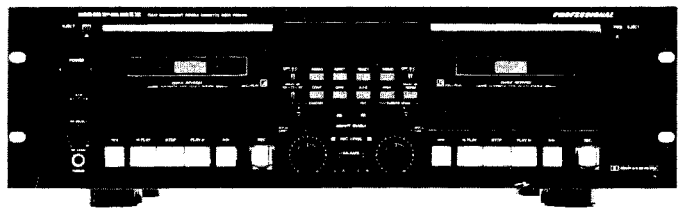
575

Service Manual

74PMD510 / 00B

Fully independent double deck



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marantz®

model PMD510

4822 725 51054

First issue : 1994

PCS 72 010

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound. Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available at our National Marantz Subsidiary or Agent.

MARANTZ EUROPE B.V.
P.O. Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands
Phone : +31-40-732241
Fax : +31-40-735578

ORDERING PARTS

Parts can be ordered either by mail or by telex. In both cases, the correct part number has to be specified. The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which the part is required
5. Way of shipment
6. Signature: any order form or telex must be signed, otherwise such part order will be considered as null and void.

ADDRESSES

AUSTRALIA
MARANTZ AUSTRALIA
Figtree Drive
Australia Centre
Homebush, NSW 2140
AUSTRALIA

AUSTRIA
MARANTZ
Hietzinger Kai 137a
1130 Wien
Austria

BELGIUM
MARANTZ EUROPE B.V.
Div. Benelux
P.O.Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands

CHILE
MARANTZ DIVISION OF
PHILIPS S.A.
Av.Santa Maria 0760
Casilla 2687
Santiago
Chile

DENMARK
MARANTZ
Horsvinget 5
2630 Tastrup
Denmark

FINLAND
MARANTZ
Kuortanegatan 1
00520
Helsingfors 52
Finland

FRANCE
MARANTZ FRANCE
4 Rue Bernard Palissy
92600 Asnières
France

GERMANY
MARANTZ GERMANY GmbH
Kleine Heide 12
Postfach 4802
Halle-Westfalen
Germany

GREAT BRITAIN
MARANTZ HiFi UK Ltd.
Kingsbridge House
Padbury Oaks
575-583 Bath Road
Longford Middlesex UB7 OEH,
U.K.

GREECE
ADAMCO ELECTR. SA
P.O.Box 21025
Hippocratus Str. 188
Athens 11471
Greece

ITALY
MARANTZ ITALIANA SPA
Piazza IV Novembre 3
20124 Milano
Italy

JAPAN
MARANTZ JAPAN INC.
35-1, 7-chome, Sagamiono
Sagamihara-shi, Kanagawa
Japan

KUWAIT
AL ALAMIAH ELECTRONICS
P.O.Box 8196
Salmiah
22052 Kuwait

NETHERLANDS
MARANTZ EUROPE B.V.
Div. Benelux
P.O.Box 80002
Building SFF 2
5600 JB Eindhoven
The Netherlands

NORWAY
MARANTZ
Postboks 7034
Assiden
3007 Drammen
Norway

PORTUGAL
COREL
Av. da Liberdade
211-2 Esq.
1200 Lisboa
Portugal

SAUDI ARABIA
AL ALAMIAH ELECTRONICS
P.O.Box 5954
University Street
Riyadh 11432
Saudi Arabia

SOUTH AFRICA
MARANTZ S.A.
10 Bond Street
Randburg 2194
P.O. Box 7703
Johannesburg 2000
South Africa

SPAIN
MARANTZ SPAIN
Martinez Villergas 2
Apartado 2065
Madrid 28027
Spain

SWEDEN
MARANTZ
Box 1324
17125 Solna
Sweden

SWITZERLAND
MARANTZ SWITZERLAND
Postfach
8010 Zürich-Müllingen
Switzerland

TRADING
MARANTZ TRADING
P.O.Box 20008
Building SFF 2
5600 JB Eindhoven
The Netherlands

All of the above locations are fully equipped to take care of your total service needs or can advice you. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

1. TECHNICAL SPECIFICATIONS

Track System ..... 4 Track, 2 Channel

Head System
- Rec / Play Head ..... Hard Metal Alloy (Rotary)
- Erase Head ..... Dual Gap Ferrite

Recording / Erasure System ..... AC 105 kHz Bias

Motor System
- Capstan ..... DC Servo Control
- Reel ..... DC

Overall S / N, no NR, "A" weighted
- Normal ..... 52 dB
- Chrome ..... 53 dB
- Metal ..... 53 dB

S / N (Overall), Dolby C NR, "A" Wtd.
- Normal ..... 67 dB
- Chrome ..... 68 dB
- Metal ..... 69 dB

Frequency Response, Rec / Play, no NR
- Normal ..... 20 Hz - 16 kHz ±3 dB
- Chrome ..... 20 Hz - 17 kHz ±3 dB
- Metal ..... 20 Hz - 18 kHz ±3 dB

Dolby NR effect, B / C, S / N improvement,
CCIR / ARM Wtd. ..... 9 dB / 18 dB

Output
- Line ..... 500 mV
- Phone (8 ohm) ..... 50 mV

Output Impedance
- Line ..... 1 kΩ
- Phone ..... 120 Ω

Input Sensitivity
- Line / Impedance ..... 100 mV / 47 kΩ

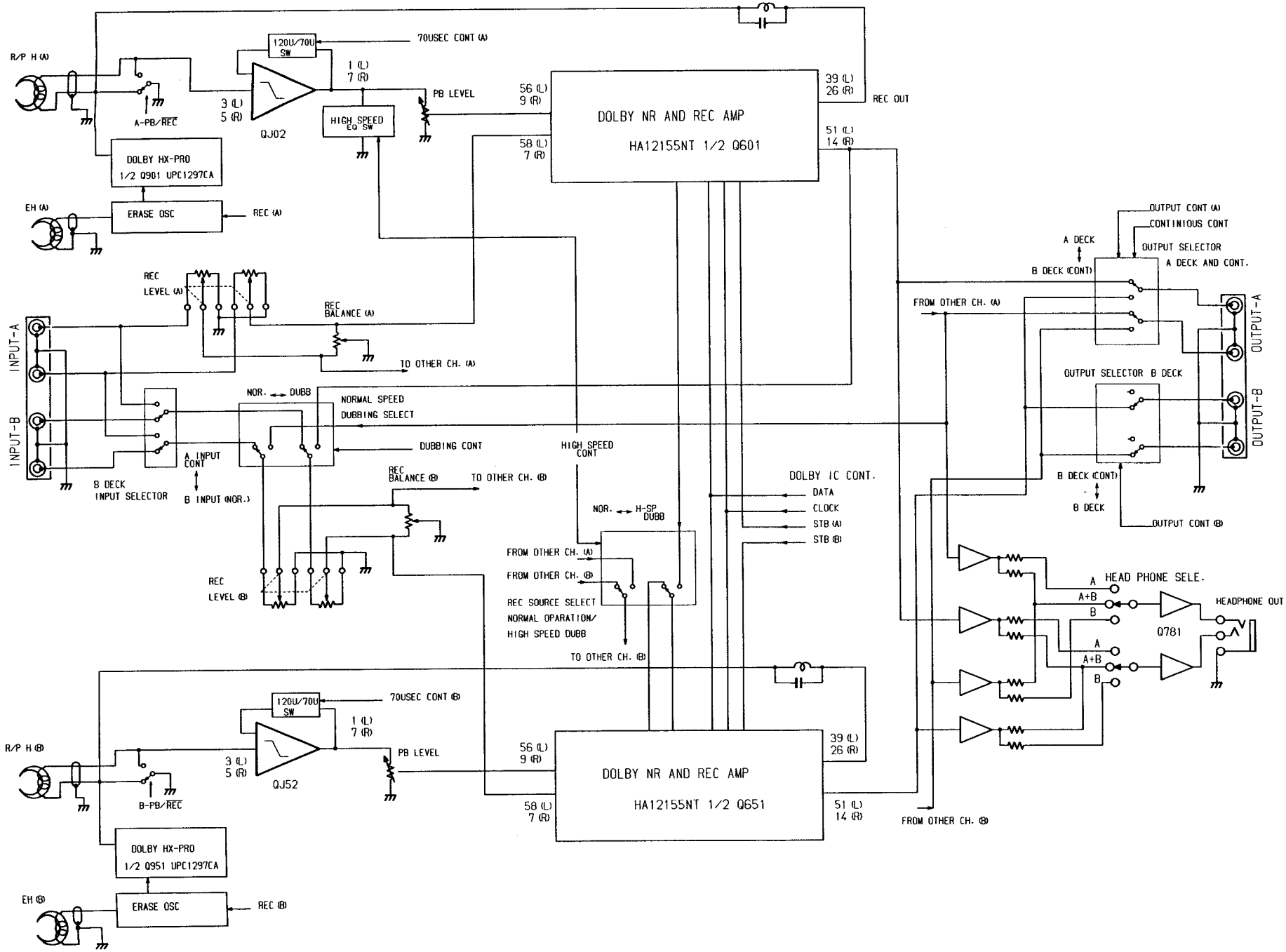
Wow & Flutter
- W RMS ..... 0.14 %

Power supply
- Power Requirement ..... 230 V AC 50 Hz
- Power consumption ..... 25 W

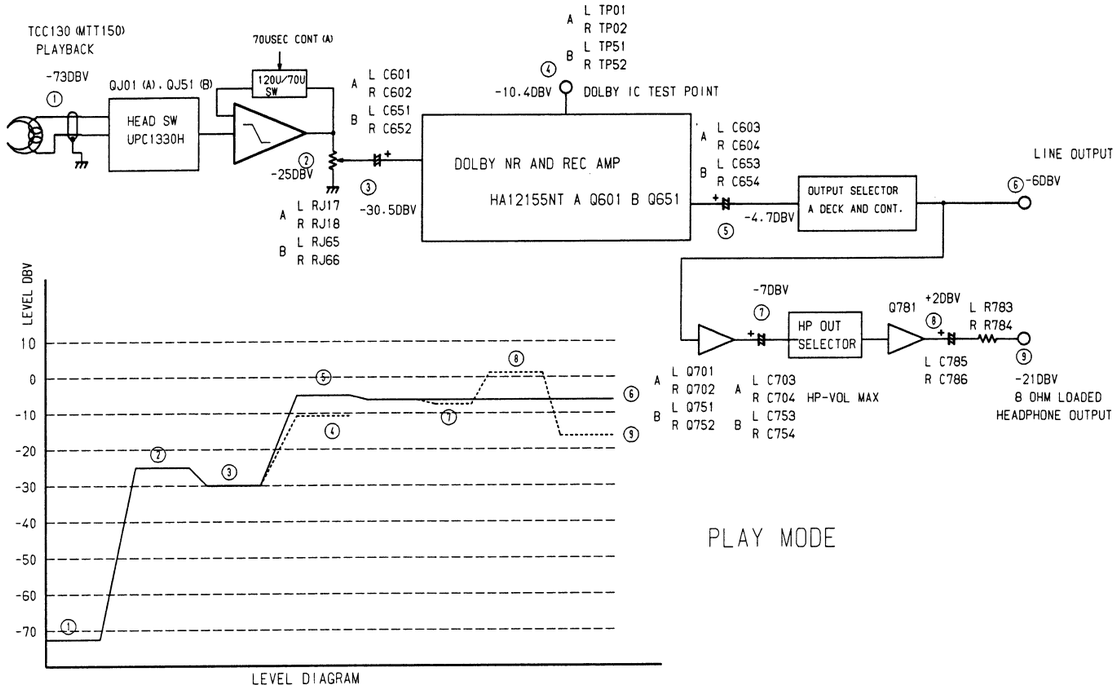
Dimensions
- Width ..... 19 - 1 / 8 inches (485 mm)
- Height ..... 5 - 1 / 4 inches (133 mm)
- Depth ..... 12 - 1 / 2 inches (340 mm)

Net Weight ..... 15 lbs. (6.8 kg)

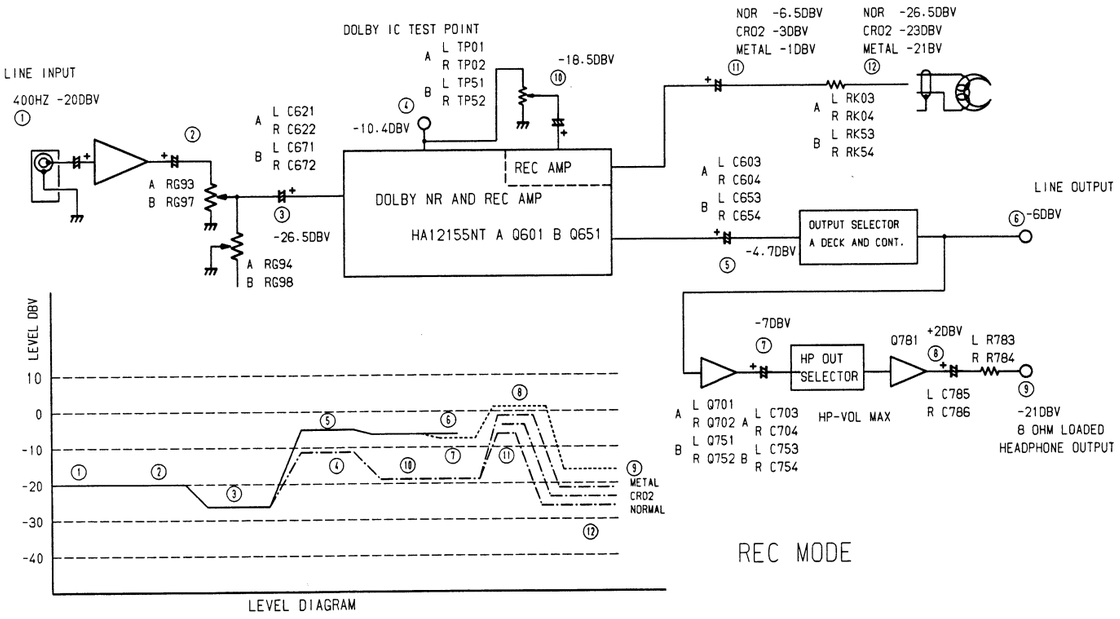
Specifications subject to change without prior notice.


R/P H (A)
A-PB/REC
120U/70U SW
70USEC CONT (A)
1 (L)
7 (R)
3 (L)
5 (R)
QJ02
HIGH SPEED EQ SW
PB LEVEL
56 (L)
9 (R)
58 (L)
7 (R)
DOLBY NR AND REC AMP
HA12155NT 1/2 Q601
39 (L)
26 (R)
REC OUT
51 (L)
14 (R)
DOLBY HX-PRO
1/2 Q901 UPC1297CA
EH (A)
ERASE OSC
REC (A)
REC
LEVEL (A)
REC
BALANCE (A)
TO OTHER CH. (A)
INPUT-A
INPUT-B
NOR. ↔ DUBB
NORMAL SPEED
DUBBING SELECT
DUBBING CONT
HIGH SPEED
CONT
A INPUT
CONT
B DECK
INPUT SELECTOR
B INPUT (NOR.)
REC
BALANCE (B)
TO OTHER CH. (B)
REC
LEVEL (B)
DOLBY IC CONT.
DATA
CLOCK
STB (A)
STB (B)
NOR. ↔ H-SP
DUBB
FROM OTHER CH. (A)
FROM OTHER CH. (B)
REC SOURCE SELECT
NORMAL OPARATION/
HIGH SPEED DUBB
TO OTHER CH. (B)
OUTPUT CONT (A)
CONTINIOUS CONT
A DECK
B DECK (CONT)
OUTPUT SELECTOR
A DECK AND CONT.
FROM OTHER CH. (A)
OUTPUT-A
OUTPUT SELECTOR B DECK
OUTPUT-B
B DECK (CONT)
B DECK
OUTPUT CONT (B)
A
A+B
B
HEAD PHONE SELE.
HEADPHONE OUT
Q781
R/P H (B)
B-PB/REC
120U/70U SW
70USEC CONT (B)
1 (L)
7 (R)
3 (L)
5 (R)
QJ52
PB LEVEL
56 (L)
9 (R)
58 (L)
7 (R)
DOLBY NR AND REC AMP
HA12155NT 1/2 Q651
39 (L)
26 (R)
51 (L)
14 (R)
FROM OTHER CH. (B)
DOLBY HX-PRO
1/2 Q951 UPC1297CA
EH (B)
ERASE OSC
REC (B)

3. LEVEL DIAGRAM

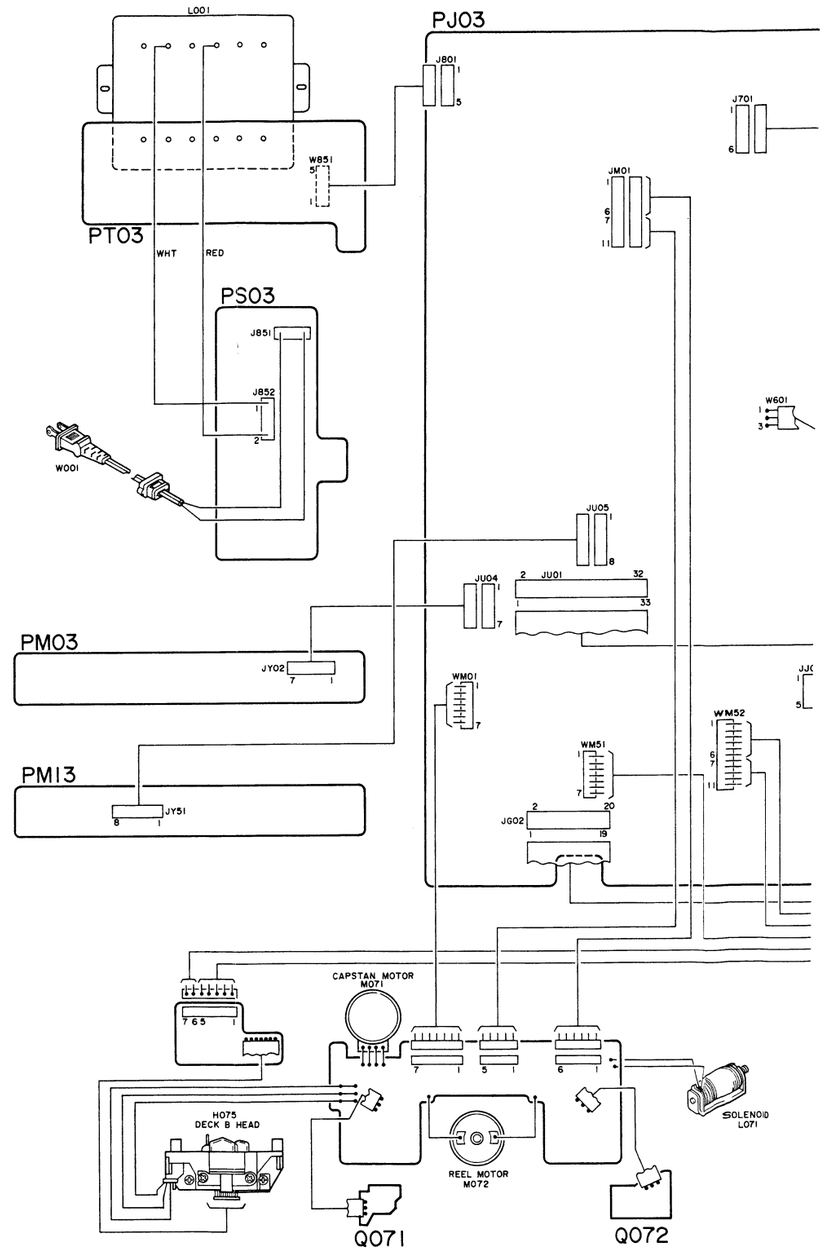


PLAY MODE

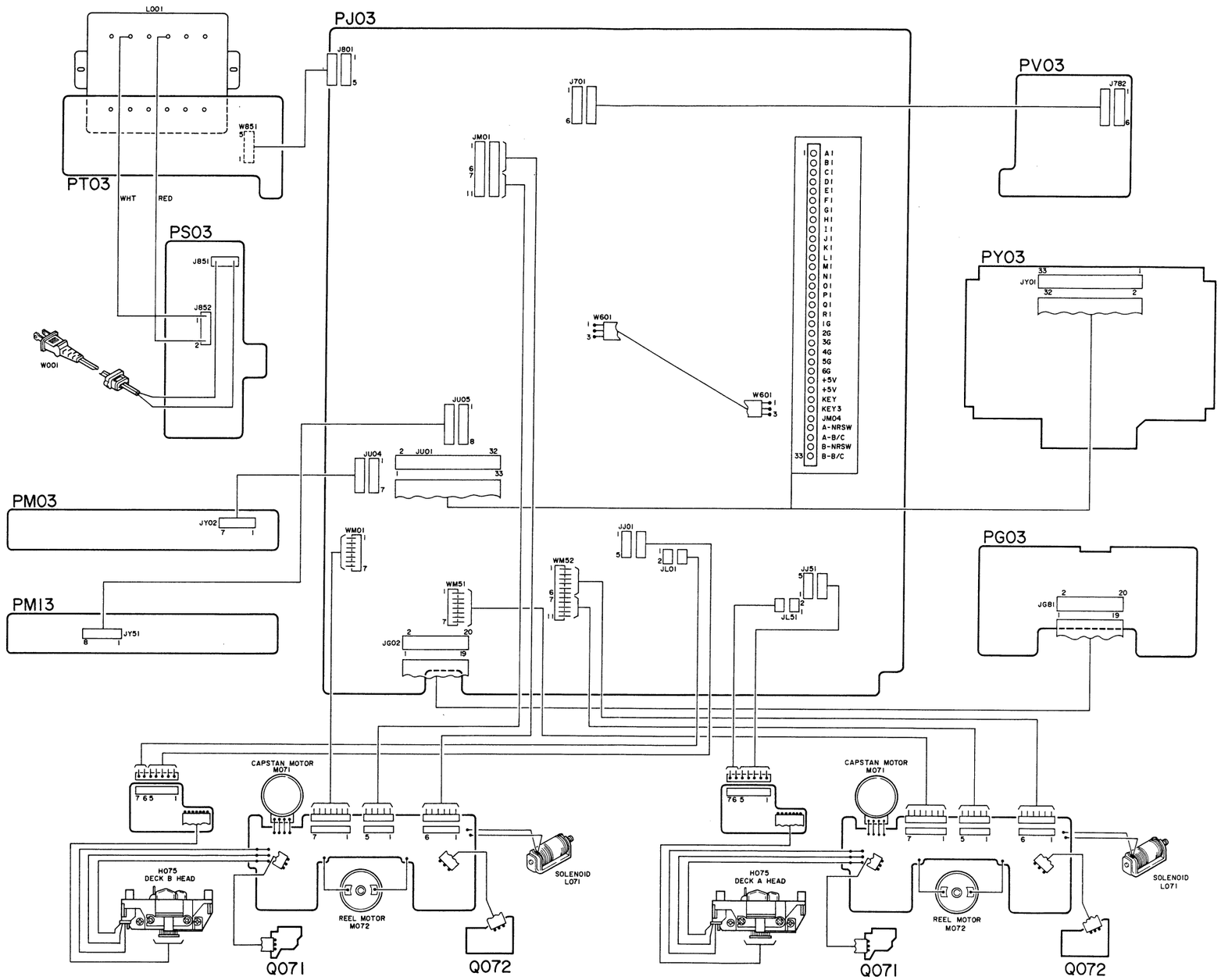


REC MODE

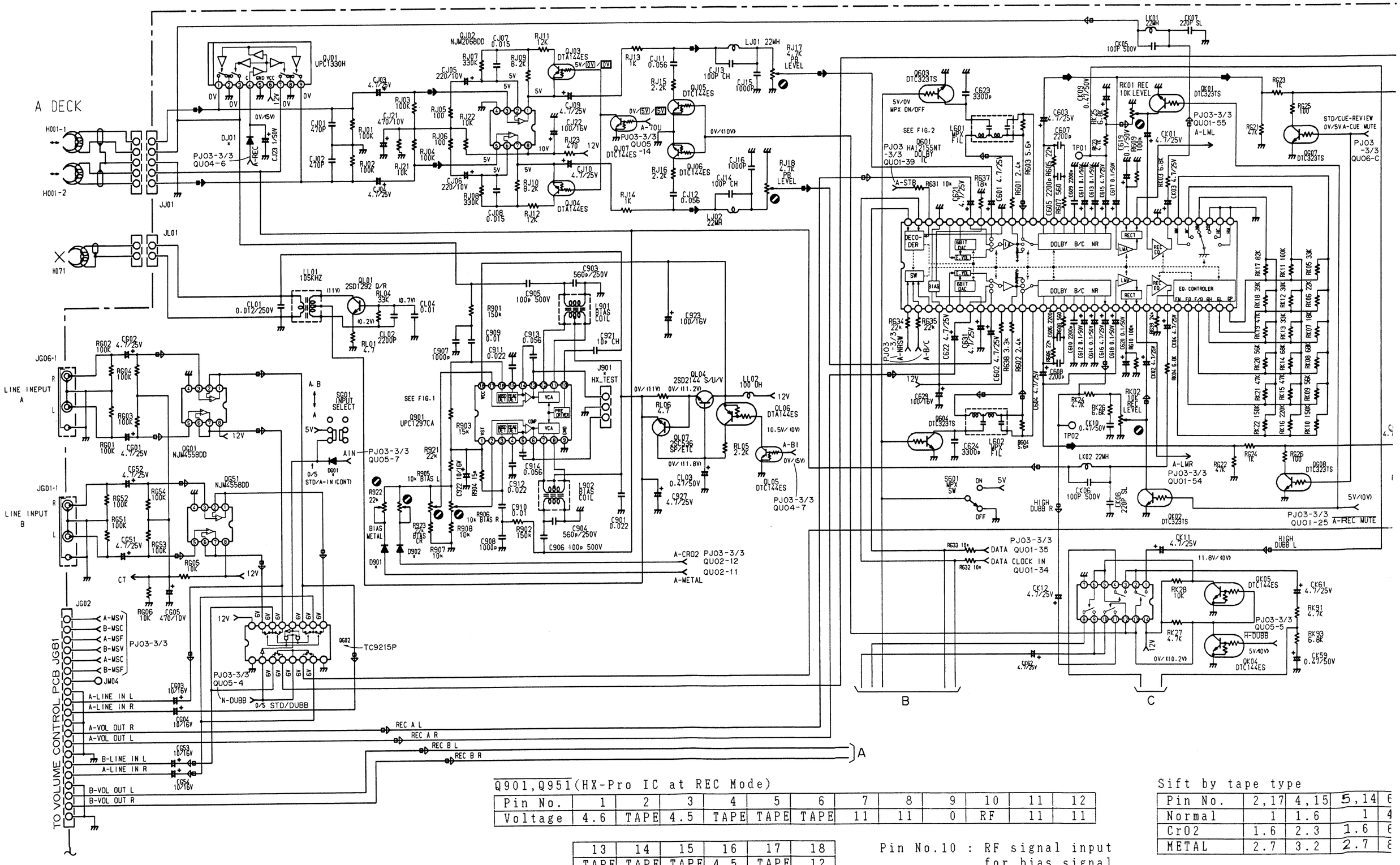
4. CONNECTION DIAGRAM



4. CONNECTION DIAGRAM



5. SCHEMATIC DIAGRAM AND PARTS LOCATION (Pattern Side)



Q901,Q951(HX-Pro IC at REC Mode)

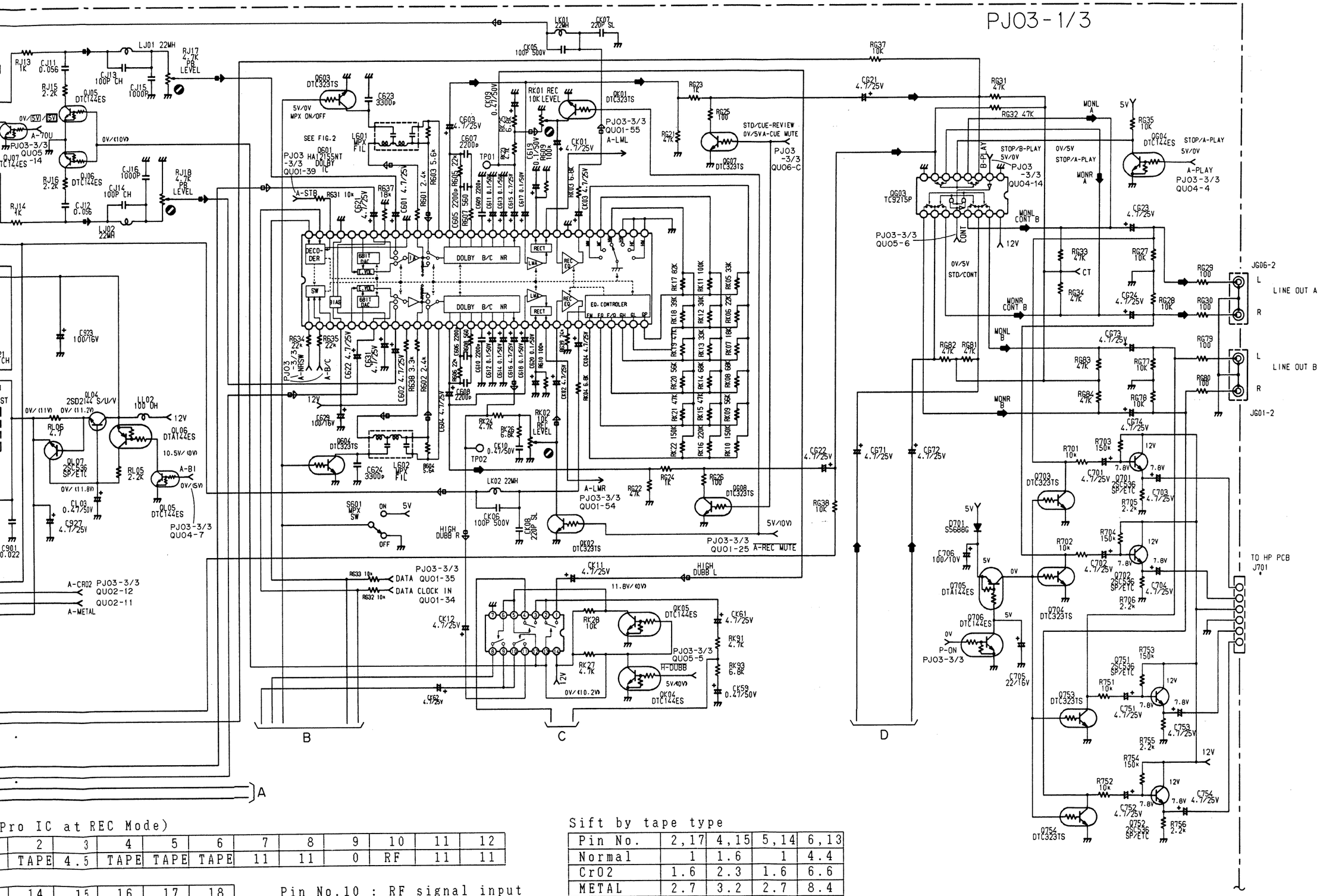
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
Voltage	4.6	TAPE	4.5	TAPE	TAPE	TAPE	11	11	0	RF	11	11

13	14	15	16	17	18
TAPE	TAPE	TAPE	4.5	TAPE	12

Pin No.10 : RF signal input for bias signal 2.2Vp-p 105kHz

Sift by tape type

Pin No.	2,17	4,15	5,14	6
Normal	1	1.6	1	4
CrO2	1.6	2.3	1.6	6
METAL	2.7	3.2	2.7	8



(Pro IC at REC Mode)

	2	3	4	5	6	7	8	9	10	11	12
	TAPE	4.5	TAPE	TAPE	TAPE	11	11	0	RF	11	11

	14	15	16	17	18
E	TAPE	TAPE	4.5	TAPE	12

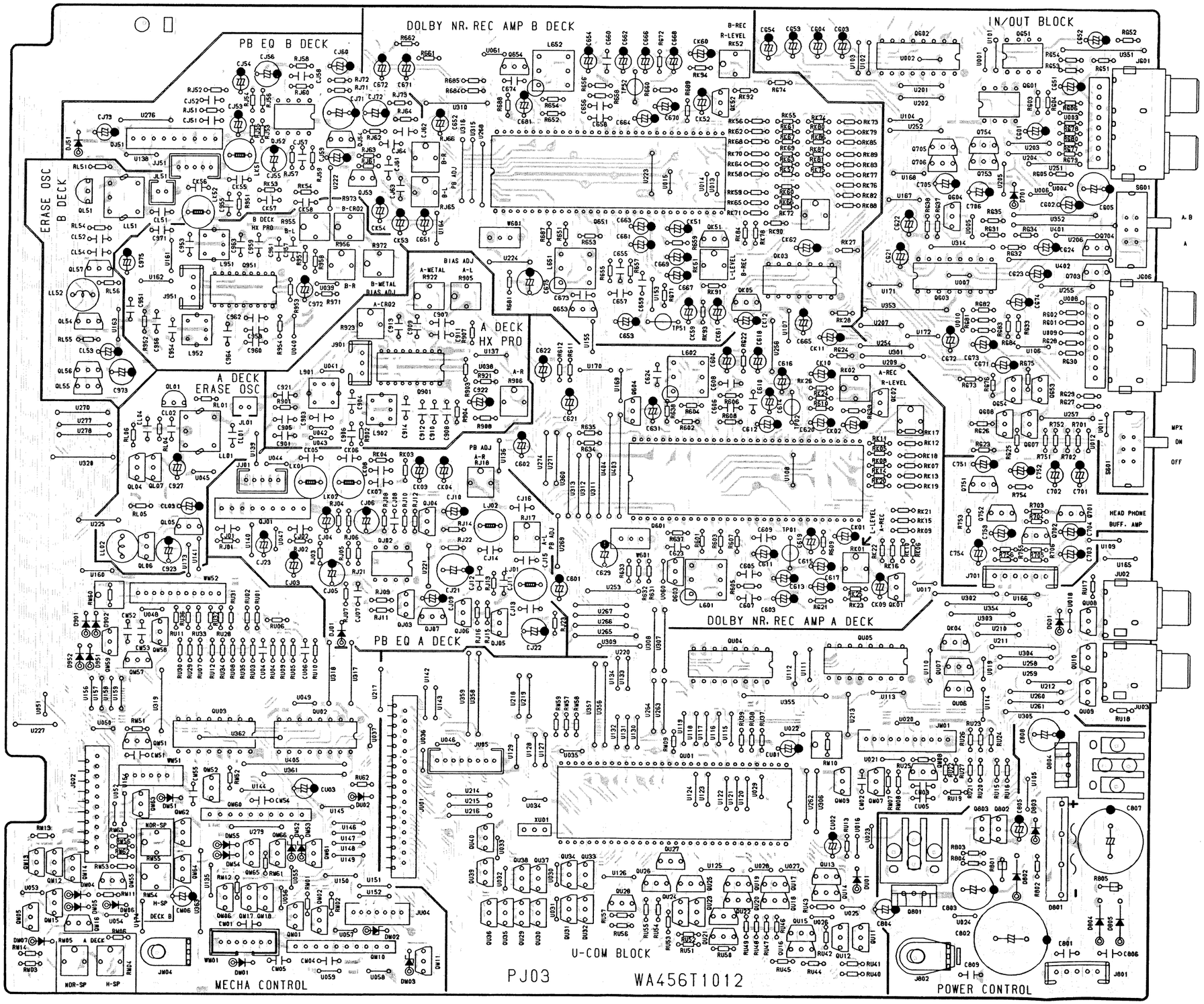
Pin No.10 : RF signal input for bias signal 2.2Vp-p 105kHz

Sift by tape type

Pin No.	2,17	4,15	5,14	6,13
Normal	1	1.6	1	4.4
CrO2	1.6	2.3	1.6	6.6
METAL	2.7	3.2	2.7	8.4

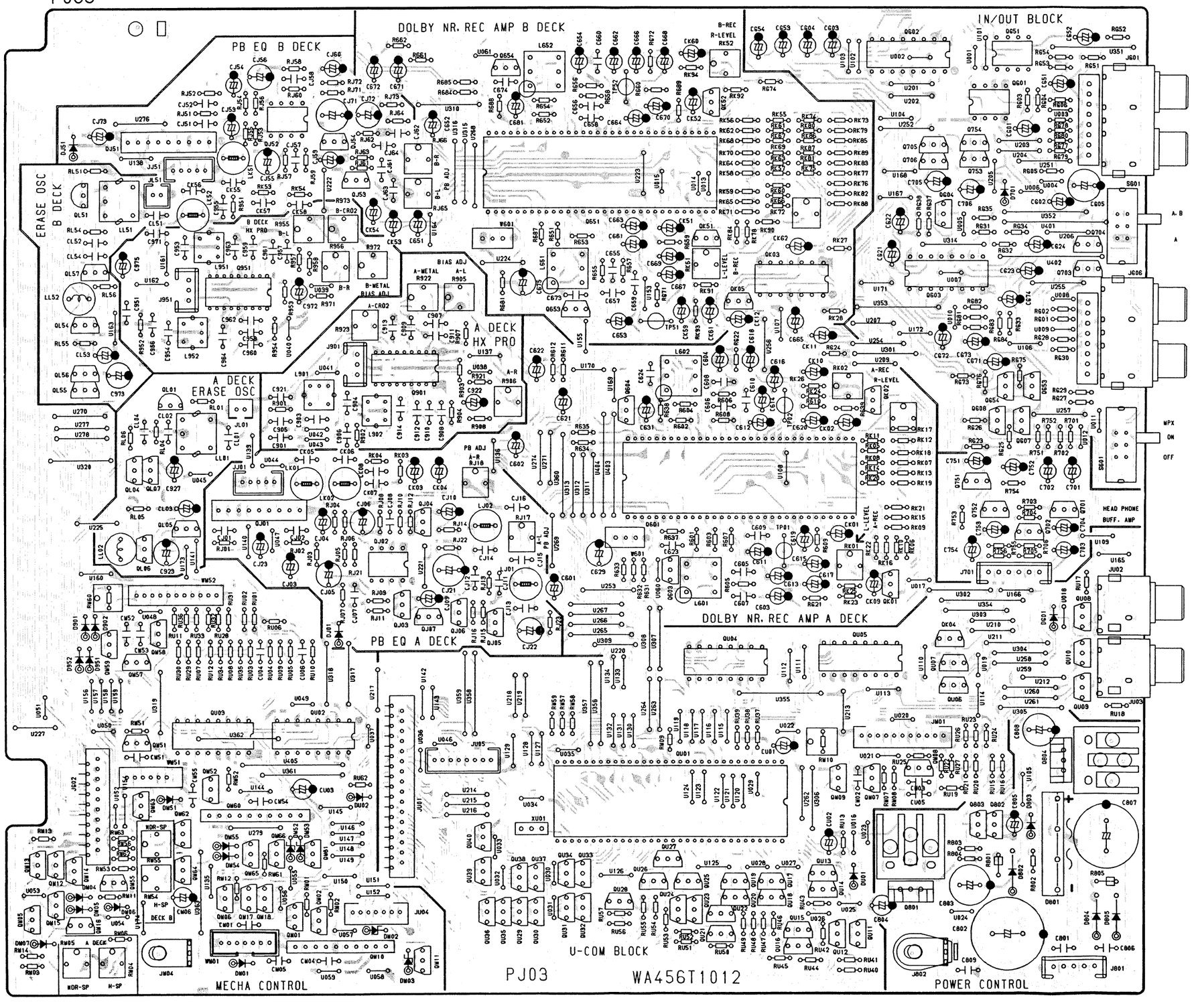
QL51 QJ51 QJ52 QJ54 QJ53 Q654 Q651 QK52 QG02 Q705 Q706 QG03 QG04 QG01 QG51
QL54~QL57 QL04~QL07 QL01 Q951 Q901 Q653 Q604 QK51 QK05 QK03 QK02 Q751~Q754 QG08 QG07 QG54 QG53 Q701~Q704
QM57~QM59 QM51 QM52 QU03 QJ01 QU02 QJ02 QJ03~QJ07 Q601 Q603 QU04 QU05 QK01 QK04 QU07 QU06 QU08~QU10
QM05 QMI2~QMI6 QM55 QM60 QM61~QM66 QM06 QMI7 QMI8 QM01 QM02 QMI0 QMI1 QU29~QU40 QU01 QUI1~QU28 QM07~QM09 Q801 Q803 Q802 Q804

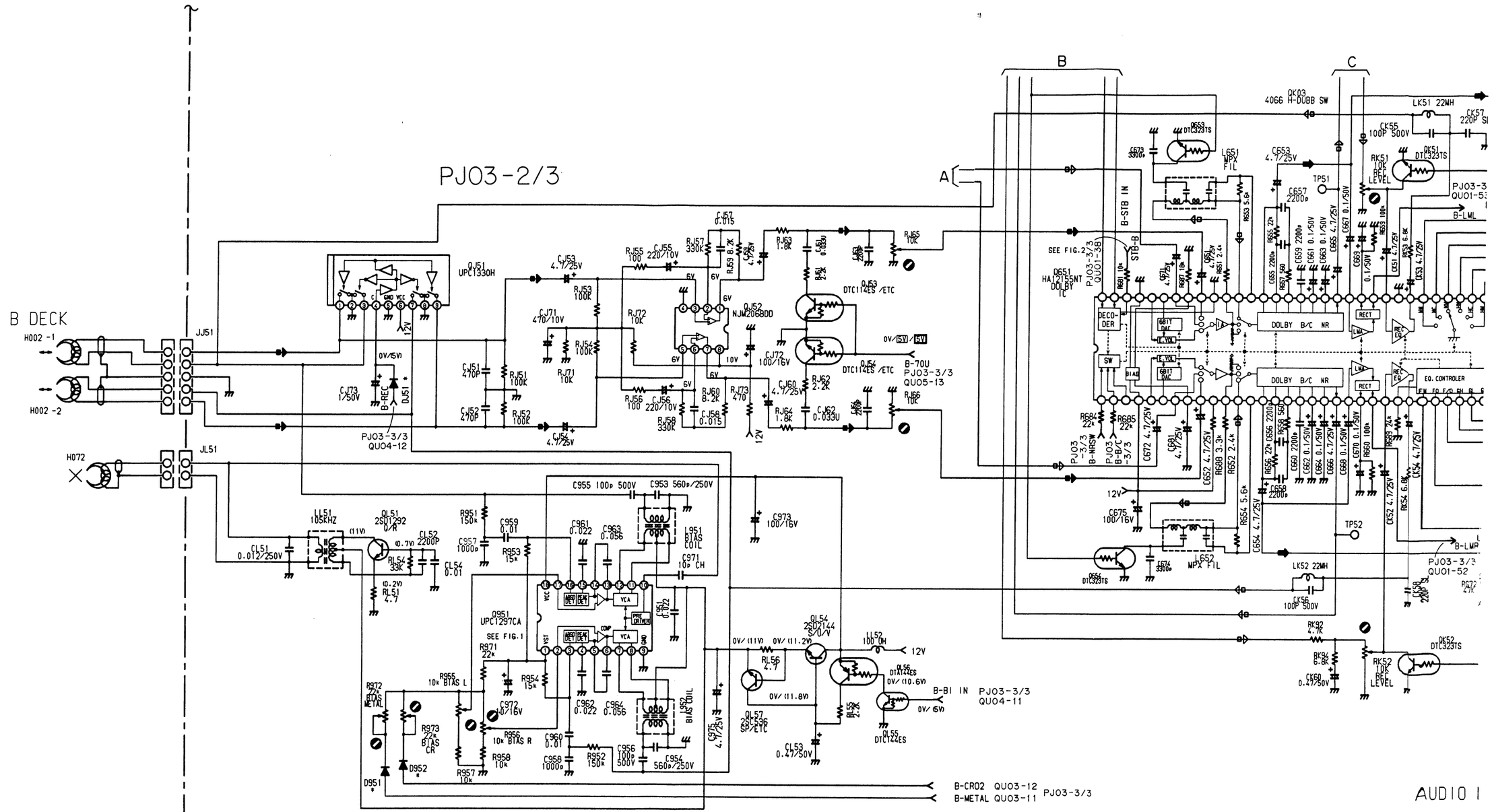
PJ03



QL51 QJ51 QJ52 QJ54 QJ53 Q654 Q651 QK52 QG02 Q705 Q706 QG03 QG04 QG01 QG51
QL54~QL57 QL04~QL07 QL01 Q951 Q901 Q653 Q604 QK51 QK05 QK03 QK02 Q751~Q754 QG08 QG07 QG54 QG53 Q701~Q704
QM57~QM59 QM51 QM52 QU03 QJ01 QU02 QJ02 QJ03~QJ07 Q601 Q603 QU04 QU05 QK01 QK04 QU07 QU06 QU08~QU10
QM05 QM12~QM16 QM55 QM60 QM61~QM66 QM06 QM17 QM18 QM01 QM02 QM10 QM11 QU29~QU40 QU01 QU11~QU28 QM07~QM09 Q801 Q803 Q802 Q804

PJ03





Q601/Q651(Dolby IC)

Pin No.	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	0	12	0	6	6	6	6	1	6	6	6	6

15	16	17	18	19	20	21	22	23	24	25	26
6	6	6	1.5	1.5	6	6	0.5	0.5	6	1.5	6

27	28	29	30	31	32	33	34	35	36	37	38
1.5	1.5	1.5	1.5	1.5	1.5	0/1.5	0/1.5	0/1.5	1.5	1.5	1.5

39	40	41	42	43	44	45	46	47	48
6	0	6	0.5	0.5	6	6	1.5	1.5	6

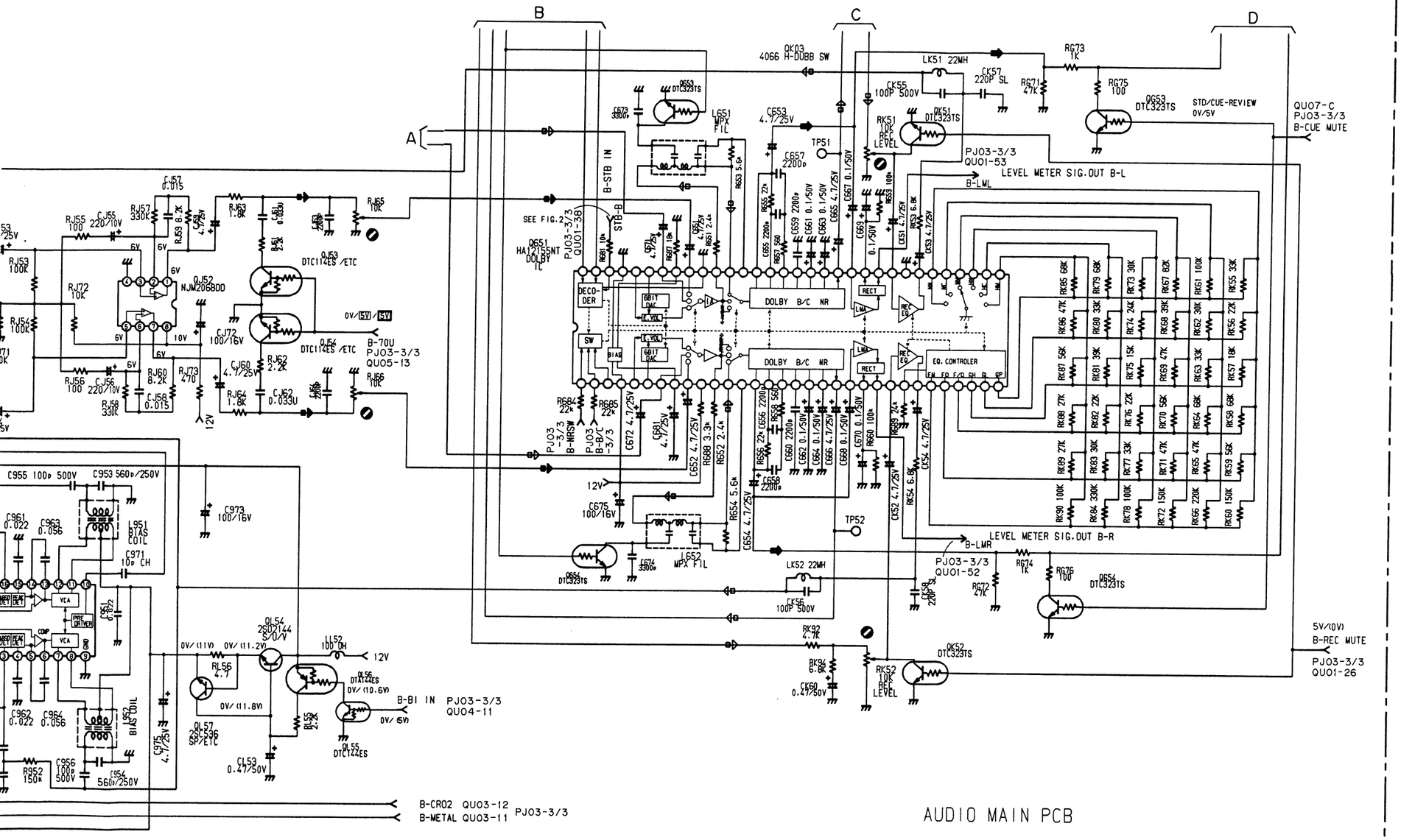
51	52	53	54	55	56	57	58	59	60
6	6	6	6	0	6	6	6	6	0

INPUT for NR SW

Pin No.	1	2
NR off	L	L
DOLBY B	H	L
DOLBY C	H	H

L:0～2V
H:4～5V

Pin 62,63,64:Serial data for
62:ST = Strobe (Data
63:CK = Data s ift c
64:DA = Interna swi



CIRCIUT VOLTAGE INDICATION

(0)	-- REC
5/(0)	-- PLAY/REC
5/□/□	-- NOR/CRO2/METAL
0/(10)	-- PLAY/H-DUBB

AUDIO SIGNAL

- MONITOR
- PLAY
- REC

8	9	10	11	12	13	14
6	6	1	6	6	6	6

20	21	22	23	24	25	26
6	6	0.5	0.5	6	1.5	6

32	33	34	35	36	37	38
5	0/1.5	0/1.5	0/1.5	1.5	1.5	1.5

39	40	41	42	43	44	45	46	47	48	49	50
6	0	6	0.5	0.5	6	6	1.5	1.5	6	6	6

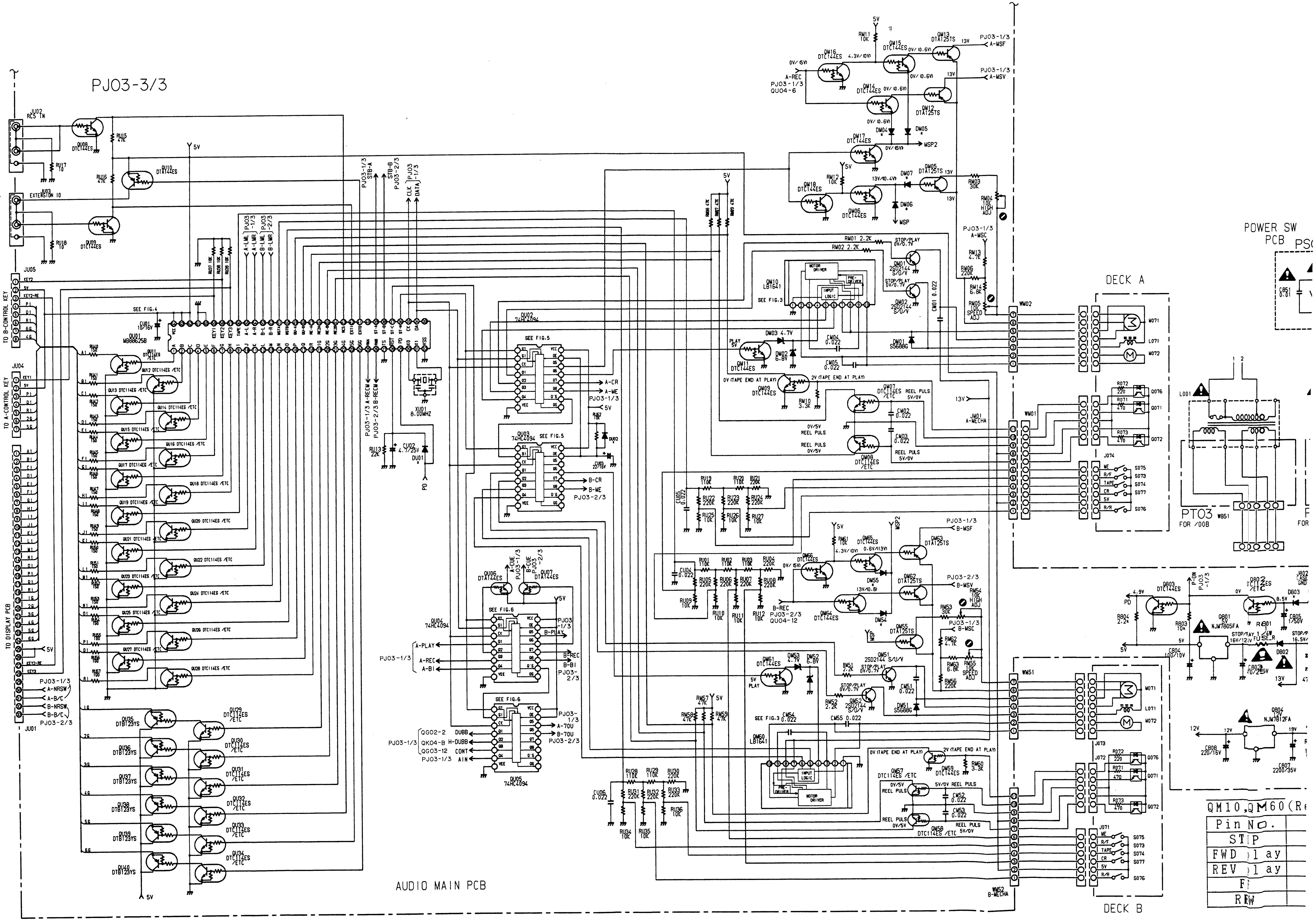
51	52	53	54	55	56	57	58	59	60	61
6	6	6	6	0	6	6	6	6	0	0

INPUT for NR SW

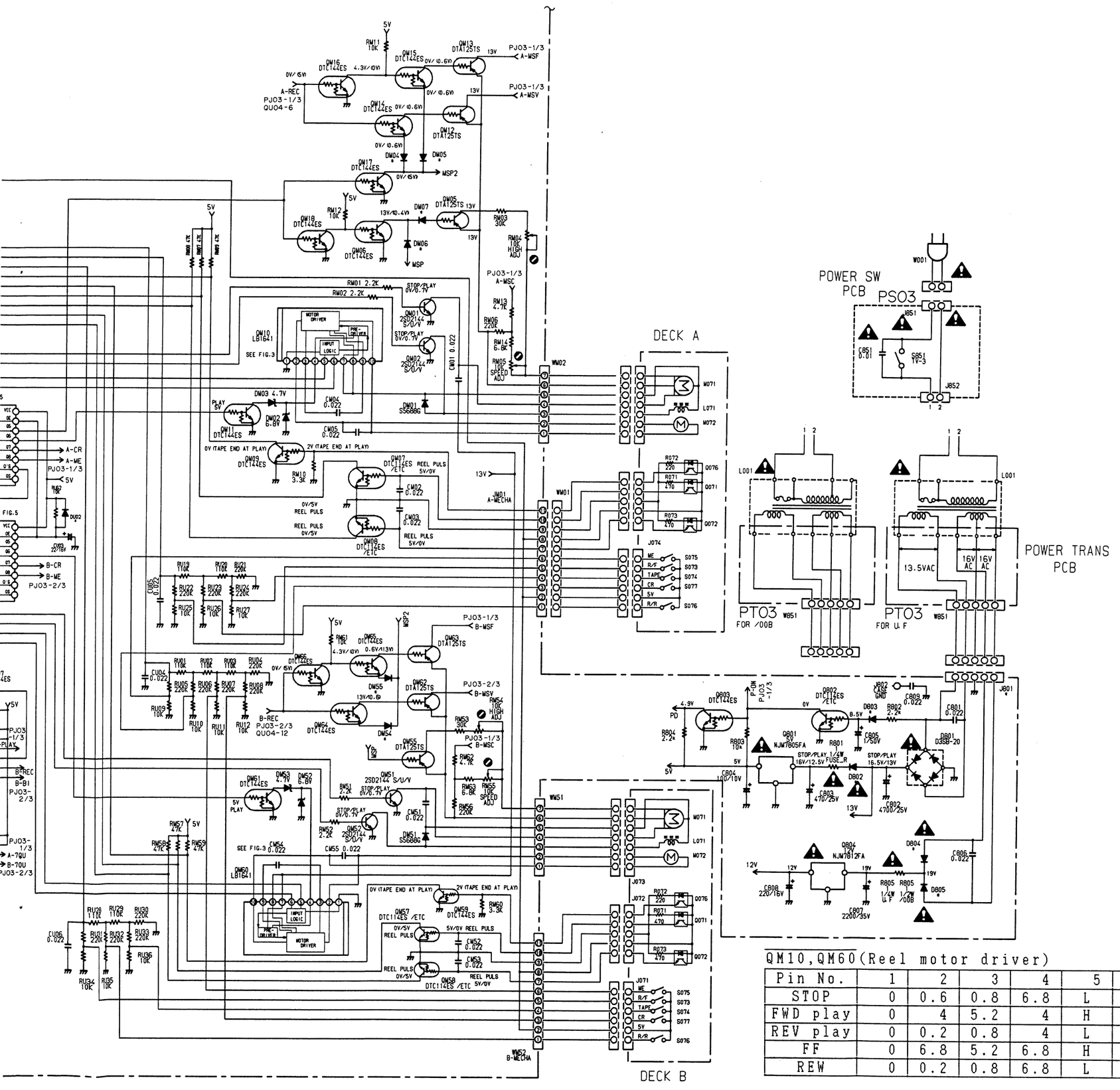
Pin No.	1	2
NR off	L	L
DOLBY B	H	L
DOLBY C	H	H

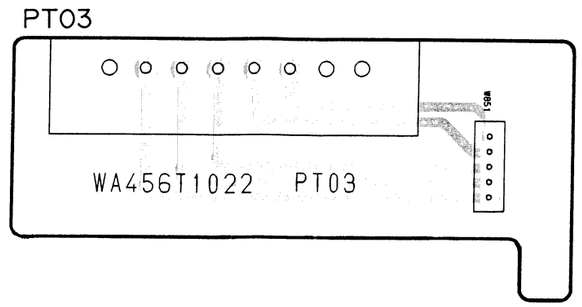
L:0～2V
H:4～5V

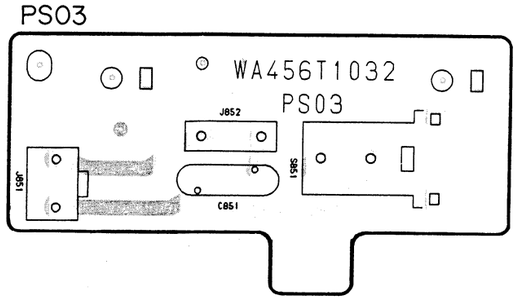
Pin 62,63,64:Serial data for internal SW.
62:ST = Strobe(Data set)
63:CK = Data sift clock
64:DA = Interna switch data


PJ03-3/3
JU02 RC5 IN
RC5 IN
EXT-OUT
EXT-IN
JU03 EXTENSION IO
QU08 DTC144ES
QU09 DTC144ES
QU10 DTA144ES
RU15 47K
RU16 47K
RU17 10
RU18 10
5V
JU05
TO B-CONTROL KEY
JU04
TO A-CONTROL KEY
TO DISPLAY PCB
JU01
SEE FIG.4
CU01 10/16V
QU01 MB88625B
PJ03-1/3 STB-A
STB-B PJ03-2/3
CLK
DATA
PJ03 -1/3
A-LML
A-LMR
B-LML
B-LMR
PJ03-1/3 A-RECM
PJ03-2/3 B-RECM
RU13 22K
CU02 4.7/25V
DU01
PD
XU01 8.00MHZ
QU02 74HC4094
SEE FIG.5
A-CR
A-ME
PJ03-1/3
QU03 74HC4094
B-CR
B-ME
PJ03-2/3
CU03 22/16V
QU04 74HC4094
SEE FIG.6
QU06 DTA144ES
QU07 DTA144ES
A-CUE PJ03-1/3
B-CUE PJ03 -2/3
A-PLAY
A-REC
A-BI
B-PLAY
B-REC
B-BI
QU05 74HC4094
A-70U
B-70U
QG02-2 DUBB
QK04-B H-DUBB
QG03-12 CONT
PJ03-1/3 AIN
A-NRSW
A-B/C
B-NRSW
B-B/C
AUDIO MAIN PCB
QM10 LB1641
SEE FIG.3
MOTOR DRIVER
PRE-DRIVER
INPUT LOGIC
QM60 LB1641
QM01 2SD2144 S/U/V
QM02 2SD2144 S/U/V
QM51 2SD2144 S/U/V
QM52 2SD2144 S/U/V
QM05 DTA125TS
QM12 DTA125TS
QM13 DTA125TS
QM55 DTA125TS
QM62 DTA125TS
QM63 DTA125TS
A-MSF
A-MSV
A-MSC
B-MSF
B-MSV
B-MSC
MSP2
MSP
RM04 10K HIGH ADJ
RM05 10K SPEED ADJ
RM54 10K HIGH ADJ
RM55 10K SPEED ADJ
STOP/PLAY 0V/0.7V
0V (TAPE END AT PLAY)
2V (TAPE END AT PLAY)
REEL PULS
WM02
WM01
JM01 A-MECHA
WM51
WM52 B-MECHA
DECK A
DECK B
M071
L071
M072
Q076
Q071
Q072
J074
J073
J072
J071
S075
S073
S074
S077
S076
POWER SW PCB
PT03 FOR /00B
L001
Q801 5V NJM7805FA
Q802 DTC114ES /ETC
Q803 DTC144ES
Q804 12V NJM7812FA
R801 1/4W FUSE_R
C807 2200/35V
C808 220/16V
C804 100/10V

QM10,QM60(R
Pin NO.
STOP
FWD play
REV play
FF
REW







QM10,QM60(Reel motor driver)

Pin No.	1	2	3	4	5	6	7	8	9	10
STOP	0	0.6	0.8	6.8	L	L	13	13	0.8	0.6
FWD play	0	4	5.2	4	H	L	13	13	0.8	0.2
REV play	0	0.2	0.8	4	L	H	13	13	5.2	4
FF	0	6.8	5.2	6.8	H	L	13	13	0.8	0.2
REW	0	0.2	0.8	6.8	L	H	13	13	5.2	6.8

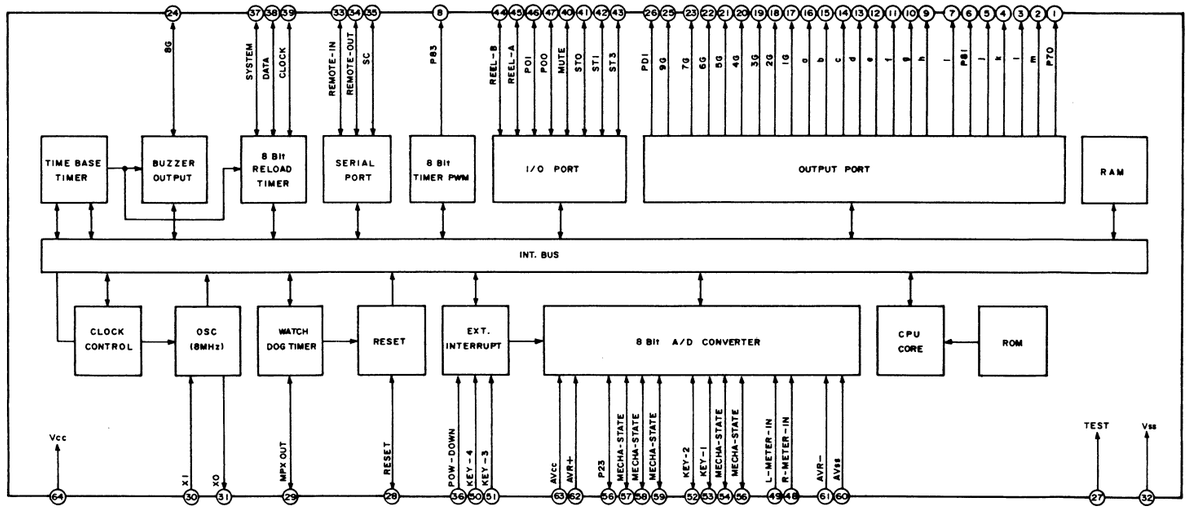
L:0～2V
H:4～5V

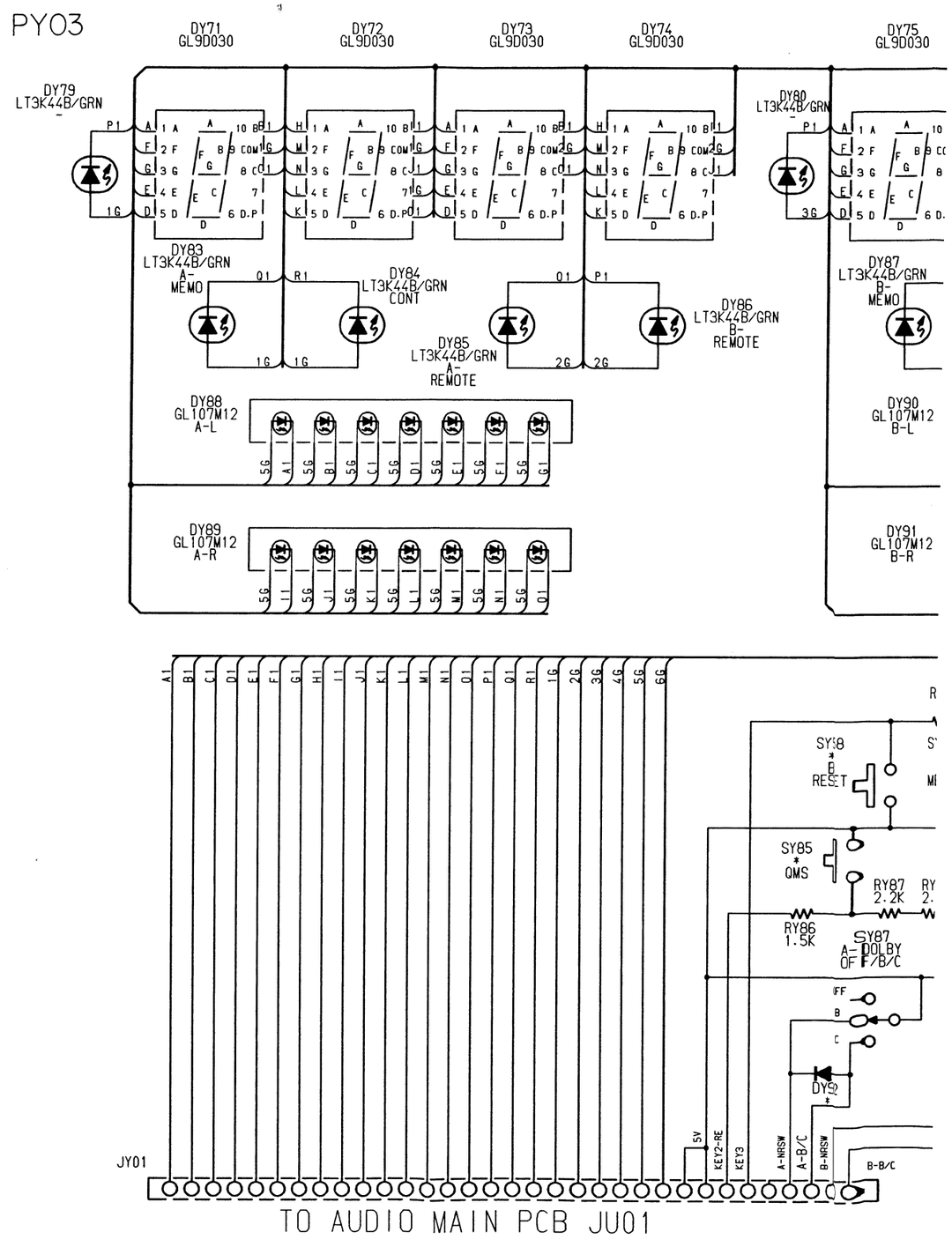
6. MICROPROCESSOR I/O PINS AND THEIR FUNCTIONS

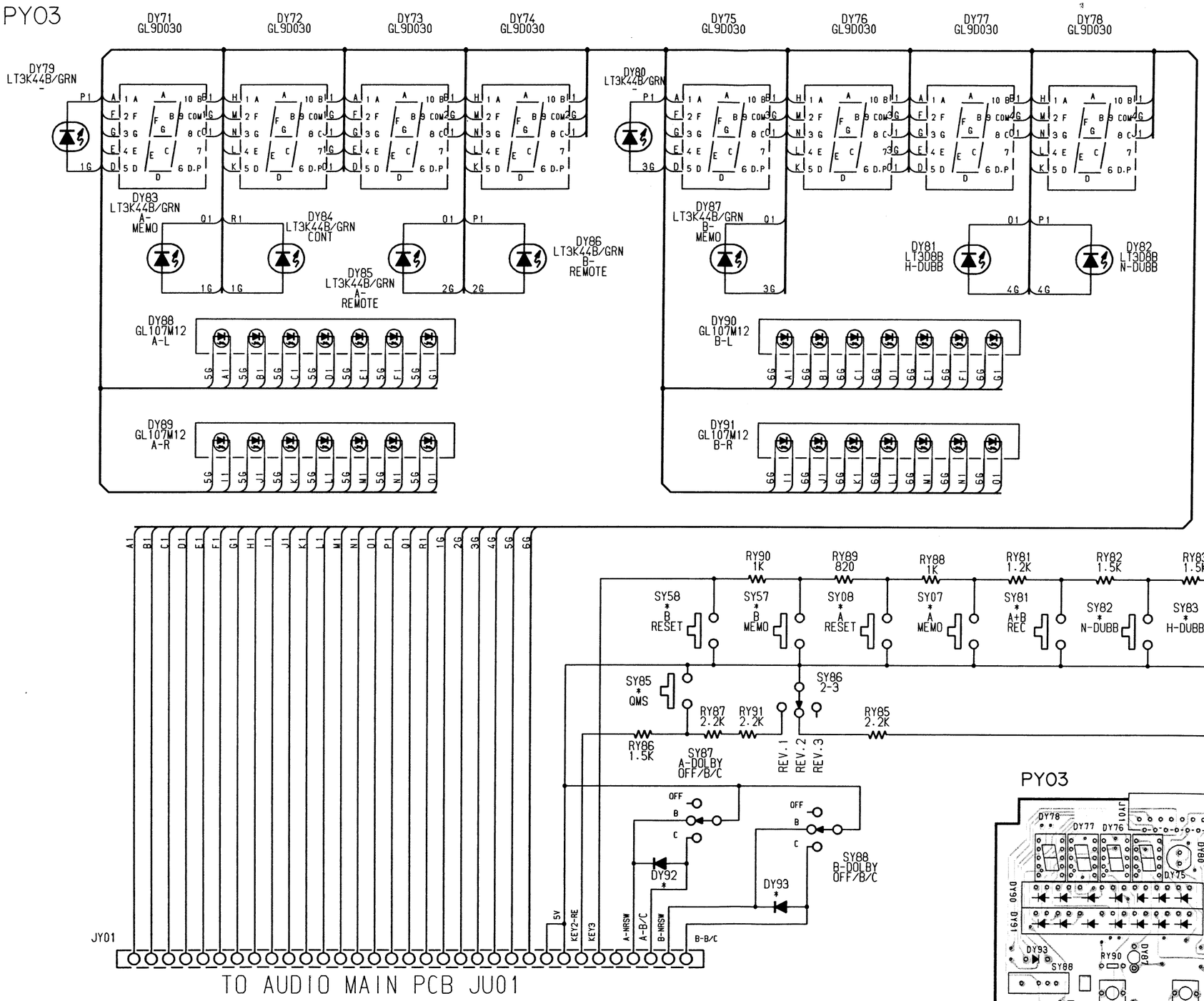
Pin No.	Port Name		I/O	Act	Function
1	P70	a	O	H	Segment Output
2	P71	b	O	H	
3	P72	c	O	H	
4	P73	d	O	H	
5	P80	e	O	H	
6	P81	f	O	H	
7	P82	g	O	H	
8	P83	h	O	H	
9	P90	i	O	H	
10	P91	j	O	H	
11	P92	k	O	H	
12	P93	l	O	H	
13	PA0	m	O	H	
14	PA1	n	O	H	
15	PA2	o	O	H	
16	PA3	p	O	H	
17	PB0	q	O	H	
18	PB1	r	O	H	
19	PB2	1G	O	H	Position Output
20	PB3	2G	O	H	
21	PC0	3G	O	H	
22	PC1	4G	O	H	
23	PC2	5G	O	H	
24	PC3	6G	O	H	
25	PD0	A-RECM	O	H	A-Rec Mute Output
26	PD1	B-RECM	O	H	B-Rec Mute Output
27	—	TEST	—	—	GND
28	$\overline{\text{RESET}}$	RESET	I	L	Reset Input
29	P53	PD	I	L	Power Down Dilective Input
30	—	X0	O	—	OSC
31	—	X1	L	—	OSC
32	Vss	Vss	—	—	GND

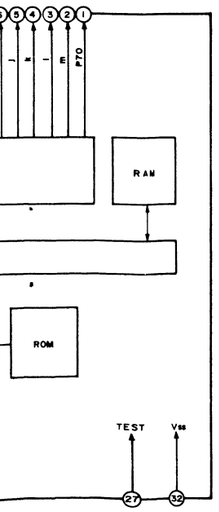
Pin No.	Port Name		I/O	Act	Function
33	SI	—	—	—	N.C
34	SO	DATA	O	H	Dolby IC. Mecha, Audio Control Data
35	SC	CK	O	H	Dolby IC, Mecha, Audio Control Clock
36	P43	ST-M	O	H	Mecha Control Strobe
37	P42	ST-C	O	H	Audio Control Strobe
38	P41	ST-B	O	H	Dolby IC B Strobe
39	P40	ST-A	O	H	Dolby IC A Strobe
40	P13	—	—	—	N.C
41	P12	EXT-OUT	O	L	Control Output
42	P11	EXT-IN	I	L	Control Input
43	P10	RC-5	I	L	Remote Input
44	P03	RE-B2	I	H/L	Tape Counter B2
45	P02	RE-B1	I	H/L	Tape Counter B1
46	P01	RE-A2	I	H/L	Tape Counter A2
47	P00	RE-A1	I	H/L	Tape Counter A1
48	P63	QUICK B	I	L	Quick Sensor B
49	P62	QUICK A	I	L	Quick Sensor A
50	AN9	MECHA B	I	DC	Mecha Detector B
51	AN8	MECHA A	I	DC	Mecha Detector A
52	AN7	B-R	I	DC	Level Meter B-Rch
53	AN6	B-L	I	DC	Level Meter B-Lch
54	AN5	A-R	I	DC	Level Meter A-Rch
55	AN4	A-L	I	DC	Level Meter A-Lch
56	AN3	TAPE	I	DC	Tape Selector
57	AN2	KEY 3	I	DC	Control Key Switch
58	AN1	KEY 2	I	DC	
59	AN0	KEY 1	I	DC	
60	AVss	AVss	—	—	GND
61	AVr–	AVr–	—	—	GND
62	AVr+	AVr+	—	—	+5V
63	AVcc	AVcc	—	—	+5V
64	Vcc	Vcc	—	—	+5V

QU01 : MB88626BP-G-149-SH

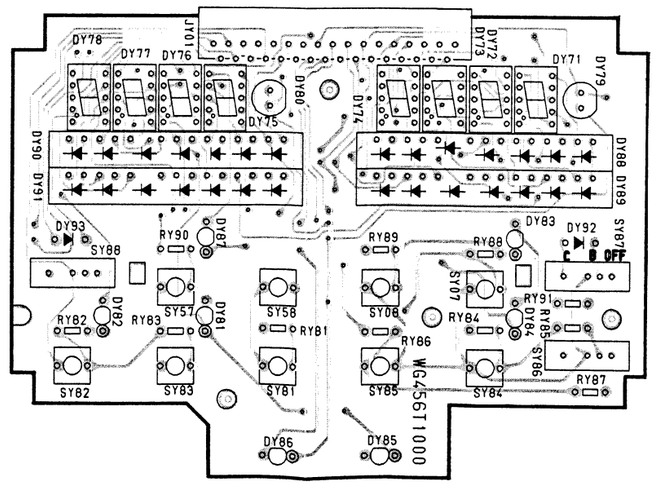


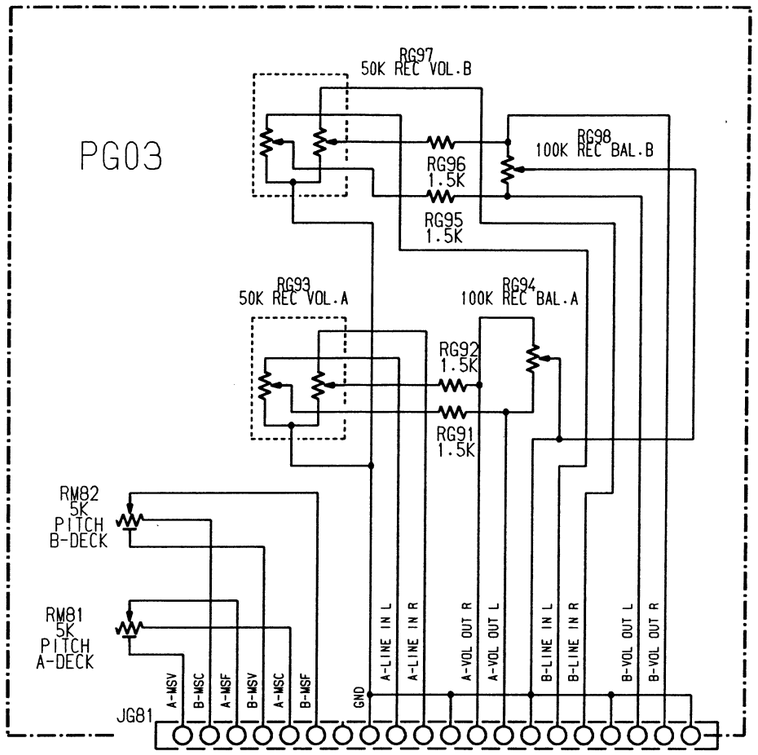


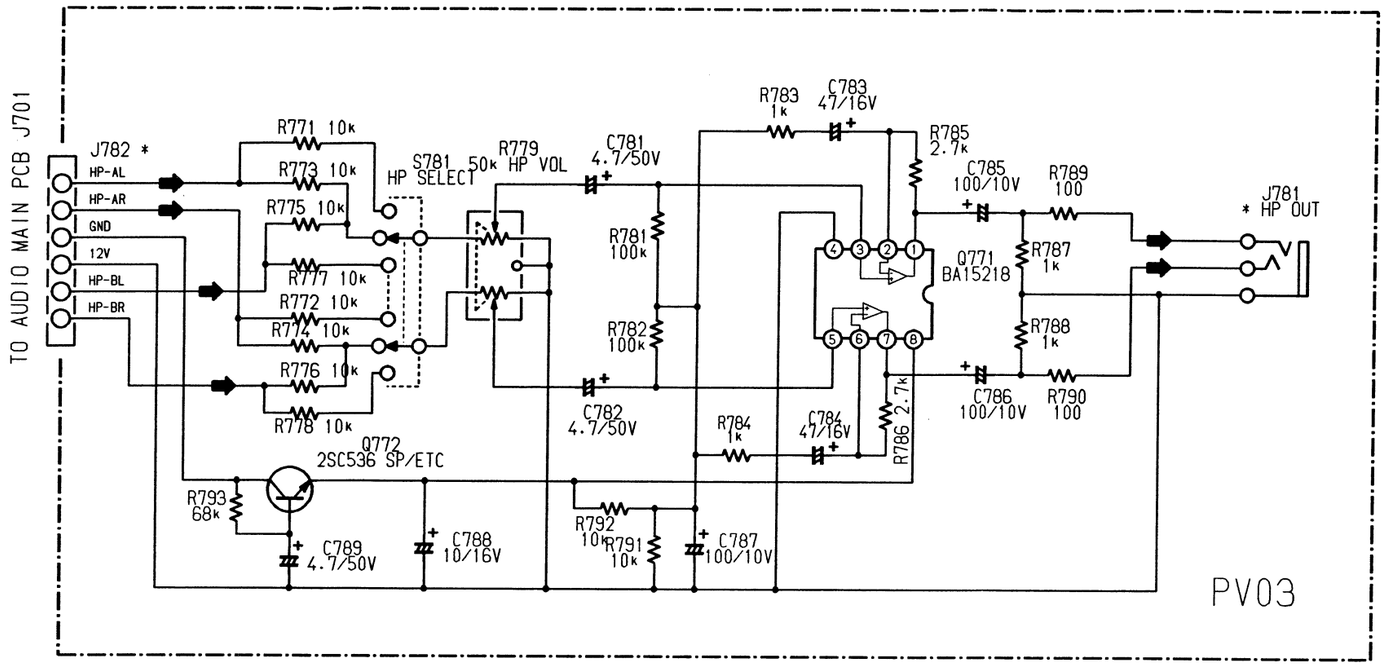

DY71 GL9D030
DY72 GL9D030
DY73 GL9D030
DY74 GL9D030
DY75 GL9D030
DY76 GL9D030
DY77 GL9D030
DY78 GL9D030
DY79 LT3K44B/GRN
DY80 LT3K44B/GRN
DY83 LT3K44B/GRN A- MEMO
DY84 LT3K44B/GRN CONT
DY85 LT3K44B/GRN A- REMOTE
DY86 LT3K44B/GRN B- REMOTE
DY87 LT3K44B/GRN B- MEMO
DY81 LT3D8B H-DUBB
DY82 LT3D8B N-DUBB
DY88 GL107M12 A-L
DY89 GL107M12 A-R
DY90 GL107M12 B-L
DY91 GL107M12 B-R
RY90 1K
RY89 820
RY88 1K
RY81 1.2K
RY82 1.5K
RY83 1.5K
RY84 2.2K
SY58 * B RESET
SY57 * B MEMO
SY08 * A RESET
SY07 * A MEMO
SY81 * A+B REC
SY82 * N-DUBB
SY83 * H-DUBB
SY84 * CONT
SY85 * QMS
SY86 2-3
RY87 2.2K
RY91 2.2K
RY85 2.2K
RY86 1.5K
SY87 A-DOLBY OFF/B/C
REV.1
REV.2
REV.3
DY92 *
DY93 *
SY88 B-DOLBY OFF/B/C
JY01
5V
KEY2-RE
KEY3
A-NRSW
A-B/C
B-NRSW
B-B/C
TO AUDIO MAIN PCB JU01


RAM
ROM
TEST
Vss
PTO

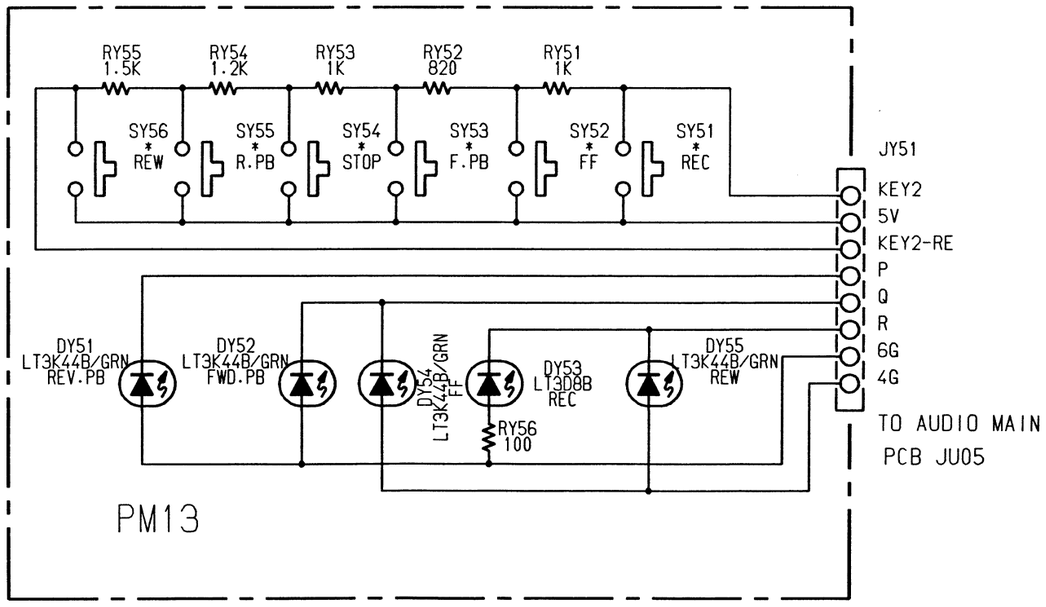
PY03

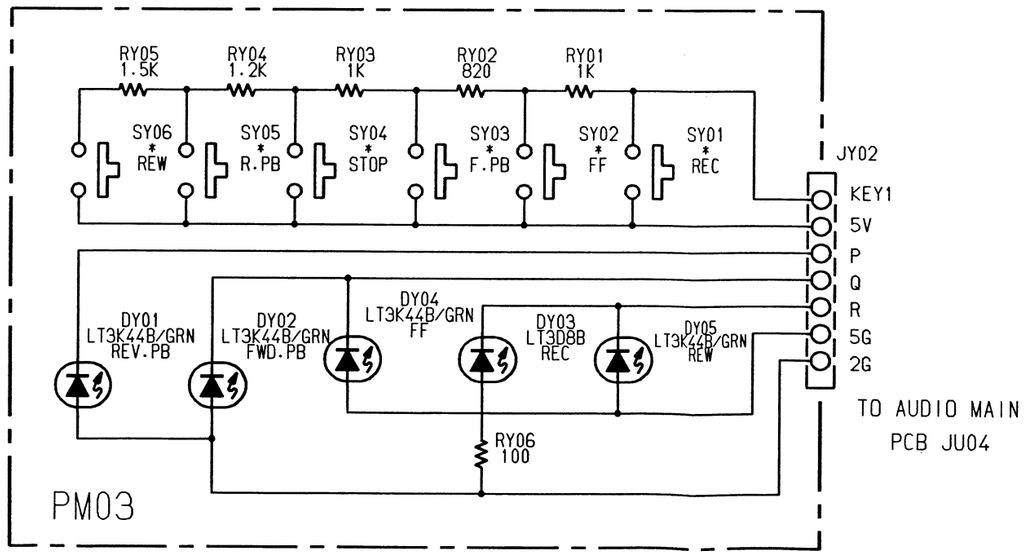

W645671000

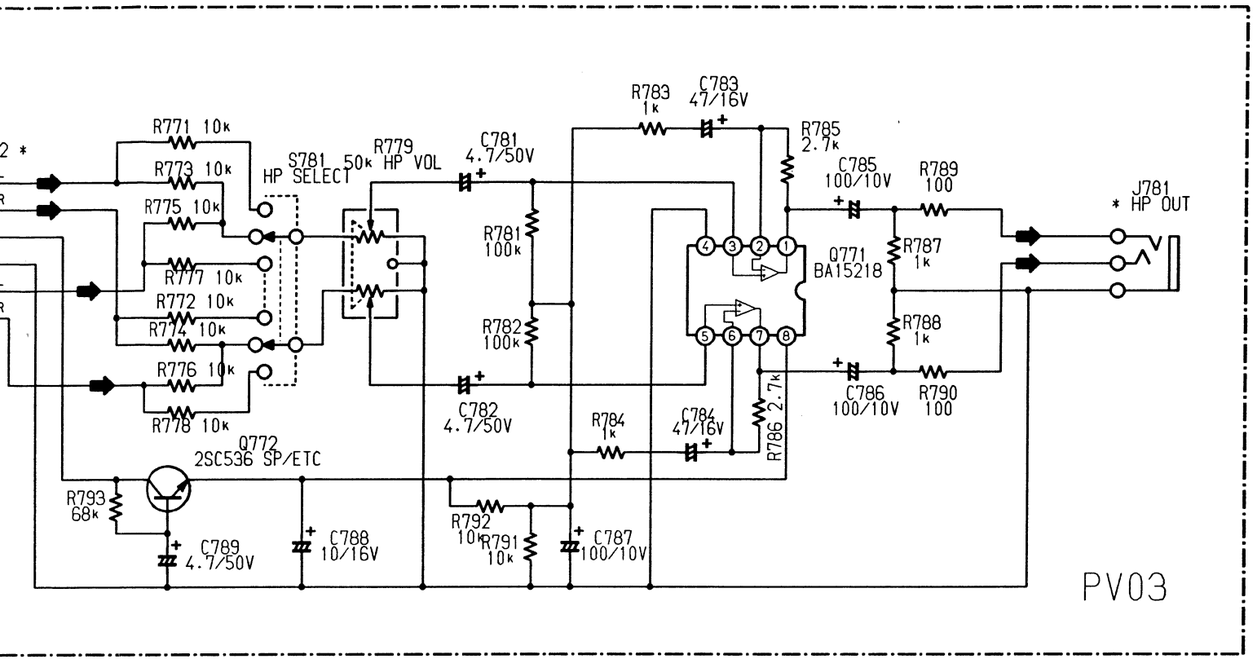


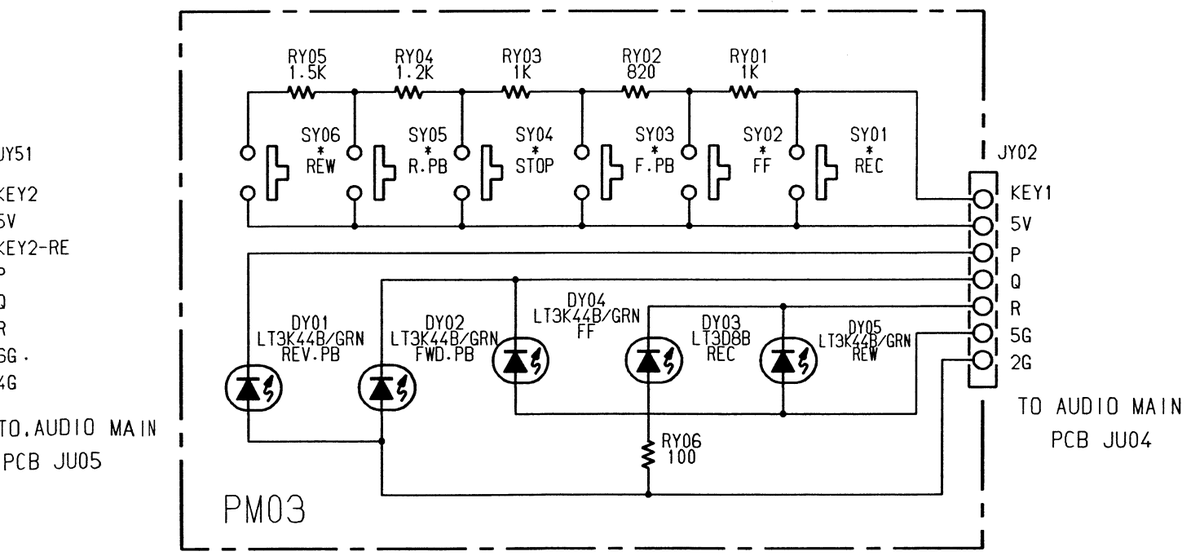


TO AUDIO MAIN PCB JG02

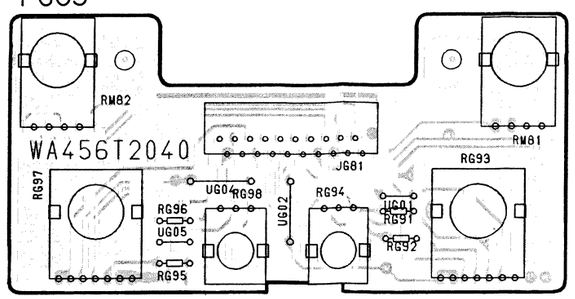






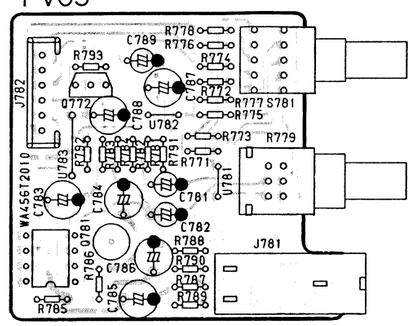


PG03

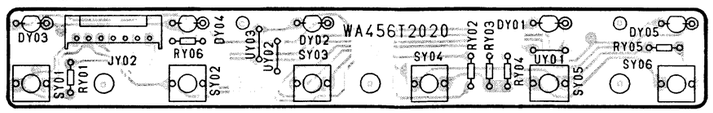


Q772

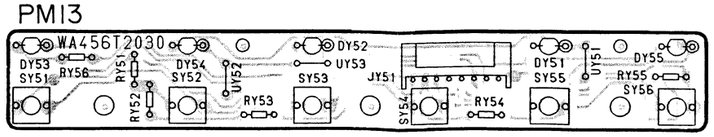
PV03



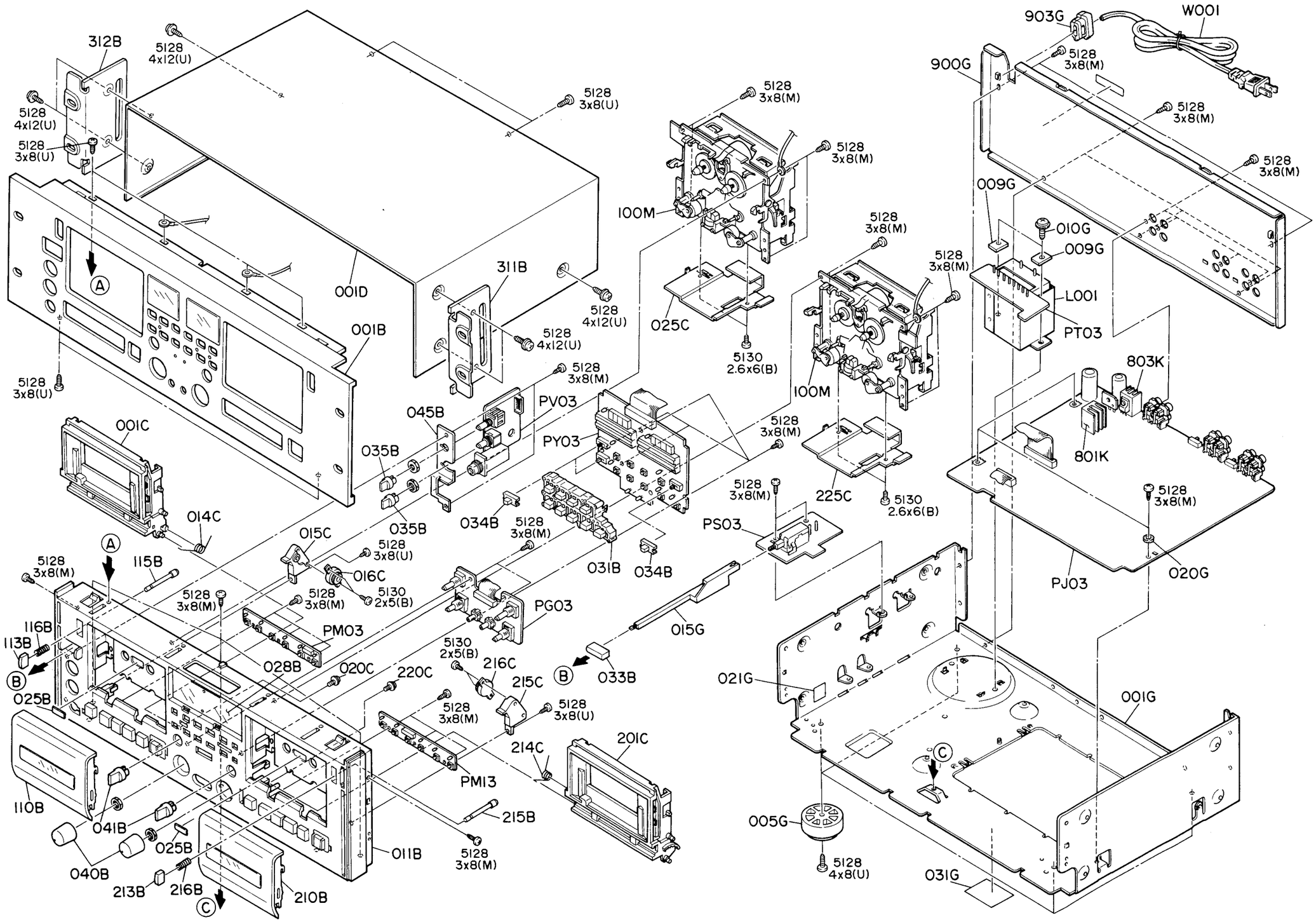
PM03

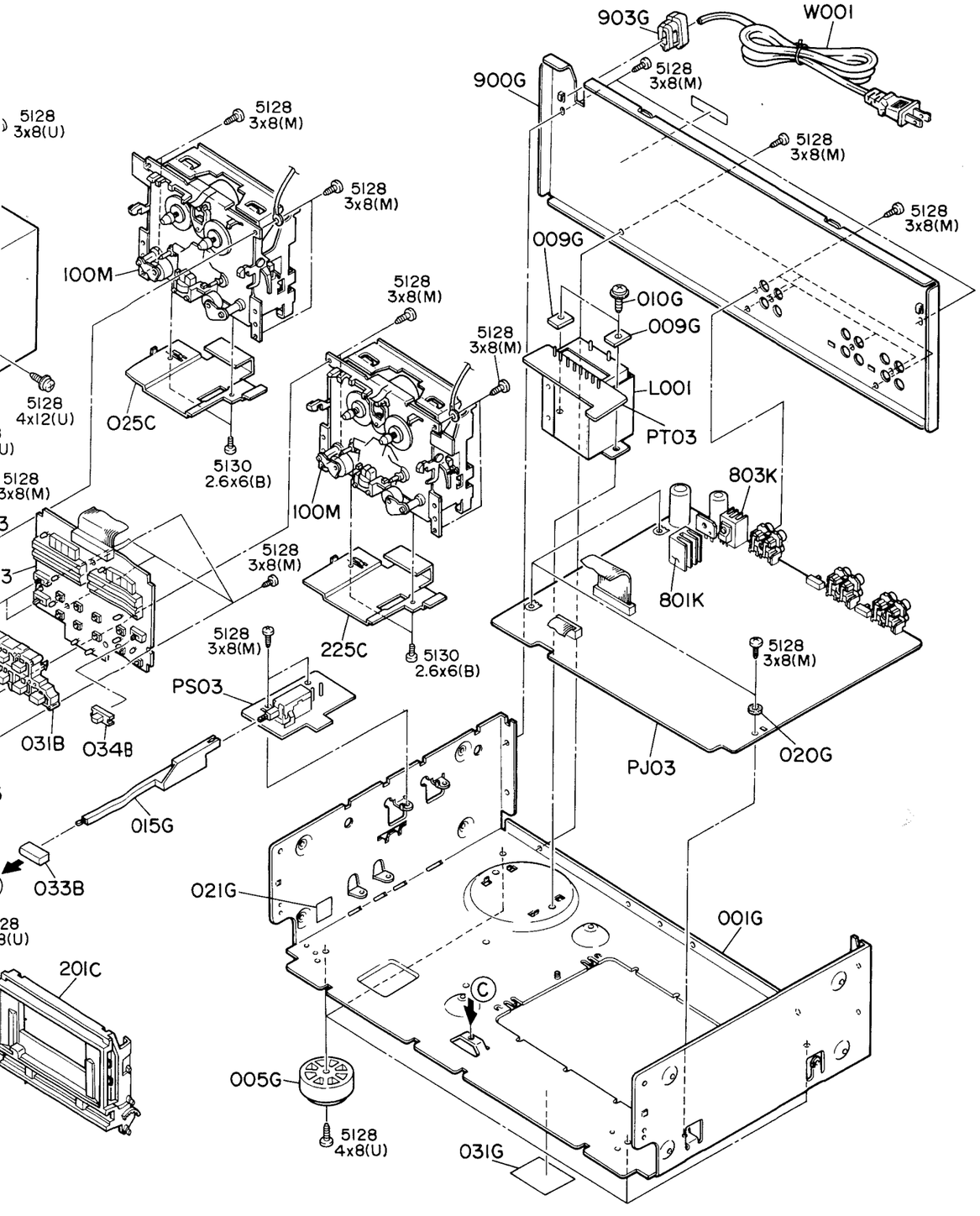


PM13

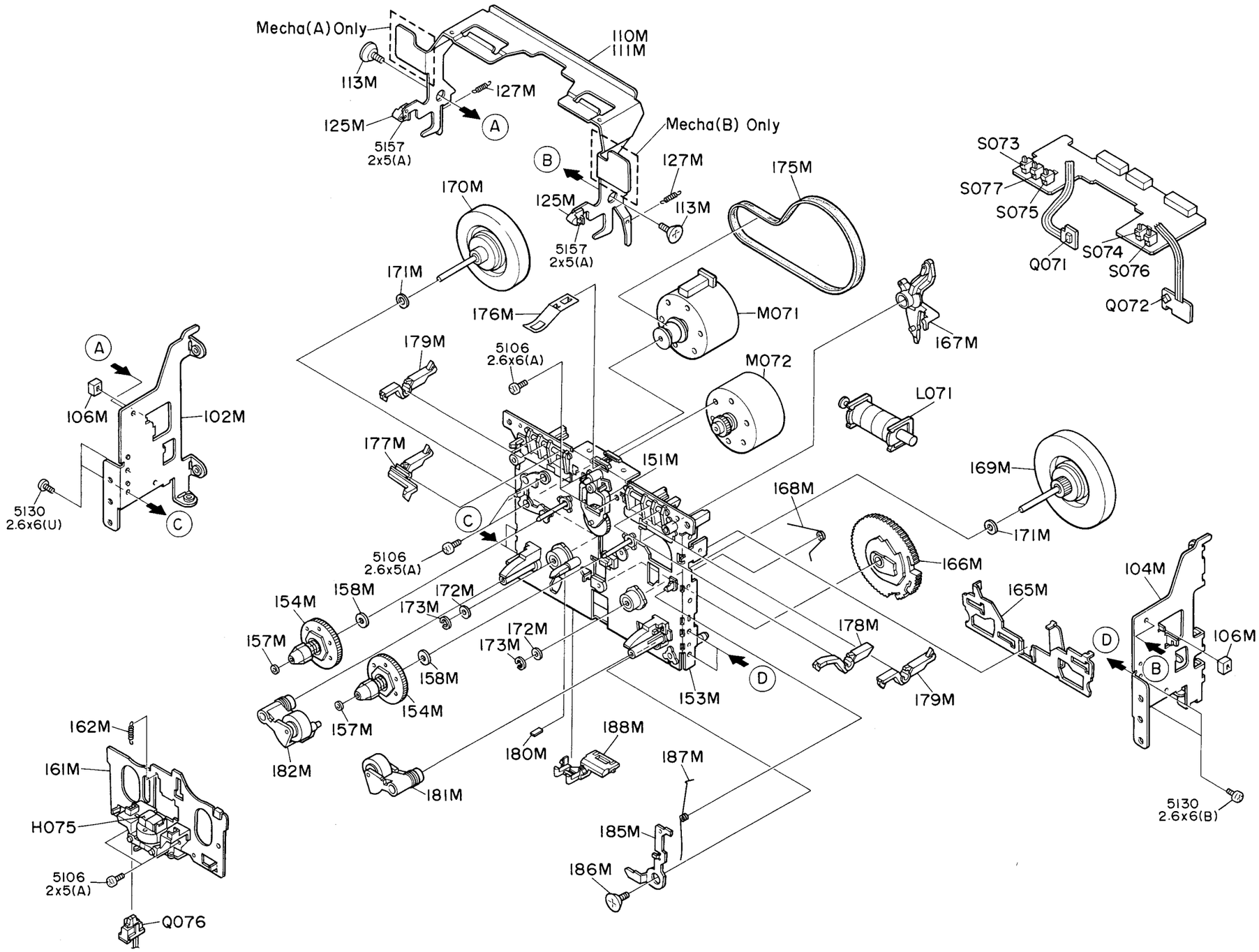


7. EXPLODED VIEW AND PARTS LIST





POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U/F)
001B		4822 443 41339	Front Panel Assembly	456T248510
011B		4822 464 51018	Front Chassis Assembly	456T105550
031B		4822 410 63023	Button, Mode	456T270020
033B		4822 410 63013	Button, Power	023J270020
034B		4822 413 31788	Knob, Dolby / Rev.	456T154010
035B		4822 411 20336	Knob, HP S / L	284T154310
040B		4822 413 41589	Knob, REC Level	090J154010
041B		4822 410 60873	Knob, Pitch	426T154010
110B		4822 443 64076	Cover Assembly, Cassette Door-A	456T053510
113B		4822 410 63024	Button, Eject-A	456T270030
116B		4822 492 33441	Spring, Eject-A	456T115010
210B		4822 443 64077	Cover Assembly, Cassette Door-B	456T053520
213B		4822 410 63024	Button, Eject-B	456T270030
216B		4822 492 33441	Spring, Eject-B	456T115010
001C		4822 256 91556	Holder Assembly, Cassette-A	416T271500
014C		4822 492 70617	Spring, Door-A	420T115030
016C		4822 466 92367	Dumper	415T130010
020C		4822 502 12355	B.T.Screw (W / W) M3 x 8	51260308U0
201C		4822 691 20583	Holder Assembly, Cassette-B	416T271510
214C		4822 492 70616	Spring, Door-B	420T115020
216C		4822 466 92367	Dumper	415T130010
005G		4822 462 10312	Leg	176H057040
015G		4822 403 71086	Link, Power Switch	011D121010
903G		4822 532 60948	Bushing, AC Coad	450H259010
⚠ L001	F		Power Transformer	TS15725010
	U		Power Transformer	TS15725040
	/00B	4822 146 21778	Power Transformer	TS15725100
001T	F		User Manual	456T851110
	U		User Manual	456T851210
	/00B	4822 736 21934	User Manual	456T851310
W011		4822 321 21438	Cord, Stereo, RCA	ZD01000330



POS.
106
113
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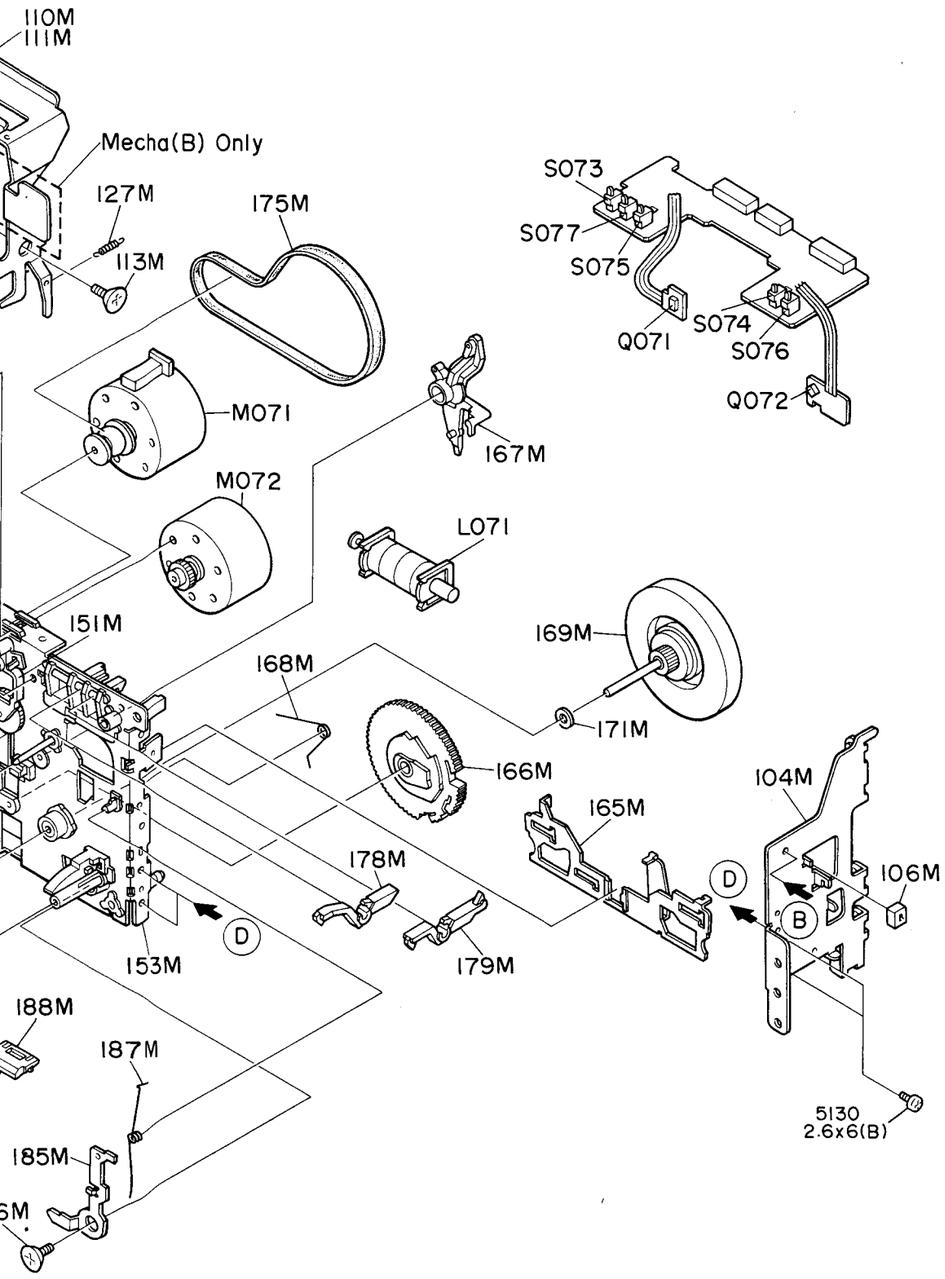
H07
L07
M07
M07
Q07
Q07
Q07
S07
S07
S07
S07
S07

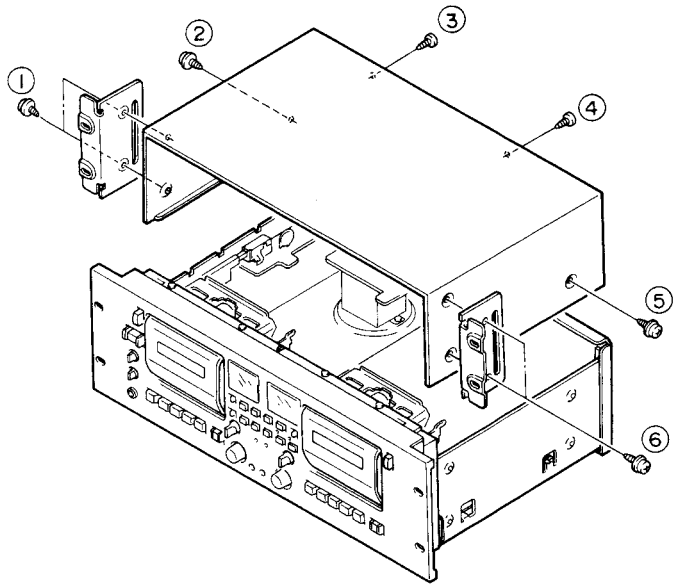


POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U/F)
106M		4822 466 92366	Stopper	415T114010
113M		4822 502 13463	Screw, Eject Hook	415T010010
125M		4822 403 53891	Hook, Eject	415T258020
127M		4822 492 23444	Spring	415T115030
151M		4822 528 81514	Idler	456T001050
153M		4822 464 51021	Chassis, Main	456T105050
154M		4822 528 10785	Reel	420T352050
157M		4822 532 11291	Washer, Reel	59163202G0
158M		4822 532 11525	Washer, Reel	59020802G0
161M		4822 403 71104	Base, Head	456T160050
162M		4822 492 70671	Spring, Head Bracket	420T115070
166M		4822 522 33445	Cam, Gear	456T054050
167M		4822 403 70092	Arm, Reverse	420T002050
168M		4822 492 33443	Spring	456T115060
169M		4822 528 60417	Flywheel Assembly (R)	456T273050
170M		4822 528 60418	Flywheel Assembly (L)	456T273060
171M		4822 532 11398	Washer, Flywheel	59264702G0
172M		4822 532 11399	Washer, Flywheel	59264705G0
173M		4822 532 52213	RG Ring, E Type	64001500L0
175M		4822 358 31286	Belt, Main	456T264050
176M		4822 492 70672	Leaf Spring, Cassette Hold	420T116050
177M		4822 403 70095	Lever, Metal	420T354070
178M		4822 403 70094	Lever, Pack	420T354060
179M		4822 403 71093	Lever, Rec	456T354050
181M		4822 528 81515	Pinch Roller (R)	456T358550
182M		4822 528 81516	Pinch Roller (L)	456T358560
187M		4822 492 33442	Spring, Anti Eject Arm	456T115050
188M		4822 256 91664	Holder, Head PCB	420T271050
H075		4822 249 10495	Head Assembly, REC / Play / Erase	*LH500030R
L071		4822 281 50151	Solenoid Coil	ME1035010R
M071		4822 361 30311	D.C. Motor, Main	MM1120904R
M072		4822 361 30309	D.C. Motor, Reel	MM0075002R
Q071		4822 130 63516	Photo Unit, Reel Sensor	*HW100180R
Q072		4822 130 63516	Photo Unit, Reel Sensor	*HW100180R
Q076		4822 130 82207	Photo Unit, Quick Sensor	HW1000020R
S073		4822 276 13475	Push Switch	*SP000130R
S074		4822 276 13475	Push Switch	*SP000130R
S075		4822 276 13475	Push Switch	*SP000130R
S076		4822 276 13475	Push Switch	*SP000130R
S077		4822 276 13475	Push Switch	*SP000130R

8. DISASSEMBLY

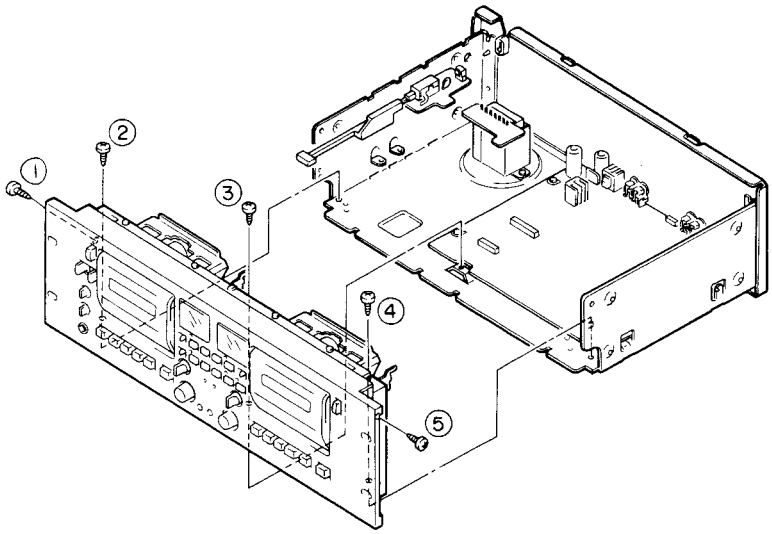
8.1 REMOVING THE TOP COVER

Remove the screws ① ~ ⑥ .



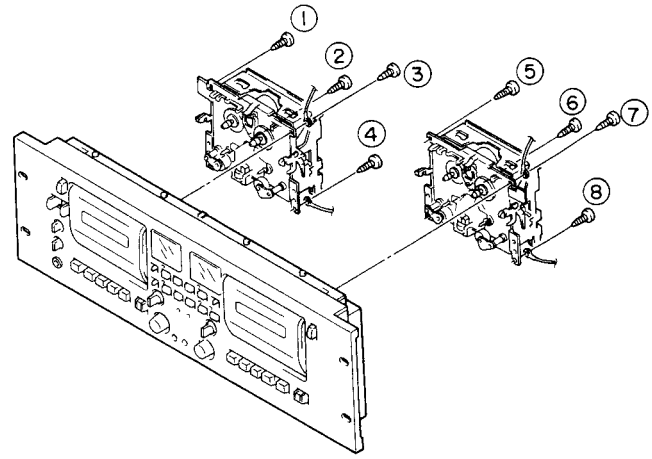
8.2 REMOVING THE FRONT PANEL

1) Remove the screws ① ~ ⑤ .



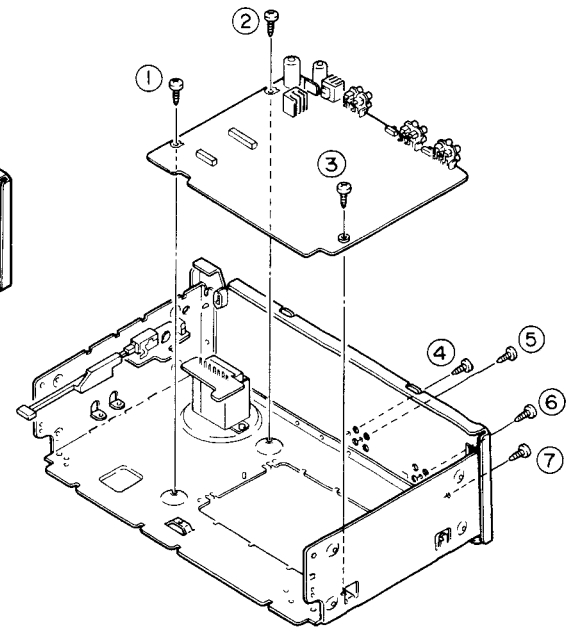
8.3 REMOVING THE MECHANISM

Remove the screws ① ~ ⑧ .



8.4 REMOVING THE MAIN P.W. BOARD

Remove the screws ① ~ ⑦ .



◘サービス時に必要な試験機材

●このModelを測定又はチェックするのに次のものが必要です。
○オーディオ発振器　(AF OSC)
○アッテネータ　　(600Ω)
○VTVM
○オシロスコープ
○ワウ、フラッターメーター
○トルクメーター　(カセット型)
○デジタル周波数カウンター
○ブランクテープ
(バルクイレーサーで完全に消去したもの)
AC-224 (Normal)　AC-712 (Metal)
AC-513 (CrO_2)

注意：
もし測定値が疑わしい場合は新しいテープを使用してください。

○テストテープ
TCC-112・MTT-111 ..... ワウ・フラッタ
テープピード
TCC-120・MTT-212N .... S/N比
TCC-130・MTT-150 ..... 出力レベル測定
TCC-174A・MTT-255M アジマス調整
(A-BEX)・(TEAC)

○ヘッドおよびガイドゲージ(M-300)
THG-801 ..... ヘッド、ガイド調整

◘回路の調整と測定

A．調整上の注意点
1) テキストテープは減衰しやすいので、使用する前にヘッド、キャプスタン等をイレーサーにて充分に消磁すること。
2) テストテープはトランス内蔵の計測器やイレーサーのすぐ近くには置かないこと。
3) 消磁の方法として、セットからやや離れた所でイレーサーのスイッチを入れヘッド、キャプスタンに近づけ上下に4～5回動かし、ゆっくり離し遠ざけてからスイッチを切ること。
4) 使用する工具は帯磁していないこと、時々バルクイレーサーで消磁すること。
5) 調整用半回定抵抗及び可変コイル等は、極力最小の回転／回数で調整すること。
6) スピード、ワウ等は、セットの通常の姿勢で調整／チェックすること。
7) ボンドロックは少量にし、周辺に付着あるいは流れ出ることなど無いよう注意のこと。
8) AC電源電圧、低周波発信器出力電圧等は、1日2～3回規定どうりかチェックすること。

9. TEST EQUIPMENT REQUIRED FOR SERVICING

For measuring or checking your Cassette Deck, the following instruments and materials are necessary.

- Audio Oscillator (AF OSC)
- Attenuator (600 Ω)
- VTVM
- Oscilloscope
- Wow and Flutter Meter
- Torque Meter (Cassette Type)
- Digital Frequency Counter
- Blank Tapes (Completely erased with bulk eraser)
  AC-224 (Normal)
  AC-513 (CrO_2)
  AC-712 (Metal)

NOTE:
If any doubt is noted in a measured value, use new tape.

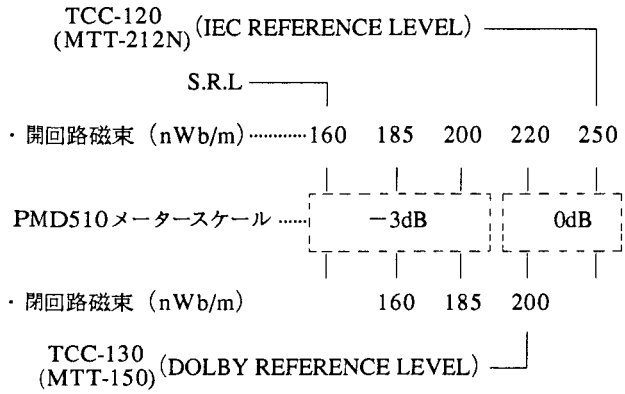
- Test Tape
  TCC-112•MTT-111　Wow and Flutter, Tape Speed
  TCC-120•MTT-212N　Signal-to-Noise Ratio
  TCC-130•MTT-150　Dolby Level Adjustment
  TCC-174A•MTT-255M　Azimuth adjustment
  (A-BEX)•(TEAC)
- Mirror cassette 12 µm padless
  TCC-902•MTT-902　Tape travel check
- Head and guide gauge (M-300)
  THG-801

10. ELECTRICAL ADJUSTMENTS

(A) Remark for adjustment
1) Make sure tape paths are clean & de-magnetized.
2) Tools used for adjustment should not be magnetized.

B. S.R.L. (Standard Recording Level) 規準録音レベル

1. テープ上に開回路磁束で、160nWb/mの磁束を記録出来るレベルのことであり、記録レベルとメータースケール及びテストテープの関係は以下のとうりである。



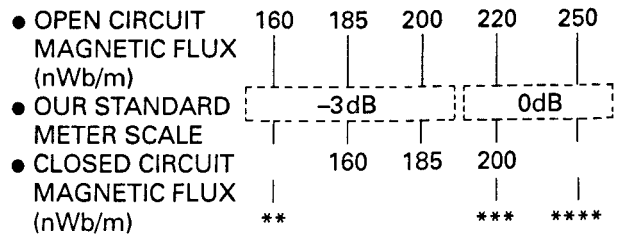
注意： 開回路磁束 ＝ 閉回路磁束 ＋ 漏洩磁束

2. PMD510ではドルビーレベルで再生出力を調整、規準をIECリファレンスにしているのが、便宜上以下のようにする。
   1) LINE入力に1KHz、100mVの信号を加え録音状態とする。
   2) RECボリュームを調整し、ドルビーテストポイント
      TP01、TP02（Aメカ）
      TP51、TP52（Bメカ）
      のレベルが300mVとなるようにする。
   3) この状態から入力レベルを−3dBとした（アッテネーターで3dB下げる）状態がすなわち、規準録音レベル（S.R.L）での規定録音状態である。

注意：
再生の規準レベルはその測定項目により異なり、使用指定のテストテープの記録レベルが規準レベルを決定することになる。

(B) S.R.L/Standard Recording Level

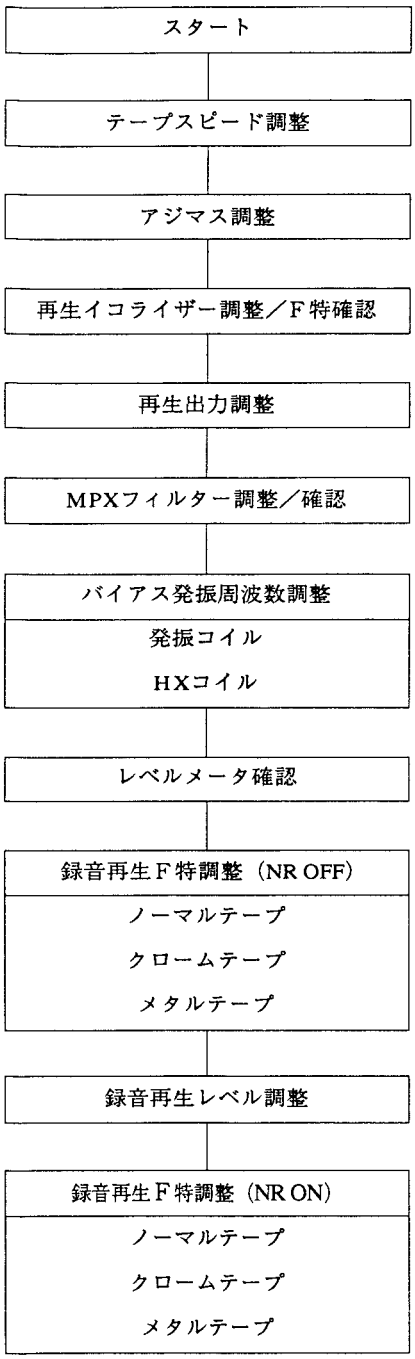
1. S.R.L (Standard Recording Level) which is 160 nWb/m on a tape by* OPEN CIRCUIT MAGNETIC FLUX. The relationship among recording level, meter scale and test tape are as follows:



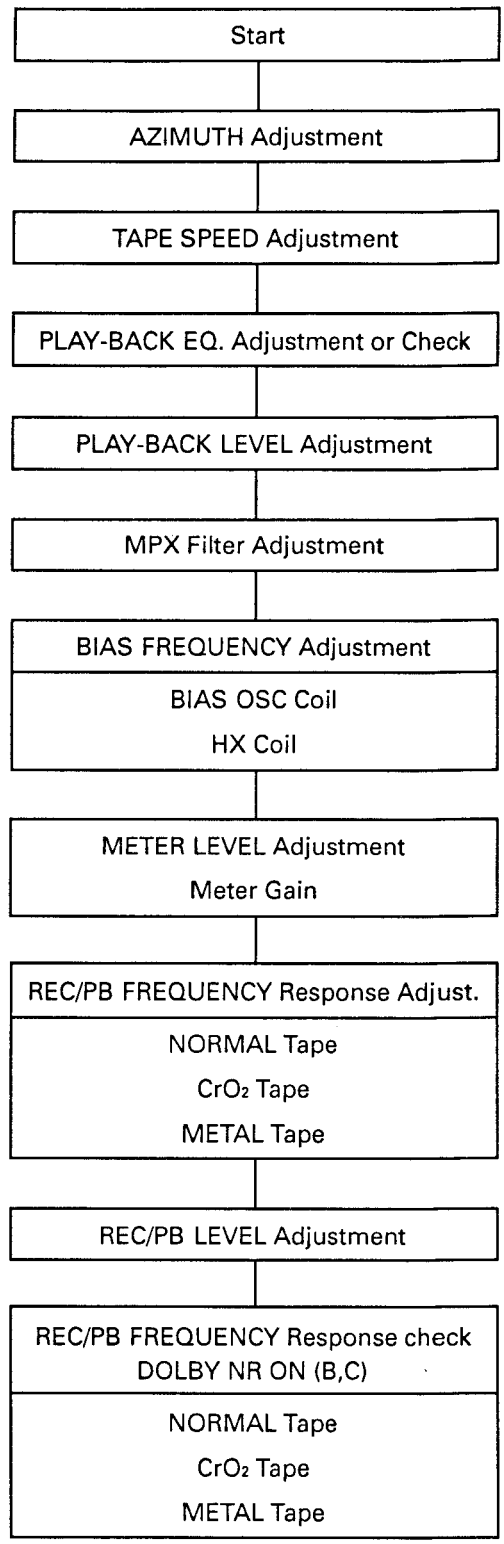
(*): OPEN CIRCUIT MAGNETIC FLUX = CLOSED CIRCUIT MAGNETIC FLUX + LEAK MAGNETIC FLUX.
(**): S.R.L
(***): TCC-130 (DOLBY REFERENCE LEVEL) (MTT-150)
(****): TCC-120 (IEC REFERENCE LEVEL) (MTT-212N)

2. S.R.L. Setting
1) Apply a 1 kHz, 100 mV to the LINE INPUT jacks.
2) Put the unit in RECORD mode and adjust the REC LEVEL control to obtain 300 mV of signal at the DOLBY test points TP01, TP02 (Deck A) and TP51, TP52 (Deck B).
3) Adjust the output of the audio oscillator applied to the LINE INPUT jacks to 70.8 mV (–3 dB). This is the rated recording condition for the STANDARD RECORDING LEVEL (S.R.L.).

調整フローチャート

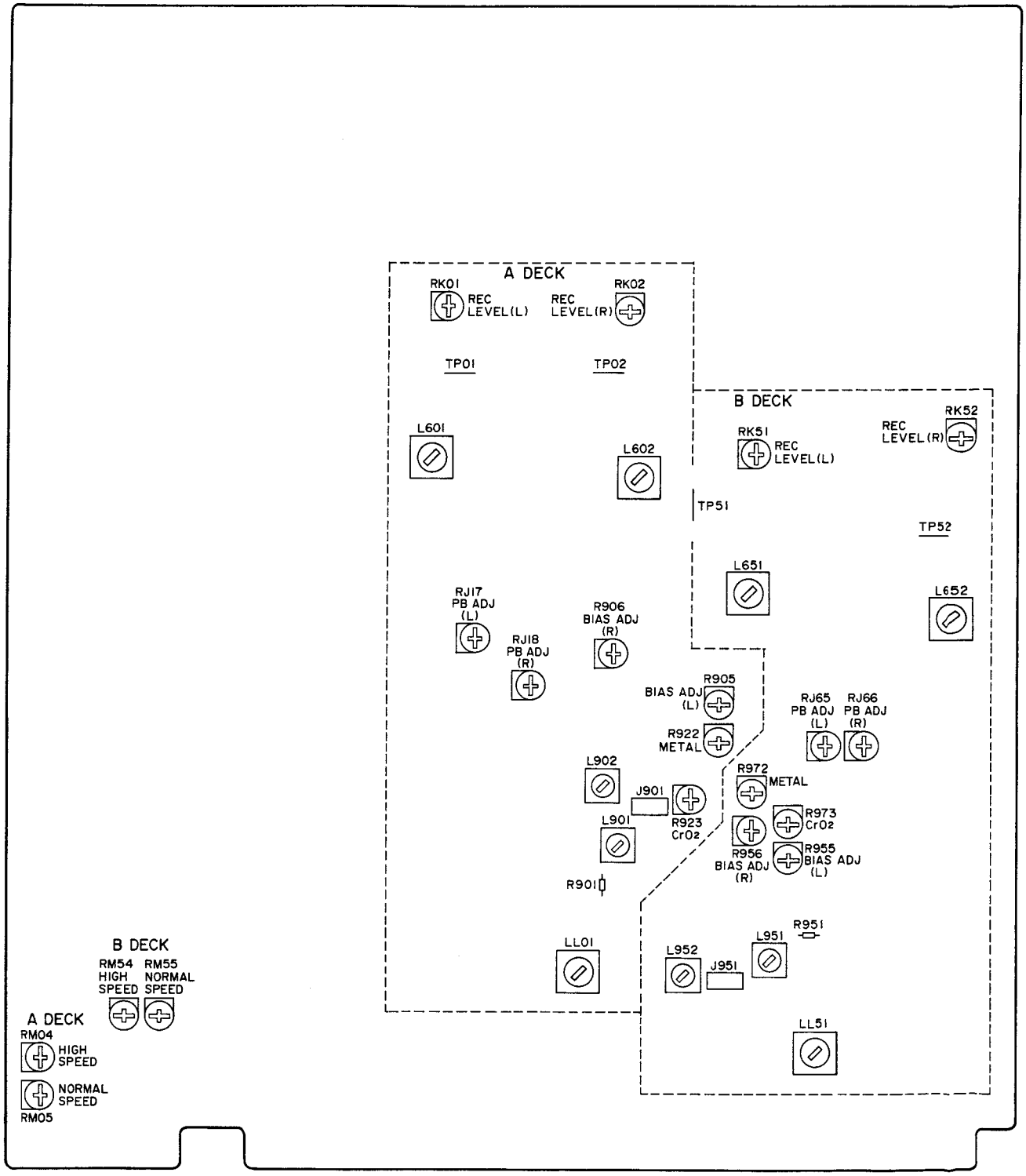


ADJUSTMENT FLOW CHART



ADJUSTMENT POINT COMPONENT SIDE

PJ03



● テープスピード調整

テープスピードの調整はテストモードにして行う。
テストモードの入れ方は、電源オフの状態から次のキーを同時に押して電源をオンにする。
①AメカのREC ②BメカのREW ③BメカのRESET
テストモードに入るとカウンターの表示が"55.55"となる。
調整は、FWD (PLAY ▷) で行い、REV (◁PLAY) 再生は、スペック内であることを確認する。

1) テープの中間を再生し、半固定抵抗RM05/RM55を調整し、3000Hz (2990～3010Hz) になるようにする。
2) 次に、STOPの状態にしてH-DUBBキーを押す。(H-DUBB LEDが点燈) FWD (PLAY ▷) キーを押し倍速再生にしRM04/RM54を調整し、6000Hz (5980～6020Hz) になるようにする。
   Bメカを再生する時はAメカをSTOPにしてBメカを再生後にAメカを再生する事。
3) 設定後、再度再生して範囲内のことを確認する。

注意：
(1) 据置きの姿勢で行なう。
(2) メカニズムが常温と大きく異なる温度状態では、行なわないこと。

● ヘッドアジマス調整／再生F特調整

1) F特テープを再生し、12.5KHzの信号でアジマス調整ビスを回し、締め付け方向で出力最大点に合わせる。
2) L/Rピーク点が違う場合は、低いチャンネルを最大にし、L/Rのバランスを取る。
3) 調整ビスをボンドロックする。
4) 次に、315Hzの信号を0dBとし、12.5KHzの信号のレベルを読む。無調整タイプのセットなので異常な値でないことを確認する。

● 再生出力調整

1) ドルビーレベルテストテープを再生し、テストポイントの電圧が300mVとなるように下記の組み合わせで調整する。

CH	テストポイント	調整半固定抵抗	メカ
L	TP01	RJ17	A
R	TP02	RJ18	A
L	TP51	RJ65	B
R	TP52	RJ66	B

2) 調整後再度再生し、再確認する。

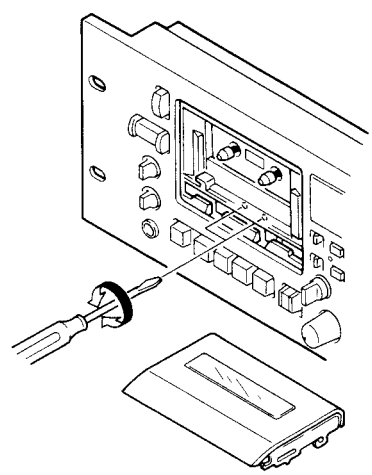
注意：
(1) 再生出力が変動する場合はテープ走行の不良、又はテストテープの不良が考えられるのでチェックすること。

10.1 HEAD AZIMUTH ADJUSTMENT and FREQUENCY RESPONSE CHECK

1) Playback the 12.5 kHz part of the Azimuth test tape.
2) Adjust the proper azimuth screw in both directions for maximum output at the LINE OUTPUT jacks.
3) In case the L/R peak points are different, adjust the lower channel for maximum.
4) Lock the azimuth screws with glue or bondlock.
5) Playback the 315 Hz part of the test tape and set a 0 dB ref., then playback the 12.5 kHz part of the test tape and confirm that the output is 0 dB, ±3 dB.

10.2 TAPE SPEED ADJUSTMENT

1) Playback the middle of the Wow and Flutter test tape.
2) Adjust RM05 (Deck A) and RM55 (Deck B) for 3000 Hz (2990 Hz – 3010 Hz).
3) Repeat 1 and 2 for both directions.
4) Read section 11 – SERVICE PROGRAM for properly operating the unit in high speed playback mode.
5) Repeat 1 and adjust RM04 (Deck A) and RM54 (Deck B) for 6000 Hz (5080 Hz – 6020 Hz).
6) Repeat 5 for both directions.



10.3 PLAY-BACK LEVEL ADJUSTMENT

1) Playback the DOLBY test tape, adjust the following semi-fixed resistors for 300 mV at the test points;

CH.	TEST POINT	SEMI-FIXED RES.	MECHA.
L	TP01	RJ17	A
R	TP02	RJ18	A
L	TP51	RJ65	B
R	TP52	RJ66	B

2) After adjustment, replay and check it again.

Remarks:
In case of drifting output during replay, check that the tape running and the test tape, because they may be defective.

● MPXフィルター周波数調整／確認

1) ドルビーレベルで録音モニター状態とし、入力信号周波数が1KHzの時のレベルを0dBとする。
2) 入力信号周波数を19KHz（±10Hz以内）とし、MPXフィルタースイッチが「ON」の状態でレベルが最小となるようにコイル調整する。（リアーパネル）

調整コイル	CH	メカ
L601	(L)	A
L602	(R)	A
L651	(L)	B
L652	(R)	B

＊ この調整はチェッカーで行なうことが好ましい。

注意：
(1) 通常は、−40dB以下となる。

● 録音バイアス周波数及びHXコイル共振調整

1) 録音状態にする。
2) バイアス発振周波数を105KHzとなるよう発振コイルを調整する。

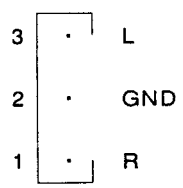
測定点	調整コイル	メカ
R901	LL01	A
R951	LL51	B

＊ 周波数カウンターへの接続は、ミリバルを通して行なう。
調整／測定が終わったら測定点への接続を外すこと。

3) 次に、HXチェックポイントにオシロスコープを接続する。
4) HXチェックポイントの電圧が最小になる様にHXコイルを調整する。

測定点	調整点	メカ
J901−3	L901	A
J901−1	L902	A
J951−3	L951	B
J951−1	L952	B

注意：
J901、J951は、下記のようになっている。



● レベルメータ感度確認

1) LINE入力 1KHz 100mV（アッテネータ、−20dB）にて録音状態とする。次に、REC-LEVELボリュームを調整し、ドルビーテストポイントのレベルが300mVとなるようにする（●再生出力調整参照）。この状態から1dBレベルを上げる。
2) この状態で、レベルメータの0dBポイントが点燈していることを確認する。

注意：
(1) NR OFFとする。

10.4 MPX FILTER ADJUSTMENT

1) Put unit in REC mode with a S.R.L. input.
2) Place the MPX filter switch ON and change the input frequency to 19 kHz (±10 Hz).
3) Adjust L601 (L), L602 (R) (Deck A) and L651 (L), L652 (R) (Deck B) for minimum output at the LINE OUTPUT jacks.

10.5 RECORDING BIAS FREQUENCY AND HX COIL ADJUSTMENT

1) Put unit in REC mode.
2) Adjust the following bias-oscillator coils for 105 kHz bias-oscillator frequency;

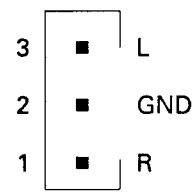
TEST POINT	COIL	MECHA.
R901	LL01	A
R951	LL51	B

* May have to connect FREQUENCY COUNTER through AUDIO VOLT METER.

3) Next, connect an OSCILLOSCOPE to the HX test point.
4) Adjust the following HX coils for minimum.

TEST POINT	COIL	MECHA.
J901–3	L901	A
J901–1	L902	A
J951–3	L951	B
J951–1	L952	B

* TEST POINT J901 and J951 are as follows;



10.6 LEVEL METER SENSITIVITY ADJUSTMENT OR CHECK

1) Put unit in REC mode with a 1 kHz, 100 mV applied to the LINE INPUT jacks.
2) In this condition, check the LEVEL METER to light point of 0 dB.

Remarks:
(1) DOLBY NR switch is "OFF".

● 録音再生F特調整

1) 規定録音状態から入力レベルを更に−25dB減じ、400Hzと12.5KHzの信号をDolby-OFFポジションで録音する。(NORMALテープ)
2) 巻き戻し再生し、400Hzと12.5KHzの信号のレベル差が±1.0dBとなるよう、半固定抵抗を調整する。

CH	調整点	メカ
L	R905	A
R	R906	A
L	R955	B
R	R956	B

3) CrO_2、テープでも同様に行ない、半固定抵抗を調整する。

CH	調整点	メカ
L、R	R923	A
L、R	R973	B

4) METALテープでも同様に行ない、半固定抵抗を調整する。

CH	調整点	メカ
L、R	R922	A
L、R	R972	B

● 録音再生レベル調整

1) NORMALテープにて規定録音状態とし、モニターレベルを0dBとする。
周波数 400Hz
2) 巻き戻し再生し、400Hzのレベルが±0.5dB以内となるよう、半固定抵抗を調整する。

CH	調整点	メカ
L	RK01	A
R	RK02	A
L	RK51	B
R	RK52	B

3) CrO_2、METALでは確認のみを行なう。

● DOLBY NR 録音再生F特確認

1) 規定録音状態から入力レベルを更に−25dB減じ、下記の信号をDolby-Bポジションで録音する。(NORMALテープ)
250、1K、3K、6.3K、10K、12.5KHz
2) 巻き戻し再生し、各周波数のレベル差がスペックの範囲となることを確認する。
3) Dolby-C ポジションでも同様に確認する。
4) CrO_2、METALテープでも同様に行ない確認する。

10.7 REC/PLAY-BACK FREQUENCY RESPONSE ADJUSTMENT

1) Decrease the audio oscillator to 4.0 mV (–25 dB) from the rated recording condition. Record 400 Hz and 12.5 kHz signals with the DOLBY off.
2) REWIND and playback the section just recorded, adjust the following semi-fixed resistor so that the level of differences between 400 Hz and 12.5 kHz are within ±1.0 dB;

CH.	TEST POINT	MECHA.
L	R905	A
R	R906	A
L	R955	B
R	R956	B

3) Do this same thing to CrO_2 tape/position and adjust the following semi-fixed resistor;

CH.	TEST POINT	MECHA.
L, R	R923	A
L, R	R973	B

4) Do this same thing to METAL tape/position and adjust the following semi-resistor;

CH.	TEST POINT	MECHA.
L, R	R922	A
L, R	R972	B

5) At CrO_2 and METAL tape/position, so that the level of differences between 400 Hz and 12.5 kHz are within ±1.0 dB.

10.8 REC/PLAY-BACK LEVEL ADJUSTMENT

1) By NORMAL tape/position, set rated recording condition and set a 0 dB. Reference level. Frequency: 400 Hz
2) REWIND and play back the section just recorded. and adjust following semi-fixed resistor so that the 400 Hz level is within ±0.5 dB;

CH.	TEST POINT	MECHA.
L	RK01	A
R	RK02	A
L	RK51	B
R	RK52	B

3) Only check CrO_2 and METAL tapes/positions.

10.9 REC/PLAY-BACK FREQUENCY RESPONSE CHECK DOLBY NR

1) Decrease the audio oscillator to 4.0 mV (–25 dB) from the rated recording condition. Record the following signals at DOLBY-B position. (NORMAL tape/position);
250 Hz, 1 kHz, 3 kHz, 6.3 kHz, 10 kHz, 12.5 kHz
2) REWIND and playback the section just recorded, and read difference levels are within the specifications.
3) Do this same thing to DOLBY-C Position.
4) Do this same thing to CrO_2 and METAL tape/position.

◘サービス・プログラム

1. サービス・プログラムには次の3種類のモードがあります。
1) モード0: サービス・プログラム実行可
2) モード1: LED（セグメント）点灯確認
　　モード1－1: セグメント確認
　　モード1－2: グリッド確認

注意：
グリッドは複数個のセグメントで構成

3) モード2: 倍速再生

2. サービス・プログラムの実行
1) 最初に電源をOFFの状態にします。
2) メカA側のREC、メカB側のREW ◁◁ とRESETの3キーを同時に押した状態で電源スイッチをONにします。
　＊ テープカウンタの表示がメカA側、メカB側共に"55.55"になりサービス・プログラムの準備完了です。［モード0］
3) 次に、CONTキーを押します。
　＊ テープカウンタのセグメントaからセグメントrまでが順にメカA側とメカB側とで同時に点灯されて行きセグメントの確認が出来ます。［モード1－1］
4) 再度CONTキーを押します。
　＊ 各グリッド（セグメント群）毎に全点灯した状態でグリッド1からグリッド6まで順にON/OFFさせてグリッドの確認が出来ます。［モード1－2］

注意：
このモードは、LEDの保護のため10秒程度で終了させてください。

5) 再度CONTキーを押すとモード0に戻ります。
6) モード0の状態からHIGH-DUBBキーを押すと、倍速再生をすることが出来ます。［モード2］
　＊ "HIGH" のLEDが点灯します。
7) モード2の状態でPLAY（FWD、REV）キーを押すと倍速再生をすることが出来ます。FWD或はREVに切り替える場合はSTOPを押してから行ってください。

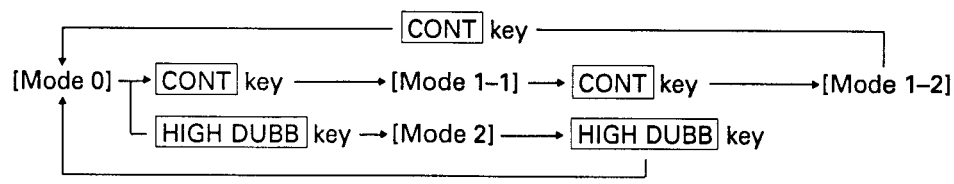
注意：
メカB側の再生を行う場合は必ずメカA側をSTOPしてから行ってください。メカB側の再生が始まったらメカA側のPLAYキー ▷ を押して再生を始めてください。

再生出力はメカA、メカBそれぞれの出力端子に出力されます。
8) モード2の状態からHIGH-DUBBキーを押すとモード0に戻ります。

11. SERVICE PROGRAM

1. Service program has 3 modes as follows;
1) Mode 0: Ready for service program
2) Mode 1: LEDs (Segments) light check
　　Mode 1-1: Segment check
　　Mode 1-2: Grid check
　(Note) Grid consist of segments.
3) Mode 2: High-speed play

2. Service program procedure
1) Set the power switch to OFF.
2) Press and hold the REC (Deck A), REW ◁◁ (Deck B) and RESET (Deck B) keys simultaneously while set the power switch to ON.
　* If both of tape counters Deck A and Deck B display "55.55", they are ready for service program. [Mode 0]
3) Next, press the CONT key to enter the display segment check mode.
　* All segments (segment a, segment b, ... , segment r) light in order starting with segment a. [Mode 1-1]
4) Press the CONT key again to enter the grid check.
　* Each grids (segment group) light in and out sequence from grid 1 to grid 6. [Mode 1-2]
　CAUTION: To protect LEDs, quit this mode in about 10 seconds.
5) Press the CONT key one more time to return to Mode 0.
6) Press the HIGH-DUBB key in Mode 0 to enter the high-speed play. [Mode 2]
　* The "HIGH" LED lights.
7) Press the PLAY (Forward or Reverse) key in Mode 2 to start high-speed playback. If you want to switch the Forward and Reverse directions, be sure to press the STOP key beforehand.
　CAUTION: Be sure to stop Deck A before playing Deck B. When Deck B starts to play, press the PLAY key (▷) to start playing Deck A.
　The playback signals are output at the respective output jacks of Deck A and Deck B.
8) Press the HIGH-DUBB key in Mode 2 to return to Mode 0.



12. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTOR

R＊＊＊ : (1) GD05 x x x 140, Carbon film fixed resistor, ±5% 1/4W
R＊＊＊ : (2) GD05 x x x 160, Carbon film fixed resistor, ±5% 1/6W

① —— Resistance value

Examples ;
① Resistance value

0.1Ω...001	10Ω...100	1kΩ...102	100kΩ...104
0.5Ω...005	18Ω...180	2.7kΩ...272	680kΩ...684
1Ω...010	100Ω...101	10kΩ...103	1MΩ...105
6.8Ω...068	390Ω...391	22kΩ...223	4.7MΩ...475

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

C＊＊＊ : CERAMIC CAP.
(1) DD1 x x x 370, Ceramic capacitor
Disc type
Temp.coeff.P350~N1000,50V

① Capacity value
② Tolerance

Examples
① Tolerance (Capacity deviation)
±0.25pF ... 0
±0.5pF ... 1
±5% ... 5
＊ Tolerance of COMMON PARTS handled here are as follows :
0.5pF~ 5pF...±0.25pF
6pF~ 10pF...±0.5pF
12pF~ 560pF...±5%
② Capacity value

0.5pF...005	3pF...030	100pF...101
1pF...010	10pF...100	220pF...221
1.5pF...015	47pF...470	560pF...561

C＊＊＊ : CERAMIC CAP.
(1) DK16 x x x 300, High dielectric constant ceramic capacitor
Disc type
Temp.chara. 2B4, 50V

① Capacity value

Examples
② Capacity value

100pF...101	1000pF...102	10000pF...103
470pF...471	2200pF...222	

C＊＊＊ : ELECTROLY CAP.(⏚), FILM CAP.(⫟)
(1) EA x x x x x x 10, Electrolytic capacitor
One-way lead type, Tolerance ±20%

① Capacity value
② Working voltage

Examples
① Capacity value

0.1μF...104	4.7μF...475	100μF...107
0.33μF...334	10μF...106	330μF...337
1μF...105	22μF...226	1100μF...118
		2200μF...228

② Working voltage

6.3V...006	25V...025
10V...010	35V...035
16V...016	50V...050

(2) DF15 x x x 350, Plastic film capacitor
One-way type, Mylar ±5% 50V

① Capacity value

Examples
① Capacity value

0.001μF(1000pF)...102	0.1μF...104
0.0018μF.....182	0.56μF...564
0.01μF.....103	1μF...105
0.015μF.....153	

NOTE : The above CODES (R＊＊＊,R＊＊＊,C＊＊＊,C＊＊ and C＊＊＊) are omitted on the schematic diagram in some case.
On the occasion, be confirmed the common parts on the parts list.

NOTE ON SAFETY FOR FUSIBLE RESISTOR:
The suppliers and their type numbers of fusible resistors are as follows;

1. KOA Corporation

Part No.	Type No.	Description
NH05 x x x 140	RF25S x x x x ΩJ	(±5% 1/4W)
NH05 x x x 120	RF50S x x x x ΩJ	(±5% 1/2W)
NH85 x x x 110	RF73B2A x x x x ΩJ	(±5% 1/10W)
NH95 x x x 140	RF73B2E x x x x ΩJ	(±5% 1/4W)

＊ Resistance value — Resistance value(0.1 - 10kΩ)

2. Matsushita Electronic Components Co., Ltd

Part No.	Type No.	Description
NF05 x x x 140	ERD-2FCJ x x x	(±5% 1/4W)
RF05 x x x 140		
NF02 x x x 140	ERD-2FCG x x x	(±2% 1/4W)
RF02 x x x 140		

＊ Resistance value — ＊ Resistance value

Examples;
＊ Resistance value

0.1Ω.....001	10Ω.....100	1kΩ.....102	100kΩ.....104
0.5Ω.....005	18Ω.....180	2.7kΩ.....272	680kΩ.....684
1Ω.....010	100Ω.....101	10kΩ.....103	1MΩ.....105
6.8Ω.....068	390Ω.....391	22kΩ.....223	4.7MΩ.....475

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION				PART NO. (FOR U/F)
			PG03-VOLUME CONTROL CIRUIT BOARD				
PG03			VOLUME CONTROL PCB (EMPTY)				WA456T2040
			PG03-RESISTORS				
RG93		4822 101 30724	20K Ω (A) x 2, Variable				RM02030360
RG94		4822 101 30837	100K Ω (B), Variable				RK01040660
RG97		4822 101 30724	20K Ω (A) x 2, Variable				RM02030360
RG98		4822 101 30837	100K Ω (B), Variable				RK01040660
RM81		4822 101 30838	5K Ω (B), Variable				RK05020420
RM82		4822 101 30838	5K Ω (B), Variable				RK05020420
			PG03-RESISTORS, COMMON **Carbon film fixed resistor, ±5% 1/6W :**				
R***			RG91, RG92, RG95, RG96				
			PJ03-AUDIO MAIN CIRCUIT BOARD				
PJ03			AUDIO MAIN PCB (EMPTY)				WA456T1010
			PJ03-CAPACITORS				
CG01		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CG02		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CG03		4822 124 21894	Elect	10μF		16V	EJ10601610
CG04		4822 124 21894	Elect	10μF		16V	EJ10601610
CG21 ~ CG24		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CG51		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CG52		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CG53		4822 124 21894	Elect	10μF		16V	EJ10601610
CG54		4822 124 21894	Elect	10μF		16V	EJ10601610
CG71 ~ CG74		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CJ01		4822 121 42327	Film	470pF	±5%	50V	DF15471350
CJ02		4822 121 42327	Film	470pF	±5%	50V	DF15471350
CJ03		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CJ04		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CJ09		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CJ10		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CJ23		4822 124 23053	Elect	1μF		50V	EJ10505010
CJ51		4822 121 42713	Film	680pF	±5%	50V	DF15681350
CJ52		4822 121 42713	Film	680pF	±5%	50V	DF15681350
CJ53		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CJ54		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CJ59		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CJ60		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CJ73		4822 124 23053	Elect	1μF		50V	EJ10505010
CK01 ~ CK04		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CK05		5322 122 32265	Ceramic	100pF	±5%	500V	DD15101650
CK06		5322 122 32265	Ceramic	100pF	±5%	500V	DD15101650
CK09		4822 124 23054	Elect	0.47μF		50V	EJ47405010
CK10		4822 124 23054	Elect	0.47μF		50V	EJ47405010
CK11		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CK12		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CK51 ~ CK54		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CK55		5322 122 32265	Ceramic	100pF	±5%	500V	DD15101560
CK56		5322 122 32265	Ceramic	100pF	±5%	500V	DD15101560
CK59		4822 124 23054	Elect	0.47μF		50V	EJ47405010
CK60		4822 124 23054	Elect	0.47μF		50V	EJ47405010
CK61		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CK62		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CL01		4822 121 43774	Film	0.012μF	±10%	250V	DF76123530
CL03		4822 124 23054	Elect	0.47μF		50V	EJ47405010
CL51		4822 121 43774	Film	0.012μF	±10%	250V	DF76123530
CL53		4822 124 23054	Elect	0.47μF		50V	EJ47405010

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION				PART NO. (FOR U/F)
CM01 ~ CM05		4822 122 30103	Ceramic	0.022μF	+80% -20%	50V	DK18223310
CM51 ~ CM55		4822 122 30103	Ceramic	0.022μF	+80% -20%	50V	DK18223310
CU01		4822 124 21894	Elect	10μF		16V	EJ10601610
CU02		4822 124 21899	Elect	4.7μF		25V	EJ47502510
CU04 ~ CU06		4822 122 30103	Ceramic	0.022μF	+80% -20%	50V	DK18223310
C601 ~ C604		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C611		4822 124 41604	Elect	0.1μF		50V	EJ10405010
C614							
C615		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C616		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C617 ~ C620		4822 124 41604	Elect	0.1μF		50V	EJ10405010
C621		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C622		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C631		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C651 ~ C654		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C661 ~ C664		4822 124 41604	Elect	0.1μF		50V	EJ10405010
C665		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C666		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C667 ~ C670		4822 124 41604	Elect	0.1μF		50V	EJ10405010
C671		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C672		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C681		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C701 ~ C704		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C751 ~ C754		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C801		4822 122 30103	Ceramic	0.022μF	+80% -20%	50V	DK18223310
C805		4822 124 23053	Elect	1μF		50V	EJ10505010
C806		4822 122 30103	Ceramic	0.022μF	+80% -20%	50V	DK18223310
C809		4822 122 30103	Ceramic	0.022μF	+80% -20%	50V	DK18223310
C901		4822 122 30103	Ceramic	0.022μF	+80% -20%	50V	DK18223310
C903		4822 121 43775	Film	560pF	±10%	250V	DF76561530
C904		4822 121 43775	Film	560pF	±10%	250V	DF76561530
C905		5322 122 32265	Ceramic	100pF	±5%	500V	DD15101560
C906		5322 122 32265	Ceramic	100pF	±5%	500V	DD15101560
C921		4822 122 32185	Ceramic	10pF	±0.5pF	50V	DD11100300
C922		4822 124 21894	Elect	10μF		16V	EJ10601610
C927		4822 124 21899	Elect	4.7μF		25V	EJ47502510
C951		4822 122 30103	Ceramic	0.022μF	+80% -20%	50V	DK18223310
C953		4822 121 43775	Film	560pF	±10%	250V	DF76561530
C954		4822 121 43775	Film	560pF	±10%	250V	DF76561530
C955		5322 122 32265	Ceramic	100pF	±5%	500V	DD15101560
C956		5322 122 32265	Ceramic	100pF	±5%	500V	DD15101560
C971		4822 122 32185	Ceramic	10pF	±0.5pF	50V	DD11100300
C972		4822 124 21894	Elect	10μF		16V	EJ10601610
C975		4822 124 21899	Elect	4.7μF		25V	EJ47502510
			PJ03-CAPACITORS, COMMON Ceramic capacitor, 50V :				
C***			CJ13, CJ14, CK07, CK08, CK57, CK58				
			High dielectric constant ceramic capacitor, ±10% 50V :				
C***			CJ15, CJ16, C907, C908, C957, C958				

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION		PART NO. (FOR U/F)
			Electrolytic capacitor, ±20% :		
C***			CG05, CJ05, CJ06, CJ21, CJ22, CJ55, CJ56, CJ71, CJ72, CM06, CU03, C629, C675, C705, C706, C802~C804, C807, C808, C923, C973,		
			Plastic film capacitor, ±5% 50V :		
C***			CJ07, CJ08, CJ11, CJ12, CJ57, CJ58, CJ61~CJ64, CL02, CL04, CL52, CL54, C605~C610, C623, C624, C655~C660, C673, C674, C909~C914, C959~C964		
			PJ03-RESISTORS		
RJ17		4822 100 11373	4.7K Ω, Trimming		RA04720780
RJ18		4822 100 11373	4.7K Ω, Trimming		RA04720780
RJ65		4822 100 11351	10K Ω, Trimming		RA01030780
RJ66		4822 100 11351	10K Ω, Trimming		RA01030780
RK01		4822 100 11351	10K Ω, Trimming		RA01030780
RK02		4822 100 11351	10K Ω, Trimming		RA01030780
RK51		4822 100 11351	10K Ω, Trimming		RA01030780
RK52		4822 100 11351	10K Ω, Trimming		RA01030780
RM04		4822 100 11351	10K Ω, Trimming		RA01030780
RM05		4822 100 11351	10K Ω, Trimming		RA01030780
RM54		4822 100 11351	10K Ω, Trimming		RA01030780
RM55		4822 100 11352	22K Ω, Trimming		RA02230780
⚠R801		4822 116 60307	1 Ω ±5% 1/4W, Fusible		NH05010140
⚠R805	F, U /00B	4822 116 60307	1 Ω ±5% 1/4W, Fusible		NH05010140
		4822 116 60306	1 Ω ±5% 1/2W, Fusible		NH05010120
R905		4822 100 11351	10K Ω, Trimming		RA01030780
R906		4822 100 11351	10K Ω, Trimming		RA01030780
R922		4822 100 11352	22K Ω, Trimming		RA02230780
R923		4822 100 11352	22K Ω, Trimming		RA02230780
R955		4822 100 11351	10K Ω, Trimming		RA01030780
R956		4822 100 11351	10K Ω, Trimming		RA01030780
R972		4822 100 11352	22K Ω, Trimming		RA02230780
R973		4822 100 11352	22K Ω, Trimming		RA02230780
			PJ03-RESISTORS, COMMON **Carbon film fixed resistor, ±5% 1/6W :**		
R***			RG01~RG06, RG21~RG35, RG37, RG38, RG51~RG54, RG71~RG84, RJ01~RJ16, RJ21~RJ23, RJ51~RJ64, RJ71~RJ73, RK03~RK28, RK53~RK94, RL01, RL04~RL06, RL51, RL54~RL56, RM01~RM03, RM06~RM14, RM51~RM53, RM56~RM63, RU01~RU57, RU62, R601~R612, R631~R635, R637~R639, R651~R662, R681, R684, R685, R687~R689, R701~R706, R751~R756, R771~R779, R781~R793, R802~R804, R901~R904, R907, R908, R921, R951~R954, R957, R958, R971		
			PJ03-SEMICONDUCTORS		
DG01		4822 130 33305	Diode	1SS176, etc.	HD2000200
DJ01		4822 130 33305	Diode	1SS176, etc.	HD2000200
DJ51		4822 130 33305	Diode	1SS176, etc.	HD2000200
DM01		4822 130 80839	Diode	S5688G	HD2002905
DM02		4822 130 80318	Zener	NTJ6.8C	HD3068100
DM03		4822 130 33759	Zener	NTJ4.7B	HD3047100
DM04		4822 130 33305	Diode	1SS176, etc.	HD2000200
DM07					
DM51		4822 130 80839	Diode	S5688G	HD2002905
DM52		4822 130 80318	Zener	NTJ6.8C	HD3068100
DM53		4822 130 33759	Zener	NTJ4.7B	HD3047100
DM54		4822 130 33305	Diode	1SS176, etc.	HD2000200
DM55		4822 130 33305	Diode	1SS176, etc.	HD2000200
DU01		4822 130 33305	Diode	1SS176, etc.	HD2000200
DU02		4822 130 33305	Diode	1SS176, etc.	HD2000200
D701		4822 130 80839	Diode	S5688G	HD2002905
⚠D801		4822 130 83067	Diode	D3SB	HE2002029
⚠D802		4822 130 32508	Diode	DSF10C / RL103E	HD2000300
D803		4822 130 33305	Diode	1SS176, etc.	HD2000200
⚠D804		4822 130 32508	Diode	DSF10C / RL103E	HD2000300

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION		PART NO. (FOR U/F)
⚠D805		4822 130 32508	Diode	DSF10C / RL103E	HD20003000
D901		4822 130 33305	Diode	1SS176, etc.	HD20002000
D902		4822 130 33305	Diode	1SS176, etc.	HD20002000
D951		4822 130 33305	Diode	1SS176, etc.	HD20002000
D952		4822 130 33305	Diode	1SS176, etc.	HD20002000
QG01		4822 209 83631	IC	NJM4558DD	HC10008090
QG02		4822 209 62784	IC	TC9215P	HC10262050
QG03		4822 209 62784	IC	TC9215P	HC10262050
QG04		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QG07		4822 130 61723	Transistor, Digital	DTC323TS	BA20028210
QG08		4822 130 61723	Transistor, Digital	DTC323TS	BA20028210
QG51		4822 209 83631	IC	NJM4558DD	HC10008090
QG53		4822 130 61723	Transistor, Digital	DTC323TS	BA20028210
QG54		4822 130 61723	Transistor, Digital	DTC323TS	BA20028210
QJ01		4822 209 61667	IC	μPC1330HA	HC10206060
QJ02		4822 209 73064	IC	NJM2068DD	HC10053090
QJ03		4822 130 42682	Transistor, Digital	DTA144ES / UN4113	BA10002000
QJ04		4822 130 42682	Transistor, Digital	DTA144ES / UN4113	BA10002000
QJ05		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QJ06		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QJ07		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QJ51		4822 209 61667	IC	μPC1330HA	HC10206060
QJ52		4822 209 73064	IC	NJM2068DD	HC10053090
QJ53		4822 130 60588	Transistor, Digital	DTC114ES / UN4211	BA20001000
QJ54		4822 130 60588	Transistor, Digital	DTC114ES / UN4211	BA20001000
QK01		4822 130 61723	Transistor, Digital	DTC323TS	BA20028210
QK02		4822 130 61723	Transistor, Digital	DTC323TS	BA20028210
QK03		4822 209 61973	IC	BU4066B	HC406621B0
QK04		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QK05		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QK51		4822 130 61723	Transistor, Digital	DTC323TS	BA20028210
QK52		4822 130 61723	Transistor, Digital	DTC323TS	BA20028210
QL01		4822 130 61886	Transistor	2SD19292 (Q, R)	HT412922A0
QL04		4822 130 61892	Transistor	2SD2144S (U, V)	HT421442A0
QL05		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QL06		4822 130 42682	Transistor, Digital	DTA144ES / UN4113	BA10002000
QL07		4822 130 42298	Transistor	2SC536SP, etc.	HT30001000
QL51		4822 130 61886	Transistor	2SD1292 (Q, R)	HT412922A0
QL54		4822 130 61892	Transistor	2SD2144S (U, V)	HT421442A0
QL55		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QL56		4822 130 42682	Transistor, Digital	DTA144ES / UN4113	BA10002000
QL57		4822 130 42298	Transistor	2SC536SP, etc.	HT30001000
QM01		4822 130 61892	Transistor	2SD2144S (U, V)	HT421442A0
QM02		4822 130 61892	Transistor	2SD2144S (U, V)	HT421442A0
QM05		4822 130 63042	Transistor, Digital	DTA125TS	BA10032210
QM06		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QM07		4822 130 60588	Transistor, Digital	DTC114ES / UN4211	BA20001000
QM08		4822 130 60588	Transistor, Digital	DTC114ES / UN4211	BA20001000
QM09		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QM10		4822 209 30193	IC	LB1641	HC10279030
QM11		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QM12		4822 130 63042	Transistor, Digital	DTA125TS	BA10032210
QM13		4822 130 63042	Transistor, Digital	DTA125TS	BA10032210
QM14 ~ QM18		4822 130 42594	Transistor, Digital	DTC114ES / UN421B	BA20002000
QM51		4822 130 61892	Transistor	2SD2144S (U, V)	HT421442A0
QM52		4822 130 61892	Transistor	2SD2144S (U, V)	HT421442A0
QM55		4822 130 63042	Transistor, Digital	DTA125TS	BA10032210
QM57		4822 130 60588	Transistor, Digital	DTC114ES / UN4211	BA20001000
QM58		4822 130 60588	Transistor, Digital	DTC114ES / UN4211	BA20001000
QM59		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QM60		4822 209 30193	IC	LB1641	HC10279030
QM61		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QM62		4822 130 63042	Transistor, Digital	DTA125TS	BA10032210
QM63		4822 130 63042	Transistor, Digital	DTA125TS	BA10032210
QM64		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QM65		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QM66		4822 130 42594	Transistor, Digital	DTC144ES / UN4213	BA20002000
QU01		4822 209 33037	Microprocessor	MB88626B	HU456TF000
QU02 ~ QU05		4822 209 30307	IC	74HC4094	HC709449B0

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U/F)
QU06		4822 130 42682	Transistor, Digital DTA144ES / UN4113	BA10002000
QU07		4822 130 42682	Transistor, Digital DTA144ES / UN4113	BA10002000
QU08		4822 130 42594	Transistor, Digital DTC144ES / UN4213	BA20002000
QU09		4822 130 42594	Transistor, Digital DTC144ES / UN4213	BA20002000
QU10		4822 130 42682	Transistor, Digital DTA144ES / UN4113	BA10002000
QU11 ~ QU34		4822 130 60588	Transistor, Digital DTC114ES / UN4211	BA20001000
QU35 ~ QU40		4822 130 63518	Transistor, Digital DTB113ZS-TP	BA10055210
Q601		4822 209 32748	IC HA12155NT	HC10101010
Q603		4822 130 61723	Transistor, Digital DTC323TS	BA20028210
Q604		4822 130 61723	Transistor, Digital DTC323TS	BA20028210
Q651		4822 209 32748	IC HA12155NT	HC10101010
Q653		4822 130 61723	Transistor, Digital DTC323TS	BA20028210
Q654		4822 130 61723	Transistor, Digital DTC323TS	BA20028210
Q701		4822 130 42298	Transistor 2SC536SP, etc.	HT30001000
Q702		4822 130 42298	Transistor 2SC536SP, etc.	HT30001000
Q703		4822 130 61723	Transistor, Digital DTC323TS	BA20028210
Q704		4822 130 61723	Transistor, Digital DTC323TS	BA20028210
Q705		4822 130 42682	Transistor, Digital DTA144ES / UN4113	BA10002000
Q706		4822 130 42594	Transistor, Digital DTC144ES / UN4213	BA20002000
Q751		4822 130 42298	Transistor 2SC536SP, etc.	HT30001000
Q752		4822 130 42298	Transistor 2SC536SP, etc.	HT30001000
Q753		4822 130 61723	Transistor, Digital DTC323TS	BA20028210
Q754		4822 130 61723	Transistor, Digital DTC323TS	BA20028210
⚠Q801		4822 209 31631	IC NJM7805FA	HC38905090
Q802		4822 130 60588	Transistor, Digital DTC114ES / UN4211	BA20001000
Q803		4822 130 42594	Transistor, Digital DTC144ES / UN4213	BA20002000
⚠Q804		4822 209 60826	IC NJM7812FA	HC38912090
Q901		4822 209 72874	IC μPC1297CA	HC10200060
Q951		4822 209 72874	IC μPC1297CA	HC10200060
			PJ03-MISCELLANEOUS	
JG01		4822 157 63605	Terminal, 4P RCA	YT02040940
JG06		4822 157 63605	Terminal, 4P RCA	YT02040940
JU02		4822 267 41009	Terminal, 2P RCA	YT02020890
JU03		4822 265 20542	Terminal, 2P RCA	YT02020970
LJ01		4822 157 53521	Choke Coil 22mH	LC22260710
LJ02		4822 157 53521	Choke Coil 22mH	LC22260710
LK01		4822 157 53521	Choke Coil 22mH	LC22260710
LK02		4822 157 53521	Choke Coil 22mH	LC22260710
LK51		4822 157 53521	Choke Coil 22mH	LC22260710
LK52		4822 157 53521	Choke Coil 22mH	LC22260710
LL01		4822 157 60437	OSC Transformer 105KHz	TC10140340
LL02		4822 157 63825	Choke Coil 100μH	LC11010130
LL51		4822 157 60437	OSC Transformer 105KHz	TC10140340
LL52		4822 157 63825	Choke Coil 100μH	LC11010130
L601		4822 157 63828	M.P.X. Coil	LS10415020
L602		4822 157 63828	M.P.X. Coil	LS10415020
L651		4822 157 63828	M.P.X. Coil	LS10415020
L652		4822 157 63828	M.P.X. Coil	LS10415020
L901		4822 157 63829	OSC Transformer 105KHz	TC10110030
L902		4822 157 63829	OSC Transformer 105KHz	TC10110030
L951		4822 157 63829	OSC Transformer 105KHz	TC10110030
L952		4822 157 63829	OSC Transformer 105KHz	TC10110030
SG01		4822 277 21559	Slide Switch, A, B	SS02021150
S601		4822 277 21559	Slide Switch, MPX	SS02021150
XU01		4822 242 72066	Ceramic Resonator 8.00MHz	FQ08004010

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION	PART NO. (FOR U/F)
			PM03-A MECHA SW CIRCUIT BOARD	
PM03			A MECHA SW PCB (EMPTY)	WA456T2020
			PM03-RESISTORS, COMMON **Carbon film fixed resistor, ±5% 1/6W :**	
R***			RY01~RY06	
			PM03-SEMICONDUCTORS	
DY01		4822 130 81715	L.E.D. LT3K44B (GRN)	HI10095320
DY02		4822 130 81715	L.E.D. LT3K44B (GRN)	HI10095320
DY03		4822 130 80326	L.E.D. LT3D8B (RED)	HI10062320
DY04		4822 130 81715	L.E.D. LT3K44B (GRN)	HI10095320
DY05		4822 130 81715	L.E.D. LT3K44B (GRN)	HI10095320
			PM03-MISCELLANEOUS	
SY01 ~ SY06		4822 276 20508	Push Switch, Tact	SP01011280
			PM13-B MECHA SW CIRCUIT BOARD	
PM13			B MECHA SW PCB (EMPTY)	WA456T2030
			PM13-RESISTORS, COMMON **Carbon film fixed resistors, ±5% 1/6W :**	
R***			RY51~RY56	
			PM13-SEMICONDUCTORS	
DY51		4822 130 81715	L.E.D. LT3K44B (GRN)	HI10095320
DY52		4822 130 81715	L.E.D. LT3K44B (GRN)	HI10095320
DY53		4822 130 80326	L.E.D. LT3D8B (RED)	HI10062320
DY54		4822 130 81715	L.E.D. LT3K44B (GRN)	HI10095320
DY55		4822 130 81715	L.E.D. LT3K44B (GRN)	HI10095320
			PM13-MISCELLANEOUS	
SY51 ~ SY56		4822 276 20508	Push Switch, Tact	SP01011280
			PS03-POWER SW CIRCUIT BOARD	
PS03			POWER SW PCB (EMPTY)	WA456T1030
⚠C851		4822 122 33276	Ceramic Cap. 0.01μF ±20%	DK17103840
⚠S851		4822 276 13242	Push Switch, Power	SP01011830
			PT03-POWER TRANS CIRCUIT BOARD	
PT03			POWER TRANS PCB (EMPTY)	WA456T1020
			PV03-HP AMP CIRCUIT BOARD	
PV03			HP AMP PCB (EMPTY)	WA456T2010
			PV03-CAPACITORS	
C781		4822 124 21899	Elect 4.7μF 25V	EJ47502510
C782		4822 124 21899	Elect 4.7μF 25V	EJ47502510
C783		4822 126 10935	Elect 100μF 6.3V	EJ10700610
C787				
C788		4822 124 23056	Elect 47μF 16V	EJ47601610
C789		4822 124 21899	Elect 4.7μF 25V	EJ47502510
			PV03-RESISTOR	
R779		4822 101 30839	50K Ω (A) x 2, Variable	RM05032010

POS.NO	VERSION	PART NO. (FOR EUROPE)	DESCRIPTION		PART NO. (FOR U/F)
			PV03-RESISTORS, COMMON **Carbon film fixed resistor, ±5% 1/6W :**		
R***			R771~R778, R781~R793		
			PV03-SEMICONDUCTORS		
Q772		4822 130 42298	Transistor	2SC536SP, etc.	HT30001000
Q781		4822 209 61187	IC	BA15218	HC10089210
			PV03-MISCELLANEOUS		
J781		4822 267 31126	Jack, Headphone		YJ01003020
S781		4822 273 10281	Rotary Switch		SR02030200
			PY03-DISPLAY CIRCUIT BOARD		
PY03			DISPLAY PCB (EMPTY)		WA456T1000
			PY03-RESISTORS, COMMON **Carbon film fixed resistor, ±5% 1/6W :**		
R***			RY81~RY91		
			PY03-SEMICONDUCTORS		
DY71 ~ DY78		4822 130 91307	Display Unit	GL9D030, 7Seg. (RED)	HQ10103320
DY79 ~ DY82		4822 130 80326	L.E.D.	LT3D8B (RED)	HI10062320
DY83 ~ DY87		4822 130 81715	L.E.D.	LT3K44B (GRN)	HI10095320
DY88 ~ DY91		4822 130 83564	L.E.D.	GL107M12, 7Seg. (RED)	HI10052320
DY92		4822 130 33305	Diode	1SS176, etc.	HD20002000
DY93		4822 130 33305	Diode	1SS176, etc.	HD20002000
			PY03-MISCELLANEOUS		
SY07		4822 276 20508	Push Switch, Tact		SP01011280
SY08		4822 276 20508	Push Switch, Tact		SP01011280
SY57		4822 276 20508	Push Switch, Tact		SP01011280
SY58		4822 276 20508	Push Switch, Tact		SP01011280
SY81		4822 276 20508	Push Switch, Tact		SP01011280
SY85					
SY86		4822 277 21728	Slide Switch, REV.		SS01030110
SY87		4822 277 21728	Slide Switch, Dolby A		SS01030110
SY88		4822 277 21728	Slide Switch, Dolby B		SS01030110

NOTE ON SAFETY:
Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ⚠. Any other component substitution (other than original type),may increase risk of fire or electrical shock hazard.