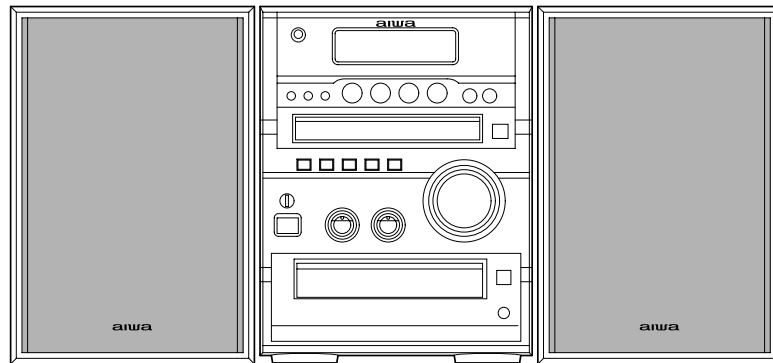




XR-EM70 XR-EM71

K
EZ



SERVICE MANUAL

COMPACT DISC
STEREO SYSTEM

BASIC TAPE MECHANISM : AZM-1 A4NM
BASIC CD MECHANISM : 3ZG-3 E13NM

SYSTEM	COMPACT DISC	SPEAKER	REMOTE CONTROLLER
XR-EM70	CX-LEM70	SX-LEM70	RC-BAT15
XR-EM71	CX-LEM71		

- This Service Manual is the "Revision Publishing" and replaces "Simple Manual" of XR-EM70 <K>/ 71 <EZ>, (S/M Code No. 09-018-449-6T1).

aiwa
S/M Code No. 09-019-449-6R1

REVISION
DATA

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SPECIFICATIONS

MAIN UNIT CX-LEM70 (K) / CX-LEM71 (EZ)

TUNER

FM tuning range	87.5 MHz to 108 MHz
FM usable sensitivity (IHF)	16.8 dBf
FM antenna terminal	75 ohms (unbalanced)
MW tuning range	531 kHz to 1602 kHz (9 kHz step) 530 kHz to 1710 kHz (10 kHz step)
MW usable sensitivity	350 μ V/m
LW tuning range	144 kHz to 290 kHz
LW usable sensitivity	1400 μ V/m
MW/LW antenna	Loop antenna

AMPLIFIER

Power output	Rated: 28 W + 28 W (6 ohms, T.H.D. 1%, 1 kHz/DIN 45500) Reference: 35 W + 35 W (6 ohms, T.H.D. 10 %, 1 kHz/DIN 45324) EZ: DIN MUSIC POWER 75 W + 75 W
Input	AUX IN: 700 mV
Outputs	SPEAKERS: 6 ohms or more PHONES: 32 ohms or more DIGITAL OUT (OPTICAL) jack

CASSETTE DECK

Track format	4 tracks, 2 channels stereo
Frequency response	50 Hz - 15000 Hz
Recording system	AC bias
Heads	Recording/playback X 1, erase X 1

CD PLAYER

Laser	Semiconductor laser ($\lambda = 780$ nm)
D/A converter	1 bit dual
Signal-to-noise ratio	88 dB (1 kHz, 0 dB)
Harmonic distortion	Unmeasurable (1 kHz, 0 dB)
Wow and flutter	Unmeasurable

GENERAL

Power requirements	230 V AC, 50 Hz
Power consumption	60 W
Power consumption in standby mode	With ECO mode on or auto: 0.8 W With ECO mode off: 11.1 W
Dimensions (W x H x D)	191.5 x 249.0 x 389.0 mm
Weight	5.3 kg

SPEAKER SYSTEM SX-LEM70

Speaker system	2 way, bass reflex (magnetic shielded)
Speaker units	Woofer: 120 mm cone Tweeter: 25 mm dome
Impedance	6 ohms
Dimensions (W x H x D)	155 x 250 x 218 mm
Weight	2.4 kg

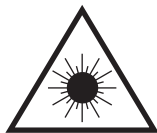
• Design and specifications are subject to change without notice.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

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

WARNING!!

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



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

VAROITUS!

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

WARNING!

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

CAUTION

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

ATTENTION

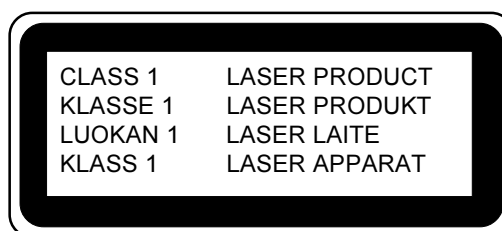
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

ADVARSEL

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

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

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



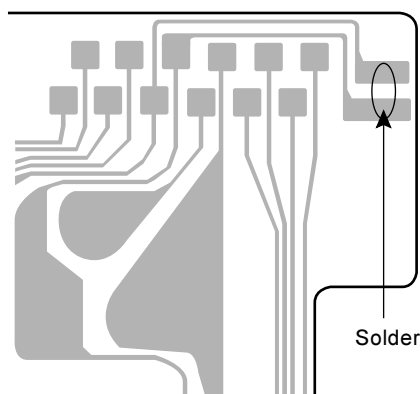
Precaution to replace Optical block

(KSS-213F)

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

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

CD PICK-UP Assy PWB



REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
S53	87-A91-024-180	SW-TACT	KSHG611BT	C605	87-012-195-080		C-CAP,U 100P-50CH
S54	87-A91-024-180	SW-TACT	KSHG611BT	C606	87-012-195-080		C-CAP,U 100P-50CH
S55	87-A91-024-180	SW-TACT	KSHG611BT	C611	87-010-831-080		C-CAP,U,0.1-16F
S56	87-A91-024-180	SW-TACT	KSHG611BT	C612	87-010-831-080		C-CAP,U,0.1-16F
S57	87-A91-024-180	SW-TACT	KSHG611BT	C613	87-010-831-080		C-CAP,U,0.1-16F
S58	87-A91-024-180	SW-TACT	KSHG611BT	C614	87-010-831-080		C-CAP,U,0.1-16F
S59	87-A91-024-180	SW-TACT	KSHG611BT	C621	87-010-831-080		C-CAP,U,0.1-16F
S60	87-A91-024-180	SW-TACT	KSHG611BT	C651	87-A12-063-040		CAP,E 220-10 SMG
S61	87-A91-024-180	SW-TACT	KSHG611BT	C652	87-010-831-080		C-CAP,U,0.1-16F
S62	87-A91-024-180	SW-TACT	KSHG611BT	C653	87-016-459-040		CAP,E 470-10 SMG
S63	87-A91-024-180	SW-TACT	KSHG611BT	C654	87-010-831-080		C-CAP,U,0.1-16F
S64	87-A91-024-180	SW-TACT	KSHG611BT	C655	87-A12-069-040		CAP,E 22-25 SMG
S65	87-A91-024-180	SW-TACT	KSHG611BT	C656	87-010-831-080		C-CAP,U,0.1-16F
S66	87-A91-024-180	SW-TACT	KSHG611BT	C658	87-010-831-080		C-CAP,U,0.1-16F
S67	87-A91-687-010	SW,RTRY	RE012104PV-VOL	C659	87-010-831-080		C-CAP,U,0.1-16F
S68	87-A91-687-010	SW,RTRY	RE012104PV-VOL	C660	87-010-831-080		C-CAP,U,0.1-16F
S69	87-A92-291-010	SW,RTRY	RE121PVB25FINB1-24E	C661	87-012-266-080		C-CAP,U 220P-50 B
				C662	87-012-197-080		C-CAP,U 150P-50 CH
				C664	87-010-831-080		C-CAP,U,0.1-16F
CD C.B				C665	87-012-172-080		C-CAP,U 10P-50 D CH
C501	87-A12-062-040	CAP,E	100-10 SMG	C666	87-012-172-080		C-CAP,U 10P-50 D CH
C502	87-010-831-080	C-CAP,U	0.1-16F	C667	87-012-170-080		C-CAP,U 8P-50 D CH
C503	87-A12-062-040	CAP,E	100-10 SMG	C668	87-A12-090-040		CAP,E 4.7-50 SMG
C504	87-A12-062-040	CAP,E	100-10 SMG	C669	87-012-286-080		CAP, U 0.01-25
C505	87-A12-062-040	CAP,E	100-10 SMG	C671	87-012-195-080		C-CAP,U 100P-50CH
C506	87-010-831-080	C-CAP,U	0.1-16F	C672	87-010-831-080		C-CAP,U,0.1-16F
C507	87-010-831-080	C-CAP,U	0.1-16F	C673	87-012-274-080		CHIP CAP,U 1000P-50 K B
C508	87-A11-058-080	C-CAP,U	0.22-10 K B	C674	87-010-831-080		C-CAP,U,0.1-16F
C509	87-A11-070-080	C-CAP,U	0.033-16 K B	C681	87-012-270-080		CHIP CAP,U 470P-50B
C510	87-012-268-080	C-CAP,U	330P-50 B	C682	87-012-270-080		CHIP CAP,U 470P-50B
C511	87-A10-828-080	C-CAP,U	0.33-6.3 K B	C683	87-A12-088-040		CAP,E 2.2-50 SMG
C512	87-010-785-080	C-CAP,U	0.015-25BK	C684	87-A12-088-040		CAP,E 2.2-50 SMG
C513	87-A10-781-080	C-CAP,U	0.15-10 K B	C685	87-012-274-080		C-CAP, U 1000P-50 B
C514	87-012-278-080	CAP, U	2200P-50	C686	87-012-274-080		C-CAP, U 1000P-50 B
C515	87-010-787-080	C-CAP,U	0.022-25 K B	CN501	87-A60-424-010		CONN,16P V TOC-B
C516	87-A10-504-080	C-CAP,U	0.047-16 K B	CN502	87-099-199-010		CONN,6P 6216 H
C517	87-A10-260-080	C-CAP,U	0.1-16 K B	CN601	87-A60-077-010		CONN,10P H 9604S-10F
C518	87-012-197-080	C-CAP,U	150P-50 J CH	CN602	87-099-200-010		CONN,7P 6216H
C519	87-012-286-080	CAP, U	0.01-25	CN603	87-099-210-010		CONN,05P H BLK 6216
C520	87-012-282-080	CAP, U	4700P-50	CNA601	8B-CLX-619-010		CONN ASSY,3P D-OUT
C521	87-012-266-080	C-CAP,U	220P-50 B	FC501	8B-CLX-618-010		FF-CABLE,16P 150MMCD-P
C522	87-A11-058-080	C-CAP,U	0.22-10 K B	FC502	88-906-081-110		FF-CABLE,6P 1.25 80MM
C523	87-012-280-080	CAP, U	3300P-50	FC602	88-907-211-110		FF-CABLE,7P 1.25 200MM
C524	87-A11-049-080	C-CAP,U	1-6.3 K B	FC603	88-905-131-110		FF-CABLE,5P 1.25 130MM
C525	87-A12-066-040	CAP,E	47-16 SME	R551	87-022-249-080		CHIP RES,U 27K-1/16W F
C527	87-012-176-080	CAP	15P	R552	87-022-249-080		CHIP RES,U 27K-1/16W F
C529	87-012-280-080	CAP, U	3300P-50	R553	87-022-249-080		CHIP RES,U 27K-1/16W F
C530	87-012-195-080	C-CAP,U	100P-50 CH	R554	87-022-249-080		CHIP RES,U 27K-1/16W F
C531	87-010-831-080	C-CAP,U	0.1-16F	R555	87-022-284-080		C-RES,U 68K-1/16W F
C532	87-012-274-080	CHIP CAP,U	1000P-50B	R556	87-022-284-080		C-RES,U 68K-1/16W F
C533	87-A12-090-040	CAP,E	4.7-50 SMG	R559	87-022-251-080		C-RES U33K 1/16WF
C534	87-010-831-080	C-CAP,U	0.1-16F	R560	87-022-251-080		C-RES U33K 1/16WF
C535	87-A12-066-040	CAP,E	47-16 SMG	R563	87-022-288-080		C-RES,U 150K-1/16W F
C536	87-010-831-080	C-CAP,U	0.1-16F	R564	87-022-288-080		C-RES,U 150K-1/16W F
C537	87-A12-091-040	CAP,E	10-50 SMG	R687	87-A50-190-080		C-COIL,S BLM21A102S
C538	87-A11-070-080	C-CAP,U	0.033-16 K B	R688	87-A50-190-080		C-COIL,S BLM21A102S
C539	87-A11-049-080	C-CAP,U	1-6.3 K B	SFR501	87-024-437-080		SFR100K,RH063EC
C540	87-A10-781-080	C-CAP,U	0.15-10 K B	X651	87-A70-046-010		VIB,XTAL 16.934MHZ
C541	87-A12-062-040	CAP,E	100-10 SMG				
C542	87-012-274-080	CHIP CAP,U	1000P-50B				
C551	87-010-831-080	C-CAP,U	0.1-16F	FL C.B			
C552	87-010-831-080	C-CAP,U	0.1-16F	C101	87-A12-069-040		CAP, ELECT 22-25V SMG
C581	87-016-459-040	CAP,E	470-10 SMG	C102	87-A12-069-040		CAP, ELECT 22-25V SMG
C582	87-010-831-080	C-CAP,U	0.1-16F	C103	87-A12-078-040		CAP,E 47-35 SMG
C583	87-A12-066-040	CAP,E	47-16 SMG	C104	87-010-831-080		C-CAP,U,0.1-16F
C584	87-010-831-080	C-CAP,U	0.1-16F	C105	87-010-831-080		C-CAP,U,0.1-16F
C601	87-010-831-080	C-CAP,U	0.1-16F	C106	87-012-178-080		C-CAP,U 18P-50 CH
C602	87-012-195-080	C-CAP,U	100P-50CH	C107	87-012-184-080		C-CAP,U 33P-50 CH
C603	87-012-195-080	C-CAP,U	100P-50CH	C108	87-010-787-080		CAP, U 0.022-25
C604	87-012-195-080	C-CAP,U	100P-50CH	C109	87-A12-086-080		CAP,E 0.47-50 SMG

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C110	87-010-831-080		C-CAP,U,0.1-16F	C919	87-012-184-080		C-CAP,U 33P-50 CH
C111	87-A12-063-040		CAP,E 220-10 SMG	C920	87-012-184-080		C-CAP,U 33P-50 CH
C112	87-A10-353-080		C-CAP,U,0.22-10KB	C921	87-012-180-080		C-CAP,U 22P-50 CH
C113	87-010-831-080		C-CAP,U,0.1-16F	C922	87-012-174-080		CAP CHIP CERA SS 12P CHJ
C114	87-010-831-080		C-CAP,U,0.1-16F	C923	86-ZA1-616-080		C-CAP,U 0.01-50 K B (MUR)
CN101	87-099-720-010		CONN,30P TYK-B(P)	C924	87-012-164-080		C-CAP,U 2P-50 CK
CN102	87-A60-077-010		CONN,10P H 9604S-10F	C925	87-012-164-080		C-CAP,U 2P-50 CK
CN103	87-099-761-010		CONN,23P H 9604	C926	86-ZA1-616-080		C-CAP,U 0.01-50 K B (MUR)
FC102	88-910-171-110		FF-CABLE,10P 1.25 170MM	C927	87-012-195-080		C-CAP,U 100P-50CH
FL101	8B-CLX-611-010		FL,HNA-11MS25	C942	87-012-172-080		CAPACITOR CHIP U 10P CH
L101	87-A50-657-010		COIL,CLK 9.43MHZ (TOKO)7KLY	C947	87-012-286-080		CAP, U 0.01-25
				C948	87-012-270-080		CAP, U 470P-50
				C952	87-012-286-080		CAP, U 0.01-25
				C957	87-012-174-080		CAP CHIP CERA SS 12P CHJ
				C958	87-012-286-080		CAP, U 0.01-25
TUNER C.B				C962	87-A10-262-080		C-CAP,U 1-10 Z F
C772	87-012-286-080		CAP, U 0.01-25	C963	87-010-831-080		C-CAP,U,0.1-16F
C780	87-012-274-080		C-CAP,U 1000P-50 KB	C971	87-A12-067-080		CAP,E 330-16 SMG
C786	87-012-286-080		CAP, U 0.01-25	C972	87-A11-063-080		C-CAP,S 4.7-10 Z F
C788	87-012-167-080		C-CAP,U 5P-50 CH	C973	87-012-286-080		CAP, U 0.01-25
C789	87-A11-228-080		C-CAP,U 0.027-25 K B				
C790	87-A11-228-080		C-CAP,U 0.027-25 K B	C974	87-012-286-080		CAP, U 0.01-25
C791	87-010-831-080		C-CAP,U,0.1-16F	C976	87-010-831-080		C-CAP,U,0.1-16F
C792	87-012-286-080		CAP, U 0.01-25	C979	87-012-195-080		C-CAP,U 100P-50CH
C793	87-A10-262-080		C-CAP,U 1-10 Z F	C981	87-010-553-040		CAP,E 47-16 GAS
C795	87-012-286-080		CAP, U 0.01-25	C982	87-010-831-080		C-CAP,U,0.1-16F
C798	87-010-831-080		C-CAP,U,0.1-16F	C983	87-A11-132-080		CAP,TC U 0.01-50 K B
C799	87-010-982-040		CAP,E 33-25 GAS	C984	87-012-286-080		CAP, U 0.01-25
C800	87-012-191-080		CHIP CAP 68 PF	C985	87-012-195-080		C-CAP,U 100P-50CH
C801	87-A10-262-080		C-CAP,U 1-10 Z F	C987	87-012-286-080		CAP, U 0.01-25
C802	87-010-829-080		CAP, U 0.047-16	C989	87-012-286-080		CAP, U 0.01-25
C804	87-010-555-040		CAP,E 100-10 GAS	C990	87-012-195-080		C-CAP,U 100P-50CH
C807	87-A10-463-080		C-CAP,U 0.47-10 Z F	C991	87-012-182-080		C-CAP,U 27P-50 CH
C808	87-A10-262-080		C-CAP,U 1-10 Z F	C992	87-012-172-080		CAPACITOR CHIP U 10P CH
C809	87-A10-262-080		C-CAP,U 1-10 Z F	C993	87-012-274-080		CHIP CAP,U 1000P-50B
C815	87-A10-463-080		C-CAP,U 0.47-10 Z F	C994	87-012-195-080		C-CAP,U 100P-50CH
C816	87-A10-463-080		C-CAP,U 0.47-10 Z F				
C818	87-012-276-080		CAP, CHIP SS 1500 PBK	C995	87-012-274-080		CHIP CAP,U 1000P-50B
C821	87-A11-063-080		C-CAP,S 4.7-10 Z F	C996	87-012-195-080		C-CAP,U 100P-50CH
C822	87-012-270-080		CAP, U 470P-50	C997	87-010-831-080		C-CAP,U,0.1-16F
C823	87-012-274-080		CHIP CAP,U 1000P-50B	C998	87-010-553-040		CAP,E 47-16 GAS
C824	87-A11-063-080		C-CAP,S 4.7-10 Z F	C999	87-012-286-080		CAP, U 0.01-25
C825	87-A11-317-080		C-CAP,U 0.068U-16 K B	CF831	87-008-423-010		FLTR,CF SFE10.7MS3G-A
C831	87-010-552-040		CAP,E 22-16 GAS	CF832	82-785-747-010		CF,MS2 GHY,R
C837	87-A12-022-080		C-CAP,U 0.22-16 Z F	CN991	87-A60-650-010		CONN,16P H GRY TUC-P16X-C1
C842	87-010-831-080		C-CAP,U,0.1-16F	D901	87-A41-048-040		C-VARI-CAP,HVM16-03 TL
				D902	87-A41-048-040		C-VARI-CAP,HVM16-03 TL
C844	87-012-286-080		CAP, U 0.01-25	D903	87-A41-048-040		C-VARI-CAP,HVM16-03 TL
C850	87-A10-262-080		C-CAP,U 1-10 Z F	J832	87-A61-534-010		TERMINAL,ANT PAL AJ-2021
C851	87-012-286-080		CAP, U 0.01-25	J940	87-A60-633-010		CONN,2P H 2.5MM JMT
C852	87-012-286-080		CAP, U 0.01-25	JW959	87-A11-132-080		CAP,TC U 0.01-50 K B
C853	87-012-286-080		CAP, U 0.01-25	L801	87-A50-694-010		COIL,FM-DET 2 (COILS)
C859	87-010-831-080		C-CAP,U,0.1-16F	L802	87-A91-551-010		FLTR,PCFJZH-450 L(TOK)
C860	87-012-286-080		CAP, U 0.01-25	L811	87-005-847-080		COIL,2.2UH(CECS)
C901	87-012-162-080		C-CAP,U 1P-50 CK	L832	87-005-847-080		COIL,2.2UH(CECS)
C902	87-012-165-080		CAP 3P	L901	86-ZA1-612-010		COIL,FM ANT/RF-1-Z
C903	87-012-164-080		C-CAP,U 2P-50 CK	L902	86-ZA1-613-010		COIL,FM ANT/RF-2-Z
C904	87-A12-348-080		C-CAP,U 560P-25 J CH	L903	87-005-847-080		COIL,2.2UH K CECS
C905	87-012-162-080		C-CAP,U 1P-50 CK	L904	86-ZA1-613-010		COIL,FM ANT/RF-2-Z
C906	87-012-172-080		CAPACITOR CHIP U 10P CH	L905	86-ZA1-612-010		COIL,FM ANT/RF-1-Z
C907	87-012-166-080		C-CAP,U 4P-50 CH	L906	87-005-847-080		COIL,2.2UH(CECS)
C908	87-012-165-080		CAP 3P	L907	86-ZA1-614-010		COIL,FM OSC-Z
C909	86-ZA1-615-080		C-CAP,U 680P-25 J CH	L908	88-ZA1-624-010		COIL,FM IFT 7-6.2 (COILS)
C910	87-012-164-080		C-CAP,U 2P-50 CK	L941	87-A50-020-010		COIL,ANT LW(COI)
C911	87-012-166-080		C-CAP,U 4P-50 CH	L942	87-A50-019-010		COIL,OSC LW(COI)
C912	87-012-195-080		C-CAP,U 100P-50CH	L951	8B-ZA3-668-010		COIL,AM PACK 2Z(TOK)
C913	86-ZA1-616-080		C-CAP,U 0.01-50 K B (MUR)	R790	87-012-286-080		CAP, U 0.01-25
C914	86-ZA1-616-080		C-CAP,U 0.01-50 K B (MUR)	TC942	87-A91-774-080		TRIMMER,PLY 30P 6.8X5.4 CDYL
C915	86-ZA1-616-080		C-CAP,U 0.01-50 K B (MUR)	X991	87-A70-061-010		VIB,XTAL 4.500MHZ CSA-309
C916	86-ZA1-616-080		C-CAP,U 0.01-50 K B (MUR)				
C917	87-012-178-080		C-CAP,U 18P-50 CH				
C918	87-012-172-080		CAPACITOR CHIP U 10P CH				

PT C.B

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
	C251	87-A12-074-080	CAP,E 470-25 SMG
	CN201	87-A61-110-010	CONN,9P V TID-A
△	PT250	8B-CLX-615-010	PT,EZ BCL-30
△	PT251	8B-MA6-675-010	PT,SUB BMA E (VRK)
△	RY251	87-A91-418-010	RELAY,AC12V G5PA-1-M
△	T250	87-A60-317-010	TERMINAL, 1P MSC
△	T251	87-A60-317-010	TERMINAL, 1P MSC

PHONE C.B

C231	87-010-831-080	C-CAP,U,0.1-16F
C232	87-012-272-080	C-CAP,U 680P-50 B
C233	87-012-272-080	C-CAP,U 680P-50 B
CNA230	8B-CLX-626-010	CONN ASSY,5P V W HP
J231	87-A60-420-010	JACK,3.5 ST (MSC)

OPTICAL C.B

C401	87-010-759-080	C-CAP,U 0.1-25 ZF
CN408	87-A60-620-010	CONN,3P V 2MM JMT

CD-DRIVE C.B

CON3	87-A60-086-010	CONN,6P H 6216
M20	87-045-358-010	MOT,RF-310TA 43
M21	87-045-356-010	MOT,RF-310TA 30
SW1	87-A90-042-010	SW,LEAF MSW-17310MVPO

CD-LOAD C.B

CON6	87-099-210-010	CONN,5P H BLK 6216
M1	87-045-305-010	MOTOR,RF-500TB
SW1	87-036-110-010	SW, MICRO SPPB62
SW2	87-036-110-010	SW, MICRO SPPB62

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
	DECK C.B		
CON1	87-009-352-010		CONN,9P H WHT PH
SFR1	87-024-581-010		SFR,3.3K H KVSP637A
SOL2	82-ZM3-628-010		SOL ASSY,23SO
SW2	87-A90-248-010		SW,MICRO ESE11SH2CXQ
SW3	87-A90-248-010		SW,MICRO ESE11SH2CXQ
SW4	87-A90-248-010		SW,MICRO ESE11SH2CXQ
SW5	87-A90-248-010		SW,MICRO ESE11SH2CXQ
SW6	87-A90-248-010		SW,MICRO ESE11SH2CXQ
W1	86-ZM4-601-110		RBN-CORD,4P-300MM

FRAME C.B

S1	87-A90-948-010	SW,LVR 2-1-2 MPU11263MLB0
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DRIVE C.B

CN1	86-NFZ-675-010	CONN,5P H 6216-11H
M1	87-045-305-010	MOT,RF-500TB
S2	87-A91-662-010	SW,PUSH 1-1-1 MPU11244MLB0
W2	8Z-ZG4-614-010	F-CABLE,2P 130MM LED

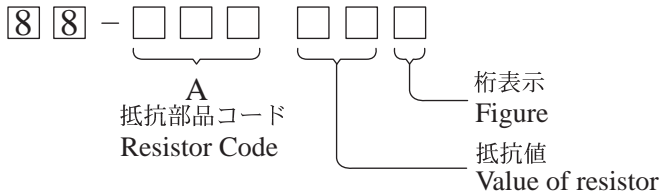
HEAD C.B

CNA301	85-ZM3-602-010	PWB,FLEX A
	86-ZM1-605-010	CONN ASSY,AR3

チップ抵抗部品コード/CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち

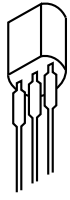
Chip Resistor Part Coding



チップ抵抗
Chip resistor

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

TRANSISTOR ILLUSTRATION



E C B

2SA1296GR
CSC4115BC
KTC3198GR



E C B

2SA1980G
2SA1981Y
2SC2240(GR/BL)
2SD655E



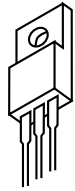
B C E

2SB1677
2SD2619



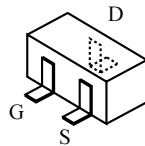
B C E

2SB1370E

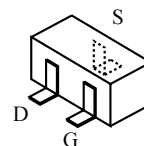


G D S

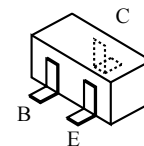
2SK3053



2SK2158



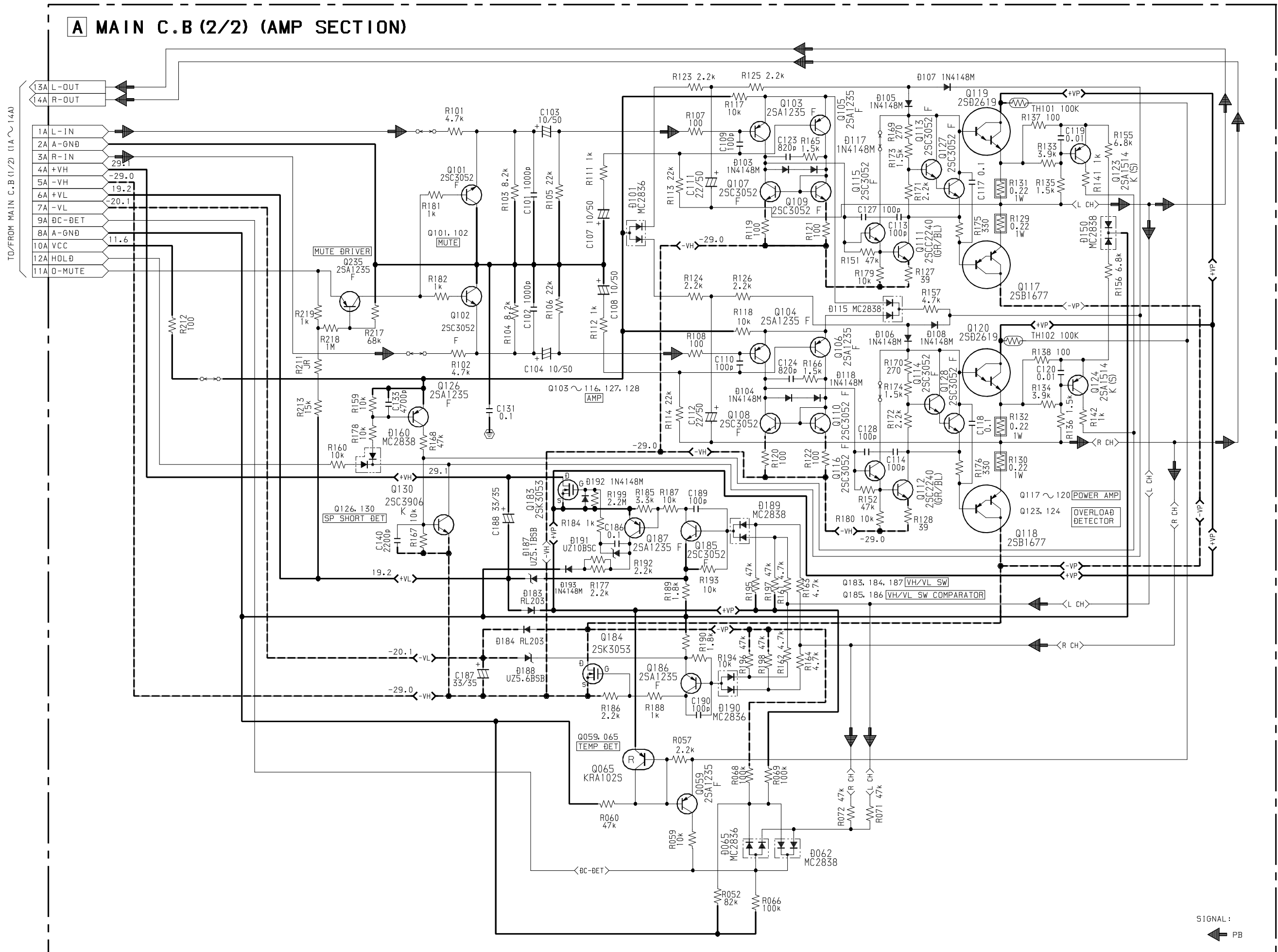
2SK360E



2SA1235F
2SA1514K(S)
2SC2620B
2SC3052F
2SC3906KR
2SC5345SF/S(O)
CSD1306E

DTA144EKA
DTC144EKA
KRA102S
KRA107S
KTC3875GR
RT1N141C
RT1P441C

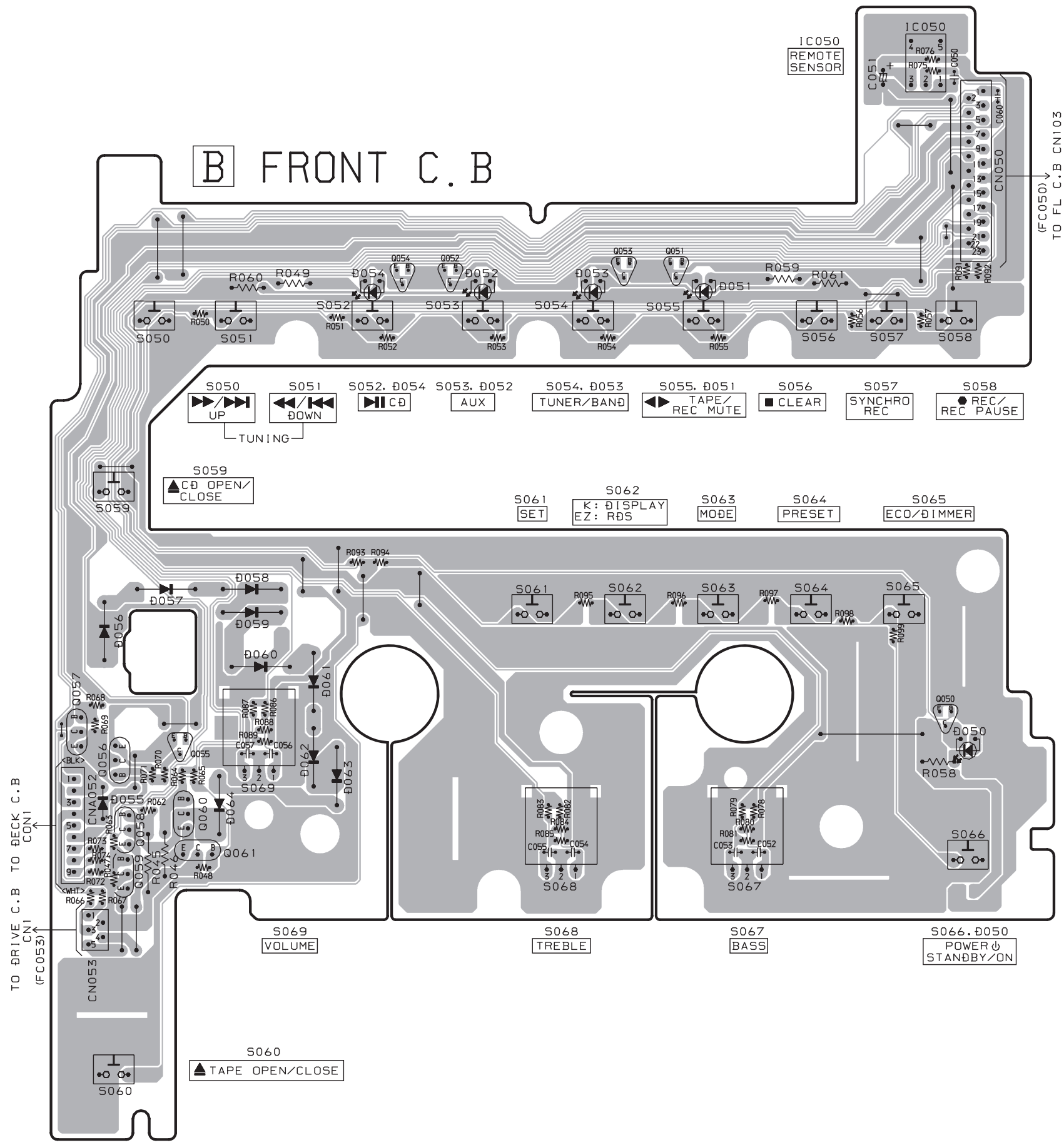
A MAIN C.B (2/2) (AMP SECTION)



WIRING-2 (FRONT)

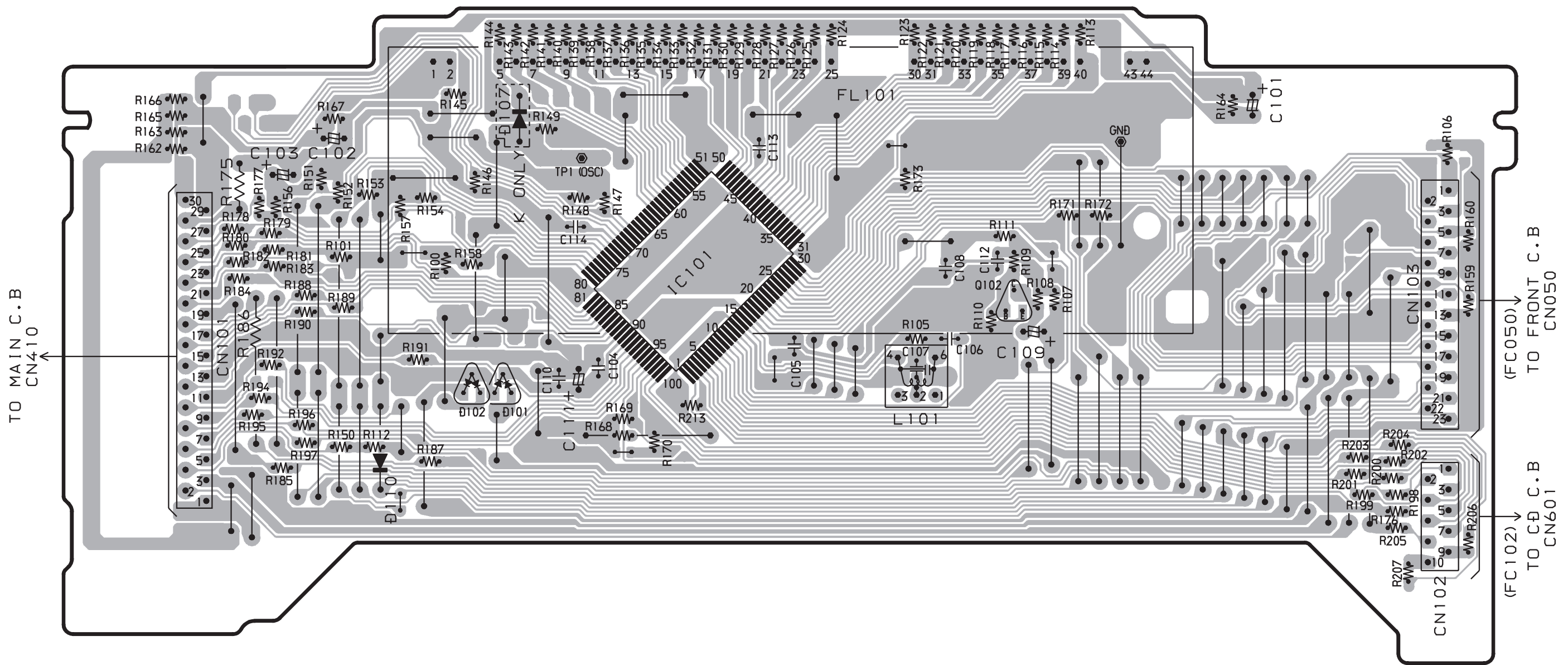
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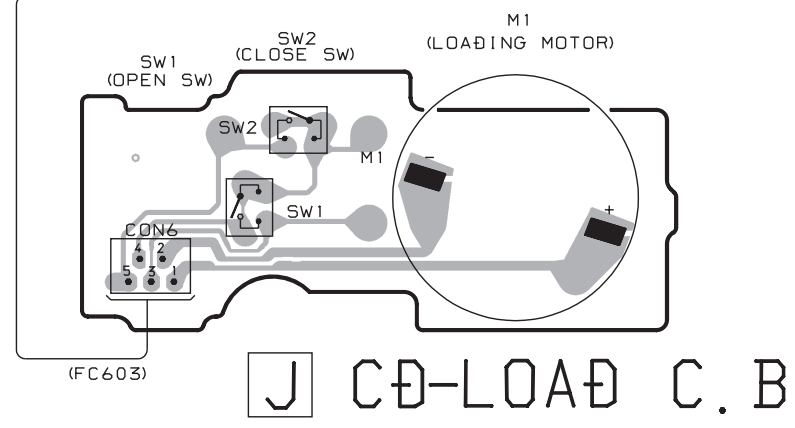
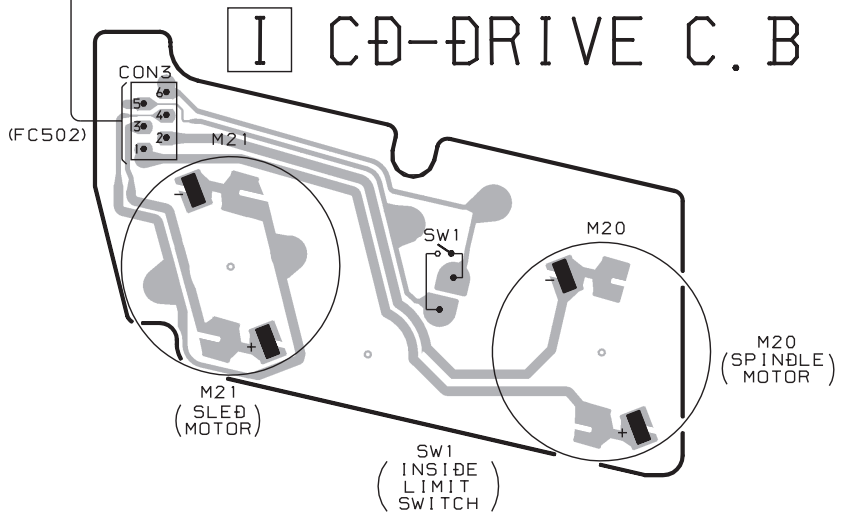
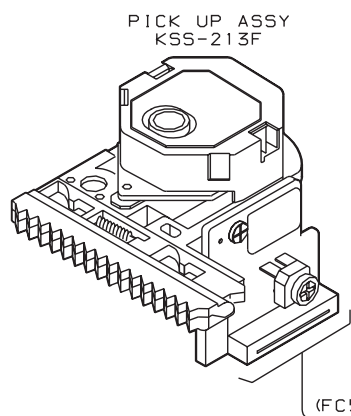
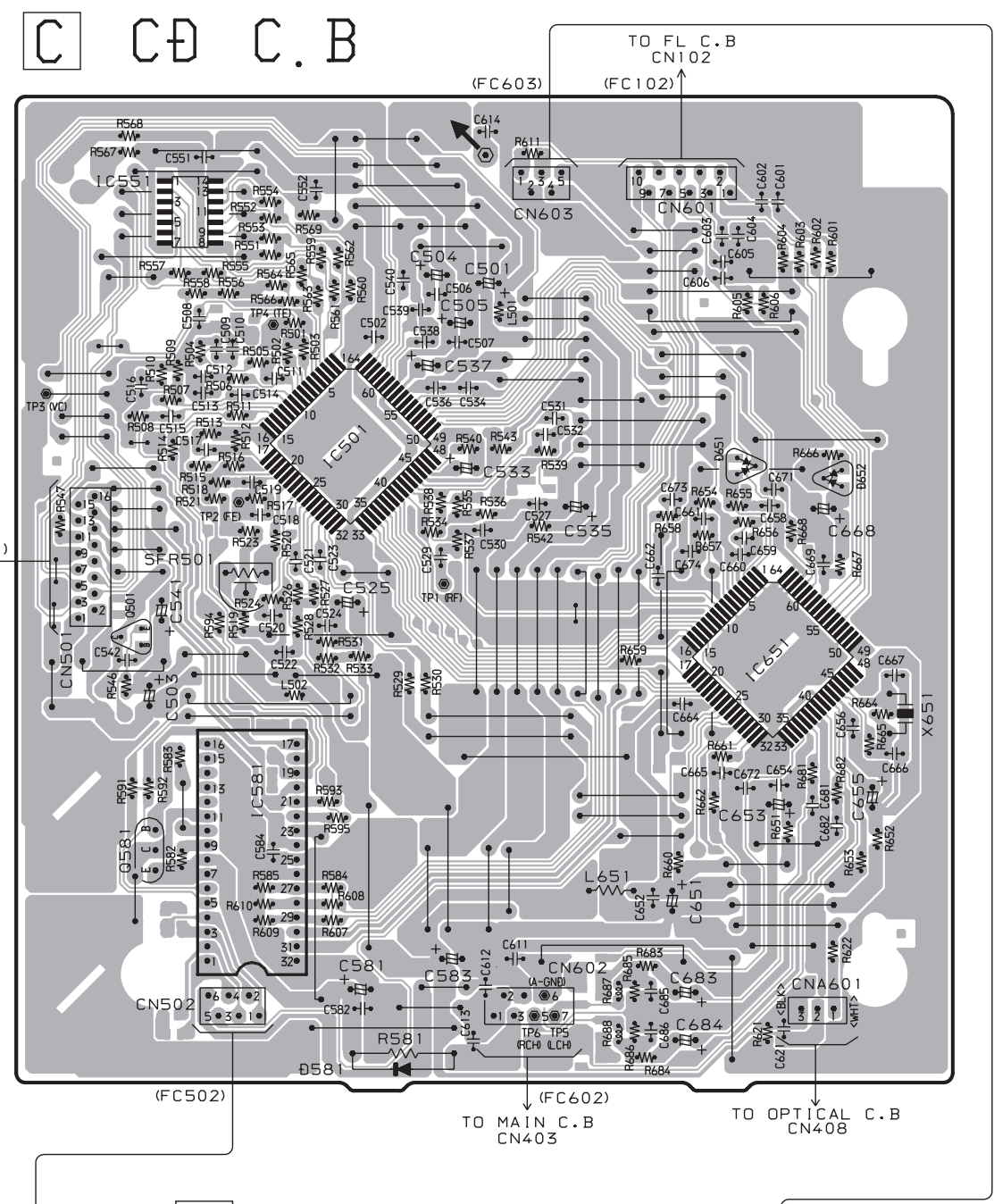
A
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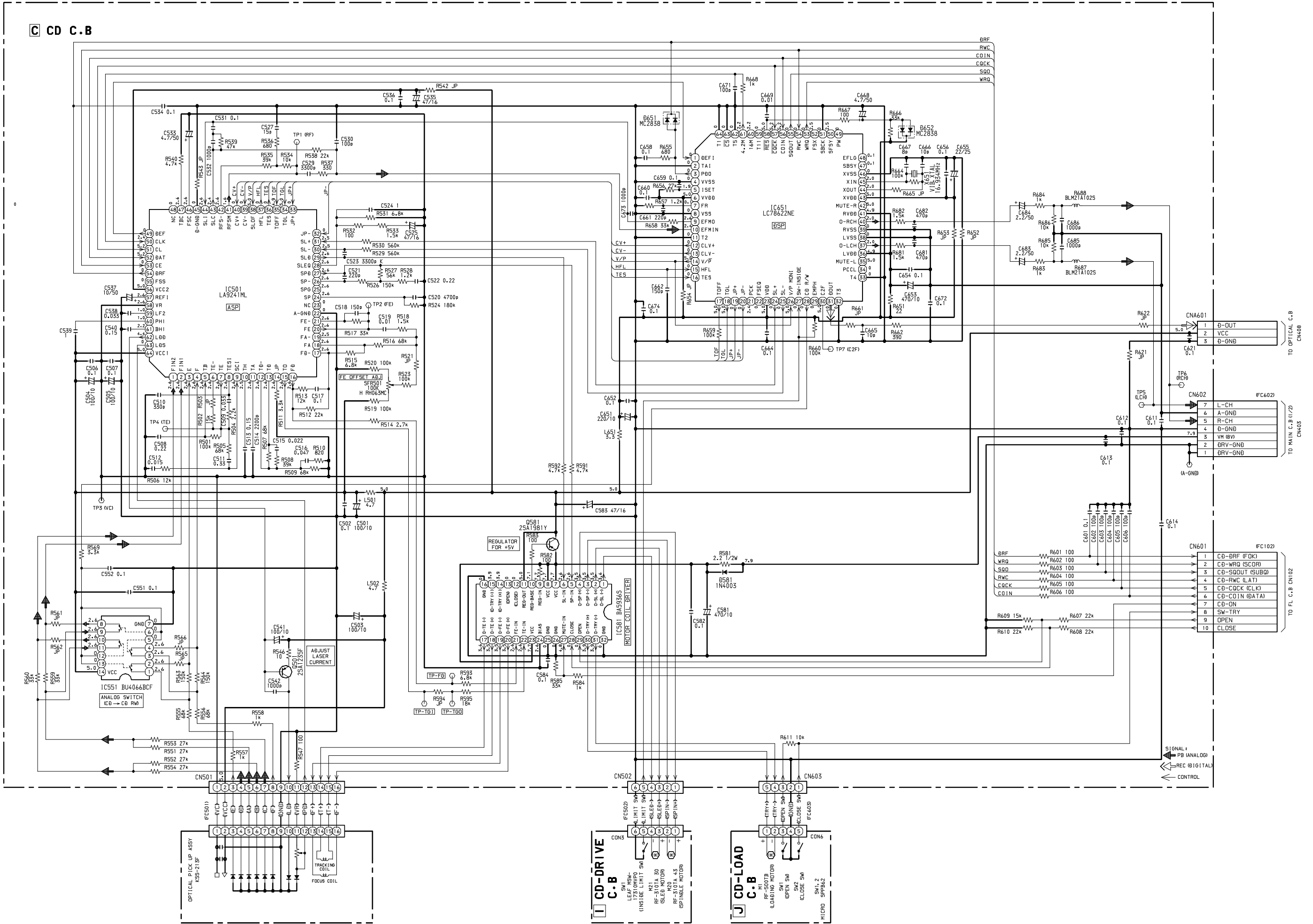
FL C.B

**FL101
FL DISPLAY**

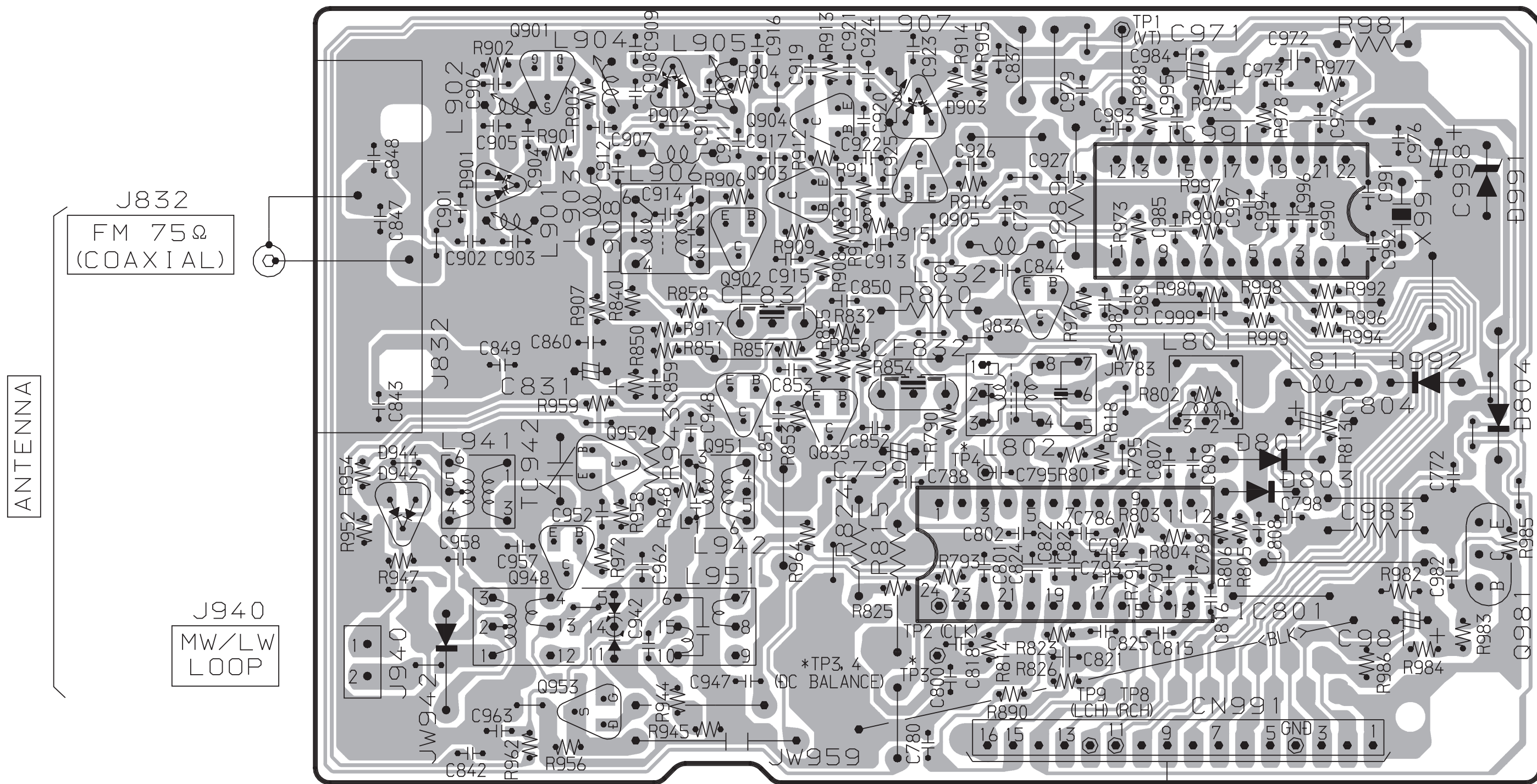




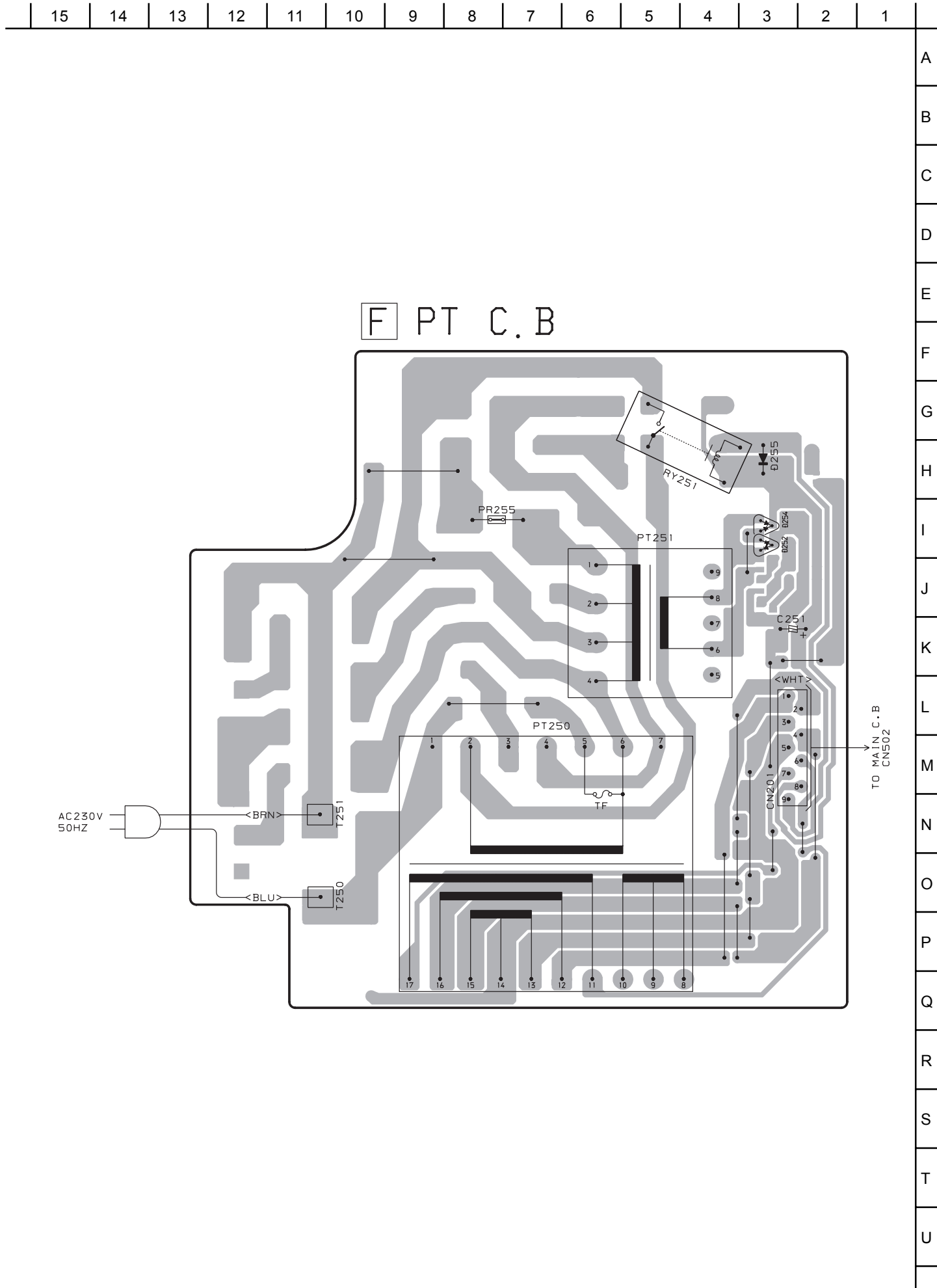
SCHEMATIC DIAGRAM - 4 (CD / CD - DRIVE / CD - LOAD)



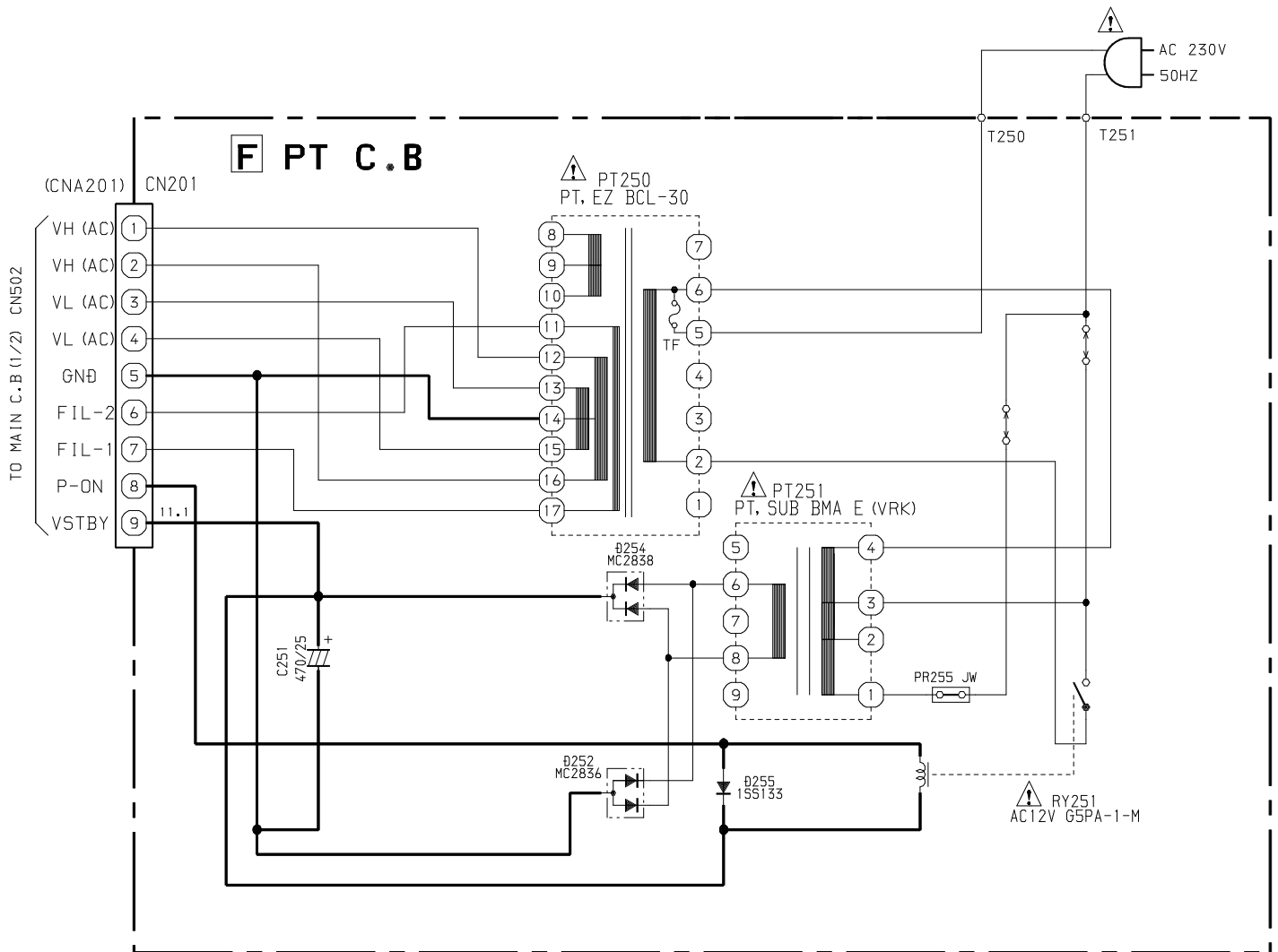
E TUNER C.B



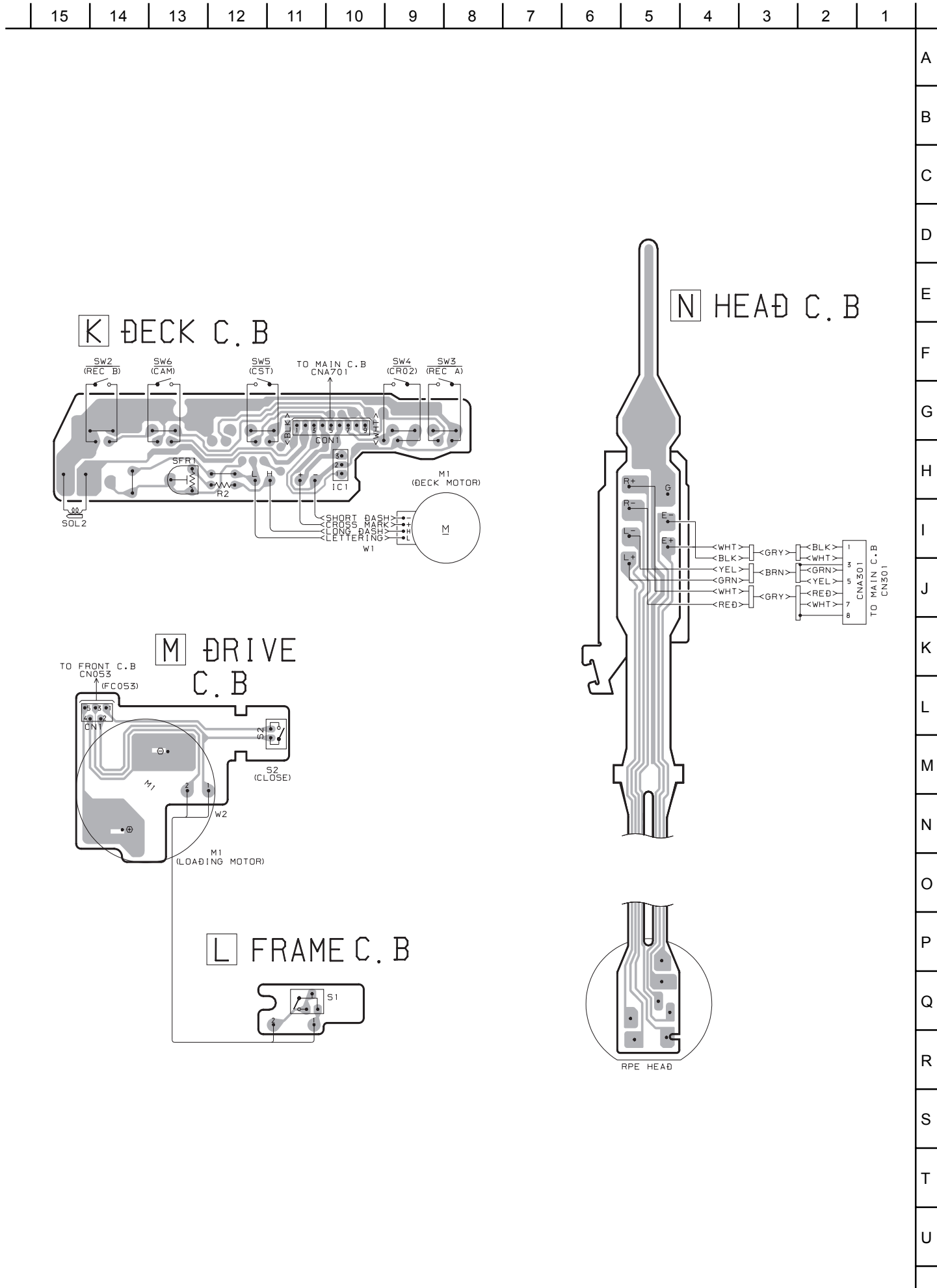
WIRING - 6 (PT)



SCHEMATIC DIAGRAM-6 (PT)

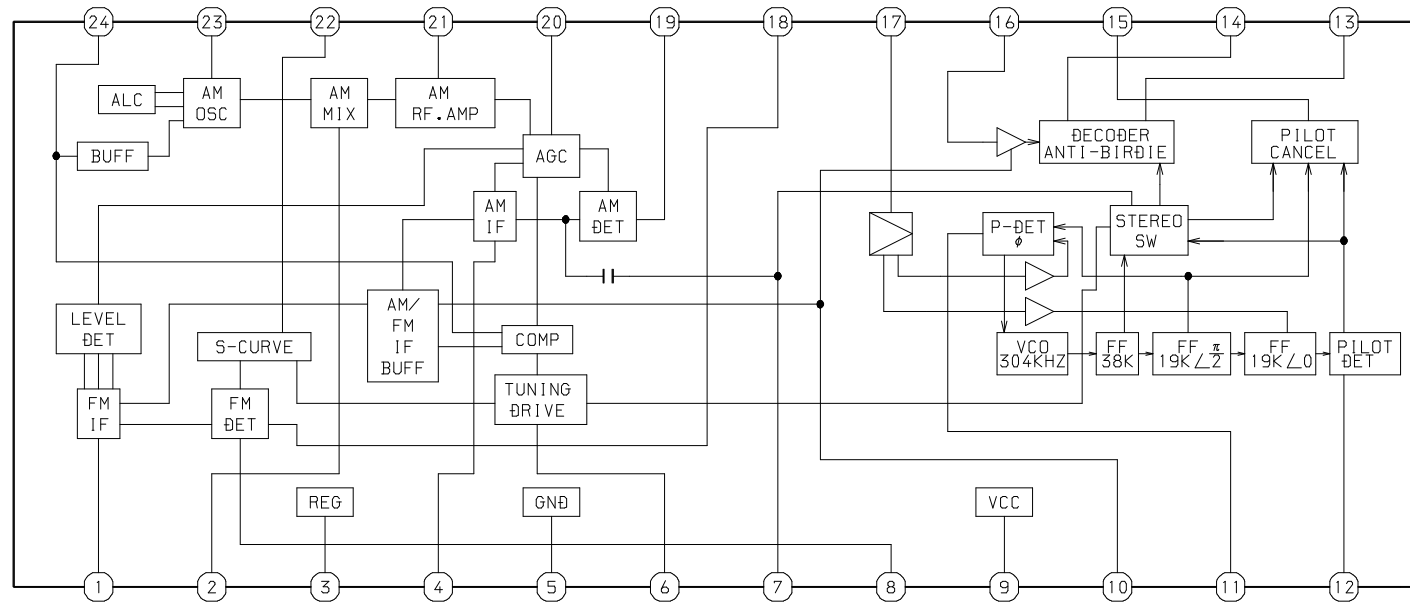


WIRING - 7 (DECK / FRAME / DRIVE / HEAD)

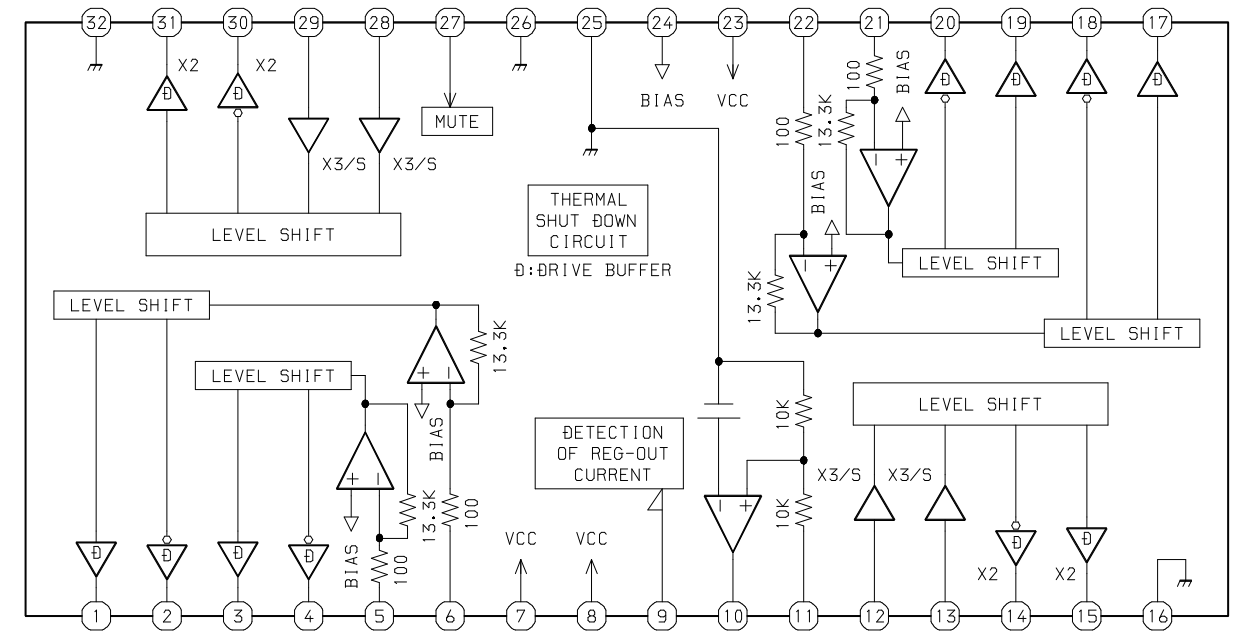


IC BLOCK DIAGRAM

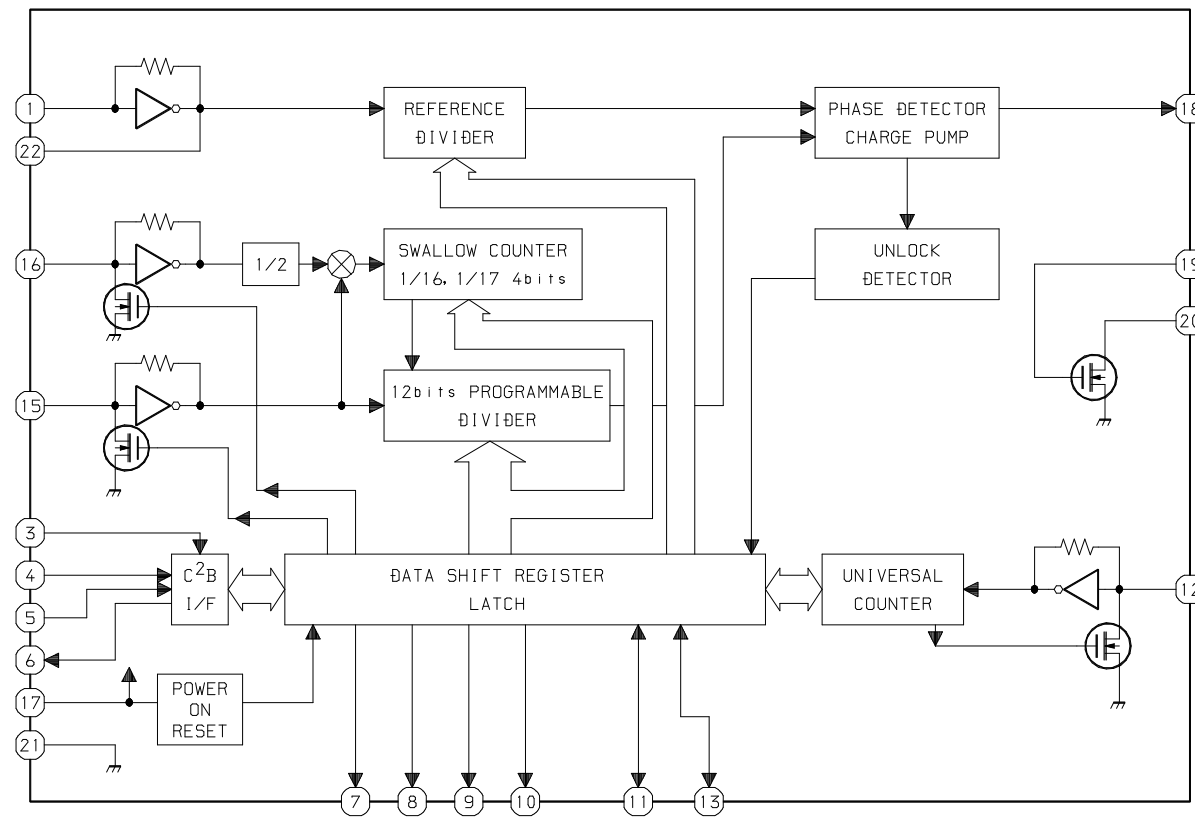
IC, LA1845L



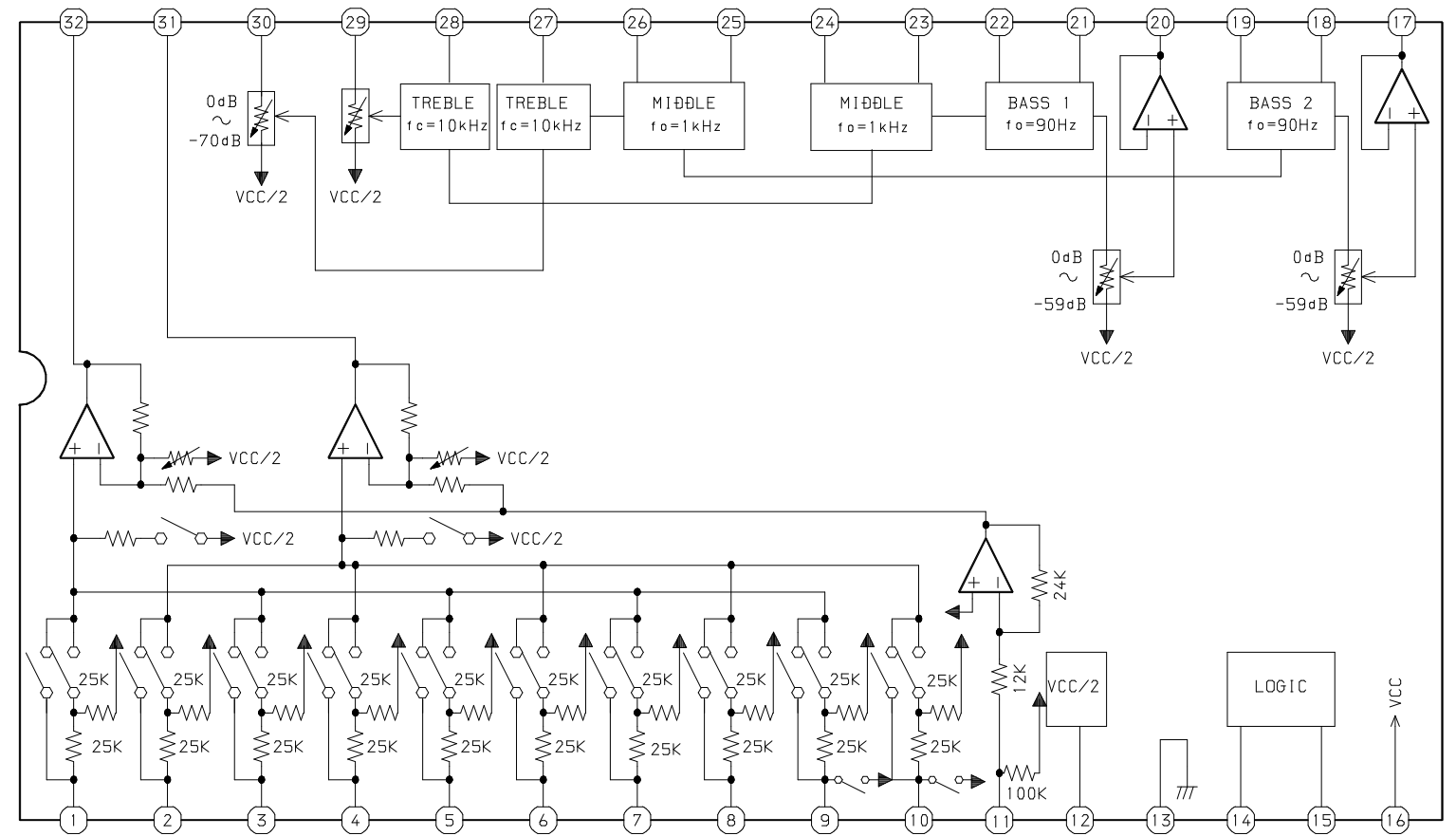
IC, BA5936S



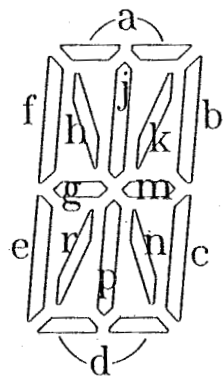
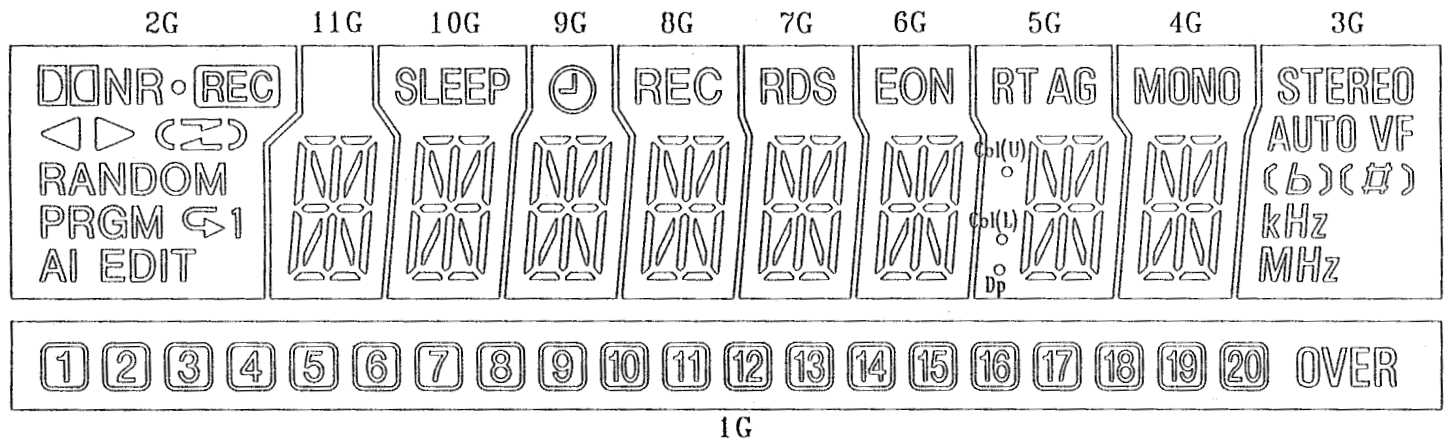
IC, LC72131D-N



IC, BD3861FS



FL (HNA-11MS25) GRID ASSIGNMENT / ANODE CONNECTION
 GRID ASSIGNMENT



ANODE CONNECTION

	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	-	-	-	-	-	-	-	-	MHz	-	OVER
P2	d	d	d	d	d	d	d	d	kHz	-	20
P3	n	n	n	n	n	n	n	n	-	-	19
P4	p	p	p	p	p	p	p	p	-	-	18
P5	r	r	r	r	r	r	r	r	(b)	-	17
P6	e	e	e	e	e	e	e	e	-	-	16
P7	c	c	c	c	c	c	c	c	-	-	15
P8	g	g	g	g	g	g	g	g	-	EDIT	14
P9	m	m	m	m	m	m	m	m	-	AI	13
P10	f	f	f	f	f	f	f	f	(#)	1	12
P11	b	b	b	b	b	b	b	b	-	↵	11
P12	k	k	k	k	k	k	k	k	-	PRGM	10
P13	j	j	j	j	j	j	j	j	-	RANDOM	9
P14	h	h	h	h	h	h	h	h	AUTO	⌚	8
P15	a	a	a	a	a	a	a	a	-	⌚	7
P16	-	-	-	-	-	-	col(U)	-	VF	⌚	6
P17	-	-	-	-	-	-	col(L)	-	-	REC	5
P18	-	-	-	-	-	-	Dp	-	-	•	4
P19	-	-	-	-	-	-	-	-	-	▶	3
P20	-	-	-	-	-	-	-	AG	-	◀	2
P21	-	SLEEP	⌚	REC	RDS	EON	RT	MONO	STEREO	DI NR	1

IC DESCRIPTION

IC, LC78622NE

Pin No.	Pin Name	I/O	Description
1	DEFI	I	Defect detection signal (DEF) input. ("L" is applied when not used.)
2	TAI	I	For PLL/Test input. (Connected to 0V)
3	PDO	O	Phase comparison output to control the external VCO.
4	VVSS	–	Ground of the built-in VCO. Normally 0V.
5	ISET	I	For the connection of a resistor which adjusts the PDO output current.
6	VVDD	–	Power supply of the built-in VCO.
7	FR	I	Adjusts the VCO frequency range.
8	VSS	–	Ground of digital circuits. Normally 0V.
9	EFMO	O	For slice level control/EFM signal output.
10	EFMIN	I	EFM signal input.
11	T2	I	Test input. A pull-down resistor is incorporated. (Connected to 0V)
12	CLV+	O	Disc motor control tri-state output.
13	CLV-		
14	$\overline{V/P}$	O	Output to monitor the automatic switching between the rough servo control and phase servo control. "H" : Rough servo, "L": Phase servo.
15	HFL	I	Track detection signal input. Schmitt trigger input.
16	TES	I	Track error signal input. Schmitt trigger input.
17	TOFF	O	Tracking off output.
18	TGL	O	Tracking gain switching output. "L" raises the gain.
19	JP+	O	Track jump control tri-state output.
20	JP-		
21	PCK	O	Monitors the clock signal for EFM data playback. 4.3218MHz when the phase is locked. (Not used)
22	FSEQ	O	Sync signal detection output. Goes "H" when the sync signal detected from the EFM signal matches the sync signal generated internally. (Not used)
23	VDD	–	Power supply of digital circuits.
24	SL+	O	Controlled by serial data command issued by the microprocessor.
25	SL–	O	Controlled by serial data command issued by the microprocessor.
26	V/P MONI	I	Prevent high speed rotation of no recording CD-R/RW disc by watch $\overline{V/P}$.
27	SW-INSIDE	I	CD pickup inside limit switch.
28	CD R/W	O	CD-RW disc select control.
29	EMPH	O	Deemphasis monitor. "H": when playing a deemphasis disc. (Not used)
30	C2F	O	C2 flag output. (Not used)
31	DOUT	O	Output a digital OUT signal. (EIAJ format)
32	T3	I	Test input. (Connected to 0V)
33	T4		
34	PCCL	–	Not used.
35	MUTE-L	O	Lch 1-bit DAC/Lch muting output. (Not used)
36	LVDD	–	Lch power supply.
37	O-LCH	O	Lch output.
38	LVSS	–	Lch ground. Normally 0V.
39	RVSS	–	Rch 1-bit DAC/Rch ground. Normally 0V.

Pin No.	Pin Name	I/O	Description
40	O-RCH	O	Rch output.
41	RVDD	–	Rch power supply.
42	MUTE-R	O	Rch muting output. (Not used)
43	XVDD	–	Power supply of crystal oscillator.
44	XOUT	O	For the connection of a 16.934MHz crystal oscillator.
45	XIN	I	
46	XVSS	–	Ground of crystal oscillator. Normally 0V.
47	SBSY	O	Subcode block sync signal output. (Not used)
48	EFLG	O	C1, C2, single, duplex correction monitor. (Not used)
49	PW	O	Output of subcodes P, Q, R, S, T, U and W. (Not used)
50	SFSY	O	Subcode frame sync signal output. Falls when the subcode is set to the standby state. (No used)
51	SBCK	I	Subcode read-out clock input. Schmitt trigger input. ("L" is applied when not used.) (Connected to 0V)
52	FSX	O	7.35kHz sync signal output obtained by dividing the oscillator frequency. (Not used)
53	WRQ	O	Subcode Q standby output.
54	RWC	I	Read/write control input. Schmitt trigger input.
55	SQOUT	O	Subcode Q output.
56	COIN	I	Command input from the microprocessor.
57	$\overline{\text{CQCK}}$	I	Command input retrieval clock or subcode retrieval clock input from SQOUT. Schmitt trigger input.
58	$\overline{\text{RES}}$	I	LC78622NE reset input.
59	T11	O	Test output. Set to open (normally "L" output.) (Not used)
60	16M	O	16.9344MHz output. (Not used)
61	4.2M	O	4.236MHz output.
62	T5	I	Test input. A pull-down resistor is incorporated. (Connected to 0V)
63	$\overline{\text{CS}}$	I	Chip select input. (Connected to 0V)
64	T1	I	Test input with no pull-down resistor. (Connected to 0V)

Pin No.	Pin Name	I/O	Description
1	FIN2	I	For the connection of the pickup photodiode. Addition to the FIN1 pin creates an RF signal and subtraction from it create an EF signal.
2	FIN1	I	For the connection of the pickup photodiode.
3	E	I	For the connection of the pickup photodiode. Subtraction from the F pin creates a TE signal.
4	F	I	For the connection of the pickup photodiode.
5	TB	I	Inputs the DC components in the TE signal.
6	TE-	I	For the connection of a resistor which sets the gain of the TE signal between this pin and the TE pin.
7	TE	O	TE signal output.
8	TESI	I	TES (track error sense) comparator input. The TE signal is passed through a BPF.
9	SCI	I	Shock detection input.
10	TH	I	Sets the time constant for the tracking gain.
11	TA	O	TA amp output.
12	TD-	I	Composes the tracking phase compensation constant between the TD and VR pins.
13	TD	O	Sets the tracking phase compensation.
14	JP	I	Sets the amplitude of the tracking jump signal (kick pulses).
15	TO	O	Tracking control signal output.
16	FD	O	Focusing control signal output.
17	FD-	I	Composes the focusing phase compensation constant between the FD and FA pins.
18	FA	O	Composes the focusing phase compensation constant between the FD- and FA- pins.
19	FA-	I	Composes the focusing phase compensation constant between the FA and FE pins.
20	FE	O	FE signal output.
21	FE-	I	For the connection of a resistor which sets the gain of the FE signal between this pin and the TE pin.
22	A-GND	-	Ground of analog signals.
23	NC	-	Not connected.
24	SP	O	Single-ended output of the signals input to the CV+ and CV- pins.
25	SPG	I	For the connection of a resistor which sets the gain in the spindle 12cm mode. (Not used)
26	SP-	I	For the connection of the spindle phase compensation constant with the SPD pin.
27	SPD	O	Spindle control signal output.
28	SLEQ	I	For the connection of sled phase compensation constant.
29	SLD	O	Sled control signal output.
30	SL-	I	Sled feed signal input from the microprocessor.
31	SL+		
32	JP-	I	Tracking signal input from the DSP.
33	JP+		
34	TGL	I	Tracking gain control signal input from the DSP. Low gain when TGL is "H".
35	TOFF	I	Tracking off control signal input from the DSP. Off when TOFF is "H".
36	TES	O	Outputs the TES signal to the DSP.
37	HFL	O	The HFL (high frequency level) signal is used to judge whether the main beam is positioned on the pit or on the mirror.

Pin No.	Pin Name	I/O	Description
38	SLOF	I	Sled servo off control input.
39	CV-	I	CLV error signal input from the DSP.
40	CV+		
41	RFSM	O	RF output.
42	RFS-	O	Sets the RF gain and the EFM signal's 3T compensation constant together with the RFSM pin.
43	SLC	O	The SLC (slice level control) signal is output to control the DSP's data slice level of the RF waveform.
44	SLI	I	Input to control the DSP's data slice level.
45	D-GND	-	Ground of digital signals.
46	FSC	O	Output for the focus search smoothing capacitor.
47	TBC	I	The TBC (tracking balance control) signal sets the EF balance variation range.
48	NC	-	Not connected.
49	DEF	O	Disc defect detection output.
50	CLK	I	Reference clock input. 4.23MHz is input from the DSP.
51	CL	I	Microprocessor command clock input.
52	DAT	I	Microprocessor command data input.
53	CE	I	Microprocessor chip enable input.
54	DRF	O	DRF (detect RF) is an output to detect the RF level.
55	FSS	I	The FSS (focus search select) signal switches the focus search modes (+/-search / +search with respect to the reference voltage). (Not used)
56	VCC2	-	VCC of servo and digital circuits.
57	REFI	-	For the connection of bypass capacitor for the reference voltage.
58	VR	O	Reference voltage output.
59	LF2	-	Sets the time constant for disc defect detection.
60	PH1	-	For the connection of a capacitor to hold the RF signal peak.
61	BH1	-	For the connection of a capacitor to hold the RF signal bottom.
62	LDD	O	APC circuit output.
63	LDS	I	APC circuit input.
64	VCC1	-	VCC of RF signal circuits.

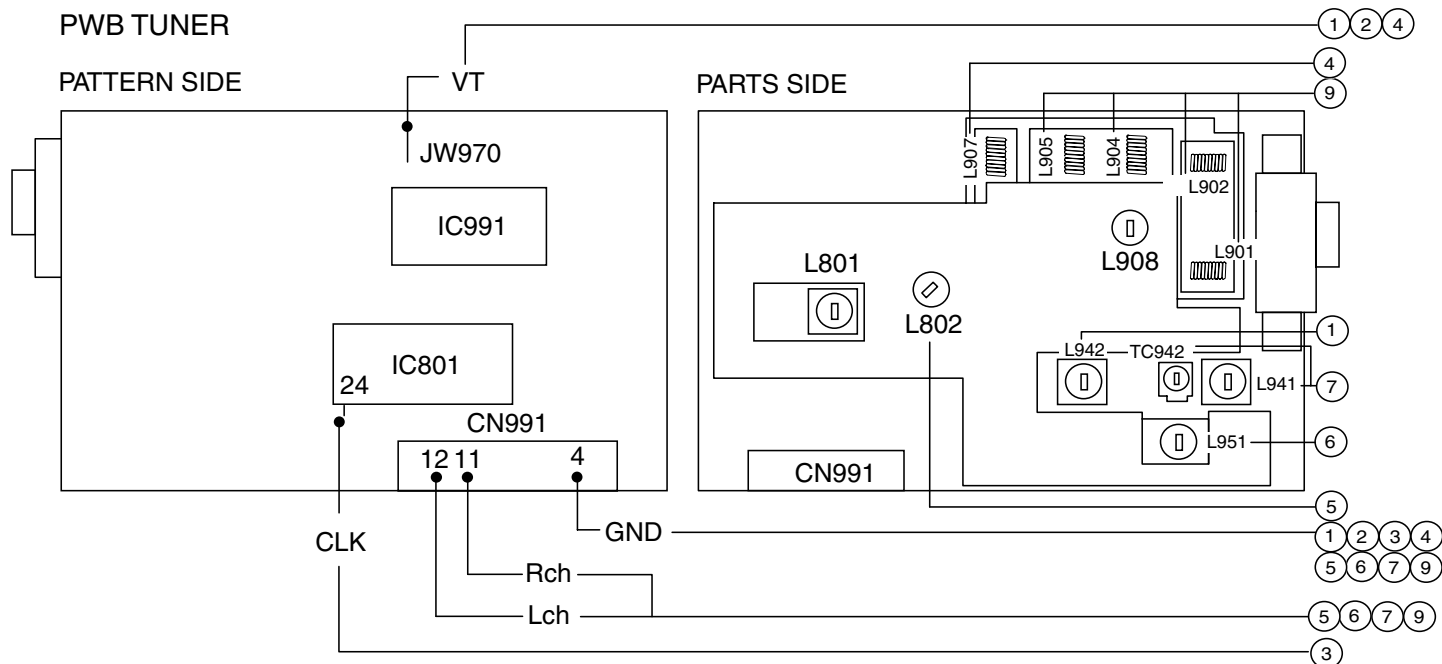
IC, LC876564V-5Y22

Pin No.	Pin Name	I/O	Description
1	O-COIN	O	CD IC control data output.
2	O-CDCONT	O	CD block power ON / OFF control output.
3	O-OPEN (CD)	O	CD tray open data output.
4	O-CLOSE (CD)	O	CD tray close data output.
5	O-OPEN (CT)	O	Deck open / close output.
6	$\overline{\text{O-PL}}$	O	Deck solenoid output.
7	I-AS	I	Deck auto stop signal input.
8	O-MOTOR	O	Deck motor ON / OFF output.
9	O-CLOSE (CT)	O	Deck open / close output.
10	O-CLKSFT	O	MICON clock shift control.
11	I-RESET	I	Reset input.
12	I-TU SIG	I	Tuner SD detect input.
13	I-CDSW (DOOR)	I	CD mecha switch A/D converter input.
14	VSS1	–	GND.
15	CF1	–	Connection of 9.43MHz oscillator.
16	CF2	–	Connection of 9.43MHz oscillator.
17	VDD1	–	Power supply input.
18	$\overline{\text{I-HOLD}}$	I	Power failure detection input.
19	I-LEVEL	I	Signal level input.
20	I-STOP (HEAD)	I	Deck cam switch input and tape tray condition detect input.
21	I-CSTSW	I	Cassette tape and side A, B tab of cassette detect input.
22	I-ENC3 (VOL)	I	Volume rotary encoder A/D input.
23	I-ENC2 (TREBLE)	I	Treble rotary encoder A/D input.
24	I-ENC1 (BASS)	I	Bass rotary encoder A/D input.
25	I-KEY2	I	Key input. (A/D)
26	I-KEY1	I	Key input. (A/D)
27	I-TM BASE	I	Reference clock input for watch.
28	I-RDCL	I	RDS clock input. (EZ only)
29	I-RMC	I	System remote control signal input.
30 ~ 40	G11 ~ G1	O	FL grid G11 ~ G1 output.
41 ~ 45	P21 ~ P17	O	FL segment P21 ~ P17 output.
46	VDD3	–	Power supply input.
47 ~ 50	P16 ~ P13	O	FL segment P16 ~ P13 output.
51	VP	–	Power supply for FL display.
52 ~ 62	P12 ~ P2	O	FL segment P12 ~ P2 output.
63	LW/P1	I/O	LW diode input / FL segment P1 output.
64 ~ 67	NC	–	Not connected.
68	SI (ECHO)	–	Connected to GND through a resistor.
69	SLT (ECHO)	–	Connected to GND through a resistor.
70	SCK (ECHO)	–	Connected to GND through a resistor.
71	I-MIC	I	Microphone input. (Connected to GND through a resistor)
72	VDD4	–	Power supply input.

Pin No.	Pin Name	I/O	Description
73	O-LED (CD)	O	CD function LED ON / OFF.
74	O-LED (TU)	O	Tuner function LED ON / OFF.
75	O-LED (AU)	O	AUX function LED ON / OFF.
76	O-LED (TA)	O	Tape function LED ON / OFF.
77	O-LED (PW)	O	Power function LED ON / OFF. (Light up : ECO standby)
78	$\overline{\text{O-ECO}}$	O	Relay switch ON / OFF output.
79	O-TUCE	O	PLL IC chip enable output.
80	O-TUDO	O	PLL IC control data output.
81	O-TUCL	O	PLL IC control clock output.
82	I-TUDI	I	Tune IF count serial data input.
83	$\overline{\text{I-STEREO}}$	I	Tuner stereo detect input.
84	I-RDDT	I	RDS data input. (EZ only)
85	O-TUCONT	O	Tuner ON / OFF control output.
86	O-CLK (FUNC)	O	Function IC control clock output.
87	O-DATA (FUNC)	O	Function IC control data output.
88	O-AMP-CONT	O	Amplifier ON / OFF control output. (Not used)
89	VSS2	–	GND.
90	VDD2	–	Power supply input.
91	O-MUTE	O	Audio mute ON / $\overline{\text{OFF}}$ control output.
92	O-DOLBY	O	Dolby ON / OFF control output. (Not used)
93	$\overline{\text{O-BIAS}}$	O	Bias $\overline{\text{ON}}$ / OFF control output.
94	O-PB/REC	O	PB IN / REC OUT control output.
95	O-REC-SEL	O	REC IN / REC MUTE control output.
96	I-DRF	I	CD focus ON detect data input.
97	I-WRQ	I	CD interrupt subcode out standby signal input.
98	I-SQOUT	I	CD IC subcode Q data input.
99	O-RWC	O	CD IC control chip enable output.
100	O-CQCK	O	CD IC control clock output.

ADJUSTMENT (TUNER / DECK / CD / FL)

<TUNER SECTION>



1. VT Adjustment (LW)

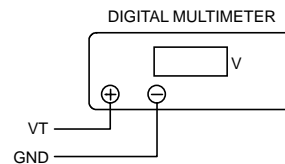
Requirement

Measuring Device: Digital Multimeter

Test Point: VT, GND

Adjustment Point: L942

- (1) Adjust the reception frequency of the set to 144 kHz.
- (2) Adjust L942 until the test point voltage (VT) is $1.3 \text{ V} \pm 0.05 \text{ V}$.
- (3) Adjust the reception frequency of the set to 290 kHz.
- (4) Check that the test point (VT) voltage is below 8 V.



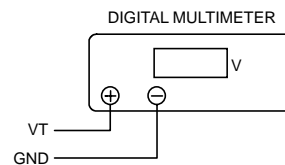
2. VT Check (MW)

Requirement

Measuring Device: Digital Multimeter

Test Point: VT, GND

- (1) Adjust the reception frequency of the set to 1602 kHz.
- (2) Check that the test point voltage is below 8 V.
- (3) Adjust the reception frequency of the set to 531 kHz.
- (4) Check that the test point voltage is above 0.6 V.



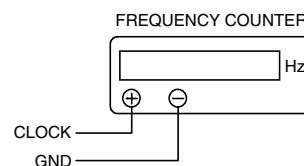
3. CLOCK Check

Requirement

Measuring Device: Frequency Counter

Test Point: CLOCK, GND

- (1) Change to MW and adjust the reception frequency of the set to 1602 kHz.
- (2) Check that the test point (CLOCK) frequency is $2052 \text{ kHz} \pm 45 \text{ Hz}$.



4. VT Adjustment (FM)

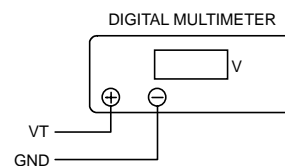
Requirement

Measuring Device: Digital Multimeter

Test Point: VT, GND

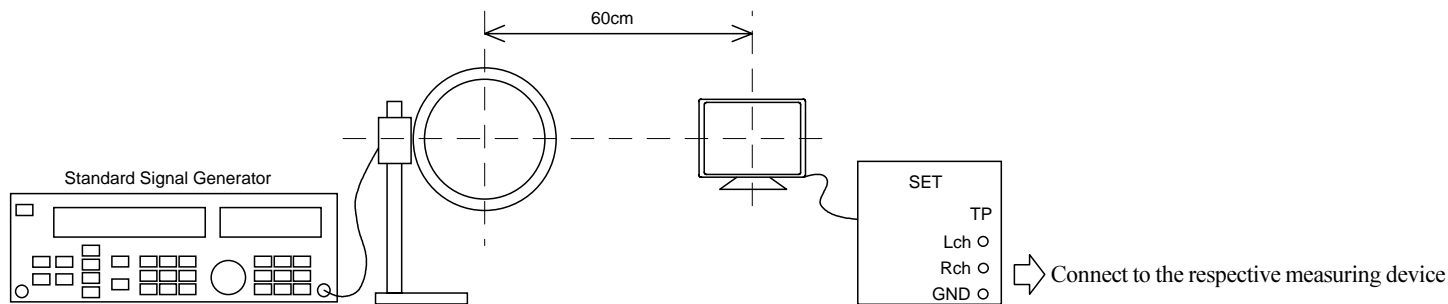
Adjustment Point: L907

- (1) Adjust the reception frequency of the set to 108.0 kHz.
- (2) Adjust L907 until the test point voltage (VT) is $7 \text{ V} \pm 0.05 \text{ V}$.
- (3) Adjust the reception frequency of the set to 87.5 MHz.
- (4) Check that the test point voltage is above 0.5 V.



<MW/LW Adjustment>

For MW/LW adjustment, do wiring and connection as in the following.



5. IF adjustment (MW)

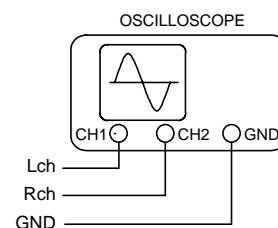
Requirement

Measuring Device: Oscilloscope and Millivoltmeter

Test Point: Lch, Rch, GND

Adjustment Point: L802

- (1) Adjust the setting of Standard Signal Generator (hereinafter S.S.G) to 450 kHz of 30 % variation.
- (2) Adjust the reception frequency of the set to 999 kHz.
- (3) While looking at the waveform on the oscilloscope, reduce the output level all the way.
- (4) Adjust L802 until the value of the millivoltmeter reaches the maximum.



6. Tracking Adjustment (MW)

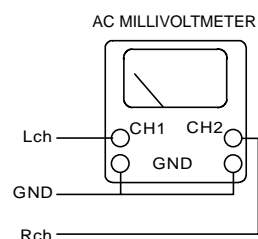
Requirement

Measuring Device: Oscilloscope and millivoltmeter

Test Point: Lch, Rch, GND

Adjustment Point: L951

- (1) Adjust the S.S.G setting to 999 kHz of 30 % variation.
- (2) While looking at the waveform on the oscilloscope, reduce the output level all the way.
- (3) Adjust L951 until the value of the millivoltmeter reaches the maximum.



7. Tracking Adjustment (LW)

Requirement

Measuring Device: Oscilloscope and millivoltmeter

Test Point: Lch, Rch, GND

Adjustment Point: L941, TC942

- (1) Adjust the S.S.G setting to 144 kHz, 30 % variation and reduce the output level all the way.
- (2) Adjust L941 until the value of millivoltmeter reaches the maximum.
- (3) Adjust the S.S.G setting to 290 kHz, 75 kHz variation, and reduce the output level all the way.
- (4) Adjust TC942 until the value of the millivoltmeter reaches the maximum.
- (5) Repeat the adjustment 2 or 3 times from step 1 to 4 above.

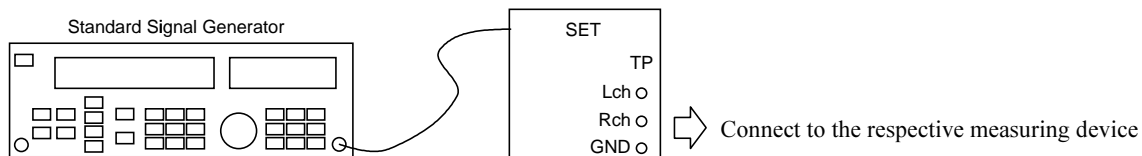
8. Auto Stop Check (MW)

Requirement

- (1) Adjust the S.S.G setting to 999 kHz, 30 % variation, and 78 dBuV for the output level.
- (2) Activate the tuner search function, and check that there is reception of 999 kHz.

<FM Adjustment>

For adjusting FM, do wiring and connection as in the following.



9. Tracking Adjustment (FM)

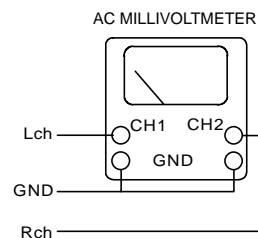
Requirement

Measuring device: Millivoltmeter

Test Point: Lch, Rch, GND

Adjustment Point: L901, L902, L904, L905

- (1) Adjust the S.S.G setting to 108.0 MHz, 75 kHz variation and reduce the output level all the way.
- (2) Adjust L901, L902, L904, L905 until the value of millivoltmeter reaches the maximum.
- (3) Adjust the S.S.G setting to 98.0 MHz, 75 kHz variation, and 66 dBuV for the output level.
- (4) Check that the test point voltage is below 13 dBuV.



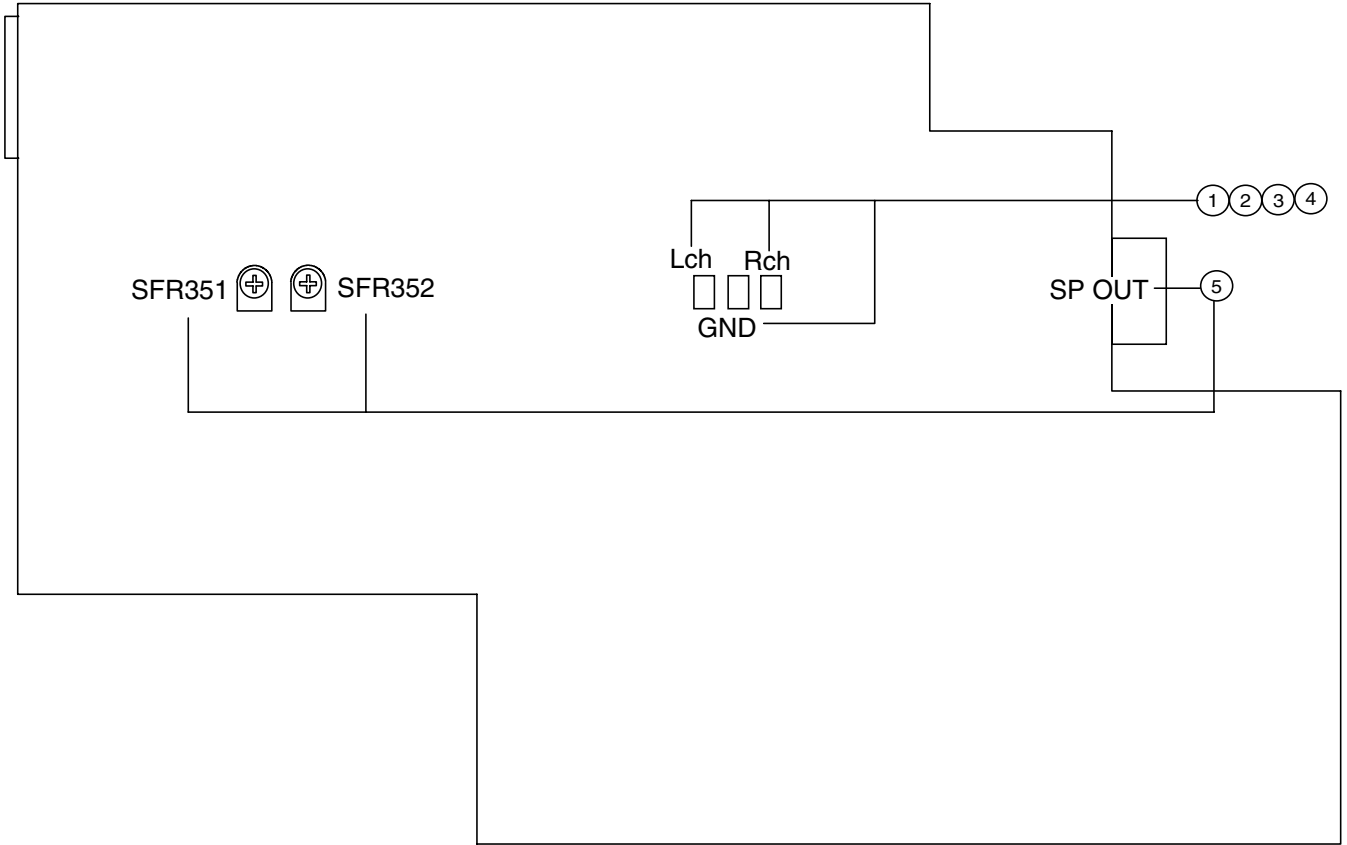
10. Auto Stop Check (FM)

Requirement

- (1) Adjust the S.S.G setting to 98.0 MHz, 75 kHz variation, and 40 dBuV for the output level.
- (2) Activate the tuner search function, and check that there is reception of 98.0 MHz.

<DECK SECTION>

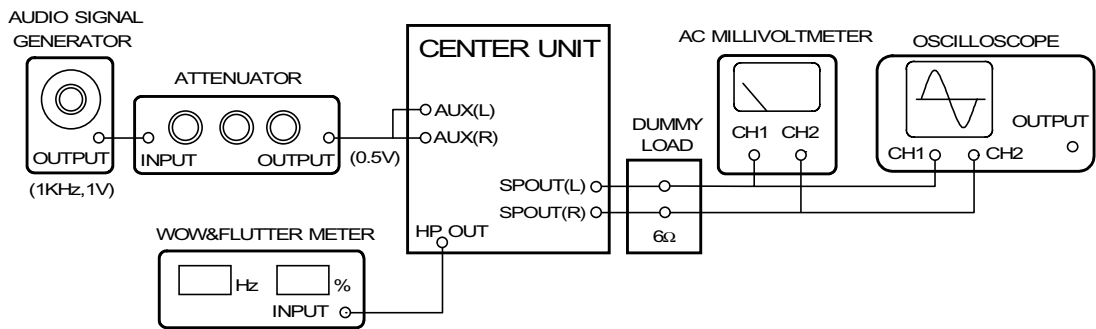
PWB MAIN
PATTERN SIDE



Prepare the following before adjusting the deck.

Preparation

- Measuring Device: Audio Signal Generator / Attenuator / Wow & Flutter Meter (Frequency Counter) / Oscilloscope / Millivoltmeter / Dummy Load (6 ohm).
- 1) Connect the set to the measuring device as shown in the following diagram.
 - 2) Output 1V(1 kHz) from the generator and adjust the attenuator until AUX IN becomes 0.5 V.
 - 3) Set AUX for FUNCTION and adjust the volume until the millivoltmeter value becomes 2 V.



1. Checking Tape Speed

Requirements

Test Tape: TTA-100 (3 kHz)

Test Point: Lch, Rch, GND

Adjustment Point: SFR1

- 1) Insert the test tape (TTA-100), FWD playback the centre of the tape and check that the speed is $3,000 \text{ Hz} \pm 45 \text{ Hz}$.
- 2) RVS playback and check that $\pm 45 \text{ Hz}$ is added according to the FWD speed.

2. Adjusting Head Azimuth

Requirements

Test Tape: TTA-300 (10 kHz)

Test Point: Lch, Rch, GND

Adjustment Point: Head Azimuth Screws

- 1) Set the V mode of the oscilloscope to ADD.
- 2) Insert the test tape (TTA-300), FWD playback the centre of the tape and adjust, using the head azimuth screws until the waveform of the oscilloscope has reached the maximum when playing back at 10 kHz.
- 3) Reverse the tape, RVS playback and adjust, using the head azimuth screws until the waveform of the oscilloscope has reached the maximum.
- 4) After the adjustment, bond lock (1600B) the screws.

3. Checking Playback Frequency Reponse

Requirements

Test Tape: TTA-300 (315 Hz / 10 kHz)

Test Point: Lch, Rch, GND

- 1) Insert the test tape (TTA-300) and playback 315 Hz and 10 kHz.
- 2) Use the 315 Hz output level as a standard, check that the 10 kHz level is within $\pm 3 \text{ dB}$.

4. Checking Playback Sensitivity

Requirements

Test Tape: TTA-200 (400 Hz)

Test Point: Lch, Rch, GND

- 1) Insert the tape (TTA-200) and playback.
- 2) Check that the output level is within $900 \text{ mV} \pm 3 \text{ dB}$.

5. Adjusting the REC / PB Frequency Response

Requirements

Test Tape: TTA-602

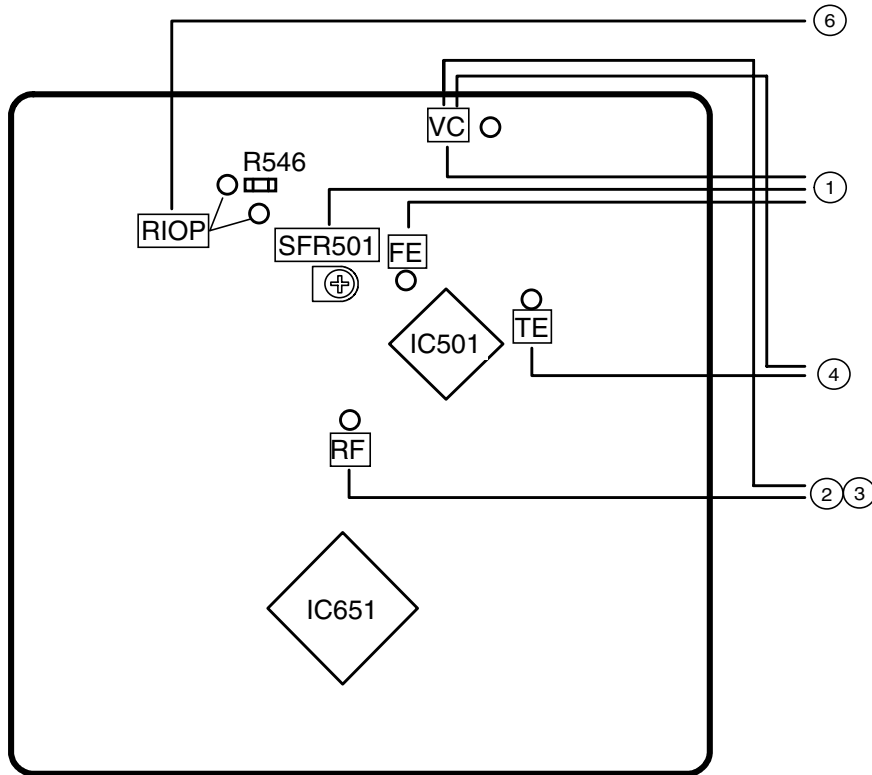
Test Point: Lch, Rch, GND

Input Point: AUX (1 kHz / 10 kHz)

Adjustment Point: SFR351 (Lch), SFR352 (Rch)

- 1) Set AUX for function and reduce attenuator output by 20 dB.
- 2) Insert the test tape (TTA-602) and record 1 kHz and 10 kHz alternately from AUX.
- 3) Playback the tape, adjust SFR351 (Lch) / SFR352 (Rch) until the playback output level of 1 kHz is within $\pm 1 \text{ dB}$ according to the standard when the playback output level of 1 kHz is used as the standard.

PWB CD

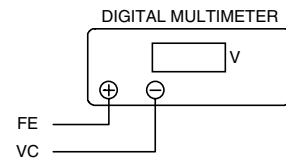


CD Adjustment Method

- Perform the adjustments after the machine enters the test mode.
 - Place the CD mechanism on level ground.
 - Equipment and tools required
- Measuring equipment: Oscilloscope (Use the probe of 10:1)
 Digital Multimeter (Use it in the DC Volt range)
 Jitter meter (Kikusui 6235)
- Test Disc: TCD-782
 ATD-001

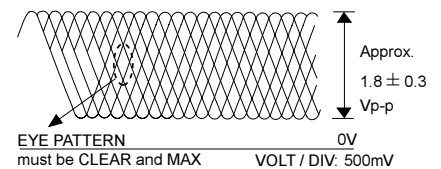
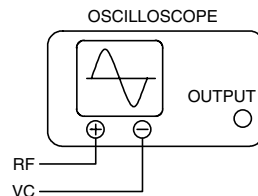
1. Focus Offset Adjustment

- 1) Connect a digital multimeter to the test point (FE), (VC).
- 2) Play back the 2nd track of TCD-782.
- 3) Adjust SFR501 until the digital multimeter indicates 0 ± 10 mV.



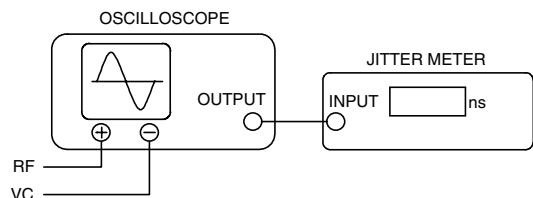
2. RF Waveform Check

- 1) Connect an oscilloscope to test point (RF), (VC).
- 2) Play back the 2nd track of TCD-782.
- 3) Check that the RF waveform has the maximum amplitude and the center of the wedge waveform has the clear blank.



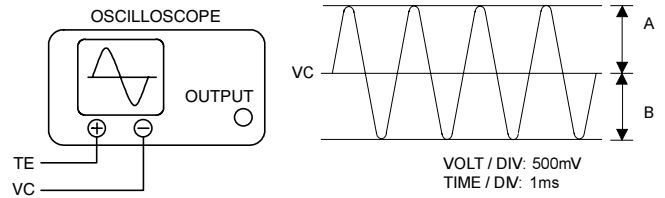
3. Jitter Check

- 1) While an oscilloscope is kept connected in the same test point as in step 2. RF Waveform Check, connect the output terminal of an oscilloscope to the input terminal of the jitter meter.
- 2) Set the VOLT range selector of an oscilloscope to 500 mV range or lower.
- 3) Play back the 2nd track of TCD-782.
- 4) Check that the jitter meter indicates 28.0 ns or less.



4. Tracking Balance Check

- 1) Connect the test point (TE), (VC) to the oscilloscope.
- 2) Playback the second track of TCD-782 and press the PAUSE button.
- 3) Check that the traverse waveforms of the oscilloscope are up and down symmetrical.



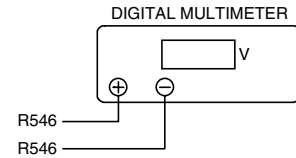
5. Play Ability Check

- 1) Play back the 3rd, 8th, and 13th track of ATD-001. Check that the noise does not occur and sound skipping does not occur.

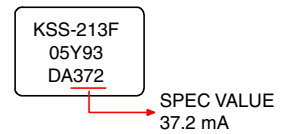
6. Laser Current Check

* Do not perform this measurement unless the laser is suspected to be defective.

- 1) Connect a digital multimeter across the resistor R546 (10 ohm).
- 2) Play back the TCD-782 and check the DC voltage value on the digital multimeter.
- 3) Calculate the laser current (I_{op}) by dividing the DC voltage across R546 by the resistor value ($R546 = 10 \text{ ohm}$). Check that the laser current (I_{op}) is SPEC VALUE $\pm 10 \%$.

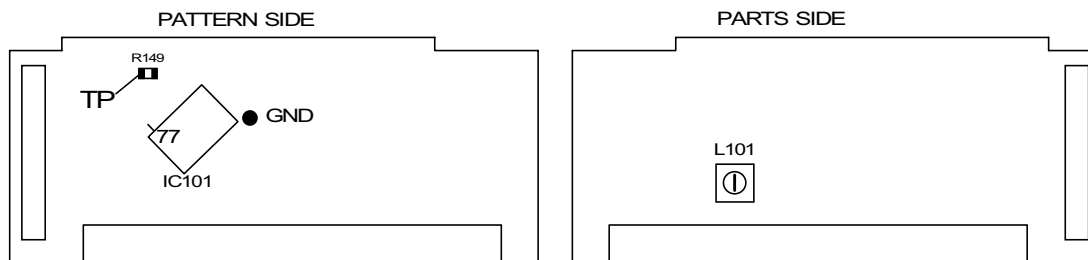


EXAMPLE



<FL SECTION>

PWB FL



1. Clock Adjustment

- 1) Connect an oscilloscope to test point OSC (IC101 77 pin) and GND (IC101 89 pin).
- 2) Insert the AC plug while pressing POWER and TUNER / BAND buttons.
- 3) Adjust L101 until the oscilloscope indicates $318.87 \text{ Hz} \pm 0.08 \text{ Hz}$ ($3.1352 \sim 3.1368 \text{ ms}$)

CD TEST MODE

1. How to Start the CD Test Mode

While pressing the CD FUNCTION button, insert the AC plug to the power outlet.
When the test mode started, the message [CD TEST] is displayed.

2. How to Exit the CD Test Mode

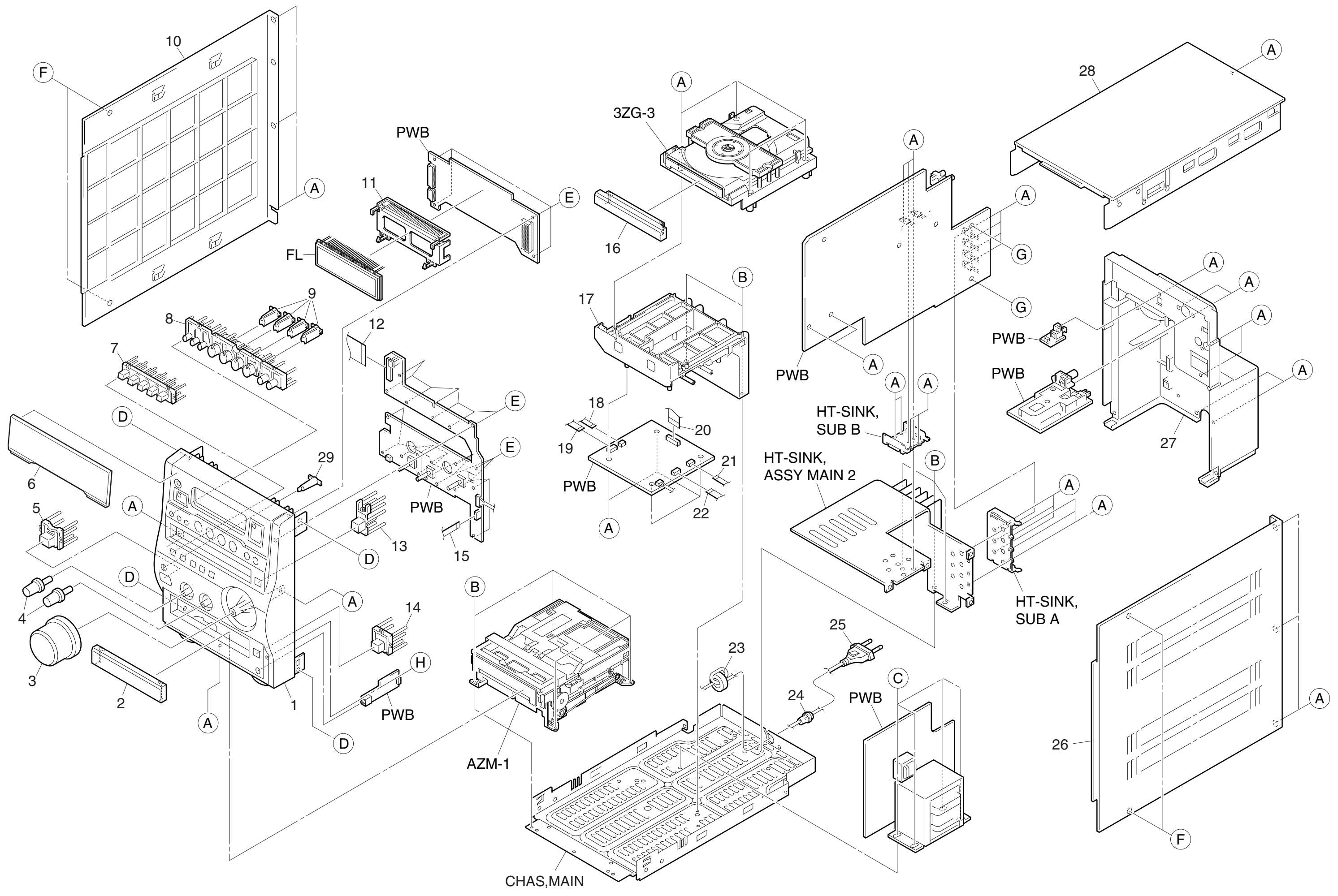
Press the POWER button or disconnect the AC plug.

3. Function and Usage of the CD Test Mode

No	Mode	Button for Activation	Display	Operation	Contents
1	Start Mode		All lights are lit.		<ul style="list-style-type: none"> • Microcomputer check
2	Search Mode	STOP button	READING	<ul style="list-style-type: none"> • LD illuminates all the time • Focus search continues operations *1 • Spindle motor continuous kick 	<ul style="list-style-type: none"> • APC circuit check • Laser current measurement • Focus search waveform check
3	Play Mode	PLAY button	Normal	<ul style="list-style-type: none"> • Normal playback • If TOC cannot be read, focus search is continued 	<ul style="list-style-type: none"> • Each servo circuit is checked • DRF check
4	Traverse Mode	PAUSE button	Normal	<ul style="list-style-type: none"> • Tracking servo OFF/ON STOP button to cancel 	<ul style="list-style-type: none"> • Tracking balance check
5	Sled Mode	FF button	CD TEST	<ul style="list-style-type: none"> • Pickup moves to the inner circumference *2 	<ul style="list-style-type: none"> • Sled circuit check • Mechanism operation check • Pickup Check
		RWD button	CD TEST	<ul style="list-style-type: none"> • Pickup is moves to the outer circumference *2 	

* 1. The driver IC heats up and the protection circuit starts working when the focus search is continued for 10 minutes or longer. There can be a case that operations cannot be performed correctly. In such a case, turn off the main power. After cooling down the machine, restart the machine.

* 2. Be careful not to damage the gear because the sled motor rotates while the FF or RWD button is being pressed even if the pickup is located in the innermost track or the outermost track.



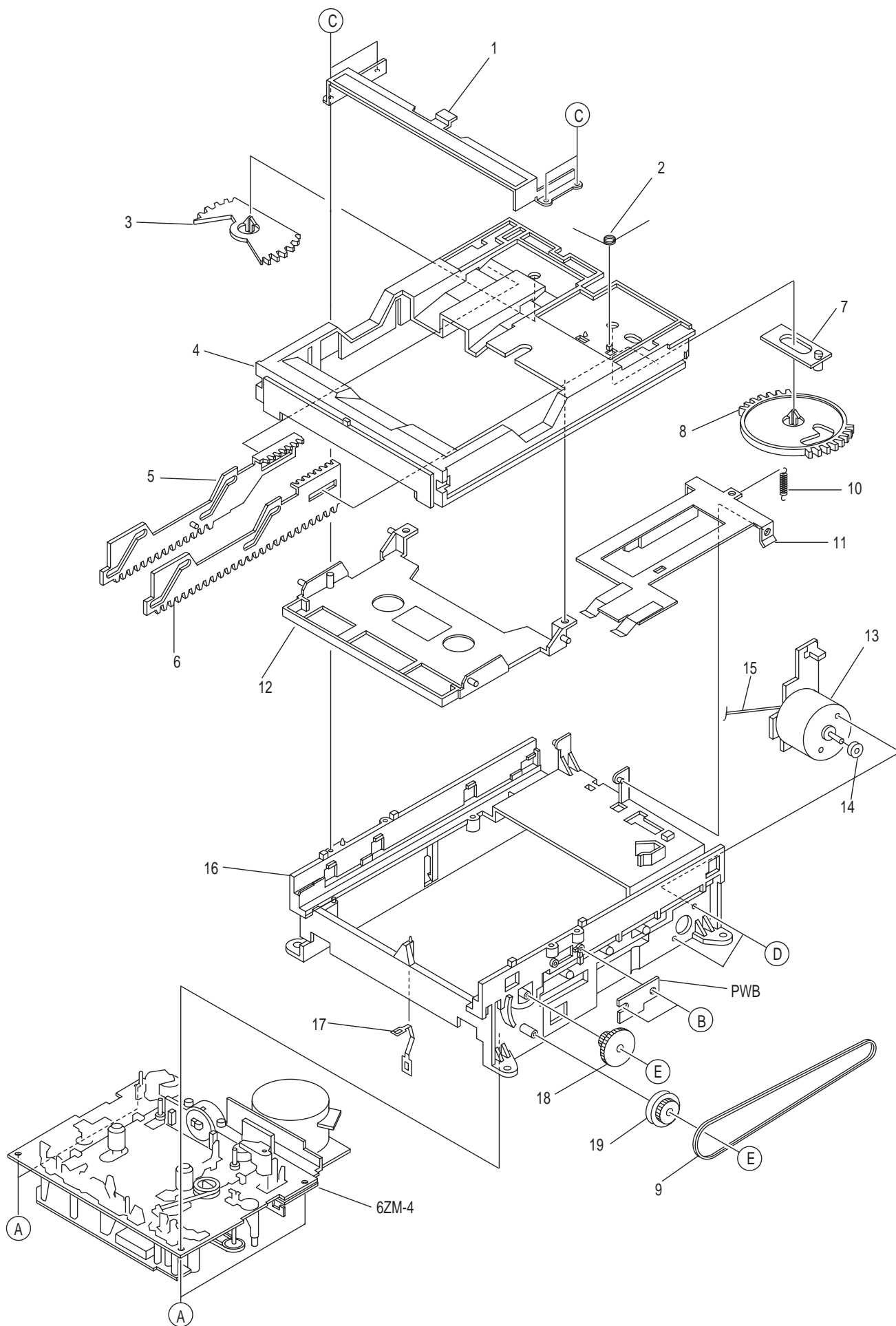
MECHANICAL PARTS LIST 1 / 1

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8B-CLX-001-010		CABI,FR<EZ[S]>	19	88-910-171-110		FF-CABLE,10P 1.25 170MM
1	8B-CLX-022-010		CABI,FR K<K[S]>	20	8B-CLX-618-010		FF-CABLE,16P 1.0 150MM CD-PICK
2	8B-CLX-008-010		PANEL,TRAY CASS	21	88-906-081-110		FF-CABLE,6P 1.25 80MM
3	8B-CLX-010-010		KNOB,RTRY VOL	22	88-907-211-110		FF-CABLE,7P 1.25 210MM
4	8B-CLX-011-010		KNOB,RTRY BT	23	87-003-317-010		F-BEAD,15-25-15 E2515MRT
5	8B-CLX-014-010		KEY,POWER	24	87-085-185-010		BUSHING,AC CORD(E) CM-22B
6	8B-CLX-009-110		WINDOW ASSY,DISP<EZ[S]>	△ 25	87-A80-157-010		AC CORD ASSY,E BLK CC
6	8B-CLX-028-110		WINDOW ASSY,DISP K<K[S]>	26	8B-CLX-005-110		PANEL,SIDE R
7	8B-CLX-013-010		KEY,CONT	27	8B-CLX-002-010		CABI,REAR<EZ[S]>
8	8B-CLX-012-010		KEY,FUNC	27	8B-CLX-026-010		CABI,REAR K<K[S]>
9	8B-CLX-018-010		REFLECTOR,FUNC	28	8B-CLX-003-010		PANEL,TOP
10	8B-CLX-004-110		PANEL,SIDE L	29	8B-CLX-017-010		REFLECTOR,POWER
11	8B-CLX-203-010		HLDL,FL	A	87-067-703-010		BVT2+3-10 W/O SLOT
12	88-923-091-110		FF-CABLE,23P 1.25 90MM	B	87-B10-315-010		BVIT3B+3-8 R W/O
13	8B-CLX-015-010		KEY,EJECT CD	C	87-B10-318-010		BVIT3C+4-8 R W/O
14	8B-CLX-016-010		KEY,EJECT CASS	D	87-721-096-410		QT2+3-10 W/O SLOT
15	88-905-231-110		FF-CABLE, 5P 1.25 230MM	E	87-B10-294-010		BVT2+2.6-8
16	8B-CLX-007-010		PANEL,TRAY CD	F	87-067-761-010		BVT2+3-10 BLK
17	8B-CLX-202-010		CHAS,CD	G	87-NF4-224-010		S-SCREW,IT3B+3-8 CU
18	88-905-131-110		FF-CABLE,5P 1.25 130MM	H	88-AR1-217-010		S-SCREW,BFT2+3-8

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

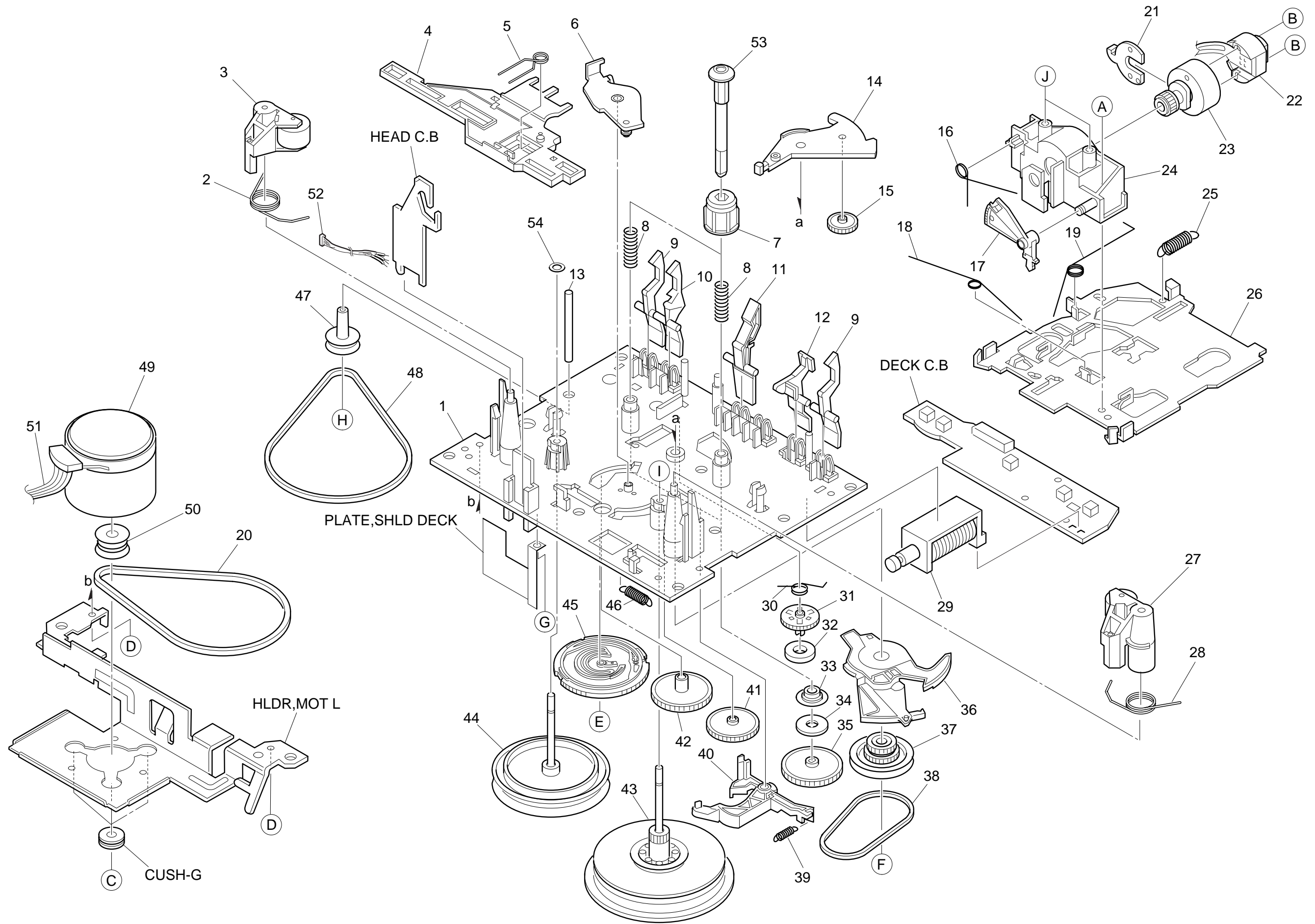
TAPE MECHANISM EXPLODED VIEW 1 / 2



TAPE MECHANISM PARTLIST 1 / 2

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8A-ZM1-214-010		PLATE, F STOPPER
2	8A-ZM1-223-010		SPR-T, LOCK F
3	8A-ZM1-209-010		GEAR, SLIDE B
4	8A-ZM1-233-010		FRAME, MAIN BL
5	8A-ZM1-215-210		LEVER ASSY, SLIDE L
6	8A-ZM1-217-010		LEVER ASSY, SLIDE R
7	8A-ZM1-212-010		LEVER, LOCK F
8	8A-ZM1-208-110		GEAR, SLIDE A
9	8A-ZM1-230-210		BELT, BASE
10	8A-ZM1-220-010		SPR-E, CLAMP
11	8A-ZM1-216-310		PLATE ASSY, CLAMP
12	8A-ZM1-234-110		TRAY, CASSETTE BL
13	87-045-305-010		MOTOR, RF-500TB DC-5V (2MA)
14	86-ZL1-210-010		PULLEY, MOT
15	8Z-ZG4-614-010		F-CABLE, 2P 130MM LED
16	8A-ZM1-202-110		BASE,
17	86-ZL1-214-010		SPR-P, CASS
18	8A-ZM1-207-110		GEAR, FRAME
19	8A-ZM1-213-110		GEAR, PULLEY
A	87-067-660-010		TAPPING SCREW, BVT2+3-8
B	88-ZG5-302-010		S-SCREW, 8ZG5+2-4 W/O
C	88-ZG5-317-010		S-SCREW, 8ZG5S+2-4 W/O
D	87-251-072-410		U+2.6-5
E	8A-ZM1-240-010		S-SCREW, GEAR F/P

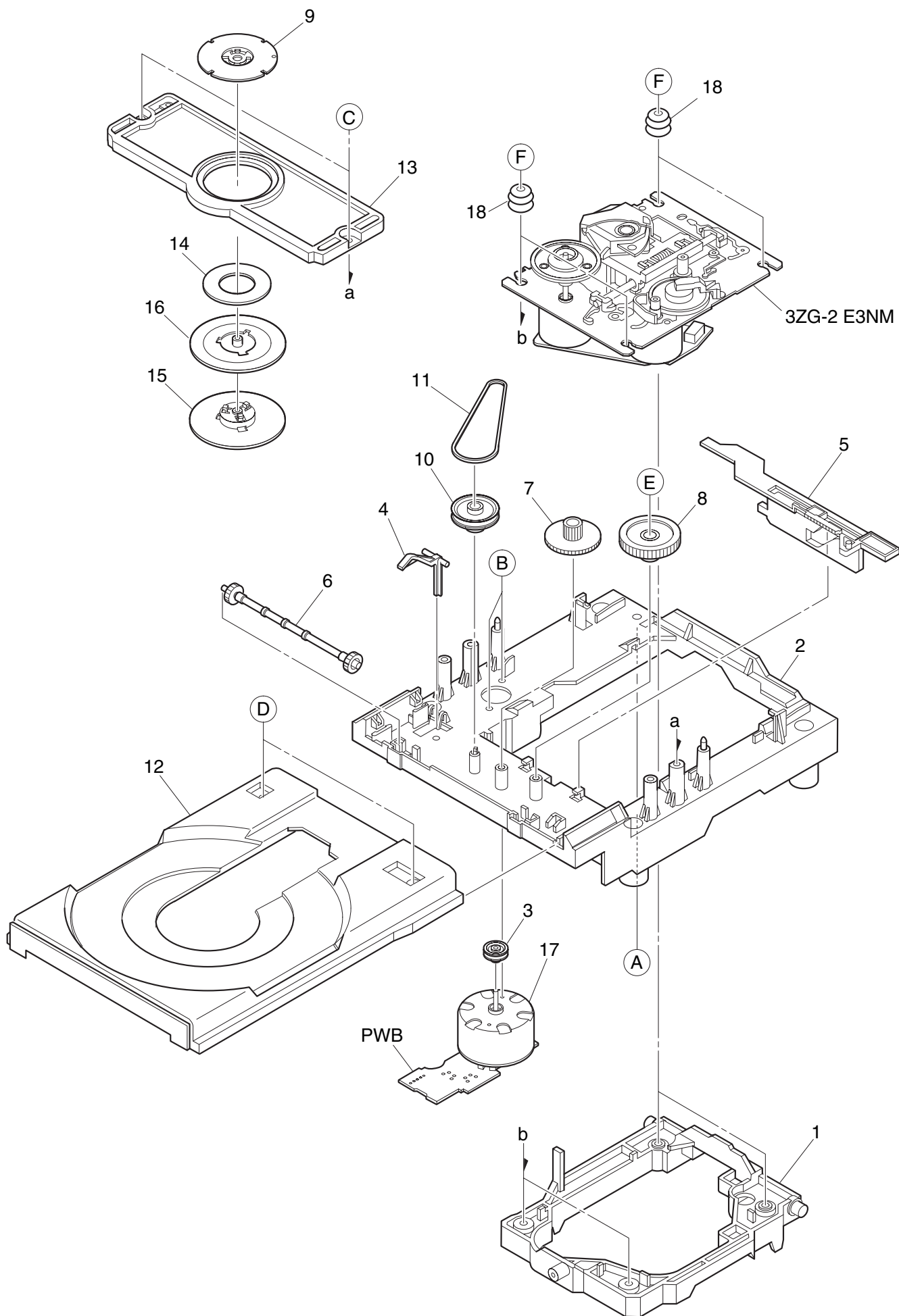
TAPE MECHANISM EXPLODED VIEW 2 / 2



TAPE MECHANISM PARTLIST 2 / 2

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION	REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	82-ZM1-358-010		CHAS ASSY,FPC	36	82-ZM1-224-410		LVR,FR
2	82-ZM1-258-210		SPR-T,PINCH L	37	82-ZM3-333-310		SLIP DISK ASSY 2
3	82-ZM1-363-010		LEVER,ASSY PINCH LD	38	82-ZM1-338-110		BELT,FR 4
4	82-ZM1-266-310		LVR,DIR	39	82-ZM1-305-210		SPR-E,TRIG 2
5	82-ZM1-214-010		SPR-T,DIR	40	82-ZM1-227-310		LVR,TRIG
6	82-ZM1-333-210		PLATE,LINK2	41	82-ZM1-225-210		GEAR,FR
7	86-ZM1-203-010		CAP,REEL	42	82-ZM1-226-010		GEAR,REW
8	86-ZM1-221-010		SPR-C,BT 2L	43	86-ZM4-214-010		FLY-WHL ASSY,R4W
9	82-ZM1-240-110		LVR,REC(*)	44	86-ZM4-215-010		FLY-WHL ASSY,L4W
10	82-ZM1-241-310		LVR,MC	45	82-ZM1-221-310		GEAR,CAM(*)
11	82-ZM1-242-010		LVR,CAS	46	82-ZM1-255-310		SPR-E,LVR DIR
12	82-ZM1-243-010		LVR,STOP	47	82-ZM3-335-310		PULLEY,COUPLER M3
13	82-ZM3-339-110		SHAFT,COUPLER N3	48	86-ZM1-206-010		BELT,MAIN L
14	82-ZM1-222-310		LVR,PLAY(*)	49	87-A90-343-010		MOT,SHU2R 70
15	82-ZM1-223-010		GEAR,PLAY	50	82-ZM3-221-210		PULLEY,MOT 2M
16	82-ZM3-353-010		SPR-T,HEAD 2	51	86-ZM4-601-110		RBN-CORD,4P 300MM
17	82-ZM1-210-110		GEAR,H T	52	86-ZM1-605-010		CONN ASSY, AR3
18	82-ZM1-269-210		SPR-T,BRG	53	86-ZM1-202-010		SHAFT,REEL
19	82-ZM1-219-110		SPR-T,LINK	54	82-ZM1-288-010		SH,1.63-3.2-0.5 SLT
20	86-ZM1-217-110		BELT,MOT	A	85-ZM3-202-010		S-SCREW,TG
21	82-ZM1-314-110		PLATE,HEAD	B	80-ZM6-207-010		V+1.6-7
22	87-A92-197-010		HEAD,RPH HADKH5666A FPC	C	82-ZM3-318-110		S-SCREW W,MOTOR M2
23	82-ZM1-208-310		HLDL,HEAD	D	87-067-178-010		VTT+2.6-3
24	82-ZM1-207-910		GUIDE,TAPE	E	87-B10-008-010		W-P,2.08-8-0.4-SLIP
25	82-ZM1-218-010		SPR-E,HB	F	82-ZM3-334-010		PW 2.16-6-0.4
26	82-ZM1-206-910		CHAS,HEAD	G	82-ZM3-222-010		S-SCREW,SHILD PLATE
27	82-ZM1-362-010		LEVER,ASSY PINCH RD	H	87-B10-043-010		W-P,0.99-4-0.25 SLT
28	82-ZM1-259-210		SPR-T,PINCH R	I	80-ZM6-243-010		SH 1.75-3.6-0.5 SLT
29	82-ZM3-628-010		SOL ASSY,23 SO	J	86-ZM4-206-110		S-SCREW,AZIMUTH L
30	82-ZM1-322-010		SPR-T,FR 60				
31	82-ZM1-220-210		GEAR,IDLER				
32	82-ZM3-616-010		RING MAGNET 4				
33	86-ZM1-219-010		CLR,REEL SLIP				
34	86-ZM1-220-010		FELT,DIA 5.3-14-0.8				
35	82-ZM1-216-510		GEAR,REEL				

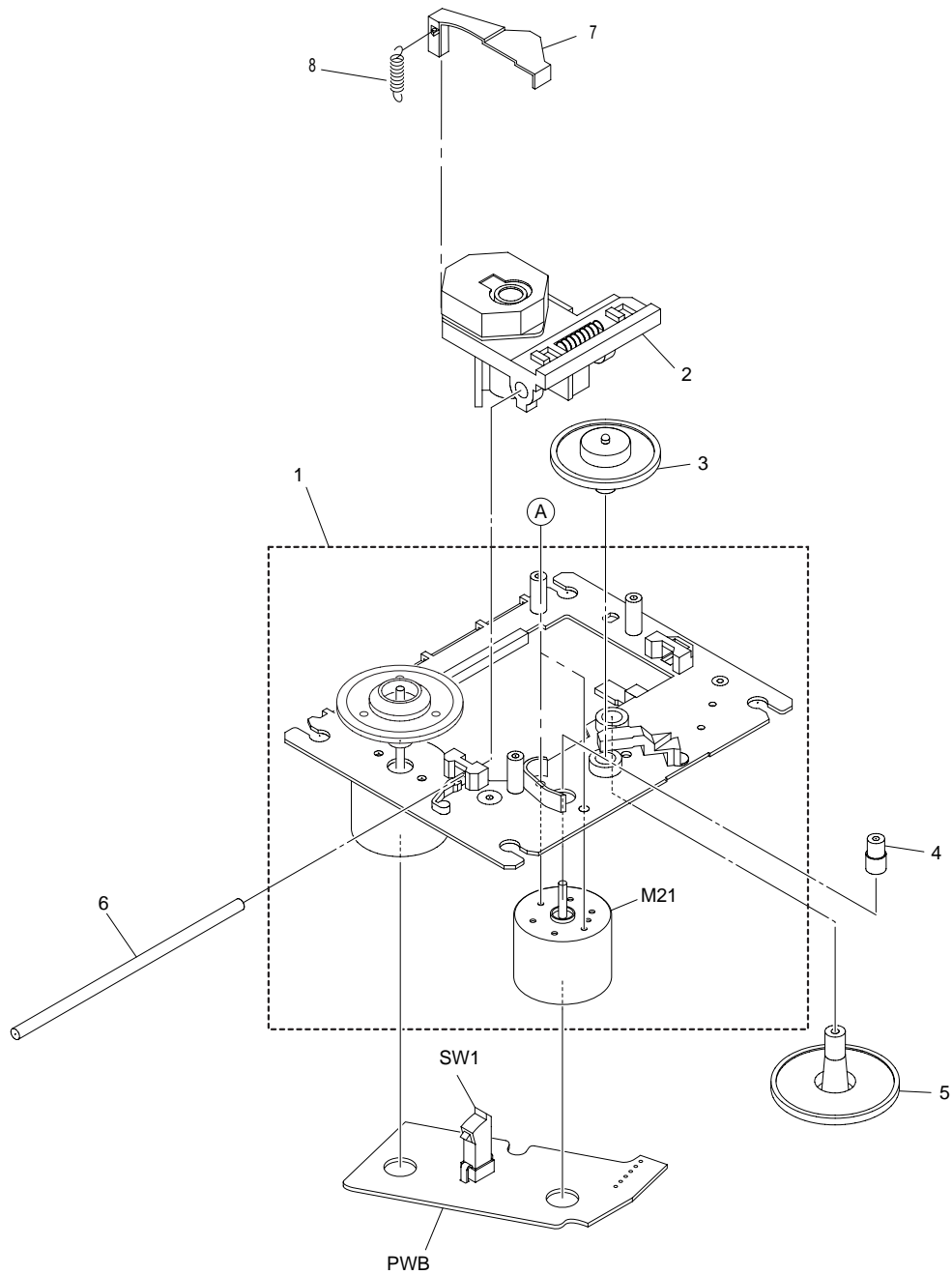
CD MECHANISM EXPLODED VIEW 1 / 2



CD MECHANISM PARTS LIST 1 / 2

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	83-ZG3-224-510		HLDR M2
2	83-ZG3-228-610		CHAS, L6
3	83-ZG3-208-010		PULLEY, MOTOR
4	83-ZG3-213-010		LVR, SW
5	83-ZG3-209-610		CAM, SLIDE
6	83-ZG3-207-010		GEAR, TRAY
7	83-ZG3-204-210		GEAR, C
8	83-ZG3-205-010		GEAR, D
9	83-ZG3-219-010		PLATE, CLAMP
10	83-ZG3-220-210		GEAR, PULLEY 2
11	83-ZG3-214-010		BELT, L
12	83-ZG3-231-210		TRAY, CD 3
13	83-ZG3-230-110		HLDR, CHUCK 2 (*)
14	86-ZG1-239-110		PLATE, DISC PC
15	83-ZG3-604-010		RING, MAG 2
16	86-ZG1-238-010		HLDR, MAGNET 6ZG N
17	87-045-305-010		MOTOR, RF-500TB DC-5V (2MA)
18	83-ZG3-225-010		CUSH-G, MAIN A
A	87-067-945-110		VFT2+3-12 (F10)
B	87-251-071-410		U+2.6-4
C	83-ZG3-235-010		VFT2+2.6-8
D	87-352-075-210		VT2+2.6-10
E	83-ZG3-217-010		S-SCREW, GEAR D
F	81-ZG1-254-010		S-SCREW, MECH HLDR

CD MECHANISM EXPLODED VIEW 2 / 2



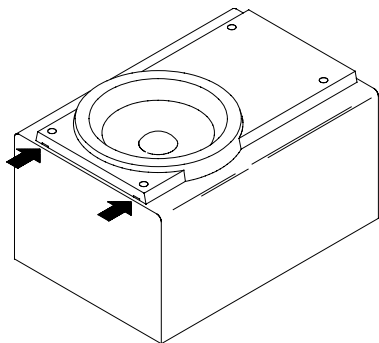
CD MECHANISM PARTS LIST 2 / 2

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	83-ZG2-262-010		CHAS ASSY, E3
2	87-A90-836-010		PICKUP, KSS-213F
3	83-ZG2-235-010		GEAR, A3
4	83-ZG2-236-010		GEAR, MOTOR 3
5	83-ZG2-205-310		GEAR, B
6	83-ZG2-253-010		SHAFT, SLIDE 5
7	83-ZG2-245-510		LEVER, SHUTTER (*)
8	83-ZG2-250-210		SPR-E, SHT 2
A	87-261-032-210		V+2-3

GENERAL SPEAKER DISASSEMBLY INSTRUCTIONS (FOR REFERENCE)

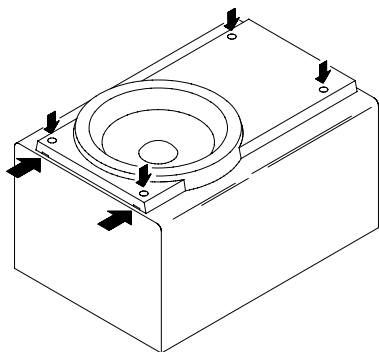
Type.1

Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Remove the screws of each speaker unit and then remove the speaker units.



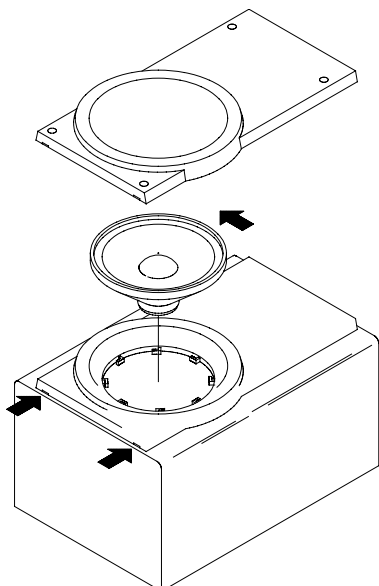
Type.2

Remove the grill frame and four pieces of rubber caps by pulling out with a flat-bladed screwdriver. Remove the screws from hole where installed rubber caps. Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Remove the screws of each speaker unit and then remove the speaker units.

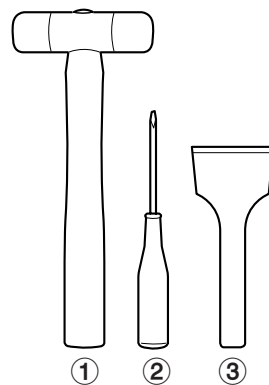


Type.3

Insert a flat-bladed screwdriver into the position indicated by the arrows and remove the panel. Turn the speaker unit to counter-clockwise direction while inserting a flat-bladed screwdriver into one of the hollows around speaker unit, and then remove the speaker unit. After replacing the speaker unit, install it turning to clockwise direction until "click" sound comes out.



Type.4



TOOLS

- ① Plastic head hammer
- ② (⊖) flat head screwdriver
- ③ Cut chisel

How to Remove the PANEL, FR

1. Insert the (⊖) flat head screwdriver tip into the gap between the PANEL, FR and the PANEL, SPKR. Tap the head of the (⊖) flat head screwdriver with the plastic hammer head, and create the clearance as shown in Fig-1.
2. Insert the cut chisel in the clearance, and tap the head of the cut chisel with plastic hammer as shown in Fig-2, to remove the PANEL, FR.
3. Place the speaker horizontally. Tap head of the cut chisel with plastic hammer as shown in Fig-3, and remove the PANEL, FR completely.

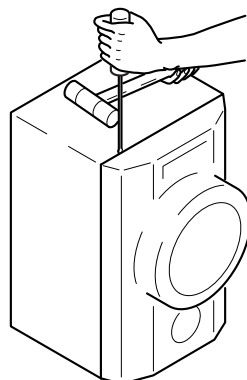


Fig-1

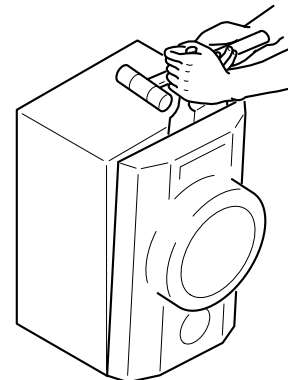


Fig-2

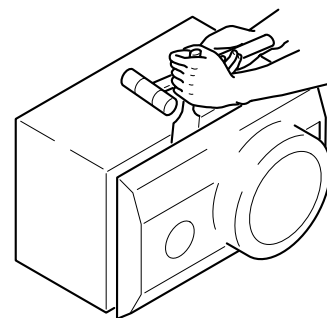


Fig-3

How to Attach the PANEL, FR

Attach the PANEL, FR to the PANEL, SPKR. Tap the four corners of the PANEL, FR with the plastic hammer to fit the PANEL, FR into the PANEL, SPKR completely.

SPEAKER PARTS LIST <SX – LEM70 (YJMN)>

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8B-CPX-002-010		RING,W
2	8B-CPX-003-010		RING,TW
3	8B-CPX-004-010		GRILLE,FRAME ASSY
4	8B-CPX-016-010		BADGE,AIWA 27.5
5	8B-CPX-602-010		SPKR,W 130 25/2
6	8A-CJ5-415-010		TERMINAL
7	8B-CP5-610-010		CORD,SPKR

ACCESSORIES / PACKAGE LIST

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	8B-CLX-905-010		IB,K(E)M<K>
1	8B-CLX-906-010		IB,EZ(9L)M<EZ>
2	87-006-226-010		ANT,LOOP AM
3	87-A90-118-010		ANT,WIRE FM (Z)
4	8B-CLX-951-010		RC UNIT,RC-BAT15
△	5 87-099-726-010		PLUG,ADPTR CONV (K)<K>

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