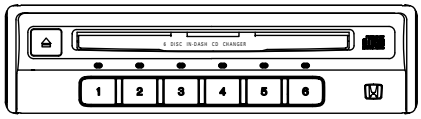
Service Manual

Pioneer

HONDA



ORDER NO.
CRT2351

6 DISC IN-DASH CD CHANGER

CDX-MG6036ZH US

COMPACT disc DIGITAL AUDIO

● This service manual should be used together with the following manual(s):

Model	Order No.	Mech. Module	Remarks
CX-890	CRT2376	G1	CD Mechanism Module:Circuit Description, Mechanism Description, Disassembly

VEHICLE	DESTINATION	PRODUCED AFTER	PART No.	ID No.	PIONEER MODEL No.
Not specified	U.S.A.	June 1999	08A06-3B1-3000	———	CDX-MG6036ZH/US

● **To operate this product, a 14-pin H-BUS head unit is required.**
When performing adjustments, connect the 8-pin/14-pin conversion jig (GGD1163) to a Pioneer 8-pin H-BUS head unit. You can use it in place of a 14-pin H-BUS head unit.

CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS SERVICE INC. P.O.Box 1760, Long Beach, CA 90801-1760 U.S.A.
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE.LTD. 253 Alexandra Road, #04-01, Singapore 159936

K-ZZB. JUNE 1999 Printed in Japan

● CD Player Service Precautions

1. For pickup unit(CXX1311) handling, please refer to"Disassembly"(see page 53).
   During replacement, handling precautions shall be taken to prevent an electrostatic discharge(protection by a short pin).

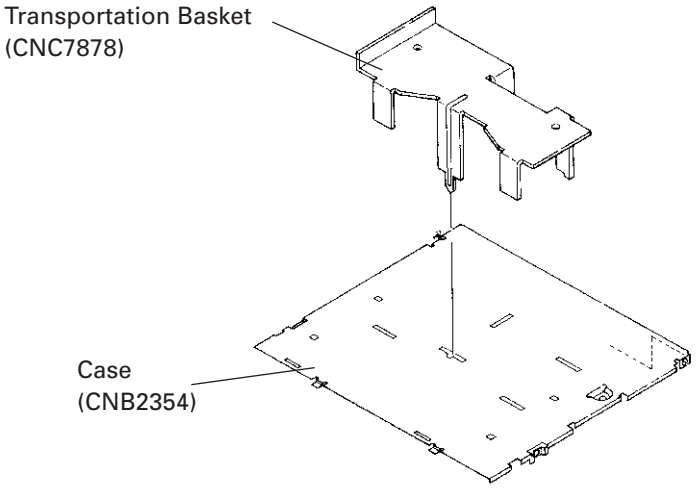
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.

3. Please checking the grating after changing the service pickup unit(see page 46).

● When the Repair is Complete

When the repair is complete, make the CD mechanism ready for transportation implementing the following procedures:

1. Press the changer side 1 and 4 simultaneously to turn the ACC on.
2. As the ACC is turned on, the disc indicator blinks in red.
3. When the blinking is stopped, the mechanism is ready for the transportation.
4. Attach the Transportation Bracket (CNC7878). Now you can transport it.(See the figure below)

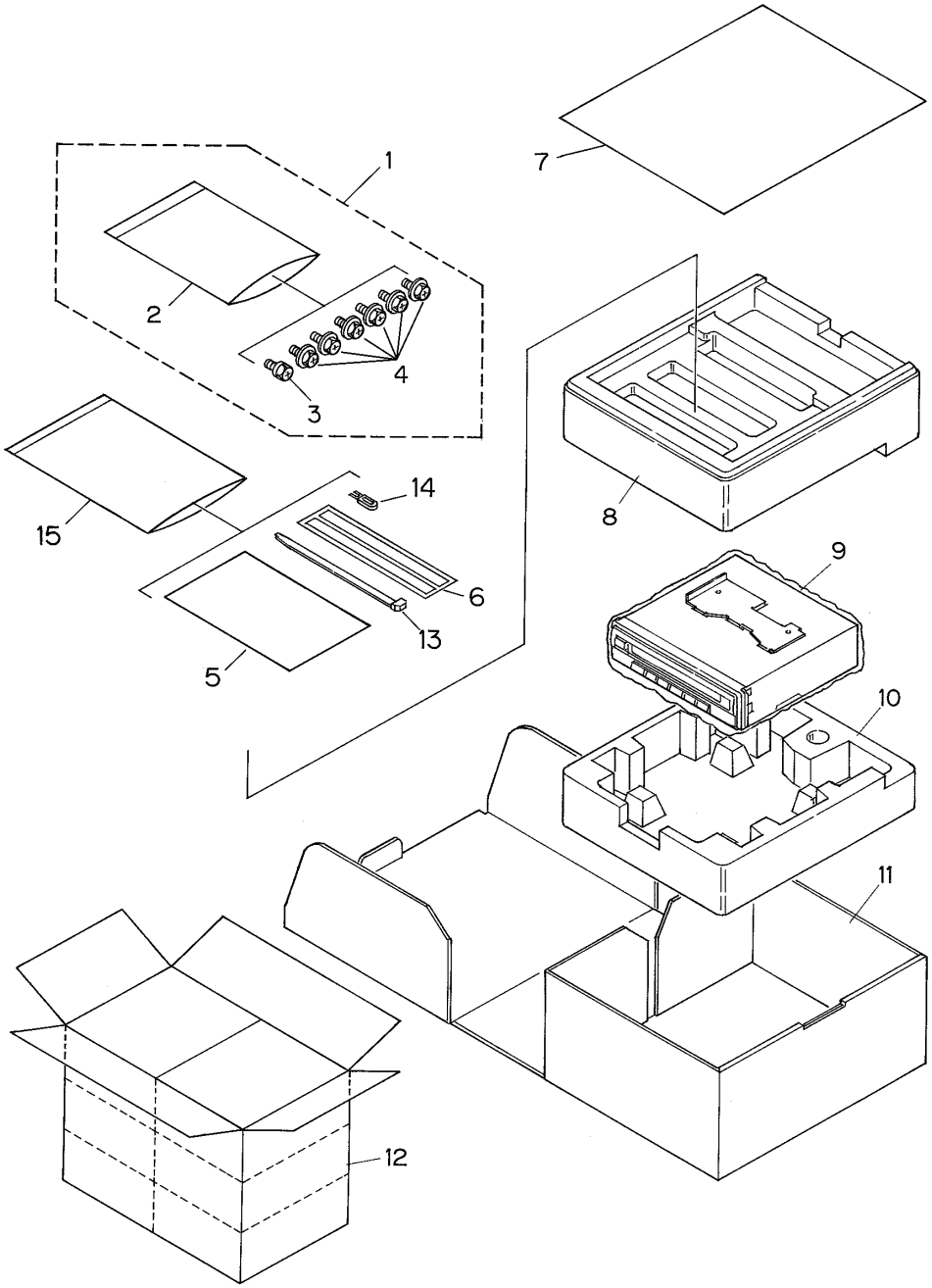


1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING



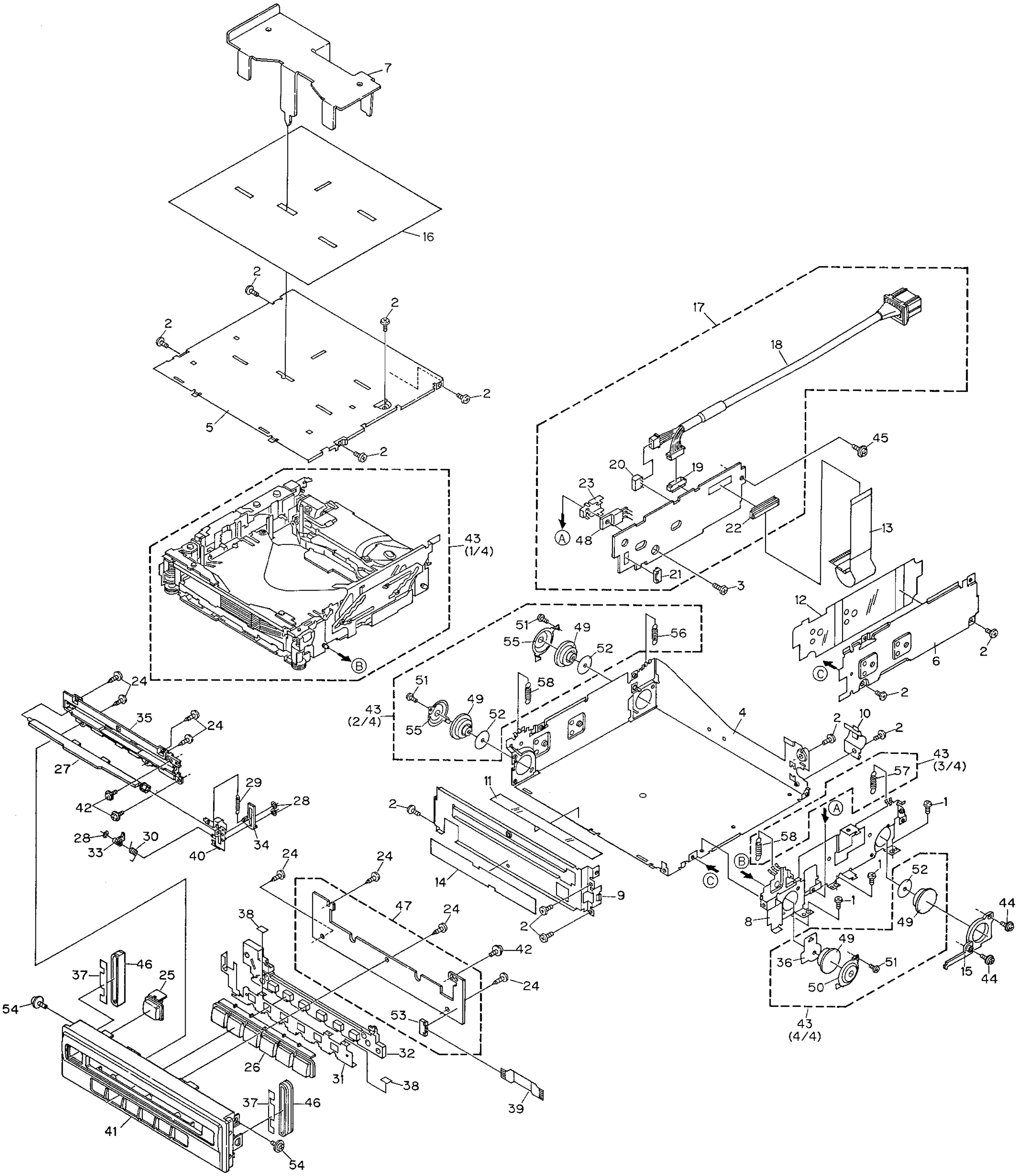
NOTE:

- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.

● PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw Assy	CEA2565
*	2	Polyethylene Bag	CEG-127
	3	Screw	HMF40P060FZK
	4	Screw	HMF50P080FMC
	5	Owner's Manual(English)	CRB1553
	6	Spacer	CNM6551
*	7	Sheet	CHW1402
	8	Protector	CHP2123
*	9	Polyethylene Bag	E36-609
	10	Protector	CHP2124
	11	Carton	CHG3764
	12	Contain Box	CHL3764
	13	Clamper	CNV4042
*	14	Band	CNF-512
	15	Polyethylene Bag	CEG1116

2.2 EXTERIOR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43 (1/4)
43 (2/4)
43 (3/4)
43 (4/4)
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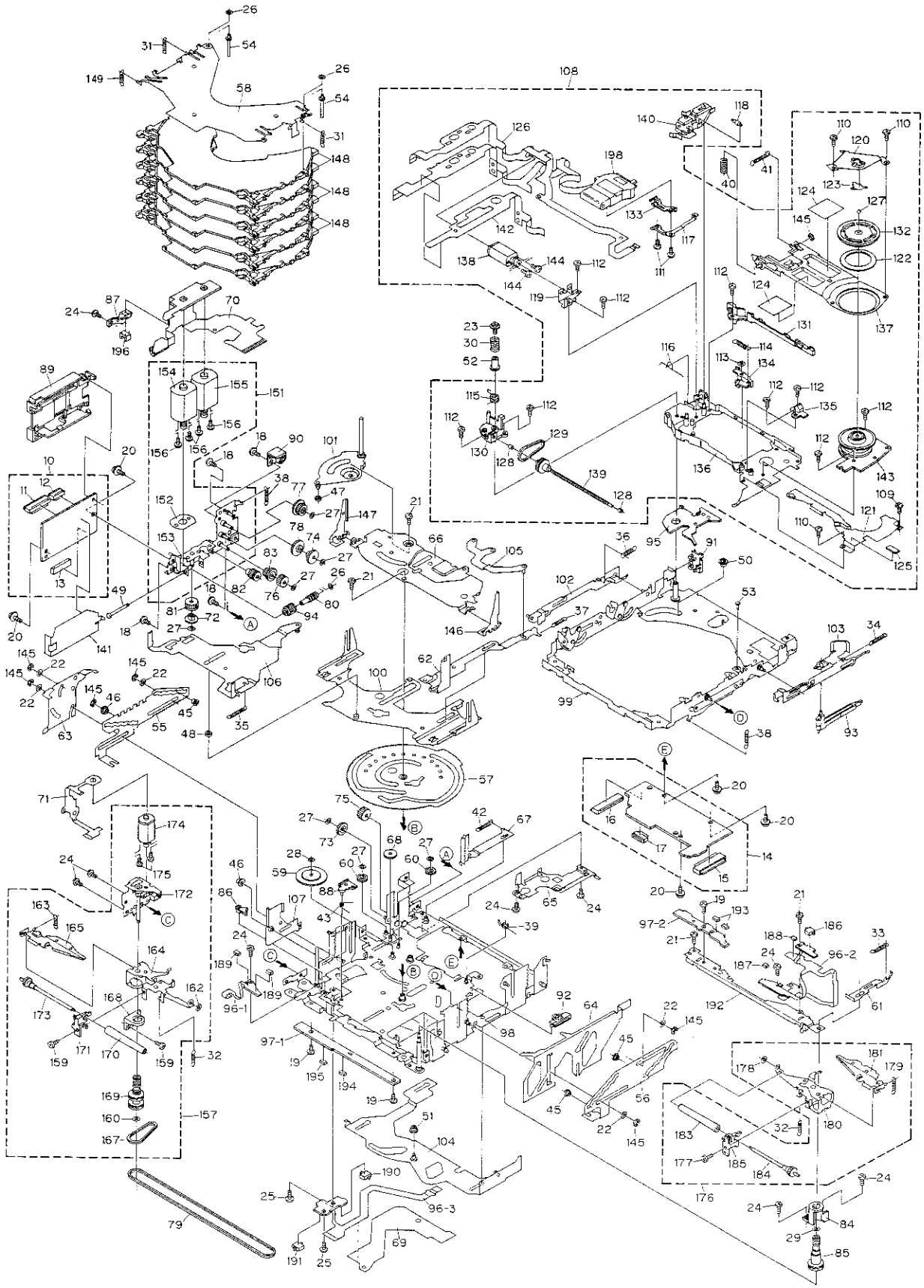
A
B
C

● EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw	BMZ20P020FMC
	2	Screw	BMZ26P030FMC
	3	Screw	BMZ26P060FMC
	4	Chassis Unit	CXB3407
	5	Case	CNB2354
	6	Side Frame	CNB2397
	7	Bracket	CNC7878
	8	Bracket	CNC8026
	9	Front Frame	CNC8110
	10	Holder	CNC8111
	11	Insulator	CNM5969
	12	Insulator	CNM6112
	13	PCB	CNP5516
	14	Insulator	CNM6409
	15	Holder	CNV5543
*	16	Caution Label	CRP1200
	17	Extension Unit	CWM6288
	18	Cord	CDE6055
	19	Connector(CN102)	CKS2200
	20	Connector(CN103)	CKS3597
	21	Connector(CN701)	CKS3785
	22	Connector(CN101)	CKS3989
	23	Holder	CNC8031
	24	Screw	BPZ20P060FMC
	25	Button	CAC5864
	26	Button	CAC5865
	27	Door	CAT2003
	28	Washer	CBF1038
	29	Spring	CBH2201
	30	Spring	CBH2200

Mark	No.	Description	Part No.
	31	Conductor	CNC8051
	32	Lighting Conductor	CNV5901
	33	Gear	CNV5547
	34	Arm	CNV5548
	35	Guide	CNV5880
	36	Sheet	CNM6318
	37	Double Faced Tape	CNM6424
	38	Insulator	CNM6512
	39	PCB	CNP5373
	40	Bracket Unit	CXB3111
	41	Grille Unit	CXB3409
	42	Screw	IMS20P040FMC
	43	CD Mechanism Module(G1)	CXK4702
	44	Screw	IMS20P040FMC
	45	Screw	IMS26P040FMC
	46	Cushion	CNV5674
	47	Keyboard Unit	CWM6289
	48	Transistor(Q708)	2SB1335A
	49	Damper	CNV5120
	50	Holder	CNC7826
	51	Screw	CBA1250
	52	Sheet	CNM5981
	53	Connector(CN901)	CKS3785
	54	Screw	IMS26P030FZK
	55	Holder	CNC7477
	56	Spring(Left Rear)	CBH2065
	57	Spring(Right Rear)(Black)	CBH2067
	58	Spring(Front)	CBH2066

2.3 CD MECHANISM



● CD MECHANISM SECTION PARTS LIST

Mark	No.	Description	Part No.
	1-9	•••••	
	10	CD Core Unit(Servo Unit)	CWX2202
	11	Connector(CN101)	CKS2764
	12	Connector(CN301)	CKS3966
	13	Connector(CN201)	CKS3991
	14	CD Core Unit(STS Unit)	CWX2203
	15	Connector(CN701)	CKS3989
	16	Connector(CN801)	CKS3989
	17	Connector(CN802)	CKS4054
	18	Screw	CBA1037
	19	Screw	CBA1041
	20	Screw	CBA1076
	21	Screw	CBA1250
	22	Screw	CBA1405
	23	Screw	CBA1452
	24	Screw	CBA1453
	25	Screw	CBA1479
	26	Washer	CBF1037
	27	Washer	CBF1038
	28	Washer	CBF1039
	29	Washer	CBF1064
	30	Spring	CBH2007
	31	Spring	CBH2271
	32	Spring	CBH2274
	33	Spring	CBH2014
	34	Spring	CBH2015
	35	Spring	CBH2016
	36	Spring	CBH2017
	37	Spring	CBH2290
	38	Spring	CBH2019
	39	Spring	CBH2064
	40	Spring	CBH2195
	41	Spring	CBH2196
	42	Spring	CBH2224
	43	Spring	CBH2250
	44	•••••	
	45	Roller	CLA3154
	46	Roller	CLA3157
	47	Roller	CLA3159
	48	Roller	CLA3160
	49	Shaft	CLA3179
	50	Spacer	CLA3194
	51	Roller	CLA3248
	52	Bush	CLA3353
*	53	Shaft	CLA3469
	54	Shaft	CLA3693
	55	Steer	CNC7215
	56	Steer	CNC7216
	57	Cam	CNC7227
*	58	Holder	CNC7235
	59	Gear	CNC7236
	60	Gear	CNC7238
	61	Lever	CNC7243
	62	Lever	CNC7244
	63	Lever	CNC7245
	64	Lever	CNC7246
	65	Cover	CNC7441
	66	Holder	CNC8613
	67	Lever	CNC8024
	68	Gear	CNC8140
	69	Sheet	CNM5831
	70	PCB	CNP5680
	71	PCB	CNP5681
	72	Gear	CNR1479
	73	Gear	CNR1481
	74	Gear	CNR1495
	75	Gear	CNR1501
	76	Gear	CNR1502
	77	Gear	CNR1540
	78	Gear	CNR1541
	79	Belt	CNT1080
	80	Worm Gear	CNV5046
	81	Gear	CNV5047
	82	Gear	CNV5048
	83	Gear	CNV5049
	84	Holder	CNV5056
	85	Pulley	CNV5058
	86	Arm	CNV5061
	87	Spacer	CNV5066
	88	Arm	CNV5189
	89	Cover	CNV5207
	90	Cover	CNV5424
	91	Cover	CNV5425
	92	Lever	CNV5427
	93	Arm	CNV5491
	94	Gear	CNV5519
	95	Holder	CNV5648
	96	Composite PCB	CNX3141
	97	Composite PCB	CNX2989
	98	Chassis Unit	CXB4314

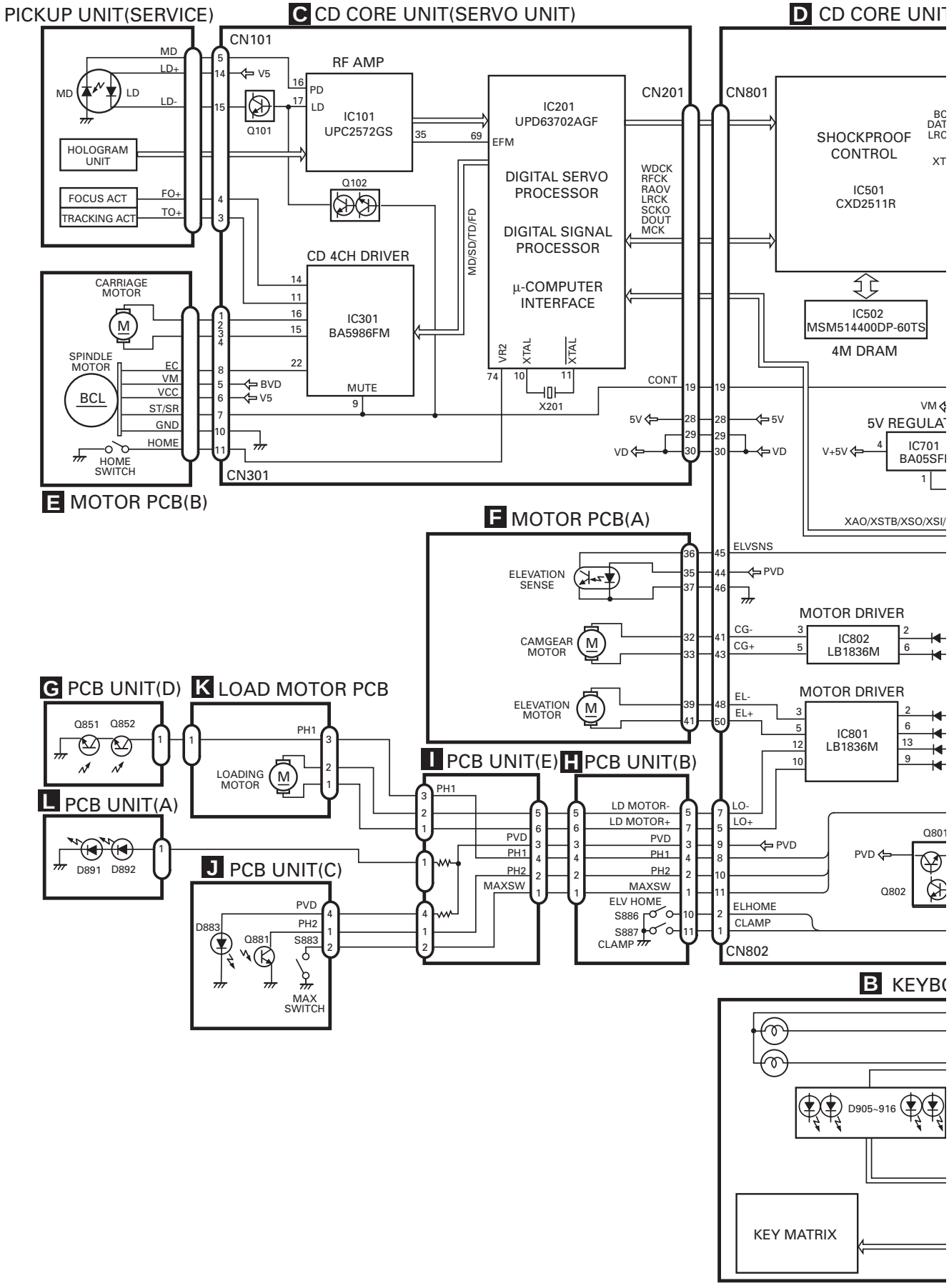
Mark	No.	Description	Part No.
	99	Frame Unit	CXB2702
	100	Lever Unit	CXB2703
	101	Arm Unit	CXB2704
	102	Lever Unit	CXB2708
	103	Lever Unit	CXB2709
	104	Lever Unit	CXB2711
	105	Arm Unit	CXB2712
	106	Lever Unit	CXB2713
	107	Lever Unit	CXB2714
	108	Carriage Mechanism Unit(G1)	CXB2998
	109	Screw	CBA1041
	110	Screw	CBA1250
	111	Screw	CBA1362
	112	Screw	CBA1471
	113	Washer	CBF1038
	114	Spring	CBH2008
	115	Spring	CBH2009
	116	Spring	CBH2010
	117	Spring	CBL1335
	118	Roller	CLA3707
*	119	Bracket	CNC7228
	120	Guide Unit	CXB4417
	121	Cover	CNC7628
	122	Sheet	CNM6414
	123	Sheet	CNM5378
	124	Sheet	CNM5695
	125	Sheet	CNM5827
	126	PCB	CNP4978
	127	Ball	CNR1189
	128	Bearing	CNR1423
	129	Belt	CNT1079
	130	Holder	CNV5037
	131	Guide	CNV5040
	132	Clamper	CNV5042
	133	Rack	CNV5111
	134	Arm	CNV5579
	135	Holder	CNV5759
*	136	Chassis	CXB2698
	137	Arm Unit	CXB2705
	138	Motor Unit(M4 CARRIAGE)	CXB3178
	139	Screw Unit	CXB3179
	140	Lever Unit	CXB4450
	141	Insulator	CNM6306
	142	Spacer	CNM6345
	143	Motor(M5 SPINDLE)	CXM1120

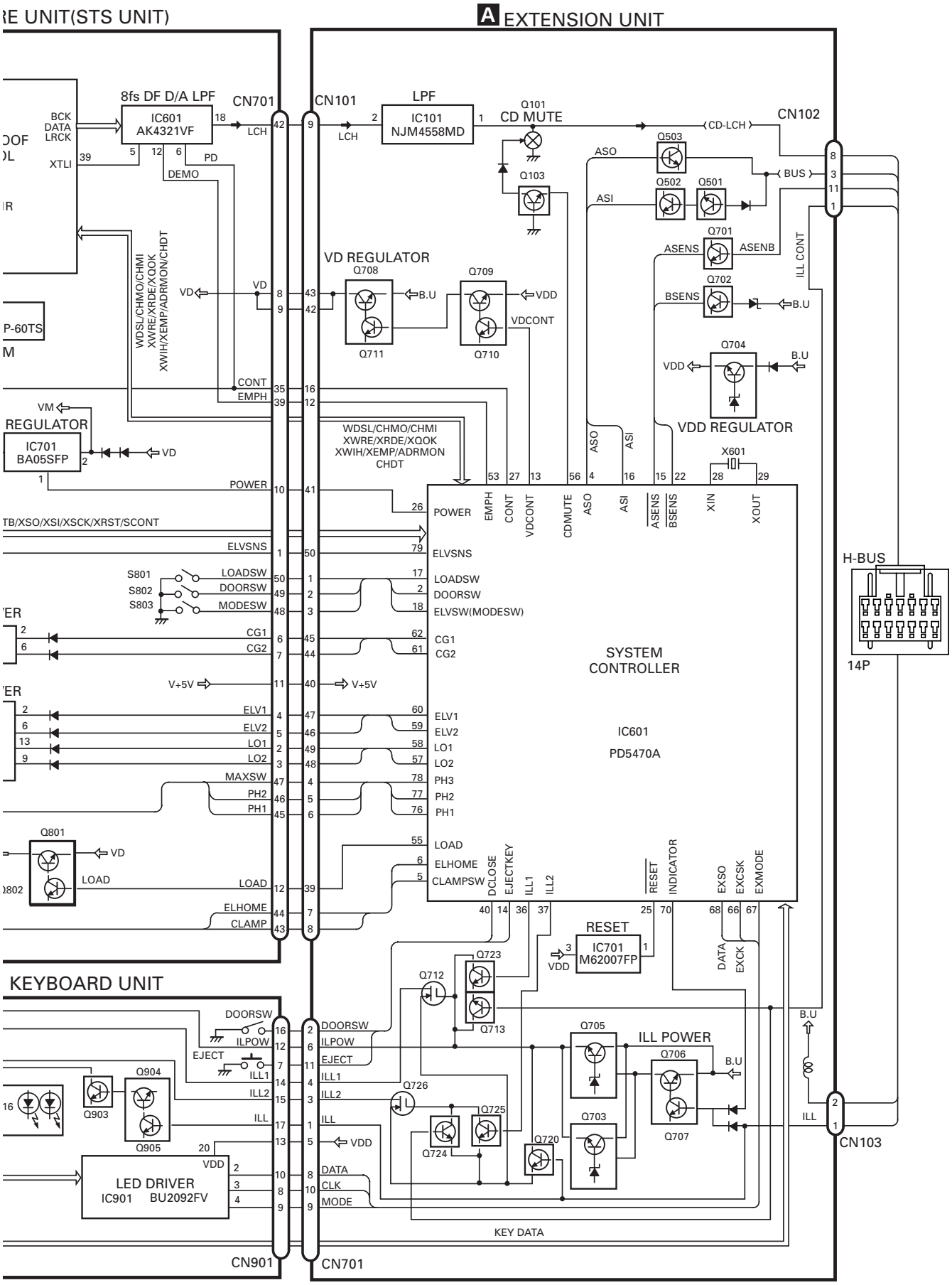
Mark	No.	Description	Part No.
	144	Screw	JFZ14P020FMC
	145	Washer	YE15FUC
	146	Arm Unit	CXB4953
	147	Arm Unit	CXB4954
	148	Tray Assy	CXB4307
	149	Spring	CBH2269
	150	•••••	
	151	Cam Motor Assy	CXB3170
	152	Spacer	CNC8289
*	153	Bracket Unit	CXB4165
*	154	Motor Unit(M1 Cam Gear)	CXB3174
*	155	Motor Unit(M3 ELV)	CXB3175
	156	Screw	JFZ20P025FMC
	157	Loading Arm L Assy	CXB3171
	158	•••••	
	159	Screw	CBA1453
	160	Washer	CBF1038
	161	•••••	
	162	Washer	CBF1074
	163	Spring	CBH2136
*	164	Arm	CNC7241
*	165	Arm	CXB4449
	166	•••••	
	167	Belt	CNT1079
	168	Holder	CNV5055
	169	Pulley	CNV5057
	170	Roller	CNV5064
	171	Guide	CNV5125
*	172	Bracket Unit	CXB4316
	173	Roller Gear Unit	CXB3176
	174	Motor Unit(M2 LOAD)	CXB3177
	175	Screw	JFZ14P020FMC
	176	Loading Arm R Assy	CXB3172
	177	Screw	CBA1453
	178	Washer	CBF1074
	179	Spring	CBH2136
*	180	Arm	CNC7242
*	181	Arm	CXB4448
	182	•••••	
	183	Roller	CNV5064
	184	Roller Gear Unit	CXB3176
	185	Guide	CNV5126
	186	Switch(S885 MAX)	CSN1052
	187	LED(D883)	CL202IRXTU
	188	Photo-transistor(Q881)	CPT230SCTD(CD)

Mark	No.	Description	Part No.
	189	LED(D891,892)	CL202IRXTU
	190	Switch(S887 CLAMP)	CSN1051
	191	Switch(S886 ELV HOME)	CSN1052
	192	Bracket Unit	CXB4306
	193	Photo-transistor(Q851,852)	CPT230SCTD(CD)
	194	Resistor(R856)	RS1/8S911J
	195	Resistor(R857)	RS1/8S821J
	196	Photo-interrupter(Q1)	RPI-221
	197	●●●●●	
	198	Pickup Unit(Service)(P8)	CXX1311

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

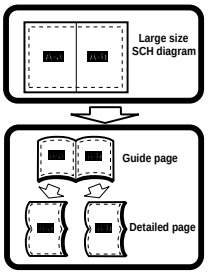
3.1 BLOCK DIAGRAM

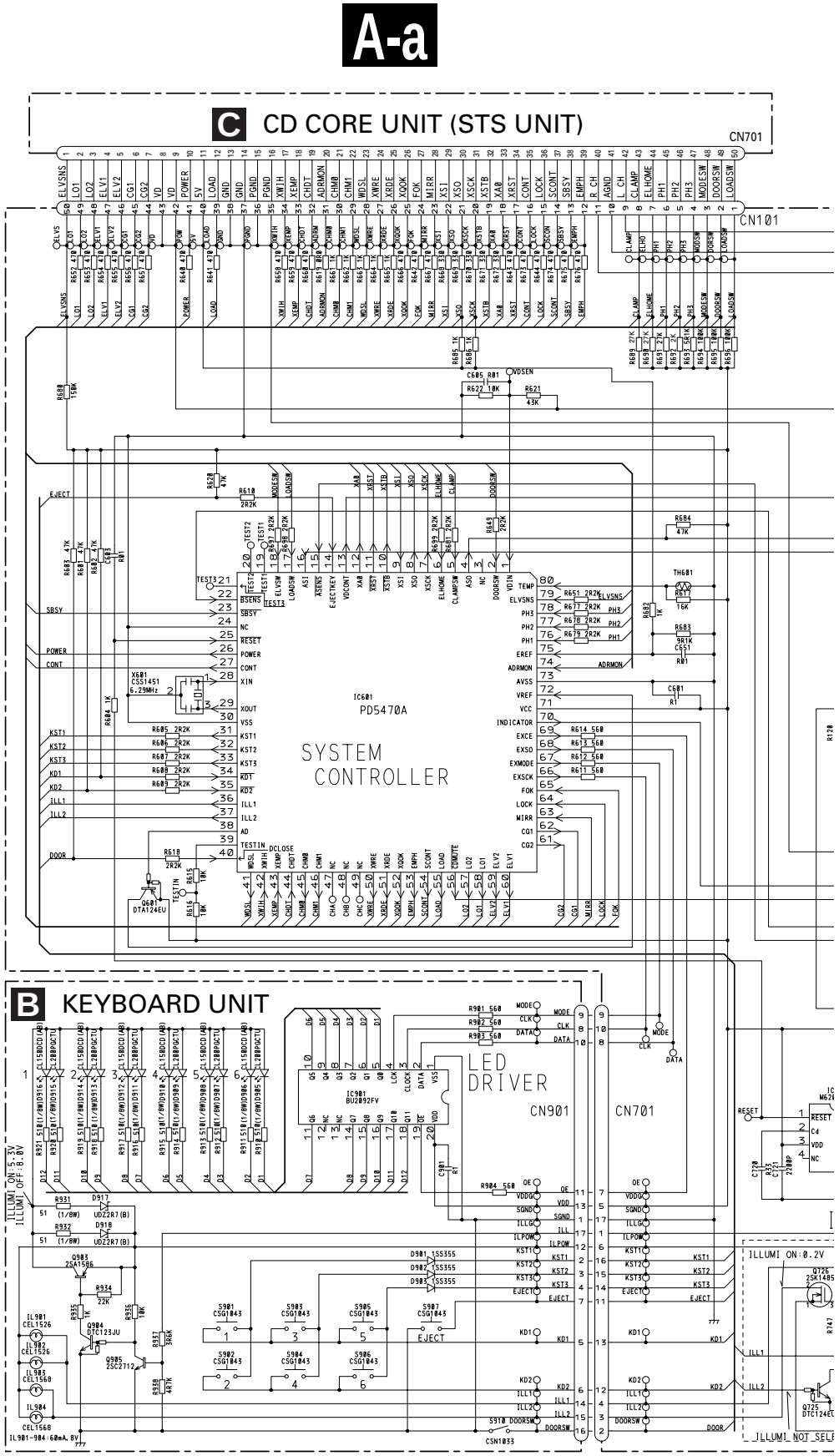



RE UNIT(STS UNIT)
A EXTENSION UNIT
8fs DF D/A LPF
IC601
AK4321VF
CN701
CN101
LPF
IC101
NJM4558MD
Q101
CD MUTE
CN102
CD-LCH
BCK
DATA
LRCK
XTLI
PD
DEMO
LCH
Q503
Q502
Q501
ASO
ASI
BUS
Q103
Q701
ASENS
ASENB
ILL CONT
VD REGULATOR
Q708
Q709
Q711
Q710
B.U
VDD
VDCONT
Q702
BSENS
Q704
WDSL/CHMO/CHMI
XWRE/XRDE/XQOK
XWIH/XEMP/ADRMON/CHDT
VD
CONT
EMPH
VM
REGULATOR
IC701
BA05SFP
POWER
TB/XSO/XSI/XSCK/XRST/SCONT
ELVSNS
S801
S802
S803
LOADSW
DOORSW
MODESW
CG1
CG2
V+5V
ELV1
ELV2
LO1
LO2
MAXSW
PH2
PH1
Q801
LOAD
ELHOME
CLAMP
VDD REGULATOR
X601
XIN
XOUT
SYSTEM
CONTROLLER
IC601
PD5470A
PH3
CLAMPSW
DCLOSE
EJECTKEY
ILL1
ILL2
RESET
INDICATOR
EXSO
EXCSK
EXMODE
DATA
EXCK
IC701
M62007FP
H-BUS
14P
KEYBOARD UNIT
DOORSW
ILPOW
EJECT
ILL1
ILL2
ILL
Q904
Q903
Q905
Q712
Q723
Q713
Q705
ILL POWER
Q706
Q707
Q726
Q725
Q724
Q703
Q720
LED DRIVER
IC901 BU2092FV
DATA
CLK
MODE
KEY DATA
CN103
CN901
CN701

3.2 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".



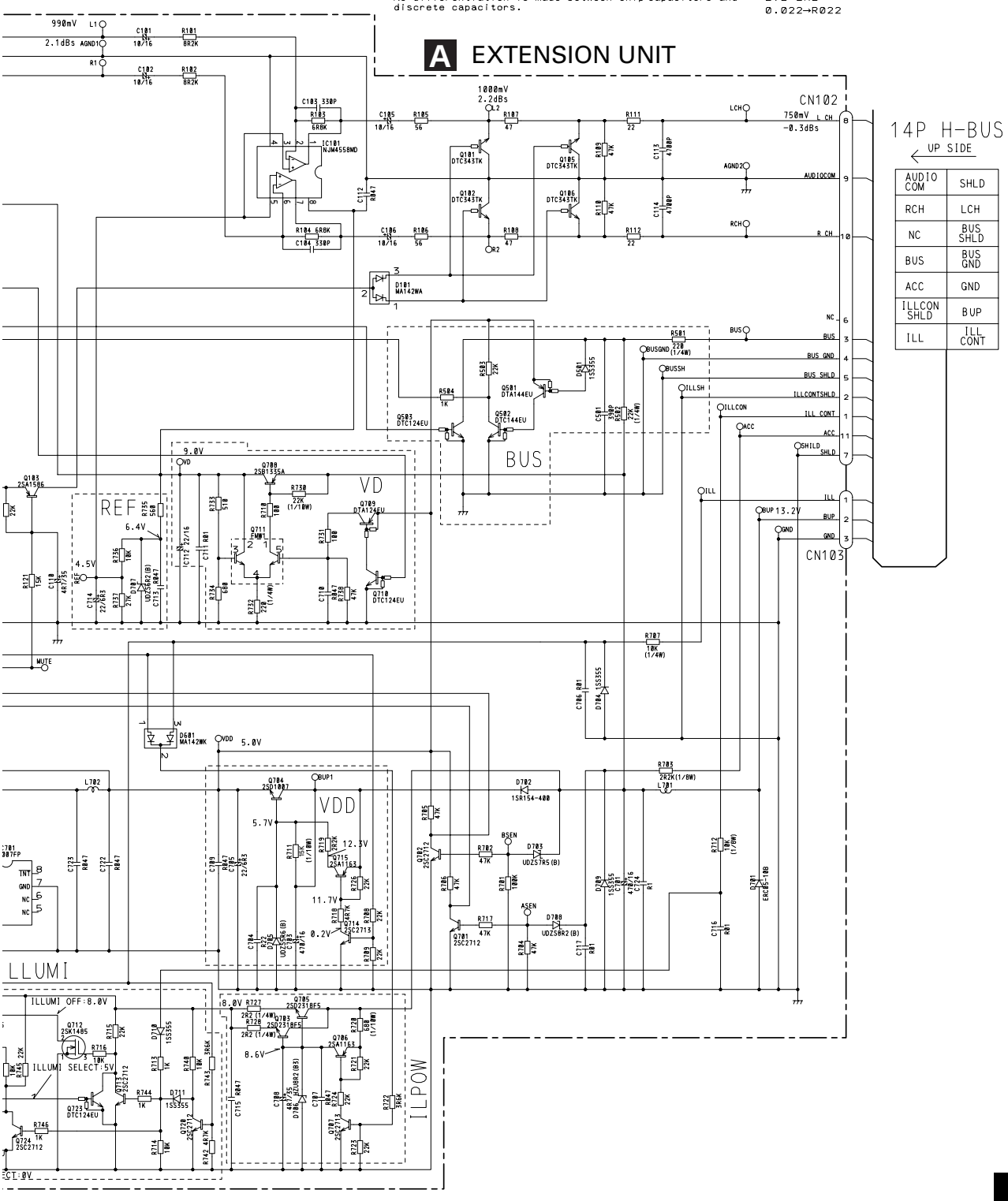


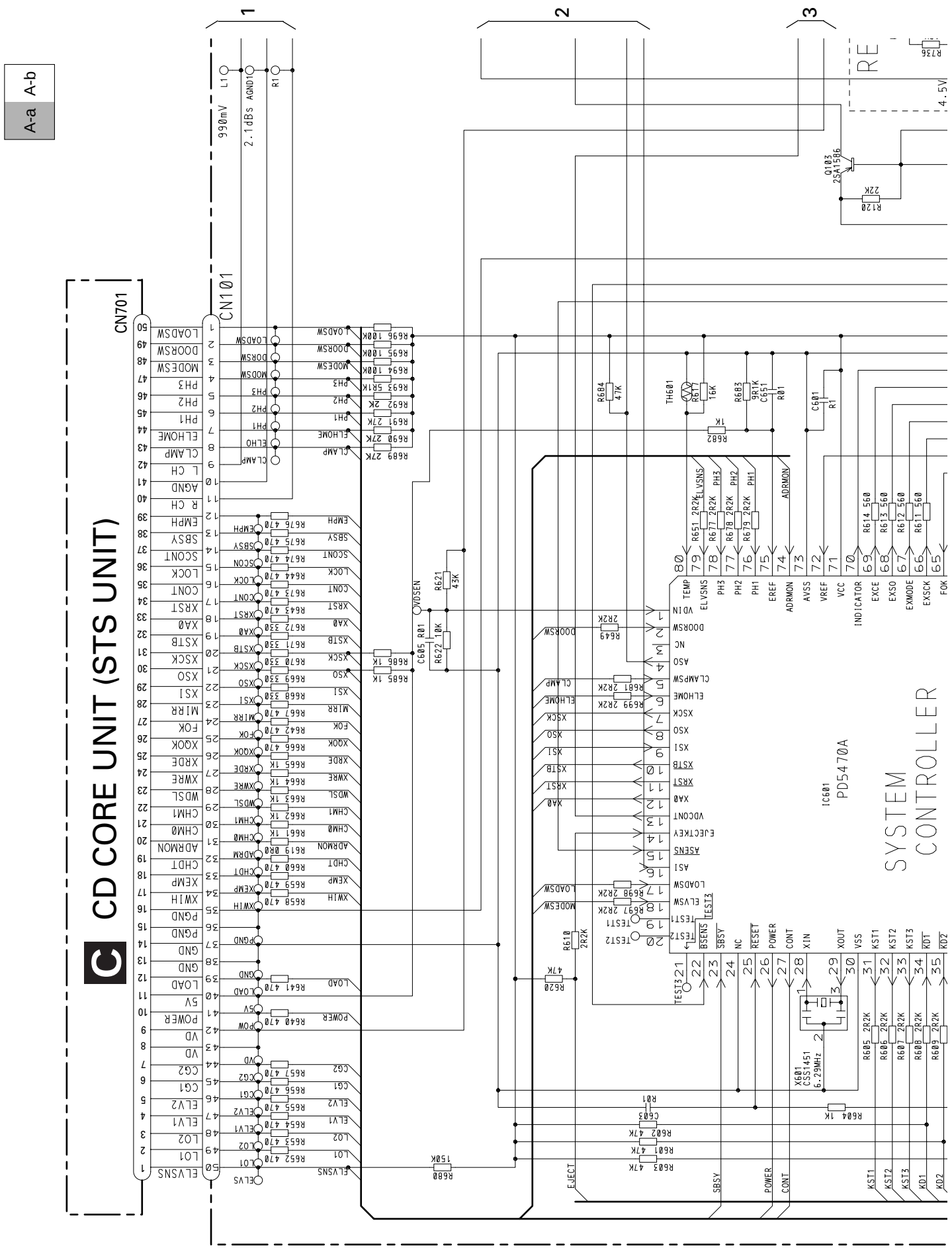
A B

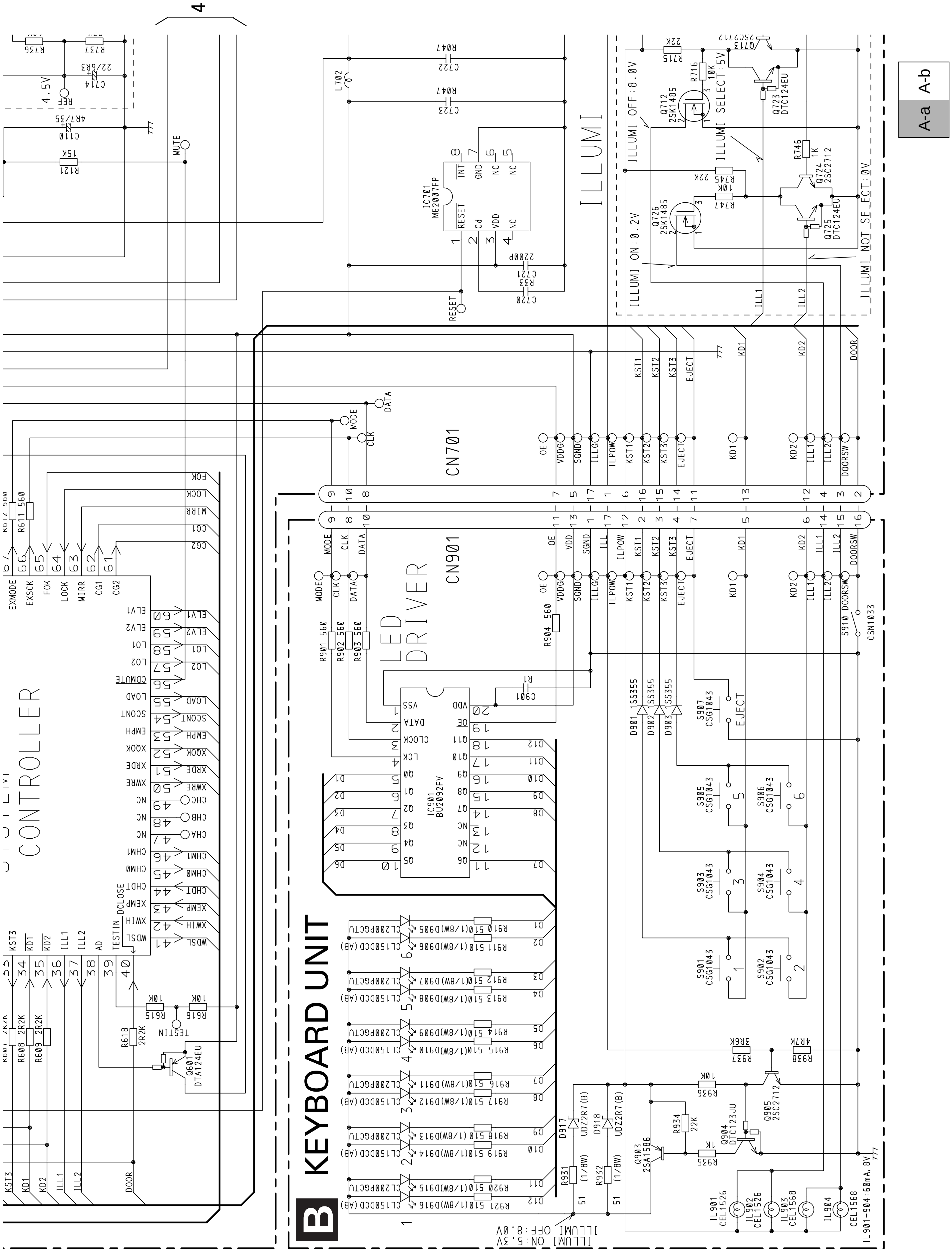
A-b

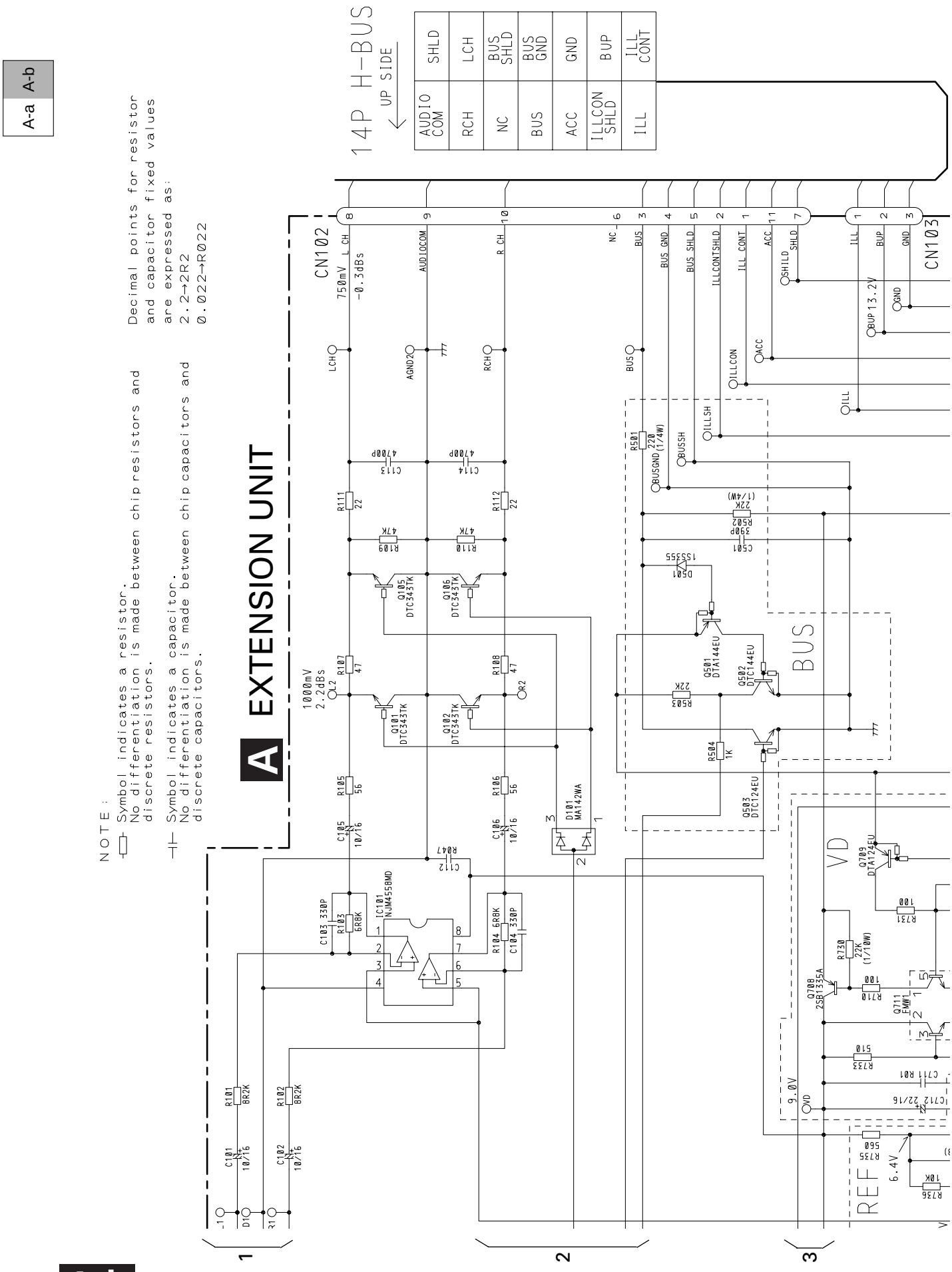
NOTE:
- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022




A-b
A-a
CD CORE UNIT (STS UNIT)
CN701
CN101
990mV
2.1dBs
AGND
L1
R1
SYSTEM CONTROLLER
IC601
PD5470A
X601
6.29MHz
Q103
2SA1586
TH601
EJECT
SBSY
POWER
CONT
KST1
KST2
KST3
KD1
KD2


B KEYBOARD UNIT
CONTROLLER
LED DRIVER
CN701
CN901
ILLUMI
IC701 M62007FP
IC901 BU2092FV
A-a B

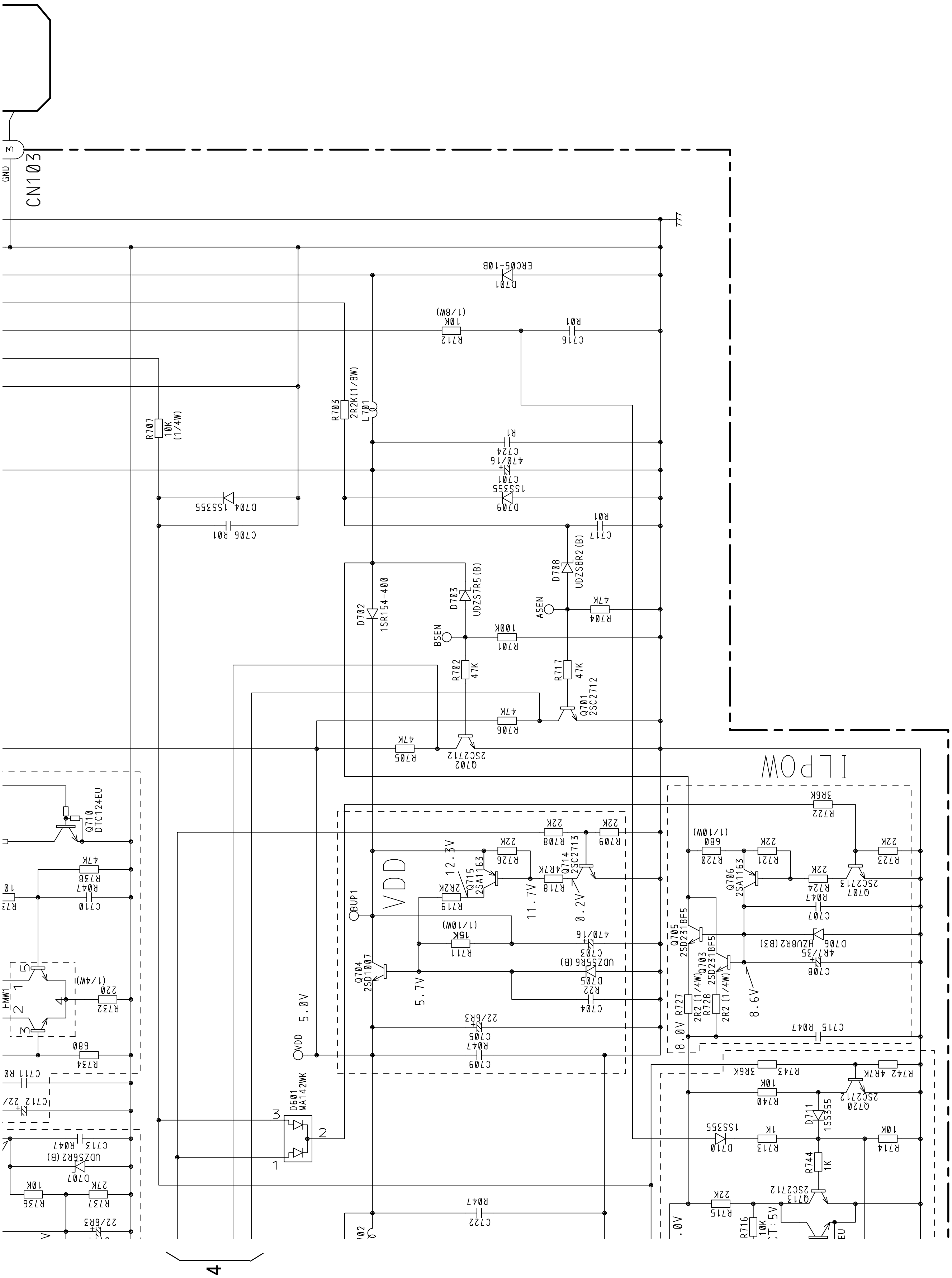

A-a A-b
14P H-BUS
UP SIDE
AUDIO COM
RCH
NC
BUS
ACC
ILLCON SHLD
ILL
SHLD
LCH
BUS SHLD
BUS GND
GND
BUP
ILL CONT
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022
NOTE:
Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.
A EXTENSION UNIT
CN102
CN103
750mV -0.3dBs
1000mV 2.2dBs
BUS
VD
REF
9.0V
6.4V

A

B

C

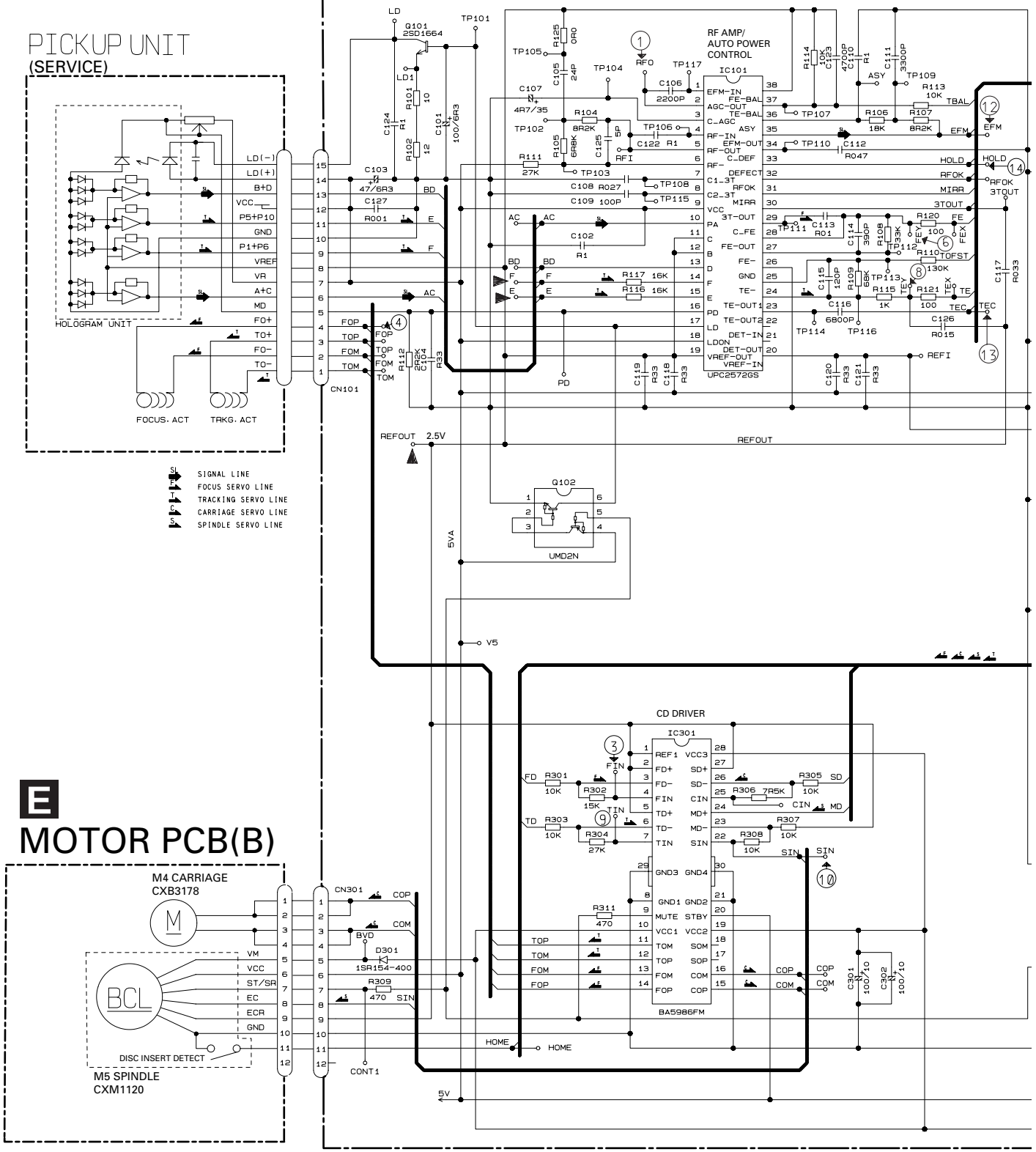
D


CN103
GND
ERC05-10B
D701
R712
10K
(1/8W)
C716
R01
R703
2R2K(1/8W)
L701
R707
10K
(1/4W)
C724
470/16
C701
1SS355
D709
D704 1SS355
C706 R01
C717
D708
UDZS8R2(B)
D703
UDZS7R5(B)
D702
1SR154-400
ASEN
BSEN
R704
47K
R701
100K
R702
47K
R717
Q701
2SC2712
R706
R705
Q702
2SC2712
ILPOW
VDD
BUP1
Q715
2SA1163
Q714
2SC2713
12.3V
11.7V
0.2V
5.7V
5.0V
8.6V
8.0V
Q704
2SD1007
Q705
2SD2318F5
Q703
2SD2318F5
Q706
2SA1163
Q707
2SC2713
Q710
DTC124EU
D601
MA142WK
D705
UDZS5R6(B)
D706
HZU8R2(B3)
D707
UDZS8R2(B)
D710
D711
1SS355
Q720
2SC2712
Q713
2SC2712
R744
1K
R716
10K
MW1

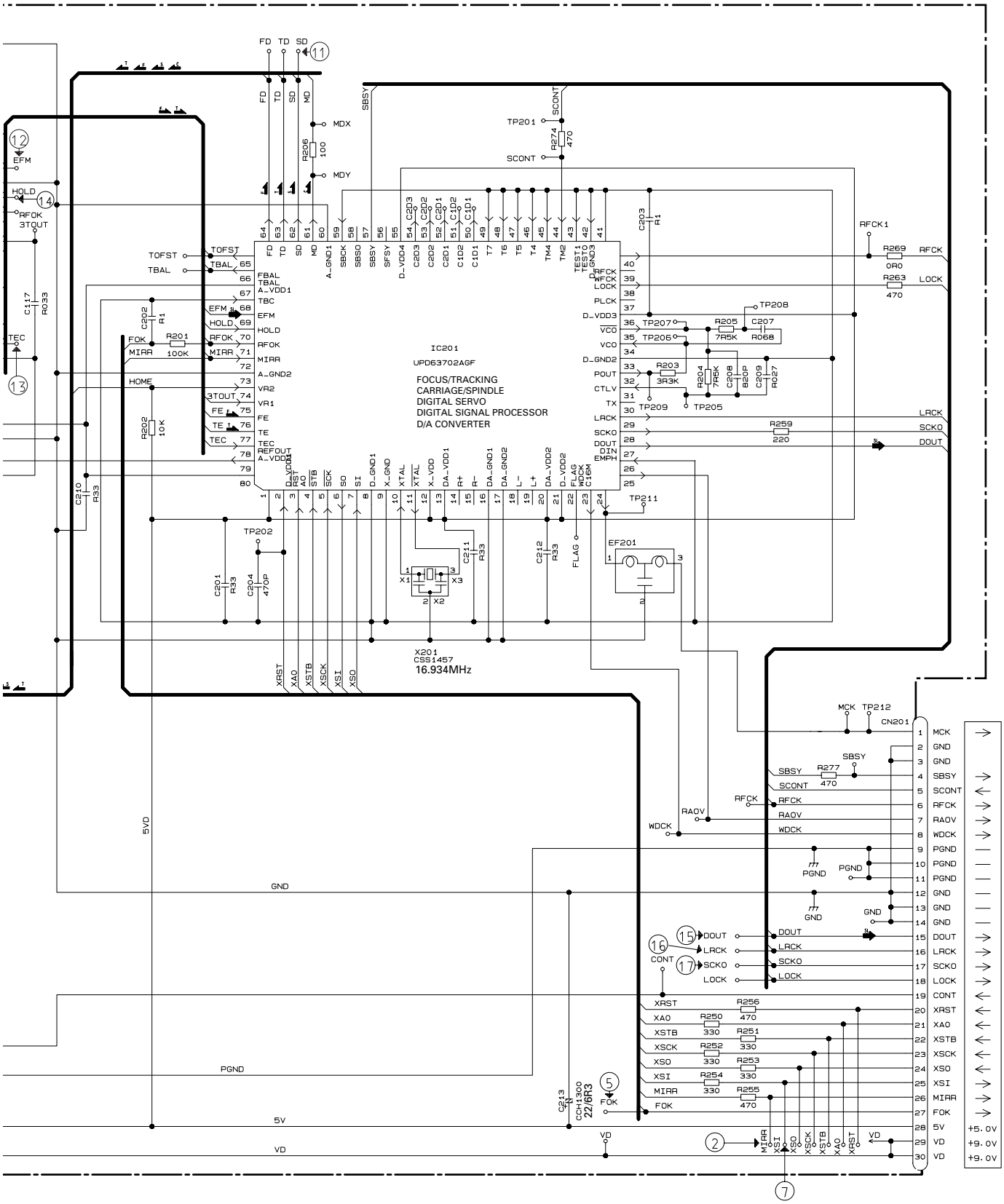
4

3.2 CD CORE UNIT(SERVO UNIT)

C CD CORE UNIT(SERVO UNIT)

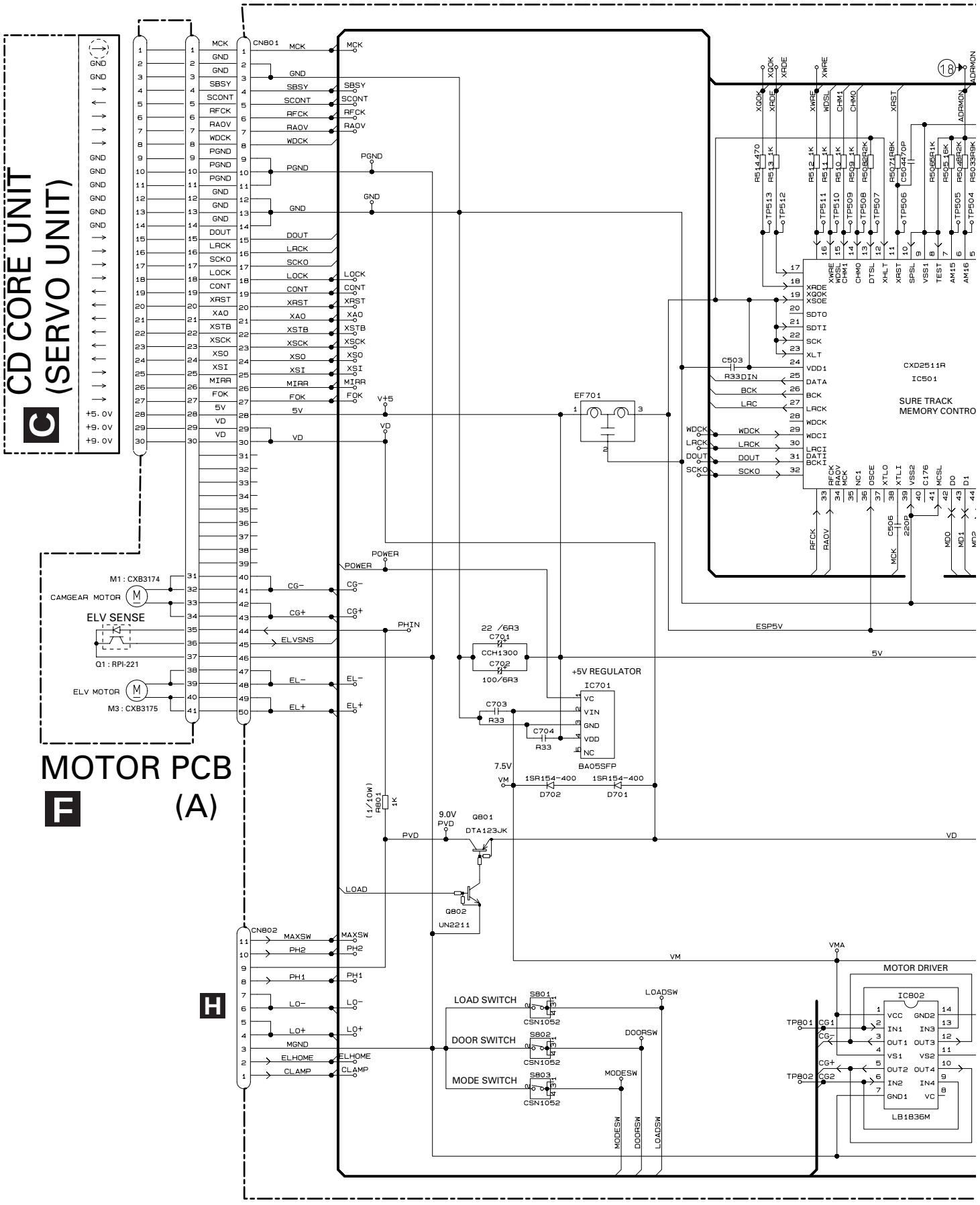


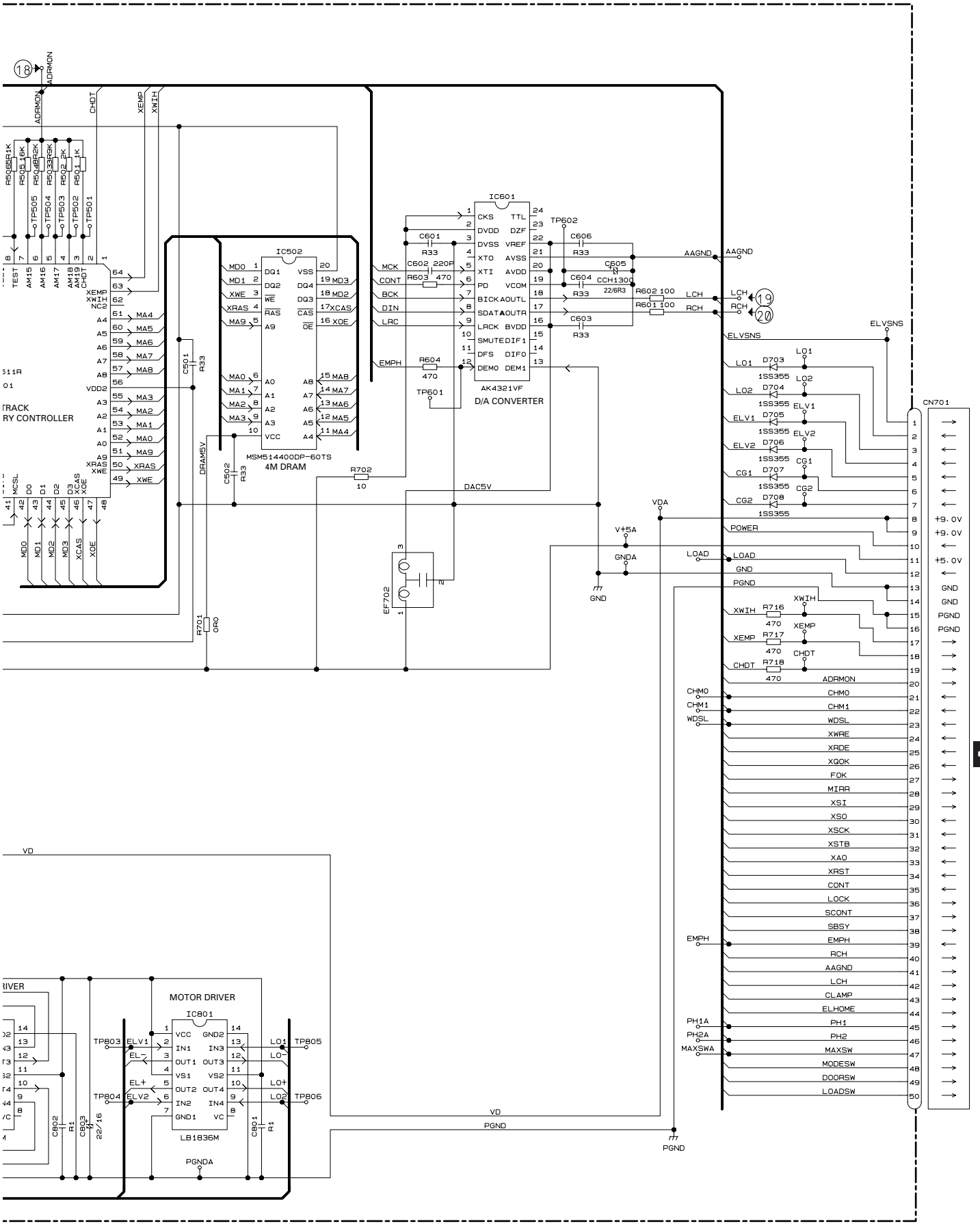
E MOTOR PCB(B)


IC201
UPD63702AGF
FOCUS/TRACKING
CARRIAGE/SPINDLE
DIGITAL SERVO
DIGITAL SIGNAL PROCESSOR
D/A CONVERTER
X201
CSS1457
16.934MHz
CN201
TP201
TP202
TP205
TP206
TP207
TP208
TP209
TP211
TP212
EF201
MDX
MDY
SCONT
SBSY
RFCK
RAOV
WDCK
LRCK
SCKO
DOUT
LOCK
CONT
XRST
XAO
XSTB
XSCK
XSO
XSI
MIRR
FOK
TOFST
TBAL
FBAL
TBC
EFM
HOLD
RFOK
MIRR
A_GND2
VR2
VR1
FE
TE
TEC
REFOUT
A_VDD1
3TOUT
HOME
5VD
GND
PGND
5V
VD
+5.0V
+9.0V
+9.0V

3.3 CD CORE UNIT(STS UNIT)

D CD CORE UNIT(STS UNIT)

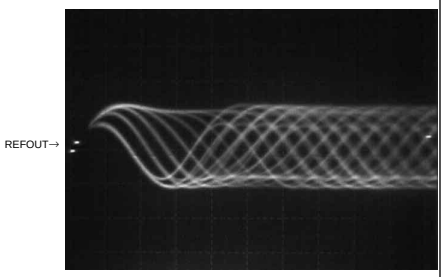



IC601
AK4321VF
D/A CONVERTER
IC502
MSM514400DP-60TS
4M DRAM
MOTOR DRIVER
IC801
LB1836M
CN701
CN101

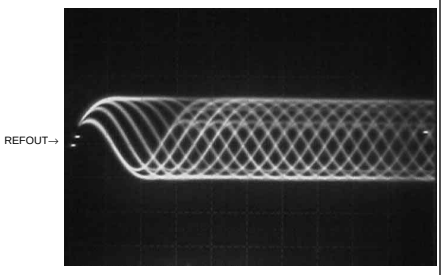
Note:1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
REFOUT:2.5V

● Waveforms

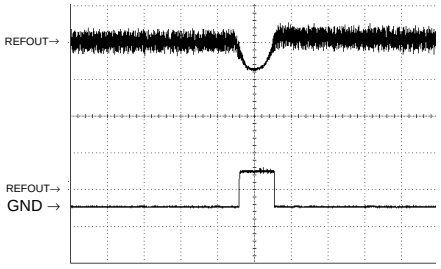
① RFO 0.5V/div. 0.2µs/div.
Normal mode: play



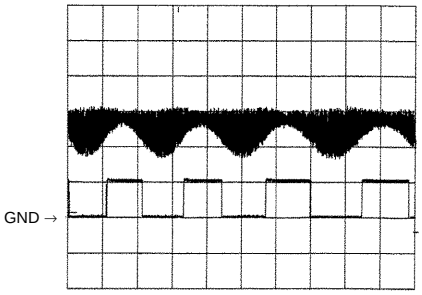
① RFO 0.5V/div. 0.5µs/div.
Test mode



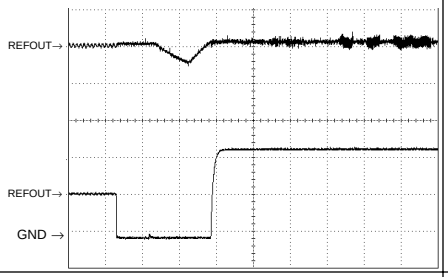
① CH1: RFO 1V/div.
② CH2: MIRR 5V/div. 0.5ms/div.
Normal mode: The defect part passes 500µs/div.



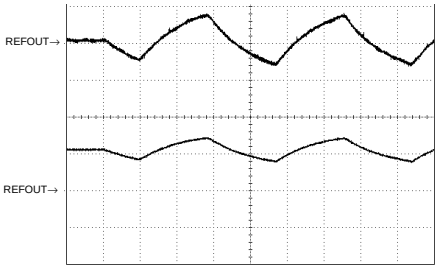
① CH1: RFO 1V/div.
② CH2: MIRR 5V/div. 0.5ms/div.
Test mode: Tracking open



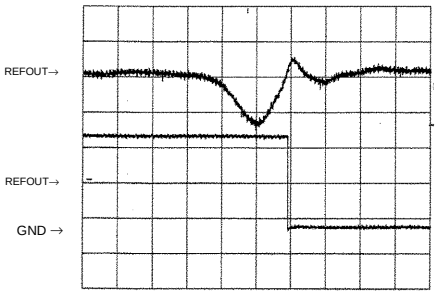
③ CH1: FIN 0.5V/div.
⑤ CH2: FOK 2V/div. 0.2s/div.
Normal mode: Focus close



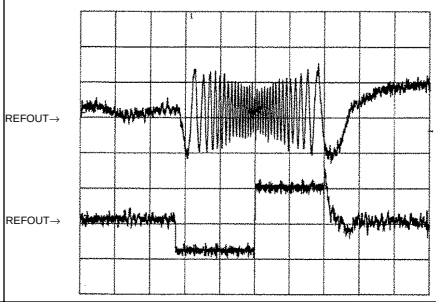
③ CH1: FIN 0.5V/div.
④ CH2: FOP 2V/div. 0.2s/div.
Test mode: No disc, Focus close



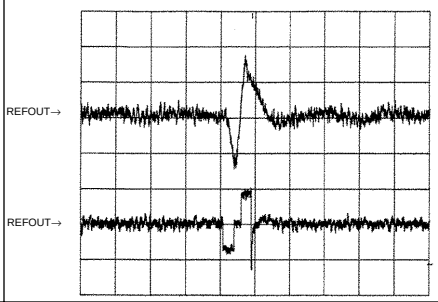
⑥ CH1: FEY 0.5V/div.
⑦ CH2: XSI 2V/div. 1ms/div.
Normal mode: Focus close



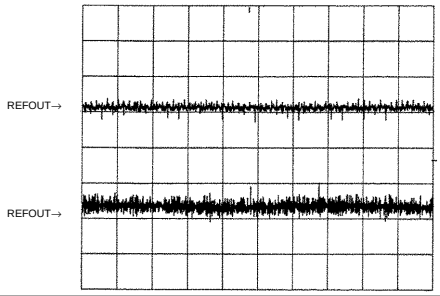
⑧ CH1: TEY 0.5V/div.
⑨ CH2: TIN 0.5V/div. 0.5ms/div.
Test mode: 32 tracks jump (FWD)



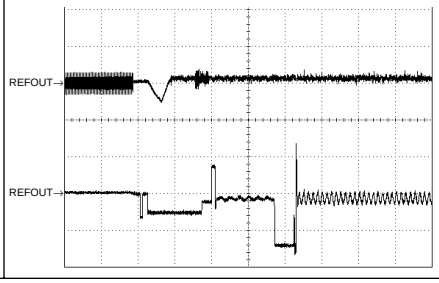
⑧ CH1: TEY 0.5V/div.
⑨ CH2: TIN 0.5V/div. 0.5ms/div.
Test mode: Single jump (FWD)



⑥ CH1: FEY 0.1V/div.
③ CH2: FIN 0.2V/div. 20ms/div.
Normal mode: Play

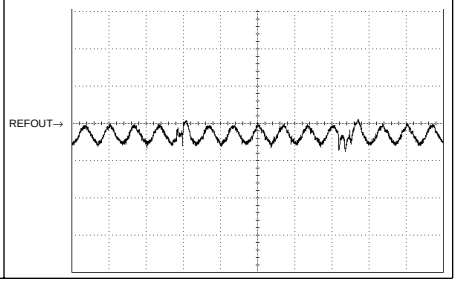


③ CH1: FIN 0.5V/div.
⑩ CH2: SIN 1V/div. 0.5s/div.
Normal mode: Focus close

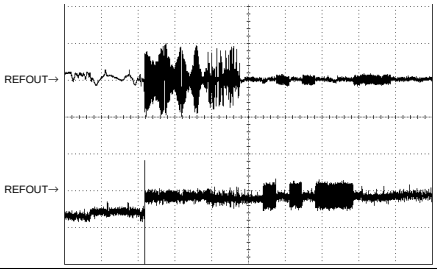


⑩ SIN 0.5V/div. 0.1s/div.

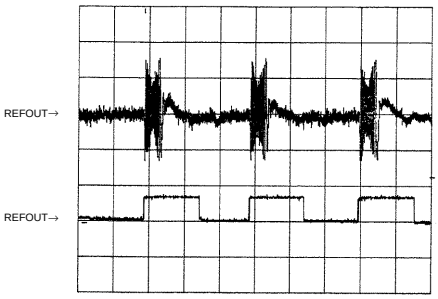
Normal mode: Play



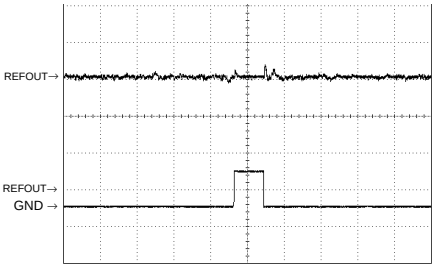
⑧ CH1: TEY 0.5V/div.
⑥ CH2: FEY 0.1V/div. 0.2s/div.
Normal mode: AGC after focus close



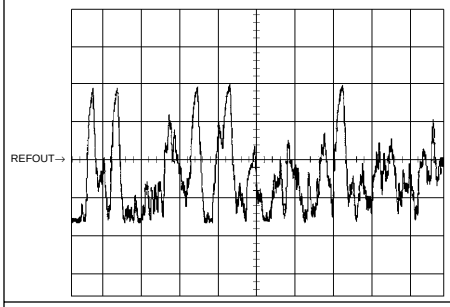
⑧ CH1: TEY 0.5V/div.
⑪ CH2: SD 0.5V/div. 5ms/div.



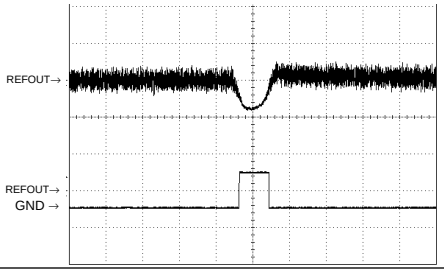
③ CH1: FIN 1V/div.
⑭ CH2: HOLD 5V/div. 500µs/div.
Normal mode: The defect part passes 800µm



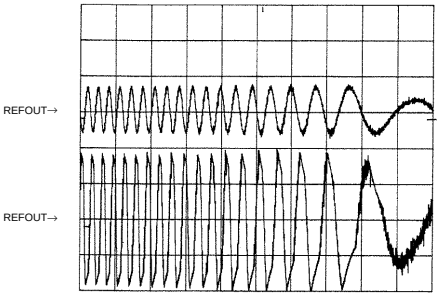
⑩ SIN 1V/div. 10ms/div.
Long Search



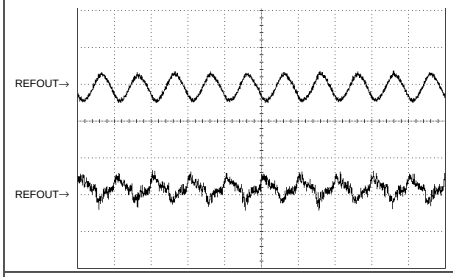
① CH1: RFO 1V/div.
⑭ CH2: HOLD 5V/div. 500µs/div.
Normal mode: The defect part passes 800µm



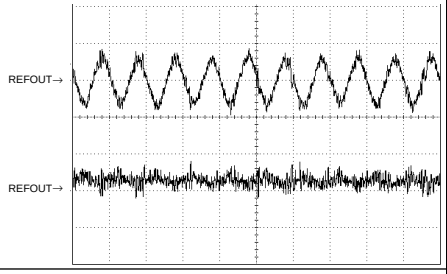
⑧ CH1: TEY 1V/div.
⑬ CH2: TEC 1V/div. 2ms/div.
Test mode: Focus close
Tracking open



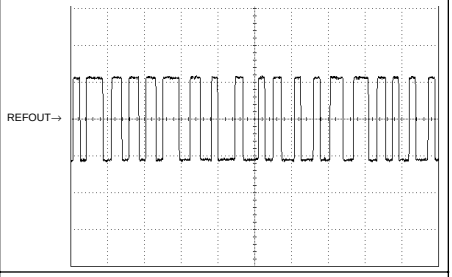
⑥ CH1: FEY 0.2V/div.
③ CH2: FIN 0.5V/div. 1ms/div.
Normal mode: During AGC



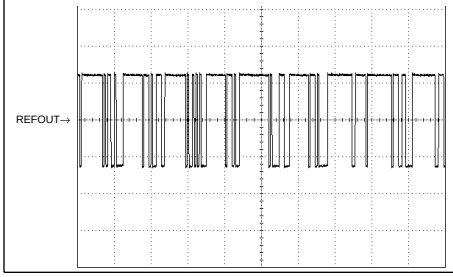
⑧ CH1: TEY 0.2V/div.
⑨ CH2: TIN 0.5V/div. 1ms/div.
Normal mode: During AGC



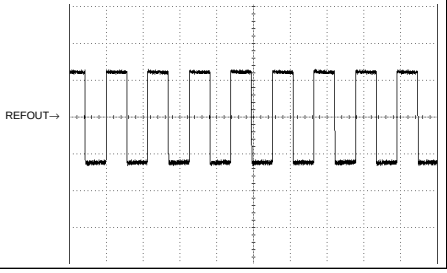
⑫ EFM 1V/div. 2µs/div.
Play



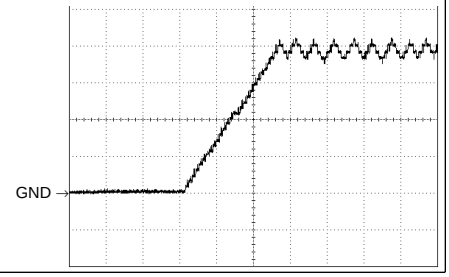
⑮ Dout 2V/div. 5µs/div.
Play

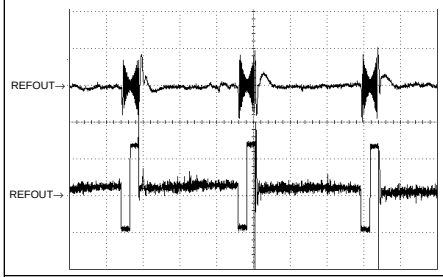
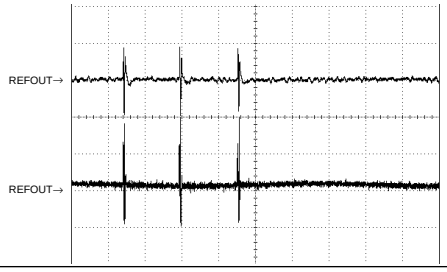
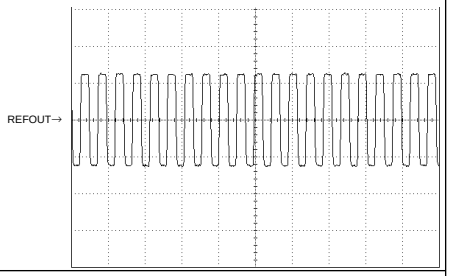
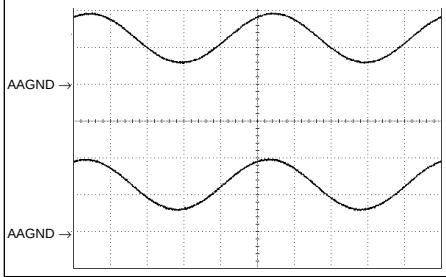


⑯ LRCK 2V/div. 10µs/div.

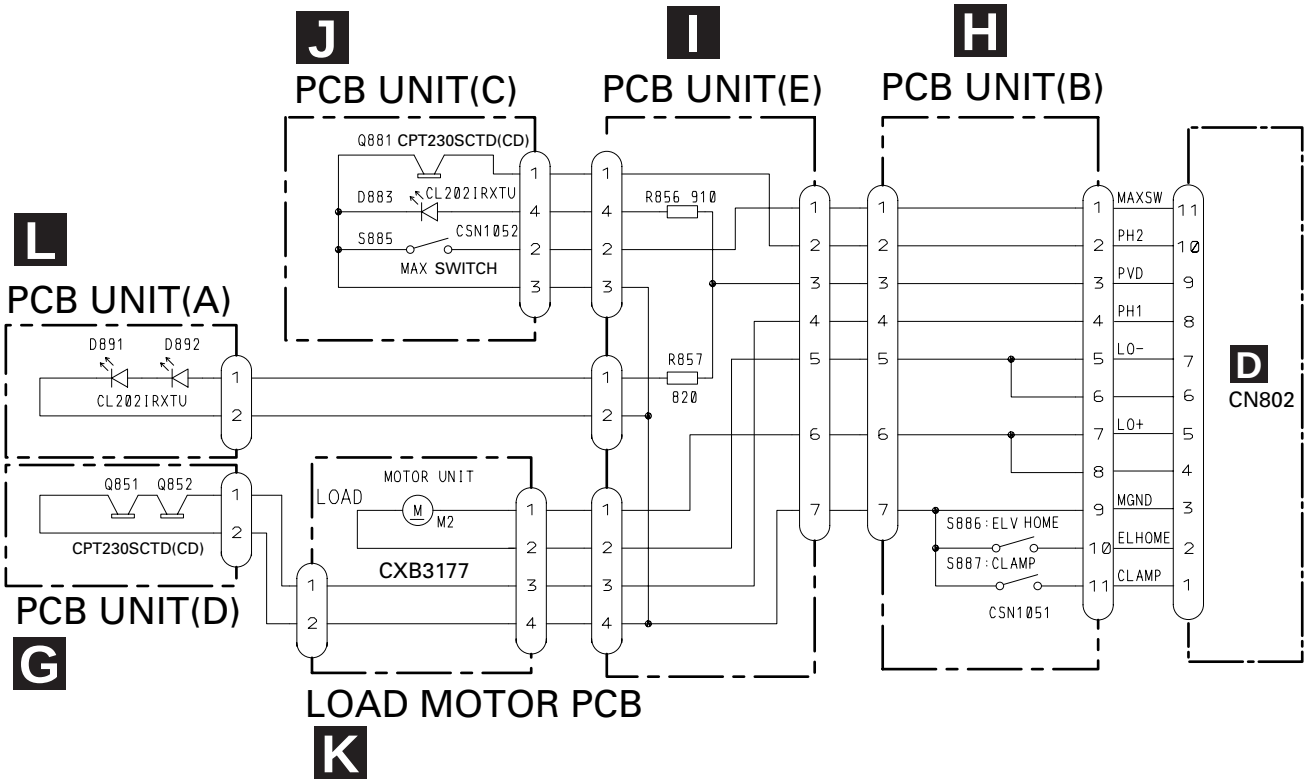


⑱ ADRMON 1V/div. 1s/div.
Normal mode: Starting play



⑧ CH1: TEY 0.5V/div. ⑨ CH2: TIN 0.5V/div. 5ms/div. Test mode: 100 tracks jump(FWD) 	⑧ CH1: TEY 0.5V/div. ⑨ CH2: TIN 0.5V/div. 10ms/div. Normal mode: Play 	⑰ SCKO 2V/div. 500ns/div. Play 
⑳ CH1: RCH 2V/div. ⑲ CH2: LCH 2V/div. 200µs/div. Normal mode: PLAY (0dB,1kHz) 		

3.4 PCB UNIT(A,B,C,D,E), LOAD MOTOR PCB

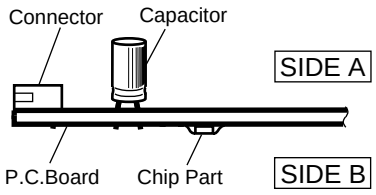


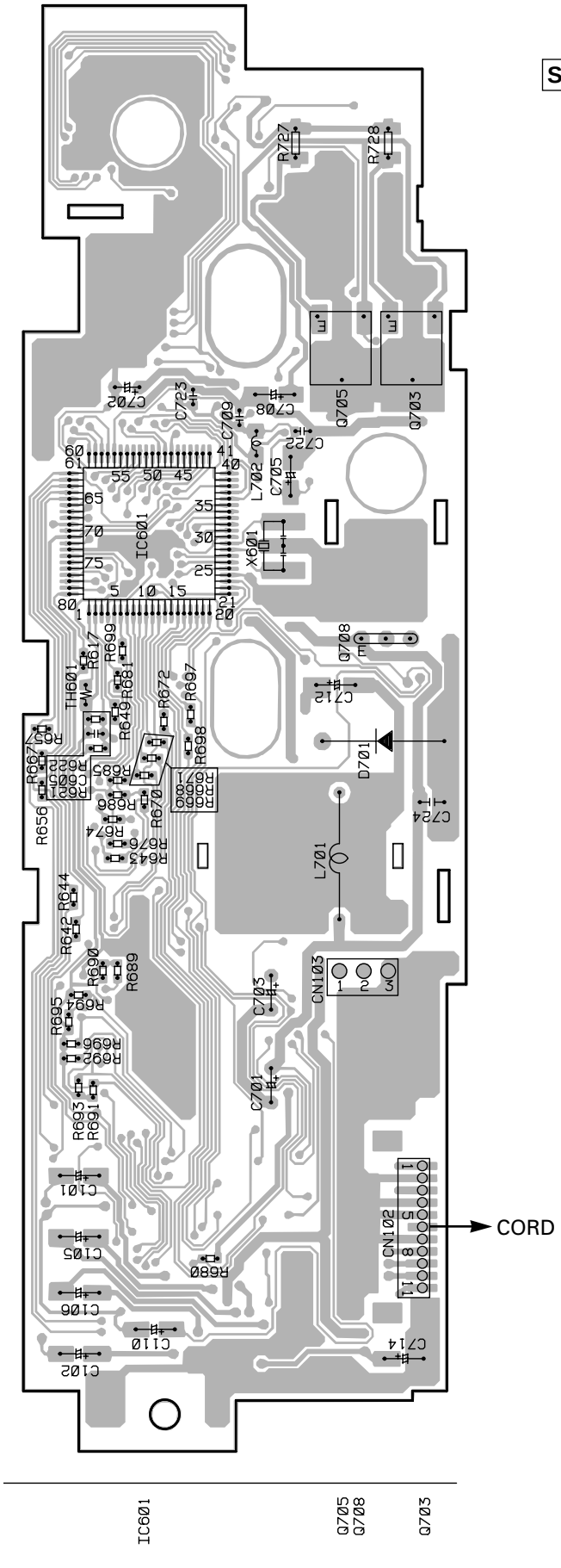
4. PCB CONNECTION DIAGRAM

4.1 EXTENSION UNIT

NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams

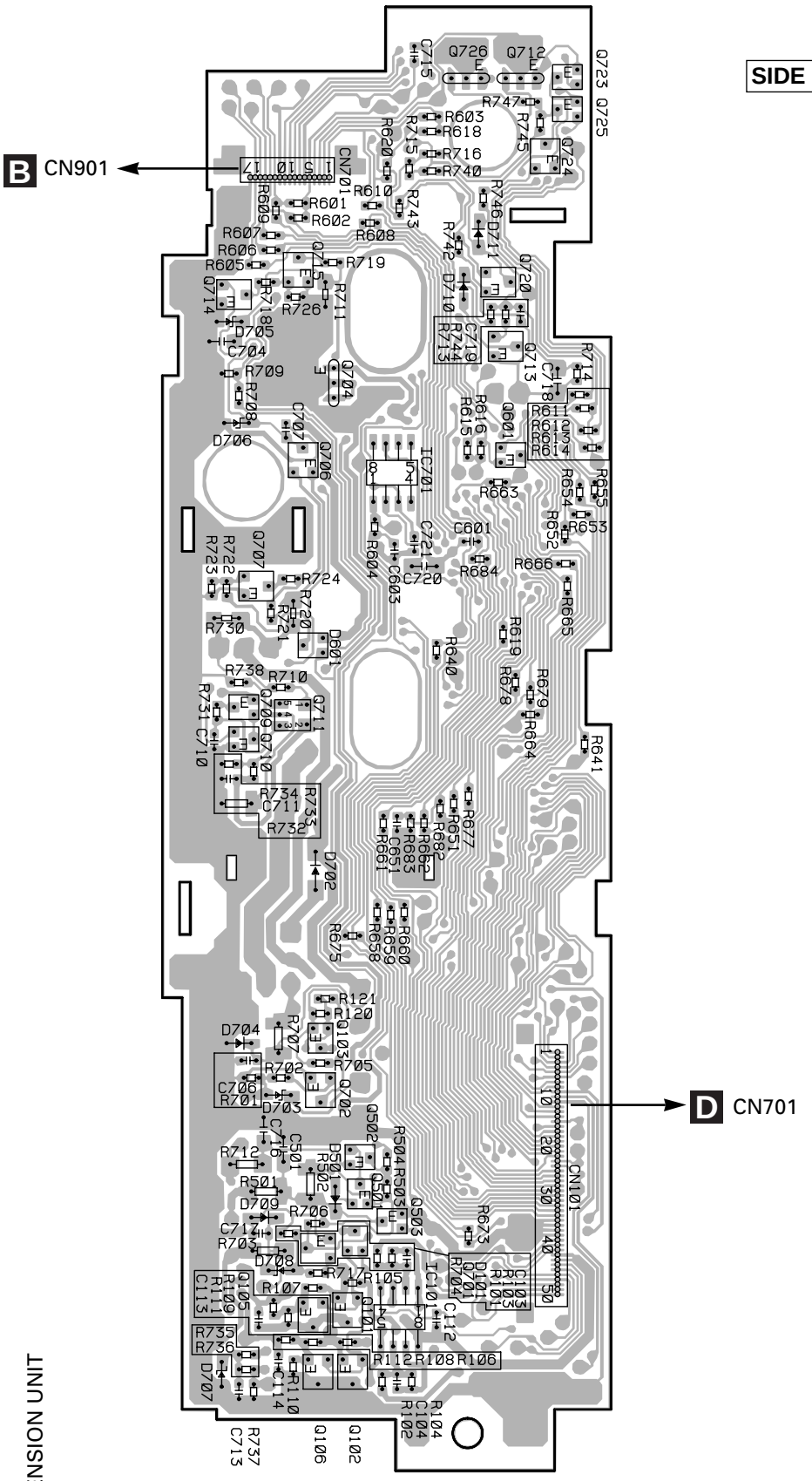




EXTENSION UNIT

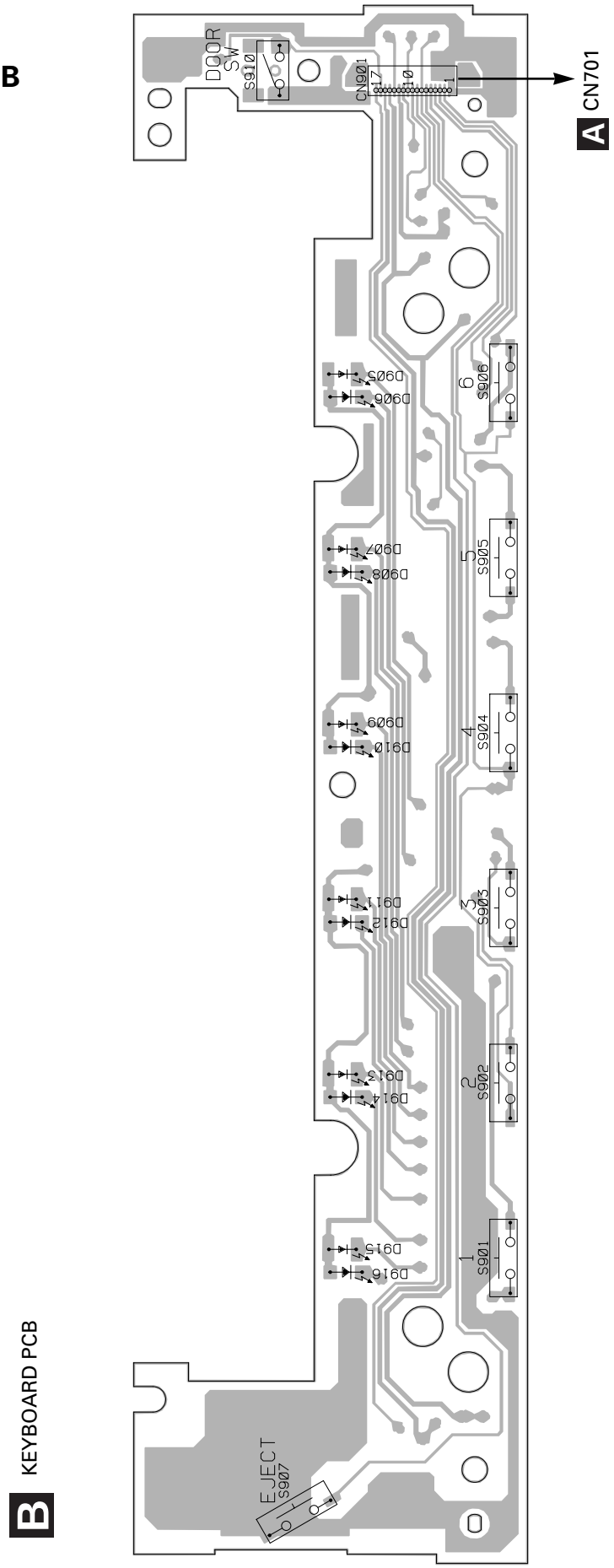
A

SIDE B

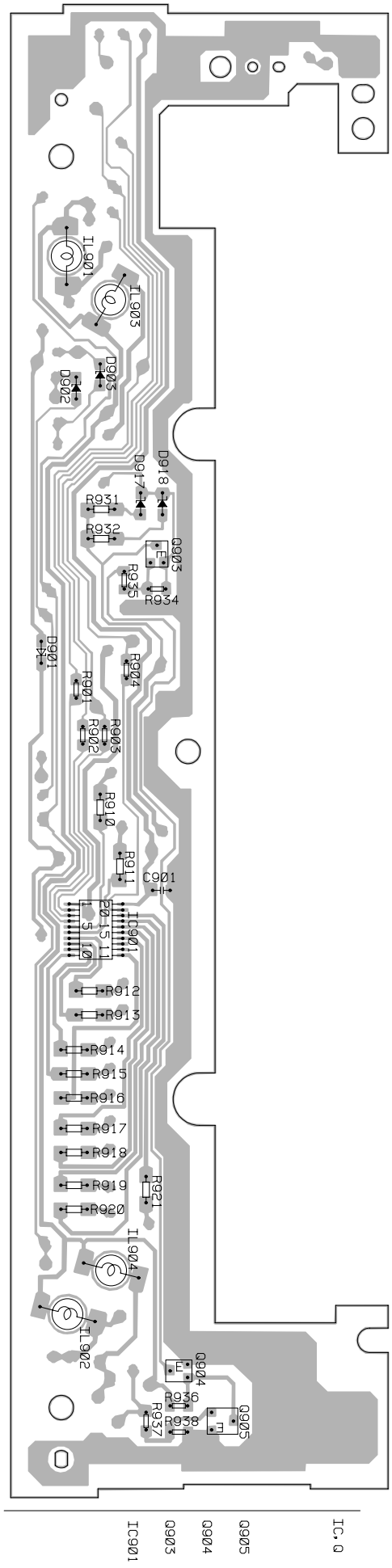


A EXTENSION UNIT

4.2 KEYBOARD PCB



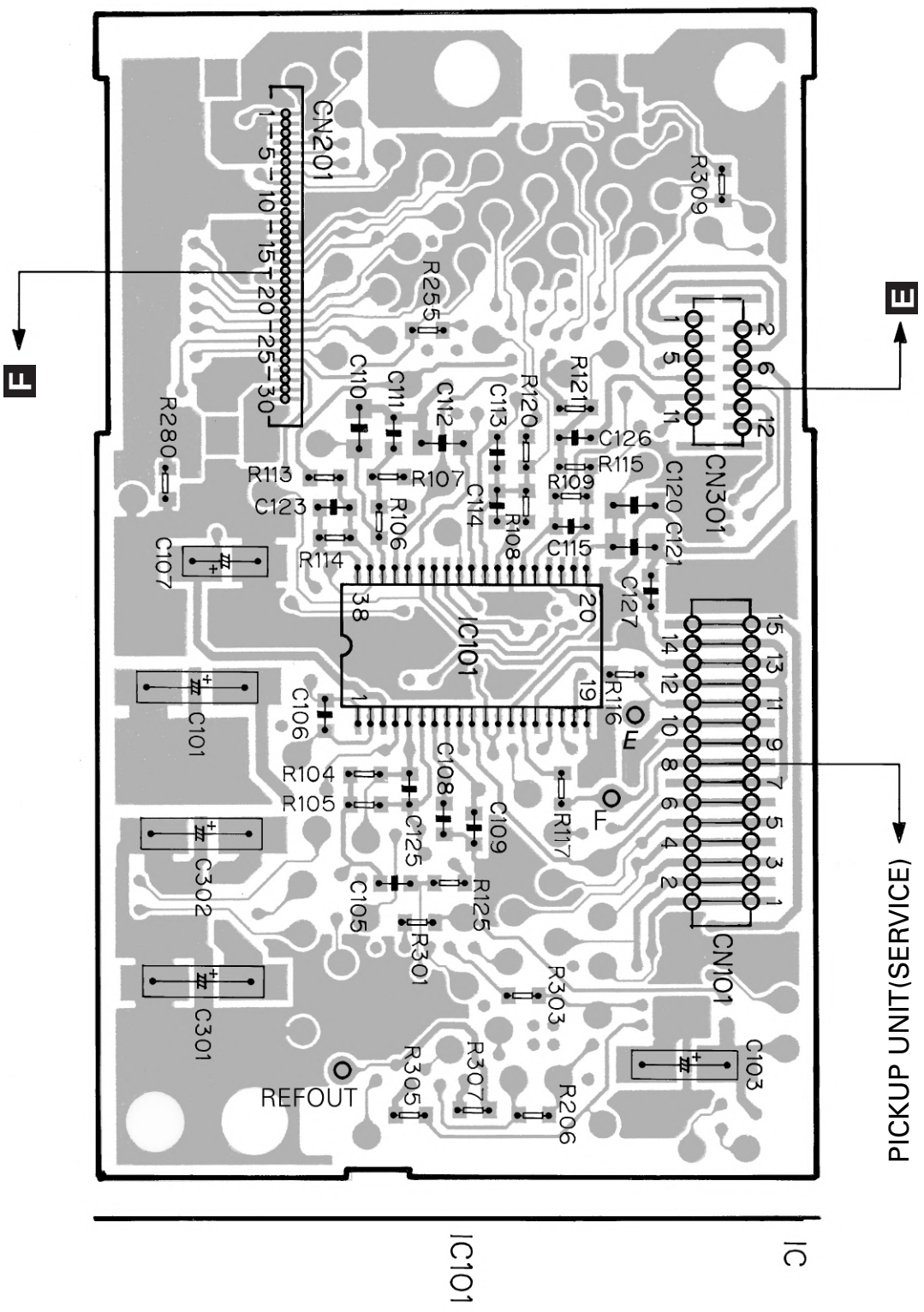
SIDE B



B KEYBOARD PCB

4.3 CD CORE UNIT(SERVO UNIT)

SIDE A



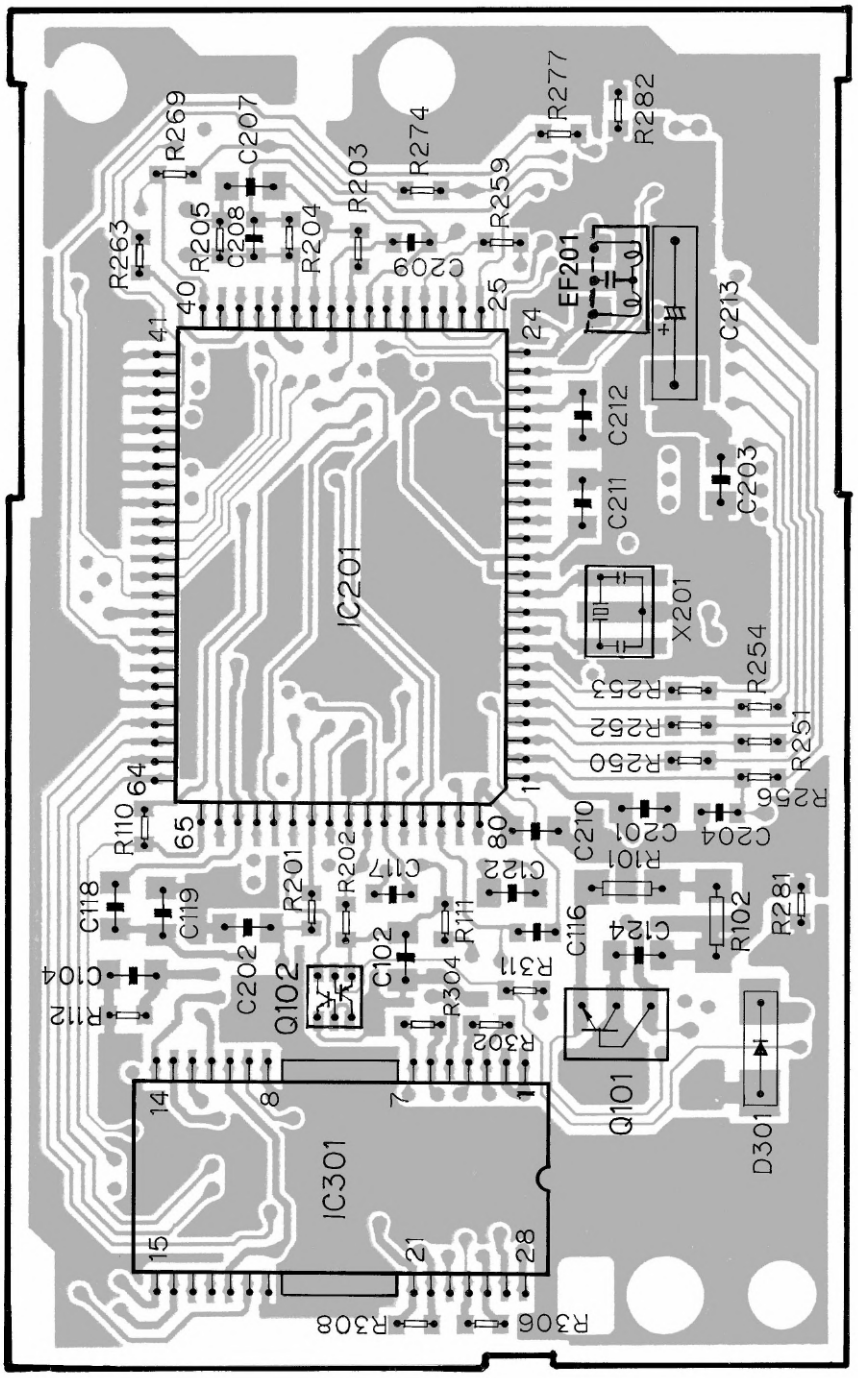
SIDE B

C CD CORE UNIT(SERVO UNIT)

IC, Q

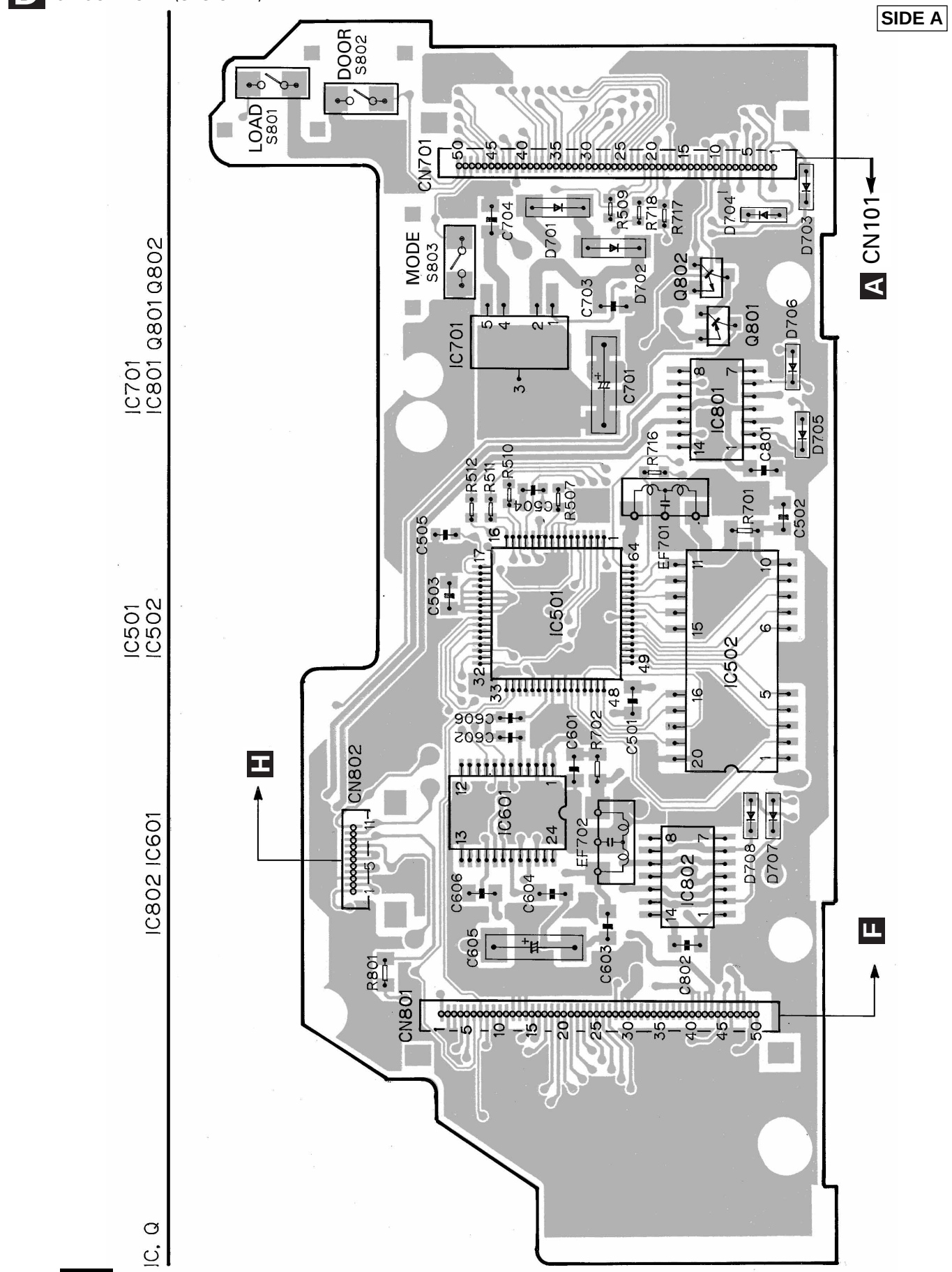
IC301
Q102
IC201

Q101



4.4 CD CORE UNIT(STS UNIT)

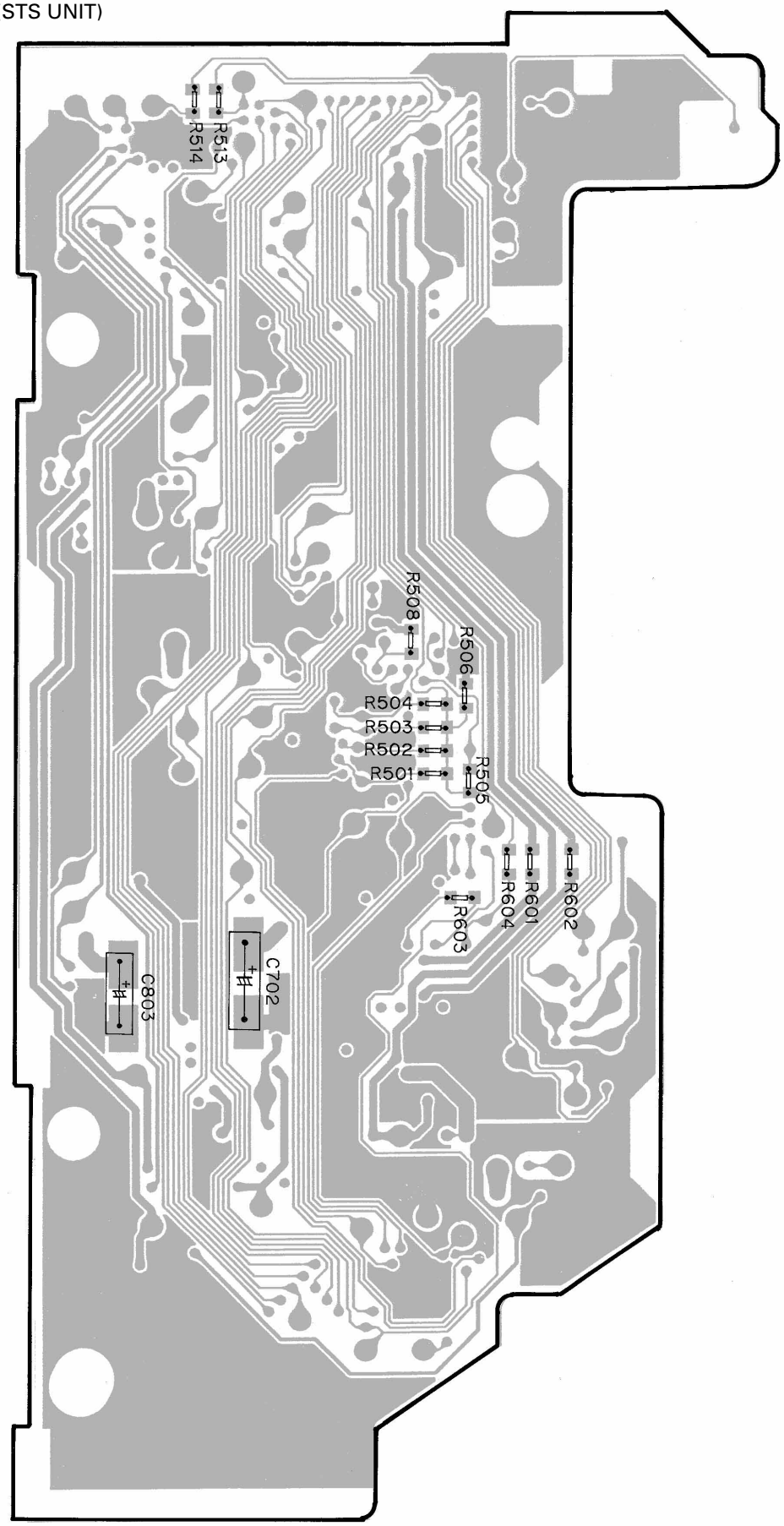
D CD CORE UNIT(STS UNIT)



D

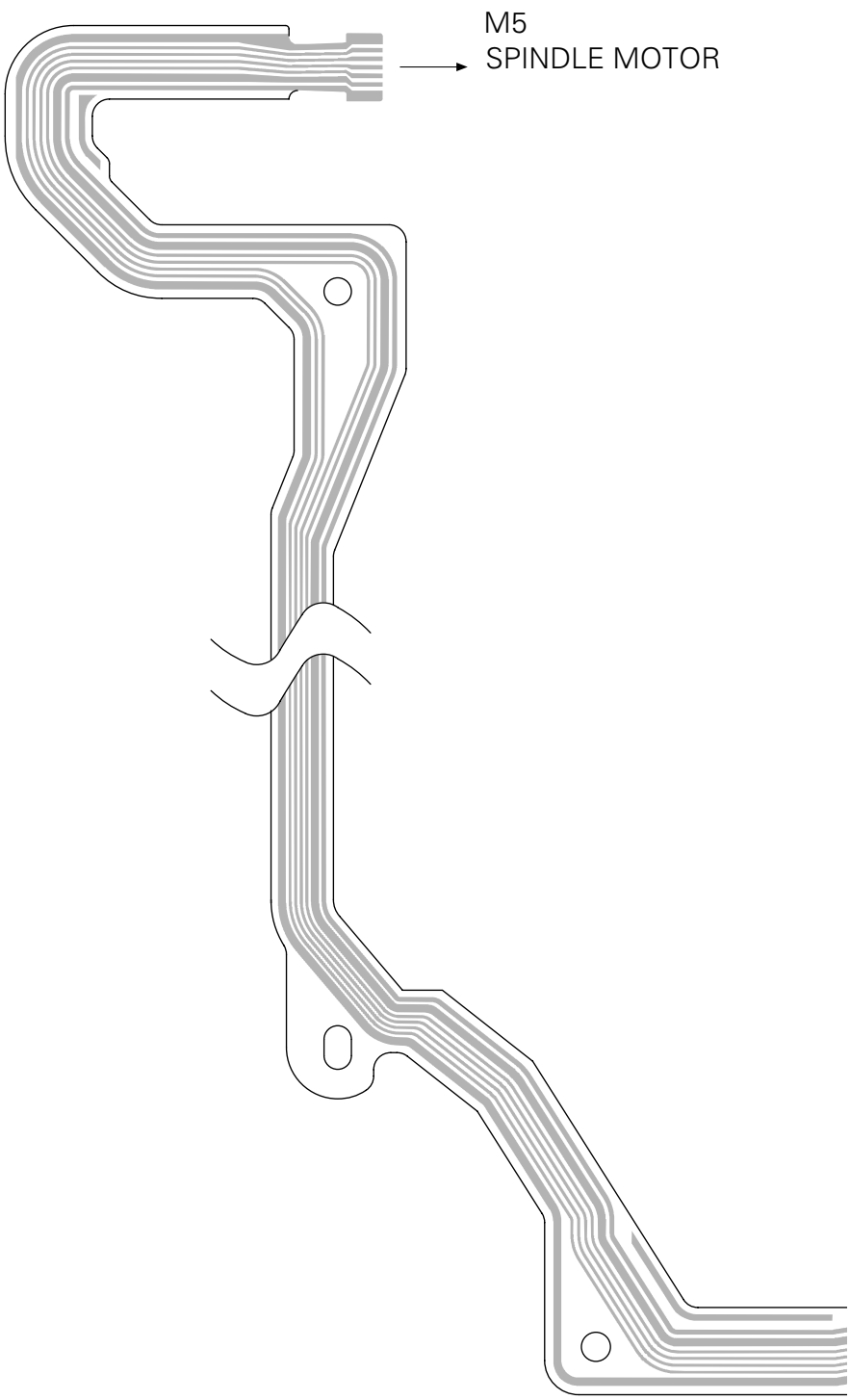
D CD CORE UNIT(STS UNIT)

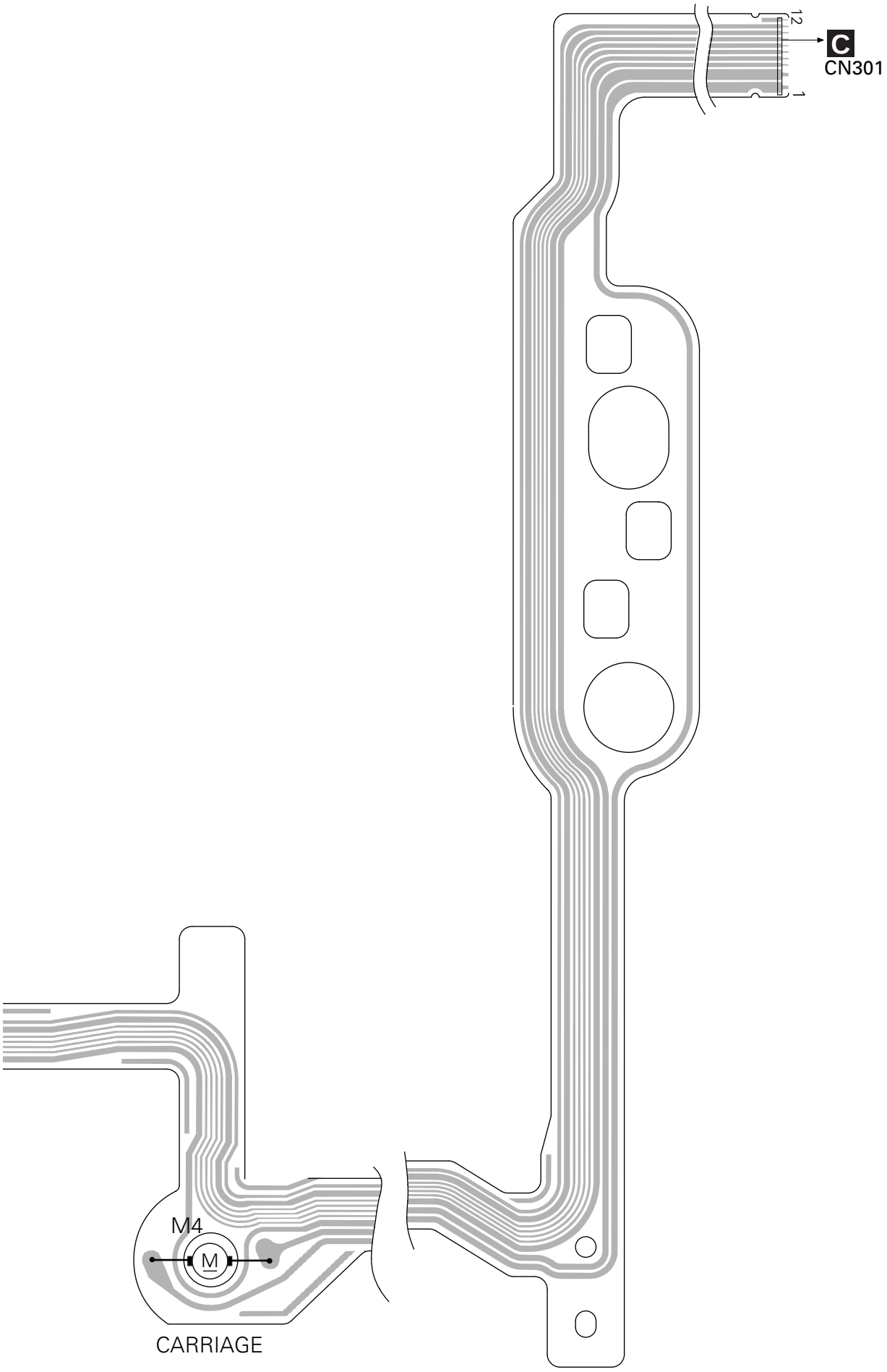
SIDE B



4.5 MOTOR PCB(B)

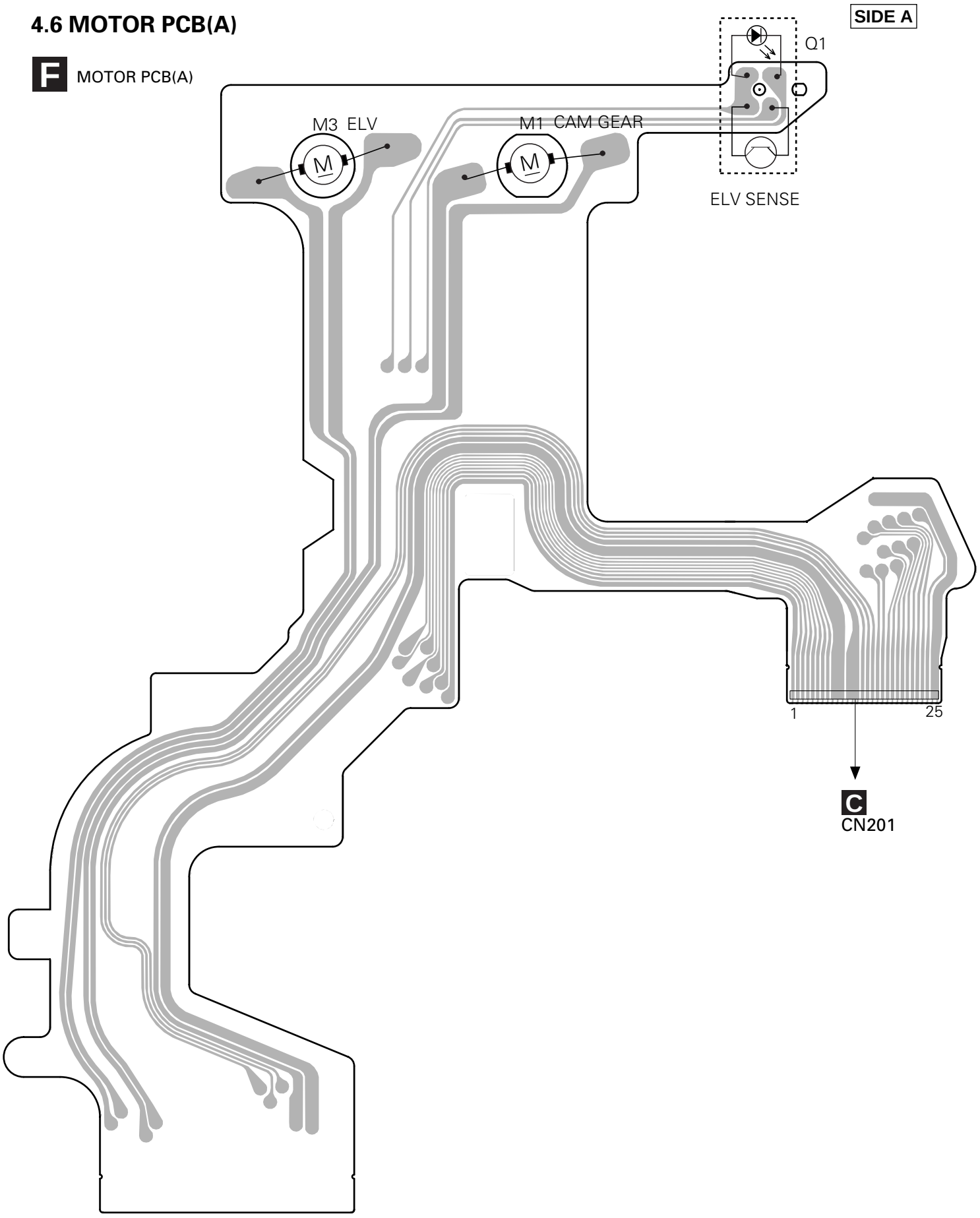
E MOTOR PCB(B)




12
1
C
CN301
M4
M
CARRIAGE

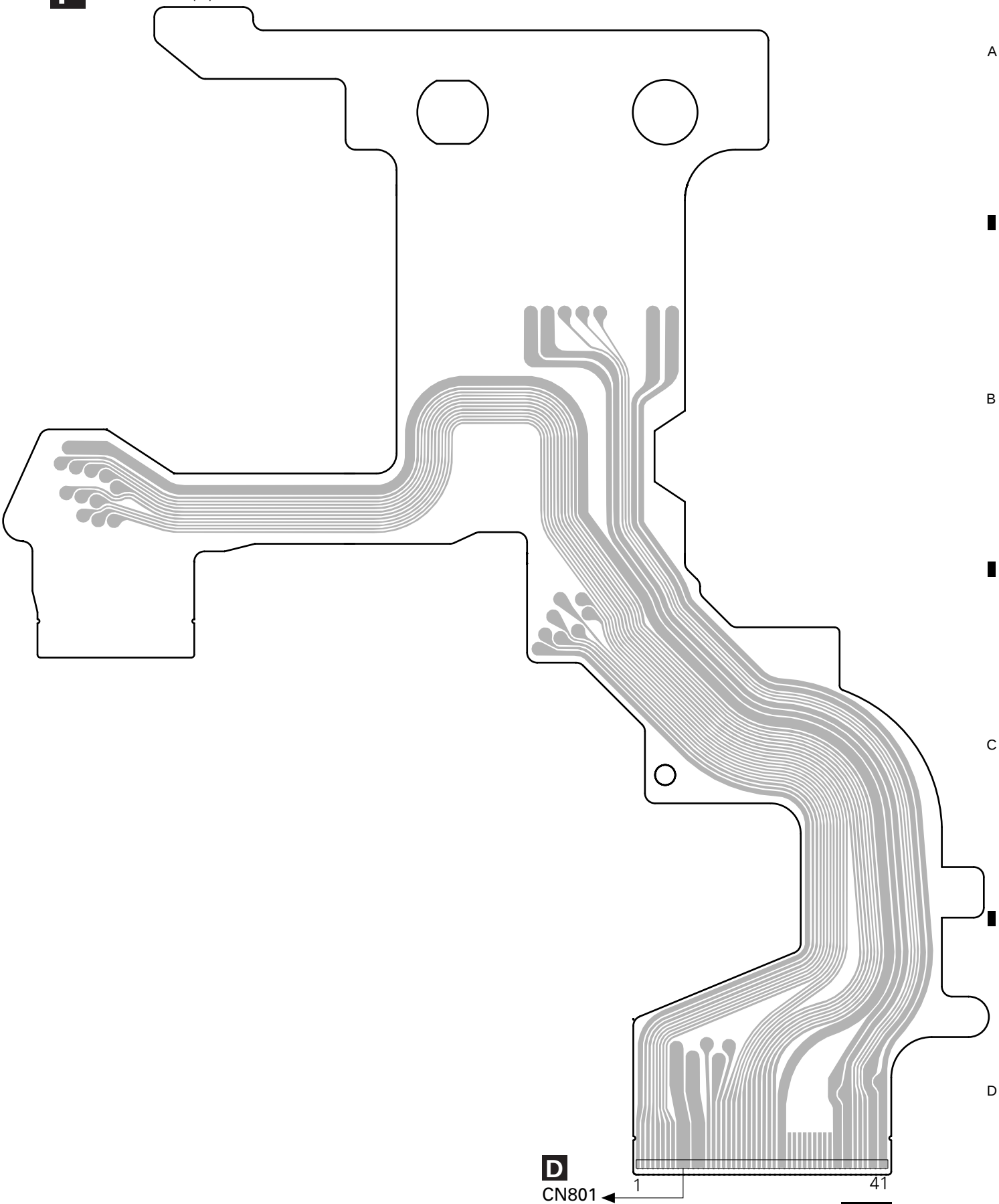
4.6 MOTOR PCB(A)

F MOTOR PCB(A)

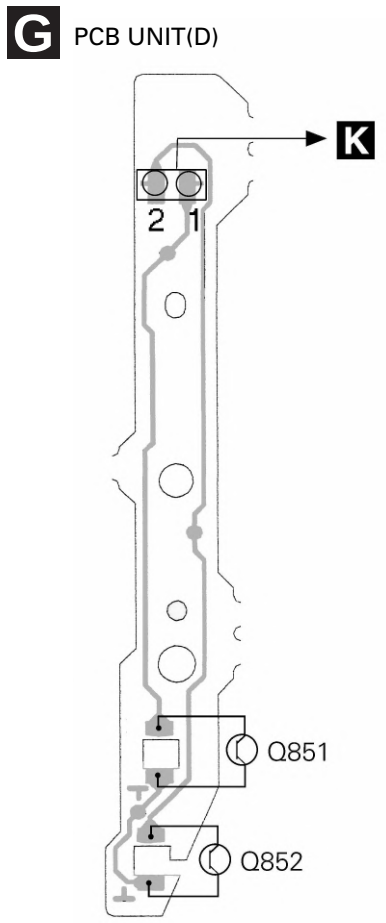


SIDE B

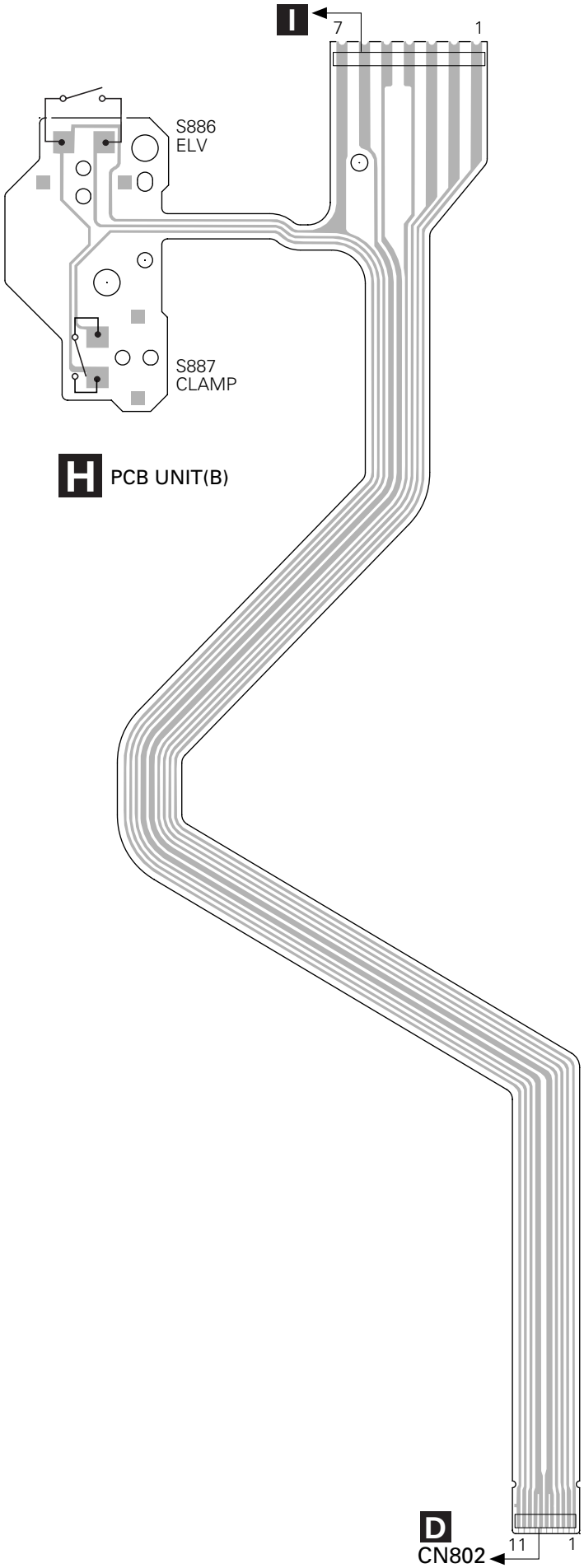
F MOTOR PCB(A)



4.7 PCB UNIT(D)



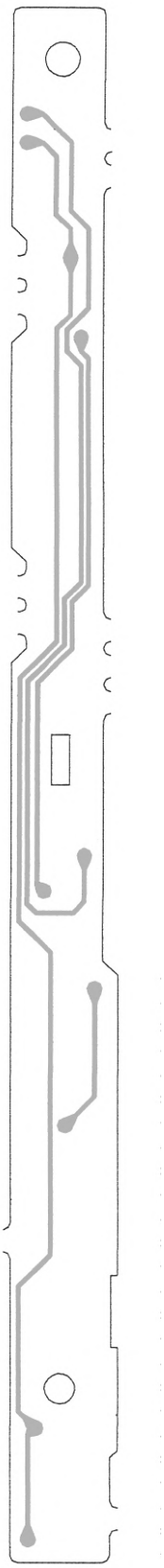
4.8 PCB UNIT(B)



4.9 PCB UNIT(E)

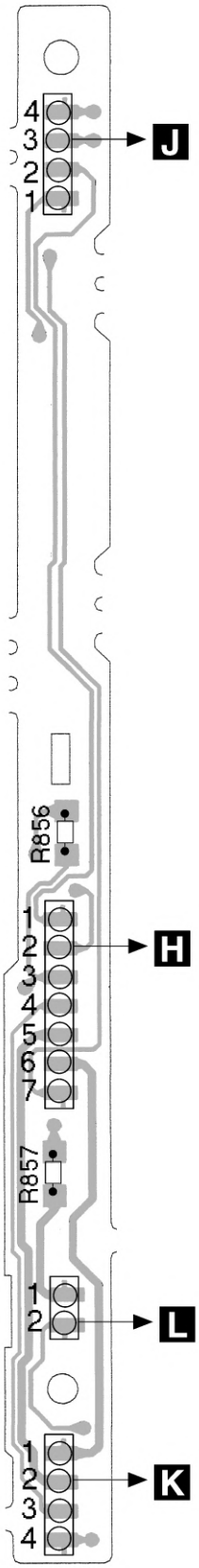
PCB UNIT(E)

SIDE A



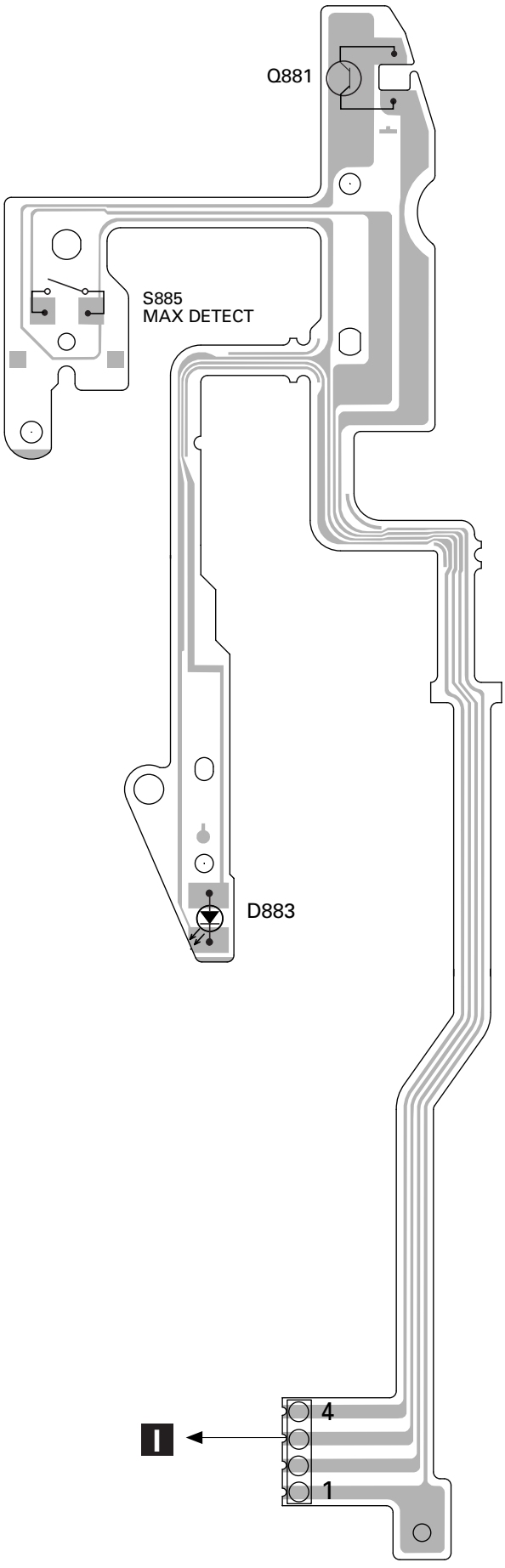
PCB UNIT(E)

SIDE B

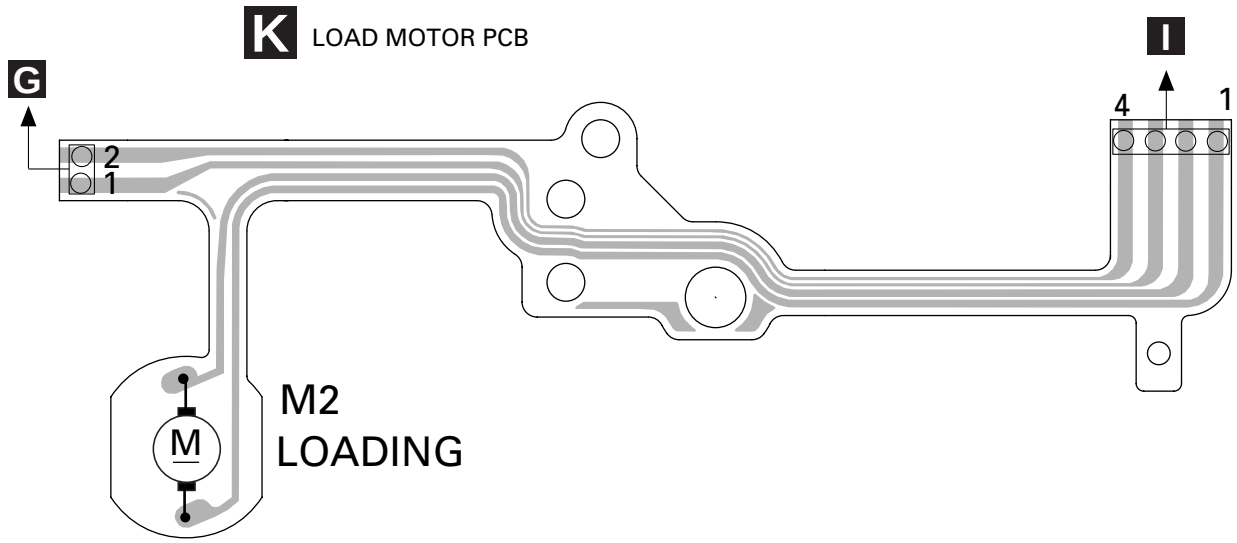


4.10 PCB UNIT(C)

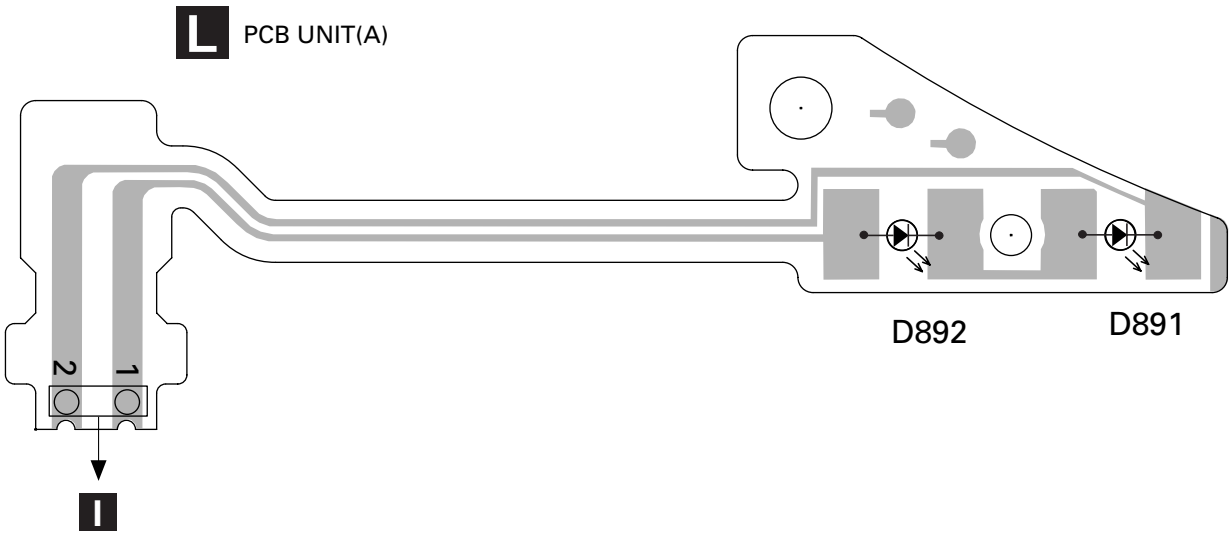
J PCB UNIT(C)



4.11 LOAD MOTOR PCB



4.12 PCB UNIT(A)



5. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/○S○○○J,RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

A Unit Number : CWM6288
Unit Name : Extension Unit

MISCELLANEOUS

=====Circuit Symbol and No.		===Part Name	Part No.
IC	101	IC	NJM4558MD
IC	601	IC	PD5470A
IC	701	IC	M62007FP
Q	101	Transistor	DTC343TK
Q	102	Transistor	DTC343TK
Q	103	Transistor	2SA1586
Q	105	Transistor	DTC343TK
Q	106	Transistor	DTC343TK
Q	501	Transistor	DTA144EU
Q	502	Transistor	DTC144EU
Q	503	Transistor	DTC124EU
Q	601	Transistor	DTA124EU
Q	701	Chip Transistor	2SC2712
Q	702	Chip Transistor	2SC2712
Q	703	Transistor	2SD2318F5
Q	704	Transistor	2SD1007
Q	705	Transistor	2SD2318F5
Q	706	Transistor	2SA1163
Q	707	Transistor	2SC2713
Q	708	Transistor	2SB1335A
Q	709	Transistor	DTA124EU
Q	710	Transistor	DTC124EU
Q	711	Transistor	FMW1
Q	712	Transistor	2SK1485
Q	713	Chip Transistor	2SC2712
Q	714	Transistor	2SC2713
Q	715	Transistor	2SA1163
Q	720	Chip Transistor	2SC2712
Q	723	Transistor	DTC124EU
Q	724	Chip Transistor	2SC2712
Q	725	Transistor	DTC124EU
Q	726	Transistor	2SK1485
D	101	Diode	MA142WA
D	501	Diode	1SS355
D	601	Diode	MA142WK
D	701	Diode	ERC05-10B
D	702	Diode	1SR154-400
D	703	Diode	UDZS7R5(B)
D	704	Diode	1SS355
D	705	Diode	UDZS5R6(B)
D	706	Diode	HZU8R2(B3)
D	707	Diode	UDZS6R2(B)
D	708	Diode	UDZS8R2(B)
D	709	Diode	1SS355
D	710	Diode	1SS355
D	711	Diode	1SS355
L	701	Coil	CTH1190
L	702	Inductor	LCTB100K2125
TH	601	Thermistor	CCX1032
X	601	Radiator 6.290MHz	CSS1451

RESISTORS

=====Circuit Symbol and No.		===Part Name	Part No.
R	101		RS1/16S822J
R	102		RS1/16S822J
R	103		RS1/16S682J
R	104		RS1/16S682J
R	105		RS1/16S560J
R	106		RS1/16S560J
R	107		RS1/16S470J
R	108		RS1/16S470J
R	109		RS1/16S473J
R	110		RS1/16S473J
R	111		RS1/16S220J
R	112		RS1/16S220J
R	120		RS1/16S223J
R	121		RS1/16S153J
R	501		RS1/4S221J
R	502		RS1/4S223J
R	503		RS1/16S223J
R	504		RS1/16S102J
R	601		RS1/16S473J
R	602		RS1/16S473J
R	603		RS1/16S473J
R	604		RS1/16S102J
R	605		RS1/16S222J
R	606		RS1/16S222J
R	607		RS1/16S222J
R	608		RS1/16S222J
R	609		RS1/16S222J
R	610		RS1/16S222J
R	611		RS1/16S561J
R	612		RS1/16S561J
R	613		RS1/16S561J
R	614		RS1/16S561J
R	615		RS1/16S103J
R	616		RS1/16S103J
R	617		RS1/16S163J
R	618		RS1/16S222J
R	619		RS1/16S0R0J
R	620		RS1/16S473J
R	621		RS1/16S433J
R	622		RS1/16S103J
R	640		RS1/16S471J
R	641		RS1/16S471J
R	642		RS1/16S471J
R	643		RS1/16S471J
R	644		RS1/16S471J
R	649		RS1/16S222J
R	651		RS1/16S222J
R	652		RS1/16S471J
R	653		RS1/16S471J
R	654		RS1/16S471J
R	655		RS1/16S471J
R	656		RS1/16S471J
R	657		RS1/16S471J
R	658		RS1/16S471J
R	659		RS1/16S471J

=====Circuit Symbol and No.		===Part Name	Part No.
R	660		RS1/16S471J
R	661		RS1/16S102J
R	662		RS1/16S102J
R	663		RS1/16S102J
R	664		RS1/16S102J
R	665		RS1/16S102J
R	666		RS1/16S471J
R	667		RS1/16S471J
R	668		RS1/16S331J
R	669		RS1/16S331J
R	670		RS1/16S331J
R	671		RS1/16S331J
R	672		RS1/16S331J
R	673		RS1/16S471J
R	674		RS1/16S471J
R	675		RS1/16S471J
R	676		RS1/16S471J
R	677		RS1/16S222J
R	678		RS1/16S222J
R	679		RS1/16S222J
R	680		RS1/16S154J
R	681		RS1/16S222J
R	682		RS1/16S102J
R	683		RS1/16S912J
R	684		RS1/16S473J
R	685		RS1/16S102J
R	686		RS1/16S102J
R	689		RS1/16S273J
R	690		RS1/16S273J
R	691		RS1/16S273J
R	692		RS1/16S202J
R	693		RS1/16S512J
R	694		RS1/16S104J
R	695		RS1/16S104J
R	696		RS1/16S104J
R	697		RS1/16S222J
R	698		RS1/16S222J
R	699		RS1/16S222J
R	701		RS1/16S104J
R	702		RS1/16S473J
R	703		RS1/8S222J
R	704		RS1/16S473J
R	705		RS1/16S473J
R	706		RS1/16S473J
R	707		RS1/4S103J
R	708		RS1/16S223J
R	709		RS1/16S223J
R	710		RS1/16S101J
R	711		RS1/10S153J
R	712		RS1/8S103J
R	713		RS1/16S102J
R	714		RS1/16S103J
R	715		RS1/16S223J
R	716		RS1/16S103J
R	717		RS1/16S473J
R	718		RS1/16S472J
R	719		RS1/16S222J
R	720		RS1/10S681J
R	721		RS1/16S223J
R	722		RS1/16S362J
R	723		RS1/16S223J
R	724		RS1/16S223J
R	726		RS1/16S223J
R	727		RS1/4S2R2J
R	728		RS1/4S2R2J

=====Circuit Symbol and No.		===Part Name	Part No.
R	730		RS1/10S223J
R	731		RS1/16S101J
R	732		RS1/4S221J
R	733		RS1/16S511J
R	734		RS1/16S681J
R	735		RS1/16S561J
R	736		RS1/16S103J
R	737		RS1/16S273J
R	738		RS1/16S473J
R	740		RS1/16S103J
R	742		RS1/16S472J
R	743		RS1/16S362J
R	744		RS1/16S102J
R	745		RS1/16S223J
R	746		RS1/16S102J
R	747		RS1/16S103J

CAPACITORS

C	101		CEV100M16
C	102		CEV100M16
C	103		CCSRCH331J50
C	104		CCSRCH331J50
C	105		CEV100M16
C	106		CEV100M16
C	110		CEV4R7M35
C	112		CKSRYB473K16
C	113		CKSRYB472K50
C	114		CKSRYB472K50
C	501		CKSQYB391K50
C	601		CKSRYB104K16
C	603		CKSRYB103K50
C	605		CKSRYB103K50
C	651		CKSRYB103K50
C	701		CEAT471M16
C	703		CEAT471M16
C	704		CKSQYB224K16
C	705		CEV220M6R3
C	706		CKSRYB103K50
C	707		CKSRYB473K16
C	708		CEV4R7M35
C	709		CKSRYB473K16
C	710		CKSRYB473K16
C	711		CKSRYB103K50
C	712		CEV220M16
C	713		CKSRYB473K16
C	714		CEV220M6R3
C	715		CKSRYB473K16
C	716		CKSQYB103K50
C	717		CKSRYB103K50
C	720		CKSQYB334K16
C	721		CKSRYB222K50
C	722		CKSRYB473K16
C	723		CKSRYB473K16
C	724		CKSQYB104K25

B Unit Number : CWM6289
Unit Name : Keyboard Unit

MISCELLANEOUS

IC	901	IC	BU2092FV
Q	903	Transistor	2SA1586
Q	904	Transistor	DTC123JU
Q	905	Chip Transistor	2SC2712
D	901	Diode	1SS355
D	902	Diode	1SS355
D	903	Diode	1SS355
D	905	LED	CL200PGCTU
D	906	LED	CL150DCD(AB)
D	907	LED	CL200PGCTU

=====Circuit Symbol and No.		===Part Name	Part No.
D	908	LED	CL150DCD(AB)
D	909	LED	CL200PGCTU
D	910	LED	CL150DCD(AB)
D	911	LED	CL200PGCTU
D	912	LED	CL150DCD(AB)
D	913	LED	CL200PGCTU
D	914	LED	CL150DCD(AB)
D	915	LED	CL200PGCTU
D	916	LED	CL150DCD(AB)
D	917	Diode	UDZ2R7(B)
D	918	Diode	UDZ2R7(B)
S	901	Switch	CSG1043
S	902	Switch	CSG1043
S	903	Switch	CSG1043
S	904	Switch	CSG1043
S	905	Switch	CSG1043
S	906	Switch	CSG1043
S	907	Switch	CSG1043
S	910	Spring Switch	CSN1033
IL	901	Lamp 60mA, 8V	CEL1526
IL	902	Lamp 60mA, 8V	CEL1526
IL	903	Lamp 60mA, 8V	CEL1568
IL	904	Lamp 60mA, 8V	CEL1568

RESISTORS

R	901		RS1/10S561J
R	902		RS1/10S561J
R	903		RS1/10S561J
R	904		RS1/10S561J
R	910		RS1/8S511J
R	911		RS1/8S511J
R	912		RS1/8S511J
R	913		RS1/8S511J
R	914		RS1/8S511J
R	915		RS1/8S511J
R	916		RS1/8S511J
R	917		RS1/8S511J
R	918		RS1/8S511J
R	919		RS1/8S511J
R	920		RS1/8S511J
R	921		RS1/8S511J
R	931		RS1/8S510J
R	932		RS1/8S510J
R	934		RS1/10S223J
R	935		RS1/10S102J
R	936		RS1/10S103J
R	937		RS1/10S362J
R	938		RS1/10S472J

CAPACITORS

C	901		CKSQYB104K50

C Unit Number : CWX2202
Unit Name : CD Core Unit(Servo Unit)

MISCELLANEOUS

IC	101	IC	UPC2572GS
IC	201	IC	UPD63702AGF
IC	301	IC	BA5986FM
Q	101	Transistor	2SD1664
Q	102	Transistor	UMD2N
D	301	Diode	1SR154-400
X	201	Ceramic Resonator 16.934MHz	CSS1457
EF	201	Filter	CCG1076

RESISTORS

R	101		RS1/8S100J
R	102		RS1/8S120J
R	104		RS1/16S822J
R	105		RS1/16S682J
R	106		RS1/16S183J
R	107		RS1/16S822J
R	108		RS1/16S333J
R	109		RS1/16S683J
R	110		RS1/16S134J
R	111		RS1/16S273J
R	112		RS1/16S222J
R	113		RS1/16S103J
R	114		RS1/16S103J
R	115		RS1/16S102J
R	116		RS1/16S163J
R	117		RS1/16S163J
R	120		RS1/16S101J
R	121		RS1/16S101J
R	125		RS1/16S0R0J
R	201		RS1/16S104J
R	202		RS1/16S103J
R	203		RS1/16S332J
R	204		RS1/16S752J
R	205		RS1/16S752J
R	206		RS1/16S101J
R	250		RS1/16S331J
R	251		RS1/16S331J
R	252		RS1/16S331J
R	253		RS1/16S331J
R	254		RS1/16S331J
R	255		RS1/16S471J
R	256		RS1/16S471J
R	259		RS1/16S221J
R	263		RS1/16S471J
R	269		RS1/16S0R0J
R	274		RS1/16S471J
R	277		RS1/16S471J
R	301		RS1/16S103J
R	302		RS1/16S153J
R	303		RS1/16S103J
R	304		RS1/16S273J
R	305		RS1/16S103J
R	306		RS1/16S752J
R	307		RS1/16S103J
R	308		RS1/16S103J
R	309		RS1/16S471J
R	311		RS1/16S471J

CAPACITORS

C	101		CEV101M6R3
C	102		CKSQYB104K16
C	103		CEV470M6R3
C	104		CKSQYB334K16
C	105		CCSRCH240J50
C	106		CKSRYB222K50
C	107		CEV4R7M35
C	108		CKSRYB273K25
C	109		CCSRCH101J50
C	110		CKSQYB104K16
C	111		CKSRYB332K50
C	112		CKSQYB473K16
C	113		CKSRYB103K25
C	114		CKSRYB391K50
C	115		CCSRCH121J50
C	116		CKSRYB682K50
C	117		CKSRYB333K16
C	118		CKSQYB334K16
C	119		CKSQYB334K16
C	120		CKSQYB334K16
C	121		CKSQYB334K16
C	122		CKSQYB104K16
C	123		CKSRYB472K50
C	124		CKSQYB104K16
C	125		CCSRCH5R0C50

=====Circuit Symbol and No.		===Part Name	Part No.
C	126		CKSRYB153K25
C	127		CKSRYB102K50
C	201		CKSQYB334K16
C	202		CKSQYB104K16
C	203		CKSQYB104K16
C	204		CKSRYB471K50
C	207		CKSQYB683K16
C	208		CKSRYB821K50
C	209		CKSRYB273K25
C	210		CKSQYB334K16
C	211		CKSQYB334K16
C	212		CKSQYB334K16
C	213	22µF/6.3V	CCH1300
C	301		CEV101M10
C	302		CEV101M10

D Unit Number : CWX2203
Unit Name : CD Core Unit(STS Unit)

MISCELLANEOUS

IC	501	IC	CXD2511R
IC	502	IC	MSM514400DP-60TS
IC	601	IC	AK4321VF
IC	701	IC	BA05SFP
IC	801	IC	LB1836M
IC	802	IC	LB1836M
Q	801	Transistor	DTA123JK
Q	802	Transistor	UN2211
D	701	Diode	1SR154-400
D	702	Diode	1SR154-400
D	703	Diode	1SS355
D	704	Diode	1SS355
D	705	Diode	1SS355
D	706	Diode	1SS355
D	707	Diode	1SS355
D	708	Diode	1SS355
S	801	Spring Switch(LOAD)	CSN1052
S	802	Spring Switch(DOOR)	CSN1052
S	803	Spring Switch(MODE)	CSN1052
EF	701	Filter	CCG1051
EF	702	Filter	CCG1051

RESISTORS

R	501		RS1/16S102J
R	502		RS1/16S202J
R	503		RS1/16S392J
R	504		RS1/16S822J
R	505		RS1/16S163J
R	506		RS1/16S512J
R	507		RS1/16S182J
R	508		RS1/16S222J
R	509		RS1/16S102J
R	510		RS1/16S102J
R	511		RS1/16S102J
R	512		RS1/16S102J
R	513		RS1/16S102J
R	514		RS1/16S471J
R	601		RS1/16S101J
R	602		RS1/16S101J
R	603		RS1/16S471J
R	604		RS1/16S471J
R	701		RS1/10S0R0J
R	702		RS1/10S100J
R	716		RS1/16S471J
R	717		RS1/16S471J
R	718		RS1/16S471J
R	801		RS1/10S102J

=====Circuit Symbol and No.		===Part Name	Part No.

CAPACITORS

C	501		CKSQYB334K16
C	502		CKSQYB334K16
C	503		CKSQYB334K16
C	504		CCSRCH471J50
C	506		CCSRCH221J50
C	601		CKSQYB334K16
C	602		CCSRCH221J50
C	603		CKSQYB334K16
C	604		CKSQYB334K16
C	605	22µF/6.3V	CCH1300
C	606		CKSQYB334K16
C	701	22µF/6.3V	CCH1300
C	702		CEVL101M6R3
C	703		CKSQYB334K16
C	704		CKSQYB334K16
C	801		CKSQYB104K25
C	802		CKSQYB104K25
C	803		CEVL220M16

G Unit Number :
Unit Name : PCB Unit(D)

Q	851	Photo-transistor	CPT230SCTD(CD)
Q	852	Photo-transistor	CPT230SCTD(CD)

I Unit Number :
Unit Name : PCB Unit(E)

R	856		RS1/8S911J
R	857		RS1/8S821J

J Unit Number :
Unit Name : PCB Unit(C)

Q	881	Photo-transistor	CPT230SCTD(CD)
D	883	Chip LED	CL202IRXTU
S	885	Spring Switch(MAX)	CSN1052

L Unit Number :
Unit Name : PCB Unit(A)

D	891	Chip LED	CL202IRXTU
D	892	Chip LED	CL202IRXTU

H Unit Number :
Unit Name : PCB Unit(B)

S	886	Spring Switch(ELV Home)	CSN1052
S	887	Spring Switch(Clamp)	CSN1051

F Unit Number :
Unit Name : Motor PCB(A)

Q	1	Photo-interrupter	RPI-221
M	1	Motor Unit(Cam Gear)	CXB3174
M	3	Motor Unit(ELV)	CXB3175

E Unit Number :
Unit Name : Motor PCB(B)

M	4	Motor Unit(Carriage)	CXB3178
M	5	Motor(Spindle)	CXM1120

K Unit Number :
Unit Name : Load Motor PCB

M	2	Motor Unit(Load)	CXB3177

Miscellaneous Parts List

		Pickup Unit(Service)(P8)	CXX1311

6. ADJUSTMENT

CHECKING THE GRATING AFTER CHANGING THE PICKUP UNIT

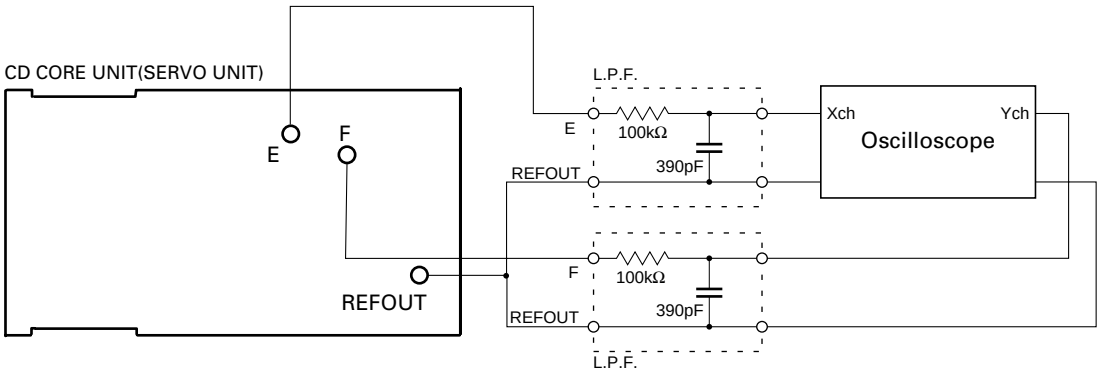
• **Note :**
The grating angle of the PU unit cannot be adjusted after the PU unit is changed. The PU unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted PU unit for the CD mechanism module. Changing the PU unit is thus best considered as a last resort. However, if the PU unit must be changed, the grating should be checked using the procedure below.

• **Purpose :**
To check that the grating is within an acceptable range when the PU unit is changed.

• **Symptoms of Mal-adjustment :**
If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or taking a long time for track searching.

• **Method :**

• Measuring Equipment	• Oscilloscope, Two L.P.F.
• Measuring Points	• E, F, REFOUT
• Disc	• ABEX TCD-784
• Mode	• TEST MODE



• **Checking Procedure**

1. In test mode, load the disc and switch the 5V regulator on.
2. Using the TRK+ and TRK- buttons, move the PU unit to the innermost track.
3. Press key **F9** to close focus, the display should read "91". Press key **F8** to implement the tracking balance adjustment the display should now read "81". Press key **F9** 4 times. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the PU unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

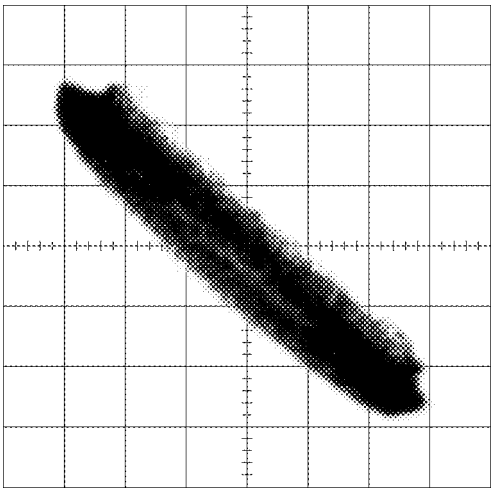
• **Note**
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

• **Hint**
Reloading the disc changes the clamp position and may decrease the "wobble".

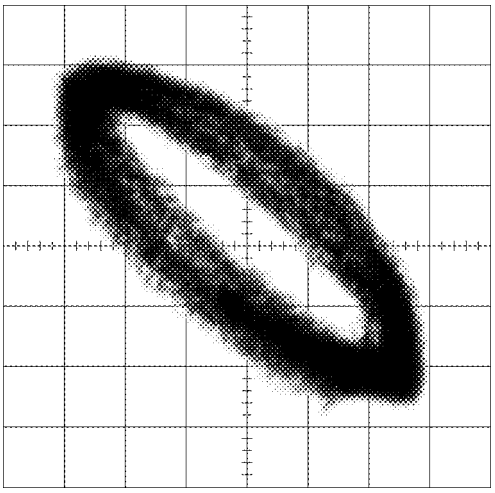
Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC

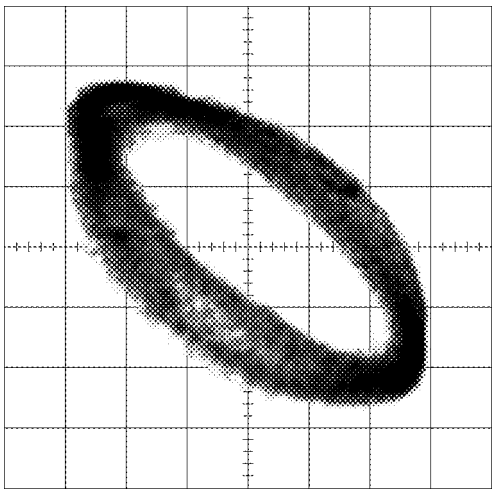
0°



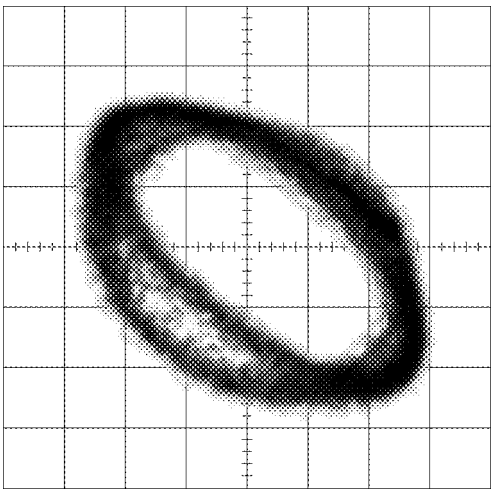
30°



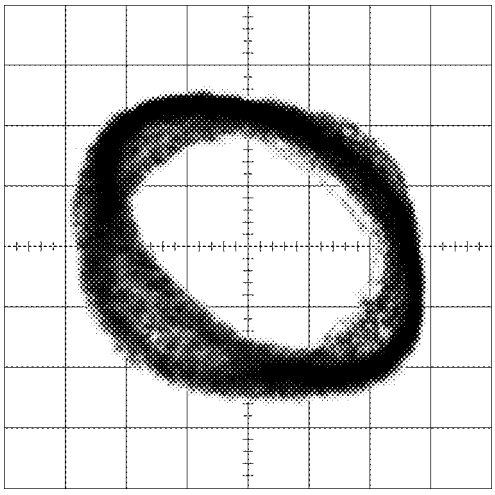
45°



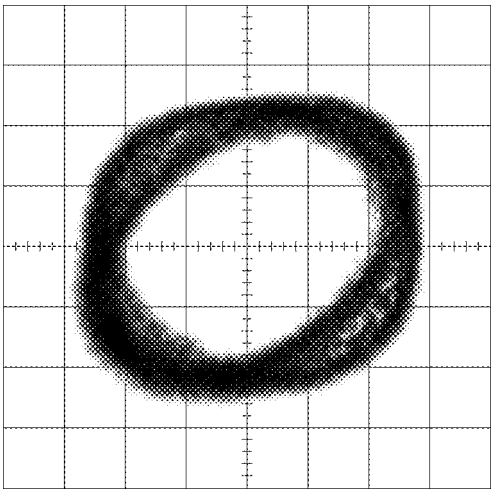
60°



75°



90°



7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 TEST MODE

● CD Test Mode

1) Precautions on Adjustment

- The unit employs a single voltage (+5V) for the regulator, thus the reference potential of the signal is RFOUT (approximately 2.5V) rather than GND.
  Inadvertent contact of REFOUT and GND during adjustment can result not only in disabling normal potential measurement but also in exposing the pick-up to strong impacts due to malfunctioning of the servo. Therefore, you are requested to observe the following precautions.
- Make sure that the negative probe of the measuring instrument is not connected to RFOUT or GND. Special care must be exercised so that the channel 1 negative probe may not be connected to the oscilloscope and the channel 2 negative probe to GND. Since the frame of the measuring instrument is usually at the same potential as the negative probe, the frame of the measuring instrument must be changed to floating status.
  When RFOUT is inadvertently connected to GND, you must immediately turn off the regulator or power supply.
- The regulator must be turned off before mounting or dismounting filters or wiring materials.
- You should not start adjustment or measurement immediately after the regulator is turned on. It is recommended to run the player for approximately one minute so that it may stabilize.
- When the test mode is turned on, various protective functions from the software become unavailable. Thus, you must make sure that undesirable electric or mechanical shocks are not be given to the system.
- This model employs a photo-transistor for detecting discs at their loading or ejection. Thus, if its outer case is removed during repair work and internal parts are exposed to light of strong intensity, malfunctions including the following can result:
  * The eject button becomes inoperable during play. Pressing the eject button does not eject a disc and play is continued.
  * Loading becomes unavailable.

  If a malfunction is recognized, appropriate remedial actions must be taken. Such actions include changing the light source position, changing the unit position and applying a cover to the photo-transistor.
- When you press the [EJECT] key to eject a disc, you must not touch any other key until the ejection is complete.
- If you press the [FF] or [REV] for the focus search in the test mode, you must turn the power off immediately. (Otherwise, the lens will be forced to stick to the top or bottom, potentially resulting in the burning of the actuator.)

2) Test Mode Controller

It has RPT and ASEL (RDM) functions which can be separately turned on.
(Even if a common key is used for both functions, it is usable as long as it can turn on the RPT when depressed for a longer duration and the ASEL for a shorter duration. The type of key that sequentially turns on the RPT, ASEL and NORMAL is not acceptable.)
For performing adjustments, this product should be connected to a CD control unit (Pioneer 14-pin H-BUS head unit). So, you can operate the product using the keys on the CD control unit connected to it.
See below on how to enter the test mode and key operations when KEH-M7056ZH-02/US is connected. The keys referred to in the adjustment explanations are those for KEH-M7056ZH-02/US. (When KEH-M7056ZH-02/US is used as a head unit, connect the 8-pin/14-pin conversion jig (GGD1163) to it.)

● **Turning the Test Mode On and Off**

① Turn the power on while depressing the [EJECT] key. Release the [EJECT] key 5 seconds after powering on. (If the [EJECT] key is being depressed when you hit the reset start key, the test mode will be automatically be turned on.)
② Turn the source (CD) on.
③ As the test mode is turned on, "55" will be displayed by the track number indicator. At this time, the disc number indicator will display the number of the disc selected.
④ Turn Backup or Acc off once, then turn it on again to cancel the test mode.

● **[Important] Display and Bus Data While the Test Mode is On**

* In order to operate the test mode from the currently marketed Head unit which is not equipped with a test mode command output function, the same bus communication as that in the normal operation mode is carried out with the Head unit. And, as long as the test mode is on, it is connected as the changer (single CD player in normal mode).
* If the servo test mode or the mechanical test mode is selected, display of the disc number will be fixed at "6". This arrangement has been employed because the Head unit on the H-BUS does not output the corresponding command when one of the [1] to [6] keys is depressed if the depressed one is identical to the displayed disc number (for instance, if "DISC 4" is displayed, pressing the [4] key does not output the corresponding command). Thus, when the test mode is started, check the currently selected disc number before turning on the servo test mode or the mechanical test mode (namely, turn the above mode on when "55" is displayed). Turning off the servo test mode or the mechanical test mode restores the display shown in ③ above.

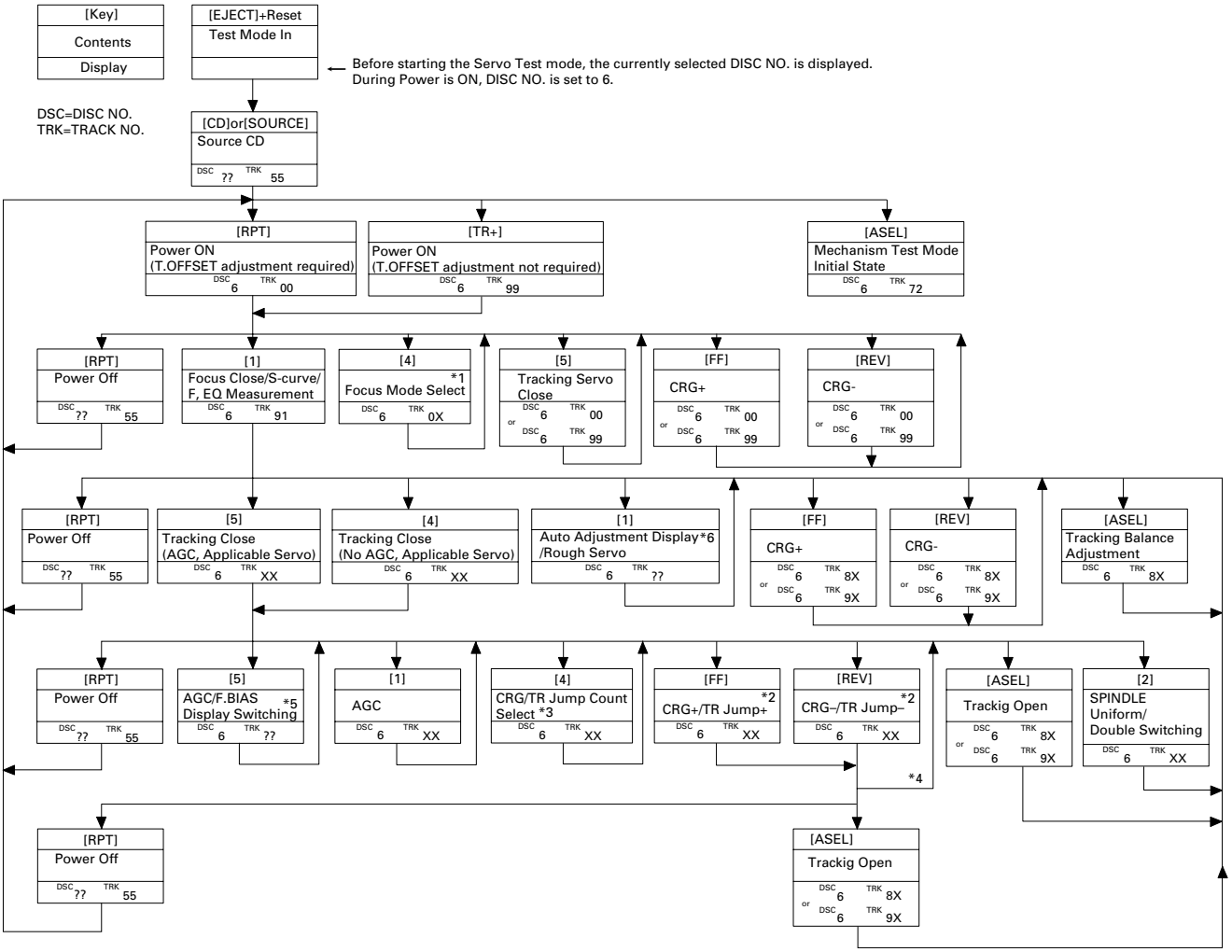
● **[Important] Precautions on Key Operations in Test Mode**

* If you press one of the [1] to [5] keys while the display is fixed at "DISC 6", the Head unit displays the depressed key number once. Thus, don't try to operate any keys until the "DISC 6" display is restored, It takes 3 to 4 seconds.
  Example: If you depress the [5] key when "D = 6 and TR = 99" are displayed, the display will sequentially change as shown below:
  "D = 5, TR = 00" -> "D = 6, TR = 00" -> "D = 6, TR = ??" (now you can proceed to the next operation).
* If you depress the [RPT] or [ASEL] key, the RPT or ASEL LED on the indicator comes on once, then it goes off in 3 to 4 seconds. Therefore, don't try to operate keys until the LED goes off.

● **[Important] Other Precautions**

* Due to a slower bus communication rate, data displayed on the track number indicator may fail to catch up with the mechanical status changes. This is especially true when the mechanism is operated in the test mode. So, when operating the system in the mechanical test mode, you should monitor the changes after removing the top plate.
* When turning on the servo or mechanical test mode with the disc inserted, be sure to insert the disc while the normal mode is on, that is, before starting the test mode.
* The common SEEK key is used for the [FF/REV] and [UP/DOWN] functions on the Head unit. Thus, when operating the [FF/REV] key, you need to hold the SEEK key down for at least 0.5 seconds. When the [FF/REV] operation is validated, beep will sound and the mechanism starts. If the SEEK key is released before the 0.5-second elapse time, it will be mistaken as the UP/DOWN operation, resulting in +1 incrementing (or-1 decrementing) of the value displayed on the track number indicated. In this case, leave as is and the original display will be restored in several seconds.

● CD Player Flowchart



*1) Switching must take place in the following sequence.

Focus Close (TRK 00 / TRK 99) → S.Curve Check TRK 01 → Focus EQ Measurement. TRK 02

*2) Single TR /4TR / 10TR / 32TR / 100TR

*3) Switching must take place in the following sequence.

Single TR 9X(8X):91(81) → 4 TR 92(82) → 10 TR 93(83) → 32 TR 94(84) → 100 TR 95(85) → CRG Move 96(86)

*4) It applies to the CRB Move and 100TR Jump alone.

*5) Switching must take place in the following sequence.

Min/Sec (or Track No.) → F.AGC Gain → F.AGC Gain → F. BIAS Setting

(AGC Gain = (Current value/Initial value) x 20)

*6) Switching must take place in the following sequence.

F.Cancel Display → T.Offset Display → T.Bal Display → Rough Servo.

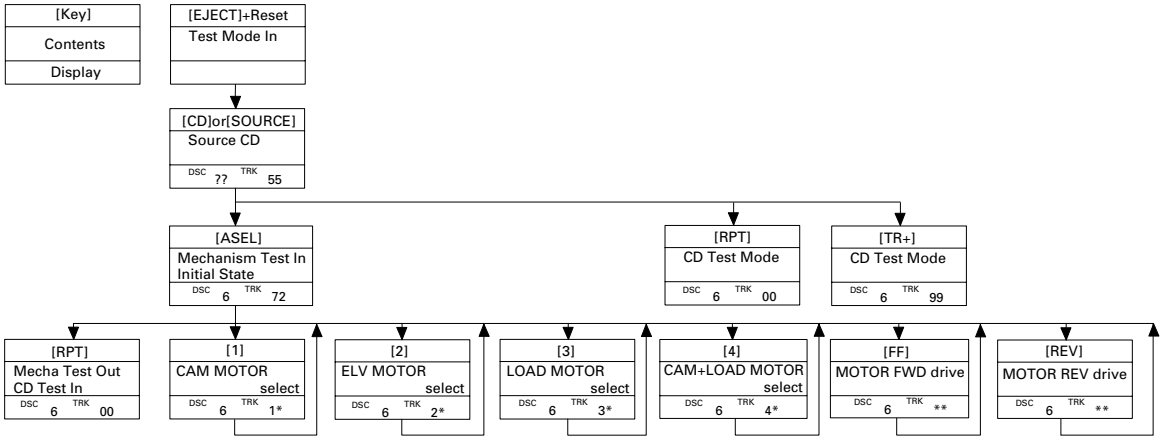
(F.Bias value, F.Cancel value, T.Offset value, T.Bal value
= (Upper 8 bits of the setting (7F[H] to 80[H] + 128)/4
= 63[D] to 32[D] to 00[D]).

[Key]	Operation
[RPT]	Power ON/OFF
[FF]	CRG+/TR Jump+ (Toward outer perimeter)
[REV]	CRG-/TR Jump- (Toward inner perimeter)
[5]	Tracking Close/AGC gain, F.Bias adjustment value display switching
[ASEL]	Auto Tracking Balance adjustment/ Tracking Open
[1]	Focus Close, S.Curve, F.EQ measurement/ Rough Servo/AGC
[2]	Focus Open
[3]	Jump Off
[4]	Focus Mode select/Tracking Close/ CRG/TR Jump Switching
[TR+]	Power ON(T.OFFSET adjustment not required)

- Operation of TR JUMPs other than 100TR is continued after your finger has left the key.
  CRG Move and 100TR Jump are forced to the Tracking Close Mode when the key is released.
- Powering on or off resets the Jump Mode to the Single TR (91).
- When ACC or Back up is off, the test mode is canceled.

Note: The H-BUS head unit must be employed for controlling the test mode.
Note: Sound is unavailable even after the tracking has been closed
(this trouble results when the IC for the STS is not controlled in the test mode).
Note: When you pressed the [FF] or [REV] key during the Focus Search, you must turn the power off immediately
(otherwise, the lens can stick resulting in actuator damages).
Important: For continued key operations, keep the interval between key operations 4 seconds or more.

● CD Changer Mechanism Flowchart



● Operating Procedures:

1) Turn on the CD Test Mode, then select the CD-MULTI for the SOURCE.
2) Select the motor to be driven using the [1] to [4] keys. (TRK ?*)
3) Press the [FF] or [REV] in this state to drive the selected motor.

[Key]	Operation
[ASEL]	Mechanism Test is initialized.
[FF]	Valid only when the motor selected (using the [1] to [4] keys) is driven in FWD direction.
[REV]	Valid only when the motor selected (using the [1] to [4] keys) is driven in REV direction.
[1]	CAM MOTOR is selected.
[2]	ELV MOTOR is selected.
[3]	LOAD MOTOR is selected.
[4]	CAM + LOAD MOTOR is selected.

<Screen Display during Mecha Test Mode>

TRK 72 MIN ** SEC ##

TRK : 72

72 : Mecha Test Mode is turned on

MIN : Upper (10th order): Type of motors selected

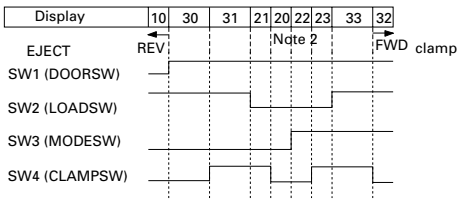
1* : CAM motor
2* : ELV motor
3* : LOAD motor
4* : CAM+LOAD motor

Lower (order of 1): State of DISC sensing phototransistor and switch

PH1	PH2	MAXSW	Display
L	L	L	*0
H	L	L	*1
L	H	L	*2
H	H	L	*3
L	L	H	*4
H	L	H	*5
L	H	H	*6
H	H	H	*7

L: Phototransistor is OPEN and switch is ON.
H: Phototransistor is CLOSE and switch is OFF.

SEC : ① When ELV motor is selected, ELV position is displayed
01: ELV at home position (1st disc).
10: ELV at a position other than home (2nd to 6th).
11: ELV moving to a specified position. * Note 1
00: Reserved (for an error)
② When CAM.LOAD motor is selected:
Indicates CAMSW (CAM gear) status.



An example when TRK 72, MIN 10 and SEC 31:

Test Mode is turned on from TRK 72.
CAMMOTOR is selected from 1 of MIN 10 and PH1/PH2 are selected from 0. All MAX switches are set to L (low).
As for SEC 31, since CAMMOTOR is selected from MIN, CAM gear CLAMP switch is set to L (low) and others are H (high) from SEC①.

● Precautions

* The keys are inoperable as long as operation of the mechanism is continued.
* When driving the CAMMOTOR in 31 → 30 → 10 (in REV direction), the elevation position must be at the EJECT/LOAD position (the top position).

Note 1: When the elevation is situated at the Note 1 position, move of any motor other than the REV is disabled.
Note 2: Before performing the elevation, make sure that the CAM SW (switch) is set to a position between 22 and 20.
As a rule, driving of the ELV MOTOR must be started immediately after the CAMSW indication has changed from 22 to 20.

● Operating Procedures for Ejecting a Clamped Disc

① Select CAMMOTOR using [1], then press the REV direction while the disc is being clamped (CAMSW state is 32).
The CAMSW status indication sequentially changes through 32→33→23→22.
② When the disc to be ejected is not identical with the disc being clamped, select the [2] ELVMOTOR in the vicinity of where the display changes from 22 to 20, then match the elevation to the disc to be ejected according to the following procedures:
After selecting ELVMOTOR, lower the elevation until the ELV position display becomes 01 (1st disc) using the REV direction.
Drive the elevation up until the display is changed to 10. This is the elevation where the second disk is situated.
The next display of 10 tells you the elevation of the 3rd disc. Repeating this operation allows you to establish an elevation matching each disc. (When the elevation is driven from the 1st through 6th disc, the status display changes as 01→11→10→11→10→11→10→11→10→11→10.)
(When the disc to be ejected coincides with the disc being clamped, the above operations are not necessary.)
③ Select the [1] CAMMOTOR and then, using the REV direction, drive it until the display changes from 20 (or 22) to 21 and 31.
④ Select the [2] ELVMOTOR, then drive the tray of the disc to be ejected up to the EJECT/LOAD position (using the FWD direction).
⑤ Select the [4] CAM+LOADMOTOR, then drive it in the REV direction until the display changes from 31 to 30 and 10.
The door will open immediately before the display changes to 10 and part of the disc will be pushed out.
⑥ When 10 is displayed, select the [3] LOADMOTOR, then drive it in REV direction until the disc is completely ejected.

7.1.2 DISASSEMBLY

● Removing the upper case (not shown)

1. Remove the five screws, then remove the upper case.

● Removing the Extension Unit (Fig. 1)

1. Remove the three screws B, then remove the side frame and holder.
2. Remove screw C, screw D and PCB from the connector.
3. Straighten the three currently bent claws, then remove the extension unit.

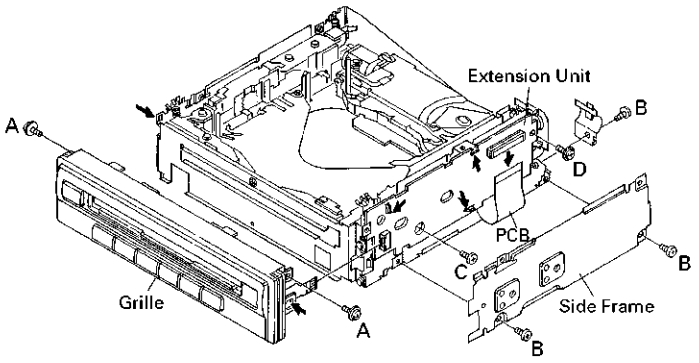


Fig. 1

● Removing the Grille Assy (Fig. 1)

1. Remove the two screws A and the connector, then remove the grille assy.

● Removing the CD Mechanism Module (Fig. 2)

1. Remove the three screws A, then remove the front frame.
2. Remove the three screws B and two screws C, then remove the damper and holder.
3. Remove the two spring Ⓐs, spring Ⓑ and spring Ⓒ from the hook, then remove the CD mechanism module.

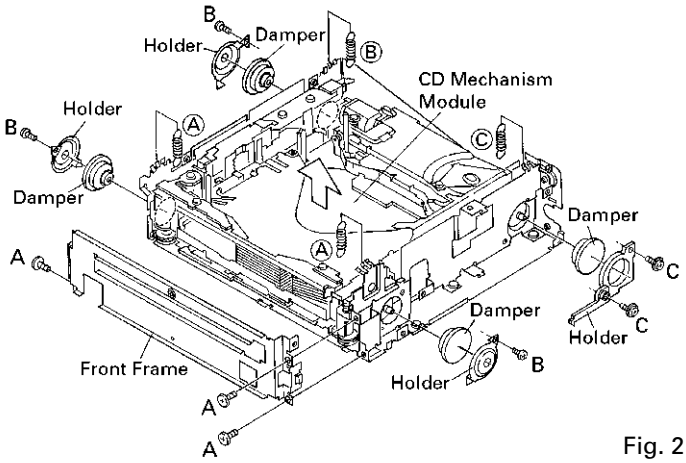


Fig. 2

– Precautions on Assembly –

Apply spring Ⓒ (black) to the front side hook.

Remaining springs Ⓐ and Ⓑ are to be hung on the center hook.

● Removing the Keyboard PCB (Fig. 3)

1. Remove screws A and B, then remove the switch PCB.
2. Remove the four screws C, then remove the guide.
3. Remove the four screws B and screw A, then remove the keyboard PCB.

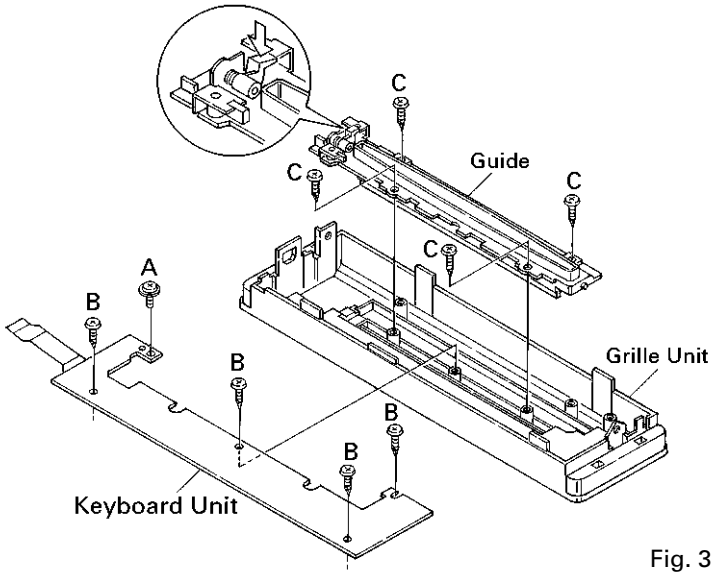


Fig. 3

● How to remove the Tray Assy

1. Apply about 6V current to the Cam gear motor until all holes match at the position (A) (elevation OK position).
2. Hook the three springs B temporarily as shown in Fig. 5. While pushing the Tray holder lock arms (right and left) in the direction (C), remove the Tray holder.
3. Lift up the Tray assy to remove it.

* Be careful not to remove the Tray hooks from the Tray assy.

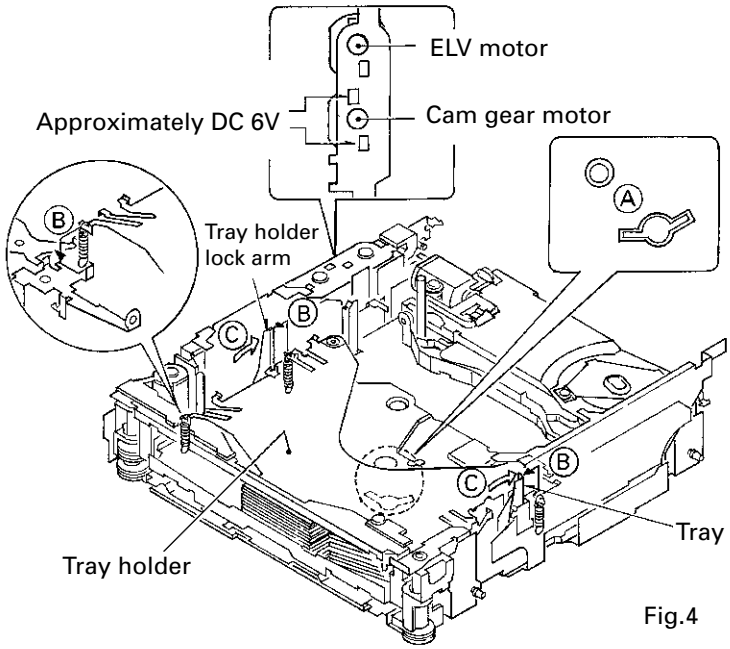


Fig.4

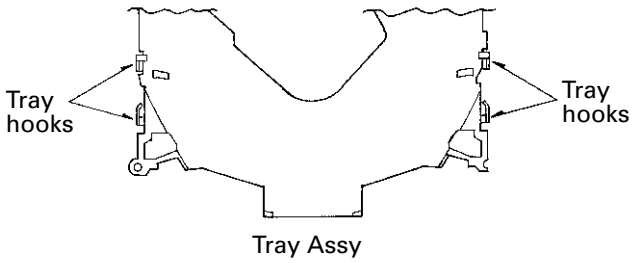


Fig. 5

● How to remove the Carriage Mech Assy

1. Insert a short pin into the flexible PCB of the Pickup unit.
2. While opening the resin hooks, remove the cover from the Servo unit.
3. Disconnect the flexible PCBs from the connectors CN101 and CN301.
4. Remove the Tray holder and the Tray assy. (See above)
5. Rotate the Cam gear motor until the positions of all holes (E) match, then stop the motor.
   (The Carriage Mech assy will stop as shown in the Fig.7.)

* When the positions of all holes match, they will be completely covered by the Carriage mech assy.

* To rotate the Cam Gear motor, see "How to remove the Tray assy".

6. Unhook the spring A.
7. Remove the flexible holder B (while opening the hooks).
8. Remove the flexible PCB (C) from the motor. (The flexible PCB (C) has been stuck on the motor with double-sided adhesive tape.)
9. Loosen the fixing screw and remove the flexible holder.

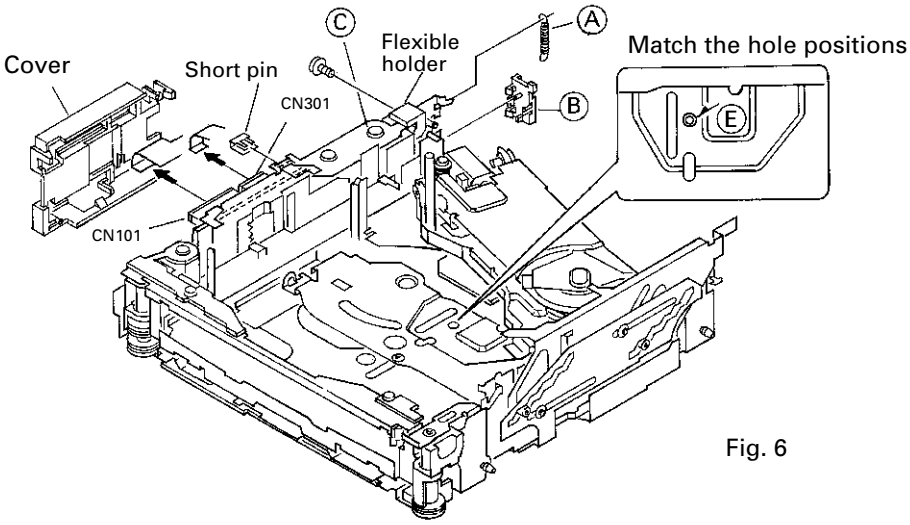


Fig. 6

10. Remove the screw, pressure spring and collar. Lift up the Carriage mechanism assy to remove it.
    * Screw tightening torque: 2.6kgfcm

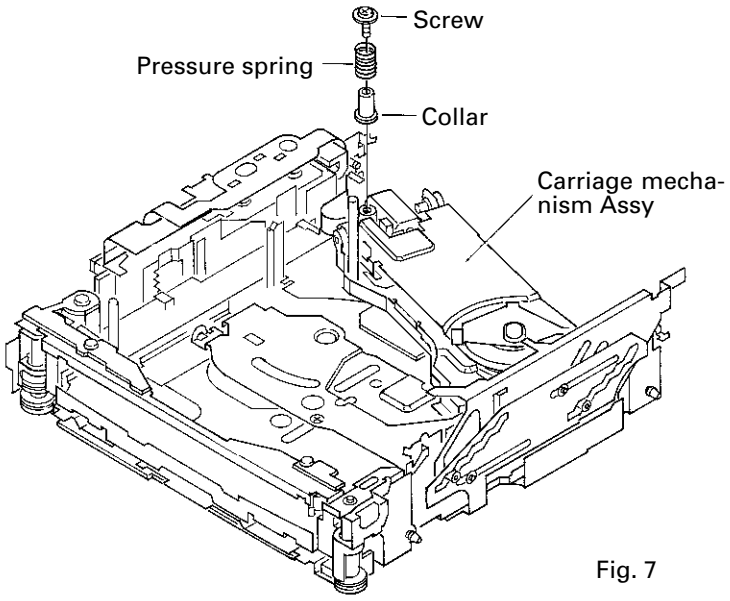


Fig. 7

● **How to remove the Pickup unit**

1. Remove the pulling spring, torsion spring and E-shaped ring. Then remove the Clamper arm.

* The spring (A) will be removed with the Clamper arm.

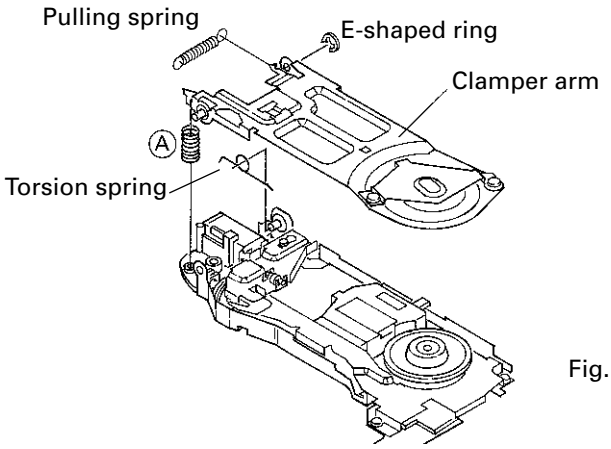


Fig. 8

2. Slide the Clamp UP lever (B) to remove it.
3. Loosen the 2 screws. Remove the feed-screw cover by sliding it.
4. Remove the feed-screw pressure spring (D).
5. Loosen the 2 screws. Remove the feed-screw holder (E).
6. Remove the belt.
7. Remove the Pickup unit together with the feed screw.

* Be careful not to lose the shaft holders at the both ends of the feed screw.
* Be careful not to damage the 2 flexible PCBs(for the Pickup and motor) when separating them. The flexible PCBs have been stuck each other with double-sided adhesive tape.

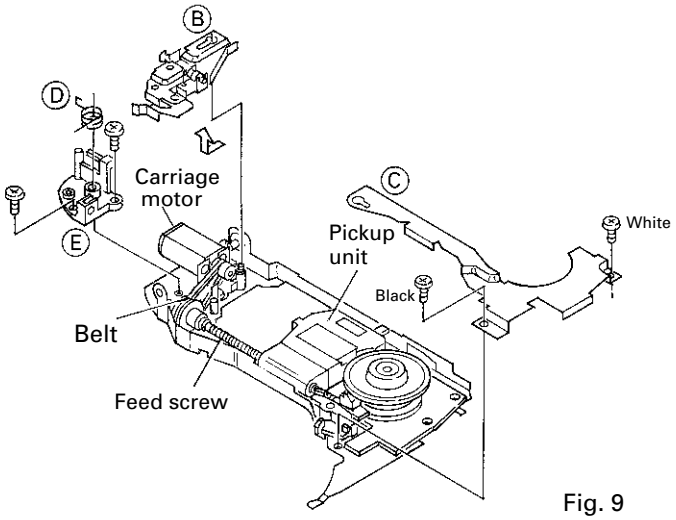


Fig. 9

8. Loosen the 2 screws. Remove the plate spring and the rack.
9. Pull out the feed screw from the Pickup unit.

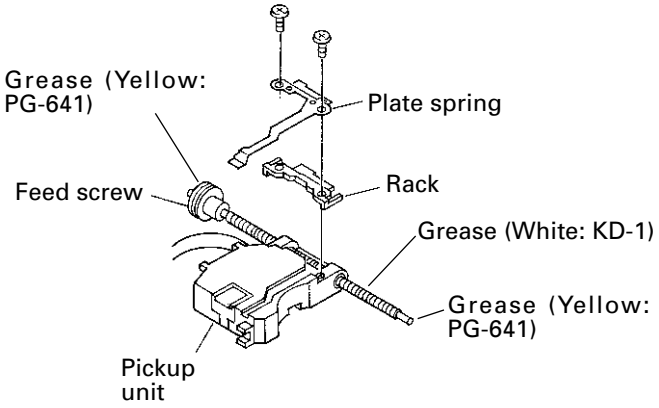
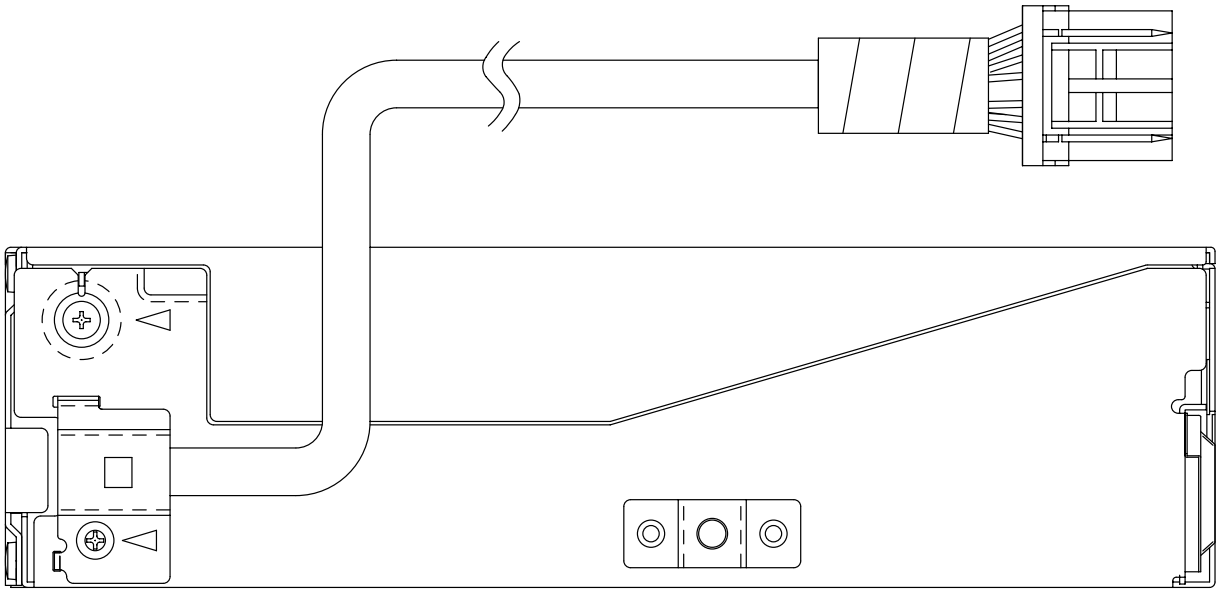
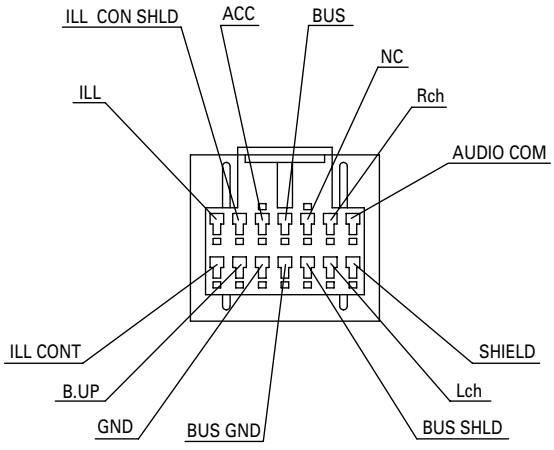


Fig. 10

7.1.3 CONNECTOR FUNCTION DESCRIPTION





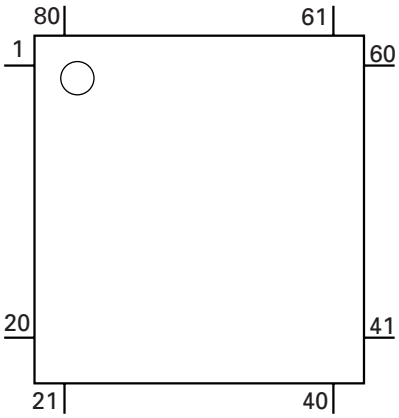
7.2 IC

● **Pin Functions (PD5470A)**

Pin No.	Pin Name	I/O	Function and Operation
1	VDIN	I	VD power supply sensor input
2	DOORSW	I	Door open position sense input
3	NC		Not used
4	ASO	O	IP-BUS dada output
5	CLAMPSW	I	Disk clamp sense input
6	ELHOME	I	Elevation sense input
7	XSCK	O	LSI clock output
8	XSO	O	LSI data output
9	XSI	I	LSI data input
10	$\overline{\text{XSTB}}$	O	LSI strobe output
11	$\overline{\text{XRST}}$	O	LSI reset output
12	XA0	O	LSI data discernment control signal output
13	VDCONT	O	VD power supply control output
14	EJECTKEY	I	Eject key input
15	$\overline{\text{ASENS}}$	I	ACC power sense input
16	ASI	I	IP-BUS dada input
17	LOADSW	I	Loading sense input
18	ELVSW	I	Elevation OK input
19–21	NC		Not used
22	$\overline{\text{BSENS}}$	I	Back up power sense input
23	$\overline{\text{SBSY}}$	I	Signal indicating head of subcode block input
24	NC		Not used
25	$\overline{\text{RESET}}$	I	Reset input
26	POWER	O	+5V power supply control output
27	CONT	O	Servo driver power supply control output
28	XIN	I	Crystal oscillating element connection pin
29	XOUT	O	Crystal oscillating element connection pin
30	VSS		GND
31–33	KST1-3	O	Key strobe output
34,35	$\overline{\text{KD1}}$,$\overline{\text{2}}$	I	Key data input
36,37	ILL1,2	O	Illumination output
38	AD		Address bus
39	TESTIN	I	Test program mode input
40	DCLOSE	I	Door close sense input
41	WDSL	O	Data comparison designation output
42	XWIH	I	DRAM data white inhibit input
43	XEMP	I	DRAM data read inhibit input
44	CHDT	I	Data comparison mode monitor input
45,46	CHM0,1	O	Data comparison mode output
47-49	NC		Not used
50	XWRE	O	DRAM data white enable output L:enable
51	XRDE	O	DRAM data read enable output L:enable
52	XQOK	O	SUB-Q OK output L:SUBQ OK
53	EMPH	O	DAC EMPH output
54	SCONT	O	Double speed select output
55	LOAD	O	LED power supply control output
56	$\overline{\text{CDMUTE}}$	O	Mute output
57,58	LO2,1	O	Load motor control output
59,60	ELV2,1	O	ELV motor control output
61,62	CG2,1	O	CAM motor control output
63	MIRR	I	Mirror detector input
64	LOCK	I	Spindle lock detector input
65	FOK	I	FOK signal input
66	EXSCK	O	Shift clock output
67	EXMODE	O	Latch clock output
68	EXSO	O	Serial data output

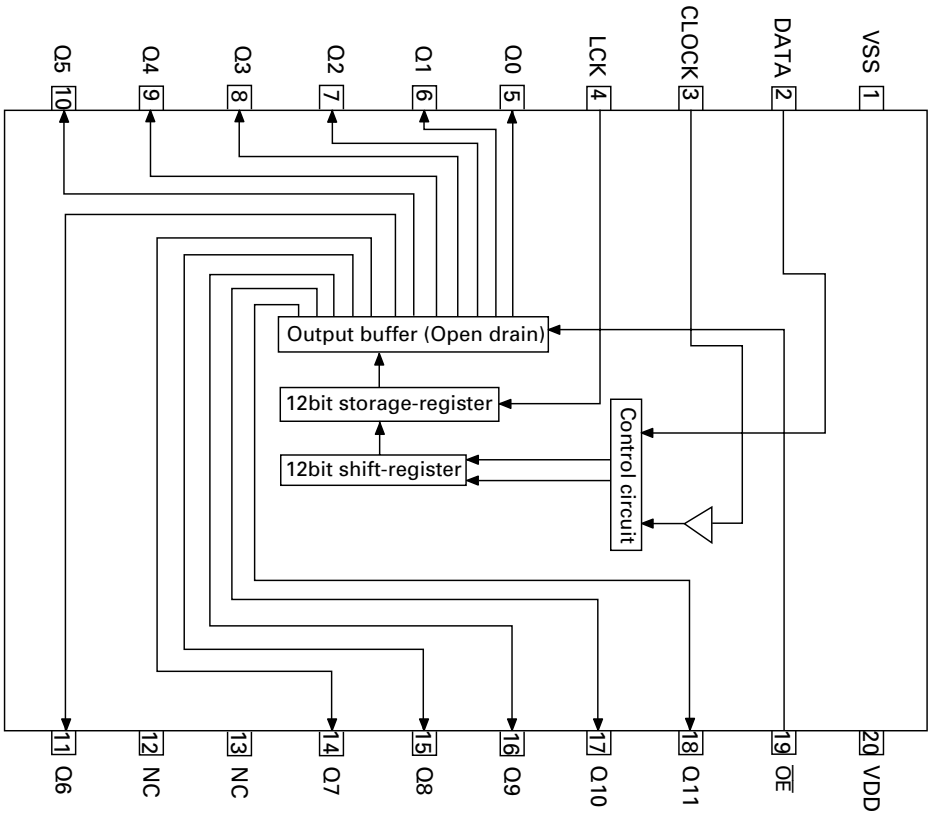
Pin No.	Pin Name	I/O	Function and Operation
69	EXCE	O	Chip enable output
70	INDICATOR	O	Illumination power supply control output
71	VCC		Power supply terminal
72	VREF	I	A/D converter reference voltage input
73	AVSS	I	A/D converter GND
74	ADRMON	I	DRAM memory remaining monitor input
75	EREF	I	DRAM A/D converter reference voltage input
76-78	PH1-3	I	Disc photo sense input
79	ELVSNS	I	ELV position sense input
80	TEMP	I	Temperature detector input

*PD5470A

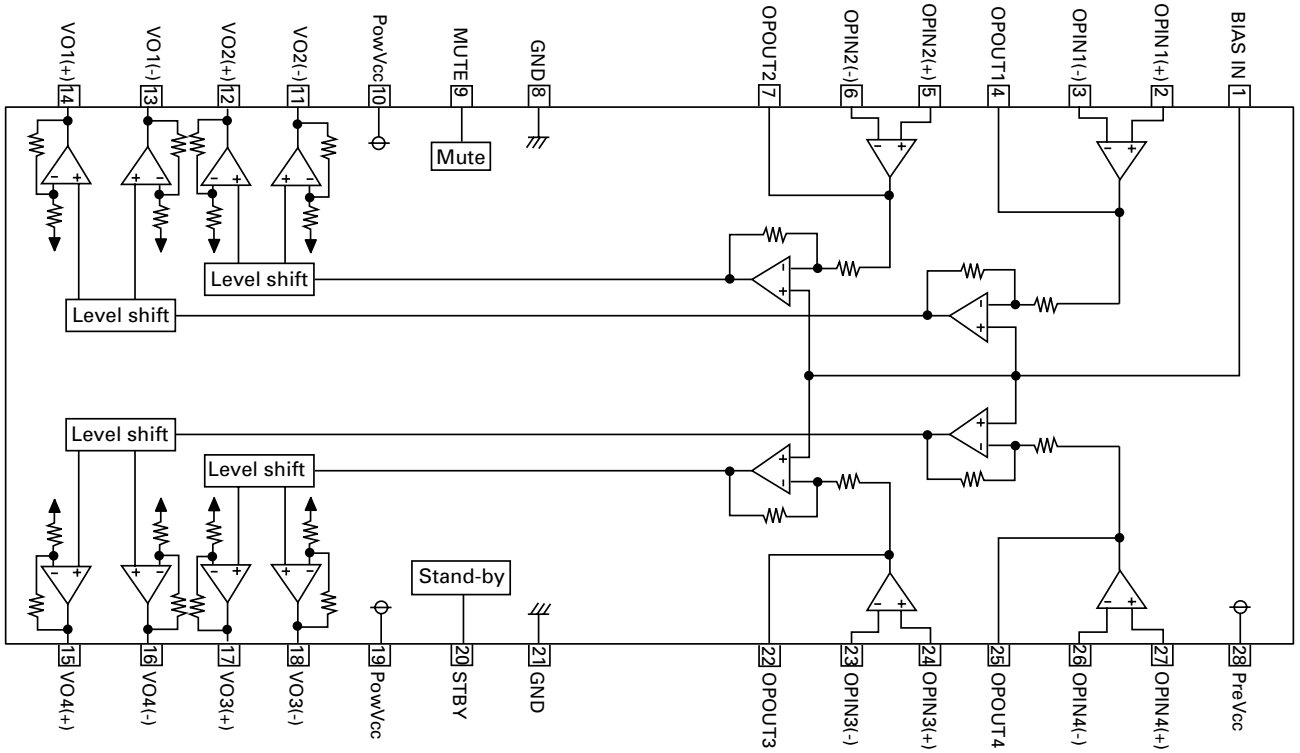


IC's marked by* are MOS type.
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

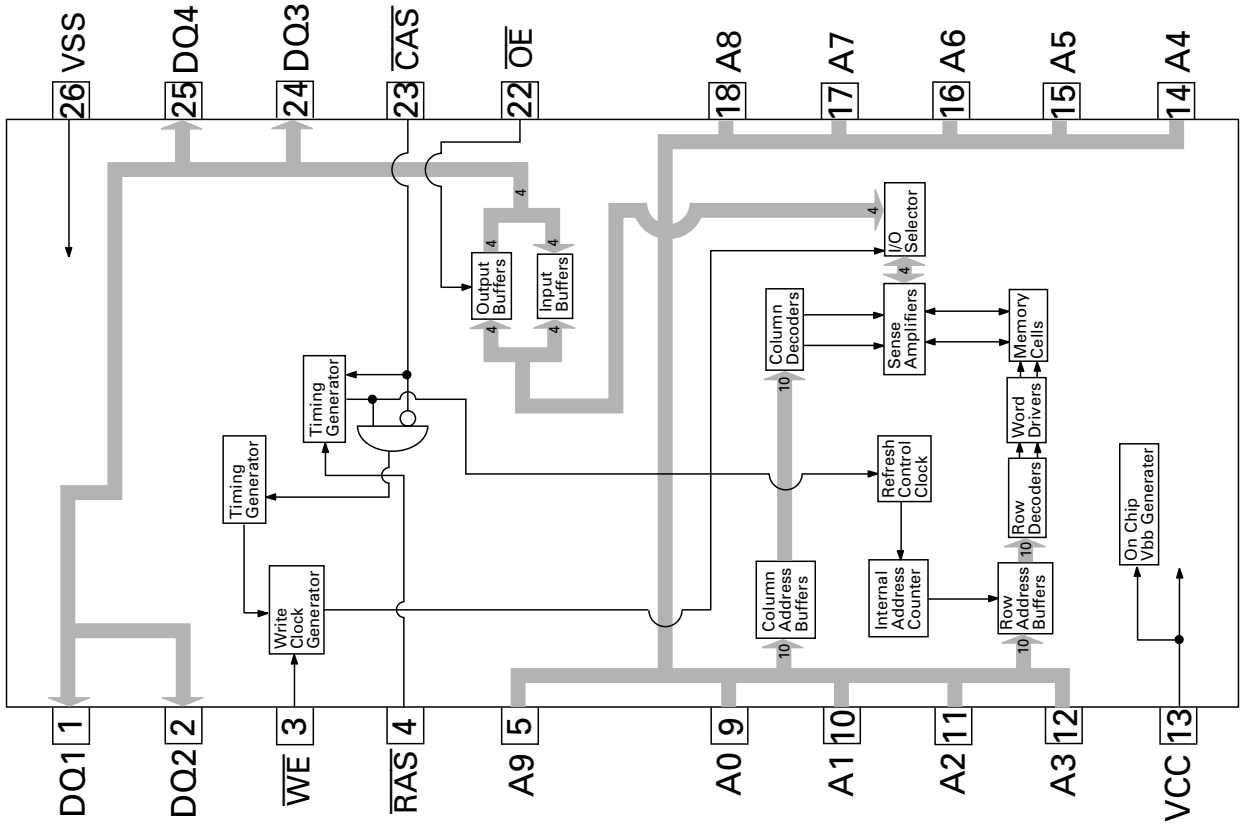
BU2092FV



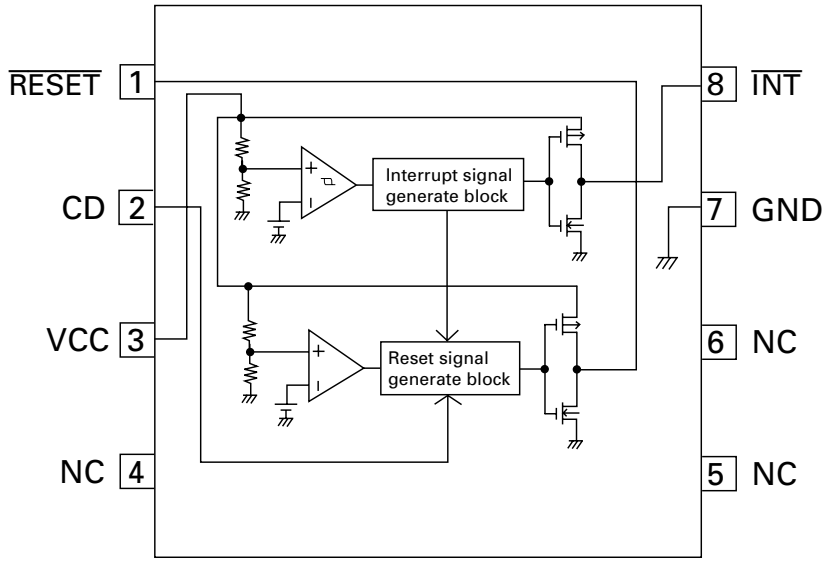
BA5986FM



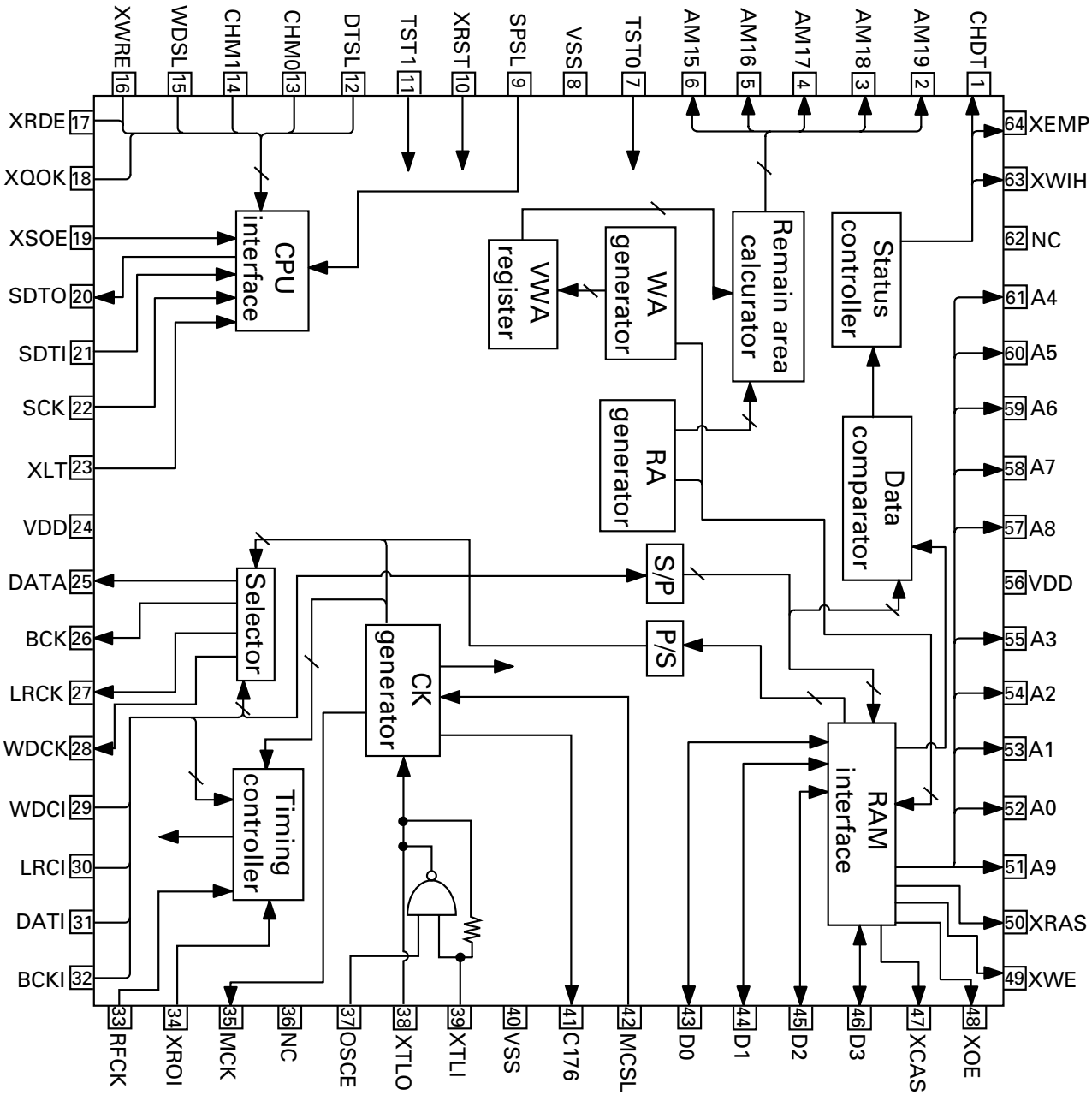
MSM514400DP-60TS



M62007FP



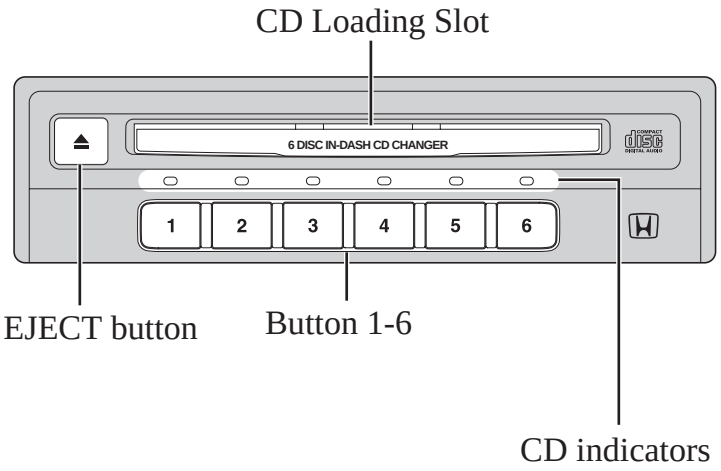
CXD2511R


XWRE 16
WDSL 15
CHM1 14
CHM0 13
DTSL 12
TST1 11
XRST 10
SPSL 9
VSS 8
TST0 7
AM15 6
AM16 5
AM17 4
AM18 3
AM19 2
CHDT 1
XRDE 17
XQOK 18
XSOE 19
SDTO 20
SDTI 21
SCK 22
XLT 23
VDD 24
DATA 25
BCK 26
LRCK 27
WDCK 28
WDCI 29
LRCI 30
DATI 31
BCKI 32
64 XEMP
63 XWIH
62 NC
61 A4
60 A5
59 A6
58 A7
57 A8
56 VDD
55 A3
54 A2
53 A1
52 A0
51 A9
50 XRAS
49 XWE
CPU interface
VWA register
WA generator
Remain area calcurator
Status controller
RA generator
Data comparator
S/P
P/S
Selector
CK generator
Timing controller
RAM interface
33 RFCK
34 XROI
35 MCK
36 NC
37 OSCE
38 XTLO
39 XTLI
40 VSS
41 C176
42 MCSL
43 D0
44 D1
45 D2
46 D3
47 XCAS
48 XOE

8. OPERATIONS AND SPECIFICATIONS

8.1 OPERATIONS

Key Finder



CD indicators		Status
Green	Lit	A CD is loaded.
	Flashing	The unit is in the CD loading standby mode.
		The unit is standing by during ejection of all the CDs.
Orange	Lit	The currently selected CD.
	Flashing	A CD is being loaded, changed or ejected.
Out		No CD is loaded.
		Power is switched OFF.

8.2 SPECIFICATIONS

General

Power source ..... 13.2 V DC (10.8 – 15.2 V allowable)
Grounding system ..... Negative type
Standby current ..... 2 mA or less
Rated current consumption ..... 600 mA max.
Maximum current consumption ..... 1.5 A max.
Dimensions (chassis size) ..... 180 (W) × 50 (H) × 165 (D) mm
[7-1/8 (W) × 2 (H) × 6-1/2 (D) in.]
Weight ..... 1.6 kg (3.5 lbs)

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format ..... Sampling frequency: 44.1 kHz
Number of quantization bits: 16;linear
Frequency characteristics ..... 20 – 20,000 Hz
Signal-to-noise ratio ..... 92 dB (1kHz) (IHF-A network)
Dynamic range ..... 92 dB (1kHz)
Number of channels ..... 2 (stereo)