

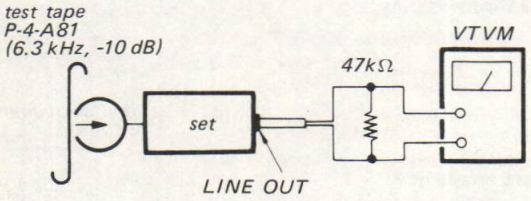
– servo amp board –



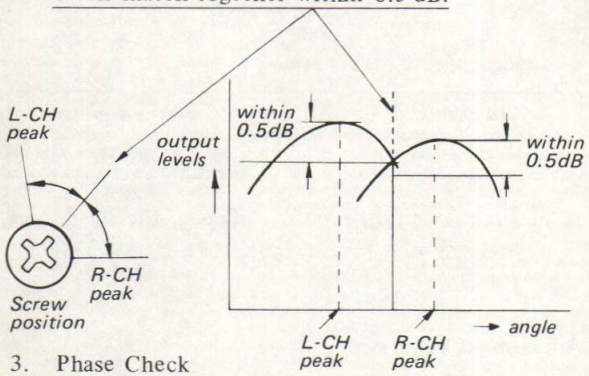
Record/playback Head Azimuth Adjustment

Procedure:

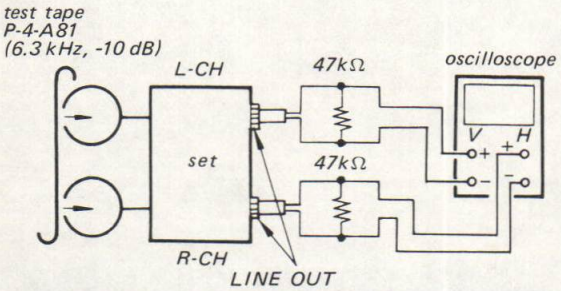
1. Mode: playback

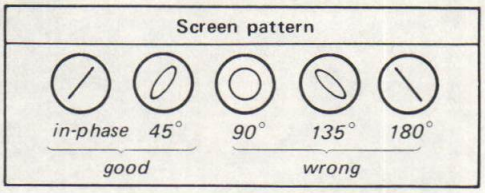


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw where both of output levels match together within 0.5 dB.

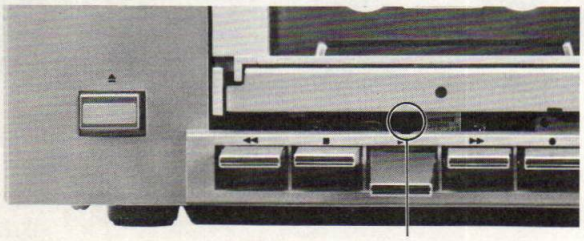


3. Phase Check
   Mode: playback





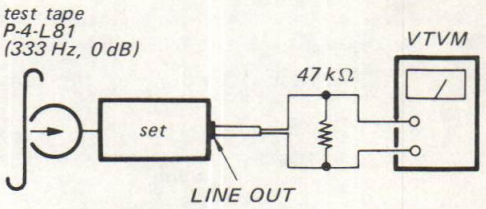
Adjustment Location:



Playback Level Adjustment

Procedure:

Mode: playback



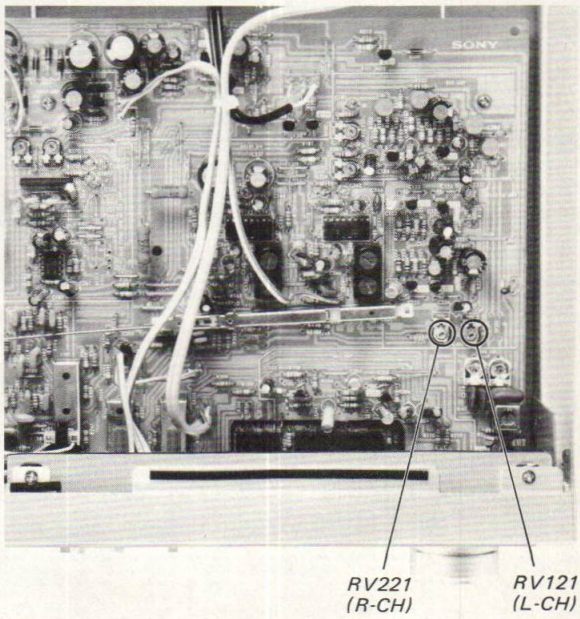
Adjust RV121 (L-CH) and RV221 (R-CH) to obtain the specified LINE OUT level.

Specification:

LINE 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 LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location:

– record/playback board –



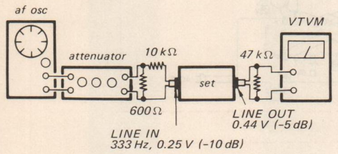
Level Meter Calibration

Setting:

REC LEVEL control: standard record
(See page 9.)

Procedure:

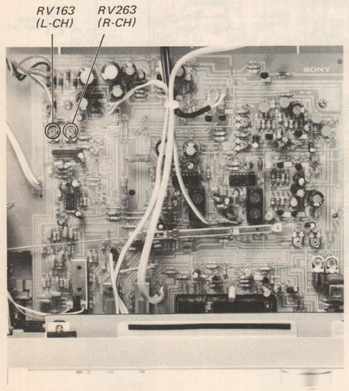
1. Mode: record



2. Just after the element at –2 dB (◨◧ mark) turned off, adjust RV163 (L-CH) and RV263 (R-CH) so that the element at 0 VU (–4 dB) keeps turning on.
3. Increase the LINE IN level to +3 dB ±2 dB. The right-most element at +8 dB should turn on.
4. Decrease the LINE IN level to 0 dB ±2 dB. The third element from the right end should turn on.

Adjustment Location:

– record/playback board –



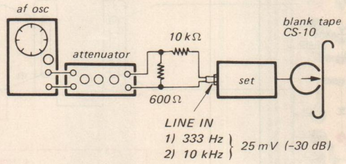
Record Bias Adjustment

Setting:

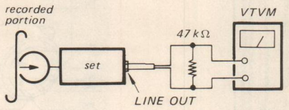
REC LEVEL control: standard record
(See page 9.)

Procedure:

1. Mode: record



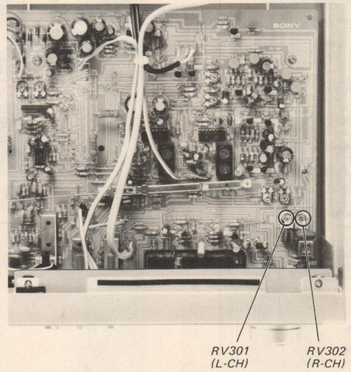
2. Mode: playback



Confirm that the LINE OUT level of 10 kHz signal is 0 dB relative to that of 333 Hz.
If necessary, adjust RV301 (L-CH) and RV302 (R-CH).

Adjustment Location:

– record/playback board –



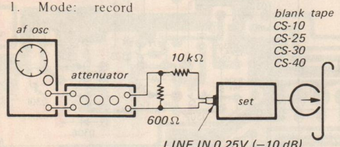
Record Level Adjustment

Setting:

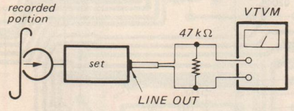
REC LEVEL control: standard record
(See page 9.)

Procedure:

1. Mode: record



2. Mode: playback



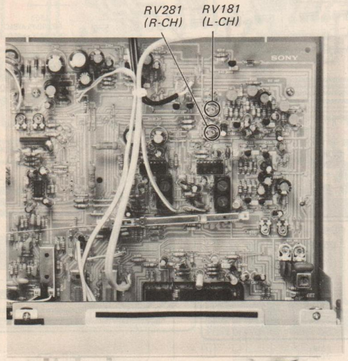
Adjust RV181 (L-CH) and RV281 (R-CH) to obtain the specified LINE OUT level.

Specification:

Tape	LINE OUT level
CS-10	0.41–0.46 V (–5.5 to –4.5 dB)
CS-25, 30, 40	0.37–0.52 V (–6.5 to –3.5 dB)

Adjustment Location:

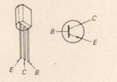
– record/playback board –



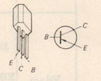
SECTION 4
DIAGRAMS

4-1. REPLACEMENT SEMICONDUCTORS

2SC945Q
2SC1775

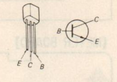


2SA1027R

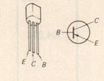


RD6.2E
1S1555
10E2

2SC2001
2SC900E
2SC1364
2SC1475

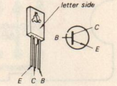


2SA733P
2SA952

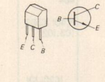


EQB01-22

2SD414
2SD809F
2SD809

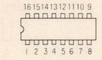


2SD471

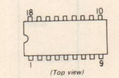


PR5531K

NE646C
NE646B



MSL9351



μPC4557C

TA7318P

TC-K33 TC-K33

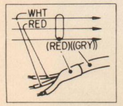
4-2. MOUNTING DIAGRAM

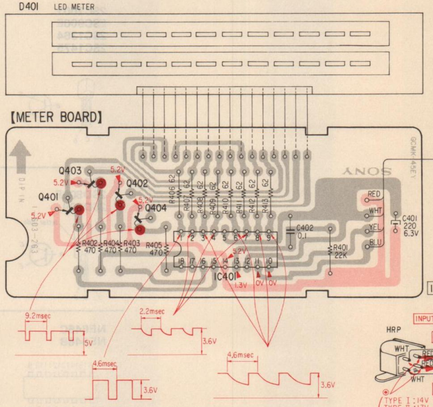
– Conductor Side –

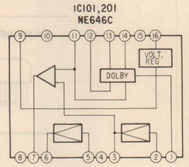
Q , IC	D
	310
304 303	309
	302,304
	305
301	301,303
302	307
307	
	306
309	311
	313
104,204	
	312
205,105	
403	
402	
401	
404	
IC401 IC302	
103,102	
IC201,101	
IC301	
203,202	1002
1009,1008	
	1001
1001	
1007	
1006	
308	1003
1002	
1005	
1003	
101	
201	
	308
305,306	

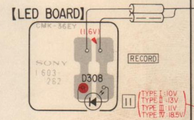
Note:

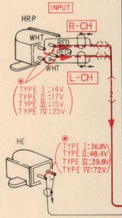
- : B+ pattern
- : signal path
- : L-CH signal path
- : R-CH signal path
- Color code of sleeving over the end of the jacket.

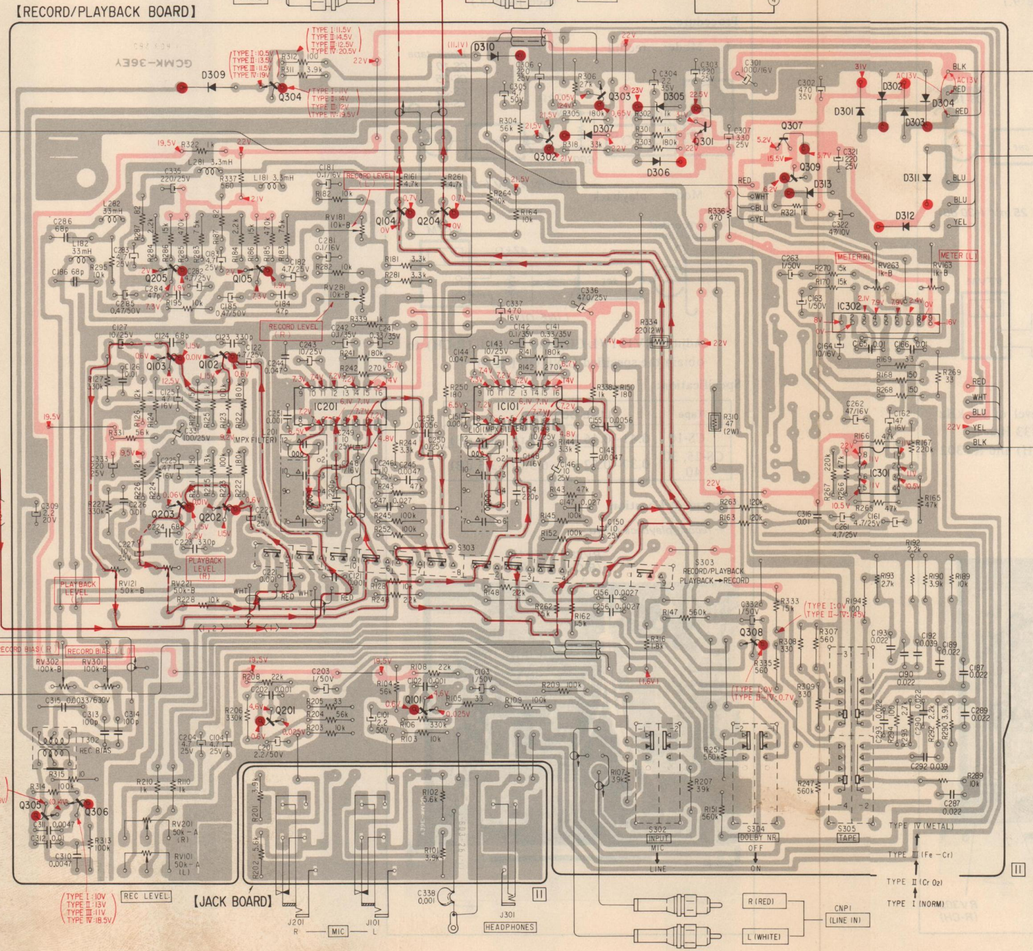


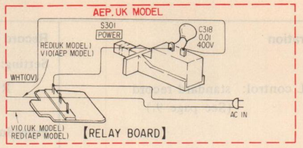


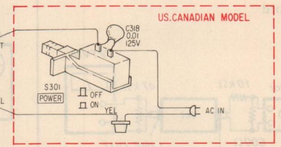


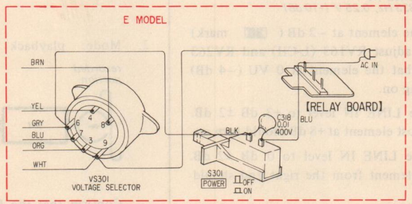


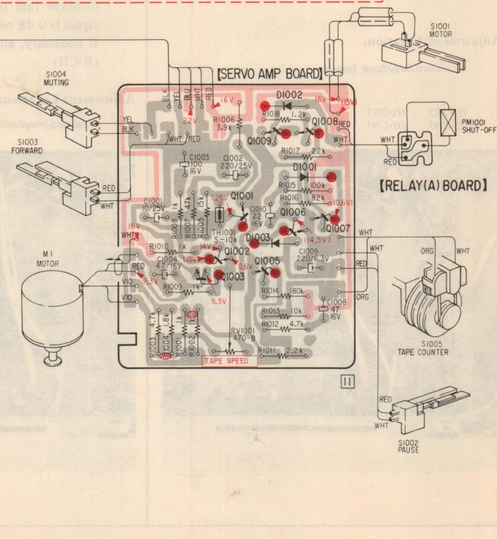




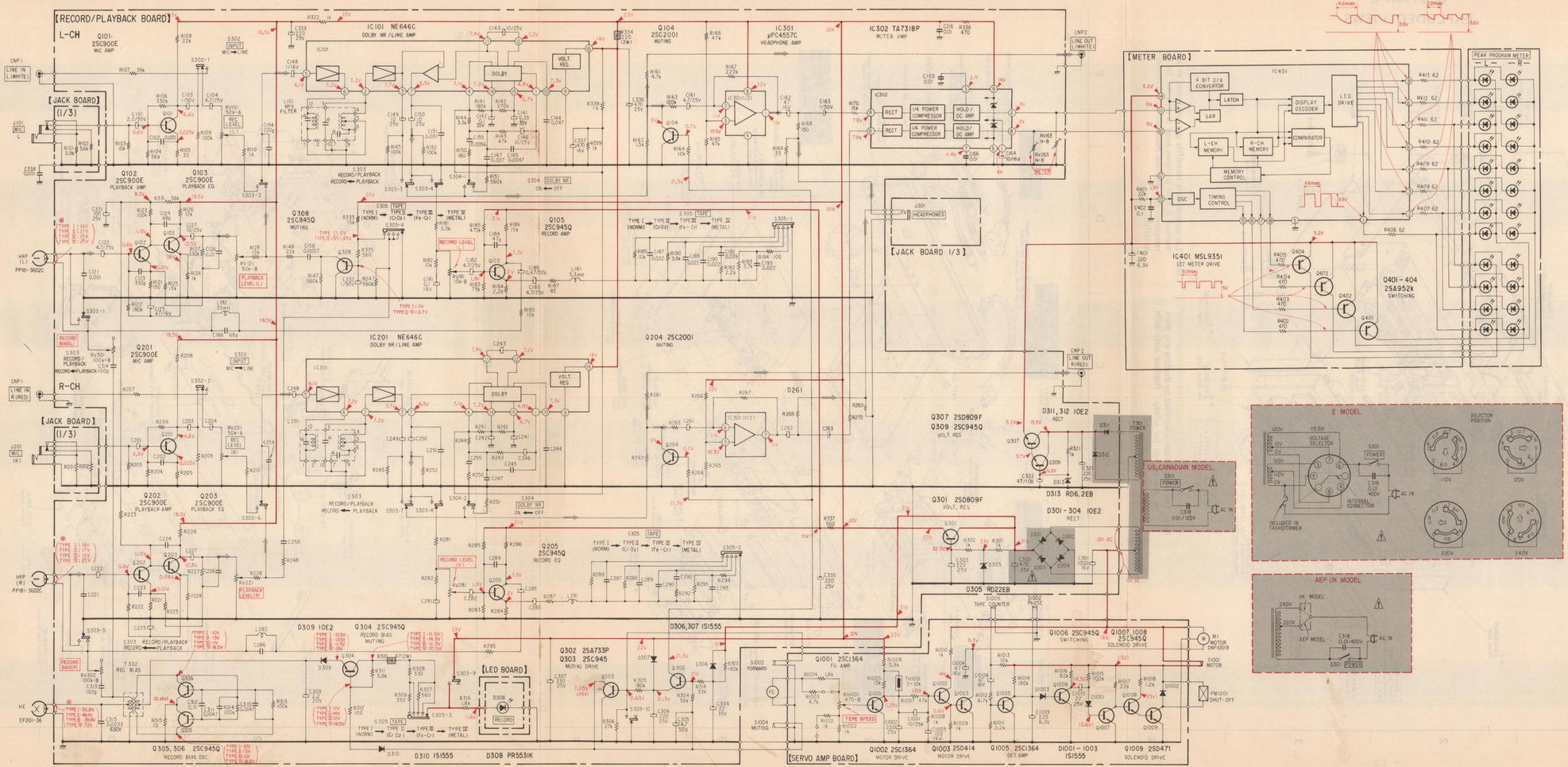








4-3. SCHEMATIC DIAGRAM



Note:

- ⟹ : Signal path.
- 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 : 1000 Ω, MΩ : 1000 kΩ
- ⧈ : nonflammable resistor.
- ▭ : adjustment for repair.
- ——— : B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).
  ( ) : record mode
  no mark : stop mode
- Voltage variations may be noted due to normal production tolerances.
- AC voltage readings(marked ◎) are taken with VTVM.
- Switch

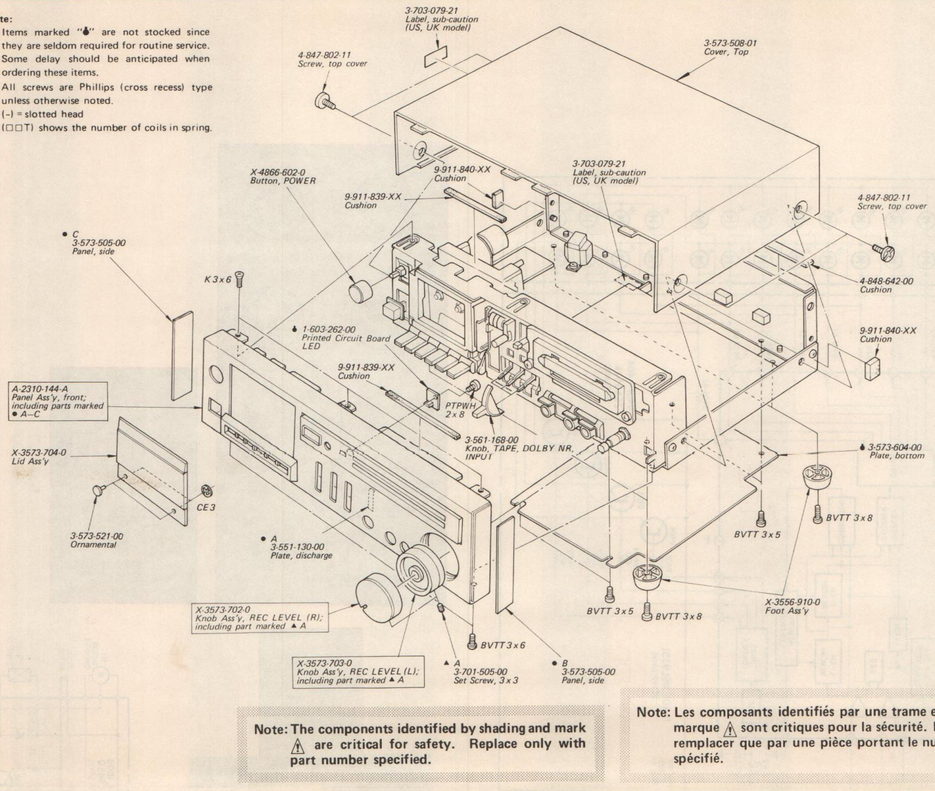
Ref. No.	Switch	Position
S301	POWER	OFF
S302	INPUT	LINE
S303	RECORD/PLAYBACK	PLAYBACK
S304	DOLBY NR	OFF
S305	TAPE	TYPE I
S1001	MOTOR	OFF
S1002	PAUSE	OFF
S1003	FORWARD	OFF
S1004	MUTING	OFF
S1005	TAPE COUNTER	OFF

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

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

5-1.

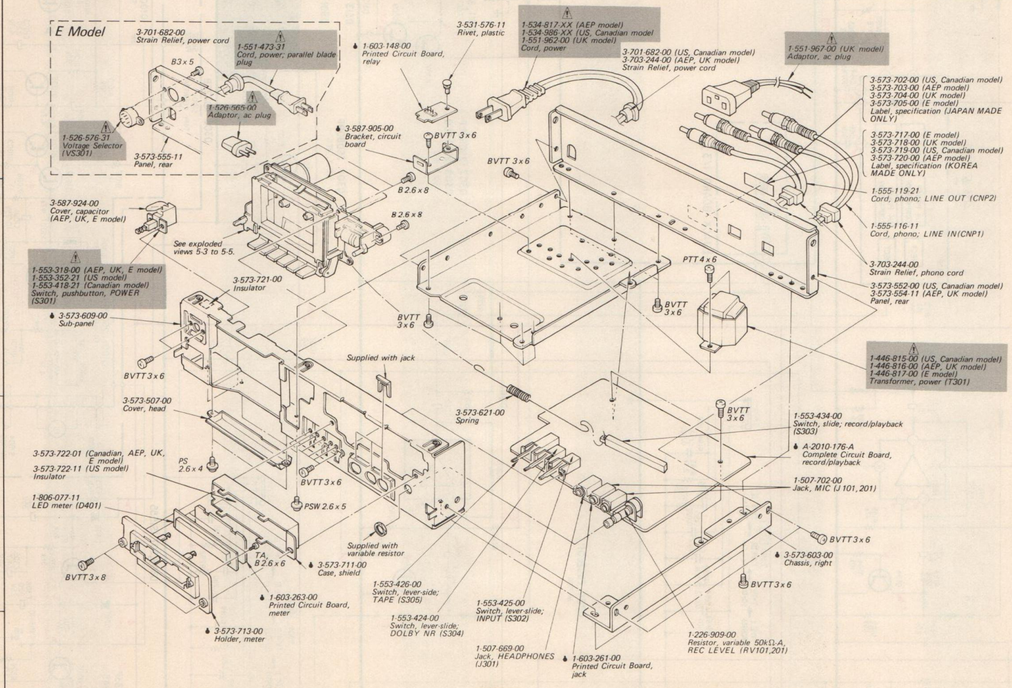
Note:
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- (□□T) shows the number of coils in spring.



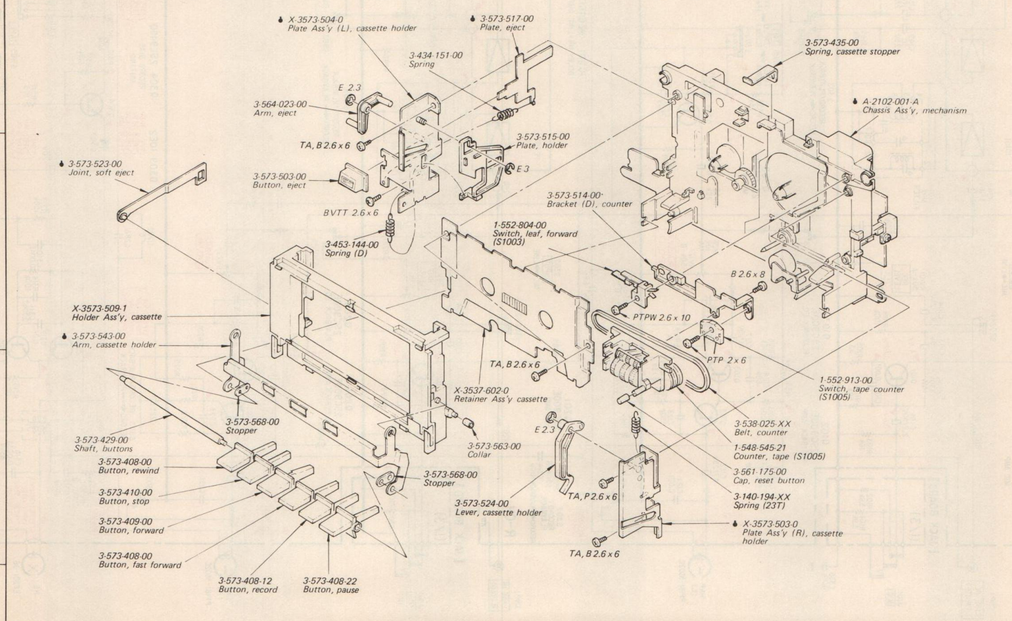
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

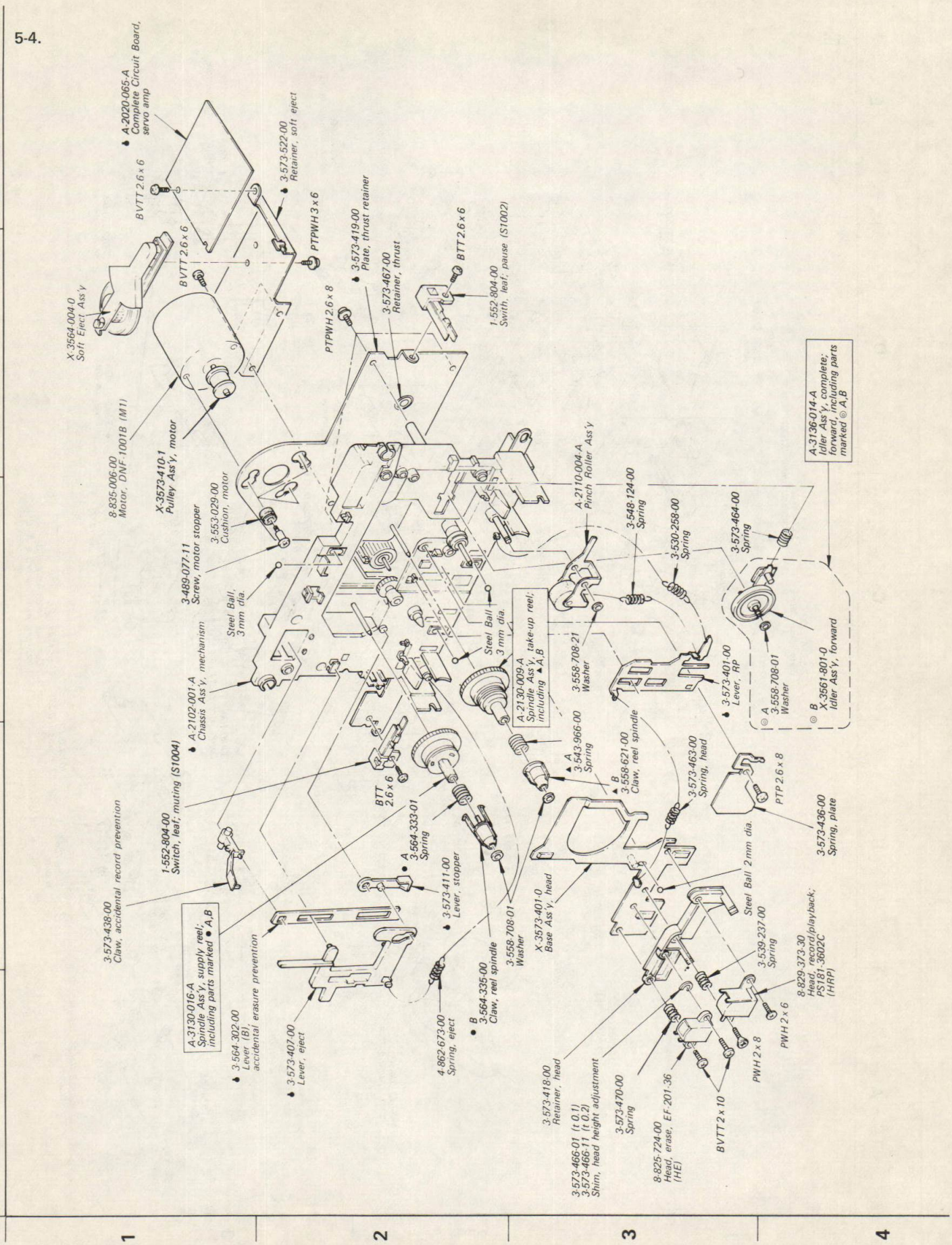
5-2.

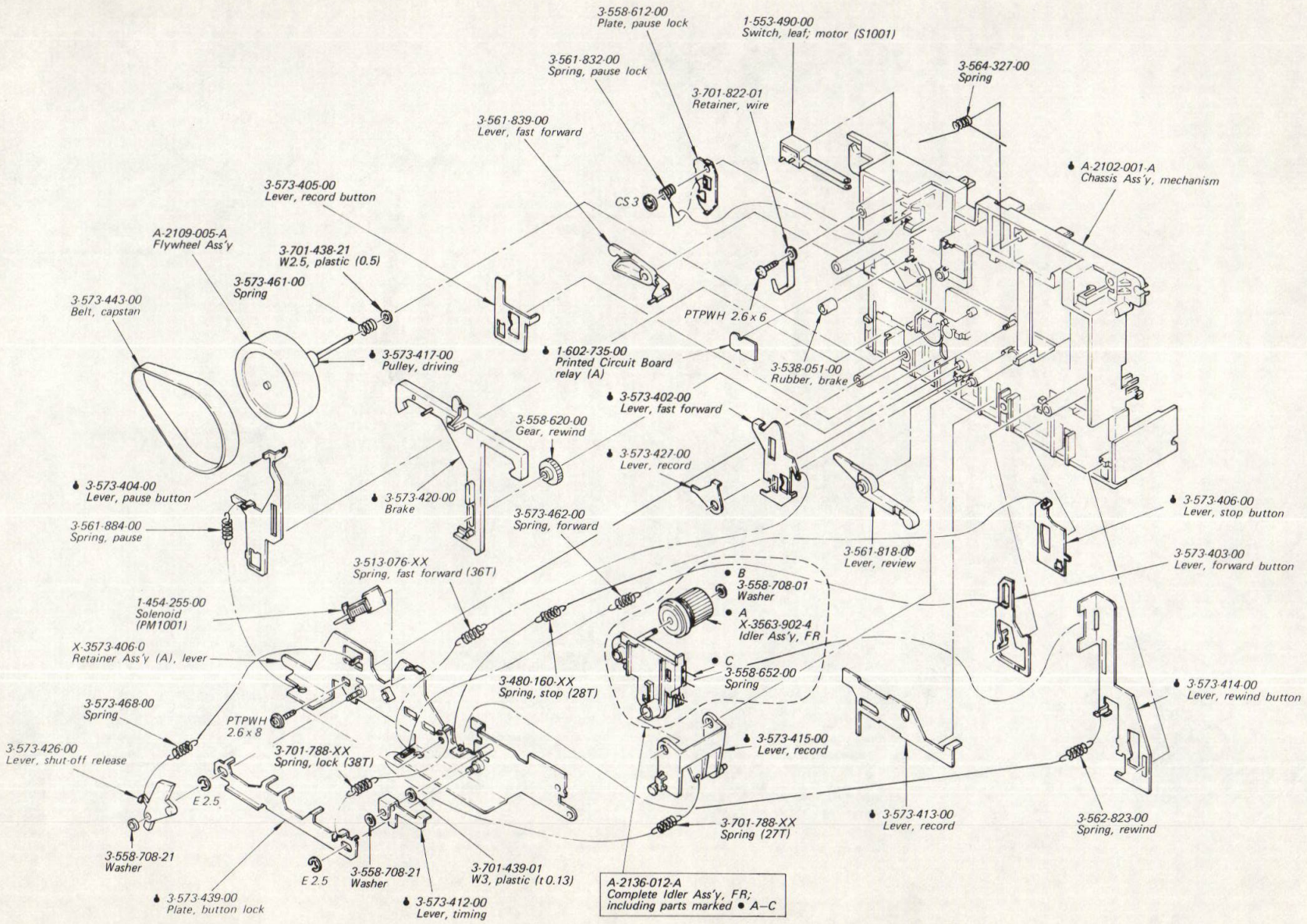


5-3.



5-4.





SECTION 6
ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
SEMICONDUCTORS		
Transistors		
Q101–103, Q201–203	8-729-377-58	2SC1775
Q104,204	8-729-100-13	2SC2001
Q105,205	8-729-663-47	2SC1364
Q301	8-729-180-93	2SD809
Q302	8-729-612-77	2SA1027R
Q303–306	8-729-663-47	2SC1364
Q307	8-729-180-93	2SD809
Q308,309	8-729-663-47	2SC1364
Q401–404	8-729-195-23	2SA952
Q1001,1002	8-729-663-47	2SC1364
Q1003	8-729-141-43	2SD414
Q1005–1008	8-729-663-47	2SC1364
Q1009	8-760-413-10	2SC1475
ICs		
IC101,201	8-759-906-46	NE646B
IC301	8-759-145-57	μPC4557C
IC302	8-759-273-18	TA7318P
IC401	8-759-993-51	MSL9351
Diodes		
D301–304 ⚠	8-719-200-02	10E2
D305	8-719-931-22	EQB01-22
D306,307	8-719-815-55	1S1555
D308	8-719-955-31	PR5531K
D309	8-719-200-02	10E2
D310	8-719-815-55	1S1555
D311,312 ⚠	8-719-200-02	10E2
D313	8-719-162-07	RD6.2E
D401	1-806-077-11	LED meter
D1001–1003	8-719-815-55	1S1555

Ref. No.	Part No.	Description
CAPACITORS		
All capacitors are in μF and common capacitors are omitted. Refer to the lists on pages 27 and 28 for their part numbers.		
C302	⚠ 1-123-348-00	470 350 V elect
C315	1-129-708-00	0.0033 630 V film
C318 ⚠	1-161-744-00	0.01 400 V ceramic (AEP, UK, E model)
	1-161-749-00	0.01 125 V ceramic (US, Canadian model)
RESISTORS		
Common ¼ W carbon resistors are omitted. Refer to the list on page 29 for their part numbers.		
R310	1-206-479-00	47Ω 2W metal-oxide (nonflammable)
R334	1-206-648-00	220Ω 2W metal-oxide (nonflammable)
RV101,201	1-226-909-00	50 kΩ-A, variable; REC LEVEL
RV121,221	1-226-238-00	50 kΩ-B, adjustable; playback level
RV163,263	1-226-233-00	1 kΩ-B, adjustable; meter
RV181,281	1-226-236-00	10 kΩ-B, adjustable; record level
RV301,302	1-226-931-00	100 kΩ-B, adjustable; record level
RV1001	1-224-641-XX	470 kΩ-B, adjustable; tape speed
MISCELLANEOUS		
CNP1	1-555-116-11	Cord, phono; LINE IN
CNP2	1-555-119-21	Cord, phono; LINE OUT
HE	8-825-724-00	Head, erase; EF201-36
HRP	8-829-373-30	Head, record/playback; PP181-3602-C
J101,201	1-507-702-00	Jack, MIC
J301	1-507-669-00	Jack, HEADPHONES
L101,201	1-231-725-00	Filter, MPX
L181,281	1-407-962-00	3.3 mH, microinductor
L182,282	1-407-964-00	33 mH, microinductor
M1	8-835-006-00	Motor, DNF1001B
PM1001	1-454-255-00	Solenoid

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

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description
S301 ⚠	1-553-318-00	Switch, pushbutton; POWER (AEP, UK, E model)
	1-553-352-21	Switch, pushbutton; POWER (US model)
	1-553-418-21	Switch, pushbutton; POWER (Canadian model)
S302	1-553-425-00	Switch, lever-slide; INPUT
S303	1-553-434-00	Switch, slide; record/playback
S304	1-553-424-00	Switch, lever-slide; DOLBY NR
S305	1-553-426-00	Switch, lever-slide; TAPE
S1001	1-553-490-00	Switch, leaf, motor
S1002, S1003, S1004	1-552-804-00	Switch; leaf; pause, forward, muting
S1005	1-552-913-00 (1-548-545-21)	Switch, tape counter
T301 ⚠	1-446-815-00	Transformer, power (US, Canadian model)
	1-446-816-00	Transformer, power (AEP, UK model)
	1-446-817-00	Transformer, power (E model)
T302	1-443-229-00	Coil, bias osc
TH1001	1-800-202-XX	Thermister, S-10 k
VS301	⚠ 1-526-576-31	Voltage Selector (E model)
	♦ 1-508-830-12	Base Post
	⚠ 1-526-565-00	Adaptor, ac plug (E model)
	⚠ 1-534-817-XX	Cord, power (AEP model)
	⚠ 1-534-986-XX	Cord, power (US, Canadian model)
	♦ 1-535-116-00	Terminal
	♦ 1-535-140-00	Base Post, 3P; (AEP, UK, E model)
	⚠ 1-535-506-00	Terminal, connection press (US, Canadian model)
	⚠ 1-551-473-31	Cord, power; parallel blade plug (E model)
	⚠ 1-551-962-00	Cord, power (UK model)
	⚠ 1-551-967-00	Adaptor, ac plug (UK model)
	♦ 1-560-070-00	Base post
	♦ 1-561-440-00	Socket

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

Ref. No.	Part No.	Description

PRINTED CIRCUIT BOARDS

♦ 1-602-735-00	Relay (A)
♦ 1-603-148-00	Relay
♦ 1-603-261-00	Jack
♦ 1-603-262-00	LED
♦ 1-603-263-00	Meter

COMPLATE CIRCUIT BOARDS

♦ A-2010-176-A	Record/playback
♦ A-2020-065-A	Servo Amp

ACCESSORIES & PACKING MATERIALS

Part No.	Description
X-3701-105-0	Tip Ass'y, cleaning; head
3-573-619-00	Cushion, upper
3-573-620-00	Cushion, lower
3-573-625-00	Sheet, polyethylene
3-573-715-00	Carton
3-701-630-00	Bag, plastic
3-783-216-11	Manual, instruction (AEP, UK, E model)
3-783-216-21	Manual, instruction (US, Canadian model)
3-793-828-11	Card, caution; cassette
3-794-890-31	Manual, instruction; french (Canadian model)

ELECTROLYTIC CAPACITORS

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 50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (pF)	50 VOLT. PART No.	CAP. (μF)	50 VOLT. 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. 25 VOLT. PART No.	50 VOLT. PART No.	CAP. (μF)	25 VOLT. PART No.	50 VOLT. 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			

Sony Corporation

9-954-921-01

80E06110-1
Printed in Japa

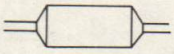
MYLAR CAPACITORS

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

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.
							→: Use the high voltage rated one.
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



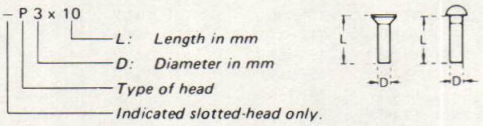
CAP. (μF)	RATING 3 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	35 VOLT. PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	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					

1/4 WATT CARBON RESISTORS

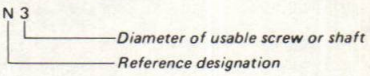
Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	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:



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	