

WM-EX570

SERVICE MANUAL

Ver 1.0 1999.02

AEP Model
E Model
Tourist Model



Photo: Black model

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol \square are trademarks of Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MT-WMEX550-125

SPECIFICATIONS

Tape section

Frequency response (Dolby NR off)

Playback: 20 - 18,000 Hz

Output

Headphones (♫) REMOTE jack
Load impedance 8 - 300 ohms

General

Power requirements

1.5 V
One R6 (size AA) battery
Rechargeable battery (for the "Sony Tourist Model" only)

Dimensions (w/h/d)

Approx. 109.0 x 79.2 x 28.6 mm (4 3/8 x 3 1/8 x 1 1/16 inches),
incl. projecting parts and controls

Mass

Approx. 155 g (5.5 oz)
Approx. 215 g (7.6 oz)
(incl. a battery and a cassette)

Supplied accessories

- Stereo headphones or earphones with remote control (1)
- Battery charger (1) ("Sony Tourist Model" only)
- AC plug adaptor (1) ("Sony Tourist Model" only)
- Rechargeable battery (NC-AA) (1) ("Sony Tourist Model" only)
- Battery R6P (SR) (1) ("Sony Tourist Model" only)
- Carrying pouch (1)

Design and specifications are subject to change without notice.

Battery life (Approx. hours) (EIAJ*)

	Sony alkaline LR6 (SG)	Sony R6P (SR)
Tape playback	30	8
	Rechargeable battery (NC-AA)	
Tape playback	8	

* Measured value by the standard of EIAJ (Electronic Industries Association of Japan). (Using a Sony HF series cassette tape)

House Current (see Fig. A-④)

Connect the AC power adaptor AC-E15HG (not supplied) to the DC IN 1.5V jack and to the mains. Do not use any other AC power adaptor.



Specifications for AC-E15HG vary for each area. Check your local voltage and the polarity of the plug before purchasing.

CASSETTE PLAYER

SONY®



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Flexible Circuit Board Repairing

- Keep the temperature of the 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.

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.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS 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.

SECTION 1 SERVICING NOTES

This set detects the rotation of GEAR (S) using the PH701 (photo reflector). The PH701 is mounted on the MAIN board, and therefore the GEAR cannot be detected with the MAIN board removed. As a result, the motor cannot be controlled, causing malfunction. Further, the S702 (FWD/REV switch) is also mounted on the MAIN board, and with the board removed, the mechanism position cannot be detected and the operation is not changed over. Therefore, when the voltage check is executed with the MAIN board removed, follow the procedure provided below.

Note : Do not move the S702 switch position when removing the MAIN board.

If it is moved, the set will not be changed over to the selected mode. In this case, reconnect the MAIN board to the set and retry the work from the beginning.

1. Setting
 - 1) Refer to "3. DISASSEMBLY", and remove the cabinet and open the MAIN board.
 - 2) Connect the MAIN board to the M901 (motor) and PM901 (plunger) using jumper wires.
 - 3) Short the ATS terminals.
 - 4) Press and fixed the S701 (CASSETTE HOLDER).
 - 5) Supply 1.5V to the battery terminals ⊕ and ⊖ using a stabilized power supply.

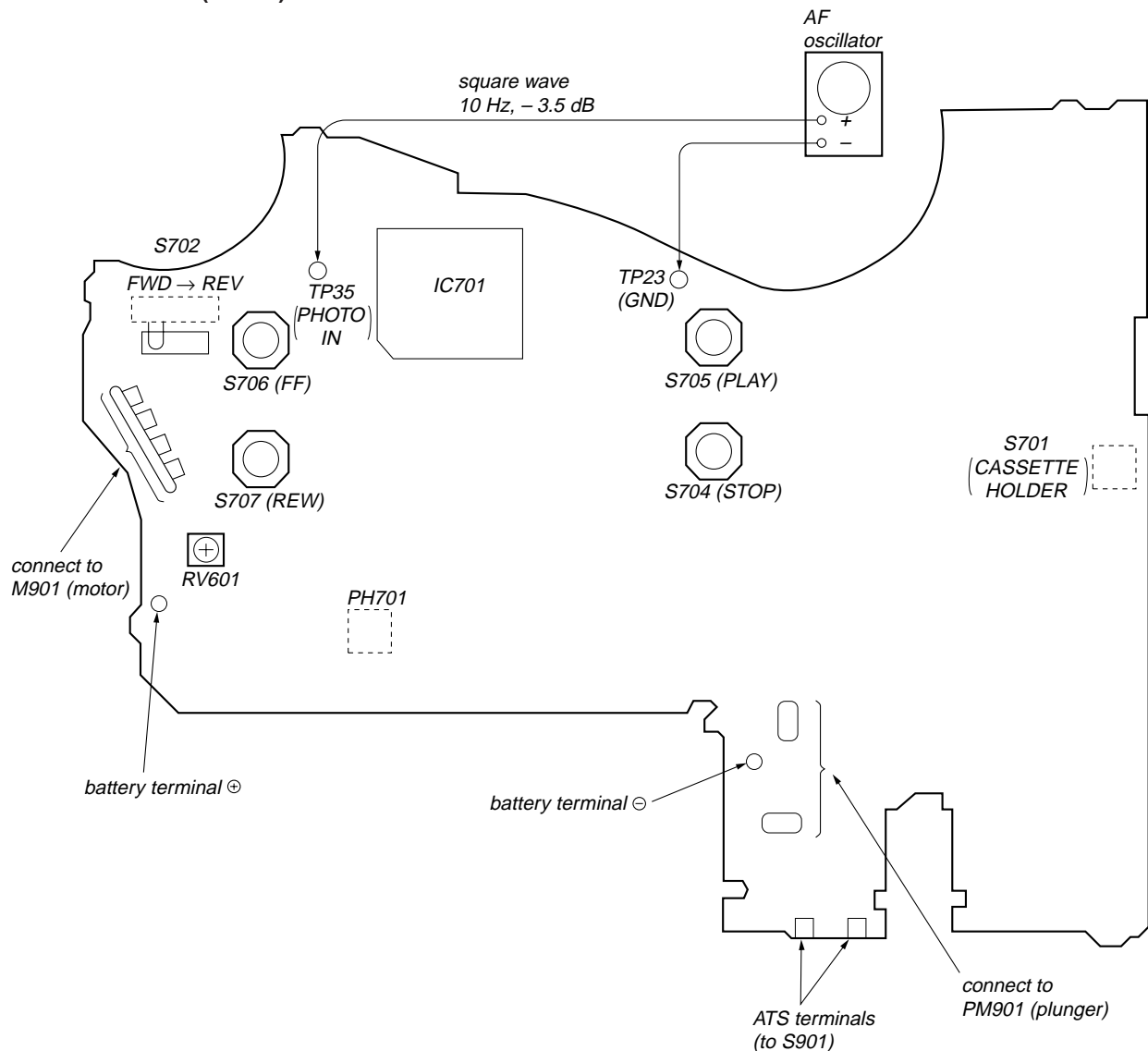
2. FF, REW Modes

- 1) Input a square wave to the TP35 (PHOTO IN) and TP23 (GND). (See figure below)
- 2) Press the S704 (STOP) for selecting STOP mode.
- 3) Press the S706 (FF) or S707 (REW).

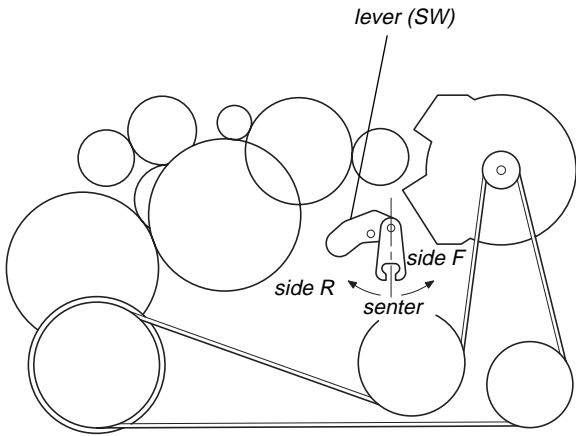
3. PLAY mode

- 1) Input a square wave to the TP35 (PHOTO IN) and TP23 (GND). (See figure below)
- 2) Press the S704 (STOP) for selecting STOP mode.
- 3) Press the S705 (PLAY). (Each time the switch is pressed, the mode is changed over)

— MAIN BOARD (Side B) —

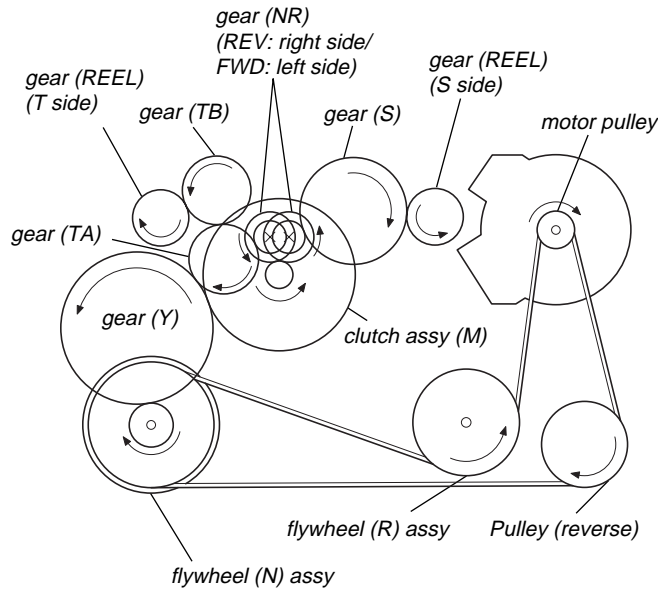


Lever (SW)

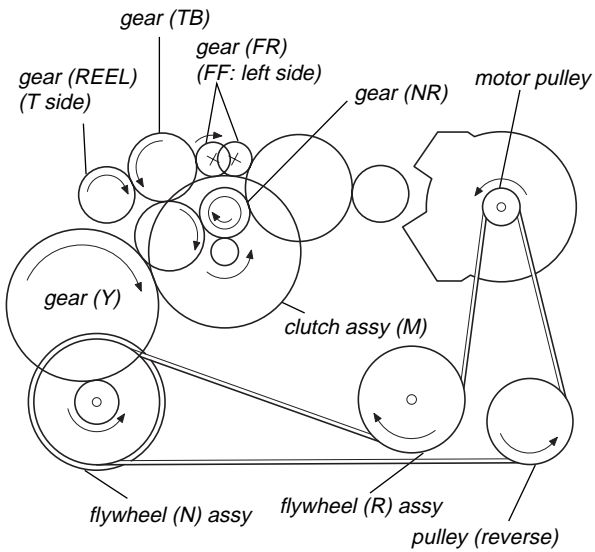


Rotation system

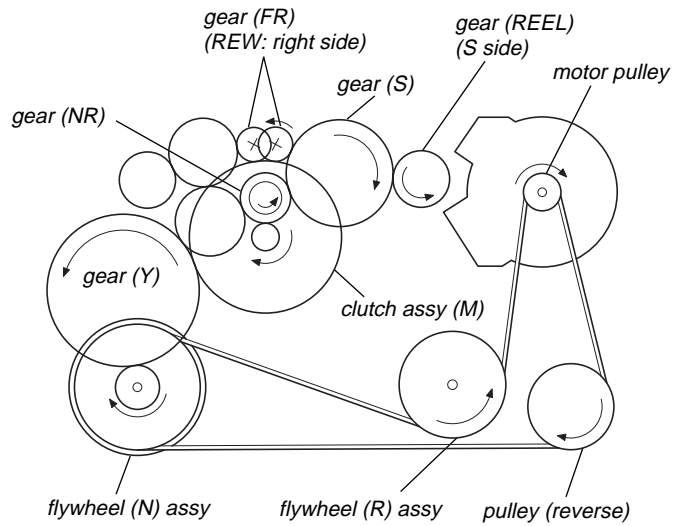
Rotation system during PLAY.



Rotation system during FF.



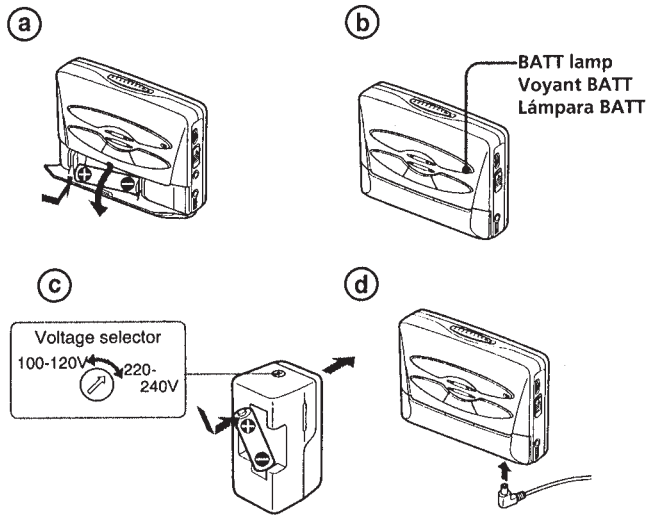
Rotation system during REW.



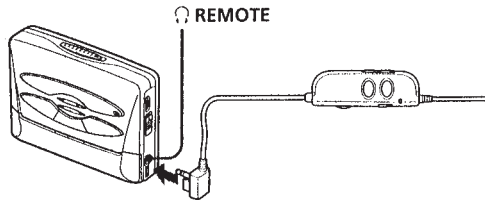
SECTION 2 GENERAL

This section is extracted from instruction manual.

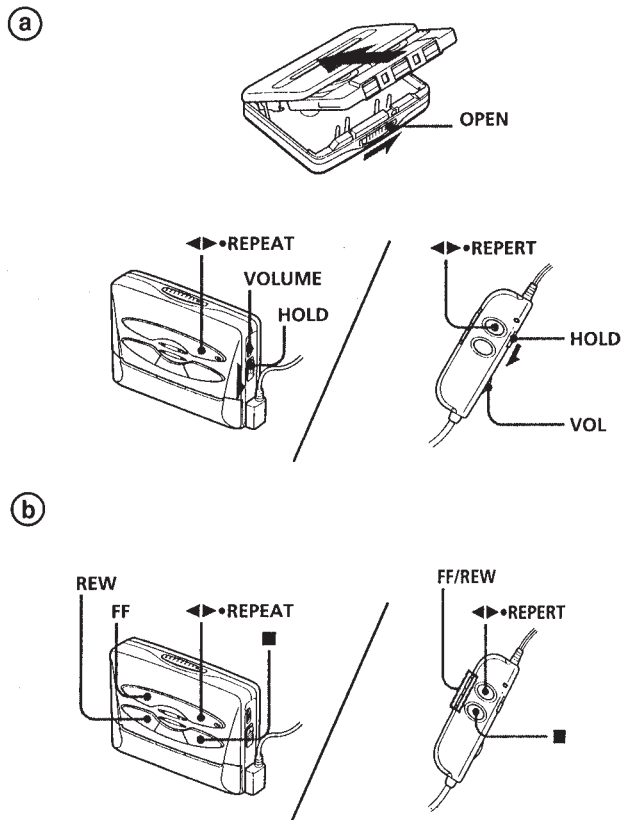
A



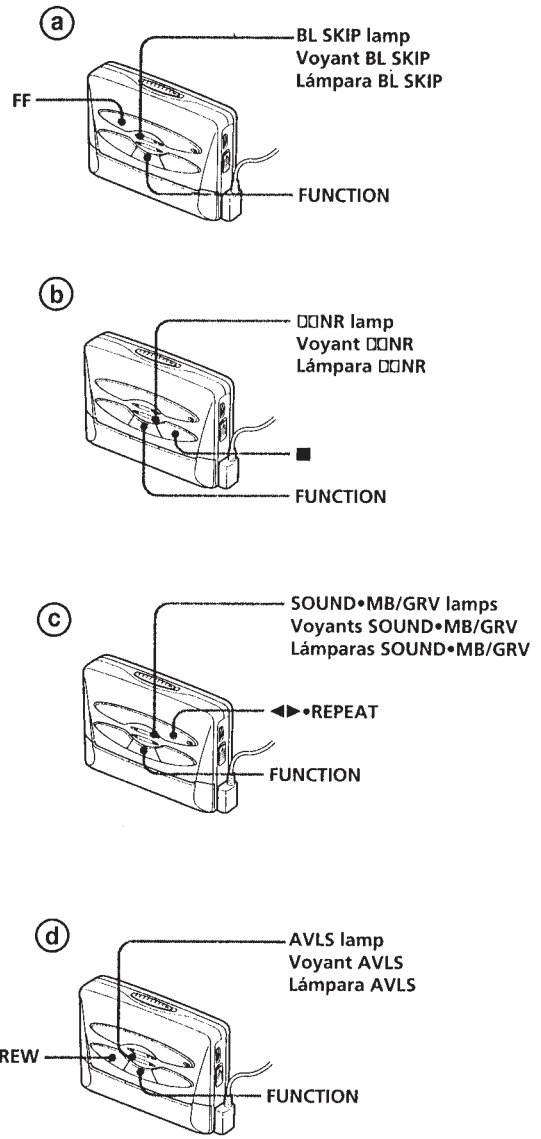
B



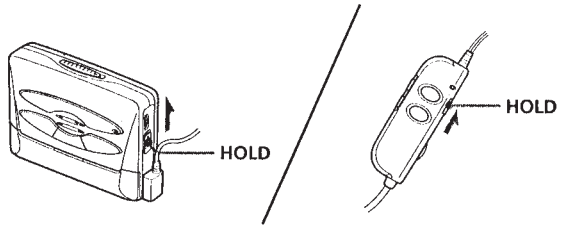
C



D

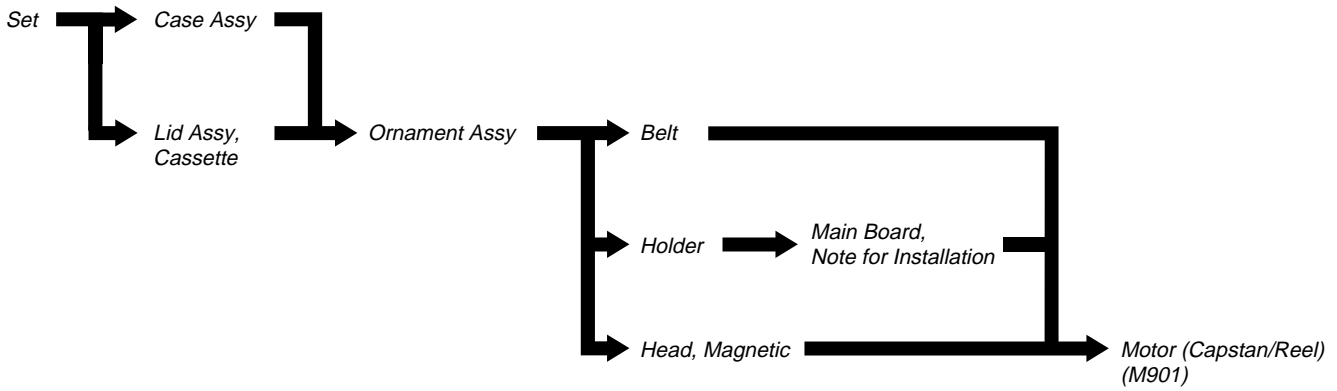


E



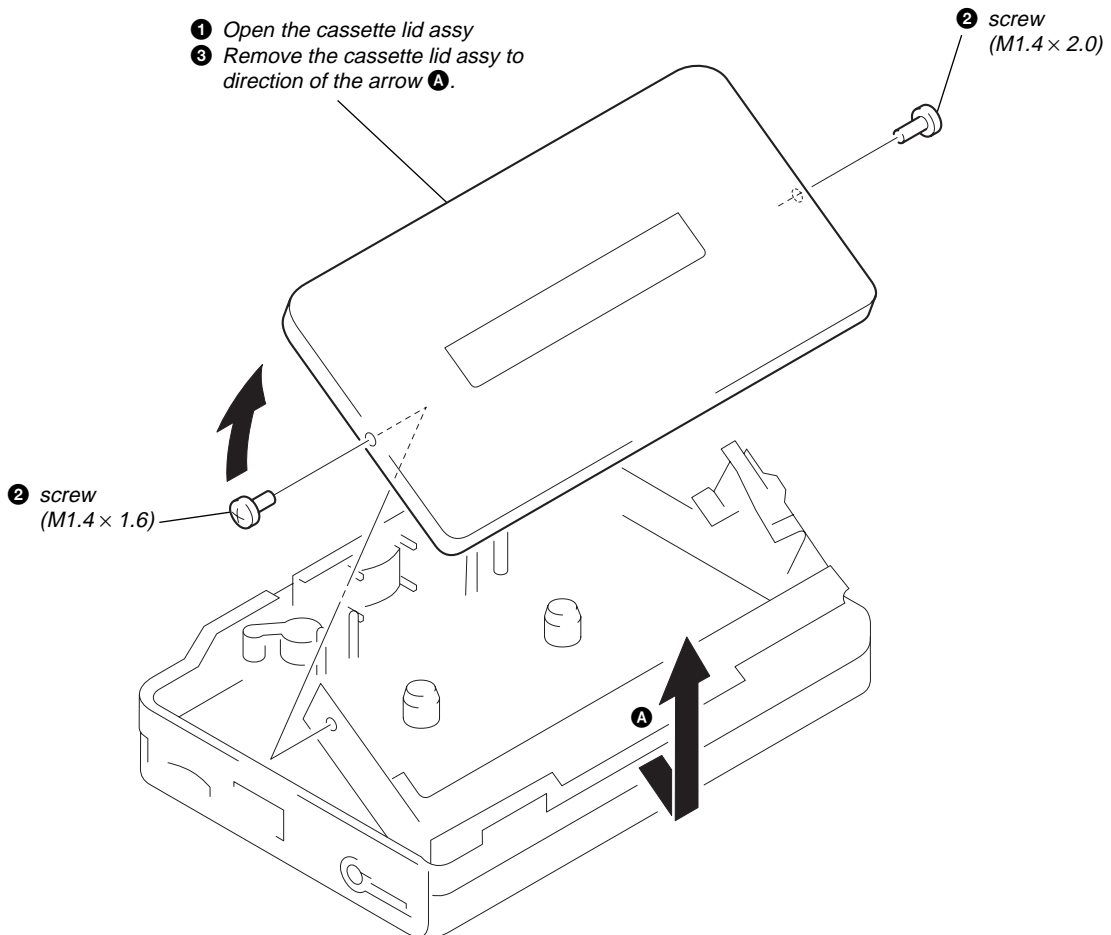
SECTION 3 DISASSEMBLY

• This set can be disassembled in the order shown below.

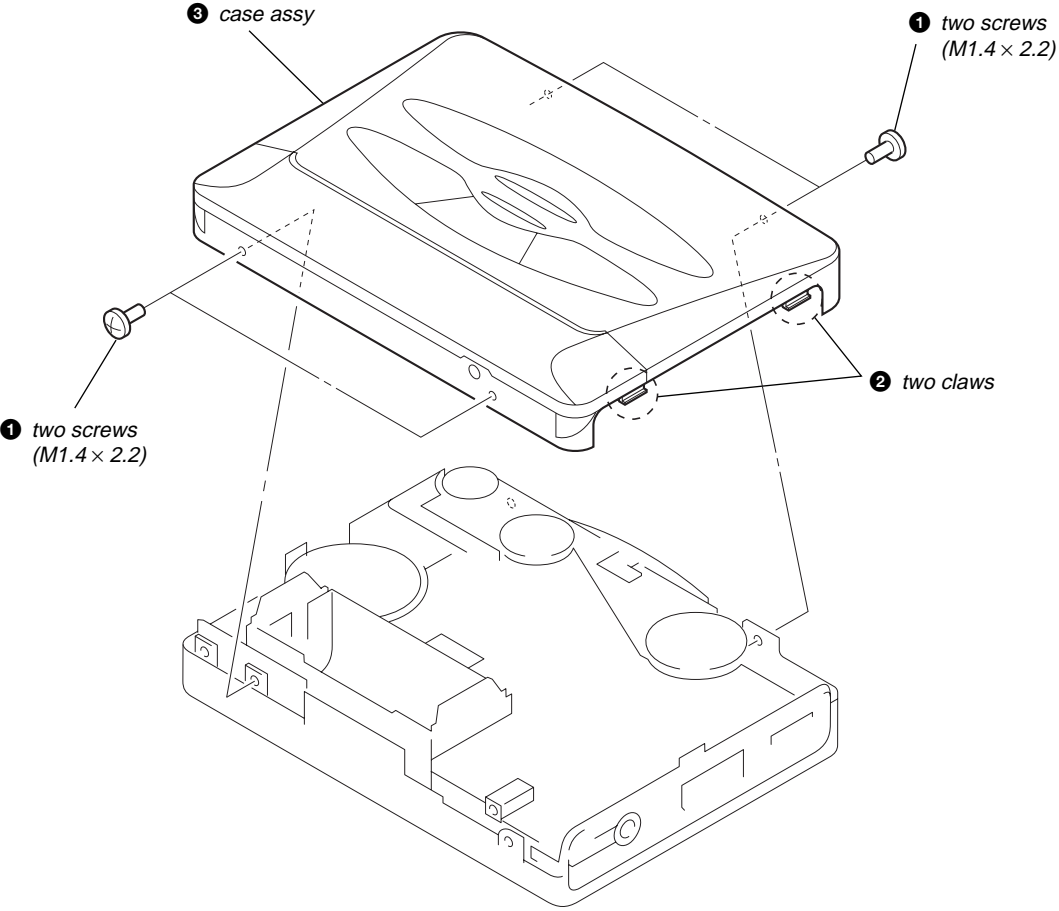


Note: Follow the disassembly procedure in the numerical order given.

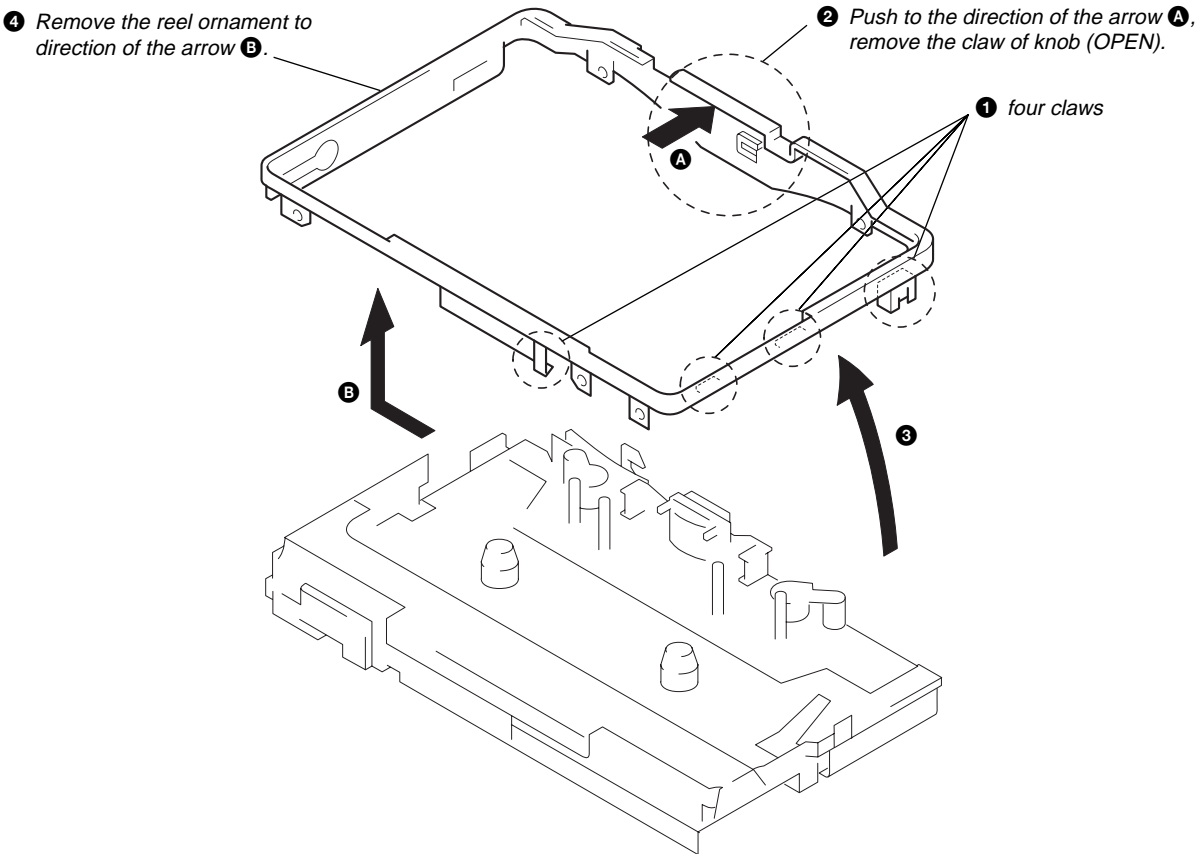
LID ASSY, CASSETTE



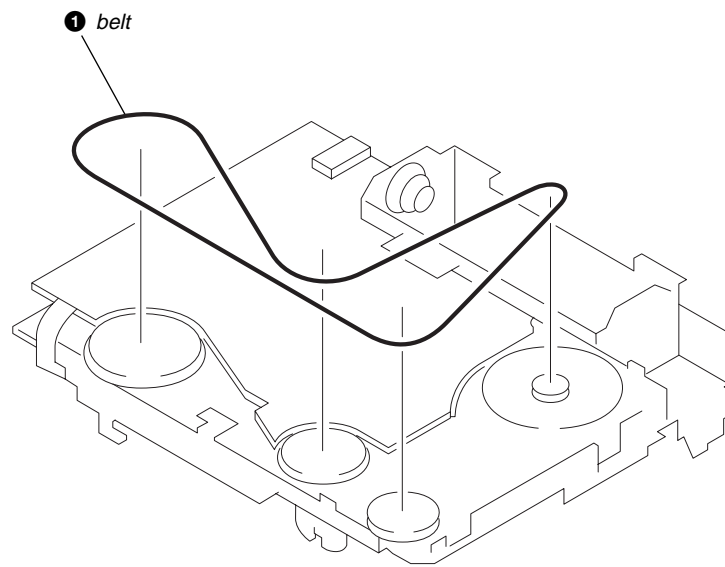
CASE ASSY



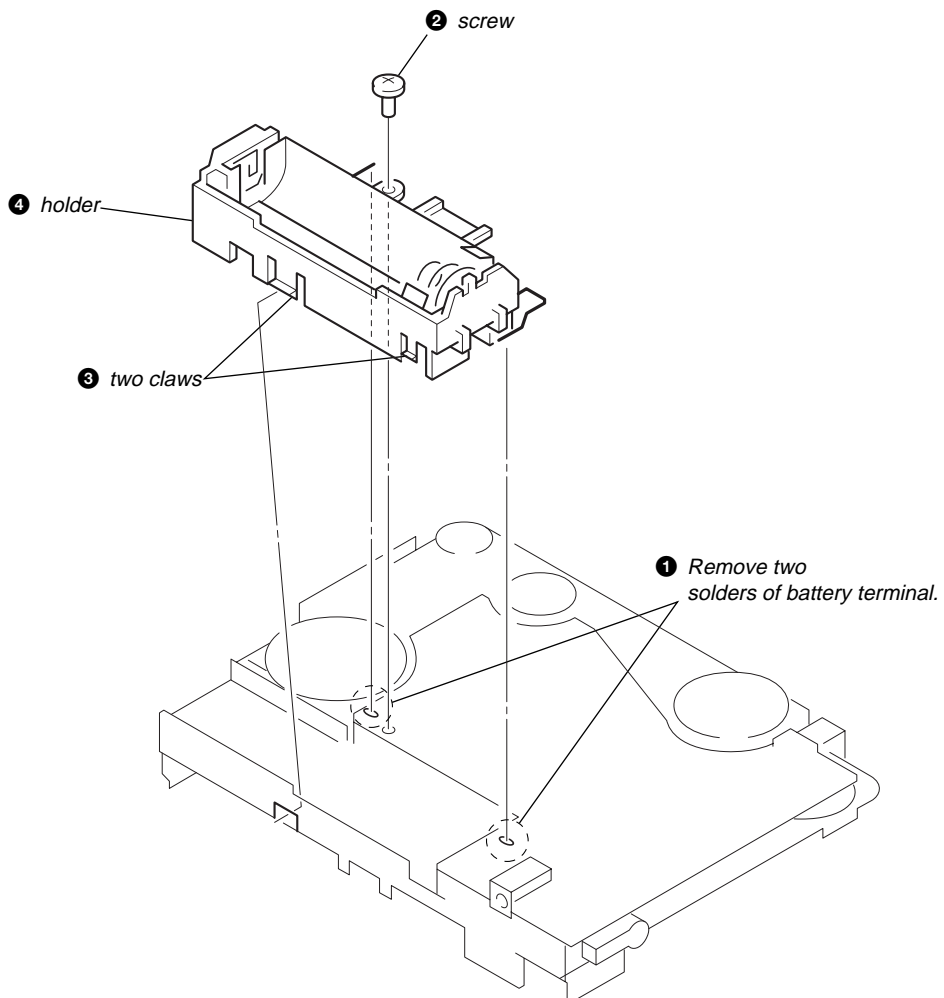
ORNAMENT ASSY



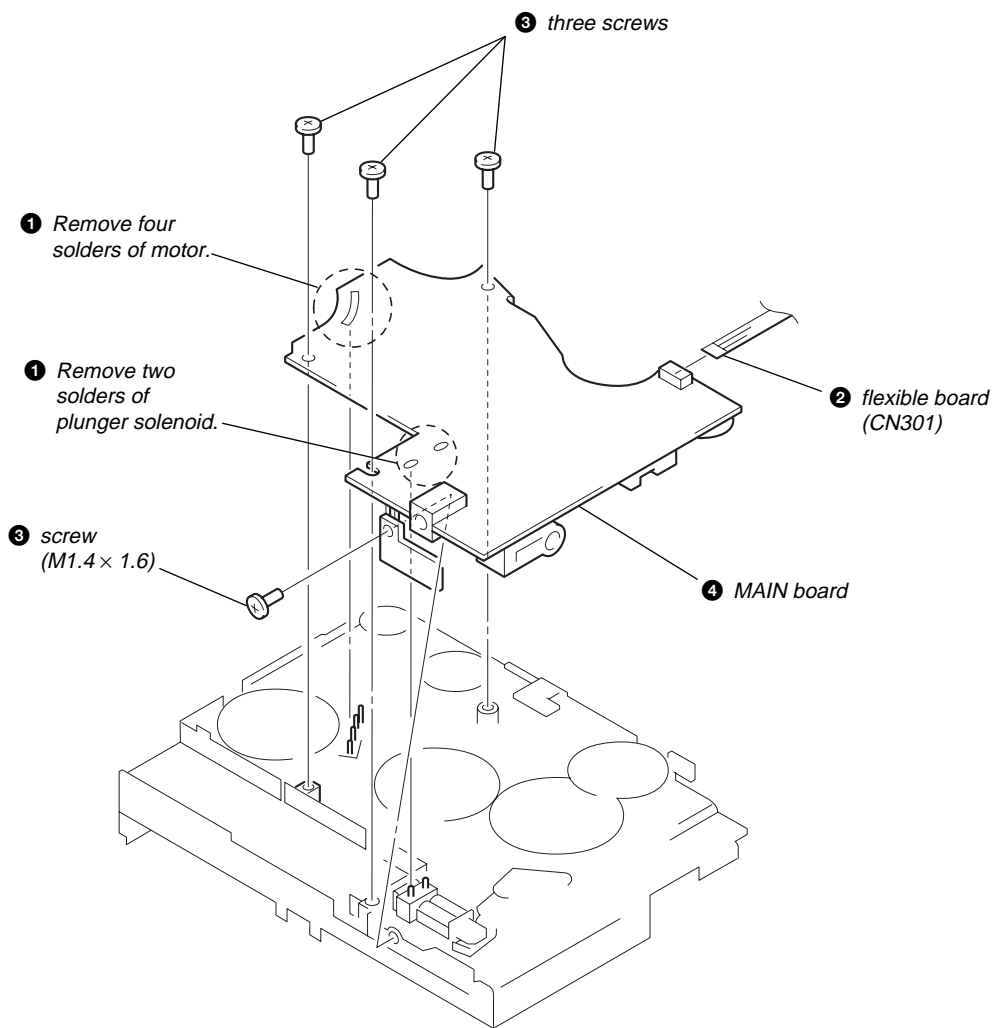
BELT



HOLDER



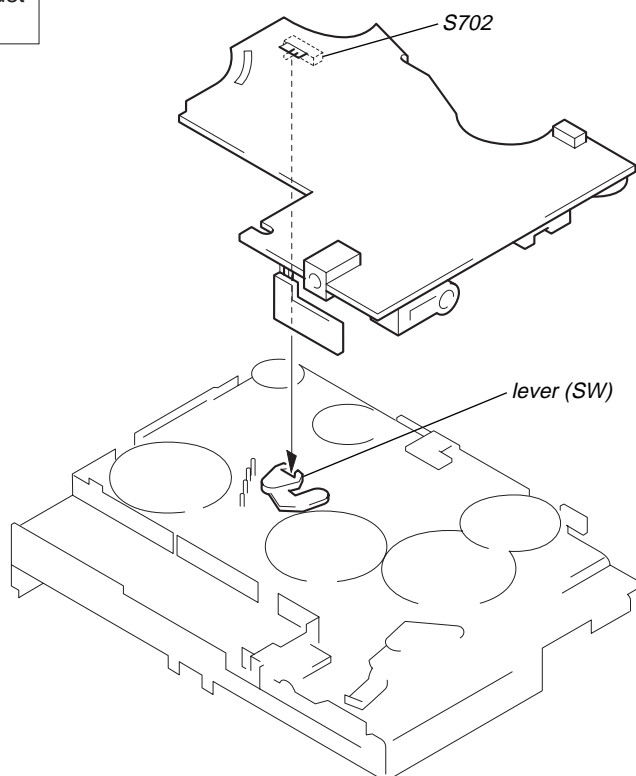
MAIN BOARD



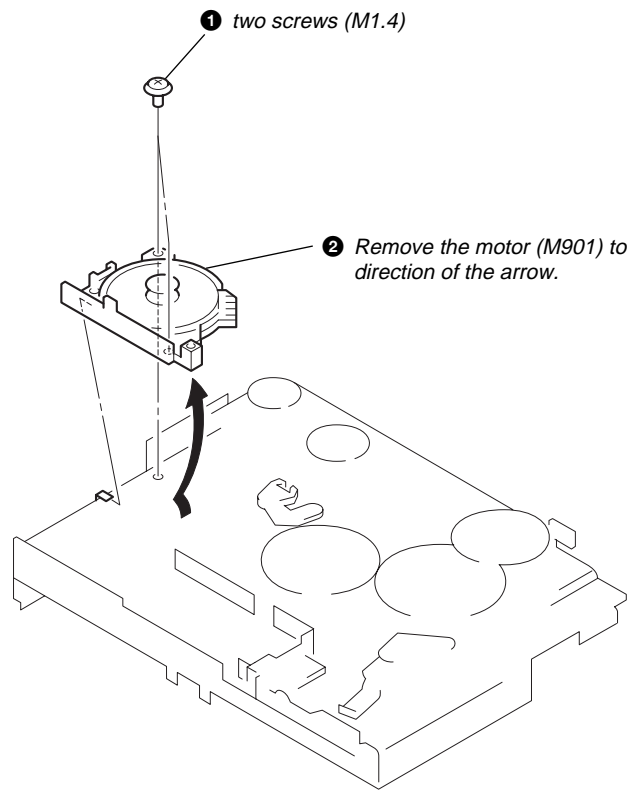
NOTE FOR INSTALLATION

• MAIN BOARD

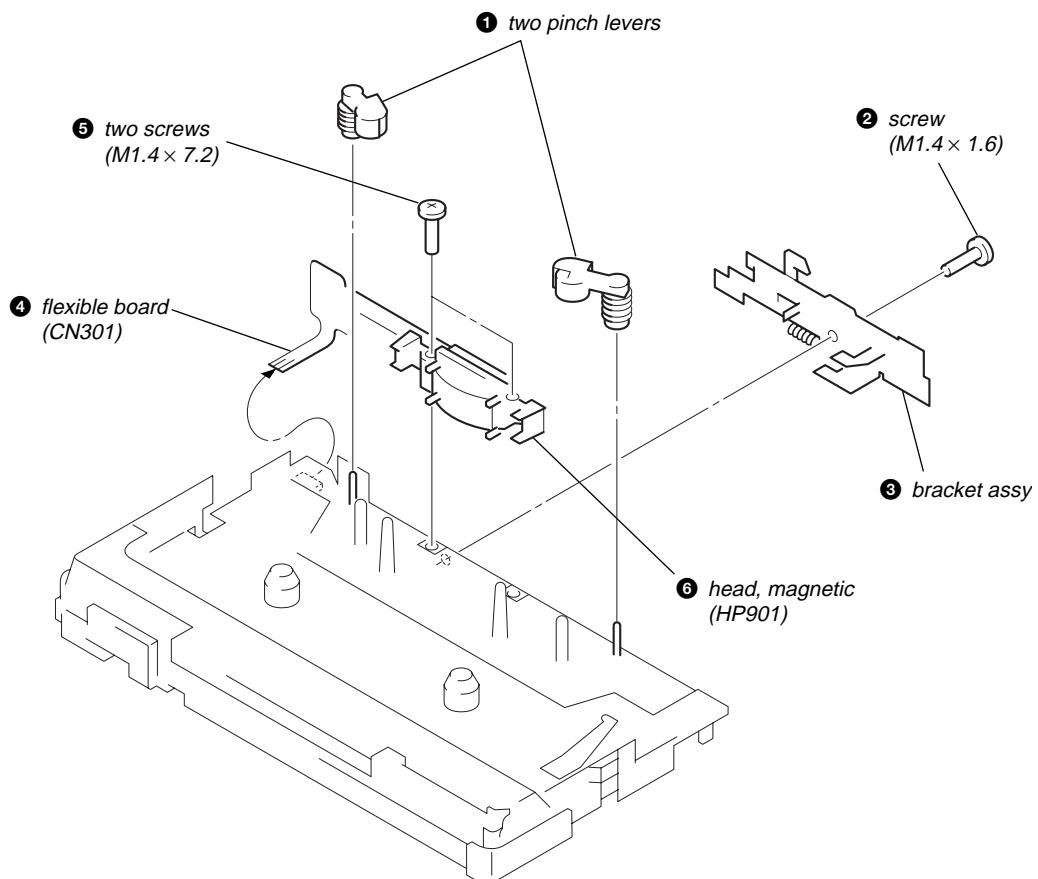
On installation MAIN board adjust the S702 and lever (SW)



MOTOR (CAPSTAN/REEL) (M901)



HEAD, MAGNETIC



SECTION 4 MECHANICAL ADJUSTMENTS

PRECAUTION

- Clean the following parts with a denatured-alcohol-moistened swab:
 playback head pinch roller
 rubber belts capstan
- Demagnetize the playback head with a head demagnetizer.
- Do not use a magnetized screwdriver for the adjustments.
- After the adjustments, apply suitable locking compound to the parts adjusted.
- The adjustments should be performed with the rated power supply voltage (1.3 V) unless otherwise noted.

Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	18 - 30 g*cm (0.25 - 0.41 oz*inch)
FWD Back Tension		0.7 - 2.0 g*cm (0.006 - 0.027 oz*inch)
REV	CQ-102RC	18 - 30 g*cm (0.25 - 0.41 oz*inch)
REV Back Tension		0.7 - 2.0 g*cm (0.006 - 0.027 oz*inch)
FF, REW	CQ-201B	more than 35 g*cm (more than 0.49 oz*inch)

SECTION 5 ELECTRICAL ADJUSTMENTS

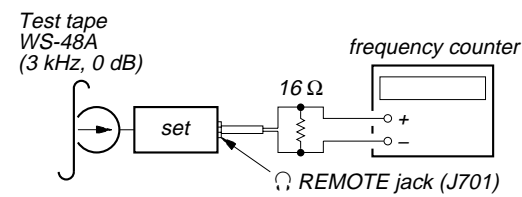
PRECAUTION

- Specified voltage : 1.3 V (DC)
- Setting
 BL SKIP : OFF
 SOUND MB/GRV : OFF
 AVLS : OFF
 NR : OFF

Test tape

Type	Signal	Used for
WS-48A	3 kHz, 0 dB	Tape Speed Adjustment

Tape Speed Adjustment Procedure:



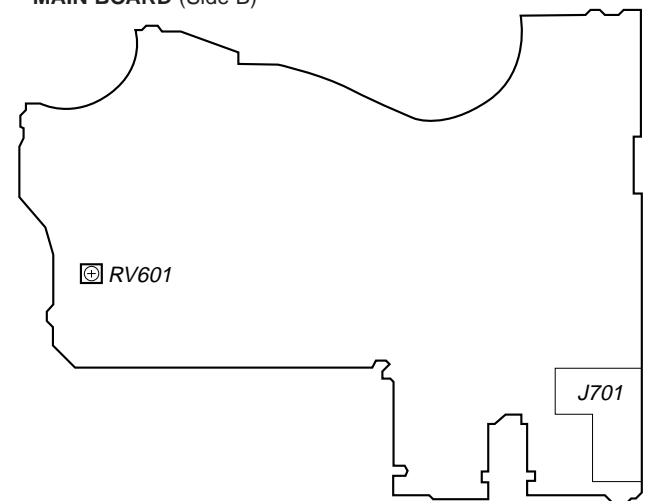
- Playback WS-48A (tape center) in the FWD state.
- Adjust RV601 so that the frequency counter reading becomes 3,000 Hz.

Specification Values: 2,990 to 3,010 Hz

- Playback WS-48A (tape center) in the REV state. Check that the frequency counter reading is within 2.5% (approx. 75 Hz) of the reading of step 1.

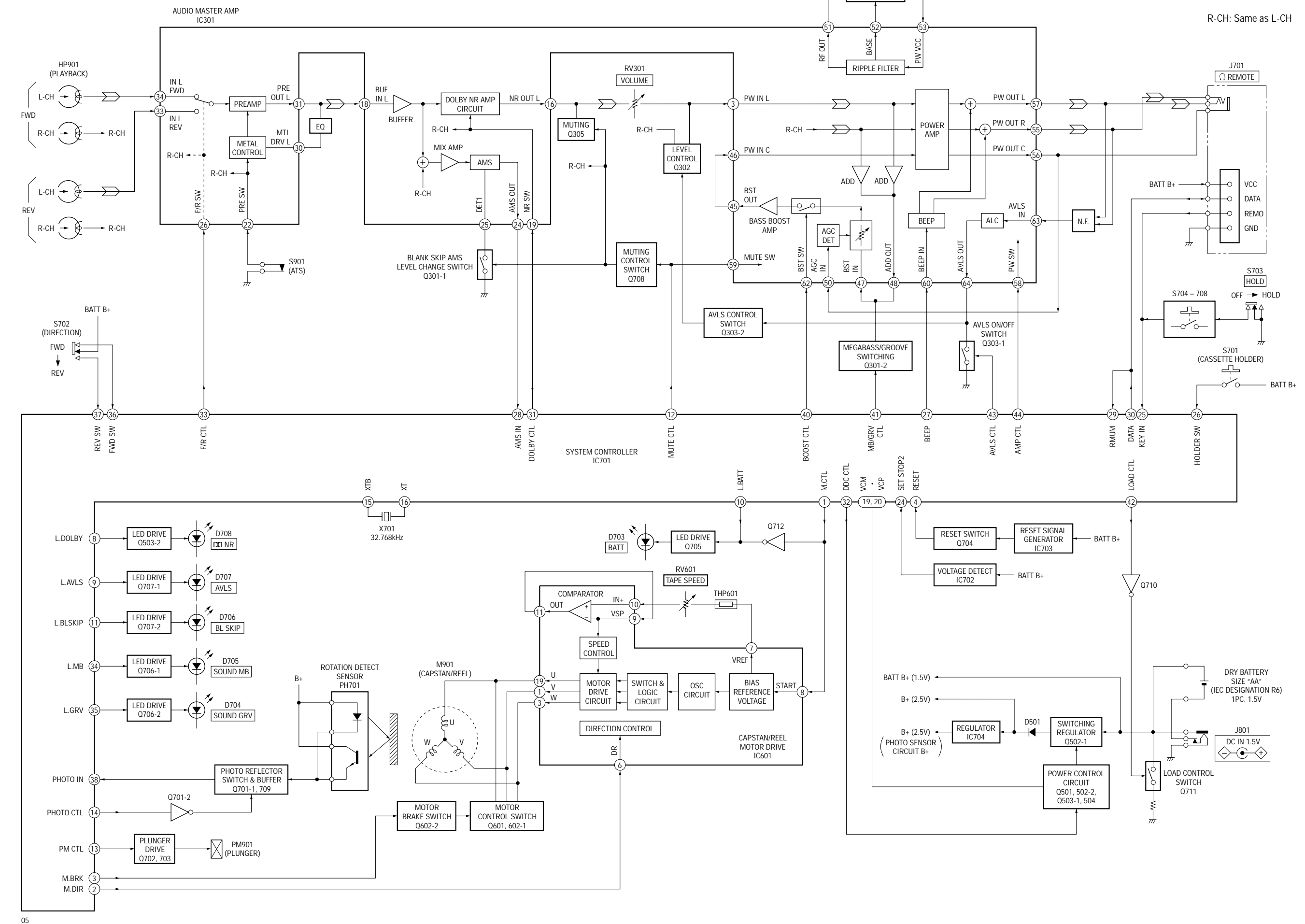
Adjustment Point:

- MAIN BOARD (Side B) -



SECTION 6 DIAGRAMS

6-1. BLOCK DIAGRAM

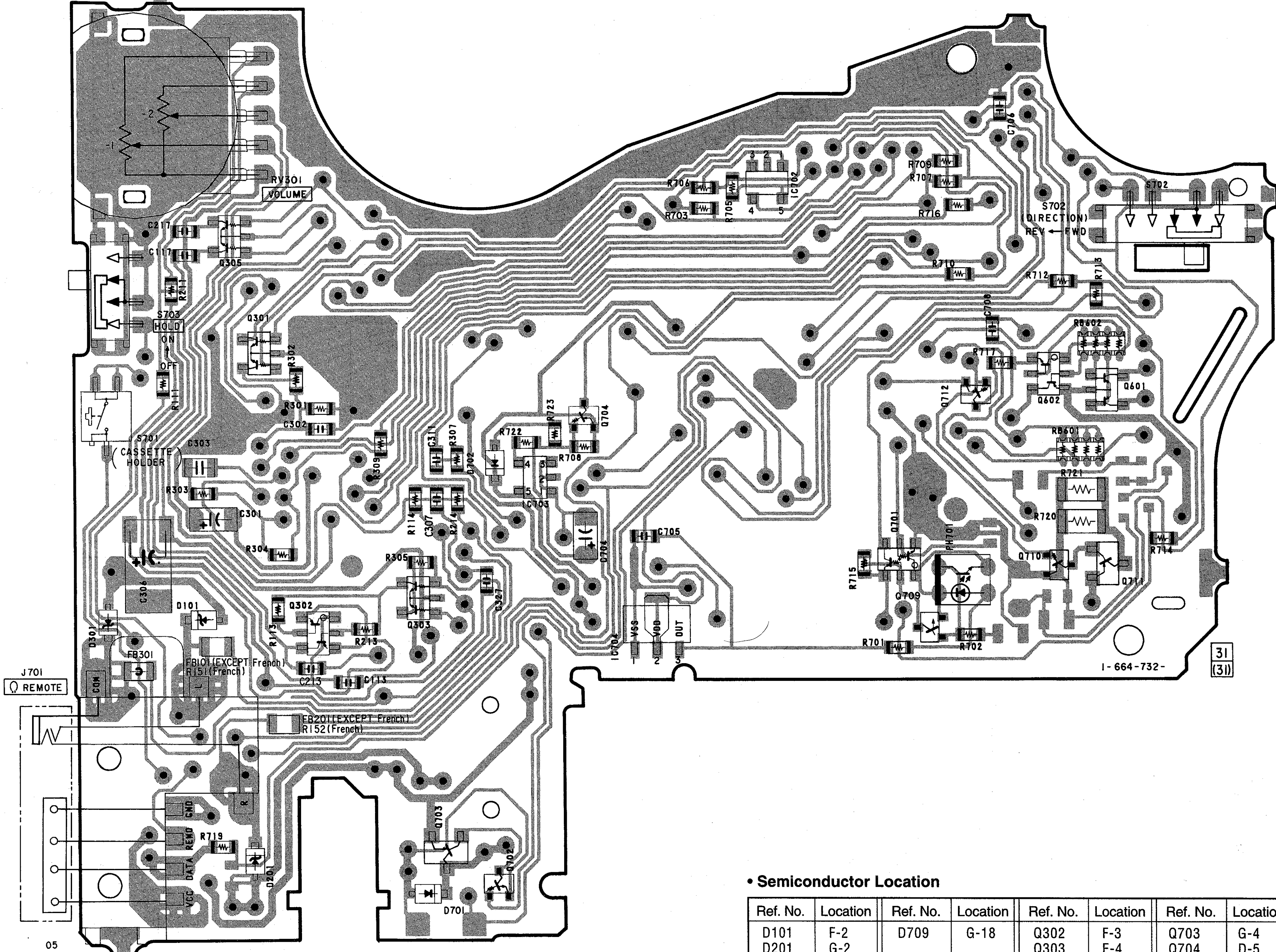


• SIGNAL PATH
 --- : PLAYBACK
 R-CH: Same as L-CH

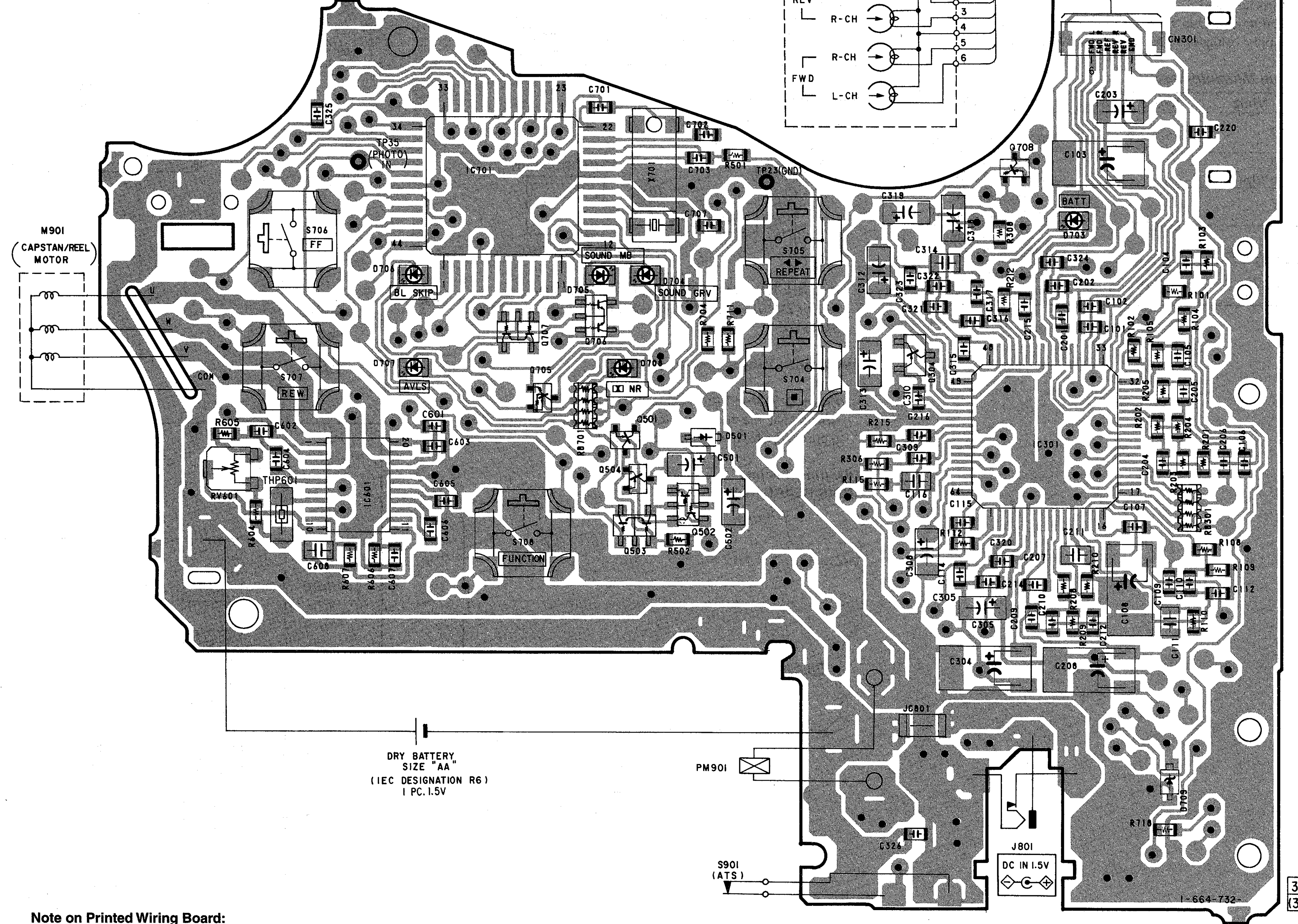
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

A
B
C
D
E
F
G
H

【MAIN BOARD】(SIDE A)



【MAIN BOARD】(SIDE B)



• Semiconductor Location

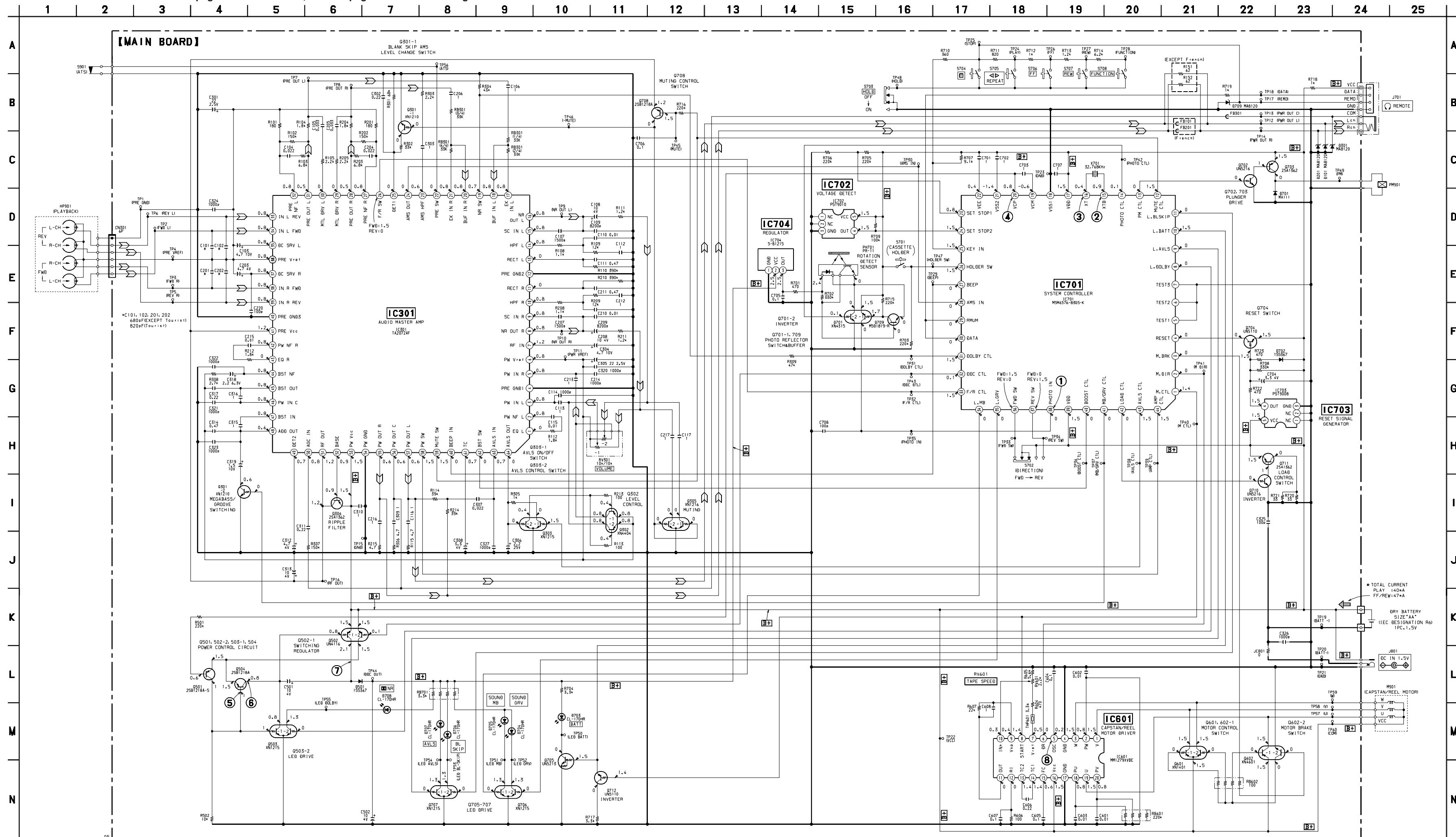
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D101	F-2	D709	G-18	Q302	F-3	Q703	G-4
D201	G-2			Q303	E-4	Q704	D-5
D301	F-1	IC301	D-17	Q304	D-16	Q705	D-13
D501	D-14	IC601	E-12	Q305	C-2	Q706	D-14
D701	G-4	IC701	C-13	Q501	D-14	Q707	D-13
D702	D-4	IC702	C-6	Q502	E-14	Q708	C-17
D703	C-17	IC703	E-4	Q503	E-14	Q709	F-7
D704	C-14	IC704	F-5	Q504	E-14	Q710	E-8
D705	C-14			Q601	D-8	Q711	E-8
D706	C-12	PH701	E-7	Q602	D-8	Q712	D-7
D707	D-12			Q701	E-7		
D708	D-14	Q301	D-3	Q702	G-4		

Note on Printed Wiring Board:

- : parts extracted from the conductor side.
- : Through hole.
- ▨ : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)

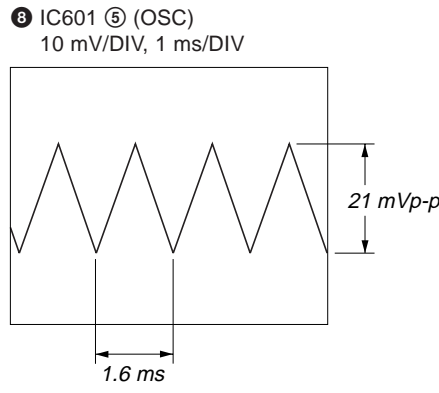
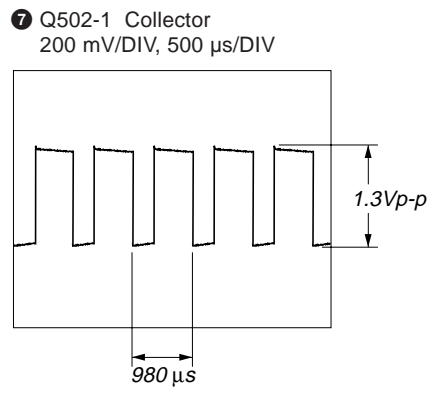
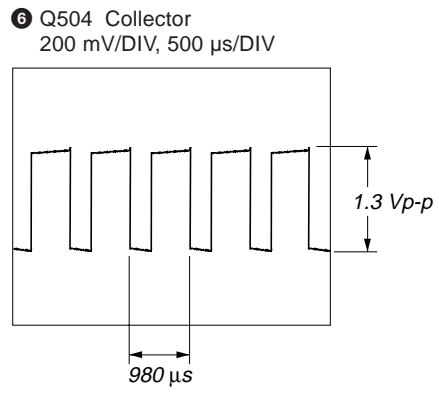
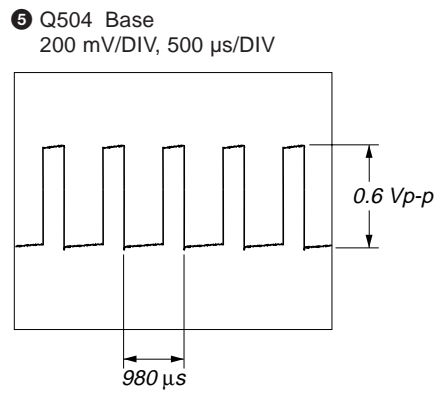
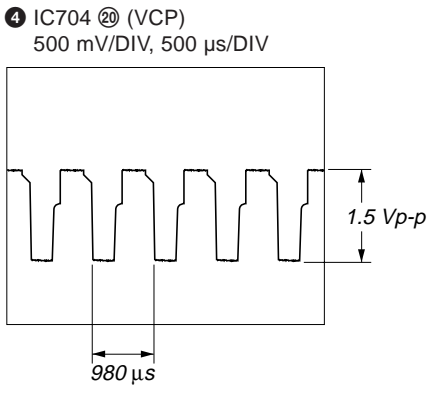
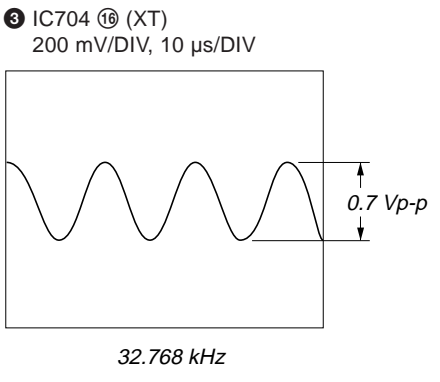
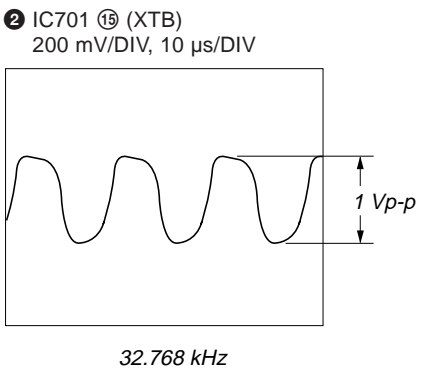
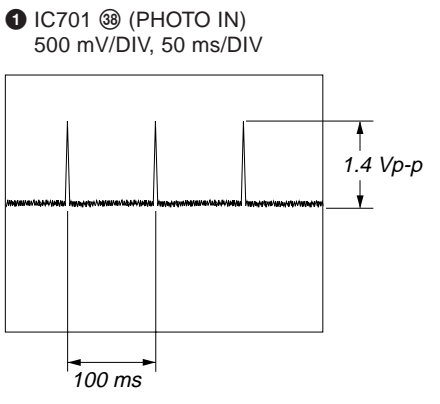
Caution:
 Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.
 Parts face side: Parts on the parts face side seen from the parts face are indicated.

6-3. SCHEMATIC DIAGRAM • See page 20 for Waveforms, and See page 21 for IC Block Diagrams.

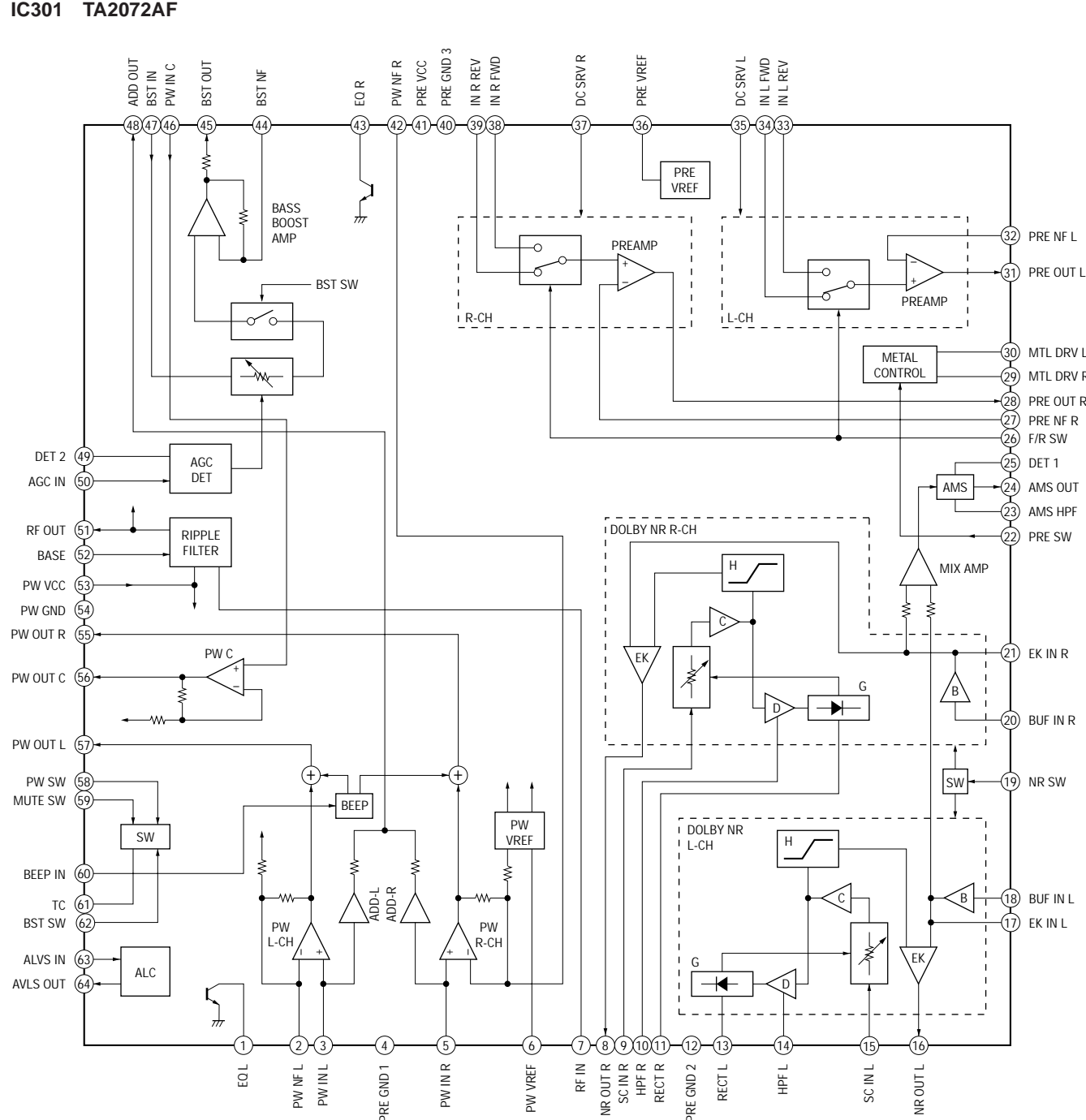


- Note on Schematic Diagram:**
- All capacitors are in μF unless otherwise noted. pF : μF 50 WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in Ω and $1/4 \text{ W}$ or less unless otherwise specified.
 - : panel designation.
 - **B+**: B+ Line.
 - : adjustment for repair.
 - Total current is measured with no cassette installed.
 - Power voltage is dc 1.5V and fed with regulated dc power supply from battery terminal.
 - Voltages and waveforms are dc with respect to ground under no-signal conditions. no mark : PLAYBACK
 - Voltages are taken with a VOM (Input impedance 10 $\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
 - Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
 - Circled numbers refer to waveforms.
 - Signal path.
 - : PLAYBACK

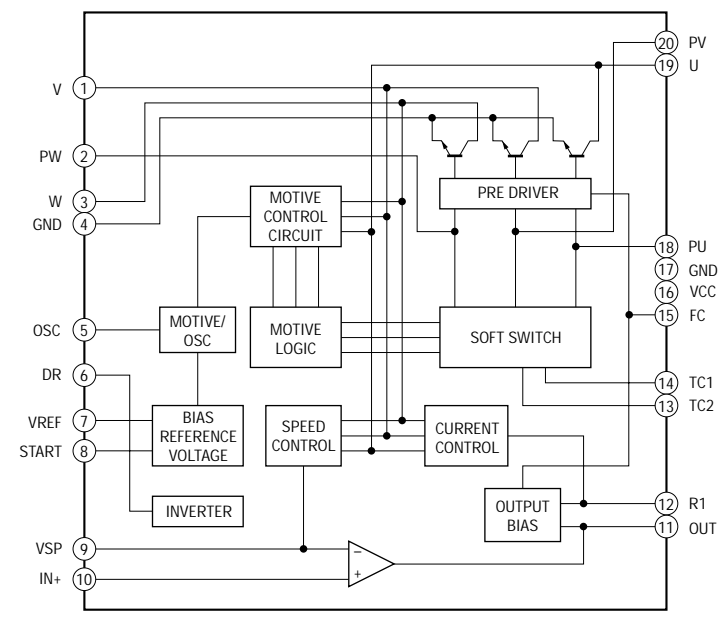
• Waveforms



• IC Block Diagrams



IC601 MM1279XVBE



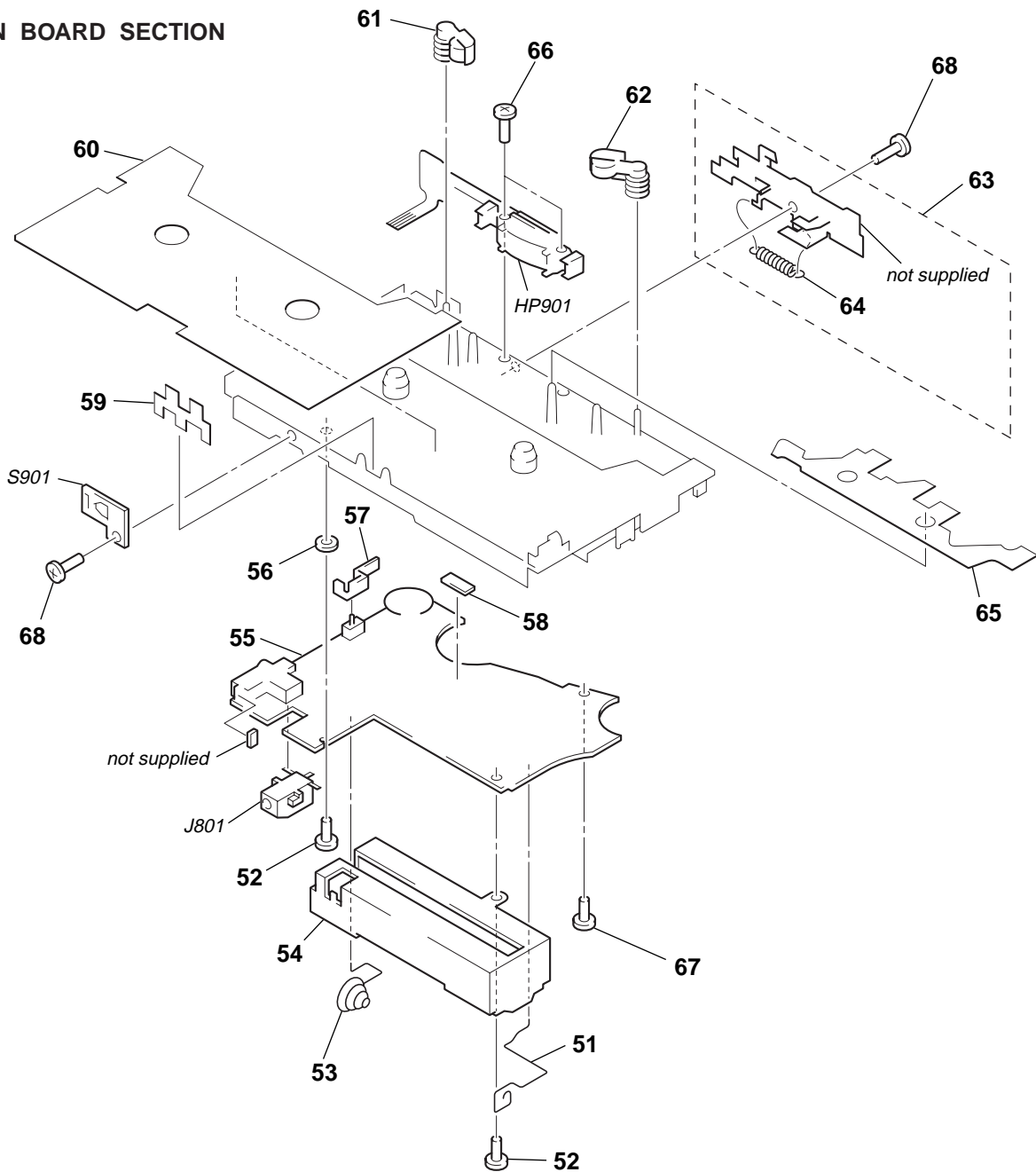
6-4. IC PIN FUNCTION DESCRIPTION

• MAIN BOARD IC701 MSM6576-83GS-K (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1	M.CTL	O	The output terminal for the control signal to start the motor Turn the motor when set to “H”
2	M.DIR	O	The output terminal for selecting the rotating direction of the motor Turn the motor counterclockwise when set to “H”, and clockwise when set to “L”
3	M.BRK	O	The output terminal for the brake signal to be applied to the motor Turn the brake on when set to “H”
4	RESET	I	System reset signal input from the reset signal generator (IC703) “H”: reset
5	TEST1	I	The input terminal for the test (fixed at “L”)
6	TEST2	I	
7	TEST3	I	
8	L.DOLBY	O	The output terminal for the LED drive signal of the \square NR indicator (D708) “H”: LED on
9	L.AVLS	O	The output terminal for the LED drive signal of the AVLS indicator (D707) “H”: LED on
10	L.BATT	O	The output terminal for the LED drive signal of the BATT indicator (D703) “H”: LED on
11	L.BLSKIP	O	The output terminal for the LED drive signal of the BL SKIP indicator (D706) “H”: LED on
12	MUTE CTL	O	The output terminal of the muting signal “L”: mute on
13	PM CTL	O	The output terminal for the plunger drive signal “H”: plunger on
14	PHOTO CTL	O	Control signal output to the motor rotation detect circuit “H”: rotation detect circuit on
15	XTB	—	Connected to crystal oscillator (X701 32.768 kHz) for the system clock
16	XT	—	Connected to crystal oscillator (X701 32.768 kHz) for the system clock
17	VDD	—	Power supply terminal (+1.5V)
18	VSS1	—	Ground terminal
19	VCM	—	Increases power supply voltage
20	VCP	—	
21	VSS2	—	
22	VEE	—	
23	SET STOP1	I	Battery voltage detect input terminal Middle point voltage (+0.75V) input in this set
24	SET STOP2	I	Battery voltage detect input terminal
25	KEY IN	I	Key input terminal (A/D input)
26	HOLDER SW	I	Cassette holder open/close detect switch (S701) input terminal “H”: cassette holder close, “L”: cassette holder open
27	BEEP	O	Beep sound signal output terminal (frequency: 1.6 kHz)
28	AMS IN	I	AMS (Automatic Music Sensor) control signal input from the TA2072AF (IC301)
29	RMUM	I	Communication request signal input from the remote commander
30	DATA	O	Serial data output to the remote commander
31	DOLBY CTL	O	Dolby NR on/off control signal output to the TA2072AF (IC301) “H”: dolby NR on
32	DDC CTL	O	Control signal output to the DC/DC converter circuit “H”: power on
33	F/R CTL	O	FWD/REV selection signal output to the TA2072AF (IC301) “H”: FWD, “L”: REV
34	L.MB	O	The output terminal for the LED drive signal of the SOUND MB indicator (D705) “H”: LED on
35	L.GRV	O	The output terminal for the LED drive signal of the SOUND GRV indicator (D704) “H”: LED on
36	FWD SW	I	Tape direction switch (S702) input terminal “H”: FWD
37	REV SW	I	Tape direction switch (S702) input terminal “H”: REV
38	PHOTO IN	I	Detection signal input from the motor rotation detect circuit

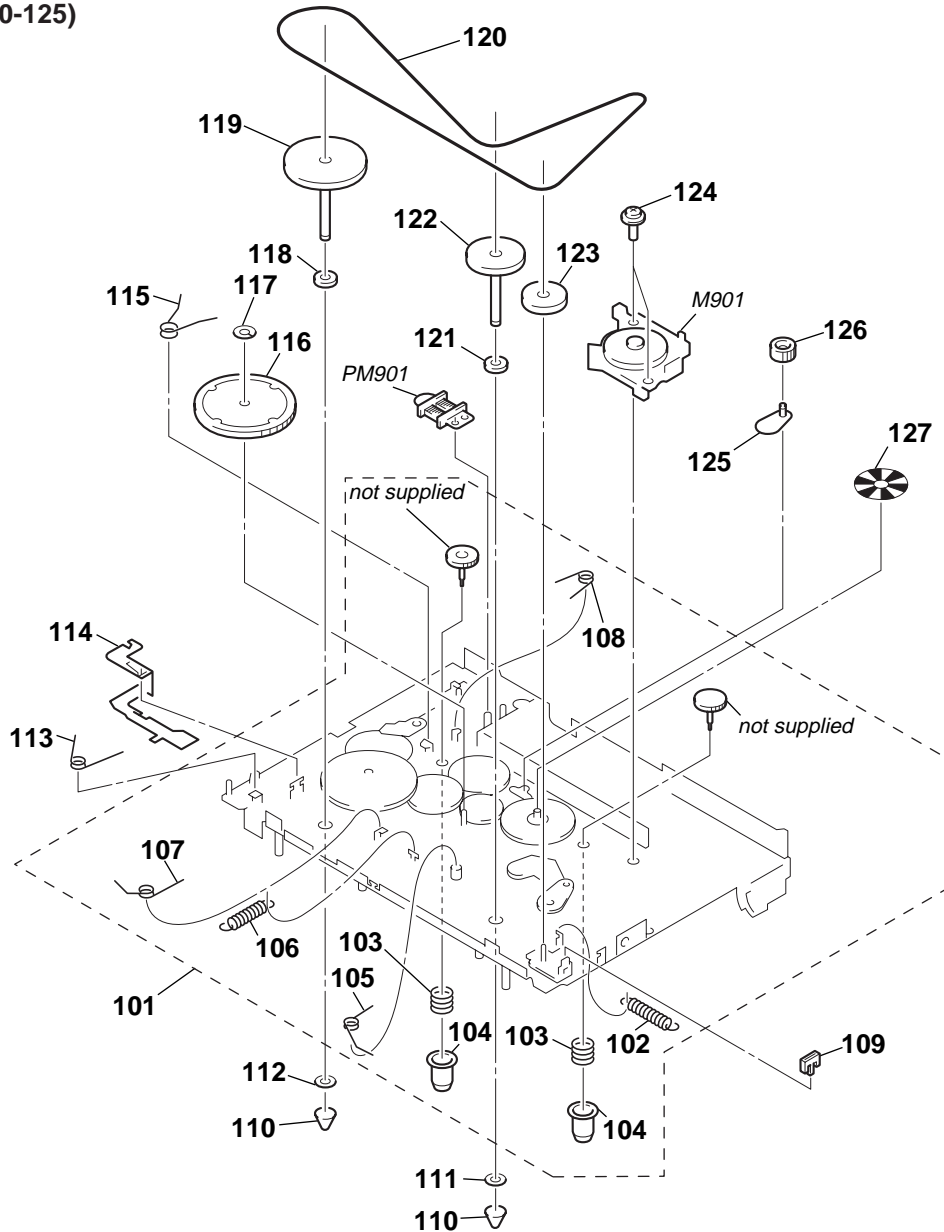
Pin No.	Pin Name	I/O	Description
39	VDD	—	Power supply terminal (+1.5V)
40	BOOST CTL	O	Bass-boost on/off control signal output to the TA2072AF (IC301)
41	MB/GRV CTL	O	MEGA BASS/GROOVE selection signal output to the TA2072AF (IC301)
42	LOAD CTL	O	Load control signal output terminal
43	AVLS CTL	O	AVLS (Automatic Volume Limiter System) on/off control signal output to the TA2072AF (IC301)
44	AMP CTL	O	Amp on/off control signal output to the TA2072AF (IC301)

(2) MAIN BOARD SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-009-669-01	TERMINAL (+), BATTERY		63	X-3374-438-1	BRACKET ASSY (EXCEPT JE)	
52	3-375-114-11	SCREW		64	3-009-667-01	SPRING, TENTION	
53	3-009-670-01	TERMINAL (-), BATTERY		65	3-011-277-01	COVER (B) (Y), MD	
54	3-009-675-01	HOLDER		66	3-019-716-01	SCREW (M1.4), P LOCK ACE (EXCEPT JE)	
55	A-3061-413-A	MAIN BOARD, COMPLETE (JE)		66	3-704-413-31	SCREW (M1.4X7.2) (JE)	
55	A-3061-558-A	MAIN BOARD, COMPLETE (AEP, EE, E)		67	3-704-197-41	SCREW (M1.4X2.2) (SILVER)...(BLUE, SILVER)	
55	A-3061-606-A	MAIN BOARD, COMPLETE (FR)		67	3-704-197-42	SCREW (M1.4X2.2), LOCKING (BLACK)...(BLACK)	
56	3-015-313-01	SHEET		68	3-704-197-01	SCREW (M1.4X1.6), LOCKING (SILVER)...(BLUE, SILVER)	
57	3-010-520-01	COVER, SW		68	3-704-197-02	SCREW (M1.4X1.6), LOCKING (BLACK)...(BLACK)	
58	3-328-483-11	SHEET		HP901	1-500-536-11	HEAD, MAGNETIC (PLAYBACK)	
59	3-928-465-01	DETENT, CASSETTE		J801	1-779-080-11	JACK, DC (POLARITY UNIFIED TYPE) (DC IN 1.5 V)	
60	3-012-423-01	COVER (GX), MD (EE, E, JE)		S901	1-762-793-11	SWITCH, LEAF (ATS) (JE)	
60	3-012-423-11	COVER (GX), MD (AEP, FR)		S901	1-762-793-21	SWITCH, LEAF (ATS) (EXCEPT JE)	
61	X-3372-850-1	PINCH LEVER (N) ASSY					
62	X-3372-849-1	PINCH LEVER (R) ASSY					
63	X-3373-172-1	BRACKET ASSY (JE)					

**(3) MECHANISM DECK SECTION
(MT-WMEX550-125)**



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	X-3374-094-1	CHASSIS (S) ASSY (Y) (JE)		117	3-932-724-21	WASHER	
101	X-3374-440-1	CHASSIS ASSY (J2) (EXCEPT JE)		118	3-386-694-21	WASHER	
102	3-007-457-01	SPRING (TEN), TENSION		119	X-3372-852-1	FLYWHEEL (N) ASSY (JE)	
103	3-010-954-01	SPRING (BT), COMPRESSION		119	X-3374-751-1	FLYWHEEL (N) ASSY (EXCEPT JE)	
104	3-010-274-11	TABLE, REEL		120	3-007-430-01	BELT	
105	3-019-710-01	SPRING (R), TORSION		121	3-007-428-01	WASHER (R)	
106	3-007-458-01	SPRING (H/B), TENSION		122	X-3372-851-1	FLYWHEEL (R) ASSY (JE)	
107	3-019-709-01	SPRING (N), TORSION		122	X-3374-750-1	FLYWHEEL (R) ASSY (EXCEPT JE)	
108	3-007-454-01	SPRING (FR), TORSION		123	3-007-434-01	PULLEY (REVERSE)	
* 109	3-010-272-01	BELT, RETAINER		124	3-029-765-01	SCREW (M1.4), TOOTHED LOCK	
110	3-366-017-01	BUSHING (CAPSTAN)		125	X-3372-853-1	LEVER (FRG) ASSY	
111	3-007-429-01	WASHER (R), STOPPER		126	3-007-435-01	GEAR (FR) (EXCEPT JE)	
112	3-918-943-01	WASHER, STOPPER		126	3-016-696-01	GEAR (FRN) (JE)	
113	3-007-960-01	SPRING (EJECT) (Y), TORSION		127	3-007-432-01	SHEET (R), REFLECTION	
114	3-007-439-01	SLIDER (LOCK)		PM901	1-454-674-31	SOLENOID, PLUNGER	
115	3-007-436-01	SPRING (TRIGGER), TORSION		M901	1-698-885-11	MOTOR (CAPSTAN/REEL) (JE)	
116	X-3372-848-1	CLUTCH ASSY (M)		M901	1-698-885-21	MOTOR (CAPSTAN/REEL) (EXCEPT JE)	

SECTION 8 ELECTRICAL PARTS LIST

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 and -X mean standardized parts, so they may have some difference from the original one.
- **RESISTORS**
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable
- **Abbreviation**
EE : East European model
FR : French model
JE : Tourist model

- Items marked “**” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- **SEMICONDUCTORS**
In each case, u: μ , for example:
uA. . : μ A. . uPA. . : μ PA. .
uPB. . : μ PB. . uPC. . : μ PC. .
uPD. . : μ PD. .
- **CAPACITORS**
uF: μ F
- **COILS**
uH: μ H

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

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	A-3061-413-A	MAIN BOARD, COMPLETE (JE)					
	A-3061-558-A	MAIN BOARD, COMPLETE (AEP, EE, E)		C215	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
	A-3061-606-A	MAIN BOARD, COMPLETE (FR)		C216	1-115-156-11	CERAMIC CHIP 1uF	10V
		*****		C217	1-115-156-11	CERAMIC CHIP 1uF	10V
		< CAPACITOR >		C220	1-162-953-11	CERAMIC CHIP 100PF	5% 50V
				C301	1-135-316-11	TANTALUM CHIP 22uF	20% 2.5V
C101	1-162-963-11	CERAMIC CHIP 680PF	10% 50V (EXCEPT JE)	C302	1-115-467-11	CERAMIC CHIP 0.22uF	10% 10V
C101	1-164-473-11	CERAMIC CHIP 820PF	10% 50V (JE)	C303	1-109-982-11	CERAMIC CHIP 1uF	10% 10V
C102	1-162-963-11	CERAMIC CHIP 680PF	10% 50V (EXCEPT JE)	C304	1-128-024-11	ELECT CHIP 4.7uF	20% 10V
C102	1-164-473-11	CERAMIC CHIP 820PF	10% 50V (JE)	C305	1-135-316-11	TANTALUM CHIP 22uF	20% 2.5V
C103	1-128-024-11	ELECT CHIP 4.7uF	20% 10V	C306	1-110-423-11	ELECT CHIP 2.2uF	20% 25V
C104	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V	C307	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C105	1-164-677-11	CERAMIC CHIP 0.033uF	10% 16V	C308	1-135-180-21	TANTALUM CHIP 3.3uF	20% 6.3V
C106	1-115-156-11	CERAMIC CHIP 1uF	10V	C309	1-115-156-11	CERAMIC CHIP 1uF	10V
C107	1-162-965-11	CERAMIC CHIP 0.0015uF	10% 50V	C310	1-115-156-11	CERAMIC CHIP 1uF	10V
C108	1-128-014-11	ELECT CHIP 10uF	20% 4V	C311	1-165-128-11	CERAMIC CHIP 0.22uF	16V
C109	1-164-174-11	CERAMIC CHIP 0.0082uF	10% 25V	C312	1-109-935-11	TANTALUM CHIP 4.7uF	20% 4V
C110	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C313	1-135-201-11	TANTALUM CHIP 10uF	20% 4V
C111	1-107-823-11	CERAMIC CHIP 0.47uF	10% 16V	C314	1-107-823-11	CERAMIC CHIP 0.47uF	10% 16V
C112	1-115-156-11	CERAMIC CHIP 1uF	10V	C315	1-115-156-11	CERAMIC CHIP 1uF	10V
C113	1-115-156-11	CERAMIC CHIP 1uF	10V	C316	1-115-156-11	CERAMIC CHIP 1uF	10V
C114	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C317	1-115-467-11	CERAMIC CHIP 0.22uF	10% 10V
C115	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C318	1-135-149-21	TANTALUM CHIP 2.2uF	20% 10V
C116	1-109-982-11	CERAMIC CHIP 1uF	10% 10V	C319	1-107-688-11	TANTALUM CHIP 1.5uF	20% 10V
C117	1-115-156-11	CERAMIC CHIP 1uF	10V	C320	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C201	1-162-963-11	CERAMIC CHIP 680PF	10% 50V (EXCEPT JE)	C321	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C201	1-164-473-11	CERAMIC CHIP 820PF	10% 50V (JE)	C322	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C202	1-162-963-11	CERAMIC CHIP 680PF	10% 50V (EXCEPT JE)	C323	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C202	1-164-473-11	CERAMIC CHIP 820PF	10% 50V (JE)	C324	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C203	1-135-151-21	TANTALUM CHIP 4.7uF	20% 4V	C325	1-162-953-11	CERAMIC CHIP 100PF	5% 50V
C204	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V	C326	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C205	1-164-677-11	CERAMIC CHIP 0.033uF	10% 16V	C327	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C206	1-115-156-11	CERAMIC CHIP 1uF	10V	C501	1-135-201-11	TANTALUM CHIP 10uF	20% 4V
C207	1-162-965-11	CERAMIC CHIP 0.0015uF	10% 50V	C502	1-135-201-11	TANTALUM CHIP 10uF	20% 4V
C208	1-128-014-11	ELECT CHIP 10uF	20% 4V	C601	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C209	1-164-174-11	CERAMIC CHIP 0.0082uF	10% 25V	C602	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C210	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V	C603	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C211	1-107-823-11	CERAMIC CHIP 0.47uF	10% 16V	C604	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V
C212	1-115-156-11	CERAMIC CHIP 1uF	10V	C605	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C213	1-115-156-11	CERAMIC CHIP 1uF	10V	C606	1-115-467-11	CERAMIC CHIP 0.22uF	10% 10V
C214	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V	C607	1-107-826-91	CERAMIC CHIP 0.1uF	10% 16V
				C608	1-109-982-11	CERAMIC CHIP 1uF	10% 10V
				C701	1-115-156-11	CERAMIC CHIP 1uF	10V
				C702	1-115-156-11	CERAMIC CHIP 1uF	10V

MAIN

Ref. No.	Part No.	Description	Remark
R214	1-216-840-11	METAL CHIP	39K 5% 1/16W
R215	1-216-793-11	RES, CHIP	4.7 5% 1/16W
R301	1-218-891-11	RES, CHIP	68K 0.5% 1/16W
R302	1-216-839-11	METAL CHIP	33K 5% 1/16W
R303	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R304	1-218-295-11	RES, CHIP	43K 5% 1/16W
R305	1-216-821-11	METAL CHIP	1K 5% 1/16W
R306	1-216-793-11	RES, CHIP	4.7 5% 1/16W
R307	1-216-847-11	METAL CHIP	150K 5% 1/16W
R308	1-216-826-11	METAL CHIP	2.7K 5% 1/16W
R309	1-216-841-11	METAL CHIP	47K 5% 1/16W
R501	1-216-849-11	METAL CHIP	220K 5% 1/16W
R502	1-216-833-11	METAL CHIP	10K 5% 1/16W
R604	1-216-817-11	METAL CHIP	470 5% 1/16W
R605	1-216-830-11	METAL CHIP	5.6K 5% 1/16W
R606	1-216-809-11	METAL CHIP	100 5% 1/16W
R607	1-216-837-11	METAL CHIP	22K 5% 1/16W
R701	1-216-817-11	METAL CHIP	470 5% 1/16W
R702	1-216-851-11	METAL CHIP	330K 5% 1/16W
R703	1-216-849-11	METAL CHIP	220K 5% 1/16W
R704	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R705	1-216-849-11	METAL CHIP	220K 5% 1/16W
R706	1-216-849-11	METAL CHIP	220K 5% 1/16W
R707	1-218-870-11	RES, CHIP	9.1K 0.5% 1/16W
R708	1-216-851-11	METAL CHIP	330K 5% 1/16W
R709	1-216-845-11	METAL CHIP	100K 5% 1/16W
R710	1-218-836-11	RES, CHIP	360 0.5% 1/16W
R711	1-218-845-11	RES, CHIP	820 0.5% 1/16W
R712	1-218-847-11	RES, CHIP	1K 0.5% 1/16W
R713	1-218-849-11	RES, CHIP	1.2K 0.5% 1/16W
R714	1-218-866-11	RES, CHIP	6.2K 0.5% 1/16W
R715	1-216-849-11	METAL CHIP	220K 5% 1/16W
R716	1-216-849-11	METAL CHIP	220K 5% 1/16W
R717	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R718	1-216-821-11	METAL CHIP	1K 5% 1/16W
R719	1-216-821-11	METAL CHIP	1K 5% 1/16W
R720	1-216-162-00	RES, CHIP	33 5% 1/8W
R721	1-216-162-00	RES, CHIP	33 5% 1/8W
R722	1-216-817-11	METAL CHIP	470 5% 1/16W
R723	1-216-817-11	METAL CHIP	470 5% 1/16W
< COMPOSITION CIRCUIT BLOCK >			
RB301	1-233-872-21	RES, NETWORK (CHIP TYPE) (3216)	
RB601	1-233-873-21	RES, NETWORK (CHIP TYPE) (3216)	
RB602	1-233-576-11	RES, CHIP NETWORK 100	
RB701	1-233-418-11	RES, CHIP NETWORK 3.3K (3216)	
< VARIABLE RESISTOR >			
RV301	1-225-342-23	RES, VAR, CARBON 10K/10K (VOLUME)	
RV601	1-223-576-11	RES, ADJ, METAL GLAZE 2.2K	
< SWITCH >			
S701	1-762-970-21	SWITCH, PUSH (1 KEY) (CASSETTE HOLDER)	
S702	1-572-581-11	SWITCH, SLIDE (DIRECTION)	
S703	1-572-922-11	SWITCH, SLIDE (HOLD)	
S704	1-692-453-11	SWITCH, KEY BOARD (■)	
S705	1-692-453-11	SWITCH, KEY BOARD (◀▶ REPEAT)	

Ref. No.	Part No.	Description	Remark
S706	1-692-453-11	SWITCH, KEY BOARD (FF)	
S707	1-692-453-11	SWITCH, KEY BOARD (REW)	
S708	1-692-453-11	SWITCH, KEY BOARD (FUNCTION)	
< THERMISTOR (POSITIVE) >			
THP601	1-810-794-11	THERMISTOR, POSITIVE	
< VIBRATOR >			
X701	1-760-872-11	VIBRATOR, CRYSTAL (32.768kHz)	

MISCELLANEOUS			

HP901	1-500-536-11	HEAD, MAGNETIC (PLAYBACK)	
J801	1-779-080-11	JACK, DC (POLARITY UNIFIED TYPE)	(DC IN 1.5 V)
M901	1-698-885-11	MOTOR (CAPSTAN/REEL) (JE)	
M901	1-698-885-21	MOTOR (CAPSTAN/REEL) (EXCEPT JE)	
PM901	1-454-674-31	SOLENOID, PLUNGER	
S901	1-762-793-11	SWITCH, LEAF (ATS) (JE)	
S901	1-762-793-21	SWITCH, LEAF (ATS) (EXCEPT JE)	

ACCESSORIES & PACKING MATERIALS			

	1-505-535-11	HEADPHONE (WITH REMOTE CONTROL)	
△	1-528-465-11	BATTERY CHARGER (BC-820T) (JE)	
△	1-569-007-11	ADAPTOR, CONVERSION 2P (JE)	
	3-864-885-11	MANUAL, INSTRUCTION	(ENGLISH, FRENCH, SPANISH) (AEP,FR)
	3-864-885-21	MANUAL, INSTRUCTION	(GERMAN, SWEDISH, FINNISH) (AEP)
	3-864-885-31	MANUAL, INSTRUCTION	(DUTCH, ITALIAN, PORTUGUES) (AEP)
	3-864-885-41	MANUAL, INSTRUCTION	(CHINESE, KOREAN, ARABIC) (EE)
	3-864-885-51	MANUAL, INSTRUCTION	(ENGLISH, FRENCH, SPANISH) (E)
	3-864-885-61	MANUAL, INSTRUCTION	(CHINESE, KOREAN, ARABIC) (E)
	3-864-885-71	MANUAL, INSTRUCTION	(ENGLISH, FRENCH, SPANISH) (JE)
	3-864-885-81	MANUAL, INSTRUCTION	(CHINESE, KOREAN, ARABIC) (JE)
	3-864-885-91	MANUAL, INSTRUCTION	(CHINESE, KOREAN, ARABIC) (EE)
	3-866-014-11	MANUAL, INSTRUCTION	(POLISH, CZECH, GREEK) (EE)
	3-918-937-01	CASE (MS), CARRYING	

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