

SERVICE MANUAL

MINIDISC RECORDER

BASIC MD MECHANISM : MT-MZR900-171

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SPECIFICATIONS

Audio playing system

MiniDisc digital audio system

Laser diode properties

Material: GaAlAs

Wavelength: $\lambda = 790 \text{ nm}$

Emission duration: continuous

Laser output: less than $44.6 \mu\text{W}$

(This output is the value measured at a distance of 200 mm from the lens surface on the optical pick-up block with 7 mm aperture.)

Recording and playback time

When using MDW-80:

Maximum 160 min. in monaural

Maximum 320 min. in stereo

Revolutions

350 rpm to 2,800 rpm (CLV)

Error correction

ACIRC (Advanced Cross Interleave Reed

Solomon Code)

Sampling frequency

44.1 kHz

Sampling rate converter

Input: 32 kHz/44.1 kHz/48 kHz

Coding

ATRAC (Adaptive TRAnsform Acoustic

Coding)

ATRAC3 — LP2

ATRAC3 — LP4

Modulation system

EFM (Eight to Fourteen Modulation)

Number of channels

2 stereo channels

1 monaural channel

Frequency response

20 to 20,000 Hz $\pm 3 \text{ dB}$

Wow and Flutter

Below measurable limit

Inputs

Microphone: stereo mini-jack, minimum input level 0.25 mV

Line in¹⁾: stereo mini-jack, minimum input level 49 mV

Optical (Digital) in¹⁾: optical (digital) mini-jack

Outputs

LINE OUT²⁾: stereo mini-jack

headphones: maximum output level 5 mW +

5 mW, load impedance 16 ohm

LINE OUT: 194 mV, load impedance 10

kilohm

¹⁾The LINE IN (OPT) jack is used to connect either a digital (optical) cable or a line (analog) cable.

²⁾The LINE OUT jack connects either headphones or a line cable.

Power requirements

AC Power Adaptor (supplied) connected at the DC IN 3V jack:

230–240 V AC, 50/60 Hz

Nickel metal hydride rechargeable battery

MHB-901 (supplied)

LR6 (size AA) alkaline battery (not supplied)

Dimensions

Approx. $78.9 \times 17.1 \times 72.0 \text{ mm}$ (w/h/d)

($3\frac{1}{8} \times 1\frac{1}{16} \times 2\frac{7}{8} \text{ in.}$)

Mass

Approx. 135 g (4.7 oz) incl. rechargeable battery (not incl. dry battery case)

- Design and specifications are subject to change without notice.
- Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
“DOLBY”, the double-D symbol  and “HX PRO” are trademarks of Dolby Laboratories Licensing Corporation. Laboratories Licensing Corporation.

ACCESSORIES/PACKAGE LIST-1/1

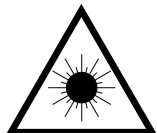
REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8B-HM1-902-010		IB, HK (ECH)
2	8B-HM1-951-010		RC UNIT, RC-F90
3	87-B30-138-010		MIC, CM-MS001
4	87-B30-491-010		HEADPHONE, HP-M041(S) S-G
5	91-251-895-110		CASE, BAT UM-3
	6	91-EM0-003-110	AC ADAPTOR, AMF90EX
	7	91-756-120-110	BAT, NH-14WM(A)
	8	93-043-060-010	CASE, BAT
	9	93-220-749-010	CARRYING, CASE
	10	9X-337-932-120	CASE ASSY, BAT
	11	91-EM0-007-110	OPTICAL CABLE

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 käyt-täjän turvallisuusluokan 1 ylit-tävälle näkymättömälle lasersäteilylle.

WARNING!

Om apparaten används på annat sätt än vad som specificeras i denna bruksanvisning, kan användaren utsättas för osynlig laserstrålning, 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

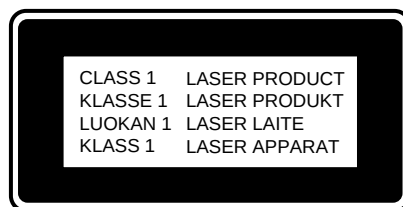
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

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.



Optical Pickup Block and Base Unit Handling Precautions (LCX-4R)

The laser diode inside the optical pickup can be destroyed by static electricity due to the static charge accumulated in human body or in cloths.

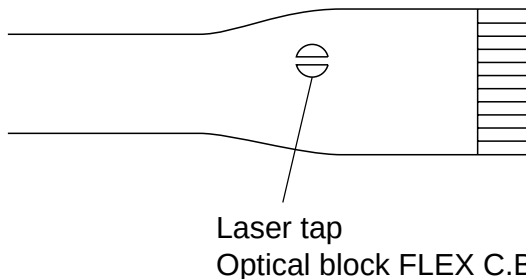
Before starting the repair work of optical block and/or laser diode, be very careful of the electrostatic breakdown because of potential static electricity from clothing and your body. Follow the same work procedures that are described in the printed material supplied with the repair optical block. Also, the FLEX C.B can be easily damaged. Be very careful when handling it.

Precaution when laser diode is emitting laser

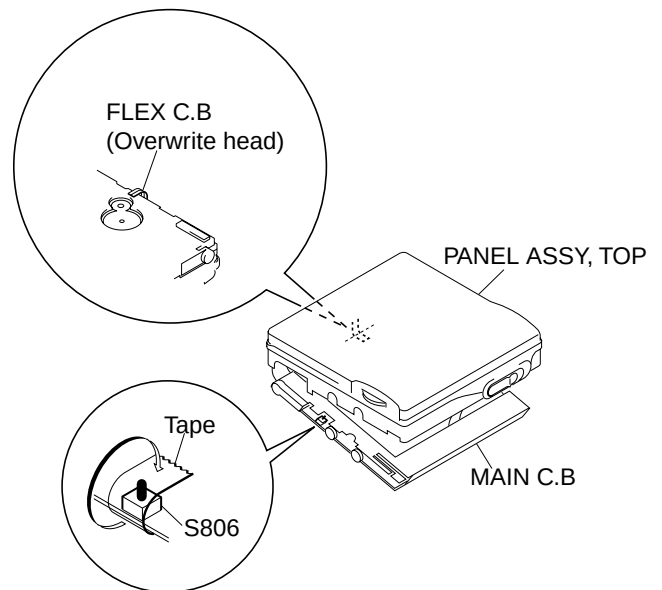
NEVER LOOK into the laser diode from directly on top of the laser diode. Doing so may result in loss of eyesight.

Precaution when handling the optical pickup (LCX-4R)

Because the laser diode inside the optical pickup can be very easily destroyed by static electricity, short circuit the laser taps of the FLEX C.B by solder-bridge before starting handling the optical laser. At the same time, take the sufficient preventive measures to protect the laser diode from the static electricity. The FLEX C.B can be easily damaged. Be very careful when handling it.



- If the MAIN C.B is removed when this machine is powered on during repair, this machine will not work. Fix the protruded portion (凸 portion) of the OPEN/CLOSE detection switch (MAIN C.B S806) with adhesive tape in order to work this machine.
- The FLEX C.B (Overwrite head) is connected to the MAIN C.B directly by soldering. Be careful not to damage the FLEX C.B (Overwrite head).
To perform any repair work on the component side of the MAIN C.B, connect the FLEX C.B (Overwrite head) and the MAIN C.B with the jumper leads before starting the repair work. (Refer to DISASSEMBLY INSTRUCTIONS on page 9.)



- * For replacement and repair of CDX2671-203 GA (IC801) that is used in this machine, special tool is required.

Service Note

- The sets that use the microprocessor version 1.000 are adjusted of their setup data by the MANUAL mode in the factory before shipment. If the NV reset is executed in these sets, the setup data will be cleared. If the NV reset is executed in the sets of version 1.000, change the adjustment value in accordance with the adjustment value change procedure immediately after the NV reset is executed. (Refer to ELECTRICAL ADJUSTMENT page 32.)
- If non-volatile memory of this machine is replaced, the program correction data must be written in the non-volatile memory. After the non-volatile memory is replaced, write the appropriate correction data that suit to the version number of the microprocessor in accordance with the patch data re-writing procedure when the non-volatile memory is replaced. (Refer to ELECTRICAL ADJUSTMENT page 37.)

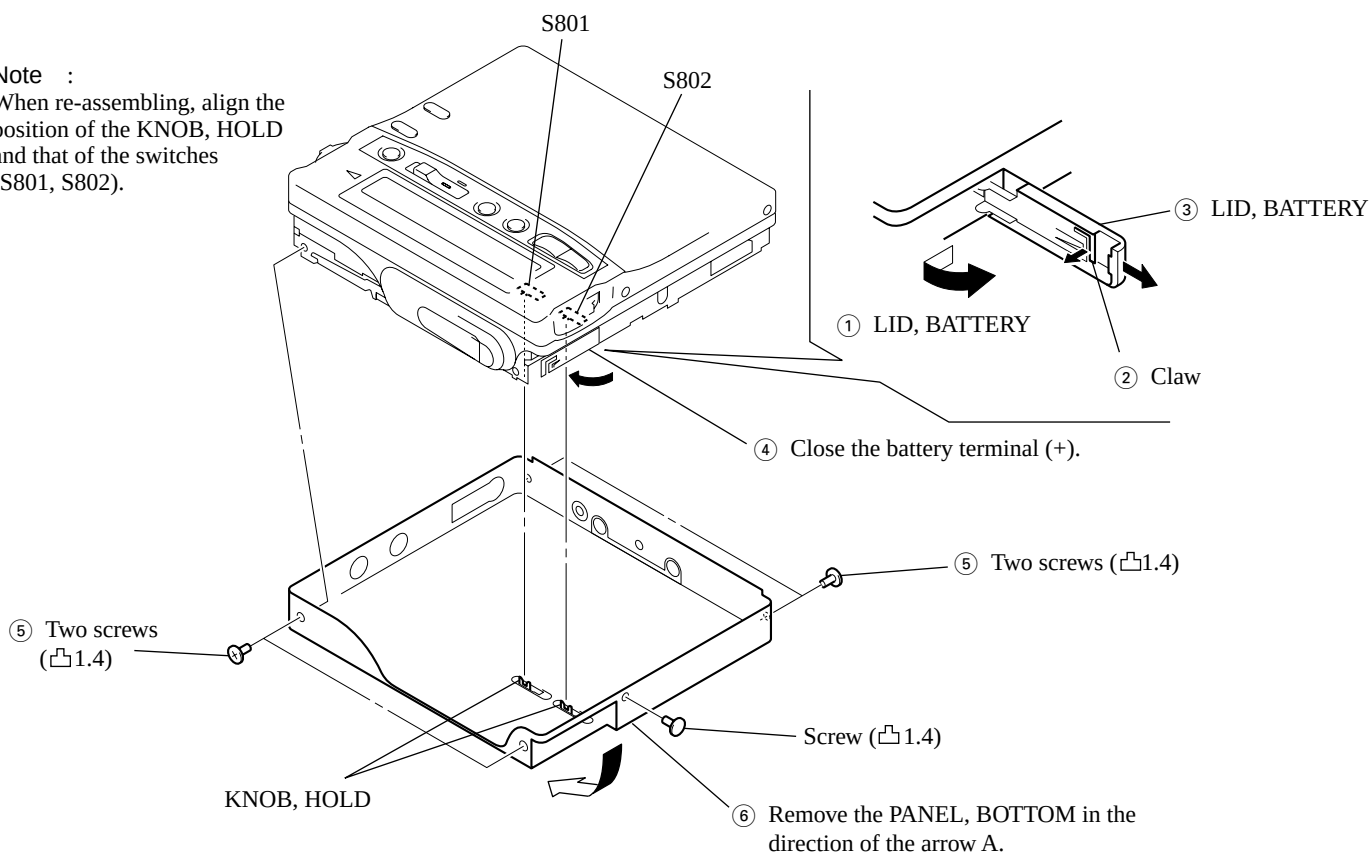
DISASSEMBLY INSTRUCTIONS-1/6

If the numbers such as ① are shown in the illustration, disassemble the machine in the numerical order given in the illustration.

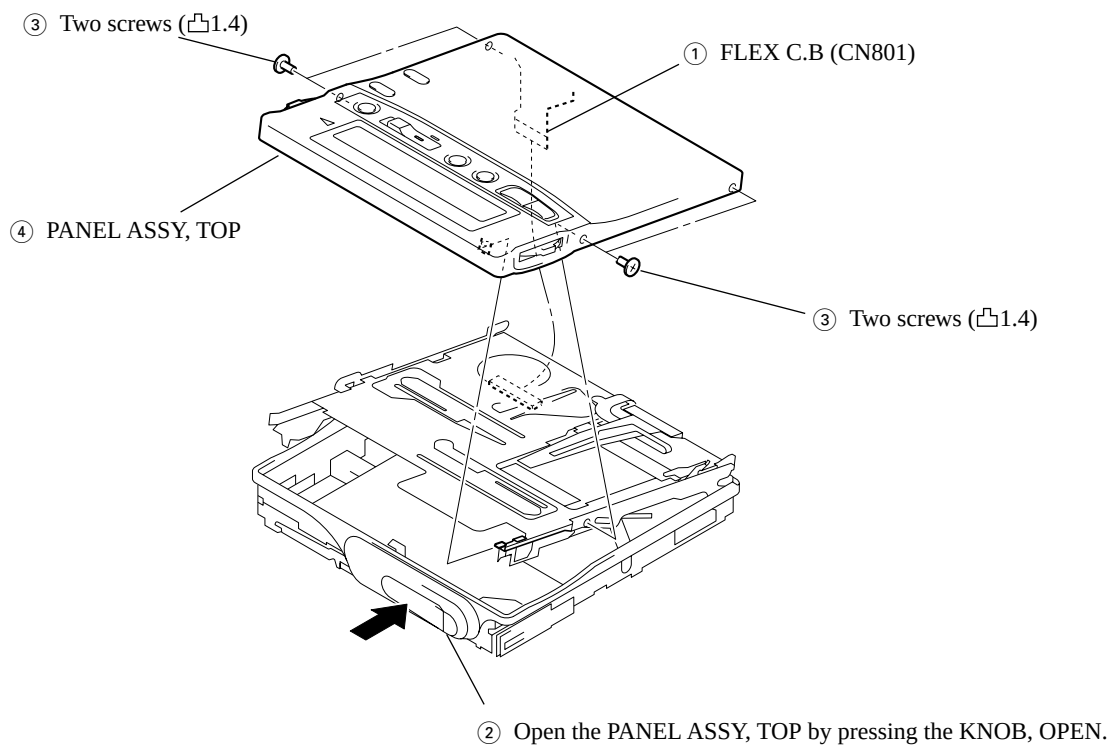
PANEL, BOTTOM

Note :

When re-assembling, align the position of the KNOB, HOLD and that of the switches (S801, S802).

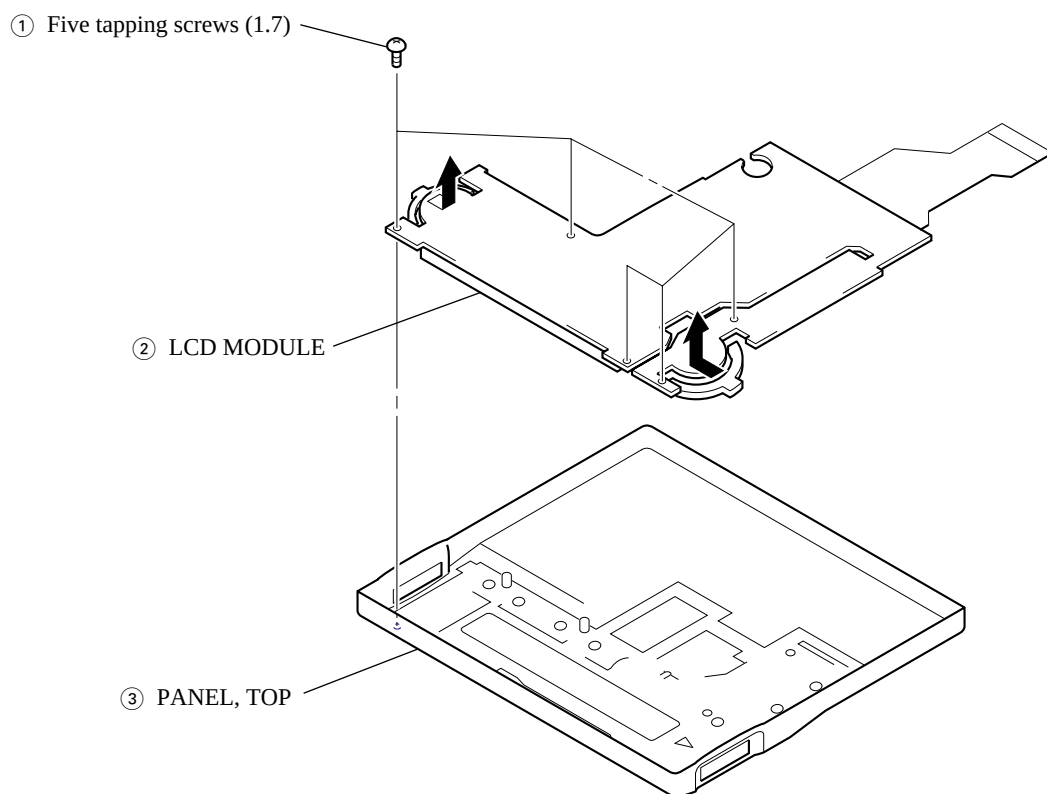


PANEL ASSY, TOP

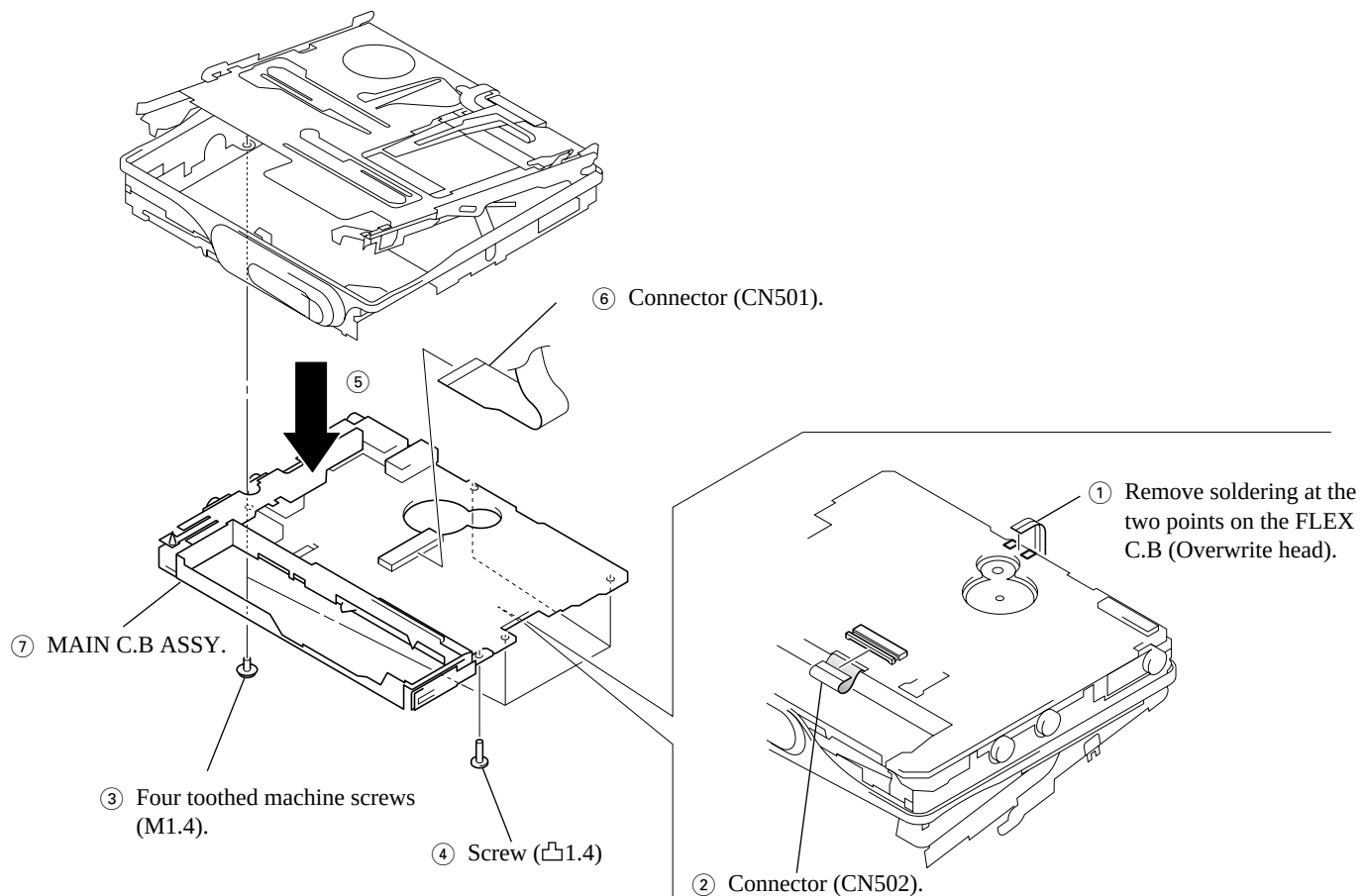


DISASSEMBLY INSTRUCTIONS-2/6

LCD MODULE and PANEL, TOP

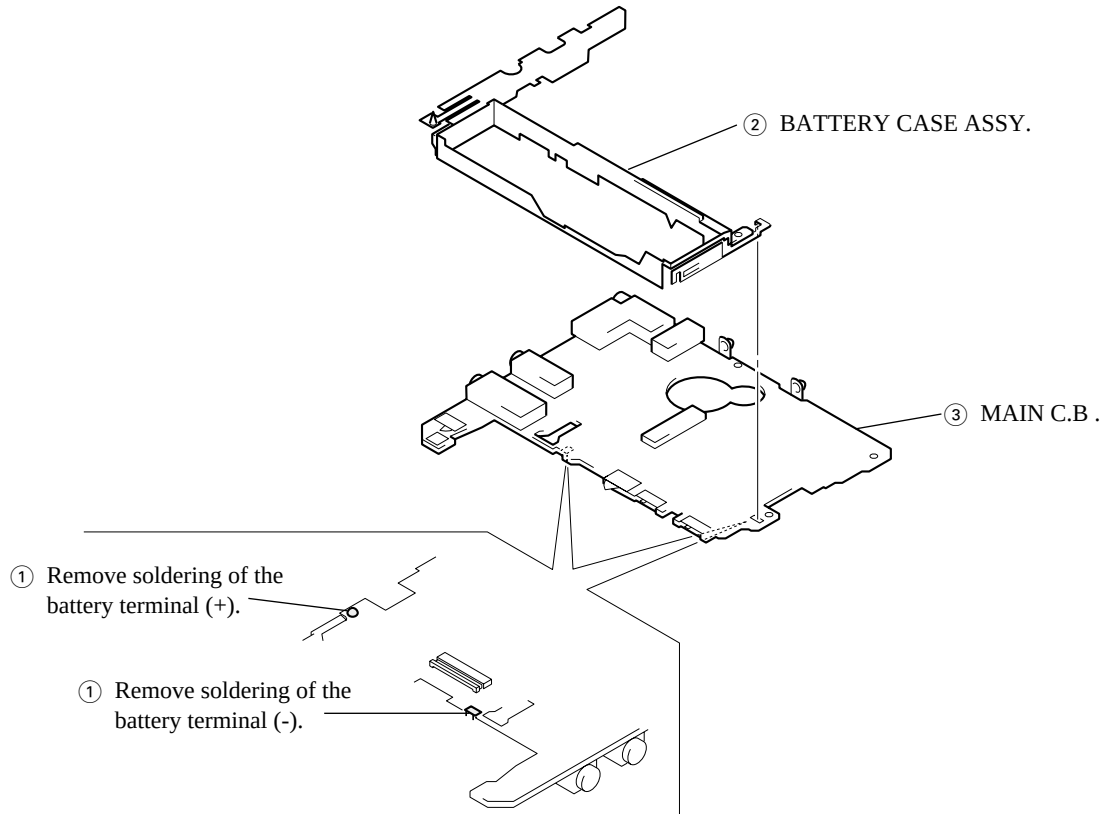


MAIN C.B ASSY

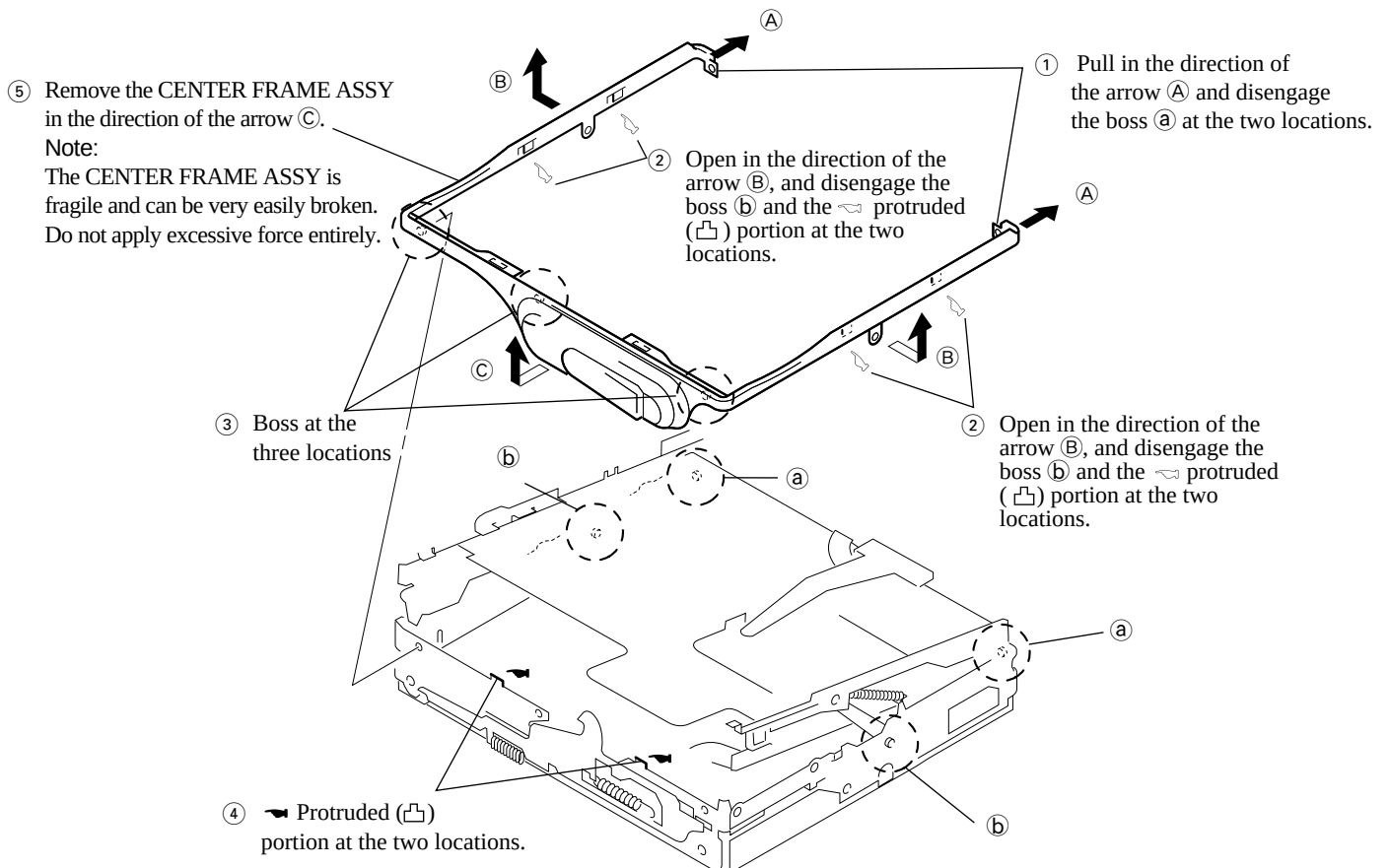


DISASSEMBLY INSTRUCTIONS-3/6

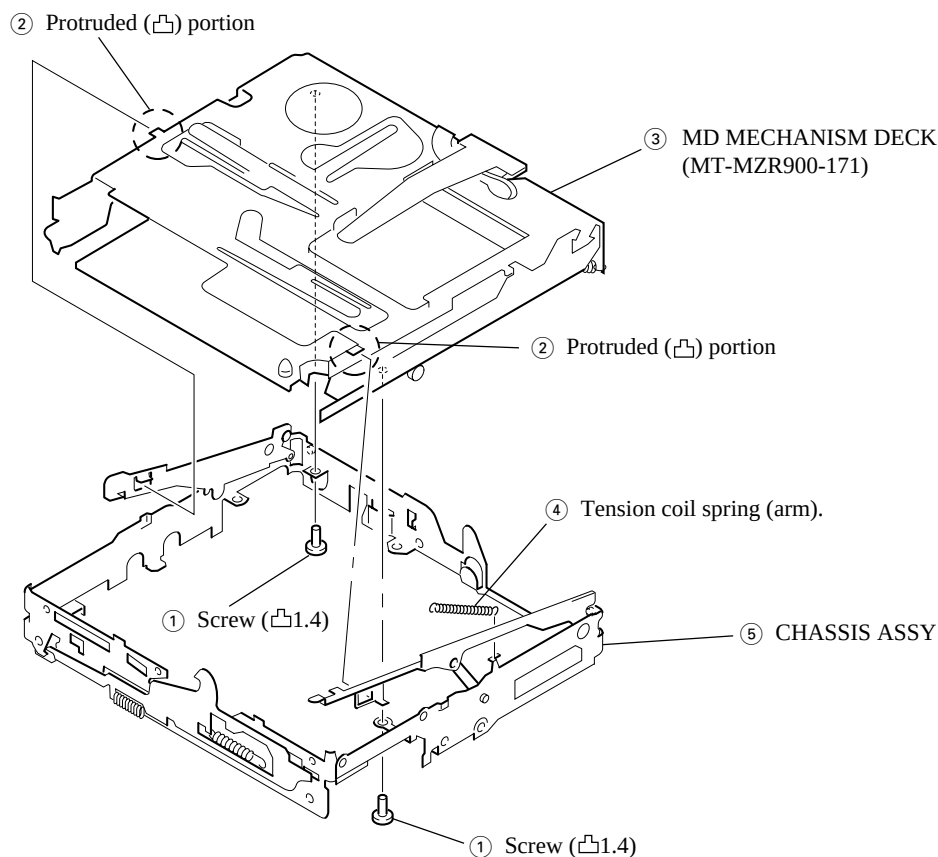
BATTERY CASE ASSY, MAIN C.B



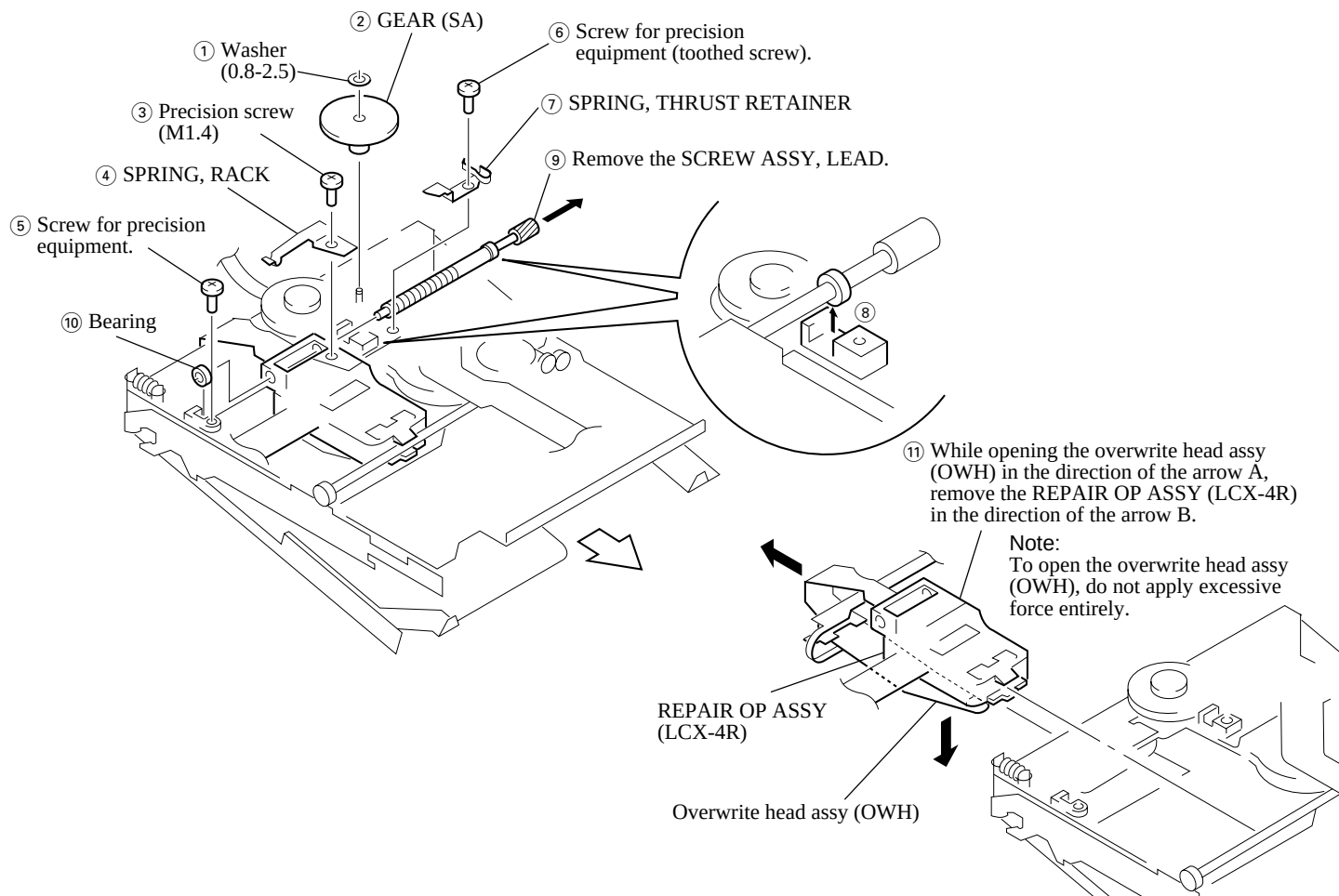
CENTER FRAME ASSY



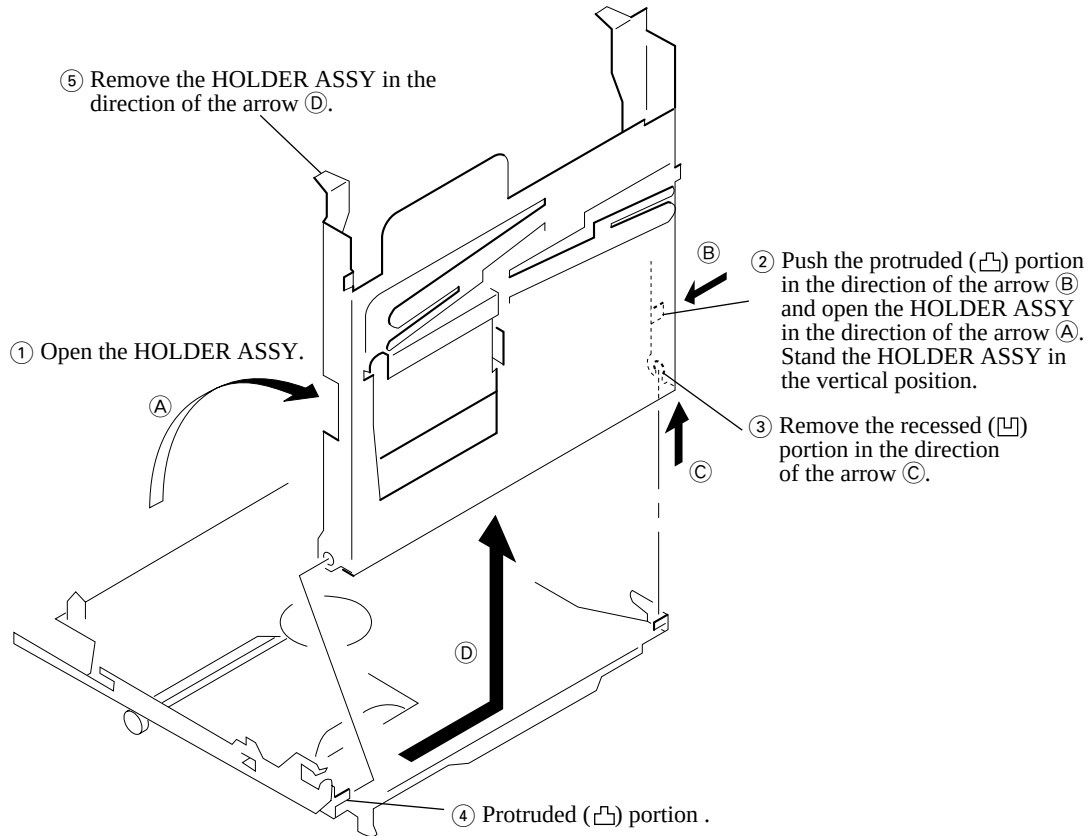
MD MECHANISM DECK (MT-MZR900-171), CHASSIS ASSY



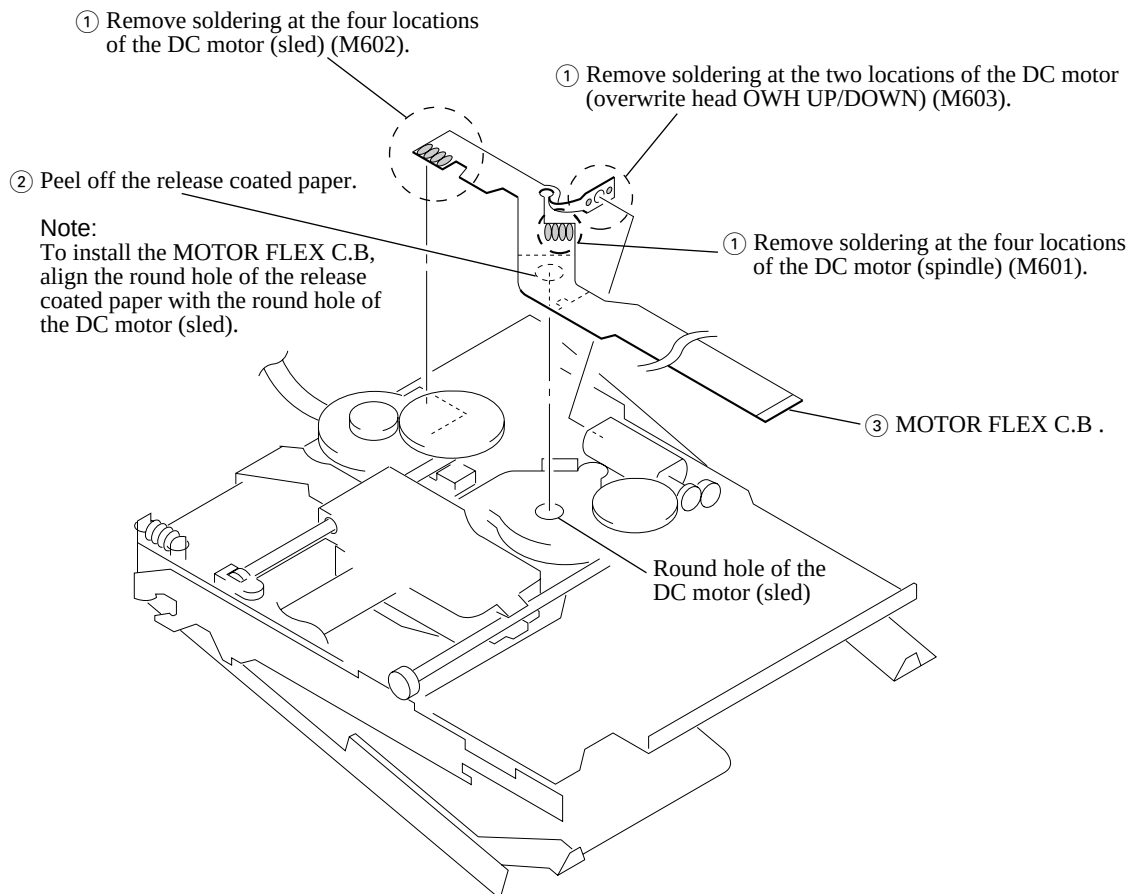
REPAIR OP ASSY (LCX-4R)



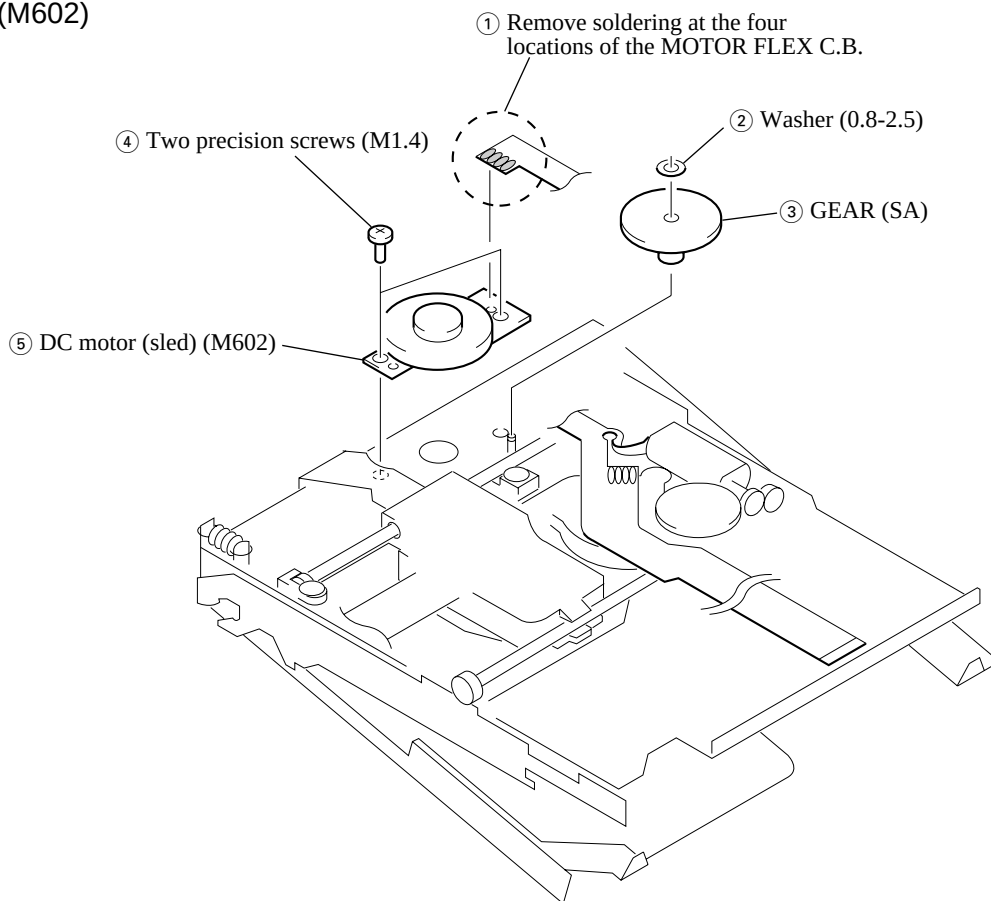
HOLDER ASSY



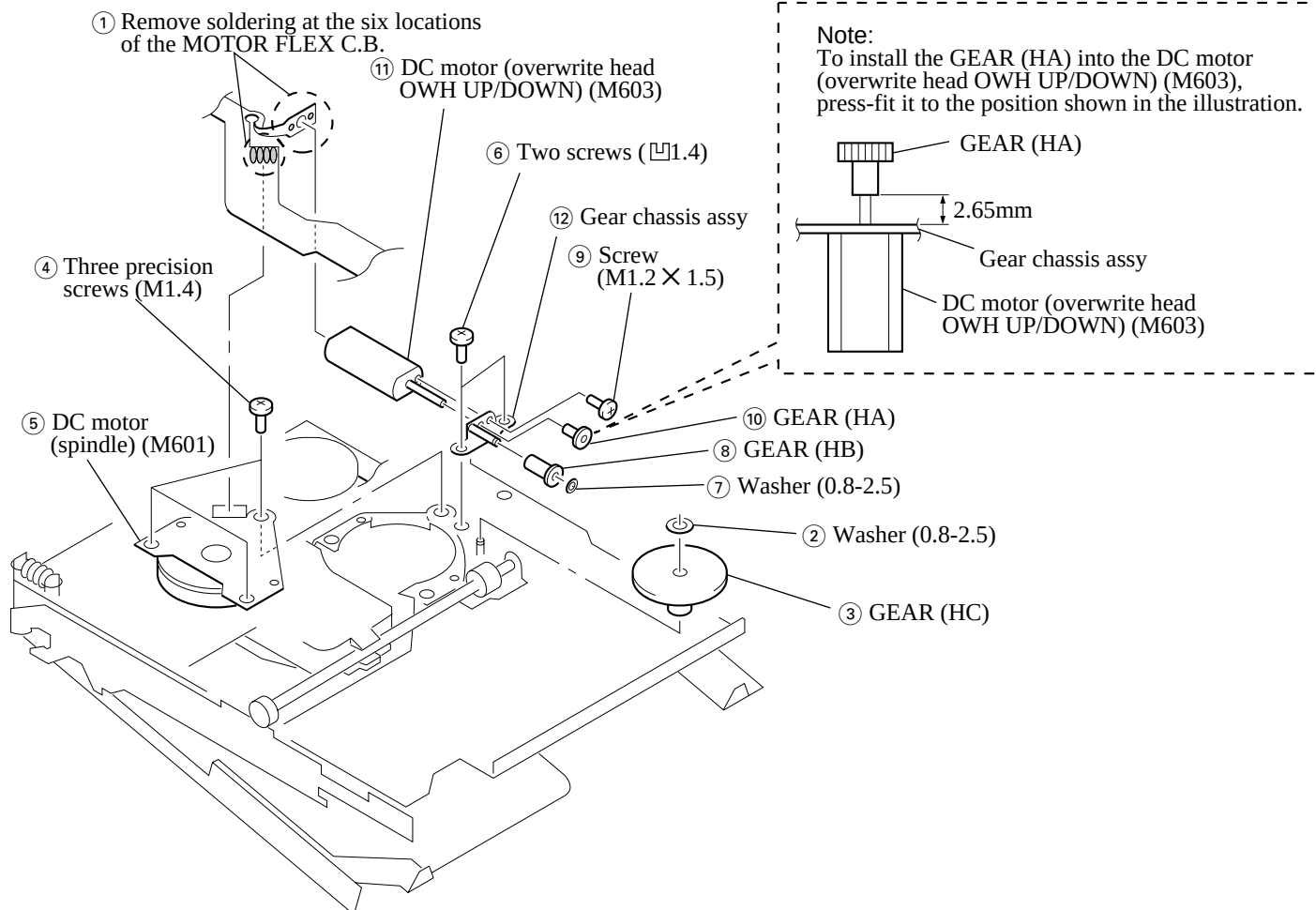
MOTOR FLEX C.B



DC motor (sled) (M602)



DC motor (spindle) (M601), DC motor (overwrite head OWH UP/DOWN) (M603)



ELECTRICAL MAIN PARTS LIST-1/4

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
MAIN C.B				C511	91-164-850-810		C-CAP,CER 10P-16
C101	91-125-837-910		C-CAP,CER 1-6.3	C512	91-125-777-810		C-CAP,CER 0.1-10
C103	91-125-837-910		C-CAP,CER 1-6.3	C513	91-164-850-810		C-CAP,CER 10P-16
C104	91-135-868-910		C-CAP,TN 220-2.5	C514	91-107-819-810		C-CAP,CER 0.022-16
C105	91-113-600-910		C-CAP,TN 2.2-6.3	C515	91-125-777-810		C-CAP,CER 0.1-10
C106	91-164-939-810		C-CAP,CER 2200P-16	C516	91-125-777-810		C-CAP,CER 0.1-10
C110	91-125-837-910		C-CAP,CER 1-6.3	C518	91-131-734-210		C-CAP,TN 4.7-6.3
C111	91-164-874-810		C-CAP,CER 100P-16	C519	91-164-940-810		C-CAP,CER 3300P-16
C112	91-125-837-910		C-CAP,CER 1-6.3	C521	91-125-777-810		C-CAP,CER 0.1-10
C113	91-131-862-910		C-CAP,TN 47-4	C522	91-125-777-810		C-CAP,CER 0.1-10
C116	91-164-937-810		C-CAP,CER 1000P-16	C523	91-125-837-910		C-CAP,CER 1-6.3
C117	91-125-777-810		C-CAP,CER 0.1-10	C524	91-117-919-910		C-CAP,TN 10-6.3
C118	91-164-939-810		C-CAP,CER 2200P-16	C526	91-125-777-810		C-CAP,CER 0.1-10
C201	91-125-837-910		C-CAP,CER 1-6.3	C529	91-125-840-910		CAP,TN 10-6.3
C203	91-125-837-910		C-CAP,CER 1-6.3	C530	91-164-939-810		C-CAP,CER 2200P-16
C204	91-135-868-910		C-CAP,TN 220-2.5	C532	91-119-923-810		C-CAP,CER 0.047-10
C205	91-113-600-910		C-CAP,TN 2.2-6.3	C551	91-125-837-910		C-CAP,CER 1-6.3
C206	91-164-939-810		C-CAP,CER 2200P-16	C552	91-125-837-910		C-CAP,CER 1-6.3
C210	91-125-837-910		C-CAP,CER 1-6.3	C553	91-127-578-910		C-CAP,TN 3.3-6.3
C211	91-164-874-810		C-CAP,CER 100P-16	C554	91-127-578-910		C-CAP,TN 3.3-6.3
C212	91-125-837-910		C-CAP,CER 1-6.3	C555	91-131-621-910		C-CAP,TN 6.8-6.3
C213	91-131-862-910		C-CAP,TN 47-4	C556	91-131-621-910		C-CAP,TN 6.8-6.3
C216	91-164-937-810		C-CAP,CER 1000P-16	C557	91-127-772-810		C-CAP,CER 0.033-10
C217	91-125-777-810		C-CAP,CER 0.1-10	C558	91-127-772-810		C-CAP,CER 0.033-10
C218	91-164-939-810		C-CAP,CER 2200P-16	C559	91-127-772-810		C-CAP,CER 0.033-10
C301	91-131-725-910		C-CAP,TN 47-6.3	C561	91-125-777-810		C-CAP,CER 0.1-10
C302	91-107-820-810		C-CAP,CER 0.1-16	C601	91-164-943-810		C-CAP,CER 0.01-16
C303	91-117-919-910		C-CAP,TN 10-6.3	C602	91-125-777-810		C-CAP,CER 0.1-10
C304	91-107-820-810		C-CAP,CER 0.1-16	C603	91-125-839-910		C-CAP,TN 47-6.3
C305	91-113-600-910		C-CAP,TN 2.2-6.3	C604	91-164-943-810		C-CAP,CER 0.01-16
C306	91-107-820-810		C-CAP,CER 0.1-16	C605	91-164-937-810		C-CAP,CER 1000P-16
C307	91-125-777-810		C-CAP,CER 0.1-10	C606	91-164-874-810		C-CAP,CER 100P-16
C308	91-107-820-810		C-CAP,CER 0.1-16	C607	91-164-874-810		C-CAP,CER 100P-16
C309	91-127-895-910		C-CAP,TN 22-4	C608	91-125-777-810		C-CAP,CER 0.1-10
C310	91-125-899-910		C-CAP,TN 220-4	C609	91-137-762-910		C-CAP,TN 10-4
C311	91-128-964-910		C-CAP,TN 100-6.3	C610	91-137-704-910		C-CAP,TN 10-10
C312	91-127-895-910		C-CAP,TN 22-4	C611	91-117-919-910		C-CAP,TN 10-6.3
C313	91-127-895-910		C-CAP,TN 22-4	C612	91-117-919-910		C-CAP,TN 10-6.3
C314	91-119-923-810		C-CAP,CER 0.047-10	C613	91-125-777-810		C-CAP,CER 0.1-10
C315	91-127-578-910		C-CAP,TN 3.3-6.3	C614	91-125-777-810		C-CAP,CER 0.1-10
C316	91-131-734-210		C-CAP,TN 4.7-6.3	C615	91-137-760-910		C-CAP,M 100P-100
C318	91-125-777-810		C-CAP,CER 0.1-10	C616	91-125-777-810		C-CAP,CER 0.1-10
C320	91-117-919-910		C-CAP,TN 10-6.3	C618	91-125-777-810		C-CAP,CER 0.1-10
C321	91-125-777-810		C-CAP,CER 0.1-10	C619	91-125-777-810		C-CAP,CER 0.1-10
C322	91-131-862-910		C-CAP,TN 47-4	C621	91-164-943-810		C-CAP,CER 0.01-16
C323	91-117-919-910		C-CAP,TN 10-6.3	C623	91-127-895-910		C-CAP,TN 22-4
C329	91-125-777-810		C-CAP,CER 0.1-10	C624	91-127-895-910		C-CAP,TN 22-4
C330	91-107-820-810		C-CAP,CER 0.1-16	C625	91-131-862-910		C-CAP,TN 47-4
C332	91-117-919-910		C-CAP,TN 10-6.3	C626	91-125-839-910		C-CAP,TN 47-6.3
C334	91-117-919-910		C-CAP,TN 10-6.3	C629	91-164-943-810		C-CAP,CER 0.01-16
C335	91-164-933-810		C-CAP,CER 220P-16	C630	91-164-874-810		C-CAP,CER 100P-16
C336	91-125-837-910		C-CAP,CER 1-6.3	C631	91-117-919-910		C-CAP,TN 10-6.3
C337	91-117-863-910		C-CAP,0.47-6.3	C633	91-125-777-810		C-CAP,CER 0.1-10
C338	91-164-874-810		C-CAP,CER 100P-16	C801	91-125-777-810		C-CAP,CER 0.1-10
C340	91-125-777-810		C-CAP,CER 0.1-10	C802	91-164-943-810		C-CAP,CER 0.01-16
C344	91-164-943-810		C-CAP,CER 0.01-16	C803	91-164-943-810		C-CAP,CER 0.01-16
C501	91-164-874-810		C-CAP,CER 100P-16	C804	91-125-777-810		C-CAP,CER 0.1-10
C502	91-127-772-810		C-CAP,CER 0.033-10	C805	91-119-923-810		C-CAP,CER 0.047-10
C503	91-164-940-810		C-CAP,CER 3300P-16	C806	91-119-923-810		C-CAP,CER 0.047-10
C504	91-164-940-810		C-CAP,CER 3300P-16	C807	91-164-850-810		C-CAP,CER 10P-16
C505	91-164-943-810		C-CAP,CER 0.01-16	C808	91-164-850-810		C-CAP,CER 10P-16
C506	91-127-772-810		C-CAP,CER 0.033-10	C809	91-117-919-910		C-CAP,TN 10-6.3
C507	91-127-772-810		C-CAP,CER 0.033-10	C810	91-125-837-910		C-CAP,CER 1-6.3
C508	91-164-938-810		C-CAP,CER 1500P-16	C811	91-125-837-910		C-CAP,CER 1-6.3
C509	91-164-940-810		C-CAP,CER 3300P-16	C812	91-164-943-810		C-CAP,CER 0.01-16
C510	91-164-850-810		C-CAP,CER 10P-16	C813	91-125-891-910		C-CAP,CER 0.47-10
				C814	91-164-935-810		C-CAP,CER 470P-16
				C815	91-131-725-910		C-CAP,TN 47-6.3
				C816	91-125-777-810		C-CAP,CER 0.1-10
				C817	91-125-837-910		C-CAP,CER 1-6.3

ELECTRICAL MAIN PARTS LIST-2/4

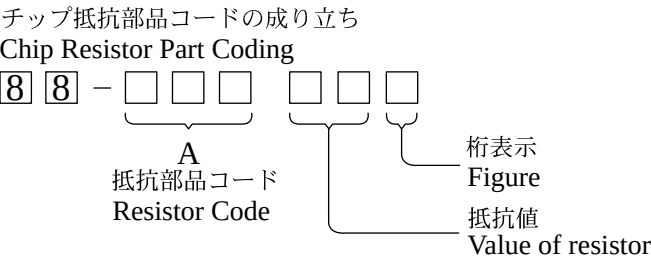
REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
C818	91-125-777-810	C-CAP,CER 0.1-10		IC301	98-759-829-440	IC,AK4562VN-L	
C819	91-127-772-810	C-CAP,CER 0.033-10		IC302	98-759-829-770	IC,AN7536FHNEBV	
C820	91-127-772-810	C-CAP,CER 0.033-10		IC303	98-759-699-540	IC,NJM2173APC1	
C821	91-127-895-910	C-CAP,TN 22-4		IC501	98-759-689-670	IC,SN761057DBT	
C822	91-125-777-810	C-CAP,CER 0.1-10		IC551	98-759-698-620	IC,SC111257FCR2	
C823	91-107-820-810	C-CAP,CER 0.1-16		IC601	98-759-698-600	IC,XPC18A22FCR2	
C825	91-125-777-810	C-CAP,CER 0.1-10		IC801	98-752-410-490	IC,CXD2671-203GA	
C826	91-127-715-910	C-CAP,CER 0.22-16		IC804	98-759-680-850	IC,AK6417AL-L	
C827	91-164-850-810	C-CAP,CER 10P-16		IC805	98-759-196-970	IC,TC7SH32FU-TE85R	
C828	91-125-837-910	C-CAP,CER 1-6.3		IC901	98-759-698-610	IC,XPC18A32FCR2	
C829	91-127-715-910	C-CAP,CER 0.22-16		J301	91-793-619-210	JACK,LINE IN	
C830	91-117-919-910	C-CAP,TN 10-6.3		J302	91-793-509-110	JACK,PHON	
C831	91-128-964-910	C-CAP,TN 100-6.3		J303	91-793-620-210	JACK,MIC	
C832	91-107-820-810	C-CAP,CER 0.1-16		J601	91-785-383-110	JACK,DC	
C833	91-164-874-810	C-CAP,CER 100P-16		L301	91-469-535-210	C-COIL,10U	
C834	91-125-777-810	C-CAP,CER 0.1-10		L302	91-469-535-210	C-COIL,10U	
C835	91-125-777-810	C-CAP,CER 0.1-10		L303	91-469-535-210	C-COIL,10U	
C836	91-125-777-810	C-CAP,CER 0.1-10		L501	91-469-535-210	C-COIL,10U	
C837	91-125-777-810	C-CAP,CER 0.1-10		L502	91-469-535-210	C-COIL,10U	
C901	91-125-840-910	CAP,TN 10-6.3		L551	91-414-402-410	C-COIL,47U	
C902	91-137-762-910	C-CAP,TN 10-4		L552	91-414-402-410	C-COIL,47U	
C903	91-128-964-910	C-CAP,TN 100-6.3		L553	91-469-422-210	COIL,22U	
C904	91-137-762-910	C-CAP,TN 10-4		L554	91-469-422-210	COIL,22U	
C905	91-125-777-810	C-CAP,CER 0.1-10		L601	91-419-959-210	COIL,6.8U	
C906	91-164-943-810	C-CAP,CER 0.01-16		L602	91-469-535-210	C-COIL,10U	
C907	91-125-889-910	C-CAP,CER 2.2-10		L603	91-469-535-210	C-COIL,10U	
C908	91-125-777-810	C-CAP,CER 0.1-10		L801	91-469-535-210	C-COIL,10U	
C911	91-117-919-910	C-CAP,TN 10-6.3		L802	91-469-535-210	C-COIL,10U	
C913	91-164-941-810	C-CAP,CER 4700P-16		L901	91-419-952-210	COIL,68U	
C914	91-125-777-810	C-CAP,CER 0.1-10		L902	91-419-949-210	COIL,22U	
C915	91-125-777-810	C-CAP,CER 0.1-10		L903	91-469-367-210	CIOL,10U	
C917	91-125-777-810	C-CAP,CER 0.1-10		L904	91-414-398-410	COIL,10U	
C919	91-117-919-910	C-CAP,TN 10-6.3		L905	91-469-426-210	COIL,100U	
C920	91-117-919-910	C-CAP,TN 10-6.3		Q302	98-729-046-490	FET,FDV304P	
C921	91-125-777-810	C-CAP,CER 0.1-10		Q501	98-729-922-110	TR,2SA1577-QR	
C922	91-164-937-810	C-CAP,CER 1000P-16		Q601	98-729-046-450	FET,SI2302DS-T1	
C923	91-125-891-910	C-CAP,CER 0.47-10		Q602	98-729-046-440	TR,ZDT6718TA	
C924	91-125-891-910	C-CAP,CER 0.47-10		Q603	98-729-053-710	TR,TS8K1TB	
C925	91-125-891-910	C-CAP,CER 0.47-10		Q604	98-729-046-430	FET,HAT2051T-EL	
C926	91-164-937-810	C-CAP,CER 1000P-16		Q605	98-729-046-420	FET,HAT2050T-EL	
C932	91-125-777-810	C-CAP,CER 0.1-10		Q801	98-729-429-460	TR,XP1501	
CN501	91-778-168-210	CONN,20P		Q803	98-729-029-140	TR,DTC144EUA-T106	
CN502	91-794-756-210	CONN,15P		R101	91-208-907-810	C-RES,6.8K-1/16-0.5	
CN801	91-794-755-210	CONN,18P		R103	91-218-965-810	C-RES,10K-1/16	
D301	98-719-081-740	DIODE,DF8A6.8FK		R104	91-218-990-810	C-RES,0-1/16	
D302	98-719-081-730	DIODE,DF3A6.8FE		R111	91-208-919-810	C-RES,22K-1/16-0.5	
D303	98-719-046-900	DIODE,MA2S111		R112	91-208-927-810	C-RES,47K-1/16-0.5	
D601	98-719-081-330	DIODE,MA2YD1500LS0		R118	91-208-907-810	C-RES,6.8K-1/16-0.5	
D602	98-719-081-330	DIODE,MA2YD1500LS0		R201	91-208-907-810	C-RES,6.8K-1/16-0.5	
D603	98-719-081-340	DIODE,RB160M-30TR		R203	91-218-965-810	C-RES,10K-1/16	
D605	98-719-081-340	DIODE,RB160M-30TR		R204	91-218-990-810	C-RES,0-1/16	
D606	98-719-081-350	DIODE,MA2YD1700LS0		R211	91-208-919-810	C-RES,22K-1/16-0.5	
D607	98-719-081-330	DIODE,MA2YD1500LS0		R212	91-208-927-810	C-RES,47K-1/16-0.5	
D608	98-719-081-350	DIODE,MA2YD1700LS0		R218	91-208-907-810	C-RES,6.8K-1/16-0.5	
D801	98-719-056-540	DIODE,MAZS068008S0		R301	91-208-911-810	C-RES,10K-1/16-0.5	
D901	98-719-081-330	DIODE,MA2YD1500LS0		R302	91-218-953-810	C-RES,1K-1/16	
D902	98-719-081-330	DIODE,MA2YD1500LS0		R303	91-218-983-810	C-RES,330K-1/16	
D903	98-719-420-520	DIODE,MA729		R304	91-218-953-810	C-RES,1K-1/16	
D904	98-719-404-500	DIODE,MA111		R305	91-218-953-810	C-RES,1K-1/16	
△F801	91-576-439-210	FUSE,0.25A-125V		R306	91-218-985-810	C-RES,470K-1/16	
FB301	91-216-864-910	C-RES,0-1/16		R307	91-218-941-810	C-RES,100-1/16	
FB302	91-216-864-910	C-RES,0-1/16		R308	91-218-989-810	C-RES,1M-1/16	
FB303	91-216-809-910	C-RES,100-1/16		R309	91-208-943-810	C-RES,220K-1/16-0.5	
FB304	91-216-809-910	C-RES,100-1/16		R310	91-218-957-810	C-RES,2.2K-1/16	
FB305	91-216-864-910	C-RES,0-1/16		R312	91-218-990-810	C-RES,0-1/16	
FB306	91-216-864-910	C-RES,0-1/16		R317	91-218-941-810	C-RES,100-1/16	
FB801	91-216-864-910	C-RES,0-1/16		R318	91-218-941-810	C-RES,100-1/16	
FB802	91-216-864-910	C-RES,0-1/16		R319	91-218-941-810	C-RES,100-1/16	
FB803	91-216-864-910	C-RES,0-1/16		R501	91-218-971-810	C-RES,33K-1/16	
FB804	91-216-864-910	C-RES,0-1/16		R505	91-208-907-810	C-RES,6.8K-1/16-0.5	

ELECTRICAL MAIN PARTS LIST-3/4

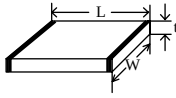
REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
R507	91-218-953-810	C-RES,1K-1/16		R831	91-218-990-810	C-RES,0-1/16	
R517	91-208-895-810	C-RES,2.2K-1/16-0.5		R832	91-218-990-810	C-RES,0-1/16	
R519	91-218-977-810	C-RES,100K-1/16		R833	91-218-990-810	C-RES,0-1/16	
R521	91-218-446-910	C-RES,1-1/16		R834	91-218-990-810	C-RES,0-1/16	
R601	91-218-989-810	C-RES,1M-1/16		R837	91-218-990-810	C-RES,0-1/16	
R602	91-218-981-810	C-RES,220K-1/16		R838	91-218-990-810	C-RES,0-1/16	
R603	91-218-977-810	C-RES,100K-1/16		R839	91-218-990-810	C-RES,0-1/16	
R604	91-219-724-910	C-RES,1-1/4-1		R840	91-218-990-810	C-RES,0-1/16	
R605	91-242-996-910	C-RES,0.68-1/4		R841	91-216-809-910	C-RES,100-1/16	
R606	91-218-949-810	C-RES,470-1/16		R844	91-216-864-910	C-RES,0-1/16	
R607	91-218-945-810	C-RES,220-1/16		R845	91-218-990-810	C-RES,0-1/16	
R608	91-218-983-810	C-RES,330K-1/16		R846	91-218-941-810	C-RES,100-1/16	
R609	91-219-724-910	C-RES,1-1/4-1		R902	91-218-985-810	C-RES,470K-1/16	
R610	91-218-990-810	C-RES,0-1/16		R903	91-218-957-810	C-RES,2.2K-1/16	
R611	91-218-990-810	C-RES,0-1/16		R905	91-218-957-810	C-RES,2.2K-1/16	
R613	91-218-957-810	C-RES,2.2K-1/16		R906	91-218-990-810	C-RES,0-1/16	
R619	91-218-990-810	C-RES,0-1/16		R907	91-218-985-810	C-RES,470K-1/16	
R620	91-218-965-810	C-RES,10K-1/16		R908	91-218-977-810	C-RES,100K-1/16	
R621	91-218-965-810	C-RES,10K-1/16		R909	91-218-965-810	C-RES,10K-1/16	
R622	91-216-797-910	C-RES,10-1/16		R910	91-218-965-810	C-RES,10K-1/16	
R801	91-218-981-810	C-RES,220K-1/16		R911	91-218-949-810	C-RES,470-1/16	
R802	91-208-927-810	C-RES,47K-1/16-0.5		R912	91-218-987-810	C-RES,680K-1/16	
R803	91-208-927-810	C-RES,47K-1/16-0.5		R915	91-218-941-810	C-RES,100-1/16	
R804	91-218-959-810	C-RES,3.3K-1/16		R917	91-218-990-810	C-RES,0-1/16	
R805	91-218-959-810	C-RES,3.3K-1/16		R920	91-208-911-810	C-RES,10K-1/16-0.5	
R806	91-218-951-810	C-RES,680-1/16		R921	91-218-979-810	C-RES,150K-1/16	
R807	91-218-929-810	C-RES,10-1/16		R936	91-218-977-810	C-RES,100K-1/16	
R808	91-218-965-810	C-RES,10K-1/16		R941	91-218-971-810	C-RES,33K-1/16	
R809	91-218-977-810	C-RES,100K-1/16		R946	91-208-919-810	C-RES,22K-1/16-0.5	
R810	91-208-919-810	C-RES,22K-1/16-0.5		R947	91-218-985-810	C-RES,470K-1/16	
R811	91-218-983-810	C-RES,330K-1/16		R948	91-208-939-810	C-RES,150K-1/16-0.5	
R812	91-208-939-810	C-RES,150K-1/16-0.5		R949	91-218-989-810	C-RES,1M-1/16	
R813	91-218-989-810	C-RES,1M-1/16		RB551	91-233-959-210	C-ARRAY,470	
R814	91-218-929-810	C-RES,10-1/16		RB552	91-233-973-210	C-ARRAY,100K	
R815	91-218-971-810	C-RES,33K-1/16		RB553	91-233-967-210	C-ARRAY,10K	
R816	91-218-953-810	C-RES,1K-1/16		RB801	91-233-973-210	C-ARRAY,100K	
R817	91-218-977-810	C-RES,100K-1/16		S801	91-786-030-210	SW,SL HOLD	
R821	91-218-981-810	C-RES,220K-1/16		S802	91-786-030-210	SW,SL HOLD	
R822	91-218-953-810	C-RES,1K-1/16		S803	91-771-860-210	SW,PUSH PROTECT	
R823	91-218-945-810	C-RES,220-1/16		S804	91-771-806-610	SW,PUSH BAT	
R824	91-218-959-810	C-RES,3.3K-1/16		S805	91-762-947-120	SW,PUSH OPEN	
R825	91-202-974-810	C-RES,3.3M-1/16		S806	91-762-805-210	SW,PUSH OPEN/CLOSE	
R828	91-208-895-810	C-RES,2.2K-1/16-0.5		T601	91-416-405-210	C-FLTR,EMI	
R829	91-208-895-810	C-RES,2.2K-1/16-0.5		TH601	91-533-817-210	THMS,CDU415-10	
R830	91-218-989-810	C-RES,1M-1/16		X801	91-795-000-210	VIB,X'TAL,45.1584M	

- Regarding connectors, they are not stocked as they are not the initial order items.
The connectors are available after they are supplied from connector manufacturers upon the order is received.

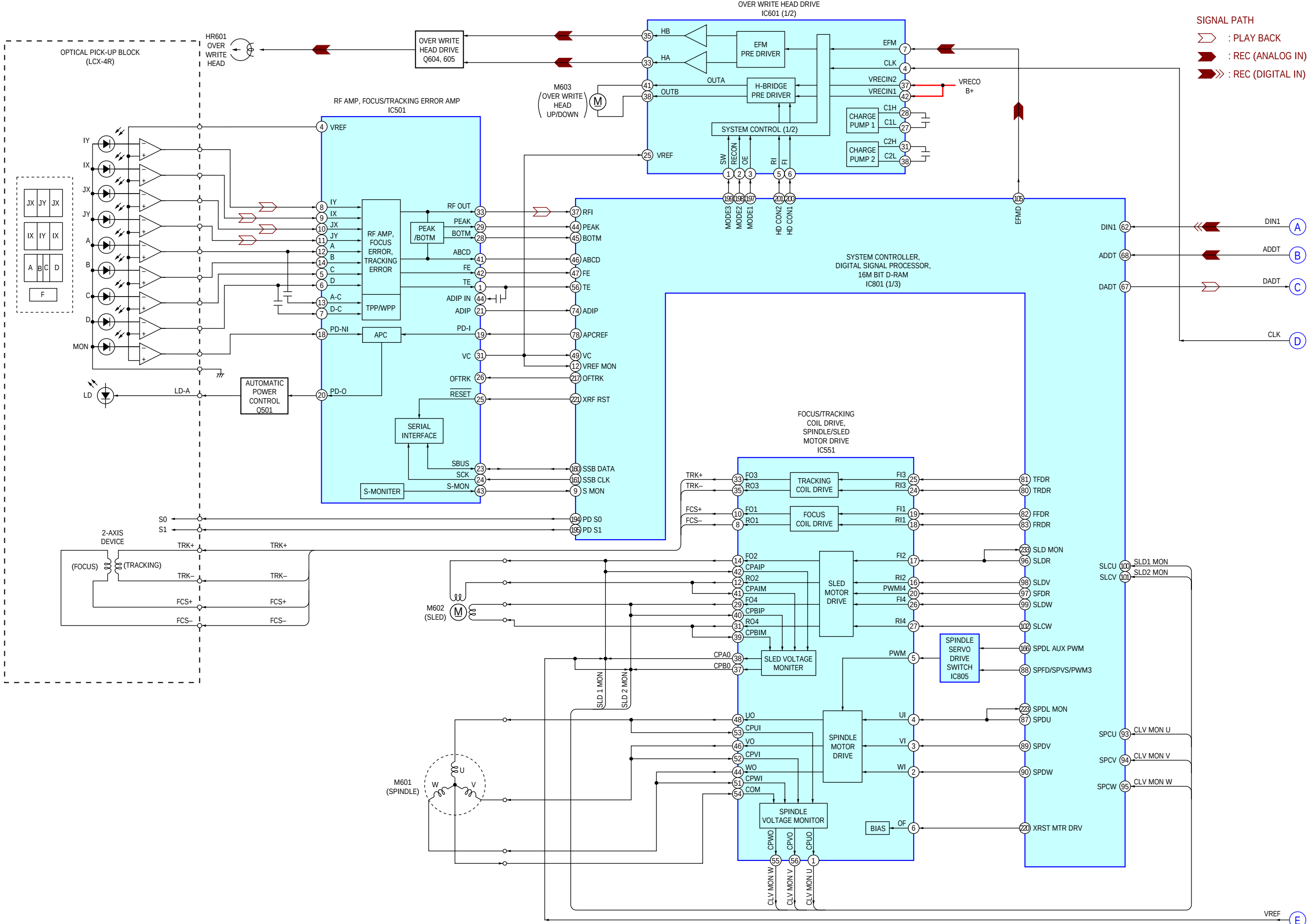
○チップ抵抗部品コード／CHIP RESISTOR PART CODE



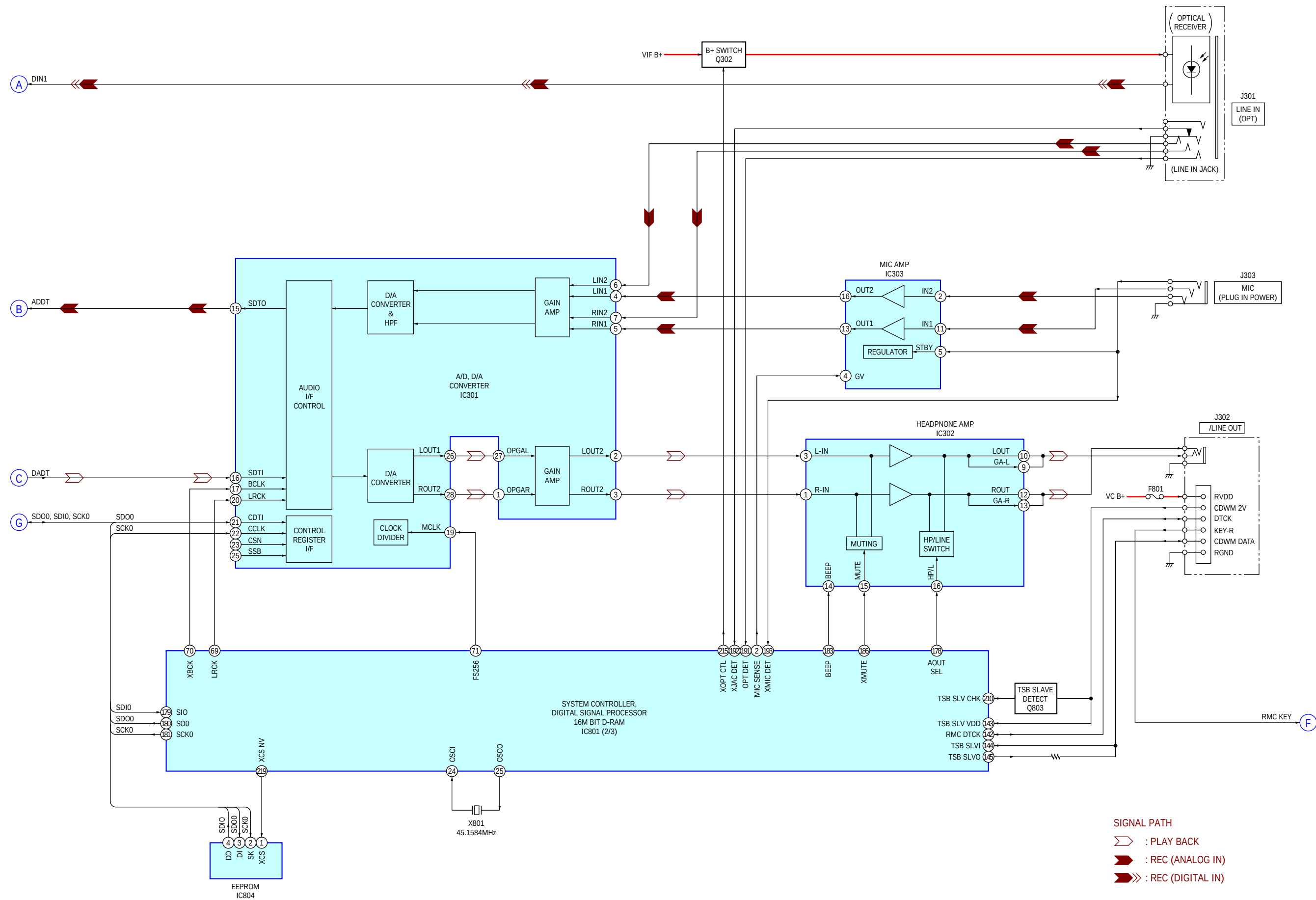
チップ抵抗
Chip resistor

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

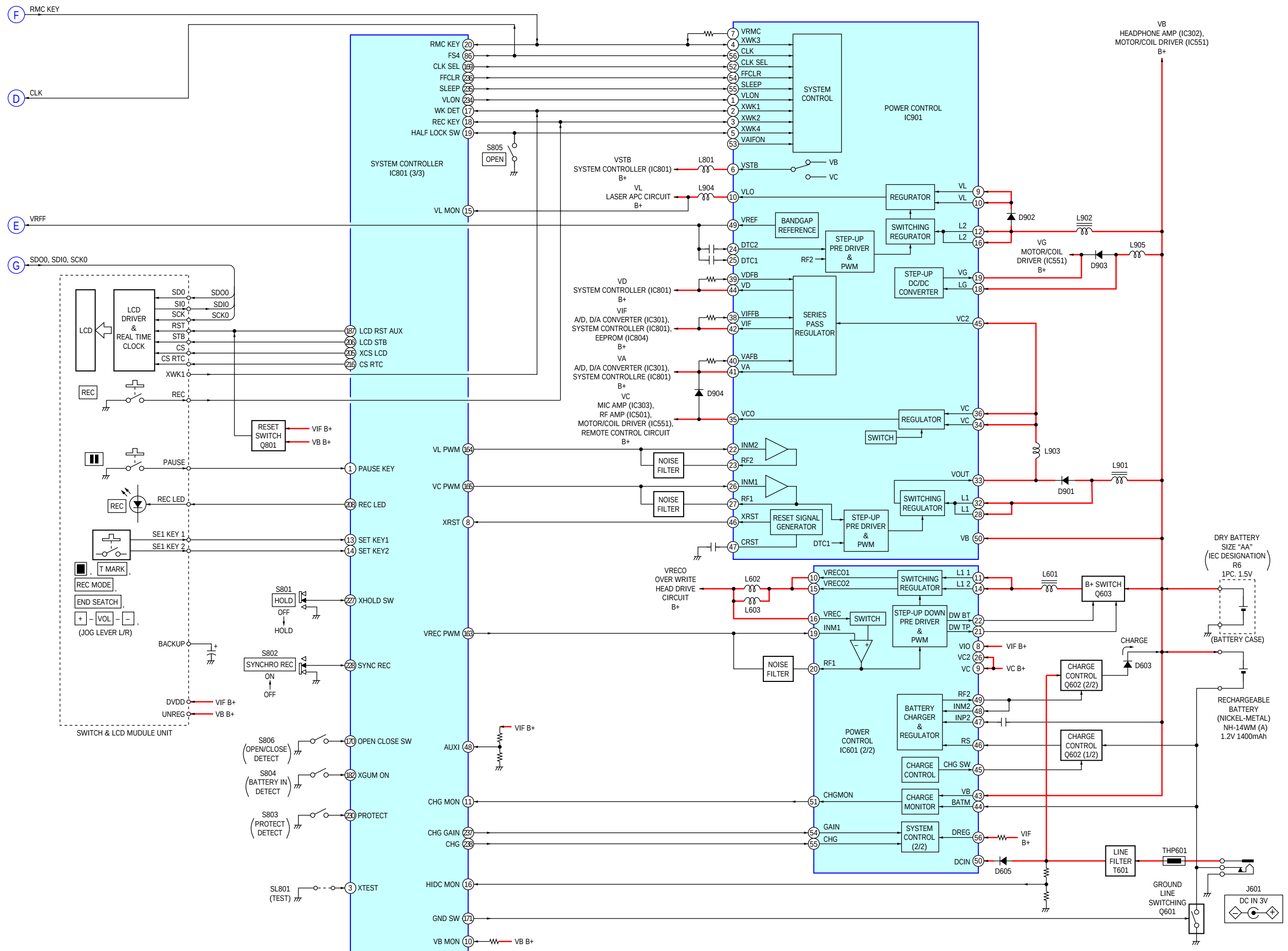
BLOCK DIAGRAM-1/3 (SERVO)

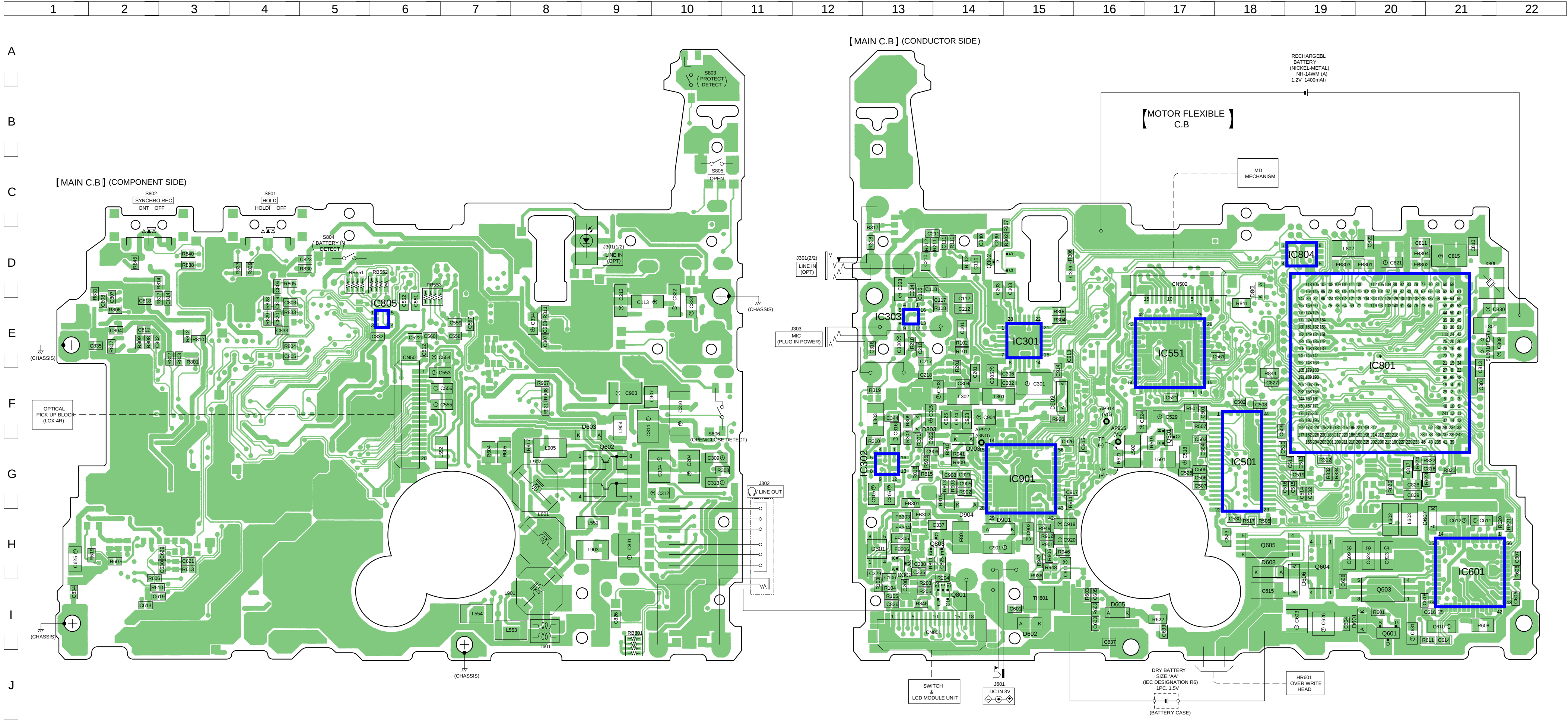


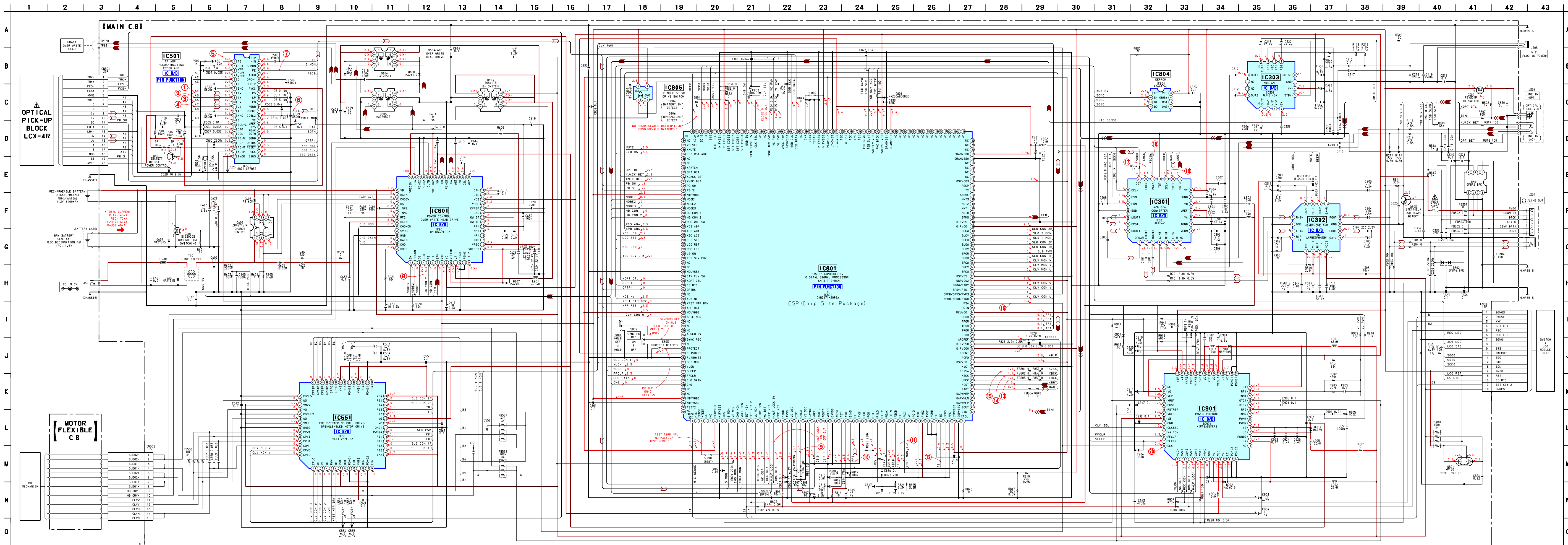
BLOCK DIAGRAM-2/3 (AUDIO)



BLOCK DIAGRAM-3/3 (DISPLAY/KEY CONTROL/POWER)

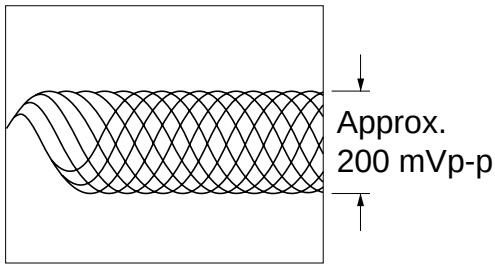




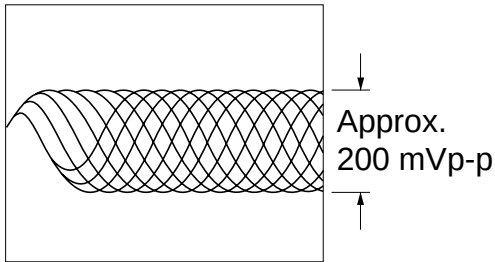


WAVE FORM-1/3

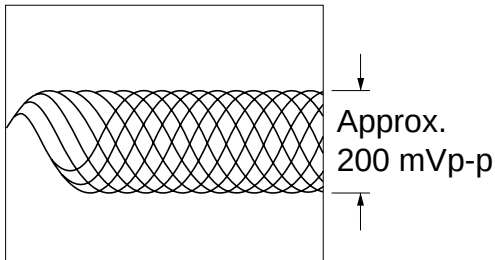
① IC501 ⑧ (IY) (PLAYBACK MODE)
100 mV/DIV, 1 μ s/DIV



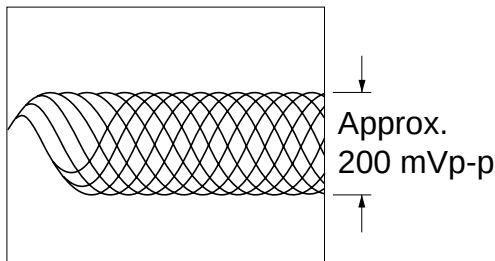
② IC501 ⑨ (IX)(PLAYBACK MODE)
100 mV/DIV, 1 μ s/DIV



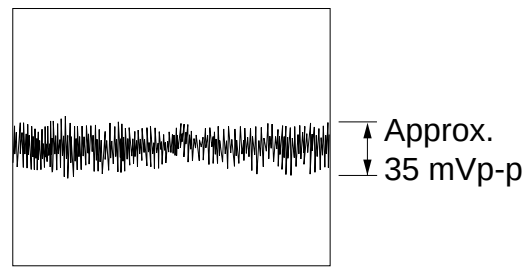
③ IC501 ⑩ (JX)(PLAYBACK MODE)
100 mV/DIV, 1 μ s/DIV



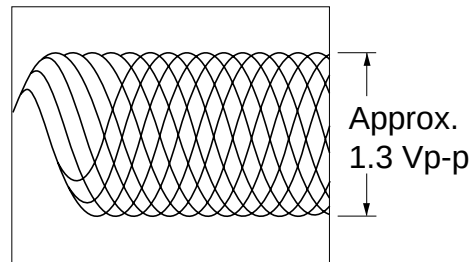
④ IC501 ⑪ (JY) (PLAYBACK MODE)
100 mV/DIV, 1 μ s/DIV



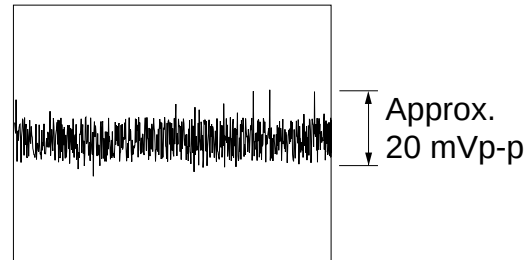
⑤ IC501 ① (TE) (PLAYBACK MODE)
20 mV/DIV, 500 ns/DIV



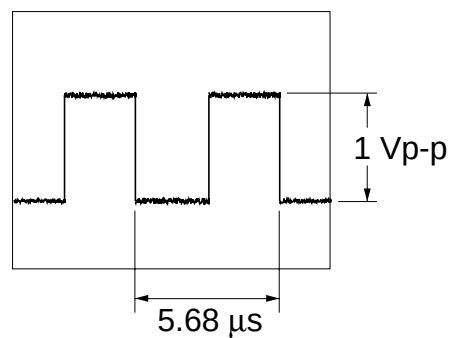
⑥ IC501 ③③ (RF OUT) (PLAYBACK MODE)
500 mV/DIV, 500 ns/DIV



⑦ IC501 ④② (FE) (PLAYBACK MODE)
10 mV/DIV, 500 ns/DIV

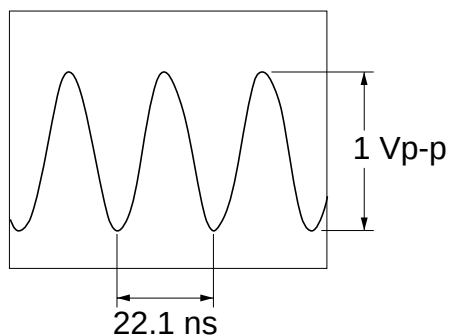


⑧ IC601 ④ (CLK)
500 mV/DIV, 2 μ s/DIV

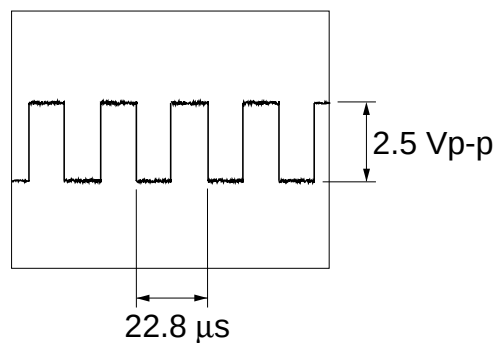


WAVE FORM-2/3

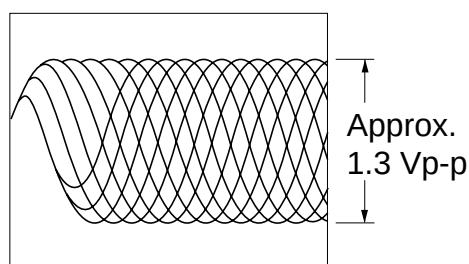
⑨ IC801 ②⑤ (OSCO)
200 mV/DIV, 10 ns/DIV



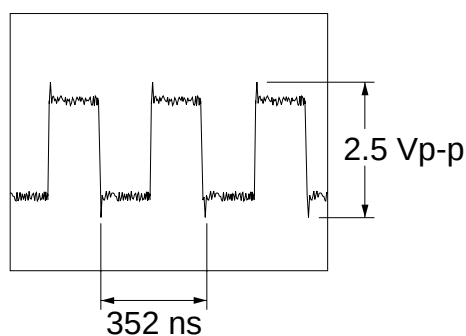
⑬ IC801 ⑥⑨ (LRCK)
1 V/DIV, 10 μs/DIV



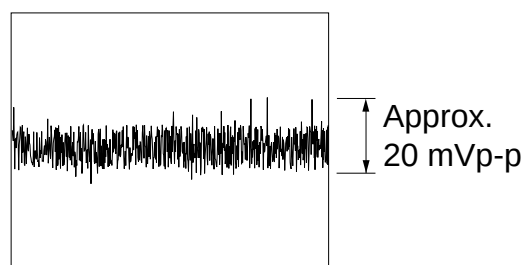
⑩ IC801 ③⑦ (RFI) (PLAYBACK MODE)
500 mV/DIV, 500 ns/DIV



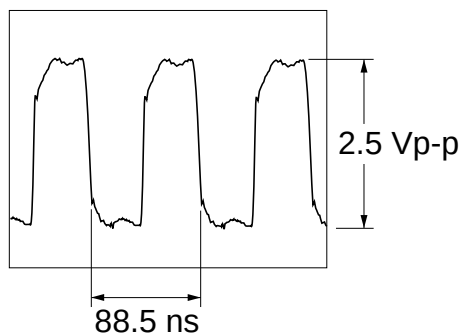
⑭ IC801 ⑦⑩ (XBCK)
1 V/DIV, 200 ns/DIV



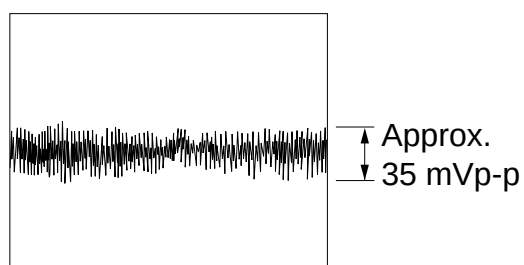
⑪ IC801 ④⑦ (FE) (PLAYBACK MODE)
10 mV/DIV, 500 ns/DIV



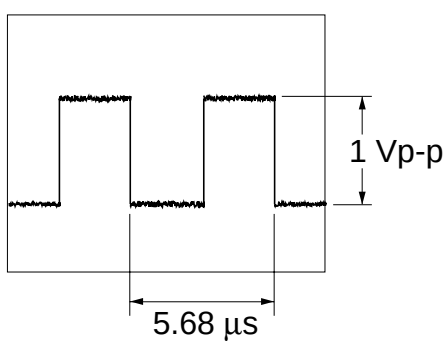
⑮ IC801 ⑦① (FS256)
1 V/DIV, 50 ns/DIV



⑫ IC801 ⑤⑥ (TE) (PLAYBACK MODE)
20 mV/DIV, 500 ns/DIV

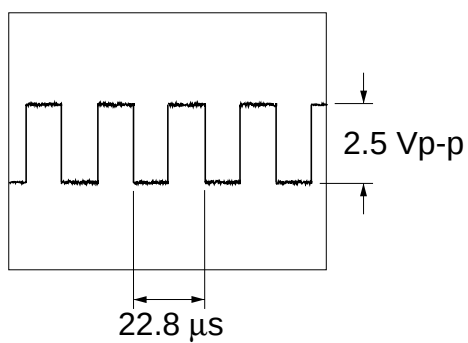


⑯ IC801 ⑧⑥ (FS4)
500 mV/DIV, 2 μs/DIV

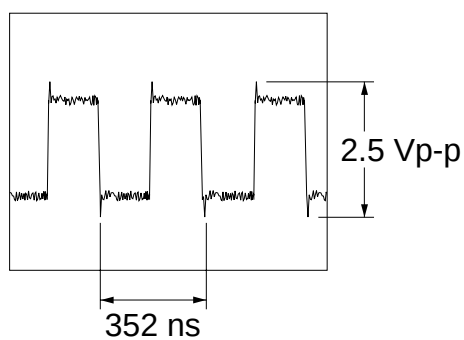


WAVE FORM-3/3

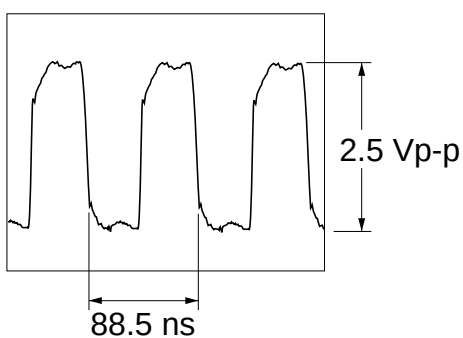
①⑦ IC301 ②⑩ (LRCK)
1 V/DIV, 10 μ s/DIV



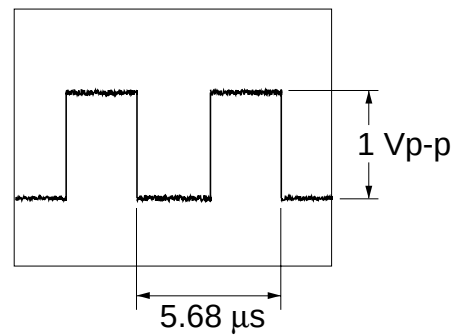
①⑨ IC301 ①⑦ (BCLK)
1 V/DIV, 200 ns/DIV



①⑧ IC301 ①⑨ (MCLK)
1 V/DIV, 50 ns/DIV



②⑩ IC901 ⑤⑥ (CLK)
500 mV/DIV, 2 μ s/DIV



TEST MODE-1/6

Introduction

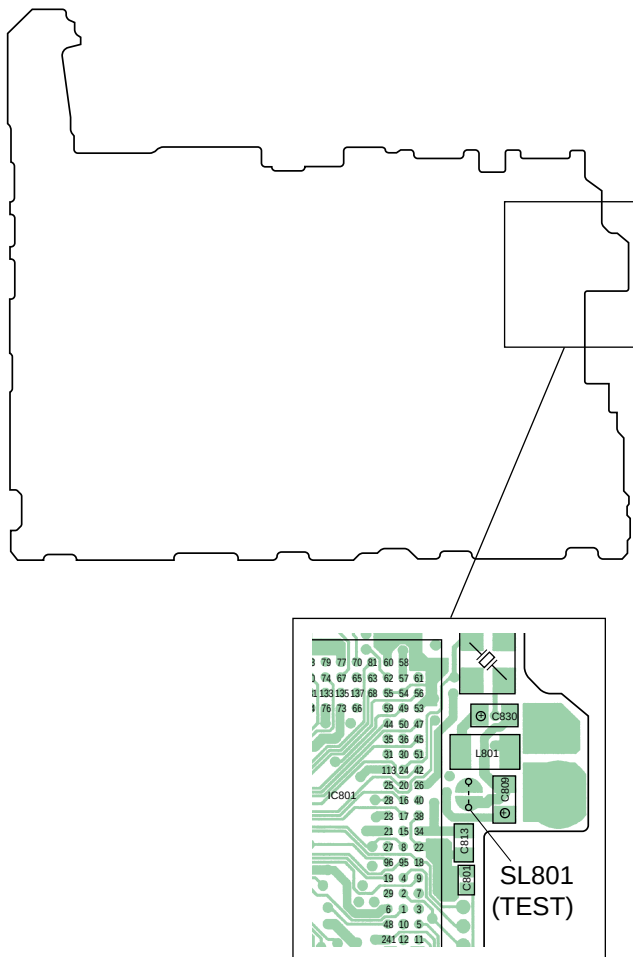
- The test mode consists of the two modes. One is the AUTO Adj. Mode and the other is the MANUAL Mode.
When the machine enters the AUTO Adj. Mode, all adjustment items of both the CD and MO are performed one after another automatically. In the AUTO Adj. Mode, the CD and MO disks are identified and then each adjustment is performed in the specified order. If any error is detected, location of the cause of the error is displayed. In the MANUAL Mode, each adjustment can be performed manually.
- The test mode is controlled by operating the keys of the main unit. All keys that are referred to in this section indicate the keys of the main unit unless otherwise specified.
- [Display on LCD screen], means the display on the LCD screen of remote control. Note that the same display appears on the LCD screen of the main unit.

How to Enter the Test Mode

You can enter the test mode by either one of the following two methods.

- Turn off the power. Short-circuit the SL801 (TEST) solder bridge (connecting IC801 pin-3 to GND) on the MAIN C.B. Then turn on the power (See the picture below.)
- Turn on the power and enter the normal mode. Set the "HOLD" switch to the ON position. While pressing the "VOL -" key, press the following keys in the order shown below.
"▶▶" → "▶▶" → "◀◀" → "◀◀" → "▶▶" → "◀◀" → "▶▶" → "◀◀" → "H" → "H"

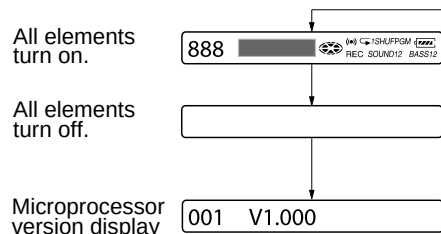
—MAIN C.B (Pattern side)—



Operations in the Test Mode

- When the machine enters the test mode, the machine enters further the display check mode of the test mode.
- You can move to the other mode from the display check mode.
- When the machine enters the test mode, the LCD of the remote control repeats showing the following displays.

Display on remote control LCD



- While the "H" key is kept pressed, the display at the moment is also kept appearing on the LCD that enables you to check the display.

Note: The sets that use the microprocessor version 1.000 are adjusted of their setup data by the MANUAL mode in the factory before shipment. If the NV reset is executed in these sets, the setup data will be cleared. If the NV reset is executed in the sets of version 1.000, change the adjustment value in accordance with the adjustment value change procedure immediately after the NV reset is executed. (Refer to ELECTRICAL ADJUSTMENT on page 32.)

How to Exit the Test Mode

When the machine has entered the test mode by using the method ① of the How to Enter the Test Mode :

Turn off the power and open the solder bridge of SL801 (TEST) MAIN C.B.

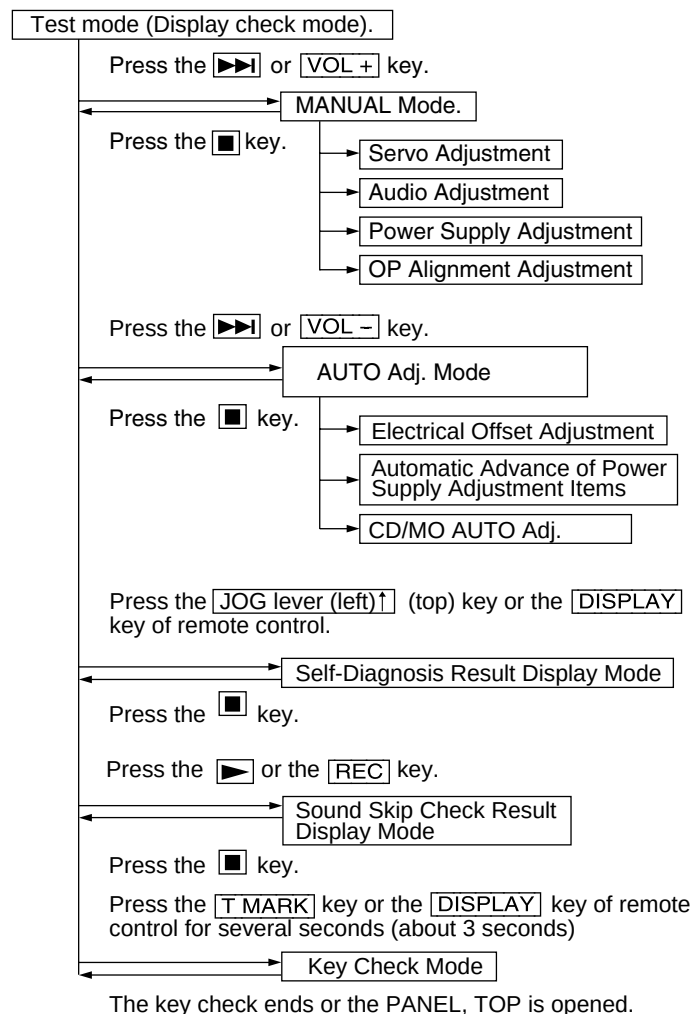
Note: Remove the soldering completely with care. If any solder remains, it may cause short-circuit with the chassis.

When the machine has entered the test mode by using the method ② of the How to Enter the Test Mode :

Turn off the power.

Note: If all of the electrical adjustment items (CD AUTO Adj/MO AUTO Adj.) are not finished yet, the machine starts up in the test mode when the power is turned on next time. (The machine will not start up in the normal mode.)

Configuration of the Test Mode



MANUAL Mode.

In the MANUAL Mode, movement of the machine is separated by functions so that adjustment and operation check can be performed in each movement.

However, do not perform any adjustment using the MANUAL Mode ordinarily.

Note that Clearing memory, Power supply voltage adjustment and Laser power check are performed using the MANUAL Mode before entering the O/A Adj. (Overall Adjustment)

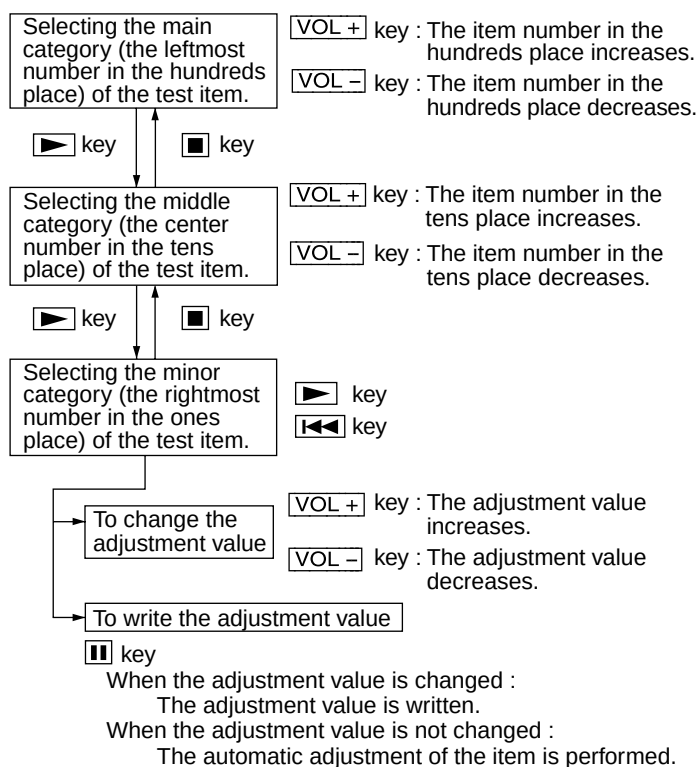
- How to Enter the MANUAL Mode

1. Enter the test mode. (Refer to TEST MODE ELECTRICAL ADJUSTMENT on page 26.)
2. When the “▶▶” or the “VOL +” key is pressed, the machine enters the MANUAL Mode and the following display appears on the LCD.

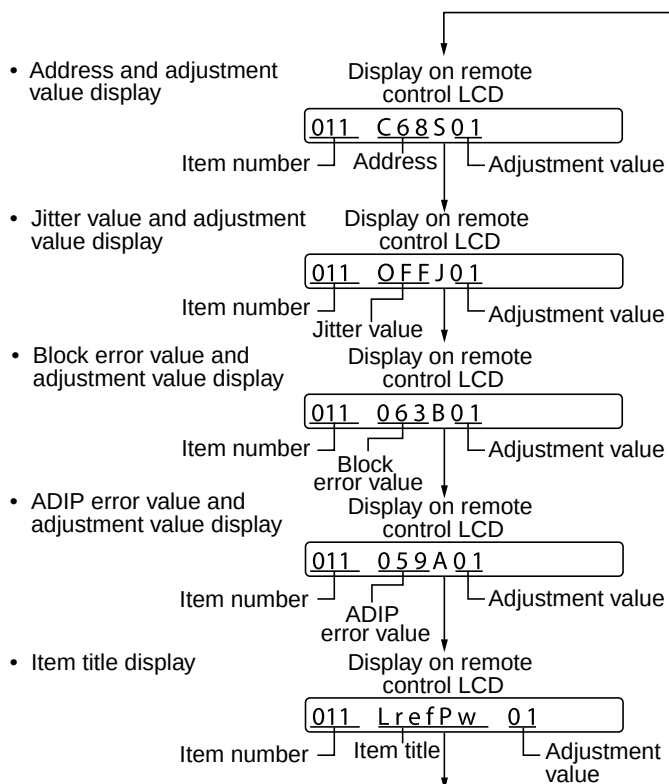
Display on remote control LCD

000 Manual

3. When either the “▶” key or the “◀◀” key is kept pressed for several seconds during the test, the optical pickup moves toward outer circumference or inner circumference as long as the button is kept pressed.
4. Each test item is assigned of its unique item number consisting of three digits. The leftmost number (in the hundreds place) indicates the main category of the test item. The number in the center (in the tens place) indicates the middle category of the test item. The rightmost number (in the ones place) indicates the minor category of the test item. The adjustment values that are obtained as the result of the test mode are written in the non-volatile memory (Only for the test modes that have adjustment.)



5. Each time the “JOG lever (left) ↑” (top) key or the “DISPLAY” key of remote control is pressed, the display changes in the following order.



However in the Power Supply Mode (Item number: 700 series), only the item title display advances to the next display.

6. To exit the MANUAL Mode and to return to the test mode (display check mode), press the “■” key.

AUTO Adj. Mode

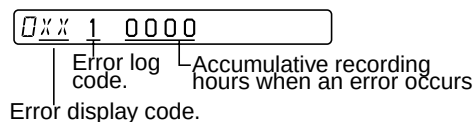
In the AUTO Adj. Mode, all adjustment items of the all servo systems are automatically performed. Usually, enter the AUTO Adj. Mode during repair work to perform the automatic adjustment. For details, refer to ELECTRICAL ADJUSTMENT on page 35.

Self-Diagnosis Result Display Mode

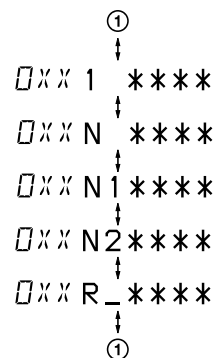
This machine contains the Self-Diagnosis Result Display Mode. If an error occurs during recording or playback, the mechanism control block of the microprocessor and the power supply control block detect the error status. Cause of the error is stored in the non-volatile memory as an error log.

The error log is useful to locate the cause of the error in the test mode. The accumulative recording hours are stored as a guideline indicating how many hours the optical pickup has been used. The accumulative recording hours are useful to know when an error occurs by comparing the present accumulative recording hours with what are shown at the time of error occurrence in the Self-Diagnosis Result Display Mode. When an optical pickup is replaced, be sure to clear both of the accumulative recording hours stored in the Self-Diagnosis Result Display Mode and the accumulative recording hours of optical pickup.

- How to Enter the Self-Diagnosis Result Display Mode
 - Enter the test mode. (Refer to TEST MODE on page 26.)
 - In the display check mode, press the “JOG lever (left) ↑” (top) key or the “DISPLAY” key of remote control. The machine enters the Self-Diagnosis Result Display Mode and the following display appears on the LCD screen.



- When the “▶▶” key is pressed hereafter, the display on the remote control LCD advances to the next display. When the “◀◀” key is pressed, the display returns to the previous display.



xx : Error code
**** : Accumulative recording hours

When the “DISPLAY” key of remote control is pressed while the above display appears, the screen changes to show the Simplified contents display.

TEST MODE-4/6

4. To exit the Self-Diagnosis Result Display Mode and to return to the test mode (display check mode), press the “■” key.

- Contents of the error display codes

Contents of the error	Display code	Meaning of code	Simplified contents display	Description
No error	00	No error	----	No error
Servo system error	01	Illegal address is specified as the access target.	Adrs	When an attempt is made to access an abnormal address.
	02	High temperature	Temp	When temperature goes to abnormally high.
	03	Focus error	Fcus	When focus servo lock is lost.
	04	Spindle error	Spdl	When disc rotation is abnormal.
TOC error	11	TOC error	TOC	Contents of the TOC has an error
	12	Read data error	Data	Cannot read data with SYNC.
Power supply system error	22	Momentary failure of power	LBat	Momentary power failure is detected.
Offset system error	31	Offset error	Ofst	Offset error
	32	Focus error, ABCD offset error	ABCD	Focus error, ABCD offset error
	33	Tracking error, Offset error	TE	Tracking error, Offset error
	34	X1 Tracking error, Offset error	X1TE	X1Tracking error, Offset error

- Description of error log display

Error log code	Contents
1	The error that has occurred first.
N	The error that has occurred last.
N1	The error that has occurred immediately before the last error.
N2	The second error before the last error.
R_	Accumulative recording hours

Clearing the error display code

When all of the repair works are completed, clear the error display code by the following procedure.

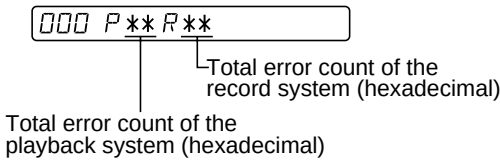
- How to clear the error display code
 - Enter the test mode. (Refer to TEST MODE on page 26.)
 - Press the “JOG lever (left) ↑”(top) key or the “DISPLAY” key of remote control to enter the Self-Diagnosis Result Display Mode.
 - While the error code (any error code other than “R_****”) remains displayed on screen, press the “II” key twice. (All data of 1, N, N1 and N2 are cleared.)

Sound Skip Check Result Display Mode

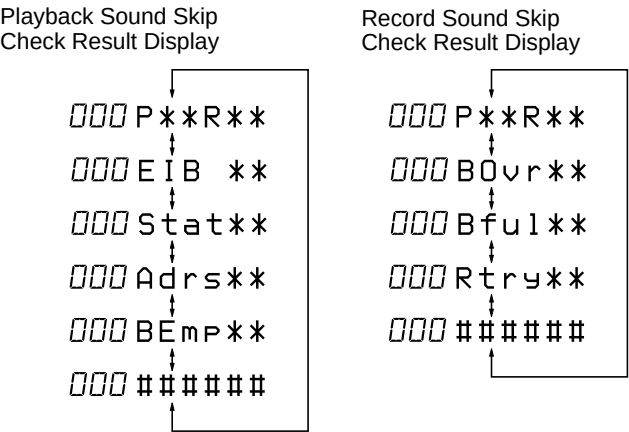
The error counts of the errors that have occurred during recording and playback of this machine can be displayed to check them.

- How to Enter the Sound Skip Check Result Display Mode
 - Enter the test mode. (Refer to TEST MODE on page 26.)
 - Press the “▶” or the “REC” key. Then the machine enters the Sound Skip Check Result Display Mode of either during recording or during playback. The following display appears on LCD screen.

Display on remote control LCD.



- When the “▶” key is pressed, the total error counter is displayed on LCD. Each time the “▶” key is pressed, the display advances to the next display s shown below. Each time the “◀” key is pressed, the display returns to the previous display. When the “REC” key is pressed, the error count during recording is displayed. When the “REC” key is pressed, the total error counter is displayed on LCD. Each time the “▶” key is pressed, the display advances to the next display as shown below. When the “◀” key is pressed, the display returns to the previous display. When the “▶” key is pressed, the error count during playback is displayed.



P**R** : Playback/record error total count (hexadecimal)
** : Sound skip check item counter (hexadecimal)
: The address that causes the sound skip at the latest. 6-digit address (hexadecimal)

- Cause of sound skip error

	Cause of the error	Description of the error
Playback	EIB	Sound error correction error
	Stat	Decoder status error
	Adrs	Cannot reach the target address.
	BEmp	Buffer became empty.
Recording	BOvr	Buffer became full and sound skipping occurs.
	Bful	Amount of remaining buffer became scarce and forced write occurs.
	Rtry	Having exceeded the maximum number of retries

- To exit the Sound Skip Check Result Display Mode and to return to the test mode (display check mode), press the “■” key.

Key Check Mode

The keys (including slide switch) of the main unit and of the remote control are checked if they work correctly or not using the Key Check Mode.

- How to enter the Key Check Mode
 - Enter the test mode. (Refer to TEST MODE on page 26.)
 - When the “T MARK” key or the “DISPLAY” key of remote control is kept pressed for several seconds (approx. 3 seconds), the machine enter the Key Check Mode and the following display appears on the LCD. (The lower 2 digits of the LCD display shows the AD value of the key line in hexadecimal number.)

Display on remote control LCD

000 **

** : AD value of the remote control key
(hexadecimal 00 to FF)

- When any key of the main unit or of remote control, name of the pressed key appears on the LCD. (When slide switch is operated, operating status of the slide switch appears for 4 seconds. If any other key is operated during this period, the display is updated to the new display.)

Example 1 : When the  key of the main unit is pressed,
Display on remote control LCD

000 FF **

** : AD value of the remote control key
(hexadecimal 00 to FF)

Example 2: When the  key of remote control
is pressed,

Display on remote control LCD

000 rPLAY **

** : AD value of the remote control key
(hexadecimal 00 to FF)

- When all keys of the main unit and of the remote control are confirmed to be OK, the following display appears for 4 seconds.

Example 1: When all keys of the main unit are confirmed OK

Display on remote control LCD

888 SET OK ** 

** : AD value of the remote control key
(hexadecimal 00 to FF)

Example 2: When all keys of the remote control are confirmed OK

Display on remote control LCD

888 RMC OK ** 

** : AD value of the remote control key
(hexadecimal 00 to FF)

- When all keys are confirmed OK, or the PANEL, TOP is opened, the system exits the Key Check Mode and returns to the test mode (display check mode).

Introduction

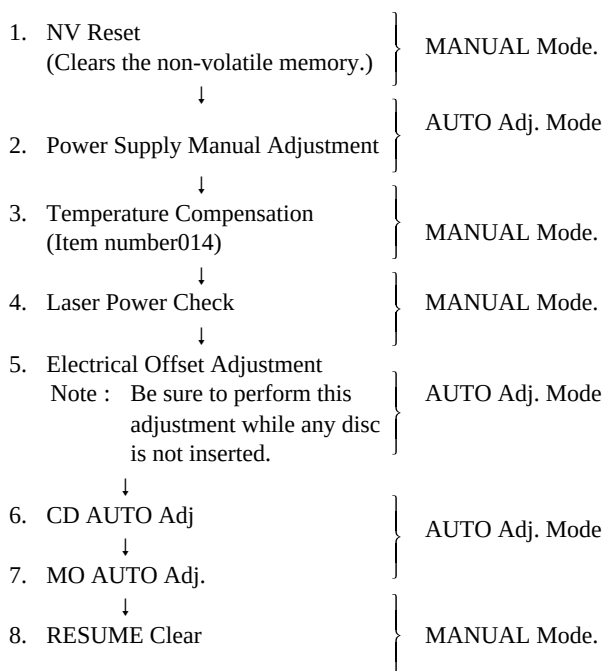
- All electrical adjustments consisting of the CD adjustments, MO adjustments and electrical offset adjustment are automatically performed when the machine enters the AUTO Adj. Mode of the test mode.
However, note that you must clear the contents of the memory, must adjust the regulated power supply voltages and must check the laser power before entering the AUTO Adj. Mode of the test mode.
- All keys to be operated in this section are the keys of the main unit unless otherwise specified.
- All displays on the LCD that are mentioned in this section are the displays on the LCD of remote control. Note that the same display appears on the LCD screen of the main unit.

Notes on electrical adjustment

- Enter the test mode to perform all of the electrical adjustments.
When adjustments are completed, exit the test mode.
- Use the following jigs and measuring equipment.
 - Test CD disc TDYS-1 or TGYS-1
 - Already pre-recorded MO disk MDW-74
(Already pre-recorded)
 - Digital VOM
 - Laser power meter
 - Thermometer (Used for temperature compensation)
- Supply DC 3 V to the DC IN 3V jack (J601) from external regulated power supply (or AC adapter) unless otherwise specified.
- Switch setup position
SYNCHRO REC switch OFF
HOLD switch OFF

Order of adjustments

Be sure to perform the adjustments in the following order.



NV Reset

Note : The sets that use the microprocessor version 1.000 are adjusted of their setup data by the MANUAL mode in the factory before shipment. If the NV reset is executed in these sets, the setup data will be cleared. If the NV reset is executed in the sets of version 1.000, change the adjustment value in accordance with the adjustment value change procedure immediately after the NV reset is executed.

- How to execute the NV Reset
 - Enter the MANUAL Mode of the test mode. Select the item number 021: NV Reset. (Refer to TEST MODE on page 27.)
Display on remote control LCD

021 ResNV CC

- Press the “II” key.
Display on remote control LCD

021 ResOK?

- Press the “II” key again.
Display on remote control LCD

021 Res***

↓ NV Reset (Several seconds later)

021 Reset!

- Press the “■” key to exit the MANUAL Mode and to return to the test mode (display check mode).

- Changing Adjustment Value

The sets that use the microprocessor version 1.000 are adjusted of their setup data by the MANUAL mode in the factory before shipment. If the NV reset is executed in these sets, the setup data will be cleared. If the NV reset is executed in the sets of version 1.000, modify the adjustment values by executing the procedure shown below immediately after the NV reset is executed.

- Item numbers whose adjustment values must be modified.
 - Item number 832
 - Item number 862
 - Item number 871
 - Item number 872

2. Adjustment Value Change Procedure

- Enter the MANUAL Mode of the test mode. Select the item number 832. (Refer to TEST MODE on page 27.)
Display on remote control LCD

832 Pw-T W **

** : Adjustment value

- Press the “VOL +” key (adjustment value increases) and/or the “VOL -” key (adjustment value decreases) so that the adjustment value becomes E 4.
- Press the “II” key to write the adjustment value in memory.

ELECTRICAL ADJUSTMENT-2/11

- 4) Enter the MANUAL Mode of the test mode. Select the item number 862. (Refer to TEST MODE on page 27.)
Display on remote control LCD

862 V1dat **

** : Adjustment value

- 5) Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 01.
6) Press the “II” key to write the adjustment value in memory.
7) Enter the MANUAL Mode of the test mode. Select the item number 871. (Refer to TEST MODE on page 27.)
Display on remote control LCD

871 V5num **

** : Adjustment value

- 8) Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 20.
9) Press the “II” key to write the adjustment value in memory.
10) Enter the MANUAL Mode of the test mode. Select the item number 872. (Refer to TEST MODE on page 27.)
Display on remote control LCD

872 V5dat **

** : Adjustment value

- 11) Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 39.
12) Press the “II” key to write the adjustment value in memory.

4. Press the “JOG lever (left) ↓”(bottom) key or the “PLAY MODE” key of remote control.
(When the “JOG lever (left) ↓”(bottom) key or the “PLAY MODE” key of remote control is pressed, the menu changes to item number 762.)

- Vc PWM Duty (L) (Item number: 762) Adjustment Method
Display on remote control LCD

762 Vc1PWM **

** : Adjustment value

1. Connect a digital VOM to AP914 (VC) on the MAIN C.B. Press the “VOL +” key (voltage increases) and/or the “VOL –” key (voltage decreases) so that the voltage becomes 2.40 ± 0.01 V.



2. Press the “II” key to write the adjustment value in memory.
(When the “II” key is pressed, the menu changes to item number 763.)

Adjustment point and connection point :

MAIN C.B (Refer to ELECTRICAL ADJUSTMENT on page 35.)

- Vc PWM Duty (H) (Item number : 763) Adjustment Method
Display on remote control LCD

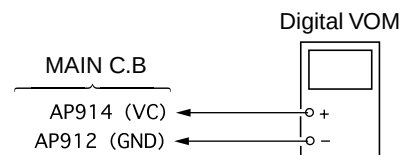
763 VchPWM **

** : Adjustment value

1. Connect a digital VOM to AP914 (VC) on the MAIN C.B. Press the “VOL +” key (voltage increases) and/or the “VOL –” key (voltage decreases) so that the voltage becomes 2.75 ± 0.01 V.
2. Press the “II” key to write the adjustment value in memory.
(When the “II” key is pressed, the menu changes to item number 764.)

Adjustment point and connection point :

MAIN C.B (Refer to ELECTRICAL ADJUSTMENT on page 35.)



Power Supply Manual Adjustment

- Order of adjustments

Be sure to perform the adjustments in the following order.

1. Vc PWM Duty (L) Adjustment (Item number: 762)
↓
2. Vc PWM Duty (H) Adjustment (Item number: 763)
↓
3. V1 PWM Duty Adjustment (Item number: 764)

- How to Enter the Power Supply Manual Adjustment

1. Confirm that DC 3V is supplied from external regulated power supply (or AC adapter).

2. Enter the test mode. (Refer to TEST MODE on page 26.)

3. Press the “◀” key or the “VOL –” key to enter the O/A Adj. Mode.

Display on remote control LCD

000 Assy00 ○

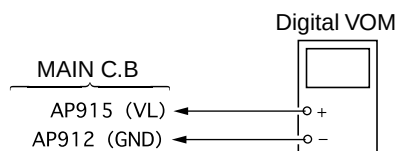
ELECTRICAL ADJUSTMENT-3/11

- V1 PWM Duty (Item number : 764) Adjustment Method
Display on remote control LCD

764 V1 PWM **

** : Adjustment value

1. Connect a digital VOM to AP915 (VL) on the MAIN C.B.
Press the “VOL +” key (voltage increases) and/or the “VOL –” key (voltage decreases) so that the voltage becomes 2.30 ± 0.01 V.



2. When the “■” key is pressed to write the adjustment value, this is the end of the adjustments and the following message indicating the end of the adjustment appears.

Display on remote control LCD

000 ADJ OK

Adjustment point and connection point :

MAIN C.B (Refer to ELECTRICAL ADJUSTMENT on page 35.)

Temperature Compensation

- Temperature Compensation Adjustment Method

 1. Enter the MANUAL Mode of the test mode. Select the item number 014.
(Refer to TEST MODE on page 27.)
Display on remote control LCD

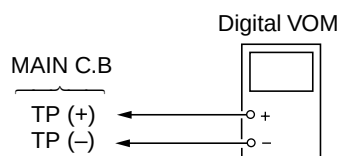
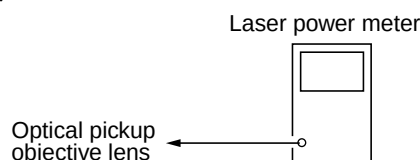
014 SetTmP **

** : Adjustment value

2. Measure the ambient temperature of the room.
3. Press the “VOL +” and/or the “VOL –” key until the adjustment value (hexadecimal number) becomes equal to the ambient temperature that is measured in step 2.
(Initial value: 14h=20°C, adjustment range 80h to 7fh (-128 to +127°C))
4. Press the “■” key to write the adjustment value in memory.

Laser Power Check

Connection :



Check method :

1. Enter the MANUAL Mode of the test mode and select the Laser Power Adjustment Mode (Item number : 010). (Refer to TEST MODE on page 27.)

Display on remote control LCD

010 Laser

2. Keep pressing the “◀” key until the optical pickup moves to the innermost track.
3. Open the top lid and place the laser power meter just on top of the objective lens.
4. Press the “▶” key to enter the Laser MO Read Power Adj. Mode (Item number: 011).

Display on remote control LCD

011 LrefPw **

5. Confirm that reading of the laser power meter is in the range of 0.81 ± 0.08 mW.
6. Confirm that the voltage across the resistor R521 (between terminals TP (+) and TP (-)) is 44m V or less.
7. Press the “▶” key to enter the Laser CD Read Mode (Item number: 012).

Display on remote control LCD

012 HrefPw **

8. Confirm that reading of the laser power meter is in the range of 0.97 ± 0.10 mW.
9. Confirm that the voltage across the resistor R521 (between terminals TP (+) and TP (-)) is 44 mV or less.
10. Press the “▶” key to enter the Laser MO Write Power Adj. Mode (Item number : 013).

Display on remote control LCD

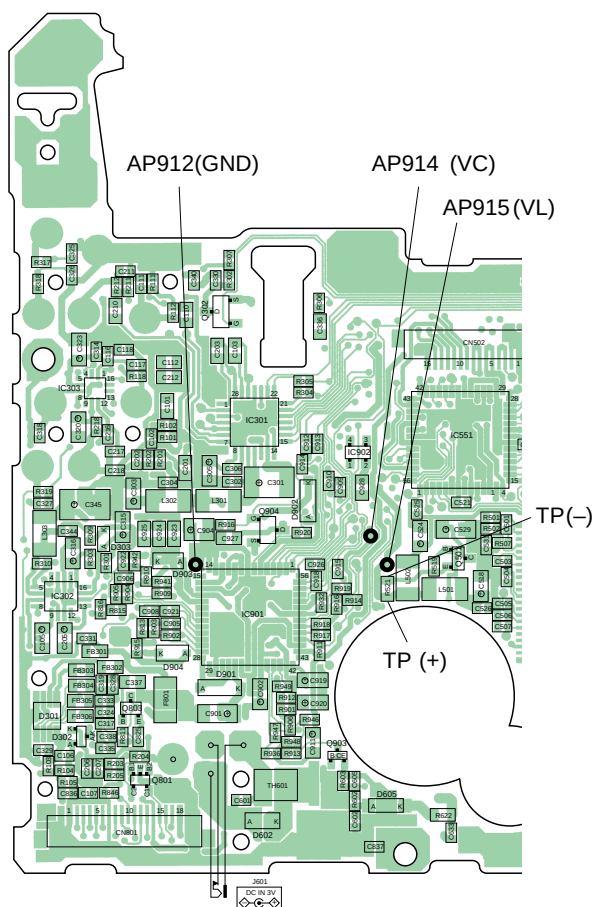
013 WritPw **

11. Confirm that reading of the laser power meter is in the range of 4.95 ± 0.50 mW.
12. Confirm that the voltage across the resistor R521 (between terminals TP (+) and TP (-)) is 80 mV or less.
13. Press the “■” key to return to the test mode (display check mode).

Check position and connection position :

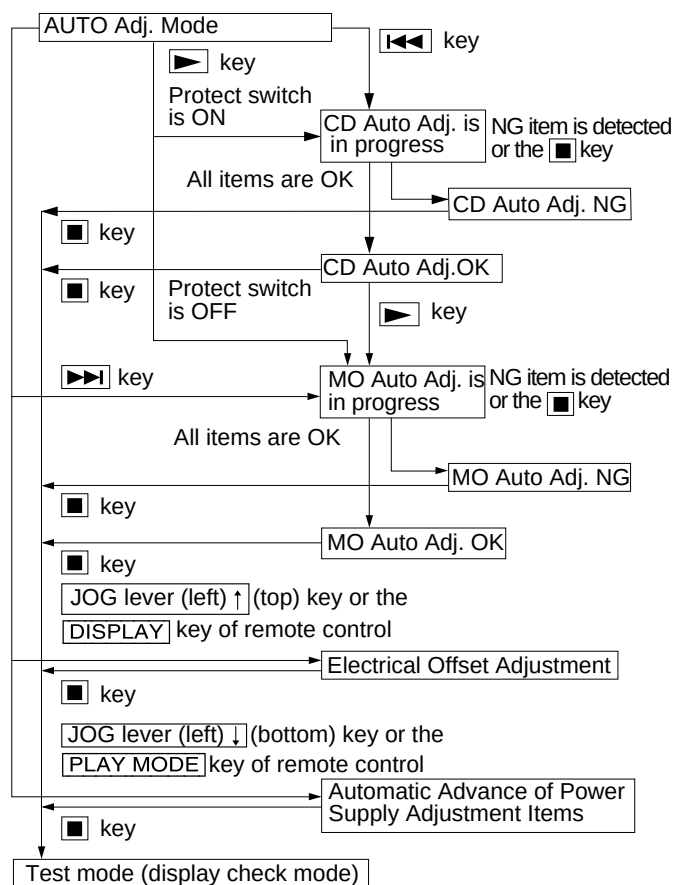
MAIN C.B (Refer to ELECTRICAL ADJUSTMENT on page 35.)

– MAIN C.B (Pattern side) –



AUTO Adj. Mode

- Structure and flow of the AUTO Adj. Mode



- Introducing the AUTO Adj. Mode (title display)

Display on remote control LCD

- ⊗ (Disc mark) When the Power Supply Adjustment ends :
Outer circumference of the mark turns on.
When the Electrical Offset Adjustment ends :
Inner circumference of the mark turns on.

※ In the machines of the microprocessor version 1.000, the disc mark is displayed on the LCD of remote control only.

- ** : Left side = MO AUTO Adj. Information
F* : MO AUTO Adj. is complete.
1* : Requiring the MANUAL Adjustment (AUTO Adj. not performed yet)
0* : AUTO Adj. not performed yet
Right side = CD AUTO Adj. Information
F* : CD AUTO Adj. is completed
1* : Requiring the MANUAL Adjustment (AUTO Adj. not performed yet)
0* : AUTO Adj. not performed yet

Note: The AUTO Adj. must start with the CD AUTO Adj. first. After the CD AUTO Adj. is completed, perform the MO AUTO Adj. in this order.

ELECTRICAL ADJUSTMENT-5/11

- Electrical Offset Adjustment Method

Note: Be sure to perform the Electrical Offset Adjustment while any disc is not inserted.

1. Confirm that DC 3V is supplied from external regulated power supply (or AC adapter).

2. Enter the test mode. (Refer to TEST MODE on page 26.)

3. Press the “◀” key or the “VOL –” key to enter the AUTO Adj. Mode.

Display on remote control LCD

000 Assy11 ○

4. Press the “JOG lever (left)↑” (top) key or the “DISPLAY” key of remote control.

Display on remote control LCD

035 Ofst** ⏪

5. When the message indicating the end of the adjustment appears, it means that the Electrical Offset Adjustment is completed.

Display on remote control LCD

000 OfstOK ⏩

- CD AUTO Adj. and MO AUTO Adj. Methods

1. Enter the test mode. (Refer to TEST MODE on page 26.), Press the “◀” key or the “VOL –” key and enter the AUTO Adj. Mode.

Display on remote control LCD

000 Assy11 ⏩

2. Insert a CD in the machine and press the “▶” key. Then the machine enters the CD AUTO Adj. Mode and the automatic adjustment starts.

Display on remote control LCD

XXX CD RUN

xxx : Item number of the adjustment that is in progress at this moment.

3. If the CD AUTO Adj. ends with NG, perform the NV Reset (refer to ELECTRICAL ADJUSTMENT on page 32). After that, perform the Temperature Compensation (refer to ELECTRICAL ADJUSTMENT on page 34) and all of the subsequent adjustments again.

Display on remote control LCD

000 *** NG

*** : NG Item number

4. When the CD AUTO Adj. ends with OK, perform next the MO AUTO Adj.

Display on remote control LCD

000 CD OK

5. Insert an MO in the machine and press the “▶” key. Then the machine enters the MO AUTO Adj. Mode and the automatic adjustment starts.

Display on remote control LCD

XXX MO RUN

xxx : Item number of the adjustment that is in progress at this moment.

6. If the MO AUTO Adj. ends with NG, perform the NV Reset (refer to ELECTRICAL ADJUSTMENT on page 32). After that, perform the Temperature Compensation (refer to ELECTRICAL ADJUSTMENT on page 34) and all of the subsequent adjustments again.

Display on remote control LCD

000 *** NG

*** : NG Item number

7. When the MO AUTO Adj. OK ends with OK, press the “■” key to return to the test mode (display check mode).

Display on remote control LCD

000 MO OK

ELECTRICAL ADJUSTMENT-6/11

- CD AUTO Adjustment Items / MO AUTO Adjustment Items

- CD AUTO Adjustment Items

Item number	Contents
312	CD Electrical Offset Adjustment
313	
314	
321	CD Tracking Error Gain Adjustment
328	CD TWPP Gain Adjustment
324	CD Tracking Error Offset Adjustment
332	
336	CD ABCD Gain Adjustment
344	CD Focus Gain Adjustment
345	CD Tracking Gain Adjustment
521	CD2 Axis Sensitivity Adjustment
522	

- MO AUTO Adjustment Items

Mode No.	Contents
112	MO Electrical Offset Adjustment
113	
114	
118	
221	Low Reflection CD Tracking Error Gain Adjustment
224	Low Reflection CD Tracking Error Offset Adjustment
232	
236	Low Reflection CD ABCD Gain Adjustment
244	Low Reflection CD Focus Gain Adjustment
245	Low Reflection CD Tracking Gain Adjustment
121	MO Tracking Error Gain Adjustment
122	MO TON Offset Adjustment
134	MO TWPP Gain Adjustment
131	MO 2-Times Speed Read-out TWPP Offset Adjustment
132	
136	MO ABCD Gain Adjustment
144	MO Focus Gain Adjustment
145	MO Tracking Gain Adjustment
434	MO Write TWPP Gain Adjustment
431	MO Write TWPP Offset Adjustment
432	MO Tracking Error Offset Adjustment
436	MO Write ABCD Gain Adjustment
445	MO Write Tracking Gain Adjustment
411	MO 1x Speed Read-out TWPP TWPP Offset Adjustment
412	MO Tracking Error Offset Adjustment
448	20-sec Full Track Recording

Clearing RESUME

When all adjustments are completed, clear the RESUME as follows.

- How to clear the RESUME

- Enter the MANUAL Mode of the test mode. Select the item number 043. (Refer to TEST MODE on page 27.)

Display on remote control LCD

043 Resume CC

- Press the “II” key.

Display on remote control LCD

043 Res***

↓ End of clearing the RESUME

043 ResClr

- Press the “■” key to return to the test mode (display check mode).

Rewriting the Patch Data When Non-Volatile Memory Is Replaced

When the non-volatile memory is replaced, the program modification data must be written in the non-volatile memory.

Be sure to write the modification data that suit to the version of your microprocessor when the non-volatile memory is replaced.

- How to write the modification data (for the microprocessor of version 1.000).

- Enter the MANUAL Mode of the test mode. Select the item number 022.

(Refer to TEST MODE on page 27.)

Display on remote control LCD

022 PatClr CC

- Press the “II” key to initialize the patch data.

(When the adjustment value changes to DD, it indicates that the writing ends with success.)

Display on remote control LCD

022 ***SDD

DD : Adjustment value

- Press the “▶” key or the “▶▶” to select the item number 023.

Display on remote control LCD

023 Patch00

00 : Adjustment value

- Press the “VOL +” key once to change the adjustment value to 01.

ELECTRICAL ADJUSTMENT-7/11

5. Press the “DISPLAY” key of the remote control for several seconds (approx. 3 seconds) in order to enter the patch data write mode.

(The following display appears and the 00 segments flash.)

Display on remote control LCD

023 0D5800

00 : Adjustment value

6. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 1E.

Display on remote control LCD

023 0D581E

1E : Adjustment value

7. Press the “II” key.

(The 0D58 segments flash.)

Display on remote control LCD

023 0D581E

1E : Adjustment value

8. Press the “VOL +” key once and change the value of the flashing segments to 0D59.

Display on remote control LCD

023 0D5900

00 : Adjustment value

9. Press the “■” key.

(The 00 segments flash.)

10. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes B2.

Display on remote control LCD

023 0D59B2

B2 : Adjustment value

11. Press the “II” key.

(The 0D59 segments flash.)

12. Press the “VOL +” key and change the value of the flashing segments to 0D5E.

Display on remote control LCD

023 0D5E00

00 : Adjustment value

13. Press the “■” key.

(The 00 segments flash.)

14. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 8B.

Display on remote control LCD

023 0D5E8B

8B : Adjustment value

15. Press the “II” key.

(The 0D5E segments flash.)

16. Press the “VOL +” key once and change the value of the flashing segments to 0D5F.

Display on remote control LCD

023 0D5F00

00 : Adjustment value

17. Press the “■” key.

(The 00 segments flash.)

18. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 20.

Display on remote control LCD

023 0D5F20

20 : Adjustment value

19. Press the “II” key.

(The 0D5F segments flash.)

20. Press the “VOL +” key once and change the value of the flashing segments to 0D60.

Display on remote control LCD

023 0D6000

00 : Adjustment value

21. Press the “■” key.

(The 00 segments flash.)

22. Press the “VOL +” key (adjustment value increases) and the “VOL –” key so that the adjustment value becomes 08.

Display on remote control LCD

023 0D6008

08 : Adjustment value

23. Press the “II” key.

(The 0D60 segments flash.)

24. Press the “VOL +” key once and change the value of the flashing segments to 0D61.

Display on remote control LCD

023 0D6100

00 : Adjustment value

25. Press the “■” key.

(The 00 segments flash.)

26. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes A1.

Display on remote control LCD

023 0D61A1

A1 : Adjustment value

27. Press the “II” key.

(The 0D61 segments flash.)

ELECTRICAL ADJUSTMENT-8/11

28. Press the “VOL +” key once and change the value of the flashing segments to 0D62.

Display on remote control LCD

023 0D6200

00 : Adjustment value

29. Press the “■” key.
(The 00 segments flash.)

30. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 04.

Display on remote control LCD

023 0D6204

04 : Adjustment value

31. Press the “II” key.
(The 0D62 segments flash.)

32. Press the “VOL +” key and change the value of the flashing segments to 0D65.

Display on remote control LCD

023 0D6500

00 : Adjustment value

33. Press the “■” key.
(The 00 segments flash.)

34. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 20.

Display on remote control LCD

023 0D6520

20 : Adjustment value

35. Press the “II” key.
(The 0D65 segments flash.)

36. Keep pressing the “DISPLAY” key of the remote control for several seconds (approx. 3 seconds) in order to exit the patch data write mode.
(The machine returns to the MANUAL Mode of the test mode.)

Display on remote control LCD

023 Patch01

01 : Adjustment value

37. Press the “II” key to write the modification data in memory.
(The adjustment value changes to CC.)

38. When the adjustment value changes to DD, it indicates that writing of the modification ends with success.

Display on remote control LCD

023 ***SDD

DD : Adjustment value

39. Turn off the power.

- How to write the modification data (for the microprocessor of version 1.100).

1. Enter the MANUAL Mode of the test mode. Select the item number 022.
(Refer to TEST MODE on page 27.)

Display on remote control LCD

022 PatC1r CC

2. Press the “II” key to initialize the patch data.
(When the adjustment value changes to DD, it indicates that the patch data is written with success.)

Display on remote control LCD

022 ***SDD

DD : Adjustment value

3. Press the “▶” key or the “▶▶” to select the item number 023.

Display on remote control LCD

023 Patch00

00 : Adjustment value

4. Press the “VOL +” key once to change the adjustment value to 01.

5. Keep pressing the “DISPLAY” key for several seconds (approx. 3 seconds) in order to enter the patch data write mode.
(The following display appears and the 00 segments flash.)

Display on remote control LCD

023 0D5C00

00 : Adjustment value

6. Press the “II” key.
(The 0D5C segments flash.)

7. Press the “VOL +” key once and change the value of the flashing segments to 0D5D.

Display on remote control LCD

023 0D5D00

00 : Adjustment value

8. Press the “■” key.
(The 00 segments flash.)

9. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes AA.

Display on remote control LCD

023 0D5DAA

AA : Adjustment value

10. Press the “II” key.
(The 0D5D segments flash.)

11. Press the “VOL +” key once and change the value of the flashing segments to 0D5E.

Display on remote control LCD

023 0D5E00

00 : Adjustment value

12. Press the “■” key.
(The 00 segments flash.)

ELECTRICAL ADJUSTMENT-9/11

13. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 04.

Display on remote control LCD

023 0D5E04

04 : Adjustment value

14. Press the “II” key.
(The 0D5E segments flash.)

15. Press the “VOL +” key and change the value of the flashing segments to 0D61.

Display on remote control LCD

023 0D6100

00 : Adjustment value

16. Press the “■” key.
(The 00 segments flash.)

17. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 20.

Display on remote control LCD

023 0D6120

20 : Adjustment value

18. Press the “II” key.
(The 0D61 segments flash.)

19. Press the “VOL +” key and change the value of the flashing segments to 0D64.

Display on remote control LCD

023 0D6400

00 : Adjustment value

20. Press the “■” key.
(The 00 segments flash.)

21. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes F4.

Display on remote control LCD

023 0D64F4

F4 : Adjustment value

22. Press the “II” key.
(The 0D64 segments flash.)

23. Press the “VOL +” key once and change the value of the flashing segments to 0D65.

Display on remote control LCD

023 0D6500

00 : Adjustment value

24. Press the “■” key.
(The 00 segments flash.)

25. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 1C.

Display on remote control LCD

023 0D651C

1C : Adjustment value

26. Press the “II” key.
(The 0D65 segments flash.)

27. Press the “VOL +” key once and change the value of the flashing segments to 0D66.

Display on remote control LCD

023 0D6600

00 : Adjustment value

28. Press the “■” key.
(The 00 segments flash.)

29. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 03.

Display on remote control LCD

023 0D6603

03 : Adjustment value

30. Press the “II” key.
(The 0D66 segments flash.)

31. Press the “VOL +” key and change the value of the flashing segments to 0D68.

Display on remote control LCD

023 0D6800

00 : Adjustment value

32. Press the “■” key.
(The 00 segments flash.)

33. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 80.

Display on remote control LCD

023 0D6880

80 : Adjustment value

34. Press the “II” key.
(The 0D68 segments flash.)

35. Press the “VOL +” key once and change the value of the flashing segments to 0D69.

Display on remote control LCD

023 0D6900

00 : Adjustment value

36. Press the “■” key.
(The 00 segments flash.)

ELECTRICAL ADJUSTMENT-10/11

37. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 09.

Display on remote control LCD

023 0D6909

09 : Adjustment value

38. Press the “II” key.
(The 0D69 segments flash.)

39. Press the “VOL +” key and change the value of the flashing segments to 0D6C.

Display on remote control LCD

023 0D6C00

00 : Adjustment value

40. Press the “■” key.
(The 00 segments flash.)

41. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes F6.

Display on remote control LCD

023 0D6CF6

F6 : Adjustment value

42. Press the “II” key.
(The 0D6C segments flash.)

43. Press the “VOL +” key once and change the value of the flashing segments to 0D6D.

Display on remote control LCD

023 0D6D00

00 : Adjustment value

44. Press the “■” key.
(The 00 segments flash.)

45. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 1C.

Display on remote control LCD

023 0D6D1C

1C : Adjustment value

46. Press the “II” key.
(The 0D6D segments flash.)

47. Press the “VOL +” key once and change the value of the flashing segments to 0D6E.

Display on remote control LCD

023 0D6E00

00 : Adjustment value

48. Press the “■” key.
(The 00 segments flash.)

49. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 03.

Display on remote control LCD

023 0D6E03

03 : Adjustment value

50. Press the “II” key.
(The 0D6E segments flash.)

51. Press the “VOL +” key and change the value of the flashing segments to 0D72.

Display on remote control LCD

023 0D7200

00 : Adjustment value

52. Press the “■” key.
(The 00 segments flash.)

53. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 05.

Display on remote control LCD

023 0D7205

05 : Adjustment value

54. Press the “II” key.
(The 0D72 segments flash.)

55. Press the “VOL +” key once and change the value of the flashing segments to 0D73.

Display on remote control LCD

023 0D7300

00 : Adjustment value

56. Press the “■” key.
(The 00 segments flash.)

57. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes D3.

Display on remote control LCD

023 0D73D3

D3 : Adjustment value

58. Press the “II” key.
(The 0D73 segments flash.)

59. Press the “VOL +” key once and change the value of the flashing segments to 0D74.

Display on remote control LCD

023 0D7400

00 : Adjustment value

60. Press the “■” key.
(The 00 segments flash.)

ELECTRICAL ADJUSTMENT-11/11

61. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes F8.

Display on remote control LCD

023 0D74F8

F8 : Adjustment value

62. Press the “**II**” key.
(The 0D74 segments flash.)

63. Press the “VOL +” key once and change the value of the flashing segments to 0D75.

Display on remote control LCD

023 0D7500

00 : Adjustment value

64. Press the “**■**” key.
(The 00 segments flash.)

65. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 1C.

Display on remote control LCD

023 0D751C

1C : Adjustment value

66. Press the “**II**” key.
(The 0D75 segments flash.)

67. Press the “VOL +” key once and change the value of the flashing segments to 0D76.

Display on remote control LCD

023 0D7600

00 : Adjustment value

68. Press the “**■**” key.
(The 00 segments flash.)

69. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 03.

Display on remote control LCD

023 0D7603

03 : Adjustment value

70. Press the “**II**” key.
(The 0D76 segments flash.)

71. Press the “VOL +” key and change the value of the flashing segments to 0D78.

Display on remote control LCD

023 0D7800

00 : Adjustment value

72. Press the “**■**” key.
(The 00 segments flash.)

73. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes 01.

Display on remote control LCD

023 0D7801

01 : Adjustment value

74. Press the “**II**” key.
(The 0D78 segments flash.)

75. Press the “VOL +” key once and change the value of the flashing segments to 0D79.

Display on remote control LCD

023 0D7900

00 : Adjustment value

76. Press the “**■**” key.
(The 00 segments flash.)

77. Press the “VOL +” key (adjustment value increases) and/or the “VOL –” key (adjustment value decreases) so that the adjustment value becomes E0.

Display on remote control LCD

023 0D79E0

E0 : Adjustment value

78. Press the “**II**” key.
(The 0D79 segments flash.)

79. Keep pressing the “DISPLAY” key of remote control for several seconds (approx. 3 seconds) in order to exit the patch data write mode.
(The machine returns to the MANUAL Mode display of the test mode.)

Display on remote control LCD

023 Patch01

01 : Adjustment value

80. Press the “**II**” key in order to write the modification data in memory.
(The adjustment value changes to CC.)

81. When the adjustment value changes to DD, it indicates that writing the modification data ends with success.

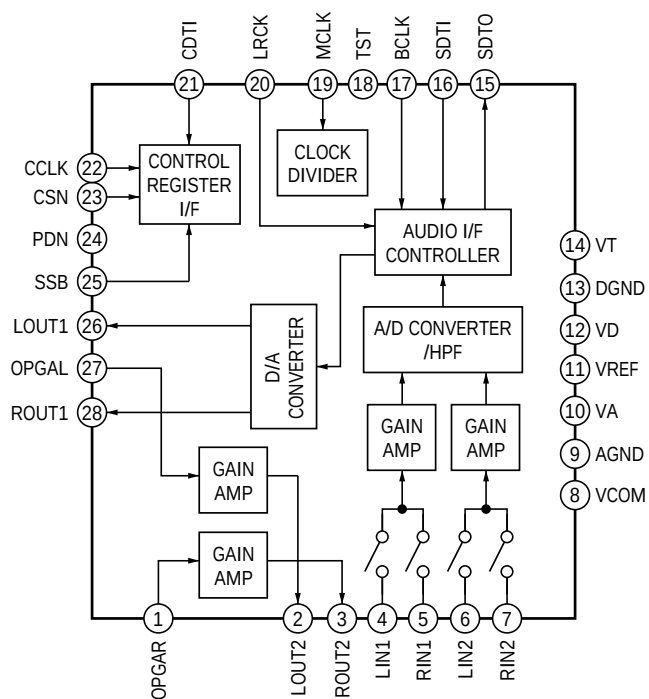
Display on remote control LCD

023 ***SDD

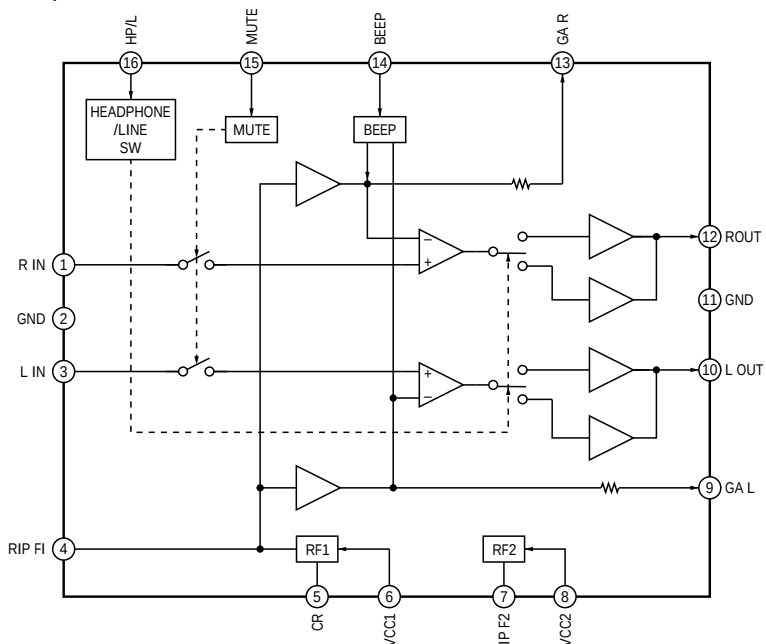
DD : Adjustment value

82. Turn off the power.

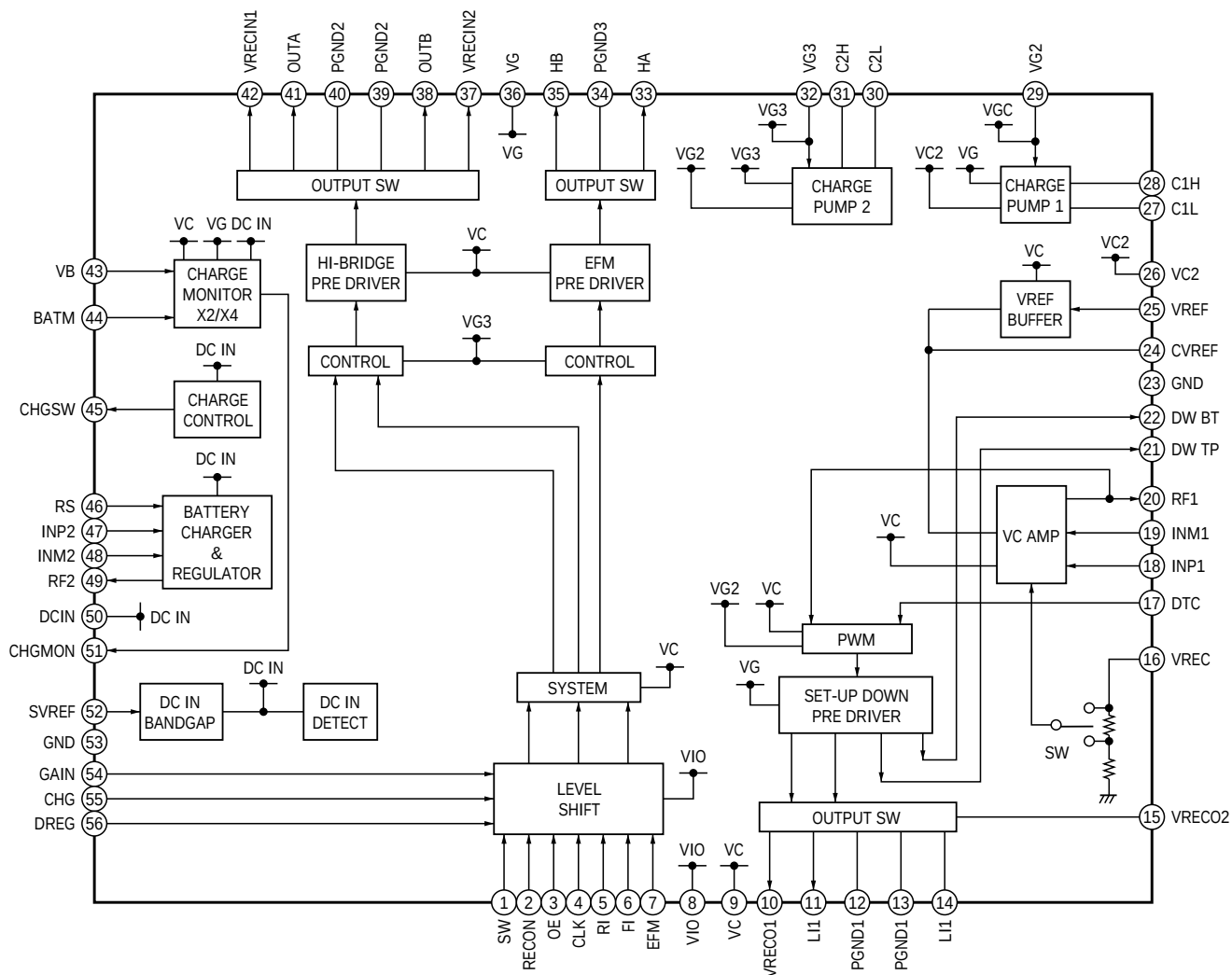
IC, AK4562VN-L



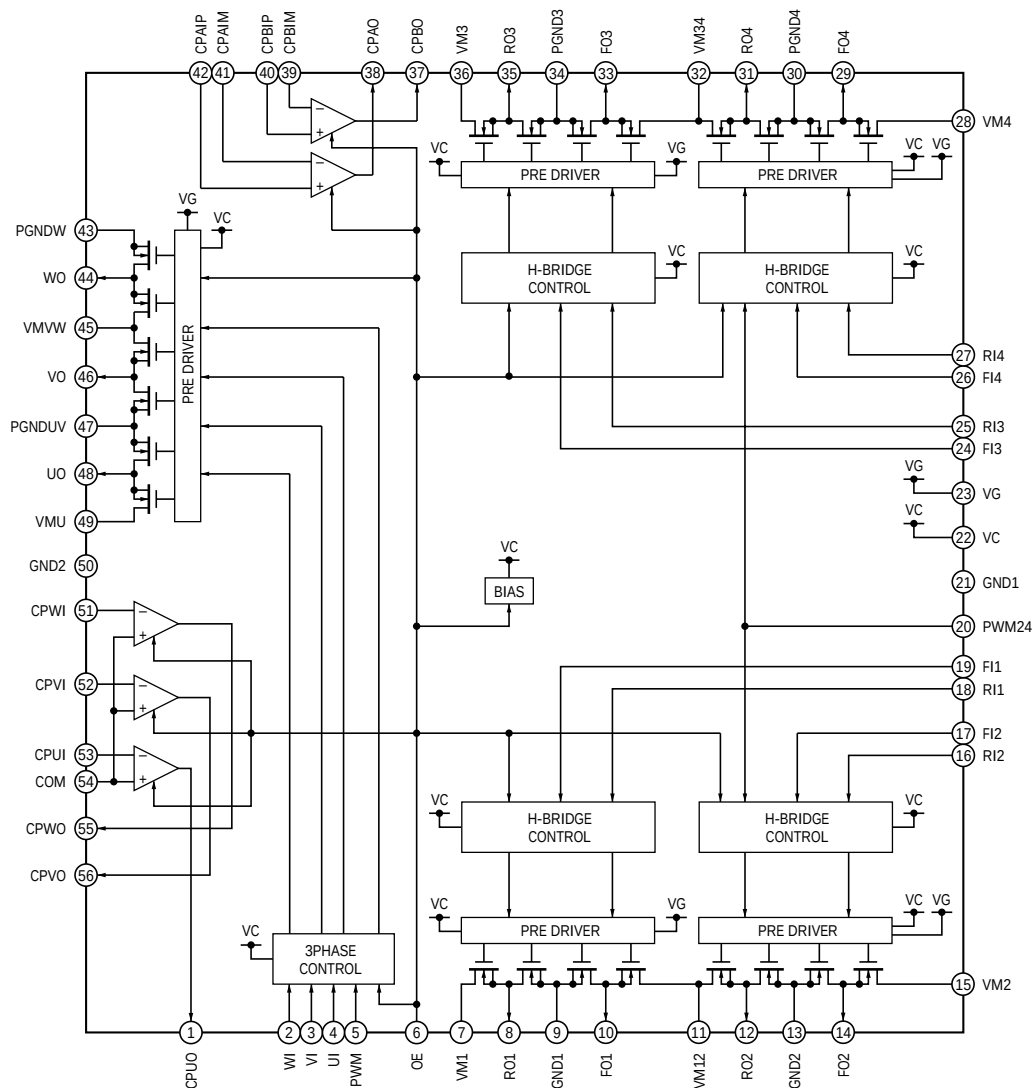
IC, AN7536FHNEBV



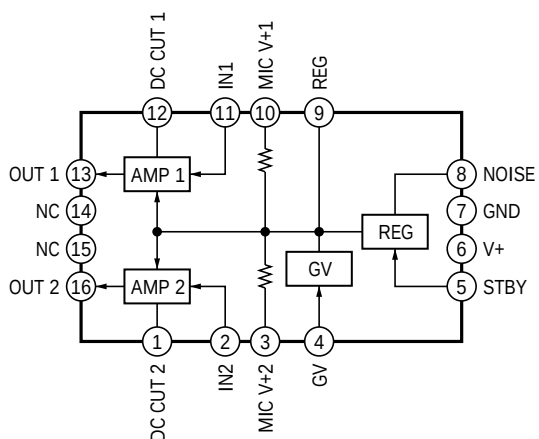
IC, XPC18A22FCR2



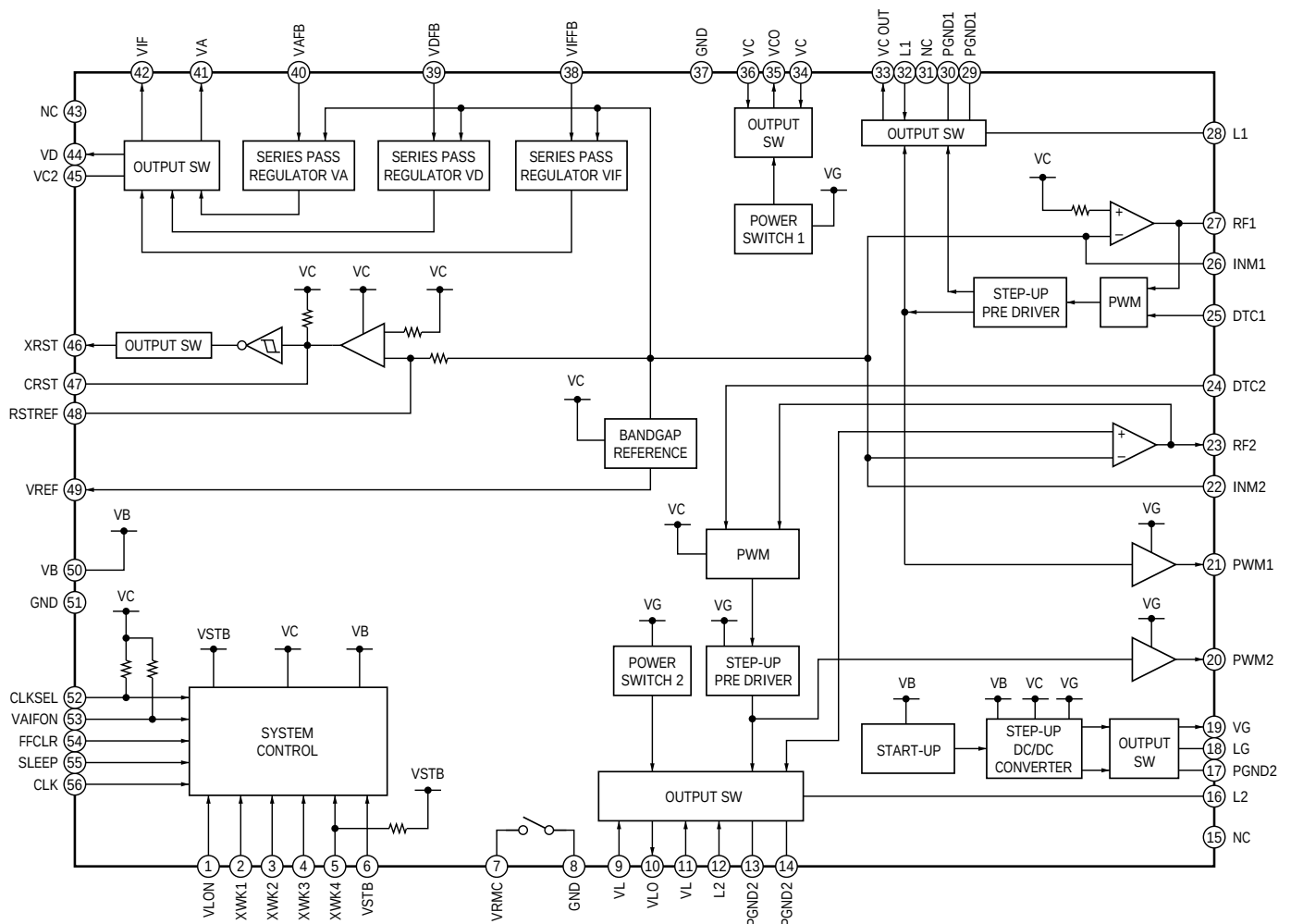
IC, SC111257FCR2



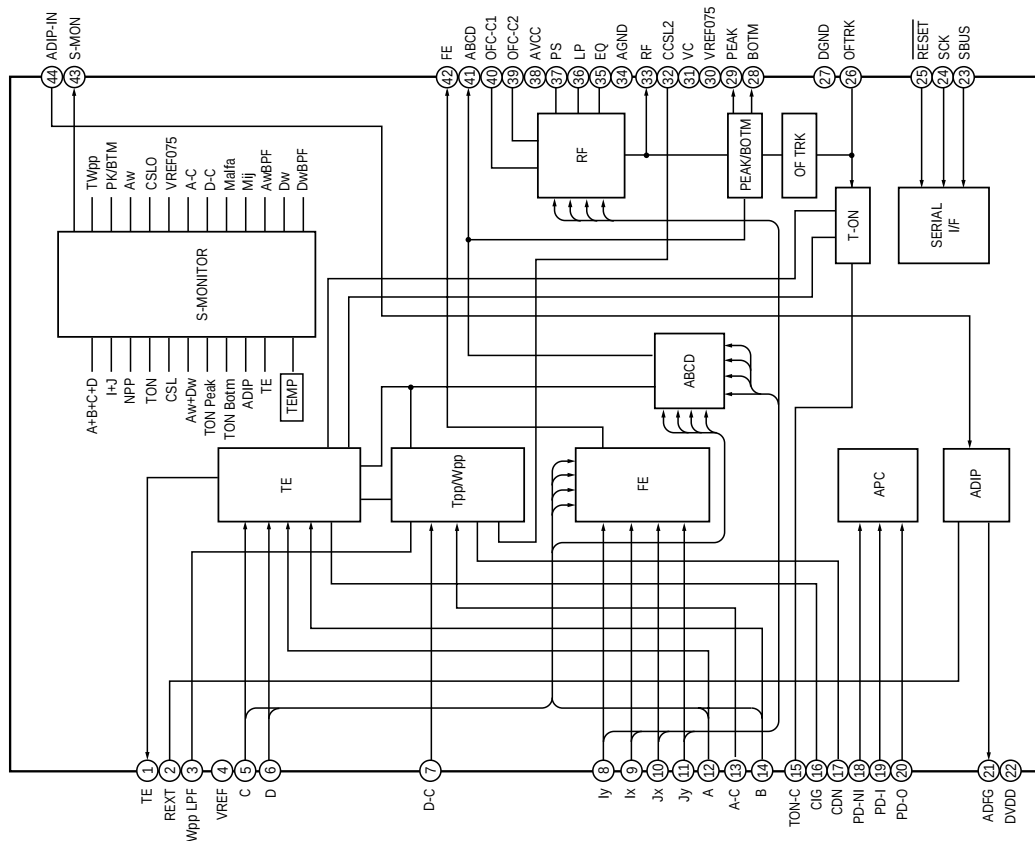
IC, NJM2173APC1



IC BLOCK DIAGRAM-3/3
XPC18A32FCR2



IC, SN761057DBT



IC DESCRIPTION-1/2 (SN761057DBT)-1/1

Pin No.	Pin Name	I/O	Description
1	TE	O	Tracking error signal output to system controller (IC801).
2	REXT	—	Terminal to which resistor for ADIP amplifier control is externally connected.
3	WPPLPF	—	Terminal to which capacitor for TPP/WPP low-pass filter is externally connected.
4	VREF11	O	Reference voltage output terminal. (+1V).
5	C	I	Input signal from detector of optical pickup (C).
6	D	I	Input signal from detector of optical pickup (D).
7	D-C	I	Input signal from detector of optical pickup (D) (AC INPUT).
8	IY	I	I-V converted RF input signal from detector of optical pickup (IY).
9	IX	I	I-V converted RF input signal from detector of optical pickup (IX).
10	JX	I	I-V converted RF input signal from detector of optical pickup (JX).
11	JY	I	I-V converted RF input signal from detector of optical pickup (JY).
12	A	I	Input signal from detector of optical pickup (A).
13	A-C	I	Input signal from detector of optical pickup (A) (AC INPUT).
14	B	I	Input signal from detector of optical pickup (B).
15	TON-C	—	Terminal to which capacitor for TON hold is externally connected.
16	CIG	—	Terminal to which capacitor for low-pass filter of NPP divider denominator is externally connected.
17	CDN	—	Terminal to which capacitor for low-pass filter of CSL divider denominator is externally connected.
18	PD-NI	I	Laser light volume input terminal (non-inverted input).
19	PD-I	I	Laser light volume input terminal (inverted input).
20	PD-O	O	Laser light volume output terminal.
21	ADFG	O	ADIP duplexed FM signal output (22.05kHz±1kHz) to system controller (IC801).
22	DVDD	—	Power supply terminal (digital system) (+2.3V).
23	SBUS	I/O	SSB serial data input/output with system controller (IC801).
24	SCK	I	SSB serial clock signal input from system controller (IC801).
25	RESET	I	Reset signal input from system controller (IC801). “L”: Reset.
26	OFTRK	I	Off-track signal input from system controller (IC801).
27	DGND	—	GND terminal (digital system)
28	BOTM	O	Bottom hold signal output (RF/ABCD) laser light volume signal to system controller (IC801).
29	PEAK	O	Peak hold signal output (RF/ABCD) laser light volume signal to system controller (IC801).
30	VREF075	—	Terminal to which capacitor for internal reference voltage is externally connected.
31	VC	O	Center point voltage (+1.2V) generator output terminal.
32	CCSL2	—	Terminal to which capacitor for TPP/WPP low-pass filter is externally connected.
33	RF OUT	O	Playback EFM RF signal output to system controller (IC801).
34	AGND	—	GND terminal (analog system).
35-37	EQ, LP, PS	—	Terminal to which capacitor for RF EQ is externally connected.
38	AVCC	—	Power supply terminal (analog system) (+2.3V).
39, 40	OFC-2, OFC-1	—	Terminal to which capacitor for RF AC coupling is externally connected.
41	ABCD	O	The (ABCD) laser light volume signal to system controller (IC801).
42	FE	O	Focus error signal output to system controller (IC801).
43	S-MON	O	Servo signal monitor output to system controller (IC801).
44	ADIP-IN	I	ADIP duplexed FM signal input terminal (22.05kHz±1kHz). Not used in this machine.

IC DESCRIPTION-2/2 (CXD2671-203GA)-1/6

Pin No.	Pin Name	I/O	Description
1	PAUSE KEY	I	Main units' key input terminal (key input).
2	MIC SENSE	O	Microphone sense signal output to the microphone amplifier (IC303). “H”: HIGH, “L”: LOW, Normally: “H”.
3	XTEST	I	Input terminal for setting the test mode. “L”: Test mode. (Normally set to “H”).
4, 5	NC	O	Not used in this machine. (No connection terminal.)
6	MCUVDD0	—	Power supply terminal (for microprocessor block) (+1.5V).
7	MIFVSS3	—	GND terminal (for microprocessor I/F).
8	XRST	I	System reset signal input terminal from power control (IC901). “L” : Reset.
9	S MON	I	Servo signal monitoring input terminal (A/D input) from RF amplifier (IC501).
10	VB MON	I	Voltage monitor input terminal of UNREG power supply. (A/D input).
11	CHG MON	I	Charging voltage monitor input terminal (A/D input) from XPC18A22FCR2 (IC601).
12	VREF MON	I	Clear reference voltage input terminal (A/D input) from RF amplifier (IC501).
13, 14	SET KEY 1, SET KEY 2	I	Main unit key input terminal (A/D input).
15	VL MON	I	VL voltage monitoring input terminal (A/D input).
16	HIDC MON	I	HIGH DC voltage monitoring input terminal (A/D input).
17	WK DET	I	Main unit's key startup detection signal input terminal (A/D input).
18	REC KEY	I	REC key input terminal (A/D input).
19	HALF LOCK SW	I	OPEN button detector switch (S805) input terminal (A/D input). “L” : During normal position, “H” : During lock.
20	RMC KEY	I	Key input terminal of remote commander with headphones (A/D input).
21	AVDD	—	Power supply terminal (for analog circuit block) (+2.8V).
22	AVSS	—	GND terminal (for analog circuit block).
23	VDIOSC	—	Power supply terminal (for OSC cell) (+2.4V).
24	OSCI	I	System clock (45.1584 MHz) input terminal.
25	OSCO	O	System clock (45.1584MHz) output terminal.
26	VSOSC	—	GND terminal (for OSC cell).
27	DAVDD	—	Power supply terminal (for built-in D/A converter) (+2.4V).
28	VREFL	I	Reference voltage input terminal (for built-in D/A converter L-CH).
29	AOUTL	O	Built-in D/A converter (L-CH) output terminal. Not used in this machine. (No connection terminal).
30	AOUTR	O	Built-in D/A converter (R-CH) output terminal. Not used in this machine. (No connection terminal).
31	VREFRI	I	Reference voltage input terminal (Built-in D/A converter R-CH).
32	DAVSS	—	GND terminal (for built-in D/A converter).
33	ASYO	O	Playback EFM duplexed signal output terminal.
34	ASYI	I	Playback EFM comparison slice level input terminal.
35	AVD1	—	Power supply terminal (for analog) (+2.4V).
36	BIAS	I	Playback EFM comparison bias input.
37	RFI	I	Playback EFM RF signal input from RF amplifier (IC501).
38	AVS1	—	GND terminal (for analog).
39	PCO	O	Phase comparator output for master clock of playback EFM system master PLL.
40	PDO	O	Phase comparator output for analog PLL. Not used in this machine. (No connection terminal).

IC DESCRIPTION-2/2 (CXD2671-203GA)-2/6

Pin No.	Pin Name	I/O	Description
41	FILI	I	Filter input for master clock of playback EFM system master PLL.
42	FILO	O	Filter output of master clock from playback EFM system master PLL.
43	CLTV	I	Internal VCO control voltage input for playback EFM system master PLL.
44	PEAK	I	Peak hold signal input of laser light volume signal (RF/ABCD) from RF amplifier (IC501).
45	BOTM	I	Bottom hold signal input of laser light volume signal (RF/ABCD) from RF amplifier (IC501).
46	ABCD	I	Laser light volume signal (ABCD) from RF amplifier (IC501).
47	FE	I	Focus error signal input from RF amplifier (IC501).
48	AUX1	I	Auxiliary signal (I3 signal/temperature signal) input terminal (A/D input).
49	VC	I	Center point voltage (+1.2V) input terminal.
50	ADIO	O	A/D converter input signal monitor output. Not used in this machine. (No connection terminal).
51	ADRT	I	A/D converter operating range upper limit voltage input. (Fixed to “H” in this machine).
52	AVD2	—	Power supply terminal (for analog) (+2.4V).
53	AVS2	—	GND terminal (for analog).
54	ADRB	I	A/D converter operating range lower limit voltage input. (Fixed to “L” in this machine).)
55	SE	I	Sled error signal input terminal. Not used in this machine. (Fixed to “L”.)
56	TE	I	Tracking error signal input from RF amplifier (IC501).
57	DCHG	—	Connected to low impedance analog power supply. (Fixed to “H” in this machine).
58	APC	I	Error signal input for laser power automatic control. Not used in this machine. (Fixed to “H”).)
59	DSPVDD0	—	Power supply terminal (For DSP block) (+1.5V).
60	DSPVSS0	—	GND terminal (For DSP block).
61	XTSL	I	System clock frequency setting input terminal. “L” : 45.1584 MHz, “H”: 22.5792 MHz (Fixed to “L” in this machine).
62	DIN1	I	Recording system digital audio signal input terminal.
63	DOUT	O	Playback system digital audio signal output terminal. Not used in this machine. (No connection terminal).
64	DAPWMLP	O	D/A converter PWM output (L-CH normal phase). Not used in this machine. (No connection terminal).
65	DAPWMLN	O	D/A converter PWM output (L-CH reverse phase). Not used in this machine. (No connection terminal).
66	DAPWMRP	O	D/A converter PWM output (R-CH normal phase). Not used in this machine. (No connection terminal).
67	DADT	O	Audio data output to external A/D, D/A converter (IC301).
68	ADDT	I	Data signal input from external A/D, D/A converter (IC301).
69	LRCK	O	L/R sampling clock signal (44.1KHz) output to external A/D, D/A converter (IC301).
70	XBCK	O	Bit clock signal (2.8224 MHz) output to external A/D, D/A converter (IC301).
71	FS256	O	11.2896 MHz clock signal output to external A/D, D/A converter (IC301).
72	MVCI	I	Oscillator input for DIGITAL IN PLL from external VCO. Not used in this machine. (Fixed to “L”).
73	DSPVDD1	—	Power supply terminal (For DSP block) (+1.5V).
74	ADFG	I	ADIP duplexed FM signal (20.05±1KHz) input from RF amplifier (IC501).
75	F0CNT	O	Filter cut-off control signal output. Not used in this machine.
76	DIFVDD0	—	Power supply terminal (For DSP I/F) (+2.3V).

IC DESCRIPTION-2/2 (CXD2671-203GA)-3/6

Pin No.	Pin Name	I/O	Description
77	DIFVSS0	—	GND terminal (For DSP I/F).
78	APCREF	O	Control signal output to reference voltage generator circuit used for laser power automatic control.
79	LDDR	O	PWM signal output for laser power automatic control. Not used in this machine. (No connection terminal).
80	TRDR	O	Tracking servo drive PWM signal output (–) to motor driver (IC551).
81	TFDR	O	Tracking servo drive PWM signal output (+) to motor driver (IC551).
82	FFDR	O	Focus servo drive PWM signal output (+) to motor driver (IC551).
83	FRDR	O	Focus servo drive PWM signal output (–) to motor driver (IC551).
84	MCUVDD1	—	Power supply terminal (form microprocessor block) (+1.5V).
85	FGIN	I	FG signal input terminal for spindle servo. Not used in this machine. (No connection terminal).
86	FS4	O	176.4 MHz clock signal output to power control (IC601, 901).
87	SPRD/SPDU/RTG0	O	Spindle servo drive PWM signal output terminal (–) to motor driver (IC551).
88	SPFD/SPVS/PWM3	O	Spindle servo drive PWM signal output (+).
89	SPDV/RTG1	O	Spindle motor drive control signal output (V)/RTG output 1 to motor driver (IC551).
90	SPDW/RTG2	O	Spindle motor drive control signal output (W)/RTG output 2 to motor driver (IC551).
91	DSPVDD2	—	Power supply terminal (For DSP block) (+1.5V).
92	DSPVSS1	—	GND terminal (For DSP block).
93	SPCU	I	Spindle motor drive comparator signal input (U) from motor driver (IC551).
94	SPCV	I	Spindle motor drive comparator signal input (V) from motor driver (IC551).
95	SPCW	I	Spindle motor drive comparator signal input (W) from motor driver(IC551).
96	SRDR	O	Sled servo drive PWM signal output (–) to motor driver (IC551).
97	SFDR	O	Sled servo drive PWM signal output (+) to motor driver (IC551).
98	SLDV	O	Sled motor drive control signal output (V)/drive control signal output (1–) to motor driver (IC551).
99	SLDW	O	Sled motor drive control signal output (W)/drive control signal output (2+) to motor driver (IC551).
100	SLCU	I	Spindle motor drive comparator signal input (U) from motor driver (IC551).
101	SLCV	I	Spindle motor drive comparator signal input (V) from motor driver (IC551).
102	SLCW	I	Spindle motor drive comparator signal input (W) from motor driver(IC551).
103	DIFVDD1	—	Power supply terminal (For DSP I/F) (+2.3V).
104	DIFVSS1	—	GND terminal (For DSP I/F).
105	EFMO	O	Recording EFM encode data output to overwrite head drive (IC601).
106	MNT0	O	Internal DSP monitor output (0) terminal. Not used in this machine. (No connection terminal).
107	MNT1	O	Internal DSP monitor output (1) terminal. Not used in this machine. (No connection terminal).
108	MNT2	O	Internal DSP monitor output (2) terminal. Not used in this machine. (No connection terminal).
109	MNT3	O	Internal DSP monitor output (3) terminal. Not used in this machine. (No connection terminal).
110	SENSE	O	Internal DSP (SENS) monitor output terminal. Not used in this machine. (No connection terminal).
111	TX	O	Internal DSP recording data output enable signal output monitor terminal. Not used in this machine. (No connection terminal).
112	RECP	O	Laser power selector signal output monitor terminal. Not used in this machine. (No connection terminal).
113	DSPVDD3	—	Power supply terminal. (For DSP block) (+1.5V).
114-117	NC	O	Output terminal for external D-RAM. Not used in this machine. (No connection terminal).

IC DESCRIPTION-2/2 (CXD2671-203GA)-4/6

Pin No.	Pin Name	I/O	Description
118	DRAMVSS0	—	GND terminal. (For external D-RAM).
119	DRAMVDD0	—	Power supply terminal. (For external D-RAM). (+2.4V).
120-138	NC	O	Output terminal for external D-RAM. Not used in this machine. (No connection terminal).
139	DRAMVDD1	—	Power supply terminal. (For external D-RAM). (+2.4V).
140	DRAMVSS1	—	GND terminal. (For external D-RAM).
141	TSB MST VDD	—	Power supply terminal. (For TSB master communication) (+2.8V).
142	RMC DTCK	I/O	TSB serial communication data input/output with remote commander with headphones.
143	TSB SLV VDD	—	Power supply terminal (For I/F of TSB slave communication). (+2.3V)
144	TSB SLVI	I	TSB slave signal input from remote commander with headphones.
145	TSB SLVO	O	TSB slave signal output to remote commander with headphones.
146	TDI	I	Data input terminal for JTAG. Not used in this machine. (No connection terminal).
147	TMS	I	Test mode control input terminal for JTAG. Not used in this machine. (No connection terminal).
148	TCK	I	Clock input terminal for JTAG. Not used in this machine. (No connection terminal).
149	XTRST	I	Reset input terminal for JTAG. Not used in this machine. (No connection terminal)
150	TDO	O	Data output terminal for JTAG. Not used in this machine. (No connection terminal).
151	JTAGVDD	—	Power supply terminal (For JTAG) (+2.4V).
152	JTAGVSS	—	GND terminal (For JTAG).
153	MCUVDD2	—	Power supply terminal (for microprocessor block) (+1.5V).
154	MIFVDD0	—	Power supply terminal (for microprocessor I/F) (+2.3V).
155	MIFVSS0	—	GND terminal (for microprocessor I/F).
156, 157	TEST1, TEST0	I	Input terminal for main test. (Normally fixed to “L”)
158	EVA	I	EVA/FLASH chip identification terminal. “L”: FLASH chip. “H”: EVA chip.
159	NC	O	Not used in this machine. (No connection terminal).
160	SSB DATA	I/O	SSB serial input and output with RF amplifier (IC501).
161	SSB CLK	O	SSB serial clock output to RF amplifier (IC501).
162	MCUVSS0	—	GND terminal (for microprocessor block).
163	VREC PWM	O	Over write head (OWH) control spare terminal. Not used in this machine. (No connection terminal).
164	VL PWM	I	Laser power supply voltage automatic control PWM signal output to power control (IC901).
165	VC PWM	I	PWM signal output to power control (IC901) for system power supply control.
166	SPDL AUX PWM	O	Spindle auxiliary PWM signal output to motor driver (IC551).
167, 168	NC	O	Not used in this machine. (No connection terminal).
169	CLK SEL	O	System clock selector signal output to power control (IC901).
170	OPEN CLOSE SW	I	TOP PANEL open/close detector switch (S806) input terminal. (A/D input). “L”: TOP PANEL is closed.
171	GND SW	O	Control signal output to ground (GND) selector switch.
172	SET CODE0	O	Model number setting data input terminal. (No connection terminal in this machine).
173-175	SET CODE1-3	O	Model number setting data input terminal. (Fixed to L in this machine).)
176	MIFVDD1	—	Power supply terminal (for microprocessor I/F) (+2.3V).
177	MIFVSS1	—	GND terminal (for microprocessor I/F).
178	AOUT SEL	O	HP/LINE selector signal output to headphones amplifier (IC302).
179	SI0	I	Serial data input from non-volatile memory (IC804) and LCD element module.

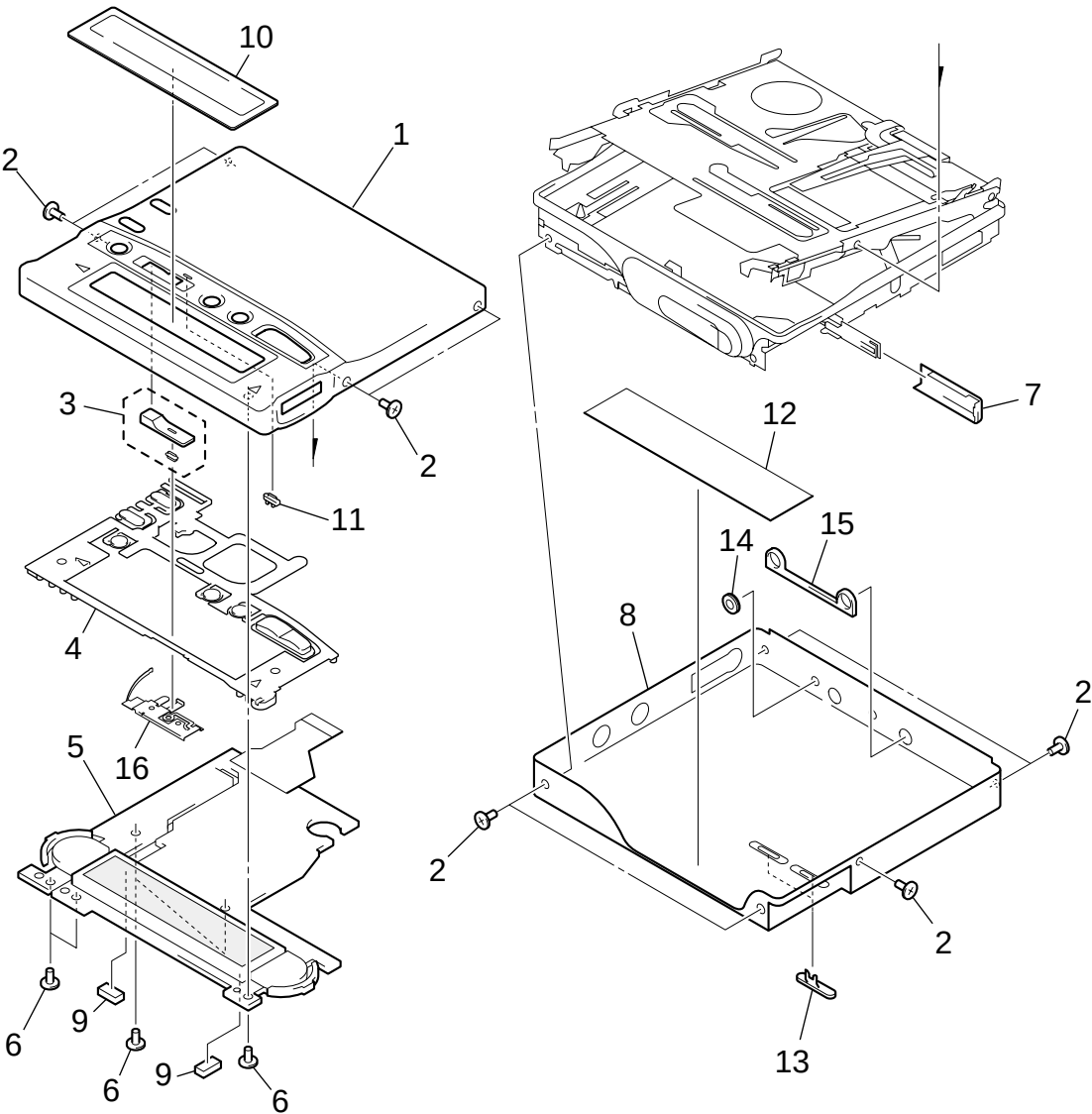
IC DESCRIPTION-2/2 (CXD2671-203GA)-5/6

Pin No.	Pin Name	I/O	Description
180	SO0	O	Serial data output to non-volatile memory (IC804), A/D, D/A converter (IC301) and LCD element module.
181	SCK0	O	Serial clock signal output to non-volatile memory (IC804), A/D, D/A converter (IC301) and LCD element module.
182	XGUM ON	I	Charging battery pack detector switch (S804) input terminal. L: Charging battery pack is connected.
183	BEEP	O	Beep sound control signal output to headphones amplifier (IC302).
184	NC	O	Not used in this machine. (No connection terminal).
185	VD SEL	O	VD power supplies selector signal output terminal. Not used in this machine. (No connection terminal).
186	XMUTE	O	Analog muting control signal output terminal to headphones amplifier (IC302). "L": Muting ON.
187	LCD RST AUX	O	Reset control signal output terminal to LCD element. "L": Reset.
188, 189	NC	O	Not used in this machine. (No connection terminal)
190	XPATCH	I	Patch function detection input terminal. "L": Patch function.
191	OPT DET	I	Not used in this machine. (No connection terminal).
192	XJACK DET	I	DIN plug detection signal input terminal LINE IN plug detection signal input terminal.
193	XMIC DET	I	Microphone plug detection signal input terminal.
194, 195	PD S0, PD S1	O	PD IC mode selector signal output to optical pickup.
196	MIFVDD2	—	Power supply terminal (for microprocessor I/F) (+2.3V).
197-199	MODE1 to 3	O	Over write head driving power control signal output to over write head (OWH) drive (IC601).
200, 201	HD CON 1, 2	O	Over write head (OWH) control signal output to over write head drive (IC601).
202	REC WBL SW	O	LPF selector switch input terminal during REC/PB control. Not used in this machine. (No connection terminal).
203	XCS ADA	O	Chip select signal output to A/D, D/A converter (IC301).
204	XPD ADA	O	Driving power control signal output to A/D, D/A converter (IC301).
205	XCS LCD	O	Chip select signal output to LCD element.
206	LCD STB	O	Strobe signal output to LCD element.
207	LCD RST	O	Reset control signal output to LCD element. Not used in this machine. (No connection terminal).
208	REC LED	O	REC indicator LED ON/OFF control signal output.
209	LD ON	O	Laser diode ON/OFF control signal output terminal. Not used in this machine. (No connection terminal).
210	TSB SLV CHK	I	TSB slave detection signal input terminal.
211, 212	NC	I	Not used in this machine. (No connection terminal).
213	MCUVSS1	—	GND terminal (for microprocessor block).
214	CAV CLV SW	O	CAV/CLV selector control signal output. Not used in this machine. (No connection terminal).
215	XOPT CTL	O	Power ON/OFF control signal output for DIN PD drive.
216	CS RTC	O	Chip select signal output to watch IC.
217	OFTRK	I	Off-track signal input from RF amplifier (IC501).
218	NC	O	Analog muting control signal output. "H": Muting ON. Not used in this machine. (No connection terminal).
219	XCS NV	O	Chip select signal output to EEPROM (IC804).
220	XRST MTR DRV	O	Reset control signal output to motor driver (IC551).

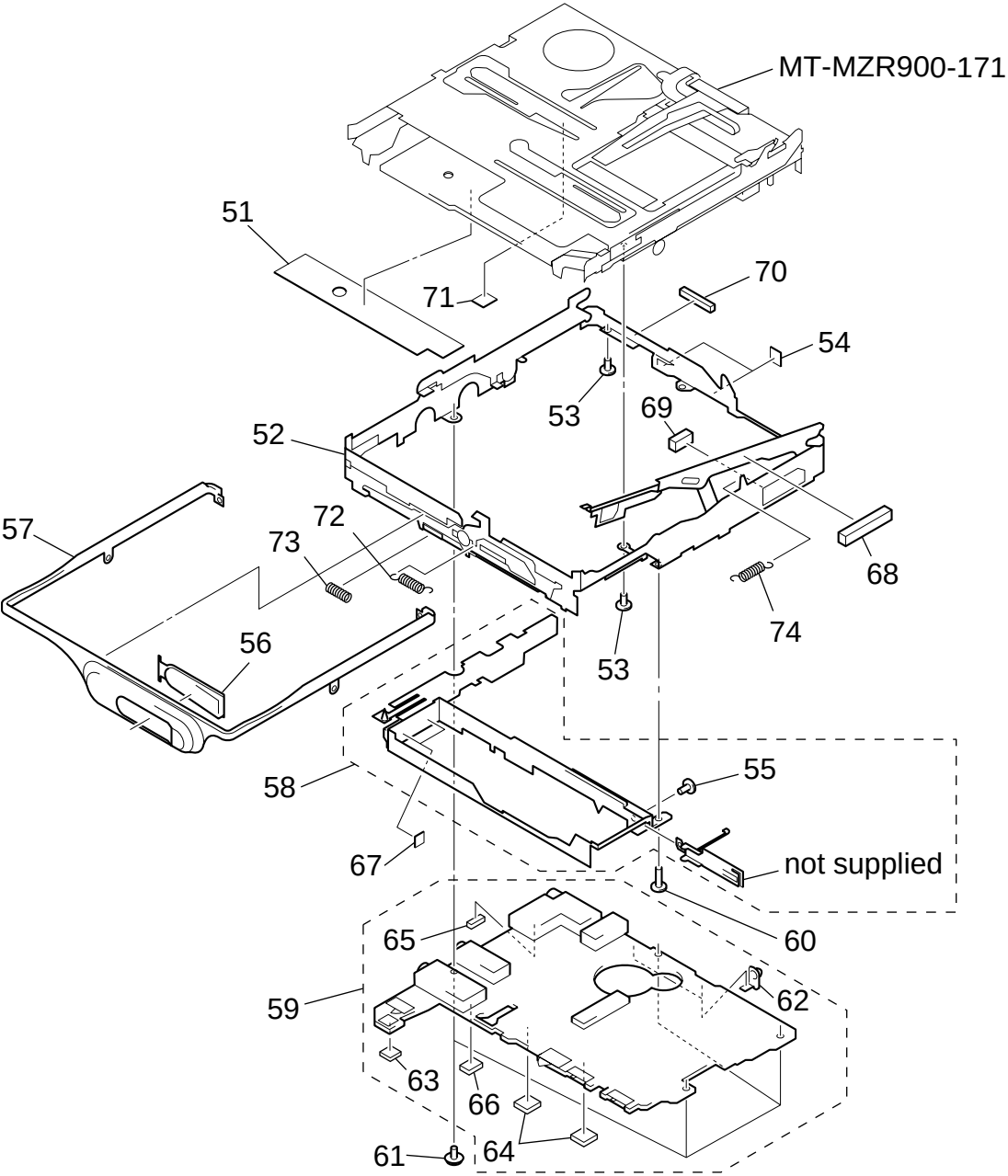
IC DESCRIPTION-2/2 (CXD2671-203GA)-6/6

Pin No.	Pin Name	I/O	Description
221	XRF RST	O	Reset control signal output to RF amplifier (IC501).
222	MCUVDD3	—	Power supply terminal (for microprocessor block) (+1.5V).
223	SPDL MON	I	Spindle servo monitor signal input from motor driver (IC551).
224-226	NC	I	Not used in this machine. (No connection terminal)
227	XHOLD SW	I	HOLD switch (S801) input terminal. “L”: Hold ON. “H”: Hold OFF.
228	SYNC REC	I	SYNCHRO REC switch (S802) input terminal. “L”: OFF, “H”: ON.
229	NC	O	Not used in this machine. (No connection terminal).
230	PROTECT	I	Record-Inhibit tab detected input signal from the protect detector switch (S803). “L”: Record enabled. “H”: Protected.
231	FLASHVDD	—	Power supply terminal (for internal FLASH ROM) (+2.4V).
232	FLASHVSS	—	GND terminal (for internal FLASH ROM).
233	SLD MON	I	Sled servo monitor signal input from motor driver (IC551).
234	VLON	O	Laser diode driving power control signal output to power control (IC901).
235	SLEEP	O	System sleep control signal output to power control (IC901). “H”: Sleep ON
236	FFCLR	O	Output signal of the input latch for startup signal, is sent to power control (IC901) from this pin.
237	CHG GAIN	O	Charge gain control signal output to power control (IC601).
238	CHG	O	Charge ON/OFF control signal output to power control (IC601). “H”: Charge ON.
239, 240	NC	O	Not used in this machine. (No connection terminal).
241	MIFVDD3	—	Power supply terminal (for microprocessor I/F) (+2.3V).
242	MIFVSS2	—	GND terminal (for microprocessor I/F).
243	TEST2	O	Input terminal for main test (Normally no connection terminal).
244	NC	—	Not used in this machine. (No connection terminal).

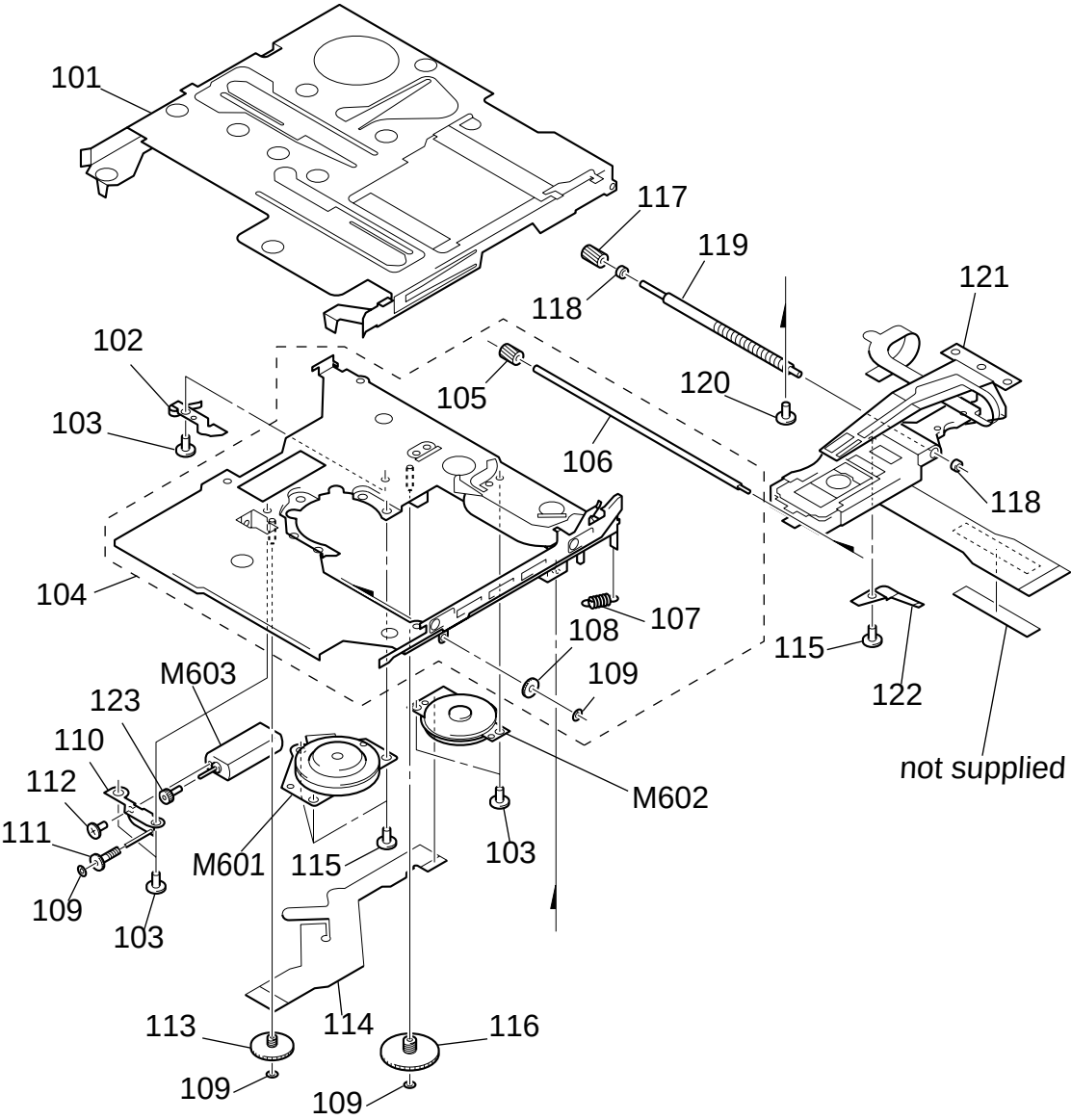
MECHANICAL EXPLODED VIEW-1/3 (MAIN UNIT)



MECHANICAL EXPLODED VIEW-2/3 (MAIN C.B BLOCK)



MECHANICAL EXPLODED VIEW-3/3 (MD MECHANISM DECK)



MECHANICAL PARTS LIST-1/1

REF. NO	PART NO.	KANRI NO.	DESCRIPTION	REF. NO	PART NO.	KANRI NO.	DESCRIPTION
1	8B-HM1-001-010		PANEL ASSY, TOP	70	93-226-168-010		SPACER, REAR
2	94-218-229-090		SCREW, M1.4-T	71	93-225-171-010		SH, CLV
3	8B-HM1-005-010		KNOB, SL REC	72	93-220-472-010		SPR-E OPEN
4	8B-HM1-004-010		KEY, CONT	73	94-223-088-010		SPR-C, LOCK
5	91-804-171-210		PWB ASSY, LCD	74	93-220-471-010		SPR-E, ARM
6	94-984-017-010		SCREW, M1.7-SWCH	101	9X-337-949-810		HLDR ASSY
7	93-220-484-010		LID, BAT	102	93-224-779-010		SPR-P, SHAS
8	8B-HM1-002-010		PANEL, BOT	103	94-218-233-020		SCREW, M1.4-HM
9	93-226-760-010		SPACER, LCD	104	9X-337-949-710		SHAS ASSY, MD
10	8B-HM1-003-010		WINDOW, LCD	105	94-222-218-010		GEAR, HD
11	8B-HM1-006-010		LENS, REC	106	94-222-223-010		SHAFT, SUB
12	94-223-109-010		SH, BOT	107	94-222-226-010		SPR-E, EJECT
13	94-223-106-010		KNOB, HOLD	108	94-222-222-010		GEAR, RACK
14	93-010-287-010		CLR, DC IN	109	93-338-645-310		W, 0.8-2.5
15	94-223-105-010		ESCUTCHEON	110	9X-495-191-810		GEAR ASSY, SHAS
16	8B-HM1-201-010		SPR-P, REC PROT	111	93-222-545-010		GEAR, HB
51	93-220-477-010		SH, MD	112	94-224-885-010		SCREW, M1.2-1.5
52	9X-337-932-020		SHAS ASSY	113	94-222-215-010		GEAR, HC
53	94-218-233-070		SCREW, M1.4-H	114	91-679-372-110		PWB, FLEX MOT
54	93-224-089-010		SH, SHAS	115	94-963-883-310		SCREW, V+1.4
55	94-218-229-290		SCREW, M1.4-SWCH	116	94-222-216-010		GEAR, SA
56	93-220-465-010		BTN, OPEN	117	94-222-208-010		GEAR, SB
57	93-220-464-010		FRAME, CENTER	118	94-222-204-010		BRG, N
58	9X-337-932-120		CASE ASSY, BAT	119	94-222-203-010		SCREW, LEAD
59	9A-332-359-6A0		PWB ASSY, MAIN	120	93-349-825-210		S-SCREW, MD
60	94-218-229-290		SCREW, M1.4-SWCH	121	9X-337-950-810		OP ASSY, LCX-4R
61	93-335-797-910		S-SCREW, M1.4	122	93-049-336-010		SPR, RACK (S)
62	94-223-110-020		BAT-CONTACT	123	93-222-544-010		GEAR, HA
63	93-226-169-010		SPACER, PRO	M601	98-835-706-010		MOT ASSY, SSM18A/C-NP
64	93-226-759-010		SPACER, PWB	M602	91-763-399-110		MOT ASSY, SLED
65	93-226-754-010		SPACER, HP	M603	91-763-400-210		MOT, OWH
66	93-226-167-010		SPACER, LINE IN				
67	93-226-153-010		SH, BAT				
68	93-226-758-010		SPACER, HINGE				
69	93-226-757-010		SPACER, SHAS				

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	GM	Metallic Green
YM	Metallic Yellow	DM	Metallic Orange	PT	Transparent Pink
LA	Aqua Blue	GL	Light Green	HT	Transparent Gray
HM	Metallic Gray	NH	Champagne Gold	M	Wood Pattern

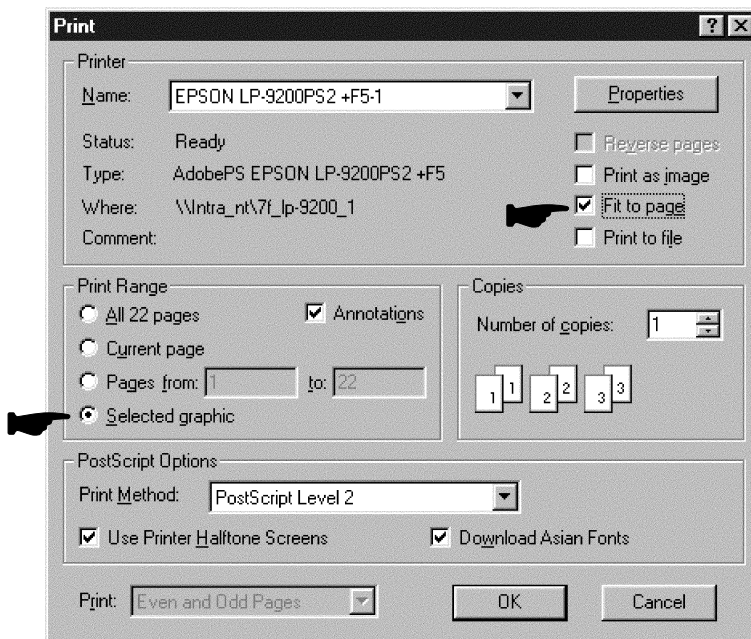
How to print out the graphics by specifying the desired range only.

The large graphics such as SCHEMATIC DIAGRAM and WIRING diagrams that are larger than the sizes of your printer paper, can be printed by dividing them into several smaller pages by specifying the desired ranges. (Acrobat 4.0 and higher)

1. Let the desired graphic that you want to print, appear on the display screen.
2. Select "Page Setup" from the File menu. Then select the print paper size.
3. Select "Graphic Select Tool" from the Command Bar.
(Keep pressing  to select .)



4. Drag the cursor to surround the area that you want to print, of the page.
(In this service manual, the  markings are already shown at the positions that surround the A4 size. When you have selected the A4 size print paper, drag the area surrounded by the  markings by the cursor.)
5. Click "Print" of the File menu and confirm that the "Selected Thumbnails/Graphic" of the print dialog box is clicked. Check "Fit of Page". The graphic data can be enlarged or reduced (or rotated as needed) of the printing size so that you can print the graphics fitting to the size of the selected paper.



6. If you want to cancel the printing area, click any arbitrary position on the screen.



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