

TCM-465V

SERVICE MANUAL

US Model
Canadian Model
AEP Model
E Model
Tourisit Model



Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MT-459V-118

SPECIFICATIONS

Recording system

2-track 1 channel monaural

Frequency range

250 - 6,300 Hz

Speaker

Approx. 3.6 cm (1⁷/₁₆ in.) dia.

Power output

300 mW (at 10 % harmonic distortion)

Input

Microphone input jack (minijack) sensitivity 0.2 mV for 3 kilohms or lower impedance microphone

Output

Earphone jack (minijack) for 8 - 300 ohms earphone

Variable range of the tape speed

from +30% to -15%

Power requirements

- Two size R6 (AA) batteries: 3V DC
- DC IN 3 V jack accepts:
 - AC-E30HG AC power adaptor (not supplied) suitable in the country where the unit is to be used.
 - Sony DCC-E230 car battery cord (not supplied) for use on 12 V car battery.

Dimensions (w/h/d) (incl. projecting parts and controls)

Approx. 116 × 91 × 38mm (4⁵/₈ × 3⁵/₈ × 1¹/₂ in.)

Mass (not incl. batteries)

Approx. 200 g (7.1 oz.)

Design and specifications are subject to change without notice.

Battery life (Approximate hours)

(EIAJ*)

	Playback	Recording
Sony alkaline LR6 (SG)	11	11
Sony R6P (SR)	3	3

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

Note

The battery life may shorten depending on the operation of the unit.

Connect the AC power adaptor to DC IN 3V and to the wall outlet. Use the AC-E30HG AC power adaptor (not supplied). Do not use any other AC power adaptor.

Polarity of the plug



Note

Specifications for AC-E30HG varies for each area. Check your local voltage and the shape of plug before purchasing.



CASSETTE-CORDER

SONY®

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Flexible Circuit Board Repairing

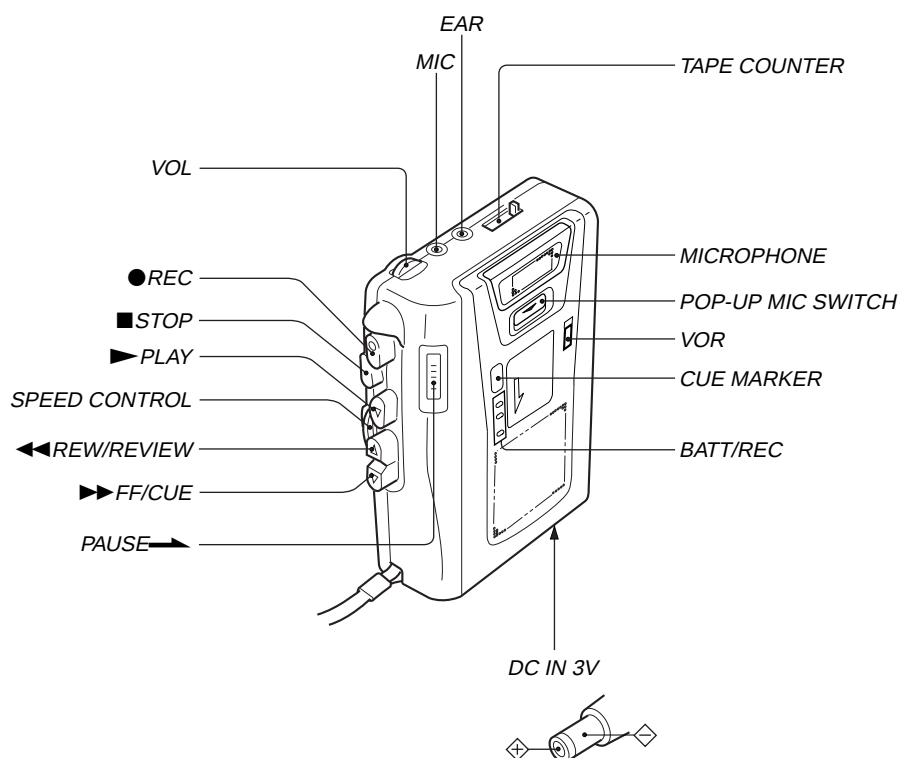
- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

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.

SECTION 1 GENERAL

• Location of Controls



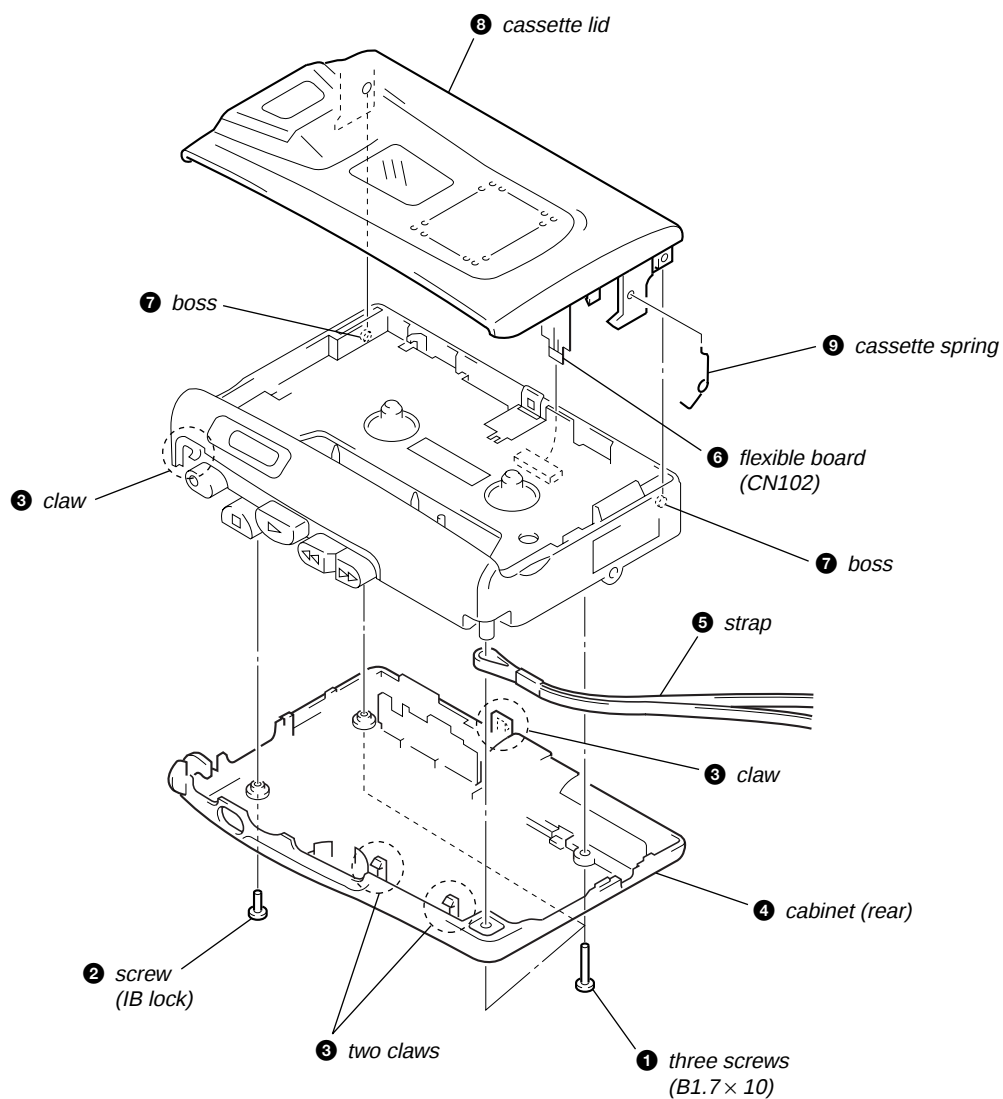
SECTION 2 DISASSEMBLY

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

SET ➡ CABINET (REAR) ➡ CASSETTE LID ➡ MECHANISM DECK (MT-459V-118) ➡ MAIN BOARD ➡ BELT

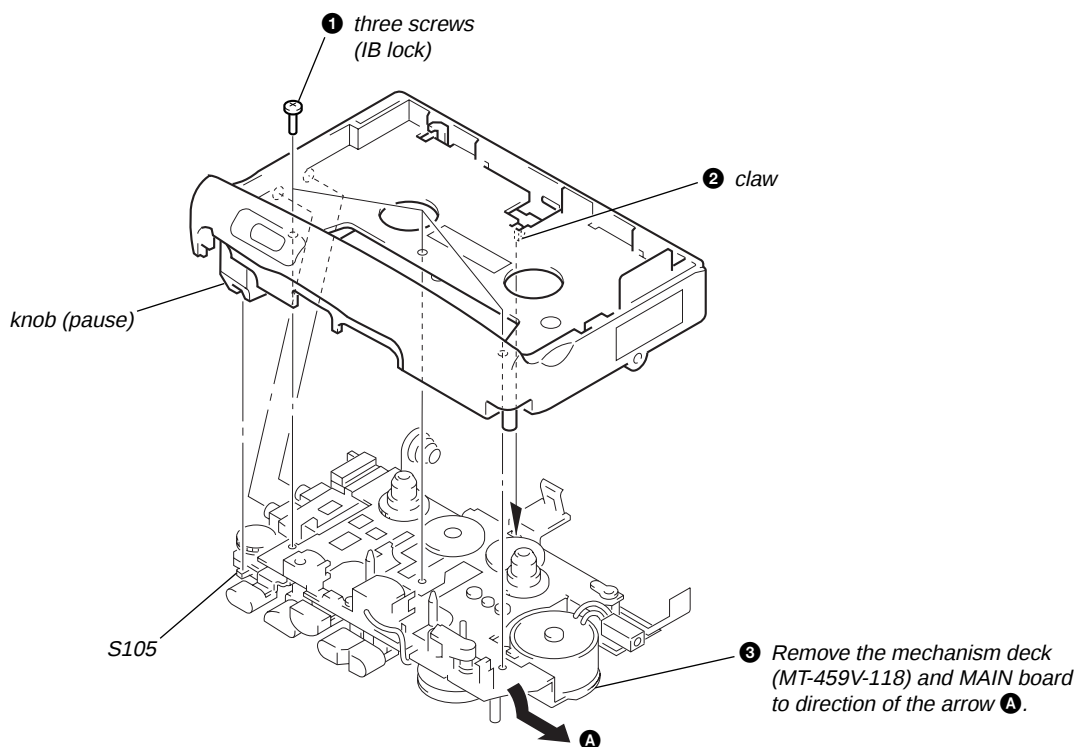
Note: Follow the disassembly procedure in the numerical order given.

CABINET (REAR) , CASSETTE LID



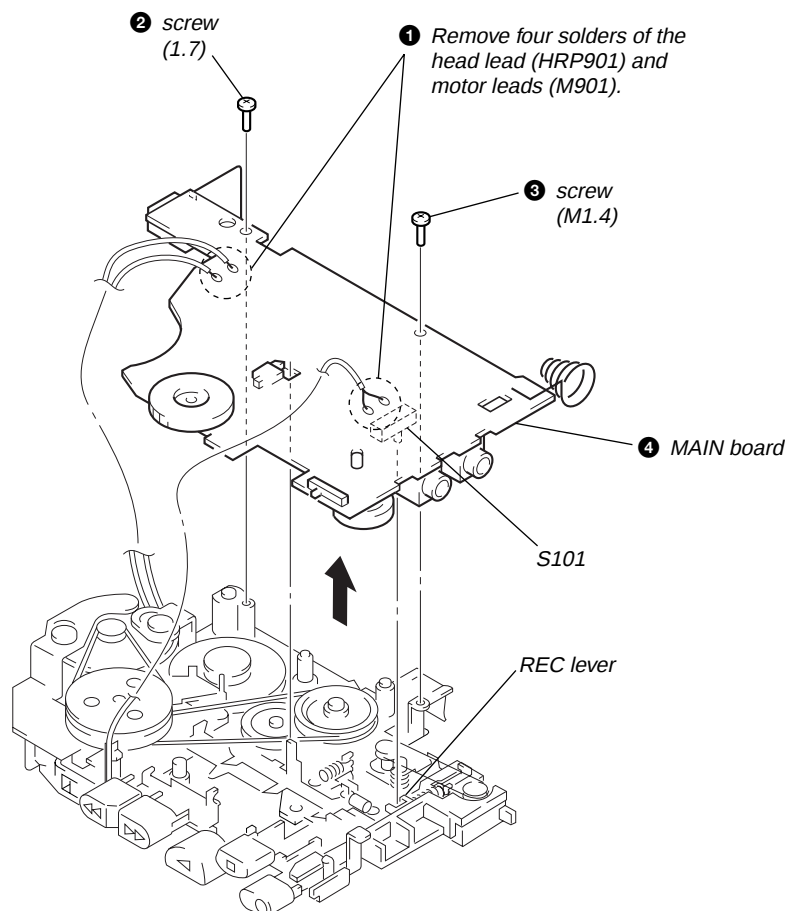
MECHANISM DECK (MT-459V-118)

Note: On installation MAIN board
adjust the S105 and
knob (pause).



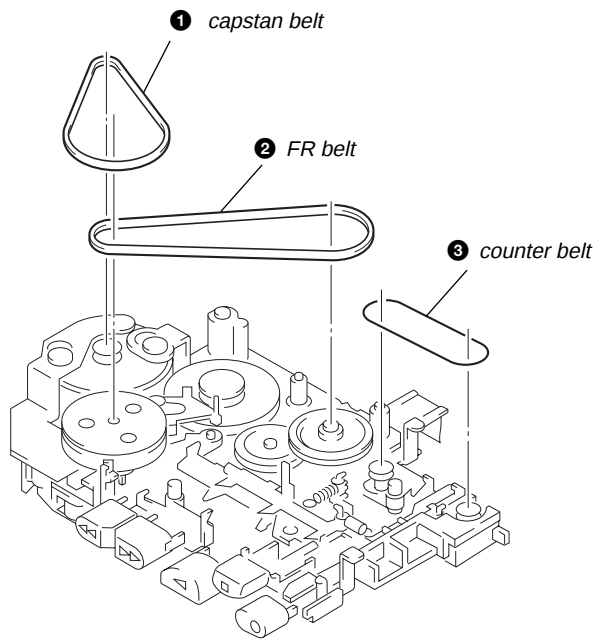
MAIN BOARD

Note: On installation MAIN board
adjust the S101 and REC lever.



SECTION 3 MECHANICAL ADJUSTMENTS

BELT



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

record/playback head	pinch roller
erase head	rubber belt
capstan	idler
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage (2.5 V) unless otherwise noted.

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	22 – 48 g•cm (0.31 – 0.67 oz•inch)
Forward Back Tension		1.0 – 4.5 g•cm (0.014 – 0.063 oz•inch)
FF, REW	CQ-201B	more than 50 g•cm (more than 0.69 oz•inch)

Tape Tension Measurement

Mode	Tension Meter	Meter Reading
FWD	CQ-403C	more than 50 g (more than 1.76 oz)

SECTION 4 ELECTRICAL ADJUSTMENTS

Precaution

- Supplied voltage: 2.5 V
- Switch and control position
VOR switch (S401): OFF
PAUSE switch (S105): OFF
VOL (RV101): mechanical mid
SPEED CONTROL (RV602): mechanical center
POP-UP MIC switch (S302): FLAT

Test Tape

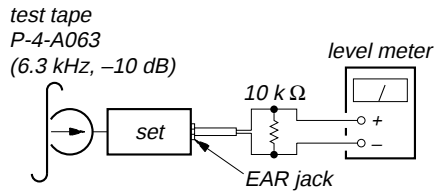
Type	Signal	Used for
P-4-A063	6.3 kHz, -10 dB	head azimuth adjustment
WS-48A	3 kHz, 0 dB	tape speed adjustment

0 dB=0.775 V

Record/Playback Head Azimuth Adjustment

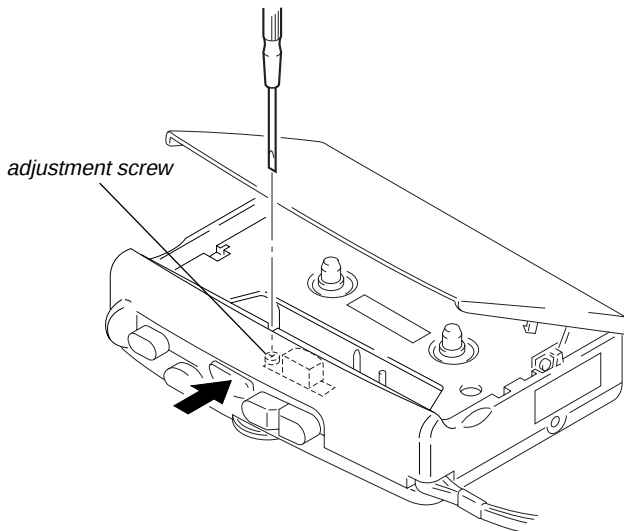
Procedure:

Mode: playback



1. Turn the adjustment screw to obtain the maximum reading on level meter.
Note: Several peaks may appear, but take the maximum.
2. After the adjustment, lock the adjustment screw with suitable locking compound.

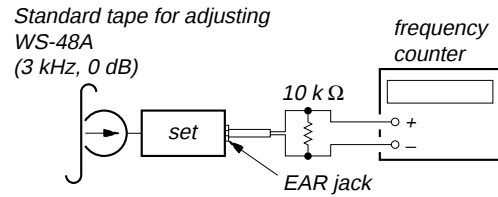
Adjustment Location:



Tape Speed Adjustment

Procedure:

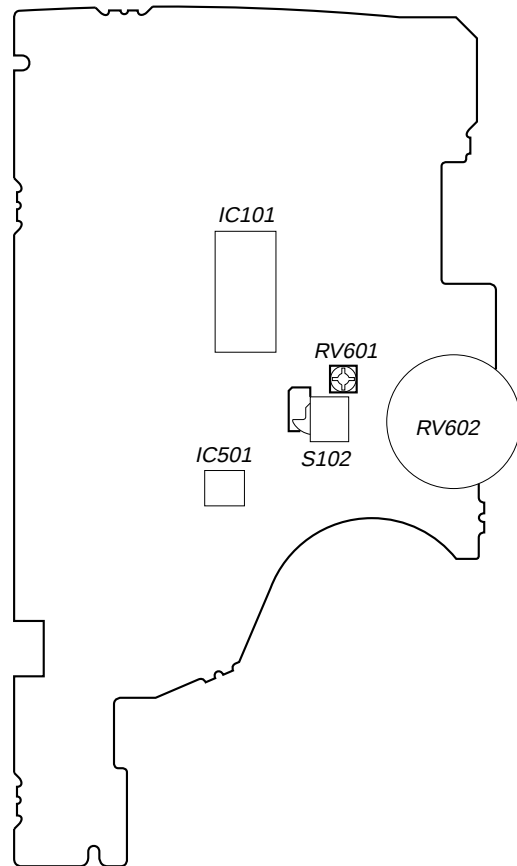
Mode: playback



1. Play back WS-48A (tape end part) and adjust RV601 so that the frequency counter reading becomes 2,985 – 3,015 Hz.
2. Play back WS-48A tape the beginning and the end part, check that the frequency counter reading is within same standard of step1.

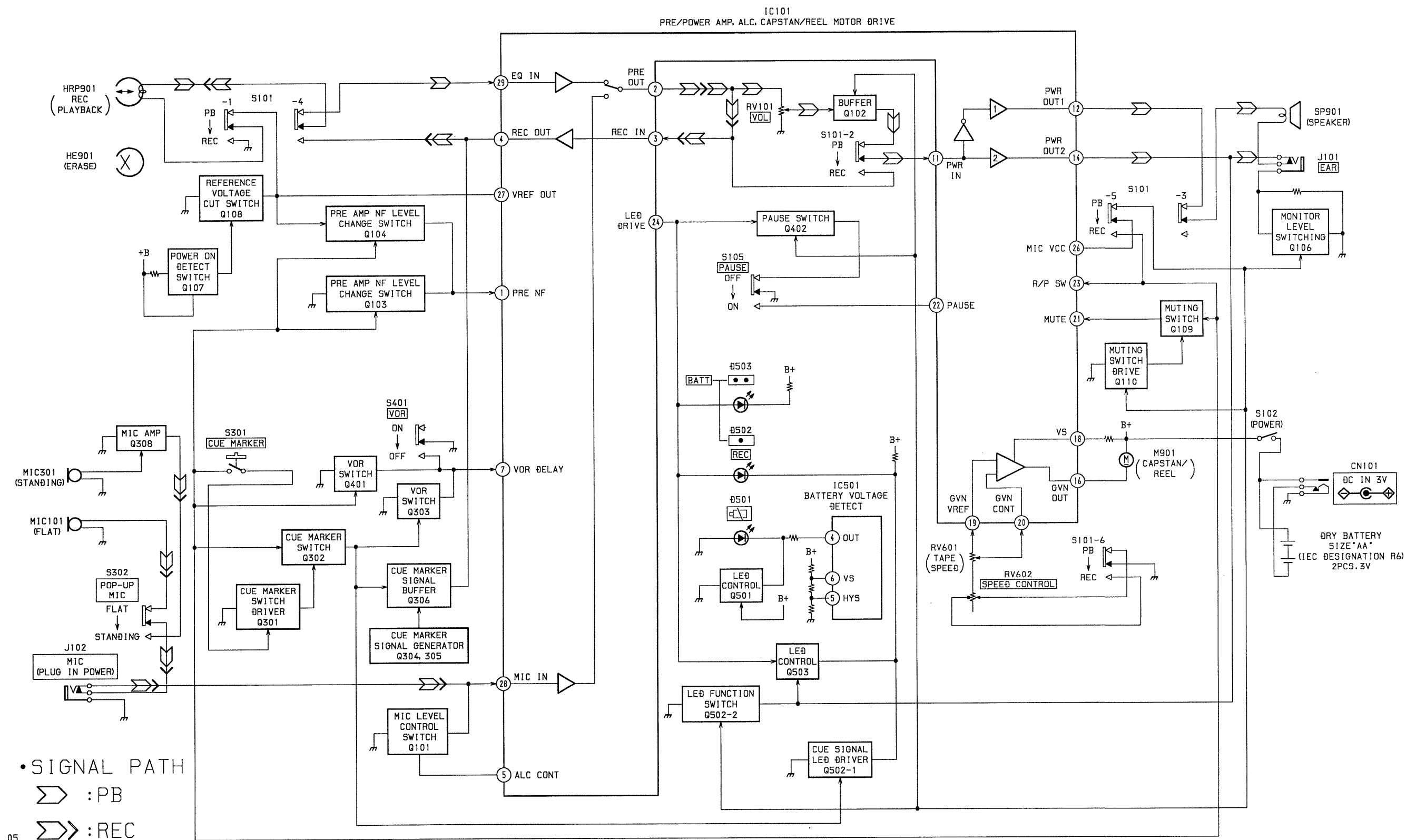
Adjustment Location:

[MAIN BOARD] (Side B)

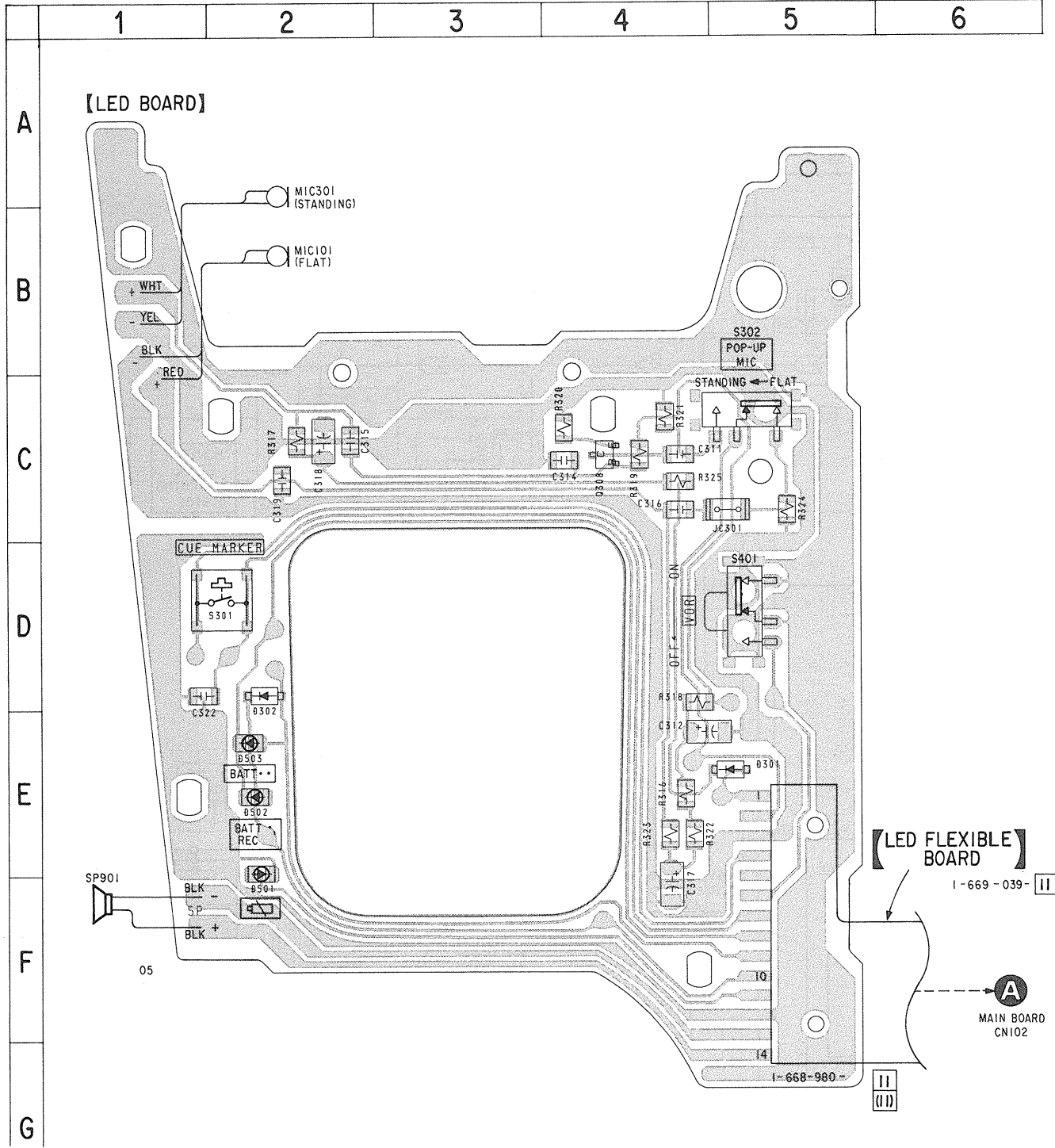


SECTION 5 DIAGRAMS

5-1. BLOCK DIAGRAM

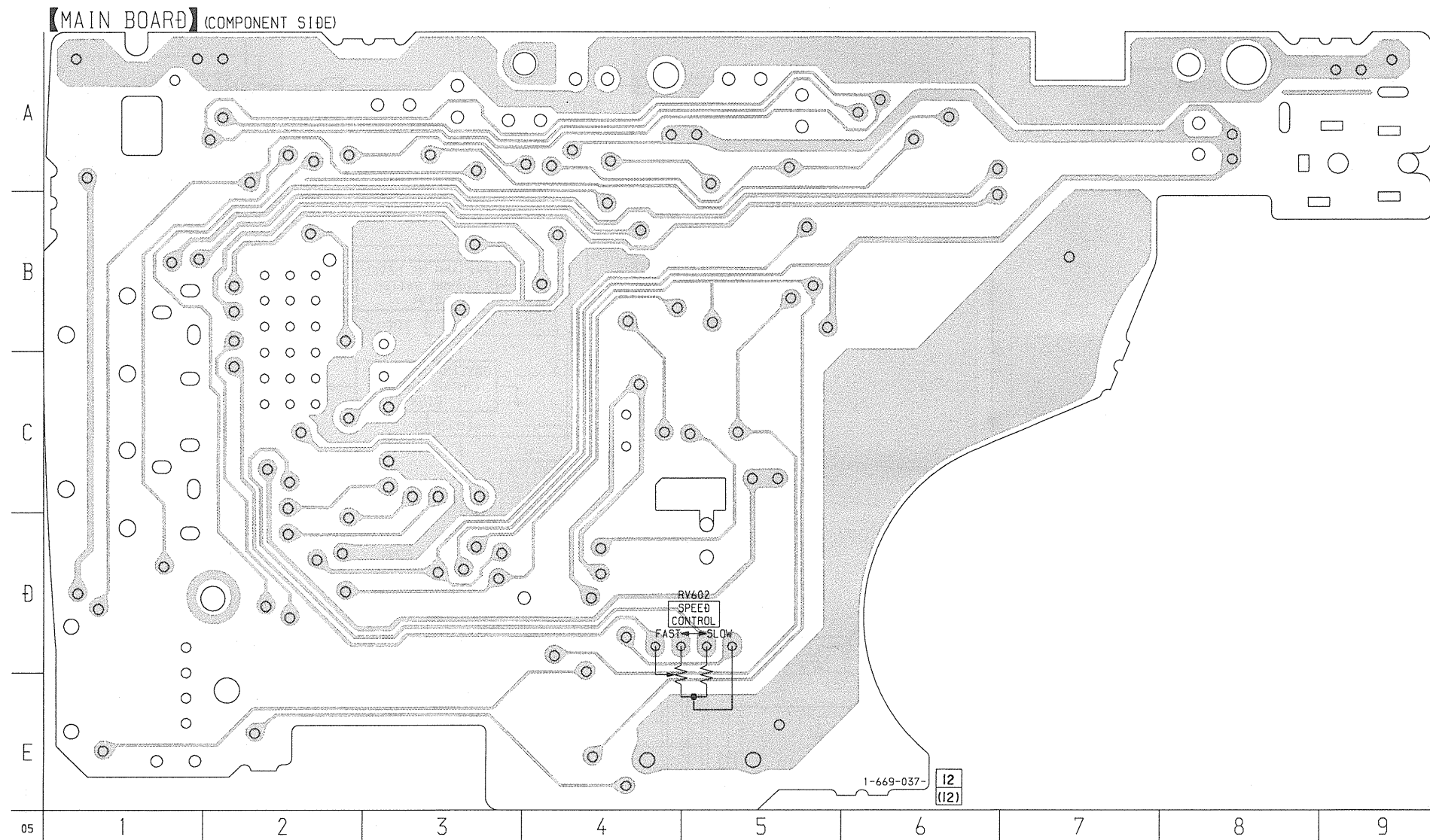


5-2. PRINTED WIRING BOARDS



• Semiconductor
Location
(LED Board)

Ref. No.	Location
D301	E-5
D302	D-2
D501	F-2
D502	E-2
D503	E-2
Q308	C-4

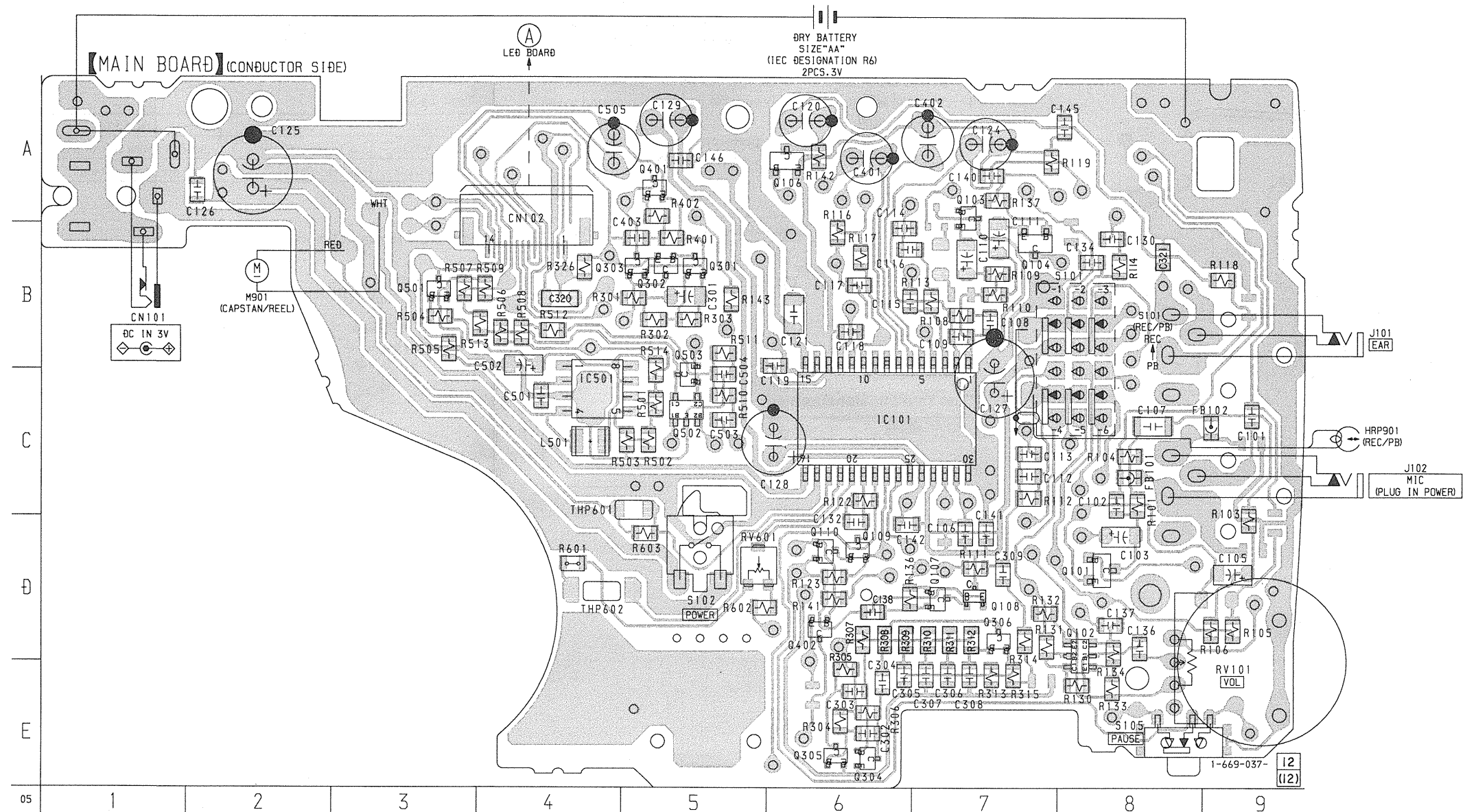


Note on Printed Wiring Boards:

- : parts extracted from the component side.
 - : parts extracted from the conductor side.
 - ▨ : 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.
(Conductor Side)
Parts face side: Parts on the parts face side seen from the parts face are indicated.
(Component Side)



Semiconductor

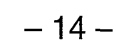
Location

(MAIN Board Conductor Side)

Ref. No.	Location	Ref. No.	Location
IC101	C-6	Q301	B-5
IC501	C-4	Q302	B-5
		Q303	B-5
Q101	D-8	Q304	E-6
Q102	D-8	Q305	E-6
Q103	A-7	Q306	D-7
Q104	B-7	Q401	A-5
Q106	A-6	Q402	D-6
Q107	D-7	Q501	B-3
Q108	D-7	Q502	C-5
Q109	D-6	Q503	C-5
Q110	D-6		

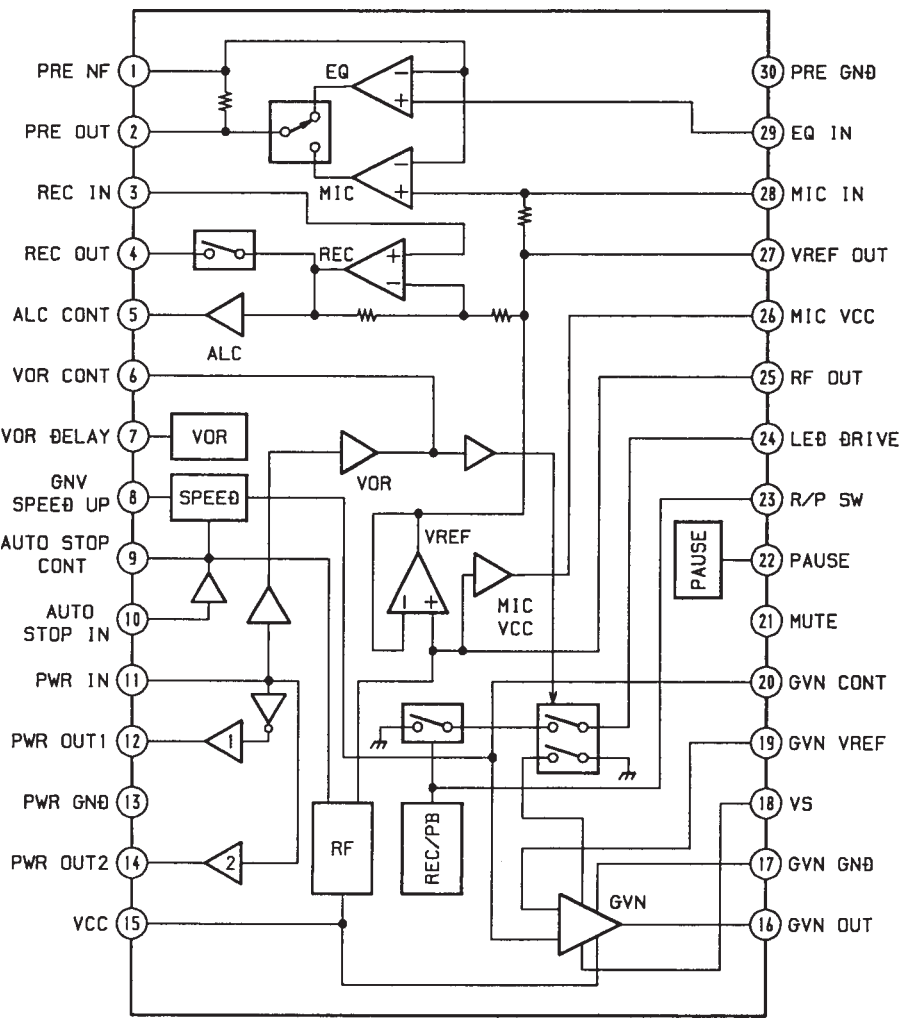
Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF : μpF
- 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 3 V and fed with regulated dc power supply from external power voltage jack.
- Voltages are dc with respect to ground under no-signal conditions.
- no mark : PLAY
- () : REC
- * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 M Ω). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- ▨ : PB
- ▨ : REC

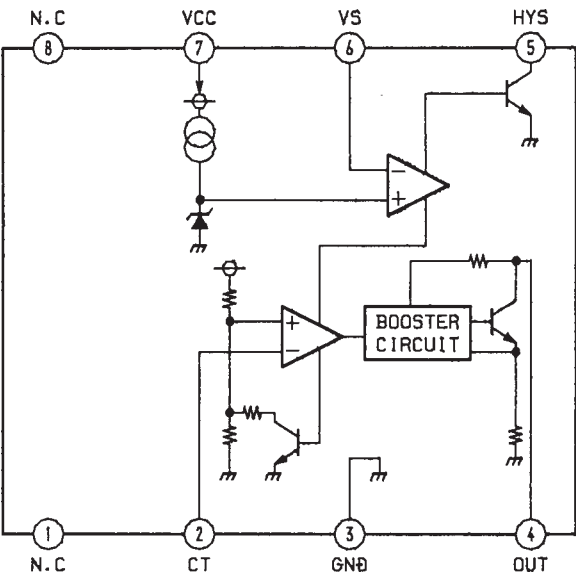


• IC Block Diagrams

IC101 LA4168ML-TE-L



IC501 MM1251BFBE



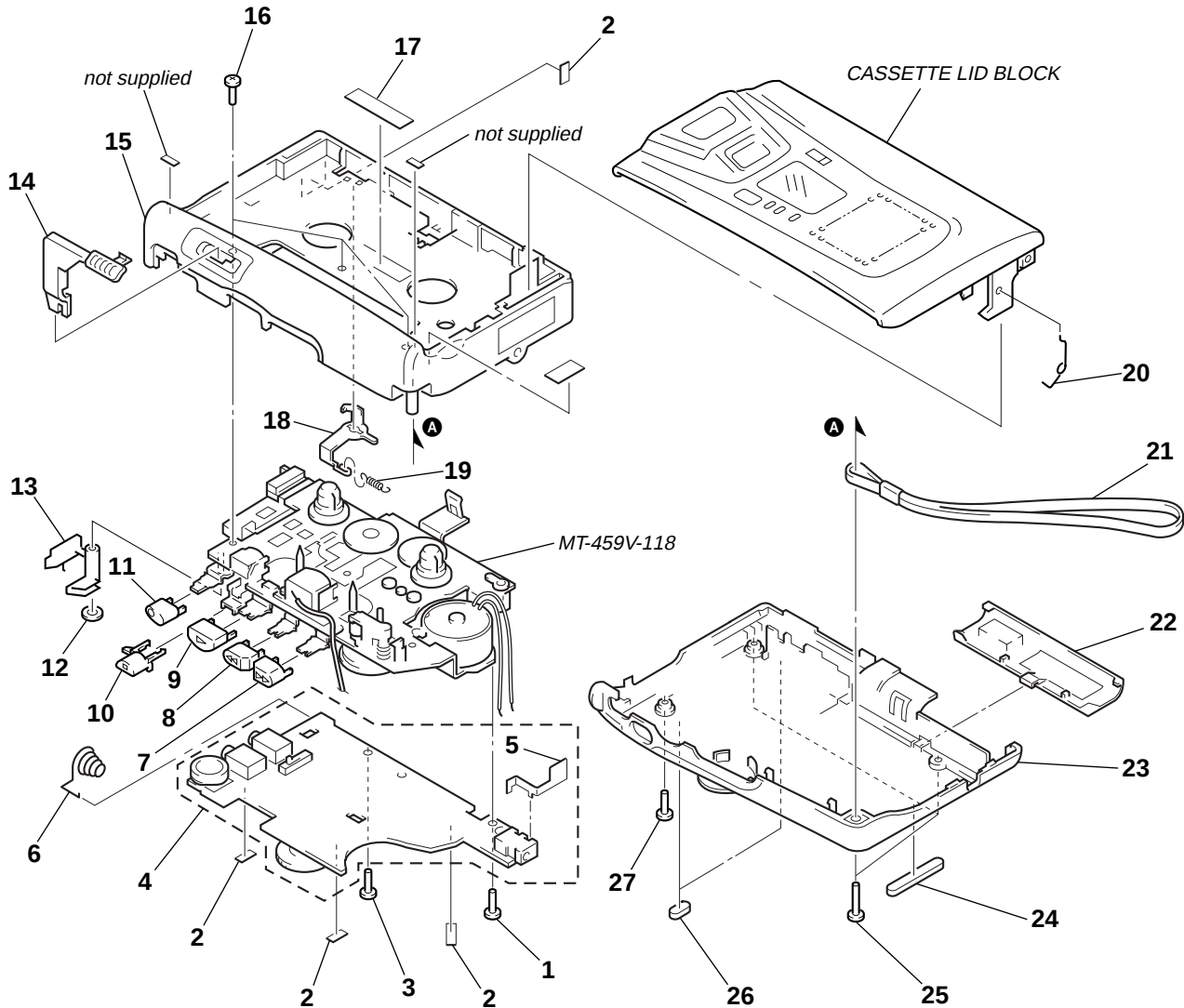
SECTION 6
EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
Example:
KNOB, BALANCE (WHITE) . . . (RED)
Parts Color Cabinet's Color

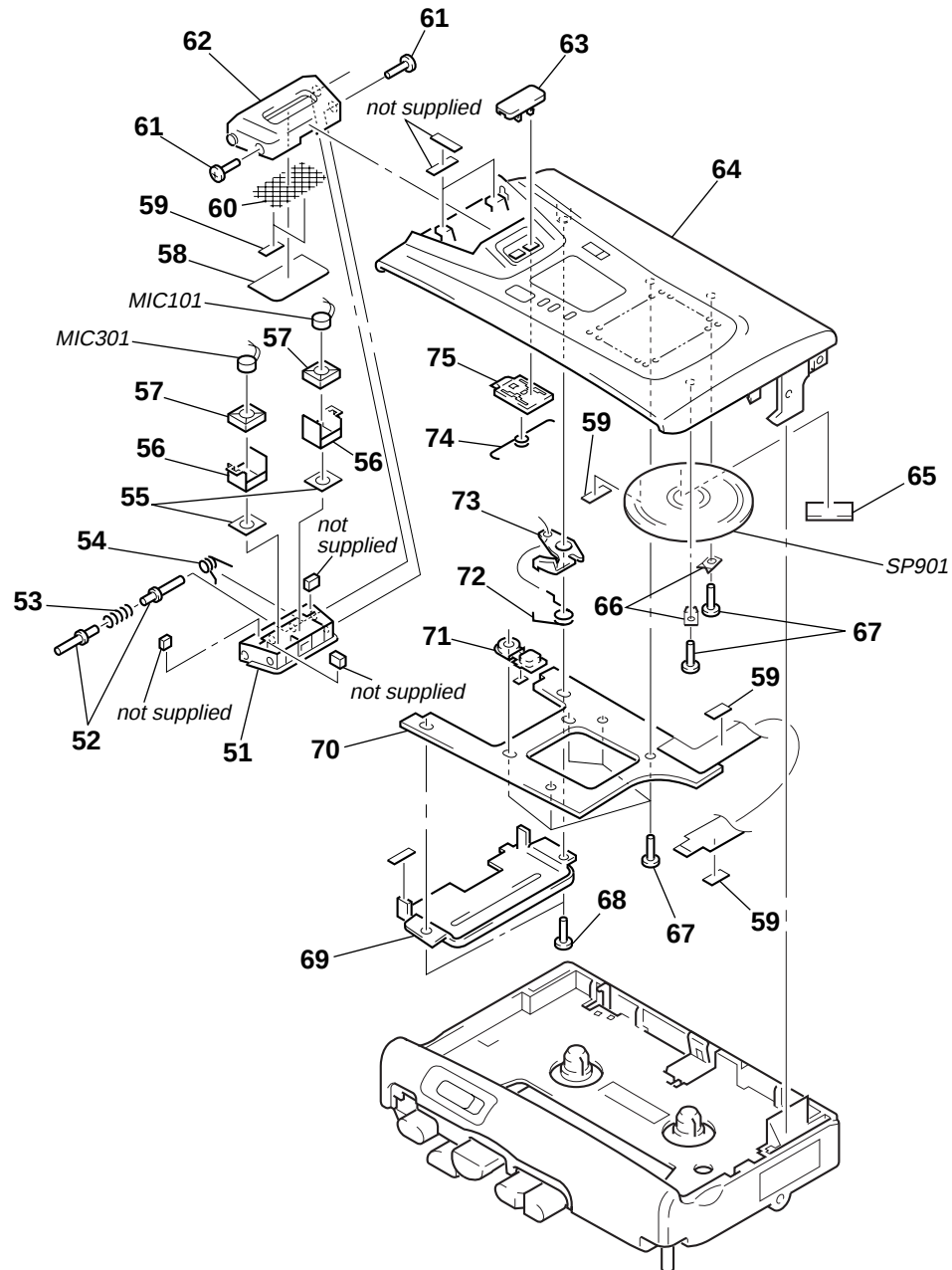
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of the electrical parts list.

(1) CABINET SECTION



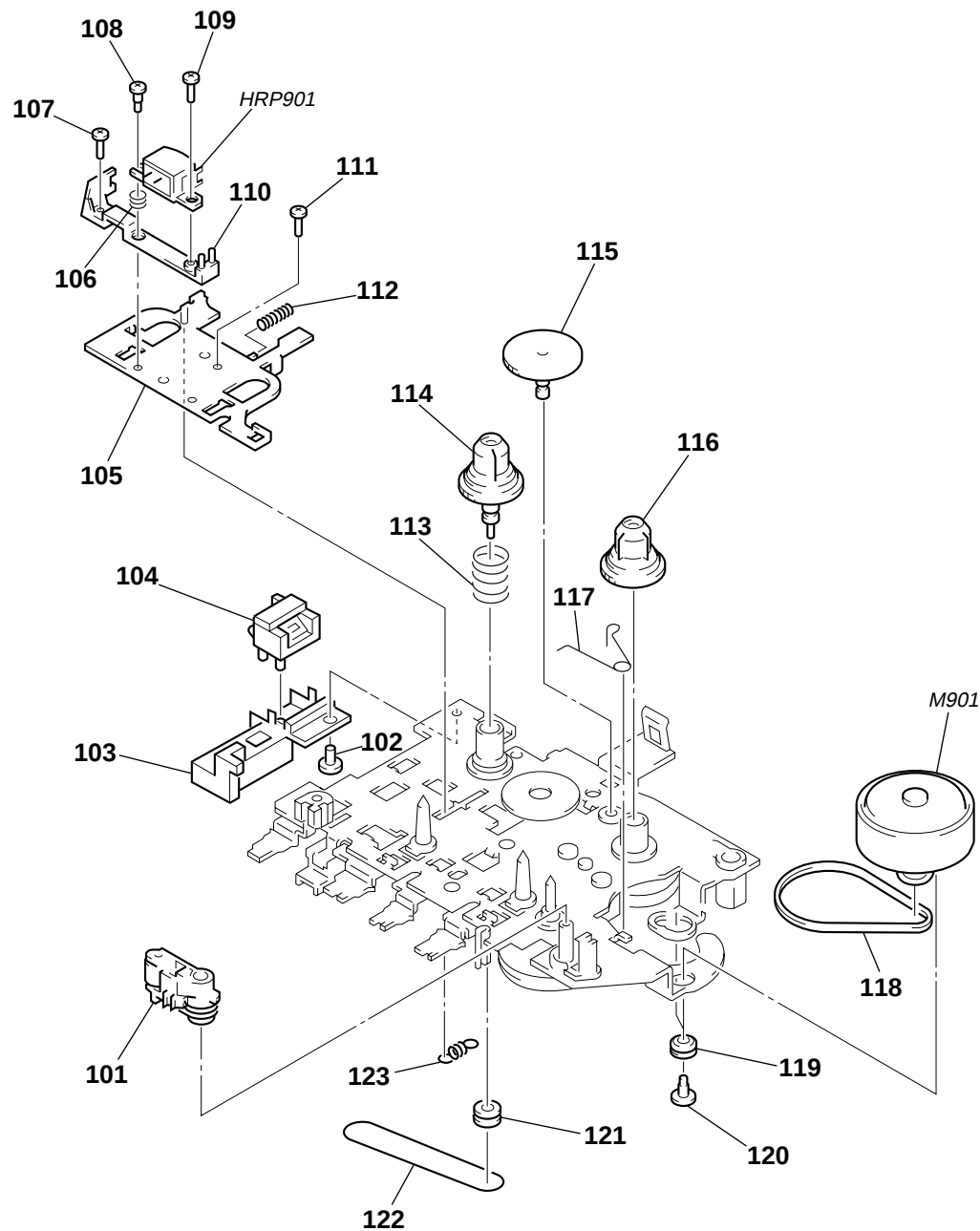
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-318-382-31	SCREW (1.7), TAPPING		15	3-018-307-21	CABINET (FRONT)	
2	3-831-441-99	SPACER, KNOB		16	4-969-980-21	SCREW (IB LOCK)	
3	3-345-648-51	SCREW (M1.4), TOOTHED LOCK		17	3-578-101-41	PLATE, ORNAMENTAL	
* 4	A-3021-095-A	MAIN BOARD, COMPLETE		18	3-018-311-01	CLAW, ERASING PREVENTION	
5	3-008-612-01	TERMINAL, PLUS		19	3-924-744-01	SPRING (CLAW DETECTION), TENSION	
6	3-924-750-01	TERMINAL, MINUS		20	3-936-424-01	SPRING, CASSETTE	
7	3-925-146-01	BUTTON (FF) (▶▶)		21	3-924-761-01	STRAP	
8	3-925-147-01	BUTTON (REW) (◀◀)		22	3-018-309-01	LID, BATTERY CASE	
9	3-925-148-01	BUTTON (PLAY) (▶)		23	3-018-308-11	CABINET (REAR) (EXCEPT Tourist)	
10	3-936-409-01	BUTTON (STOP) (■)		23	3-018-308-21	CABINET (REAR) (Tourist)	
11	3-925-145-11	BUTTON (REC) (●)		24	3-018-312-01	FOOT (A)	
12	3-578-242-11	WASHER		25	3-334-565-11	SCREW (B1.7X10), TAPPING	
13	3-936-405-01	LEVER (RELEASE)		26	3-023-856-01	FOOT (B)	
14	3-018-310-01	KNOB (PAUSE)		27	3-939-590-44	SCREW (IB LOCK)	

(2) CASSETTE LID BLOCK SECTION



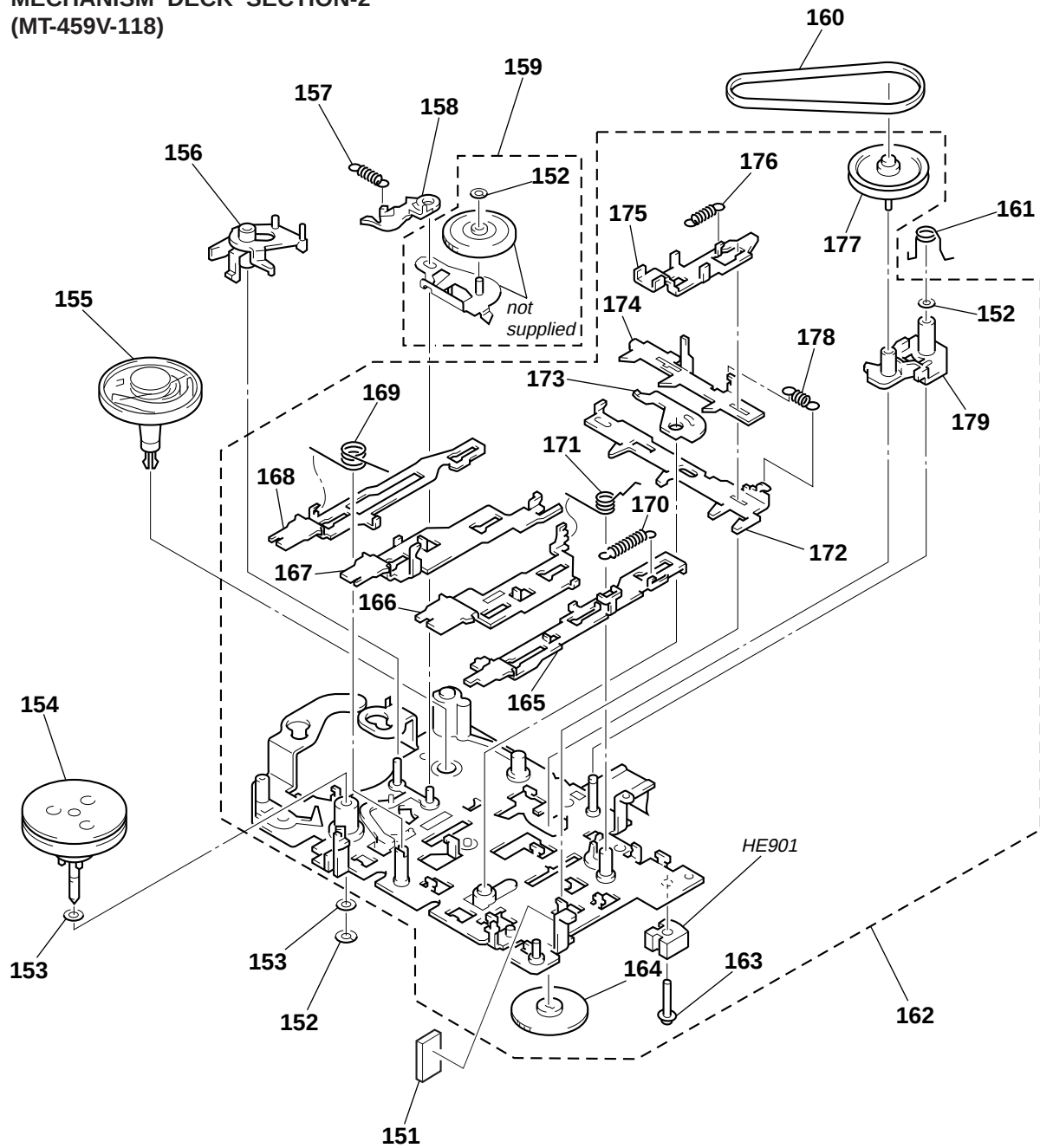
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-017-746-01	CASE (REAR), MICROPHONE		* 66	3-924-757-01	BRACKET (SPEAKER)	
52	3-018-523-01	SHAFT, FULCRUM		67	3-318-382-31	SCREW (1.7), TAPPING	
53	3-017-748-01	SPRING (FULCRUM SHAFT)		68	3-318-382-41	SCREW (1.7X3.7), TAPPING	
54	3-017-744-01	SPRING (MICROPHONE UP)		* 69	3-022-855-01	BRACKET (SHAFT)	
* 55	3-022-883-01	SHEET (HOLDER), ADHESIVE		* 70	A-3061-742-A	LED BOARD, COMPLETE	
56	3-022-858-01	HOLDER (CUSHION)		71	3-018-530-01	BUTTON (CUE)	
57	3-018-526-01	CUSHION (MICROPHONE)		72	3-024-379-01	SPRING (LEVER)	
58	3-018-525-01	BLIND (MICROPHONE)		73	3-017-741-01	LEVER (SELECTION)	
59	3-831-441-99	SPACER, KNOB		74	3-022-955-01	SPRING (LOCK)	
60	3-018-524-01	MESH (MICROPHONE)		75	3-017-742-01	PLATE (SELECTION), LOCK	
61	3-893-942-41	SCREW (1.7X3), TAPPING (B)		MIC101	1-542-298-11	MICROPHONE, ELECTRET CONDENSER (FLAT)	
62	3-017-745-01	CASE (FRONT), MICROPHONE		MIC301	1-542-348-11	MICROPHONE, ELECTRET CONDENSER (STANDING)	
63	3-017-740-01	KNOB (SELECTION)		SP901	1-505-838-11	SPEAKER (3.6CM)	
64	X-3375-894-1	LID SUB ASSY, CASSETTE					
65	4-017-441-01	CUSHION (B)					

(3) MECHANISM DECK SECTION-1
(MT-459V-118)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	X-3370-386-1	PINCH ROLLER ASSY		114	3-924-673-01	GEAR (S REEL)	
102	3-376-407-01	SCREW (M1.4)		115	3-924-637-01	GEAR (FF)	
103	3-018-522-01	BRACKET (COUNTER)		116	3-924-641-01	GEAR (T REEL)	
104	1-548-582-11	COUNTER, TAPE (SMALL TYPE)		117	3-924-726-01	SPRING (M GROUND), TORSION	
105	3-924-625-01	LEVER (HEAD)		118	3-924-681-01	BELT (CAPSTAN)	
106	3-924-685-01	SPRING (AZIMUTH), COMPRESSION		119	3-925-109-01	CUSHION (MOTOR)	
107	3-704-197-91	SCREW (IB LOCK)		120	3-925-108-01	SCREW (MOTOR)	
108	3-375-135-01	SCREW (1.4), SPECIAL		121	3-924-675-01	PULLEY (COUNTER)	
109	3-376-177-01	SCREW (M1.4X3.8)		122	3-924-683-01	BELT (COUNTER)	
110	3-924-645-01	BRACKET (HEAD)		123	3-924-644-01	SPRING (POWER TENSION), TENSION	
111	3-348-160-11	SCREW (M1.4X1.6), PRECISION PAN		HRP901	1-500-073-51	HEAD, MAGNETIC (RECORD/PLAYBACK)	
112	3-925-107-01	SPRING (IDLER), COMPRESSION		M901	1-698-588-11	MOTOR, DC (CAPSTAN/REEL)	
113	3-924-674-01	SPRING (B. T), COMPRESSION					

(4) MECHANISM DECK SECTION-2
(MT-459V-118)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	3-014-082-02	SPACER		166	3-924-623-01	LEVER (PLAY)	
152	3-321-483-11	RING, RETAINING		167	3-924-621-01	LEVER (REW)	
153	3-701-437-51	WASHER		168	3-924-620-01	LEVER (FF)	
154	X-3370-384-1	FLYWHEEL ASSY		169	3-924-642-01	SPRING (FR), TORSION	
155	X-3370-388-1	TABLE ASSY, FELT		170	3-925-208-01	SPRING (REC), TENSION	
156	3-924-629-01	LEVER (DETECTION)		171	3-924-643-01	SPRING (PR), TORSION	
157	3-925-207-01	SPRING (SHUT. OFF), TENSION		172	3-924-618-01	LEVER (LOCK)	
158	3-924-630-01	LEVER (S. OFF)		173	3-924-639-01	LEVER (CR)	
159	X-3370-387-5	LEVER ASSY, IDLER		174	3-924-619-01	LEVER (SW)	
160	3-924-682-01	BELT (FR)		175	3-924-622-01	LEVER (STOP)	
161	3-024-378-01	SPRING (FR LEVER), TORSION		176	3-924-633-01	SPRING (STOP), TENSION	
162	X-3375-018-1	CHASSIS SUB ASSY		177	X-3370-385-1	PULLEY (FR) ASSY	
163	3-703-925-21	SCREW (M1.4)		178	3-924-684-01	SPRING (LOCK PLATE), TENSION	
164	3-924-613-01	GEAR (FR)		179	3-924-628-01	LEVER (FR)	
165	3-924-624-01	LEVER (REC)		HE901	1-500-515-11	HEAD, MAGNETIC (ERASE)	

SECTION 7 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

- 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

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

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
*	A-3061-742-A	LED BOARD, COMPLETE *****						< SWITCH >			
	1-669-039-11	LED FLEXIBLE BOARD				S301	1-771-138-21	SWITCH, KEY BOARD (CUE MARKER)			
	3-018-529-01	SPRING, EARTH				S302	1-771-390-11	SWITCH, SLIDE (POP-UP MIC)			
		< CAPACITOR >				S401	1-572-922-11	SWITCH, SLIDE (VOR)	*****		
C311	1-164-222-11	CERAMIC CHIP	0.22uF	25V	*	A-3021-095-A	MAIN BOARD, COMPLETE *****				
C312	1-135-201-11	TANTALUM CHIP	10uF	20%	4V						
C314	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V						
C315	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V		3-008-612-01	TERMINAL, PLUS			
C316	1-164-336-11	CERAMIC CHIP	0.33uF		25V			< CAPACITOR >			
C317	1-135-201-11	TANTALUM CHIP	10uF	20%	4V						
C318	1-109-935-11	TANTALUM CHIP	4.7uF	20%	6.3V	C101	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C319	1-164-222-11	CERAMIC CHIP	0.22uF		25V	C102	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C322	1-163-038-91	CERAMIC CHIP	0.1uF		25V	C103	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
		< DIODE >				C105	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
D301	8-719-049-09	DIODE 1SS367-T3SONY				C106	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
D302	8-719-404-49	DIODE MA111-TX				C107	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
D501	8-719-057-99	LED SML-211YT-T86 (㏄)				C108	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
D502	8-719-059-96	LED SML-210LT-T86 (BATT •, REC)				C109	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
D503	8-719-059-96	LED SML-210LT-T86 (BATT ••)				C110	1-135-091-21	TANTALUM CHIP	1uF	20%	16V
		< SHORT >				C111	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
JC301	1-216-296-00	SHORT 0				C112	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
		< TRANSISTOR >				C113	1-164-005-11	CERAMIC CHIP	0.47uF		25V
						C114	1-164-346-11	CERAMIC CHIP	1uF		16V
						C115	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
						C116	1-164-346-11	CERAMIC CHIP	1uF		16V
Q308	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX				C117	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
		< RESISTOR >				C118	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
R316	1-216-041-00	METAL CHIP	470	5%	1/10W	C119	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
R317	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	C120	1-126-153-11	ELECT	22uF	20%	6.3V
R318	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	C121	1-163-205-00	CERAMIC CHIP	0.001uF	5%	50V
R319	1-216-099-00	METAL CHIP	120K	5%	1/10W	C124	1-124-259-11	ELECT	4.7uF	20%	16V
R320	1-216-025-00	METAL CHIP	100	5%	1/10W	C125	1-124-434-00	ELECT	220uF	20%	4V
						C126	1-164-346-11	CERAMIC CHIP	1uF		16V
R321	1-216-097-00	RES,CHIP	100K	5%	1/10W	C127	1-124-434-00	ELECT	220uF	20%	4V
R322	1-216-057-11	METAL CHIP	2.2K	5%	1/10W	C128	1-124-433-00	ELECT	100uF	20%	4V
R323	1-216-049-11	RES,CHIP	1K	5%	1/10W	C129	1-126-153-11	ELECT	22uF	20%	6.3V
R324	1-216-097-00	RES,CHIP	100K	5%	1/10W	C130	1-163-035-00	CERAMIC CHIP	0.047uF		50V
R325	1-216-049-11	RES,CHIP	1K	5%	1/10W	C132	1-164-346-11	CERAMIC CHIP	1uF		16V
						C134	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
						C136	1-164-346-11	CERAMIC CHIP	1uF		16V

Ref. No.	Part No.	Description				Remark	Ref. No.	Part No.	Description				Remark
C137	1-164-346-11	CERAMIC CHIP	1uF		16V		Q301	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX			
C138	1-164-346-11	CERAMIC CHIP	1uF		16V								
C140	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V		Q302	8-729-402-96	TRANSISTOR	UN5114-TX			
C141	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V		Q303	8-729-402-93	TRANSISTOR	UN5214-TX			
C142	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V		Q304	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX			
							Q305	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX			
C145	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V		Q306	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX			
C146	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V								
C301	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V		Q401	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX			
C302	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V		Q402	8-729-420-50	TRANSISTOR	UN5215-(TX)			
C303	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V		Q501	8-729-402-93	TRANSISTOR	UN5214-TX			
							Q502	8-729-403-17	TRANSISTOR	XN1215-TX			
C304	1-163-038-00	CERAMIC CHIP	0.1uF		25V		Q503	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX			
C305	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V								
C306	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V				< RESISTOR >				
C307	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V								
C308	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V		R101	1-216-065-00	RES,CHIP	4.7K	5%	1/10W	
							R103	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
C309	1-164-346-11	CERAMIC CHIP	1uF		16V		R104	1-216-073-00	METAL CHIP	10K	5%	1/10W	
C320	1-163-081-00	CERAMIC CHIP	0.22uF		25V		R105	1-216-025-00	RES,CHIP	100	5%	1/10W	
C321	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V		R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
C401	1-126-153-11	ELECT	22uF	20%	6.3V								
C402	1-124-257-00	ELECT	2.2uF	20%	50V		R108	1-216-085-00	METAL CHIP	33K	5%	1/10W	
							R109	1-216-027-00	METAL CHIP	120	5%	1/10W	
C403	1-164-505-11	CERAMIC CHIP	2.2uF		16V		R110	1-216-037-00	METAL CHIP	330	5%	1/10W	
C501	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V		R111	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
C502	1-135-201-11	TANTALUM CHIP	10uF	20%	4V		R112	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
C503	1-164-346-11	CERAMIC CHIP	1uF		16V								
C504	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V		R113	1-216-081-00	METAL CHIP	22K	5%	1/10W	
							R114	1-216-065-00	RES,CHIP	4.7K	5%	1/10W	
C505	1-126-157-11	ELECT	10uF	20%	16V		R116	1-216-089-00	RES,CHIP	47K	5%	1/10W	
		< JACK/CONNECTOR >					R117	1-216-065-00	RES,CHIP	4.7K	5%	1/10W	
							R118	1-216-009-00	METAL CHIP	22	5%	1/10W	
CN101	1-750-061-11	JACK, DC (POLARITY UNIFIED TYPE)					R119	1-216-121-00	RES,CHIP	1M	5%	1/10W	
					(DC IN 3V)		R122	1-216-081-00	METAL CHIP	22K	5%	1/10W	
* CN102	1-691-378-21	CONNECTOR, FFC/FPC 14P					R123	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
		< FERRITE BEAD >					R130	1-216-097-00	RES,CHIP	100K	5%	1/10W	
							R131	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	
FB101	1-414-235-11	INDUCTOR CHIP	0UH				R132	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
FB102	1-414-235-11	INDUCTOR CHIP	0UH				R133	1-216-045-00	METAL CHIP	680	5%	1/10W	
		< IC >					R134	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
							R136	1-216-097-00	RES,CHIP	100K	5%	1/10W	
IC101	8-759-492-49	IC	LA4168ML-TE-L				R137	1-216-073-00	METAL CHIP	10K	5%	1/10W	
IC501	8-759-399-49	IC	MM1251BFBE				R141	1-216-073-00	METAL CHIP	10K	5%	1/10W	
		< JACK >					R142	1-216-023-00	METAL CHIP	82	5%	1/10W	
							R143	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
J101	1-766-847-11	JACK (EAR)					R301	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
J102	1-766-847-11	JACK (MIC (PLUG IN POWER))					R302	1-216-113-00	METAL CHIP	470K	5%	1/10W	
		< COIL >					R303	1-216-129-00	METAL CHIP	2.2M	5%	1/10W	
							R304	1-216-109-00	METAL CHIP	330K	5%	1/10W	
L501	1-412-032-11	INDUCTOR CHIP	100uH				R305	1-216-081-00	METAL CHIP	22K	5%	1/10W	
		< TRANSISTOR >					R306	1-216-081-00	METAL CHIP	22K	5%	1/10W	
							R307	1-216-111-00	METAL CHIP	390K	5%	1/10W	
							R308	1-216-095-00	METAL CHIP	82K	5%	1/10W	
Q101	8-729-800-37	TRANSISTOR	2SD1048X7-TB				R309	1-216-095-00	METAL CHIP	82K	5%	1/10W	
Q102	8-729-402-84	TRANSISTOR	XN4601-TX				R310	1-216-095-00	METAL CHIP	82K	5%	1/10W	
Q103	8-729-420-50	TRANSISTOR	UN5215-(TX)				R311	1-216-095-00	METAL CHIP	82K	5%	1/10W	
Q104	8-729-230-72	TRANSISTOR	2SA1362-YG-EL				R312	1-216-101-00	METAL CHIP	150K	5%	1/10W	
Q106	8-729-800-37	TRANSISTOR	2SD1048X7-TB										
							R313	1-216-065-00	RES,CHIP	4.7K	5%	1/10W	
Q107	8-729-420-53	TRANSISTOR	UN5115-(TX)				R314	1-216-073-00	METAL CHIP	10K	5%	1/10W	
Q108	8-729-402-93	TRANSISTOR	UN5214-TX				R315	1-216-295-00	SHORT	0			
Q109	8-729-402-96	TRANSISTOR	UN5114-TX				R326	1-216-025-00	RES,CHIP	100	5%	1/10W	
Q110	8-729-420-50	TRANSISTOR	UN5215-(TX)				R401	1-216-105-00	RES,CHIP	220K	5%	1/10W	

MAIN

Ref. No.	Part No.	Description	Remark		
R402	1-216-097-00	RES,CHIP	100K	5%	1/10W
R501	1-216-107-00	METAL CHIP	270K	5%	1/10W
R502	1-216-103-00	METAL CHIP	180K	5%	1/10W
R503	1-216-081-00	METAL CHIP	22K	5%	1/10W
R504	1-216-082-00	RES,CHIP	24K	5%	1/10W
R505	1-216-033-00	METAL CHIP	220	5%	1/10W
R506	1-216-037-00	METAL CHIP	330	5%	1/10W
R507	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R508	1-216-037-00	METAL CHIP	330	5%	1/10W
R509	1-216-045-00	METAL CHIP	680	5%	1/10W
R510	1-216-041-00	METAL CHIP	470	5%	1/10W
R511	1-216-075-00	METAL CHIP	12K	5%	1/10W
R512	1-216-081-00	METAL CHIP	22K	5%	1/10W
R513	1-216-009-00	METAL CHIP	22	5%	1/10W
R514	1-216-021-00	METAL CHIP	68	5%	1/10W
R601	1-216-295-00	SHORT	0		
R602	1-216-049-11	RES,CHIP	1K	5%	1/10W
R603	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
< VARIABLE RESISTOR >					
RV101	1-225-597-11	RES, VAR, CARBON 10K (VOL)			
RV601	1-223-992-21	RES, CARBON ADJ VAR 2.2K			
RV602	1-225-598-11	RES, VAR, CARBON 2K (SPEED CONTROL)			
< SWITCH >					
S101	1-771-321-11	SWITCH, SLIDE (REC/PB)			
S102	1-771-092-21	SWITCH, PUSH (1 KEY) (POWER)			
S105	1-572-922-11	SWITCH, SLIDE (PAUSE)			
< THERMISTOR(POSITIVE) >					
THP601	1-810-007-11	THERMISTOR, POSITIVE			
THP602	1-803-117-11	THERMISTOR, POSITIVE			

MISCELLANEOUS					

HE901	1-500-515-11	HEAD, MAGNETIC (ERASE)			
HRP901	1-500-073-51	HEAD, MAGNETIC (RECORD/PLAYBACK)			
M901	1-698-588-11	MOTOR, DC (CAPSTAN/REEL)			
MIC101	1-542-298-11	MICROPHONE, ELECTRET CONDENSER (FLAT)			
MIC301	1-542-348-11	MICROPHONE, ELECTRET CONDENSER			
		(STANDING)			
SP901	1-505-838-11	SPEAKER (3.6CM)			

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	

3-862-203-11		MANUAL, INSTRUCTION (ENGLISH)	(US, AEP, EE)
3-862-203-21		MANUAL, INSTRUCTION (ENGLISH, FRENCH)	(Canadian, E, Tourist)
3-862-203-31		MANUAL, INSTRUCTION (FRENCH, SPANISH, PORTUGUESE, ITALIAN) (AEP)	
3-862-203-41		MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH, FINNISH) (AEP, EE)	
3-862-203-51		MANUAL, INSTRUCTION	(SPANISH, PORTUGUESE, CHINESE, KOREAN) (E, Tourist)
3-862-203-71		MANUAL, INSTRUCTION	(POLISH, RUSSIAN, HUGARIAN, CZECH) (EE)