

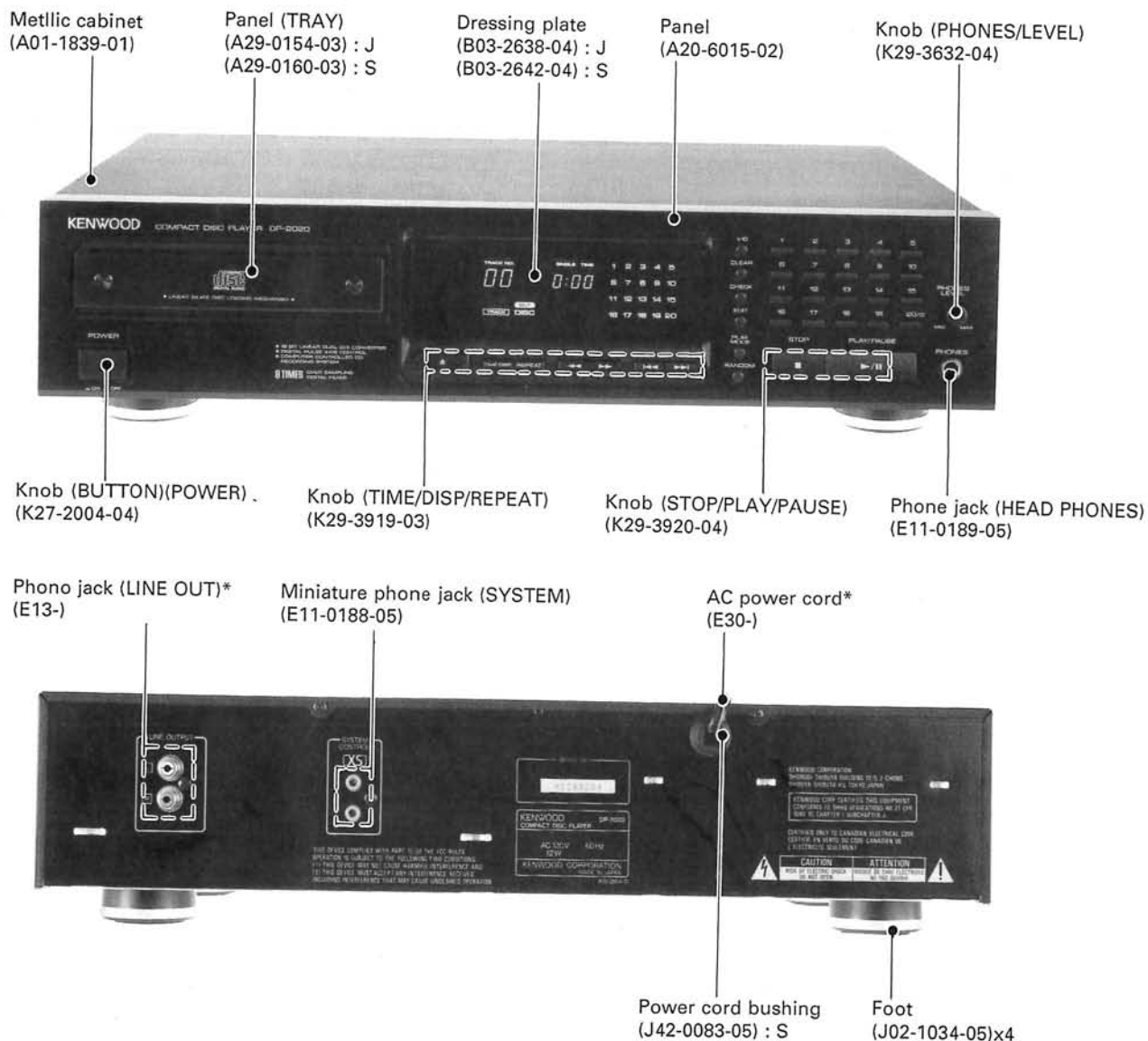
DP-2020/3020/4020

SERVICE MANUAL

KENWOOD

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Photo is DP-2020



In compliance with Federal Regulations, following are reproductions of labels on, or inside the product relating to laser product safety.

KENWOOD-Corp. certifies this equipment conforms to DHHS Regulations No. 21 CFR 1040. 10, Chapter 1, Subchapter J.

DANGER : Laser radiation when open and interlock defeated. AVOID DIRECT EXPOSURE TO BEAM.

J : Japan made
S : Singapore made
F : France made

***Refer to parts list on page 55.**

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		JAPAN MADE	SINGAPORE MADE	FRANCE MADE
DP-2020	CONTROL UNIT	X32-1600-12 (K,P) X32-1600-23 (M,Y) X32-1600-72 (X)	X32-1620-12 (K)	—
	MECHANISM ASS'Y	X92-1370-05 (CDM-14)	X92-1400-05 (CDM-14)	—
DP-3020	CONTROL UNIT	X32-1600-11 (K,P) X32-1600-22 (M,Y)	X32-1620-11 (K) X32-1622-72 (T,E)	X32-1642-71 (T,E)
	MECHANISM ASS'Y	X92-1370-05	X92-1400-05	X92-1410-00 (CDM-14)
DP-4020	CONTROL UNIT	X32-1600-10 (K,P) X32-1600-21 (M,Y) X32-1600-71 (X)	X32-1620-10 (K) X32-1622-71 (T,E)	X32-1642-70 (T,E)
	MECHANISM ASS'Y	X92-1370-05	X92-1400-05	X92-1410-00

*() : Destination

Caution :

The mechanism ass'y used with three types depending on the manufacturing location. (Japan, Singapore, France)

NOTE :

3 models are written in this manual. Before using this manual, please check manufacturing place and PC board ass'y number.
Control PC board ass'y (X32-) parts list (page 61) is written the parts for all of 3 models.
Refer to comparison table in schematic diagram.

EXTERIOR VIEW

Photo is DP-3020 (The back is common with the DP-2020)

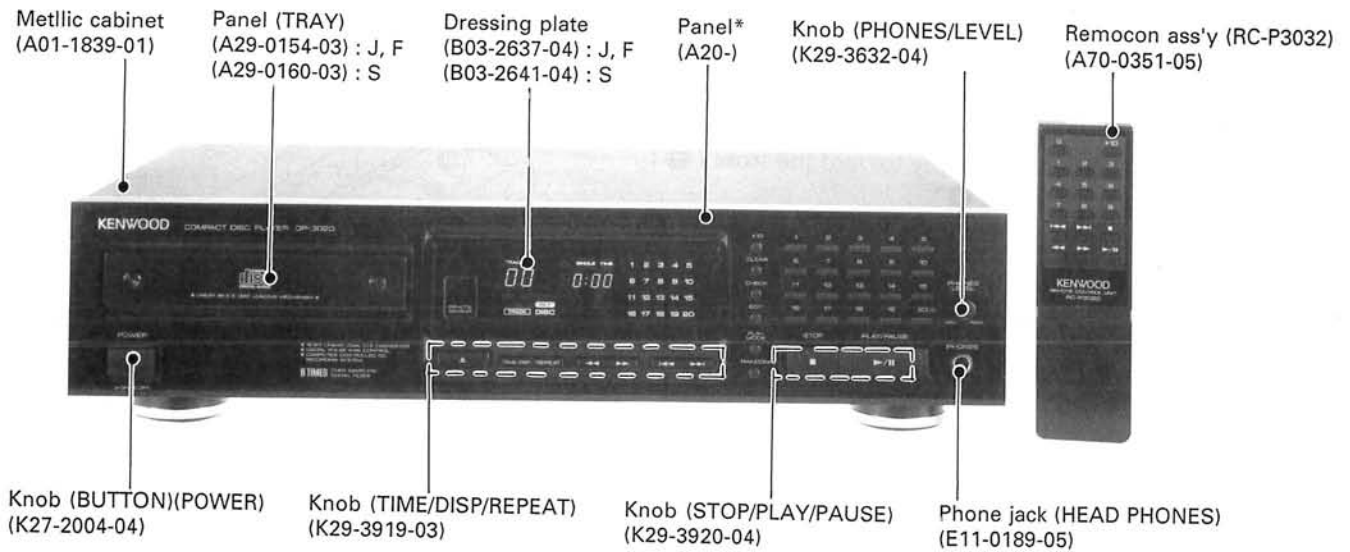
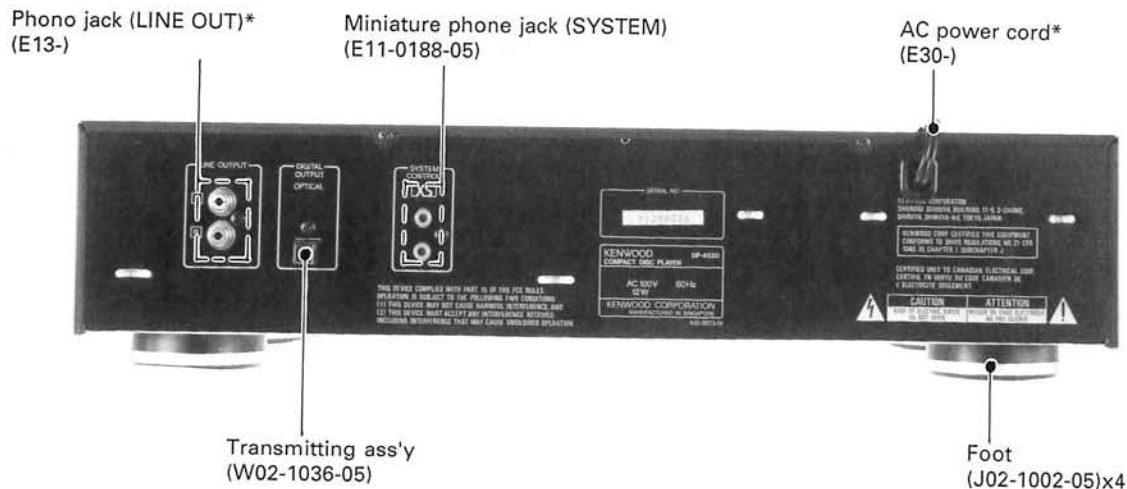
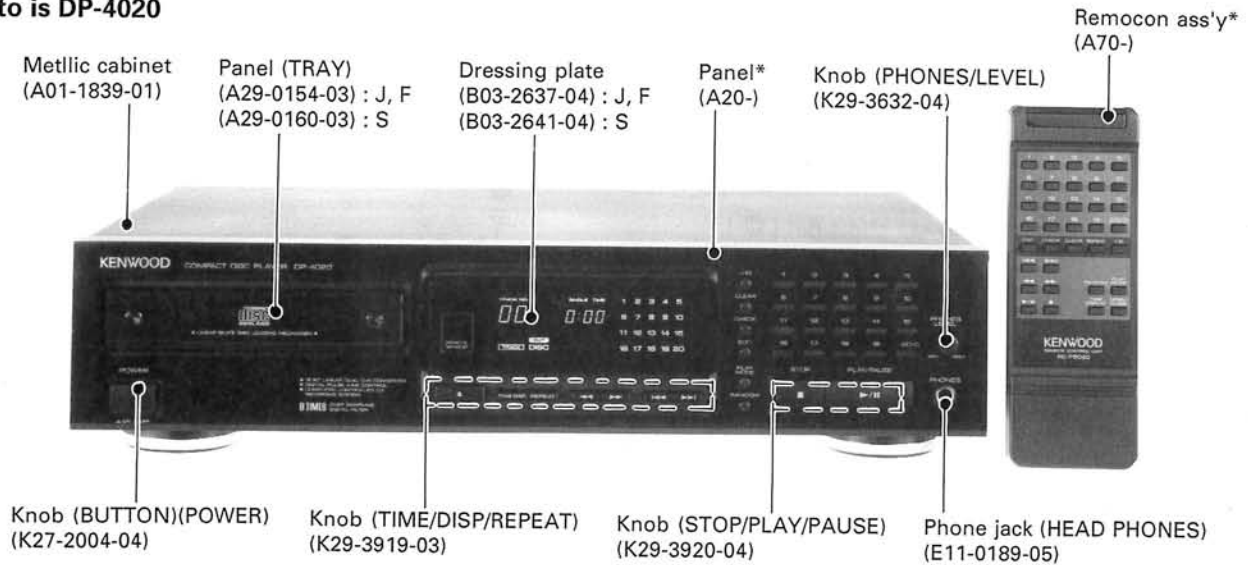


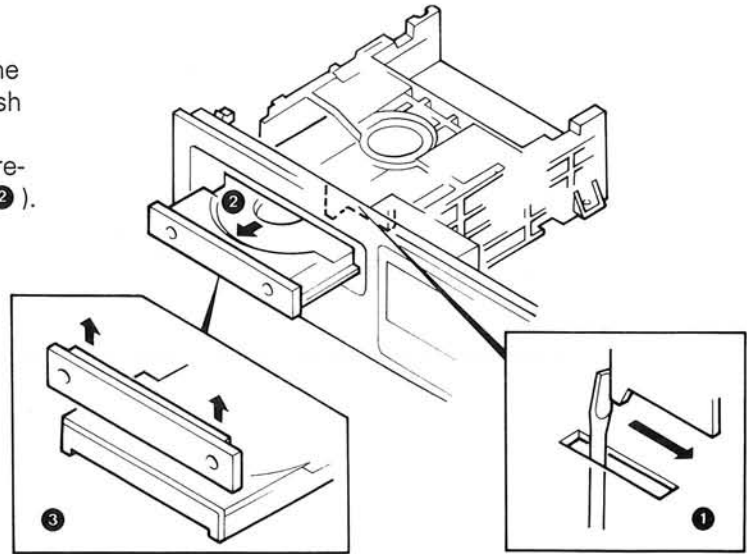
Photo is DP-4020



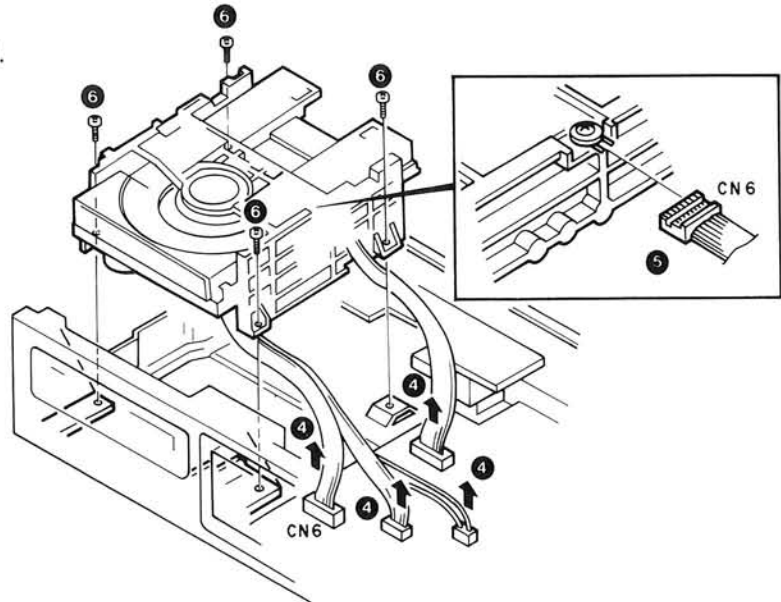
DISASSEMBLY FOR REPAIR

1. Removing the out side fittings

1. Insert the screwdriver into the hole located on the bottom of the unit, as shown in the figure, and push the lever with the screwdriver (❶).
2. When the tray comes out slightly, the gear is released. Then take out the tray toward the front (❷).
3. Remove the tray panel (❸).

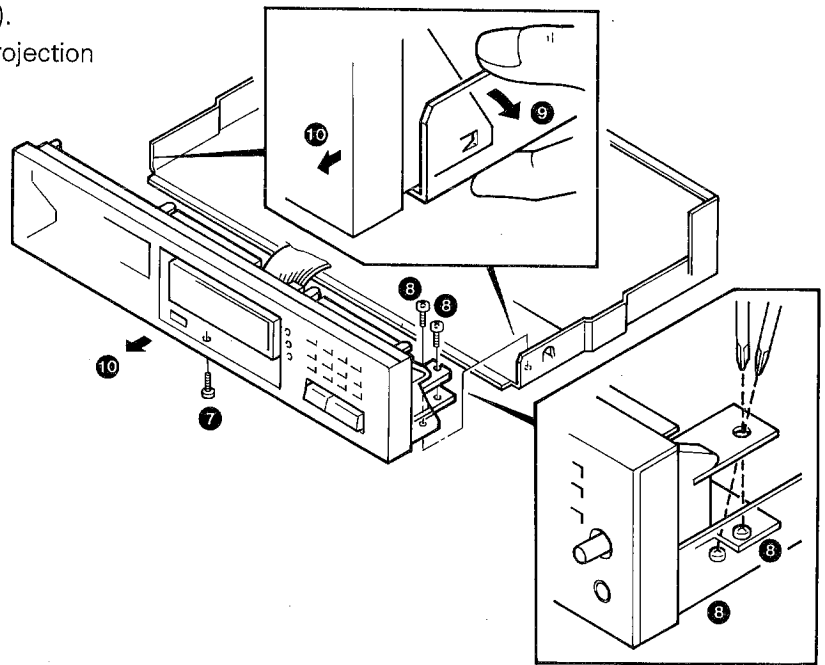


4. Pull out 4 cables (❹).
5. Insert the connector CN6 to LD short pin (❺).
6. Unscrew the 4 screws (❻).

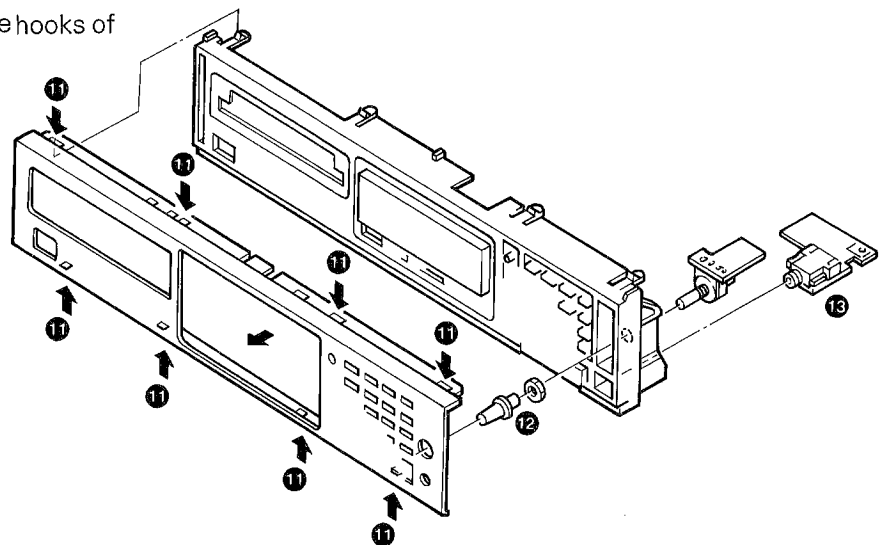


DISASSEMBLY FOR REPAIR

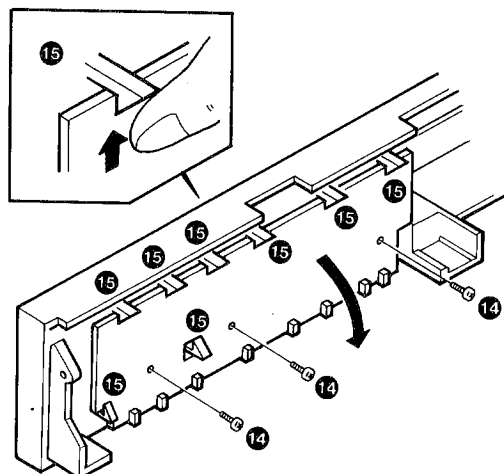
7. Unscrew the screw (7) and 2 screws (8).
8. Remove the panel while sliding the panel projection (9), (10).



9. Remove the front panel while pushing the hooks of the sub panel (11).
10. Pull out the knob and the nut (12).



11. Remove the phonesPC board while pushing the hook PHONE jack (13).
12. Unscrew the 3 screws (14) and remove the PC board while sliding the hooks (15).



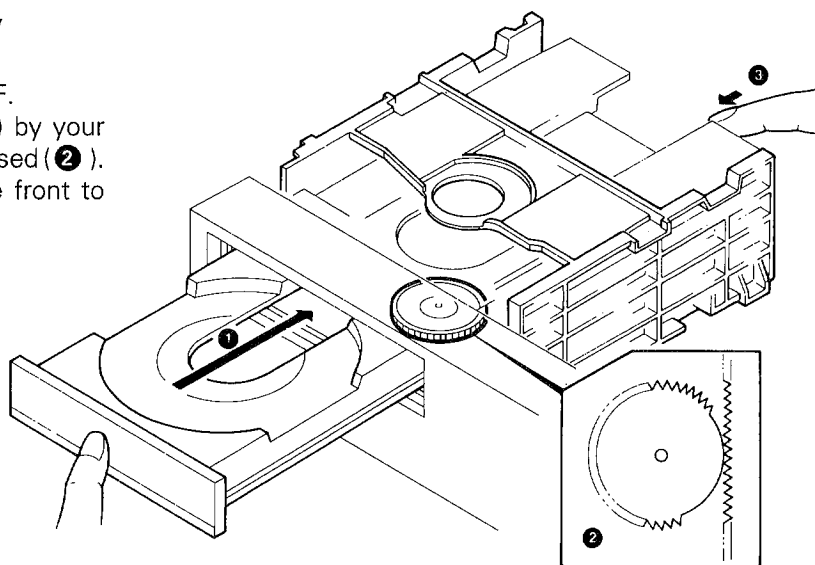
DISASSEMBLY FOR REPAIR

2. Removing and Installing the Tray

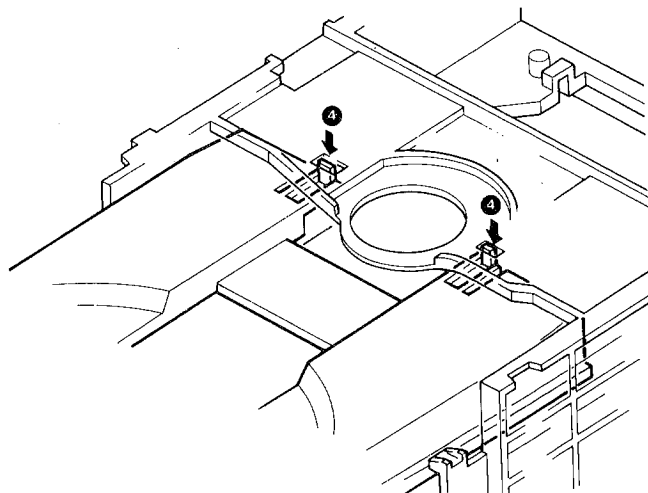
2-1. Removing the tray

* Open the disc tray and turn the power OFF.

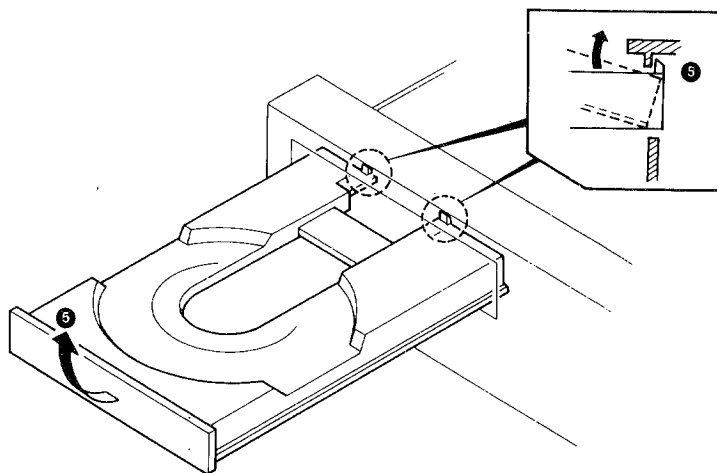
1. Push the tray gradually into the unit (❶) by your hand. In this condition, the gear will be released (❷).
2. Push the rear end of the tray toward the front to remove the tray until it stops (❸).



3. Release the two stoppers (❹) and take out the tray front the unit.



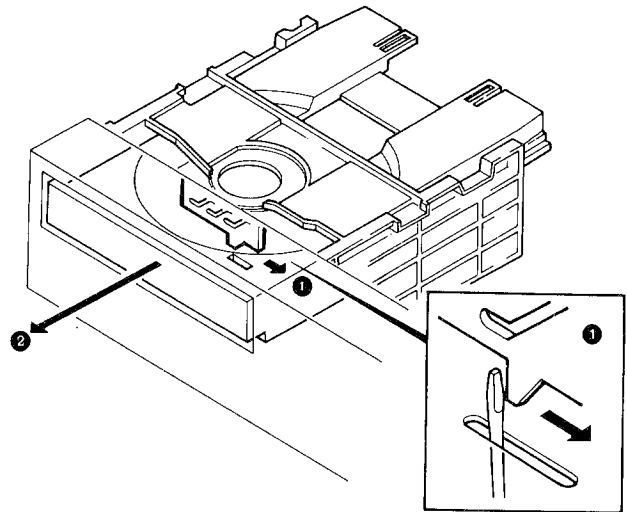
4. When removing the tray, release the stoppers in the direction of the arrow (❺) to prevent it from engaging with the sub panel.



DISASSEMBLY FOR REPAIR

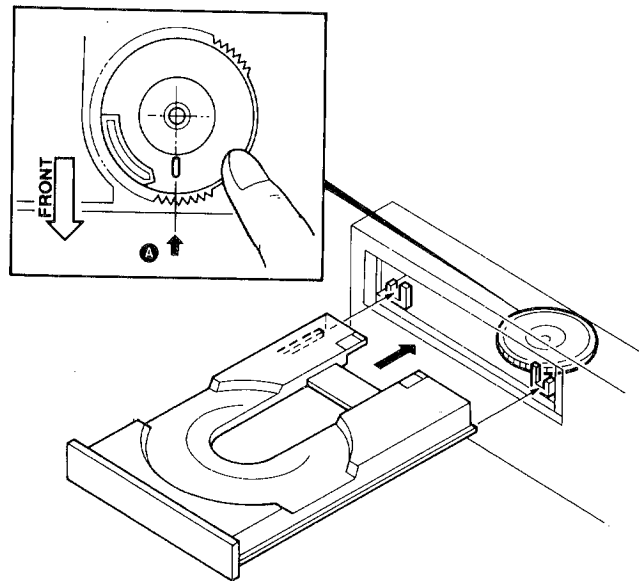
2-2. When the power can not be turned ON, or when the tray can not be opened by pressing the OPEN key

1. Insert the screwdriver into the hole located on the bottom of the unit, as shown in the diagram, and push the lever with the screwdriver (①).
2. When the tray is comes out slightly, the gear is released. Then take out the tray toward the front (②).



2-3. Installing the tray

1. Set the gear to the position (A) shown in the diagram.
2. Insert the tray along with the guide rails on the both sides.

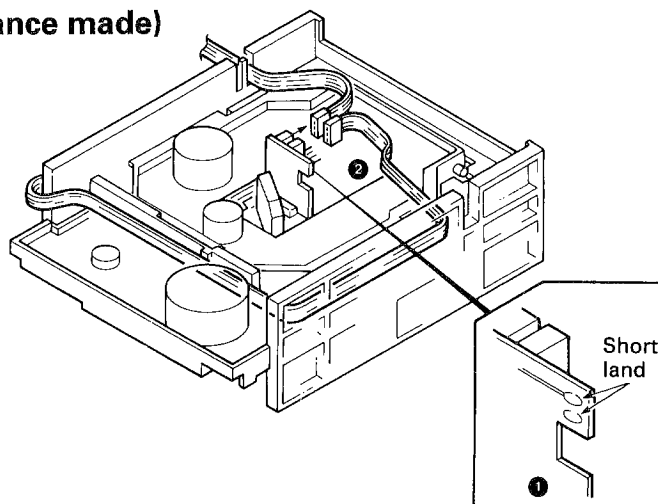


DISASSEMBLY FOR REPAIR

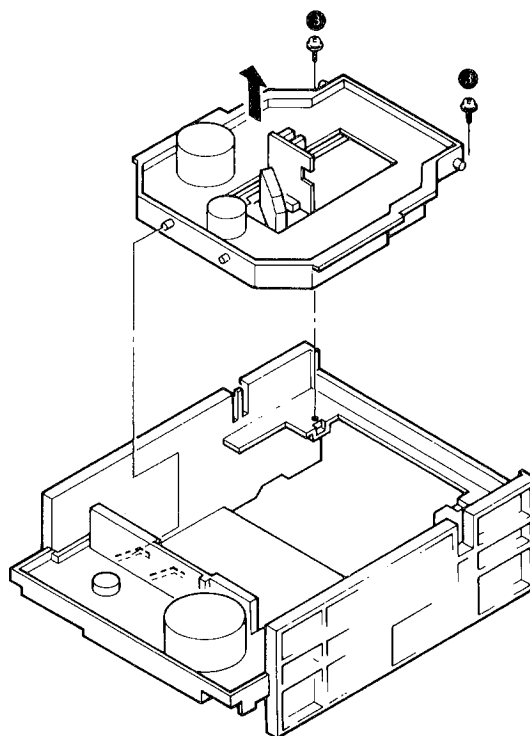
JAPAN MADE

3. Removing the pickup (Japan made and France made)

1. Turn over the mechanism and short the short land of the pickup (**1**).
2. Disconnect the two connectors (**2**).



3. Remove the two screws (**3**), then remove the MD assembly.

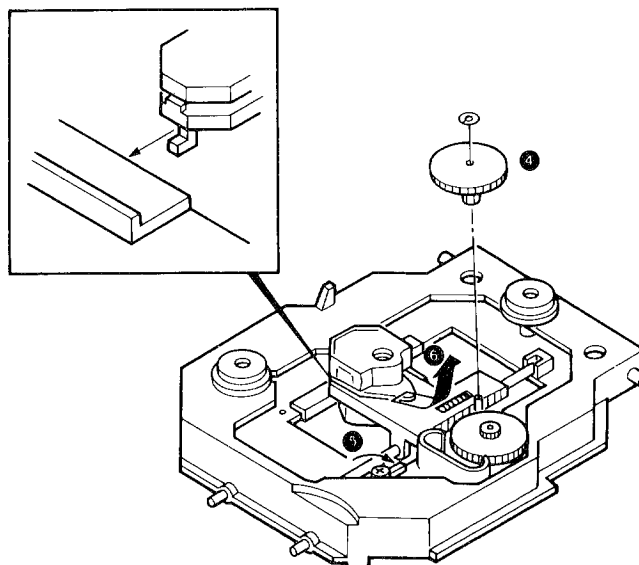


FRANCE MADE

4. Remove the snap ring, then remove the gear (**4**).
5. Remove the stopper (**5**).
6. Remove the pickup in the direction of the arrow (**6**).

Note : When installing the pickup, in the reverse order of disassembly.

Unsolder the short land after connecting the connector.

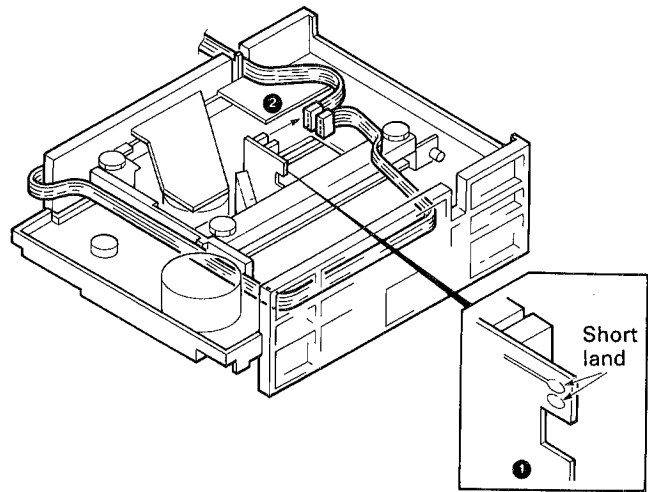


DISASSEMBLY FOR REPAIR

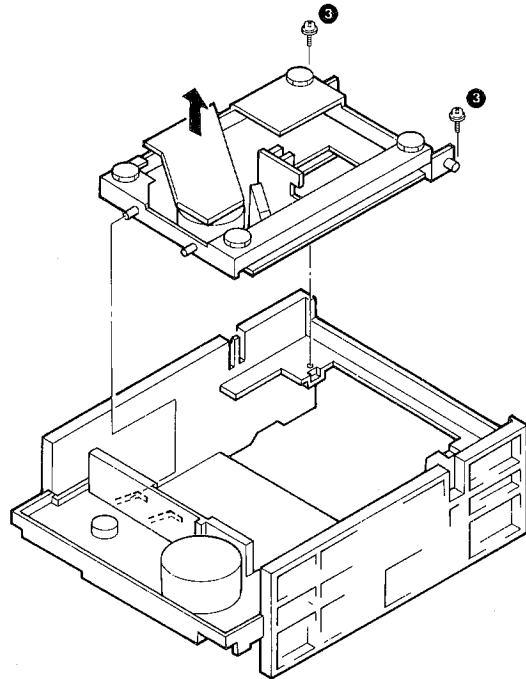
3. Removing the Pickup

(Singapore made)

1. Turn over the mechanism and short the short land of the pickup (①).
2. Disconnect the two connectors (②).



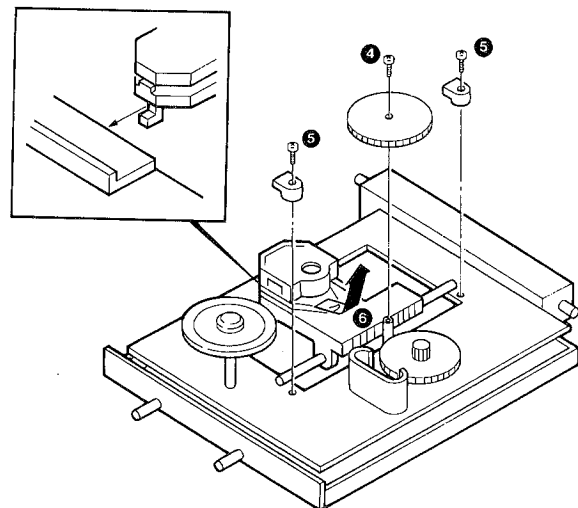
3. Remove the two screws (③), then remove the MD assembly.



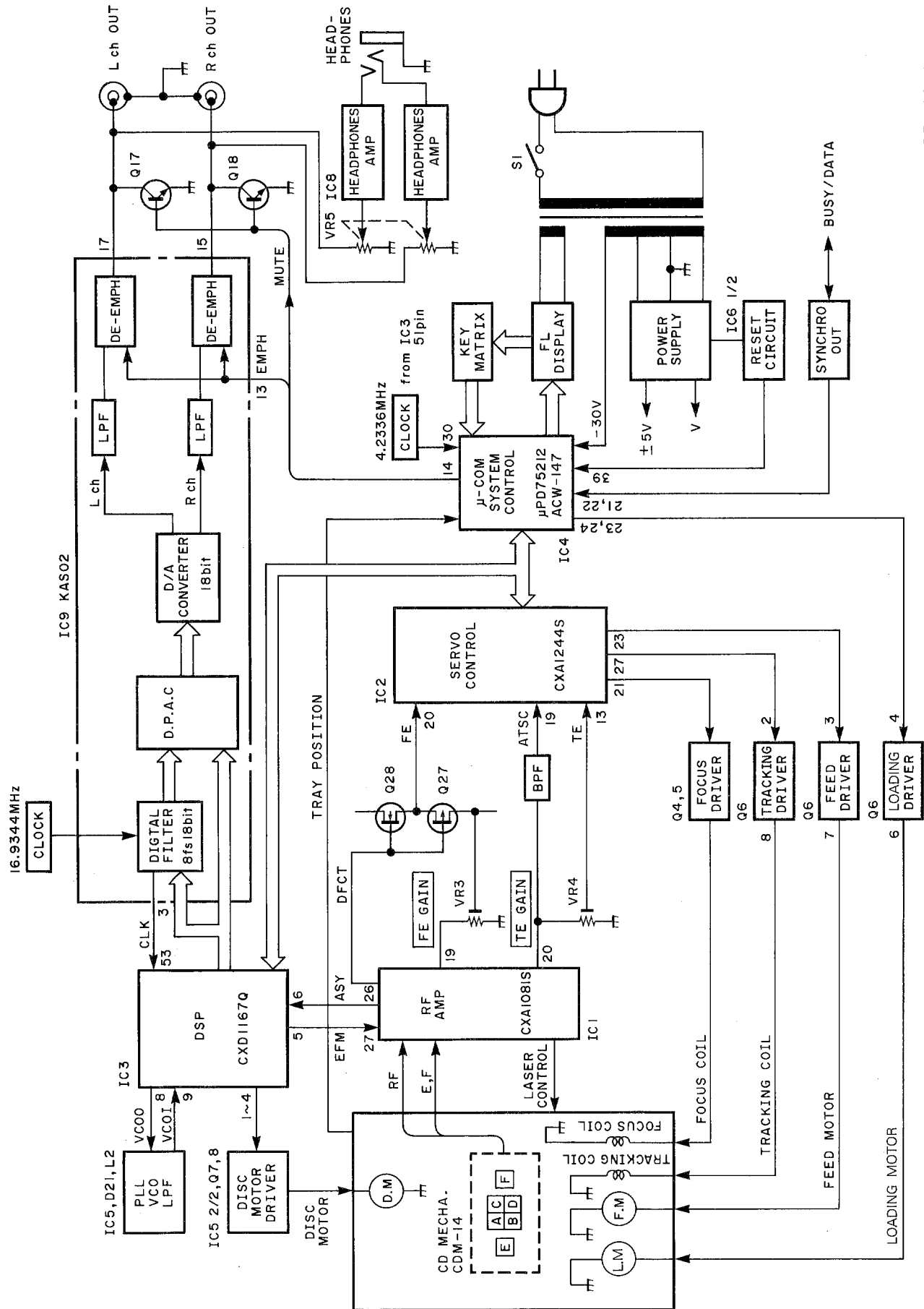
4. Remove the screw, then remove the gear (④).
5. Remove the stopper (⑤).
6. Remove the pickup in the direction of the arrow (⑥).

Note : When installing the pickup, in the reverse order of disassembly.

Unsolder the short land after connecting the connector.



BLOCK DIAGRAM



DP-4020

CIRCUIT DESCRIPTION

1.Description of components

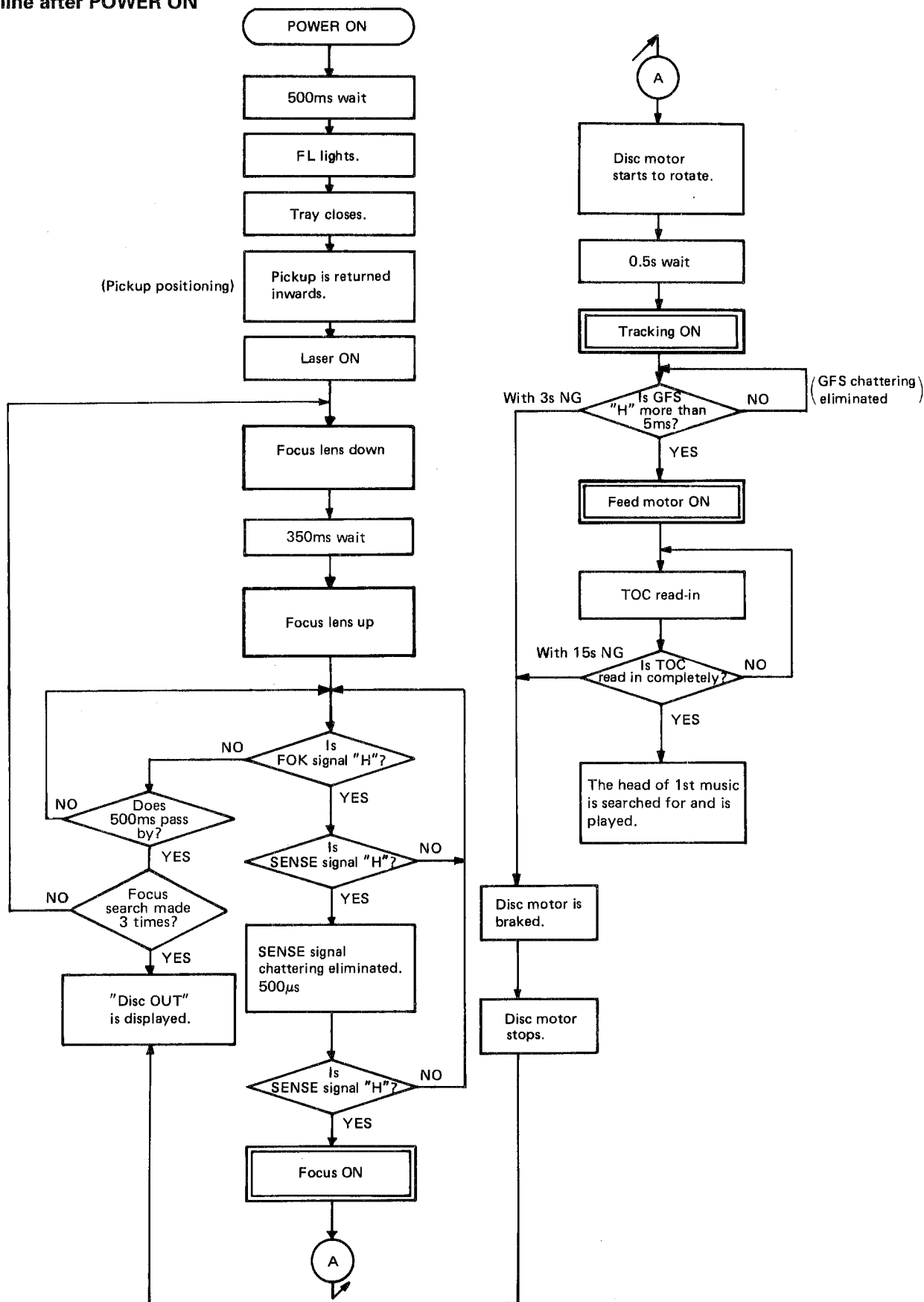
1-1. CONTROL UNIT (X32-16XX-XX)

Ref. No.	Parts No.	Use/Function	Operation/Condition/Compatibility												
IC1	CXA1081S	RF amp	Focusing signal generator, tracking error signal generator, RF signal generator and phase comparator, and auto-symmetry corrector circuit, ALPC circuit.												
IC2	CXA1244S	Servo signal processor	Generation of focusing servo, tracking servo and feed servo pulses for servo control.												
IC3	CXD1167Q	Digital signal processor	All digital signal processing operations, including the EFM data demodulator, error corrector, interpolation circuit, PLL circuit, CLV servo circuit, digital output circuitry, and include RAM.												
IC4	μPD75212ACW-147	Microprocessor	Display control, key input processing and servo IC control.												
IC5	NJM4565D	Operation amp	(1/2) PLL compensation circuit (LPF + amp). (2/2) CLV compensation circuit (LPF + level shifter).												
IC6	NJM4565D	Operation amp	(1/2) Power ON/OFF reset pulse generation. (2/2) Tray motor drive.												
IC7	NJM4558D	Operation amp	(1/2) Operation amplifier of -5V regulated power supply. (2/2) Operation amplifier of +5V regulated power supply.												
IC8	NJM4580D	Operation amp	Headphone amp.												
IC9	KAS02	Custum IC	18bit Digital filter (8fs), 18bit D/A converter into on analog from, 3rd-low pass filter, de-emphasis switch circuit.												
IC10	NJM4565D	Operation amp	Motor-VR drive amp.												
Q1	2SA954(L,K)	Switch	Laser driver (ALPC)												
Q3	2SC945(A)(Q,P)	Amp	TE level amp for anti-shock.												
Q4	2SD1944	Driver	Focus-coil driver.												
Q5	2SA1534A														
Q6	STA341A														
		Driver	<table><tr><td></td><td>Input # pin</td><td>Output # pin</td></tr><tr><td>Tracking-coil</td><td>2</td><td>8</td></tr><tr><td>Feed motor</td><td>3</td><td>7</td></tr><tr><td>Loading motor</td><td>4</td><td>6</td></tr></table>		Input # pin	Output # pin	Tracking-coil	2	8	Feed motor	3	7	Loading motor	4	6
	Input # pin	Output # pin													
Tracking-coil	2	8													
Feed motor	3	7													
Loading motor	4	6													
Q7	2SC3940A	Driver	Disk motor driver.												
Q8	2SA1534A														
Q9	2SA733(A)(Q,P)	Switch	For switching the ASY by FOK signal. FOK "L"→ Q9 "ON" , FOK "H"-→ Q9 "OFF".												
Q10	2SA954(L,K)	Filter	Ripple filter(-30V) for FL display.												
Q11	2SD1944	Filter	Ripple filter(+5V).												
Q12	2SA1534A	Filter	Ripple filter(-5V).												
Q13	2SC945(A)(Q,P)	Switch	For RESET signal.												
Q14	2SA733(A)(Q,P)	Switch	Level shift and converter of de-emphasis circuit.												
Q15	2SC945 (A) (Q,P)	Switch	Level shift and converter of muting.												
Q17,18	2SC2878(B)	Switch	Muting.												
Q19	2SC3940A	Driver	Motor-VR driver.												
Q20	2SA1534A														
Q21~Q24	2SC945(A)(Q,P)	Driver	Current buffer for FL display driver.												
Q25	2SA733(A)(Q,P)	Switch	Mute switch for digital out when being at RESET.												
Q26	2SA733(A)(Q,P)	Driver	LED for digital out.												
Q27	2SJ165	FET switch	OFF mode in defect.												
Q28	2SK1132	FET switch	ON mode in defect.												

CIRCUIT DESCRIPTION

2. Set mode flowchart

2-1. Outline after POWER ON



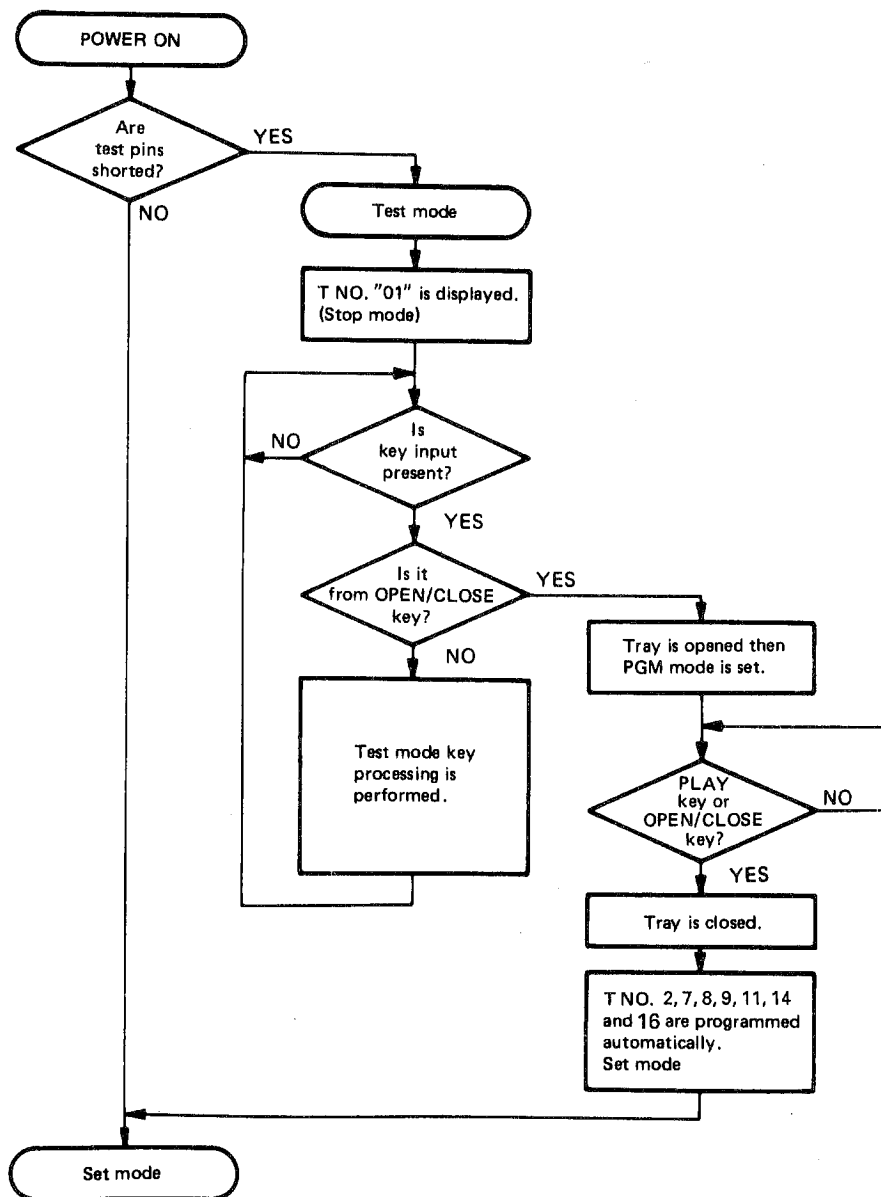
CIRCUIT DESCRIPTION

3. Test Mode

3-1. Setting the test mode

Unlike previous models, this microprocessor can be put to the test mode by just short-circuiting the test pins even in the set mode (normal condition). (However, the disc must be present in the unit.)

The test mode can also be initiated with the previous method, i. e. by switching the power on with the test pins short-circuited.



CIRCUIT DESCRIPTION

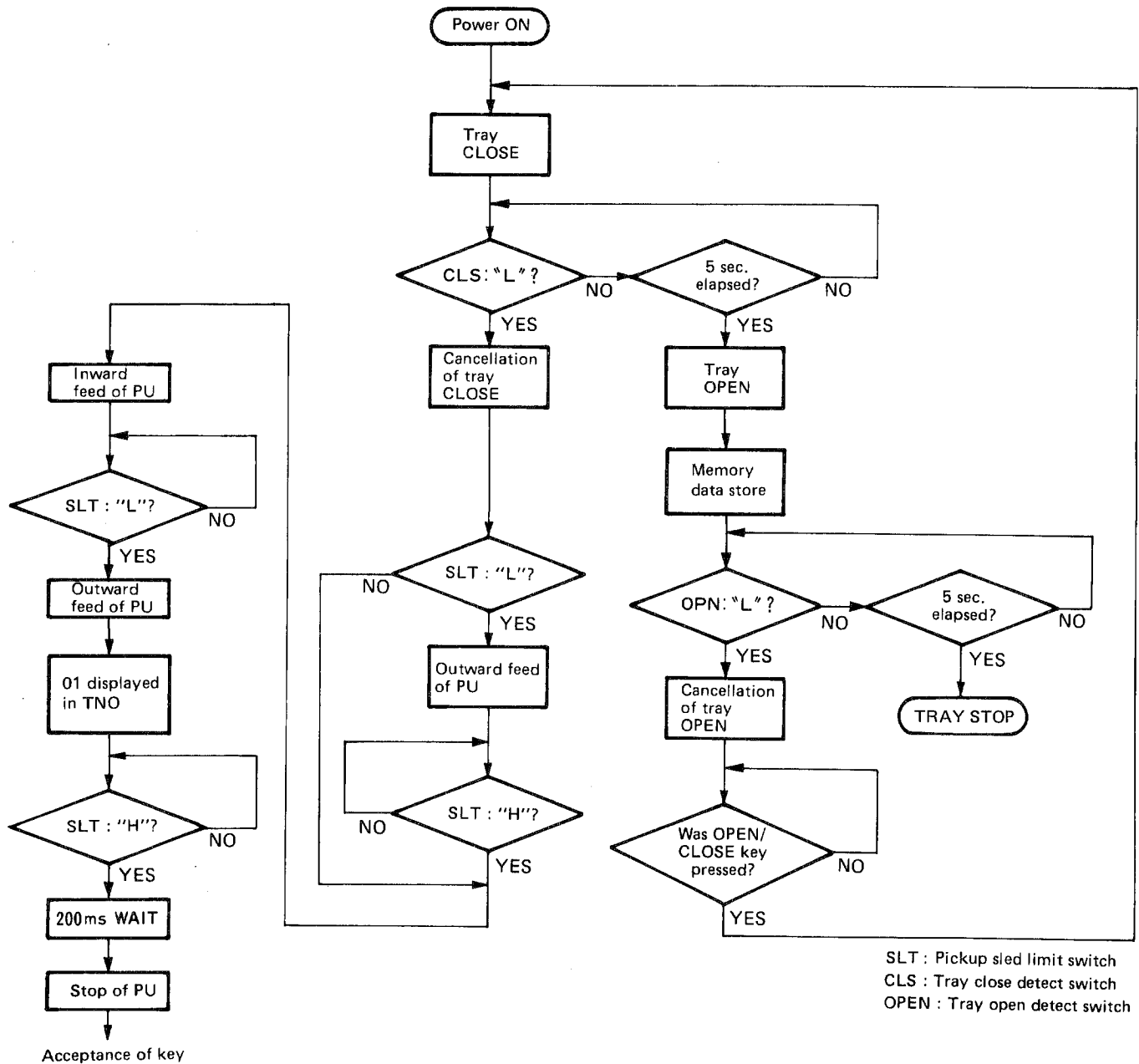
3-2. Key and functions valid in thst mode

No.	Input key .	Function	Track No. display																																				
1	PLAY	(1) Focusing servo ON. (2) Tracking servo ON. (3) Feed servo ON.	<div>05</div> <div>↓</div> <div>Displayed for a few seconds after comple- tion of (1), (2) and (3).</div> <div>↓</div> <div>Disc Track No. is displayed.</div>																																				
2	CHECK	(1) Focusing servo ON. (2) Tracking servo OFF. (3) Feed servo OFF.	<div>03</div>																																				
3	CLEAR	(1) Focusing servo ON. (2) Tracking servo ON. (3) Feed servo OFF.	<div>04</div>																																				
4	STOP	(1) Focusing servo OFF. (2) Tracking servo OFF. (3) Feed servo OFF.	<div>01</div>																																				
5	REPEAT	(1) Tray Opened. (2) Laser ON. The REPEAT function is canceled when the tray is closed by pressing the tray. The Track No. display <div>01</div> .	<div>02</div>																																				
6	▶▶	In the STOP mode, moves the pickup slightly toward the outer position of disc. When feed servo is ON, sets the track gain to "H".																																					
7	◀◀	In the STOP mode, moves the pickup slightly toward the inner position of disc. When feed servo is ON, sets the track gain to "L".																																					
8	▶▶	Turns all FL display lamps ON.																																					
9	◀◀	Turns all FL display lamps OFF.																																					
10	Numeric key (0 ~ 9)	Jumps tracks as shown below. <table><tr><td>Key</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>Number of tracks</td><td>16</td><td>32</td><td>128</td><td>512</td><td>1024</td></tr><tr><td>Direction</td><td colspan="5">Outer</td></tr><tr><td>Key</td><td>6</td><td>7</td><td>8</td><td>9</td><td>0</td></tr><tr><td>Number of tracks</td><td>16</td><td>32</td><td>128</td><td>512</td><td>1024</td></tr><tr><td>Direction</td><td colspan="5">Inner</td></tr></table>	Key	1	2	3	4	5	Number of tracks	16	32	128	512	1024	Direction	Outer					Key	6	7	8	9	0	Number of tracks	16	32	128	512	1024	Direction	Inner					
Key	1	2	3	4	5																																		
Number of tracks	16	32	128	512	1024																																		
Direction	Outer																																						
Key	6	7	8	9	0																																		
Number of tracks	16	32	128	512	1024																																		
Direction	Inner																																						
11	OPEN/CLOSE or +10	When the tray is opened then closed, Track No. 2, 7, 8, 9, 11, 14 and 16 are programmed and the test mode is canceled.																																					
12	P. MODE	Track No. 2, 7, 8, 9, 11, 14 and 16 are programmed and the test mode is canceled.																																					

CIRCUIT DESCRIPTION

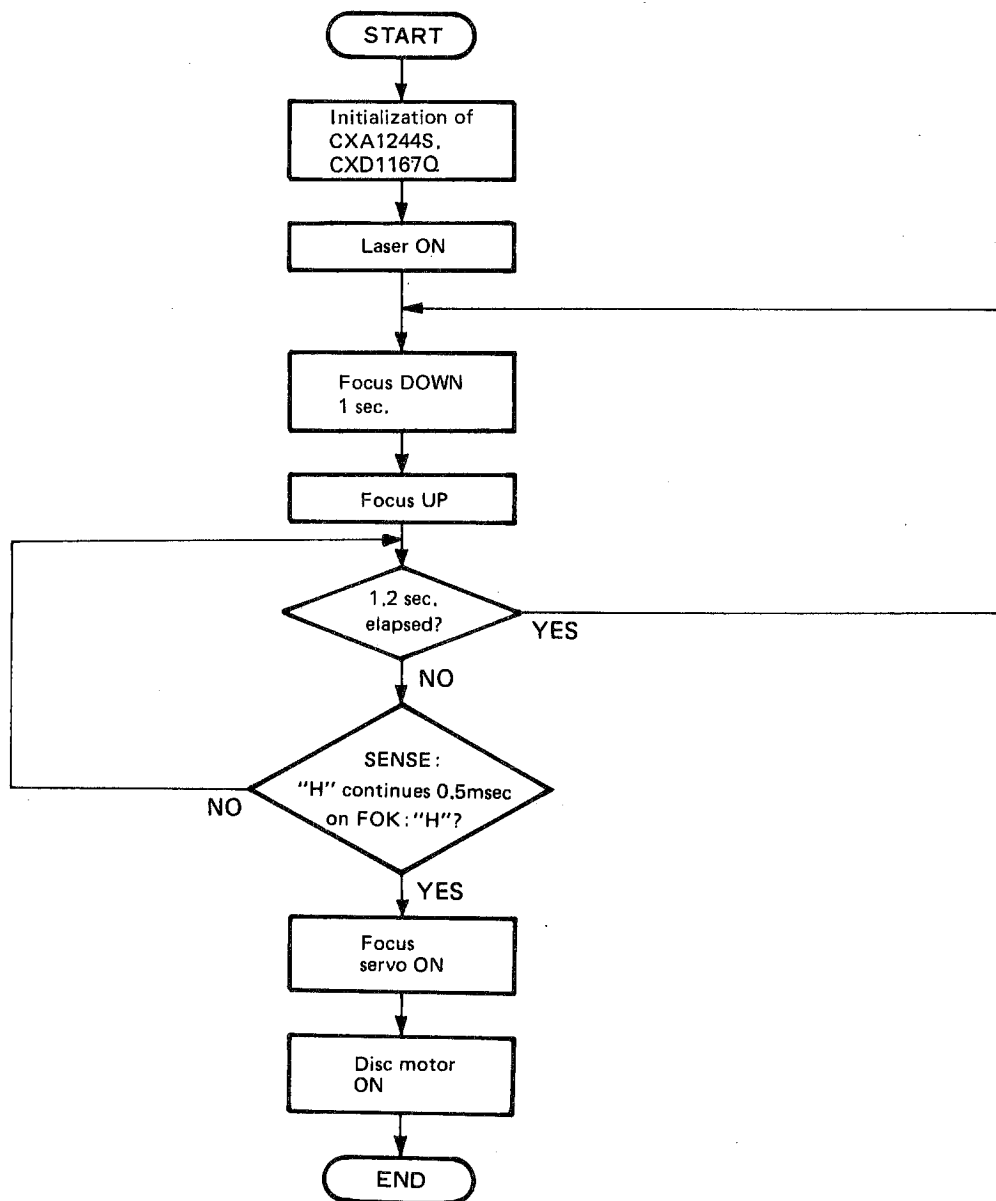
3-3. Flowchart of test mode

• Flowchart from tray OPEN status after power ON



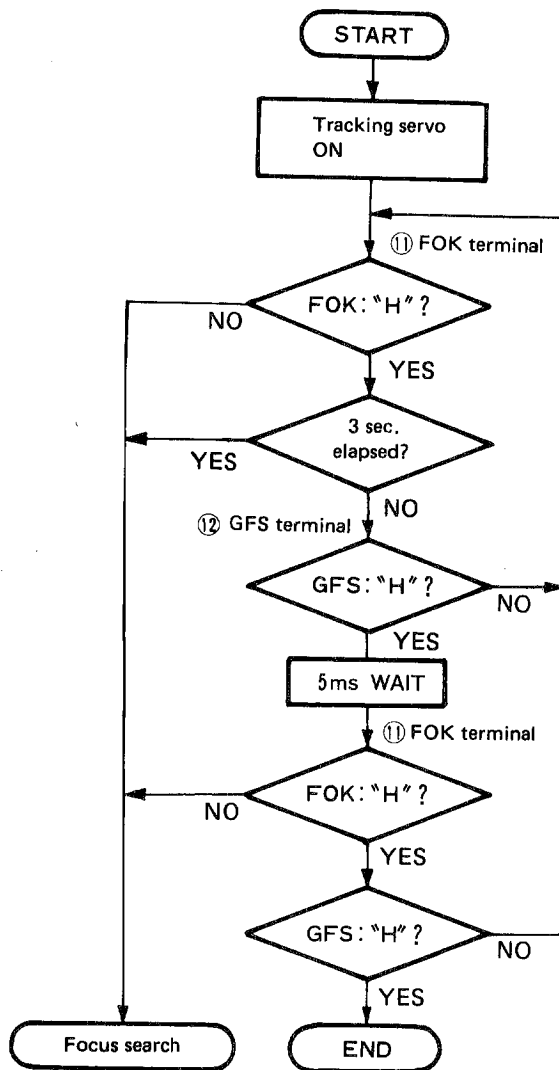
CIRCUIT DESCRIPTION

• Focus search & focus servo ON

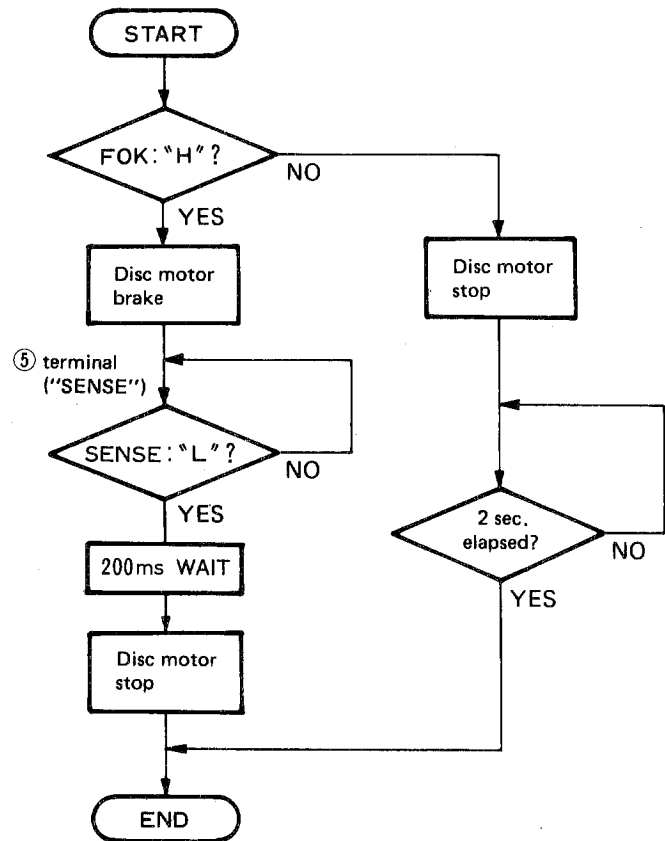


CIRCUIT DESCRIPTION

• Tracking servo ON

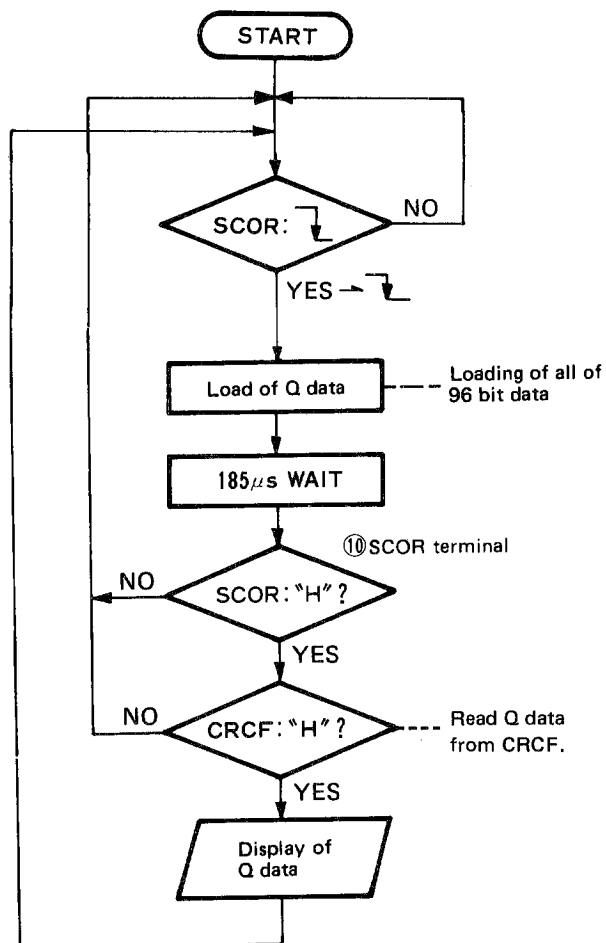


• Disc motor STOP

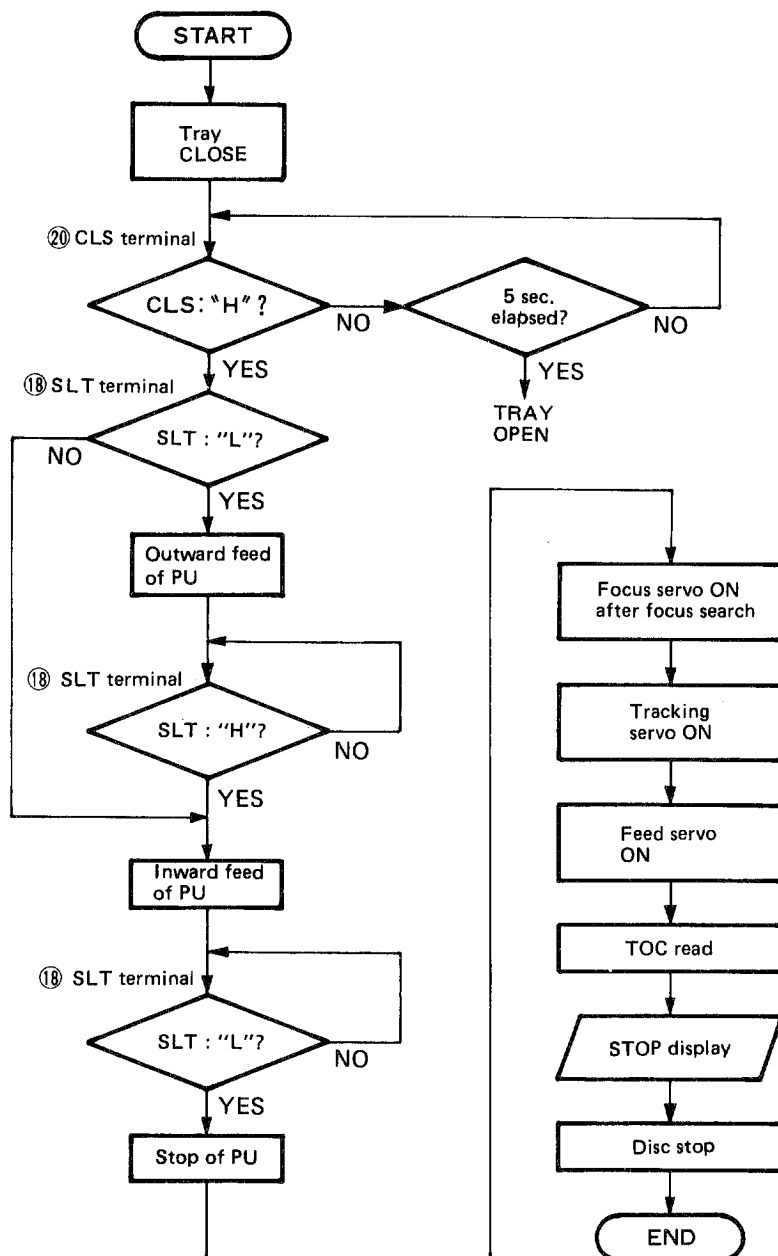


CIRCUIT DESCRIPTION

• From loading of Q data to display



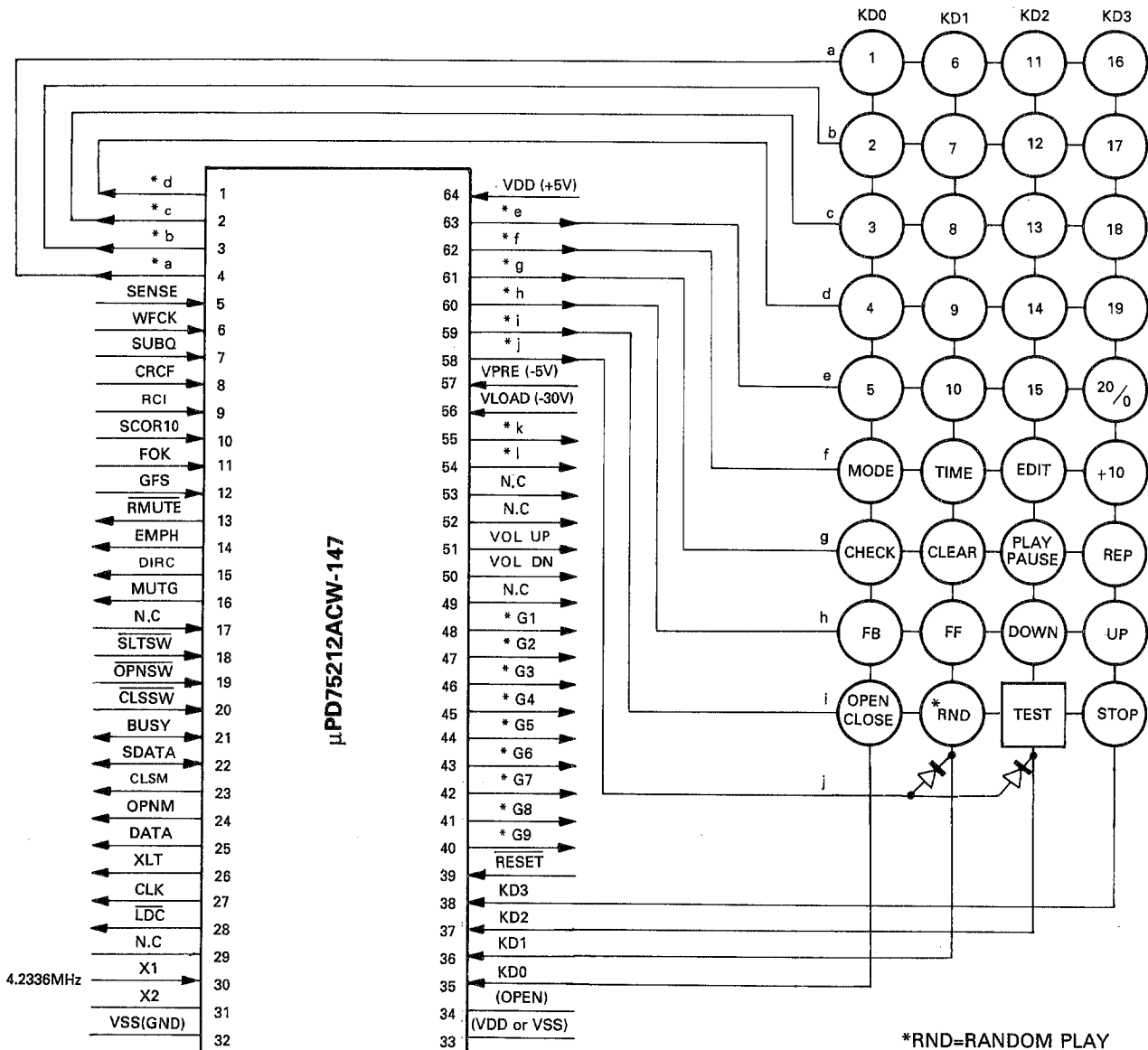
• In a usual case, since the tray was pushed when the tray is OPEN until STOP display is made.



CIRCUIT DESCRIPTION

4. Microprocessor μ PD75212ACW-147 (X32-16XX-XX : IC4)

4-1. Terminal connection diagram



CIRCUIT DESCRIPTION

4-2. Explanation of terminals

Pin No.	Pin Name	I/O	Function Name	Function
1~4	S3~S0	O	d~a	FL segment control terminals (also used for scan signals).
5	PO0/INT4	I	SENSE	Signal detection terminal for SENSE signal from signal processor and servo ICs.
6	PO1/ $\overline{\text{SCK}}$	I	WFCk	Q data read clock input terminal.
7	PO2/SO	I	SUBQ	Q data input terminal.
8	PO3/SI	I	CRCF	Q data CRC check result input terminal. ("H" : OK)
9	P10/INT0	I	RCI	Remote control input terminal.
10	P11/INT1	I	SCOR	Sub-code frame sync detection signal input terminal. ("H" : synchro)
11	P12/INT2	I	FOK	Input terminal for FOK signal from RF amplifier.
12	P13/TIO	I	GFS	Frame sync signal input terminal. ("H" : Frame sync)
13	P20	O	$\overline{\text{RMUTE}}$	Analog muting control terminal. (Active "L")
14	P21	O	EMPH	Deemphasis control terminal. (Active "H")
15	P22	O	DIRC	DIRC terminal of servo IC. Direct control output terminal. ("H" : Normal)
16	P23	O	MUTE	MUTE terminal of signal processor IC. (Active "H")
17	P30	I	NC	
18	P31	I	$\overline{\text{SLTSW}}$	Sled limit switch. (Innermost position : "L")
19	P32	I	$\overline{\text{OPNSW}}$	Tray open switch. (OPEN : "L")
20	P33	I	$\overline{\text{CLSSW}}$	Tray close switch. (Close : "L")
21	P60	I/O	BUSY	Serial BUSY signal input/output terminal. Synchro operation signal.
22	P61	I/O	SDATA	Serial DATA signal input/output terminal. Synchro operation signal.
23	P62	O	CLSM	Tray motor close terminal.
24	P63	O	OPNM	Tray motor open terminal.
25	P40	O	DATA	Signal processor and servo IC control output terminal.
26	P41	O	XLT	Signal processor and servo IC control output terminal. (Lutch)
27	P42	O	CLK	Signal processor and servo IC control output terminal. (Clock)
28	P43	O	$\overline{\text{LDC}}$	Laser ON/OFF signal output terminal. (Active "L")
29	PPO	—	—	Not used.
30, 31	X1, X2	I/O	X1, X2	System clock input/output terminals. (4.2336MHz)
32	Vss	—	Vss	GND.
33, 34	XT1, XT2	—	—	Not used.
35 ~ 38	P50~P53	I	KD0 ~ KD3	Input terminals for key return signals from key matrix.
39	$\overline{\text{RESET}}$	I	$\overline{\text{RESET}}$	Reset input terminal. (Active "L")
40 ~ 48	T0 ~ T8	O	G9 ~ G1	FL digit control terminals.
49	T9	—	—	Not used.
50	S15	O	VOL DOWN	Volume level control goes down. (Motor volume)
51	S14	O	VOL UP	Volume level control goes up. (Motor volume)
52	S13	—	—	Not used.
53	S12	O	NC	
54, 55	S11, S10	O	l, k	FL segment control terminals. (Also used for key-scan signals.)
56	VLOAD	—	VLOAD	FL driver negative power supply. (-30V)
57	VPRE	—	VPRE	FL predriver power supply. (-5V)
58 ~ 63	S9 ~ S4	O	j ~ e	FL segment control terminals. (Also used for key-scan signals.)
64	VDD	—	VDD	Power supply. (+5V)

CIRCUIT DESCRIPTION

5. RF AMP CXA1081S (X32-16XX-XX : IC1)

General

The CXA1081S is an IC developed for use in Compact Disc players. It incorporates a 3-spot optical pickup RF output amplifier, a focusing error amplifier, a tracking error amplifier, and other signal processing circuitry, such as focus OK, mirror, defect, and EFM comparator circuits, as well as a laser diode APC (Automatic Power Control) circuit.

Features

- Operates on a signal +5 V power supply, as well as on a ± 5 V dual-voltage power supply.
- Low power consumption (100 mW with ± 5 V, 50 mW with +5 V).
- An APC circuit which accepts either a P-sub or N-sub laser diode.
- A minimum of external parts required
- A disc defect detector circuit for improved playability

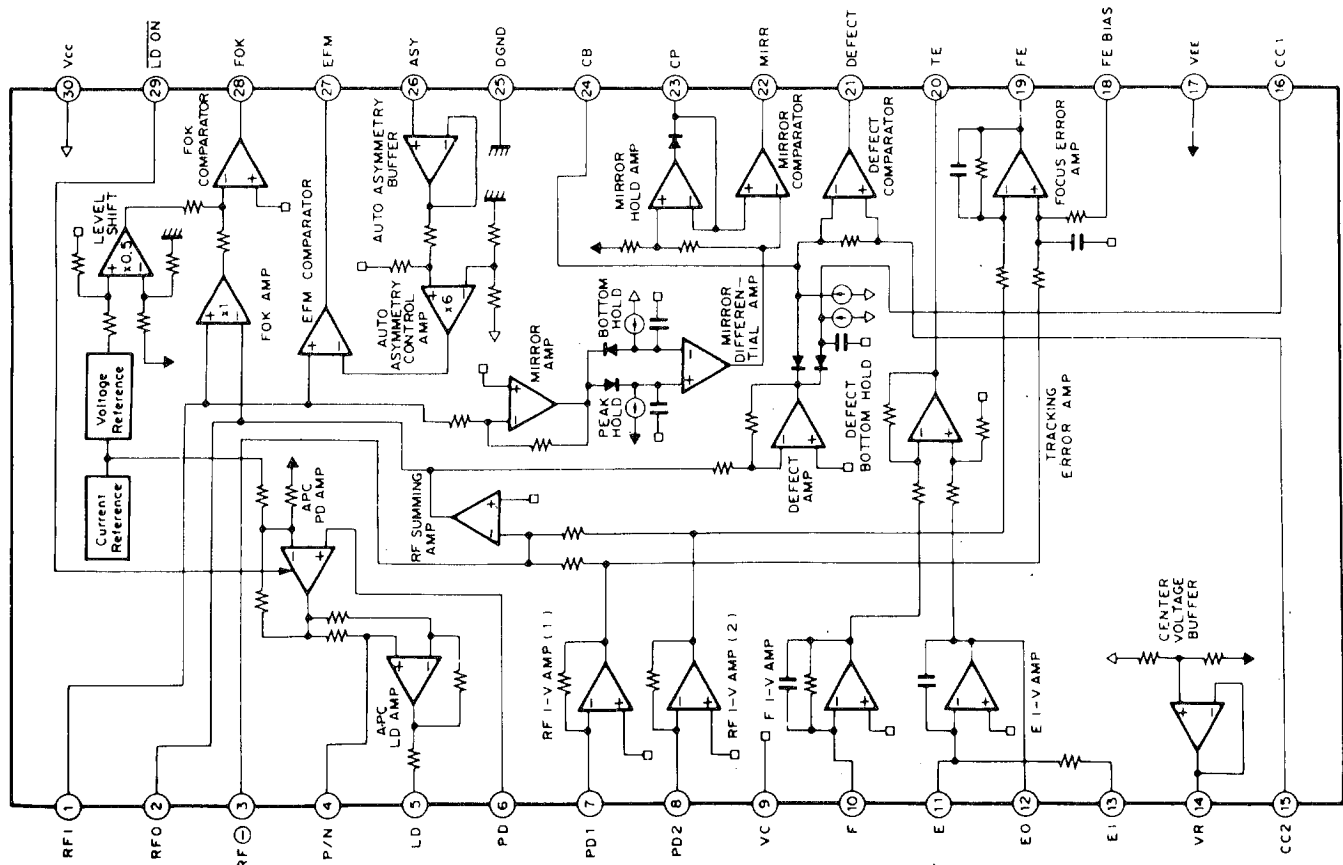
Structure

Bipolar silicon monolithic IC

Functions

- RF amplifier
- Focus OK detector circuit
- Mirror detector circuit
- Tracking error amplifier
- Defect detector circuit
- APC circuit
- EFM comparator
- Auto asymmetry control amplifier

5-1. Block diagram



CIRCUIT DESCRIPTION

5-2. Explanation of terminals ($V_{CC} = 2.5V$, $V_{EE} = DGND = -2.5V$, $V_C = GND$)

Terminal No.	Terminal name	I/O	DC voltage (V)	Function
1	RFI	I	0	Input pin for the C-coupled signal output from the RF summing amplifier.
2	RFO	O	V_{RFO}	RF summing amplifier output pin. Used as the check point for the eye pattern
3	RF \ominus	I	0	RF summing amplifier feedback input pin.
4	P/N	I	0 (V _C)	P-sub/N-sub select pin for the LD (Laser Diode) (DC voltage: in N-sub mode)
5	LD	O	-1.8	*APC LD amplifier output pin. (DC voltage: PD open in N-sub mode)
6	PD	I	0	*APC LD amplifier input pin. (DC voltage: open)
7	PD1	I	0	RF I-V amplifier (1) inverted input pin Current input by connecting to the photodiode A + C terminal
8	PD2	I	0	RF I-V amplifier (2) inverted input pin Current input by connecting to the photodiode B + D terminal
9	V _C	—	0	Connected to GND when using a positive (+)/negative (—) dual-voltage power supply Connected to VR (pin 14) when using a single-voltage power supply
10	F	I	0	F I-V amplifier inverted input pin Current input by connecting to the photodiode F terminal
11	E	I	0	E I-V amplifier inverted input pin Current input by connecting to the photodiode E terminal
12	EO	O	0	E I-V amplifier output pin
13	EI	I	0	E I-V amplifier feedback input pin. For E I-V amplifier gain adjustment
14	VR	O	V_{CVO}	DC voltage output pin of $(V_{CC} + V_{EE})/2$
15	CC2	I	1.0	Input pin for the C-coupled signal output from the defect bottom hold.
16	CC1	O	1.2	Defect bottom hold output pin
17	V _{EE}	—	-2.5	Connected to the negative power supply when using a positive (+)/negative (—) dual-voltage power supply. Connected to GND when using a single-voltage power supply
18	FE BIAS	I	0	Bias pin on the focus error amplifier non-inverted side For CMR adjustment of the focus error amplifier
19	FE	O	V_{FEO}	Focus error amplifier output pin
20	TE	O	V_{TEO}	Tracking error amplifier output pin
21	DEFECT	O	V_{DFCTL}	Defect comparator output pin. (DC voltage: connected to a 10 k-ohm load).
22	MIRR	O	V_{MIRL}	Mirror comparator output pin. (DC voltage: connected to a 10 k-ohm load).
23	CP	I	-1.3	Mirror hold capacitor output pin Mirror comparator non-inverted input
24	CB	I	0	Defect bottom hold capacitor connect pin
25	DGND	—	-2.5	Connected to GND when using a positive (+)/negative (—) dual-voltage power supply. Connected to GND (V _{EE}) when using a single-voltage power supply.
26	ASY	I	—	Auto asymmetry control input pin
27	EFM	O	V_{EFMH}	EFM comparator output pin. (DC voltage: connected to a 10 k-ohm load).
28	FOK	O	V_{FOKL}	FOK comparator output pin. (DC voltage: connected to a 10 k-ohm load).
29	LD ON	I	-2.5 (DGND)	LD ON/OFF select pin. (DC voltage: when LD ON)
30	V _{CC}	—	2.5	Positive power supply.

*APC: Automatic Power Control

CIRCUIT DESCRIPTION

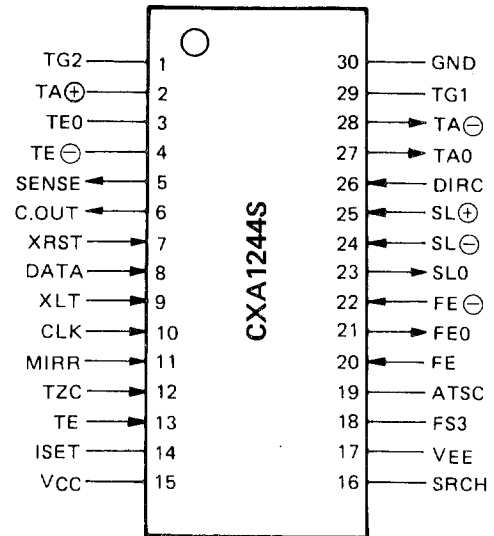
6. Servo control CXA1244S (X32-16XX-XX : IC2)

CXA1244S is a bipolar IC developed for servo of compact disc (CD) players, and it provides the following functions.

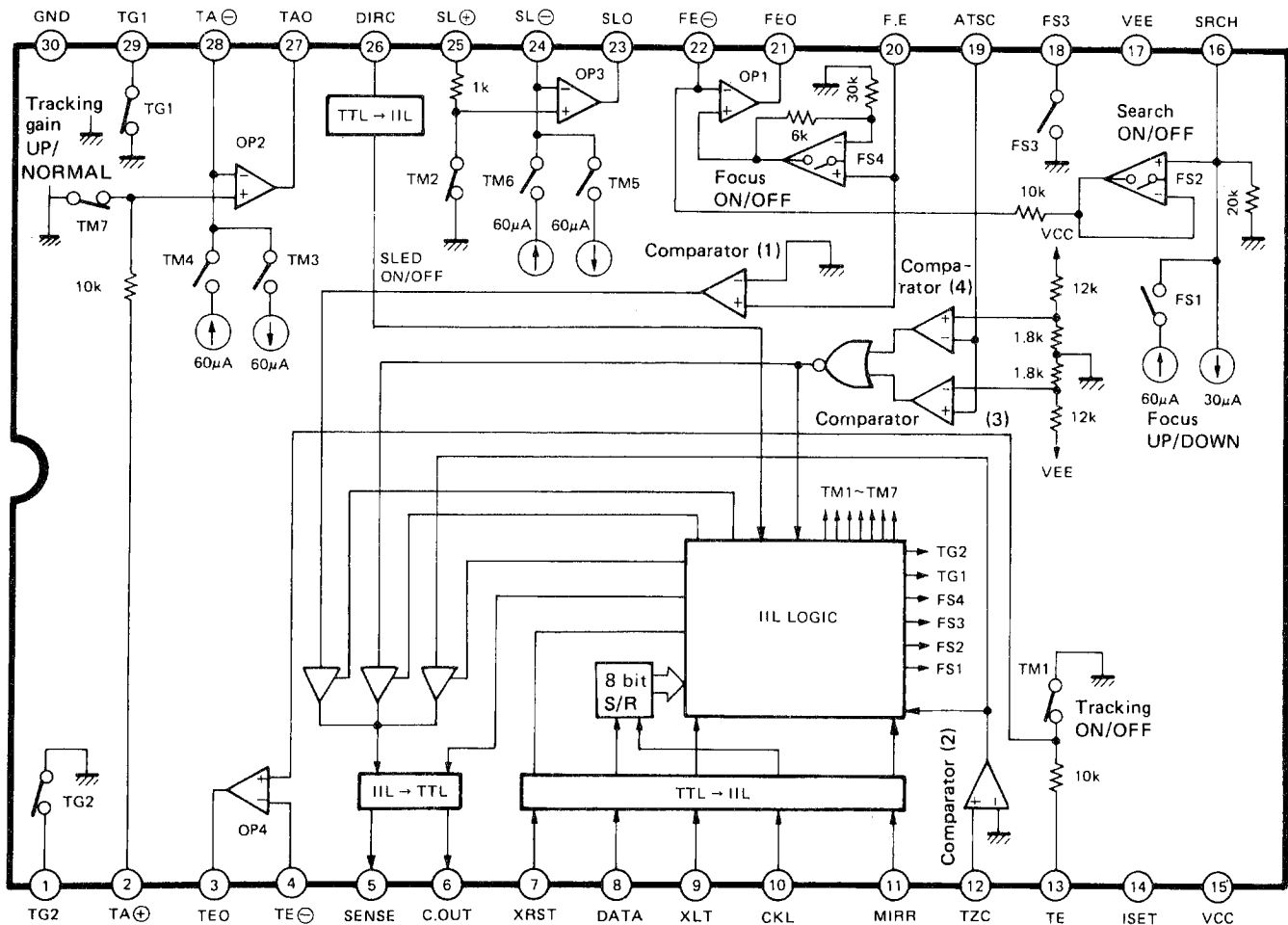
- Focus control (search ON/OFF, gain control)
- Tracking control (servo ON/OFF, single track jump, multiple track jump, gain control, phase compensation control, brake circuit)
- Sled control (servo ON/OFF, fast forward, fast reverse)

Servo function of each of focus, tracking and sled as well as random access operation are realized through control by microcomputer. Furthermore, the serial data bus can be shared with CXD1167Q.

6-1. Terminal connection diagram



6-2. Block diagram



CIRCUIT DESCRIPTION

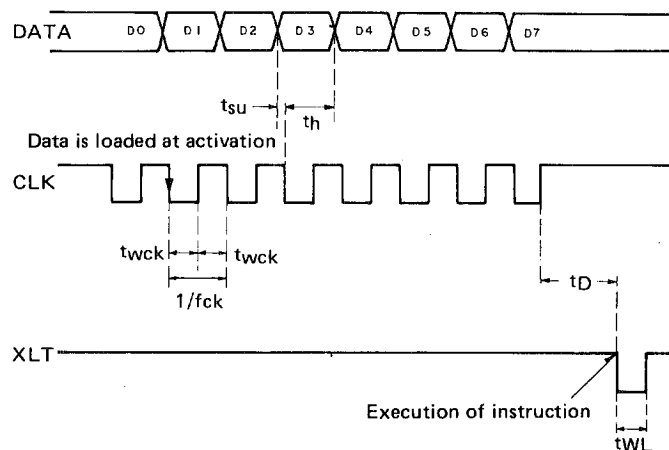
6-3. Explanation of terminals

Terminal No.	Terminal name	I/O	Functions
1	TG2		Tracking amplifier gain switching terminal. GND level.
2	TA ⊕		Non-inverted input of operational amplifier 2.
3	TE0		Output of operational amplifier 4.
4	TE ⊖	O	Inverted input of operational amplifier 4.
5	SENSE	O	Output of SSP internal status that corresponds to ADDRESS of CPU → SSP. (Changes in accordance with ADDRESS content of internal serial register.) See Note 1.
6	C. OUT	O	Signal output for counting number of tracks at the time of high speed access.
7	XRST	I	All internal registers are cleared when CPU → SSP "L". Connected with CPU RESET. See Note 2.
8	DATA	I	Serial data transmission of CPU → SSP. Input is made from LSB. D0~D7.
9	XLT	I	Latch of serial data of CPU → SSP. (The contents of internal serial register are transmitted to each address decoded latch.) Transmission at "L". Change to "H" occurs immediately after execution because no edge trigger is produced.
10	CLK	I	CPU → SSP serial data transmission clock. Data is read at falling. "H" level before and after transmission.
11	MIRR	I	Mirror signal input from RF amplifier.
12	TZC	I	Tracking error signal is input with C couple. The time constant is determined by one single track jump, but it is usually around 2kHz.
13	TE	I	Tracking error signal input.
14	ISSET		Setting of current level for determining focus search voltage, tracking jump voltage and sled feed voltage.
15	Vcc		Power supply terminal. Normally -5V.
16	SRCH		The capacitor for determining the time constant of charge/duscharge waveform for focus search is connected.
17	VEE		Power supply terminal. Normally -5V.
18	FS3		Focus amplifier gain switching terminal. GND level.
19	ATSC		Such information that a mechanical shock was applied to the player is input. Simply, a tracking error is input through B.P.F.
20	FE	I	Input of focus error signal.
21	FE0	O	Output of operational amplifier 1.
22	FE ⊖	I	Inverted input of operational amplifier 1.
23	SL0	O	Output of operational output 3.
24	SL ⊖	I	Inverted input of operational amplifier 3.
25	SL ⊕	I	Non-inverted input of operational amplifier 3.
26	DIRC	I	Used at the time of one track jump. Normally "H". The direction of the track jump pulse is reversed with "L". Setting is made in the normal tracking mode by changing to "H". "L" for a fixed length of time with detection of activation, deactivation of TZC.
27	TA0	O	Output of operational amplifier 2.
28	TA ⊖	O	Inverted input of operational amplifier 2.
29	TG1		Tracking amplifier gain switching terminal. GND level.
30	GND		GND terminal of IC.

Note 1 : SENSE terminal output

Serial data upper 4 bits	ADDRESS content	SENSE terminal output	Explanation
0 0 0 0	FOCUS CONTROL	FZC	"H" when focus zero cross, Focus erro voltage is 0V or higher. Used at the time of FOCUS PULL operation.
0 0 0 1	TRACKING CONTROL	AS	"H" when the ATSC input level exceeds the wind comparator level ($V_{TH} = \pm V_{cc} \times 13\%$).
0 0 1 0	TRACKING MODE	TZC	Judgement output of positive or negative of tracking zero cross, tracking error. When used at the time of single track jump, DIRC is reduced to "L" on detection of TZC ↑, in FWD JUMP or on detection of TZC ↓ in REV JUMP.

Note 2 : Digital unit timing chart



CIRCUIT DESCRIPTION

6-4. System control

COMMAND	ADDRESS				DATA				SENSE
	D7	D6	D5	D4	D3	D2	D1	D0	
FOCUS CONTROL	0	0	0	0	FS4 FOCUS ON	FS3 GAIN DOWN	FS2 SEARCH ON	FS1 SEARCH UP	FZC
TRACKING CONTROL	0	0	0	1	ANTI SHOCK	BREAK ON	TG2 GAIN	TG1* SET	AS
TRACKING MODE	0	0	1	0	TRACKING* MODE		SLED* MODE		TZC

GAIN SET* TG1, TG2 may be set independently.

In the case of ANTI SHOCK = 1 (00011XXX), both TG1, TG2 are inverted when ANTI SHOCK = "H".

SLED MODE *

	D1	D0
OFF	0	0
SERVO ON	0	1
FWD MOVE	1	0
REV MOVE	1	1

TRACKING MODE *

	D3	D2
OFF	0	0
SERVO ON	0	1
FWD JUMP	1	0
REV JUMP	1	1

CIRCUIT DESCRIPTION

7. Digital signal processor CXD1167Q (X32-16XX-XX : IC3)

General

The CXD1167Q is a digital processing LSI for a Compact Disc player, and has the following functions.

1. Bit clock reproduction by an EFM-PLL circuit
2. EFM data demodulation
3. Frame sync signal detection, protection and insertion
4. Powerful error detection and correction
5. Interpolation with an average value, or by holding the previous value
6. Demodulation of a sub code signal, error detection of a sub code Q
7. Spindle motor CLV servo

8. 8-bit tracking counter
9. CPU interface with a serial bus
10. Sub code Q register
11. Digital filter
12. Digital audio interface output

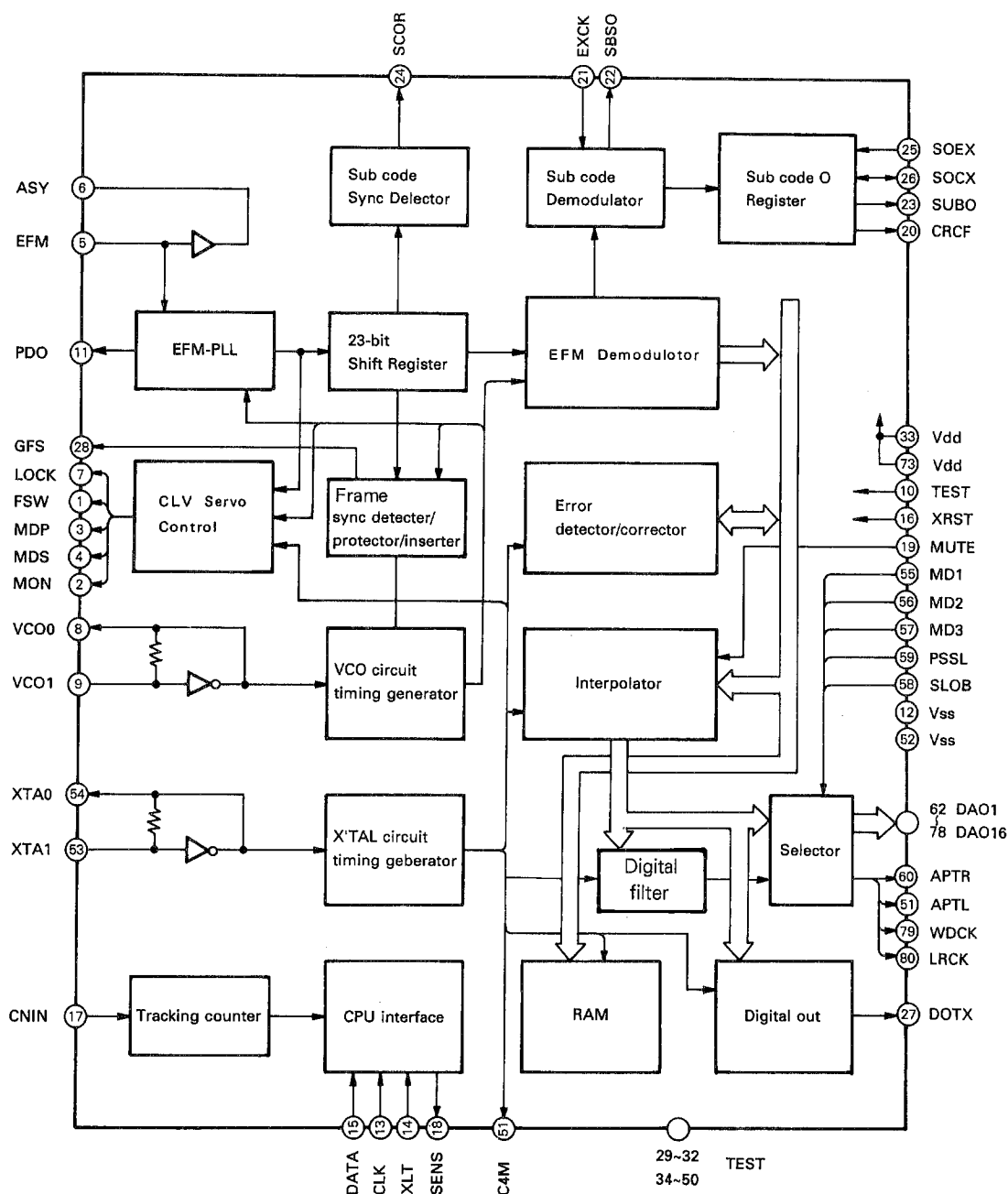
Features

- All digital signals used in playback can be processed using only a single chip.
- An aperture-correction digital filter is built in.
- SRAM is built in.

Structure

CMOS IC

7-1. Block diagram



CIRCUIT DESCRIPTION

7-2. Explanation of terminals

Terminal No.	Terminal name	I/O	Function
1	FSW	O	Time constant switching output of output filter of spindle motor
2	MON	O	ON/OFF control output of spindle motor.
3	MDP	O	Drive output of spindle motor. Rough speed control in CLV-S mode and phase control in CLV-P mode
4	MDS	O	Drive output of spindle motor. Speed control in CLV-P mode
5	EFM	I	EFM signal input from RF amplifier.
6	ASY	O	Output for controlling the slice level of EFM signal
7	LOCK	O	Samples the GFS signal with WFCK/16, and outputs "H" when the level is high When it is "L" for eight times, in arrow, outputs "L"
8	VCOO	O	VCO output. $f = 8.6436 \text{ MHz}$ when locked to EFM signal
9	VCOI	I	VCO input
10	TEST	I	(0 V)
11	PDO	O	Phase comparison output of EFM signal and VCO/2
12	Vss	—	GND (0 V)
13	CLK	I	Serial data transmission clock input from CPU. Data is latched at rising edge of a clock
14	XLT	I	Latch input from CPU. Data (serial data from CPU) from the 8 bit shift register is latched in each register
15	DATA	I	Serial data input from CPU.
16	XRST	I	System reset input. Reset at "L".
17	CNIN	I	Input of tracking pulse.
18	SENS	O	Output of internal status in correspondence to the address
19	MUTG	I	Muting input. In the case when ATTM of internal register A is "L" Normal status when MUTG is "L" or soundless state when it is "H"
20	CRCF	O	Output of result of CRC check of sub code Q
21	EXCK	I	Clock input for sub code serial output.
22	SBSO	O	Sub code serial output.
23	SUBQ	O	Sub code Q output.
24	SCOR	O	Sub code sync S0 + S1 output.
25	SQCK	I/O	Sub code Q read-off clock.
26	SQEX	I	SQCK select input.
27	DOTX	O	DIGITAL OUT output.
28	GFS	O	Display output of frame sync lock status.
29	DB08	I/O	H or L position. Don't open circuit.
30	DB07	I/O	H or L position. Don't open circuit.
31	DB06	I/O	H or L position. Don't open circuit.
32	DB05	I/O	H or L position. Don't open circuit.
33	Vcc	—	Power supply (+5 V)
34	DB04	I/O	H or L position. Don't open circuit.
35	DB03	I/O	H or L position. Don't open circuit.
36	DB02	I/O	H or L position. Don't open circuit.
37	DB01	I/O	H or L position. Don't open circuit.
38	RA01	O	H or L position. Don't open circuit.
39	RA02	O	H or L position. Don't open circuit.
40	RA03	O	H or L position. Don't open circuit.
41	RA04	O	H or L position. Don't open circuit.
42	RA05	O	H or L position. Don't open circuit.
43	RA06	O	H or L position. Don't open circuit.

CIRCUIT DESCRIPTION

Terminal No.	Terminal name	I/O	Function
44	RA07	O	H or L position. Don't open circuit.
45	RA08	O	H or L position. Don't open circuit.
46	RA09	O	H or L position. Don't open circuit.
47	RA10	O	H or L position. Don't open circuit.
48	RA11	O	H or L position. Don't open circuit.
49	RAWF	O	H or L position. Don't open circuit.
50	RACS	O	H or L position. Don't open circuit.
51	C4M	O	Crystal dividing output. $f = 4\ 2336\ \text{MHz}$.
52	Vss	—	GND (0 V).
53	XTAI	I	Crystal oscillator input. $f = 8.4672\ \text{MHz}$ or $16.9344\ \text{MHz}$ depending on the mode selected
54	XTAO	O	Crystal oscillator output. $f = 8.4672\ \text{MHz}$ or $16.9344\ \text{MHz}$ depending on the mode selected
55	MD1	I	Mode select input 1.
56	MD2	I	Mode select input 2.
57	MD3	I	Mode select input 3.
58	SLOB	I	Audio data output code select input. 2's complement output when "L", offset binary output when "H"
59	PSSL	I	Audio data output mode select input. Serial output when "L", parallel output when "H"
60	APTR	O	Aperture compensation control output. "H" when R-ch
61	APTL	O	Aperture compensation control output. "H" when L-ch
62	DA01	O	DA01 (parallel audio data LSB) output when PSSL = "H", C1F1 output when PSSL = "L"
63	DA02	O	DA02 output when PSSL = "H", C1F2 output when PSSL = "L"
64	DA03	O	DA03 output when PSSL = "H", C2F1 output when PSSL = "L"
65	DA04	O	DA04 output when PSSL = "H", C2F2 output when PSSL = "L"
66	DA05	O	DA05 output when PSSL = "H", C2FL output when PSSL = "L"
67	DA06	O	DA06 output when PSSL = "H", C2PO output when PSSL = "L"
68	DA07	O	DA07 output when PSSL = "H", RFCK output when PSSL = "L"
69	DA08	O	DA08 output when PSSL = "H", WFCK output when PSSL = "L"
70	DA09	O	DA09 output when PSSL = "H", PLCK output when PSSL = "L"
71	DA10	O	DA10 output when PSSL = "H", UGFS output when PSSL = "L"
72	DA11	O	DA11 output when PSSL = "H", GTOP output when PSSL = "L"
73	VDD	—	Power supply (+5 V).
74	DA12	O	DA12 output when PSSL = "H", RAOV output when PSSL = "L"
75	DA13	O	DA13 output when PSSL = "H", C4LR output when PSSL = "L"
76	DA14	O	DA14 output when PSSL = "H", C210 output when PSSL = "L"
77	DA15	O	DA15 output when PSSL = "H", C210 output when PSSL = "L"
78	DA16	O	DA16 (parallel audio data MSB) output when PSSL = "H", DATA output when PSSL = "L"
79	WDCK	O	Strobe signal output. 176.4 kHz when DF is ON, 88.2 kHz with CXD1167Q or when DF is OFF
80	LRCK	O	Strobe signal output. 88.2 kHz when DF is ON, 44.1 kHz with CXD1167Q or when DF is OFF

Notes:

C1F1 : Error correction status monitor output for C1 decode.

C1F2 : Error correction status monitor output for C1 decode.

C2F1 : Error correction status monitor output for C2 decode.

C2F2 : Error correction status monitor output for C2 decode.

C2FL : Correction status output. Goes "H" when the currently corrected C2 series data cannot be corrected.

C2PO : C2 pointer signal. Synchronized to the audio data output.

RFCK : Read frame clock output. 7.35 MHz when locked to the crystal line.

WFCK : Write frame clock output. 7.35 MHz when locked to the crystal line.

PLCK : VCO/2 output. $f = 4.3218\ \text{MHz}$ when locked to the EFM signal.

UGFS : Non-protected frame sync pattern output.

GTOP : Frame sync protect status display output.

RAOV : ± 4 frame jitter absorption RAM overflow and underflow display output.

C4LR : Strobe signal. 352.8 kHz when DF is ON, 176.4 kHz with CXD1167Q or when DF is OFF.

BLCK : Output of bit clock. 2.1168MHz

BLCK : Inverted output bit clock.

DATA : Audio signal serial data output.

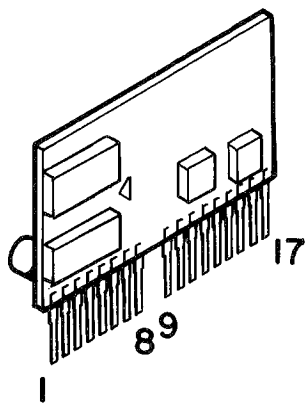
CIRCUIT DESCRIPTION

8.Custum IC : KAS02(MIC) (X32-16XX-XX : IC9)

8-1. Functions

- 8fs 18bit Digital filter
- DAPC
- 18bit D/A convertor
- Low pass filter
- De-emphasis

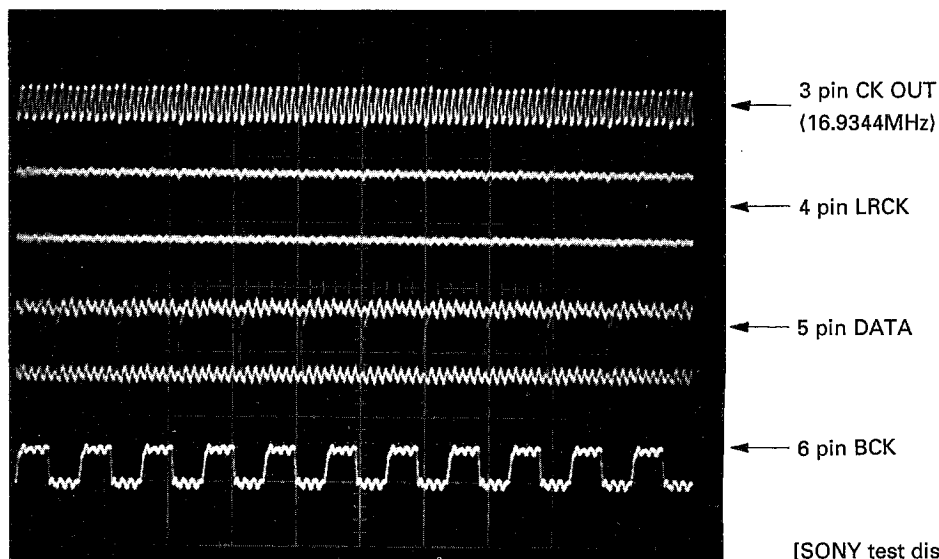
8-2. Terminal connection



8-3. Explanation of terminals

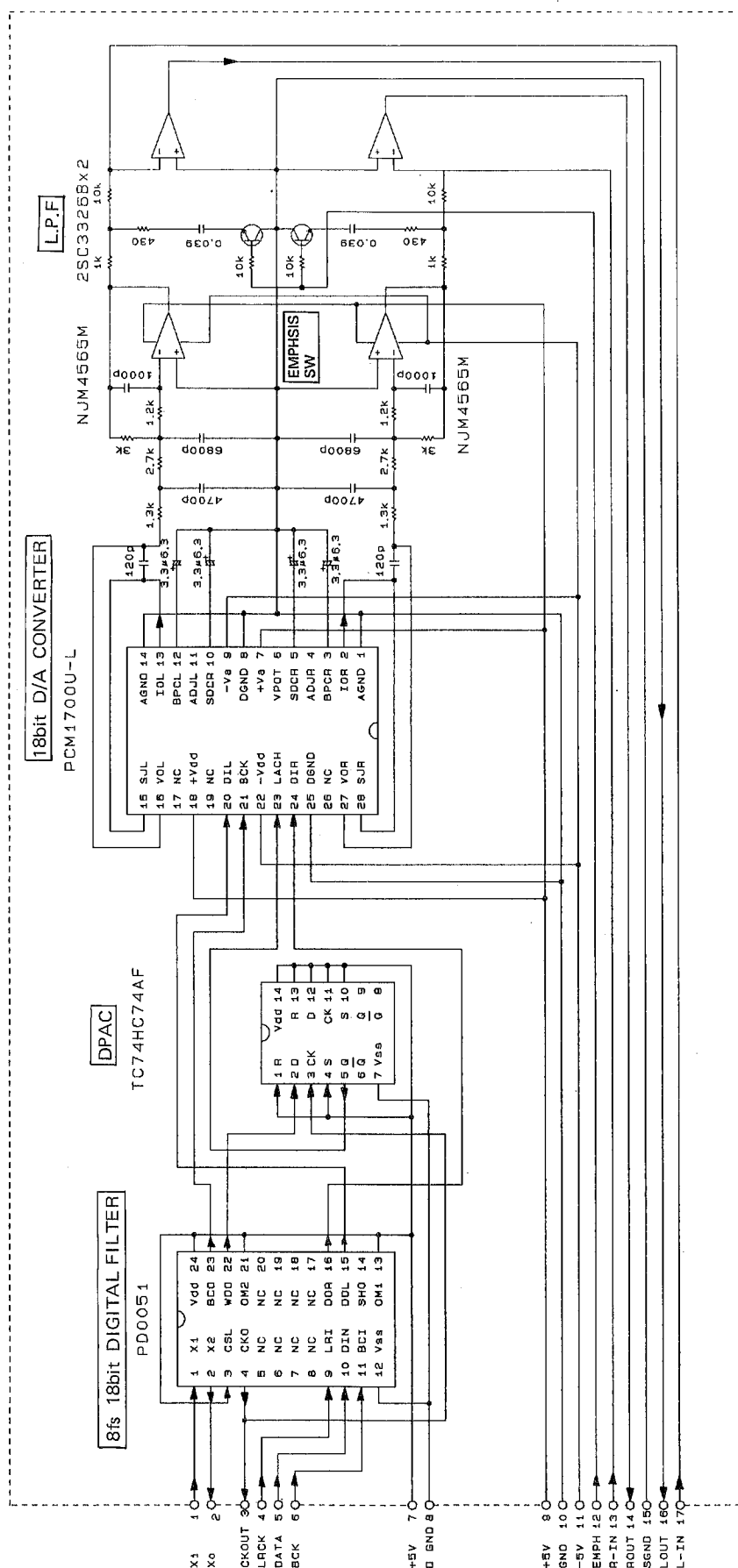
Pin No.	Symbol	I/O	Name	Function
1	XI	I	XI	Crystal oscillator circuit input. (16.9344MHz)
2	XO	O	XO	Crystal oscillator circuit output.
3	CKOUT	O	CLOCK OUT	External clock output. (16.9344MHz)
4	LRCK	I	LR CLOCK	LR clock input.
5	DATA	I	DATA	Serial data input.
6	BCK	I	BIT CLOCK	Bit clock input.
7	VDD	-	+5V	+5V power terminal. (Digital)
8	D GND	-	D GND	Grounding terminal. (Digital)
9	VDD	-	+5V	+5V power terminal. (Analog)
10	A GND	-	A GND	Grounding terminal. (Analog)
11	VDD	-	-5V	-5V power terminal. (Analog)
12	EMPH	I	EMPHASIS	De-emphasis input.
13	R IN	I	Rch IN	Rch audio signal input.
14	R OUT	O	Rch OUT	Rch audio signal output.
15	S GND	-	S GND	Grounding terminal. (Audio signal)
16	L OUT	O	Lch OUT	Lch audio signal output.
17	L IN	I	Lch IN	Lch audio signal input.

8-4. Wave form



[SONY test disc type 4 T.No.2 (1kHz) PLAY.]

8-5. Block diagram



MECHANISM OPERATION DESCRIPTION

Mechanism Operation Description

Fig. 1 shows the relationship of mechanisms in the STOP mode. The OPEN/CLOSE operation of the mechanism and the UP/DOWN operation of the pickup chassis when loading the disc are description below.

Note 1 : The black arrow (OPEN) and the white arrow (CLOSE) in the operation description have the following meanings :

Black arrow (OPEN) : Tray opening direction
(Tray OPEN)

White arrow (CLOSE) : Tray closing direction
(Tray CLOSE)

Note 2 : Figures in the bracket () in the operation description or accompanied with the part name in the diagram show the reference numbers in the Exploded View.

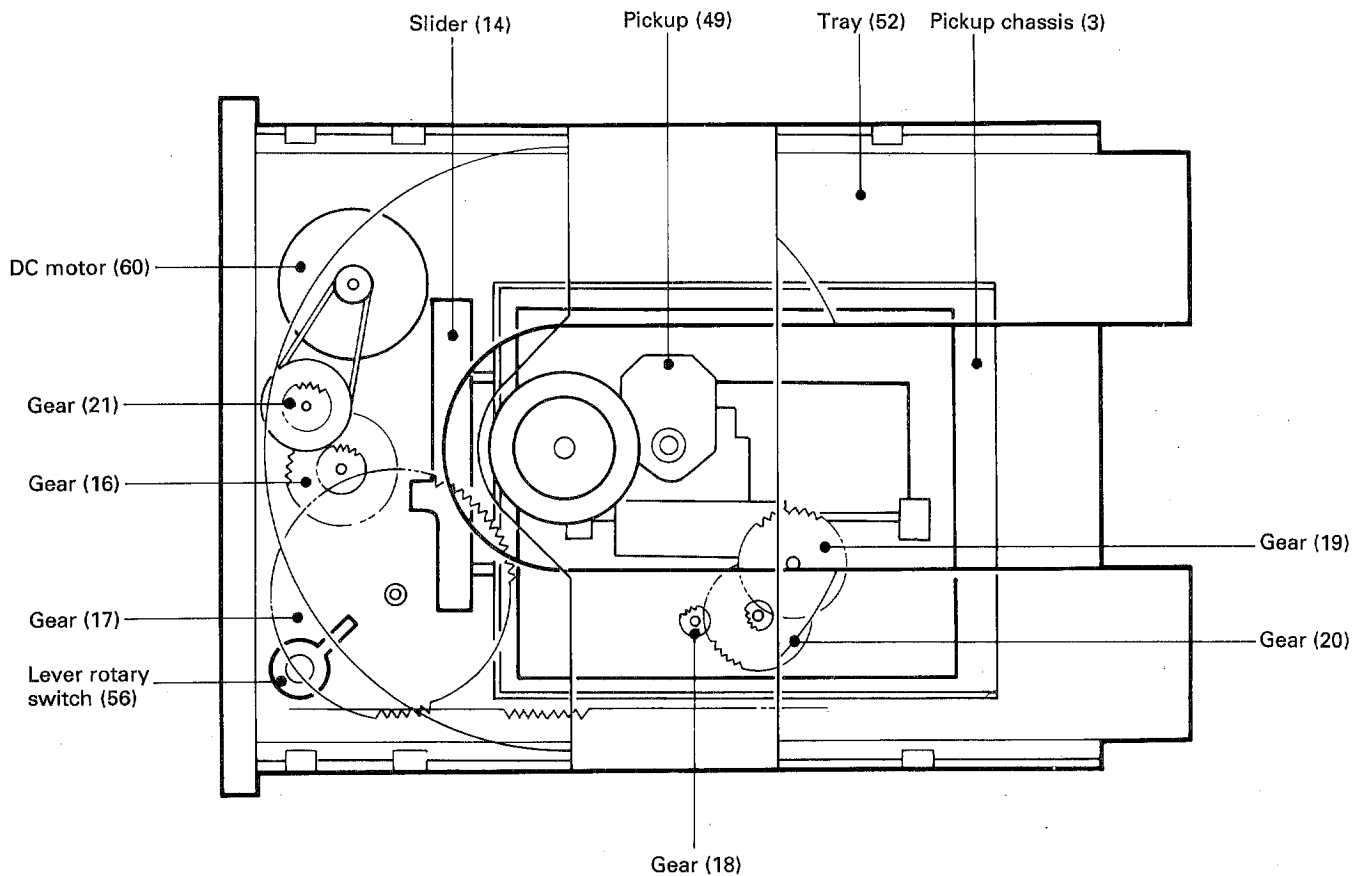


Fig. 1 Tray closed status

MECHANISM OPERATION DESCRIPTION

1. Tray OPEN/CLOSE Operation

By the rotation of the motor (①), the gear (②) is rotated and the tray starts OPEN/CLOSE (③) operation. The OPEN/CLOSE operation stops when the protrusion of the gear comes in contact with the detection switch (④).

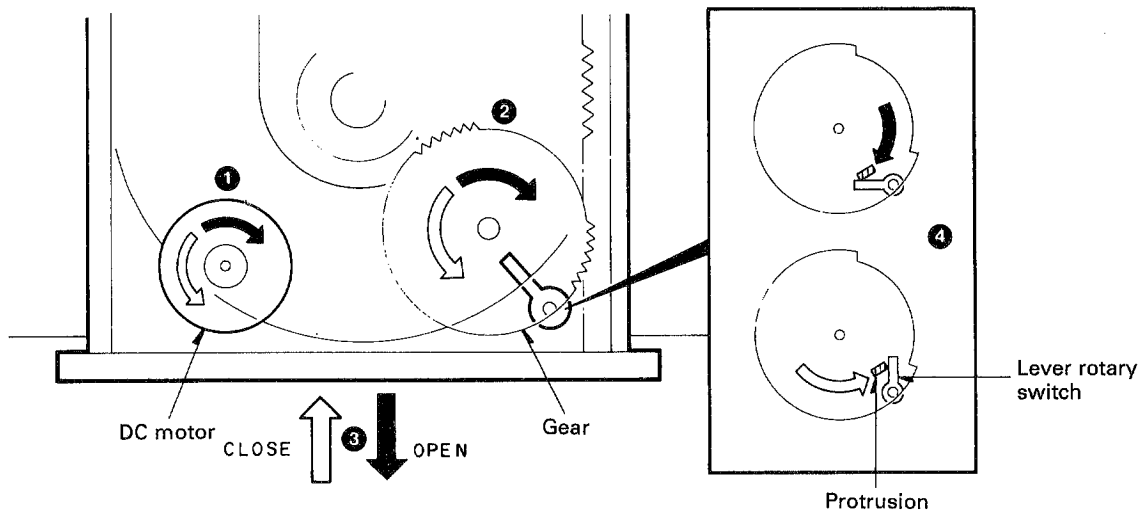


Fig. 2 Tray OPEN/CLOSE operation

2. Pickup Chassis UP/DOWN Movement

Accompanied with the OPEN/CLOSE operation, the lever is shifted (②) by the rotation of the gear (①). Along with the grooves in the lever, the pickup chassis moves up and down (③).

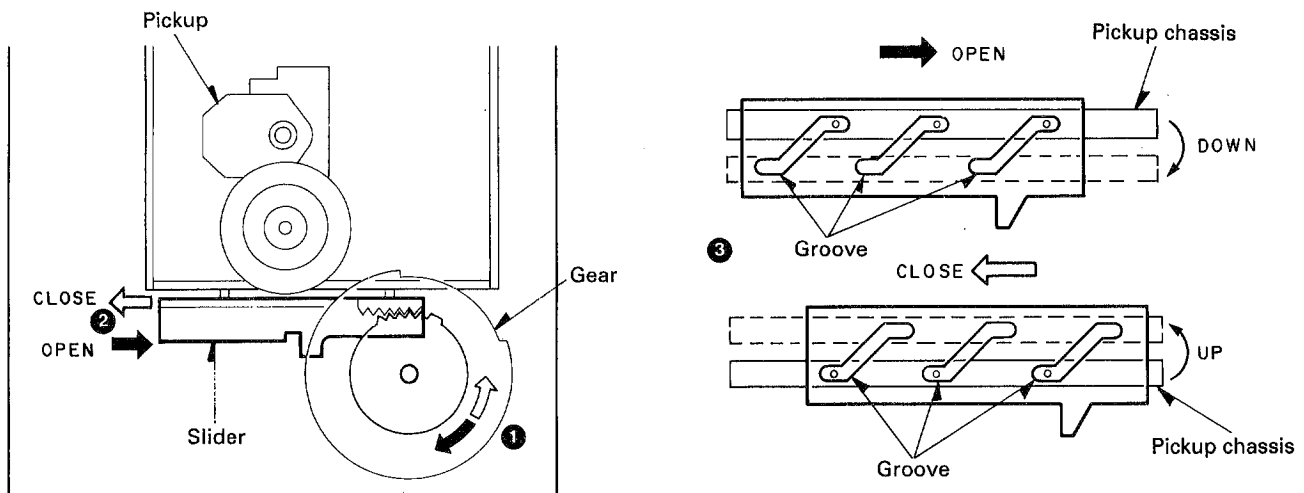


Fig. 3 Pickup chassis UP/DOWN movement

MECHANISM OPERATION DESCRIPTION

3. Gear Installing Position

When re-installing the gear after removing it, attach the gear at the position (A) shown in the condition when the pickup chassis has been lowered.

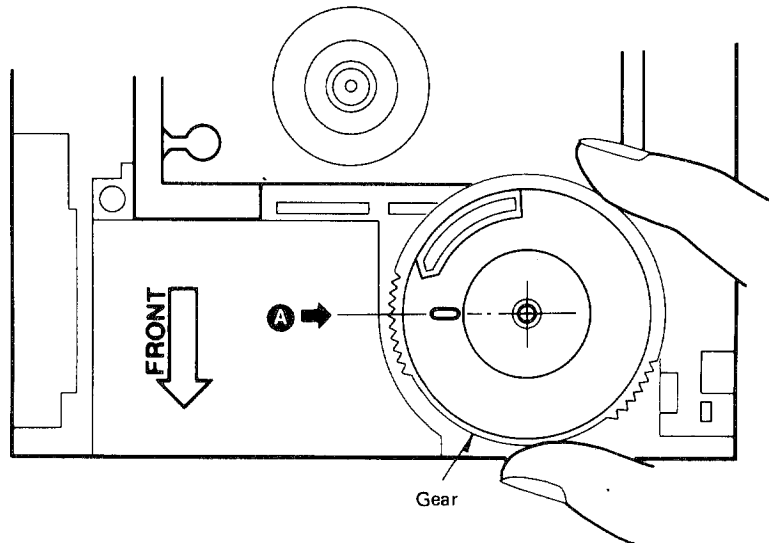


Fig. 4 Gear installing position

ADJUSTMENT

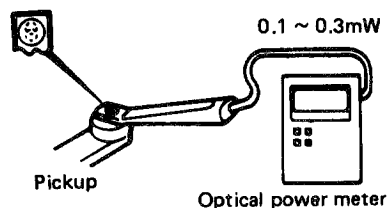
No.	ITEM	INPUT SETTING	OUTPUT SETTING	PLAYER SETTING	ALIGNMENT POINT	ALIGN FOR	FIG
1	LASER POWER	—	Apply the sensor section of the optical power meter on the pickup lens.	Short-circuit pins TEST and turn the power on to enter the test mode. Press the MANUAL S. key (▶) to move the pickup outwards. Press the CHECK key to check that the LD emits light. Then, confirm that the display is "03".	—	On the power from 0.1 to 0.3mW, when the diffraction grating is correctly aligned with the RF level of 1.5Vp-p or more and the TE (servo open) level of 1.5Vp-p or more, the pickup is acceptable.	(a)
2	VCO	—	Connect a frequency counter to PLCK (TP4). (X32-1600)	Press the STOP key, and confirm that the display is "01".	L2 (X32-1600)	4.30MHz	(b)
3	TRACKING ERROR BALANCE	Test disc Type 4	Connect an oscilloscope as follows. CH1: RF (X32-1600 CN7-1) CH2: TE (X32-1600 CN7-6)	Press the REPEAT key to open the tray. Load a disc and close the tray by pushing it by hand. Then, press the CHECK key. Confirm that the display is "03".	TE BALANCE VR2 (X32-1600)	Symmetry between upper and lower patterns, or DC=0±0.03V	(c)
4	FOCUS ERROR BALANCE	Test disc Type 4	Connect an oscilloscope as follows. CH1: RF (X32-1600 CN7-1) CH2: TE (X32-1600 CN7-6)	Press the PLAY key. Confirm that the display is "05".	FE BALANCE VR1 (X32-1600)	Optimum eyepattern	(d)
5	FOCUS GAIN	Test disc Type 4 Apply signal of 800Hz, 100mVrms to CN7 pin 2-3. (X32-1600)	Connect a LPF to CN7 pin 2-3 to which connect an oscilloscope or an AC voltmeter. (X32-1600)	Press the PLAY key. Confirm that the display is "05".	FOCUS GAIN VR3 (X32-1600)	Two VTVMs should read the same value. 100mVrms	(e)
6	TRACKING GAIN	Test disc Type 4 Apply signal of 1.2kHz, 100mVrms to CN7 pin 5-6. (X32-1600)	Connect a LPF to CN7 pin 5-6 to which connect an oscilloscope or an AC voltmeter. (X32-1600)	Press the PLAY key. Confirm that the display is "05".	TRACKING GAIN VR4 (X32-1600)	Two VTVMs should read the same value. 100mVrms	(e)

(Note) Type 4 disc: SONY YDS-18 Test Disc or equivalent.

LPF: Around 47kohms+390pF or so.

Step 1~6 are in Test Mode.

(a) Laser Power

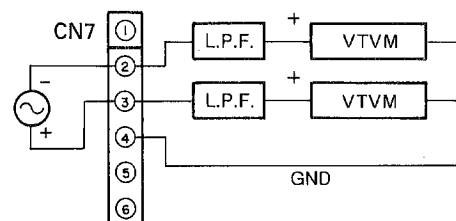


(e) Focus Gain, Tracking Gain

FOCUS GAIN

Two VTVMs should read the same value.
0dB (100mVrms)

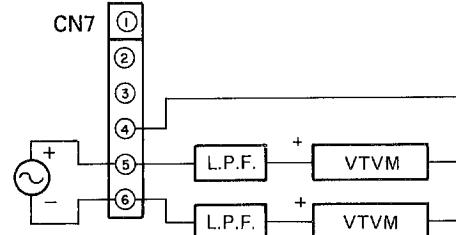
800Hz
100mV



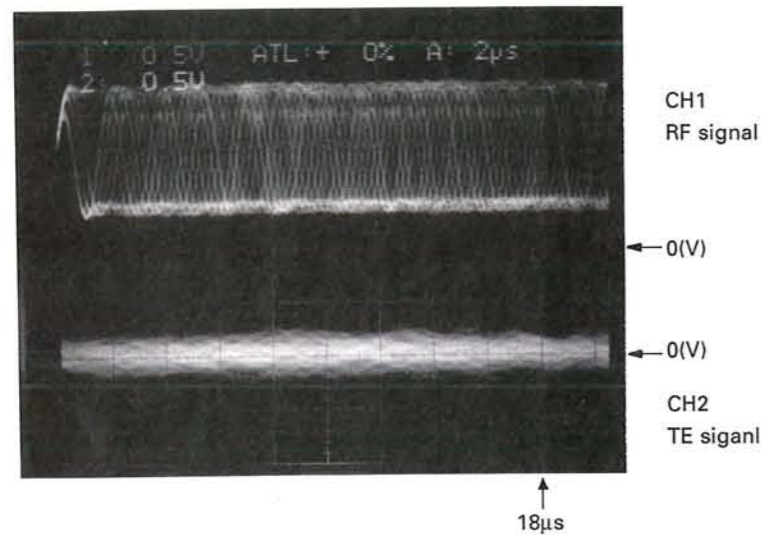
TRACKING GAIN

Two VTVMs should read the same value.
0dB (100mVrms)

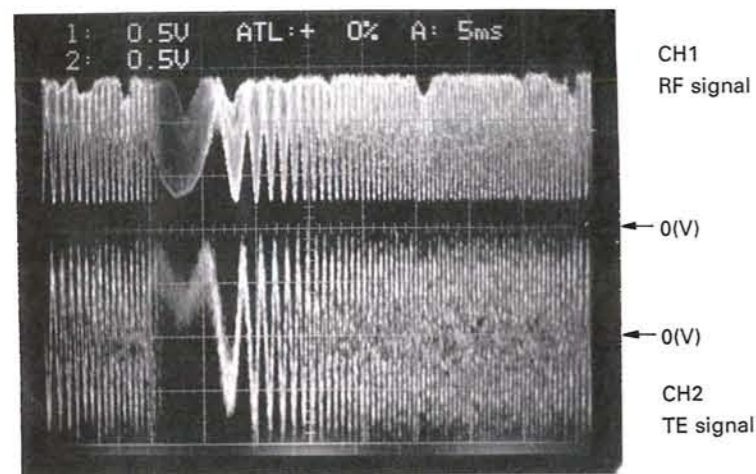
1.2kHz
100mV



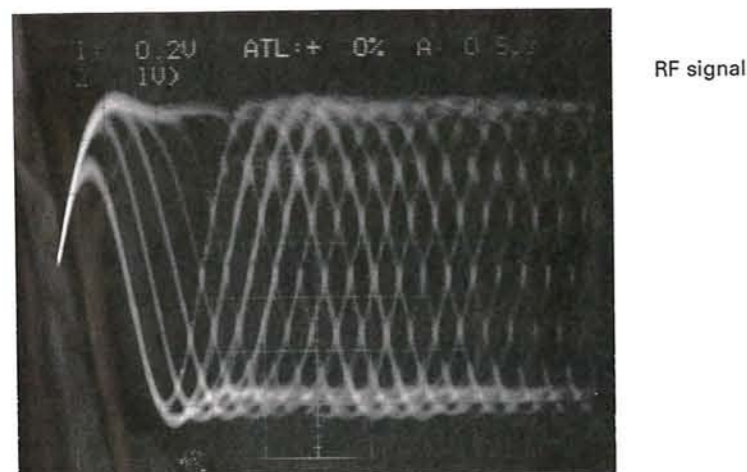
ADJUSTMENT



- (a) • RF signal and TE signal in test mode (PLAY).
• If the diffraction grating has been adjusted properly, the influence of triggering is observed on the TE waveform of approx. 18μs after RF signal, in the form of a projection.



- (c) • RF signal and TE signal in test mode (Focusing servo on, CHECK).
• Adjust TE signal so that the waveform is symmetrical above and below 0V. (TE BALANCE, VR2)



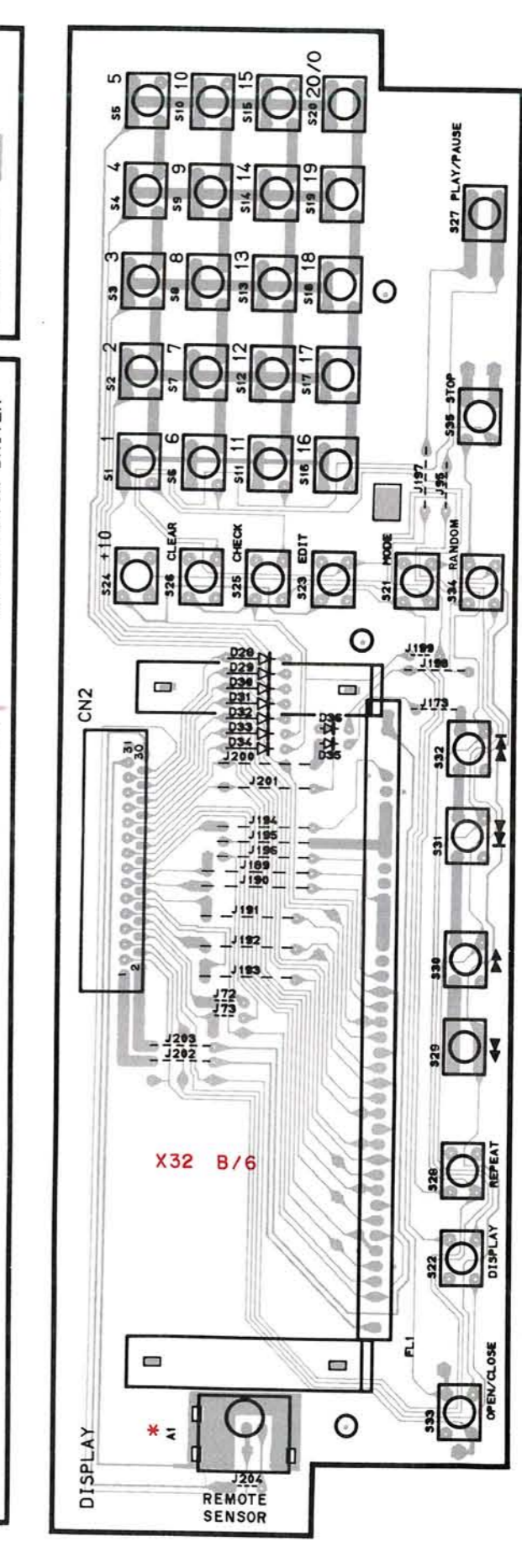
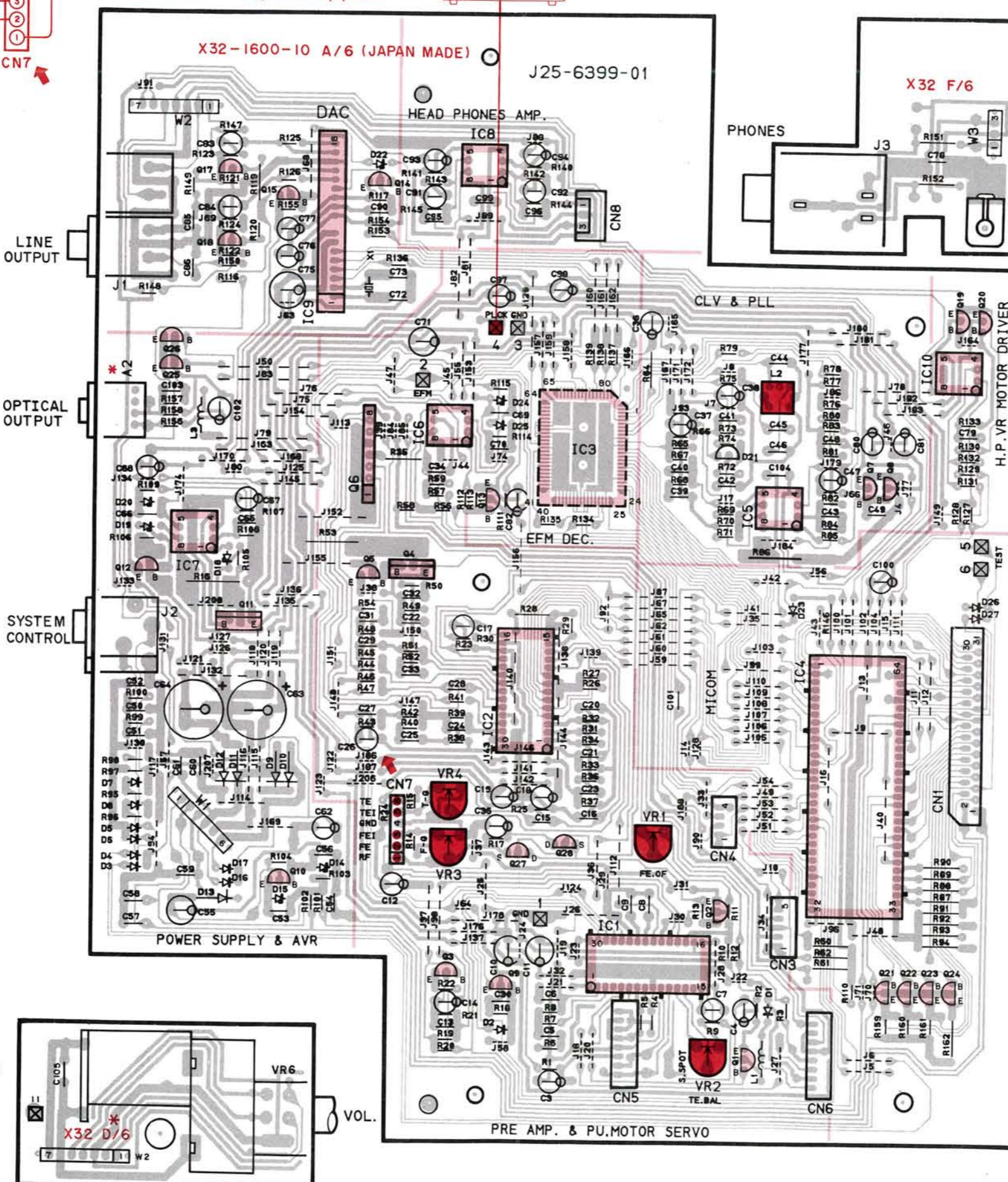
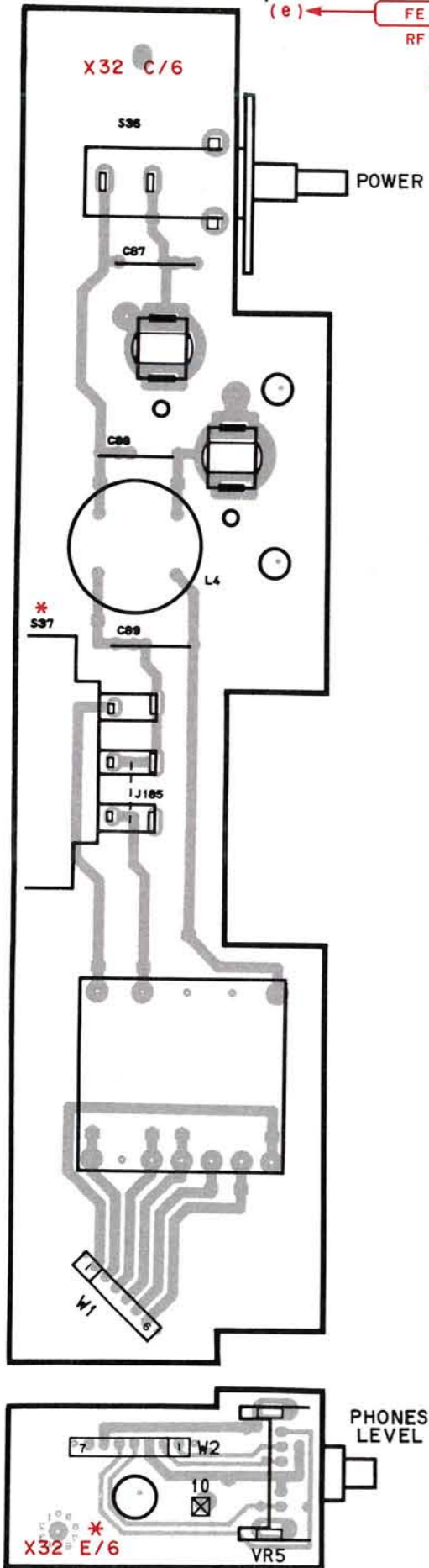
- (d) • RF signal in test mode (PLAY).
• Perform the focusing offset adjustments so that each of center cross points are focusing into one points above and below the center shall also displayed clearly. (FE BALANCE, VR1)

VOLTAGE TABLE

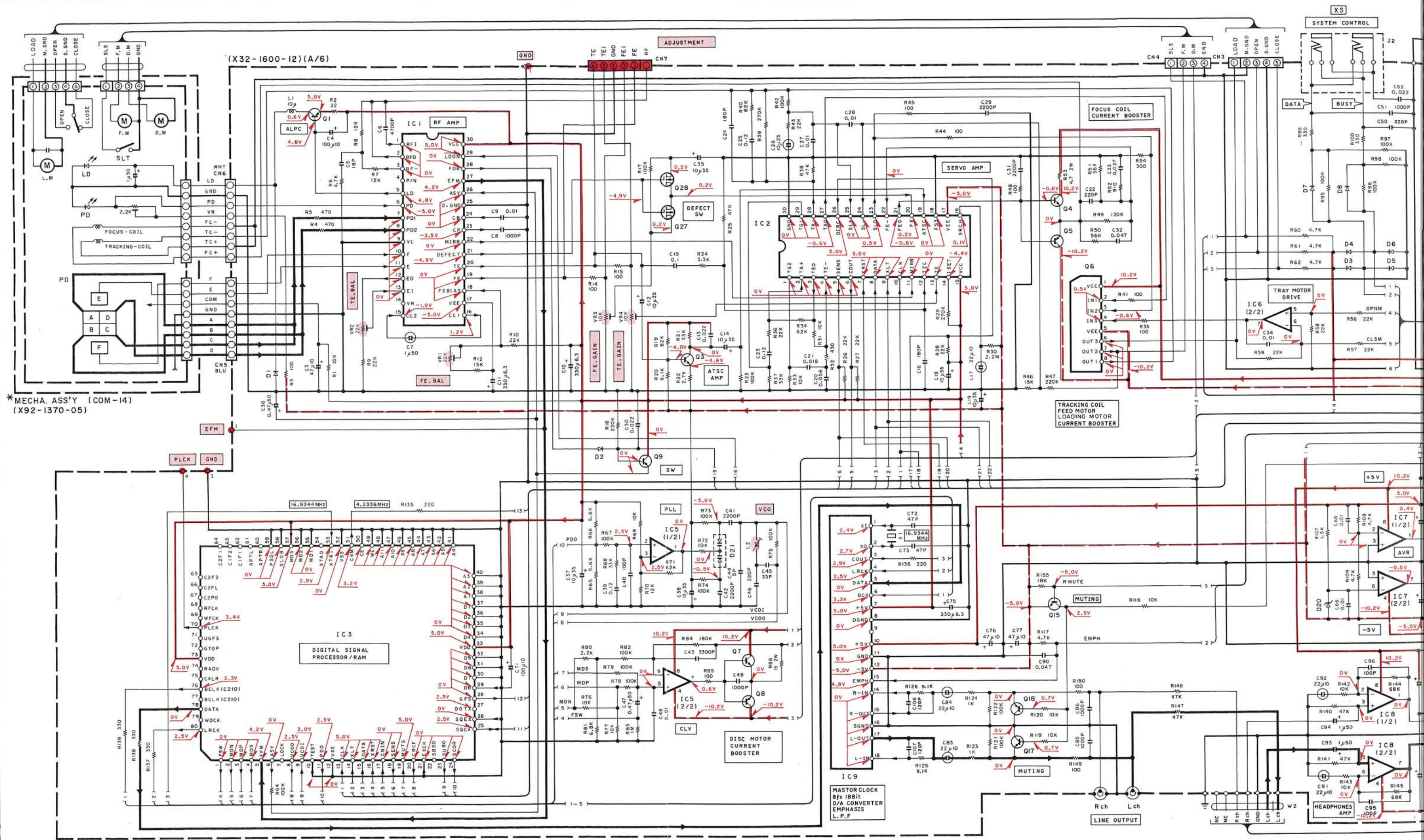
(X32-1600-XX)

IC1		IC3		IC4		IC5		IC9		IC10 (DP-4020 only)	
1~3	0V	1~4	0V	1~4	-1.5V	1	0V	1	2.4V	1~3	0V
5	4.8V	5	4.2V	5	0V	2	2.5V	2	2.7V	4	-10.2V
6	-5.0V	6	0V	6	2.5V	3	2.5V	3	2.0V	8	10.2V
7~13	0V	8	2.5V	7,8	0V	4	-10.2V	4	2.5V	Q6	
15	-1.0V	9	3.0V	9	4.9V	5,6	0V	5	0V	1	10.2V
16	1.2V	10	0V	10~14	0V	7	0.6V	6	3.3V	2	0.5V
17	-5.0V	11	2.5V	15~17	5.0V	8	-10.2V	7	5.0V	3	-0.6V
18~20	0V	12	0V	18	0V	IC6		8	0V	4	0.5V
21	-4.9V	13~16	5.0V	19	5.0V	1	-8.8V	10	5.0V	5	-10.2V
22	0V	17,18	0V	20~24	0V	2	4.4V	11	0V	6~8	0V
23	-3.5V	19	5.0V	25~28	5.0V	3	3.9V	12	-5.0V		
24~26	0V	20~24	0V	30	3.2V	4	-10.2V	13	4.8V		
27	4.2V	25	2.5V	32	0V	5~7	0V	14~18	0V		
28	0V	26	0V	33	0V	8	10.2V				
29,30	5.0V	28~32	0V	35~38	0V	IC7					
IC2		33	5.0V	39	5.0V	1	0.4V				
1~6	0V	34~50	0V	40~48	-25.2V	2,3	0V				
7~9	5.0V	51	3.2V	50,51	0V	4	-10.2V				
10~13	0V	52	0V	54	-18.2V	5	0V				
14	-4.4V	53	2.9V	55	-11.5V	7	-0.5V				
15	5.0V	55,56	0V	56	-28.5V	8	10.2V				
16	0.1V	57	5.0V	57	-5.0V	IC8					
17	-5.0V	58,59	0V	58	-18.5V	1~3	0V				
18,19	0V			59	-14.6V	4	-10.2V				
20	0.2V			60	-27.8V	5~7	0V				
21	-0.6V			61	-27.8V	8	10.2V				
22	0V			62	-11.3V						
23	0.5V			63	-11.3V						
24,25	0V			64	5.0V						
26	5.0V										
27	-0.6V										
28~30	0V										
										</	

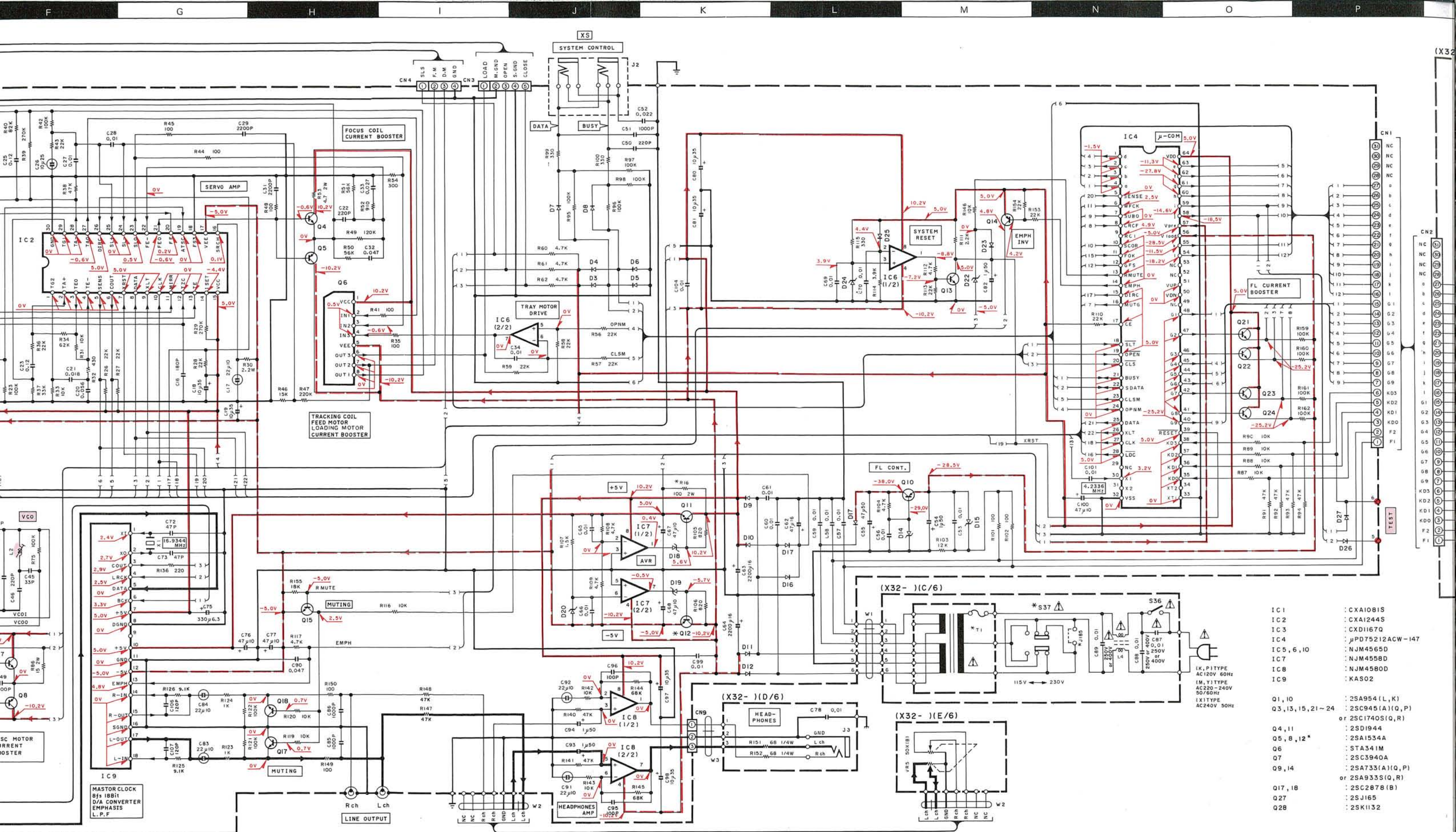
PC BOARD (COMPONENT SIDE VIEW)



* MECHA. ASS'Y (COM-14)
(X92-1370-05)



• DC voltage
between

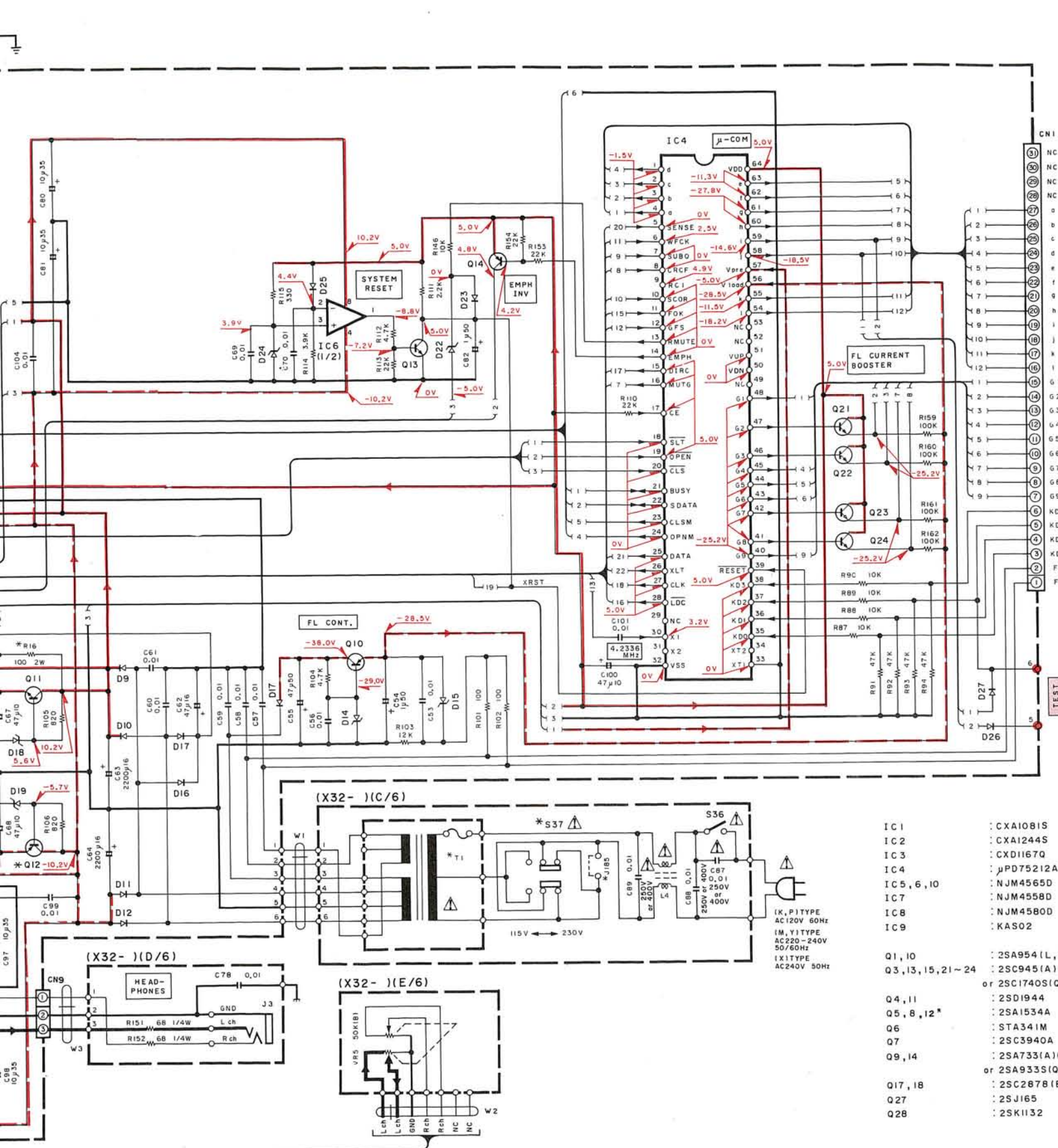


• DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

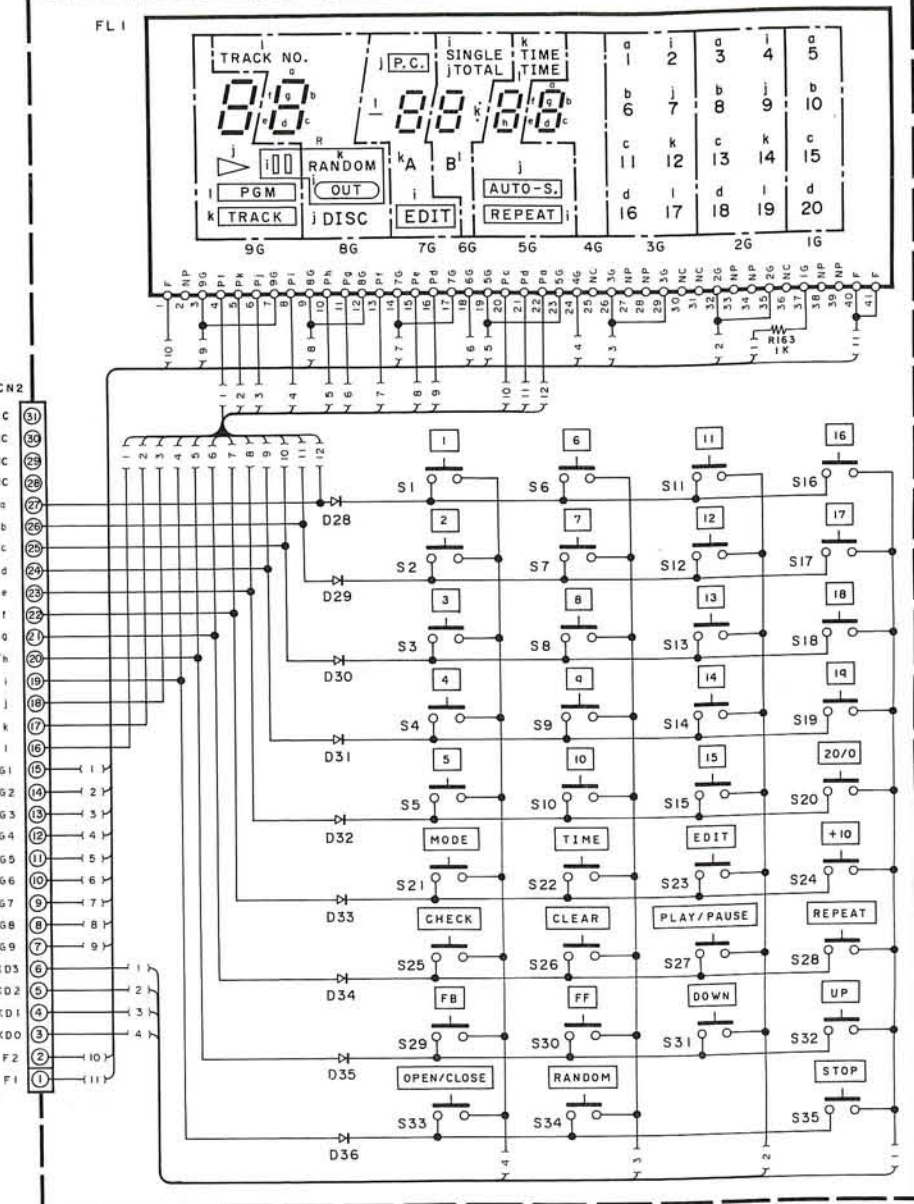
• Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

• Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen instrumenten oder Geräten u.U. geringfügig.

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(X32-)(B/6)



- D1~8,16,17,23,25 : HSS104 or ISS133
D9~13 : S5566B
D14 : HZS30N(B) or RD30ES(B)
D15 : HZS6.2N(B) or RD6.2ES(B2)
D18~20 : HZS5.1N(B2) or RD5.1ES(B2)
D21 : ISV147
D22 : HZS8.2N(B) or RD8.2ES(B)
D24 : HZS3.9N(B2) or RD3.9ES(B2)
D26~36 : HSS104A or ISS131

PRODUCT P.	DESTINATION COUNTRY	ABB.	UNIT NAME	S37	J185	R16	MECHANISM ASS'Y	Q12
JAPAN MADE	U.S.A	K	X32-1600-12	NO	YES	NO	X92-1370-05	2SA1534A
	CANADA	P						
	GENERAL MARKET PX	M	X32-1600-23	YES	NO	YES		2SB941 (Q,P)
SINGAPORE MADE	AUSTRALIA	X	X32-1600-72	NO	YES		X92-1400-05	2SA1534A
	U.S.A	K	X32-1620-12	NO	YES	NO		

- IC1 : CXA1081S
IC2 : CXA1244S
IC3 : CXD1167Q
IC4 : μPD75212ACW-147
IC5,6,10 : NJM4565D
IC7 : NJM4558D
IC8 : NJM4580D
IC9 : KAS02
- Q1,10 : 2SA954(L,K)
Q3,13,15,21~24 : 2SC945(A)(Q,P) or 2SC1740S(Q,R)
Q4,11 : 2SD1944
Q5,8,12* : 2SA1534A
Q6 : STA341M
Q7 : 2SC3940A
Q9,14 : 2SA733(A)(Q,P) or 2SA933S(Q,R)
Q17,18 : 2SC2878(B)
Q27 : 2SJ165
Q28 : 2SK1132

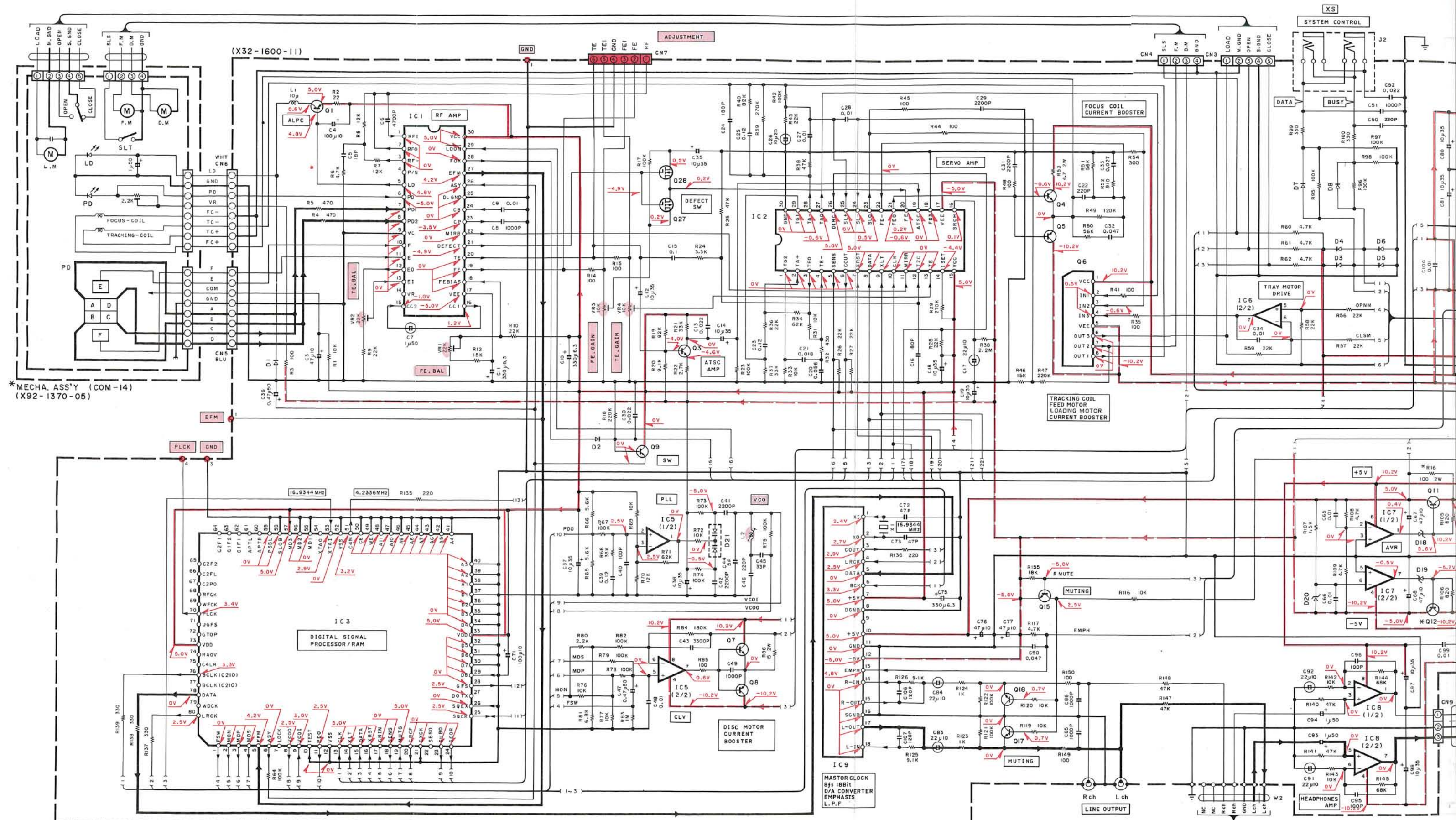
- 2SA1534A
2SA733(A)
2SA954
2SC2878
2SC3940A
2SC945(A)
- CXA1081S
CXA1244S
- CXD1167Q
- μPD75212ACW-147
- 2SB941
2SD1944
- STA341M
- 2SK1132
- NJM4558D
NJM4580D
NJM4565D
- KAS02

voltages are as measured with a high impedance meter. Values may vary slightly due to variations between individual instruments or/and units.

• Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

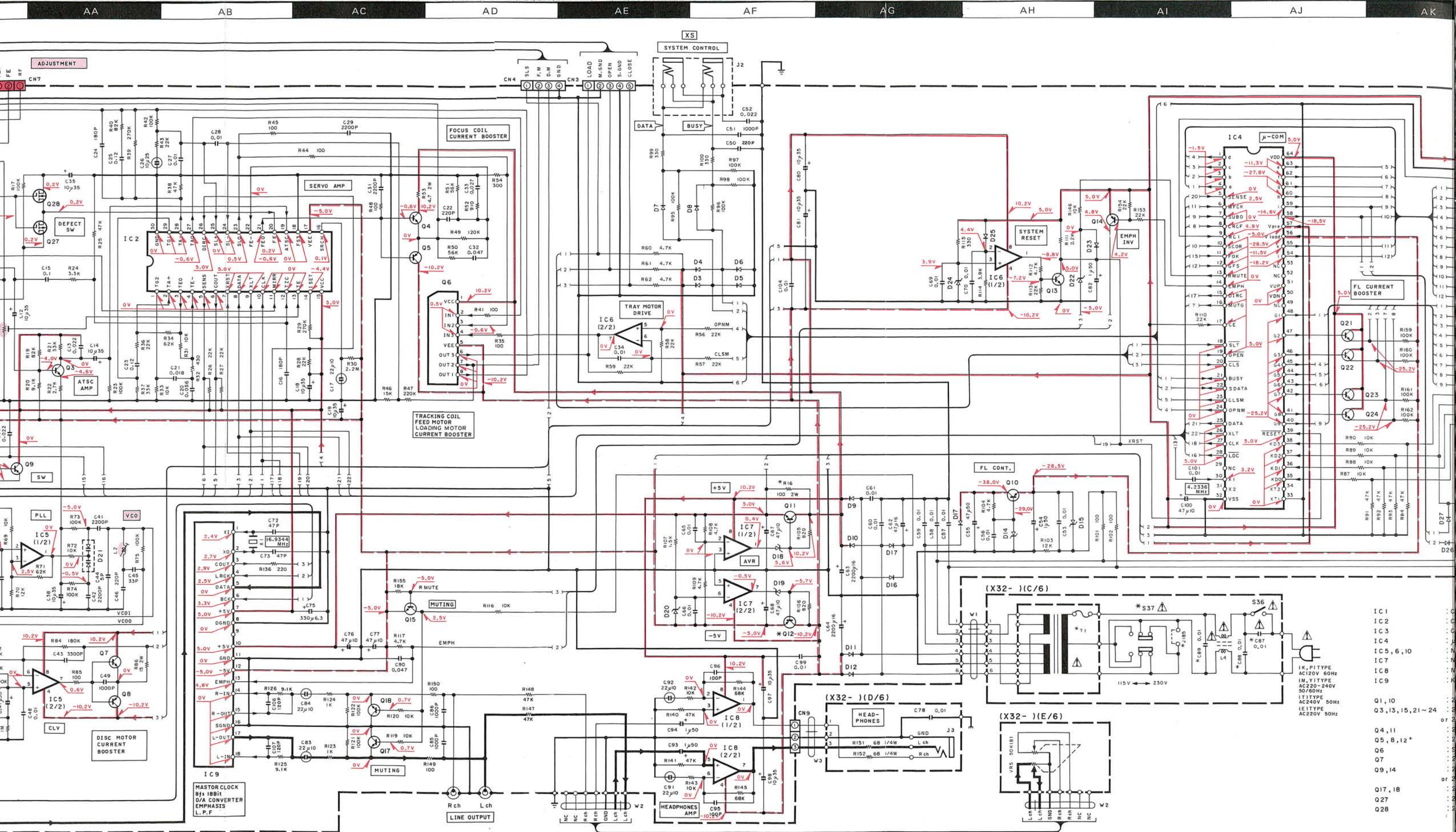
• Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen instrumenten oder Geräten u.U. geringfügig.

CAUTION : For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.



* MECHA. ASS'Y (COM-14)
(X92-1370-05)

• DC voltages are as measured with a voltmeter. Values may vary slightly between individual instruments or/and

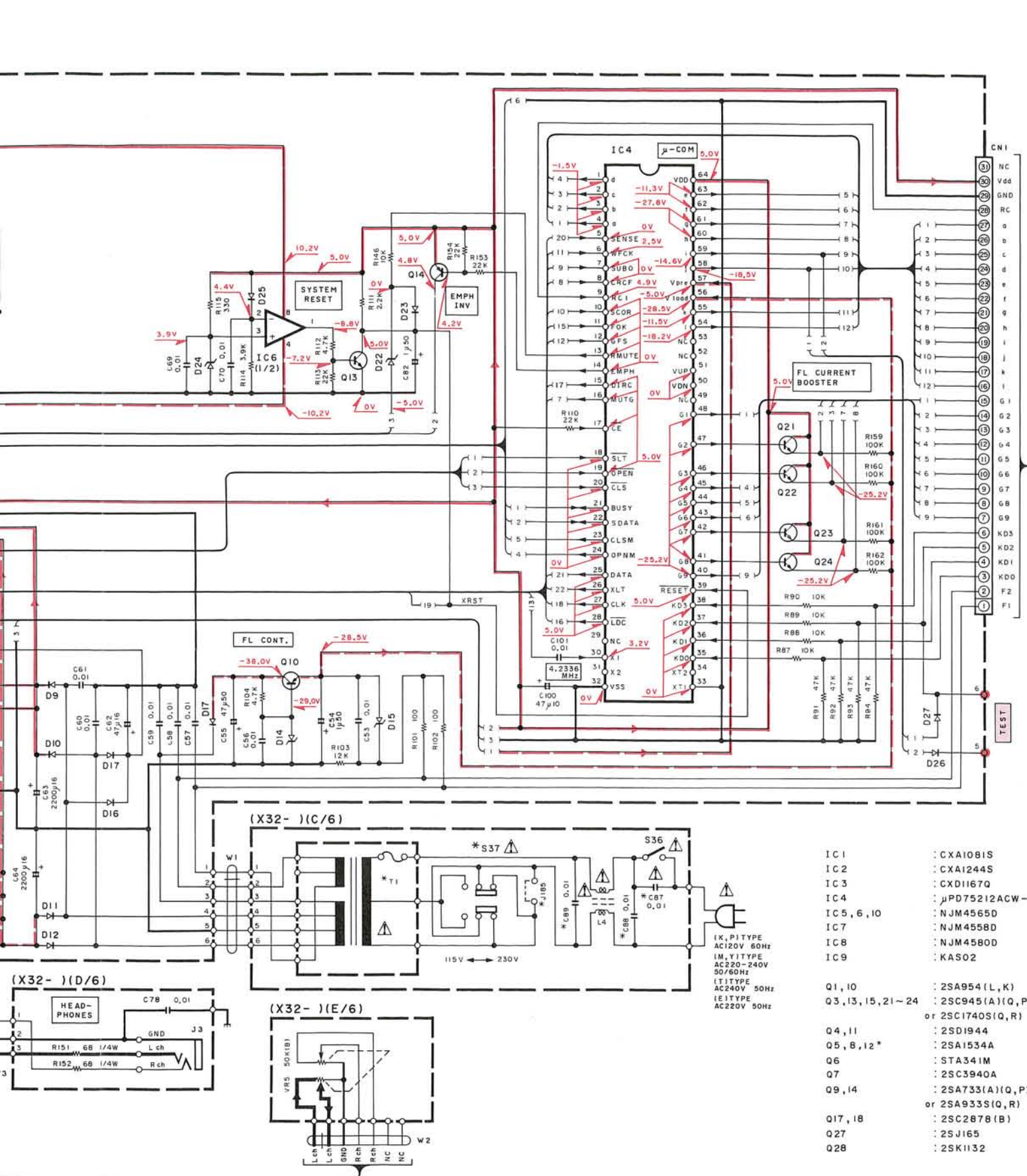


• DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

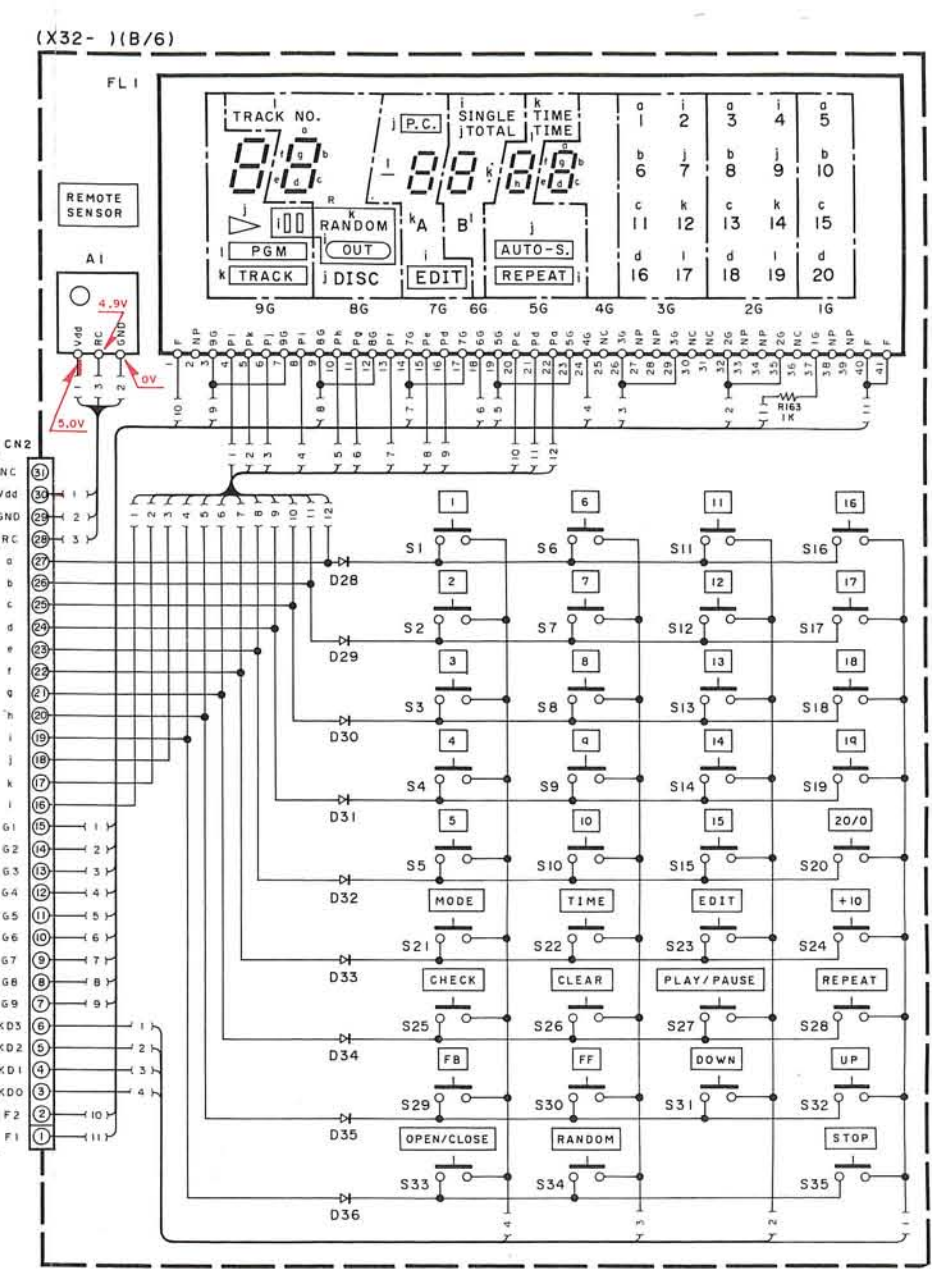
• Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

• Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen instrumenten oder Geräten u.U. geringfügig.

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- IC 1 : CXA1081S
 IC 2 : CXA1244S
 IC 3 : CXD1167Q
 IC 4 : μ PD75212ACW-147
 IC 5, 6, 10 : NJM4565D
 IC 7 : NJM4558D
 IC 8 : NJM4580D
 IC 9 : KAS02
- Q1, 10 : 2SA954(L, K)
 Q3, 13, 15, 21 ~ 24 : 2SC945(A)(Q, P)
 or 2SC1740S(Q, R)
 Q4, 11 : 2SD1944
 Q5, 8, 12* : 2SA1534A
 Q6 : STA341M
 Q7 : 2SC3940A
 Q9, 14 : 2SA733(A)(Q, P)
 or 2SA933S(Q, R)
 Q17, 18 : 2SC2878(B)
 Q27 : 2SJ165
 Q28 : 2SK1132



- D1 ~ 8, 16, 17, 23, 25 : HSS104 or ISS133
 D9 ~ 13 : S5566B
 D14 : HZS30N(B) or RD30ES(B)
 D15 : HZS6.2N(B) or RD6.2ES(B2)
 D18 ~ 20 : HZS5.1N(B2) or RD5.1ES(B2)
 D21 : ISV147
 D22 : HZS8.2N(B) or RD8.2ES(B)
 D24 : HZS3.9N(B2) or RD3.9ES(B2)
 D26 ~ 36 : HSS104A or ISS131

PRODUCT P.	DESTINATION	UNIT NAME	S37	J185	R16	C87~89	MECHANISM ASS'Y	Q12
JAPAN MADE	U.S.A	X32-1600-11	NO	YES	NO	250V or 400V	X92-1370-05	2SA1534A
	CANADA	X32-1600-22	YES	NO	YES			2SB941(Q, P)
SINGAPORE MADE	GENERAL MARKET	X32-1620-11			NO			2SA1534A
	U.S.A	X32-1622-72	NO	YES	YES	250V or 400V	X92-1400-05	2SB941(Q, P)
FRANCE MADE	ENGLAND	X32-1642-71	NO	YES	YES	250V	X92-1410-00	2SB941(Q, P)
	EUROPE							

DP-3020(K)
 (JAPAN MADE)

- 2SA1534A
 2SA733(A)
 2SA954
 2SC2878
 2SC3940A
 2SC945(A)
- CXA1081S
 CXA1244S
- CXD1167Q
- 2SA933S
 2SC1740S
- 2SB941
 2SD1944
- STA341M
- 2SK1132
- μ PD75212ACW-147
- NJM4558D
 NJM4580D
 NJM4565D
- KAS02

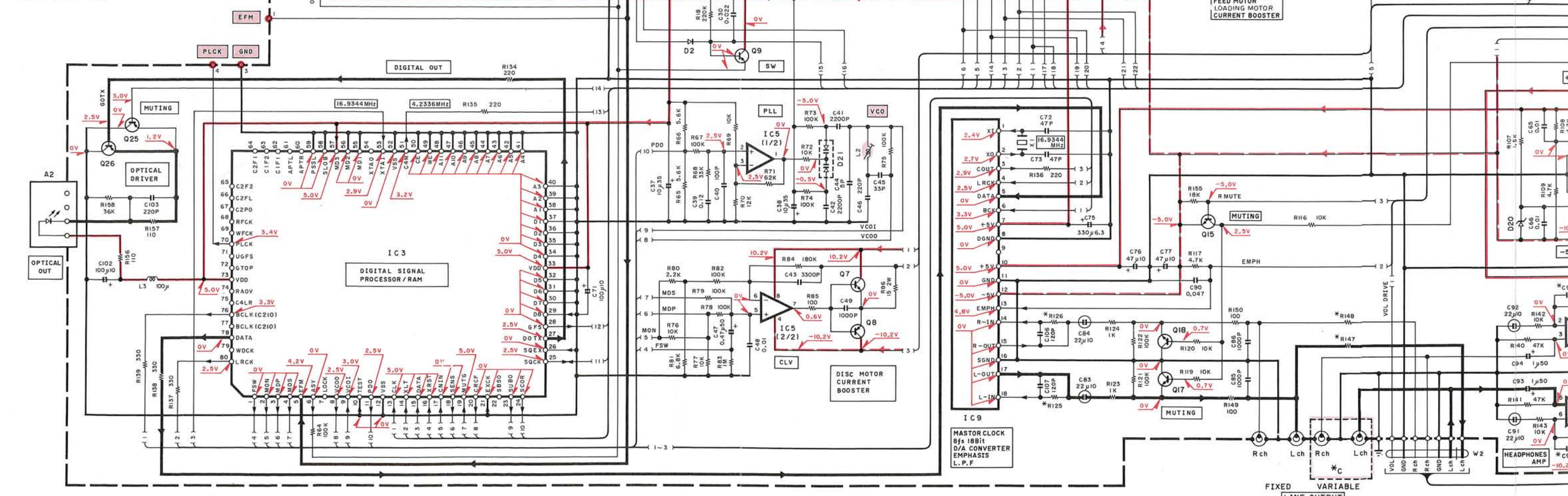
high impedance due to variations of units.

• Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

• Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen instrumenten oder Geräten u.U. geringfügig.

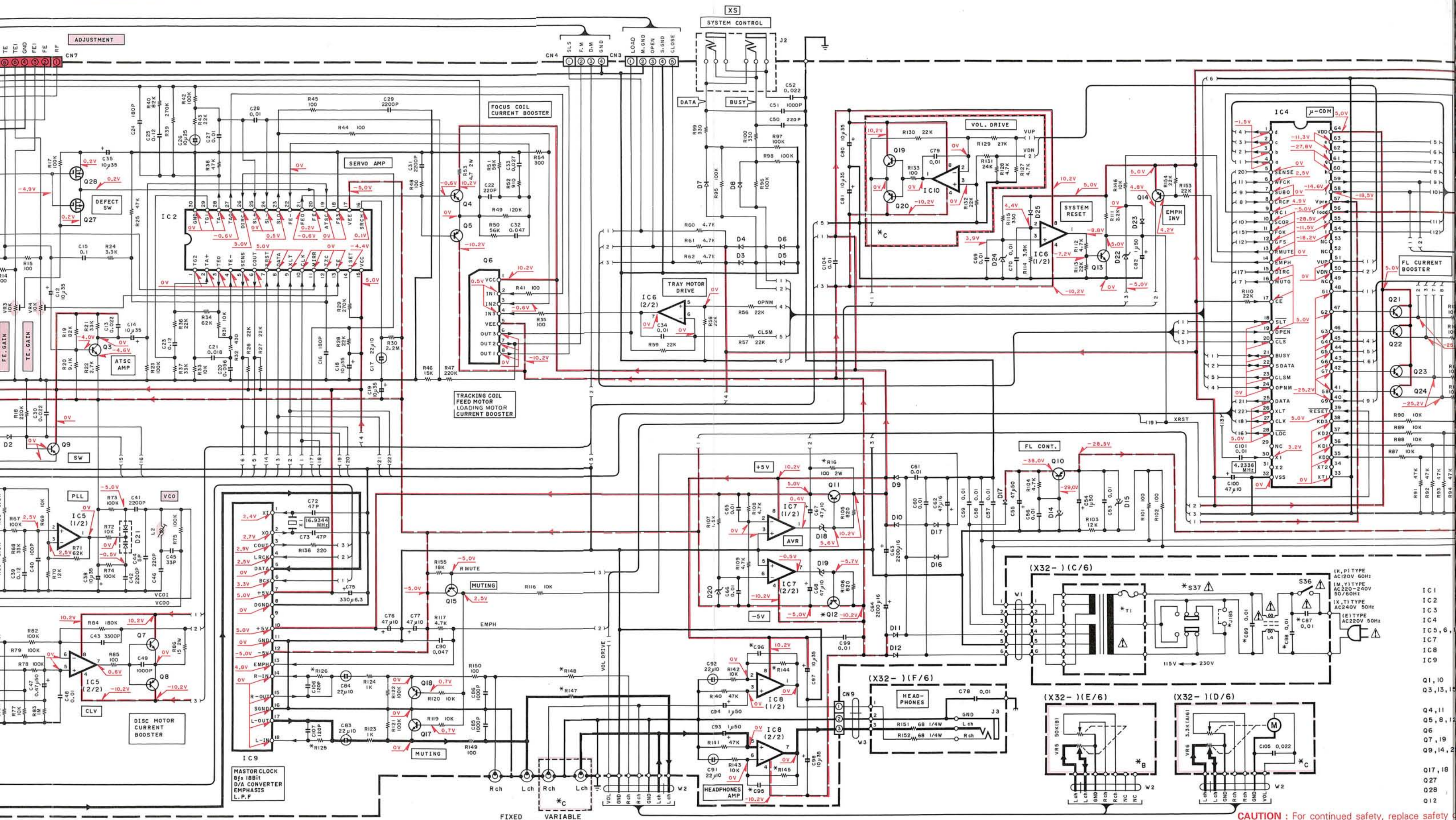
CAUTION : For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Δ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

*MECHA. ASS'Y (COM-14)
(X92-1370-05)

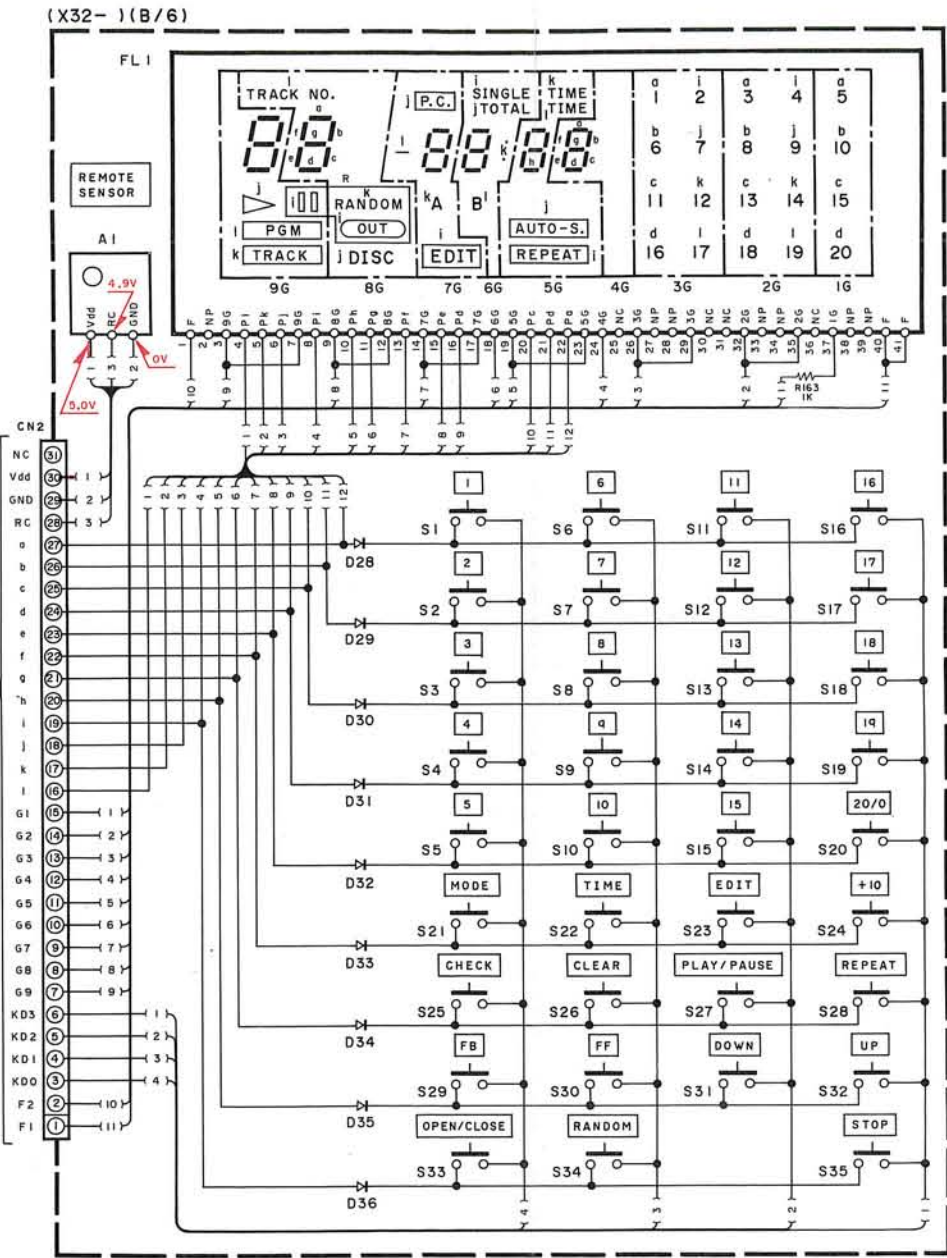
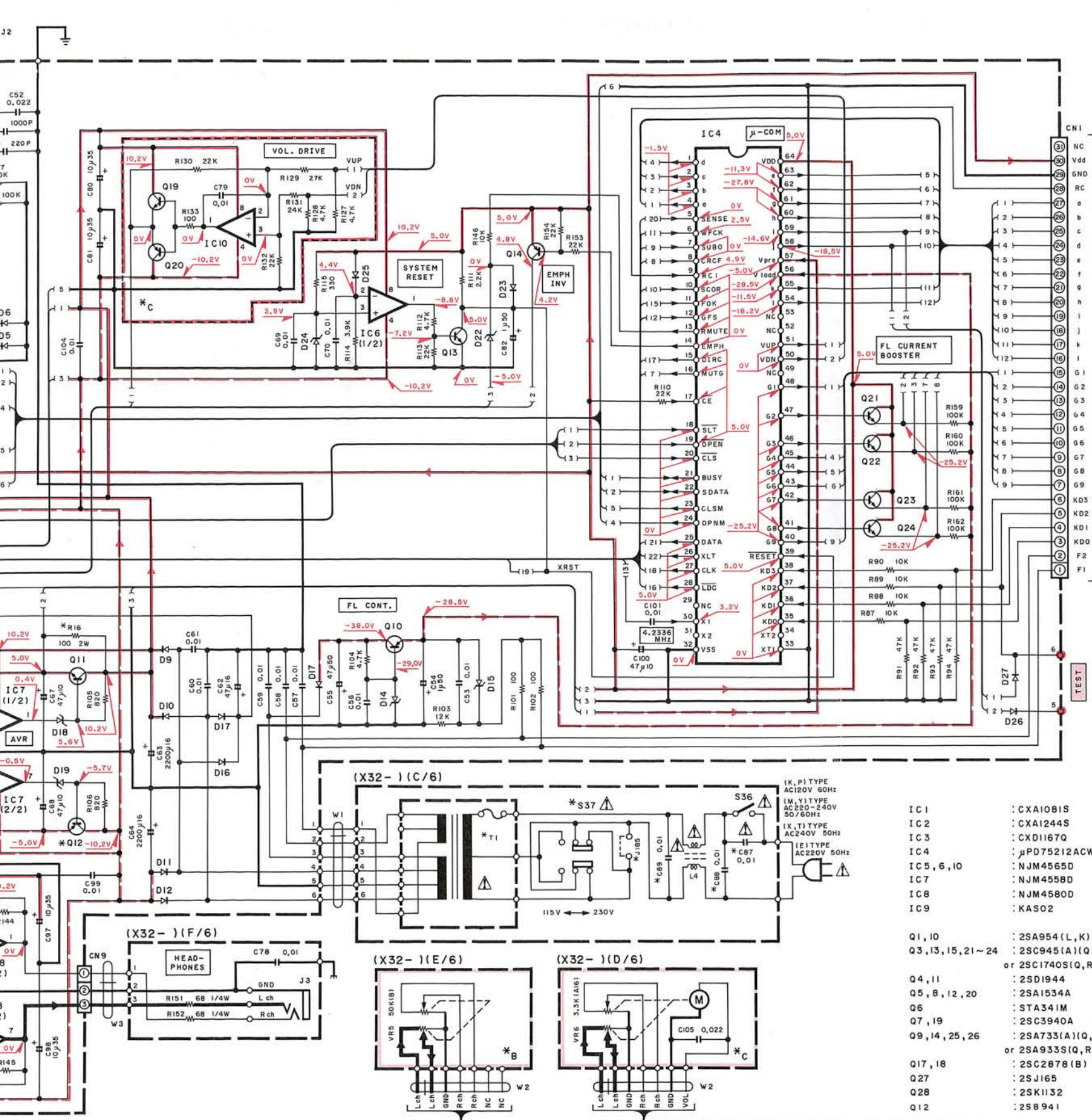


• DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

• Les tensions de DC sont mesurées avec un voltmètre à haute impédance. Les valeurs peuvent varier légèrement en fonction des appareils et aux unités.



- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen instrumenten oder Geräten u.U. geringfügig.
- CAUTION : For continued safety, replace safety components only with manufacturer's recommended (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage or resistance measurements shall be carried out (except parts are acceptably insulated from the supply) before the appliance is returned to the customer.



- 2SA1534A
- 2SA733(A)
- 2SA954
- 2SC2878
- 2SC3940A
- 2SC945(A)
- CXA1081S
- CXA1244S
- CXD1167Q
- 2SA933S
- 2SC1740S
- 2SB941
- 2SD1944
- STA341M
- 2SK1132
- μPD75212ACW-147
- NJM4558D
- NJM4580D
- NJM4565D
- KAS02

- IC1 : CXA1081S
- IC2 : CXA1244S
- IC3 : CXD1167Q
- IC4 : μPD75212ACW-147
- IC5, 6, 10 : NJM4565D
- IC7 : NJM4558D
- IC8 : NJM4580D
- IC9 : KAS02
- Q1, 10 : 2SA954(L, K)
- Q3, 13, 15, 21 ~ 24 : 2SC945(A)(Q, P) or 2SC1740S(Q, R)
- Q4, 11 : 2SD1944
- Q5, 8, 12, 20 : 2SA1534A
- Q6 : STA341M
- Q7, 19 : 2SC3940A
- Q9, 14, 25, 26 : 2SA733(A)(Q, P) or 2SA933S(Q, R)
- Q17, 18 : 2SC2878(B)
- Q27 : 2SJ165
- Q28 : 2SK1132
- Q12 : 2SB941

- D1 ~ 8, 16, 17, 23, 25 : HSS104 or ISS133
- D9 ~ 13 : S5566B
- D14 : HZS30N(B) or RD30ES(B)
- D15 : HZS6.2N(B) or RD6.2ES(B2)
- D18 ~ 20 : HZS5.1N(B2) or RD5.1ES(B2)
- D21 : ISV147
- D22 : HZS8.2N(B) or RD8.2ES(B)
- D24 : HZS3.9N(B2) or RD3.9ES(B2)
- D26 ~ 36 : HSS104A or ISS131

DP-4020

PRODUCT. P.	DESTINATION		UNIT NAME	B	C	S37	J185	R16	R125, 126	R144, 145	R147, 148	C87~89	C95, 96	MECHANISM ASS'Y	Q12	
	COUNTRY	ABB.														
JAPAN MADE	U.S.A	K P	X32-1600-10				NO	YES	NO							2SA1534A
	GENERAL MARKET PX	M Y	X32-1600-21	YES	NO		YES	NO		9.1K	68K	47K	250V or 400V	100P	X92-1370-05	2SB941 (Q, P)
	AUSTRALIA	X	X32-1600-71				NO	YES								
SINGAPORE MADE	U.S.A	K	X32-1620-10	YES	NO			NO	9.1K	68K	47K			100P	X92-1400-05	2SA1534A
	ENGLAND EUROPE	T E	X32-1622-71	NO	YES		NO	YES	11K	18K	SHORT	250V or 400V	390P		X92-1400-05	2SB941 (Q, P)
FRANCE MADE	ENGLAND EUROPE	T E	X32-1642-70	NO	YES		NO	YES	11K	18K	SHORT	250V	390P		X92-1410-00	2SB941 (Q, P)

CAUTION : For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Δ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

doivent être mesurées avec une impédance. Les valeurs peuvent varier du fait des variations inhérentes aux instruments de mesure individuels.

Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen instrumenten oder Geräten u.U. geringfügig.

DP-4020

KENWOOD

A

B

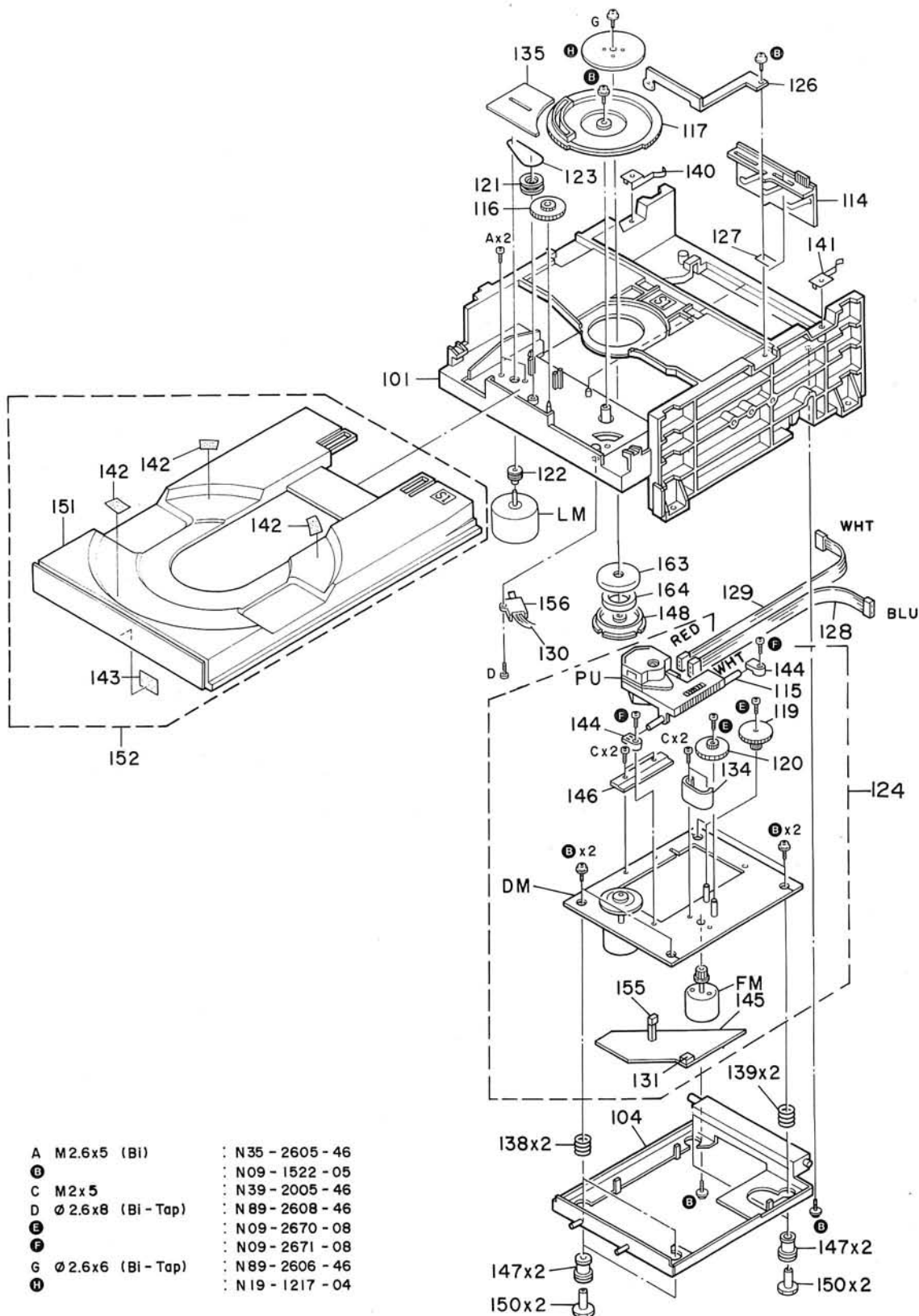


JAPAN MADE CDM - 14

Parts with the exploded numbers larger than 700 are not supplied.

EXPLODED VIEW (MECHANISM) : SINGAPORE MADE

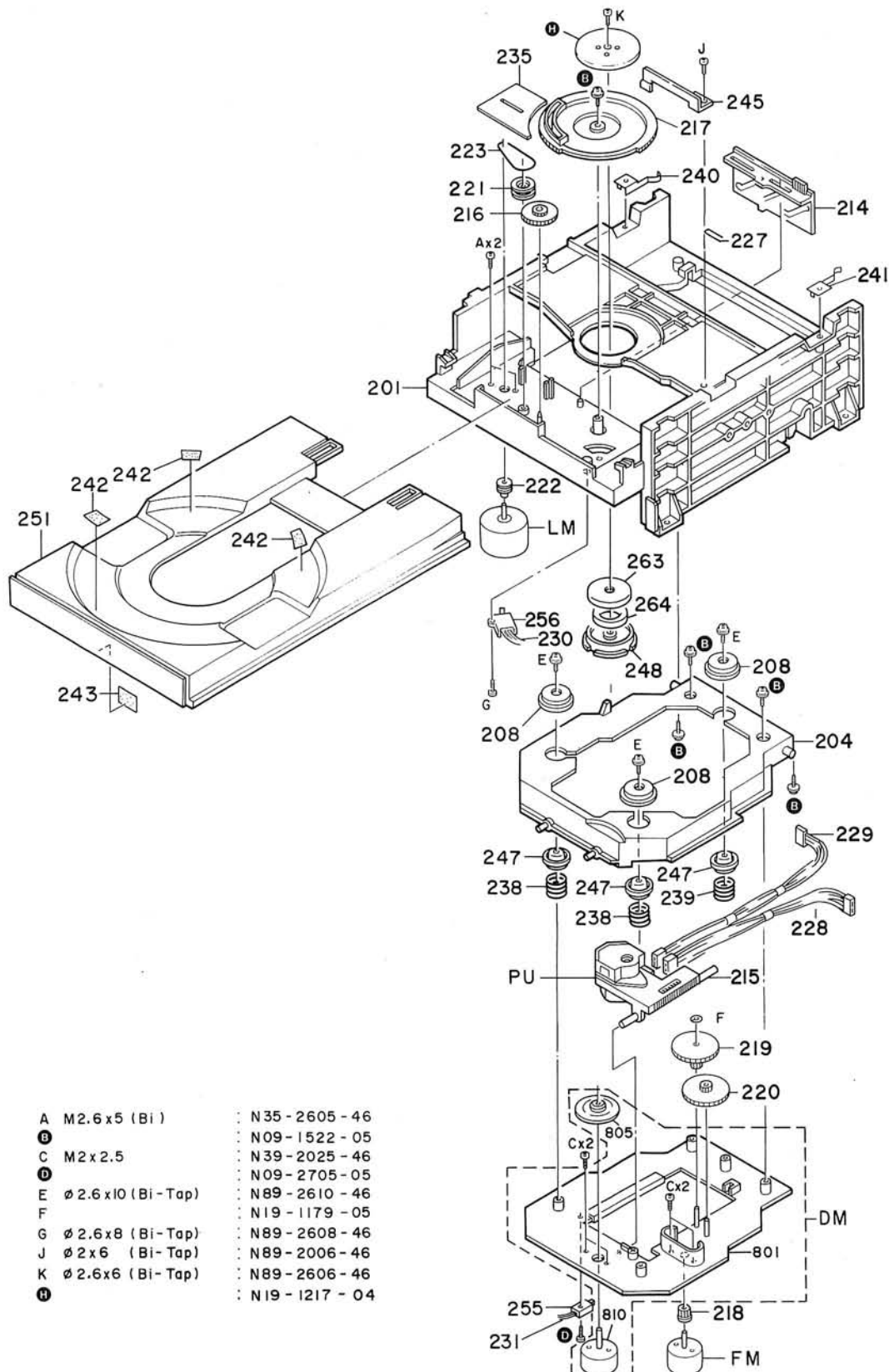
SINGAPORE MADE



A	M 2.6x5 (BI)	: N35 - 2605 - 46
B		: N09 - 1522 - 05
C	M 2x5	: N39 - 2005 - 46
D	Ø 2.6x8 (BI - Tap)	: N89 - 2608 - 46
E		: N09 - 2670 - 08
F		: N09 - 2671 - 08
G	Ø 2.6x6 (BI - Tap)	: N89 - 2606 - 46
H		: N19 - 1217 - 04

CDM-I4SA
(FOR SINGAPORE)

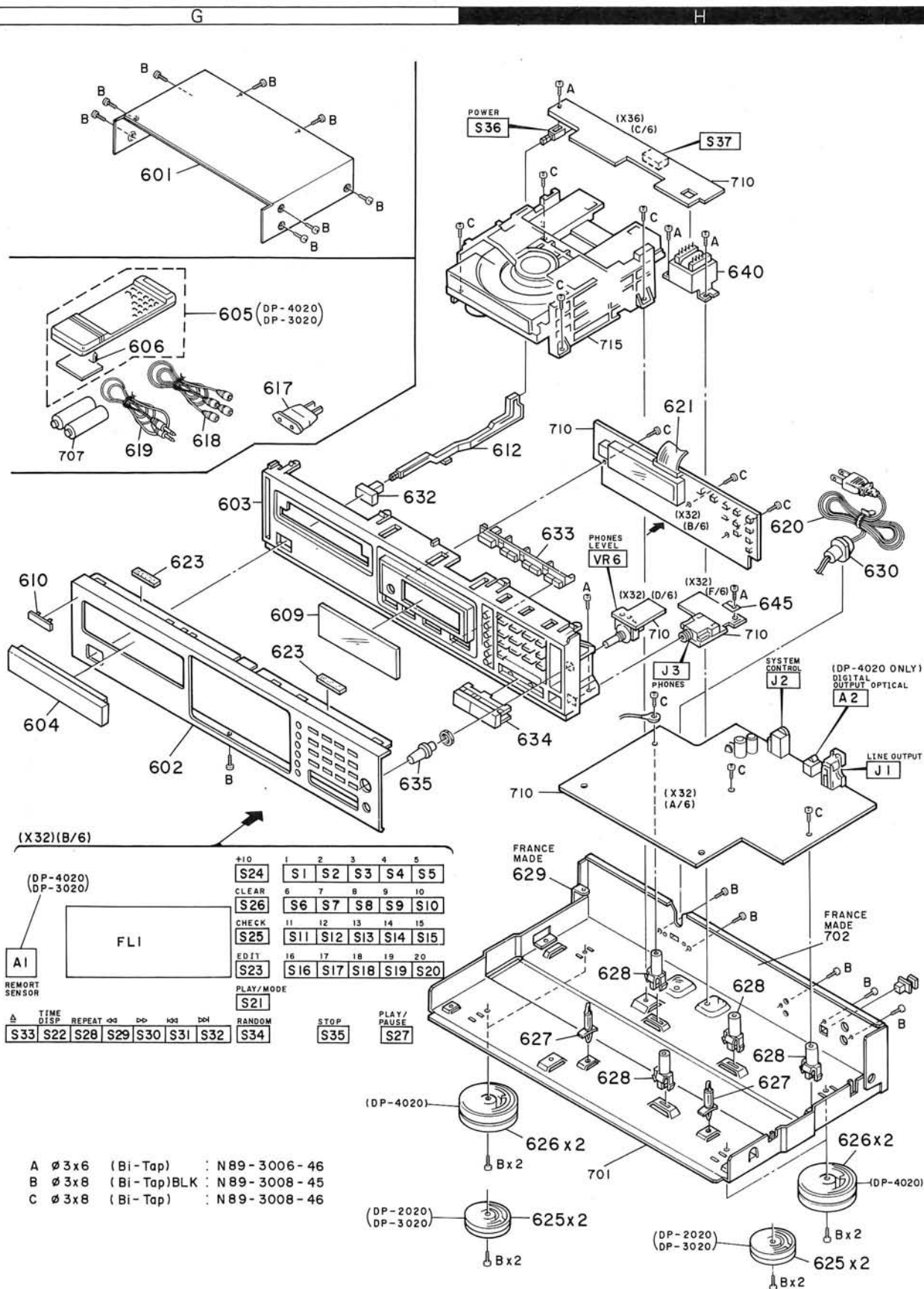
EXPLODED VIEW (MECHANISM) : FRANCE MADE



FRANCE MADE

FRANCE MADE CDM - 14

EXPLODED VIEW (UNIT)



DP-4020, 3020, 2020

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
DP-2020 / JAPAN MADE						
601	1G	*	A01-1839-01	METALLIC CABINET		
602	2G	*	A20-6015-02	PANEL		
603	2G	*	A22-1187-01	SUB PANEL		
604	2G		A29-0154-03	PANEL (TRAY)		
609	2G	*	B03-2638-04	DRESSING PLATE		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	Y	
-			B46-0095-03	WARRANTY CARD	Y	
-			B46-0096-13	WARRANTY CARD	X	
-			B46-0121-03	WARRANTY CARD	P	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	Y	
-			B60-0107-00	INSTRUCTION MANUAL (ENGLISH)		
-		*	B60-0108-00	INSTRUCTION MANUAL (FRENCH)	PM	
-		*	B60-0109-00	INSTRUCTION MANUAL (SPA/ARA/CH)	M	
612	1H	*	D21-1565-03	EXTENSION SHAFT		
△ 617	1G		E03-0115-05	AC PLUG ADAPTER	M	
618	1G		E30-0505-05	AUDIO CORD		
619	1G		E30-1392-05	CORD WITH PLUG		
△ 620	2H		E30-2588-05	AC POWER CORD	X	
△ 620	2H		E30-2590-05	AC POWER CORD	M	
△ 620	2H	*	E30-2603-05	AC POWER CORD	Y	
△ 620	2H		E30-2604-05	AC POWER CORD	KP	
621	1H		E31-4301-05	WIRING HARNESS		
623	2G		G11-0155-14	SOFT TAPE (40X9X2)		
-		*	H01-8757-04	ITEM CARTON CASE		
-		*	H10-3801-22	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-3802-22	POLYSTYRENE FOAMED FIXTURE		
-			H20-0554-04	PROTECTION COVER	M	
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0330-04	PROTECTION BAG	KPYX	
625	3H		J02-1034-05	FOOT		
627	3H		J19-0517-05	UNIT HOLDER		
628	3H		J19-3241-05	UNIT HOLDER		
632	2G		K27-2004-04	KNOB (BUTTON) (POWER)		
633	2H	*	K29-3919-03	KNOB (TIME/DISP/REPEAT)		
634	2H	*	K29-3920-04	KNOB (STOP/PLAY/PAUSE)		
635	2G		K29-3632-04	KNOB (PHONES/LEVEL)		
△ 640	1H	*	L07-0093-05	POWER TRANSFORMER (120V)	KP	
△ 640	1H	*	L07-0094-05	POWER TRANSFORMER (115/230V)	MY	
△ 640	1H	*	L07-0095-05	POWER TRANSFORMER (230V)	X	
A	1H		N89-3006-46	BINDING HEAD TAPTITE SCREW		
B	1G, 3H		N89-3008-45	BINDING HEAD TAPTITE SCREW		
C	1H, 2H		N89-3008-46	BINDING HEAD TAPTITE SCREW		
DP-2020 / SINGAPORE MADE						
601	1G	*	A01-1839-01	METALLIC CABINET		
602	2G	*	A20-6015-02	PANEL		
603	2G	*	A22-1187-01	SUB PANEL		
604	2G		A29-0160-03	PANEL (TRAY)		
609	2G	*	B03-2642-04	DRESSING PLATE		

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PARTS LIST

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SINGAPORE MADE JAPAN MADE

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
-			B46-0092-03	WARRANTY CARD		
-			B60-0107-00	INSTRUCTION MANUAL(ENGLISH)		
612	1H	*	D21-1565-03	EXTENSION SHAFT		
618	1G		E30-0505-05	AUDIO CORD		
619	1G		E30-1392-05	CORD WITH PLUG		
620	2H		E30-2423-05	AC POWER CORD		
621	1H		E31-4301-05	WIRING HARNESS		
623	2G		G11-0155-14	SOFT TAPE (40X9X2)		
-		*	H01-8766-04	ITEM CARTON CASE		
-		*	H10-3817-12	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-3818-12	POLYSTYRENE FOAMED FIXTURE		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0330-04	PROTECTION BAG		
625	3H		J02-1034-05	FOOT		
627	3H		J19-0517-05	UNIT HOLDER		
628	3H		J19-3241-05	UNIT HOLDER		
630	2H		J42-0083-05	POWER CORD BUSHING		
632	2G		K27-2004-04	KNOB (BUTTON) (POWER)		
633	2H	*	K29-3919-03	KNOB (TIME/DISP/REPEAT)		
634	2H	*	K29-3920-04	KNOB (STOP/PLAY/PAUSE)		
635	2G		K29-3632-04	KNOB (PHONES/LEVEL)		
640	1H	*	L07-0093-05	POWER TRANSFORMER (120V)		
A	1H		N89-3006-46	BINDING HEAD TAPTITE SCREW		
B	1G, 3H		N89-3008-45	BINDING HEAD TAPTITE SCREW		
C	1H, 2H		N89-3008-46	BINDING HEAD TAPTITE SCREW		
DP-3020 / JAPAN MADE						
601	1G	*	A01-1839-01	METALLIC CABINET		
602	2G		A20-6014-02	PANEL		
603	2G	*	A22-1187-01	SUB PANEL		
604	2G		A29-0154-03	PANEL (TRAY)		
605	1G	*	A70-0351-05	REMOTE ASSY(RC-P3020)		
606	1G		A09-0076-08	BATTERY COVER		
609	2G	*	B03-2637-04	DRESSING PLATE		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	Y	
-			B46-0095-03	WARRANTY CARD	Y	
-			B46-0121-03	WARRANTY CARD	P	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	Y	
-			B60-0107-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B60-0108-00	INSTRUCTION MANUAL(FRENCH)	P	
612	1H	*	D21-1565-03	EXTENSION SHAFT		
618	1G		E30-0505-05	AUDIO CORD		
619	1G		E30-1392-05	CORD WITH PLUG		
620	2H	*	E30-2603-05	AC POWER CORD	Y	
620	2H		E30-2604-05	AC POWER CORD	KP	
621	1H		E31-4301-05	WIRING HARNESS		
623	2G		G11-0155-14	SOFT TAPE (40X9X2)		
-			H01-8755-04	ITEM CARTON CASE		
-		*	H10-3801-22	POLYSTYRENE FOAMED FIXTURE		

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕 向	Re- marks 備考
-		*	H10-3802-22	POLYSTYRENE FOAMED FIXTURE		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0330-04	PROTECTION BAG		
625	3H		J02-1034-05	FOOT		
627	3H		J19-0517-05	UNIT HOLDER		
628	3H		J19-3241-05	UNIT HOLDER		
632	2G		K27-2004-04	KNOB (BUTTON) (POWER)		
633	2H	*	K29-3919-03	KNOB (TIME/DISP/REPEAT)		
634	2H	*	K29-3920-04	KNOB (STOP/PLAY/PAUSE)		
635	2G		K29-3632-04	KNOB (PHONES/LEVEL)		
△ 640	1H	*	L07-0093-05	POWER TRANSFORMER(120V)	KP	
△ 640	1H	*	L07-0094-05	POWER TRANSFORMER(115/230V)	Y	
A	1H		N89-3006-46	BINDING HEAD TAPTITE SCREW		
B	1G, 3H		N89-3008-45	BINDING HEAD TAPTITE SCREW		
C	1H, 2H		N89-3008-46	BINDING HEAD TAPTITE SCREW		
DP-3020 / SINGAPORE MADE						
601	1G	*	A01-1839-01	METALLIC CABINET		
602	2G		A20-6014-02	PANEL	K	
602	2G	*	A20-6035-02	PANEL	TE	
603	2G	*	A22-1187-01	SUB PANEL		
604	2G		A29-0160-03	PANEL(TRAY)		
605	1G	*	A70-0351-05	REMOCON ASSY(RC-P3020)		
606	1G		A09-0076-08	BATTERY COVER		
609	2G	*	B03-2641-04	DRESSING PLATE		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0122-13	WARRANTY CARD	E	
-			B46-0143-13	WARRANTY CARD	T	
-			B60-0107-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B60-0108-00	INSTRUCTION MANUAL(FRENCH)	E	
-		*	B60-0110-00	INSTRUCTION MANUAL(GE/DUT/ITA)	E	
612	1H	*	D21-1565-03	EXTENSION SHAFT		
618	1G		E30-0505-05	AUDIO CORD		
619	1G		E30-1392-05	CORD WITH PLUG	K	
△ 620	2H		E30-2276-05	AC POWER CORD	T	
△ 620	2H		E30-2277-05	AC POWER CORD	E	
△ 620	2H		E30-2423-05	AC POWER CORD	K	
621	1H		E31-4301-05	WIRING HARNESS		
623	2G		G11-0155-14	SOFT TAPE (40X9X2)		
-		*	H01-8765-04	ITEM CARTON CASE		
-		*	H10-3817-12	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-3818-12	POLYSTYRENE FOAMED FIXTURE		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0330-04	PROTECTION BAG		
625	3H		J02-1034-05	FOOT		
627	3H		J19-0517-05	UNIT HOLDER		
628	3H		J19-3241-05	UNIT HOLDER		
△ 630	2H		J42-0083-05	POWER CORD BUSHING		
632	2G		K27-2004-04	KNOB (BUTTON) (POWER)		
633	2H	*	K29-3919-03	KNOB (TIME/DISP/REPEAT)		
634	2H	*	K29-3920-04	KNOB (STOP/PLAY/PAUSE)		

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SINGAPORE MADE JAPAN MADE

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635	2G		K29-3632-04	KNOB (PHONES/LEVEL)		
△ 640	1H	*	L07-0093-05	POWER TRANSFORMER(120V)	K	
△ 640	1H	*	L07-0095-05	POWER TRANSFORMER(230V)	TE	
A	1H		N89-3006-46	BINDING HEAD TAPTITE SCREW		
B	1G, 3H		N89-3008-45	BINDING HEAD TAPTITE SCREW		
C	1H, 2H		N89-3008-46	BINDING HEAD TAPTITE SCREW		
DP-3020 / FRANCE MADE						
601	1G	*	A01-1839-01	METALLIC CABINET		
602	2G	*	A20-6035-02	PANEL		
603	2G	*	A22-1187-01	SUB PANEL		
604	2G	*	A29-0154-03	PANEL (TRAY)		
605	1G	*	A70-0351-05	REMOTE ASSY (RC-P3020)		
606	1G		A09-0076-08	BATTERY COVER		
609	2G	*	B03-2637-04	DRESSING PLATE		
-		*	B46-0139-03	WARRANTY CARD	E	
-		*	B46-0184-13	WARRANTY CARD	T	
-		*	B60-0107-00	INSTRUCTION MANUAL (FRENCH)	E	
-		*	B60-0108-00	INSTRUCTION MANUAL (FRENCH)	E	
-		*	B60-0110-00	INSTRUCTION MANUAL (FRENCH)	E	
612	1H	*	D21-1565-03	EXTENSION SHAFT		
618	1G		E30-0505-05	AUDIO CORD		
△ 620	2H		E30-2276-05	AC POWER CORD	T	
△ 620	2H		E30-2277-05	AC POWER CORD	E	
623	2G		G11-0155-14	SOFT TAPE (40X9X2)		
-		*	H01-8777-04	ITEM CARTON CASE		
-		*	H10-3851-12	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-3852-12	POLYSTYRENE FOAMED FIXTURE		
-		*	H25-0232-04	PROTECTION BAG (235X350X0.03)		
-		*	H25-0330-04	PROTECTION BAG		
625	3H		J02-1034-05	FOOT		
627	3H		J19-0517-05	UNIT HOLDER		
628	3H		J19-3241-05	UNIT HOLDER		
629	2H	*	J21-5601-04	MOUNTING HARDWARE		
△ 630	2H		J42-0083-05	POWER CORD BUSHING		
632	2G		K27-2004-04	KNOB (BUTTON) (POWER)		
633	2H	*	K29-3919-03	KNOB (TIME/DISP/REPEAT)		
634	2H	*	K29-3920-04	KNOB (STOP/PLAY/PAUSE)		
635	2G		K29-3632-04	KNOB (PHONES/LEVEL)		
△ 640	1H	*	L07-0095-05	POWER TRANSFORMER(230V)		
A	1H		N89-3006-46	BINDING HEAD TAPTITE SCREW		
B	1G, 3H		N89-3008-45	BINDING HEAD TAPTITE SCREW		
C	1H, 2H		N89-3008-46	BINDING HEAD TAPTITE SCREW		
DP-4020 / JAPAN MADE						
601	1G	*	A01-1839-01	METALLIC CABINET		
602	2G	*	A20-6013-02	PANEL		
603	2G	*	A22-1187-01	SUB PANEL		
604	2G	*	A29-0154-03	PANEL (TRAY)		
605	1G	*	A70-0349-05	REMOTE ASSY (RC-P5020)		
606	1G	*	A09-0104-08	BATTERY COVER		

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609	2G	*	B03-2637-04	DRESSING PLATE		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	Y	
-			B46-0095-03	WARRANTY CARD	Y	
-			B46-0096-13	WARRANTY CARD	X	
-			B46-0121-03	WARRANTY CARD	P	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	Y	
-		*	B60-0086-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B60-0088-00	INSTRUCTION MANUAL(FRENCH)	PM	
-		*	B60-0089-00	INSTRUCTION MANUAL(SPANISH)	M	
612	1H	*	D21-1565-03	EXTENSION SHAFT		
△ 617	1G		E03-0115-05	AC PLUG ADAPTER	M	
618	1G		E30-0505-05	AUDIO CORD		
619	1G		E30-1392-05	CORD WITH PLUG		
△ 620	2H		E30-2588-05	AC POWER CORD	X	
△ 620	2H		E30-2590-05	AC POWER CORD	M	
△ 620	2H	*	E30-2603-05	AC POWER CORD	Y	
△ 620	2H		E30-2604-05	AC POWER CORD	KP	
621	1H		E31-4301-05	WIRING HARNESS		
623	2G		G11-0155-14	SOFT TAPE (40X9X2)		
-		*	H01-8754-04	ITEM CARTON CASE		
-		*	H10-3801-22	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-3802-22	POLYSTYRENE FOAMED FIXTURE		
-			H20-0554-04	PROTECTION COVER	M	
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0330-04	PROTECTION BAG	KPYX	
626	3H		J02-1002-05	FOOT		
627	3H		J19-0517-05	UNIT HOLDER		
628	3H		J19-3241-05	UNIT HOLDER		
632	2G		K27-2004-04	KNOB (BUTTON) (POWER)		
633	2H	*	K29-3919-03	KNOB (TIME/DISP/REPEAT)		
634	2H	*	K29-3920-04	KNOB (STOP/PLAY/PAUSE)		
635	2G		K29-3632-04	KNOB (PHONES/LEVEL)		
△ 640	1H	*	L07-0093-05	POWER TRANSFORMER(120V)	KP	
△ 640	1H	*	L07-0094-05	POWER TRANSFORMER(115/230V)	MY	
△ 640	1H	*	L07-0095-05	POWER TRANSFORMER(230V)	X	
A	1H		N89-3006-46	BINDING HEAD TAPTITE SCREW		
B	1G, 3H		N89-3008-45	BINDING HEAD TAPTITE SCREW		
C	1H, 2H		N89-3008-46	BINDING HEAD TAPTITE SCREW		
DP-4020 / SINGAPORE MADE						
601	1G	*	A01-1839-01	METALLIC CABINET		
602	2G	*	A20-6013-02	PANEL	K	
602	2G	*	A20-6034-02	PANEL	TE	
603	2G	*	A22-1187-01	SUB PANEL		
604	2G		A29-0160-03	PANEL (TRAY)		
605	1G	*	A70-0348-05	REMOTE ASSY(RC-P6020)	TE	
605	1G	*	A70-0349-05	REMOTE ASSY(RC-P5020)	K	
606	1G	*	A09-0104-08	BATTERY COVER	K	
609	2G	*	B03-2641-04	DRESSING PLATE		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0122-13	WARRANTY CARD	E	

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-			B46-0143-13	WARRANTY CARD	T	
-		*	B60-0086-00	INSTRUCTION MANUAL(ENGLISH)	K	
-		*	B60-0087-00	INSTRUCTION MANUAL(ENGLISH)	TE	
-		*	B60-0088-00	INSTRUCTION MANUAL(FRENCH)	E	
-		*	B60-0090-00	INSTRUCTION MANUAL(GE/DUT/ITA)	E	
612	1H	*	D21-1565-03	EXTENSION SHAFT		
618	1G		E30-0505-05	AUDIO CORD		
619	1G		E30-1392-05	CORD WITH PLUG	K	
△ 620	2H		E30-2276-05	AC POWER CORD	TE	
△ 620	2H		E30-2277-05	AC POWER CORD	E	
△ 620	2H		E30-2423-05	AC POWER CORD	E	
621	1H		E31-4301-05	WIRING HARNESS		
623	2G		G11-0155-14	SOFT TAPE (40X9X2)		
-		*	H01-8764-04	ITEM CARTON CASE		
-		*	H10-3817-12	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-3818-12	POLYSTYRENE FOAMED FIXTURE		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0330-04	PROTECTION BAG		
626	3H		J02-1002-05	FOOT		
627	3H		J19-0517-05	UNIT HOLDER		
628	3H		J19-3241-05	UNIT HOLDER		
△ 630	2H		J42-0083-05	POWER CORD BUSHING		
632	2G		K27-2004-04	KNOB (BUTTON) (POWER)		
633	2H	*	K29-3919-03	KNOB (TIME/DISP/REPEAT)		
634	2H	*	K29-3920-04	KNOB (STOP/PLAY/PAUSE)		
635	2G		K29-3632-04	KNOB (PHONES/LEVEL)		
△ 640	1H	*	L07-0093-05	POWER TRANSFORMER(120V)	K	
△ 640	1H	*	L07-0095-05	POWER TRANSFORMER(230V)	TE	
A	1H		N89-3006-46	BINDING HEAD TAPTITE SCREW		
B	1G, 3H		N89-3008-45	BINDING HEAD TAPTITE SCREW		
C	1H, 2H		N89-3008-46	BINDING HEAD TAPTITE SCREW		
DP-4020 / FRANCE MADE						
601	1G	*	A01-1839-01	METALLIC CABINET		
602	2G	*	A20-6034-02	PANEL		
603	2G	*	A22-1187-01	SUB PANEL		
604	2G		A29-0154-03	PANEL (TRAY)		
605	1G	*	A70-0354-05	REMCON ASSY(RC-P6020)		
606	1G	*	A09-0105-08	BATTERY COVER		
609	2G	*	B03-2637-04	DRESSING PLATE		
-			B46-0139-03	WARRANTY CARD	E	
-		*	B46-0184-13	WARRANTY CARD	T	
-		*	B60-0087-00	INSTRUCTION MANUAL(ENGLISH)	E	
-		*	B60-0088-00	INSTRUCTION MANUAL(FRENCH)	E	
-		*	B60-0090-00	INSTRUCTION MANUAL(FRENCH)	E	
612	1H	*	D21-1565-03	EXTENSION SHAFT		
618	1G		E30-0505-05	AUDIO CORD		
△ 620	2H		E30-2276-05	AC POWER CORD	T	
△ 620	2H		E30-2277-05	AC POWER CORD	E	
623	2G		G11-0155-14	SOFT TAPE (40X9X2)		

E: Scandinavia & Europe K: USA

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-		*	H01-8776-04	ITEM CARTON CASE		
-		*	H10-3851-12	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-3852-12	POLYSTYRENE FOAMED FIXTURE		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0330-04	PROTECTION BAG		
626	3H		J02-1002-05	FOOT		
627	3H		J19-0517-05	UNIT HOLDER		
628	3H		J19-3241-05	UNIT HOLDER		
629	2H	*	J21-5601-04	MOUNTING HARDWARE		
630	2H		J42-0083-05	POWER CORD BUSHING		
632	2G		K27-2004-04	KNOB (BUTTON) (POWER)		
633	2H	*	K29-3919-03	KNOB (TIME/DISP/REPEAT)		
634	2H	*	K29-3920-04	KNOB (STOP/PLAY/PAUSE)		
635	2G		K29-3632-04	KNOB (PHONES/LEVEL)		
640	1H	*	L07-0095-05	POWER TRANSFORMER(230V)		
A	1H		N89-3006-46	BINDING HEAD TAPTITE SCREW		
B	1G, 3H		N89-3008-45	BINDING HEAD TAPTITE SCREW		
C	1H, 2H		N89-3008-46	BINDING HEAD TAPTITE SCREW		
CONTROL (X32-1600-10)*						
C3			CE04KW1A470M	ELECTRO 47UF 10WV		
C4			CE04KW1A101M	ELECTRO 100UF 10WV		
C5			CC45FSL1H180J	CERAMIC 18PF J		
C6			CK45FF1H472Z	CERAMIC 4700PF Z		
C7			C90-1349-05	NP-ELEC 1UF 50WV		
C8			CF92FV1H102J	MF 1000PF J		
C9			CF92FV1H103J	MF 0.010UF J		
C10 , 11			CE04KW0J331M	ELECTRO 330UF 6.3WV		
C12			CE04KW1V100M	ELECTRO 10UF 35WV		
C13			CK45FF1H223Z	CERAMIC 0.022UF Z		
C14			CE04KW1V100M	ELECTRO 10UF 35WV		
C15			CF92FV1H104J	MF 0.10UF J		
C16			CC45FSL1H181J	CERAMIC 180PF J		
C17			C90-1333-05	NP-ELEC 22UF 10WV		
C18 , 19			CE04KW1V100M	ELECTRO 10UF 35WV		
C20			CF92FV1H563J	MF 0.056UF J		
C21			CF92FV1H183J	MF 0.018UF J		
C22			CC45FSL1H221J	CERAMIC 220PF J		
C23			CF92FV1H124J	MF 0.12UF J		
C24			CC45FSL1H181J	CERAMIC 180PF J		
C25			CF92FV1H124J	MF 0.12UF J		
C26			C90-1332-05	NP-ELEC 10UF 25WV		
C27 , 28			CK45FF1H103Z	CERAMIC 0.010UF Z		
C29			CK45FB1H222K	CERAMIC 2200PF K		
C30			CF92FV1H223J	MF 0.022UF J		
C31			CK45FB1H222K	CERAMIC 2200PF K		
C32			CF92FV1H473J	MF 0.047UF J		
C33			CF92FV1H273J	MF 0.027UF J		
C34			CK45FF1H103Z	CERAMIC 0.010UF Z		
C35			CE04KW1V100M	ELECTRO 10UF 35WV		
C36			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C37 , 38			CE04KW1V100M	ELECTRO 10UF 35WV		
C39			CF92FV1H124J	MF 0.12UF J		
C40			CC45FSL1H101J	CERAMIC 100PF J		
C41 , 42			CK45FB1H222K	CERAMIC 2200PF K		

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* Control unit parts list is written the parts for
 all of 3 models, refer to comparision table in
 schematic diagram.

⚠ indicates safety critical components.

FRANCE MADE

PARTS LIST

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
C43			CK45FB1H332K	CERAMIC 3300PF K		
C44			CC45FUJ1H050C	CERAMIC 5.0PF C		
C45			CC45FUJ1H330J	CERAMIC 33PF J		
C46			CC45FUJ1H221J	CERAMIC 220PF J		
C47			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C48			CK45FF1H103Z	CERAMIC 0.010UF Z		
C49 -51			CK45FB1H102K	CERAMIC 1000PF K		
C52			CK45FF1H223Z	CERAMIC 0.022UF Z		
C53			CK45FF1H103Z	CERAMIC 0.010UF Z		
C54			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C55			CE04KW1H470M	ELECTRO 47UF 50WV		
C56 -61			CK45FF1H103Z	CERAMIC 0.010UF Z		
C62			CE04KW1C470M	ELECTRO 47UF 16WV		
C63 ,64			CE04KW1C222M	ELECTRO 2200UF 16WV		
C65 ,66			CK45FF1H103Z	CERAMIC 0.010UF Z		
C67 ,68			CE04KW1A470M	ELECTRO 47UF 10WV		
C69 ,70			CK45FF1H103Z	CERAMIC 0.010UF Z		
C71			CE04KW1A101M	ELECTRO 100UF 10WV		
C72 ,73			CC45FCH1H470J	CERAMIC 47PF J		
C75			CE04KW0J331M	ELECTRO 330UF 6.3WV		
C76 ,77			CE04KW1A470M	ELECTRO 47UF 10WV		
C78			CK45FF1H103Z	CERAMIC 0.010UF Z	KPMXY	
C78 ,79			CK45FF1H103Z	CERAMIC 0.010UF Z	TE	
C80 ,81			CE04KW1V100M	ELECTRO 10UF 35WV		
C82			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C83 ,84			C90-1333-05	NP-ELEC 22UF 10WV		
C85 ,86			CK45FB1H102K	CERAMIC 1000PF K		
C87 -89			C91-0971-05	FILM 0.01UF 250WV		
C90			CF92FV1H473J	MF 0.047UF J		
C91 ,92			C90-1333-05	NP-ELEC 22UF 10WV		
C93 ,94			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C95 ,96			CC45FSL1H101J	CERAMIC 100PF J	KPMXY	
C95 ,96			CK45FB1H391K	CERAMIC 390PF K	TE	
C97 ,98			CE04KW1V100M	ELECTRO 10UF 35WV		
C99			CK45FF1H103Z	CERAMIC 0.010UF Z		
C100			CE04KW1A470M	ELECTRO 47UF 10WV		
C101			CK45FF1H103Z	CERAMIC 0.010UF Z		
C102			CE04KW1A101M	ELECTRO 100UF 10WV		4
C103			CC45FSL1H221J	CERAMIC 220PF J		4
C104			CK45FF1H103Z	CERAMIC 0.010UF Z		
C105			CK45FF1H223Z	CERAMIC 0.022UF Z	TE	4
C106, 107			CC45FSL1H050C	CERAMIC 5.0PF C		
645	2H		E23-0149-05	TERMINAL		
CN1			E10-3101-05	FLAT CABLE CONNECTOR		
CN2			E10-3102-05	FLAT CABLE CONNECTOR		
J1			E13-0244-05	PHONE JACK(LINE OUT)	KPMXY	
J1			E13-1405-05	PHONE JACK(LINE OUT)	TE	4
J2			E11-0188-05	MINIATURE PHONE JACK(SYSTEM)		
J3			E11-0189-05	PHONE JACK (HEAD PHONES)		
-			J11-0098-05	WIRE CLAMPER		
L1			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)		
L2			L32-0355-05	OSCILLATING COIL		
L3			L40-1011-17	SMALL FIXED INDUCTOR(100UH,K)		4

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△ L4 △ L4 X1			L79-0733-05 L79-0785-05 L77-1164-05	LINE FILTER LINE FILTER CRYSTAL RESONATOR	KP MYXTE	
R16 R53 R86 VR1 ,2 VR3 ,4			RS14KB3D101J RS14KB3D4R7J RS14KB3D150J R12-3128-05 R12-3126-05	FL-PROOF RS 100 J 2W FL-PROOF RS 4.7 J 2W FL-PROOF RS 15 J 2W TRIM POT.22K(FE/TE BAL) TRIM POT.10K(FE/TE GAIN)	MYXTE	
VR5 VR6		*	R06-4082-05 R29-1004-05	POTENTIOMETER(PHONES) ELECTRO POT(3.3K)(PHONES)	KPMXY TE	4
S1 -35 S36 S37			S40-1064-05 S40-1149-05 S31-2131-05	PUSH SWITCH PUSH SWITCH (POWER) SLIDE SWITCH (POWER VOLTAGE)	MY	
D1 -8 D1 -8 D9 -13 D14 D14			HSS104 1SS133 S5566B HZS30N(B) RD30ES(B)	DIODE DIODE DIODE ZENER DIODE ZENER DIODE		
D15 D15 D16 ,17 D16 ,17 D18 -20			HZS6.2N(B2) RD6.2ES(B2) HSS104 1SS133 HZS5.1N(B2)	ZENER DIODE ZENER DIODE DIODE DIODE ZENER DIODE		
D18 -20 D21 D22 D22 D23			RD5.1ES(B2) 1SV147 HZS8.2N(B) RD8.2ES(B) HSS104	ZENER DIODE VARISTOR ZENER DIODE ZENER DIODE DIODE		
D23 D24 D24 D25 D25			1SS133 HZS3.9N(B2) RD3.9ES(B2) HSS104 1SS133	DIODE ZENER DIODE ZENER DIODE DIODE DIODE		
D26 -36 D26 -36 FL1 IC1 IC2			HSS104A 1SS131 FIP9BJM8 CXA1081S CXA1244S	DIODE DIODE FLUORESCENT INDICATOR TUBE IC(RF AMP) IC(SERVO SIGNAL PROCESSOR)		
IC3 IC4 IC5 ,6 IC7 IC8			CXD1167Q UPD75212ACW-147 NJM4565D NJM4558D NJM4580D	IC IC(MICROPROCESSOR) IC(OP AMP X2) IC(OP AMP X2) IC		
IC9 IC10 Q1 Q3 Q3		*	KAS02 NJM4565D 2SA954(L,K) 2SC1740S(Q,R) 2SC945(A)(Q,P)	CUSTOM IC IC(OP AMP X2) TRANSISTOR TRANSISTOR TRANSISTOR		4
Q4 Q5 Q6 Q7 Q8			2SD1944 2SA1534A STA341M 2SC3940A 2SA1534A	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		

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JAPAN MADE

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Q9			2SA733(A)(Q,P)	TRANSISTOR	KP MYXTE	
Q9			2SA933S(Q,R)	TRANSISTOR		
Q10			2SA954(L,K)	TRANSISTOR		
Q11			2SD1944	TRANSISTOR		
Q12			2SA1534A	TRANSISTOR		
Q12			2SB941	TRANSISTOR		
Q13			2SC1740S(Q,R)	TRANSISTOR		
Q13			2SC945(A)(Q,P)	TRANSISTOR		
Q14			2SA733(A)(Q,P)	TRANSISTOR		
Q14			2SA933S(Q,R)	TRANSISTOR		
Q15			2SC1740S(Q,R)	TRANSISTOR	TE TE	
Q15			2SC945(A)(Q,P)	TRANSISTOR		
Q17 ,18			2SC2878(B)	TRANSISTOR		
Q19			2SC3940A	TRANSISTOR		4
Q20			2SA1534A	TRANSISTOR		4
Q21 -24			2SC1740S(Q,R)	TRANSISTOR		
Q21 -24			2SC945(A)(Q,P)	TRANSISTOR		
Q25 ,26			2SA733(A)(Q,P)	TRANSISTOR		4
Q25 ,26			2SA933S(Q,R)	TRANSISTOR		4
Q27		*	2SJ165	FET		
Q28		*	2SK1132	FET		
A1			W02-0975-05	ELECTRIC CIRCUIT MODULE		
A2			W02-1036-05	TRANSMITTING ASSY		
MECHANISM ASS'Y (X92-1370-05) / JAPAN MADE						
1	1A		A10-1964-01	CHASSIS		
4	2B		A11-0623-08	SUB CHASSIS		
8	2B		B09-0098-08	CAP		
14	1B		D10-2324-03	SLIDER		
15	3B		D10-2325-04	ROD		
16	1B		D13-0807-04	GEAR		
17	1B		D13-0808-02	GEAR		
18	3B		D13-0809-04	GEAR		
19	3B		D13-0810-04	GEAR		
20	3B		D13-0811-04	GEAR		
21	1B		D13-0813-04	GEAR		
22	2B		D15-0296-04	MOTOR PULLEY		
23	1B		D16-0282-04	BELT		
27	1B		E23-0343-04	TERMINAL		
28	2B	*	E31-7232-15	WIRING HARNESS (WHITE/BLUE)		
29	2B	*	E31-7233-05	WIRING HARNESS (WHITE/RED)		
30	2B		E31-7075-05	WIRING HARNESS		
31	3B	*	E31-7401-05	WIRING HARNESS		
35	1B		F19-1005-04	BLIND PLATE		
38	2B		G01-2385-08	COMPRESSION SPRING (FRONT)		
39	2B		G01-2390-08	COMPRESSION SPRING (REAR)		
40	1B	*	G02-0926-24	FLAT SPRING (L)		
41	1B		G02-0927-04	FLAT SPRING (R)		
42	2A		G16-0739-04	SHEET		
43	2A		G16-0744-04	SHEET		
45	1B		G02-0945-14	FLAT SPRING ASSY		
47	2B		J02-1033-05	INSULATOR		

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48 51 PU	2B 2A 3B		J11-0151-03 J99-0065-11 J91-0385-08	CLAMPER TRAY PICKUP		
- A B C D			N88-3008-45 N35-2605-46 N09-1522-05 N39-2025-46 N09-2705-05	FLAT HEAD TAPTITE SCREW BINDING HEAD MACHINE SCREW SET SCREW (3X8) PAN HEAD MACHINE SCREW MACHINE SCREW		
E F G			N89-2610-46 N19-1179-05 N89-2608-46	BINDING HEAD TAPTITE SCREW FLAT WASHER BINDING HEAD TAPTITE SCREW		
55 56	3B 2B		S33-1022-05 S33-2061-05	LEVER SWITCH LEVER SWITCH		
63 64 DM FM LM	2B 2B 3B 3B 2B		T50-1044-04 T99-0233-05 A11-0675-08 T42-0532-05 T42-0530-05	YOKE MAGNET SUB CHASSIS ASSY(DISK MOTOR) DC MOTOR (FEED MOTOR) DC MOTOR (LOADING MOTOR)		
MECHANISM ASS'Y (X92-1400-05) / SINGAPORE MADE						
101 104	1C 3D		A10-2513-01 A11-0625-02	CHASSIS SUB CHASSIS		
114 115 116 117 119	1D 2D 1D 1D 2D		D10-2324-03 D10-2315-04 D13-0807-04 D13-0808-02 D13-0802-08	SLIDER ROD GEAR(INTERMEDIATE) GEAR(MAIN) GEAR(A)		
120 121 122 123 124	2D 1D 2D 1D 2D		D13-0803-08 D13-0813-04 D15-0296-04 D16-0284-03 D40-0876-05	GEAR(B) GEAR(PULLEY) MOTOR PULLEY BELT MECHANISM ASSY		
127	1D		E23-0343-04	TERMINAL(SHORT)		
126 128 129 130 131	1D 2D 2D 2D 3D	* *	G02-0926-04 E31-7272-05 E31-7273-05 E31-7137-05 E40-0188-08	FLAT SPRING ASSY WIRING HARNESS(WHITE/BLUE) WIRING HARNESS(WHITE/RED) WIRING HARNESS(5P) CONNECTOR PIN(4P)		
134 135	2D 1D		F07-0554-08 F19-1015-14	GEAR COVER BLIND PLATE		
138 139 140 141 142	3D 3D 1D 1D 2C		G01-2394-04 G01-2395-04 G02-0926-04 G02-0927-04 G16-0743-04	COMPRESSION SPRING(FRONT) COMPRESSION SPRING(REAR) FLAT SPRING(L) FLAT SPRING(R) SHEET		
143	2C		G16-0745-04	SHEET		
144 145 146 147 148	2D 3D 2D 3D 2D		J19-3148-08 J25-6135-08 J90-0640-08 J02-1027-15 J11-0130-03	SHAFT CLAMP MOTOR PCB SLIDER HOLDER(J) INSULATOR CLAMPER		
150	3D		J42-0175-04	BUSHING		

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151	2C		J99-0069-11	TRAY		
152	2C		J99-0070-13	TRAY ASSY		
PU	2D		J91-0385-08	PICKUP(KSS-150A(H))		
A			N35-2605-46	BINDING HEAD MACHINE SCREW		
B			N09-1522-05	SET SCREW (3X8)		
C			N39-2005-46	PAN HEAD MACHINE SCREW		
D			N89-2608-46	BINDING HEAD TAPTITE SCREW		
E			N09-2670-08	SCREW		
F			N09-2671-08	SCREW		
G			N89-2606-46	BIND HEAD TAPTITE SCREW		
H			N19-1217-04	FLAT WASHER		
155	3D		S46-1128-08	LEAF SWITCH(S1/LIMIT)		
156	2D		S33-2061-05	LEVER SWITCH(S2/OPEN,CLOSE)		
163	2D		T50-1046-04	YOKE		
164	2D		T99-0233-05	MAGNET		
DM	2D		T42-0528-08	DC MOTOR(DISK MOTOR)		
FM	3D		T42-0527-08	DC MOTOR(FEED MOTOR)		
LM	2D		T42-0530-05	DC MOTOR(LOADING MOTOR)		
MECHANISM ASS'Y (X92-1410-00) / FRANCE MADE						
201	1E	*	A10-2512-01	CHASSIS		
204	2F	*	A11-0630-02	SUB CHASSIS		
208	2F	*	B09-0099-04	CAP		
214	1F	*	D10-2344-03	SLIDER		
215	3F	*	D10-2325-04	ROD		
216	1F	*	D13-0815-04	GEAR (INTERMEDIATE)		
217	1F	*	D13-0816-02	GEAR (MAIN)		
218	3F	*	D13-0809-04	GEAR (MOTOR)		
219	3F	*	D13-0810-04	GEAR (MD INTERMEDIATE)		
220	3F	*	D13-0819-03	GEAR (FEED)		
221	1F	*	D13-0814-04	GEAR (PULLEY)		
222	2F	*	D15-0297-04	PULLEY		
223	1F	*	D16-0284-03	BELT		
227	1F	*	E23-0343-04	TERMINAL		
228	2F	*	E31-7240-05	WIRING HARNESS		
229	2F	*	E31-7241-05	WIRING HARNESS		
230	2F	*	E31-7238-05	WIRING HARNESS		
231	3F	*	E31-7239-05	WIRING HARNESS		
235	1F	*	F19-1015-14	BLIND PLATE		
238	2F	*	G01-2402-04	COMPRESSION SPRING		
239	2F	*	G01-2403-04	COMPRESSION SPRING		
240	1F	*	G02-0933-04	FLAT SPRING (L)		
241	1F	*	G02-0934-04	FLAT SPRING (R)		
242	1E	*	G16-0739-04	SHEET		
243	1E	*	G16-0744-04	SHEET		
245	1F	*	G02-0962-04	FLAT SPRING ASSY		
247	2F	*	J02-1033-05	INSULATOR		
248	2F	*	J11-0156-03	CLAMPER		
251	2E	*	J99-0068-01	TRAY		
PU	3F	*	J91-0385-08	PICKUP (KSS-150A)		
-			N88-3008-45	FLAT HEAD TAPTITE SCREW		
A			N35-2605-46	BINDING HEAD MACHINE SCREW		

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B			N09-1522-05	SET SCREW (3X8)		
C			N39-2025-46	PAN HEAD MACHINE SCREW		
D			N09-2705-05	MACHINE SCREW		
E			N89-2610-46	BINDING HEAD TAPTITE SCREW		
F			N19-1179-05	FLAT WASHER		
G			N89-2608-46	BINDING HEAD TAPTITE SCREW		
H			N19-1217-04	FLAT WASHER		
J			N89-2006-46	BINDING HEAD TAPTITE SCREW		
K			N89-2606-46	BINDING HEAD TAPTITE SCREW		
255	3F		S33-1022-05	LEVER SWITCH		
256	2F		S33-2061-05	LEVER SWITCH (OPEN/CLOSE)		
263	2F	*	T50-1045-04	YÖKE		
264	2F		T99-0233-05	MAGNET		
DM	3F		A11-0675-08	SUB CHASSIS ASSY(DISK MOTOR)		
PM	3F		T42-0532-05	DC MOTOR (FEED MOTOR)		
LM	2F		T42-0530-05	DC MOTOR (LOADING MOTOR)		

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