

WM-EX2/EX2HG/EX2HGX

SERVICE MANUAL

AEP Mode
UK Mode
WM-EX2HG
E Mode
WM-EX2/EX2HG
Tourist Mode
WM-EX2HG

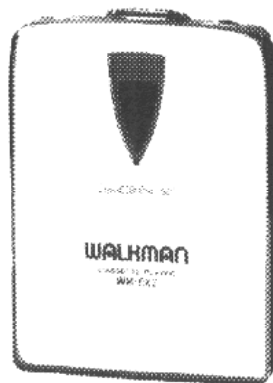


Photo : WM-EX2

Model Name Using Similar Mechanism	WM-EX1HG
Tape Transport Mechanism Type	MT-WMEX2-112

SPECIFICATIONS

Tape section

Frequency response
(Dolby NR* off)

Playback: 30-18,000 Hz


Output

Headphones (REMOTE jack)

Load impedance 8-300 ohms

Power output

5 mW + 5 mW (16 ohms)

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

General

Power requirements

1.5 V

Rechargeable battery

One R6 (size AA) battery

Dimensions R6 (w/h/d)

Approx. 80.8 x 111.3 x 20.8 mm, incl. projecting parts and controls

Mass

EX2: Approx. 150 g

EX2HG/EX2HGX: Approx. 160 g

Incl. rechargeable battery, headphones with remote control and cassette;

EX2: Approx. 245 g

EX2HG/EX2HGX: Approx. 250 g

Supplied accessories

Battery case (1)

Stereo headphones with remote control (1)

Ear adaptors (2)

Battery charger (1)

Rechargeable battery (1)

AC plug adaptor (1) (E, Tourist model)

Carrying pouch (1)

Cleaning cloth (1) (EX2HG/EX2HGX only): Supplied in the carrying pouch.

Design and specifications subject to change without notice.

House Current

Remove the rechargeable battery if inserted and attach the battery case and connect the AC power adaptor (AC-E15HG not supplied) to the DC IN 1.5 V of the battery case and to the wall outlet. Do not use any other AC power adaptor.



Polarity of the plug

— Continued on next page —



CASSETTE PLAYER
SONY

Preparing a Power Source

Choose one of the three power sources below; dry battery, rechargeable battery, and house current.

Dry Battery

- 1 Attach the supplied battery case.
- 2 Open the battery compartment lid, and insert an R6 (size AA) dry battery (not supplied) by matching the + and - on the battery to the diagram inside the battery compartment.

When to replace the battery
Replace the battery with a new one when the BATT lamp goes off and "∞" in the display of remote control flashes.

Display	Condition
	The battery power is weak when lit.
	The battery is exhausted when flashing. Replace with a new battery.

Battery life	(Approx. hours)		
	Sony alkaline LR6(WM)	Sony alkaline LR6(SG)	Sony R6P (SR)
Tape playback	36	30	10

For maximum performance we recommend that you use an alkaline battery.

Note

- Do not charge a dry battery.

Rechargeable Battery

For the European models

- 1 Insert the supplied rechargeable battery (NC-6WM) into the charger with correct polarity.
- 2 Plug in the charger to the mains.
UK model: Full charging takes about 3.5 hours.
European Continent model: Full charging takes about 2.5 hours.
- 3 Insert the fully charged battery into the rechargeable battery compartment.

When to charge the battery

Charge the battery when the BATT lamp goes off and "∞" in the display of remote control flashes. You can charge the battery about 300 times.

Battery life	(Approx. hours)
Rechargeable battery (NC-6WM)	43 (with Sony alkaline LR6 (WM))
Tape playback	9

For other models

- 1 Insert the supplied rechargeable battery (NH-9WM(S)) into the charger with correct polarity.
- 2 Plug in the charger to the mains.

Full-charging takes about 100 minutes (charger lamp goes off).
If the plug does not fit your mains, attach the supplied AC plug adaptor.
- 3 Insert the fully charged battery into the rechargeable battery compartment.

Battery life	(Approx. hours)
Rechargeable battery (NH-9WM(S))	50 (with Sony alkaline LR6(WM))
Tape playback	16

Notes

- Do not tear off the film on the rechargeable battery.
- Use the Sony NH-9WM(S) (not applicable for the European models) or NC-6WM rechargeable battery only with the supplied battery charger.

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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

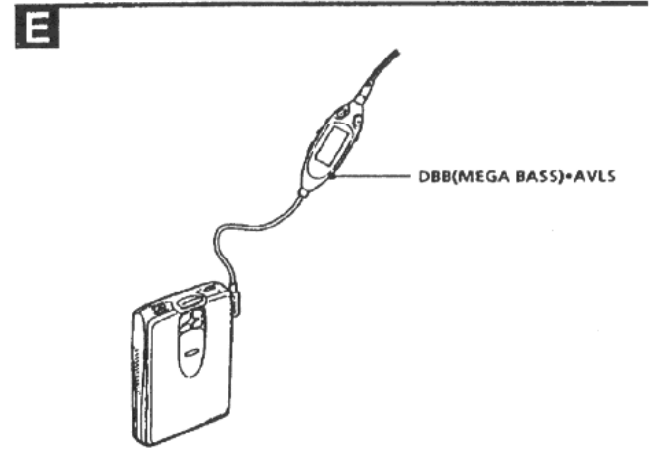
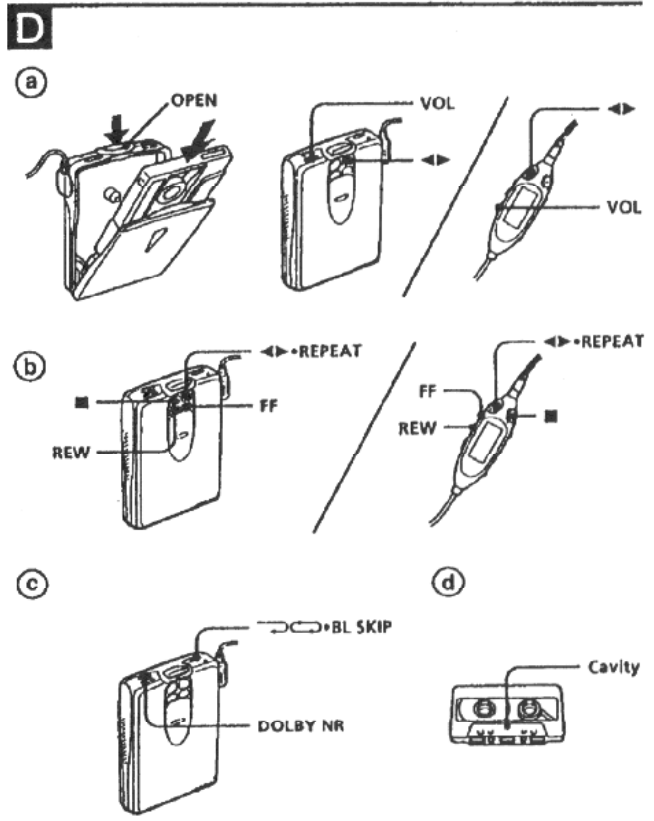
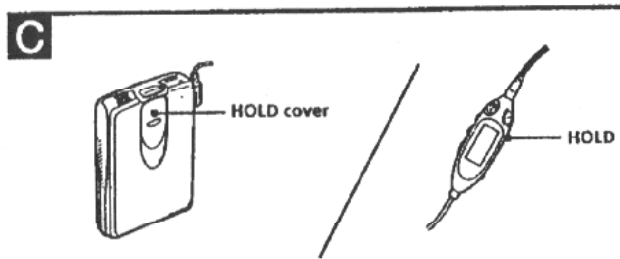
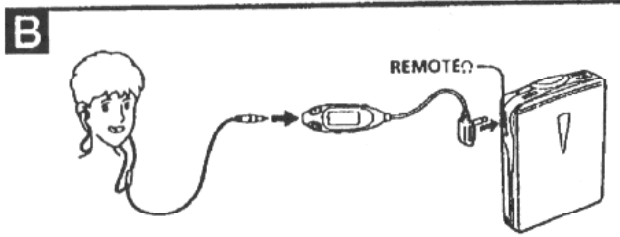
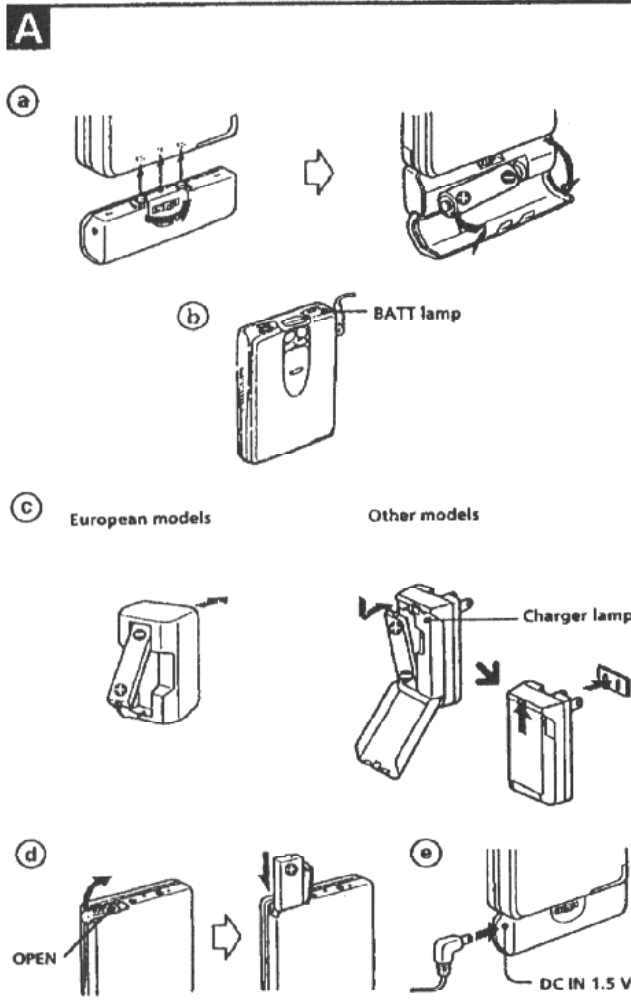
- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK Δ OR DOTTED LINE WITH MARK Δ 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 GENERAL

This section is extracted from instruction manual.



SECTION 2 SERVICE NOTE

[Service Mode]

Mode which enables the mechanism to be operated with the AUDIO board opened.

1. Setting

- 1) Refer to "Disassembly" and remove the cabinet and open the AUDIO board.
- 2) Connect the AUDIO board to the motor and plunger using a jumper wire. Use "Extension tool (1-769-143-11) (one set 10 tools)" to make connection simple.
- 3) Short-circuit the service mode land (TP701) by soldering.
- 4) Remove R726 on the AUDIO board.
- 5) Short-circuit S704 with the jumper wire.
- 6) Turn OFF the BL SKIP switch (S702) of the Mode Switch flexible board (MODE).
- 7) Supply 1.3V to the battery terminals (+) and (-) using a stabilized power supply.

2. Preset State

This state must be set to set the PLAY, FF, and REW modes.

- 1) Check that the lever (NR SW) is at the center and N/R switch (S701) is at the center. If not, set the preset state as follows.
- 2) Move the N/R switch (S701) according to the side faced by the lever (NR SW).
- 3) Turn OFF the stabilized power supply switch once and then turn it ON again so that the lever (NR SW) can be moved. Move the N/R switch (S701) according to this timing and set to the center.

3. FF REW Mode

- 1) Check the "2. Preset State" and press the FF switch and REW switch.

4. PLAY Mode

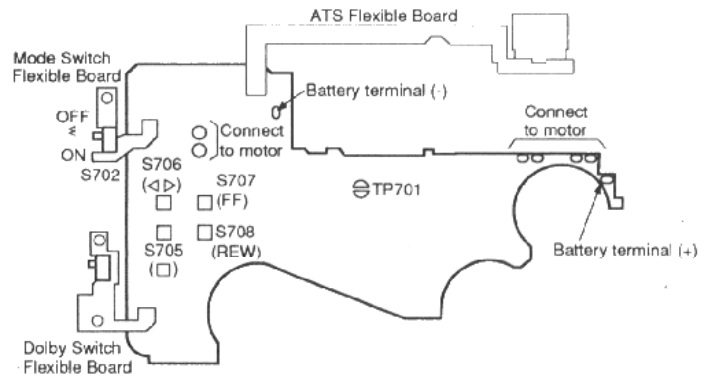
- 1) Check the "2. Preset State".
- 2) Press the <D> switch. The lever (NR SW) will move to the N side once and then to the R side. Move the N/R switch (S701) according to this timing to set the PLAY (R side) mode. Press the <D> switch another time and move the N/R switch (S701) according to the movement of the lever (NR SW) to the PLAY (N side) mode.

Note 1 : If the above cannot be performed, start again from preset.

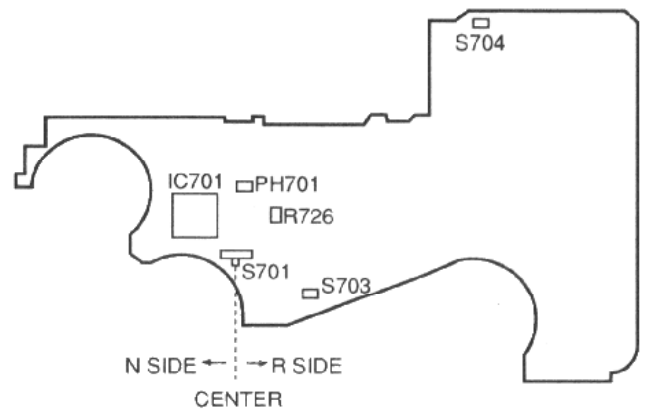
Note 2 : Use the remote control <D>, □, FF, and REW switches as much as possible. If the remote control is not available, do not touch S705 to S708 with the hand and use something with a round tip to press them.

Note 3 : By using a headphone, the timing for moving S701 can be known by the beep.

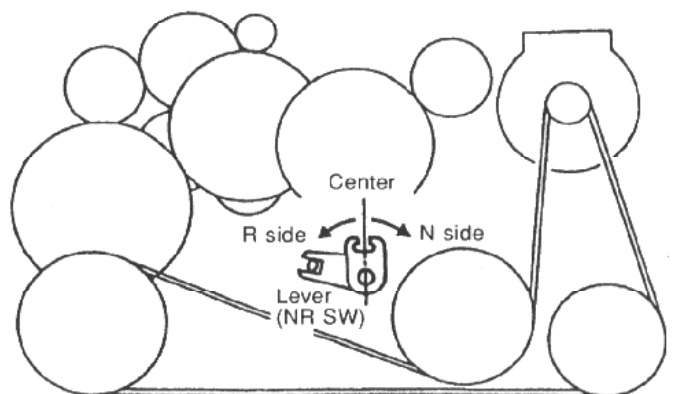
[AUDIO BOARD] (SIDE A)



[AUDIO BOARD] (SIDE B)

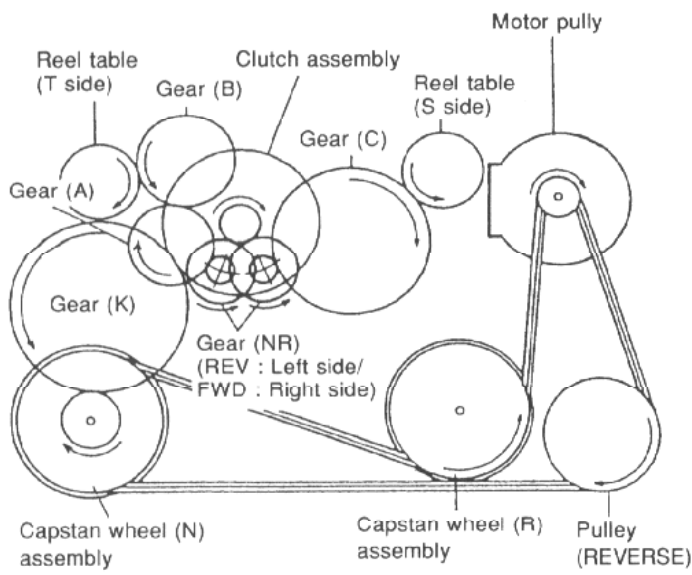


[Lever (NR SW)]

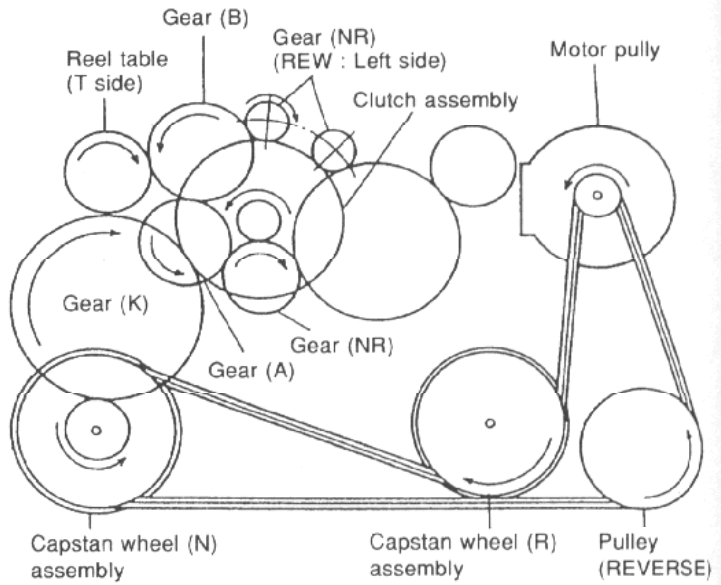


[Rotation system]

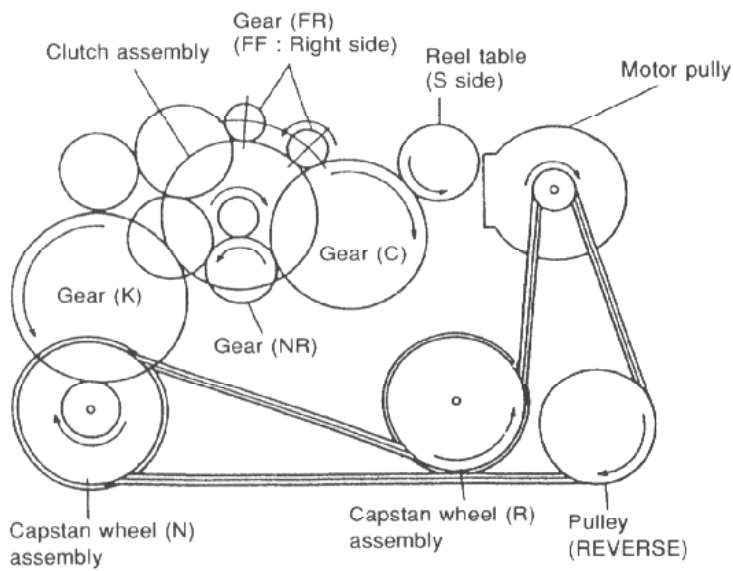
Rotation system during PLAY.



Rotation system during REW.



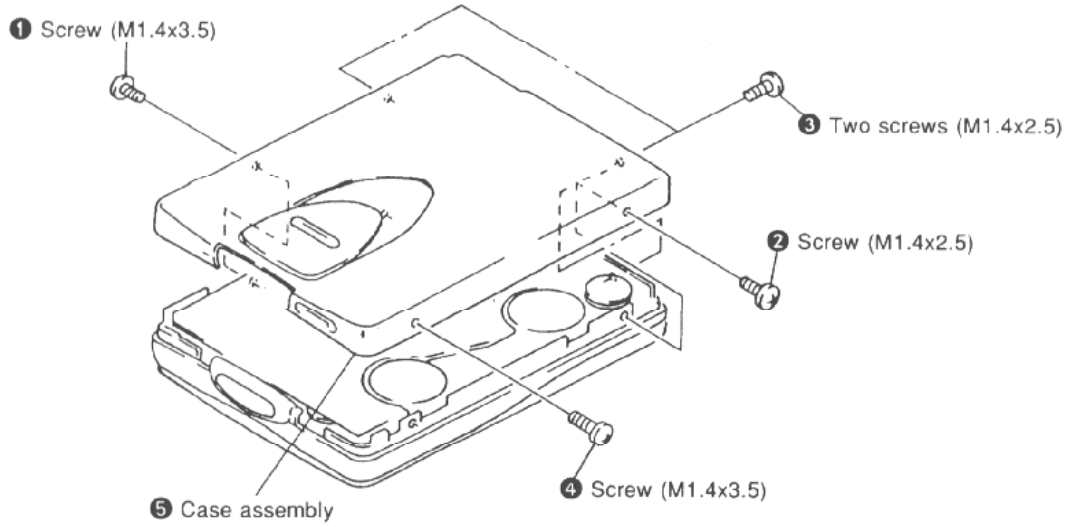
Rotation system during FF.



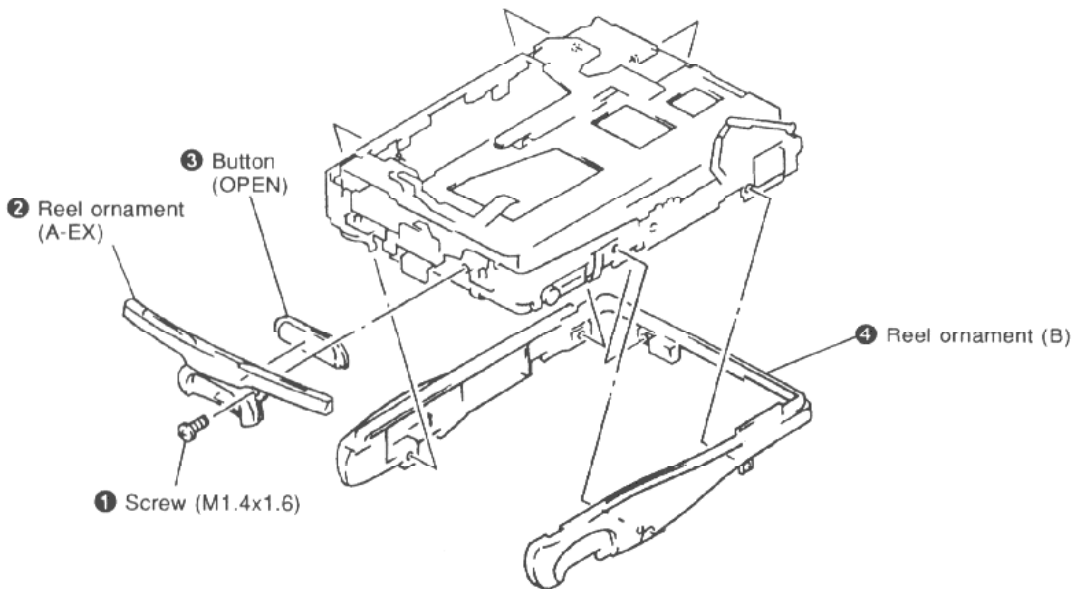
SECTION 3 DISASSEMBLY

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

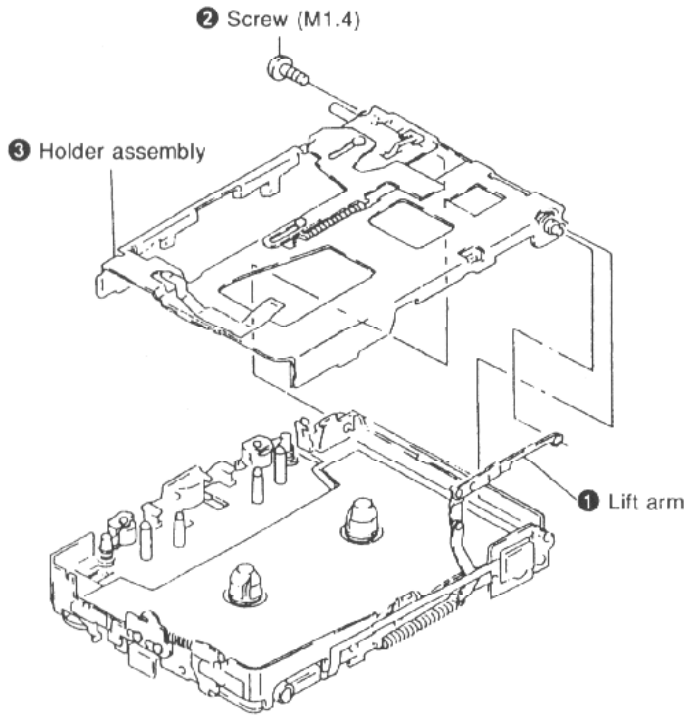
3-1. CASE ASSEMBLY



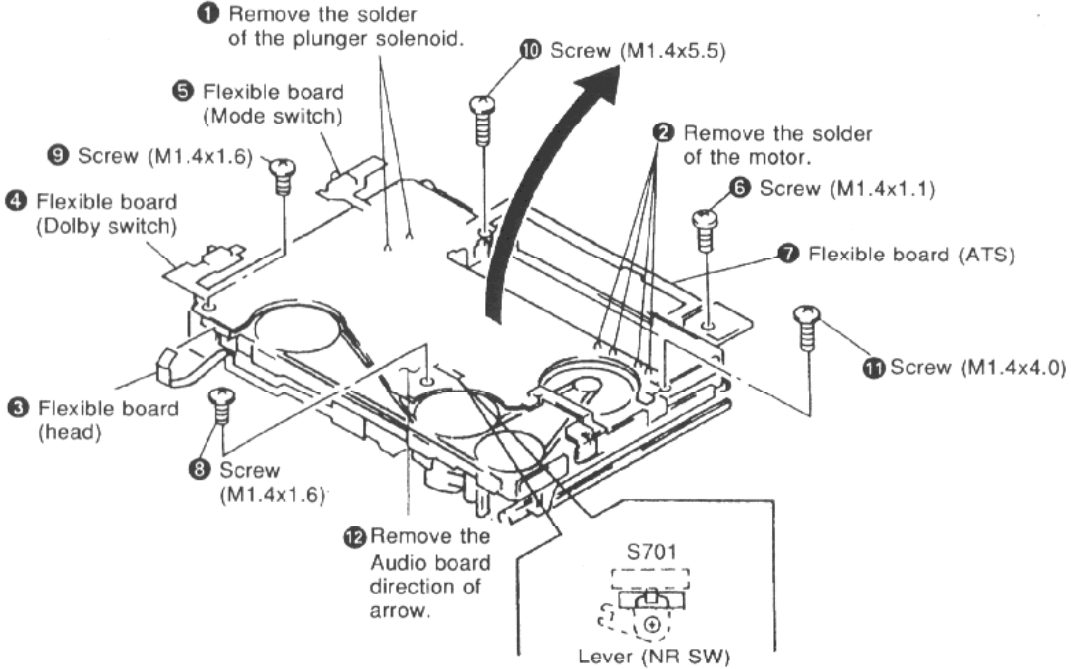
3-2. REEL ORNAMENT



3-3. HOLDER ASSEMBLY



3-4. AUDIO BOARD



Note: Confirm if the switch lever installs itself in the groove of a lever (NR SW) for assembling.

SECTION 4 MECHANICAL ADJUSTMENTS

PRECAUTION

1. Before adjusting, clean the following parts with a piece of cotton moistened with alcohol.

playback head	pinch roller
rubber belt	capstan
2. Demagnetize the playback head using a head demagnetizer.
3. Do not use a magnetized screwdriver for adjustments.
4. After adjusting, apply screw-locking compound onto the adjusted parts.
5. Unless specified otherwise, use a specified voltage (1.3V) to perform the adjustments.

[Torque Measurement]

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	18 — 28 g • cm
FWD Back tension		0.5 — 3.0 g • cm
REV	CQ-102RC	18 — 28 g • cm
REV Back tension		0.5 — 3 g • cm
FF	CQ-201B	More than 40 g • cm
REW		

SECTION 5. ELECTRICAL ADJUSTMENTS

PRECAUTION

1. Specified voltage : 1.3V.
2. Switch position
 DOLBY NR switch : OFF
 DBB switch : NORM (Only remote control)

Cassette Section

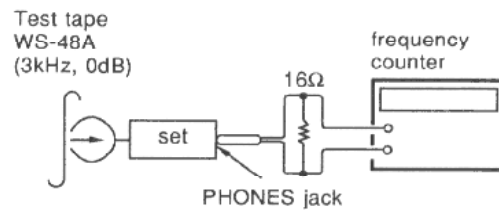
Test tape

Product name	Recorded contents	Purpose
WS-48A	3 kHz, 0 dB	Tape speed

0dB = 0.775V

[Tape speed adjustment]

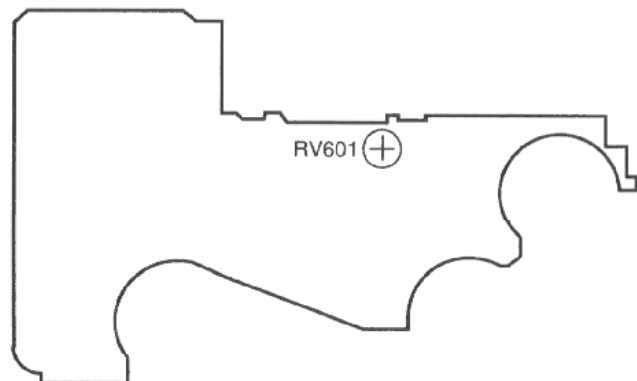
Procedure :



1. Playback WS-48A (tape center part) in the FWD state and adjust RV601 so that the frequency counter reading becomes 3000 ± 10 Hz.
2. Playback WS-48A (tape center) in the REV state.
 Check that the frequency counter reading is within 2.5% of the reading of step 1.

Adjustment Point :

[AUDIO BOARD] (SIDE A)

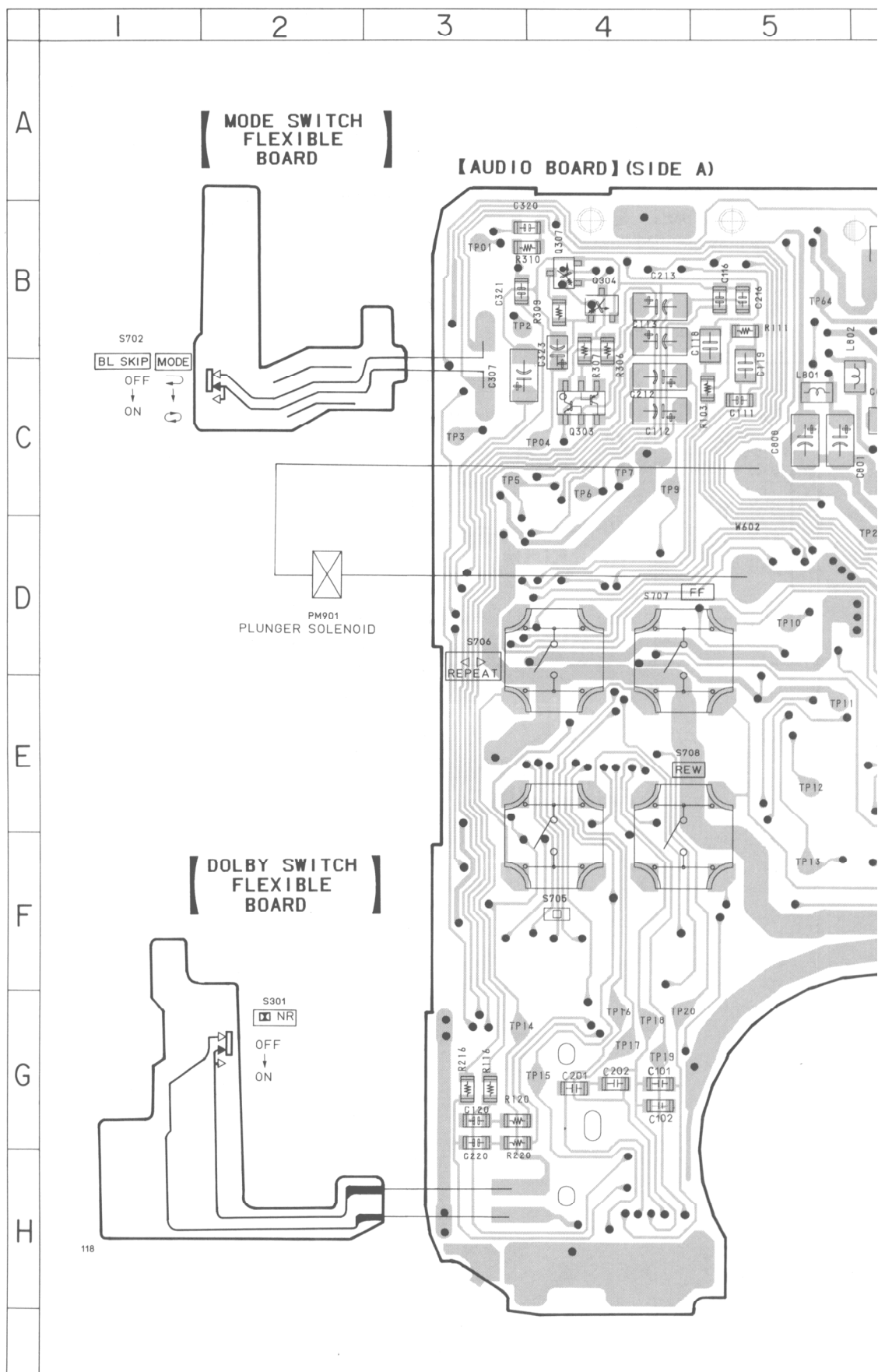


SECTION 6
DIAGRAMS

6-1. PRINTED WIRING BOARD

• Semiconductor Location

Ref. No.	Location
D601	C-25
D602	D-21
IC301	D-24
IC601	D-18
IC701	E-18
IC702	F-17
IC703	E-21
IC705	F-20
IC706	D-21
IC801	C-22
Q301	E-25
Q302	G-23
Q303	C-4
Q304	B-4
Q305	F-21
Q306	F-23
Q307	B-4
Q601	D-21
Q602	D-17
Q604	D-9
Q701	E-22
Q702	D-22
Q705	G-25
Q706	F-19



6

7

8

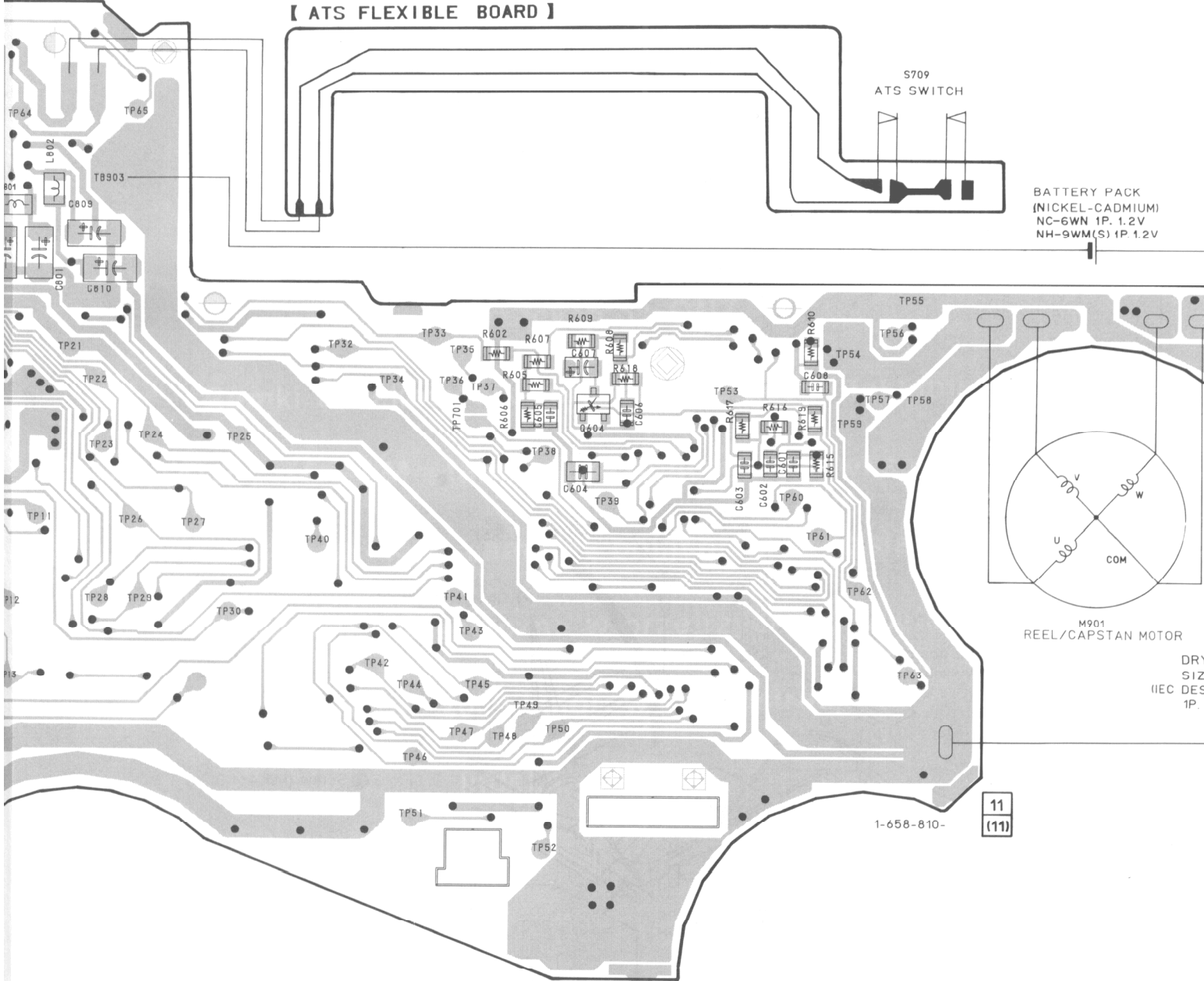
9

10

11

12

【 ATS FLEXIBLE BOARD 】



BATTERY PACK
 (NICKEL-CADMIUM)
 NC-6WN 1P. 1.2V
 NH-9WM(S) 1P. 1.2V

M901
 REEL/CAPSTAN MOTOR

DRY
 SIZ
 (IEC DES
 1P.

1-658-810-

11
 (11)

Note:

- ● : Through hole.
- ■ : Pattern from the side which enable seeing.
(The other layer's patterns are not indicated.)

13

14

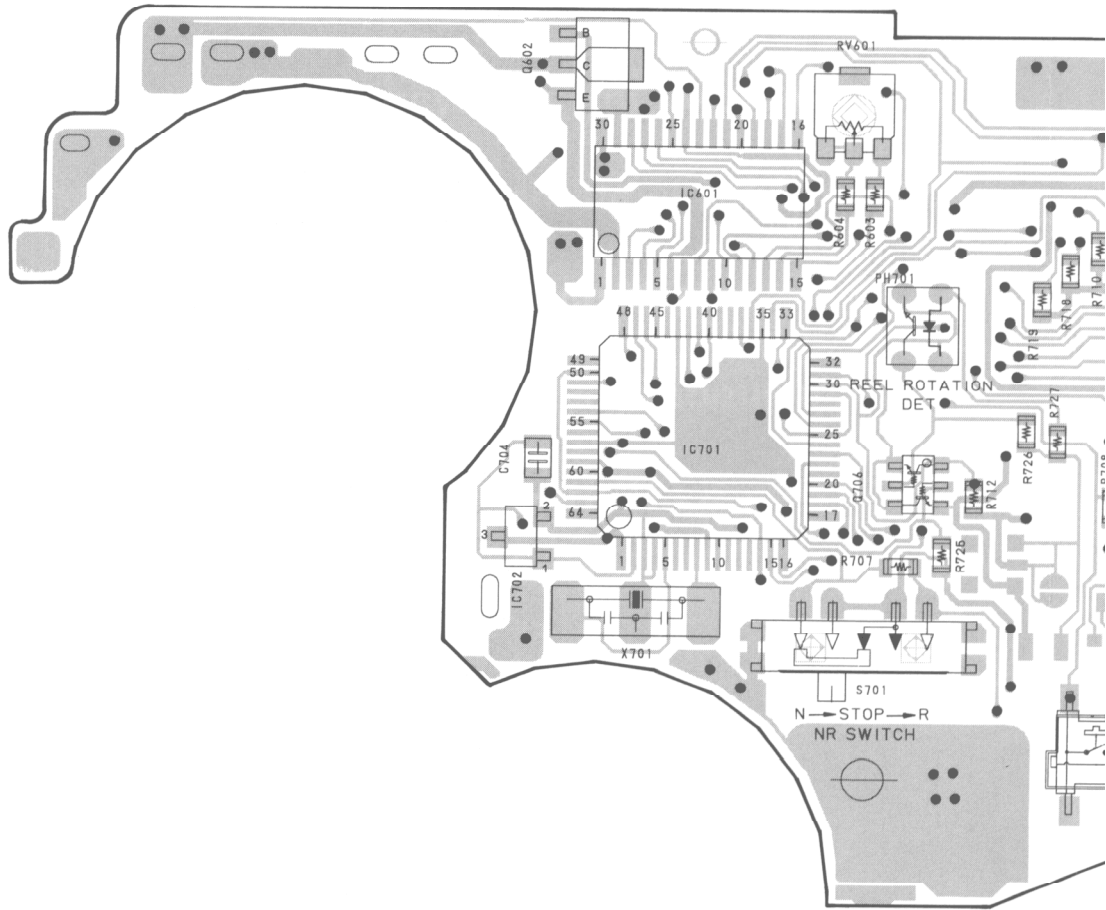
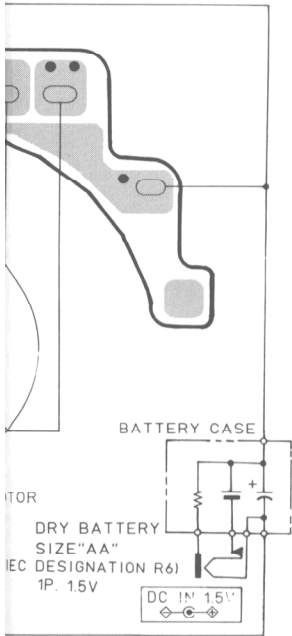
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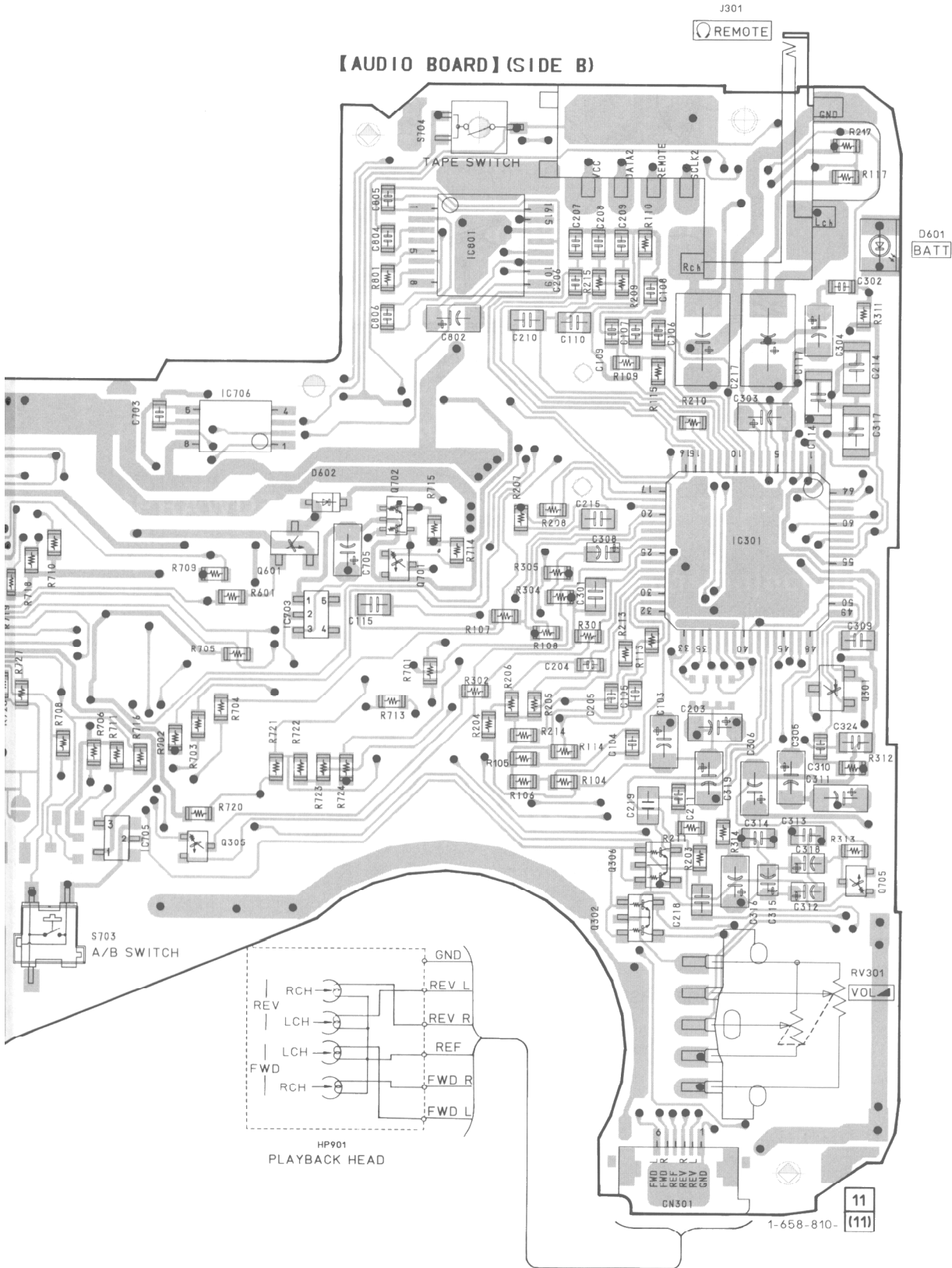
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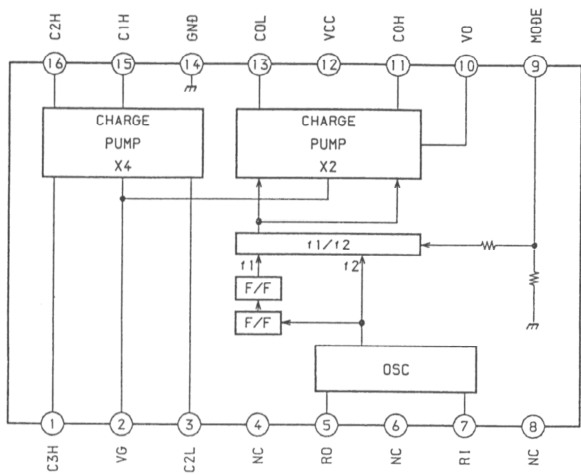
[AUDIO BOARD] (SIDE B)



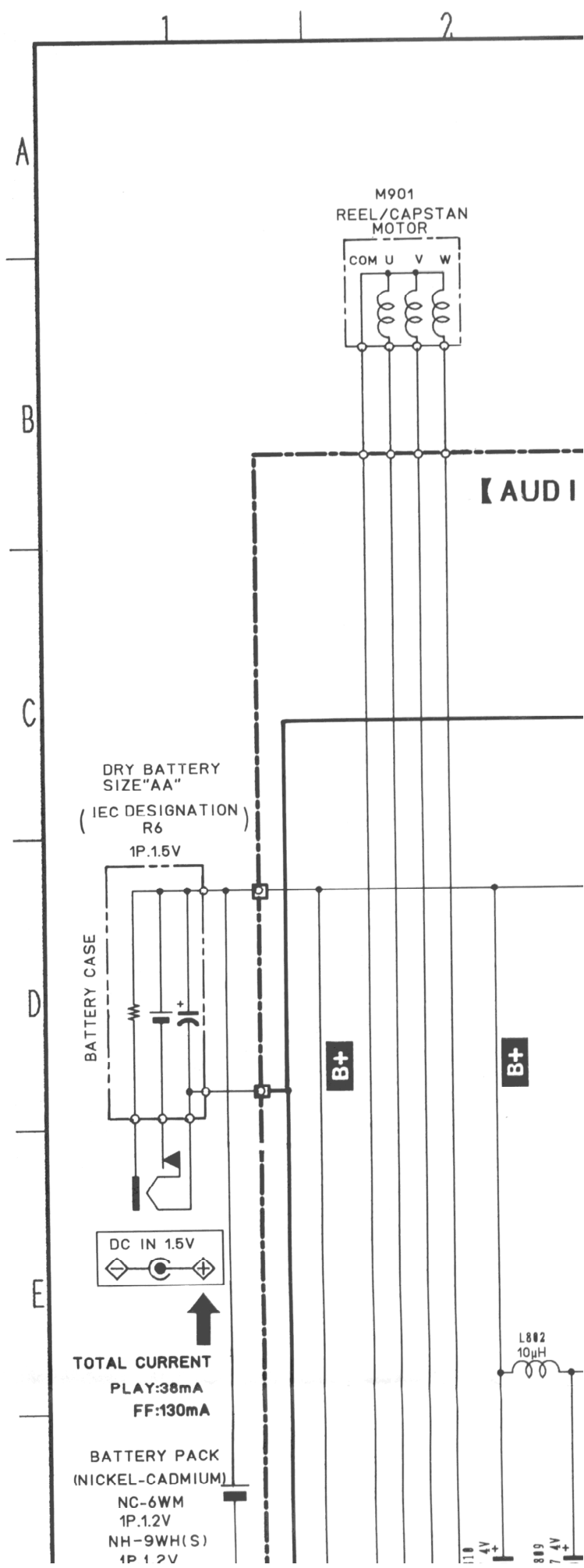
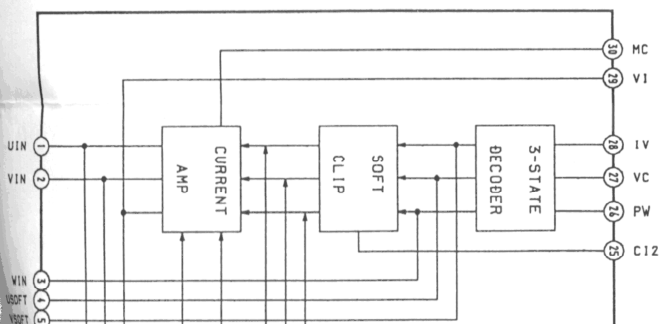
6-2. SCHEMATIC DIAGRAM
 • See page 19 for IC Pin Functions. (IC601, 701)

EV

IC801 MPC1850S VMEL



IC601 LB1679V



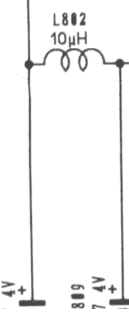
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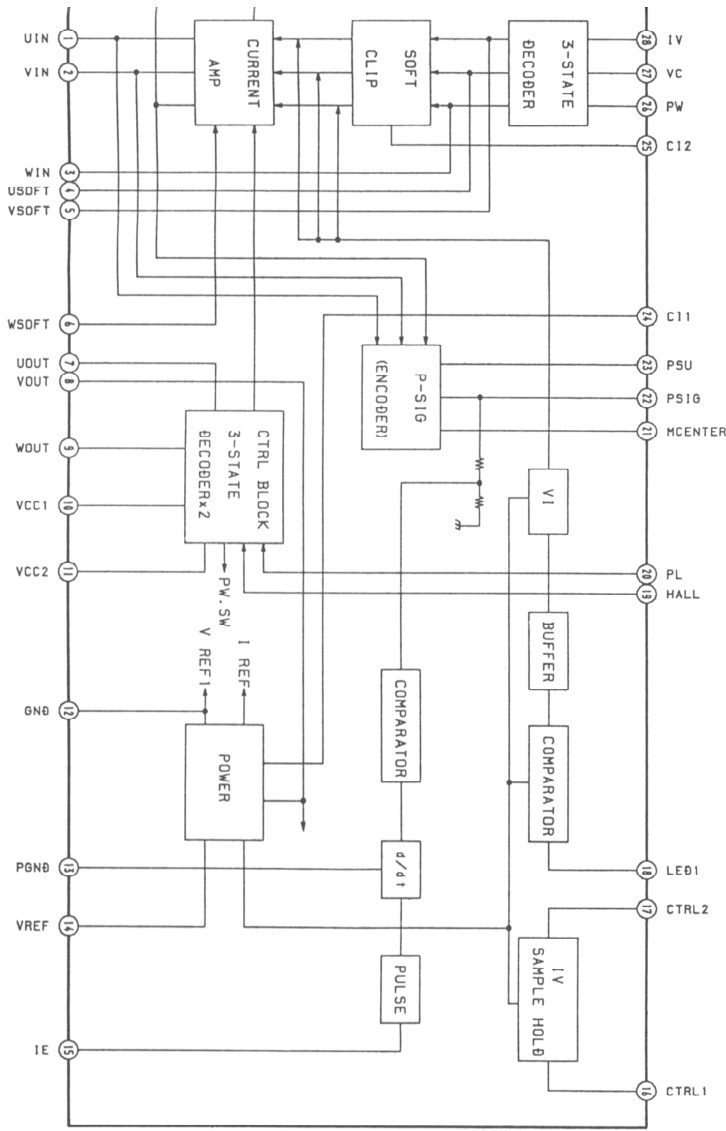
B+

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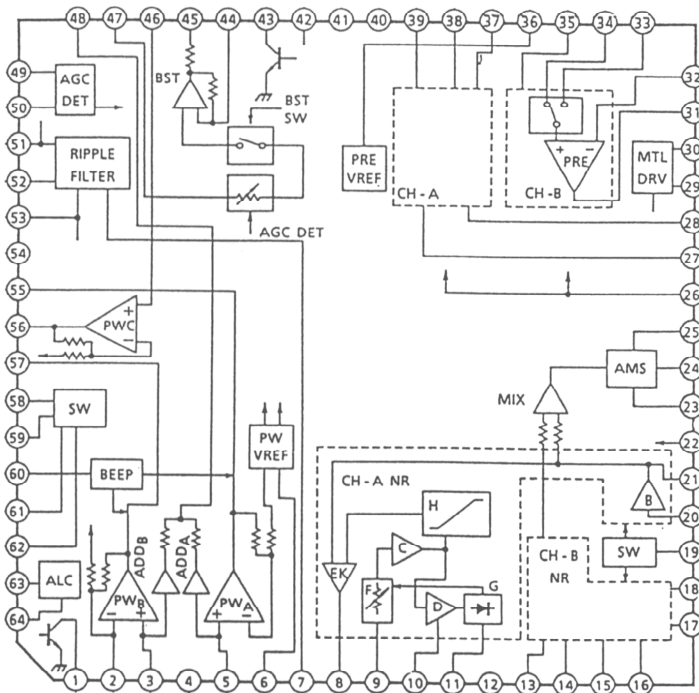
TOTAL CURRENT
 PLAY: 38mA
 FF: 130mA

BATTERY PACK
 (NICKEL-CADMIUM)
 NC-6WM
 1P.12V
 NH-9WH(S)
 1P.12V

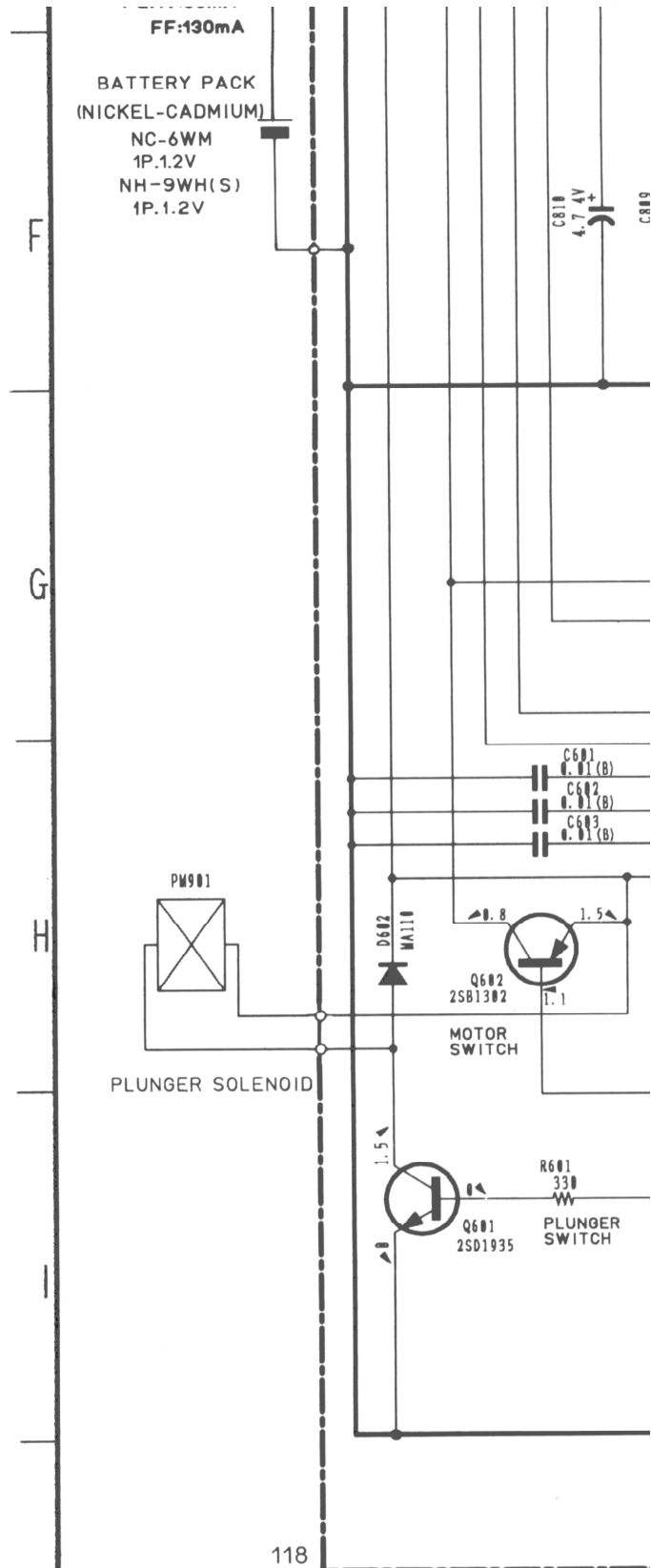




IC301 TA2072F



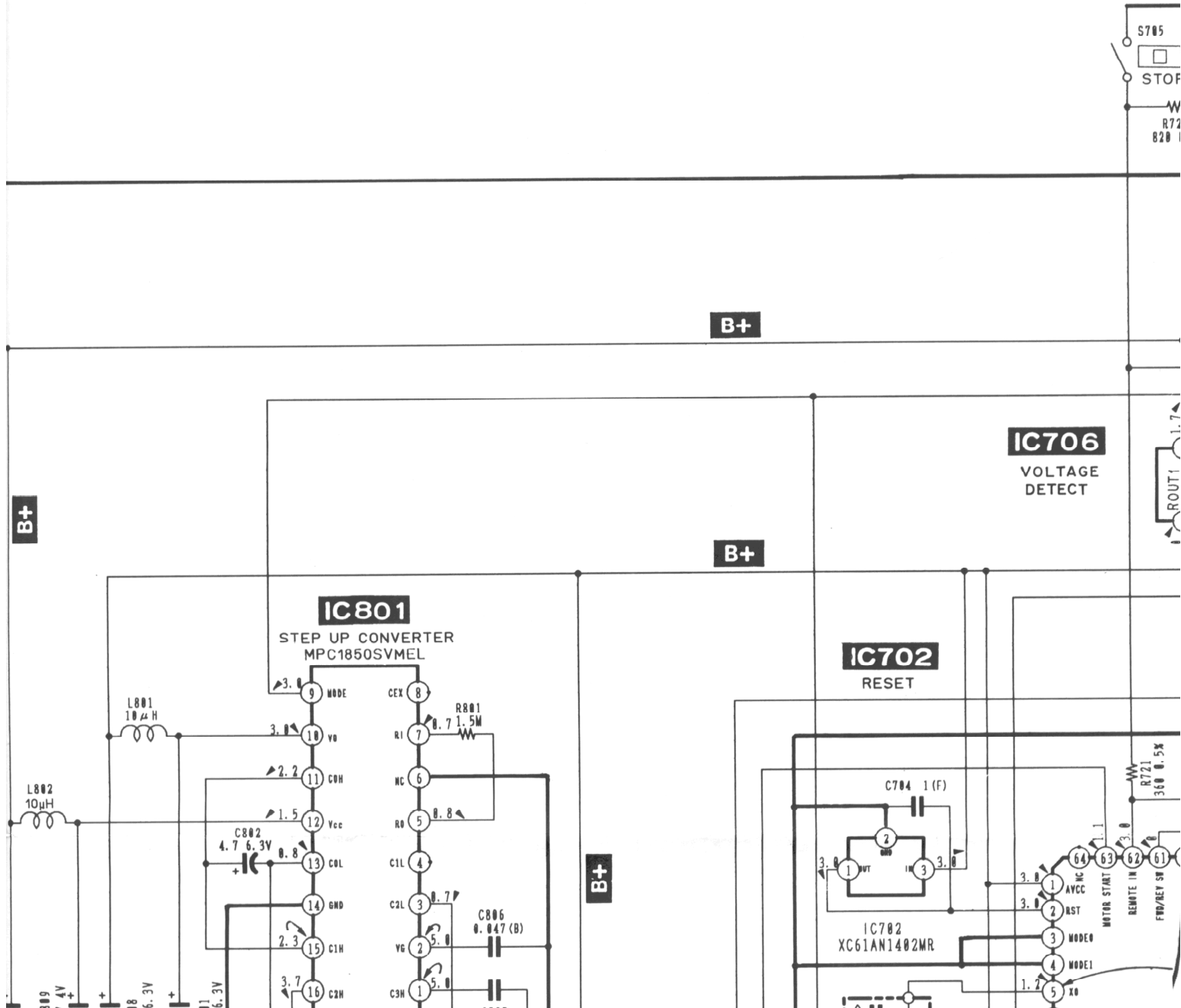
FF:130mA
 BATTERY PACK
 (NICKEL-CADMIUM)
 NC-6WM
 1P.1.2V
 NH-9WH(S)
 1P.1.2V

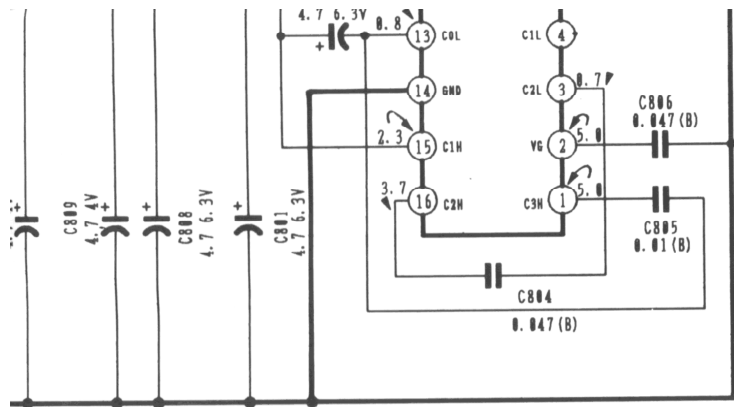


Note:

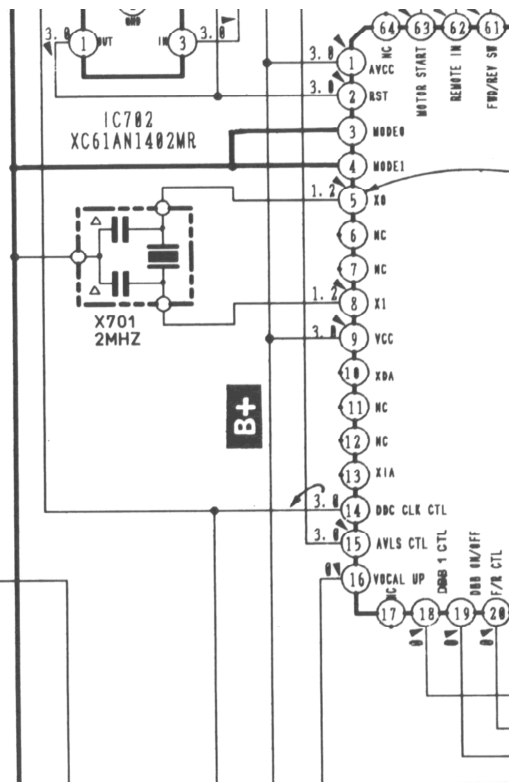
- All capacitors are in μF unless otherwise noted.
- 50WV or less are not indicated except for electrolytic capacitors.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- Δ : internal component.
- : panel designation.
- B+ : B+ Line
- : adjustment for repair.

AUDIO BOARD

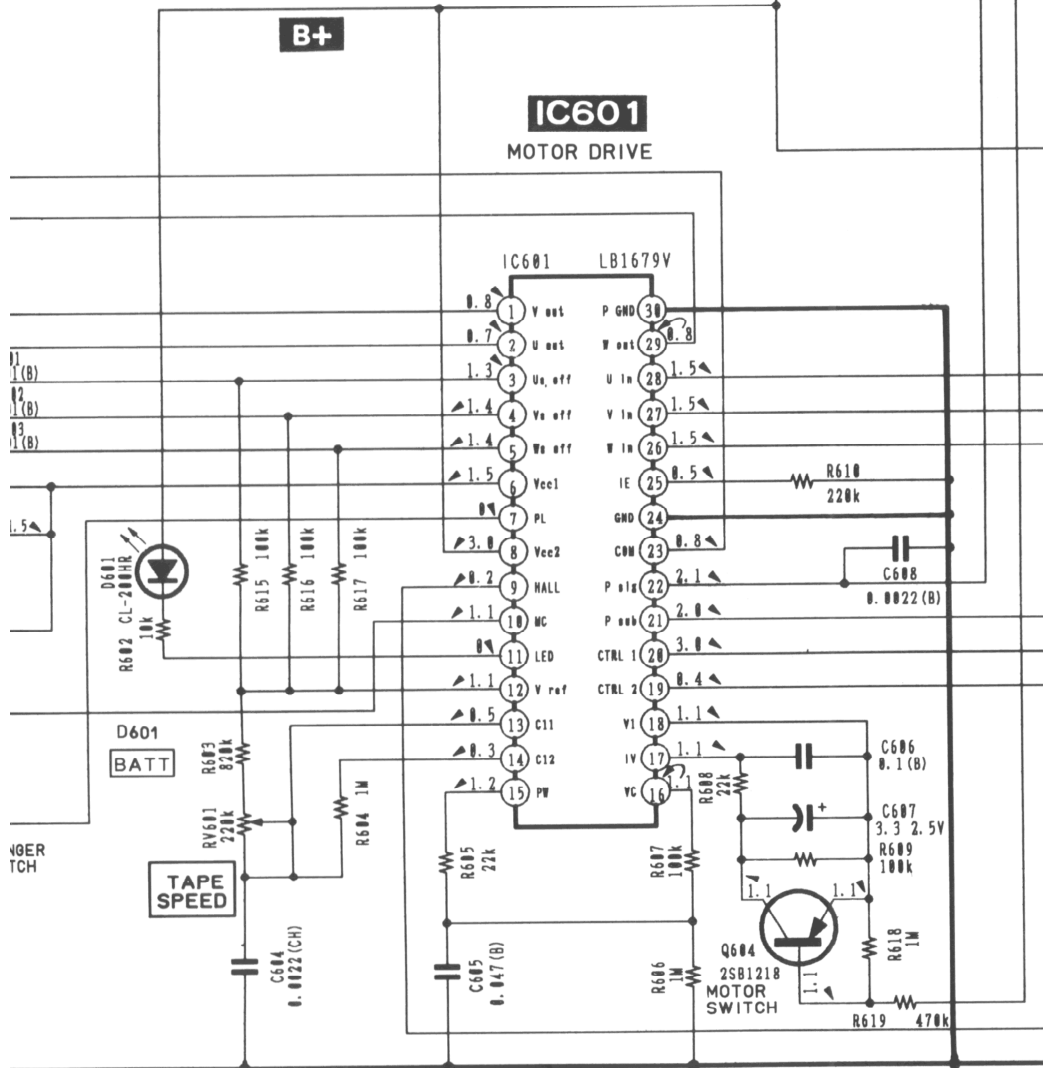




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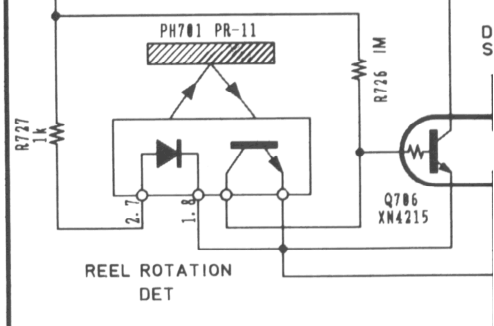


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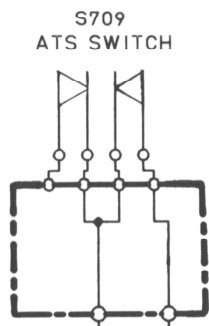
TP701 SERVICE MODE



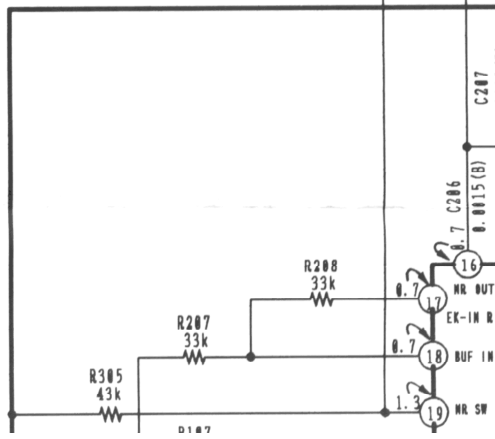
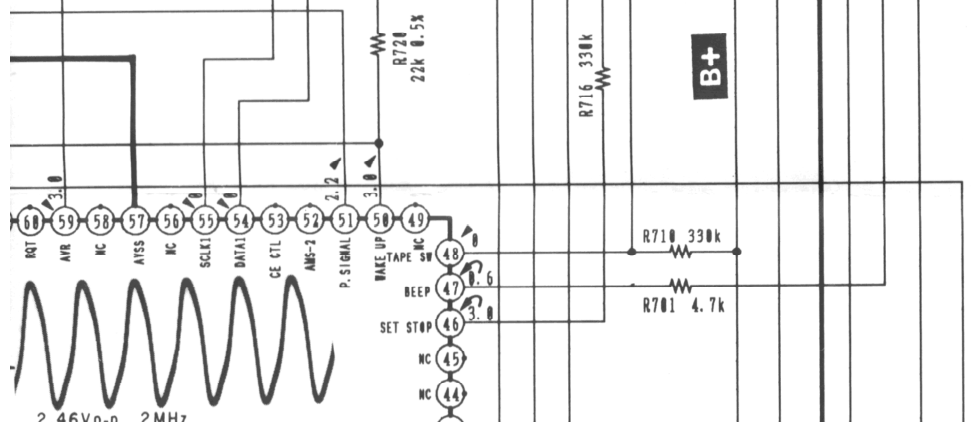
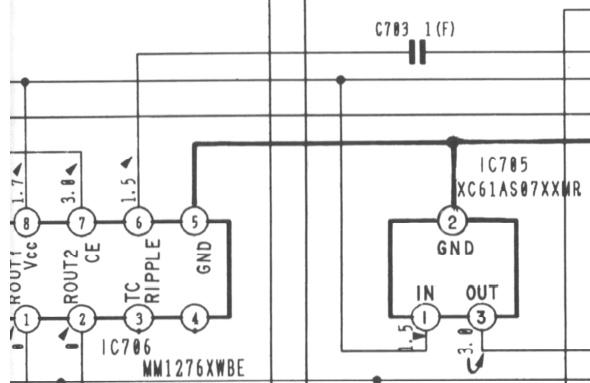
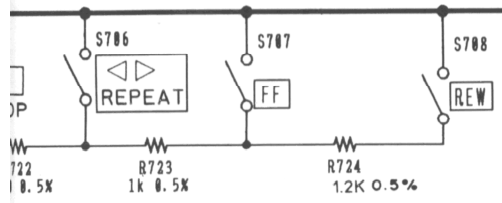
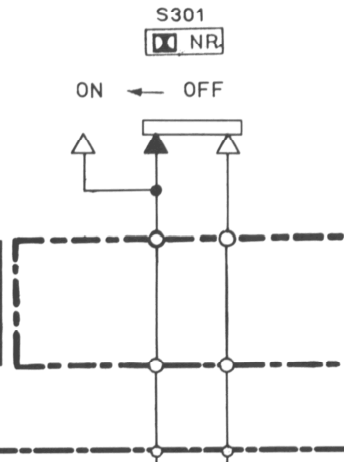
wise noted. pF:μF
: for electrolytics and
ss unless otherwise

- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Power voltage is dc 1.2V and fed with regulated dc power supply from external power voltage jack.
- Signal path.
▷ : PB

ATS FLEXIBLE BOARD



DOLBY SWITCH FLEXIBLE BOARD

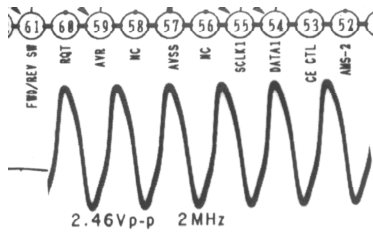


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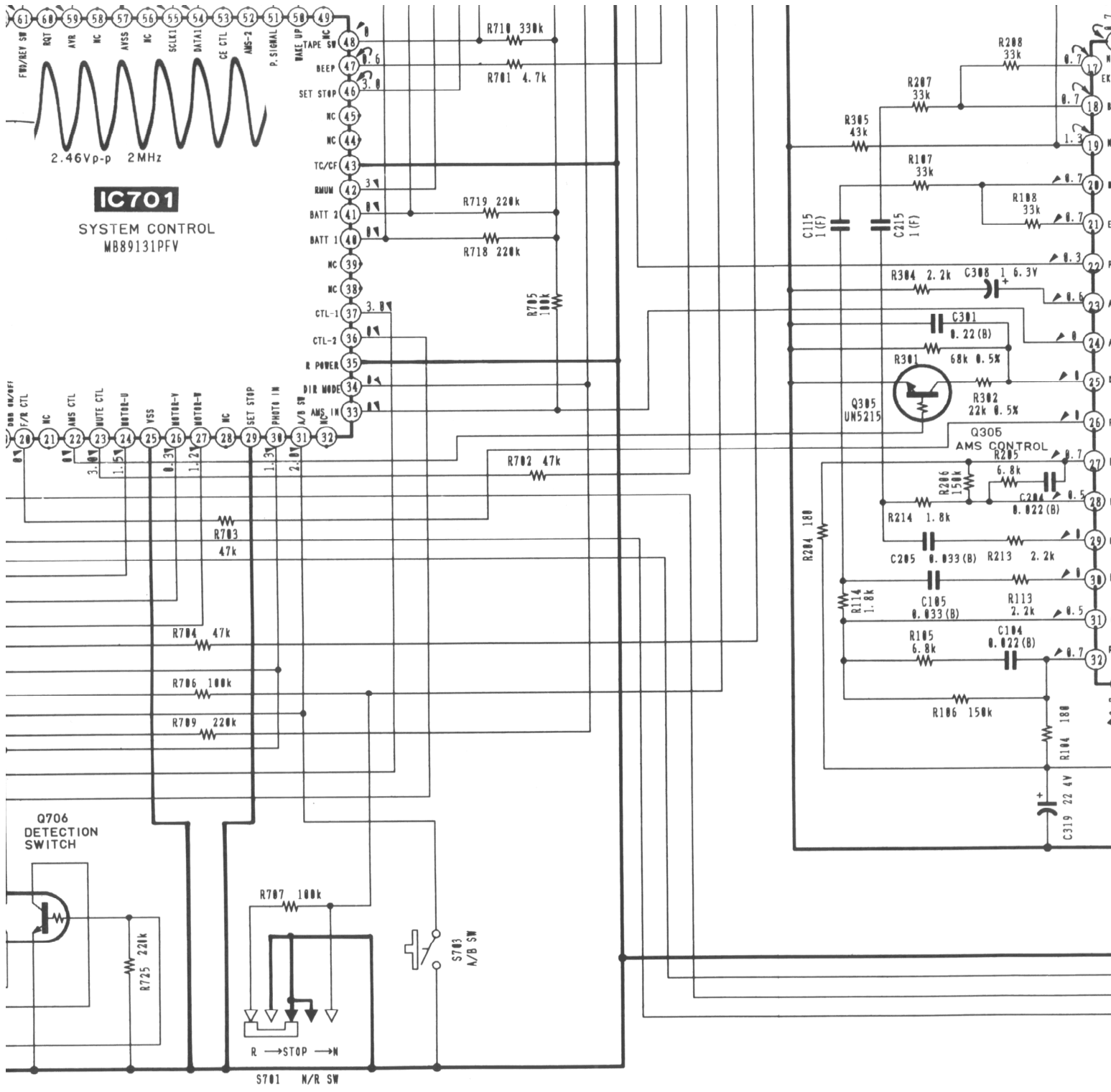
VOLTAGE DETECT

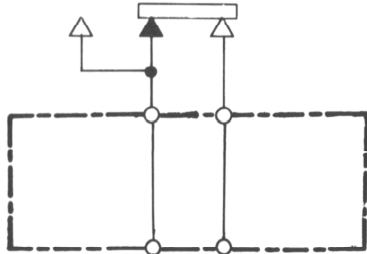
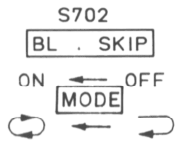
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IC701

SYSTEM CONTROL
MB89131PFV



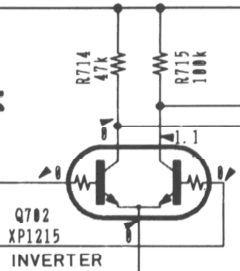
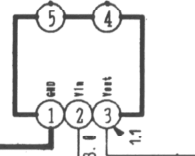


**MODE SWITCH
FLEXIBLE
BOARD**

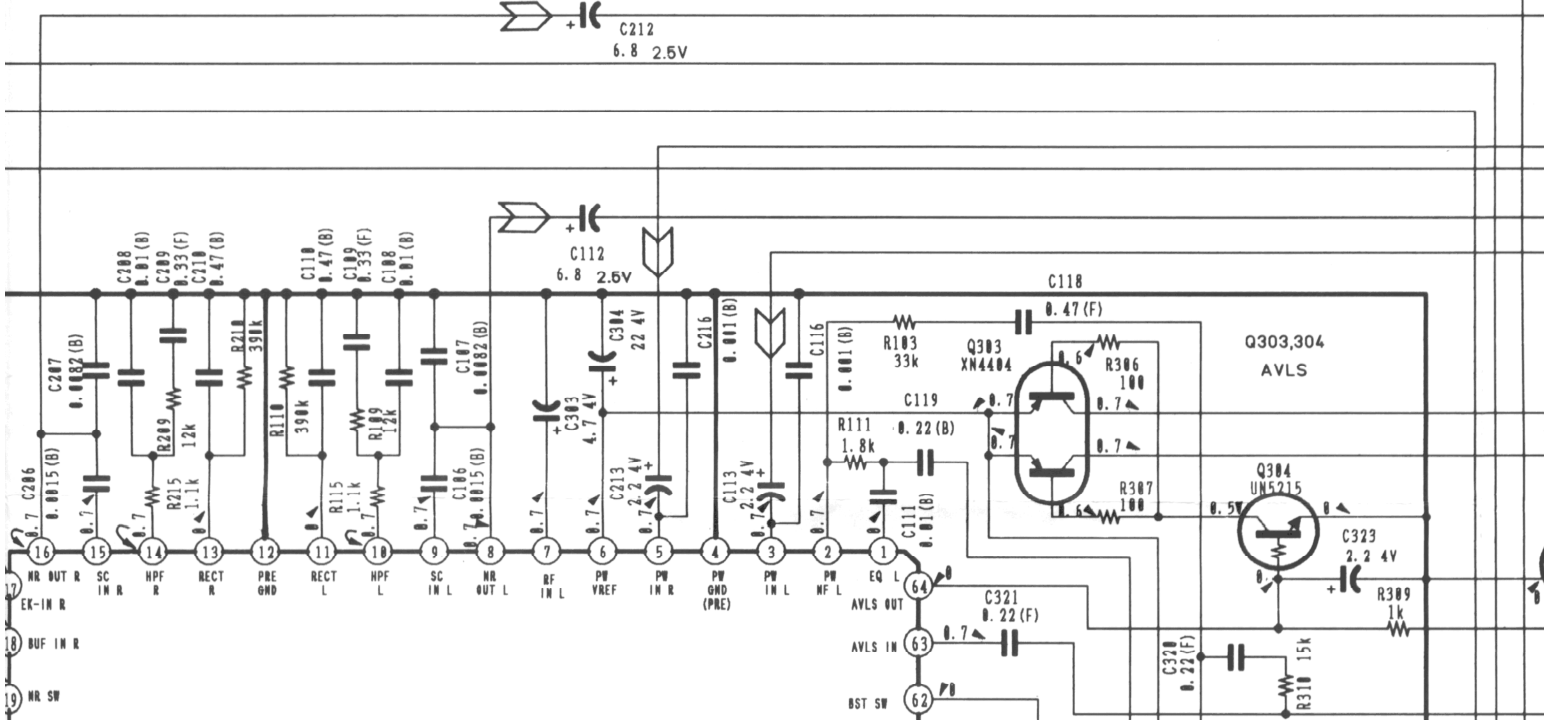
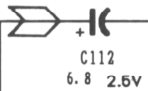
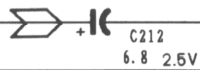
IC703

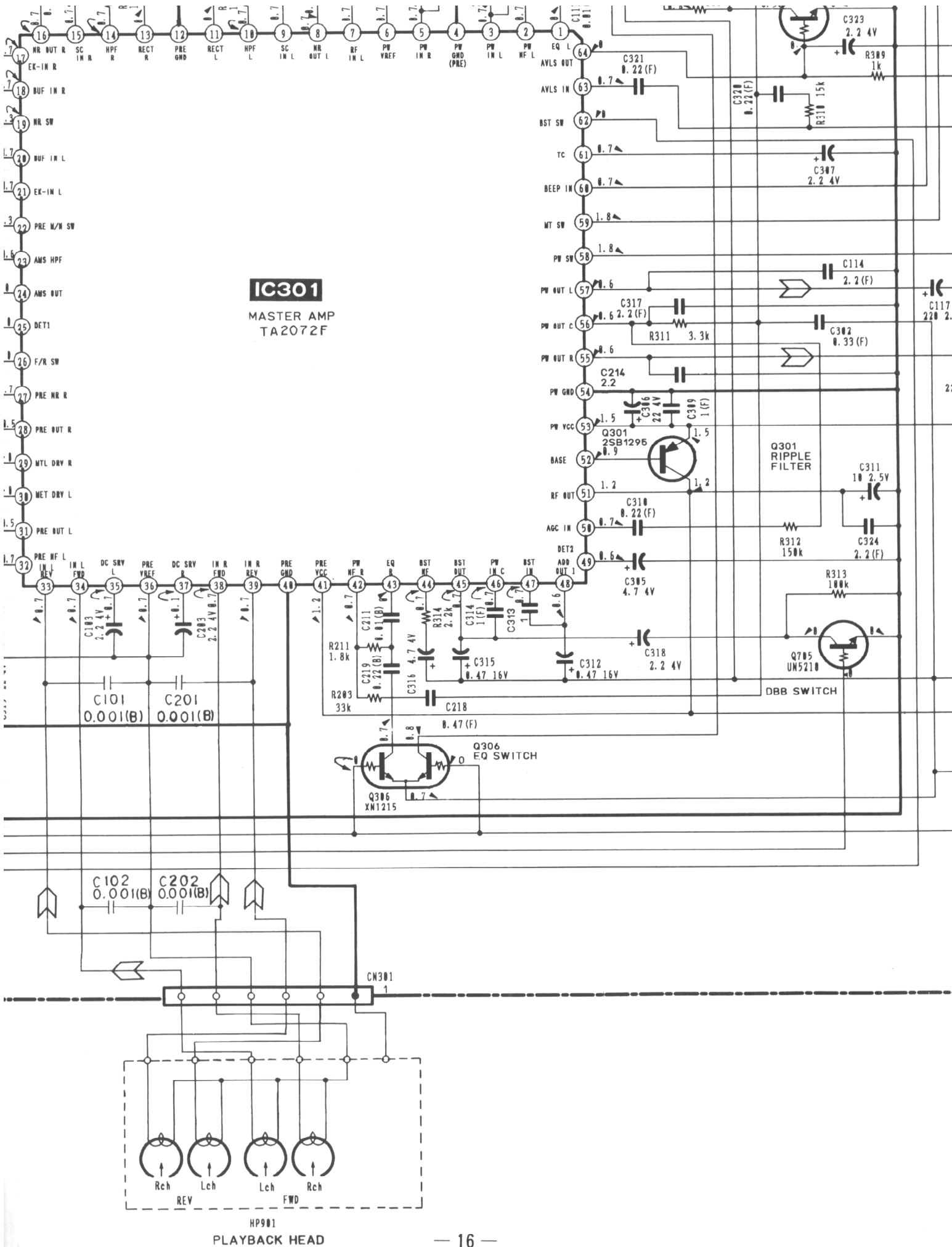
REG

IC703 S-81211SG

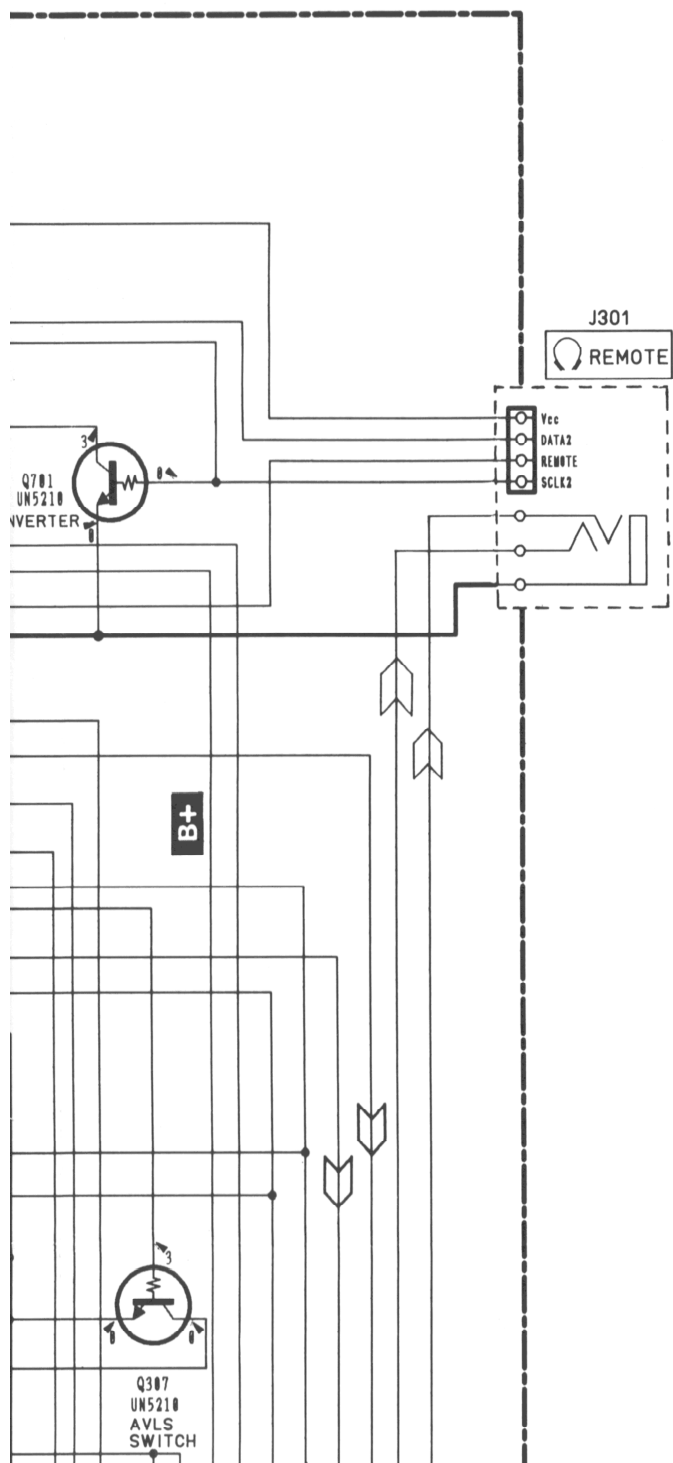


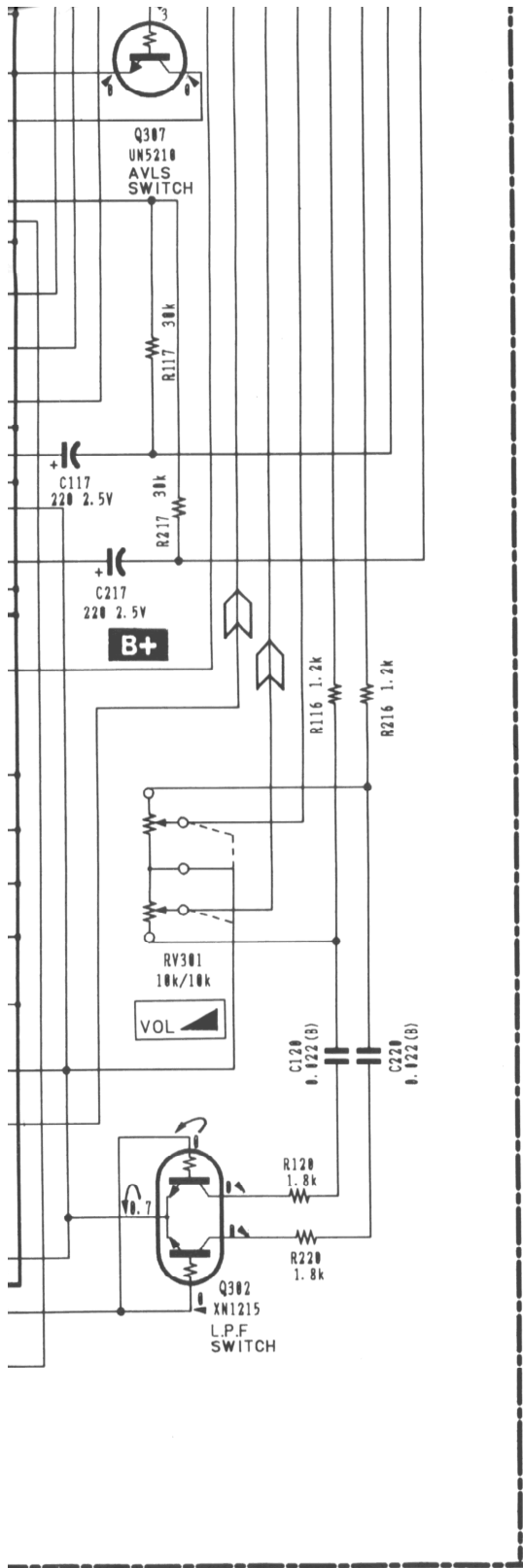
R713 220k





14 | 15





6-3. IC PIN FUNCTIONS

• IC601 Motor Drive (LB1679V)

Pin No.	Pin Name	I/O	Function
1	VOUT	O	V phase output
2	UOUT	O	U phase output
3	USOFT	I	U phase software switching
4	VSOFT	I	V phase software switching
5	WSOFT	I	W phase software switching
6	VCC1	-	Power supply 1 (0.9V to 1.8V)
7	PL	O	PL driver output
8	VCC2	-	Power supply 2 (VCC1x2=1.8V to 3.6V)
9	HALL	O	HALL element bias output. When 2 mA:0.7V IO MAX=10 mA
10	MC	O	External TR drive IO MAX=20 mA
11	LED	O	LED1 driver output IO MAX=5 mA
12	VREF	I	Reference voltage 1.1V
13	CI1	I	Comparator input (Adjust rotation speed according to the external constant of C and R)
14	CI2	I	CI1 charge current in half-wave driving IO MAX=30 μ A
15	PW	O	Comparator output
16	VC	O	Buffer output
17	IV	O	VI conversion output
18	VI	O	IV conversion output
19	CTRL2	I	Start, stop, and LED PL switching 3-value input (H, M, L) H: 1.7V to VCC2, M: Pin open (0.24V), L: 0 mV to 50 mV
20	CTRL1	I	Start, stop, and LED PL switching 3-value input (H, M, L) H: 1.7V to VCC2, M: Pin open (0.24V), L: 0 mV to 50 mV
21	PSUB	O	MCENTER and U phase output comparator output
22	PSIG	O	PSIG output
23	COM	I	PSIG section motor middle point voltage input
24	GND	-	GND
25	IE	I	Adjusts software switching pin current with external resistor
26	WIN	I	W phase input
27	VIN	I	V phase input
28	UIN	I	U phase input
29	WOUT	O	W phase output
30	PGND	-	POWER block GND

• IC701 System Controller (MB8913PFV)

Pin No.	Pin Name	I/O	Function
1	AVCC	-	Analog section power supply
2	RST	I	Reset
3	MODE0	I	Operation mode specified input (Connected to GND)
4	MODE1	I	Operation mode specified input (Connected to GND)
5	X0	-	High speed clock connection (2 MHz ceramics oscillator)
6	NC	-	Not used
7	NC	-	Not used
8	X1	-	High speed clock connection (2 MHz ceramics oscillator)
9	VCC	-	Logic section power supply
10	XDA	-	Low speed clock connection (Not used)
11	NC	-	Not used
12	NC	-	Not used
13	X1A	-	Low speed clock connection (Not used)
14	DDC CLK CTL	O	DDC oscillation frequency change output (L:Waiting state)
15	AVLS CTL	O	AVLS control output (AVLS:L)
16	VOCAL UP	O	Sound quality control output (VOCAL UP:H)
17	NC	-	Not used
18	DBB 1 CTL	O	Sound quality control output (DBB1:H)
19	DBB ON/OFF	O	Sound quality control output (DBB1, DBB2:H)
20	F/R CTL	O	FWD:H, REV:L
21	NC	-	Not used
22	AMS CTL	O	AMS sensitivity control output (FF/REW:H)
23	MUTE CTL	O	AUDIO POWER AMP MUTING (MUTE:L)
24	MOTOR-U	O	Motor U phase control output
25	VSS	-	GND
26	MOTOR-V	O	Motor V phase control output
27	MOTOR-W	O	Motor W phase control output
28	NC	-	Not used
29	SET STOP	-	Not used (Connected to GND)
30	PHOTO IN	I	Rotation detection input
31	A/B SW	I	Tape A/B side detection SW input (Side A top:L, Side B top:H)
32	NC	-	Not used
33	AMS IN	I	Recording detection input (Music:H)
34	DIR MODE	I	DIRECTION MODE selection and BL, SKIP ON/OFF input SHUT OFF, BL SKIP OFF = L, ENDLESS, BL SKIP ON = H
35	R POWER	-	Not used (Connected to GND)
36	CTL2	O	Servo IC control output
37	CTL1	O	Servo IC control output
38	NC	-	Not used
39	NC	-	Not used

Pin No.	Pin Name	I/O	Function
40	BATT1	I	LEVEL1 : BATT1 = H, BATT2 = H (LOW) LEVEL2 : BATT1 = H, BATT2 = L (MIDDLE) LEVEL3 : BATT1 = L, BATT2 = L (HIGH)
41	BATT2	I	
42	RMUM	I	
43	TC/CF	-	Not used (Connected to GND)
44	NC	-	Not used
45	NC	-	Not used
46	SET STOP	I	For power failure STOP
47	BEEP	O	Beep sound output
48	TAPE SW	I	Tape presence detection input (Present:L)
49	NC	-	Not used
50	WAKE UP	I	Stop mode release interruption
51	P-SIGNAL	I	Motor rotation control
52	AMS 2	-	Not used
53	CE CTL	-	Not used
54	DATA1	O	Serial data output
55	SCLK1	O	Serial clock input
56	NC	-	Not used
57	AVSS	-	Analog section (GND)
58	NC	-	Not used
59	AVR	-	Analog section reference potential input
60	RQT	-	Not used
61	FWD/REV SW	I	F/R SW input (Analog input)
62	REMOTE IN	I	Key input (Analog input)
63	MOTOR START	O	Motor start-up control output (Motor start-up:Outputs L for 200 ms)
64	NC	-	Not used

SECTION 7 EXPLODED VIEWS

NOTE:

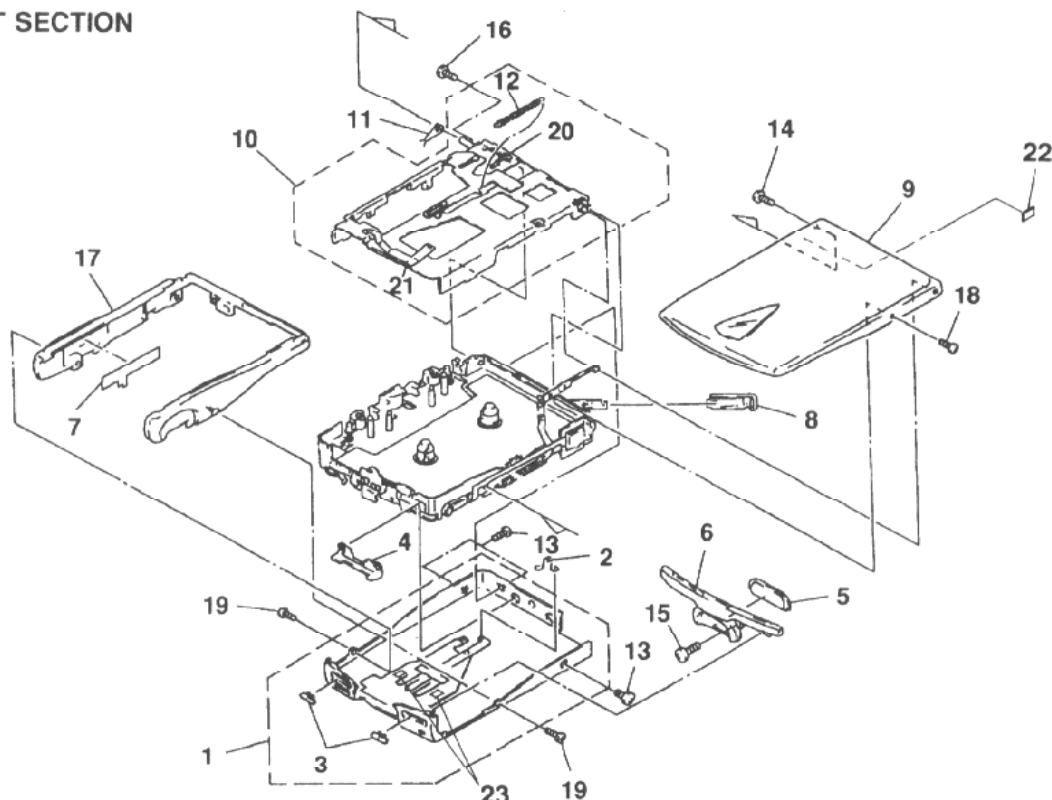
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

↑ ↑
Parts color Cabinet's color

- Color Indication of Appearance Parts Example: KNPB, BALANCE (WHITE)... (RED)
- 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.

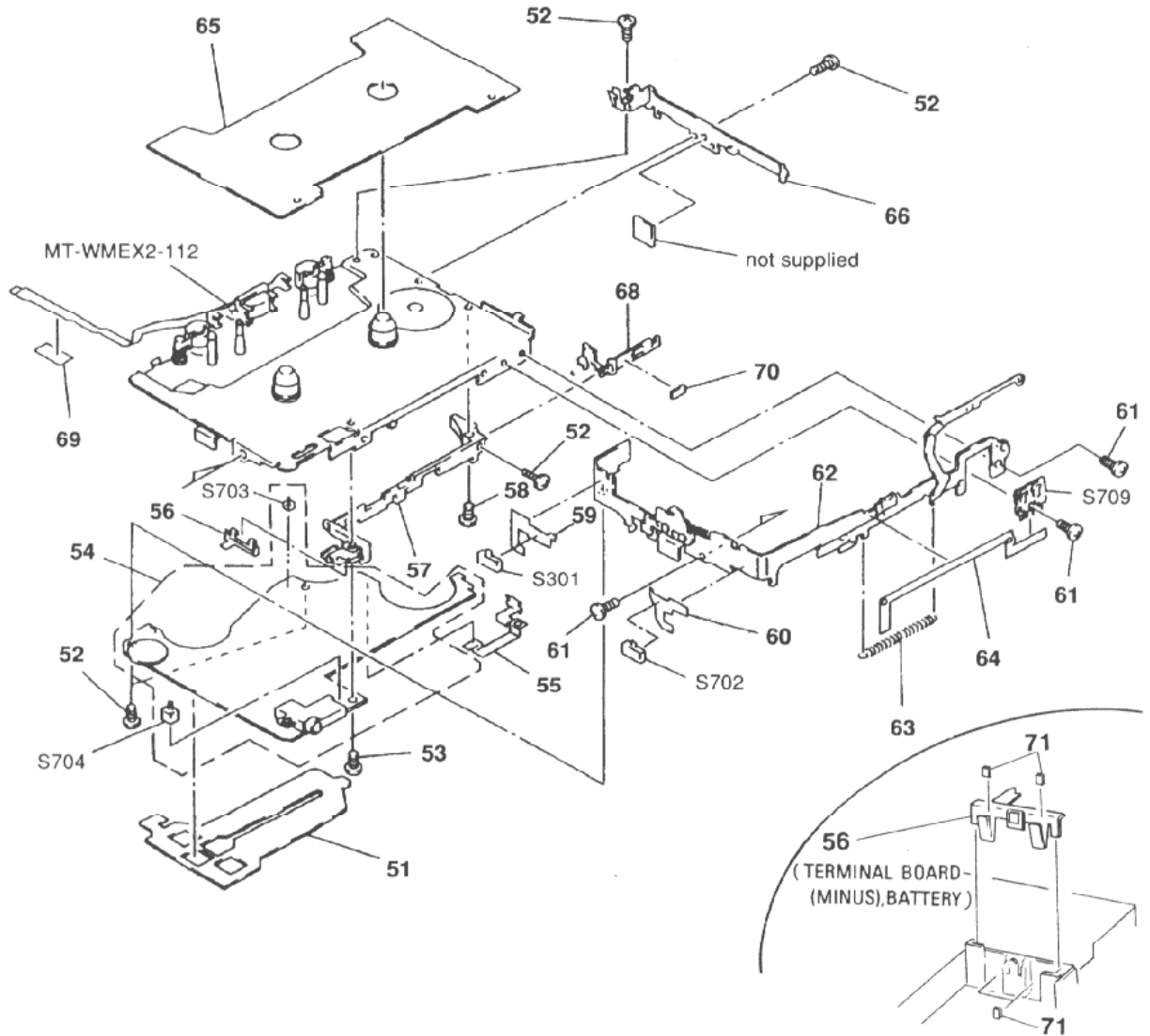
- Abbreviation
JE : Tourist model

7-1. CABINET SECTION



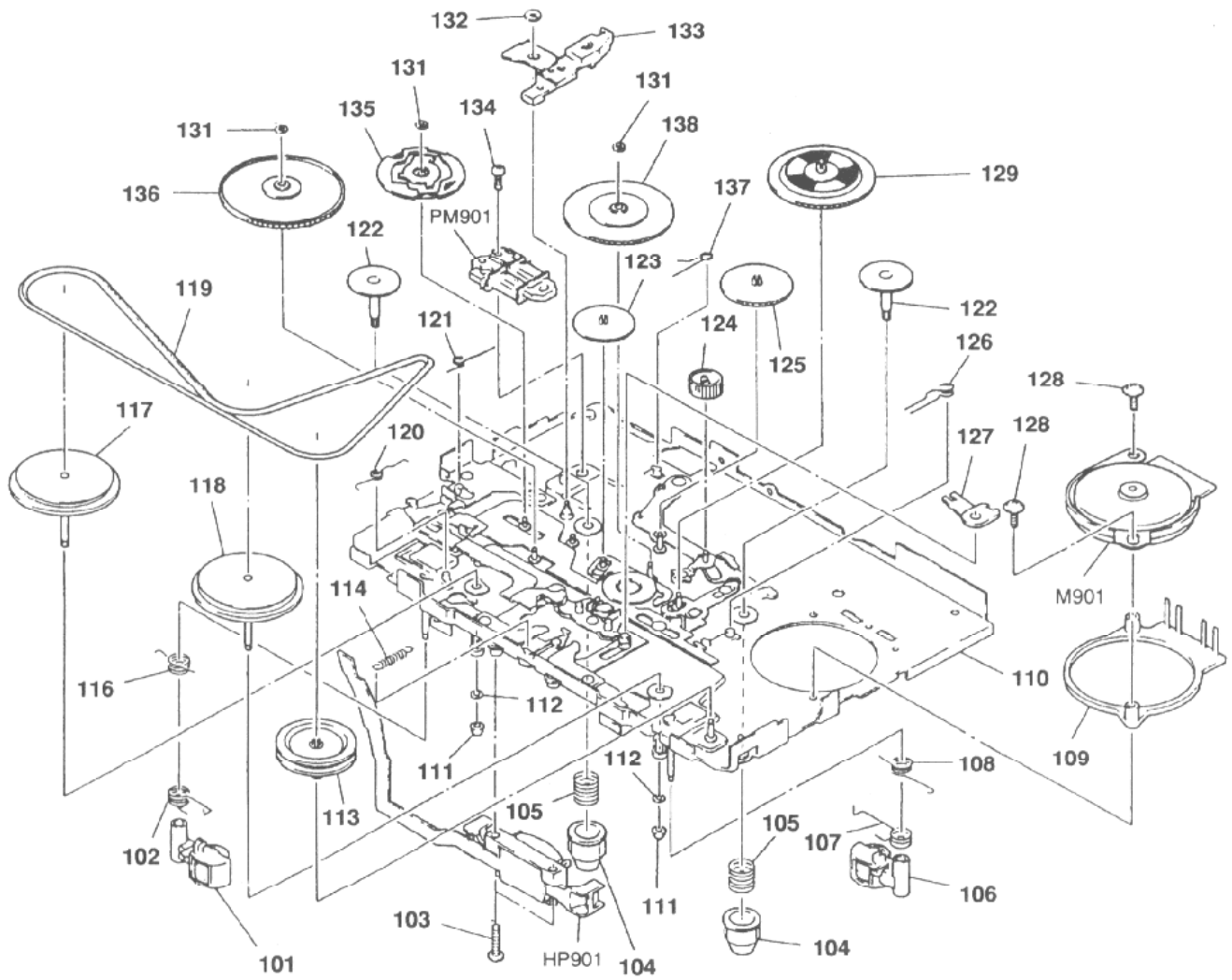
REF. No.	Part No.	Description	Remark	REF. No.	Part No.	Description	Remark
1	X-3370-983-1	CASE ASSY (B)(BLACK)(EX2)		9	X-3371-386-1	LID ASSY (HG), CASSETTE (EX2HG)	
1	X-3370-987-1	CASE ASSY (L)(BLUE)(EX2:JE)		9	X-3371-541-1	LID ASSY (HGX), CASSETTE (EX2HGX)	
1	X-3370-989-1	CASE ASSY (G)(GREEN)(EX2:JE)		* 10	X-3370-980-1	HOLDER ASSY	
1	X-3370-994-1	CASE ASSY (S)(SILVER)(EX2:JE)		11	3-916-245-01	SPRING (LOCK LEVER)	
1	X-3371-387-1	CASE ASSY (HG)(EX2HG/EX2HGX)		12	3-916-246-01	SPRING, TENSION	
2	3-916-288-01	SPRING (HOLD)		13	3-704-197-21	SCREW (M1.4X2.5), LOCKING (SILVER, GREEN) (EX2:JE/EX2HG/EX2HGX)	
3	3-928-999-01	KNOB (DOLBY) (BLACK)		13	3-704-197-23	SCREW (M1.4X2.5), LOCKING (BLACK, BLUE) (EX2)	
3	3-928-999-11	KNOB (DOLBY)(EX2:JE) (BLUE)		14	3-907-009-01	SCREW (M1.4) (SILVER, GREEN) (EX2:JE/EX2HG/EX2HGX)	
3	3-928-999-21	KNOB (DOLBY)(EX2:JE) (GREEN)		14	3-907-009-11	SCREW (M1.4)(BLACK, BLUE) (EX2)	
3	3-928-999-31	KNOB (DOLBY)(EX2:JE) (SILVER)		15	3 704 197 13	SCREW (M1.4X2.0), LOCKING (EX2)	
4	3-928-991-01	PLATE (TERMINAL), ORNAMENTAL		16	3-365-630-41	SCREW (M1.4)	
5	3-928-984-01	BUTTON (OPEN)(EX2)		17	3-928-985-01	ORNAMENT (B), REEL (BLACK, BLUE)	
5	3-928-984-11	BUTTON (OPEN)(EX2HG/EX2HGX)		17	3-928-985-11	ORNAMENT (B), REEL (GREEN)(EX2:JE)	
6	3-928-979-01	ORNAMENT (A-EX), REEL (EX2)		17	3-928-985-21	ORNAMENT (B), REEL (SILVER)(EX2:JE)	
6	3-928-979-11	ORNAMENT (A-EX), REEL (EX2HG/EX2HGX)		18	3-704-197-01	SCREW (M1.4X1.6), LOCKING (SILVER, GREEN) (EX2:JE/EX2HG/EX2HGX)	
* 7	3-918-043-01	PAPER (H), SHIELD		18	3-704-197-03	SCREW (M1.4X1.6), LOCKING (BLACK, BLUE) (EX2)	
8	3-928-987-01	LID, BATTERY CASE (BLACK)(EX2)		19	3-704-197-51	SCREW (M1.4X3.5), LOCKING (SILVER, GREEN) (EX2:JE/EX2HG/EX2HGX)	
8	3-928-987-11	LID, BATTERY CASE (BLUE)(EX2:JE)		19	3-704-197-53	SCREW (M1.4X3.5), LOCKING (BLACK, BLUE) (EX2)	
8	3-928-987-21	LID, BATTERY CASE (GREEN)(EX2:JE)		20	3-916-260-01	SPRING (A), HOLDER	
8	3-928-987-31	LID, BATTERY CASE (SILVER)(EX2:JE)		21	3-928-988-01	SPRING (B), HOLDER	
8	3-928-987-41	LID, BATTERY CASE (EX2HG/EX2HGX)		22	3-353-139-41	SHEET(SW)	
9	X-3370-982-1	LID ASSY (B), CASSETTE (BLACK)(EX2)		23	3-315-076-11	SPACER, BRAKE	
9	X-3370-991-1	LID ASSY (L), CASSETTE (BLUE)(EX2:JE)					
9	X-3370-992-1	LID ASSY (G), CASSETTE (GREEN)(EX2:JE)					
9	X-3370-993-1	LID ASSY (S), CASSETTE (SILVER)(EX2:JE)					

7-2. AUDIO BOARD SECTION



REF. No.	Part No.	Description	Remark	REF. No.	Part No.	Description	Remark
51	3-929-271-01	SPACER (SW)		63	3-916-241-01	SPRING, TENSION	
52	3-704-197-01	SCREW (M1.4X1.6), LOCKING		64	1-653-415-11	ATS FLEXIBLE BOARD	
53	3 366 746 61	SCREW (M1.4X5.5)		65	3-916-250-01	COVER, MD	
* 54	A-3016-746-A	AUDIO BOARD, COMPLETE		66	X-3370-795-1	BRACKET (B) ASSY	
55	3-916-248-01	TERMINAL BOARD		68	X-3368-789-2	TERMINAL BOARD ASSY, BATTERY	
56	3-912-020-01	TERMINAL BOARD (MINUS), BATTERY		69	3-831-441-XX	SPACER, KNOB	
* 57	3-916-252-01	HOLDER, BATTERY		70	9-911-838-XX	CUSHION	
58	3-704-197-61	SCREW (M1.4X4.0), LOCKING		71	3-925-743-11	CUSHION	
59	1-658-808-11	DOLBY SWITCH FLEXIBLE BOARD		S301	1-572-922-11	SWITCH, SLIDE (☐ NR)	
60	1-658-807-11	MODE SWITCH FLEXIBLE BOARD		S702	1-572-922-11	SWITCH, SLIDE (BL SKIP)	
61	3-366-892-01	SCREW (M1.4)		S703	1-762-516-11	SWITCH, PUSH (A/B)	
62	X-3370-981-1	BRACKET (A) ASSY		S704	1-692-849-21	SWITCH, PUSH (1 KEY)(TAPE)	
				S709	1-572-580-11	SWITCH, LEAF (ATS)	

7-3. MECHANISM SECTION (MT-WMEX2-112)



REF. No.	Part No.	Description	Remark	REF. No.	Part No.	Description	Remark
101	X-3368-776-1	PINCH LEVER (N) ASSY		121	3-916-340-01	SPRING (EJECT), TORSION	
102	3-916-341-01	SPRING (PINCH N)		122	3-365-801-01	TABLE, REEL	
103	3-704-413-31	SCREW (M1.4X7.2)		123	3-916-353-01	GEAR (A)	
104	3-916-357-01	GEAR (REEL)		124	3-916-352-01	GEAR (FR)	
105	3-366-058-01	SPRING, COMPRESSION		125	3-916-354-01	GEAR (B)	
106	X-3368-777-1	PINCH LEVER (R) ASSY		126	3-916-347-01	SPRING (NR), TORSION	
107	3-916-342-01	SPRING (PINCH R)		127	3-916-339-01	LEVER (NR SW)	
108	3-916-344-01	SPRING (RETURN R)		128	3-358-455-11	SCREW, PRECISION WASHER HEAD	
109	3-916-337-01	DECK, FIXED, TERMINAL		129	A-3042-517-A	GEAR (C) BLOCK ASSY	
110	X-3370-970-1	CHASSIS ASSY		131	3-338-645-31	WASHER (0.8-2.5)	
111	3-366-017-01	BUSHING (CAPSTAN)		132	3-348-953-41	WASHER	
112	3-918-943-01	WASHER, STOPPER		133	3-916-338-01	LEVER (TRIGGER)	
113	3-916-350-01	PULLEY (REVERSE)		134	3-366-521-51	SCREW (M1.4X3.5)	
114	3-916-346-01	SPRING, TENSION		135	3-916-356-01	GEAR (CAM)	
116	3-916-343-01	SPRING (RETURN N)		136	3-916-351-01	GEAR (K)	
117	X-3370-949-1	WHEEL (N) ASSY, CAPSTAN		137	3-916-348-01	SPRING (TRIGGER), TORSION	
118	X-3370-950-1	WHEEL (R) ASSY, CAPSTAN		138	X-3368-780-1	CLUTCH ASSY	
119	3-924-422-01	BELT		HP901	1-500-275-11	HEAD, MAGNETIC (PLAYBACK)	
120	3-916-345-02	SPRING (LOCK LEVER)		M901	1-698-368-11	MOTOR (REEL/CAPSTAN)	
				PM901	1-454-674-11	SOLENOID, PLUNGER	

SECTION 8 ELECTRICAL PARTS LIST

ATS FLEXIBLE

AUDIO

NOTE:

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 name.

- 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.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
All resistors are in ohms
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F : nonflammable

- 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
- Abbreviation
JE : Tourist model

REF. No.	Part No.	Description	Remark	REF. No.	Part No.	Description	Remark
	1-653-415-11	ATS FLEXIBLE BOARD *****		C218	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
		< SWITCH >		C219	1-164-489-11	CERAMIC CHIP 0.22uF 10%	16V
S709	1-572-580-11	SWITCH, LEAF (ATS)		C220	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V

	A-3016-746-A	AUDIO BOARD, COMPLETE *****		C301	1-164-489-11	CERAMIC CHIP 0.22uF 10%	16V
		< CAPACITOR >		C302	1-165-112-11	CERAMIC CHIP 0.33uF 16V	
C101	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	C303	1-135-151-21	TANTALUM CHIP 4.7uF 20%	4V
C102	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	C304	1-104-847-11	TANTAL. CHIP 22uF 20%	4V
C103	1-135-187-21	TANTAL. CHIP 2.2uF 20%	4V	C305	1-109-934-11	TANTAL. CHIP 4.7uF 20%	4V
C104	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V				
C105	1-164-677-11	CERAMIC CHIP 0.033uF 10%	16V	C306	1-104-847-11	TANTAL. CHIP 22uF 20%	4V
C106	1-162-965-11	CERAMIC CHIP 0.0015uF 10%	50V	C307	1-135-187-21	TANTAL. CHIP 2.2uF 20%	4V
C107	1-164-174-11	CERAMIC CHIP 0.0082uF 10%	25V	C308	1-135-337-11	TANTAL. CHIP 1uF 20%	6.3V
C108	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	C309	1-164-346-11	CERAMIC CHIP 1uF 16V	
C109	1-165-112-11	CERAMIC CHIP 0.33uF 16V		C310	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
C110	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V	C311	1-107-983-11	TANTAL. CHIP 10uF 20%	2.5V
C111	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	C312	1-109-847-11	TANTAL. CHIP 0.47uF 20%	16V
C112	1-109-937-11	TANTAL. CHIP 6.8uF 20%	2.5V	C313	1-164-346-11	CERAMIC CHIP 1uF 16V	
C113	1-135-187-21	TANTAL. CHIP 2.2uF 20%	4V	C314	1-164-346-11	CERAMIC CHIP 1uF 16V	
C114	1-109-994-11	CERAMIC CHIP 2.2uF 10%	10V	C315	1-109-847-11	TANTAL. CHIP 0.47uF 20%	16V
C115	1-164-346-11	CERAMIC CHIP 1uF 16V		C316	1-135-151-21	TANTALUM CHIP 4.7uF 20%	4V
C116	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	C317	1-109-994-11	CERAMIC CHIP 2.2uF 10%	10V
C117	1-109-930-11	TANTAL. CHIP 220uF 20%	2.5V	C318	1-107-815-11	TANTAL. CHIP 2.2uF 20%	4V
C118	1-164-005-11	CERAMIC CHIP 0.47uF 25V		C319	1-104-847-11	TANTAL. CHIP 22uF 20%	4V
C119	1-164-489-11	CERAMIC CHIP 0.22uF 10%	16V	C320	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
C120	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V	C321	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
C201	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	C322	1-107-815-11	TANTAL. CHIP 2.2uF 20%	4V
C202	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	C323	1-107-815-11	TANTAL. CHIP 2.2uF 20%	4V
C203	1-135-187-21	TANTAL. CHIP 2.2uF 20%	4V	C324	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C204	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V	C601	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C205	1-164-677-11	CERAMIC CHIP 0.033uF 10%	16V	C602	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C206	1-162-965-11	CERAMIC CHIP 0.0015uF 10%	50V	C603	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C207	1-164-174-11	CERAMIC CHIP 0.0082uF 10%	25V	C604	1-164-695-11	CERAMIC CHIP 0.0022uF 5%	50V
C208	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	C605	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V
C209	1-165-112-11	CERAMIC CHIP 0.33uF 16V		C606	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V
C210	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V	C607	1-109-936-11	TANTAL. CHIP 3.3uF 20%	2.5V
C211	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	C608	1-162-966-11	CERAMIC CHIP 0.0022uF 10%	50V
C212	1-109-937-11	TANTAL. CHIP 6.8uF 20%	2.5V	C703	1-109-996-11	CERAMIC CHIP 1uF 6.3V	
C213	1-135-187-21	TANTAL. CHIP 2.2uF 20%	4V	C704	1-164-346-11	CERAMIC CHIP 1uF 16V	
C214	1-109-994-11	CERAMIC CHIP 2.2uF 10%	10V	C705	1-109-934-11	TANTAL. CHIP 4.7uF 20%	4V
C215	1-164-346-11	CERAMIC CHIP 1uF 16V		C801	1-109-935-11	TANTAL. CHIP 4.7uF 20%	6.3V
C216	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	C802	1-109-935-11	TANTAL. CHIP 4.7uF 20%	6.3V
C217	1-109-930-11	TANTAL. CHIP 220uF 20%	2.5V	C804	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V
				C805	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
				C806	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V
				C808	1-109-935-11	TANTAL. CHIP 4.7uF 20%	6.3V
				C809	1-109-934-11	TANTAL. CHIP 4.7uF 20%	4V
				C810	1-109-934-11	TANTAL. CHIP 4.7uF 20%	4V
						< CONNECTOR >	
				CN301	1-573-346-21	CONNECTOR, FFC/FPC 6P	

AUDIO

REF. No.	Part No.	Description	Remark	REF. No.	Part No.	Description	Remark
< DIODE >							
D601	8-719-989-53	DIODE CL-200HR-C-TSL		R111	1-216-824-11	METAL CHIP 1.8K 5%	1/16W
D602	8-719-404-46	DIODE MA110		R113	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
< IC >							
IC301	8-759-271-27	IC TA2072F		R114	1-216-824-11	METAL CHIP 1.8K 5%	1/16W
IC601	8-759-271-28	IC LB1679V-TLM		R115	1-218-270-11	METAL GLAZE 1.1K 5%	1/16W
IC701	8-759-296-06	IC MB89131PFV-G-213-BND		R116	1-216-822-11	METAL CHIP 1.2K 5%	1/16W
IC702	8-759-163-52	IC XC61AN1402MX		R117	1-218-294-11	METAL GLAZE 30K 5%	1/16W
IC703	8-759-280-84	IC S-81211SG-QA		R120	1-216-824-11	METAL CHIP 1.8K 5%	1/16W
IC705	8-749-011-98	IC XC61AS07XXMR		R203	1-216-839-11	METAL CHIP 33K 5%	1/16W
IC706	8-759-291-99	IC MM1276XWBE		R204	1-216-812-11	METAL CHIP 180 5%	1/16W
IC801	8-759-336-33	IC MPC1850SVMEL		R205	1-216-831-11	METAL CHIP 6.8K 5%	1/16W
< JACK >							
J301	1-766-512-21	JACK 7P (□ REMOTE)		R206	1-216-847-11	METAL CHIP 150K 5%	1/16W
< COIL >							
L801	1-412-006-31	INDUCTOR CHIP 10uH		R207	1-216-839-11	METAL CHIP 33K 5%	1/16W
L802	1-412-006-31	INDUCTOR CHIP 10uH		R208	1-216-839-11	METAL CHIP 33K 5%	1/16W
< PHOTO INTERRUPTER >							
PH701	8-719-988-15	PHOTO REFLECTOR PR-11-C		R209	1-216-834-11	METAL CHIP 12K 5%	1/16W
< TRANSISTOR >							
Q301	8-729-807-87	TRANSISTOR 2SB1295-UL6		R210	1-216-852-11	METAL CHIP 390K 5%	1/16W
Q302	8-729-403-17	TRANSISTOR XN1215		R211	1-216-824-11	METAL CHIP 1.8K 5%	1/16W
Q303	8-729-422-39	TRANSISTOR XN4404		R213	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
Q304	8-729-420-50	TRANSISTOR UN5215		R214	1-216-824-11	METAL CHIP 1.8K 5%	1/16W
Q305	8-729-420-50	TRANSISTOR UN5215		R215	1-218-270-11	METAL GLAZE 1.1K 5%	1/16W
Q306	8-729-403-17	TRANSISTOR XN1215		R216	1-216-822-11	METAL CHIP 1.2K 5%	1/16W
Q307	8-729-421-77	TRANSISTOR UN5210-R-TX		R217	1-218-294-11	METAL GLAZE 30K 5%	1/16W
Q601	8-729-809-46	TRANSISTOR 2SD1935-CT6		R220	1-216-824-11	METAL CHIP 1.8K 5%	1/16W
Q602	8-729-822-60	TRANSISTOR 2SB1302-S		R301	1-218-736-11	METAL CHIP 68K 0.50%	1/16W
Q604	8-729-420-24	TRANSISTOR 2SB1218A-QRS		R302	1-218-724-11	METAL CHIP 22K 0.50%	1/16W
Q701	8-729-421-77	TRANSISTOR UN5210-R-TX		R304	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
Q702	8-729-426-36	TRANSISTOR XP1215-TXE		R305	1-218-295-11	METAL GLAZE 43K 5%	1/16W
Q705	8-729-421-77	TRANSISTOR UN5210-R-TX		R306	1-216-809-11	METAL CHIP 100 5%	1/16W
Q706	8-729-422-54	TRANSISTOR XN4215		R307	1-216-809-11	METAL CHIP 100 5%	1/16W
< RESISTOR >							
R103	1-216-839-11	METAL CHIP 33K 5%	1/16W	R309	1-216-821-11	METAL CHIP 1K 5%	1/16W
R104	1-216-812-11	METAL CHIP 180 5%	1/16W	R310	1-216-835-11	METAL CHIP 15K 5%	1/16W
R105	1-216-831-11	METAL CHIP 6.8K 5%	1/16W	R311	1-216-827-11	METAL CHIP 3.3K 5%	1/16W
R106	1-216-847-11	METAL CHIP 150K 5%	1/16W	R312	1-216-847-11	METAL CHIP 150K 5%	1/16W
R107	1-216-839-11	METAL CHIP 33K 5%	1/16W	R313	1-216-845-11	METAL CHIP 100K 5%	1/16W
R108	1-216-839-11	METAL CHIP 33K 5%	1/16W	R314	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R109	1-216-834-11	METAL CHIP 12K 5%	1/16W	R601	1-216-815-11	METAL CHIP 330 5%	1/16W
R110	1-216-852-11	METAL CHIP 390K 5%	1/16W	R602	1-216-833-11	METAL CHIP 10K 5%	1/16W
				R603	1-216-856-11	METAL CHIP 820K 5%	1/16W
				R604	1-216-857-11	METAL CHIP 1M 5%	1/16W
				R605	1-216-837-11	METAL CHIP 22K 5%	1/16W
				R606	1-216-857-11	METAL CHIP 1M 5%	1/16W
				R607	1-216-845-11	METAL CHIP 100K 5%	1/16W
				R608	1-216-837-11	METAL CHIP 22K 5%	1/16W
				R609	1-216-845-11	METAL CHIP 100K 5%	1/16W
				R610	1-216-849-11	METAL CHIP 220K 5%	1/16W
				R615	1-216-845-11	METAL CHIP 100K 5%	1/16W
				R616	1-216-845-11	METAL CHIP 100K 5%	1/16W
				R617	1-216-845-11	METAL CHIP 100K 5%	1/16W
				R618	1-216-857-11	METAL CHIP 1M 5%	1/16W
				R619	1-216-853-11	METAL CHIP 470K 5%	1/16W
				R701	1-216-829-11	METAL CHIP 4.7K 5%	1/16W

AUDIO

DOLBY SWITCH FLEXIBLE

MODE SWITCH FLEXIBLE

REF. No.	Part No.	Description	Remark
R702	1-216-841-11	METAL CHIP	47K 5% 1/16W
R703	1-216-841-11	METAL CHIP	47K 5% 1/16W
R704	1-216-841-11	METAL CHIP	47K 5% 1/16W
R705	1-216-845-11	METAL CHIP	100K 5% 1/16W
R706	1-216-845-11	METAL CHIP	100K 5% 1/16W
R707	1-216-845-11	METAL CHIP	100K 5% 1/16W
R708	1-216-849-11	METAL CHIP	220K 5% 1/16W
R709	1-216-849-11	METAL CHIP	220K 5% 1/16W
R710	1-216-851-11	METAL CHIP	330K 5% 1/16W
R711	1-216-849-11	METAL CHIP	220K 5% 1/16W
R712	1-216-849-11	METAL CHIP	220K 5% 1/16W
R713	1-216-849-11	METAL CHIP	220K 5% 1/16W
R714	1-216-841-11	METAL CHIP	47K 5% 1/16W
R715	1-216-845-11	METAL CHIP	100K 5% 1/16W
R716	1-216-851-11	METAL CHIP	330K 5% 1/16W
R718	1-216-849-11	METAL CHIP	220K 5% 1/16W
R719	1-216-849-11	METAL CHIP	220K 5% 1/16W
R720	1-218-724-11	METAL CHIP	22K 0.50% 1/16W
R721	1-218-836-11	METAL CHIP	360 0.50% 1/16W
R722	1-218-845-11	METAL CHIP	820 0.50% 1/16W
R723	1-218-692-11	METAL CHIP	1K 0.50% 1/16W
R724	1-218-694-11	METAL CHIP	1.2K 0.50% 1/16W
R725	1-216-849-11	METAL CHIP	220K 5% 1/16W
R726	1-216-857-11	METAL CHIP	1M 5% 1/16W
R727	1-216-821-11	METAL CHIP	1K 5% 1/16W
R801	1-216-859-11	METAL GLAZE	1.5M 5% 1/16W
		< VARIABLE RESISTOR >	
RV301	1-223-711-21	RES, VAR, CARBON 10K/10K (VOL ▲)	
RV601	1-223-715-21	RES, ADJ 220K	
		< SWITCH >	
S701	1-572-581-11	SWITCH, SLIDE (N/R)	
S703	1-762-516-11	SWITCH, PUSH (A/B)	
S704	1-692-849-21	SWITCH, PUSH (1 KEY)(TAPE)	
S705	1-692-453-11	SWITCH, KEY BOARD (□)	
S706	1-692-453-11	SWITCH, KEY BOARD (<▷> REPEAT)	
S707	1-692-453-11	SWITCH, KEY BOARD (FF)	
S708	1-692-453-11	SWITCH, KEY BOARD (REW)	
		< VIBRATOR >	
X701	1-579-867-21	VIBRATOR, CERAMIC (2MHz)	
	1-658-808-11	DOLBY SWITCH FLEXIBLE BOARD	
		< SWITCH >	
S301	1-572-922-11	SWITCH, SLIDE (□□ NR)	

REF. No.	Part No.	Description	Remark
	1-658-807-11	MODE SWITCH FLEXIBLE BOARD	
		< SWITCH >	
S702	1-572-922-11	SWITCH, SLIDE (BL SKIP/MODE)	
		MISCELLANEOUS	
HP901	1-500-275-11	HEAD, MAGNETIC (PLAYBACK)	
M901	1-698-368-11	MOTOR (REEL/CAPSTAN)	
PM901	1-454-674-11	SOLENOID, PLUNGER	
S301	1-572-922-11	SWITCH, SLIDE (□□ NR)	
S702	1-572-922-11	SWITCH, SLIDE (BL SKIP)	
S703	1-762-516-11	SWITCH, PUSH (A/B)	
S704	1-692-849-21	SWITCH, PUSH (1 KEY)(TAPE)	
S709	1-572-580-11	SWITCH, LEAF (ATS)	
		ACCESSORIES & PACKING MATERIALS	
△	1-473-394-11	REMOTE CONTRAL UNIT (RM-WM79E)	
△	1-528-252-11	BATTERY CHARGER (BC-7S)(EX2HG:UK)	
	1-528-539-11	BATTERY CASE	
△	1-528-543-22	BATTERY,NICKEL CADMIUM(NC-6WM)(EX2HG)	
△	1-528-546-11	BATTERY CHARGER (BC-7SY)(EX2HG:AEP)	
	1-528-551-11	BATTERY, NICKEL HYDROGEN (EX2/EX2HGX)	
	1-528-590-11	BATTERY, NICKEL HYDROGEN (EX2/EX2HGX)	
△	1-569-007-11	ADAPTER, CONVERSION 2P (EX2/EX2HGX)	
	3-800-973-11	MANUAL, INSTRUCTION (CHINES, SPANISH, ENGLISH)(AEP, UK, E)	
	3-800-973-21	MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH)(AEP)	
	3-800-973-31	MANUAL, INSTRUCTION (FRENCH, ITALIAN, PORTUGUESE)(AEP)	
	3-800-973-41	MANUAL, INSTRUCTION (JAPANESE, ENGLISH)(JE)	
*	3-800-973-51	MANUAL, INSTRUCTION (KOREAN)(E)	
*	3-928-107-01	INDIVIDUAL CARTON (EX2HGX)	
*	3-928-133-01	INDIVIDUAL CARTON (EX2HG)	
*	3-928-134-01	INDIVIDUAL CARTON (EX2:E)	
	3-929-799-01	CASE, CARRYING (EX2:E/EX2HG/EX2HGX)	
	3-929-799-01	CASE, CARRYING (EX2:JE)	
	8-953-537-90	HEADPHONE MDR-E741MP//K SET	
	X-3329-657-1	ATTACHMENT	

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