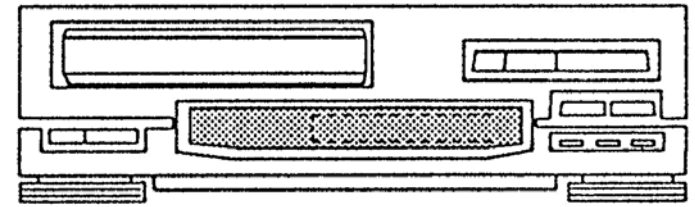


AIWA®**DX-N3
DX-NR3****SERVICE
MANUAL**

COMPACT DISC PLAYER

- BASIC CD MECHANISM: KSL-2101ABM

- TYPE. H,U,C,E,K (N3)
H,C,E,Z (NR3)

- ◆ DX-N3 is the Compact Disc Player which is connected to NSX-D3, NSX-D2 and NX-300 (optional) only.
- ◆ DX-NR3 is the Compact Disc Player which is connected to NX-100.(optional)

SPECIFICATION

Disc	Compact disc
Scanning method	Non-contact optical scanner (Semiconductor laser application)
Laser	Semiconductor laser ($\lambda=780$ nm)
Rotation speed	Approx. 500 rpm - 200 rpm (CLV)
Error correction	Cross interleave, Reed Solomon code
No. of channels	2 channels
D-A conversion	16 bit Linear
Signal to noise ratio	92 dB
Harmonic distortion	0.05% (1 kHz, 0 dB)
Wow/Flutter	Unmeasurable
Power requirements	H,U,C: AC 110-120 V/220-240 V (selectable), 50/60 Hz E, Z: AC 220 V, 50/60 Hz K: AC 240 V, 50/60 Hz
Power consumption	H: 9 W U,C,E,K,Z: 10 W
Dimensions(W x H x D)	260 x 75 x 230 mm (10 $\frac{1}{4}$ x 3 x 9 $\frac{1}{8}$ inches)
Weight	2.2 kg (4.9 lb)

•Design and specifications are subject to change without notice.

AIWA Co., Ltd.**Tokyo Japan**

Printed in Japan

DISASSEMBLY INSTRUCTIONS

1. "Panel, Tray" and "CD Mechanism" Removal (See Figure - 1,2)

- 1) Remove the "Cabinet, Steel".
- 2) ♠ For AUTOMATIC operation
Press the OPEN/CLOSE button to eject the "Tray".
♠ For MANUAL operation (See Figure - 1)
Insert a flat-head screwdriver into the hole at the direction of the arrow ② to eject the "Tray".

- 3) Remove the "Panel, Tray" in the direction of the arrow. (See Figure - 2)
- 4) Remove 4 screws (A) and remove the "CD Mechanism". (See Figure - 2)

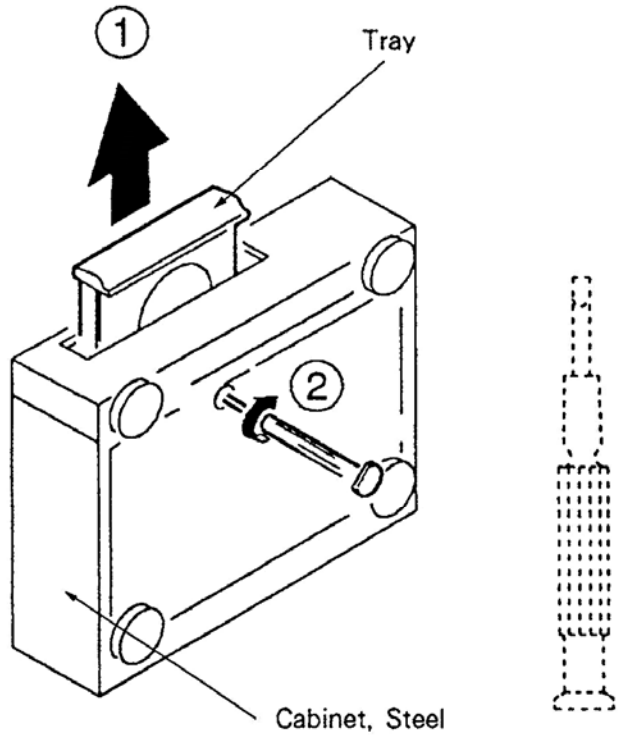


Fig - 1

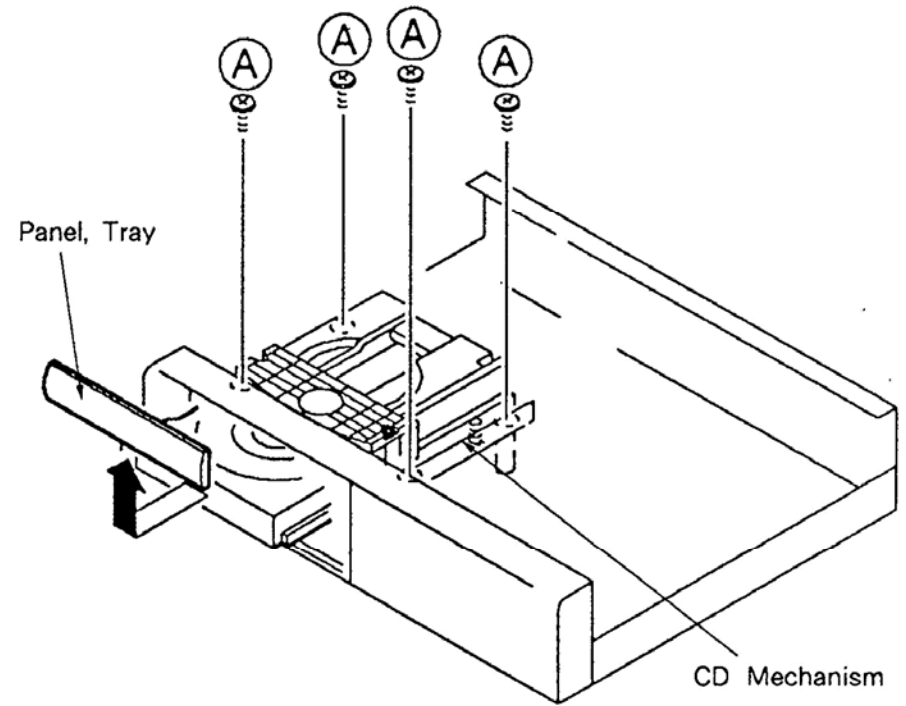


Fig - 2

■ ACCESSORIES/PACKAGE LIST

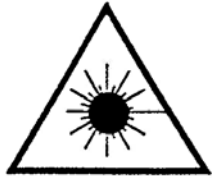
PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q,TY
	1	★81-MDC-905-019	INSTRUCTION BOOKLET EX	※	1
	2	★87-034-773-010	CORD,PIN R-237W-1M		1
	3	★81-MDB-951-019	REMOTE UNIT,RC-CN3 (NR3)	※	1
	4	★87-032-845-019	PLUG,CONVERSION (H)		1
	5	★81-MDC-951-019	CONNECTOR ASSY 2P CONT	※	1

PROTECTION OF EYES FROM LASER BEAM SERVICING

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

WARNING!!

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



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

VAROITUS!

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

WARNING!

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

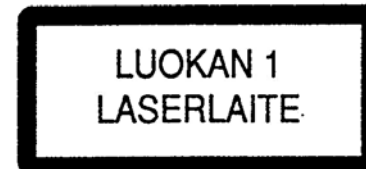
CAUTION

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

ATTENTION

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

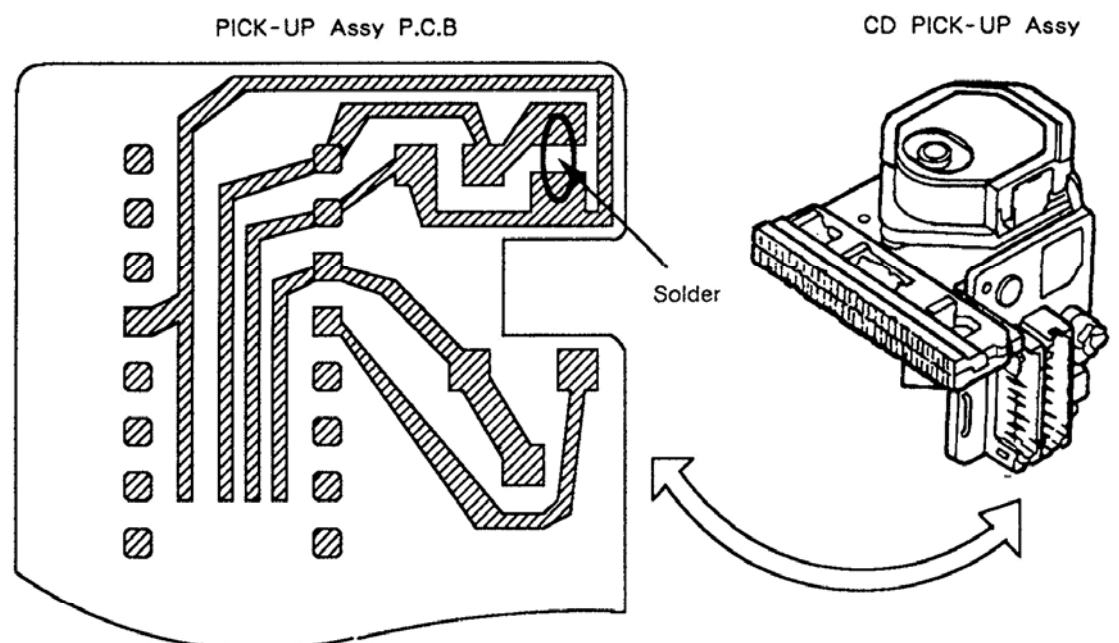
This Compact Disc player is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT label is located on the rear exterior.



Precaution to replace Optical block (KSS - 210A)

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

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



ELECTRICAL MAIN PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
===IC===		
	87-002-258-010	IC, AN8377N
	87-002-427-019	IC, BA6209N
	87-002-517-019	IC, BU3559 S
	87-001-180-010	IC, M5223L
	87-001-176-010	IC, TA8102P
	87-002-407-010	IC, TA8191F
	87-002-408-010	IC, TC9236F
	87-002-593-010	IC, TMP47C820F-3665
	87-002-259-010	IC, UPD6376 GS
	87-002-437-019	IC, HC-377(REMOTE SENSOR) (NR3 ONLY)
△	87-001-196-019	IC, ICP-10

===TRANSISTOR===

	89-112-965-019	TRANSISTOR, 2SA1296GR
	87-026-463-019	TRANSISTOR, 2SA933S(RS)
	89-210-642-019	TRANSISTOR, 2SB1064E
	89-213-292-019	TRANSISTOR, 2SB1329Q
	87-026-462-019	TRANSISTOR, 2SC1740S(RS)
	89-320-011-219	TRANSISTOR, 2SC2001KL
	87-026-290-019	TRANSISTOR, DTA124XS
	87-026-291-019	TRANSISTOR, DTC124XS

===DIODE===

	87-001-783-019	DIODE IN4002-BD-81 (EXCEPT U)
	87-001-574-010	DIODE, 1SR139-200(U ONLY)
	87-020-465-019	DIODE, 1SS133
	87-027-405-019	DIODE, ZENER RD2. 2EB
	87-001-911-019	DIODE, ZENER UTZJ4. 7A
	87-001-913-019	DIODE, ZENER UTZJ5. 6B

===MAIN CIRCUIT BOARD SECTION===

C1	★87-010-382-019	CAP, ELECT 22-25 SME
C2	★87-018-140-019	CAP, CERA-SOL U 2. 2P-50 CH
C3	★87-018-209-019	CAP, CERA-SOL U 0. 1-50 F
C4	★87-018-109-019	CAP, CERA-SOL U 22P-50 SL
C6	★87-010-248-019	CAP, ELECT 220-10 SME
C7	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C9	★87-010-545-019	CAP, ELECT 0. 22-50 SME
C10	★87-010-263-019	CAP, ELECT 100-10
C11	★87-010-401-019	CAP, ELECT 1-50 SME
C12	★87-010-248-019	CAP, ELECT 220-10 SME
C13	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C15	★87-010-265-019	CAP, ELECT 33-16 SME
C16	★87-010-403-019	CAP, ELECT 3. 3-50 SME
C17	★87-010-374-019	CAP, ELECT 47-10
C22	★87-018-205-019	CAP, CERA-SOL U 0. 022-25 F
C23	★87-018-117-019	CAP, CERA-SOL U 68P-50 SL
C24	★87-010-248-019	CAP, ELECT 220-10 SME
C25	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C26	★87-010-371-019	CAP, ELECT 470-6. 3
C27	★87-010-235-019	CAP, ELECT 470-16 SME
C28	★87-018-209-019	CAP, CERA-SOL U 0. 1-50 F
C29	★87-018-209-019	CAP, CERA-SOL U 0. 1-50 F
C30	★87-018-209-019	CAP, CERA-SOL U 0. 1-50 F
C31	★87-018-209-019	CAP, CERA-SOL U 0. 1-50 F
C32	★87-018-209-019	CAP, CERA-SOL U 0. 1-50 F
C33	★87-018-109-019	CAP, CERA-SOL U 22P-50 SL
C34	★87-018-109-019	CAP, CERA-SOL U 22P-50 SL
C35	★87-010-263-019	CAP, ELECT 100-10
C36	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C37	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C38	★87-010-263-019	CAP, ELECT 100-10
C39	★87-018-131-019	CAP, CERA-SOL U 1000P-50 B
C43	★87-018-209-019	CAP, CERA-SOL U 0. 1-50 F
C44	★87-010-248-019	CAP, ELECT 220-10 SME
C45	★87-018-119-019	CAP, CERA-SOL U 100P-50 B
C46	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y

REF. NO.	PART NO.	DESCRIPTION
C47	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C48	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C49	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C50	★87-010-374-019	CAP, ELECT 47-10
C51	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C52	★87-010-401-019	CAP, ELECT 1-50 SME
C53	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C64	★87-010-381-019	CAP, ELECT 330-16 SME
C101	★87-010-374-019	CAP, ELECT 47-10
C102	★87-010-374-019	CAP, ELECT 47-10
C105	★87-018-124-019	CAP, CERA-SOL U 270P-50 B
C106	★87-018-124-019	CAP, CERA-SOL U 270P-50 B
C107	★87-018-124-019	CAP, CERA-SOL U 270P-50 B
C108	★87-018-124-019	CAP, CERA-SOL U 270P-50 B
C109	★87-010-404-019	CAP, ELECT 4. 7-50 SME
C110	★87-010-404-019	CAP, ELECT 4. 7-50 SME
C131	★87-018-119-019	CAP, CERA-SOL U 100P-50 B
L1	★87-003-152-019	COIL, 100UH
L2	★87-003-152-019	COIL, 100UH
△R40	87-029-019-019	RES, FUSE 2. 2-1/2W
SFR1	★87-024-171-019	SFR, 4. 7K
SFR2	★87-024-176-019	SFR, 100K
X1	★87-030-221-019	CERALOCK 16. 93MHZ

===FRONT CIRCUIT BOARD SECTION===

C301	★87-010-405-019	CAP, ELECT 10-50 SME
C302	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C303	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C304	★87-010-401-019	CAP, ELECT 1-50 SME
C309	★87-010-401-019	CAP, ELECT 1-50 SME
LCD1	81-MDC-616-019	LCD E-5488(DISPLAY)
PL1	87-035-429-010	LAMP, HRS-4110A
PL2	87-035-429-010	LAMP, HRS-4110A
SW2	87-036-243-019	SW, PUSH(POWER)
SW3	87-036-170-019	SW, TACT(▲ OPEN/CLOSE)
SW4	87-036-170-019	SW, TACT(■ STOP)
SW5	87-036-170-019	SW, TACT(▶ PLAY/PAUSE)
SW6	87-036-170-019	SW, TACT(▶▶/▶▶)
SW7	87-036-170-019	SW, TACT(◀◀/◀◀)
SW8	87-036-170-019	SW, TACT(MEMORY/SET)
SW9	87-036-170-019	SW, TACT(REPEAT)
SW10	87-036-170-019	SW, TACT(CD MODE)
X301	★87-030-203-019	RESONATOR, CERAMIC KBR4. 19MKS

===JACK CIRCUIT BOARD SECTION===

C201	★87-018-195-019	CAP, CERA-SOL U 1200P-16 X (NR3 ONLY)
C202	★87-018-195-019	CAP, CERA-SOL U 1200P-16 X (NR3 ONLY)
C203	★87-018-132-019	CAP, TC-U 2200P-16X(NR3 ONLY)
C204	★87-018-132-019	CAP, TC-U 2200P-16X(NR3 ONLY)
C205	★87-010-279-019	CAP, ELECT 6800-16 SME
C207	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C208	★87-010-401-019	CAP, ELECT 1-50 SME
C209	★87-010-401-019	CAP, ELECT 1-50 SME
C210	★87-010-405-019	CAP, ELECT 10-50 SME
C211	★87-010-400-019	CAP, ELECT 0. 47-50 SME
C212	★87-010-260-019	CAP, ELECT 47-25 SME
C213	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C214	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C215	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C217	★87-018-134-019	CAP, CERA-SOL U 0. 01-16 Y
C218	★87-010-248-019	CAP, ELECT 220-10 SME
J1	★87-009-504-010	JACK, PIN(OUTPUT)
J2	81-754-629-019	CONNECTOR XH M 2P(UL) (CD CONTROL)
L203	★87-008-457-010	COIL, TRAP CD(NR3 ONLY)
L204	★87-008-457-010	COIL, TRAP CD(NR3 ONLY)
X201	★87-030-203-019	RESONATOR, CERAMIC KBR4. 19MKS

REF. NO. PART NO. DESCRIPTION

===MOTOR-1 CIRCUIT BOARD SECTION===

M1 9X-262-513-210 MOTOR GEAR ASSY(SLED)
M2 + + + MOTOR ASSY(SPINDLE)
SW1 91-572-085-110 LEAF SWITCH(INSIDE LIMIT)

===MOTOR-2 CIRCUIT BOARD SECTION===

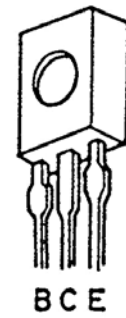
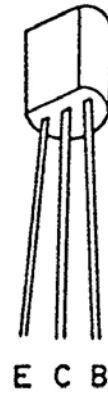
M3 91-640-523-110 MOTOR ASSY(LOADING)S-210A
SW2 91-572-086-110 LEAF SWITCH(OPEN)
SW3 91-572-086-110 LEAF SWITCH(CLOSE)

===RELAY CIRCUIT BOARD SECTION===

===CD GND CIRCUIT BOARD SECTION===

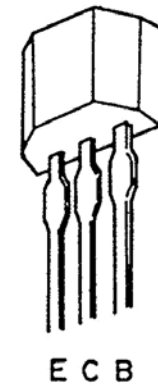
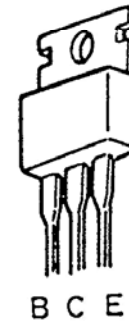
===MISCELLANEOUS===

△ ★82-187-796-019 AC CORD(BS) (K) (N3)
△ ★87-034-583-019 AC CORD ASSY U(C) (NR3)
△ ★87-034-781-019 AC CORD(E) (E)
△ ★87-034-749-019 AC CORD, H W/PLUG(H)
△ ★87-034-584-019 AC CORD, U SPT-2(U) (N3)
△ ★87-085-184-010 BUSHING, AC CORD D(H, C)
△ ★87-085-185-010 BUSHING, AC CORD E(E, K)
△ ★87-085-189-010 BUSHING, CORD U(U) (N3)
△PT1 98-848-127-110 OPTICAL PICK UP KSS-210A
△PT1 81-MDC-620-019 POWER TRANSFORMER (C) (NR3)
△PT1 81-MDC-607-019 POWER TRANSFORMER E(E)
△PT1 81-MDC-605-019 POWER TRANSFORMER H(H)
△PT1 81-MDC-608-019 POWER TRANSFORMER K(K) (N3)
△PT1 81-MDC-606-019 POWER TRANSFORMER U(U) (N3)
△SW1 87-036-242-019 SW, SLIDE(AC VOLTAGE)



2SA1296
2SC2001

2SB1329



2SB1064E

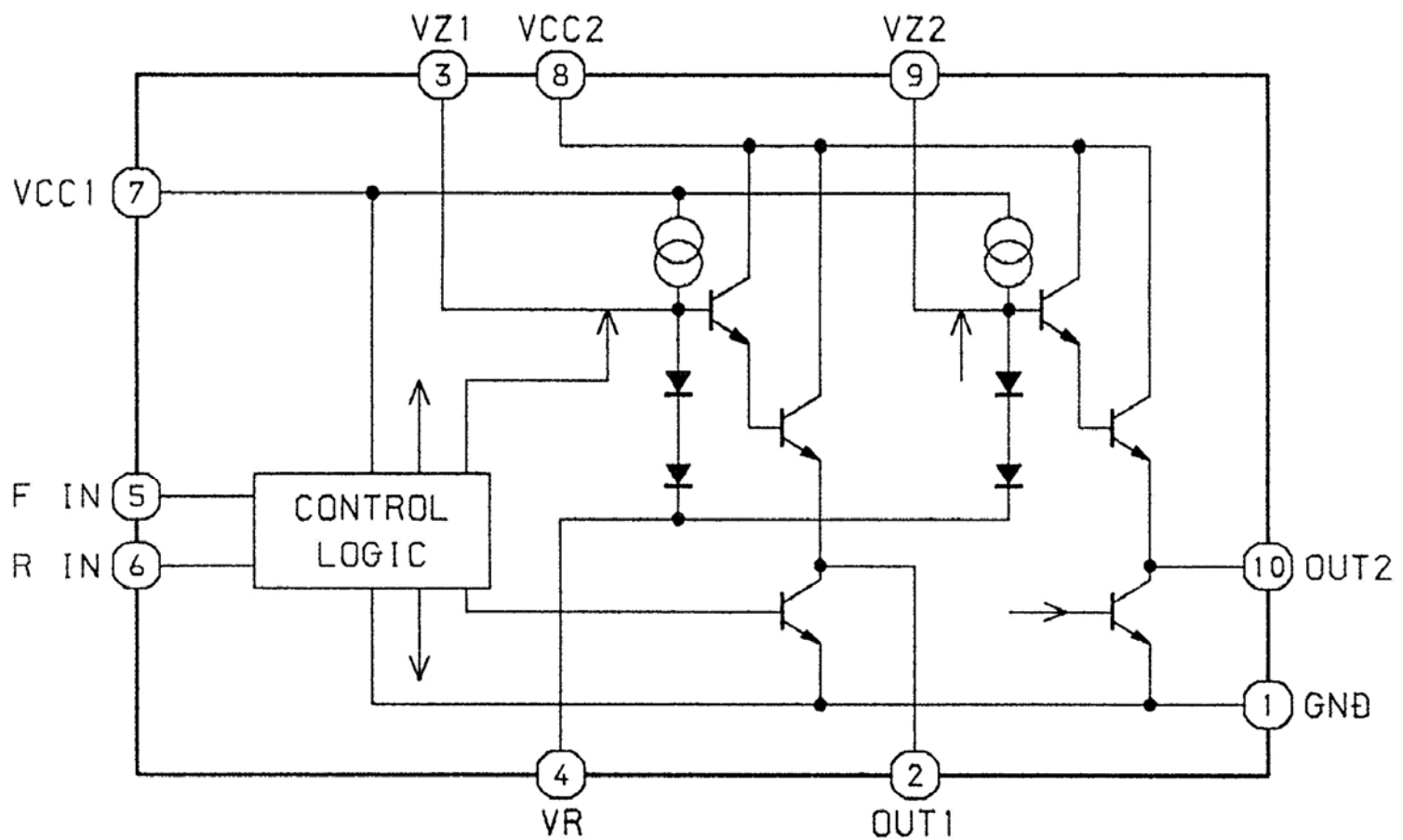
DTA144

DTC144

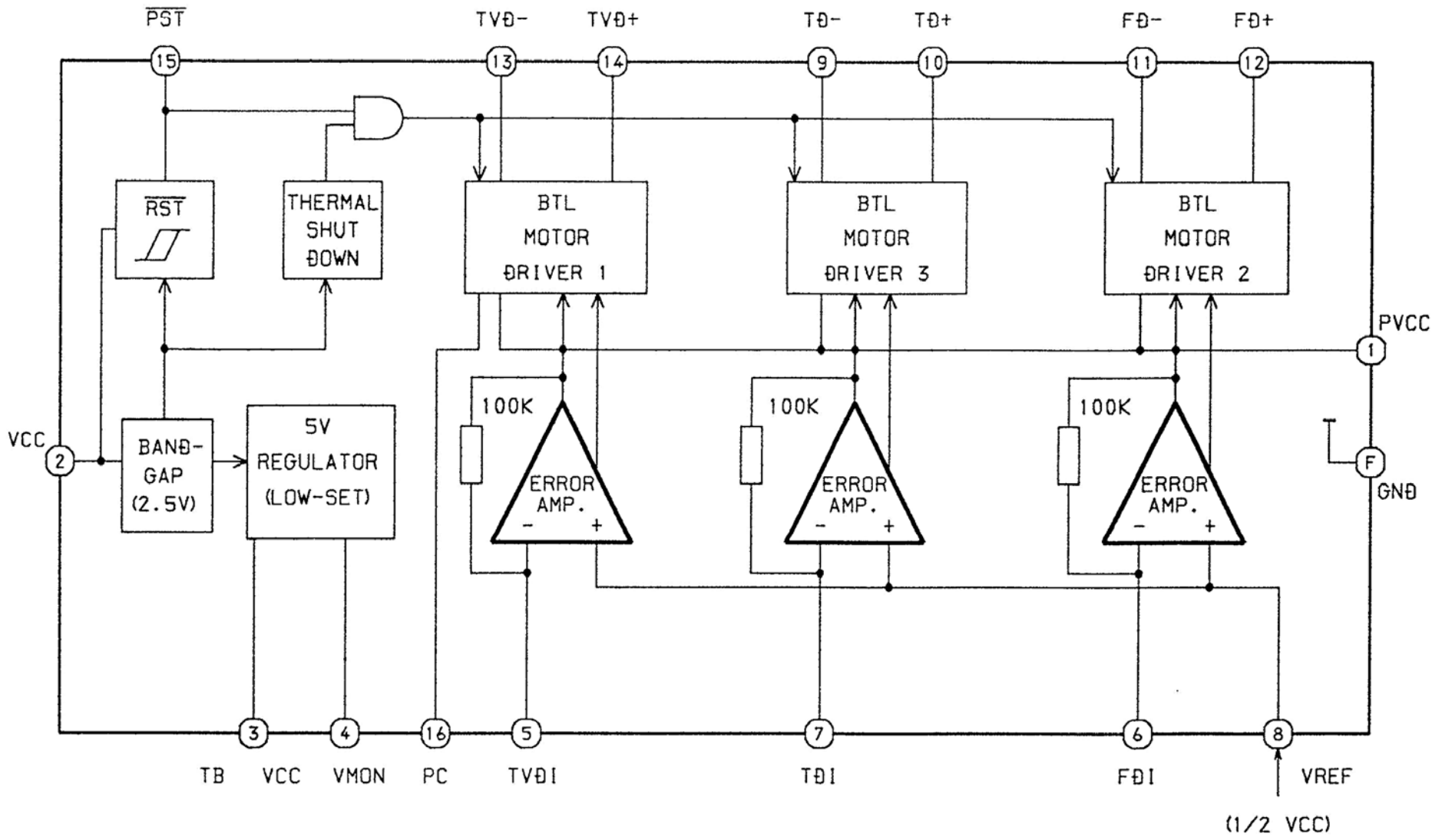
2SA933S

IC BLOCK DIAGRAM

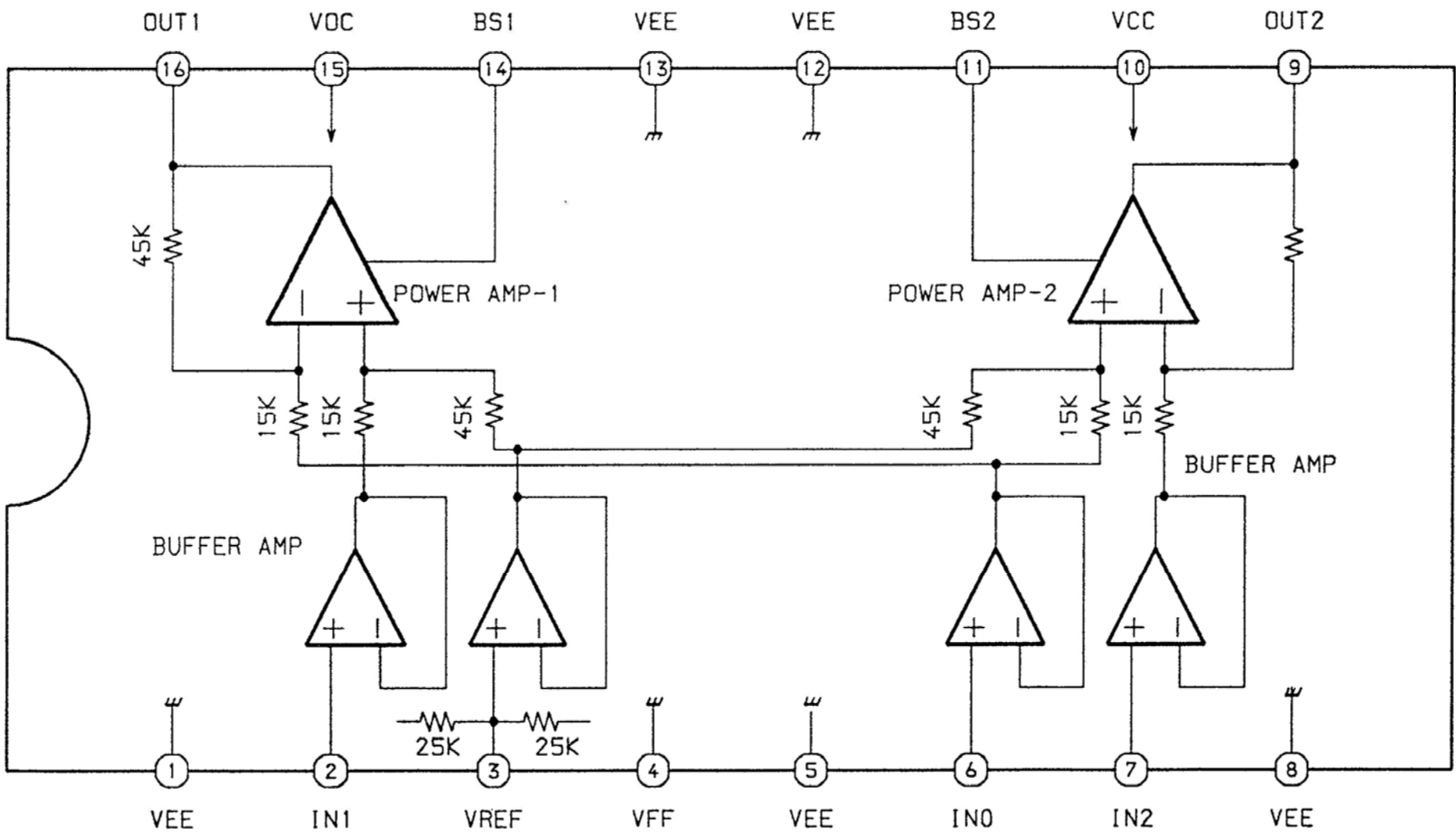
IC,BA6209N

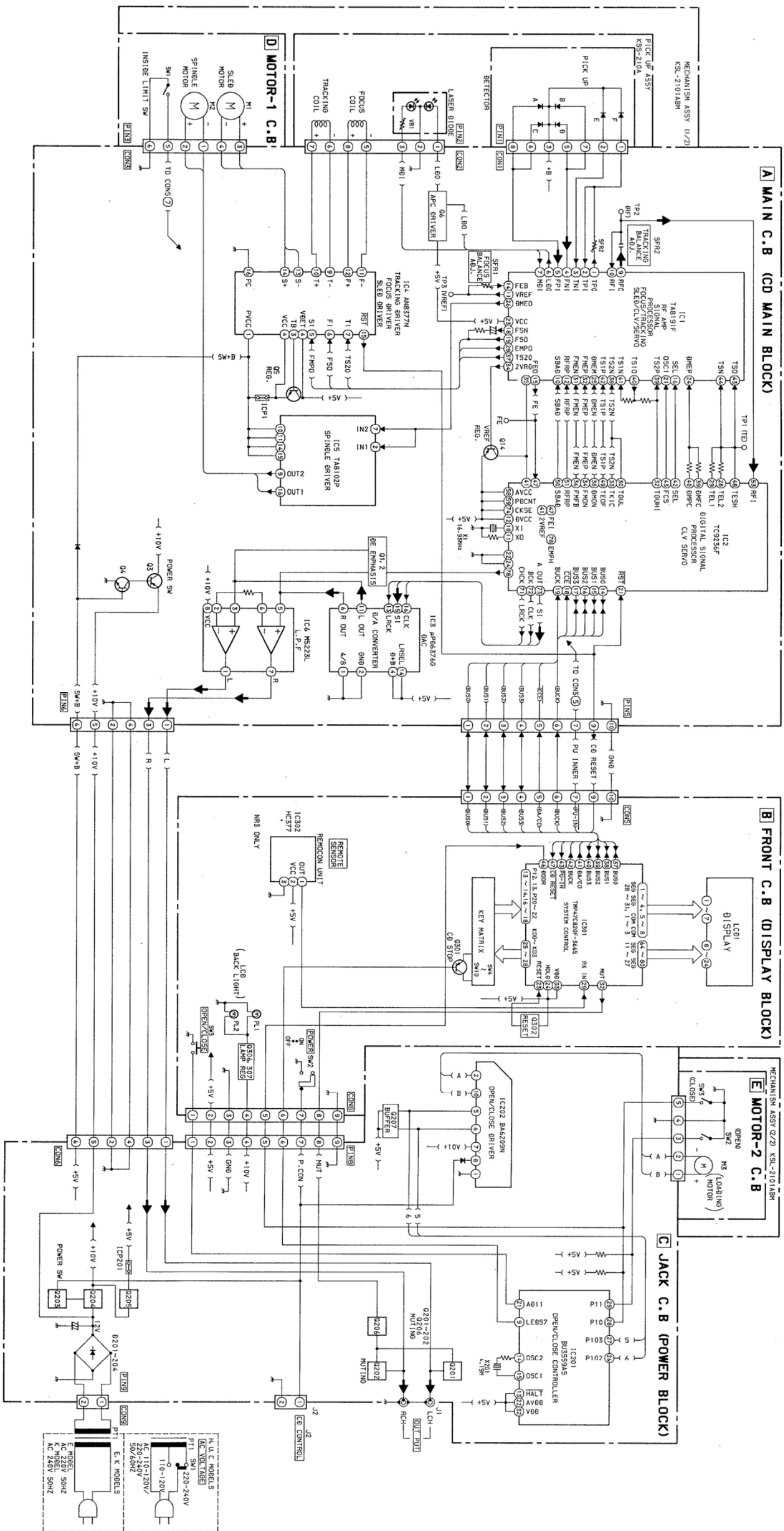


IC,AN8377N



IC,TA8102P





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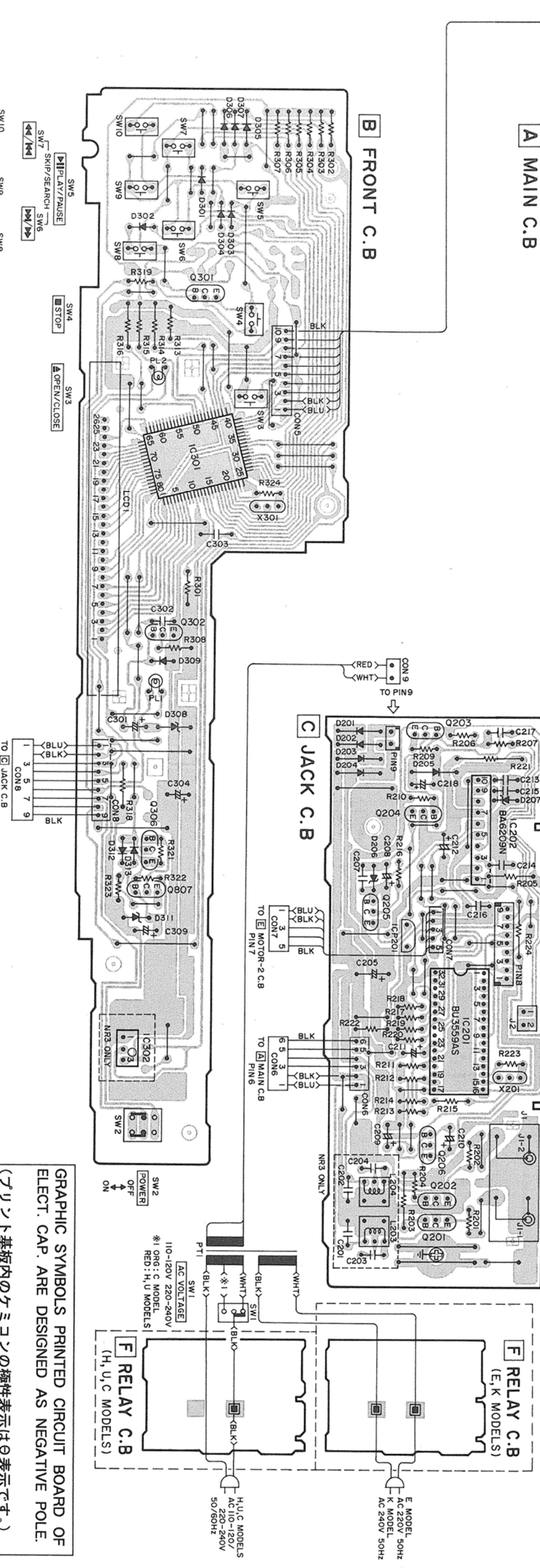
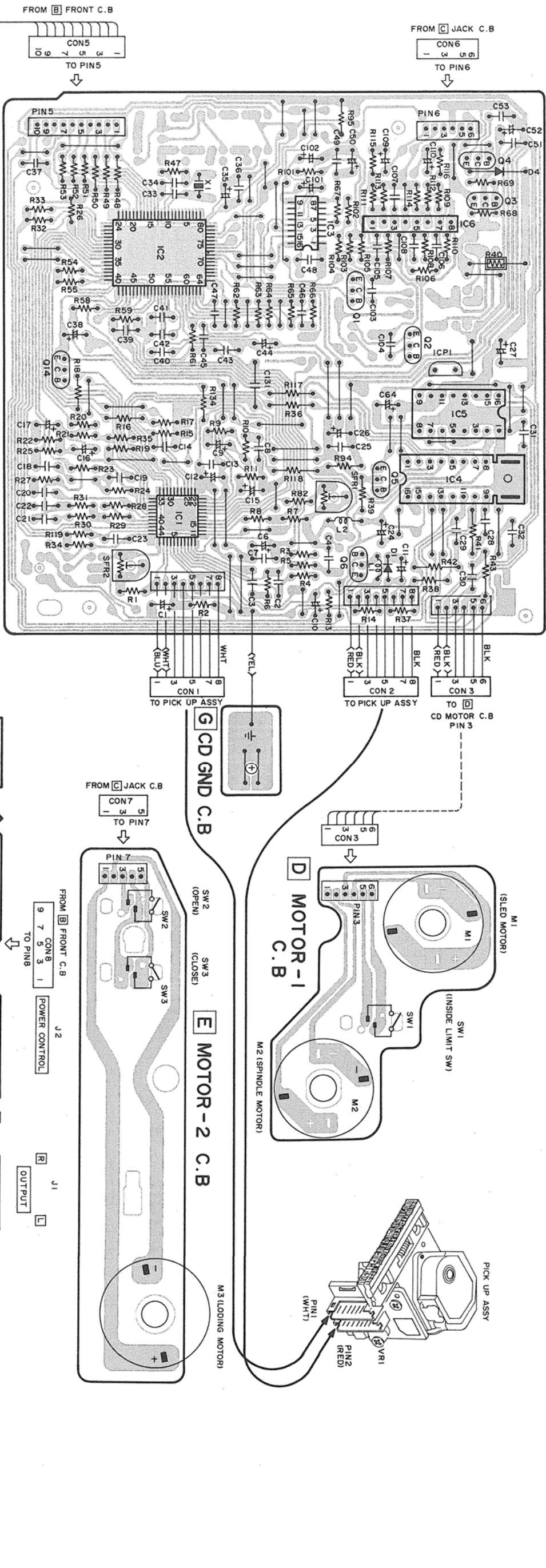
10

11

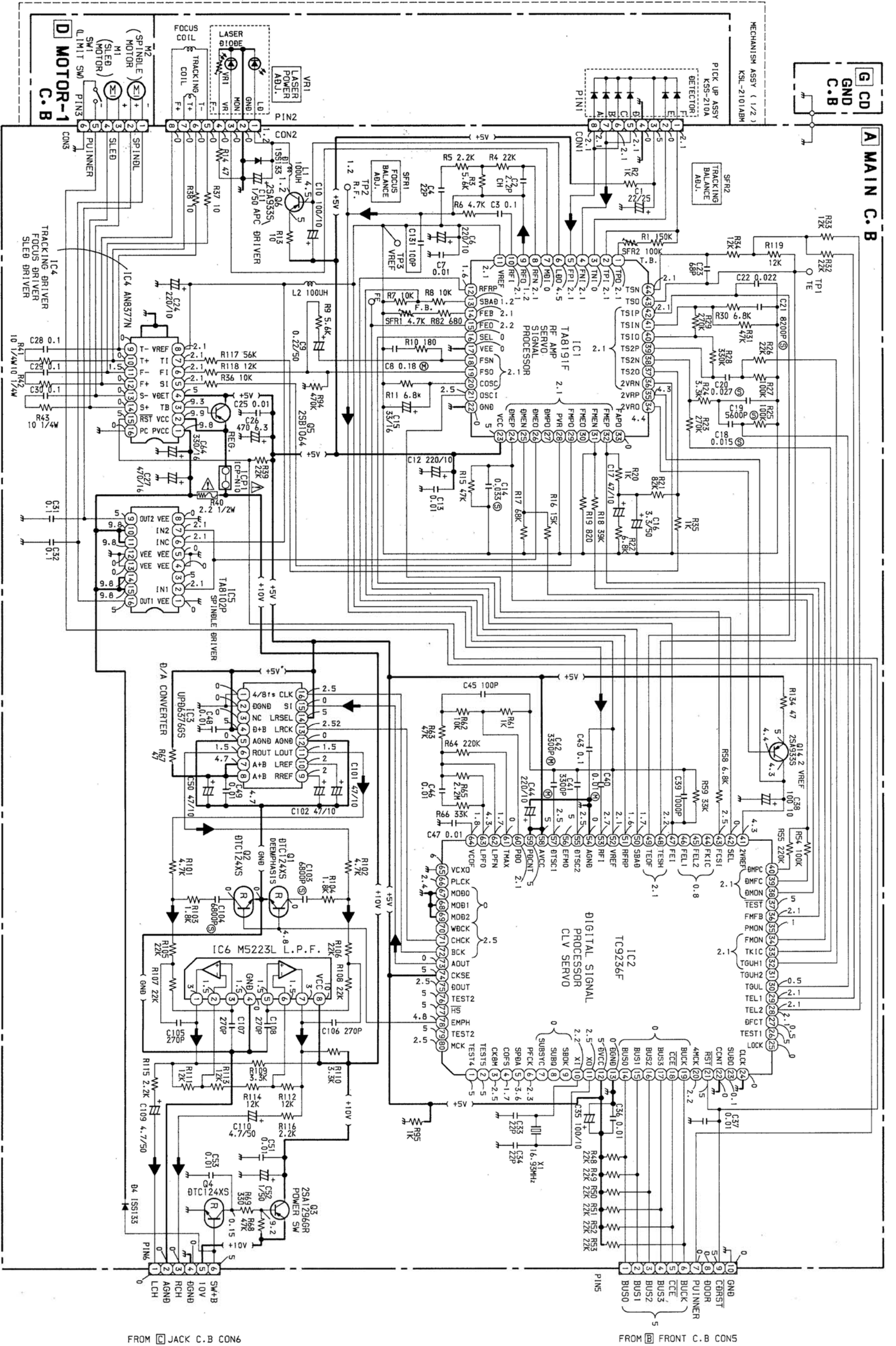
12

13

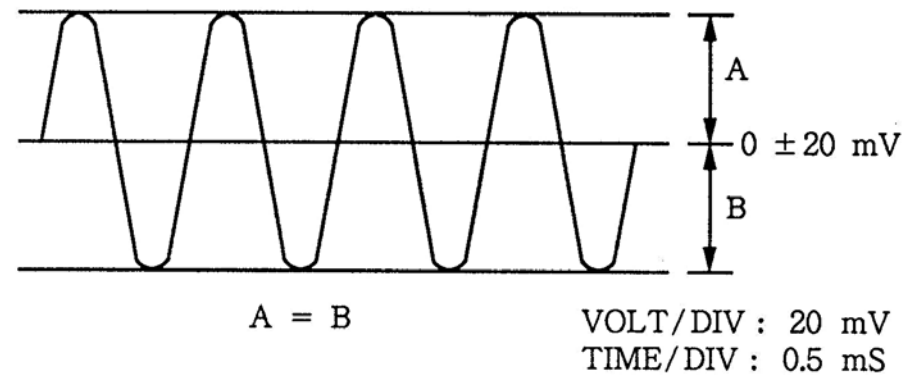
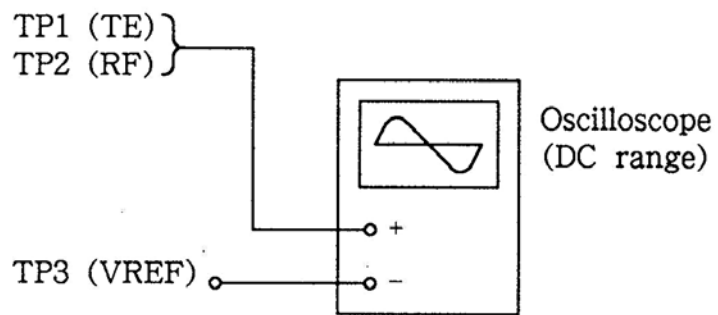
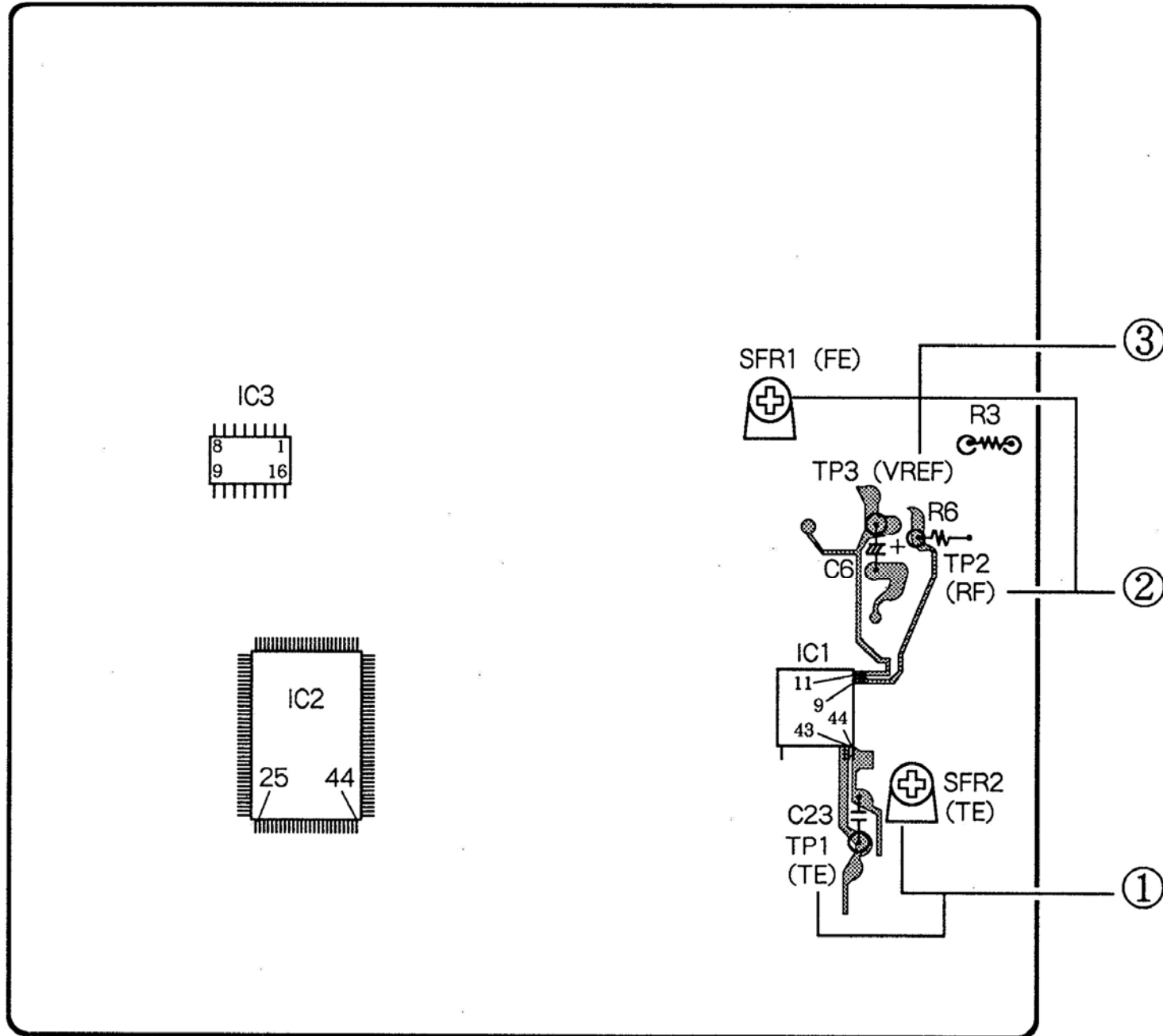
14



GRAPHIC SYMBOLS PRINTED CIRCUIT BOARD OF ELECT. CAP. ARE DESIGNED AS NEGATIVE POLE.
 (プリント基板内のケミコンの極性表示は⊖表示です。)



ADJUSTMENT



※ Connect the ⊖ probe of the oscilloscope to TP3 (VREF) for each adjustment.

Note: Connect a probe (10:1) of the oscilloscope to a test point.

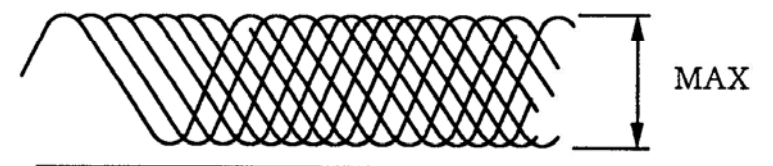
① Tracking Balance Adjustment

1. Connect an oscilloscope to test points TP1 (TE OUT) and TP3 (VREF).
2. Turn on the power switch.
3. Insert test disc YEDS-18 (YEDS-1) and press the PLAY (▶) switch.
4. Press the REPEAT switch to set to the REPEAT mode.
5. Press and hold the ⏏ switch. (MS condition)
6. Adjust SFR2 so that the waveform on the oscilloscope is vertically symmetrical as shown in the following figure.
7. After the adjustment is completed, remove the ground lead wires from the terminals.

② Focus Bias Adjustment

Make the focus bias adjustment when replacing and repairing the optical block.

1. Connect an oscilloscope to test points TP2 (RF) and TP3 (VREF).
2. Turn on the power switch.
3. Insert test disc YEDS-18 (YEDS-1) and play back the second composition.
4. Adjust SFR1 so that the amplitude of waveform on the oscilloscope is maximized.



VOLT/DIV: 20mV
TIME/DIV: 0.2 μS

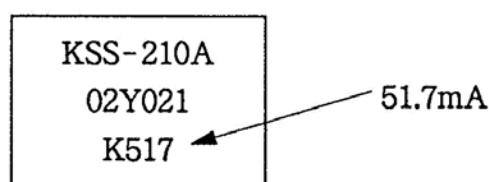
③ Laser Power Adjustment

This check should be performed whenever the optical system block is replaced in repair.

1. Connect an oscilloscope to test point TP2 (RF) and TP3 (VREF).
2. Turn on the power switch.
3. Insert test disc YEDS-18 (YEDS-1) and play back the second composition.
4. Adjust VR1 (into pick up assy) so that the waveform appears as shown in the figure below.

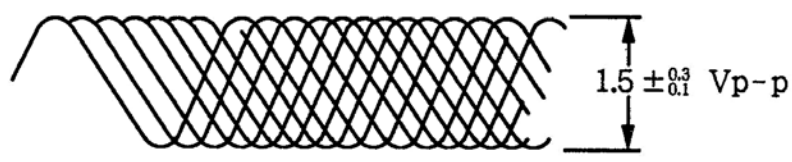
Note : The current of the laser signal can be checked with the voltages on both sides of R13 (10 Ω). The difference for the specified value shown on the label must be within ±6.0 mA.

(注)



$$\text{Laser current } I_{op} = \frac{\text{Voltage across R13}}{10 \Omega}$$

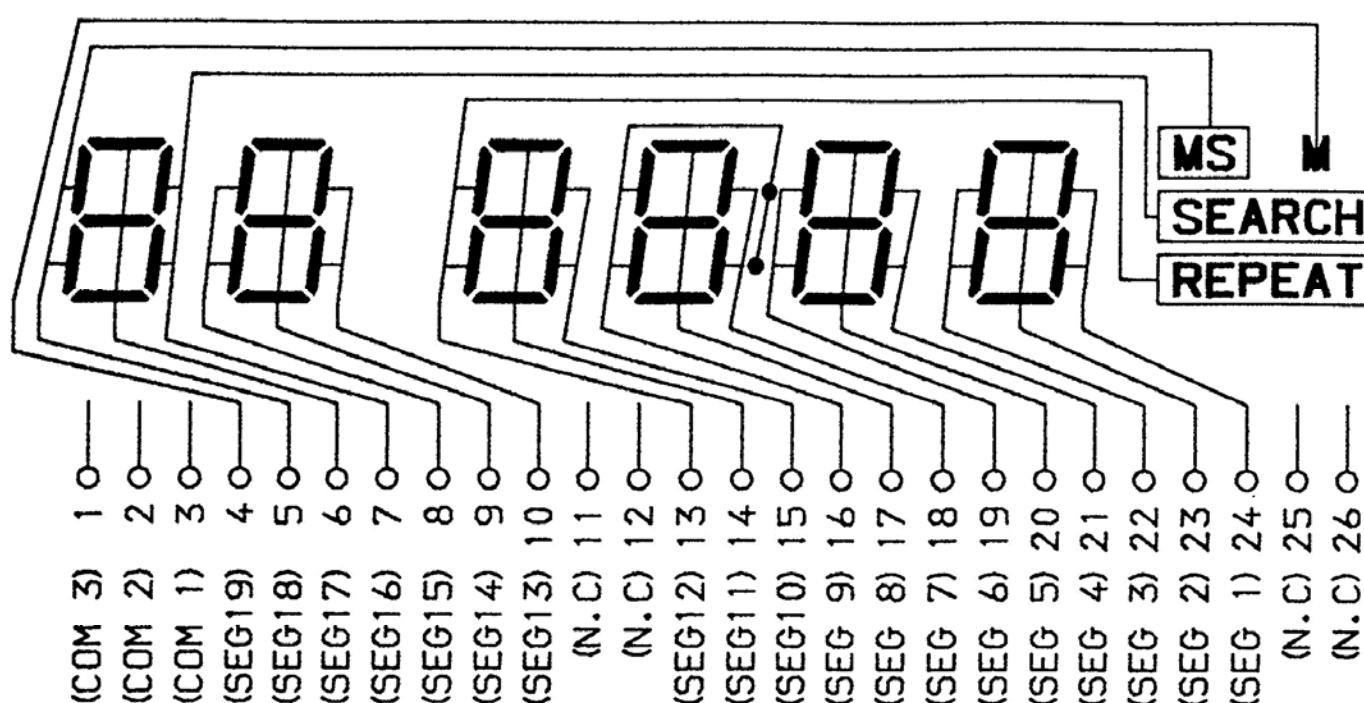
RF signal waveform



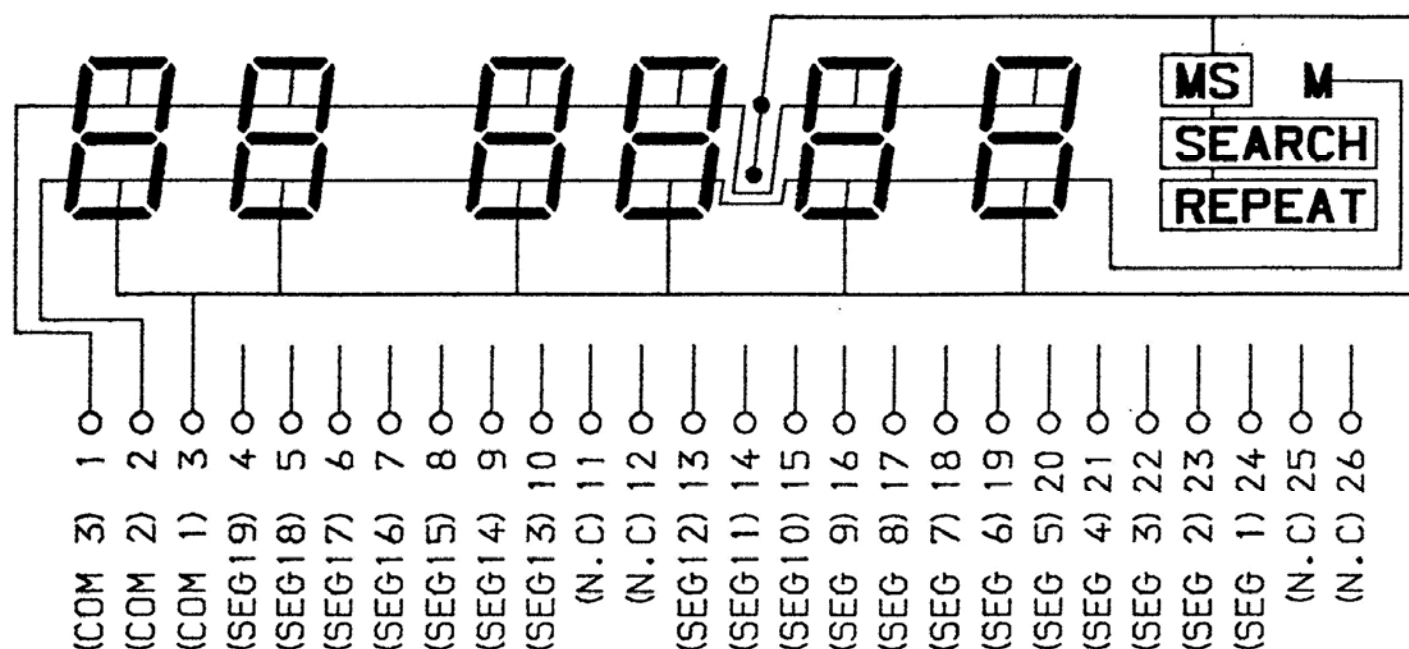
VOLT/DIV : 20mV
TIME/DIV : 0.2 μS

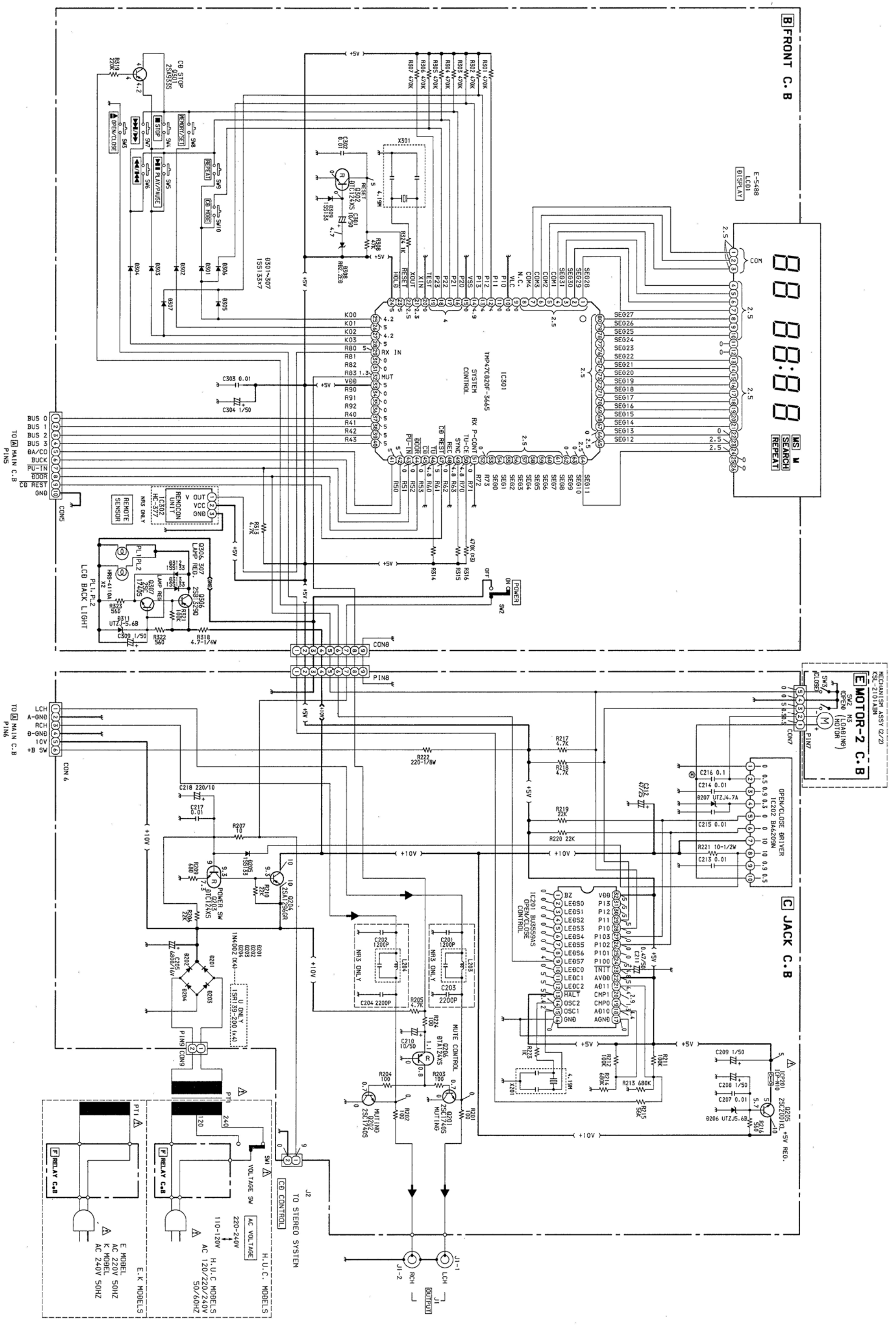
LCD DISPLAY

SEGMENT



COMMON





IC DESCRIPTION

IC,TA8191F

Pin No.	Pin Name	I/O	Description
1	TPO	O	Sub-beam I-V amplifier (TP AMP) output terminal.
2	TPI	I	Sub-beam I-V amplifier (TP AMP) input terminal.
3	TNI	I	Sub-beam I-V amplifier (TP AMP) input terminal.
4	FNI	I	Main-beam I-V amplifier (FM AMP) input terminal.
5	FPI	I	Laser diode amplifier (LD AMP) input terminal.
6	LDO	O	Laser diode amplifier (LD AMP) output terminal.
7	MDI	I	Monitor photo diode amplifier (MD AMP) input terminal.
8	RFN	I	RF amplifier (RF AMP) negative-phase input terminal.
9	RFO	O	RF amplifier (RF AMP) output terminal.
10	RFI	O	RF ripple signal output terminal.
11	VREF	O	Reference voltage output terminal. (+2.1 V)
12	RFRP	O	RF ripple signal output terminal.
13	SBAD	O	Scratch detection signal output terminal.
14	FRB	I	Focus error balance adjustment input terminal.
15	FEO	O	Focus error amplifier (FE AMP) output terminal.
16	SEL	I	Analog switch control signal input terminal.
17	VEE	—	Power terminal (TA8190F: -5V; TA8191F: GND).
18	FSN	O	Focus output amplifier (FS AMP) negative-phase output terminal.
19	FSO	O	Focus output amplifier (FS AMP) output terminal.
20	COSC	O	Capacitor connection terminal for focus search signal generation.
21	OSCI	I	Built-in power supply control input terminal for focus search signal generation.
22	GND	—	GND
23	VCC	I	Power supply terminal. (+5 V)
24	DMEP	I	Disc motor amplifier (DM AMP) positive-phase input terminal.
25	DMEN	I	Disc motor amplifier (DM AMP) negative-phase input terminal.
26	DMEO	O	Disc motor amplifier (DM AMP) output terminal.
27	DMPO	O	Disc motor drive amplifier (DMP AMP) output terminal.
28	PVR	I	Drive amplifier reference voltage input terminal.
29	FMPO	O	Feed motor drive amplifier (FMP AMP) output terminal.
30	FMEO	O	Feed motor drive amplifier (FM AMP) output terminal.
31	FMEN	I	Feed motor amplifier (FM AMP) negative-phase input terminal.
32	FMEP	I	Feed motor amplifier (FM AMP) positive-phase input terminal.
33	FAP O	O	Focus actuator drive amplifier (FAP AMP) output terminal.
34	2VRO	O	2VREF amplifier (2VREF AMP) output terminal.
35	2VRP	I	2VREF amplifier (2VREF AMP) positive-phase input terminal.
36	2VRN	I	2VREF amplifier (2VREF AMP) negative-phase input terminal.
37	TS2O	O	Tracking servo amplifier 2 (TS2 AMP) output terminal.
38	TS2N	I	Tracking servo amplifier 2 (TS2 AMP) negative-phase input terminal.
39	TS2P	I	Tracking servo amplifier 2 (TS2 AMP) positive-phase input terminal.
40	TS1O	O	Tracking servo amplifier 1 (TS1 AMP) output terminal.

Pin No.	Pin Name	I/O	Description
41	TS1N	I	Tracking servo amplifier 1 (TS1 AMP) negative-phase input terminal.
42	TS1P	I	Tracking servo amplifier 1 (TS1 AMP) positive-phase input terminal.
43	TSO	O	Tracking output amplifier (TS AMP) output terminal.
44	TSN	I	Tracking output amplifier (TS AMP) negative-phase input terminal.

IC,UPC6376GS

Pin No.	Pin Name	I/O	Description
1	4/8fs SEL	I	When this terminal is "Low" or open, data in L-ch and R-ch is input through pin 15 in time-division. When "High", data in L-ch is input through pin 15 and data in R-ch through pin 14 respectively. (Output is pulled-down through a resistor of 100 k-ohms in IC.)
2	D. GND	-	GND terminal for logic section.
3	NC	-	Not used.
4	D. VDD	-	Power supply terminal for logic section.
5	A. GND	-	GND terminal for analog section.
6	R. OUT	O	R-ch analog signal output terminal.
7	A. VDD	-	Power supply terminal to analog section.
8	A. VDD		
9	R. REF	-	Reference voltage terminal. Normally connected to A.GND via capacitor so that an impedance of high frequency data is lowered.
10	L. REF		
11	L. OUT	O	L-ch analog signal output terminal.
12	A. GND	-	GND terminal for analog section.
13	LRCK/WDCK	I	When pin 1 is "Low" or open, input data L/R discrimination signal is input. When "High", input data word discrimination signal is input.
14	LRSEL/RSI	I	When pin 1 is "Low" or open, L or R channel is selected for the LRCK signal. When the LRCK signal is "High" and L-ch data is input, the LRSEL terminal is "Low". When "Low" and L-ch data is input, the LRSEL terminal is "High". When pin 1 is "High", R-ch serial data is input.
15	SI/LSI	I	When pin 1 is "Low" or open, L-ch and R-ch serial data is input alternatively. When "High", L-ch serial data is input.
16	CLK	I	Serial input data read-in clock input terminal.

IC,TC9236F

Pin No.	Pin Name	I/O	Description
1	$\overline{\text{TEST4}}$	I	Test terminal. Normally "H" or open.
2	$\overline{\text{TEST5}}$	I	Test terminal. Normally "H" or open.
3	CK8M	O	8MHz clock output terminal.
4	COFS	O	Correction system frame frequency signal output terminal. 7.35 kHz
5	SPDA	O	Processor status signal output terminal. Correction/discrimination data, memory buffer capacity, etc.,
6	PFCK	O	Playback system frame frequency signal output terminal. 7.35 kHz
7	SUBSYC	O	Subcode sync signal output terminal.
8	SUBQ	O	Subcode Q data output terminal.
9	SBOK	O	Subcode Q data CRC check data output terminal. OK when "H".
10	XI	I	Crystal oscillator connection terminal.
11	XO	O	
12	DVcc	-	Digital power voltage terminal. (+5 V)
13	DGND	-	Digital GND terminal.
14) 17	BUS0) BUS3	I/O	Command and data send/receive I/O terminal.
18	$\overline{\text{CCE}}$	I	Chip enable signal input terminal for command and data send/receive. Bus line active when "L".
19	BUCK	I	Command and data send/receive clock input terminal.
20	4MCK	O	4MHz clock output terminal. 4.2366 MHz
21	$\overline{\text{RST}}$	I	Reset input terminal. Internal system reset when "L".
22	CCNT	I	Subcode Q data control bit update inhibition signal input terminal. Update inhibited when "H".
23	SUBO	O	Subcode P - W output terminal.
24	CLCK	I	Subcode P - W data read-out clock input terminal.
25	LOCK	O	Lock status output terminal. "L" when sync pattern signal in EFM signal is not detected within 17 ms in runaway detection.
26	$\overline{\text{TEST1}}$	I	Test terminal. Normally "H" or open.
27	DFCT	O	Defect detection signal output terminal. VREF when a defect signal is detected; Normally HiZ.
28	TEL2	O	Tracking gain adjustment analog switch output terminal. VREF or HiZ.
29	TEL1		
30	TGUL	O	Analog switch output terminal for switching the low range phase compensator of the tracking servo loop. HiZ (gain up) when shock signal is detected; VREF when gain up.
31	TGUH2	O	Analog switch output terminal for switching the middle and high range phase compensator of the tracking servo loop. HiZ (gain up) when shock signal is detected; normally VREF. TGUH1 is used when playing back in normal mode; TGUH2 when playing back in high speed mode.
32	TGUH1		
33	TKIC	O	Tracking actuator kick signal output terminal. Kicked to an external cylinder when "H"; an internal cylinder when "L".
34	FMON	O	Feed servo ON/OFF analog switch output terminal.
35	$\overline{\text{FMON}}$		

Feed servo	FMON	$\overline{\text{FMON}}$
ON	HiZ	VREF
OFF	VREF	HiZ

Pin No.	Pin Name	I/O	Description																
36	FMFB	O	Feed motor FWD/BWD operation control signal output terminal. Feeds to an external cylinder when "H"; feeds to an internal cylinder when "L".																
37	TEST	I	Test terminal. Normally "H" or open.																
38	DMON	O	Analog switch output terminal for switching the gain of the disk motor drive circuit.																
39	DMFC	O	Disc motor CLV servo AFC signal output terminal.																
			<table border="1"> <thead> <tr> <th>Command</th> <th>DMFC output</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>DMFK</td> <td>H</td> <td>Motor accelerated</td> </tr> <tr> <td>DMSV</td> <td>PWM</td> <td>CLV servo ON</td> </tr> <tr> <td>DMBK</td> <td>L</td> <td>Motor decelerated</td> </tr> <tr> <td>DMOFF</td> <td>VREF</td> <td>CLV servo OFF</td> </tr> </tbody> </table>	Command	DMFC output	Operation	DMFK	H	Motor accelerated	DMSV	PWM	CLV servo ON	DMBK	L	Motor decelerated	DMOFF	VREF	CLV servo OFF	
			Command	DMFC output	Operation														
			DMFK	H	Motor accelerated														
			DMSV	PWM	CLV servo ON														
DMBK	L	Motor decelerated																	
DMOFF	VREF	CLV servo OFF																	
40	DMPC	O	Disc motor CLV servo APC signal output terminal.																
41	2VREF	I	Two times reference voltage input terminal (VREF x 2).																
42	SEL	O	Servo mode indication signal output terminal.																
			<table border="1"> <thead> <tr> <th>SEL</th> <th>LD ON/OFF</th> <th>Focus servo</th> <th>Operation mode</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>OFF</td> <td>OFF</td> <td>LD OFF</td> </tr> <tr> <td>HiZ</td> <td>ON</td> <td>OFF</td> <td>Focus search</td> </tr> <tr> <td>H</td> <td>ON</td> <td>ON</td> <td>Normal PLAY etc. (Focus servo ON: FOK)</td> </tr> </tbody> </table>	SEL	LD ON/OFF	Focus servo	Operation mode	L	OFF	OFF	LD OFF	HiZ	ON	OFF	Focus search	H	ON	ON	Normal PLAY etc. (Focus servo ON: FOK)
			SEL	LD ON/OFF	Focus servo	Operation mode													
			L	OFF	OFF	LD OFF													
HiZ	ON	OFF	Focus search																
H	ON	ON	Normal PLAY etc. (Focus servo ON: FOK)																
43	FCSI	O	Focus actuator drive signal output terminal in focus search mode.																
<table border="1"> <thead> <tr> <th>Command</th> <th>FKIC output</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>FGASR</td> <td>H</td> <td>Lens distant from disc</td> </tr> <tr> <td>FGSS</td> <td>L</td> <td>Lens near disc</td> </tr> <tr> <td>Others</td> <td>HiZ</td> <td>Other than focus search</td> </tr> </tbody> </table>	Command	FKIC output	Operation	FGASR	H	Lens distant from disc	FGSS	L	Lens near disc	Others	HiZ	Other than focus search							
Command	FKIC output	Operation																	
FGASR	H	Lens distant from disc																	
FGSS	L	Lens near disc																	
Others	HiZ	Other than focus search																	
44	FKIC	O	Focus actuator drive signal output terminal in focus gain adjustment mode.																
			<table border="1"> <thead> <tr> <th>Command</th> <th>FKIC output</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>FGASR</td> <td>H</td> <td>Lens distant from disc</td> </tr> <tr> <td>FGASS</td> <td>L</td> <td>Lens near disc</td> </tr> <tr> <td>Others</td> <td>HiZ</td> <td>Other than focus gain adjustment</td> </tr> </tbody> </table>	Command	FKIC output	Operation	FGASR	H	Lens distant from disc	FGASS	L	Lens near disc	Others	HiZ	Other than focus gain adjustment				
			Command	FKIC output	Operation														
			FGASR	H	Lens distant from disc														
FGASS	L	Lens near disc																	
Others	HiZ	Other than focus gain adjustment																	
45	FEL2	O	Focus gain adjustment analog switch output terminal.																
46	FEL1																		
47	FEI	I	Focus error signal input terminal.																
48	TESH	I	Analog switch input terminal for sample-holding of the tracking error signal.																
49	TEOF	O	Analog switch input terminal for tracking servo ON/OFF. VFEF when tracking servo is OFF.																
50	SBAD	I	Sub-beam add signal input terminal.																
51	RFRP	I	RF ripple signal input terminal.																
52	VREF	I	Reference voltage input terminal. (+2.2 V)																
53	RFI	I	RF signal input terminal.																
54	AGND	-	Analog GND terminal.																
55	DTSC2	O	EFM signal negative-phase output terminal for data slice control.																
56	EFMO	O	EFM signal monitor output terminal.																
57	DTSC1	O	EFM signal positive-phase output terminal for data slice control.																
58	AVcc	-	Analog power voltage terminal. (+5 V)																
59	PDCNT	I	PDO output control terminal. PDO output is involuntarily set to HiZ when "L".																
60	PDO	O	Output terminal for phase difference signal between EFM and PLCK signals.																

Pin No.	Pin Name	I/O	Description	
61	TMAX	O	TMAX signal output terminal. HiZ in system clock.	
			TMAX cycle	TMAX output
			Longer than specified cycle	L
			Shorter than specified cycle	H(2VREF)
Specified cycle	HiZ			
62	LPFN	I	LPF amplifier negative-phase input terminal for PLL.	
63	LPFO	O	LPF amplifier output terminal for PLL.	
64	VCOF	I	VCO filter terminal.	
65	VCOX	I	External VCO clock input terminal.	
66	PLCK	O	Playback data read clock output terminal.	
67	MOD0	I	Internal operation mode setting input terminal.	
68	MOD1			
69	MOD2			
70	WDCK	O	Word clock output terminal. Normally 88.2 kHz.	
71	CHCK	O	Channel clock output terminal. Normally 44.1 kHz.	
72	BCK	O	Bit clock output terminal. Normally 1.4112 MHz.	
73	AOUT	O	Audio data output terminal.	
74	CKSE	I	Internal clock selection terminal.	
75	DOUT	O	Digital OUT output terminal.	
76	$\overline{\text{TEST2}}$	I	Test terminal. Normally "H" or open.	
77	$\overline{\text{HS}}$	O	High-speed monitor output terminal. High-speed mode when "L".	
78	EMPH	O	Emphasis ON/OFF indication signal output terminal. Emphasis ON when "H".	
79	$\overline{\text{TEST3}}$	I	Test terminal. Normally "H" or open.	
80	MCK	O	Master clock output terminal.	

IC, BU3559S

Pin No.	Pin Name	I/O	Description
1	BZ	I	MUTE (Not used.)
2	LEDS0	I	CD (Not used.)
3	LEDS1	I	TUNER (Not used.)
4	LEDS2	I	LINE (Not used.)
5	LEDS3	I	TAPE (Not used.)
6	LEDS4	I	DOLBY (Not used.)
7	LEDS5	I	TAPE MODE (Not used.)
8	LEDS6	I	HI SPEED DUBB (Not used.)
9	LEDS7	I	CD STOP
10	LEDC0	I	(Not used.)
11	LEDC1	I	(Not used.)
12	LEDC2	I	(Not used.)
13	HALT	I	HALT
14	OSC2	I	OSC terminal.
15	OSC1	I	OSC terminal.
16	GND	—	GND terminal.
17	AGND	—	A-GND terminal.
18	ADI0	I	KEY input 1.
19	CMP0	I	(Not used.)
20	CMP1	I	(Not used.)
21	ADI1	I	KEY input 2.
22	AVDD	—	Power supply terminal.
23	INIT	I	Reset terminal.
24	PIO0	O	Analog switch A. (Not used.)
25	PIO1	O	Analog switch B. (Not used.)
26	PIO2	O	MOTOR OPEN.
27	PIO3	O	MOTOR CLOSE.
28	PIO	I	IN SW.
29	PI1	I	OUT SW.
30	PI2	I	Remote input. (Not used.)
31	PI3	I	Remote input. (Not used.)
32	VDD	—	Power supply terminal.

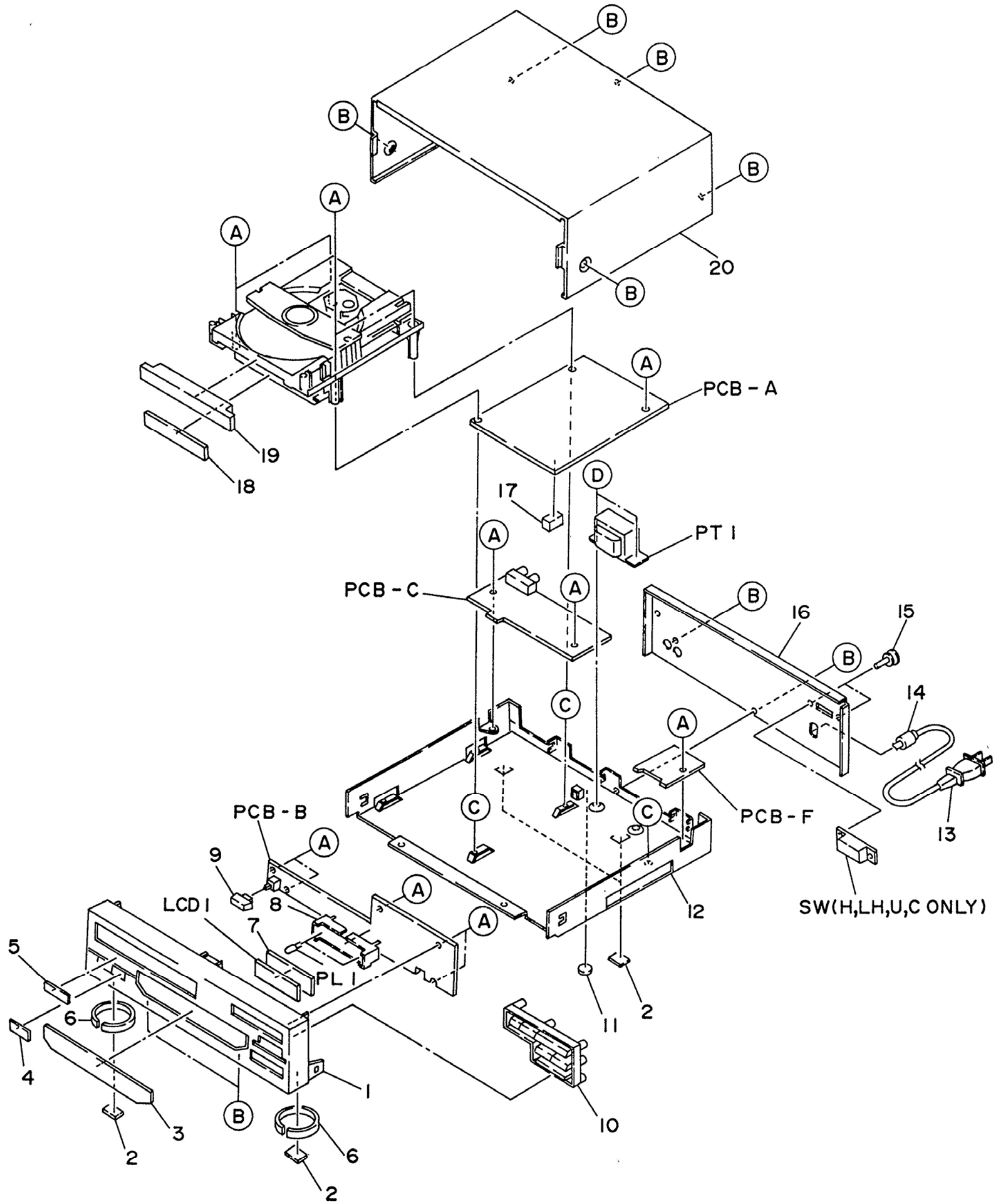
IC,TMP47C820F – 3665

Pin No.	Pin Name	I/O	Description
1	SEG28	O	} LCD driver segment output.
3	SEG29		
4	SEG31		
5	COM1	O	} LCD driver common output.
7	COM4		
8	COM5	O	Not used.
9	N. C	-	Not connected.
10	VLC	-	LCD driver GND.
11	P10	O	Not used.
12	P11	O	} KEY matrix output.
13	P12		
14	P13		
15	VSS	-	Connected to GND.
16	P20	O	} KEY matrix output.
17	P21		
19	P23		
20	TEST	-	Not used. (GND)
21	X IN	I	4.19 MHz clock input.
22	X OUT	O	4.19 MHz clock output.
23	RESET	I	Reset input. ("L" when reset.)
24	HOLD	I	Hold input. ("L" when hold.)
25	KO 0	I	} KEY matrix input.
26	KO 1		
28	KO 3		
29	RX IN	I	Remote control signal input. ("H" when no signal.)
30	R81	I/O	Not used.
31	R82		
32	MUTE	O	Audio muting output. ("H" when muting.)
33	VDD	-	Power supply terminal.
34	R90	I/O	Not used.
36	R92		
37	BUS 0	I/O	CD command data send/receive.
40	BUS 3		
41	DA/CO	I/O	CD command data processing control terminal.
42	BUCK	O	CD command data clock output.
43	P \overline{U} -IN	I	Pickup IN SW detection.
44	D \overline{O} OR	I	CD TRAY IN SW detection.
45	C \overline{D}	I	Not used. (GND)

Pin No.	Pin Name	I/O	Description
46	\overline{TU}	I	Not used. (PU-R)
47	$\overline{CD\ RESET}$	I	CD board reset detection.
48	REC	I	Not used. (GND)
49	SYNC	I	Not used. (PU-R)
50	TU-CE	I	Not used. (PU-R)
51	RX P-CONT	I	Not used. (GND)
52	R73	I/O	Not used.
53 } 63	SEG 0 } SEG 10	O	} Not used.
64 } 75	SEG 11 } SEG 22	O	} LCD driver segment output.
76 } 77	SEG 23 } SEG 24	O	Not used.
78 } 80	SEG 25 } SEG 27	O	} LCD driver segment output.

EXPLODED VIEW - 1

REF. NO.	PART NO.	DESCRIPTION
A	87-067-703-019	BVT2+3-10 W/O SLOT
B	87-743-095-419	SCREW UT2+3-8 W/O SLOT (B)
C	87-067-123-019	W, PVC3.2-8-0.5
D	87-067-748-019	BVFT2+3-6 W/O SLOT

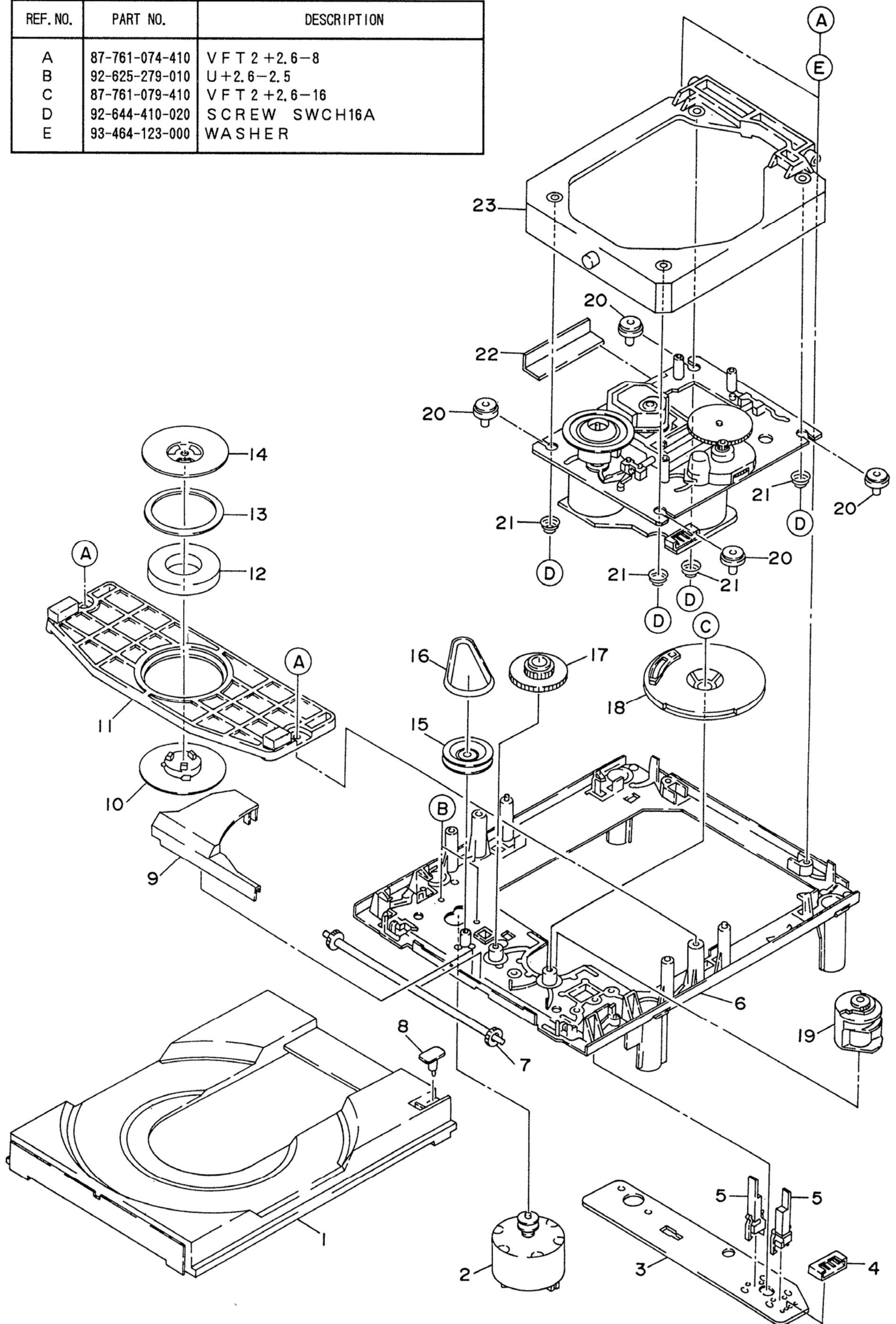


MECHANICAL PARTS LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q' TY
	1-1	★81-MDC-001-019	CABINET, FRONT (EXCEPT U)	※	1
	1-1	★81-MDC-003-019	CABINET, FRONT (U)	※	1
	1-2	★81-MDC-207-019	SHEET, FOOT	※	4
	1-3	★81-MDC-016-019	WINDOW, DISPLAY	※	1
	1-4	★81-MDC-015-019	WINDOW, REMOTE	※	1
	1-5	★84-764-009-119	BADGE, AIWA		1
	1-6	★81-CXC-040-019	LABEL, FOOT		2
	1-7	★81-MDC-203-019	LENS, LCD	※	1
	1-8	★81-MDC-204-019	HOLDER, LCD	※	1
	1-9	★81-MDC-012-019	BUTTON, POWER	※	1
	1-10	★81-MDC-013-019	KEY, CONT	※	1
	1-11	★81-MDC-210-019	CUSHION, G DIA14-14	※	1
	1-12	---	CHASSIS, MAIN		1
	1-13	★87-034-749-019	CORD, AC (H, LH)		1
	1-13	★87-034-583-019	CORD, AC (U, C)		1
	1-13	★87-034-781-019	CORD, AC (E, Z)		1
	1-13	★82-187-796-019	CORD, AC (K)		1
	1-14	★87-085-184-010	BUSHING, AC CORD (H, LH, U, C)		1
	1-14	★87-085-185-010	BUSHING, AC CORD (E, K, Z)		1
	1-15	★87-084-078-010	RIVET, NYLON 3-4.5 (H, LH, U, C)		2
	1-16	★81-MDB-021-019	PANEL, REAR (NR3 H)	※	1
	1-16	★81-MDB-025-019	PANEL, REAR (NR3 C)	※	1
	1-16	★81-MDB-023-019	PANEL, REAR (NR3 E)	※	1
	1-16	★81-MDB-022-019	PANEL, REAR (NR3 K)	※	1
	1-16	★81-MDB-024-019	PANEL, REAR (NR3 Z)	※	1
	1-16	★81-MDC-004-019	PANEL, REAR (N3 H)	※	1
	1-16	★81-MDC-009-019	PANEL, REAR (N3 LH)	※	1
	1-16	★81-MDC-005-019	PANEL, REAR (N3, U)	※	1
	1-16	★81-MDC-010-019	PANEL, REAR (N3, C)	※	1
	1-16	★81-MDC-006-019	PANEL, REAR (N3 E)	※	1
	1-16	★81-MDC-008-019	PANEL, REAR (N3 K)	※	1
	1-17	★81-MDC-206-019	CUSHION, G 5-10-7	※	1
	1-18	★81-MDC-209-019	PLATE, COVER	※	1
	1-19	★81-MDB-031-019	PANEL, TRAY (NR3)	※	1
	1-19	★81-MDC-017-019	PANEL, TRAY (N3)	※	1
	1-20	★81-MDC-002-019	CABINET, STEEL	※	1

EXPLODED VIEW - 2

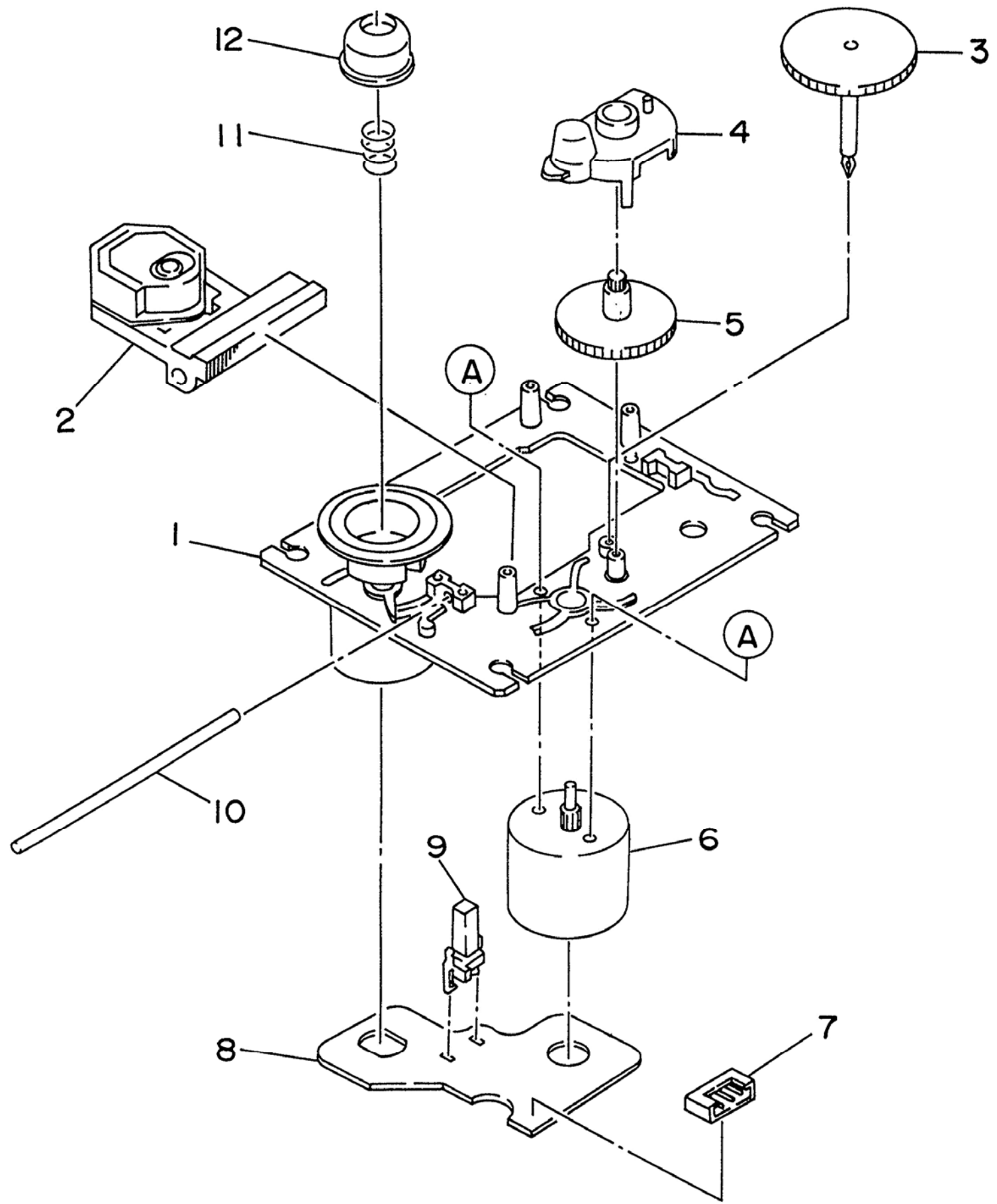
REF. NO.	PART NO.	DESCRIPTION
A	87-761-074-410	VFT 2 +2.6-8
B	92-625-279-010	U+2.6-2.5
C	87-761-079-410	VFT 2 +2.6-16
D	92-644-410-020	SCREW SWCH16A
E	93-464-123-000	WASHER



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q' TY
	2-1	★92-625-288-010	TRAY		1
	2-2	★9X-262-511-710	LOADING MOTOR ASSY		1
	2-3	---	PWB, LOADING		1
	2-4	★91-564-721-110	CONNECTOR 5P		1
	2-5	91-572-086-110	SWITCH, LEAF		2
	2-6	★92-625-290-010	CHASSIS, MAIN		1
	2-7	★92-625-275-030	GEAR, TRAY		1
	2-8	---	SW PIN		1
	2-9	★92-625-282-020	COVER, GEAR		1
	2-10	★92-625-286-030	PULLEY, CHUCKING		1
	2-11	★92-625-284-010	PLATE, CHUCKING		1
	2-12	★91-452-493-210	MAGNET		1
	2-13	★92-625-541-010	DAMPER		1
	2-14	★92-625-277-010	YOKE, CHUCK		1
	2-15	★92-625-276-010	PULLEY, LOADING		1
	2-16	★93-653-387-000	BELT, LM		1
	2-17	★92-625-274-010	GEAR, MIDDLE		1
	2-18	★92-625-285-030	GEAR, DRIVE		1
	2-19	★92-625-283-020	CAM, CONTROL		1
	2-20	★92-625-278-010	INSULATOR		4
	2-21	★92-625-280-010	SPRING		4
	2-22	---	PLATE, PUSH		1
	2-23	★9X-262-511-610	SUB CHASSIS ASSY W/INSU SHAFT		1

EXPLODED VIEW - 3

REF. NO.	PART NO.	DESCRIPTION
A	87-261-032-210	V+2-3



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q' TY
	3-1	★9X-262-513-310	T.T CHASSIS ASSY W/MOTOR		1
	3-2	98-848-127-110	PICK UP KSS-210A		1
	3-3	★92-625-188-020	GEAR, A		1
	3-4	★92-625-544-010	COVER		1
	3-5	---	GEAR, B		1
	3-6	★9X-262-513-210	SLED MOTOR ASSY		1
	3-7	★91-564-722-110	CONNECTOR 6P		1
	3-8	---	PWB, MOTOR		1
	3-9	91-572-085-110	SWITCH, LEAF LIMIT		1
	3-10	★94-917-565-010	SHAFT, SLED		1
	3-11	★92-625-191-010	SPRING, COMPRESSION		1
	3-12	★92-625-187-010	RING, CENTER		1