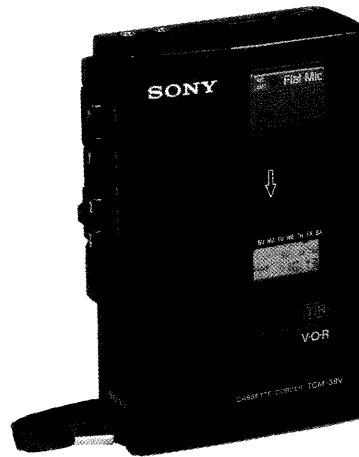


TCM-38V

SERVICE MANUAL

*US Model
Canadian Model
AEP Model
UK Model
E Model*



SPECIFICATIONS

Recording system	2-track 1-channel monaural
Frequency response	200-8,000 Hz (For normal tape TYPE I)
Power output (DC)	Speaker: 180 mW (at 10% harmonic distortion)
Input	Microphone input jack (minijack) sensitivity 0.2mV, for 3k Ω or lower impedance microphone
Output	Earphone jack (minijack) for 8 – 300 Ω earphone
Power requirements	3V DC, two size AA (R6) batteries DC IN 3V jack accepts: • Sony AC-D2M AC power adaptor (not supplied) for use on 120 V AC, 60 Hz • Sony DCC-70 car battery cord (not supplied) for use on 12 V car battery

Battery life (hours)

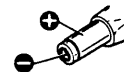
Batteries	Recording
Sony batteries SUM-3 (NS)	Approx. 2
Sony alkaline batteries AM3 (N)	Approx. 7

Dimensions	Approx. 90.9 x 134.5 x 38.8 mm(w/h/d) (3 $\frac{3}{8}$ x 5 $\frac{3}{8}$ x 1 $\frac{9}{16}$ inches) incl. projecting parts and controls
Weight	Approx. 320g (11.3 oz) incl. batteries

Model Name Using Similar Mechanism	TCM-R2
Tape Transport Mechanism Type	MT-38V-06

Note

Use only the recommended AC power adaptor or car battery cord manufactured by Sony. Polarity of the plugs of other manufacturers may be different.



Polarity of the TCM-38V plug

Design and specifications subject to change without notice.

CASSETTE-CORDER
SONY®

FEATURES

- TIR (Time Index Recording) function shows the date and time of recording on the display window during tape playback.
- VOR (Voice Operated Recording) system economizes on tapes, batteries and your time.
- 3-digit tape counter helps you to locate a desired portion on the tape.
- You can start recording directly from the playback mode. This function is convenient to correct a previously recorded portion.
- Automatic shut-off mechanism

What is TIR (Time Index Recording) function?

The current date and time of your recording is automatically memorized on the tape during recording.

When you play back the tape, the recorded date and time appear on the display window. You can easily identify the tape on which a conference or a lecture is recorded referring to your diary or memory.

What is VOR (Voice Operated Recording) system?

With this system, recording starts only when sound is picked up and stops automatically when sound is no longer detected.

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.

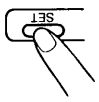
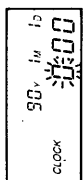
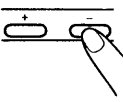
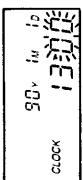
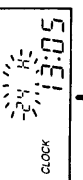
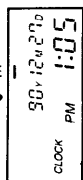
TABLE OF CONTENTS

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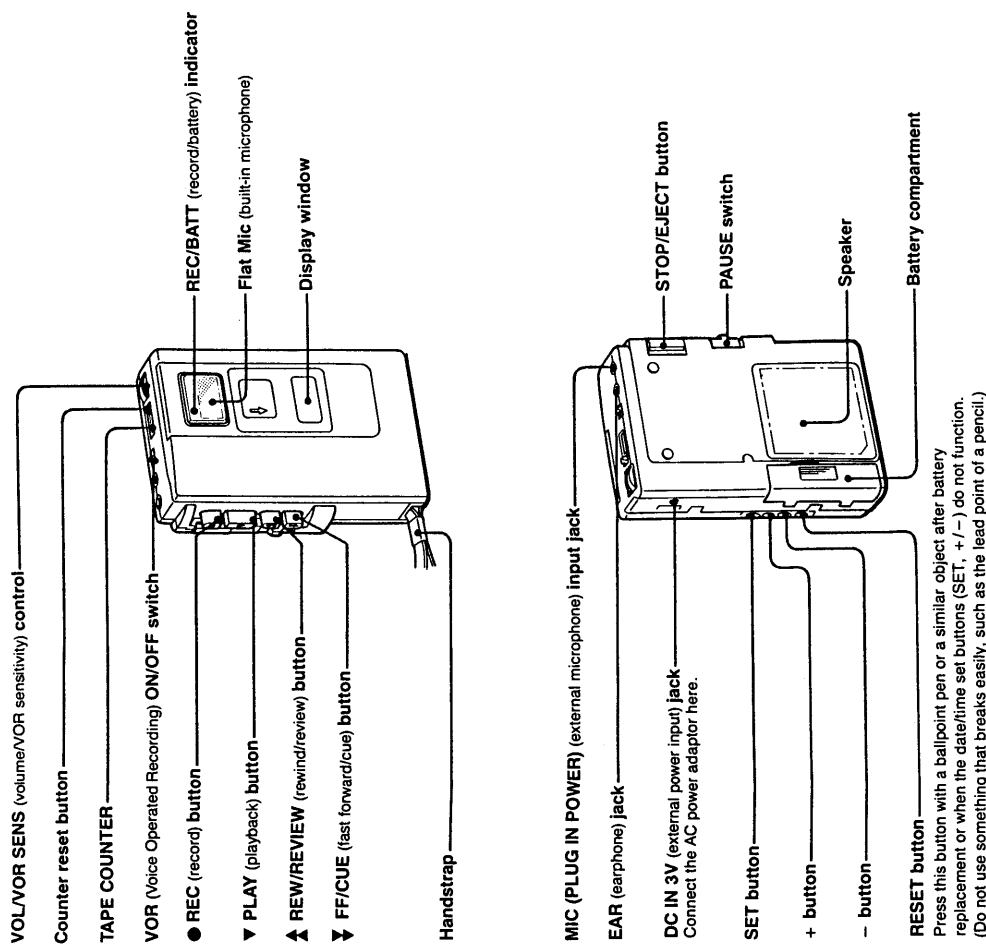
SECTION 1 GENERAL

1-2. HOW TO SET THE DATE/TIME

First, stop the tape with the STOP/EJECT button.
You cannot set the clock during tape playback or recording.
Example: To set the date/time to 1:05 p.m. (i.e. 13:05), December 27, 1990

1  Keep the SET button pressed more than three seconds to make the hour digit blink.  The clock indication of the factory preset mode is the 24 hour-system. (Choose the 12- or 24-hour indication in step 4.)	2  Set the hour by pressing the + or - button. When the + or - button is kept pressed, the digits advance rapidly.	3  Press the SET button to make the minute digits blink.	Set the minute, month, day, and year in the same way. First adjust the blinking item with + or - button, and then press the SET button. (The day of the week is automatically set when the year, month and the day are registered.)	4  Choose the 12- or 24-hour indication by pressing the + or - button. (A blinking "12H" or "24H" alternately appears with each press of the + or - button.) Then press the SET button. The date and time have been set completely. The clock will now start. 	To change the date/time Keep the SET button pressed for more than three seconds. (The hour digits start blinking.) Press the SET button several times to make the digit you want to change blink. After changing the number, press the SET button several times until the clock begins to operate. <table border="1"> <tbody> <tr> <td>12-hour indication</td> <td>AM 12:00 = Midnight</td> </tr> <tr> <td></td> <td>PM 12:00 = Noon</td> </tr> <tr> <td>24-hour indication</td> <td>0:00 = Midnight</td> </tr> <tr> <td></td> <td>12:00 = Noon</td> </tr> </tbody> </table>	12-hour indication	AM 12:00 = Midnight		PM 12:00 = Noon	24-hour indication	0:00 = Midnight		12:00 = Noon
12-hour indication	AM 12:00 = Midnight												
	PM 12:00 = Noon												
24-hour indication	0:00 = Midnight												
	12:00 = Noon												

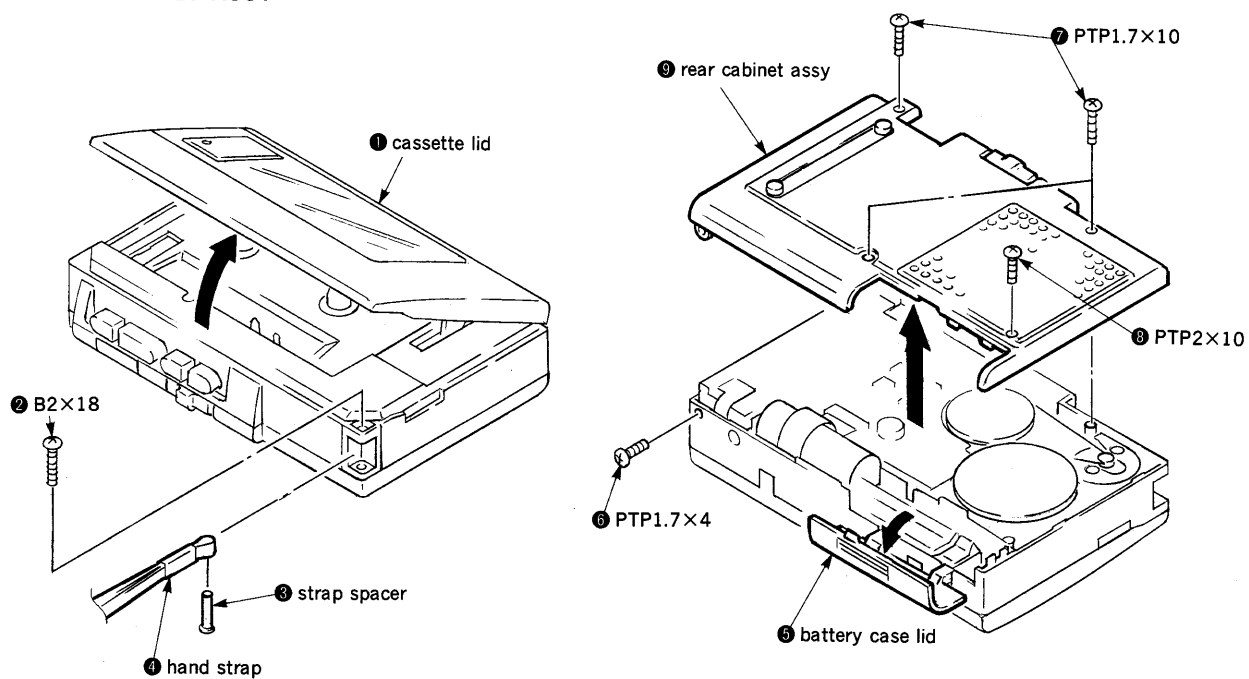
1-1. PARTS IDENTIFICATION



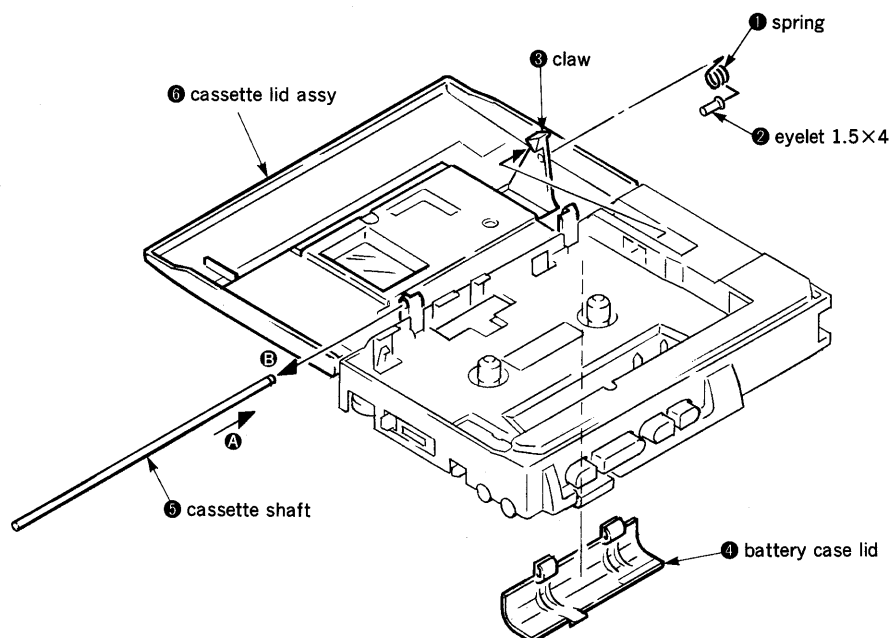
SECTION 2 DISASSEMBLY

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

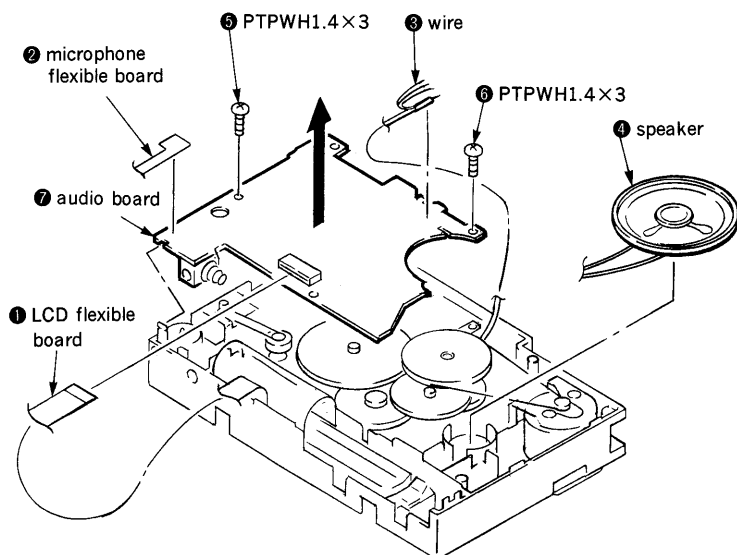
2-1. REAR CABINET ASSY



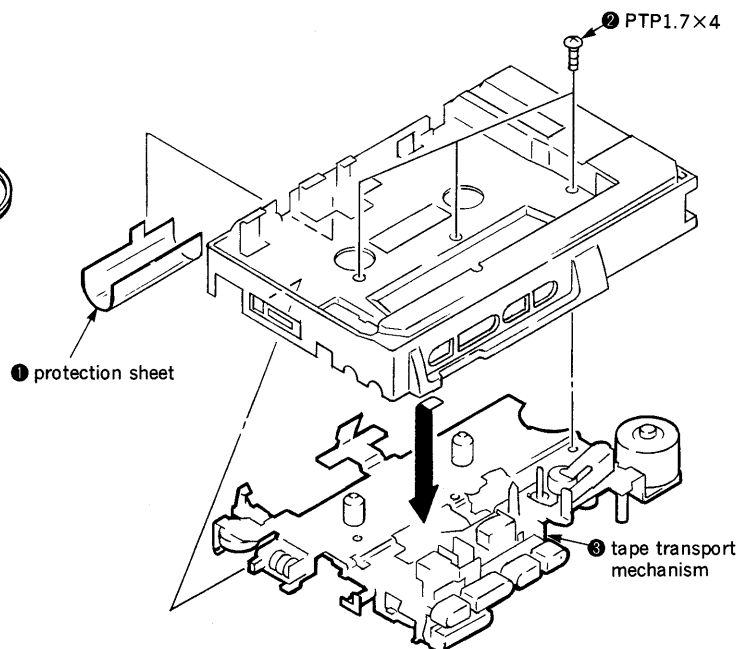
2-2. CASSETTE LID ASSY



2-3. AUDIO BOARD



2-4. TAPE TRANSPORT MECHANISM



SECTION 3 MECHANICAL ADJUSTMENTS

PRECAUTION

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

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

Torque Measurement

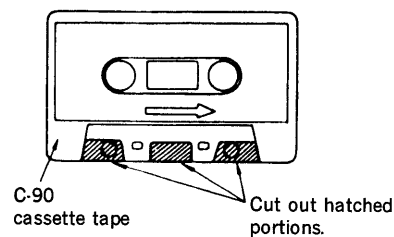
Mode	Meter Reading	Torque Meter
Forward	22-45g·cm (0.31-0.62 oz·inch)	CQ-102B
Fast Forward Rewind	50-95g·cm (0.70-1.32 oz·inch)	CQ-201B
Back Tension	1.5-3g·cm (0.02-0.04 oz·inch)	CQ-102B

Tape Tension Measurement

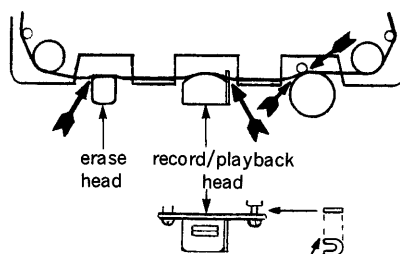
Mode	Meter	Meter Reading
Forward	CQ-403A	130-250g (4.59-8.82oz)

Head Height Adjustment

- Use a mirror cassette CQ-009C (8-909-708-01) or prepare an adjustment cassette as shown below.



- In record mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at portions shown by arrow.



3-578-138-01 (t=0.1)
 3-578-138-11 (t=0.2)
 3-578-138-21 (t=0.3)
 shim (head height adjustment)

SECTION 4 ELECTRICAL ADJUSTMENTS

• Standard Level

Output (PB)	EAR (earphone) OUT 10k Ω , -10dB (P-4-L300 Playback)
-------------	--

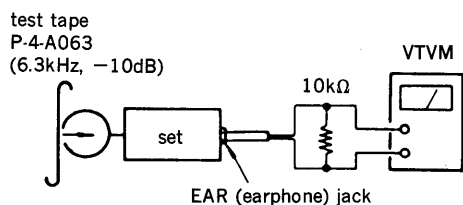
$$0\text{dB} = 0.775\text{V}$$

Type	Signal	Use
P-4-A063	6.3kHz, -10dB	Record/playback Head Azimuth
WS-48A	3kHz, 0dB	Tape Speed
TIR-1	31.5Hz, -34dB	Clock, Data Output Level
CS-111	Tape for Recording (TYPE I)	Clock, Data Output Level Recording Level

Record/playback Head Azimuth Adjustment

Procedure :

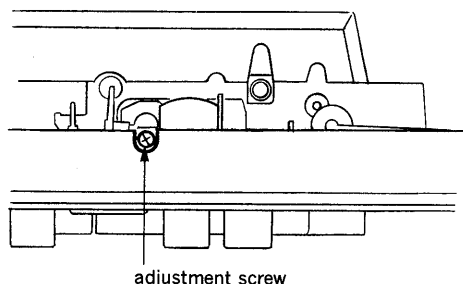
1. Mode : playback



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

- Note :** Several peaks may appears, but take the maximum.
3. After the adjustment, lock the adjustment screw with suitable locking compound.

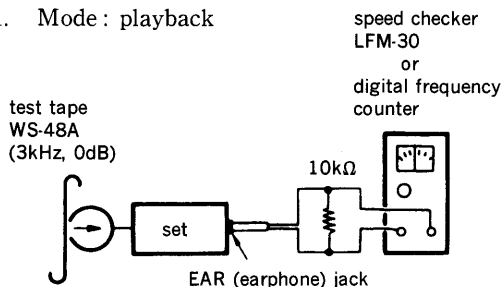
Adjustment Location :



Tape Speed Adjustment

Procedure :

1. Mode : playback

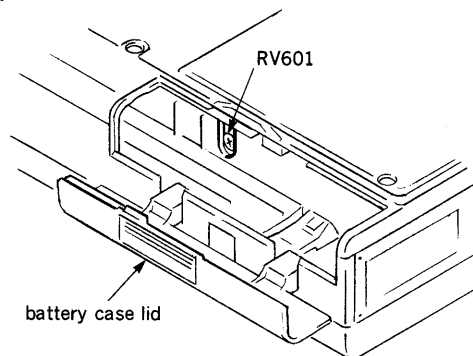


Specification :

Speed checker	Digital frequency counter
3,000Hz $\pm$ 0.34%	2,990 - 3,010Hz

Adjust at the end of the tape and frequency difference between the beginning and the end of the tape should be within 2% (60Hz).

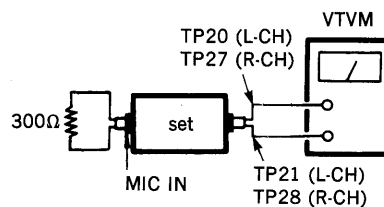
Adjustment Location :



Bias Oscillation Voltage Adjustment

Procedure :

1. Terminate MIC IN terminal with 300 Ω resistor.
2. Remove the solder bridges ㉔ and ㉕. (Refer to page 8.)
3. Mode : record



4. Confirm that the reading on VTVM within 30 to 45mV.
5. If the specification is not satisfied, solder the bridge ㉖. (Refer to page 8.)
6. Repeat step 3 again.
7. If the specification is not satisfied again, solder the bridge ㉗. (Refer to page 8.)
8. Repeat step 3 again.
9. Specification is satisfied, and solder the bridges ㉘ (L-CH) and ㉙ (R-CH). (Refer to page 8.)

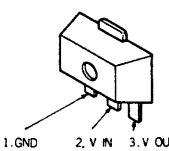
Adjustment Location : audio board —side A—

— 8 —

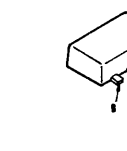
SECTION 5
DIAGRAMS

5-1. SEMICONDUCTOR LEAD LAYOUTS

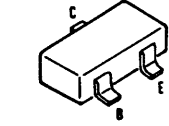
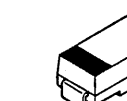
SCI7710YHA



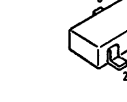
2SB798-DL


 UN5115
 UN5215
 UN5216
 2SB624-BV4
 2SB1218A-QRS
 2SD1819A-QRS

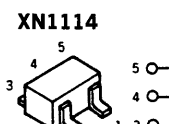
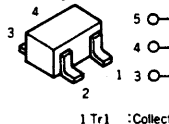
MA110



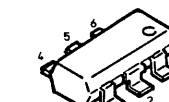
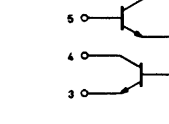
MA3047



GL-1PR102


 XN1214
 XN1215
 XN1216


XN4501



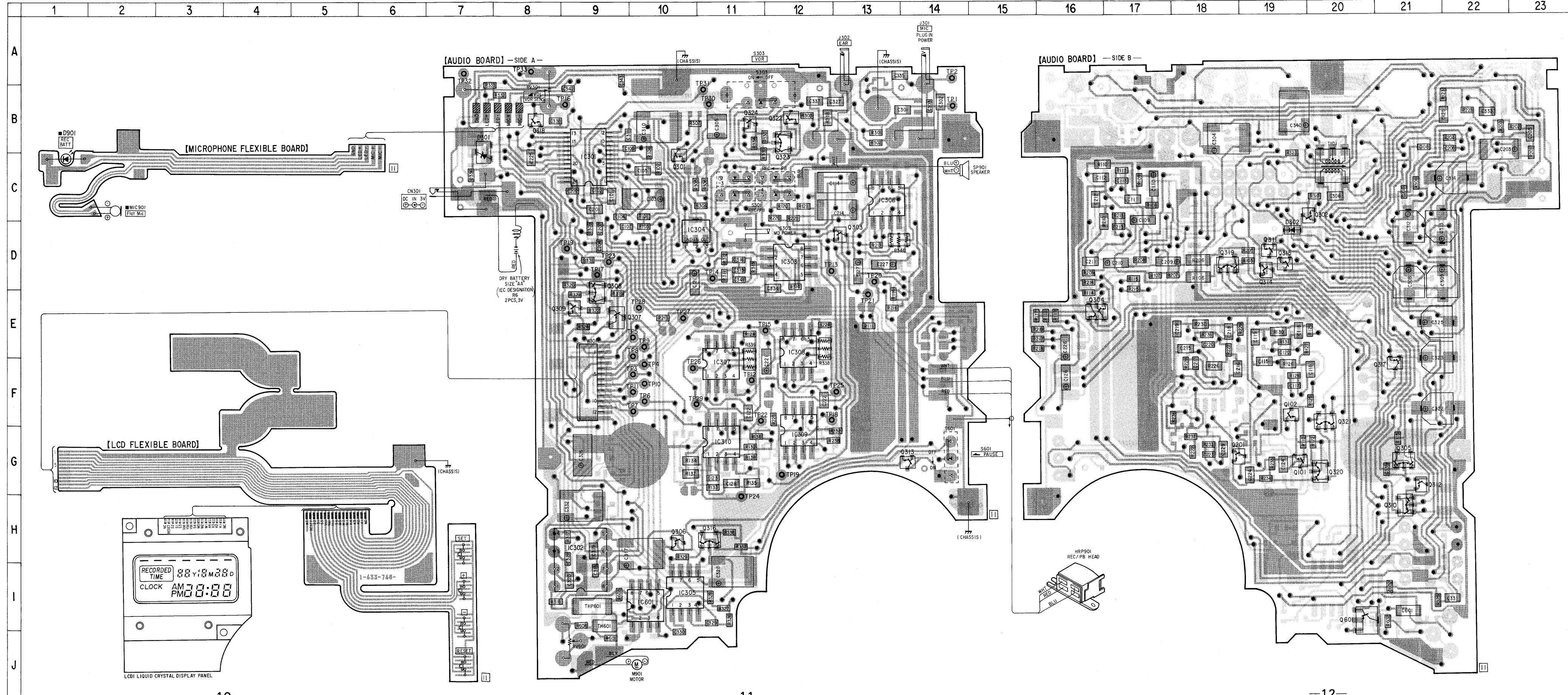
Semiconductor Location

Ref. No.	Location
D301	B-7
D302	D-19
D901	B-1
IC301	C-9
IC302	H-9
IC303	D-12
IC304	D-10
IC305	I-10
IC306	C-13
IC307	F-11
IC308	E-12
IC309	G-12
IC310	G-11
IC601	I-10
Q101	G-19
Q102	F-19
Q201	G-18
Q301	C-10
Q302	C-19
Q303	D-13
Q304	E-16
Q305	G-21
Q306	H-10
Q307	E-9
Q308	E-9
Q309	E-9
Q310	H-21
Q311	D-19
Q312	G-21
Q313	G-14
Q314	D-19
Q315	D-19
Q316	H-11
Q317	F-21
Q318	B-8
Q319	D-18
Q320	G-20
Q321	F-20
Q322	B-12
Q323	B-12
Q324	B-11
Q601	I-20

Note:

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

5-2. PRINTED WIRING BOARDS



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----

SECTION 6

EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

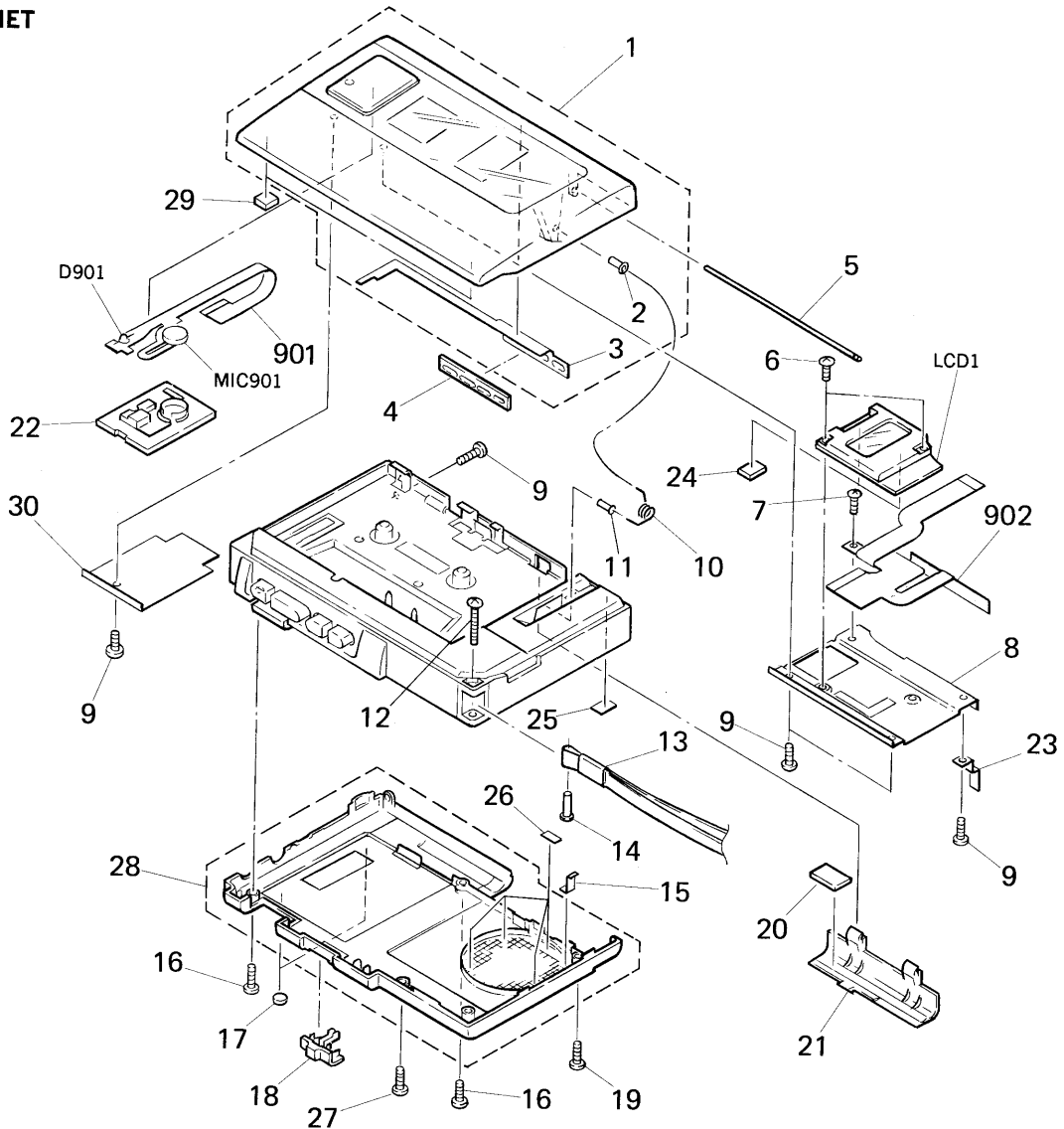
- Color Indication of Appearance Parts
Example:

(RED) ... KNOB, BALANCE (WHITE)

Cabinet's Color

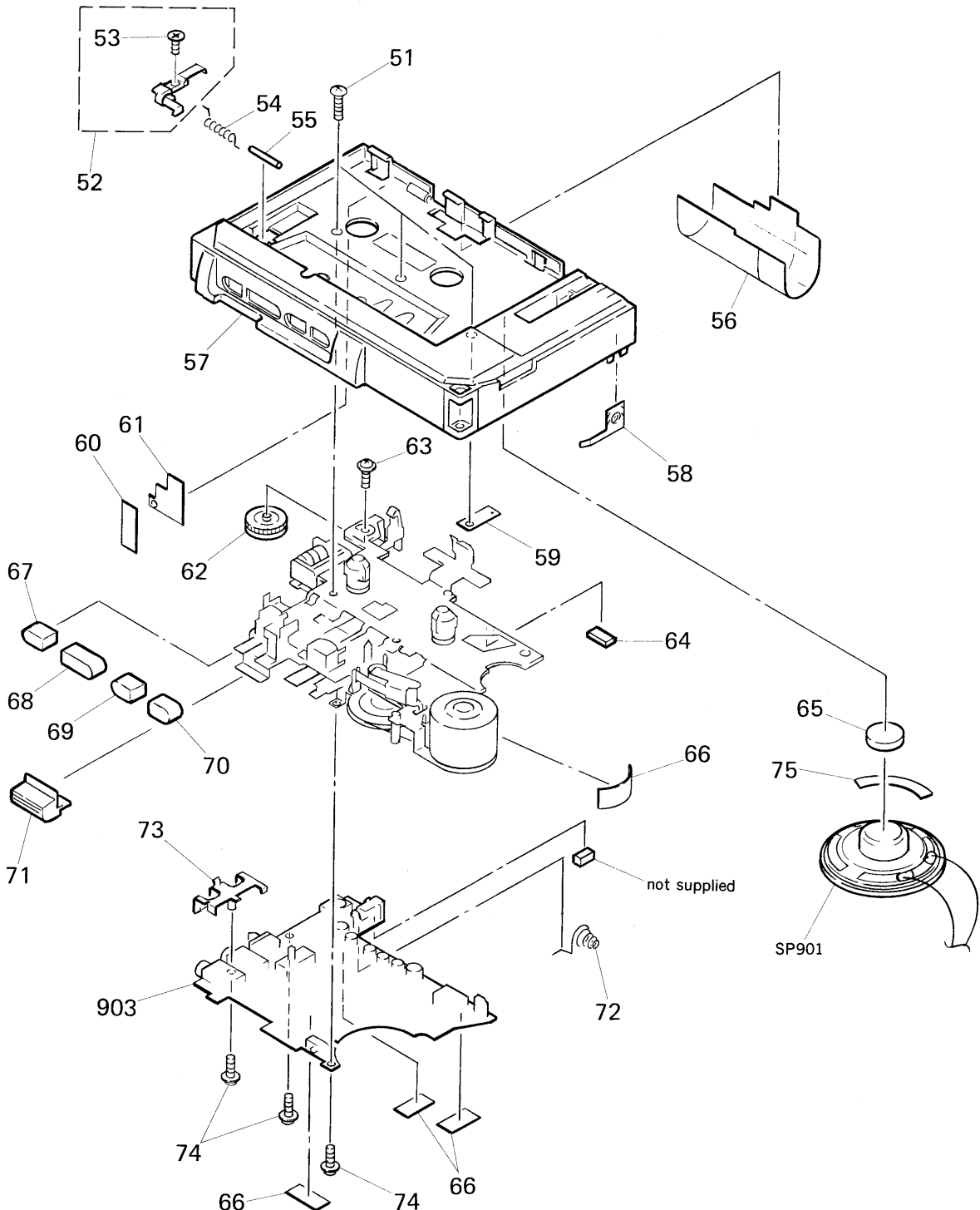
Parts' Color

6-1. CABINET



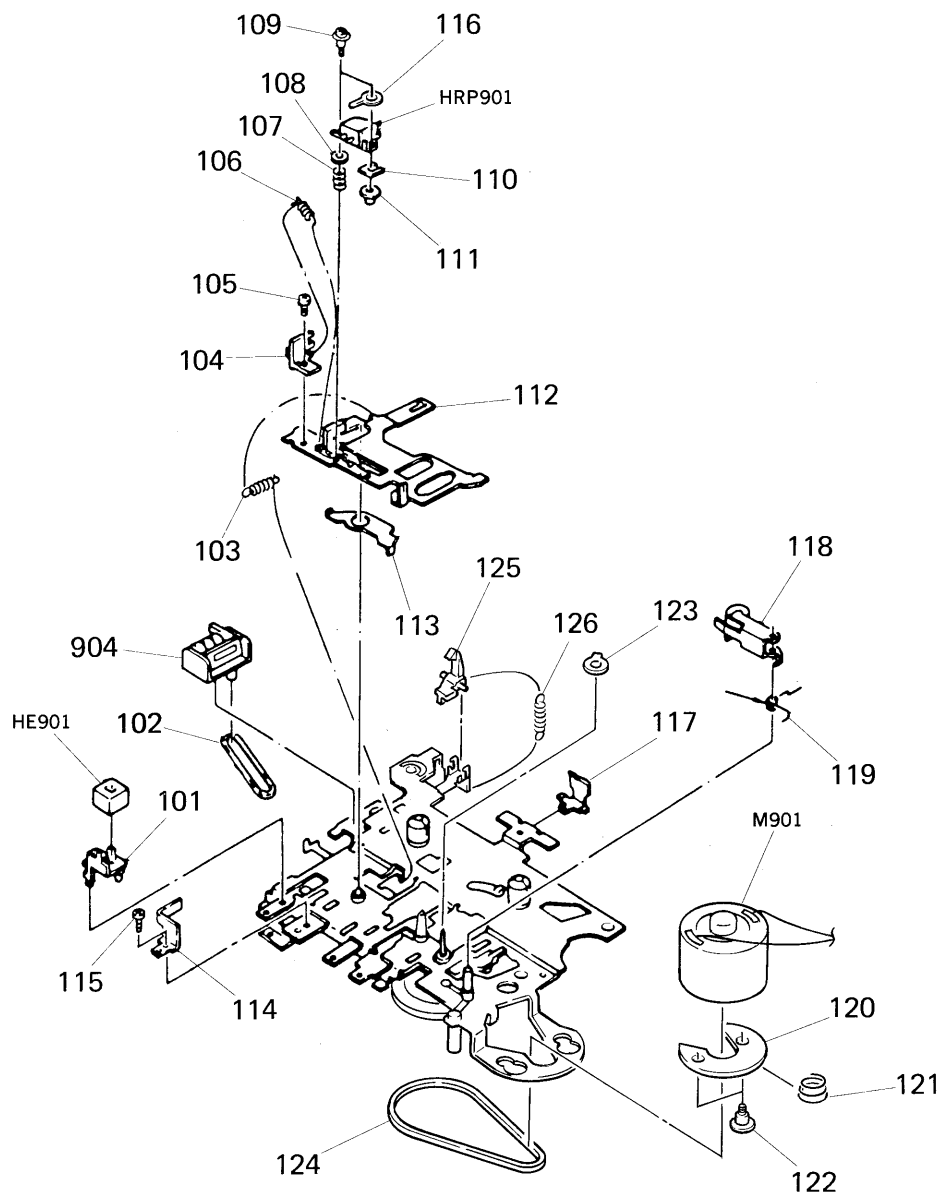
Ref.No	Part No.	Description	Remarks	Ref.No	Part No.	Description	Remarks
1	X-3352-411-1	LID ASSY, CASSETTE	2, 3	19	7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT	
2	7-623-605-01	EYELET, 1.3X2.5		20	9-911-815-01	CUSHION	
3	3-352-486-01	SHEET, CONDUCTIVE		21	3-313-559-11	LID, BATTERY CASE	
4	3-352-494-01	BUTTON (LCD)		22	3-352-497-01	CUSHION, MICROPHONE	
5	3-362-526-01	SHAFT (CASSETTE)		23	* 3-360-412-01	REINFORCEMENT PLATE (CASSETTE SHAFT)	
6	7-627-552-38	SCREW, PRECISION +P 1.7X3		24	9-911-863-XX	RETAINER, PC BOARD	
7	7-627-551-47	SCREW, PRECISION +P 1.4X1.4		25	3-564-738-00	SPACER	
8	3-352-498-01	HOLDER (M/L)		26	3-831-441-XX	SPACER	
9	3-318-204-91	SCREW (M1.7X4), TAPPING		27	7-627-852-68	SCREW +P1.7X6	
10	3-360-415-01	SPRING (A), TOGGLE		28	X-3352-416-1	CABINET (REAR) ASSY	
11	7-623-612-01	EYELET, 1.5X4		29	3-362-527-01	CUSHION (CASSETTE LID)	
12	3-564-708-21	SCREW (2X18)		30	3-362-660-01	RETAINER, MICROPHONE	
13	3-320-908-01	STRAP, HAND		901	1-633-767-11	PC BOARD, MICROPHONE FLEXIBLE	
14	3-320-918-01	SPACER, STRAP		902	* 1-633-768-11	PC BOARD, LCD FLEXIBLE	
15	* 3-318-389-01	SHEET, CONDUCTIVE,CABINET(REAR)		D901	8-719-918-65	DIODE GL-1PR102	
16	3-334-565-11	SCREW (B1.7X10), TAPPING		LCD1	A-3049-065-A	LCD ASSY	
17	3-318-374-01	FOOT, RUBBER		MIC901	1-542-124-31	MICROPHONE, ELECTRET CONDENSER (Flat Mic)	
18	3-352-495-01	BUTTON (START)					

6-2. AUDIO BOARD



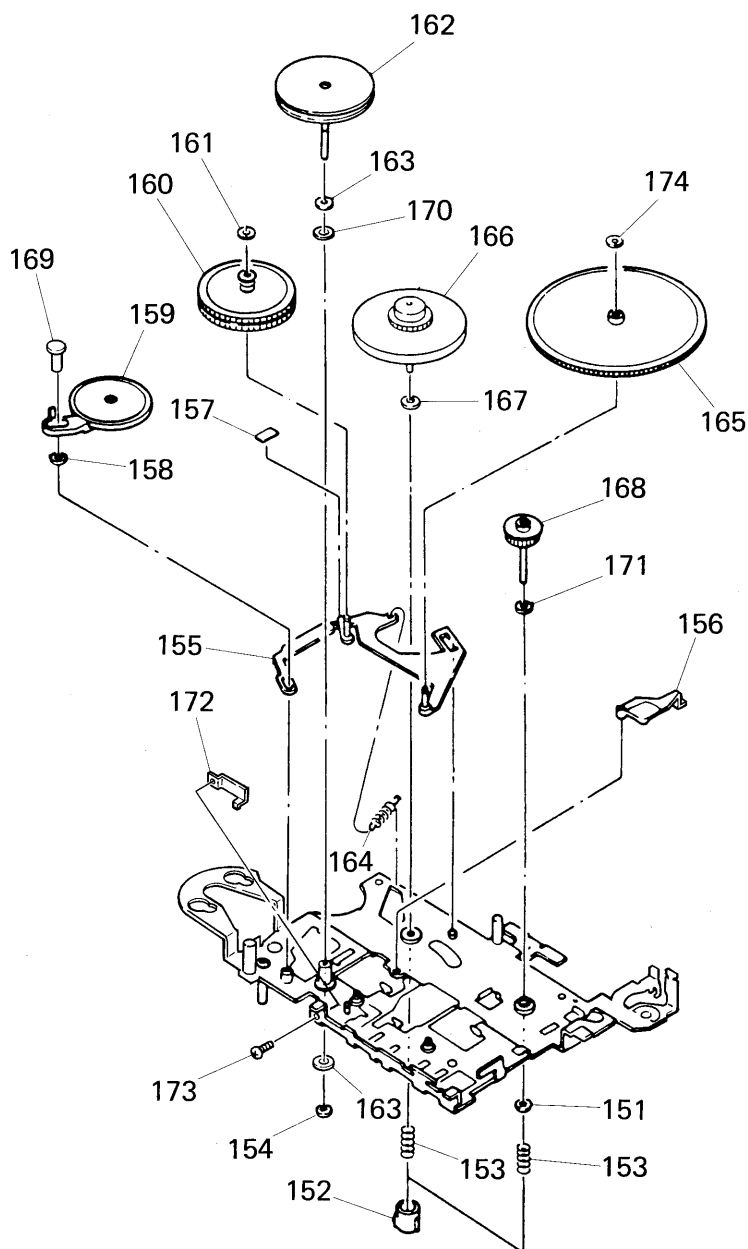
Ref.No	Part No.	Description	Remarks	Ref.No	Part No.	Description	Remarks
51	3-318-204-91	SCREW (M1.7X4), TAPPING		65	9-911-844-XX	CUSHION, SPEAKER	
52	X-3328-375-1	LEVER ASSY, EJECT	53	66	3-831-441-11	CUSHION (B)	
53	3-704-197-01	SCREW (M1.4X1.6), LOCKING		67	3-346-439-31	BUTTON (REC)	
54	3-318-215-01	SPRING		68	3-346-437-31	BUTTON (PLAY)	
55	3-703-357-06	PIN, PARALLEL (DIA. 1.6X14)		69	3-346-438-31	BUTTON (REW)	
56	*3-352-492-01	SHEET, PROTECTION		70	3-346-435-31	BUTTON (FF)	
57	3-352-499-01	CABINET (FRONT)		71	3-352-496-01	BUTTON (STOP)	
58	3-318-209-01	TERMINAL BOARD, PLUS		72	3-318-210-01	SPRING	
59	3-357-809-11	SHEET, CONDUCTIVE, SPEAKER		73	X-3352-412-1	REINFORCEMENT ASSY	
60	*3-334-576-01	SPACER		74	3-352-479-01	SCREW (M1.4X3), TAPPING	
61	3-320-945-01	SHEET, CONDUCTIVE, CABINET		75	9-911-837-XX	CUSHION	
62	3-318-220-11	KNOB, CONTROL		903	A-3015-858-A	PC BOARD ASSY, AUDIO	
63	3-318-201-01	SCREW (B) (1.4X3), TAPPING		SP901	1-503-830-11	SPEAKER	
64	3-831-441-XX	CUSHION					

6-3. TAPE TRANSPORT MECHANISM 1 (MT-38V-06)



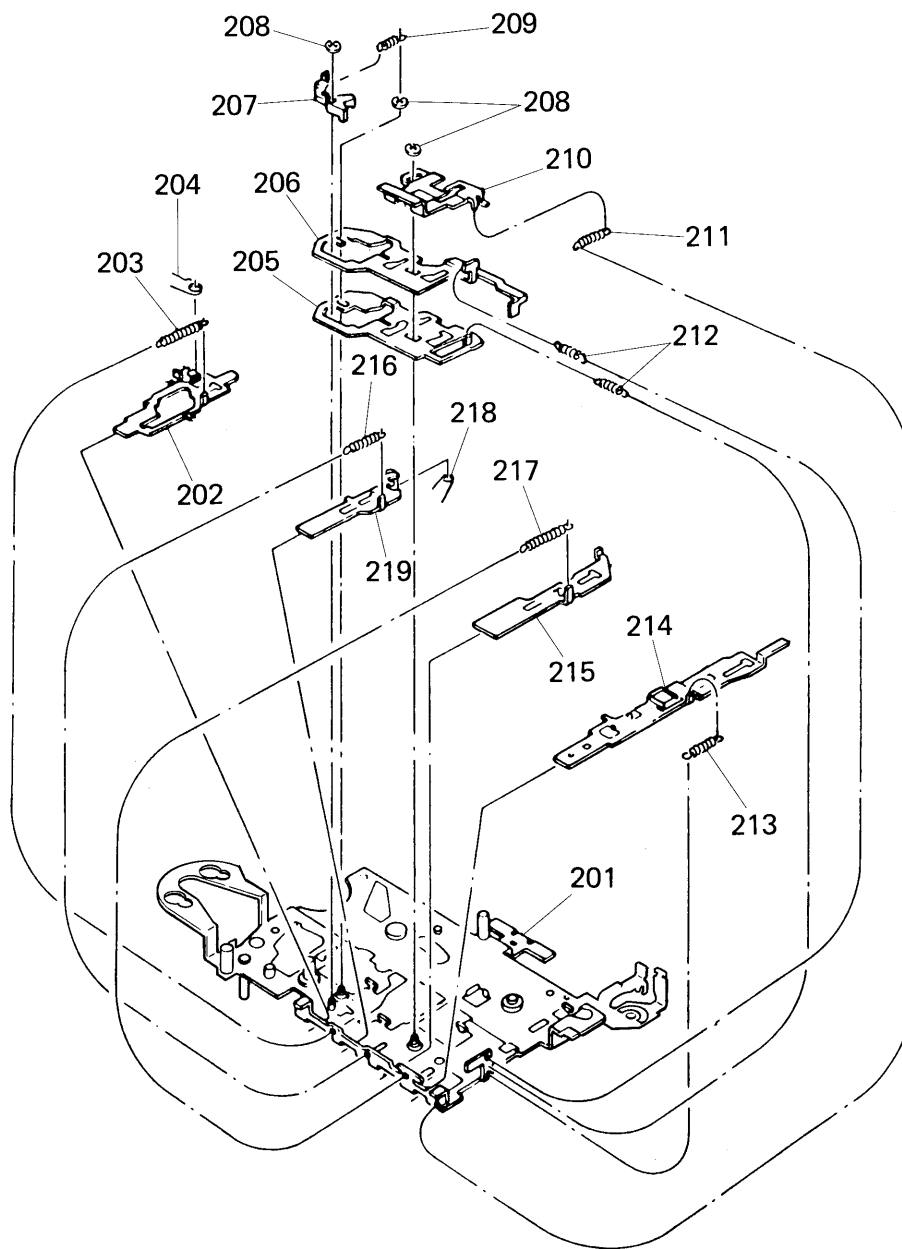
Ref.No	Part No.	Description	Remarks	Ref.No	Part No.	Description	Remarks
101	3-318-285-01	BRACKET, ERASE HEAD		115	7-627-850-47	SCREW,PRECISION P 1.4X1.6	
102	3-318-239-01	BELT		116	7-623-505-01	LUG, 2	
103	3-565-927-00	SPRING, TENSION		117	3-318-269-01	SPRING	
104	3-318-287-01	GUIDE, TAPE		118	X-3352-410-1	PINCH LEVER ASSY	
105	7-627-552-87	SCREW,PRECISION P 1.7X2.2		119	3-318-275-01	SPRING	
106	3-318-238-01	SPRING, TENSION		120	3-352-484-01	CUSHION, MOTOR	
107	3-318-237-01	SPRING, COMPRESSION		121	3-321-067-01	SPRING	
108	7-688-001-01	W2, SMALL (T=0.3)		122	3-352-483-01	SCREW (M2), STEP	
109	3-318-240-01	SCREW (1.4), SPECIAL		123	*3-318-353-01	CONDUCTOR (2)	
110	3-578-138-01	SHIM (T=0.1)		124	3-480-136-00	BELT	
	3-578-138-11	SHIM (T=0.2)		125	3-318-286-01	LEVER, ERASING PROTECTION	
	3-578-138-21	SHIM (T=0.3)		126	3-318-336-01	SPRING, TENSION	
111	3-318-309-01	SPACER, HEAD		904	1-548-541-31	COUNTER	
112	X-3328-345-1	CHASSIS ASSY, HEAD		HE901	8-658-096-02	HEAD, ERASE EBF5-36	
113	*3-318-267-01	LEVER, CR		HRP901	1-543-526-11	HEAD, MAGNETIC (REC/PB)	
114	3-355-304-01	RETAINER, TAPE		M901	X-3352-413-1	MOTOR ASSY	

**6-4. TAPE TRANSPORT MECHANISM 2
(MT-38V-06)**



Ref.No	Part No.	Description	Remarks	Ref.No	Part No.	Description	Remarks
151	3-325-690-01	WASHER, B.T (T=0.13)		163	3-701-437-01	WASHER (T=0.13)	
152	3-306-836-02	CAP, REEL		164	3-347-752-01	SPRING, TENSION	
153	3-318-241-01	SPRING, COMPRESSION		165	3-318-265-01	GEAR (B), FR	
154	3-318-236-01	WASHER, POLY, SLIT (T=0.25)		166	X-3325-619-1	CLUTCH ASSY	
155	X-3318-208-1	LEVER ASSY, FR		167	3-701-437-41	WASHER (T=0.35)	
156	3-318-288-01	ARM, FF		168	X-3318-204-1	GEAR ASSY, REW	
157	3-831-441-XX	CUSHION		169	3-318-324-01	BUSHING, IDLER LEVER	
158	3-827-323-11	WASHER (DIA. 3.1) (T=0.08)		170	3-701-437-01	POLY-SLIDER (A) (T=0.13)	
159	X-3328-344-1	LEVER ASSY, FWD IDLER		171	3-701-437-21	WASHER (T=0.5)	
160	X-3318-207-1	GEAR (A) ASSY, FR		172	3-362-327-01	PLATE, REINFORCEMENT (PAUSE)	
161	3-578-265-11	WASHER, STOPPER (T=0.25)		173	7-627-551-27	SCREW +P1.4X2.5	
162	X-3362-245-1	FLYWHEEL ASSY		174	3-570-615-00	POLY-WASHER (DIA.1.2) (T=0.2)	

6-5. TAPE TRANSPORT MECHANISM 3 (MT-38V-06)



Ref.No	Part No.	Description	Remarks
201	X-3362-080-1	CHASSIS ASSY, MECHANICAL	
202	3-318-291-01	LEVER, FR	
203	3-318-250-01	SPRING, TENSION	
204	3-318-276-01	SPRING	
205	3-318-294-01	PLATE, LOCK	
206	3-318-300-01	LEVER, SW	
207	3-318-296-01	LEVER, SHUT-OFF	
208	7-624-101-01	RING, RETAINING E-1.2	
209	3-318-351-01	SPRING, TENSION	
210	*3-318-293-01	LEVER, STOP	

Ref.No	Part No.	Description	Remarks
211	3-547-669-00	SPRING, TENSION	
212	3-318-248-01	SPRING, TENSION	
213	3-318-247-01	SPRING, TENSION	
214	*3-318-289-11	LEVER, REC	
215	*3-318-290-01	LEVER, PLAY	
216	3-318-251-01	SPRING, TENSION	
217	3-318-349-01	SPRING, TENSION	
218	3-318-277-01	SPRING, REW	
219	3-318-292-01	LEVER, REW	

SECTION 7 ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:MF: μ F, PF: μ μ F.**RESISTORS**

- All resistors are in ohms.
- F: nonflammable

COILS

- MMH: mH, UH: μ H

SEMICONDUCTORSIn each case, U: μ , for example:UA....: μ A...., UPA....: μ PA....,UPC....: μ PC, UPD....: μ PD...

Ref.No	Part No.	Description	Remarks		Ref.No	Part No.	Description	Remarks	
901	1-633-767-11	PC BOARD, MICROPHONE FLEXIBLE			C222	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V
902	★ 1-633-768-11	PC BOARD, LCD FLEXIBLE			C223	1-162-974-11	CERAMIC CHIP	0.01MF	50V
903	A-3015-858-A	PC BOARD ASSY, AUDIO			C224	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V
904	1-548-541-31	COUNTER			C225	1-163-034-00	CERAMIC CHIP	0.033MF	50V
CAPACITOR					C226	1-135-180-21	TANTAL. CHIP	3.3MF	10% 6.3V
C101	1-163-038-00	CERAMIC CHIP	0.1MF	25V	C227	1-135-180-21	TANTAL. CHIP	3.3MF	10% 6.3V
C102	1-162-974-11	CERAMIC CHIP	0.01MF	50V	C229	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V
C103	1-135-163-21	TANTAL. CHIP	47MF	10% 4V	C301	1-163-038-00	CERAMIC CHIP	0.1MF	25V
C104	1-162-977-11	CERAMIC CHIP	0.0018MF	10% 50V	C302	1-163-035-00	CERAMIC CHIP	0.047MF	50V
C105	1-163-810-00	CERAMIC CHIP	0.03MF	10% 25V	C303	1-162-971-11	CERAMIC CHIP	0.001MF	50V
C106	1-162-968-11	CERAMIC CHIP	0.0047MF	10% 50V	C304	1-126-590-11	ELECT CHIP	22MF	20% 4V
C107	1-162-995-11	CERAMIC CHIP	0.022MF	50V	C305	1-135-202-21	TANTAL. CHIP	22MF	20% 4V
C108	1-164-156-11	CERAMIC CHIP	0.1MF	25V	C306	1-163-017-00	CERAMIC CHIP	0.0047MF	10% 50V
C109	1-135-145-11	TANTAL. CHIP	0.47MF	10% 35V	C308	1-126-607-11	ELECT CHIP	47MF	20% 4V
C110	1-135-145-11	TANTAL. CHIP	0.47MF	10% 35V	C309	1-126-207-11	ELECT CHIP	33MF	20% 4V
C111	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C310	1-126-591-11	ELECT CHIP	10MF	20% 6.3V
C112	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C311	1-162-971-11	CERAMIC CHIP	0.001MF	50V
C113	1-162-963-11	CERAMIC CHIP	680PF	10% 50V	C312	1-124-778-00	ELECT CHIP	22MF	20% 6.3V
C114	1-135-163-21	TANTAL. CHIP	47MF	10% 4V	C313	1-126-607-11	ELECT CHIP	47MF	20% 4V
C115	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C314	1-126-246-11	ELECT CHIP	220MF	20% 4V
C116	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C315	1-162-968-11	CERAMIC CHIP	0.0047MF	10% 50V
C117	1-162-963-11	CERAMIC CHIP	680PF	10% 50V	C316	1-164-172-11	CERAMIC CHIP	0.0056MF	5% 25V
C118	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C317	1-126-592-11	ELECT CHIP	4.7MF	20% 16V
C119	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C318	1-162-969-11	CERAMIC CHIP	0.0068MF	10% 25V
C120	1-162-963-11	CERAMIC CHIP	680PF	10% 50V	C319	1-163-035-00	CERAMIC CHIP	0.047MF	50V
C121	1-135-145-11	TANTAL. CHIP	0.47MF	10% 35V	C320	1-163-038-00	CERAMIC CHIP	0.1MF	25V
C122	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C321	1-162-974-11	CERAMIC CHIP	0.01MF	50V
C123	1-162-974-11	CERAMIC CHIP	0.01MF	50V	C322	1-126-246-11	ELECT CHIP	220MF	20% 4V
C124	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C323	1-126-607-11	ELECT CHIP	47MF	20% 4V
C125	1-163-034-00	CERAMIC CHIP	0.033MF	50V	C325	1-126-607-11	ELECT CHIP	47MF	20% 4V
C126	1-135-180-21	TANTAL. CHIP	3.3MF	10% 6.3V	C326	1-125-607-11	ELECT(BLOCK)	0.33F	2.4V
C127	1-135-180-21	TANTAL. CHIP	3.3MF	10% 6.3V	C327	1-163-038-00	CERAMIC CHIP	0.1MF	25V
C128	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C328	1-126-592-11	ELECT CHIP	4.7MF	20% 16V
C201	1-163-038-00	CERAMIC CHIP	0.1MF	25V	C329	1-162-971-11	CERAMIC CHIP	0.001MF	50V
C202	1-162-974-11	CERAMIC CHIP	0.01MF	50V	C330	1-164-156-11	CERAMIC CHIP	0.1MF	25V
C203	1-135-163-21	TANTAL. CHIP	47MF	10% 4V	C331	1-163-035-00	CERAMIC CHIP	0.047MF	50V
C204	1-162-977-11	CERAMIC CHIP	0.0018MF	10% 50V	C332	1-126-592-11	ELECT CHIP	4.7MF	20% 16V
C205	1-163-810-00	CERAMIC CHIP	0.03MF	10% 25V	C333	1-163-038-00	CERAMIC CHIP	0.1MF	25V
C206	1-162-968-11	CERAMIC CHIP	0.0047MF	10% 50V	C334	1-164-346-11	CERAMIC CHIP	1MF	16V
C207	1-162-995-11	CERAMIC CHIP	0.022MF	50V	C335	1-163-038-00	CERAMIC CHIP	0.1MF	25V
C208	1-164-156-11	CERAMIC CHIP	0.1MF	25V	C336	1-164-156-11	CERAMIC CHIP	0.1MF	25V
C209	1-135-145-11	TANTAL. CHIP	0.47MF	10% 35V	C337	1-163-038-00	CERAMIC CHIP	0.1MF	25V
C210	1-135-145-11	TANTAL. CHIP	0.47MF	10% 35V	C338	1-162-971-11	CERAMIC CHIP	0.001MF	50V
C211	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C339	1-164-156-11	CERAMIC CHIP	0.1MF	25V
C212	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C340	1-126-590-11	ELECT CHIP	22MF	20% 4V
C213	1-162-963-11	CERAMIC CHIP	680PF	10% 50V	C341	1-162-962-11	CERAMIC CHIP	470PF	10% 50V
C214	1-135-163-21	TANTAL. CHIP	47MF	10% 4V	C342	1-164-156-11	CERAMIC CHIP	0.1MF	25V
C215	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C343	1-164-156-11	CERAMIC CHIP	0.1MF	25V
C216	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	C601	1-163-077-00	CERAMIC CHIP	0.1MF	50V
C217	1-162-963-11	CERAMIC CHIP	680PF	10% 50V	C602	1-162-974-11	CERAMIC CHIP	0.01MF	50V
C218	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	CN301	1-568-228-11	JACK, EXTERNAL POWER (DC IN 3V)		
C219	1-164-004-11	CERAMIC CHIP	0.1MF	10% 25V	D301	8-719-400-33	DIODE MA3047		
C220	1-162-963-11	CERAMIC CHIP	680PF	10% 50V	D302	8-719-404-46	DIODE MA110		
C221	1-135-145-11	TANTAL. CHIP	0.47MF	10% 35V	D901	8-719-918-65	DIODE GL-1PR102		

Ref.No	Part No.	Description	Remarks
HE901	8-658-096-02	HEAD, ERASE EBF5-36	
HRP901	1-543-526-11	HEAD, MAGNETIC (REC/PB)	
IC301	8-752-036-27	IC CXA1278N	
IC302	8-759-701-54	IC NJM2073D	
IC303	8-759-710-55	IC NJM2100M	
IC304	8-759-994-35	IC SCI7710YHA	
IC305	8-759-701-51	IC NJM2072M	
IC306	8-759-710-55	IC NJM2100M	
IC307	8-759-710-55	IC NJM2100M	
IC308	8-759-710-55	IC NJM2100M	
IC309	8-759-710-55	IC NJM2100M	
IC310	8-759-710-55	IC NJM2100M	
IC601	8-759-400-12	IC AN6612S	
J301	1-563-319-21	JACK (MIC)	
J302	1-563-319-21	JACK (EAR)	
LCD1	A-3049-065-A	LCD ASSY	
M901	X-3352-413-1	MOTOR ASSY	
MIC901	1-542-124-31	MICROPHONE, ELECTRET CONDENSER (Flat Mic)	
Q101	8-729-420-50	TRANSISTOR UN5215	
Q102	8-729-421-26	TRANSISTOR UN5216	
Q201	8-729-420-27	TRANSISTOR 2SD1819A-QRS	
Q301	8-729-420-27	TRANSISTOR 2SD1819A-QRS	
Q302	8-729-420-50	TRANSISTOR UN5215	
Q303	8-729-421-26	TRANSISTOR UN5216	
Q304	8-729-402-81	TRANSISTOR XN4501	
Q305	8-729-403-17	TRANSISTOR XN1215	
Q306	8-729-421-26	TRANSISTOR UN5216	
Q307	8-729-162-44	TRANSISTOR 2SB624-BV4	
Q308	8-729-421-23	TRANSISTOR XN1216	
Q309	8-729-421-26	TRANSISTOR UN5216	
Q310	8-729-420-16	TRANSISTOR XN1214	
Q311	8-729-420-50	TRANSISTOR UN5215	
Q312	8-729-420-27	TRANSISTOR 2SD1819A-QRS	
Q313	8-729-420-27	TRANSISTOR 2SD1819A-QRS	
Q314	8-729-420-53	TRANSISTOR UN5115	
Q315	8-729-420-53	TRANSISTOR UN5115	
Q316	8-729-420-16	TRANSISTOR XN1214	
Q317	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q318	8-729-421-26	TRANSISTOR UN5216	
Q319	8-729-403-17	TRANSISTOR XN1215	
Q320	8-729-421-23	TRANSISTOR XN1216	
Q321	8-729-422-41	TRANSISTOR XN1114	
Q322	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q323	8-729-421-23	TRANSISTOR XN1216	
Q324	8-729-420-50	TRANSISTOR UN5215	
Q601	8-729-101-07	TRANSISTOR 2SB798-DL	

RESISTOR

R101	1-216-817-11	METAL GLAZE	470	5%	1/16W
R102	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R103	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R104	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R105	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R106	1-216-238-00	METAL GLAZE	47K	5%	1/8W
R107	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R108	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R109	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R110	1-216-104-00	METAL GLAZE	200K	5%	1/10W
R111	1-216-809-11	METAL GLAZE	100	5%	1/16W
R112	1-216-847-11	METAL GLAZE	150K	5%	1/16W
R113	1-216-857-11	METAL GLAZE	1M	5%	1/16W

R114	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R115	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R116	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R117	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R118	1-216-846-11	METAL GLAZE	120K	5%	1/16W
R119	1-216-846-11	METAL GLAZE	120K	5%	1/16W
R120	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R121	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R122	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R123	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R124	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R125	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R126	1-216-104-00	METAL GLAZE	200K	5%	1/10W
R127	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R128	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R129	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R130	1-216-104-00	METAL GLAZE	200K	5%	1/10W
R131	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R132	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R133	1-216-855-11	METAL GLAZE	680K	5%	1/16W
R134	1-216-117-00	METAL GLAZE	680K	5%	1/10W
R135	1-216-107-00	METAL GLAZE	270K	5%	1/10W
R136	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R137	1-216-132-11	METAL GLAZE	3M	5%	1/10W
R138	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R201	1-216-817-11	METAL GLAZE	470	5%	1/16W
R202	1-216-829-11	METAL GLAZE	4.7K	5%	1/16W
R203	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R204	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R205	1-216-821-11	METAL GLAZE	1K	5%	1/16W
R206	1-216-238-00	METAL GLAZE	47K	5%	1/8W
R207	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R208	1-216-830-11	METAL GLAZE	5.6K	5%	1/16W
R209	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R210	1-216-104-00	METAL GLAZE	200K	5%	1/10W
R211	1-216-809-11	METAL GLAZE	100	5%	1/16W
R212	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R213	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R214	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R215	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R216	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R217	1-216-837-11	METAL GLAZE	22K	5%	1/16W
R218	1-216-846-11	METAL GLAZE	120K	5%	1/16W
R219	1-216-846-11	METAL GLAZE	120K	5%	1/16W
R220	1-216-834-11	METAL GLAZE	12K	5%	1/16W
R221	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R222	1-216-855-11	METAL GLAZE	680K	5%	1/16W
R223	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R224	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R225	1-216-862-11	METAL GLAZE	2.7M	5%	1/16W
R226	1-216-104-00	METAL GLAZE	200K	5%	1/10W
R227	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R228	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R229	1-216-835-11	METAL GLAZE	15K	5%	1/16W
R230	1-216-104-00	METAL GLAZE	200K	5%	1/10W
R231	1-216-857-11	METAL GLAZE	1M	5%	1/16W
R232	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R233	1-216-855-11	METAL GLAZE	680K	5%	1/16W
R234	1-216-841-11	METAL GLAZE	47K	5%	1/16W
R235	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R236	1-216-833-11	METAL GLAZE	10K	5%	1/16W
R237	1-216-852-11	METAL GLAZE	390K	5%	1/16W
R238	1-216-845-11	METAL GLAZE	100K	5%	1/16W
R301	1-216-825-11	METAL GLAZE	2.2K	5%	1/16W
R302	1-216-828-11	METAL GLAZE	3.9K	5%	1/16W

Ref.No	Part No.	Description	Remarks
R303	1-216-821-11	METAL GLAZE 1K 5%	1/16W
R304	1-216-810-11	METAL GLAZE 120 5%	1/16W
R305	1-216-804-11	METAL GLAZE 39 5%	1/16W
R306	1-216-815-11	METAL GLAZE 330 5%	1/16W
R307	1-216-825-11	METAL GLAZE 2.2K 5%	1/16W
R308	1-216-828-11	METAL GLAZE 3.9K 5%	1/16W
R309	1-216-859-11	METAL GLAZE 1.5M 5%	1/16W
R310	1-216-817-11	METAL GLAZE 470 5%	1/16W
R311	1-216-833-11	METAL GLAZE 10K 5%	1/16W
R312	1-216-844-11	METAL GLAZE 82K 5%	1/16W
R313	1-216-851-11	METAL GLAZE 330K 5%	1/16W
R314	1-216-851-11	METAL GLAZE 330K 5%	1/16W
R315	1-216-829-11	METAL GLAZE 4.7K 5%	1/16W
R316	1-216-797-11	METAL GLAZE 10 5%	1/16W
R317	1-216-789-11	METAL GLAZE 2.2 5%	1/16W
R318	1-216-011-00	METAL GLAZE 27 5%	1/10W
R319	1-216-817-11	METAL GLAZE 470 5%	1/16W
R320	1-216-828-11	METAL GLAZE 3.9K 5%	1/16W
R321	1-216-825-11	METAL GLAZE 2.2K 5%	1/16W
R322	1-216-851-11	METAL GLAZE 330K 5%	1/16W
R323	1-216-833-11	METAL GLAZE 10K 5%	1/16W
R324	1-216-833-11	METAL GLAZE 10K 5%	1/16W
R325	1-216-833-11	METAL GLAZE 10K 5%	1/16W
R326	1-216-829-11	METAL GLAZE 4.7K 5%	1/16W
R327	1-216-833-11	METAL GLAZE 10K 5%	1/16W
R328	1-216-841-11	METAL GLAZE 47K 5%	1/16W
R329	1-216-833-11	METAL GLAZE 10K 5%	1/16W
R330	1-216-825-11	METAL GLAZE 2.2K 5%	1/16W
R331	1-216-797-11	METAL GLAZE 10 5%	1/16W
R332	1-216-815-11	METAL GLAZE 330 5%	1/16W
R333	1-216-808-11	METAL GLAZE 82 5%	1/16W
R334	1-216-849-11	METAL GLAZE 220K 5%	1/16W
R335	1-218-293-11	METAL GLAZE 24K 5%	1/16W
R336	1-216-833-11	METAL GLAZE 10K 5%	1/16W
R337	1-216-829-11	METAL GLAZE 4.7K 5%	1/16W
R338	1-236-502-11	RES, NETWORK 100KX3	
R339	1-236-502-11	RES, NETWORK 100KX3	
R340	1-236-502-11	RES, NETWORK 100KX3	
R601	1-216-822-11	METAL GLAZE 1.2K 5%	1/16W
R602	1-216-839-11	METAL GLAZE 33K 5%	1/16W
R603	1-216-789-11	METAL GLAZE 2.2 5%	1/16W
R604	1-216-829-11	METAL GLAZE 4.7K 5%	1/16W
RV301	1-228-121-00	RES, VAR, CARBON 10K (VOL VOR SENS)	
RV601	1-230-497-11	RES, ADJ, CARBON 20K	
S301	1-554-745-11	SWITCH, SLIDE (REC/PB)	
S302	1-554-297-00	SWITCH, LEAF (MD POWER)	
S303	1-571-478-11	SWITCH, SLIDE (VOR)	
S601	1-553-510-00	SWITCH, SLIDE (▲ PAUSE)	
SP901	1-503-830-11	SPEAKER	
T101	1-433-341-11	TRANSFORMER, BIAS OSCILLATION	
TH601	1-809-020-11	THERMISTOR	
THP601	1-809-004-11	THERMISTOR, POSITIVE	
W301	1-569-528-11	HOUSING, CONNECTOR 12P	

ACCESSORIES & PACKING MATERIALS

- * 3-360-404-01 CUSHION
- * 3-360-405-01 INDIVIDUAL CARTON
- * 3-704-365-01 BAG, PROTECTION
- 3-570-631-61 (AEP)....BAG, POLYETHYLENE
- 3-751-701-11 (EXCEPT FOR US)....MANUAL, INSTRUCTION (ENGLISH, FRENCH)
- 3-751-701-21 (US)....MANUAL, INSTRUCTION (ENGLISH)
- 3-751-701-41 (AEP)....MANUAL, INSTRUCTION (GERMAN, DUTCH)
- 3-751-701-51 (AEP, E)....MANUAL, INSTRUCTION (SPANISH, PORTUGUESE)
- 3-751-701-61 (AEP)....MANUAL, INSTRUCTION (SWEDISH, ITALIAN)