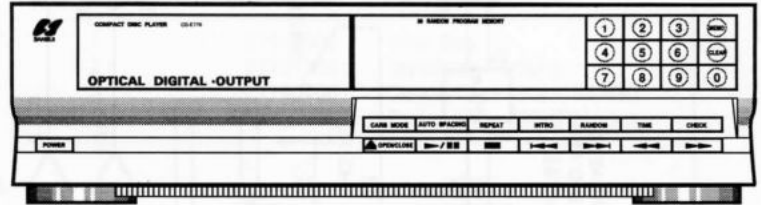




SERVICE MANUAL

CD-E770 COMPACT DISC PLAYER

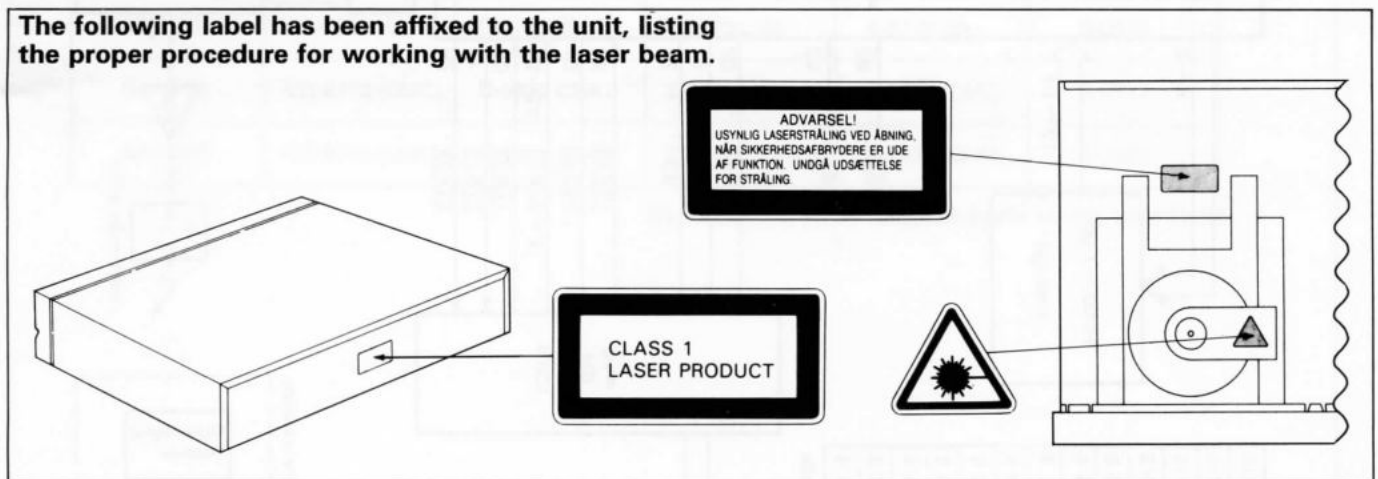


CAUTION

1. Parts identified by the \triangle symbol on the schematic diagram and the parts list are critical for safety.
Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

•Cautions Concerning Handling of the Laser

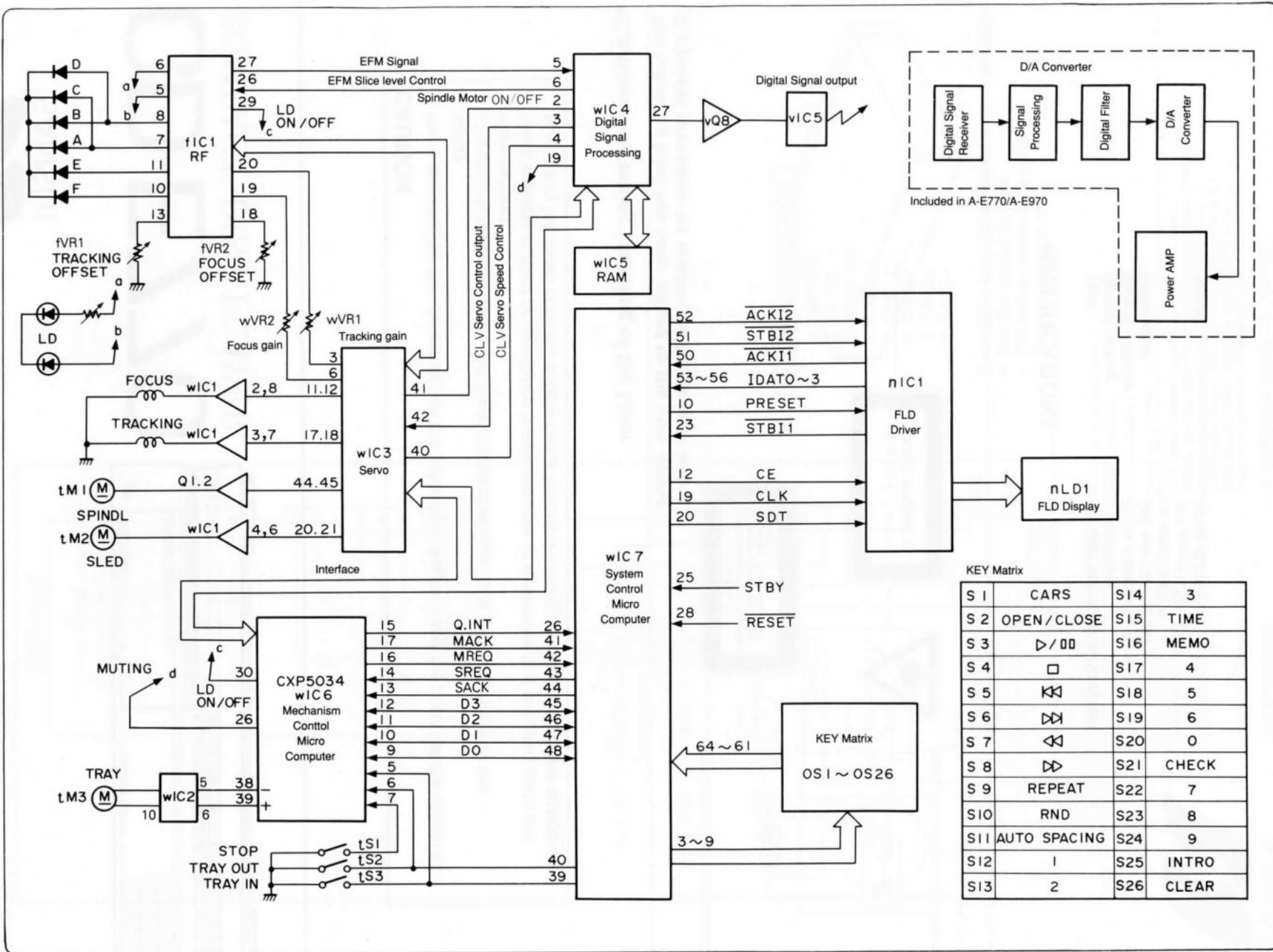
The following label has been affixed to the unit, listing the proper procedure for working with the laser beam.



•SPECIFICATIONS

Type	Compact disc digital audio system
Optical pick-up	3-beam laser
Wow and Flutter	Below measurable limits
Dimensions	360 mm (14-3/16") W
	94 mm (3-3/4") H
	301 mm (11-7/8") D
Weight	3.0 kg (6.6 lbs) net

1. BLOCK DIAGRAM



2. INTERIOR BLOCK DIAGRAM & TERMINAL FUNCTION OF IC

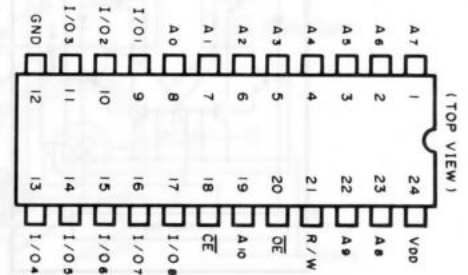
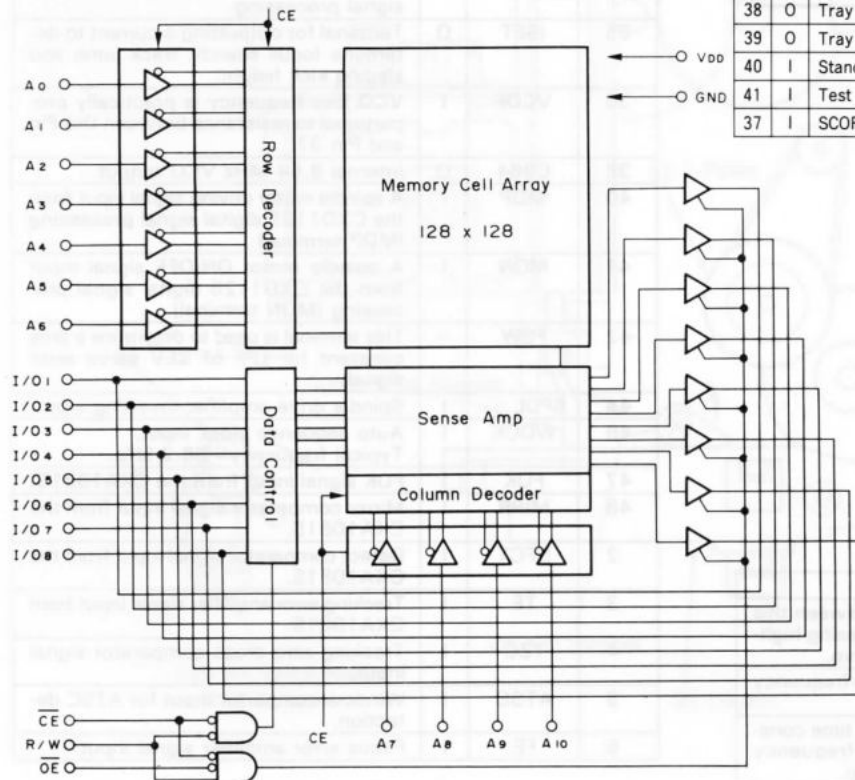
• CXP5014 <Display Control>

Pin No.	Pin Name	I/O	Function	ACTIV	
				H	L
1	SI	I	Indication data from system control	○	
2~5	PD0~PD3	I	GND		
6	PC0	I	Timer play switch, SW4		○
7~9	PC1~PC3	I	GND		
10	PF0	I	Changing switch for indication duty, SW0		
11	PF1	I	Changing switch for indication duty, SW1		
12	PF2	I	FL display check mode switch, SW2		
13	PF3	I	FL display check mode switch, SW3		
14~17	PF0~PF3	I/O	Data bus between CXP5014 & system control	○	
18	PB0	O	Ready to received from system control		○
19	PB1	I	Transmit strobe from system control		○
20	PB2		Ready to send from system control		○
21	PB3		Transmit strobe to system control		○
22	PA0	O	SSB Output terminal		○
23	PA1	I	SSB Input terminal		
26			VDD		
27			GND		
28~43	S0~S15	O	Segment for FL Display	○	
44~51	T7~T0	O	Grid	○	
52	VFPP	I	-26V		
53	INT1	I	Pull down		
55	EXTAL	I	4.2336 MHz	○	
56	RST	I			○
58	VDD	I	+5.0V		
60	PY2	I	Indication enable		○
62	SC	I	Indication clock from system control	○	

• CXP5043 <Mechanism Control Micro Computer Function>

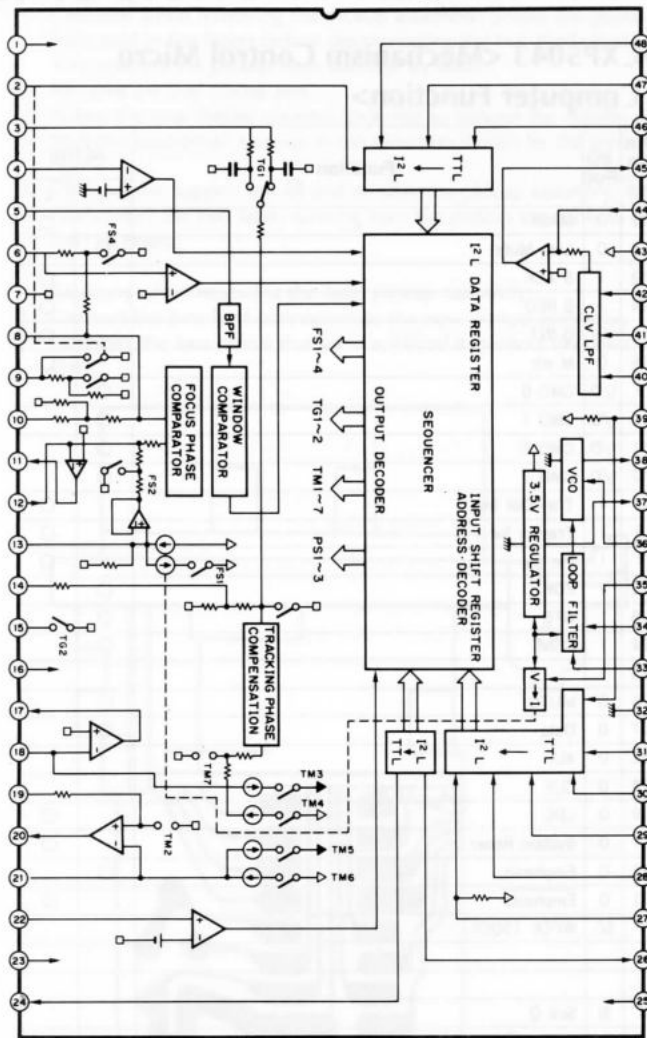
Pin No.	I/O Port	Function	ACTIVE	
			H	L
17	O	MACK		○
19	O	Line Mute	○	
13	I	S ACK		○
14	I	S REQ		○
15	O	Q INT		○
16	O	M stb		○
9	I/O	CMD 0	○	
10	I/O	CMD 1	○	
11	I/O	CMD 2	○	
12	I/O	CMD 3	○	
5	I	Tray Out Sw		○
6	I	Tray In Sw		○
7	I	Pic Sw		○
22	I	FOK	○	
23	I	GFS	○	
24	I	SENS	○	
25	I			
26	O	MUTG	○	
27	O	Data	○	
28	O	XLT		
29	O	CLK		
30	O	LDC		○
31	O	System Reset		○
32	O	Emphasis	○	
33	O	Emphasis		○
1	SC	WFCK (SQCK)		
2				
3				
4	SI	Sub Q		
38	O	Tray M ⁺	○	
39	O	Tray M ⁻	○	
40	I	Stand By		
41	I	Test	Nor.	Test
37	I	SCOR	○	

• MB8416-20/TC5517AP-2/μPD446C-2/ UM6116-2/CXK-5816 <RAM>

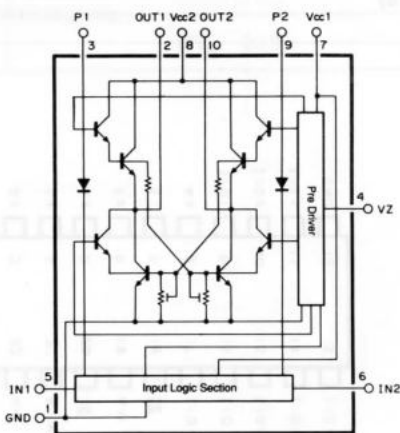


Pin Name	
A0 ~ A10	Address input
R/W	Read/Write input
OE	Output Enable Input
CE	Chip Enable Input
I/O1 ~ I/O8	Data Input/Output
Vdd/GND	Power Terminal

•CXA-1082 <Focus & Tracking Servo>



•LB1641 <Motor Driver>



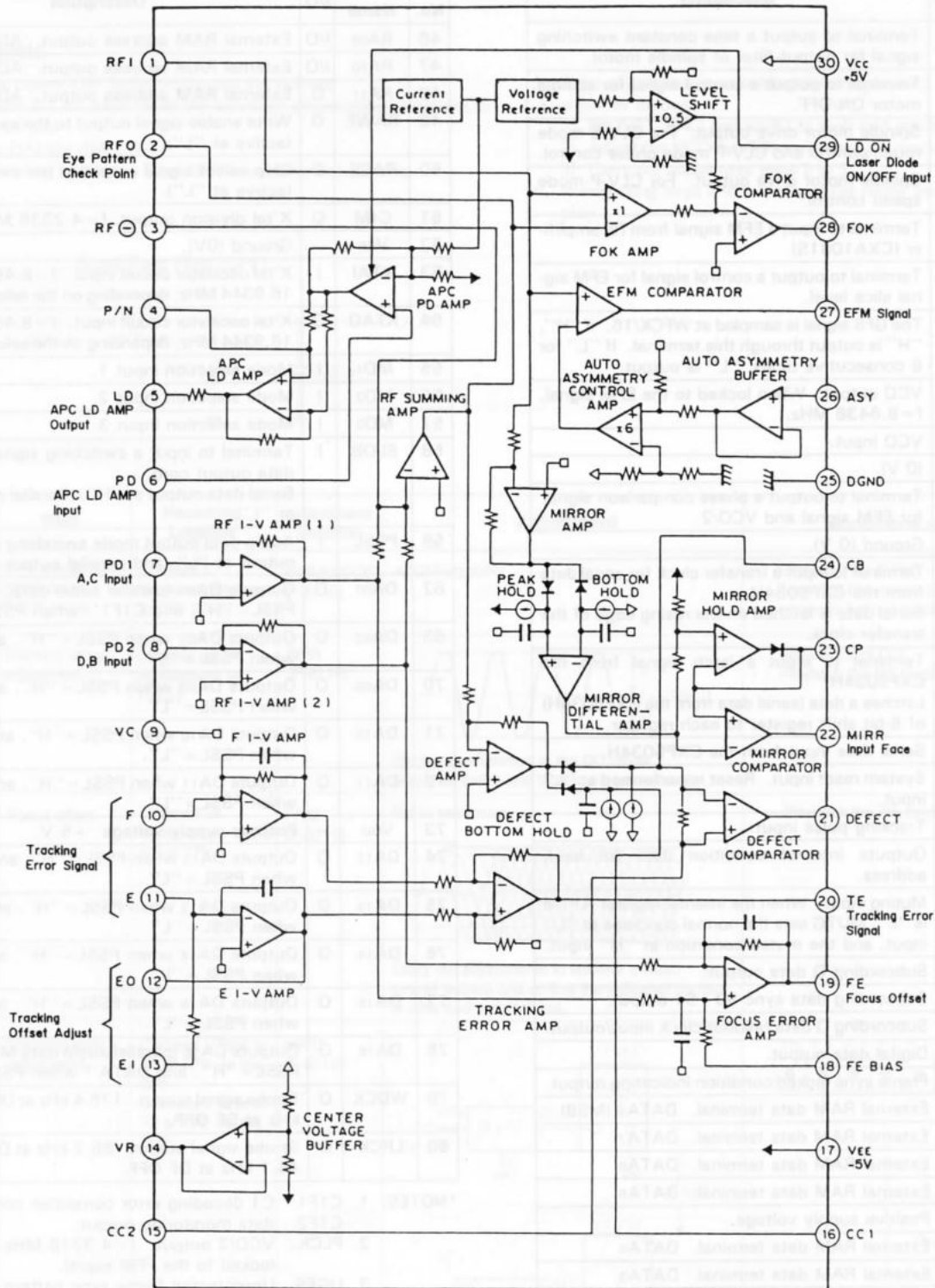
•Function <CXA-1082>

Pin No.	Pin Name	I/O	Description
8	FGD	I	A capacitor is connected between this Pin and F3 (Pin 9) for decreasing high-frequency gain of focus servo.
9	FS3	O	Terminal for switching high-frequency gain of focus servo.
10	FLB	-	This Pin is used to connect a time constant for increasing low-frequency characteristic of focus servo.

<CXA-1082>

Pin No.	Pin Name	I/O	Description
11	FEO	O	Terminal for outputting a signal for driving focus coil.
17	TAO	O	Terminal for outputting a signal for driving tracking coil.
20	SLD	O	Terminal for outputting a drive signal for sled motor.
45	SPDLO	O	Terminal for outputting a drive signal for spindle (disc) motor.
12	FE (-)	I	Focus amplifier inverting input.
13	SRCH	I	This terminal is used to determine time constant for generating focus search waveform.
14, 15	TGU TG2	-	Terminals are used to determine a time constant for switching tracking high-frequency gain.
18	TA (-)	I	Tracking amplifier inverting input.
19	SL (+)	I	Sled (Feed) amplifier non-inverting input.
21	SL (-)	I	Sled amplifier inverting input.
22	SSTOP	I	Terminal for inputting a signal from limit switch ON/OFF for detecting innermost track of disc.
23	FSET	I	Terminal for setting focus and tracking phase-compensation peaks and fo of CLV LPF.
24	SENS	O	Terminal for outputting internal condition data.
26	C.OUT	O	Terminal for outputting a signal for counting track number of disc.
27	DIRC	-	This terminal is used for one-track jump operation.
28	XRST	-	Terminal for inputting a reset signal. Reset operation in "L" level.
29	DATA	I	Serial data input from the CXP5034H mechanism control.
30	XLT	I	Terminal for inputting a latch signal for serial data from the CXP5034H mechanism control.
31	CLK	I	Serial data clock input the CXP5034H mechanism control.
32	DGND	-	Ground.
34	PDI	I	PDO signal input from the phase-comparator of the CXD1125Q digital signal processing.
35	ISET	O	Terminal for outputting a current to determine focus search, track jump and sledding kick height.
36	VCOF	I	VCO free-frequency is practically proportional to resistance between this Pin and Pin 37.
38	C864	O	Internal 8.64 MHz VCO output.
40	MDP	I	A spindle motor driving signal input from the CXD1125 digital signal processing (MDP terminal).
41	MON	I	A spindle motor ON/OFF signal input from the CXD1125 digital signal processing (MON terminal).
42	FSW	-	This terminal is used to determine a time constant for LPF of CLV servo error signal.
44	SPDL (-)	I	Spindle drive amplifier inverting input.
46	WDCK	I	Auto sequence clock input. Typical frequency = 88.2 kHz.
47	FOK	I	FOK signal input from the CXA1081S.
48	MIRR	I	Mirror comparator signal input from the CXA1081S.
2	DFCT	I	Defect comparator signal input from the CXA1081S.
3	TE	I	Tracking error amplifier signal input from CXA1081S.
4	TZC	I	Tracking zero cross comparator signal input.
5	ATSC	I	Window comparator input for ATSC detection.
6	FE	I	Focus error amplifier signal input.

•CXA-1081S <RF AMP>



<Functions of Main Terminals>

LDON: This signal is output from pin 30 of the mechanism control processor CXP5034. CXP5034 outputs an "L" signal when, for example, the tray is closed. When the level of the LDON terminal (CXA1081S) is "L", a control voltage is output from pin 5 (LD) to operate the APC amplifier (including Q1).

FOK: The timing signal for turning the focus servo ON is output from the servo control IC (CXA1082AS). When the RF signal is input to the RF terminal (pins 1 and 2), and the RF is a certain value, the level changes to "H". This "H" signal is used as timing for switching ON the focus servo.

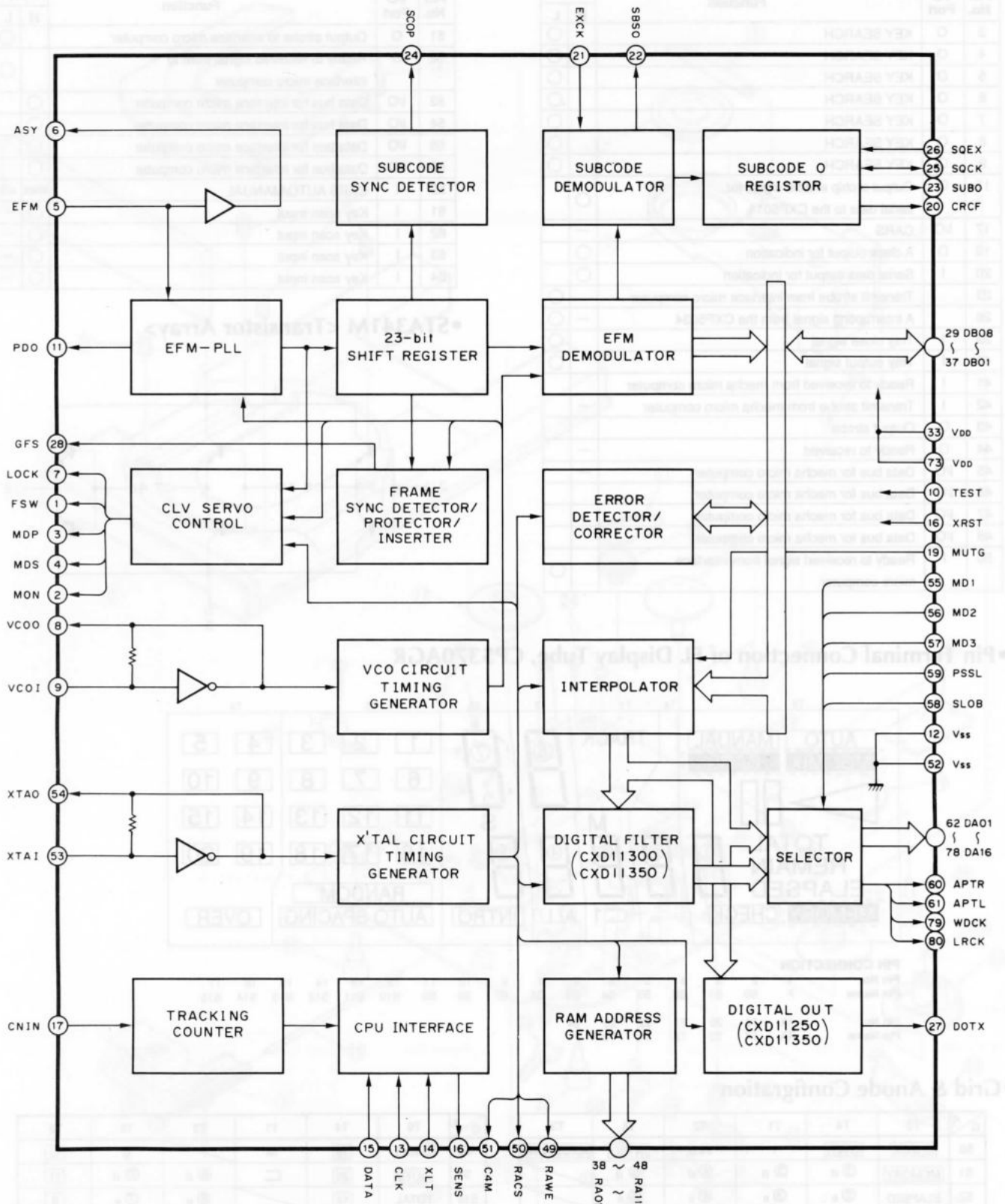
•CXD1125Q <Digital Signal Processing>

Pin No.	Pin Name	I/O	Description
1	FSW	O	Terminal to output a time constant switching signal for output-filter of spindle motor.
2	MON	O	Terminal to output a control signal for spindle motor ON/OFF.
3	MDP	O	Spindle motor drive output. For CLV-S mode rough control and CLV-P mode phase control.
4	MDS	O	Spindle motor drive output. For CLV-P mode speed control.
5	EFM	I	Terminal to input a EFM signal from RF amplifier (CXA1081S).
6	ASY	O	Terminal to output a control signal for EFM signal slice level.
7	LOCK	O	The GFS signal is sampled at WFCK/16: if "H", "H" is output through this terminal. If "L" for 8 consecutive times, "L" is output.
8	VCOO	O	VCO output. When locked to the EFM signal, $f = 8.6436$ MHz.
9	VCOI	I	VCO input.
10	TEST	I	(0 V).
11	PDO	O	Terminal to output a phase comparison signal for EFM signal and VCO/2.
12	VST	—	Ground (0 V)
13	CLK	I	Terminal to input a transfer clock for serial data from the CXP5034H. Serial data is latched on the rising edge of the transfer clock.
14	XLT	I	Terminal to input a latch signal from the CXP5034H. Latches a data (serial data from the CXP5034H) of 8-bit shift register to each register.
15	DATA	I	Serial data input from the CXP5034H.
16	XRST	I	System reset input. Reset is performed at "L" input.
17	CNIN	I	Tracking pulse input.
18	SENS	O	Outputs internal condition data for each address.
19	MUTG	I	Muting input. When the internal register ATTM is "L", MUTG sets the normal condition at "L" input, and the muted condition at "H" input.
23	SUBQ	O	Subcoding Q data output.
24	SCOP	O	Subcoding data sync S0 + S1 output.
25	SQCK	I/O	Subcoding Q data readout clock input/output.
27	DOTX	I	Digital data output.
28	GFS	O	Frame sync locked condition indicating output.
29	DB08	I/O	External RAM data terminal. DATA8 (MSB)
30	DB07	I/O	External RAM data terminal. DATA7
31	DB06	I/O	External RAM data terminal. DATA6
32	DB05	I/O	External RAM data terminal. DATA5
33	VDD	—	Positive supply voltage.
34	DB04	I/O	External RAM data terminal. DATA4
35	DB03	I/O	External RAM data terminal. DATA3
36	DB02	I/O	External RAM data terminal. DATA2
37	DB01	I/O	External RAM data terminal. DATA1 (LSB)
38	RA01	I/O	External RAM address output. ADDR01 (LSB)
39	RA02	I/O	External RAM address output. ADDR02
40	RA03	I/O	External RAM address output. ADDR03
41	RA04	I/O	External RAM address output. ADDR04
42	RA05	I/O	External RAM address output. ADDR05
43	RA06	I/O	External RAM address output. ADDR06
44	RA07	I/O	External RAM address output. ADDR07
45	RA08	I/O	External RAM address output. ADDR08

Pin No.	Pin Name	I/O	Description
46	RA09	I/O	External RAM address output. ADDR09
47	RA10	I/O	External RAM address output. ADDR10
48	RA11	O	External RAM address output. ADDR11
49	RAWE	O	Write enable signal output to the external RAM (active at "L").
50	RACS	O	Chip select signal output to the external RAM (active at "L").
51	C4M	O	X'tal division output. $f = 4.2336$ MHz.
52	VSS	—	Ground (0V).
53	XTAI	I	X'tal oscillator circuit input. $f = 8.4672$ MHz or 16.9344 MHz, depending on the selected mode.
54	XTAO	O	X'tal oscillator circuit input. $f = 8.4672$ MHz or 16.9344 MHz, depending on the selected mode.
55	MD1	I	Mode selection input 1.
56	MD2	I	Mode selection input 2.
57	MD3	I	Mode selection input 3.
58	SLOB	I	Terminal to input a switching signal for audio data output cord. Serial data output at "H". Parallel data output at "L".
59	PSSL	I	Audio data output mode switching input serial output at "L", and parallel output at "H".
62	DA01	O	Outputs DA01 (parallel audio data, LSB) when PSSL = "H", and C1F1 ¹ when PSSL = "L".
63	DA02	O	Outputs DA02 when PSSL = "H", and C1F2 ¹ when PSSL = "L".
70	DA09	O	Outputs DA09 when PSSL = "H", and PLCK ² when PSSL = "L".
71	DA10	O	Outputs DA10 when PSSL = "H", and UGFS ³ when PSSL = "L".
72	DA11	O	Outputs DA11 when PSSL = "H", and GTOP ⁴ when PSSL = "L".
73	VDD	—	Positive supply voltage: +5 V.
74	DA12	O	Outputs DA12 when PSSL = "H", and RAOV ⁵ when PSSL = "L".
75	DA13	O	Outputs DA13 when PSSL = "H", and C4LR ⁶ when PSSL = "L".
76	DA14	O	Outputs DA14 when PSSL = "H", and C21O ⁷ when PSSL = "L".
77	DA15	O	Outputs DA15 when PSSL = "H", and C21O ⁸ when PSSL = "L".
78	DA16	O	Outputs DA16 (parallel audio data MSB: when PSSL = "H", and DATA ⁹ when PSSL = "L".
79	WDCK	O	Strobe signal output. 176.4 kHz at DF ON, 88.2 kHz at DF OFF.
80	LRCK	O	Strobe signal output. 88.2 kHz at DF ON, and 44.1 kHz at DF OFF.

- *NOTES: 1. C1F1: C1 decoding error correction condition
C1F2: data monitoring output.
2. PLCK: VCO/2 output. $f = 4.3218$ MHz when locked to the FFM signal.
3. UGFS: Unprotected frame sync pattern output.
4. GTOP: Frame synchronization protected condition indication output.
5. RAOV: ± 4 -frame jitter absorbing RAM overflow/under flow indicating output.
6. C4LR: Strobe signal. 352.8 kHz at DF ON, 176.4 kHz at DF OFF.
7. C21O: C210 inverting output.
8. C210: Bit clock output 4.2336 MHz at DF ON, 2.1168 MHz at DF OFF.
9. DATA: Audio signal serial data output.

<CXD1125Q>

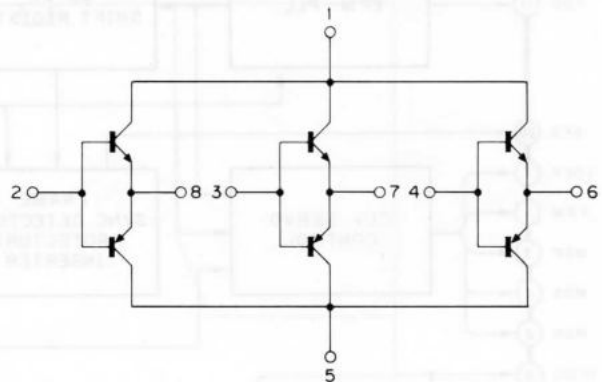


•Function of System Control Micro Computer, M50747

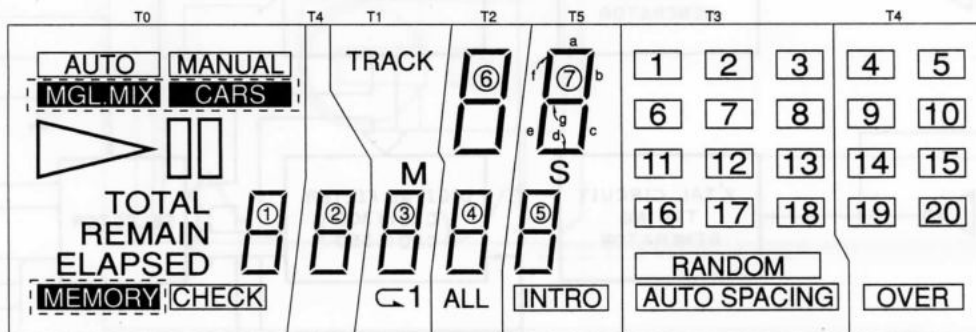
Pin No.	I/O Port	Function	ACTIV	
			H	L
3	O	KEY SEARCH		○
4	O	KEY SEARCH		○
5	O	KEY SEARCH		○
6	O	KEY SEARCH		○
7	O	KEY SEARCH		○
8	O	KEY SEARCH		○
9	O	KEY SEARCH		○
12	O	Output a chip enable signal for serial data to the CXP5014	○	
17	I/O	CARS	—	
19	O	A clock output for indication	○	
20	I	Serial data output for indication	○	
23		Transmit strobe from interface micro computer		○
26		A interrupting signal from the CXP5034	—	○
39	I	Tray close signal		○
40	I	Tray output signal		○
41	I	Ready to received from mecha micro computer		
42	I	Transmit strobe from mecha micro computer	—	
43	O	Output strobe		
44	O	Ready to received	—	
45	I/O	Data bus for mecha micro computer	—	
46	I/O	Data bus for mecha micro computer	—	
47	I/O	Data bus for mecha micro computer	—	
48	I/O	Data bus for mecha micro computer	—	
50	I	Ready to received signal from interface micro computer		○

Pin No.	I/O Port	Function	ACTIV	
			H	L
51	O	Output strobe to interface micro computer		○
52	O	Ready to received signal from to interface micro computer		○
53	I/O	Data bus for interface micro computer	○	
54	I/O	Data bus for interface micro computer	○	
55	I/O	Data bus for interface micro computer	○	
56	I/O	Data bus for interface micro computer	○	
59	I	CARS AUTO/MANUAL	MANUAL	AUTO
61	I	Key scan input	○	—
62	I	Key scan input	○	—
63	I	Key scan input	○	—
64	I	Key scan input	○	—

•STA341M <Transistor Array>



•Pin Terminal Connection of FL Display Tube, CP5370AGR



PIN CONNECTION

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Pin Name	F	S0	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15
Pin No.	18	19	20	21	22	23	24										
Pin Name	T5	T4	T3	T2	T1	T0	F										

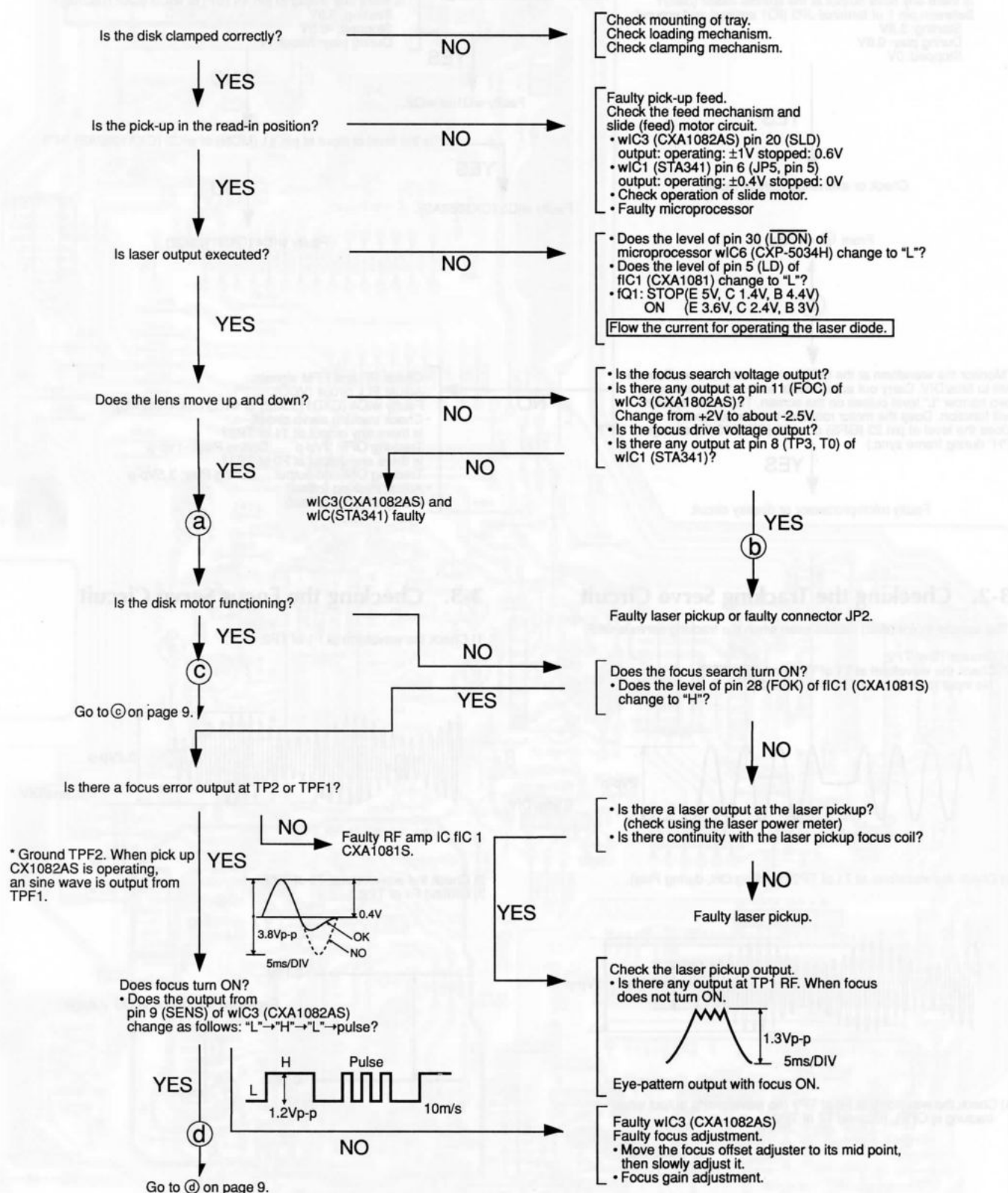
•Grid & Anode Configuration

G/A	T0	T4	T1	T2	T5	T3
S0	CHECK	OVER	1	ALL	INTRO	AUTO SPACING
S1	MEMORY	② d	③ d	④ d	⑤ d	
S2	ELAPSED	② e	③ e	④ e	⑤ e	
S3	① d	② c	③ c	④ c	⑤ c	RANDOM
S4	① c	② g	③ g	④ g	⑤ g	18
S5	① g	② f	③ f	④ f	⑤ f	17
S6	REMAIN	② b	③ b	④ b	⑤ b	16
S7	① b	② a	③ a	④ a	⑤ a	13

G/A	T0	T4	T1	T2	T5	T3
S8	① a,e,f	19	M		S	12
S9	AUTO	20	C	⑥ d	⑦ d	11
S10	TOTAL	14		⑥ e	⑦ e	8
S11	▶	15		⑥ c	⑦ c	7
S12	MGL MIX	9		⑥ g	⑦ g	6
S13	□	10		⑥ f	⑦ f	3
S14	CARS	4	TRACK	⑥ b	⑦ b	2
S15	MANUAL	5		⑥ a	⑦ a	1

3. TROUBLESHOOTING

3-1. Disk Loaded, but No Track Count or Performance Time Displayed (Cannot Read T.O.C.)



From ④ on page 8.



Is there any drive output at the spindle motor (disc)?
Between pin 1 of terminal JP3 (fQ1 emitter) and ground:
Starting: 2.8V
During play: 0.8V
Stopped: 0V

YES

Check or exchange spindle motor.

NO

Is there any output at pin 45 (SP) of wIC3 (CXA1082AS)?
Starting: 3.5V
Stopped: -0.5V
During play: About 1V

YES

Faulty wQ1 or wQ2.

NO

Is the level of input at pin 41 (MON) of wIC3 (CXA1082AS) "H"?

YES

Faulty wIC3 (CXA1082AS).

NO

Faulty wIC4 (CXD1125Q2).

From ④ on page 8.



*Monitor the waveform at the GFS terminal with the oscilloscope set to 5ms/DIV. Carry out adjustments so that there are one or two narrow "L" level pulses on the screen. The servo system will function. Does the motor rotate at the correct speed? Does the level at pin 23 (GFS) of wIC6 (CXP5034H) change to "H" ("H" during frame sync.)

YES

Faulty microprocessor or display circuit.

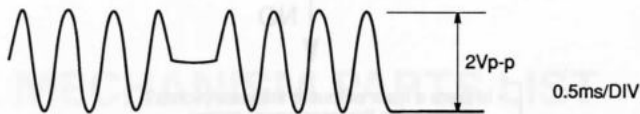
NO

- Check RF and EFM signals. Adjust PLL circuit (VCO). Faulty wIC4 (CXD1125Q2) or wIC3 (CXA1082AS).
- Check tracking servo circuit. Is there any output at T1 of TP2? Tracking OFF: 2Vp-p During Play: -1Vp-p
- Is there any output at F0 of TP3? Tracking OFF: no output During Play: 3.5Vp-p
- Adjust tracking (offset)
- Readjust focus (offset)

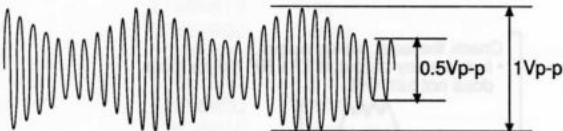
3-2. Checking the Tracking Servo Circuit

The spindle motor (disc) rotates even when the tracking servo is OFF.

- 1) Ground T2 of TP2.
- 2) Check the waveform at T1 of TP2 (tracking OFF). No input to pin 3 of wIC3 (CXA1082AS).



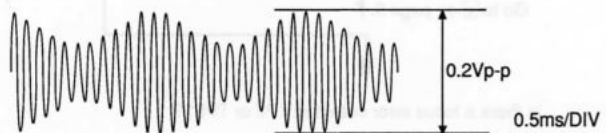
- 3) Check the waveform at T1 of TP2 (tracking ON, during Play).



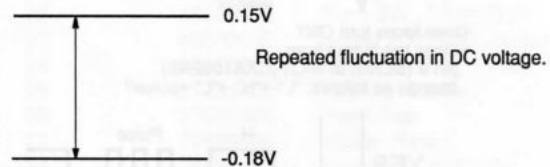
- 4) Check the waveform at F0 of TP3 (no waveform is output when tracking is OFF). (Ground T2 of TP2.)

3-3. Checking the Focus Servo Circuit

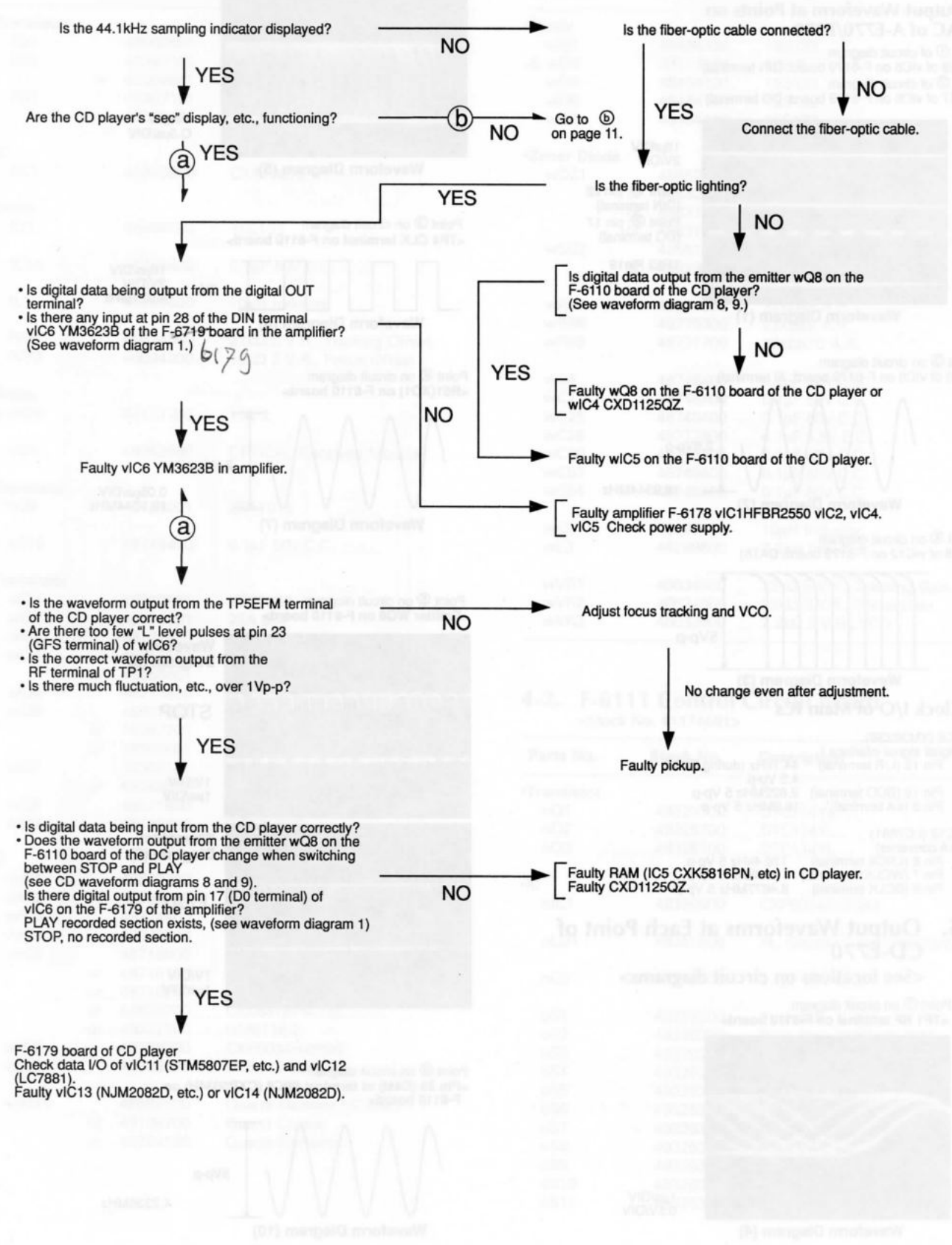
- 1) Check the waveform at F1 of TP2.



- 2) Check the waveform at T0 of TP3.
- 3) Ground F1 of TP2.



*** Checking the DAC Unit of the Amplifier (A-E770/E970)**
3-4. No Sound Even When CD Player's PLAY Key is Pressed
<Sound output from other than digital source (CD)>



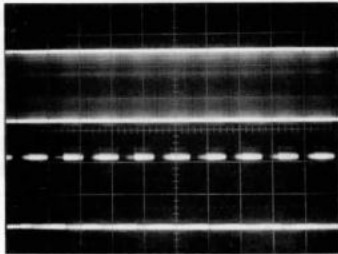
From ⑥ on page 10. ← **(b)**
↓

Check the CD player servo system.

• **Output Waveform at Points on DAC of A-E770/E970**

Point ① of circuit diagram
(Pin 28 of vIC6 on F-6179 board: DIN terminal)

Point ② of circuit diagram
(Pin 17 of vIC6 on F-6179 board: DO terminal)



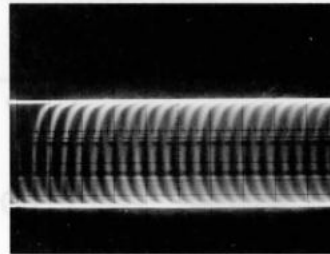
Waveform Diagram (1)

10µs/DIV
2V/DIV

Point ①: pin 28
(DIN terminal)
Point ②: pin 17
(DO terminal)

TRIG Pin19

Point ② on circuit diagram
<TP5 EFM terminal on F-6110 board>



Waveform Diagram (5)

1V/DIV
0.5µs/DIV

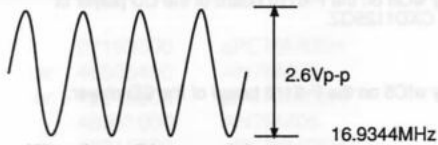
Point ③ on circuit diagram
<TP4 CLK terminal on F-6110 board>



Waveform Diagram (6)

5V
10µs/DIV
2V/DIV
4.321MHz

Point ③ on circuit diagram
(pin 6 of vIC6 on F-6179 board: XI terminal)

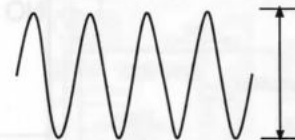


Waveform Diagram (2)

2.6Vp-p

16.9344MHz

Point ④ on circuit diagram
<R51(XO1) on F-6110 board>

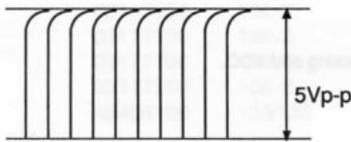


Waveform Diagram (7)

2.6Vp-p

0.05µs/DIV
16.9344MHz

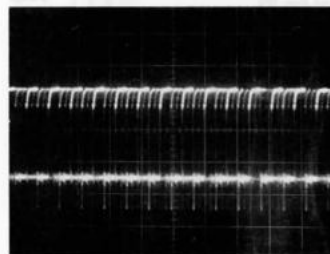
Point ④ on circuit diagram
(pin 8 of vIC12 on F-6179 board: DATA)



Waveform Diagram (3)

5Vp-p

Point ⑤ on circuit diagram
<Emitter WQ8 on F-6110 board>



Waveform Diagram (8)

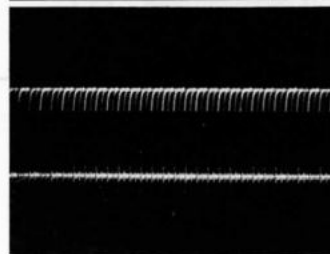
STOP

1V/DIV
1µs/DIV

• **Clock I/O of Main ICs**

1) vIC6 (YM3623B)
(Digital signal interface)
Pin 15 (L/R terminal) 44.1kHz (during PLAY)
4.5 Vp-p
Pin 12 (BCO terminal) 2.822MHz 5 Vp-p
Pin 8 (øA terminal) 16.9MHz 5 Vp-p

2) vIC12 (LC7881)
(D/A converter)
Pin 6 (LRCK terminal) 176.4kHz 5 Vp-p
Pin 7 (WCLK1 terminal) 176.4kHz 5 Vp-p
Pin 9 (BCLK terminal) 8.4677MHz 5 Vp-p



Waveform Diagram (9)

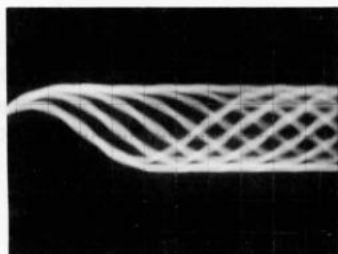
PLAY

1V/DIV
1µs/DIV

3-5. **Output Waveforms at Each Point of CD-E770**

<See locations on circuit diagrams>

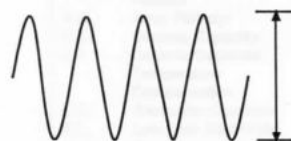
Point ① on circuit diagram.
<TP1 RF terminal on F-6110 board>



Waveform Diagram (4)

1µs/DIV
0.5V/DIV

Point ⑥ on circuit diagram
<Pin 35 (C4M) of terminal WIC6 (CXP5034H) on F-6110 board>



Waveform Diagram (10)

5Vp-p

4.2336MHz

4. PARTS LIST OF BOARD

4-1. F-6110 Main Board <Stock No.01174501>

Parts No.	Stock No.	Description
•Transistor		
fQ1	48000801	2SA 934
fQ2	46367101	2SC2603
	or 48058801	2SC1740S
fQ3	46367101	2SC2603
	or 48058801	2SC1740S
•IC		
fIC1	48839900	CXA1081S
•Diode		
fD1	46464100	1SS133
fC14	48748400	0.1 μ F 50V C.C.
fL1	48289400	10 μ H Inductor
fVR1	46634500	22k Ω S.V.R., Tracking Offset
fVR2	46634300	10k Ω S.V.R., Focus Offset
•Diode		
Δ mD6	03117700	10E-2
vIC5	49352600	OPTICAL Received Module
•Transistor		
vQ8	46188601	2SA1015
vC18	48748400	0.1 μ F 50V C.C.
•Transistor		
wQ1	48000901	2SC2060
wQ2	48000801	2SA 934
wQ3	48171600	DTC114YS
wQ4	46367101	2SC2603
	or 48058801	2SC1740S
wQ5	48217800	DTC114ES
wQ6	46367001	2SA1115
	or 46367201	2SA1048
	or 48058601	2SA 933S
wQ7	46367101	2SC2603
	or 48058801	2SC1740S
wQ8	48171600	DTC114YS
wQ9	48183400	DTA114YS
•IC		
wIC1	48667300	STA341M
wIC2	48982600	LB1641
wIC3	49324400	CXA1082BS
wIC4	48976700	CXD1125Q-Z
wIC5	48718000	TC5517AP-2
	or 48718100	μ PD446C-2
	or 48718200	MB8416-20
	or 48839700	CXK5816PN-12L
	or 49322700	UM6116-2
wIC6	49298000	CXP5034H-069S
wIC7	49399500	M50747-699SP
wXO1	48592500	Quartz Element HC-49/U
	or 49198700	Quartz Crystal
	or 49259100	Quartz Element

<F-6110>

Parts No.	Stock No.	Description
•Diode		
wD1	46464100	1SS133
Δ wD2	03117700	10E-2
wD5	46464100	1SS133
wD6	46464100	1SS133
wD7	46464100	1SS133
•Zener Diode		
wDZ1	48552300	MTZ5.6A
	or 48552400	MTZ5.6B
	or 48631100	RD5.6B1
	or 48631200	RD5.6B2
wDZ2	48551400	MTZ4.3A
	or 48629900	RD4.3B1
wR47	48774000	22k Ω x8 A.R.
wR56	48770300	22k Ω x6 A.R.
wR59	48777700	22k Ω x10 A.R.
wC4	48748400	0.1 μ F 50V C.C.
wC7	48748400	0.1 μ F 50V C.C.
wC25	48748400	0.1 μ F 50V C.C.
wC28	48717900	4.7 μ F 5.5V E.C.
wC30	48748400	0.1 μ F 50V C.C.
wC53	48748400	0.1 μ F 50V C.C.
wC54	48748400	0.1 μ F 50V C.C.
wL2	48289400	10 μ H Inductor
wL3	48288600	2.2 μ H Inductor
wVR1	46634500	22k Ω S.V.R., Tracking Gain
wVR2	46634500	22k Ω S.V.R., Focus Gain
wVR3	46633900	2.2k Ω S.V.R., VCO

4-2. F-6111 Control Circuit Board

<Stock No. 01174601>

Parts No.	Stock No.	Description
•Transistor		
nQ1	49325700	DTC114YL
nQ2	49325700	DTC114YL
nQ3	49325700	DTC114YL
•IC		
nIC1	49350900	CXP5014H-318Q
nLD1	49351500	FL. Display Tube CP5370AGR
nC3	48748400	0.1 μ F 50V C.C.
oS1	49326300	Push SW., CARS
oS2	49326300	Push SW., OPEN/CLOSE
oS3	49326300	Push SW., \triangleright / \square
oS4	49326300	Push SW., \square
oS5	49326300	Push SW., \lll
oS6	49326300	Push SW., \ggg
oS7	49326300	Push SW., \lll
oS8	49326300	Push SW., \ggg
oS9	49326300	Push SW., REPEAT
oS10	49326300	Push SW., RND
oS11	49326300	Push SW., AUTO SPACING

Parts List <F-6111>

Parts No.	Stock No.	Description
oS12	49326300	Push SW., 1
oS13	49326300	Push SW., 2
oS14	49326300	Push SW., 3
oS15	49326300	Push SW., TIME
oS16	49326300	Push SW., MEMO
oS17	49326300	Push SW., 4
oS18	49326300	Push SW., 5
oS19	49326300	Push SW., 6
oS20	49326300	Push SW., 0
oS21	49326300	Push SW., CHECK
oS22	49326300	Push SW., 7
oS23	49326300	Push SW., 8
oS24	49326300	Push SW., 9
oS25	49326300	Push SW., INTRO
oS26	49326300	Push SW., CLEAR

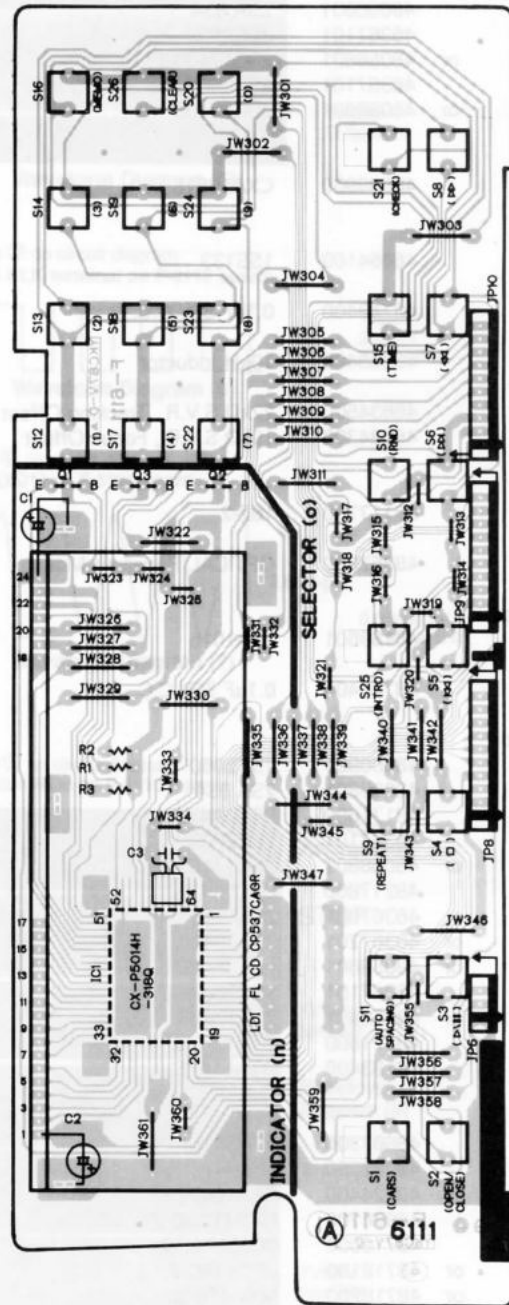
4-3. F-6112 Power Supply Board
<Stock No. 01174701>

Parts No.	Stock No.	Description
•IC		
Δ mIC1	07183500	μPC78M05H
Δ	or 48565400	AN78M05
Δ	or 49318800	μPC78M05HF
Δ mIC2	48561000	AN79M05
Δ	or 49311500	μPC79M05H
Δ	or 49319500	μPC79M05HF
•Diode		
Δ mD1	03117700	10E-2
Δ mD2	03117700	10E-2
Δ mD3	03117700	10E-2
Δ mD4	03117700	10E-2
mD5	46464100	1SS133
mC5	48748400	0.1μF 50V C.C.
mC6	48748400	0.1μF 50V C.C.
Δ mR1, 2	46401500	3.9Ω 1/2W N.I.R.
mFL1	48484600	Filter
mFL2	48484600	Filter
mFL3	48484600	Filter
mFL4	48419300	Ferrite CORE (BP53BH)
mFL5	48419300	Ferrite CORE (BP53BH)
mFL6	48419300	Ferrite CORE (BP53BH)
mFL7	48419300	Ferrite CORE (BP53BH)
oS27	49352500	Push SW., POWER
oJ1	49417300	FG Socket CFG1111-0101
wL1	48289400	10μH Inductor

5. PARTS LOCATION ON BOARD

5-1. F-6111 Control Switch Board

Component Side



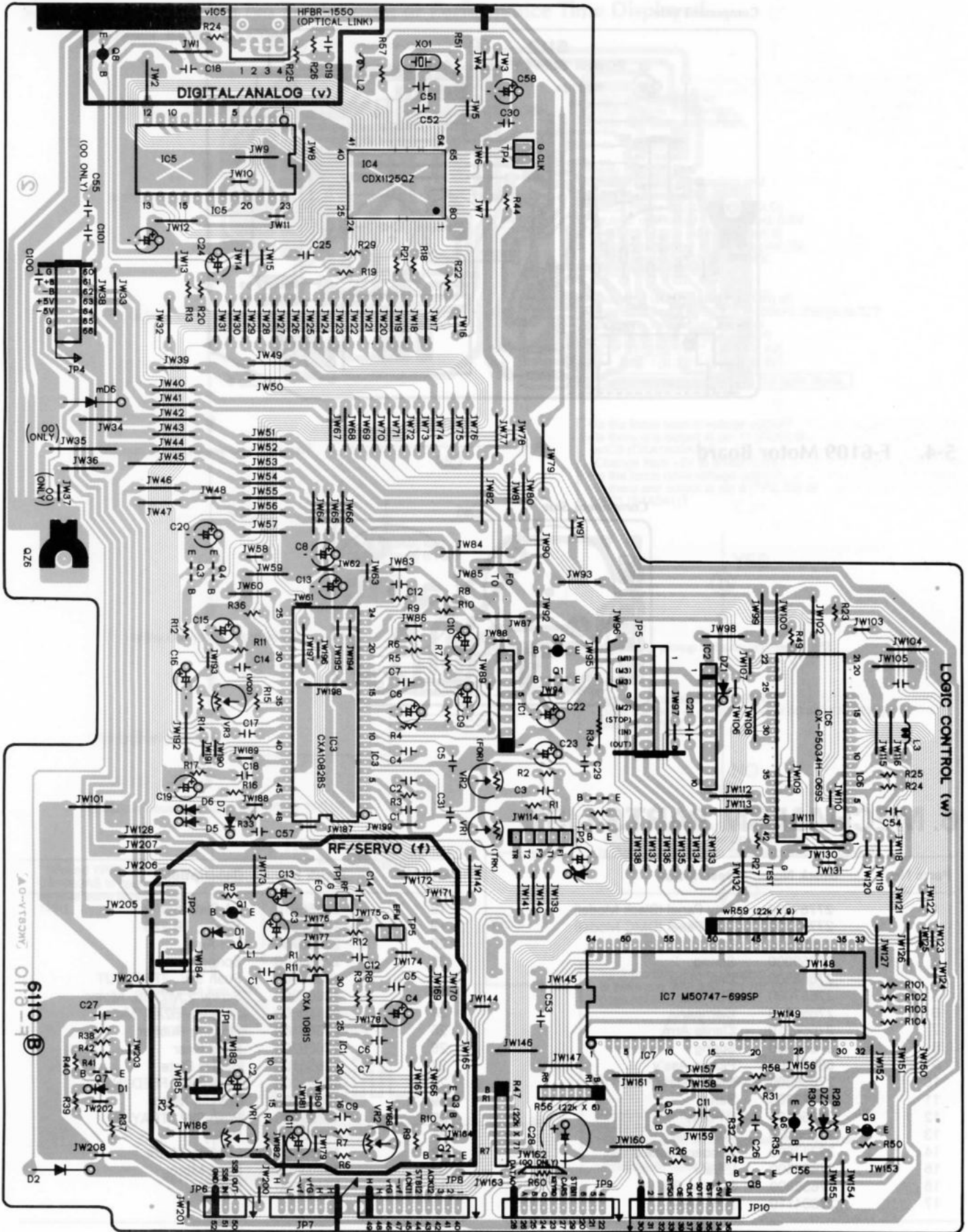
•Abbreviations List

C.R.	: Carbon Resistor	E.B.L.	: Low Leak Bi-Polar Electrolytic Capacitor
S.R.	: Solid Resistor	Ta.C.	: Tantalum Capacitor
Ce.R.	: Cement Resistor	F.C.	: Film Capacitor
M.R.	: Metal Film Resistor	M.P.	: Metalized Paper Capacitor
F.R.	: Fusing Resistor	P.C.	: Polystyrene Capacitor
N.I.R.	: Non-Inflammable Resistor	M.M.C.	: Metalized Mylar Capacitor
A.R.	: Array Resistor	A.C.	: Array Capacitor
C.C.	: Ceramic Capacitor	V.R.	: Variable Resistor
C.T.	: Ceramic Capacitor, Temperature Compensation	S.V.R.	: Semi Variable Resistor
E.C.	: Electrolytic Capacitor	SW.	: Switch
E.L.	: Low Leak Electrolytic Capacitor	Chip R.	: Chip Resistor
E.B.	: Bi-Polar Electrolytic Capacitor	Chip C.	: Chip Capacitor

1. Since some capacitors and resistors are omitted from parts lists in this Parts List, refer to the Common Parts List for capacitors and resistors, which was issued on June 1987.
2. Abbreviations in this Parts List are as follows.

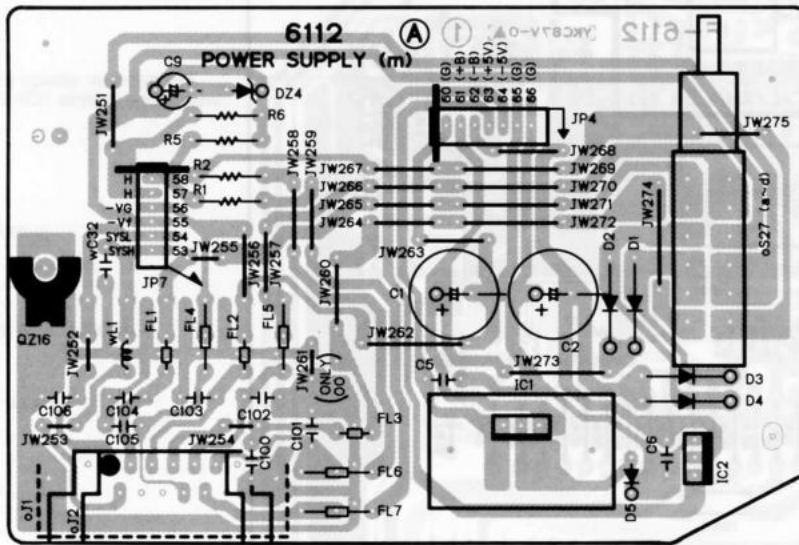
5-2. F-6110 Main Board

Component Side



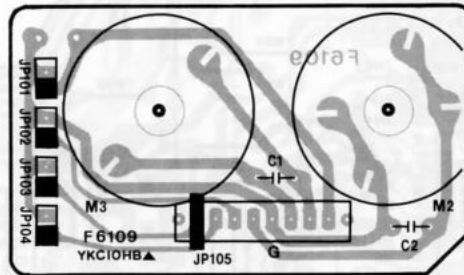
5-3. F-6112 Power Supply Board

Component Side



5-4. F-6109 Motor Board

Component Side

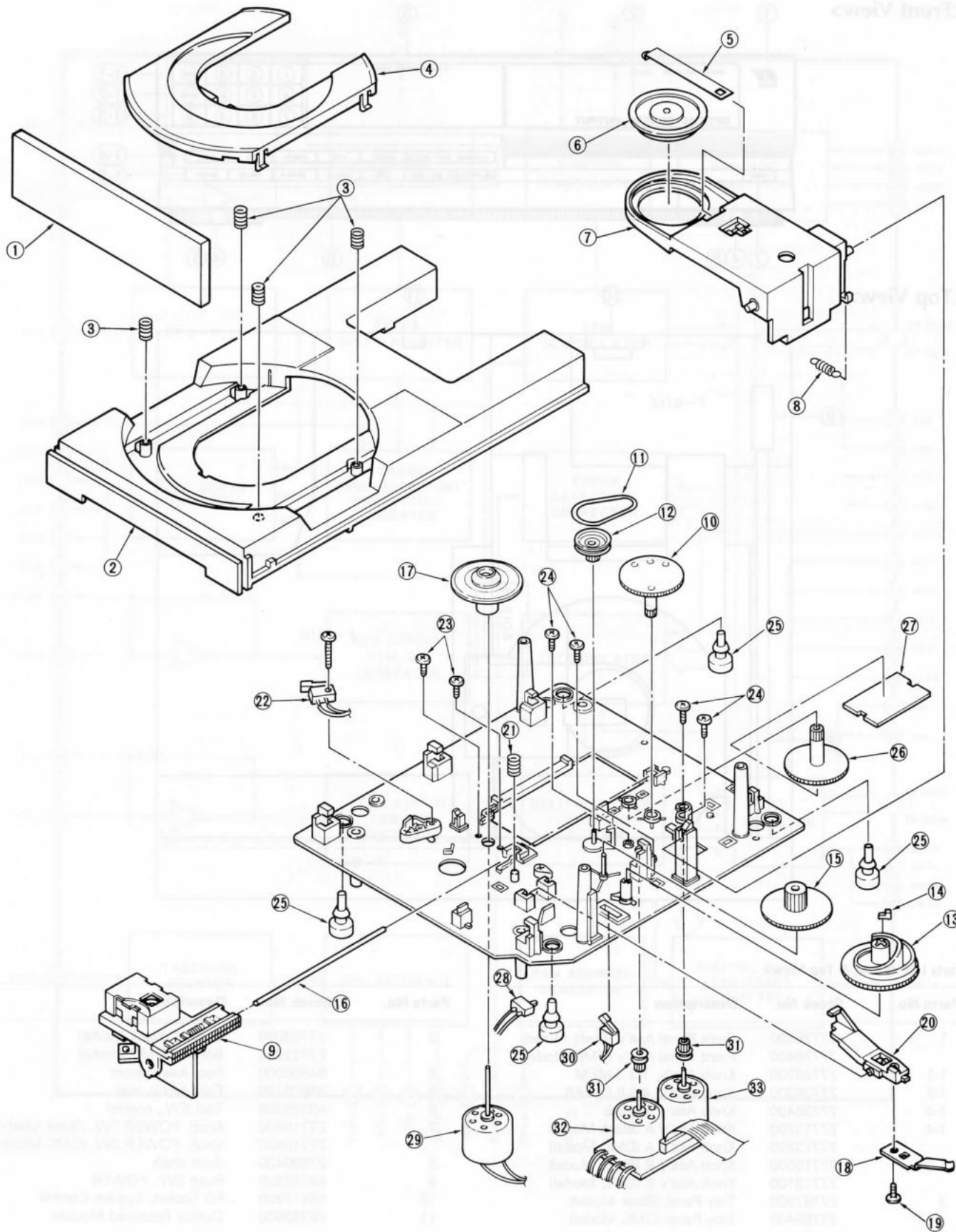


6. MECHANISM PARTS LIST

Parts No.	Stock No.	Description
1	27787300	Tray Panel (Black Model)
	27765400	Tray Panel (DMC Model)
2	27655810	Tray
3	27659000	Spring
4	27655900	Disk Plate
5	27657000	CL Plate
6	27656600	Clamper
7	27656910	Clamp Arm
8	27658900	Spring
9	68064700	Pickup Ass'y
10	27656300	Middle Gear
11	27422700	Belt
12	27656400	L Pulley
13	27656000	Cum Gear
14	27727600	Rubber Cushion
15	27656500	L Gear
16	27658800	Support Rail
17	27364110	Turn Table

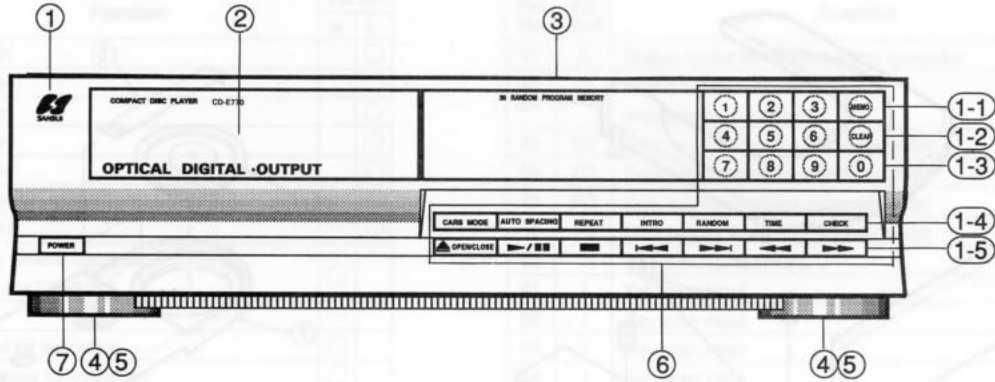
Parts No.	Stock No.	Description
18	27656810	LA Plate Spring
19	13303900	Screw, TB 2X5
20	27656700	Lift Arm
21	27659100	Spring
22	48829000	Push SW., TRAY OUT
23	46609800	Screw 2 M2X3B, Motor
24	00420600	Screw MB2X6, Motor
25	27364400	Floating Rubber
26	27656200	Feed Gear
27	27656100	Holder Plate
28	48793900	Push SW., FEED IN
29	48584900	Spindle Motor
30	48829000	Push SW., TRAY IN
31	27572400	Pulley
32	49263100	Loading Motor
33	49263100	Feed Motor
34	27727500	Spacer

<Exploded View of Mechanism>

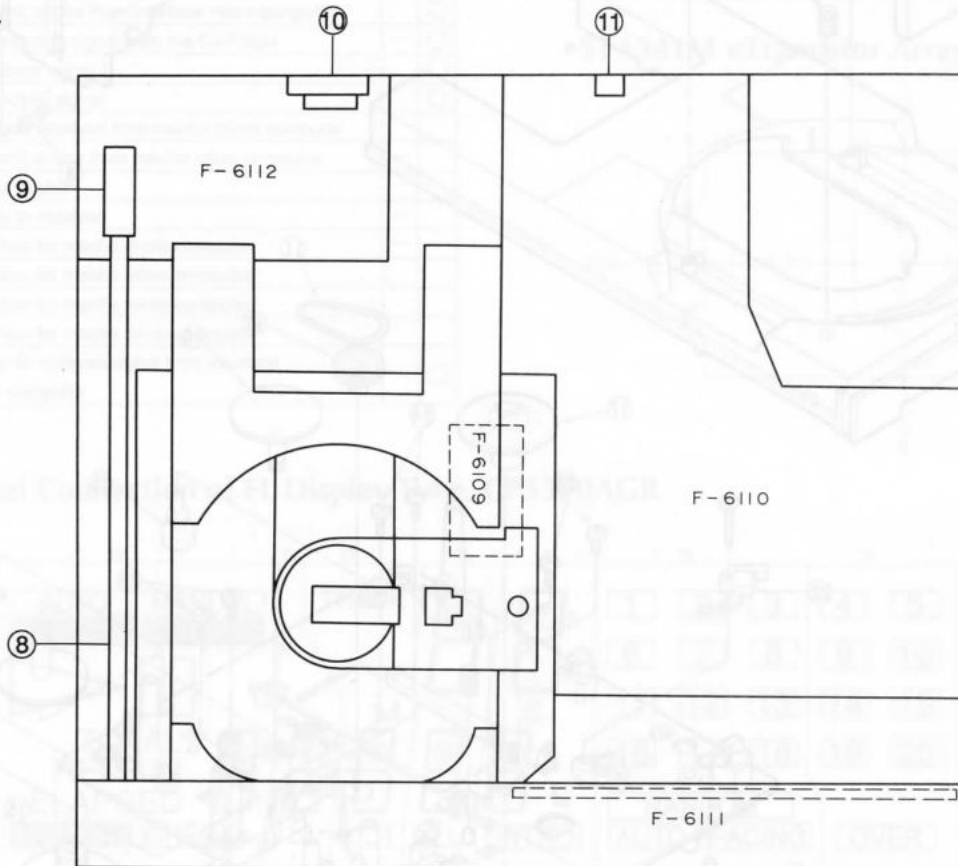


7. PARTS LIST OF SET

<Front View>



<Top View>



Parts List <Front & Top View>

Parts No.	Stock No.	Description
1	27726500	Front Panel Ass'y (Black Model)
	27726400	Front Panel Ass'y (DMC Model)
1-1	27736200	Knob Ass'y, 1.2.3.MEM
1-2	27736300	Knob Ass'y, 4.5.6.CLEAR
1-3	27736400	Knob Ass'y, 7.8.9.0
1-4	27713200	Knob Ass'y A (Black Model)
	27713300	Knob Ass'y A (DMC Model)
1-5	27713000	Knob Ass'y B (Black Model)
	27713100	Knob Ass'y B (DMC Model)
2	27787300	Tray Panel (Black Model)
	27765400	Tray Panel (DMC Model)

Parts No.	Stock No.	Description
3	27723000	Bonnet (Black Model)
	27722900	Bonnet (DMC Model)
4	84606000	Foot Ass'y; front
5	84606100	Foot Ass'y; rear
6	49326300	Tact SW., control
7	27710500	Knob, POWER SW. (Black Model)
	27710400	Knob, POWER SW. (DMC Model)
8	27690400	Joint shaft
9	49352500	Push SW., POWER
10	49417300	FG Socket, System Control
11	49352600	Optical Received Module

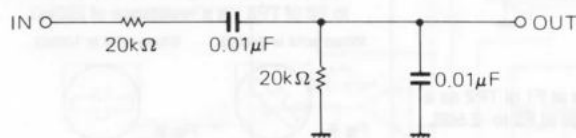
DMC: Dolphin Metallic Color

8. ADJUSTMENTT

• Cautions

1. Turn the power OFF before removing the bonnet.
2. See Figure 8-1 on page 19 for the locations where adjustments are to be carried out.
3. Use the EIAJ test disk CD-1.
4. The following band pass filter (BPF) is used for adjustments.
5. If the adjustment is unsatisfactory and playback is not possible, adjust as follows:
 - 1) Set $fVR1$, $fVR2$ and $wVR2$ to their mid points.
 - 2) Adjust the VCO ($wVR3$) and select playback.
 - 3) Carry out adjustment steps 2 to 5.
6. In executing steps 2 to 5, connect the probe after setting the disk to play.

Band Pass Filter (BPF)



Step	Item	Measuring Location	Adjustment Location	Adjustment	Conditions and Notes
1	VCO adjustment (carry out in STOP state)	Connect a frequency counter to TP4 (CLK).	$wVR3$ (VCOF) (F-6110)	4.32MHz±30Hz	<ul style="list-style-type: none"> • Ground TP5 (EFM) • Turn ON the power then wait at least 10 seconds before adjusting.
2	Tracking offset adjustment	Connect an oscilloscope to TP2T1	$fVR1$ (F-6110)	<p>Set the oscilloscope to the DC range. Adjust so that a and b have the same level.</p>	<ul style="list-style-type: none"> • Ground T2 of TP2. • Playback the 8th track of CD-1.
3	Focus offset	Connect an oscilloscope to the RF of TP1.	$fVR2$ (F-6110)	Set to maximum. <p>Carry out adjustments to achieve a clean overall pattern and so that the indicated portion is wide and symmetrical.</p>	<ul style="list-style-type: none"> • Playback the 8th track of CD-1.
4	Tracking gain adjustment	Connect VTVM to T1 of TP2 via the BPF. Connect VTVM to T2 of TP2 via the BPF.	$wVR1$ (F-6110)	<p>Using the indicated voltage at T1 of TP2 as a reference, adjust the voltage at T2 to -3.5dB.</p>	<ul style="list-style-type: none"> • Playback the 4th track (no signal) of CD-1. • Apply an 800Hz signal of 0.5Vp-p from SG to T2 of TP2 via a resistance of 220kΩ. <p> $wVR1$ Adjust $wVR1$ to the position shown in the diagram if you do not have a BPF or if -3.5dB cannot be achieved. </p>

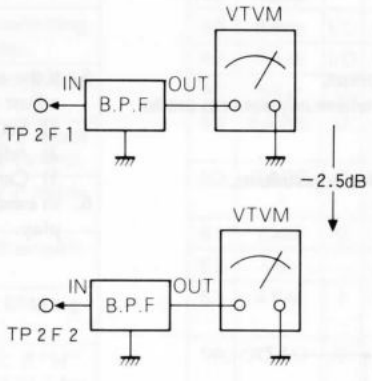
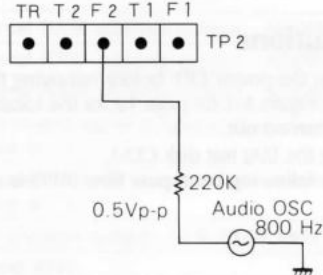


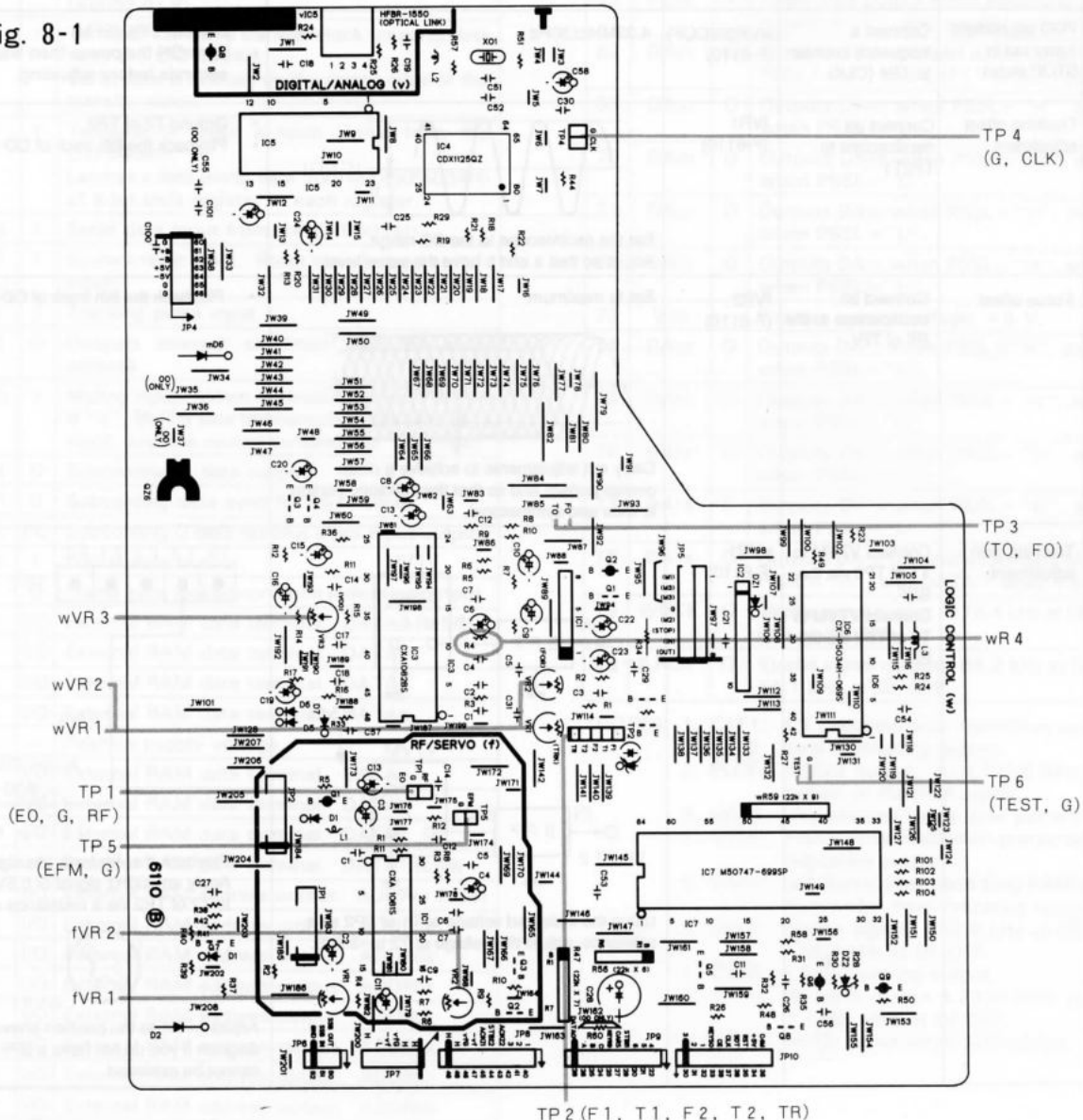
Step	Item	Measuring Location	Adjustment Location	Adjustment	Conditions and Notes
5	Focus gain adjustment	Connect VTVM to F1 of TP2 via the BPF. Connect VTVM to F2 of TP2 via the BPF.	wVR2 (F-6110)	 <p>Using the indicated voltage at F1 of TP2 as a reference, adjust the voltage at F2 to -2.5dB.</p>	 <ul style="list-style-type: none"> • Playback the 4th track (no signal) of CD-1. • Apply an 800Hz signal of 0.5Vp-p from SG to F2 of TP2 via a resistance of 220kΩ. <p>When wR4 is 240kΩ When wR4 is 100kΩ</p>   <p>Adjust wVR1 to position shown in the Fig. A or B if you do not have a BPF or if -2.5dB cannot be achieved.</p>

Fig. 8-1



9. REPLACEMENT OF MAIN PARTS

< See Exploded Diagram on page 16 and Figures 9-1 to 9-4 .>

A. How to Remove the Bonnet

Remove the bonnet by lifting it straight up.

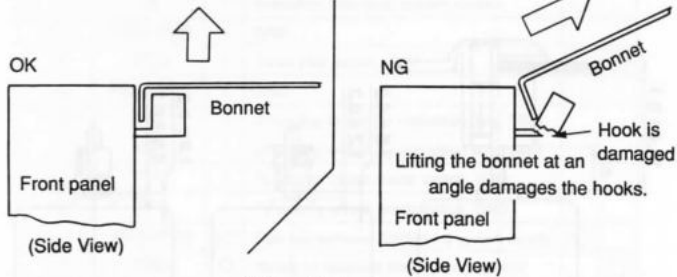


Fig. 9-1

1. Remove the 6 bonnet mounting screws.
2. Lift the bonnet straight up.
Note that forcing the bonnet up at an angle or raising it toward the rear may result in damage to the front panel hooks.

B. How to Remove the Tray ②

1. Remove the bonnet.
2. Rotate the central hole H in the cam gear ⑬ counterclockwise and pull the tray toward the front.
3. Pull the tray out as far as the stopper.
4. Rotate the tray stopper clockwise and pull out the tray.
5. When replacing the tray, rotate the stopper counterclockwise to prevent the tray from being pulled out.

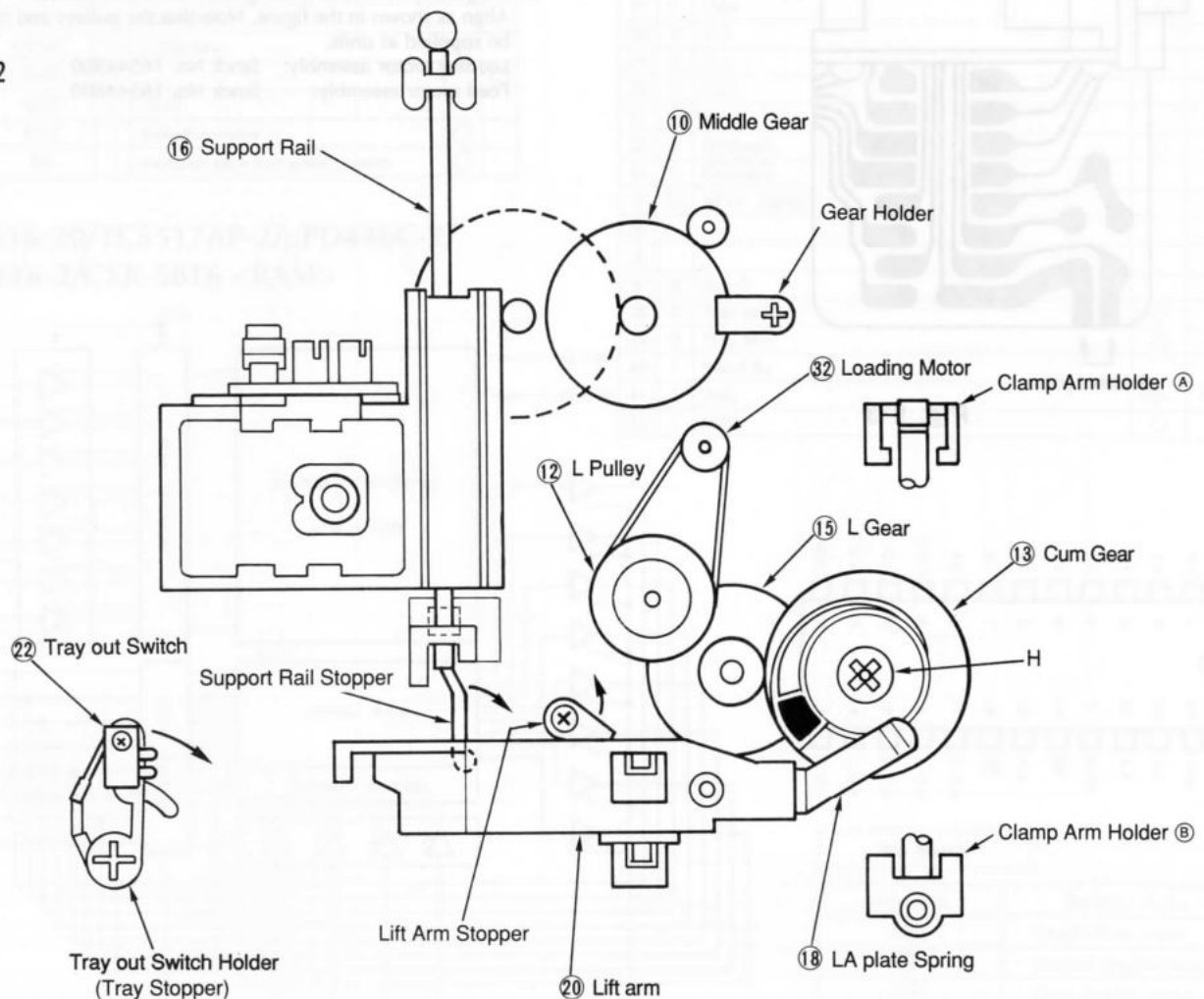
C. How to Insert the Tray

1. Rotate the cam gear until LA plate spring ⑱ is positioned as shown in the drawing. (The L gear and cam gear are disengaged in this position.)
2. Mount the tray on the tray holder on the mechanism chassis and press it in.
3. After inserting the tray, rotate the stopper counterclockwise to prevent the tray from being pulled out.

D. How to Remove the Clamper Arm ⑦

1. Move the clips for retaining the clamper arm holder away from the center, then remove the clamper arm.
2. Take care not to lose the clamper arm tension spring ⑧, which is removed during this operation.

Fig. 9-2



E. How to Remove the Pickup Assembly ⑨

- Cautions when removing the pickup assembly: Solder the points indicated in the figure before disconnecting the two lead connectors. This protects the pickup from damage by static.
1. Remove the tray clamp arm.
 2. Rotate the gear holder counterclockwise to remove the middle gear ⑩.
 3. Shift the supportrail stopper in the direction shown by the arrow in the figure.
 4. Take out the support rail ⑪ and remove the pickup assembly.
 5. Disconnect the two leads running from the pickup assembly to the F-6110 board.
- Cautions when renewing the laser pickup assembly:
1. Connect the two lead connectors to the new pickup assembly.
 2. Desolder the two points that were soldered to protect the device from static.

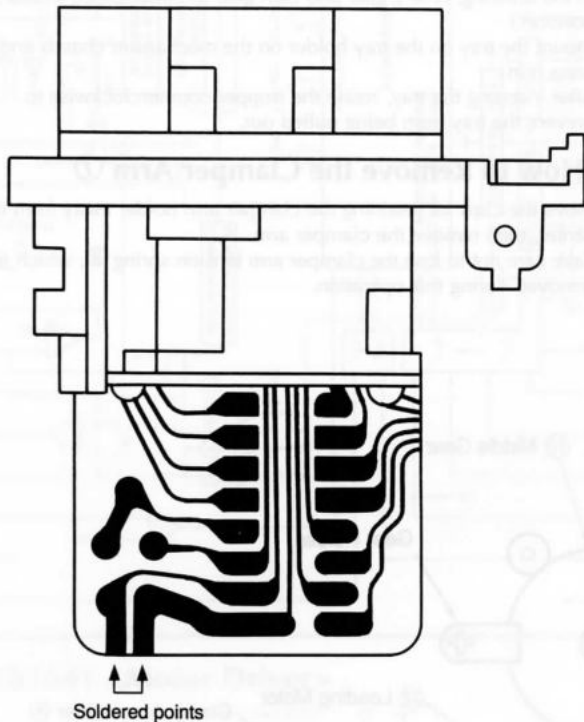


Fig. 9-3

F. How to Remove the Lift Arm

1. Remove the tray ⑫ and clamber arm ⑬.
2. Rotate the lift arm stopper clockwise (in the direction of the arrow) then pull out the lift arm in the direction shown by the arrow.

G. Cautions for Motor Replacement

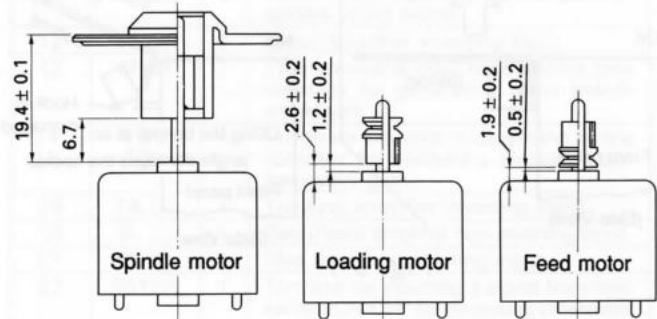
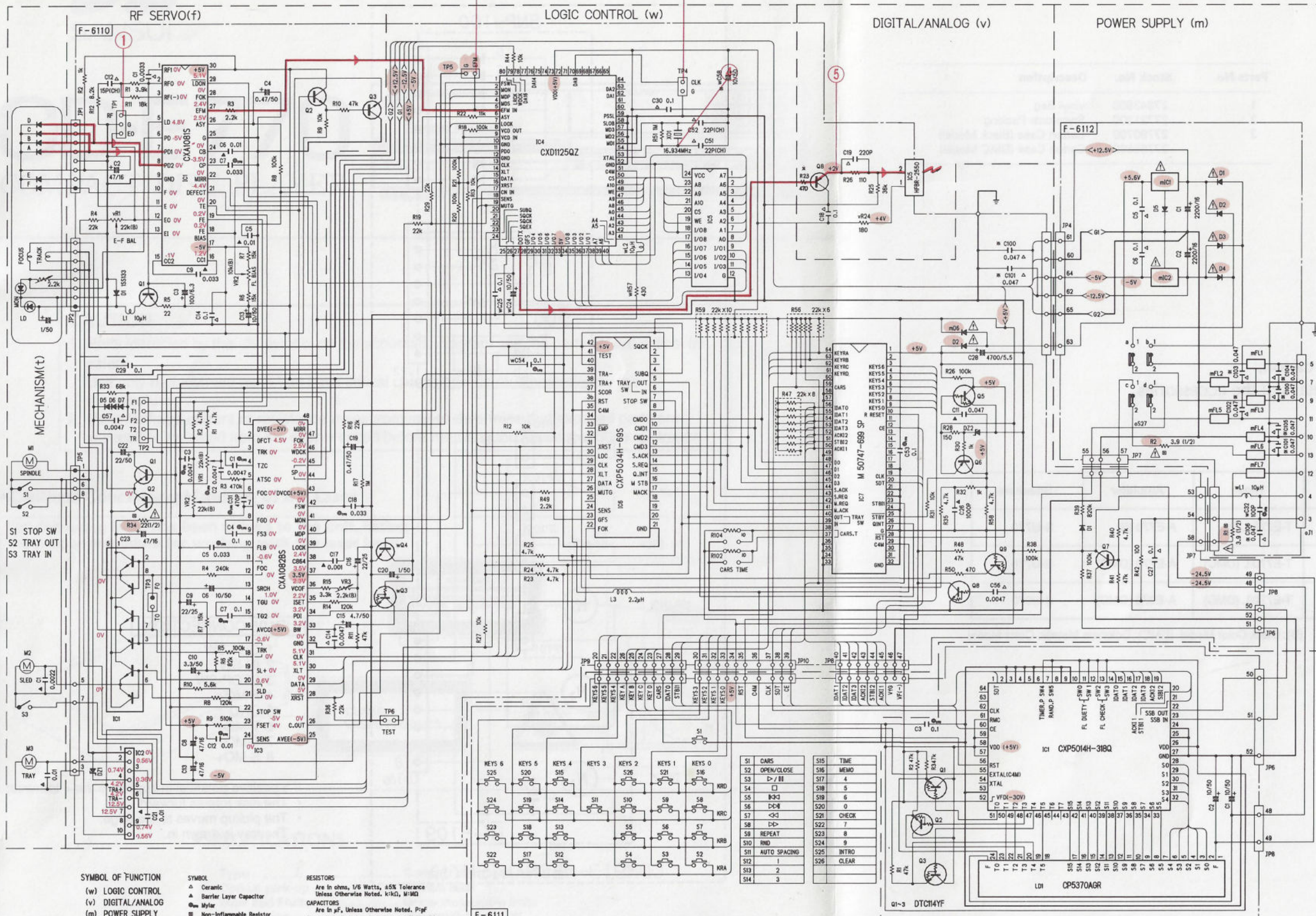


Fig. 9-4

1. Height adjustment of spindle motor
The spindle motor must be aligned as shown in the figure. As a guide, the tip of the spindle motor shaft should be aligned with the top face of the turntable.
2. Height adjustment of loading and feed motor pulleys
Align as shown in the figure. Note that the pulleys and motors can be supplied as units.
Loading motor assembly: Stock No. 16544900
Feed motor assembly: Stock No. 16544800

10. SCHEMATIC DIAGRAM

* Design and specifications subject to change without notice for improvement.
 * La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
 * Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.



- | | | | | | |
|-------|------------------|------|--|--------|--|
| w1 | 25C2060 (P,Q,R) | 10E2 | | ISS133 | |
| w2 | 25C934 (P,Q,R) | | | | |
| w3,8 | DTCH14YS | | | | |
| w4,7 | 25C1740S (R,S,E) | | | | |
| w9 | 25C2603 (E,F,G) | | | | |
| w10 | DTA114YS | | | | |
| w11 | DTCH14ES | | | | |
| w15 | 25A933S (R,S) | | | | |
| w16 | 25A1115 (E,F) | | | | |
| w17 | 25A1048 (Y,GR) | | | | |
| w21 | MTZ5.6A, MTZ5.6B | | | | |
| w22 | RD5.6B1, RD5.6B2 | | | | |
| w23 | MTZ4.3A, RD4.3B1 | | | | |
| w24 | STA341M | | | | |
| w25 | LB1641 | | | | |
| w26 | CXK5816PN-12L | | | | |
| w27 | MBB416-20 | | | | |
| w28 | µPD446C-2 | | | | |
| w29 | TC5517AP-2 | | | | |
| w30 | UM616-2 | | | | |
| w31-4 | ISS133 | | | | |
| w32 | 10E2 | | | | |
| w33 | 25A1015 (Y,GR) | | | | |
| w34 | 25A934 (P,Q,R) | | | | |
| w35 | 25C1740S (R,S,E) | | | | |
| w36 | 25C2603 (E,F,G) | | | | |
| m1-4 | 10E2 | | | | |
| m5 | ISS133 | | | | |
| m6 | 10E2 | | | | |
| m7 | DBB10B,C | | | | |
| m12,2 | MTZ5.6 (B,C) | | | | |
| m13 | RD5.6 (B2,B3) | | | | |
| m14 | AN78M05 | | | | |
| m15 | µPCT78M05HF | | | | |
| m16 | µPCT78M05H | | | | |
| m17 | NJM78M05FA | | | | |
| m18 | AN79M05 | | | | |
| m19 | µPCT9M05HF | | | | |
| m20 | µPCT9M05H | | | | |
| m21 | NJM79M05FA | | | | |
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SYMBOL OF FUNCTION
 (w) LOGIC CONTROL
 (v) DIGITAL/ANALOG
 (m) POWER SUPPLY
 (t) MECHANISM
 (f) RF SERVO
 (o) SELECTOR

RESISTORS
 Are in ohms, 1/8 Watts, ±5% Tolerance Unless Otherwise Noted, k:kΩ, M:MΩ

CAPACITORS
 Are in µF, Unless Otherwise Noted, P:µF
 Electrolytic Capacitor:Capacitance (µF)/Volt(V)
 Each D.C Voltage shows the nominal value in volts at its input signal.

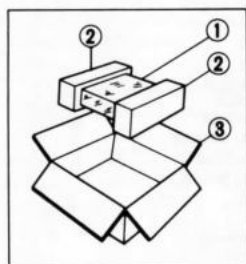
SYMBOL
 △ Ceramic
 ▽ Barrier Layer Capacitor
 ○ Mylar
 ■ Non-Inflammable Resistor

SAFETY PART
 Use only replacement parts recommended by the manufacturer.

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Signal line

11. PACKING LIST



Parts No.	Stock No.	Description
1	27343800	Vinyl Bag
2	27721200	Styrofoam Packing
3	27790700	Carton Case (Black Model)
	27765500	Carton Case (DMC Model)

Note:

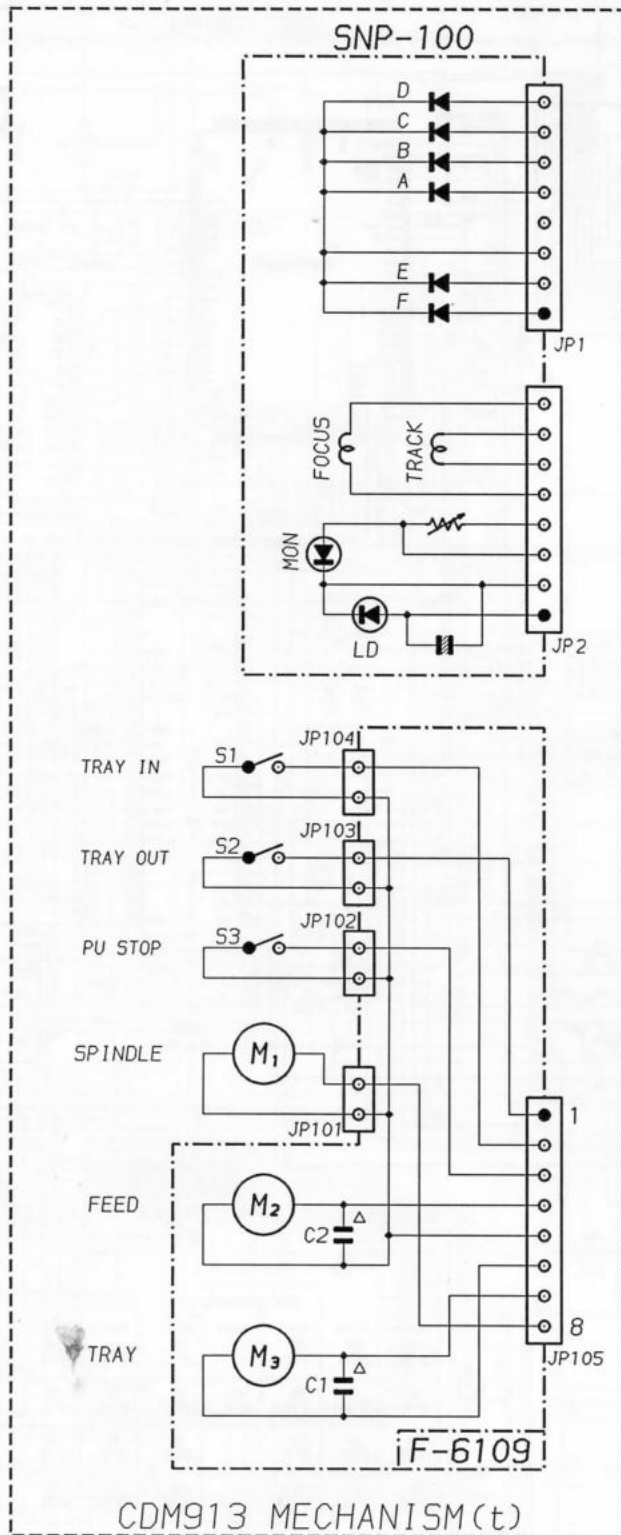
Accessories are packed in the amplifier carton.
See the Amplifier Service Manual for details of the accessories.

•Originization of System Component

System Name	CD Player	Cassete Deck	Tuner	Amplifier	Speakers
MIDI 770	CD-E770 (B)	D-E770 (B)	T-E770/L (B)	A-E770 (B)	S-U770
BAR 770	CD-E770 (DMC)	D-E870 (DMC)	T-E770/L (DMC)	A-E770 (DMC)	S-U770
BAR 970	CD-E770 (DMC)	D-E970 (DMC)	T-E770/L (DMC)	A-E970 (DMC)	S-U970

(B): Black Color Model (DMC): Dolphine Metallic Color Model

12. SCHEMATIC DIAGRAM OF MECHANISM



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 SANSUI ELECTRONICS CORPORATION:
 SANSUI ELECTRONICS G.M.B.H.:
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