

TCM-AP1V

SERVICE MANUAL



US Model
Canadian Model
AEP Model
UK Model
E Model
Tourist Model

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MT-AP1-101

SPECIFICATIONS

Track

Compact cassette, Monaural

Speaker

Approx. 3.6 cm (1 7/16 in.) dia.

Frequency range

250 - 8,000 Hz

Input

Microphone input jack (minijack/PLUG IN POWER)
sensitivity 0.25mV for 3 kilohms or lower impedance
microphone

Output

Earphone jack (minijack) for 8 - 300 ohms earphone

Power output

180 mW (at 10 % harmonic distortion)

Variable range of the tape speed

from +100% to -30%

Variable range of the pitch

from +1/2 octave to -1 octave

Power requirements

- Two R6 (size AA) batteries (not supplied): 3V DC
- Sony AC-E30L AC power adaptor (not supplied)
120V AC, 60Hz (US, Canadian model)
240V AC, 50Hz (UK model)
220 - 230V AC, 50 or 60 Hz (AEP model)
110-120V/220-240V AC, 50 or 60Hz (E, Tourist model)
- Sony DCC-E130L car battery cord (not supplied): 12V car battery

Dimensions (w/h/d)

Approx. 90 × 113 × 35.8 mm (3 5/8 × 4 1/2 × 1 7/16 in.) inclu.
projecting parts and controls

Mass

Approx. 270 g (9.5 oz.) incl. batteries

Supplied accessory

Carrying case (1)

Design and specifications subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC
regarding interference suppression.

CASSETTE-CORDER
SONY®



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Flexible Circuit Board Repairing

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

Notes on chip component replacement

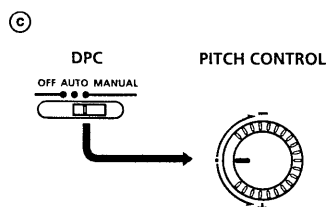
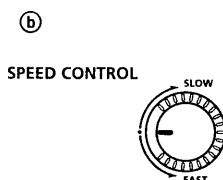
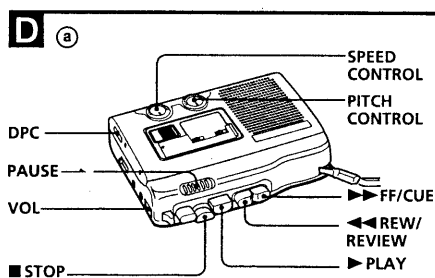
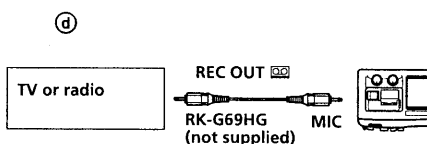
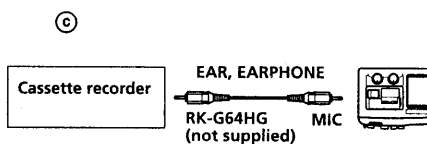
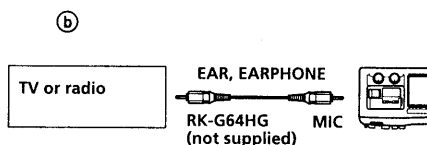
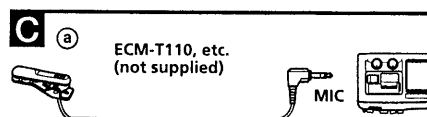
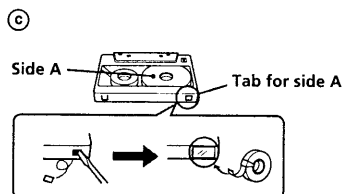
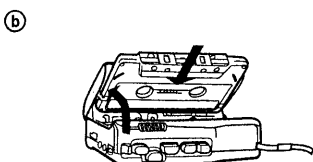
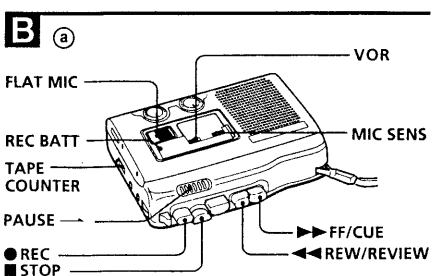
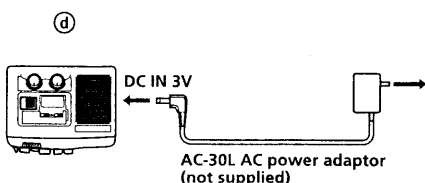
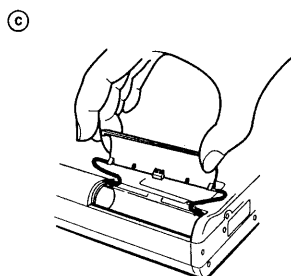
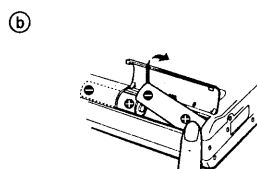
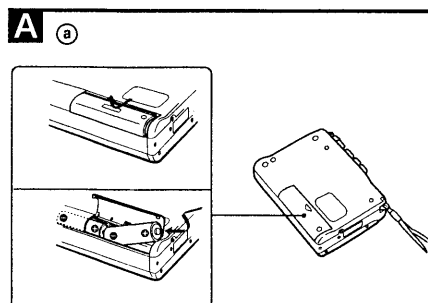
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SECTION 1 GENERAL

This section is extracted from instruction manual.

For the customers in Canada

This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.



Welcome!

Thank you for purchasing the Sony Cassette-Corder. Here are some of the useful features.

- DPC (Digital Pitch Control) allows you to adjust the pitch of the playback sound within the range of approximately $\pm 1/2$ octave to -1 octave.
- You can increase or decrease the playback tape speed within the range of approximately +100% to -30%. As you can adjust the pitch at the same time, you can make the sound more comprehensible.
- VOR (Voice Operated Recording) system starts and stops recording automatically in response to the sound, and thus saves tapes and batteries.
- The pause switch is released automatically when the **■STOP** button is depressed. Thus, you don't miss a recording chance just because you forgot to release the pause.
- Sony Boundary Effect flat microphone picks up the human voice more clearly at a conference.

Preparing Power Sources

The unit has three power sources. Choose one of the following.

Dry Batteries

How to insert the batteries (see Fig. A-②)

- 1 Open the battery compartment lid.
- 2 Insert two R6 (size AA) batteries (not supplied) with correct polarity and close the lid.

Note

When the AC adaptor or the car battery cord is connected to the DC IN 3V jack of the unit, the unit does not operate on batteries.

To take out the batteries (see Fig. A-③)

If the battery compartment lid is accidentally detached (see Fig. A-④)

Attach it as illustrated.

When to replace the batteries

Replace the battery with new ones when the REC/BATT (record/battery) lamp dims and the sound is distorted.

Battery life (Approx. hours)

Batteries	Recording	Playback	Playback at double speed DPC:active
Sony SUM-3 (NS)	2	2	1.5
Sony alkaline AM3(N)	9	8.5	6

When using the dry batteries, use of the alkaline batteries is recommended.

House Current (see Fig. A-⑤)

Connect the AC power adaptor to DC IN 3V and to the wall outlet. Use AC-E30L AC power adaptor (not supplied). Do not use any other AC power adaptor.



Polarity of the plug

12 V Car Battery

To use the unit on 12V car battery, use Sony DCC-E130L car battery cord (not supplied).

Recording (see Fig. B-①)

Place the unit on a table horizontally to pick up human voice clearly with the built-in flat microphone (Sony Boundary Effect).

- 1 Open the cassette compartment lid with your fingers.
- 2 Insert a normal (TYPE I) cassette with the side to start recording facing the lid. (see Fig. B-②)
- 3 Set VOR to ON or OFF.
If you set VOR to ON, the unit automatically starts recording the sound and pauses when there is no sound (You can save tapes and batteries). When the sound is not loud enough, set it to OFF, or the unit may not start recording.
- 4 Set MIC SENS (microphone sensitivity) to select the sensitivity of the microphone.

Recording condition	MIC SENS
At meeting or conference using an external microphone such as ECM-Z70 (not supplied)/ Normal use	MID
Recording with the built-in microphone/ In a quiet or spacious place	HIGH
Recording with an external microphone such as ECM-T110 (not supplied) clipped on your collar or pocket/In a noisy place	LOW

- 5 Press **●REC**.
Recording starts.
While the tape runs, the REC/BATT lamp lights and flashes depending on the strength of the sound.

To	Press or slide
Stop recording	■STOP
Start recording during playback	●REC during playback (the unit becomes in recording mode)
Review the portion just recorded	Press and hold ◀REW / REVIEW during recording. Release the button at the point to start playback.
Pause recording	Slide PAUSE $\rightarrow$ in the direction of the arrow.
Take out a cassette	■STOP and open the lid with your fingers.

Notes

- Do not use a CrO₂ (TYPE II) or metal (TYPE IV) tape, otherwise the sound may be distorted when you play back the tape, or the previous recording may not be erased completely.
- Make sure that nothing is connected to MIC when recording with the built-in microphone. Otherwise, a recording with the built-in microphone cannot be made.
- Be careful not to press the microphone forcibly. Otherwise, the microphone will be damaged and cause noise.
- **SPEED CONTROL**, **DPC** switch and **PITCH CONTROL** work in the playback mode only. Recording will be made independent of these controls.

Notes on VOR (Voice Operated Recording)

- **VOR system depends on the environmental conditions. If you cannot get the desired results even though you adjust MIC SENS, set VOR to OFF.**
- When you use the system in a noisy place, noise will be recorded and the unit will stay in the recording mode. In this case, set MIC SENS to MID (middle) or LOW to pick up necessary sound only.

To monitor the sound

Connect an earphone (not supplied) to EAR.

To prevent a tape from being accidentally recorded over (see Fig. B-③)

Break off the cassette tabs from side A and/or B. To reuse the tape for recording, cover the tab hole with adhesive tape.

Recording from Various Sound Sources

Recording with an External Microphone (see Fig. C-①)

Connect a microphone to MIC. Use a microphone of low impedance (less than 3 kilohms) such as ECM-T110 (not supplied). When using a plug-in power system microphone, the power to the microphone is supplied from this unit.

Note

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

Recording from Another Equipment

Connect another equipment to MIC using the RK-G64HG or RK-G69HG connecting cord (not supplied).

To	See
Record from a TV or radio equipped with an earphone jack	Fig. C-②
Record from another cassette recorder	Fig. C-③
Record from a radio or TV equipped with a recording jack*	Fig. C-④

* The volume setting of the radio or TV does not affect the recording.

Playing a Tape (see Fig. D-①)

- 1 Insert a tape cassette with the side to start playing facing the lid.
- 2 Press **▶PLAY**.
- 3 Adjust the volume.

To	Press or slide
Stop playback /stop fast forward or rewind*	■STOP
Pause playback	Slide PAUSE $\rightarrow$ in the direction of the arrow.
Fast forward	▶▶ FF/CUE during stop
Rewind	◀◀ REW/REVIEW during stop
Search forward during playback (CUE)	Press and hold ▶▶ FF/CUE and release it at the point you want.
Search backward during playback (REVIEW)	Press and hold ◀◀ REW/REVIEW and release it at the point you want.

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

How to adjust the tape playback speed (SPEED CONTROL) (see Fig. D-②)

At the maximum position of this switch, the tape speed becomes almost twice as fast as that at the center position, so you can listen to the tape in about half the time.

Note

When the batteries are weak, if you turn **SPEED CONTROL** rapidly, the tape may stop. In this case, turn **SPEED CONTROL** slowly or replace the batteries.

How to adjust the pitch (see Fig. D-③)

Use the **DPC** switch and the **PITCH CONTROL** switch. You can make the sound more comprehensible when changing the tape speed.

PITCH CONTROL	DPC switch
To adjust the pitch automatically depending on the tape speed (PITCH CONTROL does not work.)	AUTO
To adjust the pitch more accurately	MANUAL
Not to adjust the pitch	OFF

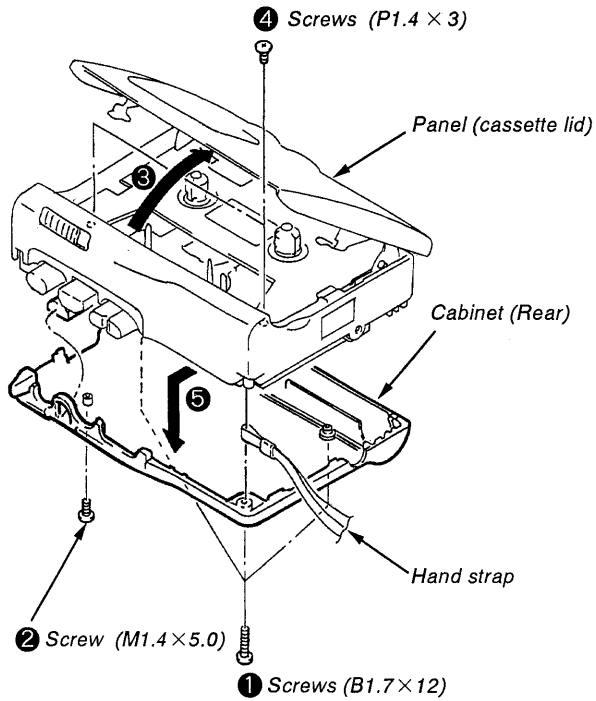
Notes

- The sound is interrupted for a moment when you change **DPC** switch during playback.
- Even though you use **DPC** switch, you cannot acquire the same pitch as the original. The tone will be somewhat different from the original.

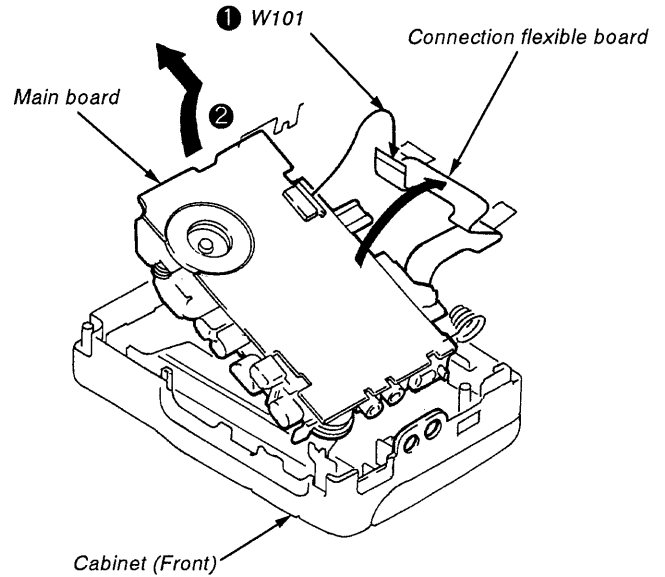
SECTION 2 DISASSEMBLY

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

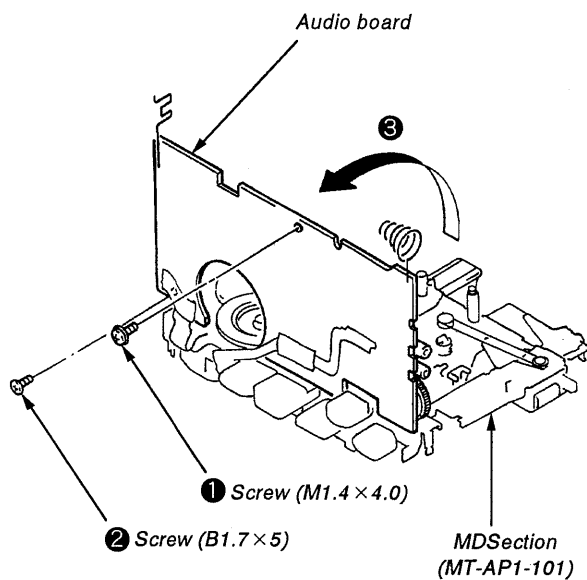
2-1. CABINET (REAR)



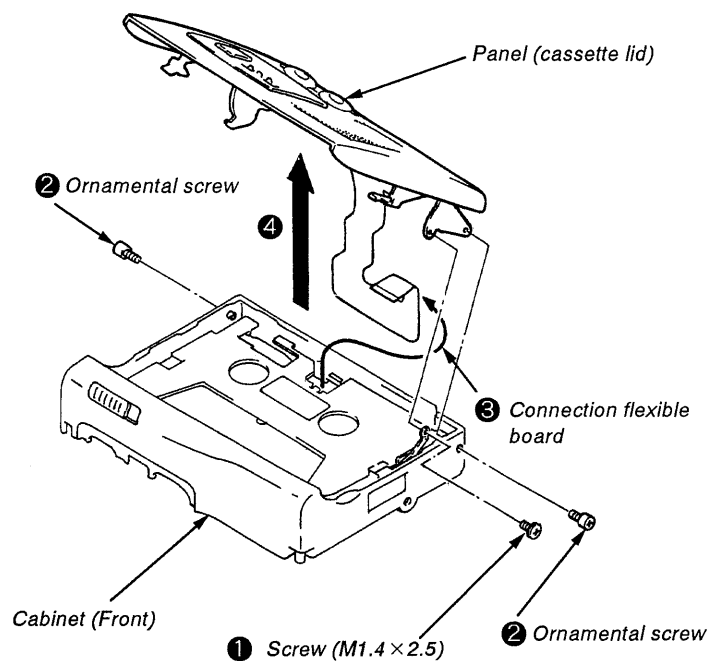
2-2. CABINET (FRONT)



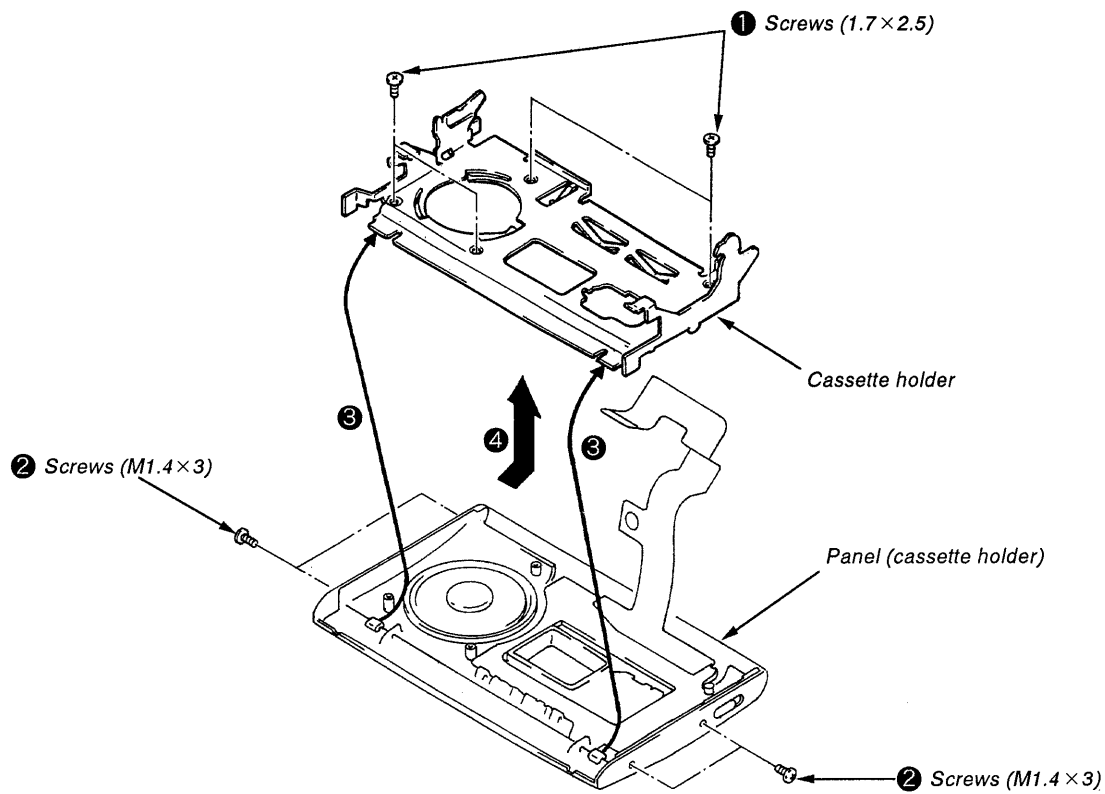
2-3. AUDIO BOARD



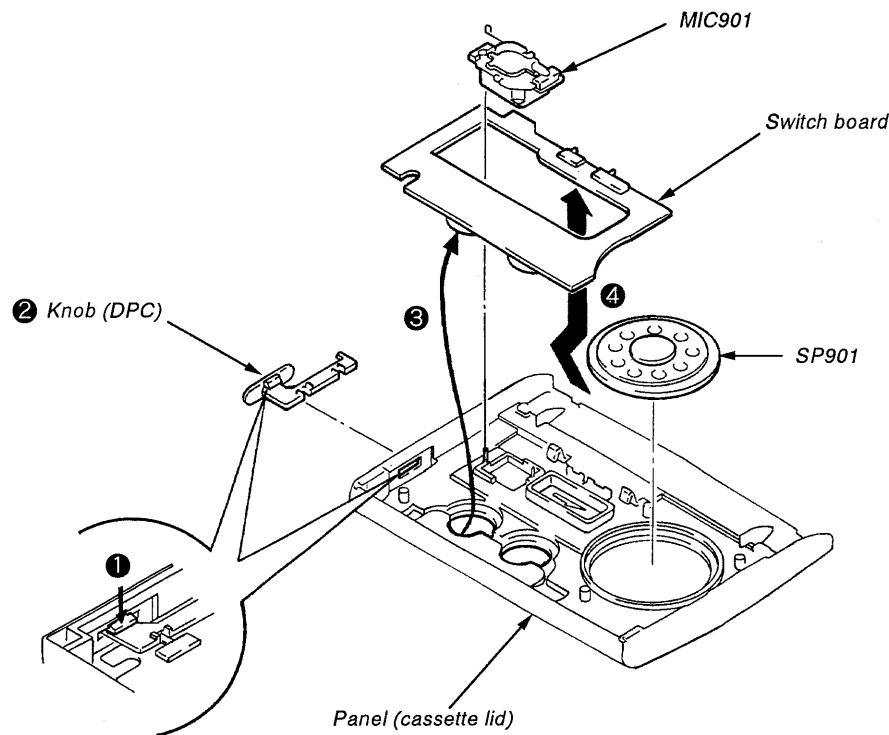
2-4. PANEL (CASSETTE LID)



2-5. CASSETTE HOLDER



2-6. SWITCH BOARD



SECTION 3 MECHANICAL ADJUSTMENTS

PRECAUTION

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

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

Torque Measurement

Mode	Meter Reading	Torque Meter
Forward	26 – 42g•cm (0.37 – 0.58oz•inch)	CQ-102C
Fast Forward and Rewind	more than 60g•cm (0.84oz•inch)	CQ-201B
Back Tension	2 – 4.5g•cm (0.028 – 0.06oz•inch)	CQ-102C

Tape Tension Measurement

Mode	Tension Meter	Meter Reading
Forward	CQ-403A	more than 60g (2.12oz)

SECTION 4 ELECTRICAL ADJUSTMENTS

4-1. TAPE RECORDER SECTION

● Test Tape

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

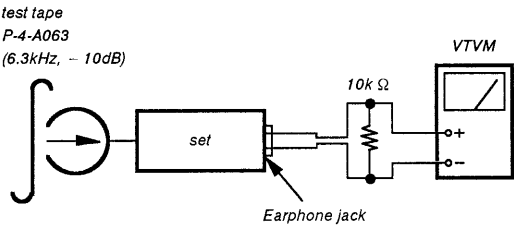
REC/PB Head Azimuth Adjustment

Setting :

- VOLUME Control (RV101) : mechanical mid
 DPC (S103, 105) : OFF
 PAUSE (S103) : OFF
 MIC Sense (S102) : H
 VOR (S501) : OFF
 SPEED CONTROL (RV704) : normal
 PITCH CONTROL (RV104) : normal

Procedure :

1. Mode : playback

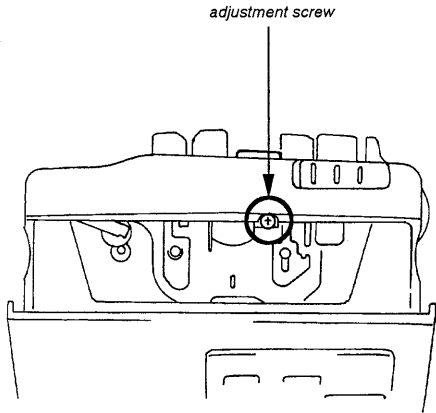


2. Turn the adjustment screw to obtain the maximum reading on VTVM.

Note : Several peaks may appear, but take the maximum.

3. After the adjustment, lock the adjustment screw with suitable locking compound.

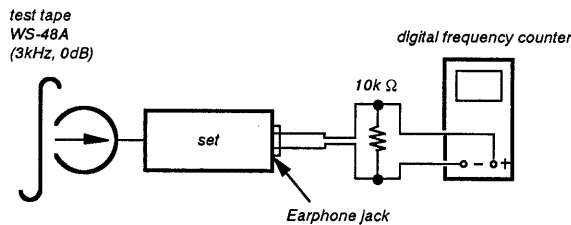
Adjustment Location :



Tape Speed Adjustment

Procedure :

- 1. Mode : playback

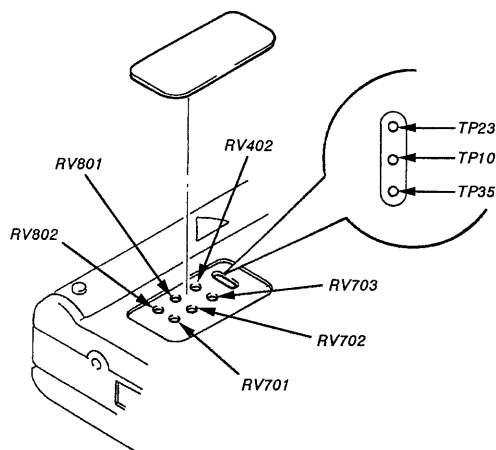


- 2. Turn the speed control volume knob (RV704) fully in anticlockwise (fast) direction.
- 3. Adjust RV701 so that the reading of the frequency counter becomes $6000 \pm 60\text{Hz}$.
- 4. Turn the speed control volume knob (RV704) fully in clockwise (slow) direction.
- 5. Adjust RV703 so that the reading of the frequency counter becomes $2100 \pm 30\text{Hz}$.
- 6. Turn the speed control volume knob (RV704) to the center position.
- 7. Adjust RV702 so that the reading of the frequency counter becomes $3000 \pm 30\text{Hz}$.

Pitch Control Adjustment

- 1. Set the DPC switches (S103, 105) to manual mode.
- 2. Activate the playback mode of the unit.
- 3. Connect a digital voltmeter between TP35 and TP23 and adjust RV402 so that the reading of the digital voltmeter becomes $0 \pm 0.05\text{V}$.
- 4. Set the DPC switches (S103, 105) to the auto mode.
- 5. Connect a digital voltmeter between TP10 and TP23 and adjust RV802 so that the reading of the digital voltmeter becomes $0 \pm 0.05\text{V}$.
- 6. Turn the speed control volume knob fully in anticlockwise (fast) direction.
- 7. Adjust RV801 so that the reading of the digital voltmeter becomes $1.53 \pm 0.02\text{V}$.

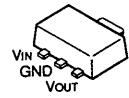
Adjustment Location :



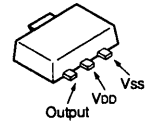
SECTION 5
DIAGRAMS

5-1. SEMICONDUCTOR LEAD LAYOUTS

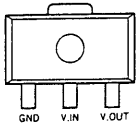
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AN77L035M-E1



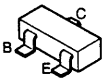
S-80715AN-DC-T1



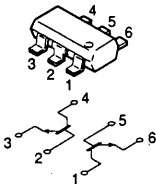
S-81215AG-RK-S



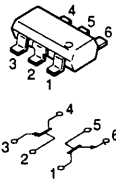
UN5114
UN5213
UN5214
2SA1745
2SC4116-YG



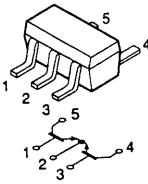
XN4504



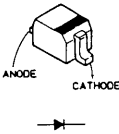
XN4608
XP4312
XP4314-TW



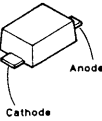
XP1214-TXE



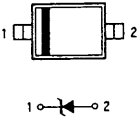
DTZ4.7C
MA110



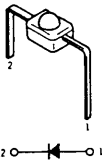
MA729



MA8056-L-TW



GL-1PR102



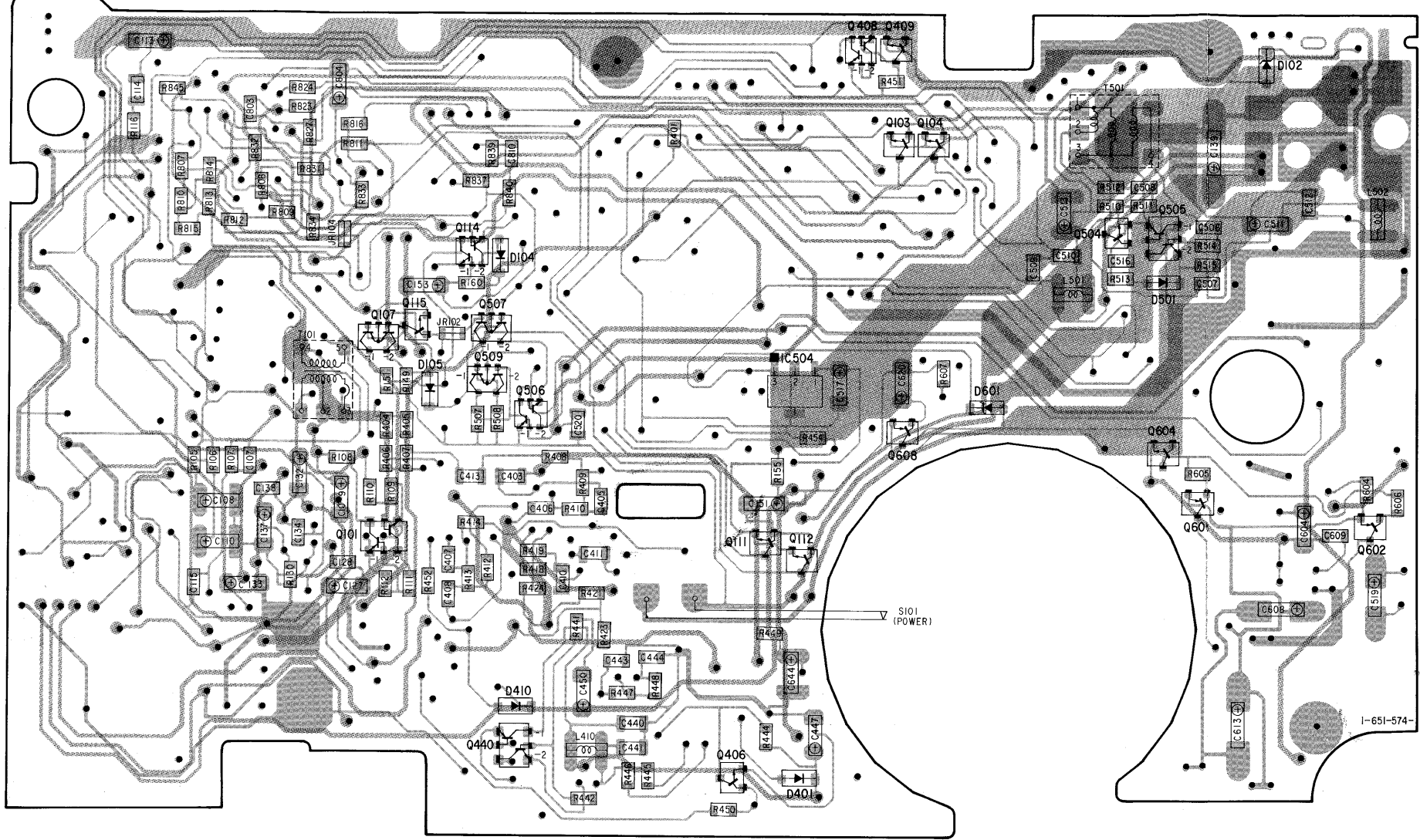
• SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D101	B - 13	Q106	C - 21
D102	B - 10	Q107	D - 4
D104	C - 5	Q109	D - 21
D105	D - 4	Q110	D - 21
D401	G - 7	Q111	E - 6
D403	F - 18	Q112	E - 7
D410	G - 5	Q114	C - 4
D501	C - 9	Q115	D - 4
D502	C - 20	Q120	D - 20
D503	C - 14	Q402	C - 20
D801	D - 8	Q403	C - 19
		Q405	F - 20
		Q406	G - 6
		Q407	G - 19
		Q408	B - 7
IC101	F - 22	Q409	B - 7
IC401	G - 18	Q420	F - 20
IC402	E - 20	Q440	G - 5
IC403	F - 20	Q501	B - 23
IC501	C - 23	Q504	C - 9
IC502	D - 13	Q505	C - 10
IC503	C - 13	Q506	D - 5
IC504	D - 7	Q507	D - 4
IC601	E - 14	Q509	D - 4
IC701	D - 15	Q601	E - 10
IC702	D - 16	Q602	E - 11
IC703	C - 18	Q604	E - 9
IC802	C - 22	Q605	E - 13
IC803	B - 21	Q606	D - 13
IC806	B - 22	Q608	E - 8
IC807	C - 20	Q802	B - 22
Q101	E - 4		
Q102	D - 21		
Q103	B - 8		
Q104	B - 8		
Q105	D - 20		

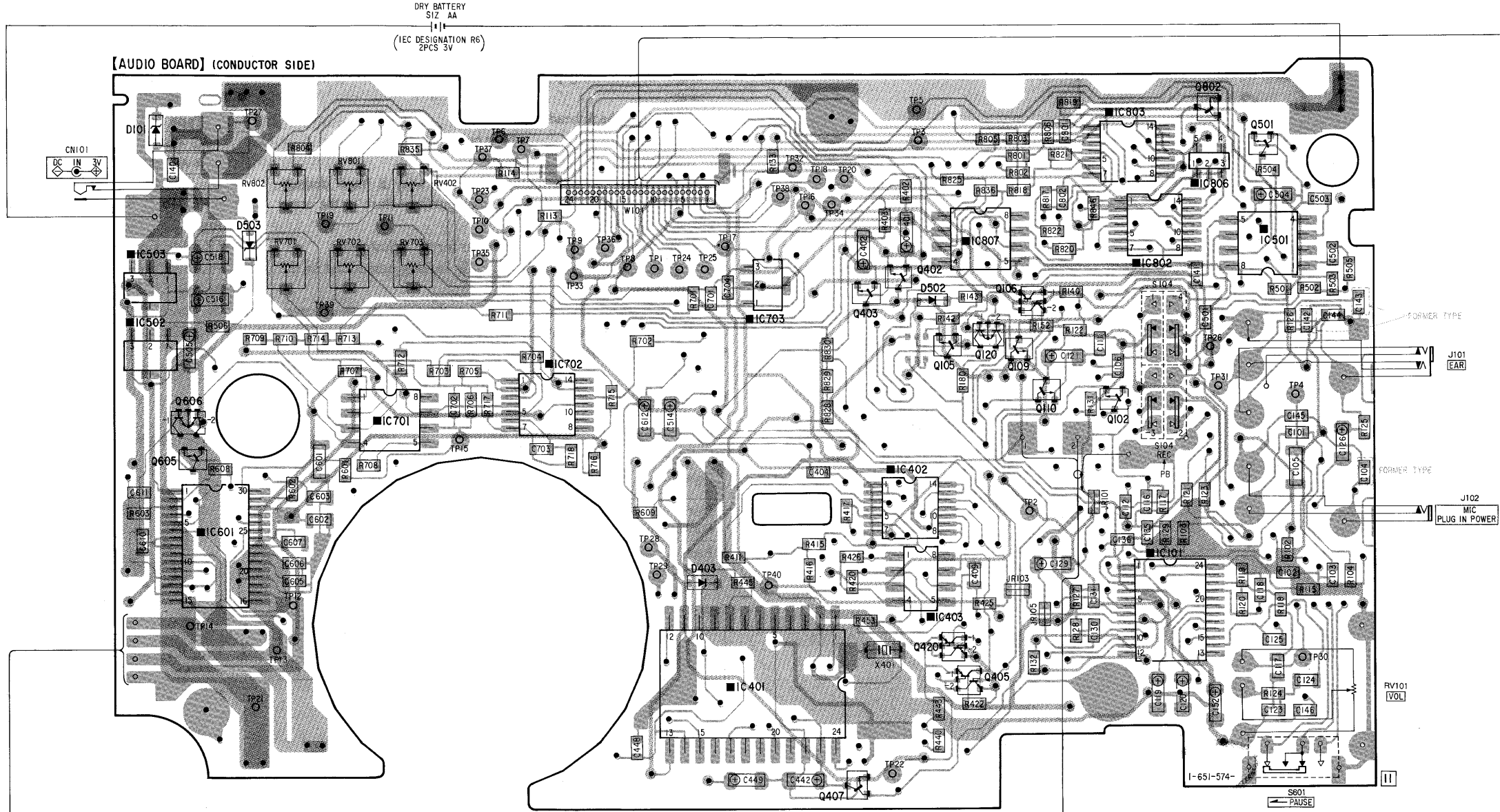
Note:

- : parts extracted from the component side.
- : parts mounted on the conductor side.
- : Through hole.
- ▨ : Pattern on the side which is seen.
- ▩ : Pattern of the rear side.

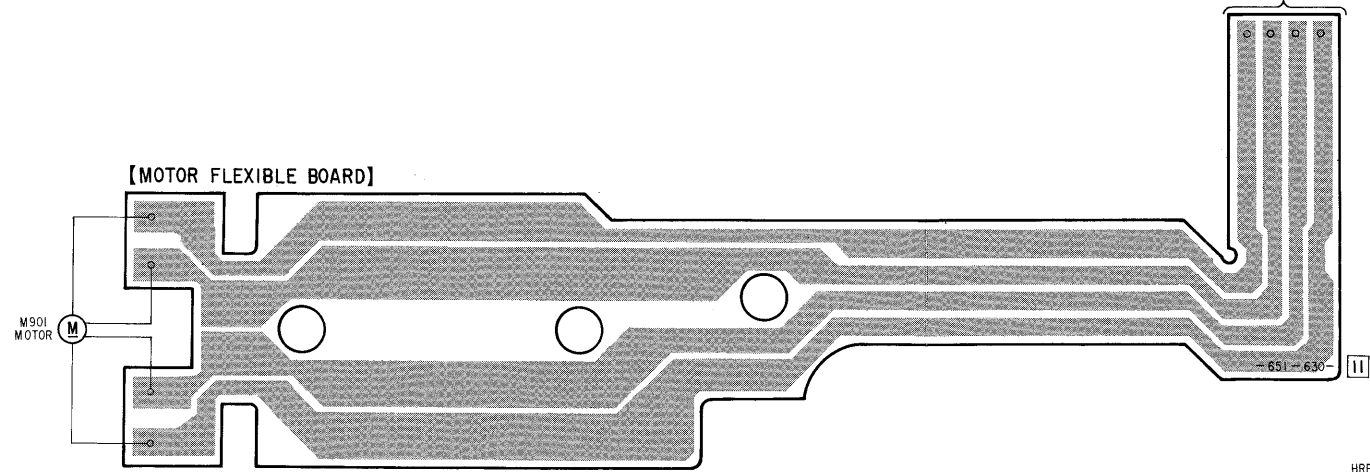
[AUDIO BOARD] (COMPONENT SIDE)



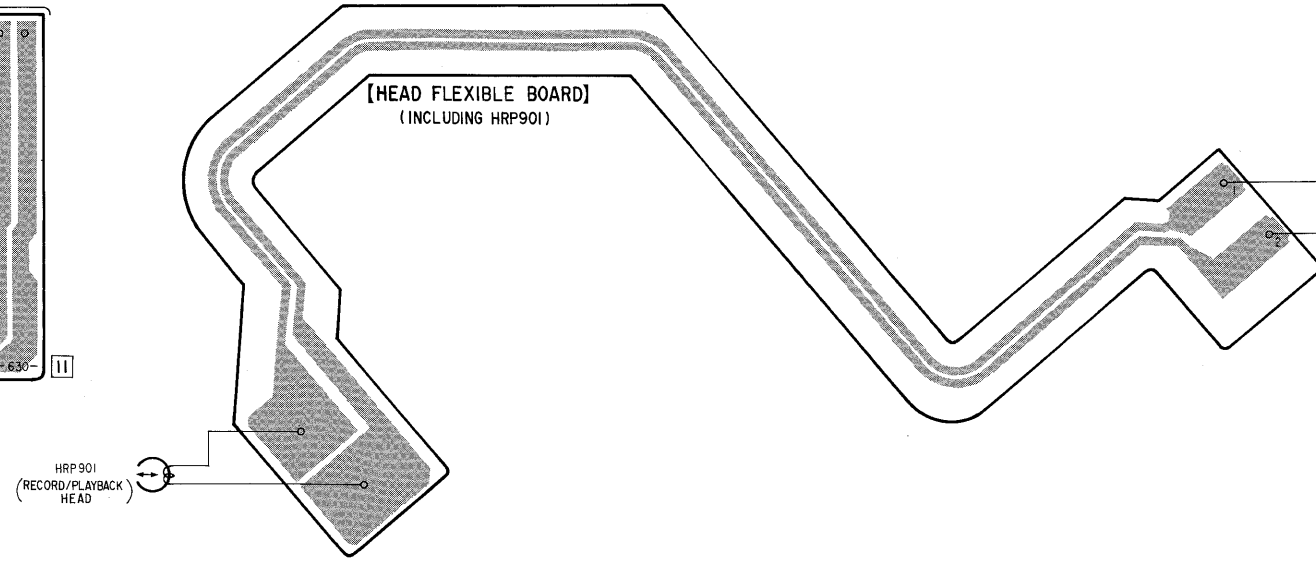
[AUDIO BOARD] (CONDUCTOR SIDE)



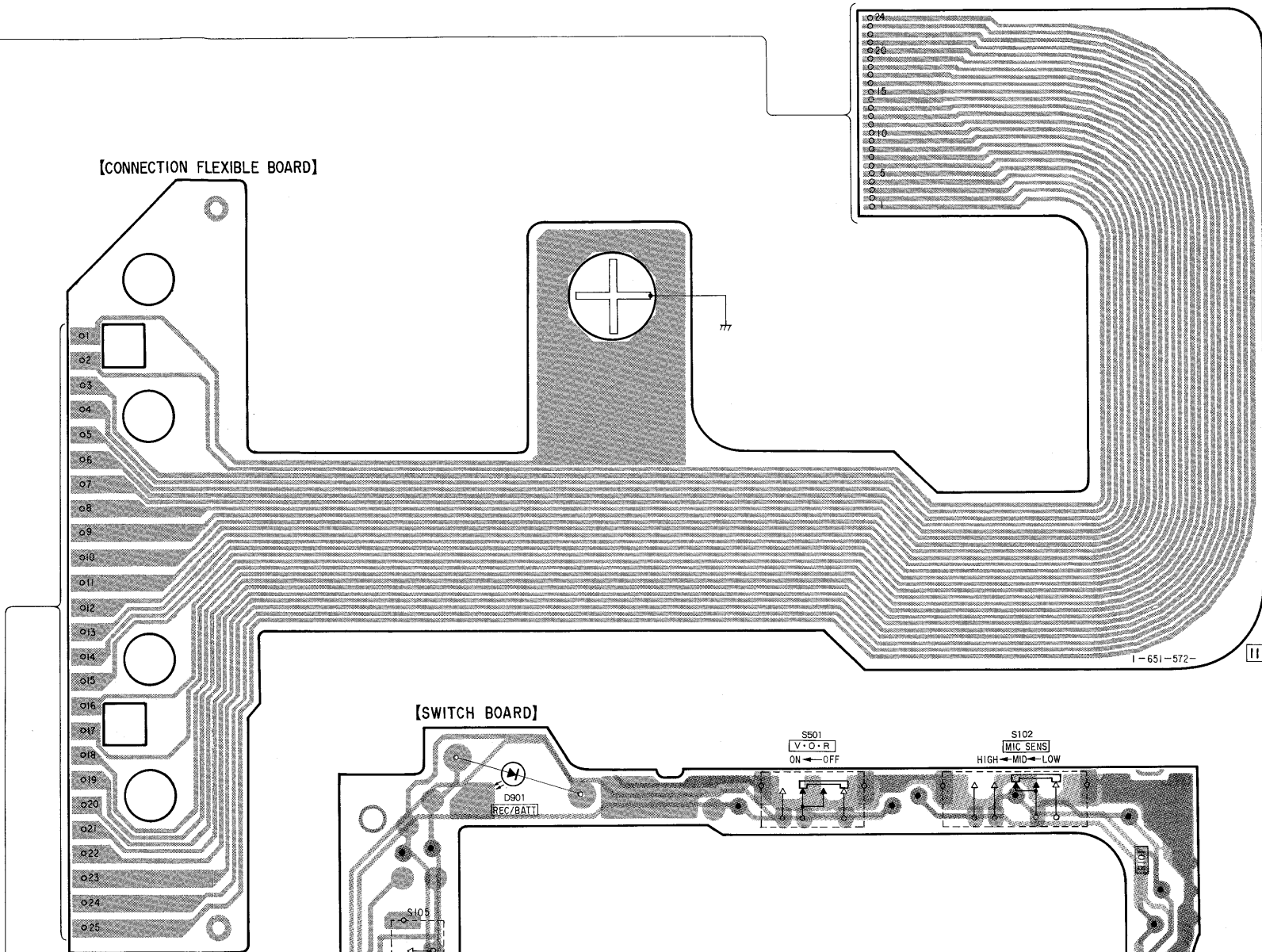
[MOTOR FLEXIBLE BOARD]



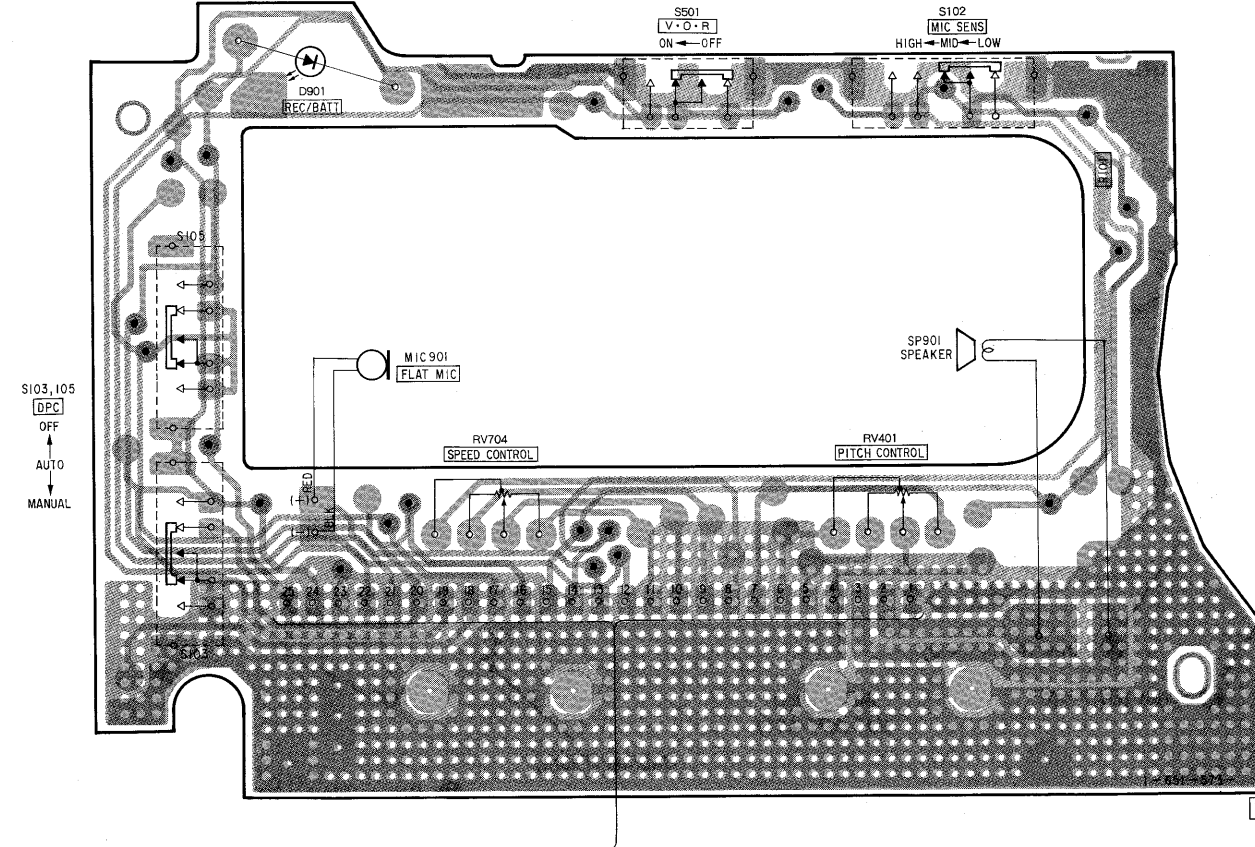
[HEAD FLEXIBLE BOARD] (INCLUDING HRP901)

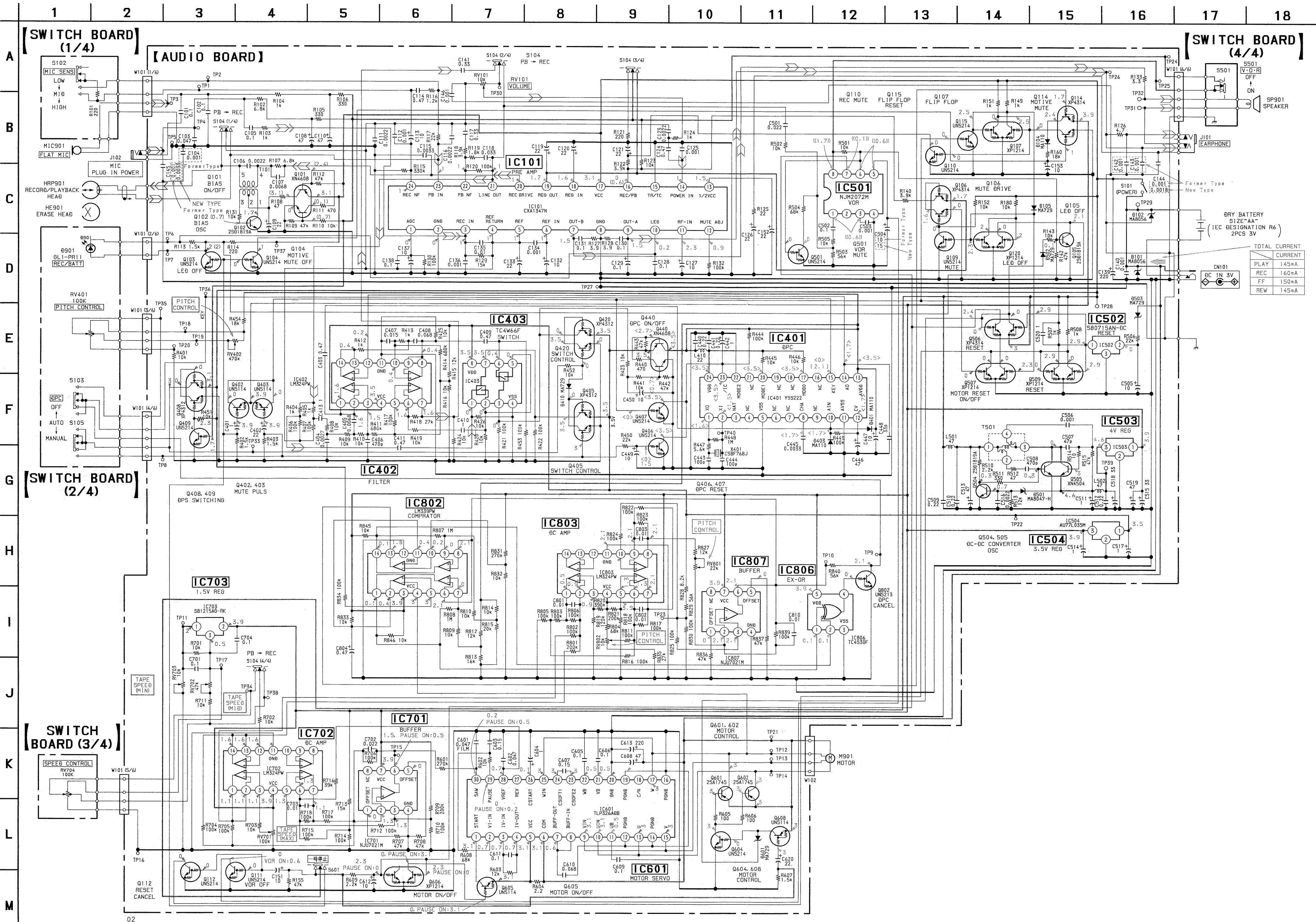


[CONNECTION FLEXIBLE BOARD]



[SWITCH BOARD]



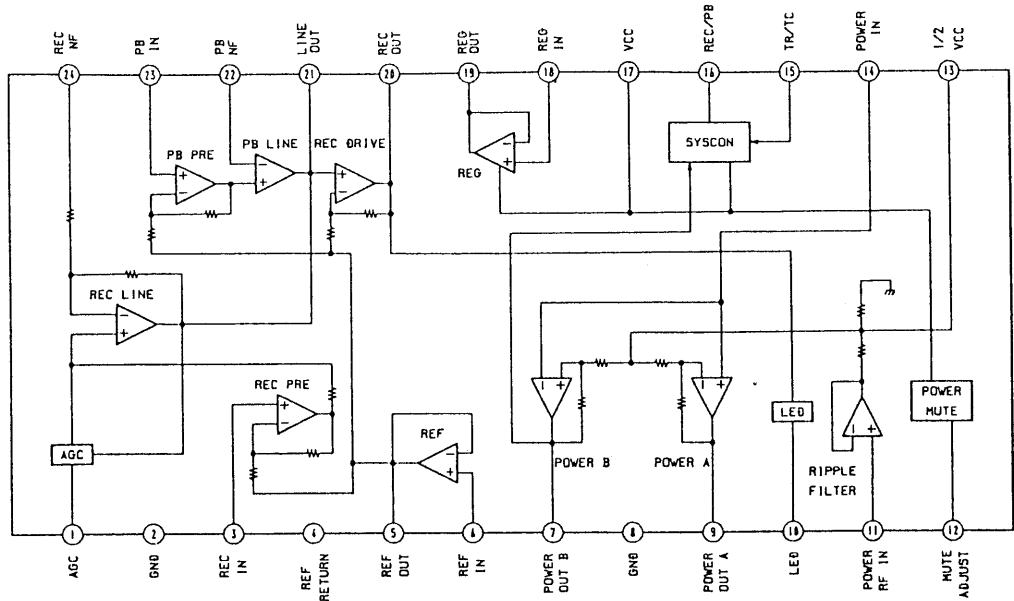


Note:

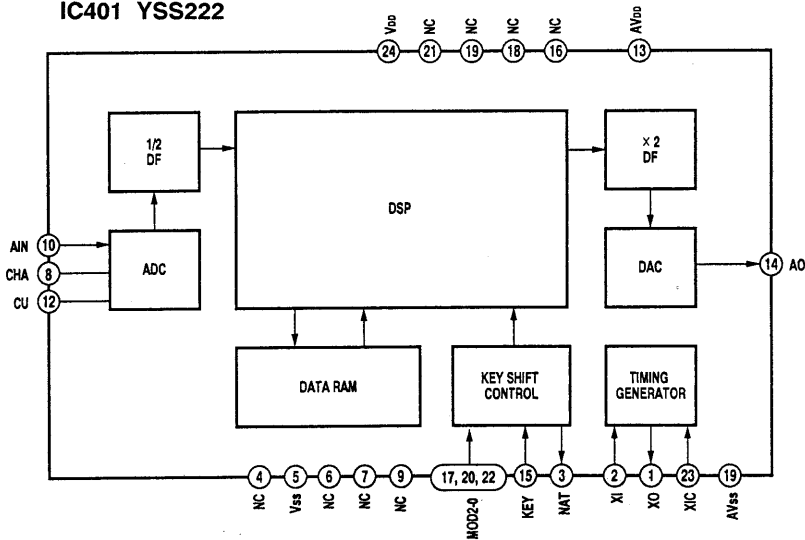
- All capacitors are in μ F unless otherwise noted. pF: μ F: μ F
- 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{2}$ W or less unless otherwise specified.
- % : indicates tolerance.
- B+ : Line
- : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is dc 3V and fed with regulated dc power supply from external power voltage jack (CN101).
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- no mark : PLAY
- () : REC
- () : DPC AUTO
- [] : DPC MANUAL
- () : VOR ON
- Voltages are taken with a VOM (Input impedance 10M Ω).
- Voltage variations may be noted due to normal production tolerances.
- Signal path.
- ▷ : PB
- ▷▷ : REC

5-4. IC BLOCK DIAGRAMS

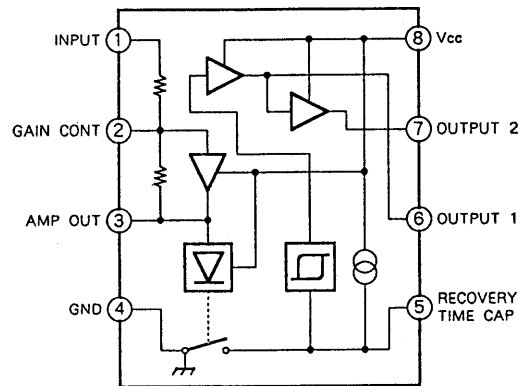
IC101 CXA1347N



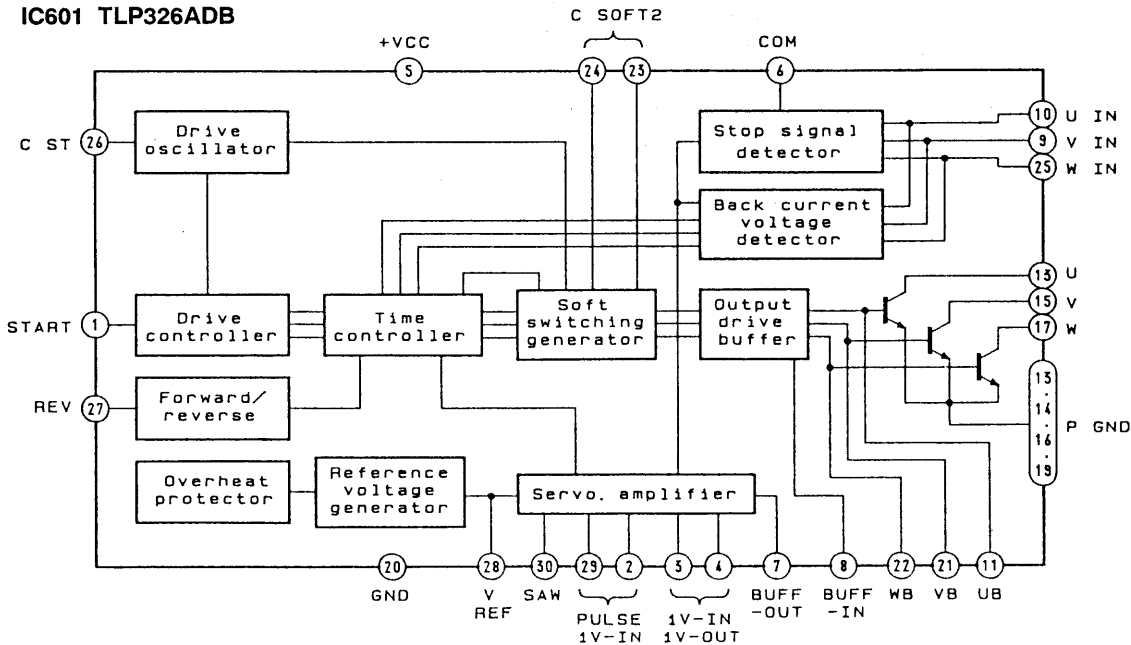
IC401 YSS222



IC501 NJM2072M



IC601 TLP326ADB

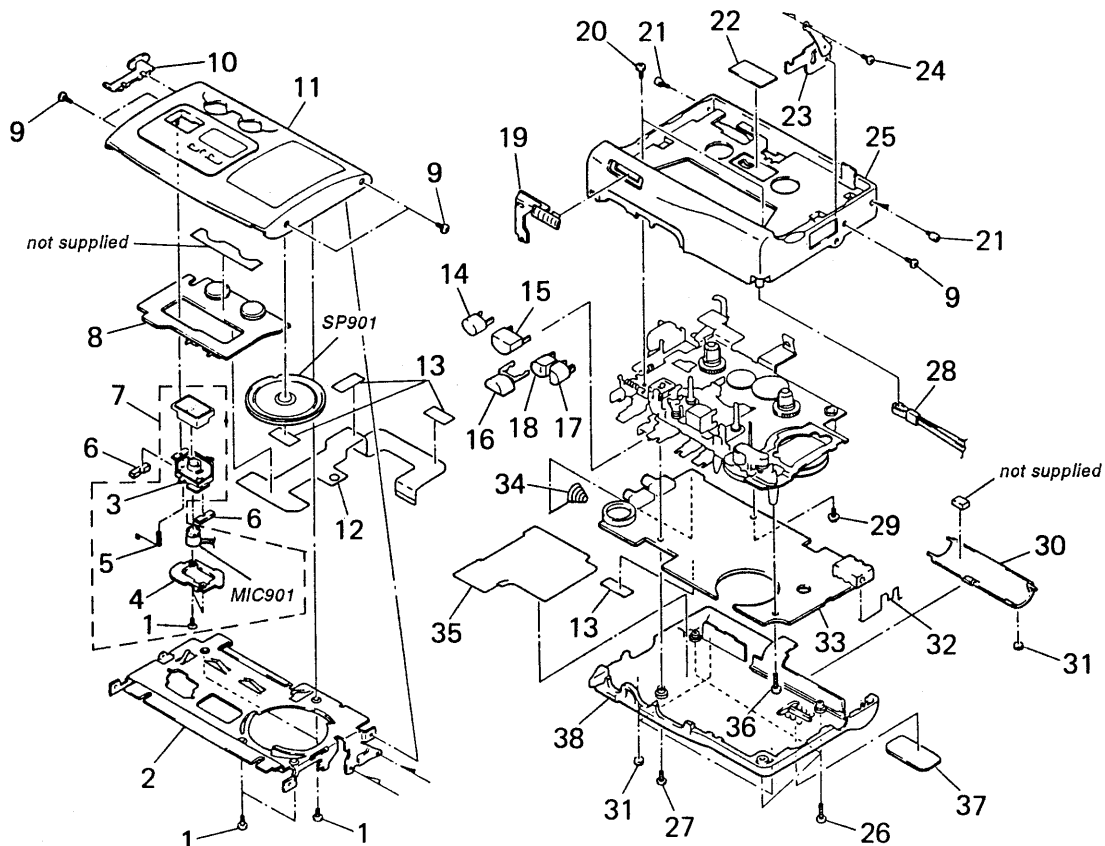


SECTION 6 EXPLODED VIEWS

NOTE :

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of this parts list.

6-1. MAIN SECTION

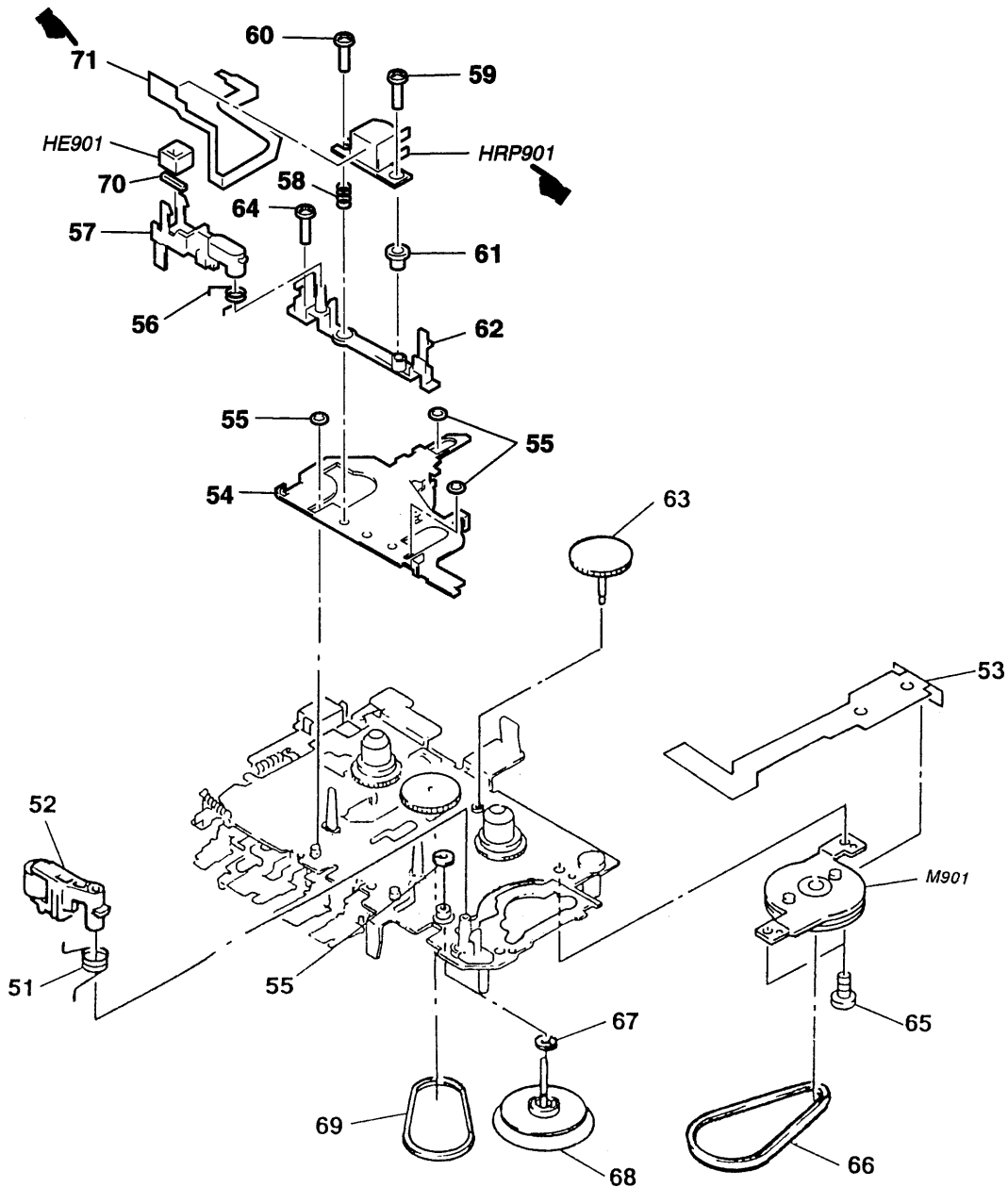


Ref.No.	Part No.	Description	Remark
1	3-318-382-91	SCREW (1.7X2.5), TAPPING	
* 2	3-910-791-01	HOLDER, CASSETTE	
3	3-360-613-01	CUSHION (MICROPHONE)	
4	3-360-612-11	CABINET (MICROPHONE LOWER)	
5	3-360-635-11	SPRING, GROUND	
6	3-913-669-01	SPACER (MIC)	
7	A-3042-385-A	MICROPHONE ASSY	
* 8	1-651-573-11	SWITCH BOARD	
9	3-704-197-21	SCREW (M1.4X2.5), LOCKING	
10	3-910-792-01	KNOB (DPC)	
11	X-3367-915-1	PANEL (CASSETTE LID) ASSY	
12	1-651-572-11	CONNECTION FLEXIBLE BOARD	
13	4-017-441-01	CUSHION (B)	
14	3-907-539-01	BUTTON (REC)	
15	3-907-543-01	BUTTON (PLAY)	
16	3-907-542-01	BUTTON (STOP)	
17	3-907-541-01	BUTTON (REW)	
18	3-907-540-01	BUTTON (FF)	
19	3-907-538-01	BUTTON (PAUSE)	
20	3-704-245-42	SCREW (P1.4X3.0)	

Ref.No.	Part No.	Description	Remark
21	3-315-989-11	SCREW, ORNAMENTAL	
22	3-371-862-01	PLATE, ORNAMENTAL	
23	X-3363-570-1	TOGGLE ASSY	
24	3-311-772-11	SHAFT (A), STOPPER	
25	3-907-547-21	CABINET (FRONT)	
26	3-318-203-51	SCREW (B1.7X12), TAPPING	
27	3-704-197-82	SCREW (M1.4X5.0), LOCKING	
28	3-371-849-01	STRAP, HAND	
29	3-345-648-03	SCREW (M1.4X4.0), TOOTHED LOCK	
30	3-910-790-01	LID, BATTERY CASE	
31	3-331-603-01	FOOT	
32	3-910-815-01	SPRING (PLUS), BATTERY	
* 33	A-3060-891-A	AUDIO BOARD COMPLETE	
34	3-907-524-01	SPRING, BATTERY COIL	
35	3-910-789-01	PAPER, SHIELD	
36	3-318-203-71	SCREW (B1.7X5), TAPPING	
37	3-910-816-01	PLATE (LABEL), BLIND	
38	3-910-788-01	CABINET (REAR)	
MIC901	1-542-142-11	MICROPHONE, BUILT-IN	
SP901	1-504-294-11	SPEAKER (3.6CM)	

REVISED

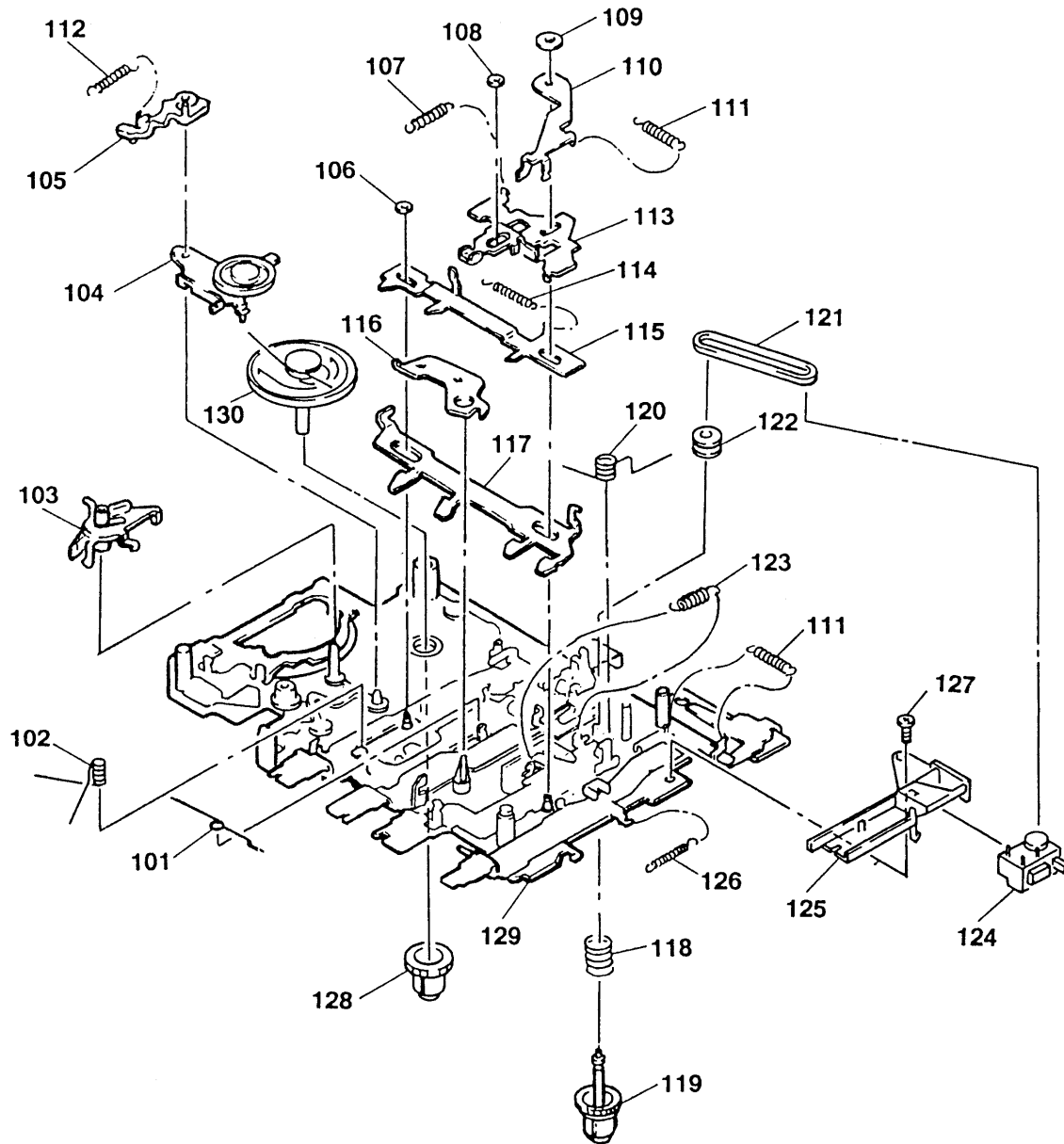
6-2. MECHANISM SECTION 1
(MT-AP1-101)



Ref. No.	Part No.	Description	Remark
51	3-907-945-01	SPRING (PINCH LEVER), TORSION	
52	X-3363-573-1	PINCH ROLLER ASSY	
53	1-651-630-11	MOTOR FLEXIBLE BOARD	
* 54	3-371-838-01	LEVER (HEAD)	
55	3-321-483-11	RING, RETAINING	
56	3-371-873-01	SPRING (E HEAD), TORSION	
57	3-371-851-01	BRACKET (E HEAD)	
58	3-371-882-01	SPRING (AZIMUTH), COMPRESSION	
59	3-376-177-01	SCREW (M1.4X3.8)	
60	3-375-135-01	SCREW (1.4), SPECIAL	
61	3-375-045-01	COLLAR (HEAD)	
62	3-371-839-01	BRACKET (HEAD)	

Ref. No.	Part No.	Description	Remark
63	3-371-854-01	GEAR (FF)	
64	3-704-197-91	SCREW (M1.4X1.8), LOCKING	
65	3-704-197-32	SCREW (M1.4X3.0)	
66	3-371-868-01	BELT (FR)	
67	3-701-437-41	WASHER	
68	X-3367-493-1	WHEEL ASSY (ZMDC), CAPSTAN	
69	3-907-943-01	BELT (CAPSTAN)	
70	3-385-317-11	CUSHION (E HEAD)	
71	1-641-529-11	PC BOARD, REC/PB HEAD FLEXIBL	
HE901	8-658-096-02	HEAD, ERASE EBF5-36	
HRP901	1-500-073-11	HEAD, MAGNETIC (REC/PB)	
M901	1-698-340-11	MOTOR, DC	

6-3. MECHANISM SECTION 2
(MT-AP1-101)



Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
101	3-371-871-01	SPRING (IDLER), TORSION		* 116	3-371-858-01	LEVER, CR	
102	3-371-872-01	SPRING (FR), TORSION		* 117	3-371-856-01	PLATE, LOCK	
* 103	3-371-863-01	LEVER (DETECTION)		118	3-908-734-01	SPRING (B.T), COMPRESSION	
104	X-3363-568-1	LEVER ASSY, IDLER		119	3-371-866-01	GEAR (S REEL)	
* 105	3-371-864-01	LEVER (SHUT OFF)		120	3-907-942-01	SPRING (PLAY LEVER), TORSION	
106	3-321-813-21	WASHER, COTTER POLYETHYLENE		121	3-907-946-01	BELT (COUNTER)	
107	3-907-947-01	SPRING (STOP LEVER), TENSION		122	3-907-519-01	PULLEY (S REEL)	
108	3-371-883-01	WASHER (STOP LEVER)		123	3-907-944-01	SPRING, TENSION	
109	3-371-884-01	WASHER (P-S-R)		124	1-548-582-11	COUNTER, TAPE (SMALL TYPE)	
* 110	3-907-520-01	LEVER (PAUSE RELEASE)		125	3-907-522-01	BRACKET (COUNTER B)	
111	3-911-371-01	SPRING, TENSION		126	3-371-878-01	SPRING (REC LEVER), TENSION	
112	3-371-877-01	SPRING (SHUT-OFF LEVER), TENSION		127	3-704-245-42	SCREW (P1.4X3.0)	
* 113	3-907-521-01	LEVER (STOP)		128	3-371-865-01	GEAR (T REEL)	
114	3-371-875-01	SPRING (LOCK PLATE), TENSION		* 129	X-3367-494-1	CHASSIS ASSY	
* 115	3-371-857-01	LEVER (SW)		130	X-3363-576-1	TABLE ASSY, FELT	

SECTION 7 ELECTRICAL PARTS LIST

AUDIO

NOTE :

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms
METAL : Metal-film resistor
METAL OXIDE : Metal oxide-film resistor
F : nonflammable

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u : μ , for example :
uA.... : μ A...., uPA.... : μ PA....
uPB.... : μ PB...., uPC.... : μ PC....
uPD.... : μ PD....
- CAPACITORS
uF : μ F
- COILS
uH : μ H

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

Ref. No.	Part No.	Description	Remark		Ref. No.	Part No.	Description	Remark	
*	A-3060-891-A	AUDIO BOARD COMPLETE *****			C133	1-104-847-11	TANTAL. CHIP	22uF	20% 4V
		< CAPACITOR >			C134	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V
C101	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C135	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V
C102	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C136	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V
C103	1-164-361-11	CERAMIC CHIP	0.047uF	16V	C137	1-135-201-11	TANTALUM CHIP	10uF	20% 4V
C105	1-163-077-00	CERAMIC CHIP	0.1uF	10% 25V	C138	1-164-360-11	CERAMIC CHIP	0.1uF	16V
C106	1-162-966-11	CERAMIC CHIP	0.0022uF	10% 50V	C139	1-126-246-11	ELECT CHIP	220uF	20% 4V
C107	1-162-969-11	CERAMIC CHIP	0.0068uF	10% 25V	C140	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V
C108	1-104-908-11	TANTAL. CHIP	47uF	20% 4V	C141	1-164-336-11	CERAMIC CHIP	0.33uF	25V
C109	1-104-847-11	TANTAL. CHIP	22uF	20% 4V	C144	1-162-977-11	CERAMIC CHIP	0.0018uF	10% 50V
C110	1-104-908-11	TANTAL. CHIP	47uF	20% 4V	C145	1-162-967-11	CERAMIC CHIP	0.0033uF	10% 50V
C111	1-162-966-11	CERAMIC CHIP	0.0022uF	10% 50V	C146	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V
C112	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	C151	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V
C113	1-135-201-11	TANTALUM CHIP	10uF	20% 4V	C152	1-104-847-11	TANTAL. CHIP	22uF	20% 4V
C114	1-164-005-11	CERAMIC CHIP	0.47uF	25V	C153	1-135-201-11	TANTALUM CHIP	10uF	20% 4V
C115	1-162-967-11	CERAMIC CHIP	0.0033uF	10% 50V	C401	1-135-091-91	TANTAL. CHIP	1uF	20% 16V
C116	1-162-966-11	CERAMIC CHIP	0.0022uF	10% 50V	C402	1-104-847-11	TANTAL. CHIP	22uF	20% 4V
C117	1-164-336-11	CERAMIC CHIP	0.33uF	25V	C403	1-164-005-11	CERAMIC CHIP	0.47uF	25V
C118	1-164-677-11	CERAMIC CHIP	0.033uF	10% 16V	C404	1-162-979-11	CERAMIC CHIP	0.0027uF	10% 50V
C119	1-104-847-11	TANTAL. CHIP	22uF	20% 4V	C405	1-162-969-11	CERAMIC CHIP	0.0068uF	10% 25V
C120	1-104-847-11	TANTAL. CHIP	22uF	20% 4V	C406	1-164-362-11	CERAMIC CHIP	470PF	5% 50V
C121	1-104-847-11	TANTAL. CHIP	22uF	20% 4V	C407	1-164-245-11	CERAMIC CHIP	0.015uF	10% 25V
C123	1-162-966-11	CERAMIC CHIP	0.0022uF	10% 50V	C408	1-164-490-11	CERAMIC CHIP	0.068uF	16V
C124	1-164-005-11	CERAMIC CHIP	0.47uF	25V	C409	1-164-005-11	CERAMIC CHIP	0.47uF	25V
C125	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	C410	1-164-234-11	CERAMIC CHIP	1uF	10V
C126	1-104-847-11	TANTAL. CHIP	22uF	20% 4V	C411	1-164-005-11	CERAMIC CHIP	0.47uF	25V
C127	1-135-201-11	TANTALUM CHIP	10uF	20% 4V	C413	1-164-234-11	CERAMIC CHIP	1uF	10V
C128	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C440	1-164-222-11	CERAMIC CHIP	0.22uF	25V
C129	1-135-070-00	TANTALUM CHIP	0.1uF	10% 35V	C441	1-164-222-11	CERAMIC CHIP	0.22uF	25V
C130	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C442	1-135-091-91	TANTAL. CHIP	1uF	20% 16V
C131	1-164-360-11	CERAMIC CHIP	0.1uF	16V	C443	1-162-953-11	CERAMIC CHIP	100PF	5% 50V
C132	1-135-201-11	TANTALUM CHIP	10uF	20% 4V	C444	1-162-953-11	CERAMIC CHIP	100PF	5% 50V
					C445	1-162-967-11	CERAMIC CHIP	0.0033uF	10% 50V
					C446	1-104-908-11	TANTAL. CHIP	47uF	20% 4V

AUDIO

Ref.No.	Part No.	Description	Remark
C447	1-135-259-11	TANTAL. CHIP 10uF	20% 6.3V
C448	1-162-947-11	CERAMIC CHIP 33PF	5% 50V
C449	1-135-201-11	TANTALUM CHIP 10uF	20% 4V
C450	1-135-201-11	TANTALUM CHIP 10uF	20% 4V
C501	1-162-995-11	CERAMIC CHIP 0.022uF	50V
C502	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C503	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C504	1-135-158-21	TANTALUM CHIP 15uF	20% 4V (NEW TYPE)
C504	1-135-201-11	TANTALUM CHIP 10uF	20% 4V (FORMER TYPE)
C505	1-135-201-11	TANTALUM CHIP 10uF	20% 4V
C506	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C507	1-162-949-11	CERAMIC CHIP 47PF	5% 50V
C508	1-164-362-11	CERAMIC CHIP 470PF	5% 50V
C509	1-164-222-11	CERAMIC CHIP 0.22uF	25V
C510	1-164-222-11	CERAMIC CHIP 0.22uF	25V
C511	1-135-091-91	TANTAL. CHIP 1uF	20% 16V
C512	1-164-222-11	CERAMIC CHIP 0.22uF	25V
C513	1-104-908-11	TANTAL. CHIP 47uF	20% 4V
C514	1-135-091-91	TANTAL. CHIP 1uF	20% 16V
C515	1-104-752-11	TANTAL. CHIP 33uF	20% 6.3V
C516	1-162-966-11	CERAMIC CHIP 0.0022uF	10% 50V
C517	1-135-091-91	TANTAL. CHIP 1uF	20% 16V
C518	1-135-318-11	TANTAL. CHIP 33uF	20% 4V
C519	1-126-205-11	ELECT CHIP 47uF	20% 6.3V
C520	1-164-234-11	CERAMIC CHIP 1uF	10V
C601	1-104-559-11	FILM CHIP 0.047uF	5% 16V
C602	1-163-809-11	CERAMIC CHIP 0.047uF	10% 25V
C603	1-164-492-11	CERAMIC CHIP 0.15uF	10% 16V
C604	1-135-091-91	TANTAL. CHIP 1uF	20% 16V
C605	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C606	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C607	1-164-492-11	CERAMIC CHIP 0.15uF	10% 16V
C608	1-126-607-11	ELECT CHIP 47uF	20% 4V
C609	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C610	1-164-344-11	CERAMIC CHIP 0.068uF	10% 25V
C611	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C612	1-135-259-11	TANTAL. CHIP 10uF	20% 6.3V
C613	1-126-246-11	ELECT CHIP 220uF	20% 4V
C620	1-104-847-11	TANTAL. CHIP 22uF	20% 4V
C701	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C702	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C703	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C704	1-164-360-11	CERAMIC CHIP 0.1uF	16V
C801	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C802	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C803	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C804	1-135-145-11	TANTALUM CHIP 0.47uF	10% 35V

Ref.No.	Part No.	Description	Remark
C810	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
		< CONNECTOR >	
CN101	1-580-919-11	JACK, DC(POLARITY UNIFIED TYPE) (DC IN 3V)	
		< DIODE >	
D101	8-719-422-51	DIODE MA8056-L-TW	
D102	8-719-422-51	DIODE MA8056-L-TW	
D104	8-719-404-46	DIODE MA1110	
D105	8-719-420-51	DIODE MA729	
D401	8-719-404-46	DIODE MA1110	
D403	8-719-404-46	DIODE MA1110	
D410	8-719-420-51	DIODE MA729	
D501	8-719-976-96	DIODE DTZ4.7C	
D502	8-719-420-51	DIODE MA729	
D503	8-719-420-51	DIODE MA729	
D601	8-719-420-51	DIODE MA729	
		< IC >	
IC101	8-752-036-38	IC CXA1347N	
IC401	8-759-191-55	IC YSS222-ME1	
IC402	8-759-059-03	IC LM324PW	
IC403	8-759-242-66	IC TC4W66F	
IC501	8-759-701-51	IC NJM2072M	
IC502	8-759-177-44	IC S-80715AN-DC-T1	
IC503	8-759-250-57	IC AN77L04M-E1	
IC504	8-759-191-58	IC AN77L035M-E1	
IC601	8-759-996-13	IC TLP326ADB	
IC701	8-759-191-56	IC NJU7021M-TE3	
IC702	8-759-059-03	IC LM324PW	
IC703	8-759-515-82	IC S-81215AG-RK-S	
IC802	8-759-191-57	IC LM339-ELL2000	
IC803	8-759-059-03	IC LM324PW	
IC806	8-759-234-13	IC TC4S30F	
IC807	8-759-191-56	IC NJU7021M-TE3	
		< JACK >	
J101	1-507-999-31	JACK (EAR)	
J102	1-563-319-21	JACK (MIC PLUG IN POWER)	
		< JUMPER RESISTOR >	
JR101	1-216-864-11	METAL CHIP 0 5% 1/16W	
JR102	1-216-864-11	METAL CHIP 0 5% 1/16W	
JR103	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR104	1-216-864-11	METAL CHIP 0 5% 1/16W	
JR105	1-216-864-11	METAL CHIP 0 5% 1/16W	

AUDIO

Ref. No.	Part No.	Description	Remark
< COIL >			
L410	1-412-030-11	INDUCTOR CHIP 22uH	
L501	1-412-031-11	INDUCTOR CHIP 47uH	
L502	1-412-031-11	INDUCTOR CHIP 47uH	
< TRANSISTOR >			
Q101	8-729-402-16	TRANSISTOR XN4608	
Q102	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q103	8-729-402-93	TRANSISTOR UN5214	
Q104	8-729-402-93	TRANSISTOR UN5214	
Q105	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q106	8-729-024-34	TRANSISTOR XP4314-TW	
Q107	8-729-426-33	TRANSISTOR XP1214-TXE	
Q109	8-729-402-93	TRANSISTOR UN5214	
Q110	8-729-402-93	TRANSISTOR UN5214	
Q111	8-729-402-93	TRANSISTOR UN5214	
Q112	8-729-402-93	TRANSISTOR UN5214	
Q114	8-729-024-34	TRANSISTOR XP4314-TW	
Q115	8-729-402-93	TRANSISTOR UN5214	
Q120	8-729-426-33	TRANSISTOR XP1214-TXE	
Q402	8-729-402-96	TRANSISTOR UN5114	
Q403	8-729-402-96	TRANSISTOR UN5114	
Q405	8-729-429-50	TRANSISTOR XP4312	
Q406	8-729-402-93	TRANSISTOR UN5214	
Q407	8-729-402-93	TRANSISTOR UN5214	
Q408	8-729-429-50	TRANSISTOR XP4312	
Q409	8-729-402-93	TRANSISTOR UN5214	
Q420	8-729-429-50	TRANSISTOR XP4312	
Q440	8-729-402-16	TRANSISTOR XN4608	
Q501	8-729-402-93	TRANSISTOR UN5214	
Q504	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q505	8-729-425-18	TRANSISTOR XN4504	
Q506	8-729-024-34	TRANSISTOR XP4314-TW	
Q507	8-729-426-33	TRANSISTOR XP1214-TXE	
Q509	8-729-426-33	TRANSISTOR XP1214-TXE	
Q601	8-729-823-86	TRANSISTOR 2SA1745	
Q602	8-729-823-86	TRANSISTOR 2SA1745	
Q604	8-729-402-93	TRANSISTOR UN5214	
Q605	8-729-402-96	TRANSISTOR UN5114	
Q606	8-729-426-33	TRANSISTOR XP1214-TXE	
Q608	8-729-402-96	TRANSISTOR UN5114	
Q802	8-729-402-42	TRANSISTOR UN5213	
< RESISTOR >			
R102	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R103	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R104	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R105	1-216-815-11	METAL CHIP 330 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R106	1-216-815-11	METAL CHIP 330 5% 1/16W	
R107	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R108	1-216-805-11	METAL CHIP 47 5% 1/16W	
R109	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R110	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R111	1-216-817-11	METAL CHIP 470 5% 1/16W	
R112	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R113	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R114	1-216-813-11	METAL CHIP 220 5% 1/16W	
R115	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R116	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R117	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R118	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R119	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R120	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R121	1-216-813-11	METAL CHIP 220 5% 1/16W	
R122	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R123	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R124	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R125	1-216-801-11	METAL CHIP 22 5% 1/16W	
R126	1-216-793-11	METAL GLAZE 4.7 5% 1/16W	
R127	1-216-792-11	METAL GLAZE 3.9 5% 1/16W	
R128	1-216-792-11	METAL GLAZE 3.9 5% 1/16W	
R129	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R130	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R131	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R132	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R133	1-216-791-11	METAL CHIP 3.3 5% 1/16W	
R140	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R142	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R143	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R149	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R151	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R152	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R155	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R160	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R180	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R401	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R402	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R403	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R404	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R405	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R406	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R407	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R408	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R409	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R410	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R411	1-216-855-11	METAL CHIP 680K 5% 1/16W	
R412	1-216-821-11	METAL CHIP 1K 5% 1/16W	

AUDIO

Ref. No.	Part No.	Description	Remark		
R413	1-216-821-11	METAL CHIP	1K	5%	1/16W
R414	1-216-855-11	METAL CHIP	680K	5%	1/16W
R415	1-216-834-11	METAL CHIP	12K	5%	1/16W
R416	1-216-833-11	METAL CHIP	10K	5%	1/16W
R417	1-216-845-11	METAL CHIP	100K	5%	1/16W
R418	1-216-838-11	METAL CHIP	27K	5%	1/16W
R419	1-216-833-11	METAL CHIP	10K	5%	1/16W
R420	1-216-833-11	METAL CHIP	10K	5%	1/16W
R421	1-216-845-11	METAL CHIP	100K	5%	1/16W
R422	1-216-845-11	METAL CHIP	100K	5%	1/16W
R423	1-216-833-11	METAL CHIP	10K	5%	1/16W
R424	1-216-833-11	METAL CHIP	10K	5%	1/16W
R425	1-216-833-11	METAL CHIP	10K	5%	1/16W
R426	1-216-833-11	METAL CHIP	10K	5%	1/16W
R440	1-216-817-11	METAL CHIP	470	5%	1/16W
R441	1-216-833-11	METAL CHIP	10K	5%	1/16W
R442	1-216-841-11	METAL CHIP	47K	5%	1/16W
R443	1-216-841-11	METAL CHIP	47K	5%	1/16W
R444	1-216-845-11	METAL CHIP	100K	5%	1/16W
R445	1-216-833-11	METAL CHIP	10K	5%	1/16W
R446	1-216-833-11	METAL CHIP	10K	5%	1/16W
R447	1-216-830-11	METAL CHIP	5. 6K	5%	1/16W
R448	1-216-857-11	METAL CHIP	1M	5%	1/16W
R449	1-216-845-11	METAL CHIP	100K	5%	1/16W
R450	1-216-837-11	METAL CHIP	22K	5%	1/16W
R451	1-216-833-11	METAL CHIP	10K	5%	1/16W
R452	1-216-833-11	METAL CHIP	10K	5%	1/16W
R453	1-216-845-11	METAL CHIP	100K	5%	1/16W
R454	1-216-836-11	METAL CHIP	18K	5%	1/16W
R501	1-216-833-11	METAL CHIP	10K	5%	1/16W
R502	1-216-833-11	METAL CHIP	10K	5%	1/16W
R503	1-216-842-11	METAL CHIP	56K	5%	1/16W
R504	1-216-843-11	METAL CHIP	68K	5%	1/16W
R505	1-216-833-11	METAL CHIP	10K	5%	1/16W
R506	1-216-837-11	METAL CHIP	22K	5%	1/16W
R507	1-216-821-11	METAL CHIP	1K	5%	1/16W
R508	1-216-821-11	METAL CHIP	1K	5%	1/16W
R510	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W
R511	1-216-815-11	METAL CHIP	330	5%	1/16W
R512	1-216-805-11	METAL CHIP	47	5%	1/16W
R513	1-216-834-11	METAL CHIP	12K	5%	1/16W
R514	1-216-797-11	METAL CHIP	10	5%	1/16W
R515	1-216-841-11	METAL CHIP	47K	5%	1/16W
R601	1-216-850-11	METAL CHIP	270K	5%	1/16W
R602	1-216-833-11	METAL CHIP	10K	5%	1/16W
R603	1-216-834-11	METAL CHIP	12K	5%	1/16W
R604	1-216-789-11	METAL CHIP	2. 2	5%	1/16W
R605	1-216-809-11	METAL CHIP	100	5%	1/16W
R606	1-216-809-11	METAL CHIP	100	5%	1/16W

Ref. No.	Part No.	Description	Remark		
R607	1-216-823-11	METAL CHIP	1. 5K	5%	1/16W
R608	1-216-843-11	METAL CHIP	68K	5%	1/16W
R609	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W
R701	1-216-833-11	METAL CHIP	10K	5%	1/16W
R702	1-216-833-11	METAL CHIP	10K	5%	1/16W
R703	1-216-833-11	METAL CHIP	10K	5%	1/16W
R704	1-216-845-11	METAL CHIP	100K	5%	1/16W
R705	1-216-845-11	METAL CHIP	100K	5%	1/16W
R706	1-216-845-11	METAL CHIP	100K	5%	1/16W
R707	1-216-841-11	METAL CHIP	47K	5%	1/16W
R708	1-216-841-11	METAL CHIP	47K	5%	1/16W
R709	1-220-372-11	METAL GLAZE	200K	5%	1/16W
R710	1-216-845-11	METAL CHIP	100K	5%	1/16W
R711	1-216-833-11	METAL CHIP	10K	5%	1/16W
R712	1-216-097-00	METAL CHIP	100K	5%	1/10W
R713	1-216-835-11	METAL CHIP	15K	5%	1/16W
R714	1-216-845-11	METAL CHIP	100K	5%	1/16W
R715	1-216-845-11	METAL CHIP	100K	5%	1/16W
R716	1-216-840-11	METAL CHIP	39K	5%	1/16W
R717	1-216-845-11	METAL CHIP	100K	5%	1/16W
R718	1-216-845-11	METAL CHIP	100K	5%	1/16W
R801	1-220-372-11	METAL GLAZE	200K	5%	1/16W
R802	1-216-845-11	METAL CHIP	100K	5%	1/16W
R803	1-216-845-11	METAL CHIP	100K	5%	1/16W
R804	1-216-843-11	METAL CHIP	68K	5%	1/16W
R805	1-216-845-11	METAL CHIP	100K	5%	1/16W
R806	1-216-845-11	METAL CHIP	100K	5%	1/16W
R807	1-216-857-11	METAL CHIP	1M	5%	1/16W
R808	1-216-857-11	METAL CHIP	1M	5%	1/16W
R809	1-216-833-11	METAL CHIP	10K	5%	1/16W
R810	1-216-833-11	METAL CHIP	10K	5%	1/16W
R811	1-216-845-11	METAL CHIP	100K	5%	1/16W
R812	1-216-834-11	METAL CHIP	12K	5%	1/16W
R813	1-218-291-11	METAL GLAZE	16K	5%	1/16W
R814	1-216-833-11	METAL CHIP	10K	5%	1/16W
R815	1-218-292-11	METAL GLAZE	20K	5%	1/16W
R816	1-216-845-11	METAL CHIP	100K	5%	1/16W
R817	1-216-845-11	METAL CHIP	100K	5%	1/16W
R818	1-216-845-11	METAL CHIP	100K	5%	1/16W
R819	1-216-846-11	METAL CHIP	120K	5%	1/16W
R820	1-216-852-11	METAL CHIP	390K	5%	1/16W
R821	1-220-372-11	METAL GLAZE	200K	5%	1/16W
R822	1-216-845-11	METAL CHIP	100K	5%	1/16W
R823	1-216-845-11	METAL CHIP	100K	5%	1/16W
R824	1-216-845-11	METAL CHIP	100K	5%	1/16W
R825	1-216-845-11	METAL CHIP	100K	5%	1/16W
R827	1-216-834-11	METAL CHIP	12K	5%	1/16W
R828	1-216-832-11	METAL CHIP	8. 2K	5%	1/16W
R829	1-216-842-11	METAL CHIP	56K	5%	1/16W

REVISED

AUDIO

CONNECTION FLEXIBLE

SWITCH

Ref.No.	Part No.	Description	Remark
R830	1-216-845-11	METAL CHIP	100K 5% 1/16W
R831	1-216-850-11	METAL CHIP	270K 5% 1/16W
R832	1-216-833-11	METAL CHIP	10K 5% 1/16W
R833	1-216-833-11	METAL CHIP	10K 5% 1/16W
R834	1-216-845-11	METAL CHIP	100K 5% 1/16W
R835	1-216-838-11	METAL CHIP	27K 5% 1/16W
R836	1-216-841-11	METAL CHIP	47K 5% 1/16W
R837	1-216-841-11	METAL CHIP	47K 5% 1/16W
R839	1-216-845-11	METAL CHIP	100K 5% 1/16W
R840	1-216-842-11	METAL CHIP	56K 5% 1/16W
R845	1-216-833-11	METAL CHIP	10K 5% 1/16W
R846	1-216-833-11	METAL CHIP	10K 5% 1/16W
< VARIABLE RESISTOR >			
RV101	1-223-510-11	RES, VAR, CARBON 10K/10K(VOLUME)	
RV402	1-241-599-11	RES, ADJ, METAL GRAZE 470K (PITCH CONTROL MANUAL)	
RV701	1-241-597-11	RES, ADJ, METAL GRAZE 100K (TAPE SPEED-MAX)	
RV702	1-241-596-11	RES, ADJ, METAL GRAZE 47K (TAPE SPEED-MID)	
RV703	1-241-594-11	RES, ADJ, METAL GRAZE 10K (TAPE SPEED-MIN)	
RV801	1-241-595-11	RES, ADJ, METAL GRAZE 22K (PITCH CONTROL AUTO)	
RV802	1-241-594-11	RES, ADJ, METAL GRAZE 10K (PITCH CONTROL AUTO)	
< SWITCH >			
S101	1-572-288-11	SWITCH, PUSH(POWER)	
S104	1-692-896-11	SWITCH, SLIDE(PB/REC)	
S601	1-571-275-31	SWITCH, SLIDE(PAUSE)	
< TRANSFORMER >			
T101	1-433-286-11	TRANSFORMER, BIAS OSCILLATION	
T501	1-426-645-11	TRANSFORMER, DC-DC CONVERTER	
< CONNECTOR >			
* W101	1-764-785-11	CONNECTOR, FPC (ZIF) 24P	
< CRYSTAL >			
X401	1-760-227-11	VIBRATOR, CERAMIC(768kHz)	

	1-651-572-11	CONNECTION FLEXIBLE BOARD	

Ref.No.	Part No.	Description	Remark
*	1-651-573-11	SWITCH BOARD *****	
< DIODE >			
D901	8-719-918-65	LED GL-1PR102(REC/BATT)	
< RESISTOR >			
R101	1-216-813-11	METAL CHIP 220 5% 1/16W	
< VARIABLE RESISTOR >			
RV401	1-223-600-21	RES, VAR, CARBON 100K(PITCH CONTROL)	
RV704	1-223-600-11	RES, VAR, CARBON 100K(SPEED CONTROL)	
< SWITCH >			
S102	1-571-506-41	SWITCH, SLIDE (MIC SENS)	
S103	1-571-506-41	SWITCH, SLIDE (DPC)	
S105	1-572-878-11	SWITCH, SLIDE (DPC)	
S501	1-571-275-31	SWITCH, SLIDE (V•O•R)	

MISCELLANEOUS			

71	1-641-529-11	PC BOARD, REC/PB HEAD FLEXIBL	
124	1-548-582-11	COUNTER, TAPE (SMALL TYPE)	
HE901	8-658-096-02	HEAD, ERASE EBF5-36	
HRP901	1-500-073-11	HEAD, MAGNETIC (REC/PB)	
M901	1-698-340-11	MOTOR, DC	
MIC901	1-542-142-11	MICROPHONE, BUILT-IN	
SP901	1-504-294-11	SPEAKER (3.6CM)	

ACCESSORIES & PACKING MATERIALS			

3-758-399-01	MANUAL, INSTRUCTION(JAPANESE) (Tourist)		
3-758-399-11	MANUAL, INSTRUCTION(ENGLISH/FRENCH/ SPANISH/PORTUGUESE) (EXCEPT US)		
3-758-399-21	MANUAL, INSTRUCTION(ENGLISH) (US)		
3-758-399-41	MANUAL, INSTRUCTION (GERMAN/DUTCH/SWEDISH/ITALIAN) (AEP)		
3-906-437-01	CASE, CARRYING		
3-911-293-01	STOPPER		
*	3-912-291-01	INDIVIDUAL CARTON (US, Tourist)	
*	3-912-293-01	INDIVIDUAL CARTON (Canadian)	
*	3-912-294-01	INDIVIDUAL CARTON (AEP, UK)	
*	3-912-296-01	INDIVIDUAL CARTON (E)	

TCM-AP1V

SONY[®] SERVICE MANUAL

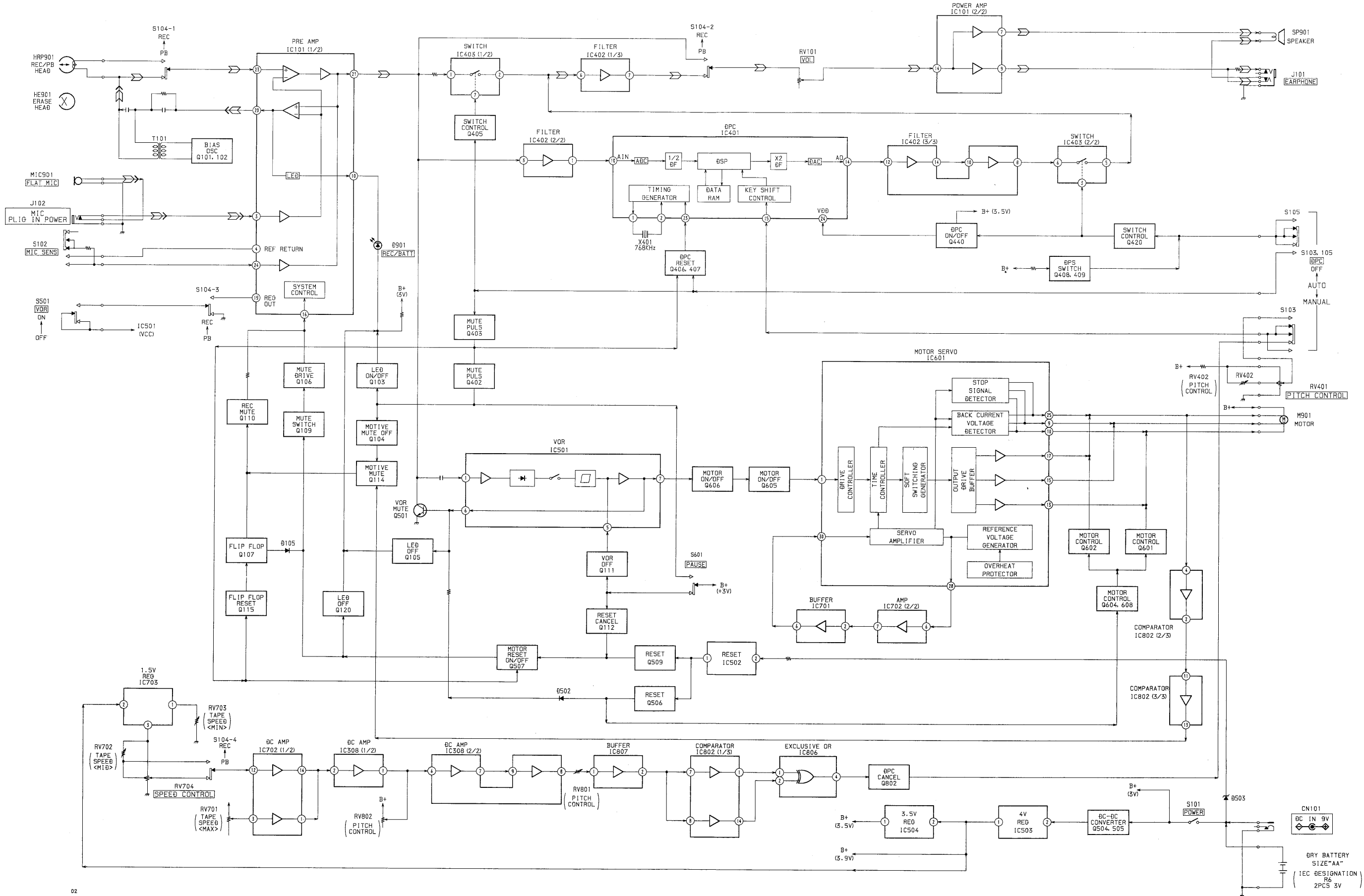
US Model
Canadian Model
AEP Model
UK Model
E Model
Tourist Model

SUPPLEMENT-1

File this Supplement with the Service Manual.

Subject : 1. BLOCK DIAGRAM
2. CIRCUIT CHANGE

1. BLOCK DIAGRAM

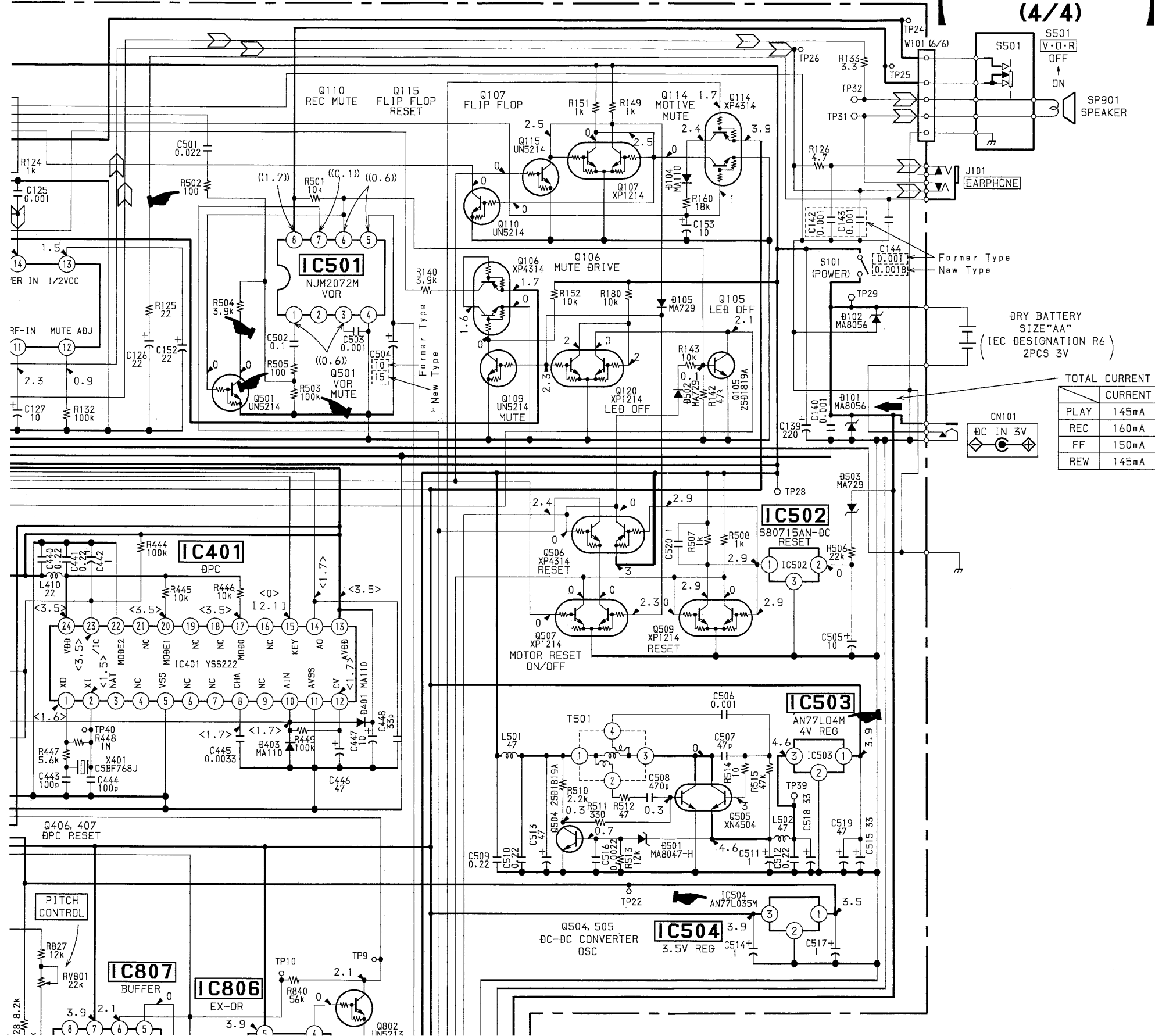


• Signal path.
 > : PB
 >> : REC

2. CIRCUIT CHANGE

➡ : Added or change portion

2-1. SCHEMATIC DIAGRAM (Service Manual See page 15 - 18)
(Location A - I, 10 - 18)



2-2. CHANGED ELECTRICAL PARTS LIST (Service Manual See page 25 – 26)**AUDIO**

Ref. No.	Former Type						New Type						Remarks
	Part No.	Description					Part No.	Description					
R502	1-216-833-11	METAL CHIP	10K	5%	1/16W		1-216-809-11	METAL CHIP	100	5%	1/16W		Changed
R503	1-216-842-11	METAL CHIP	56K	5%	1/16W		1-216-845-11	METAL CHIP	100K	5%	1/16W		Changed
R504	1-216-843-11	METAL CHIP	68K	5%	1/16W		1-216-828-11	METAL CHIP	3.9K	5%	1/16W		Changed
R505	1-216-833-11	METAL CHIP	10K	5%	1/16W		1-216-809-11	METAL CHIP	100	5%	1/16W		Changed

3. ACCESSORIES & PACKING MATERIALS (Service Manual See page 27)

Ref. No.	Former Type						New Type						Remarks
	Part No.	Description					Part No.	Description					
	*3-912-291-01	INDIVIDUAL CARTON (US, Tourist)					*3-912-291-01 INDIVIDUAL CARTON (US) *3-912-294-01 INDIVIDUAL CARTON (EXCEPT US)						Changed
	*3-912-293-01	INDIVIDUAL CARTON (Canadian)											
	*3-912-294-01	INDIVIDUAL CARTON (AEP, UK)											
	*3-912-296-01	INDIVIDUAL CARTON (E)											