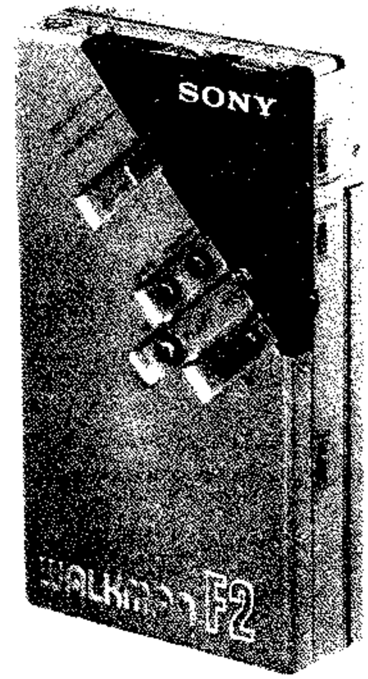


SPECIFICATIONS

Radio section

Frequency range: FM 87.5–108 MHz
Antenna: Headphone cord antenna

Tape recorder section and general

Recording system: 4-track 2-channel stereo
Frequency response:
TYPE I (NORMAL) cassette
50–9,000 Hz
40–12,000 Hz (playback)
TYPE IV (METAL) cassette
40–13,000 Hz (playback)
Input: Microphone input jack (stereo mini jack)
sensitivity 0.2 mV (–72 dB)
for low impedance microphone
Outputs: Two headphones jacks (stereo minijacks)
load impedance 5–300 ohms
Power output: Headphones:
20 mW + 20 mW (at 10% harmonic distortion)

Battery life

	continuous recording	continuous playback	FM recording
Supplied Sony Eveready Alkaline AM3	4.5	6	4
Eveready Alkaline AM1 with battery case (optional)	45	60	35

(hours)

Power requirements: [illegible]
designation AA
DC IN [illegible] jack [illegible]
battery case [illegible]
[illegible]
[illegible]
AC power adaptor [illegible]
[illegible]
car battery cord [illegible]
[illegible]
[illegible]
Dimensions: Approx. [illegible] mm (w/h/d)
[illegible] inches
incl. projecting parts and controls
Weight: Approx. [illegible] g
[illegible]
incl. batteries

Tape Transport Mechanism Type	MT-WMF2-21

MICROFILM

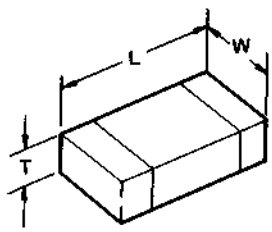
SERVICE MANUAL

Chip components

Chip components include resistors, capacitors, transistors, diodes, coil and adjustable resistors.

In this section, the types of resistors, ceramic capacitors, transistors and diodes which are used most frequently will be described.

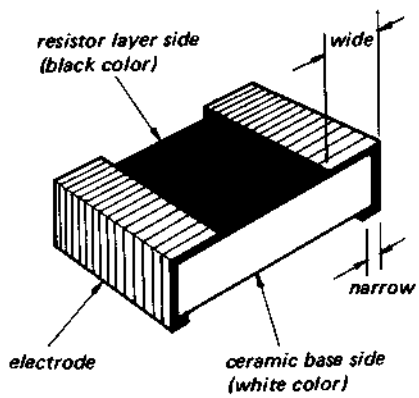
Dimension of transistors and capacitors



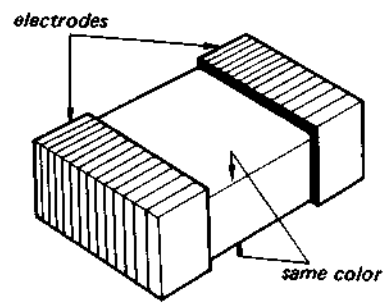
(Unit: mm)

Type	L	W	T
3216	3.2	1.6	0.45 ~ 0.6
2125	2.0	1.25	0.35 ~ 0.5

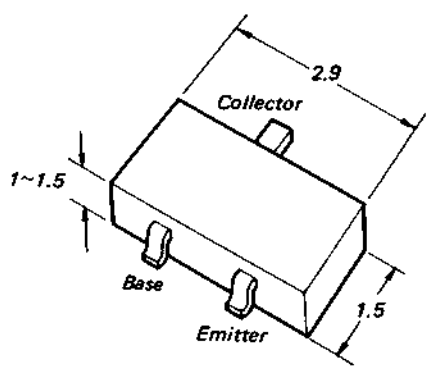
Identification



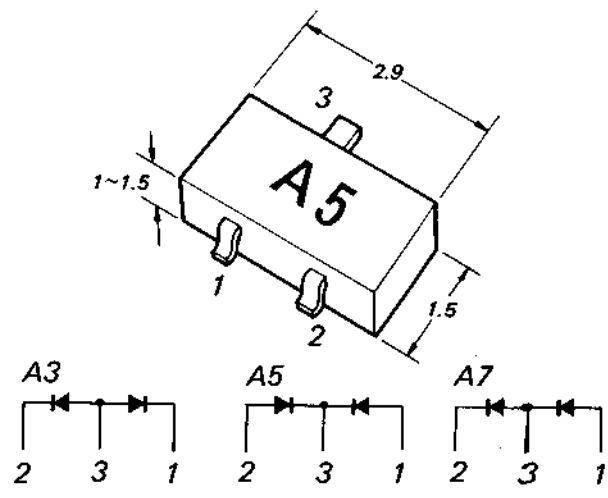
Resistor



Laminated Ceramic Capacitor



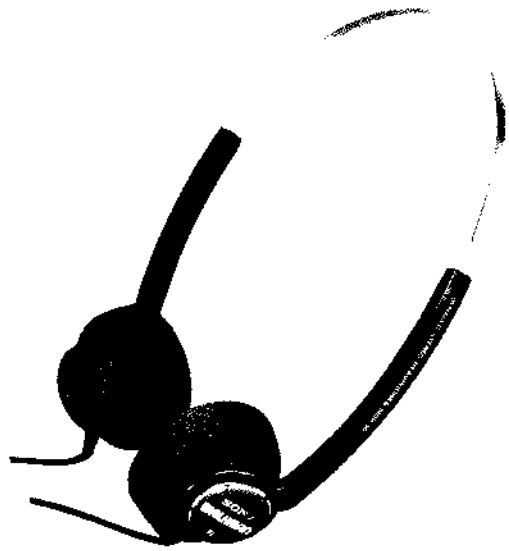
Transistor



Diode

MDR-30B

US Model
Canadian Model
AEP Model
UK Model
E Model



STEREO HEADPHONES

SPECIFICATIONS

Type:	Dynamic
Driver Units:	23 mm dia., dome
Impedance:	25Ω at 1 kHz
Sensitivity:	100 dB/mW
Rated Power:	40 mW
Frequency Response:	18 – 20,000 Hz
Cord Length:	1 m (stereo mini plug)
Weight:	Approx. 35 g (without cord)

MICROFILM

SONY

SERVICE MANUAL

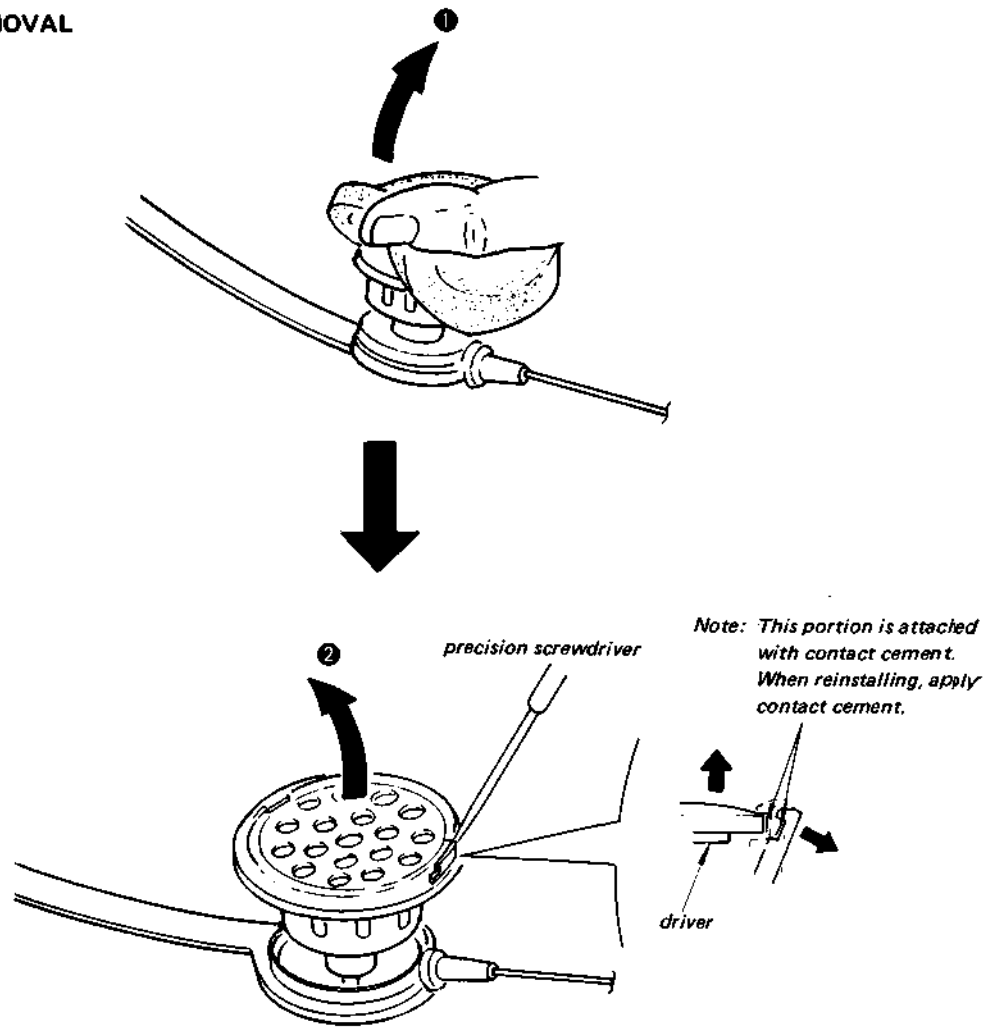
FEATURES

- These open-air type headphones are light and comfortable enough to wear for a long time.
- These headphones are equipped with a stereo unimatch plug which can be connected to a jack of either the mini or the phone type.
- The diaphragm and the copper-clad aluminum voice coil reproduce high quality, extended frequency sound.

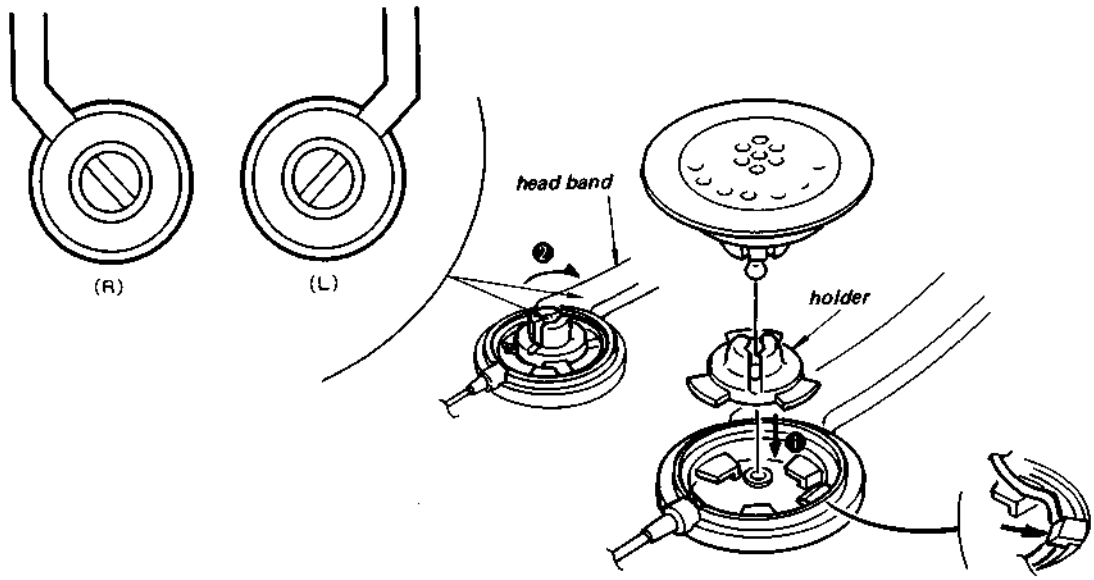
1. DISASSEMBLY

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

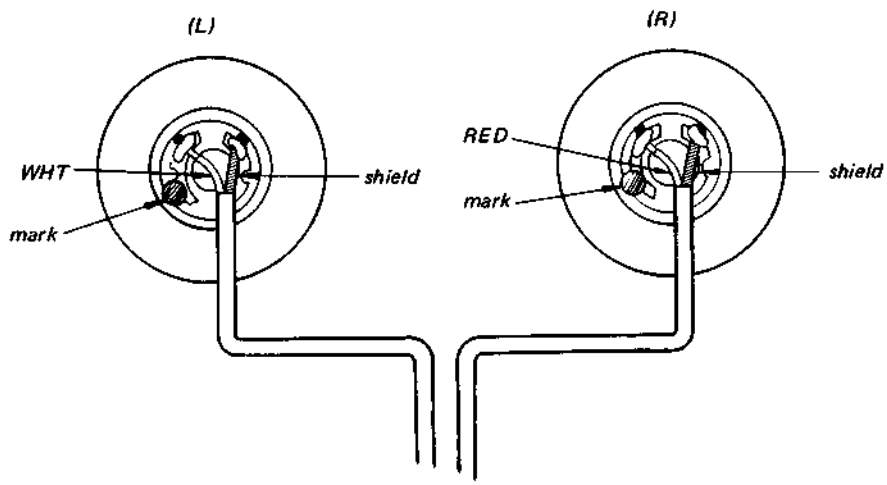
1-1. DRIVER REMOVAL



1-2. HOLDER INSTALLATION

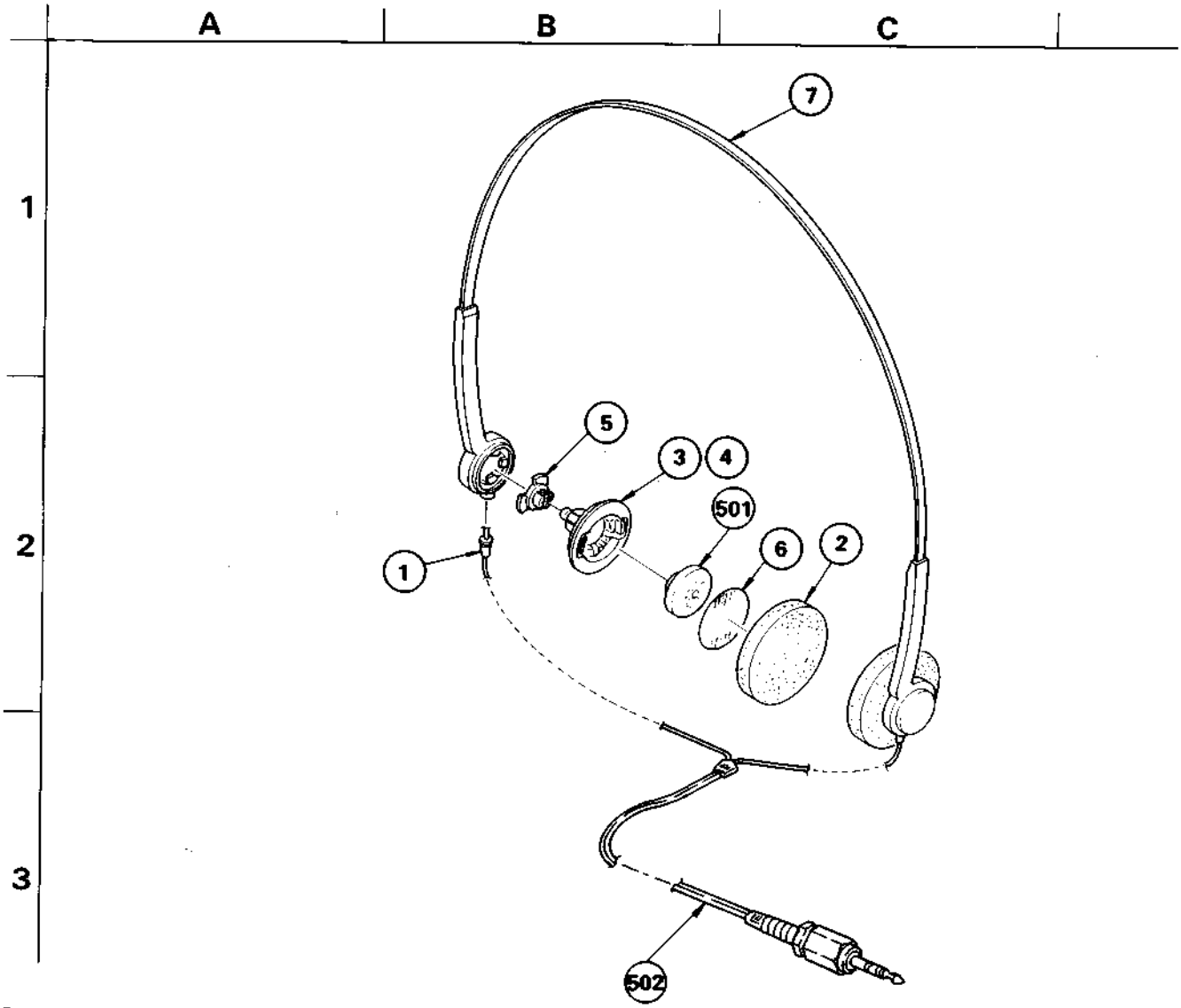


2. WIRING DIAGRAM



Note:
Pattern with identification mark is positive and above figure is one example of the case when the mark is on the right. Opposite case is possible.

3. EXPLODED VIEW



4. PARTS LIST

GENERAL SECTION

No.	Part No.	Description
1	2-297-614-11	BUSHING
2	2-366-306-11	(BLACK)...PAD, EAR
3	2-366-310-00	HOUSING (L)
4	2-366-311-00	HOUSING (R)
5	2-366-315-00	HOLDER
6	4-865-916-00	SCREEN (D)
7	X-2366-303-1	BAND ASSY, HEAD

ELECTRICAL PARTS

No.	Part No.	Description
501	1-505-058-00	DRIVER
502	1-555-459-21	CORD

Sony Corporation
Audio & Video Group

Replacing chip components

All chip components should be connected and disconnected, using a tapered soldering iron [temperature of the iron tip: less than 280°C (536°F)], a pair of tweezers and braided wire.

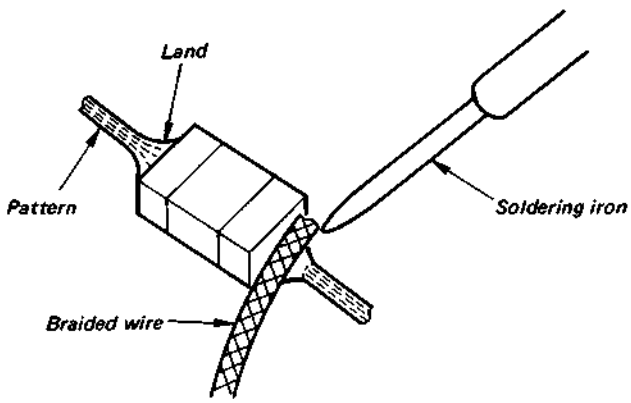
Precautions for replacement

1. **Do not disconnect the chip component forcefully. Otherwise, the pattern may peel off.**
2. **Never re-use a disconnected chip component. Dispose of all old chip components.**
3. **To protect the chip component, heating time for attaching the component should be within 3 seconds.**

○ Removing chip components

(1) Removing solder at electrode

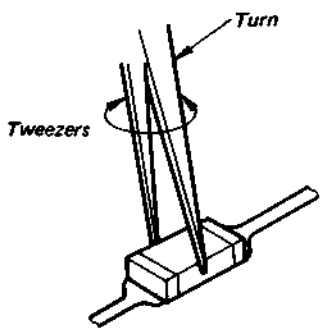
Remove the solder at the electrode, using a thin braided wire. Do not remove the solder of the part (chip component) attached adjacent to the electrode.



(2) Disconnecting chip components

Turn the tweezers with the soldering iron alternately applied to both electrodes, and the chip component will be disconnected. Take careful precautions while disconnecting, because if the chip component is forcefully removed the land may peel off.

Never re-use a disconnected chip component.



(3) Smoothing the soldered surface

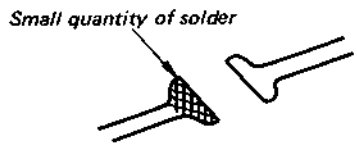
After disconnecting the chip component, remove the solder by using a braided wire to smooth the land surface.

○ Connecting chip components

The value of chip components is not displayed on the main body. Take due precautions to avoid mixing new chip components with other ones.

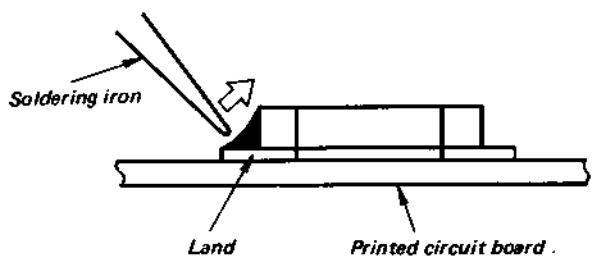
(1) Applying solder to land on one side

Apply a thin layer of solder to the land on one side where the chip component is to be connected. Too much solder may cause bridging.



(2) Speedy soldering

Hold the chip component at the desired position, using tweezers, and apply the soldering iron in the arrow-marked direction. To protect the chip component, heating time should be within 3 seconds.



(3) Speedy soldering of electrode on the other side

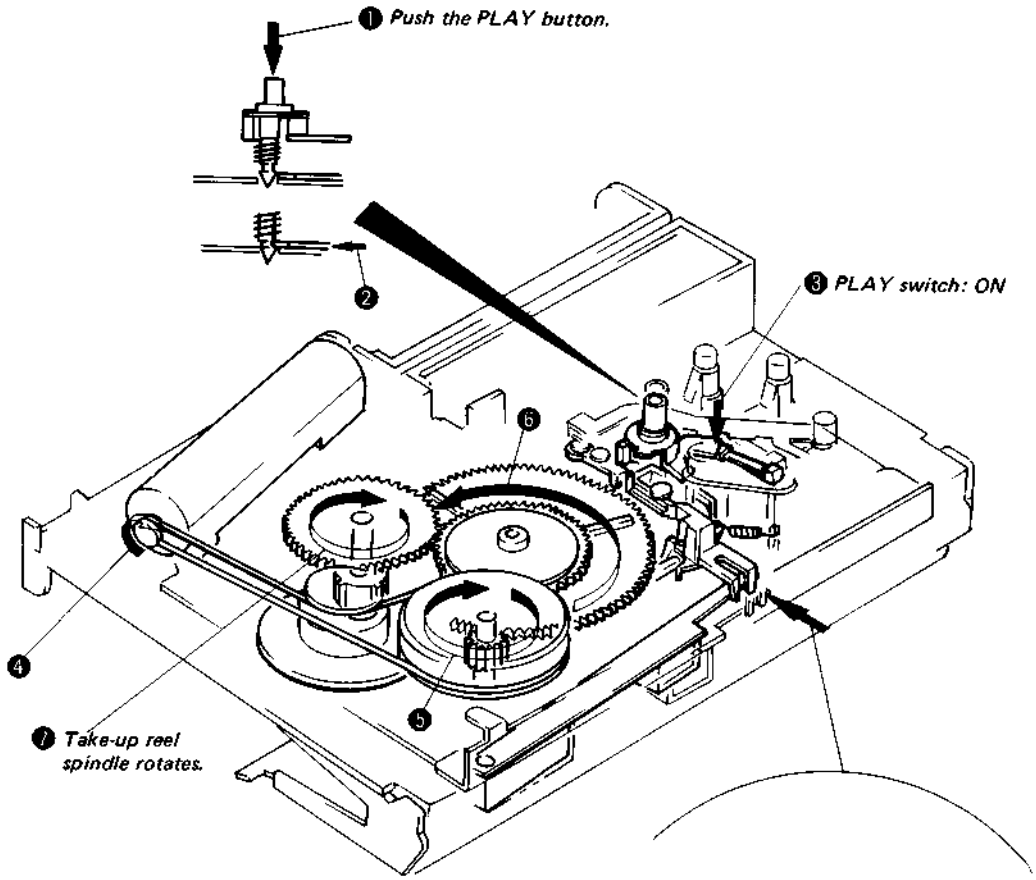
Solder the electrode on the other side in the same way as in (2) above.

SECTION 1
TECHNICAL DESCRIPTION

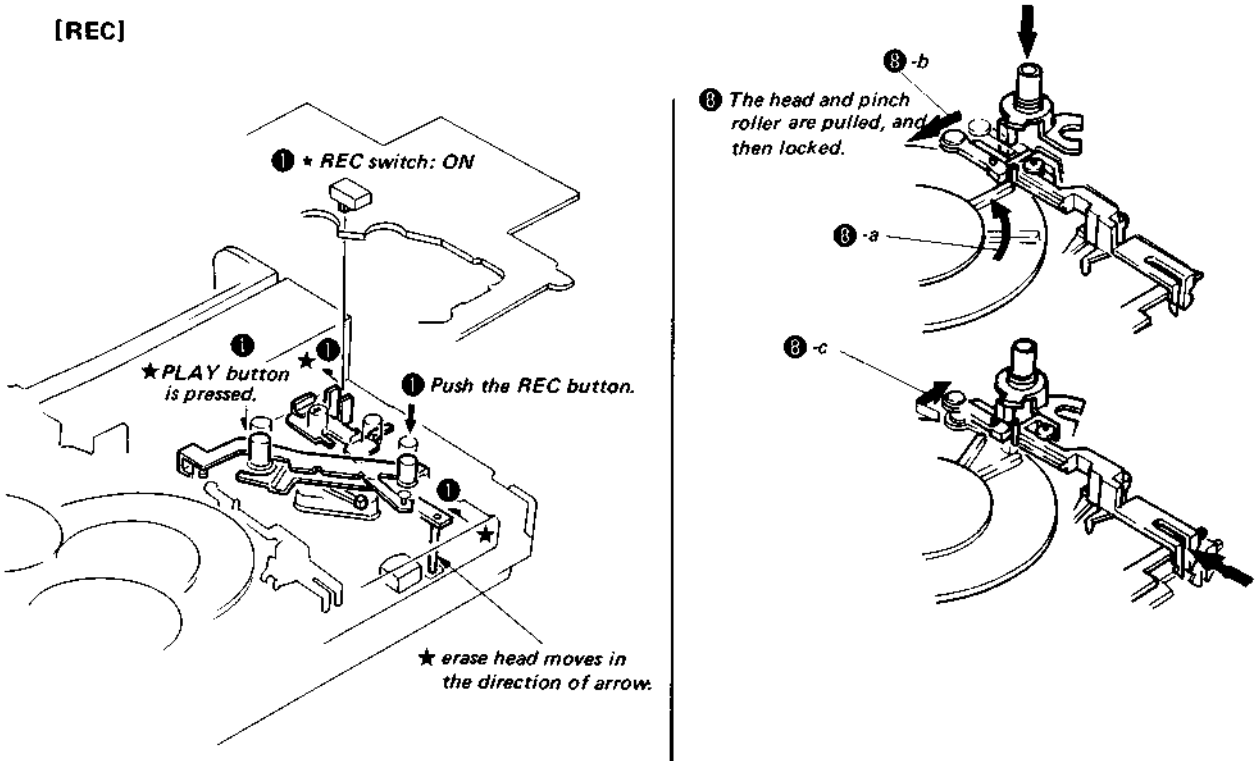
1-1. MECHANISM DESCRIPTION

[PLAY & REC]

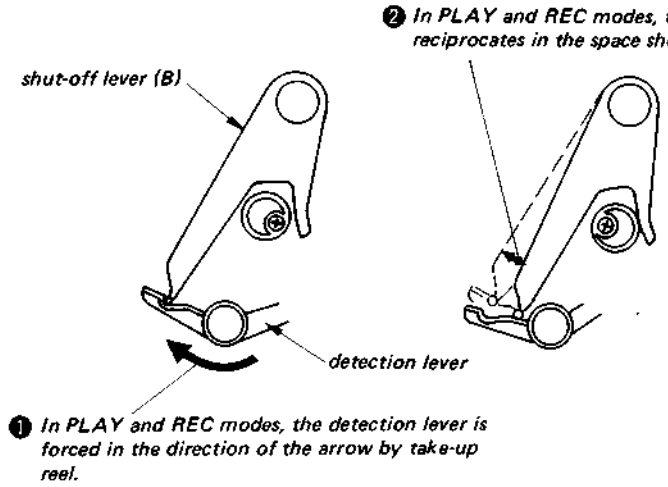
[PLAY]

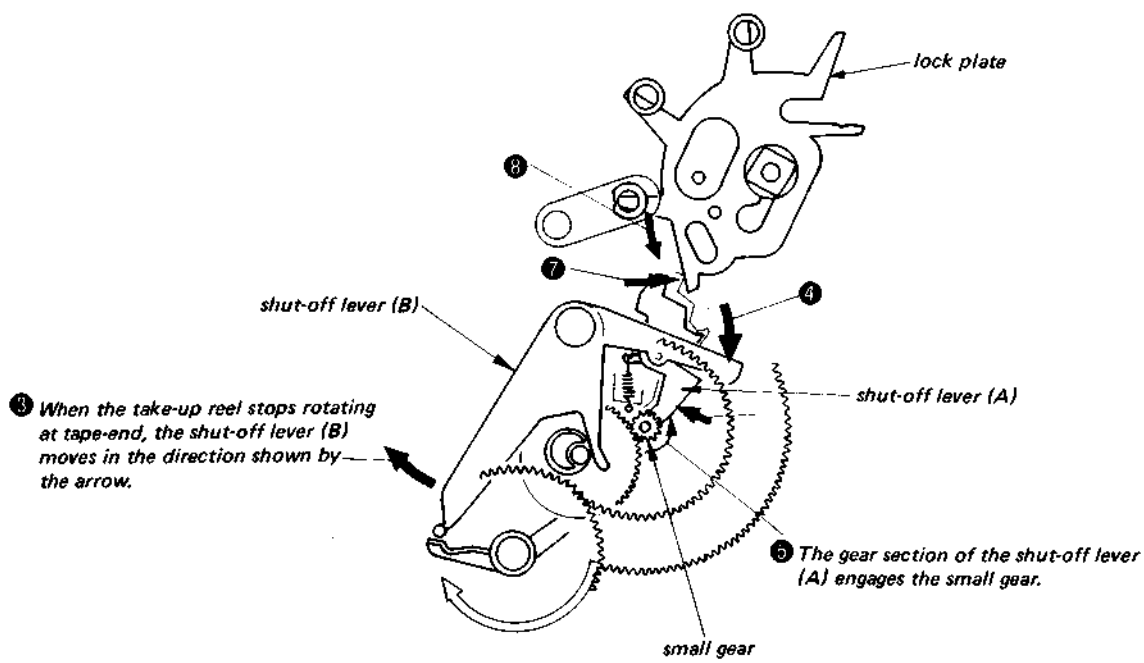


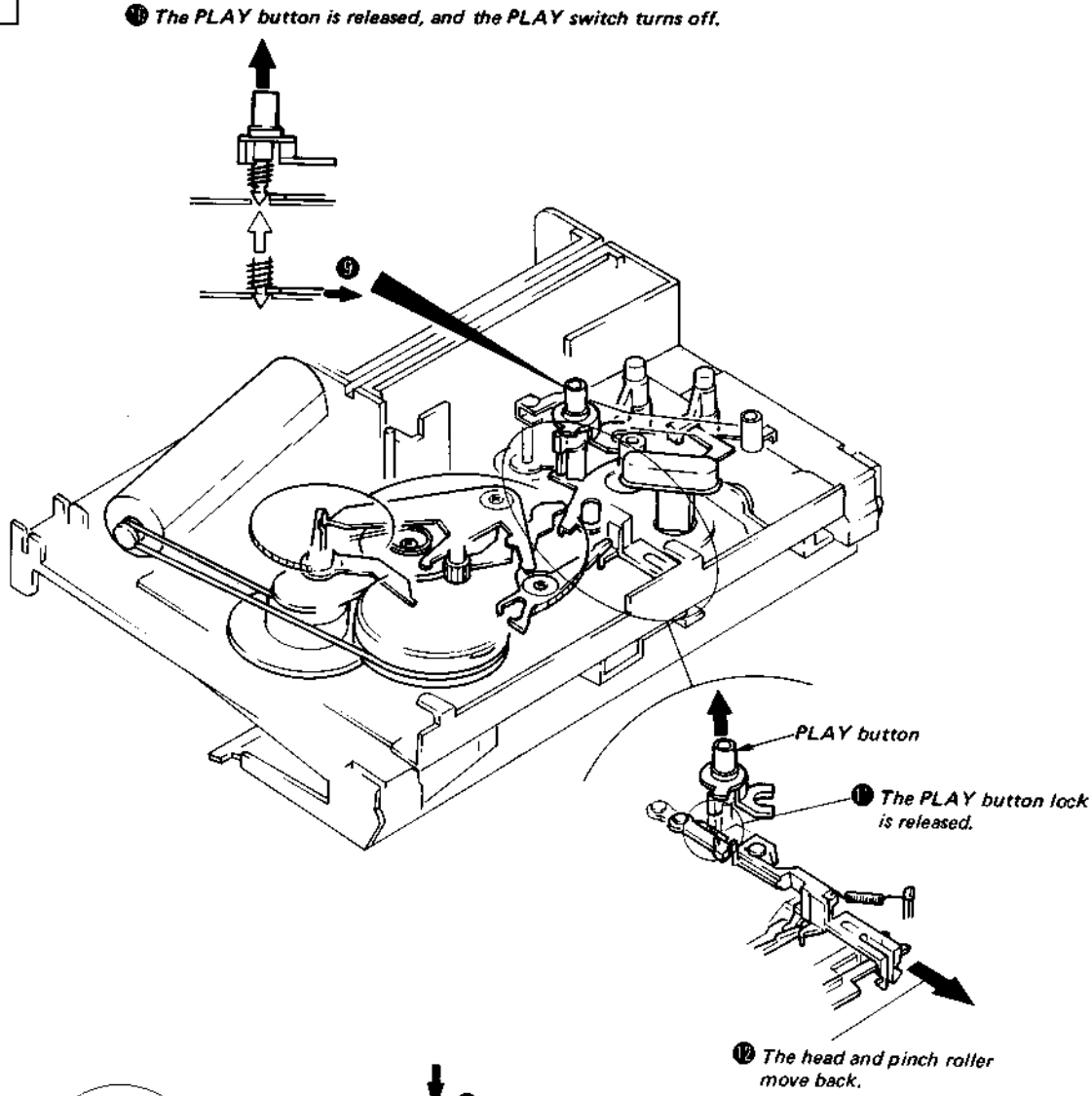
[REC]



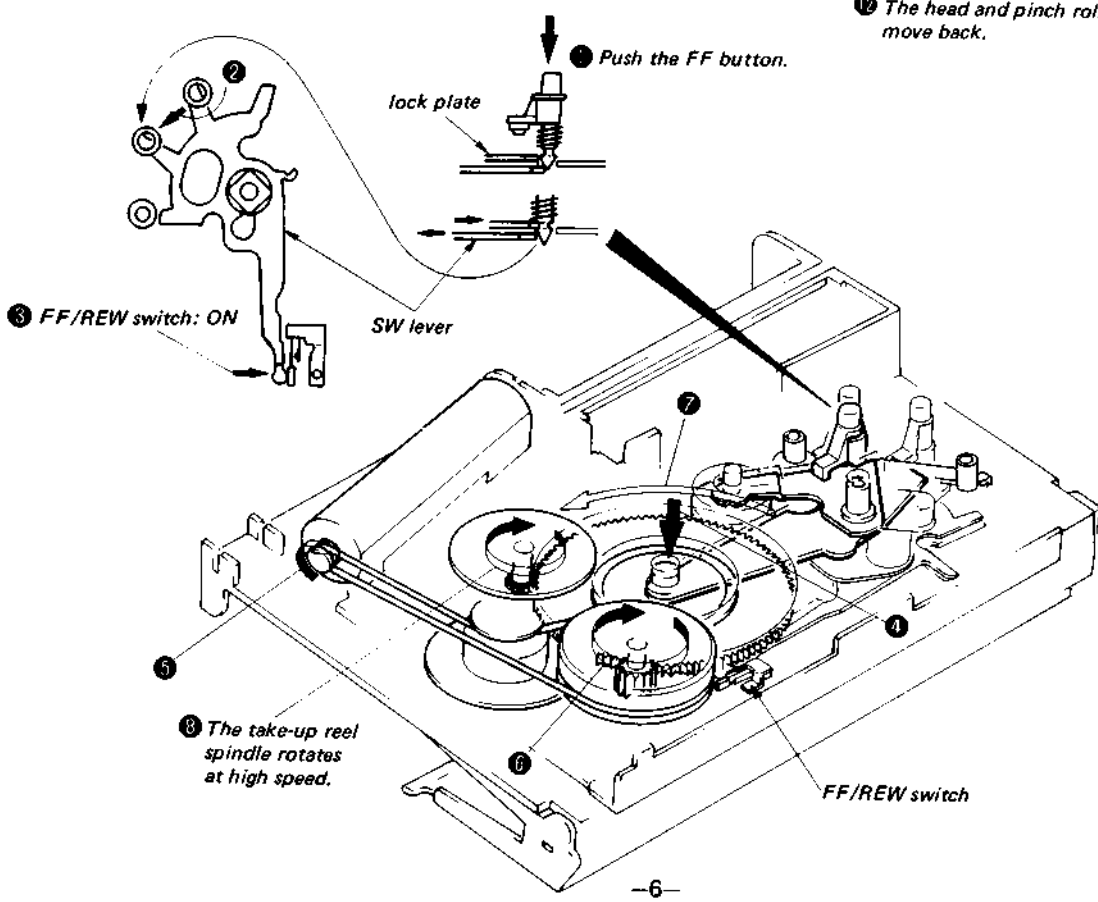
[Automatic Shut-off in PLAY and REC modes]



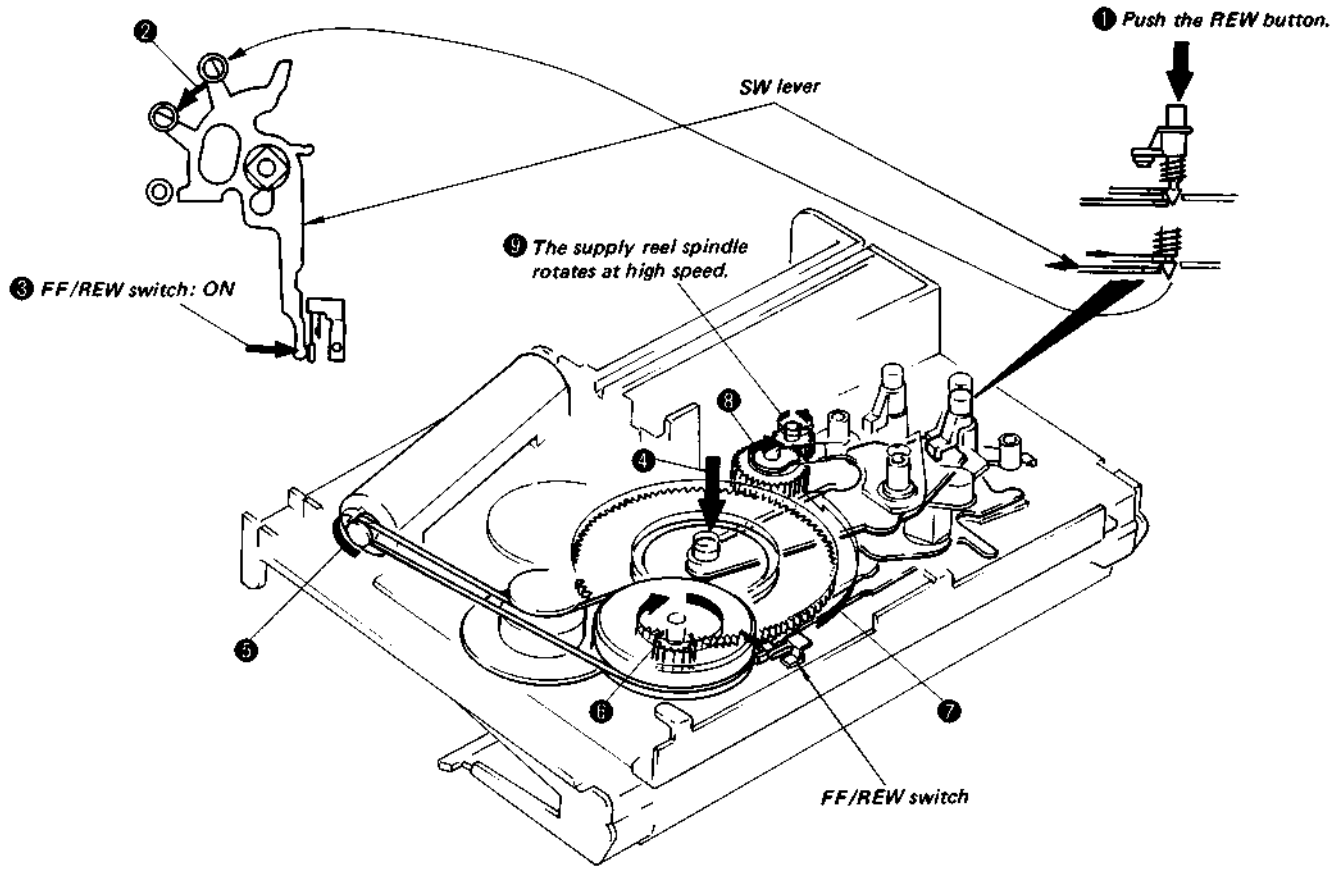



⓾ The PLAY button is released, and the PLAY switch turns off.
⓽
PLAY button
⓫ The PLAY button lock is released.
⓬ The head and pinch roller move back.

[FF]


❶ Push the FF button.
lock plate
❷
❸ FF/REW switch: ON
SW lever
❼
❹
❺
❽ The take-up reel spindle rotates at high speed.
❻
FF/REW switch

[REW]


❶ Push the REW button.
SW lever
❷
❸ FF/REW switch: ON
❾ The supply reel spindle rotates at high speed.
❽
❹
❺
❻
❼
FF/REW switch

1-2. CIRCUIT DESCRIPTION

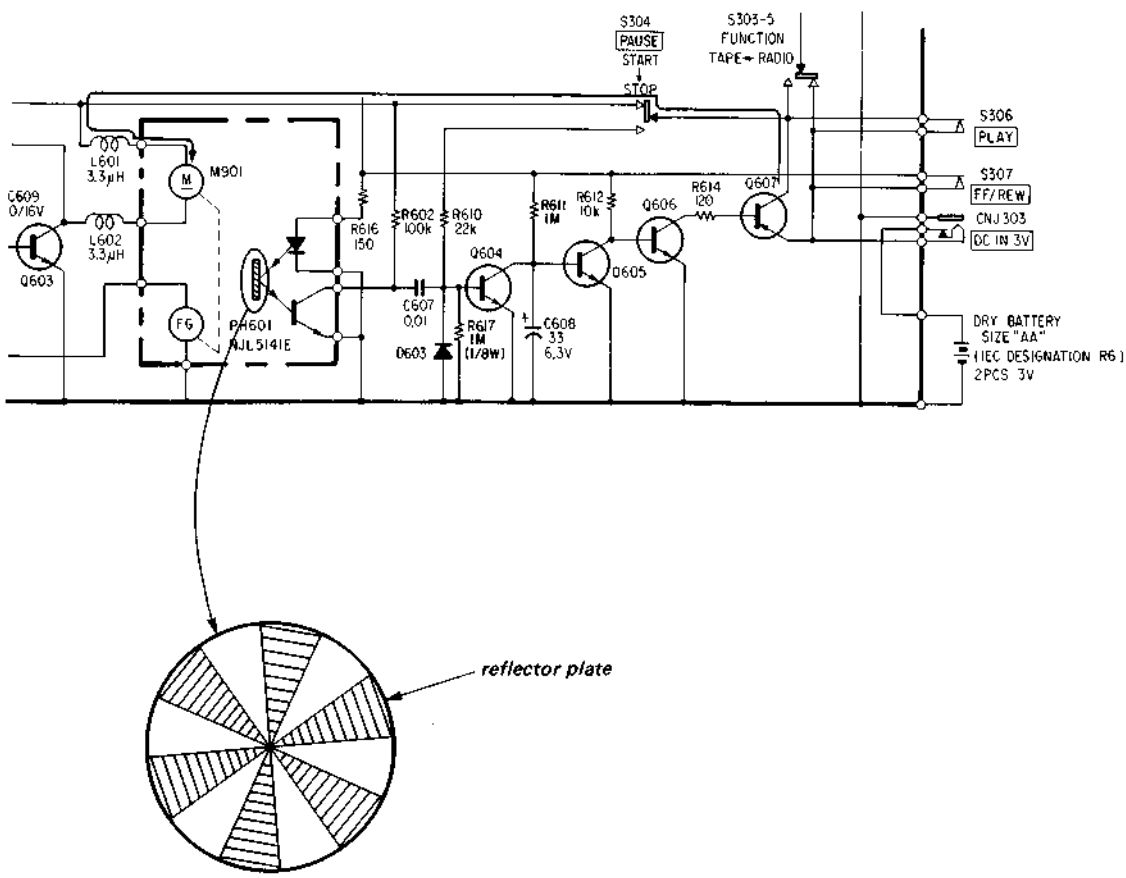
Auto-Off Circuit

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 Q604 base via the photo-reflector (PH601) and C607. Therefore, Q604 alternately repeats on, off.

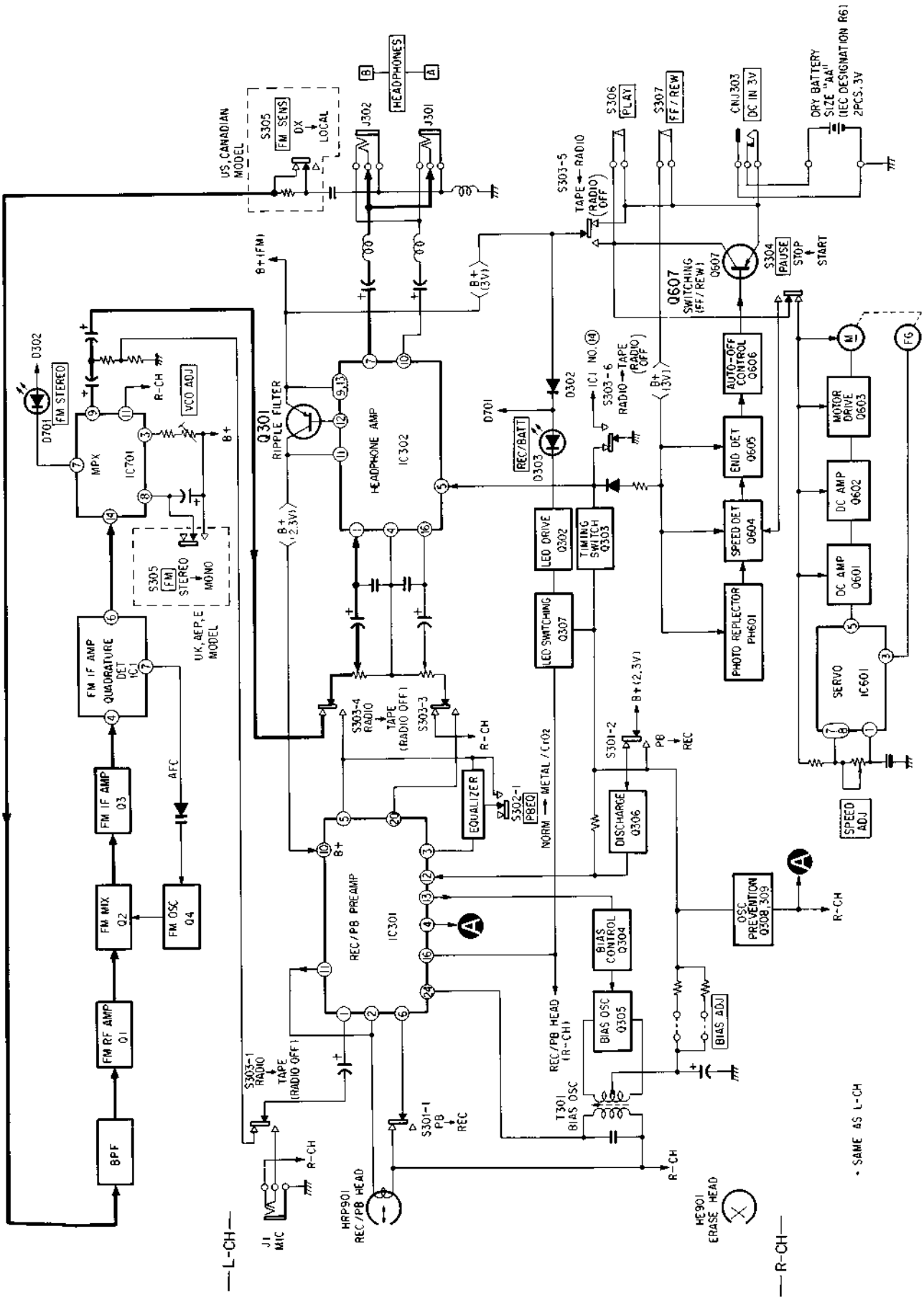
D603 is used for C607 discharge. The following is an explanation of FF or REW with the reel table rotating. First, when an on signal is applied to Q604 base via the photo-reflector, Q605 goes off. Therefore, since Q606, Q607 go on, B+ voltage is fed to the motor via the collector of Q607 and the motor rotates.

Next, when an off signal is applied to Q604 base, Q604 goes off and Q605 goes on, but because B+ is applied to Q605 base vai R611, Q605 stays off until C608 charging is completed. However, before C608 charges, the next on signal is applied to Q604 base, so Q604 goes on, and C608 is discharged through Q604. Therefore, while the take-up reel table is rotating., Q607 is on and the motor continues to rotate.

Next, at tape end, when the on, off signals are no longer applied to Q604, it goes off, and C608 charging is completed through R611. When the voltage across C608 goes above about 0.6V, Q605 goes on, Q606, 607 go off and motor rotation stops.



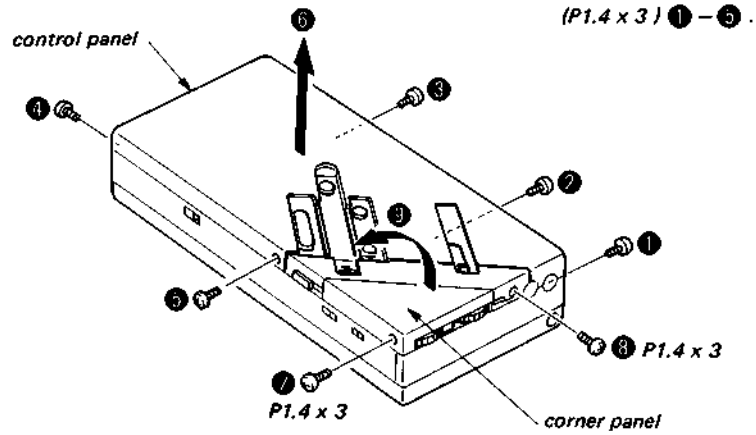
SECTION 2
BLOCK DIAGRAM



SECTION 3
DISASSEMBLY

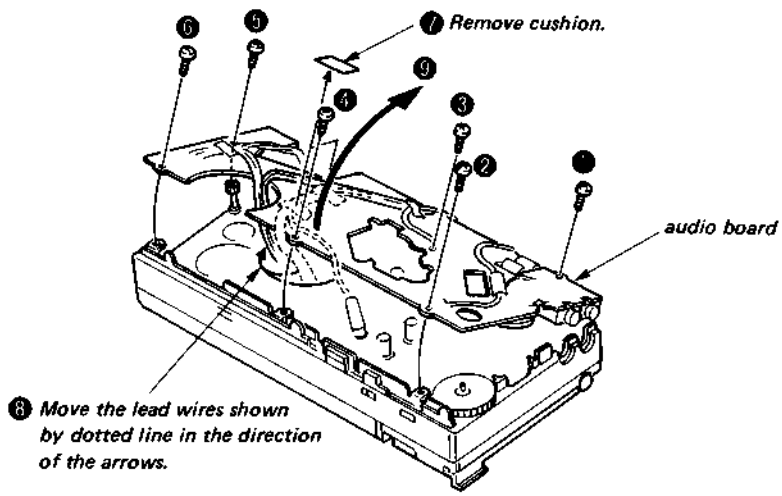
Note: Follow the disassembly procedure in the numerical order given.

Control Panel and Corner Panel Removal

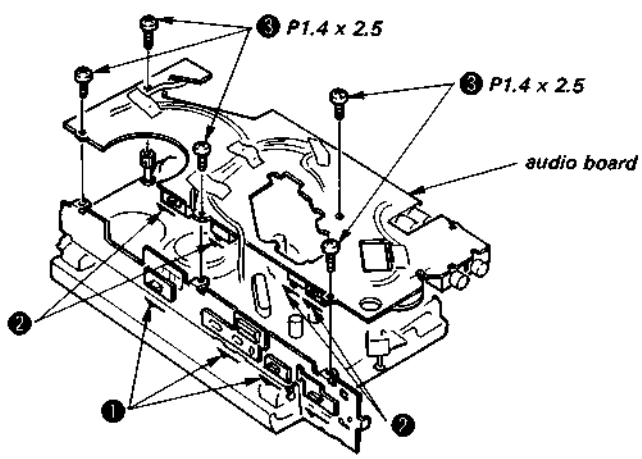


Audio Board Removal

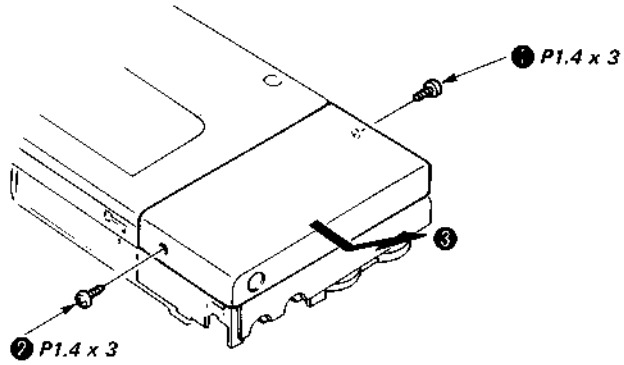
Remove the screws
(P1.4 x 2.5) ❶ – ❻ .



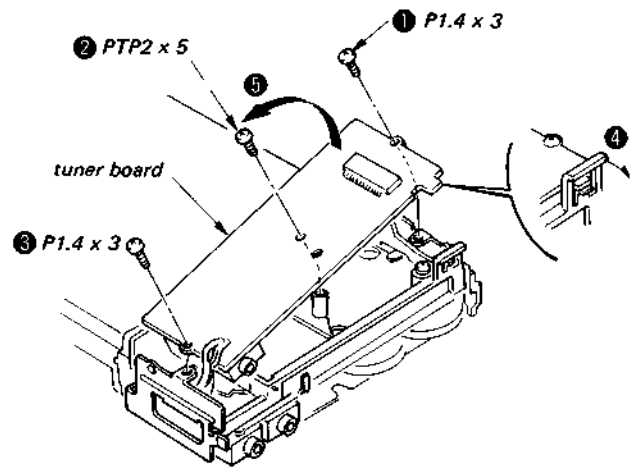
Audio Board Reinstallation



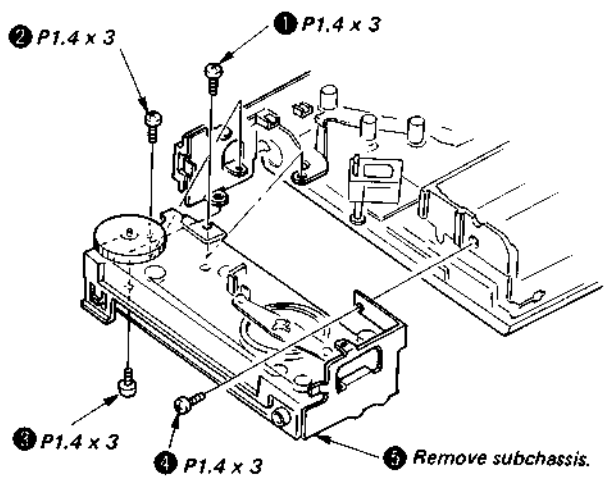
Top Cover Removal



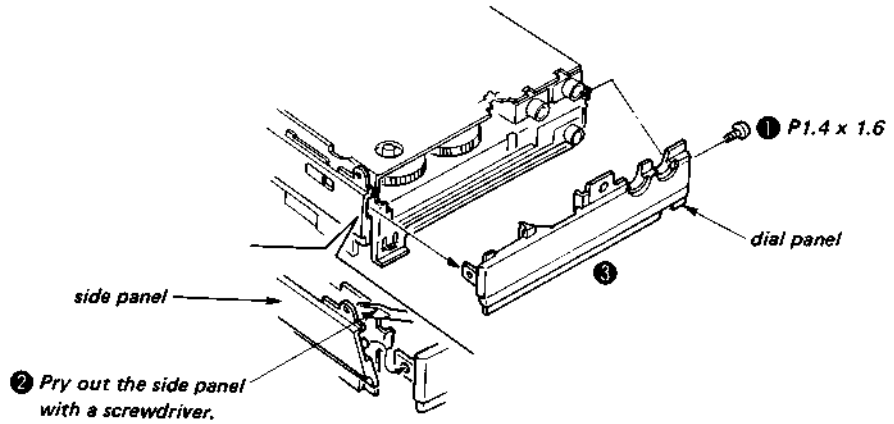
Tuner Board Removal



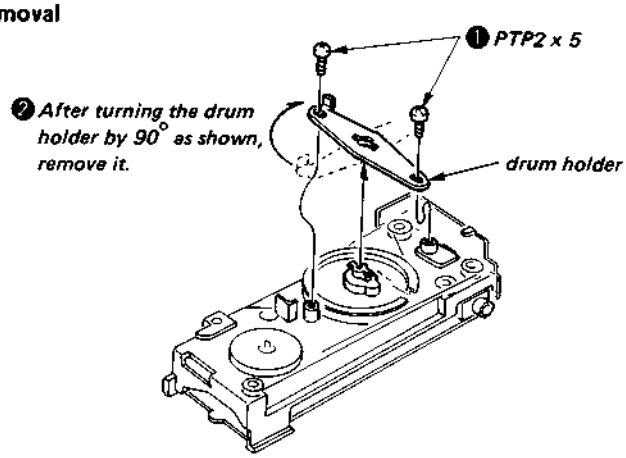
Subchassis Removal



Dial Panel Removal

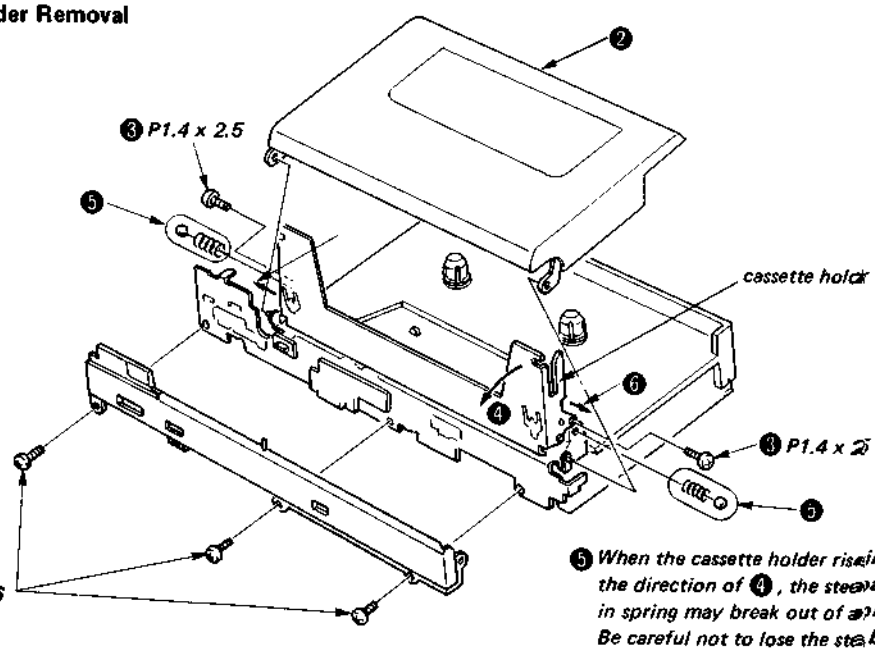


Drum Holder Removal



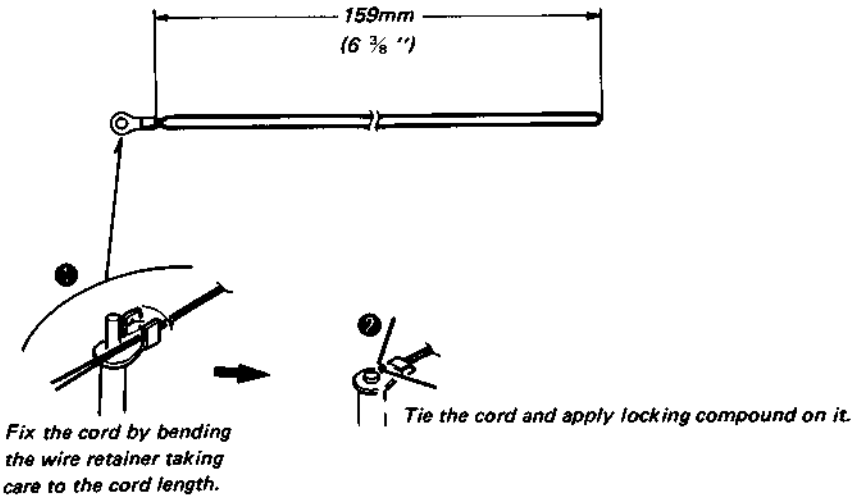
DIAL CORD STRINGING See page 13.

Cassette Holder Removal



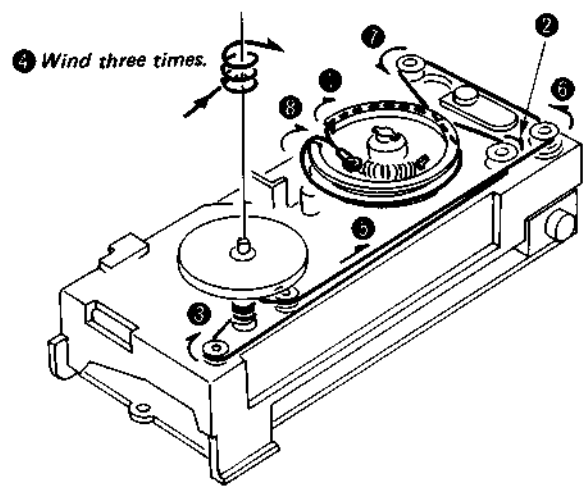
DIAL CORD STRINGING

1. Preparation



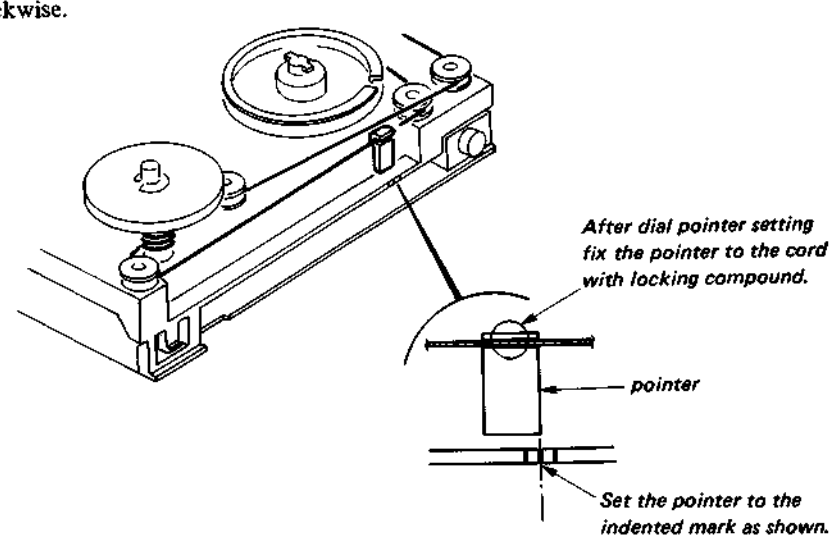
2. Stringing

Turn the dial drum fully clockwise. String the cord in the numerical order given.



3. Pointer Setting

Turn the TUNING knob so that dial drum is set fully counterclockwise.



SECTION 4
ADJUSTMENTS

PRECAUTION

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

playback head	pinch roller
capstan	rubber belts
	erase head

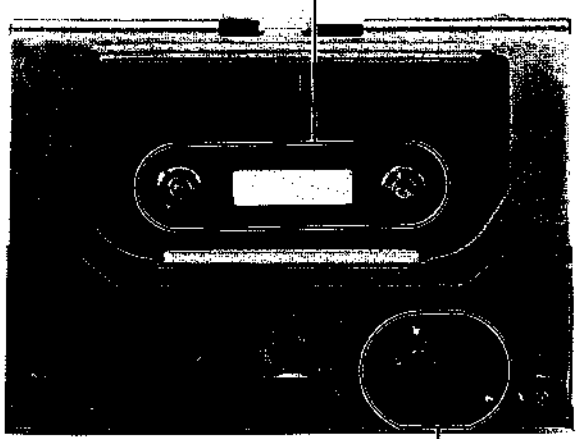
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

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



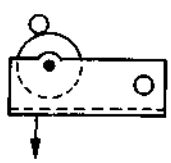
Pinch Roller Pressure Adjustment

– 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)

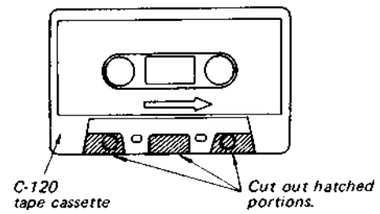
Standard output Level

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

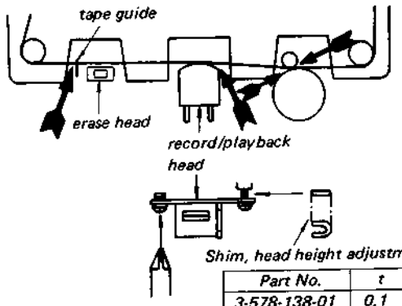
* Adjust by volume control.

Head Height Adjustment

1. Prepare an adjustment cassette as shown below.

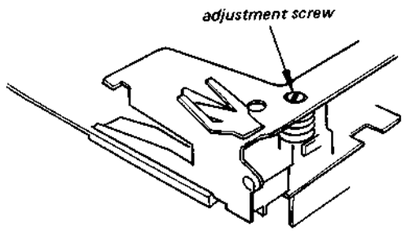


2. In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at portions of arrow.



Part No.	t
3-578-138-01	0.1
3-578-138-11	0.2

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

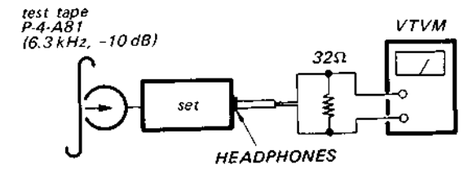


4. Apply locking compound on adjustment screw.

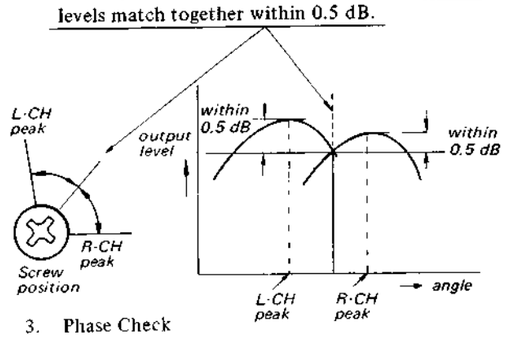
Record/playback Head Azimuth Adjustment

Procedure:

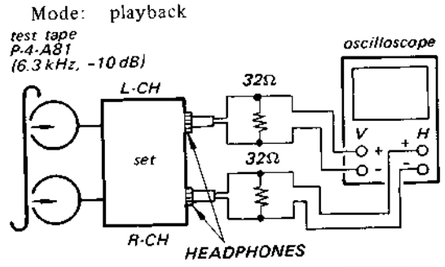
1. Mode: playback



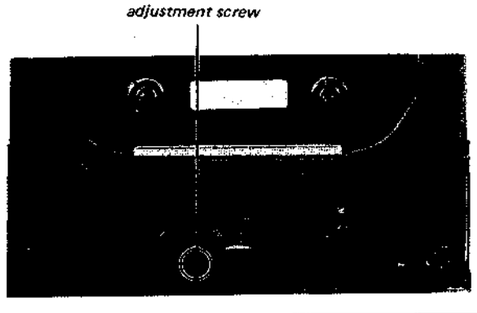
2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 0.5 dB.



3. Phase Check
   Mode: playback



Adjustment Location:



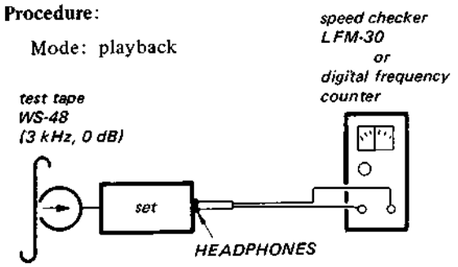
Tape Speed Adjustment

Setting.

VOLUME control: mechanical mid

Procedure:

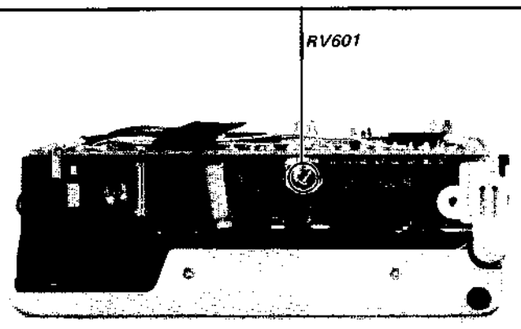
Mode: playback

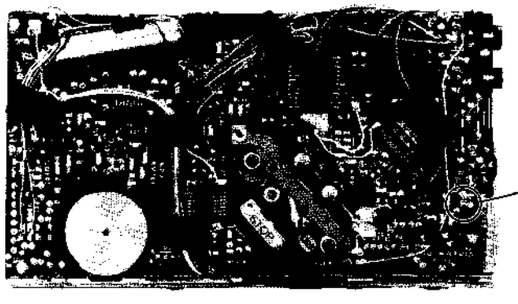


Specifications:

Speed checker	Digital frequency counter
±0.5%	2,985 – 3,015Hz

Frequency difference between the beginning and the end of the tape should be within ±0.5% (±15Hz).

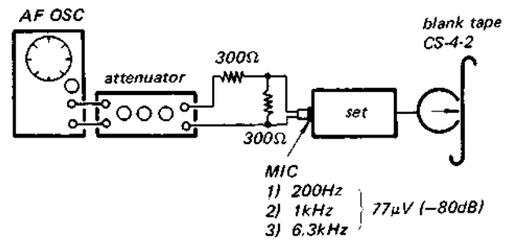




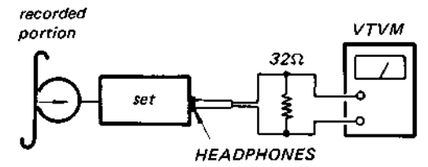
Record Bias Adjustment

Procedure:

1. Mode: record



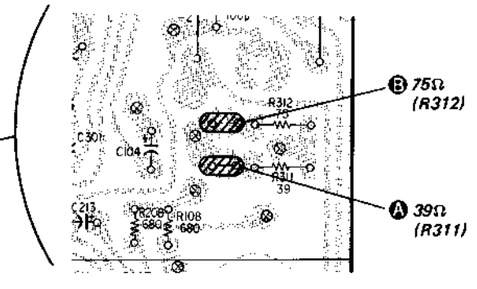
2. Mode: playback



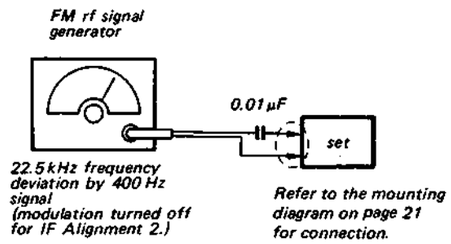
1) Adjust VOLUME control so that 1kHz output level is 77.5mV (–20dB).
2) Confirm that 200Hz and 6.3kHz output levels are 0 ± 3dB, –3 ± 3dB, respectively.
3) If necessary, change the pattern connection and repeat steps 1), 2).

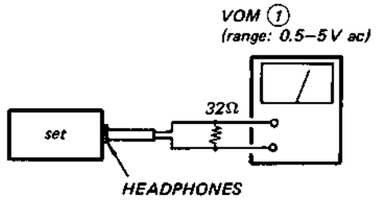
Pattern Connection	VTVM Reading (6.3kHz)
Ⓑ	up ↑
Ⓐ	
Ⓐ, Ⓑ	↓ down

Adjustment Location:



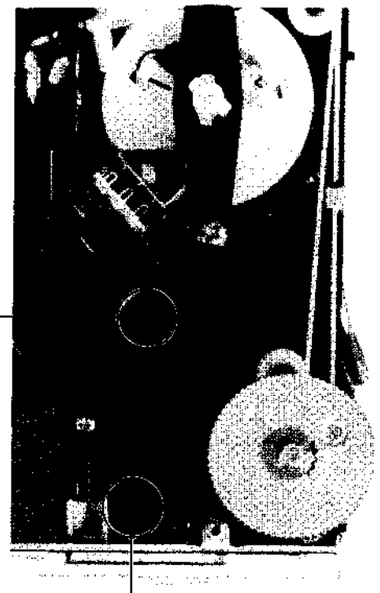
[FM SECTION]

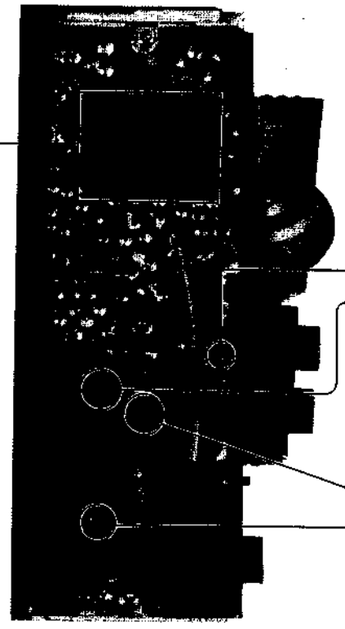




- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

FM IF ALIGNMENT 1 (10.7MHz with modulation)
Adjust for a maximum reading on VOM ①.
IFT 1





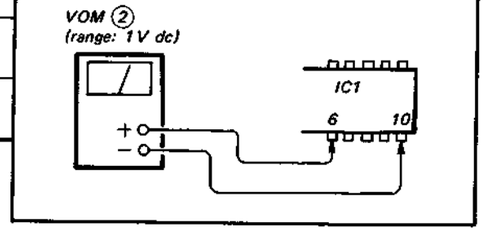
FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
L1	87.1 (87.35) MHz
CT2	108.5 (108.2) MHz

( ) : in West Germany

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
CT1	108.5 (108.2) MHz
L4	87.1 (87.35) MHz

( ) : in West Germany

IFT 2
FM IF ALIGNMENT 2 (10.7MHz with no modulation)
Adjust for 1.4V dc reading on VOM ②.



VCO Adjustment

Setting:

FM MODE switch: STEREO

A) Regular Method

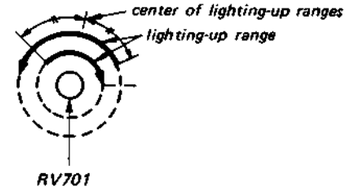
Procedure:

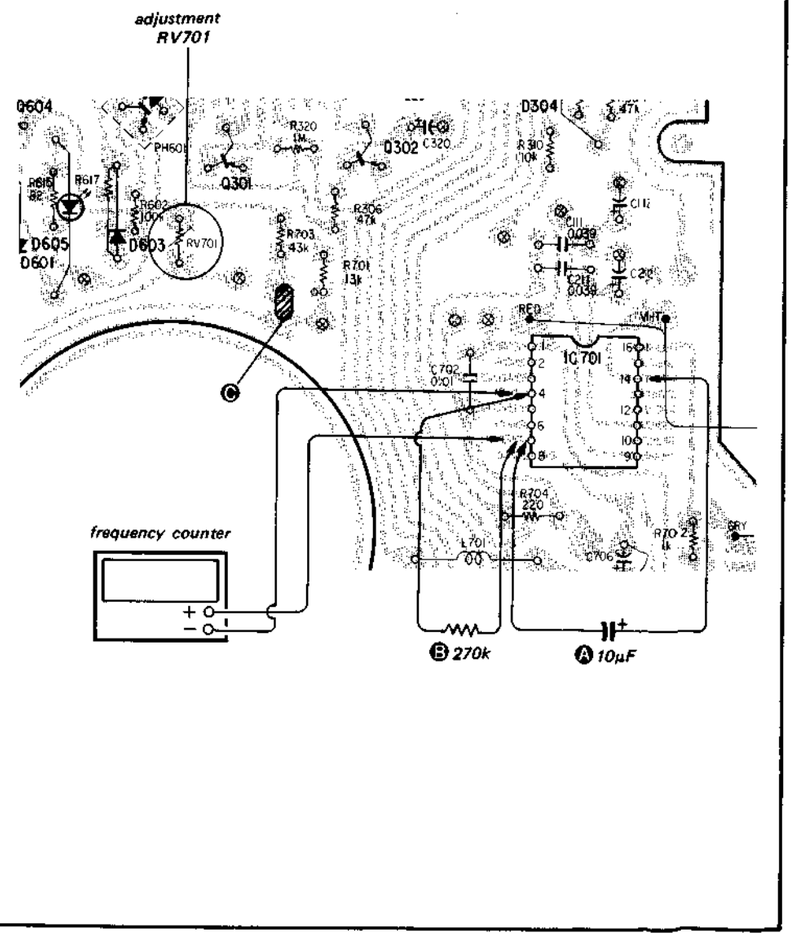
1. Connect a capacitor 10μF Ⓐ and a resistor 270kΩ Ⓑ as shown.
2. Adjust RV701 for 76.1kHz ± 150Hz on the counter.
3. If the specification is not met, short the portion Ⓒ, and readjust RV701.
4. After the adjustment, disconnect Ⓐ, Ⓑ and Ⓒ.

B) Simple Method

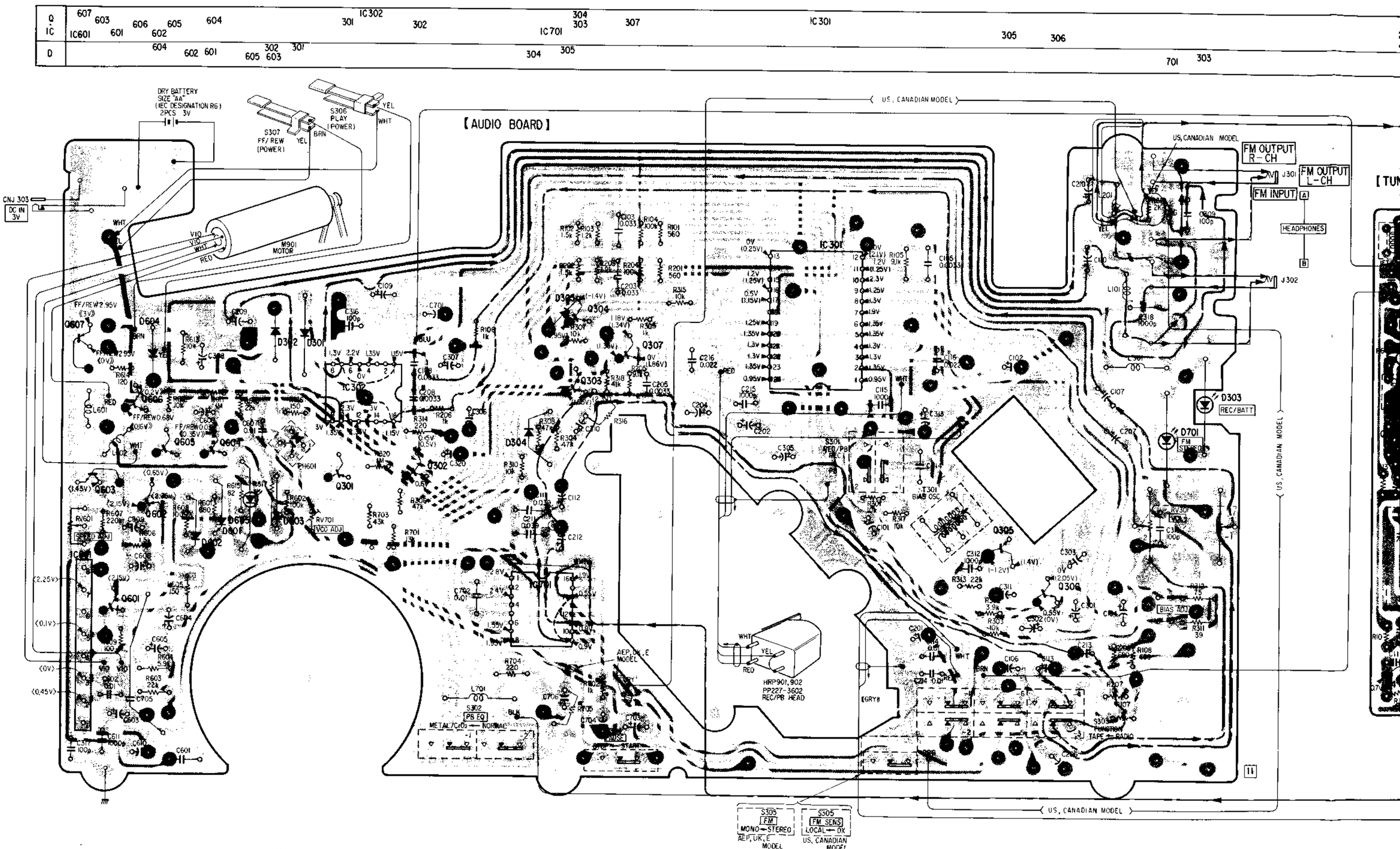
Procedure:

1. Tune the set to the FM stereo broadcasting signal.
2. Turn RV701 clockwise or counterclockwise and memorize the lighting-up range of the stereo lamp.
3. Secure RV701 at the center of the lighting-up range of both turns as shown below.

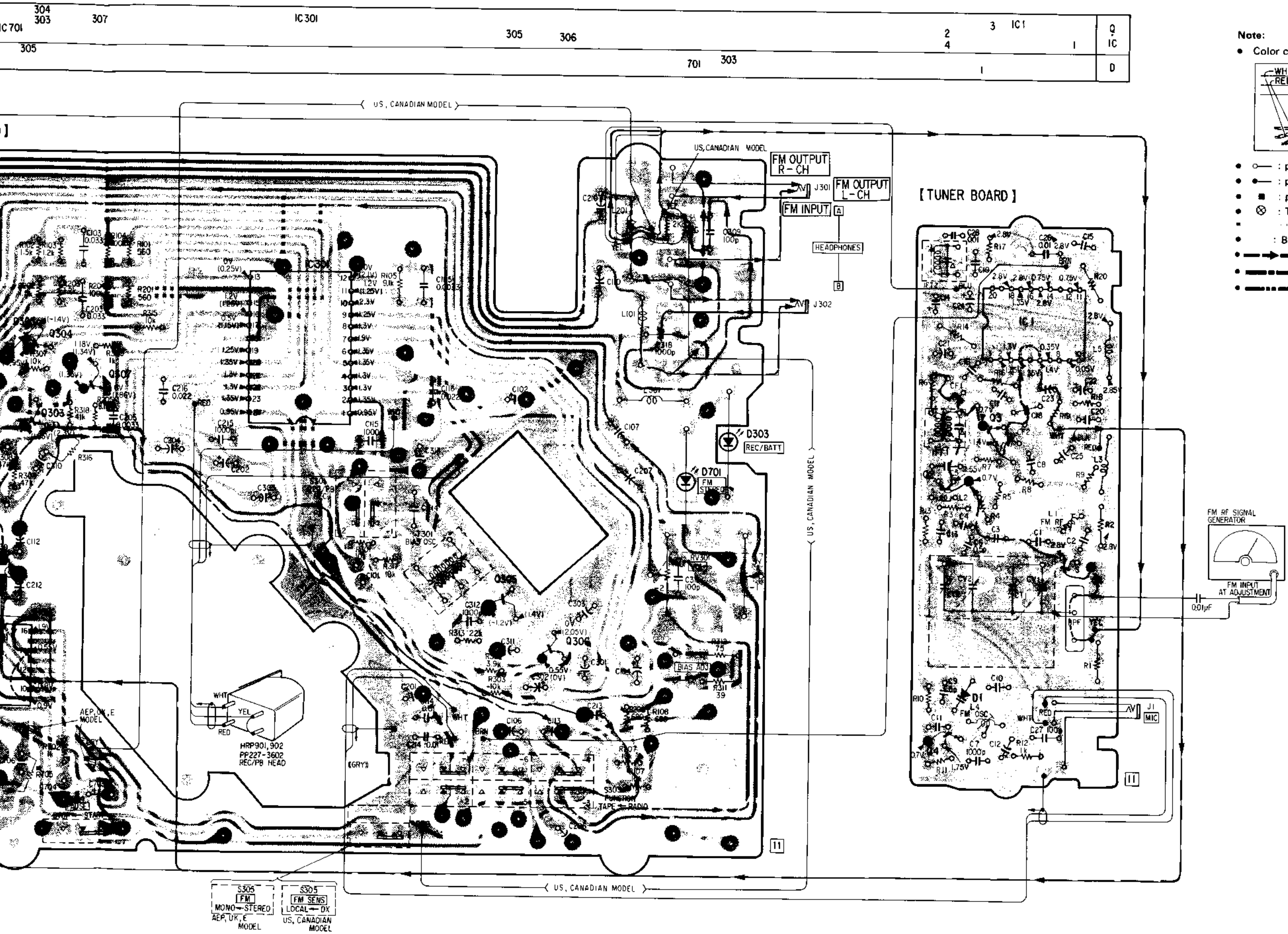




5-1. MOUNTING DIAGRAM

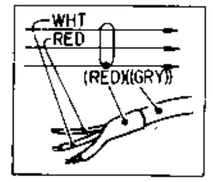


US, Canadian Model: Up to Serial No. 20000
AEP, UK, E Model: Up to Serial No. 16000
WM-F2



Note:

- Color code of sleeving over the end of the jacket.

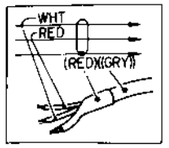


- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- ⊗ : Through hole.
- : B + pattern
- : signal path
- : L-CH signal path
- : R-CH signal path

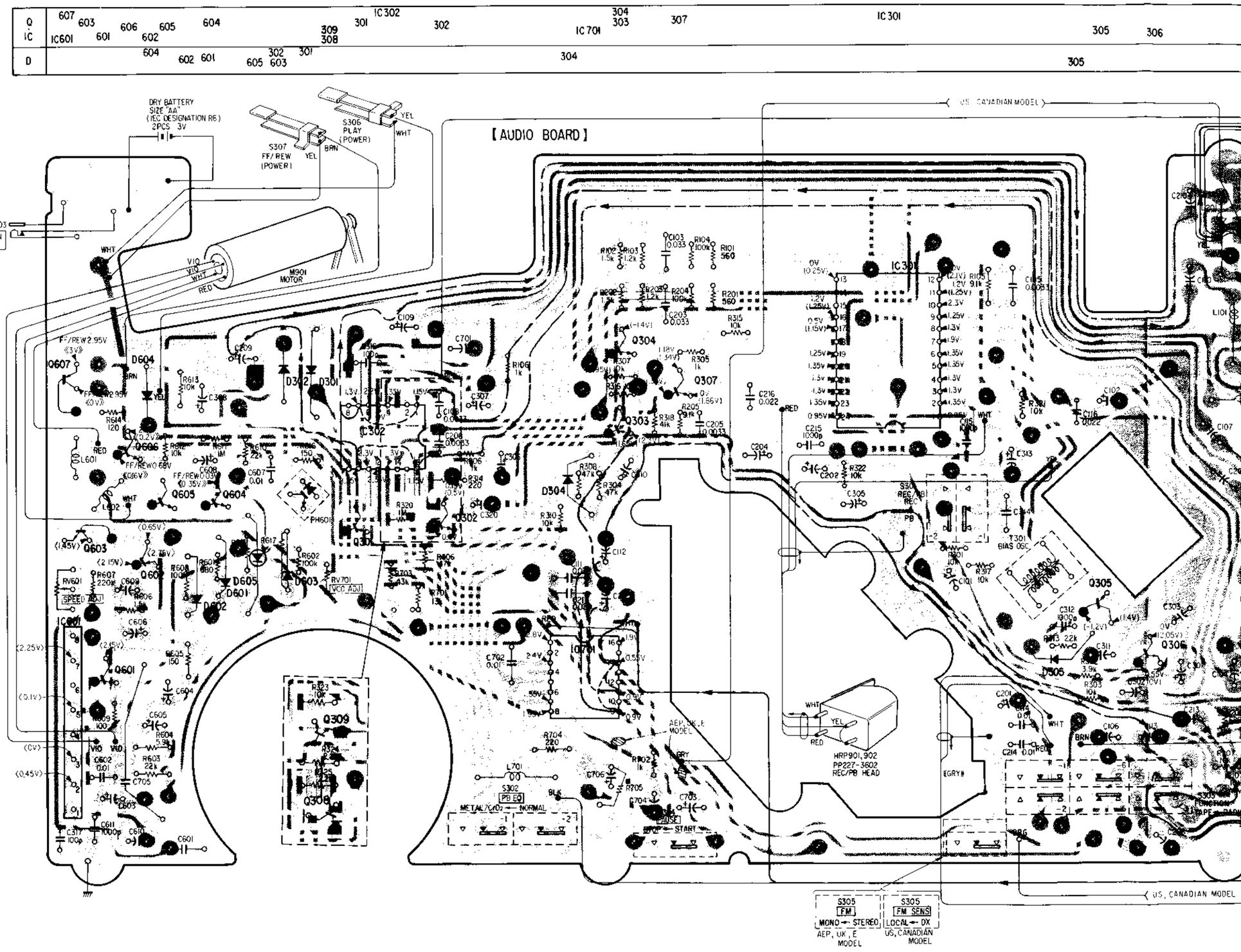
5-2. MOUNTING DIAGRAM

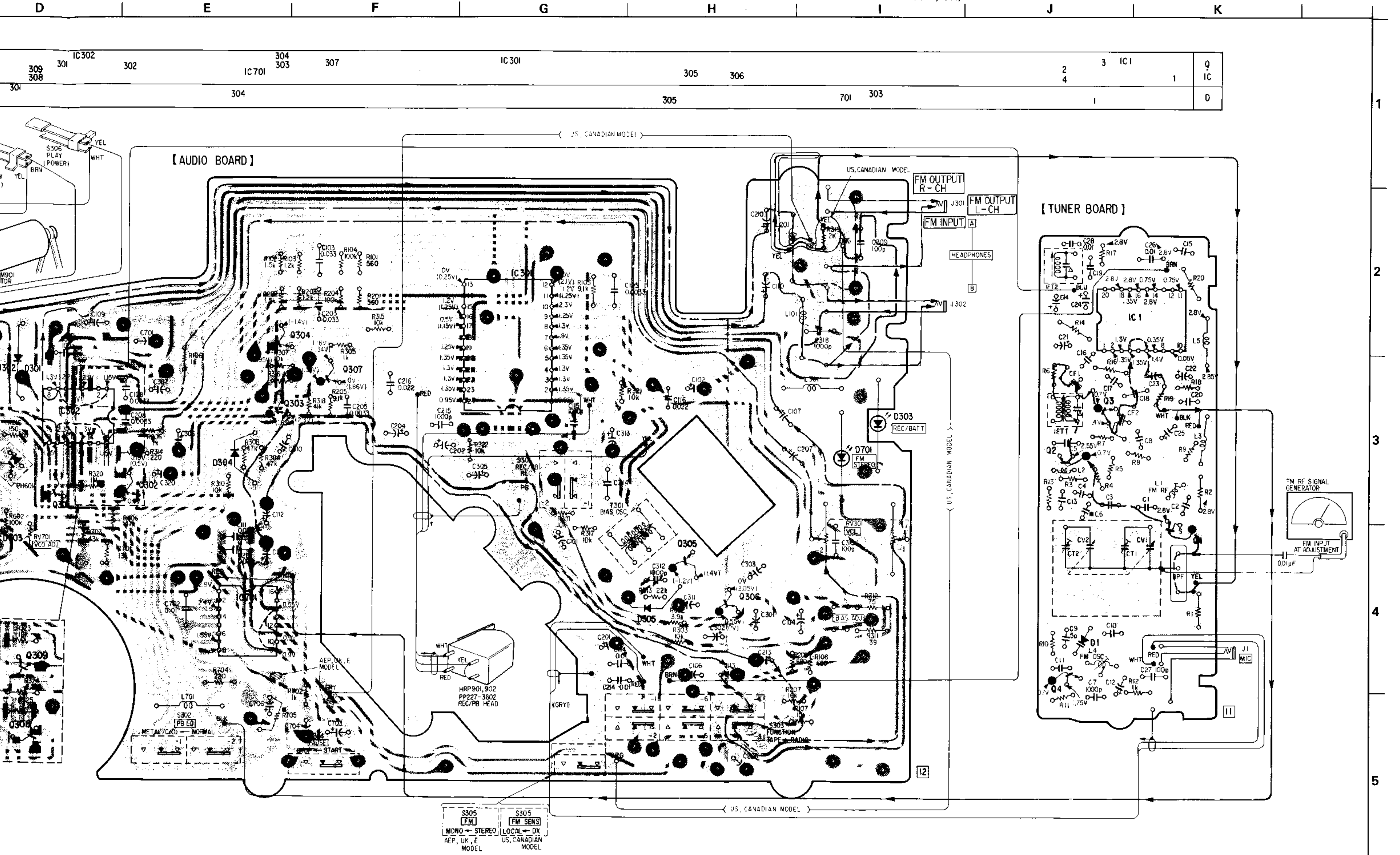
Note:

- Color code of sleeving over the end of the jacket.



- ○—: parts extracted from the component side.
- ●—: parts extracted from the conductor side.
- ■: part mounted on the conductor side.
- ⊗ : Through hole.
- : component-side pattern.
- : B+ pattern
- ━━➜━━: signal path
- ━━ ━ ━━➜: L-CH signal path
- ━━ ━━ ━━➜: R-CH signal path




D
E
F
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5
【AUDIO BOARD】
【TUNER BOARD】
S306 PLAY (POWER)
IC301
IC302
IC701
IC1
FM OUTPUT R-CH
FM OUTPUT L-CH
FM INPUT
HEADPHONES
J301
J302
US, CANADIAN MODEL
D303 REC/BATT
D701 FM STEREO
RV301 VCL
BIAS ADJ
T301 BIAS OSC
Q305
Q306
Q307
Q304
Q303
D304
D305
HRP901, 902 PP227-3602 REC/PB HEAD
S303 FUNCTION TAPE ⇄ RADIO
S302 PB EQ
METAL/CrO2 ← NORMAL
PAUSE
START
AEP, UK, E MODEL
FM RF SIGNAL GENERATOR
FM INPUT AT ADJUSTMENT
0.01μF
J1 MIC
S305 FM MONO ← STEREO AEP, UK, E MODEL
S305 FM SENS LOCAL ← DX US, CANADIAN MODEL
12
11

□ — B — { US, Canadian Model: Serial No. 20001 and later
AEP, UK, E Model: Serial No. 16001 and later

□ — F — { US, Canadian Model: Serial No. 20001 and later
AEP, UK, E Model: Serial No. 16001 and later

A B C D E F G H

1 2 3 4 5

【TUNER BOARD】

Q1 2SK193-F FM RF AMP

Q2 2SC2840-E FM MIX

Q3 2SC2839-D FM IF AMP

IC1 KB4432A FM IF AMP / QUADRATURE DET

IC701 TA7342F MPX

AEP, UK, E MODEL

Q4 2SC2840-E FM OSC

D1 SD113 AFC

【AUDIO BOARD】

IC301 CX10012 REC/PB PREAMP

IC302 TA7688F HEADPHONE AMP

Q301 2SB624 RIPPLE FILTER

Q303 2SA1162 TIMING SWITCH

D304 IS1555

Q307 2SC1623 LED SWITCHING

Q302 2SC1623 LED DRIVE

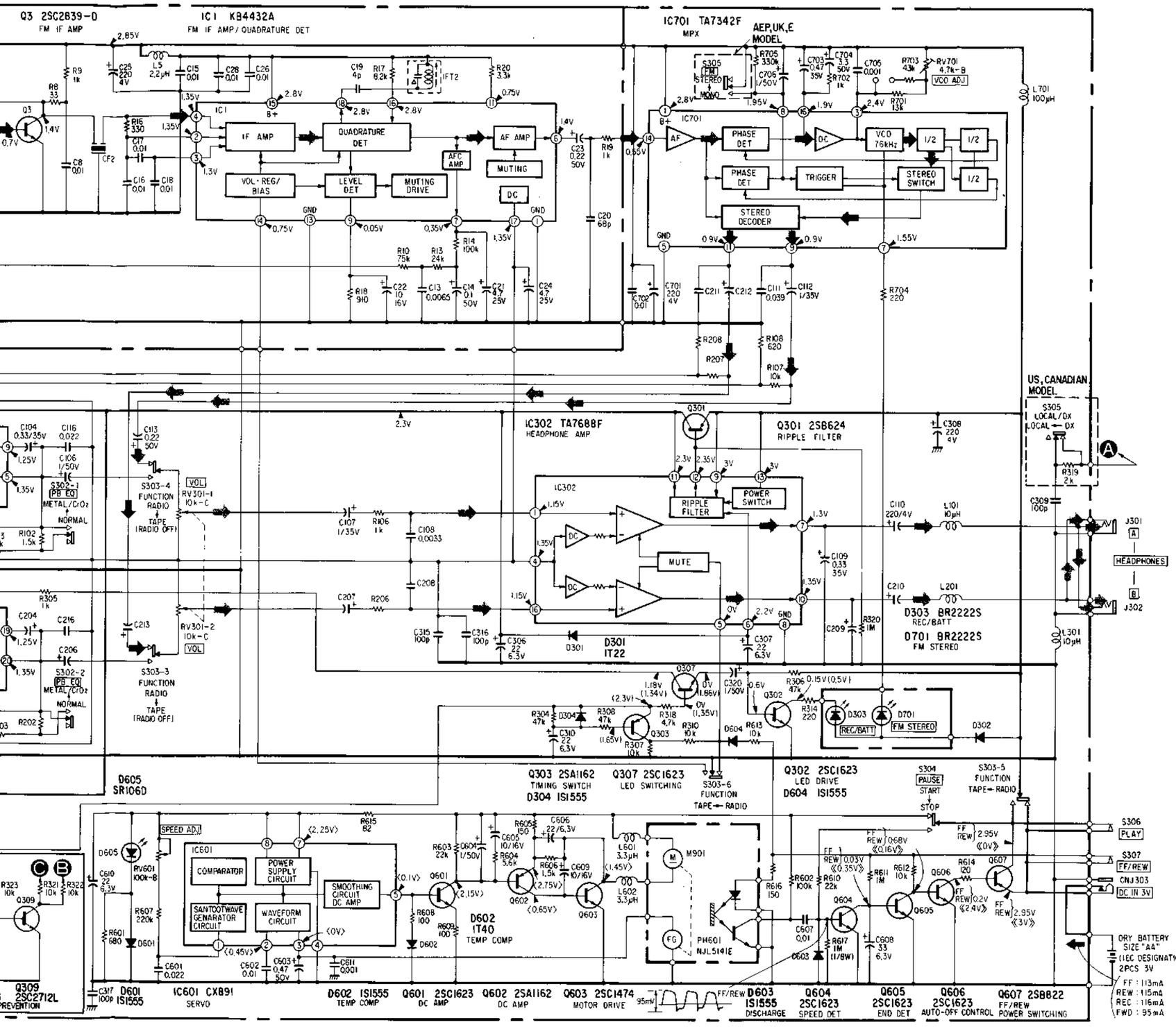
D604 IS1555

D305 IT22 Q304 2SC1623 BIAS CONTROL Q305 2SD1012 BIAS OSC Q306 2SC1623 DISCHARGE Q308 2SC2712G Q309 2SC2712L OSC PREVENTION D605 SR1060 D601 IS1555 IC601 CX891 SERVO D602 IS1555 TEMP COMP Q601 2SC1623 DC AMP Q602 2SA1162 DC AMP Q603 2SC1474 MOTOR DRIVE D603 IS1555 DISCHARGE Q604 2SC1623 SPEED DET Q605 2SC1623 END DET Q606 2SC1623 AUTO-OFF CONTROL Q607 2 FF/REW S

D602 IT40 TEMP COMP

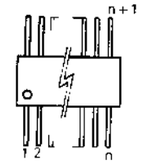
D303 BR2222S REC/BATT

D701 BR2222S FM STEREO

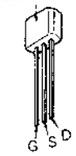


• Semiconductor Lead Layouts

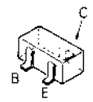
KB4432A
CX10012



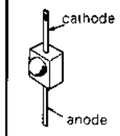
2SK193



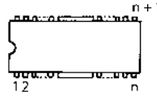
2SC2712G, 2SB624, 2SC1623, 2SA1162, 2SA812, 2SC2712



BR2222S



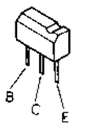
TA7688F
TA7342



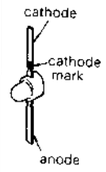
(Top view)

2SC668-SP
2SC2840-E
2SC2839
2SD1012

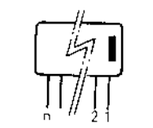
2SB822



SR106D

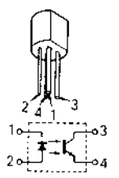


CX891



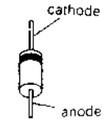
(Marking side view)

NJL5141E



2SC1474

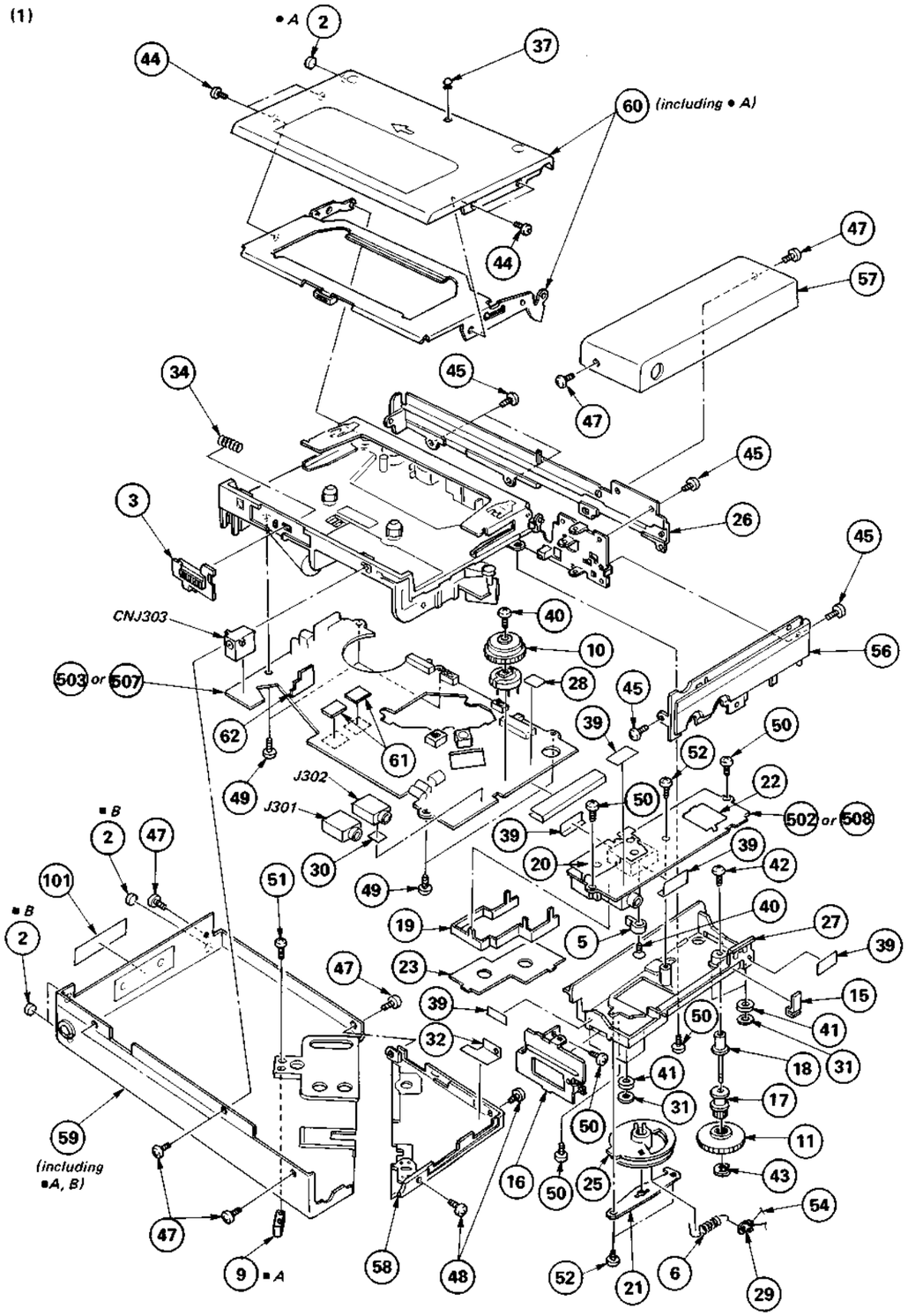
1S1555, 1T22, 1T22AM SD113, 1S2687S-1



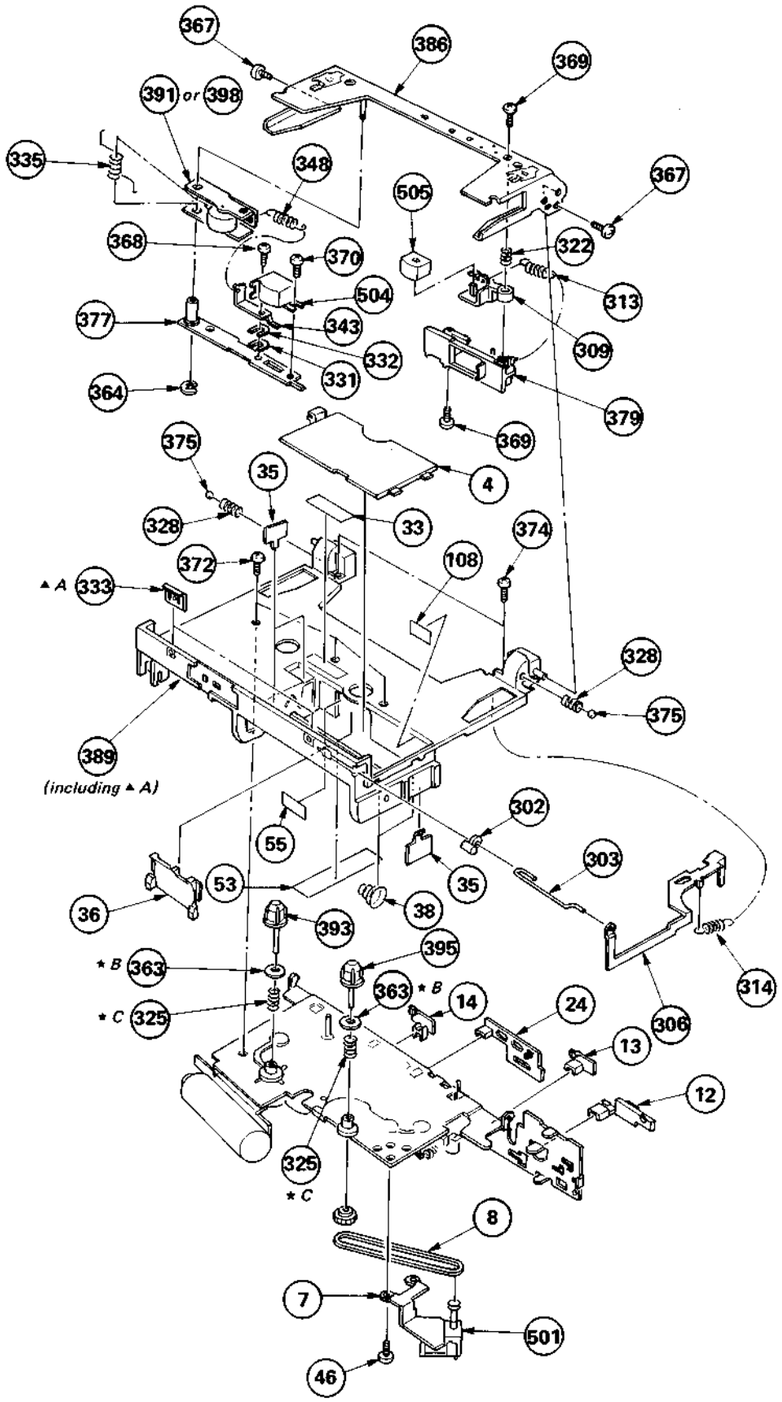
Note:

- Components for right channel have same values as for left channel. Reference numbers are coded from No. 200.
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- △ : internal component.
- □ : panel designation.
- □ : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (50kΩ/V).
  ( ) : REC
  < > : FWD
  No mark : FM
  ≪ ≫ : AUTO-OFF
- Voltage variations may be noted due to normal production tolerances.
- AC voltage readings in the bias oscillator with a VTVM.
- Total current is measured with no cassette installed.
- ⇒ : signal path

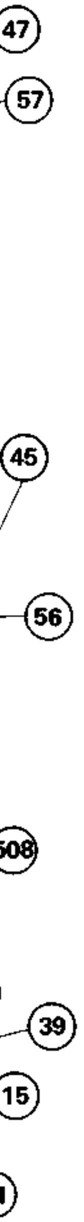
(1)


•A
(including •A)
CNJ303
J302
J301
■B
■A
(including ■A, B)

(2)

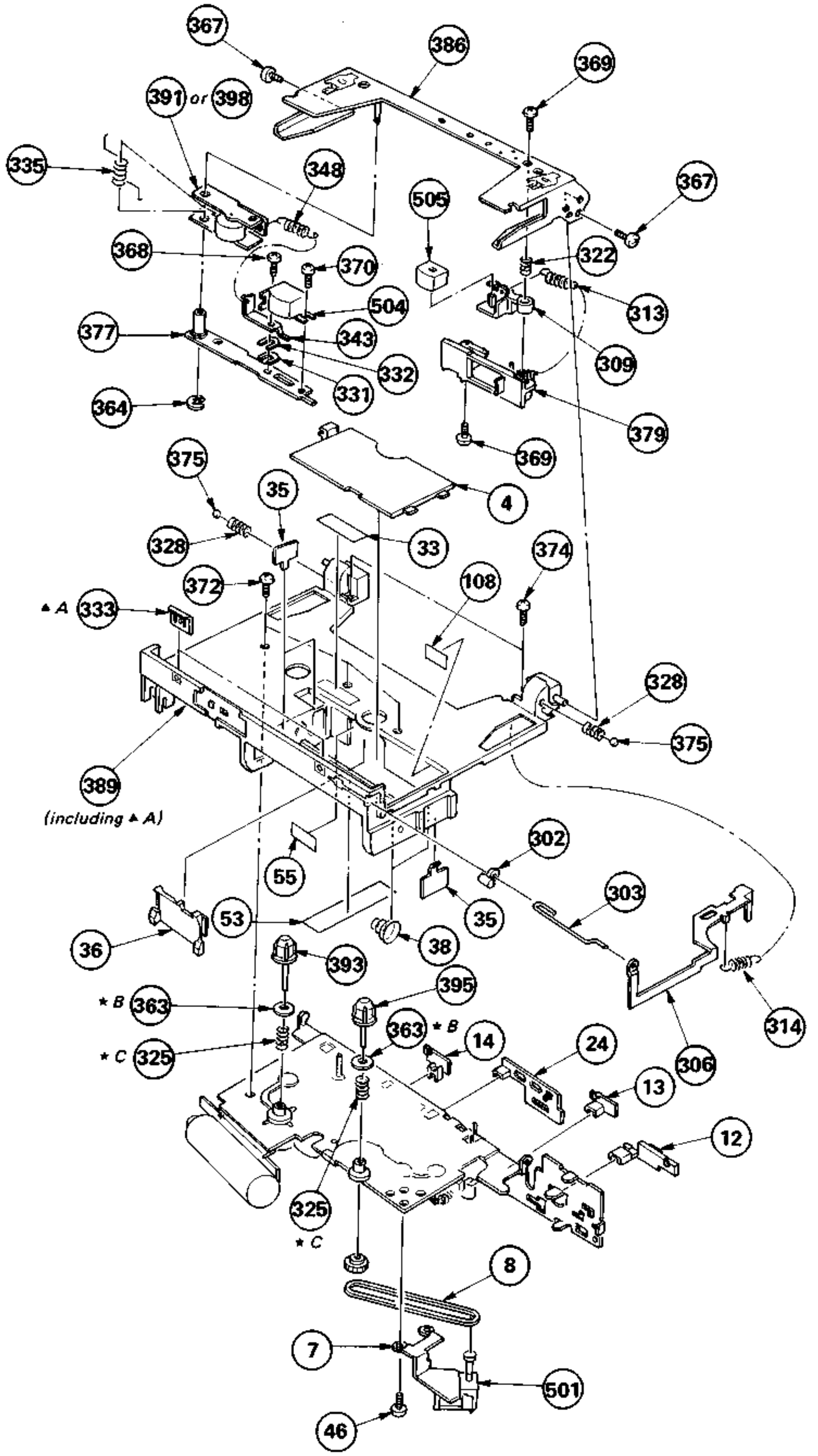

391 or 398
▲A
(including ▲A)
★B
★C

(3)


D
47
57
45
56
508
39
15

A B C D

(2)


1
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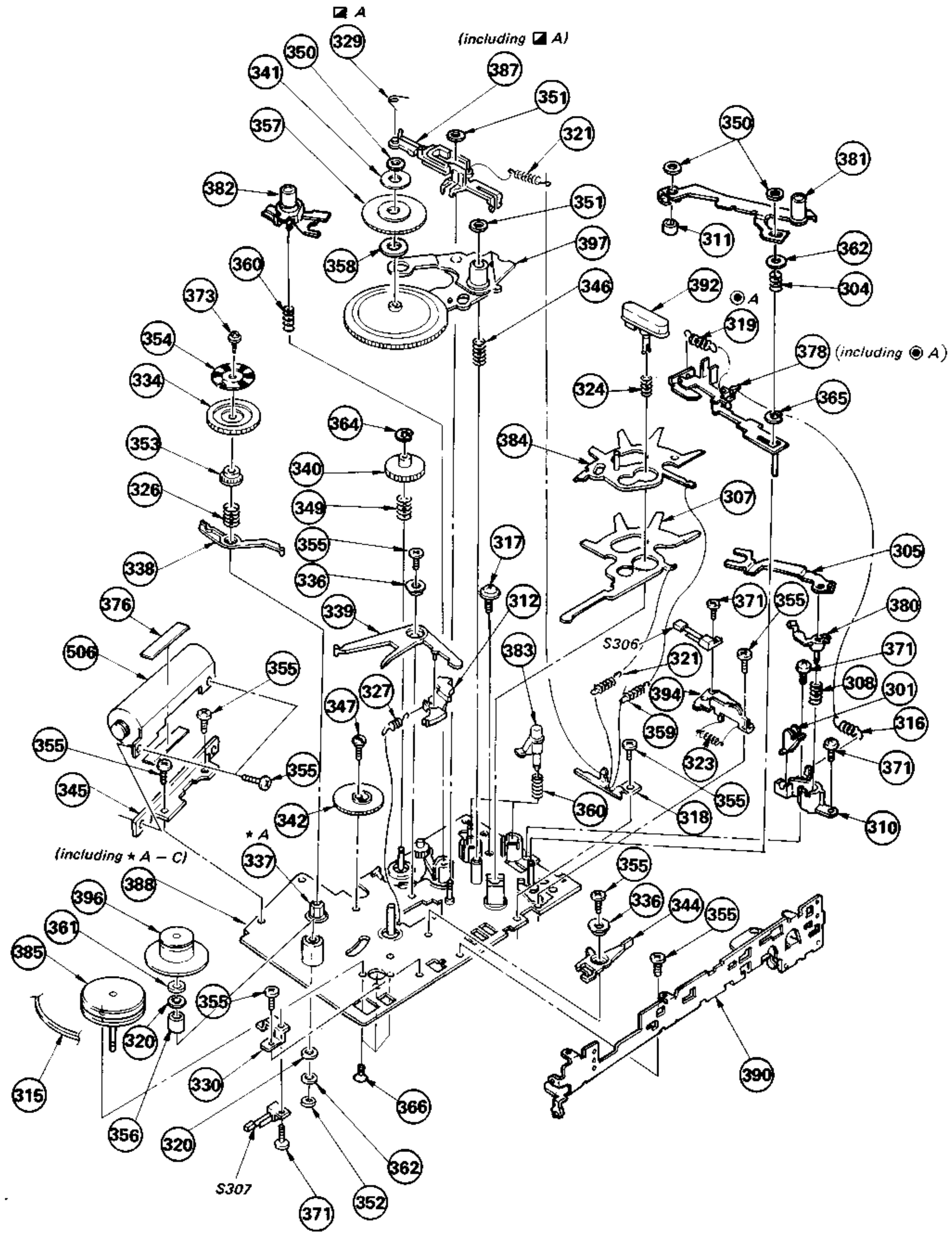
367
386
369
391 or 398
335
348
367
505
368
370
322
313
504
377
343
332
309
331
364
379
369
375
35
4
33
328
372
374
108
▲A 333
328
375
389
(including ▲ A)
302
303
55
36
53
38
35
393
★B 363
395
363 ★B
14
24
★C 325
13
306
314
12
325
★C
8
7
501
46

A B C D

(3)


1
2
3
4
5
◪ A
329
350
341
(including ◪ A)
387
351
321
357
350
381
382
351
311
362
397
358
360
346
392
◉ A
304
373
319
378 (including ◉ A)
354
334
324
365
364
384
353
340
307
326
349
355
317
305
338
336
312
371
355
380
376
339
383
S306
321
371
506
355
327
394
308
301
347
359
316
355
355
323
371
345
342
360
318
355
310
★A
337
(including ★ A – C)
355
388
396
336
344
355
361
385
355
320
330
366
390
315
356
320
362
S307
371
352

GENERAL SECTION

No.	Part No.	Description
1	♣;3-305-434-00	SPACER (FOR PH605)
2	3-305-454-00	FOOT, RUBBER
3	3-305-484-21	KNOB, EJECT
4	3-305-489-00	LID, BATTERY CASE
5	3-305-625-00	CAP, TUNING CAPACITOR
6	3-305-652-00	SPRING, TENSION
7	♣;3-308-104-00	BRACKET, COUNTER
8	3-308-105-00	BELT (25X0.5)
9	3-308-107-00	PROTECTOR
10	3-308-110-00	KNOB, CONTROL
11	3-308-111-00	KNOB, DIAL
12	3-308-112-00	KNOB, FUNCTION
13	3-308-113-00	(US,Canadian)...KNOB, LOCAL/DX
13	3-308-113-00	(AEP,UK,E).....KNOB, ST/MONO
14	3-308-114-00	KNOB, SELECTION, TAPE
15	3-308-115-00	POINTER
16	♣;3-308-116-00	BRACKET, PANEL
17	3-308-117-00	SHAFT, DIAL
18	3-308-118-00	BEARING, DIAL
19	♣;3-308-119-00	PLATE (A), SHIELD
20	♣;3-308-120-00	PLATE (B), SHIELD
21	♣;3-308-121-00	SUPPORT, DRUM
22	♣;3-308-122-00	PLATE (C), SHIELD
23	♣;3-308-123-00	PLATE (D), SHIELD
24	3-308-130-00	KNOB, PAUSE
25	3-308-131-00	DRUM, DIAL
26	3-308-136-00	(US,canadian)...PANEL, SIDE
26	3-308-136-11	(AEP,UK,E).....PANEL, SIDE
27	3-308-137-00	CHASSIS, SUB
28	♣;3-308-143-00	SHEET, INSULATING (C)
29	♣;3-547-686-00	CLAMP (B), WIRE
30	3-561-685-00	SHEET (C), INSULATING
31	3-564-110-11	WASHER, DIA. 1.6 NYLON
32	♣;3-568-732-00	PAPER, SHIELD
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	3-578-232-31	ORNAMENT, ADJUSTMENT HOLE
38	3-578-236-00	SPRING
39	3-831-441-XX	CUSHION
40	3-880-990-00	SCREW (1.7X3), FLAT, (+) SPECIAL
41	3-881-911-00	PULLEY
42	7-621-770-67	SCREW +B 2.6X6
43	7-624-105-04	STOP RING 2.3, TYPE -E
44	7-627-451-07	SCREW, PRECISION +K 1.4X1.6

GENERAL SECTION

No.	Part No.	Description
45	7-627-551-07	SCREW, PRECISION +P 1.4X1.6
46	7-627-551-47	SCREW, PRECISION +P 1.4X1.4
47	7-627-551-57	SCREW, PRECISION +P 1.4X3
48	7-627-551-58	SCREW, PRECISION +P 1.4X3
49	7-627-850-17	SCREW, PRECISION +P 1.4X2.5
50	7-627-850-27	SCREW, PRECISION +P 1.4X3
51	7-627-850-57	SCREW, PRECISION +P 1.4X3.5
52	7-685-103-11	SCREW +P 2X5 TYPE2 NON-SLIT
53	9-911-816-01	CLOTH, DRAWER, BATTERY
54	9-911-825-32	STRING, DIAL 0.3DIA
55	9-911-838-XX	CUSHION
56	A-3043-072-A	PANEL ASSY, DIAL
57	X-3308-101-0	COVER ASSY, TOP
58	X-3308-102-0	PANEL ASSY, CORNER
59	X-3308-103-0	PANEL ASSY, CONTROL
60	X-3308-104-0	PANEL ASSY, CASSETTE
61	3-501-040-21	DAMPER, CASSETTE HOLDER
62	♣;3-578-229-00	INSULATOR

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
101	3-308-101-00	(US).....LABEL, MODEL NUMBER
101	3-308-144-00	(AEP).....LABEL, MODEL NUMBER
101	3-308-147-00	(Canadian,UK,E)...LABEL, MODEL NUMBER
102	3-308-139-00	CUSHION (LOWER)
103	3-308-140-00	CUSHION (UPPER)
104	3-308-142-00	INDIVIDUAL CARTON
105	1-555-810-00	CORD, CONNECTION (RK-128)
106	3-308-145-00	CASE, CARRYING
107	3-701-628-00	BAG, POLYETHYLENE
108	3-701-999-00	LABEL, SERIAL NUMBER
109	3-773-080-11	(AEP,UK,E).....MANUAL, INSTRUCTION
110	3-773-080-21	(US,Canadian)...MANUAL, INSTRUCTION
111	3-773-080-31	(Canadian).....MANUAL, INSTRUCTION
112	3-793-828-11	QUESTIONNAIRE
113	8-893-527-00	TAPE, DEMO (CD-814)
114	8-951-172-90	MDR-30B SET
115	X-3307-804-0	BELT ASSY, SHOULDER

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

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- 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
307	♣;3-305-431-00	LEVER, SWITCH
308	3-305-432-00	SPRING, COMPRESSION
309	3-305-438-00	LEVER, ERASE HEAD
310	3-305-444-00	GUIDE, REC BUTTON
311	♣;3-305-497-00	COLLAR, REC ARM
312	3-305-509-00	LEVER (A), SHUT-OFF
313	3-305-522-00	SPRING, TENSION
314	3-305-523-00	SPRING, TENSION
315	3-305-524-00	BELT
316	3-305-526-00	SPRING, TENSION
317	3-305-528-00	SCREW, STOPPER
318	♣;3-308-102-00	HOOK, SPRING
319	3-527-188-00	SPRING, TENSION
320	3-547-734-00	WASHER
321	3-561-627-00	SPRING, TENSION
322	3-570-558-00	SPRING, COMPRESSION
323	3-570-589-00	SPRING, TENSION
324	3-578-121-00	SPRING, COMPRESSION
325	3-578-123-00	SPRING, COMPRESSION
326	3-578-124-00	SPRING, COMPRESSION
327	3-578-126-00	SPRING, TENSION
328	3-578-127-00	SPRING, COMPRESSION
329	3-578-130-00	SPRING
330	♣;3-578-135-00	BRACKET, SWITCH
331	3-578-138-01	SEAM
332	3-578-138-11	SEAM
333	3-578-141-00	SPRING
334	3-578-142-00	GEAR, FWD
335	3-578-146-00	SPRING
336	♣;3-578-149-00	SHAFT, LEVER (A), SHUT-OFF
337	3-578-151-00	SHAFT, GEAR, FWD
338	3-578-154-00	LEVER, DETECTION
339	3-578-157-00	LEVER (B), SHUT-OFF
340	3-578-162-00	GEAR, REW
341	3-578-168-00	PLATE (B), HYSTERESIS
342	3-578-178-00	GEAR, SHUT-OFF
343	3-578-181-00	SPRING
344	3-578-183-00	LEVER, RETURN, S
345	♣;3-578-187-00	BRACKET, M
346	3-578-199-00	SPRING, COMPRESSION
347	3-578-214-00	SHAFT, GEAR, SHUT-OFF
348	3-578-220-00	SPRING, TENSION
349	3-578-221-00	SPRING, COMPRESSION
350	3-578-224-00	WASHER
351	3-578-224-11	WASHER

MECHANISM SECTION

No.	Part No.	Description
352	3-578-242-00	WASHER
353	3-578-244-01	GEAR, FF
354	3-578-264-00	REFLECTOR
355	3-578-267-00	SCREW (+P1.4X1.6), PRECISION
356	♣;3-578-270-00	BEARING, WHEEL, REVERSE
357	3-578-275-00	GEAR (B), DRIVING
358	3-578-276-11	WASHER
359	3-578-277-00	SPRING, TENSION
360	3-578-278-00	SPRING, COMPRESSION
361	3-701-436-01	WASHER, 1.6
362	3-701-436-11	WASHER, 1.6
363	7-623-922-01	WASHER 2.0, NYLONE
364	7-624-101-01	RING, RETAINING E-1.2
365	7-624-102-04	STOP RING 1.5, TYPE -E
366	7-627-451-87	SCREW, PRECISION +K 1.4X2.2
367	7-627-551-28	SCREW, PRECISION +P 1.4X2.5
368	7-627-553-27	SCREW, PRECISION +P 2X2.5
369	7-627-553-98	SCREW, PRECISION +P 2X8
370	7-627-554-17	SCREW, PRECISION +P 2X3.5
371	7-627-850-18	SCREW, PRECISION +P 1.4X2.5
372	7-627-850-48	+P 1.4X1.6
373	7-627-851-17	SCREW, PRECISION +P 1.4X4.5
374	7-627-851-27	SCREW, PRECISION +P 1.4X5
375	7-671-112-01	STEEL, BALL
376	9-911-838-XX	CUSHION
377	X-3305-404-0	CHASSIS ASSY, HEAD
378	♣;X-3305-407-0	LEVER (A) ASSY, REC
379	X-3305-408-0	TABLE ASSY, ERASE HEAD
380	X-3305-409-0	GUIDE ASSY, REC BUTTON
381	X-3305-410-0	ARM (A) ASSY, REC
382	X-3305-411-0	BUTTON ASSY, FWD
383	X-3305-412-0	BUTTON ASSY, FR
384	♣;X-3305-413-0	PLATE ASSY, LOCK
385	X-3305-416-0	FLYWHEEL COMPLETE ASSY
386	X-3305-418-0	HOLDER ASSY
387	X-3305-419-0	LEVER ASSY, FWD
388	♣;X-3305-421-0	CHASSIS ASSY, SUB
389	X-3305-422-0	CHASSIS ASSY
390	♣;X-3308-105-0	BRACKET ASSY
391	X-3578-106-0	PINCH ROLLER ASSY
392	X-3578-107-0	BUTTON ASSY, STOP
393	X-3578-115-0	CLAW ASSY, REEL
394	X-3578-118-0	LEVER ASSY, FWD SWITCH
395	X-3578-126-0	CLAW ASSY, REEL
396	X-3578-129-0	WHEEL ASSY, REVERSE
397	X-3578-132-0	LEVER (A) ASSY, DRIVING
398	X-3578-137-0	PINCH ROLLER ASSY

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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···

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	1-548-566-00	COUNTER			
502	♦;1-608-110-00	PC BOARD, TUNER			
503	♦;1-608-114-00	PC BOARD, AUDIO			
504	8-825-507-20	HEAD (PP227-3602)			
505	8-825-542-10	HEAD (EBF231-36)			
506	8-835-008-11	MOTOR MNF-1600B			
507	A-3070-070-A	MOUNTED PCB, AUDIO			
508	♦;A-3070-071-A	MOUNTED PCB, TUNER			
BPF	1-231-892-00	FILTER, BANDPASS			
C6	1-163-146-00	CHIP COMPONENT	0.5PF	0.25PF	50V
C7	1-163-141-00	CHIP COMPONENT	0.001MF	5%	50V
C9	1-101-997-00	CERAMIC	5PF	0.5PF	50V
C10	1-102-721-00	CERAMIC	24PF	5%	50V
C11	1-101-998-00	CERAMIC	6PF	0.5PF	50V
C25	1-123-827-00	ELECT	220MF	20%	4V
C26	1-163-059-00	CHIP COMPONENT	0.01MF	10%	50V
C27	1-163-181-00	CHIP COMPONENT	100PF	5%	50V
C28	1-163-021-00	CHIP COMPONENT	0.01MF	10%	50V
C103	1-163-078-00	CHIP COMPONENT	0.033MF	10%	25V
C105	1-163-015-00	CHIP COMPONENT	0.0033MF	10%	50V
C108	1-163-015-00	CHIP COMPONENT	0.0033MF	10%	50V
C110	1-123-827-00	ELECT	220MF	20%	4V
C111	1-163-079-00	CHIP COMPONENT	0.039MF	10%	25V
C114	1-163-021-00	CHIP COMPONENT	0.01MF	10%	50V
C115	1-163-009-00	CHIP COMPONENT	0.001MF	10%	50V
C116	1-163-037-00	CHIP COMPONENT	0.022MF	10%	25V
C203	1-163-078-00	CHIP COMPONENT	0.033MF	10%	25V
C205	1-163-015-00	CHIP COMPONENT	0.0033MF	10%	50V
C208	1-163-015-00	CHIP COMPONENT	0.0033MF	10%	50V
C210	1-123-827-00	ELECT	220MF	20%	4V
C211	1-163-079-00	CHIP COMPONENT	0.039MF	10%	25V
C214	1-163-021-00	CHIP COMPONENT	0.01MF	10%	50V
C215	1-163-009-00	CHIP COMPONENT	0.001MF	10%	50V
C216	1-163-037-00	CHIP COMPONENT	0.022MF	10%	25V
C306	1-163-117-00	CHIP COMPONENT	100PF	5%	50V
C308	1-123-827-00	ELECT	220MF	20%	4V
C309	1-163-181-00	CHIP COMPONENT	100PF	5%	50V
C312	1-163-009-00	CHIP COMPONENT	0.001MF	10%	50V
C315	1-163-181-00	CHIP COMPONENT	100PF	5%	50V
C316	1-163-181-00	CHIP COMPONENT	100PF	5%	50V
C317	1-163-117-00	CHIP COMPONENT	100PF	5%	50V
C318	1-163-047-00	CHIP COMPONENT	0.001MF	10%	50V
C319	1-163-181-00	CHIP COMPONENT	100PF	5%	50V
C602	1-163-021-00	CHIP COMPONENT	0.01MF	10%	50V
C607	1-163-021-00	CHIP COMPONENT	0.01MF	10%	50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C611	1-163-009-00	CHIP COMPONENT	0.001MF	10%	50V
C701	1-123-827-00	ELECT	220MF	20%	4V
C702	1-163-059-00	CHIP COMPONENT	0.01MF	10%	50V
CF1	1-527-795-71	FILTER, CERAMIC			
CF2	1-527-795-71	FILTER, CERAMIC			
CNJ303	1-507-723-00	JACK, EXTENTION POWER			
CT1	1-151-408-00	CAP, TUNING, POLYETHYLENE			
CT2	1-151-408-00	CAP, TUNING, POLYETHYLENE			
CV1	1-151-408-00	CAP, TUNING, POLYETHYLENE			
CV2	1-151-408-00	CAP, TUNING, POLYETHYLENE			
D1	8-719-768-71	DIODE 1S2687S-1			
D301	8-719-422-21	DIODE 1T22AM			
D302	8-719-815-55	DIODE 1S1555			
D303	8-719-922-24	DIODE BR2222S			
D304	8-719-911-19	DIODE 1SS119			
D305	8-719-422-21	DIODE 1T22AM			
D601	8-719-815-55	DIODE 1S1555			
D602	8-719-815-55	DIODE 1S1555			
D603	8-719-815-55	DIODE 1S1555			
D604	8-719-815-55	DIODE 1S1555			
D605	8-719-101-06	DIODE SR106D			
D701	8-719-922-24	DIODE BR2222S			
D702	8-719-815-55	DIODE 1S1555			
IC1	8-759-901-69	IC XB4432A			
IC301	8-759-201-07	IC CX10012			
IC302	8-759-200-95	IC TA7688F			
IC601	8-759-608-91	IC CX-891			
IC701	8-759-200-94	IC TA7342F			
IFT1	1-404-131-00	TRANSFORMER, DISCRIMINATOR			
IFT2	1-404-399-00	TRANSFORMER, DISCRIMINATOR			
J1	1-507-787-31	JACK			
J301	1-507-787-11	JACK			
J302	1-507-787-11	JACK			
L1	1-425-349-00	COIL, FM RF			
L2	1-407-882-00	INDUCTOR 1UH			
L3	1-408-555-00	MICRO INDUCTOR 2.2UH			
L4	1-459-409-00	COIL (WITH CORE)			
L5	1-408-555-00	MICRO INDUCTOR 2.2UH			
L101	1-408-563-00	MICRO INDUCTOR 10UH			
L201	1-408-563-00	MICRO INDUCTOR 10UH			
L301	1-408-563-00	MICRO INDUCTOR 10UH			
L601	1-407-915-00	MICRO INDUCTOR 3.3UH			
L602	1-407-915-00	MICRO INDUCTOR 3.3UH			
L701	1-408-575-00	MICRO INDUCTOR 100UH			
PH601	8-719-751-42	DIODE NJL5141E			

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- 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···

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
Q1	8-729-119-32	TRANSISTOR 2SK193			
Q2	8-729-806-84	TRANSISTOR 2SC668-SP			
Q3	8-729-883-91	TRANSISTOR 2SC2839			
Q4	8-729-806-84	TRANSISTOR 2SC668-SP			
Q301	8-729-102-44	TRANSISTOR 2SB624			
Q302	8-729-103-66	TRANSISTOR 2SC1623			
Q303	8-729-216-22	TRANSISTOR 2SA1162			
Q304	8-729-103-66	TRANSISTOR 2SC1623			
Q305	8-729-801-22	TRANSISTOR 2SD1012			
Q306	8-729-103-66	TRANSISTOR 2SC1623			
Q307	8-729-103-66	TRANSISTOR 2SC1623			
Q308	8-729-271-22	TRANSISTOR 2SC2712G			
Q309	8-729-271-23	TRANSISTOR 2SC2712			
Q601	8-729-103-66	TRANSISTOR 2SC1623			
Q602	8-729-216-22	TRANSISTOR 2SA1162			
Q603	8-760-335-10	TRANSISTOR 2SC1474			
Q604	8-729-103-66	TRANSISTOR 2SC1623			
Q605	8-729-103-66	TRANSISTOR 2SC1623			
Q606	8-729-103-66	TRANSISTOR 2SC1623			
Q607	8-729-982-22	TRANSISTOR 2SB822			
Q608	8-729-103-66	TRANSISTOR 2SC1623			
R12	1-216-198-00	CHIP COMPONENT	1K	5%	1/8W
R101	1-216-043-00	CHIP COMPONENT	560	5%	1/10W
R102	1-216-053-00	CHIP COMPONENT	1.5K	5%	1/10W
R103	1-216-051-00	CHIP COMPONENT	1.2K	5%	1/10W
R104	1-216-097-00	CHIP COMPONENT	100K	5%	1/10W
R105	1-216-221-00	CHIP COMPONENT	9.1K	5%	1/8W
R106	1-216-049-00	CHIP COMPONENT	1K	5%	1/10W
R107	1-216-073-00	CHIP COMPONENT	10K	5%	1/10W
R108	1-216-044-00	CHIP COMPONENT	620	5%	1/10W
R201	1-216-043-00	CHIP COMPONENT	560	5%	1/10W
R202	1-216-053-00	CHIP COMPONENT	1.5K	5%	1/10W
R203	1-216-051-00	CHIP COMPONENT	1.2K	5%	1/10W
R204	1-216-097-00	CHIP COMPONENT	100K	5%	1/10W
R205	1-216-072-00	CHIP COMPONENT	9.1K	5%	1/10W
R206	1-216-049-00	CHIP COMPONENT	1K	5%	1/10W
R207	1-216-073-00	CHIP COMPONENT	10K	5%	1/10W
R208	1-216-044-00	CHIP COMPONENT	620	5%	1/10W
R301	1-216-073-00	CHIP COMPONENT	10K	5%	1/10W
R302	1-216-063-00	CHIP COMPONENT	3.9K	5%	1/10W
R303	1-216-073-00	CHIP COMPONENT	10K	5%	1/10W
R304	1-216-089-00	CHIP COMPONENT	47K	5%	1/10W
R305	1-216-049-00	CHIP COMPONENT	1K	5%	1/10W
R306	1-216-089-00	CHIP COMPONENT	47K	5%	1/10W
R307	1-216-073-00	CHIP COMPONENT	10K	5%	1/10W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R308	1-216-089-00	CHIP COMPONENT	47K	5%	1/10W
R310	1-216-073-00	CHIP COMPONENT	10K	5%	1/10W
R311	1-216-164-00	CHIP COMPONENT	39	5%	1/8W
R312	1-216-171-00	CHIP COMPONENT	75	5%	1/8W
R313	1-216-081-00	CHIP COMPONENT	22K	5%	1/10W
R314	1-216-182-00	CHIP COMPONENT	220	5%	1/8W
R315	1-216-073-00	CHIP COMPONENT	10K	5%	1/10W
R316	1-216-073-00	CHIP COMPONENT	10K	5%	1/10W
R317	1-216-073-00	CHIP COMPONENT	10K	5%	1/10W
R318	1-216-065-00	CHIP COMPONENT	4.7K	5%	1/10W
R319	1-216-056-00	CHIP COMPONENT	2K	5%	1/10W
R320	1-216-121-00	CHIP COMPONENT	1M	5%	1/10W
R321	1-216-073-00	CHIP COMPONENT	10K	5%	1/10W
R322	1-216-073-00	CHIP COMPONENT	10K	5%	1/10W
R323	1-216-222-00	CHIP COMPONENT	10K	5%	1/8W
R324	1-216-208-00	CHIP COMPONENT	2.7K	5%	1/8W
R325	1-216-206-00	CHIP COMPONENT	2.2K	5%	1/10W
R601	1-216-045-00	CHIP COMPONENT	680	5%	1/10W
R602	1-216-097-00	CHIP COMPONENT	100K	5%	1/10W
R603	1-216-230-00	CHIP COMPONENT	22K	5%	1/8W
R604	1-216-216-00	CHIP COMPONENT	5.6K	5%	1/8W
R605	1-216-178-00	CHIP COMPONENT	150	5%	1/8W
R606	1-216-053-00	CHIP COMPONENT	1.5K	5%	1/10W
R607	1-216-105-00	CHIP COMPONENT	220K	5%	1/10W
R608	1-216-025-00	CHIP COMPONENT	100	5%	1/10W
R609	1-216-025-00	CHIP COMPONENT	100	5%	1/10W
R610	1-216-081-00	CHIP COMPONENT	22K	5%	1/10W
R611	1-216-121-00	CHIP COMPONENT	1M	5%	1/10W
R612	1-216-073-00	CHIP COMPONENT	10K	5%	1/10W
R613	1-216-222-00	CHIP COMPONENT	10K	5%	1/8W
R614	1-216-027-00	CHIP COMPONENT	120	5%	1/10W
R615	1-216-172-00	CHIP COMPONENT	82	5%	1/8W
R616	1-216-029-00	CHIP COMPONENT	150	5%	1/10W
R617	1-216-121-00	CHIP COMPONENT	1M	5%	1/10W
R701	1-216-076-00	CHIP COMPONENT	13K	5%	1/10W
R702	1-216-049-00	CHIP COMPONENT	1K	5%	1/10W
R703	1-216-088-00	CHIP COMPONENT	43K	5%	1/10W
R704	1-216-182-00	CHIP COMPONENT	220	5%	1/8W
RV301	1-228-598-00	RES, VAR, CARBON 10K/10K			
RV601	1-226-784-00	RES, ADJ, METAL GLAZE 100K			
RV701	1-228-357-00	RES, ADJ, METAL GLAZE 4.7K			
S301	1-553-223-00	SWITCH, SLIDE			
S302	1-553-280-00	SWITCH, SLIDE			
S303	1-554-122-00	SWITCH, SLIDE			
S304	1-553-197-00	SWITCH, SLIDE			
S305	1-553-197-00	SWITCH, SLIDE			
S306	1-553-682-00	SWITCH, LEAF			
S307	1-553-226-00	SWITCH, LEAF			
T301	1-433-251-00	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	1-121-419-00	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.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		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

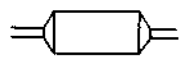
CAP. (μF)	RATING → : Use the high voltage rated one.				
	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	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

CAP. (μF)	RATING 50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. PART No.	CAP. (μF)	50 VOLT. PART No.	100 VOLT. PART No.	200 VOLT. 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

CAP. (μF)	RATING 3.15 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	25 VOLT. PART No.	35 VOLT. PART No.
	→ : Use the high voltage rated one.						
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					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	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	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	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	1-131-359-00	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	1-131-360-00	–
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

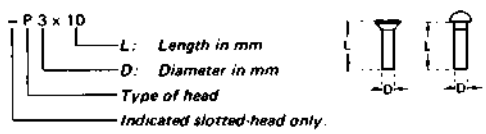
CAP. (μF)	RATING 3 VOLT. PART No.	6.3 VOLT. PART No.	10 VOLT. PART No.	16 VOLT. PART No.	20 VOLT. PART No.	35 VOLT. PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	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					

1/8 WATT CARBON RESISTOR

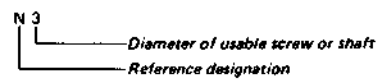
Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
2.0	—	13	1-246-821-00	91	1-246-831-00	620	1-246-841-00	4.3k	1-246-851-00	30k	1-246-861-00	200k	1-246-871-00
2.2	1-246-751-00	15	1-246-761-00	100	1-246-771-00	680	1-246-781-00	4.7k	1-246-791-00	33k	1-246-801-00	220k	1-246-811-00
2.4	--	16	1-246-822-00	110	1-246-832-00	750	1-246-842-00	5.1k	1-246-852-00	36k	1-246-862-00	240k	1-247-054-00
2.7	1-246-752-00	18	1-246-762-00	120	1-246-772-00	820	1-246-782-00	5.6k	1-246-792-00	39k	1-246-802-00	270k	1-247-046-00
3.0	—	20	1-246-823-00	130	1-246-833-33	910	1-246-843-00	6.2k	1-246-853-00	43k	1-246-863-00	300k	1-247-055-00
3.3	1-246-753-00	22	1-246-763-00	150	1-246-773-00	1.0k	1-246-783-00	6.8k	1-246-793-00	47k	1-246-803-00	330k	1-247-047-00
3.6	—	24	1-246-824-00	160	1-246-834-00	1.1k	1-246-844-00	7.5k	1-246-854-00	51k	1-246-864-00	360k	1-247-056-00
3.9	1-246-754-00	27	1-246-764-00	180	1-246-774-00	1.2k	1-246-784-00	8.2k	1-246-794-00	56k	1-246-804-00	390k	1-247-048-00
4.3	—	30	1-246-825-00	200	1-246-835-00	1.3k	1-246-845-00	9.1k	1-246-855-00	62k	1-246-865-00	430k	1-247-057-00
4.7	1-246-755-00	33	1-246-765-00	220	1-246-775-00	1.5k	1-246-785-00	10k	1-246-795-00	68k	1-246-805-00	470k	1-247-049-00
5.1	---	36	1-246-826-00	240	1-246-836-00	1.6k	1-246-846-00	11k	1-246-856-00	75k	1-246-866-00	510k	1-247-058-00
5.6	1-246-756-00	39	1-246-766-00	270	1-246-776-00	1.8k	1-246-786-00	12k	1-246-796-00	82k	1-246-806-00	560k	1-247-050-00
6.2	—	43	1-246-827-00	300	1-246-837-00	2.0k	1-246-847-00	13k	1-246-857-00	91k	1-246-867-00	620k	1-247-059-00
6.8	1-246-757-00	47	1-246-767-00	330	1-246-777-00	2.2k	1-246-787-00	15k	1-246-797-00	100k	1-246-807-00	680k	1-247-051-00
7.5	1-246-818-00	51	1-246-828-00	360	1-246-838-00	2.4k	1-246-848-00	16k	1-246-858-00	110k	1-246-868-00	750k	1-247-060-00
8.2	1-246-758-00	56	1-246-768-00	390	1-246-778-00	2.7k	1-246-788-00	18k	1-246-798-00	120k	1-246-808-00	820k	1-247-052-00
9.1	1-246-819-00	62	1-246-829-00	430	1-246-839-00	3.0k	1-246-849-00	20k	1-246-859-00	130k	1-246-869-00	910k	1-247-061-00
10	1-246-759-00	68	1-246-769-00	470	1-246-779-00	3.3k	1-246-789-00	22k	1-246-799-00	150k	1-246-809-00	1 M	1-247-053-00
11	1-246-820-00	75	1-246-830-00	510	1-246-840-00	3.6k	1-246-850-00	24k	1-246-860-00	160k	1-246-870-00		
12	1-246-760-00	82	1-246-770-00	560	1-246-780-00	3.9k	1-246-790-00	27k	1-246-800-00	180k	1-246-810-00		

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:

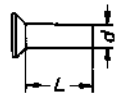


Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
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-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
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
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

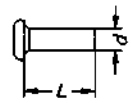
DIMENSIONS AND PART NO. OF PRECISION SCREWS

⊕ *K*
(Flat-countersunk-head screw)



Type	Size (mm) (d × L)	Part No.	
		Black	Silver
Type 1	K1.4 × 1.6	7-627-451-08	7-627-451-07
	K1.4 × 1.8		
	K1.4 × 2	7-627-451-38	7-627-451-37
	K1.4 × 2.2		
	K1.4 × 2.5	7-627-451-18	7-627-451-17
	K1.4 × 2.8		
	K1.4 × 3	7-627-451-28	7-627-451-27
	K1.4 × 3.5		7-627-451-47
	K1.4 × 4		
	K1.4 × 4.5		
	K1.4 × 5	7-627-451-78	7-627-451-77
	K1.7 × 1.8		
	K1.7 × 2		
	K1.7 × 2.2		
	K1.7 × 2.5		
	K1.7 × 2.8		
	K1.7 × 3		
	K1.7 × 3.5		
	K1.7 × 4	7-627-450-78	
	K1.7 × 4.5		
	K1.7 × 5		
	K1.7 × 5.5		
	K1.7 × 6		
	K2 × 2	7-627-452-08	7-627-452-07
	K2 × 2.2		
	K2 × 2.5		
	K2 × 2.8		
	K2 × 3	7-627-452-18	7-627-452-17
	K2 × 3.5		
	K2 × 4	7-627-452-28	
	K2 × 4.5		
	K2 × 5	7-627-452-38	
	K2 × 5.5		
	K2 × 6		
	K2 × 7		
	K2 × 8		

⊕ *P*
(Pan-head screw)



Type	Size (mm) (d × L)	Part No.	
		Black	Silver
Type 1	P1.4 × 1.4		7-627-551-47
	P1.4 × 1.6	7-627-551-08	7-627-551-07
	P1.4 × 1.8		
	P1.4 × 2	7-627-551-18	7-627-551-17
	P1.4 × 2.2		
	P1.4 × 2.5	7-627-551-28	7-627-551-27
	P1.4 × 2.8	7-627-551-88	
	P1.4 × 3	7-627-551-58	7-627-551-57
	P1.4 × 3.5	7-627-551-68	7-627-551-67
	P1.4 × 4	7-627-551-78	7-627-551-77
	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
Type 3	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