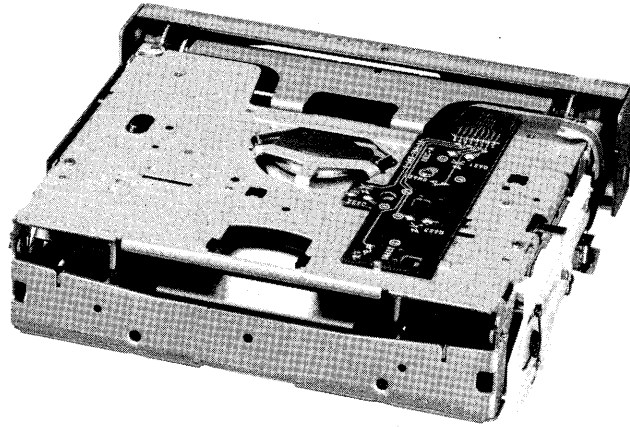


# 16180026

## SERVICE MANUAL

US Model



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### SERVICING NOTE

#### Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

#### Notes on chip component replacement

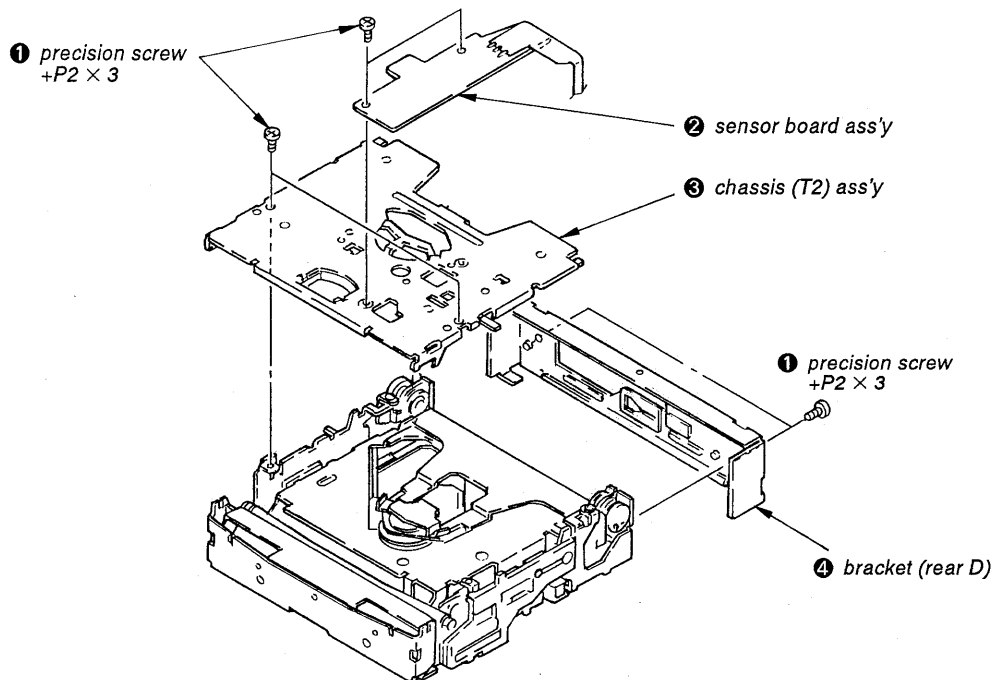
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

COMPACT DISC MECHANISM  
**SONY**<sup>®</sup>

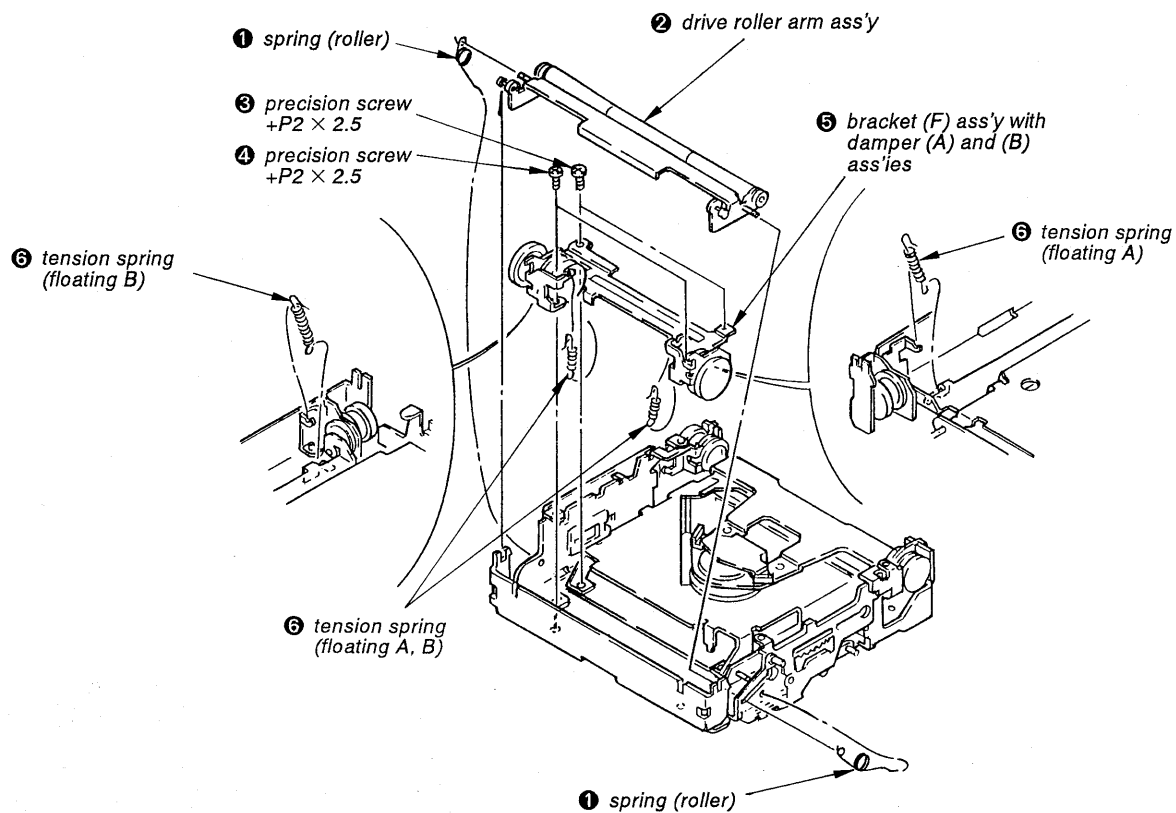
# SECTION 1 DISASSEMBLY

**Note:** Follow the disassembly procedure in the numerical order given.

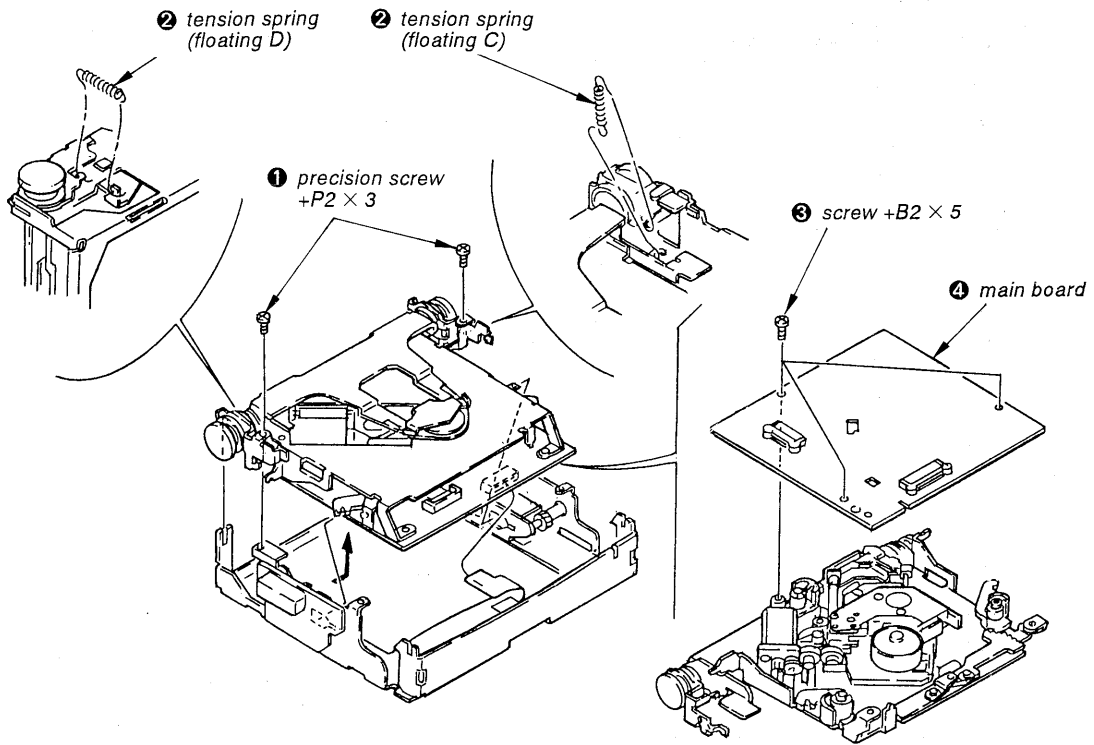
## SENSOR BOARD, CHASSIS



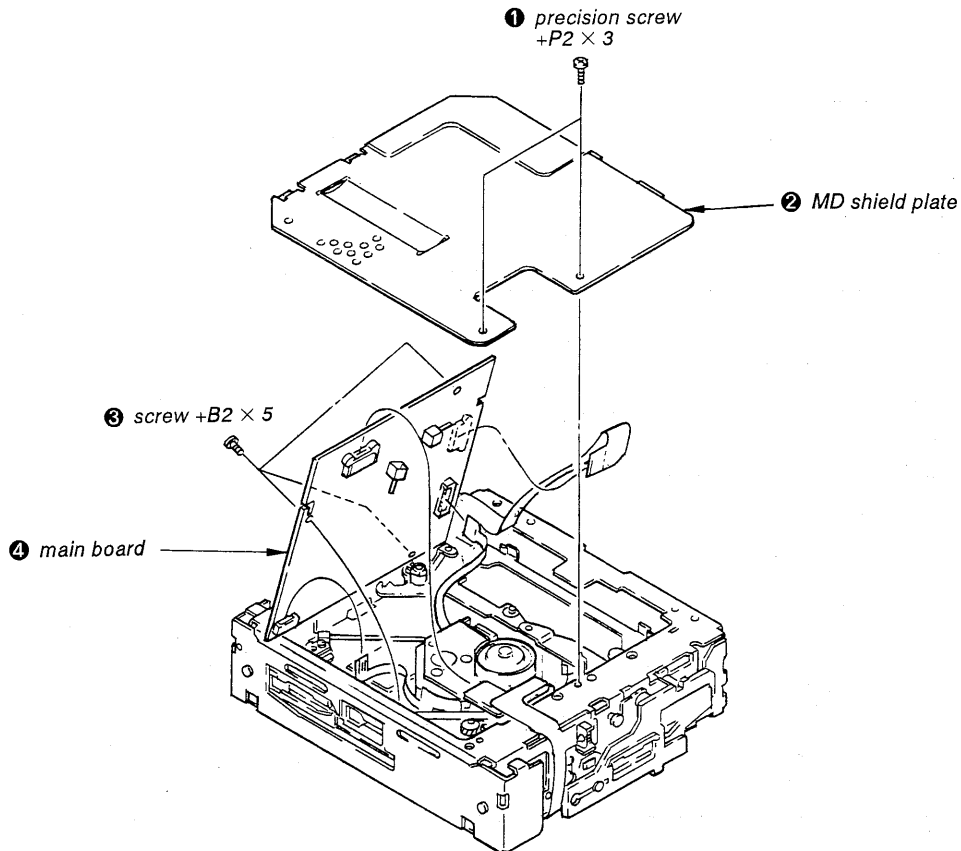
## BRACKET (F) ASS'Y WITH DAMPER (A) AND (B) ASS'IES



## MAIN BOARD



## HOW TO OPEN THE MAIN BOARD



## SECTION 2 DIAGRAMS

### 2-1. IC PIN DESCRIPTION

• IC602 CXP50116-418Q

No.	PORT	SIGNAL NAME	I/O	FUNCTION
1	PG0			} Not used
2	PG1			
3	PG2			
4	PG3			
5	PK0			
6	PK1			
7	PK2			
8	PK3			
9	PJ0			
10	PJ1			
11	PJ2			
12	PJ3			
13	S16			
14	S17			
15	S18			
16	S19			
17	S20			
18	S21			
19	S22			
20	S23			
21	T7			
22	T6			
23	T5			
24	T4			
25	T3			
26	T2			
27	T1			
28	T0			
29	INT	INT	I	Data input for system control communication
30	TX			Not used
31	TEX			GND
32	RST	RST	I	Reset
33	NC			Not used
34	Vdd	VDD		5 V
35	PI0			} Not used
36	PI1			
37	PI2			
38	PI3	MUTE	O	Muting output
39	PB0	CSW	I	C switch input: LOADING started, EJECT completed (8)
40	PB1	SRQ	I	SRQ input for mechanism microcomputer
41	PB2	CS	O	CS output for mechanism microcomputer
42	PB3	RST	O	Reset output for mechanism microcomputer
43	EC			GND

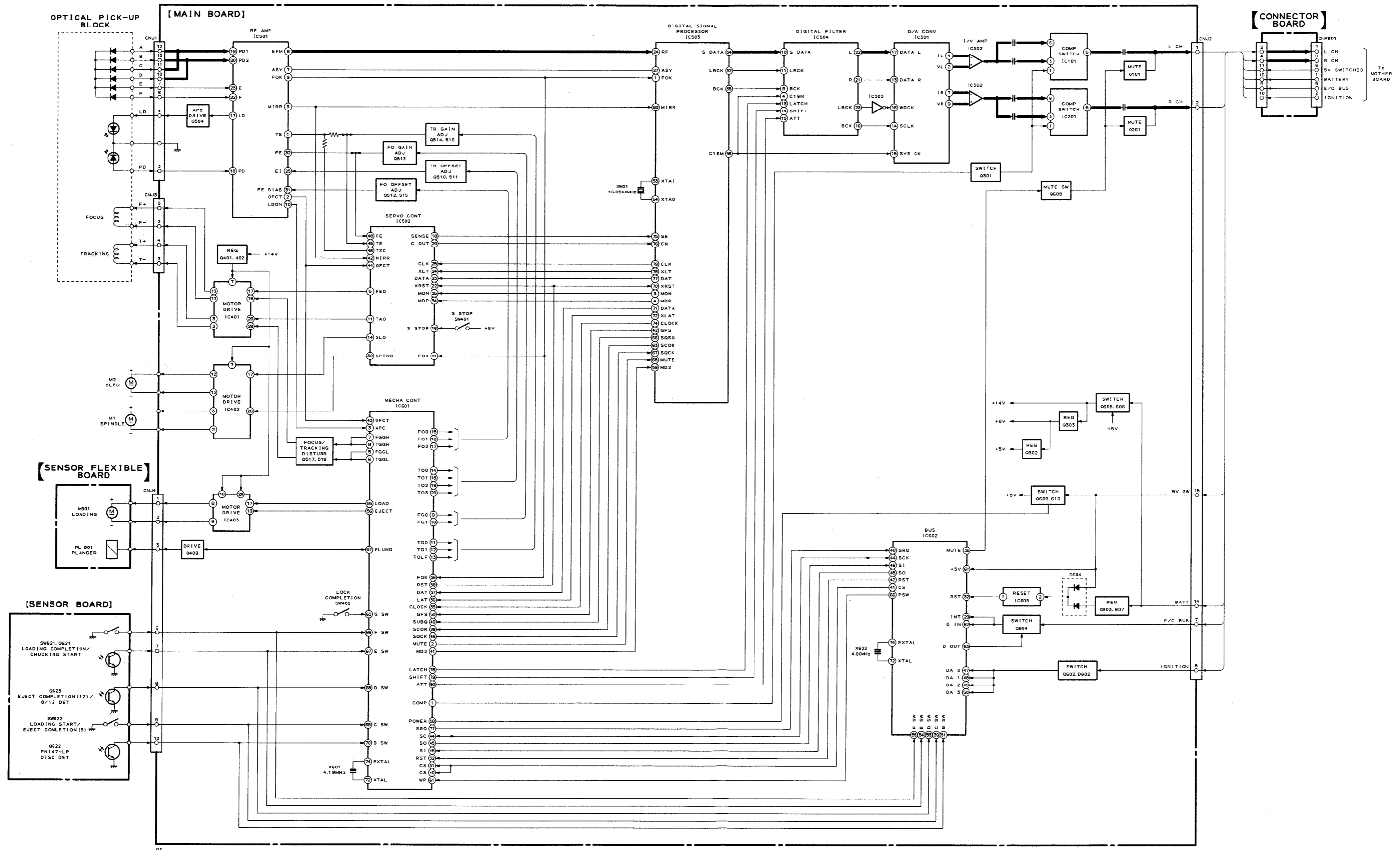
No.	PORT	SIGNAL NAME	I/O	FUNCTION
44	PX0/SC	SCK	I/O	Clock for communication to mechanism microcomputer
45	PX1/SO	SO	O	Data output for communication to mechanism microcomputer
46	PX2/SI	SI	I	Data input for communication to mechanism microcomputer
47	PA0	PA0	I	} Ignition signal input
48	PA1	PA1	I	
49	PA2	PA2	I	
50	PA3	PA3	I	
51	PF0	BSW	I	B switch input: Disc existence detection (8)
52	PF1			
53	PF2	DSW	I	D switch input: Eject completed (12), 8/12 detected
54	PF3	ESW	I	E switch input: Loading completed/CHUCKING started
55	PE0	FSW	I	F switch input: CHUCKING completed
56	PE1			} GND
57	PE2			
58	PE3			
59	PY0			} Not used
60	PY1/PWM			
61	PY2/WP	5 V	I	5 V
62	PY3/RMC	DIN	I	Data input for communication to system control
63	PD0	DOUT	O	Data output for communication to system control
64	PD1			} Not used
65	PD2			
66	PD3	PSW	O	WP output for mechanism microcomputer
67	PC0			} Not used
68	PC1			
69	PC2			
70	PC3			
71	Vss			GND
72	XTAL	XTAL		
73	NC			Not used
74	EXTAL	EXTAL		
75	Vref	VDD		5 V
76	Vfdp			} Not used
77	PH0			
78	PH1			
79	PH2			
80	PH3			

• IC601 CXP50116-406Q

No.	PORT	SIGNAL NAME	I/O	FUNCTION
1	PG0	COMP	O	Compressor ON/OFF
2	PG1	MUTE	O	Muting output
3	PG2	APC	O	Laser ON/OFF
4	PG3	BW	O	RF PLL bandwidth selection
5	PK0	FGGL	O	Focusing gain adjustment disturbance output
6	PK1	TGGL	O	Tracking gain adjustment disturbance output
7	PK2	FGGL	O	Focusing gain adjustment disturbance switch
8	PK3	TGGL	O	Tracking gain adjustment disturbance switch
9	PJ0	FG0	O	} Focusing gain
10	PJ1	FG1	O	
11	PJ2	TG0	O	} Tracking gain
12	PJ3	TG1	O	
13	S16	TOLF	O	LPF switch for tracking offset adjustment
14	S17	TO0	O	Tracking offset
15	S18	FO0	O	} Focusing offset
16	S19	FO1	O	
17	S20	FO2	O	
18	S21	TO1	O	} Tracking offset
19	S22	TO2	O	
20	S23	TO3	O	
21	T7			} Not used
22	T6			
23	T5			
24	T4			
25	T3			
26	T2			
27	T1			
28	T0			
29	INT	SCOR	I	SCOR input
30	TX			Not used
31	TEX	CS	I	CS input from bus microcomputer
32	RST	RST	I	Reset
33	NC			Not used
34	Vdd	VDD		5 V
35	PI0	CLOCK	O	Clock for servo control IC
36	PI1	LAT	O	Latch for servo control IC
37	PI2	DAT	O	Data for servo control IC
38	PI3	RST	O	Reset for servo control IC
39	PB0	FOK	I	FOK input
40	PB1	CS	I	(Used with pin 31 as a pair)
41	PB2	MD2	O	Digital out ON/OFF
42	PB3	SENSE	I	SENS input
43	EC	DFCT	I	Defect signal input

No.	PORT	SIGNAL NAME	I/O	FUNCTION
44	PX0/SC	SC	I/O	Clock for communication to bus microcomputer
45	PX1/SO	SO	O	Data output for communication to bus microcomputer
46	PX2/SI	SI	I	Data input for communication from bus microcomputer
47	PA0	HOT	I	High temperature detection
48	PA1	SQCK	O	SUB Q clock output
49	PA2	SUBQ	I	SUB Q input
50	PA3	GFS	I	GFS input
51	PF0	TSTI0	I	Test mode input
52	PF1	TSTI1	I	
53	PF2	TSTI2	I	
54	PF3	TSTI3	I	
55	PE0	LOAD	O	LOAD for loading motor
56	PE1	EJECT	O	EJECT for loading motor
57	PE2	PLUNG	O	Plunger
58	PE3	POWER	O	Power ON/OFF
59	PY0	ADJE	O	Servo adjustment error output
60	PY1/PWM	TESTE	O	Test mode error output
61	PY2/WP	WP	I	PSW input from bus microcomputer
62	PY3/RMC	TEST	I	Test mode input
63	PD0	DPLL	I	Digital PLL/Analog PLL
64	PD1	MODE	I	Communication format: SONY/I <sup>2</sup> C
65	PD2	GSW	I	G switch input: Lock completed
66	PD3	FSW	I	F switch input: CHUCKING completed
67	PC0	ESW	I	E switch input: LOADING completed/CHUCKING started
68	PC1	DSW	I	D switch input: EJECT completed (12), 8/12 detected
69	PC2	CSW	I	C switch input: LOADING started, EJECT completed (8)
70	PC3	BSW	I	B switch input: Disc existence detection (8)
71	Vss	Vss		GND
72	XTAL	XTAL		
73	NC			Not used
74	EXTAL	EXTAL		
75	Vref	VREF		5 V
76	Vfdp			GND
77	PH0	SRQ	O	SRQ output for bus microcomputer
78	PH1	LATCH	O	Latch (ATT data) for digital filter
79	PH2	SHIFT	O	Clock (ATT data) for digital filter
80	PH3	ATT	O	Data (ATT data) for digital filter

2-2. BLOCK DIAGRAM





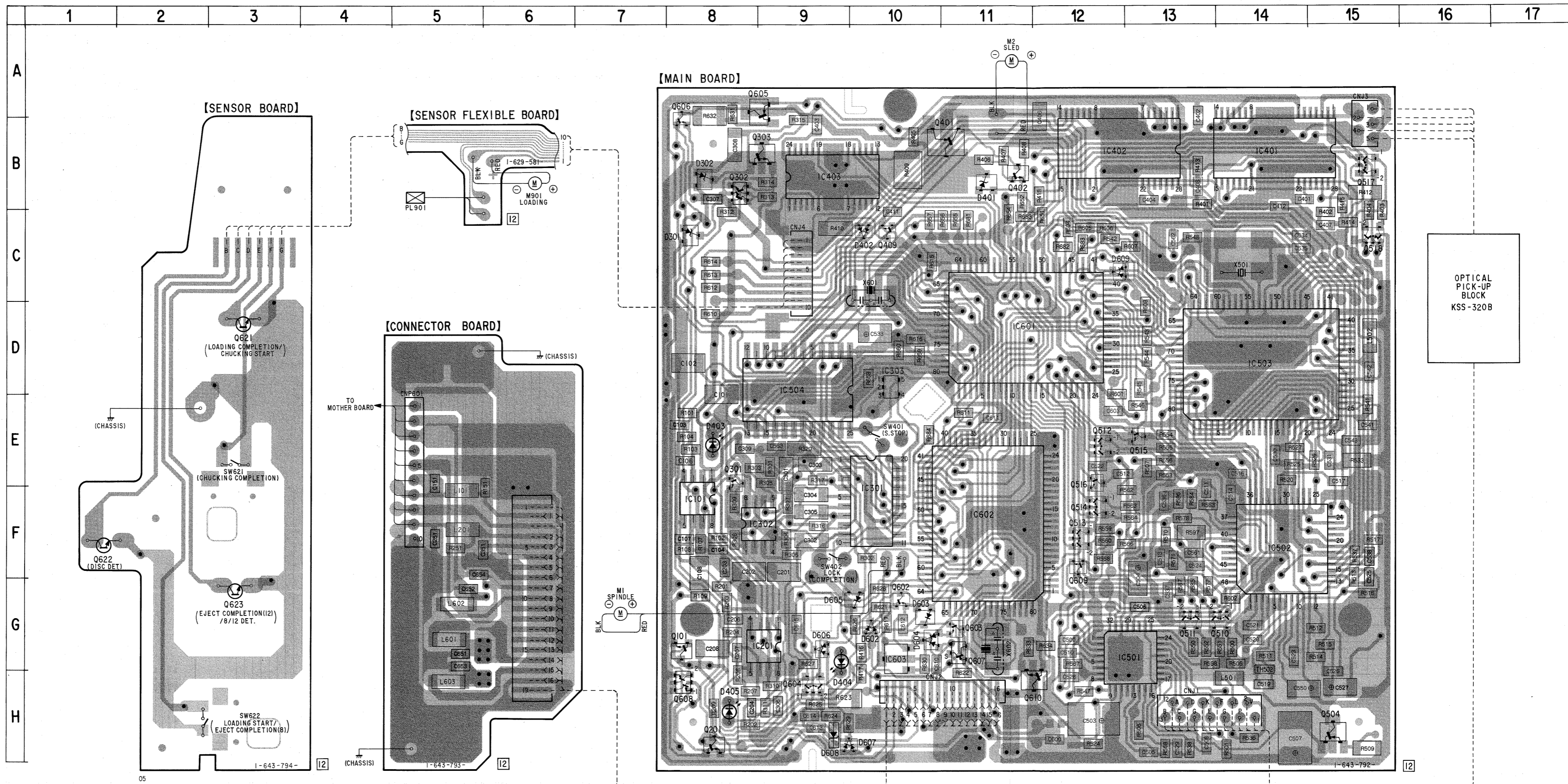
2-3. PRINTED WIRING BOARDS

• See page 20 for Semiconductor Lead Layouts.

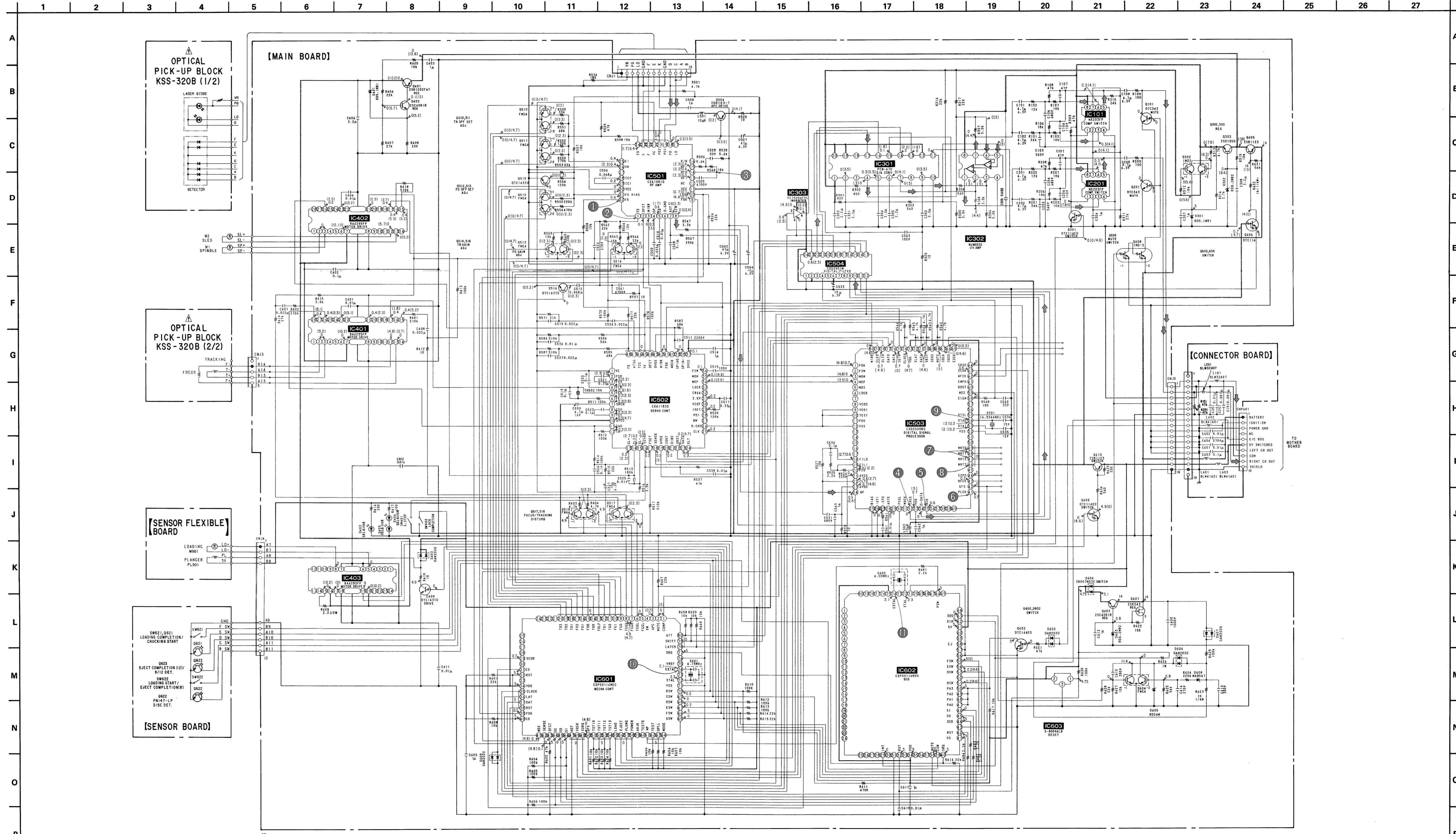
• Semiconductor Location

Ref. No.	Location
D301	C-8
D302	B-8
D401	B-11
D402	C-10
D403	E-8
D404	G-9
D405	H-8
D602	G-10
D603	G-10
D604	G-10
D605	G-10
D606	G-9
D607	H-10
D608	H-9
D609	C-12
IC101	F-8
IC201	G-9
IC301	F-10
IC302	F-8
IC303	D-10
IC401	B-14
IC402	B-12
IC403	B-9
IC501	G-13
IC502	F-14
IC503	D-14
IC504	D-9
IC601	D-11
IC602	F-11
IC603	G-10
Q101	G-8
Q201	H-8
Q301	E-8
Q302	B-8
Q303	B-9
Q401	B-11
Q402	B-11
Q409	C-10
Q504	H-15
Q510	G-14
Q511	G-13
Q512	E-12
Q513	F-12
Q514	F-12
Q515	E-13
Q516	E-12
Q517	B-15
Q518	C-15
Q602	G-10
Q603	G-11
Q604	H-9
Q605	A-8
Q606	A-8
Q607	G-11
Q608	H-8
Q609	F-12
Q610	F-11
Q621	D-3
Q622	F-1
Q623	G-3

Note:  
 • : Through hole.  
 • : Pattern of the rear side.  
 • : Pattern from the side which enables seeing.



2-4. SCHEMATIC DIAGRAM  
See page 17 for Waveforms, page 18 and 19 for IC Block Diagrams.



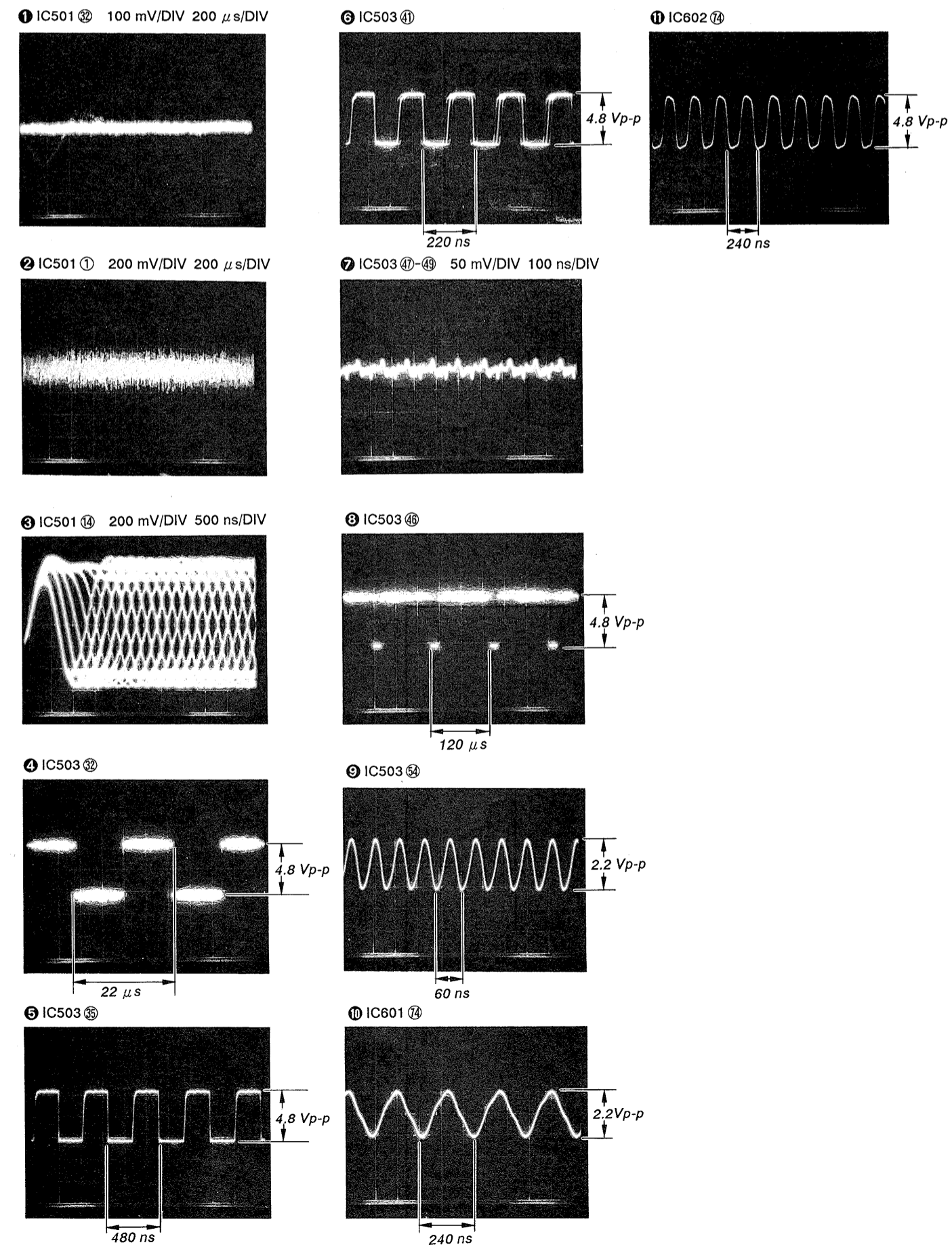
**Note:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{F}$ F 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}$  W or less unless otherwise specified.
- $\Delta$ : internal component.

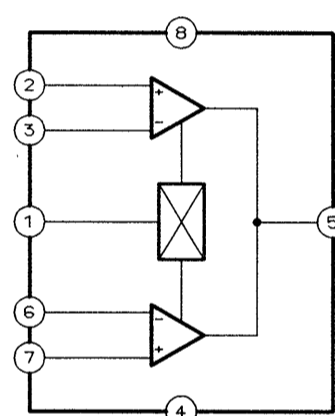
**Note:** The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

- $\text{---}$ : B+ Line.
- Power voltage is dc 14 V and fed with regulated dc power supply from external power voltage jack.
- Voltages and waveforms are dc with respect to ground under no-signal (disturbed) conditions.
- no mark: STOP
- ( ): PLAY
- Voltages are taken with a VOM (10  $\text{M}\Omega/\text{V}$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path
- $\Rightarrow$ : CD

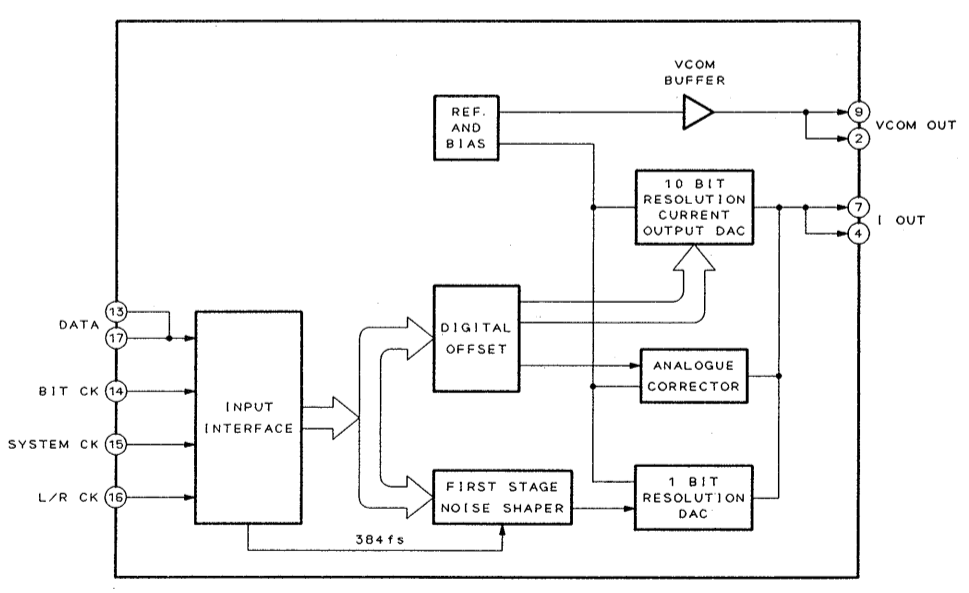
• Waveforms



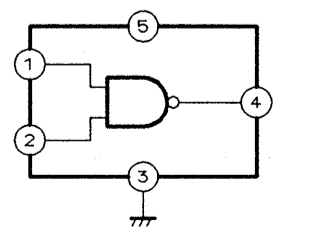
• IC Block Diagrams  
IC101, 201 M5203FP



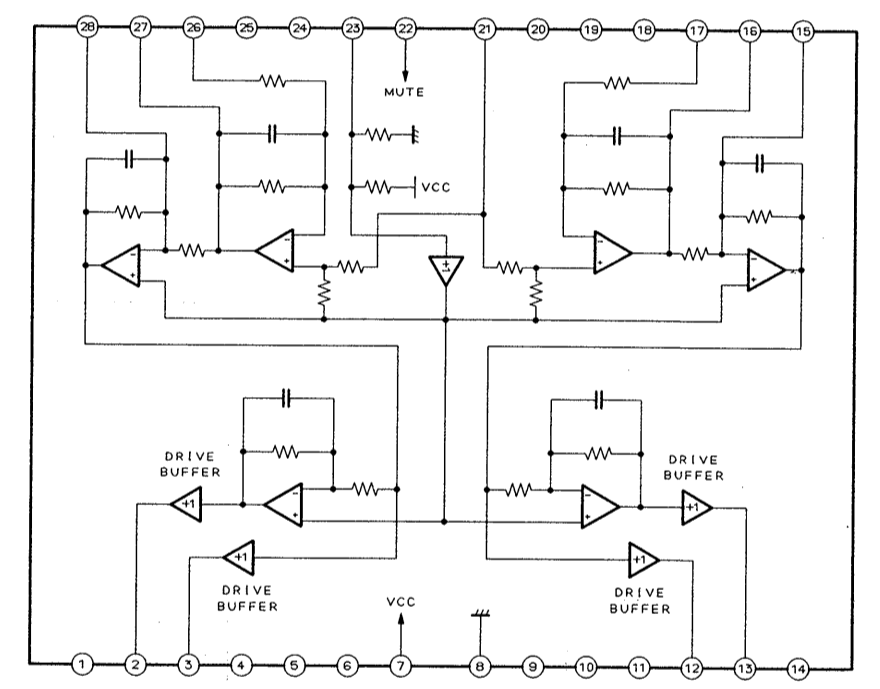
IC301 PCM67U-A



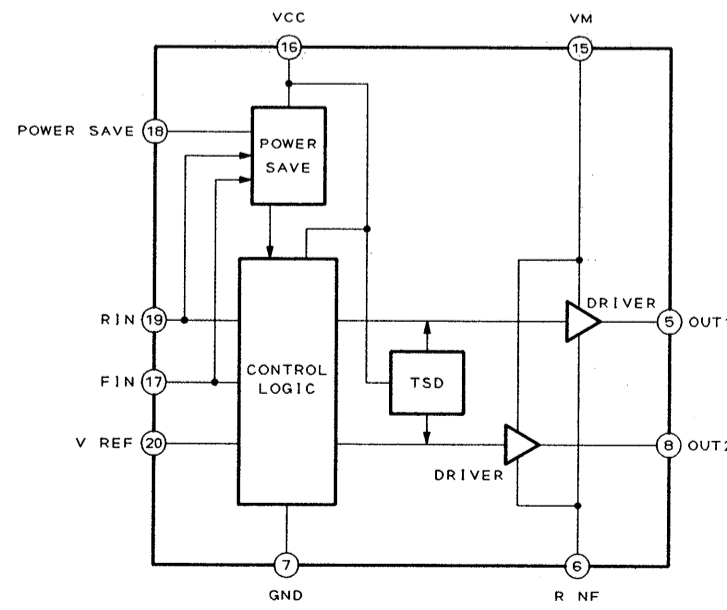
IC303 TC7SU04F



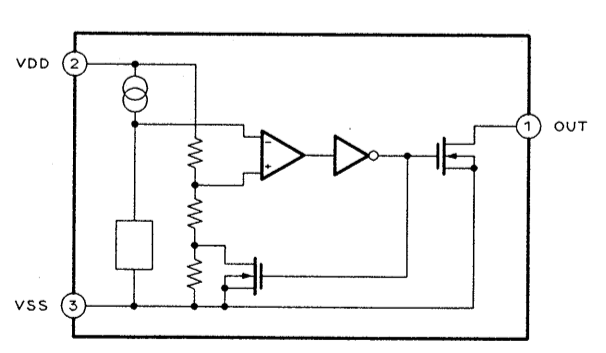
IC401, 402 BA6295FP



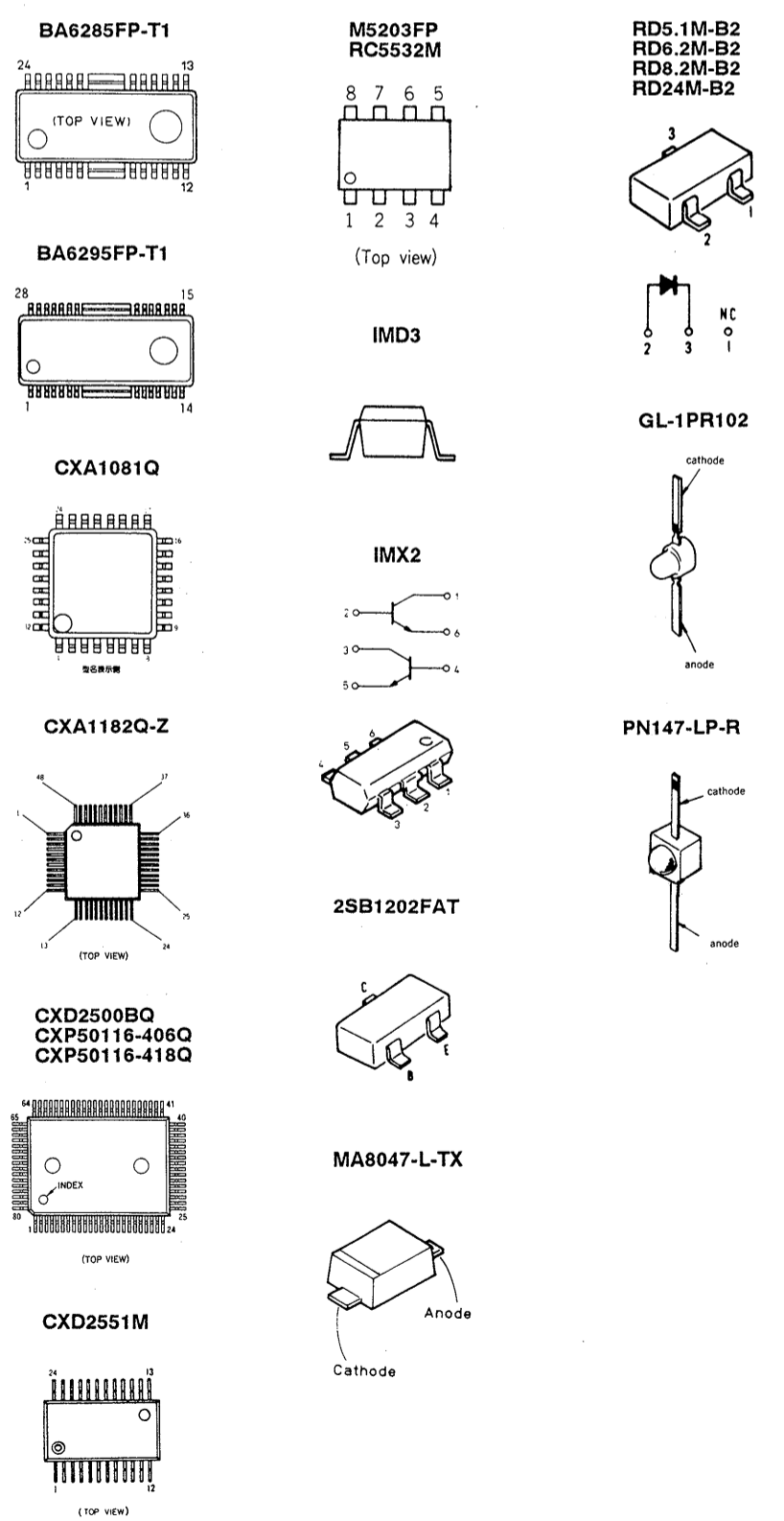
IC403 BA6285FP



IC603 S-8054ALB-LM-S



• Semiconductor Lead Layouts



## SECTION 3 EXPLODED VIEWS

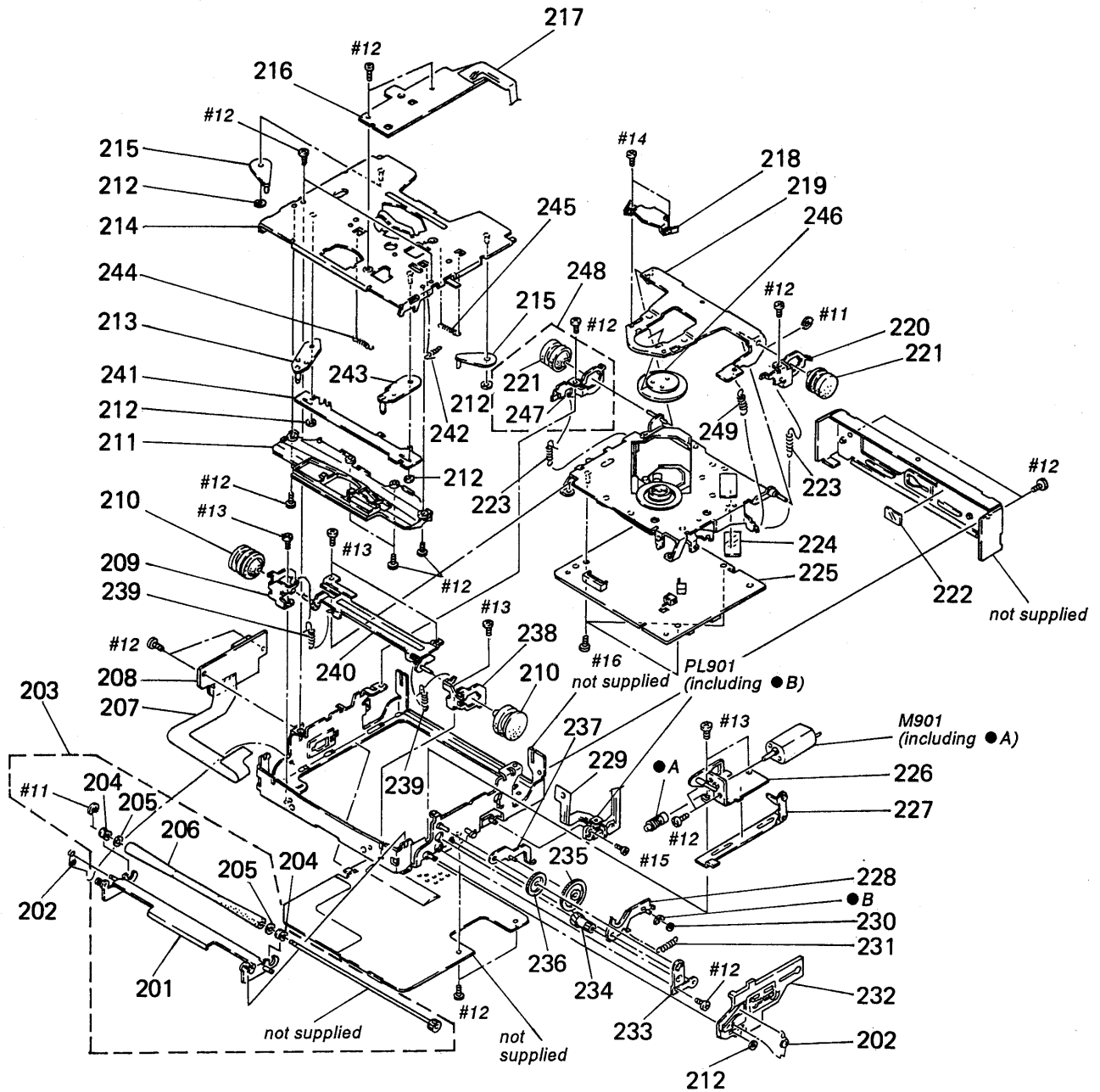
**NOTE:**

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts  
Example:  
KNOB, BALANCE (WHITE) ... (RED)  

↑ Parts Color    ↑ Cabinet's Color
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

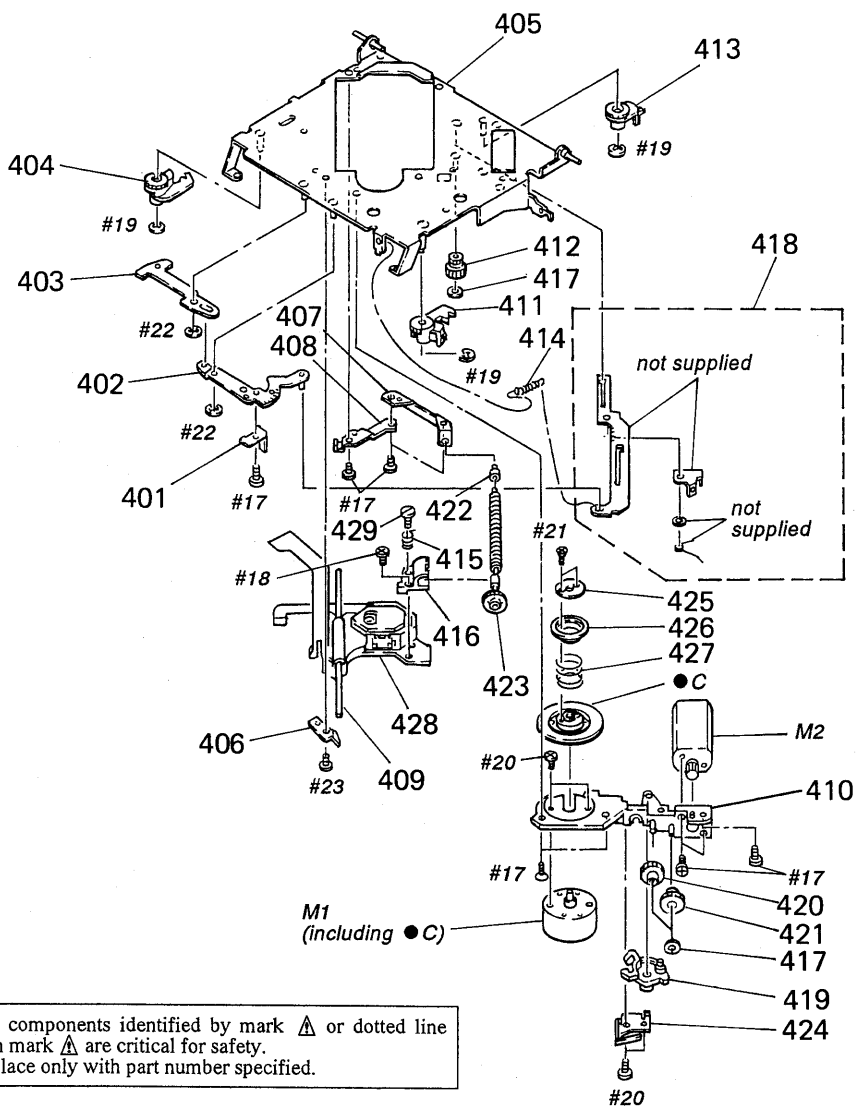
**3-1. MD SECTION 1**



Ref. No.	Part No.	Description	Remark
201	X-3365-468-1	BRACKET (ROLLER) ASSY	
202	3-351-437-01	SPRING (ROLLER)	
* 203	A-3252-479-A	ARM ASSY, DRIVING ROLLER	
204	3-351-416-01	BEARING (ROLLER SHAFT)	
205	3-701-438-11	WASHER, 2.5	
206	3-323-231-11	ROLLER (LOWER)	
207	1-643-862-11	RELAY FLEXIBLE BOARD	
208	1-643-793-11	CONNECTOR BOARD	
* 209	3-351-493-01	BRACKET (DUMPER B)	
210	3-382-049-02	DAMPER (SS)	
211	3-351-496-01	GUIDE (DISK 2)	
212	3-578-224-00	WASHER	
* 213	X-3351-425-1	LEVER (D DETECTION L2) ASSY	
* 214	X-3351-424-1	CHASSIS (T2) ASSY	
215	3-351-432-01	GEAR (DS)	
216	1-643-794-11	SENSOR BOARD	
217	1-629-581-11	SENSOR FLEXIBLE BOARD	
218	3-342-625-01	RETAINER (S2), THRUST	
* 219	3-351-453-01	ARM, CHUCKING	
* 220	3-351-494-01	BRACKET (DUMPER C)	
221	3-382-049-12	DAMPER (SS)	
* 222	3-351-464-01	SHEET (SM), INSULATING	
223	3-351-445-01	SPRING (FLOATING C, D), TENSION	
* 224	3-351-466-01	SHEET (TH1), INSULATING	
* 225	A-3273-910-A	MAIN BOARD, COMPLETE	
* 226	X-3351-419-1	BRACKET (M) ASSY	

Ref. No.	Part No.	Description	Remark
* 227	X-3351-418-1	LEVER (CH RELEASE) ASSY	
* 228	X-3351-421-1	LEVER (SW) ASSY	
229	1-629-581-11	SENSOR FLEXIBLE BOARD	
230	3-315-384-11	WASHER, STOPPER	
231	3-351-463-01	SPRING (SW LEVER 2), TENSION	
232	3-351-456-11	LEVER (L, E)	
* 233	3-351-482-01	RETAINER (SIDE GEAR 2)	
234	3-351-498-01	GEAR (B, WORM WHEEL)	
235	3-351-438-01	GEAR, CAM	
236	3-351-414-01	GEAR (C)	
* 237	X-3351-420-1	LEVER (GEAR C) ASSY	
* 238	3-351-492-01	BRACKET (DUMPER A)	
239	3-382-048-01	SPRING (FLOATING A, B) TENSION	
* 240	X-3351-423-1	BRACKET (F) ASSY	
* 241	3-351-489-02	JOINT (F2)	
242	3-351-448-01	SPRING (LOCK LEVER), TENSION	
* 243	X-3351-426-1	LEVER (D DETECTION R2) ASSY	
244	3-351-447-02	SPRING (JOINT F), TENSION	
245	3-351-446-01	SPRING (JOINT R), TENSION	
246	3-348-558-01	PLATE (F), CHUCK	
* 247	3-351-411-01	BRACKET (DAMPER D)	
248	A-3252-478-A	DAMPER (D) ASSY	
249	3-351-443-01	SPRING (CHUCKING), TENSION	
M901	A-3249-535-A	GEAR (A) ASSY (LOADING)	
PL901	1-454-461-11	SOLENOID, PLUNGER	

3-2. MD SECTION 2  
(KSM-320BBN)



Note: The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 401	2-626-170-01	PLATE (F), SWITCH	
* 402	X-2641-534-1	LEVER (A) ASSY, LOCK	
* 403	2-641-582-01	LEVER (B), LOCK	
* 404	2-643-414-02	GEAR (B), LOCK	
* 405	X-2625-446-1	CHASSIS ASSY (F), MAIN	
* 406	2-643-402-01	RETAINER (B), SHAFT	
* 407	2-643-403-01	RETAINER, FEED SCREW	
* 408	2-643-401-01	RETAINER (A), SHAFT	
* 409	2-640-632-01	SHAFT, GUIDE	
* 410	X-2625-417-3	CHASSIS ASSY (F), SUB	
* 411	2-643-413-02	GEAR (A), LOCK	
* 412	2-643-405-01	WHEEL, WORM	
* 413	2-641-599-05	GEAR (C), GEAR	
* 414	2-641-595-02	SPRING, TENSION	
* 415	2-626-169-01	SPRING (F), FEED NUT	
* 416	2-626-173-03	NUT (F), FEED	

Ref. No.	Part No.	Description	Remark
417	3-321-813-01	WASHER, COTTER POLYETHYLENE	
* 418	X-2641-546-1	LEVER (C) ASSY, LOCK	
* 419	2-643-406-02	LEVER, SELECTION	
* 420	2-643-410-01	GEAR (E)	
* 421	2-643-409-01	GEAR (D)	
* 422	2-626-168-01	RETAINER (F), THRUST	
* 423	A-4910-480-A	SCREW ASSY (F), FEED	
* 424	2-643-404-01	SPRING	
* 425	2-640-650-02	STOPPER, RING	
* 426	2-643-418-01	RING, CENTER	
* 427	2-640-617-02	SPRING, COMPRESSION	
$\Delta$ 428	8-848-224-11	DEVICE, OPTICAL KSS-320B	
* 429	2-626-167-01	SCREW (F), SP	
* M1	X-2625-418-3	MOTOR ASSY (F), TURNTABLE (SPINDLE)	
M2	A-4910-183-A	MOTOR ASSY, SL (SLED)	

**MAIN**

**SECTION 4  
ELECTRICAL PARTS LIST**

**NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA ..  $\mu$ A. uPA..  $\mu$ PA..  
uPB..  $\mu$ PB.. uPC..  $\mu$ PC.. uPD..  $\mu$ PD..
- CAPACITORS  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
*	A-3273-910-A	MAIN BOARD, COMPLETE *****	
		< CAPACITOR >	
C101	1-128-309-11	ELECT 4.7uF	20% 6.3V
C102	1-128-309-11	ELECT 4.7uF	20% 6.3V
C103	1-164-363-11	CERAMIC CHIP 560PF	5% 50V
C104	1-162-963-11	CERAMIC CHIP 680PF	10% 50V
C106	1-164-383-11	CERAMIC CHIP 110PF	5% 50V
C107	1-162-949-11	CERAMIC CHIP 47PF	5% 50V
C108	1-128-309-11	ELECT 4.7uF	20% 6.3V
C201	1-128-309-11	ELECT 4.7uF	20% 6.3V
C202	1-128-309-11	ELECT 4.7uF	20% 6.3V
C203	1-164-363-11	CERAMIC CHIP 560PF	5% 50V
C204	1-162-963-11	CERAMIC CHIP 680PF	10% 50V
C206	1-164-383-11	CERAMIC CHIP 110PF	5% 50V
C207	1-162-949-11	CERAMIC CHIP 47PF	5% 50V
C208	1-128-309-11	ELECT 4.7uF	20% 6.3V
C301	1-164-337-11	CERAMIC CHIP 2.2uF	16V
C302	1-164-337-11	CERAMIC CHIP 2.2uF	16V
C303	1-164-337-11	CERAMIC CHIP 2.2uF	16V
C304	1-164-337-11	CERAMIC CHIP 2.2uF	16V
C305	1-164-337-11	CERAMIC CHIP 2.2uF	16V
C306	1-164-346-11	CERAMIC CHIP 1uF	16V
C307	1-164-346-11	CERAMIC CHIP 1uF	16V
C308	1-164-337-11	CERAMIC CHIP 2.2uF	16V
C309	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C401	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C402	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C403	1-164-346-11	CERAMIC CHIP 1uF	16V
C404	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C406	1-164-337-11	CERAMIC CHIP 2.2uF	16V
C407	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C408	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C411	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C412	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C503	1-135-166-21	TANTALUM CHIP 47uF	10% 10V
C504	1-135-157-21	TANTALUM CHIP 10uF	20% 6.3V
C505	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V

Ref. No.	Part No.	Description	Remark
C506	1-164-344-11	CERAMIC CHIP 0.068uF	10% 25V
C507	1-135-166-21	TANTALUM CHIP 47uF	10% 10V
C508	1-164-346-11	CERAMIC CHIP 1uF	16V
C509	1-163-989-11	CERAMIC CHIP 0.033uF	10% 25V
C510	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C511	1-164-676-11	CERAMIC CHIP 2200PF	5% 16V
C512	1-164-344-11	CERAMIC CHIP 0.068uF	10% 25V
C513	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C514	1-164-346-11	CERAMIC CHIP 1uF	16V
C515	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C517	1-164-336-11	CERAMIC CHIP 0.33uF	25V
C519	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C520	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C521	1-164-336-11	CERAMIC CHIP 0.33uF	25V
C522	1-162-958-11	CERAMIC CHIP 270PF	5% 50V
C523	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C524	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C525	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C526	1-164-336-11	CERAMIC CHIP 0.33uF	25V
C527	1-135-157-21	TANTALUM CHIP 10uF	20% 6.3V
C528	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C529	1-162-921-11	CERAMIC CHIP 33PF	5% 50V
C530	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C531	1-162-963-11	CERAMIC CHIP 680PF	10% 50V
C533	1-135-157-21	TANTALUM CHIP 10uF	20% 6.3V
C534	1-162-942-11	CERAMIC CHIP 12PF	5% 50V
C535	1-162-942-11	CERAMIC CHIP 12PF	5% 50V
C536	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C537	1-164-227-11	CERAMIC CHIP 0.022uF	10% 25V
C538	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C541	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V
C542	1-164-346-11	CERAMIC CHIP 1uF	16V
C543	1-164-346-11	CERAMIC CHIP 1uF	16V
C550	1-135-155-21	TANTALUM CHIP 4.7uF	10% 16V
C561	1-162-968-11	CERAMIC CHIP 0.0047uF	10% 50V
C562	1-162-921-11	CERAMIC CHIP 33PF	5% 50V
C563	1-162-927-11	CERAMIC CHIP 100PF	5% 50V
C600	1-162-964-11	CERAMIC CHIP 0.001uF	10% 50V
C603	1-164-346-11	CERAMIC CHIP 1uF	16V
C610	1-162-970-11	CERAMIC CHIP 0.01uF	10% 25V

Ref. No.	Part No.	Description	Remark
C611	1-164-346-11	CERAMIC CHIP 1uF	16V
C612	1-164-346-11	CERAMIC CHIP 1uF	16V
C613	1-164-392-11	CERAMIC CHIP 390PF	5% 50V
C614	1-162-958-11	CERAMIC CHIP 270PF	5% 50V
C615	1-164-392-11	CERAMIC CHIP 390PF	5% 50V

< CONNECTOR >

CNJ1	1-568-142-11	HOUSING, CONNECTOR 13P	
CNJ2	1-566-532-11	CONNECTOR, FPC (ZIF) 16P	
CNJ3	1-568-141-11	HOUSING, CONNECTOR 5P	
CNJ4	1-566-526-11	CONNECTOR, FPC (ZIF) 10P	

< DIODE >

D301	8-719-105-82	DIODE RD5. 1M-B2	
D302	8-719-106-35	DIODE RD8. 2M-B2	
D401	8-719-105-82	DIODE RD5. 1M-B2	
D402	8-719-941-86	DIODE DAN202U	
D403	8-719-032-38	LED SEL6110R-TP5 (LOADING COMPLETION/ CHUCKING START)	
D404	8-719-032-38	LED SEL6110R-TP5 (DISC DET.)	
D405	8-719-032-38	LED SEL6110R-TP5 (EJECT COMPLETION (12) /8/2 DET.)	
D602	8-719-941-86	DIODE DAN202U	
D603	8-719-106-08	DIODE RD6. 2M-B2	
D604	8-719-986-76	DIODE SB007W03C	
D605	8-719-107-43	DIODE RD24M-B2	
D606	8-719-941-86	DIODE DAN202U	
D607	8-719-941-86	DIODE DAN202U	
D608	8-719-422-29	DIODE MA8047-L-TX	
D609	8-719-941-86	DIODE DAN202U	

< IC >

IC101	8-759-604-64	IC M5203FP	
IC201	8-759-604-64	IC M5203FP	
IC301	8-759-070-98	IC PCM67U-A	
IC302	8-759-982-04	IC RC5532M	
IC303	8-759-243-19	IC TC7SU04F	
IC401	8-759-504-70	IC BA6295FP	
IC402	8-759-504-70	IC BA6295FP	
IC403	8-759-054-67	IC BA6285FP	
IC501	8-752-033-14	IC CXA1081Q	
IC502	8-752-037-48	IC CXA1182Q-Z	
IC503	8-752-352-93	IC CXD2500BQ	
IC504	8-752-334-07	IC CXD2551M	
IC601	8-752-835-66	IC CXP50116-406Q	
IC602	8-752-835-65	IC CXP50116-418Q	
IC603	8-759-937-56	IC S-8054ALB-LM-S	

Ref. No.	Part No.	Description	Remark
		< COIL >	
L501	1-410-204-31	INDUCTOR CHIP 10uH	
L502	1-410-204-31	INDUCTOR CHIP 10uH	

< TRANSISTOR >

Q101	8-729-920-31	TRANSISTOR DTC343TK	
Q201	8-729-920-31	TRANSISTOR DTC343TK	
Q301	8-729-907-00	TRANSISTOR DTC114EU	
Q302	8-729-920-59	TRANSISTOR IMX2	
Q303	8-729-320-66	TRANSISTOR 2SD1870	
Q401	8-729-820-47	TRANSISTOR 2SB1202FAT	
Q402	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q409	8-729-922-94	TRANSISTOR DTC143TU	
Q504	8-729-807-35	TRANSISTOR 2SB123-T	
Q510	8-729-902-93	TRANSISTOR FMG4	
Q511	8-729-902-93	TRANSISTOR FMG4	
Q512	8-729-902-93	TRANSISTOR FMG4	
Q513	8-729-902-93	TRANSISTOR FMG4	
Q514	8-729-902-93	TRANSISTOR FMG4	
Q515	8-729-922-94	TRANSISTOR DTC143TU	
Q516	8-729-922-94	TRANSISTOR DTC143TU	
Q517	8-729-902-93	TRANSISTOR FMG4	
Q518	8-729-902-90	TRANSISTOR FMA4	
Q602	8-729-905-18	TRANSISTOR DTC144EU	
Q603	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q604	8-729-902-93	TRANSISTOR FMG4	
Q605	8-729-807-35	TRANSISTOR 2SB1123-T	
Q606	8-729-907-00	TRANSISTOR DTC114EU	
Q607	8-729-809-68	TRANSISTOR 2SK543-CJ4-TB	
Q608	8-729-907-28	TRANSISTOR IMD3	
Q609	8-729-907-00	TRANSISTOR DTC114EU	
Q610	8-729-807-35	TRANSISTOR 2SB1123-T	

< RESISTOR >

R101	1-218-293-11	METAL GLAZE	24K	5%	1/16W
R102	1-216-834-11	METAL CHIP	12K	5%	1/16W
R103	1-216-833-11	METAL CHIP	10K	5%	1/16W
R104	1-216-836-11	METAL CHIP	18K	5%	1/16W
R107	1-216-833-11	METAL CHIP	10K	5%	1/16W
R108	1-216-841-11	METAL CHIP	47K	5%	1/16W
R109	1-216-809-11	METAL CHIP	100	5%	1/16W
R201	1-218-293-11	METAL GLAZE	24K	5%	1/16W
R202	1-216-834-11	METAL CHIP	12K	5%	1/16W
R203	1-216-833-11	METAL CHIP	10K	5%	1/16W
R204	1-216-836-11	METAL CHIP	18K	5%	1/16W
R207	1-216-833-11	METAL CHIP	10K	5%	1/16W
R208	1-216-841-11	METAL CHIP	47K	5%	1/16W
R209	1-216-809-11	METAL CHIP	100	5%	1/16W



**MAIN**

Ref. No.	Part No.	Description	Quantity	Unit	Remark
R301	1-216-820-11	METAL CHIP	820	5%	1/16W
R302	1-216-820-11	METAL CHIP	820	5%	1/16W
R303	1-216-818-11	METAL CHIP	560	5%	1/16W
R304	1-216-818-11	METAL CHIP	560	5%	1/16W
R305	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R306	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R307	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R308	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R309	1-216-841-11	METAL CHIP	47K	5%	1/16W
R310	1-218-293-11	METAL GLAZE	24K	5%	1/16W
R311	1-216-838-11	METAL CHIP	27K	5%	1/16W
R312	1-216-833-11	METAL CHIP	10K	5%	1/16W
R313	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R314	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R315	1-216-833-11	METAL CHIP	10K	5%	1/16W
R316	1-216-837-11	METAL CHIP	22K	5%	1/16W
R317	1-216-837-11	METAL CHIP	22K	5%	1/16W
R320	1-216-150-00	METAL GLAZE	10	5%	1/8W
R401	1-216-850-11	METAL CHIP	270K	5%	1/16W
R402	1-216-850-11	METAL CHIP	270K	5%	1/16W
R403	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R404	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R405	1-216-833-11	METAL CHIP	10K	5%	1/16W
R406	1-216-837-11	METAL CHIP	22K	5%	1/16W
R407	1-216-838-11	METAL CHIP	27K	5%	1/16W
R408	1-216-815-11	METAL CHIP	330	5%	1/16W
R409	1-220-149-11	METAL GLAZE	2.2	10%	1/2W
R410	1-216-150-00	METAL GLAZE	10	5%	1/8W
R412	1-216-150-00	METAL GLAZE	10	5%	1/8W
R413	1-216-845-11	METAL CHIP	100K	5%	1/16W
R414	1-216-838-11	METAL CHIP	27K	5%	1/16W
R415	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R416	1-216-815-11	METAL CHIP	330	5%	1/16W
R417	1-216-809-11	METAL CHIP	100	5%	1/16W
R418	1-218-273-11	METAL GLAZE	510K	5%	1/16W
R500	1-216-839-11	METAL CHIP	33K	5%	1/16W
R501	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R505	1-216-841-11	METAL CHIP	47K	5%	1/16W
R508	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R507	1-216-836-11	METAL CHIP	18K	5%	1/16W
R509	1-216-150-00	METAL GLAZE	10	5%	1/8W
R511	1-216-845-11	METAL CHIP	100K	5%	1/16W
R512	1-216-845-11	METAL CHIP	100K	5%	1/16W
R513	1-216-845-11	METAL CHIP	100K	5%	1/16W
R514	1-216-845-11	METAL CHIP	100K	5%	1/16W
R515	1-216-837-11	METAL CHIP	22K	5%	1/16W
R516	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R517	1-218-273-11	METAL GLAZE	510K	5%	1/16W

Ref. No.	Part No.	Description	Quantity	Unit	Remark
R520	1-216-846-11	METAL CHIP	120K	5%	1/16W
R524	1-216-837-11	METAL CHIP	22K	5%	1/16W
R525	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R526	1-216-849-11	METAL CHIP	220K	5%	1/16W
R527	1-216-833-11	METAL CHIP	10K	5%	1/16W
R533	1-216-150-00	METAL GLAZE	10	5%	1/8W
R536	1-216-812-11	METAL CHIP	180	5%	1/16W
R537	1-216-841-11	METAL CHIP	47K	5%	1/16W
R538	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R541	1-216-833-11	METAL CHIP	10K	5%	1/16W
R542	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R543	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R544	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R545	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R546	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R547	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R548	1-216-812-11	METAL CHIP	180	5%	1/16W
R550	1-216-850-11	METAL CHIP	270K	5%	1/16W
R551	1-216-843-11	METAL CHIP	68K	5%	1/16W
R552	1-218-332-11	METAL GLAZE	130K	5%	1/16W
R553	1-216-837-11	METAL CHIP	22K	5%	1/16W
R554	1-216-846-11	METAL CHIP	120K	5%	1/16W
R555	1-216-849-11	METAL CHIP	220K	5%	1/16W
R556	1-216-853-11	METAL CHIP	470K	5%	1/16W
R558	1-216-833-11	METAL CHIP	10K	5%	1/16W
R559	1-216-994-11	METAL GLAZE	13K	5%	1/16W
R560	1-216-839-11	METAL CHIP	33K	5%	1/16W
R562	1-216-837-11	METAL CHIP	22K	5%	1/16W
R563	1-216-835-11	METAL CHIP	15K	5%	1/16W
R564	1-216-839-11	METAL CHIP	33K	5%	1/16W
R566	1-216-837-11	METAL CHIP	22K	5%	1/16W
R567	1-216-851-11	METAL CHIP	330K	5%	1/16W
R568	1-216-836-11	METAL CHIP	18K	5%	1/16W
R570	1-216-845-11	METAL CHIP	100K	5%	1/16W
R571	1-216-839-11	METAL CHIP	33K	5%	1/16W
R577	1-216-839-11	METAL CHIP	33K	5%	1/16W
R578	1-216-833-11	METAL CHIP	10K	5%	1/16W
R583	1-216-843-11	METAL CHIP	68K	5%	1/16W
R584	1-216-842-11	METAL CHIP	56K	5%	1/16W
R585	1-216-843-11	METAL CHIP	68K	5%	1/16W
R586	1-218-273-11	METAL GLAZE	510K	5%	1/16W
R587	1-218-273-11	METAL GLAZE	510K	5%	1/16W
R597	1-216-150-00	METAL GLAZE	10	5%	1/8W
R598	1-216-833-11	METAL CHIP	10K	5%	1/16W
R601	1-216-837-11	METAL CHIP	22K	5%	1/16W
R602	1-216-841-11	METAL CHIP	47K	5%	1/16W
R604	1-216-845-11	METAL CHIP	100K	5%	1/16W
R605	1-216-845-11	METAL CHIP	100K	5%	1/16W

<b>MAIN</b>	<b>CONNECTOR</b>	<b>SENSOR</b>
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Ref. No.	Part No.	Description	Remark
R606	1-216-845-11	METAL CHIP	100K 5% 1/16W
R607	1-216-837-11	METAL CHIP	22K 5% 1/16W
R608	1-216-833-11	METAL CHIP	10K 5% 1/16W
R610	1-216-845-11	METAL CHIP	100K 5% 1/16W
R611	1-216-853-11	METAL CHIP	470K 5% 1/16W
R612	1-216-845-11	METAL CHIP	100K 5% 1/16W
R613	1-216-845-11	METAL CHIP	100K 5% 1/16W
R614	1-216-837-11	METAL CHIP	22K 5% 1/16W
R615	1-216-837-11	METAL CHIP	22K 5% 1/16W
R616	1-216-837-11	METAL CHIP	22K 5% 1/16W
R617	1-216-833-11	METAL CHIP	10K 5% 1/16W
R621	1-216-841-11	METAL CHIP	47K 5% 1/16W
R622	1-216-835-11	METAL CHIP	15K 5% 1/16W
R623	1-220-238-11	METAL GLAZE	10 5% 1/4W
R624	1-216-849-11	METAL CHIP	220K 5% 1/16W
R625	1-216-842-11	METAL CHIP	56K 5% 1/16W
R626	1-216-857-11	METAL CHIP	1M 5% 1/16W
R627	1-216-833-11	METAL CHIP	10K 5% 1/16W
R628	1-216-837-11	METAL CHIP	22K 5% 1/16W
R629	1-216-845-11	METAL CHIP	100K 5% 1/16W
R630	1-216-845-11	METAL CHIP	100K 5% 1/16W
R631	1-216-842-11	METAL CHIP	56K 5% 1/16W
R632	1-220-264-11	METAL GLAZE	1K 5% 1/4W
R633	1-216-815-11	METAL CHIP	330 5% 1/16W
R634	1-216-818-11	METAL CHIP	560 5% 1/16W
R651	1-216-833-11	METAL CHIP	10K 5% 1/16W
R652	1-216-833-11	METAL CHIP	10K 5% 1/16W
R653	1-216-833-11	METAL CHIP	10K 5% 1/16W
R654	1-216-833-11	METAL CHIP	10K 5% 1/16W
R655	1-216-833-11	METAL CHIP	10K 5% 1/16W
R656	1-216-833-11	METAL CHIP	10K 5% 1/16W
R657	1-216-833-11	METAL CHIP	10K 5% 1/16W
R658	1-216-833-11	METAL CHIP	10K 5% 1/16W
R659	1-216-833-11	METAL CHIP	10K 5% 1/16W
R660	1-216-833-11	METAL CHIP	10K 5% 1/16W
R681	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R682	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R683	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R684	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
< SWITCH >			
SW401	1-571-958-11	SWITCH, PUSH (1 KEY) (S, STOP)	
SW402	1-571-958-11	SWITCH, PUSH (1 KEY) (LOCK COMPLETION)	
< THERMISTOR >			
TH502	1-809-357-21	THERMISTOR, NTC (2125)	

Ref. No.	Part No.	Description	Remark
< VIBRATOR >			
X501	1-579-186-21	VIBRATOR, CRYSTAL (16.9344MHz)	
X601	1-579-063-21	VIBRATOR, CERAMIC (4.19MHz)	
X602	1-579-902-21	VIBRATOR, CERAMIC (4.00MHz)	
*****			
1-643-793-11 CONNECTOR BOARD			
*****			
< CAPACITOR >			
C151	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C251	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C351	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C651	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C652	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C653	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C654	1-162-958-11	CERAMIC CHIP	270PF 5% 50V
< CONNECTOR >			
CNP601	1-566-007-31	PIN, CONNECTOR (PC BOARD) 10P	
< COIL >			
L101	1-543-813-21	FILTER, EMI	
L201	1-543-813-21	FILTER, EMI	
L601	1-412-364-11	INDUCTOR 0uH	
L602	1-412-364-11	INDUCTOR 0uH	
L603	1-412-364-11	INDUCTOR 0uH	
< RESISTOR >			
R151	1-216-841-11	METAL CHIP	47K 5% 1/16W
R251	1-216-841-11	METAL CHIP	47K 5% 1/16W
*****			
1-643-794-11 SENSOR BOARD			
*****			
< TRANSISTOR >			
Q621	8-729-017-82	TRANSISTOR PN147-LP-R (LOADING COMPLETION/CHUCKING START)	
Q622	8-729-017-82	TRANSISTOR PN147-LP-R (DISC DET.)	
Q623	8-729-017-82	TRANSISTOR PN147-LP-R (EJECT COMPLETION(12)/8/12 DET.)	
< SWITCH >			
SW621	1-571-754-11	SWITCH, PUSH (1 KEY) (LOADING COMPLETION /CHUCKING START)	
SW622	1-571-754-11	SWITCH, PUSH (1 KEY) (LOADING START/EJECT COMPLETION(8))	
*****			

Ref.No.	Part No.	Description	Remark
		MISCELLANEOUS *****	
207	1-643-862-11	RELAY FLEXIBLE BOARD	
229	1-629-581-11	SENSOR FLEXIBLE BOARD	
△428	8-848-224-11	DEVICE, OPTICAL KSS-320B	
* M1	X-2625-418-3	MOTOR ASSY (F), TURNTABLE (SPINDLE)	
M2	A-4910-183-A	MOTOR ASSY, SL (SLED)	
M901	A-3249-535-A	GEAR (A) ASSY (LOADING)	
PL901	1-454-461-11	SOLENOID, PLUNGER	

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**HARDWARE LIST**  
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#11	7-624-104-04	STOP RING 2.0, TYPE -E
#12	7-627-553-37	SCREW, PRECISION +P 2X3
#13	7-627-553-28	SCREW, PRECISION +P 2X2.5
#14	7-627-552-18	SCREW, PRECISION +P 1.7X1.6
#15	7-627-850-57	SCREW, PRECISION +P 1.4X3.5
#16	7-621-772-20	SCREW +B 2X5
#17	7-627-554-18	SCREW, PRECISION +P 2X3.5 TYPE1
#18	7-627-852-17	+P 1.7X4
#19	7-624-106-04	STOP RING 3.0, TYPE -E
#20	7-627-552-08	SCREW, PRECISION +P 1.7X2.5
#21	7-627-451-17	SCREW, PRECISION +K 1.4X2.5
#22	7-624-104-04	STOP RING 2.0, TYPE -E
#23	7-627-853-07	PRECISION SCREW +P 2X2 TYPE3

The components identified by  
 mark △ or dotted line with mark.  
 △ are critical for safety.  
 Replace only with part number  
 specified.