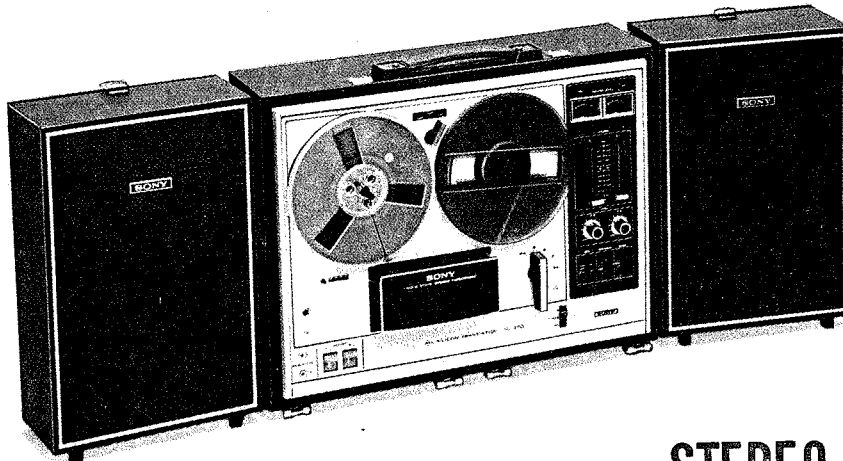




For more Hi-Fi manuals and set-up information
please visit www.hifiengine.com

TC-270

AEP Model



STEREO TAPECORDER

SPECIFICATIONS

Power Requirements: AC 50/60 Hz, 110V, 127V, 220V,
240V 55W

Track System: Four-track stereo and mono

Reel Size: 7" (18 cm) maximum

Tape Speed: $7\frac{1}{2}$ ips, $3\frac{3}{4}$ ips and $1\frac{7}{8}$ ips
(19 cm/s, 9.5 cm/s and 4.8 cm/s)

Frequency Response:

	NAB	DIN
30~18,000 Hz,		30~16,000 Hz
at $7\frac{1}{2}$ ips (19 cm/s)		
30~13,000 Hz,		40~12,500 Hz
at $3\frac{3}{4}$ ips (9.5 cm/s)		
30~7,000 Hz		
at $1\frac{7}{8}$ ips (4.8 cm/s)		

Signal-to-Noise Ratio: 50 dB or more

Wow and Flutter:

	NAB	DIN
0.12%,		0.18%
at $7\frac{1}{2}$ ips (19 cm/s)		
0.15%,		0.25%
at $3\frac{3}{4}$ ips (9.5 cm/s)		
0.2%		
at $1\frac{7}{8}$ ips (4.8 cm/s)		

Frequency: Approx. 85 kHz

Power Output: 5W maximum per channel

Inputs: MIC
Input impedance: low impedance
Maximum sensitivity: 0.19 mV (-72 dB)
REC/PB connector
Input impedance: 3.9 k ohms
Input level: 17.4 mV (-33 dB)

Outputs: LINE OUTputs
Load impedance: more than 10 k ohms
Output level: -5 dB (0.43V)
SPEAKER outputs
Load impedance: 8 Ω
REC/PB connector
Output impedance: 80 ohms
Output level: 0 dB (0.775V)
Headphone output
Load impedance: 8 Ω

Semiconductors: 18 transistors and 4 diodes

Dimensions: $20\frac{13}{16}$ (W) x $10\frac{3}{16}$ (H) x $15\frac{1}{4}$ (D)
(513 x 260 x 387 mm)

Weight: 36 lb 6 oz (16.5 kg)

SONY®

SERVICE MANUAL

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*When ordering replacement parts, you should use **PART NUMBER** listed on the Parts Lists or shown in the **EXPLODED VIEW**. The reference number should not be used for ordering purposes.*

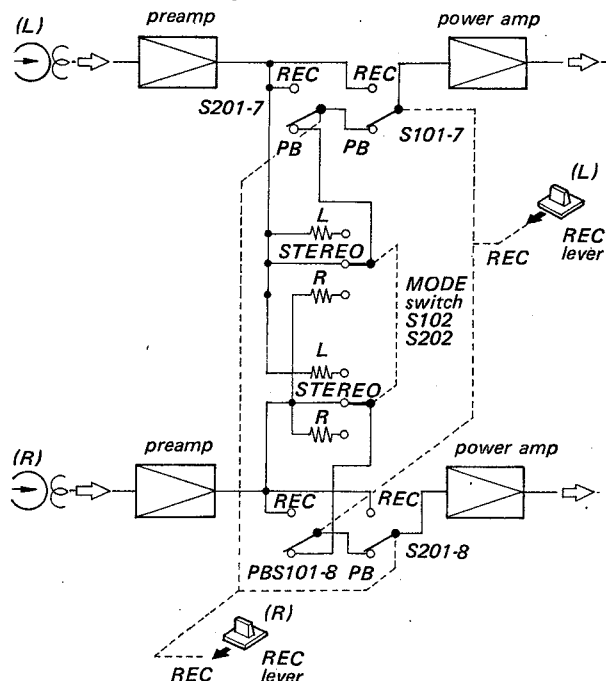
SECTION 1 OUTLINE

1-1. GENERAL DESCRIPTION

The SONY model TC-270 is a 4-track 2-channel stereo-phonics and monaural tape recorder. The special circuit is equipped as follows:

* S102, S202 (Playback Mode Switch)

(Mode switch is disconnected in recording mode.)

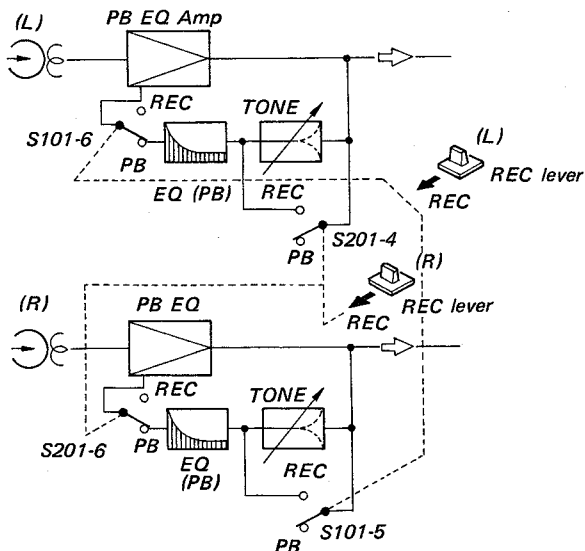


In the monaural playback mode, power amplifiers of both channels are connected in parallel to increase output power.

* S201-4, S101-5 (TONE Defeat Switch)

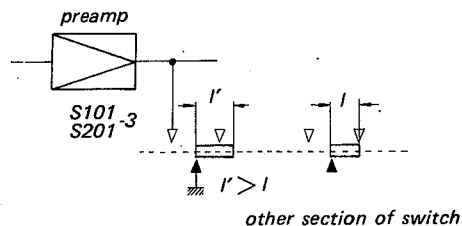
TONE controls are worked when both channels are in playback mode and disconnected when one channel is in record mode.

When one channel is in record mode, the other playback channel picks up a leakage of recording bias and recording signals. To prevent such a high frequency leakage from boosting, S201-4 or S101-5 short-circuits TONE control.

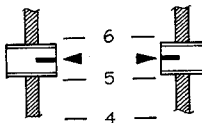


*** S101-3, S201-3**

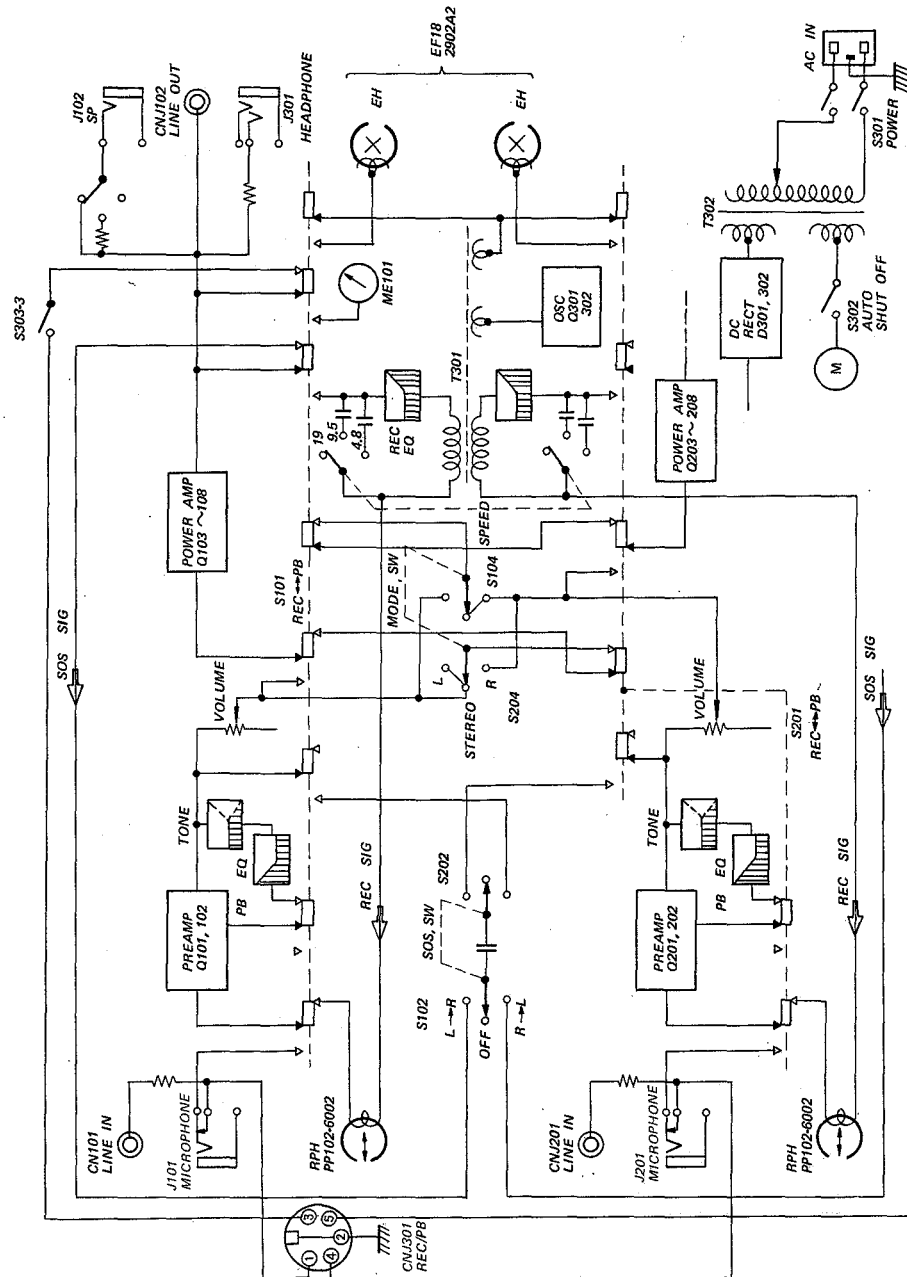
S101-3 or S201-3, one section of record/playback switch, grounds preamplifier output until the other section is completely changed over to avoid switching click noise.



Note:

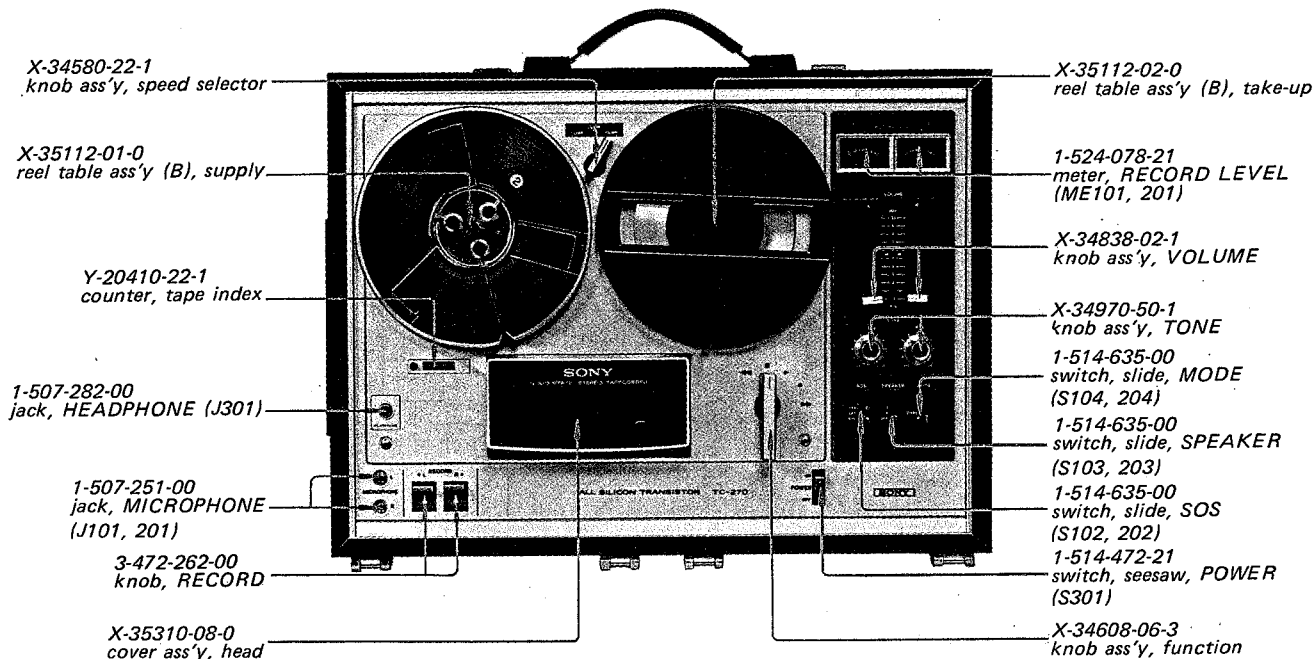
	Electrical Mid Position	Remarks
TONE control	 TONE control ▼ on the panel	flat frequency response
VOLUME control	 VOLUME control ▼ on the panel	-5 dB (0.44V) at LINE OUT jack

1-2. BLOCK DIAGRAM

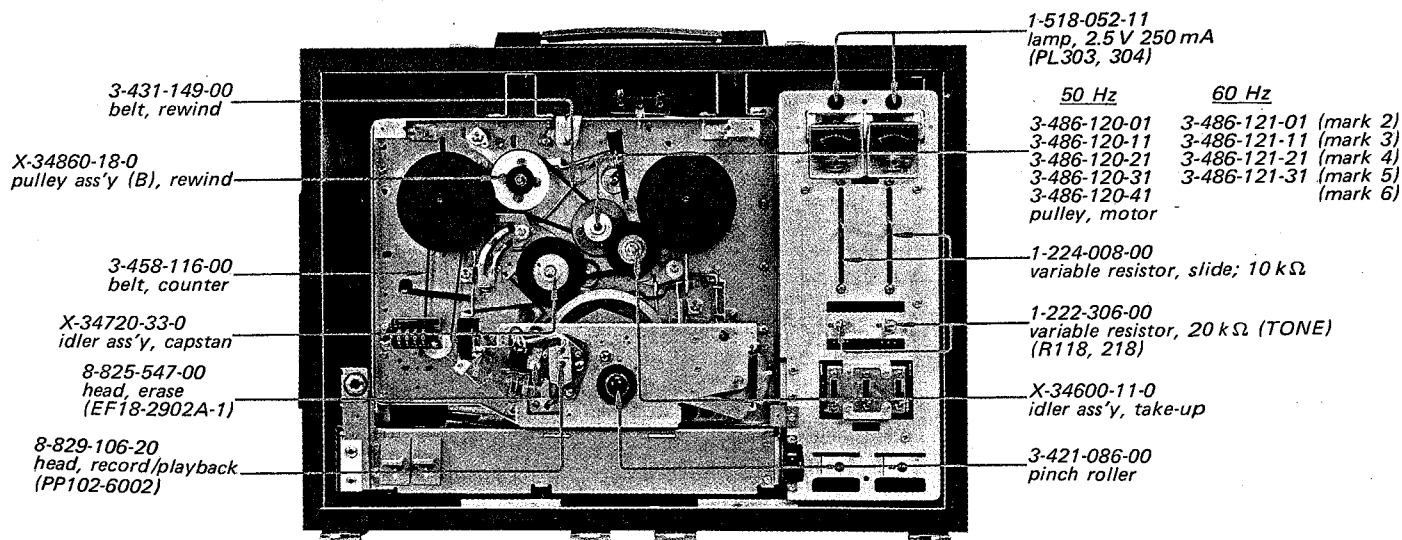


1-3. MAJOR PARTS LOCATION

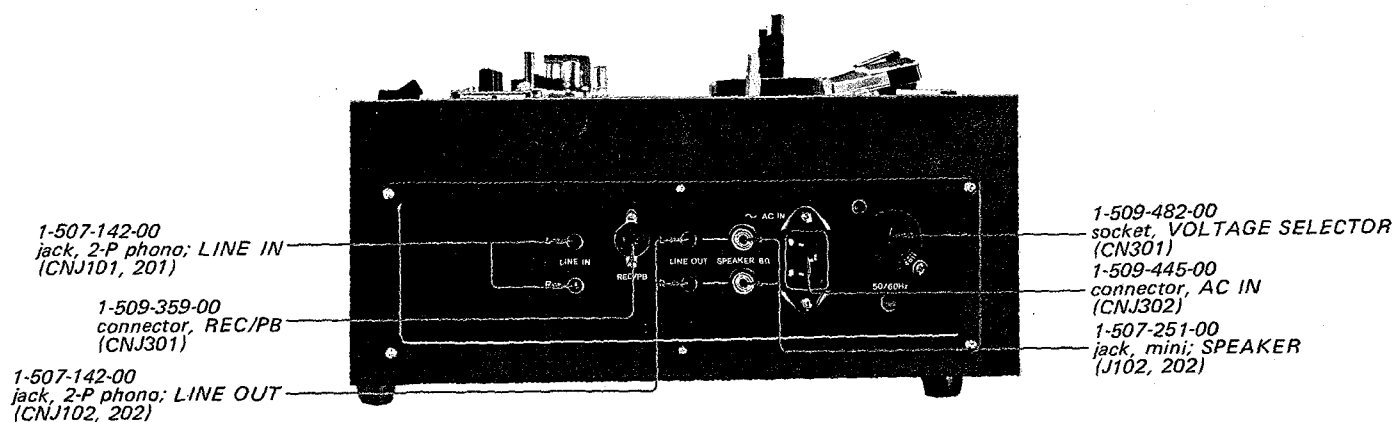
Front Panel



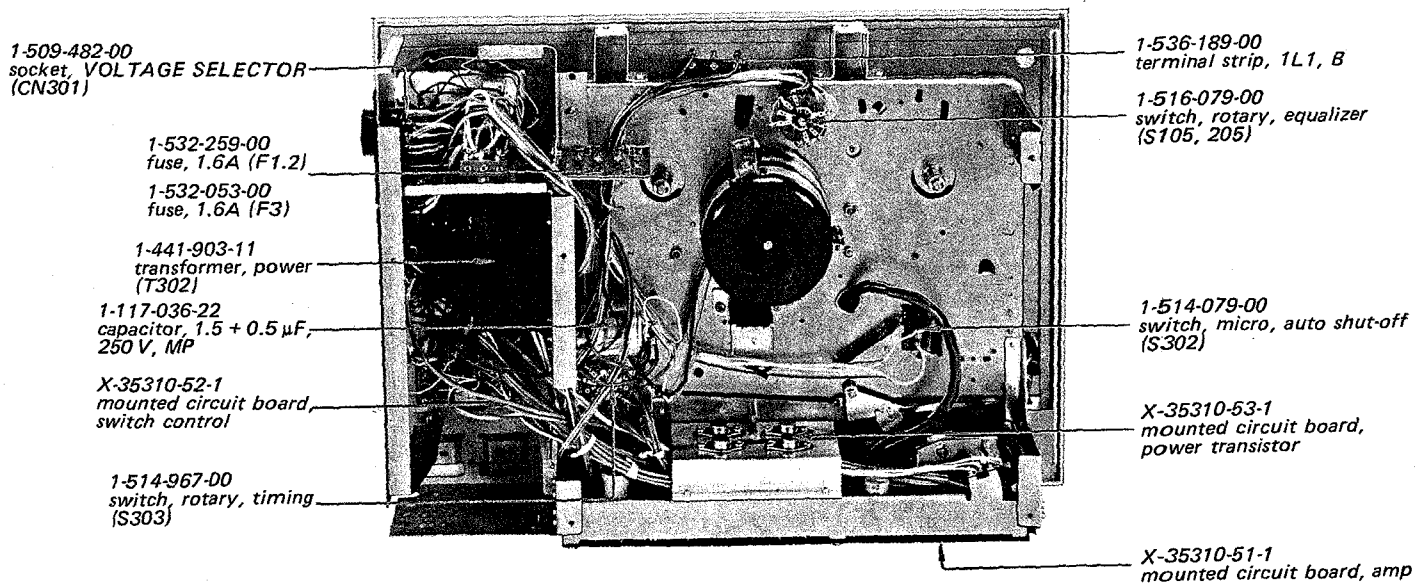
Chassis Front



Side Panel

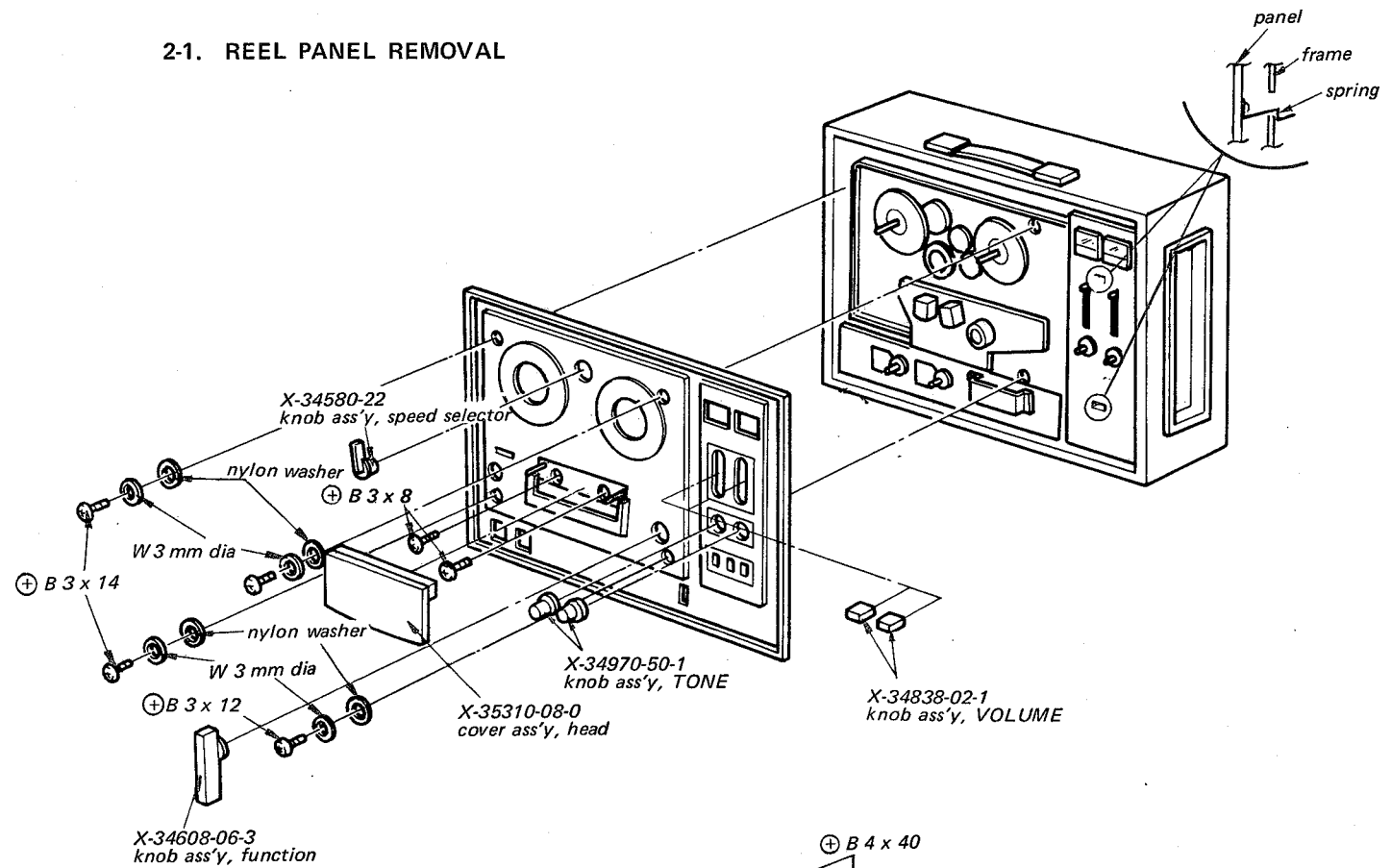


Chassis Bottom

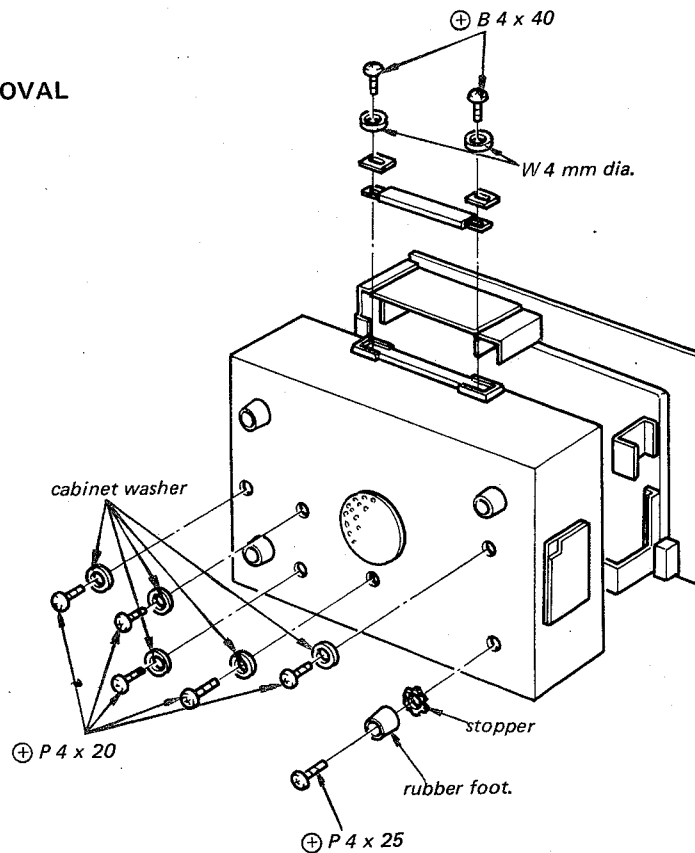


SECTION 2 DISASSEMBLY

2-1. REEL PANEL REMOVAL



2-2. CABINET REMOVAL



SECTION 3 ADJUSTMENT PROCEDURES

3-1. MECHANICAL ADJUSTMENTS

Brake (Supply) Adjustment — in FF mode —

supply reel table
 $\frac{1}{32}$ " (0.8 mm)
Adjust by bending this portion.

Speed Selector Knob Positioning

- Speed selector knob should point $3\frac{3}{4}$ " (9.5 cm) position.
- Idler arm boss should be on the flat of speed selector cam (●).
- Fasten the screw (★) of the speed selector knob.

$3\frac{3}{4}$ " (9.5 cm)
speed selector knob
capstan idler arm ass'y
flat
speed selector cam
idler arm boss

Tape Touch Adjustment

supply or take-up reel table
screw driver
When the tape touches the reel edge in FF, REW and FWD modes, bend this portion.

Rewind Idler Adjustment in STOP mode

supply reel table
rewind idler
Adjust by bending this portion.
 $\frac{1}{32}$ " (0.8 mm)

Actuator Adjustment

S302 auto shut-off switch
adjusting screw
S302 ON
S302 OFF
3 mm
2 mm
tape guide

Loosen the screw and adjust auto shut-off switch position.
When actuator comes to the portion (A), auto shut-off switch should be turned ON.
When actuator comes to the portion (B), auto shut-off switch should be turned OFF.

Brake (Take-up) Adjustment in STOP mode

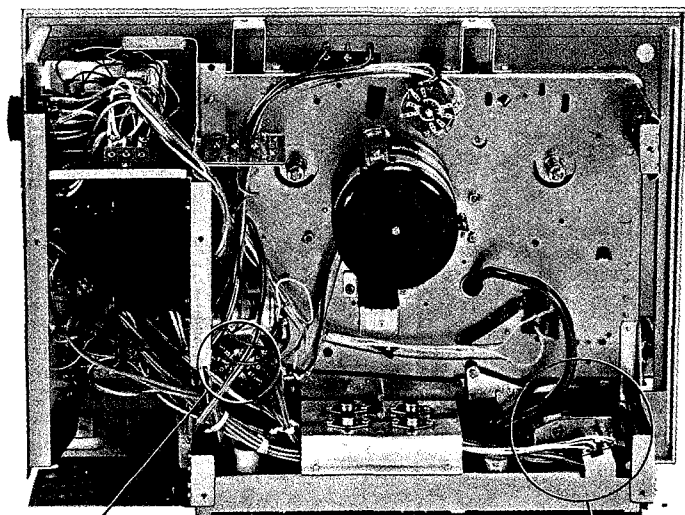
take-up reel table
 $\frac{1}{32}$ " (0.8 mm)
Adjust by bending this portion.

Capstan Idler Position Adjustment in STOP mode

- Clearance Adjustment
more than $\frac{3}{64}$ " (1 mm)
motor pulley
capstan idler
Adjust by contracting or expanding this portion.
- Height Adjustment
Adjust the portion (A) shown in the figure in the item 1 by bending so that the height of capstan idler at $7\frac{1}{2}$ ips (19 cm/s) and $1\frac{7}{8}$ ips (4.8 cm/s) are as shown.
position at $1\frac{7}{8}$ ips (4.8 cm/s)
capstan idler
to be flush
motor pulley
position at $7\frac{1}{2}$ ips (19 cm/s)
 $\frac{23}{32}$ " (18.3 mm)
fra 9

Take-up Idler Position Adjustment — in FF and STOP modes —

- Height Adjustment
— in FF mode —
Adjust the position of the take-up idler by bending the crank supporter so that the motor pulley and the take-up idler are the same height as shown.
motor pulley
take-up idler
crank supporter
crank rod
to be flat
- Position Check
— in STOP mode —
Make sure that the clearance between the motor pulley and the take-up idler is greater than $\frac{5}{64}$ " (2 mm).
If necessary, adjust by rod as shown.
take-up reel table
take-up idler
greater than $\frac{5}{64}$ " (2 mm)
rod



Timing Rotary Switch Adjustment (S303)

(FWD)

(PAUSE)

Adjust ★ portion by screw so that the switch should be ON in FWD and PAUSE modes.

Record Lamp Leaf Switch Adjustment

S106, 206

When REC lever is depressed, S106, 206 should be ON.

Torque Measurement

- Take-up torque: 300 ± 25 g·cm (4.2 ± 0.3 oz·inch)
- Fast forward torque: 1,200 ± 100 g·cm (16.8 ± 1.4 oz·inch)
- Rewind torque: 1,400 ± 100 g·cm (19.6 ± 1.4 oz·inch)

Back Tension (supply reel table) Measurement

- In forward mode: 80~120 g·cm (1.1~1.7 oz·inch)

Pinch Roller Pressure Measurement

- 1,200 ~ 1,500 g (2.6 ~ 3.3 lb)

3-2. ELECTRICAL ADJUSTMENTS/ MEASUREMENTS

Precautions:

- Clean the following parts with alcohol moistened swab:
 - record/playback head
 - erase head
 - capstan
 - pinch roller
 - rubber belts
 - idlers
 - tape guides
- Demagnetize record/playback head with a head demagnetizer.
- Do not use a magnetized screwdriver for adjustments.
- Perform the following adjustments in numerical order.
- Perform the following adjustments for each channel, unless otherwise noted.
- After adjustment, fix adjusted parts with locking compound.

Test Equipment Required:

- audio oscillator (af osc)
- attenuator 600 Ω (att)
- VTVM
- digital frequency counter

- wow meter
- 1-kHz bandpass filter
- resistors;
 - 10W type 8Ω
 - ¼W type 300Ω, 600Ω
 - 10kΩ, 100kΩ
- blank tape (erased by bulk eraser)
- SONY alignment tapes:

J-19-F1

	1	2	3	4	5	6	7
Frequency (Hz)	10k	400	400	10k	7k	80	40
Level (dB)	-10	0	-10	-10	-10	-10	-10

- SPC-47 (4 kHz, 0 dB)
- WS-19-7 (3 kHz, 0 dB)
- WS-9-7 (3 kHz, 0 dB)

Normal Operating Level

	Signal Level	Impedance
MICROPHONE	-60 dB (0.77 mV)	600 Ω
LINE IN	-10 dB (0.25 V)	10 kΩ
LINE OUT	-5 dB (0.44 V)	100 kΩ load
SPEAKER (REC MODE)	+3 dB (1.1 V)	8 Ω load
(playback MODE)	+9 dB (2.2 V)	

Tape Speed Adjustment

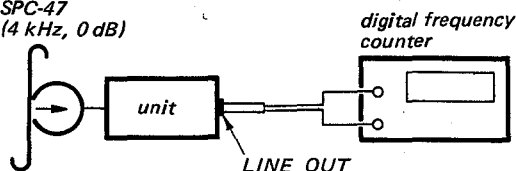
Control/Switch Setting:

SOS switch: OFF
 tape speed selector: 7½ ips 19 cm/s
 SPEAKER switch: OFF
 MODE switch: STEREO
 TONE control: ▼ position
 VOLUME control: mechanical mid.

Procedure:

Mode: playback

SPC-47
 (4 kHz, 0 dB)

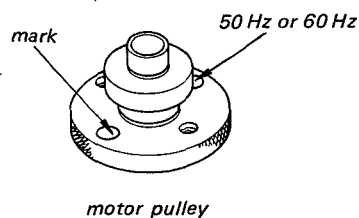


Specification:

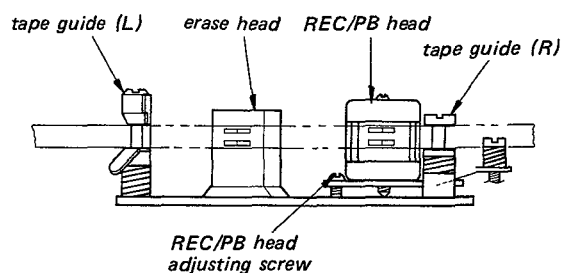
counter reading: 3,920 ~ 4,080 Hz

Note: If the counter reading is out of the specified range, replace motor pulley.

Motor Pulley			
Mark	Diameter	50 Hz Part No.	60 Hz Part No.
2	bigger	3-486-120-01	3-486-121-01
3	↕	3-486-120-11	3-486-121-11
4		3-486-120-21	3-486-121-21
5	smaller	3-486-120-31	3-486-121-31

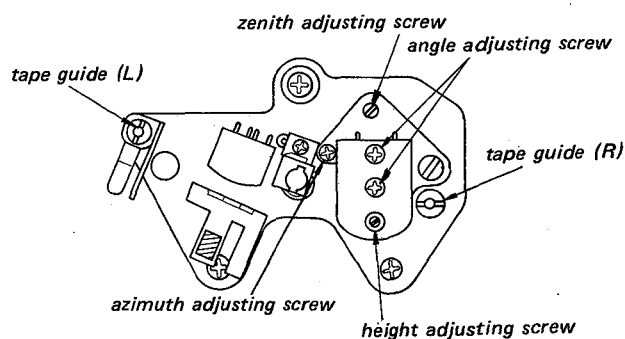


Tape Path Adjustment

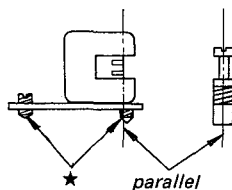


Procedure:

1. Thread a tape and place the unit in playback mode.
2. Align the upper edge of the erase head core and record/playback head core for that of the tape by turning the tape guides (R, L).
3. Turn the tape guides (R, L) clockwise by approximately 35 degrees.



Record/Playback Head Height Adjustment



Procedure:

1. Parallel the face of the head and tape guide by adjusting the screws (marked ★).
2. Align the upper edge of the record/playback head core and that of the tape by evenly turning the screws (marked ★).
3. Turn the screws (marked ★) counterclockwise by 20 degrees.

Record/Playback Head Angle Adjustment

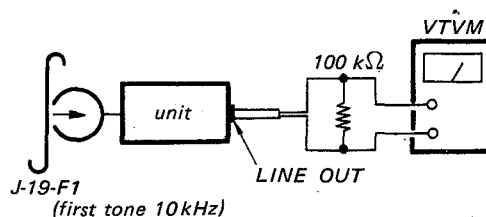
Control/Switch Setting:

tape speed selector: 7½ ips 19 cm/s

Procedure:

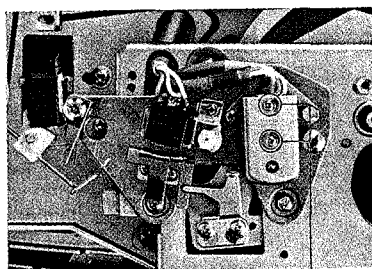
1.

Mode: playback



2. Adjust the angle adjusting screws for maximum VTVM reading.

Adjustment Location:



angle adjusting screw

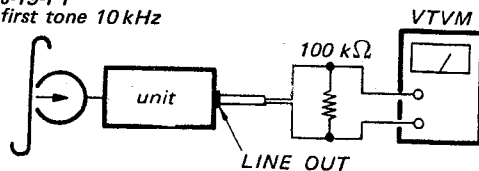
Playback Head Azimuth Adjustment**Control/Switch Setting:**

SOS switch: OFF
 tape speed selector: 7½ ips 19 cm/s
 SPEAKER switch: OFF
 MODE switch: STEREO
 TONE control: ▼ position
 VOLUME control: mechanical mid.

Procedure:

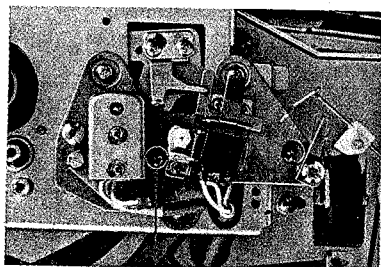
1.

Mode: playback

J-19-F1
first tone 10 kHz

2. Adjust the azimuth adjusting screw for maximum VTVM reading.

Note: If the azimuth angles of L-CH and R-CH are not the same, set the screw midway between two screw positions.

Adjustment Location:

azimuth adjusting screw

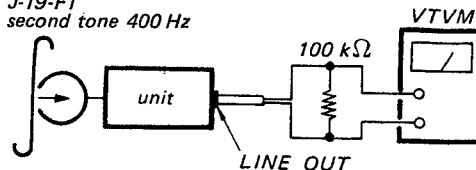
Playback Signal-to-Noise Ratio Measurement**Control/Switch Setting:**

SOS switch: OFF
 tape speed selector: 7½ ips 19 cm/s
 3¾ ips 9.5 cm/s
 SPEAKER switch: OFF
 MODE switch: STEREO
 TONE control: ▼ position

Procedure:

1.

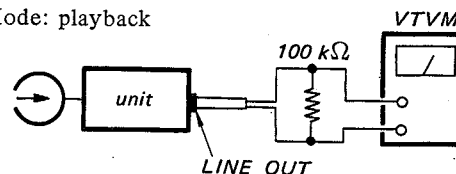
Mode: playback

J-19-F1
second tone 400 Hz

2. Adjust VOLUME control for -5 dB (0.44V) VTVM reading.

3. With no tape threaded

Mode: playback



$$4. \quad -5 \text{ dB} - \begin{matrix} \text{VTVM reading (dB)} \\ \text{in step 3} \end{matrix} = \begin{matrix} \text{S/N Ratio} \end{matrix}$$

5. Specification

tape speed	S/N ratio
19 cm/s	46 dB or greater
9.5 cm/s	44 dB or greater

Bias Adjustment

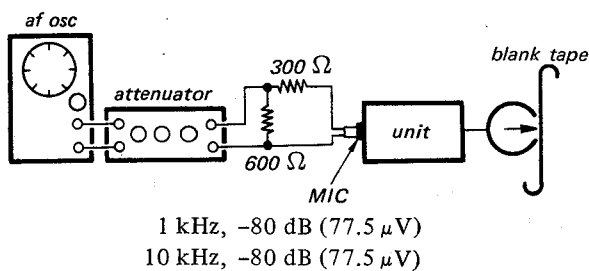
Control/Switch Setting:

tape speed switch: 7½ ips 19 cm/s
TONE control: ▼ position
VOLUME control: Position to obtain -5 dB (0.44V) LINE OUTput for 1 kHz, -60 dB (0.78 mV) MIC input in record mode.

Procedure:

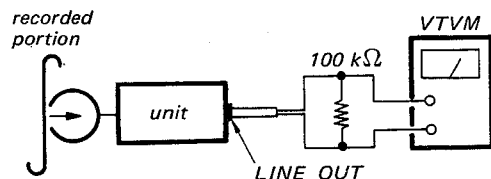
1.

Mode: record



2.

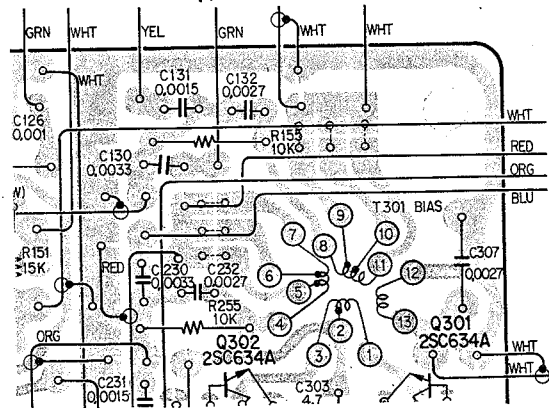
Mode: playback



Output level difference should be within 3 dB.

3. If the difference is more than 3 dB, change the tap of T301, (5) ~ (7), (9) ~ (11) as shown in the following figure.

Amp. Circuit Board



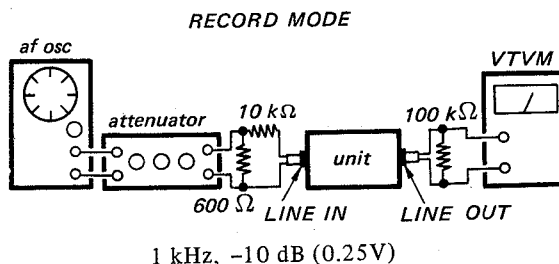
Level Meter Calibration

Control/Switch Setting:

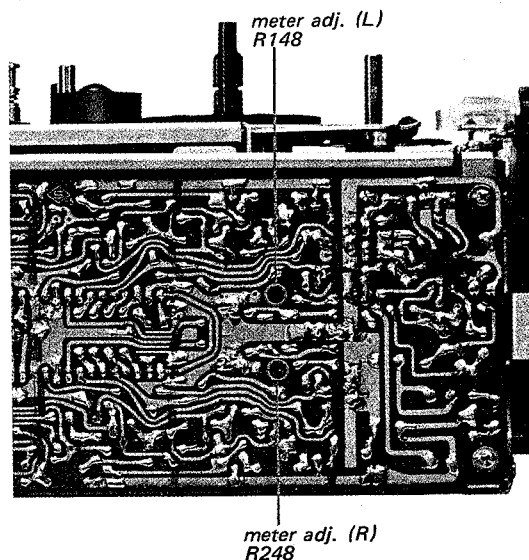
SOS switch: OFF
tape speed selector: 7½ ips 19 cm/s
SPEAKER switch: OFF
MODE switch: STEREO
TONE control: ▼ position

Procedure:

1.



- Adjust VOLUME control for -5 dB (0.44V) VTVM reading.
- Adjust R148 (L), R248 (R) for 0 reading on the RECORD LEVEL meter.



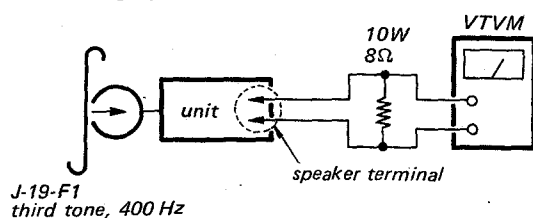
Maximum Output Measurement

Control/Switch Setting:

SOS switch: OFF
 tape speed selector: 7½ ips 19 cm/s
 SPEAKER switch: 2 position
 MODE switch: STEREO
 TONE control: ▼ position
 VOLUME control: 10 max.

Procedure:

1. Mode: playback



Specification:

more than +18.5 dB (6.25V)

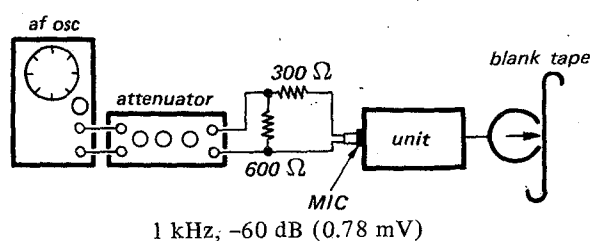
Overall Signal-to-Noise Ratio Measurement

Control/Switch Setting:

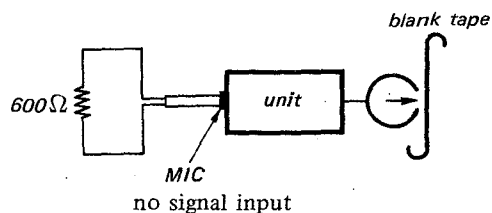
tape speed switch: 7½ ips 19 cm/s
 TONE control: ▼ position
 VOLUME control: Position to obtain -5 dB (0.44V) LINE OUTPUT for 1 kHz, -60 dB (0.78 mV) MIC input in record mode.

Procedure:

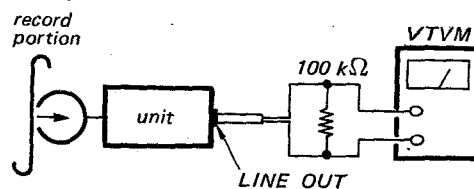
1. Mode: record



2. Mode: record



3. Mode: playback



Recorded Signal	VTVM Reading
1 kHz	Adjust VOLUME control for -5 dB (0.44V)
no signal	-48 dB (3.08 mV) or less

Erase Ratio Measurement

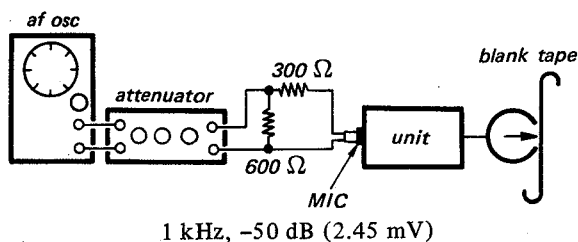
Control/Switch Setting:

tape speed switch: 7½ ips 19 cm/s
 TONE control: ▼ position
 VOLUME control: Position to obtain -5 dB (0.44V) LINE OUTput for 1 kHz, -60 dB (0.78 mV) MIC input in record mode.

Procedure:

1.

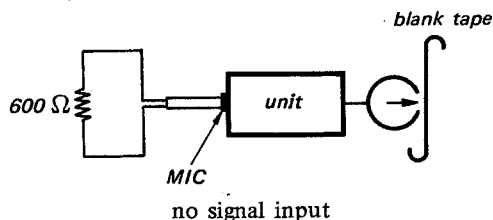
Mode: record



2. Rewind half of the recorded part.

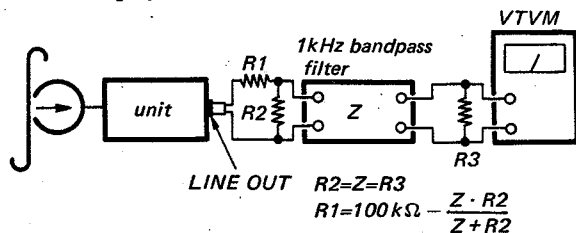
3.

Mode: record



4.

Mode: playback



Recorded Signal	VTVM Reading
1 kHz	Adjust VOLUME control for -5 dB (0.44V)
no signal	-70 dB (0.25 mV) or less

TONE Control Range Check

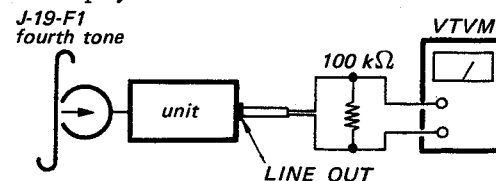
Control/Switch Setting:

SOS switch: OFF
 tape speed selector: 7½ ips 19 cm/s
 SPEAKER switch: OFF
 MODE switch: STEREO
 TONE control: ▼ position
 VOLUME control: mechanical mid.

Procedure:

1.

Mode: playback



2.

TONE Control Setting	Output Level Difference
▼ position	0 dB
HIGH max.	approx. +10 dB
LOW max.	approx. -10 dB

Wow and Flutter Measurement**Control/Switch Setting:**

VOLUME control: 5 position

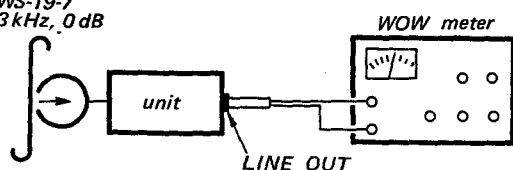
TONE control: mechanical mid position

Procedure:

Note: Measure wow and flutter for beginning, midway and end portion of tapes in both vertical and horizontal set positions.

1. at $7\frac{1}{2}$ ips (19 cm/s)

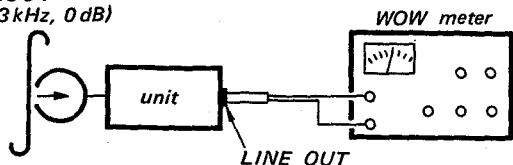
Mode: playback

WS-19-7
3 kHz, 0 dB

Specification: 0.19% RMS or less

2. at $3\frac{3}{4}$ ips (9.5 cm/s)

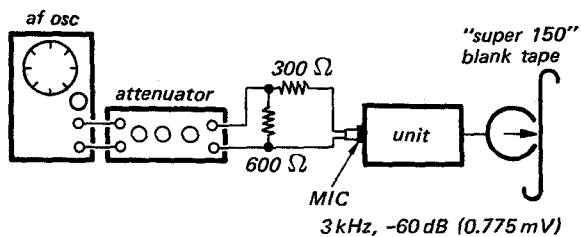
Mode: playback

WS-9-7
(3 kHz, 0 dB)

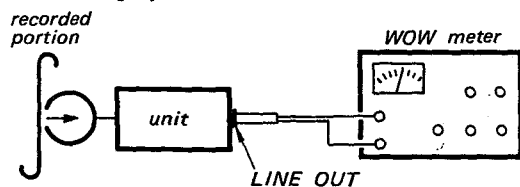
Specification: 0.24% RMS or less

3. at $1\frac{7}{8}$ ips (4.8 cm/s)

Mode: record



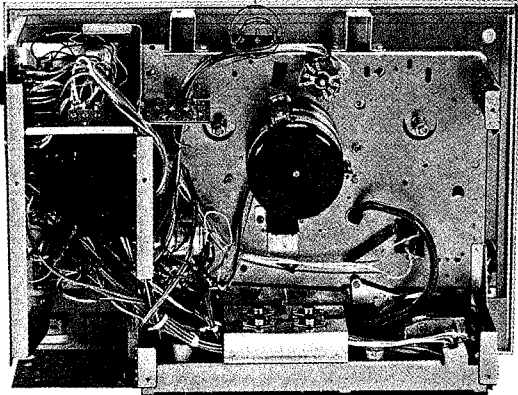
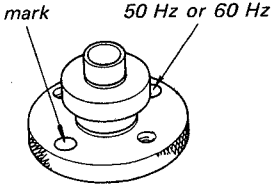
Mode: playback



Specification: 0.4% RMS or less

POWER FREQUENCY ADAPTATION

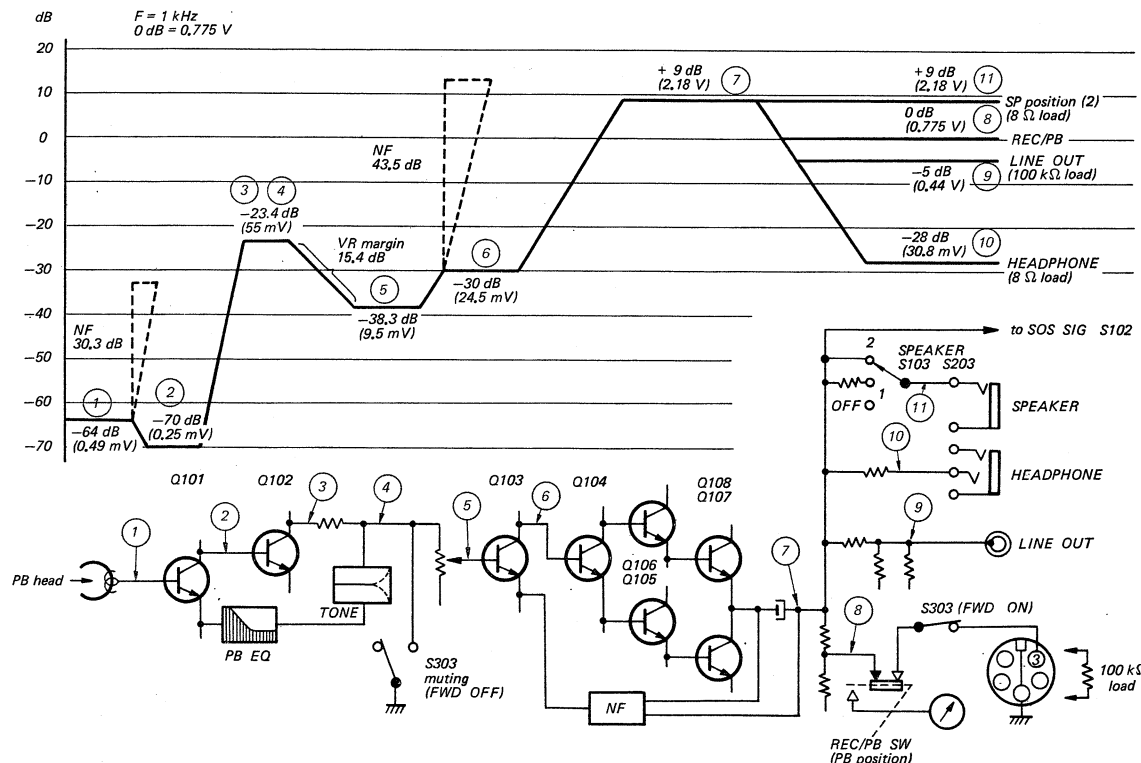
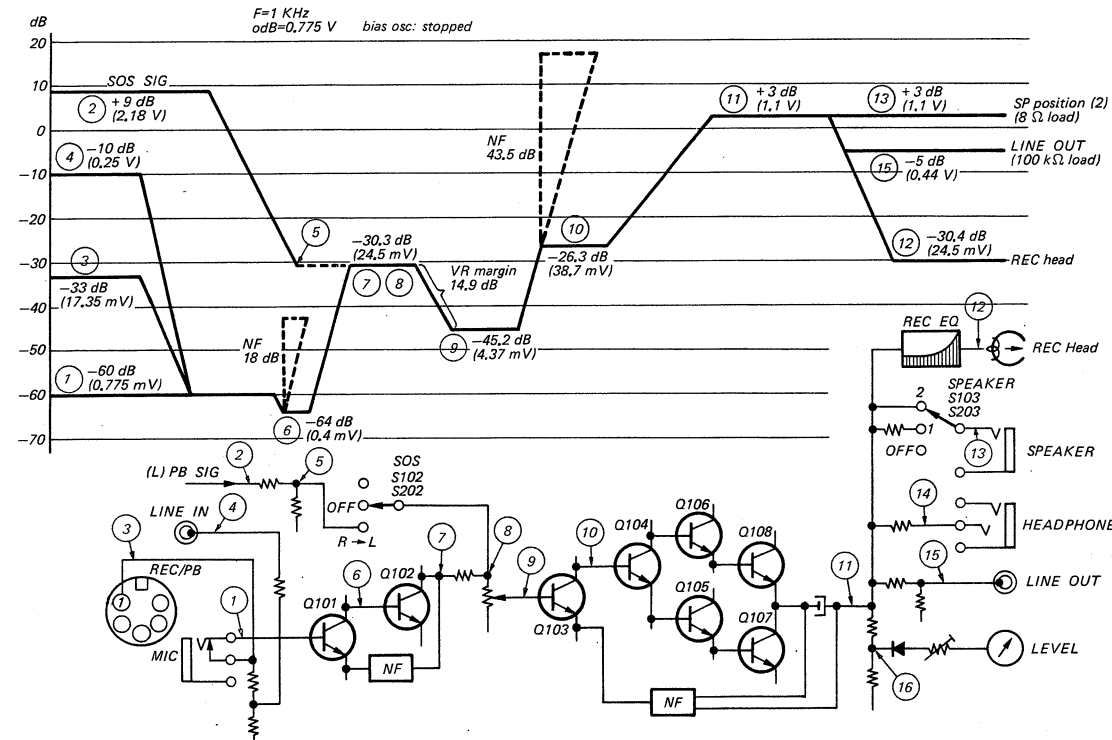
The MOTOR PULLEY and tapping of the MOTOR STARTING CAPACITOR TERMINALS must be altered if the line frequency differs from what the recorder is set for.

Connection of Motor Starting Capacitor	Motor Pulley																				
green jumper wire is connected 50 Hz green jumper wire is removed 60 Hz green jumper wire 	Change motor pulley. Use motor pulley with same mark of 2~6. 50 Hz <table><tr><td>(mark)</td><td>(Part No.)</td></tr><tr><td>2</td><td>3-486-120-01</td></tr><tr><td>3</td><td>3-486-120-11</td></tr><tr><td>4</td><td>3-486-120-21</td></tr><tr><td>5</td><td>3-486-120-31</td></tr></table> 60 Hz <table><tr><td>(mark)</td><td>(Part No.)</td></tr><tr><td>2</td><td>3-486-121-01</td></tr><tr><td>3</td><td>3-486-121-11</td></tr><tr><td>4</td><td>3-486-121-21</td></tr><tr><td>5</td><td>3-486-121-31</td></tr></table>  motor pulley	(mark)	(Part No.)	2	3-486-120-01	3	3-486-120-11	4	3-486-120-21	5	3-486-120-31	(mark)	(Part No.)	2	3-486-121-01	3	3-486-121-11	4	3-486-121-21	5	3-486-121-31
(mark)	(Part No.)																				
2	3-486-120-01																				
3	3-486-120-11																				
4	3-486-120-21																				
5	3-486-120-31																				
(mark)	(Part No.)																				
2	3-486-121-01																				
3	3-486-121-11																				
4	3-486-121-21																				
5	3-486-121-31																				

SECTION 4 DIAGRAMS

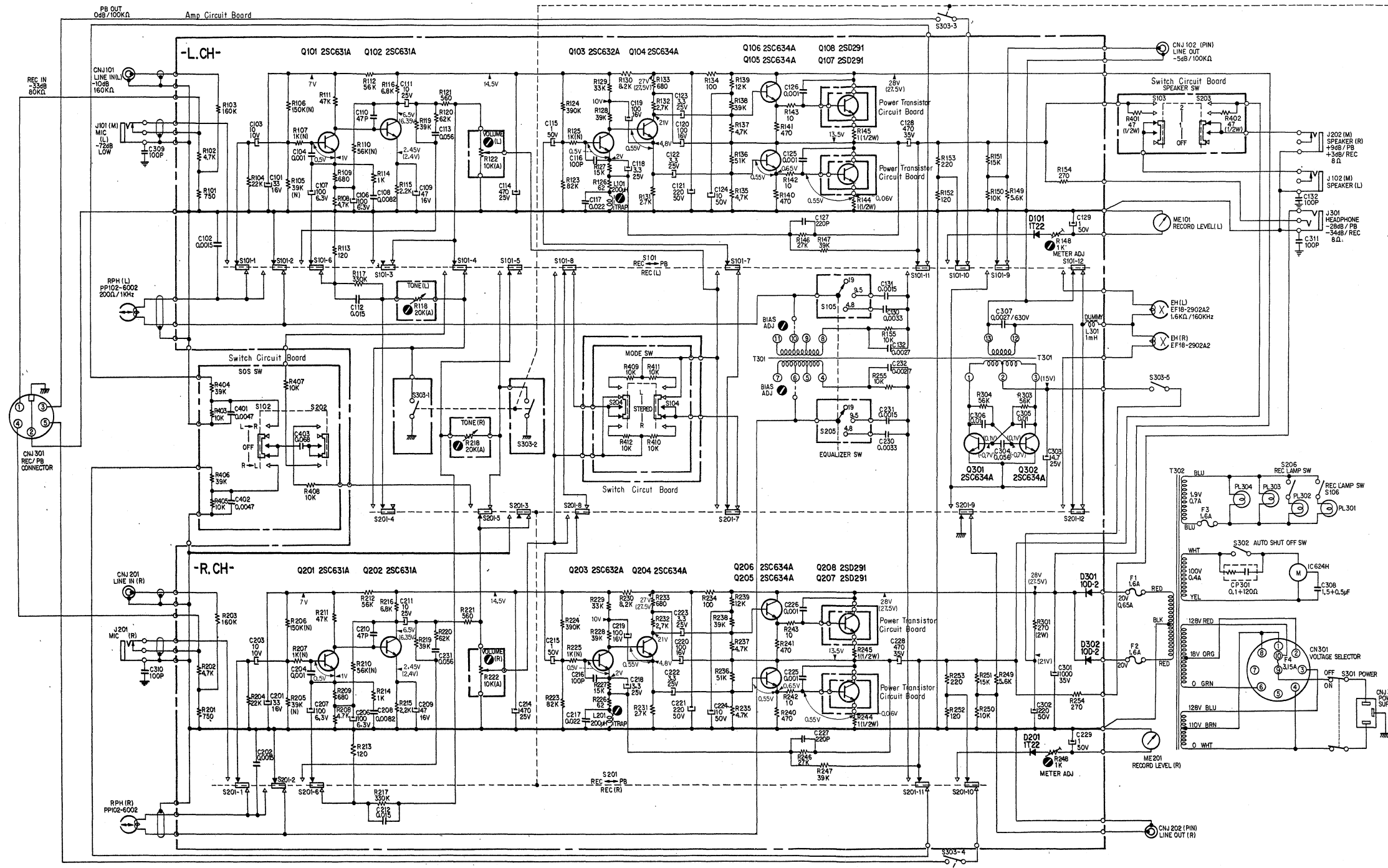
4-1. LEVEL DIAGRAMS

Record



MEMO

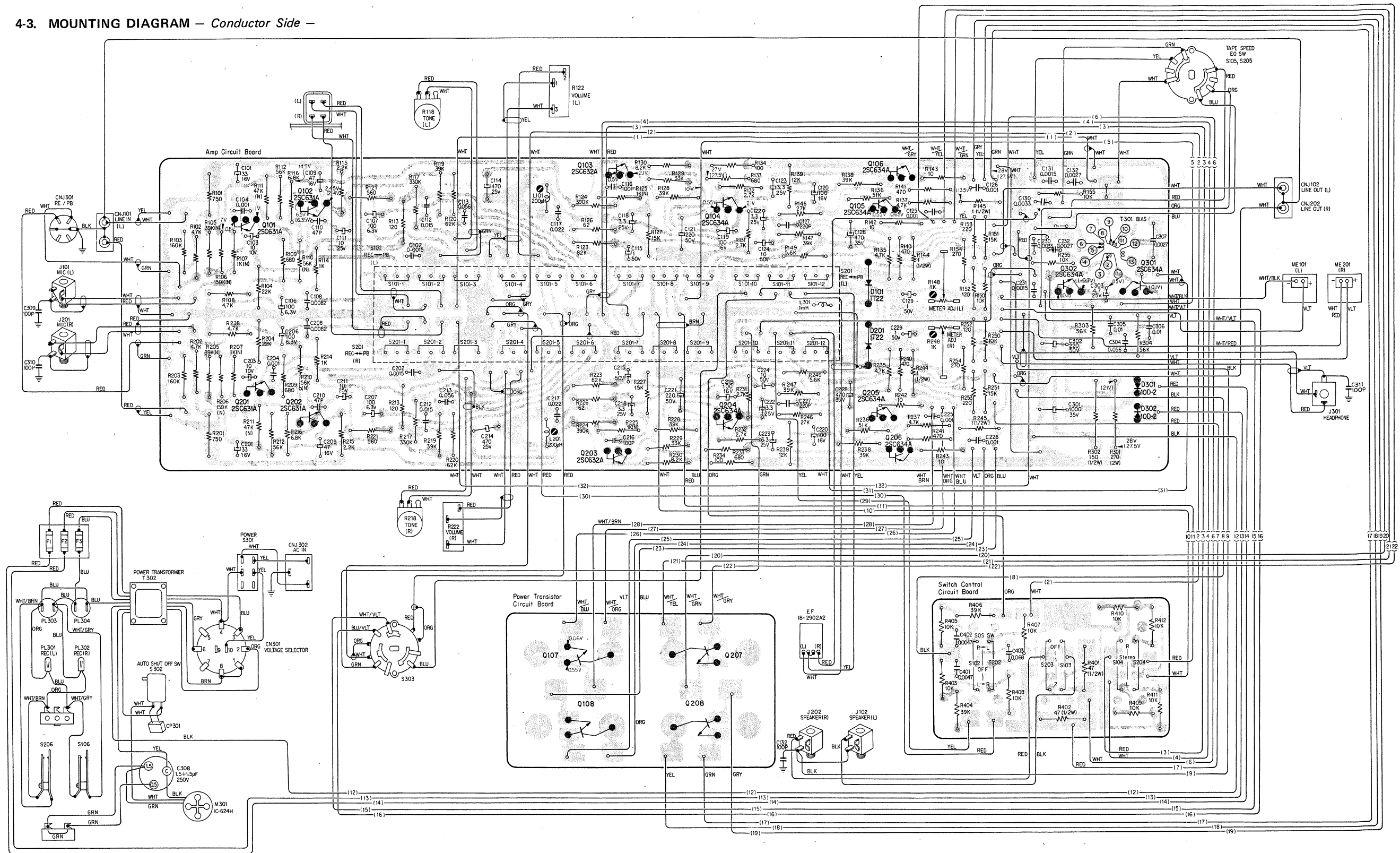
4.2. SCHEMATIC DIAGRAM



- Note:** 1. All resistors and capacitors are rated in Ω and μF , unless otherwise specified.
 2. Voltage values shown are measured with a voltmeter (20 k Ω /V) in playback mode. Voltage values in () are measured in record mode. Variations may be noted because of normal production tolerances.
 3. Symbols
 + Chassis ground
 + Common ground on circuit board
 N Low noise resistor

4. Switch position	(Ref. No.)	(Description)	(Position)
	S101, 201	record/playback switch	PB
	S102, 202	SOS switch	OFF
	S103, 203	SPEAKER switch	OFF
	S104, 204	MODE switch	STEREO
	S105, 205	equalizer	19 cm/sec
	S106, 206	record lamp switch	OFF
	S301	POWER switch	ON
	S302	auto shut-off switch	OFF
	S303	timing switch	forward

4-3. MOUNTING DIAGRAM — Conductor Side —

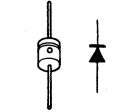
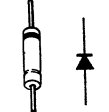
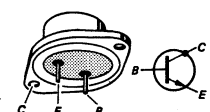
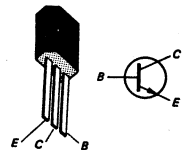


2SC631A Q101, 102, 103, 104, 105, 106
 2SC632A Q201, 202, 203, 204, 205, 206
 2SC634A Q301, 302

2SD291 Q107, 108, 207, 208

1T-22 D101, 201

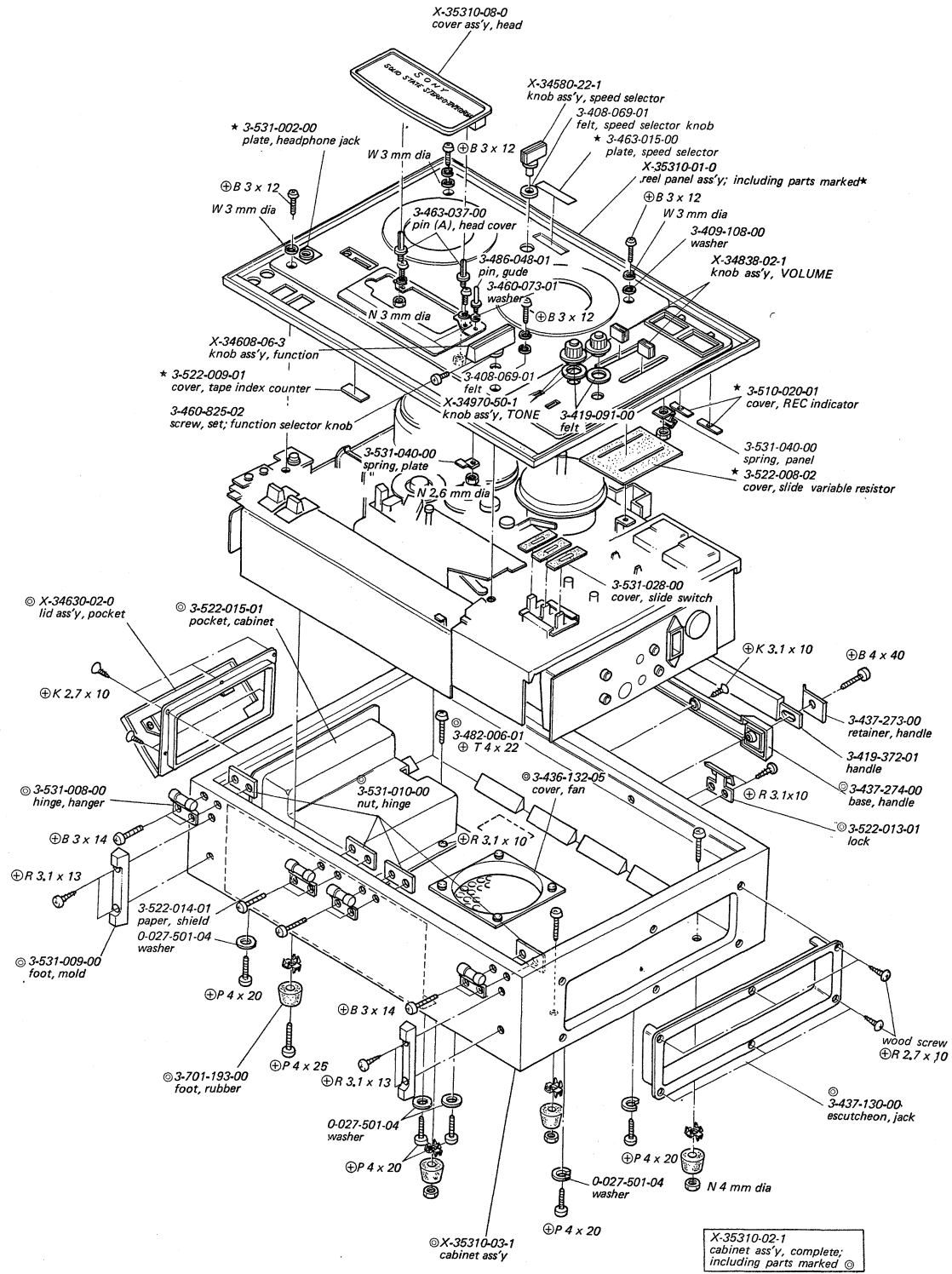
10D-2 D301, 302



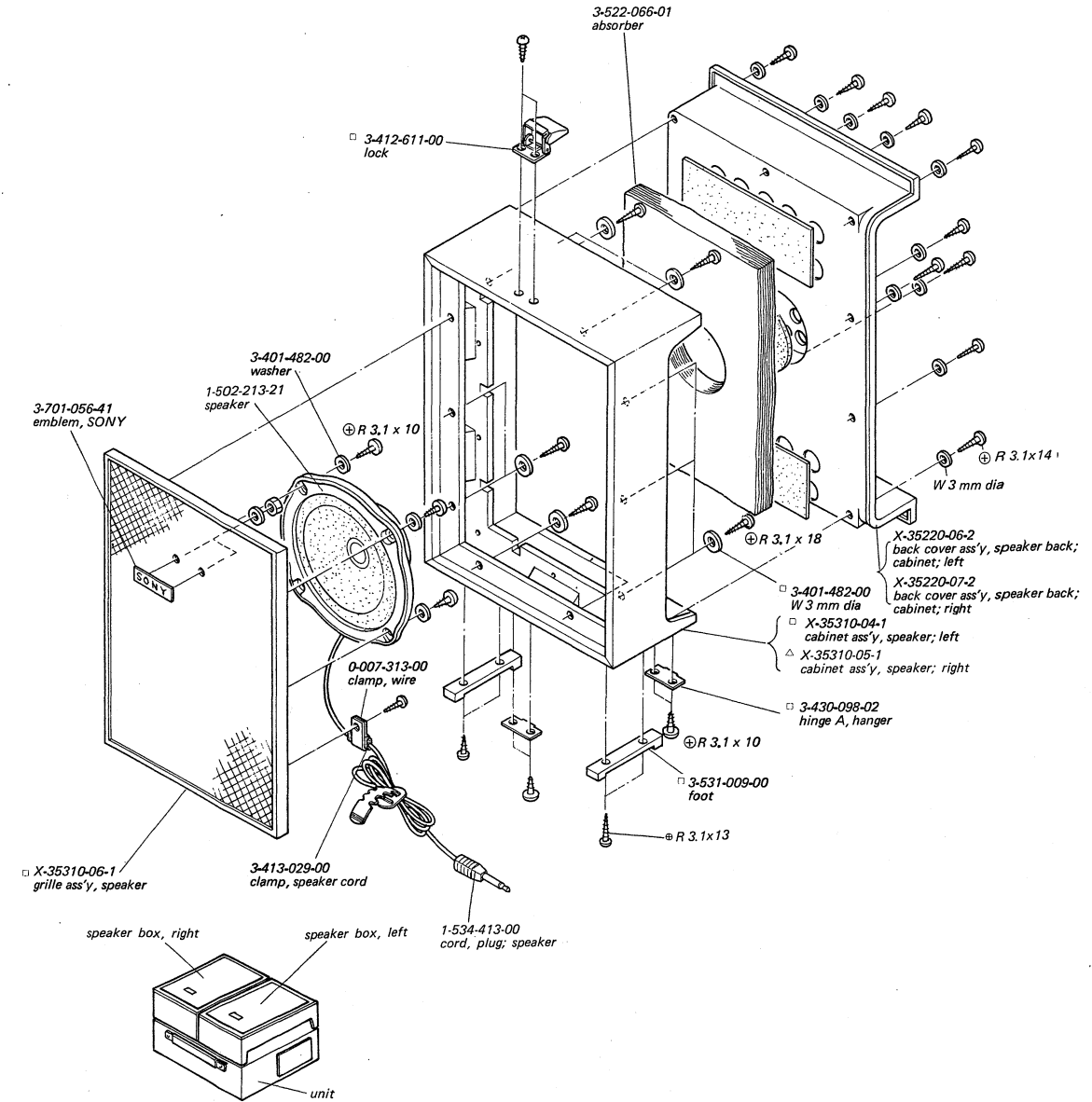
SECTION 5

EXPLODED VIEWS

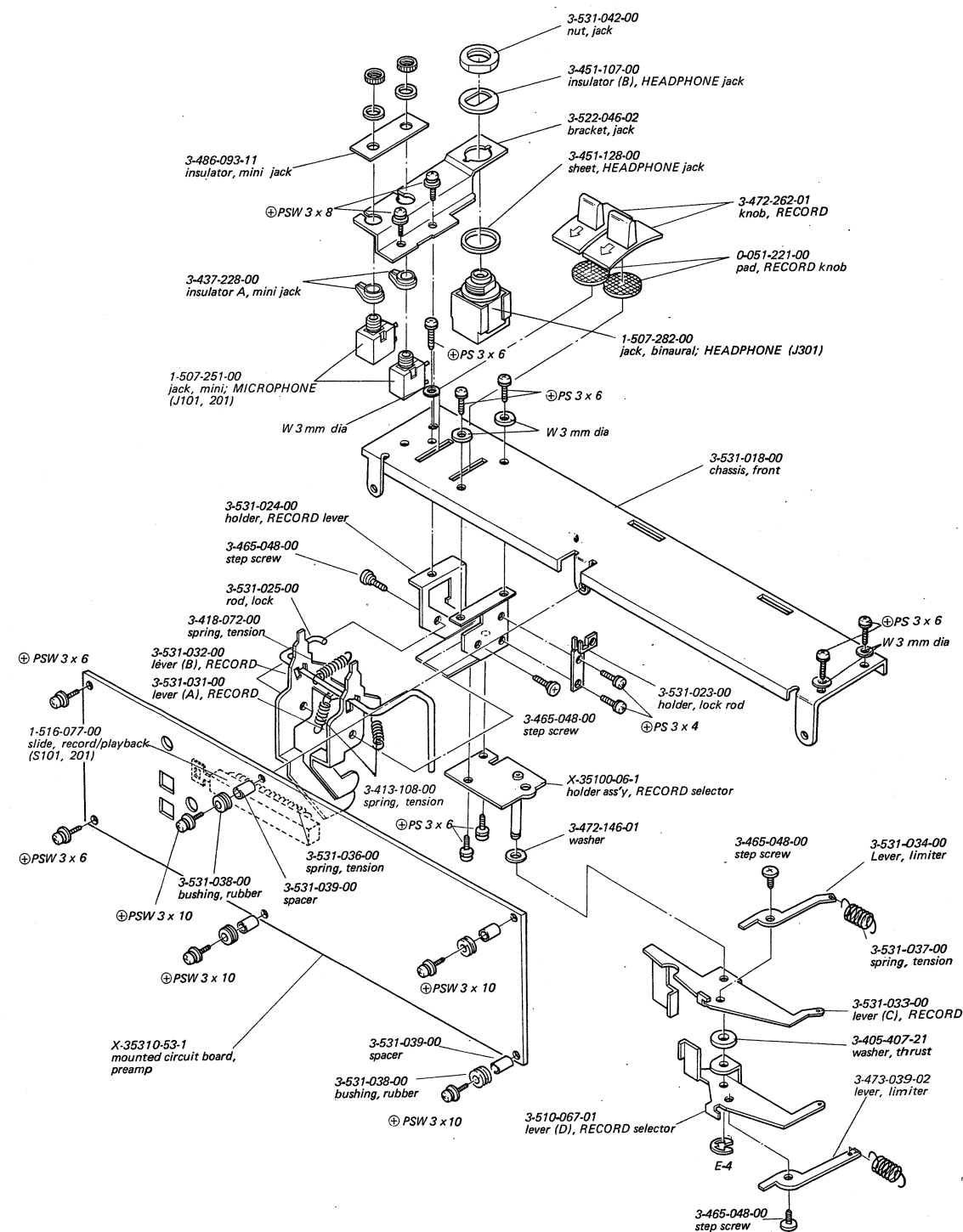
5-1. CABINET – Top View –



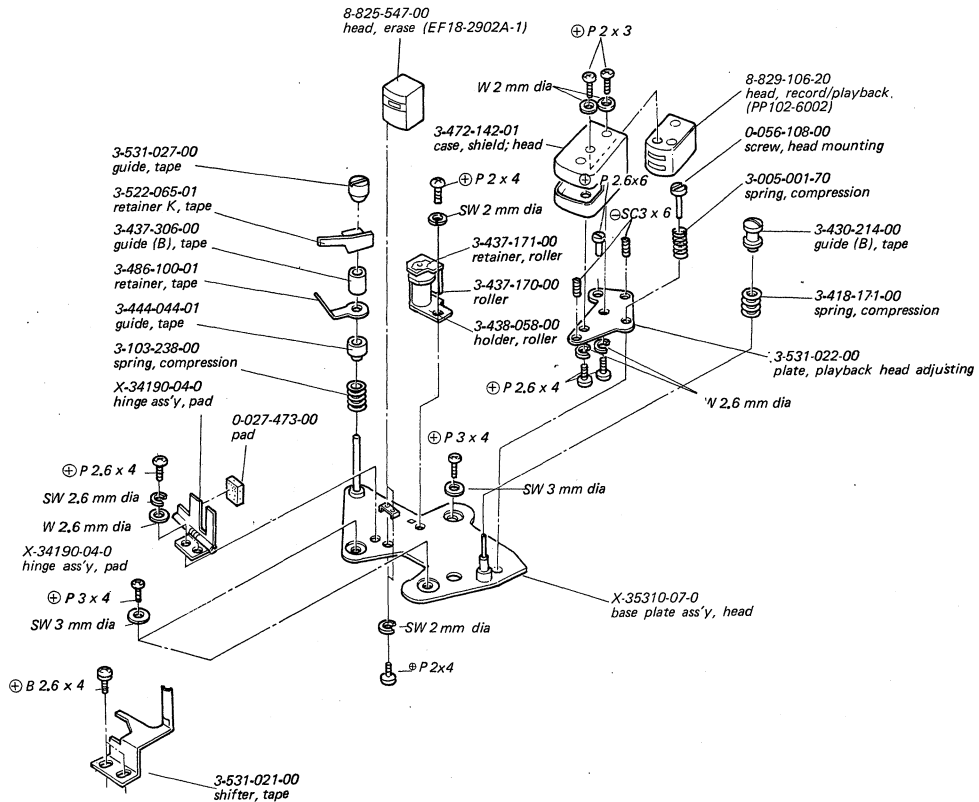
5-2. SPEAKER



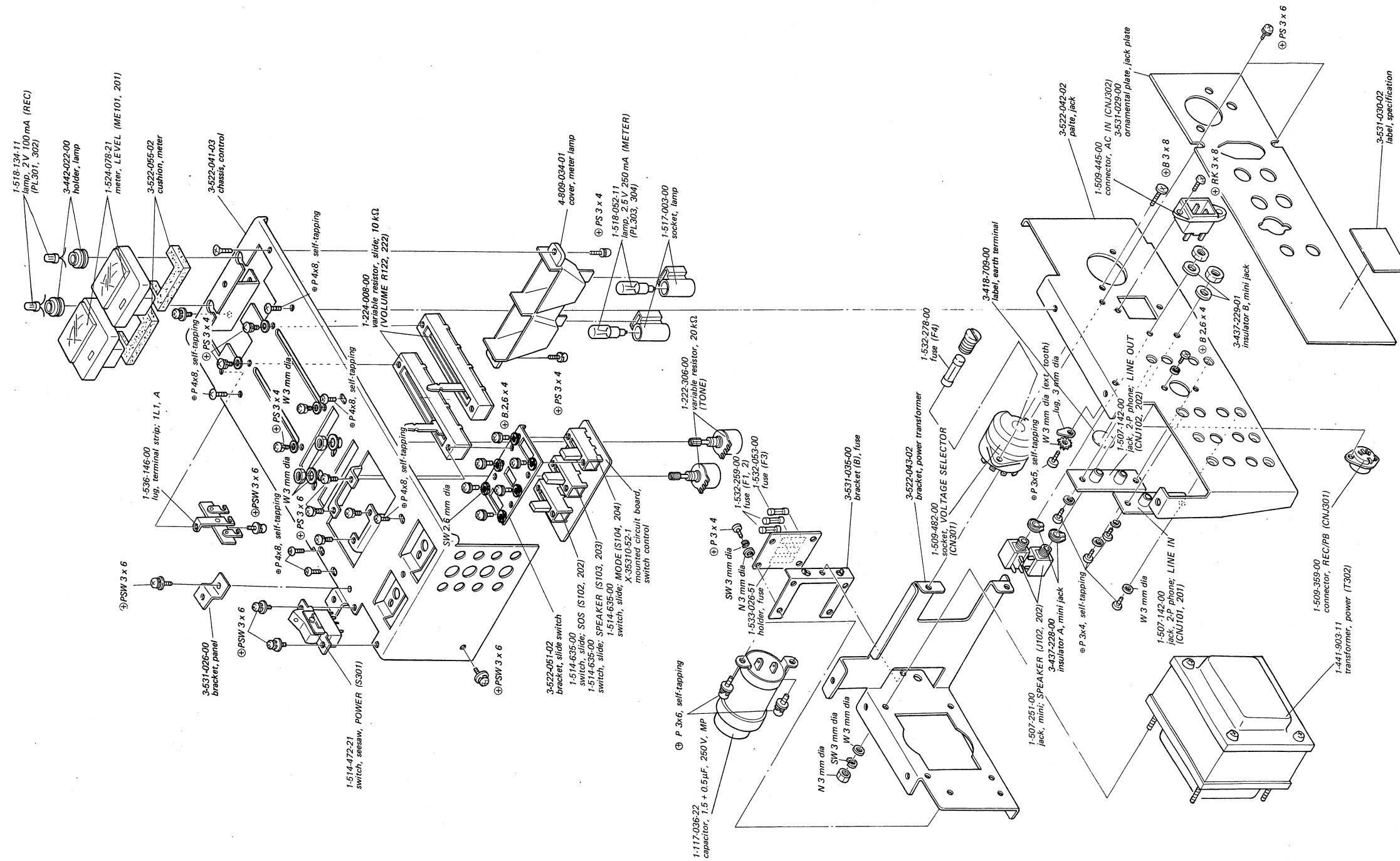
5-3. FRONT CHASSIS



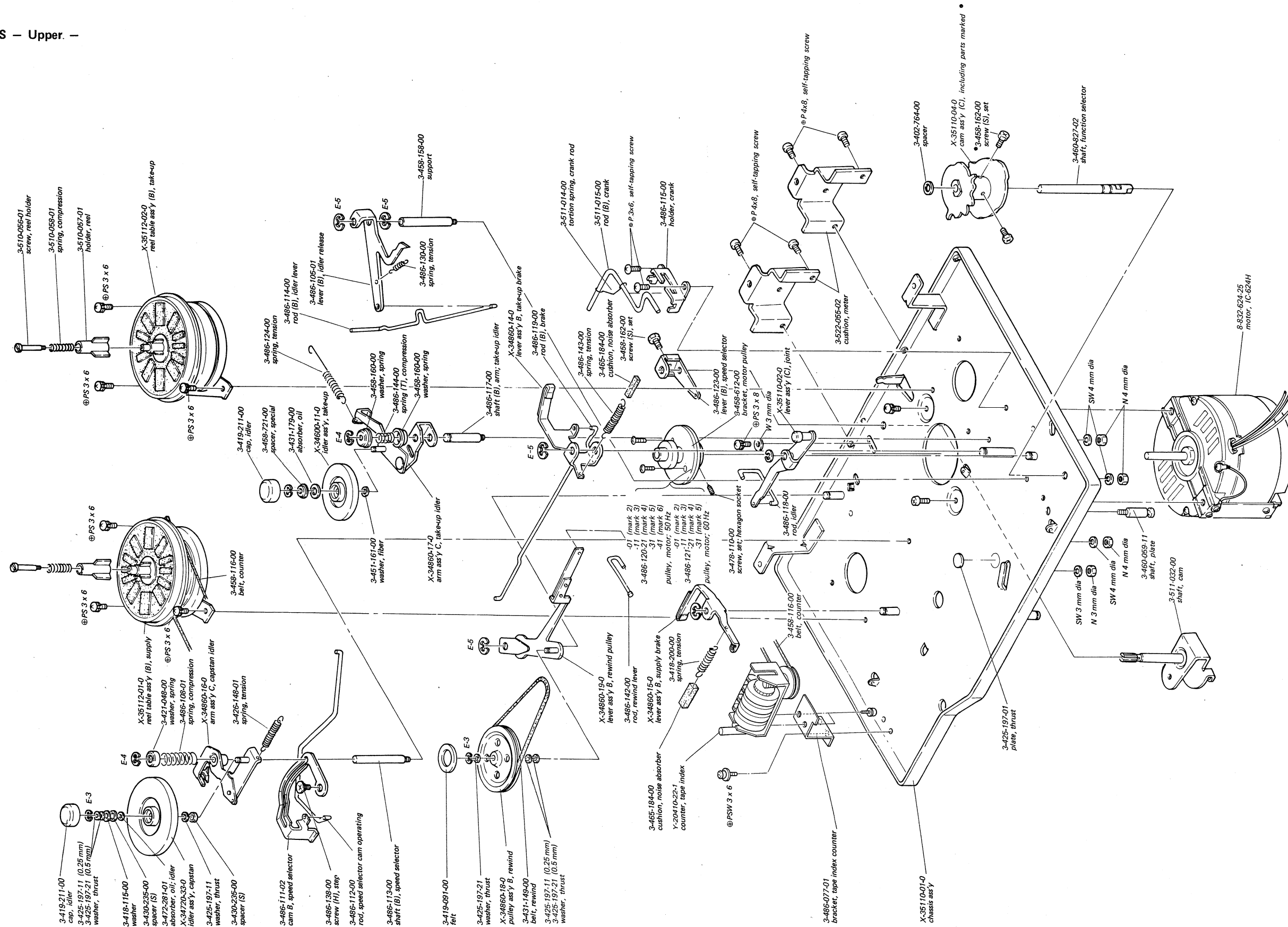
5-4. HEAD DECK — Upper —



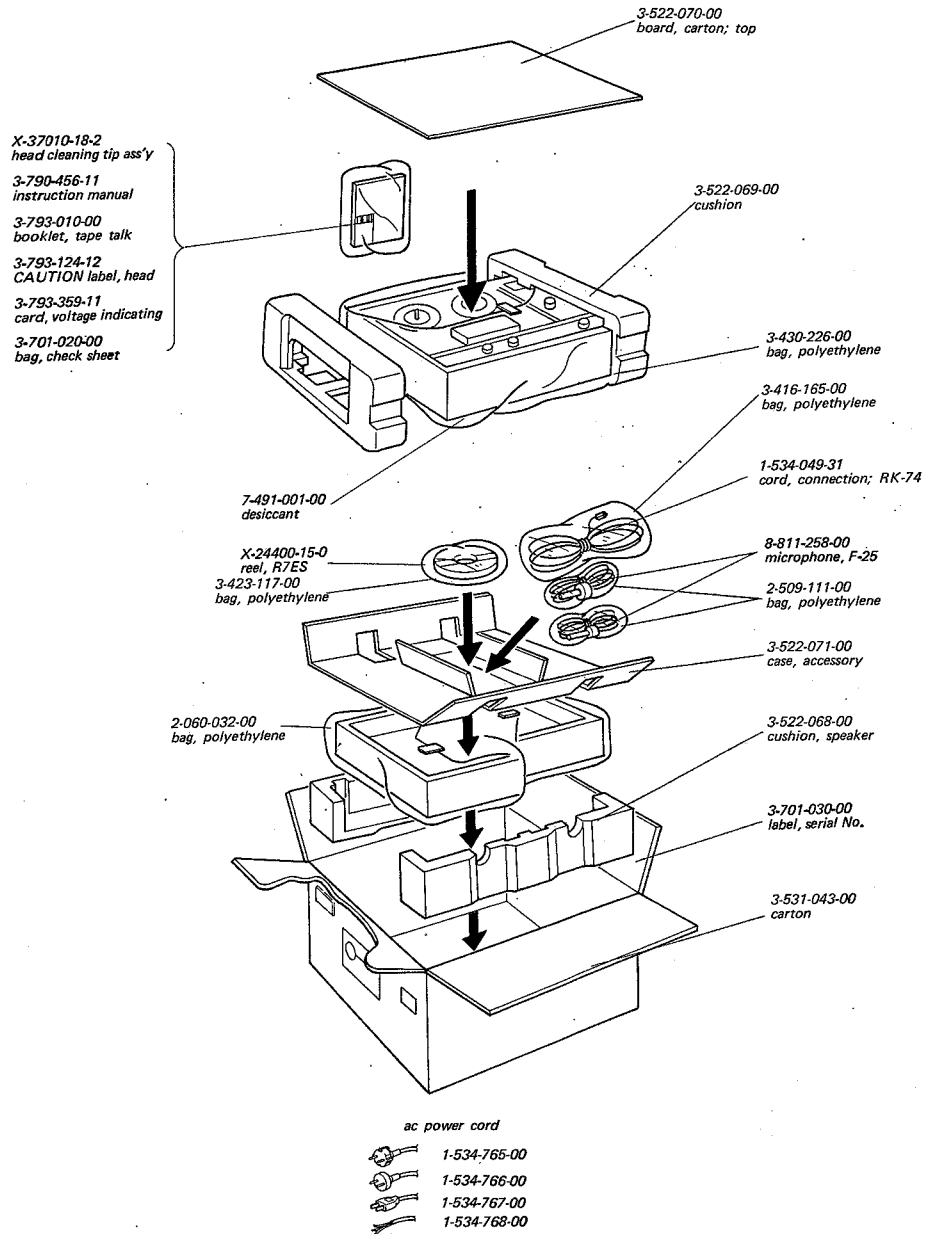
5-5. CONTROL CHASSIS



5-6. CHASSIS – Upper. –



5-9. PACKING



SECTION 6

ELECTRICAL PARTS LIST

Ref. No. Part No. Description

MOUNTED CIRCUIT BOARDS

X-35310-51-1 power transistor
X-35310-52-1 switch control
X-35310-53-1 amp

SEMICONDUCTORS

Q101, 201		transistor	2SC631A
Q102, 202		transistor	2SC631A
Q103, 203		transistor	2SC632A
Q104, 204		transistor	2SC634A
Q105, 205		transistor	2SC634A
Q106, 206		transistor	2SC634A
Q107, 207		transistor	2SD291
Q108, 208		transistor	2SD291
Q301, 302		transistor	2SC634A
D101, 201		diode	1T-22
D301, 302		diode	10D-2

COILS

L101, 201	1-409-132-00	trap	200 μ H
L301	1-431-038-00	dummy	1 mH

TRANSFORMERS

T301	1-433-136-00	bias osc
T302	1-441-903-11	power

CAPACITORS

All capacitors are in μ F unless otherwise indicated.

(p = μ F, elect = electrolytic)

C101, 201	1-121-403-11	33	16 V	elect
C102, 202	1-105-663-12	0.0015	50 V	mylar
C103, 203	1-121-469-11	10	10 V	elect
C104, 204	1-105-661-12	0.001	50 V	mylar
C105, 205				
C106, 206	1-121-413-11	100	6.3 V	elect
C107, 207	1-121-413-11	100	6.3 V	elect
C108, 208	1-105-672-12	0.0082	50V	mylar
C109, 209	1-121-409-11	47	16V	elect
C110, 210	1-107-123-11	47 p	50V	silvered mica
C111, 211	1-121-398-11	10	25V	elect
C112, 212	1-105-675-12	0.015	50V	mylar
C113, 213	1-105-682-12	0.056	50V	mylar
C114, 214	1-121-733-11	470	25V	elect
C115, 215	1-121-391-11	1	50V	elect
C116, 216	1-107-131-11	100 p	50V	silvered mica
C117, 217	1-105-677-12	0.022	50V	mylar
C118, 218	1-121-392-11	3.3	25V	elect

Ref. No. Part No. Description

C119, 219	1-121-415-11	100	16V	elect
C120, 220	1-121-415-11	100	16V	elect
C121, 221	1-121-423-11	220	50V	elect
C122, 222	1-121-392-11	3.3	25V	elect
C123, 223	1-121-392-11	3.3	25V	elect
C124, 224	1-121-738-11	10	50V	elect
C125, 225	1-105-661-12	0.001	50V	mylar
C126, 226	1-105-661-12	0.001	50V	mylar
C127, 227	1-107-139-11	220 p	50V	silvered mica
C128, 228	1-121-361-11	470	35V	elect
C129, 229				
C130, 230	1-105-667-12	0.0033	50V	mylar
C131, 231	1-105-663-12	0.0015	50V	mylar
C132, 232	1-105-666-12	0.0027	50V	mylar
C301	1-121-388-11	1000	35V	elect
C302	1-121-423-11	220	50V	elect
C303	1-121-395-11	4.7	10V	elect
C304	1-105-682-12	0.056	50V	mylar
C305	1-105-673-12	0.01	50V	mylar
C306	1-105-673-12	0.01	50V	mylar
C307	1-129-707-11	0.0027	630V	polypropylene film
C308	1-117-036-22	1.5 + 0.5	250V	MP
C309	1-107-004-11	100 p	50V	silvered mica
C310	1-107-004-11	100 p	50V	silvered mica
C311	1-107-004-11	100 p	50V	silvered mica
C312	1-107-004-11	100 p	50V	silvered mica
C401	1-105-669-12	0.0047	50V	mylar
C402	1-105-669-12	0.0047	50V	mylar
C403	1-105-683-12	0.0047	50V	mylar

RESISTORS

All resistors are $\frac{1}{4}$ W, carbon type and in Ω unless otherwise indicated. (k = 1000)

R101, 201	1-244-705-11	750
R102, 202	1-244-689-11	4.7 k
R103, 203	1-244-726-11	160 k
R104, 204	1-244-705-11	22 k
R105, 205	1-244-711-11	39 k
R106, 206	1-244-725-11	150 k
R107, 207	1-244-673-11	1 k
R108, 208	1-244-689-11	4.7 k
R109, 209	1-244-669-11	680
R110, 210	1-244-715-11	56 k
R111, 211	1-244-713-11	47 k
R112, 212	1-244-715-11	56 k
R113, 213	1-244-651-11	120
R114, 214	1-244-673-11	1 k
R115, 215	1-244-681-11	2.2 k
R116, 216	1-244-693-11	6.8 k

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
R117, 217	1-244-733-11	330 k
R118, 218	1-222-306-11	20 k variable (TONE)
R119, 219	1-244-711-11	39 k
R120, 220	1-244-716-11	62 k
R121, 221	1-244-667-11	560
R122, 222	1-224-008-00	10 k variable (VOUUME)
R123, 223	1-244-719-11	82 k
R124, 224	1-244-735-11	390 k
R125, 225	1-244-673-11	1 k
R126, 226	1-244-644-11	62
R127, 227	1-244-701-11	15 k
R128, 228	1-244-711-11	39 k
R129, 229	1-244-709-11	33 k
R130, 230	1-244-695-11	8.2 k
R131, 231	1-244-683-11	2.7 k
R132, 232	1-244-683-11	2.7 k
R133, 233	1-244-669-11	680
R134, 234	1-244-649-11	100
R135, 235	1-244-689-11	4.7 k
R136, 236	1-244-714-11	51 k
R137, 237	1-244-689-11	4.7 k
R138, 238	1-244-711-11	39 k
R139, 239	1-244-699-11	12 k
R140, 240	1-244-665-11	470
R141, 241	1-244-665-11	470
R142, 242	1-244-625-11	10
R143, 243	1-244-625-11	10
R144, 244	1-244-801-11	1 $\frac{1}{2}$ W
R145, 245	1-244-801-11	1 $\frac{1}{2}$ W
R146, 246	1-244-707-11	27 k
R147, 247	1-244-711-11	39 k
R148, 248	1-222-771-00	1 k (B), semi-fixed
R149, 249	1-244-691-11	5.6 k
R150, 250	1-244-697-11	10 k
R151, 251	1-244-701-11	15 k
R152, 252	1-244-651-11	120
R153, 253	1-244-657-11	220
R154, 254	1-244-659-11	270
R155, 255	1-244-697-11	10 k
R301	1-244-859-11	270
R302	1-244-853-11	150
R303		-----
R304	1-244-715-11	56 k
R305	1-244-715-11	56 k
R401	1-244-841-11	47
R402	1-244-841-11	47
R403	1-244-697-11	10 k
R404	1-244-711-11	39 k
R405	1-244-697-11	10 k

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
R406	1-244-711-11	39 k
R407	1-244-697-11	10 k
R408	1-244-697-11	10 k
R409	1-244-697-11	10 k
R410	1-244-697-11	10 k

SWITCHES

S101, 201	1-516-077-00	slide, record/playback
S102, 202	1-514-635-00	slide, SOS
S103, 203	1-514-635-00	slide, SPEAKER
S104, 204	1-514-635-00	slide, MODE
S105, 205	1-516-079-00	rotary, equalizer
S106, 206	1-516-078-00	leaf, record lamp
S301	1-514-472-21	seesaw, POWER
S302	1-514-079-00	micro, auto shut-off
S303	1-514-967-00	rotary, timing

JACKS

J101, 201	1-507-251-00	mini, MICROPHONE
J102, 202	1-507-251-00	mini, SPEAKER
J301	1-507-282-00	binaural, HEADPHONE
CNJ 101 201	1-507-142-00	2 p phono, LINE IN
CNJ 102 202		
CNJ 301	1-509-359-00	connector, REC/PB
CNJ 302	1-509-445-00	connector, AC IN

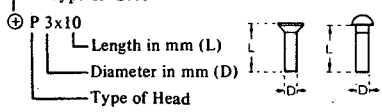
MISCELLANEOUS

CN301	1-509-482-00	socket, VOLTAGE SELECTOR
PL303, 304	1-518-052-11	lamp, 2.5 V 250 mA (METER)
PL301, 302	1-518-134-11	lamp, 2 V 100 mA (REC)
ME101, 201	1-524-078-21	meter, RECORD LEVEL
F1, 2	1-532-259-00	fuse, 1.6 AT
F3	1-532-053-00	fuse, 1.6 A
F4	1-532-278-00	fuse, 3.15A
	1-533-026-51	holder, fuse
	1-534-413-00	cord, plug; speaker
CP301	1-101-534-12	encapsulated component C-R 0.1 μ + 120 Ω
EH	8-825-547-00	head, erase (EF18-2902A-1)
R PH	8-829-106-20	head, record/playback (PP102-6002)
	1-536-146-00	lug, terminal strip; 1-L-1. A
	1-536-189-00	lug, terminal strip; 1-L-1. B
M	8-832-624-25	motor, IC624H
SP	1-502-213-21	speaker
	1-517-003-00	socket, lamp

SECTION 7 HARDWARE

<u>Part No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Description</u>
SCREWS			
7-621-255-15	⊕ P 2 x 3	7-685-145-51	⊕ P 3 x 6
7-621-255-25	⊕ P 2 x 4	7-685-159-51	⊕ P 4 x 8
7-621-255-35	⊕ P 2 x 5	7-685-547-21	⊕ B 3 x 10
7-621-259-25	⊕ P 2.6 x 4	NUTS	
7-621-259-35	⊕ P 2.6 x 5	7-622-307-02	2.6 mm dia
7-621-259-37	⊕ P 2.6 x 5	7-684-013-01	3 mm dia
7-621-259-45	⊕ P 2.6 x 6	7-684-014-01	4 mm dia
7-621-259-85	⊕ P 2.6 x 14	7-684-033-01	3 mm dia
7-621-773-86	⊕ B 2.6 x 4	WASHERS	
7-621-843-25	⊕ R 3.1 x 10	7-623-105-12	2 mm dia
7-621-843-35	⊕ R 3.1 x 13	7-623-107-12	2.6 mm dia
7-621-843-45	⊕ R 3.1 x 16	7-623-108-02	3 mm dia
7-628-254-05	⊕ P 2.6 x 5	7-623-108-12	3 mm dia
7-682-145-01	⊕ P 3 x 4	7-623-108-20	3 mm dia
7-682-146-01	⊕ P 3 x 5	7-623-110-09	4 mm dia
7-682-147-01	⊕ P 3 x 6	7-623-110-12	4 mm dia
7-682-149-01	⊕ P 3 x 10		5 mm dia
7-682-165-05	⊕ P 4 x 16	7-623-113-18	6 mm dia
7-682-347-04	⊕ RK 3 x 6	7-623-113-27	6 mm dia
7-682-351-04	⊕ RK 3 x 14	7-623-205-22	2 mm dia (small)
7-682-547-01	⊕ B 3 x 6	7-623-207-22	2.6 mm dia (small)
7-682-548-05	⊕ B 3 x 8	7-623-208-22	3 mm dia (small)
7-682-549-04	⊕ B 3 x 10	7-623-208-27	3 mm dia (small)
7-682-569-05	⊕ B 4 x 35	7-623-210-28	4 mm dia (small)
7-682-547-14	⊕ B 3 x 6	7-623-308-05	3 mm dia, int. tooth
7-682-562-01	⊕ B 4 x 10	7-623-408-05	3 mm dia, ext. tooth
7-682-647-01	⊕ PS 3 x 6	RETAINING RINGS	
7-682-661-01	⊕ PS 4 x 8	7-624-104-01	E-2
7-682-662-01	⊕ PS 4 x 10	7-624-106-05	E-3
7-682-947-01	⊕ PSW 3 x 6	7-624-108-05	E-4
7-682-948-01	⊕ PSW 3 x 8	7-624-109-05	E-5
7-682-949-01	⊕ PSW 3 x 10	LUG	
7-683-137-00	⊖ SC 3 x 3	7-623-505-01	3 mm dia
7-683-140-20	⊖ SC 3 x 6		
7-685-144-51	⊕ P 3 x 5		
7-685-145-31	⊕ P 3 x 6, self-tapping		

Hardware Nomenclature

P - Pan Head Screw		SC - Set Screw	
PS - Pan Head Screw with Spring Washer		E - Retaining Ring (E Washer)	
K - Flat Countersunk Head Screw		W - Washer	
B - Binding Head Screw		SW - Spring Washer	
RK - Oval Countersunk Head Screw		LW - Lock Washer	
T - Truss Head Screw		N - Nut	
R - Round Head Screw		- Example -	
F - Flat Fillister Head Screw			

Sony Corporation