

RXD-27L

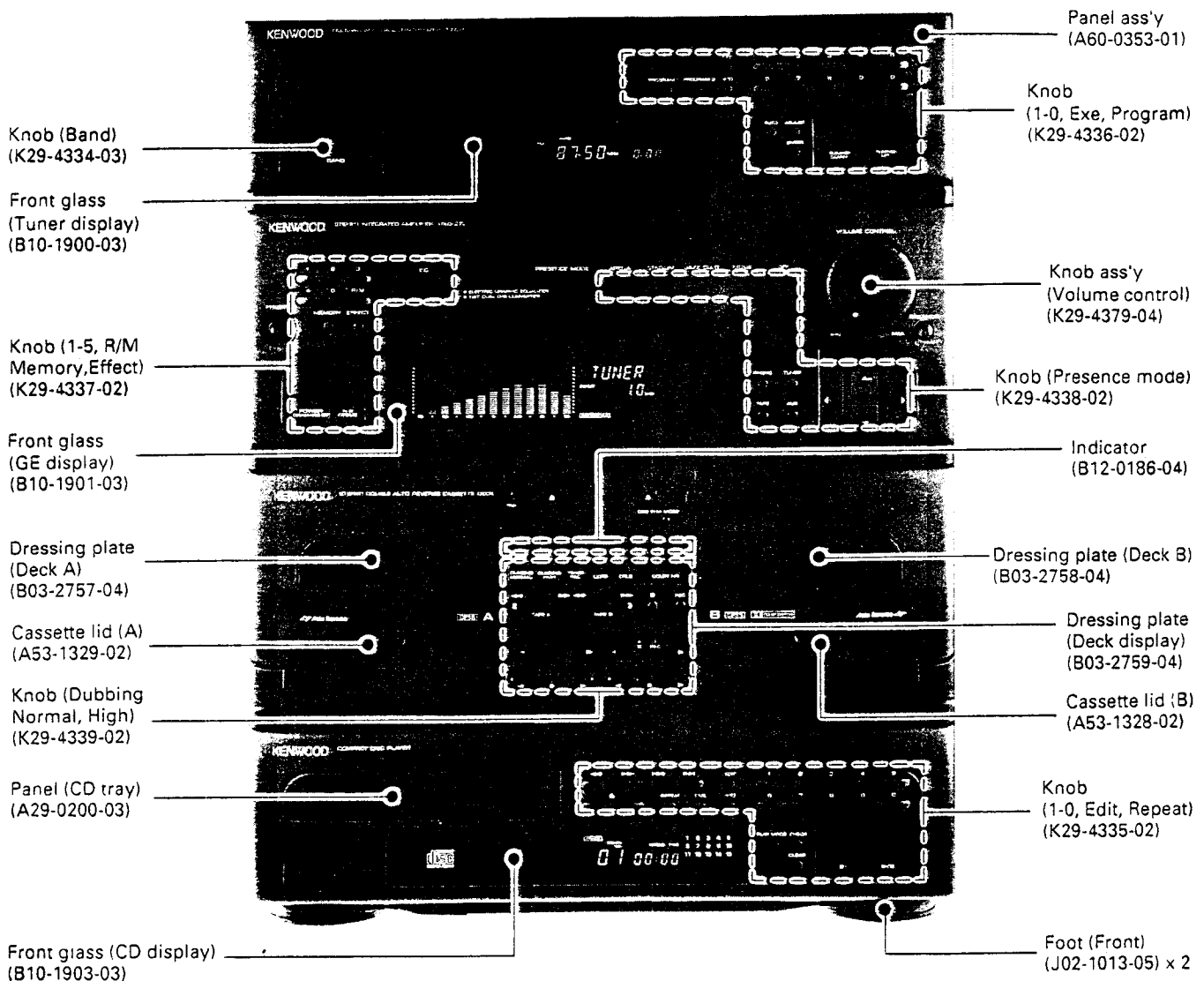
SERVICE MANUAL

M-27

KENWOOD

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For Service Manuals Contact
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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.

Refer to the **FEATURES AND SERVICING NOTES** on page 2 before repair.

**THE QUALITY OF
THIS MANUAL IS
THE BEST THAT
IS AVAILABLE**

CONTENTS / FEATURES AND SERVICING NOTES

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FEATURES AND SERVICING NOTES

• The features of, and servicing notes for the MIDI system are described below.

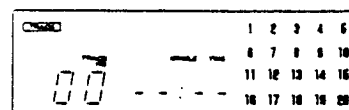
- (1) The tuner, amplifier, GE, decks and CD blocks are integrated, so pay attention to the following wiring layout of the decks and CD blocks :
 - Separate the 6-wire cable of connector CN7 (+B) and WH1 on the CD unit (X32-).
 - Separate the wires for connector CN2 from the wires for connector CN3 on the CD unit (X32-) in accordance with first wiring pattern.
 - The lead wires of cassette decks, the WH1 lead wires that are connected from the X28- unit to the X25- (B/2) unit, and the WH3 lead wires that are connected from the X32- unit to the X25- (A/2) unit must be kept apart from the volume control unit (X14-, B/5) and the MIC unit (X14-, D/5).
 - The secondary wirings of power transformer must be kept apart from the Dolby IC (IC20) on the X28- unit and the 13 parallel lead wires that are connected from the volume control unit (X14-, B/5) to the main unit (X09-, CN4).
- (2) To listen to a selector other than the deck and CD blocks using a timer, remove the cassette tape and CD disc.
- (3) A TIMER PLAY key is not provided on the deck block. The TIMER PLAY mode can be entered when the TIMER REC LED indicator is not on.

- (4) The microprocessor is powered, if the power cord is connected to an AC outlet. When soldering and replacing parts, disconnect the power cord from the outlet.
- (5) The CD mechanism has no transport screw. During unit transport or movement, return the mechanism to the initial setting before switching the power OFF.

Note related to transportation and movement

When this unit is to be transported or shifted, carry out the following procedure. (for protection of the internal mechanism)

1. Turn the power ON without putting a disc in the unit.
2. Wait several seconds, and check that the display shown below appears.



3. Turn the power OFF.

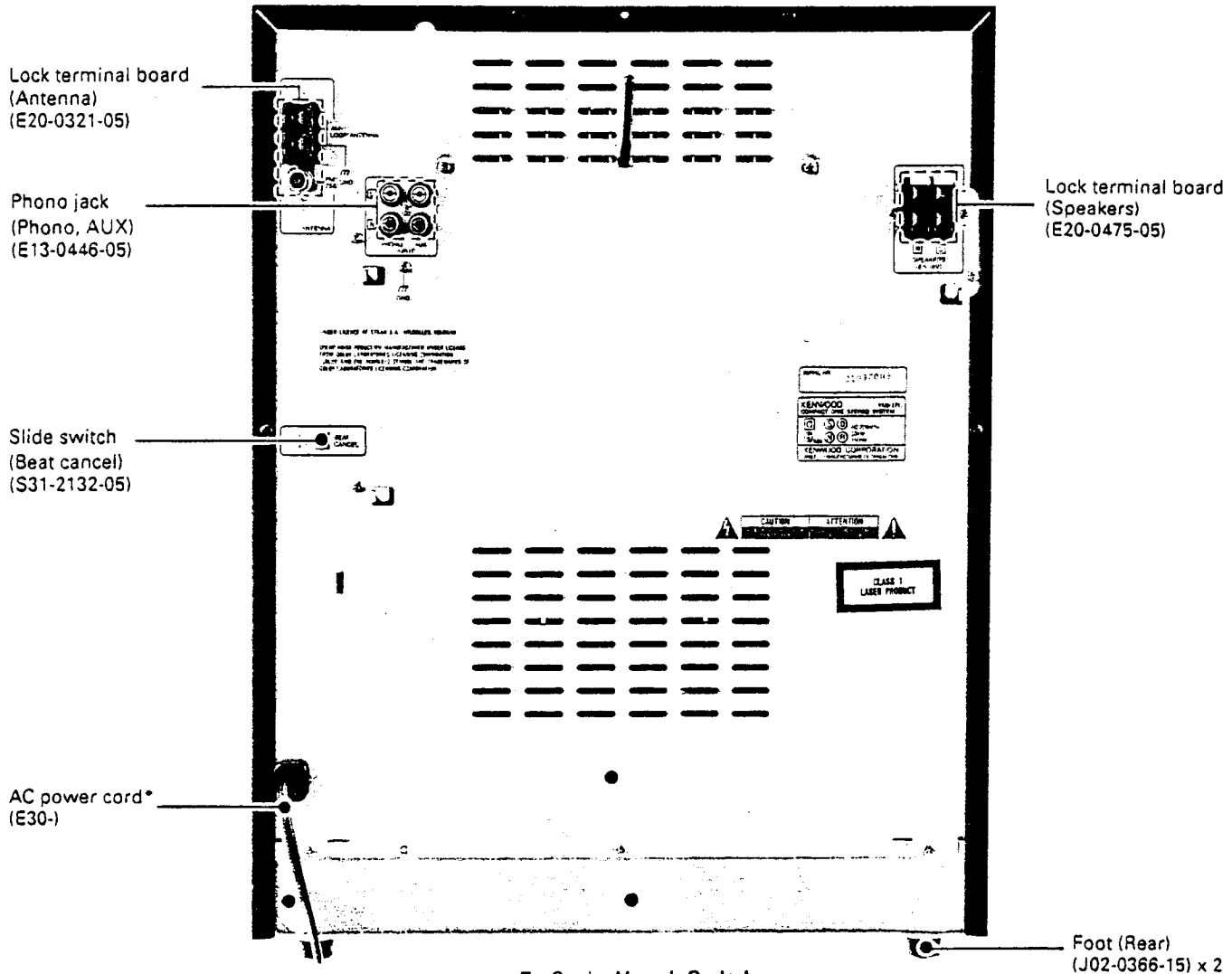
- (6) Recording on metal tapes cannot be carried out.

Note : Refer to RXD-25/25L service manual, if need description about item of table.

	Item	Reference service manual	Reference page
CIRCUIT DESCRIPTION	CD SECTION TEST MODE	RXD-25/25L	P22~27
	μPD75212ACW-157 (X32-, IC15)		P28, 29
	CXA1081S (X32-, IC1)		P30, 31
	CXA1244S (X32-, IC2)		P32, 33
	CXD1167Q (X32-, IC3)		P34~36
	TC9237B (X32-, IC11)	DP-M7730/M6630/M991	P25, 26
	DECK SECTION TEST MODE	RXD-25/25L	P39~45
MECHANISM DESCRIPTION	CD MECHANISM	RXD-25/25L	P72~74
	DECK MECHANISM	X-722	P19~27

EXTERNAL VIEW / ACCESSORIES

REAR PANEL

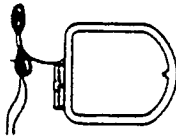


*Refer to parts list on page 83.

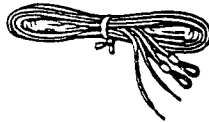
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ACCESSORIES

• AM (MW, LW) loop antenna 1
 (T90-0174-05)



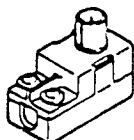
• FM indoor antenna 1
 (T90-0175-05)



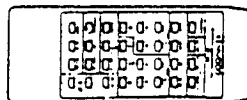
• Loop antenna stand 1
 (J19-2815-04)



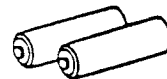
• Antenna adaptor (75Ω/300Ω) 1
 (T90-0185-05)



• Remote control unit 1
 (A70-0572-05)

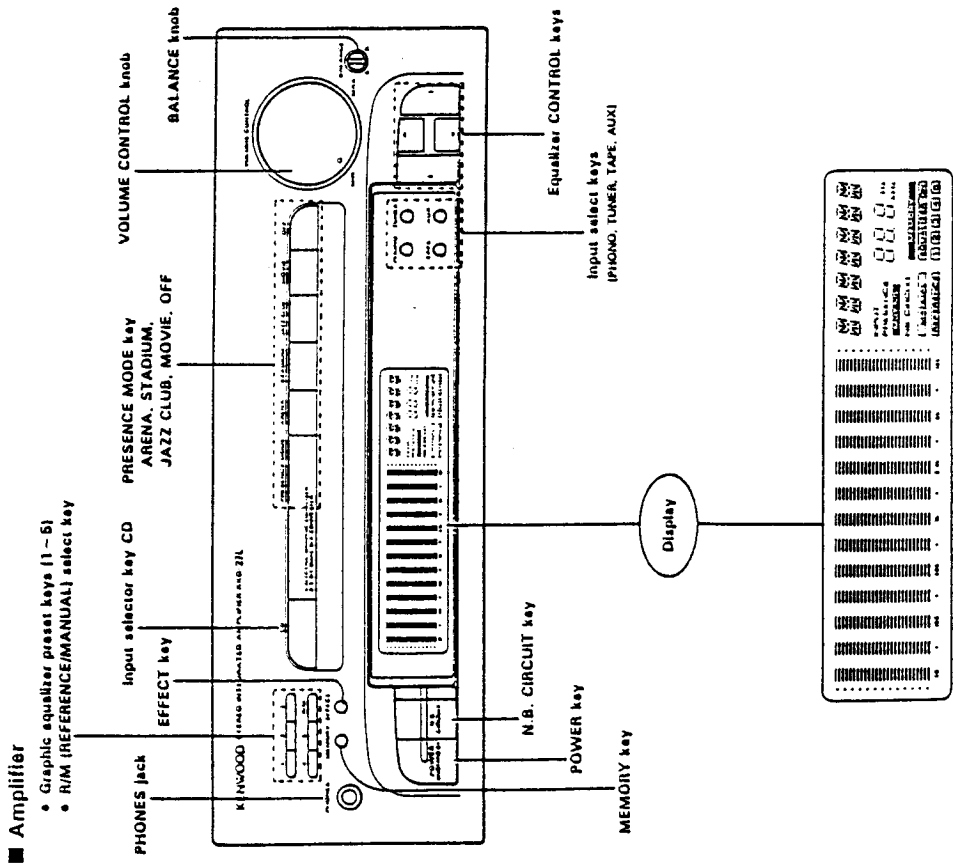
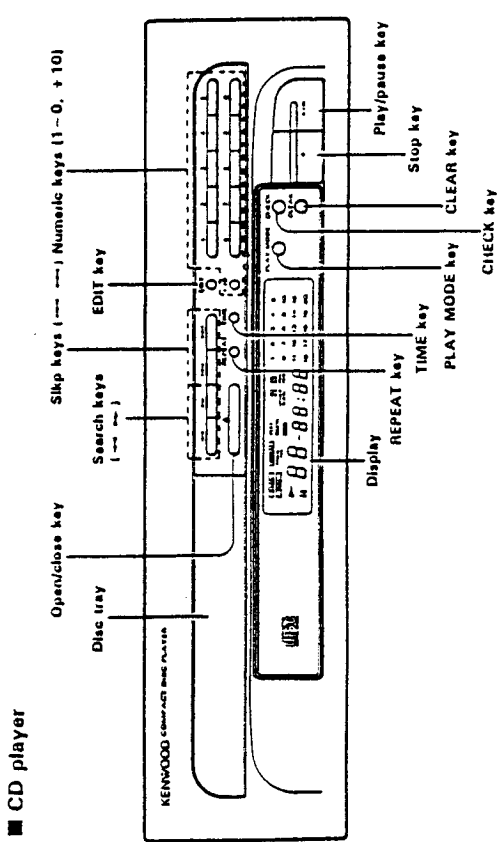
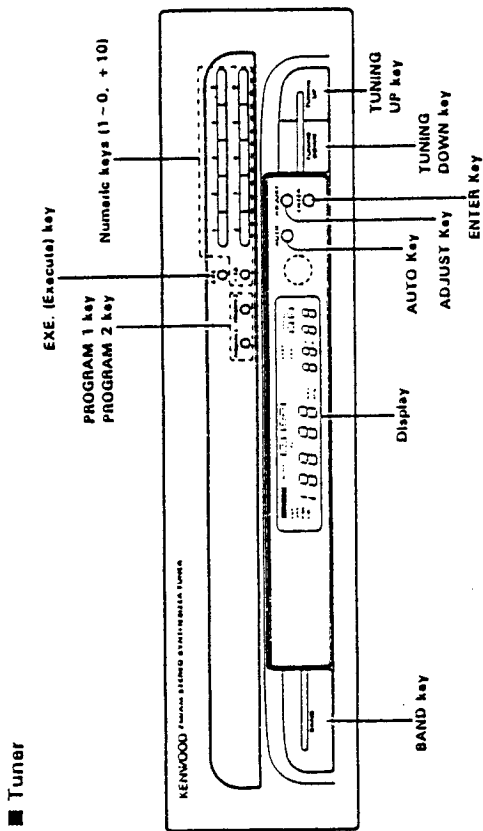


• Battery ("AAA" or "R03") 2
 (-)

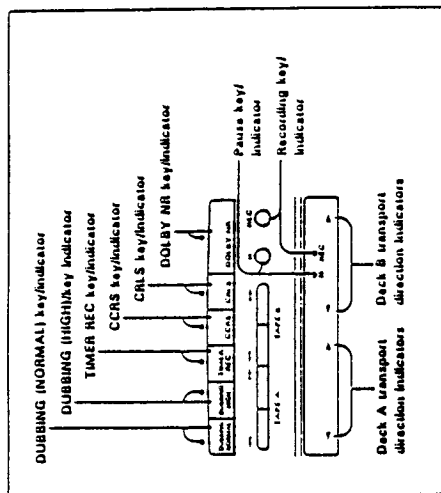


Battery cover (A09-0109-08)

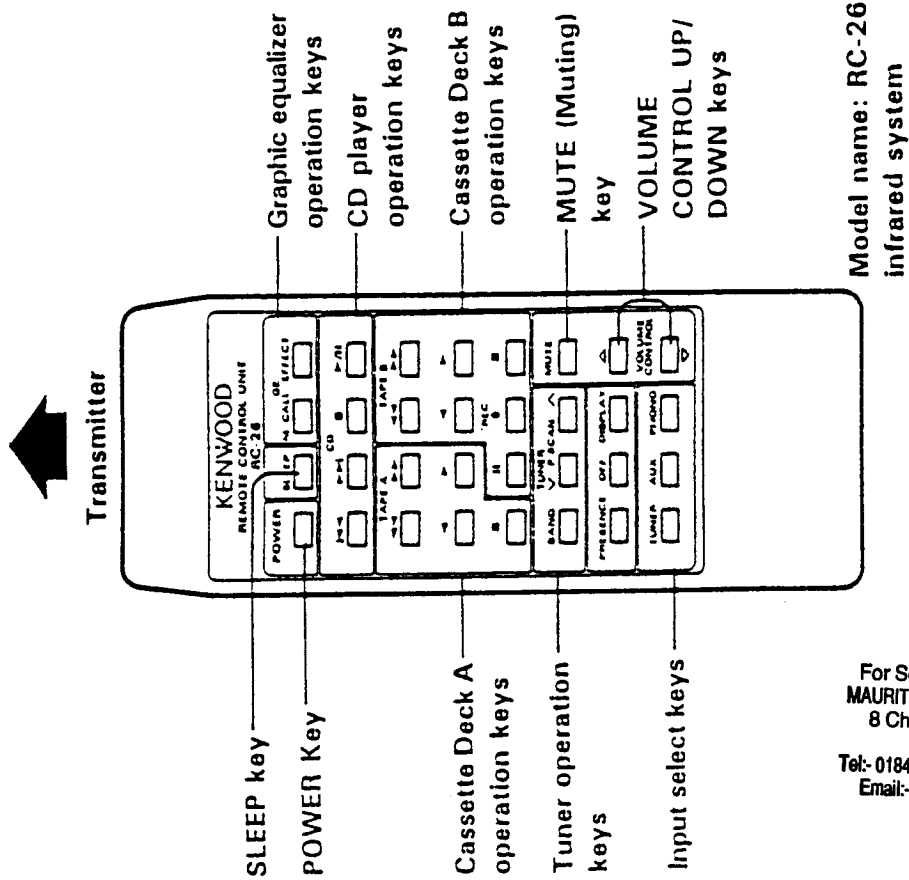
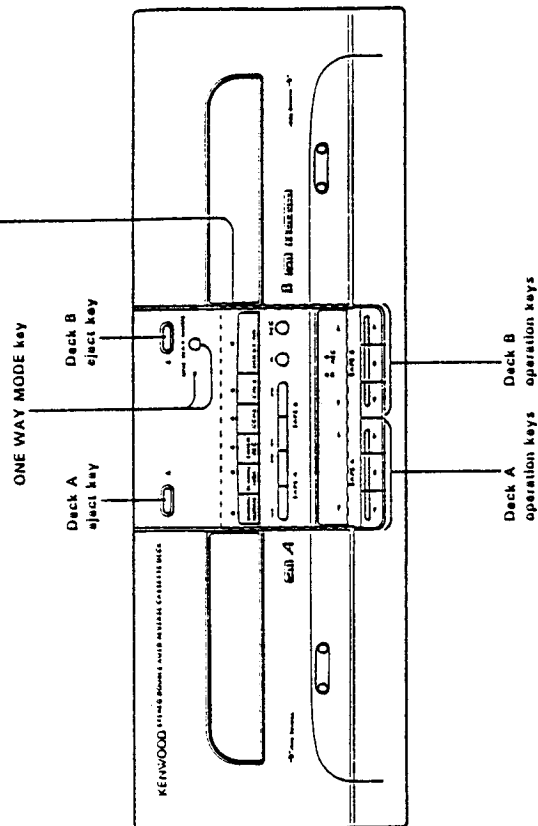
CONTROLS



CONTROLS / REMOTE CONTROL



■ Cassette deck

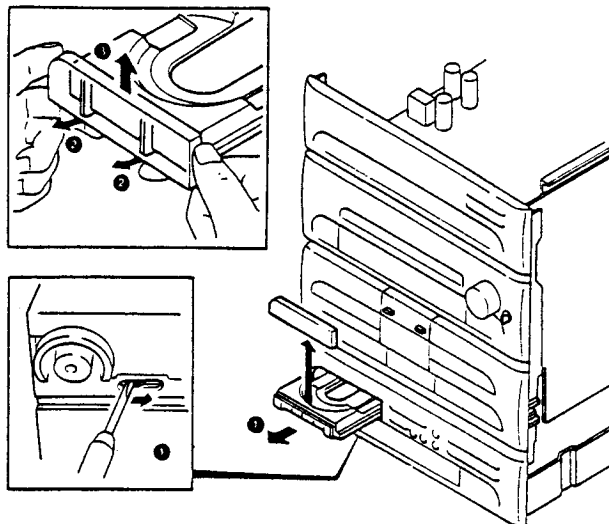


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DISASSEMBLY FOR REPAIR

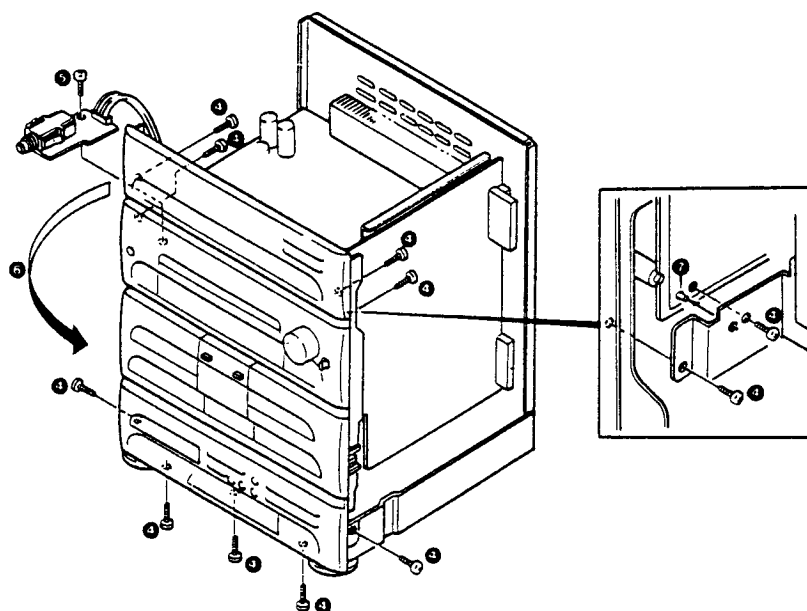
1. Removing the CD tray face plate

1. Pull the CD tray forward (with the power off, insert a screwdriver through the bottom when the CD tray is pulled out) (❶).
2. To remove the tray face plate, unlock the two hooks (❷), lift the tray face plate (❸), and remove it, as shown in the figure.



2. Removing the front panel

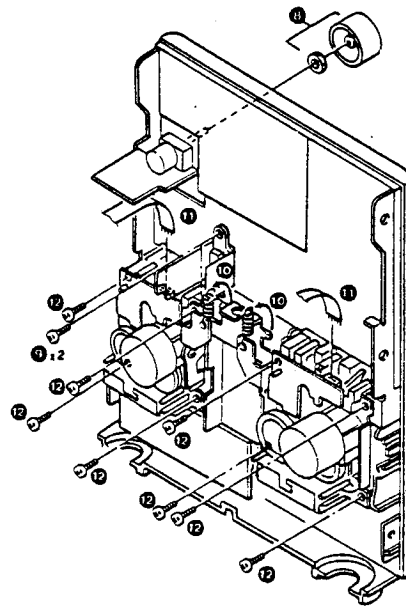
3. Remove the nine screws from the front panel (❹).
 4. Remove the one screw, then remove the phones unit (❺).
 5. Open the left side of front panel to 60°, then check each unit (❻).
- Note :** When installing the front panel, insert the boss of the front panel in the chassis, as described in (❼).



DISASSEMBLY FOR REPAIR

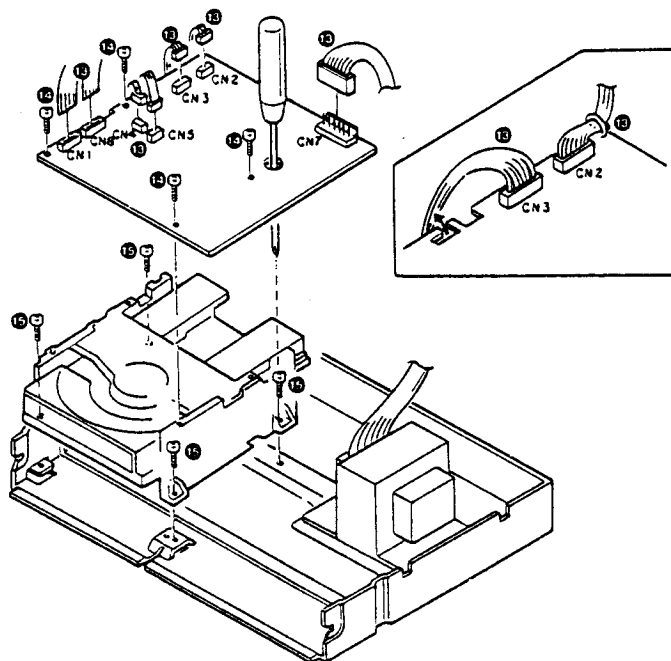
3. Removing the volume unit, the MIC unit, and the cassette mechanisms

6. Removing the volume knob and nut (8), then remove the volume unit.
7. Remove the two screws (9), then remove the MIC unit.
8. Remove the two springs (10), and disconnect the two wires (11).
9. Remove the eight screws, then remove the cassette mechanisms (12).



4. Removing the CD mechanism

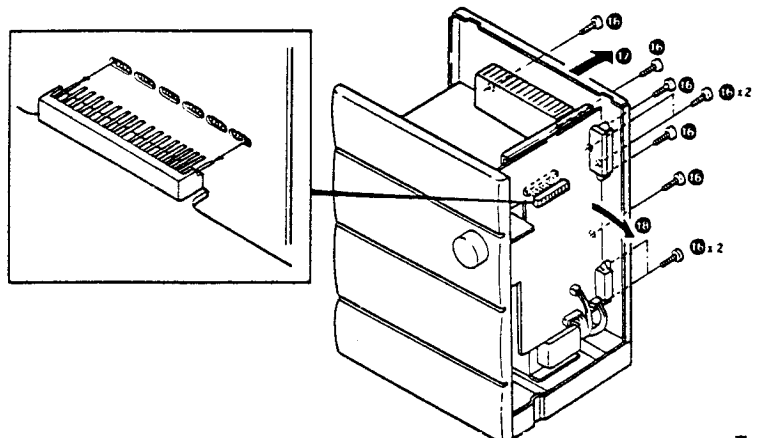
10. After open the left side of front panel, disconnect the connector (13).
11. Remove the four screws (14), then remove the CD unit.
12. Remove the four screws (15), then remove the CD mechanism.



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5. Removing the DECK, TUNER unit (X28-)

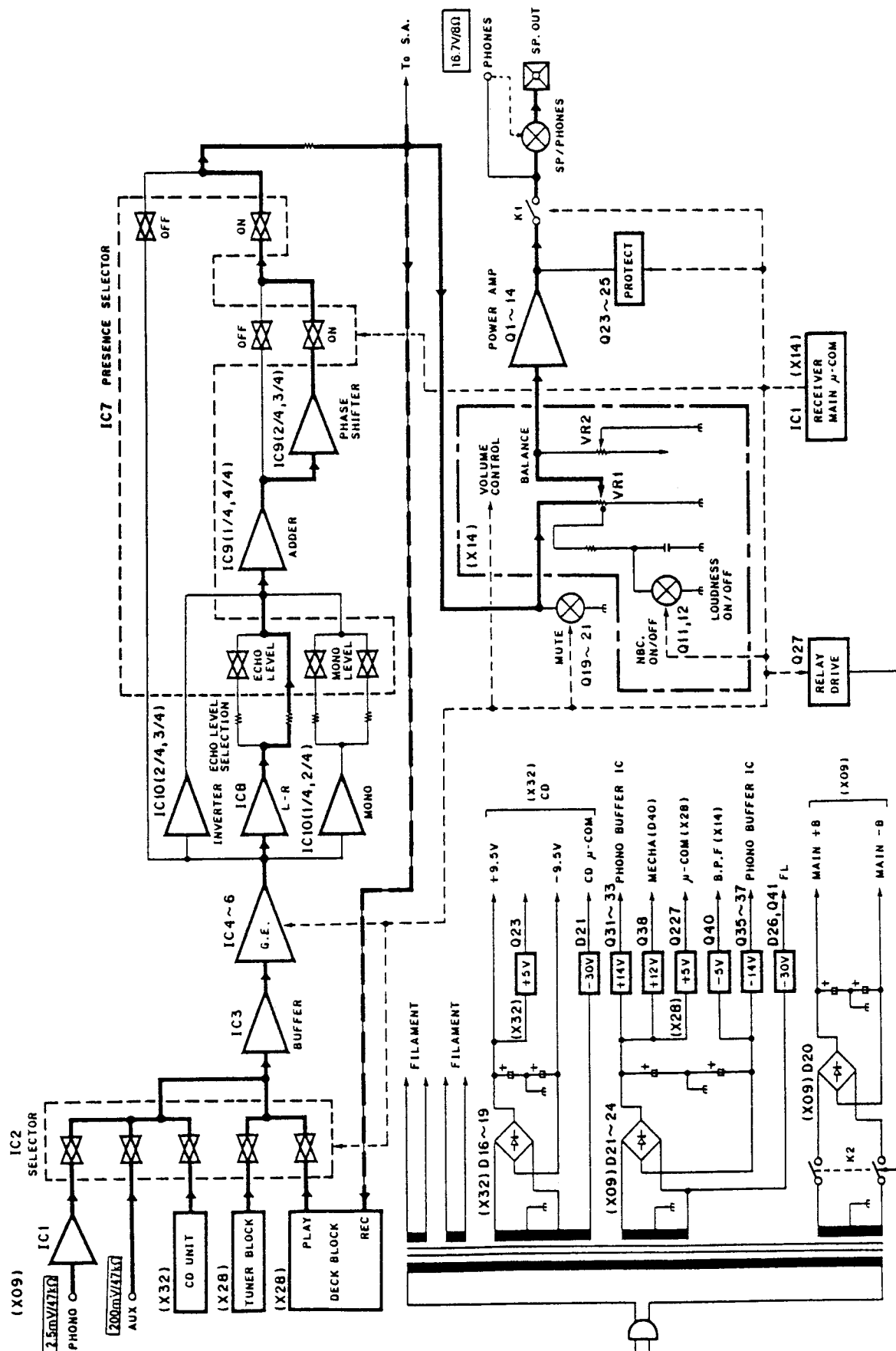
13. Remove the nine screws (16).
14. While pressing the rear panel in the direction of arrow (17), remove the DECK, TUNER unit (X28-) (18).



Note : When installing the DECK, TUNER unit (X28-), insert the pins of connector through the orifices of unit.

BLOCK DIAGRAM

AMP SECTION



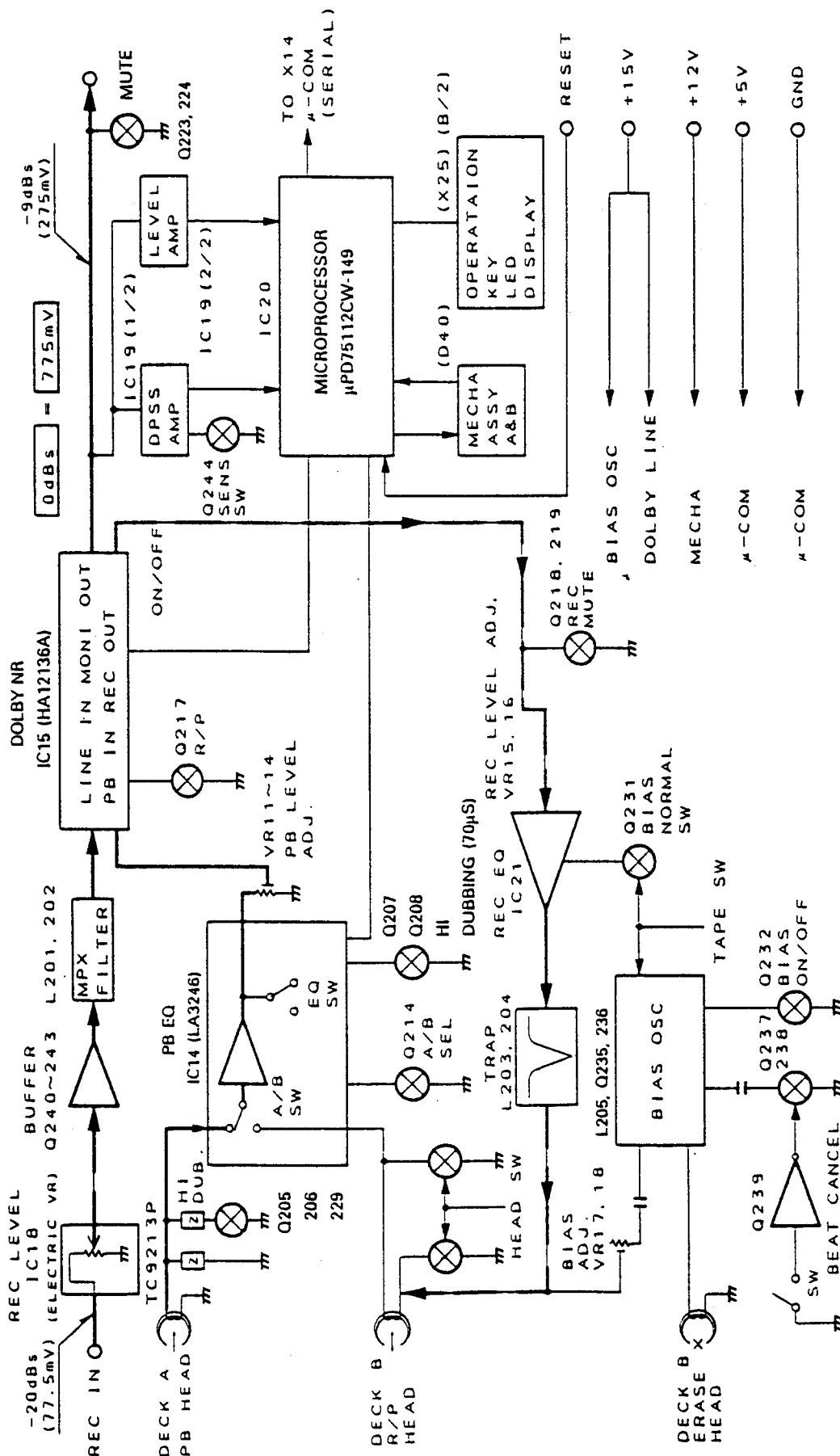
CD SECTION (X32-)



BLOCK DIAGRAM

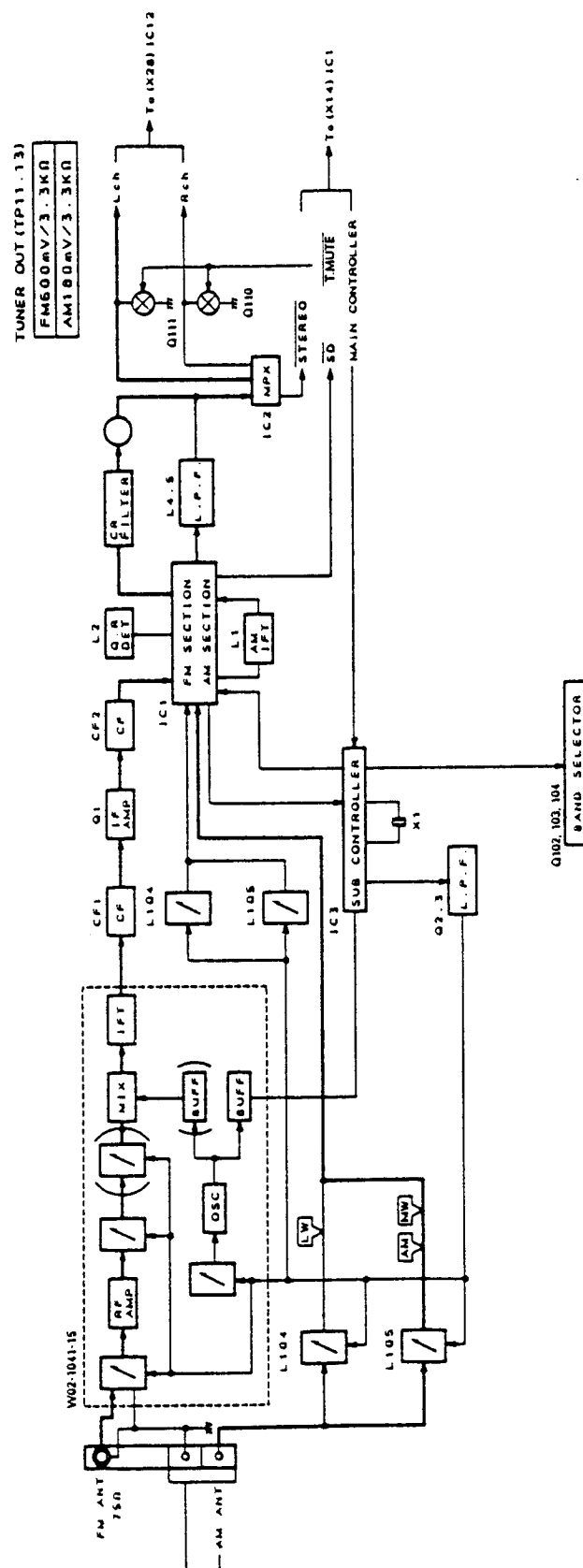
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DECK SECTION (X28-)



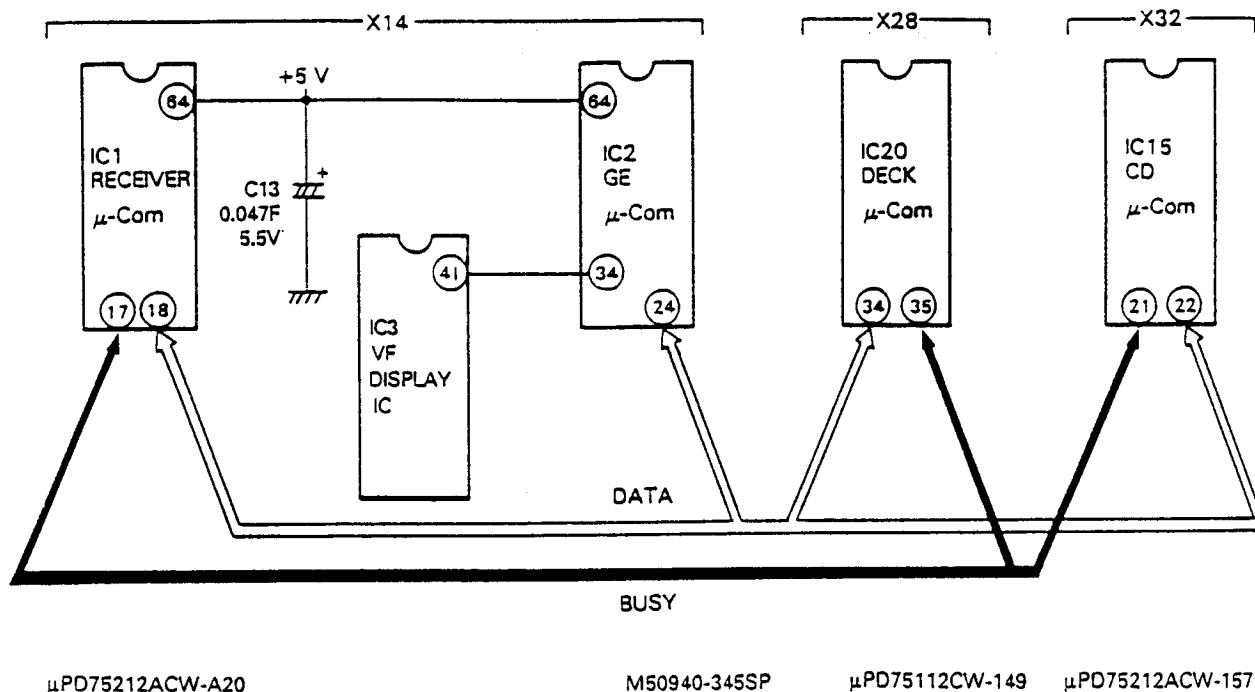
BLOCK DIAGRAM

TUNER SECTION (X28-)



CIRCUIT DESCRIPTION

1. Microprocessor



An internal 8-bit system control sync code is used during operation.

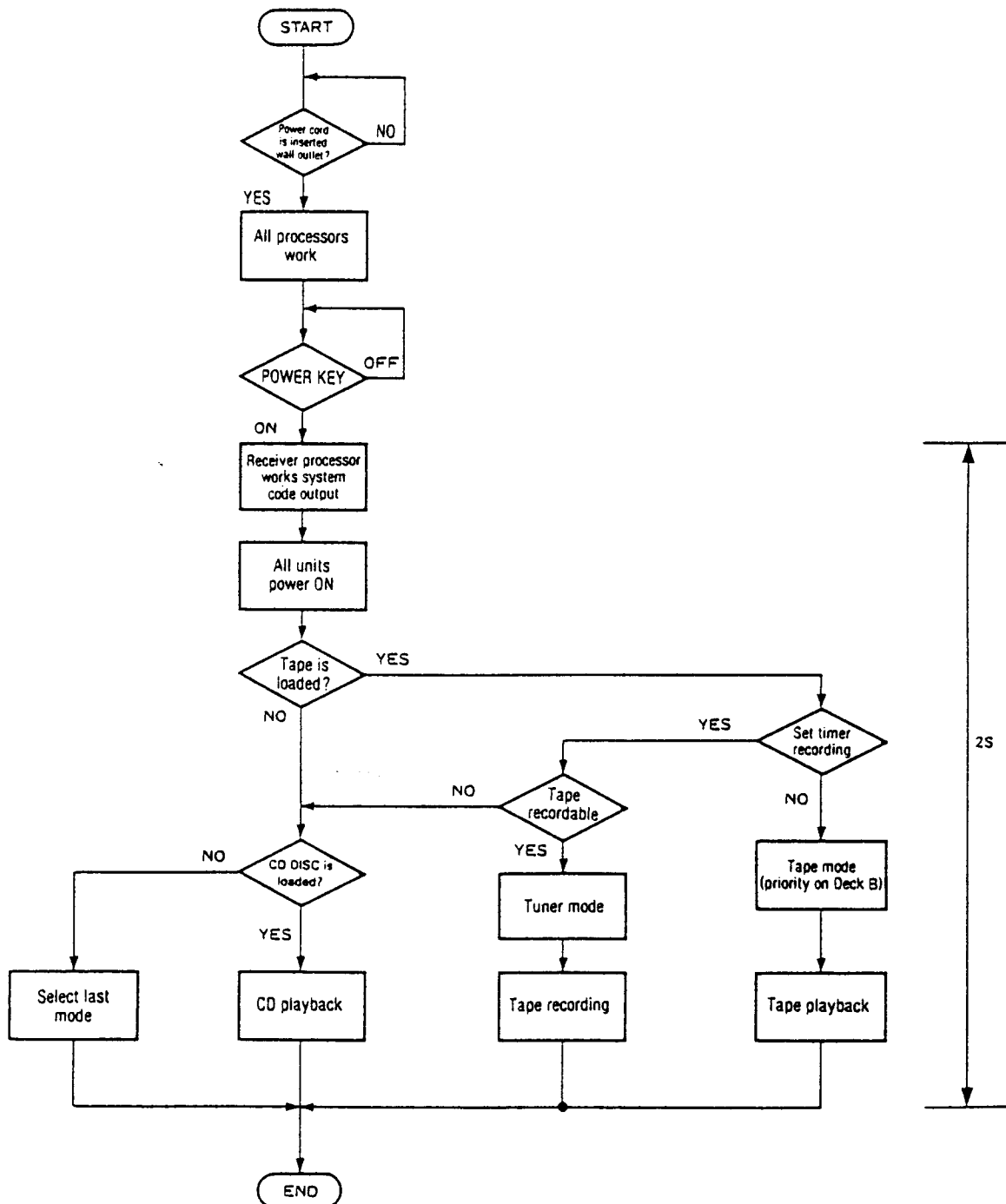
Microprocessor Initialization and Test Mode

Microprocessor Initialization and Test Mode					
	Receiver microprocessor (X14-) IC1	GE microprocessor (X14-) IC2	Deck microprocessor (X28-) IC20	CD microprocessor (X32-) IC15	
Backup capacitor	• C13 on X14- board (0.047F, 5V) (Backup time of more than 3 days. Can actually provide backup for 1 week).		-	-	
Initialize setting	• Connect the power cord while pressing the selector PRESENCE OFF key.		When the power cord is disconnected, then connected again.		
TEST MODE	Operation	• All FL and LED indicators go on.			
	Setting	• Connect the power cord while pressing the selector TUNER key.			
	Canceling	• Press the selector PHONO key when all indicators go on with the power switched on.			
	Operation	• Refer to page 24. (1) VOL UP, DOWN (2) PRESET calling (3) Equalizer test pattern	• Refer to the RXD-25/25L service manual. (Fixed selector AUX).	• Refer to the RXD-25/25L service manual.	
	Setting	(1) Press the selector TAPE key (Motor volume test). (2) Pressing the preset +10 key (Preset channel test). (3) Pressing the M1, M2 and M3 key. (Equalizer test pattern)	• Connect the power cord while pressing the selector TAPE key.	• Connect the power cord while pressing the selector CD key.	
	Canceling	• Disconnect the power cord.		(1) Set the POWER key to ON or OFF. (2) Press the other selector keys.	
		-	(3) Set the CD in the PLAY mode.	(3) Set the deck in the PLAY mode.	
-		(4) When the power cord is disconnected, then connected again (initialization).			

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CIRCUIT DESCRIPTION

2. Flow Chart of Playback after Power on



When set the last-mode timer playback (except Deck and CD player) don't load the cassette tape and compact disc.

CIRCUIT DESCRIPTION

3. POWER ON/OFF circuit

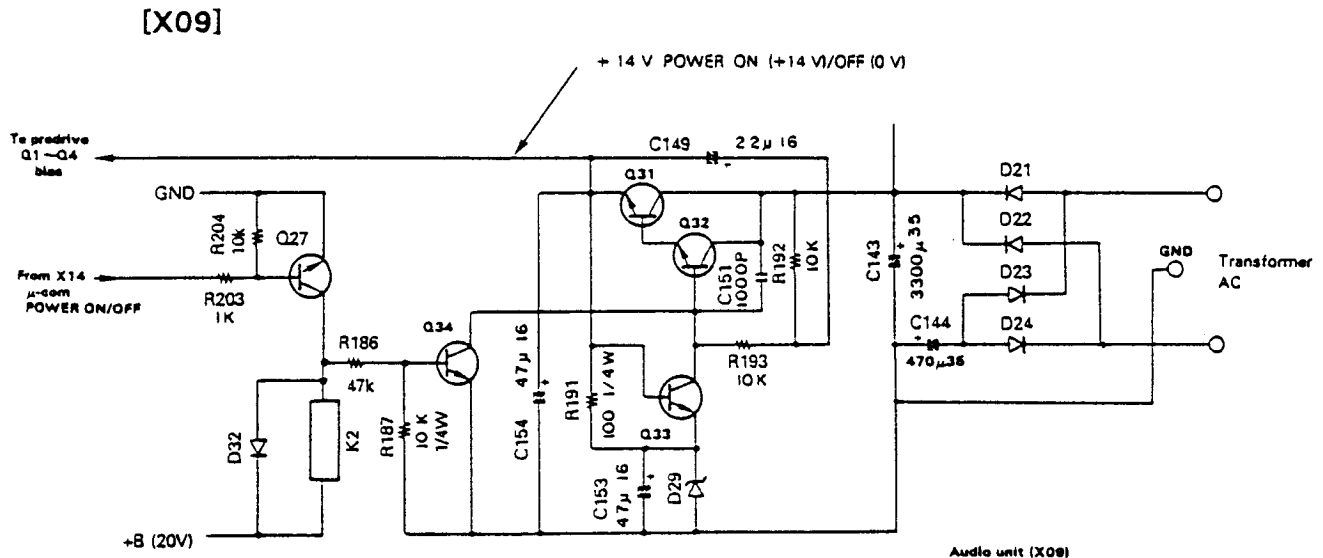
For remote control operation, a remote controller incorporating a small transformer was previously used for the drive microprocessor power by using a power relay.

The primary winding of a large transformer conducts, and all voltages appear on its secondary winding. The +14 V power output at Q34 is switched ON and OFF by the POWER ON/OFF circuit, and the +14 V power current is blocked. This +14 V current is used for bias in the

initial stage, so the currents of class A predrivers Q1 through Q4 become zero. Therefore, the final-stage bias current also becomes zero.

• All voltages other than +14 V are applied on the secondary winding, but the current is blocked to prevent heat generation.

The voltage is applied unless the power cord is disconnected. Be sure to disconnect the power cord before soldering and replacing parts.



4. Serial Communication Troubleshooting

4-1. When other devices cannot be activated during receiver operation

Example: When the POWER switch of the cassette receiver is set to ON, the amplifier is switched ON, but the tuner is not switched ON (with the timer displayed).

Description Even if the receiver operates, other devices are not activated as follows:

- (1) Only the specified device cannot be activated, and other devices are easy to operate.
- (2) The receiver can operate, but other devices are not activated. When other devices are set in the PLAY mode, the receiver input is activated with them.
- (3) No device can be activated during receiver operation.

Possible cause

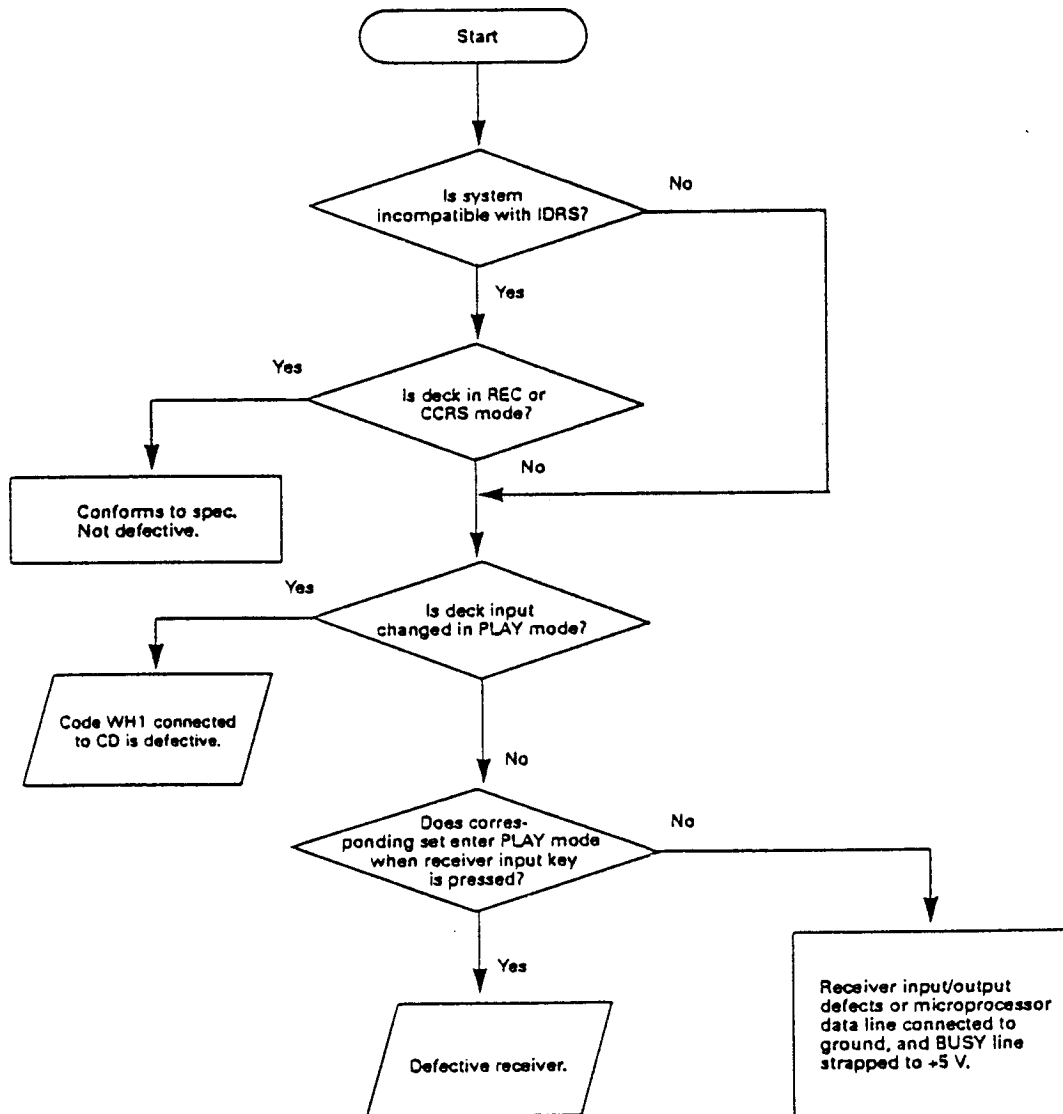
- For step (1), the specified device or the serial code connected to the device is defective.
- For step (2), the receiver serial output related block is defective.
- For step (3), the receiver serial input or output is defective, or no data voltage appears because the data line of same device is connected to ground or some device cannot output because a BUSY line is connected or the +B (5 V) terminal.

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CIRCUIT DESCRIPTION

4-2. The receiver input selector is inoperative even if devices other than the receiver are set in the PLAY mode

Example When the CD player is set in the PLAY mode, the receiver input selector cannot be set to CD.



Description

The trouble above is also classified into the following:

- (1) Only the specified device cannot be activated, and other devices are easy to operate.
- (2) If other device's selector or play key is pressed, Amplifier's selector doesn't change (no output).
- (3) No device can be activated.

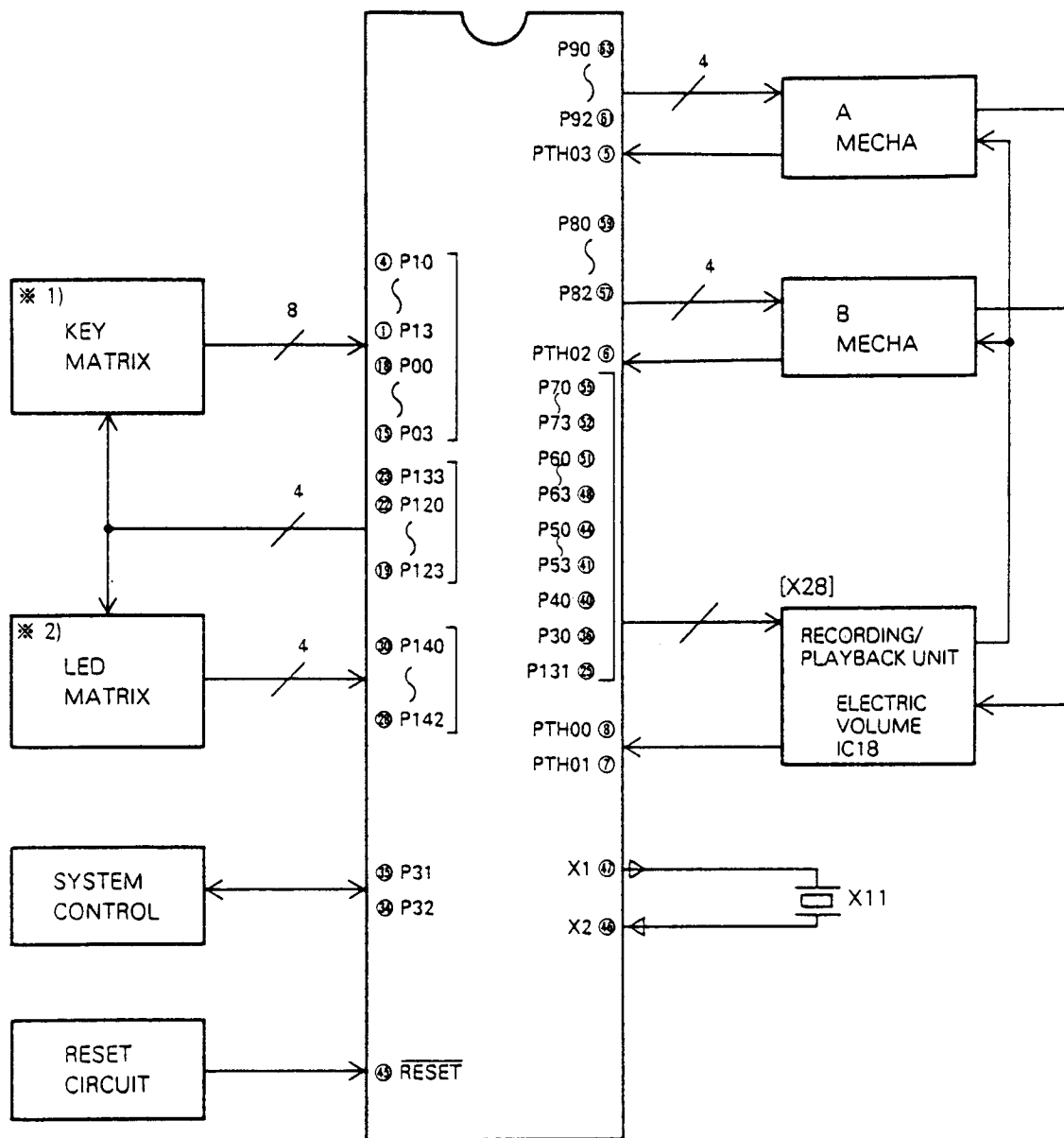
Possible cause

- For step (1), the specified device is defective.
 For step (2), the receiver serial input is defective.
 For step (3), same as in (3) of the preceding item.

CIRCUIT DESCRIPTION

5. Microprocessor : μ PD75112CW-149 (X28- : IC20)

5-1. Terminal connection diagram



DECK

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CIRCUIT DESCRIPTION

5-2. Key matrix (*1)

PIN No. of IC20		②	⑪	②	⑬	⑭
		KS1	KS2	KS3	KS4	KS5
④	KR1	ONEWAY	T. REC	⁸ CrO ₂	⁸ ◀◀	NDUB
③	KR2	^Δ ▶	^Δ ▶▶	⁸ •	⁸ ◀	HDUB
②	KR3	^Δ ◀	DOLBY	⁸	⁸ ▶▶	CCRS
①	KR4	^Δ ■	^Δ ◀◀	⁸ ■	⁸ ▶	CRLS
⑬	KR5	^Δ PLAY	—	⁸ PLAY	—	TEST 1
⑩	KR6	^Δ PACK	—	⁸ PACK	—	TEST 2
⑬	KR7	^Δ CrO ₂	—	INHFB	—	—
⑬	KR8	—	—	INHRB	—	—

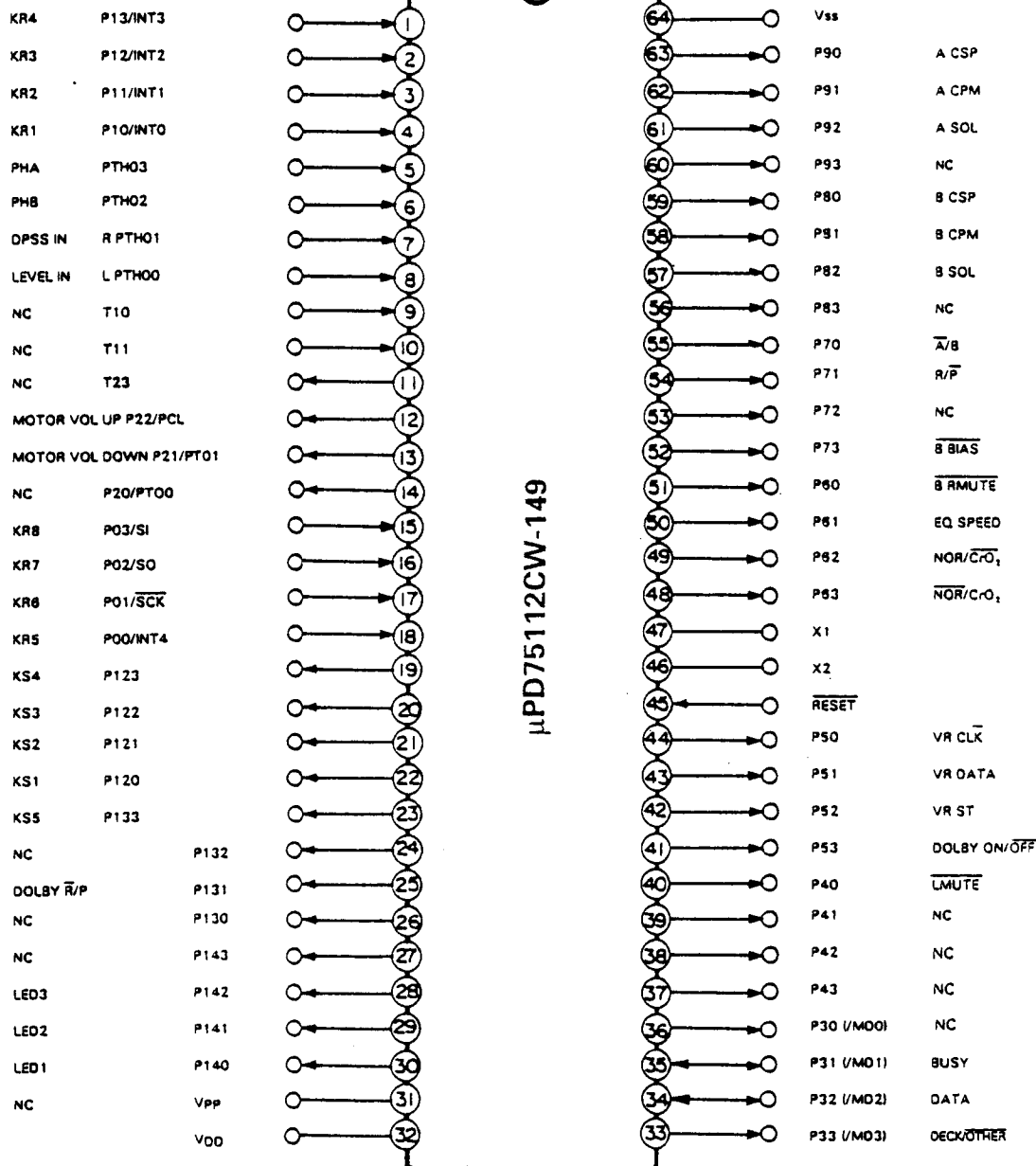
5-3. LED matrix (*2)

PIN No. of IC20		②	⑪	②	⑬	⑭
		KS1	KS2	KS3	KS4	KS5
⑨	LED1	DOLBY	NDUB	HDUB	CRLS	CCRS
⑨	LED2	T. REC	PAUSE	REC	⁸ FWD	ONEWAY
⑨	LED3	^Δ RVS	^Δ FWD	⁸ RVS	—	—

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CIRCUIT DESCRIPTION

5-4. Pin connection



DECK

CIRCUIT DESCRIPTION

5-5. Pin function

Pin No.	Pin name	I/O	Symbol	Function	
1	P13/INT3	I	KR4	Mechanism switch input	H : SW OFF L : SW ON
2	P12/INT2	I	KR3	Mechanism switch input	H : SW OFF L : SW ON
3	P11/INT1	I	KR2	Mechanism switch input	H : SW OFF L : SW ON
4	P10/INT0	I	KR1	Mechanism switch input	H : SW OFF L : SW ON
5	PTH03	I	PHA	Mechanism A rotation detection sensor input	
6	PTH02	I	PHB	Mechanism B rotation detection sensor input	
7	PTH01	I	DPSS IN	Section-between-tunes signal input	H : With tune L : Without tune
8	PTH00	I	LEVEL IN	CCRS, meter signal input	
9	T10	I	NC	No use (GND)	
10	T11	I	NC	No use (GND)	
11	P23	O	NC	No use (GND)	
12	P22/PCL	O	NC	No use	
13	P21/PTO1	O	NC	No use	
14	P20/PTO0	O	NC	No use (OPEN)	
15	P03/SI	I	KR8	Mechanism switch input (key return input L : SW ON).	
16	P02/SO	I	KR7	Mechanism switch input (key return input L : SW ON).	
17	P01/ $\overline{SCK}$	I	KR6	Mechanism switch input (key return input L : SW ON).	
18	P00/INT4	I	KR5	Mechanism switch input (key return input L : SW ON).	H : Reception OK L : Reception NG
19	P123	O	KS4	Slave microprocessor reset output (key scan output)	H : Reset L : Normal
20	P122	O	KS3	Mechanism switch output	H : OFF L : Scan
21	P121	O	KS2	Mechanism switch scan output	H : OFF L : Scan
22	P120	O	KS1	Mechanism switch scan output	H : OFF L : Scan
23	P133	O	KS5	Mechanism switch scan output	H : OFF L : Scan
24	P132	O	NC	No use (OPEN)	
25	P131	O	DOLBY $\overline{R}/P$	Dolby $\overline{R}/P$ selection	H : PLAY L : REC
26	P130	O	NC	No use (OPEN)	
27	P143	O	NC	No use (OPEN)	
28	P142	O	LED 3	LED control	H : ON L : OFF
29	P141	O	LED 2	LED control	H : ON L : OFF
30	P140	O	LED 1	LED control	H : ON L : OFF
31	V _{pp}	—	NC	No use	
32	V _{DD}	—	V _{DD}	Connected to +5 V.	H : OFF L : ON
33	P33	O	DECK/OTHER	Deck mute control	L : ON

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CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Symbol	Function	
34	P32	I/O	DATA	System control Signal I/O (DATA)	
35	P31	I/O	BUSY	System control signal I/O (BUSY)	
36	P30	O	NC	No use	
37	P43	O	NC	No use	
38	P42	O	NC	No use	
39	P41	O	NC	No use (OPEN)	
40	P40	O	LMUTE	Line mute control	H : OFF L : ON
41	P53	O	DOLBY ON/OFF	DOLBY ON/OFF control	H : ON L : OFF
42	P52	O	VR ST	Electronic volume strobe signal output	
43	P51	O	VR DATA	Electronic volume serial data output	
44	P50	O	VRCLK	Electronic volume serial clock	
45	RESET	I	RESET	Reset input	H : Normal L : Reset
46	X2	O	—	Ceramic OSC connection pin	f=4.19 MHz
47	X1	I	—	Ceramic OSC connection pin	f=4.19 MHz
48	P63	O	NOR/CrO ₂	NOR/CrO ₂ selection	L : NORMAL H : CrO ₂
49	P62	O	NOR/CrO ₂	NOR/CrO ₂ selection	H : NORMAL L : CrO ₂
50	P61	O	EQ SPEED	Deck B EQ control	H : High speed L : Normal
51	P60	O	BR MUTE	Deck B recording mute control	H : OFF L : ON
52	P73	O	B BIAS	Deck B bias ON/OFF	H : OFF L : ON
53	P72	O	NC	No use (OPEN)	
54	P71	O	R/P	Deck B R/P selection	H : REC L : PLAY
55	P70	O	A/B	Playback EQ A/B selection	H : B L : A
56	P83	O		No used	
57	P82	O	SOLB	Deck B solenoid control	H : Play or recording L : Others
58	P81	O	CPMB	Deck B capstan motor control	H : ON L : OFF
59	P80	O	CSPB	Deck B capstan motor speed control	H : Normal speed L : High speed
60	P93	O		No used	
61	P92	O	SOLA	Deck A solenoid control	H : ON L : OFF
62	P91	O	CPMA	Deck A capstan motor control	H : ON L : OFF
63	P90	O	CSPA	Deck A capstan motor speed control	H : Normal speed L : High speed
64	V _{SS}	—	V _{SS}	Connected to GND.	

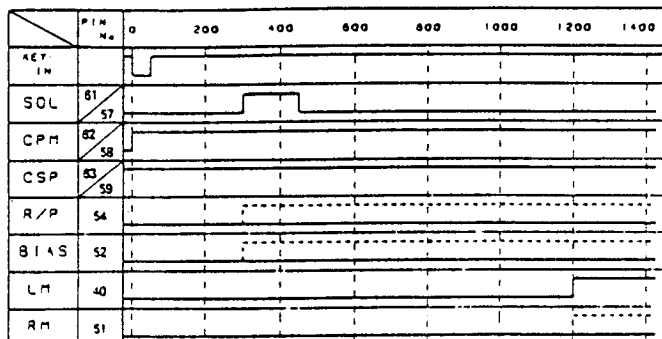
DECK

CIRCUIT DESCRIPTION

5-6. Timing chart

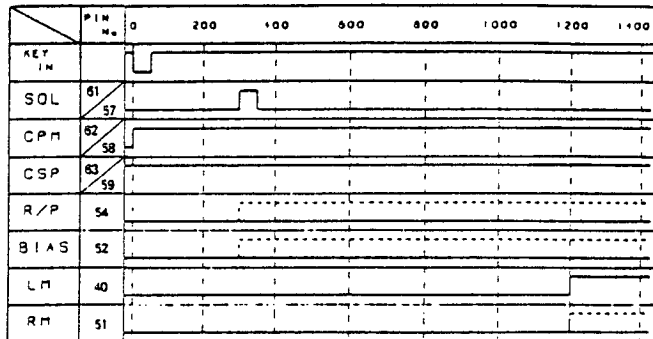
STOP TO FWD PLAY/REC(---)

UNIT -5



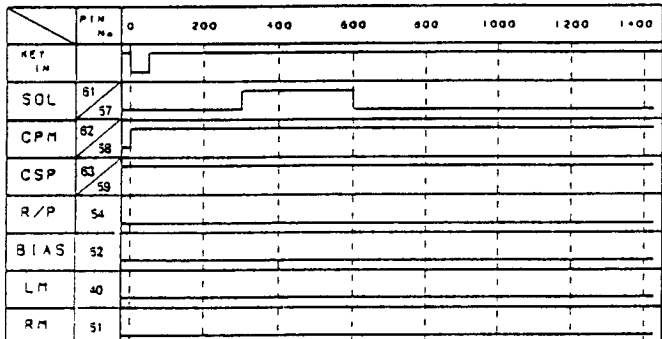
STOP TO RVS PLAY/REC(---)

UNIT -5



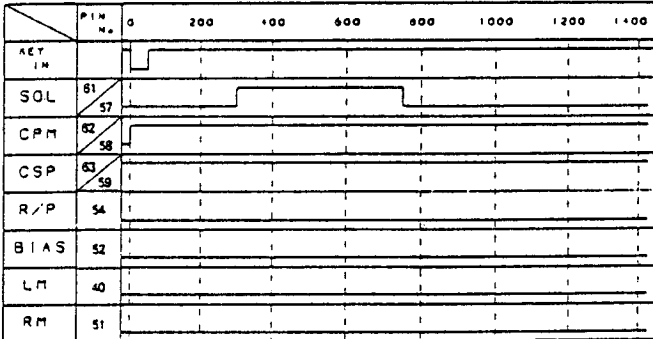
STOP TO FF

UNIT -5



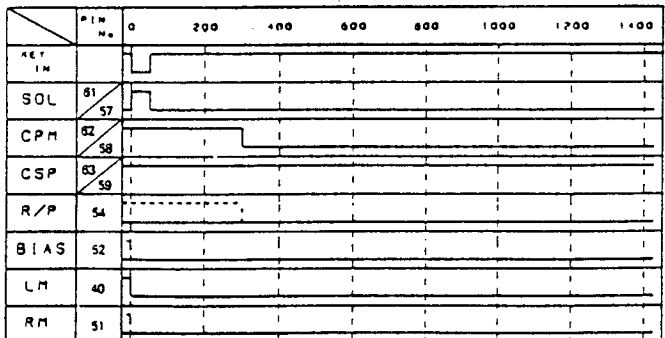
STOP TO RWD

UNIT -5



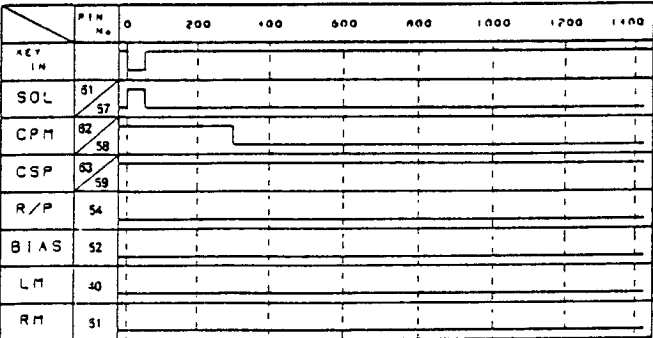
PLAY/REC(---) TO STOP

UNIT -5



FF/RWD/CUE/RVW TO STOP

UNIT -5

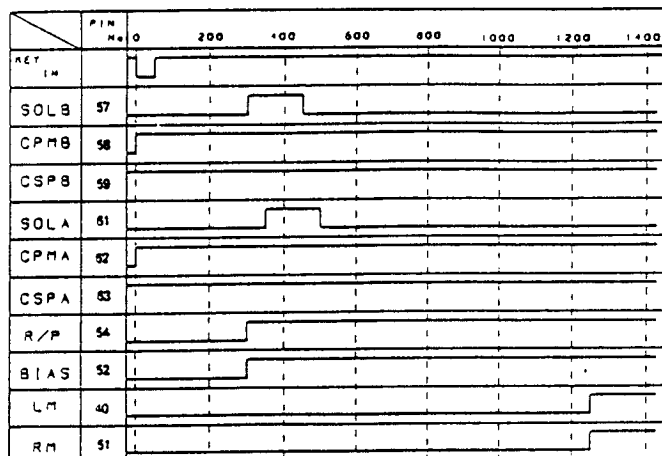


DECK

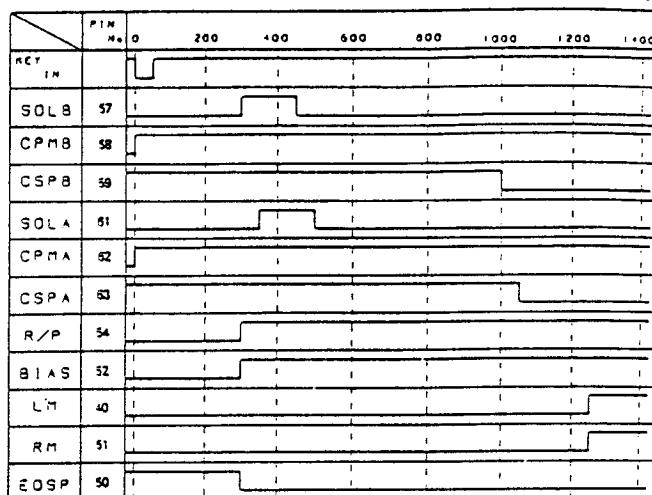
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CIRCUIT DESCRIPTION

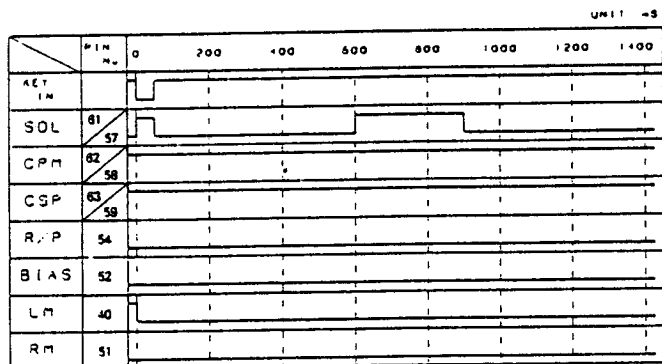
STOP TO NOR DUBBING



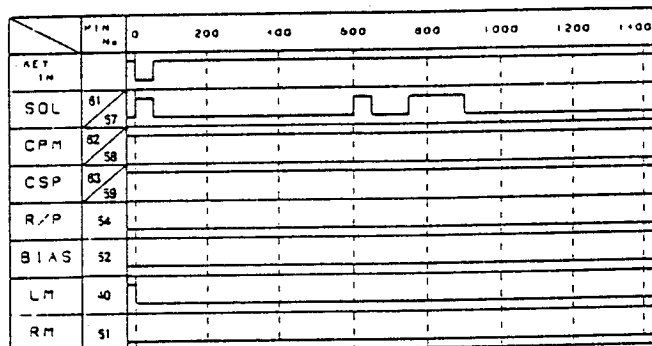
STOP TO HI DUBBING



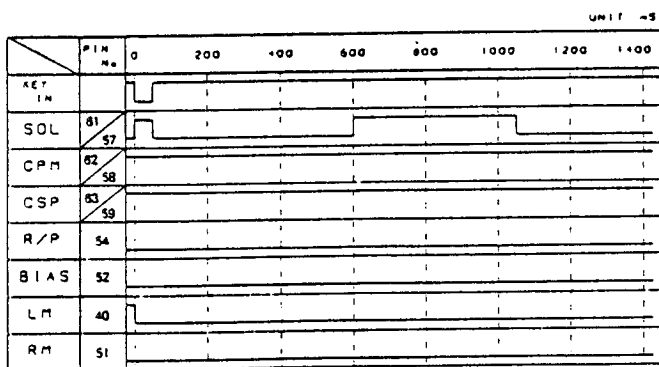
FWD PLAY TO CUE



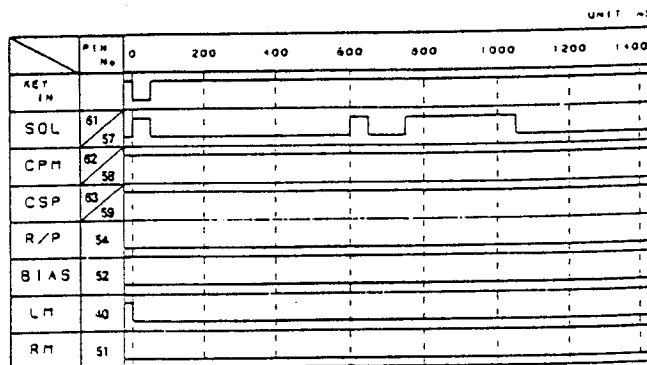
RVS PLAY TO CUE



FWD PLAY TO REVIEW



RVS PLAY TO REVIEW



DECK

CIRCUIT DESCRIPTION

6. Conditions by Description

Desti- nation type		Destination switches (DSW)				Band	Receiving frequency range	Inter- channel space	Intermediate frequency	PLL reference frequency	PLL (LM7001) output port		
		DSW3	DSW2	DSW1	DSW0						⑦	⑧	⑨
No production	M, Y	0	0 or 1	0	0	FM	87.5~108.0MHz	50kHz/100kHz	+10.7MHz	50kHz	H	H	L
						AM	531~1602kHz /530~1610kHz	9kHz/10kHz	+450kHz	10kHz	H	L	H
	K, P	0	1	1	0	FM	87.5~108.0MHz	100kHz	+10.7MHz	50kHz	H	H	L
						AM	530~1700kHz	10kHz	+450kHz	10kHz	H	L	H
	X	0	0	0	0	FM	87.5~108.0MHz	50kHz	+10.7MHz	50kHz	H	H	L
						AM	531~1602kHz	9kHz	+450kHz	9kHz	H	L	H
RXD-27L	T, E	0	0	0	1	FM	87.5~108.0MHz	50kHz	+10.7MHz	50kHz	H	H	L
						MW	531~1602kHz	9kHz	+450kHz	9kHz	H	L	H
						LW	153~281kHz	1kHz	+450kHz	1kHz	L	L	H

0 : Without diode

1 : With diode

7. Initial Stage

	State	
POWER	OFF	
AMP section	INPUT	TUNER
	PRESET	OFF
	MUTE	OFF
	NBC	OFF
TUNER section	BAND	FM
	Receiving frequency	87.5MHz
	TUNING MODE	AUTO
	Last Preset	-- CH
	Preset state	Test frequency
TIMER section	Cloc.	0:00
	Timer program (1) and (2)	ON 0:00
		OFF 0:00
	PCH	01CH
	Execution mode	Non-execution
GE section	Effect	OFF
	MANU/REFE	REFERENCE
	GE pattern	FLAT

7-1. Initial state Setting

The initial state is set in the following cases :

- 1) When the backup memory is erased.
- 2) When the AC plug is inserted into the wall outlet while holding down the PRESENCE OFF.

7-2. Test frequency in initial state

The frequency preset for each channel in the initial state is as shown in the table.

Channel	Y, M, X type	E, T type
1	98.0MHz	98.0MHz
2	108.0MHz	108.0MHz
3	630kHz	630kHz
4	990kHz	990kHz
5	1440kHz	1440kHz
6	1610kHz	1602kHz
7	87.5MHz	162kHz
8	87.5MHz	216kHz
9	87.5MHz	270kHz
10	89.1MHz	89.1MHz
11	87.5MHz	281kHz
12	87.5MHz	87.5MHz
13	87.5MHz	87.5MHz
14	87.5MHz	87.5MHz
15	87.5MHz	87.5MHz
16	87.5MHz	87.5MHz
17	87.5MHz	87.5MHz
18	87.5MHz	87.5MHz
19	87.5MHz	87.5MHz
20	87.5MHz	87.5MHz

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CIRCUIT DESCRIPTION

8. Test Mode (Amplifier / Tuner)

1) Operation

Insert the AC plug into the wall outlet while holding down the selector TUNER key.

2) Cancel

Pull the AC plug out of the wall outlet (reset) when all indicators are lit with the power on.

3) Content

• Indicators lighting test

The power is automatically turned on, and all fluorescent display indicators and LED indicators light.

• Motor volume test

* Press the PHONO key (lighting cancel)

If the DIGIT key is pressed, the volume keeps increasing for 16 seconds, and then keeps decreasing for 16 seconds. To stop the test in the middle, switch the power off.

• Preset channel calling

Normally, the +10 key changes the high-order digits 1-, 2-, and 0-alternately, but it changes the high-order digits 1- and 0- alternately in the test mode. The 0 key does not call any channel, but in the test mode, if the high-order digit is 0, 10ch is called, and if it is 1, 20ch is called. Table 1 lists the channels to be called.

Table 1

High order	Low order	TEN KEY									
		1	2	3	4	5	6	7	8	9	0
0		1	2	3	4	5	6	7	8	9	10
1		11	12	13	14	15	16	17	18	19	20

• Equalizer test pattern

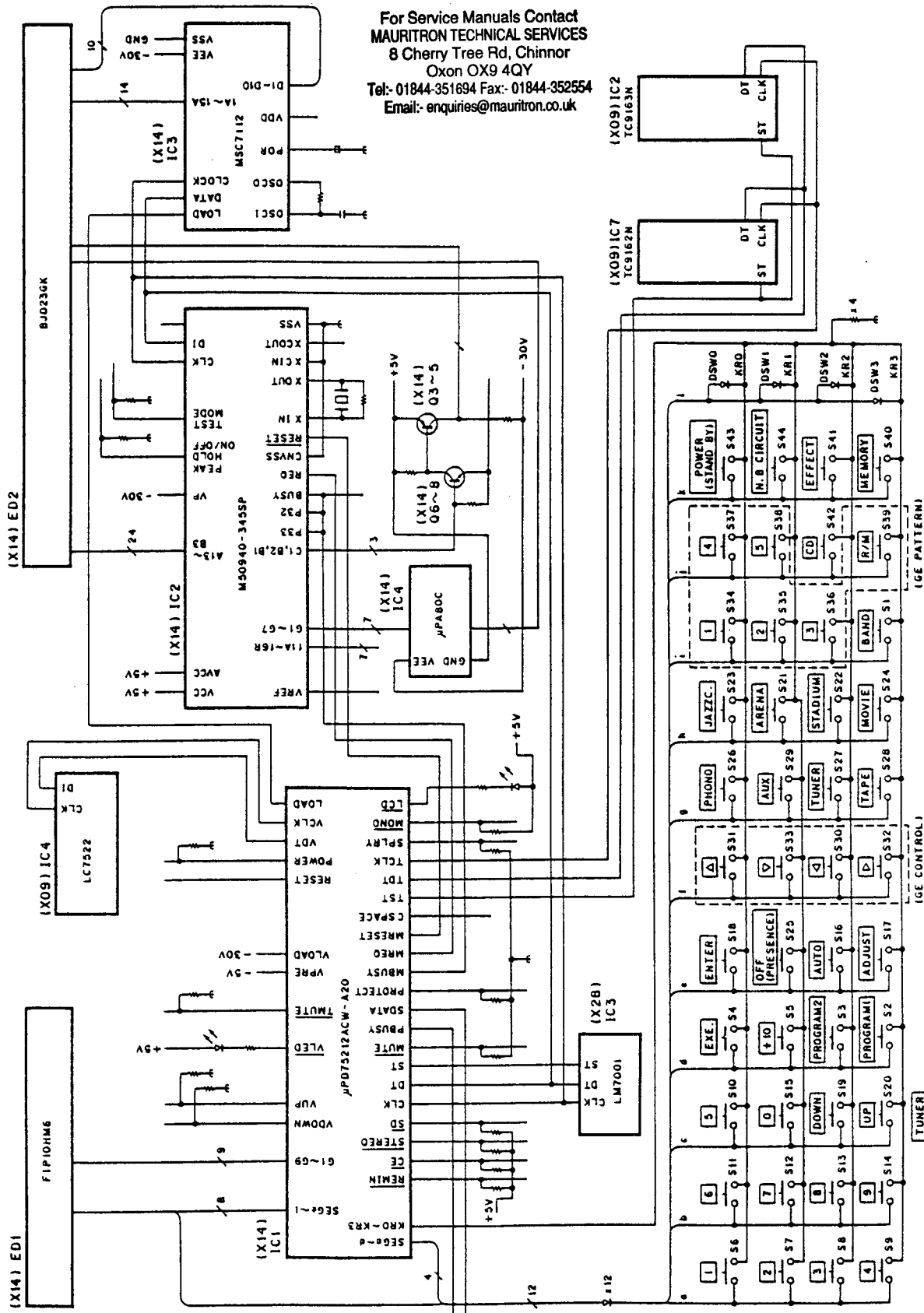
MAX segments (+12dB) of all frequency turn on when pressing M1 key. FLAT segments (0dB) of all frequency turn on, when pressing M2 key. Min segments (-12dB) of all frequency turn on when pressing M3 key. 3 points (+12dB, 0dB, -12dB) of segments turn on, in all frequency when UP or DOWN key is pressed.

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CIRCUIT DESCRIPTION

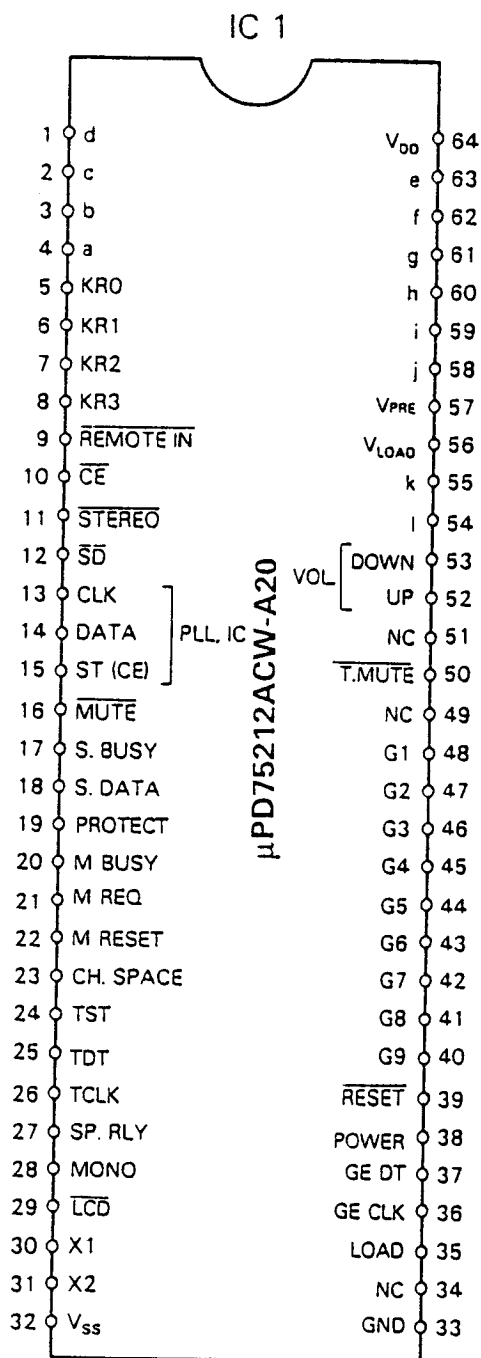
9. Receiver microprocessor : μ PD75212ACW-A20 (X14 : IC1)

9-1. Terminal connection diagram



CIRCUIT DESCRIPTION

9-2.Pin connection



RECEIVER, GE

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CIRCUIT DESCRIPTION

9-3. Pin function

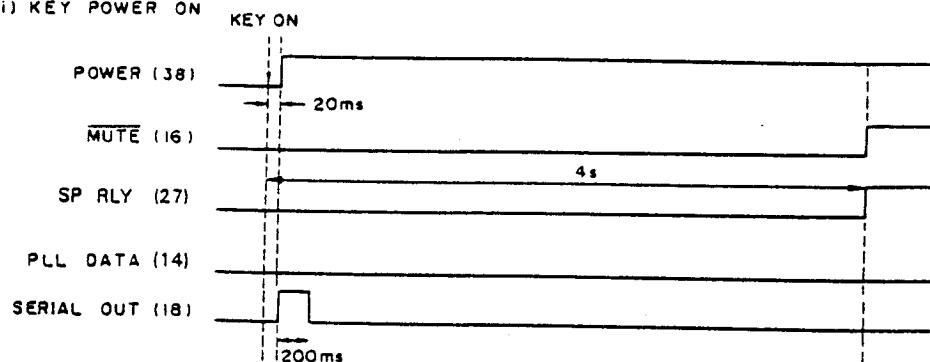
Pin No.	Pin name	I/O	Name	Description
1~4	S3~0	O	d~a	d~a segment drive/key scan.
5~8	P00~03	I	KR0~3	Key-matrix, key return input.
9	P10		REMIN	Remote control input.
10	P11		CE	Backup detection (L : BACKUP).
11	P12		STEREO	Stereo broadcast detection (L : STEREO).
12	P13		SD	Station detection (L : STATION).
13	P20	O	CLK	Control PLL IC (LM7001) clock.
14	P21		DATA	Control PLL IC (LM7001) data.
15	P22		ST	Control PLL IC (LM7001) strobe.
16	P23		MUTE	Mute signal out (L : MUTE ON).
17	P30	I/O	BUSY	System control signal input/output (BUSY).
18	P31		SDATA	System control signal input/output (DATA).
19	P32	I	PROTECT	Protection signal input (H : PROTECTION).
20	P33		MBUSY	GE μ -com (M50940) BUSY input.
21	P60	O	MREQ	GE μ -com (M50940) DATA REQUEST output.
22	P61		MRESET	GE μ -com (M50940) RESET (L to H : RESET).
23	P62	I	CH-SPACE	Institute "Channel space" (FM L : 100k, H : 50k).
24	P63	O	TST	Strobe for TC9162/TC9163.
25	P40		TDT	Data for TC9162/TC9163 (H : Power ON).
26	P41		TCLK	Clock for TC9162/TC9163.
27	P42		SPRLY	Control output relay (H : Relay ON).
28	P43		MONO	Monoral control (H : Mono).
29	PPO		-	Not used (Open).
30, 31	X1, 2	I, O	-	System clock oscillation (crystal 4.194303MHz).
32	Vss	-	-	Power supply (GND).
33, 34	XT1, 2	I, O	-	Not used (XT1 : GND, XT2 : Open).
35	P50	O	LOAD	Strobe for MSC7112.
36	P51		GECLK	Clock for NJU7305L.
37	P52		GEDT	Data for NJU7305L.
38	P53		POWER	Power relay control.
39	RESET	-	-	Reset (L : RESET).
40~48	T0~8	O	9G~1G	Grid control (9G~1G).
49	T9		-	Not used.
50	PH3		TMUTE	Tuner mute signal out (L : MUTE ON).
51	PH2		-	Not used (Open).
52	PH1		VOL UP	Electrically driven volume control (H : VOL UP).
53	PH0		VOL DOWN	Electrically driven volume control (H : VOL DOWN).
54	S11		I	I-segment drive.
55	S10		k	k-segment drive/key scan.
56	VLOAD		-	Pull-down for FL (~30V).
57	VPRE		-	Predriver for FL.
58~63	S9~S4	O	j~e	j~e segment drive/key scan.
64	VDD	-	-	Power supply (+5V).

CIRCUIT DESCRIPTION

9-4. Timing chart

(1) POWER ON

i) KEY POWER ON

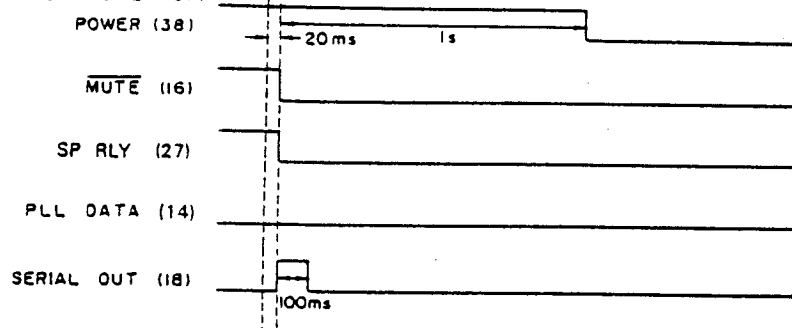


ii) REMOCON POWER ON



(2) POWER OFF

i) KEY POWER OFF

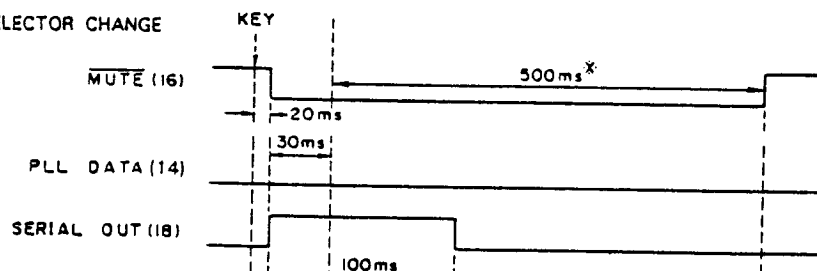


ii) REMOCON POWER OFF

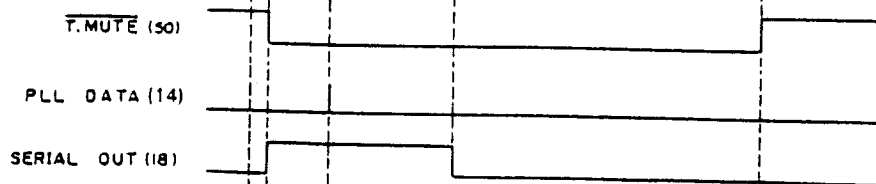


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(3) SELECTOR CHANGE



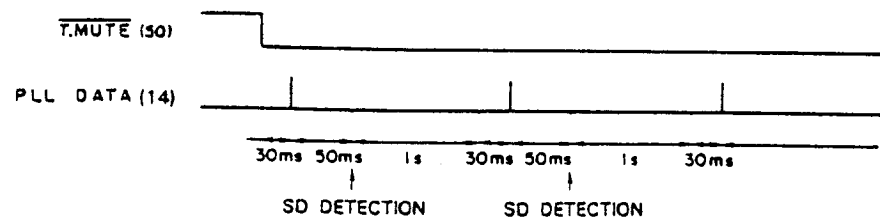
(4) PRESET CH CALL



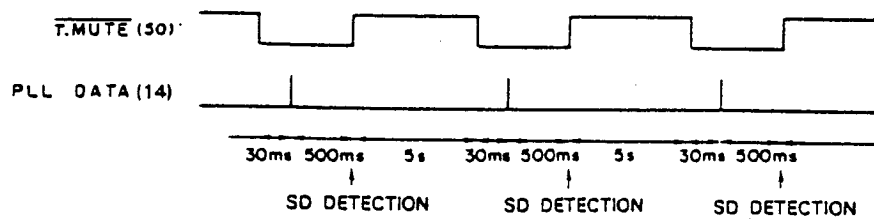
CIRCUIT DESCRIPTION

(5) PRESET CH. SCAN

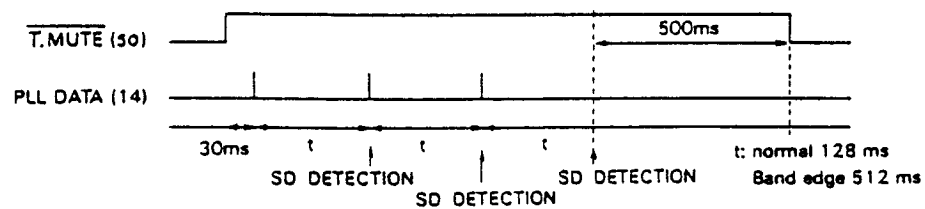
i) **No station**



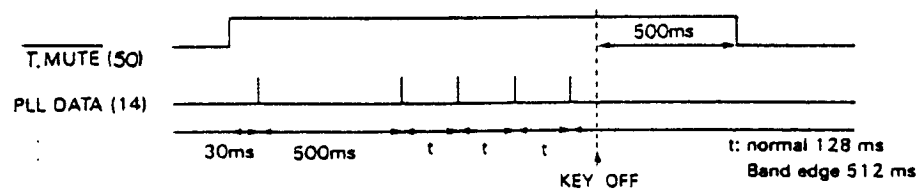
*Don't detect SD signal in non-TUNER mode.

ii) **Station**

(6) AUTO TUNING



(7) MANUAL TUNING



CIRCUIT DESCRIPTION

10. Operation of Graphic Equalizer

■ List of preset equalizer patterns

Preset equalizer pattern: REFERENCE 1 to 5		Preset equalizer pattern: MANUAL 1 to 5	
1 [PHONES]	For recording sound by adjusting its sound suitable for playback with a headphone stereo.	1	For reducing ultra-low frequency noise or scratch noise when playing an analog disc.
2 [CAR]	For recording sound by adjusting its sound suitable for playback with a car stereo.	2	For playing the jazz of the fifties, etc., with an ambience of those days.
3 [ROCK]	For playing rock or fusion music with more powerful sound.	3	For playing music for a long period of time, like background music.
4 [VOCAL]	For playing various kind of music with enhanced vocal.	4	For playing very detailed music.
5 [SOFT]	For playing music with soft sound by cutting irritating middle and high frequencies.	5	To create an exciting sound by enhancing ultra-low and high frequencies.

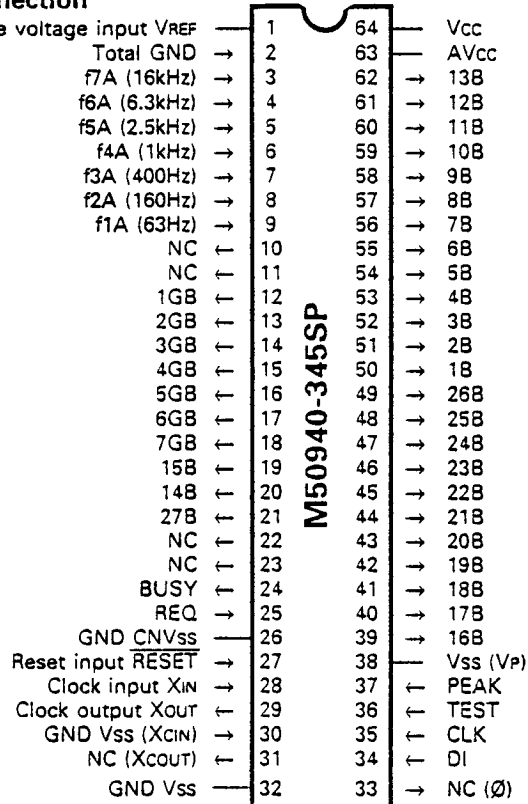
■ List of preset equalizer patterns with the presence effect

ARENA 	JAZZ
STADIUM 	MOVIE

CIRCUIT DESCRIPTION

11. GE microprocessor : M50940-345SP (X14 : IC2)

11-1. Pin connection



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This microprocessor is controled
 by receiver microprocessor (X14 : IC1).

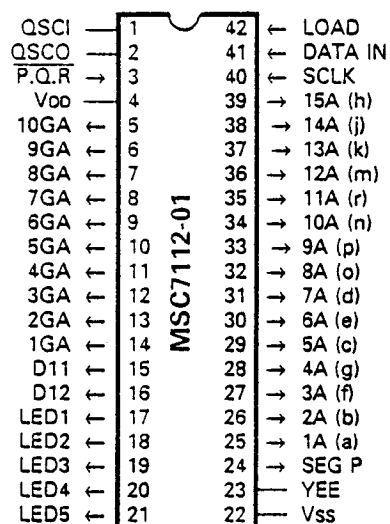
11-2. Pin function

Pin No.	Pin name	I/O	Name	Description
1	VREF	-	VREF	Reference voltage input for A/D converter.
2	IN7	I	Total	Not used (GND).
3-9	IN6-0		f7A-f1A	f7A-f1A (16k, 6.3k, 2.5k, 1k, 400, 160, 63Hz) level analog input.
10, 11	P47, 46		-	Not used (Open).
12-18	P45-40, 37		1GB-7GB	FL grid drive (1GB-7GB).
19-21	15B, 14B, 27B	O	P36-34	FL segment drive (15B, 14B, 27B).
22, 23	-		P33, 32	Not used (Open).
24	BUSY		P31	BUSY signal output pin for communicating to main microprocessor.
25	REQ	I	P30	REQ signal input pin for communicating to main microprocessor.
26	CNVss	-	-	Connect the GND.
27	RESET	I	RESET	Reset pin (H : Normal, L : Reset).
28	XIN			Oscillater connect pin (4MHz).
29	XOUT	O		
30	XCIN	I	-	Not used (GND).
31	XCOUT	O		Not used (Open).
32	Vss	-		GND pin.
33	-	O		Not used (Open).
34	R3		DI	DATA signal input pin for communicating to main microprocessor.
35	R2	I	CLK	CLOCK signal input pin for communicating to main microprocessor.
36	R1		TEST	Test mode setting pin (H : Test, L : Normal).
37	R0		PEAK	Peak hold detection (H : Without, L : With).
38	VP	-	-	Connect the -30V.
39-49	P17-P05		16B-26B	FL segment drive (16B-26B), (H : ON, L : OFF).
50-62	P04-P00 P27-P20	O	1B-13B	FL segment drive (1B-13B), (H : ON, L : OFF).
63, 64	AVcc, Vcc	-	-	Power supply pin (+5V).

CIRCUIT DESCRIPTION

12. VF Display Controller : MSC7112-01 (X14 : IC3)

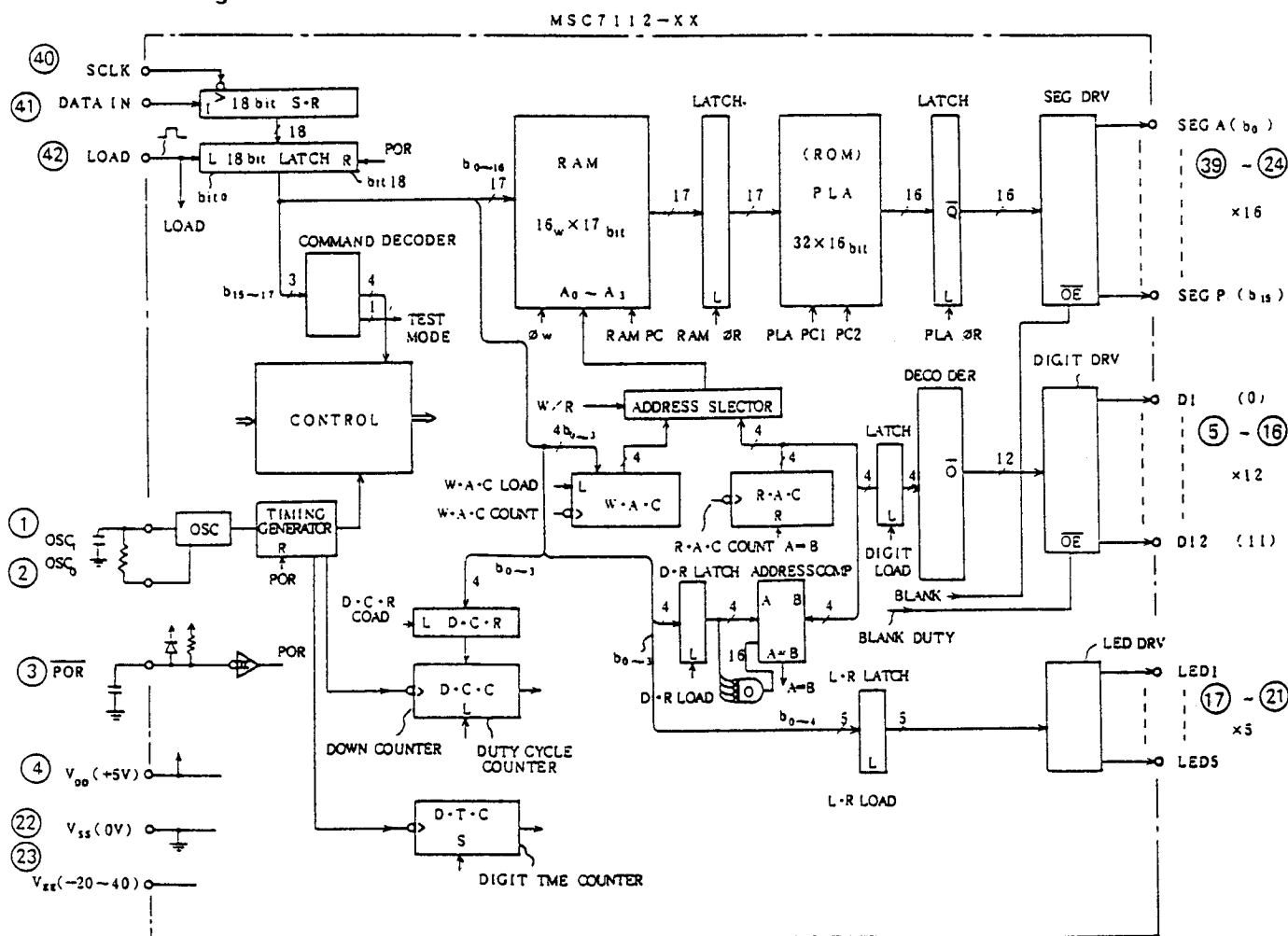
12-1. Pin connection



12-2. Pin function

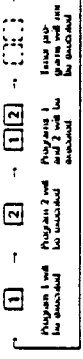
Pin No.	Pin name	I/O	Name	Description
1	QSCI	-	-	OSC connection pin.
2	QSCO			
3	P.Q.R			Reset signal input.
4	V _{DD}			+5V supply.
5-14	D1-10	O	10GA-1GA	Grid (10GA-1GA).
15-21	D11, 12 LED1-5		-	Not used (Open).
22	V _{SS}			GND.
23	V _{EE}			-30V supply.
24	SEG P	O	-	Not used (Open).
25-39	SEGO-A		1A-15A	Segment (a, b, f, g, c, e, d o, p, n, r, m, k, j, h).
40	SCLK	I	CLK	Clock.
41	DATA IN		DT	Data.
42	LOAD		LOAD	Strobe.

12-3. Block diagram



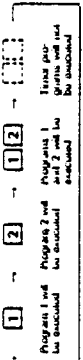
OPERATION OF TIMER

■ Recording radio broadcast with timer

- 1 Perform steps 1 to 4 of the timer operation preparation.
- 2 Take out any CD and insert a recordable tape in deck B.
- 3 Adjust the volume and tone. 
- 4 Specify the execution of timer program.
 Press the EXE. key. 

 • Check the lighted Program No. indicator.
- 5 Select the TUNER input. 
- 6 Switch the power to STAND-BY.
 Press the POWER key 
- 7 The TIMER REC Indicator should light up. 

- Notes:
1. Do not press the EXE. 1 2 key or the POWER key while the power is turned ON by the timer. Otherwise malfunction may occur.
 2. Be careful that the setting time of the two programs are not overlapped.
 3. When the ON time of a timer due execution of which has been specified comes during radio reception, the station being received is switched to the station set by the timer program. Use special care against this fact when you a recording radio broadcast.
 4. The timer program contents cannot be cleared. Therefore, when the timer is not to be used, be sure to cancel the execution specification so that the indicators are "off".

■ Receiving radio broadcast with timer

- 1 Perform the preparation steps 1 to 4.
- 2 Remove disc from the CD player.
- 3 Adjust the volume and tone. 
- 4 Specify the execution of timer program.
 Press the EXE. key. 

 • Check the lighted Program No. indicator.
- 5 Select the TUNER input. 
- 6 Switch the power to STAND-BY.
 Press the POWER key 
- 7 The TIMER REC Indicator should go off. 

To continue the reception of radio station which has been started to be received by timer ON:

Press the EXE. key before the OFF time comes so that the program number display is extinguished. This allows to receive radio broadcasting even after the OFF time.

■ Preparations

Be sure the correct date and time are set before setting the timer.

Timer reception/recording of radio broadcast	Timer playback of CD or tape
Timer reception/recording of radio broadcast ... The preparations consist of the setting of the timer ON and OFF times and the preset station No. when receiving radio broadcast is required. Example: Setting timer radio reception from 7:30 AM to 8:00 AM of preset station No. 3 in timer program 1.	Timer playback of CD or tape ... The preparations consist of the setting of the timer ON and OFF times. Example: Setting timer CD playback from 11:00 PM to 11:30 PM in timer program 2.
1 Enter the program setting mode. Press the PROG. 1 key.  Press the ENTER key. 	1 Enter the program setting mode. Press the PROG. 2 key.  Press the ENTER key. 
2 Input the ON time. Press [0], [7], [3], and [0]. Press the ENTER key. 	2 Input the ON time. Press [2], [3], [0], and [0]. Press the ENTER key. 
3 Input the OFF time. Press [0], [8], [0], and [0]. Press the ENTER key. 	3 Input the OFF time. Press [2], [3], [3], and [0]. Press the ENTER key. 
4 Select the preset station No. Press [3].  Press the ENTER key.  • The stations should be stored in the preset memory with a number of 20 or less.	4 Press the ENTER key. 
Now the ON/OFF time setting is completed. Hereafter, proceed to the setting of "Reception/recording of radio station" on the next page.	Now the ON/OFF time setting is completed. Hereafter, proceed to the setting of "Playback of CD/tape" on the next page.

- When it is required to change the ON time or OFF time, restart the procedure from the beginning of "Preparation" above.
- If a programme number which already contains a programme is selected, the programme will be replaced with the new programme content.
- Set the programmes so that their operating time ranges do not overlap.

OPERATION OF TIMER

■ Playing CD with timer

- 1 Perform the preparation steps 1 to 4 described on page 33.
- 2 Take out any tape and place a CD in the CD player.
- 3 Adjust the volume and tone.
- 4 Specify the execution of timer program.
Press the EXE. key.
- 5 Switch the power to STAND-BY.
Press the POWER key.
- 6 The TIMER REC Indicator should go off.

■ Playing tape(s) with timer

- 1 Perform the preparation steps 1 to 4 described on page 33.
- 2 Take out any CD and insert a tape in a cassette deck.
- 3 Adjust the volume and tone.
- 4 Specify the execution of timer program.
Press the EXE. key.
- 5 Switch the power to STAND-BY.
Press the POWER key.
- 6 The TIMER REC Indicator should go off.

To continue CD/tape playback after the power has been turned ON by the timer

Press the EXE. key before the OFF time comes so that the program number display is extinguished.

■ Checking the programme contents

To check the contents of programme 1

Press the PROGRAM 1 key.

To check the contents of programme 2

Press the PROGRAM 2 key.

- If scrolling is specified while the programme number is blinking, the display will return to the previous condition.
- The programme contents are displayed for about 5 seconds per track, then the display returns to the previous condition.

■ Cancelling the programme execution

Press the EXE. key.

The programme number which is not to be executed should be turned off.

- The programme contents are not cleared even when the execution is cancelled.

To activate the equipment with timer operation again

As the programmes are maintained in memory, check their contents and perform the procedures from "Select the programme to be executed." and on.

- ① Select the programme number to be executed by pressing the EXE. key.
- ② Adjust the volume and tone when receiving radio broadcasting or playing CD or tape.
- ③ Turn the power OFF.

■ Sleep timer

Remote control only

The sleep timer allows to turn the system power off after the specified period has elapsed. The period can be set up to 90 minutes in 10-minute steps. The sleep timer is applied in priority over the timer programme.

- 1 Turn the power ON.
Press the POWER key of the Amplifier.
- 2 Press the key until the desired period is displayed.
Press the SLEEP key once.

Each press increases the period by 10 minutes.

90 → 80 → 70 → ... → 20 → 10 → Cancelled

To cancel sleep timer

Press the SLEEP key until the sleep timer is canceled.

Press the POWER key to turn the power off (STAND-BY).

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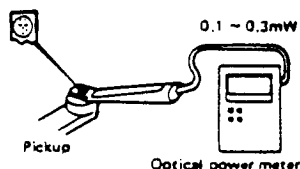
ADJUSTMENT

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. Turn the gear clockwise to move the pickup outwards by hand. Press the CHECK key to check that the LD emits light. Then, confirm that the display is "02".	-	On the power from 0.1 to 0.3mW, when the diffraction grating is correctly aligned with the RF level of 1.0Vp-p or more and the TE (servo open) level of 1.5Vp-p or more, the pickup is acceptable. (photo. 1 ~ 4)	(a)
2	VCO (NORMAL)	-	Connect a frequency counter to PLCK (TP9). (X32)	Press the STOP key, and confirm that the display is "01".	L2 (X32)	4.30MHz ± 20 kHz	(b)
3	TRACKING ERROR BALANCE	Test disc Type 4	Connect an oscilloscope as follows. CH1: RF (X32 CN6-1) CH2: TE (X32 CN6-6)	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 YR1 (X32)	Symmetry between upper and lower patterns. or DC=0 $\pm$ 0.05V (photo. 5)	(c)
4	FOCUS ERROR BALANCE	Test disc Type 4	Connect an oscilloscope as follows. CH1: RF (X32 CN6-1) CH2: TE (X32 CN6-6)	Press the PLAY key. Confirm that the display is "05".	FE BALANCE YR2 (X32)	Optimum eyepattern (photo. 6)	(d)
5	FOCUS GAIN	Test disc Type 4 Apply signal of 800Hz, 0.2Vrms to CN6 pin 2 and 3.	Connect an LPF to CN6 pin 2 and 3, to which connect an oscilloscope or two AC voltmeters. (X32)	Press the PLAY key. Confirm that the display is "05".	FOCUS GAIN YR3 (X32)	Two VTVMs should read the same value.	(e)
6	TRACKING GAIN	Test disc Type 4 Apply signal of 1kHz, 0.2Vrms to CN6 pin 5 and 6.	Connect an LPF to CN6 pin 5 and 6, to which connect an oscilloscope or two AC voltmeters. (X32)	Press the PLAY key. Confirm that the display is "05".	TRACKING GAIN YR4 (X32)	Two VTVMs should read the same value.	(e)

(Note) Type 4 disc: SONY YEDS-18 Test Disk or equivalent.

LPF: Around 47k Ω 390pF or so.

(a) Laser Power



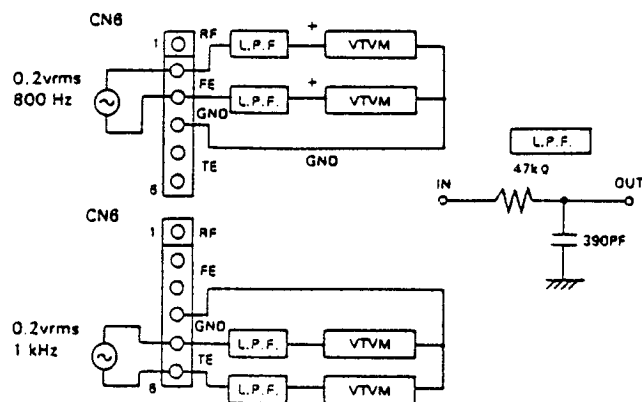
(e) Focus Gain, Tracking Gain

FOCUS GAIN

Two VTVMs should read the same value

TRACKING GAIN

Two VTVMs should read the same value



RÉGLAGE

N°	ITEM	REGLAGE D'ENTREE	REGLAGE DE SORTIE	REGLAGE DE LA LECTURE	POINT D'ALIGNEMENT	ALIGNEMENT POUR	FIG
1	PUISSANCE LASER	-	Appliquer la section détecteur du compteur de puissance optique sur la lentille du capteur.	Court-circuiter les broches TEST et fournir l'alimentation pour entrer en mode de test. Tourner la engrenage pour déplacer le détecteur vers l'extérieur à main. Presser la touche. CHECK pour vérifier que la diode émet de la lumière. S'assurer ensuite que l'affichage est " 02 ".	-	Sur l'alimentation de 0.1 à 0.3mV. quand le réseau de diffraction est correctement aligné avec le niveau RF de 1.0Vc-c ou plus et le niveau TE(servo ouvert)de 1.5vc-c ou plus. le détecteur est acceptable.	(a)
2	VCO (NORMAL)	-	Raccorder un compteur de fréquence à PLCK(TP9). (X32-)	Presser la touche STOP. S'assurer que l'affichage est " 01 ".	L2 (X32-)	4.30MHz ±20kHz	(b)
3	BALANCE D'ERREUR D'ALIGNEMENT	Disque test Type 4	Raccorder un oscilloscope comme suit. CH1: RF (X32-,CN6-1) CH2: TE (X32-,CN6-8)	Presser la touche REPEAT pour ouvrir le tiroir. Charger le tiroir en le poussant à la main. Presser ensuite la touche CHECK. S'assurer que l'affichage est "03".	TE BALANCE VR1 (X32-)	Symétrie entre les formes supérieure et inférieure ou DC=0±0.05V	(c)
4	BALANCE D'ERREUR DE MISE AU POINT	Disque test Type 4	Raccorder un oscilloscope comme suit. CH1: RF (X32-,CN6-1) CH2: TE (X32-,CN6-8)	Presser la touche PLAY. S'assurer que l'affichage est " 05 ".	FE BALANCE VR2 (X32-)	Forme optimum	(d)
5	GAIN DE MISE AU POINT	Disque test Type 4 Appliquer un signal de 800Hz, 0.2Vrms à CN6 broche 2-3. (X32-)	Connecter un filtre passe-bas à CN6 broche 2-3 et raccorder un oscilloscope ou un voltmètre CA. (X32-)	Presser la touche PLAY. S'assurer que l'affichage est " 05 ".	GAIN DE MISE AU POINT VR3 (X32-)	Deux voltmètres doivent indiquer la même valeur	(e)
6	GAIN D'ALIGNEMENT	Disque test Type 4 Appliquer un signal de 1.8kHz, 0.2Vrms à CN6 broche 5-8. (X32-)	Connecter un filtre passe-bas à CN6 broche 5-8 et raccorder un oscilloscope ou un voltmètre CA. (X32-)	Presser la touche PLAY. S'assurer que l'affichage est " 05 ".	GAIN DE MISE AU POINT VR4 (X32-)	Deux voltmètres doivent indiquer la même valeur	(e)

(Remarque)Disque de type 4:Disque test SONY YEDS-18 ou équivalent.

Filtre passe-bas:environ 47kΩ+390pF.

ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUN	AUSGANGS-EINSTELLUNGE	SPIELER-EINSTELLUNG	ABGLEICH-PUNKT	ABGLEICHUNG	ABB.
1	LASERLEISTUNG	-	Das Sensorteil des optischen Leistungsmeters auf die Aufnahme- linse ansetzen.	Die Stifte TEST kurz- schließen und die Spannungsversorgung einschalten, um den Testmodus zu aktivie- ren. Drehen getriebe, um den Abtaster nach außen zu bewegen v on hand. Die CHECK- Taste drücken, um zu prüfen, ob die LD Light abgibt. Dann sicherstellen, daß "02" angezeigt wird.	-	Bei der Leistung von 0.1 bis 0.3mW, wenn das beugungs- gitter richtig mit dem RF-Pegel von 1.0Vs-s oder mehr und dem TE- Pegel(Servo offen) von 1.5Vs-s oder mehr ausgerichtet ist, ist der Abtaster zugänglich.	(a)
2	VCO (NORMAL)	-	Einen Frequenzzähler an Stift PLCK(TP9) anschließen. (X32-)	Die STOP-Taste drücken und prüfen, daß " 01 " auf dem Display angezeigt wird.	L2 (X32-)	4.30MHz ± 20 kHz	(b)
3	SPURHALTEFEHLER- AUSGLEICH	Testdisc Typ 4	Ein Oszilloskop wie folgt anschließen: Kanal 1: RF (X32-.CN6-1) Kanal 2: TE (X32-.CN6-6)	Die REPEAT-Taste drücken, um den Träger zu öffnen. Eine Disc einlegen und den Träger mit der Hand schließen. Dann die CHECK-Taste drücken. Sicherstellen, das " 03 " angezeigt wird.	TE BALANCE VR1 (X32-)	Symmetrie zwischen oberen und unteren Mustern oder Gleichstrom DC=0 $\pm$ 0.05V	(c)
4	FOKUS- FEHLERAUSGLEICH	Testdisc Typ 4	Ein Oszilloskop wie folgt anschließen: Kanal 1: RF (X32-.CN6-1) Kanal 2: TE (X32-.CN6-6)	Die PLAY-Taste drücken und sicherstellen, daß " 05 " angezeigt wird.	FOKUS- FEHLERAUSGLEICH VR2 (X32-)	Optimales Augenmuster	(d)
5	FOKUSVERSTÄRKUNG	Testdisc Typ 4 Ein Signal von 800Hz 0.2Vrms an CN6 Stift 2-3 anlegen. (X32-)	Ein Tiefpaßfilter an CN6 Stift 1-2 und an dieses ein Oszillo- skop oder Wechselstrom- Voltmeter anschließen. (X32-)	Die PLAY-Taste drücken und sicherstellen, daß " 05 " angezeigt wird.	FOKUSVERSTÄRKUNG VR3 (X32-)	Zwei VTVM müssen den gleichen Wert zeigen.	(e)
6	SPURHALTE- VERSTÄRKUNG	Testdisc Typ 4 Ein Signal von an 1.6kHz, 0.2Vrms an CN6 Stift 5-6 anlegen. (X32-)	Ein Tiefpaßfilter an CN6 Stift 5-6 und an dieses ein Oszillo- skop oder Wechselstrom- Voltmeter anschließen. (X32-)	Die PLAY-Taste drücken und sicherstellen, daß " 05 " angezeigt wird.	SPURHALTE- VERSTÄRKUNG VR4 (X32-)	Zwei VTVM müssen den gleichen Wert zeigen.	(e)

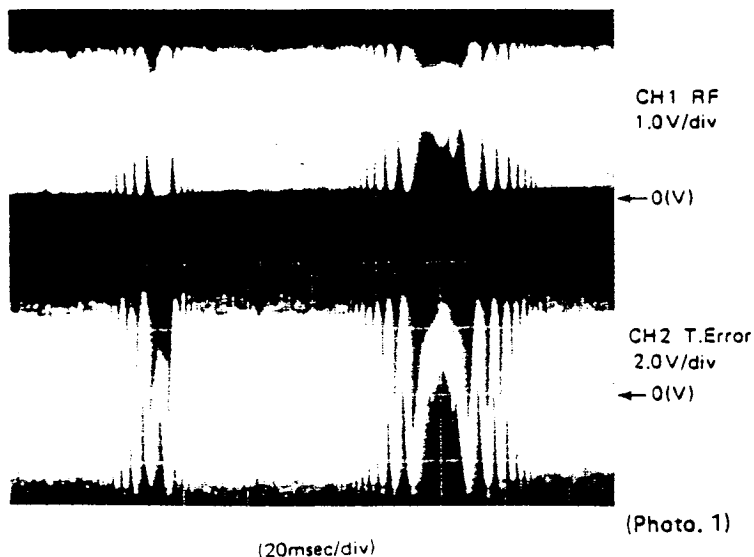
(Hinweis) Typ 4 Disc: SONY YEDS-18 Testdisc oder Äquivalent.
Tiefpaßfilter: ca. 47k Ω + 390pF oder ähnlich.

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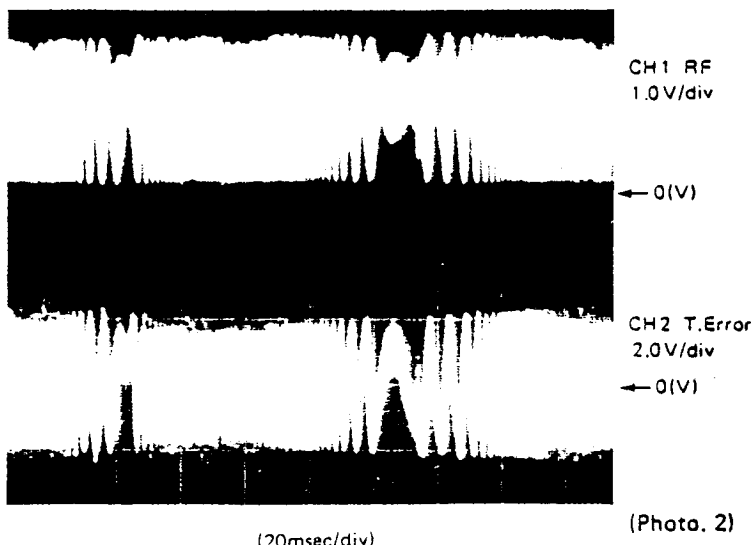
CD

ADJUSTMENT/ RÉGLAGE / ABGLEICH

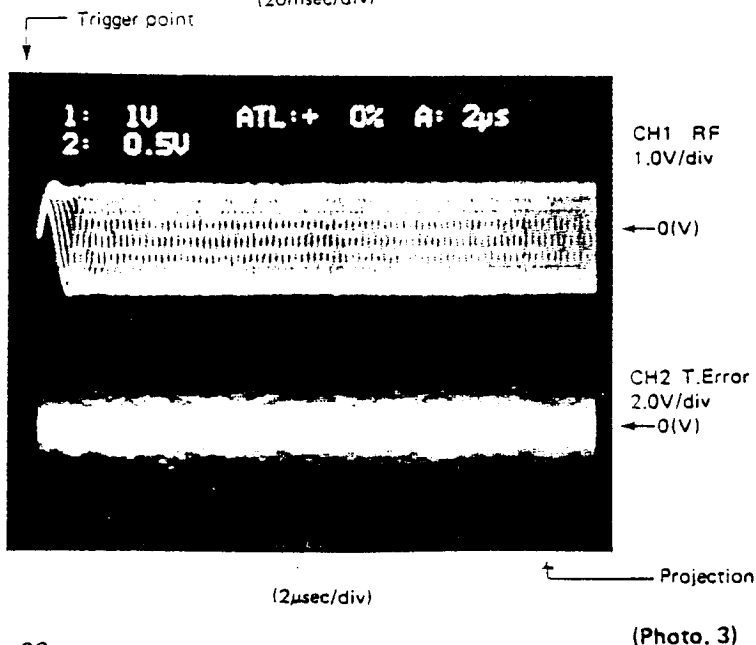
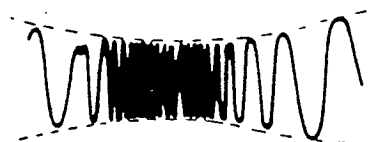
(a) DIFFRACTION GRID ADJUSTMENT



- RF signal and T.Error signal after diffraction grating adjustment.
- Signal RF et signal T.Error après ajustement de réseau de diffraction.
- RF-Signal und T.Error-Signal nach Diffraktions-gitter-Einstellung.

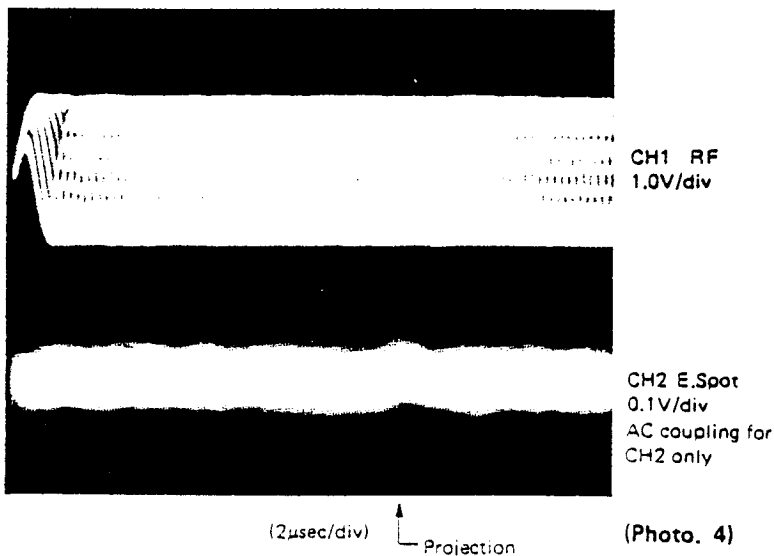


- RF signal and T.Error signal when there is small diffraction grating position error.
- The T.Error signal level is small, and the envelope is as shown in the diagram below.
- Signal RF et signal T.Error quand il y a une petite erreur de position du réseau de diffraction.
- Le niveau de signal T.Error est petit et l'enveloppe est telle qu'indiquée dans le diagramme ci-dessous.
- RF-Signal und T.Error-Signal bei kleinem Diffraktions-gitter-Positionierungsfehler.
- Der T.Error-Signal pegel ist klein, und die Hüll-kurve ist wie in der Abbildung unten.



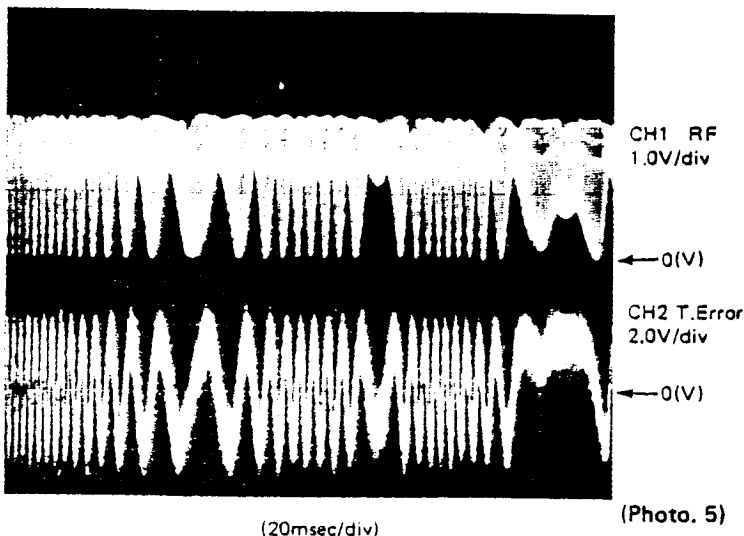
- RF signal and T.Error signal in test mode (with focusing ON).
- When the sub-beam tracks the same bit series as the main beam during diffraction grating adjustment, bringing the RF trigger point to the position shown in the Photo causes a 'projection' to be observed in the T.Error wave form.
- Le signal RF et le signal T.Error en mode de test (avec la mise au point sur ON).
- Quand un faisceau auxiliaire trace la même série de bits que le faisceau principal pendant l'ajustement de réseau de diffraction, l'apport du point de déclenchement RF à la position indiquée dans la photo provoque une "projection" qui s'observe dans la forme d'onde d' T.Error.
- RF-Signal und T.Error-Signal im Testmodus (bei eingeschalteter Fokussierung).
- Wenn der Nebenstrahl die gleiche Bitreihe wie der Hauptstrahl während der Diffraktionsgitter-Einstellung verfolgt und den RF-Triggerpunkt auf die im Foto gezeigte Position bringt, wird eine "Hervorstehung" verursacht, die in der T.Error-Wellenform beobachtet werden kann

ADJUSTMENT/ RÉGLAGE / ABGLEICH



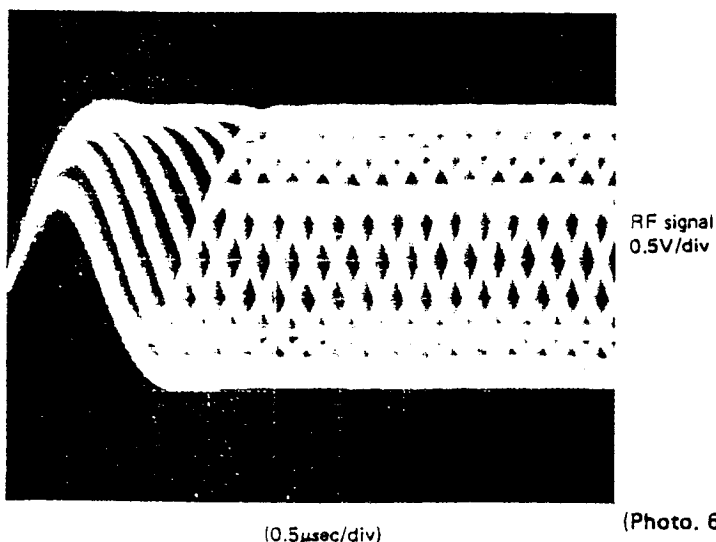
(Photo. 4)

- RF signal and E.Spot signal in test mode (PLAY).
- If the diffraction grating has been adjusted properly, the influence of triggering is observed on the E.Spot waveform of approx. 12µs after RF signal, in the form of a projection.
- Signal RF et signal E.Spot en mode de test (PLAY).
- Si le réseau de diffraction a été ajusté correctement, l'influence du déclenchement s'observe sur la forme d'onde E.Spot d'environ 12µs après le signal RF, sous la forme d'une projection.
- RF-Signal und E.Spot-Signal im Testmodus (PLAY).
- Wenn das Diffraktionsgitter richtig eingestellt wurde, wird der Einfluß des Triggers in der E.Spot-Wellenform etwa 12µs nach dem RF-Signal in der Form einer Hervorstehung beobachtet.



(Photo. 5)

- RF signal and T.Error signal; in test mode (Focusing ON). (Disc type 4)
- Adjust T.Error so that the waveform is symmetrical above and below 0V.
- Signal RF et signal T.Error; en mode test (mise au point ON). (Disque de type 4)
- Ajuster T.Error pour que la forme d'onde soit symétrique en-dessus et au-dessous de 0V.
- RF-Signal und T.Error-Signal; im Testmodus (Fokussierung eingeschaltet). (Disc Typ 4)
- T.Error so einstellen, daß die Wellenform über und unter 0V symmetrisch ist.



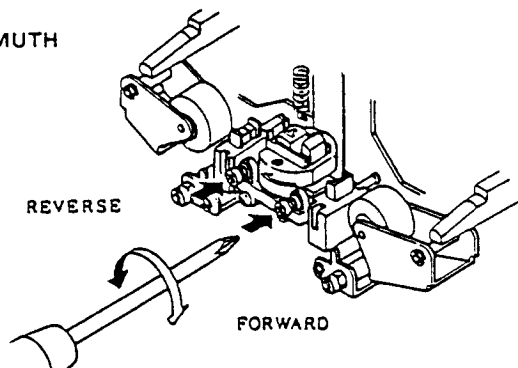
(Photo. 6)

- RF signal in test mode (PLAY).
- Perform the tangential and focusing offset adjustments so that each of the center cross points are focused into one point on the display. The crossing points above and below the center shall also be displayed clearly.
- Signal RF en mode de test (PLAY).
- Effectuer les ajustements d'offset tangentiel et de mise au point pour que chacun des points de croisement central soit mis au point sur un point de l'affichage. Les points de croisement au-dessus et en-dessous du centre doivent aussi être affichés clairement.
- RF-Signal im Testmodus (PLAY).
- Die Tangential und Fokusversatz-Einstellungen so durchführen daß jeder der mittleren Kreuzungspunkte in einem Punkt auf dem Display fokussiert wird. Auch die Kreuzungspunkte über und unter der Mitte müssen klar angezeigt werden.

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	CASSETTE TAPE DECK SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
CASSETTE DECK SECTION TAPE : NORMAL, DOLBY : OFF, INPUT : LINE 0dBs=0.775V							
I. REC / PLAY HEAD							
(1)	DEMAGNETIZATION	-	-	POWER : OFF Remove the cassette door.	REC / PLAY head	Demagnetize the REC / PLAY head with a head demagnetizer.	
(2)	CLEANING	-	-	PLAY	REC / PLAY head erase head, capstan, pinch roller.	Clean the REC / PLAY head erase head, capstan and pinch roller using a cotton swab slightly damped with alcohol.	
(3)	AZIMUTH	TCC-153, MTT-114 10kHz, -10dB	(B)	PLAY	Azimuth adjustment screw	Maximum output.	(f)
II. PC BOARD (X28-2422-70) Connect the power cord while pressing the selector [TAPE] key.							
(1)	TAPE SPEED (HI-SPEED)	TCC-110 MTT-111 3kHz	(B)	Pressed [FF] key.	DECK A : VR20 DECK B : VR22	Adjust the tape speed so that a 6kHz signal is produced at the center of the tape.	
(2)	TAPE SPEED (NORMAL)	TCC-110 MTT-111 3kHz	(B)	Pressed [FWD PLAY] key.	DECK A : VR19 DECK B : VR21	Adjust the tape speed so that a 3kHz signal is produced at the center of the tape.	
III. PC BOARD (X28-2422-70)							
< 1 >	PLAYBACK LEVEL	MTT-150, 400Hz	(B)	PLAY	DECK A : VR11 (L) DECK A : VR12 (R) DECK B : VR13 (L) DECK B : VR14 (R)	Output level : -6.0dBs	
		MTT-256, 315Hz				Output level : -9.0dBs	
		MTT-256U				Output level : -5.0dBs	
		TCC-160, 315Hz					
< 2 >	BIAS CURRENT	(E) 1kHz (-30dBs) 10kHz (-30dBs)	(B)	This system has a CRLS function. It cannot turn the electronic variable resistor up or down. So to adjust the REC level, hold down the CRLS control for more than three seconds, and set the electronic variable resistor to -15dB (initial value). Then, adjust the input level so that the REC monitor output is -29dBs.	VR17 (L) VR18 (R)	Record 1kHz and 10kHz in alternation and adjust the variable resistors which control the bias current so that the same playback level is obtained.	
< 3 >	RECORD LEVEL	(E) 1kHz, -10dBs	(B)	Record playback a 1kHz signal under the conditions set in < 2 >	VR15 (L) VR16 (R)	Adjust the variable resistors so that a playback level of -9dBs is obtained.	

(f) AZIMUTH



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RÉGLAGE

N°	ÉLÉMENT	RÉGLAGE D'ENTRÉE	RÉGLAGE DE SORTIE	REGLAGES PLATINE CASSETTE	POINT D'ALIGNEMENT	ALIGNEMENT POUR	FIG.
SECTION PLATINE CASSETTE BAND : NORMAL, DOLBY : HORS SERVICE, ENTREE : LIGNE							
I. TÊTE ENR / LEC							
[1]	DÉMAGNÉTISATION	-	-	ALIMENTATION : HORS CIRCUIT Déposer la porte de cassette.	Tête REC / PLAY	Démagnétiser la tête REC / PLAY avec un démagnétiseur de tête.	
[2]	NETTOYAGE	-	-	PLAY	Tête REC / PLAY tête d'effacement.	Nettoyer la tête REC / PLAY, la tête d'effacement, le cabestan et le galet-presseur avec un coton-tige légèrement imbibé d'alcool.	
[3]	AZIMUT	TCC-153, MTT-114 10kHz, -10dB	(B)	PLAY	Vis de réglage de l'azimut	Sortie maximum.	(f)
II. PLAQUETTE DE CIRCUITS (X28-2422-70) Brancher le cordon d'alimentation tout en appuyant sur la touche [TAPE] du sélecteur.							
[1]	VITESSE DE BANDE (GRANDE VITESSE)	TCC-110 MTT-111 3kHz	(B)	Presser la touche "FF"	PLANTINE A : VR20 PLANTINE B : VR22	Adjuster la vitesse de bande de sorte qu'un signal 6kHz soit produit au centre de la bande.	
[2]	VITESSE DE BANDE (NORMALE)	TCC-110 MTT-111 3kHz	(B)	Presser la touche "FWD PLAY"	PLANTINE A : VR19 PLANTINE B : VR21	Adjuster la vitesse de bande de sorte qu'un signal 3kHz soit produit au centre de la bande.	
III. PLAQUETTE DE CIRCUITS (X28-2422-70)							
<1>	NIVEAU DE REPRODUCTION	MTT-150, 400Hz	(B)	PLAY	PLANTINE A : VR11 (L) PLANTINE A : VR12 (R) PLANTINE B : VR13 (L) PLANTINE B : VR14 (R)	Niveau de sortie : -6.0dBs	
		MTT-256, 315Hz				Niveau de sortie : -9.0dBs	
		MTT-256U				Niveau de sortie : -5.0dBs	
		TCC-160, 315Hz					
<2>	COURANT DE POLARISATION	(E)	(B)	Ce système incorpore une fonction CRLS. Il ne peut pas augmenter ou diminuer la résistance variable électronique. Pour ajuster le niveau REC, maintenir la commande CRLS enfoncée pendant plus de trois secondes et régler la résistance variable électronique sur -15dB (valeur initiale). Puis, ajuster le niveau d'entrée de sorte que la sortie de contrôle REC soit de -29dB.	VR17 (L) VR18 (R)	Enregistrer alternativement 1kHz et 10kHz et ajuster les résistances variables qui contrôlent le courant de polarisation afin d'obtenir le même niveau de reproduction.	
<3>	NIVEAU D'ENREGISTREMENT	(E) 1kHz, -10dBs	(B)	Enregistrer et reproduire un signal 1kHz dans les conditions réglées en <2>.	VR15 (L) VR16 (R)	Ajuster les résistances variables afin qu'un niveau de reproduction de -9dB soit obtenu.	

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DECK

ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUN	AUSGANGS-EINSTELLUNGE	KASSETTENDECK-EINSTELLUNGEN	ABGLEICH PUNKT	ABGLEICHUNG	ABB.
KASSETTENDECK-ABSCHNITT BAND : NORMAL, DOLBY : AUSGESCHALTET, EINGANG : LINE							
I. REC / PLAY-KOPF							
[1]	ENTMAGNETISIERUNG	-	-	Netzschalter : AUS Kassettenfach-Tür entfernen	Den REC / PLAY-Kopf	Den REC / PLAY-Kopf mit einem Kopf Entmagnetisierer entmagnetisieren.	
[2]	REINIGEN	-	-	PLAY	REC / PLAY-Kopf, Löschkopf, Capstan, Andruckrolle.	REC / PLAY-Kopf Löschkopf, Capstan und Andruckrolle mit einem Watteestäbchen reinigen, das leicht mit Alkohol angefeuchtet ist.	
[3]	AZIMUT	TCC-153, MTT-114 10kHz, -10dB	(B)	PLAY	Azimut-Einstellschraube	Max. Leistung	(f)
II. LEITERPLATTE (X28-2422-70) Bei gedrückter TAPE-taste das Netzkabel anschließen.							
(1)	BANDLAUF- GESCHWINDIGKEIT (HI SPEED)	TCC-110 MTT-111 3kHz	(B)	Die "FF"-Taste drücken.	DECK A : VR20 DECK B : VR22	Die Bandlaufgeschwindigkeit so einstellen, daß ein 6-kHz-Signal in der Bandmitte erzeugt wird.	
(2)	BANDLAUF- GESCHWINDIGKEIT (NORMAL SPEED)	TCC-110 MTT-111 3kHz	(B)	Die "FWD PLAY"-Taste drücken.	DECK A : VR19 DECK B : VR21	Die Bandlaufgeschwindigkeit so einstellen, daß ein 3-kHz-Signal in der Bandmitte erzeugt wird.	
III. LEITERPLATTE (X28-2422-70)							
< 1 >	WIEDERGABEPEGEL	MTT-150, 400Hz	(B)	PLAY	DECK A : VR11 (L) DECK A : VR12 (R) DECK B : VR13 (L) DECK B : VR14 (R)	Ausgangspegel : -6.0dBs	
		MTT-256, 315Hz				Ausgangspegel : -9.0dBs	
		MTT-256U, TCC-160, 315kHz				Ausgangspegel : -5.0dBs	
< 2 >	VORMAGNETISIERUNGSSTROM	(E) MTT-111, 3kHz	(B)	Die CRLS-Funktion des Systems erlaubt keine Verstellung des elektronischen Potentiometers. Zur Aussteuerung des Aufnahmepegels den CRLS-Regler länger als drei Sekunden gedrückt halten, und das Potentiometer auf -15dB einstellen (Ausgangswert). Danach den Eingangspegel so aussteuern, daß der REC-Ausgang -29dBs beträgt.	DECK A : VR19 DECK B : VR21	Abwechselnd ein 1- und 10-kHz Signal aufnehmen und die Potentiometer für den Vormagnetisierungsstrom so einstellen, daß der gleiche Wiedergabepegel erhalten wird.	
< 3 >	AUFNAHMEPEGEL	(E)	(B)	Ein 1-kHz-Signal unter den in < 2 > festgelegten Bedingungen aufnehmen und wiedergeben.	VR15 (L) VR16 (R)	Die Potentiometer auf einen Wiedergabepegel von -9dBs einstellen.	

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
FM SECTION		SELECTOR: FM					
1	DISCRIMINATOR	(A) 98.0MHz 1kHz, ± 40 kHz dev 60dB μ (ANT input)	Connect a DC voltmeter between TP3 and TP4. (X28-)	AUTO or MONO 98.0MHz	L2 (X28-)	0V	(g)
2	DISTORTION (STEREO)	(C) 98.0MHz 1kHz, ± 40 kHz dev Pilot: ± 6 kHz dev 60dB μ (ANT input)	(B)	MONO 98.0MHz	IFT (V02-)	Minimum distortion	
3	SEPARATION	(C) 98.0MHz 1kHz, ± 40 kHz dev Pilot ± 6 kHz dev Selector: L or R 60dB μ (ANT input)	(B)	AUTO 98.0MHz	VR5 (X28-)	Minimum crosstalk	
4	TUNING LEVEL	(A) 98.0MHz 1kHz, ± 45 kHz dev 14dB μ (ANT input) 75%	(B)	AUTO or MONO 98.0MHz	VR1 (X28-)	Adjust VR1 and stop at the point where [X14] ED1 (TUNED) goes on.	
AM (MW) SELECTION		SELECTOR: AM(MW)					
(1)	TUNING LEVEL	(D) 1008kHz 400Hz, 30% mod 26dB μ (ANT input)	(B)	1008kHz	VR3 (X28-)	Adjust VR3 and stop at the point where [X14] ED1 (TUNED) goes on.	

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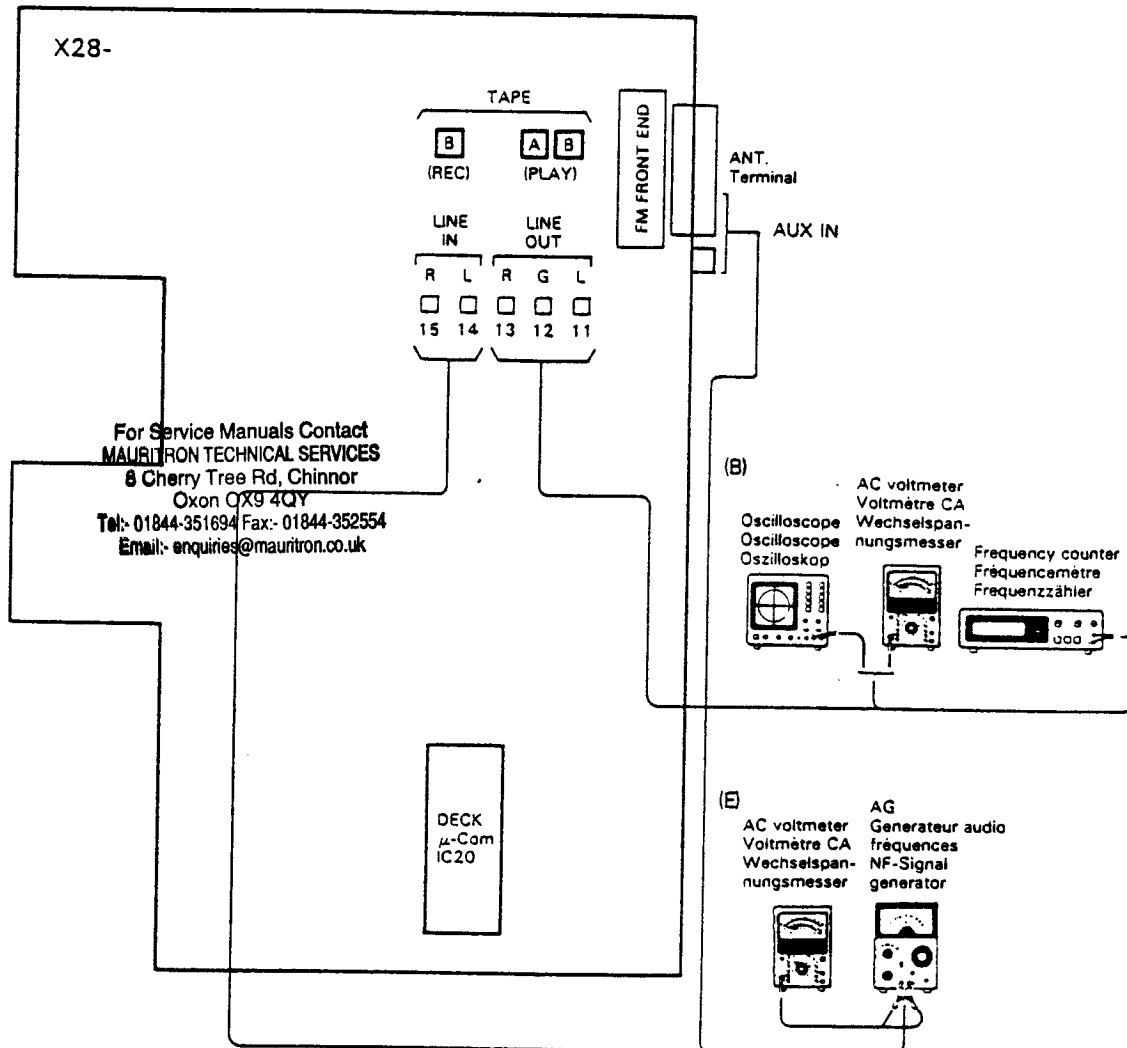
RÉGLAGE / ABGLEICH

N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU TUNER	POINT DE L'ALIGNEMENT	ALIGNER POUR	FIG.
SECTION MF		SELECTEUR : FM					
1	DISCRIMINATEUR	(A) 98.0MHz 1kHz.±40kHz dév 60dBμ(Entrée ANT)	Relier un voltmètre CC entre les TP3 et TP4.(X28-)	AUTO ou MONO 98.0MHz	L2 (X28-)	0V	(g)
2	DISTORTION (STEREO)	(C) 98.0MHz 1kHz.±40kHz dév Pilote:±6kHz dév 60dBμ(Entrée ANT)	(B)	MONO 98.0MHz	IFT (Y02-)	Distorsion minimale.	
3	SEPARATION	(C) 98.0MHz 1kHz.±40kHz dév Pilote:±6kHz dév Sélecteur:L ou R 60dBμ(Entrée ANT)	(B)	AUTO 98.0MHz	VR5 (X28-)	Diaphonie minimale.	
4	NIVEAU D'ACCORDER	(A) 98.0MHz 1kHz.±45kHz dév 14dBμ(Entrée ANT) 75Ω	(B)	AUTO ou MONO 98.0MHz	VR1 (X28-)	Ajuster VR1 et arrêter le mouvement de VR1 au moment où le ED1(TUNED)s'allume.	
SECTION MA		SELECTEUR : AM(MW)					
(1)	NIVEAU D'ACCORDER	(D) 1008kHz 400Hz.30% mod. 26dBμ(Entrée ANT)	(B)	1008kHz	VR3 (X28-)	Ajuster VR3 et arrêter le mouvement de VR3 au moment où le ED1(TUNED)s'allume.	

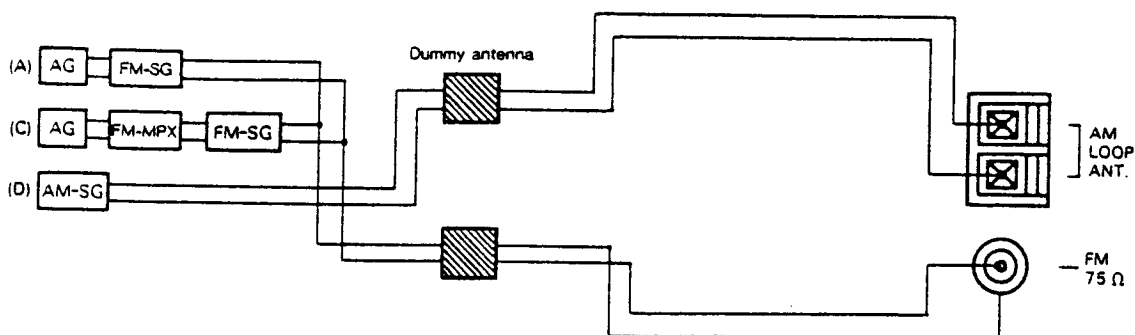
NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	TUNER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABG.
UKW-EMPFANGSABTEILUNG		WÄHLER: FM (X28-)					
1	DISKRIMINATOR	(A) 98.0MHz 1kHz.±40kHz Hub 60dBμ(ANT-Eingang)	Einen Gleichspannungs- messer zwischen TP3 und TP4 anschließen.	AUTO oder MONO 98.0MHz	L2 (X28-)	0V	(g)
2	KLIRRFAKTOR (STEREO)	(C) 98.0MHz 1kHz.±40kHz Hub Pilotten:±6kHz Hub 60dBμ(ANT-Eingang)	(B)	MONO 98.0MHz	IFT (Y02-)	Minimal Klirrfaktor.	
3	STEREO KANAL TRENUNG	(C) 98.0MHz 1kHz.±40kHz Hub Pilotten:±6kHz Hub Wahlschalter:L oder R.60dBμ(ANT-Eingang)	(B)	AUTO 98.0MHz	VR5 (X28-)	Minimal Klirrfaktor.	
4	ABSTIMM PEGEL	(A) 98.0MHz 1kHz.±45kHz Hub 14dBμ(ANT-Eingang) 75Ω	(B)	AUTO oder MONO 98.0MHz	VR1 (X28-)	Den Pegel wiederstand aufdrehen, und den VR1 Halt geben wobei den ED1(TUNED) anzeiger leuchtet wird.	
AM-EMPFANGSABTEILUNG		WÄHLER: AM(MW) (X28-)					
(1)	ABSTIMM PEGEL	(D) 1008kHz 400Hz.30% mod 26dBμ(ANT-Eingang)	(B)	1008kHz	VR3 (X28-)	Den Pegel wiederstand aufdrehen, und den VR3 Halt geben wobei den ED1(TUNED) anzeiger leuchtet wird.	

ADJUSTMENT / RÉGLAGE / ABGLEICH

FRONT ←



Connection



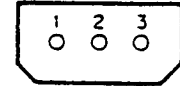
ADJUSTMENT

SERVICE POINT

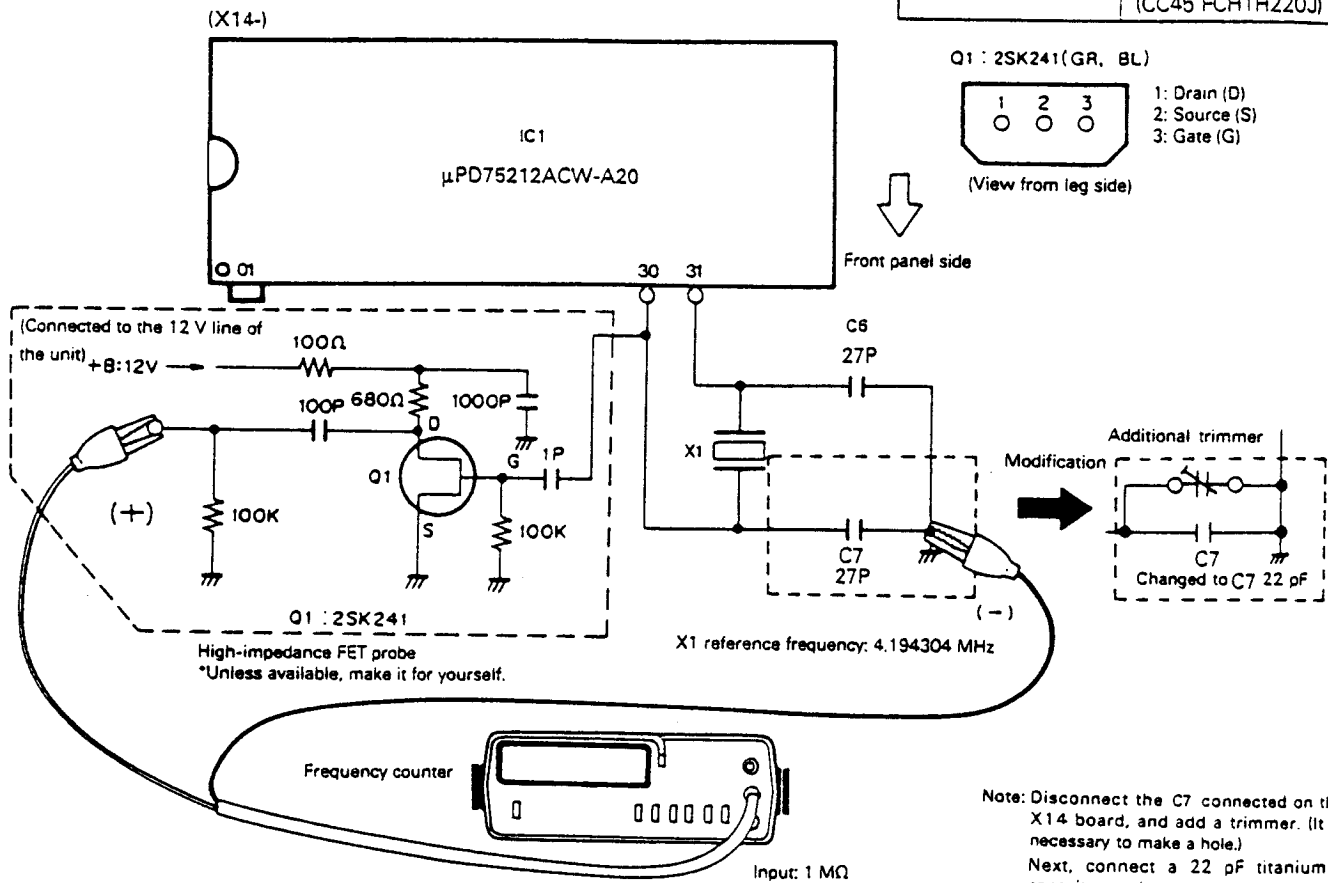
1. Timer accuracy improvement method:

Capacitance value of additional trimmer	C7 constant modification
20 pF (red), C05-0303-05	22 pF titanium capacitor (CC45 FCH1H220J)

Q1 : 2SK241 (GR, BL)



(View from leg side)



The timer accuracy is within ± 40 seconds for one month as a standard. For improved timer accuracy, perform the following procedure:

- (1) If the timer accuracy is without the standard, replace X1 (L77-1176-05) near the microprocessor IC on a printed board (X14-).
- (2) Even if within the standard, for further improved accuracy, change the constant of C7 in the crystal oscillation circuit of microprocessor IC1 and add a trimmer.

Adjustment method (Use a high-impedance buffer to avoid frequency deviation.)

Connect a high-accuracy frequency counter to pin 30 by way of the FET probe shown above, and adjust the frequency fully up to the first digit of the X1 reference frequency 4,194,304 Hz. (Connect the negative (—) side of the frequency counter to the GND side of C7.)

Notes: 1. As regards the positive (+) side of the frequency counter, arrange as short a distance as possible between pin 30 of IC1 and 1P of the input stage of the FET probe.

2. Perform the trimmer adjustment after energization of around 10 minutes at normal temperature.

- (3) Monthly error calculation method

For example, when the result of measurement at pin 30 by the frequency counter is $f_x = 4,194,275$ Hz...

$$\text{Monthly error [sec]} = \frac{f_x - f_0}{f_0} \times \text{the number of seconds taken for one month}$$

$$= \frac{4,194,275 - 4,194,304}{4,194,304}$$

$$\times (60 \times 60 \times 24 \times 30)$$

$$= -17.9 \text{ [sec]}$$

* A minus value as the monthly error means a loss.

RÉGLAGE / ABGLEICH

La précision standard de la minuterie est de ± 40 seconds pour un mois. Pour obtenir une précision améliorée de la minuterie, procéder comme suit.

- (1) Si la précision de la minuterie est de hors la valeur standard, remplacer X1 (L77-1176-05) près du micro-processeur sur la carte de circuits imprimés (X14-).
- (2) Même si elle est dans la limite de la valeur standard, pour améliorer davantage la précision, modifier la constante de C7 dans le circuit résonnant du micro-processeur IC1 et ajouter un trimmer.

Méthode de réglage (Utiliser un tampon de haute impédance pour éviter une variation de fréquence.)

Connecter un compteur de fréquences de haute précision à la broche 30 à l'aide de la sonde FET illustrée ci-dessus et ajuster la fréquence complètement jusqu'au premier chiffre de la fréquence de référence X1 de 4,194,304Hz (Connecter le côté négatif [-] du compteur de fréquences à la masse [GND] de C7).

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Die übliche Genauigkeit der Schaltuhr liegt bei ± 40 Sekunden im Monat. Führen Sie zur Verbesserung der Genauigkeit die folgenden Arbeiten durch.

- (1) Liegt die Genauigkeit außerhalb der üblichen Werte, so ersetzen Sie X1 (L77-1176-05) nahe dem IC Mikroprozessors auf der Platine (X14-).
- (2) Zur Verbesserung der Genauigkeit, auch wenn diese im üblichen Rahmen liegt, tauschen Sie den Festwiderstand C7 im Schaltkreis des Quarzoszillators des Mikroprozessors IC1 gegen einen Trimmer aus.

Justier-Methode (Zur Verhinderung von Frequenzänderungen sollten Sie Puffer mit großer Impedanz verwenden.)

Verbinden Sie einen Frequenzzähler mit hoher Genauigkeit mit Pin 30 mittels des oben gezeigten FET-Sensors und regeln Sie dann die Frequenz bis zur letzten Stelle genau entsprechend der Referenzfrequenz von 4,194,304Hz von X1 ein (Verbinden Sie den negativen Eingang [-] des Frequenzzählers mit der Masse [GND] von C7).

Remarque

1. En ce qui concerne le côté positif [+] du compteur de fréquences, régler la distance entre la broche 30 du circuit intégré IC1 et 1P de l'étage d'entrée de la sonde FET.
2. Effectuer le réglage du trimmer après une activation de 10 minutes environ à température ambiante.

(3) Méthode de calcul d'erreur mensuelle

Par exemple, si le compteur de fréquences donne un résultat de mesure à la broche 30 de $f_x = 4,194,275\text{Hz}$...

(La fréquence de référence $f_o = 4,194,304\text{Hz}$)

L'erreur mensuelle (sec.)

$$= f_x - f_o / f_o \times \text{le nombre de secondes.}$$

Soit pour un mois

$$= 4,194,275 - 4,194,304 / 4,194,304 \times (60 \times 60 \times 24 \times 30) = -17,9 \text{ sec.}$$

- * Une valeur négale égale à l'erreur mensuelle signifie une perte.

Hinweis

1. Hinsichtlich des positiven [+] Eingangs des Frequenzzählers sollte die Verbindung zwischen dem Pin 30 des IC1 und 1P der Eingangsstufe des FET-Sensors so kurz wie möglich gehalten werden.
2. Führen Sie die Justierung des Trimmers etwa 10 Minuten nach dem Einschalten des Gerätes bei normalen Temperaturen durch.

(3) Methode zur Berechnung der monatlichen Abweichung Beispiel : Die Messung mit dem Frequenzzähler an Pin 30 ergibt den Wert $f_x = 4,194,275\text{...}$

(Hz bei einer Referenzfrequenz von $f_o = 4,194,304$)

Monatlicher Fehler (Sek)

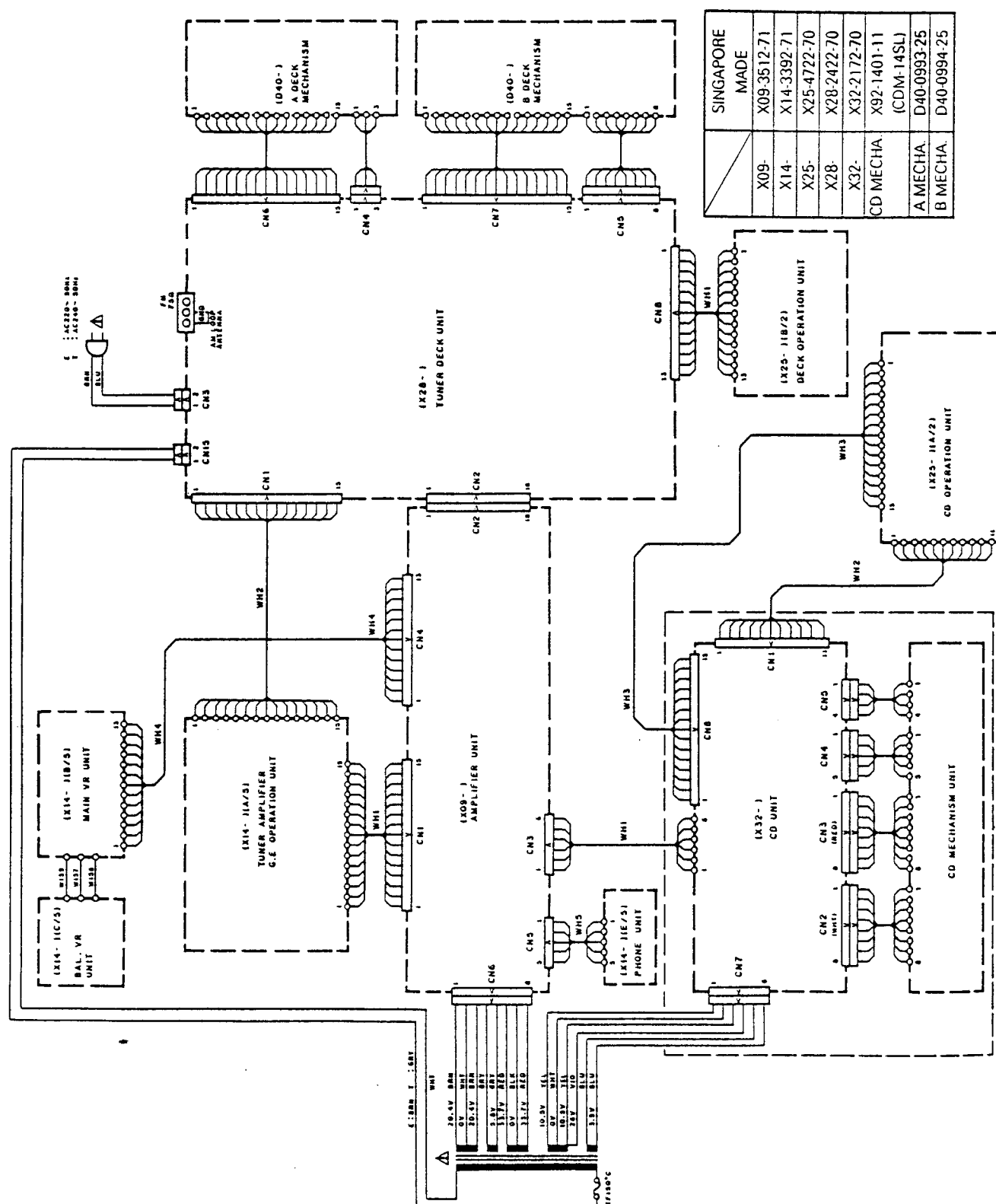
$$= f_x - f_o / f_o \times \text{Anzahl der Sekunden.}$$

Berechnung für einen Monat :

$$= 4,194,275 - 4,194,304 / 4,194,304 \times (60 \times 60 \times 24 \times 30) = 17,9 \text{ Sek.}$$

- * Ergibt die Berechnung der monatlichen Abweichung einen negativen Wert, so bedeutet dieses einen Verlust.

WIRING DIAGRAM

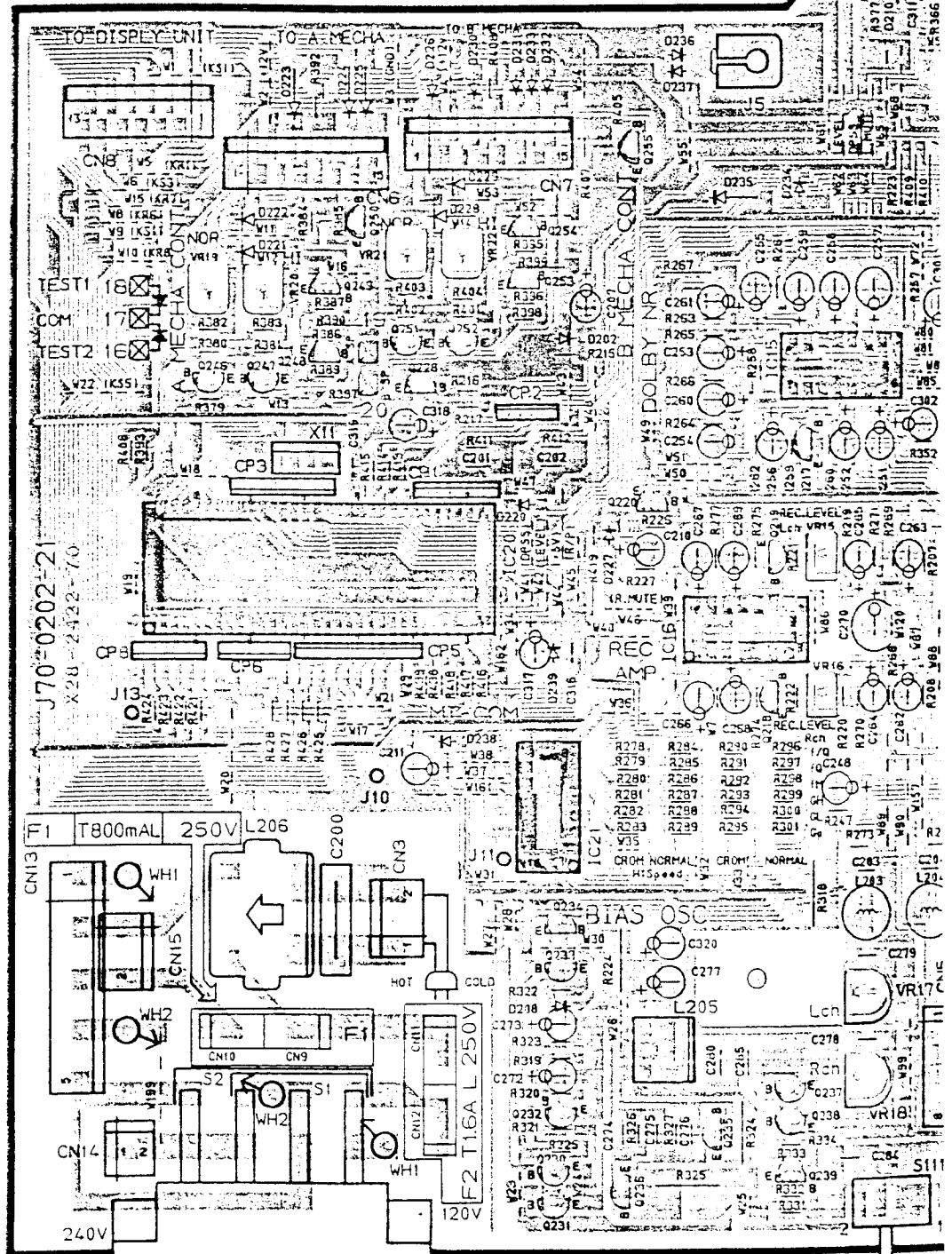


	SINGAPORE MADE
X09.	X09-3512-71
X14.	X14-3392-71
X25.	X25-4722-70
X28.	X28-2422-70
X32.	X32-2172-70
CCD MECHA.	X92-1401-11 (CDM-14SL)
A MECHA.	D40-0993-25
B MECHA.	D40-0994-25

PC BOARD (COMPONENT SIDE VIEW)

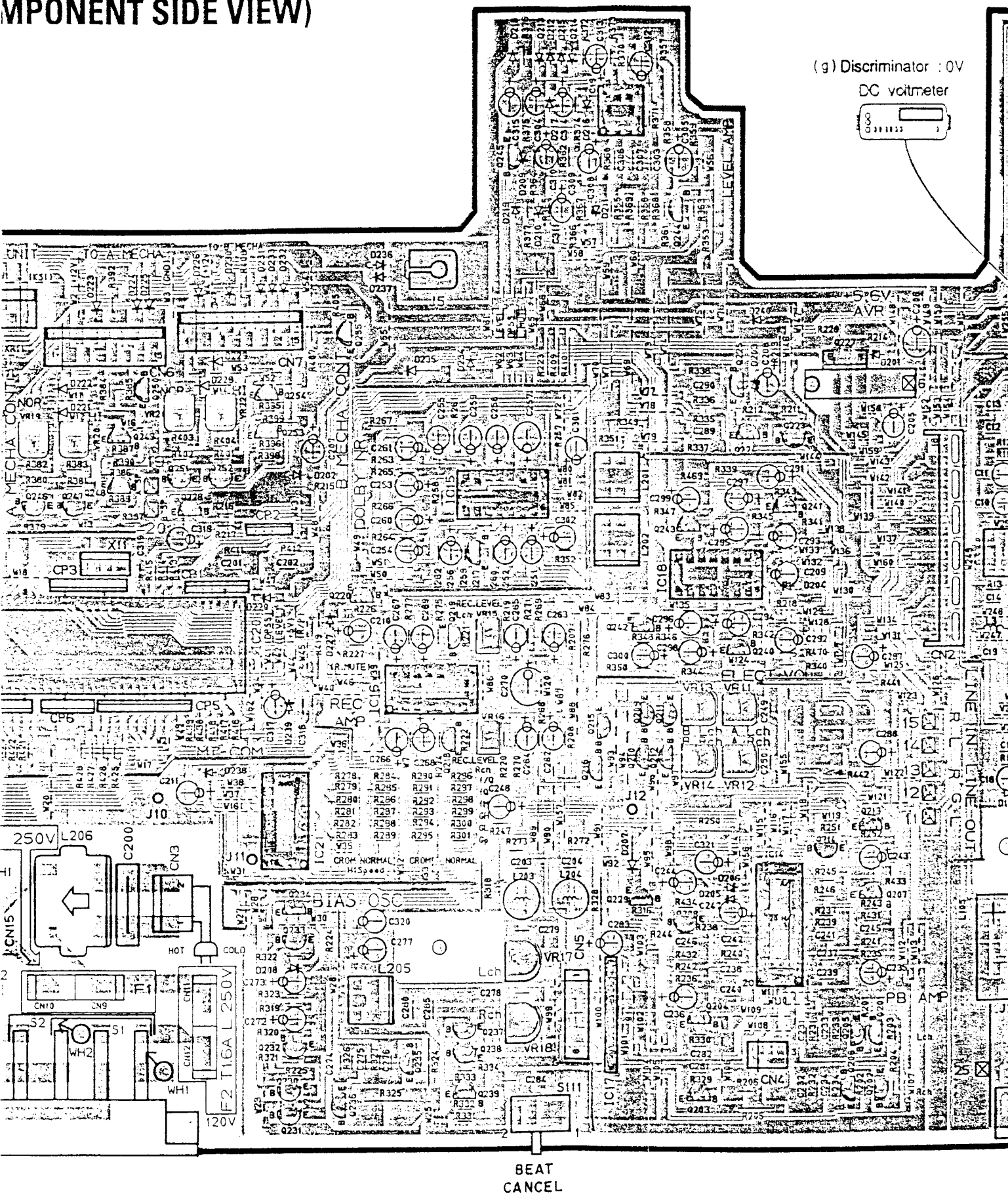
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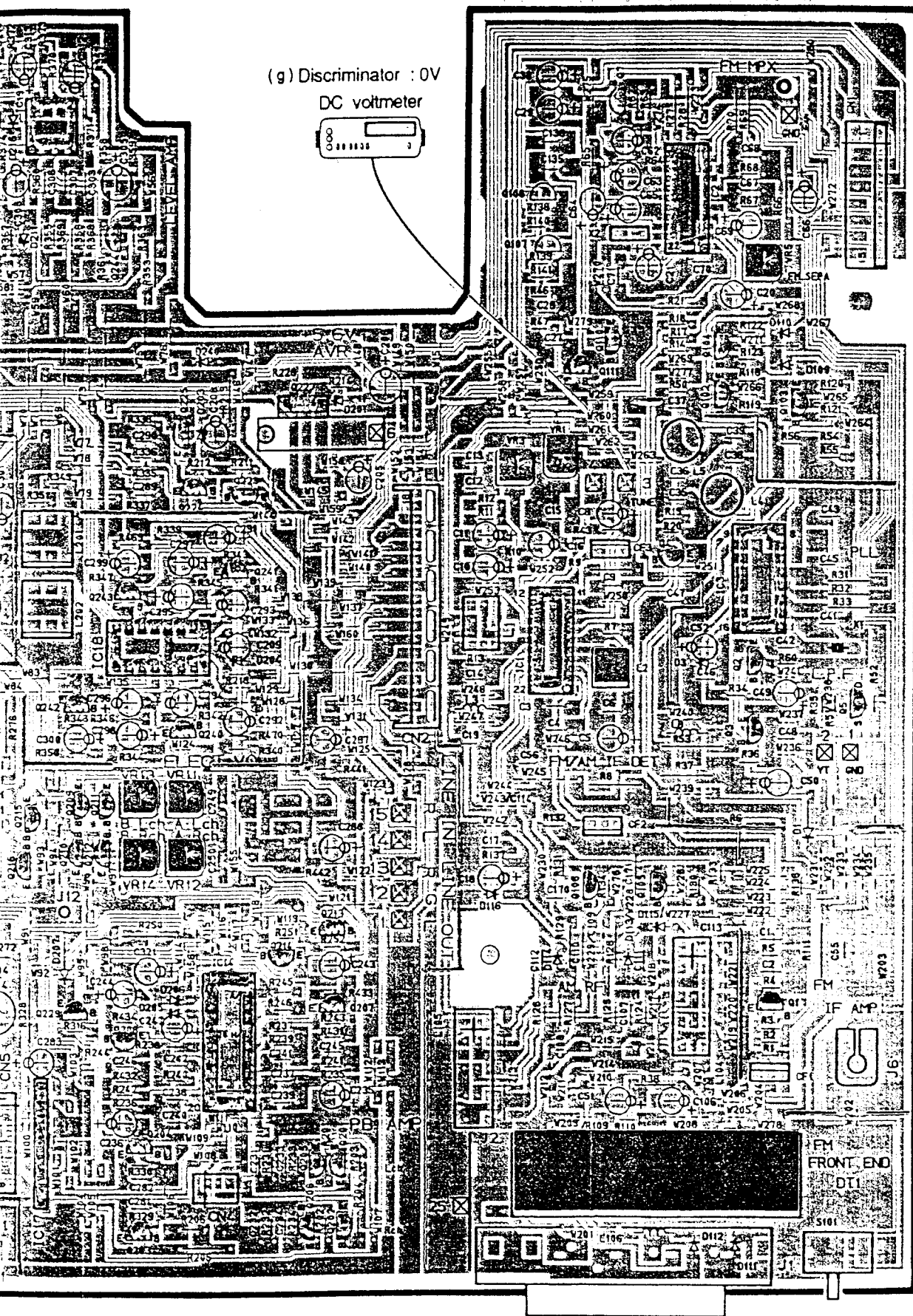
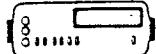
Refer to the schematic diagram for the values of resistors and capacitors.

COMPONENT SIDE VIEW)



m for the values of resistors and capacitors.

DC voltmeter

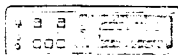


ANTENNA

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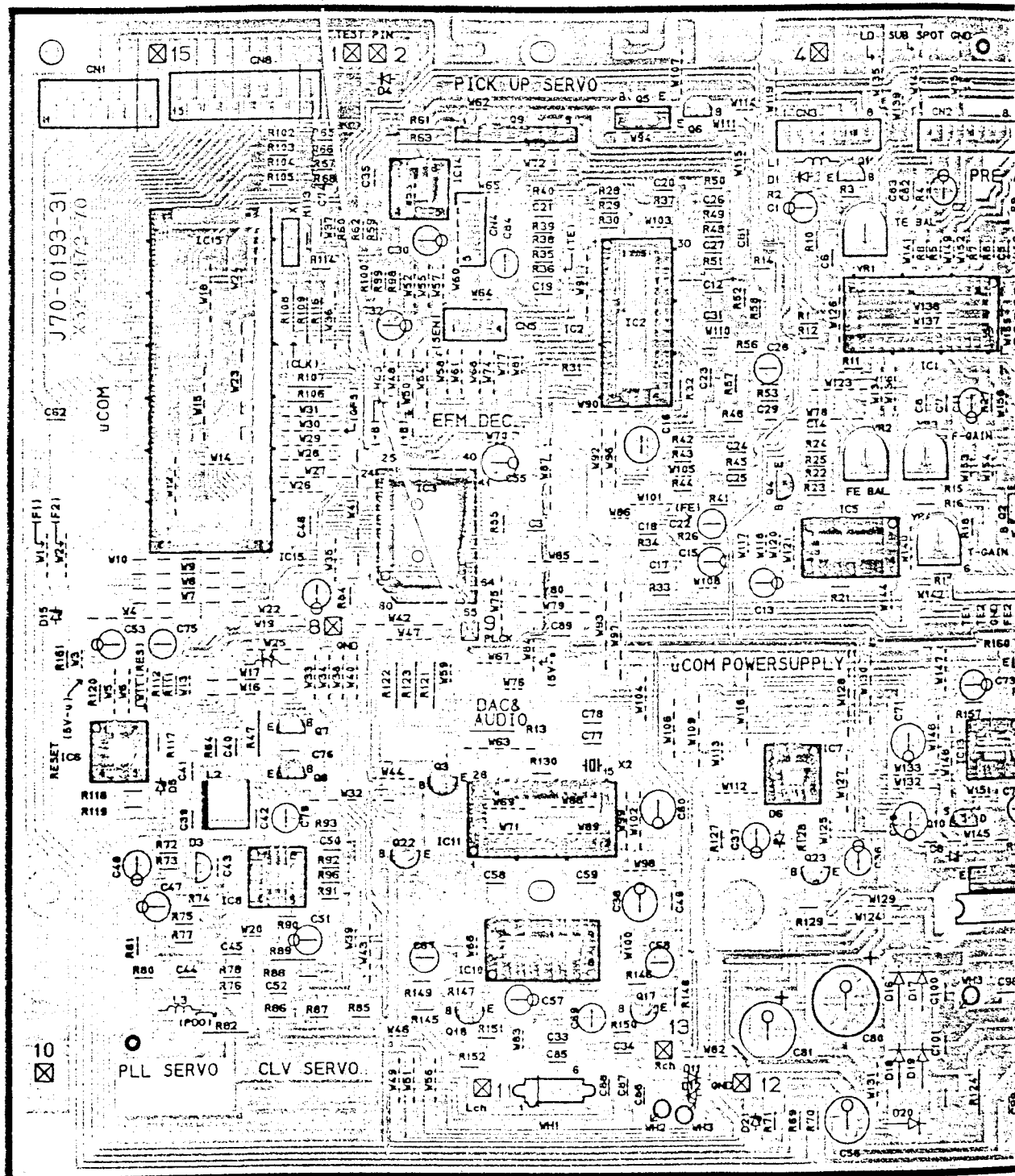
PC BOARD (COMPONENT SIDE VIEW)

(b) VCO : 4.30MHz $\pm$ 20kHz



Frequency counter

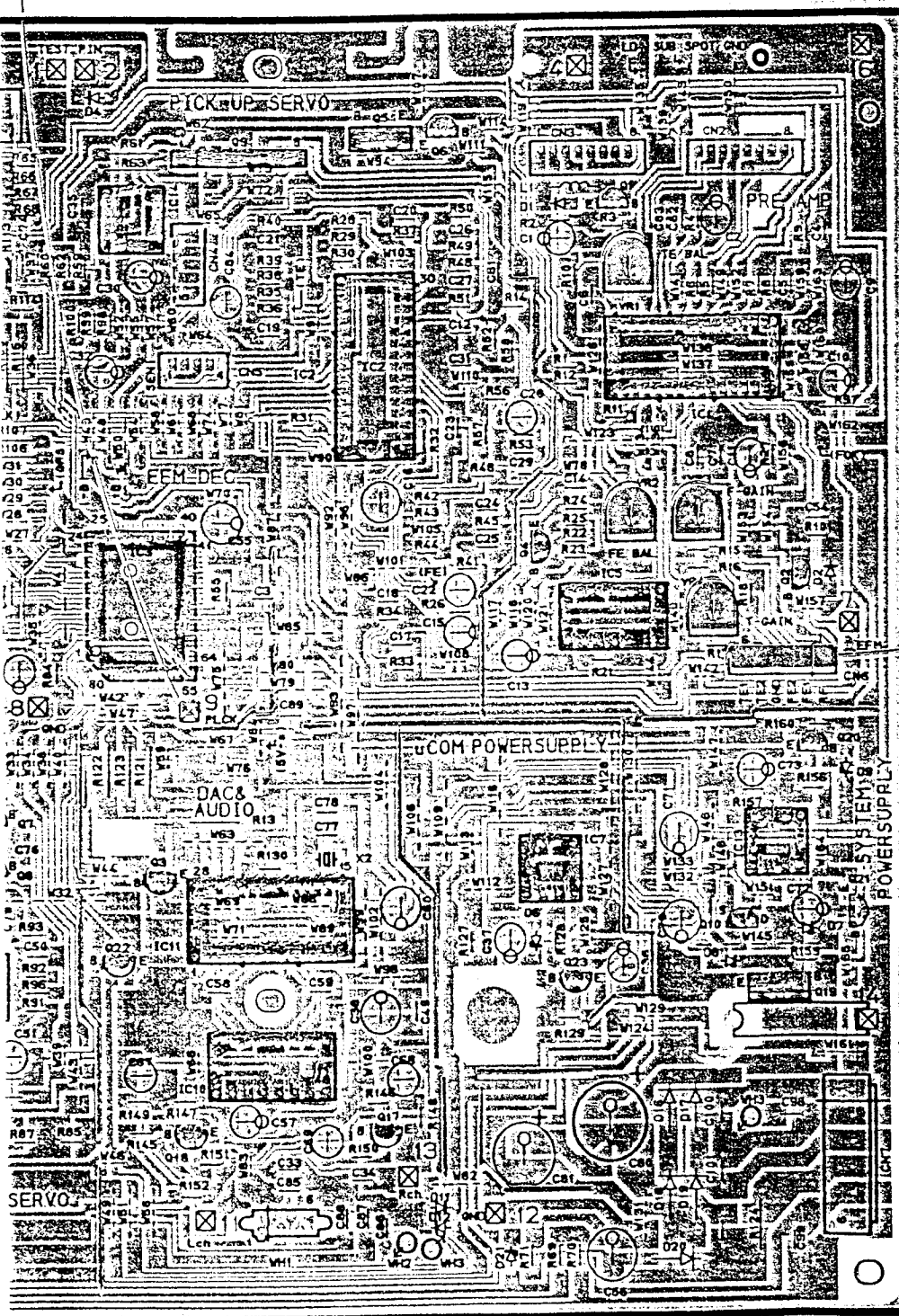
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PONENT SIDE VIEW)

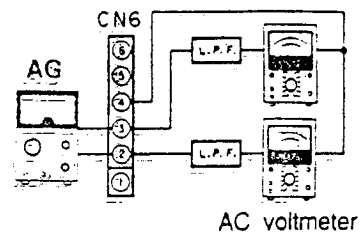
VCO : 4.30MHz $\pm$ 20kHz

Frequency counter

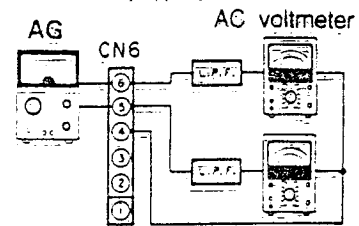


e values of resistors and capacitors.

- (e) Focus gain
: Two VTVMs should read the same value.

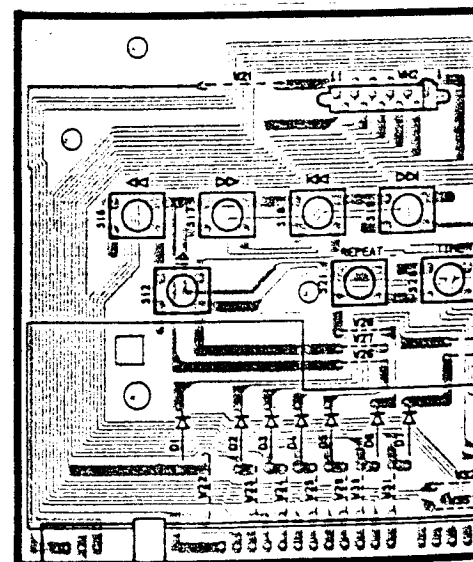
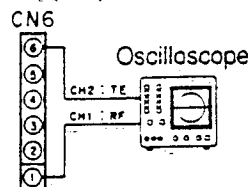


- (e) Tracking gain
: Two VTVMs should read the same value.

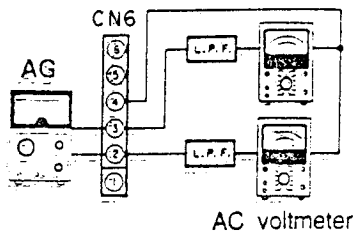


- (c) Tracking error balance
: Symmetry between upper and lower patterns, or DC=0 $\pm$ 0.05V

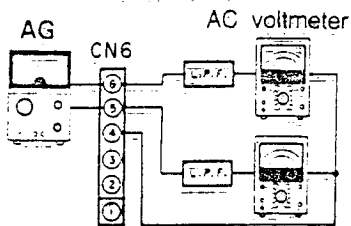
- (d) Focus error balance
: Optimum eye pattern



- (e) Focus gain
: Two VTVMs should read
the same value.

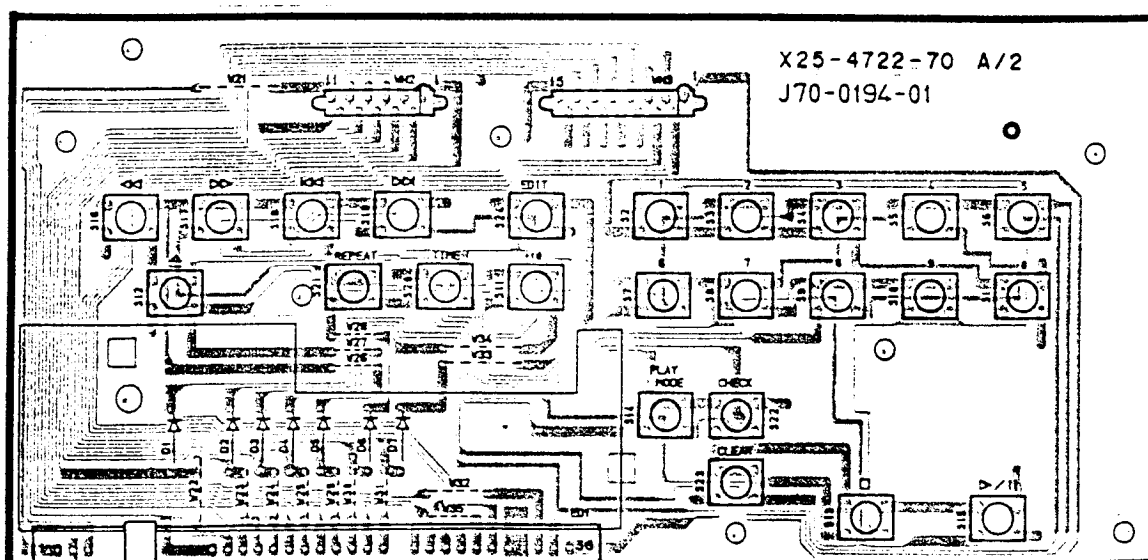
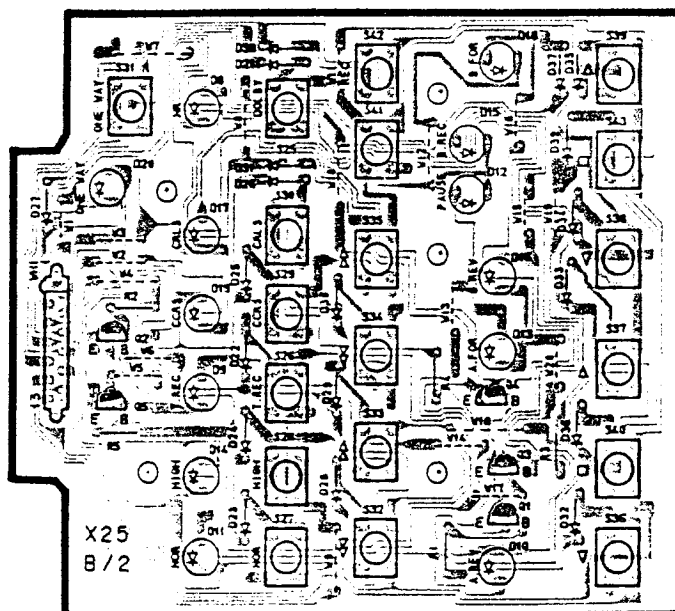
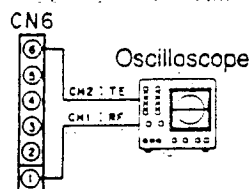


- (e) Tracking gain
: Two VTVMs should read
the same value.



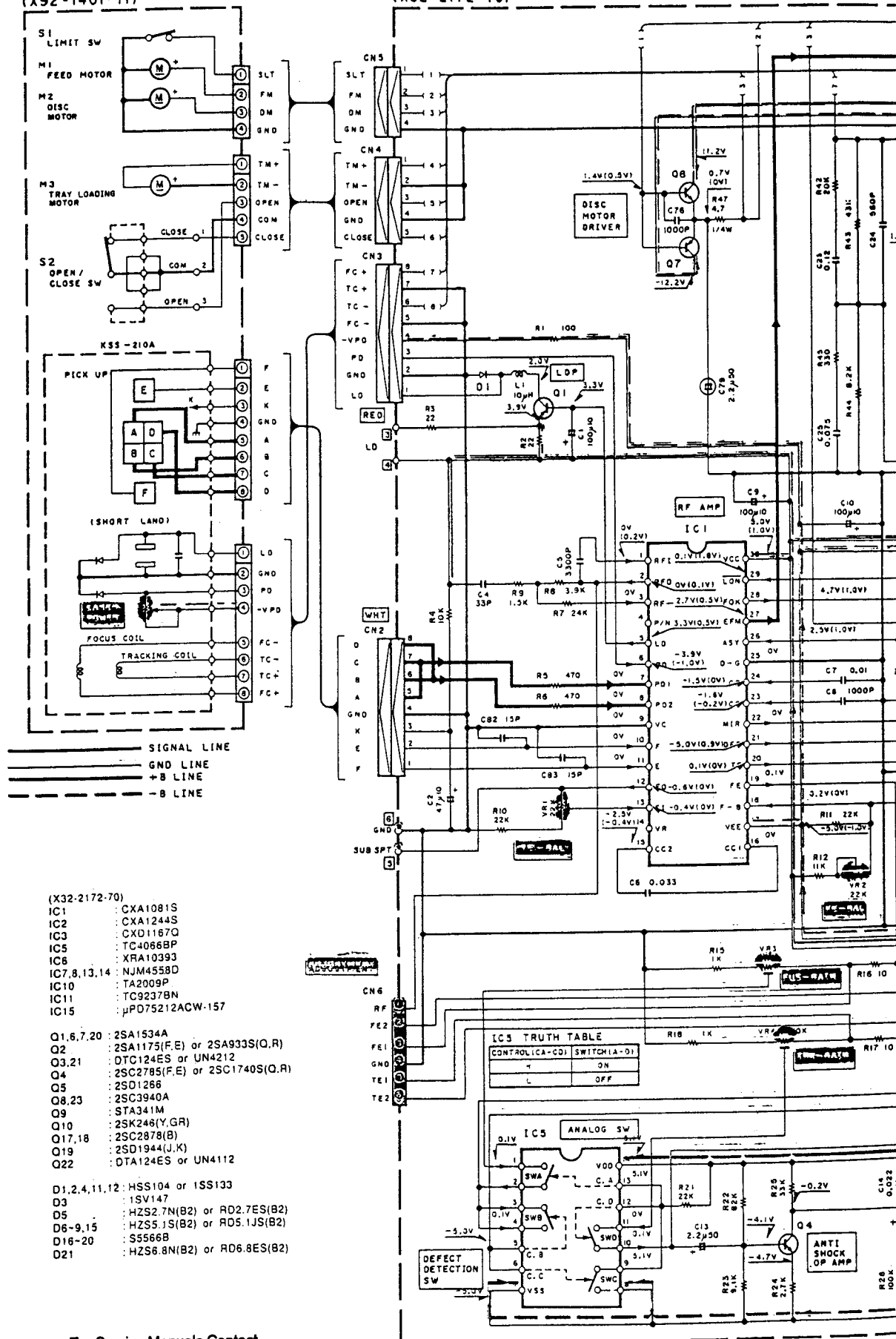
- (c) Tracking error balance
: Symmetry between upper
and lower patterns,
or $DC=0 \pm 0.05V$

- (d) Focus error balance
: Optimum eye pattern

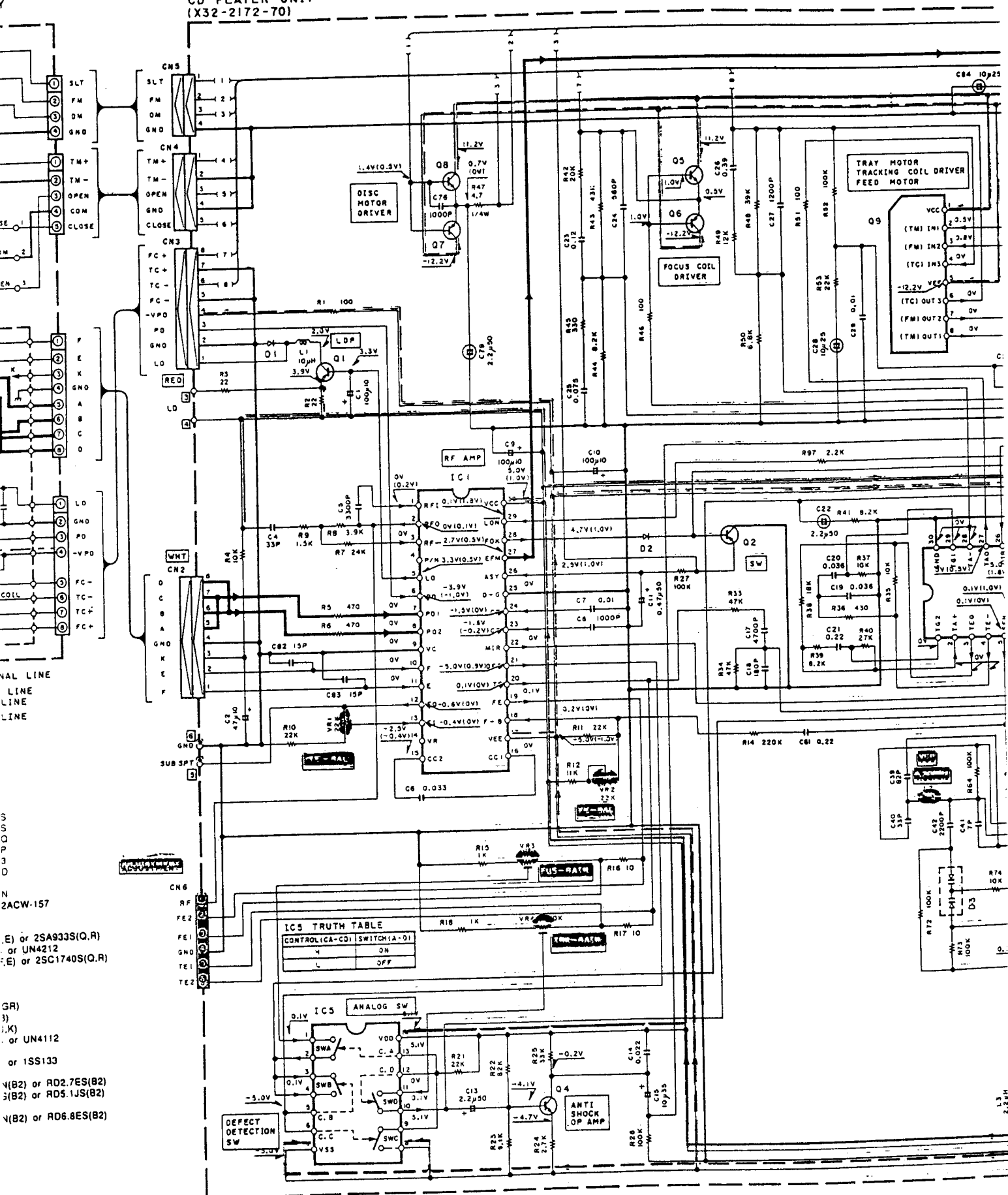


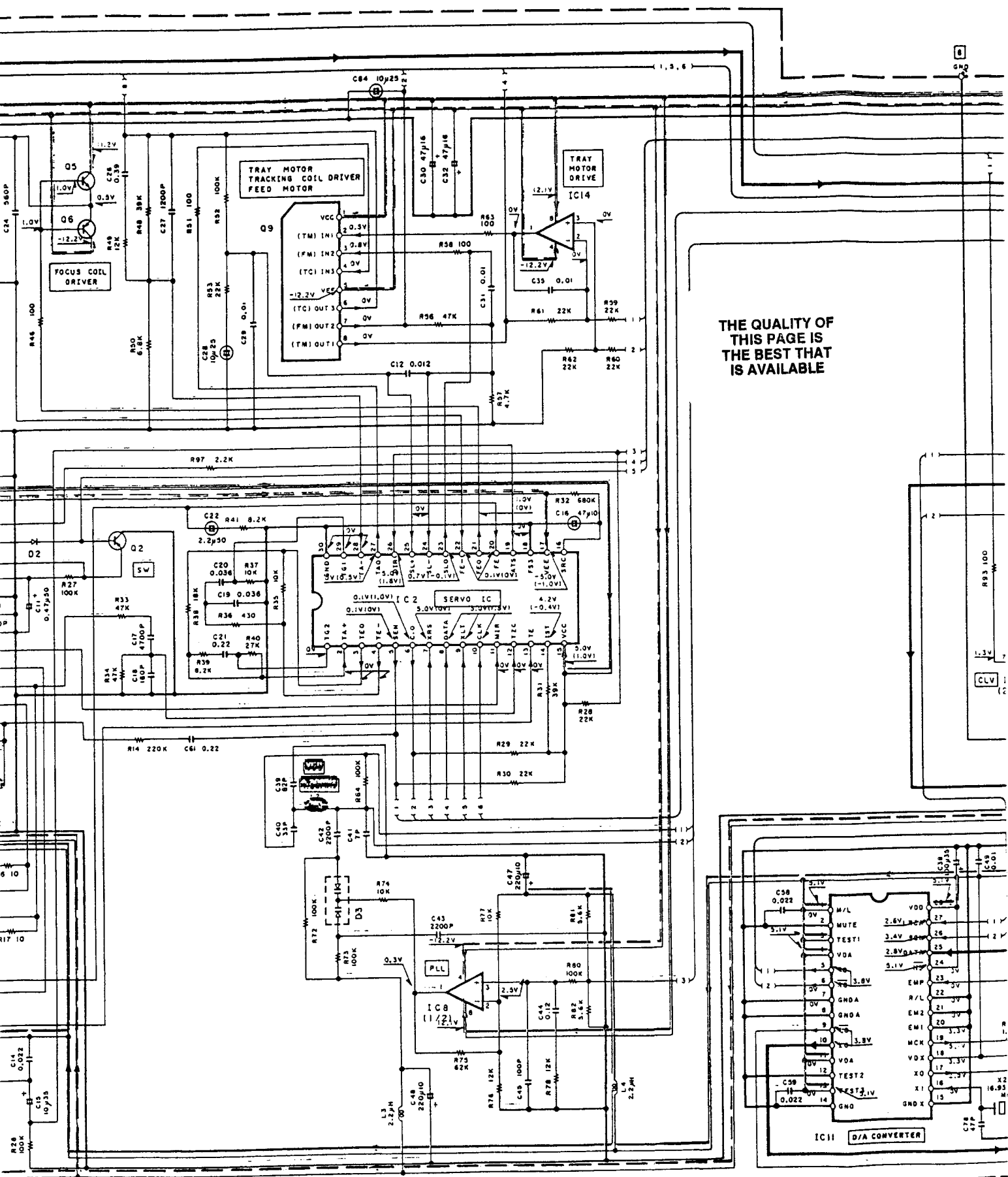
CD MECHANISM ASS'Y (X92-1401-11)

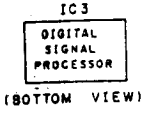
CD PLAYER UNIT (X32-2172-70)



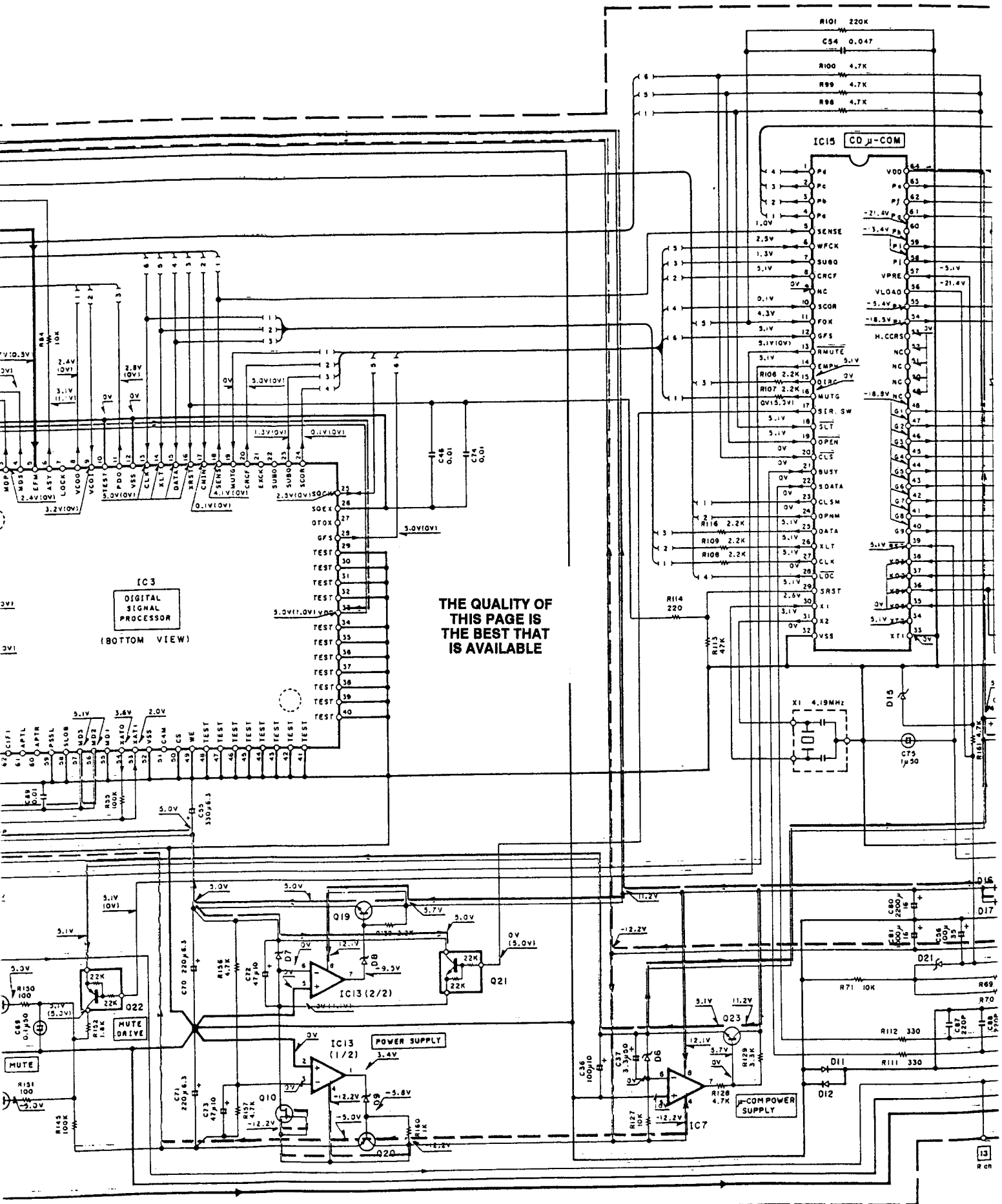
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- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between and/or units.
- Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer en raison des variations inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Werte aus Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.



er. Values may vary slightly due to variations between individual instruments

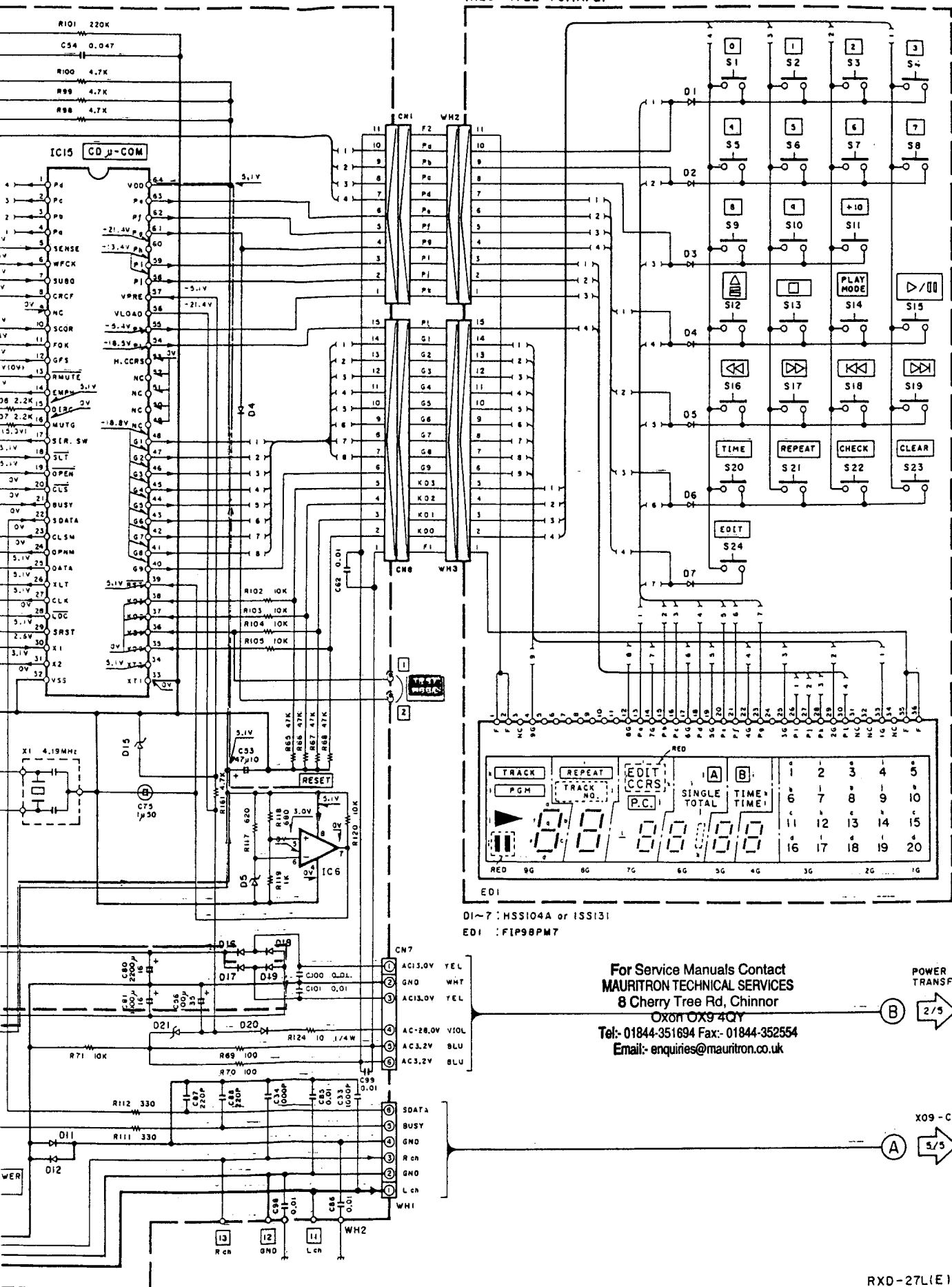
haute impédance. Les valeurs peuvent différer légèrement du fait des vari-
e individuelles.

hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund
geräten u. G. geringfügig.

CAUTION : For continued safety, replace safety critical components
list). ⚡ Indicates safety critical components. To reduce the risk of electric
out (exposed parts are acceptably insulated from the supply circuit) before

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OPERATION UNIT (CD SECTION)
(X25-4722-70)(A/2)



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POWER
TRANSFORMER

2/5

X09 - CN3

RXD-27L(E)(1/5)

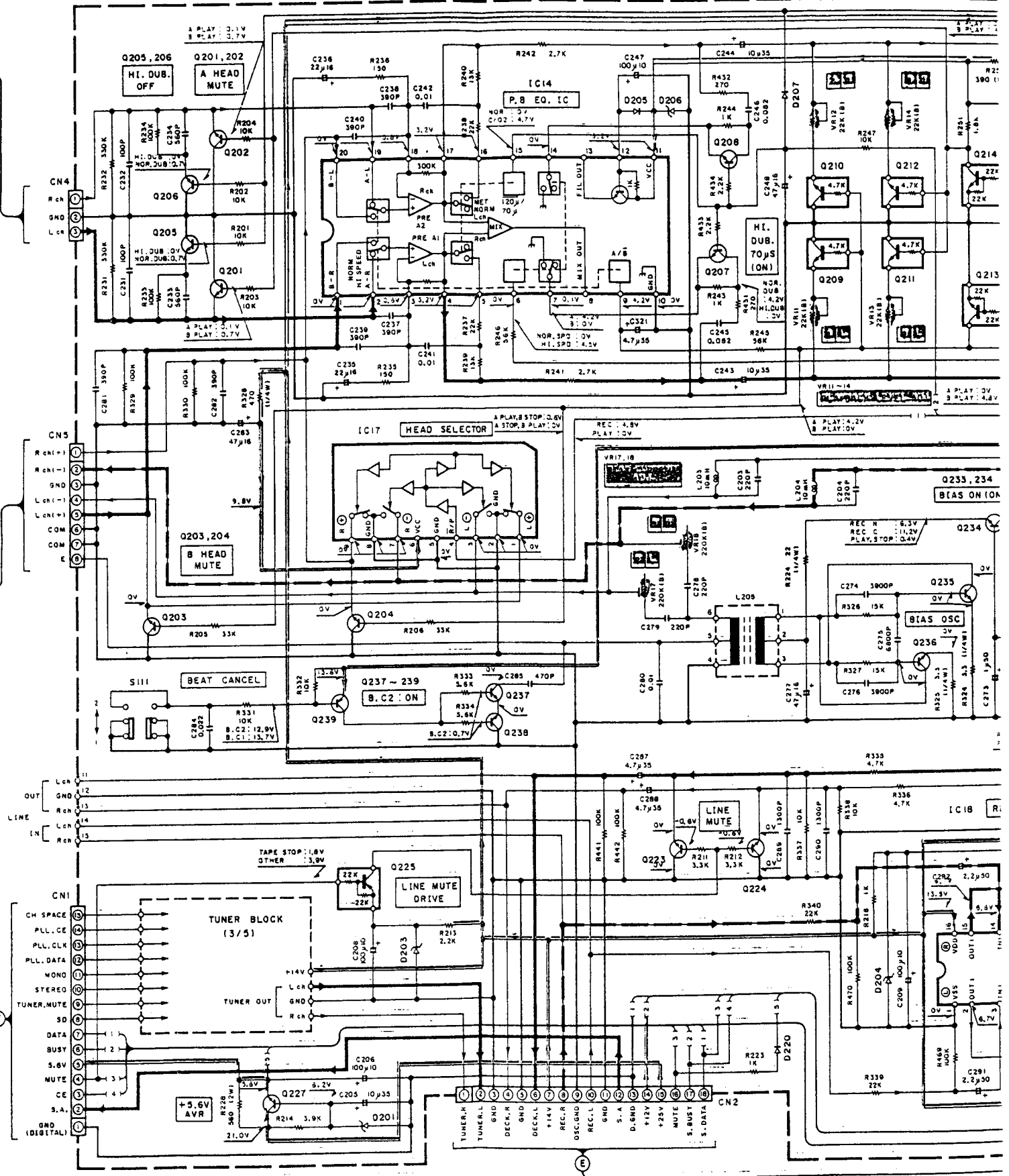
replace safety critical components only with manufacturer's recommended parts (refer to parts
ponents. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried
isolated from the supply circuit) before the appliance is returned to the customer.

Y09-4242-70

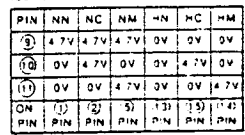
RXD-27L
KENWOOD



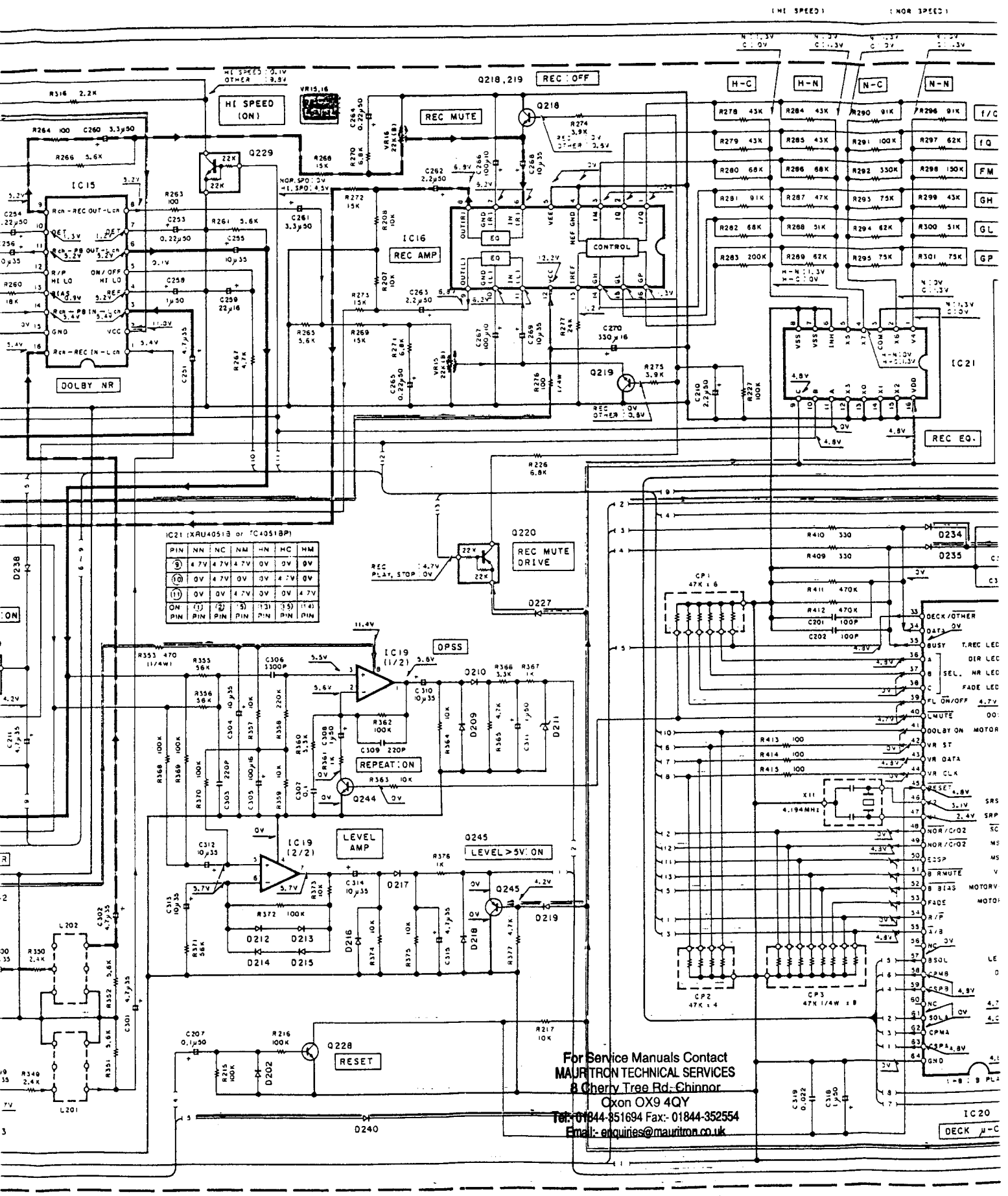
RECORD/PLAYBACK UNIT (X28-2422-70)

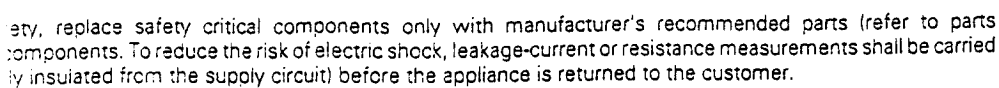


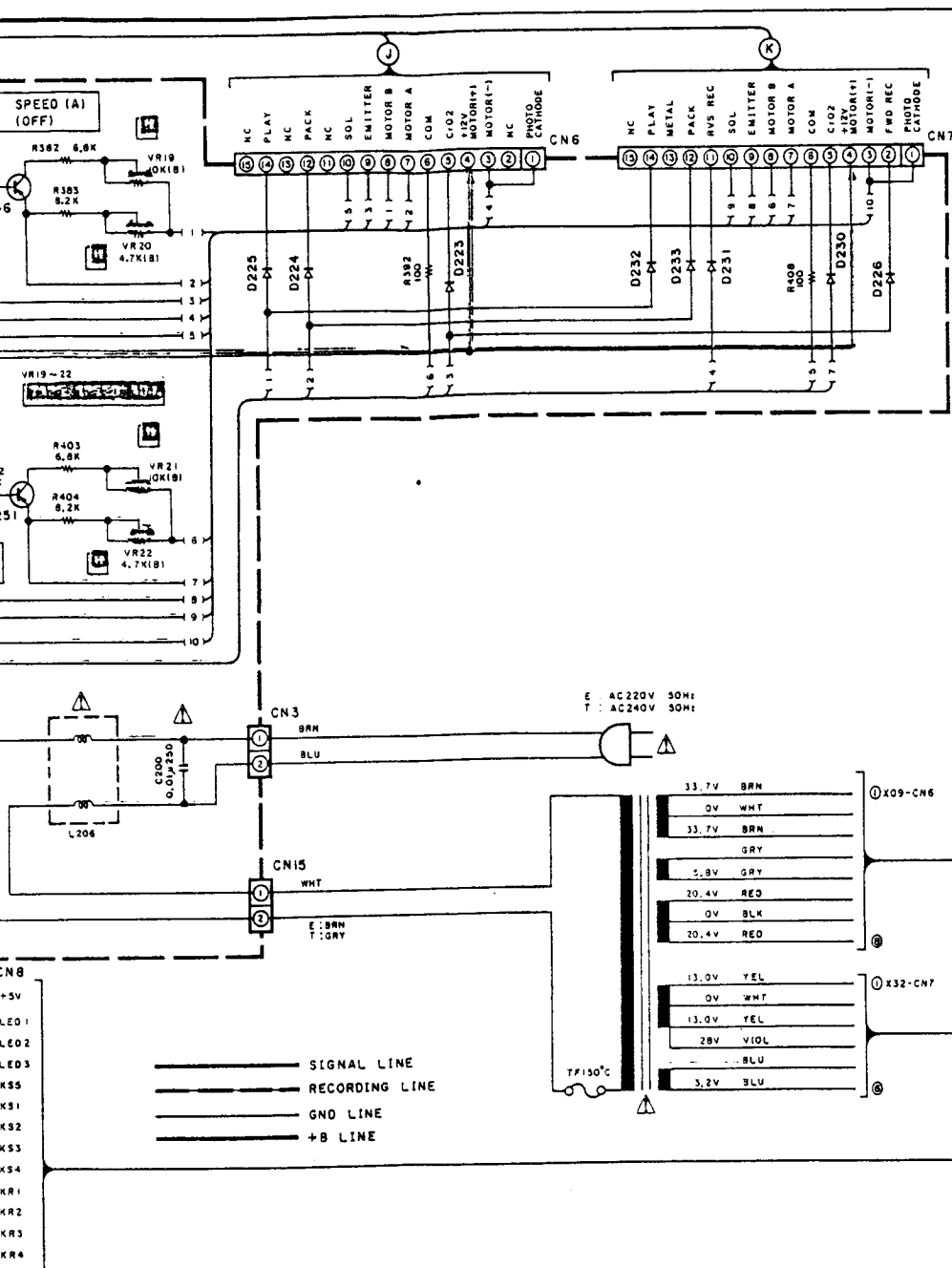
- DC voltages are as measured or/and units.
- Les tensions c.c. doivent être prises en compte.
- Die angegebenen Gleichspannungen sind zu berücksichtigen.



- 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.







(X28-2422-70)
 IC14 : LA3246
 IC15 : HA12136A
 IC16 : CXA1198AP
 IC17 : μ PC1330HA
 IC18 : TC9213P
 IC19 : NJM4565D
 IC20 : μ PD75112CW-149
 IC21 : XRU4051B or TC4051BP

Q201-208, 217, 223, 224, 228, 233, 235, 236,
 240-244, 250, 255 : 2SC1740S(Q,R)
 or 2SC2785(F,E)

Q209-212, 215, 216 : DTC143TS or RN1210
 Q213, 214, 229-232, 247, 252

Q218, 219 : DTC124ES or RN1203

Q220, 225 : 2SD1302(S,T)

Q227 : DTA124ES or RN2203

Q234 : 2SD1266(Q,P)

Q237, 238 : 2SC2003(L,K)

Q239 : 2SC1845(F,E)

Q245, 246, 251 : 2SA992(F,E)

Q248, 249, 253, 254 : 2SA933S(Q,R) or 2SA1175(F,E)

Q248, 249, 253, 254 : 2SC3246

D201 : HZS6.2N(B2) or RD6.2ES(B2)

D202, 205, 207-210, 212-220, 223-227, 230-240

: HSS104 or 1SS133

D203 : HZS3.9N(B2) or RD3.9ES(B2)

D204 : HZS6.8N(B2) or RD6.8ES(B2)

D206 : HZS8.2S(B2) or RD8.2JS(B2)

B211 : HZS5.1S(B2) or RD5.1JS(B2)

D221, 222, 228, 229 : S5688B or 1SR139-100

X09-CN6



X25-B/2-WH1



X09-CN2



X14-A/5



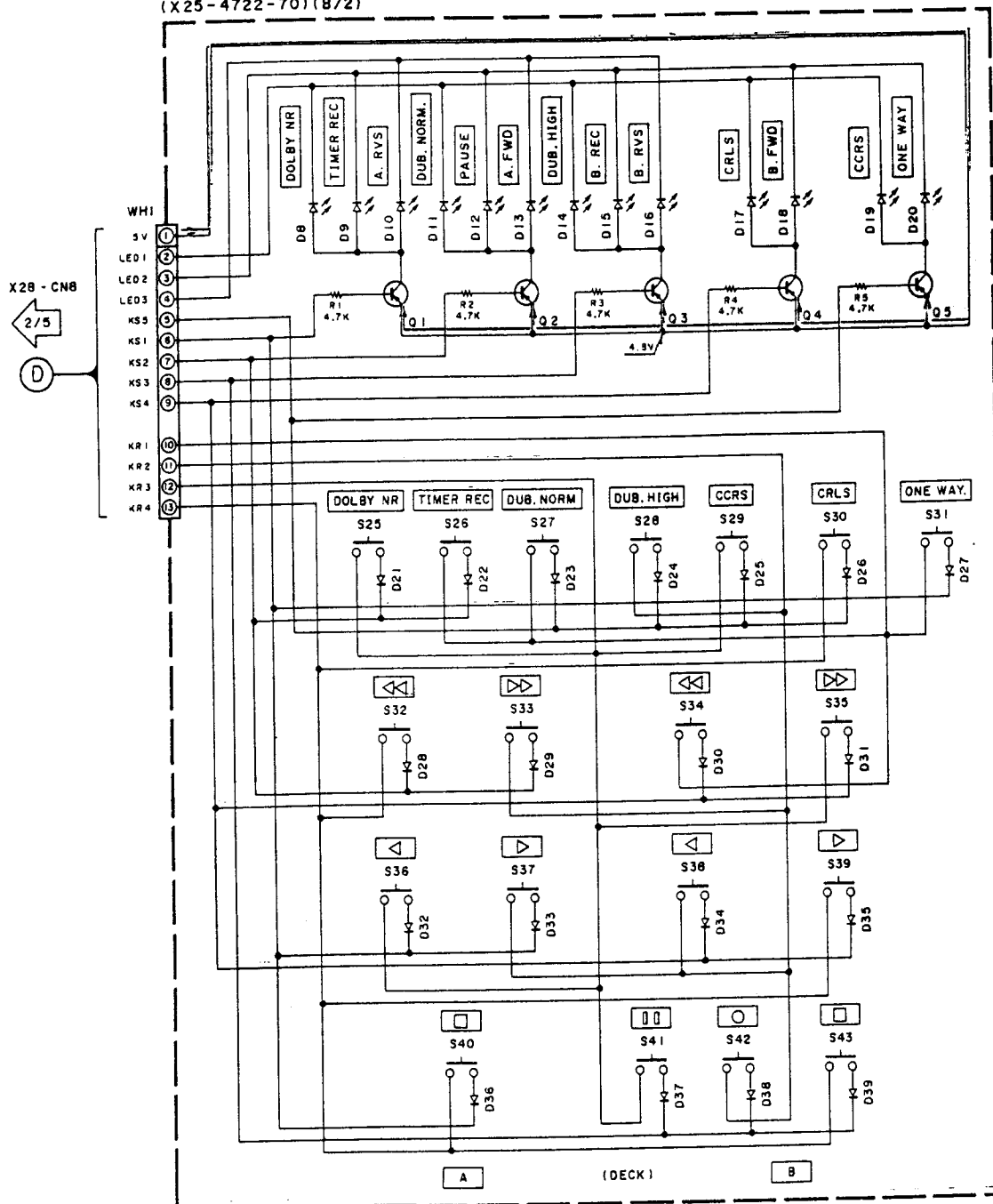
RXD-27L(E)(2/5)

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 MAURITRON TECHNICAL SERVICES
 8 Cherry Tree Rd, Chinnor
 Oxon OX9 4QY
 Tel: 01844-351694 Fax: 01844-352554
 Email: enquiries@mauritron.co.uk

RXD-27L
KENWOOD

Y09-4242-70

OPERATION UNIT (DECK SECTION) (X25-4722-70) (B/2)



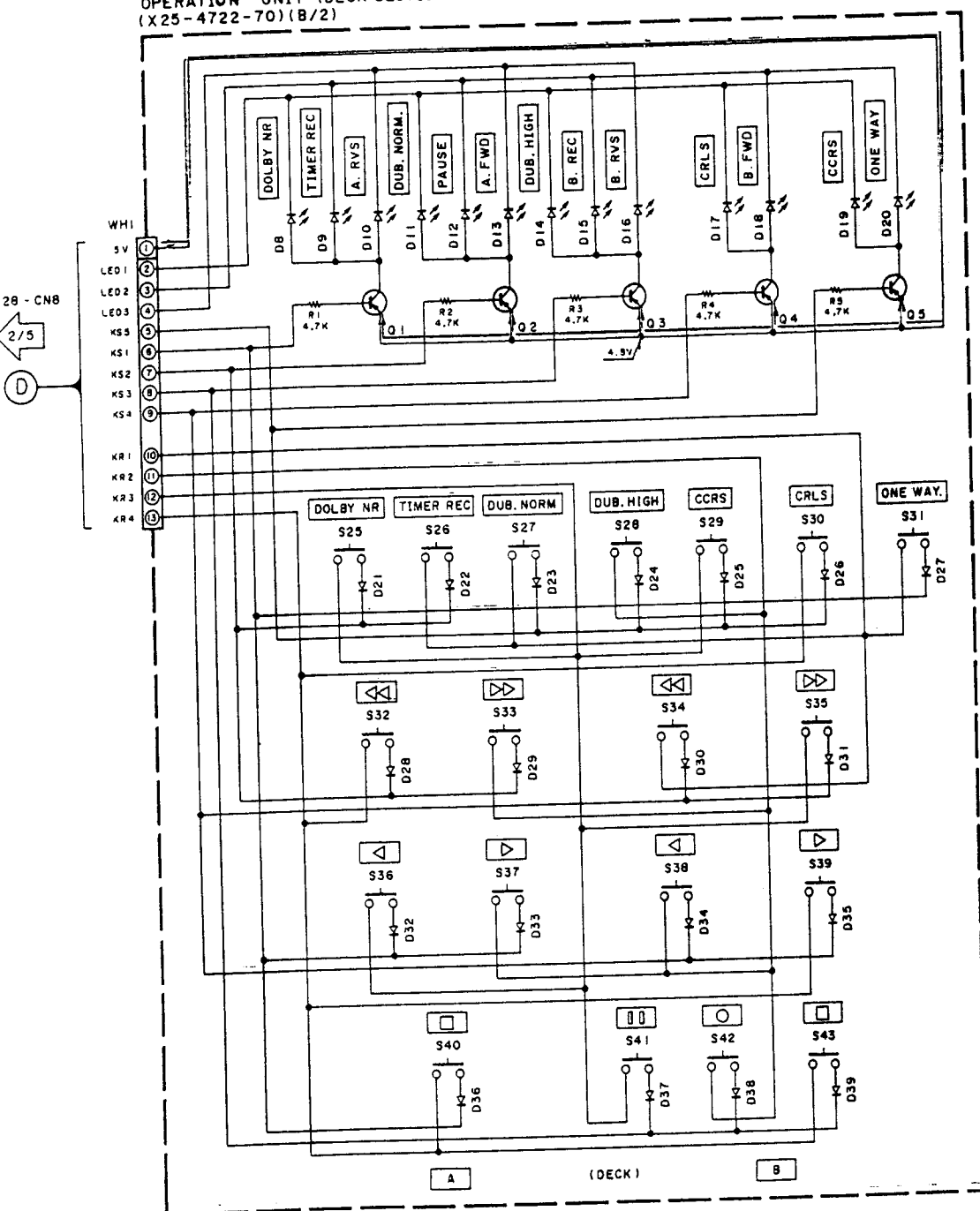
Q1~5 : 2SA954 (L, K)
D8~20 : B30-1291-05
D21~39 : HSS104A or ISS131

KEY MATRIX

	KS1	KS2	KS3	KS4	KS5
KR1	ONE WAY	T. REC		◀	NOUB
KR2	▶	▶▶	○	◀	HOUB
KR3	◀	DOLBY	□	▶▶	CCRS
KR4	◻	◀◀	◻	▶	CRLS
LED1	DOLBY	DUB.N.	DUB.H.	CRLS	CCRS
LED2	T. REC	PAUSE	REC	BFWD	ONE WAY
LED3	ARVS	AFWD	BRVS		

For Service Manuals
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Oxfordshire, OX9 4QY.
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email:- mauritron@dial.pipex.com

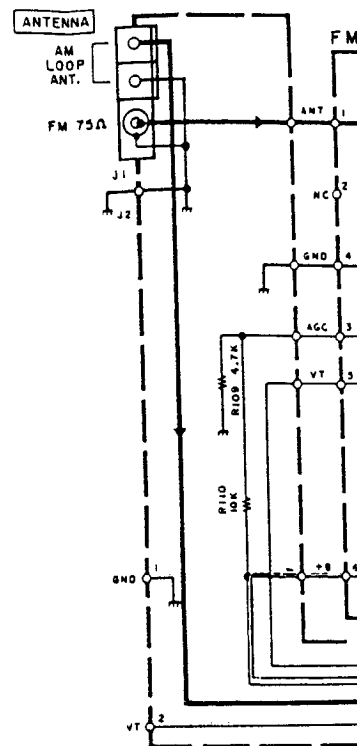
OPERATION UNIT (DECK SECTION) (X25-4722-70) (B/2)

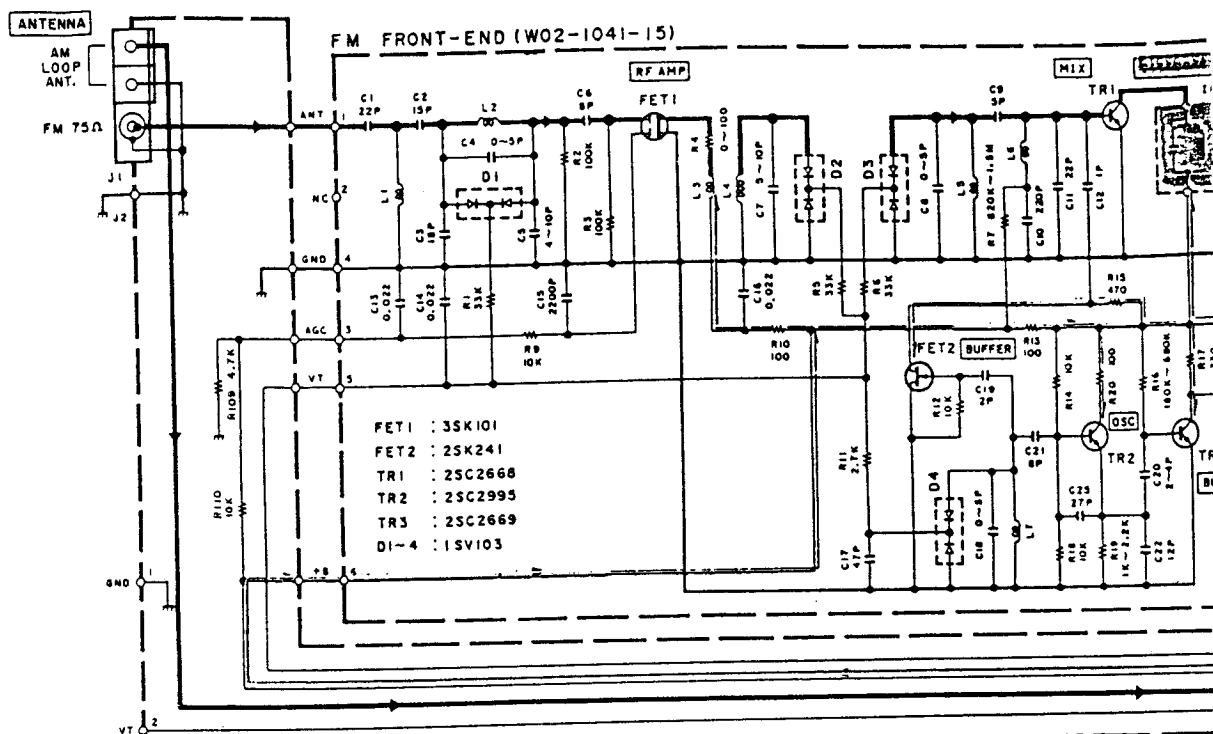
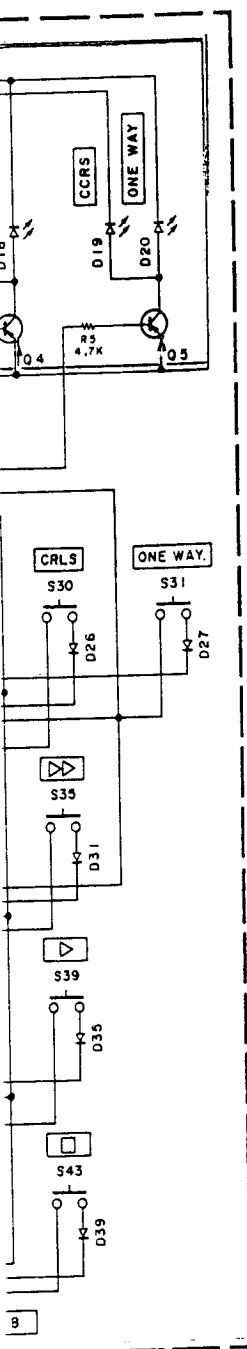


Q1-5 : 2SA954 (L, K)
D8-20 : 830-1291-05
D21-39 : HSS104A or ISS131

KEY MATRIX

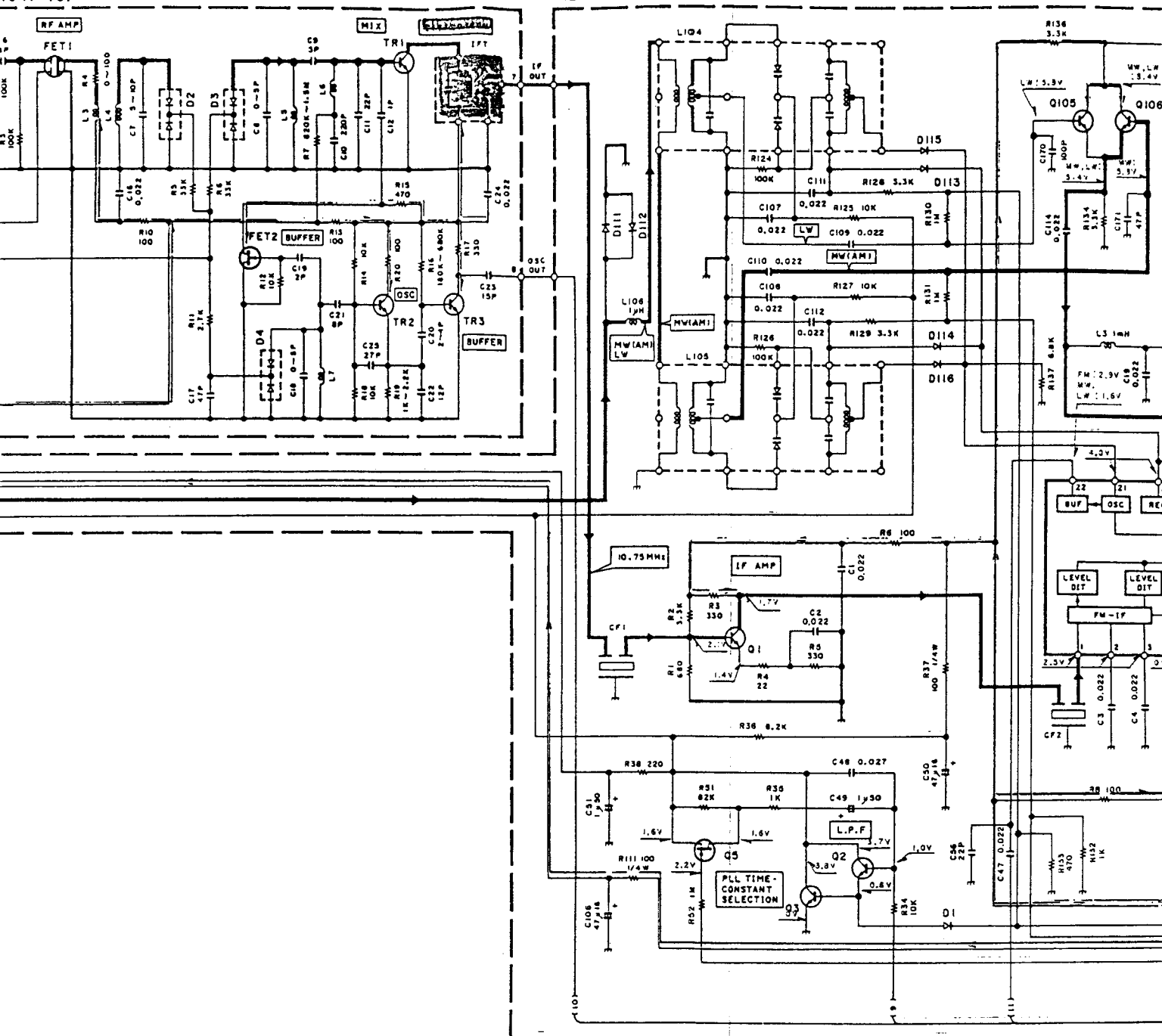
	KS1	KS2	KS3	KS4	KS5
KR1	ONE WAY	T. REC		NDUB	
KR2				HDUB	
KR3	DOLBY			CCRS	
KR4				CRLS	
LED1	DOLBY	DUB.N.	DUB.H.	CRLS	CCRS
LED2	T. REC	PAUSE	REC	B.FWD	ONE WAY
LED3	ARVS	AFWD	BRVS		



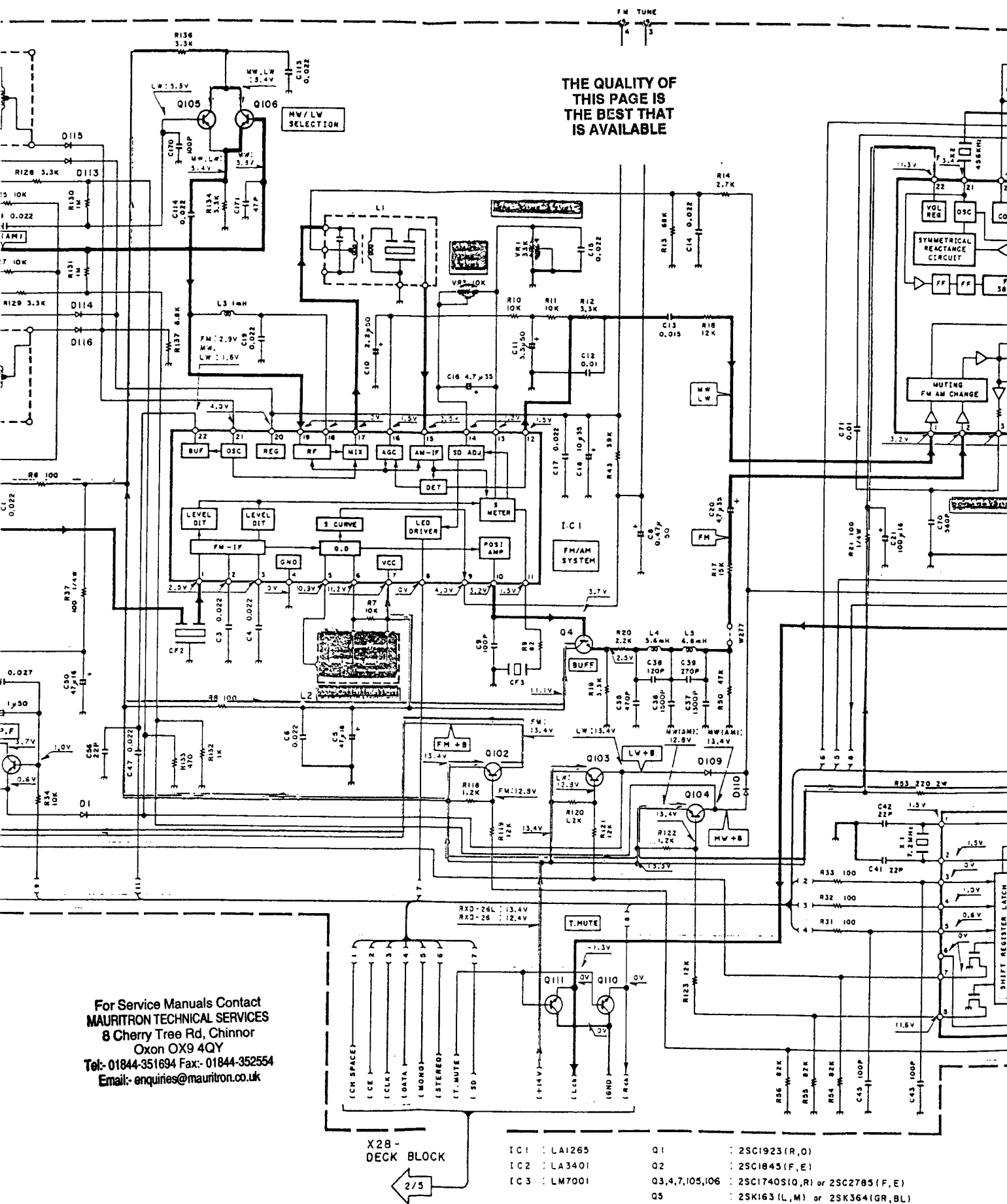


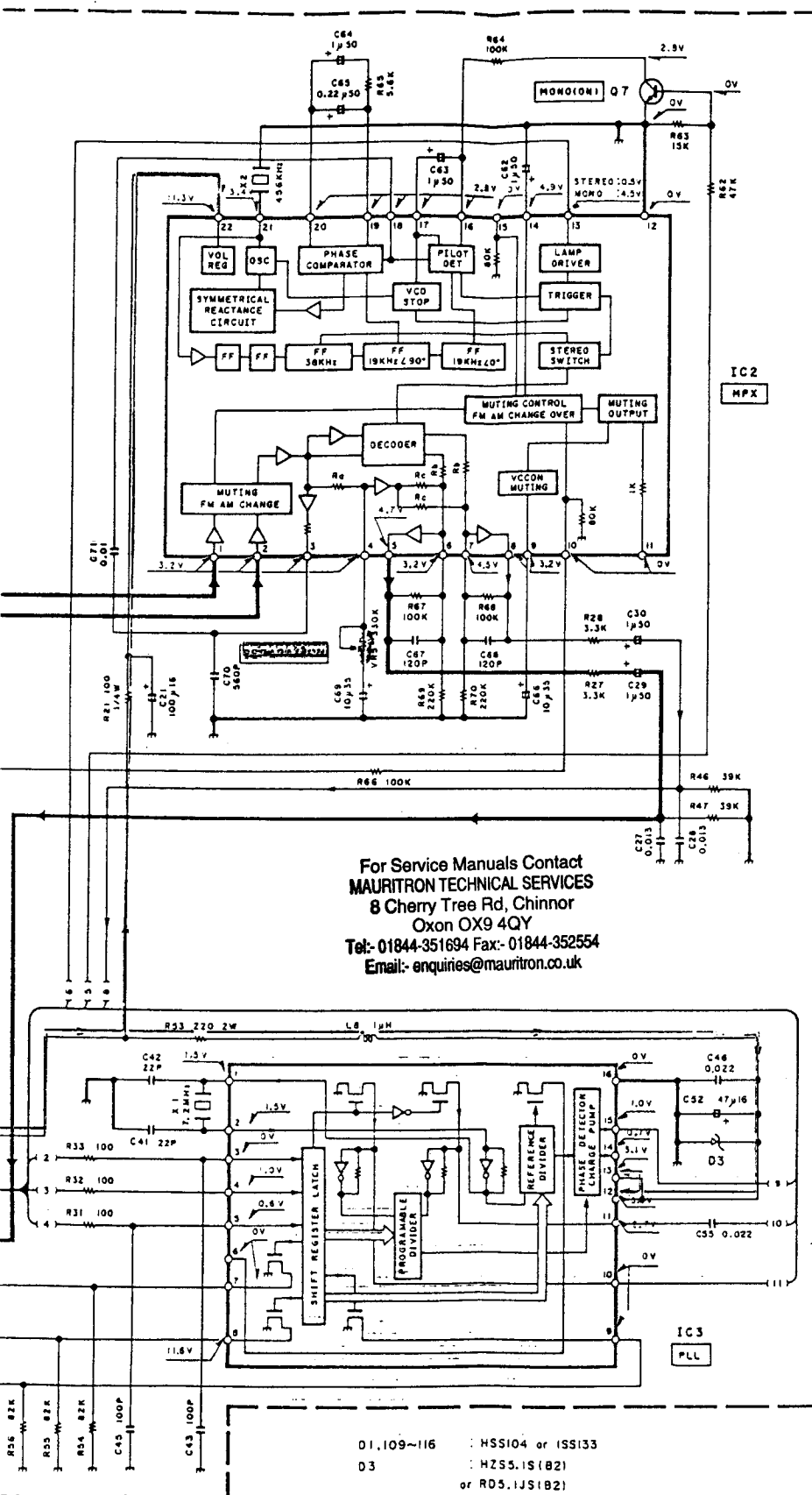
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1041-15)

TUNER UNIT
(X28-2422-70)

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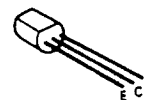
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01, 109~116 : HSS104 or ISS133
 03 : HZS5.1S (B2)
 or RDS.1JS (B2)

— SIGNAL LINE
 — GND LINE
 — +B LINE

23 (R, O)
 45 (F, E)
 40S (Q, R) or 2SC2785 (F, E)
 3 (L, M) or 2SK364 (GR, BL)
 35 (Q, R) or 2SA1175 (F, E)
 02 (S, T)

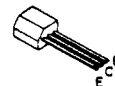
2SA1534A 2SC3246
 2SA954 2SC3940A
 2SA992 2SD1302
 2SC1845
 2SC1923
 2SC2003
 2SC2878



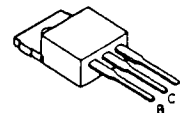
2SB772



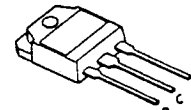
RN1203
 RN1210



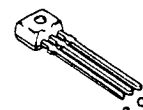
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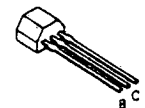
2SB1531
 2SD2340



2SA1175
 2SC2785



DTA124ES UN4112
 DTC124ES 2SA933S
 DTC143TS 2SC1740S
 RN2203



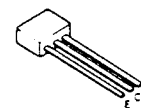
2SC4137



2SD1944
 2SD2061



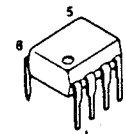
UN4212



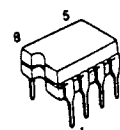
2SD2012
 2SD2374



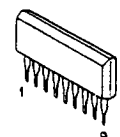
NJM4558D



NJM4565D



UPC1330HA



- 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.

RXD-27L(E) (3/5)

Y09-4242-70

RXD-27L
KENWOOD

DISPLAY UNIT (X14-3392-71) (A/5)

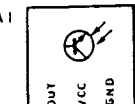
X28-CNI

2/5

F

E01
(TUNER FL)REMOTE
SENSOR
(INSIDE
FRONT GLASS
OF TUNER)

A1



3.7V

OUT

VCC

GND

4.7V

R4 100K

R5 100K

R6 100K

R7 100K

R8 100K

R9 100K

R23 10K

R25 10K

R27 1K 1.0V

R28 1K 0.6V

R29 1K 0V

R30 330

R31 330

R37 100K

R38 100K

R39 100K

R40 100K

R41 100K

R42 100K

R43 100K

R44 100K

R45 100K

R46 100K

R47 100K

R48 100K

R49 100K

R50 100K

R51 1K

R52 100K

R53 100K

R54 100K

R55 100K

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R301 100K

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R308 100K

R309 100K

R310 100K

R311 100K

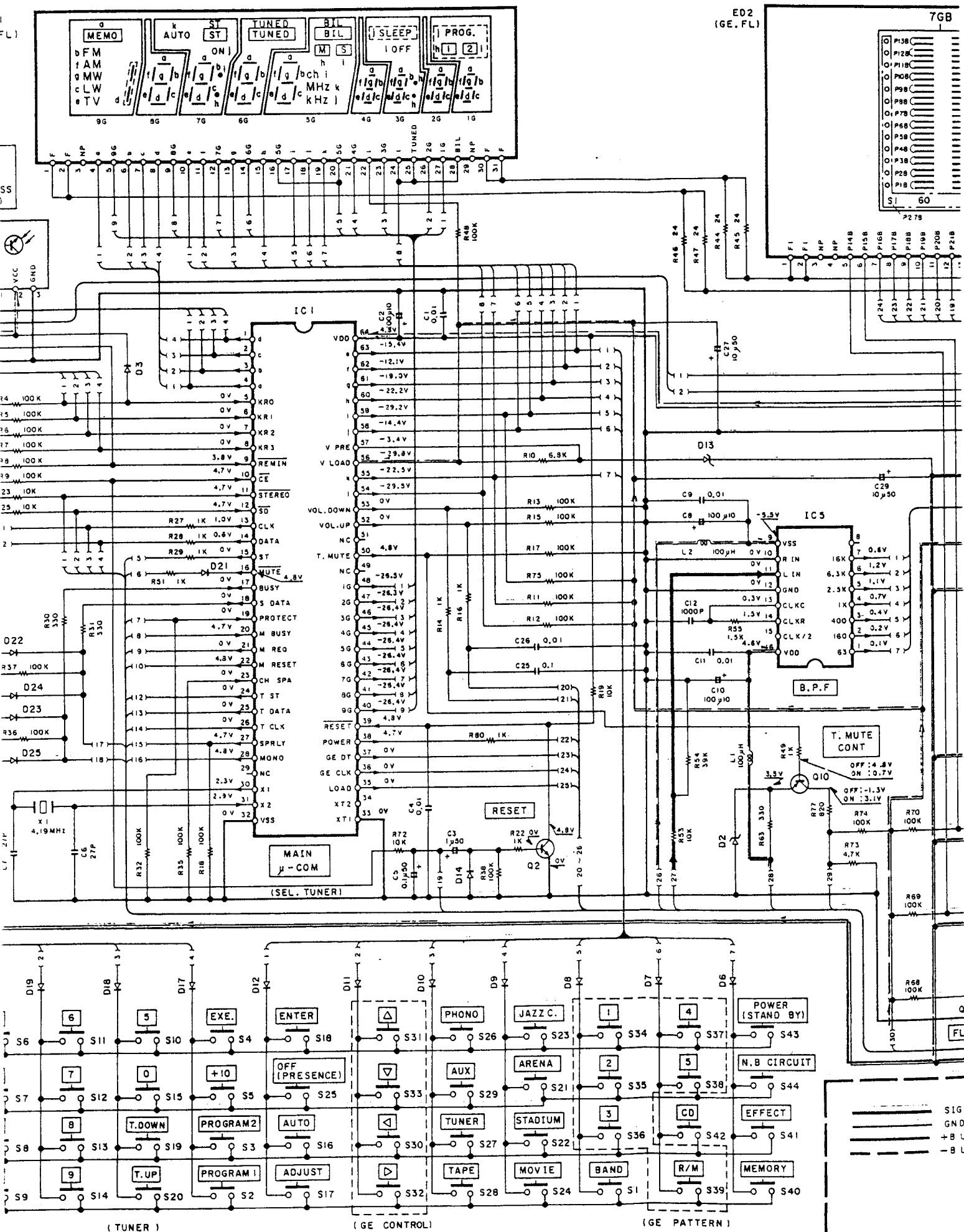
R312 100K

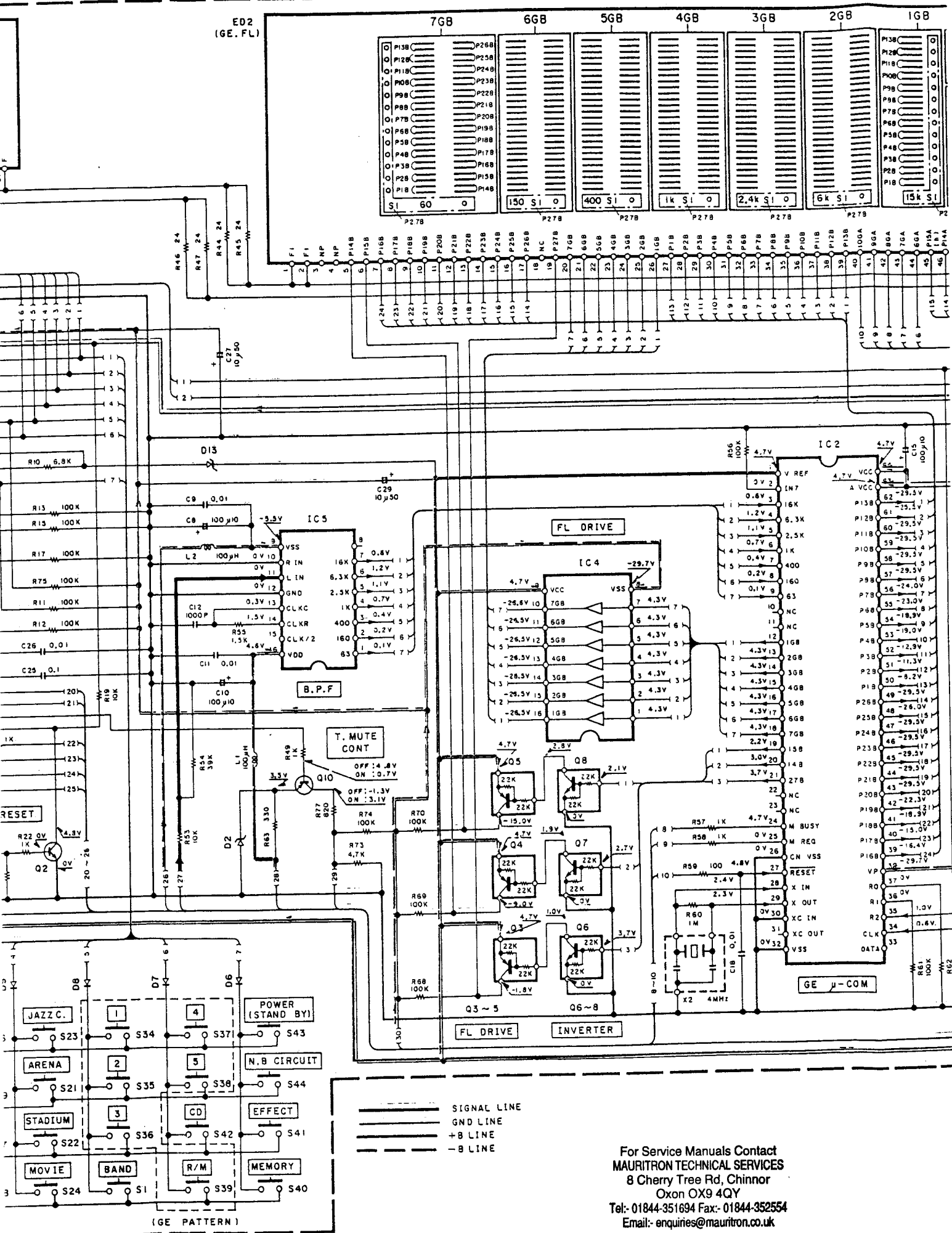
R313 100K

R314 100K

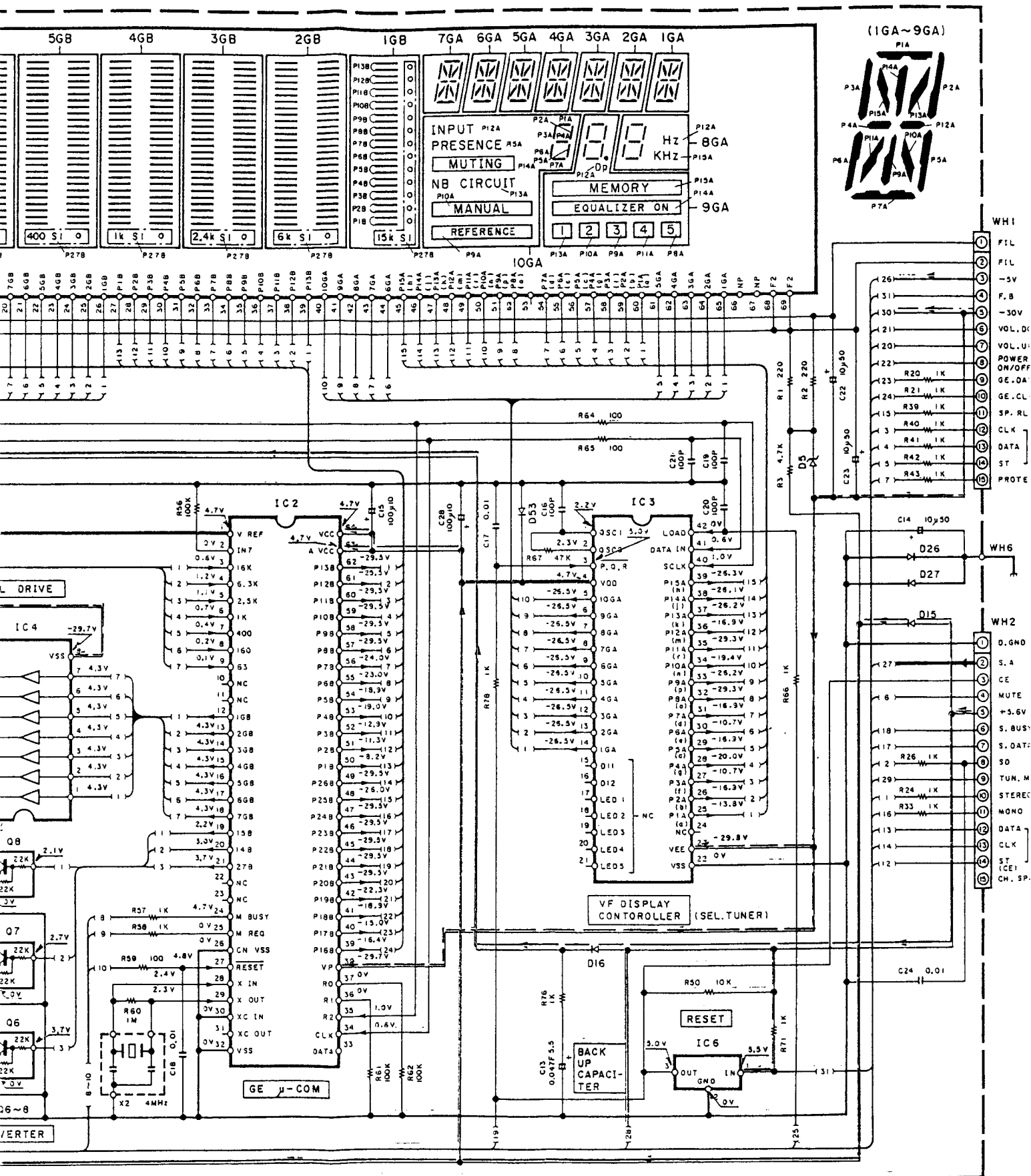
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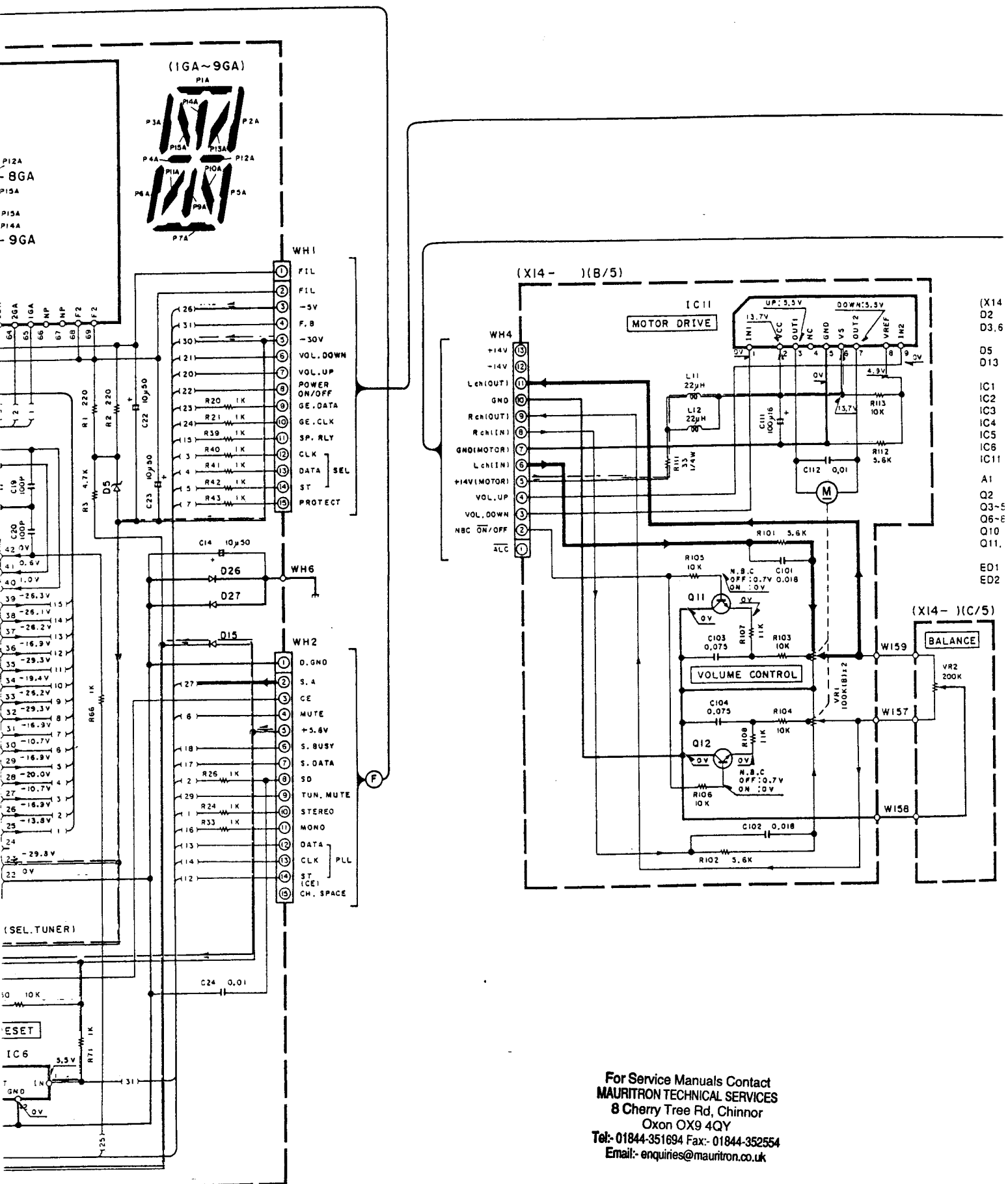
T (X14-3392-71) (A/5)





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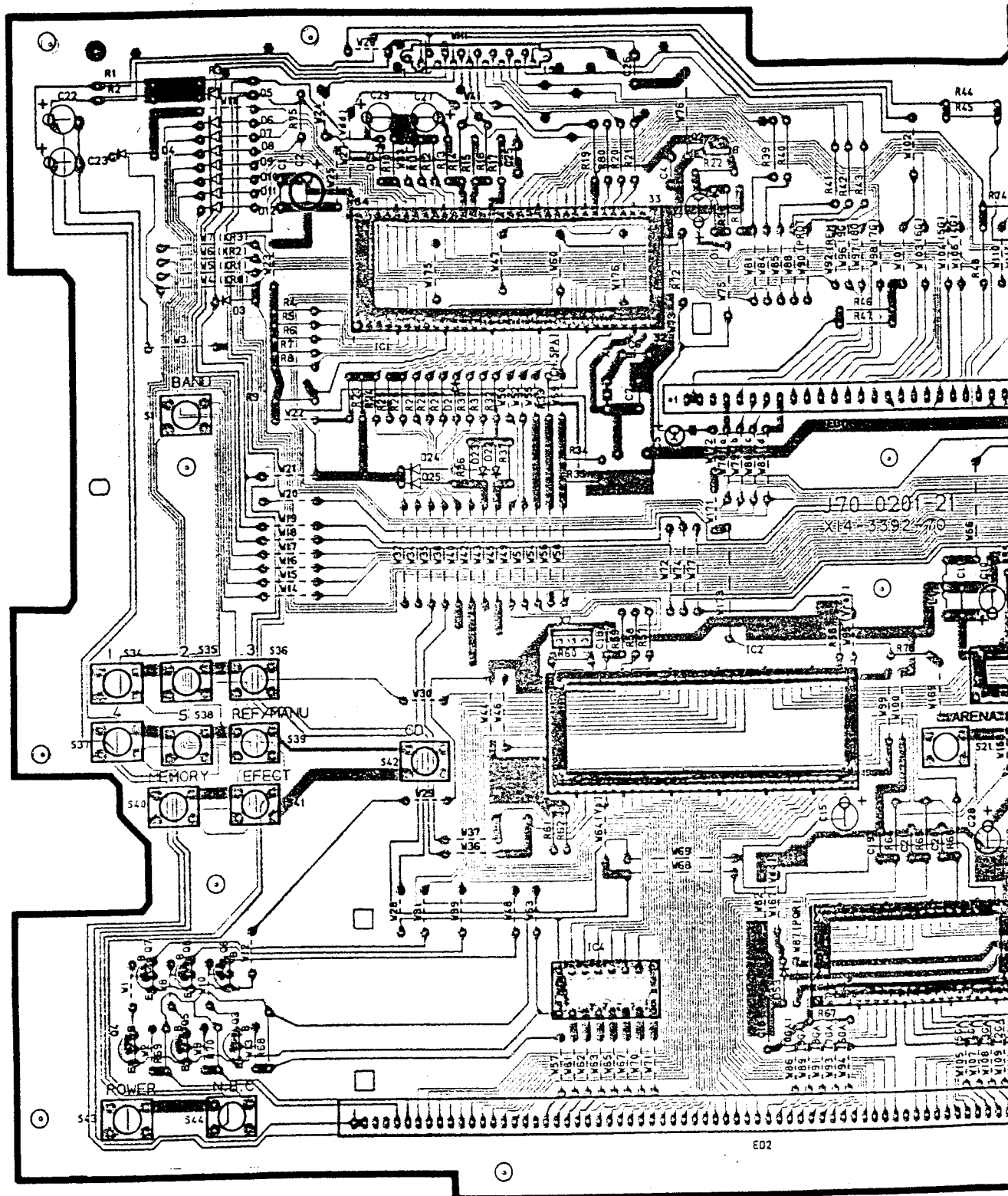




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PC BOARD (COMPONENT SIDE VIEW)

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Refer to the schematic diagram for the values of resistors and capacitors.

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COMPONENT SIDE VIEW)

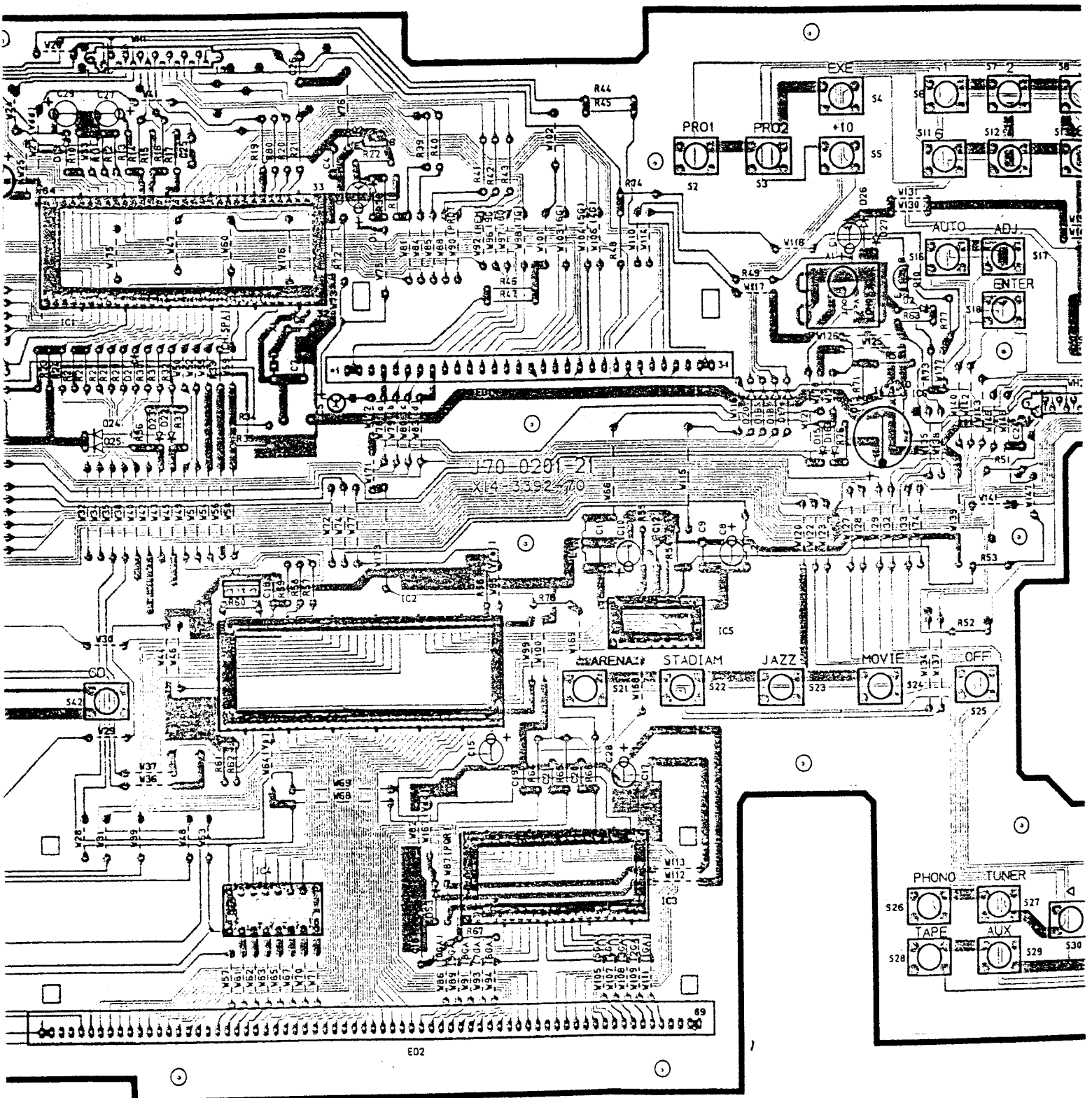
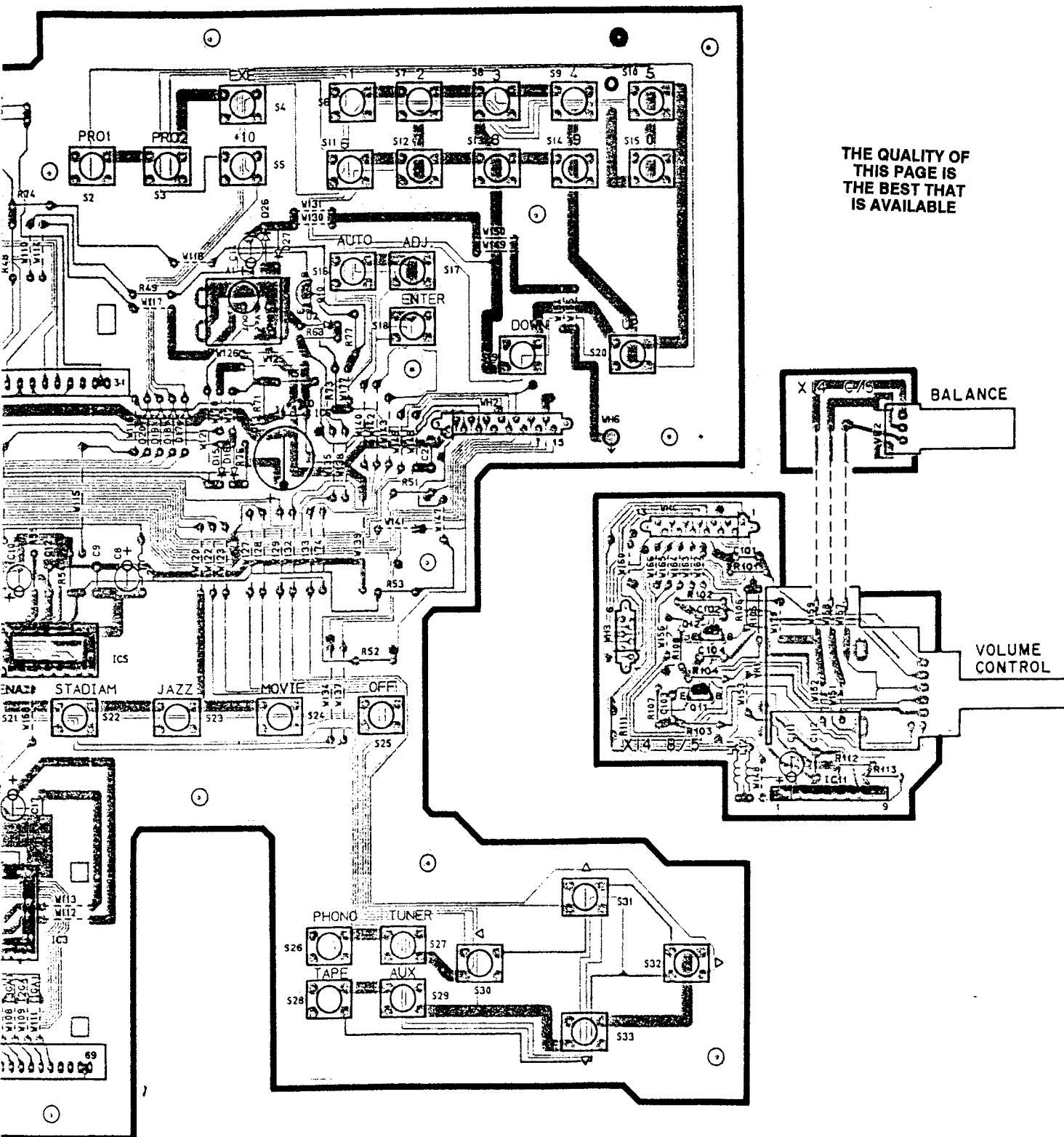
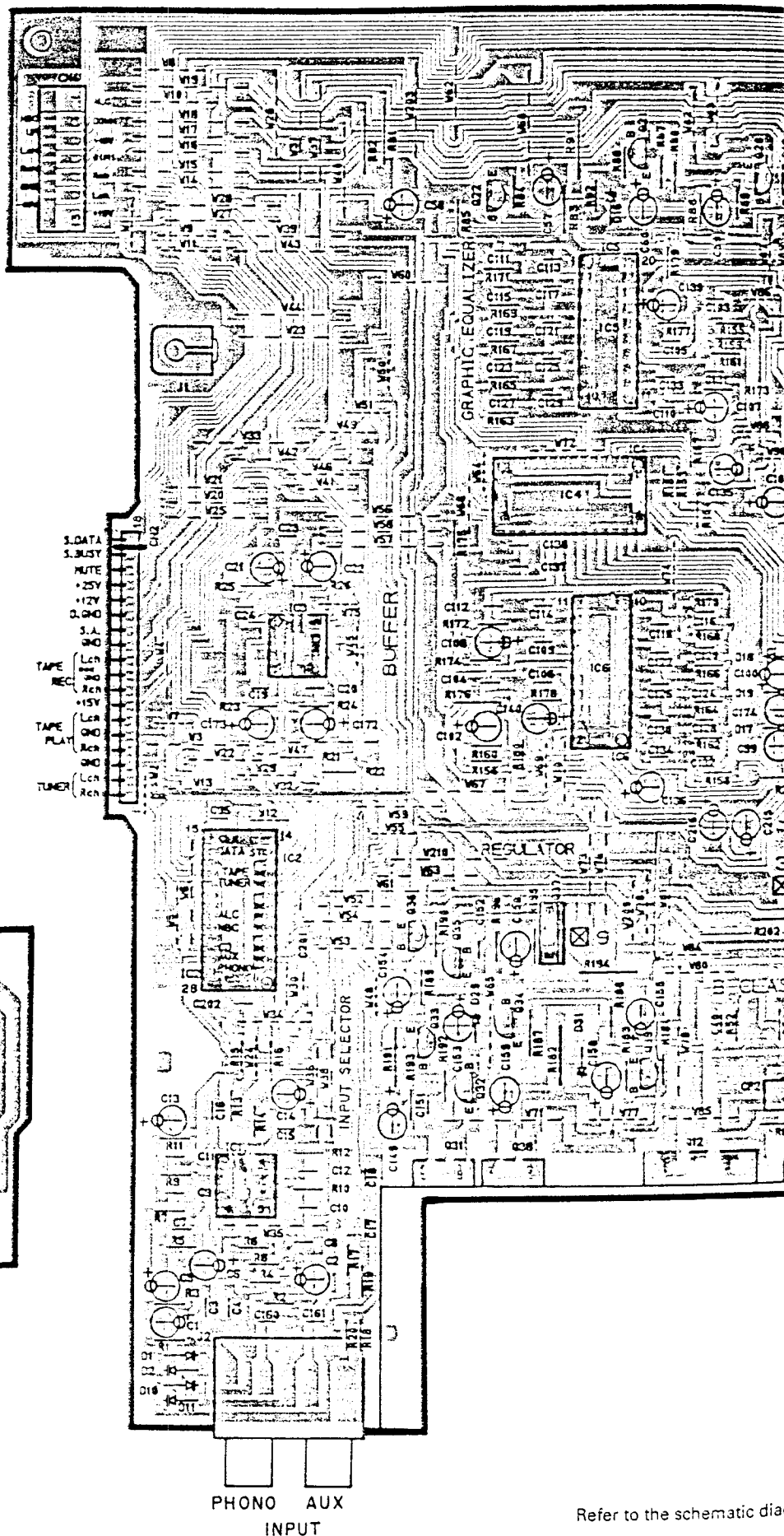
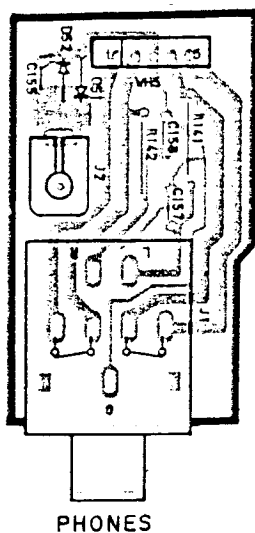


Diagram for the values of resistors and capacitors.



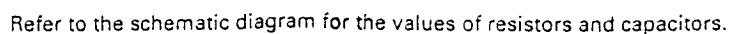
PC BOARD (COMPONENT SIDE VIEW)

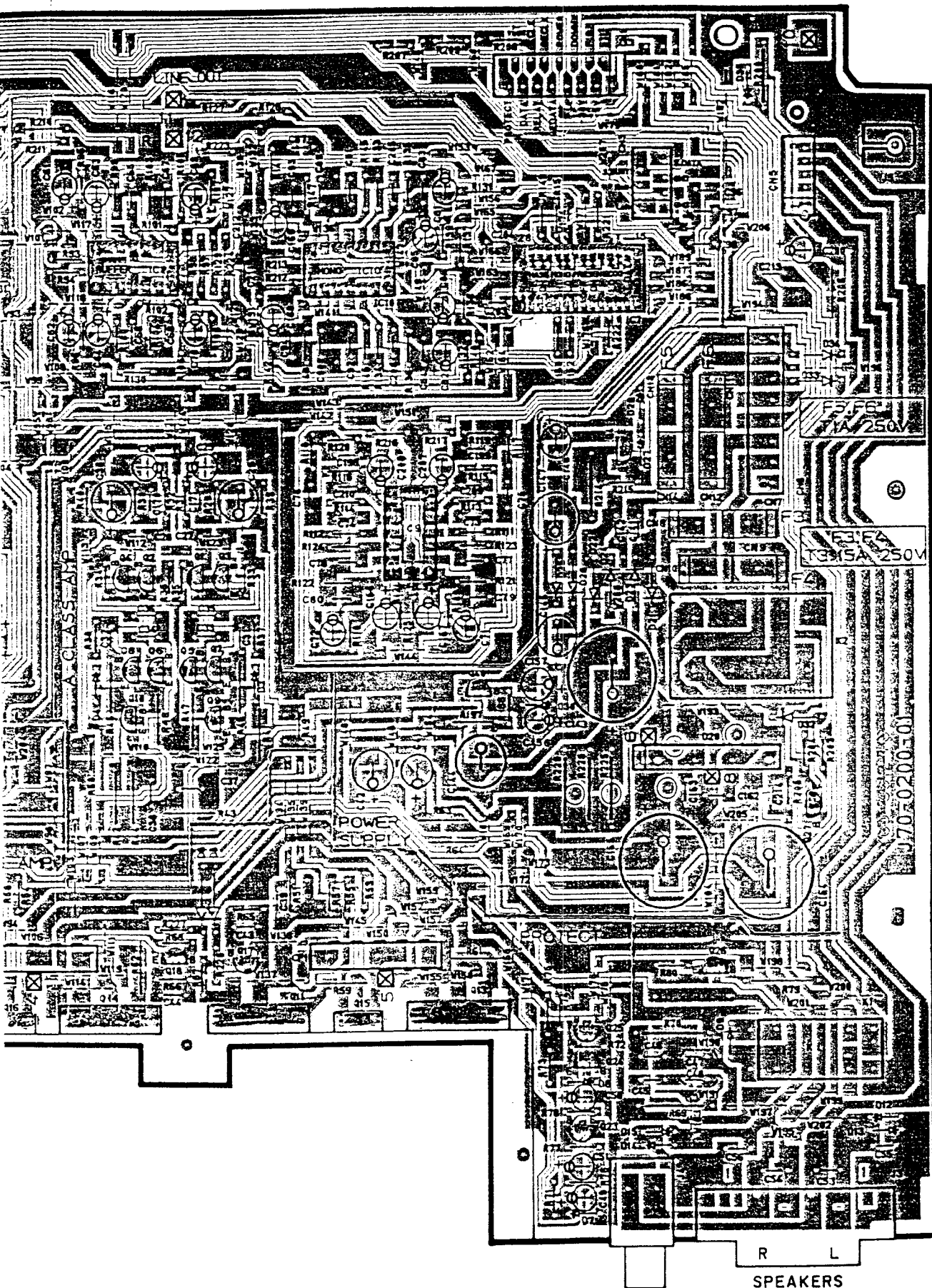
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Refer to the schematic diag

1. DATA
2. BUSY
MUTE
+25V
+12V
2. GND
S.A.
GND
(Lch
+15V
Rch
(Lch
GND
Rch
(Lch
Rch





am for the values of resistors and capacitors.

SURROUND
(REAR)
SPEAKERS

R L
SPEAKERS
(6 ~ 16 Ω)

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POWER
TRANSFORMERAUDIO UNIT
(X09-3512-71)

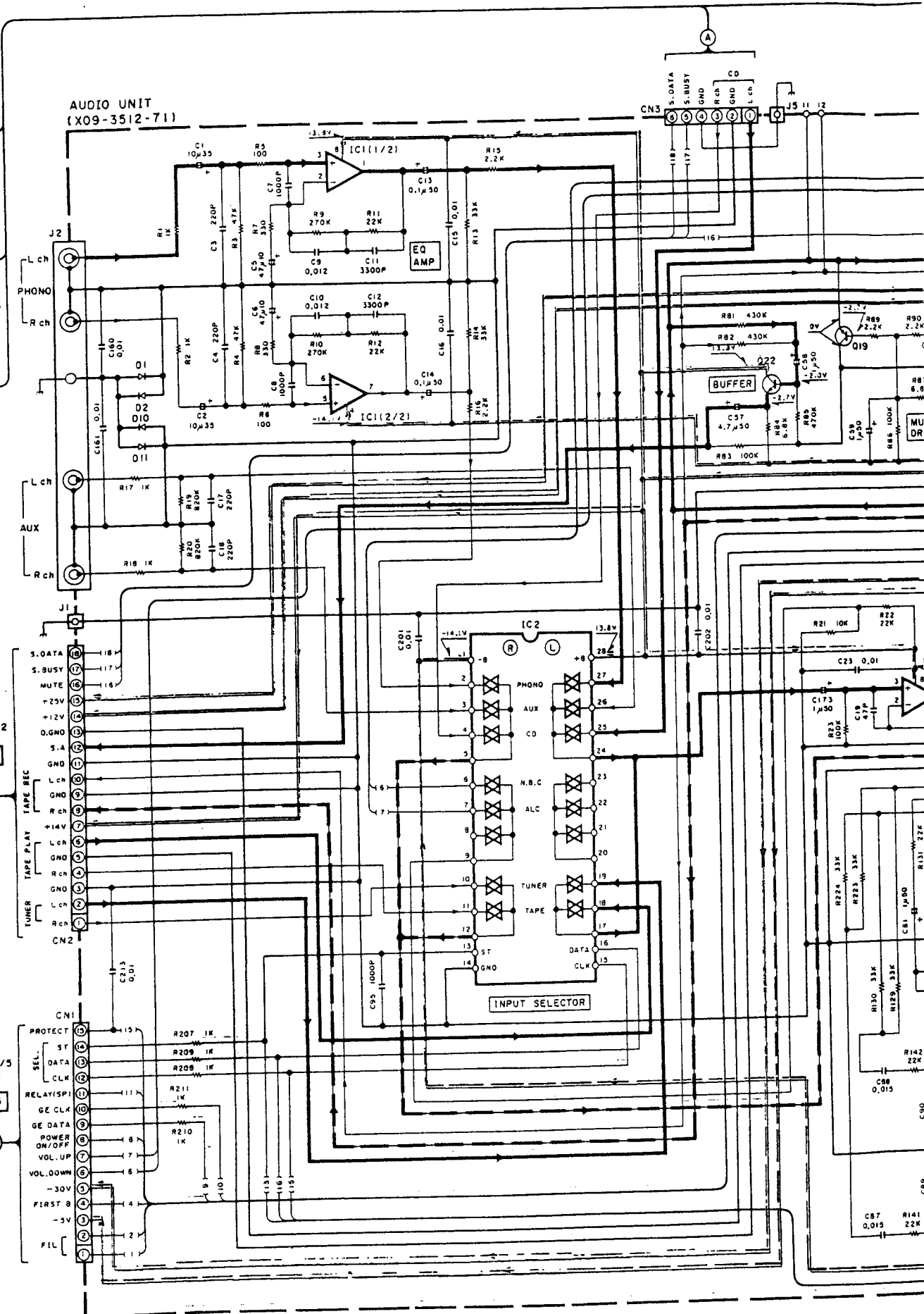
X32-WHI

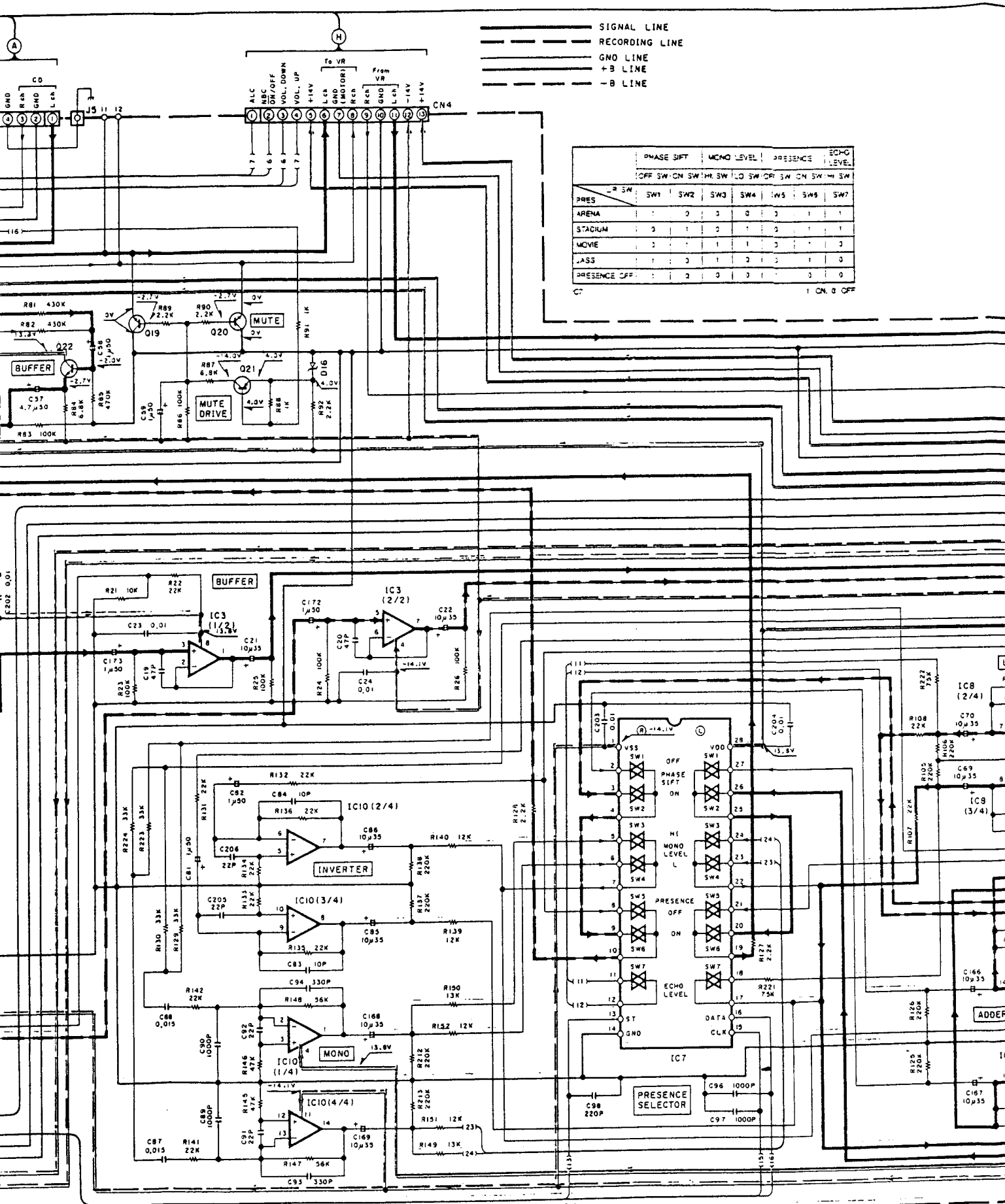
X14-B/5
-WH4

X28-CN2

X14-A/5
-WH1

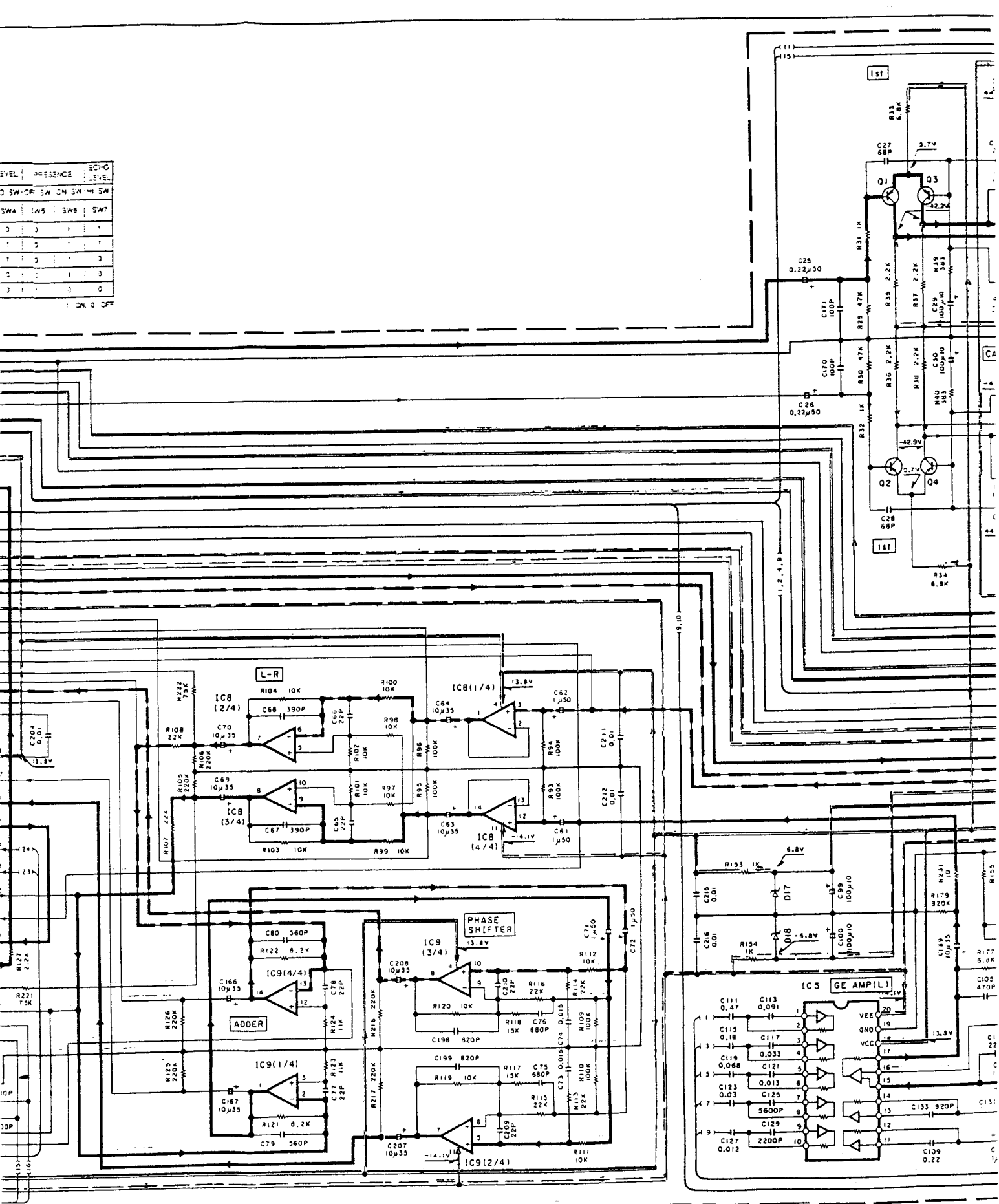
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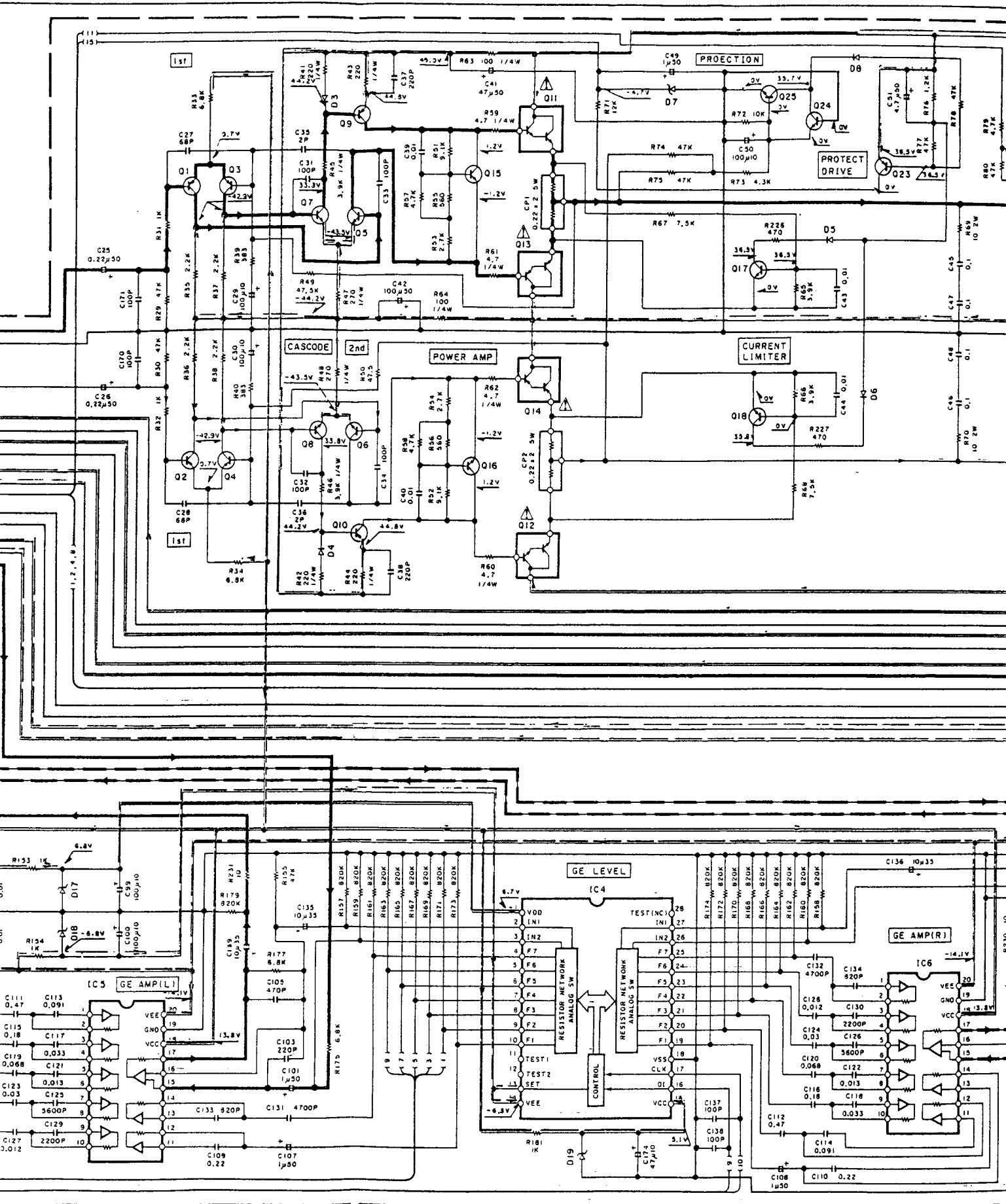
LEVEL	PRESENCE	ECHO
SW4	SW5	SW6
0	0	1
1	0	1
1	1	0
0	1	0
0	0	0

1 ON, 0 OFF



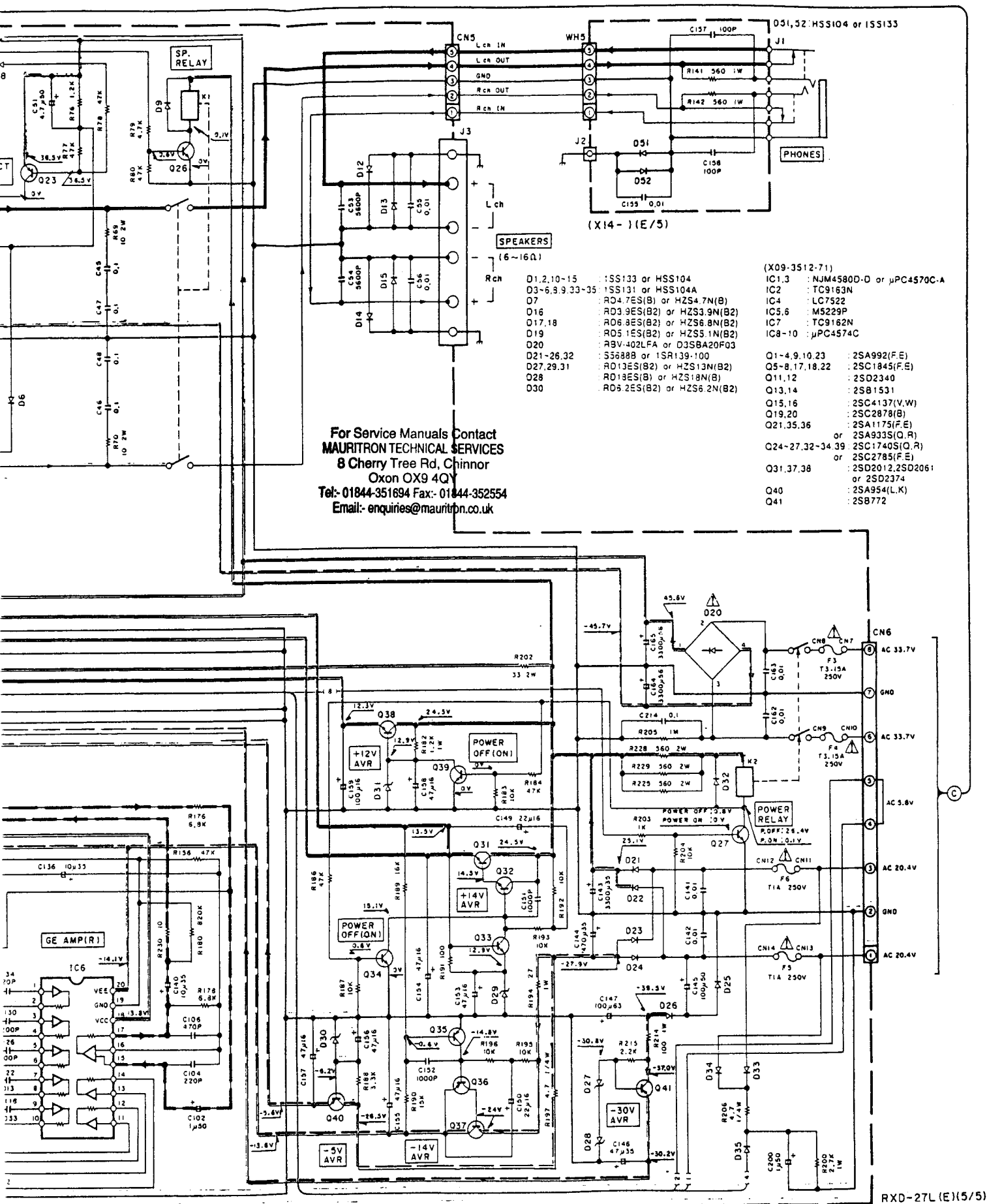
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- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to or/and units.
- Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent varier en raison des tolérances inhérentes aux appareils et aux instruments de mesure individuels.
- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Von Unterschieden zwischen einzelnen instrumenten oder Geräten u.U. geringfügig.



ce voltmeter. Values may vary slightly due to variations between individual instruments
 voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des vari-
 de mesure individuels.
 mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund
 an oder Geräten u.U. geringfügig.

CAUTION : For continued safety, replace safety critical
 list). Δ Indicates safety critical components. To reduce the r
 out (exposed parts are acceptably insulated from the supply

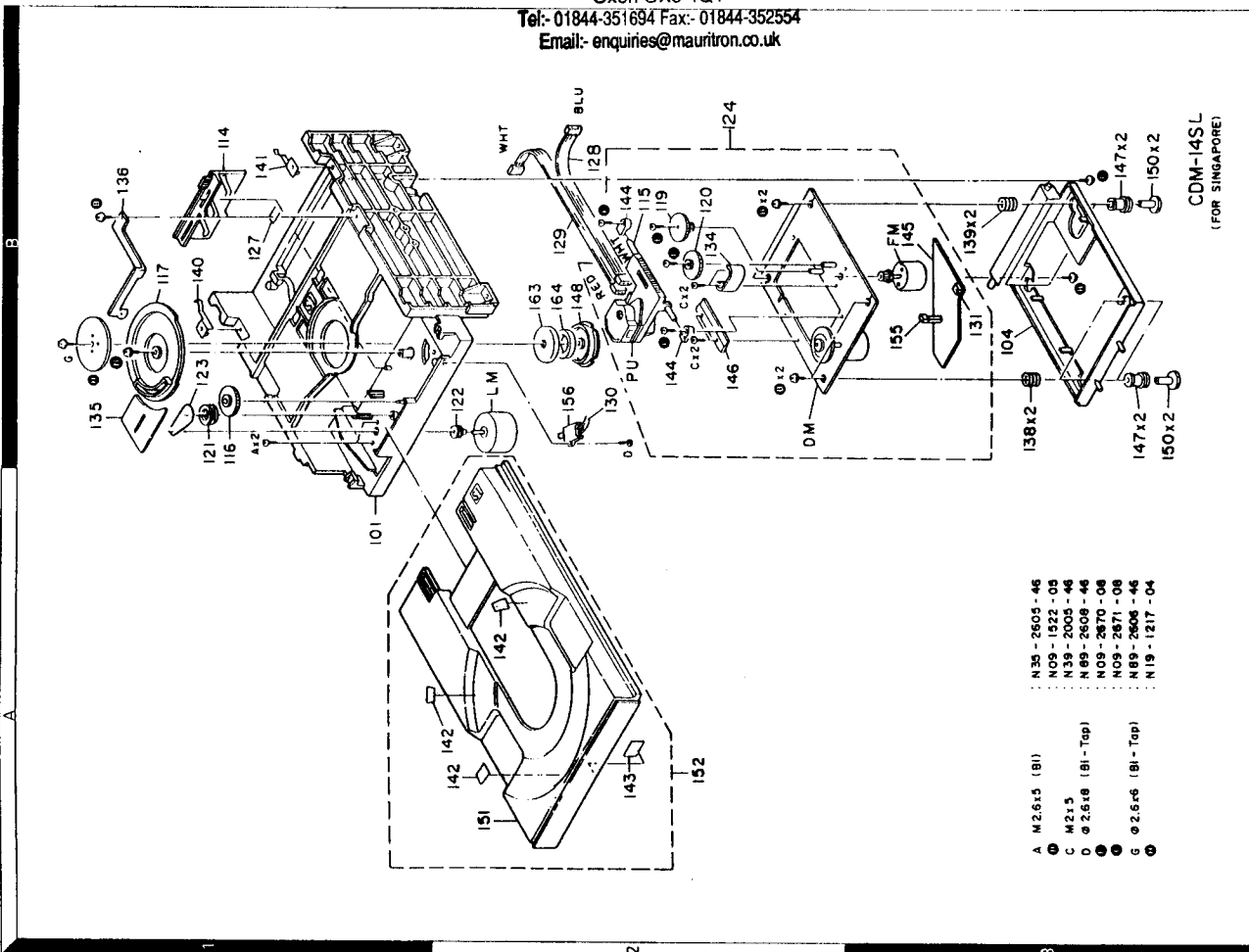


ty, replace safety critical components only with manufacturer's recommended parts (refer to parts
 components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried
 (insulated from the supply circuit) before the appliance is returned to the customer.

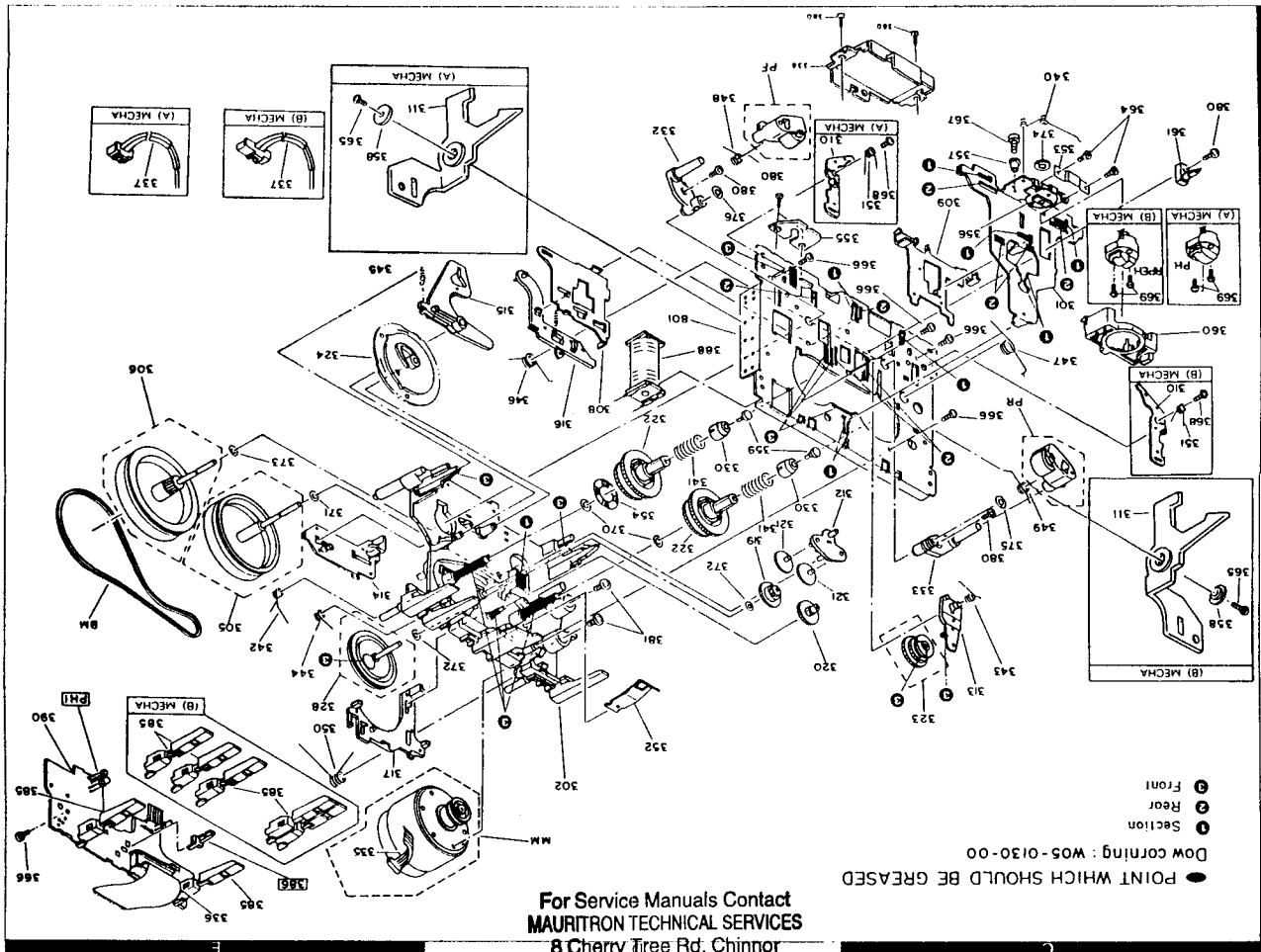
Y09-4242-70

RXD-27L

KENWOOD



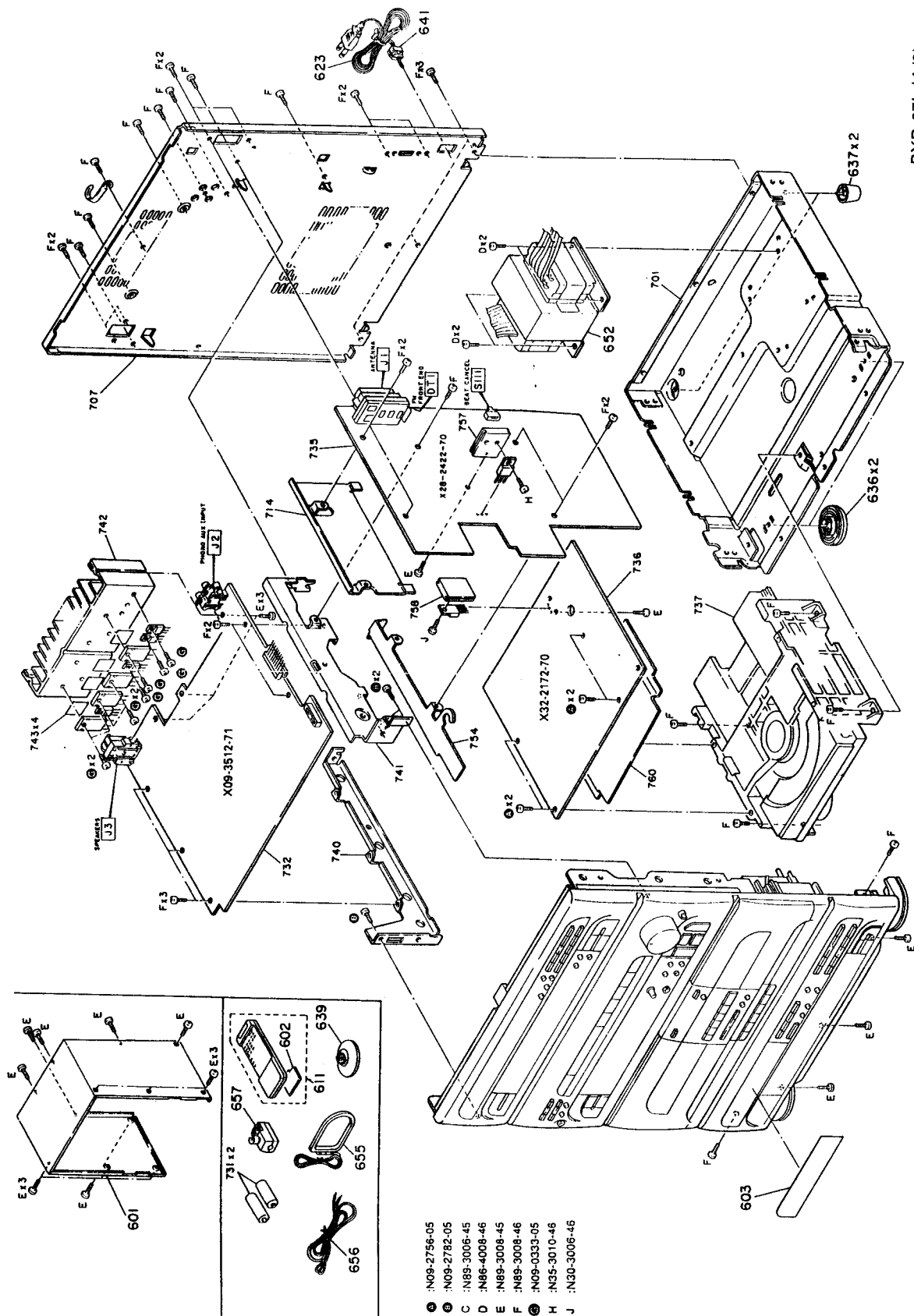
Parts with the exploded numbers larger than 700 are not supplied.



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

RXD-27L RXD-27L

EXPLODED VIEW (UNIT)

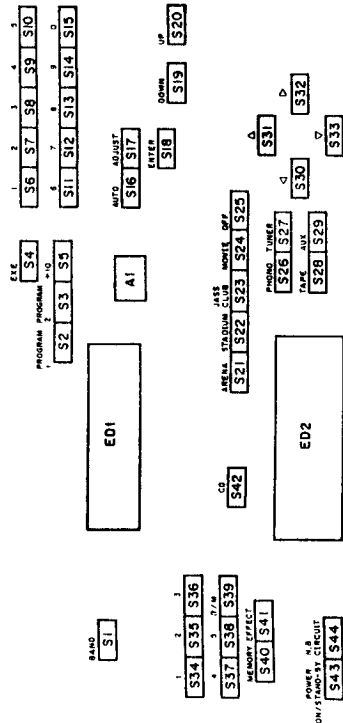


RXD-27L (A/2)

RXD-27L RXD-27L

EXPLODED VIEW (UNIT)

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 Email: enquiries@mauritron.co.uk



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
RXD-27L						
601	1F		A01-2906-01	METALLIC CABINET		S
602	1F		A09-0109-08	BATTERY COVER		
603	3F		A29-0200-03	PANEL(CD TRAY)		S
604	3J		A53-1326-03	CASSETTE HOLDER ASSY(A)		
605	3J		A53-1324-03	CASSETTE HOLDER ASSY(B)		
606	3J		A53-1329-02	CASSETTE LID(A)		
607	3J		A53-1328-02	CASSETTE LID(B)		
608	2K	*	A60-0353-01	PANEL ASSY(FRONT)		
611	2F		A70-0572-05	REMOTE CONTROLLER ASSY(RC-26)		
612	3J		B03-2757-04	DRESSING PLATE(DECK A)		S
613	3J		B03-2758-04	DRESSING PLATE(DECK B)		S
614	3K		B03-2759-04	DRESSING PLATE(DECK DISPLAY)		S
615	2J		B10-1900-03	FRONT GLASS(TUNER DISPLAY)		S
616	2J		B10-1901-03	FRONT GLASS(GE DISPLAY)		S
617	3K		B10-1903-03	FRONT GLASS(CD DISPLAY)		S
618	2L		B12-0186-04	INDICATOR(DECK SECTION)		
-			B46-0122-23	WARRANTY CARD	E	
-			B46-0143-13	WARRANTY CARD	T	
-		*	B60-1101-00	INSTRUCTION MANUAL(ENGLISH)		S
-		*	B60-1102-00	INSTRUCTION MANUAL(GER,FRE)	E	S
-		*	B60-1103-00	INSTRUCTION MANUAL(SPANISH)	E	S
-		*	B60-1104-00	INSTRUCTION MANUAL(OUT,ITA)	E	S
621	3J		D39-0176-05	DAMPER		
△ 623	2I		E30-2592-15	AC POWER CORD	E	
△ 623	2I		E30-2721-05	AC POWER CORD	T	
631	3J		G01-2270-04	TORSION COIL SPRING(A)		
632	3J		G01-2271-04	TORSION COIL SPRING(B)		
633	2L		G01-2404-04	EXTENSION SPRING		
634	3J		G02-0944-04	FLAT SPRING		
-			H10-5235-02	POLYSTYRENE FOAMED FIXTURE(L)	E	S
-			H10-5236-02	POLYSTYRENE FOAMED FIXTURE(R)	E	S
-		*	H10-5460-02	POLYSTYRENE FOAMED FIXTURE(L)	T	S
-		*	H10-5461-02	POLYSTYRENE FOAMED FIXTURE(R)	T	S
-			H12-2087-04	PACKING FIXTURE		S
-			H25-0232-04	PROTECTION BAG (235X350X0.03)	E	
-			H25-0377-04	PROTECTION BAG		
-			H25-0651-04	PROTECTION BAG (0232 PRINTED)	T	
-		*	H50-0540-04	ITEM CARTON CASE		S
-		*	H50-0541-04	ITEM CARTON CASE	T	S
636	3H		J02-1013-05	FOOT(FRONT)		
637	3I		J02-0366-15	FOOT(REAR)		
639	2G		J19-2815-04	ANTENNA HOLDER		
△ 641	2I		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
643	2K		K29-3737-04	KN08(EJECT)		
644	3L		K29-3960-04	KN08(BALANCE)		
645	2K		K29-4334-03	KN08(BAND)		
646	2L		K29-4335-02	KN08(1-0,EDIT,REPEAT)		
647	2L		K29-4336-02	KN08(1-0,EXE.,PROGRAM)		
648	2K		K29-4337-02	KN08(1-5,R/M,MEMORY,EFFECT)		
649	2K		K29-4338-02	KN08(PRESENCE MODE)		

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650	2L		K29-4339-02	KN08(DUBBING NORMAL,HIGH)		
651	3J		K29-4379-04	KN08 ASSY(VOLUME CONTROL)		
△ 652	2H	*	L07-0652-05	POWER TRANSFORMER	E	
△ 652	2H	*	L07-0653-05	POWER TRANSFORMER	T	
A			N09-2756-05	TAPTITE SCREW (2.6X10)		
B			N09-2782-05	TAPTITE SCREW (2.6X8)		
C			N89-3006-45	BINDING HEAD TAPTITE SCREW		
D			N86-4008-46	BINDING HEAD TAPTITE SCREW		
E			N89-3008-45	BINDING HEAD TAPTITE SCREW		
F			N89-3008-46	BINDING HEAD TAPTITE SCREW		
G			N09-0333-05	TAPPING SCREW (3X12)		
H			N35-3010-46	BINDING HEAD MACHINE SCREW		
J			N30-3006-46	PAN HEAD MACHINE SCREW		
655	2F		T90-0174-05	LOOP ANTENNA(AM)		S
656	2F		T90-0175-05	T TYPE ANTENNA(FM)		
657	1F		T90-0185-05	ANTENNA ADAPTOR		
AUDIO UNIT (X09-3512-71)						
C1 ,2			CE04LW1V100M	ELECTRO 10UF 35WV		
C3 ,4			CC45FSL1H221J	CERAMIC 220PF J		
C5 ,6			CE04LW1A470M	ELECTRO 47UF 10WV		
C7 ,8			CK45FB1H102K	CERAMIC 1000PF K		
C9 ,10			CQ92FM1H123J	MYLAR 0.012UF J		
C11 ,12			CK45FB1H332K	CERAMIC 3300PF K		
C13 ,14			CE04LW1H0R1M	ELECTRO 0.1UF 50WV		
C15 ,16			CK45FF1H103Z	CERAMIC 0.010UF Z		
C17 ,18			CC45FSL1H221J	CERAMIC 220PF J		
C19 ,20			CC45FSL1H470J	CERAMIC 47PF J		
C21 ,22			CE04LW1V100M	ELECTRO 10UF 35WV		
C23 ,24			CK45FF1H103Z	CERAMIC 0.010UF Z		
C25 ,26			CE04LW1HR22M	ELECTRO 0.22UF 50WV		
C27 ,28			CC45FSL1H680J	CERAMIC 68PF J		
C29 ,30			C90-1851-05	ELECTRO 100UF 16WV		
C31 ,34			CC45FSL1H101J	CERAMIC 100PF J		
C35 ,36			CC45FSL1H020C	CERAMIC 2.0PF C		
C37 ,38			CC45FSL1H221J	CERAMIC 220PF J		
C39 ,40			CK45FF1H103Z	CERAMIC 0.010UF Z		
C41			CE04LW1H470M	ELECTRO 47UF 50WV		
C42			CE04LW1H101M	ELECTRO 100UF 50WV		
C43 ,44			CK45FF1H103Z	CERAMIC 0.010UF Z		
C45 -48			CF92FV1H104J	MF 0.10UF J		
C49			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C50			CE04LW1A101M	ELECTRO 100UF 10WV		
C51			CE04LW1H4R7M	ELECTRO 4.7UF 50WV		
C53 ,54			CQ92FM1H562J	MYLAR 5600PF J		
C55 ,56			CK45FF1H103Z	CERAMIC 0.010UF Z		
C57			CE04LW1H4R7M	ELECTRO 4.7UF 50WV		
C58 ,59			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C61 ,62			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C63 ,64			CE04LW1V100M	ELECTRO 10UF 35WV		
C65 ,66			CC45FSL1H220J	CERAMIC 22PF J		
C67 ,68			CK45FB1H391K	CERAMIC 390PF K		
C69 ,70			CE04LW1V100M	ELECTRO 10UF 35WV		
C71 ,72			CE04LW1H010M	ELECTRO 1.0UF 50WV		

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C73 ,74 C75 ,76 C77 ,78 C79 ,80 C81 ,82			CQ92FM1H153J CK45FB1H681K CC45FSL1H220J CK45FB1H561K CE04LW1H010M	MYLAR 0.015UF J CERAMIC 680PF K CERAMIC 22PF J CERAMIC 560PF K ELECTR0 1.0UF 50WV		
C83 ,84 C85 ,86 C87 ,88 C89 ,90 C91 ,92			CC45FSL1H100D CE04LW1V100M CQ92FM1H153J CK45FB1H102K CC45FSL1H220J	CERAMIC 10PF D ELECTR0 10UF 35WV MYLAR 0.015UF J CERAMIC 1000PF K CERAMIC 22PF J		
C93 ,94 C95 -97 C98 C99 ,100 C101,102			CC45FSL1H331J CK45FB1H102K CC45FSL1H221J CE04LW1A101M CE04LW1H010M	CERAMIC 330PF J CERAMIC 1000PF K CERAMIC 220PF J ELECTR0 100UF 10WV ELECTR0 1.0UF 50WV		
C103,104 C105,106 C107,108 C109,110 C111,112			CC45FSL1H221J CK45FB1H471K CE04LW1H010M CF92FV1H224J CF92FV1H474J	CERAMIC 220PF J CERAMIC 470PF K ELECTR0 1.0UF 50WV MF 0.22UF J MF 0.47UF J		
C113,114 C115,116 C117,118 C119,120 C121,122			CF92FV1H913J CF92FV1H184J CF92FV1H333J CF92FV1H683J CQ92FM1H133J	MF 0.091UF J MF 0.18UF J MF 0.033UF J MF 0.068UF J MYLAR 0.013UF J		
C123,124 C125,126 C127,128 C129,130 C131,132			CF92FV1H303J CQ92FM1H562J CQ92FM1H123J CK45FB1H222K CQ92FM1H472J	MF 0.030UF J MYLAR 5600PF J MYLAR 0.012UF J CERAMIC 2200PF K MYLAR 4700PF J		
C133,134 C135,136 C137,138 C139,140 C141,142			CK45FB1H821K CE04LW1V100M CC45FSL1H101J CE04LW1V100M CK45FF1H103Z	CERAMIC 820PF K ELECTR0 10UF 35WV CERAMIC 100PF J ELECTR0 10UF 35WV CERAMIC 0.010UF Z		
C143 C144 C145 C146 C147		*	CE04LW1V332M CE04LW1V471M CE04LW1H101MEL CE04LW1V470M CE04LW1J101M	ELECTR0 3300UF 35WV ELECTR0 470UF 35WV ELECTR0 100UF 50WV ELECTR0 47UF 35WV ELECTR0 100UF 63WV		
C149,150 C151,152 C153-158 C159 C160-163			CE04LW1C220M CK45FB1H102K CE04LW1C470M CE04LW1C101M CK45FF1H103Z	ELECTR0 22UF 16WV CERAMIC 1000PF K ELECTR0 47UF 16WV ELECTR0 100UF 16WV CERAMIC 0.010UF Z		
C164,165 C166-169 C170,171 C172,173 C174		*	C90-3492-05 CE04LW1V100M CC45FSL1H101J CE04LW1H010M CE04LW1A470M	ELECTR0 3300UF 56WV ELECTR0 10UF 35WV CERAMIC 100PF J ELECTR0 1.0UF 50WV ELECTR0 47UF 10WV		
C198,199 C200 C201-204 C205,206 C207,208			CK45FB1H821K CE04LW1H010M CK45FF1H103Z CC45FSL1H220J CE04LW1V100M	CERAMIC 820PF K ELECTR0 1.0UF 50WV CERAMIC 0.010UF Z CERAMIC 22PF J ELECTR0 10UF 35WV		

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C209, 210 C211-213 C214 C215, 216			CC45FSL1H220J CK45FF1H103Z CF92FV1H104J CF92FV1H103J	CERAMIC 22PF J CERAMIC 0.010UF Z MF 0.10UF J MF 0.010UF J		
J2 J3	1H 1G		E13-0446-05 E20-0475-05	PHONE JACK(PHONE, AUX) LOCK TERMINAL BOARD(SPEAKERS)		
△ F3 ,4 △ F5 ,6			F05-3121-05 F06-1022-05	FUSE (SEMKO) (250V T3.15A) FUSE (SEMKO) (250V T1A)		
CN7 -14			J13-0075-05	FUSE CLIP		
CP1 ,2 R39 ,40 R41 -44 R45 ,46 R47 ,48			R90-0840-05 RN148K2C3830FTS RD14NB2E221J RD14NB2E392J RD14NB2E271J	COMPOSITE ELEMENTS(0.22X2 5W) RN 383.0 F 1/6W RD 220 J 1/4W RD 3.9K J 1/4W RD 270 J 1/4W		
R49 ,50 R59 -62 R63 ,64 R69 ,70 R182			RN148K2C4752FTS RD14NB2E4R7J RD14NB2E101J RS14KB3D100J RS14KB3A122J	RN 47.5K F 1/6W RD 4.7 J 1/4W RD 100 J 1/4W FL-PROOF RS 10 J 2W FL-PROOF RS 1.2K J 1W		
R191 R194 R197 R200 R202		*	RD14NB2E101J RS14KB3A270JTE R92-0341-05 RS14KB3A272J RS14KB3D330J	RD 100 J 1/4W FL-PROOF RS 27 J 1W CARBON FILM RESISTOR(4.7 1/4W) FL-PROOF RS 2.7K J 1W FL-PROOF RS 33 J 2W		
R206 R214 R225 R228, 229			RD14NB2E4R7J RS14KB3A101J RS14KB3D561J RS14KB3D561J	RD 4.7 J 1/4W FL-PROOF RS 100 J 1W FL-PROOF RS 560 J 2W FL-PROOF RS 560 J 2W		
K1 K2 K2			S76-0005-05 S76-0015-05 S76-0020-05	MAGNETIC RELAY(SPEAKER ON/OFF) MAGNETIC RELAY(POWER ON/OFF) MAGNETIC RELAY(POWER ON/OFF)		
D1 ,2 D1 ,2 D3 -6 D3 -6 D7			HSS104 ISS133 HSS104A ISS131 HZS4.7N(B)	DIODE DIODE DIODE DIODE ZENER DIODE		
D7 D8 ,9 D8 ,9 D10 -15 D10 -15			RD4.7ES(B) HSS104A ISS131 HSS104 ISS133	ZENER DIODE DIODE DIODE DIODE DIODE		
D16 D16 D17 ,18 D17 ,18 D19			HZS3.9N(B2) RD3.9ES(B2) HZS6.8N(B2) RD6.8ES(B2) HZS5.1N(B2)	ZENER DIODE ZENER DIODE ZENER DIODE ZENER DIODE ZENER DIODE		
△ D19 △ D20 D20 D21 -26 D21 -26			RD5.1ES(B2) D3SBA20F03 RBV-402LFA SS6888 ISR139-100	ZENER DIODE DIODE DIODE DIODE DIODE		
D27			HZS13N(B2)	ZENER DIODE		

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D27			R013ES(B2)	ZENER DIODE		
D28			HZS18N(B)	ZENER DIODE		
D28			R018ES(B)	ZENER DIODE		
D29			HZS13N(B2)	ZENER DIODE		
D29			R013ES(B2)	ZENER DIODE		
D30			HZS6.2N(B2)	ZENER DIODE		
D30			RD6.2ES(B2)	ZENER DIODE		
D31			HZS13N(B2)	ZENER DIODE		
D31			R013ES(B2)	ZENER DIODE		
D32			S5688B	DIODE		
D32			1SR139-100	DIODE		
D33 -35			HSS104A	DIODE		
D33 -35			1SS131	DIODE		
IC1			NJM4580D-D	IC(OP AMP X2)		
IC1			UPC4570C-A	IC(OP AMP X2)		
IC2			TC9163N	IC(BILATERAL SWITCH X16)		
IC3			NJM4580D-D	IC(OP AMP X2)		
IC3			UPC4570C-A	IC(OP AMP X2)		
IC4			LC7522	IC(7CH GRAPHIC EQUALIZER)		
IC5 , 6			MS229P	IC(7CH GRAPHIC EQUALIZER)		
IC7			TC9162N	IC(ANALOG SWITCH ARRAY)		
IC8 -10			UPC4574C	IC(OP AMP X4)		
Q1 -4			2SA992(F,E)	TRANSISTOR		
Q5 -8			2SC1845(F,E)	TRANSISTOR		
Q9 , 10			2SA992(F,E)	TRANSISTOR		
Δ Q11 , 12			2SD2340	TRANSISTOR		
Δ Q13 , 14			2SB1531	TRANSISTOR		
Q15 , 16			2SC4137(V,W)	TRANSISTOR		
Q17 , 18			2SC1845(F,E)	TRANSISTOR		
Q19 , 20			2SC2878(B)	TRANSISTOR		
Q21			2SA1175(F,E)	TRANSISTOR		
Q21			2SA933S(Q,R)	TRANSISTOR		
Q22			2SC1845(F,E)	TRANSISTOR		
Q23			2SA992(F,E)	TRANSISTOR		
Q24 -27			2SC1740S(Q,R)	TRANSISTOR		
Q24 -27			2SC2785(F,E)	TRANSISTOR		
Q31			2SD2012	TRANSISTOR		
Q31			2SD2061	TRANSISTOR		
Q31			2SD2374	TRANSISTOR		
Q32 -34			2SC1740S(Q,R)	TRANSISTOR		
Q32 -34			2SC2785(F,E)	TRANSISTOR		
Q35 , 36			2SA1175(F,E)	TRANSISTOR		
Q35 , 36			2SA933S(Q,R)	TRANSISTOR		
Q37 , 38			2SD2012	TRANSISTOR		
Q37 , 38			2SD2061	TRANSISTOR		
Q37 , 38			2SD2374	TRANSISTOR		
Q39			2SC1740S(Q,R)	TRANSISTOR		
Q39			2SC2785(F,E)	TRANSISTOR		
Q40			2SA954(L,K)	TRANSISTOR		
Q41			2SB772	TRANSISTOR		
DISPLAY UNIT (X14-3392-71)						
C1			CK45FF1H103Z	CERAMIC 0.010UF Z		
C2			CE04JW1A101M	ELECTRO 100UF 10WV		
C3			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C4			CK45FF1H103Z	CERAMIC 0.010UF Z		

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C5			CE04JW1H010M	ELECTRO 0.1UF 50WV		
C6 ,7			CC45FCH1H270J	CERAMIC 27PF J		
C8			CE04LW1A101M	ELECTRO 100UF 10WV		
C9			CK45FF1H103Z	CERAMIC 0.010UF Z		
C10			CE04LW1A101M	ELECTRO 100UF 10WV		
C11			CK45FF1H103Z	CERAMIC 0.010UF Z		
C12			CC93FCH1H102J	CERAMIC 1000PF J		
C13			C90-1827-05	BACKUP 0.047F 5.5WV		
C14			CE04LW1H100M	ELECTRO 10UF 50WV		
C15			CE04LW1A101M	ELECTRO 100UF 10WV		
C16			C91-0745-05	CERAMIC 100PF K		
C17 ,18			CK45FF1H103Z	CERAMIC 0.010UF Z		
C19 -21			CC45FSL1H101J	CERAMIC 100PF J		
C22 ,23			CE04LW1H100M	ELECTRO 10UF 50WV		
C24			CK45FF1H103Z	CERAMIC 0.010UF Z		
C25			CF92FV1H104J	MF 0.10UF J		
C26			CK45FF1H103Z	CERAMIC 0.010UF Z		
C27			CE04LW1H100M	ELECTRO 10UF 50WV		
C28			CE04LW1A101M	ELECTRO 100UF 10WV		
C29			CE04LW1H100M	ELECTRO 10UF 50WV		
C101,102			CF92FV1H183J	MF 0.018UF J		
C103,104			CF92FV1H753J	MF 0.075UF J		
C111			CE04LW1C101M	ELECTRO 100UF 16WV		
C112			CK45FF1H103Z	CERAMIC 0.010UF Z		
C155			CK45FF1H103Z	CERAMIC 0.010UF Z		
C157,158			CC45FSL1H101J	CERAMIC 100PF J		
J1	1L		E11-0209-05	PHONE JACK(PHONES)		
L1 ,2			L40-1011-17	SMALL FIXED INDUCTOR(100UH,K)		
L11 ,12			L40-2201-17	SMALL FIXED INDUCTOR(22UH,K)		
X1			L77-1176-05	CRYSTAL RESONATOR(4.1943M)		
X2			L78-0244-05	RESONATOR (4.000M)		
R111			RD14NB2E330J	RD 33 J 1/4W		
R141,142			RS14KB3A561J	FL-PROOF RS 560 J 1W		
VR1	2L		R29-5046-05	POTENTIOMETER(100K)(VOLUME)		
VR2	3L		R05-5048-05	POTENTIOMETER(200K)(BALANCE)		
S1 -44	1J,1K		S40-1064-05	TACT SWITCH		
D2			HZS3.3N(82)	ZENER DIODE		
D2			RD3.3ES(82)	ZENER DIODE		
D3			HSS104	DIODE		
D3			1SS133	DIODE		
D5			HZS6.2N(82)	ZENER DIODE		
D5			RD6.2ES(82)	ZENER DIODE		
D6 -12			HSS104	DIODE		
D6 -12			1SS133	DIODE		
D13			HZS8.2N(82)	ZENER DIODE		
D13			RD8.2ES(82)	ZENER DIODE		
D14 -27			HSS104	DIODE		
D14 -27			1SS133	DIODE		
D51 -53			HSS104	DIODE		
D51 -53			1SS133	DIODE		
E01	1J		FIP10HM6	INDICATOR TUBE(TUNER SECTION)		
E02	1J		BJ023CK	INDICATOR TUBE(GE SECTION)		

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IC1 IC2 IC3 IC4 IC5 IC6 IC11 Q2 Q2 Q3 -5 Q3 -5 Q6 -8 Q6 -8 Q10 Q10 Q11 ,12 A1			UP075212ACW-A20 MS0940-345SP MSC7112-01 UPA80C XR-1091ECP PST529C TA8409S 2SC1740S(Q,R) 2SC2785(F,E) DTA124ES UN4112 DTC124ES UN4212 2SA1175(F,E) 2SA933S(Q,R) 2SC2878(A,B) W02-0975-05	IC(MICROPROCESSOR) IC(MICROPROCESSOR) IC(DISPLAY CONTROLLER) IC(7CH TRANSISTOR ARRAY) IC(EQUALIZER FILTER) IC(SYSTEM RESET) IC(MOTOR CONTROL) TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR ELECTRIC CIRCUIT MODULE			
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OPERATION UNIT (X25-4722-70)							
D8 -20 S1 -43 D1 -7 D1 -7 D21 -39 D21 -39 ED1 Q1 -5	2M, 3L 3L		B30-1291-05 S40-1064-05 HSS104A 1SS131 HSS104A 1SS131 FIP98PM7 2SA954(L,K)	LED TACT SWITCH DIODE DIODE DIODE DIODE INDICATOR TUBE(CD SECTION) TRANSISTOR			
RECORD / PLAYBACK AND TUNER UNIT (X28-2422-70)							
C1 -4 C5 C6 C8 C9 C10 C11 C12 C13 C14 ,15 C16 C17 C18 C19 C20 C21 C27 ,28 C29 ,30 C35 C36 C37 C38 C39 C41 ,42 C43			CK45FF1H223Z CE04LW1C470M CK45FF1H223Z CE04LW1HR47M CC45FSL1H101J CE04LW1H2R2M CE04LW1H3R3M CQ92FM1H103J CF92FV1H153J CK45FF1H223Z CE04LW1V4R7M CK45FF1H223Z CE04LW1V100M CK45FF1H223Z CE04LW1V4R7M CE04LW1C101M CQ92FM1H133J CE04LW1H010M CK45FB1H471K CQ92FM1H152J CQ92FM1H132J CC45FSL1H121J CC45FSL1H271J CC45FCH1H220J CC45FSL1H101J	CERAMIC ELECTRO CERAMIC ELECTRO CERAMIC ELECTRO ELECTRO MYLAR MF CERAMIC ELECTRO CERAMIC ELECTRO CERAMIC ELECTRO ELECTRO MYLAR ELECTRO CERAMIC MYLAR MYLAR CERAMIC CERAMIC CERAMIC CERAMIC	0.022UF 47UF 0.022UF 0.47UF 100PF 2.2UF 3.3UF 0.010UF 0.015UF 0.022UF 4.7UF 0.022UF 10UF 0.022UF 4.7UF 100UF 0.013UF 1.0UF 470PF 1500PF 1300PF 120PF 270PF 22PF 100PF	Z 16WV Z 50WV J 50WV 50WV J J Z 35WV Z 35WV Z 35WV 16WV J 50WV K J J J J J J	

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C45			CC45FSL1H101J	CERAMIC 100PF J		
C46 , 47			CK45FF1H223Z	CERAMIC 0.022UF Z		
C48			CF92FV1H273J	MF 0.027UF J		
C49			CE04LW1H010M	ELECTR0 1.0UF 50WV		
C50			CE04LW1C470M	ELECTR0 47UF 16WV		
C51			CE04LW1H010M	ELECTR0 1.0UF 50WV		
C52			CE04LW1C470M	ELECTR0 47UF 16WV		
C55			CK45FF1H223Z	CERAMIC 0.022UF Z		
C56			CC45FCH1H220J	CERAMIC 22PF J		
C62 -64			CE04LW1H010M	ELECTR0 1.0UF 50WV		
C65			CE04LW1HR22M	ELECTR0 0.22UF 50WV		
C66			CE04LW1V100M	ELECTR0 10UF 35WV		
C67 , 68			CC45FSL1H121J	CERAMIC 120PF J		
C69			CE04LW1V100M	ELECTR0 10UF 35WV		
C70			CK45FB1H561K	CERAMIC 560PF K		
C71			CQ92FM1H103J	MYLAR 0.010UF J		
C106			CE04LW1C470M	ELECTR0 47UF 16WV		
C107, 108			CK45FF1H223Z	CERAMIC 0.022UF Z		
C109, 110			C91-0085-05	CERAMIC 0.022UF N		
C111-113			CK45FF1H223Z	CERAMIC 0.022UF Z		
C114			C91-0085-05	CERAMIC 0.022UF N		
C170			CC45FSL1H101J	CERAMIC 100PF J		
C171			C91-0737-05	CERAMIC 47PF J		
C200			C91-1439-05	FILM 0.01UF 250VAC		
C201, 202			CC45FSL1H101J	CERAMIC 100PF J		
C203, 204			CC45FSL1H221J	CERAMIC 220PF J		
C205			CE04LW1V100M	ELECTR0 10UF 35WV		
C206			CE04LW1A101M	ELECTR0 100UF 10WV		
C207			CE04LW1H0R1M	ELECTR0 0.1UF 50WV		
C208, 209			CE04LW1A101M	ELECTR0 100UF 10WV		
C210			CE04LW1H2R2M	ELECTR0 2.2UF 50WV		
C211			CE04LW1V4R7M	ELECTR0 4.7UF 35WV		
C231, 232			CC45FSL1H101J	CERAMIC 100PF J		
C233, 234			CK45FB1H561K	CERAMIC 560PF K		
C235, 236			CE04LW1C220M	ELECTR0 22UF 16WV		
C237-240			CK45FB1H391K	CERAMIC 390PF K		
C241, 242			CQ92FM1H103J	MYLAR 0.010UF J		
C243, 244			CE04LW1V100M	ELECTR0 10UF 35WV		
C245, 246			CF92FV1H823J	MF 0.082UF J		
C247			CE04LW1A101M	ELECTR0 100UF 10WV		
C248			CE04LW1C470M	ELECTR0 47UF 16WV		
C249, 250			CK45FB1H332K	CERAMIC 3300PF K		
C251, 252			CE04LW1V4R7M	ELECTR0 4.7UF 35WV		
C253, 254			CE04LW1HR22M	ELECTR0 0.22UF 50WV		
C255, 256			CE04LW1V100M	ELECTR0 10UF 35WV		
C257			CE04LW1C101M	ELECTR0 100UF 16WV		
C258			CE04LW1H010M	ELECTR0 1.0UF 50WV		
C259			CE04LW1C220M	ELECTR0 22UF 16WV		
C260, 261			CE04LW1H3R3M	ELECTR0 3.3UF 50WV		
C262, 263			CE04LW1H2R2M	ELECTR0 2.2UF 50WV		
C264, 265			CE04LW1HR22M	ELECTR0 0.22UF 50WV		
C266, 267			CE04LW1A101M	ELECTR0 100UF 10WV		
C268, 269			CE04LW1V100M	ELECTR0 10UF 35WV		
C270			CE04LW1C331M	ELECTR0 330UF 16WV		
C272			CE04LW1V100M	ELECTR0 10UF 35WV		

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C273			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C274			CQ92FM1H392J	MYLAR 3900PF J		
C275			CQ92FM1H682J	MYLAR 6800PF J		
C276			CQ92FM1H392J	MYLAR 3900PF J		
C277			CE04LW1C470M	ELECTRO 47UF 16WV		
C278, 279			CC45FSL1H221J	CERAMIC 220PF J		
C280			CQ93HP2A103J	MYLAR 0.010UF J		
C281, 282			CK45FB1H391K	CERAMIC 390PF K		
C283			CE04LW1C470M	ELECTRO 47UF 16WV		
C284			CK45FF1H223Z	CERAMIC 0.022UF Z		
C285			CK45FB2H471K	CERAMIC 470PF K		
C287, 288			CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C289, 290			CQ92FM1H132J	MYLAR 1300PF J		
C291, 292			CE04LW1H2R2M	ELECTRO 2.2UF 50WV		
C293, 294			CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C295, 296			CE04LW1V100M	ELECTRO 10UF 35WV		
C297, 298			CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C299, 300			CE04LW1V100M	ELECTRO 10UF 35WV		
C301, 302			CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C303			CC45FSL1H221J	CERAMIC 220PF J		
C304			CE04LW1V100M	ELECTRO 10UF 35WV		
C305			CE04LW1C101M	ELECTRO 100UF 16WV		
C306			CK45FB1H332K	CERAMIC 3300PF K		
C307			CF92FV1H104J	MF 0.10UF J		
C308			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C309			CC45FSL1H221J	CERAMIC 220PF J		
C310			CE04LW1V100M	ELECTRO 10UF 35WV		
C311			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C312-314			CE04LW1V100M	ELECTRO 10UF 35WV		
C315			CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
C316			CK45FF1H223Z	CERAMIC 0.022UF Z		
C317			CE04LW1A101M	ELECTRO 100UF 10WV		
C318			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C319			CK45FF1H223Z	CERAMIC 0.022UF Z		
C320			CE04LW1V100M	ELECTRO 10UF 35WV		
C321			CE04LW1V4R7M	ELECTRO 4.7UF 35WV		
J1	2H		E20-0321-05	LOCK TERMINAL BOARD (ANTENNA)		
F1			F05-8013-05	FUSE (SEMKO) (250V T800mA)		
J2			F10-0759-04	SHIELDING PLATE		
CN9, 10			J13-0075-05	FUSE CLIP		
J10 -13			J11-0098-05	WIRE CLAMPER		
CF1, 2			L72-0536-05	CERAMIC FILTER		
CF3			L72-0096-05	CERAMIC FILTER		
L1			L30-0488-05	AM IFT		
L2			L30-0439-25	FM IFT<DISCRIMINATOR>		
L3			L40-1021-14	SMALL FIXED INDUCTOR(1.0mH, K)		
L4			L40-5625-29	SMALL FIXED INDUCTOR(5.6mH, J)		
L5			L40-6825-29	SMALL FIXED INDUCTOR(6.8mH, J)		
L8			L40-1091-17	SMALL FIXED INDUCTOR(1UH)		
L104			L39-0195-05	COMBINATION COIL		
L105			L39-0192-05	COMBINATION COIL		
L106			L40-1091-17	SMALL FIXED INDUCTOR(1UH)		

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L201, 202 L203, 204 L205 L206 X1			L79-0720-05 L40-1035-29 L32-0536-05 L79-0785-05 L77-1122-05	LC FILTER SMALL FIXED INDUCTOR(10mH. J) BIAS OSCILLATING COIL LINE FILTER CRYSTAL RESONATOR(7.2MHz)		
X2 X11			L78-0208-05 L78-0209-05	RESONATOR (456kHz) RESONATOR (4.194MHz)		
CP1 CP2 CP3 CP5 CP6			R90-0819-05 R90-0487-05 R90-0804-05 R90-0812-05 R90-0818-05	MULTI-COMP 47KX6 J 1/6W MULTI-COMP 47KX4 J 1/6W MULTI-COMP 47KX8 J 1/4W MULTI-COMP 10KX10 J 1/6W MULTI-COMP 47KX5 J 1/6W		
CP8 R8 R21 R37 R53			R90-0856-05 RD14NB2E101J RD14NB2E101J RD14NB2E101J RS14KB3D221J	MULTI-COMP 10KX5 J 1/6W RD 100 J 1/4W RD 100 J 1/4W RD 100 J 1/4W FL-PROOF RS 220 J 2W		
R111 R224 R228 R250 R257			RD14NB2E101J RD14NB2E220J RS14KB3D561J RD14NB2E391J RD14NB2E221J	RD 100 J 1/4W RD 22 J 1/4W FL-PROOF RS 560 J 2W RD 390 J 1/4W RD 220 J 1/4W		
R276 R318 R324, 325 R328 R353			RD14NB2E101J RD14NB2E100J RD14NB2E3R3J RD14NB2E471J RD14NB2E471J	RD 100 J 1/4W RD 10 J 1/4W RD 3.3 J 1/4W RD 470 J 1/4W RD 470 J 1/4W		
VR1 VR3 VR5 VR11-16 VR17, 18			R12-3687-05 R12-3685-05 R12-6663-05 R12-3686-05 R12-5071-05	TRIMMING POT.(33K)<FM T-LEVEL> TRIMMING POT.(10K)<AM T-LEVEL> TRIMMING POT(330K)<SEPARATION> TRIMMING POT(22K)<PB, REC LEV> TRIMMING POT(220K)<BIAS CURR.>		
VR19 VR20 VR21 VR22			R12-3685-05 R12-1619-05 R12-3685-05 R12-1619-05	TRIMMING POT(10K)<TAPE SP.N> TRIMMING POT(4.7K)<TAPE SP.H> TRIMMING POT(10K)<TAPE SP.N> TRIMMING POT(4.7K)<TAPE SP.H>		
S111	2H		S31-2132-05	SLIDE SWITCH(BEAT CANCEL)		
D1 D1 D3 D3 D109-116			HSS104 1SS133 HZS5.1S(B2) RD5.1JS(B2) HSS104	DIODE DIODE ZENER DIODE ZENER DIODE DIODE		
D109-116 D201 D201 D202 D202			1SS133 HZS6.2N(B2) RD6.2ES(B2) HSS104 1SS133	DIODE ZENER DIODE ZENER DIODE DIODE DIODE		
D203 D203 D204 D204 D205			HZS3.9N(B2) RD3.9ES(B2) HZS6.8N(B2) RD6.8ES(B2) HSS104	ZENER DIODE ZENER DIODE ZENER DIODE ZENER DIODE DIODE		
D205			1SS133	DIODE		

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0206			HZS8.2S(B2)	ZENER DIODE		
0206			R08.2JS(B2)	ZENER DIODE		
0207-210			HSS104	DIODE		
0207-210			1SS133	DIODE		
0211			HZS5.1S(B2)	ZENER DIODE		
0211			R05.1JS(B2)	ZENER DIODE		
0212-220			HSS104	DIODE		
0212-220			1SS133	DIODE		
0221, 222			S56888	DIODE		
0221, 222			1SR139-100	DIODE		
0223-227			HSS104	DIODE		
0223-227			1SS133	DIODE		
0228, 229			S56888	DIODE		
0228, 229			1SR139-100	DIODE		
0230-240			HSS104	DIODE		
0230-240			1SS133	DIODE		
IC1			LA1265	IC(FM/AM TUNER)		
IC2			LA3401	IC(FM MPX)		
IC3			LM7001	IC(PLL FREQUENCY SYNTHESIZER)		
IC14			LA3246	IC(PREAMP X2)		
IC15			HA12136A	IC(DOLBY B NR SYSTEM)		
IC16			CXA1198AP	IC(CASSETTE DECK REC EQUALIZER)		
IC17			UPC1330HA	IC(2CH HEAD SWITCHING)		
IC18			TC9213P	IC(2CH ELECTRONIC VOLUME)		
IC19			NJM4565D	IC(OP AMP X2)		
IC20			UP075112CW-149	IC(MICROPROCESSOR)		
IC21			TC4051BP	IC(8CH MPX/ DE-MPX)		
IC21			XRU4051B	IC(MULTIPLEXER/DEMULTIPLEXER)		
Q1			2SC1923(R, Ø)	TRANSISTOR		
Q2			2SC1845(F, E)	TRANSISTOR		
Q3 , 4			2SC1740S(Q, R)	TRANSISTOR		
Q3 , 4			2SC2785(F, E)	TRANSISTOR		
Q5			2SK163(L, M)	FET		
Q5			2SK364(GR, BL)	FET		
Q7			2SC1740S(Q, R)	TRANSISTOR		
Q7			2SC2785(F, E)	TRANSISTOR		
Q102-104			2SA1175(F, E)	TRANSISTOR		
Q102-104			2SA933S(Q, R)	TRANSISTOR		
Q105, 106			2SC1740S(Q, R)	TRANSISTOR		
Q105, 106			2SC2785(F, E)	TRANSISTOR		
Q110, 111			2SD1302(S, T)	TRANSISTOR		
Q201-208			2SC1740S(Q, R)	TRANSISTOR		
Q201-208			2SC2785(F, E)	TRANSISTOR		
Q209-212			DTC143TS	DIGITAL TRANSISTOR		
Q209-212			RN1210	DIGITAL TRANSISTOR		
Q213, 214			DTC124ES	DIGITAL TRANSISTOR		
Q213, 214			RN1203	DIGITAL TRANSISTOR		
Q215, 216			DTC143TS	DIGITAL TRANSISTOR		
Q215, 216			RN1210	DIGITAL TRANSISTOR		
Q217			2SC1740S(Q, R)	TRANSISTOR		
Q217			2SC2785(F, E)	TRANSISTOR		
Q218, 219			2SD1302(S, T)	TRANSISTOR		
Q220			DTA124ES	DIGITAL TRANSISTOR		
Q220			RN2203	DIGITAL TRANSISTOR		
Q223, 224			2SC1740S(Q, R)	TRANSISTOR		

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Q223, 224 Q225 Q225 Q227 Q228			2SC2785(F,E) DTA124ES RN2203 2SD1266(Q,P) 2SC1740S(Q,R)	TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR TRANSISTOR TRANSISTOR		
Q228 Q229-232 Q229-232 Q233 Q233			2SC2785(F,E) DTC124ES RN1203 2SC1740S(Q,R) 2SC2785(F,E)	TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR TRANSISTOR TRANSISTOR		
Q234 Q235, 236 Q235, 236 Q237, 238 Q239			2SC2003(L,K) 2SC1740S(Q,R) 2SC2785(F,E) 2SC1845(F,E) 2SA992(F,E)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q240-244 Q240-244 Q245, 246 Q245, 246 Q247			2SC1740S(Q,R) 2SC2785(F,E) 2SA1175(F,E) 2SA933S(Q,R) DTC124ES	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR		
Q247 Q248, 249 Q250 Q250 Q251			RN1203 2SC3246 2SC1740S(Q,R) 2SC2785(F,E) 2SA1175(F,E)	DIGITAL TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q251 Q252 Q252 Q253, 254 Q255			2SA933S(Q,R) DTC124ES RN1203 2SC3246 2SC1740S(Q,R)	TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR TRANSISTOR TRANSISTOR		
Q255			2SC2785(F,E)	TRANSISTOR		
DT1	2H		W02-1041-15	FM FRONT-END ASSY		
CD PLAYER UNIT (X32-2172-70)						
C1 C2 C3 C4 C5			CE04LW1A101M CE04LW1A470M CK45FB1H102K CC45FSL1H330J CF92FV1H332J	ELECTRO 100UF 10WV ELECTRO 47UF 10WV CERAMIC 1000PF K CERAMIC 33PF J MF 3300PF J		
C6 C7 C8 C9 , 10 C11			CF92FV1H333J CF92FV1H103J CF92FV1H102J CE04LW1A101M CE04LW1HR47M	MF 0.033UF J MF 0.010UF J MF 1000PF J ELECTRO 100UF 10WV ELECTRO 0.47UF 50WV		
C12 C13 C14 C15 C16			CF92FV1H123J CE04LW1H2R2M CF92FV1H223J CE04LW1V100M CE04HW1A470M	MF 0.012UF J ELECTRO 2.2UF 50WV MF 0.022UF J ELECTRO 10UF 35WV NP-ELEC 47UF 10WV		
C17 C18 C19 , 20 C21 C22			CF92FV1H472J CC45FSL1H181J CF92FV1H363J CF92FV1H224J CE04HW1H2R2M	MF 4700PF J CERAMIC 180PF J MF 0.036UF J MF 0.22UF J NP-ELEC 2.2UF 50WV		

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C23			CF92FV1H124J	MF 0.12UF J		
C24			CK45FB1H561K	CERAMIC 560PF K		
C25			CF92FV1H753J	MF 0.075UF J		
C26			CF92FV1H394J	MF 0.39UF J		
C27			CK45FB1H122K	CERAMIC 1200PF K		
C28			CE04HW1E100M	NP-ELEC 10UF 25WV		
C29			CF92FV1H103J	MF 0.010UF J		
C30			CE04LW1C470M	ELECTRØ 47UF 16WV		
C31			CF92FV1H103J	MF 0.010UF J		
C32			CE04LW1C470M	ELECTRØ 47UF 16WV		
C33 ,34			CK45FB1H102K	CERAMIC 1000PF K		
C35			CF92FV1H103J	MF 0.010UF J		
C36			CE04LW1A101M	ELECTRØ 100UF 10WV		
C37			CE04LW1H3R3M	ELECTRØ 3.3UF 50WV		
C38			CE04LW1V101M	ELECTRØ 100UF 35WV		
C39			CC45FSL1H820J	CERAMIC 82PF J		
C40			CC45FUJ1H330J	CERAMIC 33PF J		
C41			CC45FUJ1H070D	CERAMIC 7.0PF D		
C42 ,43			CK45FB1H222K	CERAMIC 2200PF K		
C44			CF92FV1H124J	MF 0.12UF J		
C45			CC45FSL1H101J	CERAMIC 100PF J		
C46			CK45FF1H103Z	CERAMIC 0.010UF Z		
C47 ,48			CE04LW1A221M	ELECTRØ 220UF 10WV		
C49			CK45FF1H103Z	CERAMIC 0.010UF Z		
C50			CK45FB1H222K	CERAMIC 2200PF K		
C51			CE04LW1HR47M	ELECTRØ 0.47UF 50WV		
C52			CF92FV1H333J	MF 0.033UF J		
C53			CE04LW1A470M	ELECTRØ 47UF 10WV		
C54			CF92FV1H473J	MF 0.047UF J		
C55			CE04LW0J331M	ELECTRØ 330UF 6.3WV		
C56			CE04LW1V101M	ELECTRØ 100UF 35WV		
C57			CE04LW1A470M	ELECTRØ 47UF 10WV		
C58 ,59			CK45FF1H223Z	CERAMIC 0.022UF Z		
C60			CE04LW1V101M	ELECTRØ 100UF 35WV		
C61			CF92FV1H224J	MF 0.22UF J		
C62			CK45FF1H103Z	CERAMIC 0.010UF Z		
C67 ,68			CE04HW1E100M	NP-ELEC 10UF 25WV		
C69			CE04HW1HOR1M	NP-ELEC 0.1UF 50WV		
C70 ,71			CE04LW0J221M	ELECTRØ 220UF 6.3WV		
C72 ,73			CE04LW1A470M	ELECTRØ 47UF 10WV		
C74			CK45FF1H103Z	CERAMIC 0.010UF Z		
C75			CE04HW1H010M	NP-ELEC 1.0UF 50WV		
C76			CK45FB1H102K	CERAMIC 1000PF K		
C77 ,78			CC45FCH1H470J	CERAMIC 47PF J		
C79			CE04HW1H2R2M	NP-ELEC 2.2UF 50WV		
C80			CE04LW1C222M	ELECTRØ 2200UF 16WV		
C81			CE04LW1C102M	ELECTRØ 1000UF 16WV		
C82 ,83			CC45FSL1H150J	CERAMIC 15PF J		
C84			CE04HW1E100M	NP-ELEC 10UF 25WV		
C85 ,86			CK45FF1H103Z	CERAMIC 0.010UF Z		
C87 ,88			CC45FSL1H221J	CERAMIC 220PF J		
C89			CK45FF1H103Z	CERAMIC 0.010UF Z		
C98 -101			CK45FF1H103Z	CERAMIC 0.010UF Z		
L1			L40-1001-17	SMALL FIXED INDUCTOR(10UH,K)		

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L2 L3 ,4 X1 X2			L32-0355-05 L40-2291-17 L78-0267-05 L77-1164-05	OSCILLATING COIL<VC0> SMALL FIXED INDUCTOR<2.2UH> RESONATOR (4.194MHZ) CRYSTAL RESONATOR<16.9344MHZ>		
R47 R124 VR1 ,2 VR3 ,4			RD14GB2E4R7J R92-0219-05 R12-3128-05 R12-3126-05	FL-PROOF RD 4.7 J 1/4W FUSE RESIST 10 G 1/4W TRIMMING POT.<22K><TE,FE-BAL> TRIMMING POT.<10K><F.T-GAIN>		
D1 ,2 D1 ,2 D3 D4 D4			HSS104 1SS133 1SV147 HSS104 1SS133	DIODE DIODE VARIABLE CAPACITANCE DIODE DIODE DIODE		
D5 D5 D6 -9 D6 -9 D11 ,12			HZS2.7N<B2> R02.7ES<B2> HZS5.1S<B2> R05.1JS<B2> HSS104	ZENER DIODE ZENER DIODE ZENER DIODE ZENER DIODE DIODE		
D11 ,12 D15 D15 D16 -20 D21			1SS133 HZS5.1S<B2> R05.1JS<B2> S55668 HZS6.8N<B2>	DIODE ZENER DIODE ZENER DIODE DIODE ZENER DIODE		
D21 IC1 IC2 IC3 IC5			RD6.8ES<B2> CXA1081S CXA1244S CXD1167Q TC40668P	ZENER DIODE IC<RF AMP> IC<SERVO SIGNAL PROCESSOR> IC<DIGITAL SIGNAL PROCESSOR> IC<ANALOG/ DIGITAL SW>		
IC6 IC7 ,8 IC10 IC11 IC13,14			XRA10393 NJM45580 TA2009P TC92378N NJM45580	IC<DUAL COMPALATOR> IC<OP AMP X2> IC<DA CONVERTER FILTER> IC<DA CONVERTER> IC<OP AMP X2>		
IC15 Q1 Q2 Q2 Q3			UPD75212ACW-157 2SA1534A 2SA1175<F,E> 2SA933S<Q,R> DTC124ES	IC<MICROPROCESSOR> TRANSISTOR TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR		
Q3 Q4 Q4 Q5 Q6 ,7			UN4212 2SC1740S<Q,R> 2SC278S<F,E> 2SD1266 2SA1534A	DIGITAL TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q8 Q9 Q10 Q17 ,18 Q19			2SC3940A STA341M 2SK246<Y,GR> 2SC2878 2SD1944<J,K>	TRANSISTOR TRANSISTOR FET TRANSISTOR TRANSISTOR		
Q20 Q21 Q21 Q22 Q22			2SA1534A DTC124ES UN4212 DTA124ES UN4112	TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR		
Q23			2SC3940A	TRANSISTOR		

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MECHANISM ASS'Y : CD (X92-1401-11)						
101	1A		A10-2564-01	CHASSIS		S
104	3B		A11-0625-02	SUB CHASSIS		S
114	1B		D10-2324-03	SLIDER		
115	2B		D10-2315-04	ROD(PICK UP)		
116	1B		D13-0807-04	GEAR(INTERMEDIATE)		
117	1B		D13-0808-02	GEAR(MAIN)		
119	2B		D13-0802-08	GEAR(A)		
120	2B		D13-0803-08	GEAR(B)		
121	1B		D13-0813-04	GEAR(PULLEY)		
122	2B		D15-0296-04	MOTOR PULLEY(LOADING MOTOR)		
123	1B		D16-0284-03	BELT		S
124	2B		D40-0951-05	MECHANISM ASSY		
127	1B		E23-0343-04	TERMINAL(SHORT)		
128	2B		E35-0262-05	WIRING HARNESS(WHITE,RED)		
129	2B		E35-0291-15	WIRING HARNESS(WHITE,BLUE)		S
130	2B		E31-7453-05	WIRING HARNESS(SP)		S
131	3B		E40-0188-08	CONNECTOR PIN(4P)		
134	2B		F07-0554-08	GEAR COVER		
135	1B		F19-1015-24	BLIND PLATE		S
136	1B		G02-0945-14	FLAT SPRING ASSY		
138	3B		G01-2394-04	COMPRESSION SPRING(FRONT)		S
139	3B		G01-2395-04	COMPRESSION SPRING(REAR)		S
140	1B		G02-0967-04	FLAT SPRING		S
141	1B		G02-0968-04	FLAT SPRING		S
142	2A		G16-0743-04	SHEET		S
143	2A		G16-0745-04	SHEET		S
144	2B		J19-3148-08	SHAFT CLAMP		
145	3B		J25-6135-08	MOTOR PCB		
146	2B		J90-0640-08	SLIDER HOLDER(J)		
147	3B		J02-1027-15	INSULATOR		
148	2B		J11-0130-03	CLAMPER		
150	3B		J42-0175-04	BUSHING		S
151	2A		J99-0069-11	TRAY		S
152	2A		J99-0070-13	TRAY ASSY		S
A			N35-2605-46	BINDING HEAD MACHINE SCREW		
B			N09-1522-05	SET SCREW (3X8)		
D			N89-2608-46	BINDING HEAD TAPTITE SCREW		
G			N89-2606-46	BINDING HEAD TAPTITE SCREW		
H			N19-1217-04	FLAT WASHER		
-			N09-2769-05	MACHINE SCREW		
155	3D		S46-1128-08	LEAF SWITCH(S1/LIMIT)		S
156	2B		S33-2061-05	LEVER SWITCH(S2/OPEN,CLOSE)		
163	2B		T50-1046-04	Yoke		
164	2B		T99-0233-05	MAGNET		
DM	2B		T42-0528-08	DC MOTOR(DISC)		
FM	3B		T42-0527-08	DC MOTOR(FEED)		
LM	2B		T42-0530-05	DC MOTOR(LOADING)		
PU	2B		T25-0011-05	OPTICAL PICK UP HEAD(KSS-210A)		S

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MECHANISM ASS'Y : A DECK (D40-0993-25), B DECK (D40-0994-25)						
301	2C		A10-2922-08	HEAD CHASSIS CALKED ASSY		
302	1D		A11-0729-08	BASE CHASSIS ASSY		
305	1E		D01-0138-08	FLYWHEEL ASSY LEFT		
306	1E, 2E		D01-0139-08	FLYWHEEL ASSY RIGHT		
308	2D		D10-3210-08	SHIFT LEVER		
309	2C		D10-3211-08	PLAY SHIFT LEVER		
310	2C		D10-3212-08	INTER LOCK LEVER		
311	1C		D10-3254-08	EJECT LEVER		B
311	2D		D10-3255-08	EJECT LEVER		A
312	1C, 1D		D10-3214-08	FR ARM		
313	1C		D10-3215-08	PLAY ARM		
314	1E		D10-3216-08	SHIFT SELECT LEVER		
315	2D		D10-3217-08	TRIGGER ARM		
316	2D		D10-3218-08	SELECT ARM		
317	1D, 1E		D10-3219-08	BRAKE ARM		
319	1D		D13-0965-08	CLUTCH GEAR		
320	1D		D13-0966-08	REW GEAR		
321	1D		D13-0967-08	FR GEAR		
322	1D, 2D		D13-0968-08	REEL GEAR		
323	1C		D13-0974-08	PLAY GEAR ASSY		
324	2D, 2E		D13-0970-08	PLAY CAM GEAR		
328	1E		D19-0273-08	CLUTCH PULLEY ASSY		
330	2D		D19-0270-08	REEL CAP		
332	2D		D23-0269-08	HOUSING ASSY RIGHT		
333	1C		D23-0270-08	HOUSING ASSY LEFT		
335	1E		E35-0264-08	MOTOR WIRE		
336	1E		E35-0356-08	FLAT WIRE 1SP		A
336	1E		E35-0358-08	FLAT WIRE 1SP		B
337	2E		E35-0357-08	HEAD WIRE 3P		A
337	2E		E35-0359-08	HEAD WIRE 8P		B
338	2C		F10-0863-08	SHIELDING PLATE		
340	2C		G01-3428-08	RETURN GEAR SPRING		
341	1D, 2D		G01-3429-08	REEL SPRING		
342	1E		G01-3431-08	CLUTCH ARM SPRING		
343	1C		G01-3432-08	PLAY ARM SPRING		
344	1E		G01-3433-08	SHIFT SELECT LEVER SPRING		
345	2D, 2E		G01-3434-08	TRIGGER ARM SPRING		
346	2D		G01-3435-08	SHIFT LEVER SPRING		
347	2C		G01-3436-08	HEAD SHASSIS SPRING		
348	2D		G01-3437-08	PINCH ROLLER ARM SPRING RIGHT		
349	1C, 2C		G01-3438-08	PINCH ROLLER ARM SPRING LEFT		
350	1E		G01-3439-08	BRAKE ARM SPRING		
351	2C		G01-3440-08	INTER LOCK LEVER SPRING RIGHT		A
351	2C		G01-3441-08	INTER LOCK LEVER SPRING LEFT		B
352	1D		G02-0913-08	PACK LOCK FLAT SPRING		
353	2C		G02-0994-08	AZIMUTH SPRING		
354	1D		G16-0780-08	REFLECT SEAL		
355	2D		G16-0786-08	SHEET		
356	2C		J21-5789-08	HEAD PLATE ASSY		
357	2C		J31-0850-08	RETURN GEAR COLLER		
358	2D		J31-0851-08	EJECT LEVER COLLER		
359	2D		J42-0183-08	REEL CAP BUSHING		
360	2C		J90-0679-08	TAPE GUIDE		

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361	2C		J90-0680-08	TAPE GUIDE		
364	2C		N09-2883-08	AZIMUTH SCREW		
365	2D		N09-2870-08	SCREW M2.6X5		
366	1E, 2D		N09-2871-08	SCREW M2X6		
367	2C		N09-2872-08	SCREW M1.7X8		
368	2C		N09-2873-08	SCREW /2X6		
369	2C		N09-2876-08	HEAD SCREW		
370	1D		N19-1224-08	FLAT WASHER /4.1X6.5X0.25		
371	1E, 2E		N19-1225-08	FLAT WASHER /2.1X4.0X0.25		
372	1D		N19-1285-08	FLAT WASHER /1.6X3.0X0.13		
373	2E		N19-1286-08	FLAT WASHER /2.3X4.0X0.25		
374	2C		N19-1287-08	FLAT WASHER /3.5X6.5X0.5		
375	1D		N19-1288-08	FLAT WASHER /1.65X5.0X0.5		
376	2D		N19-1289-08	FLAT WASHER /1.8X6.0X0.5		
380	2C, 2D		N09-2877-08	TAP TITE SCREW M2X4		
381	1D		N35-2604-46	BINDING HEAD MACHINE SCREW		
385	1E		S74-0006-08	LEAF SWITCH		
386	1E		S74-0007-08	LEAF SWITCH		
388	2D		T94-0226-08	SOLENOID SWITCH		
390	1E		W02-1130-08	ELECTRIC UNIT		
BM	1E		D16-0326-08	BELT		
PF	2D		D14-0341-08	PINCH ROLLER ASSY		
PR	2C		D14-0340-08	PINCH ROLLER ASSY		
MM	1D		T42-0610-08	DC MOTOR ASSY		
PH	2C		T31-0066-08	PLAYBACK HEAD		
RPEH	2C		T39-0020-08	REC/PLAYBACK/ERASE HEAD		
PH1	1E		NJL5165K	PHOTO REFLECTOR		

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RXD-27L

SPECIFICATIONS

[Amplifier section]

Rated power output (DIN)	
1 kHz at 8Ω	35W + 35W
Total harmonic distortion at 1/2 rated power	
1 kHz, 8Ω	0.09%
Frequency response	
AUX	20Hz ~ 40kHz, +0dB, -3dB
Signal to noise ratio (IHF-A)	
Phono (MM)	66dB
AUX	90dB
Input sensitivity / Impedance	
Phono (MM)	2.5mV / 47kΩ
AUX	200mV / 47kΩ

Graphic equalizer

Center frequencies	60Hz, 150Hz, 400Hz, 1kHz 2.4kHz, 6kHz, 15kHz
Control range	±12dB

[Tuner section]

FM section

Tuning frequency range	87.5MHz ~ 108MHz
Antenna impedance	75Ω unbalanced
Sensitivity (DIN)	
MONO	0.8μV
STEREO	25μV
Total harmonic distortion (DIN at 1kHz, 65.2dBf input)	
MONO	0.3%
STEREO	0.5%
Signal to noise ratio	
(DIN weighted at 1kHz, 65.2dBf input)	
MONO	70dB
STEREO	64dB
Selectivity (DIN ±300kHz)	64dB
Stereo separation (DIN at 1kHz)	40dB
Frequency response	30Hz ~ 15kHz, ±0.5dB, -2.5dB

MW section

Tuning frequency range	531kHz ~ 1,602kHz
Usable sensitivity	20μV
Total harmonic distortion	0.6%
Signal to noise ratio	47dB

[Cassette section]

Type	4-track, 2 channel stereo
Heads	
Playback / Record head	1 (B deck)
Playback head	1 (A deck)
Erasing head	1 (B deck)
Motors	1 (each deck)
Fast winding time	Approx. 110 sec. with C-60 tape

Frequency response (B deck)

Normal tape	30Hz ~ 16,000Hz, ±3dB
CrO ₂ tape	30Hz ~ 17,000Hz, ±3dB
Signal to noise ratio	
Dolby NR ON	64dB (Normal tape)
Dolby NR OFF	54dB (Normal tape)
Wow & Flutter	0.08% (W.R.M.S.)

[CD section]

Laser	Semiconductor laser
Playing rotation	200rpm ~ 500rpm (CLV)
Frequency response	10Hz ~ 20kHz, ±1.0dB
Signal to noise ratio	More than 93dB
Total harmonic distortion	Less than 0.05% (at 1kHz)
Wow & Flutter	Unmeasurable limit

General

Power consumption	150W
Dimensions	W : 360mm (14-3/16") H : 451mm (17-3/4") D : 312mm (12-5/16")
Weight (net)	10.9kg (24.0lb)

Note : KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice. Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

Note :

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the Europe (E) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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