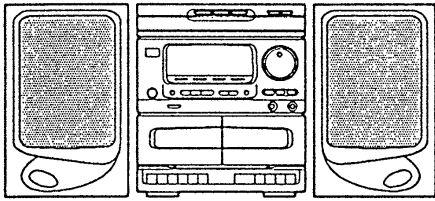


aiwa



NSX-V20



COMPACT DISC /
STEREO CASSETTE RECEIVER

- BASIC TAPE MECHANISM: TN-21ZSW-1370(U)
TN-591SW-103(EXCEPT U)
- BASIC CD MECHANISM: 4ZG1-FR
- TYPE: U, LH, HE, HR, EE, K, EZ

REVISION PUBLISHING

- This Service Manual is the "Revision Publishing" and replaces "Simple Manual":
(S/M Code No. 09-94B-086-00T).
- If requiring information about the mechanism, see Service Manual of 4ZG1,
S/M Code No. 09-946-056-10T.

SYSTEM	CD- CASSEIVER	REMOTE CONTROLLER	SPEAKERS
NSX-V20	CX-NV20	RC-TN340	SX-NV20

MANUAL
SERVICE

SPECIFICATIONS (U)

<FM section>

Frequency range	87.5 MHz to 108 MHz
Usable sensitivity (IHF)	1.3 μ V (75 ohms) 13.2 dBf
Alternate channel selectivity	50 dB (\pm 400 kHz)
Signal-to-noise ratio	STEREO: 70 dB MONO: 76 dB
Harmonic distortion	0.3 % (MONO), 1 kHz 0.5 % (STEREO, L-R), 1 kHz
Frequency response	30 Hz to 15 kHz (+0.5 dB, -3 dB)
Stereo separation	33 dB at 1 kHz
Antenna	75 ohms (unbalanced)

<AM section>

Frequency range	530 (531) kHz to 1710 (1602) kHz
Usable sensitivity	350 μ V/m
Selectivity	22 dB (10 kHz)
Signal-to-noise ratio	53 dB (100 dB input)
Antenna	Loop antenna

<Timer section>

Program timer	On-timer, capable of free setting
Sleep timer	Capable of setting in 10-minute increments, 240 minutes maximum

<Amplifier section>

Power output	FTC RULE 16 watts per channel, Min. RMS at 6 ohms, from 65 Hz to 15 kHz, with no more than 1 % Total Harmonic Distortion
Harmonic distortion	0.05 % (10 W, 1 kHz, 6 ohms)
Input sensitivity	VIDEO/AUX: 400 mV

<Cassette deck section>

Track format	4 tracks, 2 channels
Frequency response	Normal tape: 50 - 15000 Hz
Tape speed	4.8 cm/sec. (1 $\frac{7}{8}$ ips)
Recording system	AC bias
Erase system	AC erase
Motor	DC servomotor \times 1
Heads	Playback head \times 1 (deck 2) Recording/playback \times 1 (deck 1) Erase head \times 1 (deck 1)

<CD player section>

Disc	Compact disc
Scanning method	Non-contact optical scanner (semiconductor laser application)
Laser	Semiconductor laser ($\lambda = 780$ nm)
Rotation speed	Approx. 500 rpm - 200 rpm (CLV)
Error correction	Cross Interleave, Reed Solomon code
No. of channels	2 channels
D-A converter	1 bit dual
Wow/flutter	Unmeasurable
Signal-to-noise ratio	90 dB (1 kHz, 0 dB)
Harmonic distortion	0.05 % (1 kHz, 0 dB)

SPEAKER SYSTEM SX-NV20

(These values are for one speaker.)

Cabinet type	3 way, bass reflex (magnetism sealed type)
Speaker	130 mm (5 $\frac{1}{8}$ in.) cone type woofer 50 mm (2 in.) cone type tweeter 20 mm (1 $\frac{3}{16}$ in.) ceramic type super tweeter
Impedance	6 ohms
Music power	40 W
Output sound pressure level	87 dB/W/m
Dimensions (W \times H \times D)	220 \times 302 \times 220 mm (8 $\frac{3}{4}$ \times 12 \times 8 $\frac{3}{4}$ in.)
Weight	2.8 kg (6.2 lb.)

COMMON SECTION

Power requirements	AC 120 V, 60 Hz
Power consumption	55 W
Dimensions (W \times H \times D)	Main unit: 700 \times 305 \times 340 mm (27 $\frac{5}{8}$ \times 12 $\frac{1}{8}$ \times 13 $\frac{1}{2}$ in.) System: 620 \times 305 \times 340 mm (24 $\frac{1}{2}$ \times 12 $\frac{1}{8}$ \times 13 $\frac{1}{2}$ in.)
Weight	Main unit: 6 kg (13.2 lb.) System: 11.2 kg (24.64 lb.)

• Design and specifications are subject to change without notice.

SPECIFICATIONS (LH)

<FM section>

Frequency range	87.5 MHz to 108 MHz
Usable sensitivity (IHF)	1.3 μ V (75 ohms) 13.2 dBf
Alternate channel selectivity	50 dB (\pm 400 kHz)
Signal-to-noise ratio	STEREO: 70 dB MONO: 76 dB
Harmonic distortion	0.3 % (MONO), 1 kHz 0.5 % (STEREO, L-R), 1 kHz
Frequency response	30 Hz to 15 kHz (+0.5 dB, -3 dB)
Stereo separation	33 dB at 1 kHz
Antenna	75 ohms (unbalanced)

<AM section>

Frequency range	530 (531) kHz to 1710 (1602) kHz
Usable sensitivity	350 μ V/m
Selectivity	22 dB (10 kHz)
Signal-to-noise ratio	53 dB (100 dB input)
Antenna	Loop antenna

<Timer section>

Program timer	On-timer, capable of free setting
Sleep timer	Capable of setting in 10-minute increments, 240 minutes maximum

<Amplifier section>

Power output	20 W + 20 W (6 ohms, T.H.D. 10% 1 kHz)
Harmonic distortion	0.05% (10 W, 1 kHz, 6 ohms)
Input sensitivity	VIDEO/AUX: 400 mV

<Cassette deck section>

Track format	4 tracks, 2 channels
Frequency response	Normal tape: 50 - 15000 Hz
Tape speed	4.8 cm/sec. (1 ⁷ / ₈ ips)
Recording system	AC bias
Erasure system	AC erase
Motor	DC servomotor \times 1
Heads	Playback head \times 1 (deck 2) Recording/playback \times 1 (deck 1) Erasure head \times 1 (deck 1)

<CD player section>

Disc	Compact disc
Scanning method	Non-contact optical scanner (semiconductor laser application)
Laser	Semiconductor laser ($\lambda = 780$ nm)
Rotation speed	Approx. 500 rpm - 200 rpm (CLV)
Error correction	Cross Interleave, Reed Solomon code
No. of channels	2 channels
D-A converter	1 bit dual
Wow/flutter	Unmeasurable
Signal-to-noise ratio	90 dB (1 kHz, 0 dB)
Harmonic distortion	0.05% (1 kHz, 0 dB)

SPEAKER SYSTEM SX-NV20

(These values are for one speaker.)

Cabinet type	3 way, bass reflex (magnetism sealed type)
Speaker	130 mm (5 ¹ / ₈ in.) cone type woofer 50 mm (2 in.) cone type tweeter 20 mm (1 ³ / ₁₆ in.) ceramic type super tweeter
Impedance	6 ohms
Music power	40 W
Output sound pressure level	87 dB/W/m
Dimensions (W \times H \times D)	220 \times 302 \times 220 mm (8 ³ / ₄ \times 12 \times 8 ³ / ₄ in.)
Weight	2.8 kg (6.2 lb.)

COMMON SECTION

Power requirements	AC 120 V/220 - 240 V, switchable 50/60 Hz
Power consumption	50 W
Dimensions (W \times H \times D)	Main unit: 260 \times 305 \times 340 mm (10 ¹ / ₄ \times 12 ¹ / ₈ \times 13 ¹ / ₂ in.) System: 700 \times 305 \times 340 mm (27 ⁵ / ₈ \times 12 ¹ / ₈ \times 13 ¹ / ₂ in.)
Weight	Main unit: 6 kg (13.2 lb.) System: 11.2 kg (24.64 lb.)

- Design and specifications are subject to change without notice.

SPECIFICATIONS (HE, HR)

<FM section>

Frequency range	87.5 MHz to 108 MHz
Usable sensitivity(IHF)	1.3 μ V (75 ohms) 13.2 dBf
Alternate channel selectivity	50 dB (\pm 400 kHz)
Signal-to-noise ratio	STEREO: 70 dB MONO: 76 dB
Harmonic distortion	0.3% (MONO), 1 kHz 0.5% (STEREO, L-R), 1 kHz
Frequency response	30 Hz to 15 kHz (+ 0.5 dB, -3 dB)
Stereo separation	33 dB at 1 kHz
Antenna	75 ohms (unbalanced)

<AM section>

Frequency range	531 (530) kHz to 1602 (1710) kHz
Usable sensitivity	350 μ V/m
Selectivity	22 dB (9 kHz)
Signal-to-noise-ratio	53 dB (100 dB input)
Antenna	Loop antenna

<Timer section>

Program timer	On-timer, capable of free setting
Sleep timer	Capable of setting in 10-minute increments, 240 minutes maximum

<Amplifier section>

Power output	20 W + 20 W (6 ohms, T.H.D. 10% 1 kHz)
Harmonic distortion	0.05% (10 W, 1 kHz, 6 ohms)
Input sensitivity	VIDEO/AUX: 400 mV

<Cassette deck section>

Track format	4 tracks, 2 channels
Frequency response	Normal tape: 50-15000 Hz
Tape speed	4.8 cm/sec.(1 7/8 ips)
Recording system	AC bias
Erasure system	AC erase
Motor	DC servomotor \times 1
Heads	Playback head \times 1 (deck 2) Recording/playback \times 1 (deck 1) Erasure head \times 1 (deck 1)

<CD player section>

Disc	Compact disc
Scanning method	Non-contact optical scanner (semiconductor laser application)
Laser	Semiconductor laser (λ = 780 nm)
Rotation speed	Approx. 500 rpm-200 rpm (CLV)
Error correction	Cross Interleave, Reed Solomon code
No. of channels	2 channels
D-A converter	1 bit dual
Wow/flutter	Unmeasurable
Signal-to-noise ratio	90 dB (1 kHz, 0 dB)
Harmonic distortion	0.05% (1 kHz, 0 dB)

SPEAKER SYSTEM SX-NV20

(These values are for one speaker.)

Cabinet type	3 way, bass reflex (magnetism sealed type)
Speaker	130 mm (5 1/8 in.) cone type woofer 50 mm (2 in.) cone type tweeter 20 mm (13/16 in.) ceramic type super tweeter
Impedance	6 ohms
Music power	40 W
Output sound pressure level	87 dB/W/m
Dimensions(W \times H \times D)	220 \times 302 \times 220 mm (8 3/4 \times 12 \times 8 3/4 in.)
Weight	2.8 kg (6.2 lb.)

COMMON SECTION

Power requirements	CX-NV20 HE: AC 120 V/220-240 V, switchable 50/60 Hz CX-NV20 HR: AC 120V/230-240V, switchable 50/60 Hz
Power consumption	CX-NV20 HE: 50 W CX-NV20 HR: 65 W
Dimensions(W \times H \times D)	Main unit: 260 \times 305 \times 340 mm (10 1/4 \times 12 1/8 \times 13 1/2 in.) System: 700 \times 305 \times 340 mm (27 5/8 \times 12 1/8 \times 13 1/2 in.)
Weight	Main unit: 6 kg (13.2 lb.) System: 11.2 kg (24.64 lb.)

•Design and specifications are subject to change without notice.

SPECIFICATIONS (EE, K, EZ)

<FM section>

Frequency range	87.5 MHz to 108 MHz
Usable sensitivity (IHF)	1.3 μ V (75 ohms) 13.2 dBf
Alternate channel selectivity	50 dB (\pm 400 kHz)
Signal-to-noise ratio	STEREO: 70 dB MONO: 76 dB
Harmonic distortion	0.3 % (MONO), 1 kHz 0.5 % (STEREO, L-R), 1 kHz
Frequency response	30 Hz to 15 kHz (+0.5 dB, -3 dB)
Stereo separation	33 dB at 1 kHz
Antenna	75 ohms (unbalanced)

<MW section>

Frequency range	531 (530) kHz to 1602 (1710) kHz
Usable sensitivity	350 μ V/m
Selectivity	22 dB (9 kHz)
Signal-to-noise ratio	53 dB (100 dB input)
Antenna	Loop antenna

<LW section >

Frequency range	144 kHz to 290 kHz
Sensitivity	1400 μ V/m
Antenna	Loop antenna

<Timer section>

Program timer	On-timer, capable of free setting
Sleep timer	Capable of setting in 10-minute increments, 240 minutes maximum

<Amplifier section>

Power output	CX-NV20 EE, EZ, K: 20 W + 20 W (6 ohms, T.H.D. 10 %, 1 kHz) 16 W + 16 W (6 ohms, T.H.D. 1 %, 1 kHz)
Harmonic distortion	0.05 % (10 W, 1 kHz, 6 ohms)
Input sensitivity	VIDEO/AUX: 400 mV

<Cassette deck section>

Track format	4 tracks, 2 channels
Frequency response	Normal tape: 50 - 15000 Hz
Tape speed	4.8 cm/sec. (1 $\frac{7}{8}$ ips)
Recording system	AC bias
Erasure system	AC erase
Motor	DC servomotor \times 1
Heads	Playback head \times 1 (deck 2) Recording/playback \times 1 (deck 1) Erasure head \times 1 (deck 1)

<CD player section>

Disc	Compact disc
Scanning method	Non-contact optical scanner (semiconductor laser application)
Laser	Semiconductor laser ($\lambda = 780$ nm)
Rotation speed	Approx. 500 rpm - 200 rpm (CLV)
Error correction	Cross Interleave, Reed Solomon code
No. of channels	2 channels
D-A converter	1 bit dual
Wow/flutter	Unmeasurable
Signal-to-noise ratio	90 dB (1 kHz, 0 dB)
Harmonic distortion	0.05% (1 kHz, 0 dB)

SPEAKER SYSTEM SX-NV20

(These values are for one speaker.)

Cabinet type	3 way, bass reflex (magnetism sealed type)
Speaker	130 mm (5 $\frac{1}{8}$ in.) cone type woofer 50 mm (2 in.) cone type tweeter 20 mm (1 $\frac{3}{16}$ in.) ceramic type super tweeter
Impedance	6 ohms
Music power	40 W
Output sound pressure level	87 dB/W/m
Dimensions (W \times H \times D)	SX-NV20: 220 \times 302 \times 220 mm (8 $\frac{3}{4}$ \times 12 \times 8 $\frac{3}{4}$ in.) SX-NV20: 2.8 kg (6.2 lbs.)
Weight	

COMMON SECTION

Power requirements	CX-NV20 EE, EZ: AC 230 V, 50 Hz CX-NV20 K: AC 230 V - 240 V, 50 Hz
Power consumption	CX-NV20 EE, EZ, K: 110 W
Dimensions (W \times H \times D)	Main unit: 260 \times 305 \times 340 mm (10 $\frac{1}{4}$ \times 12 $\frac{1}{8}$ \times 13 $\frac{1}{2}$ in.) System: NSX-V20: 700 \times 305 \times 340 mm (27 $\frac{5}{8}$ \times 12 $\frac{1}{8}$ \times 13 $\frac{1}{2}$ in.) Main unit: 6 kg (13.2 lb.) System: NSX-V20: 11.6 kg (25.52 lb.)
Weight	

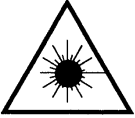
- Design and specifications are subject to change without notice.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.



- Caution: Invisible laser radiation when open and interlocks defeated avoid exposure to beam.
- Advarsel: Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

VAROITUS!

Laiteen Käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

WARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvisning, kan användaren utsättas för osynlig laserstråling, som överskrider gränsen för laserklass 1.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

ATTENTION

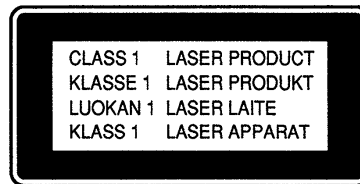
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

ADVARSEL!

Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

This Compact Disc player is classified as a CLASS 1 LASER product.

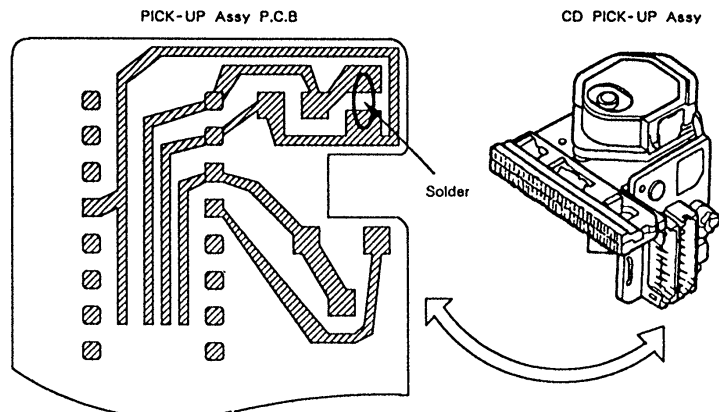
The CLASS 1 LASER PRODUCT label is located on the rear exterior.



Precaution to replace Optical block (KSS – 210A)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure to ground body and workbench, and use care the clothes do not touch the diode.

- 1) After the connection, remove the solder shown in the right figure.



ELECTRICAL MAIN PARTS 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.	カテゴリ NO.	DESCRIPTION	REF. NO	PART NO.	カテゴリ NO.	DESCRIPTION
IC							
	82-NF7-641-010	IC	UPD78044GF-103	C113	87-010-403-089	CAP, E 3.3-50 SME	
	87-017-373-019	IC	NJH32H380A	C115	87-018-209-089	CAP, TC-U 0.1-50 F	
	87-020-899-019	IC	STK4122-MK2	C116	87-018-127-089	CAP, TC-U 470P-50 B	
	87-020-758-019	IC	NJM 2068 SD	C118	87-018-209-089	CAP, TC-U 0.1-50 F	
	87-002-727-019	IC	NJM4558L	C213	87-010-401-089	CAP, E 1-50 SME(U)	
	87-017-804-019	IC	BU4052BCP	C213	87-010-404-089	CAP, E 4.7-50 SME(EXCEPT U)	
	87-017-374-019	IC	TC4094BP	C214	87-010-401-089	CAP, E 1-50 SME(U)	
	87-017-698-080	IC	M65843FP(HE, HR)	C214	87-010-404-089	CAP, E 4.7-50 SME(EXCEPT U)	
	87-002-607-019	IC	LM7001	C215	87-018-128-089	CAP, TC-U 560P-50 B	
	87-017-434-019	IC	KIA6043S	C216	87-018-128-089	CAP, TC-U 560P-50 B	
	87-001-942-019	IC	LA1265S(G)	C217	87-010-546-089	CAP, E 0.33-50 SME	
				C218	87-010-546-089	CAP, E 0.33-50 SME	
				C219	87-010-263-089	CAP, E 100-10(EXCEPT U)	
				C220	87-010-263-089	CAP, E 100-10(EXCEPT U)	
				C221	87-010-401-089	CAP, E 1-50 SME(U)	
TRANSISTOR							
	89-213-702-019	TR	2SB1370E	C221	87-010-402-089	CAP, E 2.2-50 SME(EXCEPT U)	
	89-113-187-089	TR	2SA1318TU	C222	87-010-401-089	CAP, E 1-50 SME(U)	
	89-332-665-089	TR	2SC3266GR(EXCEPT U)	C222	87-010-402-089	CAP, E 2.2-50 SME(EXCEPT U)	
	89-318-155-089	TR	2SC1815GR	C223	87-010-263-089	CAP, E 100-10 SME 5X11(U)	
	87-026-462-089	TR	2SC1740S(RS)	C223	87-010-374-089	CAP, E 47-10(EXCEPT U)	
	89-420-053-089	TR	2SD2005R(U)	C224	87-010-263-089	CAP, E 100-10 SME 5X11(U)	
	89-406-555-089	TR	2SD655E	C224	87-010-374-089	CAP, E 47-10(EXCEPT U)	
	87-026-286-089	TR	DTA143ES	C225	87-010-260-089	CAP, E 47-25 SME	
	87-026-218-089	TR	DTC144ES	C226	87-010-260-089	CAP, E 47-25 SME	
	87-026-292-089	TR	DTA144WS	C236	87-010-408-089	CAP, E 47-50 SME	
	89-502-466-089	TR	FET 2SK246-BL(TPE2)	C237	87-018-134-089	CAP, TC-U 0.01-16 Y(K, EE, EZ)	
	87-026-463-089	TR	2SA933S(RS)	C238	87-018-134-089	CAP, TC-U 0.01-16 Y(K, EE, EZ)	
	87-026-572-089	TR	DTA114TS	C243	87-018-104-089	CAP, TC-U 10P-50 SL	
	89-110-155-089	TR	2SA1015GR	C244	87-018-104-089	CAP, TC-U 10P-50 SL	
	89-333-317-089	TR	2SC3331T	C250	87-010-404-089	CAP, E 4.7-50 SME	
	89-109-705-089	TR	2SA970GR(K, EE, EZ)	C251	87-018-134-089	CAP, TC-U 0.01-16 Y(K, EE, EZ)	
	87-026-289-089	TR	DTC143XS(TP)	C303	87-018-131-089	CAP, TC-U 1000P-50 B(U)	
	89-502-464-089	FET	2SK246Y	C303	87-018-127-089	CAP, TC-U 470P-50 B(EXCEPT U)	
	89-318-154-089	TR	2SC1815Y	C304	87-018-131-089	CAP, TC-U 1000P-50 B(U)	
	87-026-214-089	TR	DTA114YS	C304	87-018-127-089	CAP, TC-U 470P-50 B(EXCEPT U)	
	89-319-233-089	TR	2SC1923(O)	C310	87-018-134-089	CAP, TC-U 0.01-16 Y	
	89-502-415-089	FET	2SK241GR	C313	87-018-205-089	CAP, TC-U 0.022-25 F	
	89-501-615-089	FET	2SK161GR	C351	87-018-121-089	CAP, TC-U 150P-50 B	
	89-320-011-089	TR	2SC2001K(K, EE, EZ)	C352	87-018-121-089	CAP, TC-U 150P-50 B	
				C353	87-018-125-089	CAP, TC-U 330P-50 B	
DIODE							
	87-002-225-019	DIODE	DBF 40C-K10	C354	87-018-125-089	CAP, TC-U 330P-50 B	
	87-017-978-089	DIODE	1N4003(HE, LH)	C355	87-010-260-089	CAP, E 47-25 SME	
	87-017-430-090	DIODE	RK14(HR, K, EE, EZ)	C361	87-018-134-089	CAP, TC-U 0.01-16 Y	
	87-017-430-010	DIODE	RK14(K, EE, EZ)	C362	87-018-134-089	CAP, TC-U 0.01-16 Y	
	87-001-574-089	DIODE	1SR139-200 T31	C365	87-018-205-089	CAP, TC-U 0.022-25 F	
	87-020-691-089	DIODE	1SS132 T-72	C366	87-018-134-089	CAP, TC-U 0.01-16 Y	
	87-020-465-089	DIODE	1SS133	C401	87-010-402-089	CAP, E 2.2-50 SME	
	87-017-173-089	ZENER	HZS11A2L	C402	87-010-402-089	CAP, E 2.2-50 SME	
	87-017-144-089	ZENER	HZS242	C403	87-018-132-089	CAP, TC-U 2200P-16 X	
	87-001-731-089	ZENER	HZS6C2L	C404	87-018-132-089	CAP, TC-U 2200P-16 X	
	87-017-091-089	ZENER	HZS5C1	C407	87-010-401-089	CAP, E 1-50 SME	
	87-001-290-089	ZENER	HZS6B1L	C408	87-010-401-089	CAP, E 1-50 SME	
	87-001-913-089	ZENER	UTZJ5.6B	C421	87-018-130-089	CAP, TC-U 820P-50 B	
				C422	87-018-130-089	CAP, TC-U 820P-50 B	
				C451	87-018-126-089	CAP, TC-U 390P-50 B	
				C452	87-018-126-089	CAP, TC-U 390P-50 B	
				C453	87-018-131-089	CAP, TC-U 1000P-50 B	
				C455	87-018-131-089	CAP, TC-U 1000P-50 B(K, EE, EZ)	
				C456	87-010-385-089	CAP, E 220-25 SME	
				C501	87-010-401-089	CAP, E 1-50 SME	
MAIN C.B							
BPF731	82-794-697-019	FILTER	ANT BIRDIE(K, EE, EZ)	C502	87-010-401-089	CAP, E 1-50 SME	
C101	87-010-398-099	CAP	E 2200-35V	C503	87-018-195-089	CAP, TC-U 1200P-16 X	
C102	87-010-399-099	CAP	E 3300-35 SME	C504	87-018-195-089	CAP, TC-U 1200P-16 X	
C104	87-010-980-089	CAP	E 330-16 FS	C505	87-010-546-089	CAP, E 0.33-50 SME	
C105	87-010-101-089	CAP	E 220-16 SME	C506	87-010-546-089	CAP, E 0.33-50 SME	
C106	87-010-247-089	CAP	E 100-50 SME	C507	87-018-196-089	CAP, TC-U 1500P-16 X(EXCEPT U)	
C107	87-010-384-089	CAP	E 100-25 SME	C507	87-018-130-089	CAP, TC-U 820P-50 B(U)	
C108	87-010-384-089	CAP	E 100-25 SME	C508	87-018-196-089	CAP, TC-U 1500P-16 X(EXCEPT U)	
C109	87-010-263-089	CAP	E 100-10 SME 5X11	C508	87-018-130-089	CAP, TC-U 820P-50 B(U)	
C110	87-010-263-089	CAP	E 100-10 SME 5X11	C509	87-010-371-089	CAP, E 470-6.3	
C112	87-010-260-089	CAP	E 47-25 SME				

REF. NO	PART NO.	カナリ NO.	DESCRIPTION	REF. NO	PART NO.	カナリ NO.	DESCRIPTION
C517	87-018-104-089		CAP, TC-U 10P-50 SL	C820	87-018-209-089		CAP, TC-U 0.1-50 F(U, HE, HR, LH)
C518	87-018-104-089		CAP, TC-U 10P-50 SL	C821	87-018-134-089		CAP, TC-U 0.01-16 Y
C590	87-018-209-089		CAP, TC-U 0.1-50 F	C822	87-018-103-089		CAP, TC-U 8.2P-50 SL
C592	87-010-404-089		CAP, E 4.7-50 SME	C823	87-018-107-089		CAP, TC-U 18P-50 SL
C593	87-010-404-089		CAP, E 4.7-50 SME	C826	87-018-134-089		CAP, TC-U 0.01-16 Y(K, EE, EZ)
C594	87-010-404-089		CAP, E 4.7-50 SME	C830	87-018-134-089		CAP, TC-U 0.01-16 Y(K, EE, EZ)
C595	87-010-112-089		CAP, E 100-16	C831	87-018-105-089		CAP, TC-U 12P-50 SL(K, EE, EZ)
C628	87-010-260-089		CAP, E 47-25 SME	C831	87-018-102-089		CAP, TC-U 6.8P-50 SL(U, HE, HR, LH)
C636	87-010-404-089		CAP, E 4.7-50 SME	C832	87-018-108-089		CAP, TC-U 20P-50 SL(K, EE, EZ)
C700	87-010-221-089		CAP, E 470-10	C833	87-018-209-089		CAP, TC-U 0.1-50 F(U, HE, HR, LH)
C701	87-010-384-089		CAP, E 100-25 SME	C834	87-018-103-089		CAP, TC-U 8.2P-50 SL(K, EE, EZ)
C702	87-010-404-089		CAP, E 4.7-50 SME	C839	87-018-134-089		CAP, TC-U 0.01-16 Y
C703	87-018-134-089		CAP, TC-U 0.01-16 Y	C847	87-018-134-089		CAP, TC-U 0.01-16 Y
C705	87-010-248-089		CAP, E 220-10 SME	C848	87-018-113-089		CAP, TC-U 33P-50 SL(K, EE, EZ)
C706	87-018-134-089		CAP, TC-U 0.01-16 Y	C849	87-018-134-089		CAP, TC-U 0.01-16 Y(K, EE, EZ)
C707	87-018-134-089		CAP, TC-U 0.01-16 Y	C852	87-018-209-089		CAP, TC-U 0.1-50 F
C708	87-018-134-089		CAP, TC-U 0.01-16 Y	C941	87-018-134-089		CAP, TC-U 0.01-16 Y(K, EE, EZ)
C710	87-018-149-089		CAP, TC-U 15P-50 CH	C942	87-018-105-089		CAP, TC-U 12P-50 SL(K, EE, EZ)
C715	87-018-195-089		CAP, TC-U 1200P-16 X	C944	87-018-104-089		CAP, TC-U 10P-50 SL(K, EE, EZ)
C716	87-018-195-089		CAP, TC-U 1200P-16 X	C944	87-018-105-089		CAP, TC-U 12P-50 SL(U, HE, HR, LH)
C720	87-018-121-089		CAP, TC-U 150P-50 B	C945	87-014-050-089		CAP, PP 510P-100 J(K, EE, EZ)
C721	87-010-401-089		CAP, E 1-50 SME	C946	87-010-401-089		CAP, E 1-50 SME
C722	87-010-401-089		CAP, E 1-50 SME	C949	87-018-209-089		CAP, TC-U 0.1-50 F(K, EE, EZ)
C723	87-010-405-089		CAP, E 10-50 SME	C983	87-010-544-089		CAP, E 0.1-50
C724	87-014-057-089		CAP, PP 1000P-100 J	C990	87-018-134-089		CAP, TC-U 0.01-16 Y
C725	87-010-401-089		CAP, E 1-50 SME	CF741	82-794-670-019		BFU, 450C4N
C726	87-010-403-089		CAP, E 3.3-50 SME	CF801	87-008-264-010		FLTR, SFE 10.7MS2-A(K, EE, EZ)
C727	87-010-248-089		CAP, E 220-10 SME	CF801	87-008-261-019		FLTR, SFE10.7MA5-A(U, HE, HR, LH)
C728	87-010-402-089		CAP, E 2.2-50 SME(K, EE, EZ)	CF802	87-008-261-019		FLTR, SFE10.7MA5-A
C729	87-010-402-089		CAP, E 2.2-50 SME(K, EE, EZ)	CF803	87-008-261-019		FLTR, SFE10.7MA5-A(K, EE, EZ)
C731	87-018-134-089		CAP, TC-U 0.01-16 Y	CF831	87-030-105-019		FLTR, BPMB6A(K, EE, EZ)
C732	87-018-134-089		CAP, TC-U 0.01-16 Y	D801	87-027-900-019		VARI-CAP, 1SV147
C733	87-018-205-089		CAP, TC-U 0.022-25 F(K, EE, EZ)	D802	87-027-900-019		VARI-CAP, 1SV147
C741	87-010-402-089		CAP, E 2.2-50 SME	D803	87-027-900-019		VARI-CAP, 1SV147
C742	87-018-125-089		CAP, TC-U 330P-50 B(U, HE, HR, LH)	D804	87-027-900-019		VARI-CAP, 1SV147(K, EE)
C742	87-018-126-089		CAP, TC-U 390P-50 B(K, EE, EZ)	D804	87-027-900-019		VARI-CAP, 1SV147(K, EE, EZ)
C743	87-010-382-089		CAP, E 22-25 SME	ICP1	87-001-486-019		IC, ICP-N15(U)
C744	87-018-134-089		CAP, TC-U 0.01-16 Y	J250	87-049-855-019		JACK, 6.3 W/S
C745	87-018-134-089		CAP, TC-U 0.01-16 Y	J253	87-009-621-019		JACK, PIN 1P BLK
C746	87-010-401-089		CAP, E 1-50 SME	J254	87-033-226-019		TERMINAL, SP 4P (JT) (U, HE, HR, LH)
C748	87-010-404-089		CAP, E 4.7-50 SME	J254	87-033-227-019		TERMINAL, SP 4P R (Z) (K, EE, EZ)
C749	87-010-405-089		CAP, E 10-50 SME	J652	87-099-491-019		JACK, PIN 2P
C750	87-010-544-089		CAP, E 0.1-50	J801	81-631-646-019		ANT TERM 2P PAL(K, EE, EZ)
C751	87-010-403-089		CAP, E 3.3-50 SME	J801	82-NF5-621-019		ANT TERM JBT 0222(U, HE, HR, LH)
C752	87-018-134-089		CAP, TC-U 0.01-16 Y	L231	87-003-383-019		COIL, 1UH-S(K, EE, EZ)
C754	87-010-260-089		CAP, E 47-25 SME	L232	87-003-383-019		COIL, 1UH-S(K, EE, EZ)
C755	87-010-401-089		CAP, E 1-50 SME	L401	87-003-131-089		COIL, 10MH J
C756	87-018-134-089		CAP, TC-U 0.01-16 Y	L402	87-003-131-089		COIL, 10MH J
C760	87-018-134-089		CAP, TC-U 0.01-16 Y(U, HE, HR, LH)	L451	87-007-300-019		COIL, OSC BIAS 85K
C802	87-018-104-089		CAP, TC-U 10P-50 SL(U, HE, HR, LH)	L741	81-631-611-019		COIL, QUAD (SINGLE)
C802	87-018-105-089		CAP, TC-U 12P-50 SL(K, EE, EZ)	L742	87-008-491-019		FLTR, PACFAZ 450
C804	87-018-102-089		CAP, TC-U 6.8P-50 SL(U, HE, HR, LH)	L801	87-006-219-019		COIL, ANT FM 3/4T, S
C805	87-018-097-089		CAP, TC-U 2.2P-50 SL(K, EE, EZ)	L802	87-006-243-010		COIL, ANT FM2-3/4TS, L
C805	87-018-098-089		CAP, TC-U 3.3P-50 SL(U, HE, HR, LH)	L803	87-006-244-019		COIL, RF FM 3-1/2T, L4
C806	87-018-096-089		CAP, TC-U 1P-50 SL	L804	87-006-246-019		COIL, RF FM 3-1/2T, L4
C807	87-018-109-089		CAP, TC-U 22P-50 SL(K, EE, EZ)	L805	87-003-098-089		COIL, 2.2UH
C807	87-018-100-089		CAP, TC-U 4.7P-50 SL(U, HE, HR, LH)	L806	87-003-145-089		COIL, 8.2UH LAL02
C808	87-018-119-089		CAP, TC-U 100P-50 B	L807	87-007-259-010		COIL, FM OSC (7K)N
C809	87-018-134-089		CAP, TC-U 0.01-16 Y	L831	87-006-245-019		COIL, RF FM4TSR, L5(K, EE, EZ)
C810	87-018-134-089		CAP, TC-U 0.01-16 Y	L832	87-003-098-089		COIL, 2.2UH
C811	87-018-116-089		CAP, TC-U 56P-50 SL	L941	87-006-208-019		COIL, ANT LW(K, EE, EZ)
C812	87-018-107-089		CAP, TC-U 18P-50 SL	L942	87-007-305-019		COIL, OSC LW S(K, EE, EZ)
C813	87-018-134-089		CAP, TC-U 0.01-16 Y	L981	81-MX4-620-019		AM PACK 3, S(U, HE, HR, LH)
C814	87-018-134-089		CAP, TC-U 0.01-16 Y	L981	81-MX4-619-010		AM PACK 4(K, EE, EZ)
C815	87-018-134-089		CAP, TC-U 0.01-16 Y	R105	87-022-050-089		RESIS, METAL 1W-0.22J
C816	87-018-134-089		CAP, TC-U 0.01-16 Y	R106	87-022-050-089		RESIS, METAL 1W-0.22J
C817	87-018-134-089		CAP, TC-U 0.01-16 Y	R243	87-022-184-089		RES, METAL 0.33-1W(EXCEPT U)
C818	87-018-209-089		CAP, TC-U 0.1-50 F	R244	87-022-184-089		RES, METAL 0.33-1W(EXCEPT U)
C819	87-018-134-089		CAP, TC-U 0.01-16 Y	SFR451	87-024-173-089		SFR, 22K DIA6 V
C820	87-010-260-089		CAP, E 47-25 SME	SFR452	87-024-173-089		SFR, 22K DIA6 V

REF. NO	PART NO.	カリ NO.	DESCRIPTION	REF. NO	PART NO.	カリ NO.	DESCRIPTION
SFR721	87-024-171-089		SFR, 4.7K DIA6 V	C625	87-010-401-049		CAP, E 1-50 SME
SFR722	87-024-174-089		SFR, 33K DIA6 V	C626	87-010-401-049		CAP, E 1-50 SME
TC701	87-011-221-089		TRIMMER, 30P VCT51	C627	87-018-205-089		CAP, TC-U 0.022-25 F
TC801	87-011-219-089		CAP, TRIMMER 10P VCT	C628	87-018-209-089		CAP, TC-U 0.1-50 F
TC802	87-011-219-089		CAP, TRIMMER 10P VCT	C631	87-018-134-089		CAP, TC-U 0.01-16 Y
TC803	87-011-219-089		CAP, TRIMMER 10P VCT (K, EE, EZ)	C632	87-018-131-019		CAP, TC-U 1000P-50 B
TC942	87-011-221-089		TRIMMER, 30P VCT51 (K, EE, EZ)	C710	87-018-209-089		CAP, TC-U 0.1-50 F (HE, HR)
W103	82-NF7-670-019		CABLE, FFC 6P-1.25	C711	87-018-134-089		CAP, TC-U 0.01-16 Y (HE, HR)
W101	83-NE2-618-019		F-CABEL, 5P-2.5	C712	87-018-132-019		CAP, TC-U 2200P-16 X (HE, HR)
X701	87-030-163-019		VIB, XTAL 7.2MHZ (NDK)	C713	87-018-209-089		CAP, TC-U 0.1-50 F (HE, HR)
FRONT C. B							
C100	87-018-209-089		CAP, TC-U 0.1-50 F	C714	87-010-234-019		CAP, E 47-16 5L (HE, HR)
C201	87-018-131-089		CAP, TC-U 1000P-50 B	C718	87-018-134-089		CAP, TC-U 0.01-16 Y (HE, HR)
C202	87-018-209-089		CAP, TC-U 0.1-50 F	C719	87-018-199-089		CAP, TC-U 3300P-16 X (HE, HR)
C203	87-010-404-049		CAP, E 4.7-50 SME	C720	87-010-401-049		CAP, E 1-50 SME (HE, HR)
C204	87-010-404-049		CAP, E 4.7-50 SME	C721	87-018-133-019		CAP, TC-U 4700P-16 X (HE, HR)
C205	87-010-263-049		CAP, E 100-10	C722	87-010-263-019		CAP, E 100-10 (HE, HR)
C206	87-010-401-049		CAP, E 1-50 SME	C723	87-018-209-089		CAP, TC-U 0.1-50 F (HE, HR)
C207	87-010-401-049		CAP, E 1-50 SME	C724	87-018-127-019		CAP, TC-U 470P-50 B (HE, HR)
C208	87-010-248-049		CAP, E 220-10 SME	C725	87-018-127-019		CAP, TC-U 470P-50 B (HE, HR)
C209	87-018-209-089		CAP, TC-U 0.1-50 F	C726	87-010-374-019		CAP, E 47-10 SME (HE, HR)
C210	87-010-405-049		CAP, E 10-50 SME	FL101	82-NF7-631-019		FL 7BT-185GK
C211	87-010-408-049		CAP, E 47-50 SME	J501	82-NF7-630-019		JACK, 3.5 MO
C212	87-018-209-089		CAP, TC-U 0.1-50 F	J502	82-NF7-630-019		JACK, 3.5 MO
C215	87-018-209-089		CAP, TC-U 0.1-50 F	L701	87-005-456-089		COIL, 1000UH FLR50, K (HE, HR)
C216	87-018-209-019		CAP, TC-U 0.1-50 F	S301	87-036-215-089		SW, TACT EVQ21404M
C217	87-018-134-089		CAP, TC-U 0.01-16 Y	S302	87-036-215-089		SW, TACT EVQ21404M
C218	87-018-209-089		CAP, TC-U 0.1-50 F	S303	87-036-215-089		SW, TACT EVQ21404M
C401	87-010-384-049		CAP, E 100-25 SME	S304	87-036-215-089		SW, TACT EVQ21404M
C402	87-018-134-089		CAP, TC-U 0.01-16 Y	S305	87-036-215-089		SW, TACT EVQ21404M
C501	87-010-248-049		CAP, E 220-10 SME	S306	87-036-215-089		SW, TACT EVQ21404M
C502	88-018-209-089		CAP, M 0.47	S307	87-036-215-089		SW, TACT EVQ21404M
C503	87-018-198-089		CAP, TC-U 2700P-16 X	S308	87-036-215-089		SW, TACT EVQ21404M
C504	87-018-198-089		CAP, TC-U 2700P-16 X	S309	87-036-215-089		SW, TACT EVQ21404M
C505	88-018-544-049		CAP, M 0.022-50 SME	S310	87-036-215-089		SW, TACT EVQ21404M
C506	88-018-544-049		CAP, M 0.022-50 SME	S311	87-036-215-089		SW, TACT EVQ21404M
C507	87-018-131-089		CAP, TC-U 1000P-50 B	S312	87-036-215-089		SW, TACT EVQ21404M
C508	87-018-131-089		CAP, TC-U 1000P-50 B	S314	87-036-215-089		SW, TACT EVQ21404M
C509	87-010-402-049		CAP, E 2.2-50 SME	S315	87-036-215-089		SW, TACT EVQ21404M
C510	87-010-402-049		CAP, E 2.2-50 SME	S316	87-036-215-089		SW, TACT EVQ21404M
C511	87-018-131-089		CAP, TC-U 1000P-50 B	S317	87-036-215-089		SW, TACT EVQ21404M
C512	87-018-131-089		CAP, TC-U 1000P-50 B	SFR401	87-024-169-089		SFR, 2.2K DIA6 V
C513	87-018-123-089		CAP, TC-U 220P-50 B	VR501	82-NK7-615-019		VR, 10KA RK11K1130
C514	87-018-123-089		CAP, TC-U 220P-50 B	VR502	82-NK7-616-019		VR, 10KB RK11K1130 (HE, HR)
C515	87-010-545-049		CAP, E 0.22-50 SME	W102	82-NF7-647-019		CABLE, FFC, 13P-1.25
C516	87-018-129-089		CAP, TC-U 680P-50 B	X201	87-008-394-089		CF CST 4.19 MGW
MVR C. B							
C517	87-018-131-089		CAP, TC-U 1000P-50 B	MVR601	82-NF7-676-019		VR, 50KBX2 RK16812 MG
C518	87-018-122-089		CAP, TC-U 180P-50 B				
C519	87-010-405-049		CAP, E 10-50 SME				
C520	87-010-405-049		CAP, E 10-50 SME				
C521	87-010-401-049		CAP, E 1-50 SME				
KEY C. B							
C522	87-010-401-049		CAP, E 1-50 SME	S318	87-036-215-089		SW, TACT EVQ21404M
C601	87-018-134-089		CAP, TC-U 0.01-16 Y	S319	87-036-215-089		SW, TACT EVQ21404M
C602	87-018-134-089		CAP, TC-U 0.01-16 Y	S320	87-036-215-089		SW, TACT EVQ21404M
C605	87-018-104-089		CAP, TC-U 10P-50 SL	S321	87-036-215-089		SW, TACT EVQ21404M
C606	87-018-104-089		CAP, TC-U 10P-50 SL	S322	87-036-215-089		SW, TACT EVQ21404M
AC1 C. B							
C607	87-010-060-089		CAP, E 100-16 7L				
C608	87-016-088-049		CAP, E 220-6.3 SR				
C609	87-018-121-089		CAP, TC-U 150P-50 B				
C610	87-018-121-089		CAP, TC-U 150P-50 B				
C611	87-018-199-089		CAP, TC-U 3300P-16 X				
C612	87-018-199-089		CAP, TC-U 3300P-16 X	△ F101	87-035-236-019		FUSE, 1.6A (HR)
C613	87-018-121-089		CAP, TC-U 150P-50 B	△ F101	87-035-359-019		FUSE, 500MA 250V T E (K, EE, EZ)
C614	87-018-121-089		CAP, TC-U 150P-50 B	△ F101	87-035-412-019		FUSE, T1.25A 250V UL (U, HE, LH)
C617	87-018-117-089		CAP, TC-U 68P-50 SL	△ SW101	87-036-235-019		SW, SL ESD 269 (HE, HR, LH)
C618	87-018-117-089		CAP, TC-U 68P-50 SL				
AC2 C. B							
C621	87-018-196-089		CAP, TC-U 1500P-16 X	△	82-NF7-622-019		PT, 2NF7 EK (K, EE, EZ)
C622	87-018-196-089		CAP, TC-U 1500P-16 X				

REF. NO	PART NO.	カンリ NO.	DESCRIPTION
△	82-NF7-621-019		PT, 2NF7 H<HE, LH>
△	82-NF7-656-019		PT, 2NF7 HR<HR>
△	82-NF7-658-119		PT, 2NF7 U<U>
△	S6-403-020-040		SW, SL R663167
HEAD FLEX C. B<EXCEPT U>			
	S6-201-070-260		HEAD, P-5044BD-24F <EXCEPT U>

■ SPEAKER PARTS LIST

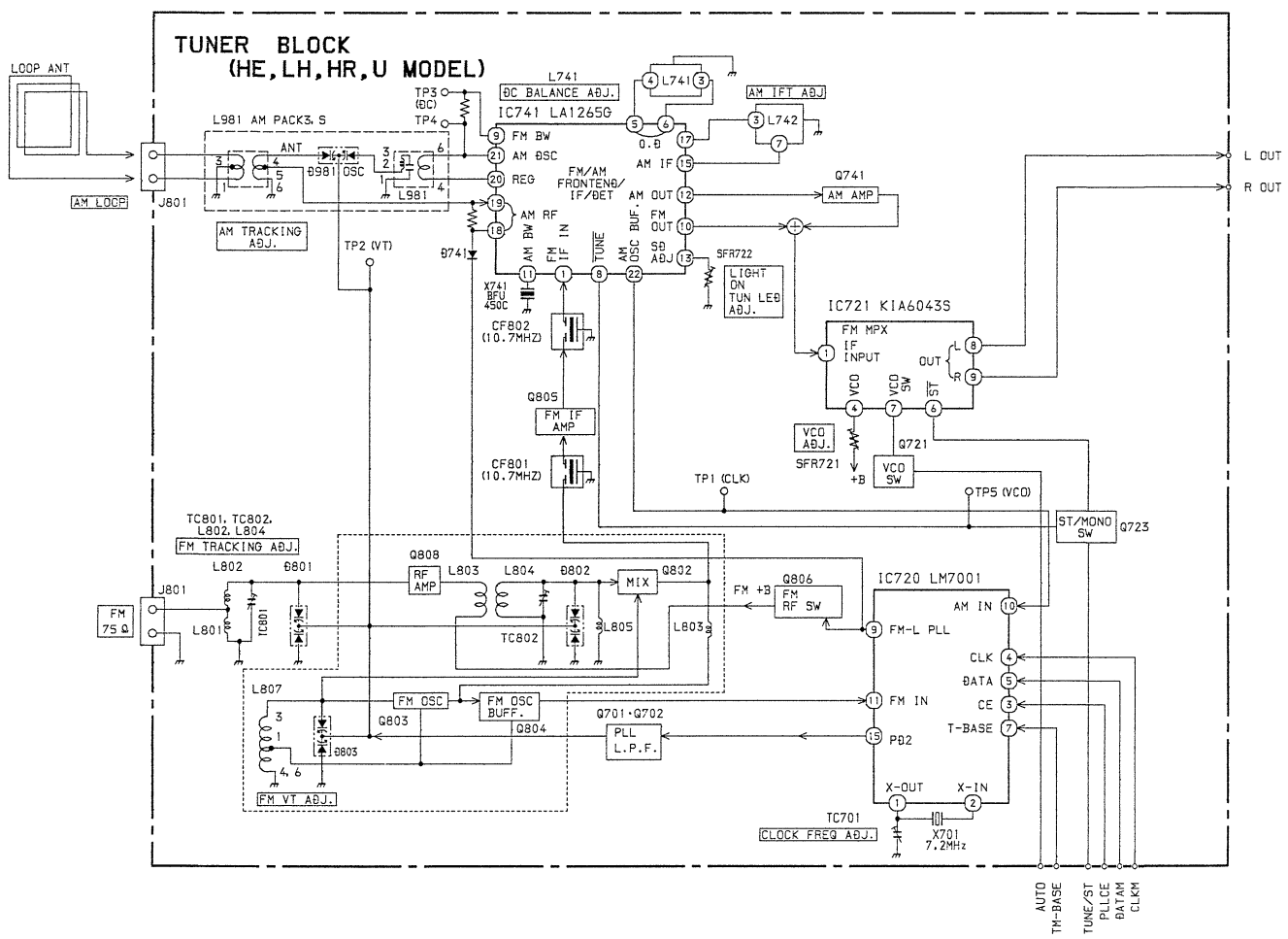
DESCRIPTION で判断できない物は“REFERENCE NAME LIST”を参照してください。
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

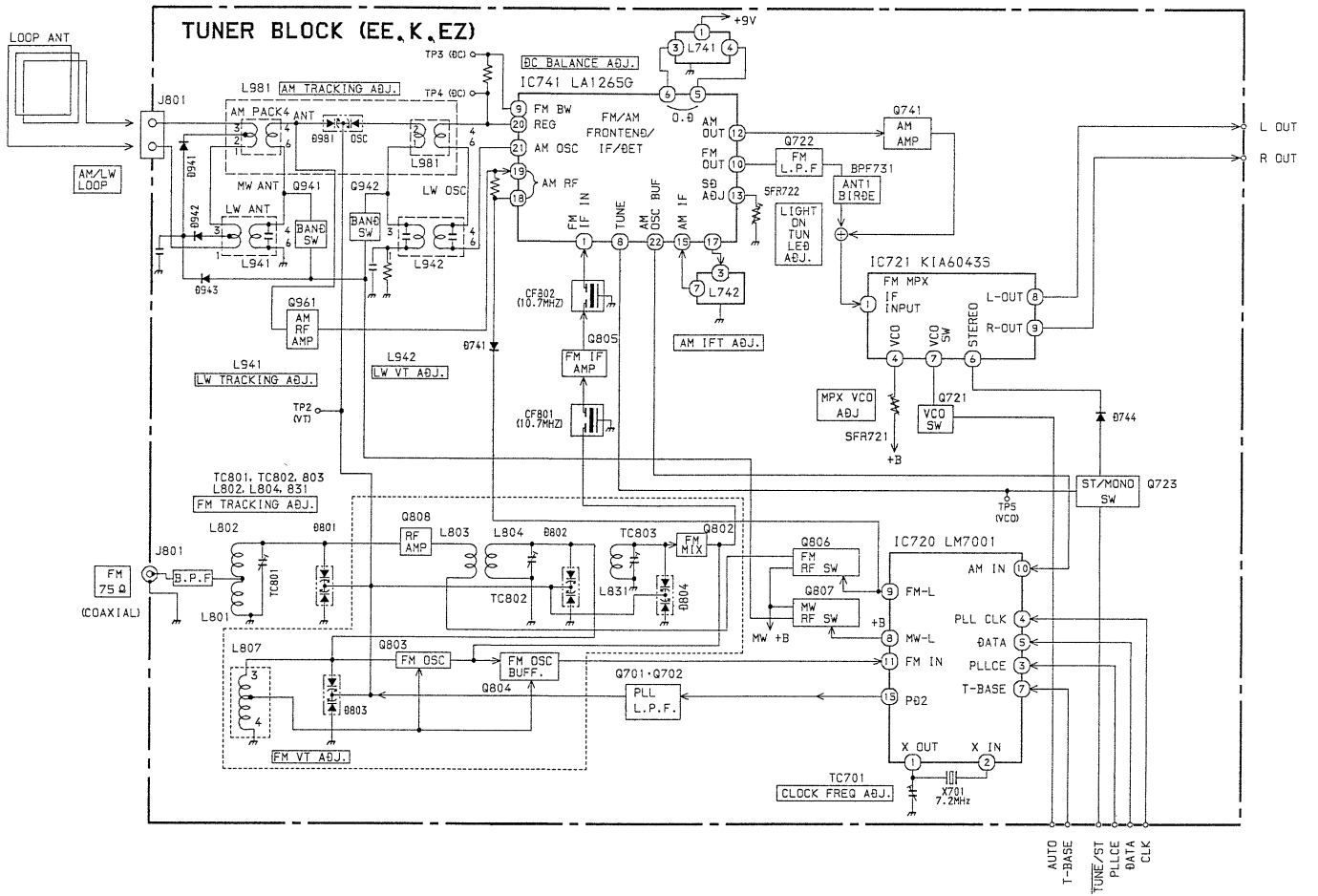
REF. NO	PART NO.	カンリ NO.	DESCRIPTION
1	83-NSL-001-019		PANEL FR
2	83-NSL-006-019		GRILL FRAME ASSY
3	83-NSL-602-019		SPEAKER WOOFER
4	82-NS5-604-019		SPEAKER TWEETER ASSY
5	83-NS4-610-019		CERAMIC
6	83-NSL-611-019		SPEAKER CORD
7	87-343-172-019		VT+4-12
8	87-342-097-019		VT+3-12

■ ACCESSORIES/PACKAGE LIST

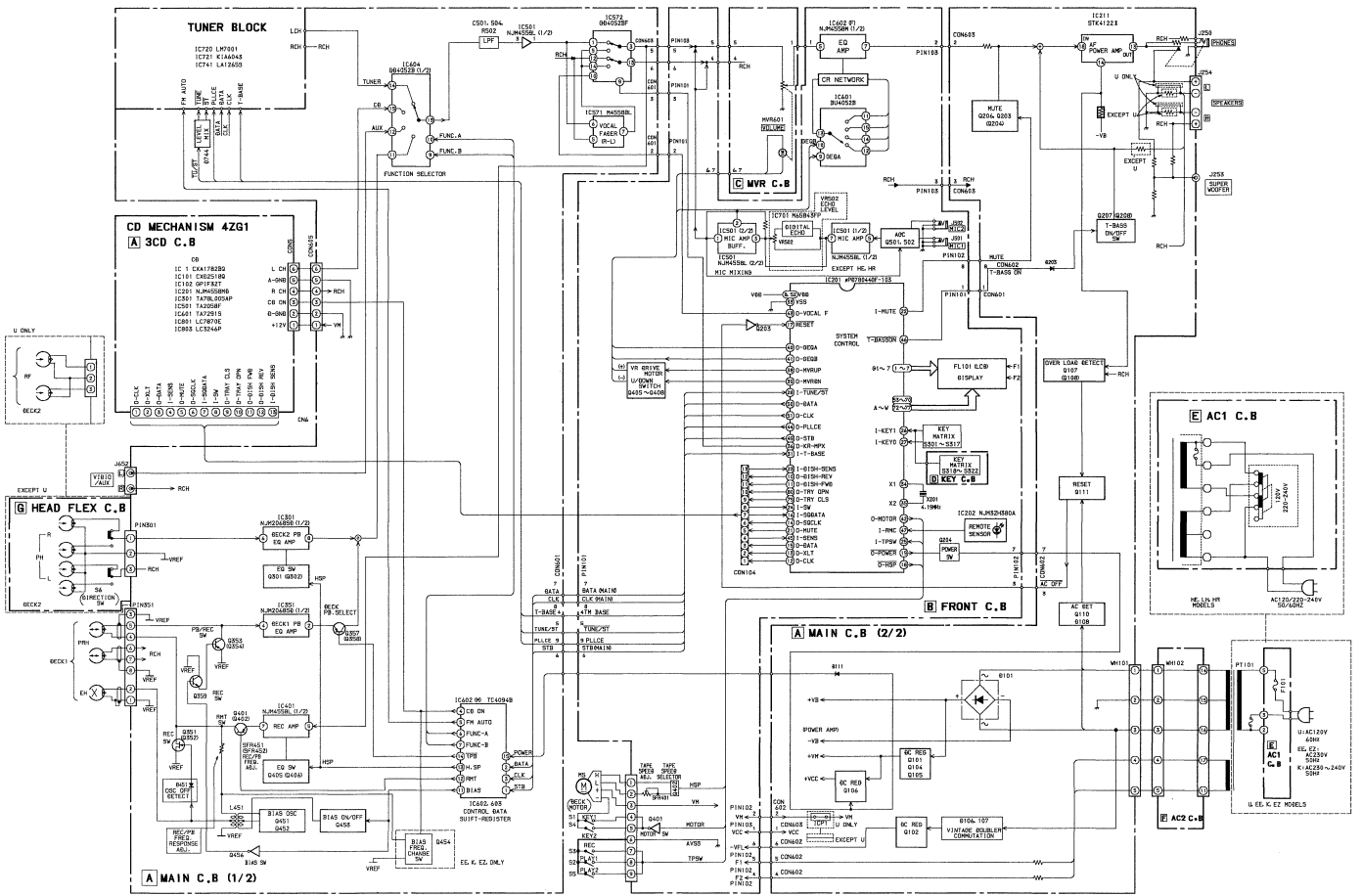
DESCRIPTION で判断できない物は“REFERENCE NAME LIST”を参照してください。
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

REF. NO	PART NO.	カンリ NO.	DESCRIPTION
1	83-NFL-905-119		IB, ESF (M) <K, EE, EZ>
1	83-NFL-906-019		IB, ESF (M) <U>
1	83-NFL-907-019		IB, ESF (M) <HE, HR>
1	83-NFL-909-019		IB, ESF (M) <EE, EZ>
1	83-NFL-910-019		IB, ESF (M) -LH <LH>
2	82-NF7-602-019		RC, RC-TN340 EX
3	87-006-268-019		AM LOOP ANT NC<UN>
4	87-009-724-019		PLUG ADPTR, 1R39<LH>
4	87-009-725-019		PLUG ADPTR, 1R40<HE, HR>
5	87-043-106-019		FM, WIRE ANT (Z) <K, EE, EZ>
6	87-043-115-01B		ANT, FEEDER FM<U, HE, HR, LH>

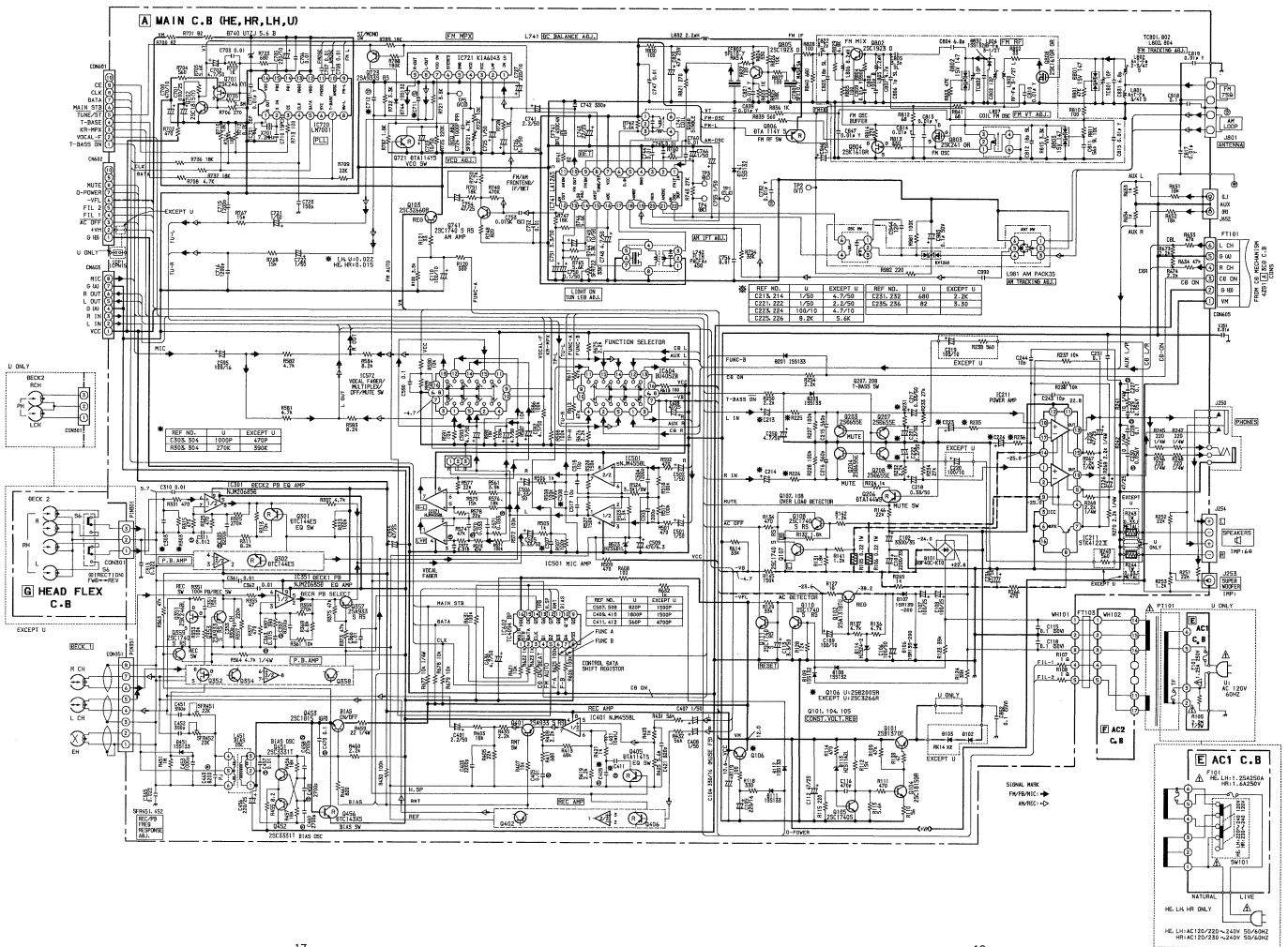




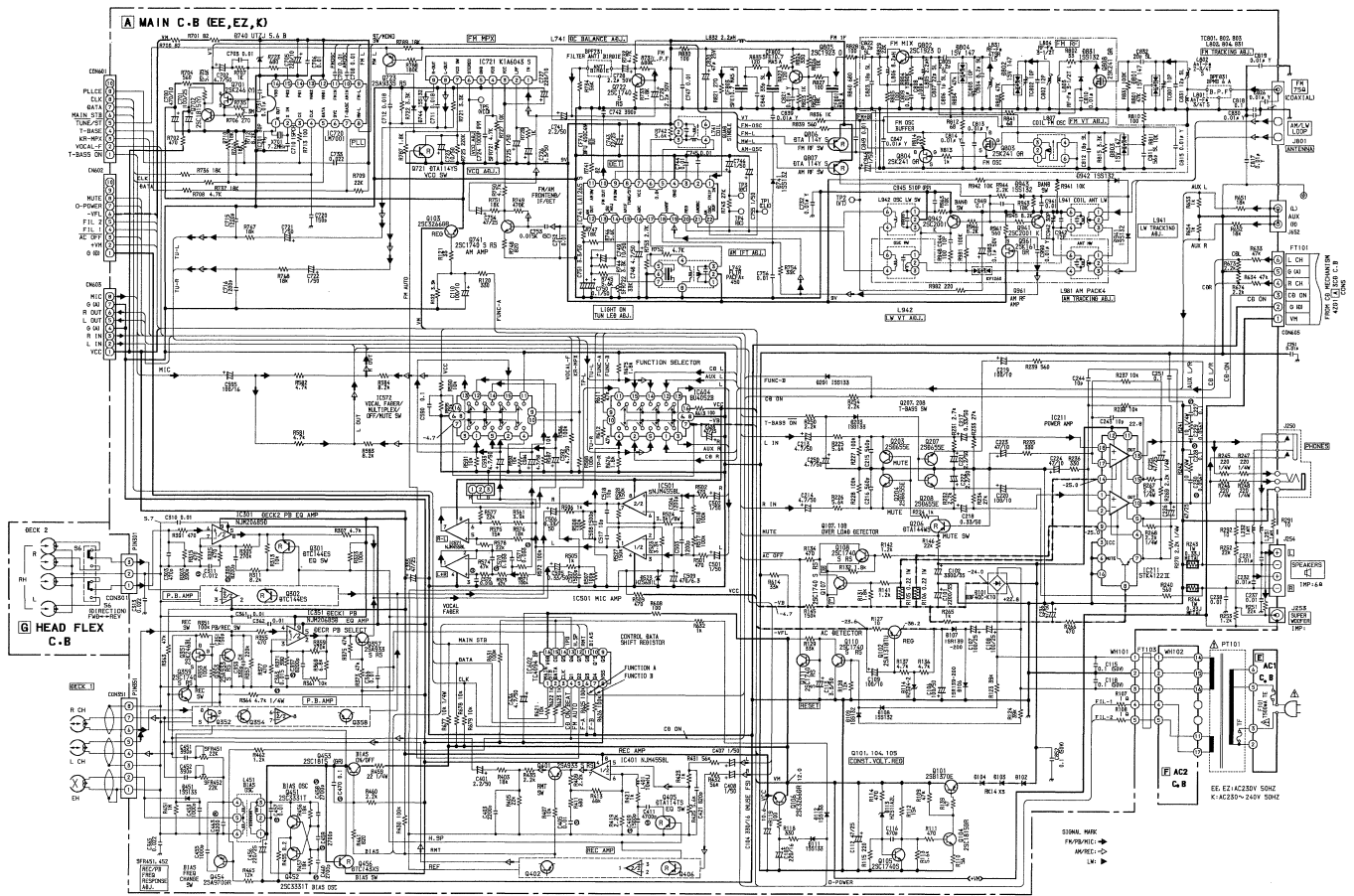
BLOCK DIAGRAM - 3 (MAIN/FRONT)



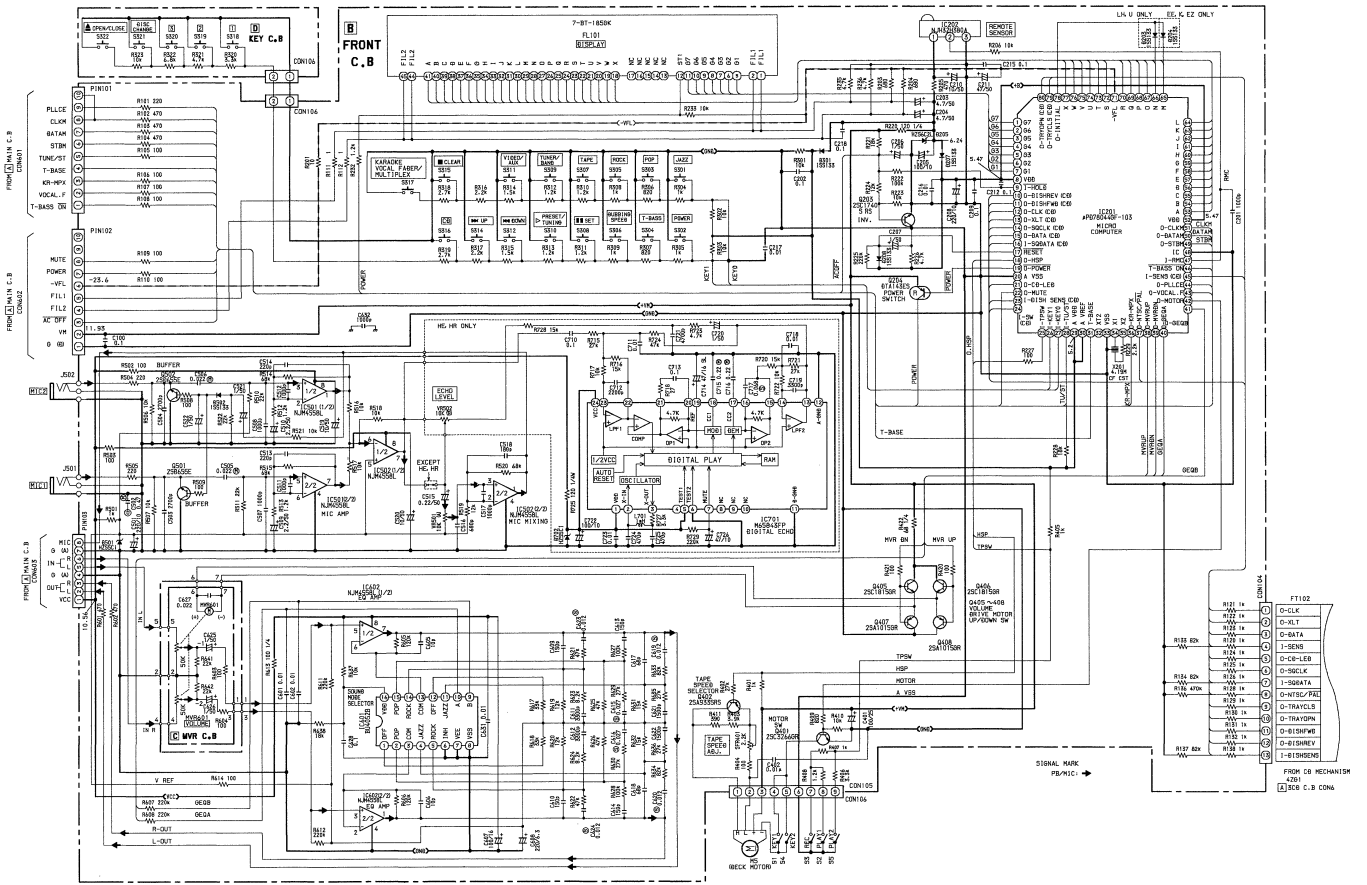
SCHEMATIC DIAGRAM - 1 (MAIN : HE, HR, LH, U)



SCHEMATIC DIAGRAM - 2 (MAIN : EE, K, EZ)



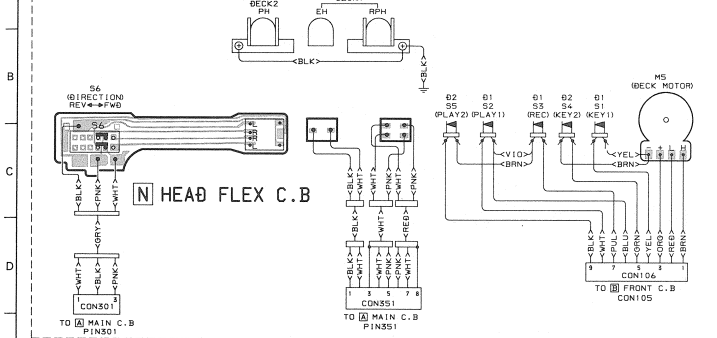
SCHEMATIC DIAGRAM - 3 (FRONT)



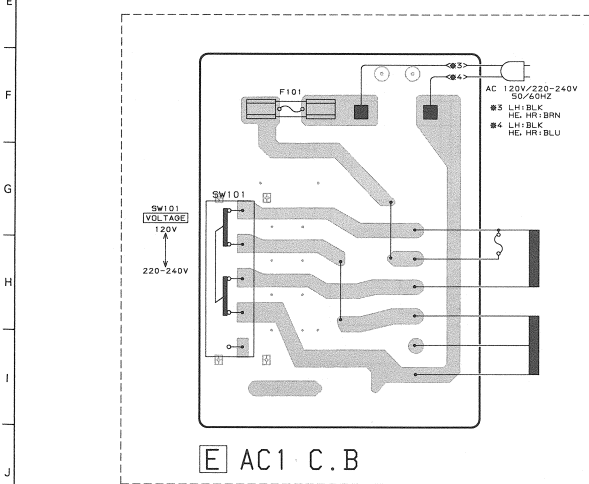
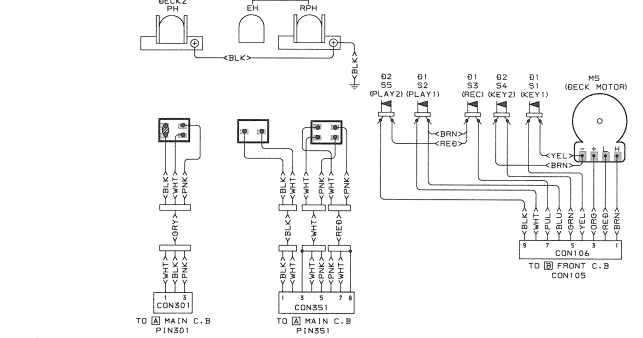
WIRING - 4 (AC)

1 2 3 4 5 6 7 8 9 10 11 12 13 14

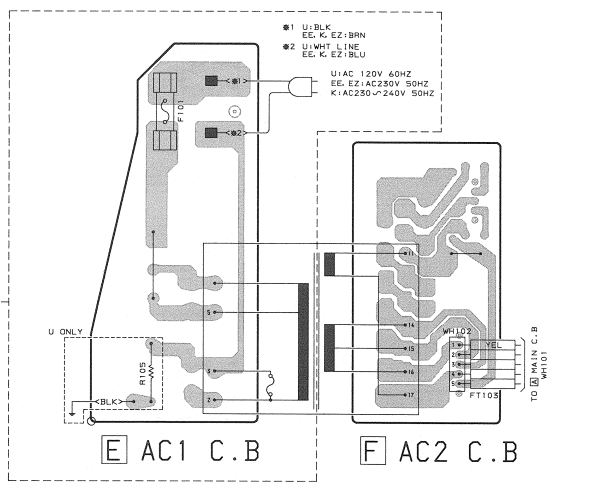
A EXCEPT U



U ONLY



E AC1 C.B

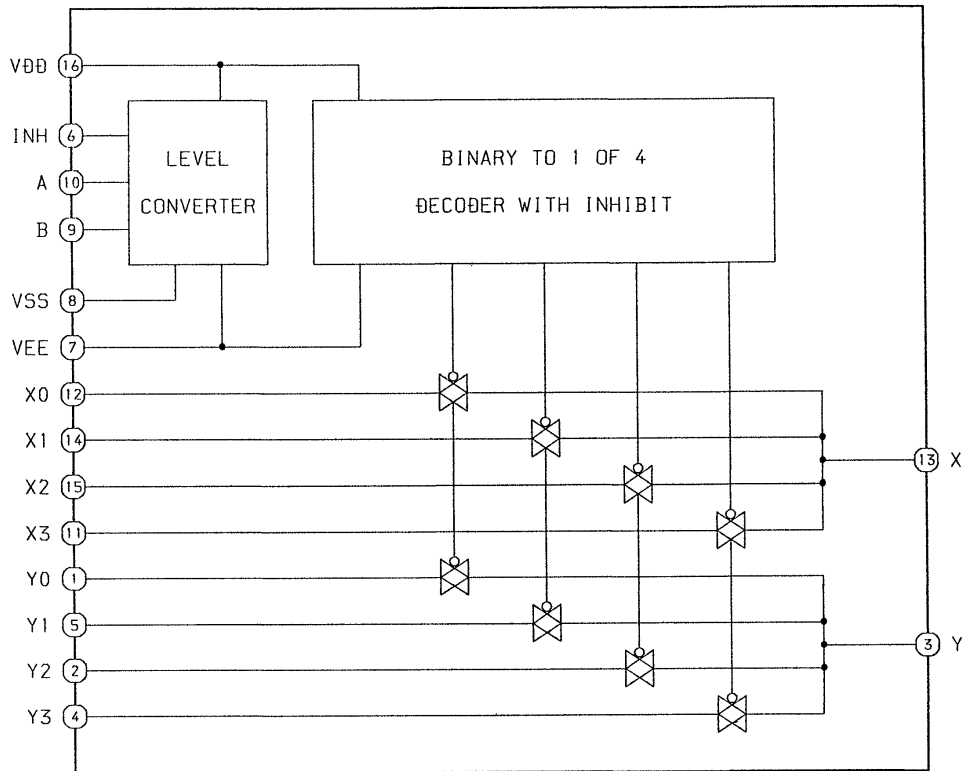


E AC1 C.B

F AC2 C.B

IC BLOCK DIAGRAM

IC, BU4052B

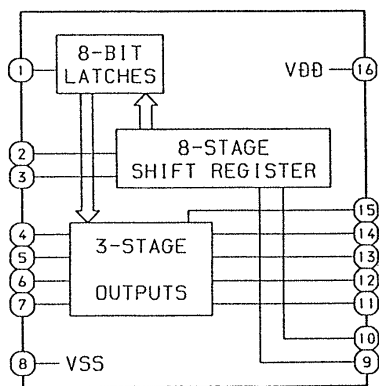


TRUTH TABLE

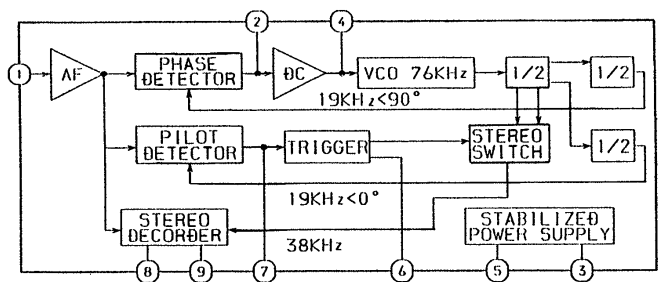
INHIBIT	A	B	ON SWITCH
L	L	L	X0 Y0
L	H	L	X1 Y1
L	L	H	X2 Y2
L	H	H	X3 Y3
H	X	X	NONE

X: DON'T CARE.

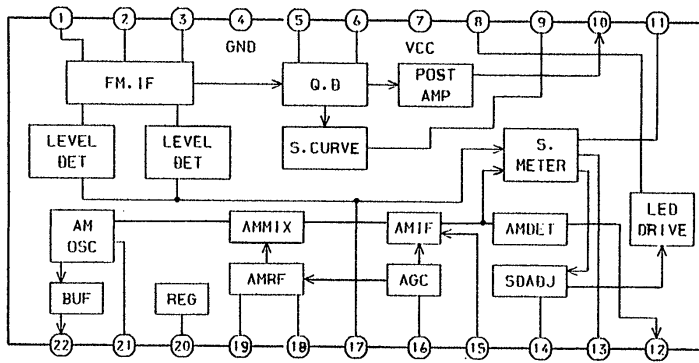
IC, TC4094BP



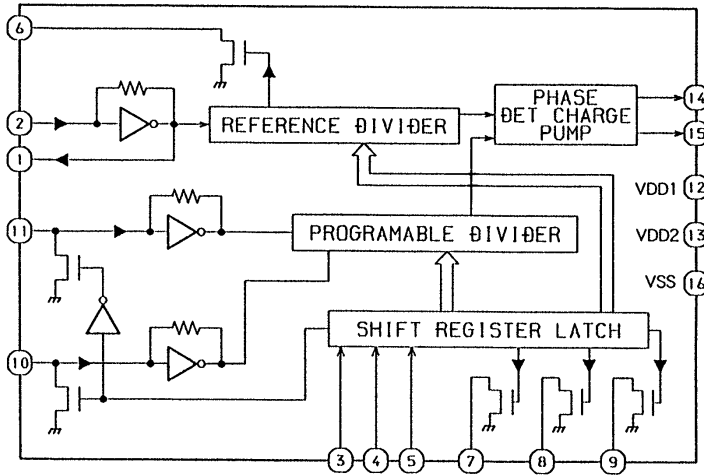
IC, KIA6043S



IC, LA1265S



IC, LM7001



TRANSISTOR ILLUSTRATION



ECB

2SA970 2SC1923
 2SA1015 2SC3266
 2SA1318 2SC3331
 2SC1815 2SD655



ECB

2SA933S DTA144ES
 2SC1740S DTA144WS
 DTA114TS DTC114YS
 DTA114YS DTC143XS
 DTA143ES 2SC1815Y
 2SC2001K

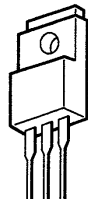


DGS

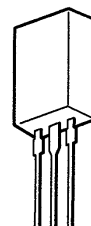
2SK161
 2SK241



SGD
 2SK246



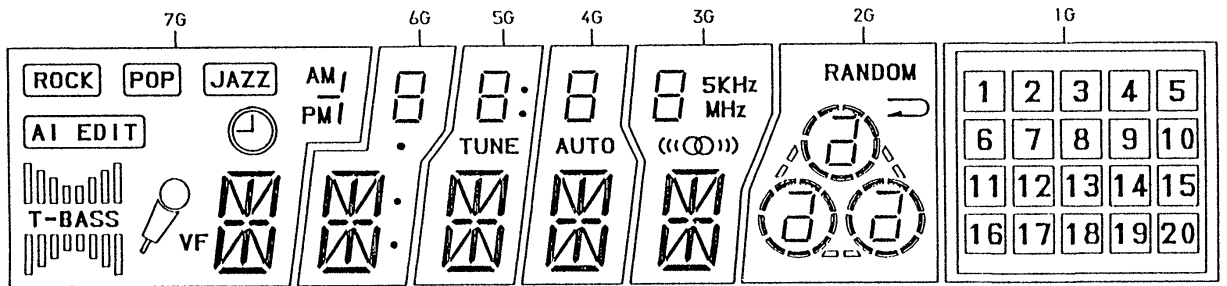
BCE
 2SB1370



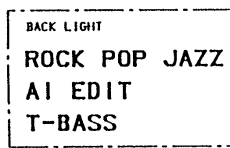
BCE
 2SD2005R

FL (7 - BT - 185GK) GRID ASSIGNMENT/ANODE CONNECTION

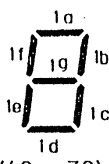
GRID ASSIGNMENT



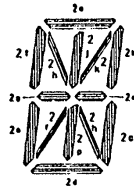
SEGMENT DESIGNATION



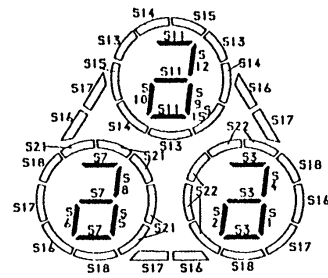
(7G)



(6G ~ 3G)



(7G ~ 3G)



(2G)

ANODE CONNECTION

	7G	6G	5G	4G	3G	2G	1G
A	2d	2d	2d	2d	2d	S1	20
B	2j, 2p	2j, 2p	2j, 2p	2j, 2p	2j, 2p	S2	19
C	2n	2n	2n	2n	2n	S3	18
D	2r	2r	2r	2r	2r	S4	17
E	2c	2c	2c	2c	2c	S5	16
F	2o	2o	2o	2o	2o	S6	15
G	2m	2m	2m	2m	2m	S7	14
H	2q	2q	2q	2q	2q	S8	13
I	2f	2f	2f	2f	2f	S9	12
J	2b	2b	2b	2b	2b	S10	11
K	2k	2k	2k	2k	2k	S11	10
L	2h	2h	2h	2h	2h	S12	9
M	2a	2a	2a	2a	2a	S13	8
N	VF	o	TUNE	AUTO	((⊙))	S14	7
O		o	o (DOWN)	—	MHz	S15	6
P	(AI EDIT)	—	o (UP)	—	KHz	S16	5
Q	⊙	—	—	—	5	S17	4
R	PM	1d	1d	1d	1d	S18	3
S	—	1a	1a	1a	1a	—	2
T		1c	1c	1c	1c	—	1
U	AM	1a	1a	1a	1a	S21	—
V	(JAZZ)	1f	1f	1f	1f	S22	—
W	(POP)	1b	1b	1b	1b	↶	—
X	(ROCK)	1a	1a	1a	1a	RANDOM	—
ST1	BACK LIGHT	—	—	—	—	—	

IC DESCRIPTION

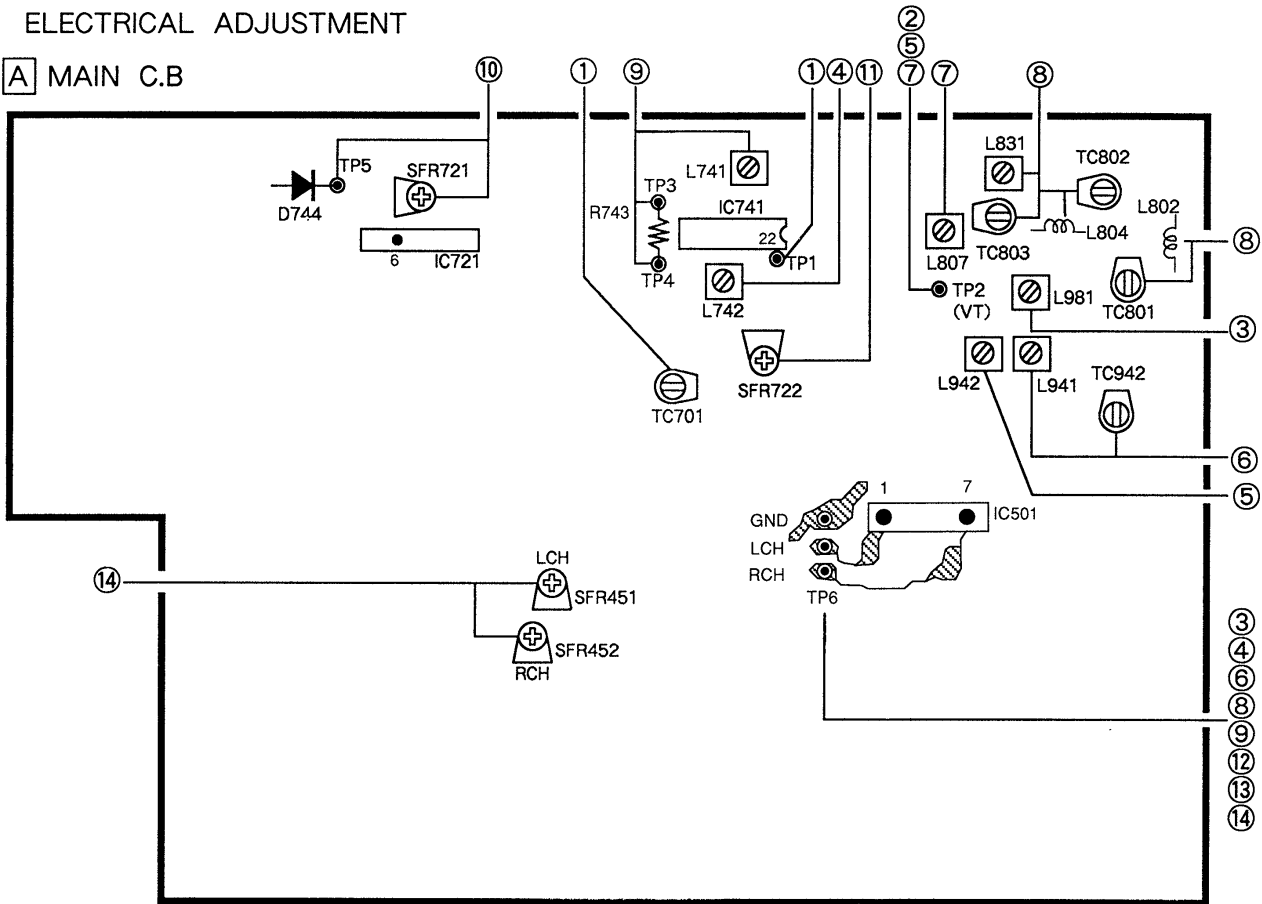
IC, μ PD78044GF-103

Pin No.	Pin Name	I/O	Description
1~7	G7~G1	O	FL display digit output
8	VDD	—	Connected to +5.5V
9	$\overline{\text{I-HOLD}}$	I	When AC main power is turned off, input goes L which puts μ processor into HOLD mode. (Clock is stopped and memory is backed up.)
10	O-DISH RVS	O	Turn-table reverse direction output
11	O-DISH FWD	O	Turn-table forward direction output
12	O-CLK	O	CD control output
13	O-XLT	O	CD control output
14	O-SQCLK	O	CD control output
15	O-DATA	O	CD control output (serial data)
16	I-SQDATA	I	CD control output
17	$\overline{\text{RESET}}$	—	Reset input
18	O-HSP	O	Deck motor speed control. Double speed when "H" (12V) is input.
19	$\overline{\text{O-POWER}}$	O	Power ON/OFF control. Power is turned OFF when "H" (12V) is input.
20	A VSS	—	Connected to GND
21	O-CD-LED	O	CD-LED ON signal
22	O-MUTE	O	Mute output
23	I-DISH SENS	I	CD turn-table signal
24	I-SW	I	CD tray OPEN/CLOSE, and mechanism UP/DOWN signal input
25	I-TPSW	I	Deck PLAY, REC mechanism signal
26	I-KEY1	I	Key data input 1
27	I-KEY0	I	Key data input 0
28	I-TU/ST	I	Signal input during tuner reception and stereo reception
29	A VDD	—	Connected to +5V
30	A VREF	—	Connected to +5V
31	I-TMBASE	I	Dynamic reference clock (50/60 Hz)
32	XT2	—	Sub-clock connector (not used)
33	VSS	—	Connected to GND
34	X1	—	4.19 MHz oscillator circuit
35	X2	—	4.19 MHz oscillator circuit
36	O-KR-MPX	O	KARAOKE multiplex ON/OFF control. Multiplex is ON when "H" (+5V) is input.
37	$\overline{\text{NTSC/PAL}}$	O	CD graphic control signal. NTSC mode when "H" (+5V) is input.
38	O-MVRUP	O	Motor UP control signal from manual volume control
39	O-MVRDN	O	Motor DOWN control signal from manual volume control
40	O-GEQA	O	Graphic equalizer control signal
41	O-GEQB	O	Graphic equalizer control signal
42	O-MOTOR	O	Deck motor ON/OFF control output. (ON state in 4 seconds after Power ON.)
43	O-VOCAL F	O	Vocal fader ON/OFF control output. Vocal fader ON when "H" (+5V) is input.
44	O-PLLCE	O	Chip enable output to tuner PLL IC LM7001
45	I-SENS	I	CD tray position sensor input signal
46	$\overline{\text{T-BASS ON}}$	O	T-BASS ON/OFF control T-BASS is ON when "L" is input.

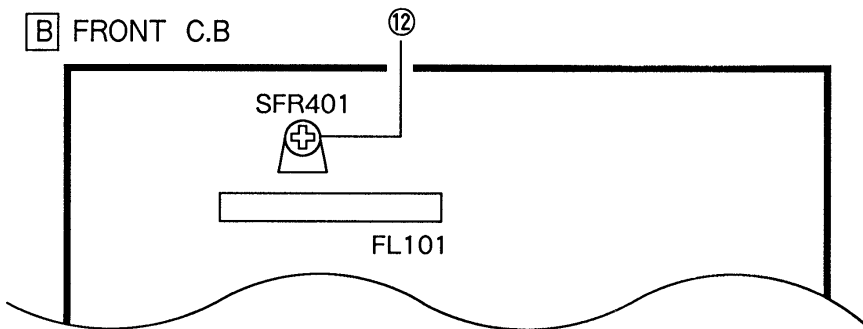
Pin No.	Pin Name	I/O	Description
47	I-RMC	I	Remote control signal
48	IC	—	Connected to GND
49	O-STBM	O	Strobe signal of the shift register IC602 (4094) on the MAIN board
50	O-DATAM	O	Serial data of the PLL IC720 (LM7001) and IC602 (4094) on the MAIN board
51	O-CLKM	O	Serial clock of the PLL IC720 (LM7001) and IC602 (4094) on the MAIN board
52	VDD	—	Connected to +5V
53~66	A~N	O	FL display segment output
67,68	O,P	I/O	FL display segment output. Initializing scan
69,70	Q,R	O	FL display segment output
71	-VFL	—	Power supply for FL display (-23V)
72~77	S~X	O	FL display segment output
78	O-INITIAL	O	μprocessor initializing control
79	O-TRY $\overline{\text{OPN}}$	O	CD tray OPEN control. OPEN when "L" is input
80	O-TRY $\overline{\text{CLS}}$	O	CD tray CLOSE control CLOSE when "L" is input

ELECTRICAL ADJUSTMENT

A MAIN C.B

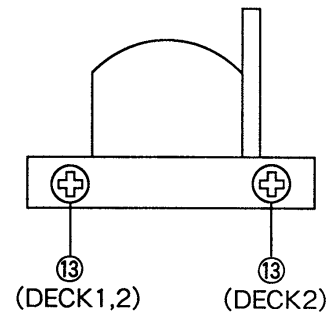


B FRONT C.B



< TUNER SECTION >

PH/RPH



1. Clock Frequency Adjustment

Settings : • Test point : TP1 (CLK IC741 pin22)
 • Adjustment location : TC701
 Method : Set to MW 1602kHz (EXCEPT LH,U),
 1710kHz (LH,U) and adjust so that the test
 point becomes 2052kHz \pm 0.01kHz (EXCEPT
 LH,U), 2160kHz \pm 0.01kHz (LH,U).

2. MW VT Check

Settings : • Test point : TP2 (VT)
 Method : Set to MW 1602kHz (EXCEPT LH,U),
 1710kHz (LH,U) adjust so that the test
 point becomes 6.0V \pm 1.0V (EXCEPT LH,U),
 7.0V \pm 1.0V (LH,U).

3. MW Tracking Adjustment

Settings : • Test point : TP6
 • Adjustment location : L981
 Method : Set to MW 999kHz (EXCEPT LH,U),
 1000kHz (LH,U) and adjust L981 so that
 the test point output becomes 53 \pm 6dB.

4. AM IF Adjustment

Settings : • Test point : TP6
 L742..... 450kHz

5. LW VT Adjustment (EE,K,EZ)

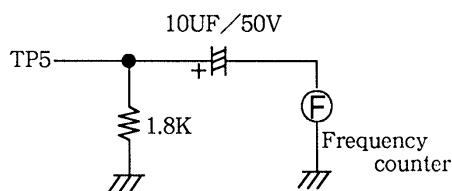
Settings : • Test point : TP2
 • Adjustment location : L942
 Method : Set to LW 144kHz adjust L942 so that the
 test point becomes 1.50V \pm 0.05V.

6. LW Tracking Adjustment (EE,K,EZ)
 Settings : • Test point : TP6
 • Adjustment location :
 L941 144kHz
 TC942 290kHz
 Method : Set up TC942 to center before adjustment.
 The level at 144kHz is adjusted to MAX
 by L941. Then the level at 290kHz is done
 by TC942.
7. FM VT Adjustment
 Settings : • Test point : TP2 (VT)
 • Adjustment location : L807
 Method : Set to FM 87.5MHz and adjust L807 so
 that the test point becomes $2.90V \pm 0.05V$.
8. FM Tracking Adjustment
 Settings : • Test point : TP6
 TC801, TC802, TC803 (EE,K,EZ) 108MHz
 L802, L804, L831 (EE,K,EZ) 87.5MHz
9. DC Balance/MONO Distortion Adjustment
 Settings : • Test point : TP3, TP4 (DC balance)
 TP6 (Distortion)
 • Adjustment location : L741
 • Input level : 54dB
 Method : Set to FM 98.0MHz and adjust L741 so
 that the voltage between TP3 and TP4
 becomes $0V \pm 0.02V$. Next check that the
 distortion becomes less than 0.9%.
10. MPX VCO Adjustment
 Settings : • Test point : TP5 (IC721 pin 6)
 • SSG : modulation OFF
 • Adjustment location : SFR721
 • Input level : 54dB
 Method : Connect a capacitor and a resistor as
 below. Set to FM 98.0MHz and adjust
 SFR721 so that the frequency at test point
 becomes $38kHz \pm 0.05kHz$.

11. Light on Tuning LED Adjustment
 Settings : • Adjustment location : SFR722
 • Input level : 16dB
 Method : Set to FM 98.0MHz and adjust TUNING
 LED to light on by SFR722. After that
 LED goes out by 2dB down.

< TAPE SECTION >

12. Tape Speed Adjustment
 Settings : • Test tape : TTA-100
 • Test point : TP6
 • Adjustment location : SFR401
 Method : Play back the test tape, adjust SFR401
 for $3000Hz \pm 10Hz$.
13. Head Azimuth Adjustment (DECK1, DECK2)
 Settings : • Test tape : TTA-330
 • Test point : TP6
 • Adjustment location : Head azimuth
 adjustment screw
 Method : Play back the 10kHz signal of the test tape
 and adjust so that the output becomes
 maximum.
14. REC/PB Frequency Response Adjustment (DECK1)
 Settings : • Test tape : TTA-601
 • Test point : TP6
 • Input signal : 1kHz/10kHz (AUX-28dB)
 • Adjustment location : SFR451 (Lch)
 SFR452 (Rch)
 Method : Record and play back the 1kHz and 10kHz
 signals and adjust so that the TP6 level
 of the 10kHz signal is $0dB \pm 0.5dB$ with
 respect to that of the 1kHz signal.



PRACTICAL SERVICE FIGURE

TUNER SECTION

FM SECTION

IHF Sensitivity :	< EXCEPT LH,U >
	10dB ± 5dB (87.5MHz)
(THD 3%)	8dB ± 5dB (98.0MHz)
	8dB ± 5dB (108.0MHz)
	< LH,U >
	6dB ± 5dB (87.5MHz)
	5dB ± 5dB (98.0MHz)
	5dB ± 5dB (108.0MHz)

S/N 50dB Quieting sensitivity :

32dB ± 5dB
(87.5/98.0/108.0MHz)

Signal to noise ratio : More than 72dB (98.0MHz)

Distortion : Less than 0.9% (98.0MHz)

Stereo separation : More than 25dB (98.0MHz)

Intermediate frequency : 10.7MHz

MW SECTION

Sensitivity :	< EXCEPT LH,U >
	54dB + 8dB, - 6dB (603kHz)
(S/N 20dB)	53dB ± 6dB (999kHz)
	53dB ± 6dB (1404kHz)
	< LH,U >
	54dB + 8dB, - 6dB (600kHz)
	53dB ± 6dB (1000kHz)
	53dB ± 6dB (1400kHz)

Distortion :	< EXCEPT LH,U >
	Less than 1.5% (999kHz)
	< LH,U >
	Less than 1.5% (1000kHz)

Intermediate frequency : 450kHz

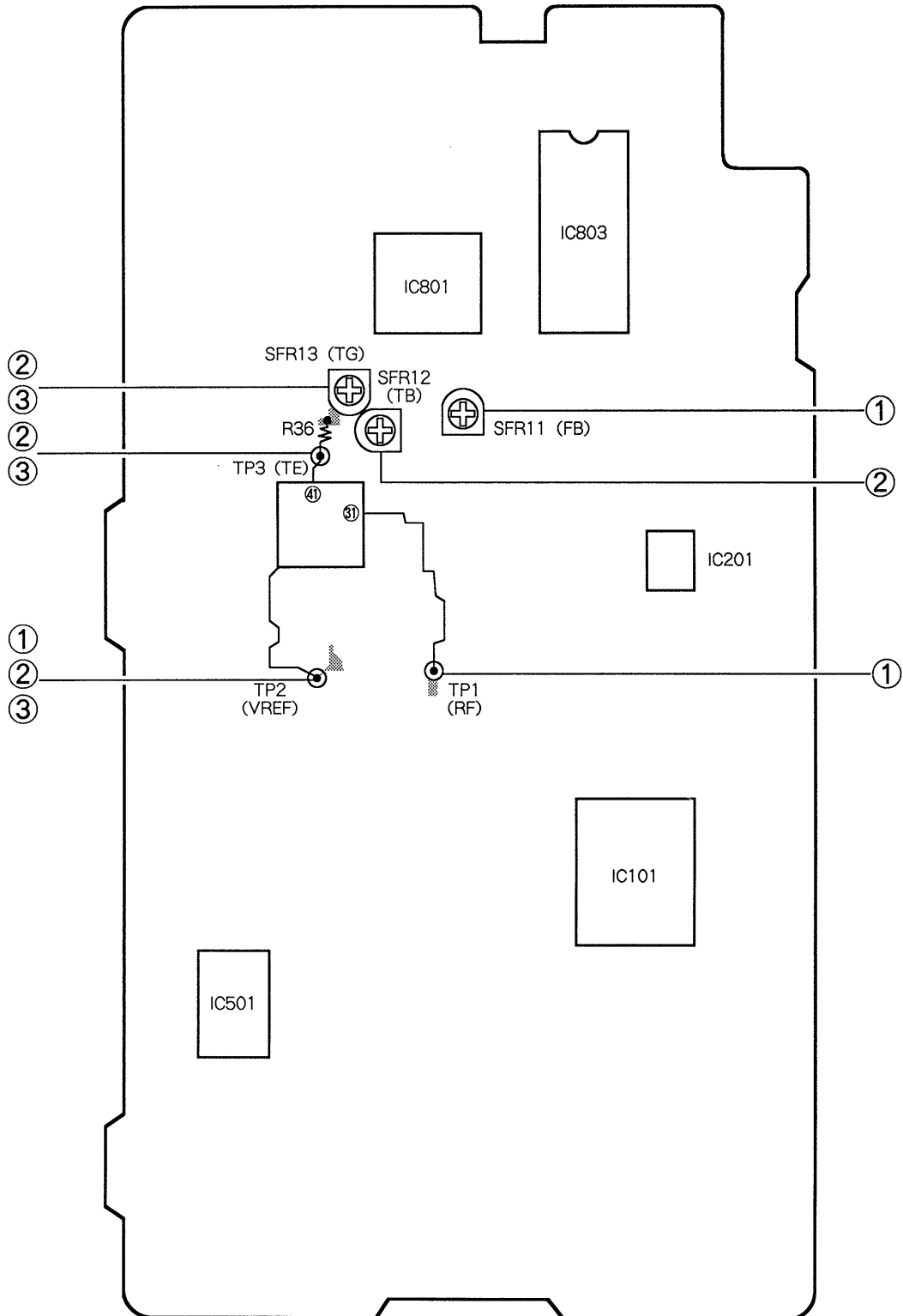
LW SECTION < EE,K,EZ >

Sensitivity :	66dB ± 5dB (144kHz)
(S/N 20dB)	63dB ± 5dB (198kHz)
	62dB ± 5dB (290kHz)
Distortion :	Less than 1.5% (198kHz)
Intermediate frequency :	450kHz

TAPE SECTION

Tape speed :	3000Hz ± 3.0%
Wow & flutter :	Less than 0.4%
(R.M.S)	
Take-up torque :	30~60g-cm (FWD, REV)
F.F torque :	55~140g-cm
Rew torque :	55~140g-cm
Back tension :	2~5g-cm
PB Output level :	3.0V ± 1.5dB (SP OUT)
REC/PB Output level :	2.0V ± 2.0dB (SP OUT)
Distortion (REC/PB) :	Less than 2% (NORM)
Noise level (PB) :	Less than 140mV
	(NORM, Vol MAX.)
Noise level (REC/PB) :	Less than 35mV
	(NORM, SP OUT, Vol 2V)
Crosstalk :	More than 55dB (1kHz, 0VU)
Erasing ratio :	More than 55dB (125Hz)
Channel separation :	More than 38dB (1kHz, 0VU)
REC bias frequency :	85kHz
Test tape :	NORMAL TTA - 601

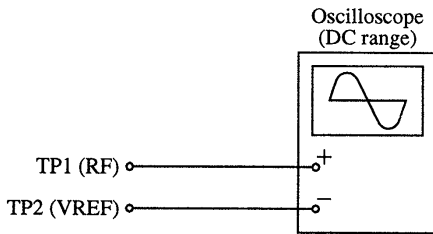
A 3CD C.B



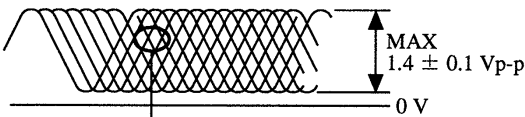
Note: Connect a probe (10: 1) of the oscilloscope or the frequency counter to a test point.

1. Focus Bias Adjustment

Make the focus bias adjustment when replacing and repairing the optical block.



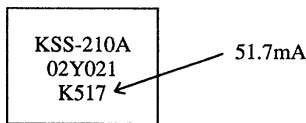
- 1) Connect an oscilloscope to test points TP1 (RF) and TP2 (VREF).
- 2) Turn on the power switch.
- 3) Insert test disc TCD-782 (YEDS-18) and play back the second composition.
- 4) Adjust SFR11 so that RF signal of test point TP1 (RF) is MAX and CLEARREST.



EYE PATTERN must be CLEAR and MAX

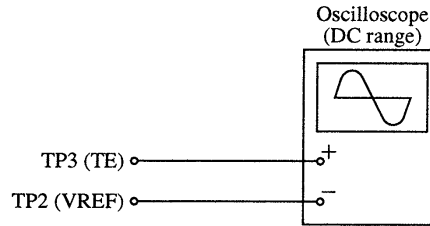
VOLT/DIV : 0.5 V
TIME/DIV : 1 μ S

Note: The current of the laser signal can be checked with the voltages on both sides of R28 (10Ω). The difference for the specified value shown on the level must be within ± 6.0mA.

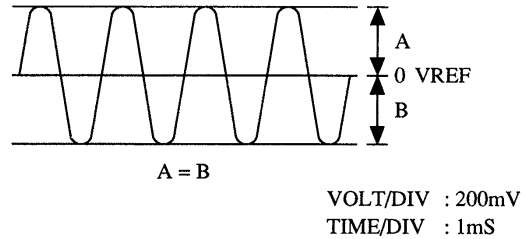


$$\text{Laser current } I_{op} = \frac{\text{Voltage across R28}}{10\Omega}$$

2. Tracking Balance Adjustment



- 1) Connect an oscilloscope to test points TP3 (TE) and TP2 (VREF).
- 2) Turn on the power switch.
- 3) Insert test disc TCD-782 (YEDS-18) and press the PLAY button.
- 4) Connect the intermediate point of SFR13 to TP2 (VREF).
- 5) Adjust SFR12 so that the waveform on the oscilloscope is vertically symmetrical as shown in the figure below.
- 6) After the adjustment is completed, remove the connected lead wires from the terminals.



3. Tracking Gain Adjustment

A servo analyzer is necessary in order to perform this adjustment exactly. However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when 2-axis device operates. However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise increases when the 2-axis device operates.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.

When the gain adjustment is off, the symptoms below appear.

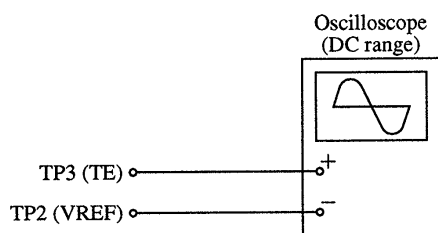
Symptoms	Gain	(Focus)	Tracking
● The time until music starts becomes longer for STOP → PLAY or automatic selection (◀◀, ▶▶ buttons pressed.) (Normally takes about 2 seconds.)		low	low or high
● Music does not start and disc continues to rotate for STOP → PLAY or automatic selection (◀◀, ▶▶ buttons pressed.)		—	low
● Disc stops to rotate shortly after STOP → PLAY.		low or high	—
● Sound is interrupted during PLAY. Or time counter display stops.		—	low
● More noises during the 2-axis device operation.		high	high

The following is simple adjustment method.

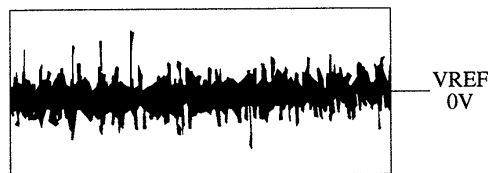
— Simple adjustment —

Note: Since the exact adjustment cannot be performed, remember the positions of the controls before the performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

Procedure:



- 1) Keep the set horizontal. (If the set is not kept horizontally, this adjustment cannot be performed due to the gravity against the 2-axis device.)
- 2) Insert test disc TCD-782 (YEDS-18) and play back the second composition.
- 3) Connect an oscilloscope to TP3 (TE), TP2 (VREF) of the CD C.B.
- 4) Adjust SFR13 so that the waveform appears as shown in the figure below. (tracking gain adjustment)

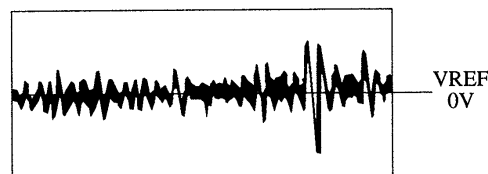


VOLT/DIV: 50 mV
TIME/DIV: 1 mS

● Incorrect example

Low tracking gain

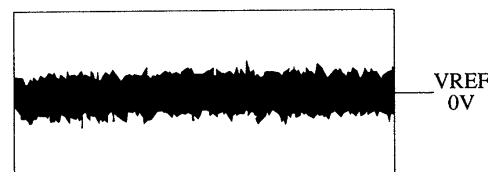
The fundamental wave appears as compared with the waveform adjusted.



VOLT/DIV: 50 mV
TIME/DIV: 1 mS

High tracking gain

The frequency of the fundamental wave is higher than that in low gain.



VOLT/DIV: 50 mV
TIME/DIV: 1 mS

REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, CERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER
サージサプレッサ	SERGESUPPRESSOR
セラコン	CAP,CERA

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL
ジグアーム	ARM,SHAFT
ジグガイド	GUIDE,SHAFT
ストラップ	STRAP
トクナベ	S-SCREW
ヒンジ	HINGE
ヒンジビス	S-SCREW
ビスセレート	SCREW,SERRART

サービス技術ニュース	
番号	連絡内容
G - -	
G - -	
G - -	

アイワ株式会社
AIWA CO.,LTD.

921502 750038

Tokyo Japan