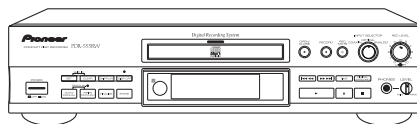


Service Manual

Pioneer



ORDER NO.
RRV1983

COMPACT DISC RECORDER

PDR-555RW

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	PDR-555RW		
KU/CA	○	AC120V	
MY	○	AC220-230V	

- Refer to the service guide RRV2055 for PDR-555RW.

— FOR U.S. MODELS —

NECESSARY INFORMATION FOR DHHS
RULES MARKED ON THE REAR BASE AND ON
THE TOP OF CD MECHANISM AS BELOW.

DANGER – LASER RADIATION WHEN OPEN.
AVOID DIRECT EXPOSURE TO BEAM.

CONTENTS

1. SAFETY INFORMATION	2	7. GENERAL INFORMATION	55
2. EXPLODED VIEWS AND PARTS LIST	4	7.1 PARTS	55
3. SCHEMATIC DIAGRAM	10	7.1.1 IC	55
4. PCB CONNECTION DIAGRAM	32	7.1.2 DISPLAY	67
5. PCB PARTS LIST	44	8. PANEL FACILITIES AND SPECIFICATIONS ..	.69
6. ADJUSTMENT	49		

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.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

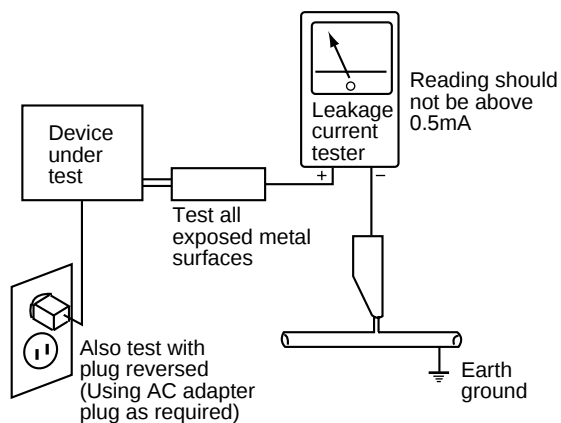
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a Δ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

— IMPORTANT —

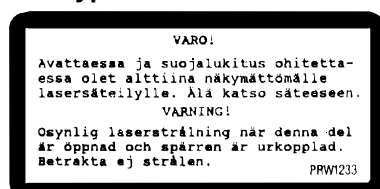
THIS PIONEER APPARATUS CONTAINS
LASER OF CLASS IIIb.
SERVICING OPERATION OF THE APPARATUS
SHOULD BE DONE BY A SPECIALLY
INSTRUCTED PERSON.

— LASER DIODE CHARACTERISTICS —

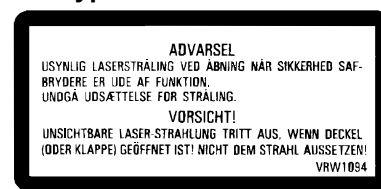
MAXIMUM OUTPUT POWER: 23 mW
WAVELENGTH: 778 – 787 nm

LABEL CHECK

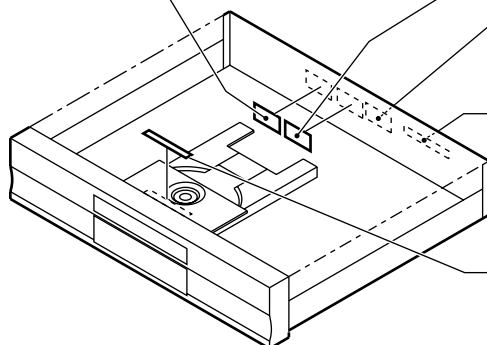
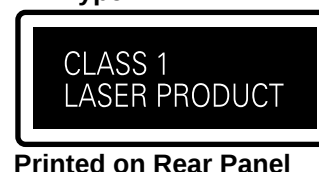
MY Type



MY Type



MY Type



KU/CA type

DANGER — LASER RADIATION WHEN OPEN.
AVOID DIRECT EXPOSURE TO BEAM.

Printed on Rear Panel

DANGER — LASER RADIATION WHEN OPEN.
AVOID DIRECT EXPOSURE TO BEAM.
PRW1516-A

— Additional Laser Caution —

1. Laser Interlock Mechanism

The position of the switch (S601) for detecting loading state is detected by the system microprocessor, and the design prevents laser diode oscillation when the switch (S601) is not on CLMP terminal side (CLMP signal is OFF or high level.). Thus, the interlock will no longer function if the switch (S601) is deliberately set to CLMP terminal side (low level).

The interlock also does not function in the test mode *.
Laser diode oscillation will continue, if pin 1 of M51593FP (IC101) on the PRE-AMP BOARD ASSY mounted on the pickup assembly is connected to GND, or pin 19 is connected to low level (ON), or else the terminals of Q101 are shorted to each other (fault condition).

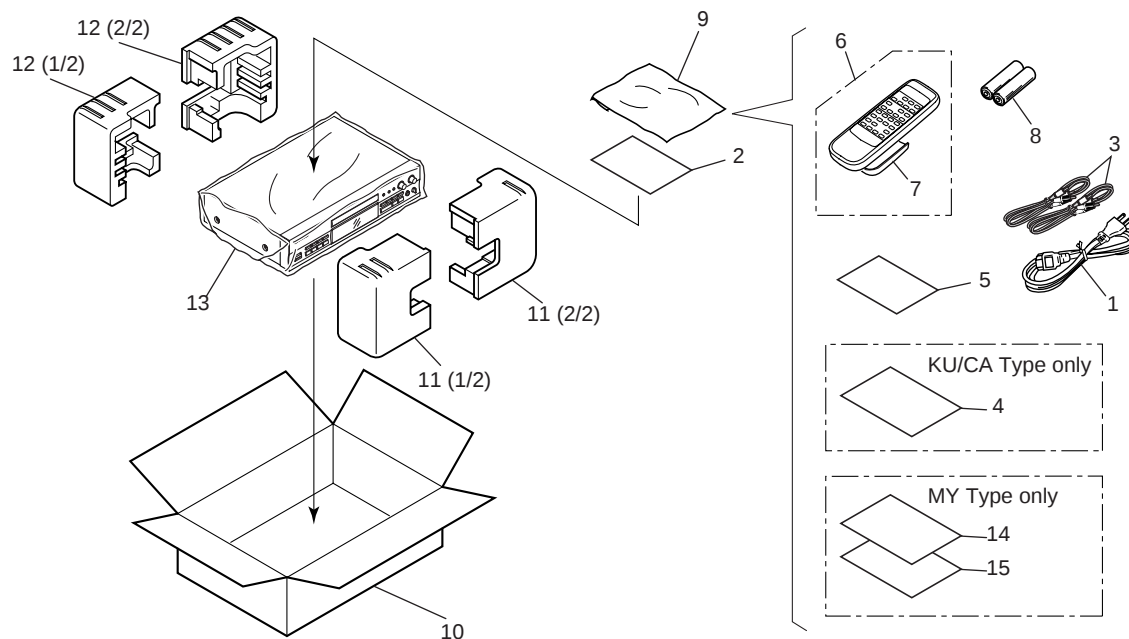
2. When the cover is opened with the servo mechanism block removed and turned over, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

* Refer to page 49 .

2. EXPLODED VIEWS AND PARTS LIST

- NOTES:
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
 - The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 - Screws adjacent to $\blacktriangledown$ mark on the product are used for disassembly.

2.1 PACKING



(1) PACKING PARTS LIST

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
Δ	1	AC Power Cord	See Contrast table (2)	11	Protector (F)	RHA1238	
NSP	2	Warranty Card	See Contrast table (2)	12	Protector (R)	RHA1239	
	3	Audio Cable	PDE1248	13	Seat	Z23-007	
	4	Operating Instructions	See Contrast table (2)	14	Operating Instructions	See Contrast table (2)	
	5	Caution	See Contrast table (2)	15	Operating Instructions	See Contrast table (2)	
	6	Remote Control Unit (CU-PD099)	PWW1144				
	7	Battery Cover	AZA7123				
NSP	8	Dry Cell Battery (R6P,AA)	VEM-013				
	9	Polyethylene Bag	Z21-038				
	10	Packing Case	See Contrast table (2)				

(2) CONTRAST TABLE

PDR-555RW/KU/CA and MY are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remarks
			PDR-555RW/KU/CA	PDR-555RW/MY	
Δ	1	AC Power Cord	ADG7021	ADG1127	
NSP	2	Warranty Card	ARY7023	ARY7022	
	4	Operating Instructions (English)	PRB1270	Not used	
	5	Caution	PRM1046	PRM1045	
	10	Packing Case	PHG2317	PHG2318	
	14	Operating Instructions (Dutch/Swedish/Spanish/Danish)	Not used	PRD1031	
	15	Operating Instructions (English/French/German/Italian)	Not used	PRE1269	



(1) EXTERIOR SECTION PARTS LIST

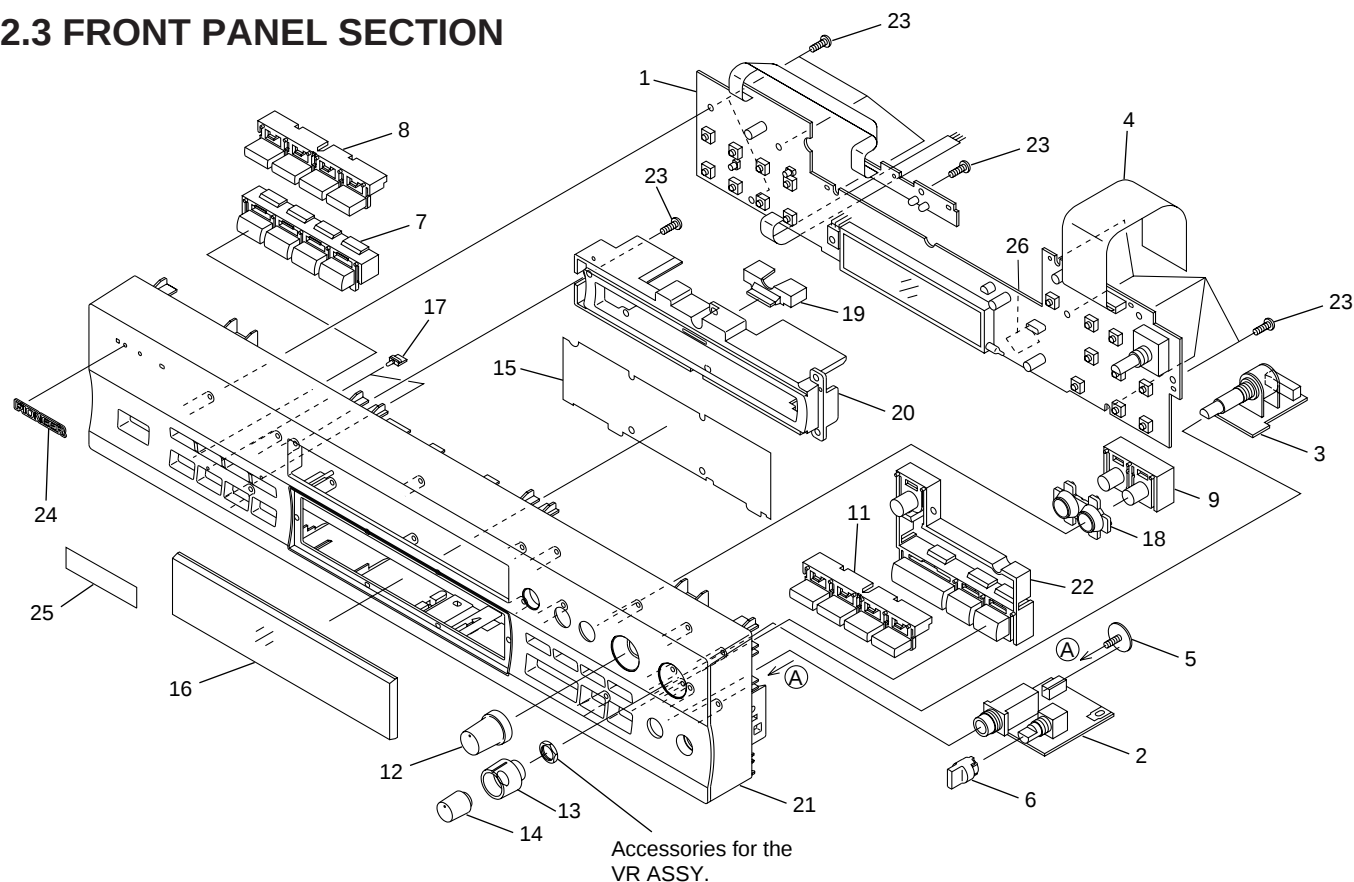
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
△	1	SERVO DIGITAL Assy	See Contrast table (2)		21	Insulator	PNW2766
	2	AUDIO Assy	See Contrast table (2)	NSP	22	Cap	VEC1810
△	3	POWER Assy	See Contrast table (2)		23	Cord Clamper	RNH-184
	4	TRANS Assy	See Contrast table (2)		24	Screw	RBA1132
	5	Jumper Wire (J)	D20PYY0335E		25	•••••	
	6	Connector Assy (8P)	PDE1300		26	•••••	
	7	Connector Assy	PG05KK-E10		27	Power Button	PAC1877
	8	Connector Assy	PG09KK-E35		28	Tray Panel	PNW2798
△	9	Power Transformer	See Contrast table (2)		29	Screw	BBZ30P080FCC
△	10	Fuse (FU1)	See Contrast table (2)		30	Screw	IBZ30P060FCC
	11	Screw (Steel)	ABA1011		31	Screw	BBZ30P100FCC
	12	Screw (Steel)	ABA1207		32	•••••	
NSP	13	PCB Mould	AMR1525		33	Screw	FBT40P080FZK
NSP	14	Cord Stopper	DNF1128		34	Screw	IBZ30P180FCC
	15	Bonnet	PYY1254		35	Binder	ZCA-SKB90BK
NSP	16	Under Base	PNA2427		36	Black Label	PRW1470
	17	Rear Base	See Contrast table (2)		37	Caution Label HE	See Contrast table (2)
NSP	18	Mecha Base	PNB1591		38	Caution Label	See Contrast table (2)
	19	•••••			39	65 Label	See Contrast table (2)
NSP	20	Binder Holder	PNW1021	NSP	40	Laser Caution Label	See Contrast table (2)

(2) CONTRAST TABLE

PDR-555RW/KU/CA and MY are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remarks
			PDR-555RW/KU/CA	PDR-555RW/MY	
△	1	SERVO DIGITAL Assy	PWM2217	PWM2216	
	2	AUDIO Assy	PWZ3723	PWZ3729	
△	3	POWER Assy	PWZ3724	PWZ3741	
	4	TRANS Assy	PWZ3750	PWZ3725	
△	9	Power Transformer	PTT1345	PTT1346	
△	10	Fuse (FU1 : 1A)	REK1075	Not used	
△	10	Fuse (FU1 : T500mA)	Not used	AEK1051	
	17	Rear Base	PNA2428	PNA2429	
	37	Caution Label HE	Not used	PRW1233	
	38	Caution Label	Not used	VRW1094	
	39	65 Label	ORW1069	Not used	
NSP	40	Laser Caution Label	PRW1516	Not used	

2.3 FRONT PANEL SECTION



(1) FRONT PANEL SECTION PARTS LIST

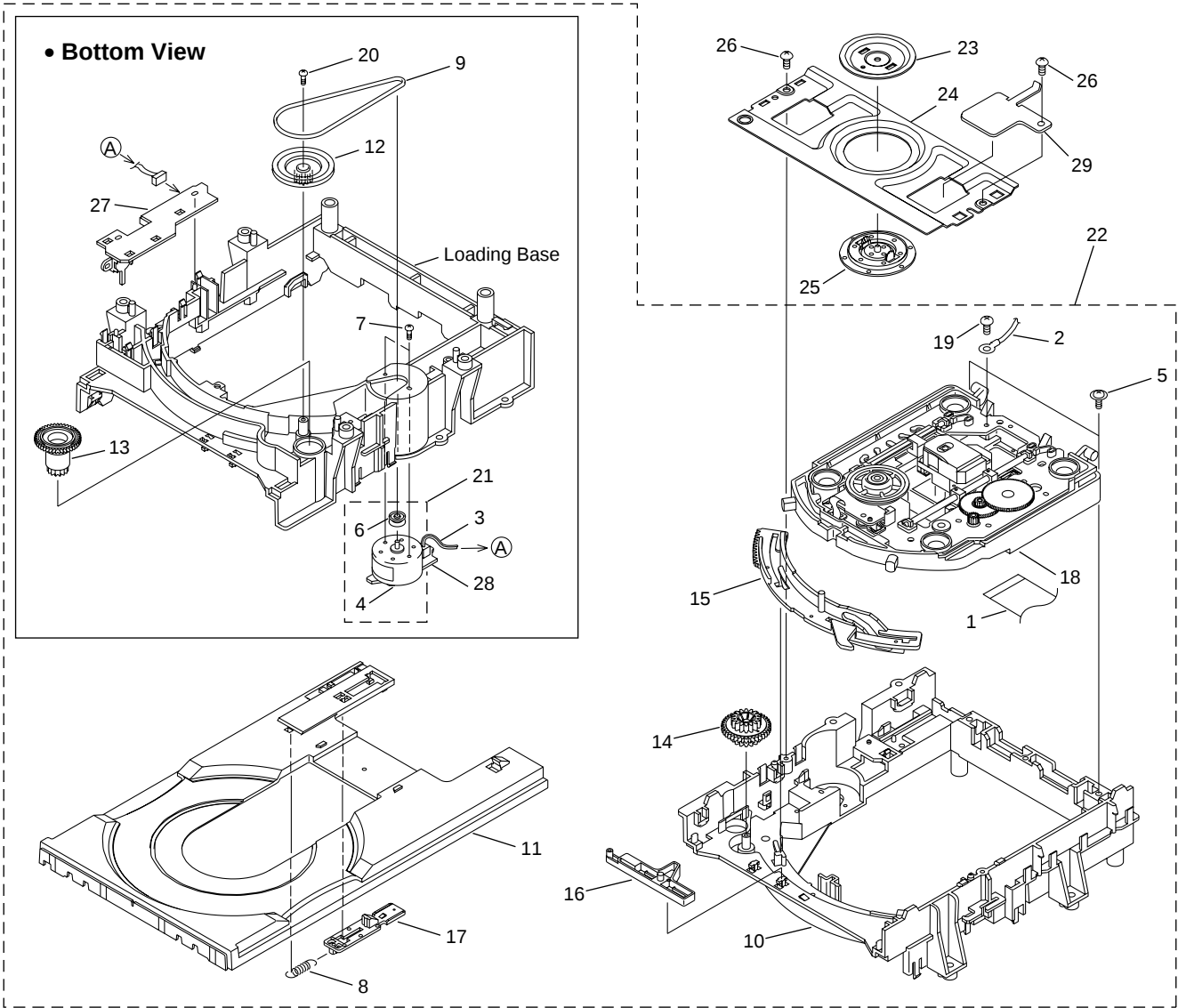
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	FUNCTION Assy	See Contrast table (2)		16	Display Window	PAM1757
	2	HEADPHONE Assy	See Contrast table (2)		17	LED Lens	PNW2745
	3	VR Assy	PWZ3689		18	REC Ring	PNW2795
	4	22P F•F•C/60V	PDD1190		19	Lens	PNW2796
	5	Screw With Washer	ABA1005		20	Sub Panel	PNW2797
	6	Knob	PAC1707		21	Front Panel 555	See Contrast table (2)
	7	Mode Button	PAC1873		22	Play Button B	RAC2204
	8	Manual Button L	PAC1874		23	Screw	PPZ30P100FMC
	9	REC Button	PAC1876		24	Name Plate	PAN1376
	10	•••••			25	Getter Label 555	See Contrast table (2)
	11	Manual Button R	PAC1878		26	IC (EEPROM)	PYY1196
	12	VOL Knob Assy	PXA1616				
	13	VOL Knob L	PAC1902				
	14	VOL Knob R	PAC1903				
	15	FL Sheet	See Contrast table (2)				

(2) CONTRAST TABLE

PDR-555RW/KU/CA and MY are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remarks
			PDR-555RW/KU/CA	PDR-555RW/MY	
	1	FUNCTION ASSY	PYY1258	PYY1259	
	2	HEADPHONE Assy	PWZ3713	PWZ3688	
	15	FL Sheet	PAM1756	PAM1762	
	21	Front Panel 555	PNW2799	PNW2817	
	25	Getter Label 555	PRW1488	PRW1504	

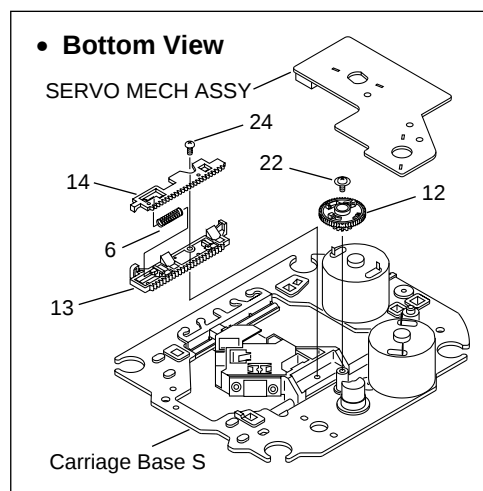
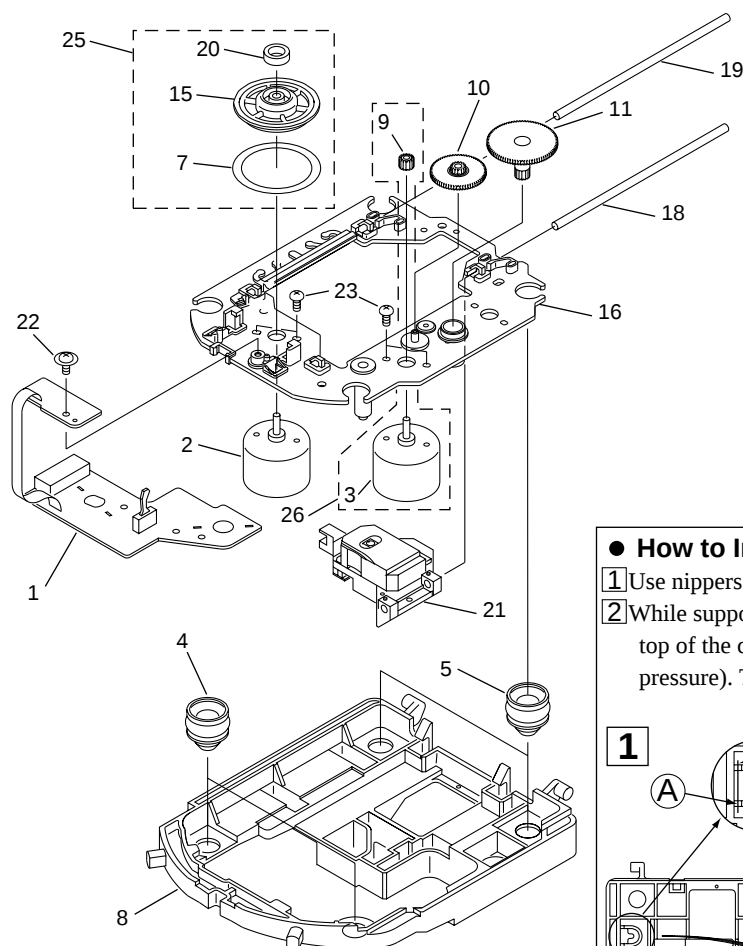
2.4 LOADING MECHANISM ASSY



● LOADING MECHANISM ASSY PARTS LIST

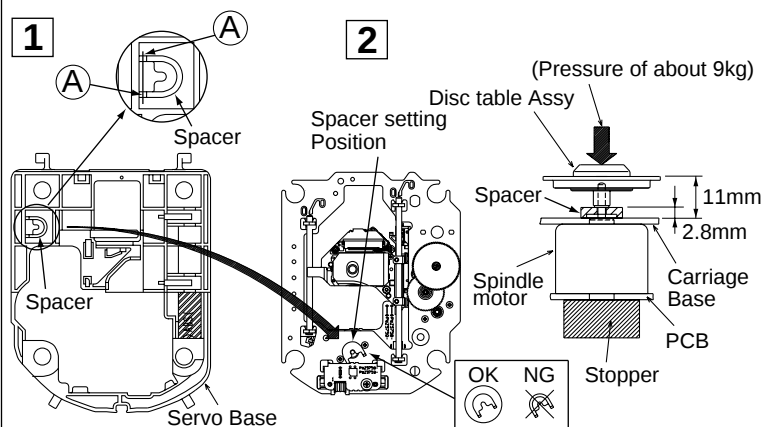
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	32P F•F•C/30V	PDD1187	NSP	16	Lock Plate	VNL1820
	2	Earth Lead Unit	PDF1088		17	Tray Stopper	VNL1739
	3	Connector Assy	PG02KK-E35		18	CD-RW SERVO MECH Assy	PXA1609
	4	DC Motor	PXM1027		19	Screw	BBZ26P040FMC
	5	Screw	DBA1006		20	Screw	IPZ20P080FMC
	6	Motor Pulley	PNW1634	NSP	21	Loading Motor Assy	VXX2505
	7	Screw	VBA1055		22	Loading Mechanism Assy	PXA1608
	8	Tray Stopper Spring	VBH1277		23	Clamper Plate	VNE2068
	9	Rubber Belt	VEB1260		24	Bridge	VNE2069
	10	Loading Base	VNL1730		25	Clamper	VNL1738
	11	Tray	VNL1731	NSP	26	Screw	IPZ26P060FCU
	12	Gear Pulley	VNL1733		27	LOADING A Assy	PWZ3727
	13	Loading Gear	VNL1734	NSP	28	LOADING B Assy	PWZ3728
	14	Drive Gear	VNL1735		29	Tray Holder	PNM1326
	15	Drive Cam	VNL1736				

2.5 SERVO MECHANISM ASSY



• How to Install the Disc Table

- 1 Use nippers or other tool to cut the two sections marked **A** in figure 1.
- 2 While supporting the spindle motor shaft with the stopper, put spacer on top of the carriage base, and stick the disc table on top (takes about 9kg pressure). Take off the spacer.

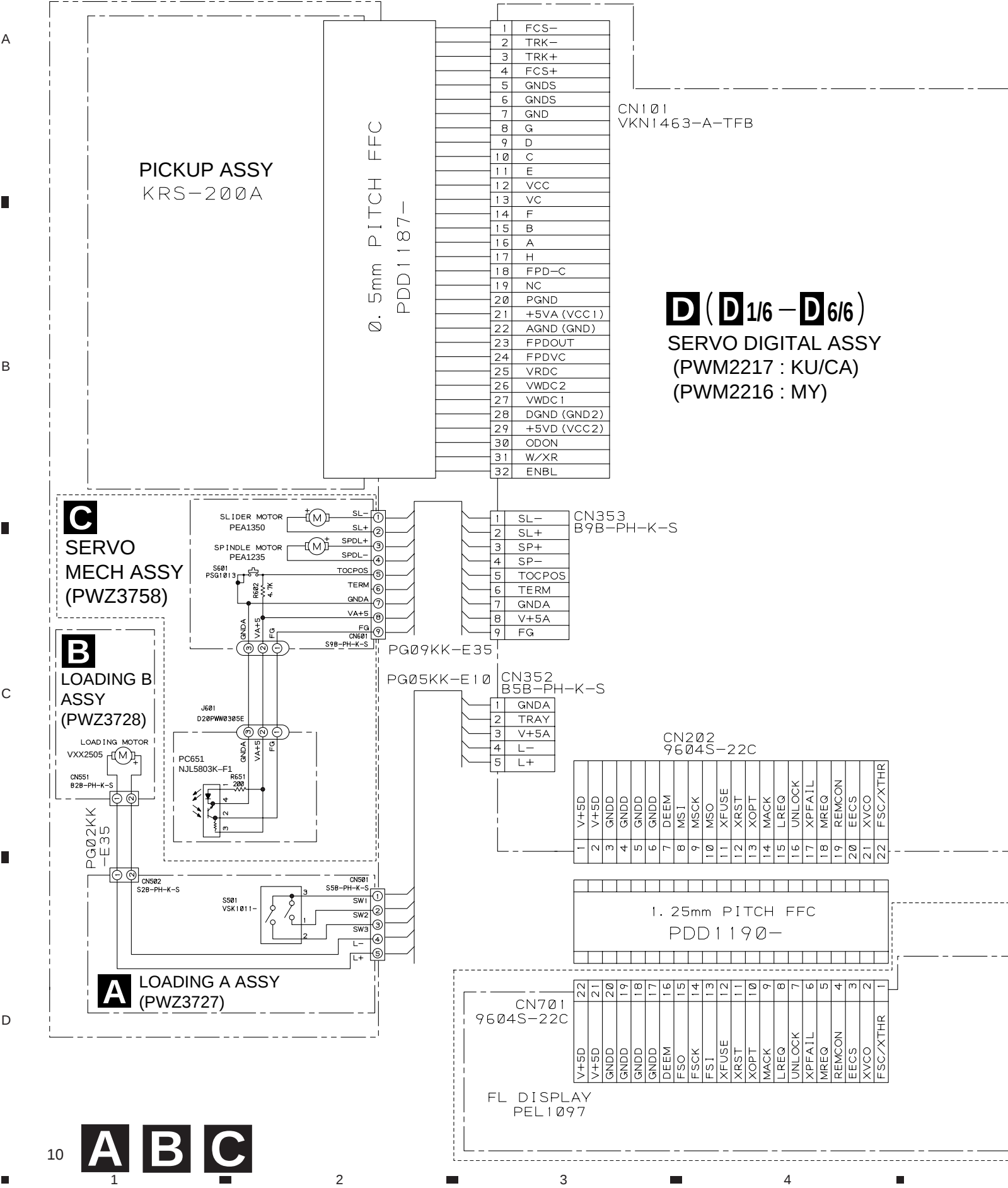


• SERVO MECHANISM ASSY PARTS LIST

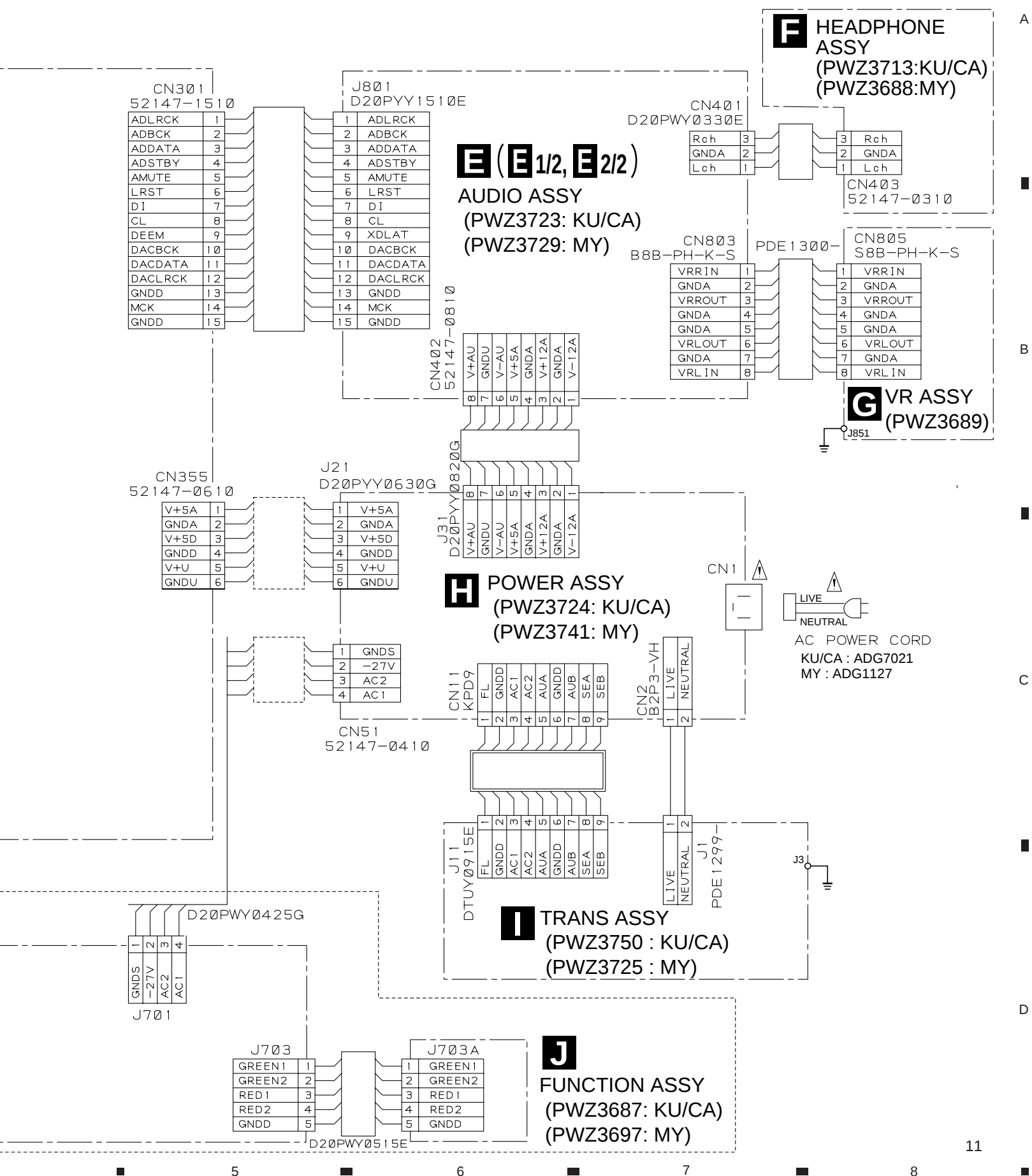
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	SERVO MECH Assy	PWZ3758		16	Carriage Base S	PNW2874
	2	D.C.mortor Assy	PEA1235		17	• • • • •	
NSP	3	DC Motor	PXM1042		18	Guide Bar	VLL1488
	4	Float Rubber A	AEB7063		19	Sub Guide Bar	VLL1489
	5	Float Rubber B	AEB7066	NSP	20	Magnet	VYM1024
NSP	6	Rack Spring	DBH1285		21	CD-R Pickup	PEA1351
NSP	7	Mirror Sheet	PNM1325		22	Screw	IPZ20P060FMC
	8	Servo Base	PNW2853		23	Screw	PMZ20P030FMC
	9	Pinion Gear	PNW2854		24	Screw	JGZ17P030FMC
	10	Gear A	PNW2855		25	Disc Table Assy	PEA1349
	11	Gear B	PNW2856		26	Carriage Motor Assy	PEA1350
	12	Gear C	PNW2857				
	13	Rack	PNW2858				
	14	Rack Stopper	PNW2859				
NSP	15	Disc Table	PNW2860				

3. SCHEMATIC DIAGRAM

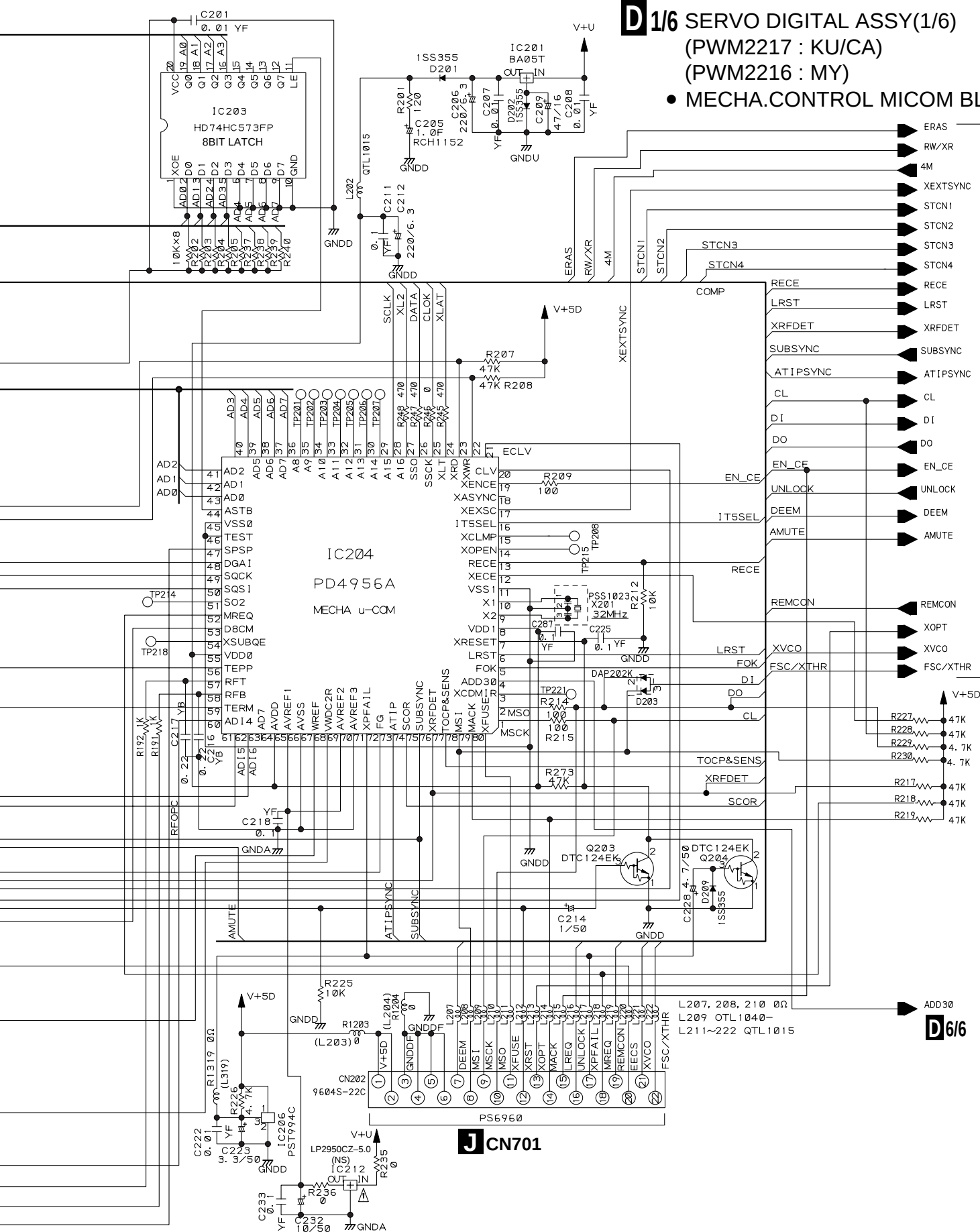
3.1 OVERALL CONNECTIONS, LOADING A, B, and SERVO MECH ASSEMBLIES



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



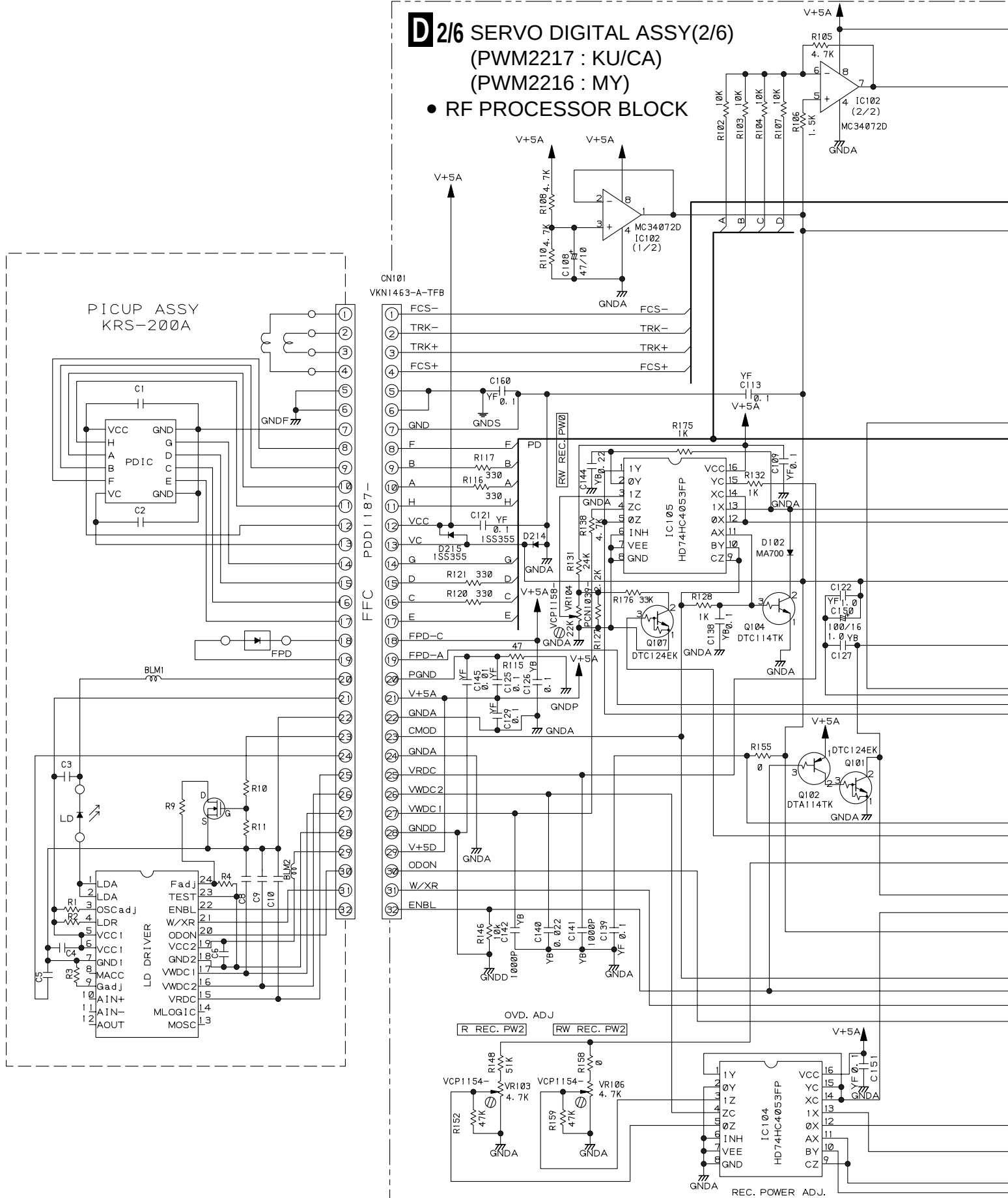
D1/6 SERVO DIGITAL ASSY(1/6)
(PWM2217 : KU/CA)
(PWM2216 : MY)
• MECHA.CONTROL MICOM BLOCK

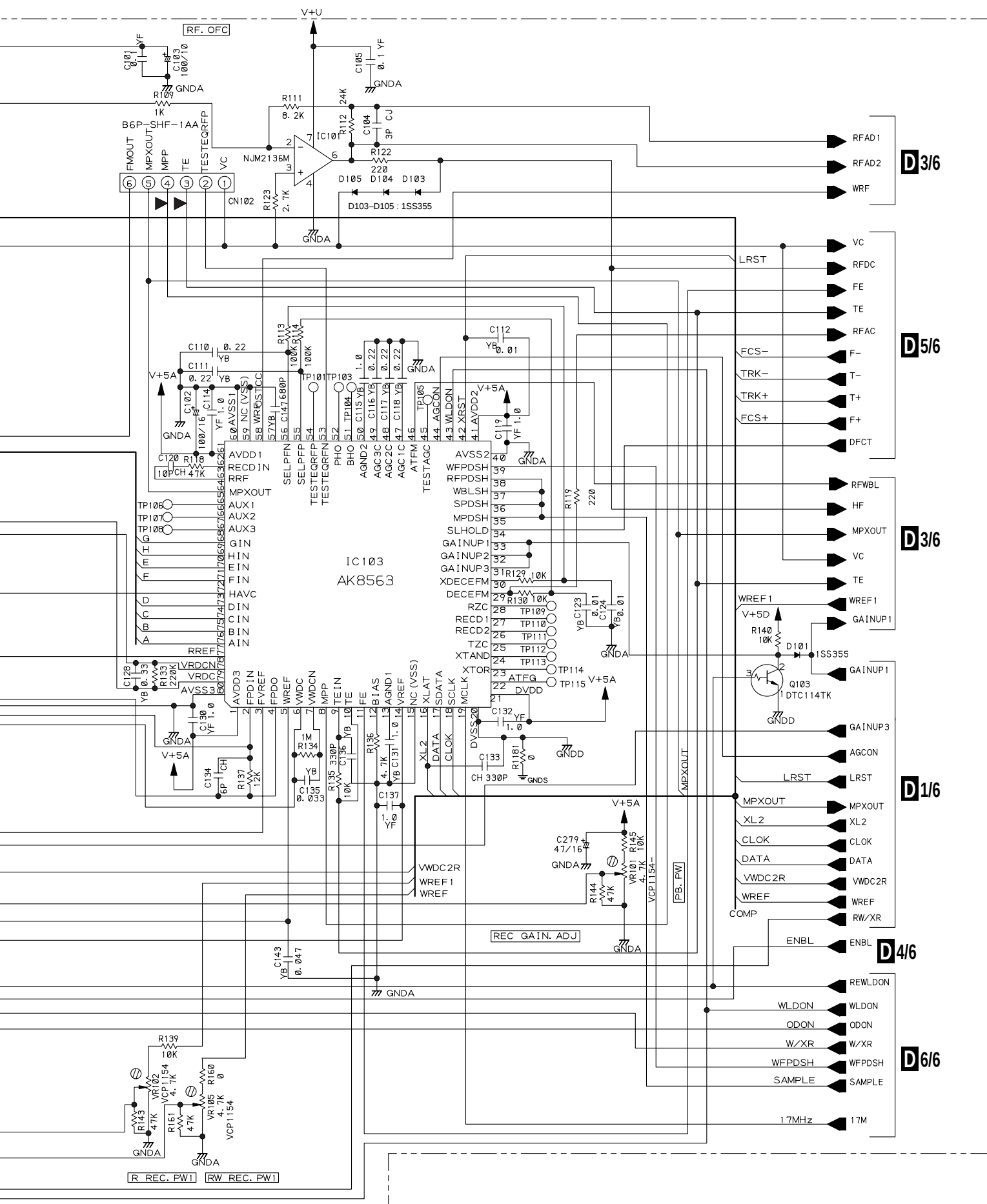


D6/6

D1/6 13

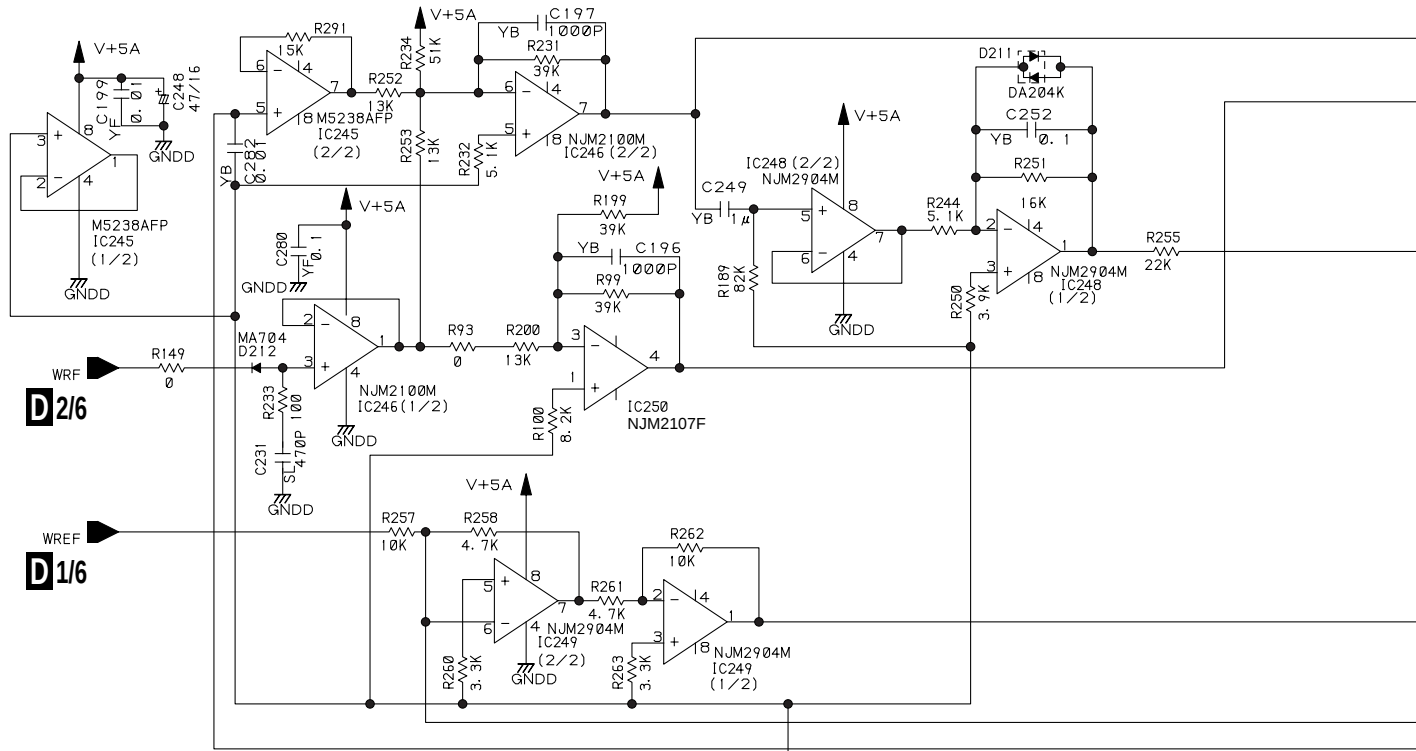
3.3 SERVO DIGITAL(2/6) and PICKUP ASSEMBLIES



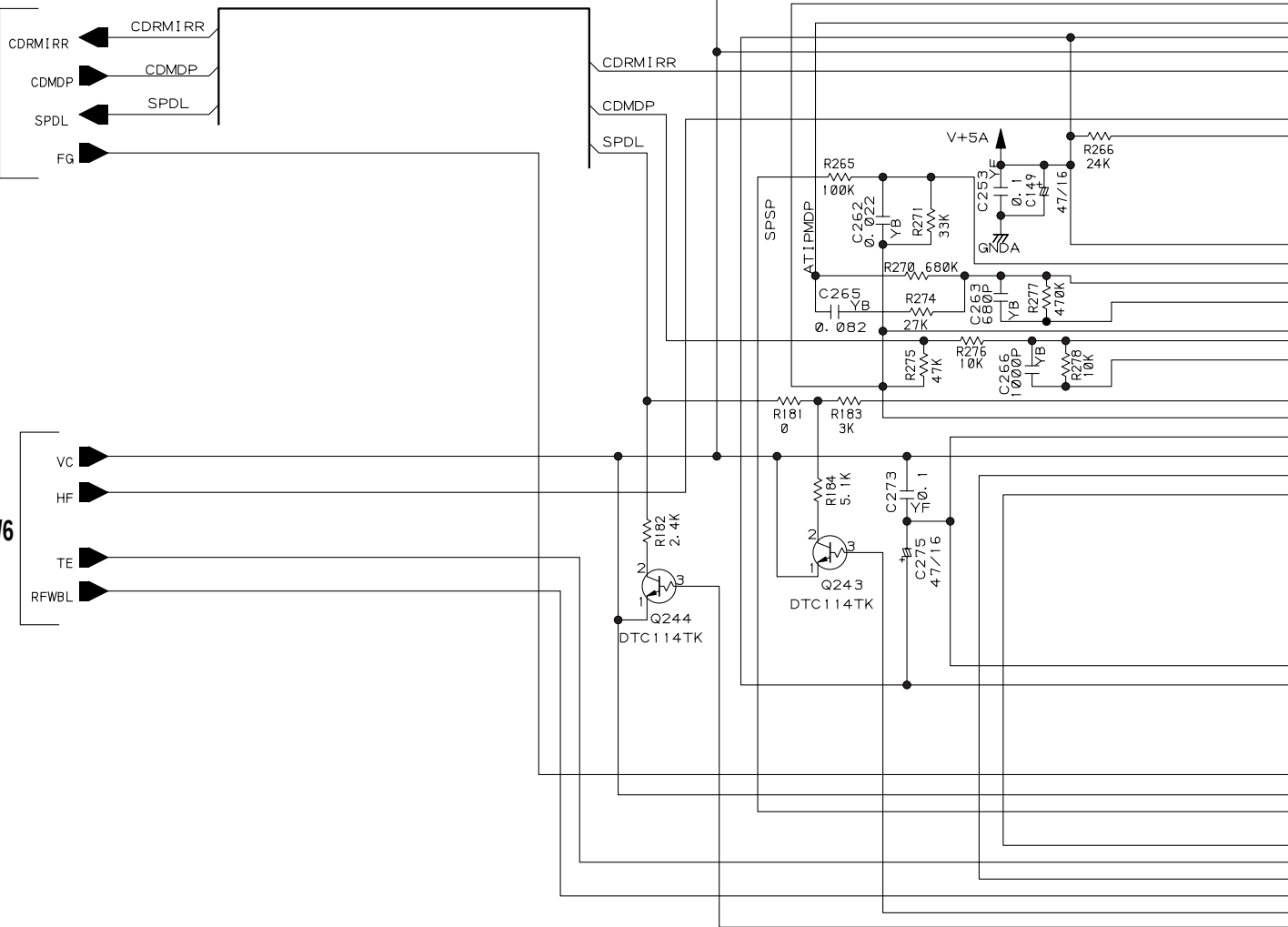


3.4 SERVO DIGITAL ASSY(3/6)

A

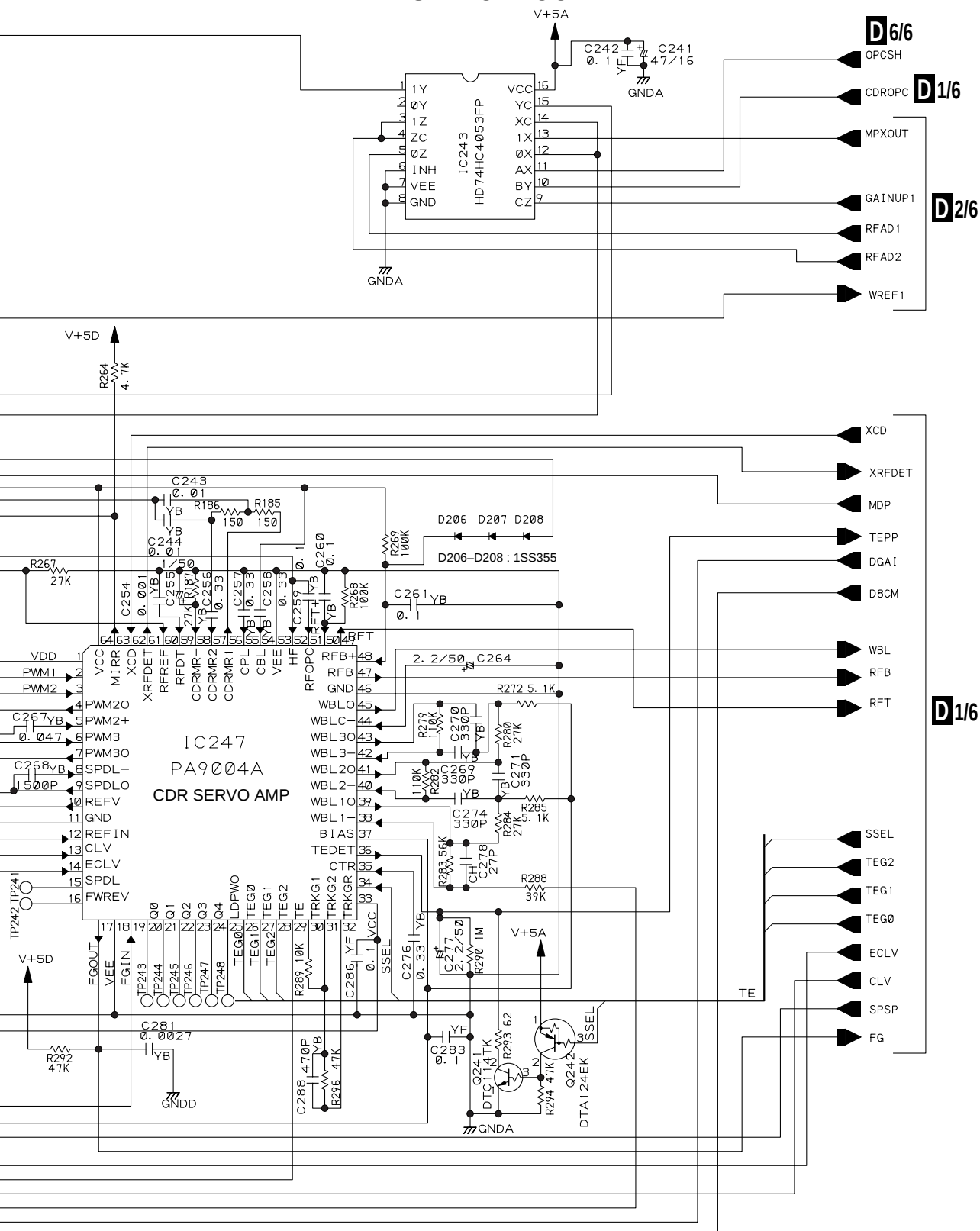


B



D3/6 SERVO DIGITAL ASSY(3/6) (PWM2217 : KU/CA) (PWM2216 : MY)

• SERVO BLOCK



3.5 SERVO DIGITAL ASSY(4/6)

A

B

C

D

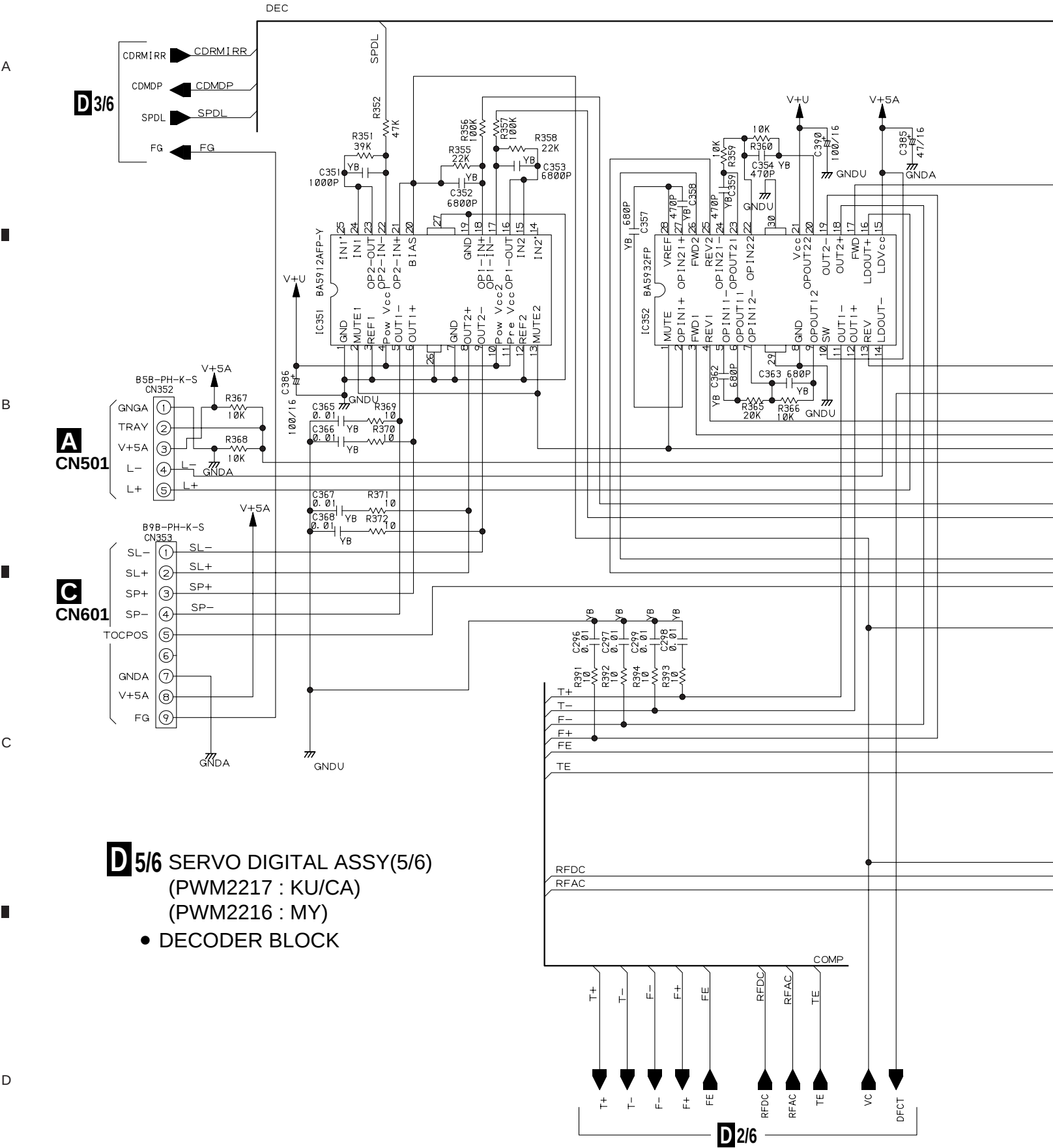
D6/6

LC89585
EFM ENCODER IC

D1/6



3.6 SERVO DIGITAL ASSY(5/6)



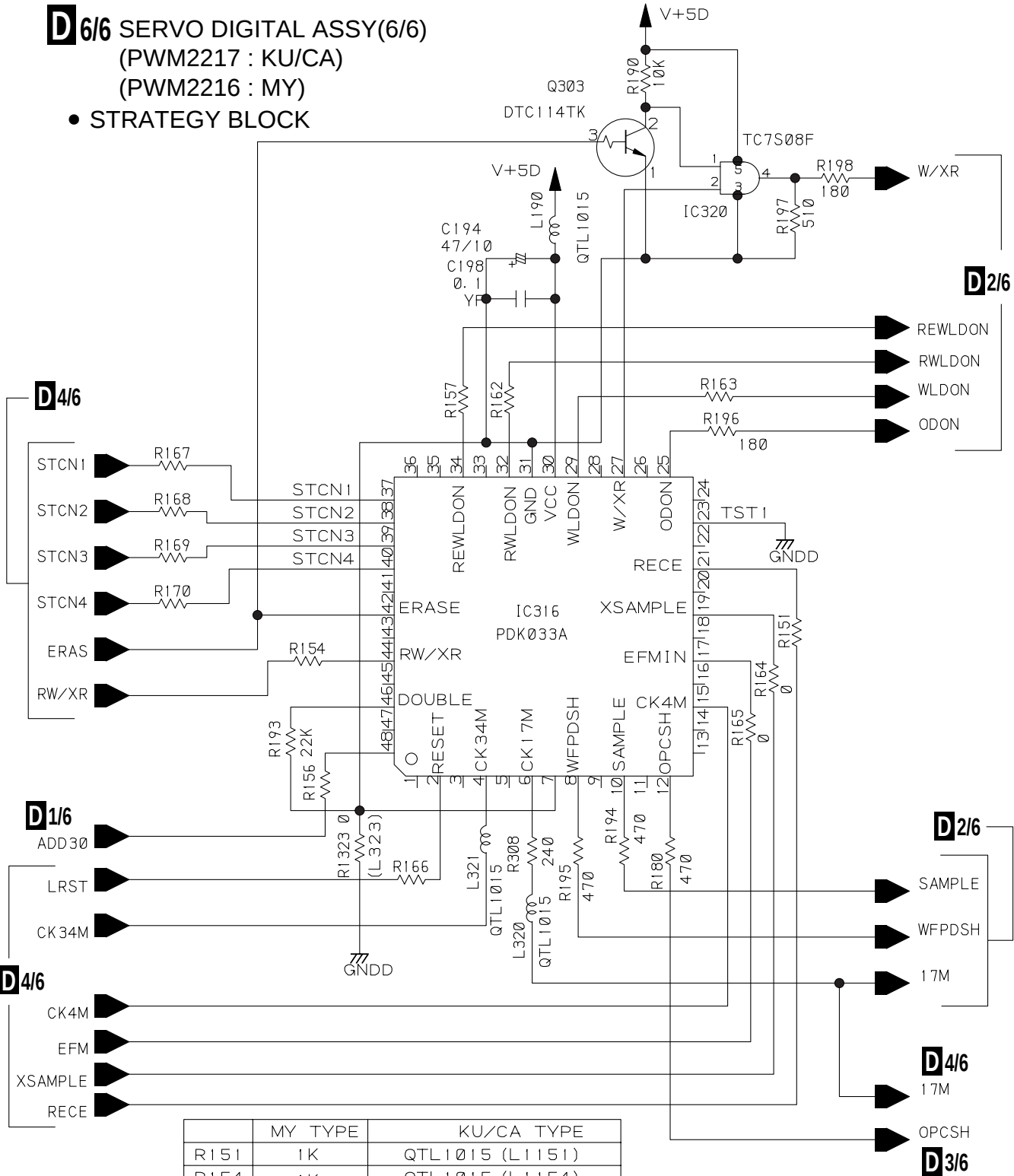
**H J21**

D5/6 21

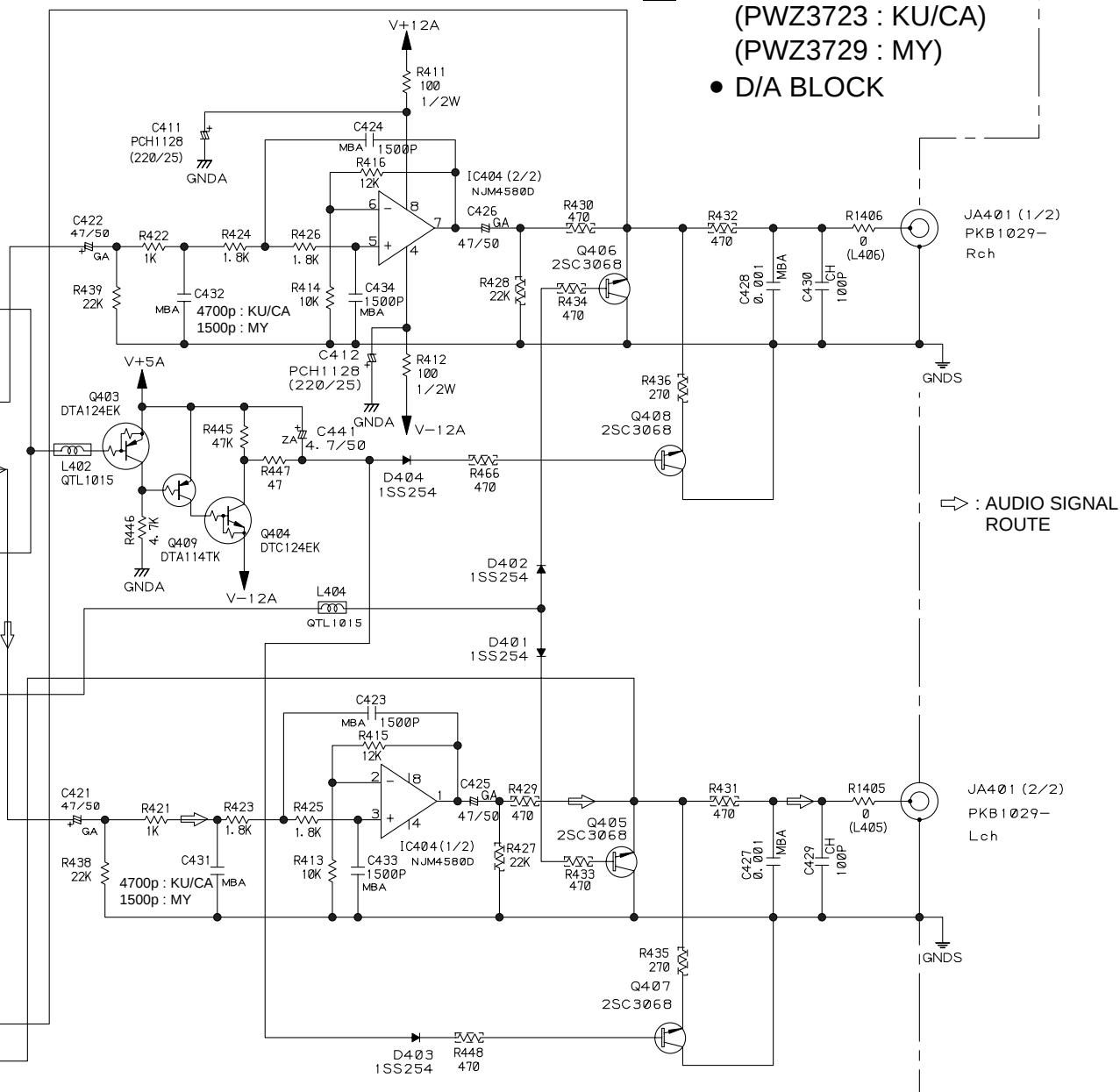
3.7 SERVO DIGITAL ASSY(6/6)

D6/6 SERVO DIGITAL ASSY(6/6)
(PWM2217 : KU/CA)
(PWM2216 : MY)

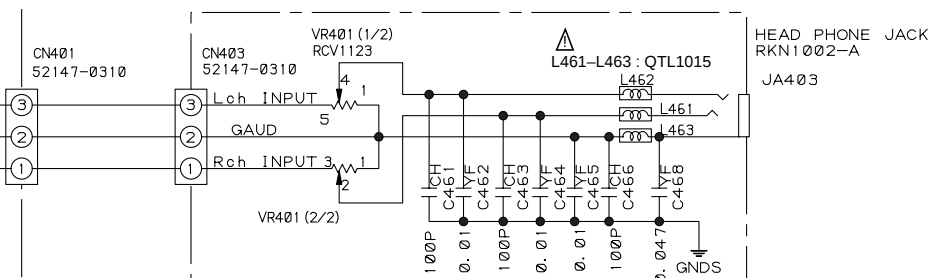
- STRATEGY BLOCK



E 1/2 AUDIO ASSY(1/2) (PWZ3723 : KU/CA) (PWZ3729 : MY) • D/A BLOCK



F HEADPHONE ASSY (PWZ3713 : KU/CA) (PWZ3688 : MY)



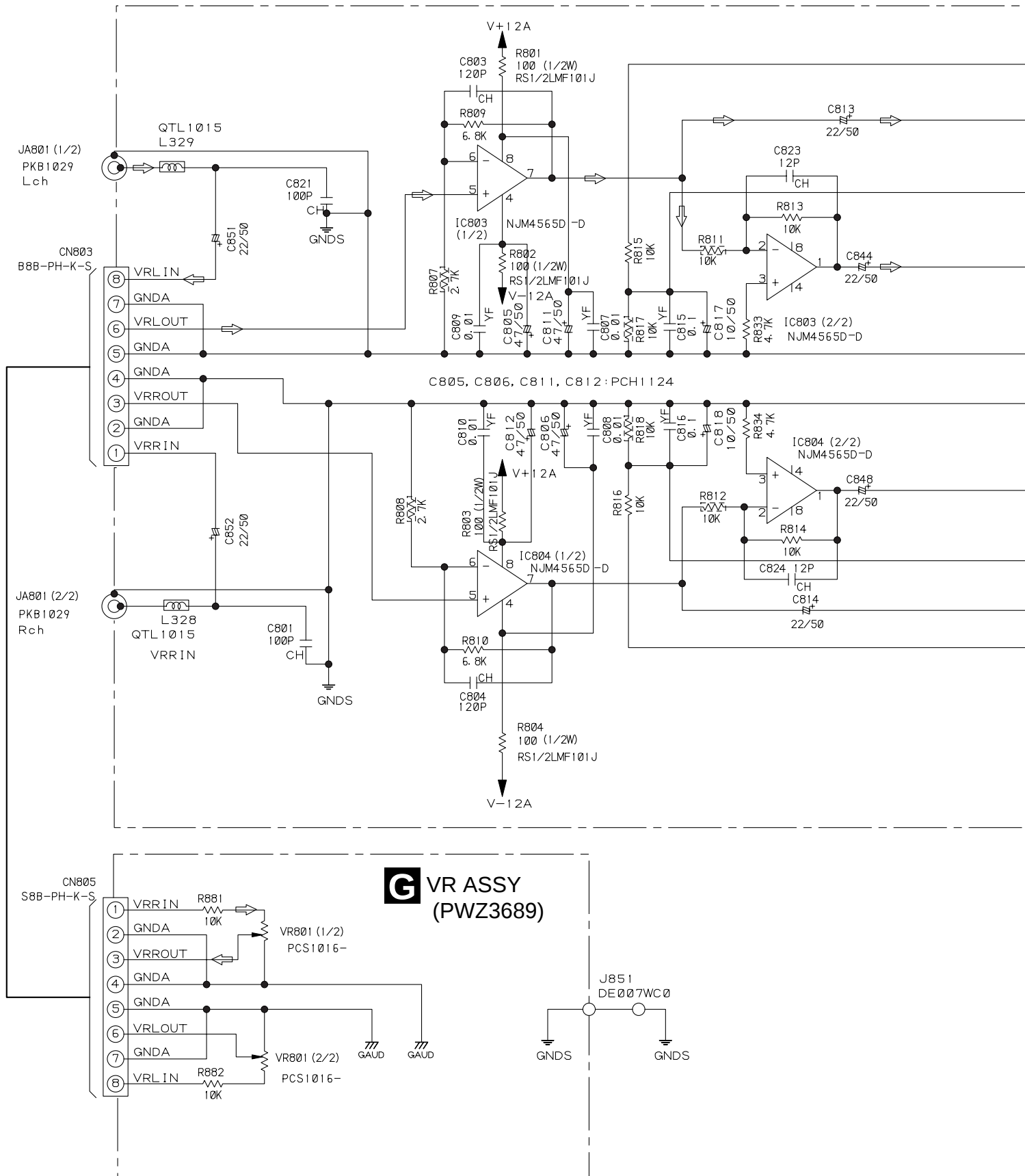
3.9 AUDIO(2/2) and VR ASSEMBLIES

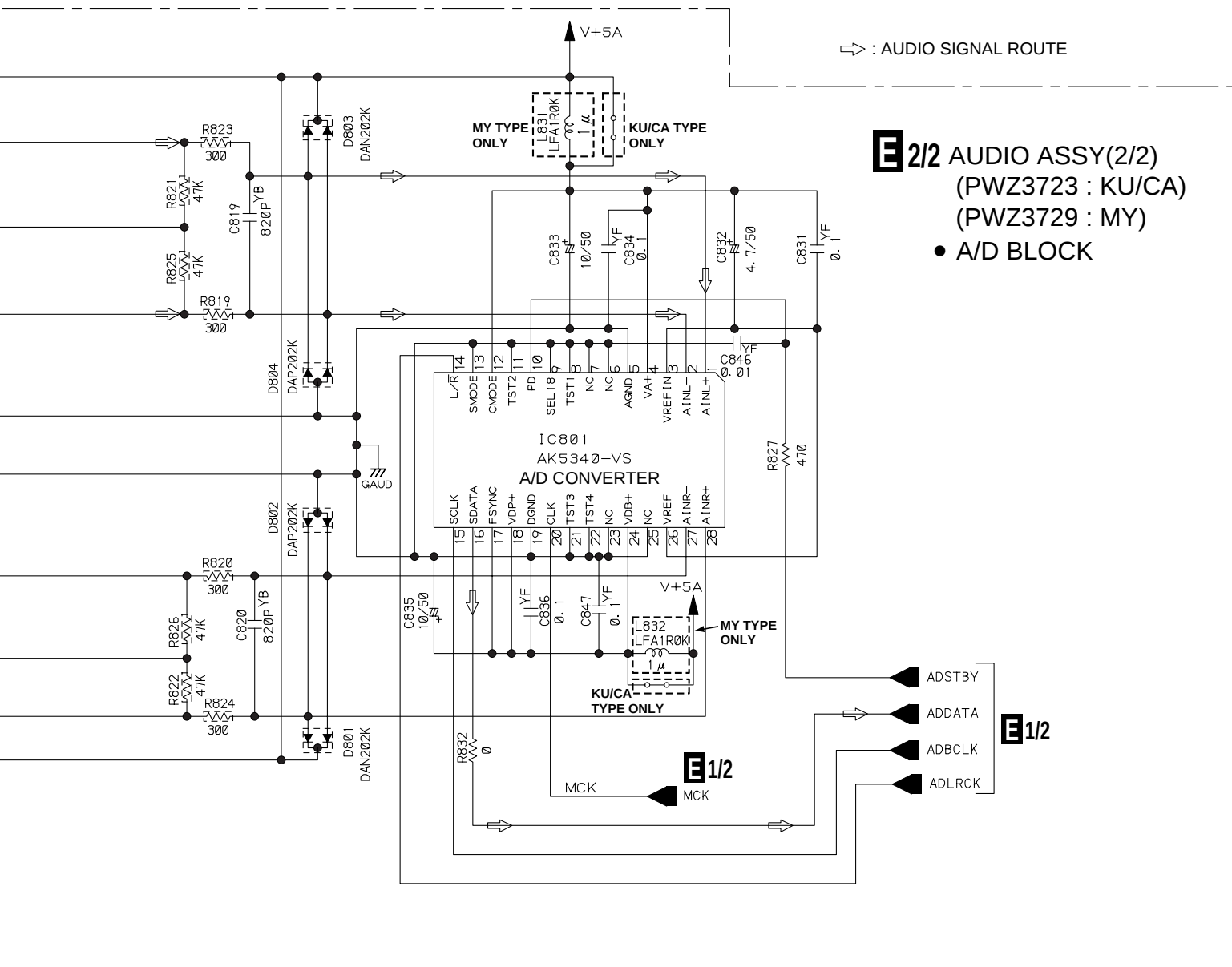
A

B

C

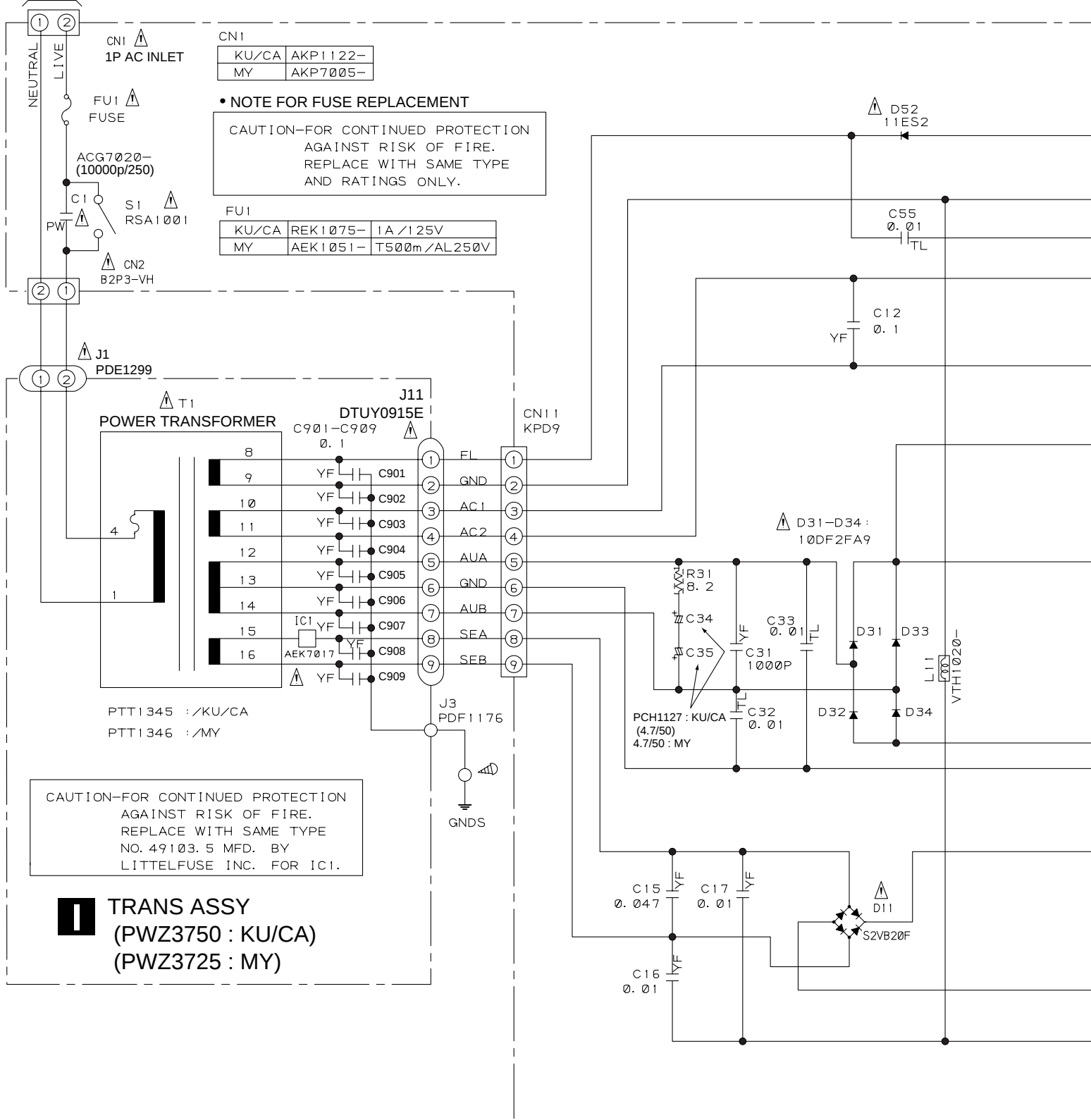
D



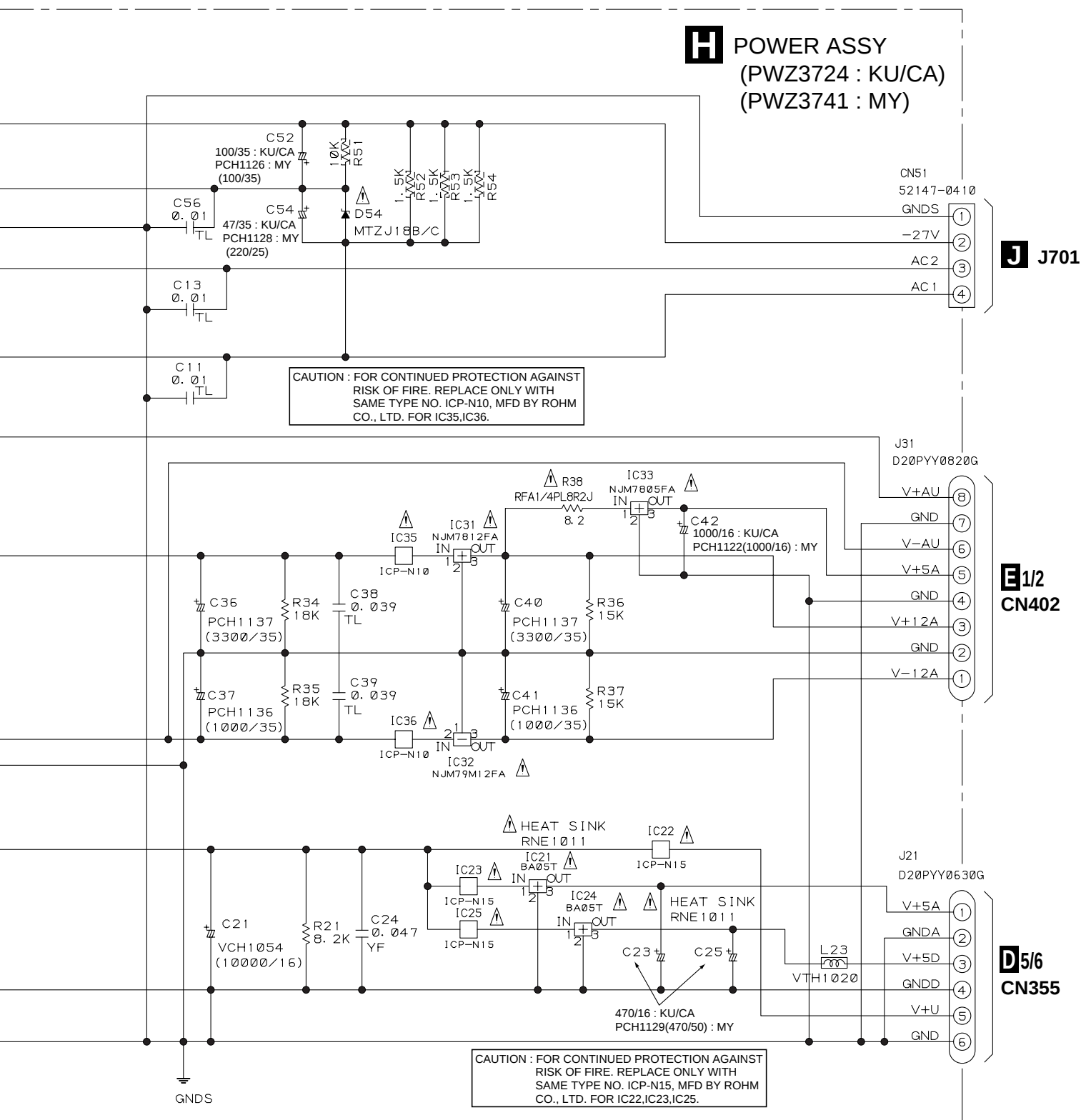


3.10 POWER and TRANS ASSEMBLIES

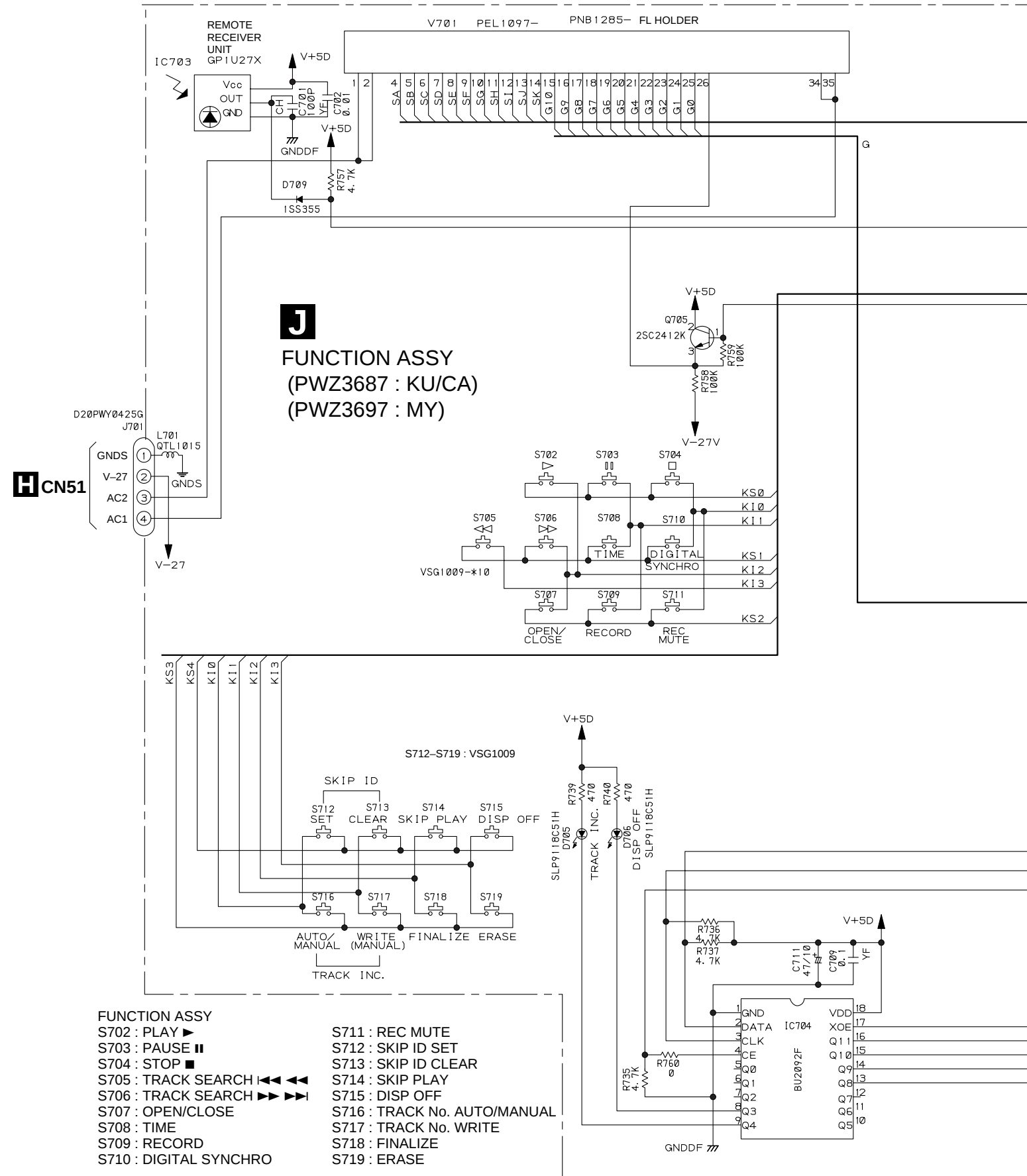
AC POWER CORD



H POWER ASSY
(PWZ3724 : KU/CA)
(PWZ3741 : MY)



3.11 FUNCTION ASSY

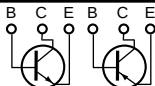
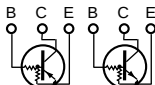
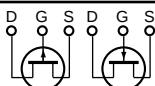
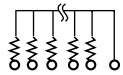




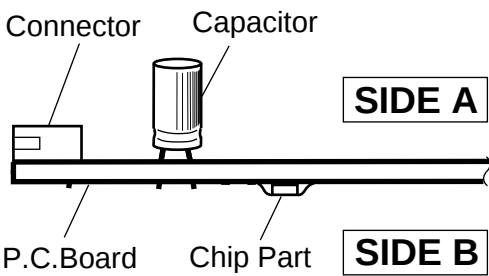
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

- 1. Part numbers in PCB diagrams match those in the schematic diagrams.
- 2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

- 3. The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.
- 4. View point of PCB diagrams.



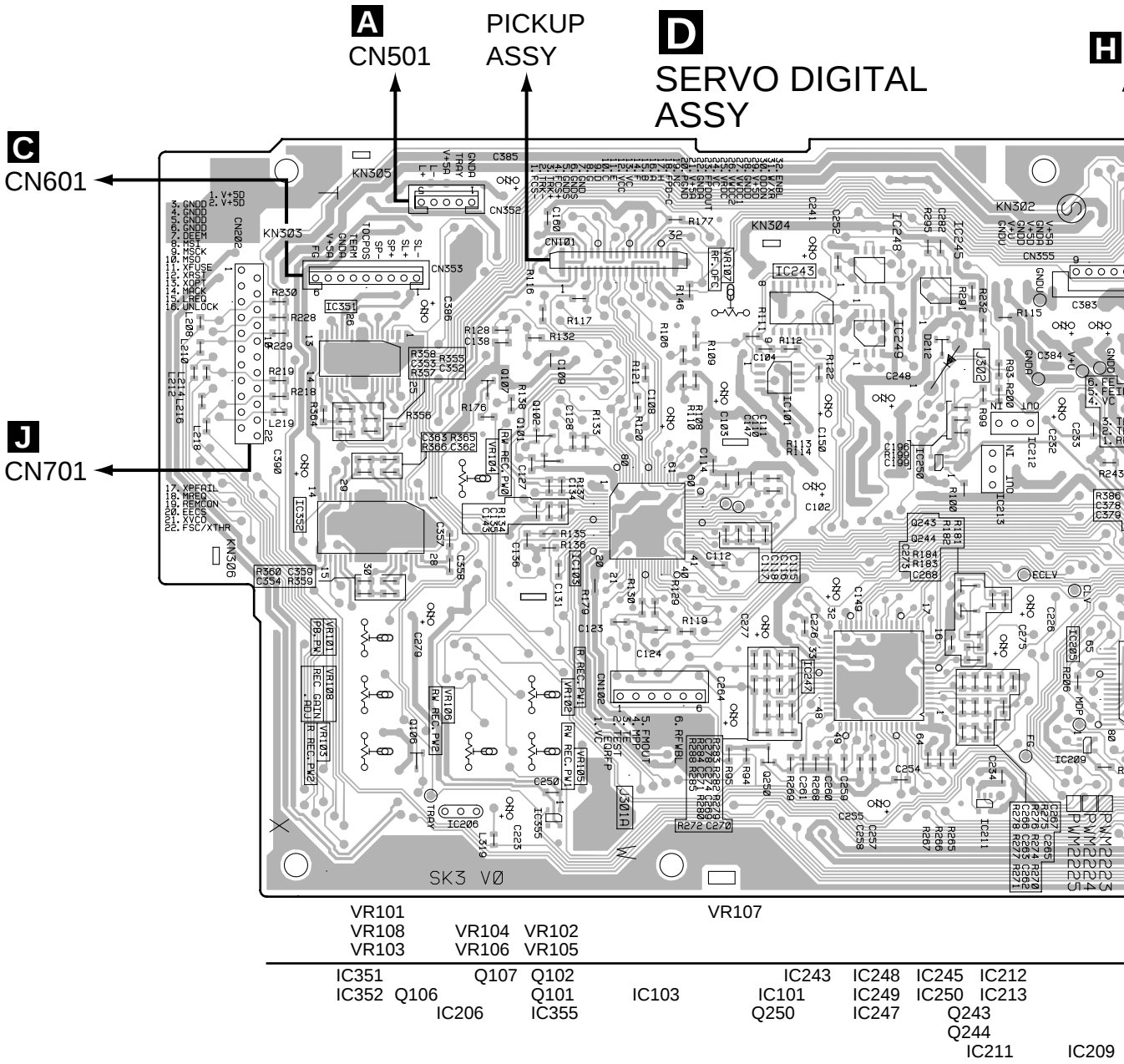
4.2 SERVO DIGITAL ASSY

A

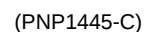
B

C

D

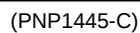


SIDE A

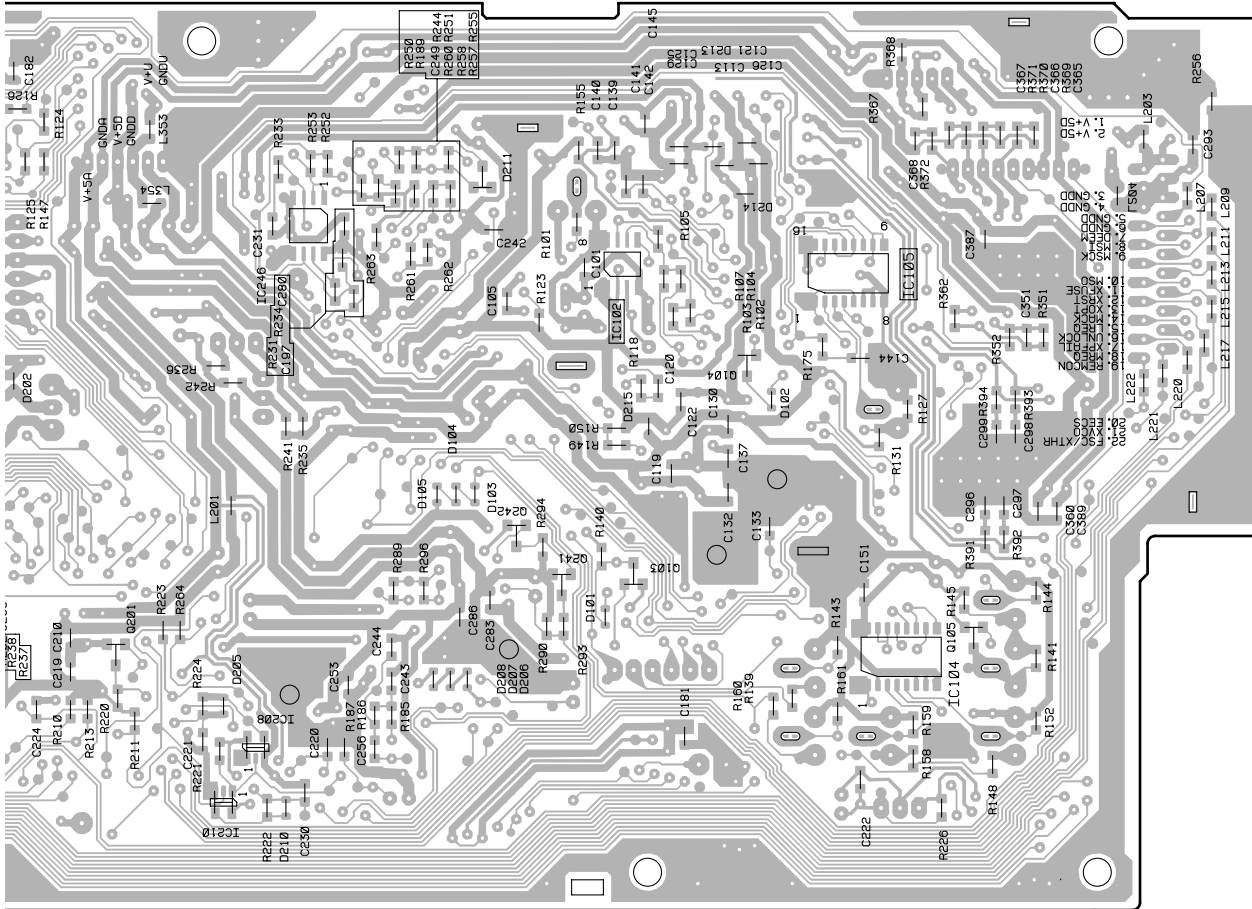


IC209

SIDE B

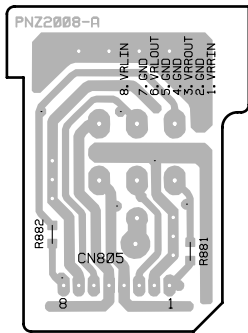


IC305	Q302	IC354	Q351	
IC313	IC320 Q303			Q201
IC312		Q204	IC207 IC203	



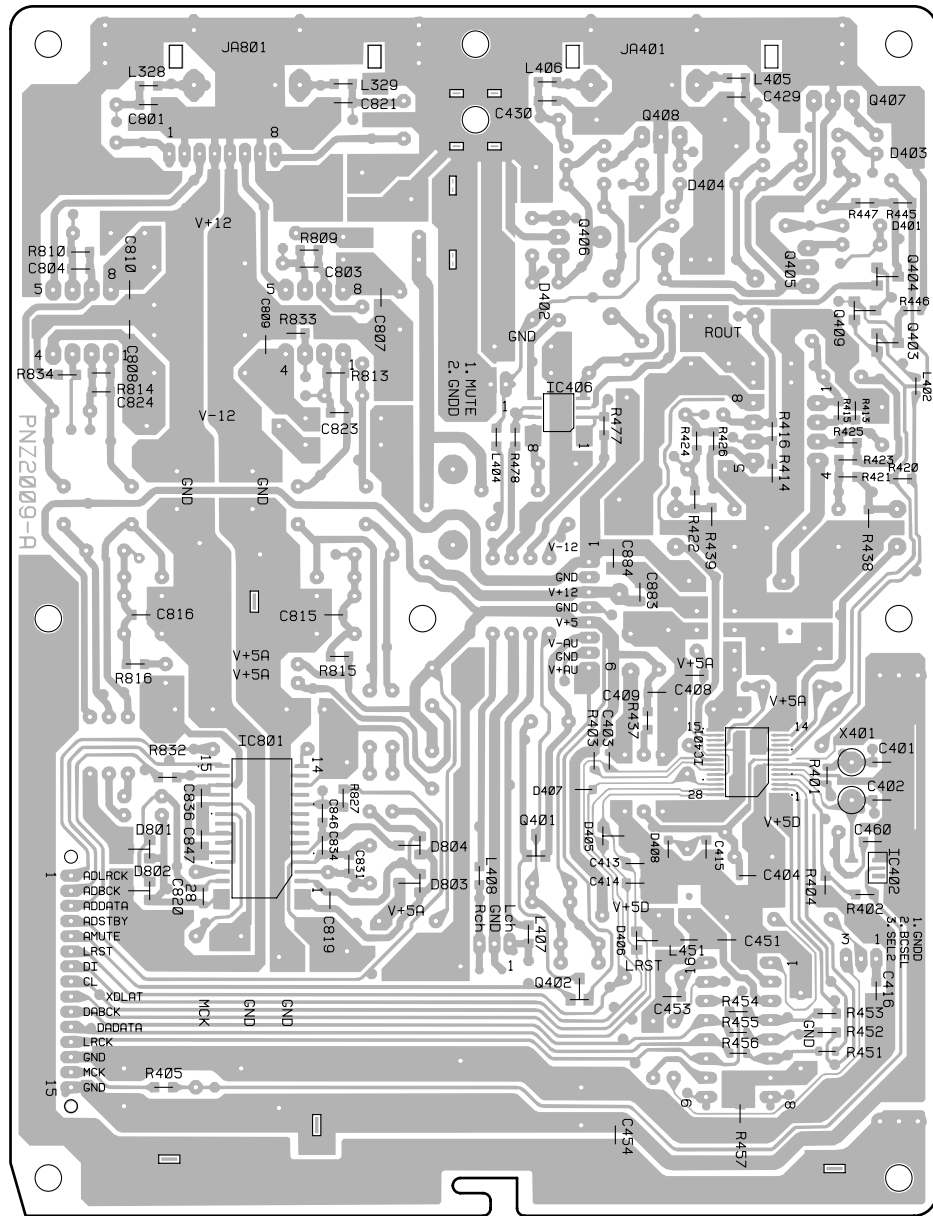
Q201 IC246 Q242 IC210 IC208 Q241 IC102 Q104 IC105 IC104 Q105

G VR ASSY



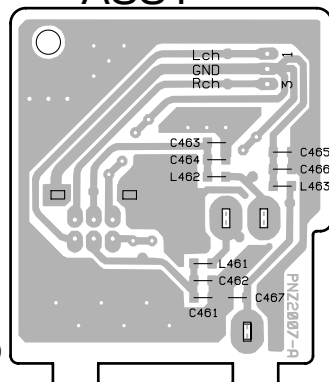
(PNP1456-A)

E AUDIO ASSY



(PNP1446-A)

F HEADPHONE ASSY



(PNP1456-A)

SIDE B

Q404

Q409

Q403

IC406

IC401

IC801

Q401

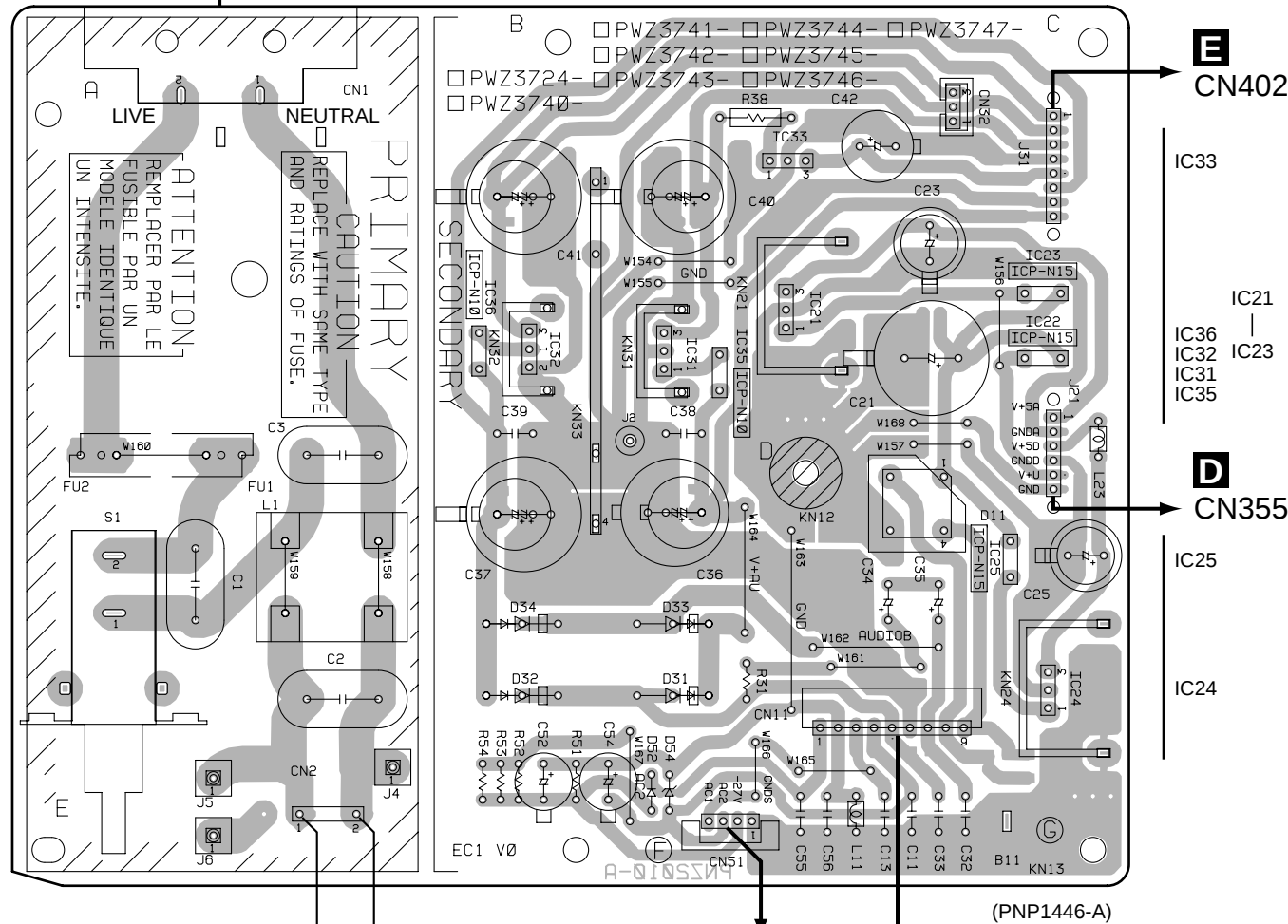
IC402

Q402

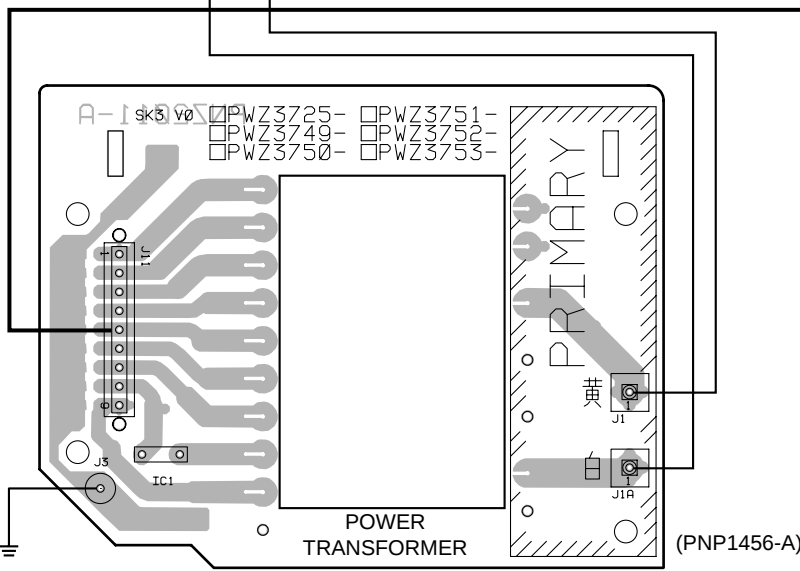
4.4 POWER and TRANS ASSEMBLIES

AC POWER CORD

H POWER ASSY



J J701



SIDE A

I TRANS ASSY



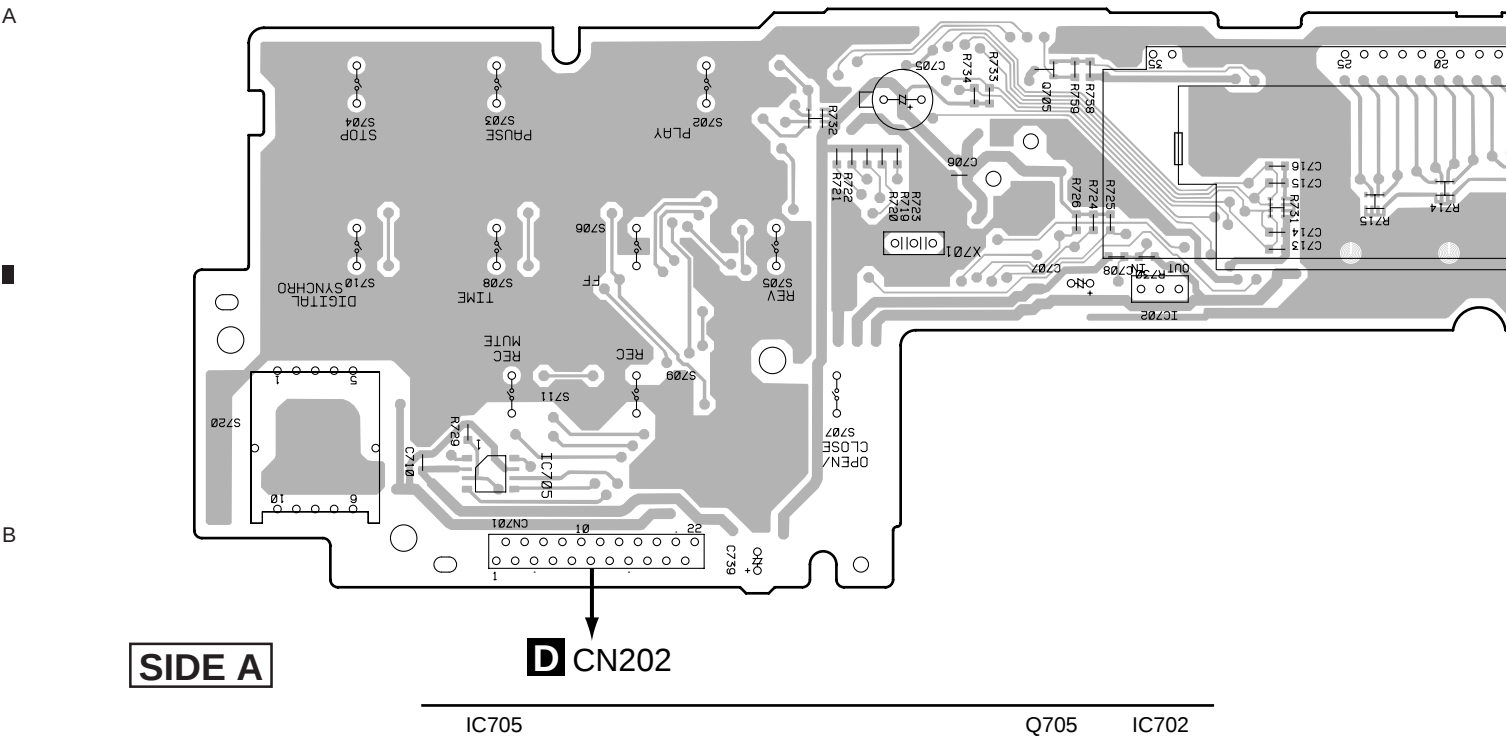
B



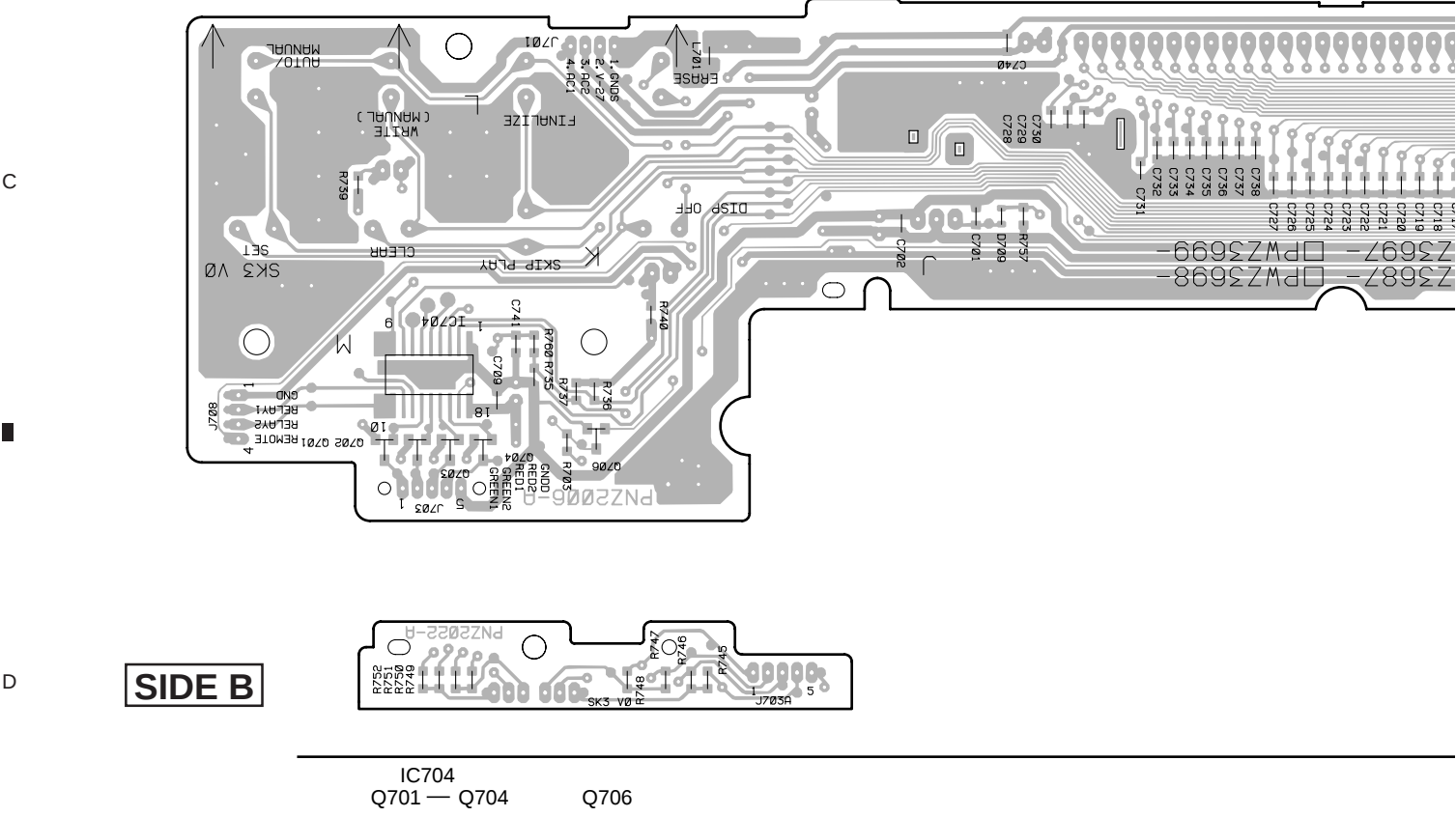
D

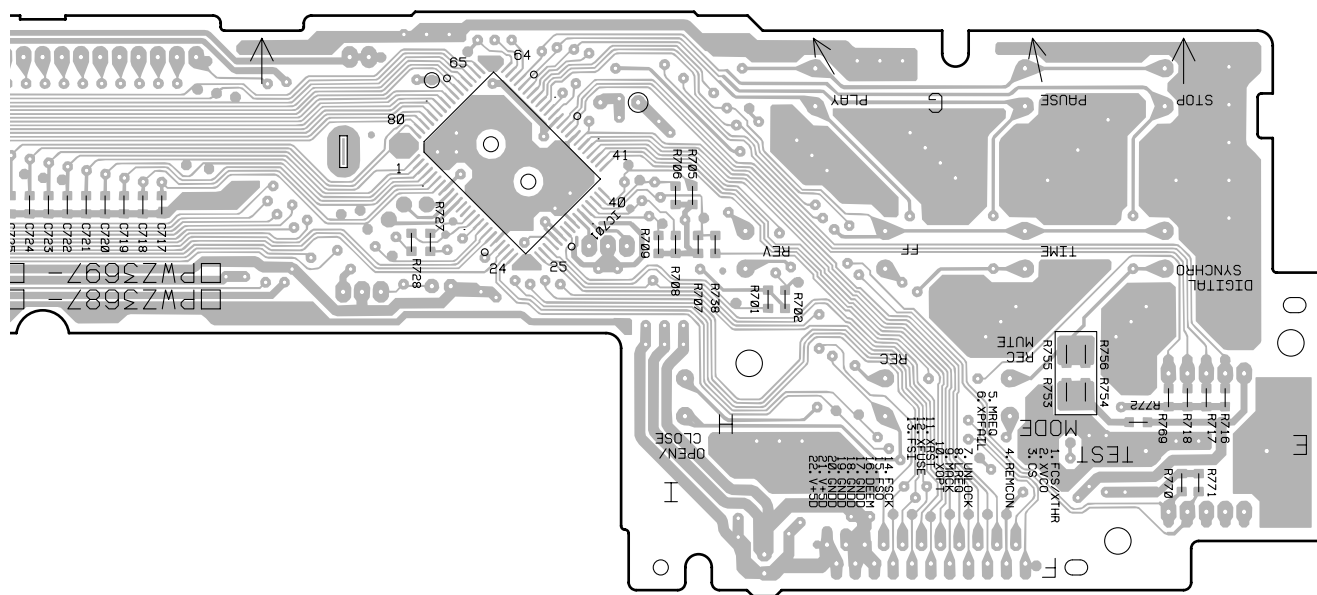
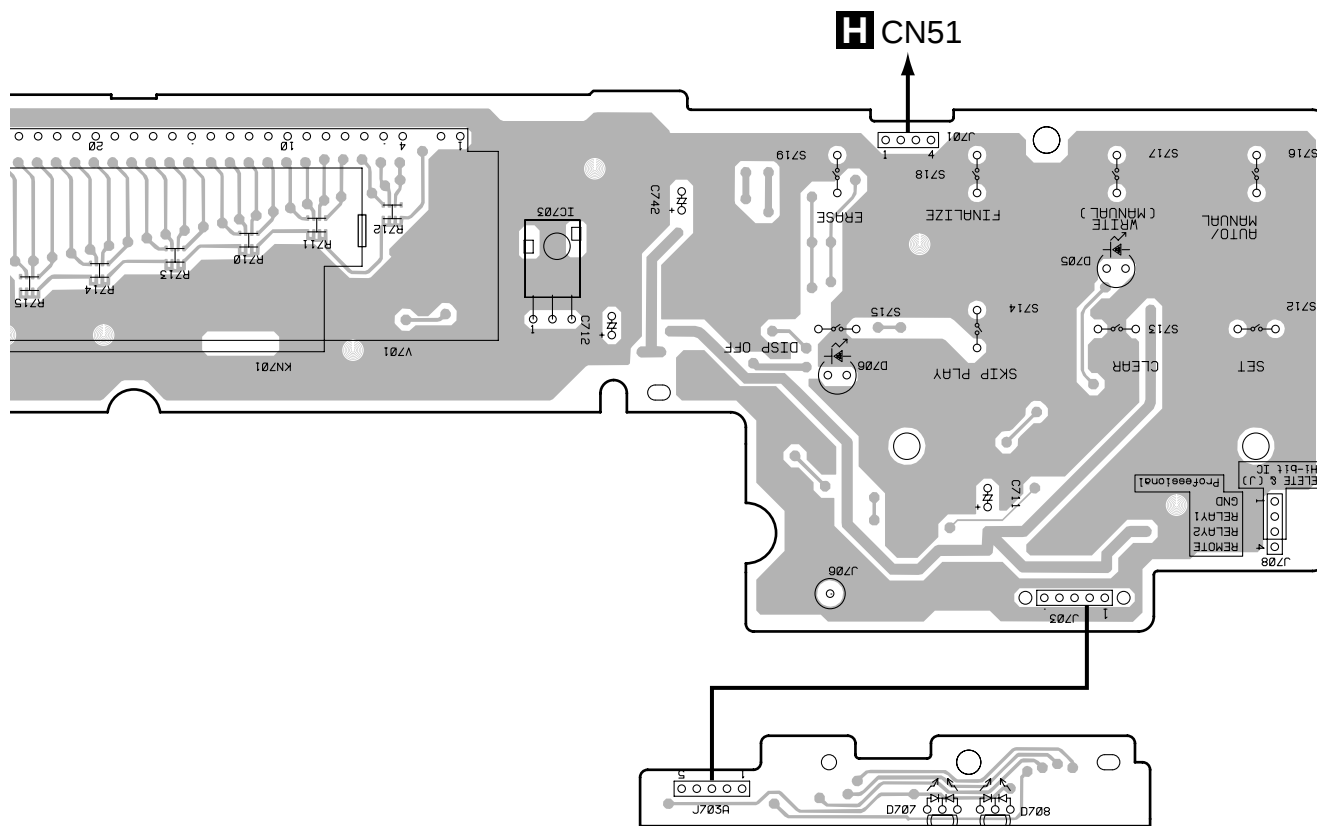
4.5 FUNCTION ASSY

J FUNCTION ASSY



J FUNCTION ASSY





(PNP1456-A)

IC701

5. PCB PARTS LIST

NOTES: ●Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
●The Δ mark found on some component parts indicates the importance of the safety factor of the part.
Therefore, when replacing, be sure to use parts of identical designation.
●When ordering resistors, first convert resistance values into code form as shown in the following examples.
Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
560 Ω → 56 × 10¹ → 561 RD1/4PU 5 6 1 J
47k Ω → 47 × 10³ → 473 RD1/4PU 4 7 3 J
0.5 Ω → R50 RN2H R 5 0 K
1 Ω → 1R0 RS1P 1 R 0 K
Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62k Ω → 562 × 10¹ → 5621 RN1/4PC 5 6 2 1 F

■ LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	Part No.		Remarks
		KU/CA Type	MY Type	
NSP	SERVO MECH ASSY	PWX1569	PWX1569	
NSP	└─LOADING A ASSY	PWZ3727	PWZ3727	
NSP	└─LOADING B ASSY	PWZ3728	PWZ3728	
NSP	└─SERVO MECH ASSY	PWZ3758	PWZ3758	
Δ	SERVO DIGITAL ASSY	PWM2217	PWM2216	
NSP	POWER AUDIO ASSY	PWX1558	PWX1559	
Δ	└─AUDIO ASSY	PWZ3723	PWZ3729	
	└─POWER ASSY	PWZ3724	PWZ3741	
NSP	FUNCTION ASSY	PWX1591	PWX1592	
NSP	└─FUNCTION ASSY	PWZ3687	PWZ3697	
	└─HEADPHONE ASSY	PWZ3713	PWZ3688	
	└─VR ASSY	PWZ3689	PWZ3689	
	└─TRANS ASSY	PWZ3750	PWZ3725	

Mark No. Description Part No.

A LOADING A ASSY
SWITCH

S501 VSK1011

OTHERS

CN502 KR CONNECTOR S2B-PH-K-S
CN501 KR CONNECTOR S5B-PH-K-S

B LOADING B ASSY

OTHERS

CN551 KR CONNECTOR B2B-PH-K-S

Mark No. Description Part No.

C SERVO MECH ASSY
SEMICONDUCTOR

PC651 NJL5803K-F1

SWITCH

S601 PSG1013

RESISTORS

All Resistors RD1/4PU□□□J

OTHERS

J601 3P JUMPER WIRE D20PWW0305E
CN601 KR CONNECTOR S9B-PH-K-S

Mark	No.	Description	Part No.
------	-----	-------------	----------

D SERVO DIGITAL ASSY

(1) CONTRAST TABLE

PWM2217 and PWM2216 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		PWM2217	PWM2216	
	L305,L310,L353,L354 L1097,L1151,L1154, L1156,L1157,L1162, L1163,L1166-L1171 R97,R171,R1182	Not used QTL1015	QTL1015 Not used	
	R151,R154,R156,R157, R162,R163,R166-R170 R1305,R1310,R1353, R1354	Not used RS1/10S0R0J	RS1/10S102J Not used	

(2)PARTS LIST FOR PWM2217

SEMICONDUCTORS

	IC311	AD1893JST
	IC103	AK8563
	IC201	BA05T
	IC351	BA5912AFP-Y
	IC352	BA5932FP
	IC302	BA7082F
	IC353	CXD2585Q
	IC104,IC105,IC243	HD74HC4053FP
	IC203	HD74HC573FP
	IC308	LC89585
△	IC301	LH64256CK-70
	IC212	LP2950CZ-5.0(NS)
	IC245	M5238AFP
	IC102	MC34072D
	IC246	NJM2100M
	IC250	NJM2107F
	IC101	NJM2136M
	IC207,IC248,IC249,IC314	NJM2904M
	IC247	PA9004A
	IC204	PD4956B
	IC205	PDJ014A
	IC316	PDK033A
	IC206	PST994C
	IC202	TC4W53F
	IC312,IC313	TC74HC00AF
	IC305	TC74HCU04AF
	IC210	TC7S00F
	IC208,IC303	TC7S04F
	IC320	TC7S08F
	IC209,IC211,IC310	TC7S14F
	IC354	TC7SU04F
	IC355	TK11041M-1
	Q102,Q301	DTA114TK
	Q242,Q351	DTA124EK
	Q103,Q104,Q241,Q243,Q244	DTC114TK
	Q303	DTC114TK
	Q101,Q107,Q201,Q203,Q204	DTC124EK
	D101,D103-D105,D201,D202	1SS355
	D205-D210,D214,D215	1SS355
	D211,D301	DA204K
	D302	DAN202K
	D203	DAP202K
	D102	MA700
	D212	MA704

Mark	No.	Description	Part No.
------	-----	-------------	----------

COILS

	L209	OTL1040
	L308 PULSE TRANS.	PTL1003
△	L315 CHOKE COIL	PTL1017
△	L312 EMI FILTER	PTL1019
	L1097,L1151,L1154,L1156,L1157 CHIP SOLID INDUCTOR	QTL1015
	L1162,L1163,L1166-L1171,L190 CHIP SOLID INDUCTOR	QTL1015
	L201,L202,L211-L222 CHIP SOLID INDUCTOR	QTL1015
	L301-L304,L307,L309 CHIP SOLID INDUCTOR	QTL1015
△	L311 CHIP SOLID INDUCTOR	QTL1015
	L313,L314,L317,L320,L321 CHIP SOLID INDUCTOR	QTL1015
	L351,L352 CHIP SOLID INDUCTOR	QTL1015

CAPACITORS

	C120	CCSQCH100D50
	C306,C316,C325,C326,C338	CCSQCH101J50
	C303	CCSQCH160J50
	C350,C375,C399	CCSQCH221J50
	C278	CCSQCH270J50
	C133,C361	CCSQCH331J50
	C336,C337	CCSQCH470J50
	C231,C377	CCSQCH471J50
	C134	CCSQCH6R0D50
	C104	CCSQCJ3R0C50
	C328	CCSQSL561J50
	C232,C307,C318,C329	CEAT100M50
	C103	CEAT101M10
	C102,C150,C382-C384,C386	CEAT101M16
	C390	CEAT101M16
	C214,C255	CEAT1R0M50
	C206,C212	CEAT221M6R3
	C264,C277	CEAT2R2M50
	C323	CEAT330M25
	C223	CEAT3R3M50
	C108,C194,C395	CEAT470M10
	C149,C209,C226,C241,C248	CEAT470M16
	C275,C279,C304,C310	CEAT470M16
	C320,C321,C333,C341,C344	CEAT470M16
	C355,C370,C385	CEAT470M16
	C228	CEAT4R7M50
	C141,C142,C196,C197,C254	CKSQYB102K50
	C266,C331,C335,C340,C347	CKSQYB102K50
	C351,C364,C376,C396	CKSQYB102K50
	C112,C123,C124,C222	CKSQYB103K50
	C243,C244,C282,C296-C299	CKSQYB103K50
	C315,C322,C332,C343,C346	CKSQYB103K50
	C365-C368,C373,C391,C392	CKSQYB103K50
	C126,C138,C224,C230,C252	CKSQYB104K25
	C259-C261,C327,C339	CKSQYB104K25
	C115,C127,C131,C249,C314	CKSQYB105K10
	C268,C381	CKSQYB152K50
	C348,C349,C397,C398	CKSQYB222K50
	C140,C262	CKSQYB223K50
	C110,C111,C116-C118,C144	CKSQYB224K16
	C216,C217	CKSQYB224K16
	C281	CKSQYB272K50
	C136,C269-C271,C274	CKSQYB331K50
	C135	CKSQYB333K50
	C128,C256-C258,C276	CKSQYB334K16

Mark	No.	Description	Part No.
	C221,C288,C354,C358,C359 C267,C380 C143 C147,C263,C357,C362,C363 C352,C353	CKSQYB471K50 CKSQYB473K25 CKSQYB473K50 CKSQYB681K50 CKSQYB682K50	
	C265 C145,C199,C201,C202 C207,C208,C234,C240,C250 C301,C302 C101,C105,C109,C113,C121	CKSQYB823K25 CKSQYF103Z50 CKSQYF103Z50 CKSQYF103Z50 CKSQYF104Z25	
	C125,C129,C139,C151,C160 C198,C210,C211,C213 C218,C219,C225,C233,C242 C253,C273,C280,C283-C287 C305,C308,C309,C311,C313	CKSQYF104Z25 CKSQYF104Z25 CKSQYF104Z25 CKSQYF104Z25 CKSQYF104Z25	
	C317,C319,C324,C330,C334 C342,C345,C356,C369 C371,C372,C388,C393,C394 C114,C119,C122,C130,C132 C137	CKSQYF104Z25 CKSQYF104Z25 CKSQYF104Z25 CKSQYF105Z16 CKSQYF105Z16	
	C205 (1.0F)	RCH1152	

RESISTORS

R127 (2.2kΩ)	PCN1039
VR101-VR103,VR105,VR106 (4.7kΩ)	VCP1154
VR104 (22kΩ)	VCP1158
Other Resistors	RS1/10S□□□□J

OTHERS

X201	CERAMIC RESONATOR (32MHz)	PSS1023
CN355	6P JUMPER CONNECTOR	52147-0610
CN301	15P JUMPER CONNECTOR	52147-1510
CN202	22P FFC CONNECTOR	9604S-22C
CN352	KR CONNECTOR	B5B-PH-K-S
CN351	5P TOP POST	B5P-SHF-1AA
CN102,CN354	6P TOP POST	B6P-SHF-1AA
JA301	OPTICAL RECEIVE MODULE	GP1F32R
JA303	OPTICAL SEND MODULE	GP1F32T
JA302	1P JACK (ORANGE)	PKB1027
JA304	1P JACK (ORANGE)	PKB1028
JA305	REMOTE CONTROL JACK	PKN1004
	PCB BINDER	VEF1040
CN101	32P FFC CONNECTOR	VKN1463
KN302,KN303	EARTH METAL FITTING	VNF1084

E AUDIO ASSY

(1) CONTRAST TABLE

PWZ3723 and PWZ3729 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		PWZ3723	PWZ3729	
	C431,C432 C471,C472 L831,L832	CQMB472J50 PCH1124 Not used	CQMB4152J50 CEGA470M25 LFA1R0K	

Mark	No.	Description	Part No.
(2) PARTS LIST FOR PWZ3723			
SEMICONDUCTORS			
	IC801 IC406 IC803,IC804 IC404 IC401		AK5340-VS M5218AFP NJM4565D-D NJM4580D PE8001A
	Q405-Q408 Q402 Q409 Q403 Q401,Q404		2SC3068 DTA114EK DTA114TK DTA124EK DTC124EK
	D401-D404 D407,D408 D406,D801,D803 D405,D802,D804		1SS254 1SS355 DAN202K DAP202K
COILS			
	L328,L329,L402,L404 CHIP SOLID INDUCTOR L407,L408 CHIP SOLID INDUCTOR L401 FERRITE BEAD		QTL1015 QTL1015 VTH1020

CAPACITORS

C414,C415,C429,C430,C801 C821 C402,C823,C824 C803,C804 C401	CCSQCH101J50 CCSQCH101J50 CCSQCH120J50 CCSQCH121J50 CCSQCH220J50
C817,C818,C833,C835 C813,C814,C844,C848 C851,C852 C832 C421,C422,C425,C426	CEAT100M50 CEAT220M50 CEAT220M50 CEAT4R7M50 CEGA470M50
C441 C413 C403 C819,C820 C454,C807-C810,C846	CEZA4R7M50 CKSQYB102K50 CKSQYB473K50 CKSQYB821K50 CKSQYF103Z50
C815,C816,C831,C834,C836 C847,C883,C884 C404,C408,C409 C427,C428 C423,C424,C433,C434	CKSQYF104Z25 CKSQYF104Z25 CKSQYF104Z50 CQMB4102J50 CQMB4152J50
C431,C432 C410 (1000μF/16V) C471,C472,C805,C806 (47μF/50V) C811,C812 (47μF/50V)	CQMB472J50 PCH1122 PCH1124 PCH1124
C406,C407 (4.7μF/50V) C405,C411,C412 (220μF/25V)	PCH1127 PCH1128

RESISTORS

R475,R476 R441-R444,R811,R812 R817,R818 R427,R428 R435,R436	RD1/4PU102J RD1/4PU103J RD1/4PU103J RD1/4PU223J RD1/4PU271J
R440,R807,R808 R819,R820,R823,R824 R429-R434,R448,R466 R821,R822,R825,R826 R411,R412	RD1/4PU272J RD1/4PU301J RD1/4PU471J RD1/4PU473J RDR1/2PM101J

Mark	No.	Description	Part No.
	R413,R414		RN1/10SE1002D
	R415,R416		RN1/10SE1202D
	R801-R804		RS1/2LMF101J
	Other Resistors		RS1/10S□□□J

OTHERS

CN401	3P JUMPER CONNECTOR	52147-0310
CN402	8P JUMPER CONNECTOR	52147-0810
J801	JUMPER WIRE 15P	D20PYY1510E
JA401,JA801	2P JACK (AU)	PKB1029
X401	CRYSTAL RESONATOR	PSS1008
	PCB BINDER	VEF1040
KN111,KN112,KN114		VNF1084
	EARTH METAL FITTING	

F HEADPHONE ASSY

Although PWZ3688 and PWZ3713 are different in part number, they consist of the same components.

PARTS LIST FOR PWZ3713**COILS**

△	L461-L463	CHIP SOLID INDUCTOR	QTL1015
---	-----------	---------------------	---------

CAPACITORS

C461,C463,C466	CCSQCH101J50
C468	CKCYF473Z50
C462,C464,C465	CKSQYF103Z50

RESISTOR

VR401	RCV1123
-------	---------

OTHERS

CN403	3P JUMPER CONNECTOR	52147-0310
JA403	HEADPHONE JACK	RKN1002
KN401	EARTH METAL FITTING	VNF1084

G VR ASSY**RESISTORS**

VR801	PCS1016
Other Resistors	RS1/10S□□□J

H POWER ASSY**(1) CONTRAST TABLE**

PWZ3724 and PWZ3741 are constructed the same except

Mark	Symbol and Description	Part No.		Remarks
		PWZ3724	PWZ3741	
	C23,C25 C34,C35 C42 C52 C54	CEAT471M16 PCH1127 CEAT102M16 CEAT101M35 CEAT470M35	PCH1129 CEGA4R7M50 PCH1122 PCH1126 PCH1128	
△	CN1 1P AC INLET	AKP1122	AKP7005	

Mark	No.	Description	Part No.
------	-----	-------------	----------

for the following :

(2) PARTS LIST FOR PWZ3724**SEMICONDUCTORS**

△	IC21,IC24	BA05T
△	IC35,IC36	ICP-N10
△	IC22,IC23,IC25	ICP-N15
△	IC33	NJM7805FA
△	IC31	NJM7812FA
△	IC32	NJM79M12FA
△	D31-D34	10DF2FA9
△	D52	11ES2
△	D54	MTZJ18B
△	D11	S2VB20F

COILS

L11,L23	FERRITE BEAD	VTH1020
---------	--------------	---------

SWITCH

△	S1	RSA1001
---	----	---------

CAPACITORS

△	C1 (10000pF/AC250V)	ACG7020
	C52	CEAT101M35
	C42	CEAT102M16
	C54	CEAT470M35
	C23,C25	CEAT471M16
	C11,C13,C32,C33	CFTLA103J50
	C55,C56	CFTLA103J50
	C38,C39	CFTLA393J50
	C31	CKSQYF102Z50
	C16,C17	CKSQYF103Z50
	C12	CKSQYF104Z50
	C15,C24	CKSQYF473Z50
	C34,C35 (4.7μF/50V)	PCH1127
	C37,C41 (1000μF/35V)	PCH1136
	C36,C40 (3300μF/35V)	PCH1137
	C21 (10000μF/16V)	VCH1054

RESISTORS

	R51	RD1/4PU103J
	R52-R54	RD1/4PU152J
	R31	RD1/4PU8R2J
△	R38	RFA1/4PL8R2J
	Other Resistors	RS1/10S□□□J

OTHERS

	6P CABLE HOLDER	51048-0600
	8P CABLE HOLDER	51048-0800
△	CN51	4P JUMPER CONNECTOR
△	CN1	1P AC INLET
△	H1,H2	FUSE CLIP
△	CN2	2P-VH CONNECTOR
	J21	JUMPER WIRE 6P
	J31	JUMPER WIRE 8P
	CN11	9P JUMPER CONNECTOR
	J2	EARTH LEAD UNIT
	KN12,KN13	EARTH METAL FITTING
		VNF1084

PDR-555RW

Mark	No.	Description	Part No.
------	-----	-------------	----------

I TRANS ASSY

Although PWZ3725 and PWZ3750 are different in part number, they consist of the same components.

PARTS LIST FOR PWZ3750

SEMICONDUCTORS

△	IC1	AEK7017
---	-----	---------

CAPACITORS

C901-C909	CKSQYF104Z50
-----------	--------------

OTHERS

△	J11	9P CABLE HOLDER	51052-0900
△	J1	PARALLEL CORD	DTUY0915E
△	J1	CONNECTOR ASSY 2P	PDE1299
	J3	EARTH LEAD UNIT (70L)	PDF1176

J FUNCTION ASSY

(1) CONTRAST TABLE

PWZ3687 and PWZ3697 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		PWZ3687	PWZ3697	
	R707 R721	RS1/10S473J Not used	Not used RS1/10S473J	

(2) PARTS LIST FOR PWZ3687

SEMICONDUCTORS

IC705	BR93LC46AF
IC704	BU2092F
IC701	PD4968A
IC702	S-806E
Q705	2SC2412K
Q701-Q704	DTA114EK
Q706	DTC124TK
D709	1SS355
D707,D708	GL3ED8
D705,D706	SLP9118C51H

COIL

L701 CHIP SOLID INDUCTOR	QTL1015
--------------------------	---------

SWITCHES

S720	PSB1007
S702-S719	VSG1009

CAPACITORS

C715	CCCCH470J50
C701	CCSQCH101J50
C705,C739	CEAT101M10
C711	CEAT470M10
C702	CKSQYF103Z50
C706,C708-C710	CKSQYF104Z25

Mark	No.	Description	Part No.
------	-----	-------------	----------

RESISTORS

R710-R715	ACN7081
R731	DCN1094
Other Resistors	RS1/10S□□□J

OTHERS

	5P CABLE HOLDER	51048-0500
CN701	22P FFC CONNECTOR	9604S-22C
J701	JUMPER WIRE 4P	D20PWY0425G
J703	JUMPER WIRE 5P	D20PWY0515E
	REMOTE RECEIVER UNIT	GP1U27X
V701	FL INDICATOR TUBE	PEL1097
X701	CERAMIC RESONATOR (4.19MHz)	VSS1014

6. ADJUSTMENT

6.1 DISCS TO BE USED

- When adjusting the servo system adjustment
 CD : Test disc for adjustment (STD-903 or equivalent)
 Test disc for inspection (STD-914 or equivalent)

6.2 MEASURING INSTRUMENTS

- (1) Laser Power Meter
 Following power meter manufactured by Advantest Corporation or equivalent :
 TQ8210 + TQ82017
 TQ8215 + TQ82021
 TQ8215 + TQ82010 + TQ82017
- (2) Audio Analyzer
- (3) Oscilloscope
- (4) Distortion Factor Meter
- (5) CD Jitter Meter
- (6) Block Error Rate Counter

6.3 TEST MODE

6.3.1 Test Mode

For adjustment, set the unit to Test mode. To enter Test mode, turn on the unit with the Test Mode Short-Circuit pattern on the FUNCTION Assy. In Test mode, all the displays (FL, LEDs) on the unit should be lit. If not, turn the power off and repeat the same steps again.

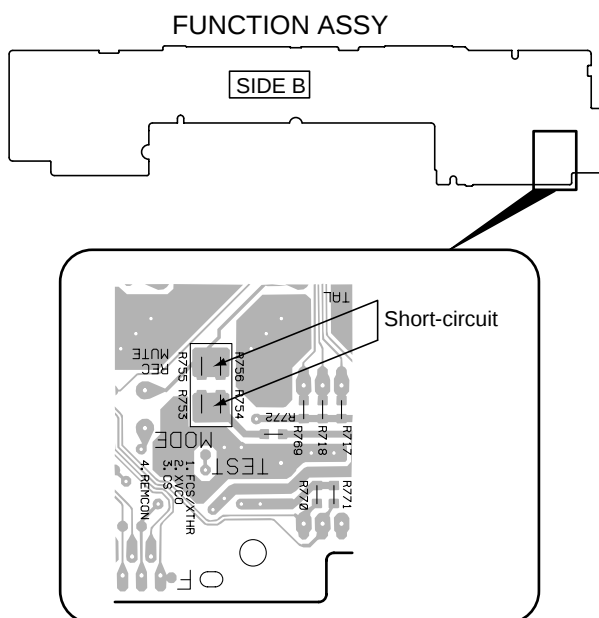


Fig. 1 Enter the Test mode

6.3.2 Operations in Test Mode

In Test mode, the following adjustment functions are assigned to the buttons, as explained below.

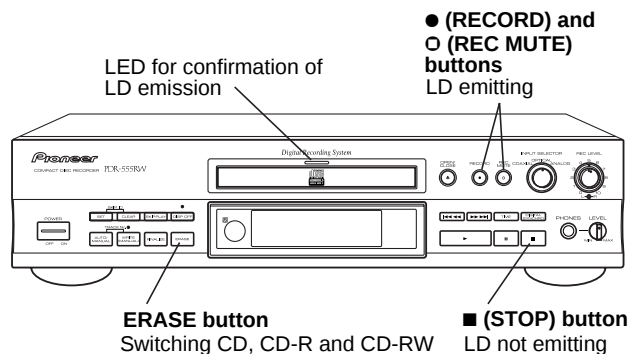


Fig.2 During adjustment of LD power (Input selector: analog)

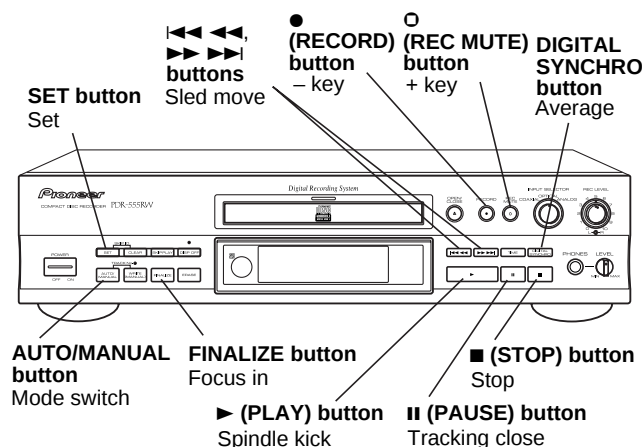
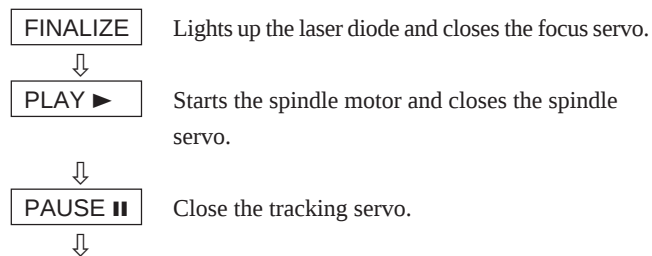


Fig.3 During adjustment of servo system (Input selector: optical)

6.3.3 How to Playback a Disc in Test Mode

In test mode, since the servos operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.

Here is the key operation sequence for playing back a disc in test mode.



Wait at least 2 – 3 seconds between each of these operations.

6.4 ADJUSTMENT 1 (LASER DIODE POWER ADJUSTMENT)

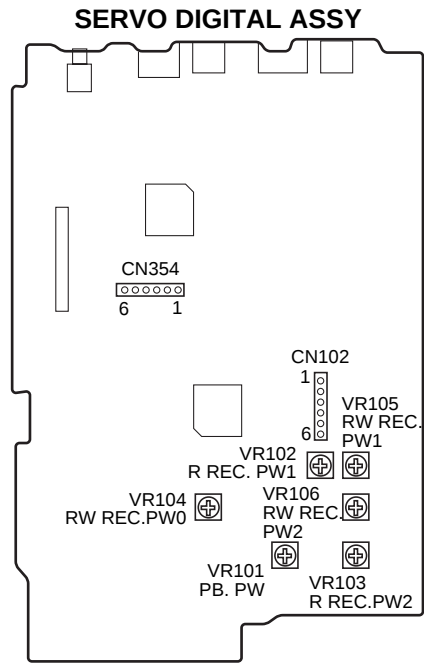


Fig. 4 Adjustment points

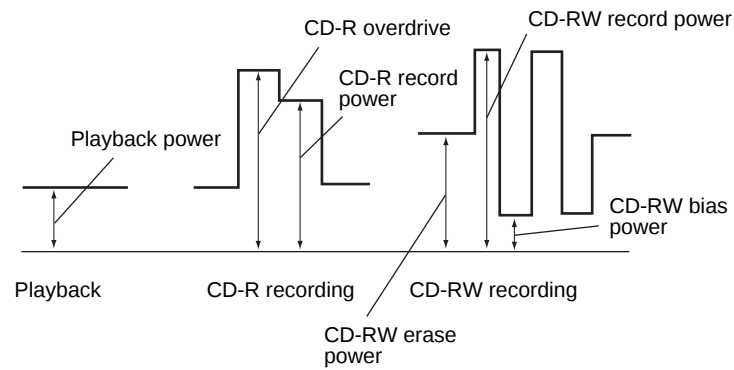
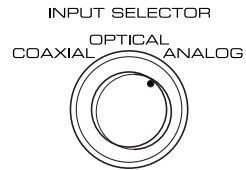


Fig.5 Output power of the laser diode

- Note 1 : Attach the remote sensor of the laser power meter to a point angled away about 10 degrees against the pickup lens and where the maximum power is detected, so that there will be no light reflected onto the pickup.
- Note 2 : When adjusting with VR101 to VR106, first turn them completely counter-clockwise and then adjust clockwise, so that the value to be reached is not exceeded.
- Note 3 : Set the wavelength of laser power meter to 780 nm.

The following adjustments 1 through 3 must be done with the Input Selector set to the Analog position (LD power adjustment mode).



6.4.1 Playback Power Adjustment

Test Point	Pickup objective lens
Adjustment Point	VR101 (PB. PW)
Adjustment Value	0.60 mW ± 0.05 mW
[Procedure] (1) Check that "CD" is displayed on the FL display. If "CD-R" or "CD-RW" is displayed, press the STOP button repeatedly until "CD" is displayed. (2) Press the RECORD button. The LED for confirmation of LD emission will light in orange. (3) Press the REC MUTE button. The LED for confirmation of LD emission will light in red. The LD is emitting in this status. (4) Turn VR101 clockwise until the adjustment value to be reached is obtained. (5) Press the STOP button to shut off the LD.	

6.4.2 CD-R Record Power Adjustment

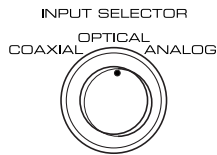
Test Point	Pickup objective lens
Adjustment Point	VR102 (R REC. PW1), VR103 (R REC. PW2)
Adjustment Value	VR102 : $4.60 \text{ mW} \pm 0.1 \text{ mW}$ VR103 : Addition of $0.1 \text{ mW} \pm 0.01 \text{ mW}$ to the adjustment value of VR102
[Procedure] - Turn VR102 and VR103 completely counterclockwise to set their power output to minimum. - Press the ERASE button once so that "CD-R" appears on the FL display. If the indication is "CD" or "CD-RW," press the ERASE button repeatedly until "CD-R" is displayed on the FL display. - Press the RECORD button. The LED for confirmation of LD emission will light in orange. - Press the REC MUTE button. The LED for confirmation of LD emission will light in red. The LD is emitting in this status. Adjustment of CD-R record power - Turn VR102 clockwise until the adjusted value is $4.60 \text{ mW} \pm 0.1 \text{ mW}$. Adjustment of CD-R overdrive power - Turn VR103 clockwise until the adjusted value becomes adjustment value at Step 5 above + $(0.1 \text{ mW} \pm 0.01 \text{ mW})$. - Press the STOP button to shut off the LD.	

6.4.3 CD-RW Record Power Adjustment

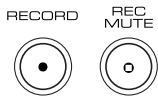
Test Point	Pickup objective lens
Adjustment Point	VR104 (RW REC. PW0), VR106 (RW REC. PW2), VR105 (RW REC. PW1)
Adjustment Value	VR104 : $0.40 \text{ mW} \pm 0.05 \text{ mW}$ VR106 : $2.40 \text{ mW} \pm 0.1 \text{ mW}$ VR105 : $5.90 \text{ mW} \pm 0.1 \text{ mW}$
[Procedure] - Turn VR104, VR105 and VR106 completely counterclockwise to set their power output to minimum. - Press the ERASE button twice so that "CD-RW" appears on the FL display. If the indication is "CD" or "CD-R," press the ERASE button repeatedly until "CD-RW" appears on the FL display. - Press the RECORD button. The LED for confirmation of LD emission will light in orange. - Press the REC MUTE button. The LED for confirmation of LD emission will light in red. The LD is emitting in this status. - Turn VR104 clockwise until the adjusted value is $0.40 \text{ mW} \pm 0.05 \text{ mW}$. Adjustment of CD-RW record power - Turn VR106 clockwise until the adjusted value is $2.40 \text{ mW} \pm 0.1 \text{ mW}$. Adjustment of CD-RW erase power - Turn VR105 clockwise until the adjusted value is $5.90 \text{ mW} \pm 0.1 \text{ mW}$. - Press the STOP button to shut off the LD.	

6.5 ADJUSTMENT 2 (SERVO SYSTEM ADJUSTMENT)

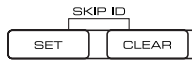
For servo adjustment, set the INPUT SELECTOR to OPTICAL.



Use the RECORD and REC MUTE buttons to make the adjustments.



To register an adjustment, press the (SKIP ID) SET button.



To reset the adjusted values to the initial settings, press and hold the (SKIP ID) CLEAR button for 4 seconds.

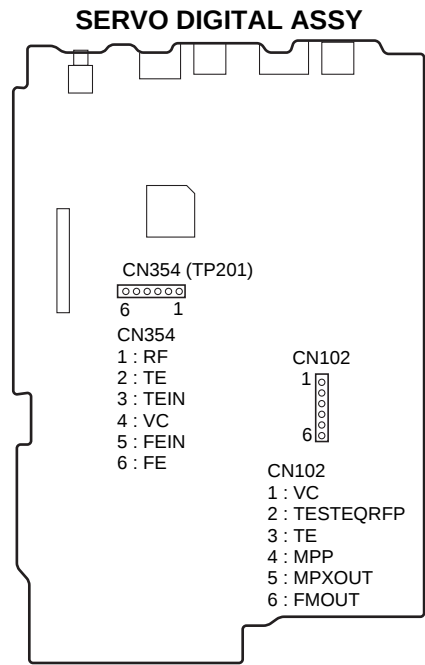


Fig. 6 Adjustment points

6.5.1 Focus Offset Adjustment

Test Point	CN354 - pin 6 (FE)
Adjustment Point	RECORD button and REC MUTE button
Adjustment Value	0 mV ± 10 mV

[Procedure]

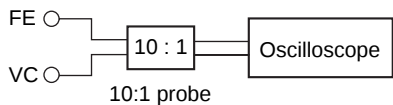
(1) Press the AUTO/MANUAL button until "01 F4" appears on the FL display.



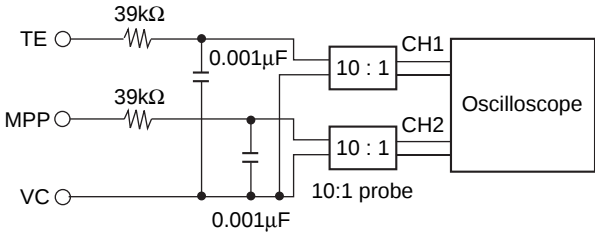
(2) Adjust with the RECORD and REC MUTE buttons until the value for Pin 6 of CN354 is 0 mV ± 10 mV.

(3) Press the SET button to register the adjustment.

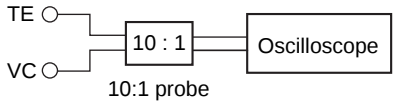
Once the adjustment is registered with the SET button, "?" on the FL display will disappear.



6.5.2 M-S Mix Ratio Adjustment

Test Point	CN102 - pin 3 (TE) and pin 4 (MPP)
Adjustment Point	RECORD button and REC MUTE button
Adjustment Value	Adjust until the value of the output signals from pin 3 (TE) and pin 4 (MPP) of CN102 are the same, or the differential output of these signals is minimal.
[Procedure] (1) Press the AUTO/MANUAL button so that "02 F3" appears on the FL display. (2) Press the FINALIZE button for focus-in. (3) Press the PLAY button for CAV-servo spindle kick (the status where the spindle rotates with the focus servo on and tracking servo off). (4) Adjust with the RECORD and REC MUTE buttons until the value to be reached is obtained. (5) Press the SET button to register the adjustment. Once the adjustment is registered with the SET button, "?" on the FL display will disappear. (6) Press the STOP button to stop the unit. Note: For adjustment, use the following circuits.  Note: Adjustment must be done around mid-radius on a disc.	

6.5.3 Tracking Offset Adjustment

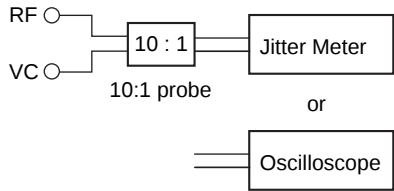
Test Point	CN354 - pin 2 (TE) or CN102-pin 3 (TE)
Adjustment Point	RECORD button and REC MUTE button
Adjustment Value	0 mV $\pm$ 10 mV
[Procedure] (1) Press the AUTO/MANUAL button so that "03 F6" appears on the FL display. (2) Adjust with the RECORD and REC MUTE buttons until the above adjustment value to be reached is obtained. (3) Press the SET button to register the adjustment. Once the adjustment is registered with the SET button, "?" on the FL display will disappear.  Note: Perform the adjustment in Stop mode. This adjustment is possible with the low-pass filter used in adjustment 5 above attached.	

6.5.4 Focus Bias Adjustment

Test Point	CN354 - pin 1 (RF)
Adjustment Point	DIGITAL SYNCHRO button, RECORD button and REC MUTE button
Adjustment Value	Adjust until RF jitter is minimal or that the eye pattern of the RF waveform is most open.

[Procedure]

- (1) Press the DIGITAL SYNCHRO button in Stop mode.
Note: Make sure the unit is in Stop mode.
- (2) Check that "48" appears on the FL display.
- (3) Press the AUTO/MANUAL button so that "04 34" appears on the FL display.
- (4) Press the FINALIZE button for focus-in.
- (5) Press the PLAY button for CAV-servo spindle kick.
- (6) Press the PAUSE button to close the tracking servo, then set the unit to Playback mode.
- (7) Adjust with the RECORD and REC MUTE buttons until the above adjustment value to be reached is obtained.
Press the SET button to register the adjustment. Once the adjustment is registered with the SET button, "?" on the FL display will disappear.
- (8) Press the STOP button to stop the unit.



Note: Adjustment must be done around mid-radius on a disc.

7. GENERAL INFORMATION

7.1 PARTS

7.1.1 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

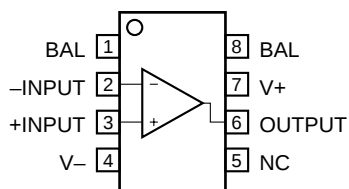
• List of IC

NJM2136M, MC34072D, AK8563, BA7082F, AD1893JST, BA5912AFP-Y, BA5932FP, CXD2585Q, TK11041M-1, S-806E, PE8001A

■ NJM2136M (SERVO DIGITAL ASSY : IC101)

• Operational Amplifier

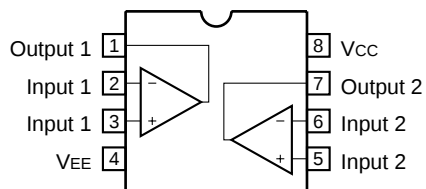
• Block Diagram



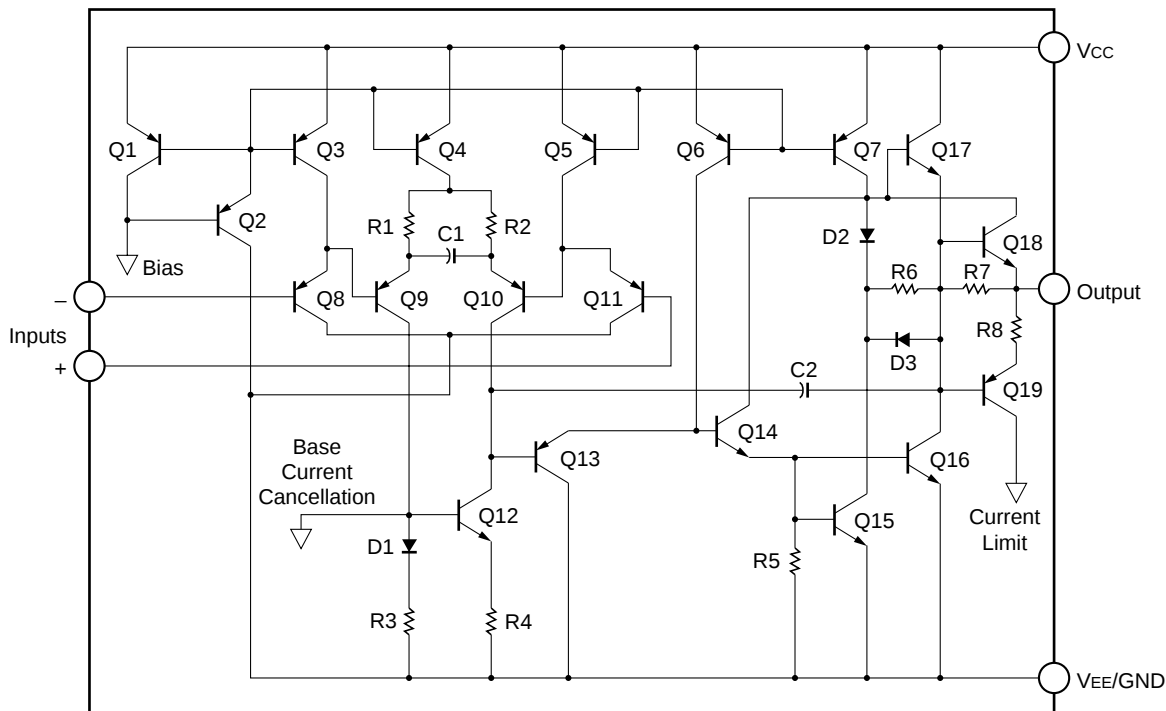
■ MC34072D (SERVO DIGITAL ASSY : IC102)

• Operational Amplifier

• Pin Assignment

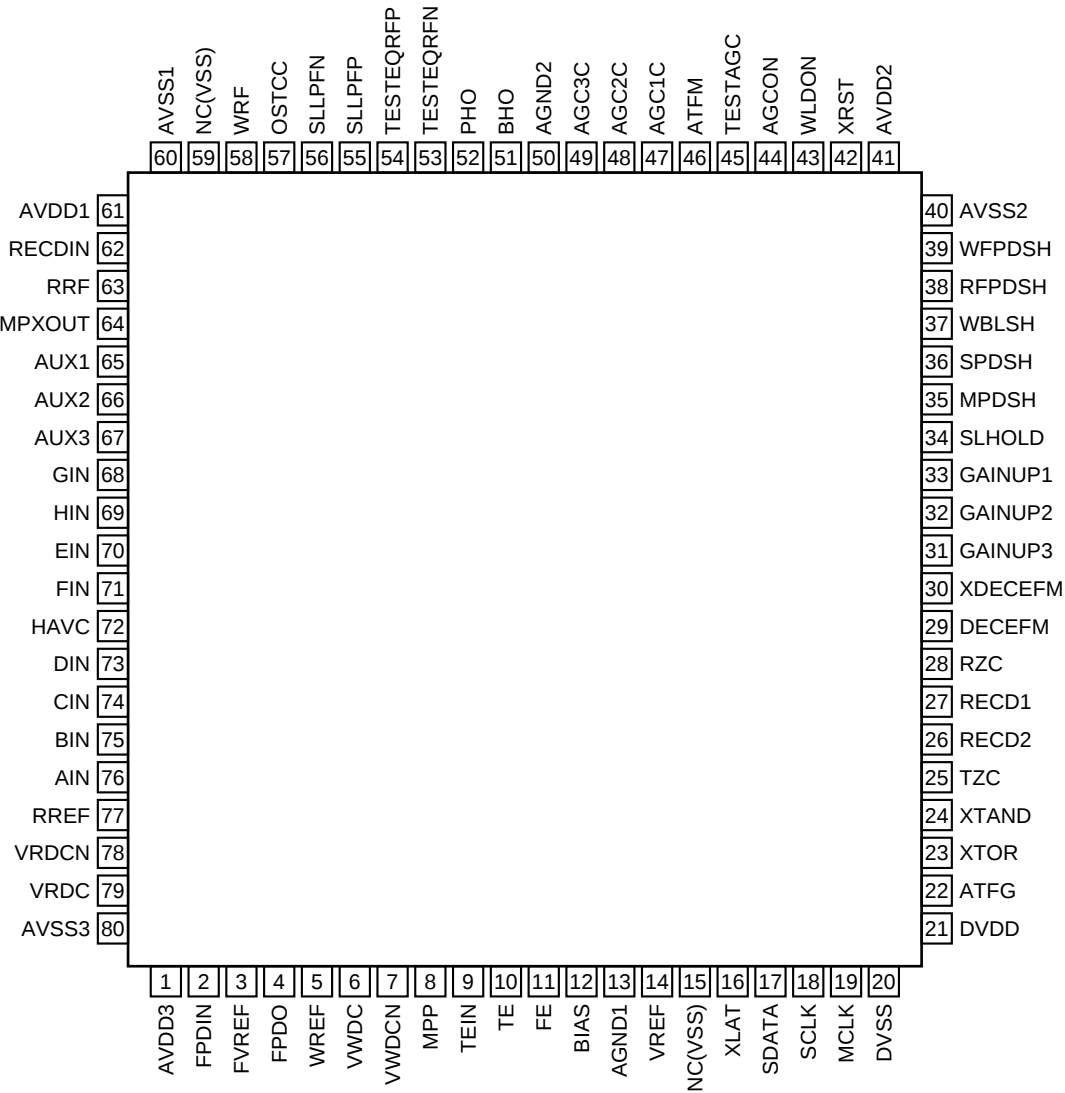


• Block Diagram

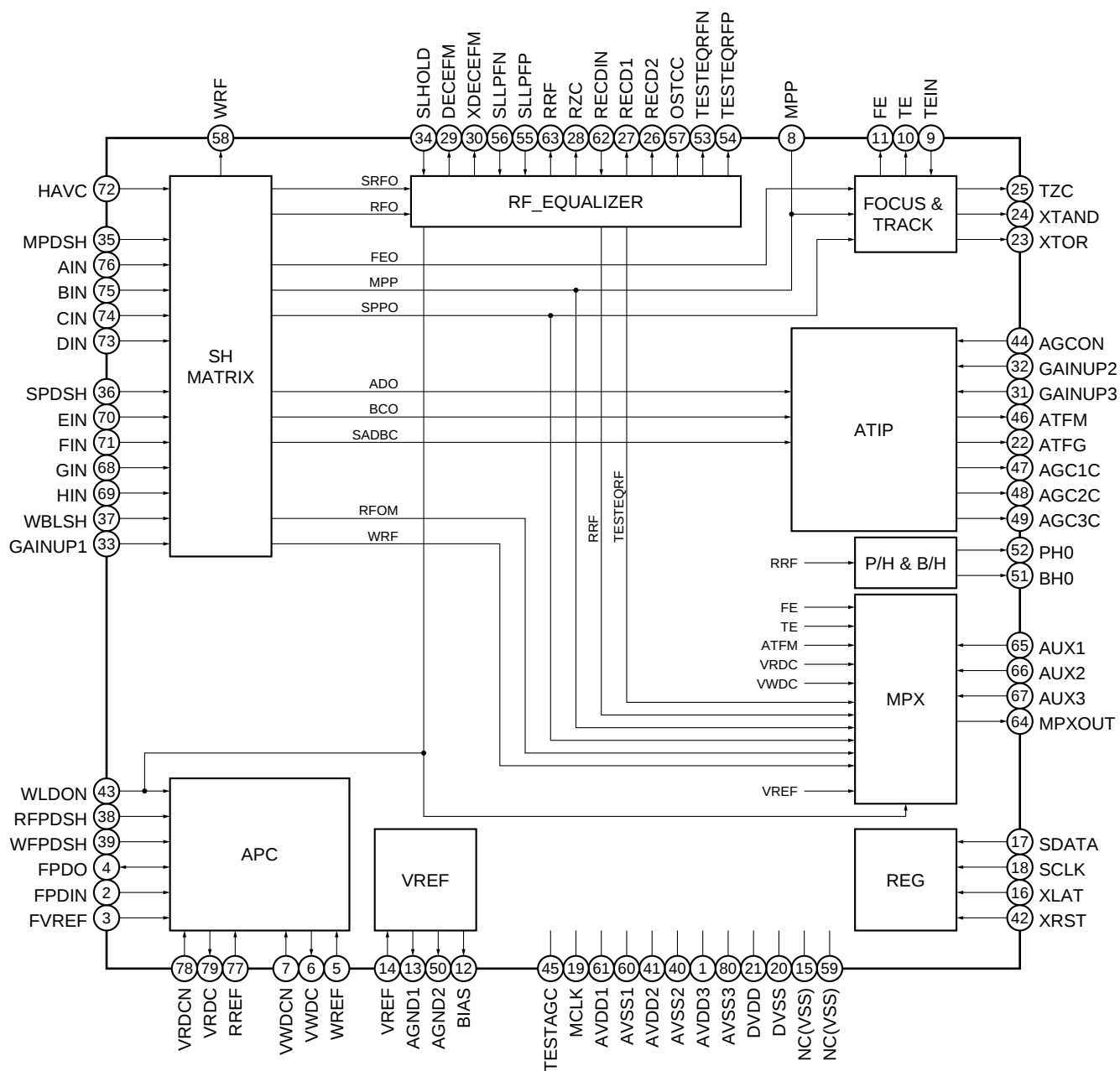


AK8563 (SERVO DIGITAL ASSY : IC103)

- RF Processor IC
- Pin Assignment (Top view)



● Block Diagram



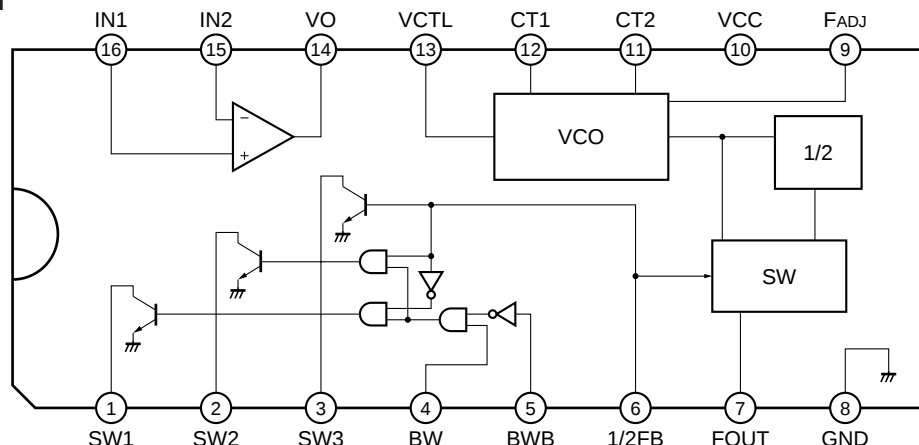
● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	AVDD3	I	Analog positive power supply pin	41	AVDD2	I	Analog positive power supply pin
2	FPDIN	I	Laser monitor diode connection pin	42	XRST	I	Register reset "L": Initialize the register
3	FVREF	I	Reference voltage input for APC	43	WLDON	I	Write LD control input "L": Set Write APC set-value to zero, "H": LD ON
4	FPD0	I/O	Laser monitor output (connect a resistor for I/V conversion between this pin and FPDIN (pin 2)) / Laser monitor voltage input	44	AGCON	I	Wobble AGC enable input "H": AGC ON , "L": AGC reset
5	WREF	I	Power setting voltage input for Write APC	45	TESTAGC	O	Test pin
6	VWDC	O	Laser driver control output for Write	46	ATFM	O	Wobble signal output
7	VWDCN	I	Laser driver control amp.(–) for Write	47	AGC1C	O	External capacitor connection pin for AGC response speed setting
8	MPP	O	Main push-pull signal output	48	AGC2C	O	
9	TEIN	I	Input for tracking signal process	49	AGC3C	O	
10	TE	O	Tracking error signal output	50	AGND2	O	Decoupling pin for internal reference voltage
11	FE	O	Focus error signal output	51	BH0	O	Bottom-level output of RRF signal
12	BIAS	O	Connect a bias resistor. RBIAS=4.7kΩ	52	PH0	O	Peak-level output of RRF signal
13	AGND1	O	Decoupling pin for internal reference voltage	53	TESTEQRFN	O	Test pin
14	VREF	I/O	Decoupling pin for internal reference voltage / Reference voltage input	54	TESTEQRFP	O	Test pin
15	NC (VSS)	–	Connect to VSS	55	SLLPFP	I	LPF input (+) for auto slice
16	XLAT	I	Latch input for register setting	56	SLLPFN	I	LPF input (–) for auto slice
17	SDATA	I	Data input for register setting	57	OSTCC	O	Capacitor connection pin for fc setting of equalizer output offset-canceller
18	SCLK	I	Clock input for register setting	58	WRF	O	Write RF signal output
19	MCLK	I	Main clock input (34.5744MHz)	59	NC (VSS)	–	Connect to VSS
20	DVSS	I	Digital ground pin	60	AVSS1	O	Analog ground pin
21	DVDD	I	Digital positive power supply pin	61	AVDD1	I	Analog positive power supply pin
22	ATFG	O	ATIP FG output (Wobble signal after the binary data conversion)	62	RECDIN	I	RF input for recording block detection
23	XTOR	O	Tracking amplitude detection output	63	RRF	O	Read RF signal output
24	XTAND	O	Tracking error detection output	64	MPXOUT	O	Multiplexer output for signal monitor
25	TZC	O	Tracking zero-cross detection signal output	65	AUX1	I	Auxiliary input (1) for signal monitor
26	RECD2	O	Recording block detection signal 2 "H": Recording block , "L": Unrecording block	66	AUX2	I	Auxiliary input (2) for signal monitor
27	RECD1	O	Recording block detection signal 1 "H": Recording block , "L": Unrecording block	67	AUX3	I	Auxiliary input (3) for signal monitor
28	RZC	O	RF zero-cross detection signal output	68	GIN	I	Side beam signal (G) input
29	DECEFM	O	EFM output after sliced (inversion)	69	HIN	I	Side beam signal (H) input
30	XDECEFM	O	EFM output after sliced (positive-phase)	70	EIN	I	Side beam signal (E) input
31	GAINUP3	I	0 and +18dB switching control input "H": +18dB, "L": 0dB	71	FIN	I	Side beam signal (F) input
32	GAINUP2	I		72	HAVC	I	Center voltage input of main and side beam signals
33	GAINUP1	I		73	DIN	I	Main beam signal (D) input
34	SLHOLD	I	Slice level hold signal input "H": Hold	74	CIN	I	Main beam signal (C) input
35	MPDSH	I	Sample pulse input for main-beam "H": Sample , "L": Hold	75	BIN	I	Main beam signal (B) input
36	SPDSH	I	Sample pulse input for side-beam "H": Sample , "L": Hold	76	AIN	I	Main beam signal (A) input
37	WBLSH	I	Sample pulse input for Wobble signal "H": Sample , "L": Hold	77	RREF	I	Power setting voltage input for Read APC
38	RFPDSH	I	Sample pulse input for Read APC "H": Sample , "L": Hold	78	VRDCN	I	Laser driver control amp. (–) for Read
39	WFPDSH	I	Sample pulse input for Write APC "H": Sample , "L": Hold	79	VRDC	O	Laser driver control output for Read
40	AVSS2	I	Analog ground pin	80	AVSS3	I	Analog ground pin

■ BA7082F (SERVO DIGITAL ASSY : IC302)

• VCO IC

● Block Diagram



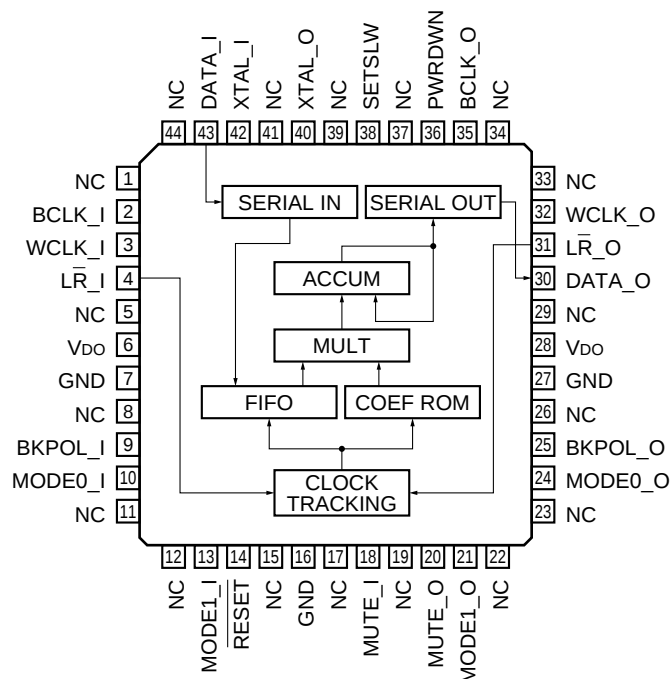
● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	SW1		Collector open output Logic block output for control sensibility adjustment	9	FADJ	-	f0 Adjust pin
2	SW2			10	VCC	-	VCC pin
3	SW3			11	CT2		Capacitor connection pin for VCO oscillation
4	BW		Logic block input for control sensibility adjustment	12	CT1		
5	BWB	I		13	VCTL	I	VCO control pin Normally, use for short-circuit with VO (pin 14).
6	1/2FB	I	Logic block input for control sensibility adjustment and 1/2 frequency demultiplier switch H: through, L: 1/2 frequency demultiplier output	14	VO	O	Amp. output for sensibility adjustment
7	FOUT	O	VCO output pin	15	IN2		Amp. input for sensibility adjustment IN1: positive-phase input IN2: Inverting input
8	GND	-	GND pin	16	IN1	I	

■ AD1893JST (SERVO DIGITAL ASSY : IC311)

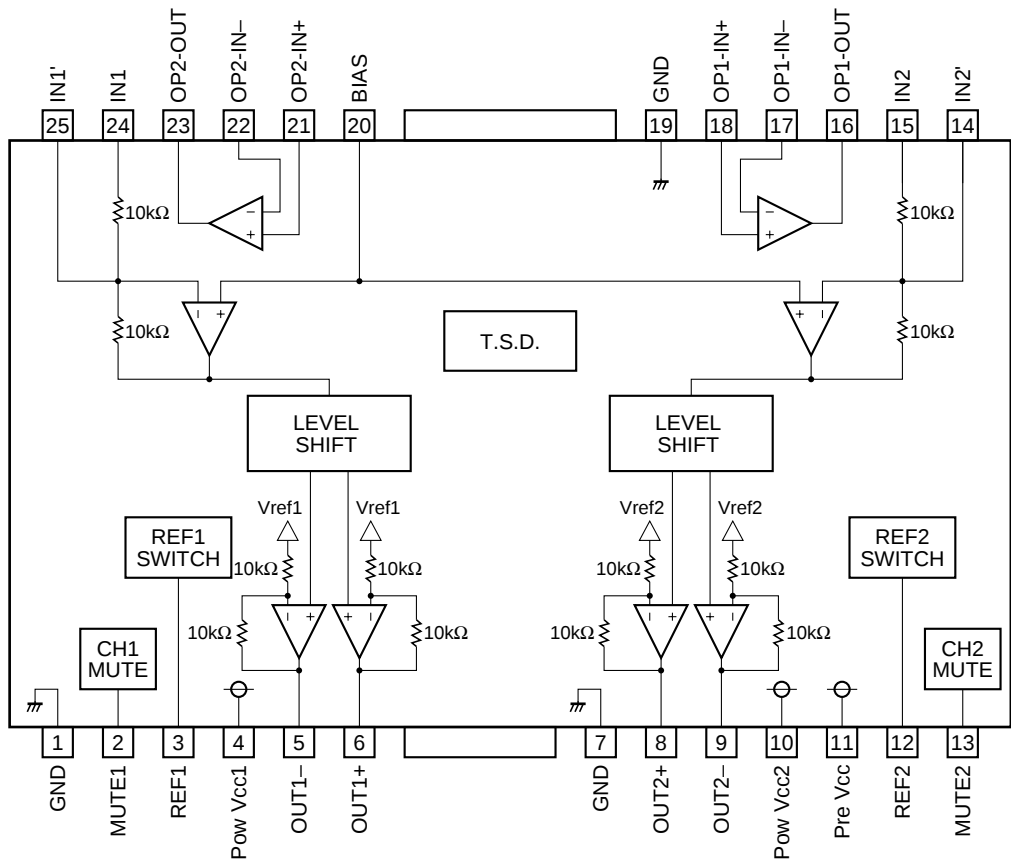
• Sample Rate Converter IC

● Block Diagram



BA5912AFP-Y (SERVO DIGITAL ASSY : IC351)

- Driver IC
- Block Diagram

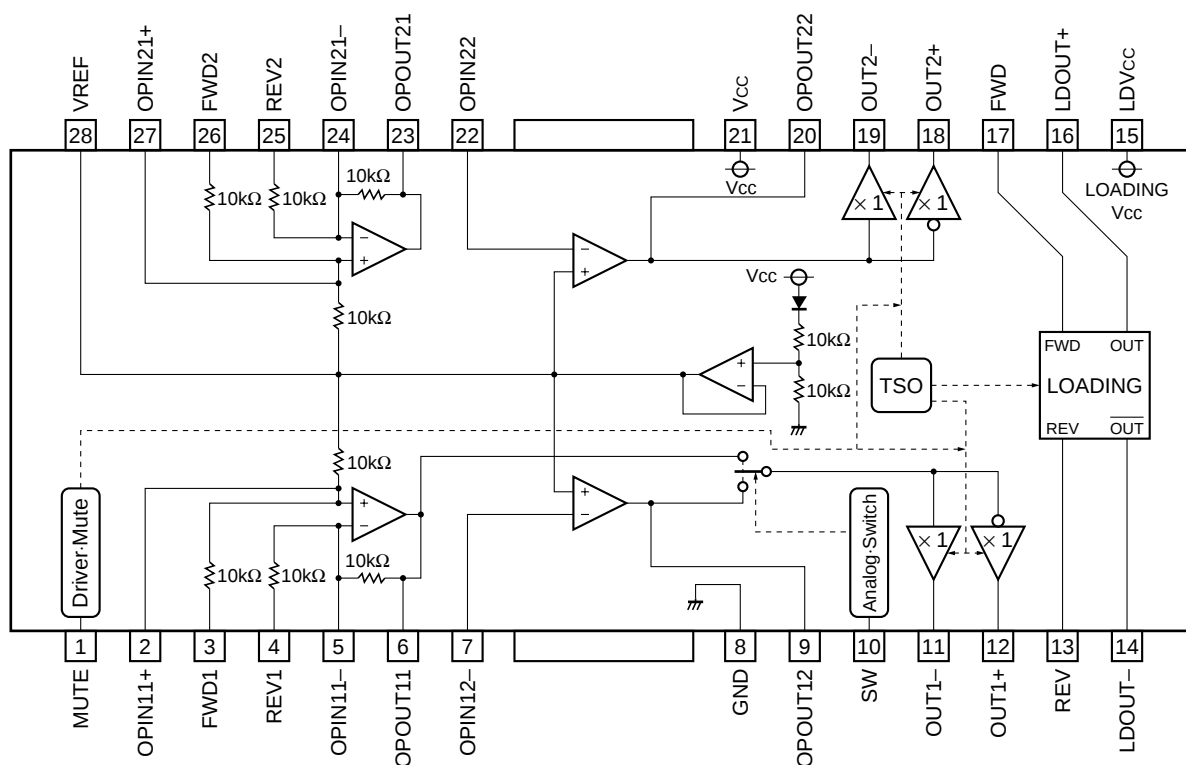


• Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	GND	Sub-straight GND	14	IN2'	CH2 input pin for gain adjustment
2	MUTE1	CH1 mute pin	15	IN2	CH2 gain fixed input
3	REF1	CH1 Vref switching pin	16	OP1-OUT	OP amp. 1 output
4	Pow Vcc1	Pow Vcc (CH1)	17	OP1-IN-	OP amp. 1 - input
5	OUT1-	CH1 negative output	18	OP1-IN+	OP amp. 1 + input
6	OUT1+	CH1 positive output	19	GND	Sub-straight GND
7	GND	Sub-straight GND	20	BIAS	Bias input
8	OUT2+	CH2 positive output	21	OP2-IN+	OP amp. 2 + input
9	OUT2-	CH2 negative output	22	OP2-IN-	OP amp. 2 - input
10	Pow Vcc2	Pow Vcc (CH2)	23	OP2-OUT	OP amp. 2 output
11	Pre Vcc	Pre Vcc	24	IN1	CH1 gain fixed input
12	REF2	CH2 Vref switching pin	25	IN1'	CH1 input pin for gain adjustment
13	MUTE2	CH2 mute pin			

BA5932FP (SERVO DIGITAL ASSY : IC352)

- Driver IC
- Block Diagram



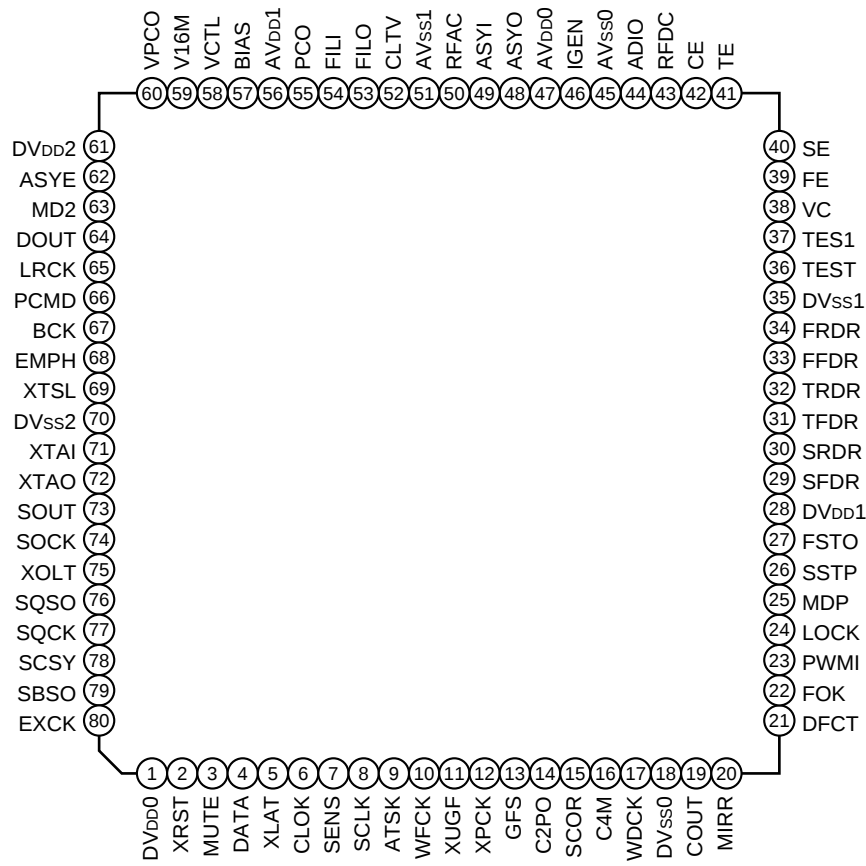
Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	MUTE	Mute pin	15	LDVcc	Vcc for loading and output H bridge section
2	OPIN11+	OP amp. non-inverting input	16	LDOUT+	Loading positive output
3	FWD1	Forward input	17	FWD	Loading forward input
4	REV1	Reverse input	18	OUT2+	Driver output
5	OPIN11-	OP amp. inverting input	19	OUT2-	Driver output
6	OPOUT11	OP amp. output	20	OPOUT22	OP amp. output
7	OPIN12-	OP amp. inverting input	21	Vcc	Vcc for two axes driver and loading pre section
8	GND	Sub-straight GND	22	OPIN22	OP amp. inverting input
9	OPOUT12	OP amp. output	23	OPOUT21	OP amp. output
10	SW	Analog switch input	24	OPIN21-	OP amp. inverting input
11	OUT1-	Driver output	25	REV2	Reverse input
12	OUT1+	Driver output	26	FWD2	Forward input
13	REV	Loading reverse input	27	OPIN21+	OP amp. non-inverting input
14	LDOUT-	Loading negative output	28	VREF	Reference voltage output

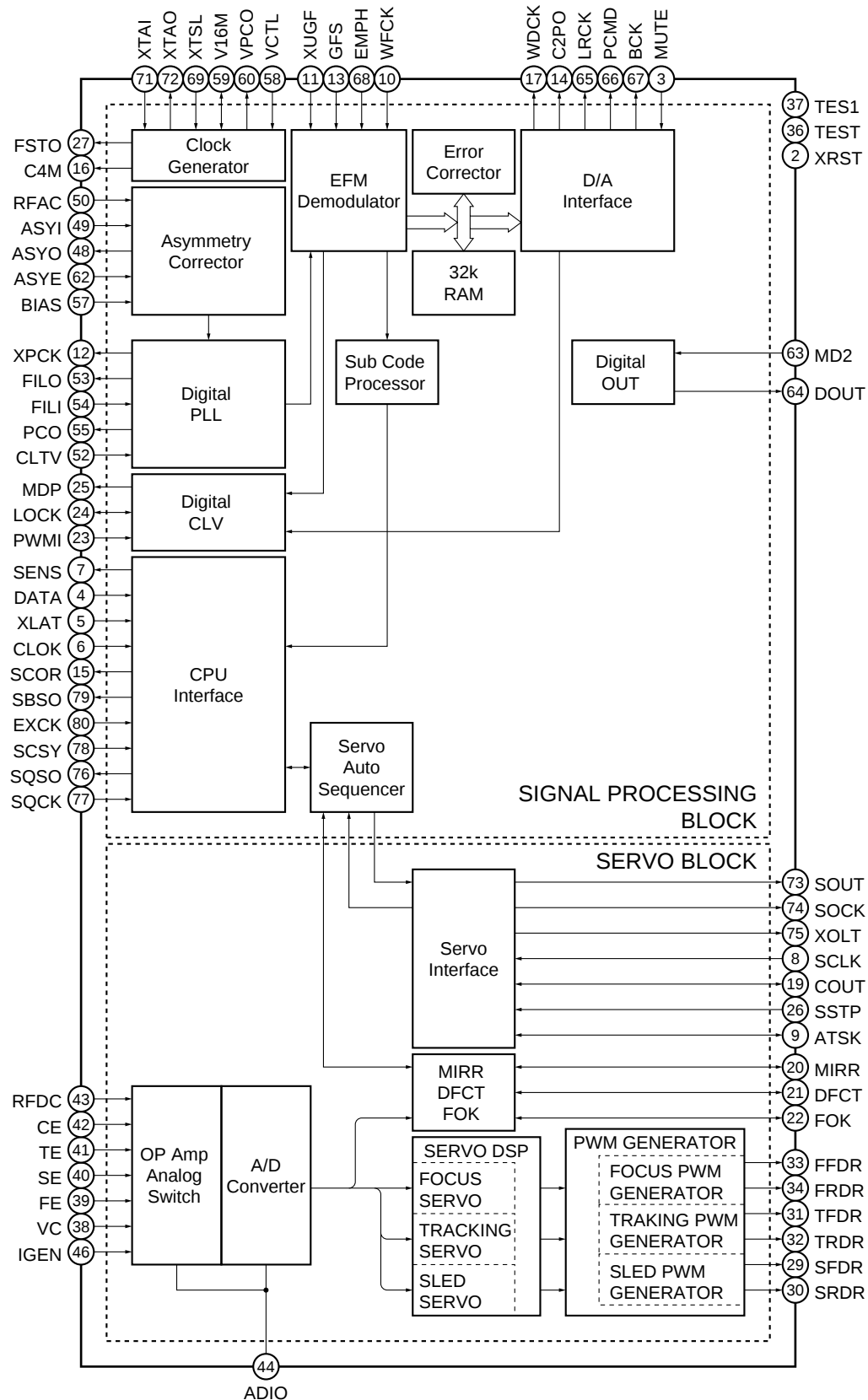
■ CXD2585Q (SERVO DIGITAL ASSY : IC353)

• Digital Signal Processor IC

• Pin Assignment (Top view)



• Block Diagram



PDR-555RW

● Pin Function

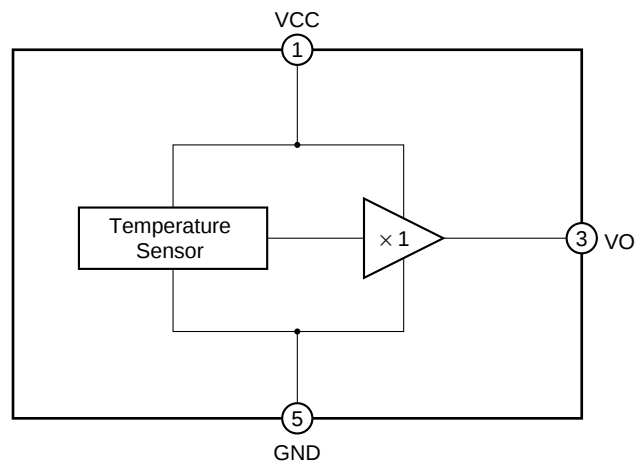
No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	DVDD0	–	Digital power supply	41	TE	I	Tracking error input
2	XRST	I	System reset Reset when "L"	42	CE	I	Center servo analog input
3	MUTE	I	Mute input Mute when "H"	43	RFDC	I	RF signal input
4	DATA	I	Serial data input from CPU	44	ADIO	O	Test pin Non connection
5	XLAT	I	Latch input from CPU Serial data is latched at the falling edge.	45	AVss0	–	Analog GND
6	CLOK	I	Serial data transfer clock input from CPU	46	IGEN	I	Constant current input for OP amplifier
7	SENS	O	SENS output to CPU	47	AVDD0	–	Analog power supply
8	SCLK	I	Clock input for SENS serial-data readout	48	ASYO	O	EFM full-swing output ("L"=VSS, "H"=VDD)
9	ATSK	I/O	Input and output for anti-shock	49	ASYI	I	Asymmetry compare voltage input
10	WFCK	O	WFCK output	50	RFAC	I	EFM signal input
11	XUGF	O	XUGF output MNT0 and RFCK output by switching the command.	51	AVss1	–	Analog GND
12	XPCK	O	XPCK output MNT1 output by switching the command.	52	CLTV	I	VCO 1 control voltage input for gradual increase
13	GFS	O	GFS output MNT2 and XROF output by switching the command.	53	FILO	O	Filter output for master PLL (Slave=digital PLL)
14	C2PO	O	C2PO output MNT3 and GTOP output by switching the command.	54	FILI	I	Filter input for master PLL
15	SCOR	O	Outputs "H" when either subcode sync. S0 or S1 is detected.	55	PCO	O	Charge pump output for master PLL
16	C4M	O	4.2336MHz output Outputs 1/4 frequency demultiply of V16M in the CAV-W mode and variable pitch.	56	AVDD1	–	Analog power supply
17	WDCK	O	Word clock output f=2Fs Outputs GRSCOR by command switch	57	BIAS	I	Constant current input of asymmetry circuit
18	DVss0	–	Digital GND	58	VCTL	I	VCO2 control voltage input for wide-band EFM PLL
19	COUT	I/O	Input and output of track-number count signal	59	V16M	I/O	VCO2 oscillation output for wide-band EFM PLL Clock input for wide-band EFM-PLL by command switch
20	MIRR	I/O	Mirror signal input and output	60	VPCO	O	Charge pump output for wide-band EFM PLL
21	DFCT	I/O	Defect signal input and output	61	DVDD2	–	Digital power supply
22	FOK	I/O	Focus OK signal input and output	62	ASYE	I	Asymmetry circuit ON/OFF control (L:OFF, H:ON)
23	PWMI	I	External control input of spindle motor	63	MD2	I	Digital out ON/OFF control (L:OFF, H:ON)
24	LOCK	I/O	GFS is sampled at 460Hz; when GFS is "H", this pin outputs "H". If GFS is "L" eight consecutive samples, this pin outputs "L". Input when LKIN="1".	64	DOUT	O	Digital out output
25	MDP	O	Servo control output of spindle motor	65	LRCK	O	D/A interface LR clock output f=Fs
26	SSTP	I	Detection signal input of disc innermost	66	PCMD	O	D/A interface Serial data output (2's COMP, MSB first)
27	FSTO	O	Outputs 2/3 frequency demultiply of XTAL pin	67	BCK	O	D/A interface Bit clock output
28	DVDD1	–	Digital power supply	68	EMPH	O	Outputs "H" when the playback disc has emphasis, and "L" when there is no emphasis.
29	SFDR	O	Sled drive output	69	XTSL	I	X'tal selection input 16.9344MHz: L, 33.8688MHz: H
30	SRDR	O		70	DVss2	–	Digital GND
31	TFDR	O	Tracking drive output	71	XTAI	I	Crystal oscillation circuit input Input the external master clock via this pin.
32	TRDR	O		72	XTAO	O	Crystal oscillation circuit output
33	FFDR	O	Focus drive output	73	SOUT	O	Serial data output in the servo block
34	FRDR	O		74	SOCK	O	Serial data readout clock output in the servo block
35	DVss1	–	Digital GND	75	XOLT	O	Serial data latch output in the servo block
36	TEST	I	TEST pin : normally GND	76	SQSO	O	SubQ 80-bit, PCM peak and level data output CD TEXT data output
37	TES1	I		77	SQCK	I	Clock input for SQSO readout
38	VC	I	Center voltage input	78	SCSY	I	Input for resynchronous of GRSCOR
39	FE	I	Focus error signal input	79	SBSO	O	Serial output of Sub P to W
40	SE	I	Sled error signal input	80	EXCK	I	Clock input for SBSO readout

Notes)

- PCMD is an MSB first. two's complement output.
- GTOP is used to monitor the frame sync protection status. (High:sync protection window released)
- XUGF is the negative pulse for the frame sync derived from the EFM signal. It is the signal before sync protection.
- XPCK is the inverse of the EFM PLL clock. The PLL is designed so that the falling edge of XPCK and the EFM signal transition point coincide.
- GFS goes high when the frame sync and the insertion protection timing match.
- RFCK is derived with the crystal accuracy. This signal has a cycle of 136μs.
- C2PO represents the data error status.
- XROF is generated when the 32K RAM exceeds the ±28 Frame jitter margin.

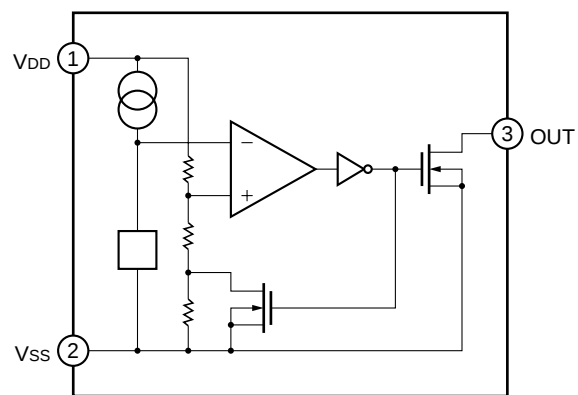
■ TK11041M-1 (SERVO DIGITAL ASSY : IC355)

- Thermo Sensor IC
- Block Diagram



■ S-806E (FUNCTION ASSY : IC702)

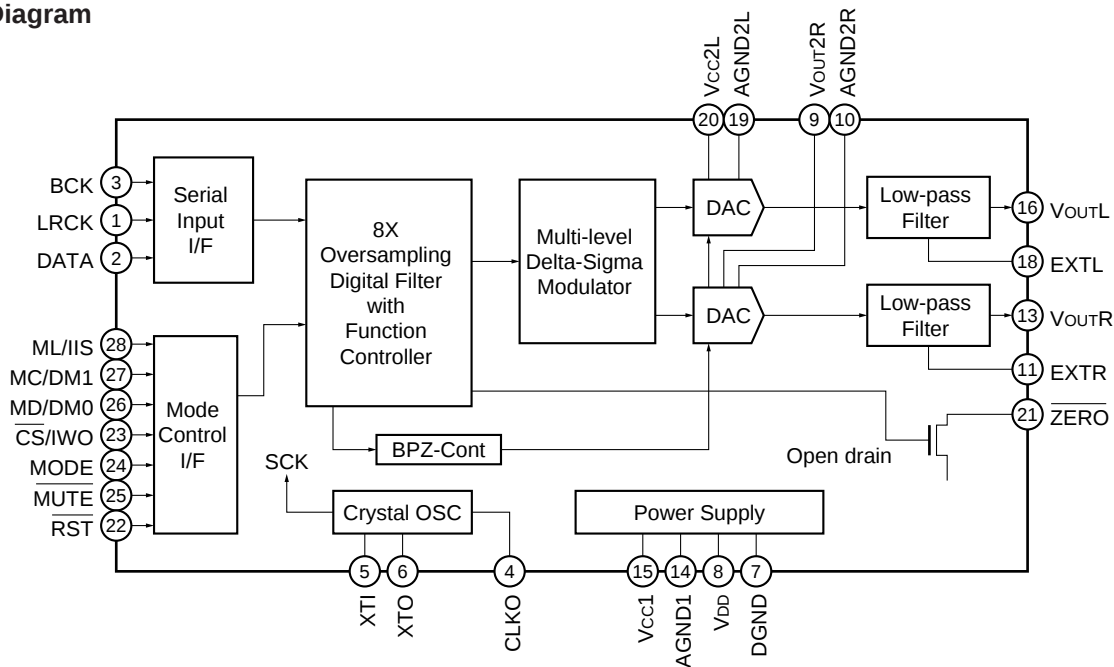
- Voltage Detector IC
- Block Diagram



■ PE8001A (AUDIO ASSY : IC401)

• D/A Converter IC

● Block Diagram



● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	LRCK	I	LRCK clock input (fs) *1	15	VCC1	–	Analog power supply +5V
2	DATA	I	Data input *1	16	VOU TL	O	L ch analog voltage output
3	BCK	I	Bit clock input for data *1	17	NC	–	Non connection
4	CLKO	O	Buffer output of system clock	18	EXTL	O	L ch analog output amp. common
5	XTI	I	Crystal oscillation connection or external clock input	19	AGND2L	–	Analog GND
6	XTO	O	Crystal oscillation connection	20	VCC2L	–	Analog power supply +5V
7	DGND	–	Digital GND	21	ZERO	O	Zero data flag
8	VDD	–	Digital power supply +5V	22	RST	I	Reset *2
9	VCC2R	–	Analog power supply +5V	23	CS/IWO	I	Chip select / Input format select *3
10	AGND2R	–	Analog GND	24	MODE	I	Mode control select *2 (H: Software, L: Hardware)
11	EXTR	O	R ch analog output amp. common	25	MUTE	I	Mute control *2
12	NC	–	Non connection	26	MD/DM0	I	Mode control data / deemphasis select 1 *2
13	VOU TR	O	R ch analog voltage output	27	MC/DM1	I	Mode control BCK / deemphasis select 2 *2
14	AGND1	–	Analog GND	28	ML/IIS	I	Mode control latch / Input format select *2

Note :

*1 : Schmitt trigger input

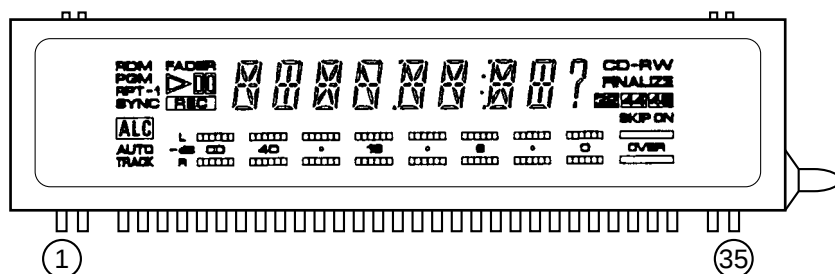
*2 : Schmitt trigger input with pull-up resistor

*3 : Schmitt trigger input with pull-down resistor

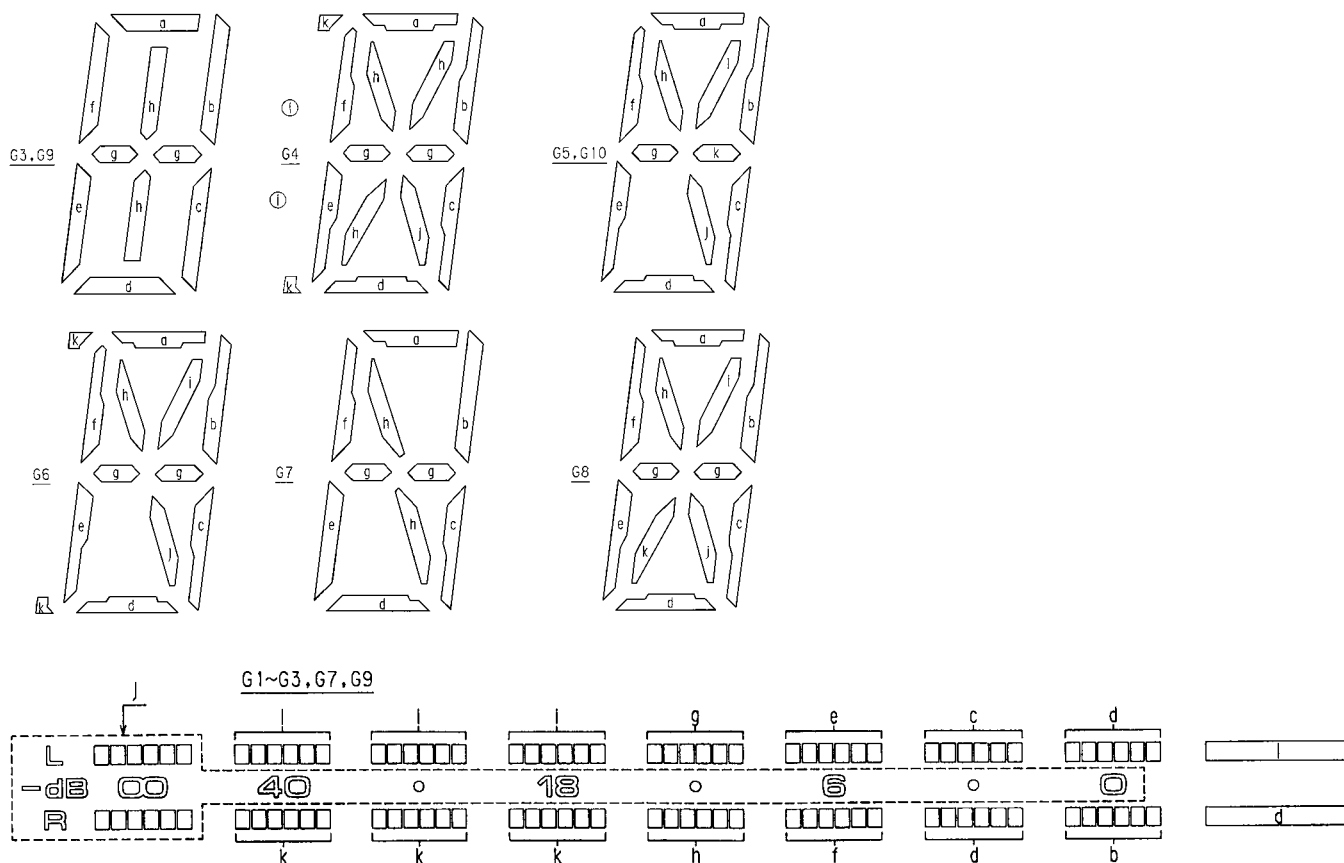
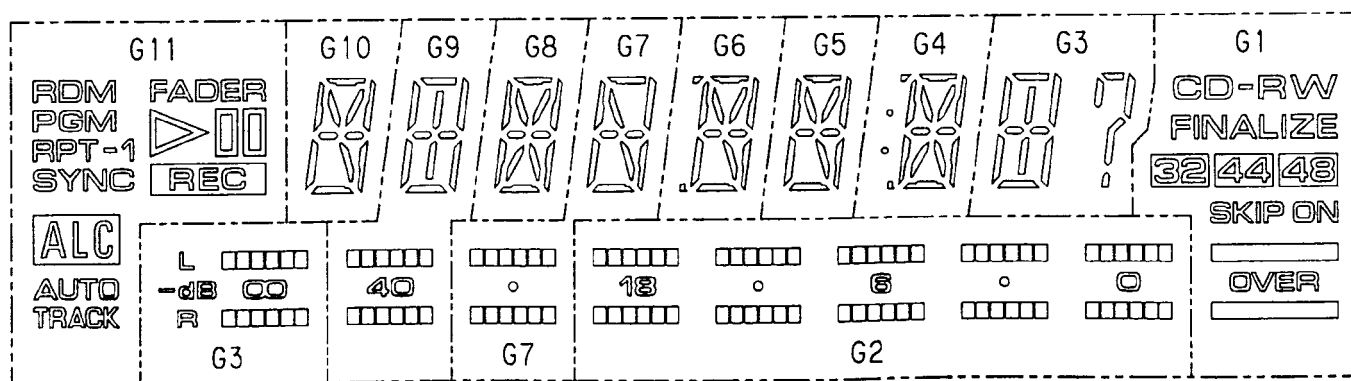
7.1.2 DISPLAY

■ PEL1097 (FUNCTION ASSY : V701)

- FL TUBE



- **Anode & Grid Assignment**



	G1	G2	G3	G4	G5	G6	G7	G8	G9	G10	G11
S1	a	a	a	a	a	a	a	a	a	a	FADER
S2	OVER	b	b	b	b	b	b	b	b	b	
S3	(CD-R)W	c	c	c	c	c	c	c	c	c	
S4	32	d	d	d	d	d	d	d	d	d	REC
S5	44	e	e	e	e	e	e	e	e	e	RDM
S6	CD(-RW)	f	f	f	f	f	f	f	f	f	PGM
S7	(CD)-R(W)	g	g	g	g	g	g	g	g	g	RPT
S8	ON	h	h	h	h	h	h	h	h	h	-1
S9	i	i	?	i	i	i	i	i	i	i	SYNC
S10	48	j	j	j	j	j	j	j	j	j	ALC
S11	SKIP	k		k	k	k	k	k	k	k	AUTO TRACK
S12	FINALIZE										

• Pin Assignment

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Assignment	F1	F1	NP	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	G11	G10	G9	G8

Pin No.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Assignment	G7	G6	G5	G4	G3	G2	G1	S12	NL	NL	NL	NL	NL	NL	NP	F2	F2

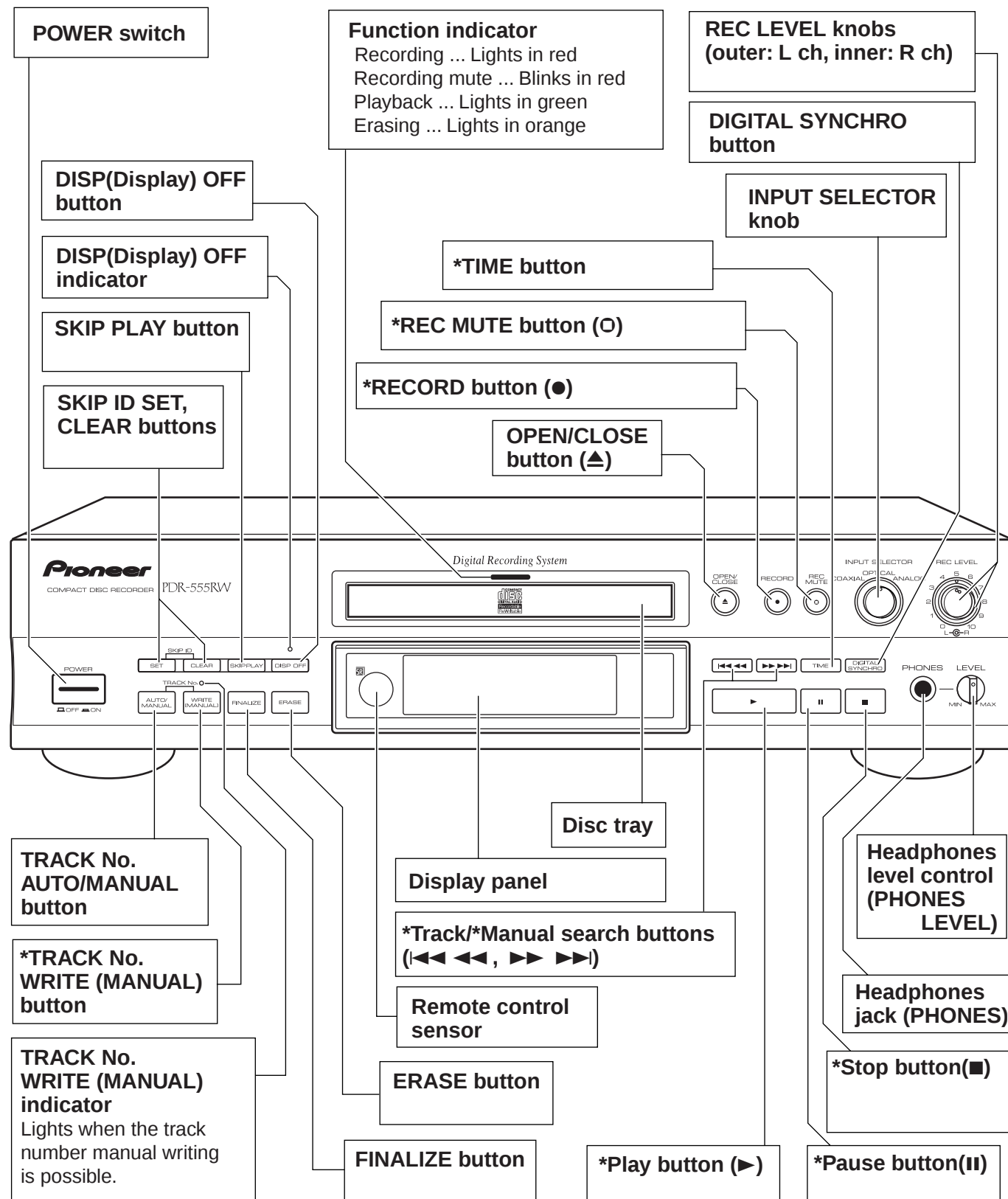
F1,F2:Filament G1~G11:Grid S1~S12:Anode NP:No Pin NL:No Lead

8. PANEL FACILITIES AND SPECIFICATIONS

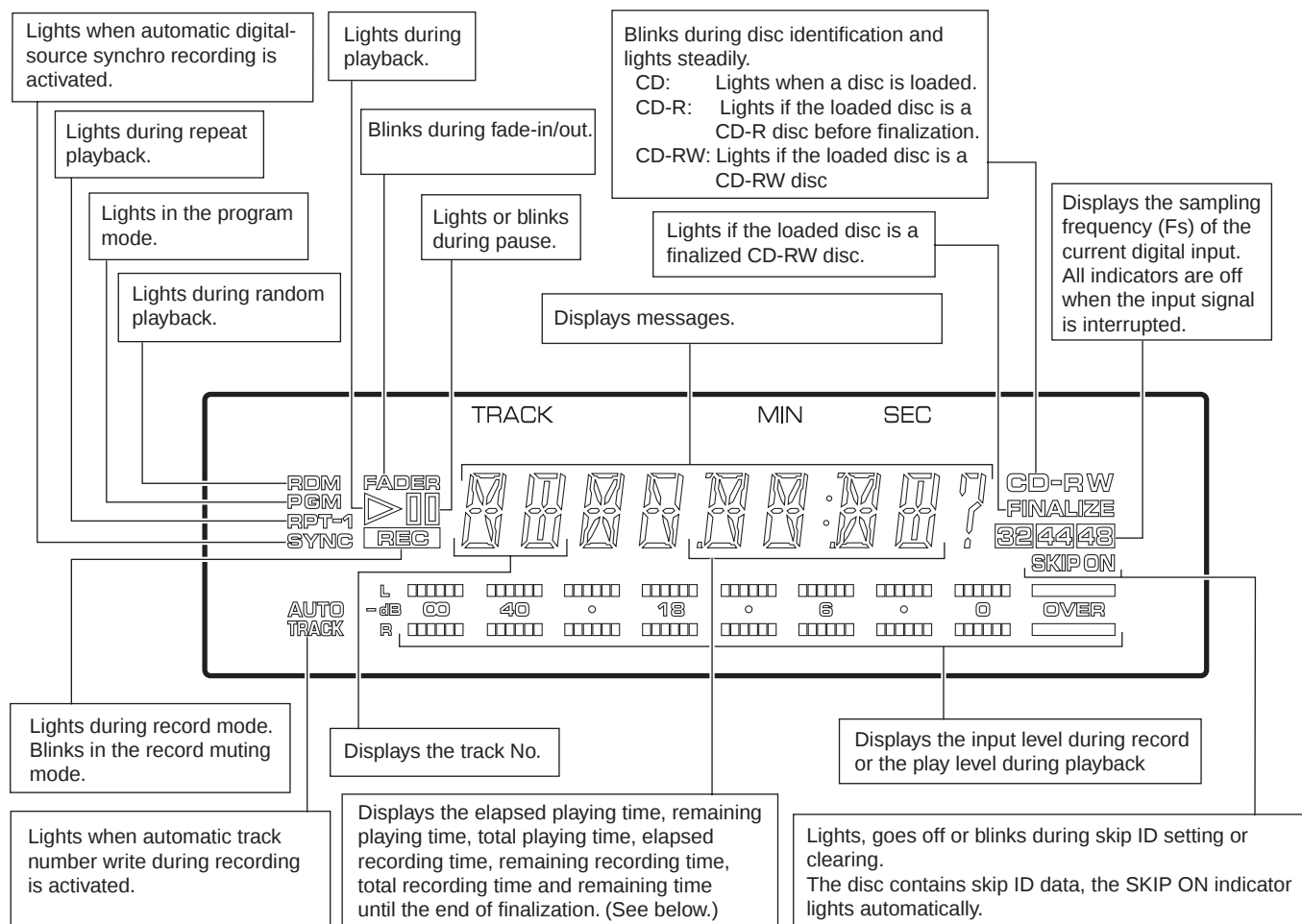
• PANEL FACILITIES

FRONT PANEL

The operations available using buttons marked "*" are also available using the buttons with the same names or inscriptions on the remote control unit.



DISPLAY PANEL



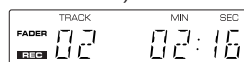
Switching the time display

The following operation allows you to check the recording time information during recording or playing time information during playback. Every time the TIME button is pressed, the time information contents are switched in order of **A** → **B** → **C** → **D**.

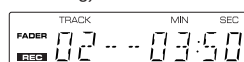
The display mode varies depending on whether the current operation is recording or playing back (in order of **A** → **B** → **C** during recording).

During recording

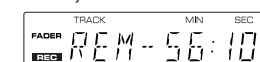
(A) : Elapsed recording time
(2 min. 16 sec. after the start of track No. 2)



(C) : Total recording time
(3 min. 50 sec. of 2-track recording)

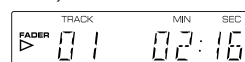


(B) : Remaining recording time
(56 min. 10 sec. remaining on the disc)

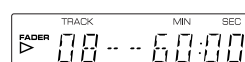


During playback

(A) : Elapsed playing time
(2 min. 16 sec. after the start of track No. 1)



(D) : Total playing time
(60 min. 0 sec. for 8 tracks)



(B) : Remaining playing time of track being played (3 min. 20 sec. remaining for track No. 1)

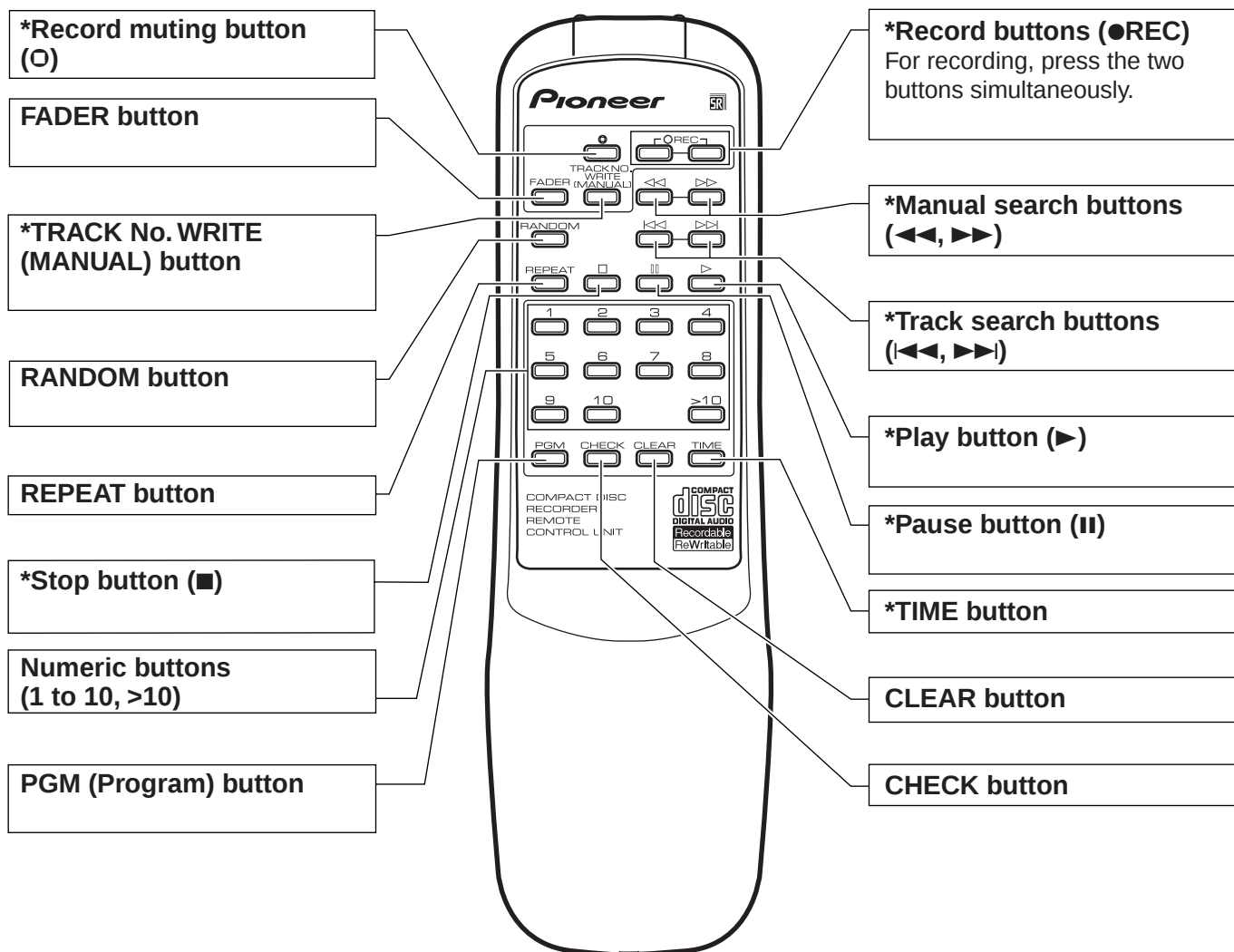


(C) : Remaining playing time of all tracks on disc being played (46 min. 40 sec. remaining on the disc)

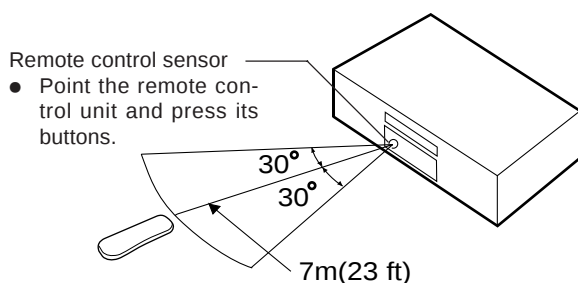


REMOTE CONTROL UNIT

Operations performed by buttons marked "*" can also be carried out by using buttons with the same name on the main unit.



Remote controllable range



Caution on the remote control operation

- Remote control may be impossible if there is an obstacle between the remote control unit and main unit or if the remote control unit is operated at too great of an angle from the remote control sensor.
- Erroneous operation may occur if strong light such as direct sunlight or fluorescent lamp light is incident to the remote control sensor.
- The main unit may operate erroneously if it is used near equipment radiating infrared rays or if the infrared remote control unit of other equipment is used near the unit. On the contrary, if this remote control unit is operated near another piece of equipment which can be controlled with infrared rays, the equipment may operate erroneously.
- Replace batteries when the remote controllable range decreases noticeably.

