

WM-FS421

SERVICE MANUAL

E Model

Ver 1.0 2001.04



Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MF-WMFS421-114

SPECIFICATIONS

- **Frequency range**
FM: 87.5 - 108 MHz
AM: 530 - 1 710 kHz (North, Central and South America)
531 - 1 602 kHz (Other countries)
- **Power requirements**
3 V DC batteries R6 (size AA) × 2
- **Dimensions (w/h/d)**
Approx. 107.3 × 123.3 × 51.5 mm (4 1/4 × 4 7/8 × 2 1/8 inches),
excluding projecting parts and controls
- **Mass**
Approx. 282 g (10.0 oz) (main unit only)
- **Supplied accessories**
Stereo headphones or earphones (1)
Belt clip (1)

Design and specifications are subject to change without notice.

Battery life (approximate hours)	(JEITA*)	
	Tape playback	Radio reception
Sony alkaline LR6 (SG)**	32	40
Sony R6P (SR)	9	14

* Measured value by the standard of JEITA (Japan Electronics and Information Technology Industries Association). (Using a Sony HF series cassette tape)

**When using Sony LR6 (SG) "STAMINA" alkaline dry batteries (produced in Japan).

Note

- The battery life may be shorter depending on the operating condition, the surrounding temperature and battery type.

RADIO CASSETTE PLAYER

9-873-121-11
2001D1600-1
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Sony Corporation
Personal Audio Company
Shinagawa Tec Service Manual Production Group

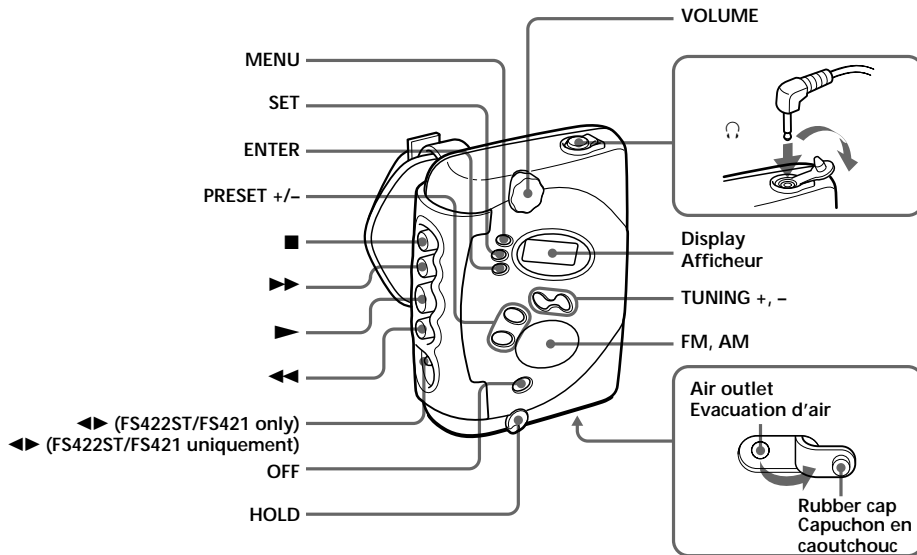
SONY®

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SECTION 1
GENERAL

This section is extracted from instruction manual.



Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

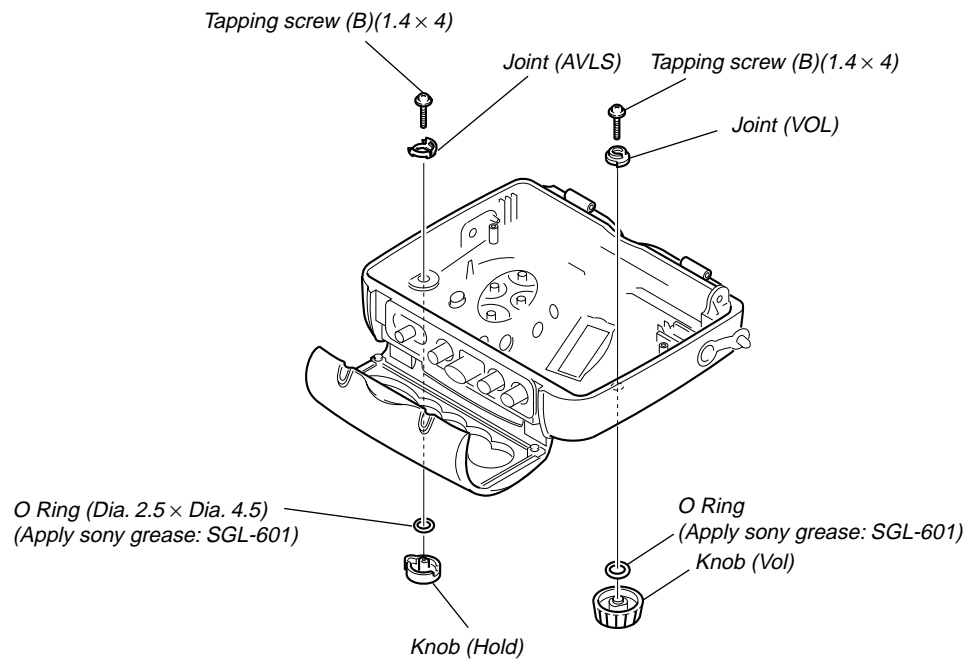
- Keep the temperature of soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SECTION 2 SERVICE NOTE

WATER PROOF SECTION

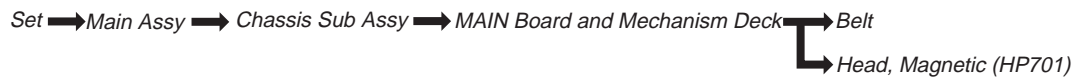
Note : In case the parts in the figure are removed for repair, treat them to protect from water drop following the instructions in the figure (spread grease, bond etc.)

- Sony grease SGL-601 : 7-651-000-10



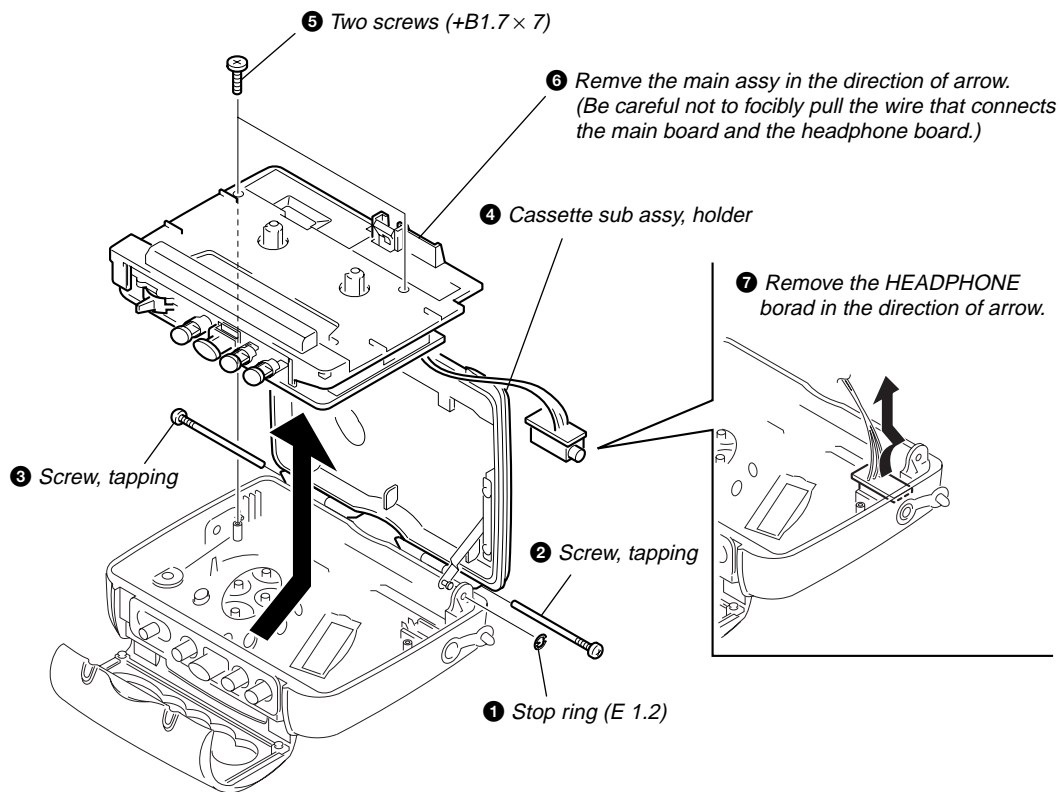
SECTION 3 DISASSEMBLY

Note : Disassemble the unit in the order as shown below.



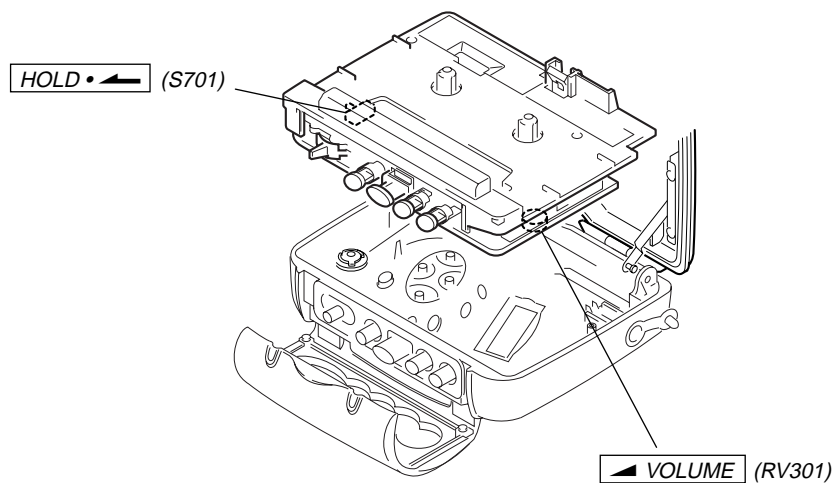
Note : Follow the disassembly procedure in the numerical order given.

3-1. MAIN ASSY

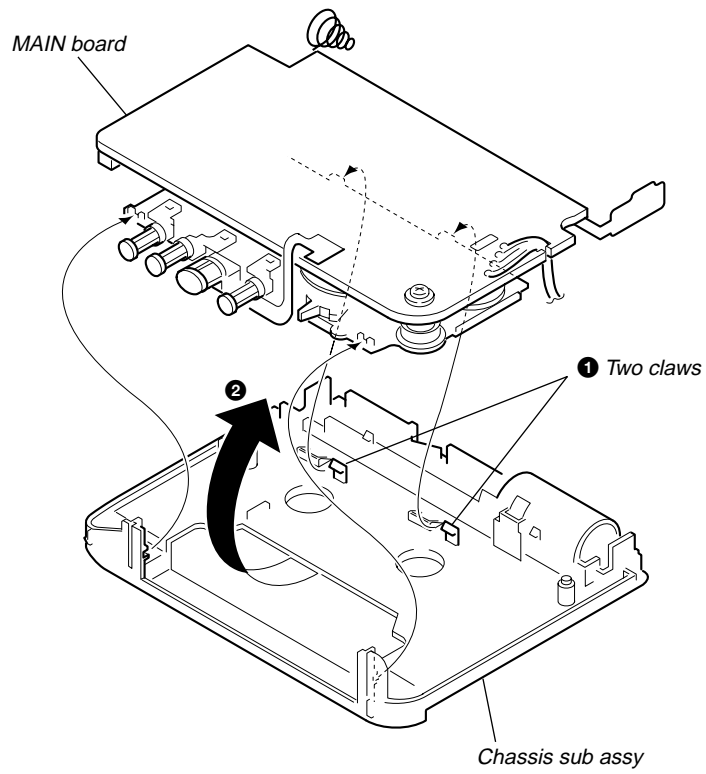


CAUTION WHEN ASSEMBLING THE MAIN Assy

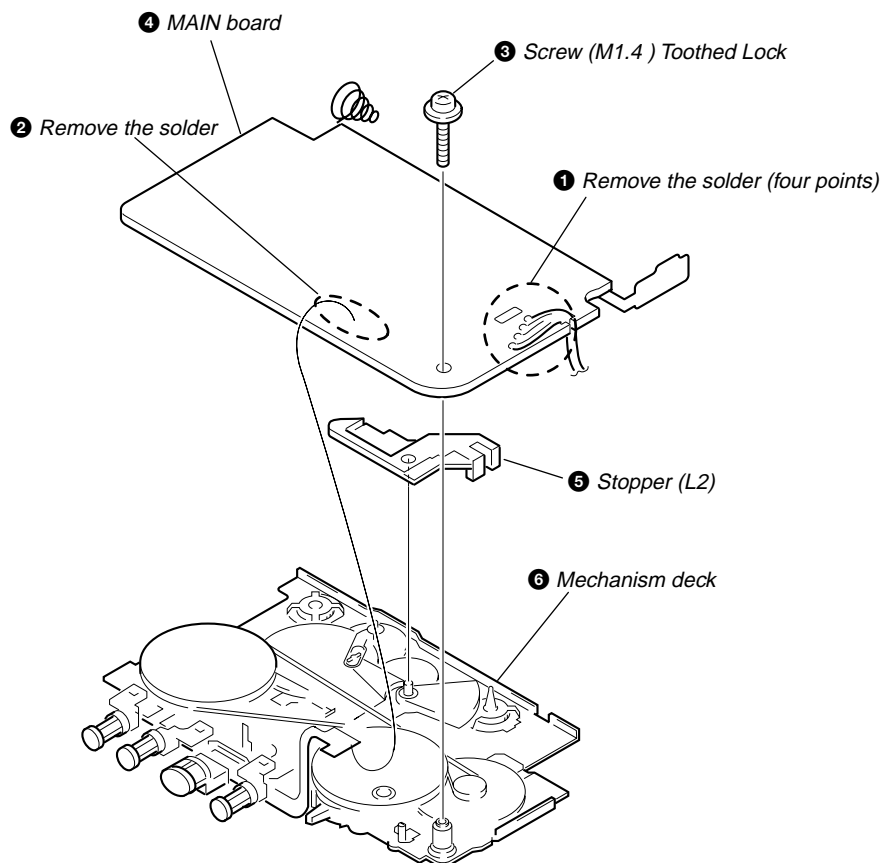
- Assemble the main Assy in a way that each switch mates with the corresponding knob each other.



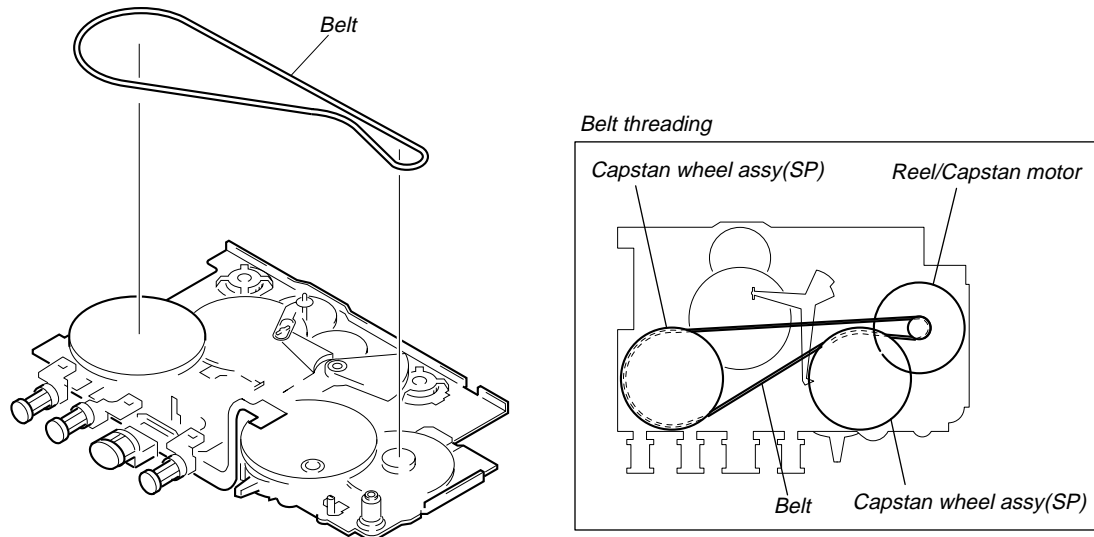
3-2. CHASSIS SUB ASSY



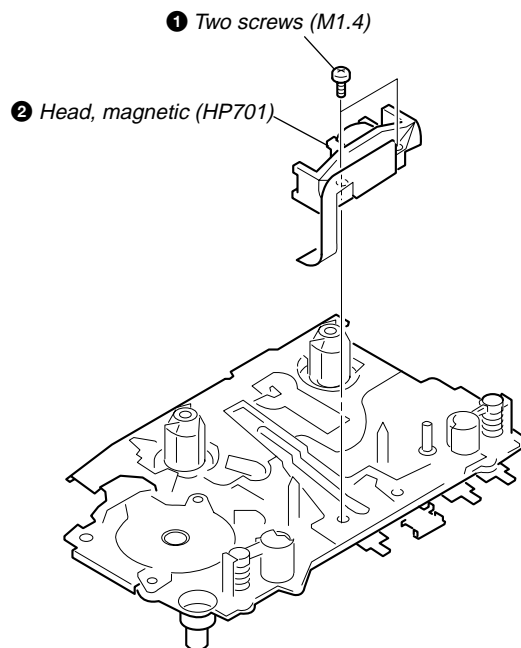
3-3. MAIN BOARD AND MECHANISM DECK



3-4. BELT



3-5. HEAD, MAGNETIC (HP701)



SECTION 4 MECHANICAL ADJUSTMENT

PRECAUTION

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

playback head	pinch roller
rubber belts	capstan
2. Do not use a magnetized screwdriver for the adjustments.

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	2.0 to 4.1 N•m (20 to 42 g•cm) (0.27 to 0.58 oz•inch)
FWD Back Tension	CQ-102C	More than 0.20 N•m (More than 2.0 g•cm) (More than 0.027 oz•inch)
FF, REW	CQ-201B	More than 4.9 N•m (More than 50 g•cm) (More than 0.69 oz•inch)

SECTION 5 ELECTRICAL ADJUSTMENT

TAPE SECTION

0 dB = 0.775 V

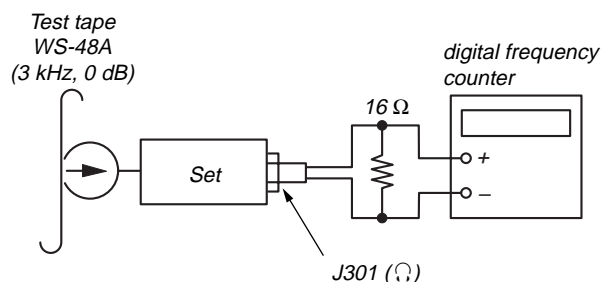
Test Tape

Tape	Signal	Used for
WS-48A	3 kHz, 0 dB	Tape speed adjustment

Tape Speed Adjustment

Procedure:

Mode: Playback



Adjustment Value: normal tape speed

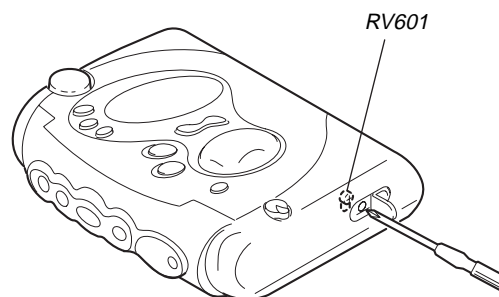
Adjust the tape speed adjustment RV601, so that the frequency counter reading becomes 3,000Hz.

Specification Value:

Digital frequency counter
2,970 to 3,030 Hz

Frequency difference between the beginning and the end of the tape should be within 1.5 % (45 Hz).

Adjustment Location:



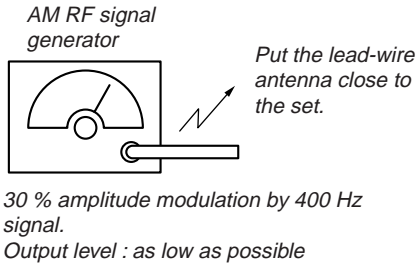
TUNER SECTION

0 dB = 1 μ V

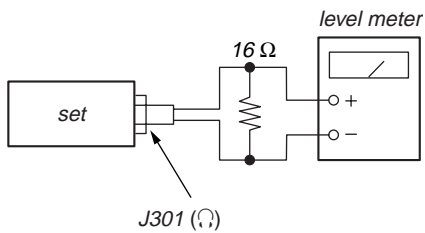
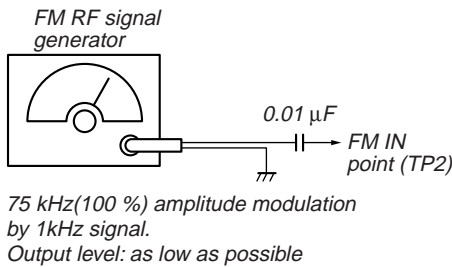
• Switch Location

- VOLUME : MAX
- MEGA BASS : OFF
- AVLS : NORMAL

BAND: AM



BAND : FM



- Repeat the procedures in each adjustment several times for the maximum level meter indication.
- The frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

AM IF ADJUSTMENT	
Adjust for a maximum reading on level meter	
RV2	1,000 kHz

AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a 1.1V \pm 0.1Vde reading on digital voltmeter	
L7	530 kHz

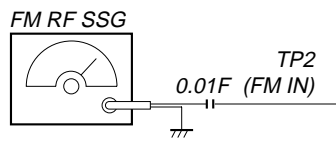
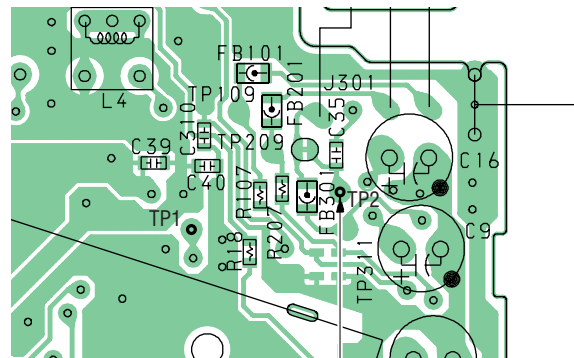
AM TRACKING ADJUSTMENT	
Adjust for maximum reading on level meter.	
L3	620 kHz
CT1	1,400 kHz

FM TRACKING ADJUSTMENT	
Adjust for maximum reading on level meter.	
L4	87.5 MHz

Adjustment Location: Main board (See page 9)

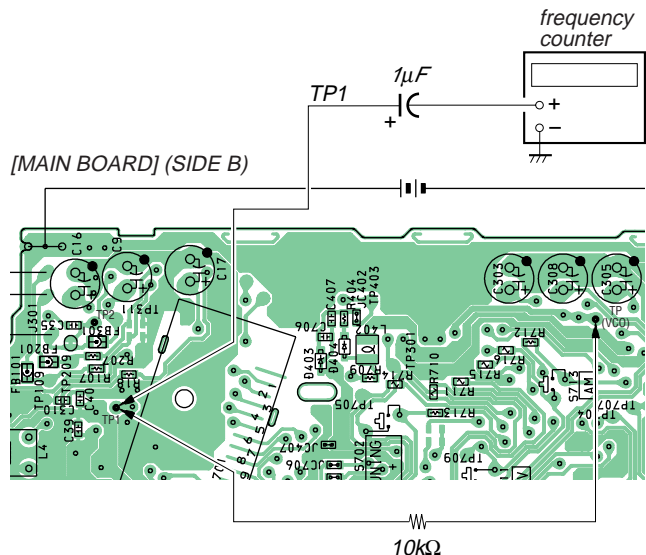
FM VCO Adjustment Procedure:

[MAIN BOARD] (SIDE B)



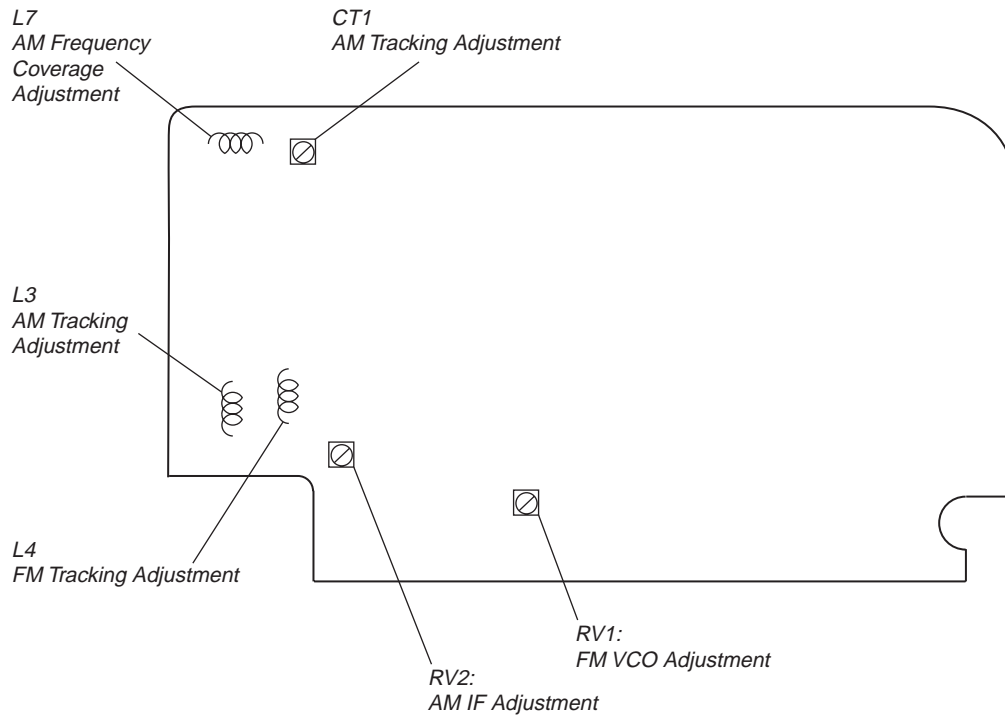
Carrier frequency : 96MHz
 Deviation : none
 Output level : 562 μ V(55dB)

1. Connect the resistor 10k between TP1 and TP (VCO).
 2. Connect the frequency counter to TP1 (IC1 pin).
 3. Set FUNCTION switch to FM.
 4. Tune the set in 96MHz.
 5. Adjust RV1 so that the reading on the frequency counter becomes 76 kHz.
- Specifications: 75 kHz-77 kHz

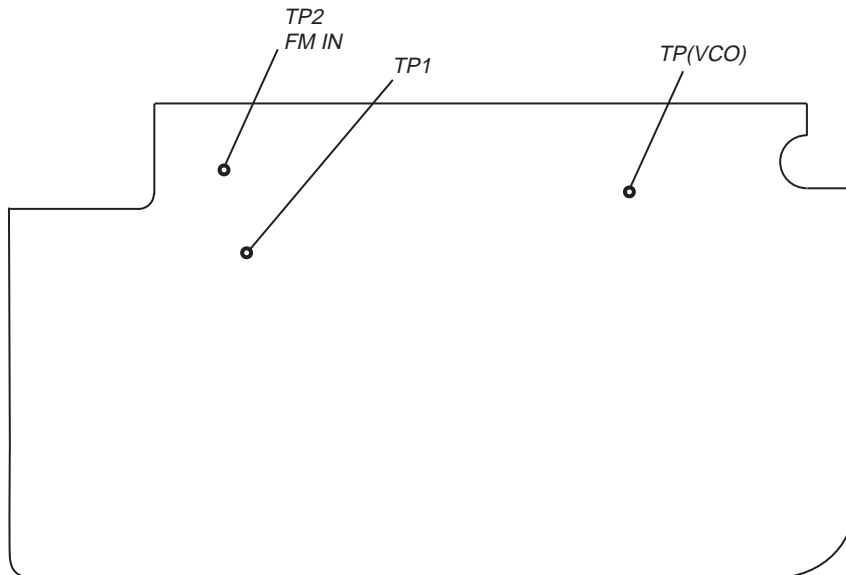


[MAIN BOARD]

— Component side —



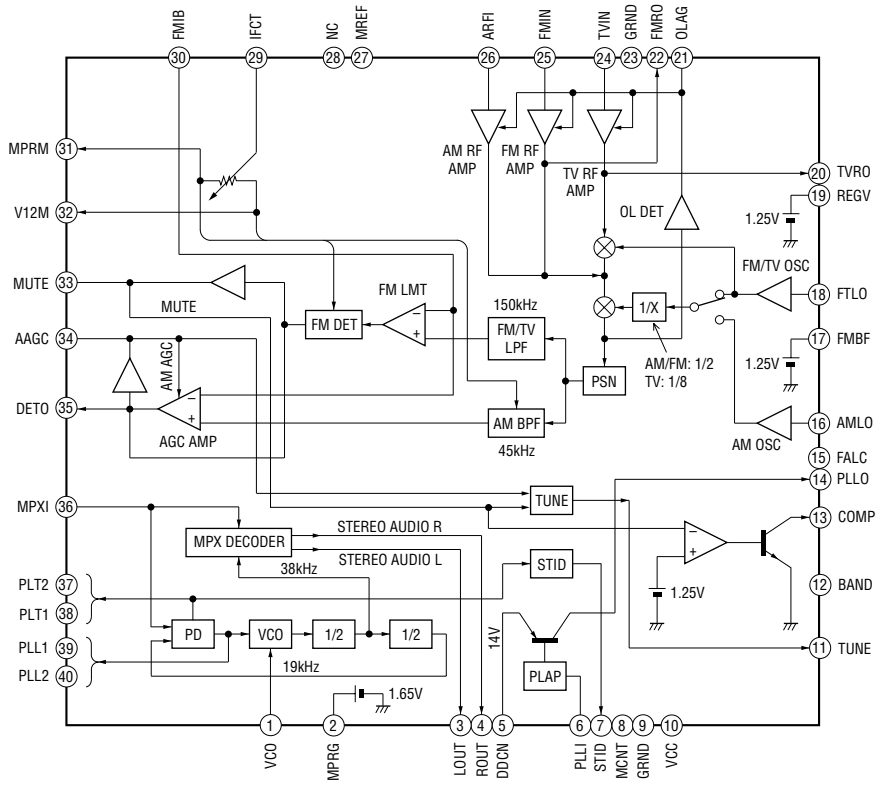
— Conductor side —



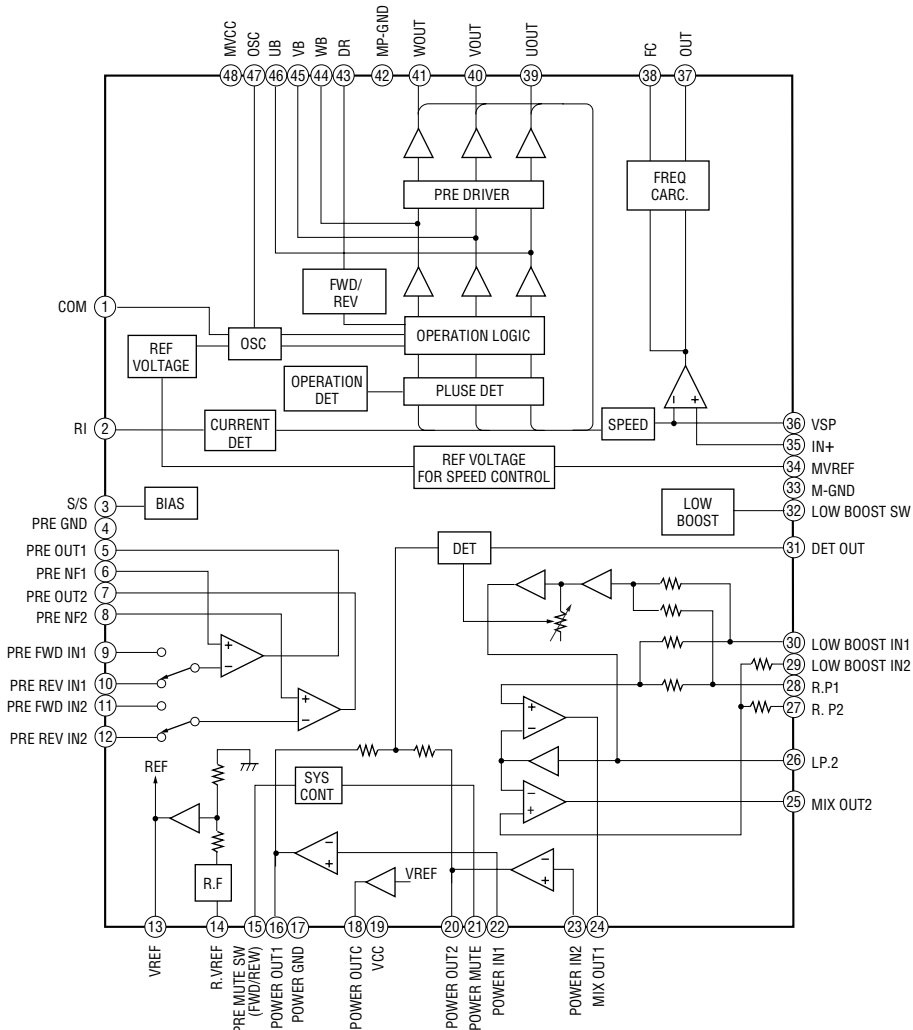
SECTION 6 DIAGRAMS

6-1. IC BLOCK DIAGRAMS

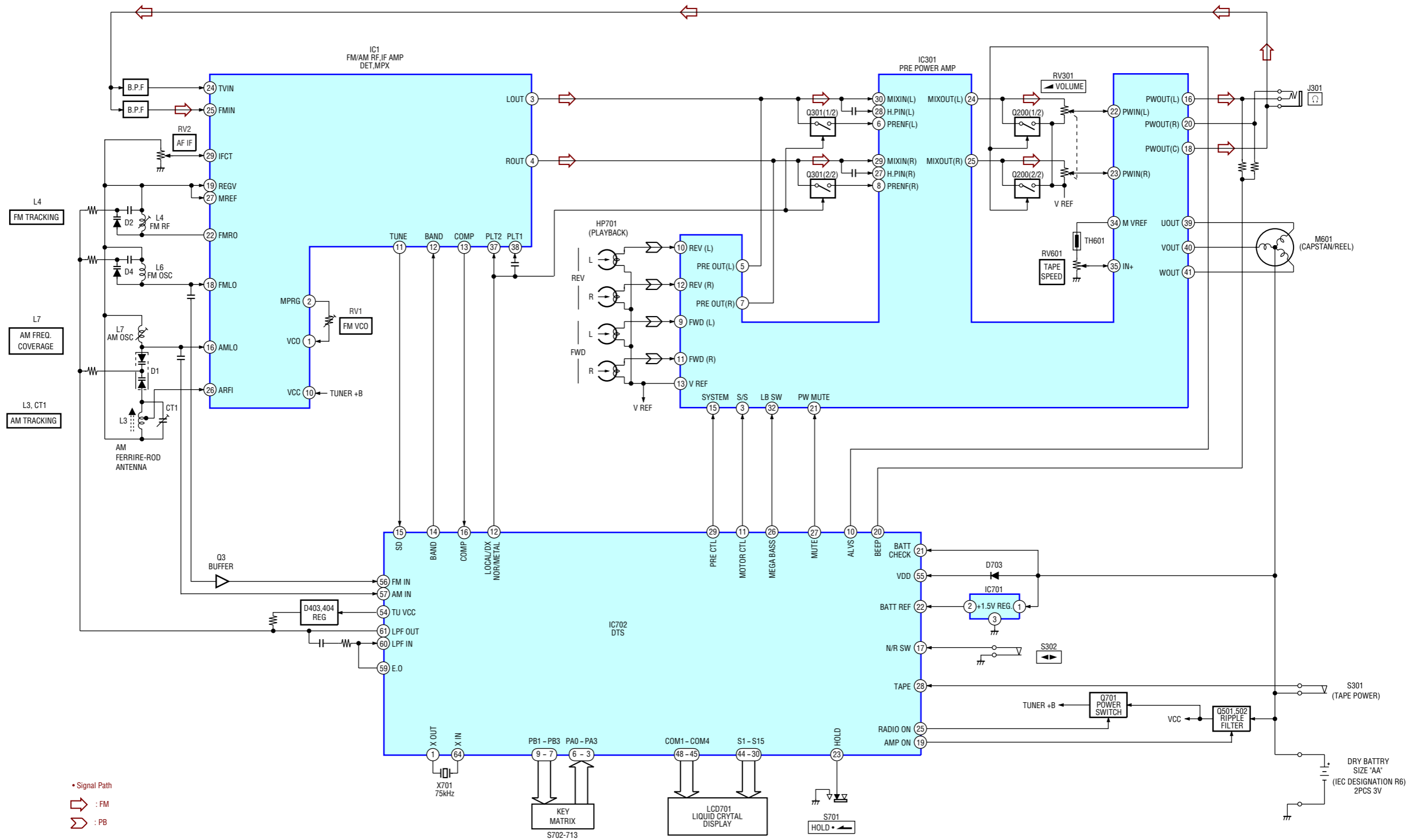
IC1 CXA1960Q



IC301 LB8115W-NA-TLM



6-2. BLOCK DIAGRAM



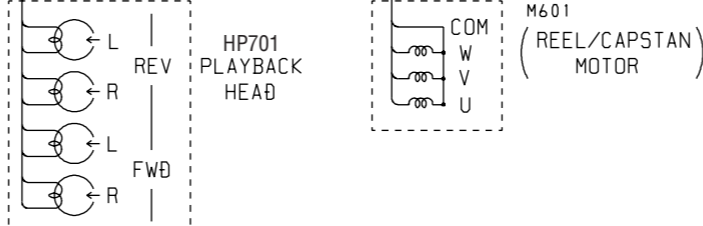
6-3. PRINTED WIRING BOARD



• Semiconductor Location

Ref. No.	Location
D1	A-5
D2	B-2
D4	B-2
D403	D-7
D404	D-7
D701	F-7
IC1	B-2
IC301	E-3
IC701	D-3
IC702	D-2
Q3	C-3
Q200	A-5
Q301	E-3
Q501	F-2
Q502	E-1
Q701	E-1

DRY BATTERY
 SIZE "AA"
 (IEC DESIGNATION R6)
 2PSCS.3V



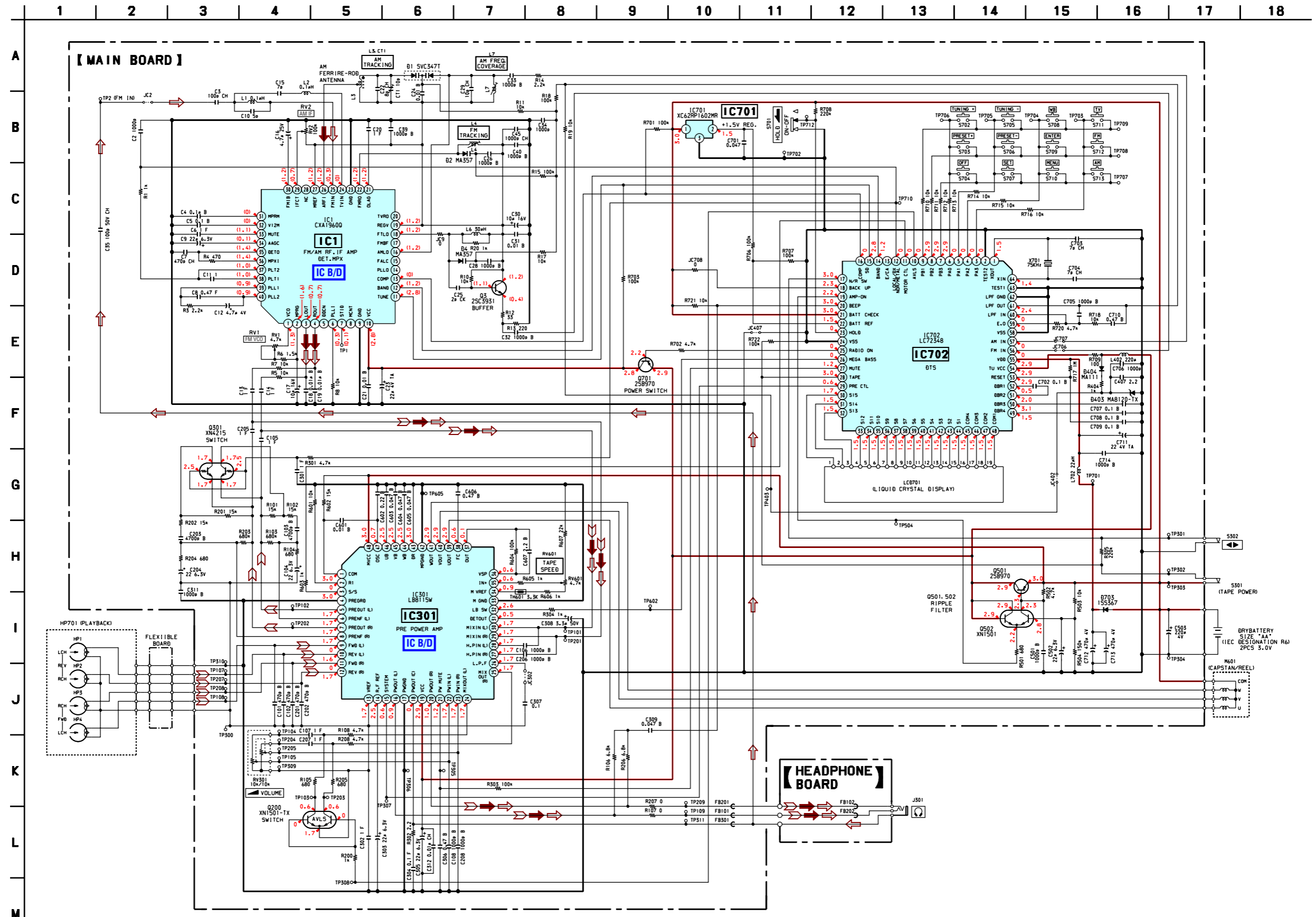
Note on Printed Wiring Board:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : Pattern from the side which enables seeing.

Caution:

Pattern face side: Parts on the pattern face side seen from the parts face are indicated.
 Parts face side: Parts on the parts face side seen from the pattern face are indicated.

6-4. SCHEMATIC DIAGRAM • Refer to page 10 for IC Block Diagrams.
• Refer to page 17 for IC Pin Function.



Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF : μF
- All resistors are in Ω and $1/4\text{ W}$ or less unless otherwise specified.
- Power voltage is dc 3 V and fed with regulated dc power supply from battery terminal.
- Voltages are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10 M Ω). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- () : FM
- () : AM
- () : PB

6-5. IC PIN FUNCTION DESCRIPTION

• MAIN BOARD IC702 (DTC) LC72348W-9906

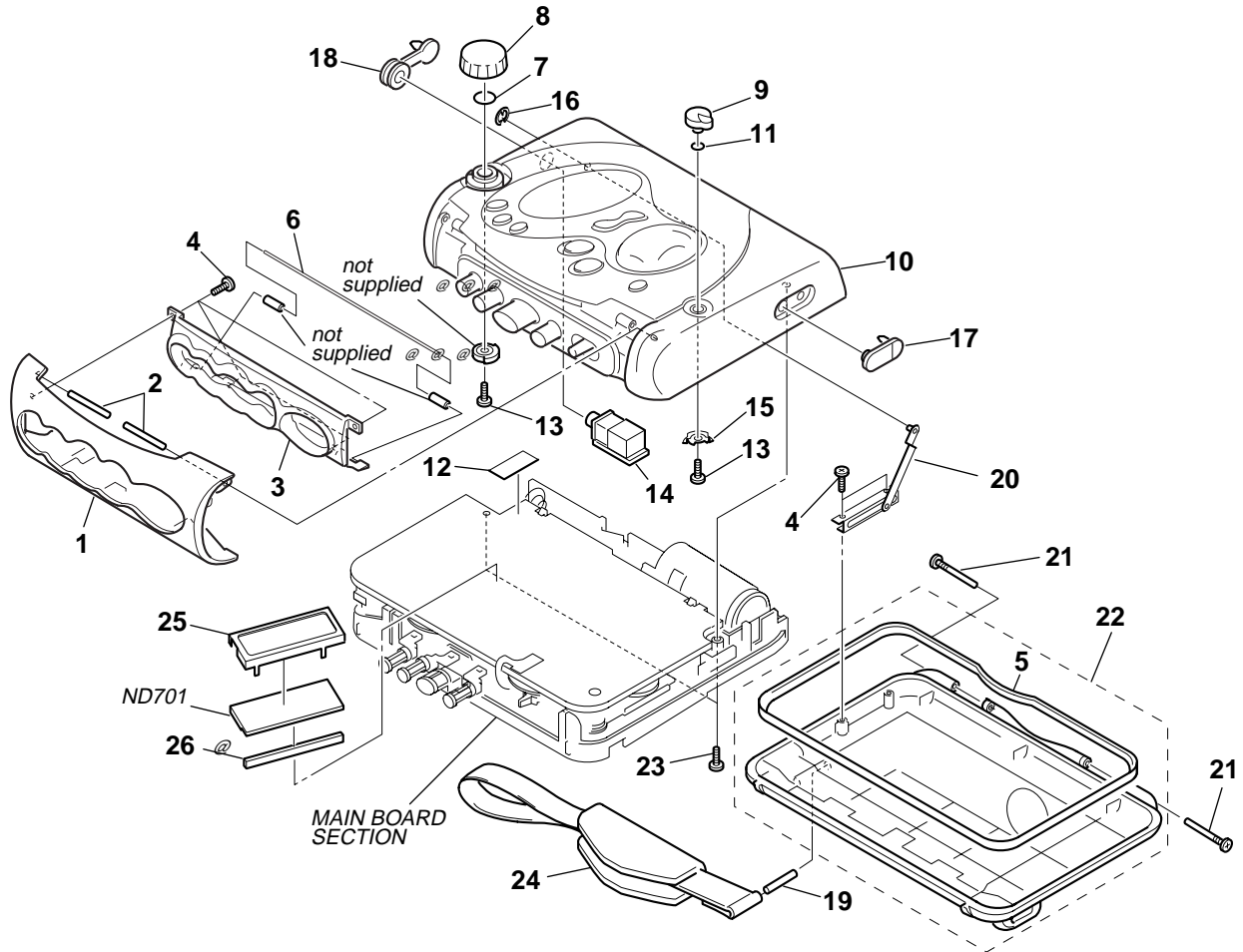
Pin No.	Pin Name	I/O	Description
1	XOUT	O	Crystal output
2	TEST2	—	GND
3-6	PA0-PA3	I	Key input
7-9	PB1-PB3	O	Key output
10	AVLS	O	AVLS output
11	MOTOR CTL	O	MOTOR control
12	LOCAL/DX/NOR/METAL	O	NOMAL/METAL(DX/LOCAL) select output
13	E/CA	I	Not used
14	BAND	O	Band output
15	SD	I	SD input
16	COMP	I	COMP input
17	N/R SW	I	TAPE FWD/REV input switch
18	BACK UP	I	Backup input
19	AMP-ON	O	AMP-ON output
20	BEEP	O	Beep output
21	BATT CHECK	I	Backup input during halt
22	BATT REF	I	POWER CHECK input
23	HOLD	I	HOLD Key input
24	VSS	—	GND
25	RADIO ON	O	RADIO ON/OFF control
26	MEGA BASS	O	MEGA BASS ON/OFF control
27	MUTE	O	Mute output
28	TAPE	I	TAPE input
29	PRE CTL	O	PREAMP control
30-44	S1-S15	O	segment output
45-48	COM1-COM4	O	Common output
49-52	DBR1-DBR4	—	LCD power supply
53	RESET	I	RESET input
54	TU VCC	I	IF input
55	VDD	—	Positive polarity
56	FM IN	I	Input to FM system
57	AM IN	I	Input to AM system
58	VSS	—	GND
59	E.O	O	Error output
60	LPF IN	I	LPF input
61	LPF OUT	O	LPF output
62	LPF GND	—	GND
63	TEST1	—	GND
64	XIN	I	Input to crystal

SECTION 7 EXPLODED VIEWS

NOTE:

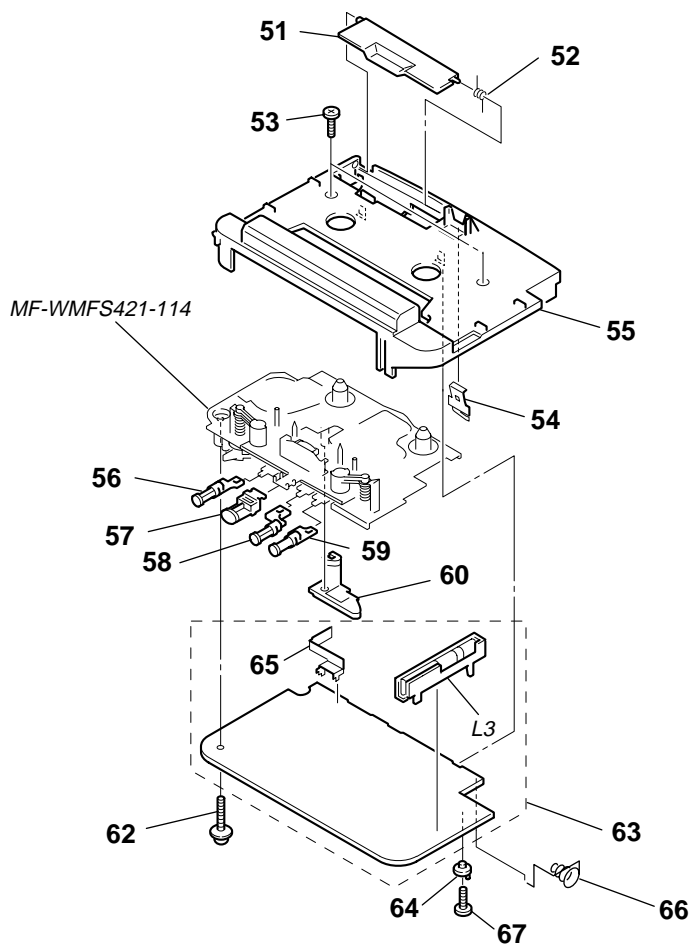
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

7-1. CABINET ASSY SECTION



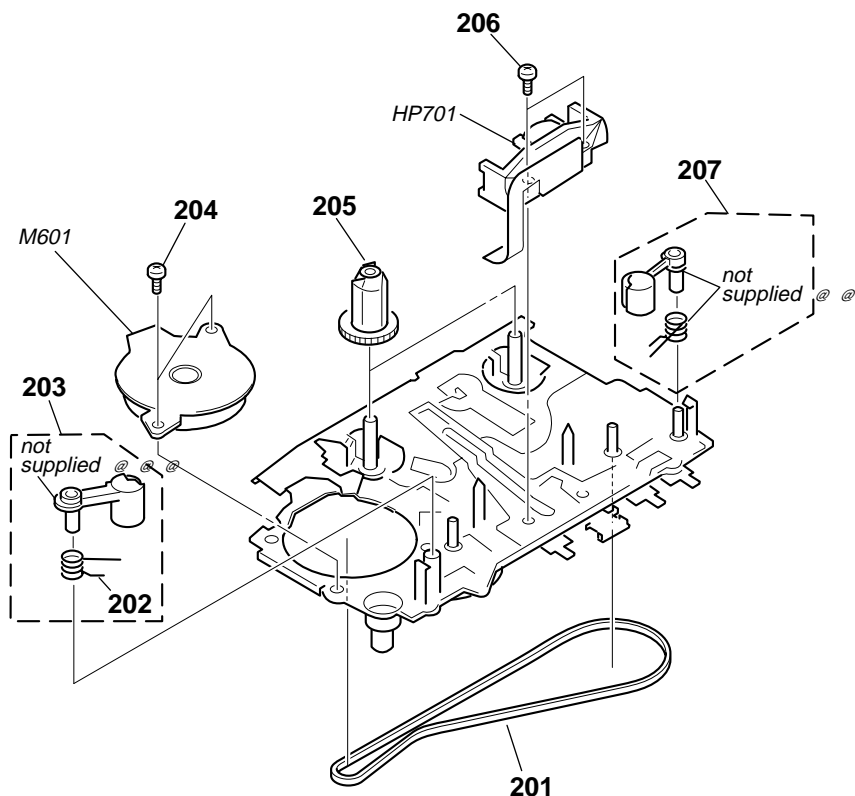
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	3-224-944-01	BUCKLE		15	3-227-296-01	JOINT (HOLD)	
2	3-224-946-01	SHAFT (BUCKLE)		16	7-624-101-04	STOP RING 1.2 (E TYPE)	
3	3-224-971-01	PLATE, LOCK		17	3-922-447-01	PACKING, DC JACK	
4	3-318-203-62	SCREW (B1.7X4), TAPPING		18	3-386-371-01	PACKING, HP JACK	
5	3-224-941-01	PACKING (MD.RVS)		19	7-626-311-81	SPRING-PIN 1.6X18	
6	3-224-945-01	SHAFT (ROLLER)		20	X-3369-989-1	ARM ASSY	
7	3-012-927-01	RING, O		21	3-386-373-01	SCREW, TAPPING	
8	3-224-937-01	KNOB (VOL)		22	X-3380-329-1	CASSETTE SUB ASSY, LID	
9	3-224-938-01	KNOB (HOLD)		23	3-318-203-32	SCREW (B1.7), TAPPING	
10	X-3380-327-1	CABINET (REAR) SUB ASSY		24	3-228-185-01	STRAP, HAND	
11	3-326-560-11	RING (DIA. 2.5XDIA. 4.5), O		25	3-224-947-01	HOLDER (LCD)	
12	3-018-075-01	SPACER		26	3-040-176-01	RUBBER, CONDUCTIVE	
13	3-318-201-51	SCREW (B) (1.4X4), TAPPING		ND701	1-804-256-11	LIQUID CRYSTAL DISPLAY	
* 14	1-681-951-01	HEADPHONE BOARD					

7-2. MAIN BOARD SECTION



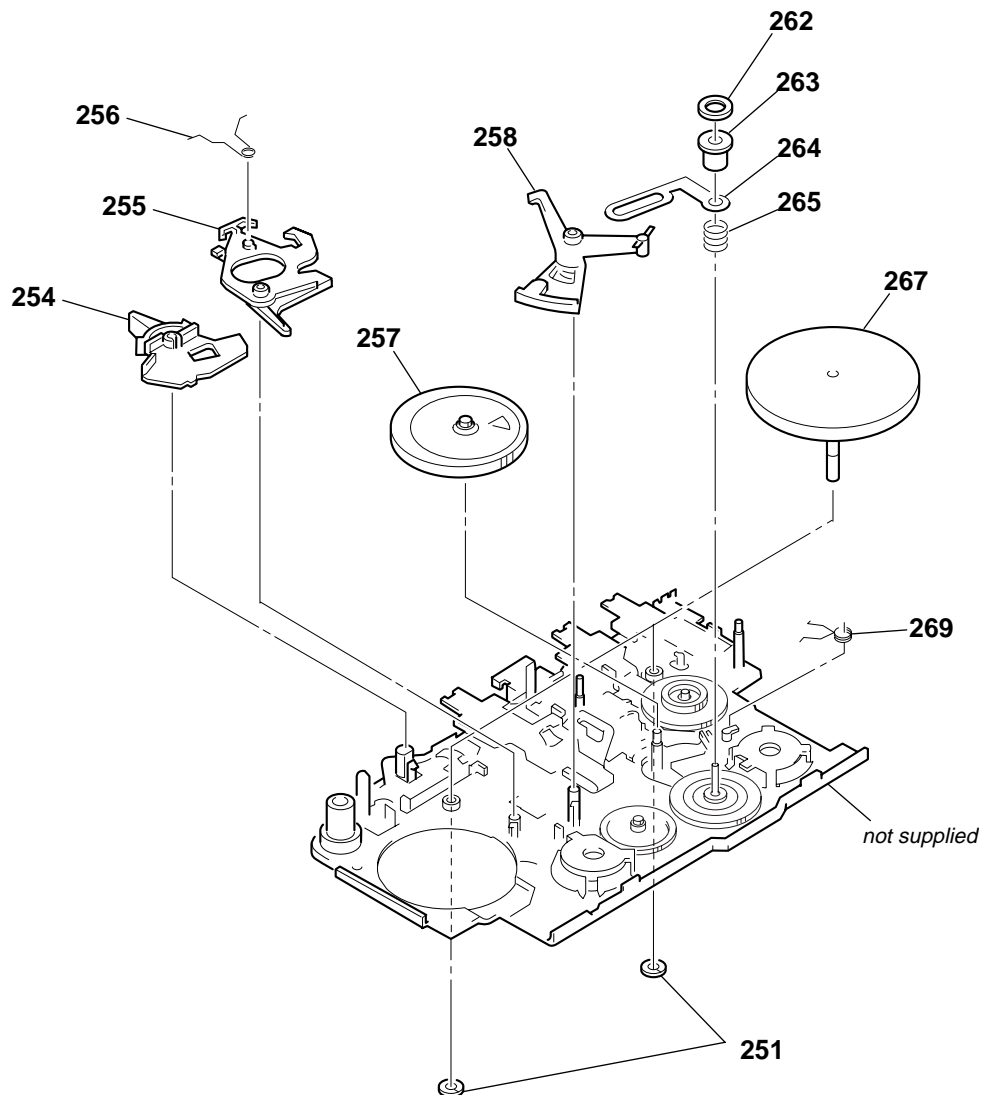
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
51	3-227-295-01	LID, BATTERY CASE		60	3-224-939-01	STOPPER (L2)	
52	3-231-465-01	SPRING, TORSION		62	3-015-285-01	SCREW (M1.4),TOOTHED LOCK (WH)	
53	3-318-203-32	SCREW (B1.7), TAPPING		* 63	A-3021-390-A	MAIN BOARD, COMPLETE	
54	3-227-301-01	SPRING (CASSETTE)		64	3-221-310-01	LEVER (VOL) (B)	
55	3-224-933-01	CHASSIS		65	3-921-878-01	TERMINAL BOARD, BATTERY	
56	3-227-300-01	BUTTON (REW)		66	3-224-948-01	TERMINAL (-), BATTERY	
57	3-227-297-01	BUTTON (PLAY)		67	3-318-201-51	SCREW (B) (1.4X4), TAPPING	
58	3-227-299-01	BUTTON (FF)		L3	1-754-166-11	ANTENNA, FERRITE-ROD	
59	3-227-298-01	BUTTON (STOP)					

7-3. MECHANISM DECK SECTION-1
(MF-WMFS421-114)



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
201	3-938-657-01	BELT		206	3-704-197-71	SCREW (M1.4)	
202	3-920-997-01	SPRING (PINCH R)		207	X-3369-749-1	PINCH LEVER (N) ASSY	
203	X-3369-748-1	PINCH LEVER (R) ASSY		HP701	1-500-648-11	HEAD, MAGNETIC (PLAYBACK)	
204	3-704-197-01	SCREW (M1.4), SPECIAL HEAD		M601	1-763-683-11	MOTOR, DC(REEL/CAPSTAN)(WITH PULLEY)	
205	3-024-223-11	GEAR (REEL-2)					

7-4. MECHANISM DECK SECTION-2
(MF-WMFS421-114)



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
251	3-921-797-01	WASHER		262	3-728-091-01	WASHER, STOPPER	
254	3-021-786-01	LEVER (FS), D SELECTION		263	3-923-530-11	SLEEVE (M)	
255	3-921-052-11	LEVER (A), DETECTION		264	3-921-335-01	WASHER, LEVER	
256	3-920-994-11	SPRING (D SELECTION)		265	3-920-990-01	SPRING (UD), COMPRESSION	
257	X-3376-169-1	CLUTCH ASSY		267	X-3372-619-1	WHEEL ASSY (NP), CAPSTAN	
258	3-929-419-01	LEVER (BR), DETECTION		269	3-933-324-01	SPRING (FR LEVER)	

SECTION 8 ELECTRICAL PARTS LIST

MAIN

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- CAPACITORS:
uF: μ F
- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- COILS
uH: μ H

- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA..., μ PA...,
uPB..., μ PB..., uPC..., μ PC...,
uPD..., μ PD...

When indicating parts by reference number, please include the board name.

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
*	A-3021-390-A	MAIN BOARD, COMPLETE *****		C105	1-115-156-11	CERAMIC CHIP 1uF	10V
	3-221-309-01	LEVER (VOL) (A)		C106	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
	4-223-413-01	SCREW (M1.4X3)		C107	1-115-156-11	CERAMIC CHIP 1uF	10V
		< CAPACITOR >		C108	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C2	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C201	1-162-962-11	CERAMIC CHIP 470PF	10% 50V
C3	1-162-927-11	CERAMIC CHIP 100PF	5% 50V	C202	1-162-962-11	CERAMIC CHIP 470PF	10% 50V
C4	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V	C203	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
C5	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V	C204	1-126-153-11	ELECT 22uF	20% 6.3V
C6	1-115-156-11	CERAMIC CHIP 1uF	10V	C205	1-115-156-11	CERAMIC CHIP 1uF	10V
C7	1-164-315-11	CERAMIC CHIP 470PF	5.00% 50V	C206	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C8	1-113-619-11	CERAMIC CHIP 0.47uF	10V	C207	1-115-156-11	CERAMIC CHIP 1uF	10V
C9	1-126-514-11	ELECT 22uF	20.00% 6.3V	C208	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C10	1-162-910-11	CERAMIC CHIP 5PF	0.25PF 50V	C301	1-115-156-11	CERAMIC CHIP 1uF	10V
C11	1-115-156-11	CERAMIC CHIP 1uF	10V	C302	1-115-156-11	CERAMIC CHIP 1uF	10V
C12	1-107-686-11	TANTALUM CHIP 4.7uF	20% 4V	C303	1-126-514-11	ELECT 22uF	20.00% 6.3V
C13	1-115-156-11	CERAMIC CHIP 1uF	10V	C304	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C14	1-115-156-11	CERAMIC CHIP 1uF	10V	C305	1-126-514-11	ELECT 22uF	20.00% 6.3V
C15	1-162-912-11	CERAMIC CHIP 7PF	0.5PF 50V	C306	1-117-863-11	CERAMIC CHIP 0.47uF	10.00% 6.3V
C16	1-126-794-11	ELECT 4.7uF	20.00% 25V	C307	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V
C17	1-126-791-11	ELECT 10uF	20.00% 16V	C308	1-115-873-11	ELECT 3.3uF	20.00% 50V
C18	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C309	1-165-176-11	CERAMIC CHIP 0.047uF	10.00% 16V
C19	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C311	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C20	1-115-156-11	CERAMIC CHIP 1uF	10V	C312	1-162-974-11	CERAMIC CHIP 0.01uF	50V
C21	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C407	1-135-834-11	CERAMIC CHIP 2.2E+06PF	6.3V
C22	1-162-913-11	CERAMIC CHIP 8PF	0.50PF 50V	C501	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C23	1-104-847-11	TANTAL. CHIP 22uF	20.00% 4V	C502	1-126-514-11	ELECT 22uF	20.00% 6.3V
C24	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C503	1-126-176-11	ELECT 220uF	20% 10V
C25	1-162-907-11	CERAMIC CHIP 2PF	0.25PF 50V	C601	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C26	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C602	1-115-467-11	CERAMIC CHIP 0.22uF	10.00% 10V
C28	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C603	1-165-176-11	CERAMIC CHIP 0.047uF	10.00% 16V
C29	1-162-915-11	CERAMIC CHIP 10PF	0.5PF 50V	C604	1-165-176-11	CERAMIC CHIP 0.047uF	10.00% 16V
C30	1-126-791-11	ELECT 10uF	20.00% 16V	C605	1-165-176-11	CERAMIC CHIP 0.047uF	10.00% 16V
C31	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C606	1-117-863-11	CERAMIC CHIP 0.47uF	10.00% 6.3V
C32	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C607	1-125-838-11	CERAMIC CHIP 2.2uF	10% 6.3V
C33	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C701	1-164-361-11	CERAMIC CHIP 0.047uF	16V
C34	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C702	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V
C35	1-162-927-11	CERAMIC CHIP 100PF	5% 50V	C703	1-162-912-11	CERAMIC CHIP 7PF	0.5PF 50V
C39	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C704	1-162-912-11	CERAMIC CHIP 7PF	0.5PF 50V
C40	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C705	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C45	1-115-416-11	CERAMIC CHIP 0.001uF	5.00% 25V	C706	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C101	1-162-962-11	CERAMIC CHIP 470PF	10% 50V	C707	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V
C102	1-162-962-11	CERAMIC CHIP 470PF	10% 50V	C708	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V
C103	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V	C709	1-107-826-11	CERAMIC CHIP 0.1uF	10.00% 16V
C104	1-126-153-11	ELECT 22uF	20% 6.3V	C710	1-117-863-11	CERAMIC CHIP 0.47uF	10.00% 6.3V
				C711	1-104-847-11	TANTAL. CHIP 22uF	20.00% 4V

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C712	1-128-110-11	ELECT	470uF 20.00% 4V			< RESISTOR >	
C713	1-128-110-11	ELECT	470uF 20.00% 4V				
C714	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V				
		< TRIMMER >					
CT1	1-141-422-11	CAP, ADJ 10PF					
		< DIODE >					
D1	8-759-072-60	DIODE SVC347T-TL		R1	1-216-821-11	METAL CHIP	1K 5% 1/16W
D2	8-719-050-97	DIODE MA357(Q)-(TX).SO		R3	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
D4	8-719-050-97	DIODE MA357(Q)-(TX).SO		R4	1-216-817-11	METAL CHIP	470 5% 1/16W
D403	8-719-158-49	DIODE MA8120-TX		R5	1-216-833-11	METAL CHIP	10K 5% 1/16W
D404	8-719-404-50	DIODE MA111-TX		R6	1-216-823-11	METAL CHIP	1.5K 5% 1/16W
D703	8-719-049-09	DIODE 1SS367-T3SONY		R7	1-216-833-11	METAL CHIP	10K 5% 1/16W
		< FERRITE BEAD >		R8	1-216-833-11	METAL CHIP	10K 5% 1/16W
FB101	1-500-245-11	FERRITE	0uH	R10	1-216-833-11	METAL CHIP	10K 5% 1/16W
FB201	1-500-245-11	FERRITE	0uH	R11	1-216-833-11	METAL CHIP	10K 5% 1/16W
FB301	1-500-245-11	FERRITE	0uH	R12	1-216-803-11	METAL CHIP	33 5% 1/16W
		< IC >		R13	1-216-813-11	METAL CHIP	220 5% 1/16W
IC1	8-752-073-35	IC CXA1960Q		R14	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
IC301	8-759-665-91	IC LB8115W-NA-TLM		R15	1-216-845-11	METAL CHIP	100K 5% 1/16W
IC701	8-759-457-70	IC XC62RP1602MR		R17	1-216-833-11	METAL CHIP	10K 5% 1/16W
IC702	8-759-829-35	IC LC72348W-CFX1726		R18	1-216-845-11	METAL CHIP	100K 5% 1/16W
		< JUMPER >		R19	1-216-833-11	METAL CHIP	10K 5% 1/16W
JC2	1-216-864-11	METAL CHIP	0 5% 1/16W	R20	1-216-821-11	METAL CHIP	1K 5% 1/16W
JC9	1-216-864-11	METAL CHIP	0 5% 1/16W	R101	1-216-835-11	METAL CHIP	15K 5% 1/16W
JC302	1-216-864-11	METAL CHIP	0 5% 1/16W	R102	1-216-835-11	METAL CHIP	15K 5% 1/16W
JC402	1-216-864-11	METAL CHIP	0 5% 1/16W	R103	1-216-855-11	METAL CHIP	680K 5% 1/16W
JC407	1-216-864-11	METAL CHIP	0 5% 1/16W	R104	1-216-819-11	METAL CHIP	680 5% 1/16W
JC408	1-216-864-11	METAL CHIP	0 5% 1/16W	R105	1-216-819-11	METAL CHIP	680 5% 1/16W
JC409	1-216-864-11	METAL CHIP	0 5% 1/16W	R106	1-216-831-11	METAL CHIP	6.8K 5% 1/16W
JC706	1-216-864-11	METAL CHIP	0 5% 1/16W	R107	1-216-864-11	METAL CHIP	0 5% 1/16W
JC707	1-216-864-11	METAL CHIP	0 5% 1/16W	R108	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
JC708	1-216-864-11	METAL CHIP	0 5% 1/16W	R200	1-216-821-11	METAL CHIP	1K 5% 1/16W
		< COIL >		R201	1-216-835-11	METAL CHIP	15K 5% 1/16W
L1	1-412-967-31	INDUCTOR	0.1uH	R202	1-216-835-11	METAL CHIP	15K 5% 1/16W
L2	1-412-967-31	INDUCTOR	0.1uH	R203	1-216-855-11	METAL CHIP	680K 5% 1/16W
L3	1-754-166-11	ANTENNA, FERRITE-ROD(MW)		R204	1-216-819-11	METAL CHIP	680 5% 1/16W
L4	1-424-763-11	COIL, RF (FM)		R205	1-216-819-11	METAL CHIP	680 5% 1/16W
L6	1-469-781-11	INDUCTOR	30nH	R206	1-216-831-11	METAL CHIP	6.8K 5% 1/16W
L7	1-419-540-11	COIL, OSCILLATION (AM)		R207	1-216-864-11	METAL CHIP	0 5% 1/16W
L402	1-412-033-11	INDUCTOR CHIP	220uH	R208	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
L702	1-412-995-21	INDUCTOR	22uH	R301	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
		< TRANSISTOR >		R302	1-216-789-11	METAL CHIP	2.2 5% 1/16W
Q3	8-729-423-52	TRANSISTOR	2SC3931-C-TX	R303	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q200	8-729-402-13	TRANSISTOR	XN1501-TX	R304	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q301	8-729-422-54	TRANSISTOR	XN4215-TX	R305	1-216-849-11	METAL CHIP	220K 5% 1/16W
Q501	8-729-046-89	TRANSISTOR	2SB970-S(TX).SO	R404	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q502	8-729-402-13	TRANSISTOR	XN1501-TX	R501	1-216-819-11	METAL CHIP	680 5% 1/16W
Q701	8-729-046-89	TRANSISTOR	2SB970-S(TX).SO	R502	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
				R503	1-216-833-11	METAL CHIP	10K 5% 1/16W
				R504	1-216-847-11	METAL CHIP	150K 5% 1/16W
				R601	1-216-833-11	METAL CHIP	10K 5% 1/16W
				R602	1-216-835-11	METAL CHIP	15K 5% 1/16W
				R603	1-216-821-11	METAL CHIP	1K 5% 1/16W
				R604	1-216-845-11	METAL CHIP	100K 5% 1/16W
				R605	1-216-821-11	METAL CHIP	1K 5% 1/16W
				R606	1-216-821-11	METAL CHIP	1K 5% 1/16W
				R607	1-216-837-11	METAL CHIP	22K 5% 1/16W
				R701	1-216-845-11	METAL CHIP	100K 5% 1/16W
				R702	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
				R703	1-216-845-11	METAL CHIP	100K 5% 1/16W
				R706	1-216-845-11	METAL CHIP	100K 5% 1/16W

MAIN

HEADPHONE

Ref. No.	Part No.	Description	Remarks
R707	1-216-845-11	METAL CHIP 100K	5% 1/16W
R708	1-216-849-11	METAL CHIP 220K	5% 1/16W
R709	1-216-809-11	METAL CHIP 100	5% 1/16W
R710	1-216-833-11	METAL CHIP 10K	5% 1/16W
R711	1-216-833-11	METAL CHIP 10K	5% 1/16W
R712	1-216-833-11	METAL CHIP 10K	5% 1/16W
R713	1-216-833-11	METAL CHIP 10K	5% 1/16W
R714	1-216-833-11	METAL CHIP 10K	5% 1/16W
R715	1-216-833-11	METAL CHIP 10K	5% 1/16W
R716	1-216-833-11	METAL CHIP 10K	5% 1/16W
R717	1-216-857-11	METAL CHIP 1M	5% 1/16W
R718	1-216-833-11	METAL CHIP 10K	5% 1/16W
R720	1-216-829-11	METAL CHIP 4.7K	5% 1/16W
R721	1-216-833-11	METAL CHIP 10K	5% 1/16W
R722	1-216-845-11	METAL CHIP 100K	5% 1/16W
< VARIABLE RESISTOR >			
RV1	1-223-258-11	RES, CARBON ADJ VAR 4.7K	
RV2	1-223-278-11	RES, CARBON ADJ VAR 100K	
RV301	1-225-184-11	RES, VAR, CARBON 10K/10K(▲VOLUME)	
RV601	1-241-916-11	RES, ADJ, CARBON 4.7K(TAPE SPEED)	
< SWITCH >			
S301	1-771-040-21	SWITCH, PUSH(TAPE POWER)	
S302	1-771-040-21	SWITCH, PUSH(◀▶)	
S701	1-771-586-41	SWITCH, SLIDE(HOLD OFF-ON)	
< THERMISTOR >			
TH601	1-803-751-21	THERMISTOR, POSITIVE	
< VIBRATOR >			
X701	1-579-615-11	VIBRATOR, CRYSTAL(75kHz)	

Ref. No.	Part No.	Description	Remarks
*	1-681-169-11	HEADPHONE BOARD	*****
*	1-757-684-11	WIRE (H/P MAIN PWB)	
< FERRITE BEAD >			
FB102	1-500-245-11	FERRITE	0uH
FB202	1-500-245-11	FERRITE	0uH
< JACK >			
J301	1-778-224-11	JACK (SMALL TYPE) (WATERPROOF)(☹)	

MISCELLANEOUS			

HP701	1-500-648-11	HEAD, MAGNETIC (PLAYBACK)	
M601	1-763-683-11	MOTOR, DC(REEL/CAPSTAN)(WITH PULLEY)	
ACCESSORIES & PACKING MATERIALS			

3-221-757-11		CLIP, BELT	
3-229-657-22		MANUAL, INSTRUCTION	
(ENGLISH,FRENCH,SPANISH,PORTUGUESE)			
8-953-284-91		HEADPHONE MDR-W014LP	

