M-560V/650V

SERVICE MANUAL

Ver 1.3 2004.05

East European Model
E Model
Chinese Model

Photo : M-650V

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MZ-650V-99 : FORMER TYPE MZ-655-99 : NEW TYPE

SPECIFICATIONS

Tape
MICROCASSETTE™ (normal position type)
Recording system
2-track 1-channel monaural
Speaker
Approx. 3.6 cm (1 7/16 in.) dia.
Tape speed
2.4 cm/s (15/16 ips), 1.2 cm/s (15/32 ips)
Frequency range
300 – 4 000 Hz (with TAPE SPEED switch at 2.4 cm/s)
Input (M-650V only)
Microphone input jack (minijack/PLUG IN POWER)
sensitivity 0.24 mV for 3 kΩ or lower impedance microphone
Output
Earphone jack (minijack) for 8 – 300Ω earphone
Power output (at 10% harmonic distortion)
250 mW
Power requirements
3 V DC batteries R6 (size AA) × 2 / External DC 3V power sources
Dimensions (w/h/d)
Approx. 62.2 × 119.1 × 25.4 mm (2 1/2 × 4 3/4 × 1 in.) incl. projecting parts and controls
Mass
M-650V: Approx. 115 g (4.1 oz) (main unit only)
M-560V: Approx. 113 g (4.0 oz) (main unit only)
Supplied accessories
Microcassette tape MC-30 (1)

Design and specifications are subject to change without notice.

MICROCASSET™-CORDER

9-873-589-04
2004E02-1

Sony Corporation
Personal Audio Company
Pubulished by Sony Engineering Corporation

SONY®

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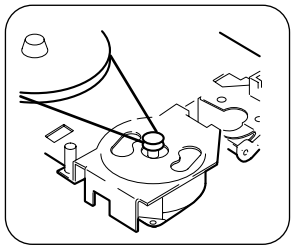
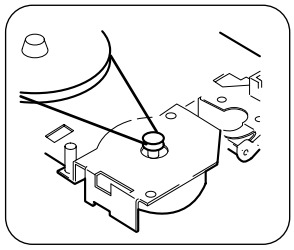
• How to recognize MZ-650V-99 and MZ-655-99 mechanism deck

MZ-650V-99 (Former Type)



MZ-655-99 (New Type)



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

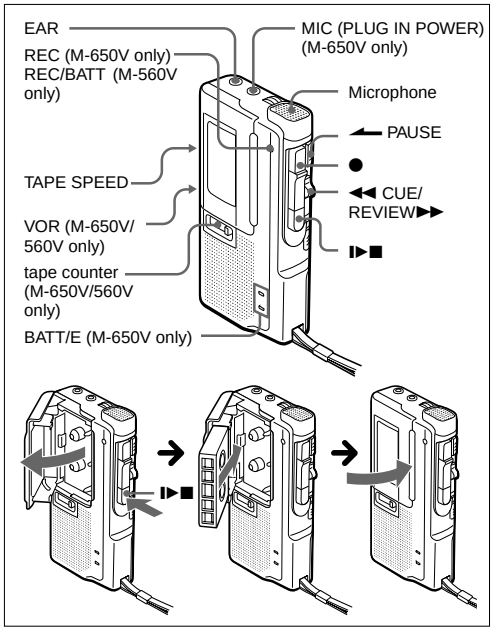
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Recording

Make sure that nothing is connected to MIC (M-650V only).



1 Press the reset button of the tape counter (M-650V/560V only).

2 Press ▮▶■ and insert a standard microcassette with the side to start recording facing the kaL.

3 Select the desired tape speed.
2.4 cm for optimum sound (recommended for normal use): A 30-minute recording can be made using both sides of the MC-30 microcassette.
1.2 cm for longer recording time: A 60-minute recording can be made using both sides of the MC-30 microcassette.

4 Set VOR to H, L or OFF (M-650V/560V only).
If you set VOR to H or L, the unit automatically starts recording the sound and pauses when there is no sound (you can save tapes and batteries).
H : To record at meeting or in a quiet and/or spacious place.
L : To record for dictation or in a noisy place.
When the sound is not loud enough, set it to OFF, or the unit may not start recording.

5 Press ●.
◄ is pressed simultaneously and recording starts. While the tape runs, the REC lamp or REC/BATT lamp lights and flashes depending on the strength of the sound (M-650V/560V only).
Recording level is fixed.

To	Press or slide
Stop recording	▮▶■
Start recording during playback	● during playback (the unit becomes in the recording mode)
Review the portion just recorded	Push up ◀◀CUE/ ▶▶REVIEW toward ▶▶REVIEW during the recording. Release the button at the point to start playback.
Pause recording	Slide ◢PAUSE in the direction of the arrow. The REC/BATT (M-560V), BATT (M-455/450) or REC (M-650V) lamp goes off.
Take out a cassette	▮▶■

Note

Select the 2.4 cm tape speed for recording, if you play back the recorded tape with another unit. Otherwise, the sound quality may be changed.

Notes on VOR (Voice Operated Recording) (M-650V/560V only)

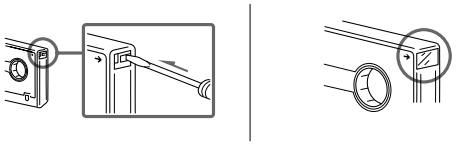
- The VOR system depends on the environmental conditions. If you cannot get the desired results, set VOR to OFF.
- When you use the unit in a noisy place, it will stay in the recording mode. If the sound is too soft, on the contrary, the unit will not start recording. Set VOR to H (high) or L (low) depending on the conditions.

To monitor the sound

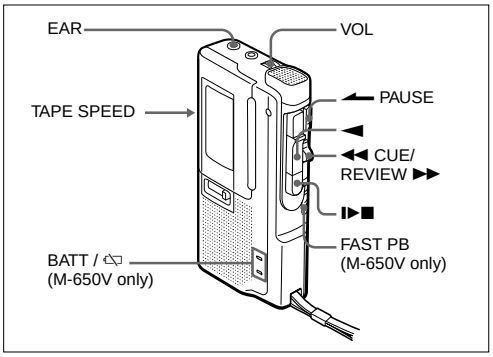
Connect an earphone (not supplied) to EAR jack. The monitor volume cannot be adjusted by VOL.

To prevent a cassette from being accidentallyrecorded over

Break out and remove the cassette tabs. To reuse the cassette for recording, cover the tab hole with adhesive tape.



Playing a Tape



1 Insert a cassette with the side to start playing facing the lid.
2 Select the tape speed to the same speed as that used for recording.
3 Press ◄.
4 Turn VOL to adjust the volume.

If you plug in headphones (not supplied) to the EAR jack, you will get monaural output from both left and right channels.

To	Press or slide
Stop playback/stop fast forward or rewind*	▮▶■
Pause playback	Slide ◢ PAUSE in the direction of the arrow. The REC/BATT (M-560V), BATT (M-455/450) or REC (M-650V) lamp goes off.
Fast forward	Slide ◀◀CUE/ ▶▶REVIEW toward ◀◀CUE during stop.
Rewind	Slide ◀◀CUE/ ▶▶REVIEW toward ▶▶REVIEW during stop.
Search forward during playback (CUE)	Keep ◀◀CUE/ ▶▶REVIEW pushed down toward ◀◀CUE during playback and release it at the point you want.
Search backward during playback (REVIEW)	Keep ◀◀CUE/ ▶▶REVIEW pushed up toward ▶▶REVIEW during playback and release it at the point you want.

* If you leave the unit after the tape has been wound or rewound, the batteries will be consumed rapidly. Be sure to depress ▮▶■.

Note

If the tape is completely wound or rewound while searching forward/ backward during playback (CUE/REVIEW), the ◀◀CUE/ ▶▶REVIEW switch may not return to the center position when you release the switch. In this case, push back the switch to the center to start playback.

To increasethe playbackspeed (M-650V only)

Slide the FAST PB switch in the direction of the arrow. The playback speed will be increased.
To return to the original speed, slide the FAST PB switch to the original position.

At the end of the tape

In the recording or playback mode, the tape stops at the end of the tape and the locked buttons will be released automatically (Automatic shut-off mechanism).
After fast forward or rewind, be sure to set ◀◀ CUE/ ▶▶ REVIEW back to the center.

Recor ding/Playback with the Connected Equipment (M-650V only)

Recording with an External Microphone

Connect a microphone to the MIC jack. Use a microphone of low impedance (less than 3 kΩ) such as ECM-T6 (not supplied). When using a plug-in-power system microphone, the power to the microphone is supplied from this unit.

Note

When recording with an external microphone, the VOR system may not work properly because of the difference in sensitivity.

Recording from another tape recorder

Connect another tape recorder to the MIC jack using the RK-G64HG connecting cord (not supplied).
Set this unit to the recording mode and another tape recorder to the playback mode. In this case set VOR to OFF.

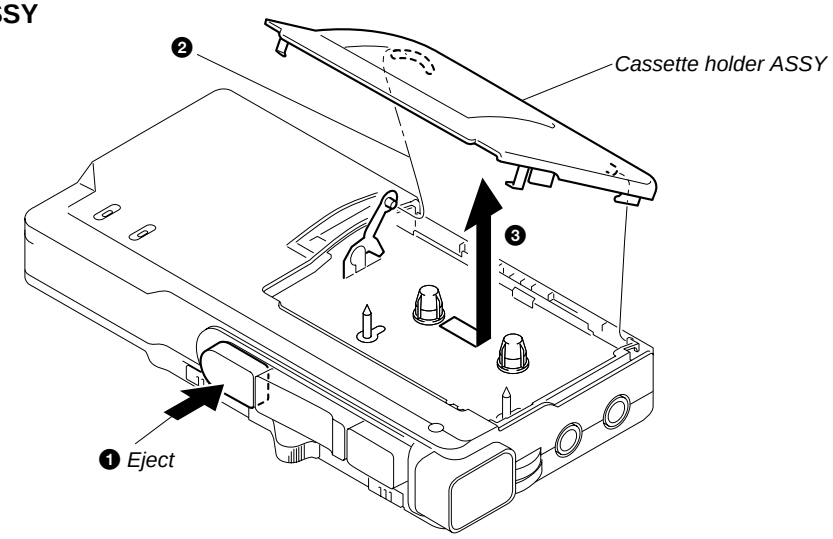
SECTION 2
DISASSEMBLY

Set → Cassette holder ASSY → Cabinet (rear) → LED board (650V)

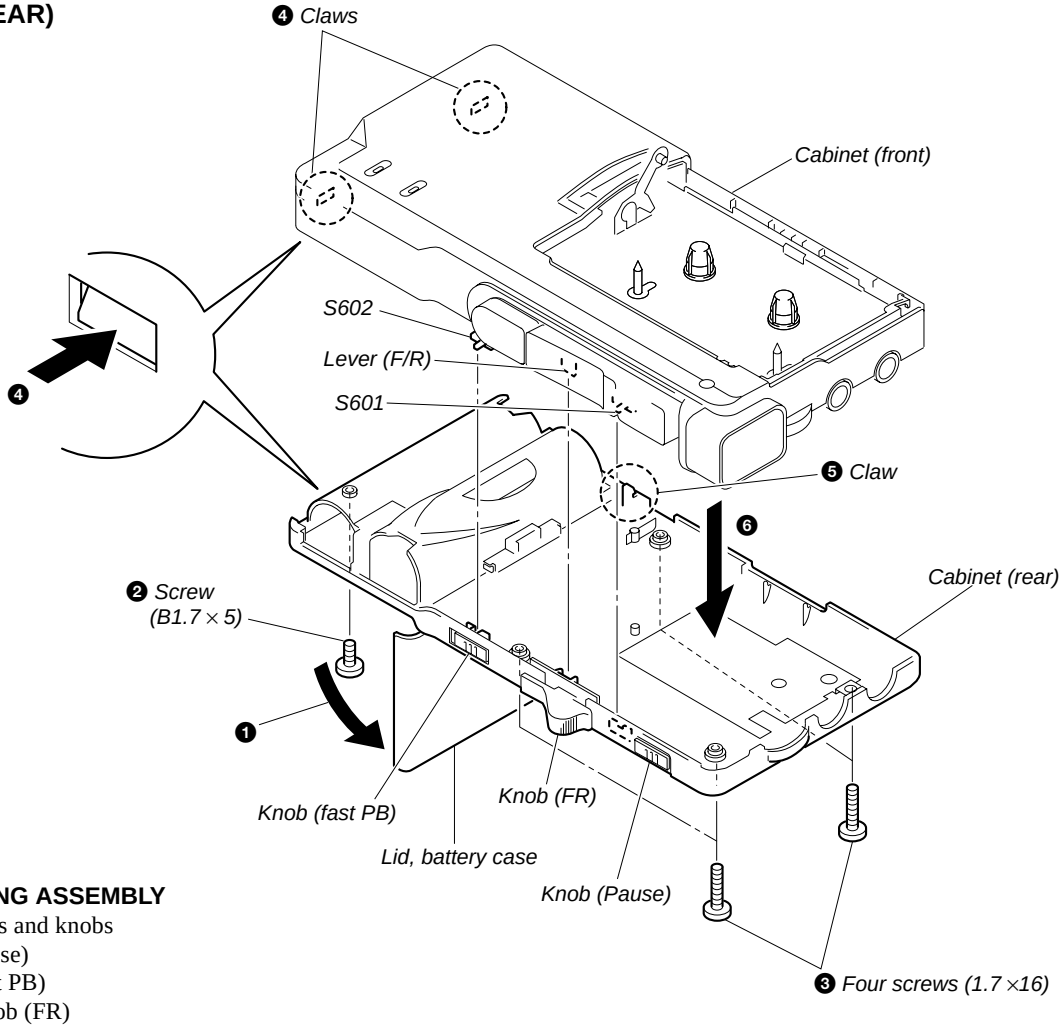
Main board, Mechanism deck → Ceramic head (HRPE901)

Motor (M901)

2-1. CASSETTE HOLDER ASSY



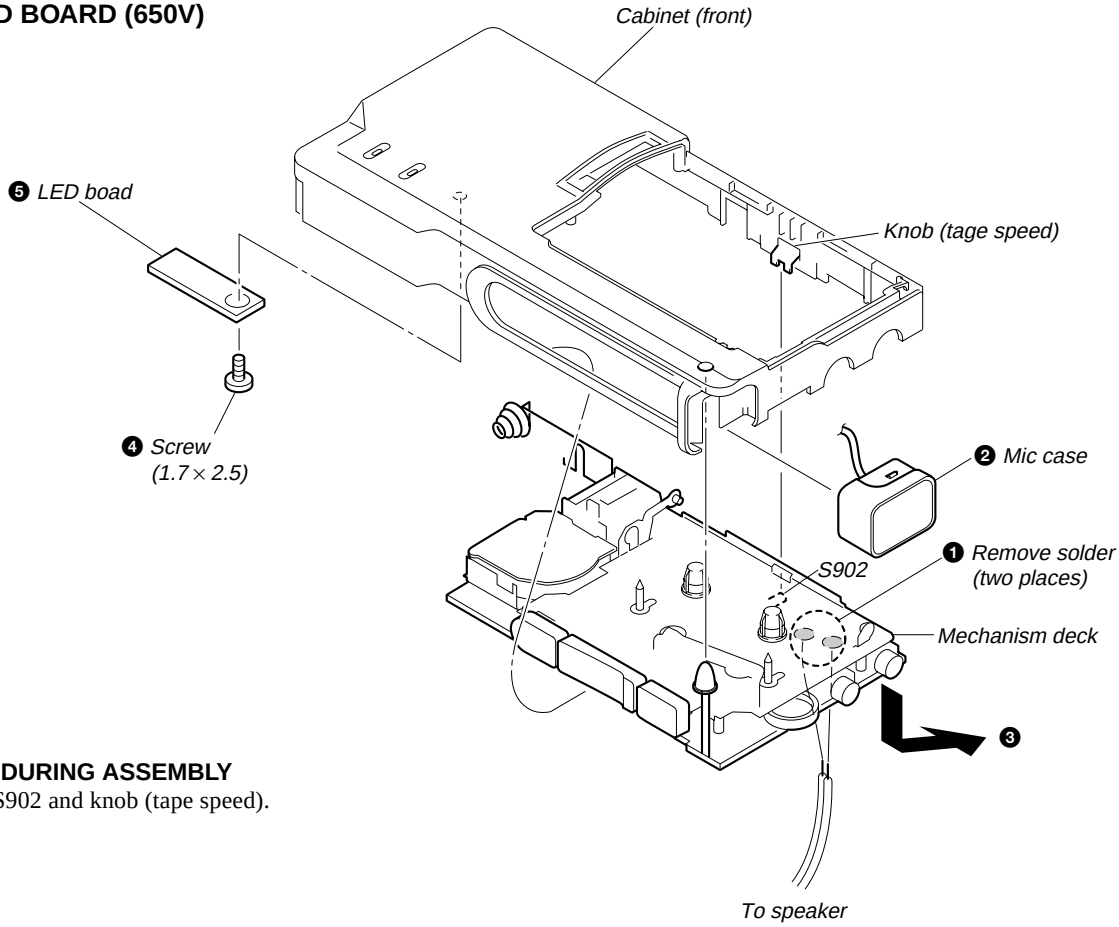
2-2. CABINET (REAR)



● **CAUTIONS DURING ASSEMBLY**

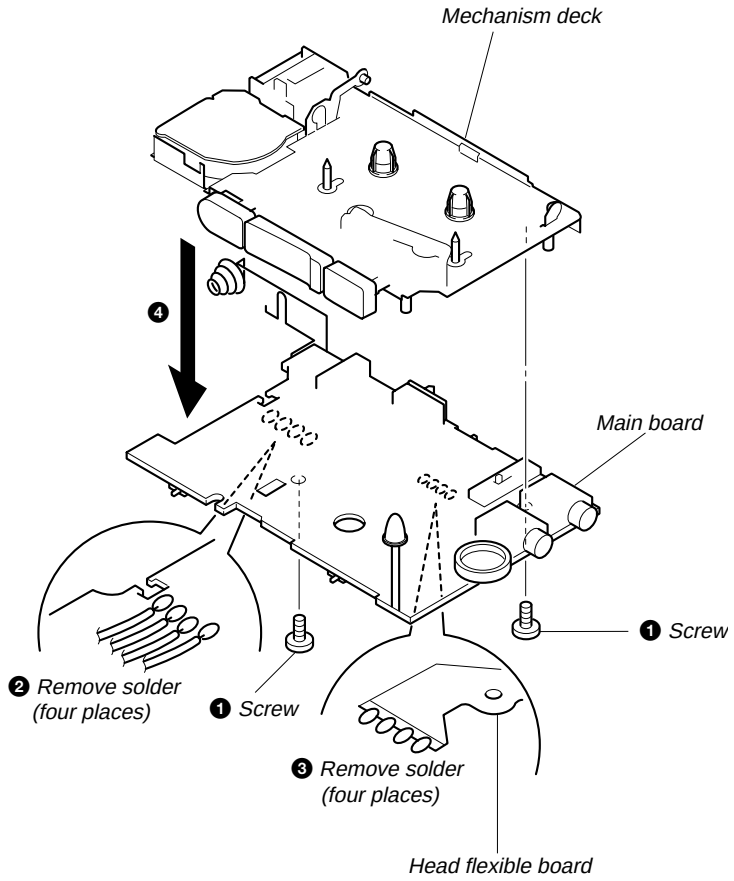
Align these switches and knobs
S601 ⟶ Knob (pause)
S602 ⟶ Knob (fast PB)
Lever (F/R) ⟶ Knob (FR)

2-3. LED BOARD (650V)

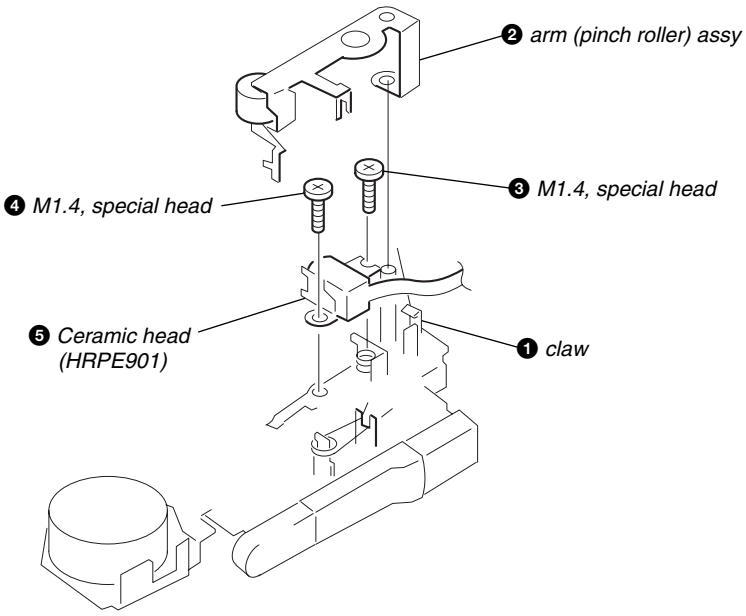


● **NOTE DURING ASSEMBLY**
Align S902 and knob (tape speed).

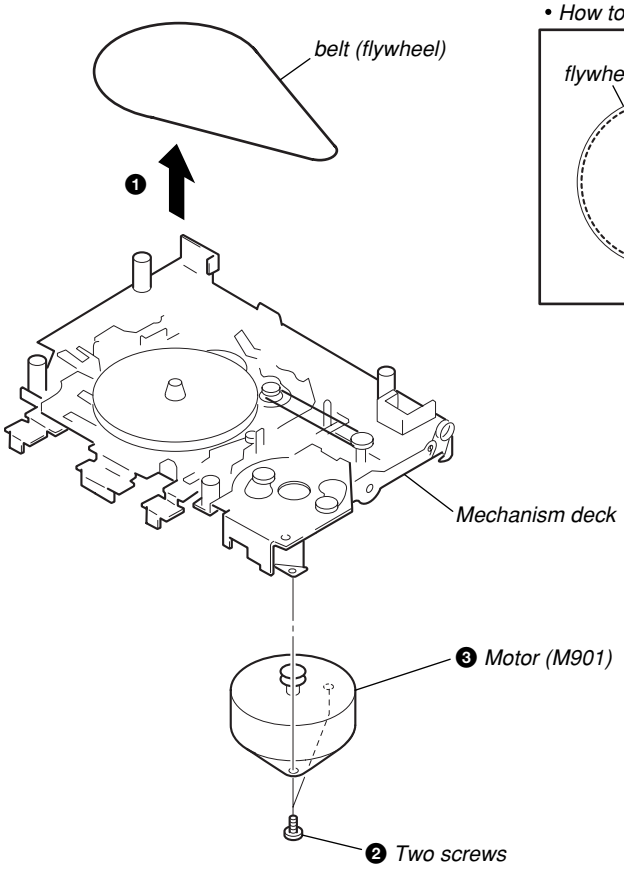
2-4. MAIN BOARD, MECHANISM DECK



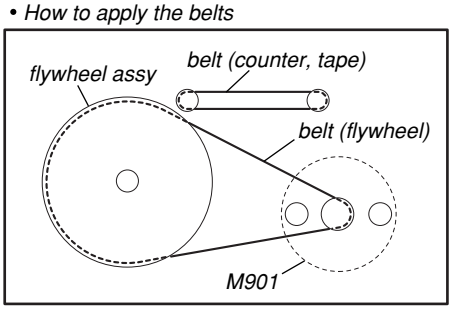
2-5. CERAMIC HEAD (HRPE901)



2-6. MOTOR (M901)



• How to apply the belts



SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Before adjusting, clean the following parts with a piece of cotton moistened with alcohol.
   record/playback/erase head pinch roller
   rubber belt capstan
2. Demagnetize the record/playback/erase head using a head demagnetizer.
3. Do not use a magnetized screwdriver for adjustments.
4. After adjusting, apply screw-locking compound to the adjusted parts.
5. Unless specified otherwise, use a specified voltage (3V DC) to perform the adjustments.

Torque Measurement

Tape Speed switch : 2.4cm/s

Mode	Torque Meter	Meter Reading
Forward	CQ-103M	0.5 –0.98mN • m (5 – 10 g • cm) (0.07 to 0.138 oz• inch)
Fast Forward	CQ-201M	0.5 –0.98mN • m (5 – 10 g • cm) (0.07 to 0.138 oz• inch)

Tape Tension Measurement

Tape Speed switch : 2.4cm/s

Mode	Torque Meter	Meter Reading
FWD	CQ-403M	more than 25 g (more than 0.9 oz)

3-2. ELECTRICAL ADJUSTMENTS

0db=0.775V

Standard Output Level

Output terminal	EAR
Load impedance	8Ω
Output level	78mV (– 20dB)

Test Tape

Type	Signal	Used for	Tape speed (cm/s)
S-2-A030A	3kHz, –20dB	Azimuth Adjustment	2.4
WS-24	3kHz, –10dB	Tape Speed Adjustment	2.4
WS-12			1.2

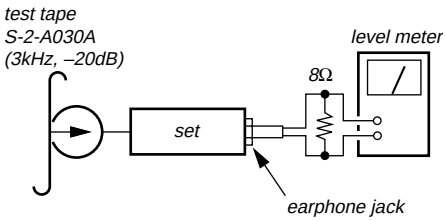
PRECAUTION

Record/Playback/Erase Head Azimuth Adjustment

Switch position
VOLUME : Mechanical center
TAPE SPEED switch : 2.4cm/s
VOR switch : OFF

Procedure :

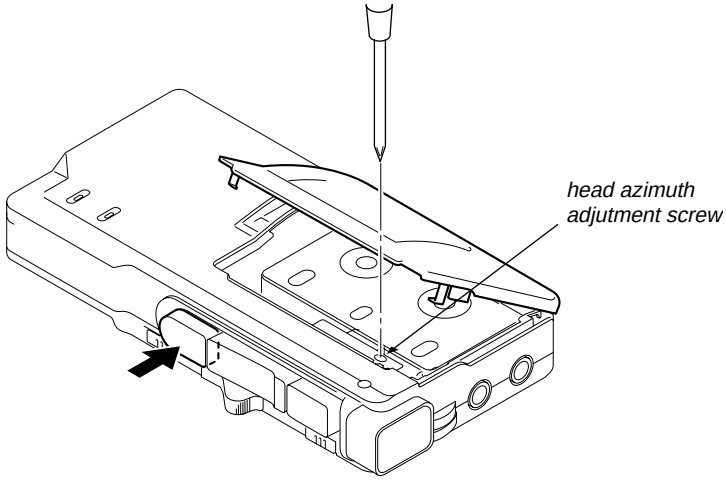
– FWD/REV playback –



● Rotate the screw to adjust level meter reading to the maximum.

Note : Adjust to the maximum peak though there may be two or three peaks

Adjustment Location :



Tape Speed Adjustment

Switch position

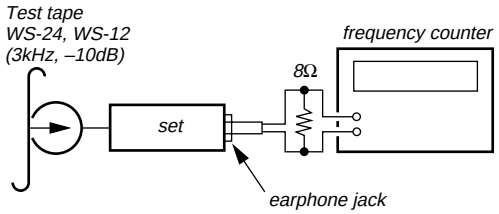
VOLUME : Mechanical center

VOR switch : OFF

Procedure :

After adjusting the 2.4cm/s speed, adjust the 1.2cm/s speed.

– Playback –



Adjustment Value :

Adjustment Part	Speed	Frequency counter
RV602	2.4cm/s	2,880 – 3,120Hz
RV601	1.2cm/s	2,850 – 3,150Hz

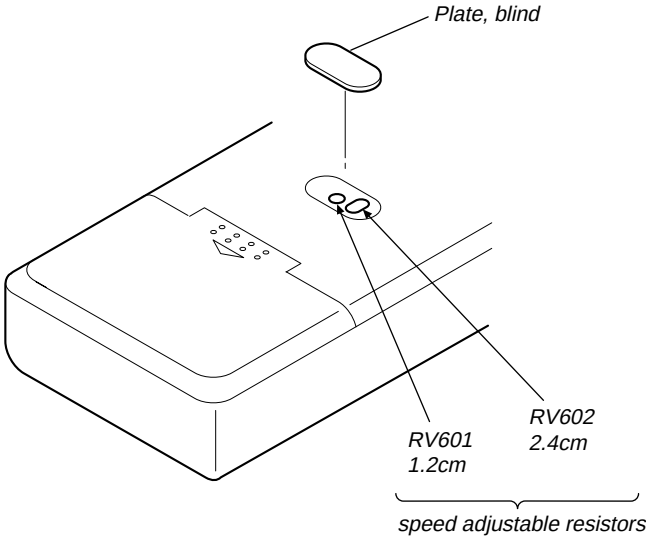
Frequency difference between the beginning and the end of the tape should be within 0.5%.

2.4cm/s (15Hz)

1.2cm/s (15Hz)

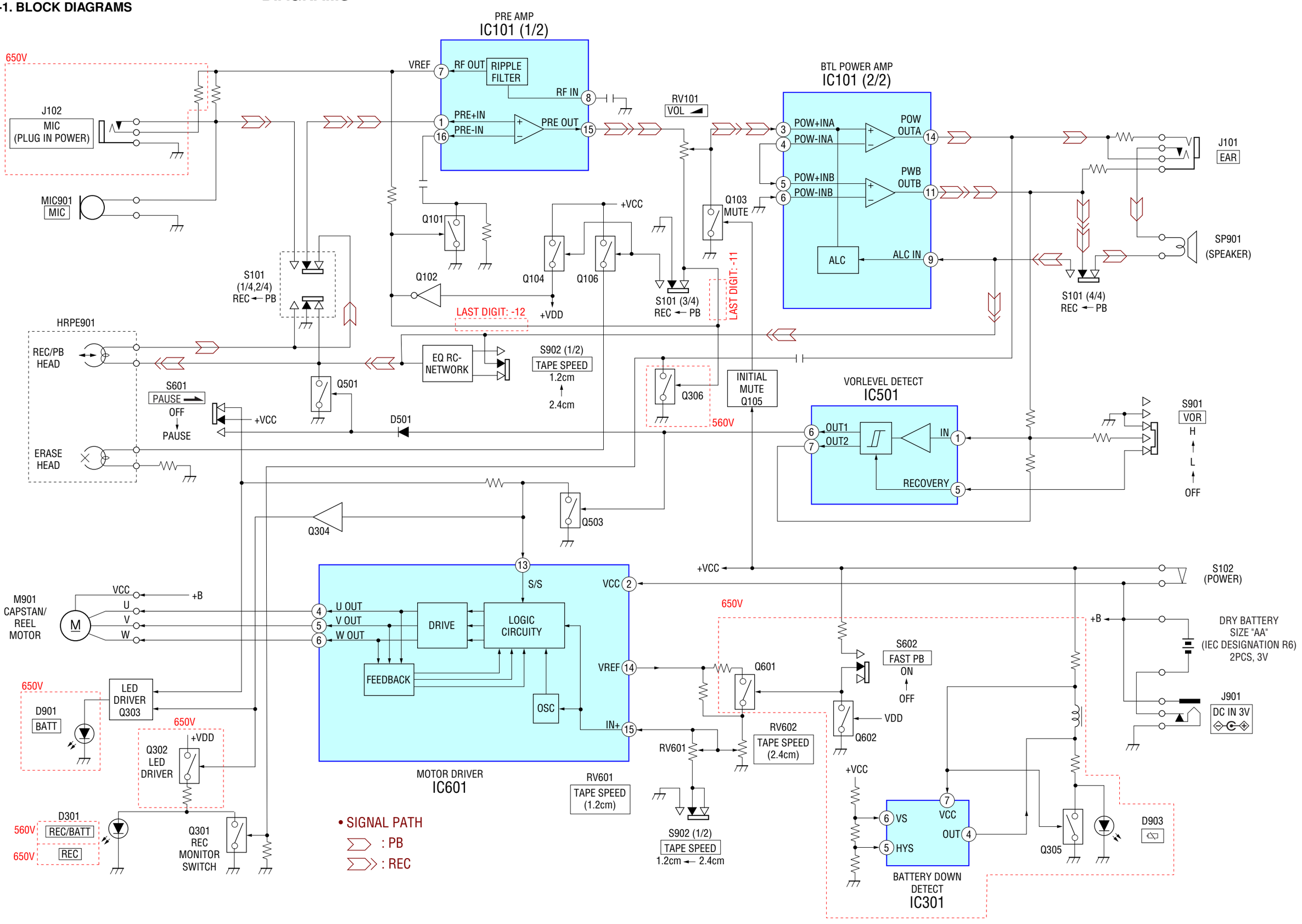
Adjustment Location :

– Back view –

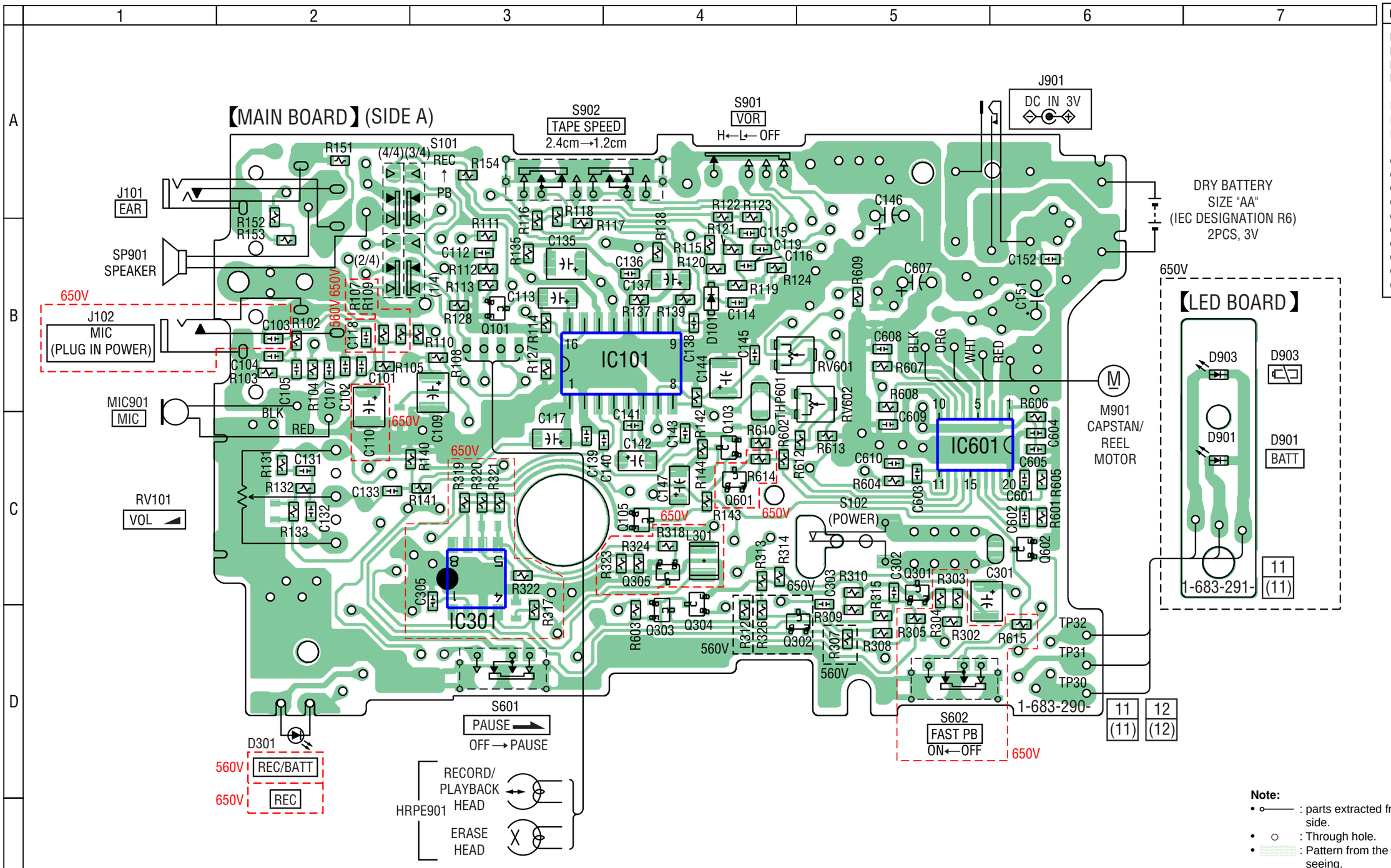


SECTION 4
DIAGRAMS

4-1. BLOCK DIAGRAMS



4-2. PRINTED WIRING BOARDS – MAIN BOARD (1/2) –



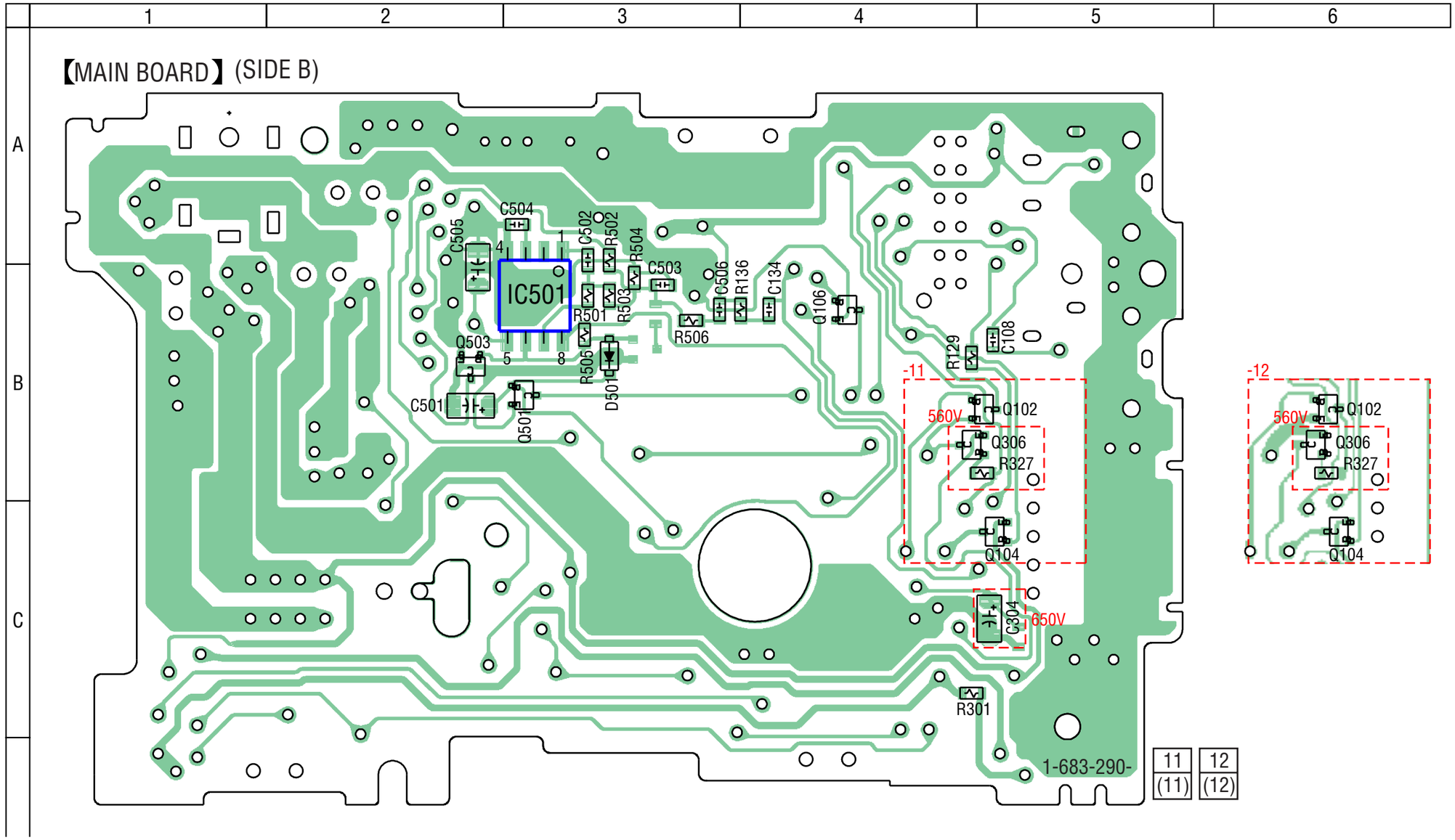
• **Semiconductor Location**

Ref. No.	Location
D101	B-4
D301	D-2
D901	C-7
D903	B-7
IC101	B-4
IC301	C-3
IC601	C-5
Q101	B-3
Q103	C-4
Q105	C-4
Q301	C-5
Q302	D-4
Q303	D-4
Q304	D-4
Q305	C-4
Q601	C-4
Q602	C-6

Note:
- ○—— : parts extracted from the component 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 (Side B) pattern face are indicated.
Parts face side : Parts on the parts face side seen from the (Side A) parts face are indicated.

4-3. PRINTED WIRING BOARDS – MAIN BOARD (2/2) –



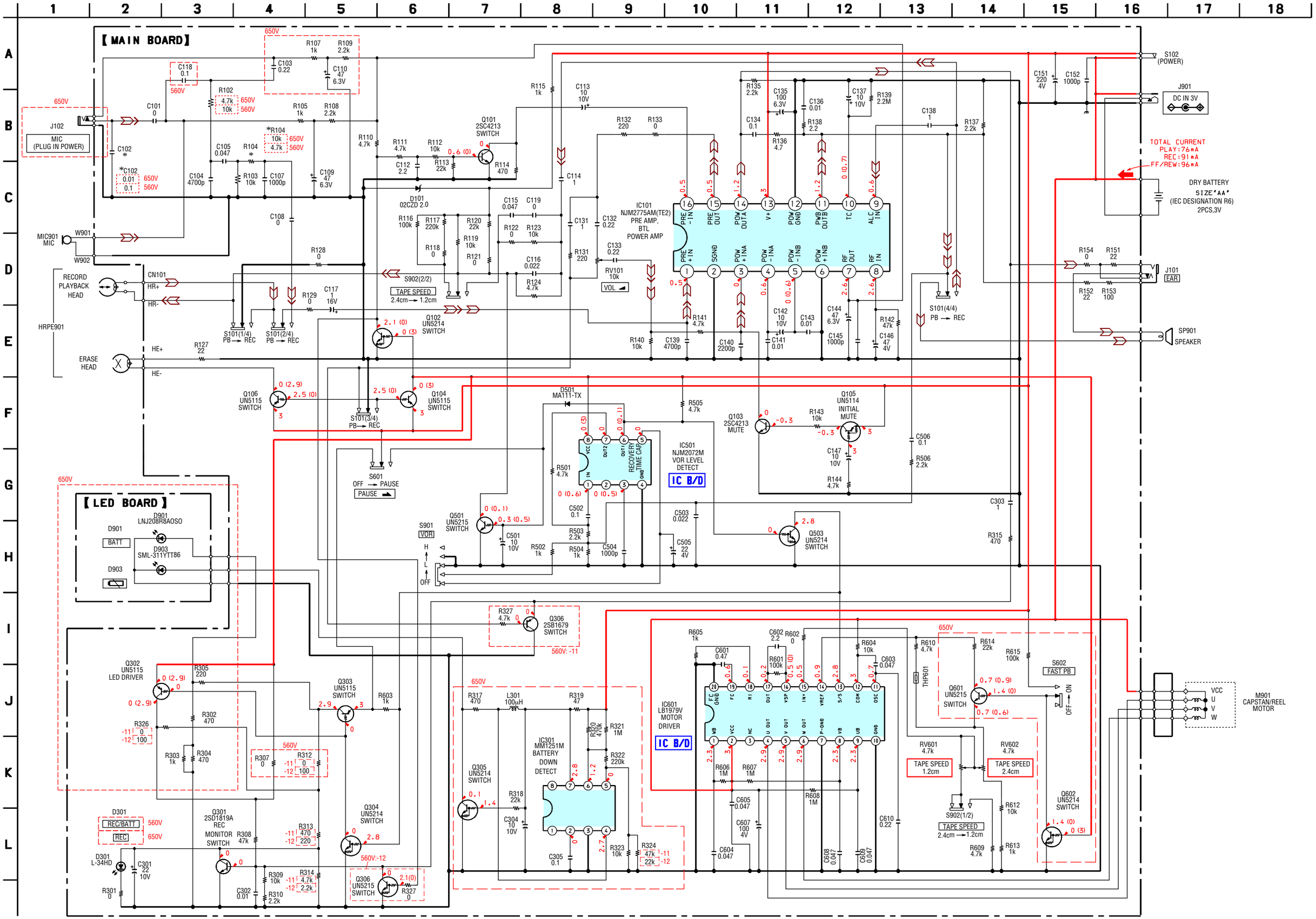
- **Semiconductor Location**

Ref. No.	Location
D501	B-3
IC501	B-3
Q102(-11)	B-5
Q102(-12)	B-6
Q104(-11)	C-5
Q104(-12)	C-6
Q106	C-4
Q306(-11)	B-5
Q306(-12)	B-6
Q501	B-3
Q503	B-2

Note:
- –11, –12 : Last digit of main board
- ○—— : parts extracted from the component side.
- ○ : Through hole.
- ▒▒ : Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)

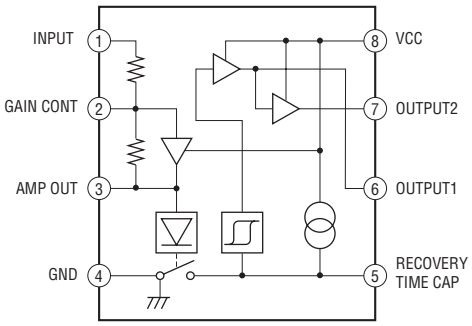
Caution:
Pattern face side : Parts on the pattern face side seen from the (Side B) pattern face are indicated.
Parts face side : Parts on the parts face side seen from the (Side A) parts face are indicated.

4-4. SCHEMATIC DIAGRAM

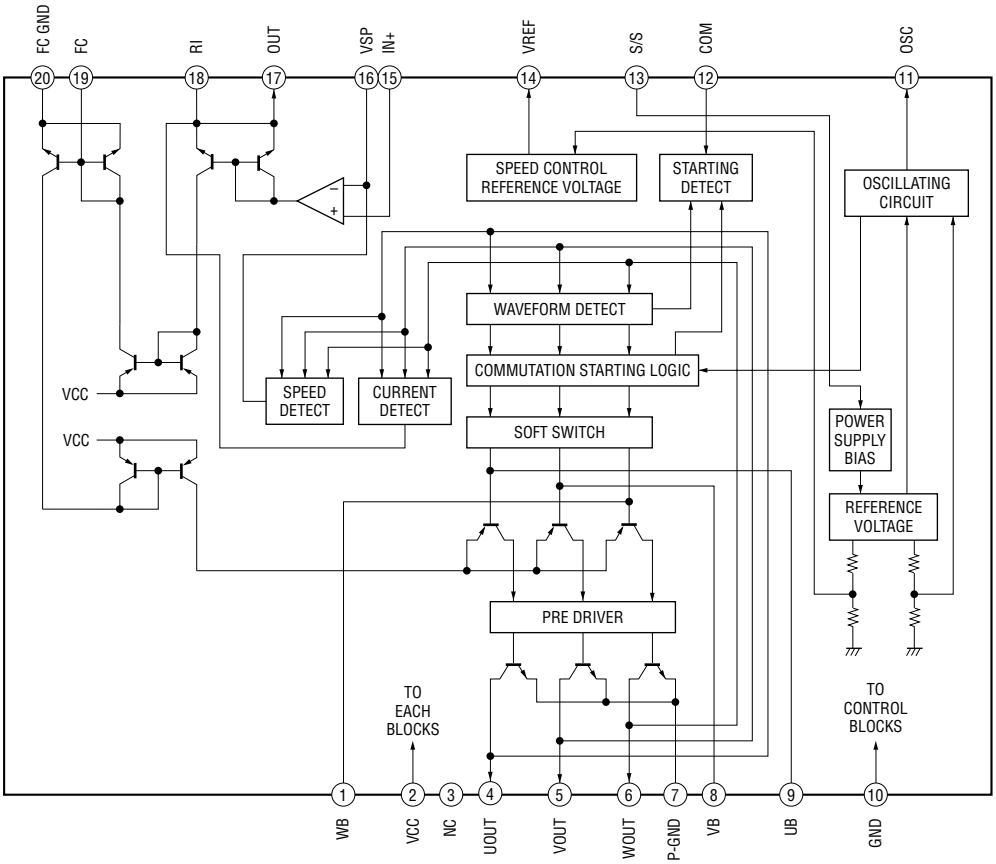


● IC BLOCK DIAGRAMS

IC501 NJM2072M(TE2)



IC601 LB1979VS-TLM



Note on Schematic Diagram :

Note :

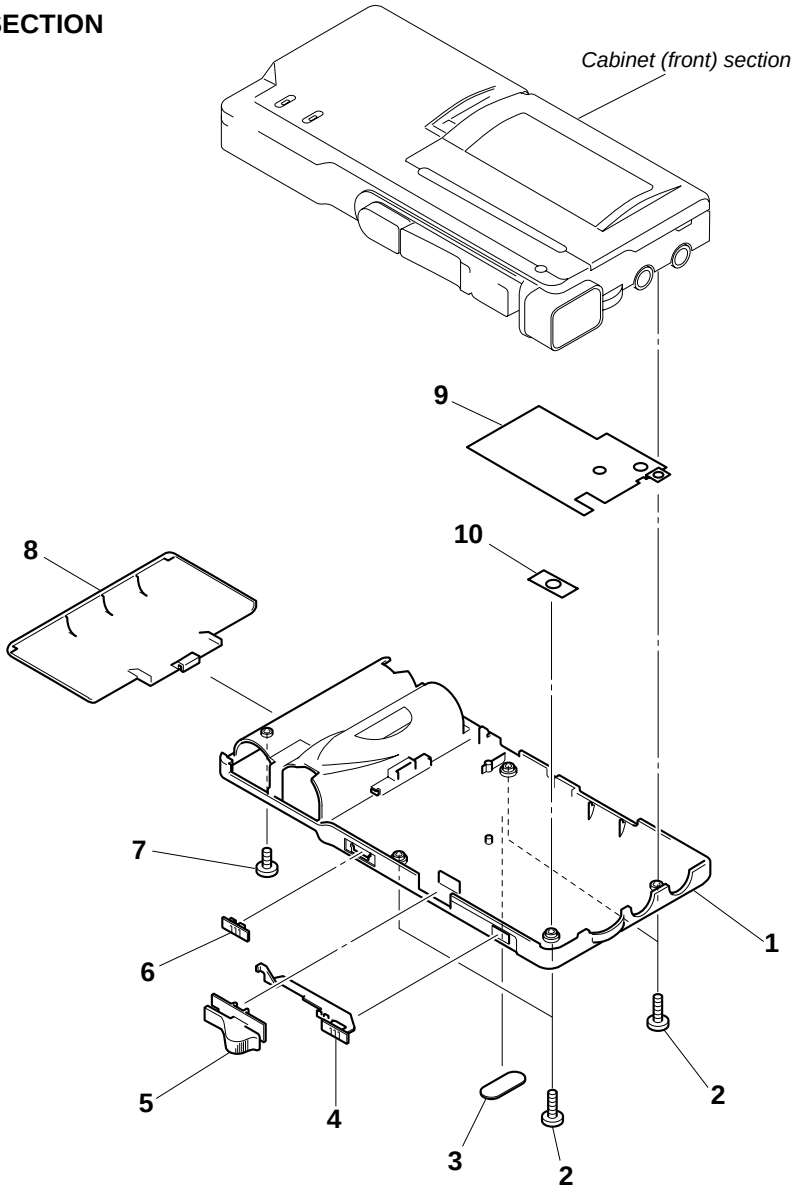
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specfied.
- –11, –12 : Last digit of main board.
- ▬ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 3V and fed with regulated dc power supply from battery terminal.
- Voltage are dc with respect to ground under no-signal conditions.
  no mark : PLAY
  ( ) : REC
- Voltages are taken with a VOM (Input impedance 10MΩ).
  Voltage variations may be noted due to normal production tole ances.
- Signal path.
  ▷ : PB
  ▷▷ : REC

SECTION 5
EXPLODED VIEWS

NOTE :

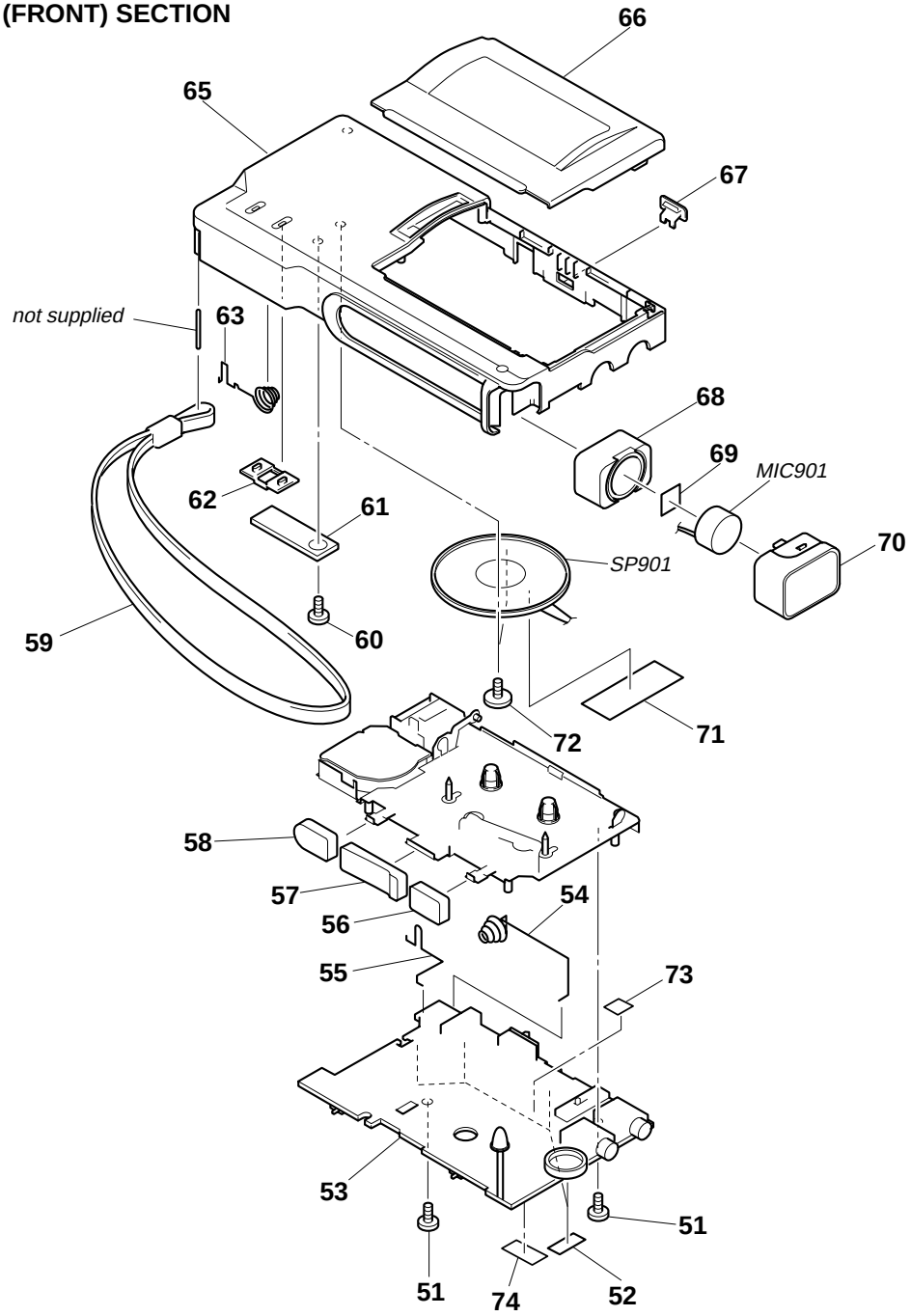
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  CH : Chinese
  EE : East European
  E : Indication of country off origin
  1E : No indication of country of origin

5-1. CABINET (REAR) SECTION



Ref. No.	Part No.	Description	Remark
1	3-236-700-01	CABINET (REAR) (650V:CH,E,EE)	
1	3-236-700-11	CABINET (REAR) (560V: E,EE,CH)	
1	3-236-700-41	CABINET (REAR) (650V:1E)	
1	3-236-700-51	CABINET (REAR) (560V:1E)	
2	3-035-255-11	SCREW (1.7X16)	
3	3-358-363-71	PLATE, BLIND	
4	3-236-708-01	KNOB (PAUSE)	
5	3-236-707-01	KNOB (FR)	
6	3-236-710-01	KNOB (FAST PB) (650V)	
7	3-318-203-72	SCREW (B1.7X5), TAPPING	
8	3-236-703-01	LID, BATTERY CASE	
9	3-037-004-01	PAPER (A), SHIELD	
* 10	3-037-556-01	SHEET (A), GROUND	

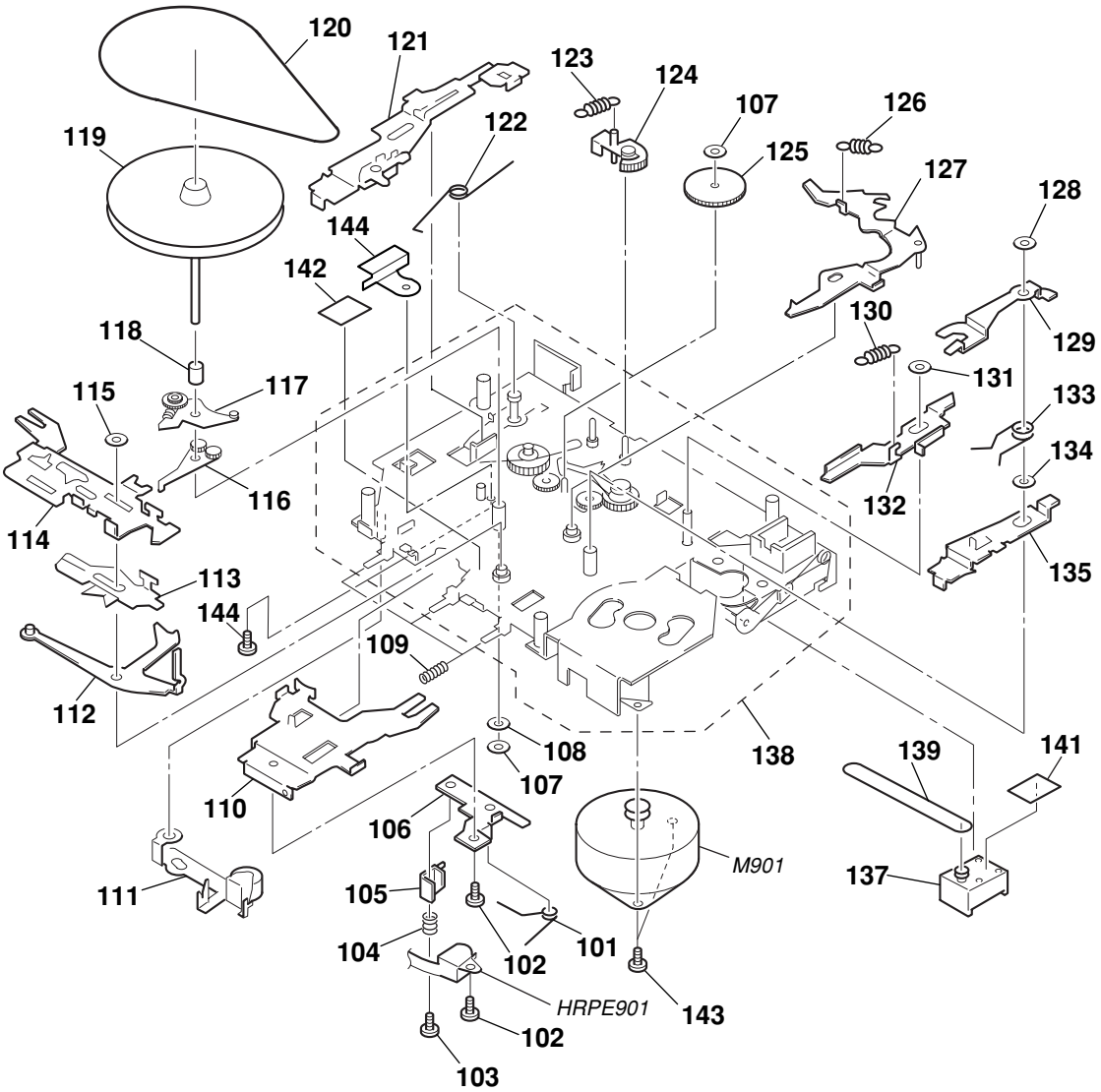
5-2. CABINET (FRONT) SECTION



Ref. No.	Part No.	Description	Remark
51	3-704-197-31	LOCK, SERRAT IB	
52	3-831-441-99	SPACER, KNOB	
* 53	A-3021-743-A	MAIN BOARD, COMPLETE (560V)	
* 53	A-3021-744-A	MAIN BOARD, COMPLETE (650V)	
54	3-236-716-01	TERMINAL (-), BATTERY	
55	3-236-715-01	TERMINAL (+), BATTERY	
56	3-031-376-22	BUTTON (REC)	
57	3-031-375-11	BUTTON (PLAY)	
58	3-031-374-11	BUTTON (STOP)	
59	3-328-319-01	STRAP, HAND (650V)	
60	3-318-382-91	SCREW (B1.7X2.5), TAPPING	
* 61	1-683-291-11	LED BOARD (650V)	
62	3-236-705-01	INDICATOR (BATT) (650V)	
63	3-236-717-01	TERMINAL (+/-), BATTERY	

Ref. No.	Part No.	Description	Remark
65	3-236-699-01	CABINET (FRONT) (650V)	
65	3-236-699-11	CABINET (FRONT) (560V)	
66	X-3381-672-1	HOLDER ASSY, CASSETTE	
67	3-238-573-01	KNOB (TAPE SPEED)	
68	3-236-713-01	CUSHION, MICROPHONE	
69	3-039-027-01	SPACER (MIC)	
70	3-236-712-01	CASE, MICROPHONE	
71	3-037-193-01	CUSHION (SP)	
72	3-034-792-01	SCREW, TAPPING (B2.0)	
73	3-044-225-01	SPACER	
74	3-037-192-01	SPACER (MIC)	
MIC901	1-542-386-11	MICROPHONE, ELECTRET CONDENSER	
SP901	1-825-037-11	SPEAKER (3.6cm)	

5-3. MECHANISM DECK SECTION
(MZ-650V-99: FORMAR TYPE)
(MZ-655-99: NEW TYPE)



Ref. No.	Part No.	Description	Remark
101	3-028-965-01	SPRING (PINCH ARM), TORSION	
102	3-704-197-01	SCREW (M1.4), SPECIAL HEAD	
103	3-704-197-71	SCREW (M1.4X4.5), LOCKING	
104	3-028-960-01	SPRING (AZIMUTH), COMPRESSION	
105	3-028-909-01	GUIDE (N), TAPE	
* 106	3-029-640-01	BRACKET (OW), HEAD	
107	3-331-007-21	WASHER	
108	3-350-989-01	WASHER	
109	3-028-961-01	SPRING (BUTTON), COMPRESSION	
110	3-028-924-01	LEVER (PLAY)	
111	X-3376-235-1	ARM (PINCH ROLLER) ASSY	
112	3-046-281-01	LEVER (POWER SW) (B)	
113	3-028-940-01	LEVER (SRS)	
114	3-028-938-01	LEVER (SLIDE)	
115	3-578-224-00	WASHER	
116	X-3376-227-1	LEVER (F/R) ASSY	
117	X-3376-228-1	LEVER (TU) ASSY	
118	3-029-634-01	BEARING	
119	X-3376-231-1	FLYWHEEL ASSY	
120	3-377-420-11	BELT	
121	X-3376-224-1	LEVER (REC) ASSY	
122	3-029-641-01	SPRING, TORSION	
123	3-028-957-01	SPRING (CAM GEAR),TENSION	
124	3-028-966-01	GEAR (S-OFF-OW), CAM	
125	X-3376-230-1	LIMITTER ASSY	

Ref. No.	Part No.	Description	Remark
126	3-028-955-01	SPRING (LOCK), TENSION	
127	X-3377-535-4	LEVER (LOCK) ASSY	
128	4-992-239-01	WASHER (A)	
* 129	3-028-967-01	LEVER (PAUSE RELEASE)	
130	3-028-954-01	SPRING (SW LEVER), TENSION	
131	3-321-813-71	WASHER, COTTER POLYETHYLENE	
132	3-028-928-01	LEVER (EJECT)	
133	3-028-964-01	SPRING (SLIDE), TORSION	
134	4-926-562-01	WASHER, STOPPER	
135	3-028-927-01	LEVER (STOP)	
137	1-548-579-41	COUNTER, TAPE (SMALL TYPE)	
138	X-3380-218-4	CHASSIS COMP ASSY (FORMER TYPE)	
138	X-3382-245-2	CHASSIS (COMP) ASSY (B) (NEW TYPE)	
139	3-343-948-01	BELT	
140	4-963-883-61	SCREW (M1.4), PRECISION PAN	
141	3-365-053-01	SHEET (BA), ADHESIVE	
142	3-378-078-11	SPACER (END DETECTION)	
143	3-703-816-07	SCRW (M1.4), SPECIAL HEAD	
144	3-037-211-01	REINFORCEMENT (MJ)	
HRPE901	1-500-593-13	HEAD, CERAMIC (REC/PB/ERASE)	
M901	1-763-236-22	MOTOR, DC (CAPSTAN/REEL) (including PULLEY) (FORMER TYPE)	
M901	1-763-236-31	MOTOR, DC (CAPSTAN/REEL) (including PULLEY) (NEW TYPE)	

SECTION 6
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, -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
- 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
- −11, −12 : Last digit of main board.
- Abbreviation
  CH : Chinese
  EE : East European
  E : Indication of country of origin
  1E : No indication of country of origin

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

Ref. No.	Part No.	Description			Remark
*	1-683-291-11	LED BOARD (650V)			
		**********			
		<DIODE>			
D901	8-719-058-71	LED LNJ208R8ARA (650V) (BATT)			
D903	8-719-060-92	LED SML-311YTT86 (650V) (♺)			
**********					
*	A-3021-743-A	MAIN BOARD, COMPLETE (560V)			
*	A-3021-744-A	MAIN BOARD, COMPLETE (650V)			
		**********			
		<CAPACITOR>			
C101	1-216-864-11	METAL CHIP	0	5%	1/16W
C102	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V (560V)
C102	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (650V)
C103	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V (650V)
C104	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C105	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C107	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C108	1-216-864-11	METAL CHIP	0	5%	1/16W
C109	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C110	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V (650V)
C112	1-135-834-11	CERAMIC CHIP	2.2		6.3V
C113	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C114	1-115-156-11	CERAMIC CHIP	1uF		10V
C115	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C116	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C117	1-135-177-11	TANTALUM CHIP	1uF	20%	25V
C118	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V (560V)
C119	1-216-864-11	METAL CHIP	0	5%	1/16W
C131	1-115-156-11	CERAMIC CHIP	1uF		10V
C132	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C133	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C134	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C135	1-128-964-11	TANTAL. CHIP	100uF	20%	6.3V
C136	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C137	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C138	1-115-156-11	CERAMIC CHIP	1uF		10V
C139	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C140	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C141	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C142	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C143	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C144	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C145	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C146	1-104-400-11	ELECT	47uF	20%	4V
C147	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C151	1-124-434-11	ELECT	220uF	20%	4V
C152	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C301	1-104-852-11	TANTAL. CHIP	22uF	20%	10V
C302	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C303	1-115-156-11	CERAMIC CHIP	1uF		10V
C304	1-104-851-11	TANTAL. CHIP	10uF	20%	10V (650V)
C305	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V (650V)
C501	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C502	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C503	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C504	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C505	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C506	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C601	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C602	1-135-834-11	CERAMIC CHIP	2.2		6.3V
C603	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C604	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C605	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C607	1-124-433-11	ELECT	100uF	20%	4V
C608	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C609	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C610	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
		<DIODE>			
D101	8-719-016-84	DIODE 02DZ2.0-TPH3			
D301	8-719-059-97	LED L-34HD (560V: REC/BATT, 650V: REC)			
D501	8-719-404-50	DIODE MA111-TX			

MAIN

Ref. No.	Part No.	Description	Remark
		<IC>	
IC101	6-701-379-01	IC NJM2775AM(TE2)	
IC301	8-759-399-49	IC MM1251BFBE (650V)	
IC501	8-759-701-51	IC NJM2072M(TE2)	
IC601	8-759-638-51	IC LB1979VS-TLM	
		<JACK>	
J101	1-785-791-11	JACK (EAR)	
J102	1-785-790-11	JACK (MIC (PLUG IN POWER) (650V)	
J901	1-580-372-43	JACK,DC(POLARITY UNIFIED TYPE)	(DC IN 3V)
		<INDUCTOR>	
L301	1-412-032-12	INDUCTOR CHIP 100uH (650V)	
		<TRANSISTOR>	
Q101	8-729-013-37	TRANSISTOR 2SC4213-AB-TE85L	
Q102	8-729-402-93	TRANSISTOR UN5214	
Q103	8-729-013-37	TRANSISTOR 2SC4213-AB-TE85L	
Q104	8-729-420-53	TRANSISTOR UN5115	
Q105	8-729-402-96	TRANSISTOR UN5114	
Q106	8-729-420-53	TRANSISTOR UN5115	
Q301	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q302	8-729-420-53	TRANSISTOR UN5115 (650V)	
Q303	8-729-420-53	TRANSISTOR UN5115	
Q304	8-729-402-93	TRANSISTOR UN5214	
Q305	8-729-402-93	TRANSISTOR UN5214	
Q306	8-729-054-79	TRANSISTOR 2SB167900LSO (560V:-11)	
Q306	8-729-420-50	TRANSISTOR UN5215 (560V:-12)	
Q501	8-729-420-50	TRANSISTOR UN5215	
Q503	8-729-402-93	TRANSISTOR UN5214	
Q601	8-729-420-50	TRANSISTOR UN5215 (650V)	
Q602	8-729-402-93	TRANSISTOR UN5214 (650V)	
		<RESISTOR>	
R102	1-216-829-11	METAL CHIP 4.7K 5%	1/16W (650V)
R102	1-216-833-11	METAL CHIP 10K 5%	1/16W (560V)
R103	1-216-833-11	METAL CHIP 10K 5%	1/16W
R104	1-216-829-11	METAL CHIP 4.7K 5%	1/16W (560V)
R104	1-216-833-11	METAL CHIP 10K 5%	1/16W (650V)
R105	1-216-821-11	METAL CHIP 1K 5%	1/16W
R107	1-216-821-11	METAL CHIP 1K 5%	1/16W (650V)
R108	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R109	1-216-825-11	METAL CHIP 2.2K 5%	1/16W (650V)
R110	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R111	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R112	1-216-833-11	METAL CHIP 10K 5%	1/16W
R113	1-216-837-11	METAL CHIP 22K 5%	1/16W
R114	1-216-817-11	METAL CHIP 470 5%	1/16W
R115	1-216-821-11	METAL CHIP 1K 5%	1/16W
R116	1-216-845-11	METAL CHIP 100K 5%	1/16W
R117	1-216-849-11	METAL CHIP 220K 5%	1/16W
R118	1-216-864-11	METAL CHIP 0 5%	1/16W
R119	1-216-833-11	METAL CHIP 10K 5%	1/16W
R120	1-216-837-11	METAL CHIP 22K 5%	1/16W
R121	1-216-864-11	METAL CHIP 0 5%	1/16W
R122	1-216-864-11	METAL CHIP 0 5%	1/16W
R123	1-216-833-11	METAL CHIP 10K 5%	1/16W
R124	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R127	1-216-801-11	METAL CHIP 22 5%	1/16W
R128	1-216-864-11	METAL CHIP 0 5%	1/16W
R129	1-216-864-11	METAL CHIP 0 5%	1/16W
R131	1-216-813-11	METAL CHIP 220 5%	1/16W
R132	1-216-813-11	METAL CHIP 220 5%	1/16W
R133	1-216-864-11	METAL CHIP 0 5%	1/16W
R135	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R136	1-216-793-11	RES-CHIP 4.7 5%	1/10W
R137	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R138	1-216-789-11	METAL CHIP 2.2 5%	1/16W
R139	1-216-861-11	METAL CHIP 2.2M 5%	1/16W
R140	1-216-833-11	METAL CHIP 10K 5%	1/16W
R141	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R142	1-216-841-11	METAL CHIP 47K 5%	1/16W
R143	1-216-833-11	METAL CHIP 10K 5%	1/16W
R144	1-216-829-11	METAL CHIP 4.7K 5%	1/16W
R151	1-216-801-11	METAL CHIP 22 5%	1/16W
R152	1-216-801-11	METAL CHIP 22 5%	1/16W
R153	1-216-809-11	METAL CHIP 100 5%	1/16W
R154	1-216-864-11	METAL CHIP 0 5%	1/16W
R301	1-216-864-11	METAL CHIP 0 5%	1/16W
R302	1-216-817-11	METAL CHIP 470 5%	1/16W (650V)
R303	1-216-821-11	METAL CHIP 1K 5%	1/16W (650V)
R304	1-216-817-11	METAL CHIP 470 5%	1/16W (650V)
R305	1-216-813-11	METAL CHIP 220 5%	1/16W (650V)
R307	1-216-864-11	METAL CHIP 0 5%	1/16W (560V)
R308	1-216-841-11	METAL CHIP 47K 5%	1/16W
R309	1-216-833-11	METAL CHIP 10K 5%	1/16W
R310	1-216-825-11	METAL CHIP 2.2K 5%	1/16W
R312	1-216-864-11	METAL CHIP 0 5%	1/16W (560V:-11)
R312	1-216-809-11	METAL CHIP 100 5%	1/16W (560V:-12)
R313	1-216-817-11	METAL CHIP 470 5%	1/16W (-11)
R313	1-216-813-11	METAL CHIP 220 5%	1/16W (-12)
R314	1-216-829-11	METAL CHIP 4.7K 5%	1/16W (-11)
R314	1-216-825-11	METAL CHIP 2.2K 5%	1/16W (-12)
R315	1-216-817-11	METAL CHIP 470 5%	1/16W
R317	1-216-817-11	METAL CHIP 470 5%	1/16W (650V)
R318	1-216-837-11	METAL CHIP 22K 5%	1/16W (650V)
R319	1-216-805-11	METAL CHIP 47 5%	1/16W (650V)

Ref. No.	Part No.	Description			Remark
R320	1-216-853-11	METAL CHIP	470K	5%	1/16W (650V)
R321	1-216-857-11	METAL CHIP	1M	5%	1/16W (650V)
R322	1-216-849-11	METAL CHIP	220K	5%	1/16W (650V)
R323	1-216-833-11	METAL CHIP	10K	5%	1/16W (650V)
R324	1-216-841-11	METAL CHIP	47K	5%	1/16W (650V:-11)
R324	1-216-837-11	METAL CHIP	22K	5%	1/16W (650V:-12)
R326	1-216-864-11	METAL CHIP	0	5%	1/16W (650V:-11)
R326	1-216-809-11	METAL CHIP	100	5%	1/16W (650V:-12)
R327	1-216-829-11	METAL CHIP	4.7K	5%	1/16W (560V:-11)
R327	11-216-864-11	METAL CHIP	0	5%	1/16W (560V:-12)
R501	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R502	1-216-821-11	METAL CHIP	1K	5%	1/16W
R503	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R504	1-216-821-11	METAL CHIP	1K	5%	1/16W
R505	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R506	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R601	1-216-845-11	METAL CHIP	100K	5%	1/16W
R602	1-216-864-11	METAL CHIP	0	5%	1/16W
R603	1-216-821-11	METAL CHIP	1K	5%	1/16W
R604	1-216-833-11	METAL CHIP	10K	5%	1/16W
R605	1-216-821-11	METAL CHIP	1K	5%	1/16W
R606	1-216-857-11	METAL CHIP	1M	5%	1/16W
R607	1-216-857-11	METAL CHIP	1M	5%	1/16W
R608	1-216-857-11	METAL CHIP	1M	5%	1/16W
R609	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R610	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R612	1-216-833-11	METAL CHIP	10K	5%	1/16W
R613	1-216-821-11	METAL CHIP	1K	5%	1/16W
R614	1-216-837-11	METAL CHIP	22K	5%	1/16W (650V)
R615	1-216-845-11	METAL CHIP	100K	5%	1/16W (650V)
		<VALIABLE RESISTOR>			
RV101	1-227-460-11	RES, VAR, CARBON 10K (VOL◢)			
RV601	1-238-663-11	RES, ADJ, CARBON 4.7K (TAPE SPEED 1.2cm)			
RV602	1-238-663-11	RES, ADJ, CARBON 4.7K (TAPE SPEED 2.4cm)			
		<SWITCH>			
S101	1-771-673-11	SWITCH, SLIDE(PB/REC)			
S102	1-572-688-61	SWITCH, PUSH (1 KEY) (POWER)			
S601	1-572-922-11	SWITCH, SLIDE (PAUSE▬►)			
S602	1-572-922-11	SWITCH, SLIDE (FAST PB) (650V)			

Ref. No.	Part No.	Description	Remark
S901	1-692-898-11	SWITCH, SLIDE (VOR)	
S902	1-571-277-51	SWITCH, SLIDE (TAPE SPEED)	
		<THERMISTOR>	
THP601	1-803-124-11	THERMISTOR, POSITIVE	
**********			
		MISCELLANEOUS	
		**********	
137	1-548-579-41	COUNTER, TAPE (SMALL TYPE)	
HRPE901	1-500-593-13	HEAD, CERAMIC (REC/PB/ERASE)	
M901	1-763-236-22	MOTOR, DC (CAPSTAN/REEL) (including PULLEY) (FORMER TYPE)	
M901	1-763-236-31	MOTOR, DC (CAPSTAN/REEL) (including PULLEY) (NEW TYPE)	
MIC901	1-542-386-11	MICROPHONE, ELECTRET CONDENSER	
SP901	1-825-037-11	SPEAKER (3.6cm)	
**********			
		ACCESSORIES	
		**********	
	3-241-559-31	MANUAL, INSTRUCTION (ENGLISH,SPANISH, PORTUGUESE. ITALIAN) (560V:E,650V:E)	
	3-241-559-51	MANUAL, INSTRUCTION (ENGLISH, RUSSIAN) (560V:EE,650V:EE)	
	3-241-559-61	MANUAL, INSTRUCTION (POLISH, CZECH) (560V:EE,650V:EE)	
	3-241-559-71	MANUAL, INSTRUCTION (ENGLISH, SIMPLIFIED CHINESE) (560V:CH,650V:CH)	
	3-241-559-81	MANUAL, INSTRUCTION (ENGLESH, TRADITIONAL CHINESE) (560V:1E,650V:1E)	

REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2002.02	New
1.1	2002.04	Change of the main board (last digit −11 to −12). (ECN-MTA01093)
1.2	2002.12	Correction of exploded views parts list (Ref. No. 138). (SPM-02057)
1.3	2004.05	Addition of new type mechanism deck. (SPM-04034)