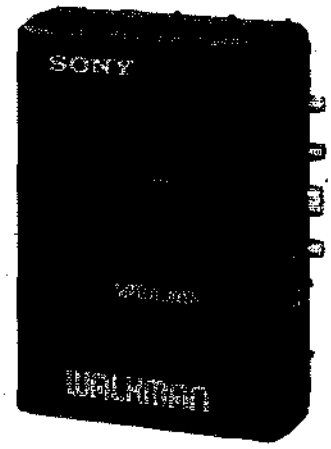
WM-B47

SERVICE MANUAL

UK Model
E Model
AEP Model



Model Name Using Similar Mechanism	New Mechanism
Tape Transport Mechanism Type	MT-WMA26-19

SPECIFICATIONS

Power requirements 3 V DC Batteries R6 (AA) × 2
BP-700 rechargeable battery
External DC 3 V power sources

Battery life
(Approximate hours)

Sony Alkaline AM3 (N)	8 hrs.
Rechargeable BP-700	2 hrs.

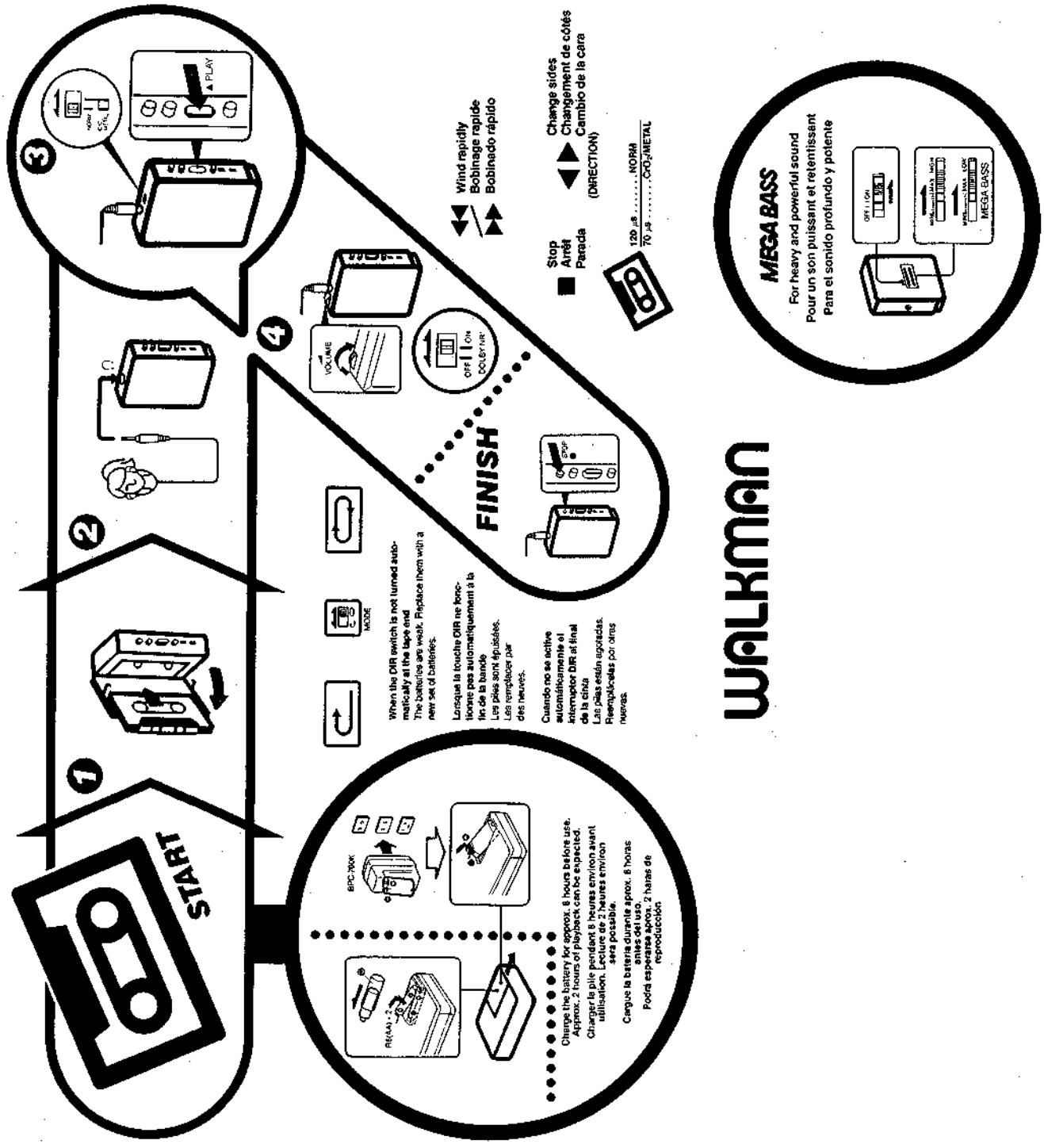
Accessories supplied Stereo headphones (open-air type, 1) Beltclip (1) Battery tube (1)

Note
This appliance conforms with EEC Directives 76/889 and 82/499 regarding interference suppression.

CASSETTE PLAYER

SONY®

SECTION 1
GENERAL



Notes on chip component replacement

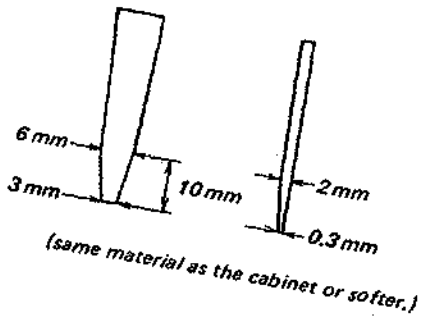
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

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.

SECTION 2
OUTLINE

Note: • Follow the disassembly procedure in the numerical order given.
• It is recommended to prepare a plastic wedge shown below for rear cabinet removal.
(Using a precision screwdriver for a plastic wedge may flaw the cabinet face.)



(same material as the cabinet or softer.)

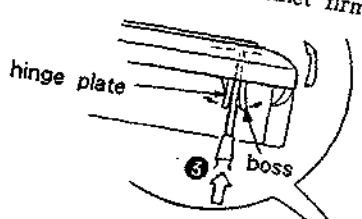
a plastic wedge

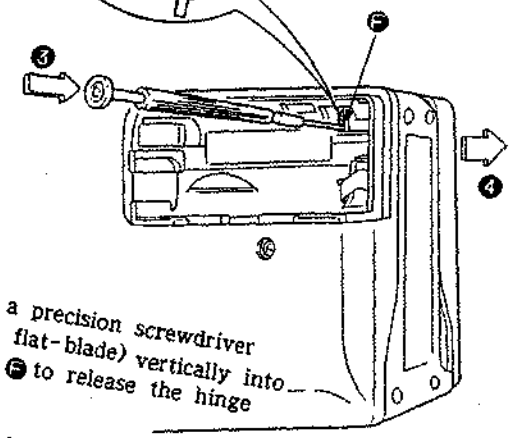
• *Demensions are for a reference.*

CASSETTE HOLDER

❶ Remove the battery lid.

❷ Hold the front cabinet firmly.

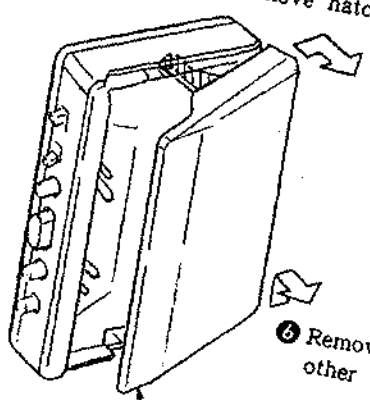




❸ Insert a precision screwdriver (1.4mm flat-blade) vertically into portion ⓕ to release the hinge plate.

❹ Remove bottom side of the cassette holder slowly.

❺ Remove hatched portion.

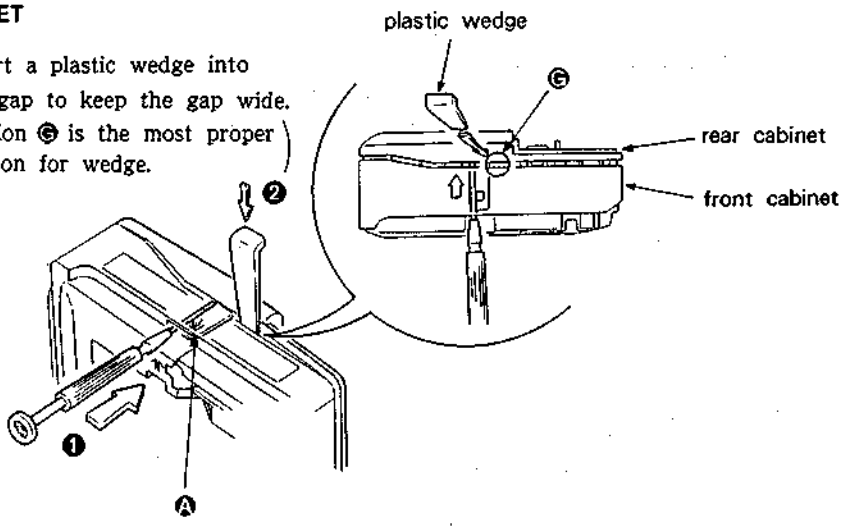


❻ Remove the other side.

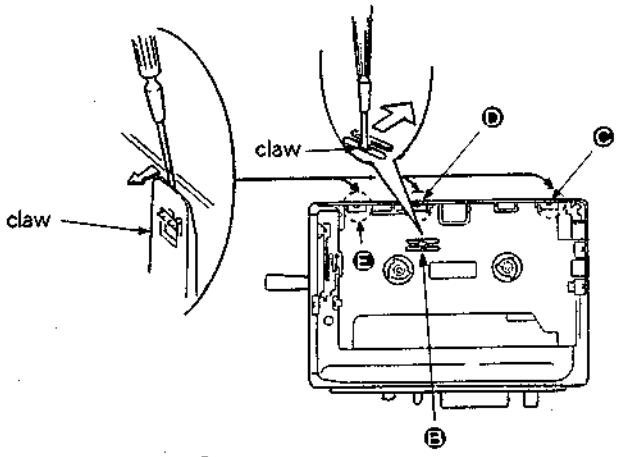
cassette holder

REAR CABINET

❷ Insert a plastic wedge into the gap to keep the gap wide. (Portion Ⓒ is the most proper portion for wedge.



❶ Insert the screwdriver into the slit at claw Ⓐ, and release the claw.

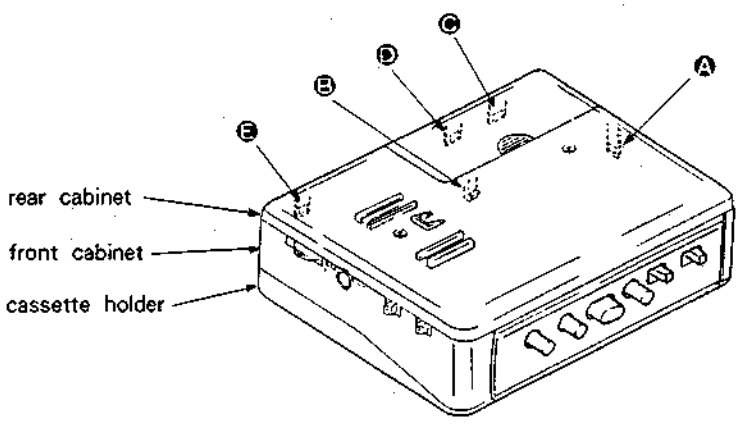


❸ Release all claws Ⓑ to Ⓔ in the alphabetical order.

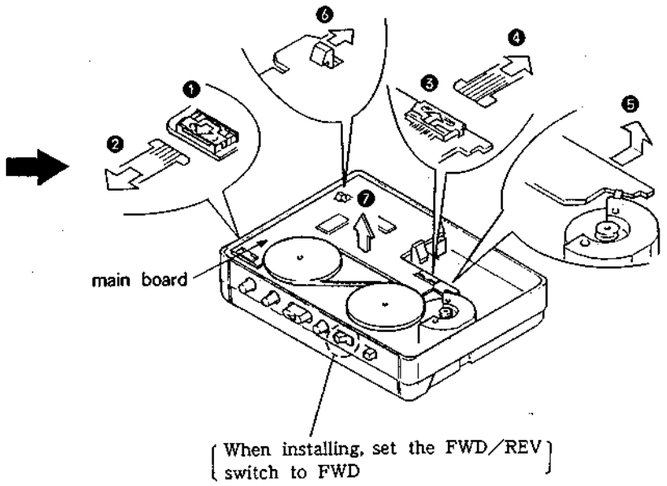
❹ Remove the rear cabinet.

Location and Shape of Claws.

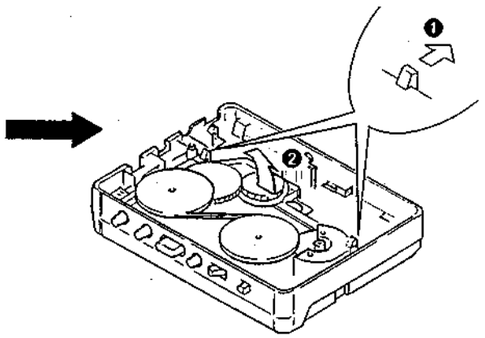
Ⓐ to Ⓔ: claws



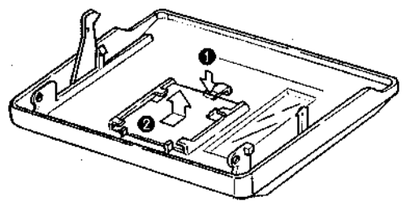
MAIN BOARD



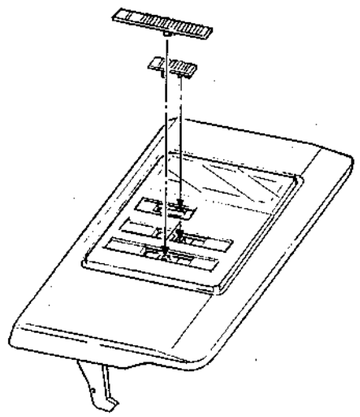
MECHANISM DECK



DBB UNIT

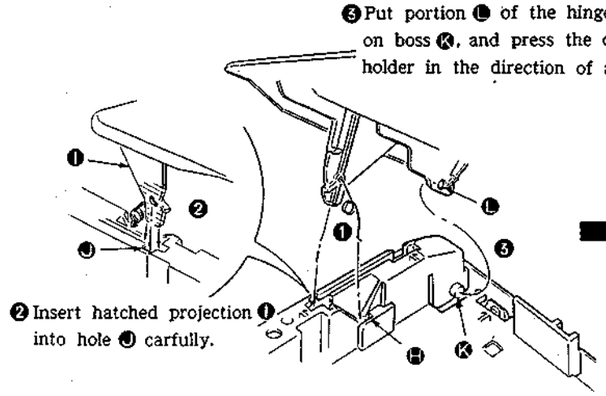


(caution on installing)

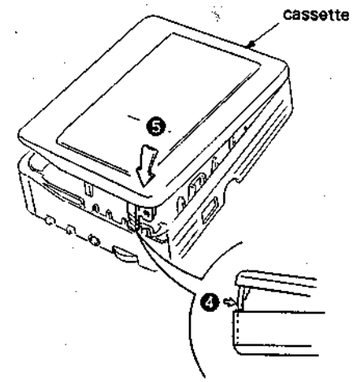


2 – 2. ASSEMBLY

CASSETTE HOLDER



❶ Insert the end of the spring into a small hole at the bottom of portion Ⓗ.



❺ Depress the cassette holder aga the front cabinet a little hard shown by arrow ❺.

❹ On the volume side, push the hatched pc lightly in the direction of arrow ❹ into front cabinet.

SECTION 3
ADJUSTMENTS

3 – 1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denaturedalcoholmoistened swab:
   playback head — pinch roller
   capstan — rubber belts
2. Demagnetize the playback head with a head demagnetizer.
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 (2.5V) unless otherwise noted.

Torque Measurement

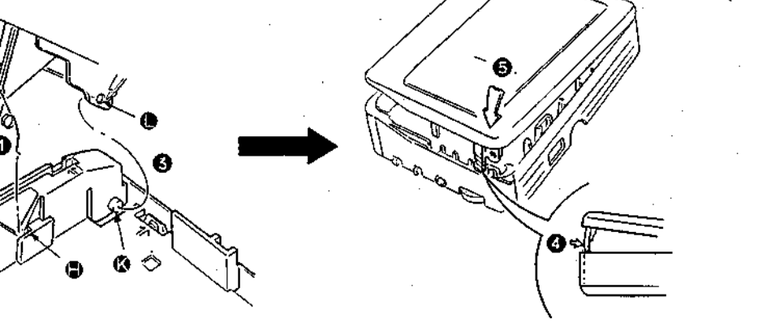
Mode	Torque meter	Meter reading
FWD	CQ-102C	20–35 g•cm (0.28–0.48 oz • inch
FWD Back Tension		less than 3 g•cm (less than 0.04 oz•inch)
REV	CQ-102RB	20–35 g•cm (0.28–0.48 oz • inch
REV Back Tension		less than 3 g•cm (less than 0.04 oz•inch)
FF, REW	CQ-201B	more than 60 g•cm (more than 0.83 oz•inch

Tape Tension Measurement

Mode	Tension meter	Meter reading
FWD	CQ-403A	more than 65 g (more than 2.3 oz)
REV	CQ-403R	

❺Depress the cassette holder against the front cabinet a little hard as shown by arrow ❺.

❸Put portion Ⓛ of the hinge plate on boss Ⓚ, and press the cassette holder in the direction of arrow Ⓗ.



ing into a small hole Ⓗ.

❹On the volume side, push the hatched portion lightly in the direction of arrow ❹ into the front cabinet.

SECTION 3
ADJUSTMENTS

s

uredalcoholmoistened

roller
r belts
ead demagnetizer.
the adjustments.
locking compound to

with the rated power.
oted.

Torque Measurement

Mode	Torque meter	Meter reading
FWD	CQ-102C	20–35 g·cm (0.28–0.48 oz·inch)
FWD Back Tension		less than 3 g·cm (less than 0.04 oz·inch)
REV	CQ-102RB	20–35 g·cm (0.28–0.48 oz·inch)
REV Back Tension		less than 3 g·cm (less than 0.04 oz·inch)
FF, REW	CQ-201B	more than 60 g·cm (more than 0.83 oz·inch)

Tape Tension Measurement

Mode	Tension meter	Meter reading
FWD	CQ-403A	more than 65 g (more than 2.3 oz)
REV	CQ-403R	

3 – 2. ELECTRICAL ADJUSTMENTS

PRECAUTION

- Supplied voltage : 2.5V
- Switch and control position

  TAPE switch : NORM

  VOLUME CONTROL : maximum

TEST TAPE

Type	Signal	Used for
WS-48A	3 kHz, 0 dB	Tape Speed Adjustment
P-4-A100	10 kHz, -10 dB	Playback Head Azimuth check

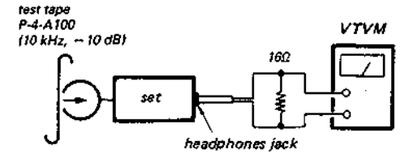
PLAYBACK HEAD AZIMUTH CHECK

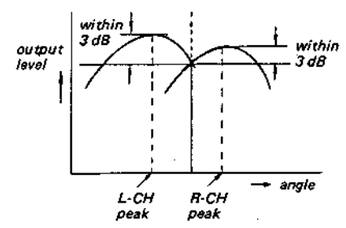
- **Perform this check both in FWD and REV mode.**

Note: This set is not featured the head azimuth adjustment.
When replacing the head, check the both L-ch and R-ch output levels and also those phases.

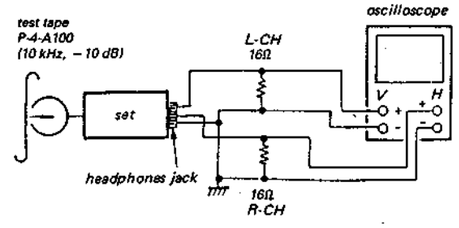
Procedure:

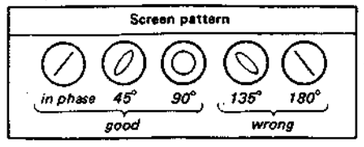
1. Level Check
   Mode: playback





2. Phase Check
   Mode: playback

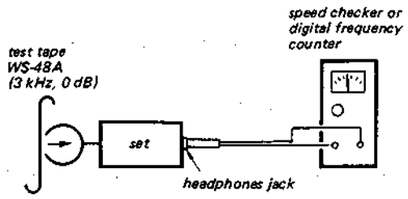




TAPE SPEED ADJUSTMENT

Procedure:

Mode: playback

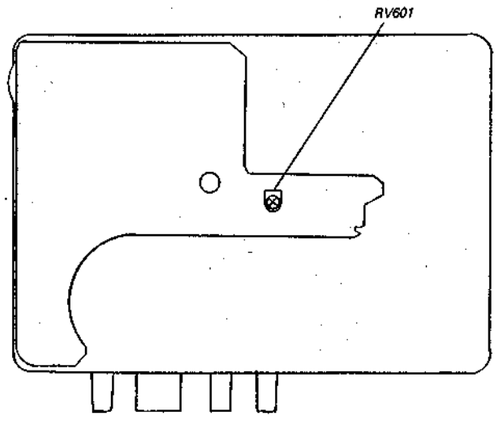


Specification:

speed checker	digital frequency counter
±1%	2,970 – 3,030 Hz

Frequency difference between the beginning and the end of the tape should be within ±2.5% (±75 Hz).

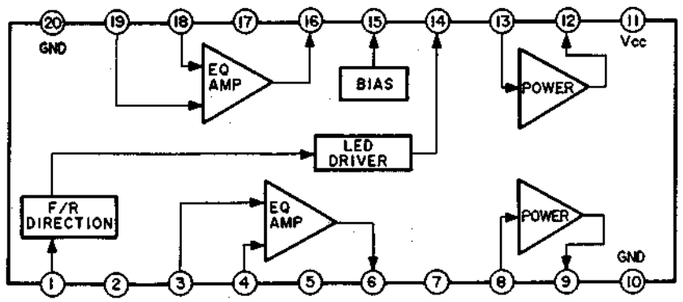
Adjustment Location: main board



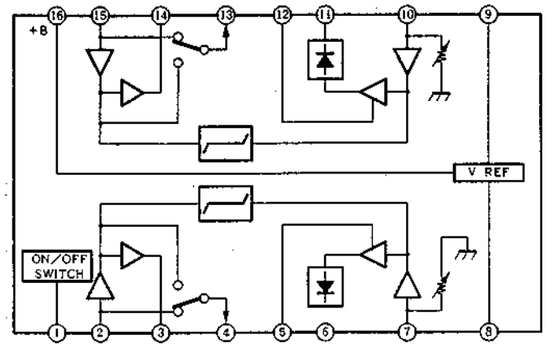
SECTION 4
DIAGRAMS

4 – 1. IC BLOCK DIAGRAMS

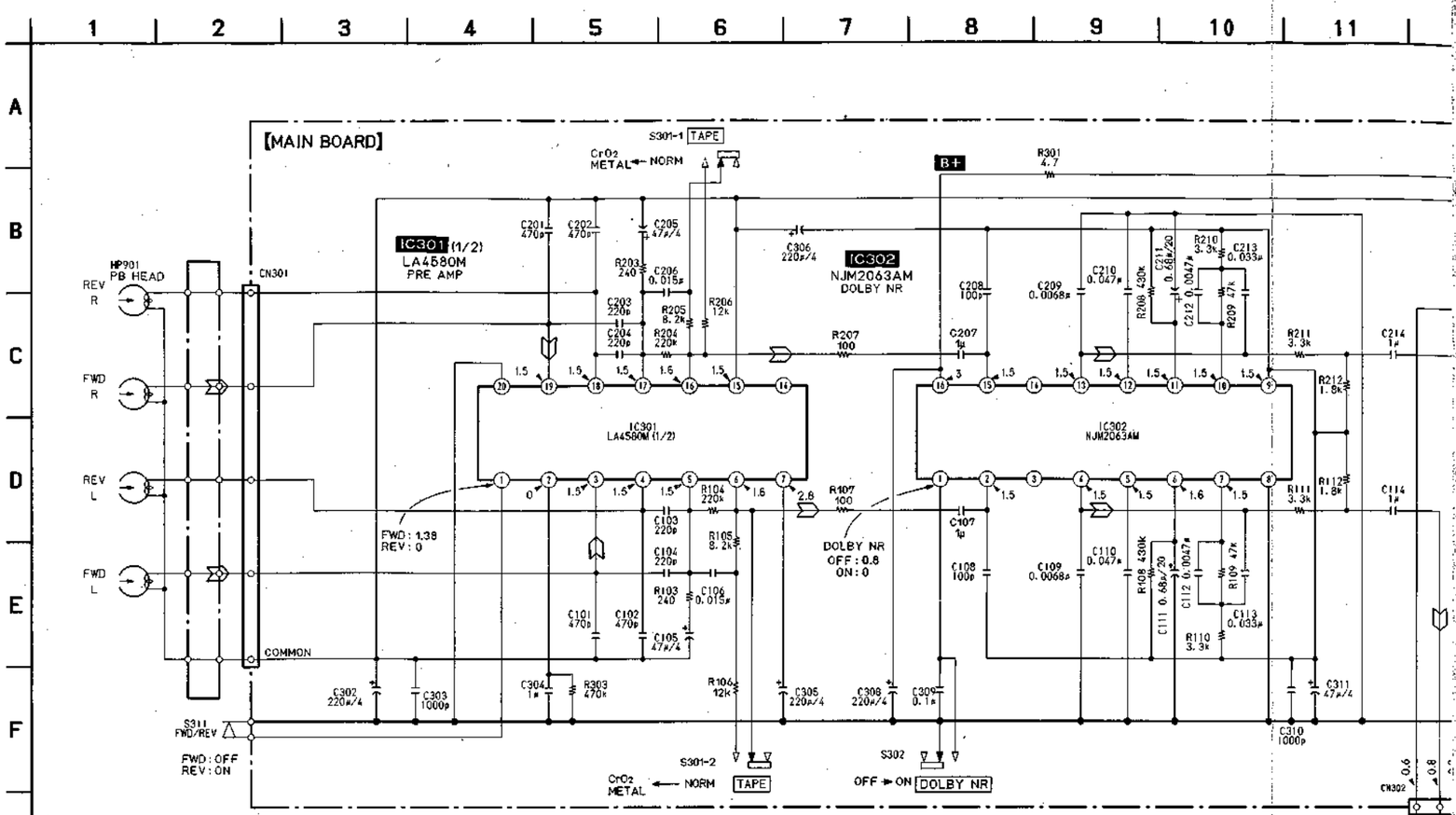
LA4580M

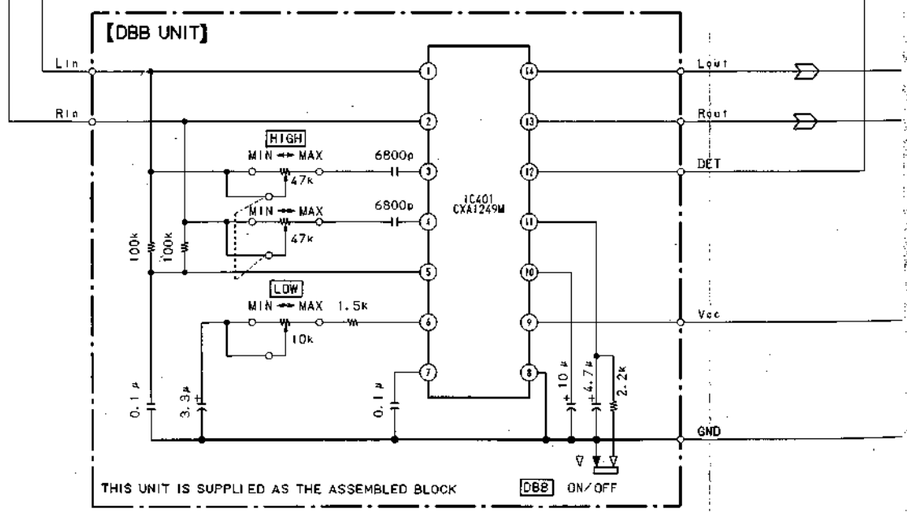


NJM-2063AM



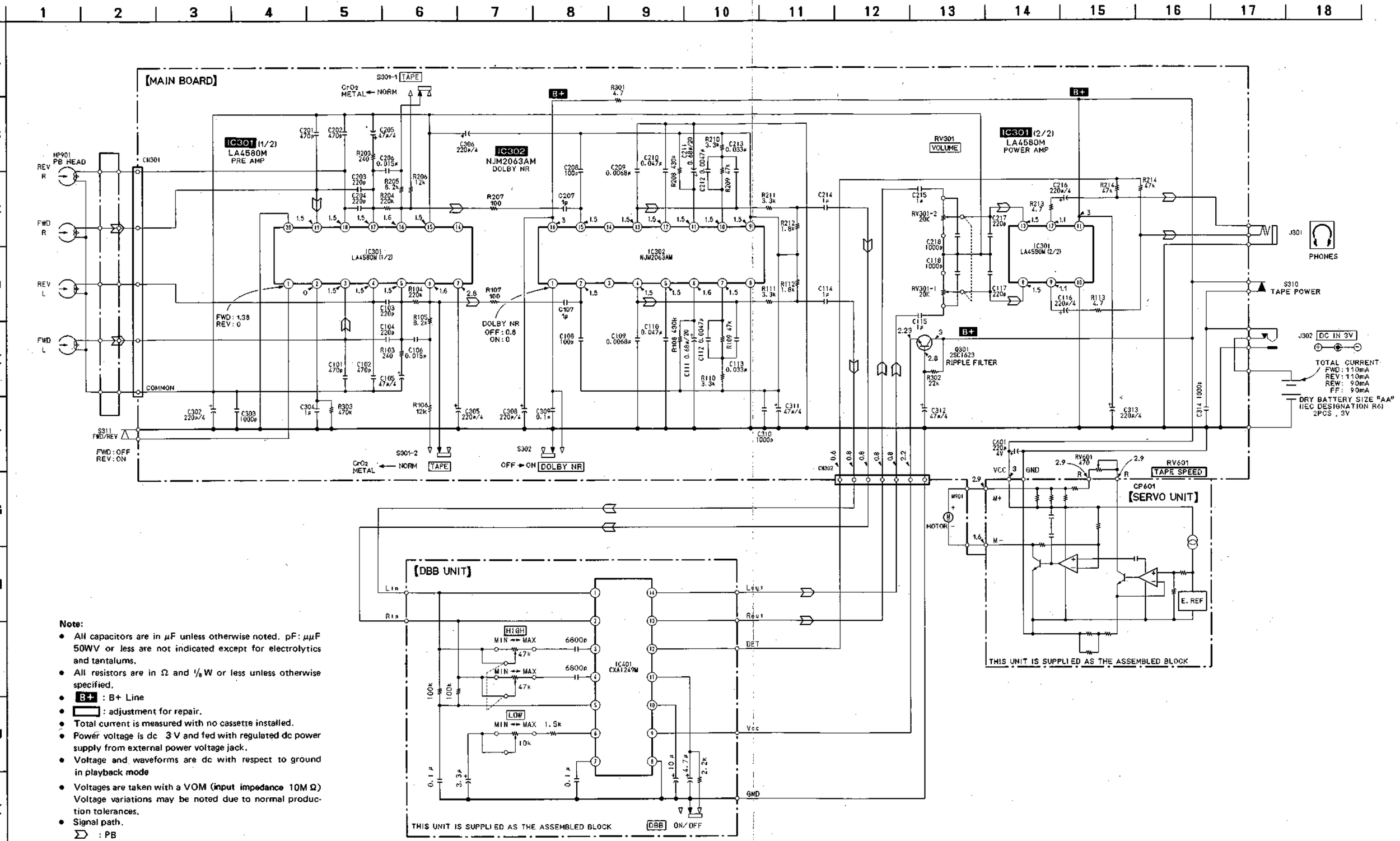
4 – 2. SCHEMATIC DIAGRAM





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 1/8 W or less unless otherwise specified.
- 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.
- Voltage and waveforms are dc with respect to ground in playback mode
- Voltages are taken with a VOM (input impedance 10M Ω) Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ▷ : PB



Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
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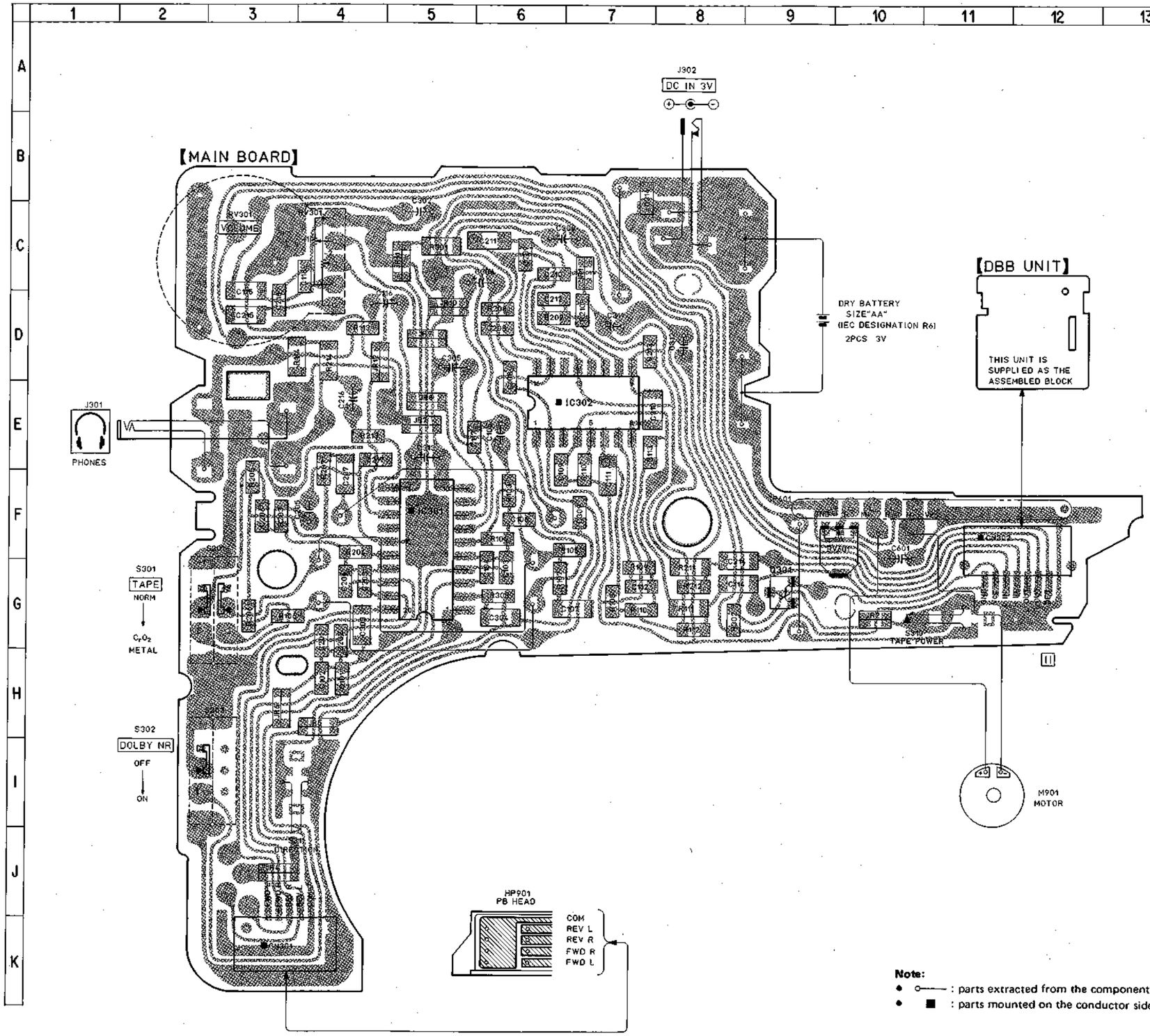
- Voltage and waveforms are dc with respect to ground in playback mode
- Voltages are taken with a VOM (input impedance 10M Ω) Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ▷ : PB

4 – 3. PRINTED WIRING BOARDS



Semiconductor Location

Ref. No.	Location
IC301	F – 5
IC302	E – 6
Q301	G – 9

Note:

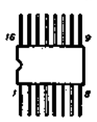
- ○—— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.

Semiconductor Lead Layouts

LA4580M

2SC1623

NJM2063AM

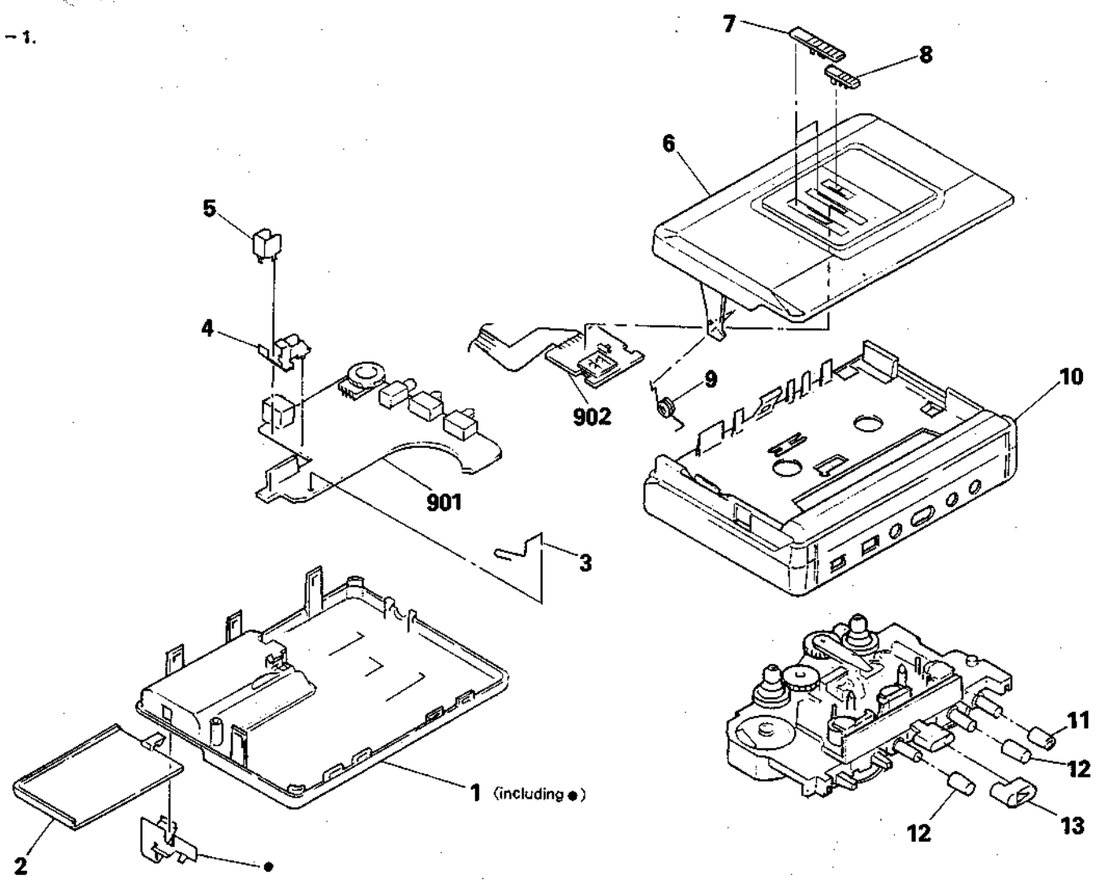


SECTION 5
EXPLODED VIEWS

NOTE:

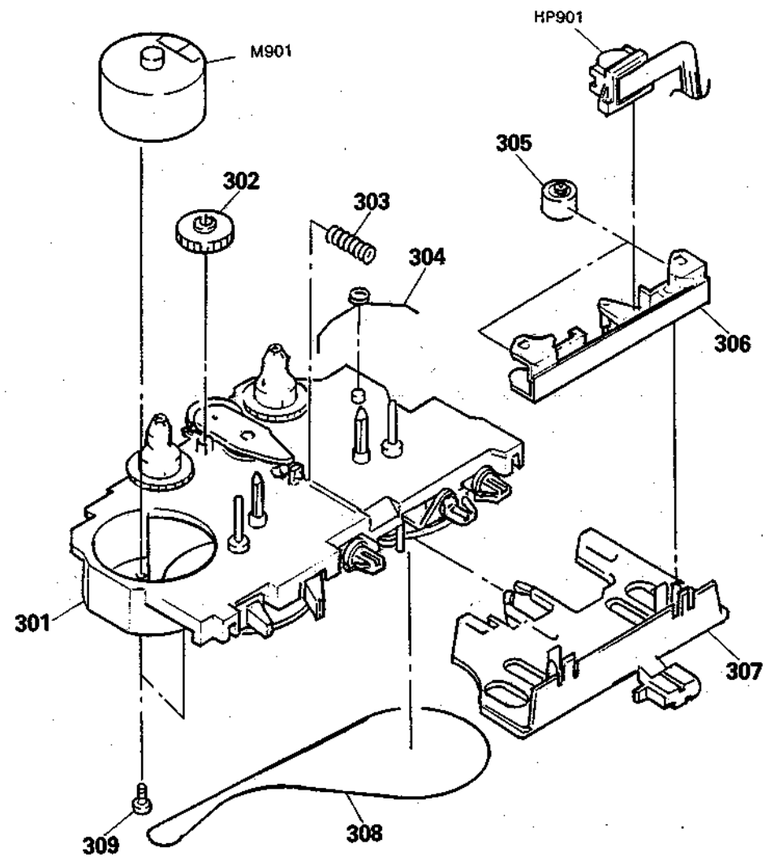
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts Color

5 – 1.



No.	Part No.	Description	Remarks
1	X-3346-720-1	(BLK)...CABINET (REAR) (TC) ASSY	
	X-3346-750-1	(GRY)...CABINET (REAR) (TC) ASSY	
2	3-351-535-01	(BLK)...LID, BATTERY CASE	
	3-351-535-11	(GRY)...LID, BATTERY CASE	
3	3-351-739-01	SPRING	
4	3-351-531-01	TERMINAL BOARD (M), BATTERY	
5	3-351-530-01	TERMINAL BOARD (P), BATTERY	
6	X-3346-719-1	(BLK)...HOLDER (TC-B) ASSY, CASSETTE	
	X-3346-749-1	(GRY)...HOLDER (TC-B) ASSY, CASSETTE	
7	3-351-534-01	KNOB (SLIDE)	
8	3-351-533-01	KNOB (DBB)	
9	3-351-523-01	SPRING, TORSION	
10	X-3346-721-1	CABINET (FRONT) (TC) ASSY	
11	3-351-529-11	BUTTON (S)	
12	3-351-528-11	BUTTON (FR)	
13	3-351-527-11	BUTTON (P)	
901	A-3015-728-A	PC BOARD ASSY, MAIN	
902	1-466-101-11	DBB UNIT	

5 – 2. MECHANISM DECK (MT-WMA26-19)



No.	Part No.	Description	Remarks
301	X-3346-795-1	CHASSIS SUB ASSY	
302	3-351-597-01	GEAR (R)	
303	3-351-715-01	SPRING (PLAY), COMPRESSION	
304	3-351-710-01	SPRING (PREVENTION), TORSION	
305	3-351-701-01	PINCH ROLLER	
306	3-351-732-01	PINCH LEVER	
307	3-351-733-01	LEVER, PLAY	
308	3-351-599-11	BELT	
309	7-627-852-38	SCREW, PRECISION +P1.7X1.8 TYPE3	
HP901	1-543-596-11	HEAD, MAGNETIC (PLAYBACK)	
M901	1-541-648-11	MOTOR, DC	

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.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

Ref.No.	Part No.	Description		
901	A-3015-728-A	PC BOARD ASSY, MAIN		
902	1-466-101-11	DBB UNIT		
C101	1-163-133-00	CERAMIC CHIP 470PF	10%	50V
C102	1-163-133-00	CERAMIC CHIP 470PF	10%	50V
C103	1-163-125-00	CERAMIC CHIP 220PF	10%	50V
C104	1-163-125-00	CERAMIC CHIP 220PF	10%	50V
C105	1-124-432-00	ELECT 47MF	20%	4V
C106	1-163-023-00	CERAMIC CHIP 0.015MF	5%	50V
C107	1-162-638-11	CERAMIC CHIP 1MF		16V
C108	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C109	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C110	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C111	1-135-087-21	TANTAL. CHIP 0.68MF	10%	20V
C112	1-163-017-00	CERAMIC CHIP 0.0047MF	5%	50V
C113	1-163-989-11	CERAMIC CHIP 0.033MF	5%	25V
C114	1-162-638-11	CERAMIC CHIP 1MF		16V
C115	1-162-638-11	CERAMIC CHIP 1MF		16V
C116	1-124-434-00	ELECT 220MF	20%	4V
C117	1-163-125-00	CERAMIC CHIP 220PF	10%	50V
C118	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C201	1-163-133-00	CERAMIC CHIP 470PF	10%	50V
C202	1-163-133-00	CERAMIC CHIP 470PF	10%	50V
C203	1-163-125-00	CERAMIC CHIP 220PF	10%	50V
C204	1-163-125-00	CERAMIC CHIP 220PF	10%	50V
C205	1-124-432-00	ELECT 47MF	20%	4V
C206	1-163-023-00	CERAMIC CHIP 0.015MF	5%	50V
C207	1-162-638-11	CERAMIC CHIP 1MF		16V
C208	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C209	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C210	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C211	1-135-087-21	TANTAL. CHIP 0.68MF	10%	20V
C212	1-163-017-00	CERAMIC CHIP 0.0047MF	5%	50V
C213	1-163-989-11	CERAMIC CHIP 0.033MF	5%	25V
C214	1-162-638-11	CERAMIC CHIP 1MF		16V
C215	1-162-638-11	CERAMIC CHIP 1MF		16V
C216	1-124-434-00	ELECT 220MF	20%	4V
C217	1-163-125-00	CERAMIC CHIP 220PF	10%	50V
C218	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C302	1-124-434-00	ELECT 220MF	20%	4V
C303	1-163-205-00	CERAMIC CHIP 0.001MF	10%	50V
C304	1-162-638-11	CERAMIC CHIP 1MF		16V
C305	1-124-434-00	ELECT 220MF	20%	4V
C306	1-124-434-00	ELECT 220MF	20%	4V
C308	1-124-434-00	ELECT 220MF	20%	4V
C309	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C310	1-163-205-00	CERAMIC CHIP 0.001MF	10%	50V
C311	1-124-432-00	ELECT 47MF	20%	4V
C312	1-124-432-00	ELECT 47MF	20%	4V
C313	1-124-434-00	ELECT 220MF	20%	4V
C314	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C601	1-124-434-00	ELECT 220MF	20%	4V
CN301	*1-565-370-11	HOUSING, CONNECTOR 5P		
CN302	*1-565-380-11	HOUSING, CONNECTOR 7P		
CP601	1-466-100-11	SERVO UNIT		
HP901	1-543-596-11	HEAD, MAGNETIC (PLAYBACK)		
IC301	8-759-820-66	IC LA4580M		
IC302	8-759-701-07	IC NJM2063AM		
J301	1-565-287-11	JACK (PHONES)		
J302	1-565-286-11	JACK, OUTER POWER (DC IN 3V)		
JR1	1-216-295-00	METAL GLAZE 0	5%	1/10W
JR2	1-216-295-00	METAL GLAZE 0	5%	1/10W
JR4	1-216-296-00	METAL GLAZE 0	5%	1/8W
JR5	1-216-296-00	METAL GLAZE 0	5%	1/8W
JR6	1-216-296-00	METAL GLAZE 0	5%	1/8W
JR7	1-216-296-00	METAL GLAZE 0	5%	1/8W
JR8	1-216-296-00	METAL GLAZE 0	5%	1/8W
JR9	1-216-296-00	METAL GLAZE 0	5%	1/8W
JR10	1-216-296-00	METAL GLAZE 0	5%	1/8W
JR11	1-216-296-00	METAL GLAZE 0	5%	1/8W
JR12	1-216-296-00	METAL GLAZE 0	5%	1/8W
M901	1-541-648-11	MOTOR, DC		
Q301	8-729-100-66	TRANSISTOR 2SC1623L6		
R103	1-216-034-00	METAL GLAZE 240	5%	1/10W
R104	1-216-105-00	METAL GLAZE 220K	5%	1/10W
R105	1-216-071-00	METAL GLAZE 8.2K	5%	1/10W
R106	1-216-075-00	METAL GLAZE 12K	5%	1/10W
R107	1-216-025-00	METAL GLAZE 100	5%	1/10W
R108	1-216-112-00	METAL GLAZE 430K	5%	1/10W
R109	1-216-089-00	METAL GLAZE 47K	5%	1/10W
R110	1-216-061-00	METAL GLAZE 3.3K	5%	1/10W
R111	1-216-210-00	METAL GLAZE 3.3K	5%	1/8W
R112	1-216-055-00	METAL GLAZE 1.8K	5%	1/10W
R113	1-216-308-00	METAL GLAZE 4.7	5%	1/10W
R114	1-216-238-00	METAL GLAZE 47K	5%	1/8W
R203	1-216-034-00	METAL GLAZE 240	5%	1/10W
R204	1-216-105-00	METAL GLAZE 220K	5%	1/10W
R205	1-216-071-00	METAL GLAZE 8.2K	5%	1/10W

Ref.No.	Part No.	Description			
R206	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R207	1-216-025-00	METAL GLAZE	100	5%	1/10W
R208	1-216-112-00	METAL GLAZE	430K	5%	1/10W
R209	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R210	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R211	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W
R212	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R213	1-216-308-00	METAL GLAZE	4.7	5%	1/10W
R214	1-216-238-00	METAL GLAZE	47K	5%	1/8W
R301	1-216-142-00	METAL GLAZE	4.7	5%	1/8W
R302	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R303	1-216-113-00	METAL GLAZE	470K	5%	1/10W
RV301	1-238-490-11	RES, VAR 20K/20K (VOLUME)			
RV601	1-238-237-11	RES, ADJ, CERMET 470 (TAPE SPEED)			
S301	1-571-478-11	SWITCH, SLIDE (TAPE)			
S302	1-571-478-11	SWITCH, SLIDE (DOLBY NR)			
S310	1-571-859-11	SWITCH, LEAF (TAPE POWER)			
S311	1-571-859-11	SWITCH, LEAF (FWD/REV)			

ACCESSORY & PACKING MATERIAL

*3-342-930-01	STOPPER
3-346-518-01	CLIP, BELT
3-351-508-01	TUBE, PROTECTION
*3-351-552-01	CUSHION (UPPER)
*3-351-558-01	CUSHION (LOWER)
*3-351-559-01	(UK,AEP).....INDIVIDUAL CARTON
*3-351-561-01	(E).....INDIVIDUAL CARTON
3-750-070-11	(UK,E).....MANUAL, INSTRUCTION
3-750-070-41	(AEP).....MANUAL, INSTRUCTION
8-952-350-90	(E).....HEADPHONE MDR-E454 SET
8-952-260-92	(UK,AEP) ...HEADPHONE MDR-W10L/1 SET

9-953-615-12
(Including 9-953-615-11)

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