

FEATURES

- Compact size and easy operation.
- **VOR system** economizes tapes, batteries and playback time.
- You can quickly locate the desired portion that has been marked by **CUE MARKER** (TCM-75V).
- You can review the previously recorded portion with one-button operation.

What is VOR (Voice operated recording) system?

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

What is CUE MARKER?

You mark a desired portion by **CUE MARKER** while recording. Then the beep sound will tell you a marked portion while CUE or REVIEW is being pressed during tape playback. You can easily locate the certain portion you marked.

SERVICE NOTE

- **Repairing printed resistor**
Cut both sides of the resistor and solder the carbon resistor having same value in place of printed one of the conductor side.
1/32W carbon resistor is supplied for the replacing part of the printed resistor.

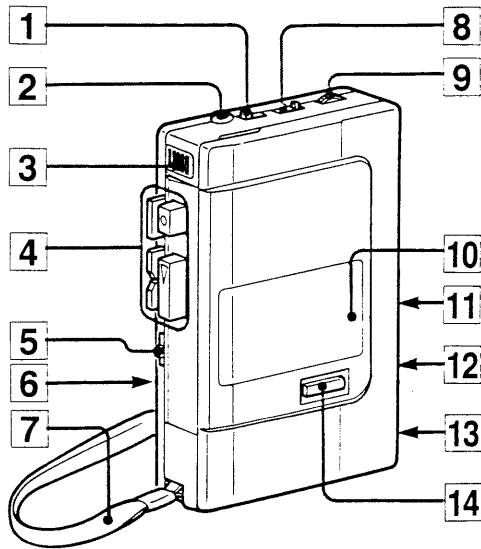
Notes on chip component replacement

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



SECTION 1
GENERAL

PARTS IDENTIFICATION



The illustration of TCM-75V

- 1 VOR (voice operated recording) ON/OFF switch
- 2 EAR (EARPHONE) jack
- 3 Built-in microphone
- 4 Tape operation buttons
 - REC (record)/▼ PLAY/■ STOP/▼ FF/CUE (fast forward/cue)/▲ REW/REVIEW (rewind/review)
- 5 PAUSE switch
- 6 Speaker (rear)
- 7 Handstrap
- 8 Tape COUNTER and reset button (TCM-74V/75V)
For indexing the tape contents. Before recording push the reset button to set the counter to "000".
- 9 VOLUME/VOR SENS (VOR sensitivity) control
In playback mode: volume control
In recording mode: VOR sensitivity control
- 10 Cassette holder
- 11 MIC PLUG IN POWER (external microphone) input jack (right side)
- 12 DC IN 3 V (external power input) jack (right side)
- 13 Battery compartment (right side)
- 14 CUE MARKER button (TCM-75V)

SECTION 2 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.

power supply voltage: 3V dc

Torque Measurement

Torque	Meter Reading	Torque Meter
Forward	More than 25 g-cm (More than 0.34 oz-inch)	CQ-102C
Fast Forward and Rewind	More than 60 g-cm (More than 0.83 oz-inch)	CQ-201B
Back Tension	1.5 – 4 g-cm (0.021 – 0.056 oz-inch)	CQ-102C

Tape Tension Measurement

Meter	Meter Reading
CQ-403A	More than 70 g (2.47 oz)

SECTION 3 ELECTRICAL ADJUSTMENTS

Test tape

Type	Signal	Used for
WS-48A	3kHz, 0dB	tape speed adjustment

Tape Speed Adjustment

Setting:

VOL control:

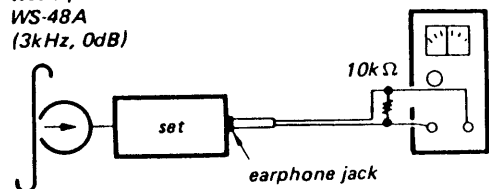
mechanical mid

Procedure:

Mode: playback

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

speed checker
LFM-30
or
digital frequency
counter

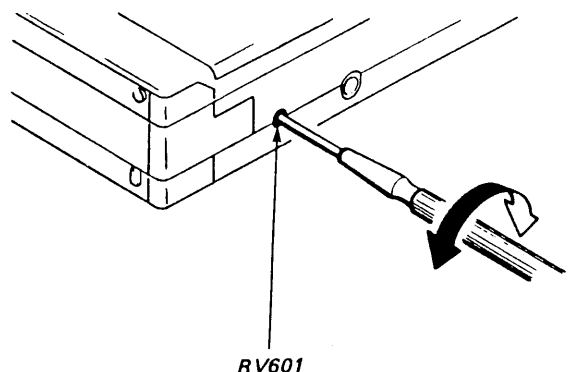


Specification:

Speed checker	Digital frequency counter
-0.5 to +1.5%	2,985 – 3,045 Hz

Frequency difference between the beginning and the end of the tape should be within 1% (30Hz).

Adjustment Location:



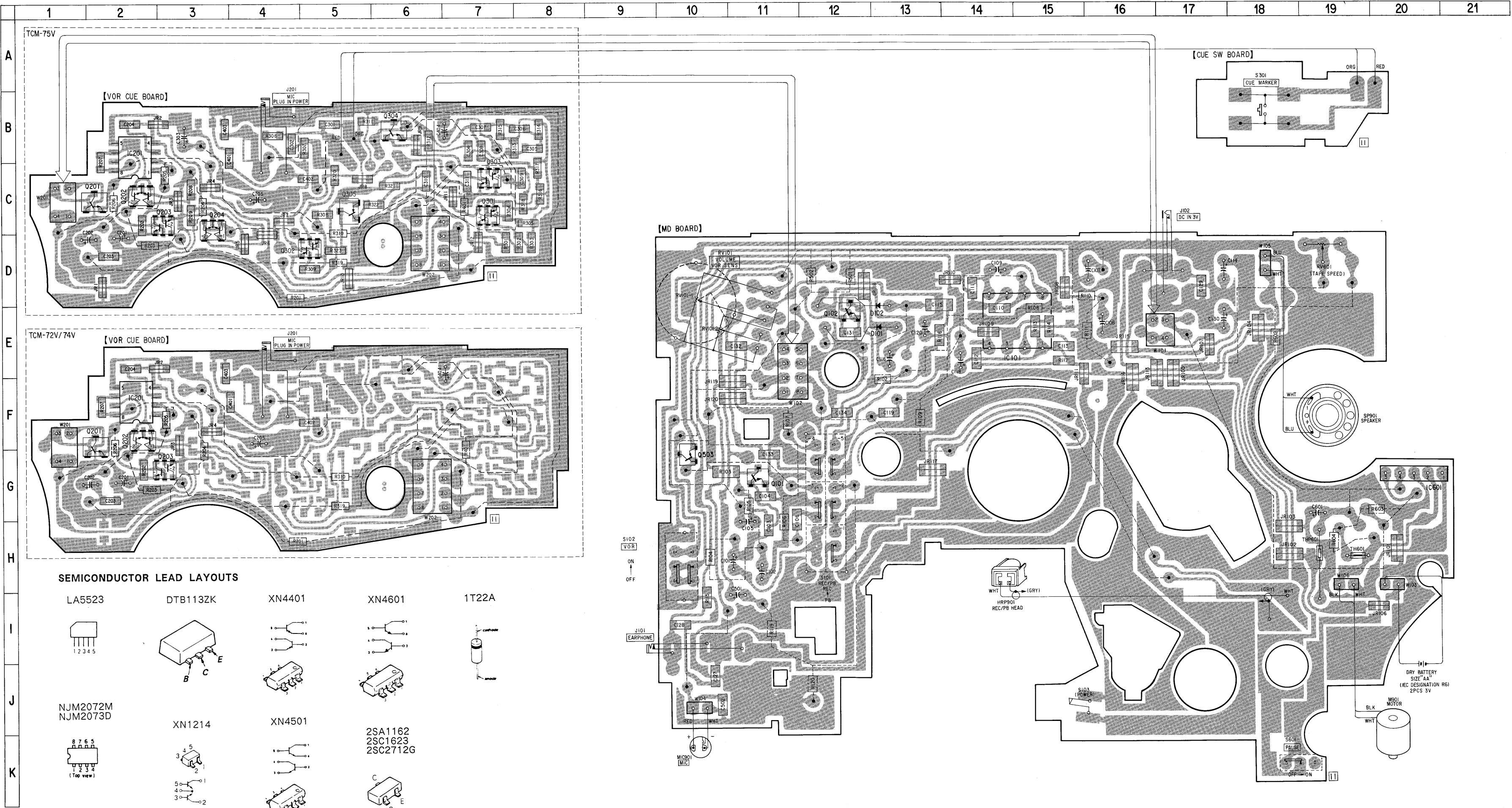
SECTION 4
DIAGRAMS

● SEMICONDUCTOR
LOCATION

Ref. No.	Location
TCM-75V	
IC201	B-2
Q201	C-2
Q202	C-2
Q203	C-3
Q204	C-3
Q301	C-7
Q302	D-4
Q303	C-7
Q304	B-6
Q305	C-5
TCM-72V/74V	
IC201	F-2
Q201	F-2
Q202	F-2
Q203	G-3
COMMON	
IC101	E-15
IC601	G-20
Q101	G-11
Q102	E-12
Q503	G-10
D101	E-13
D102	E-13

- Note :
- : parts extracted from the component side.
 - : parts extracted from the conductor side.
 - : parts mounted on the conductor side.
 - : Through hole.
 - : Chip components extracted from the side which is seen.
 - : Printed resistor.
 - ▨ : Patten on the side which is seen.
 - : Patten on the rear side.

4.1. PRINTED WIRING BOARD

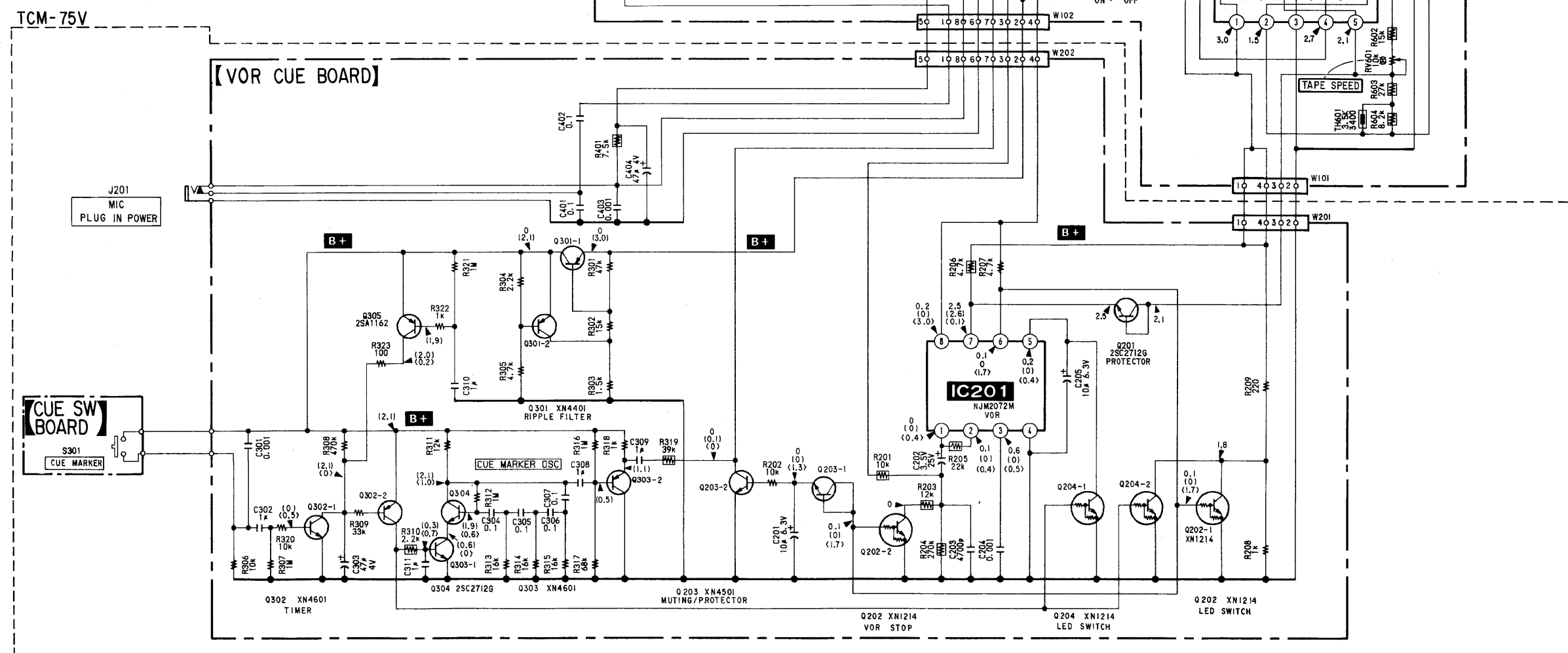
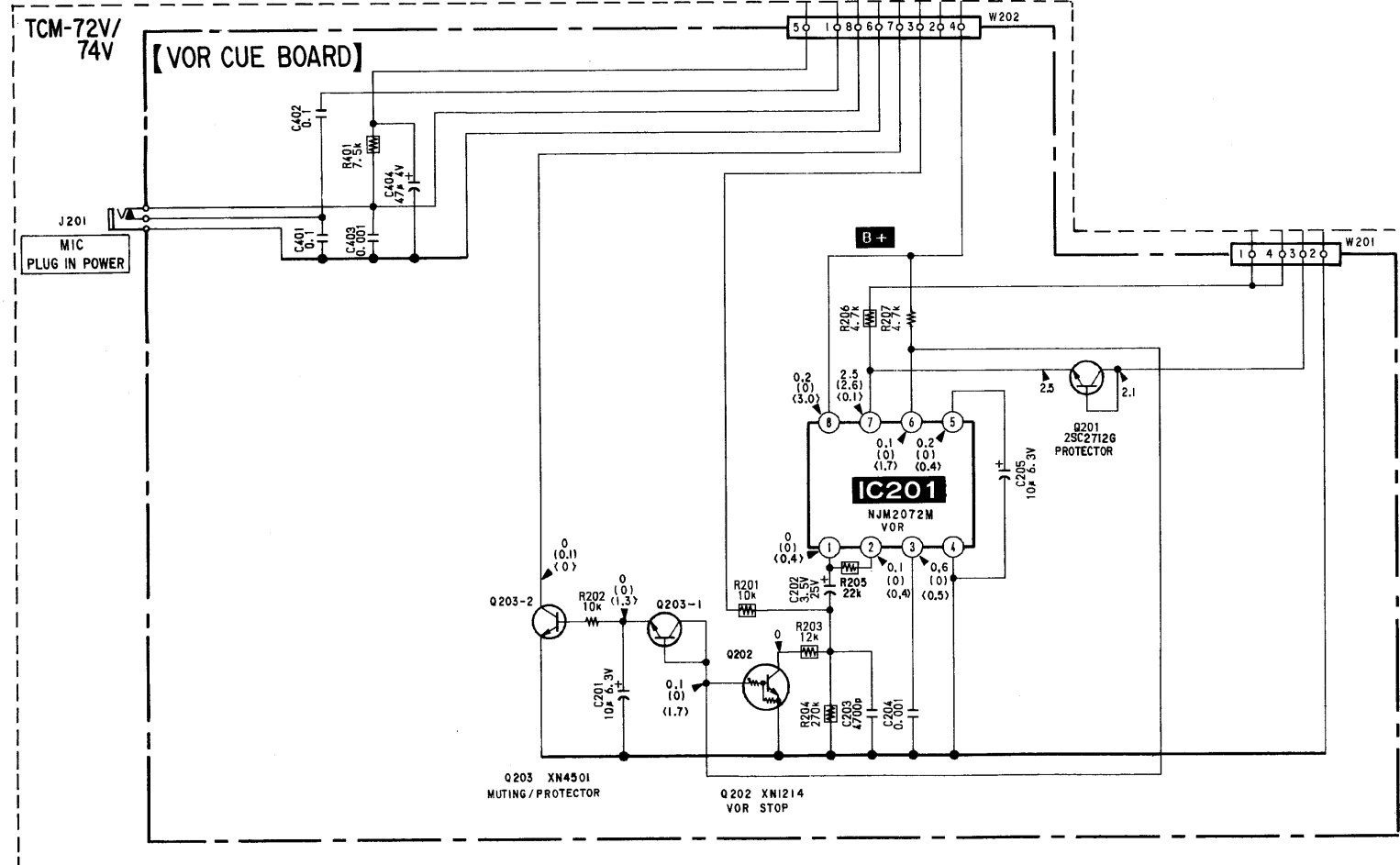


4.2. SCHEMATIC DIAGRAM

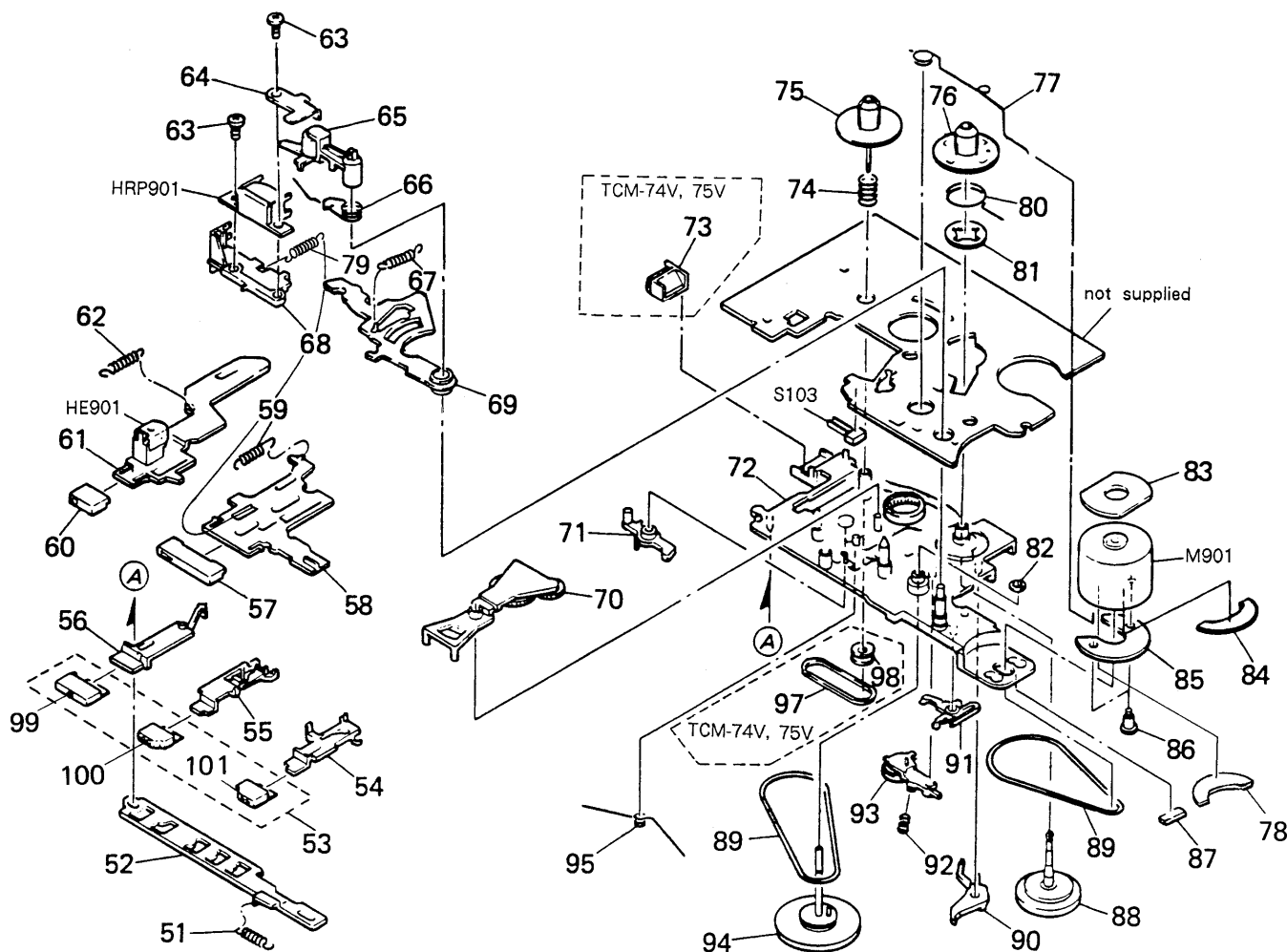
TCM-72V/74V/75V

Note:

- All capacitors are in μF unless otherwise noted. pF: μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{2}\text{W}$ or less unless otherwise specified.
- : printed resistor.
- B+** : 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.
- no mark : PLAY
() : REC
- Voltages are taken with a VOM (input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- : PB



5-2. MD (MT-72V-13 : TCM-72V
MT-74V-13 : TCM-74V, 75V)



No.	Part No.	Description	Remarks	No.	Part No.	Description	Remarks
51	3-342-031-01	SPRING, TENSION		76	3-342-014-01	GEAR, T REEL	
52	*3-342-040-01	PLATE, LOCK		77	3-352-453-01	SPRING (GROUND)	
53	3-342-079-11	BUTTON (FRS)		78	3-352-476-01	SHEET (MOTOR)	
54	3-320-993-01	LEVER, FF		79	3-352-451-01	SPRING, TENSION (POWER TENSION)	
55	3-320-992-01	LEVER, REW		80	3-342-024-01	SPRING	
56	3-320-994-01	LEVER, STOP		81	3-342-055-01	WASHER, T REEL	
57	3-352-446-01	BUTTON, PLAY		82	3-321-483-11	RING, RETAINING	
58	3-352-449-01	LEVER, PLAY		83	3-342-050-11	RUBBER (A), VIBRATION PROOF	
59	3-342-029-01	SPRING, TENSION (POWER TENSION)		84	3-342-075-01	SPACER, MOTOR	
60	3-352-445-11	BUTTON, REC		85	3-318-254-11	CUSHION, MOTOR	
61	3-320-995-01	LEVER, REC		86	3-342-076-01	SCREW (M2), PRECISION STEP	
62	3-342-032-01	SPRING, TENSION		87	9-911-839-XX	CUSHION (A) (t=1)	
63	3-352-473-01	SCREW (2), TAPPING		88	X-3320-918-1	PLATE ASSY, REEL, TAKE-UP	
64	*3-352-467-01	RETAINER, LEVER		89	3-480-136-00	BELT	
65	X-3320-921-1	PINCH ROLLER ASSY		90	3-342-011-01	LEVER (A), SHUT-OFF	
66	3-352-470-01	SPRING (P), TORSION		91	3-342-012-01	LEVER (B), SHUT-OFF	
67	3-342-033-01	SPRING, TENSION		92	3-342-034-01	SPRING, TENSION	
68	*3-352-447-01	BASE (A), HEAD		93	X-3320-919-1	ARM ASSY, IDLER	
69	3-352-448-01	BASE (B), HEAD		94	X-3320-916-1	FLYWHEEL (PA) ASSY	
70	X-3343-311-1	ARM ASSY, FR		95	3-342-035-01	SPRING (FR)	
71	3-342-010-01	ARM, CR		97	3-554-103-00	(74V,75V)...BELT, DRIVING	
72	X-3352-402-1	CHASSIS ASSY, MECHANICAL		98	3-320-999-11	(74V,75V)...PULLEY (COUNTER)	
73	1-548-582-11	(74V,75V)...COUNTER, TAPE (SMALL TYPE)		99	3-320-989-11	BUTTON, STOP	
74	3-342-030-01	SPRING, COMPRESSION		100	3-320-987-11	BUTTON, REW	
75	3-342-013-01	GEAR, S REEL		101	3-320-988-11	BUTTON, FF	

SECTION 6

ELECTRICAL PARTS LIST

NOTE:

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

CAPACITORS:

MF: μ F, PF: μ MF.

RESISTORS

- All resistors are in ohms.
- F: nonflammable

COILS

- MMH: mH, UH: μ H

SEMICONDUCTORS

In each case, U: μ , for example:

UA....: μ A..., UPA....: μ PA...,
UPC....: μ PC, UPD....: μ PD...

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
901	*1-563-470-11	HOUSING, CONNECTOR 2P	C403	1-163-009-11	CERAMIC CHIP 0.001MF
C101	1-126-160-11	ELECT 1MF 20% 50V	C404	1-124-432-00	ELECT 47MF 20% 4V
C102	1-126-160-11	ELECT 1MF 20% 50V	C501	1-124-438-00	ELECT 1MF 20% 50V
C103	1-163-111-00	CERAMIC CHIP 56PF 5% 50V	C502	1-163-038-00	CERAMIC CHIP 0.1MF
C104	1-163-009-11	CERAMIC CHIP 0.001MF 50V	C601	1-124-438-00	ELECT 1MF 20% 50V
C105	1-126-157-11	ELECT 10MF 20% 16V	D101	8-719-022-21	DIODE 1T22A
C106	1-163-038-00	CERAMIC CHIP 0.1MF 25V	D102	8-719-022-21	DIODE 1T22A
C107	1-124-434-00	ELECT 220MF 20% 4V	HE901	8-825-771-21	HEAD, ERASE EBF5-36C
C108	1-124-434-00	ELECT 220MF 20% 4V	HRP901	1-543-607-11	HEAD, MAGNETIC (REC/PB)
C109	1-126-094-11	ELECT 4.7MF 20% 16V	IC101	8-759-701-54	IC NJM2073D
C110	1-163-007-11	CERAMIC CHIP 680PF 10% 50V	IC201	8-759-701-51	IC NJM2072M
C111	1-163-034-00	CERAMIC CHIP 0.033MF 50V	IC601	8-759-801-12	IC LA5523
C112	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	J101	1-566-740-11	JACK (EARPHONE)
C113	1-163-038-00	CERAMIC CHIP 0.1MF 25V	J102	1-568-228-11	JACK, EXTERNAL POWER (DC IN 3V)
C114	1-124-434-00	ELECT 220MF 20% 4V	J201	1-563-319-21	JACK (MIC/PLUG IN POWER)
C115	1-162-638-11	CERAMIC CHIP 1MF 16V	JR1	1-216-295-00	(75V)...METAL GLAZE 0 5% 1/10W
C116	1-126-153-11	ELECT 22MF 20% 6.3V	JR2	1-216-295-00	METAL GLAZE 0 5% 1/10W
C118	1-126-094-11	ELECT 4.7MF 20% 16V	JR3	1-216-295-00	METAL GLAZE 0 5% 1/10W
C119	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	JR4	1-216-295-00	METAL GLAZE 0 5% 1/10W
C120	1-126-162-11	ELECT 3.3MF 20% 50V	JR5	1-216-295-00	(75V)...METAL GLAZE 0 5% 1/10W
C127	1-163-009-11	CERAMIC CHIP 0.001MF 50V	JR6	1-216-296-00	(75V)...METAL GLAZE 0 5% 1/8W
C128	1-163-038-00	CERAMIC CHIP 0.1MF 25V	JR7	1-216-295-00	(75V)...METAL GLAZE 0 5% 1/10W
C129	1-163-009-11	CERAMIC CHIP 0.001MF 50V	JR8	1-216-295-00	(75V)...METAL GLAZE 0 5% 1/10W
C130	1-124-434-00	ELECT 220MF 20% 4V	JR9	1-216-295-00	(75V)...METAL GLAZE 0 5% 1/10W
C131	1-163-038-00	CERAMIC CHIP 0.1MF 25V	JR10	1-216-296-00	(75V)...METAL GLAZE 0 5% 1/8W
C132	1-163-009-11	CERAMIC CHIP 0.001MF 50V	JR11	1-216-295-00	(75V)...METAL GLAZE 0 5% 1/10W
C133	1-163-038-00	CERAMIC CHIP 0.1MF 25V	JR12	1-216-295-00	(75V)...METAL GLAZE 0 5% 1/10W
C134	1-163-005-11	CERAMIC CHIP 470PF 10% 50V	JR101	1-216-296-00	METAL GLAZE 0 5% 1/8W
C201	1-126-157-11	ELECT 10MF 20% 6.3V	JR102	1-216-296-00	METAL GLAZE 0 5% 1/8W
C202	1-126-162-11	ELECT 3.3MF 20% 25V	JR103	1-216-296-00	METAL GLAZE 0 5% 1/8W
C203	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	JR104	1-216-296-00	METAL GLAZE 0 5% 1/8W
C204	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V	JR105	1-216-296-00	METAL GLAZE 0 5% 1/8W
C205	1-126-157-11	ELECT 10MF 20% 6.3V	JR106	1-216-295-00	METAL GLAZE 0 5% 1/10W
C301	1-163-009-11	(75V)...CERAMIC CHIP 0.001MF 50V	JR107	1-216-295-00	METAL GLAZE 0 5% 1/10W
C302	1-164-346-11	(75V)...CERAMIC CHIP 1MF 16V	JR108	1-216-295-00	METAL GLAZE 0 5% 1/10W
C303	1-124-432-00	(75V)...ELECT 47MF 20% 4V	JR109	1-216-295-00	METAL GLAZE 0 5% 1/10W
C304	1-164-004-11	(75V)...CERAMIC CHIP 0.1MF 10% 25V	JR110	1-216-295-00	METAL GLAZE 0 5% 1/10W
C305	1-164-004-11	(75V)...CERAMIC CHIP 0.1MF 10% 25V	JR111	1-216-295-00	METAL GLAZE 0 5% 1/10W
C306	1-164-004-11	(75V)...CERAMIC CHIP 0.1MF 10% 25V	JR113	1-216-296-00	METAL GLAZE 0 5% 1/8W
C307	1-164-004-11	(75V)...CERAMIC CHIP 0.1MF 10% 25V	JR114	1-216-296-00	METAL GLAZE 0 5% 1/8W
C308	1-164-346-11	(75V)...CERAMIC CHIP 1MF 16V	JR115	1-216-296-00	METAL GLAZE 0 5% 1/8W
C309	1-164-346-11	(75V)...CERAMIC CHIP 1MF 16V	JR117	1-216-296-00	METAL GLAZE 0 5% 1/8W
C310	1-164-346-11	(75V)...CERAMIC CHIP 1MF 16V			
C311	1-164-346-11	(75V)...CERAMIC CHIP 1MF 16V			
C401	1-163-038-00	CERAMIC CHIP 0.1MF 25V			
C402	1-163-038-00	CERAMIC CHIP 0.1MF 25V			

Ref.No.	Part No.	Description			
JR118	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR119	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR120	1-216-296-00	METAL GLAZE	0	5%	1/8W
M901	X-3320-925-2	MOTOR ASSY			
MIC901	1-542-080-11	MICROPHONE, BUILT-IN			
Q101	8-729-100-66	TRANSISTOR 2SC1623			
Q102	8-729-100-66	TRANSISTOR 2SC1623			
Q201	8-729-271-22	TRANSISTOR 2SC2712G			
Q202	8-729-420-16	TRANSISTOR XN1214			
Q203	8-729-402-81	TRANSISTOR XN4501			
Q204	8-729-420-16	(75V)...TRANSISTOR XN1214			
Q301	8-729-403-27	(75V)...TRANSISTOR XN4401			
Q302	8-729-402-84	(75V)...TRANSISTOR XN4601			
Q303	8-729-402-84	(75V)...TRANSISTOR XN4601			
Q304	8-729-271-22	(75V)...TRANSISTOR 2SC2712G			
Q305	8-729-216-22	(75V)...TRANSISTOR 2SA1162			
Q503	8-729-904-60	TRANSISTOR DTB113ZK			
R102	1-249-441-11	CARBON	100K	5%	1/4W
R103	1-216-212-00	METAL GLAZE	3.9K	5%	1/8W
R104	1-249-438-11	CARBON	56K	5%	1/4W
R105	1-249-438-11	CARBON	56K	5%	1/4W
R106	1-249-418-11	CARBON	1.2K	5%	1/4W
R107	1-249-434-11	CARBON	27K	5%	1/4W
R108	1-249-430-11	CARBON	12K	5%	1/4W
R109	1-249-425-11	CARBON	4.7K	5%	1/4W
R110	1-249-409-11	CARBON	220	5%	1/4W
R111	1-249-409-11	CARBON	220	5%	1/4W
R112	1-216-009-00	METAL GLAZE	22	5%	1/10W
R113	1-216-033-00	METAL GLAZE	220	5%	1/10W
R114	1-216-308-00	METAL GLAZE	4.7	5%	1/10W
R115	1-216-011-00	METAL GLAZE	27	5%	1/10W
R116	1-216-025-00	METAL GLAZE	100	5%	1/10W
R119	1-249-429-11	CARBON	10K	5%	1/4W
R120	1-249-423-11	CARBON	3.3K	5%	1/4W
R201	1-249-429-11	CARBON	10K	5%	1/4W
R202	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R203	1-249-430-11	CARBON	12K	5%	1/4W
R204	1-215-479-00	METAL	270K	1%	1/6W
R205	1-249-433-11	CARBON	22K	5%	1/4W
R206	1-249-425-11	CARBON	4.7K	5%	1/4W
R207	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R208	1-216-049-00	(75V)...METAL GLAZE	1K	5%	1/10W
R209	1-216-033-00	(75V)...METAL GLAZE	220	5%	1/10W
R301	1-216-089-00	(75V)...METAL GLAZE	47K	5%	1/10W
R302	1-216-077-00	(75V)...METAL GLAZE	15K	5%	1/10W
R303	1-216-053-00	(75V)...METAL GLAZE	1.5K	5%	1/10W
R304	1-216-057-00	(75V)...METAL GLAZE	2.2K	5%	1/10W
R305	1-216-065-00	(75V)...METAL GLAZE	4.7K	5%	1/10W
R306	1-216-073-00	(75V)...METAL GLAZE	10K	5%	1/10W
R307	1-216-121-00	(75V)...METAL GLAZE	1M	5%	1/10W
R308	1-216-113-00	(75V)...METAL GLAZE	470K	5%	1/10W
R309	1-216-085-00	(75V)...METAL GLAZE	33K	5%	1/10W
R310	1-249-421-11	(75V)...CARBON	2.2K	5%	1/4W
R311	1-216-075-00	(75V)...METAL GLAZE	12K	5%	1/10W
R312	1-216-121-00	(75V)...METAL GLAZE	1M	5%	1/10W
R313	1-216-078-00	(75V)...METAL GLAZE	16K	5%	1/10W

Ref.No.	Part No.	Description			
R314	1-216-078-00	(75V)...METAL GLAZE	16K	5%	1/10W
R315	1-216-078-00	(75V)...METAL GLAZE	16K	5%	1/10W
R316	1-216-121-00	(75V)...METAL GLAZE	1M	5%	1/10W
R317	1-216-093-00	(75V)...METAL GLAZE	68K	5%	1/10W
R318	1-216-049-00	(75V)...METAL GLAZE	1K	5%	1/10W
R319	1-249-436-11	(75V)...CARBON	39K	5%	1/4W
R320	1-216-073-00	(75V)...METAL GLAZE	10K	5%	1/10W
R321	1-216-121-00	(75V)...METAL GLAZE	1M	5%	1/10W
R322	1-216-049-00	(75V)...METAL GLAZE	1K	5%	1/10W
R323	1-216-025-00	(75V)...METAL GLAZE	100	5%	1/10W
R401	1-215-442-00	METAL	7.5K	5%	1/6W
R501	1-249-405-11	CARBON	100	5%	1/4W
R502	1-249-417-11	CARBON	1K	5%	1/4W
R602	1-249-431-11	CARBON	15K	5%	1/4W
R603	1-249-434-11	CARBON	27K	5%	1/4W
R604	1-249-428-11	CARBON	8.2K	5%	1/4W
RV101	1-237-772-11	RES, VAR, CARBON 50K/50K (VOLUME/VOR SENS)			
RV601	1-237-278-11	RES, ADJ, CARBON 10K (TAPE SPEED)			
S101	1-571-151-11	SWITCH, SLIDE (REC/PB)			
S102	1-571-478-11	SWITCH, SLIDE (VOR)			
S103	1-570-549-21	SWITCH, LEAF (POWER)			
S301	1-571-887-21	(75V)...SWITCH, KEY BOARD (CUE MARKER)			
S601	1-570-675-11	SWITCH, SLIDE (PAUSE)			
SP901	1-503-830-11	SPEAKER			
TH601	1-808-980-11	THERMISTOR			
THP601	1-808-272-11	THERMISTOR, POSITIVE (120)			
W101	*1-568-289-11	PIN, CONNECTOR (PC BOARD) 4P			
W102	*1-566-669-11	PIN, CONNECTOR (PC BOARD) 8P			
W103	*1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P			
W104	*1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P			
W105	*1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P			
W106	*1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P			
W201	*1-563-317-31	SOCKET, CONNECTOR(PC BOARD) 4P			
W202	*1-563-318-31	SOCKET, CONNECTOR(PC BOARD) 8P			

ACCESSORY & PACKING MATERIAL

3-351-508-01	TUBE, PROTECTION
*3-355-377-01	(US)...CUSHION (UPPER)
*3-355-347-01	(US)...CUSHION (LOWER)
*3-355-350-01	(EXCEPT US)...CUSHION
*3-355-360-01	(74V:Canadian,AEP,UK)...INDIVIDUAL CARTON
*3-355-362-01	(75V:AEP,E).....INDIVIDUAL CARTON
3-751-512-11	(EXCEPT US)...MANUAL, INSTRUCTION (ENGLISH,FRENCH,SPANISH,PORTUGUESE)
3-751-512-21	(US)...MANUAL, INSTRUCTION (ENGLISH)
3-751-512-41	(AEP)...MANUAL, INSTRUCTION (GERMAN,DUTCH,SWEDISH,ITALIAN)

