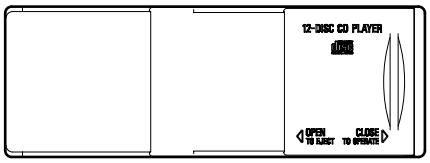
Service Manual

Pioneer

GM



ORDER NO.
CRT2290

MULTI-COMPACT DISC PLAYER

CDX-M1026ZG

X1H/UC

COMPACT disc DIGITAL AUDIO

VEHICLE	DESTINATION	PRODUCED AFTER	GM PART No.	ID No.	PIONEER MODEL No.
Oldsmobile, Buick, Pontiac	U.S.A., CANADA	February 1999	25659167		CDX-M1026ZG/X1H/UC

- **See the separate manual CX-653(CRT1916) for the CD mechanism description, disassembly and circuit description.**
- **The CD mechanism employed in this model is one of C6 series.**

CONTENTS

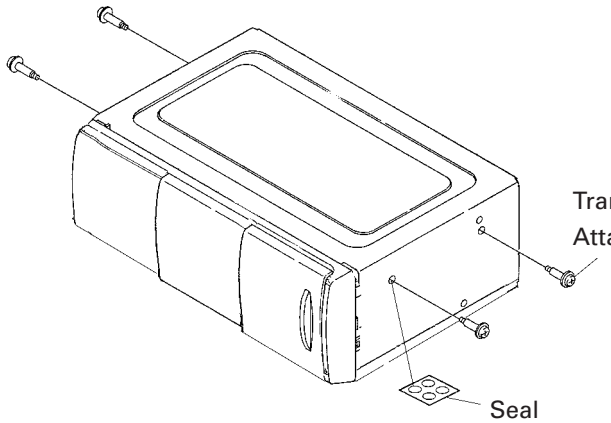
PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS SERVICE INC. P.O.Box 1760, Long Beach, CA 90801-1760 U.S.A.
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE.LTD. 253 Alexandra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

K-ZZD. FEB. 1999 Printed in Japan

● CD Player Service Precautions

1. For pickup unit(Service)(CXX1235) handling, please refer to"Disassembly"(see page 42).
   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 pickup unit(see page 33) since these screws protects the mechanism during transport, be sure to affix it when it is transported for repair, etc.

● Transportation of multi-CD player



Transport screw
Attach to original position before transporting the set

Seal
After removing transport screw, cover the hole with the supplied.seal.

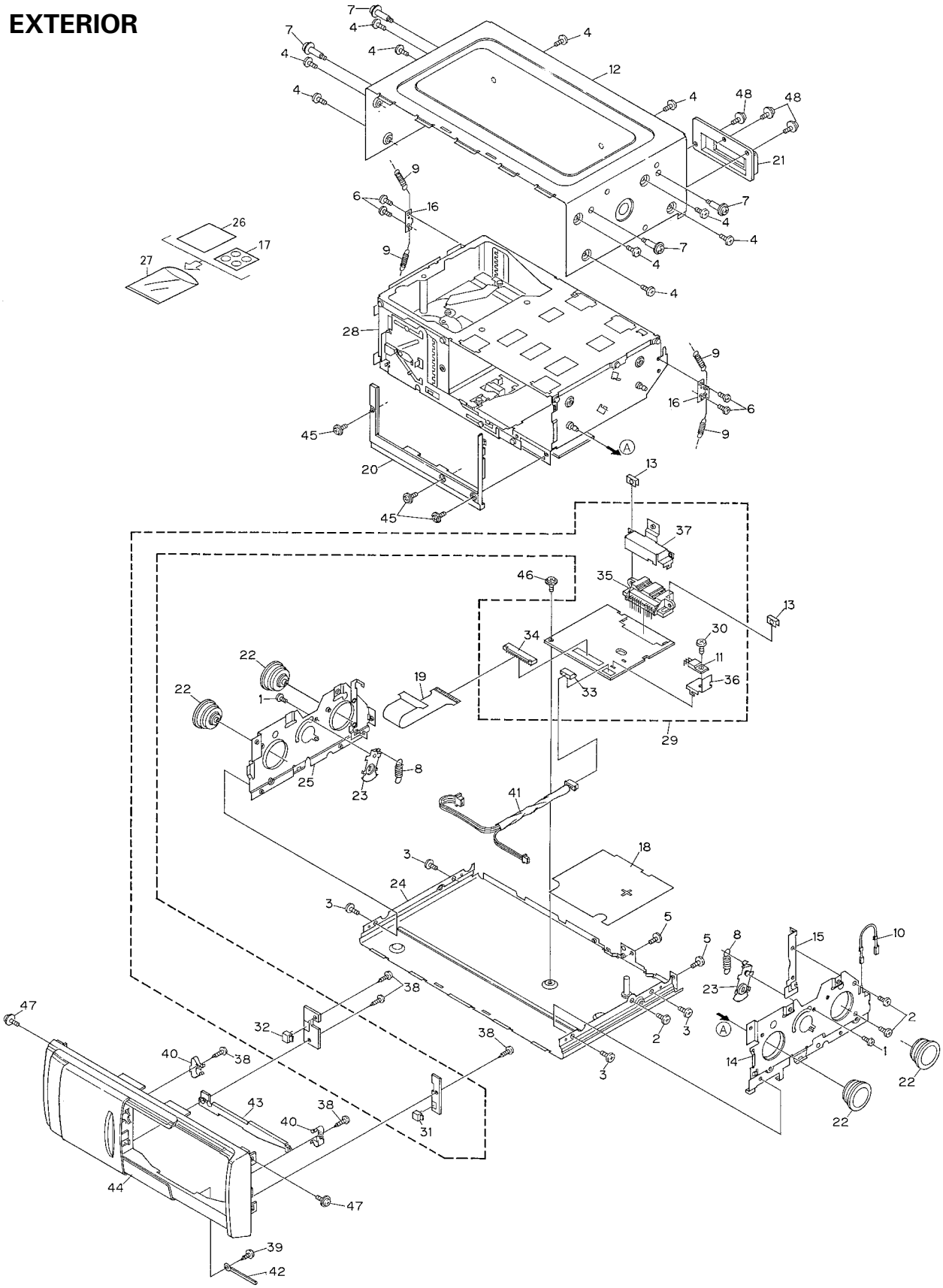
A transport screw has been attached to the set in order to protect it during transportation. After removing the transport screw, cover the hole with the supplied seal.Be sure to remove the transport screw before mounting the set. The removed transport screw should be retained in the accessory bag for use the next time the set is transported.

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 EXTERIOR



NOTE:

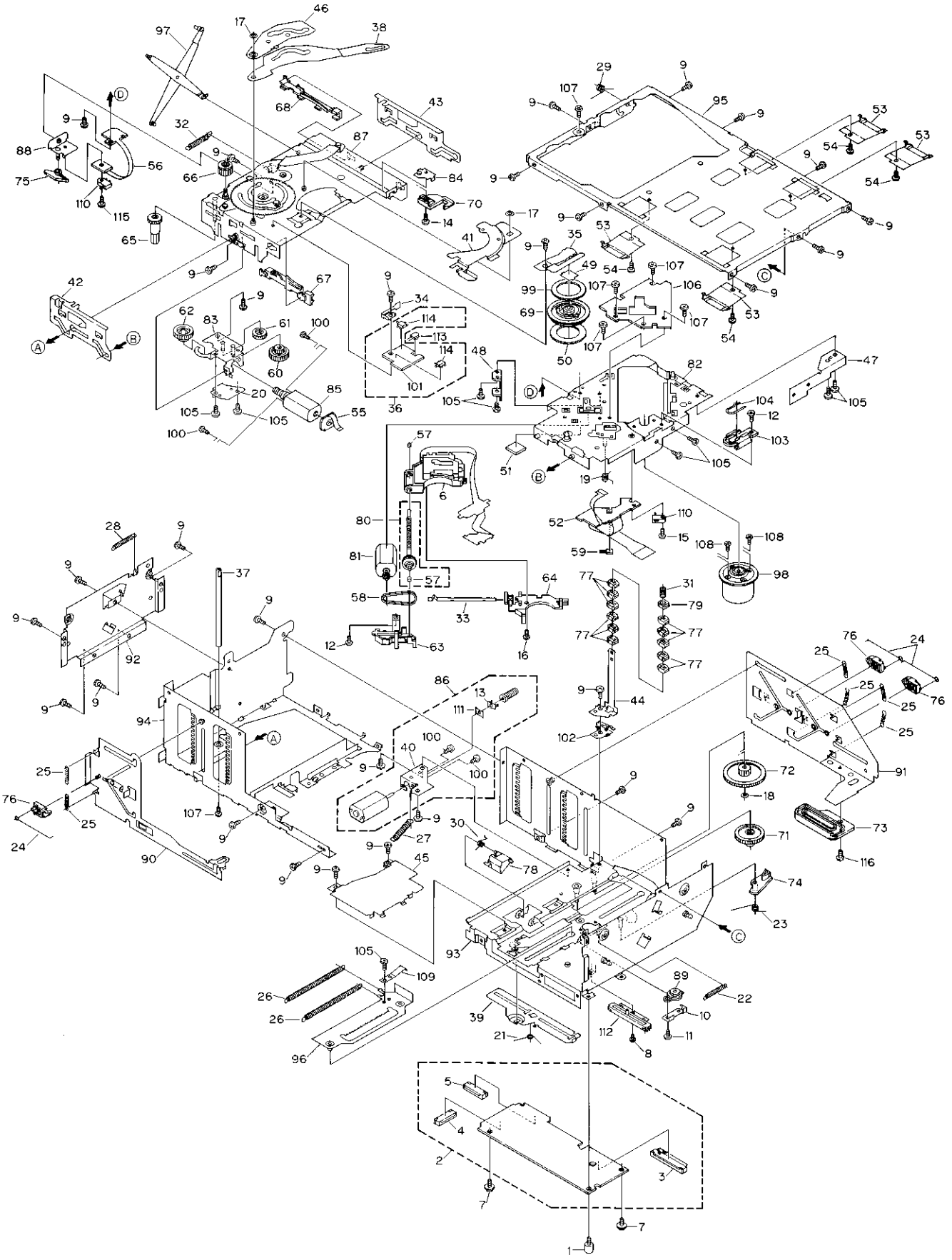
- Parts marked by "*" are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ∇ mark on the product are used for disassembly.

● EXTERIOR SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw	BMZ20P040FMC
	2	Screw	BMZ26P040FMC
	3	Screw	BMZ30P040FMC
	4	Screw	BMZ30P040FZK
	5	Screw	CBA1014
	6	Screw	CBA1037
	7	Screw	CBA1353
	8	Spring	CBH1862
	9	Spring	CBH2171
	10	Connector	CDE5205
	11	Transistor(Q1952)	2SB1335A
	12	Upper Case	CNB2096
	13	Spacer	CNC5536
	14	Bracket	CNC6782
	15	Holder	CNC7211
	16	Holder	CNC7213
	17	Seal	CNM4918
	18	Insulator	CNM4973
	19	PCB	CNP4402
	20	Grille	CNS4146
	21	Cover	CNS4153
	22	Damper	CNV4502
	23	Arm Unit	CXA8606
	24	Lower Case Unit	CXA9466
	25	Bracket Unit	CXB1636
*	26	Caution Card	HRP1090
	27	Polyethylene Bag	HEG0018
	28	CD Mechanism Module	CXK4551
	29	Extension Unit	HWX2034
	30	Screw	BMZ26P050FMC

Mark	No.	Description	Part No.
	31	Plug(CN1801)	CKS1049
	32	Plug(CN1802)	CKS1050
*	33	Plug(CN1702)	CKS1052
	34	Connector(CN1701)	CKS2233
	35	Connector(CN1102)	CKS2398
	36	Holder	CNC6672
	37	Holder	CNC6784
	38	Screw	BPZ20P060FMC
	39	Screw	BPZ26P080FMC
	40	Leaf Spring	CBL1286
	41	Cord Assy	CDE5107
	42	Clamper	CEF1020
	43	Lighting Conductor	CNV4720
	44	Grille Unit	CXA9439
	45	Screw	IMS20P035FZK
	46	Screw	IMS26P040FMC
	47	Screw	IMS30P040FMC
	48	Screw	IMS30P060FZK

2.2 CD MECHANISM MODULE

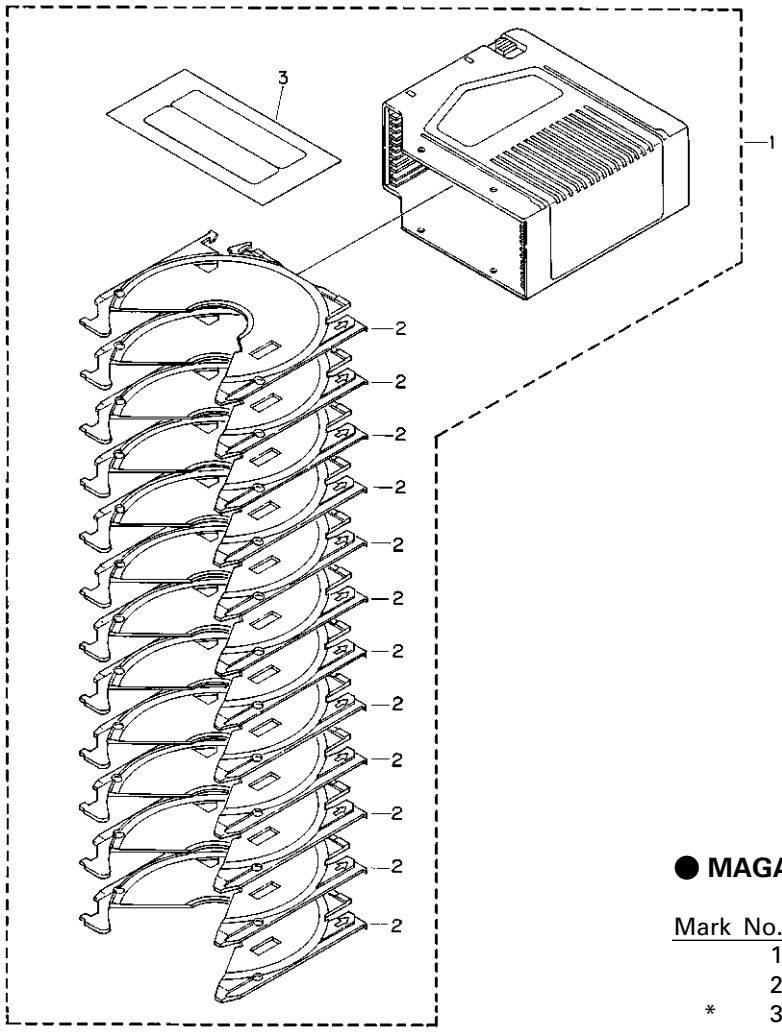


● CD MECHANISM MODULE SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw	CBA1369
	2	CD Core Unit	CWX2014
	3	Connector(CN701)	CKS1968
	4	Connector(CN801)	CKS3484
	5	Connector(CN101)	CKS3486
	6	Pickup Unit(Service)	CXX1235
	7	Screw	IMS26P040FMC
	8	Screw	JFZ17P020FNI
	9	Screw(M2×2.5)	CBA1037
	10	Spring	CBL1362
	11	Screw(M2×2.5)	CBA1077
	12	Screw(M2×2.5)	CBA1085
	13	Spring	CBH1353
	14	Screw(M2×4)	CBA1176
	15	Screw	CBA1166
	16	Screw(M2×4)	CBA1362
	17	Washer	CBF1002
	18	Washer	CBF1038
	19	Spring	CBH1822
	20	Stoper	CNC8095
	21	Spring	CBH1827
	22	Spring	CBH1828
	23	Spring	CBH1829
	24	Spring	CBH1853
	25	Spring	CBH1854
	26	Spring	CBH1867
	27	Spring	CBH1868
	28	Spring	CBH1891
	29	Spring	CBH1892
	30	Spring	CBH1919
	31	Spring	CBH1930
	32	Spring	CBH2091
	33	Spring	CBL1241
	34	Spring	CBL1242
	35	Spring	CBL1388
	36	PCB Unit	CWX2032
	37	Shaft	CLA2852
	38	Arm	CNC6181
	39	Lever	CNC6194
	40	Bracket	CNC6292
	41	Lever	CNC6534
	42	Lever	CNC7975
	43	Lever	CNC8097
	44	Holder	CNC6540
	45	Cover	CNC7452
	46	Arm	CNC6799
*	47	Holder	CNC6819
*	48	Holder	CNC6827
	49	Spacer	CNM4879
	50	Sheet	CNM5118
*	51	Sheet	CNM5020
	52	PCB	CNP4205
*	53	Spring	CBL1304
	54	Screw	CBA1387
	55	PCB	CNP4382
	56	PCB	CNP4453
	57	Bearing	CNR1423
	58	Belt	CNT1053
	59	Photo Transistor(Q851)	PT4800
	60	Gear	CNV5764
	61	Gear	CNV4404
	62	Gear	CNV4406
	63	Cover	CNV4924
	64	Holder	CNV4950
	65	Gear	CNV5305
	66	Gear	CNV5879
	67	Rail(White)	CNV4419
	68	Rail(Black)	CNV4420
	69	Clamper	CNV5226
	70	Lever	CNV4422
	71	Gear	CNV4423
	72	Gear	CNV4827
	73	Rack	CNV4828
	74	Arm	CNV4426
	75	Arm	CNV4490
	76	Arm	CNV4511
	77	Guide	CNV4597
	78	Arm	CNV4670
	79	Guide	CNV4722
	80	Screw Unit	CXB1270
	81	Motor Unit(M854)(Carriage)	CXB1394
	82	Chassis Unit	CXB2692
	83	Bracket Unit	CXB4008
	84	Plate Unit	CXB2262
	85	Motor Unit(M853)(Tray)	CXB1142
	86	Motor Unit(M852)(ELV)	CXB2056
	87	Chassis	CXB3311
	88	Bracket Unit	CXA9211
	89	Damper Unit	CXA7159
	90	Lever Unit	CXB2273

Mark	No.	Description	Part No.
	91	Lever Unit	CXB2493
	92	Bracket Unit	CXA9215
	93	Magazine Holder Unit	CXB2579
	94	Frame Unit	CXB2271
	95	Frame	CNC6917
	96	Lever Unit	CXB2275
	97	Arm Unit	CXB2276
	98	Motor Unit(M851)(Spindle)	CXB1395
	99	Plate	CNC6847
	100	Screw	JFZ20P025FNI
*	101	PCB	CNP4537
	102	Spring	CBL1295
	103	Holder	CNV4761
	104	Spring	CBH1948
	105	Screw(M2×2)	CBA1250
	106	Plate	CNC7076
	107	Screw(M2×2.5)	CBA1041
	108	Screw	JGZ17P022FZK
	109	Spring	CBL1305
	110	Switch(S853,854)	CSN1012
	111	Spacer	CBF1070
	112	Volume(VR801)	CCW1021
	113	LED(D851)	CN504-2
	114	Switch(S851,852)	CSN1033
	115	Screw	CBA1054
	116	Screw	CBA1114

2.3 MAGAZINE ASSY

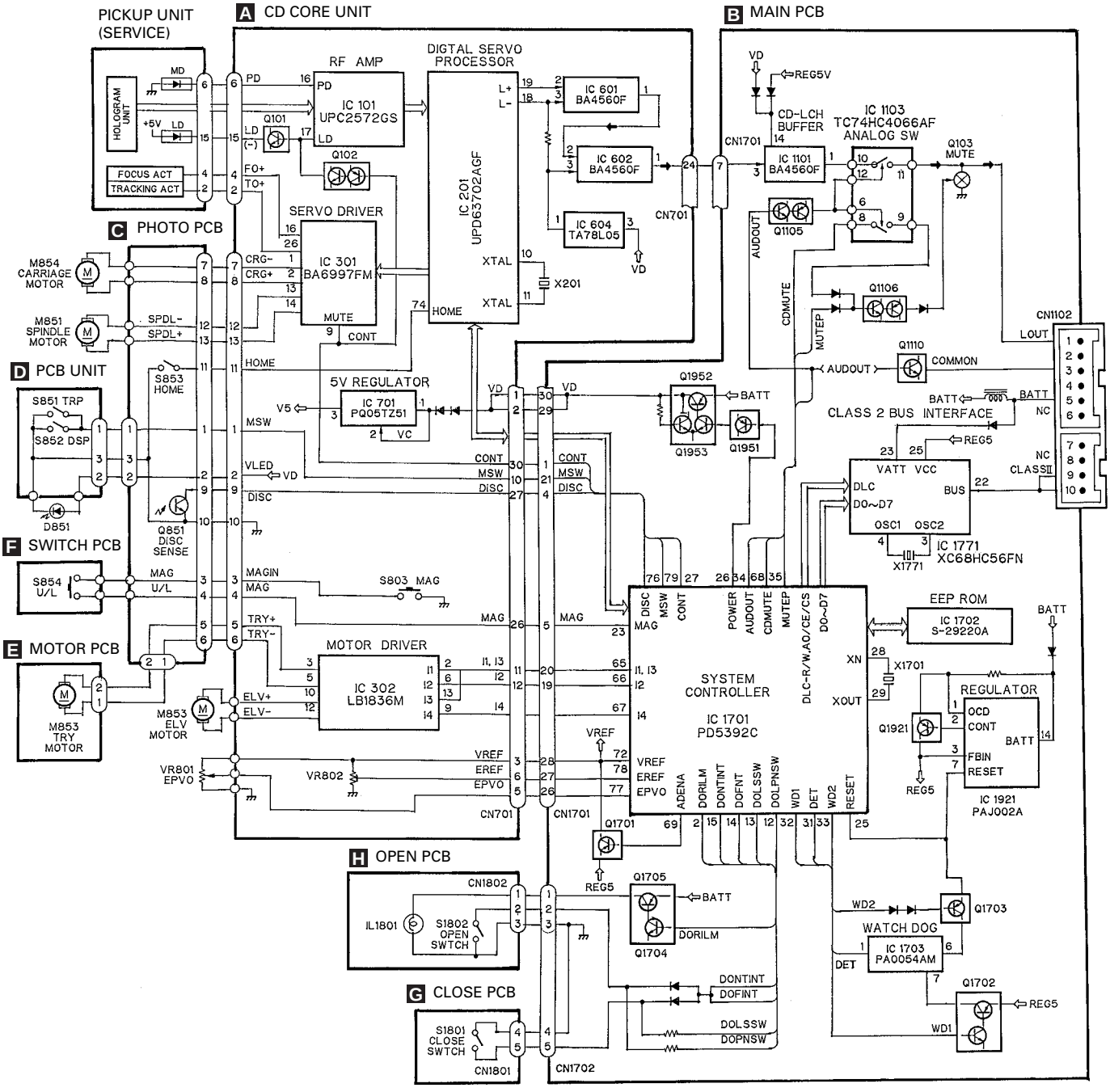


● MAGAZINE ASSY SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Magazine Assy	CXB2580
	2	Tray	CNV4824
*	3	Label	CRW1367

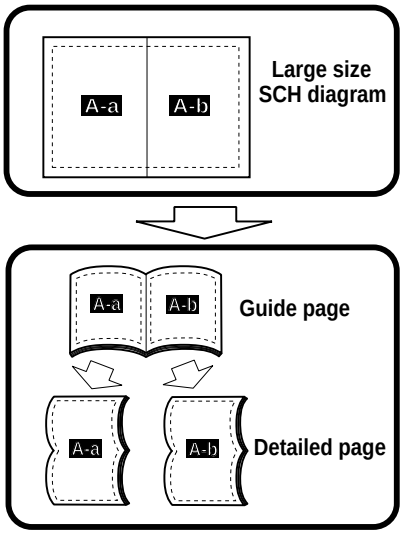
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

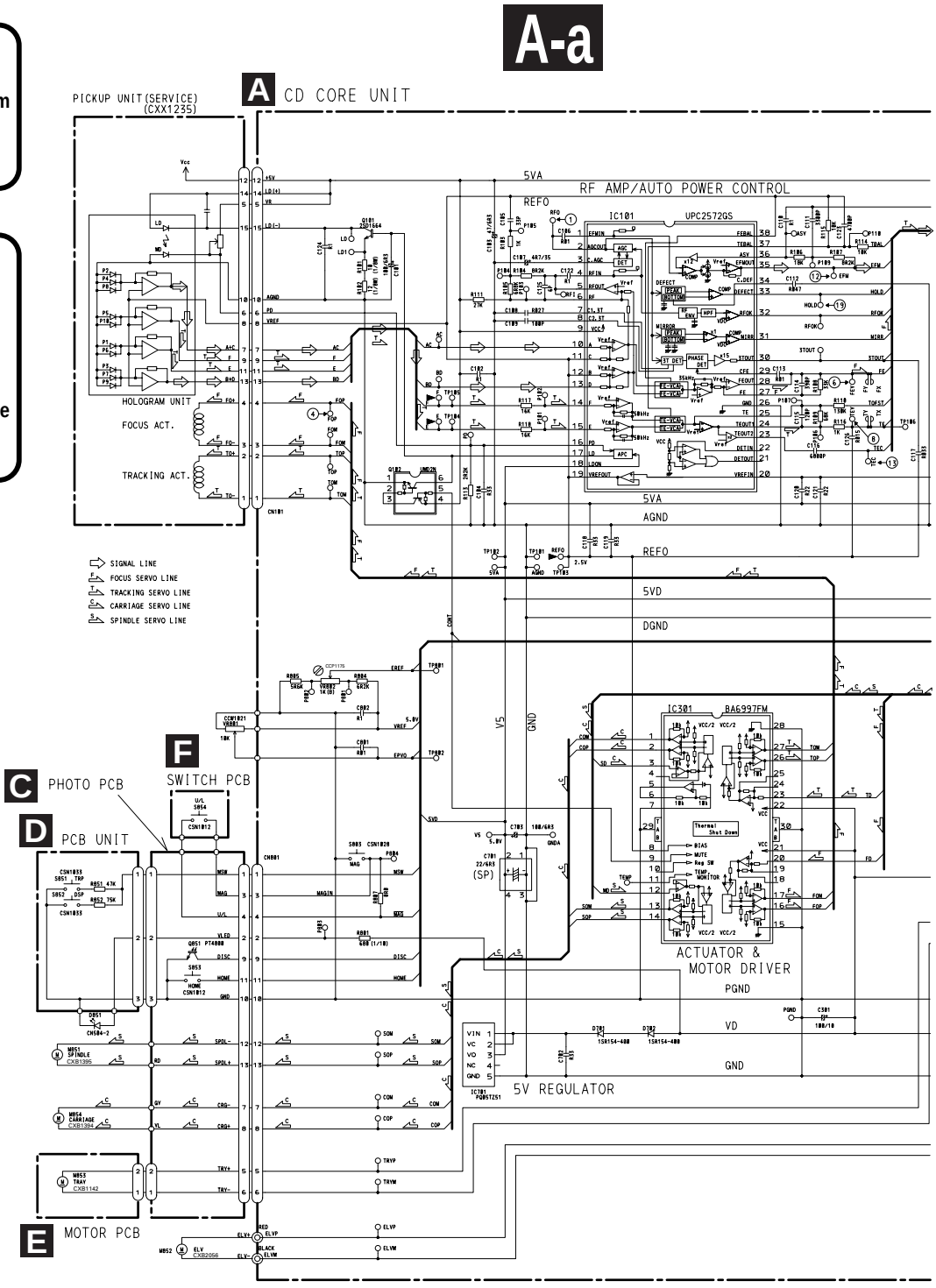
3.1 BLOCK DIAGRAM



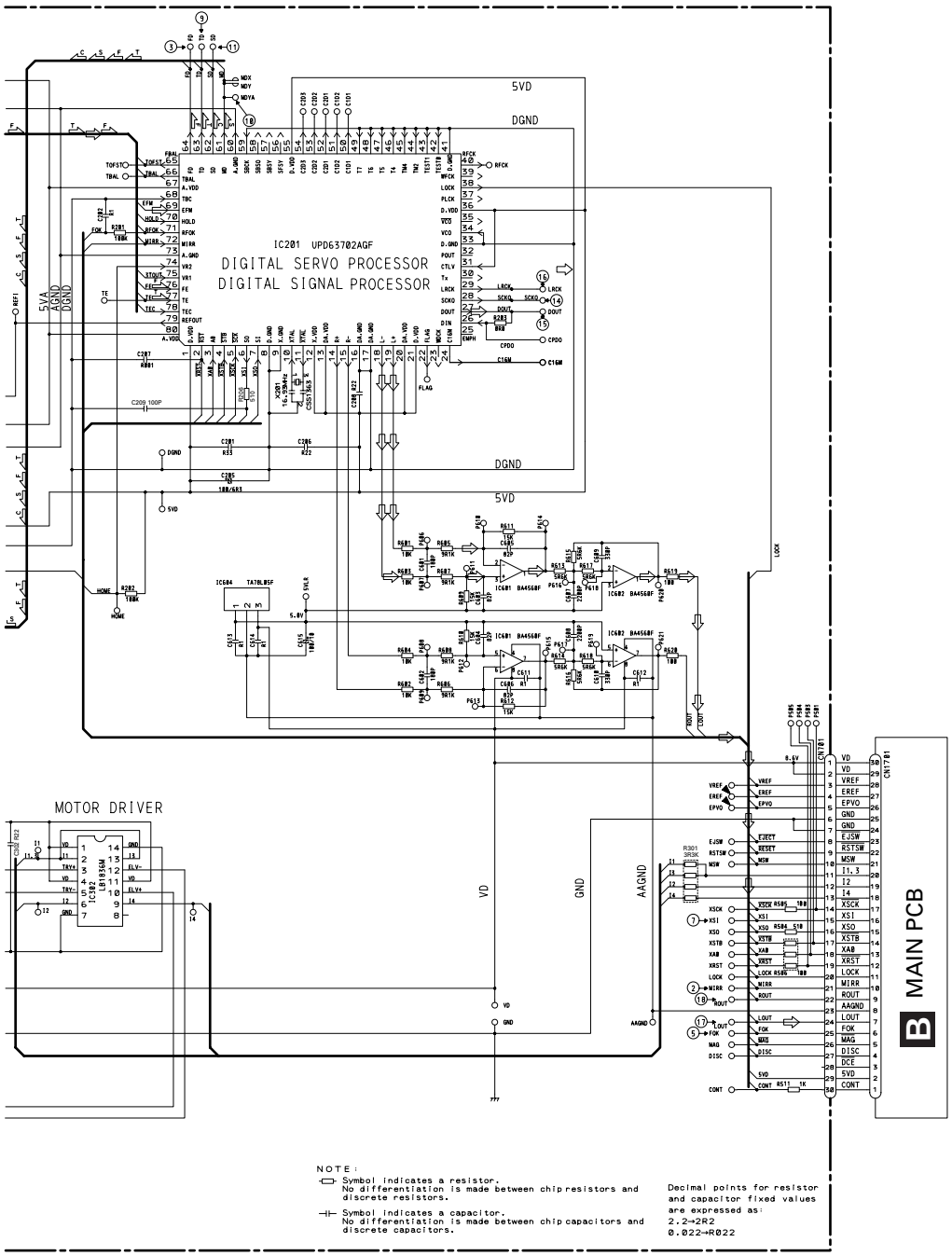
3.2 CD MECHANISM MODULE(GUIDE PAGE)

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

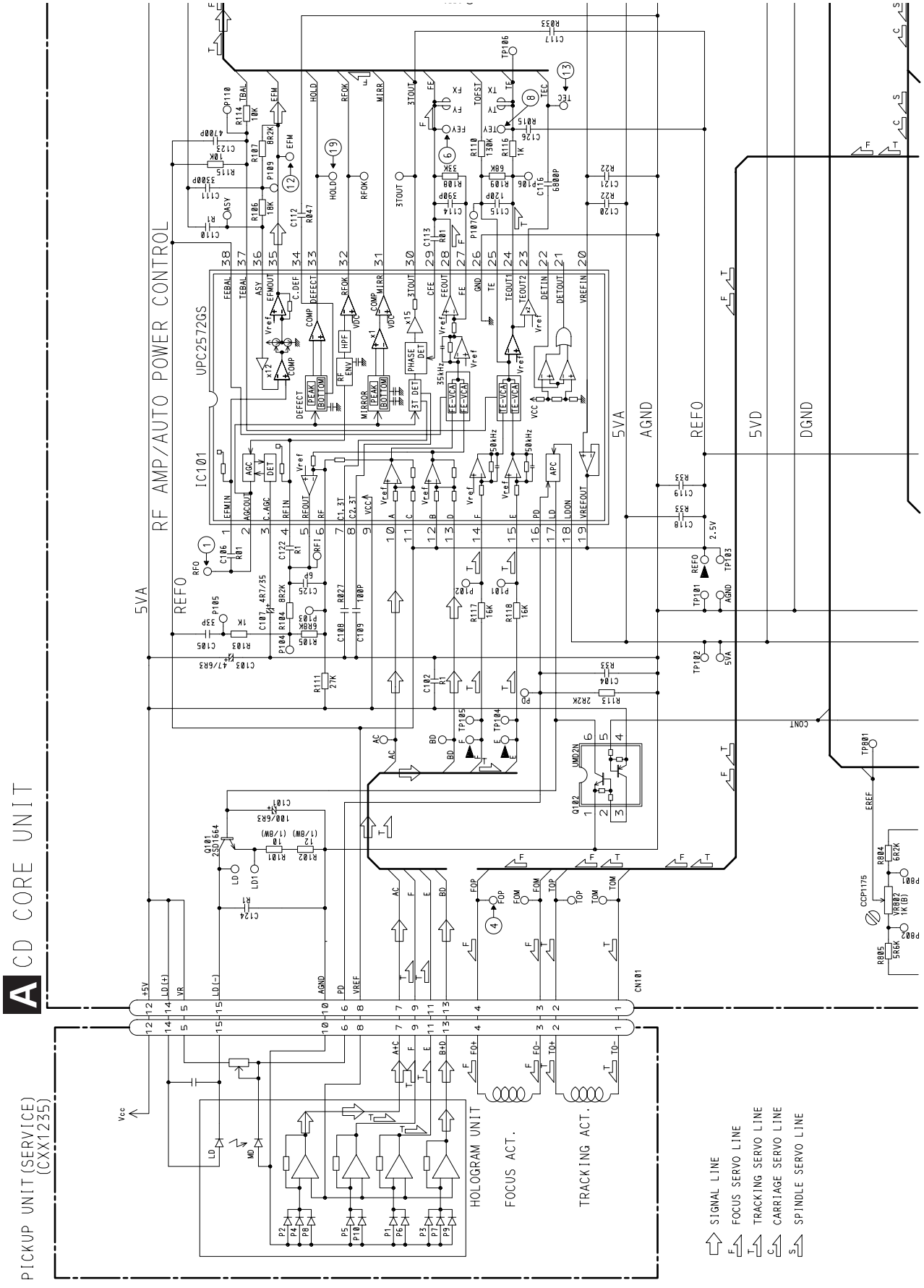


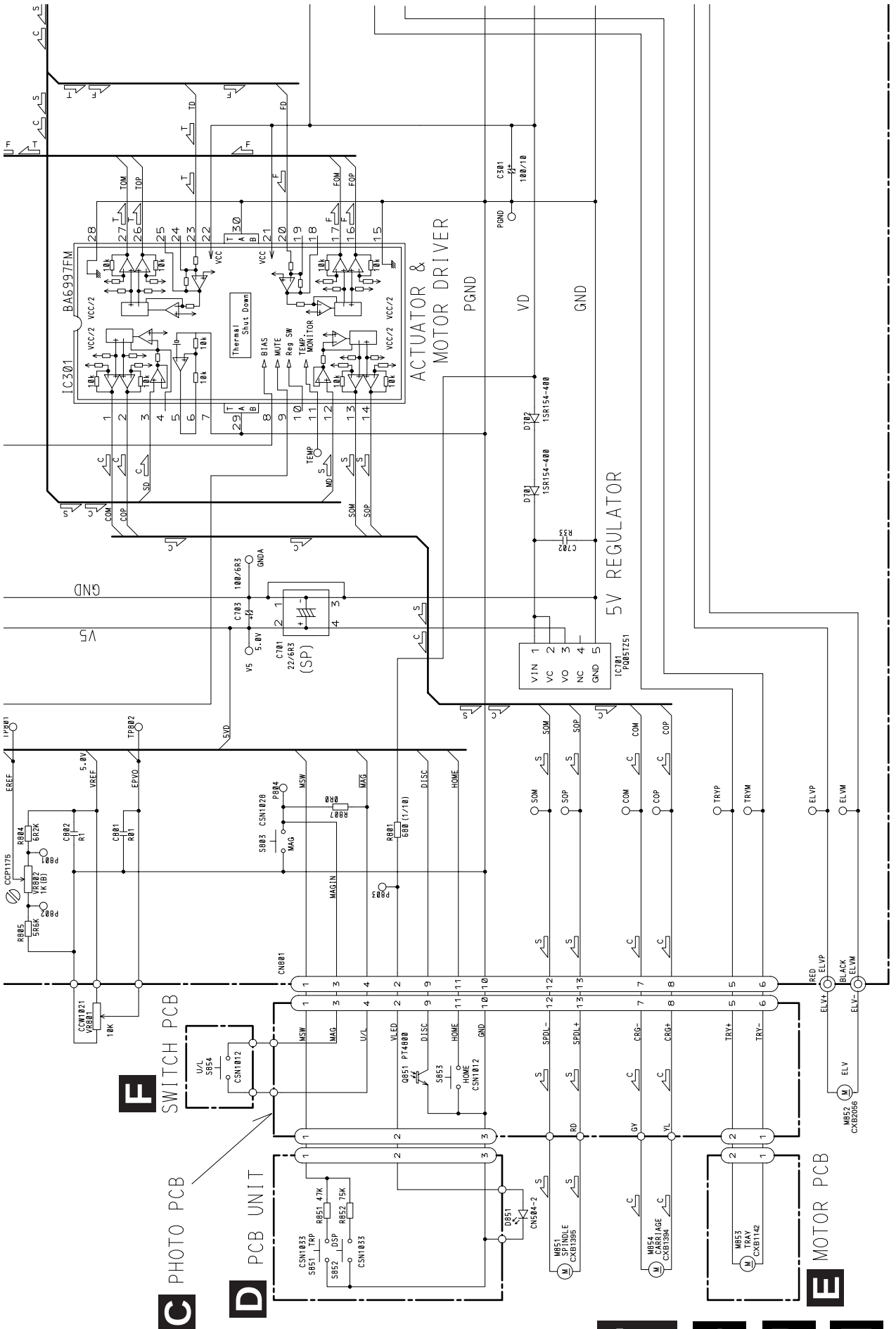


A-b

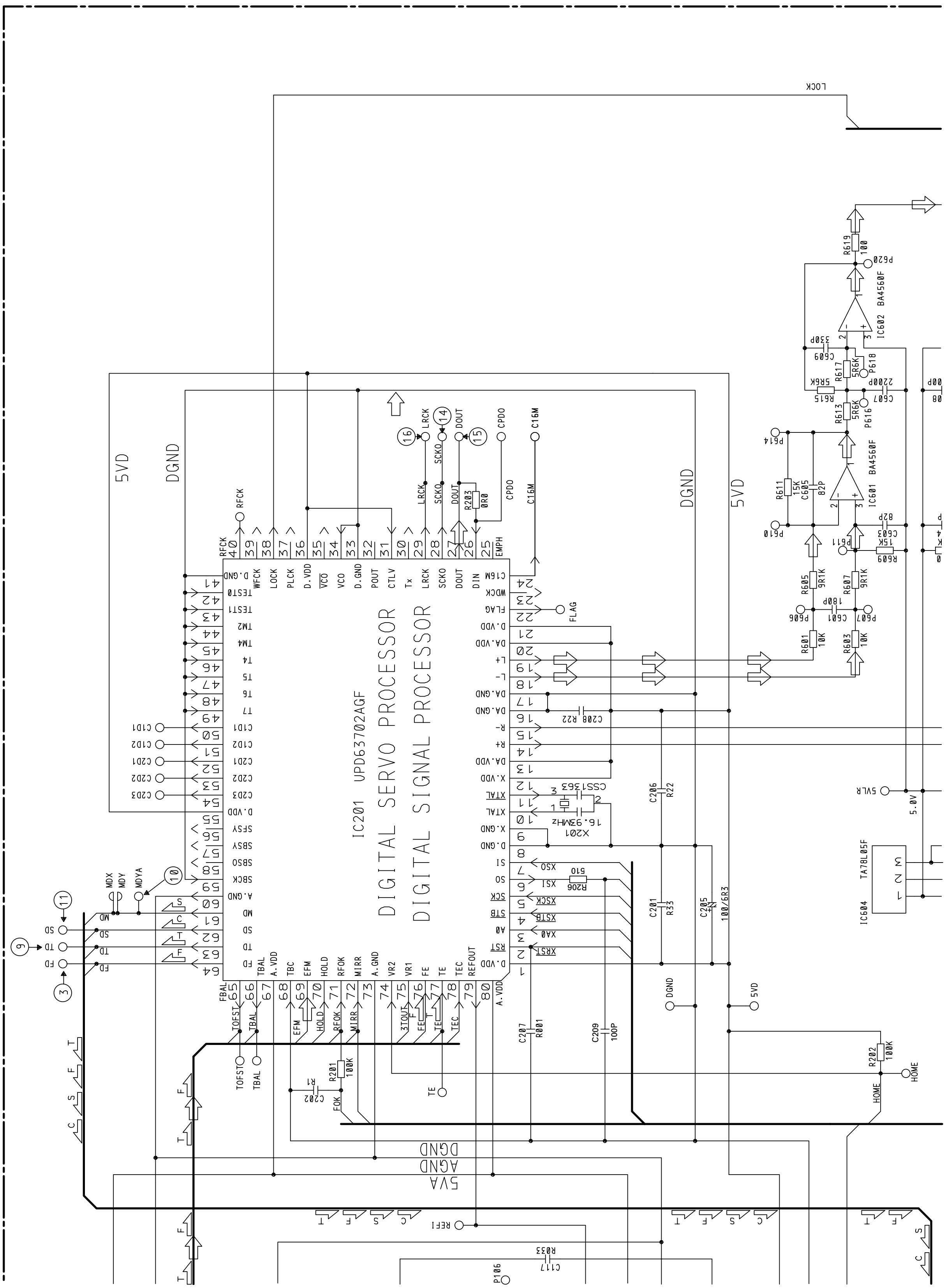

IC201 UPD63702AGF
DIGITAL SERVO PROCESSOR
DIGITAL SIGNAL PROCESSOR
5VD
DGND
MOTOR DRIVER
VD
GND
AAGND
B MAIN PCB
NOTE :
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

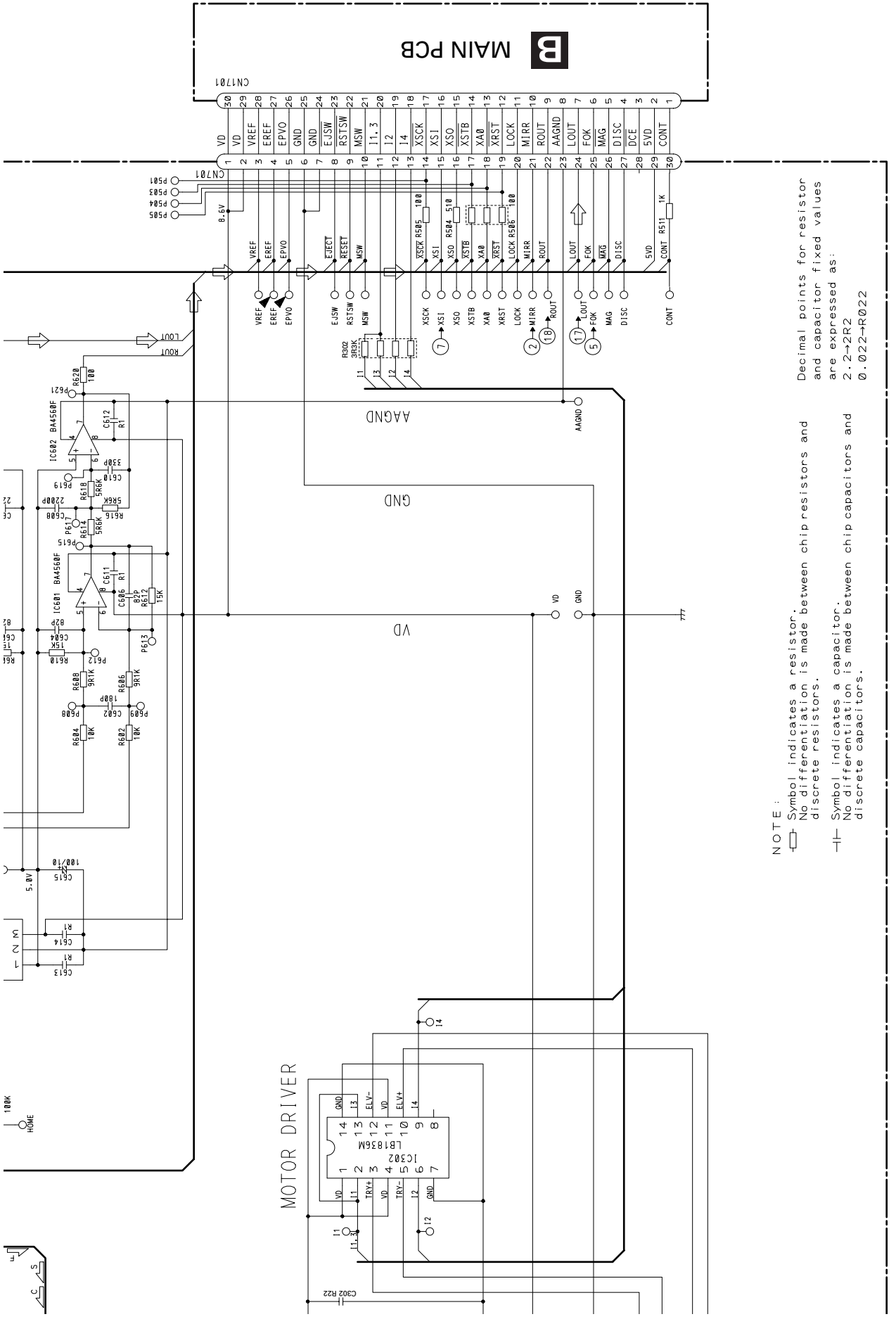
A-a A-b


A CD CORE UNIT
RF AMP/AUTO POWER CONTROL
IC101
UPC2572GS
PICKUP UNIT(SERVICE)
(CXX1235)
HOLOGRAM UNIT
FOCUS ACT.
TRACKING ACT.
SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE


A-a
A-b
IC301
BA6997FM
ACTUATOR &
MOTOR DRIVER
5V REGULATOR
PGND
VD
GND
SWITCH PCB
PHOTO PCB
PCB UNIT
MOTOR PCB
A-a
C
D
E
F

A-b
A-a

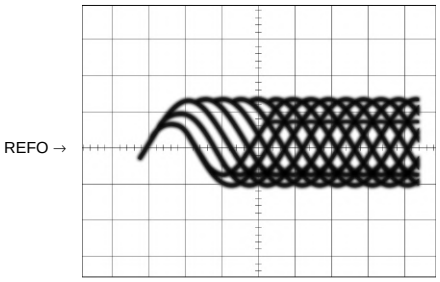

IC201 UPD63702AGF
DIGITAL SERVO PROCESSOR
DIGITAL SIGNAL PROCESSOR
IC601 BA4560F
IC602 BA4560F
IC604 TA78L05F
X201 16.93MHz
CSS1363
5VD
DGND
AGND
5VA
LOCK
FLAG
HOME
5VLR
TE
TOFST
TBAL
REFI


MAIN PCB
CN1701
MOTOR DRIVER
IC302
LB1836M
IC602 BA4560F
IC601 BA4560F
AAGND
GND
VD
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

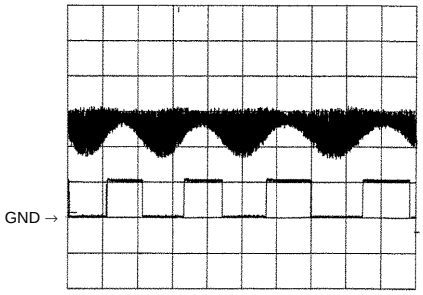
Note:1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
REFO:2.5V

● Waveforms

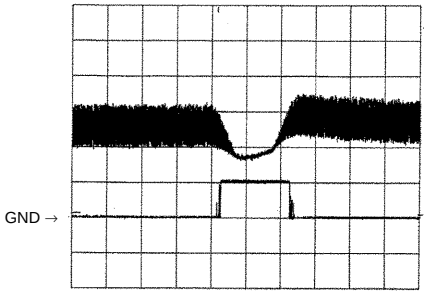
① RFO 0.5V/div. 0.5µs/div.
Normal mode: play



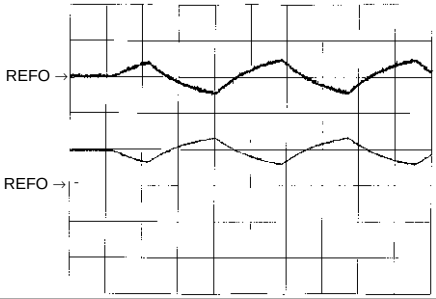
① CH1: RFO 1V/div. 0.5ms/div
② CH2: MIRR 5V/div.
Test mode: Tracking open



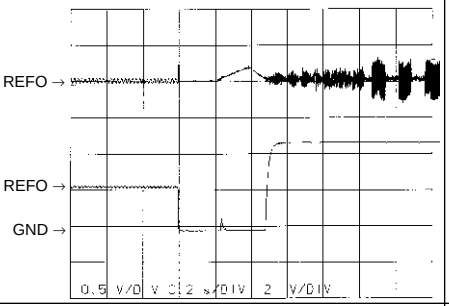
① CH1: RFO 1V/div. 0.5ms/div
② CH2: MIRR 5V/div.
Normal mode: The defect part passes



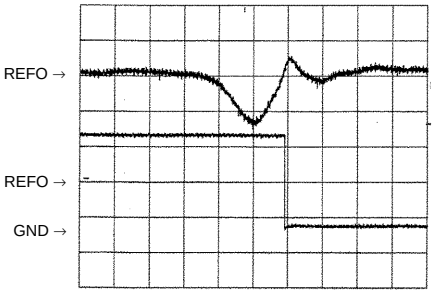
③ CH1: FD 0.5V/div. 0.2s/div.
④ CH2: FOP 2V/div.
Test mode: No disc, Focus close



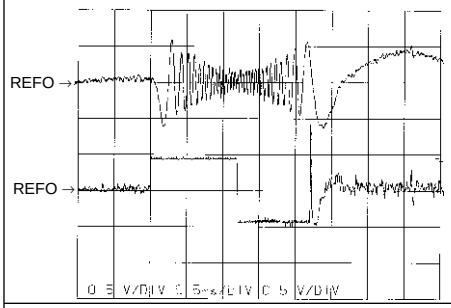
③ CH1: FD 0.5V/div. 0.2s/div.
⑤ CH2: FOK 2V/div.
Normal mode: Focus close



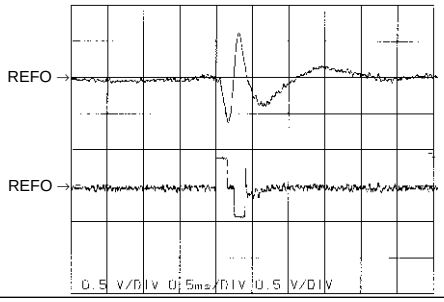
⑥ CH1: FEY 0.5V/div. 1ms/div.
⑦ CH2: XSI 2V/div.
Normal mode: Focus close



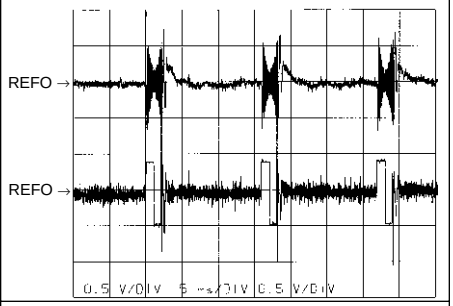
⑧ CH1: TEY 0.5V/div. 0.5ms/div
⑨ CH2: TD 0.5V/div.
Test mode: 32 tracks jump (FWD)



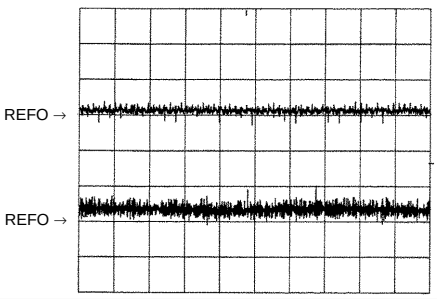
⑧ CH1: TEY 0.5V/div. 0.5ms/div
⑨ CH2: TD 0.5V/div.
Test mode: Single jump (FWD)



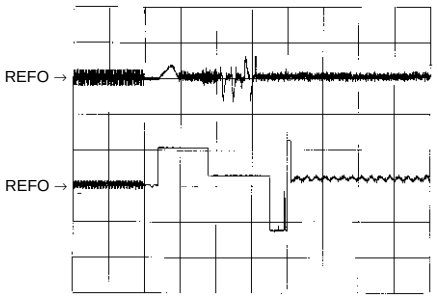
⑧ CH1: TEY 0.5V/div. 5ms/div
⑨ CH2: TD 0.5V/div.
Test mode: 100 tracks jump (FWD)



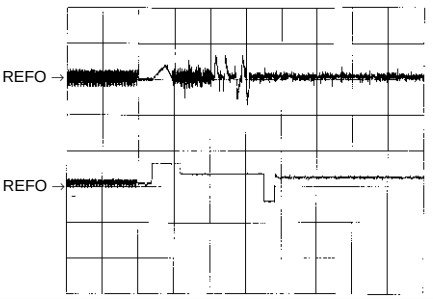
⑥ CH1: FEY 0.1V/div. 20ms/div
③ CH2: FD 0.2V/div.
Normal mode: Play



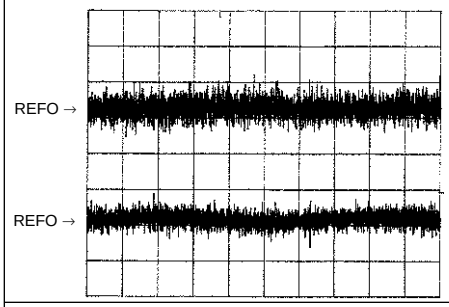
③ CH1: FD 0.5V/div. 0.5s/div.
⑩ CH2: MDYA 1V/div.
Normal mode: Focus close (12cm)



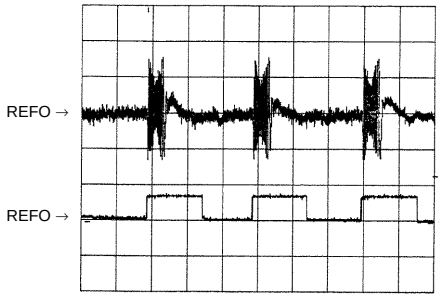
③ CH1: FD 0.5V/div. 0.5s/div.
⑩ CH2: MDYA 1V/div.
Normal mode: Focus close (8cm)



⑧ CH1: TEY 0.2V/div.
⑨ CH2: TD 0.2V/div. 20ms/div.
Normal mode: play

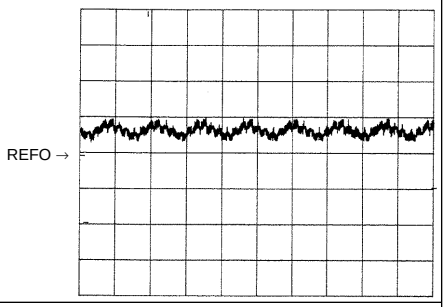


⑧ CH1: TEY 0.5V/div.
⑪ CH2: SD 0.5V/div. 5ms/div.



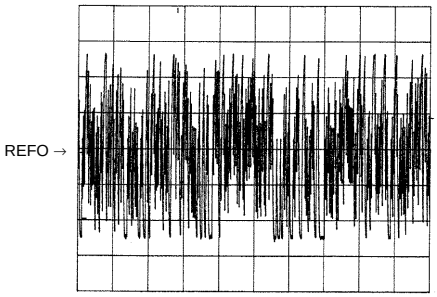
⑩ MDYA 0.5V/div. 0.1s/div.

Normal mode: Play (12cm)



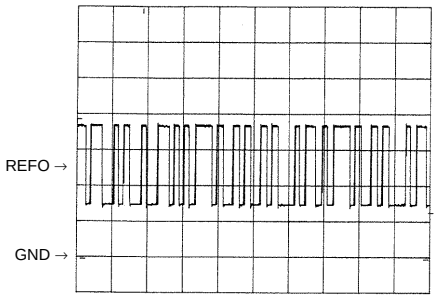
⑩ MDYA 0.5V/div. 10ms/div.

Long Search (12cm)

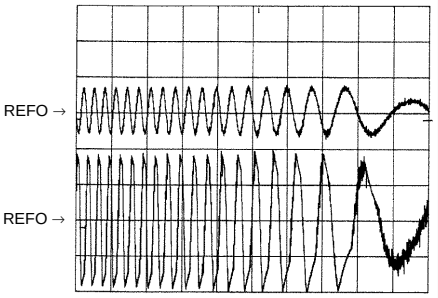


⑫ EFM 1V/div. 5µs/div.

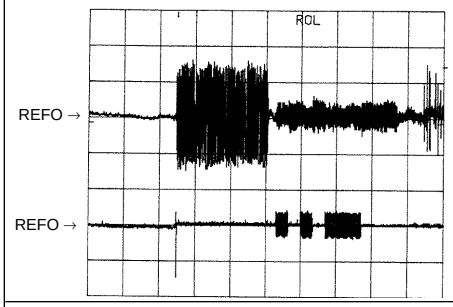
Play



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

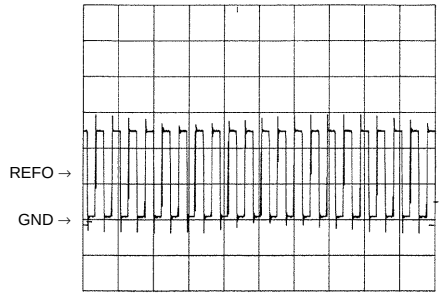


⑧ CH1: TEY 0.5V/div.
⑥ CH2: FEY 0.5V/div. 0.2s/div.
Normal mode: AGC after focus



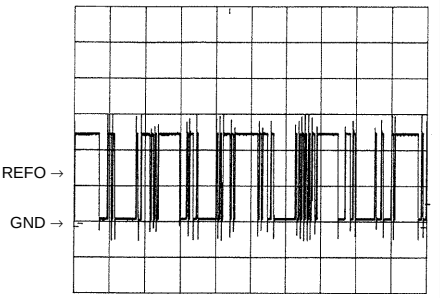
⑭ SCKO 2V/div. 1µs/div.

Play

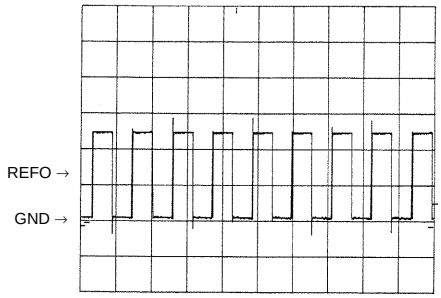


⑮ Dout 2V/div. 10µs/div.

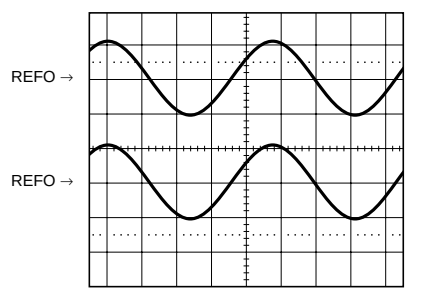
Play



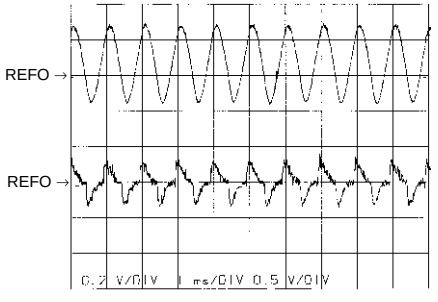
⑯ LRCK 2V/div. 20µs/div.

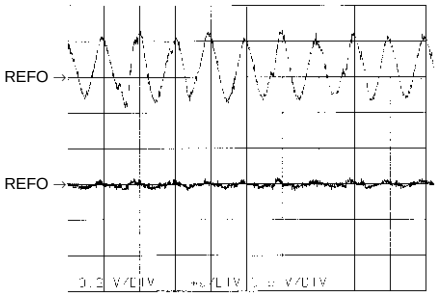
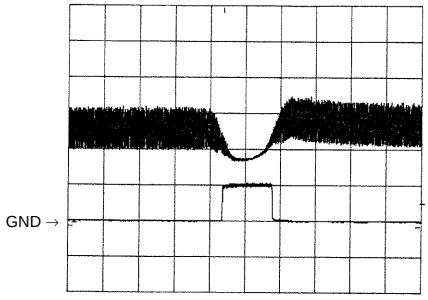
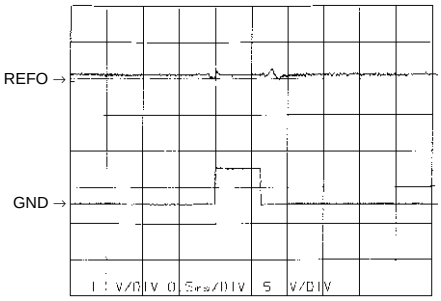


⑱ CH1: R OUT 1V/div.
⑰ CH2: L OUT 1V/div. 0.2ms/div.
Normal mode: Play (1kHz 0dB)

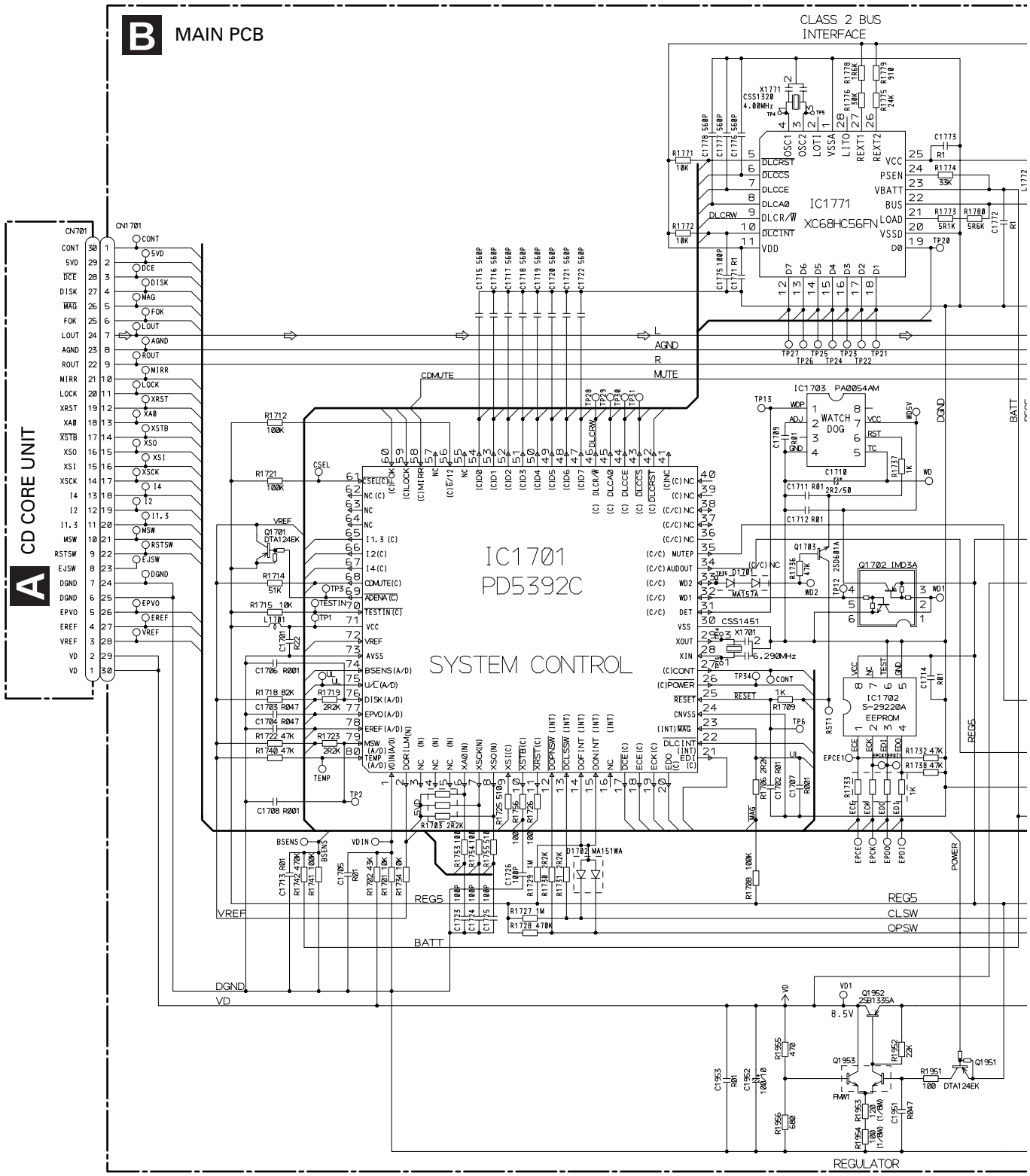


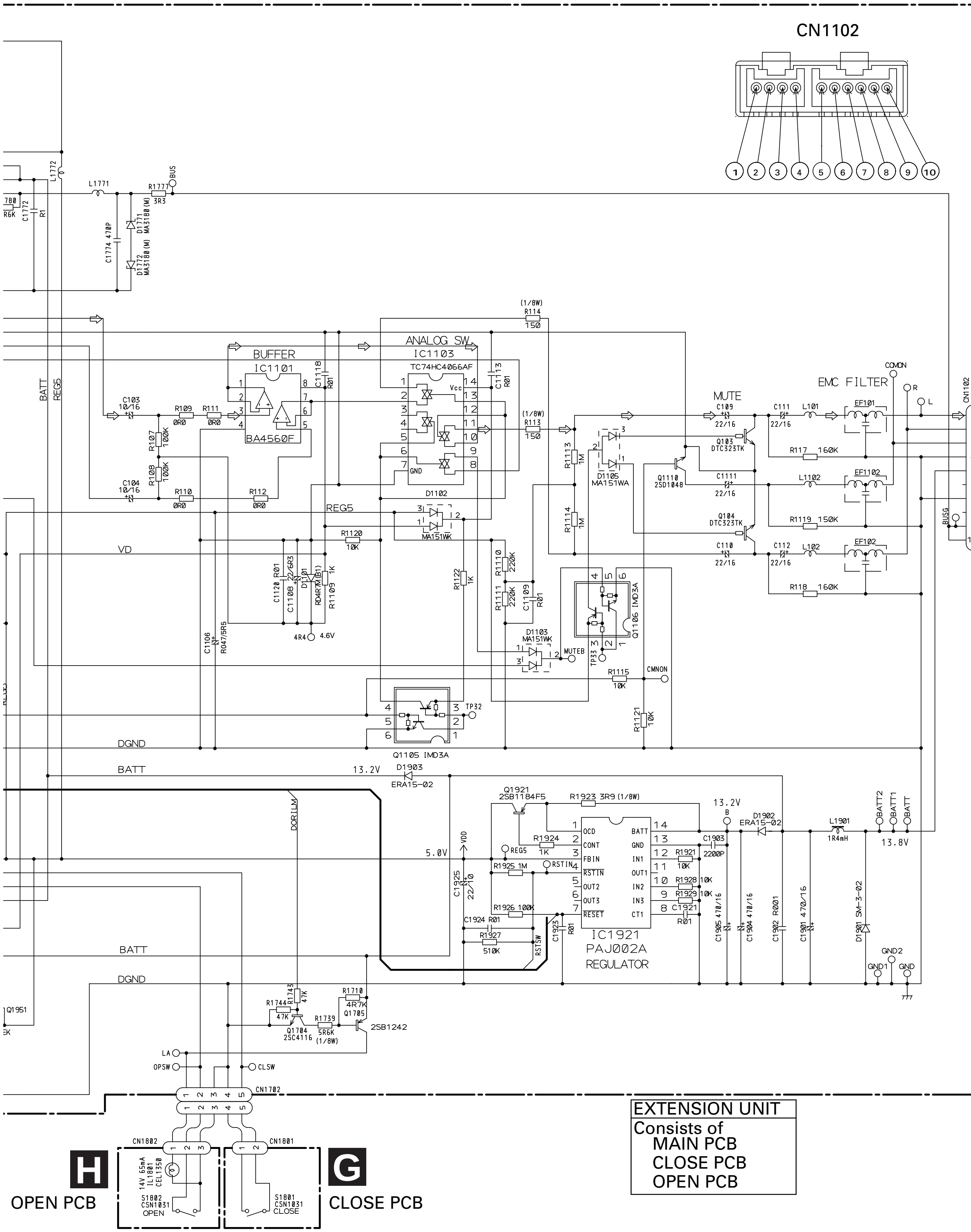
⑥ CH1: FEY 0.2V/div.
③ CH2: FD 0.5V/div. 1ms/div.
Normal mode: During AGC



⑧ CH1: TEY 0.2V/div. ⑨ CH2: TD 0.5V/div. 1ms/div. Normal mode: During AGC  	① CH1: RFO 1V/div. ⑯ CH2: HOLD 5V/div. 0.5ms/div Normal mode: The defect part passes 800µm  	③ CH1: FD 1V/div. ⑯ CH2: HOLD 5V/div. 0.5ms/div Normal mode: The defect part passes 800µm 

3.3 EXTENSION UNIT




CN1102
BUFFER
IC1101
BA4560F
ANALOG SW
IC1103
TC74HC4066AF
MUTE
EMC FILTER
LEFT
RIGHT
COMMON
DRAIN
BATT
N/C
GND
N/C
CLASS Ⅱ
CLASS Ⅱ
REG5
VD
DGND
BATT
13.2V
D1903
ERA15-02
Q1921
2SB1184F5
R1923 3R9 (1/8W)
IC1921
PAJ002A
REGULATOR
D1902
ERA15-02
L1901
13.8V
5.0V
Q1105 IMD3A
Q1106 IMD3A
D1102
MA151WK
D1103
MA151WK
D1105
MA151WA
Q1110
2SD1048
Q103
DTC323TK
Q104
DTC323TK
TP32
TP33
MUTEB
CMNON
Q1704
2SC4116
Q1705
2SB1242
CN1702
CN1802
CN1801
EXTENSION UNIT
Consists of
MAIN PCB
CLOSE PCB
OPEN PCB
H
OPEN PCB
G
CLOSE PCB
S1802
CSN1031
OPEN
S1801
CSN1031
CLOSE
14V 65mA
IL1801
CEL1350

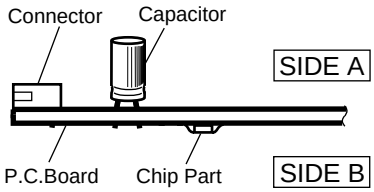
A B C D

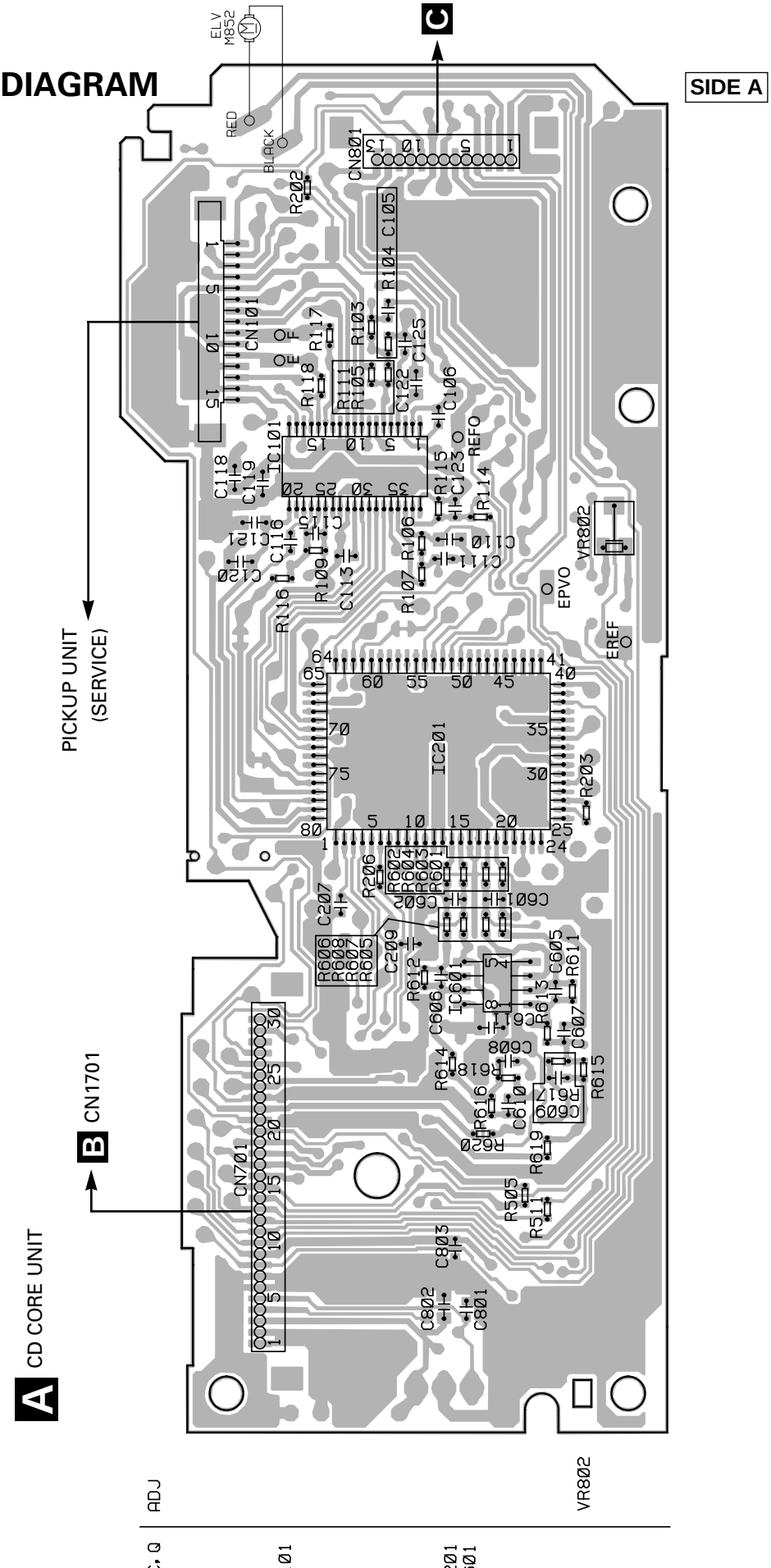
4. PCB CONNECTION DIAGRAM

4.1 CD CORE UNIT

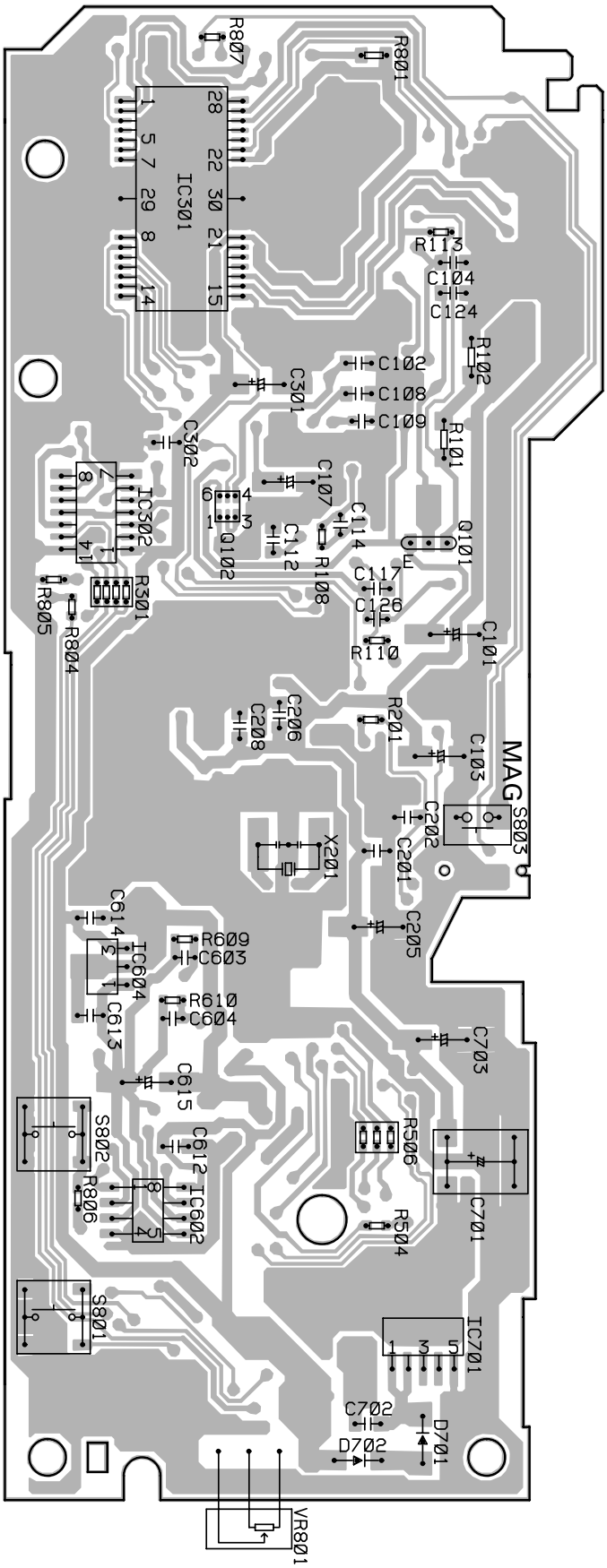
NOTE FOR PCB DIAGRAMS

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





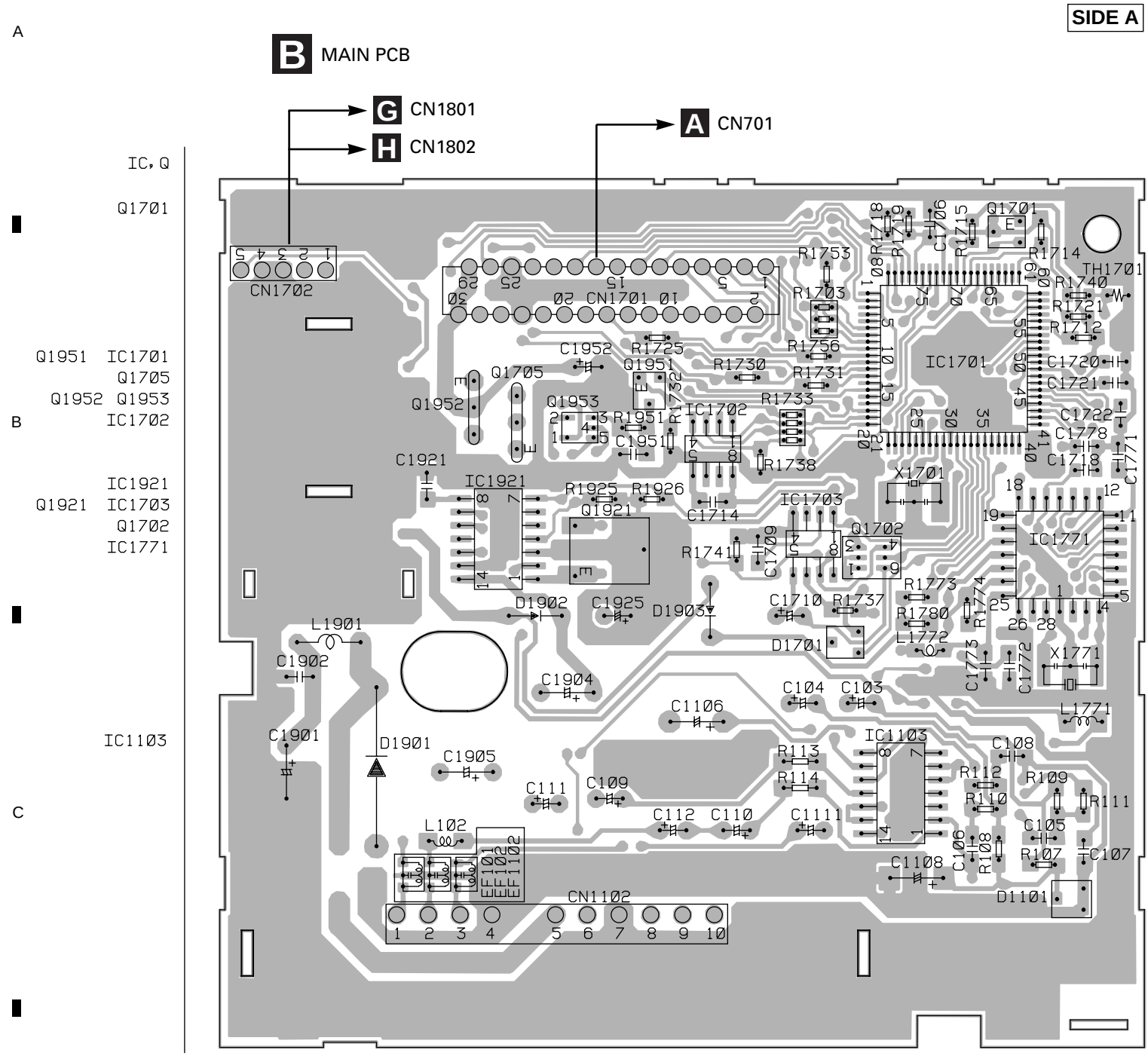
SIDE B



A CD CORE UNIT

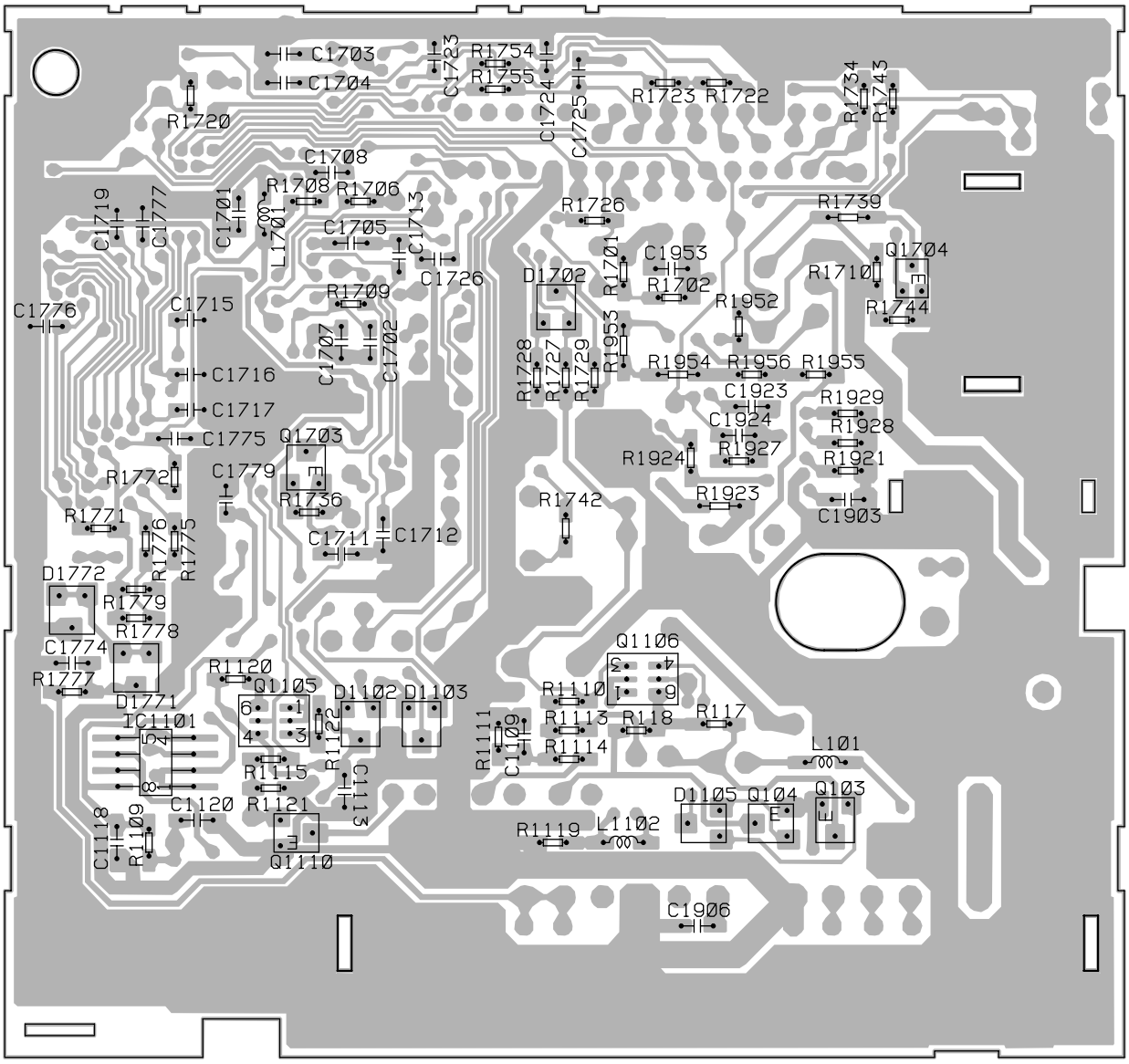
IC, Q
Q101 IC701
Q102 IC301 IC602 IC302 IC604

4.2 MAIN PCB


SIDE A
B MAIN PCB
G CN1801
H CN1802
A CN701
IC, Q
Q1701
Q1951 IC1701
Q1705
Q1952 Q1953
IC1702
IC1921
Q1921 IC1703
Q1702
IC1771
IC1103
CN1702
CN1701
CN1102
IC1701
IC1702
IC1703
IC1771
IC1921
IC1103
Q1701
Q1705
Q1951
Q1952
Q1953
Q1921
Q1702
X1701
X1771
TH1701
L1901
L102
L1771
L1772
D1901
D1902
D1903
D1701
D1101
C1921
C1902
C1901
C1904
C1905
C1925
C1106
C104
C103
C108
C109
C111
C112
C110
C1111
C105
C107
C1108
C1952
C1951
C1714
C1709
C1710
C1720
C1721
C1722
C1778
C1718
C1771
C1773
C1772
R1725
R1730
R1731
R1732
R1733
R1738
R1753
R1703
R1756
R1951
R1925
R1926
R1741
R1737
R1780
R1773
R1774
R1714
R1740
R1721
R1712
R1718
R1719
R1706
R1715
R113
R114
R112
R110
R109
R111
R108
R107
EF1101
EF1102
EF1102

SIDE B

B MAIN PCB



IC, Q

Q1704

Q1703

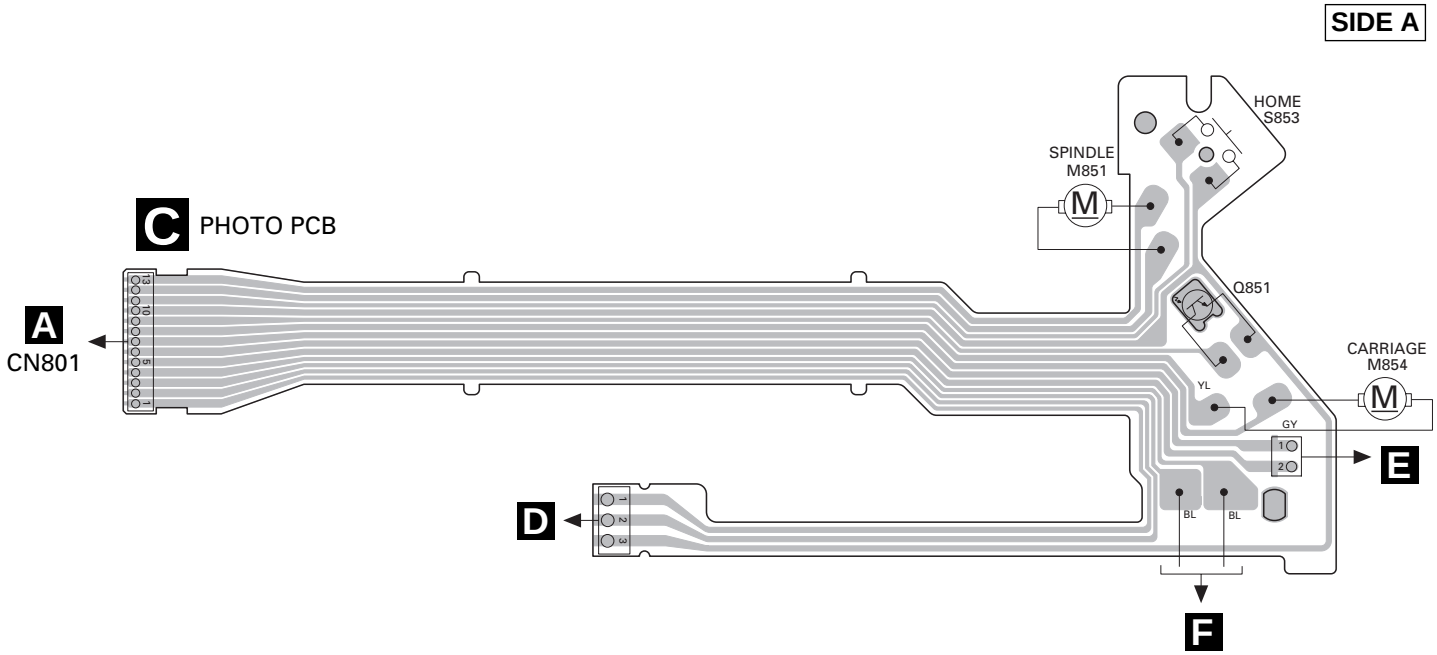
Q1106

Q1105
IC1101

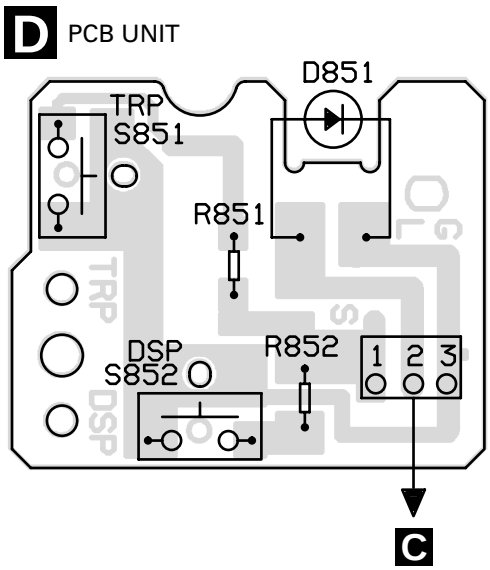
Q104
Q103

Q1110

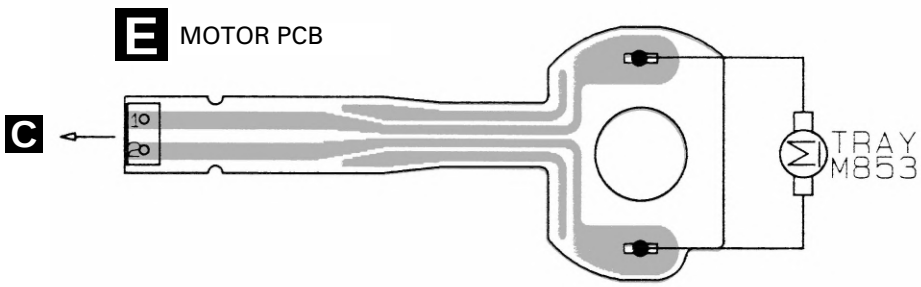
4.3 PHOTO PCB



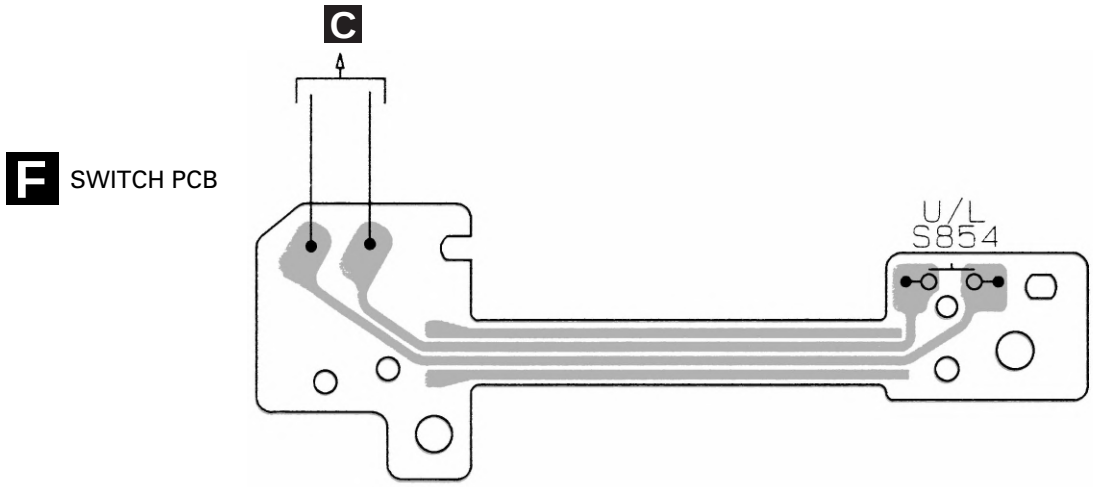
4.4 PCB UNIT



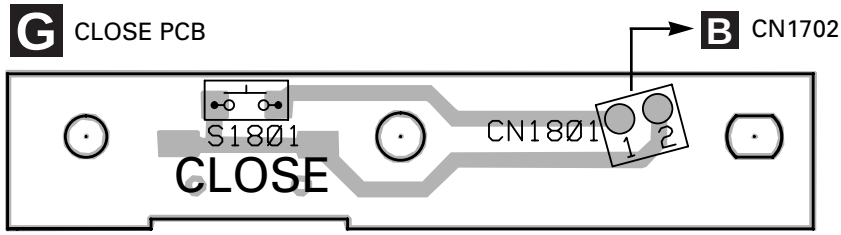
4.5 MOTOR PCB



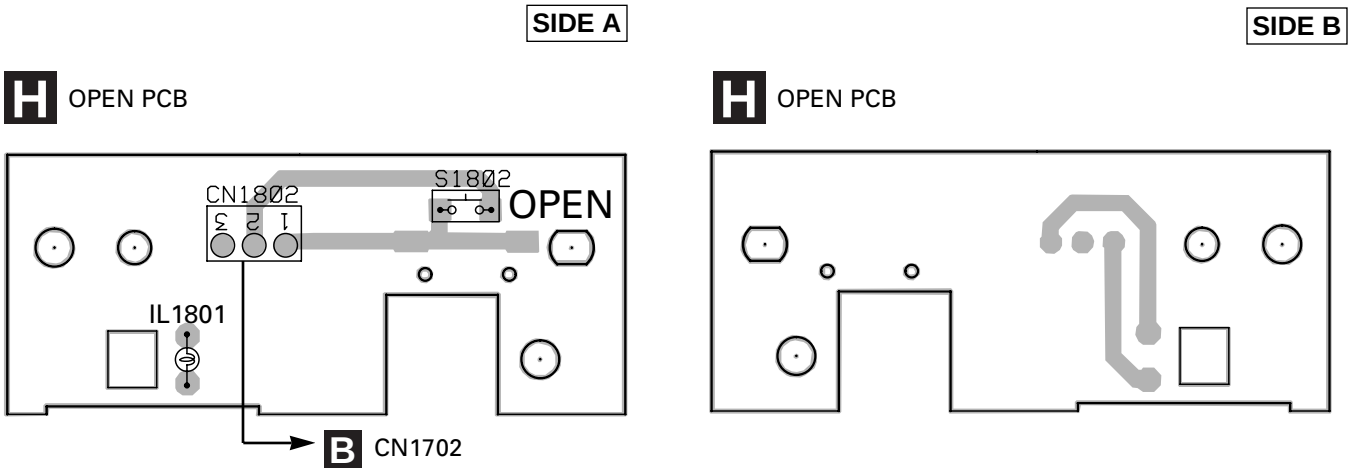
4.6 SWITCH PCB



4.7 CLOSE PCB



4.8 OPEN PCB



5. ELECTRICAL PARTS LIST

NOTES:

● 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 : CWX2014
Unit Name : CD Core Unit

CAPACITORS

=====Circuit Symbol and No.		===Part Name	Part No.
IC	101	IC	UPC2572GS
IC	201	IC	UPD63702AGF
IC	301	IC	BA6997FM
IC	302	IC	LB1836M
IC	601	IC	BA4560F
IC	602	IC	BA4560F
IC	604	IC	TA78L05F
IC	701	IC	PQ05TZ51
Q	101	Transistor	2SD1664
Q	102	Transistor	UMD2N
D	701	Diode	1SR154-400
D	702	Diode	1SR154-400
X	201	Ceramic Resonator 16.93MHz	CSS1363
S	803	Switch(MAG)	CSN1028
VR	802	Semi-fixed 1kΩ(B)	CCP1175

RESISTORS

=====Circuit Symbol and No.		===Part Name	Part No.
R	101		RS1/8S100J
R	102		RS1/8S120J
R	103		RS1/16S102J
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	113		RS1/16S222J
R	114		RS1/16S103J
R	115		RS1/16S103J
R	116		RS1/16S102J
R	117		RS1/16S163J
R	118		RS1/16S163J
R	201		RS1/16S104J
R	202		RS1/16S104J
R	203		RS1/16S0R0J
R	206		RS1/16S511J
R	301		RA4C332J
R	504		RS1/16S511J
R	505		RS1/16S101J
R	506		RA3C101J
R	511		RS1/16S102J
R	601		RS1/16S103J
R	602		RS1/16S103J
R	603		RS1/16S103J
R	604		RS1/16S103J
R	605		RS1/16S912J
R	606		RS1/16S912J
R	607		RS1/16S912J
R	608		RS1/16S912J
R	609		RS1/16S153J
R	610		RS1/16S153J
R	611		RN1/16SE1502D
R	612		RN1/16SE1502D
R	613		RN1/16SK5601D
R	614		RN1/16SK5601D
R	615		RN1/16SK5601D
R	616		RN1/16SK5601D
R	617		RS1/16S562J
R	618		RS1/16S562J
R	619		RS1/16S101J
R	620		RS1/16S101J
R	801		RS1/10S681J
R	804		RS1/16S622J
R	805		RS1/16S562J
R	807		RS1/16S203J

CAPACITORS

=====Circuit Symbol and No.		===Part Name	Part No.
C	101		CEV101M6R3
C	102		CKSQYB104K16
C	103		CEV470M6R3
C	104		CKSQYB334K16
C	105		CCSRCH330J50
C	106		CKSRYB103K25
C	107		CEV4R7M35
C	108		CKSQYB273K25
C	109		CCSRCH101J50
C	110		CKSQYB104K16
C	111		CKSRYB332K50
C	112		CKSQYB473K25
C	113		CKSRYB103K25
C	114		CKSRYB391K50
C	115		CCSRCH121J50
C	116		CKSRYB682K50
C	117		CKSQYB333K25
C	118		CKSQYB334K16
C	119		CKSQYB334K16
C	120		CKSQYB224K16
C	121		CKSQYB224K16
C	122		CKSQYB104K16
C	123		CKSRYB472K50
C	124		CKSQYB104K16
C	125		CCSRCH6R0D50
C	126		CKSRYB153K25
C	201		CKSQYB334K16
C	202		CKSQYB104K16
C	205		CEV101M6R3
C	206		CKSQYB224K16

=====Circuit Symbol and No.	Part Name	Part No.
C 207		CKSRYB102K50
C 208		CKSQYB224K16
C 209		CCSRCH101J50
C 301		CEV101M10
C 302		CKSQYB224K16
C 601		CCSRCH181J50
C 602		CCSRCH181J50
C 603		CCSRCH820J50
C 604		CCSRCH820J50
C 605		CCSRCH820J50
C 606		CCSRCH820J50
C 607		CKSRYB222K50
C 608		CKSRYB222K50
C 609		CCSRCH331J50
C 610		CCSRCH331J50
C 611		CKSQYB104K16
C 612		CKSQYB104K16
C 613		CKSQYB104K16
C 614		CKSQYB104K16
C 615		CEV101M10
C 701	22µF/6.3V	CCH1233
C 702		CKSQYB334K16
C 703		CEV101M6R3
C 801		CKSRYB103K25
C 802		CKSQYB104K16

Extension Unit
Consists of
Main PCB
Close PCB
Open PCB

B G H Unit Number : HWX2034
Unit Name : Extension Unit

MISCELLANEOUS

IC	1101	IC	BA4560F
IC	1103	IC	TC74HC4066AF
IC	1701	IC	PD5392C
IC	1702	IC	S-29220A
IC	1703	IC	PA0054AM
IC	1771	IC	XC68HC56FN
IC	1921	IC	PAJ002A
Q	103	Transistor	DTC323TK
Q	104	Transistor	DTC323TK
Q	1105	Transistor	IMD3A
Q	1106	Transistor	IMD3A
Q	1110	Transistor	2SD1048
Q	1701	Transistor	DTA124EK
Q	1702	Transistor	IMD3A
Q	1703	Transistor	2SD601A
Q	1704	Transistor	2SC4116
Q	1705	Transistor	2SB1242
Q	1921	Transistor	2SB1184F5
Q	1951	Transistor	DTA124EK
Q	1952	Transistor	2SB1335A
Q	1953	Transistor	FMW1
D	1101	Diode	RD4R7M(B1)
D	1102	Chip Diode	MA151WK
D	1103	Chip Diode	MA151WK
D	1105	Chip Diode	MA151WA
D	1701	Diode	MA157A
D	1702	Chip Diode	MA151WA
D	1771	Diode	MA3180(M)
D	1772	Diode	MA3180(M)
D	1901	Diode	SM-3-02
D	1902	Diode	ERA15-02
D	1903	Diode	ERA15-02
L	101	Inductor	LCTB6R8K3216
L	102	Inductor	LCTB6R8K3216
L	1102	Inductor	LCTB6R8K3216

=====Circuit Symbol and No.	Part Name	Part No.
L 1701	Inductor	LCTB1R0K3216
L 1771	Inductor	CTF1418
L 1772	Inductor	LCTB1R0K2125
L 1901	Choke Coil 1.4mH	CTH1129
X 1701	Radiator 6.290MHz	CSS1451
X 1771	Radiator 4.00MHz	CSS1320
S 1801	Switch(CLOSE)	CSN1031
S 1802	Switch(OPEN)	CSN1031
IL 1801	Lamp 14V 65mA	CEL1350
EF 101		CCG1067
EF 102		CCG1067
EF 1102		CCG1067

RESISTORS

R 107		RS1/10S104J
R 108		RS1/10S104J
R 109		RS1/10S0R0J
R 110		RS1/10S0R0J
R 111		RS1/10S0R0J
R 112		RS1/10S0R0J
R 113		RS1/8S151J
R 114		RS1/8S151J
R 117		RS1/10S164J
R 118		RS1/10S164J
R 1109		RS1/10S102J
R 1110		RS1/10S224J
R 1111		RS1/10S224J
R 1113		RS1/10S105J
R 1114		RS1/10S105J
R 1115		RS1/10S103J
R 1119		RS1/10S154J
R 1120		RS1/10S103J
R 1121		RS1/10S103J
R 1122		RS1/10S102J
R 1701		RS1/10S103J
R 1702		RS1/10S433J
R 1703		RA3C222J
R 1706		RS1/10S222J
R 1708		RS1/10S104J
R 1709		RS1/10S102J
R 1710		RS1/10S472J
R 1712		RS1/10S104J
R 1714		RS1/10S513J
R 1715		RS1/10S103J
R 1718		RS1/10S823J
R 1719		RS1/10S222J
R 1721		RS1/10S104J
R 1722		RS1/10S473J
R 1723		RS1/10S222J
R 1725		RS1/10S511J
R 1726		RS1/10S101J
R 1727		RS1/10S105J
R 1728		RS1/10S474J
R 1729		RS1/10S105J
R 1730		RS1/10S222J
R 1731		RS1/10S222J
R 1732		RS1/10S473J
R 1733		RA4C102J
R 1734		RS1/10S103J
R 1736		RS1/10S473J
R 1737		RS1/10S102J
R 1738		RS1/10S473J
R 1739		RS1/8S562J
R 1740		RS1/10S473J
R 1741		RS1/10S104J
R 1742		RS1/10S474J
R 1743		RS1/10S473J
R 1744		RS1/10S473J
R 1753		RS1/10S101J

=====Circuit Symbol and No.	===Part Name	Part No.
R 1754		RS1/10S101J
R 1755		RS1/10S511J
R 1756		RS1/10S101J
R 1771		RS1/10S103J
R 1772		RS1/10S103J
R 1773		RS1/10S512J
R 1774		RS1/10S333J
R 1775		RN1/10SE2402D
R 1776		RN1/10SE3002D
R 1777		RS1/10S3R3J
R 1778		RN1/10SE1601D
R 1779		RN1/10SE9100D
R 1780		RS1/10S562J
R 1921		RS1/10S103J
R 1923		RS1/8S3R9J
R 1924		RS1/10S102J
R 1925		RS1/10S105J
R 1926		RS1/10S104J
R 1927		RS1/10S514J
R 1928		RS1/10S103J
R 1929		RS1/10S103J
R 1951		RS1/10S101J
R 1952		RS1/10S223J
R 1953		RS1/8S121J
R 1954		RS1/8S101J
R 1955		RS1/10S471J
R 1956		RS1/10S681J
CAPACITORS		
C 103		CEJA100M16
C 104		CEJA100M16
C 109		CEJA220M16
C 110		CEJA220M16
C 111		CEJA220M16
C 112		CEJA220M16
C 1106	0.047µF/5.5V	CCL1015
C 1108		CSZSC220M6R3
C 1109		CKSQYB103K50
C 1111		CEJA220M16
C 1113		CKSQYB103K50
C 1118		CKSQYB103K50
C 1120		CKSQYB103K50
C 1701		CKSQYB224K16
C 1702		CKSQYB103K50
C 1703		CKSQYB473K25
C 1704		CKSQYB473K25
C 1705		CKSQYB103K50
C 1706		CKSQYB102K50
C 1707		CKSQYB102K50
C 1708		CKSQYB102K50
C 1709		CKSQYB103K50
C 1710		CEAL2R2M50
C 1711		CKSQYB103K50
C 1712		CKSQYB103K50
C 1713		CKSQYB103K50
C 1714		CKSQYB103K50
C 1715		CCSQCH561J50
C 1716		CCSQCH561J50
C 1717		CCSQCH561J50
C 1718		CCSQCH561J50
C 1719		CCSQCH561J50
C 1720		CCSQCH561J50
C 1721		CCSQCH561J50
C 1722		CCSQCH561J50

=====Circuit Symbol and No.	===Part Name	Part No.
C 1723		CCSQCH101J50
C 1724		CCSQCH101J50
C 1725		CCSQCH101J50
C 1726		CCSQCH101J50
C 1771		CKSQYB104K25
C 1772		CKSQYB104K50
C 1773		CKSQYB104K25
C 1774		CCSQCH471J50
C 1775		CCSQCH101J50
C 1776		CCSQCH561J50
C 1777		CCSQCH561J50
C 1778		CCSQCH561J50
C 1901	470µF/16V	CCH1080
C 1902		CKSQYB102K50
C 1903		CKSQYB222K50
C 1904	470µF/16V	CCH1080
C 1905	470µF/16V	CCH1080
C 1921		CKSQYB103K50
C 1923		CKSQYB103K50
C 1924		CKSQYB103K50
C 1925		CSZA220M10
C 1951		CKSQYB473K25
C 1952		CEJA101M10
C 1953		CKSQYB103K50

C Unit Number :
Unit Name : Photo PCB

Q	851	Photo-transistor	PT4800
S	853	Switch	CSN1012

D Unit Number :
Unit Name : PCB Unit

S	851	Switch(TRP)	CSN1033
S	852	Switch(DSP)	CSN1033
R	851		RS1/8S473J
R	852		RS1/8S753J

E Unit Number :
Unit Name : Motor PCB

M	853	Motor Unit(TRAY)	CXB1142

F Unit Number :
Unit Name : Switch PCB

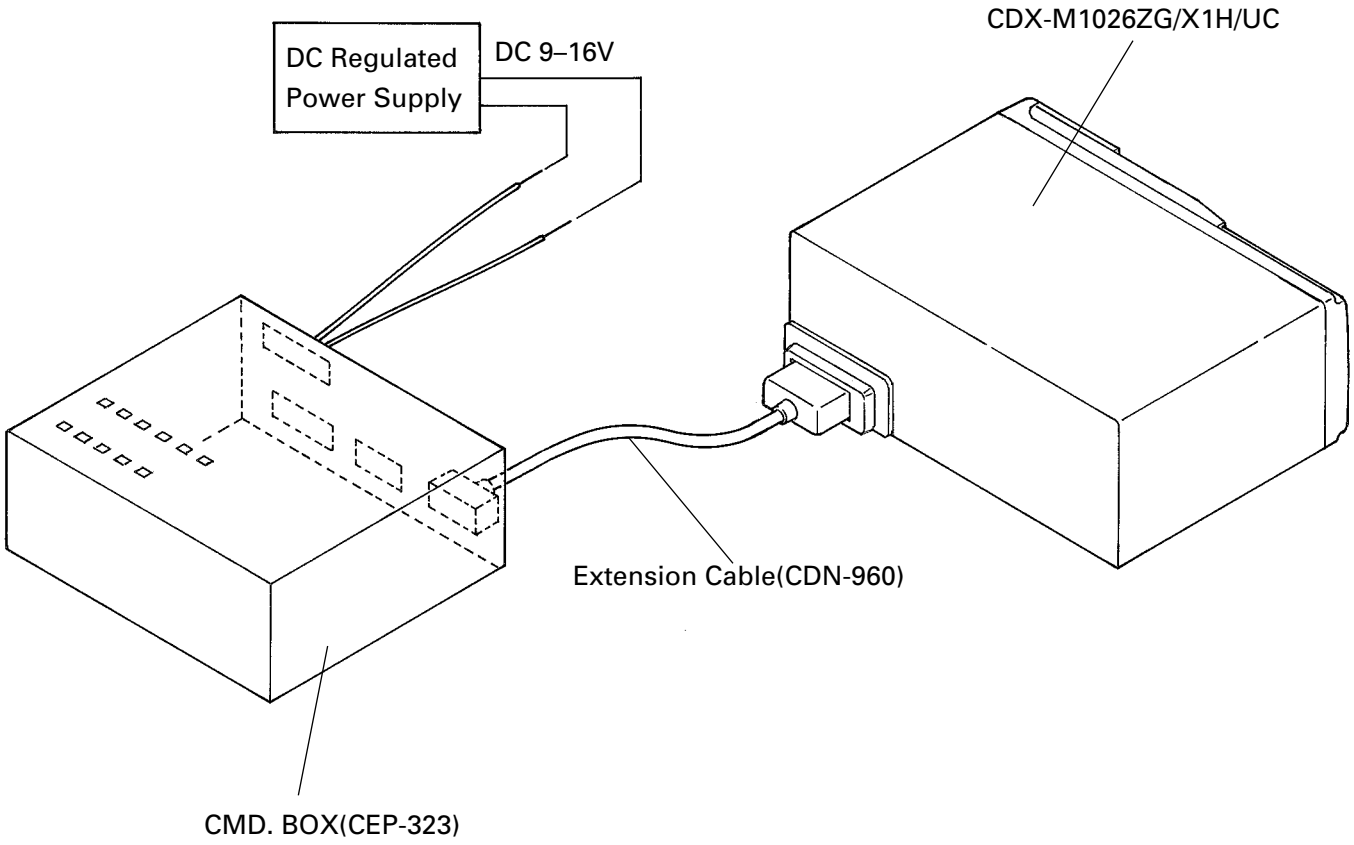
S	854	Switch(U/L)	CSN1012

Miscellaneous Parts List

D	851	LED	CN504-2
M	851	Motor Unit(SPINDLE)	CXB1395
M	852	Motor Unit(ELV)	CXB2056
M	854	Motor Unit(CARRIAGE)	CXB1394
VR	801	Volume 10kΩ	CCW1021
		Pickup Unit(Service)	CXX1235

6. ADJUSTMENT

6.1 CONNECTION DIAGRAM



6.2 CD ADJUSTMENT

1)Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO(approx. 2.5V) instead of GND.
  If REFO and GND are connected to each other by mistake during adjustments,not only will it be impossible to measure the potential correctly,but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this,take special note of the following.
- Do not connect the negative probe of the measuring equipment to REFO and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO with the channel 2 negative probe connected to GND.
  Since the frame of the measuring instrument is usually at the same potential as the negative probe,change the frame of the measuring instrument to floating status.
  If by accident REFO comes in contact with GND,immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.

- Before proceeding to further adjustments and measurements after switching regulator ON,let the player run for about one minute to allow the circuits to stabilize.

- Since the protective systems in the unit's software are rendered inoperative in test mode,be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.

- This unit is adjusted in a combination with the CD controller tool(CEP-323). Each regulator key should be operated at the unit.
  With the CEP-323 taken up for reference, a description will be given below concerning how to enter into the test mode, including key operations. The key in the adjustment text is also one of the CEP-323 keys.

- How to enter into the test mode
  1. Setup the POWER switch ON and PMM switch RUN of CEP-323.
  2. DC Regulated Power Supply power ON.
  3. Pressing the RESET switch of CEP-323.
  4. Wait for 10 seconds.
  5. Pressing the TESTIN switch of CEP-323.
  6. Insert the magazine assy.

- Resetting the test mode
  DC Regulated Power Supply power OFF.

- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit.Consequently,if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment,the following malfunctions may occur.
  * During PLAY, even if the eject button is pressed,the disc will not be ejected and the unit will remain in the PLAY mode.
  * The unit will not load a disc.
    When the unit malfunctions this way,either re-position the light source,move the unit or cover the photo transistor.

- When loading and unloading discs during adjustment procedures,always wait for the disc to be properly clamped or ejected before pressing another key. Otherwise, there is a risk of the actuator being destroyed.

- Turn power off when pressing the button **TR+** or the button **TR-** key for focus search in the test mode. (Or else lens may stick and the actuator may be damaged.)

- SINGLE/4TRK/10TRK/32TRK will continue to operate even after the key is released.Tracking is closed the moment C-MOVE is released.

- JUMP MODE resets to SINGLE as soon as power is switched off.

6.3 CHECKING THE GRATING

● Checking the Grating After Changing the Pickup Unit

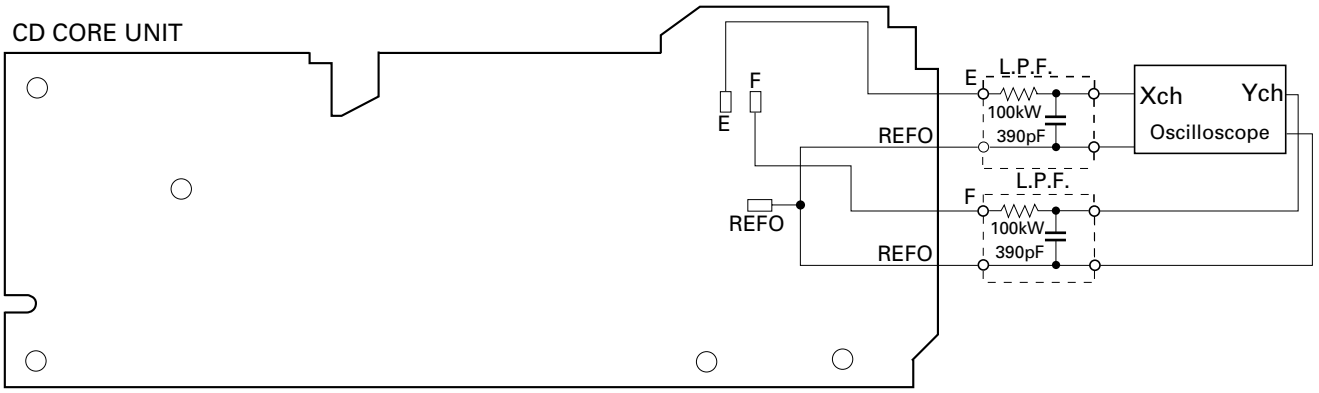
•Note :
Unlike previous CD mechanism modules the grating angle of the pickup unit cannot be adjusted after the pickup unit is changed. The pickup unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted pickup unit for the CD mechanism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

•Purpose :
To check that the grating is within an acceptable range.

•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 track searching taking a long time, may appear.

•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 **TR+** and **TR-** buttons, move the pickup unit to the innermost track.
3. Press key **5** to close focus, the display should read "91". Press key **4** to implement the tracking balance adjustment the display should now read "81". Press key **5** 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 pickup 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.

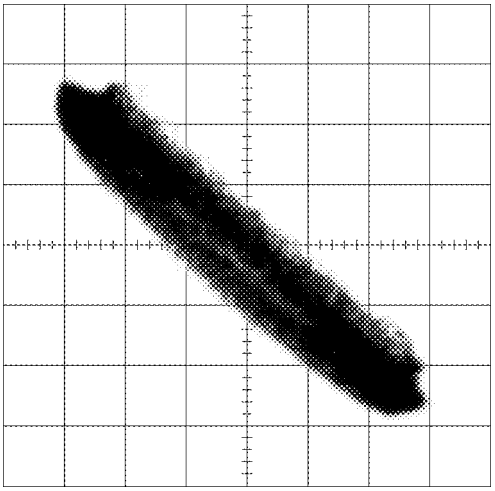
•Note
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

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

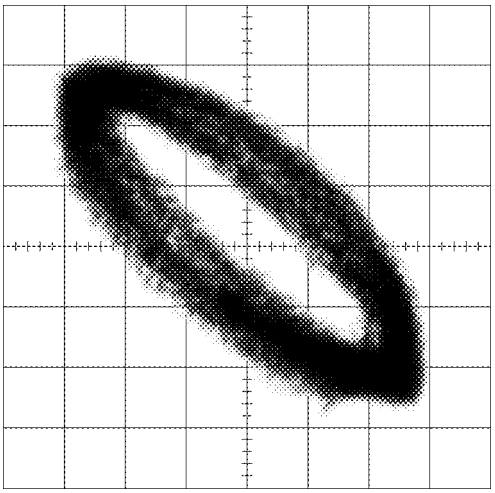
Grating waveform

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

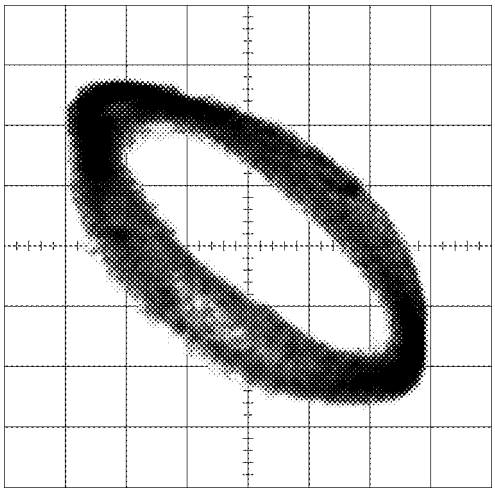
0°



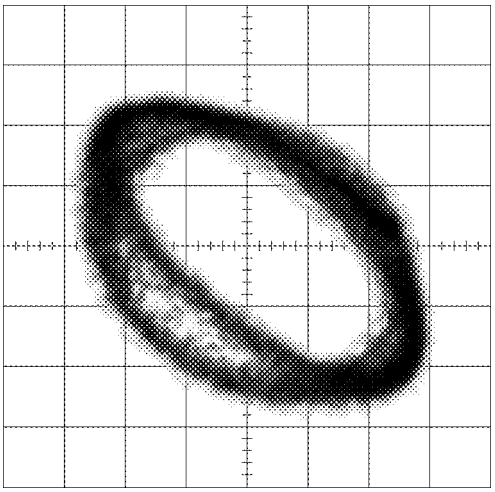
30°



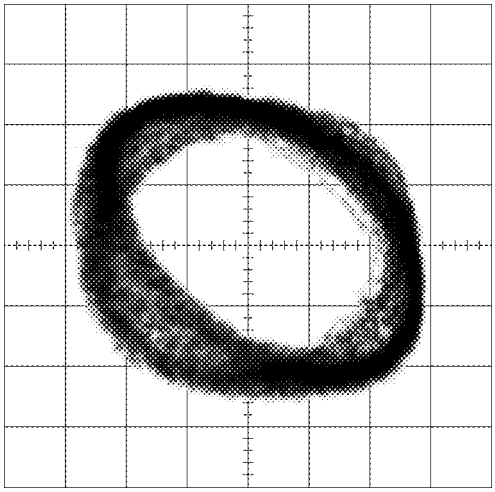
45°



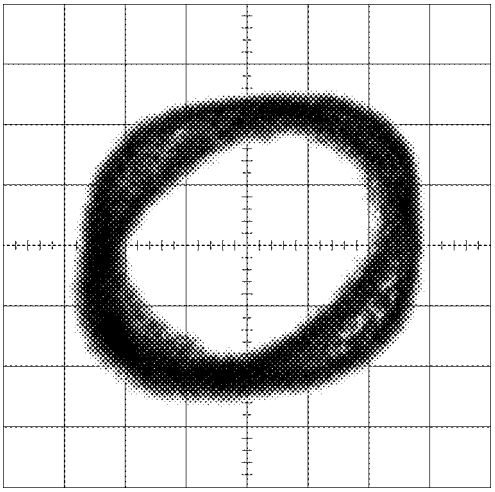
60°



75°



90°

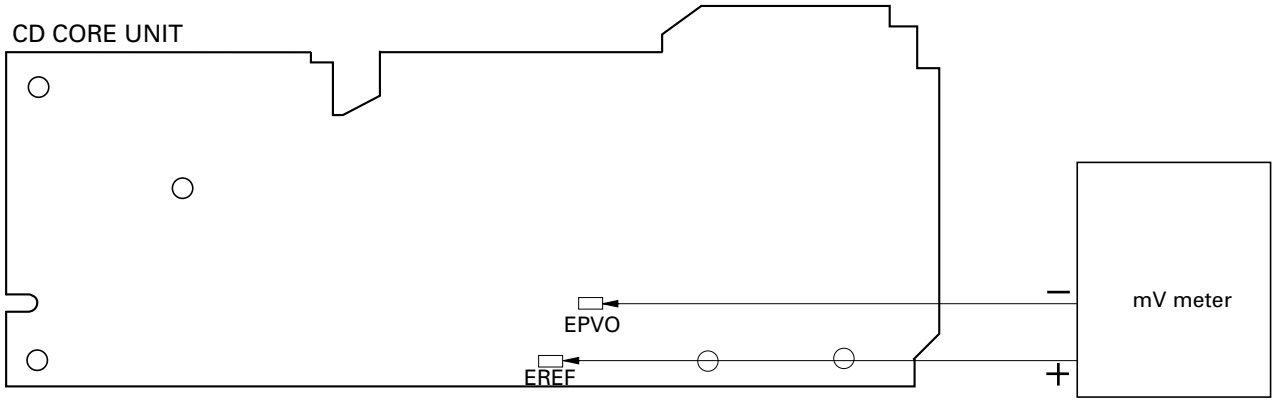


6.4 ADJUSTMENT OF ELEVATION WHEN THE CD CORE UNIT HAS BEEN REMOVED FOR MAINTENANCE

•Note :
Unlike the conventional mechanisms, the new mechanism detects the height of the stage using slide-variable resistance.
To absorb dislocation of the stage height caused by differences in the mechanism and the CD core unit, adjustment must be made for each CD-mechanism module using a variable resistor.
Normally, readjustment is not needed, as this has been adjusted at the factory. However, adjustment of elevation is required according to the procedure explained below if an elevation error has occurred or if the CD core unit has been removed.

•Purpose :
To adjust and confirm whether or not elevation operates correctly.

•Adjustment Method :
•Measuring Equipment: Millivoltmeter
•Measuring Points : EREF, EPVO
•Setting : Without a magazine in Test mode
With the mechanism placed upside-down (Place the CD mechanism module so that the CD core unit is above.)



•Confirmation Procedure

Examples of display

1. Press key **10** enter Test mode, then select Multi-CD player.

' "

2. Press key **3** to enter Mechanism Test mode.

72 00' 00"

3. Press key **8** twice to specify the amount of movement.

The amount of movement changes each time key **8** is pressed.

maximum movement → Key 8 → during movement → Key 8 → minimum movement → Key 8 → maximum movement

72 00' 02"

72 00' 01"

72 00' 00"

Examples of display

4. Press key **5** to set ELV/TRAY mode to TRAY.

72 01' 02"

5. Press key **TR+** to release the clamp and return the tray to the magazine.

Release the clamp

6. Press key **5** to enter Elevation Move mode.

72 00' 02"

7. Use key **TR+/TR-** to operate elevation and set if to the lower stage (seventh to twelfth discs) so that elevation is set to the "R" mark (Fig. 1).

8. Make the adjustment.
   Use VR802 to adjust the difference in potential between EREF and EPVO to 0 ±20 mV.

9. When adjustment is completed, press key **1** to exit Mechanism Test mode.

72 00' 02"

10. Confirm operation of the mechanism.
    Place the mechanism horizontally (CD core unit below). Take care not to short-circuit the PCB.

' "

11. Confirm the height of the stage. Use the 10 key to select Disc No.10.

    Check if the stopper bend of the clamp lever is engaged in the groove of the frame stopper (Fig. 2-3).

04 00' 00"

•**Note :**
The stopper bend will be pressed downward into the groove for final clamping. Confirm the engagement position of the stopper bend.

•If the stopper bend is engaged in the center and pressed downward, adjustment is completed. Go to step 15.

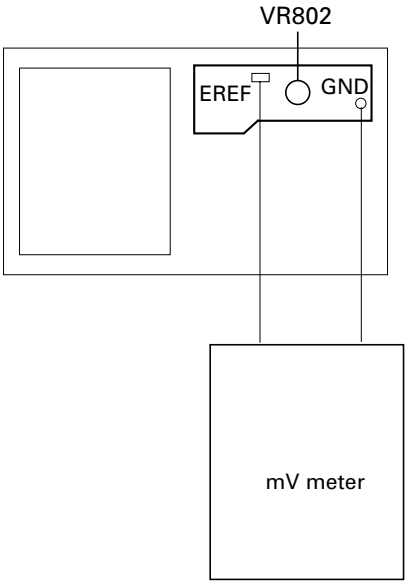
•If the stopper bend is dislocated, check the amount of dislocation by following steps 12 to 14.

12. To see the amount of dislocation, place the mechanism upside-down. If the stopper bend has been dislocated in the direction of the seventh CD, turn VR802 to the left(Fig. 2).

    To lower the stage toward the twelfth step by 0.1 mm, reduce the voltage of EREF (adjusted in step 8) by 20 mV.

    If the stopper bend has been dislocated in the direction of the twelfth CD, turn VR802 to the right(Fig. 4).

    To raise the stage toward the seventh step by 0.1 mm, increase the voltage of EREF (adjusted in step 8) by 20 mV.



13. Place the mechanism horizontal. Go back to step 11 to reconfirm the stage height.

14. When adjustment of the stage height is completed, proceed as follows:

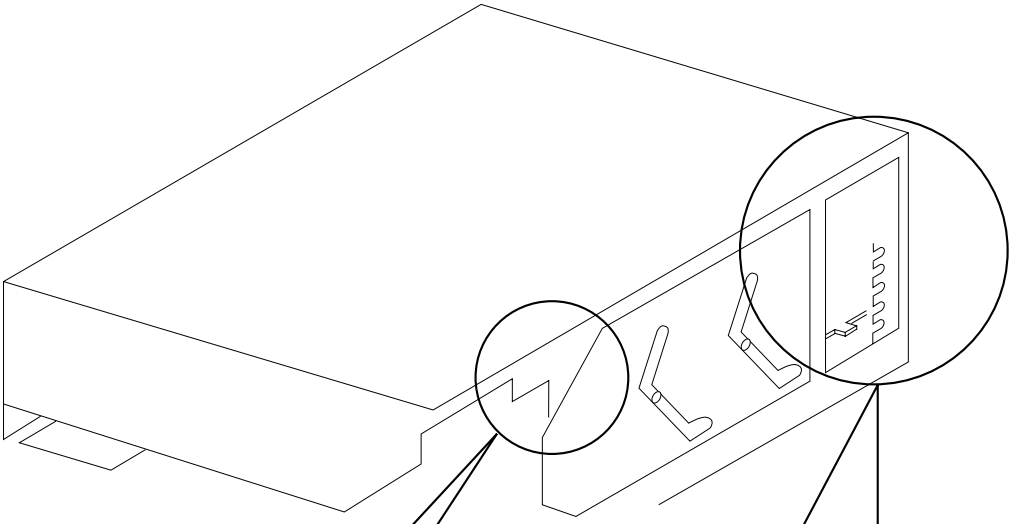
15. Open the door and then eject the magazine assy.

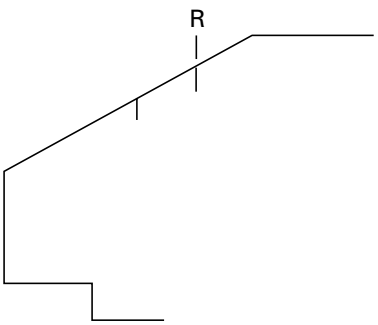
16. Once operation of the mechanism has stopped, turn the power OFF.

17. Wait more than one minute after the power is turned off, then turn the power ON and insert a magazine.

18. Check if the mechanism operates correctly with the first, sixth, seventh and twelfth CDs.

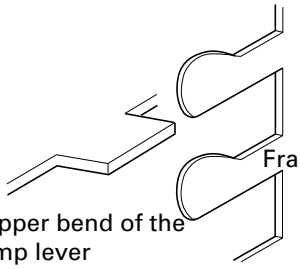
19. If the mechanism operates properly, adjustment is completed. If the mechanism operates improperly, make the adjustment again.





Adjust to the graduation of the R mark.

Fig. 1



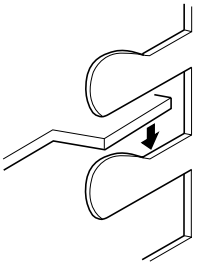
NG

Stopper bend of the clamp lever

Dislocated toward the seventh CD.

Fig. 2

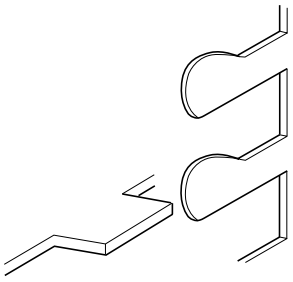
OK



Engaged in the center and pressed downward.

Fig. 3

NG



Dislocated toward the twelfth CD.

Fig. 4

7. GENERAL INFORMATION

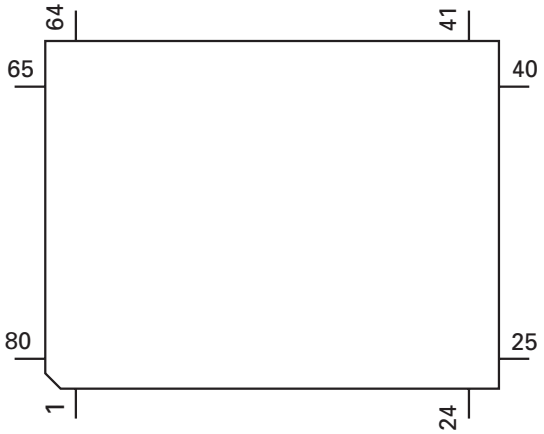
7.1 IC

● **Pin Functions (PD5392C)**

Pin No.	Pin Name	I/O	Format	Function and Operation
1	VDIN	I		Power supply short sensor input
2	DORILM	O		Eject door illumination output
3–5	NC			Not used
6	XA0	O	C	Control signal distinguishing data from microcomputer
7	XSCK	I/O	C	LSI clock input/output
8	XSO	O	C	LSI data output
9	XSI	I		LSI data input
10	$\overline{\text{XSTB}}$	I		CD LSI strobe output
11	$\overline{\text{XRST}}$	O	C	CD LSI reset output
12	$\overline{\text{DOPNSW}}$	I		Door open switch input
13	$\overline{\text{DCLSSW}}$	I		Door close switch input
14	DOFINT	I		Not used
15	DONINT	I		Not used
16	NC			Not used
17	$\overline{\text{DCE}}$	O	C	Not used
18	ECE	O	C	Chip select output for EEPROM
19	ECK	O	C	Serial clock output for EEPROM
20	EDO	O	C	Serial data output for EEPROM
21	EDI	I		Serial data input from EEPROM
22	$\overline{\text{DLCINT}}$	I		Class 2 bus interrupt input from IC1771
23	$\overline{\text{MAG}}$	I		Magazine lock switch input
24	CNVSS			GND
25	$\overline{\text{RESET}}$	I		Reset input
26	$\overline{\text{POWER}}$	O	C	CD +5V control
27	CONT	O	C	CD servo driver power control output
28	XIN	I		Crystal oscillating element connection pin
29	XOUT	O		Crystal oscillating element connection pin
30	VSS			GND
31	DET	I/O	C	Watch dog IC interface input/output
32	WD1	I/O	C	Watch dog IC interface input/output
33	WD2	I/O	C	Watch dog IC interface input/output
34	AUDOUT	O	C	Not used
35	MUTEP	O	C	Not used
36–41	NC			Not used
42	$\overline{\text{DLCRST}}$	O	C	Class 2 bus interface output for IC1771
43	$\overline{\text{DLCCS}}$	O	C	Class 2 bus interface output for IC1771
44	DLCCE	O	C	Class 2 bus interface output for IC1771
45	DLCA0	O	C	Class 2 bus interface output for IC1771
46	DLCR/$\overline{\text{W}}$	O	C	Class 2 bus interface output for IC1771
47–54	D7-D0	I/O	C	Class 2 bus interface input/output for IC1771
55	NC			Not used
56	$\overline{6}$/12	I		6/12 switching input
57	NC			Not used
58	MIRR	I		CD mirror detection input
59	LOCK	I		CD spindle lock input
60	FOK	I		CD FOK signal input
61	$\overline{\text{CSEL}}$	I		Compression select
62–64	NC			Not used
65	I1,3	O	C	Motor driver control output
66	I2	O	C	Motor driver control output
67	I4	O	C	Motor driver control output
68	CDMUTE	O	C	CD mute control output
69	$\overline{\text{ADENA}}$	O	C	A/D reference voltage output
70	$\overline{\text{TESTIN}}$	I		Test program mode input
71	VCC			Power supply

Pin No.	Pin Name	I/O	Format	Function and Operation
72	VREF	I		A/D converter reference voltage input
73	AVSS			(A/D converter GND)
74	BSENS	I		Back up sense input
75	U/$\overline{L}$	I		ELV position switch input
76	DISK			Disc detector and 8/12cm detect
77	EPVO	I		Slide voltage input for ELV detector
78	EREF	I		ELV reference voltage input
79	MSW	I		Disc detect timing and tray position input
80	TEMP	I		Not used

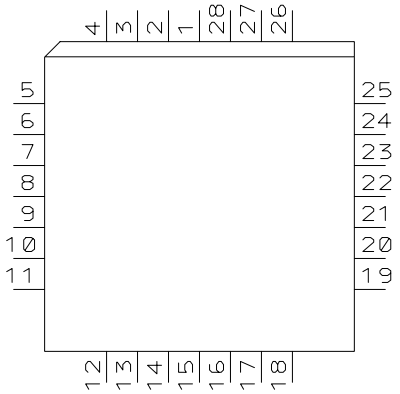
*PD5392C



Format	Meaning
C	C MOS

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

*XC68HC56FN



● **Pin Functions (XC68HC56FN)**

Pin No.	Pin Name	I/O	Function and Operation
1	VSSA		Analog ground terminal
2	LOTI	I/O	Logic out transceiver input/output
3	OSC2	O	External reference connection output
4	OSC1	I	External clock connection input
5	$\overline{DLCRST}$	I	DLCP reset signal input
6	$\overline{DLCCS}$	I	DCLP chip select signal input
7	DLCCE	I	DCLP chip enable signal input
8	DLCA0	I	Address select signal input
9	DLCR/$\overline{W}$	I	DLCP data transfer control input
10	$\overline{DLCINT}$	O	DCLP interrupt request input
11	VDD		Digital power supply terminal
12–19	D7-D0	I/O	Bidirectional three-state data bus input output
20	VSSD		Digital ground terminal
21	LOAD	I	External bus load connection input
22	BUS	I/O	Serial data signal input/output
23	VBATT		Transceiver power supply terminal
24	PSEN	O	Power supply status signal output
25	VCC		Analog power supply terminal
26	REXT2	I	Transceiver biasing resistor input
27	REXT1	I	Transceiver biasing resistor input
28	LITO	I/O	Logic in transceiver input/output

7.2 DIAGNOSIS

7.2.1 DISASSEMBLY

● **Removing the Upper Case(Fig.5)**

2 Remove the three screws, and then remove the Cover.

1 Remove the ten screws, and then remove the Upper Case.

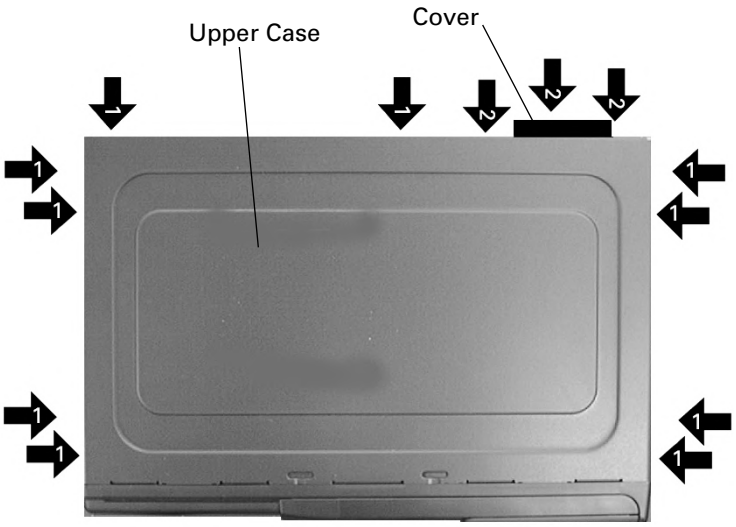


Fig.5

● **Removing the CD Mechanism Module (Fig.6)**

1. Remove the four dampers.
2. Remove the two springs.
3. Disconnect the connector and then removing the CD Mechanism Module.

● **Removing the Grille Assy(Fig.6)**

1. Remove the two screws.
2. Press the two tabs indicated by arrows and then pull out the Grille Assy.

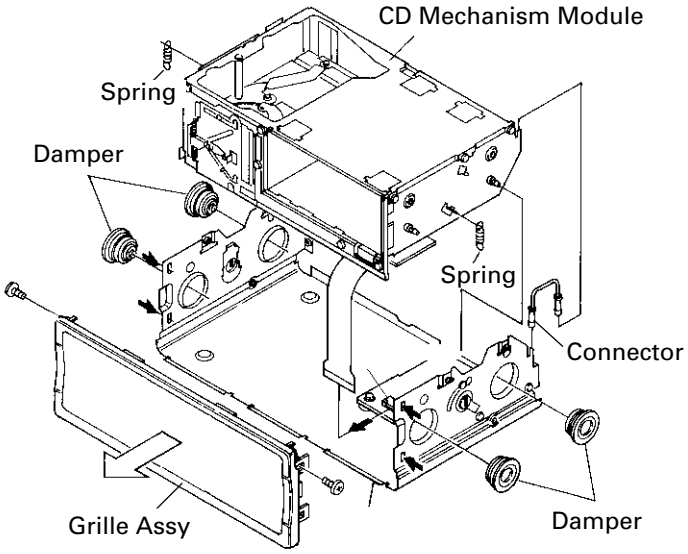


Fig.6

● **Removing the Main PCB(Fig.7)**

1 Remove the two screws.

2 Remove the screw.

3 Stretch the claw indicated by arrow and remove the main PCB.

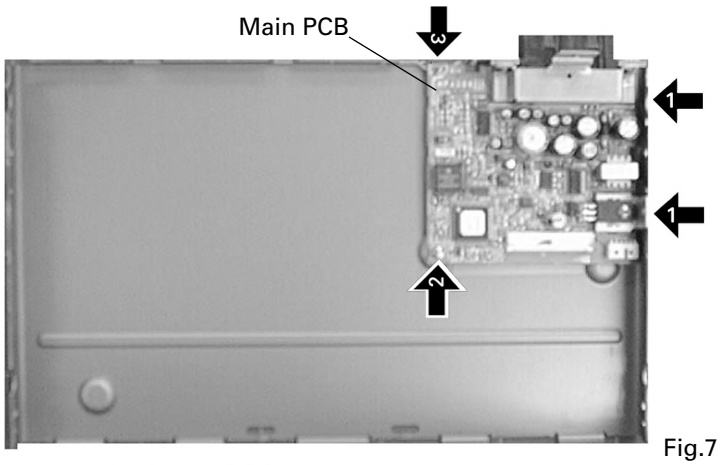


Fig.7

● **Removing the Pickup Unit(Fig.8)**

1.Attach the Short Pin onto the Flexible PCB of the Pickup Unit.(Fig.8)
2.Remove the Flexible PCB from the connector.(Fig.8)
3.Remove the Torsion Spring which is pressed against the leading edge of the Feed Screw.(Fig.9)
4 Remove the Screw and Pulley Cover.(Fig.9)
5.Remove the Belt and the Pickup Unit with the Feed Screw still attached.(Fig.9)
6.Lift the Tabs of the rack section of Holder and remove the Feed Screw. While doing so, be careful not to lose the Bearings on the ends of the Feed Screw.(Fig.9)

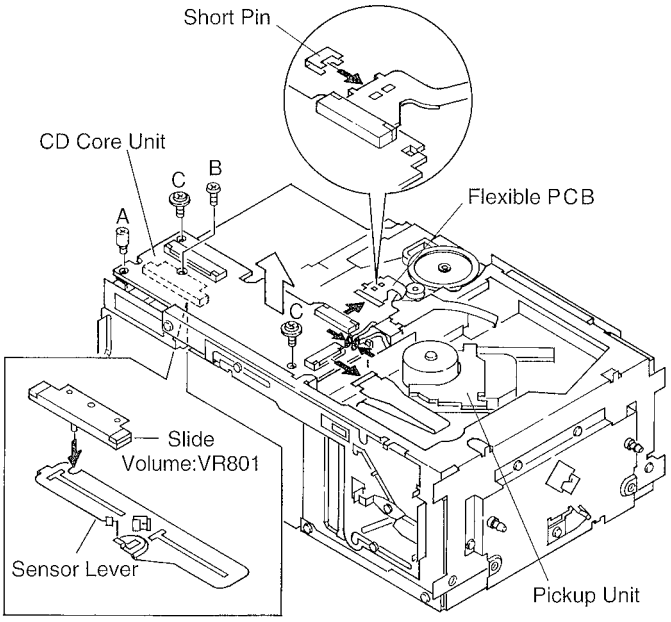


Fig.8

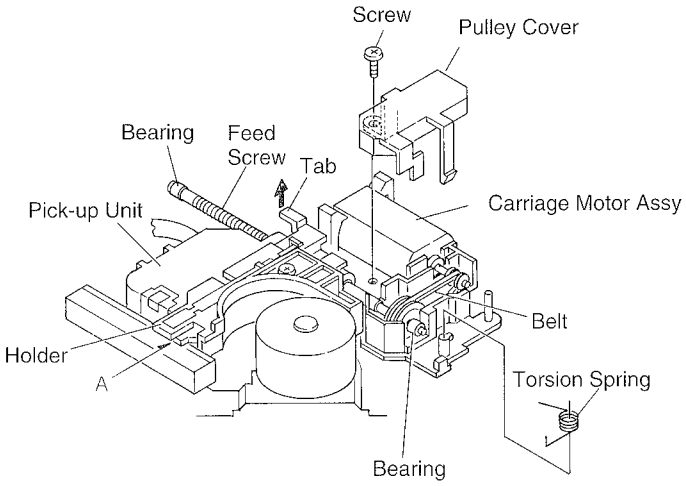
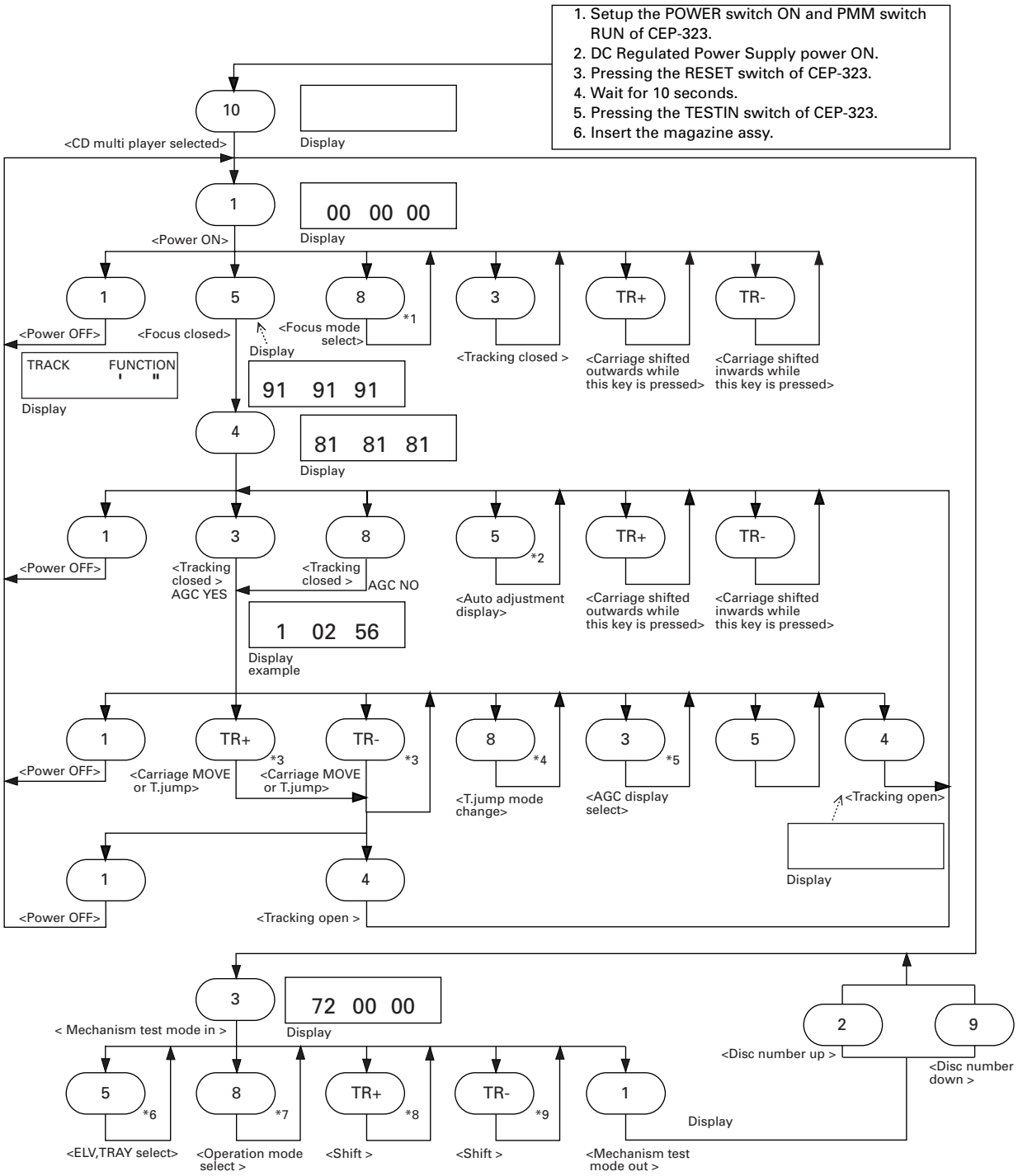


Fig.9

7.2.2 TEST MODE

● Flow Chart



*1 Normal focus close → S curve check → Focus EQ check
00 00' 00" Display 01 01' 01" 02 02' 02"

*2 Normal display → Focus cancel → Tracking offset → Tracking balance (Close spindle-rough)

*3 100 TRK jump and carriage MOVE continue only while the keys are pushed

*4 SINGLE → 4TRK → 10TRK → 32TRK → 100TRK → C.MOVE

*5 Normal display → Focus gain → Tracking gain → Focus bias

*6 ELV motor select → TRAY motor select
72 00' 0X" Display 72 10' 0X"

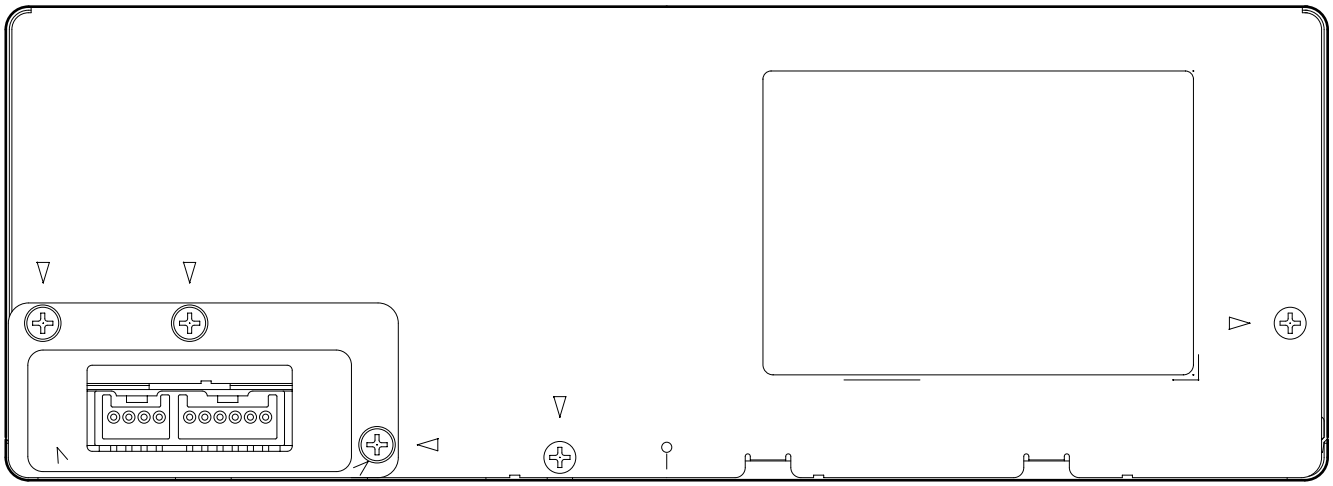
*7 8ms pulse drive → 24ms pulse drive → DC drive
72 00' 00" Display 72 00' 01" 72 00' 02"

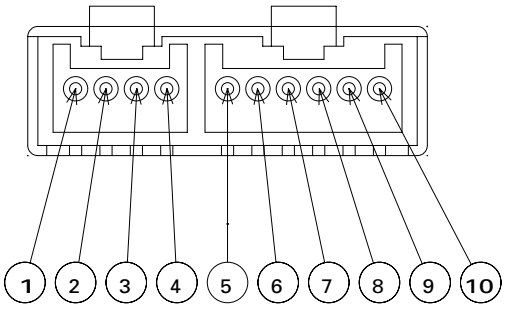
48ms pulse drive → 200ms pulse drive → DC drive
72 10' 00" Display 72 10' 01" 72 10' 02"

*8 ELV select : ELV dowm (Disc 12 → 1)
TRAY select : TRAY in

*9 ELV select : ELV up (Disc 1 → 12)
TRAY select : TRAY out

7.2.3 CONNECTOR FUNCTION DESCRIPTION

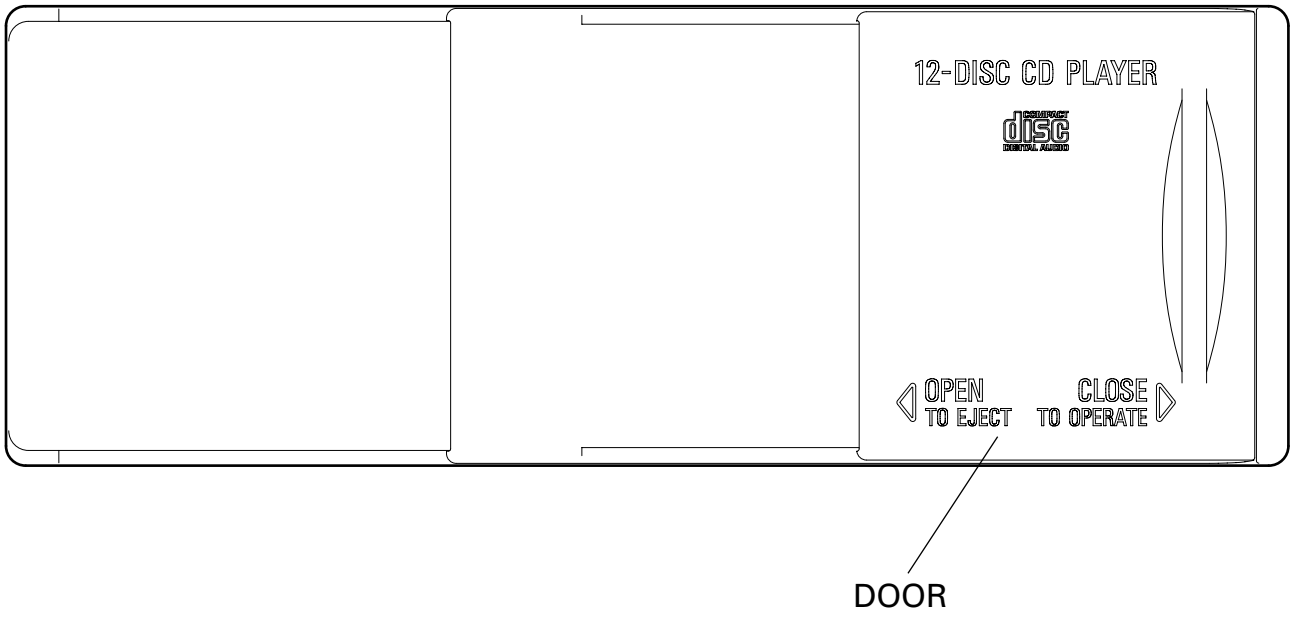




No.	FUNCTION
1	L
2	R
3	COMMON
4	DRAIN
5	BATT
6	NC
7	GND
8	NC
9	CLASS Ⅱ
10	CLASS Ⅱ

8. OPERATIONS AND SPECIFICATIONS

8.1 OPERATION



8.2 SPECIFICATIONS

General

Power source ..... 13.8 V DC (9.0 – 16.0 V allowable)
Grounding system ..... Negative type
Dimensions .....261 (W) × 94 (H) × 191 (D) mm
Weight ..... 2.3 kg

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format ..... Sampling frequency: 44.1 kHz
Number of quantization bits: 16; linear
Signal-to-noise ratio ..... 75 dB or more
Dynamic range ..... 80 dB or more
Distortion ..... 0.5 % or less
Output level 800mV–1500mV
Number of channels ..... 2 (stereo)