

# WM-R2



Photo : BLACK

US Model  
 AEP Model  
 UK Model  
 E Model  
 (BLACK, SILVER type)  
 Canadian Model  
 (BLACK type only)

STEREO CASSETTE-CORDER

## SPECIFICATIONS

Recording system 4-track 2-channel stereo  
 Frequency response TYPE I (NORMAL) cassette  
 50 – 10,000 Hz  
 40 – 12,000 Hz (playback)  
 TYPE IV (METAL) cassette  
 40 – 13,000 Hz (playback)  
 Input Microphone input jack (stereo minijack)  
 sensitivity 0.2 mV (–72 dB)  
 for low impedance microphone  
 Outputs Two headphones jacks (stereo minijacks)  
 load impedance 32 ohms  
 Power output Headphones:  
 20 mW + 20 mW (at 10 % harmonic distortion)

Power requirements 3 V dc, two batteries size AA (IEC designation R6)  
 DC IN 3 V jack (optional) EBP-500  
 for use on two batteries  
 size D (IEC designation R20)  
 ac power adaptor (optional)  
 See the table on page 2.  
 car battery cord (optional)  
 DCC-127A for use with 12 V car battery

– Continued on page 2 –

### Battery life

	continuous recording	continuous playback
Supplied Sony Eveready Alkaline AM3	7	8
Eveready Alkaline AM1 with battery case (optional)	50	55

(hours)



# SERVICE MANUAL

Model	Ac power line voltage	Optional ac power adaptor
Japan	100 V ac, 50/60 Hz	AC-39
US and Canada	120 V ac, 60 Hz	AC-39
UK	240 V ac, 50 Hz	AC-37
AEP	220 V ac, 50 Hz	AC-37
E --	100, 120, 220 or 240 V ac, adjustable by Sony personnel), 50/60 Hz	AC-38

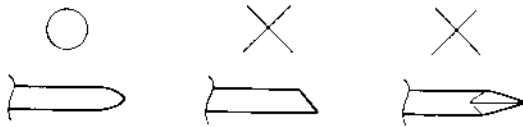
Dimensions            Approx. 82 (w) x 137.5 (h) x 38 (d) mm  
                             including projecting parts and controls

Weight                 Approx. 380 g  
                             including batteries

#### Service Precaution for Flexible Circuit Board

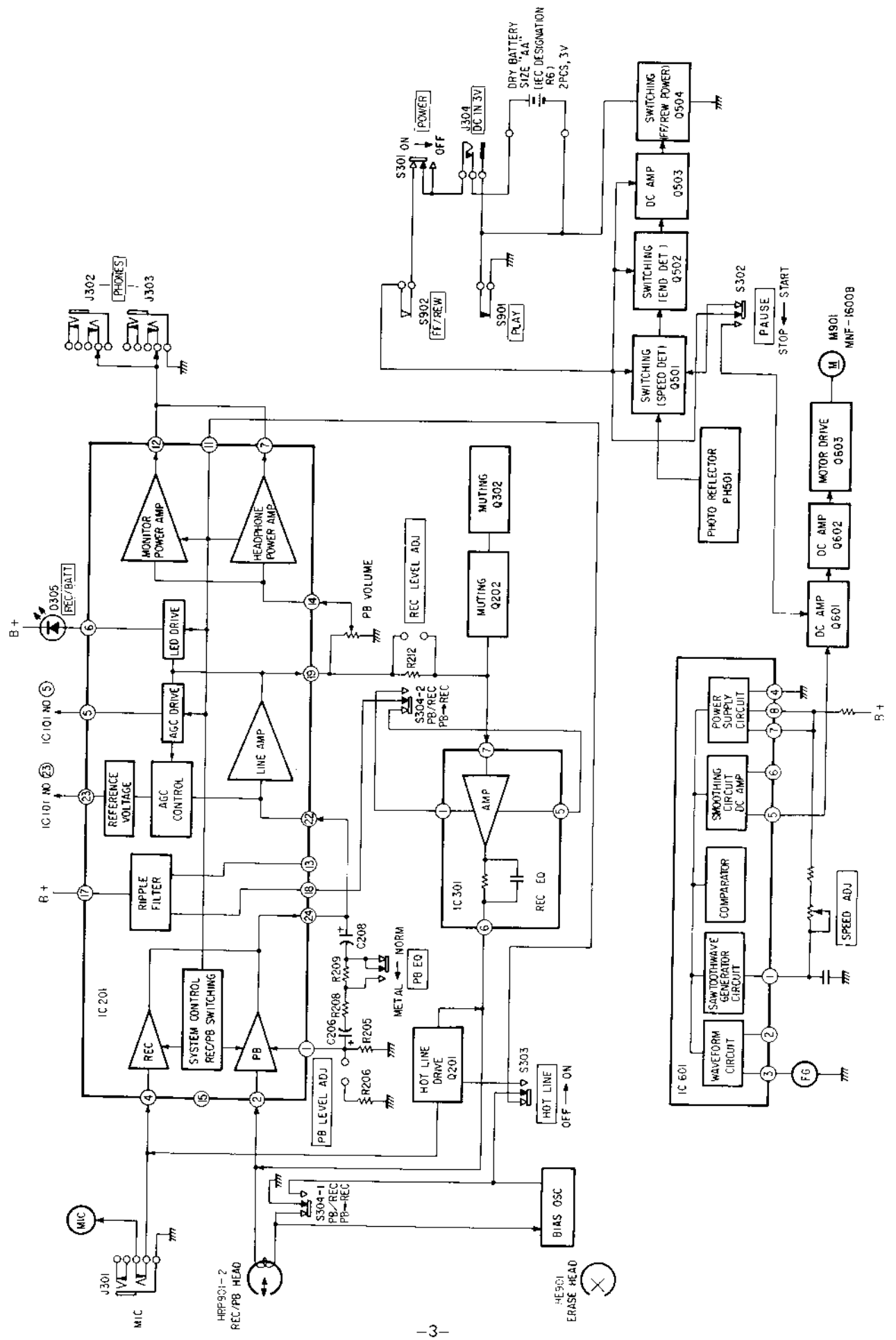
1. Keep the temperature of the soldering iron  $270^{\circ}\text{C} \pm 10^{\circ}\text{C}$ .

- Shape of the tip of the soldering iron.



2. Do not apply the soldering iron to the pattern more than 5 seconds or 20 times.
3. Do not push the pattern forcefully while the soldering iron is applied to it.
4. Do not bend the flexible printed circuit board.
5. Hold the component side of the printed circuit board.

# SECTION 1 BLOCK DIAGRAM

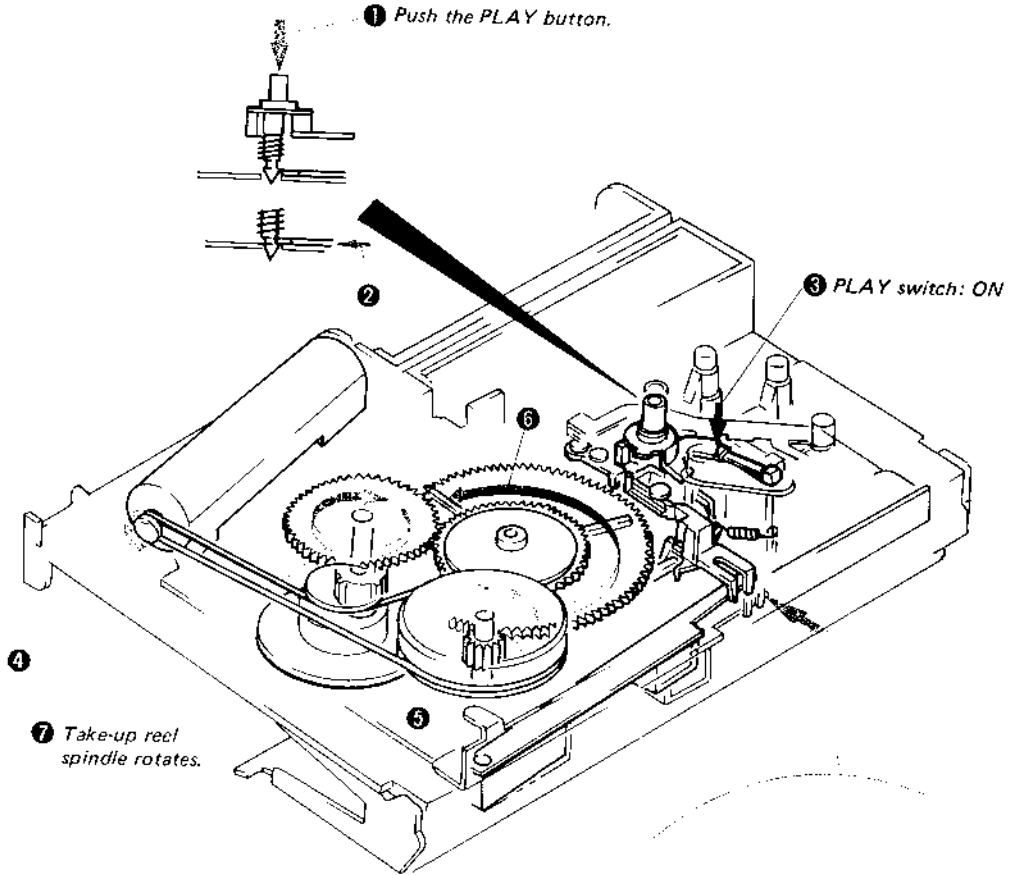


SECTION 2  
MECHANISM DESCRIPTION

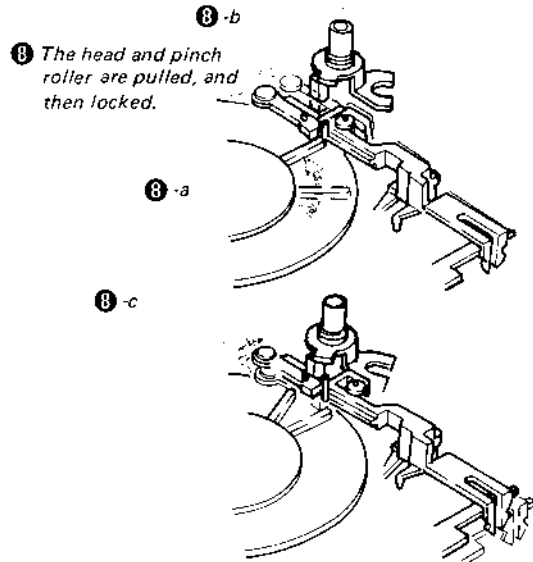
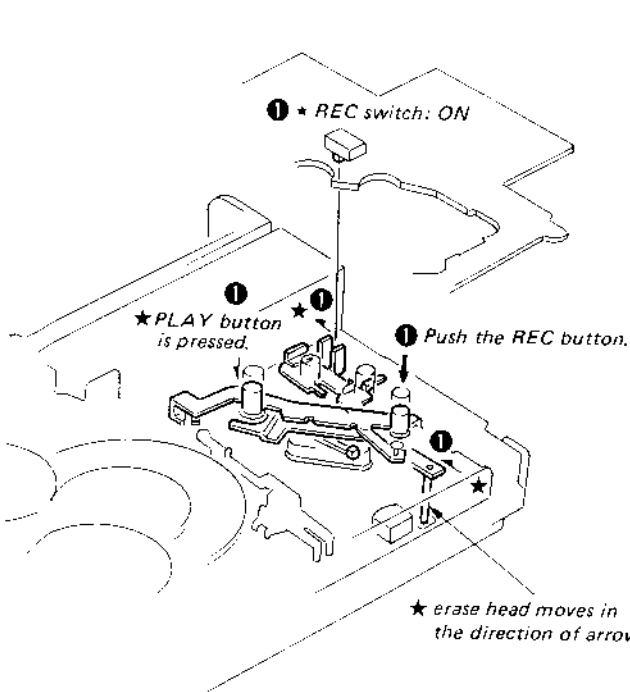
2-1. MECHANISM DESCRIPTION

[PLAY & REC]

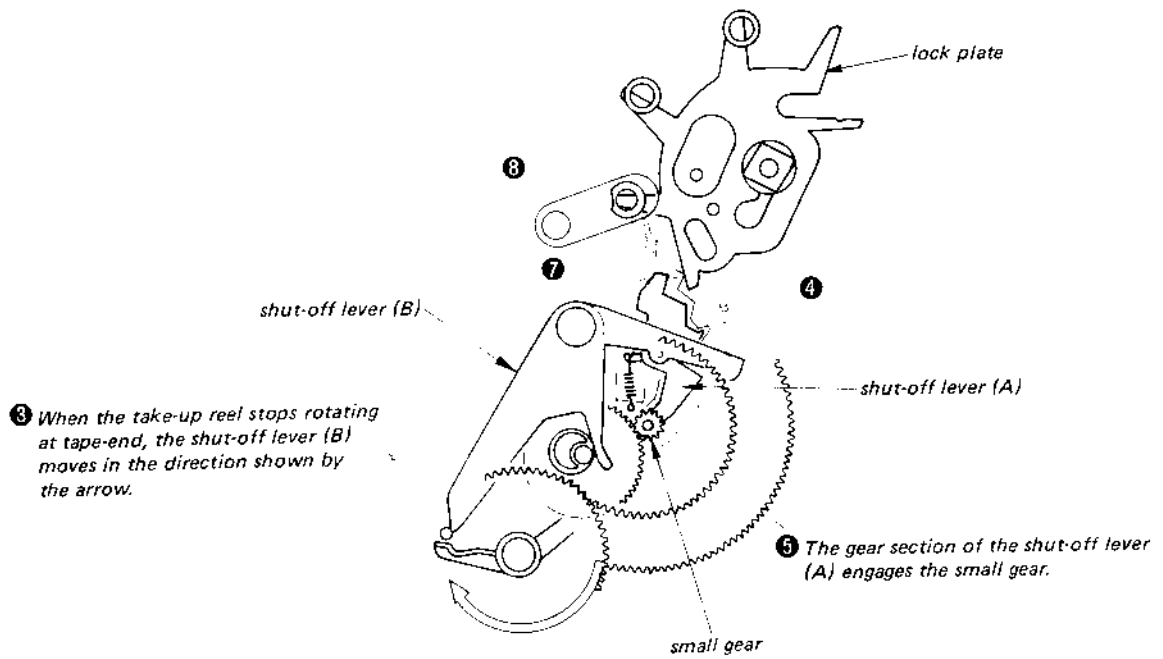
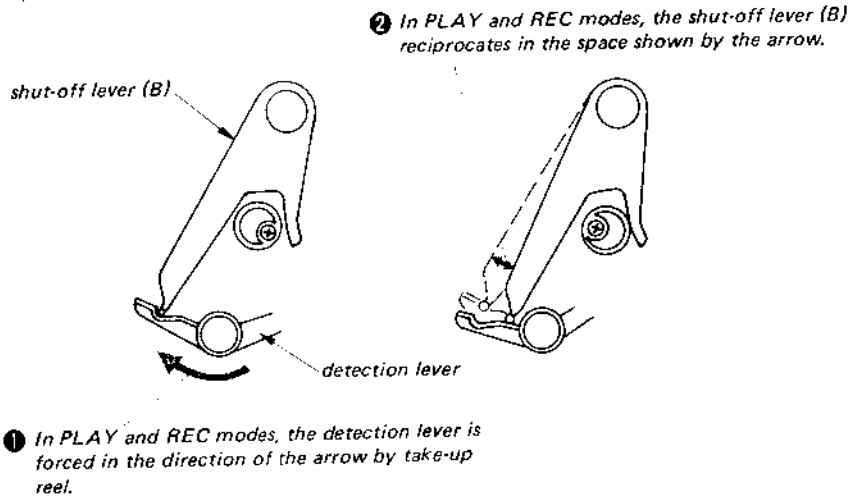
[PLAY]



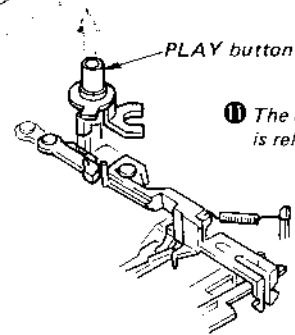
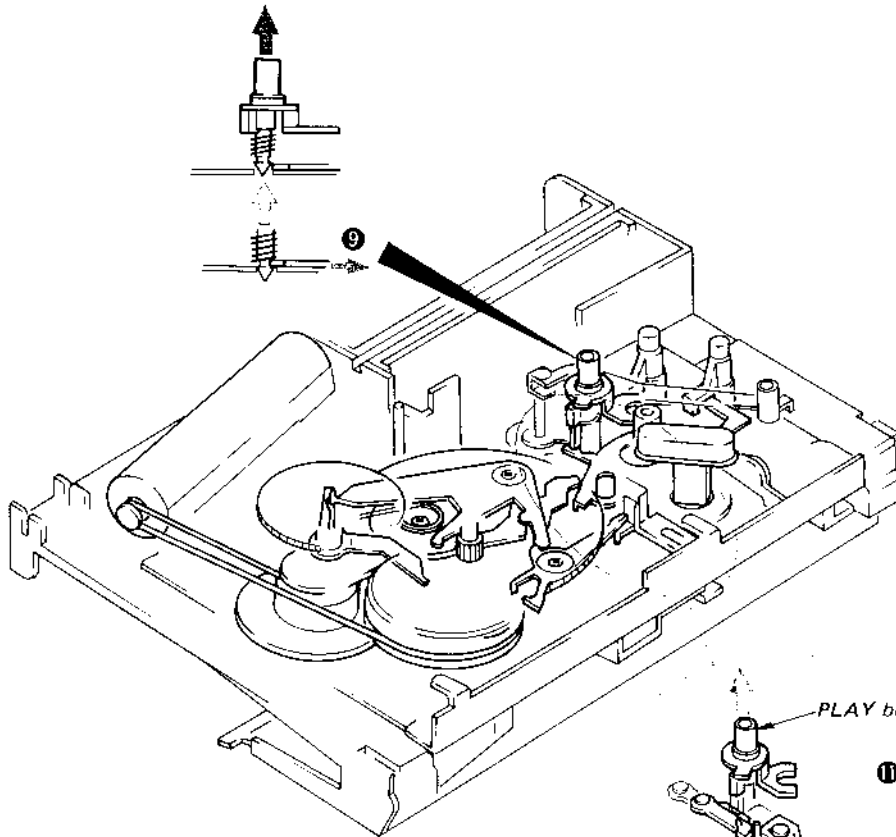
[REC]



[Automatic Shut-off in PLAY and REC modes]

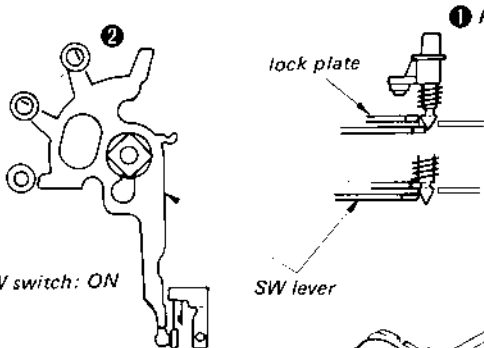


⑩ The PLAY button is released, and the PLAY switch turns off.

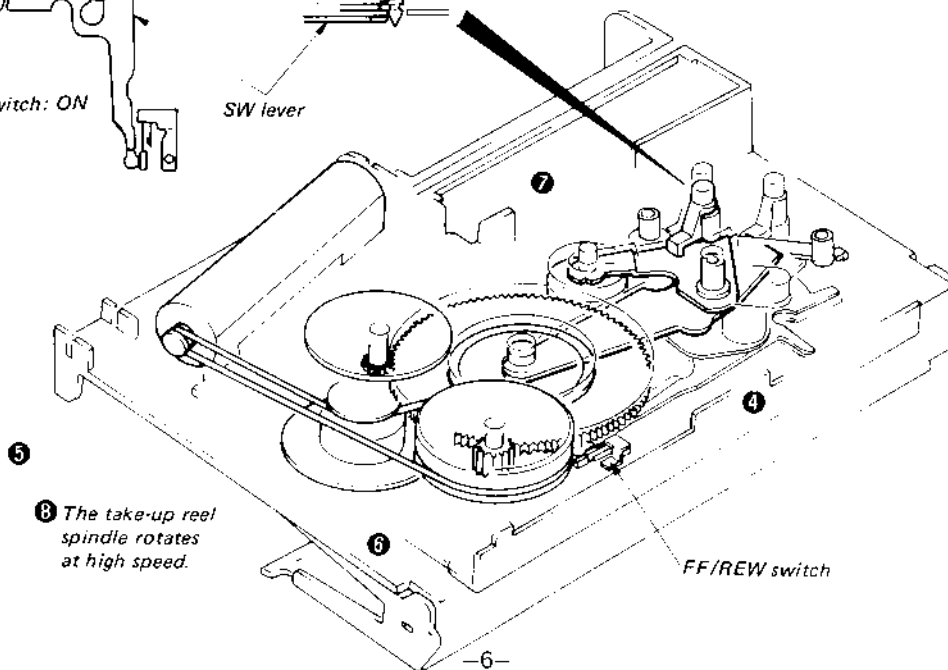


[FF]

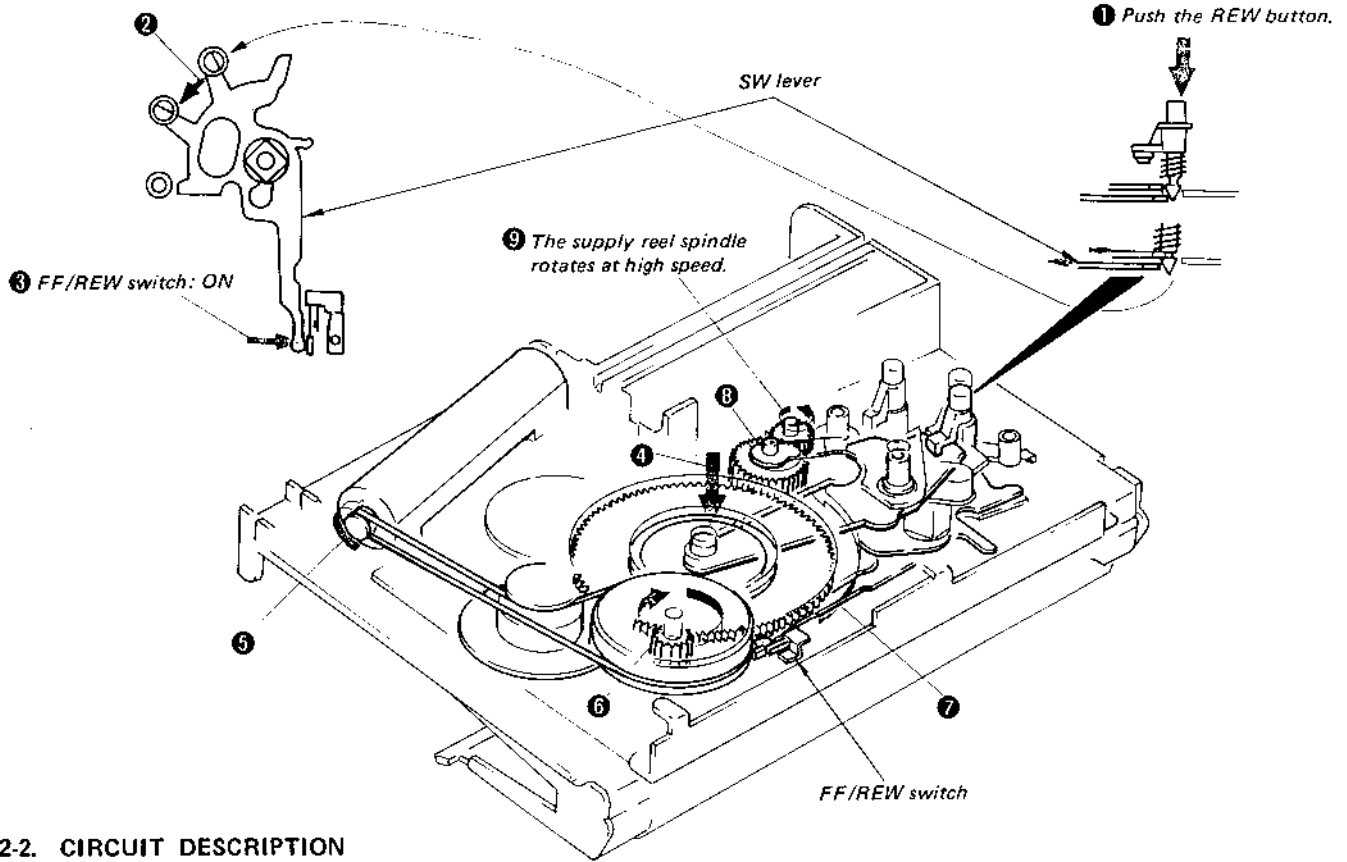
⑫ The head and pinch roller move back.



① Push the FF button.



[REW]



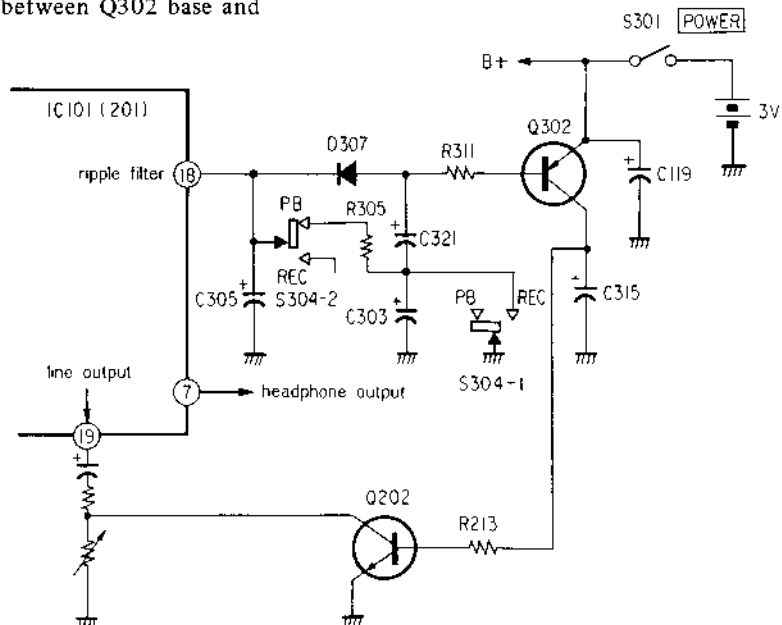
2-2. CIRCUIT DESCRIPTION

Line Muting Circuit

Q302 and Q202 are a muting circuit to remove noise generated when the power switch is turned on or when switching from PLAY mode to REC mode. Because Q302 base voltage is low, when the power switch is turned on, Q302 goes on and Q202 goes on. Therefore, because IC101, IC201 pin (19) is grounded through Q202, the line output is muted. However, the base voltage of Q302 rises with the rise in voltage at IC101, IC201 pin (18) (ripple filter output), and when the voltage difference between Q302 base and

emitter falls below 0.6V, it goes off and muting is released.

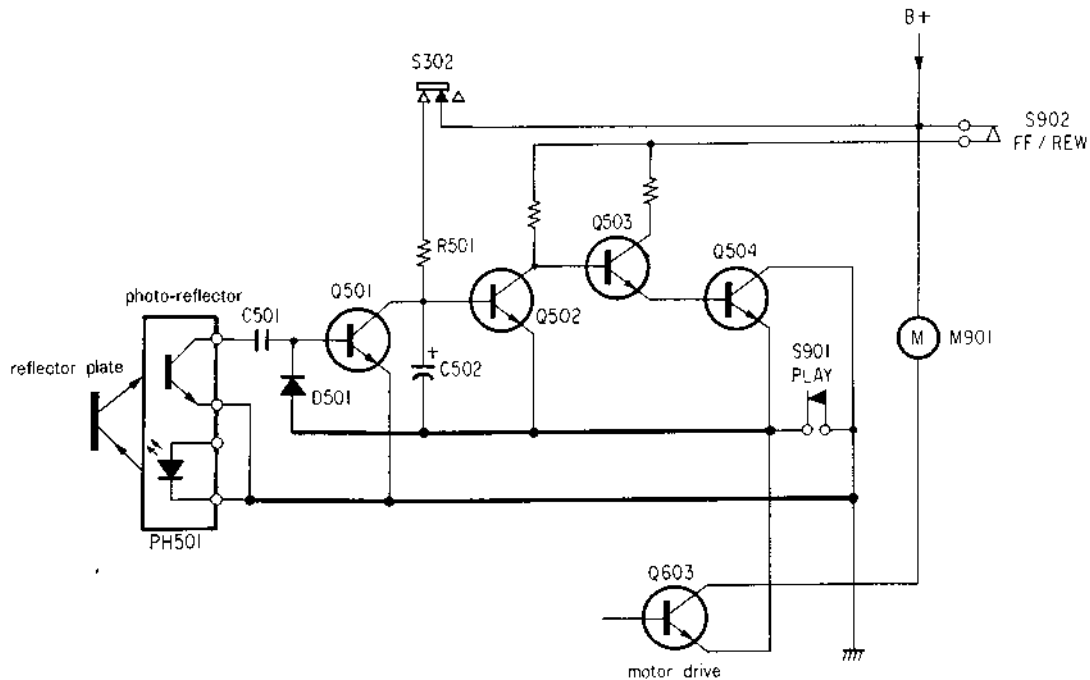
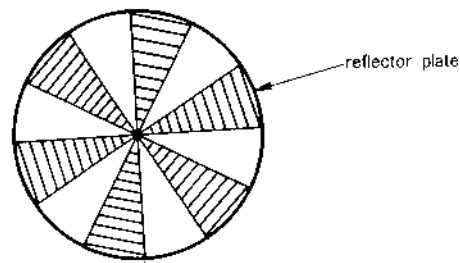
Next, when switching from PLAY to REC mode, Q302 base is grounded through S304-1, so Q302 turns on and muting is applied. When C321 charging is completed, Q302 goes off again. When switching from REC mode back to PLAY, the load charged to C321 is discharged through R305, S304-2 and IC101 (IC201) pin (18).



**Auto-Off Circuit**

The auto-off circuit consists of four transistors, and operates only during FF or REW mode. A reflector plate is attached to the back of the take-up reel table (see figure below), and while the reel table is rotating, on, off signals are constantly applied to Q501 base via the photo-reflector (PH501) and C501. Therefore, Q501 alternately repeats on, off. D501 is used for C501 discharge. The following is an explanation of FF or REW with the reel table rotating. First, when an on signal is applied to Q501 base via the photo-reflector, Q502 goes off. Therefore, since Q503, Q504 go on, the motor drive transistor Q603 emitter is connected to the ground circuit and the motor continues to rotate.

Next, when an off signal is applied to Q501 base, Q501 goes off and Q502 goes on, but because B+ is applied to Q502 base via R501, Q502 stays off until C502 charging is completed. However, before C502 charges, the next on signal is applied to Q501 base, so Q501 goes on, and C502 is discharged through Q501. Therefore, while the take-up reel table is rotating, Q504 is on and the motor rotates. Next, at tape end, when the on, off signals are no longer applied to Q501, it goes off, and C502 charging is completed through R501. When the voltage across C502 goes above about 0.6V, Q502 goes on, Q503, 504 go off and motor rotation stops.

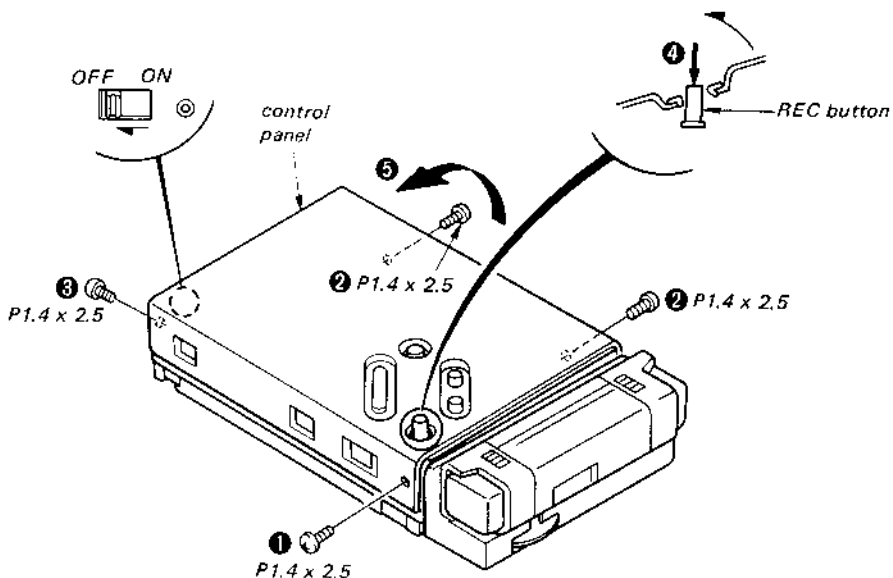




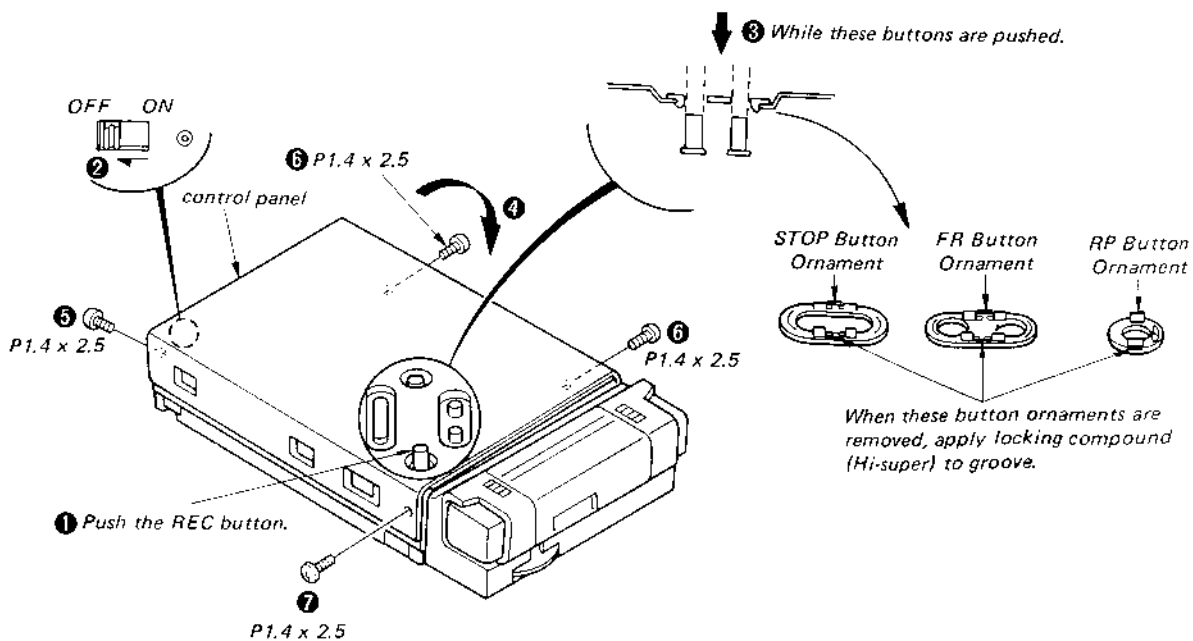
### SECTION 3 DISASSEMBLY

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

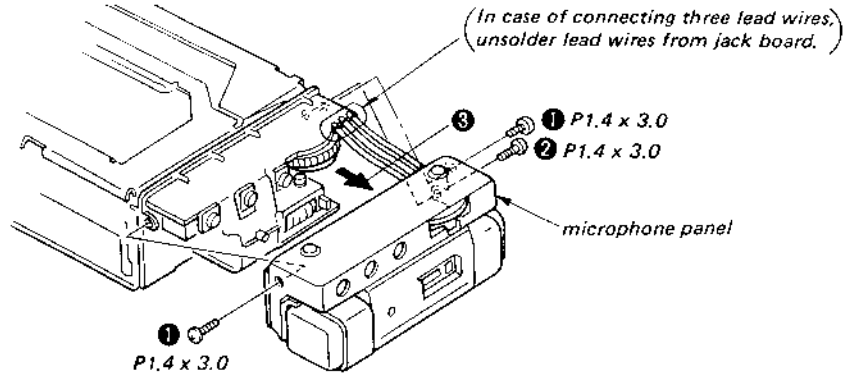
#### CONTROL PANEL REMOVAL



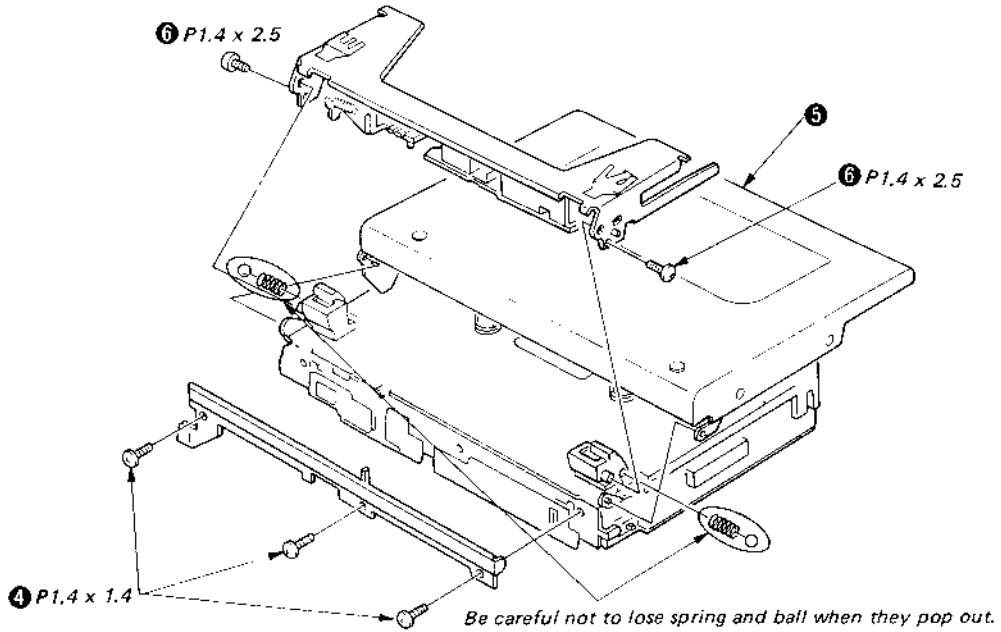
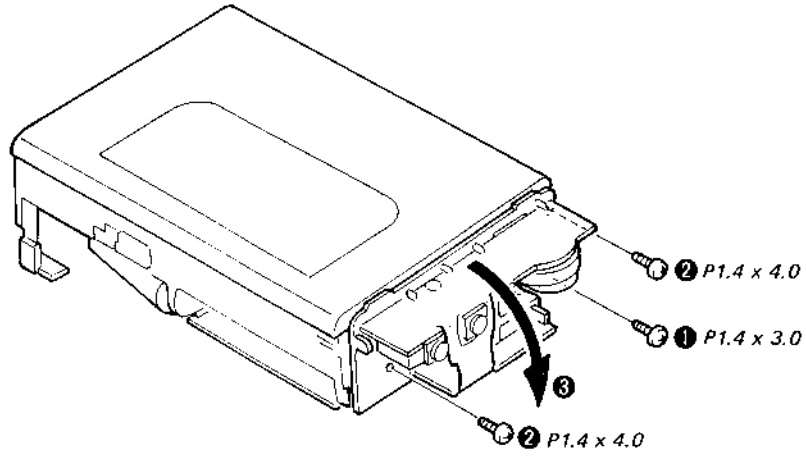
#### CONTROL PANEL INSTALLATION



MICROPHONE PANEL REMOVAL

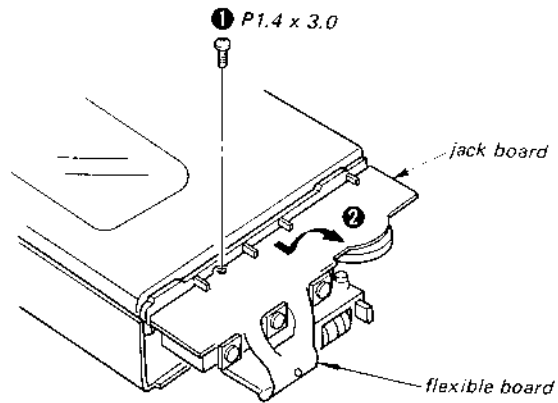


CASSETTE HOLDER REMOVAL

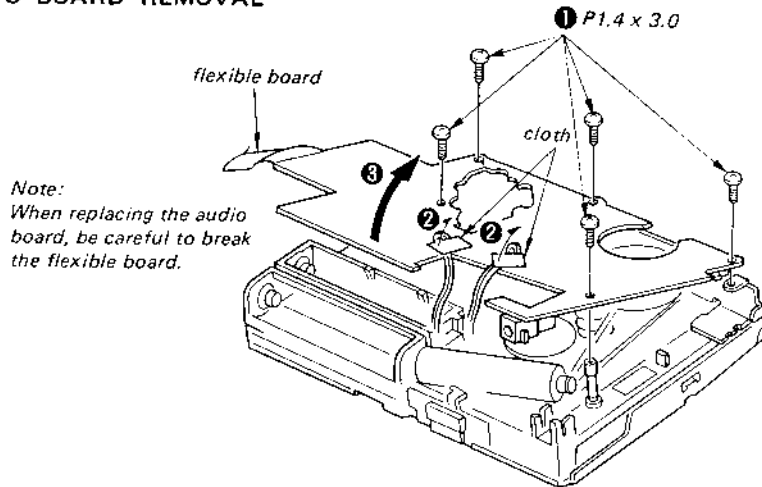


Pinch roller and head can be replaced.

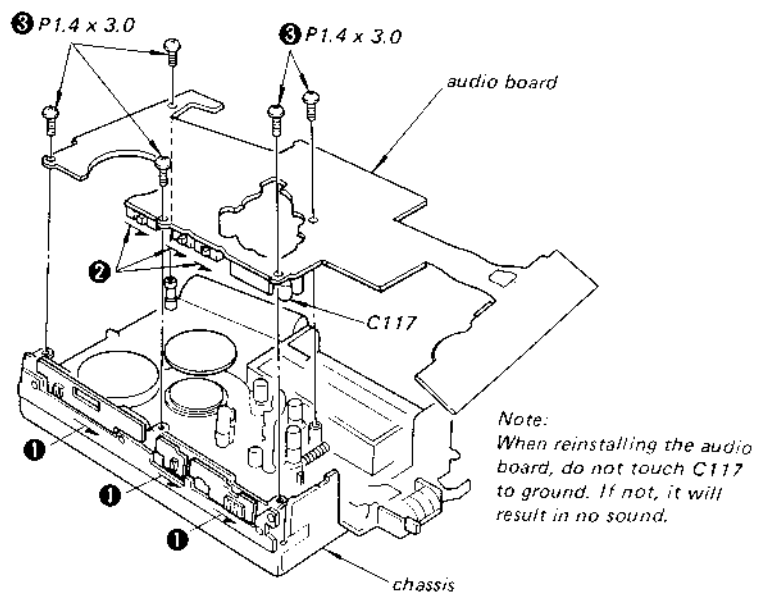
## JACK BOARD REMOVAL



## AUDIO BOARD REMOVAL



## AUDIO BOARD INSTALLATION





## SECTION 4 ADJUSTMENTS

### PRECAUTION

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

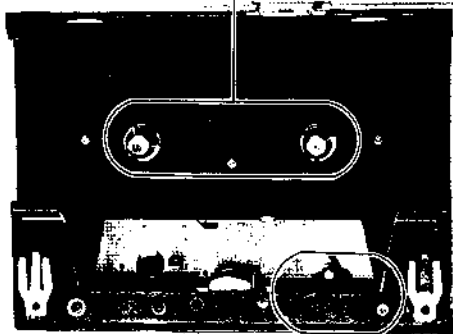
playback head	pinch roller
capstan	rubber belts
	erase head
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed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

### 4-1. MECHANICAL ADJUSTMENTS

#### Torque Measurement

Perform with 2.5V DC power.

	Torque meter	Meter reading
PLAY	CQ-120C	25 - 50g-cm
FF, REW	CQ-201B	More than 65g-cm
Back Tension	CQ-102C	Less than 5g-cm
Tape Pulling Force	CQ-403	More than 80g



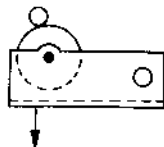
#### Pinch Roller Pressure Adjustment

— Playback Mode —

1. Pull the spring scale in the direction shown by the arrow.
2. Slowly return the pinch roller and read the spring scale just when the pinch roller starts rotating.

Specification:

170 ± 20 g (5.3 - 6.7 oz)



### 4-2. ELECTRICAL ADJUSTMENTS

**Note:** The adjustment should be performed in the order given in this service manual. The adjustments should be performed for both L-CH and R-CH.

#### • Standard Record:

Standard Input Level

INPUT	MIC
source impedance	300Ω
input level	0.77mV (-60dB)

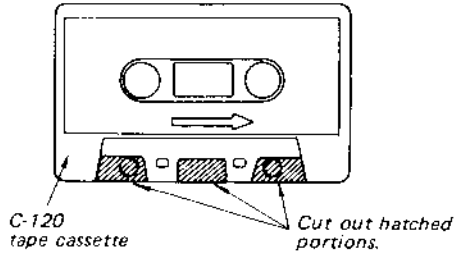
Standard output Level

OUTPUT	HEADPHONES
load impedance	32Ω
output level	*0.245V (-10dB)

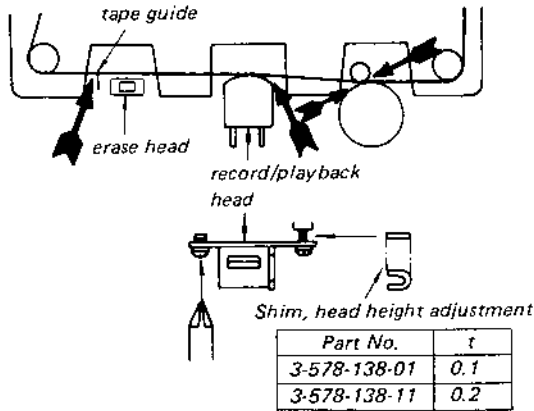
\* Adjust by volume control.

## Head Height Adjustment

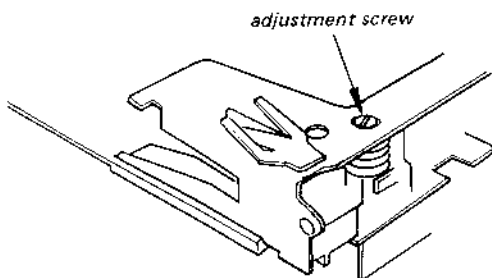
1. Prepare an adjustment cassette as shown below.



2. In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at portions of arrow.



3. If necessary, adjust the height of the tape-guide by turning the adjustment screw.



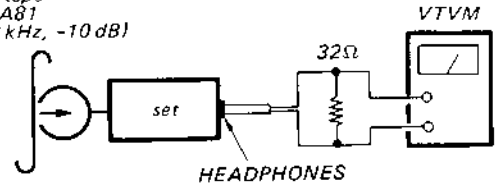
4. Apply locking compound on adjustment screw.

## Record/playback Head Azimuth Adjustment

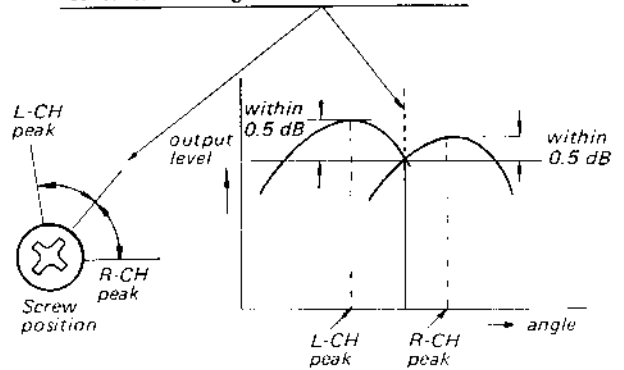
### Procedure:

1. Mode: playback

test tape  
P-4-A81  
(6.3 kHz, -10 dB)

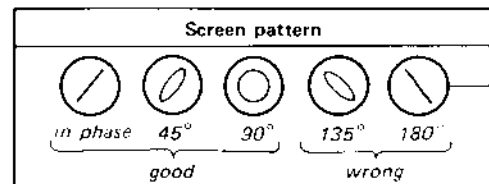
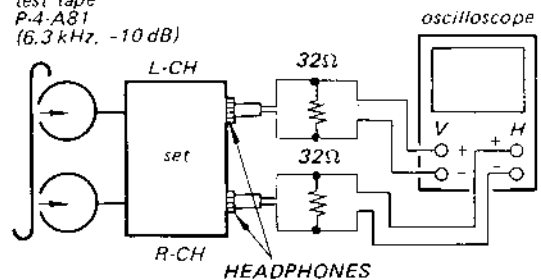


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 0.5 dB.

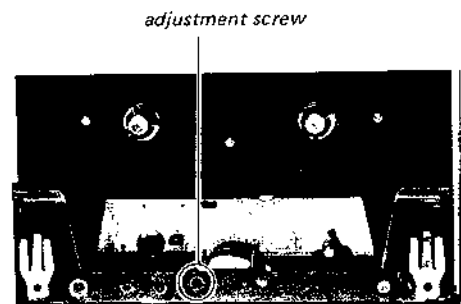


3. Phase Check  
Mode: playback

test tape  
P-4-A81  
(6.3 kHz, -10 dB)



### Adjustment Location:



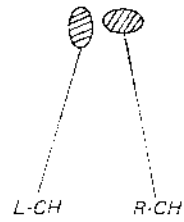
# WM-R2 WM-R2

## Microphone Sensitivity Adjustment

When replacing the microphone, perform this adjustment.

Mark of Microphone	Pattern Connection
BLACK	OPEN
RED	SHORT

Adjustment Location:



## Tape Speed Adjustment

Setting:

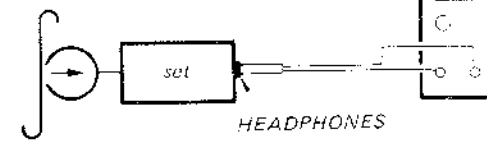
VOLUME control: mechanical mid

Procedure:

Mode: playback

test tape  
WS-48  
(3 kHz, 0 dB)

speed checker  
LFM-30  
or  
digital frequency  
counter



Specifications:

Speed checker	Digital frequency counter
$\pm 0.5\%$	2,985 - 3,015Hz

Frequency difference between the beginning and the end of the tape should be within  $\pm 0.5\%$  ( $\pm 15\text{Hz}$ ).

RV601

## Playback Level Adjustment

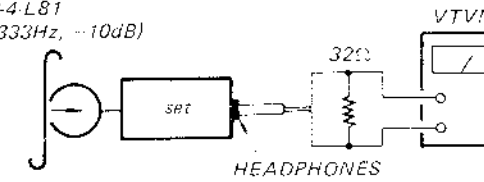
Setting:

VOLUME control: maximum

Procedure:

Mode: playback

test tape  
P-4-L81  
(333Hz, -10dB)

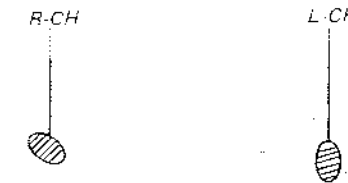


Specification:

Level difference between channels: within 2.5dB

- 1) If necessary, connect the patterns for lower level channel.
- 2) Confirm that the output level of HEADPHONES is not changed when repeating playback and stop.

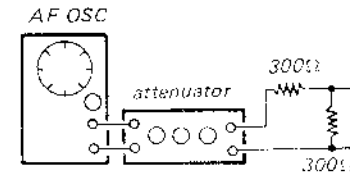
Adjustment Location:



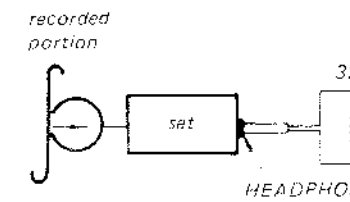
## Record Bias Adjustment

Procedure:

1. Mode: record



2. Mode: playback

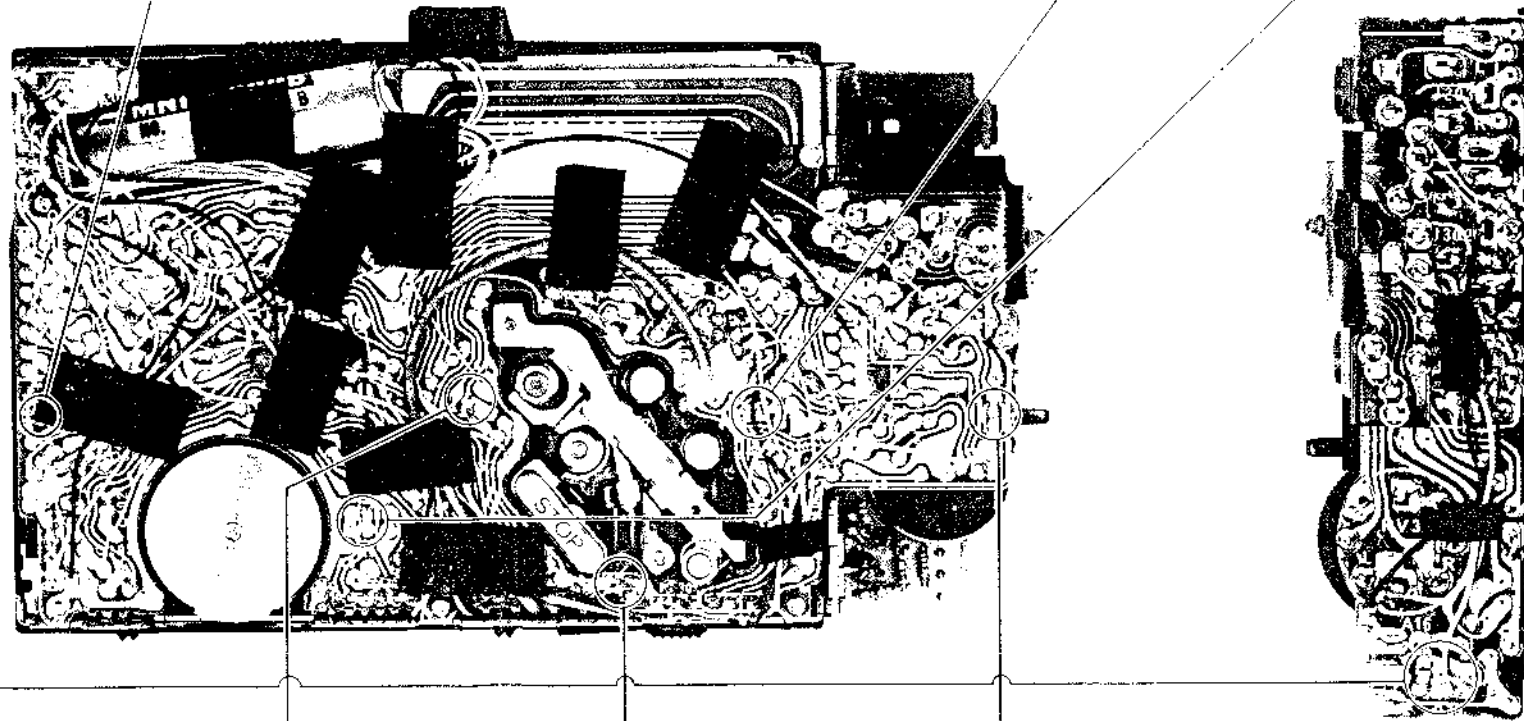
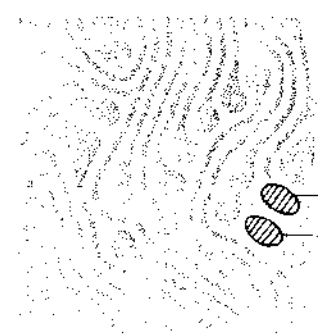


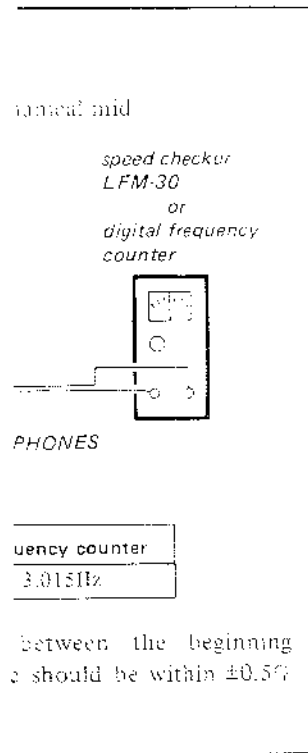
- 1) Adjust VOLUME control so level is 77.5mV ( $-20\text{dB}$ )
- 2) Confirm that 200Hz and 600Hz are  $0 \pm 3\text{dB}$ ,  $-3 \pm 3\text{dB}$ , respectively
- 3) If necessary, change bias pattern, repeat steps 1), 2).

Pattern Connection VTVM Ready

(B)	up
(A)	down
(A, B)	down

Adjustment Location:





### Playback Level Adjustment

**Setting:**  
VOLUME control: maximum

**Procedure:**  
Mode: playback  
test tape  
P-4 L81  
(333Hz, -10dB)

**Specification:**  
Level difference between channels: within 2.5dB

1) If necessary, connect the patterns for lower level channel.

2) Confirm that the output level of HEADPHONES is not changed when repeating playback and stop.

**Adjustment Location:**

### Record Bias Adjustment

**Procedure:**

- Mode: record

**MIC**  
1) 200Hz  
2) 1kHz 77.5V (-80dB)  
3) 6.3kHz

- Mode: playback

**Adjustment Location:**

Pattern Connection, VTVM Reading (6.3kHz)	
B	up ↓ down
A	
A, B	

**Adjustment Location:**

B -- 100Ω (R309)  
A -- 68Ω (R310)

- Adjust VOLUME control so that 1kHz output level is 77.5mV (-20dB).
- Confirm that 200Hz and 6.3kHz output levels are 0 ± 3dB, 3 ± 3dB, respectively.
- If necessary, change the pattern connection and repeat steps 1) 2).

### Record Level Adjustment

**Procedure:**

- Mode: record

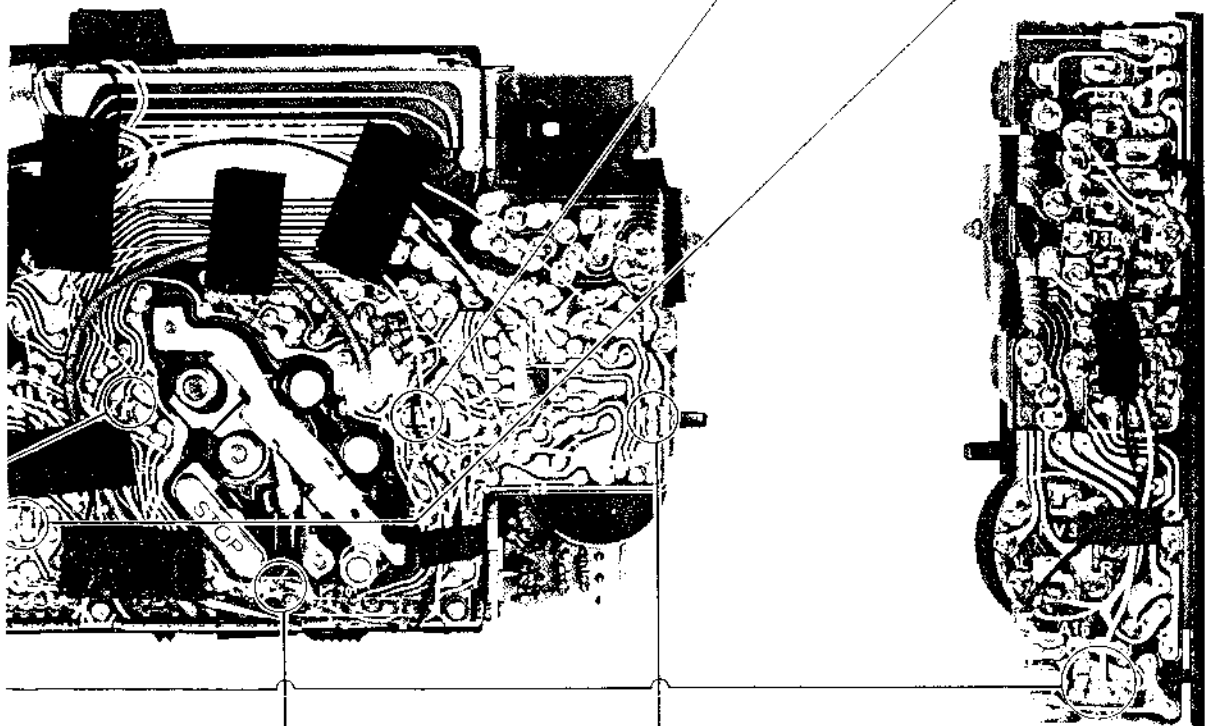
**MIC**  
1kHz, 0.775mV (-60dB)

- Mode: playback

**Adjustment Location:**

**Specification:**  
Within 4dB ( -14dB ~ 6dB)

Set the VOLUME control for 0.245V (-10dB) at L-CH output. Measure R-CH output. If the specification is not met, short the pattern of the lower-channel output.



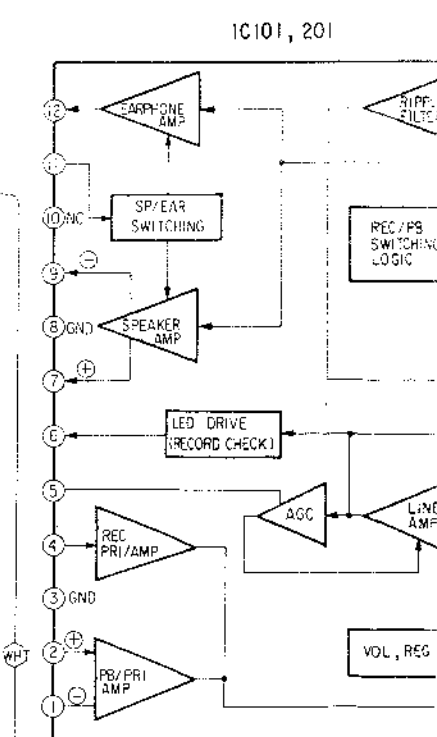
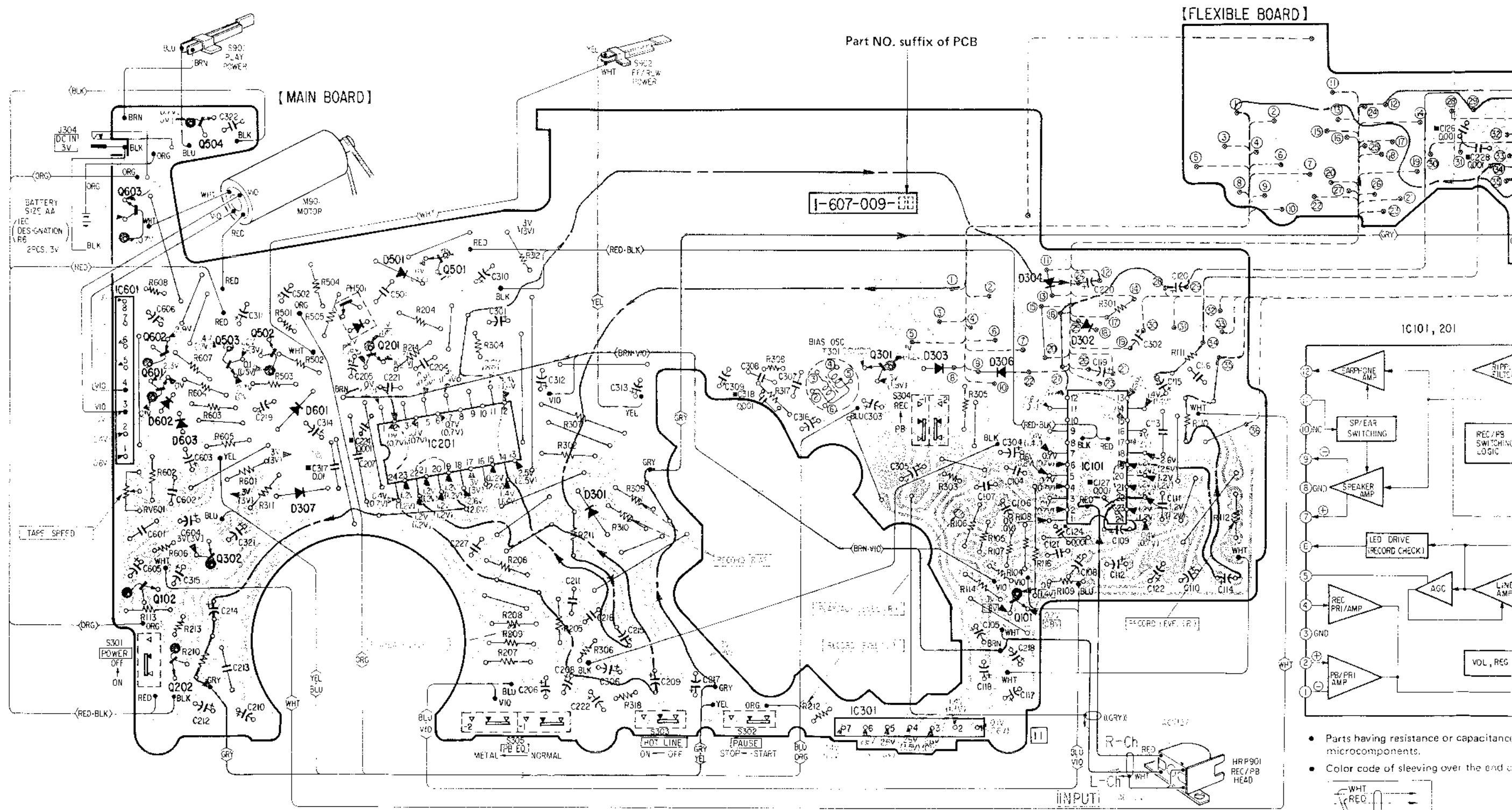


A B C D E F G H

5-1. MOUNTING DIAGRAM - Conductor Side - FORMER TYPE (Suffix of PCB Part No. : 11)

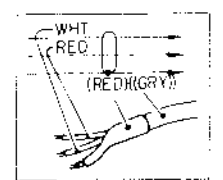
• See page 30 for semiconductor lead layouts.

Q, IC	603 IC601	602 601 Q2	504 302	503,502	201	501 IC201	301 IC301	101	IC101
D		602 603		601 307		501		303 306	304 302



Note:

- (with dot) : parts extracted from the component side.
- (with line) : parts extracted from the conductor side.
- (with square) : part mounted on the conductor side.
- (with circle) : Through hole.
- (with arrow) : signal path
- (with double arrow) : R-CH signal path
- (with circle) : playback mode
- (with square) : auto off
- (with triangle) : hot line operating
- (with diamond) : record mode



WM-R2 WM-R2

E

F

G

H

I

J

K

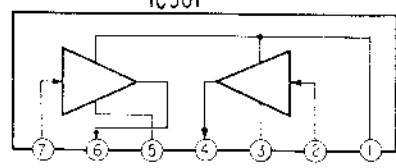
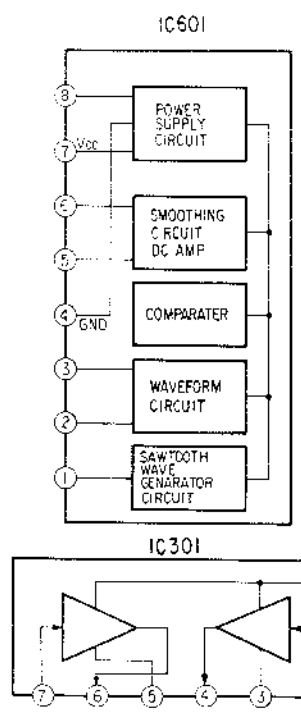
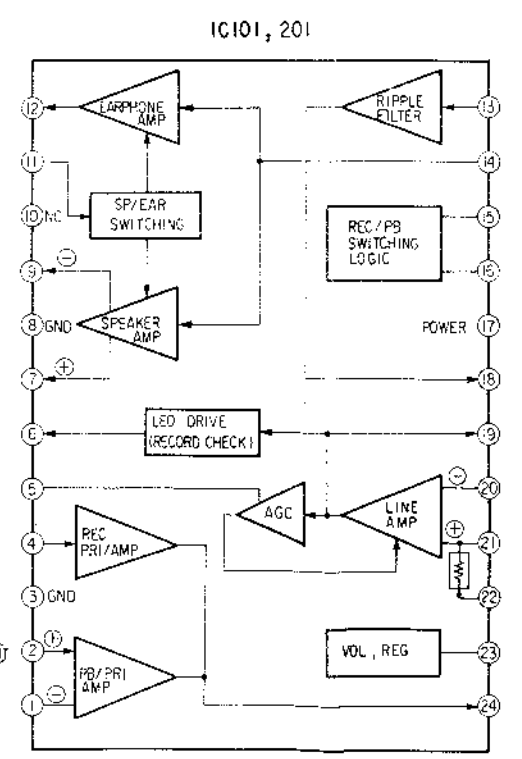
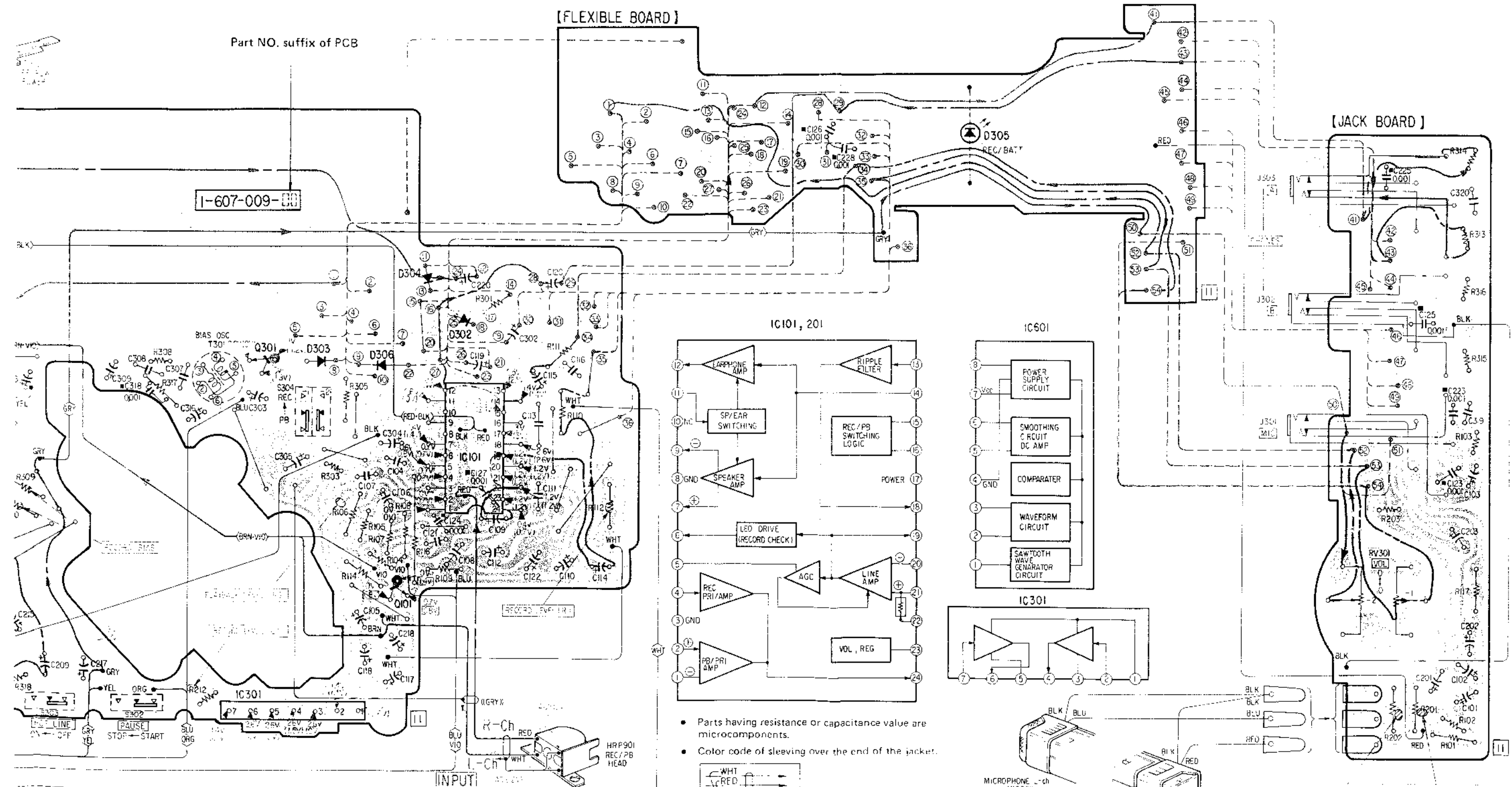
301	IC301	IC101	IC101	Q, IC
303	306	304	302	D
				305

Part NO. suffix of PCB

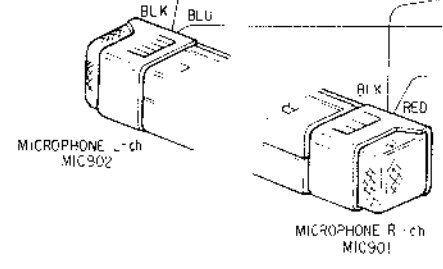
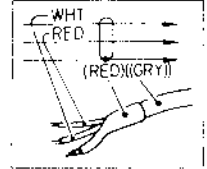
1-607-009-00

[FLEXIBLE BOARD]

[JACK BOARD]



- Parts having resistance or capacitance value are microcomponents.
- Color code of sleeving over the end of the jacket.

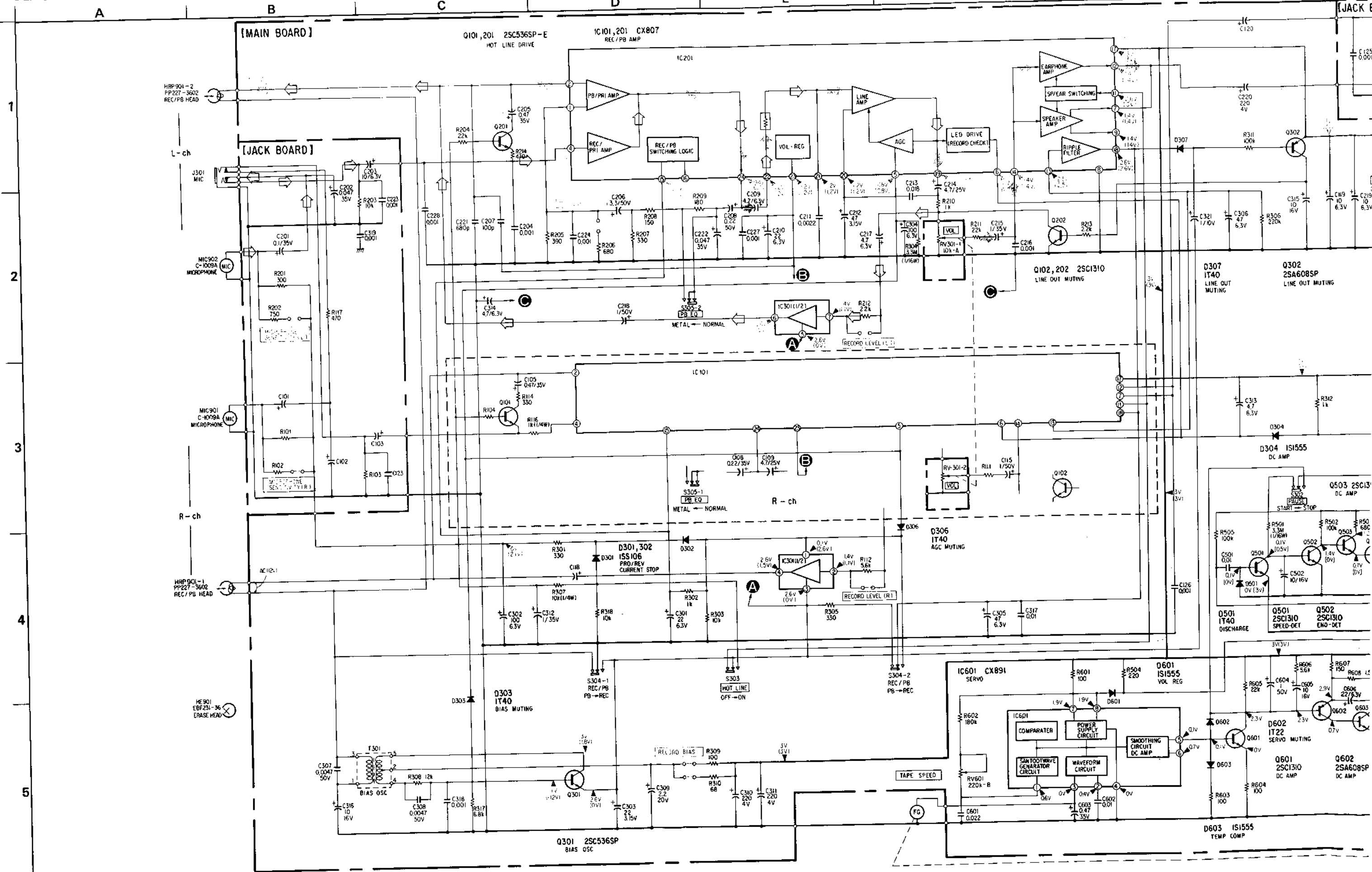


ected from the component side.  
 ected from the conductor side.  
 nted on the conductor side.  
 hole.

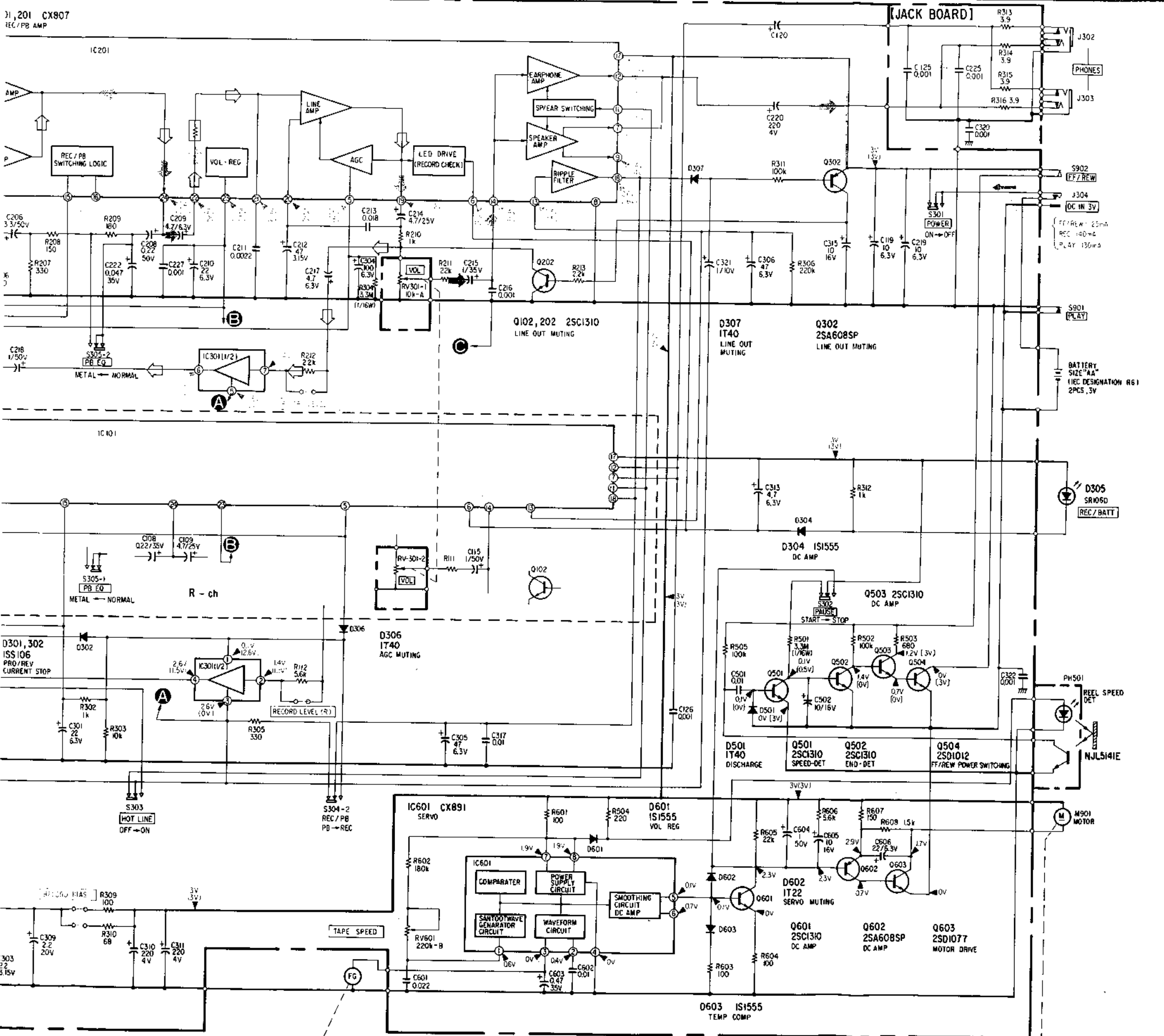
+      : B+ pattern  
 ○      : signal path  
 ○      : L-CH signal path  
 ●      : R-CH signal path

5-2. SCHEMATIC DIAGRAM (FORMER TYPE)

WM-R2 WM-R2



D E F G H I J K



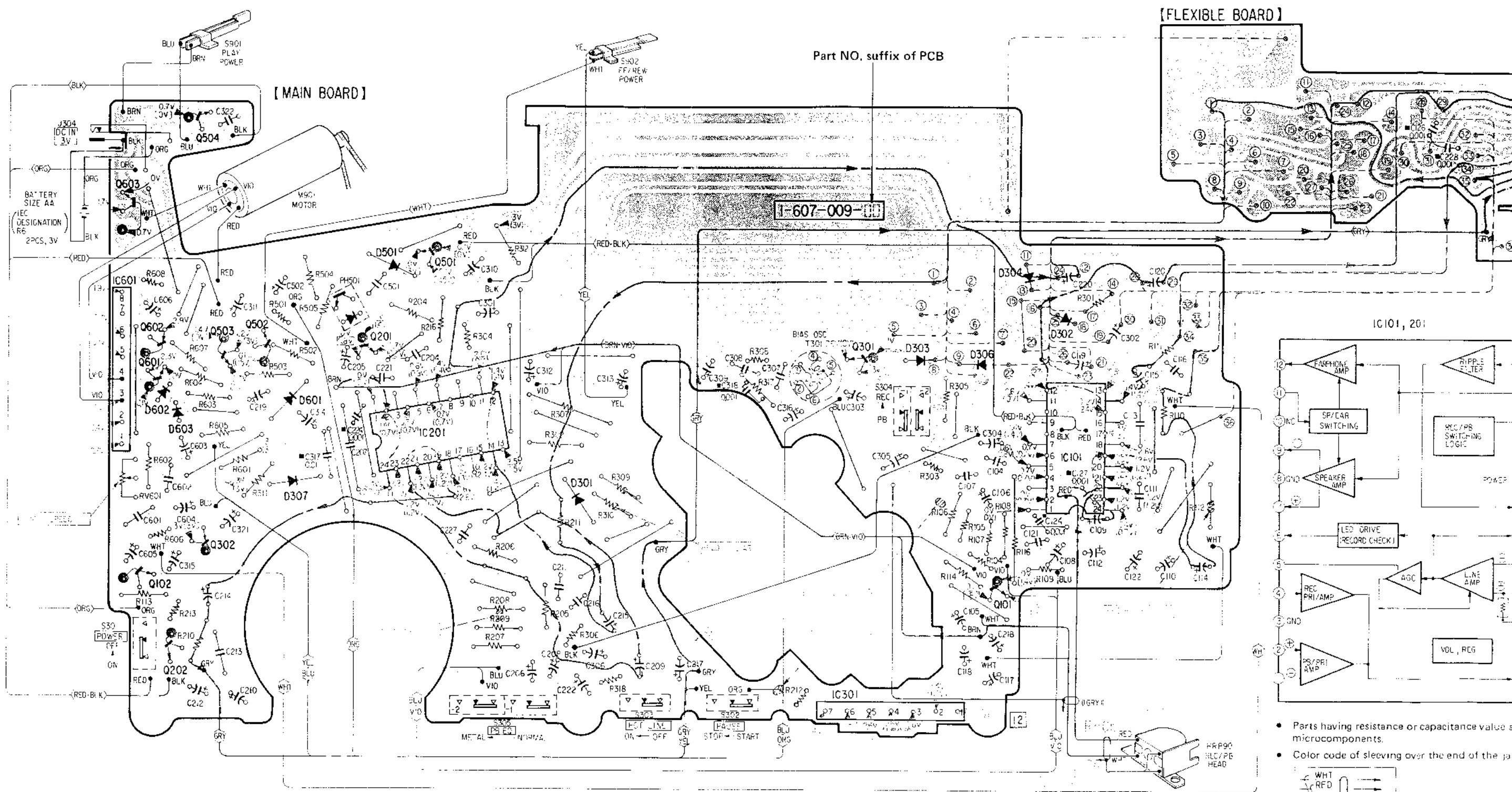
- Note:**
- Components for right channel have same values as for left channel. Reference numbers are coded from 100.
  - All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF} : \mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
  - All resistors are in ohms,  $\frac{1}{2}\text{W}$  unless otherwise noted.  $\text{k}\Omega : 1000\Omega, \text{M}\Omega : 1000\text{k}\Omega$
  - : panel designation.
  - : adjustment for repair.
  - : B+ bus.
  - Voltages are dc with respect to ground unless otherwise noted.
  - Readings are taken under no-signal conditions.
  - No mark in playback mode
  - : at auto-off
  - : at hot-line operating
  - : in record mode
  - : playback signal
  - : record signal
- Note: Voltages are measured with a VOM (50k $\Omega$ /V).

5-3. MOUNTING DIAGRAM - Conductor Side - NEW TYPE (Suffix of PCB Part No. : 12)

A B C D E F G H

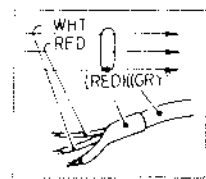
• See page 30 for semiconductor lead layouts.

Q, IC	603 IC601 IQ2	504 602 601 IQ2	503, 502 302	201	501 IC201	301	IC301	101	IC101
D		602 603		601 307	501	301		303 306	304 302



Note: ● — : parts extracted from the component side.  
 ● — : parts extracted from the conductor side.  
 ● ■ : part mounted on the conductor side.  
 ⊗ : Through hole.

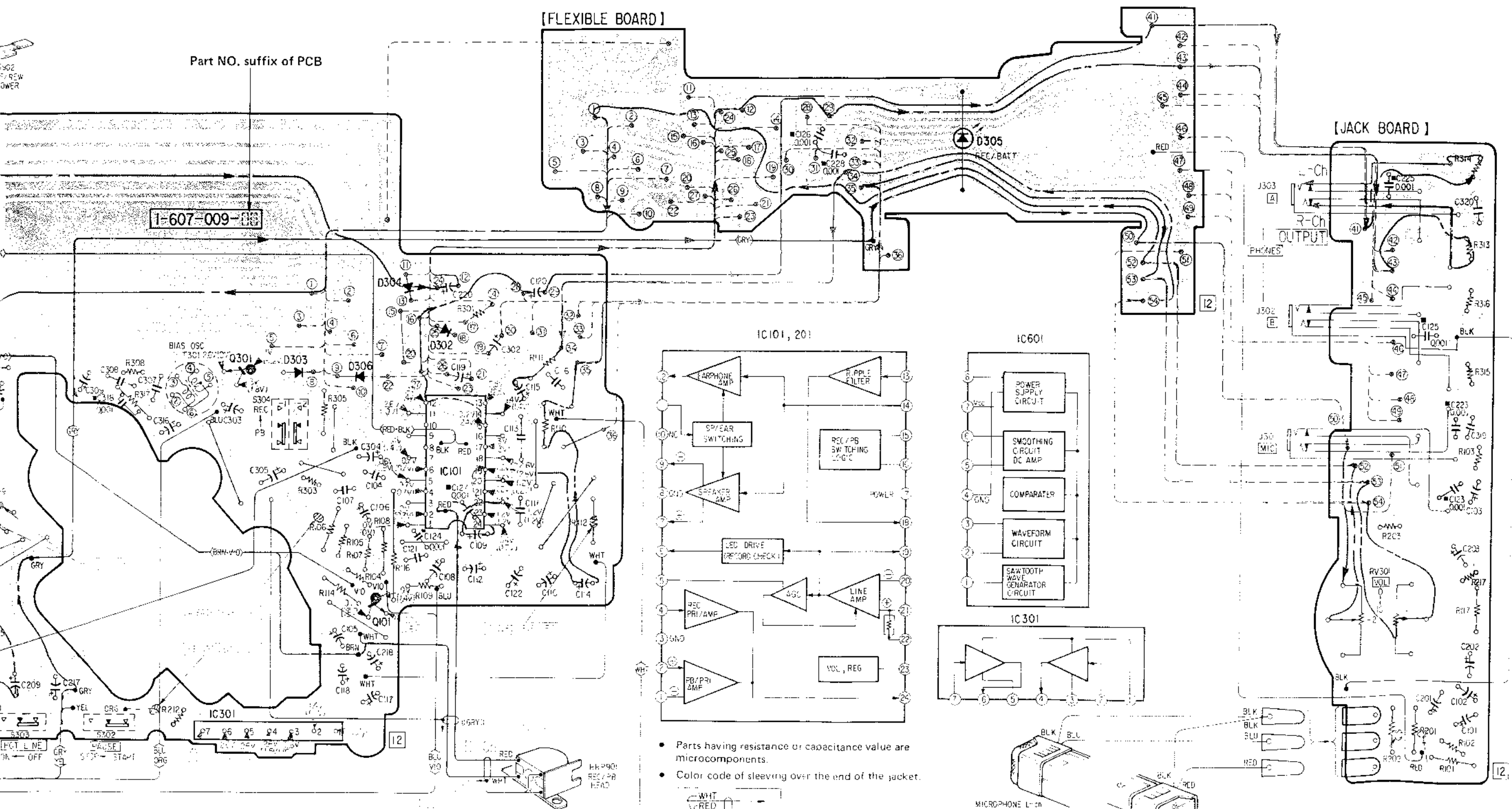
- Parts having resistance or capacitance value are microcomponents.
- Color code of sleeving over the end of the jack



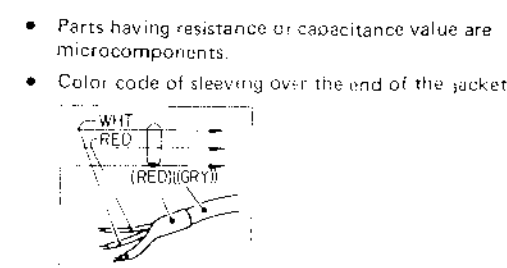
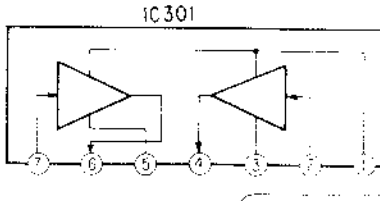
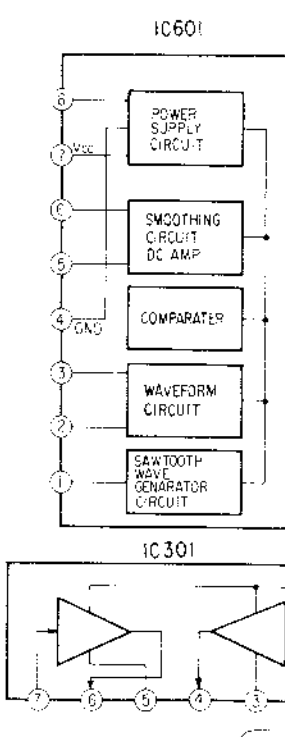
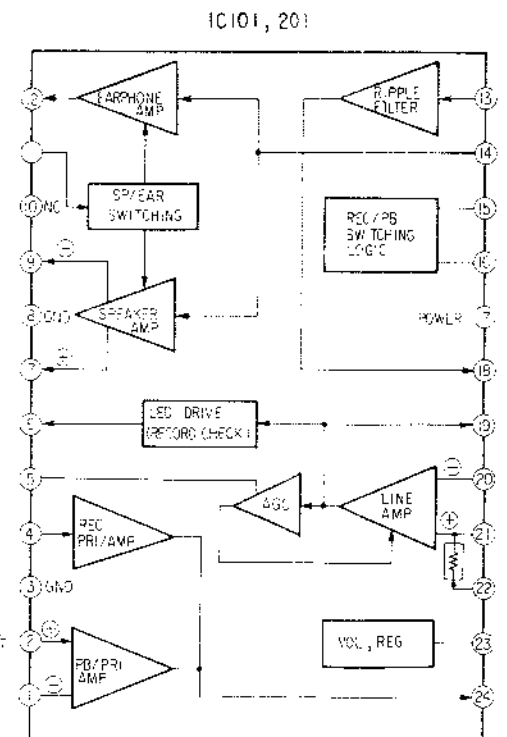
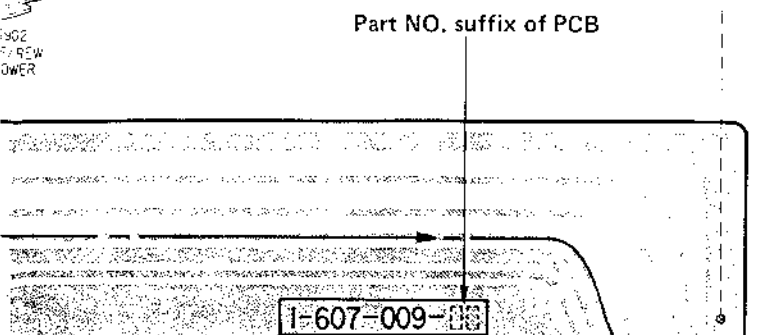
E F G H I J K

301	IC301	101	IC101		Q, IC
303	306	304	302	305	D

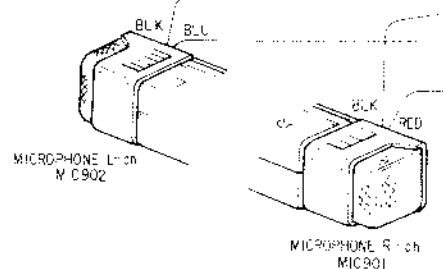
1  
2  
3  
4  
5



Part NO. suffix of PCB



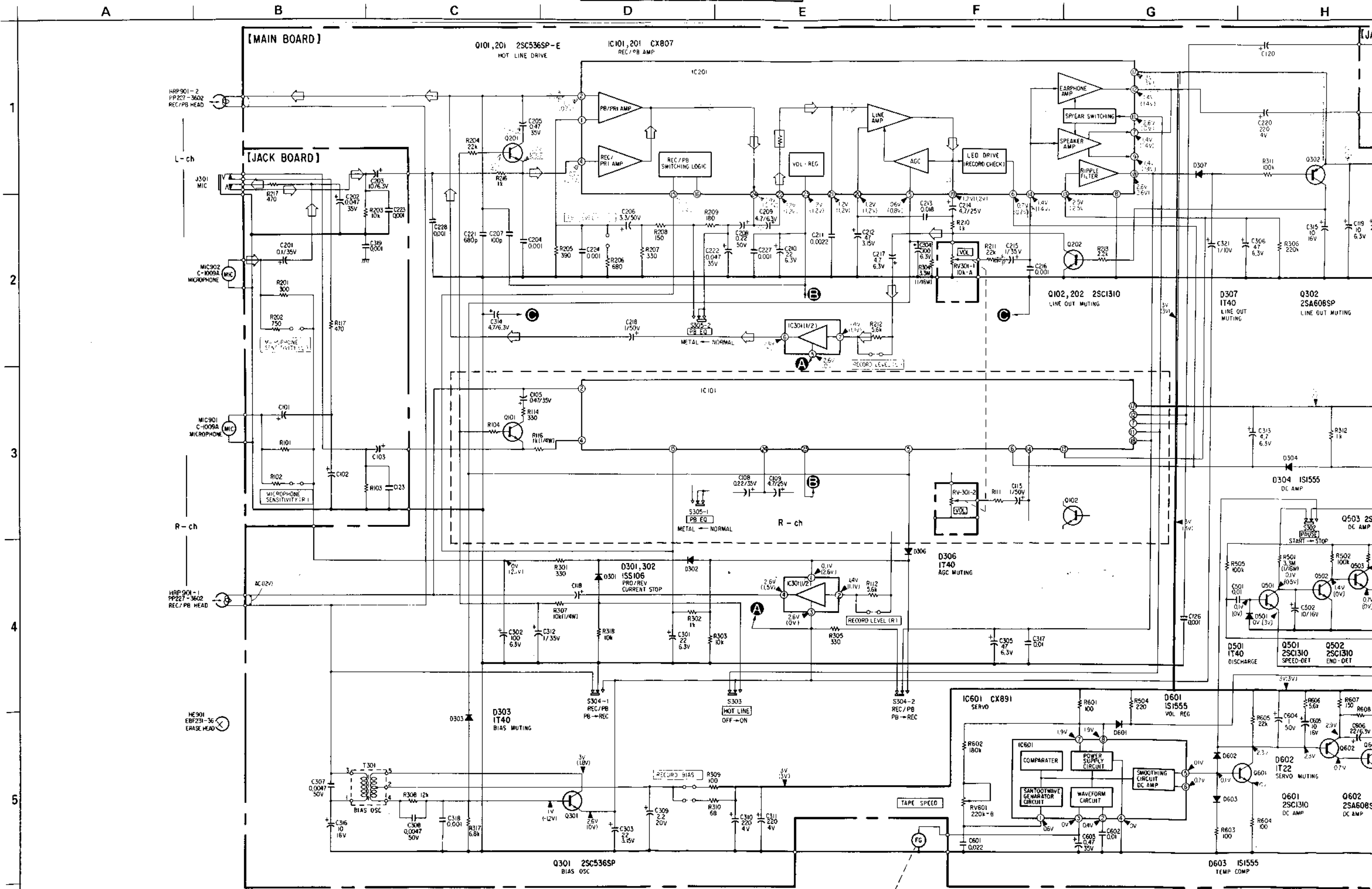
- Parts having resistance or capacitance value are microcomponents.
- Color code of sleeving over the end of the jacket.

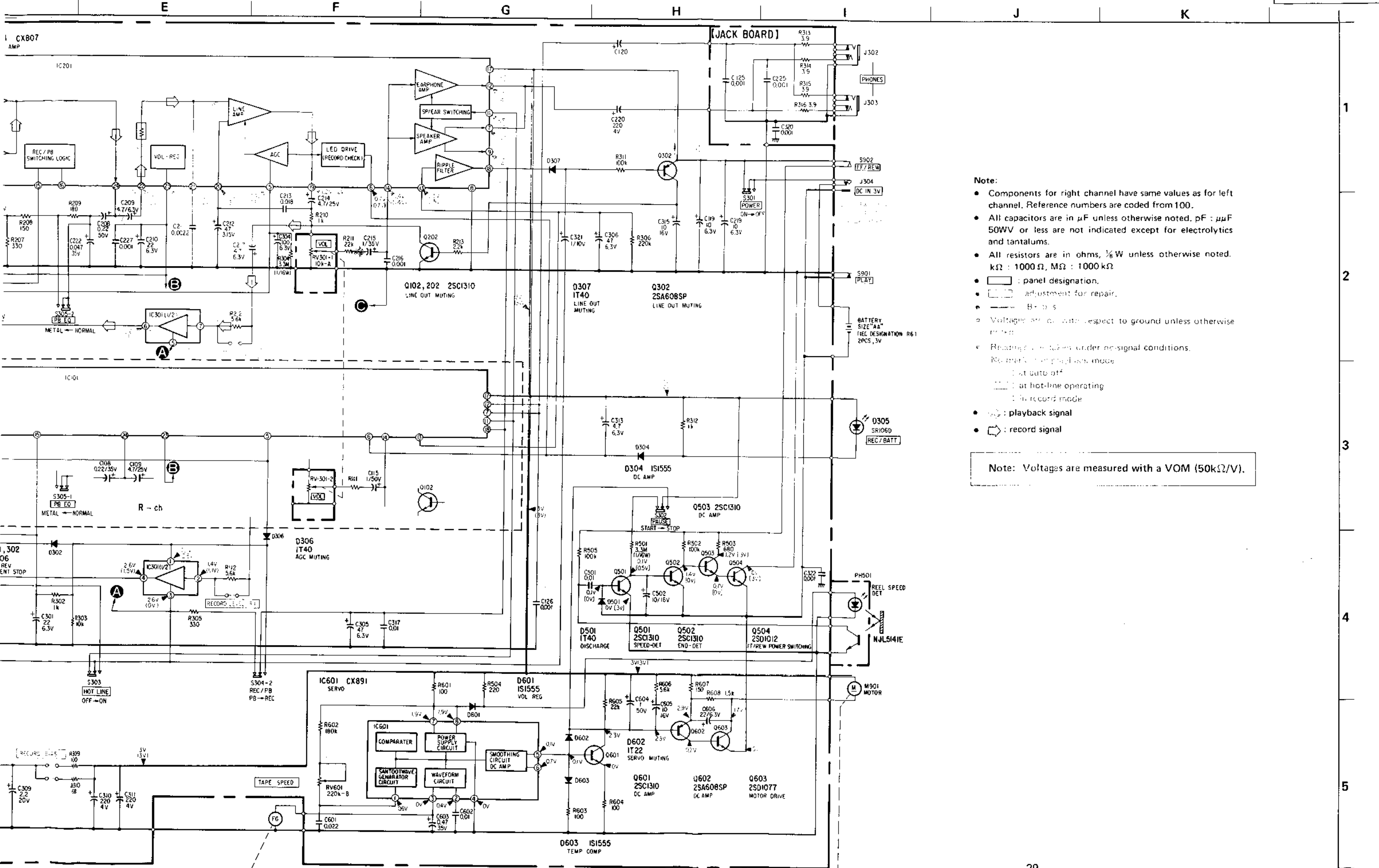


d from the component side.  
d from the conductor side.  
on the conductor side.

5-4. SCHEMATIC DIAGRAM (NEW TYPE)

WM-R2 WM-R2





- Note:**
- Components for right channel have same values as for left channel. Reference numbers are coded from 100.
  - All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF} : \mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
  - All resistors are in ohms,  $\frac{1}{2}\text{W}$  unless otherwise noted.  $\text{k}\Omega : 1000\ \Omega$ ,  $\text{M}\Omega : 1000\ \text{k}\Omega$
  - : panel designation.
  - : adjustment for repair.
  - $\text{---} \text{---} \text{---}$  : B + 0.5
  - Voltage are w.r.t. with respect to ground unless otherwise noted.
  - Readings are taken under no-signal conditions.
  - Numbers in parentheses indicate mode:
    - (1) : at auto stop
    - (2) : at hot-line operating
    - (3) : in record mode
  - : playback signal
  - : record signal

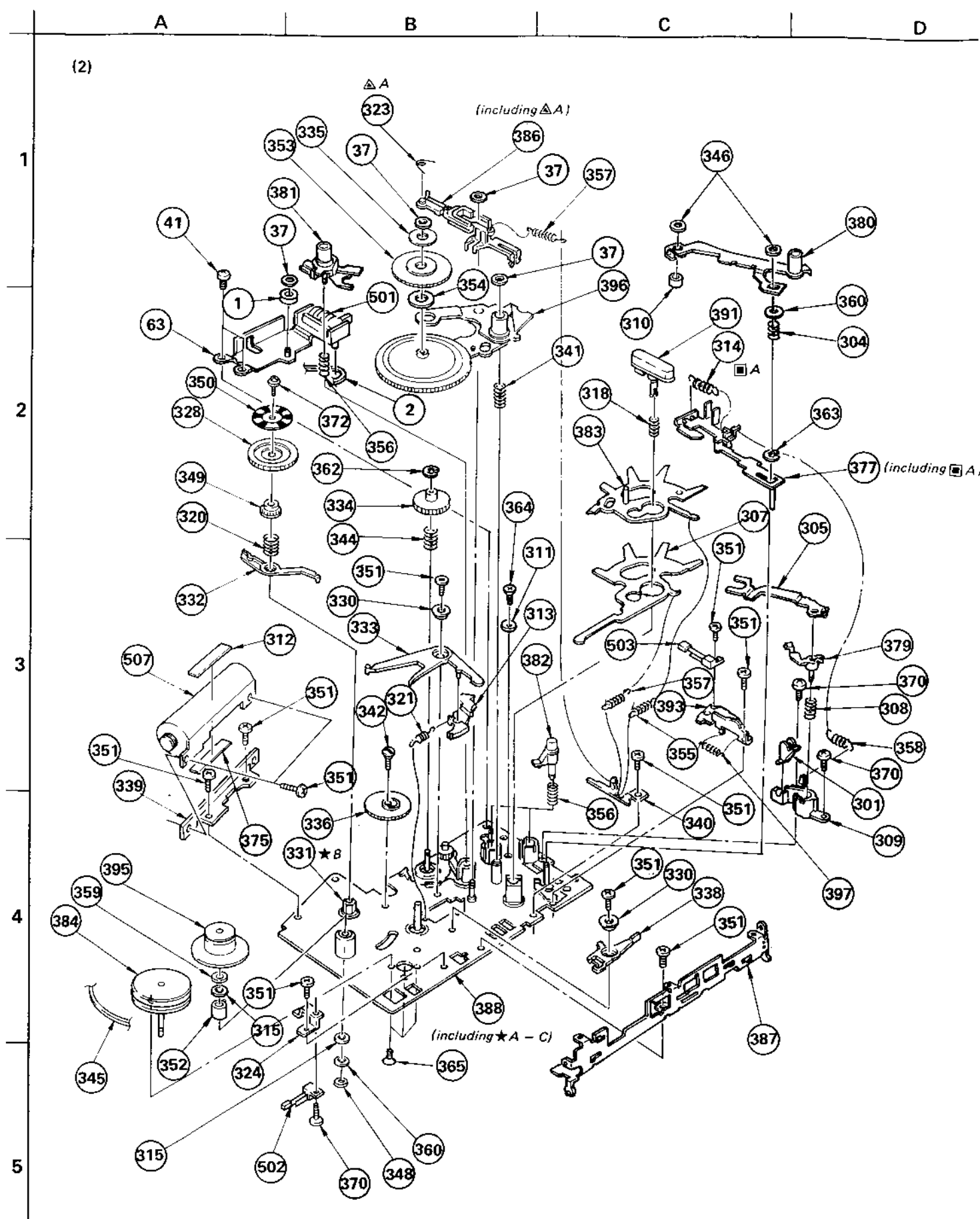
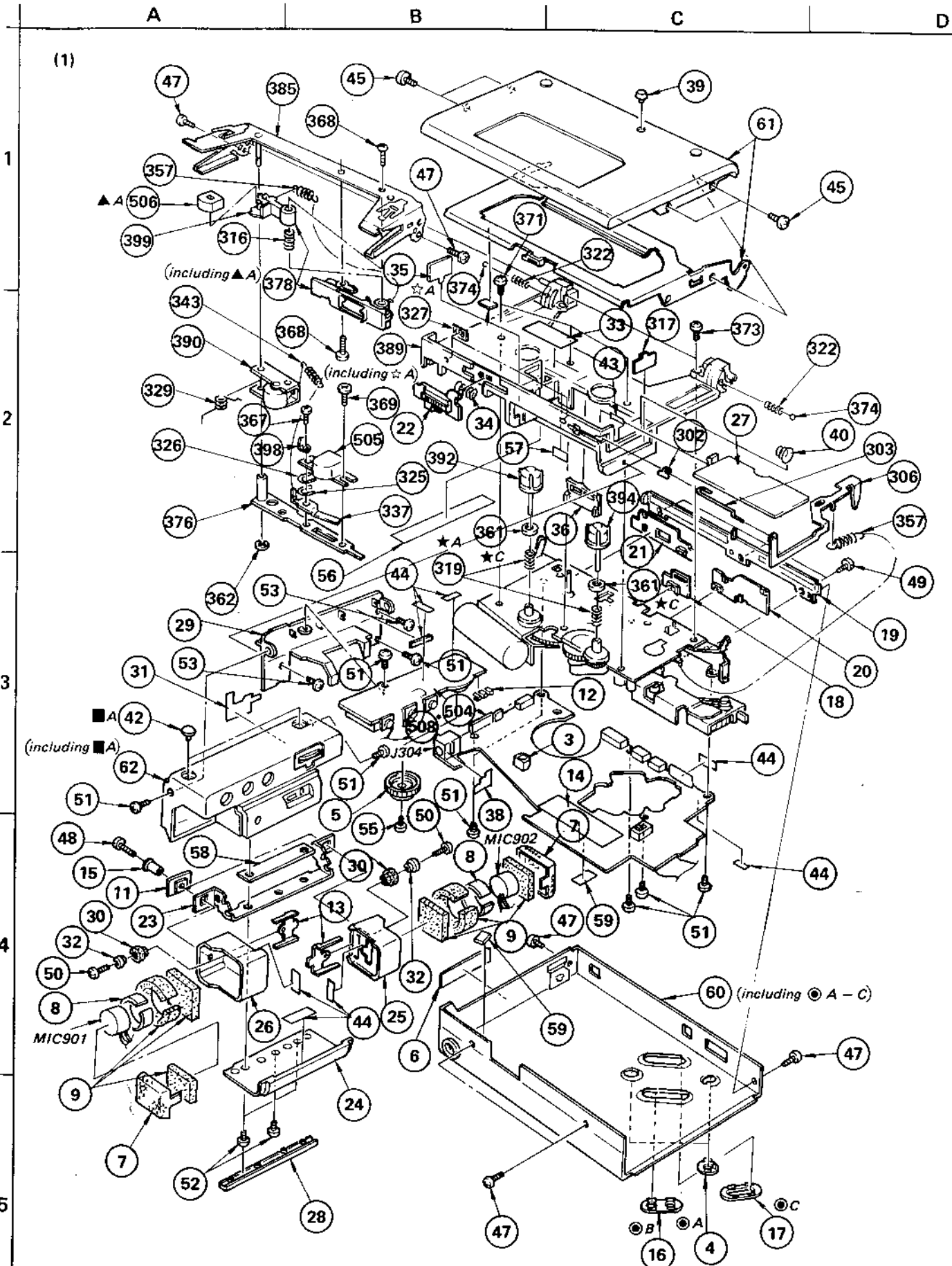
Note: Voltages are measured with a VOM (50k $\Omega$ /V).





SECTION 6  
EXPLODED VIEWS & PARTS LIST

WM-R2 WM-R2



**WM-R2 WM-R2**

GENERAL SECTION		
No.	Part No.	Description
1	3-305-405-00	PULLEY, MIDWAY
2	3-305-420-00	BELT
3	3-305-434-00	SPACER
4	3-305-450-00	ORNAMENT, RP BUTTON
5	3-305-456-01	(BLACK)...KNOB, CONTROL
5	3-305-456-11	(SILVER)...KNOB, CONTROL
6	3-305-458-01	(BLACK)...LABEL, MODEL NUMBER
6	3-305-458-11	(SILVER)...LABEL, MODEL NUMBER
7	3-305-459-00	NET, MICROPHONE
8	3-305-460-00	RING, MICROPHONE
9	3-305-510-00	CUSHION (C)
10	.....	.....
11	3-305-463-00	CUSHION, MICROPHONE CASE
12	3-305-465-00	CONTACT (B), M
13	3-305-466-00	PLATE, NUT
14	3-305-472-00	LABEL, BATTERY
15	3-305-474-00	SLEEVE, CUSHION
16	3-305-477-00	ORNAMENT, FR BUTTON
17	3-305-478-00	ORNAMENT, STOP BUTTON
18	3-305-480-01	(BLACK)...KNOB, H.L.
18	3-305-480-11	(SILVER)...KNOB, H.L.
19	3-305-481-01	(BLACK)...ORNAMENT, PANEL
19	3-305-481-11	(SILVER)...ORNAMENT, PANEL
20	3-305-482-01	(BLACK)...KNOB, PAUSE
20	3-305-482-11	(SILVER)...KNOB, PAUSE
21	3-305-483-01	(BLACK)...KNOB, T SELECTION
21	3-305-483-11	(SILVER)...KNOB, T SELECTION
22	3-305-484-01	(BLACK)...KNOB, EJECT
22	3-305-484-11	(SILVER)...KNOB, EJECT
23	3-305-485-00	HOLDER, MICROPHONE
24	3-305-486-01	(BLACK)...COVER, MICROPHONE HOLDER
24	3-305-486-11	(SILVER)...COVER, MICROPHONE HOLDER
25	3-305-487-01	(BLACK)...CASE (LEFT), MICROPHONE
25	3-305-487-11	(SILVER)...CASE (LEFT), MICROPHONE
26	3-305-488-01	(BLACK)...CASE (RIGHT), MICROPHONE
26	3-305-488-11	(SILVER)...CASE (RIGHT), MICROPHONE
27	3-305-489-00	LID, BATTERY CASE
28	3-305-490-01	(BLACK)...GUARD, BUTTON
28	3-305-490-11	(SILVER)...GUARD, BUTTON
29	3-305-494-00	CHASSIS, MICROPHONE
30	3-305-503-00	CUSHION (C), MICROPHONE
31	3-305-504-00	FOIL, GROUND

GENERAL SECTION		
No.	Part No.	Description
32	3-305-505-00	SLEEVE (B), CUSHION
33	3-578-101-00	PLATE, ORNAMENTAL
34	3-578-104-00	SPRING, COMPRESSION
35	3-578-109-00	CONTACT
36	3-578-114-00	PANEL, CHASSIS
37	3-578-224-00	WASHER
38	3-578-229-00	SHEET, INSULATING
39	3-578-232-21	(BLACK)...ORNAMENT, ADJUSTMENT HOLE
39	3-578-232-31	(SILVER)...ORNAMENT, ADJUSTMENT HOLE
40	3-578-236-00	SPRING
41	.....	.....
42	3-644-002-00	CUSHION, HANDLE
43	3-701-999-00	LABEL, SERIAL NUMBER
44	3-831-441-XX	FELT
45	7-627-451-08	SCREW, PRECISION +K 1.4X1.6
46	7-627-551-17	SCREW, PRECISION +P 1.4X2
47	7-627-551-27	(SILVER)...SCREW, PRECISION +P 1.4X2.5
47	7-627-551-28	(BLACK)...SCREW, PRECISION +P 1.4X2.5
48	7-627-551-37	SCREW, PRECISION +P 1.4X5
49	7-627-551-47	SCREW, PRECISION +P 1.4X1.4
50	7-627-551-77	SCREW, PRECISION +P 1.4X4 TYPE1
51	7-627-850-27	(SILVER)...SCREW, PRECISION +P 1.4X3
51	7-627-850-28	(BLACK)...SCREW, PRECISION +P 1.4X3
52	7-627-850-37	SCREW, PRECISION +P 1.4X1.4
53	7-627-850-67	SCREW, PRECISION +P 1.4X4
54	7-627-850-68	SCREW, PRECISION +P 1.4X4
55	7-627-852-28	SCREW, TOTSU PWH 1.7X3
56	9-911-816-01	CLOTH, DRAWER, BATTERY
57	9-911-838-XX	CUSHION, METER
58	9-911-839-XX	CUSHION, M HOLDER
59	9-911-840-XX	CUSHION
60	X-3305-401-0	(BLACK)...PANEL ASSY, CONTROL
60	X-3305-427-0	(SILVER)...PANEL ASSY, CONTROL
61	X-3305-402-0	(BLACK)...PANEL ASSY, CASSETTE
61	X-3305-428-0	(SILVER)...PANEL ASSY, CASSETTE
62	X-3305-403-0	(BLACK)...PANEL ASSY, MICROPHONE
62	X-3305-429-0	(SILVER)...PANEL ASSY, MICROPHONE
63	X-3305-406-0	BRACKET ASSY, COUNTER

ACCESSORY & PACKING MATERIAL		
No.	Part No.	Description
91	1-528-052-00	BATTERY, ALKALI MANGANESE AM3
92	1-555-810-00	CORD, CONNECTION (RK-128)
93	3-305-506-02	(BLACK)...CASE, CARRYING
93	3-305-506-11	(SILVER)...CASE, CARRYING
94	3-305-507-00	CUSHION (LOWER)
95	3-305-521-00	INDIVIDUAL CARTON
96	3-701-309-00	LABEL, PRODUCT COLOR
97	3-701-329-00	LABEL, PRODUCT COLOR
98	3-701-625-00	BAG, POLYETHYLENE
99	3-783-874-11	(E,Canadian,AEP,UK)...MANUAL, INSTRUCTION
99	3-783-874-21	(US)...MANUAL, INSTRUCTION
100	3-795-355-11	CARD, WARRANTY, INTERNATIONAL
101	8-893-527-00	TAPE, DEMO (CD-814)
102	8-951-141-91	MDR-4L1 (B) SET
103	X-3305-424-0	(BLACK)...BELT ASSY, CARRYING
103	X-3305-426-0	(SILVER)...BELT ASSY, CARRYING
104	X-3305-425-1	(BLACK)...CUSHION (UPPER) ASSY
104	X-3305-425-2	(SILVER)...CUSHION (UPPER) ASSY

MECHANISM SECTION		
No.	Part No.	Description
301	3-305-402-00	LEVER (B), REC
302	3-305-403-00	CLAW, ERASING PROTECTION
303	3-305-415-00	SPRING
304	3-305-423-00	SPRING, COMPRESSION
305	3-305-425-00	ARM (B), REC
306	3-305-430-00	LEVER, ERASING PROTECTION
307	3-305-431-00	LEVER, SWITCH
308	3-305-432-00	SPRING, COMPRESSION
309	3-305-444-00	GUIDE, REC BUTTON
310	3-305-497-00	COLLAR, REC ARM
311	3-305-498-00	COLLAR
312	3-305-508-00	MOTOR LUBBER
313	3-305-509-00	LEVER (A), SHUT-OFF
314	3-527-188-00	SPRING, TENSION
315	3-547-734-00	WASHER
316	3-570-558-00	SPRING, COMPRESSION
317	3-578-109-00	CONTACT
318	3-578-121-00	SPRING, COMPRESSION
319	3-578-123-00	SPRING, COMPRESSION
320	3-578-124-00	SPRING, COMPRESSION
321	3-578-126-00	SPRING, TENSION
322	3-578-127-00	SPRING, COMPRESSION
323	3-578-130-00	SPRING
324	3-578-135-00	BRACKET, SWITCH
325	3-578-138-01	SEAM
326	3-578-138-11	SEAM
327	3-578-141-00	SPRING
328	3-578-142-00	GEAR, FWD
329	3-578-146-00	SPRING
330	3-578-149-00	SHAFT, LEVER (A), SHUT-OFF
331	3-578-151-00	SHAFT, GEAR, FWD
332	3-578-154-00	LEVER, DETECTION
333	3-578-157-00	LEVER (B), SHUT-OFF
334	3-578-162-00	GEAR, REW
335	3-578-168-00	PLATE (B), HYSTERESIS
336	3-578-178-00	GEAR, SHUT-OFF
337	3-578-181-00	SPRING
338	3-578-183-00	LEVER, RETURN, S
339	3-578-187-00	BRACKET, M
340	3-578-196-00	HOOK, SPRING
341	3-578-199-00	SPRING, COMPRESSION
342	3-578-214-00	SHAFT, GEAR, SHUT-OFF
343	3-578-220-00	SPRING, TENSION
344	3-578-221-00	SPRING, COMPRESSION
345	3-305-524-00	BELT

NOTE:  
 \* Items with no part number and no description are not stocked because they are seldom required for routine service.  
 \* 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 numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:  
 \* All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.  
 MF: μF, PF: μμF.  
 RESISTORS  
 \* All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.  
 \* F: nonflammable  
 COILS  
 \* MMH: mH, UH: μH

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

NOTE:  
 \* Items with no part number and no description are not stocked because they are seldom required for routine service.  
 \* 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 numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:  
 \* All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.  
 MF: μF, PF: μμF.  
 RESISTORS  
 \* All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.  
 \* F: nonflammable  
 COILS  
 \* MMH: mH, UH: μH

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

## MECHANISM SECTION

No.	Part No.	Description
346	3-578-224-00	WASHER
347	3-578-224-11	WASHER
348	3-578-242-00	WASHER
349	3-578-244-01	GEAR, FF
350	3-578-264-00	REFLECTOR
351	3-578-267-00	SCREW (+P1.4X1.6), PRECISION
352	3-578-270-00	BEARING, WHEEL, REVERSE
353	3-578-275-00	GEAR (B), DRIVING
354	3-578-276-11	WASHER
355	3-578-277-00	SPRING, TENSION
356	3-578-278-00	SPRING, COMPRESSION
357	3-667-309-00	SPRING, TENSION
358	3-669-411-00	SPRING, TENSION
359	3-701-436-01	WASHER, 1.6
360	3-701-436-11	WASHER, 1.6
361	7-623-922-01	WASHER 2.0, NYLONE
362	7-624-101-01	RING, RETAINING E-1.2
363	7-624-102-04	STOP RING 1.5, TYPE -E
364	7-627-451-08	SCREW, PRECISION +K 1.4X1.6
365	7-627-451-87	SCREW, PRECISION +K 1.4X2.2
366	7-627-551-28	SCREW, PRECISION +P 1.4X2.5
367	7-627-553-27	SCREW, PRECISION +P 2X2.5
368	7-627-553-98	SCREW, PRECISION +P 2X8
369	7-627-554-17	SCREW, PRECISION +P 2X3.5
370	7-627-850-18	SCREW, PRECISION +P 1.4X2.5
371	7-627-850-48	+P 1.4X1.6
372	7-627-851-17	SCREW, PRECISION +P 1.4X4.5
373	7-627-851-27	SCREW, PRECISION +P 1.4X5
374	7-671-112-01	STEEL, BALL
375	9-911-838-XX	CUSHION, METER
376	X-3305-404-0	CHASSIS ASSY, HEAD
377	3-3305-407-0	LEVER (A) ASSY, REC
378	X-3305-408-0	TABLE ASSY, ERASE HEAD
379	X-3305-409-0	GUIDE ASSY, REC BUTTON
380	X-3305-410-0	ARM (A) ASSY, REC
381	X-3305-411-0	BUTTON ASSY, FWD
382	X-3305-412-0	BUTTON ASSY, FR
383	3-3305-413-0	PLATE ASSY, LOCK
384	X-3305-416-0	FLYWHEEL COMPLETE ASSY
385	X-3305-418-0	HOLDER ASSY
386	X-3305-419-0	LEVER ASSY, FWD
387	3-3305-420-0	BRACKET ASSY
388	X-3305-421-0	CHASSIS ASSY, SUB
389	X-3305-422-0	CHASSIS ASSY
390	X-3578-106-0	PINCH ROLLER ASSY

## MECHANISM SECTION

No.	Part No.	Description
391	X-3578-107-0	BUTTON ASSY, STOP
392	X-3578-115-0	CLAW ASSY, REEL
393	X-3578-118-0	LEVER ASSY, FWD SWITCH
394	X-3578-126-0	CLAW ASSY, REEL
395	X-3578-129-0	WHEEL ASSY, REVERSE
396	X-3578-132-0	LEVER (A) ASSY, DRIVING
397	3-570-589-00	SPRING, TENSION
398	7-623-505-01	LUG, 2
399	3-305-438-00	LEVER, ERASE HEAD

## NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- 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 numbers ( $\Delta$ - $\Delta\Delta\Delta$ - $\Delta\Delta\Delta$ -XX or  $\Delta$ - $\Delta\Delta\Delta\Delta$ - $\Delta\Delta\Delta$ -X) may be different from those used in the set.

## CAPACITORS:

- All capacitors are in  $\mu$ F. Common capacitors are omitted. Refer to the following lists for their part numbers.
- MF: $\mu$ F, PF: $\mu\mu$ F.

## RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F: nonflammable

## COILS

- MMH: mH, UH:  $\mu$ H

## SEMICONDUCTORS

- In each case, U:  $\mu$ , for example: UA...:  $\mu$ A..., UPA...:  $\mu$ PA..., UPC...:  $\mu$ PC, UPD...:  $\mu$ PD...

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	1-548-541-21	COUNTER			
502	1-553-226-00	SWITCH, LEAF			
503	1-553-682-00	SWITCH, LEAF			
504	♣;1-607-009-00	PC BOARD, MAIN			
505	8-825-507-20	HEAD (PP227-3602)			
506	8-825-542-10	HEAD			
507	8-835-008-11	MOTOR MNF-1600B			
508	♣;A-3070-062-A	MOUNTED PCB, AUDIO			
C120	1-123-827-00	ELECT	220MF	20%	4V
C123	1-163-009-00	MICROCOMPONENT	0.001MF	10%	50V
C124	1-163-009-00	MICROCOMPONENT	0.001MF	10%	50V
C125	1-163-009-00	MICROCOMPONENT	0.001MF	10%	50V
C126	1-163-009-00	MICROCOMPONENT	0.001MF	10%	50V
C127	1-163-009-00	MICROCOMPONENT	0.001MF	10%	50V
C220	1-123-827-00	ELECT	220MF	20%	4V
C223	1-163-009-00	MICROCOMPONENT	0.001MF	10%	50V
C224	1-163-009-00	MICROCOMPONENT	0.001MF	10%	50V
C225	1-163-009-00	MICROCOMPONENT	0.001MF	10%	50V
C228	1-163-009-00	MICROCOMPONENT	0.001MF	10%	50V
C310	1-123-827-00	ELECT	220MF	20%	4V
C311	1-123-827-00	ELECT	220MF	20%	4V
C317	1-163-059-00	MICROCOMPONENT	0.01MF	10%	50V
C318	1-163-009-00	MICROCOMPONENT	0.001MF	10%	50V
D301	8-719-911-06	DIODE 1S5106			
D302	8-719-911-06	DIODE 1S5106			
D303	8-719-815-55	DIODE 1S1555			
D304	8-719-815-55	DIODE 1S1555			
D305	8-719-101-06	DIODE SR106D			
D306	8-719-815-55	DIODE 1S1555			
D307	8-719-815-55	DIODE 1S1555			
D501	8-719-815-55	DIODE 1S1555			
D601	8-719-815-55	DIODE 1S1555			
D602	8-719-422-21	DIODE 1T22AM			
D603	8-719-815-55	DIODE 1S1555			
IC101	8-759-608-07	IC CX-807			
IC201	8-759-608-07	IC CX-807			
IC301	1-464-173-00	CIRCUIT UNIT, RECORD			
IC601	8-759-608-91	IC CX-891			

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
J301	1-507-688-31	JACK (STEREO PLUG)			
J302	1-507-688-00	JACK (STEREO PLUG)			
J303	1-507-688-00	JACK (STEREO PLUG)			
J304	1-507-723-00	JACK, EXTENTION POWER			
MIC901	8-814-187-00	MICROPHONE, BUILT-IN (C-1009A)			
MIC902	8-814-187-00	MICROPHONE, BUILT-IN (C-1009A)			
PH501	8-719-751-42	DIODE NJL5141E			
Q101	8-729-853-63	TRANSISTOR 2SC536SP			
Q102	8-729-853-63	TRANSISTOR 2SC536SP			
Q201	8-729-853-63	TRANSISTOR 2SC536SP			
Q202	8-729-853-63	TRANSISTOR 2SC536SP			
Q301	8-729-853-63	TRANSISTOR 2SC536SP			
Q302	8-729-860-83	TRANSISTOR 2SA608SP			
Q501	8-729-853-63	TRANSISTOR 2SC536SP			
Q502	8-729-853-63	TRANSISTOR 2SC536SP			
Q503	8-729-853-63	TRANSISTOR 2SC536SP			
Q504	8-729-801-22	TRANSISTOR 2SD1012			
Q601	8-729-853-63	TRANSISTOR 2SC536SP			
Q602	8-729-860-83	TRANSISTOR 2SA608SP			
Q603	8-729-307-72	TRANSISTOR 2SD1077L			
R304	1-211-719-00	CARBON	3.3M	10%	1/16W
R501	1-211-719-00	CARBON	3.3M	10%	1/16W
RV301	1-228-169-00	RES, VAR, CARBON 10K/10K			
RV601	1-226-875-00	RES, ADJ, METAL GLAZE 220K			
S301	1-553-906-00	SWITCH, SLIDE			
S302	1-553-906-00	SWITCH, SLIDE			
S303	1-553-906-00	SWITCH, SLIDE			
S304	1-553-223-00	SWITCH, SLIDE			
S305	1-553-280-00	SWITCH, SLIDE			
T301	1-433-249-00	TRANSFORMER, BIAS OSCILLATOR			

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- 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 numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.
- MF: μF, PF: μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

F : nonflammable

COILS

MMH : mH, UH : μH

SEMICONDUCTORS

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

ELECTROLYTIC CAPACITORS

CAP. (μF)	RATING → : Use the high voltage rated one.					
	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47						1-121-726-00
1.0						1-121-391-00
2.2						1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-415-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000		1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	
3300	1-121-661-00	1-123-075-00	1-123-071-00	-	-	-

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	-	-	-	-
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	-	1-123-028-00
3.3	1-121-995-00	-	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	-	-
47	1-123-251-00	1-121-919-00	-	-
100	1-123-084-00	-	-	-

CERAMIC CAPACITORS

CAP. (pF)	RATING							
	50 VOLT.		CAP. (pF)	50 VOLT.		CAP. (pF)	50 VOLT.	
	PART No.	PART No.		PART No.	PART No.		CAP. (μF)	PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00	
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00	
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00	
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00	
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00	
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00	
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00	
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00	
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00	
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00	
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00	
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00	
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00	
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00	
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00	
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00			
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00			
16	1-102-952-00	110	1-102-815-00					
18	1-102-953-00	120	1-102-816-00					
20	1-102-958-00	130	1-101-081-00					

0.001μF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

CAP. (μF)	RATING → : Use the high voltage rated one.					
	25 VOLT.		CAP. (μF)	50 VOLT.		
	PART No.	PART No.		PART No.	PART No.	
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00	
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00	
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00	
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00	
0.0022		1-161-043-00	0.039	1-161-020-00	1-161-058-00	
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00	
0.0033	→	1-161-045-00	0.056	→	1-161-060-00	
0.0039	→	1-161-046-00	0.068	→	1-161-061-00	
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00	
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00	
0.0068	→	1-161-049-00				
0.0082	1-161-012-00	1-161-050-00				
0.01	1-161-013-00	1-161-051-00				
0.012	→	1-161-052-00				
0.015	1-161-015-00	1-161-053-00				

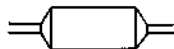
MYLAR CAPACITORS

RATING												
CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (μF)	50 VOLT.	100 VOLT.	200 VOLT.	
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00	
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00	
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00	
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00	
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00	
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	-	-	
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	-	-	
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	-	-	
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	-	-	
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00					
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00					
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00					



TANTALUM CAPACITORS

RATING								→ : Use the high voltage rated one.	
CAP. (μF)	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.		
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.		
0.01						→	→	1-131-396-00	
0.015						→	→	1-131-397-00	
0.022						→	→	1-131-398-00	
0.033						→	→	1-131-399-00	
0.047						→	→	1-131-400-00	
0.068						→	→	1-131-401-00	
0.1						→	→	1-131-402-00	
0.15						→	→	1-131-403-00	
0.22						→	→	1-131-404-00	
0.33						→	→	1-131-405-00	
0.47	-	-	-	-	1-131-412-00	→	→	1-131-406-00	
0.68	-	-	-	1-131-415-00	→	→	→	1-131-407-00	
1.0	-	-	1-131-418-00	-	1-131-413-00	→	→	1-131-408-00	
1.5	-	1-131-421-00	-	1-131-416-00	→	→	→	1-131-348-00	
2.2	1-131-424-00	-	1-131-419-00	-	1-131-414-00	→	→	1-131-349-00	
3.3	-	1-131-422-00	-	1-131-417-00	1-131-362-00	→	→	1-131-350-00	
4.7	1-131-425-00	-	1-131-420-00	1-131-369-00	1-131-363-00	→	→	1-131-351-00	
6.8	-	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	→	→	1-131-352-00	
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	→	→	1-131-353-00	
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	→	→		
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00				
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00					
47	1-131-393-00	1-131-387-00	1-131-381-00						
68	1-131-394-00	1-131-388-00							
100	1-131-395-00	-							



TANTALUM CAPACITORS

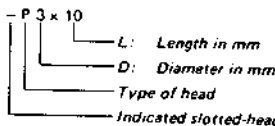
RATING						
CAP. (μF)	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			-	-	1-131-262-00	1-131-278-00
0.33			-	-	1-131-263-00	1-131-279-00
0.47			1-131-169-00	-	1-131-264-00	1-131-280-00
0.68			-	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	-	1-131-266-00	1-131-282-00
1.5		1-131-250-00	-	-	1-131-267-00	1-131-283-00
2.2		-	-	1-131-259-00	1-131-268-00	1-131-284-00
3.3		-	1-131-255-00	-	1-131-269-00	-
4.7		1-131-251-00	1-131-171-00	-	1-131-270-00	-
6.8		-	-	1-131-260-00	1-131-271-00	-
10		-	1-131-256-00	-	1-131-272-00	-
15		1-131-252-00	-	1-131-261-00	-	-
22		-	1-131-257-00	-	-	-
33	1-131-176-00	1-131-253-00	1-131-173-00	-	-	-
47	1-131-288-00	1-131-174-00	-	-	-	-
100	1-131-177-00	-	-	-	-	-

1/4 WATT CARBON RESISTORS

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

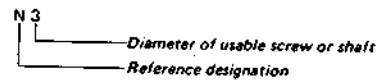
HARDWARE NOMENCLATURE

Screw:



Unless otherwise indicated, it means cross-recessed head (Phillips type).

Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
<b>SCREWS</b>			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-filister-head screw	
RF		filister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
<b>SELF-TAPPING SCREWS</b>			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
<b>SET SCREWS</b>			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
<b>NUT</b>			
N		nut	
<b>WASHERS</b>			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
<b>RETAINING RINGS</b>			
E		retaining ring	
G		grip-type retaining ring	



DIMENSIONS AND PART NO. OF PRECISION SCREWS

 ⊕ K (Flat-countersunk-head screw)				 ⊕ P (Pan-head screw)			
Type	Size (mm) (d × L)	Part No.		Type	Size (mm) (d × L)	Part No.	
		Black	Silver			Black	Silver
Type 1	K1.4 × 1.6	7-627-451-08	7-627-451-07	Type 1	P1.4 × 1.4		7-627-551-47
	K1.4 × 1.8				P1.4 × 1.6	7-627-551-08	7-627-551-07
	K1.4 × 2	7-627-451-38	7-627-451-37		P1.4 × 1.8		
	K1.4 × 2.2				P1.4 × 2	7-627-551-18	7-627-551-17
	K1.4 × 2.5	7-627-451-18	7-627-451-17		P1.4 × 2.2		
	K1.4 × 2.8				P1.4 × 2.5	7-627-551-28	7-627-551-27
	K1.4 × 3	7-627-451-28	7-627-451-27		P1.4 × 2.8	7-627-551-88	
	K1.4 × 3.5		7-627-451-47		P1.4 × 3	7-627-551-58	7-627-551-57
	K1.4 × 4				P1.4 × 3.5	7-627-551-68	7-627-551-67
	K1.4 × 4.5				P1.4 × 4	7-627-551-78	7-627-551-77
	K1.4 × 5	7-627-451-78	7-627-451-77		P1.4 × 4.5		
					P1.4 × 5	7-627-551-38	7-627-551-37
					P1.7 × 1.6	7-627-552-18	
					P1.7 × 1.8		
					P1.7 × 2	7-627-552-28	7-627-552-27
					P1.7 × 2.2		
					P1.7 × 2.5	7-627-552-08	7-627-552-07
					P1.7 × 2.8		
					P1.7 × 3	7-627-552-38	7-627-552-37
					P1.7 × 3.5	7-627-552-78	
			P1.7 × 4	7-627-552-48	7-627-552-47		
			P1.7 × 4.5		7-627-552-67		
			P1.7 × 5	7-627-552-58	7-627-552-57		
			P1.7 × 5.5				
			P1.7 × 6				
			P2 × 1.8				
			P2 × 2	7-627-553-18	7-627-553-17		
			P2 × 2.2		7-627-554-07		
			P2 × 2.5	7-627-553-28	7-627-553-27		
			P2 × 2.8				
			P2 × 3	7-627-553-38	7-627-553-37		
			P2 × 3.5		7-627-554-17		
			P2 × 4	7-627-553-48	7-627-553-47		
			P2 × 4.5	7-627-553-58	7-627-553-57		
			P2 × 5		7-627-553-67		
			P2 × 5.5				
			P2 × 6				
			P2 × 7	7-627-553-88	7-627-553-87		
			P2 × 8	7-627-553-98	7-627-553-97		
			P2 × 10	7-627-553-78	7-627-553-77		
			P1.4 × 1.4		7-627-850-37		
			P1.4 × 1.6		7-627-850-47		
			P1.4 × 1.8		7-627-850-77		
			P1.4 × 2	7-627-850-08	7-627-850-07		
			P1.4 × 2.2				
			P1.4 × 2.5	7-627-850-18	7-627-850-17		
			P1.4 × 2.8				
			P1.4 × 3	7-627-850-28	7-627-850-27		
			P1.4 × 3.5	7-627-850-58	7-627-850-57		
			P1.4 × 4	7-627-850-68	7-627-850-67		
			P1.4 × 4.5		7-627-851-17		
			P1.4 × 5		7-627-851-27		

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