

# STEREO CASSETTE DECK

# KX-200/KX-200U

## SERVICE MANUAL

For Service Manuals Contact  
MAURITRON TECHNICAL SERVICES  
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### IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

**IMPORTANT:** Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

### CONTENTS

TO SERVICE PERSONNEL .....	1	$\mu$ -COM DATA .....	9 ~ 11
FRONT PANELS .....	1	CMAY MECHANISM DRIVE .....	12
REAR PANELS .....	2	TIMING CHART .....	13
SPECIFICATIONS .....	3	IC BLOCK .....	14/15
INTERNAL VIEW .....	3	PRINTED CIRCUIT BOARD .....	16 ~ 19
BLOCK DIAGRAM .....	4	WIRING .....	19
DISASSEMBLY PROCEDURES .....	5	SCHEMATIC DIAGRAM .....	20
ADJUSTMENTS .....	6 ~ 8	PARTS LIST .....	21 ~ 30

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SINCE 1887



# YAMAHA

NIIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN  
3.15k-513 Printed in Japan. '86.11

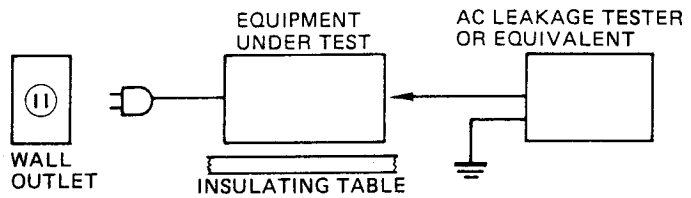
KX-200U

## ■ TO SERVICE PERSONNEL

1. Critical Components Information.  
Components having special characteristics are marked ! and must be replaced with parts having specifications equal to those originally installed.

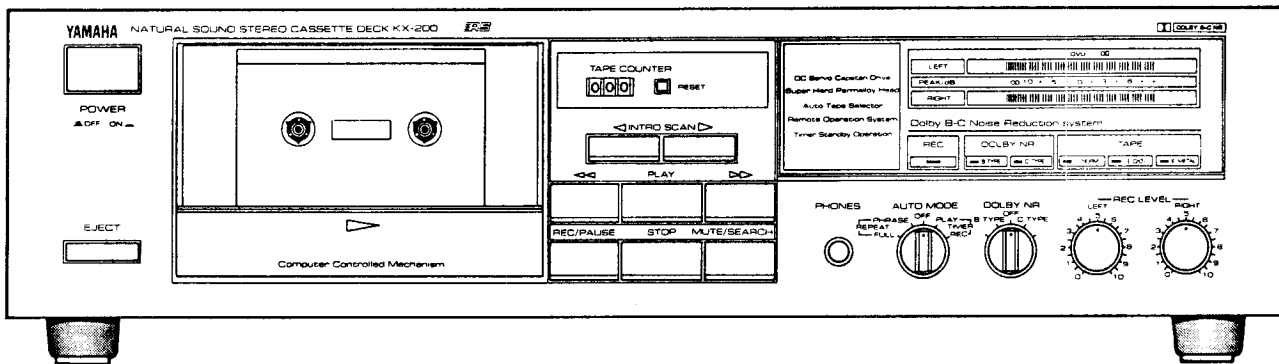
2. Leakage Current Measurement (For 120 V Model Only).  
When service has been completed, it is imperative that you verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohm shunted by 0.15 $\mu$ F.
- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.

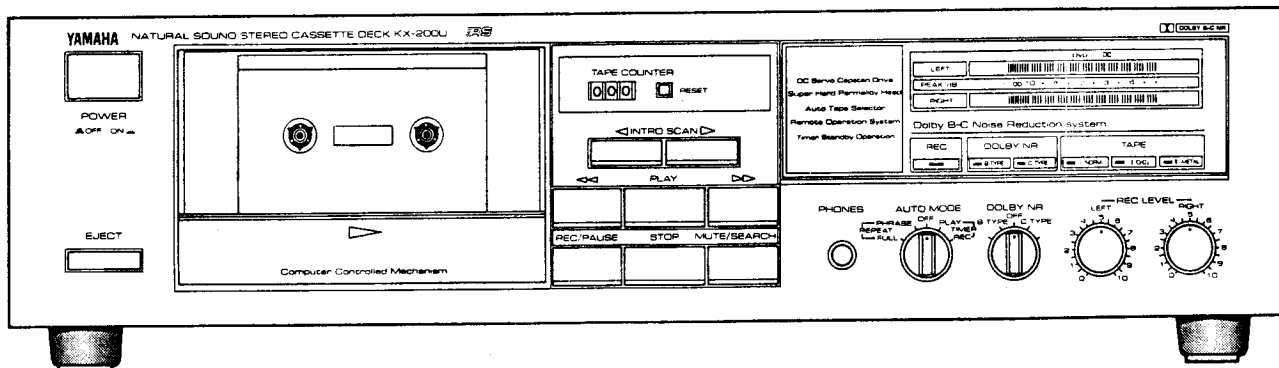


## ■ FRONT PANELS

- KX-200

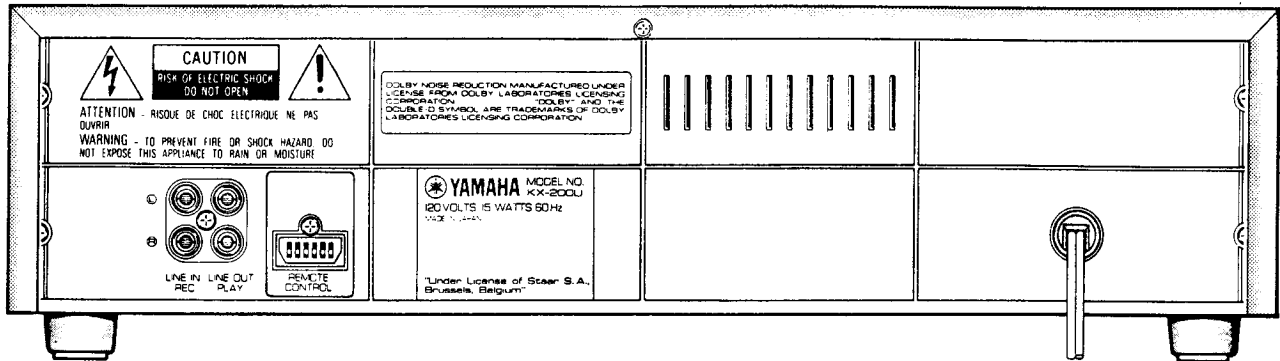


- KX-200U

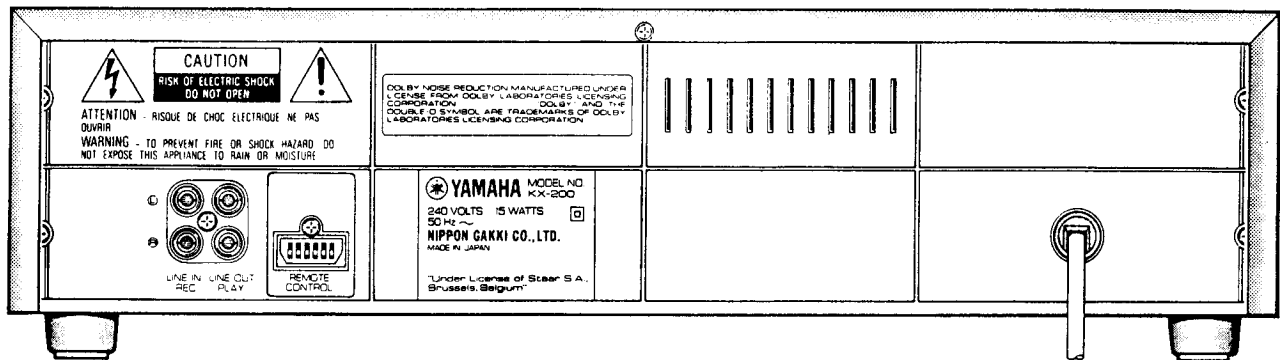


## REAR PANELS

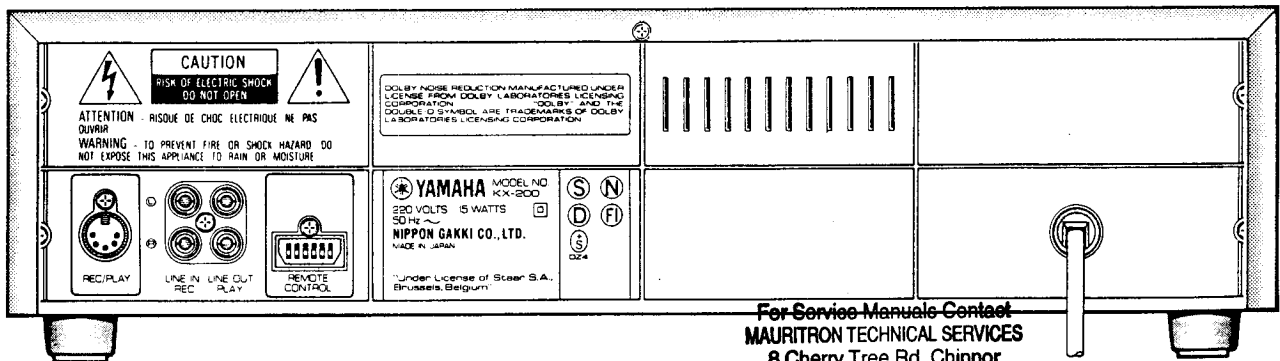
### ▼ U.S.A. & Canadian models



### ▼ Australian & British models

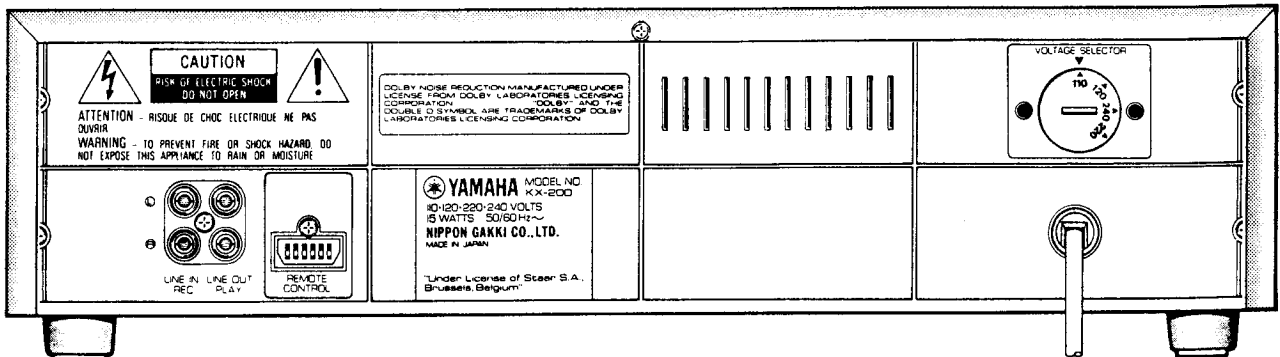


### ▼ European model



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### ▼ Other model



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## SPECIFICATIONS

<b>Type</b>	4-track, 2-channel recording and playback stereo cassette tape deck
<b>Heads</b>	
Rec/Play head	Hard permalloy
Erase head	Double gap ferrite
<b>Motors</b>	
Capstan	DC servo motor
Reel	DC motor
<b>Wow and Flutter</b>	Less than $\pm 0.15\%$ W. Peak Less than 0.08% W. RMS
<b>Fast winding time</b>	Approx. 100 seconds (C-60)
<b>Frequency response</b>	
Normal tape (-20dB)	20 to 15,000 Hz $\pm 3$ dB
CrO <sub>2</sub> tape (-20dB)	20 to 16,000 Hz $\pm 3$ dB
Metal tape (-20dB)	20 to 16,000 Hz $\pm 3$ dB
<b>Signal to Noise ratio</b>	
Dolby off	58dB
Dolby B on	66dB
Dolby C on	74 dB
<b>Harmonic distortion</b>	Less than 1%
<b>Channel separation (3150Hz)</b>	Less than 40dB
<b>Cross talk (125Hz)</b>	Less than 55dB

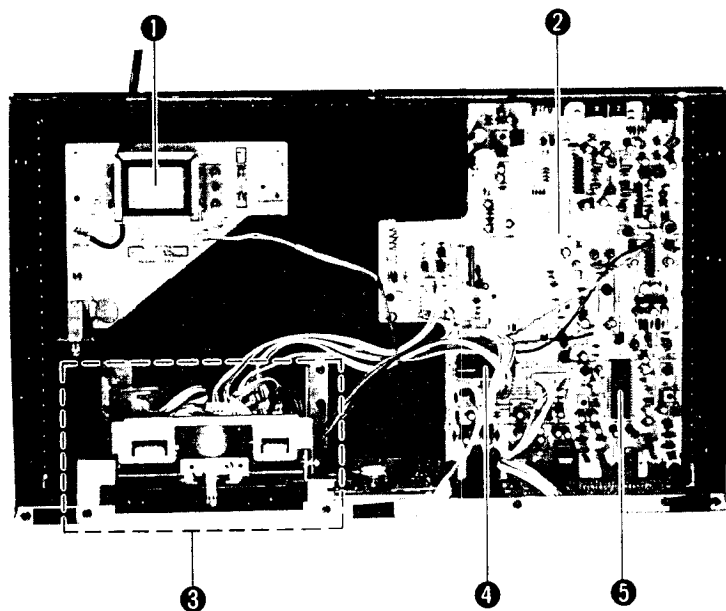
<b>Input Sensitivity/Impedance</b>	
Line	50 mV/50 k-ohms
DIN (G only)	1.6 mV/5.6 k-ohms
<b>Output Level/Load Impedance</b>	
Line	360 mV/1.2 k-ohms
Headphones	0.3 mW/8 ohms
<b>Power Supplies</b>	
U.S. & Canadian Models	120V AC, 60 Hz
European Model	220V AC, 50 Hz
British & Australian Model	240V AC, 50 Hz
Other Model	110/120/220/240V AC, 50/60 Hz
<b>Power Consumption</b>	15W
<b>Dimensions (W x H x D)</b>	435 x 112 x 272 mm (17-1/8" x 4-7/16" x 10-3/4")
<b>Weight</b>	4.2 kg (9 lbs. 4 oz)

*Specifications subject to change without notice.*

(U) ..... U.S.A. model  
(C) ..... Canadian model  
(A) ..... Australian model  
(G) ..... European model  
(B) ..... British model  
(R) ..... Other model

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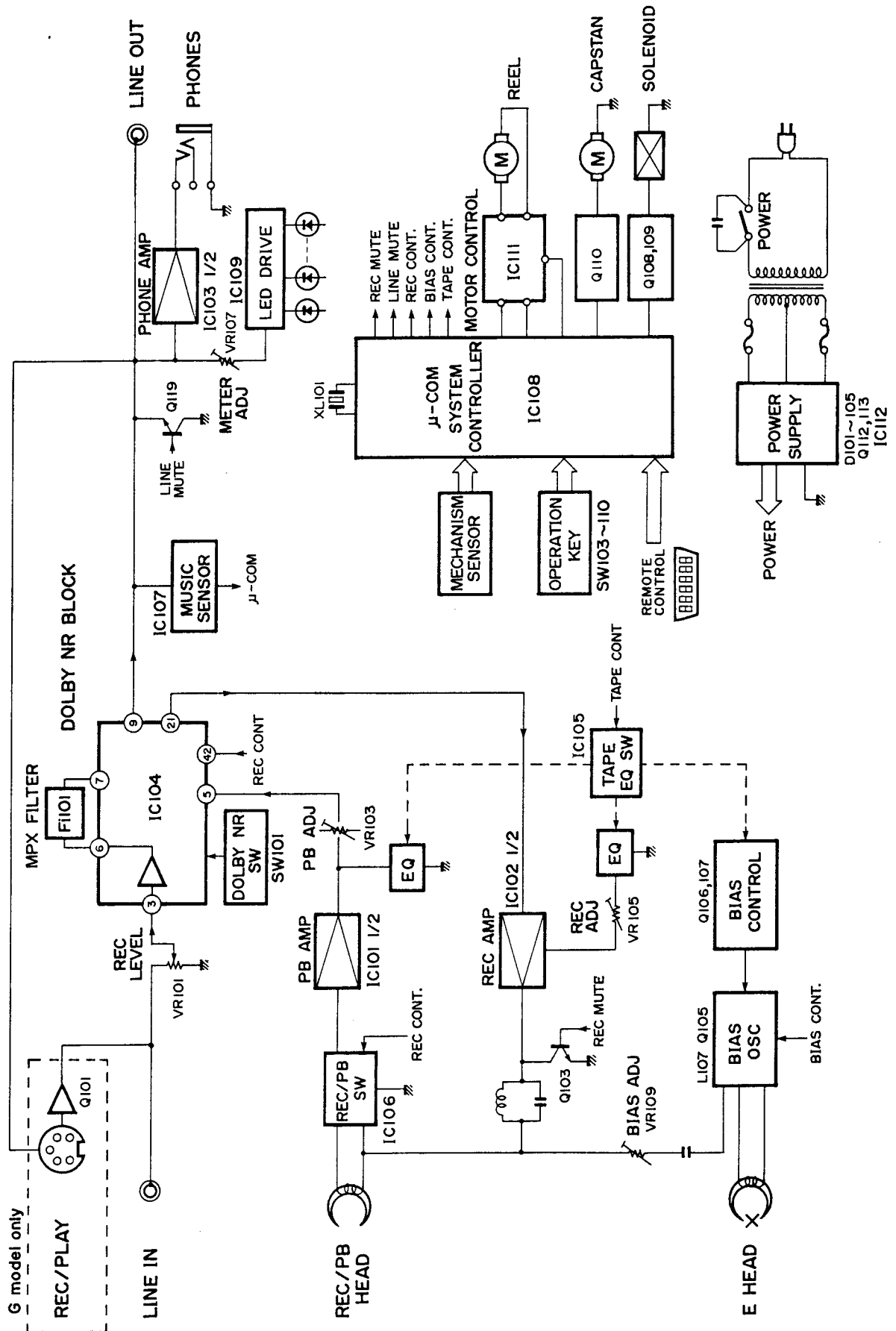
## INTERNAL VIEW



- ① POWER TRANSFORMER  
U.S.A. & Canadian models: GA68710  
European model: GA68740  
Australian & British models: GA68740  
Other model: GA68721
- ② MAIN CIRCUIT BOARD
- ③ CASSETTE MECHANISM UNIT
- ④  $\mu$ -COM IC (IC108): LM6405G-2081
- ⑤ DOLBY IC (IC104): CX20187

**BLOCK DIAGRAM**

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KX-200U

## DISASSEMBLY PROCEDURES

### 1. Removal of Top Cover

Remove 5 screws ( ① ) in Fig. 1.

### 2. Removal of Cassette Mechanism Unit

- Remove the Top Cover.
- Remove the Lid ( ② ) in Fig. 1.
- Detach 5 connectors (#1 ~ #5).
- Remove 6 screws ( ③ ) in Fig. 1 and then pull off the mechanism unit to the back side gently.

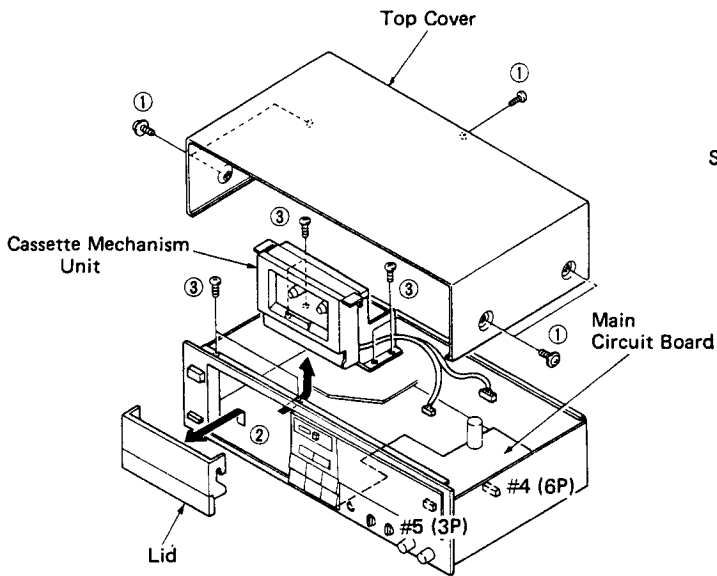


Fig. 1

### 4. Removal of Capstan Motor and Flywheel Belt

- Remove 3 screws ( ⑦ ) in Fig. 3 and then remove the back plate.
- Remove 2 screws ( ⑧ ) in Fig. 3 and then remove the Capstan Motor.

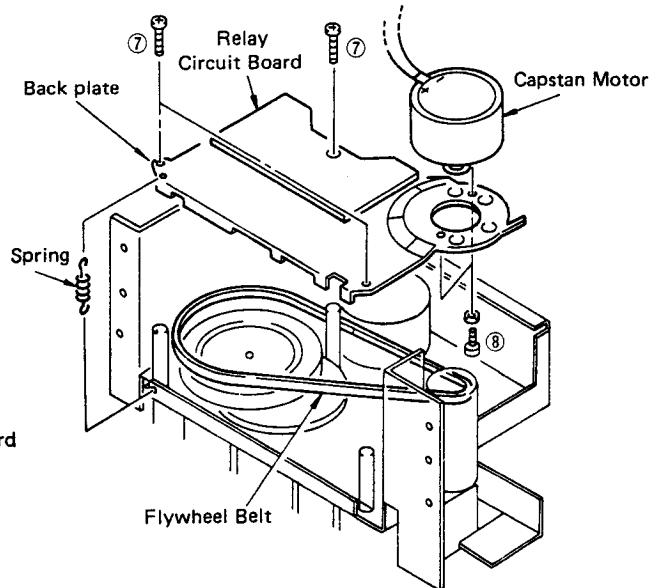


Fig. 3

### 3. Removal of Heads and Pinch Roller

- Remove 2 screws ( ④ ) in Fig. 2 and then remove the Recording/Playback Head.
- Remove 2 screws ( ⑤ ) in Fig. 2 and then remove the Erase Head.
- Remove Screw ( ⑥ ) in Fig. 2 and then remove the Pinch Roller.

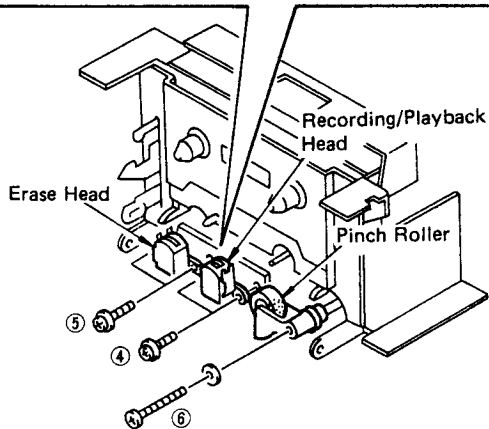
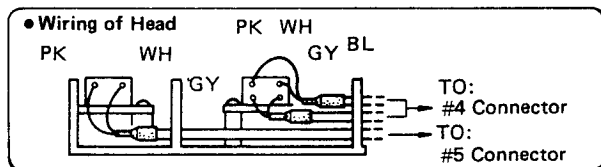


Fig. 2

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## ADJUSTMENTS

### 1. Before adjustment:

- Make sure that AC line voltage comes within

Models	AC line voltage
U, C	120V ± 10%
G	220V ± 10%
A, B	240V ± 10%

- Since head magnetization, dust accumulations, etc. are likely to introduce error in the various characteristics, it is very important that the heads are properly demagnetized and cleaned.

### 2. Instruments required

- Audio frequency oscillator (AF OSC)
- ACVM or dual channel (ACVM)
- Wow/flutter meter
- Oscilloscope

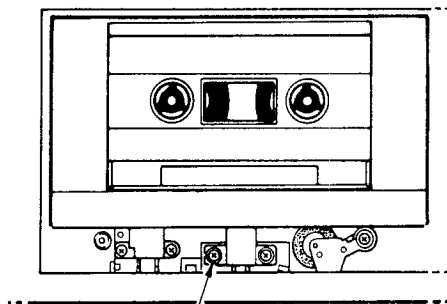
- Torque meter  
TW-2111 (TX911580)  
CT160L (TX911120)  
TW-2412 (TX911640)
- DCVM
- Mirror Cassette  
MC-109C (TX911430)

### 3. Test tape required

- MTT-111N (TX911650)
- MTT-114N (TX911680)
- MTT-212CN (TX911670)
- MTT-212N (TX911660)
- MTT256 (TX911300)
- MTT356 (TX911310)
- Reference tape  
Normal (LH): YAMAHA MU-R60 or TDK AC223 (TX911600)  
CrO<sub>2</sub>: TDK SA-60 or TDK AC513 (TX911270)  
METAL: YAMAHA ME-R60 or TDK AC712 (TX911590)

### "MECHANICAL ADJUSTMENT"

Step	Item to be Adjusted	Tape	Instrument required	Mode	Adjustment part	Rating	Remarks
1	Check tape movement		Mirror Cassette (MC-109C)	PLAY		Tape should move in the center of head smoothly.	
2	Check driving power		Torque meter	PLAY		Driving power: more than 150g.	TW-2412
3	Check each torque		Torque meter	FF REW		FF, REW torque: 90 ~ 180g/m	CT-160L
				PLAY		Take up torque: 25 ~ 70 g/m Back tension: 2 ~ 6 g/m	TW2111
4	Check FF, REW take up time	AC-513		FF REW		Less than 110 seconds	
5	Azimuth	MTT-114N 10kHz, -10dB	ACVM Oscilloscope	PLAY	Azimuth adjustment screw. (Fig. A)	Playback output of L and R is maximum and phase difference should be minimum.	After the adjustment make sure to apply screw lock paint.
6	Tape Speed	MTT-111N 3kHz, -10dB	Wow/flutter meter, AF OSC	PLAY	Pre-set potentiometer at the back of the Capstan Motor (Fig. B)	3000 ± 15Hz	
7	Wow/Flutter					Less than 0.14% (WRMS)	Perform adjustment at the center of the test tape length if possible.



Azimuth adjustment screw

Fig. A

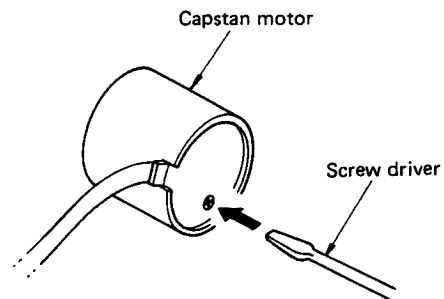


Fig. B

KX-2000U

**"ELECTRICAL ADJUSTMENT"**

- Proceed with the following adjustment after having finished the mechanical adjustments.
- Proceed with the recording section adjustment after having finished the playback section adjustment.

< Playback section >

Step	Item to be adjusted	Tape	Instrument required	Mode	Measurement conditions	Points of measurement	Adjustment part	Rating
1	Playback level	MTT-212CN (160nwb/m)	ACVM	PLAY		LINE OUT	VR103 (Lch) VR104 (Rch)	360 ± 25mV
		MTT-212N (250nwb/m)						560 ± 35mV
2	Confirmation of playback frequency response	Test tape for frequency check. MTT-256 (LH: 3180µs + 120µs) MTT-356 (CrO <sub>2</sub> : 3180µs + 70µs)	ACVM Oscilloscope	PLAY		LINE OUT		Check that the 10kHz playback level lies within 0 ± 3dB of the 315Hz playback level. (Fig. C)

● **PLAYBACK FREQUENCY RESPONSE**

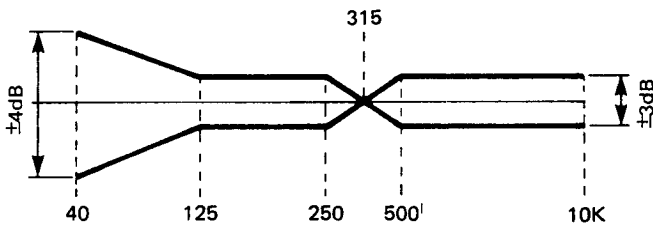


Fig. C

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< Recording section >

Step	Item to be adjusted	Tape	Instrument required	Mode	Measurement conditions	Points of measurement	Adjustment parts	Rating
1	Meter		ACVM AF OSC	REC/ PAUSE	① REC LEVEL → MAX. ② Apply a 1kHz signal to LINE IN terminals. Set the AF OSC output level so that LINE OUT voltage is 360mV.	Peak level meter	VR107 (Lch) VR108 (Rch)	Adjust VR107 and VR108 to the lowest level where the 0dB display part of the level meter light up.
2	Record level	AC513 (CrO <sub>2</sub> )	ACVM AF OSC	REC/ PLAY	Apply a 1kHz signal to LINE IN terminals. Set the AF OSC output level so that LINE OUT voltage is 360mV.	LINE OUT	VR105 (Lch) VR106 (Rch)	360 ± 25mV
3	Record bias (Total frequency response)	AC513 (CrO <sub>2</sub> )	ACVM AF OSC	REC/ PLAY	① Apply a 14kHz signal to LINE IN terminals. Set the AF OSC output level so that LINE OUT voltage is 36mV. ② Record and playback a 14kHz signal and adjust so that each rating is satisfied.	LINE OUT	VR109 (Lch) VR110 (Rch)	36 ± 10mV
		AC223 (LH) AC712 (METAL)	ACVM AF OSC					Frequency response should satisfy Table 1.



• TOTAL FREQUENCY RESPONSE (-20VU)

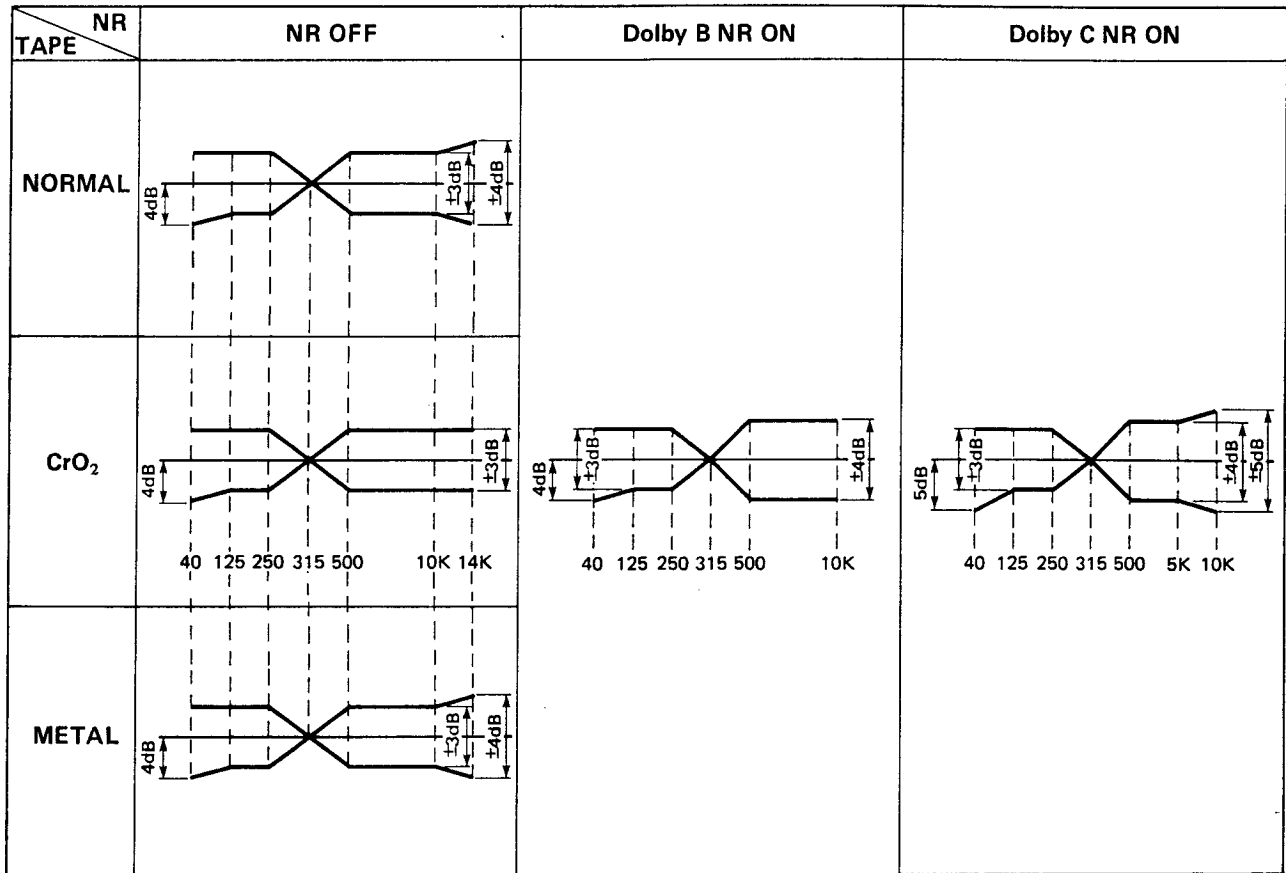
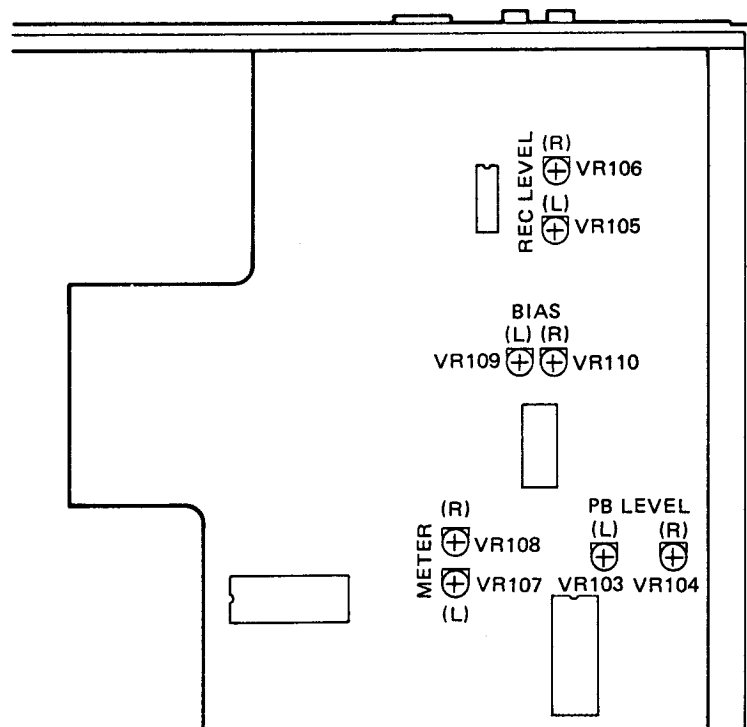


Table 1

• TEST POINTS

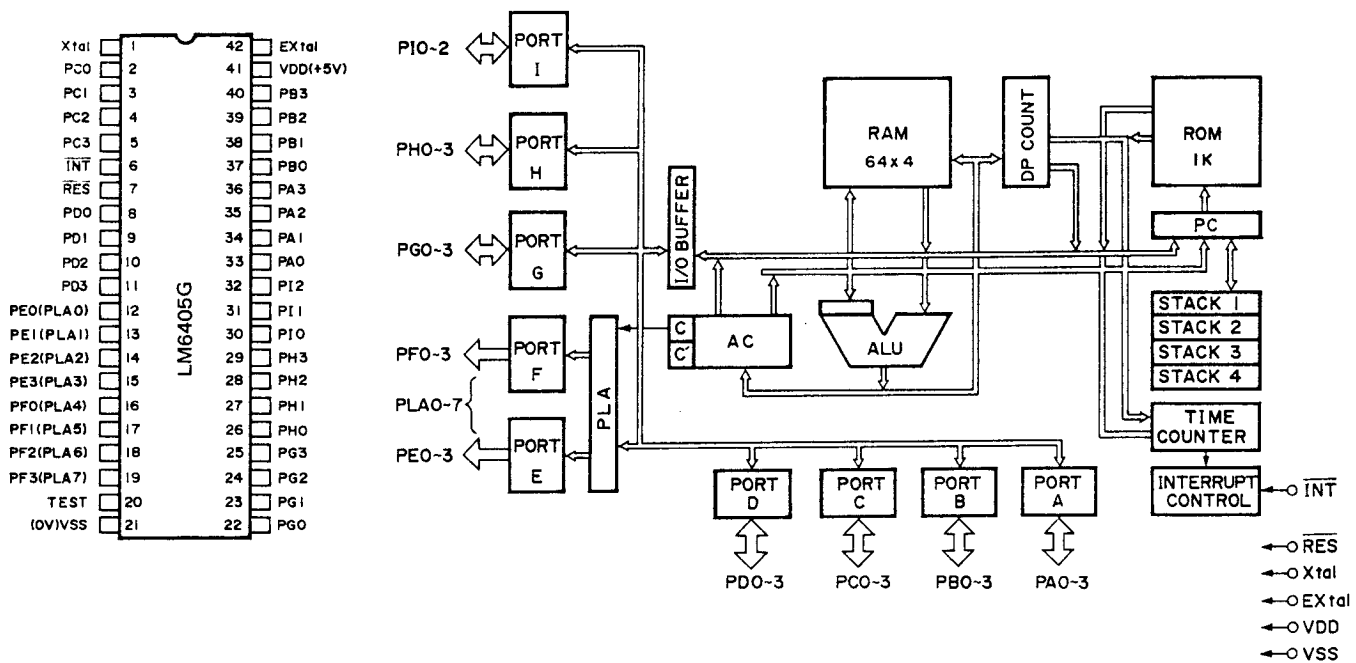


KX-200U

μ-COM DATA

● IC108: LM6405G-2081

PIN NO.	NAME	FUNCTION	PIN NO.	NAME	FUNCTION
1	Xtal	CLOCK, Microcomputer 400kHz	42	Extal	CLOCK, Microcomputer 400kHz
2	C <sub>0</sub>	PHRASE REPEAT SW	41	VDD	+5V
3	C <sub>1</sub>	FULL REPEAT SW	40	B <sub>3</sub>	Key input STOP INTRO (R) MUTE/SEARCH INTRO (F) REC PLAY FF REW
4	C <sub>2</sub>	TIMER REC SW	39	B <sub>2</sub>	
5	C <sub>3</sub>	TIMER PLAY SW	38	B <sub>1</sub>	
6	INT	POWER OFF Detection	37	B <sub>0</sub>	
7	RES	Reset, Microcomputer	36	A <sub>3</sub>	
8	D <sub>0</sub>	Pulse input, Music	35	A <sub>2</sub>	
9	D <sub>1</sub>	Erasure protection detection SW	34	A <sub>1</sub>	
10	D <sub>2</sub>	METAL hole detection SW	33	A <sub>0</sub>	
11	D <sub>3</sub>	CrO <sub>2</sub> hole detection SW	32	I <sub>2</sub>	Pulse input, Reel stand
12	E <sub>0</sub>	Solenoid drive control	31	I <sub>1</sub>	Hold output, Solenoid
13	E <sub>1</sub>	Capstan motor drive control	30	I <sub>0</sub>	REC BIAS control
14	E <sub>2</sub>	Reel motor drive control (FF side) (REW side)	29	H <sub>3</sub>	System remote control input TR3 TR2 TR1 TR0
15	E <sub>3</sub>		28	H <sub>2</sub>	
16	F <sub>0</sub>	REC	27	H <sub>1</sub>	
17	F <sub>1</sub>	NORMAL	26	H <sub>0</sub>	
18	F <sub>2</sub>	TAPES selector & Display outputs CrO <sub>2</sub>	25	G <sub>3</sub>	PLAY sensor SW of mechanism
19	F <sub>3</sub>		METAL	24	G <sub>2</sub>
20	TEST	Gnd	23	G <sub>1</sub>	Mute output LINE REC
21	Vss	Gnd	22	G <sub>0</sub>	



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● Input Terminal Description

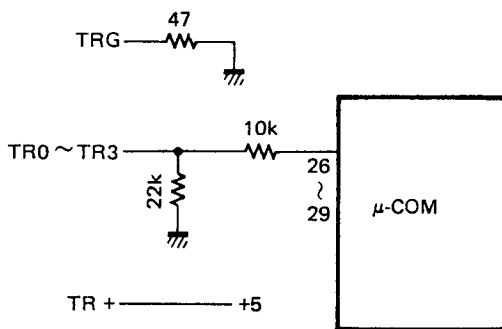
No.	Name	Function
2	PHRASE REPEAT	Performs phrase repeat play at "L"
3	REPEAT	Performs one-side repeat play at "L"
4	TIMER REC	Starts in record mode after microcomputer was reset, at "L". Playback when mis-erase preventive pawl is broken.
5	TIMER PLAY	Starts in playback mode after microcomputer as reset, at "L".
6	Power OFF detect	Sets to stop mode at H → L
8	Inter-number pulse	Inputs "L" when there is recorded number.
9	Mis-erase preventive pawl	Inputs "L" if there is mis-erase preventive pawl of cassette half (recording is possible)
10	Metal hole	Inputs "L" when there is no metal hole of cassette half.
11	Chrome hole	Inputs "L" when there is no chrome hole (70 μsec) of cassette half.
25	Mechanism PLAY sensor	Inputs "L" when head base of mechanism is raised. Note 1)
32	Reel base revolution pulse	Inputs pulse according to reel base revolution. Note 2)
33	REW KEY	Inputs "L" when at rewind command.
34	FF KEY	Inputs "L" when at fast forward command.
35	PLAY KEY	Inputs "L" when at play command.
36	REC KEY	Inputs "L" when at Record command.
37	INTRO (F) KEY	Inputs "L" when at intro scan on CUE side command.
38	MUTE/SEARCH KEY	Inputs "L" when at mute/search command.
39	INTRO (R) KEY	Inputs "L" when at intro scan on REVIEW side command.
40	STOP KEY	Inputs "L" when at stop command.

- Note 1) If in "L" at any time other than PLAY and number selection, solenoid capstan motor is driven to lower head base.  
 Note 2) At PLAY: Automatically stopped when no pulse is transmitted for about 3 seconds.  
 At F.F.: Automatically stopped when no pulse is transmitted for about 1.5 seconds.

● Remote Control Input Terminal



TRG  
TR0  
TR1  
TR2  
TR3  
TR+

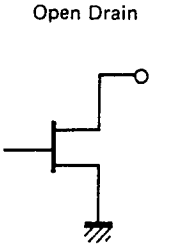


TR3	TR2	TR1	TR0	MODE
L	L	L	L	NO DATA
L	L	L	H	STOP
L	L	H	L	FF
L	L	H	H	REW
L	H	L	L	PLAY
L	H	L	H	REC PAUSE
L	H	H	L	REC MUTE
H	L	L	L	CUE
H	L	L	H	REVIEW

- Note) H . . . . . 3V ~ 5V  
 L . . . . . Less than 0.6V  
 Pulse . . . More than 30msec

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● Output Terminal Description

No.	Name	Function	Output Type	
12	Solenoid attraction	Applies attractive voltage to solenoid at "L"	 <p>Open Drain</p> <p>Current: about 40mA flow possible</p>	Mechanism drive
13	Capstan	Runs capstan motor at "L"		
14	Reel (FF)	Runs reel motor toward FF side at "H"		
15	Reel (REW)	Runs reel motor toward REW side at "H"		
31	Solenoid hold	Applies hold voltage to solenoid at "L"		
22	REC mute	REC mute ON at "L"		Amplifier control
23	Line mute	Line mute ON at "L"		
24	Amplifier switching (recording)	"H" at recording, "L" at playback		
30	Recording bias	Recording bias oscillation at "H"		
17	Normal tape output	"L" when normal tape is used		
18	Chrome tape output	"L" when chrome tape is used		
19	Metal tape output	"L" when metal tape is used (Also "L" when cassette is not loaded)		

● Indicator Output Description

No.	Name	Function
16	REC	"L" (ON) when recording, flashing at AUTO REC MUTE.
17	NORMAL	"L" (ON) when normal tape cassette is loaded and cassette is not loaded.
18	CrO <sub>2</sub>	"L" (ON) when chrome tape cassette is loaded.
19	METAL	"L" (ON) when metal tape cassette is loaded.

Note) Output type: Open drain, Possible up to 40mA flow

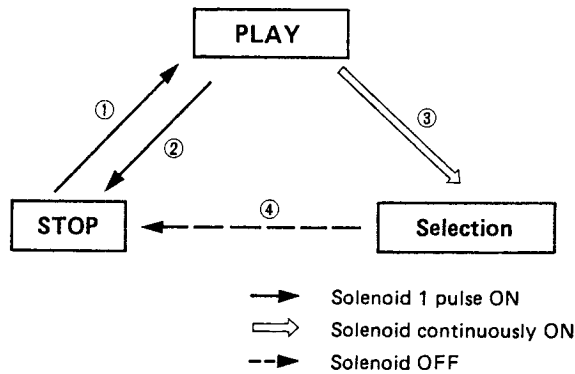
● MODE VS OUTPUT

OUTPUT (Pin No.)	MODE							
	STOP	PLAY	REC/ PAUSE	REC/ PLAY	FF	REW	CUE	REVIEW
E <sub>1</sub> (13 pin): Capstan motor	H	L	H	L	H	H	H	H
E <sub>2</sub> (14 pin): Reel motor FF	L	H	L	H	H	L	H	L
E <sub>3</sub> (15 pin): Reel motor REW	L	L	L	L	L	H	L	H
G <sub>0</sub> (22 pin): REC mute	L	L	L	H	L	L	L	L
G <sub>1</sub> (23 pin): LINE mute	L	H	H	H	L	L	L	L
G <sub>3</sub> (24 pin): Amp select REC	L	L	H	H	L	L	L	L
I <sub>0</sub> (30 pin): REC bias	L	L	L	H	L	L	L	L
I <sub>1</sub> (31 pin): Solenoid hold	H	H	H	H	H	H	L	L

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## ■ CMAY MECHANISM DRIVE

- **Main components:** 2 motor, 1 solenoid
- **Operation:** Cam assist mechanism by trigger at solenoid ON  
Assist: capstan motor
- **Mode change:**



- ① Turning solenoid ON by 1 pulse (60msec) in STOP mode sets into PLAY mode.
- ② Turning solenoid ON by 1 pulse (60msec) in PLAY mode sets back to STOP mode.
- ③ Turning solenoid ON continuously in PLAY mode causes pinch roller to leave capstan and sets into selection mode.
- ④ Turning solenoid OFF in selection mode sets into STOP mode.

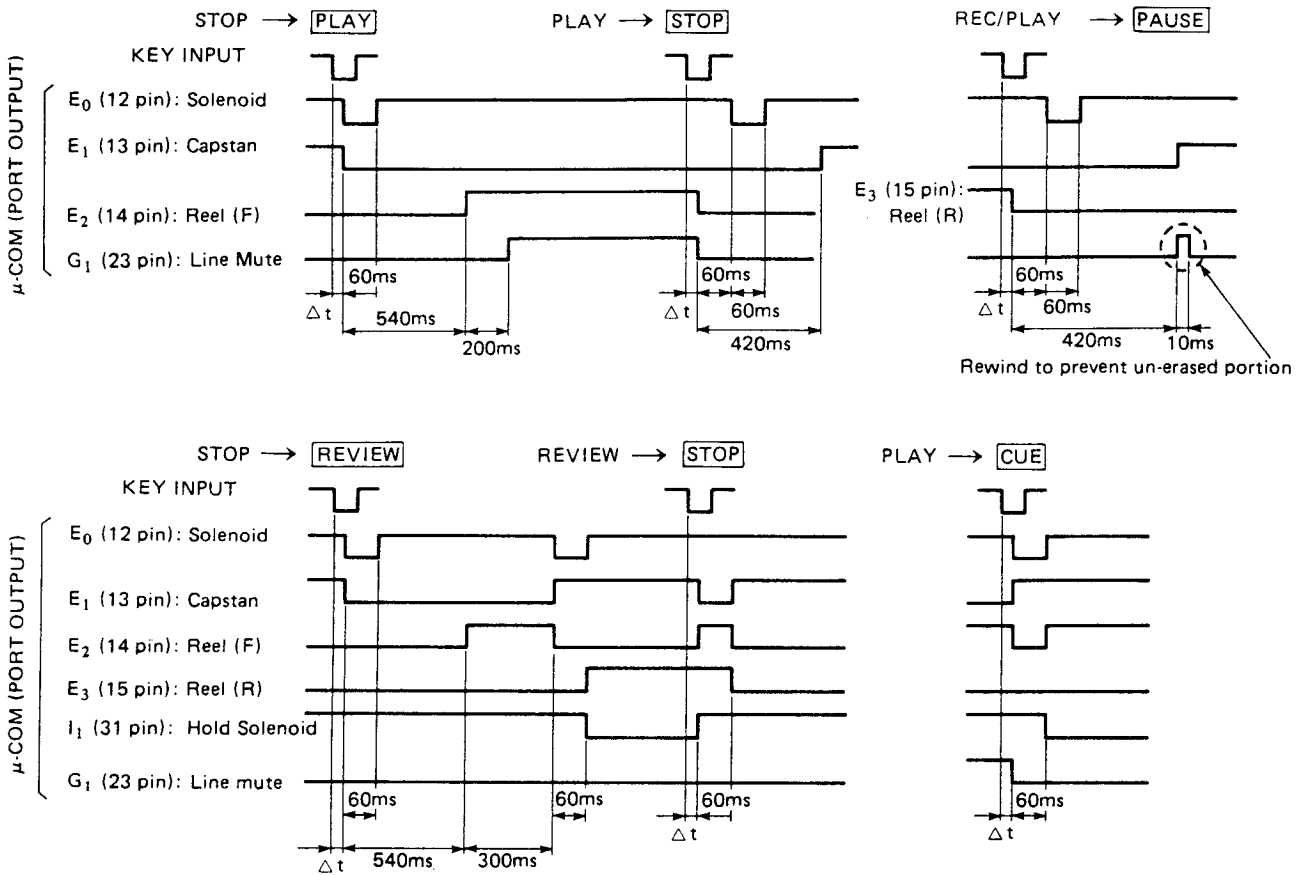
Note) Capstan motor is turned ON at each mode change.

- **Others**
  - **PLAY detect sensor switch**
    - This switch turns ON when the head base is raised.
    - Check the state of this switch to confirm if the head base of the mechanism is actually raised when the microcomputer is in the PLAY (selection).
    - If this switch is ON when the microcomputer is in the STOP mode, drive the solenoid capstan motor so that the head base is lowered.
  - **Operation when power ON**
    - The capstan motor is driven for one second to make sure that the head base is down.

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

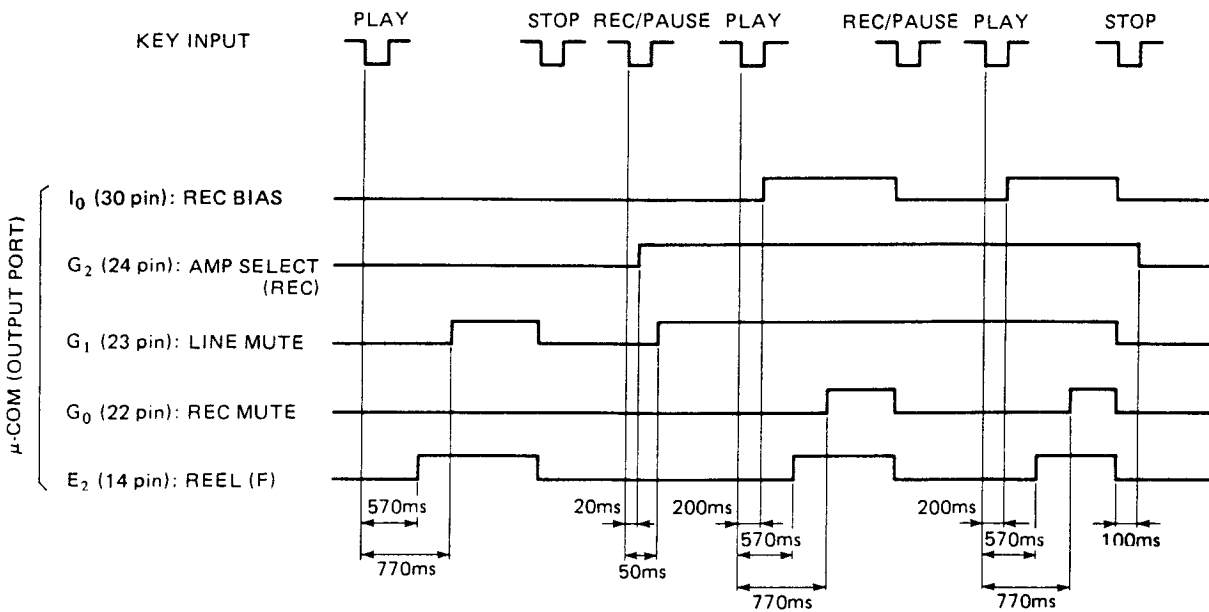
# TIMING CHART

## MECHANISM DRIVE TIMING



Note) Δt: Delay from KEY input (about 30msec)

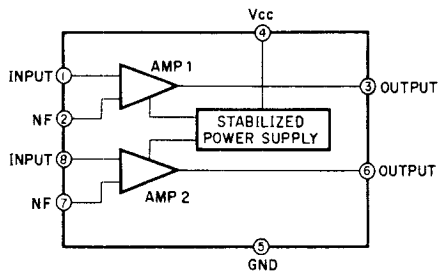
## AMP SELECTOR TIMING



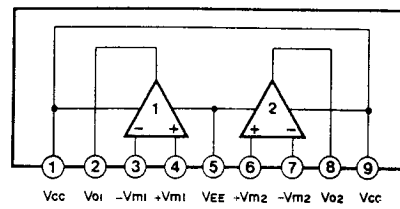
For Service Manuals Contact  
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**IC BLOCK**

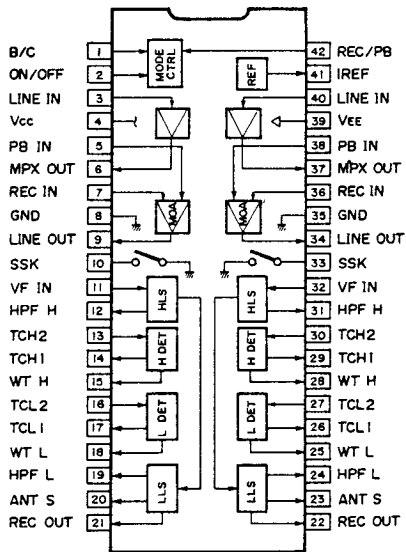
**IC101: LA3161 (Dual Pre-amp)**



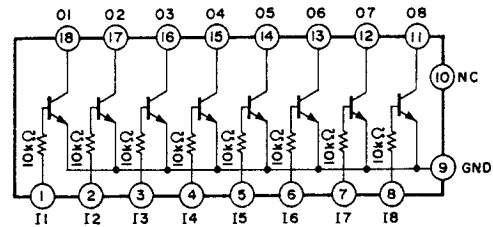
**IC102, 107: AN6551, NJM4558S or BA715**  
**IC103: NJM4556S (Dual Ope-amp)**



**IC104: CX20187 (Dolby NR)**

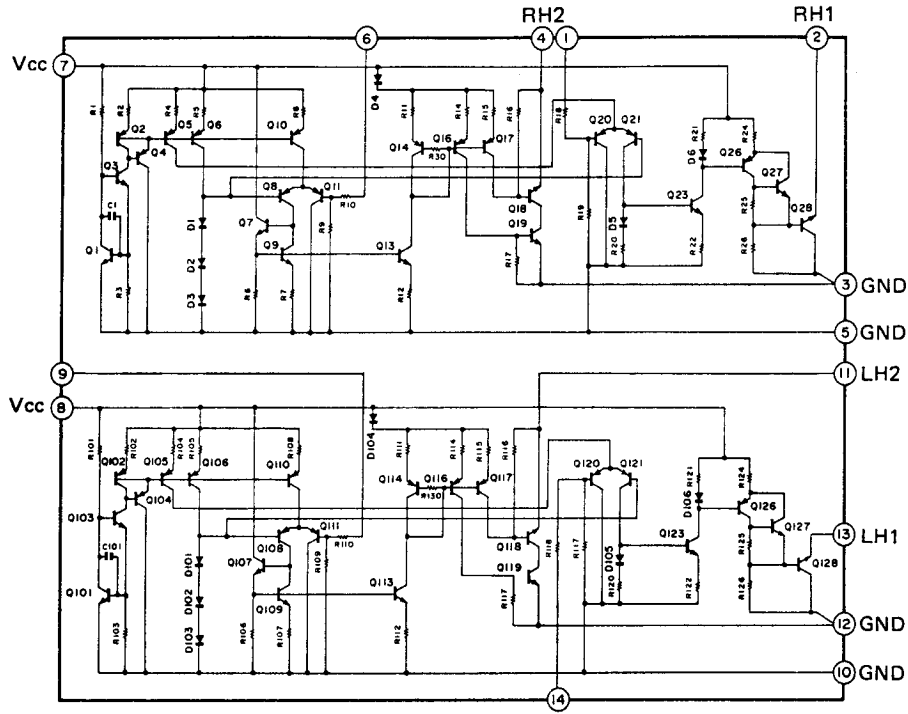


**IC105: AN90B20 (Transistor Array)**



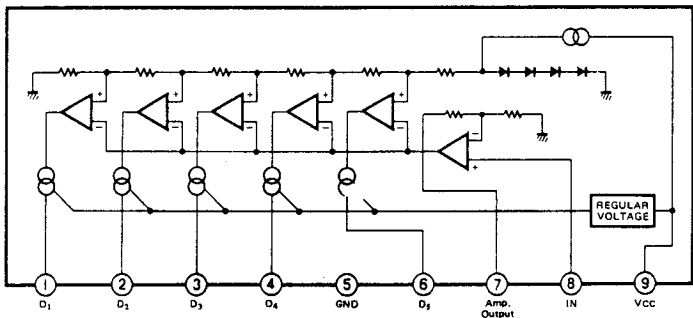
KX-200/  
KX-200U

**IC106:  $\mu$ PC1290C (REC/PB Head Switch)**

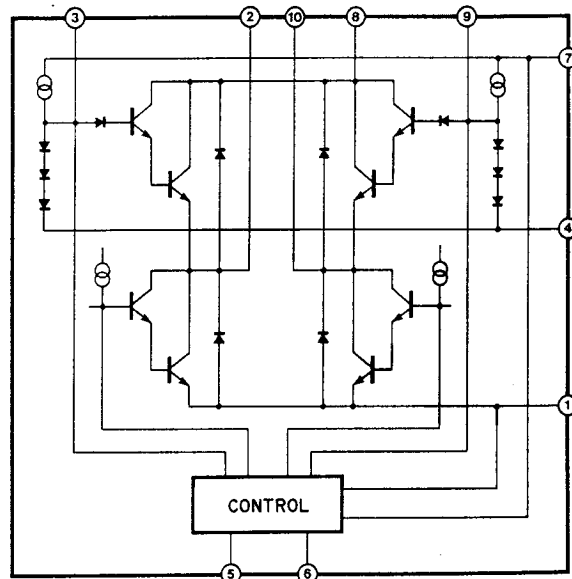


Pin No.	Symbol	Name	Pin No.	Symbol	Name
1	INR1	REC SW control	8	VCC2	+5V
2	SWR1	REC SW	9	INP2	PB SW control
3	GND	GND	10	GND	GND
4	SWP1	PB SW	11	SWP2	PB SW
5	GND	GND	12	GND	GND
6	INP1	PB SW control	13	SWR2	REC SW
7	VCC1	+5V	14	INR2	REC SW control

**IC109, 110: LB1403N or BA6124 (Level Meter Drive)**



**IC111: BA6229 (Motor Drive)**

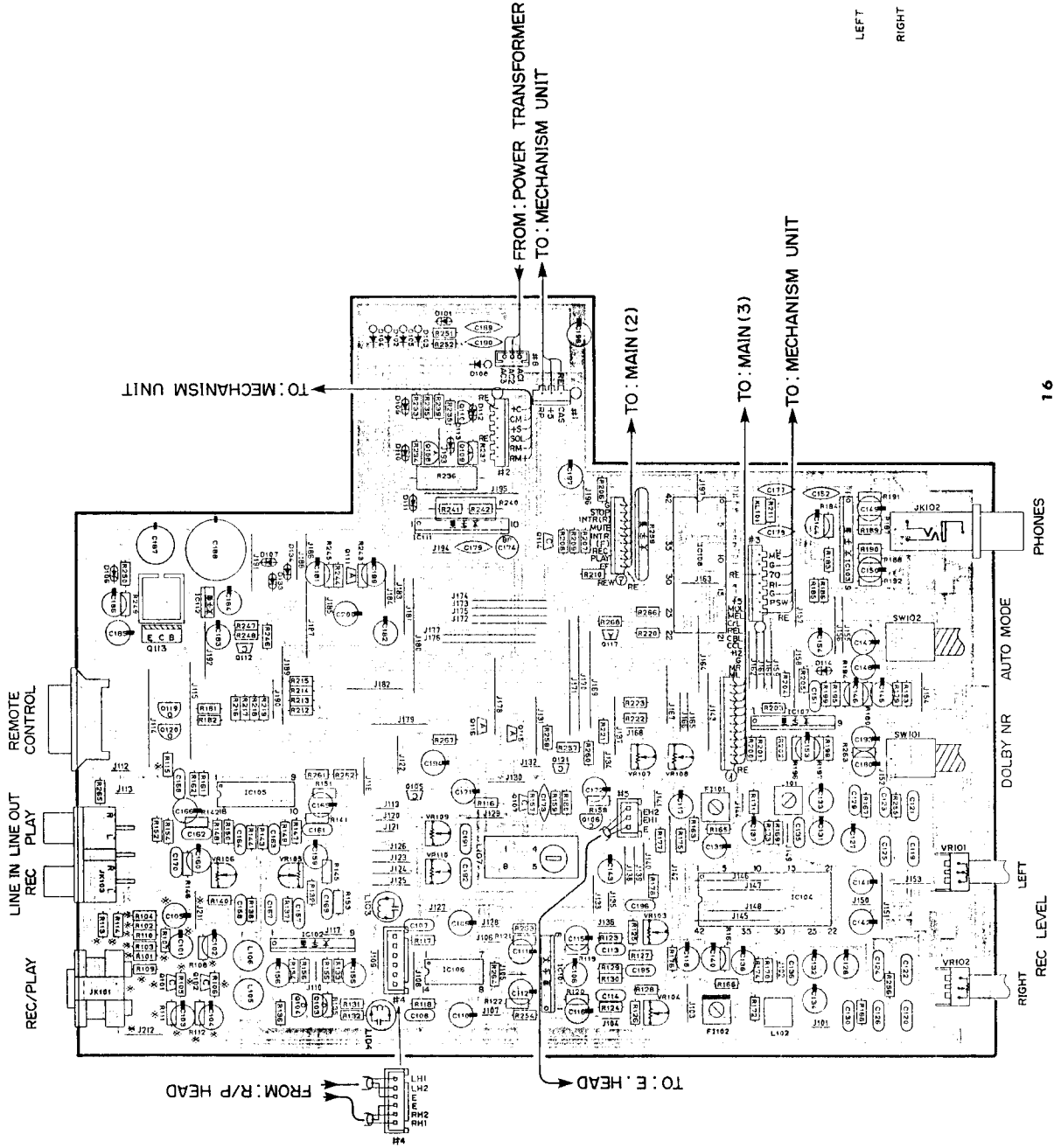




**PRINTED CIRCUIT BOARD (Pattern side)**

Note) 文字面 : Component side

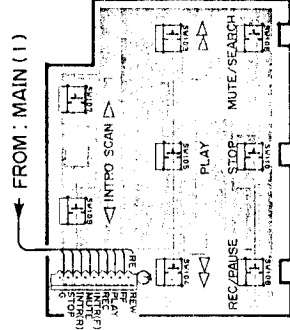
Main Circuit Board (1)



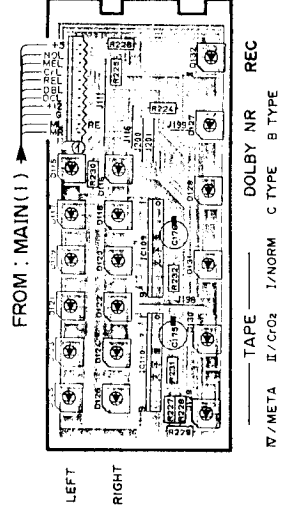
Note) \* marked

	R, U, A, C, B	G
JK101	Non Set	Set
R101, 102, 111, 112	Open	47k
R103, 104, 115	Open	1k
R105, 106	Open	1M
R107, 108	Open	5.6k
R109, 110	Open	150
R113, 114	56k	39k
C101 ~ 104	Open	1/50
C105	Open	33/16
J211, 212	Open	Short
Q101, 102	Open	2SC1740S (S, R) 2SC2603 (E, F) 2SC3512 (R, S, T)

Main Circuit Board (2)



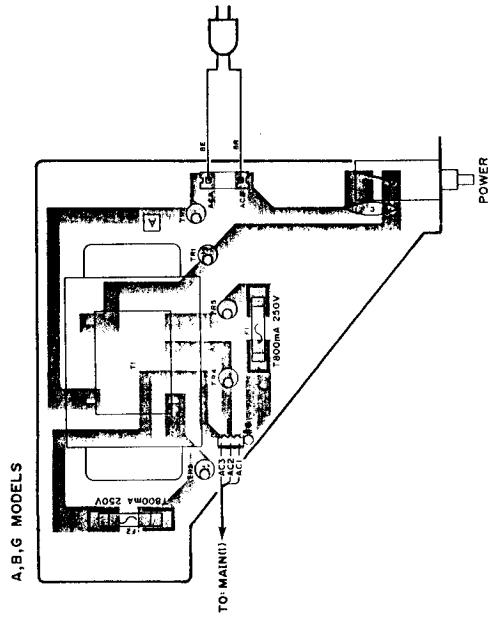
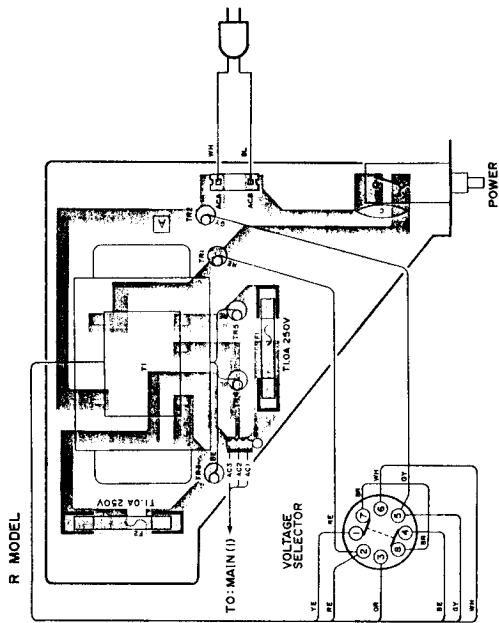
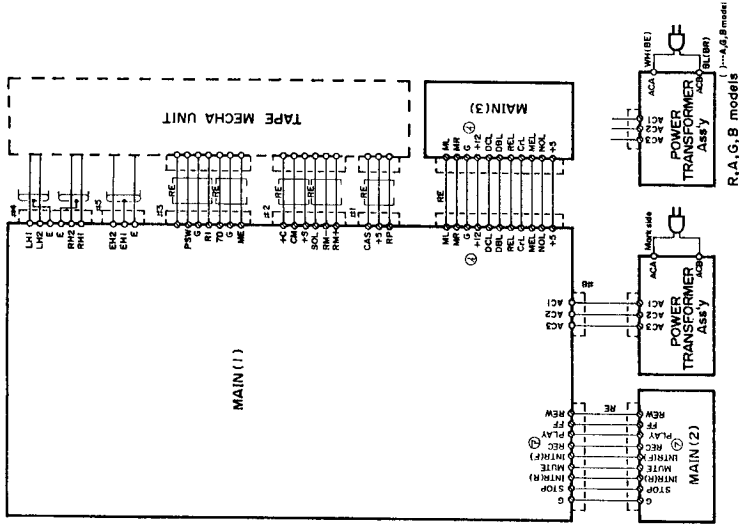
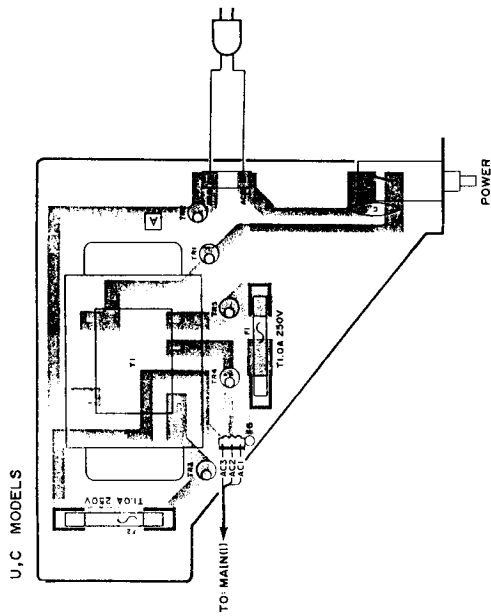
Main Circuit Board (3)



PRINTED CIRCUIT BOARD (Pattern side)

WIRING

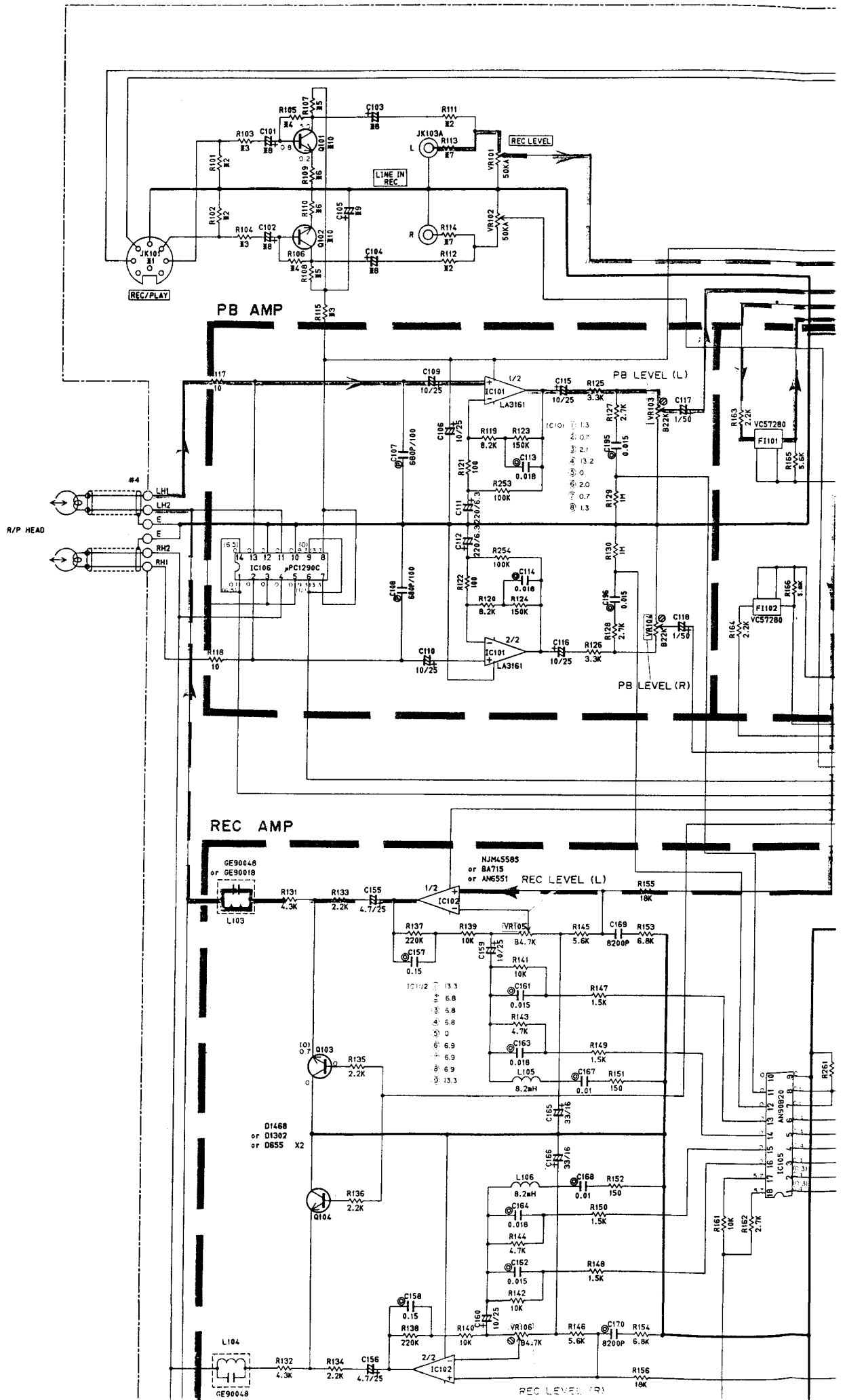
Transformer Circuit Board



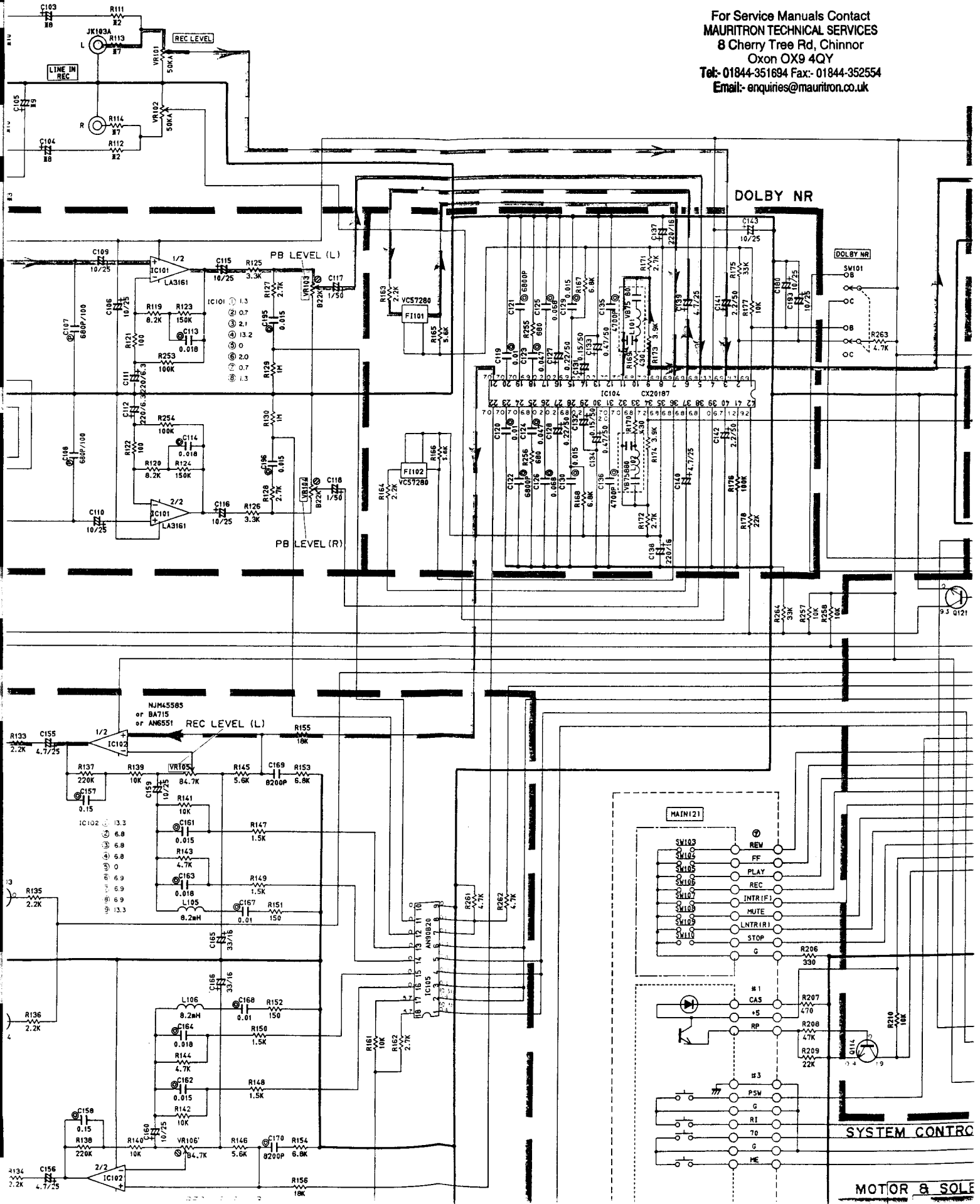
For Service Manuals Contact  
**MAURITRON TECHNICAL SERVICES**  
 8 Cherry Tree Rd, Chinnor  
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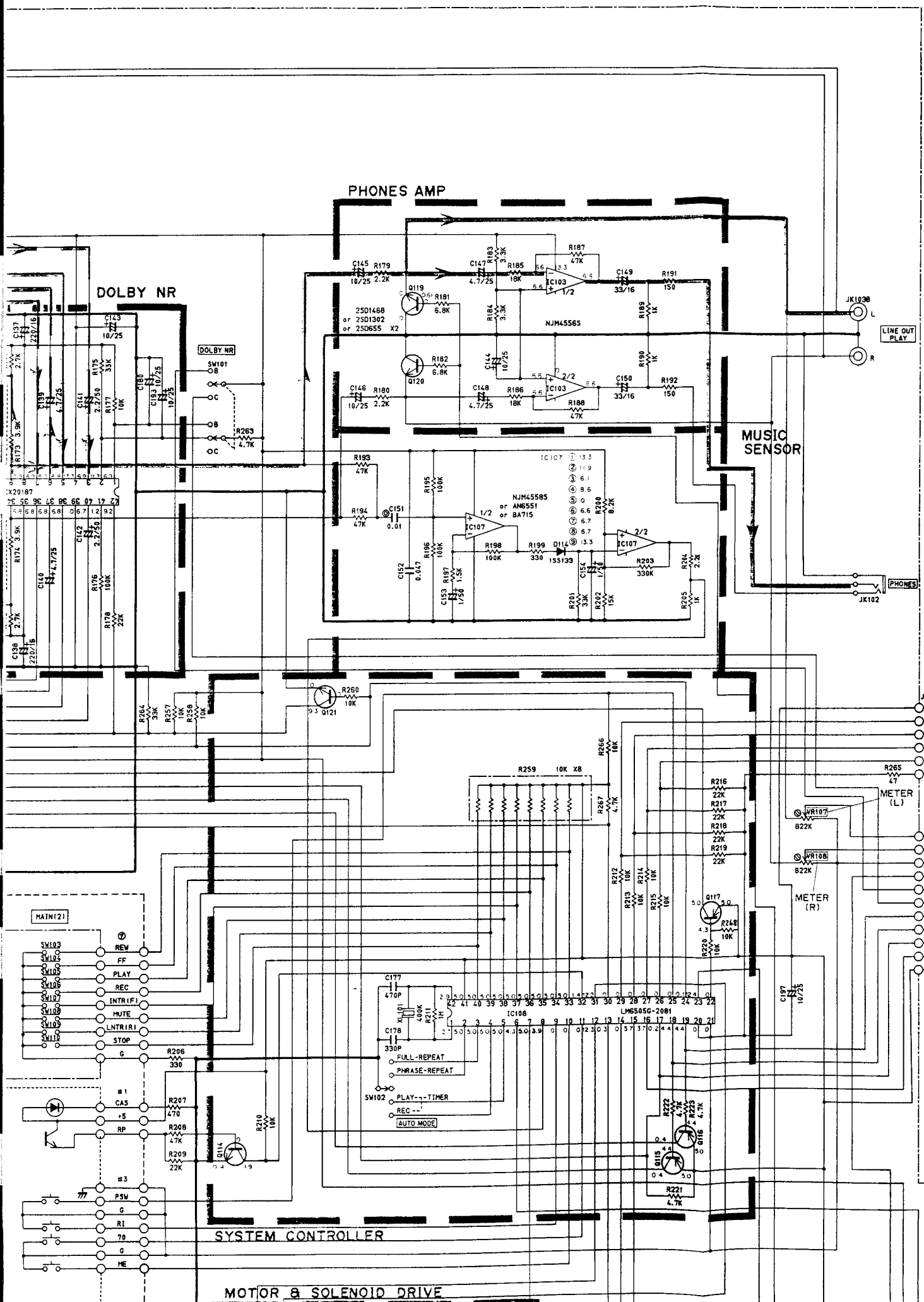
# SCHEMATIC DIAGRAM

1  
2  
3  
4  
5  
6



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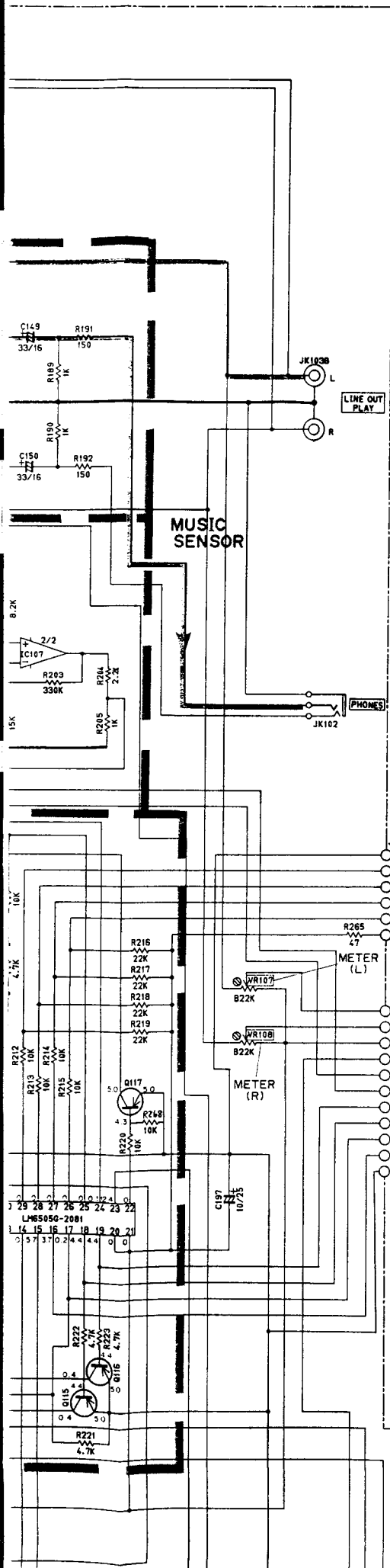
JK104  
TR+  
TR3  
TR2  
TR1  
TR0  
TRG

METER (L)  
METER (R)  
ML  
MR  
G  
+12  
DBL  
DCL  
MEL  
CFL  
NOL  
2EC  
+5

RE  
NO  
CA  
RE  
NO

SYSTEM CONTROLLER

MOTOR & SOLENOID DRIVE



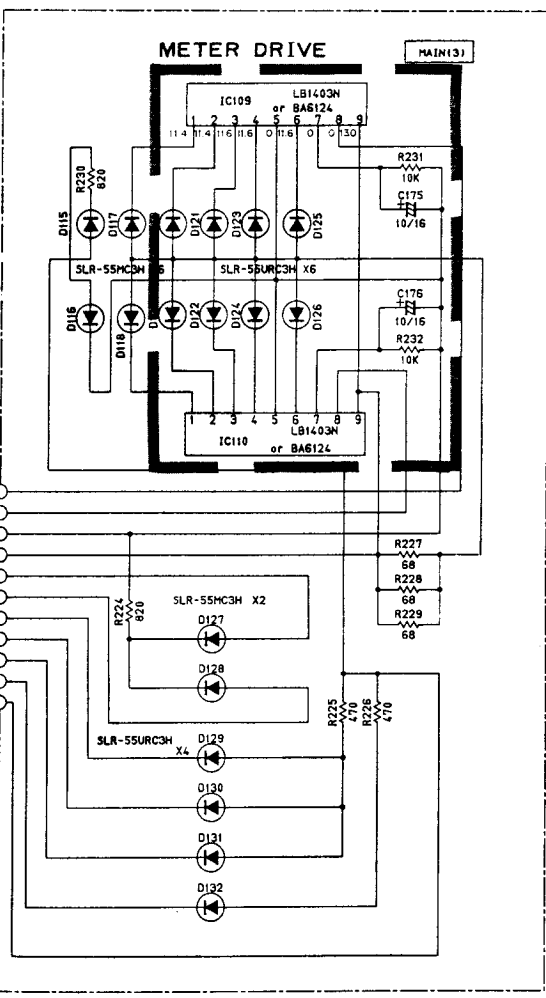
#	J.R.J.A. .8.	G
1	JK101	VA87810
2	R101 R102 R111 R11	OPEN 47K
3	R103 R104	OPEN 1K
4	R105 R106	OPEN 1M
5	R107 R108	OPEN 5.6K
6	R109 R110	OPEN 150
7	R113 R114	OPEN 39K
8	C101 C102 C103 C104	OPEN 1/50
9	C105	OPEN 33/16
10	Q101 Q102	OPEN 25C2603IE.F1 or 25C3312IR.S.T1

•RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR
☑	CARBON FILM RESISTOR (1/6W)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
☒	METAL PLATE RESISTOR
▣	FLAME PROOF CARBON FILM RESISTOR
□	SEMENT MOLDED RESISTOR
⊗	SEMI VARIABLE RESISTOR

•CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
NO MARK	CERAMIC CAPACITOR
⊙	POLYESTEL FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
Ⓜ	MICA CAPACITOR
Ⓟ	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR



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4

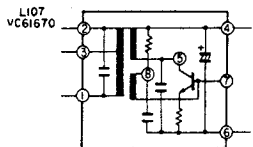
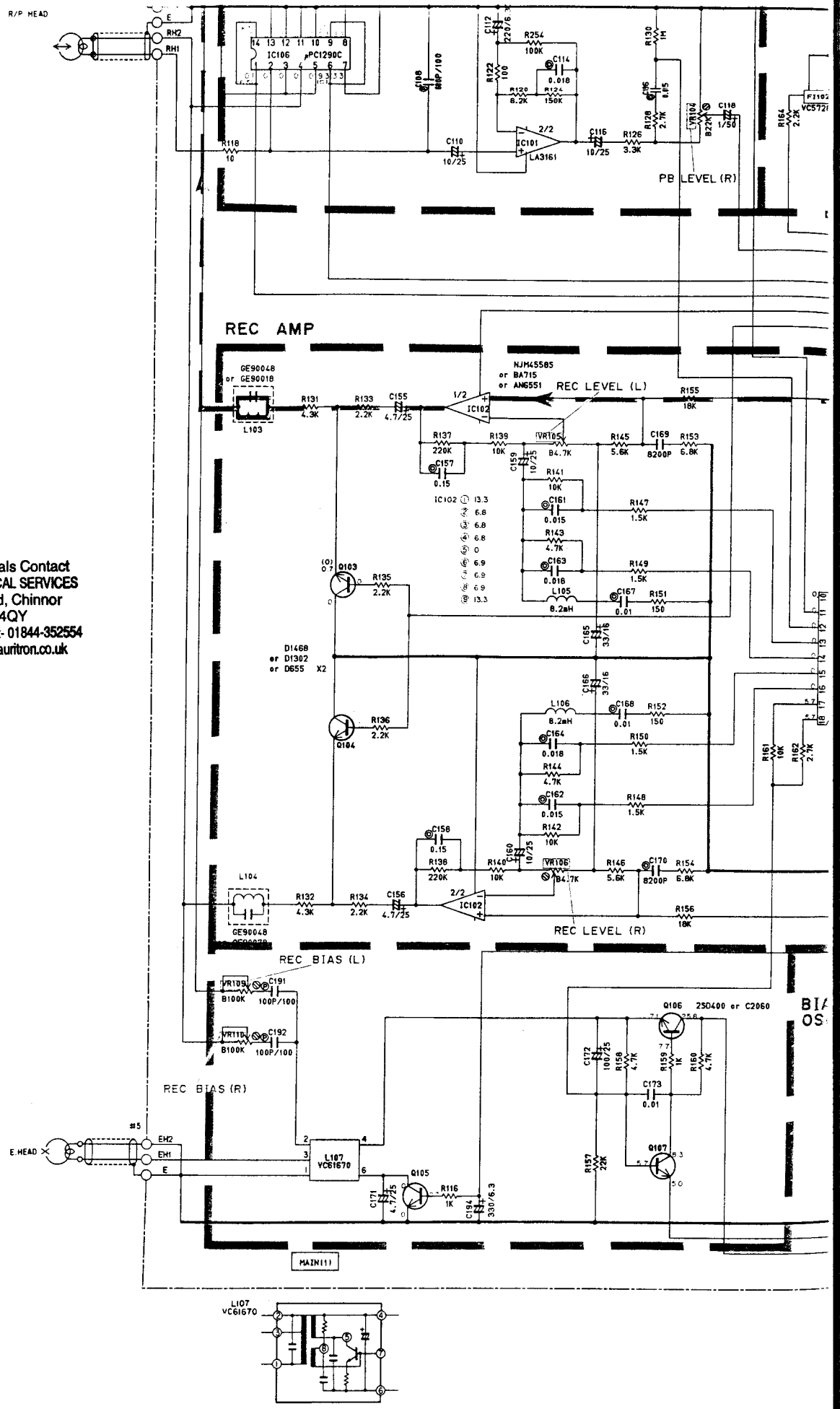
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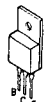
6

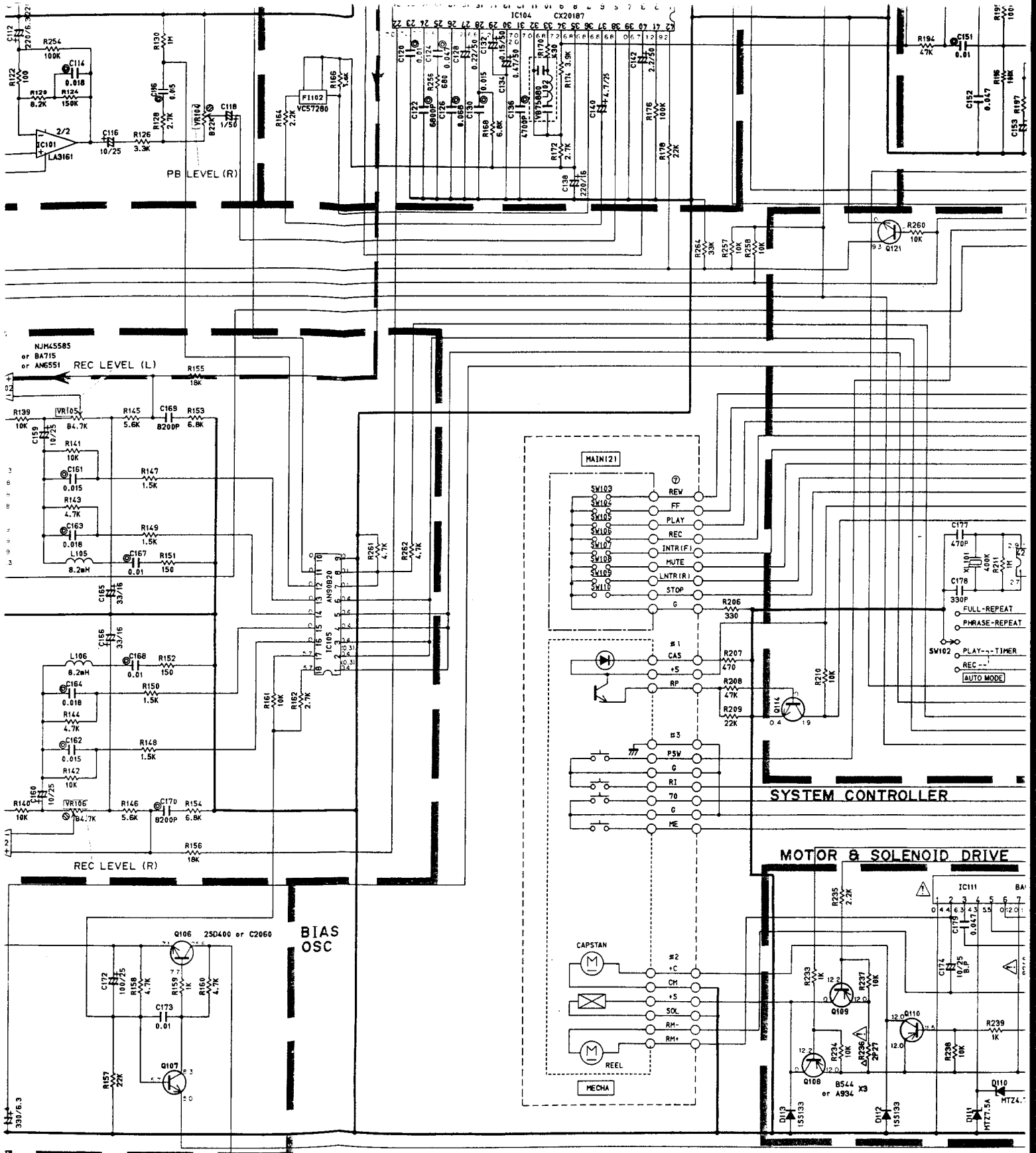
7

8

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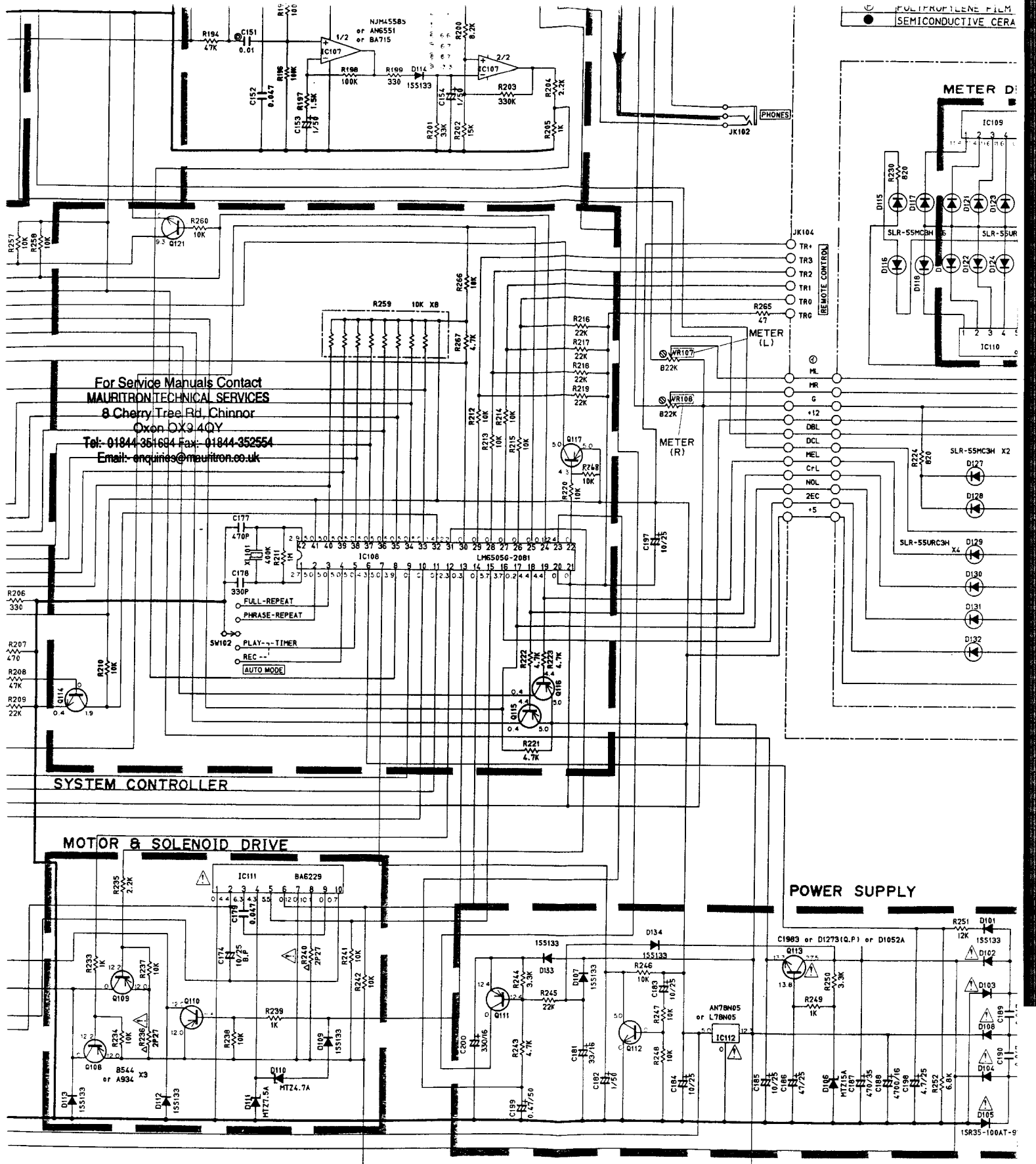
2SA933S (Q, R) 2SA1115 (E, F) 2SA1310 (R, S, T) 2SC1740S (S, R) 2SC2603 (E, F) 2SC3312 (R, S, T)	2SC1983 2SD400 2SD1052A 2SD1273 (O, P)	 2SC2060 2SD400 2SD655 (L) 2SD1302 2SD1468 2SB544 2SA934
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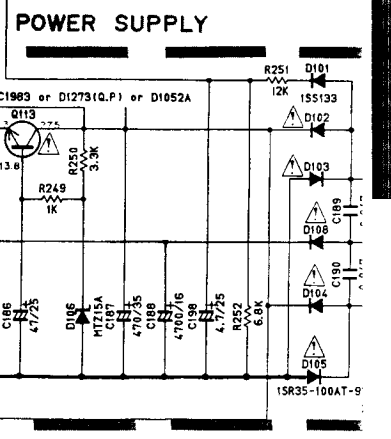
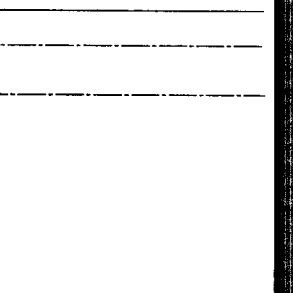
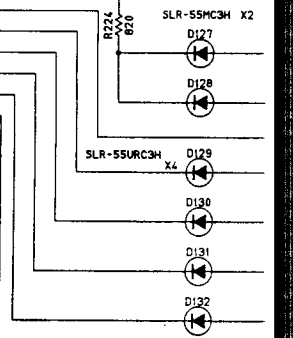
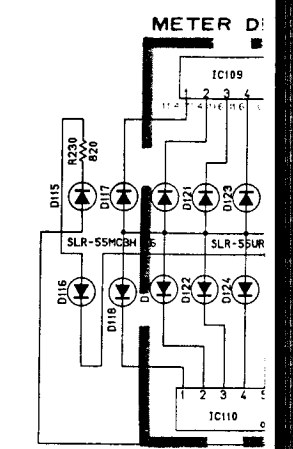
\*Unless otherwise specified  
 PNP TRANSISTOR 2SC1740S (S, R) or 2SA1115 (E, F) or  
 NPN TRANSISTOR 2SC1740S (S, R) or 2SC2603 (E, F) or 2  
 DIODE

<p>3S (O, R)          15 (E, F)          10 (R, S, T)          40S (S, R)          03 (E, F)          12 (R, S, T)</p>	<p>2SC1983          2SD1052A          2SD1273 (Q, P)</p>	<p>2SC2060          2SD400          2SD655 (E, F)          2SD1302 (R, S)          2SD1468 (O, R, S)          2SB544          2SA934</p>	<p>1SS133          1SR35-100AT-93X          MTZ4.7A          MTZ7.5A          MTZ15A</p>	<p>L78N05          AN78N05</p>	<p>LA3161</p>	<p>LB1403N          BA6124</p>	<p>AN6551          NJM4558S          BA715          NJM4556S</p>
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Email: enquiries@mauritron.co.uk



**SYSTEM CONTROLLER**

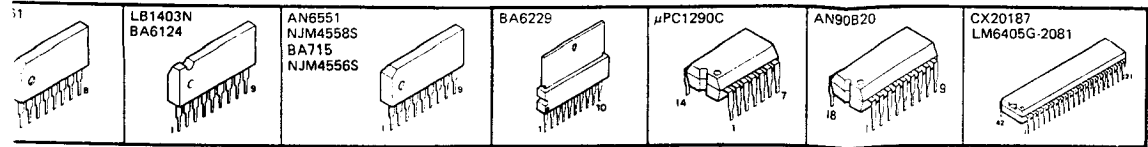
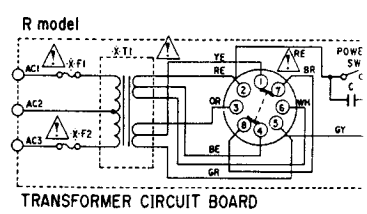
**MOTOR & SOLENOID DRIVE**

**POWER SUPPLY**

\*Unless otherwise specified  
PNP TRANSISTOR SA935(I,Q,R) or 25A1115(E,F) or 25A1310(I,R,S,T)  
NPN TRANSISTOR 25C17405(I,S,R) or 25C2603(E,F) or 25C3312(I,R,S,T)  
DIODE

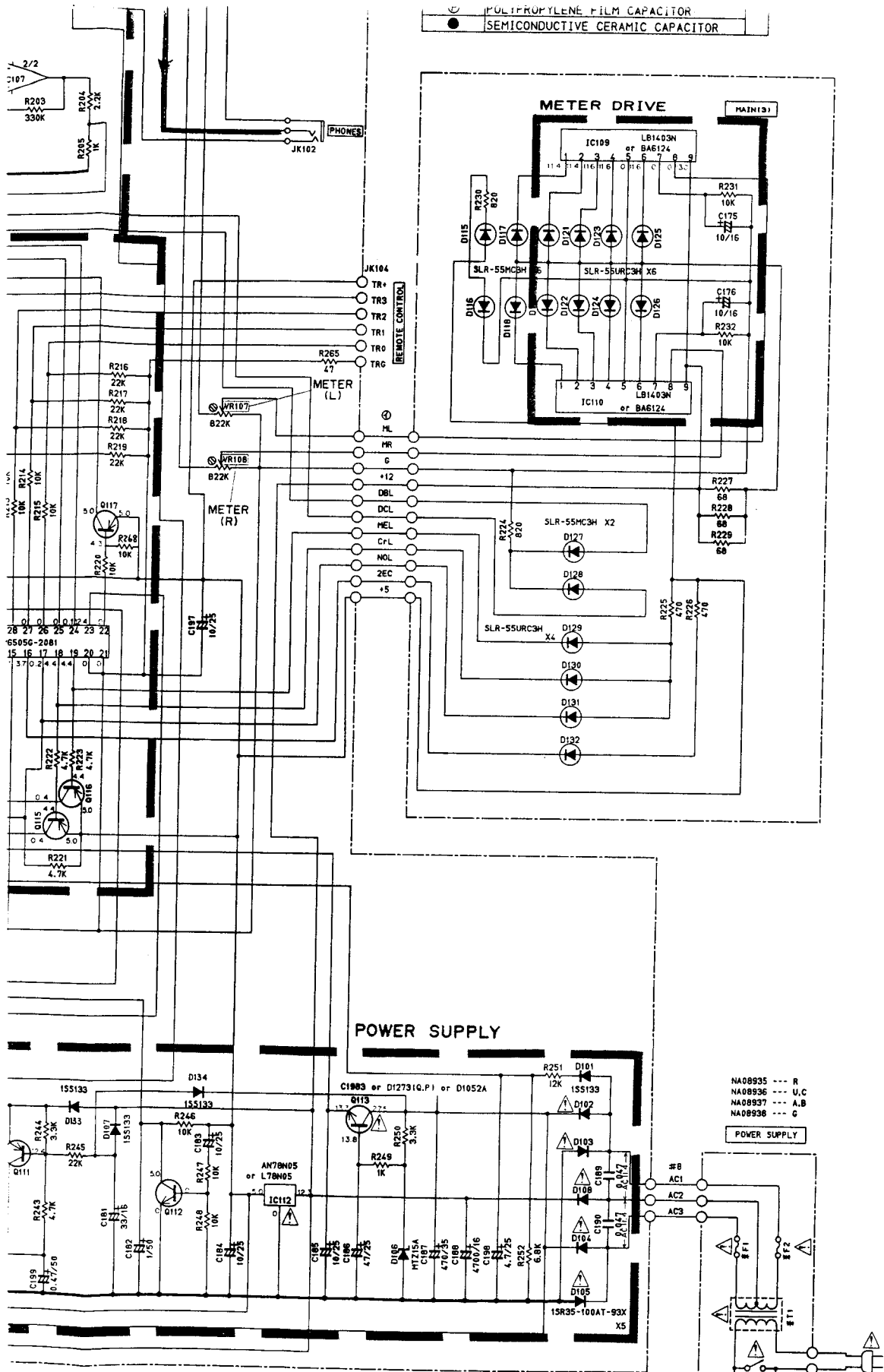
Note: \* marked

	U,C	A,B	G	R
T1	GA 68710	GA 68740	GA 68730	GA 68721
F1, F2	1.0A 250V	T800mA 250V	T800mA 250V	T1.0A 250V

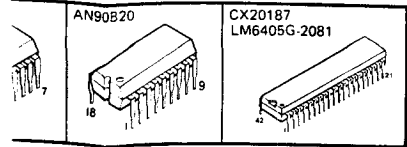
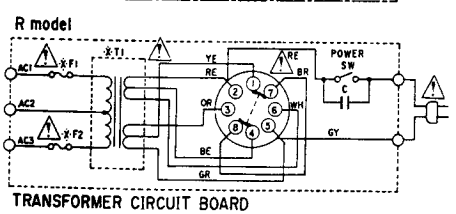


\* All  
\* Co  
\* mu  
\* ori  
\* Scl

○ POLYPROPYLENE FILM CAPACITOR  
● SEMICONDUCTIVE CERAMIC CAPACITOR



U,C	A,B	G	R
68710	GA68740	GA68730	GA68721
A 250V	T800mA 250V	T800mA 250V	T1.0A 250V



\* All voltages are measured with a 10MΩ/DC electric volt meter.  
 \* Components having special characteristics are marked  $\Delta$  and must be replaced with parts having specifications equal to those originally installed.  
 \* Schematic diagram is subject to change without notice.

# PARTS LIST

## ■WARNING

Components having special characteristics are marked  $\Delta$  and must be replaced with parts having specifications equal to those originally installed.

● Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS list. For the parts No. of the carbon resistor, refer to p. 30.

## ■ ELECTRICAL PARTS

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	NA 09 31 70	Main Circuit Board	メ イ ン シ ー ト			R.U.A. C.B.	
※	NA 09 31 80	"	"			G	
	FG 21 23 30	Ceramic Cap.	セ ラ コ ン	C178			
	FG 21 24 70	"	"	C177			
	FG 44 41 00	"	"	C173			
	FG 44 44 70	"	"	C152,179,189,190			
	FA 15 34 70	Mylar Cap.	マ イ ラ ー コ ン	C135,136			
	FA 15 36 80	"	"	C121,122			
	FA 15 38 20	"	"	C169,170			
	FA 15 41 00	"	"	C119,120,151,167,168			
	FA 15 41 50	"	"	C129,130,195,196, 161,162			
	FA 15 41 80	"	"	C113,114,163,164			
	FA 15 44 70	"	"	C123,124			
	FA 15 46 80	"	"	125,126			
	FA 15 51 50	"	"	C157,158			
	UJ 11 82 20	Electrolytic Cap.	ケ ミ コ ン	C111,112			
	UJ 41 83 30	"	"	C194			
	UJ 13 73 30	"	"	C105			
	UJ 13 73 30	"	"	C149,150,165,166,181			
	UJ 13 82 20	"	"	C137,138			
	UJ 13 83 30	"	"	C200			
	UJ 14 64 70	"	"	C139,140,147,148, 155,156,171,198			
	UJ 14 71 00	"	"	C106,109,110,115,116,143~146, 159,160,180,183~185,193,197			
	UJ 14 74 70	"	"	C186			
	UJ 14 81 00	"	"	C172			
	UJ 16 54 70	"	"	C133,134,199			
	UJ 16 61 00	"	"	C101~104		G	
	UJ 16 61 00	"	"	C117,118,153,154,182			
	UJ 16 62 20	"	"	C141,142			
	UH 13 94 70	"	"	C188			
	UJ 45 84 70	"	"	C187			
	UJ 13 71 00	"	"	C175,176			
	UW 56 51 50	"	"	C131,132			
	UJ 16 52 20	"	"	C127,128			
	UK 34 71 00	"	B P コ ン	C174			
	UT 45 21 00	Polypropylene Film Cap.	ポ リ プ ロ コ ン	C191,192			
	UT 45 26 80	"	"	C107,108			
※	VC 57 28 00	MPX Filter	M P X フィ ル タ ー	Fi101,102			
	GE 90 04 80	Bias Trap Coil	バイアストラップコイル	L103,104	Inter- changeable		
	GE 90 07 80	"	"	"			
	VB 75 88 00	Skewing Coil	スキューイングコイル	L101,102			
	GE 90 16 20	Coil	コ イ ル	L105,106			
※	VC 61 67 00	OSC Coil	バイアスOSCブロック	L107			
	GG 00 05 00	Ceramic Resonator	セラミック発振子	XL101			
	HL 82 42 70	Metal Oxide Film Resistor	酸 金 抵 抗	R236,240			$\Delta$
	HZ 00 28 80	Resistor Array	抵 抗 ア レ ー	R259			
	VA 78 79 00	Pre-Set Potentiometer	半 固 定 抵 抗	VR105,106			

※New Parts (新規部品) NR

KX-200U

Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets	ランク
	VA 78 81 00	Pre-Set Potentiometer	B22kΩ	半固定抵抗	VR103,104,107,108	Inter-changeable	
	VB 24 41 00	"	B22kΩ	"	"		
	VA 78 84 00	"	B100kΩ	"	VR109,110		
*	VC 57 27 00	Potentiometer	50kA	可変抵抗器	VR101,102		
	iA 09 33 00	Transistor	2SA933S(Q,R)	トランジスタ	Q111,115~117	Inter-changeable	
	iA 11 15 10	"	2SA1115(E,F)	"	"		
	iX 60 31 70	"	2SA1310(R,S,T)	"	"		
	iC 17 40 70	"	2SC1740S(S,R)	"	Q105,107,112,114,121	Inter-changeable	
	iC 26 03 10	"	2SC2603(E,F)	"	"		
	iX 60 31 80	"	2SC3312(R,S,T)	"	"		
	iC 17 40 70	"	2SC1740(S,R)	"	Q101,102	Inter-changeable	G
	iC 26 03 10	"	2SC2603(E,F)	"	"		G
	iX 60 31 80	"	2SC3312(R,S,T)	"	"		G
	iC 20 60 00	"	2SC2060	"	Q106	Inter-changeable	
	iD 04 00 10	"	2SD400	"	"		
	iD 06 55 10	"	2SD655(E,F)	"	Q103,104,119,120	Inter-changeable	
	iD 13 02 00	"	2SD1302(R,S)	"	"		
	VA 71 00 00	"	2SD1468(Q,R,S)	"	"		
	iB 05 44 10	"	2SB544	"	Q108~110	Inter-changeable	
	iA 09 34 00	"	2SA934	"	"		
	iC 19 83 00	"	2SC1983	"	Q113	Inter-changeable	△
	iD 10 52 10	"	2SD1052A	"	"		△
	iD 12 73 00	"	2SD1273(Q,P)	"	"		△
	iF 00 34 50	Diode	1SS133	ダイオード	D101,107,109,112~114,133,134		
	iF 00 84 80	"	1SR35-100A	"	D102~105,108		△
	iF 01 06 50	Zener Diode	MTZ4.7A	ツェナーダイオード	D110		
	iF 01 07 90	"	MTZ7.5A	"	D111		
	iX 60 63 10	"	MTZ15A	"	D106		
	iF 00 42 70	LED(Red)	SLR-55URC3H	L E D	D121~126,129~132		
	iF 00 42 80	"(Green)	SLR-55MC3H	"	D115~120,127,128		
	iG 08 99 00	Transistor Array	AN90B20	トランジスタアレイ	IC105		
	iG 03 47 00	IC	AN6551	I C	IC102,107	Inter-changeable	
	iG 07 68 00	"	NJM4558S	"	"		
	iG 13 22 00	"	BA715	"	"		
	iG 07 74 00	"	NJM4556S	"	IC103		
	iG 14 55 00	"	LA3161	"	IC101		
	XA 50 60 01	"	L78N05	"	IC112		△
	XA 50 80 01	"	μPC1290C	"	IC106		
	XB 29 80 01	"	CX20187	"	IC104		
*	XC 10 20 02	"	LM6405G-2081	"	IC108		
	iG 12 59 00	"	BA6124	"	IC109,110		
	iG 15 25 00	"	BA6229	"	IC111		△
	KA 90 63 80	Switch	5MEVQ-QRB-04M	ライトタッチスイッチ	SW103~110		
	VC 08 36 00	Rotary Switch	2-3	ロータリースイッチ	SW101		
*	VC 57 25 00	"	1-5	"	SW102		
	LB 30 17 60	Phone Jack	BL	ヘッドホンジャック	JK102		
	LB 40 10 50	Pin Jack	4P	ピンジャック	JK103		
	VA 87 81 00	DIN Socket	5P	DIN ソケット	JK101	G	

\* New Parts (新規部品) NR

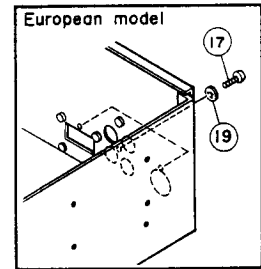
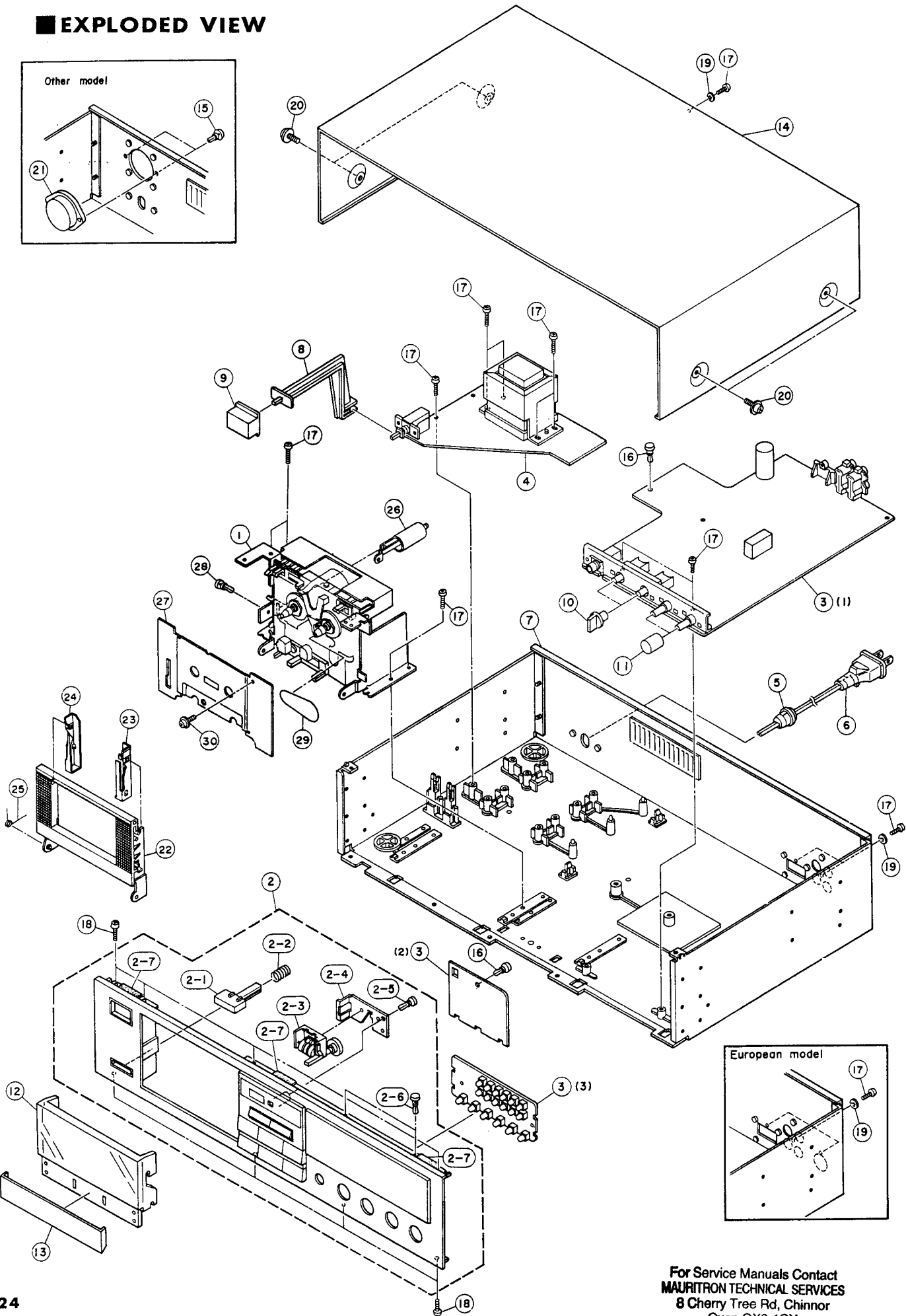
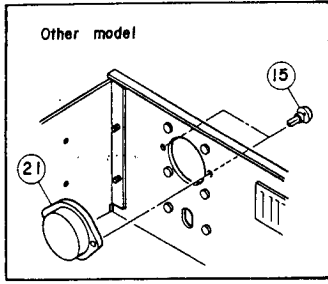
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Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
	LB 60:83:90	ST Connector Socket	6P	STコネクタソケット			
	LB 91:80:30	Base Pin	3P i-Type	XH ベースピン			
	LB 91:80:60	"	6P i-Type	"			
※	AA 63:18:80	Holder,PCB		ホルダー (PCB)			
※	CB 66:12:50	" ,CW		" (CW)			
※	CB 66:12:40	" ,VR		" (VR)			
	CB 62:23:90	Plastic Rivet		プラスチックリベット			
	NA 08:93:50	Power Transformer Ass'y		パワートランスAss'y	K-340	R	
	NA 08:93:60	"		"	"	U,C	
	NA 08:93:70	"		"	"	A,B	
	NA 08:93:80	"		"	"	G	
	Fi 41:41:00	Ceramic Cap	0.01 $\mu$ F	セラコン	Interchangeable		△
	Fi 50:41:00	"	0.01 $\mu$ F	"			△
	VA 89:08:00	"	0.01 $\mu$ F	"			△
	KA 80:36:10	Power Switch	ESB8213A-F	パワースイッチ			△
	KA 80:51:50	"	ESB-8215V-F	"			△
	KB 00:03:30	Fuse	T1.0A 250V	ヒューズ		R	△
	KB 00:10:60	"	1.0A 250V	"		U,C	△
	KB 00:07:20	"	T800mA 250V	"		A,B,G	△
	GA 68:72:10	Power Transformer		電源トランス		R	△
	GA 68:71:00	"		"		U,C	△
	GA 68:74:00	"		"		A,B	△
	GA 68:73:00	"		"		G	△
	LA 00:21:40	Lapping Terminal	P=10,2Pi-Type	i型ラッピング端子			
	LB 20:18:80	Fuse Holder Pin	PC-FH1	ヒューズホルダーピン			
	Mi 08:54:10	Connector		ボードインコネクター		U,C,A, B,G	
	Mi 08:54:90	"		"		R	
	Ei 03:00:86	Bind Tapping Screw	3×8 ZMC2-Y	バインドタッピングネジ	PACK		
	LB 20:14:80	Voltage Selector		電圧切換器		R	△

※New Parts (新規部品) NR

KX-200/KX-200U

# EXPLODED VIEW



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# MECHANISM PARTS

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Model	Markets	ランク
※	1	PB 06 56 30	Cassette Mechanism Unit	カセットデッキメカ			
※	2	VC 62 38 00	Panel Unit	パネルユニット	Black		R,A,G,B
※	"	VC 64 77 00	"	"	Black		U,C
※	"	VC 62 39 00	"	"	Silver		R,A,G,B
※	"	VC 64 78 00	"	"	Silver		U,C
	2-1	CB 62 52 10	Button	ボ タ ン	Silver EJECT		
	"	CB 62 52 20	"	"	Black EJECT		
	2-2	AA 61 04 30	Spring	ス プ リ ン グ			
	2-3	PB 06 55 30	Tape Counter	テープカウンター			
	2-4	AA 62 87 10	Counter Holder	カウンターホルダー		K-340	
	2-5	CB 60 56 20	Plastic Rivet	プラスチックリベット			
	2-6	CB 06 88 80	"	"			
	2-7	CB 64 24 90	Damper	ダ ン パ ー		K-220	
※	3	NA 09 31 70	Main Circuit Board	メ イン シ ー ト			R,U,A, C,B
※	"	NA 09 31 80	"	"			G
	4	NA 08 93 50	Power Transformer	電 源 ト ラ ン ス Ass'y		K-340	R
	"	NA 08 93 60	"	"		K-340	U,C
	"	NA 08 93 70	"	"		K-340	A,B
	"	NA 08 93 80	"	"		K-340	G
	5	CB 61 68 10	Cord Stopper	CM-22A	コ ー ド ス ト ッ パ ー		U,C
	"	CB 62 01 90	"	CM-22B	"		R,A,G,B
	6	MG 00 09 80	Power Cord	10A 125V 2m	電 源 コ ー ド	} Inter-changeable	U,C
	"	MG 00 12 40	"	10A 125V 2m	"		U,C
	"	MG 00 09 20	"	7.5A 250V 2.5m	"	} Inter-changeable	A
	"	MG 00 14 90	"	7.5A 250V 2.5m	"		A
	"	MG 00 23 10	"	7.5A 250V 2m	"	} Inter-changeable	A
	"	MG 00 09 60	"	2.5A 250V 2m	"		G
	"	MG 00 16 20	"	2.5A 250V 2m	"	} Inter-changeable	G
	"	MG 00 23 20	"	2.5A 250V 2m	"		G
	"	MG 00 16 30	"	6A 250V 2m	"	} Inter-changeable	R
	"	MG 00 18 60	"	2.5A 250V 2m	"		B
	"	MG 00 23 30	"	2.5A 250V 2m	"	B	
※	7	NB 63 85 00	Chassis	シ ャ ー シ			U,A,C,B
※	"	NB 63 85 10	"	"			G
※	"	NB 63 85 20	"	"			R
	8	CB 63 42 80	Rod	ロ ッ ド		K-220	
	9	CB 62 51 70	Button	ボ タ ン	Silver POWER	K-320	
	"	CB 62 51 80	"	"	Black POWER	K-320	
※	10	CB 66 21 50	Knob	ス イ ッ チ ツ マ ミ	Silver		
	"	CB 63 42 70	"	"	Black	K-720	
	11	CB 62 60 30	"	ツ マ ミ	Silver	K-520	
	"	CB 62 60 40	"	"	Black	K-520	
	12	CB 62 52 50	Lid Cover	リ ッ ド カ バ ー		K-320	
	13	CB 65 04 10	Lid Panel	リ ッ ド パ ネ ル	Silver	K-340	
	"	CB 65 04 20	"	"	Black	K-340	
	14	AA 62 87 70	Top Cover	ト ッ プ カ バ ー	Silver	K-340	
	"	AA 62 87 80	"	"	Black	K-340	
	15	CB 06 88 80	Plastic Rivet	プラスチックリベット			R
	16	CB 60 56 20	"	"			
	17	Ei 03 01 06	Binding Head Tapping screw	3x10 ZMC2-Y	バ イ ン ド タ ッ ピ ン グ ネ ジ	PACK	
	18	Ei 33 00 86	"	3x8 FCRM3-BI	"	PACK	
	19	EV 41 30 36	Toothed Lock Washer	φ3 FCRM3-BI	歯 付 座 金	PACK	
	20	EK 13 00 20	BW Head Tapping Screw	4x8 FNM3-3g	BWヘッドタッピングネジ	Silver	

※New Parts (新規部品) NR

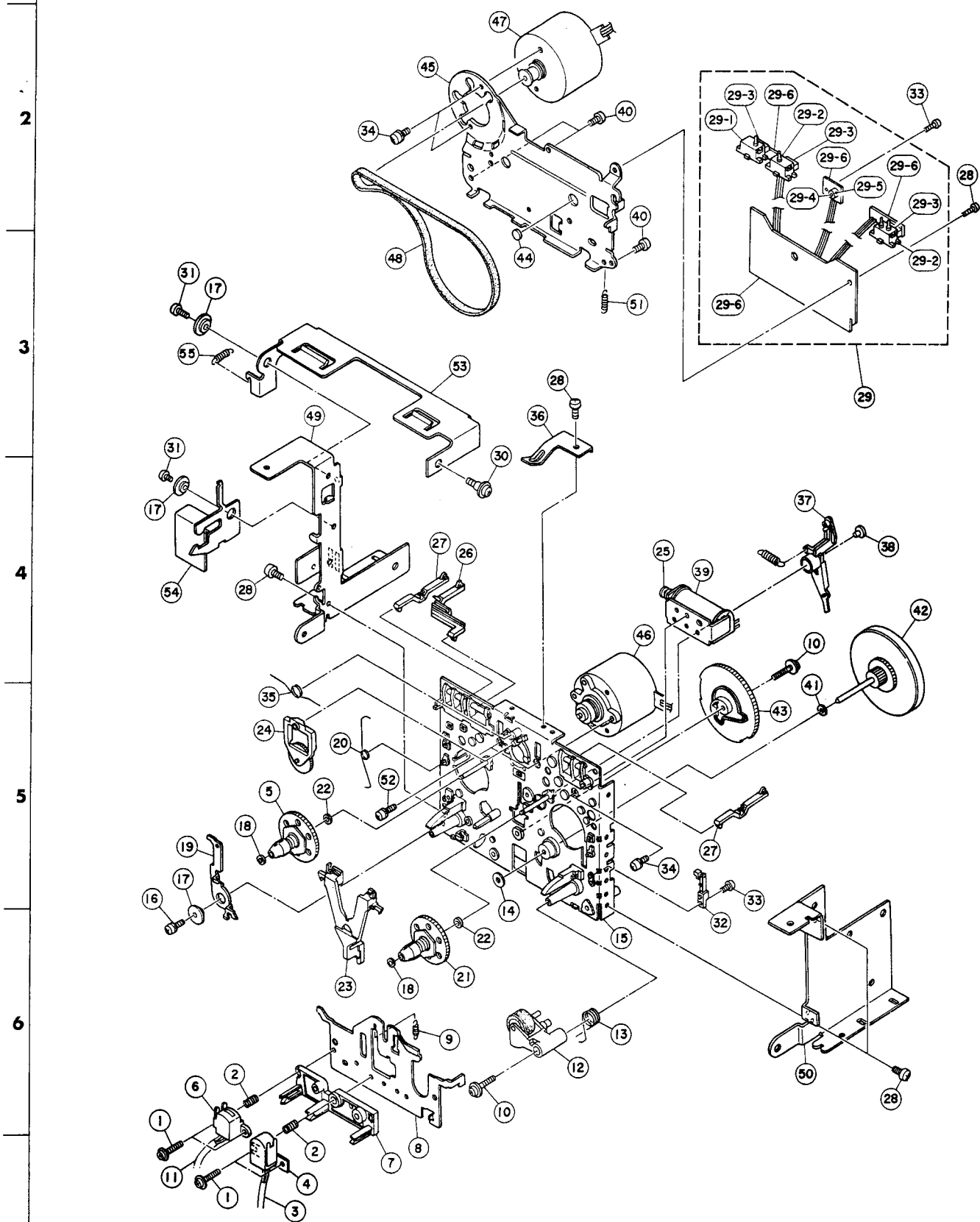
Ref. No.	Part No.	Description	部 品 名		Remarks	Common Model	Markets	ランク
20	EK 36 50 40	BW Head Tapping Screw	4x8	FCRM3-BI	BWヘッドタッピングネジ	Black		
21	LB 20 14 80	Voltage Selector			電 圧 切 換 器		R	△
22	NB 62 53 50	Housing			ハ ウ ジ ン グ	K-220		
23	CB 60 98 80	Cassette Guide (R)			カセットガイド(R)	TM-5		
24	CB 62 85 70	" (L)			" (L)	TM-7		
25	AA 60 88 70	Housing Spring			ハウジングスプリング	TM-5		
26	NB 60 33 40	Damper Ass'y			ダンパー Ass'y	TM-5		
27	AA 62 89 90	Blind Plate			ブラインドプレート	K-340		
28	CB 60 14 20	Plastic Rivet			プラスチックリベット			
29	CB 65 04 00	Belt			ベ ル ト	K-340		
30	EK 03 50 50	BW Head Tapping Screw	2.6x12	ZMC2-BI	BWヘッドタッピングネジ			
	CB 06 92 50	Binding Tie	BK-1		インシュロックタイ			
		<b>Accessories</b>			<b>付 属 品</b>			
	Mi 06 62 10	Pin Cord			ピ ン コ ー ド			

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1 ■ EXPLODED VIEW (Cassette Mechanism Unit)



7

# MECHANISM PARTS(Cassette Mechanism Unit)

Note) φ : Diameter

Ref. No.	Part No.	Description	部品名	Remarks	Common Model	Markets	ランク
※	PB 06 56 30	Cassette Mechanism	カセットメカ				
1	XX 64 17 10	Screw	F ロックネジ				
2	XX 64 17 20	Spring, Azimuth	アジマス SP				
3	XX 67 05 10	Connector	ワイヤーコネクター	録再ヘッド			
※	4	XX 68 52 10	R/P Head	HAJCH4557A	録再ヘッド		
5	XX 63 89 20	Take Up Reel Ass'y	T. リール組立品				
6	XX 64 17 30	Erase Head	消去ヘッド				
7	XX 64 17 40	Head Spacer	ヘッドスペーサー				
※	8	XX 68 52 20	Head Base	ヘッドベース			
9	XX 64 17 60	Head Base Spring	ヘッドベース SP				
※	10	XX 68 53 20	Screw	2×13	ウェーブネジ		
※	11	XX 68 52 30	Conector	ワイヤーコネクター	消去ヘッド		
12	XX 64 17 90	Pinch Roller	ピンチローラー組立品				
13	XX 64 18 00	Pinch Roller Spring(R)	ピンチローラーバネ(R)				
14	XX 67 02 50	Washer	ワッシャーオイルシール				
※	15	XX 68 52 40	Chassis	シャーシ準備品			
16	EJ 03 00 86	Pan Head Tapping Screw	3×8 ZMC2-Y	ナベタッピングネジ	PACK		
17	XX 63 64 70	Spacer	スペーサー				
18	XX 63 66 10	Washer	ポリスライダ				
※	19	XX 68 47 90	Arm(R)	EJECT 防止アーム(R)			
※	20	XX 68 48 00	Spring(R)	EJECT 防止 SP(R)			
21	XX 64 18 40	Reel Ass'y	リール組立品				
22	XX 64 18 50	Washer	ポリスライダ				
23	XX 68 43 90	Hold Lever(C)	ホールドレバー(C)				
24	XX 68 44 80	Idller	アイドル Ass'y				
※	25	XX 68 52 50	Plunger	プランジャー			
26	XX 64 89 60	Lever	メタル検知レバー				
27	XX 64 19 50	"	REC 検知レバー				
28	EJ 03 00 46	Pan Head Tapping Screw	3×4 ZMC2-Y	ナベタッピングネジ	PACK		
※	29	XX 68 52 60	Connector Ass'y	コネクター配線品			
29-1	XX 64 88 60	Push Switch	ブッシュ SW				
29-2	XX 64 89 70	"	"				
29-3	XX 68 44 30	Spacer	SW スペーサー				
29-4	XX 68 44 50	Sensor, Reel	GP2S02B	リールセンサー			
29-5	XX 68 44 60	Spacer	ホトスペーサー				
※	29-6	XX 68 48 20	Relay Circuit Board	中継基板			
30	XX 68 46 60	Screw	段付 S タイトネジ				
31	XX 68 46 70	Pan Head P-tyte Screw	3×6 ZMC2-Y	ナベ P タイトネジ			
32	XX 64 19 20	Leaf Switch	リーフ SW				
33	XX 68 45 00	Screw	2×7	ウェーブネジ			
34	XX 64 19 30	Screw with Washer	ワッシャー付ネジ				
35	XX 64 19 40	Hold Spring	ホールド SP				
36	XX 64 19 70	Spring	カセット押えバネ				
※	37	XX 68 52 70	Play Arm	プレイアーム組立品			
38	XX 64 20 00	Cap	キャップ				
※	39	XX 68 45 50	Coil	コイル			
40	EJ 02 60 86	Pan Head Tapping Screw	2.6×8 ZMC2-Y	ナベタッピングネジ	PACK		
41	XX 63 68 10	Washer	ポリスライダ				
42	XX 68 45 20	Flywheel	Ass'y F/W				
43	XX 68 45 30	Cam Gear(E)	カムギヤ (E)				
44	XX 64 20 40	Spacer	スペーサー				
45	XX 64 20 50	Flywheel Braket(B)	F/W BKT(B)				
46	XX 64 88 50	Motor, Reel	モーター準備品				

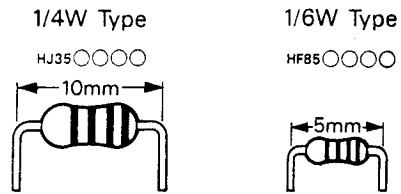
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# Parts List for Carbon Resistor

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ353100	*	12KΩ	HJ357120	HF857120
1.8 "	HJ353180	*	15 "	HJ357150	HF857150
2.2 "	HJ353220	HF853220	18 "	HJ357180	HF857180
3.3 "	HJ353330	HF853330	22 "	HJ357220	HF857220
4.7 "	HJ353470	HF853470	27 "	HJ357270	HF857270
5.6 "	HJ353560	HF853560	33 "	HJ357330	HF857330
10 "	HJ354100	HF854100	39 "	HJ357390	HF857390
15 "	HJ354150	HF854150	47 "	HJ357470	HF857470
22 "	HJ354220	HF854220	56 "	HJ357560	HF857560
27 "	HJ354270	HF854270	68 "	HJ357680	HF857680
33 "	HJ354330	HF854330	82 "	HJ357820	HF857820
39 "	HJ354390	HF854390	91 "	HJ357910	HF857910
47 "	HJ354470	HF854470	100 "	HJ358100	HF858100
56 "	HJ354560	HF854560	120 "	HJ358120	HF858120
68 "	HJ354680	HF854680	150 "	HJ358150	HF858150
82 "	HJ354820	HF854820	180 "	HJ358180	HF858180
100 "	HJ355100	HF855100	220 "	HJ358220	HF858220
110 "	HJ355110	HF855110	270 "	HJ358270	HF858270
120 "	HJ355120	HF855120	330 "	HJ358330	HF858330
150 "	HJ355150	HF855150	390 "	HJ358390	HF858390
160 "	HJ355160	*	470 "	HJ358470	HF858470
180 "	HJ355180	HF855180	560 "	HJ358560	HF858560
220 "	HJ355220	HF855220	680 "	HJ358680	HF858680
270 "	HJ355270	HF855270	820 "	HJ358820	HF858820
330 "	HJ355330	HF855330	1.0MΩ	HJ359100	HF859100
390 "	HJ355390	HF855390	1.2 "	HJ359120	*
470 "	HJ355470	HF855470	1.5 "	HJ359150	HF859150
510 "	*	HF855510	1.8 "	HJ359180	HF859180
560 "	HJ355560	HF855560	2.2 "	HJ359220	HF859220
680 "	HJ355680	HF855680	3.3 "	HJ359330	HF859330
820 "	HJ355820	HF855820	3.9 "	HJ359390	*
910 "	HJ355910	HF855910	4.7 "	HJ359470	*
1.0KΩ	HJ356100	HF856100			
1.2 "	HJ356120	HF856120			
1.5 "	HJ356150	HF856150			
1.8 "	HJ356180	HF856180			
2.0 "	HJ356200	HF856200			
2.2 "	HJ356220	HF856220			
2.4 "	HJ356240	HF856240			
2.7 "	HJ356270	HF856270			
3.0 "	HJ356300	HF856300			
3.3 "	HJ356330	HF856330			
3.6 "	HJ356360	HF856360			
3.9 "	HJ356390	HF856390			
4.7 "	HJ356470	HF856470			
5.1 "	HJ356510	HF856510			
5.6 "	HJ356560	HF856560			
6.8 "	HJ356680	HF856680			
8.2 "	HJ356820	HF856820			
9.1 "	HJ356910	HF856910			
10 "	HJ357100	HF857100			



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