

SERVICE MANUAL

CASSETTE RECORDER

BASIC TAPE MECHANISM : TN-9XR-112

This Service Manual is the "Revision Publishing" and replaces "Simple Manual"
(S/M Code No. 09-99A-337-1T1).

SPECIFICATIONS

<Cassette recorder section>

Track system	2 tracks 1 channel, monaural (Recording) 4 tracks 2 channels, stereo (Playback)
Frequency response	250 - 8,000 Hz (EIAJ Recording)
Recording system	AC bias
Erasing system	Magnet erasure

<Built-in IC section>

Frequency response	400 - 3,500 Hz
Recording time	10 seconds x 2 (IC repeat 60 sec/10 sec switch is set to 10 sec) 60 seconds x 2 (IC repeat 60 sec/10 sec switch is set to 60 sec)

<Common section>

Microphone	Electret condenser microphone (monaural)
Maximum output	300 mW (EIAJ 4 ohms/DC) 10 mW+10 mW (EIAJ/16 ohms)
Input jack	EXT MIC jack (monaural mini-jack) (1)
Output jack	PHONES jack (stereo mini-jack) (1)
Other jack	DC 3 V jack
Speaker	Diameter 50 mm, 4 ohms (monaural)
Power sources	DC 3 V using two R6 (size AA) dry cell batteries AC house current using the AC adaptor Aiwa AC-D302

Battery life

Battery	EIAJ Recording	EIAJ 10 mW
Manganese (R6P) Batteries	Approx. 5 hrs	Approx. 3.5 hrs
Alkaline (LR) batteries	Approx. 18.5 hrs	Approx. 13.5hrs

Dimensions
113.5 (W) x 90 (H) x 38.4 (D) mm
(4¹/₂ x 3⁵/₈ x 1⁹/₁₆ in.)

Weight
Approx. 171 g, 5.9 oz (excluding batteries)

- Design and specifications are subject to change without notice.

ACCESSORIES LIST

DESCRIPTIONで判断できない物は "REFERENCE NAME LIST" を参照してください。
If can't understand for Description please kindly refer to "REFERENCE NAME LIST".

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-HT5-905-010	IB, YH(ECK)C	
2	87-B30-240-010	HEADPHONE, HP-M035	
3	87-PD3-050-010	STRAP, HAND	

ELECTRICAL MAIN PARTS LIST

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REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
IC				C203	87-010-178-080		CHIP CAP 1000P
	87-A20-399-010	IC,LA4168M		C204	87-010-178-080		CHIP CAP 1000P
	87-A20-461-040	IC,MM1336DF		C205	87-016-296-080		CAP,E 22-6.3
	87-002-649-080	IC,NJM324M		C206	87-010-197-080		CAP, CHIP 0.01 DM
	87-017-506-080	IC,PST600 JMT		C207	87-016-462-080		C-CAP, S 1-16 F
	87-A20-755-080	C-IC,AK93C45AF		C208	87-A10-019-080		C-CAP,TN 10-6.3 A
	87-017-643-080	IC,MM1206XFF		C209	87-010-213-080		CAP, CHIP 0.015-25
	87-A21-450-040	C-IC,BU4053BCFV		C210	87-016-296-080		C-CAP,TN 22-6.3
	87-A21-409-010	C-IC,ISD4002-120ED		C211	87-015-908-080		CAP,E 220-6.3
	87-A21-408-010	C-IC,MC68HC705P6CDW		C212	87-A10-264-080		C-CAP, S 0.1-16ZF
	87-A21-411-040	C-IC,SB2020P-29332AK		C213	87-016-491-080		C-CAP, S 0.22-16 FZ
				C214	87-016-462-080		C-CAP, S 1-16 F
TRANSISTOR				C215	87-A10-019-080		C-CAP,TN 10-6.3 A
	89-508-804-080	CHIP FET 2SK880Y		C216	87-015-213-080		CAP, CHIP 0.015-25
	87-A30-288-040	C-TR,DTC114YKA		C217	87-016-296-080		C-CAP,TN 22-6.3
	89-333-266-080	CHIP TR,2SC3326B		C218	87-A10-264-080		C-CAP, S 0.1-16ZF
	89-327-125-080	CHIP TR,2SC2712GR		C219	87-016-491-080		C-CAP, S 0.22-16 FZ
	89-342-132-080	TR,2SC4213B		C220	87-010-178-080		CHIP CAP 1000P
	89-341-165-080	CHIP TRANSISTOR 2SC4116GR		C221	87-010-794-080		CHIP CAPACITOR TN 0.1-20(A2)
	87-A30-144-080	C-TR,2SC4081R		C222	87-010-182-080		C-CAP, S 2200P-50 B
	87-026-210-040	C-TR,DTC144EKA		C223	87-010-182-080		C-CAP, S 2200P-50 B
	89-115-864-080	CHIP TRANSISTOR 2SA1586Y		C224	87-016-370-010		CAP,E 470-6.3 M RS
	87-026-337-080	C-TR,DTA144TUA		C225	87-016-462-080		C-CAP, S 1-16 F
	89-332-654-080	CHIP TRANSISTOR, 2SC3265Y		C226	87-012-358-080		C-CAP, S 0.47
				C227	87-012-358-080		C-CAP, S 0.47
DIODE				C301	87-010-197-080		CAP, CHIP 0.01 DM
	87-A40-529-010	DIODE,1GWJ42		C303	87-A10-264-080		C-CAP, S 0.1-16ZF
	87-001-221-080	CHIP DIODE,ISS319		C304	87-A10-593-080		C-CAP,TN 1-16 A2 MSV
	87-001-553-080	C-DIODE 1SS322		C305	87-016-462-080		C-CAP, S 1-16 F
	87-020-339-080	CHIP DIODE,1SS226		C307	87-A10-036-080		C-CAP,TN 47U-6.3 B2
	87-020-027-080	CHIP-DIODE 1SS184		C308	87-010-197-080		CAP, CHIP 0.01 DM
	87-001-166-080	DIODE,1SS301		C309	87-010-197-080		CAP, CHIP 0.01 DM
MAIN C.B				C310	87-A10-034-080		C-CAP,TN 33-6.3
	C101	87-A10-036-080	C-CAP,TN 47U-6.3 B2	C311	87-016-491-080		C-CAP, S 0.22-16 FZ
	C102	87-016-462-080	C-CAP, S 1-16 F	C312	87-A10-264-080		C-CAP, S 0.1-16ZF
	C103	87-010-186-080	CAP,CHIP 4700P	C313	87-012-358-080		C-CAP, S 0.47
	C104	87-010-184-080	CHIP CAPACITOR 3300P(K)	C315	87-010-197-080		CAP, CHIP 0.01 DM
	C105	87-A10-019-080	C-CAP,TN 10-6.3 A	C316	87-010-316-080		C-CAP, S 33P-50 CH
	C106	87-015-677-010	CAP,E 100-6.3	C317	87-010-316-080		C-CAP, S 33P-50 CH
	C107	87-016-296-080	C-CAP,TN 22-6.3	C319	87-010-197-080		CAP, CHIP 0.01 DM
	C108	87-016-462-080	C-CAP, S 1-16 F	C320	87-010-197-080		CAP, CHIP 0.01 DM
	C109	87-016-462-080	C-CAP, S 1-16 F	C321	87-A10-036-080		C-CAP,TN 47U-6.3 B2
	C110	87-010-187-080	CAP CHIP S5600P	C322	87-010-182-080		C-CAP, S 2200P-50 B
	C111	87-016-462-080	C-CAP, S 1-16 F	C501	87-010-179-080		CAP,CHIP S B1200P
	C112	87-016-503-080	C-CAP,TN 4.7-6.3	C502	87-010-197-080		CAP, CHIP 0.01 DM
	C113	87-016-462-080	C-CAP, S 1-16 F	C503	87-010-184-080		CHIP CAPACITOR 3300P(K)
	C114	87-A10-593-080	C-CAP,TN 1-16 A2 MSV	C504	87-010-197-080		CAP, CHIP 0.01 DM
	C115	87-016-462-080	C-CAP, S 1-16 F	C505	87-A10-036-080		C-CAP,TN 47U-6.3 B2
	C116	87-A10-036-080	C-CAP,TN 47U-6.3 B2	J101	84-TM1-630-010		JACK,3.5 HJSJ1493-05
	C117	87-016-462-080	C-CAP, S 1-16 F	J102	87-A61-032-010		JACK,3.5 BLK ST W/SW HJSJ1494
	C118	87-A10-264-080	C-CAP, S 0.1-16ZF	L301	87-A60-849-010		JACK,DC DIA 2.75 BLK
	C119	87-010-197-080	CAP, CHIP 0.01 DM	L302	87-003-188-080		COIL 22UH
	C120	87-016-462-080	C-CAP, S 1-16 F	L303	87-003-188-080		COIL 22UH
	C121	87-015-908-080	CAP,E 220-6.3	L501	87-007-189-010		COIL OSC
	C122	87-016-462-080	C-CAP, S 1-16 F	S301	87-036-273-080		CHIP TACT SWITCH SKQGADE010
	C123	87-A10-264-080	C-CAP, S 0.1-16ZF	SW101	87-A90-520-010		SW,SL 2-4-2SHORTING
	C124	87-010-193-080	CHIP CAPACITOR,0.033	SW102	87-031-816-010		SLIDE SWITCH
	C125	87-016-462-080	C-CAP, S 1-16 F	SW103	87-A90-520-010		SW,SL 2-4-2SHORTING
	C126	87-016-462-080	C-CAP, S 1-16 F	SW201	87-A90-520-080		REC SWITCH
	C127	87-A10-264-080	C-CAP, S 0.1-16ZF	SW301	87-031-816-010		SLIDE SWITCH
	C128	87-A10-036-080	C-CAP,TN 33-6.3	SW302	87-031-816-010		SLIDE SWITCH
	C129	87-A10-264-080	C-CAP, S 0.1-16ZF	TH101	87-A90-855-080		C-THMS,SC20-3K102K
	C130	87-016-491-080	C-CAP, S 0.22-16 FZ	TH102	87-A90-307-080		C-THMS,K39G220
	C201	87-016-462-080	C-CAP, S 1-16 F	VR101	87-A90-308-010		VR,RTRY 3KB XV81
	C202	87-016-462-080	C-CAP, S 1-16 F	VR102	87-A90-527-010		SFR,5K H VZ066L3
				VR201	87-A90-314-010		VR,RTRY 10K H
				X301	87-A70-147-080		C-VIB,CER 2.0MHZ PBRC-A

KEY C.B

REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C401	87-016-462-080		C-CAP, S 1-16 F
C402	87-010-197-080		CAP, CHIP 0.01 DM
C403	87-010-197-080		CAP, CHIP 0.01 DM
LED1	87-A90-276-080		C-LED,SML-210MT GRN
LED2	87-A90-278-080		C-LED,SML-210VT RED
LED3	87-017-827-070		C-LED,SEC 1201C RED
LED4	87-017-828-070		C-LED,SEL 1401C GRN
LED5	87-017-829-070		C-LED,SEC 1901C ORN
LED6	87-017-827-070		C-LED,SEC 1201C RED
S401	87-A90-665-180		TACT SWITCH
S402	87-A90-665-180		TACT SWITCH
S403	87-A90-665-180		TACT SWITCH
S404	87-A90-665-180		TACT SWITCH

チップ抵抗部品コード/CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち

Chip Resistor Part Coding



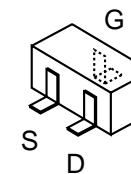
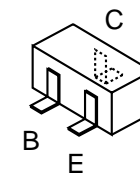
抵抗部品コード
Resistor Code

桁表示
Figure
抵抗値
Value of resistor

チップ抵抗 Chip resistor

容量 Wattage	種類 Type	許容誤差 Tolerance	記号 Symbol	寸法/Dimensions (mm)			抵抗コード : A Resistor Code : A	
				外形/Form	L	W		t
1/16W	1005	± 5%	CJ		1.0	0.5	0.35	104
1/16W	1608	± 5%	CJ		1.6	0.8	0.45	108
1/10W	2125	± 5%	CJ		2	1.25	0.45	118
1/8W	3216	± 5%	CJ		3.2	1.6	0.55	128

TRANSISTOR ILLUSTRATION

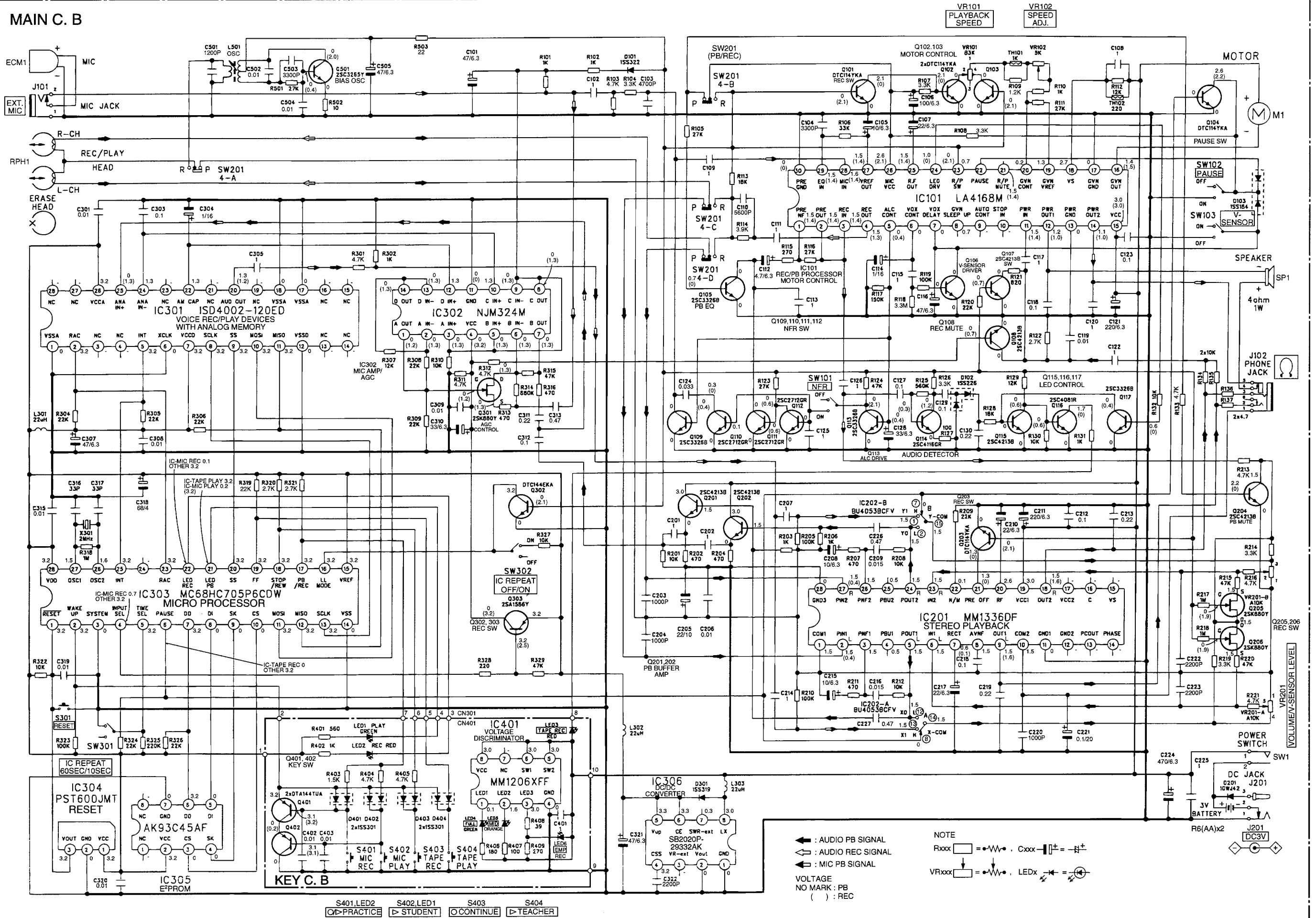


2SA1586
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2SC3265
2SC3326
2SC4081
2SC4116
2SC4213
DTA144TUA
DTC114YKA
DTC144EKA

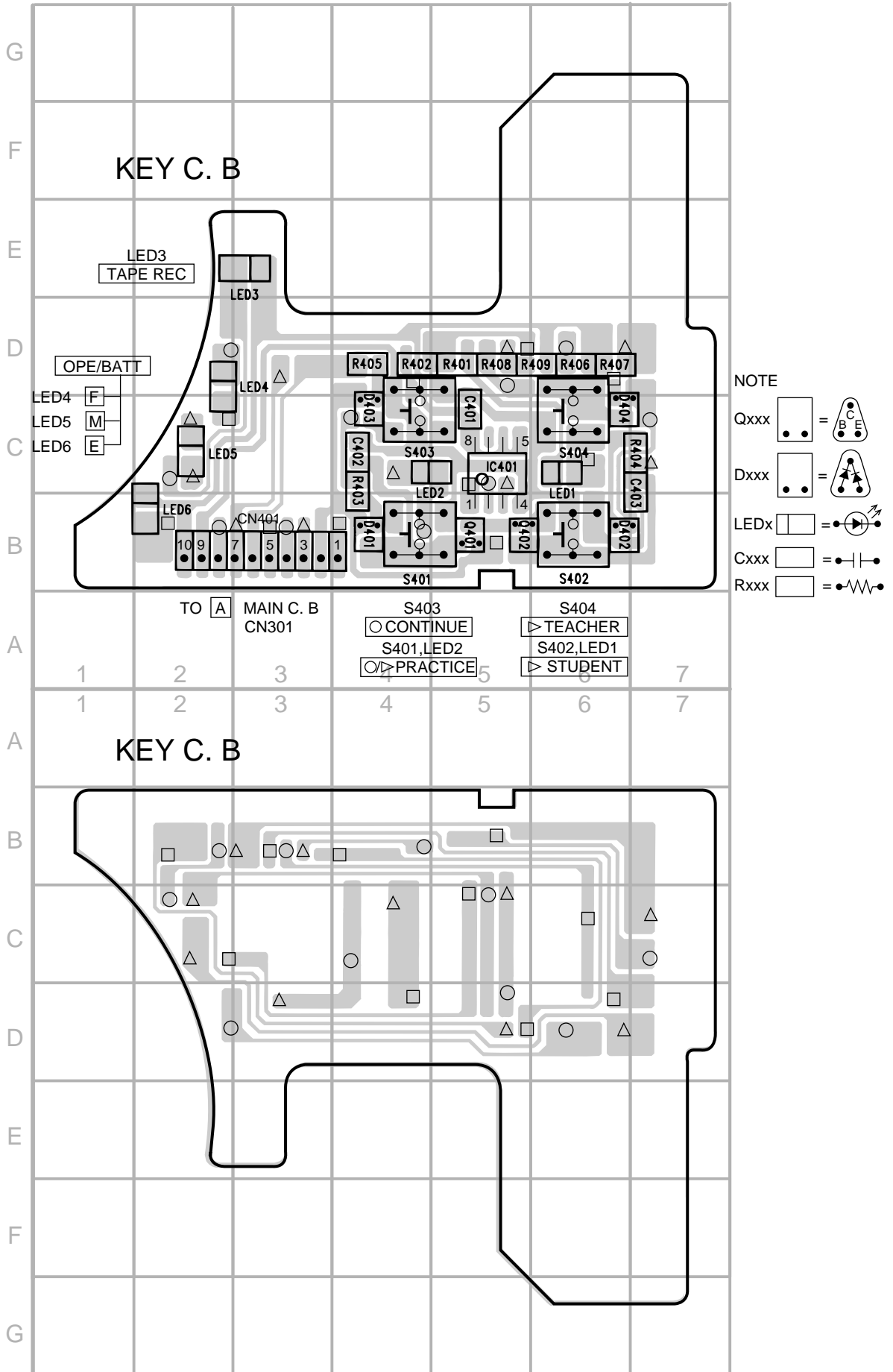
2SK880

SCHEMATIC DIAGRAM

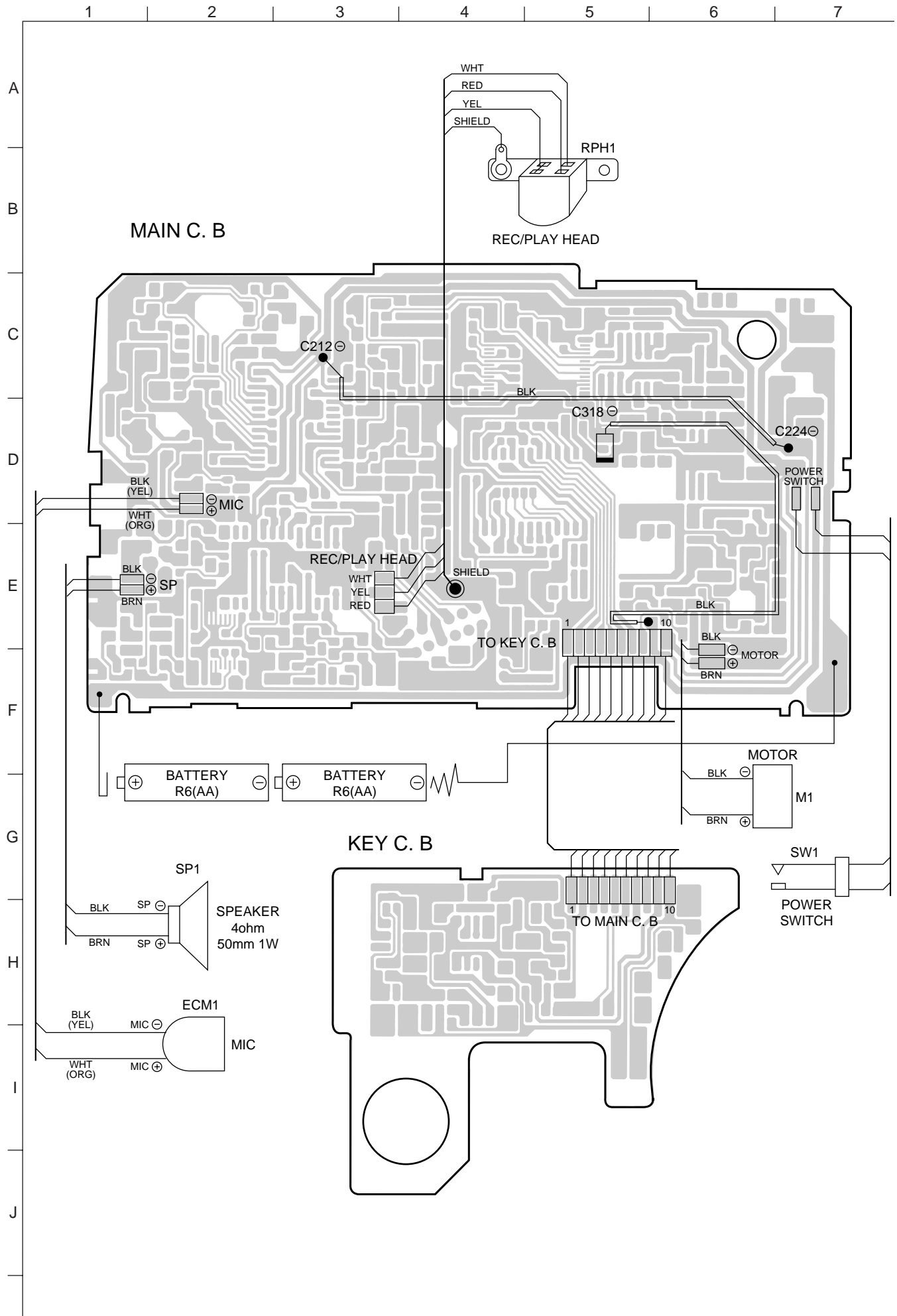
MAIN C. B

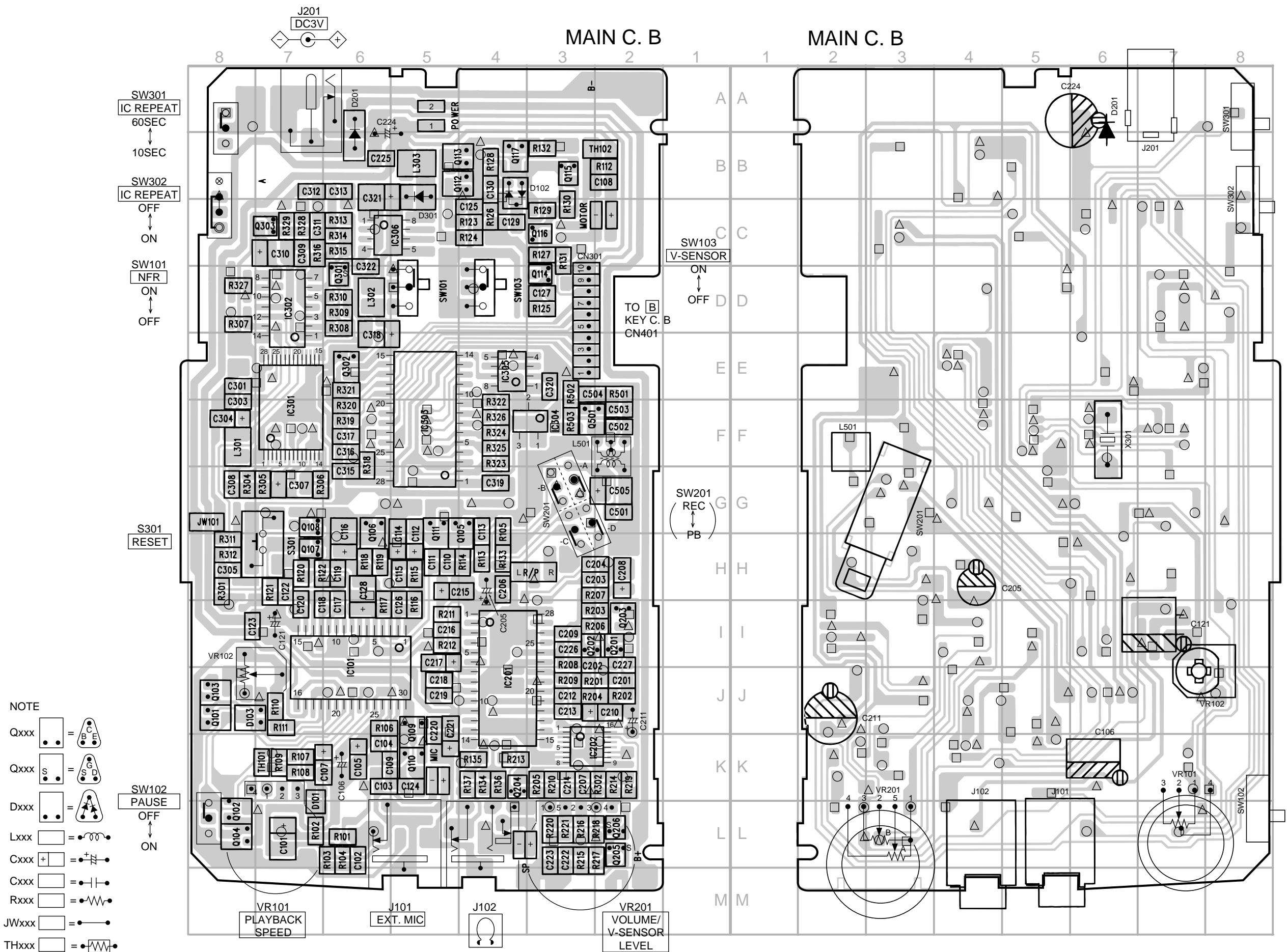


WIRING-1 (KEY C.B SECTION)



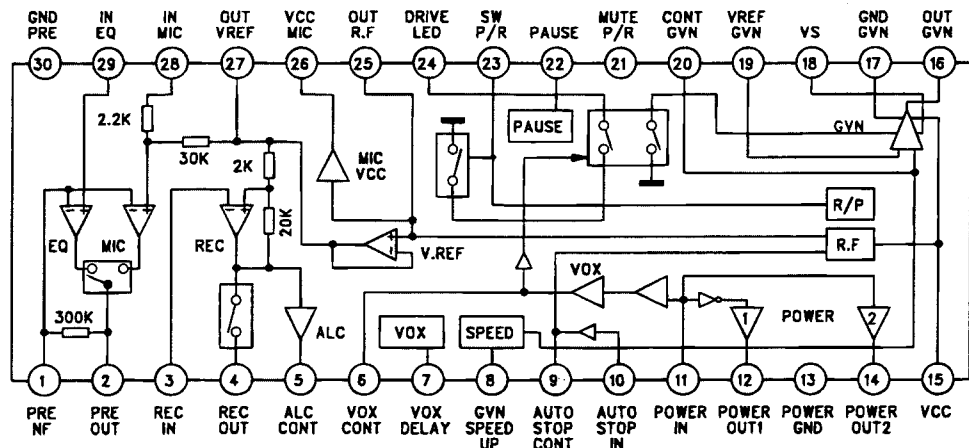
WIRING-2



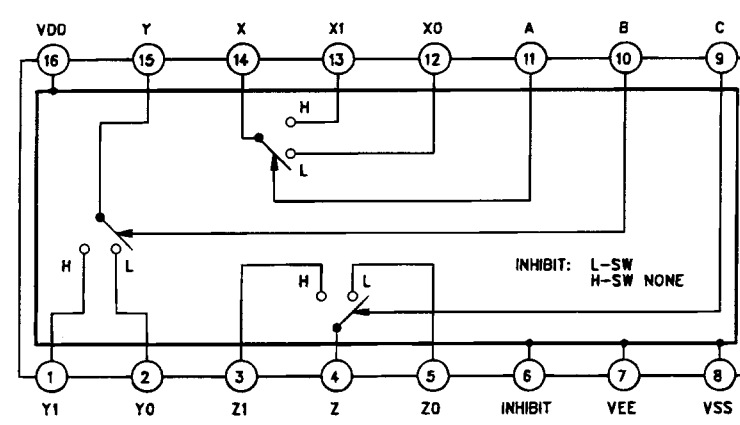


IC BLOCK DIAGRAM

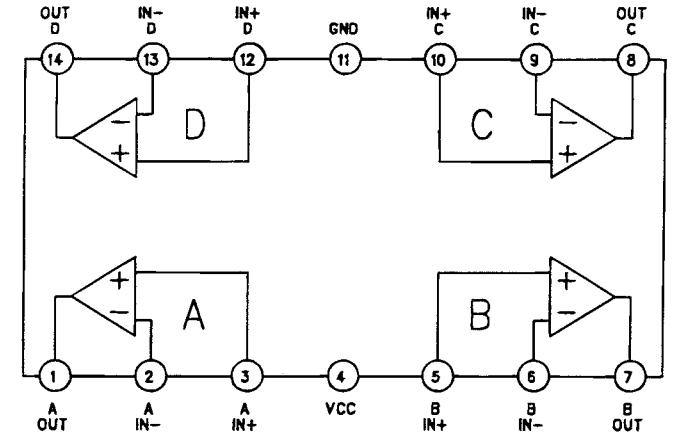
IC, LA4168M



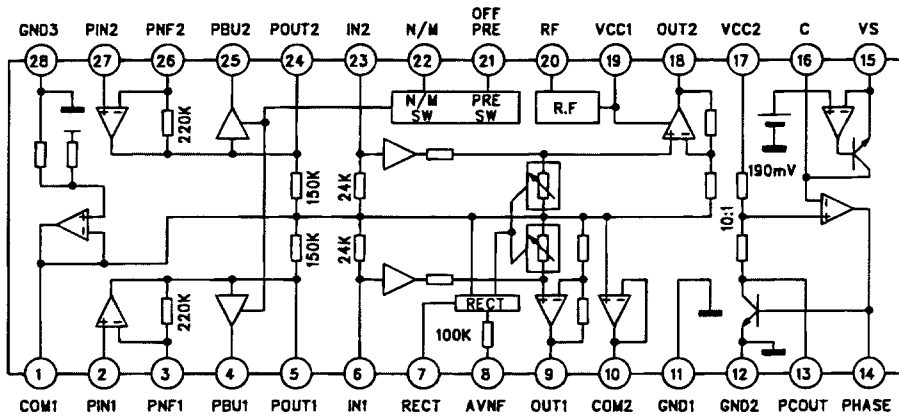
IC, BU4053BCFV



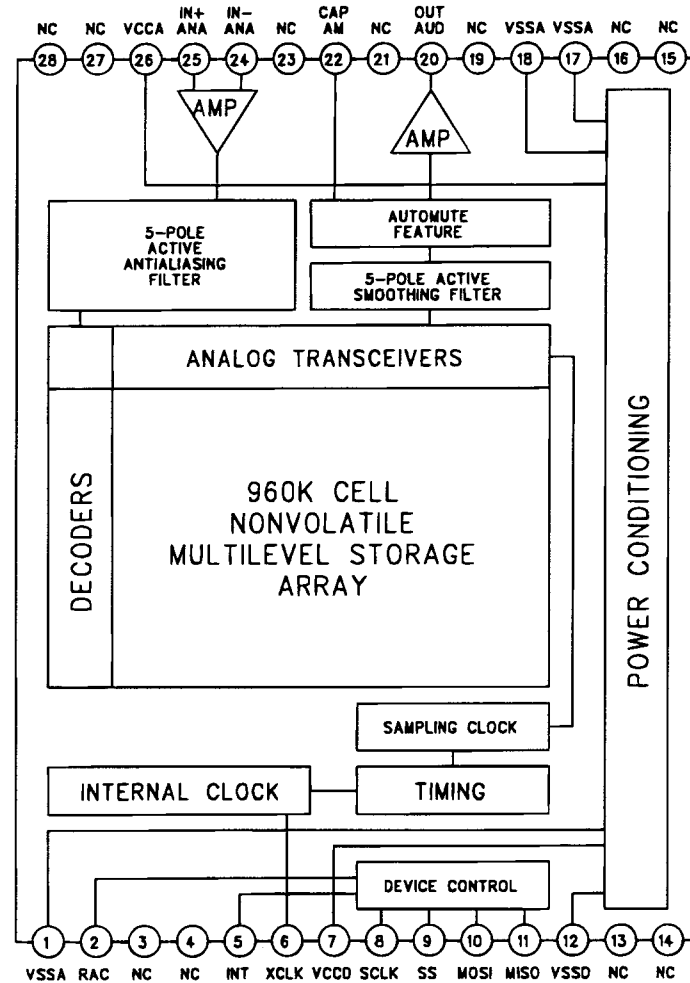
IC, NJM324M



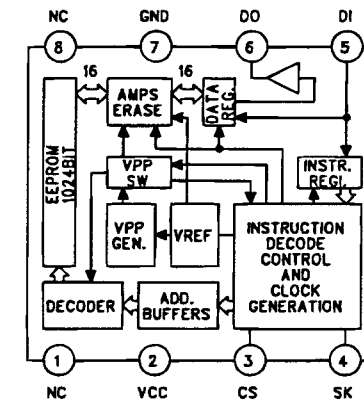
IC, MM1336DF



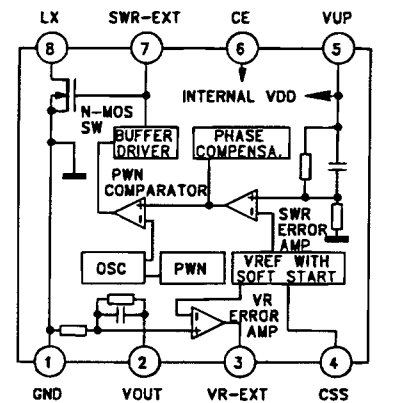
IC, ISD4002-120ED



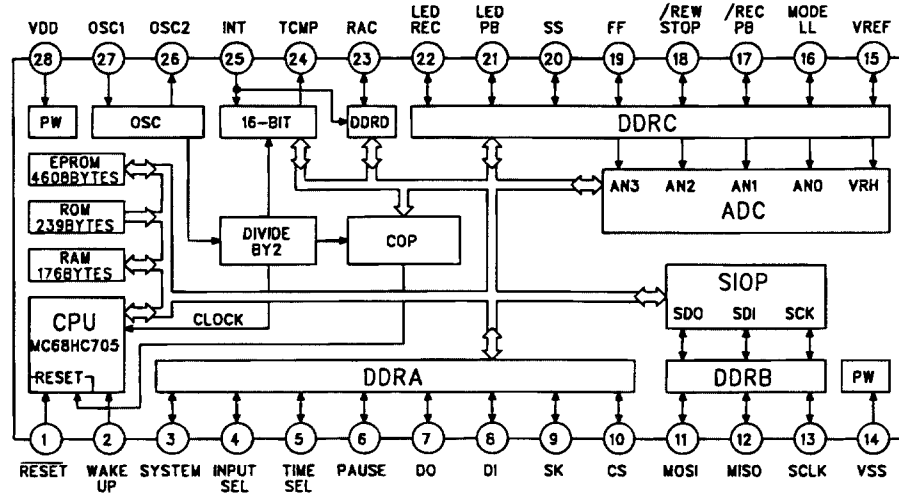
IC, AK93C45AF



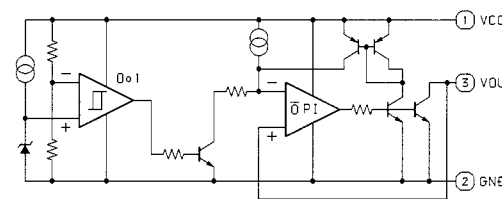
IC, SB2020P



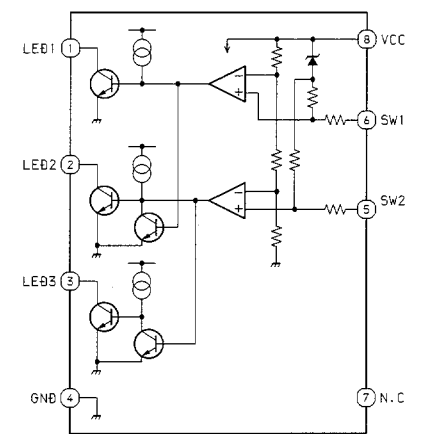
IC, MC68HC705P6CDW



IC, PST600JMT



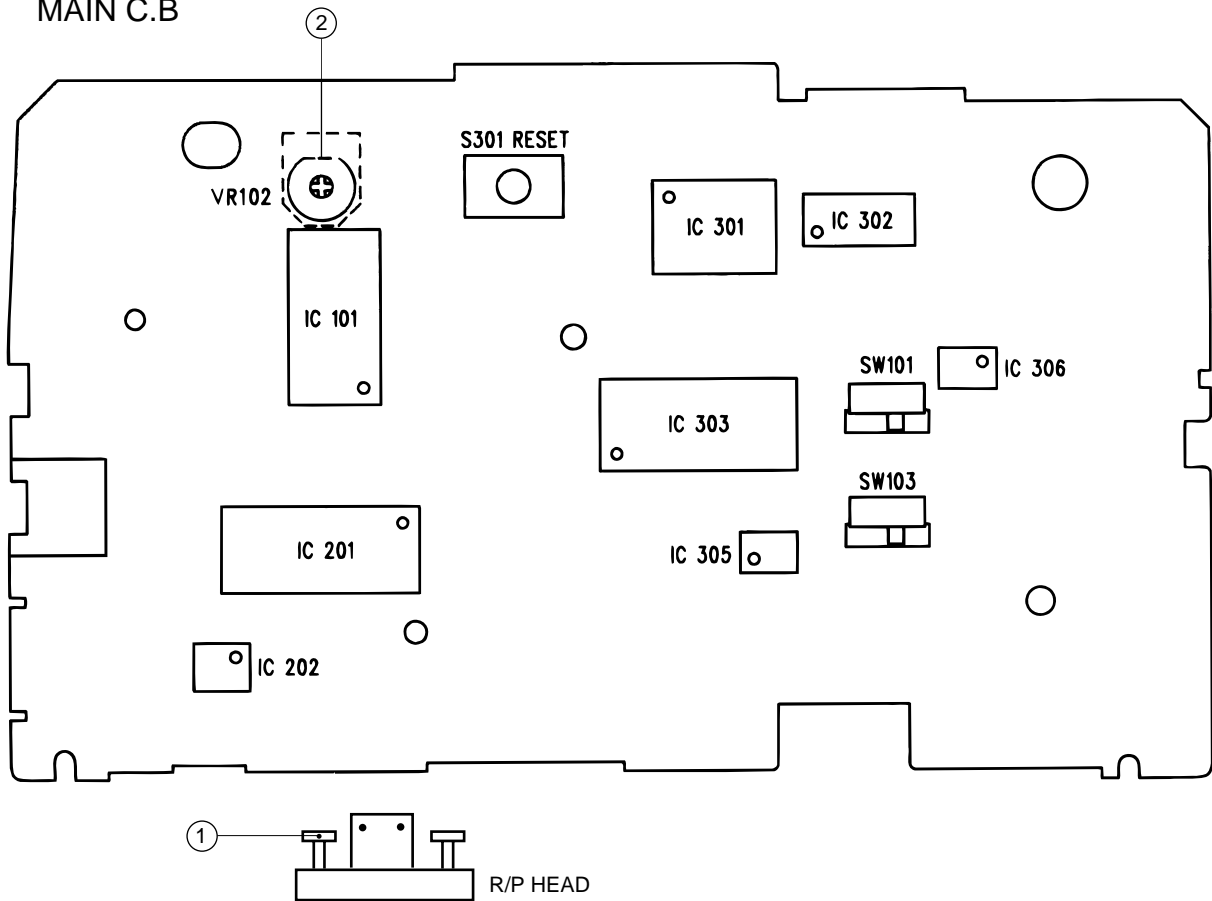
IC, MM1206XFF



BATTERY REMAIN VOLUME	2.50V 2.25V		
LEB1	L	H	H
LEB2	H	L	H
LEB3	H	H	L

ELECTRICAL ADJUSTMENT

MAIN C.B



PRACTICAL SERVICE FIGURE

1. Azimuth Adjustment

- Settings:
- Test tape: TTA-330
 - Test point: EARPHONE JACK (J102)
 - Adjustment location: Azimuth adjustment screw
 - PAUSE: OFF
 - VOLUME: Maximum.
 - PLAYBACK SPEED: Normal
(Speed volume center)

Method: Playback the test tape, and adjust so that the output (8 kHz) becomes maximum.

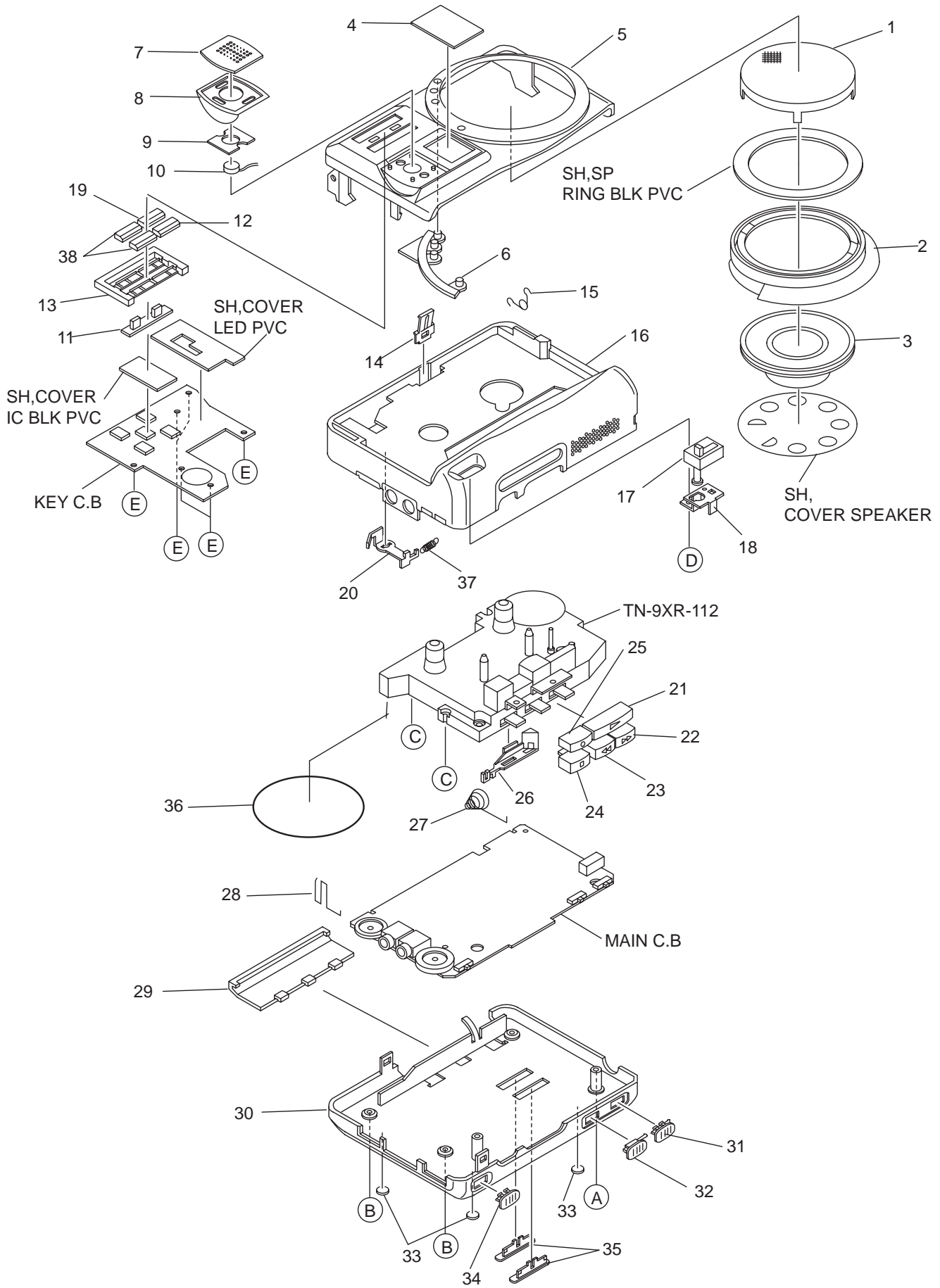
2. Tape Speed Adjustment

- Settings:
- Test tape: TTA-100 (TAPE CENTER)
 - Test point: EARPHONE JACK (J102)
 - Adjustment location: VR102
 - PAUSE: OFF
 - VOLUME: Maximum
 - PLAYBACK SPEED: Normal
(Speed volume center)

Method: Playback the test tape, and adjust for 3000 Hz ± 10 Hz

Tape speed:	3000 Hz \pm 60 Hz
Wow & flutter:	Less than 0.55%
Take-up torque:	20 ~ 50 g-cm (FWD)
F.F torque:	More than 55 g-cm
REW torque:	More than 55 g-cm
S/N ratio:	More than 45 dB (PB)
(Vol: Max - 10 dB)	More than 25 dB (R/PB)
Distortion:	Less than 3.0% (PB)
(Vol: Max - 10 dB)	Less than 5.0% (R/PB)
Noise level:	Less than 5.0 mV (PB)
(Vol: Max)	Less than 16 mV (R/PB)
Erasing ratio:	More than 28 dB (1kHz, 50dB)
Test tape	TTA-100
	TTA-330

MECHANICAL EXPLODED VIEW 1/1



MECHANICAL MAIN PARTS LIST 1/1

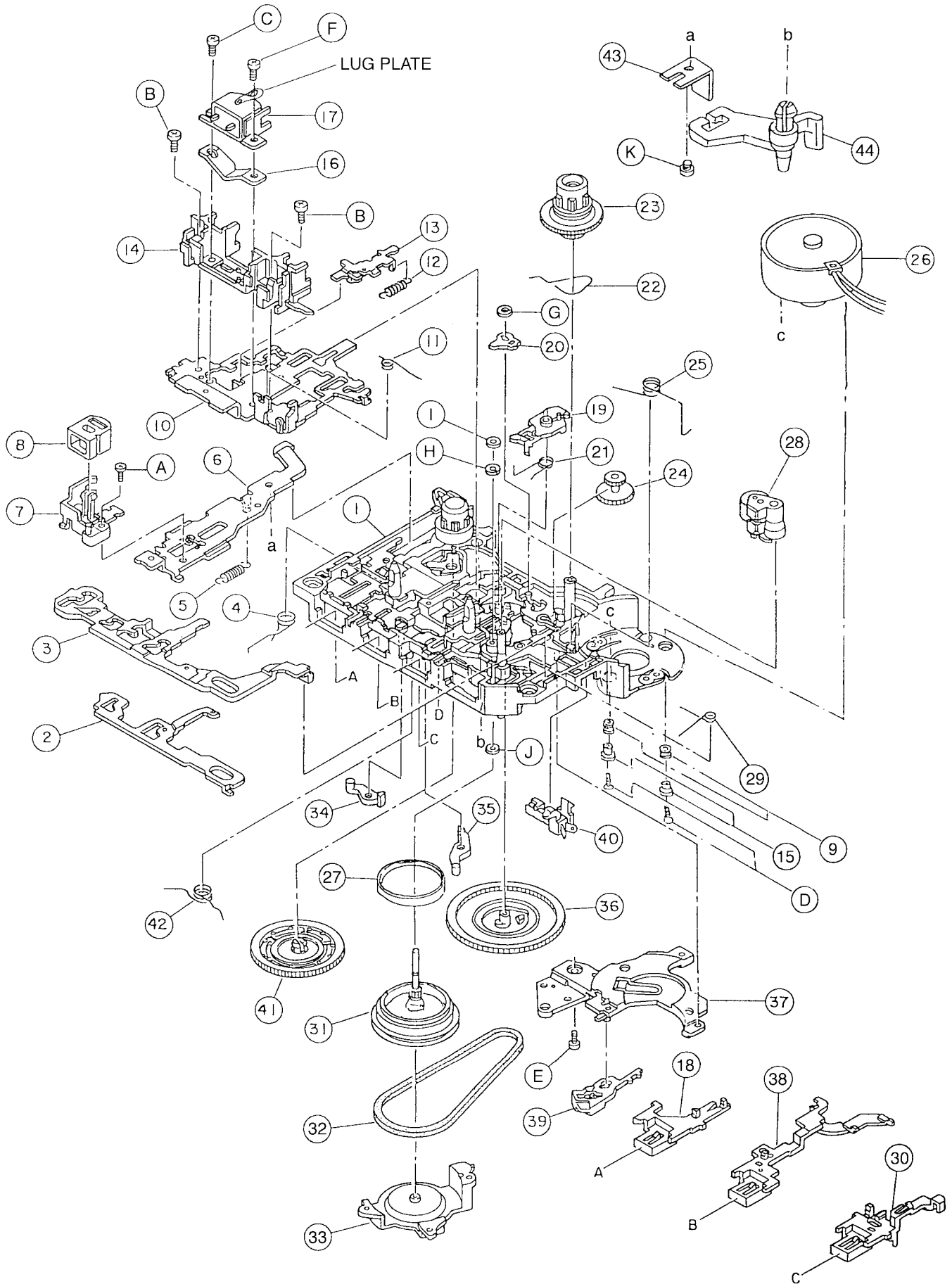
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REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8Z-HT5-004-010		GRILLE,SPEAKER	26	8Z-HT7-203-010		LEVER,PAUSE
2	8Z-HT5-003-010		RING,SPEAKER	27	8Z-HT4-201-010		BAT-CONTACT, (-)
3	87-A91-158-110		SPKR,DIA 50 4OHM 1.0W K050NA50	28	8Z-HT7-205-010		BAT-CONTACT, (+)
4	8Z-HT5-005-010		WINDOW,CASS	29	8Z-HT7-007-010		LID,BATT
5	8Z-HT5-001-010		LID CASS	30	8Z-HT5-002-010		CABI,REAR
6	8Z-HT5-010-010		LENS,BATT/LL INDI	31	8Z-HT5-012-010		KNOB,SL LL 45/10
7	8Z-HT5-007-010		GRILLE,MIC	32	8Z-HT5-011-010		KNOB,SL LL ON/OFF
8	8Z-HT5-006-010		PANEL,MIC	33	8Z-HT7-012-010		FOOT,RUBBER
9	8Z-HT5-201-010		HLDL,MIC	34	8Z-HT7-008-010		KNOB,SL PAUSE
10	82-TP3-609-010		ECM	35	8Z-HT5-013-010		KNOB,SL NFR/V
11	8Z-HT5-009-010		LENS,LL INDI	36	87-HT8-210-010		BELT,COUNTER
12	8Z-HT5-020-010		CAP, LL BTN REC	37	87-HT8-209-010		SPR-E,REC SAFETY
13	8Z-HT5-202-010		BASE,LL BTN	38	8Z-HT5-021-010		CAP, LL BTN PLAY
14	87-HT8-203-010		SPR-P,CASS	A	87-HT8-211-010		VT2+2-18 S-SCREW BLK
15	87-HT8-208-010		SPR-T,LID CASS	B	87-067-769-010		VT2+1.7-8(3) BLK
16	8Z-HT5-014-010		FRAME CENTER	C	87-067-271-010		SCREW VFT2+1.7-4
17	87-040-196-010		COUNTER	D	87-354-529-310		VT2+1.7-4
18	87-HT8-202-010		HLDL,COUNTER	E	87-351-508-310		VT2+1.4-3.5 BLK
19	8Z-HT5-022-010		CAP,LL BTN REC/PLAY				
20	87-HT8-205-010		LEVER,REC SAFETY				
21	8Z-HT6-010-010		BTN,PLAY				
22	8Z-HT6-012-010		BTN,FF				
23	8Z-HT6-013-010		BTN,REW				
24	8Z-HT6-014-010		BTN,STOP				
25	8Z-HT6-011-010		BTN,REC				

COLOR NAME TABLE

Basic color symbol	Color	Basic color symbol	Color	Basic color symbol	Color
B	Black	C	Cream	D	Orange
G	Green	H	Gray	L	Blue
LT	Transparent Blue	N	Gold	P	Pink
R	Red	S	Silver	ST	Titan Silver
T	Brown	V	Violet	W	White
WT	Transparent White	Y	Yellow	YT	Transparent Yellow
LM	Metallic Blue	LL	Light Blue	GT	Transparent Green
LD	Dark Blue	DT	Transparent Orange		

TAPE MECHANISM EXPLODED VIEW 1/1



TAPE MECHANISM PARTS LIST 1/1

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REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	S1-909-013-040		CHASSIS ASSY	31	S1-909-053-040		FLYWHEEL ASSY
2	S1-909-020-190		FR PLATE	32	S1-909-080-100		MAIN BELT
3	S1-909-020-090		LOCK PLATE	33	S1-909-050-100		FL BRACKET
4	S1-909-020-140		STOP SPRING	34	S1-909-020-150		R/C LEVER(R)
5	S1-909-120-030		REC LEVER SPRING	35	S1-909-020-160		R/C LEVER(F)
6	S1-909-120-070		REC LEVER	36	S1-909-060-120		CAM GEAR
7	S1-909-120-020		MG GUIDE	37	S1-909-020-170		R/C BRACKET
8	S6-207-100-020		HEAD E TC-230AN(SL)	38	S1-909-020-110		RWD LEVER
9	S1-852-140-020		M LUBBER	39	S1-909-020-180		FF STOPPER
10	S1-909-030-050		HEAD PANEL	40	S6-401-011-630		LEAF SW MSW-1541TA
11	S1-909-040-020		P/R SPRING	41	S1-909-077-010		RWD GEAR
12	S1-909-030-080		R/C SPRING	42	S1-909-020-130		FR SPRING
13	S1-909-030-070		R/C PLATE	43	S1-909-120-090		REC SPRING PLATE
14	S1-909-030-060		TAPE GUIDE	44	S1-909-120-100		REC SW LEVER
15	S1-852-140-030		M COLLOR	A	S9-C01-174-030		CAMERA 1.7-4
16	S1-944-030-020		HEAD SPRING PLATE	B	S9-C01-173-530		CAMERA 1.7-3.5
17	S6-202-030-410		RP HEAD MS15R-BA2N1	C	S9-P14-203-310		+/- SCREW M2-3.3
18	S1-909-020-100		STOP LEVER	D	S9-C18-300-100		CAMERA 1.7-3
19	S1-909-110-040		AUTO LEVER	E	S9-P08-173-410		PST 1.7-3.4
20	S1-909-110-020		A PUSH ARM	F	S9-P14-206-320		+/- SCREW M2-3.6
21	S1-909-110-050		M CONTROL SPRING	G	S9-W02-300-100		P WASHER CUT 1.2-3.8-0.3
22	S1-909-060-150		SENSOR SPRING C	H	S9-W08-350-200		LUMILER WASHER CUT 0.98-3-0.3
23	S1-909-063-030		T REEL ASSY	I	S9-W05-200-600		HL WASHER 1.16-3-0.2
24	S1-909-060-130		TAKE UP GEAR	J	S9-W05-200-100		HL WASHER 1.55-3-0.13
25	S1-909-030-090		HP SPRING	K	S9-C16-171-410		CAMERA 1.7-1.4
26	S1-909-083-050		MOTOR ASSY				
27	S1-909-050-130		BRAKE BELT				
28	S1-909-043-020		PINCH ROLLER ASSY				
29	S1-909-020-200		FR PLATE SPRING				
30	S1-909-020-120		FF LEVER				



サービス技術ニュース	
番号	連絡内容
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