

SPECIFICATIONS

Recording system 4-track 2-channel stereo
Speaker 4 cm (1 inches) dia
Fast rewinding time Approx. 2 min. with Sony Cassette C-60
Frequency response 60 – 9,000 Hz
 40 – 12,500 Hz (playback)
Input Microphone input jack
 (stereo minijack)
 sensitivity 0.2 mV (–72 dB) for low
 impedance microphone
Output Headphones jack
 (stereo minijack)
 load impedance 8 – 300 ohms
Power output (at 10 % harmonic distortion)
 Headphones: 30 mW + 30 mW
 Speaker: 320 mW
Battery life (continuous playback hours)
 Approx. 3.5 hours with Sony SUM-3(NS) New
 Super batteries or Eveready No. 1215 Heavy
 Duty batteries and 6.5 hours with Eveready
 AM 3 Alkaline batteries.
Power requirements 6 V dc, four IEC designation R6 (size AA)
 batteries
 AC power adaptor: Refer to the following
 chart to choose the correct adaptor
 for your area.

Country	AC power line voltage	Optional ac power adaptor
USA	120 V ac, 60 Hz	AC-9W
Canada	120 V ac, 60 Hz	AC-9 available in Canada
The United Kingdom	240 V ac, 50 Hz	AC-15A available in the United Kingdom
Continental European countries	220 V ac, 50 Hz	AC-456C available in European countries
Other countries	120 V ac (110, 220 or 240 V ac, adjustable by Sony personnel), 50/60 Hz	AC-9 available in Japan
	110, 120, 220 or 240 V ac, adjustable, 50/60 Hz	AC-4A available in other countries

car battery cord (optional)
 DCC-127A for use with
 12 V car battery

Tape Transport Mechanism Type	MT350-05
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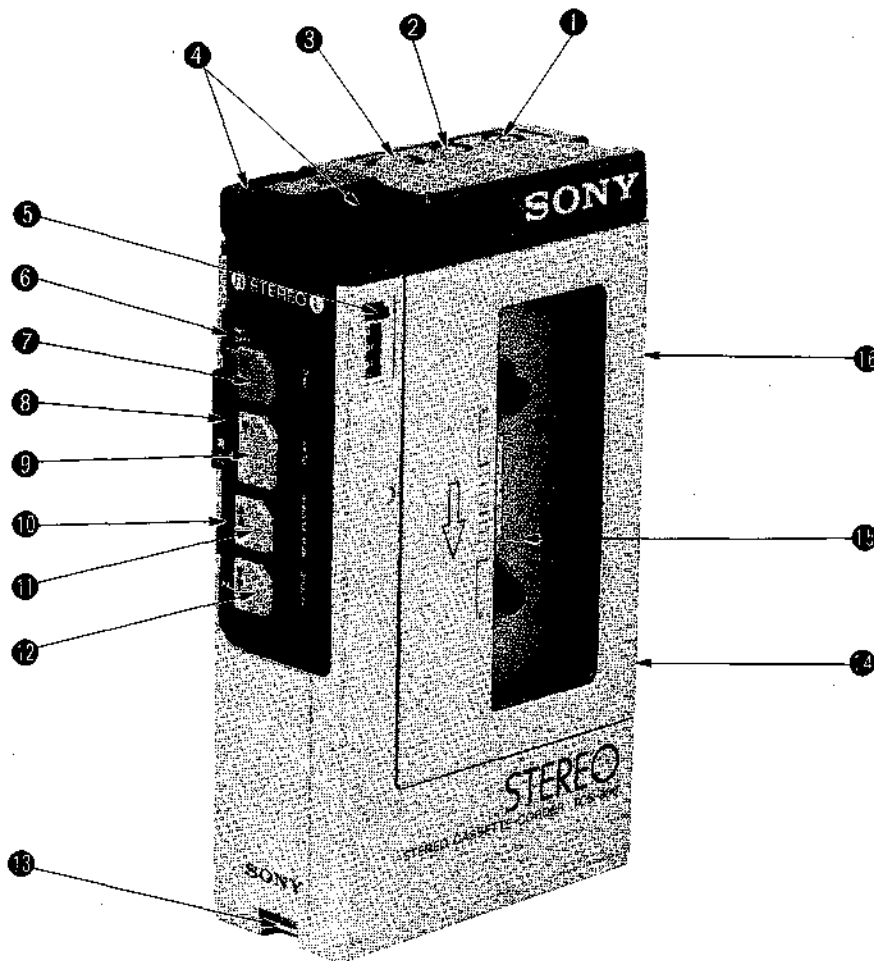
SERVICE MANUAL

FEATURES

- Complete stereo recording and playback system in this very compact cassette-corder.
- Built-in one point stereo microphone and an external microphone jack (stereo) for stereo recording.
- Stereo playback through the supplied stereo headphones.

SECTION 1 OUTLINE

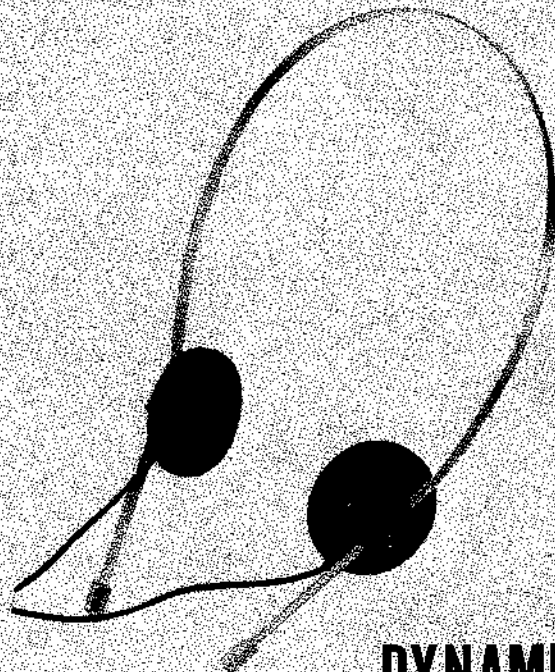
1-1. PARTS IDENTIFICATION



See photo **E** on the back cover.

- | | |
|---------------------------------------|--|
| ① PHONES (headphones) jack | ⑨ ▼ PLAY (playback) button |
| ② MIC (STEREO) (microphone) jack | ⑩ PAUSE switch |
| ③ VOLUME control | ⑪ ▲ REW/REVIEW (rewind/review) button |
| ④ Built-in microphones (R and L) | ⑫ ▼ FF/CUE (fast forward/cue) button |
| ⑤ Tape counter and reset button | ⑬ Carrying strap attachment (See the illustration F on the back cover) |
| ⑥ REC/BATT (record/battery) indicator | ⑭ DC IN 6 V (external power input) jack |
| ⑦ ● REC (record) button | ⑮ Cassette holder |
| ⑧ ▲ STOP/EJECT button | ⑯ PB EQ (playback equalizer) selector |

MDR-W3



*US Model
Canadian Model
AEP Model
UK Model
E Model
Modèle US
Modèle Canadien
Modèle AEP
Modèle UK
Modèle E*

DYNAMIC STEREO HEADPHONES ECOUTEURS STEREO DYNAMIQUE

SPECIFICATIONS

Type: Dynamic
Driver Units: 23 mm dia., dome
Impedance: 25 ohms at 1 kHz
Sensitivity: 100 dB/mW
Rated Power: 0.04 W
Power Handling Capacity: 0.1 W
Frequency Response: 20 – 20,000 Hz
Plug: Stereo mini plug
Cord Length: 1 m
Weight: 26 g (without cord)

Type: Dynamique
Unites: Membrane dôme de 23 m diam.
Impédance: 25 ohms à 1 kHz
Sensibilité: 100 dB/mW
Puissance nominale: 0.04 W
Puissance admissible: 0.1 W
Réponse en fréquence: 20 – 20,000 Hz
Fiche: Fiche mini format stéréo
Longueur du cordon: 1 m
Poids: Env. 26 g (sans le cordon)



SONY®

SERVICE MANUAL

MDR-W3

1. DISASSEMBLY

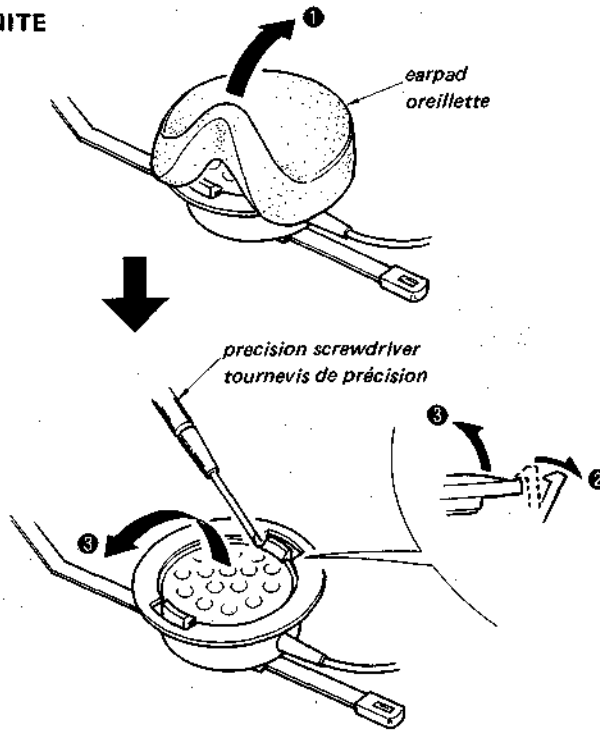
DEMONTAGE

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

Suivre la procédure de démontage dans l'ordre numérique donné.

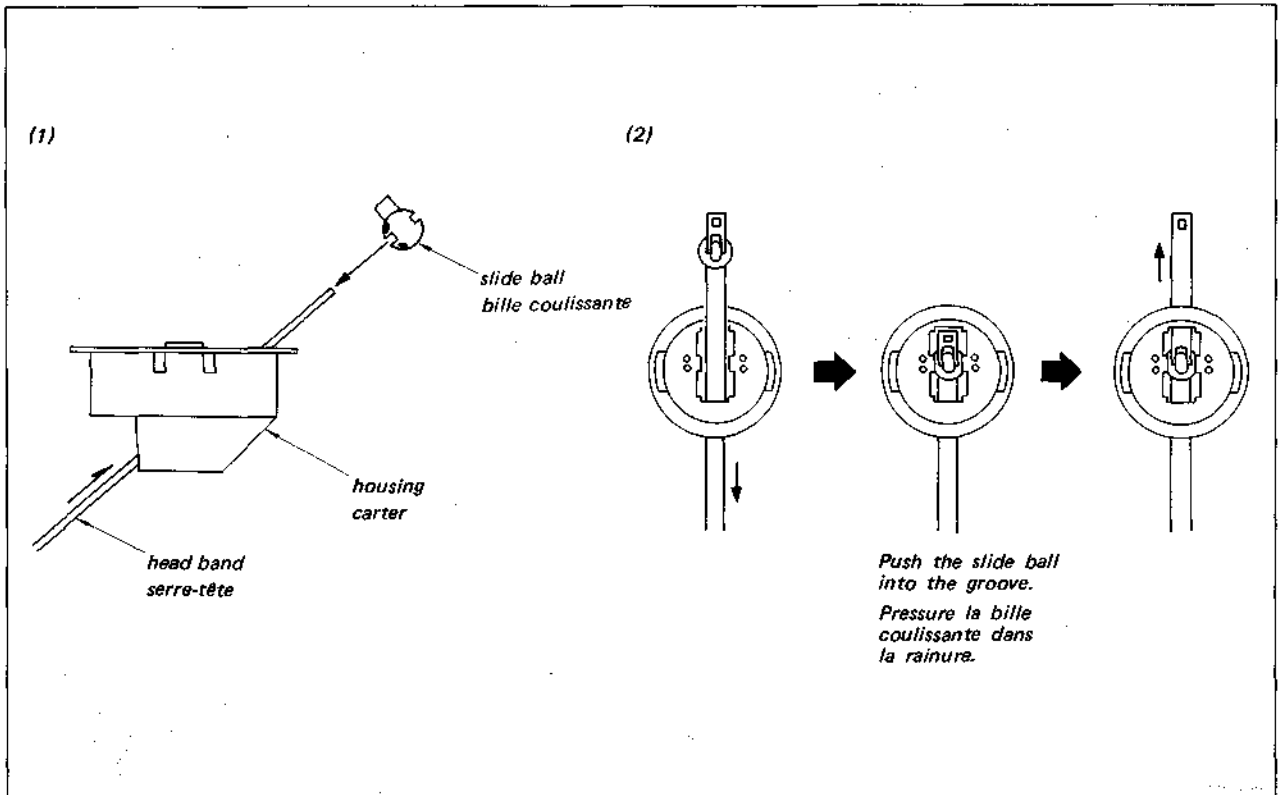
1-1. DRIVER REMOVAL

RETRAIT DE L'UNITE

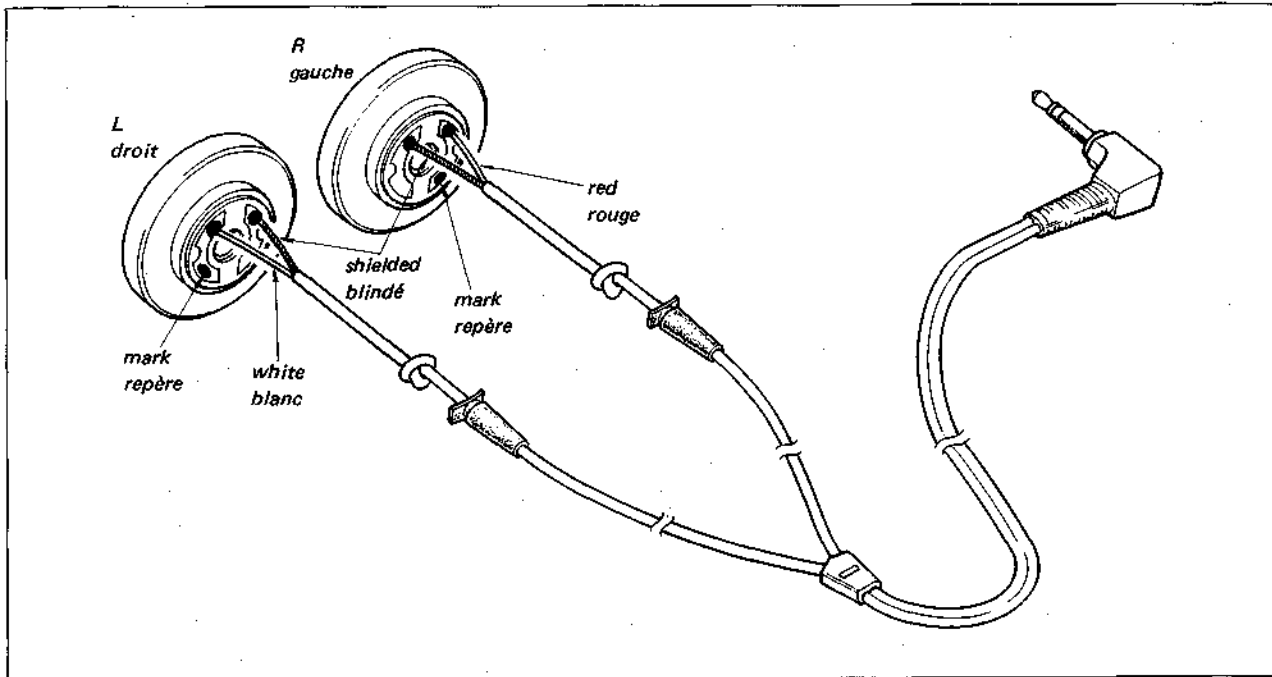


2. REPLACEMENT

REMPACEMENT



3. WIRING DIAGRAM
SCHEMA DE CONNEXIONS



4. PARTS LIST
LISTES DES PIECES

GENERAL SECTION

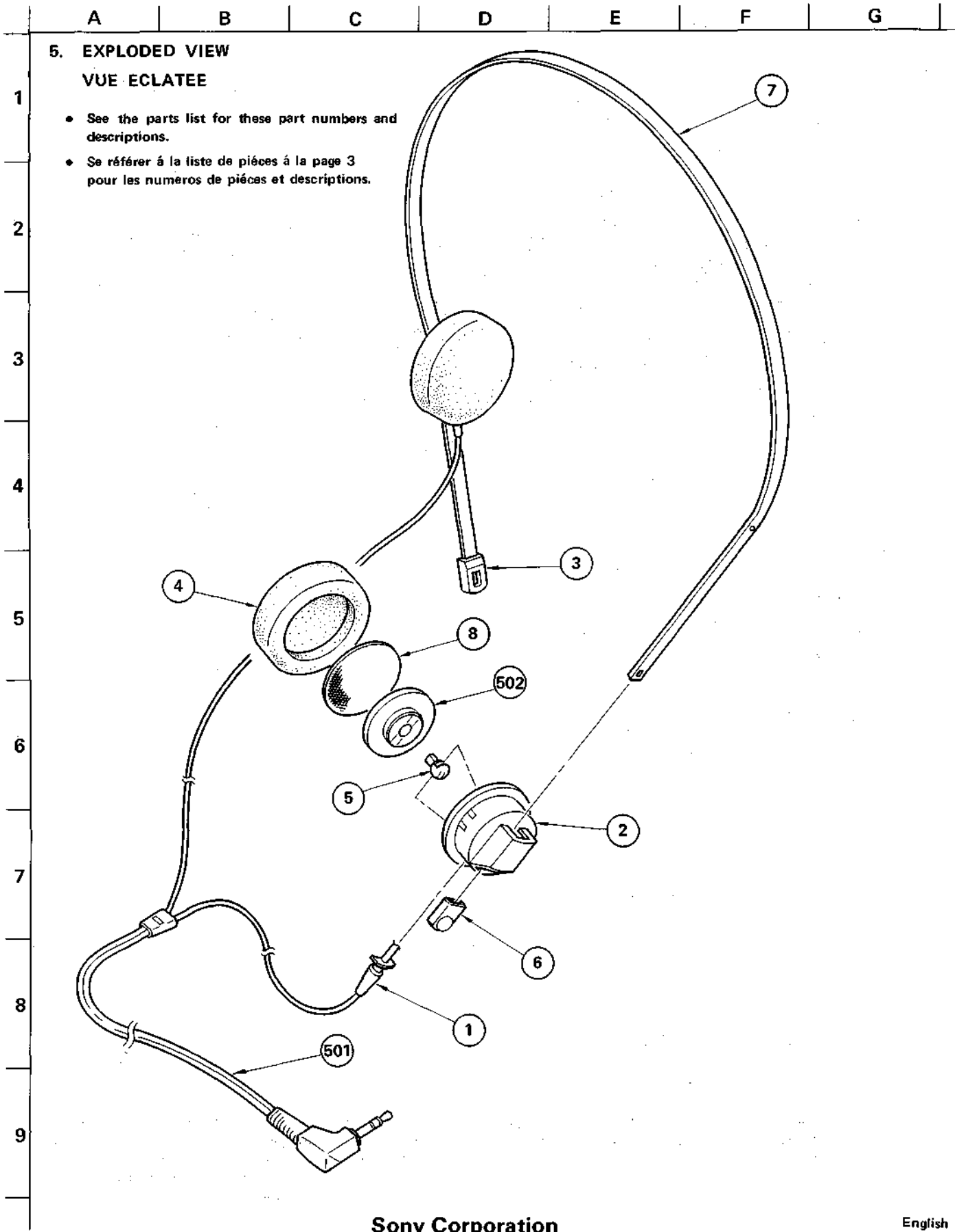
No.	Part No.	Description
1	2-373-015-00	BUSHING
2	2-376-313-00	HOUSING
3	2-376-315-00	STOPPER, SLIDE (L)
4	2-376-316-00	(BROWN) ... PAD, EAR or (ORANGE) ... PAD, EAR
5	2-376-317-00	BALL, SLIDE
6	2-376-318-00	STOPPER, SLIDE (R)
7	2-376-319-00	HEAD BAND
8	4-865-916-00	SCREEN (D)

ELECTRICAL PARTS

No.	Part No.	Description
501	1-556-803-00	CORD
502	1-505-058-11	DRIVER

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

• Les pièces avec une marque "♦" ne sont pas stockées parce qu'elles sont rarement nécessaires pour un dépannage de routine. Si nécessaire, demander les pièces en indiquant le numéro; seulement il faut s'attendre à un certain retard à la livraison.

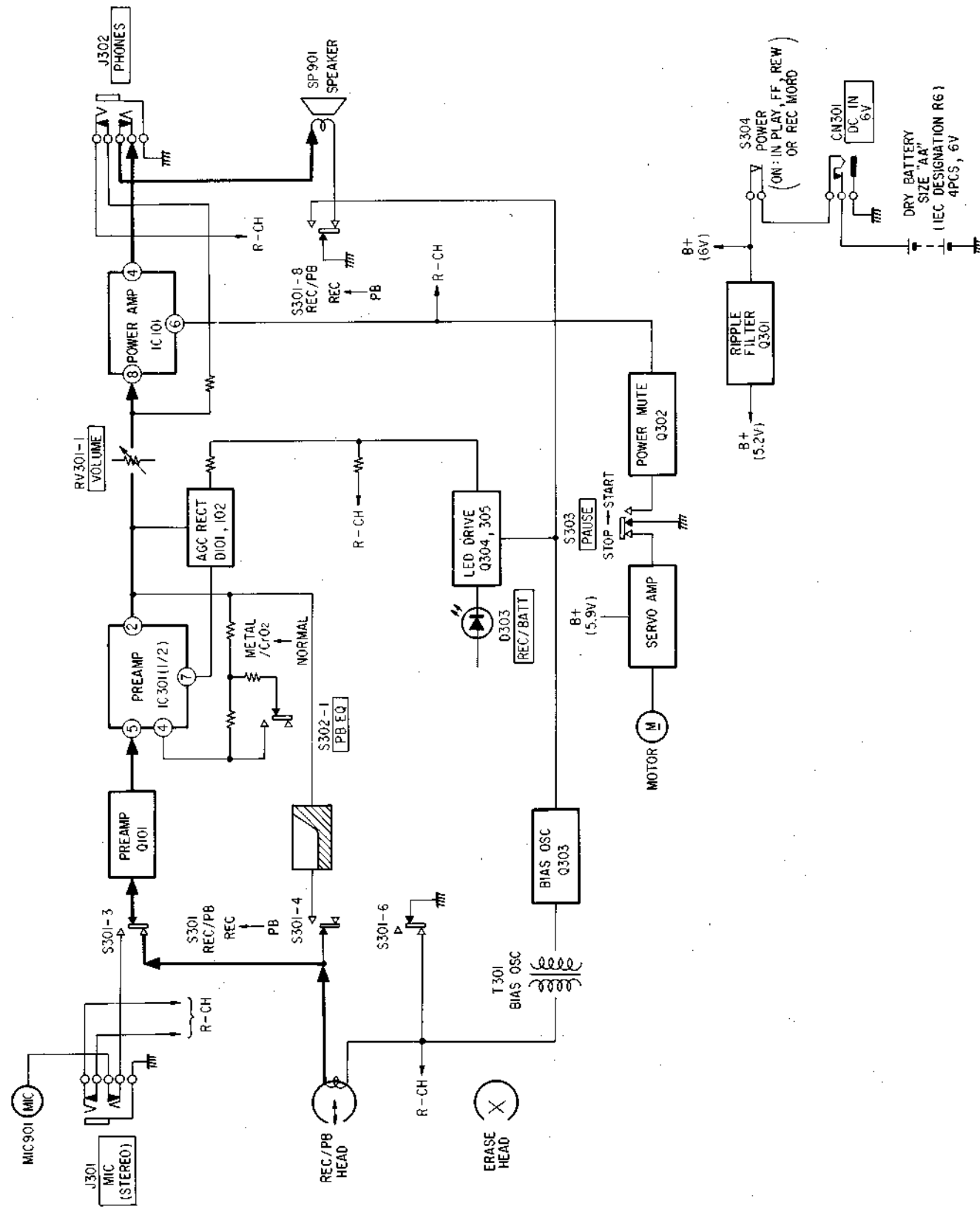


Sony Corporation
 Consumer Products Group
 Technical Support Dept.

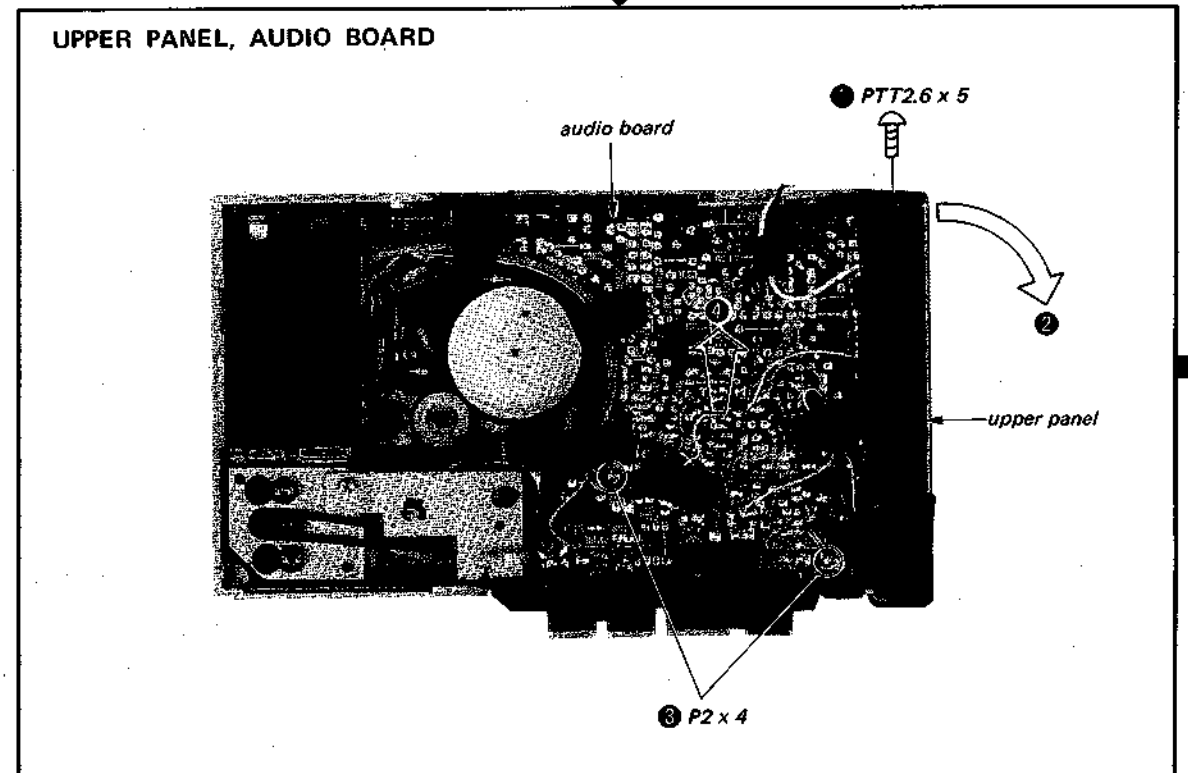
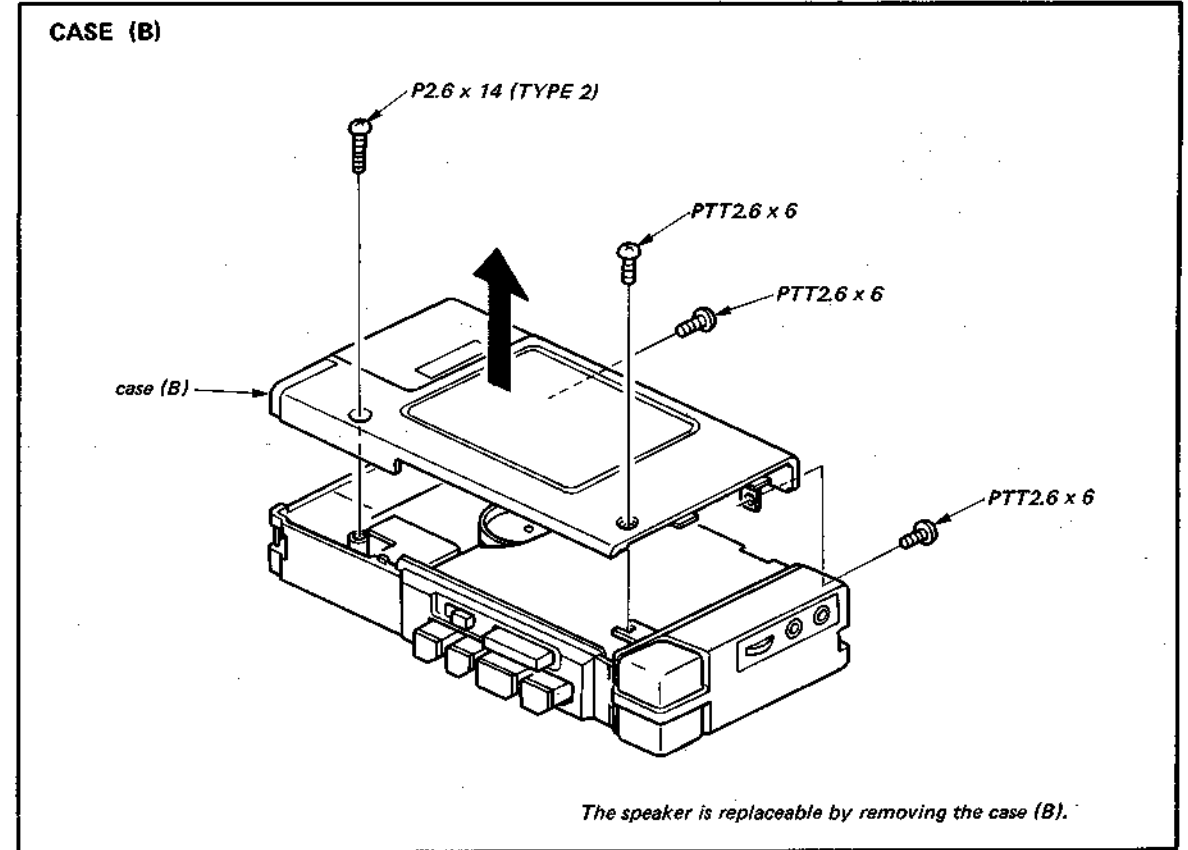
English
 French
 83B06234-1
 Printed in Japan
 © 1983

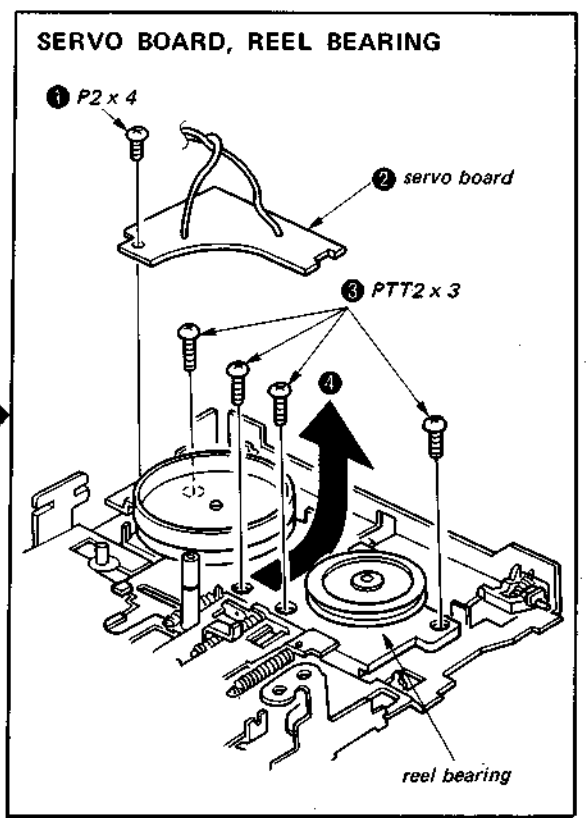
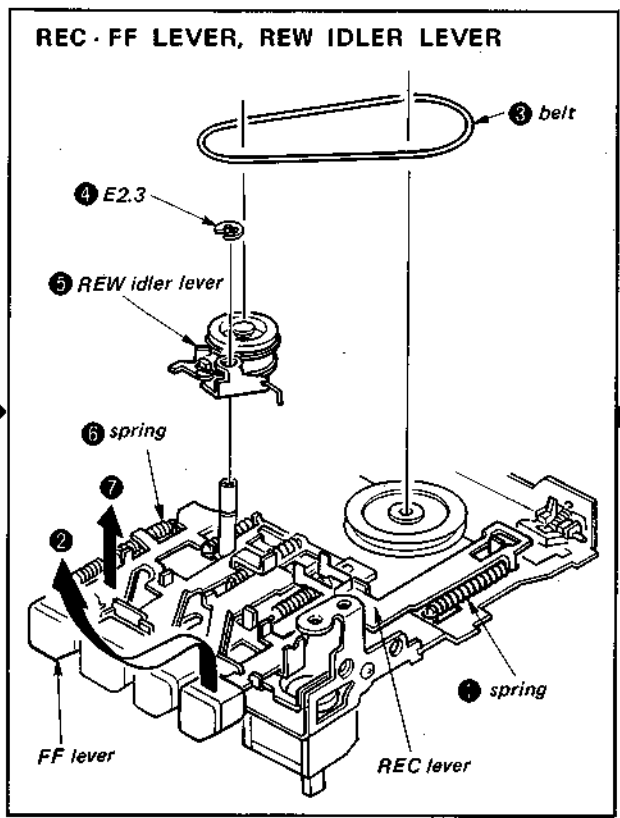
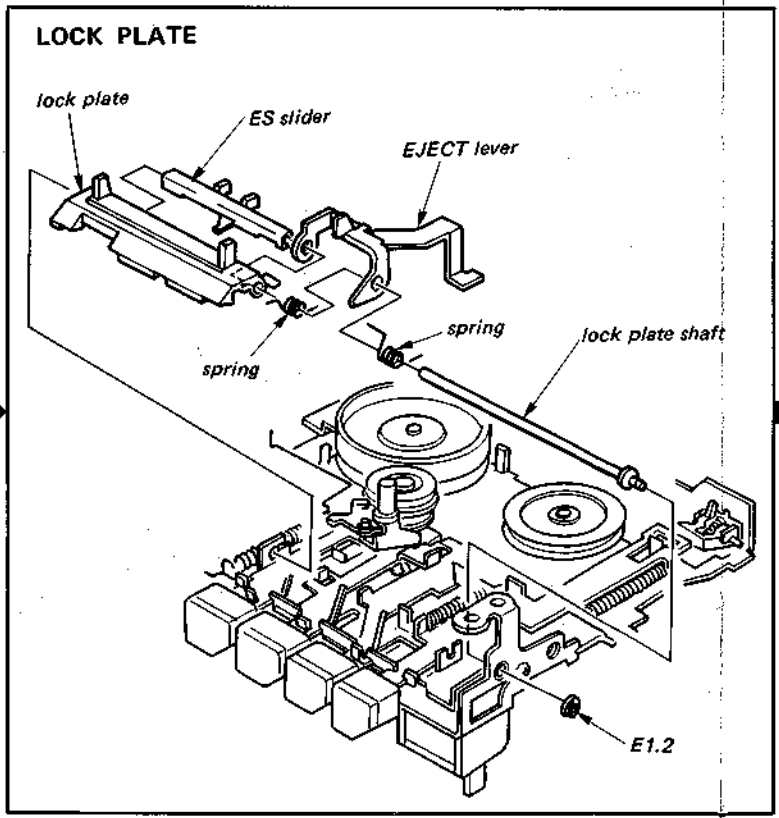
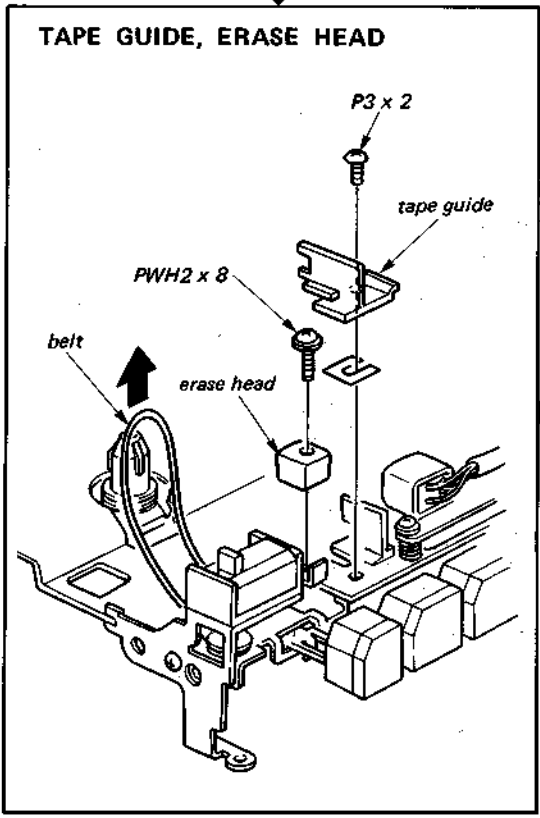
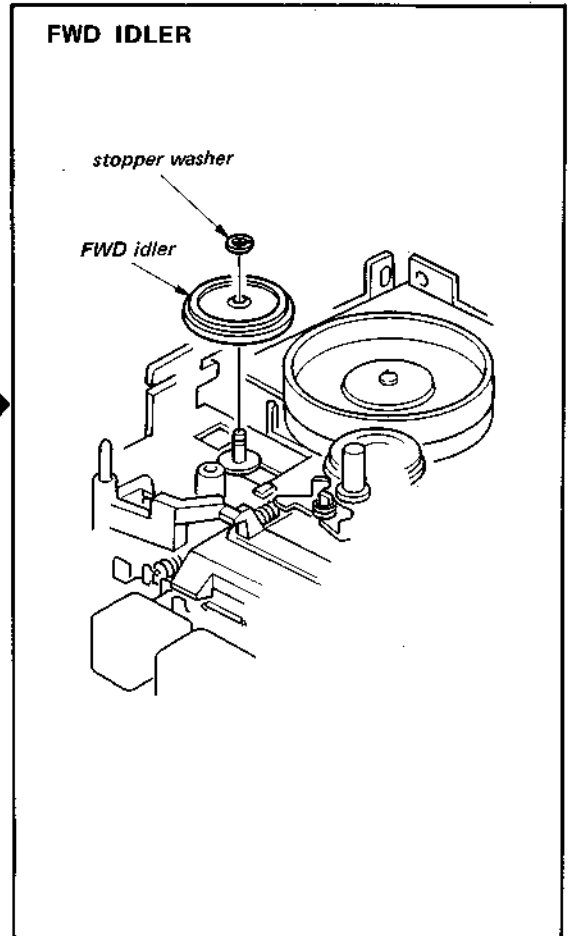
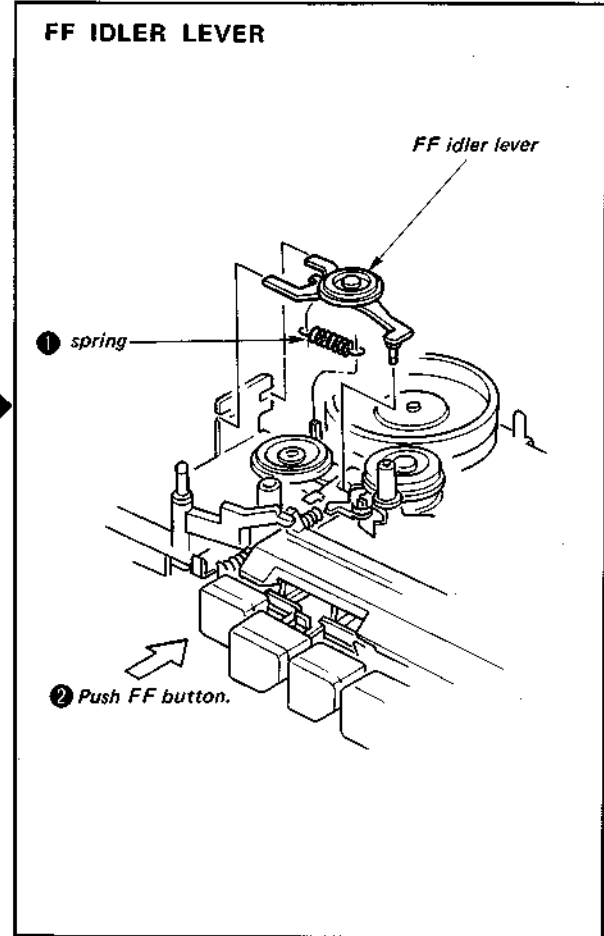
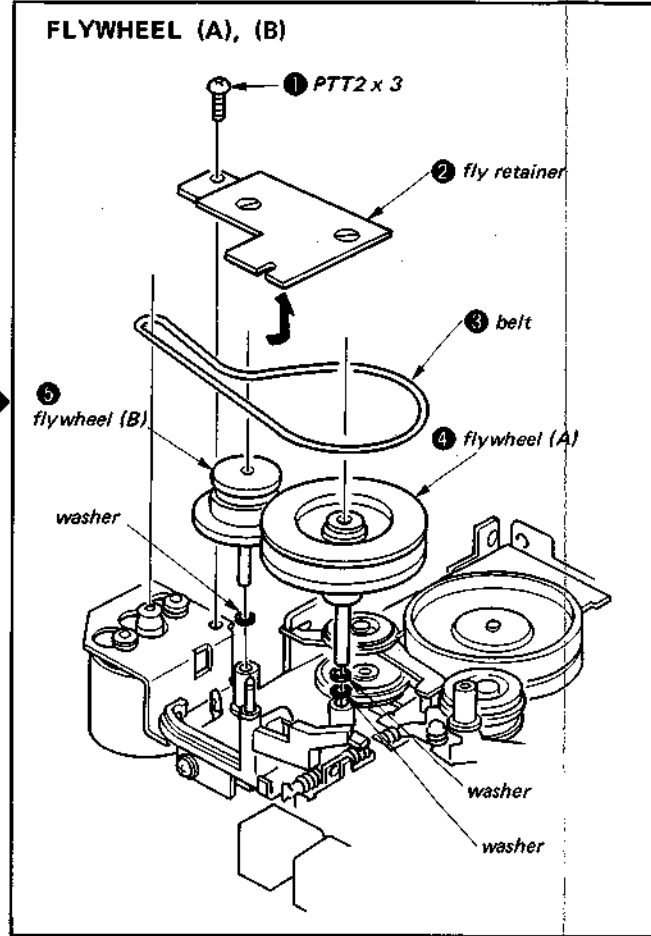
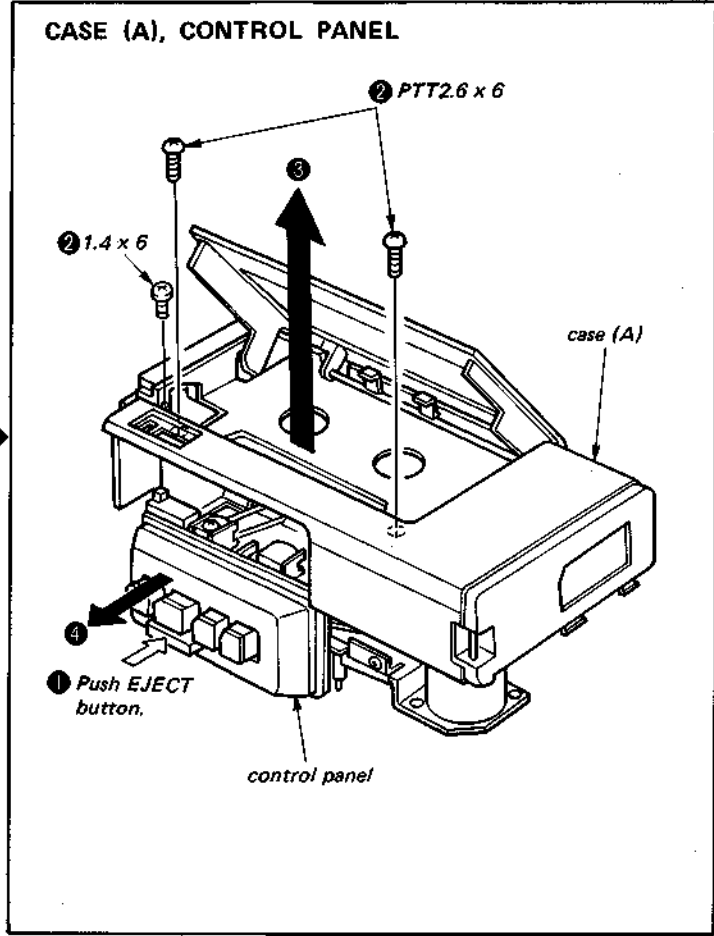
SECTION 2
DISASSEMBLY

1-2. BLOCK DIAGRAM

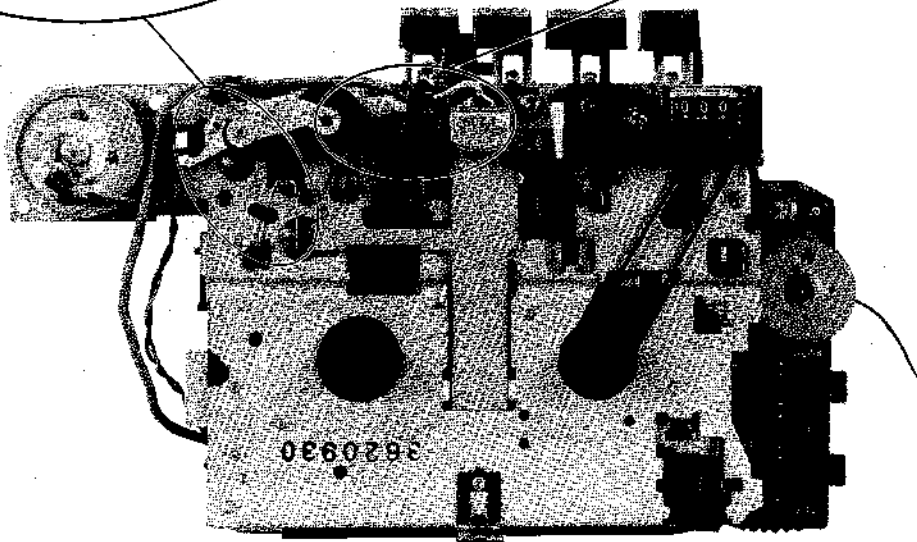
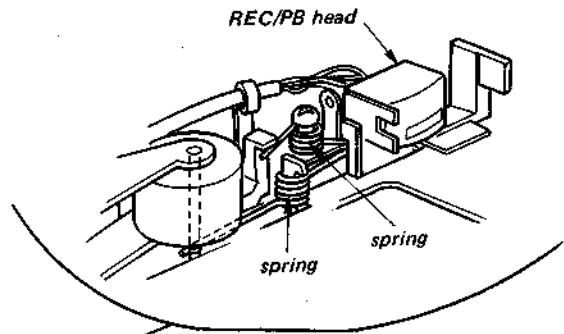
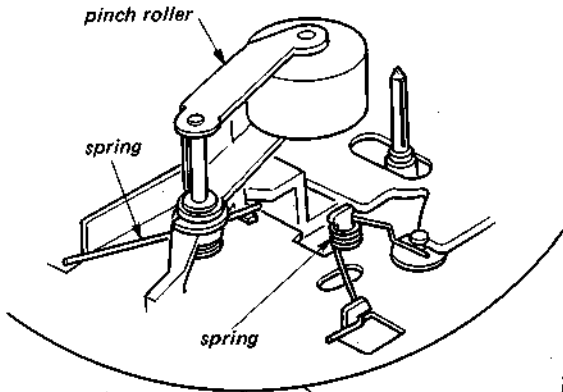
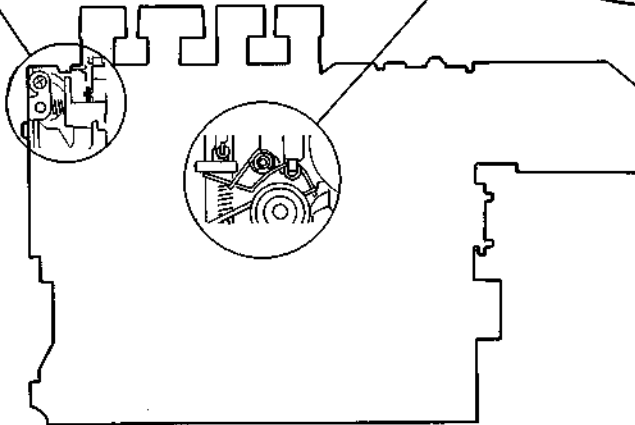
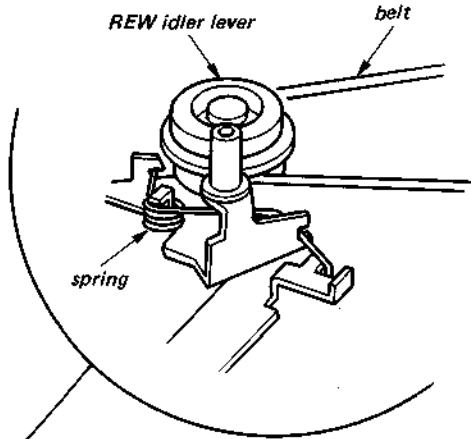
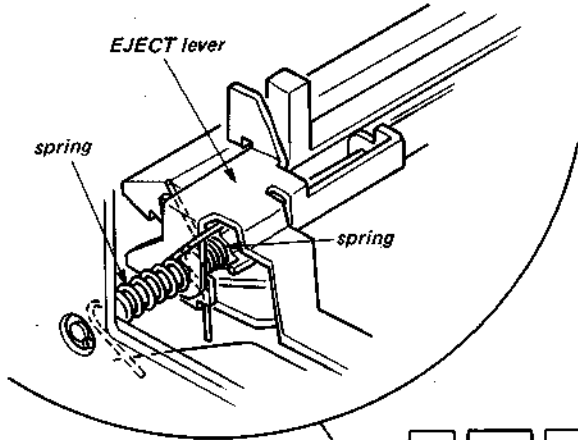


Note: Follow the disassembly procedure in the numerical order given.





TO HOOK EACH TORSION SPRING



**SECTION 3
ADJUSTMENTS**

3-1. MECHANICAL ADJUSTMENT

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. (Do not bring the head demagnetizer close to the erase head.)
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.

Torque Measurement

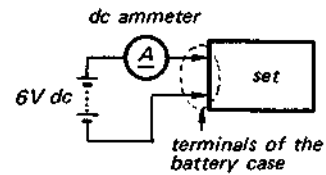
Torque	Torque Meter	Meter Reading
Forward	CQ-102B	23 – 48 g-cm (0.32 – 0.67 oz-inch)
Back Tension		2 – 4 g-cm (0.03 – 0.06 oz-inch)
Fast Forward and Rewind	CQ-201B	more than 70 g-cm (0.97 oz-inch)

Tape Tension Measurement

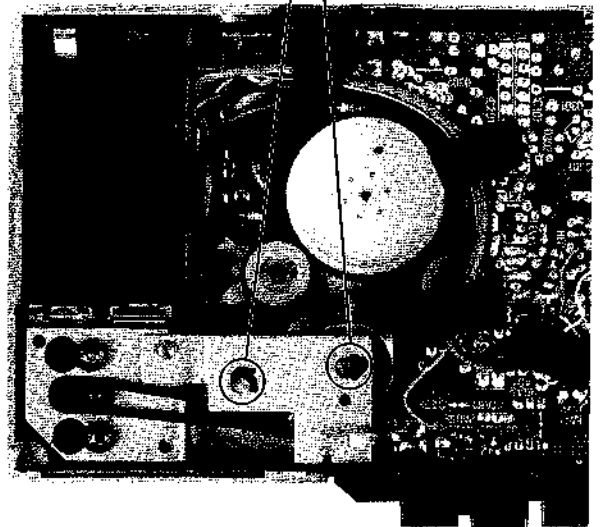
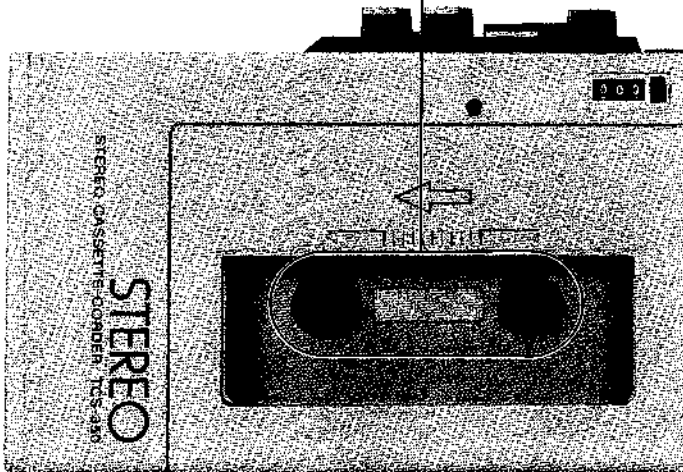
Meter	Meter Reading
CQ-403	more than 130 g (4.58 oz)

Flywheel Thrust Play Adjustment

– Playback Mode –

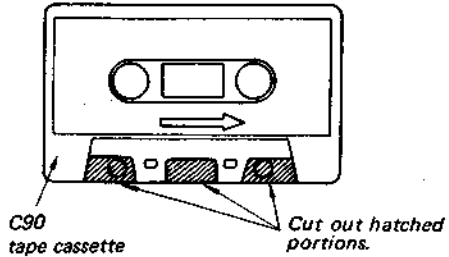


1. Loosen the two adjustment screws.
2. Turn one of them clockwise carefully.
3. Stop turning it when the current suddenly increase and loosen it ¼ turn.
4. Adjust the other screw in the same way as step 2 and 3.
5. Secure the adjustment screws with locking compound.

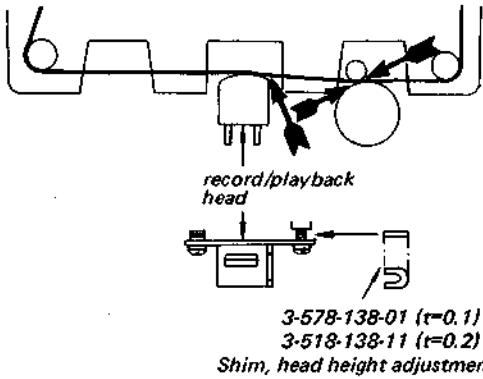


Head Height Adjustment

1. Prepare an adjustment cassette as shown below.



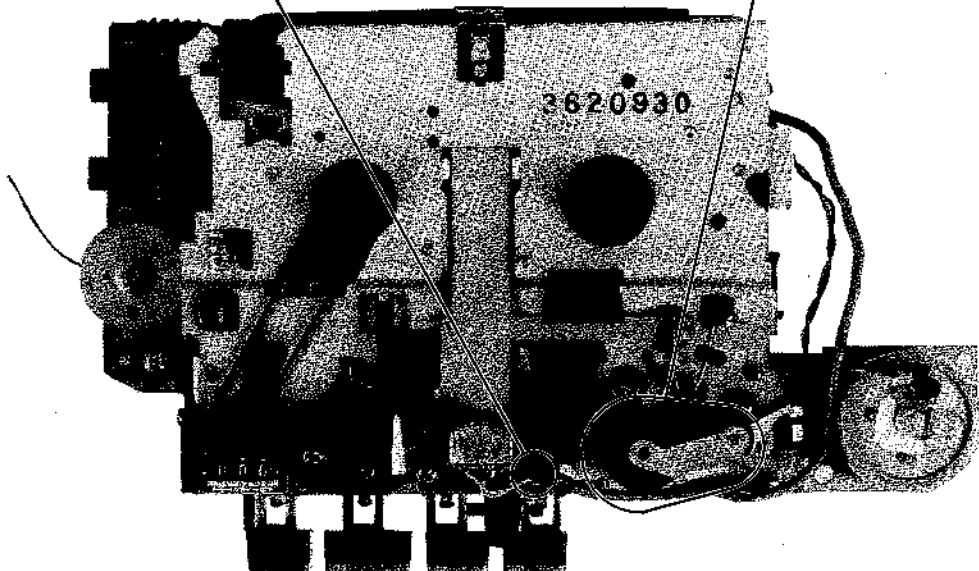
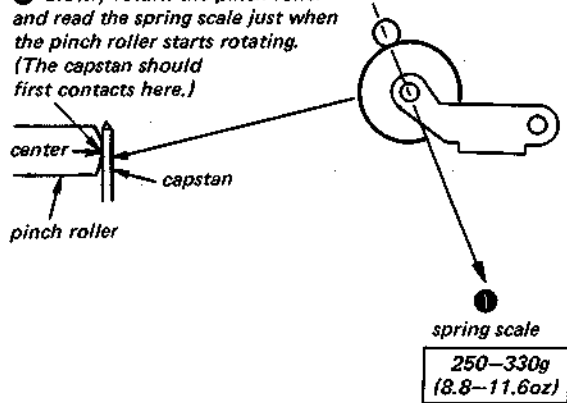
2. In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at arrowed portions.



Pinch Roller Pressure Measurement

— Playback Mode —

2. Slowly return the pinch roller and read the spring scale just when the pinch roller starts rotating. (The capstan should first contacts here.)



3-2. ELECTRICAL ADJUSTMENT

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

Tape Speed Adjustment

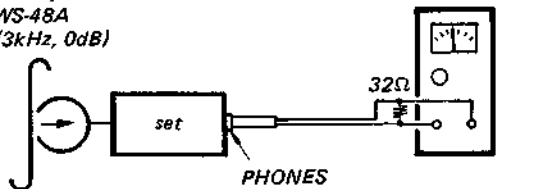
Setting:

VOLUME control: mechanical mid

Procedure:

Mode: playback

test tape
WS-48A
(3kHz, 0dB)

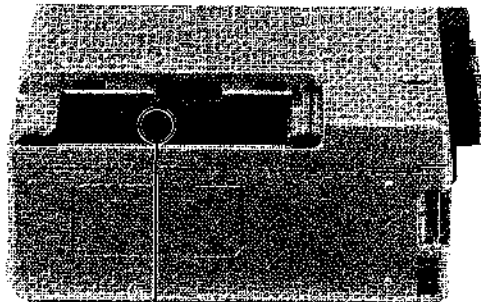


Specification:

Speed checker	Digital frequency counter
+1% -2%	2940 - 3030Hz

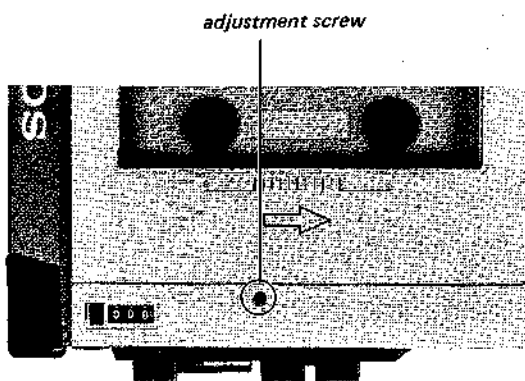
Frequency difference between the beginning and the end of the tape should be within $\pm 2\%$ (± 60 Hz).

Adjustment Location:



adjustment resistor

Adjustment Location:

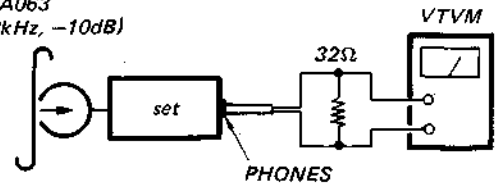


Record/playback Head Azimuth Adjustment

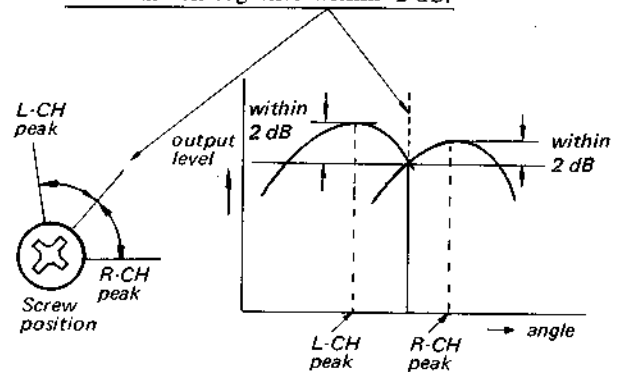
Procedure:

1. Mode: playback

test tape
P-4-A063
(6.3kHz, -10dB)



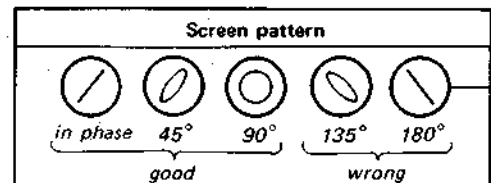
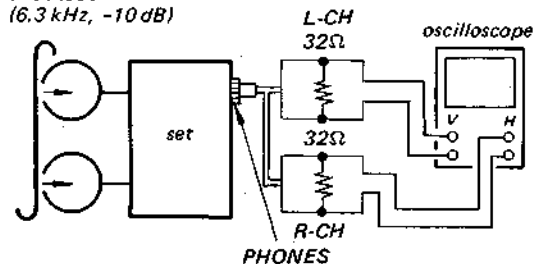
- Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw where both of output levels match together within 2 dB.



3. Phase Check

Mode: playback

test tape
P-4-A063
(6.3 kHz, -10 dB)



Note: Finish the screw adjustment with a turn in the clockwise direction. After the adjustment, lock the adjustment screw with suitable locking compound.

Playback Level Adjustment

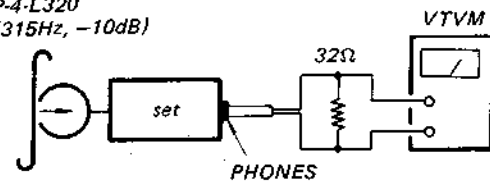
Setting:

VOLUME: maximum

Procedure:

Mode: playback

test tape
P-4-L320
(315Hz, -10dB)

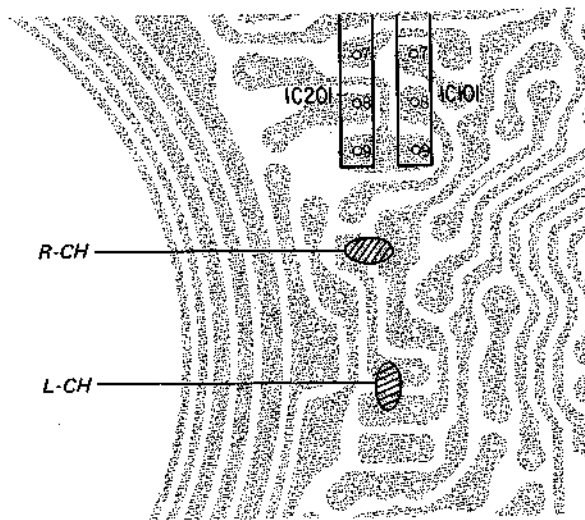


Specification:

Level difference between channels: less than 3.5dB

- 1) If necessary, connect the patterns for higher level channel.
- 2) Confirm that the output level of PHONES is fixed when repeating playback and stop.

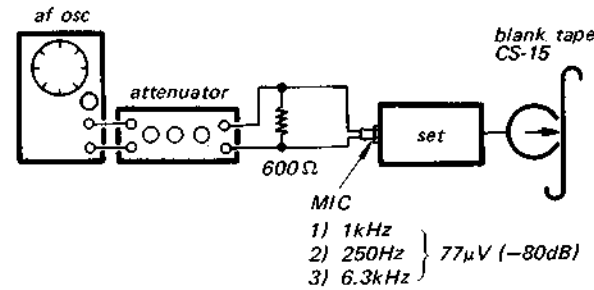
Adjustment Location:



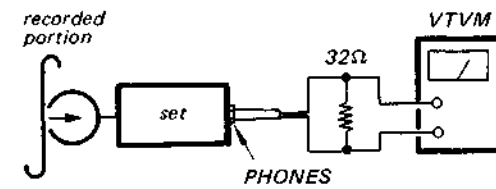
Record Bias Adjustment

Procedure:

1. Mode: record



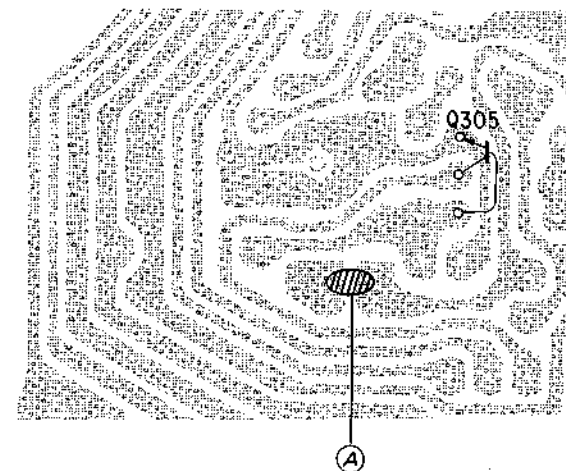
2. Mode: playback



3. Adjust VOLUME so that 1kHz output level is 77mV (-20dB).
4. Confirm that 250Hz and 6.3kHz output levels are 55mV (-23dB) - 110mV (-17dB).
5. If necessary, change the pattern connection and repeat steps 3, 4.

pattern (A)	VTVM reading
open	up
short	down

Adjustment Location:

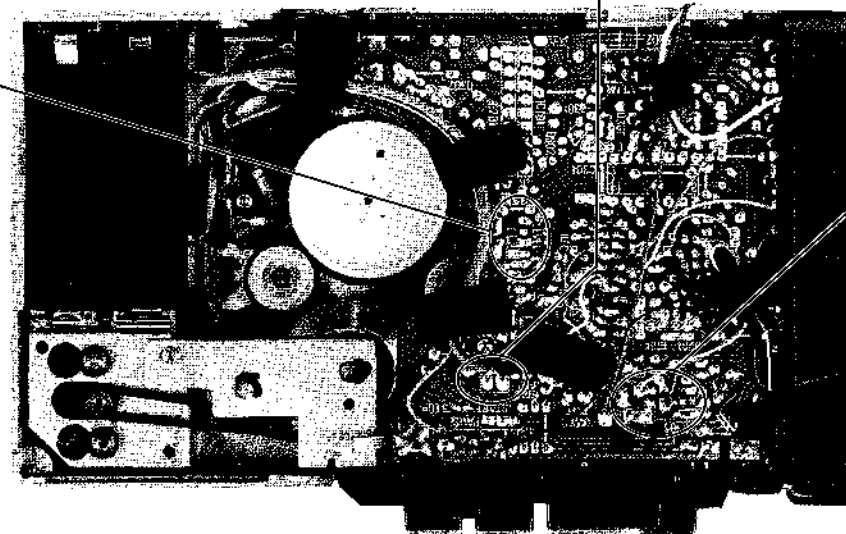
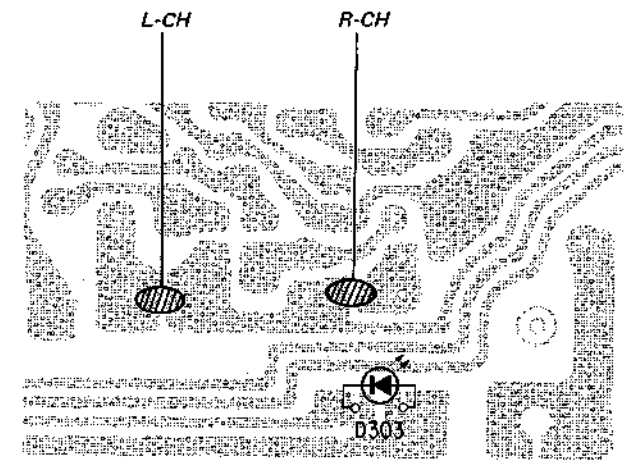


Microphone Sensitivity Adjustment

When replacing the built-in microphone, make sure of color marking on end of microphone lead or color-painted on microphone body and connect the pattern as shown in table.

microphone lead color marking	microphone body color-painted	pattern
blue	orange	open
black	green	short

Adjustment Location:



4-1. MOUNTING DIAGRAM
- Conductor Side -

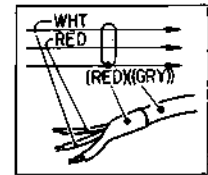
SECTION 4
DIAGRAMS

TCS-350 TCS-350

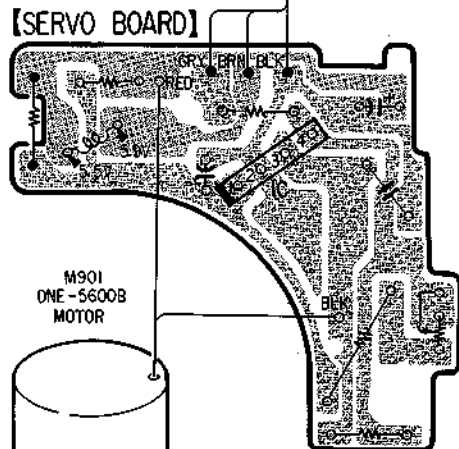
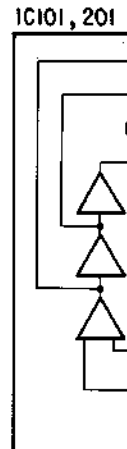
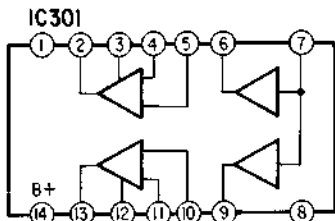
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note:

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



- : parts extracted from the component side.
- : parts extracted from the conductor side.
- ▨ : B + pattern
- : signal path
- : L-CH signal path
- : R-CH signal path

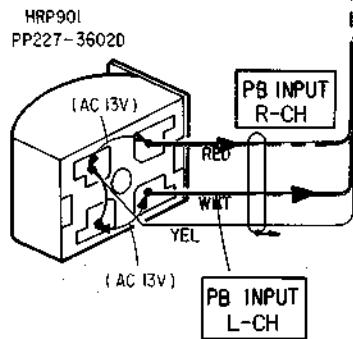
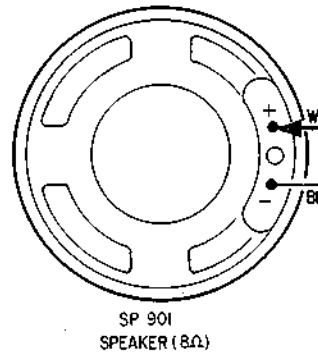


THE MOTOR AND SERVO BOARD ARE SUPPLIED TOGETHER.

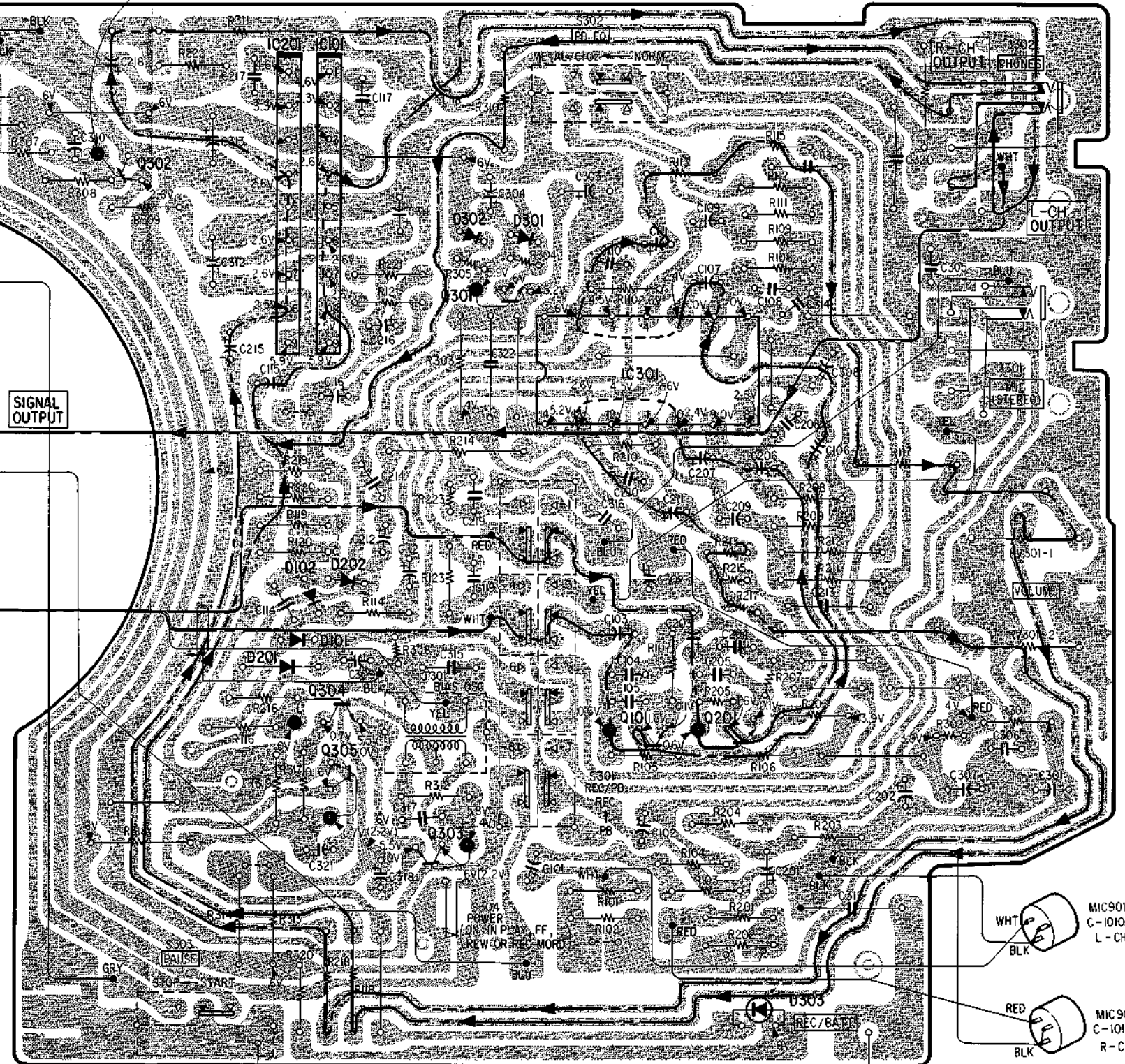
DRY BATTERY
SIZE "AA"
(IEC DESIGNATION R6)
4PCS, 6V

TOTAL CURRENT
PLAY : 95mA
REW : 97mA
FF : 100mA
REC : 113mA

[AUDIO BOARD]

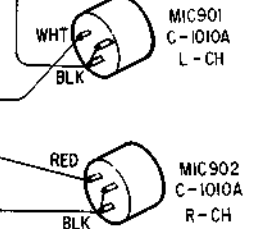


PAUSE SWITCH
STOP : 5.4V
START : 3.2V



SHASSIS GROUND BLK

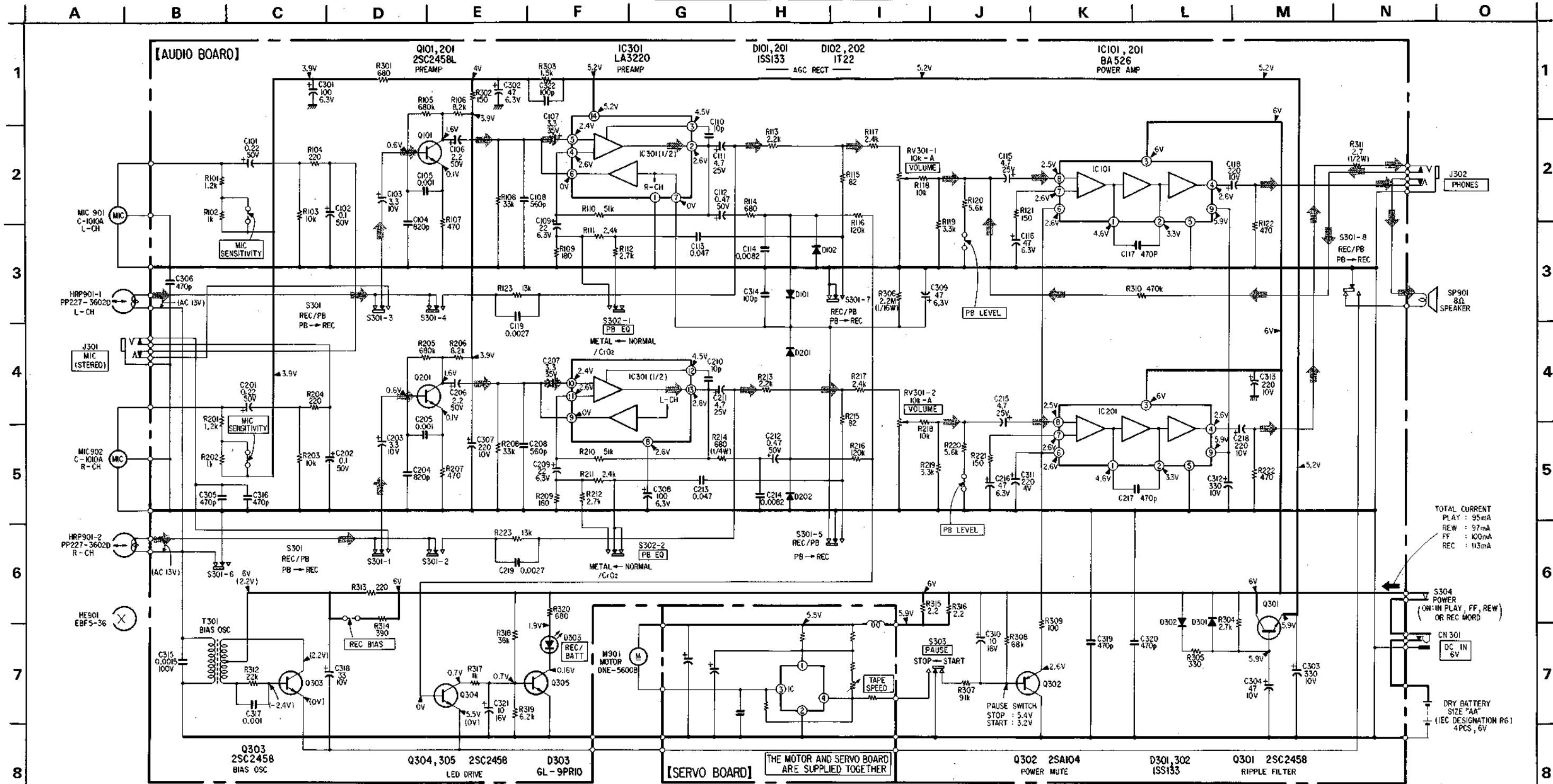
SHASSIS GROUND



Q IC	302	IC201, IC101	301	IC301	Q IC
D		304, 305	303	101 201	D
		102 202	302 301	303	
		201, 101			

TCS-350 TCS-350

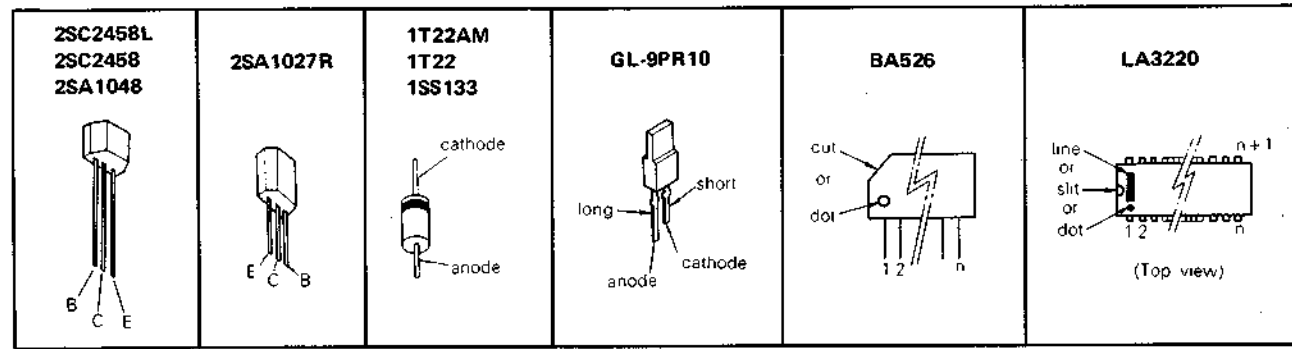
4-2. SCHEMATIC DIAGRAM



TOTAL CURRENT
 PLAY : 95mA
 REW : 97mA
 FF : 100mA
 REC : 113mA

DRY BATTERY
 SIZE "AA"
 (IEC DESIGNATION R6)
 4PCS, 6V

SEMICONDUCTOR LEAD LAYOUTS



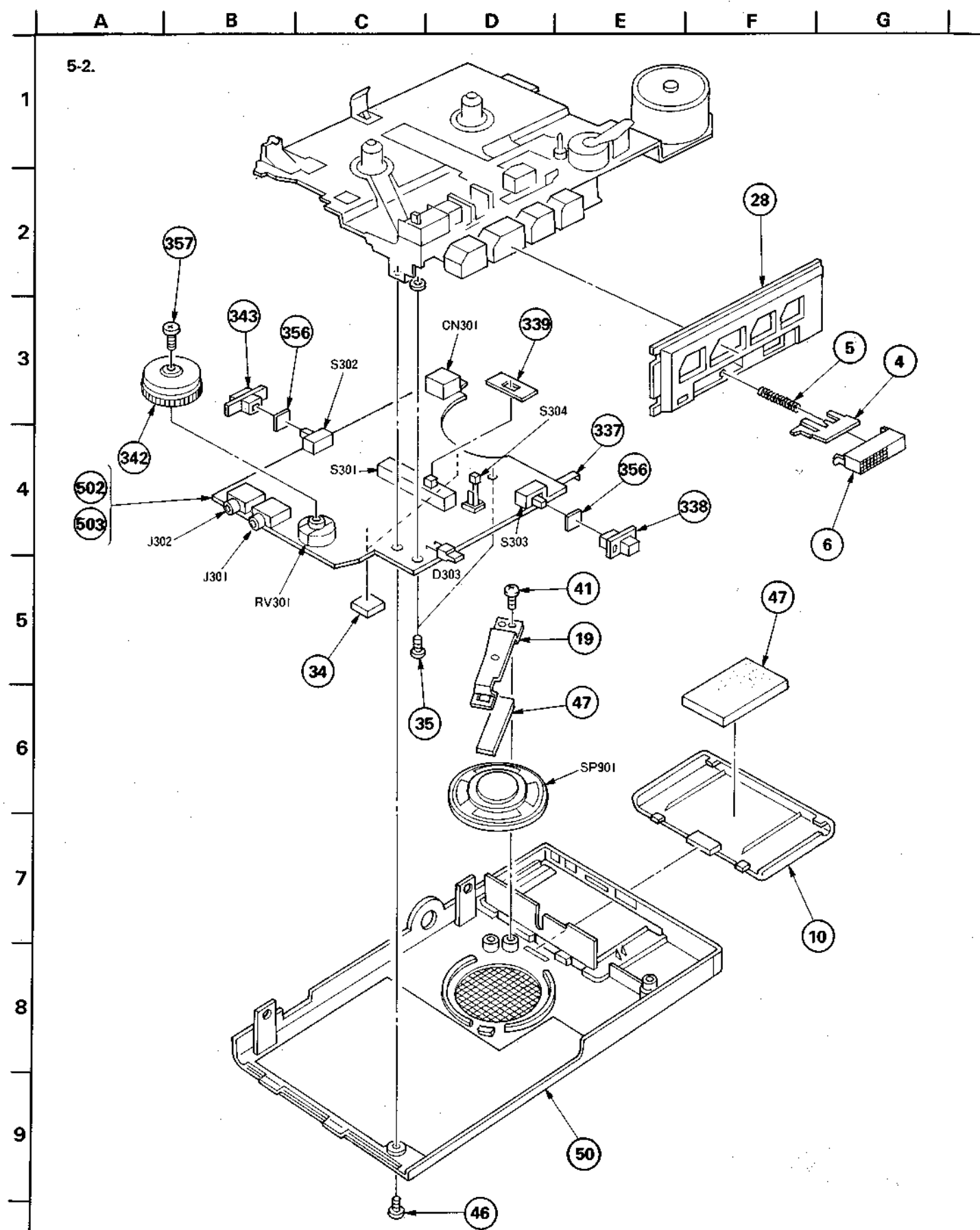
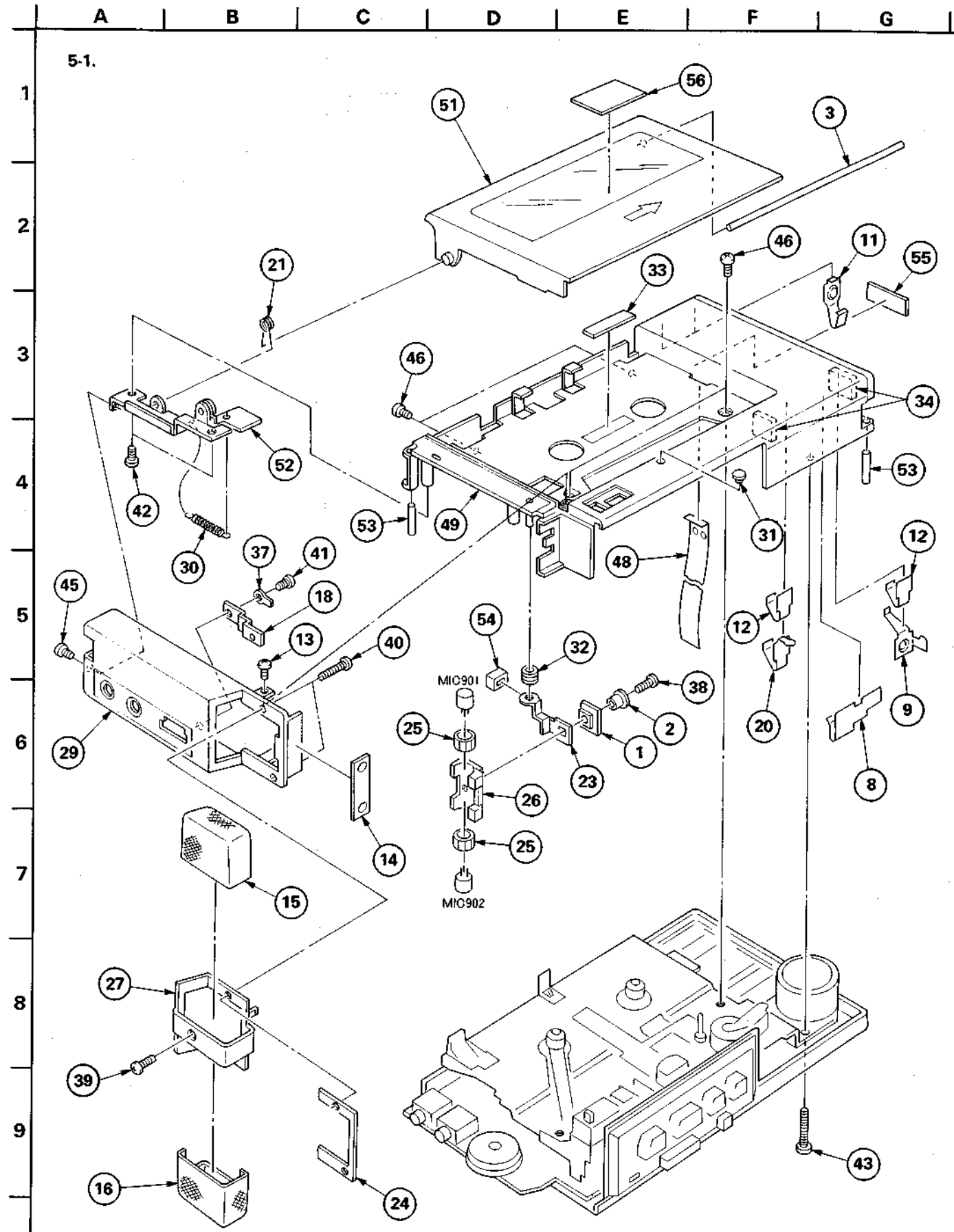
Note:

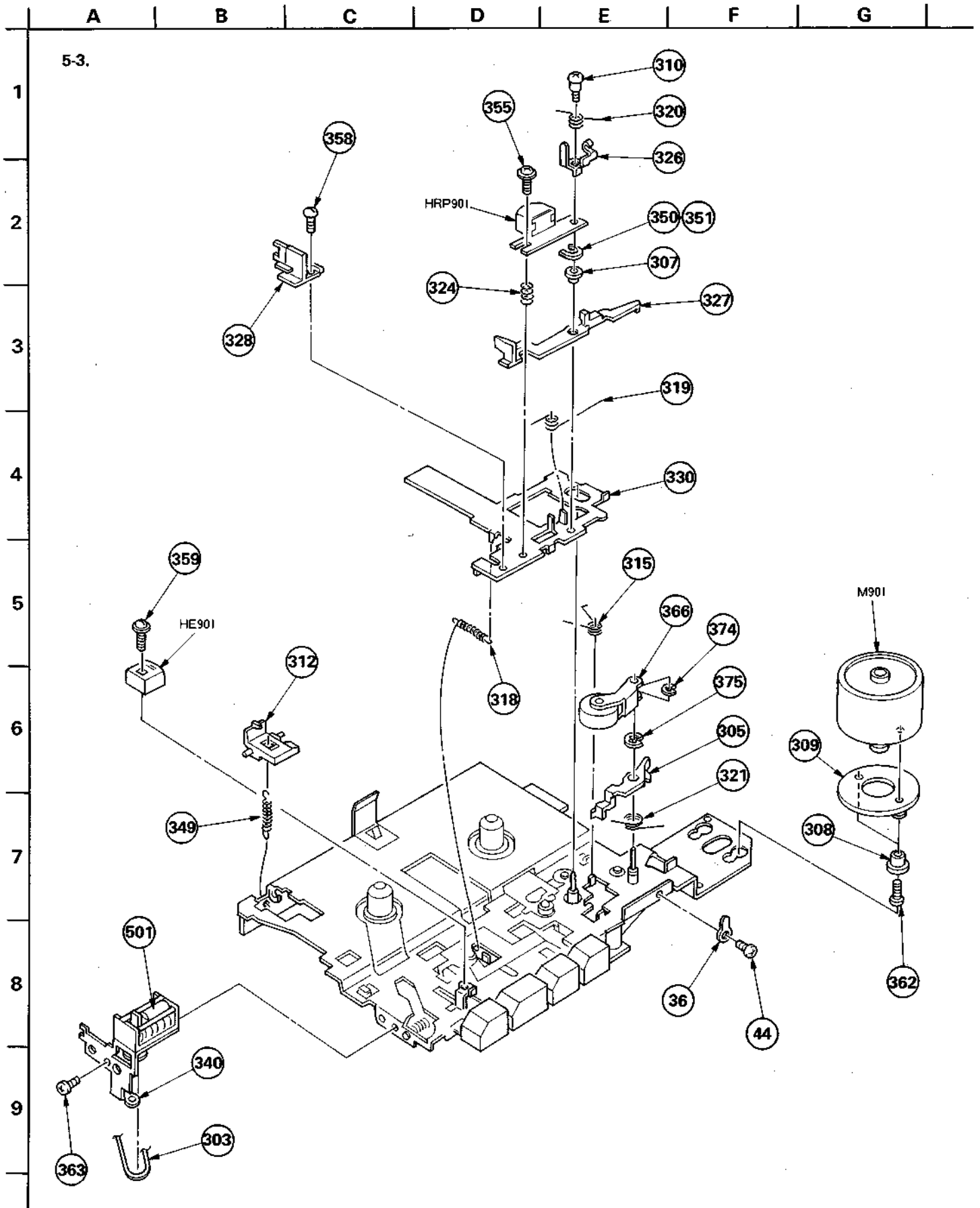
- All capacitors are in μF unless otherwise noted. $\text{pF} : \mu\text{pF}$ 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, $\frac{1}{2}\text{W}$ unless otherwise noted. $\text{k}\Omega : 1000\Omega$, $\text{M}\Omega : 1000\text{k}\Omega$
- : adjustment for repair.
- : B+ bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions.
- () : playback
- { } : record

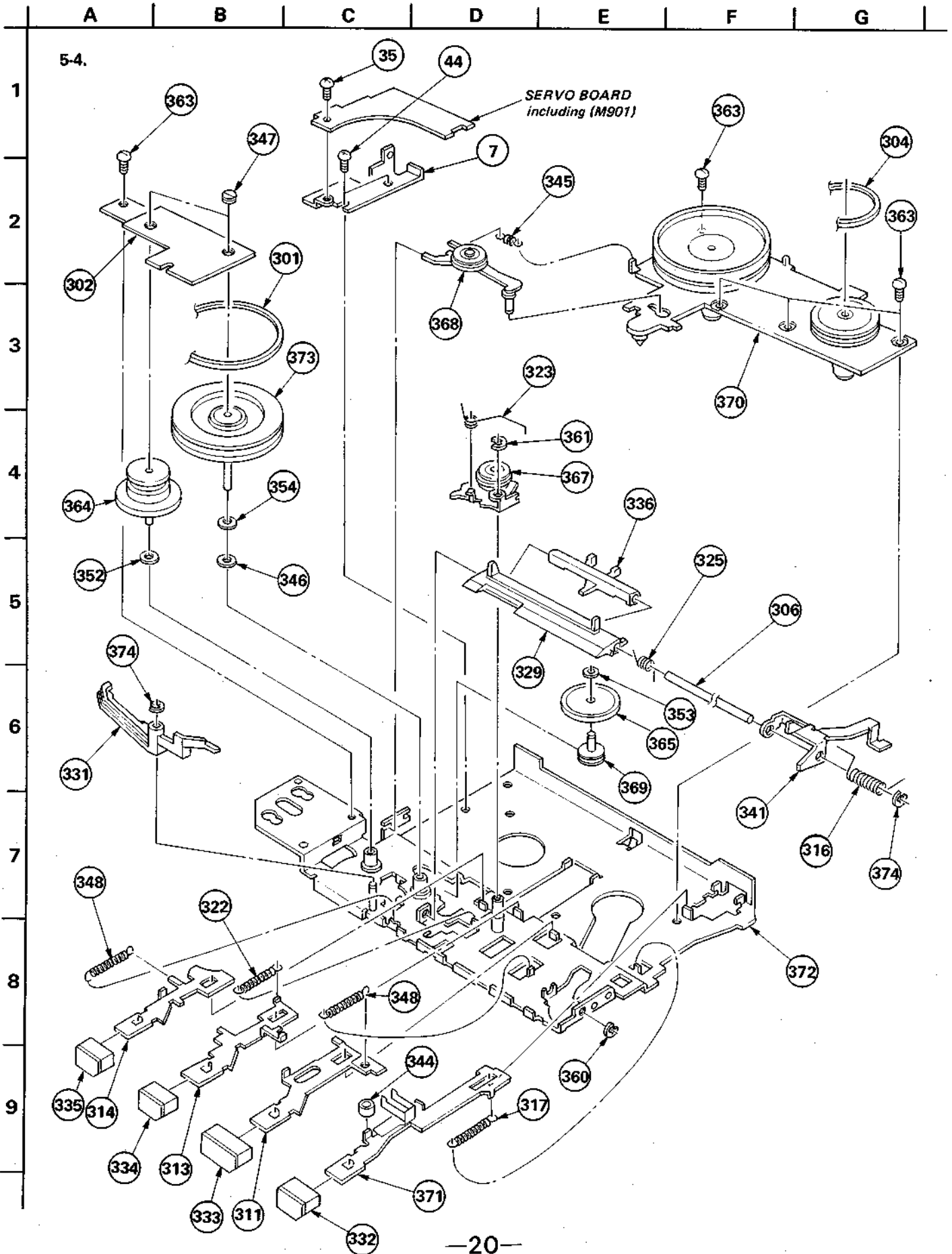
- Voltage variations may be noted due to normal production tolerances.
- AC voltage readings with a VTVM.
- Total current is measured with no cassette installed.
- : signal path

Note: Voltages are measured with a VOM (50k Ω /V).

SECTION 5
EXPLODED VIEWS AND PARTS LIST







GENERAL SECTION

No.	Part No.	Description
1	3-305-463-00	CUSHION, MICROPHONE CASE
2	3-305-474-00	SLEEVE, CUSHION
3	3-307-103-00	SHAFT, CASSETTE LID
4	3-307-105-00	LEVER, STOP BUTTON
5	3-307-108-00	SPRING, COMPRESSION
6	3-307-110-00	BUTTON, STOP
7	3-309-404-00	BRACKET, SERVO
8	3-309-406-02	TERMINAL BOARD (B), BATTERY
9	3-309-408-00	TERMINAL BOARD (D), BATTERY
10	3-309-417-31	LID, BATTERY CASE
11	3-309-442-00	TERMINAL BOARD, BATTERY (A)
12	3-309-443-00	SPRING, LEAF
13	3-309-597-71	SCREW (1.4X6), TAPPING
14	3-313-503-00	EMBLEM, STEREO
15	3-313-504-00	SCREEN (LEFT)
16	3-313-505-00	SCREEN (RIGHT)
17
18	3-313-507-00	BRACKET, GUARD, MICROPHONE
19	3-313-510-00	BRACKET, SPEAKER
20	3-313-511-00	TERMINAL (C), BATTERY
21	3-313-512-00	SPRING
22
23	3-313-516-00	BRACKET, MICROPHONE
24	3-313-517-00	BRACKET, SCREEN
25	3-312-741-00	CUSHION, MICROPHONE
26	3-313-519-00	BRACKET, MICROPHONE
27	3-313-520-00	GUARD, MICROPHONE
28	3-313-522-00	PANEL, CONTROL
29	3-313-523-00	PANEL, UPPER
30	3-491-375-00	SPRING, TENSION
31	3-545-657-21	BUSH
32	3-566-030-00	RUBBER, VIBRATION PROOF
33	3-578-101-00	PLATE, ORNAMENTAL
34	3-831-441-XX	CUSHION
35	7-621-255-25	SCREW +P 2X4
36	7-623-505-01	LUG, 2
37	7-623-507-01	LUG, 2.6
38	7-627-551-37	SCREW, PRECISION +P 1.4X5
39	7-627-553-48	SCREW, PRECISION +P 2X4
40	7-627-553-98	SCREW, PRECISION +P 2X8
41	7-685-132-21	SCREW +P 2.6X5 TYPE2 SLIT
42	7-685-133-11	SCREW +P 2.6X6 TYPE1
43	7-685-137-24	SCREW +P 2.6X14 TYPE2 SLIT
44	7-685-780-01	SCREW +PTT 2X3 (S)
45	7-685-791-09	SCREW +PTT 2.6X5 (S)

GENERAL SECTION

No.	Part No.	Description
46	7-685-792-04	SCREW +PTT 2.6X6 (S)
47	9-911-815-02	CUSHION
48	9-911-816-01	RIBBON, BATTERY
49	X-3313-503-1	CASE ASSY (A)
50	X-3313-504-1	CASE ASSY (B)
51	X-3313-501-0	LID ASSY, CASSETTE
52	X-3313-502-0	BRACKET ASSY, EJECT
53	3-703-357-05	STRAIGHT PIN
54	3-564-725-00	MOTOR CUSHION B
55	3-527-213-00	(E,AEP,UK,Canadian)...LABEL, SERIAL NUMBER
55	3-701-999-00	(US).....LABEL, SERIAL NUMBER
56	3-703-707-01	STICKER, SONY SYMBOL (21)

ACCESSORY & PACKING MATERIAL

Part No.	Description
3-313-526-00	CUSHION
3-313-527-00	SPACER
3-313-531-00	CASE, CARRYING
3-313-533-00	INDIVIDUAL CARTON
3-313-535-00	HEADPHONE CARTON
3-570-631-71	BAG, POLYETHYLENE
3-572-854-00	BELT, SHOULDER
3-773-372-11	(E,AEP,UK,UK,Canadian)..MANUAL, INSTRUCTION
3-773-372-41	(AEP).....MANUAL, INSTRUCTION
3-793-828-11	QUESTIONNAIRE
8-893-527-00	TAPE, DEMO (CD-814)
8-951-151-91	MDR-W3(B) SET

MECHANISM SECTION

No.	Part No.	Description
301	3-306-803-11	BELT (42.5X1)
302	3-306-806-00	RETAINER, FLY
303	3-306-815-00	BELT (36.5X0.6)
304	3-306-816-00	BELT (30.5X0.9)
305	3-306-823-00	LEVER, SHUT-OFF
306	3-306-826-00	SHAFT, LOCK PLATE
307	3-306-827-00	COLLAR, HEAD
308	3-306-828-00	COLLAR, MOTOR
309	3-306-829-00	CUSHION, MOTOR
310	3-306-830-00	SCREW, FITTING, HEAD
311	3-306-853-11	LEVER, FWD
312	3-306-854-00	LEVER, ERASING PROTECTION
313	3-306-855-13	LEVER, REM
314	3-306-856-11	LEVER, FF
315	3-306-858-00	SPRING
316	3-306-859-00	SPRING
317	3-306-860-00	SPRING, TENSION
318	3-306-861-00	SPRING, TENSION
319	3-306-862-00	SPRING
320	3-306-863-00	SPRING
321	3-306-864-00	SPRING
322	3-306-866-00	SPRING, TENSION
323	3-306-867-00	SPRING
324	3-306-872-00	SPRING, COMPRESSION
325	3-306-876-00	SPRING
326	3-306-877-11	GUIDE, WIRING
327	3-306-878-00	LEVER, DETECTION
328	3-306-879-00	GUIDE, TAPE
329	3-306-880-11	PLATE, LOCK
330	3-306-882-11	CHASSIS, HEAD
331	3-306-883-00	LEVER, RELEASE
332	3-306-885-00	BUTTON, REC
333	3-306-886-00	BUTTON, FWD
334	3-306-887-00	BUTTON, REM
335	3-306-888-00	BUTTON, FF
336	3-306-896-00	SLIDER, SE
337	3-307-707-00	SPRING
338	3-307-715-00	BUTTON, PAUSE
339	3-307-723-00	COVER, SWITCH
340	3-313-401-00	BRACKET, COUNTER
341	3-313-402-00	LEVER, EJECT
342	3-313-501-00	KNOB, CONTROL
343	3-313-502-00	KNOB, SELECTION, TAPE
344	3-527-028-00	RUBBER, BRAKE
345	3-531-794-00	SPRING, TENSION

MECHANISM SECTION

No.	Part No.	Description
346	3-545-715-00	WASHER
347	3-547-625-00	SCREW, THRUST ADJUST
348	3-564-949-00	SPRING, TENSION
349	3-570-951-00	SPRING, TENSION
350	3-578-138-01	SEAM
351	3-578-138-11	SEAM
352	3-578-223-11	WASHER
353	3-590-523-00	WASHER, STOPPER
354	3-701-437-11	WASHER
355	3-701-467-00	SCREW, LOCK
356	3-831-441-XX	PAD, KNOB
357	3-888-156-00	SCREW
358	7-621-905-25	SCREW, TOTSU P 2X3
359	7-621-955-55	SCREW, TOTSU PMH 2X8
360	7-624-101-04	STOP RING 1.2 (E TYPE)
361	7-624-105-04	STOP RING 2.3, TYPE -E
362	7-627-552-57	SCREW, PRECISION +P 1.7X5
363	7-687-431-31	SCREW, TOTSU PTT 2X3
364	X-3306-804-0	FLYWHEEL (B) ASSY
365	X-3306-807-0	IDLER ASSY, FWD
366	X-3306-813-0	PINCH ROLLER ASSY
367	X-3306-815-0	LEVER ASSY, REM IDLER
368	X-3306-816-0	LEVER ASSY, FF IDLER
369	X-3306-817-0	SHAFT ASSY, T IDLER
370	X-3306-820-0	BEARING ASSY, REEL
371	X-3306-826-0	LEVER ASSY, REC
372	X-3306-827-0	CHASSIS ASSY
373	X-3306-830-0	FLYWHEEL (A) ASSY
374	7-624-102-04	E 1.5
375	7-624-106-00	E 3.0

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "♦" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

- In each case, U : μ, for example: UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

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