SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

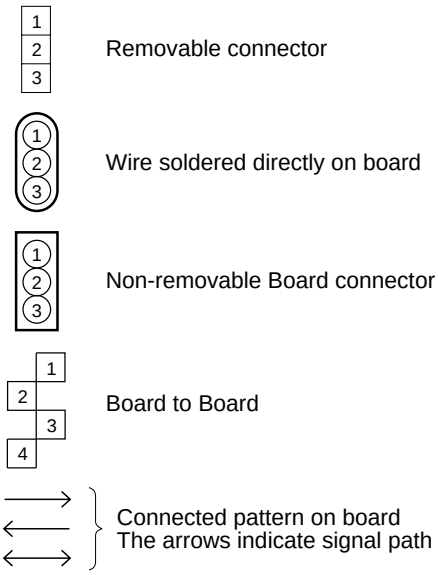
1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K or k: kΩ (1000Ω), M: MΩ (1000kΩ)
2) All capacitance values are in µF, (P: PF).
3) All inductance values are in µH, (m: mH).
4) All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

2. Indications of control voltage

AUX : Active at high

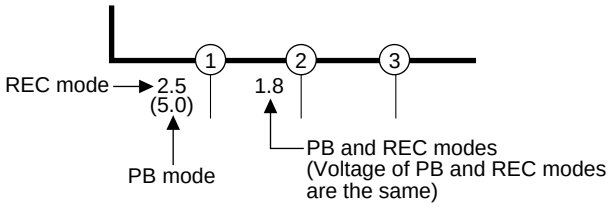
$\overline{\text{AUX}}$ or AUX(L) : Active at low

3. Interpreting Connector indications



4. Voltage measurement

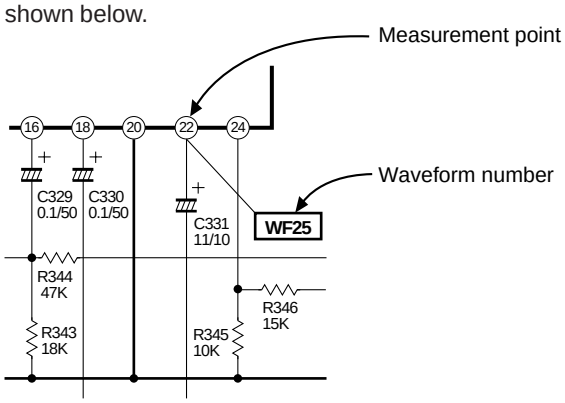
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



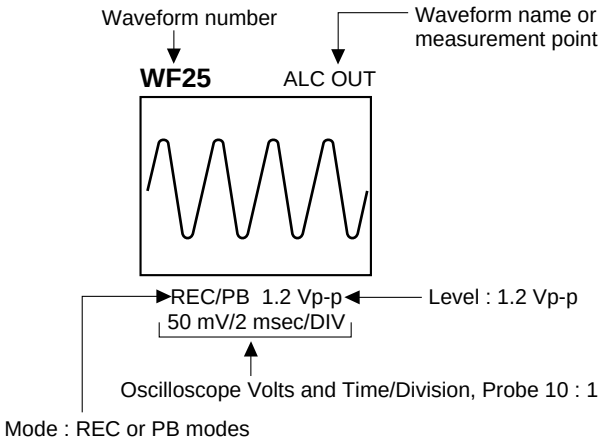
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.



5) Waveform indications



6. Signal path Symbols

The arrows indicate the signal path as follows.

Playback signal path

Playback and recording signal path

Recording signal path
(including E-E signal path)

Capstan servo path

Drum servo path

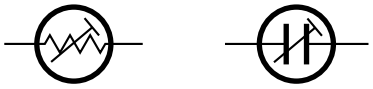
(Example)

R-Y Playback R-Y signal path

Y Recording Y signal path

7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.

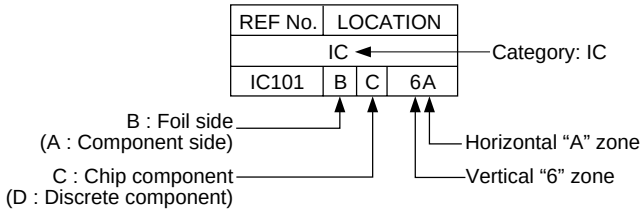
CIRCUIT BOARD NOTES

1. Foil and Component sides

1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

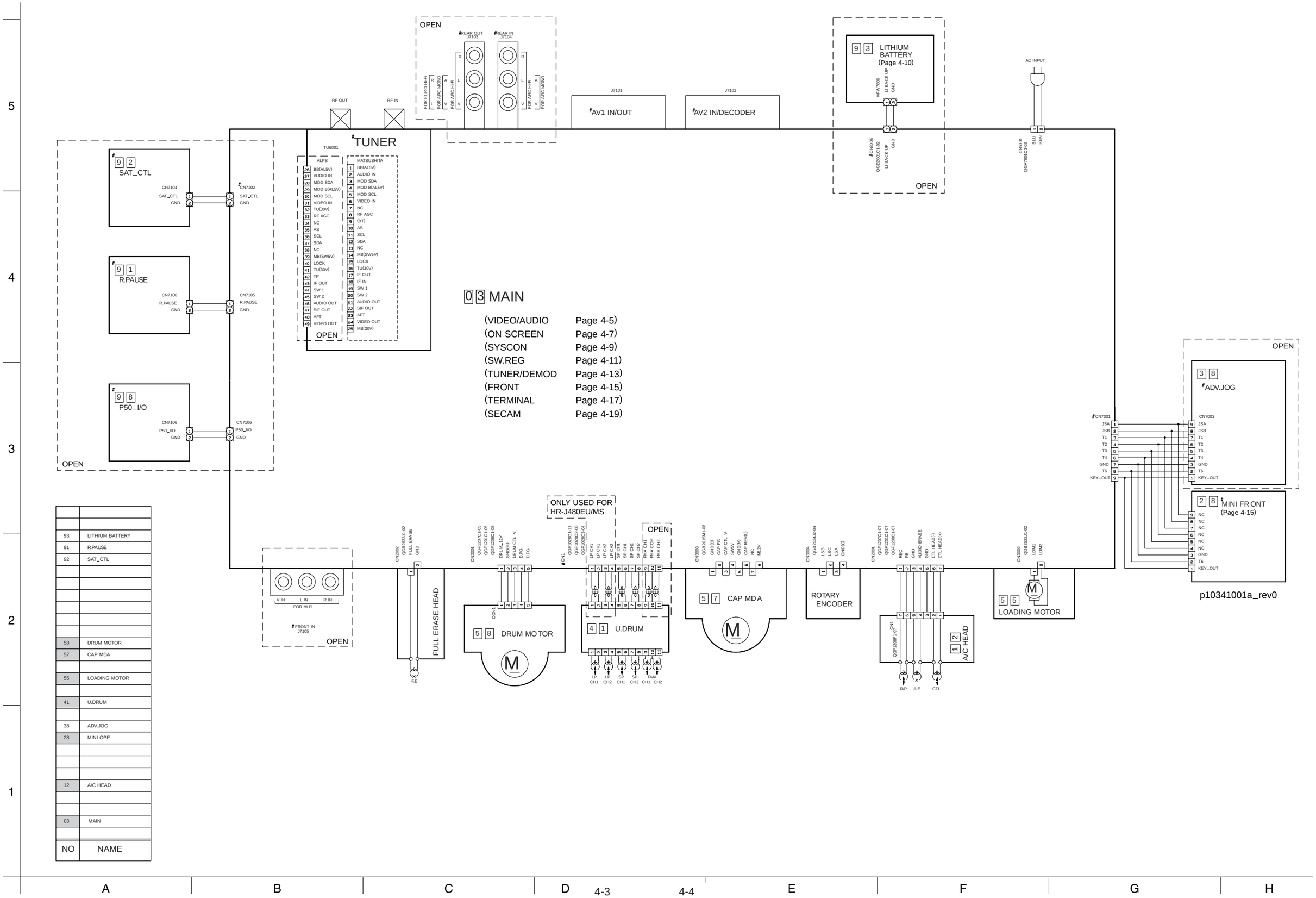
Parts location are indicated by guide scale on the circuit board.



Note:

For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

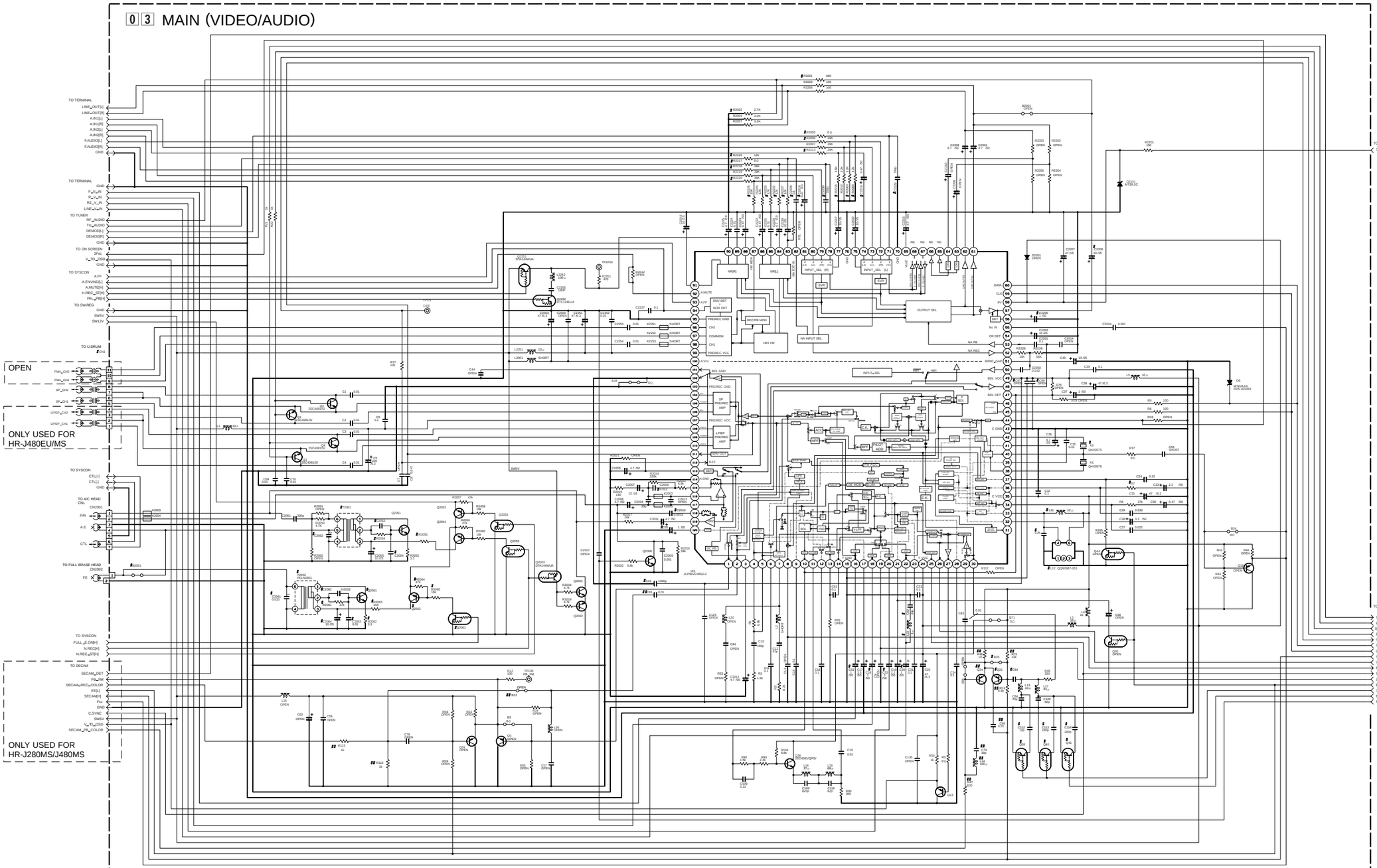
4.1 BOARD INTERCONNECTIONS



NO	NAME
93	LITHIUM BATTERY
91	R.PAUSE
92	SAT_CTL
58	DRUM MOTOR
57	CAP MDA
55	LOADING MOTOR
41	U.DRUM
38	ADV.JOG
28	MINI OPE
12	A/C HEAD
03	MAIN

4.2 MAIN (VIDEO/AUDIO) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



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#DIFFERENCE TABLE — AUDIO

	R2005	R2008	R2213	R2215	C2216
WITH CH+	×	W/O RCA R-IN			×
W/O CH+	○	WITH RCA R-IN			○
		W/O RCA R-IN			×

	R2006	R2009
WITH RCA F-IN	○	
W/O RCA F-IN	×	

	R2001	R2001
HR-J280EK/E1/J480EU	○	
HR-J280MS/J480MS	×	

	C2010
HR-J280EK/J480EU/MS	○
HR-J280EU/MS	×

#DIFFERENCE TABLE — VIDEO

		C20	CS1	CS2	C18
WITH CH+	WITH F.IN	POLAR	○	×	×
	W/O F.IN	POLAR	×	×	×
W/O CH+ ARC	WITH F.IN	NONPOLAR	○	○	×
	W/O F.IN	NONPOLAR	×	○	×
W/O CH+ EURO	WITH F.IN	NONPOLAR	○	×	○
	W/O F.IN	NONPOLAR	×	×	○

	SYMBOLS	B35	Q21	C94
SECAM REC/PB	HR-J280MS/J480MS	○	×	0.01
	HR-J280EK/EU/J480EU	×	×	SHORT

	Q41-C114
MESECAM REC/PB	HR-J280EUMS, J480EUMS: ○
	HR-J280EK: ×

	X2 Q39 Q40	C112 C113	R7
NTSC REC	YES	○	820
	NO	×	680

	R71	C3 C4	CN1
HR-J280EK/EUMS	○	×	5-6
HR-J480EUMS	×	○	1-6

	L11	L12	C92 L22	C43 C97 C99	C25
CE YES	×	○	○	○	6p
CE NO	○	×	×	×	4p

NOTES-UNLESS OTHERWISE SPECIFIED.
ALL NPN TRANSISTOR ARE 2SC4081/QRS/ or 2SD1819A/QRS/ or 2PC4081R/.
ALL PNP TRANSISTOR ARE 2SA1576A/QR/ or 2SB1218A/QR/ or 2P A1576R/.
ALL NPN DIGIT AL TRANSISTOR ARE DTC144WU A or UN521E or PDTC144WU or RN1309.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

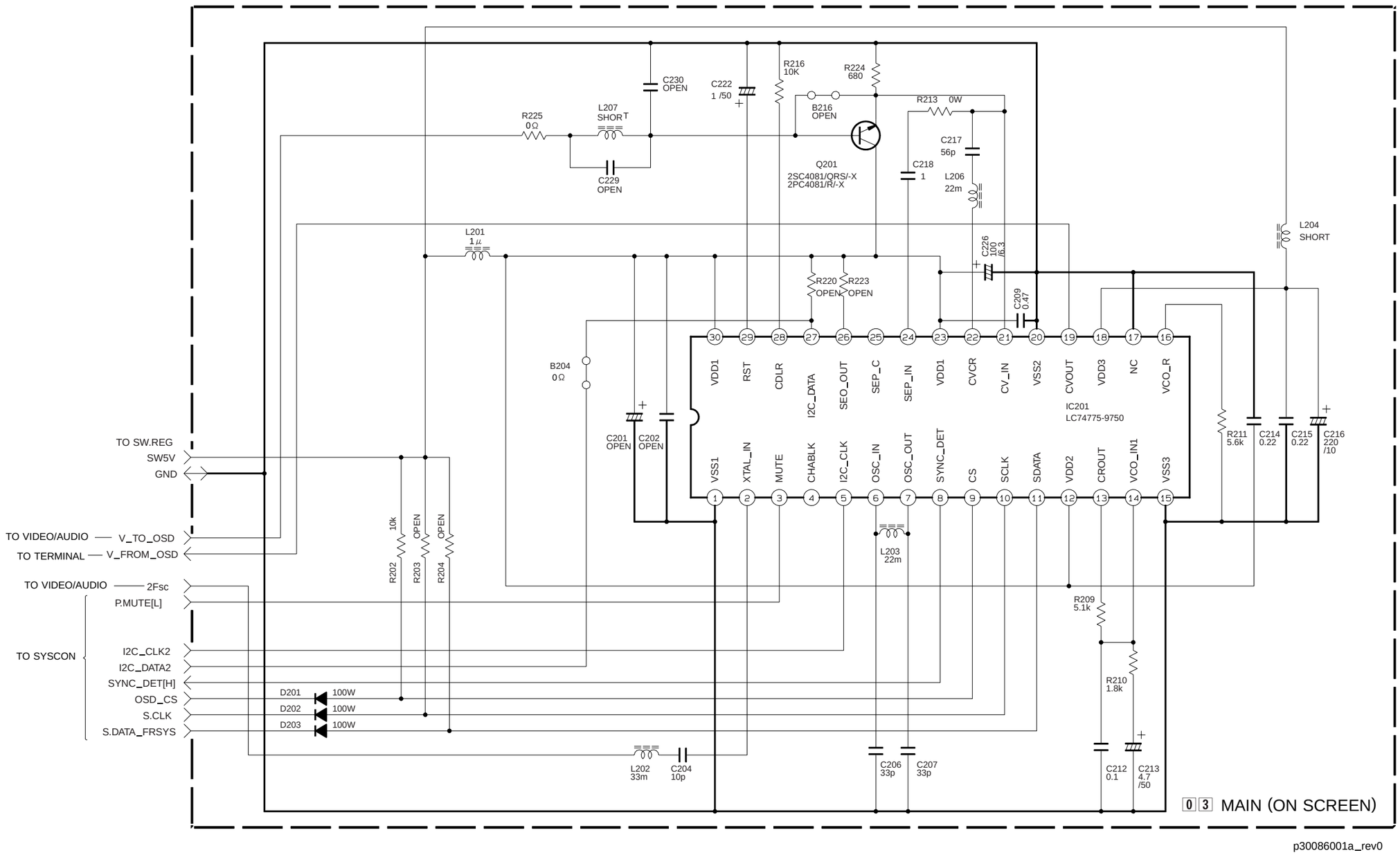
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

K2001-K2004 = NQR0403-003X

A B C D 4-5 4-6 E F G H

4.3 MAIN (ON SCREEN) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



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NOTES: UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
CERAMIC

4.4 MAIN (SYSCON) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.

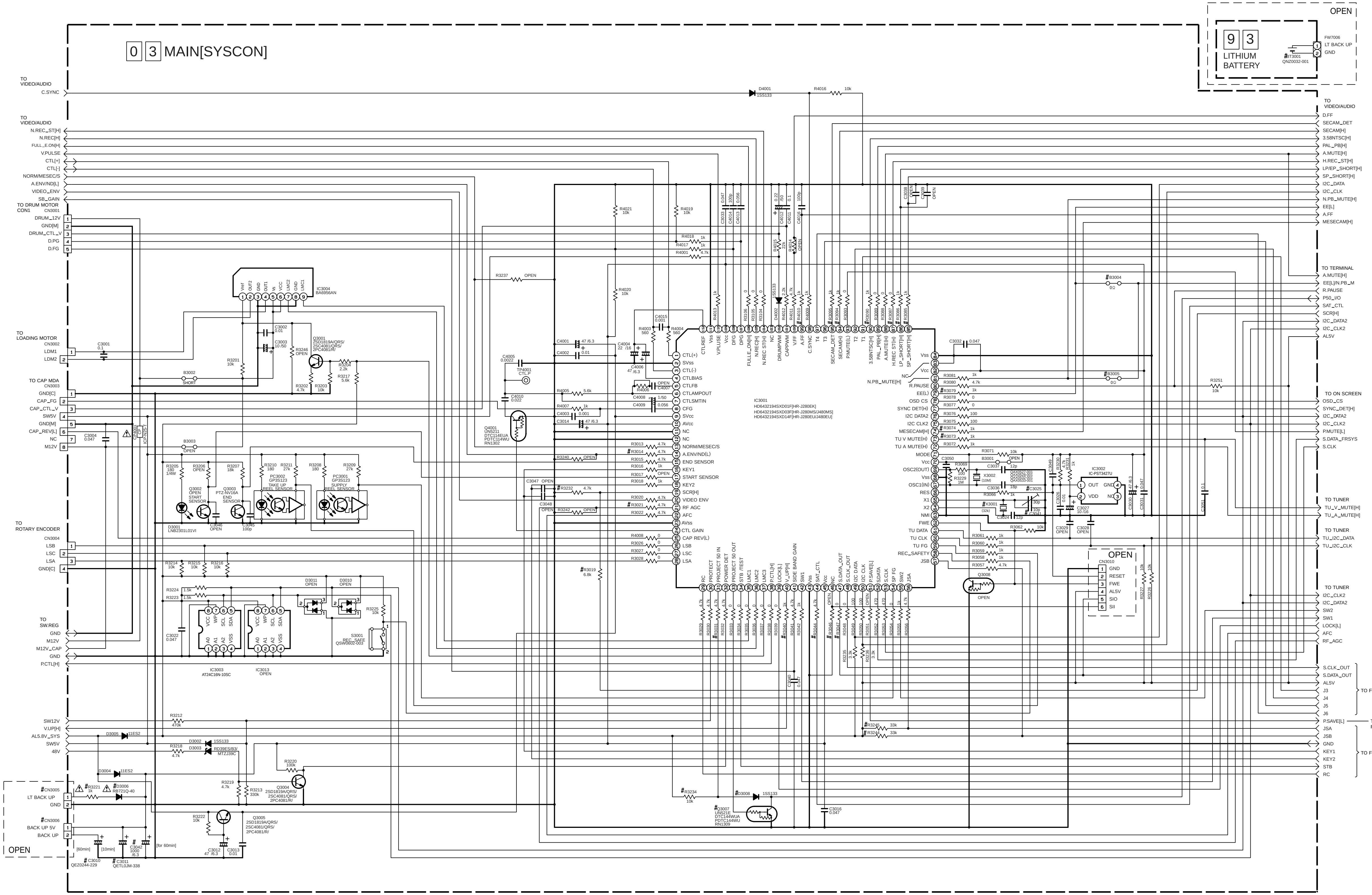
5

4

3

2

1



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#DIFFERENCE TABLE

	B3004	B3005
HR-J280EK/EU J480EU	○	○
HR-J480MS	×	○
HR-J280MS	×	×

As for other # difference parts. refer to sec.5

NOTES: UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

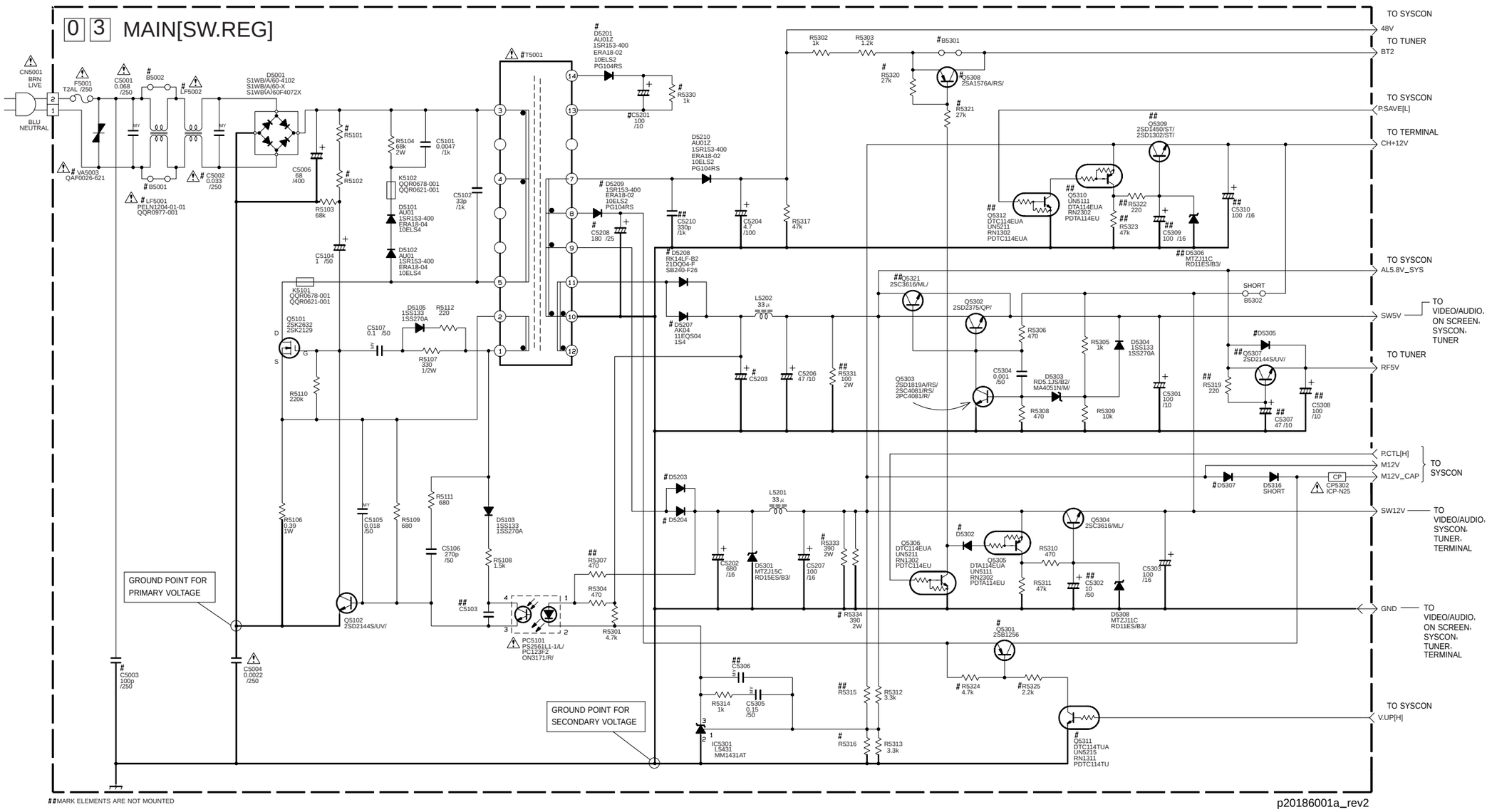
- ELECTROLYTIC
- CERAMIC
- MYLER
- NON POLAR

LAST NO		VACANT NO
R		
C		
D		
Q		
L		

A B C D E F G H

4.5 MAIN(SW.REG) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



##MARK ELEMENTS ARE NOT MOUNTED

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#DIFFERENCE TABLE 1

HIGH SPEED FF/REW		C5208 D5209 Q5301	Q5311 R5324 R5325	D5307	C5201 D5201 R5330	D5203 D5204	T5001
-YES-		YES		11ES2 ERA15-02 1A3G	YES	AU01Z 10ELS2 ERA18-04 1SR153-400 PG104RS	QQS0030-002 QQS0031-002
-NO-	AUTO	NO		SHORT	NO	AU01Z 10ELS2	QQS0030-002 QQS0031-002
	OTHER						QQS0083-001 QQS0084-001

#DIFFERENCE TABLE 2

POWER SAVE	B5301	D5302	D5305	R5101 R5102	R5316	Q5308 R5320 R5321
-YES-	N0	1SS133 1SS270A	AK04 11EQS04 1S4	330k	12k	YES
-NO-	YES	SHORT	11ES2 ERA15-02 1A3G	220k	10k	N0

#DIFFERENCE TABLE 3

	B5001 B5002	C5002	LF5001	LF5002
CE	NO	YES	YES	QQR0978-001 QQR0608-001 QQR0609-001 QQR0610-001
OTHER	YES	NO	NO	QQR0532-001 QQR0533-001 QQR0516-001 QQR0932-001 QQR0816-001

#DIFFERENCE TABLE 4

	D5207	D5208	C5203
HiFi	NO	YES	1200/10
MONO	YES	NO	680/10

#DIFFERENCE TABLE 5

	R5333 R5334
AUTO	YES
OTHER	NO

#DIFFERENCE TABLE 6

	VA5003
JVC	NO
PH	YES

#DIFFERENCE TABLE 7

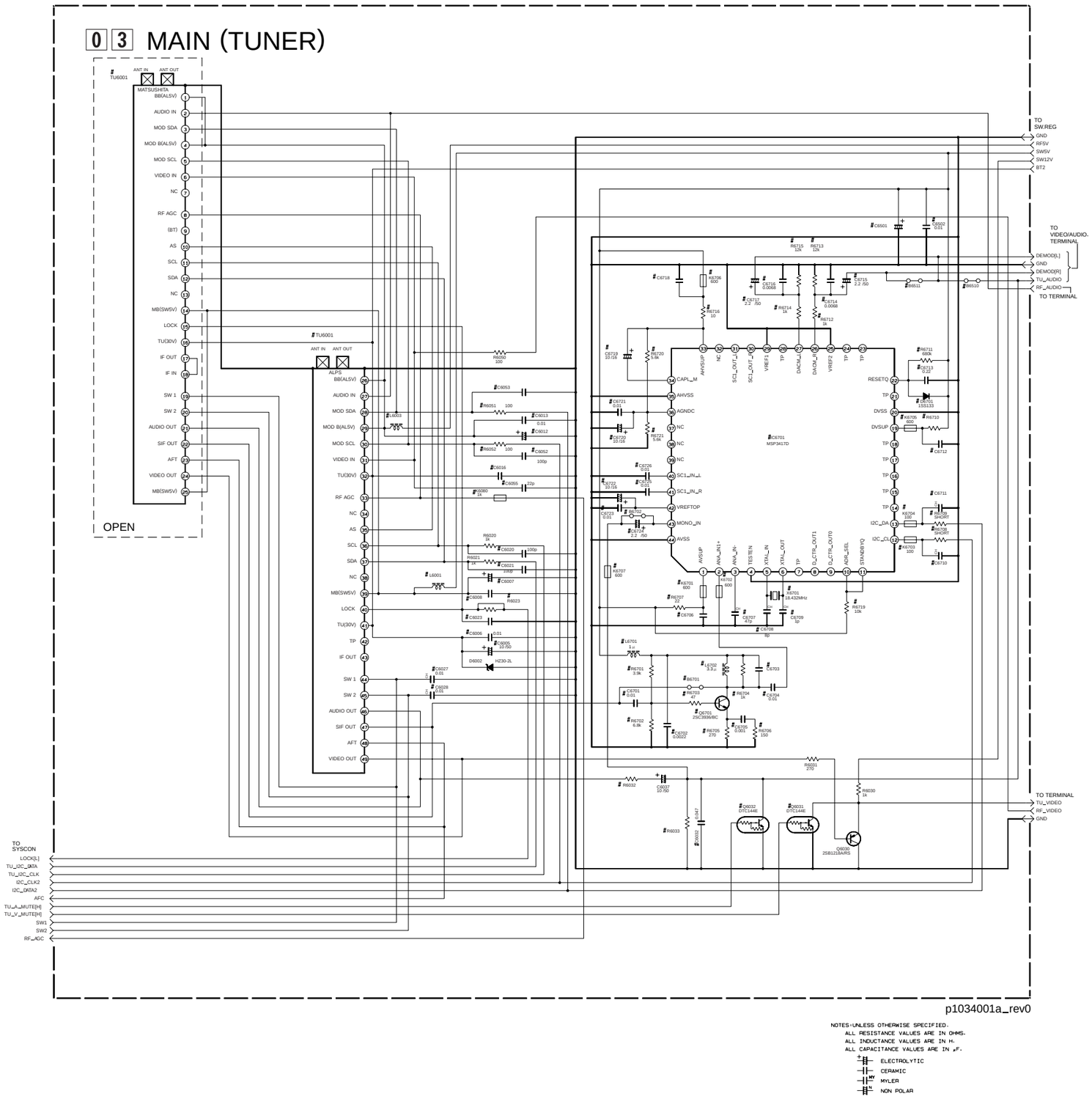
	C5003
PH/75	YES
OTHER	NO

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

4.6 MAIN (TUNER/DEMOD) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



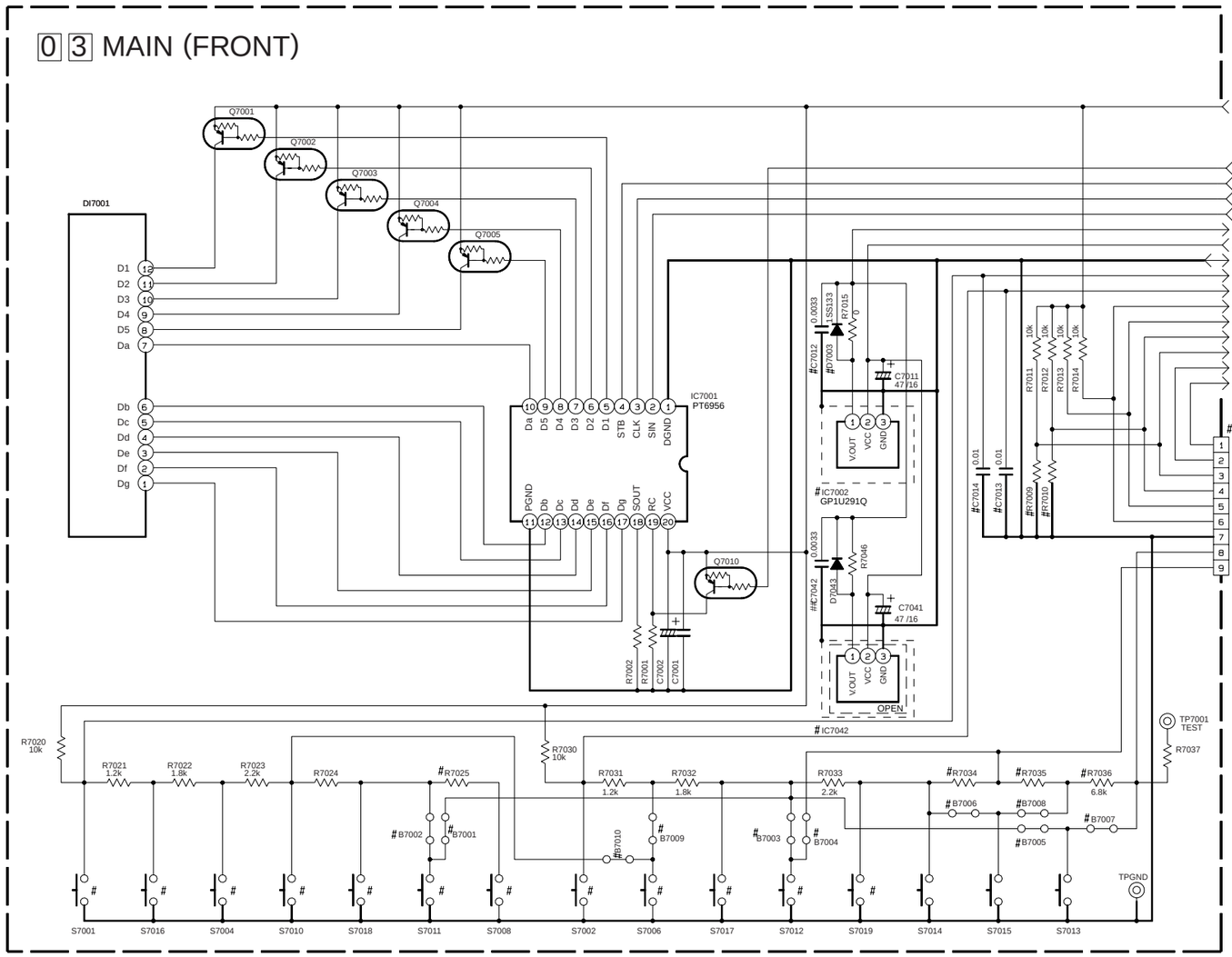
NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

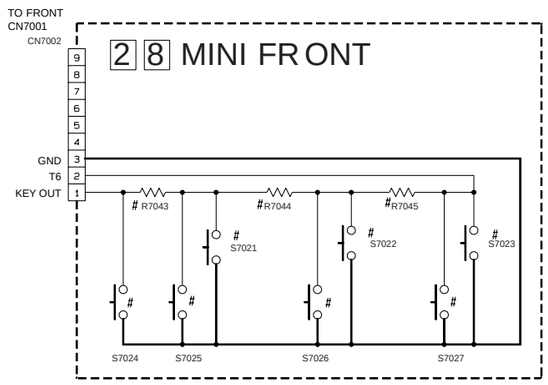
DIFFERENCE TABLE

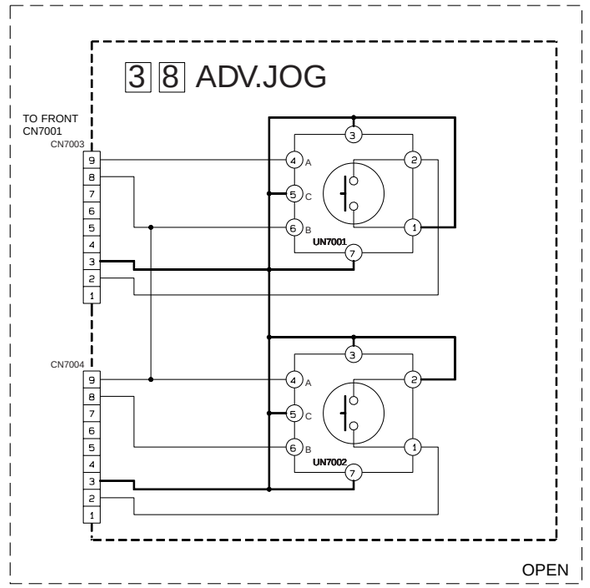
TUNER		HIR-J280EK/EUI/J480EU							HIR-J280MS/J480MS						ASIA 3SYSTEM				ASIA 4SYSTEM	
		HiFi				MONO			HiFi				MONO		HiFi		MONO		HiFi	MONO
		With CH+		Without CH+		JS80 (D0)			With CH+		Without CH+									
TUNER UNIT	TU6001	MATSUSHITA	ALPS	MATSUSHITA	ALPS	ALPS	MATSUSHITA	ALPS	LG	ALPS	LG	ALPS	LG	ALPS	MATSUSHITA	ALPS	MATSUSHITA	ALPS	MATSUSHITA	MATSUSHITA
		QAU0212	QAU0208	QAU0212	QAU0208	QAU0209	QAU0212	QAU0208	QAU0210	QAU0211	QAU0210	QAU0211	QAU0210	QAU0211	QAU0212	QAU0208	QAU0208	QAU0212	QAU0236	QAU0236
RF CONVERTER	R6050-R6052.	○	○	○	○	×	○	○	×	×	×	×	×	×	○	○	○	○	○	○
	L6003	47μ	47μ	47μ	47μ	47μ	SHORT	SHORT	47μ	47μ	47μ	47μ	SHORT	SHORT	47μ	47μ	SHORT	SHORT	47μ	SHORT
	C6012	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	C6013	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	C6052.C6053	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
SW 5V	L6001	1μ	1μ	1μ	1μ	1μ	SHORT	SHORT	1μ	1μ	1μ	1μ	SHORT	SHORT	1μ	1μ	SHORT	SHORT	1μ	SHORT
	C6007.C6008	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TU(30V)	C6005	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	C6006	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	C6016	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
RF AGC	K6080	1kΩ	1kΩ	1kΩ	1kΩ	1kΩ	1kΩ	1kΩ	1kΩ	1kΩ	1kΩ	1kΩ	1kΩ	1kΩ	×	×	×	×	×	×
TUNER PLL	C6020.C6021	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	R6023.C6023	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CENELEC S2C	C6027	×	×	×	×	×	×	×	×	○	×	○	×	○	×	×	×	×	×	×	×
	C6028	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
AUDIO OUT	R6032	1.8k	4.7k	1.8k	4.7k	4.7k	1.8k	4.7k	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	1.8k	4.7k	1.8k	4.7k	0Ω	0Ω
	R6033	2.7k	1.8k	2.7k	1.8k	1.8k	2.7k	1.8k	×	×	×	×	×	×	2.7k	1.8k	2.7k	1.8k	×	×
	C6032	○	○	○	○	○	○	○	×	×	×	×	×	×	○	○	○	○	×	×
AUDIO MUTE	Q6032	○	○	○	○	○	○	○	○	○	○	○	○	○	×	×	×	×	×	×
VIDEO MUTE	Q6031	○	○	○	○	○	○	○	○	○	○	○	○	○	×	×	×	×	×	×
SET HiFi TUNER MONO	B6510.B6511	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	C6501	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	C6502	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
DEMOD																				
PRE AMP	R6701. R6703-R6706. C6702.C6705. Q6701. L6701.L6702	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	○	○
	B6701	○	○	○	○	○	×	×	○	○	○	○	×	×	○	○	×	×	×	×
	R6702	1.8k	1.8k	1.8k	1.8k	1.8k	×	×	1.8k	1.8k	1.8k	1.8k	×	×	1.8k	1.8k	×	×	6.8k	6.8k
	C6701	0Ω	0Ω	0Ω	0Ω	0Ω	×	×	0Ω	0Ω	0Ω	0Ω	×	×	0Ω	0Ω	×	×	0.01	0.01
	C6703	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	33p	33p
	C6704	○	○	○	○	○	×	×	○	○	○	○	×	×	○	○	×	×	○	×
MONO IN	B6702	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	C6724,K6707	×	×	×	×	×	×	×	○	○	○	○	×	×	×	×	×	×	×	×
	R6707-R6712. R6714.R6716. R6719-R6721. C6707-C6709. C6713-C6717. C6719-C6721. C6723.X6701. K6701,K6702, K6705,K6706, IC6701	○	○	○	○	○	×	×	○	○	○	○	×	×	○	○	×	×	○	×
	C6706.C6710. C6711.C6712. C6718.C6723. C6725.C6726	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
AUDIO LOAD	R6713.R6715	○	○	×	×	×	×	×	○	○	×	×	×	×	×	×	×	×	×	×

4.7 MAIN (FRONT) AND MINI FRONT SCHEMATIC DIAGRAMS

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.







DIFFERENCE TABLE

○ : Used
× : Not used

BRAND	TOOL	WORKING NUMBER	S7001	S7002	S7004	S7006	S7008	S7010	S7011	S7012	S7013	S7014	S7015	S7016	S7017	S7018	S7019	S7021 S7023	S7024 S7027	J/S	R7025	R7034	R7035 R7036	R7043 R7045	B7001	B7002	B7003	B7004	B7005 B7006	B7007	B7008	B7009	B7010
JVC	400HA	D1+.D15	STAND-BY	A.DUB	REC	PAUSE	STOP/EJECT	PLAY	—	E.PROG.	—	—	—	SAT.CTL.	—	—	—	—	—	adv	○	○	○	×	×	×	○	×	×	×	×	○	×
	400H	D1-D11-D12	**POWER**	**CH -**	**REC**	**PAUSE**	**STOP/EJECT**	**REC LINK**	—	**PLAY**	—	**REW**	**FF**	**CH +**	—	—	—	—	—	×	**O**	**O**	**O**	×	×	×	**O**	×	×	×	**O**	**O**	×
			STAND-BY	CH -	REC	PAUSE	STOP/EJECT	SAT.CTL.	—	PLAY	—	REW	FF	CH +	—	—	—	—	—	×	○	○	○	×	×	×	○	×	×	×	○	○	×
	360E	A1.A11.C1.D0+.D1-	STAND-BY	TIMER	CH -	CH +	—	DISPLAY	REC	—	PAUSE	—	STOP/EJECT	SAT.CTL.	—	—	—	○	—	×	×	×	×	○	×	×	○	×	×	○	×	×	×

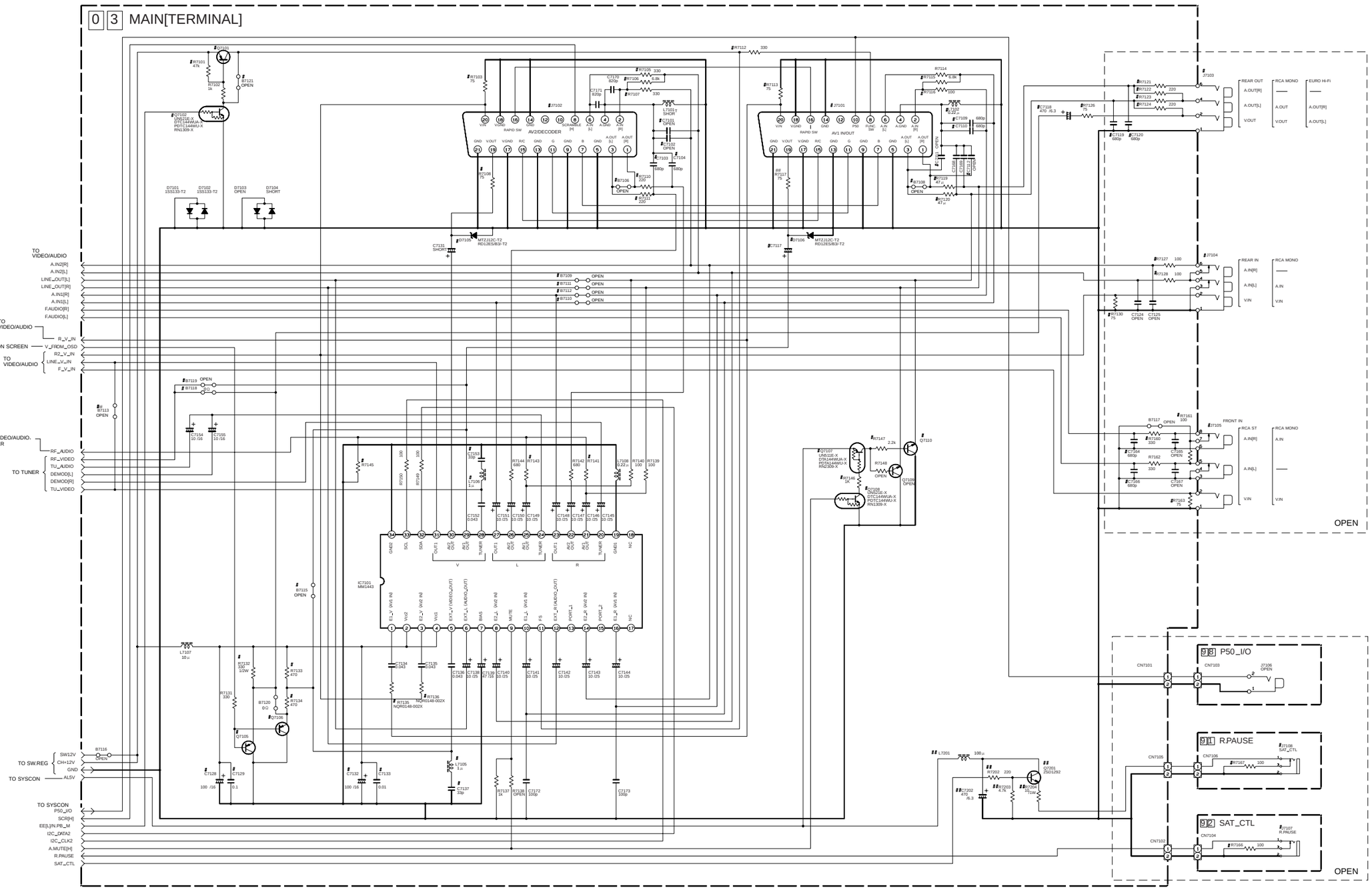
NOTES : UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

LAST NO		VACANT NO
R		
C		
D		
Q		
L		

4.8 MAIN (TERMINAL) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



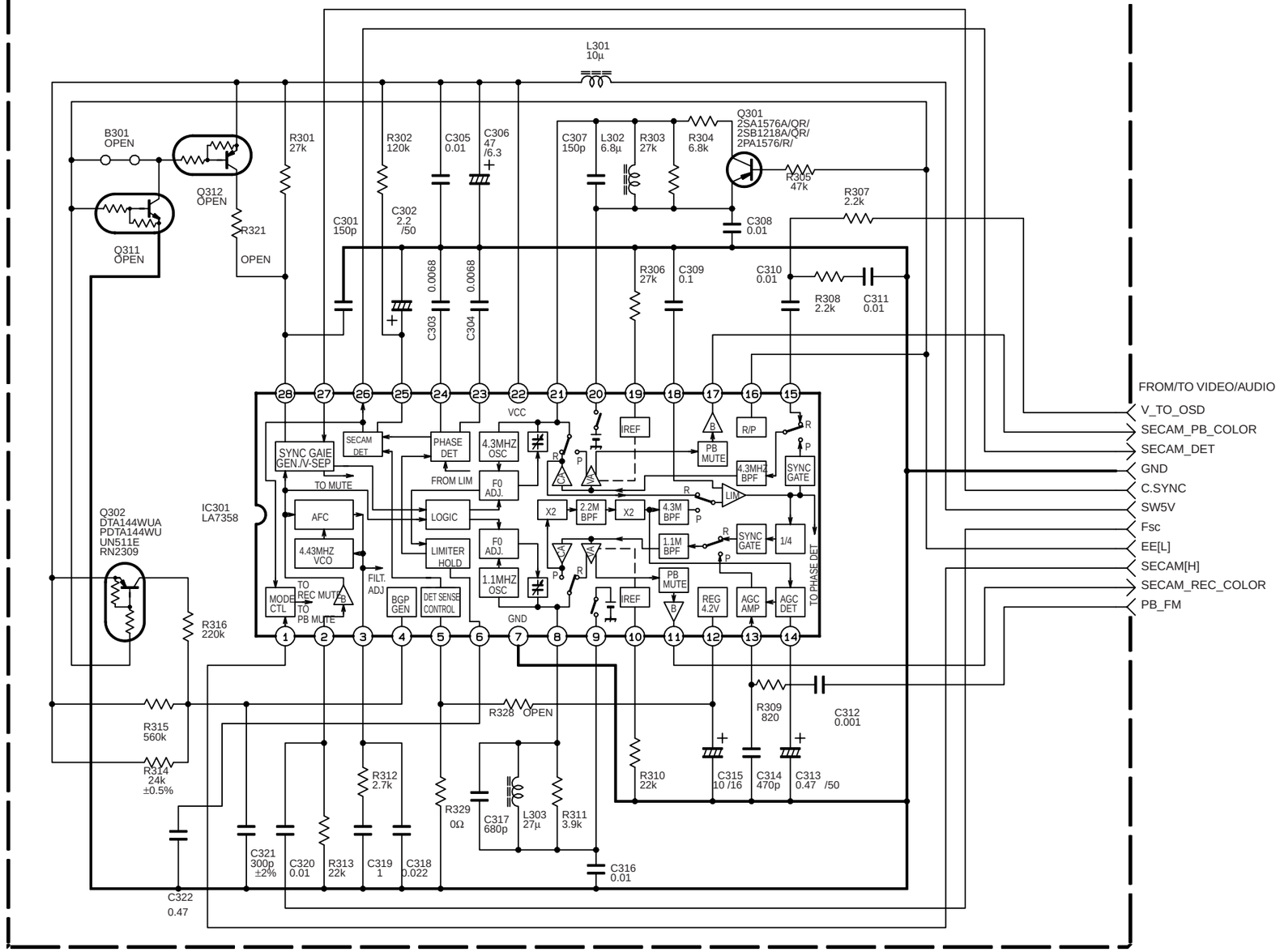
DIFFERENCE TABLE

	B7106	B7108	B7109	B7110	B7111	B7112	B7113	B7115	B7118	B7119	B7121
HR-J280EK/EU/MS HR-J480EU/MS	○	○	×	×	×	×	×	×	○	×	×

As for other # difference parts. refer to sec.5

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

4.9 MAIN (SECAM) SCHEMATIC DIAGRAM [HR-J280MS/J480MS]



P3007001a_rev0

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN µF.

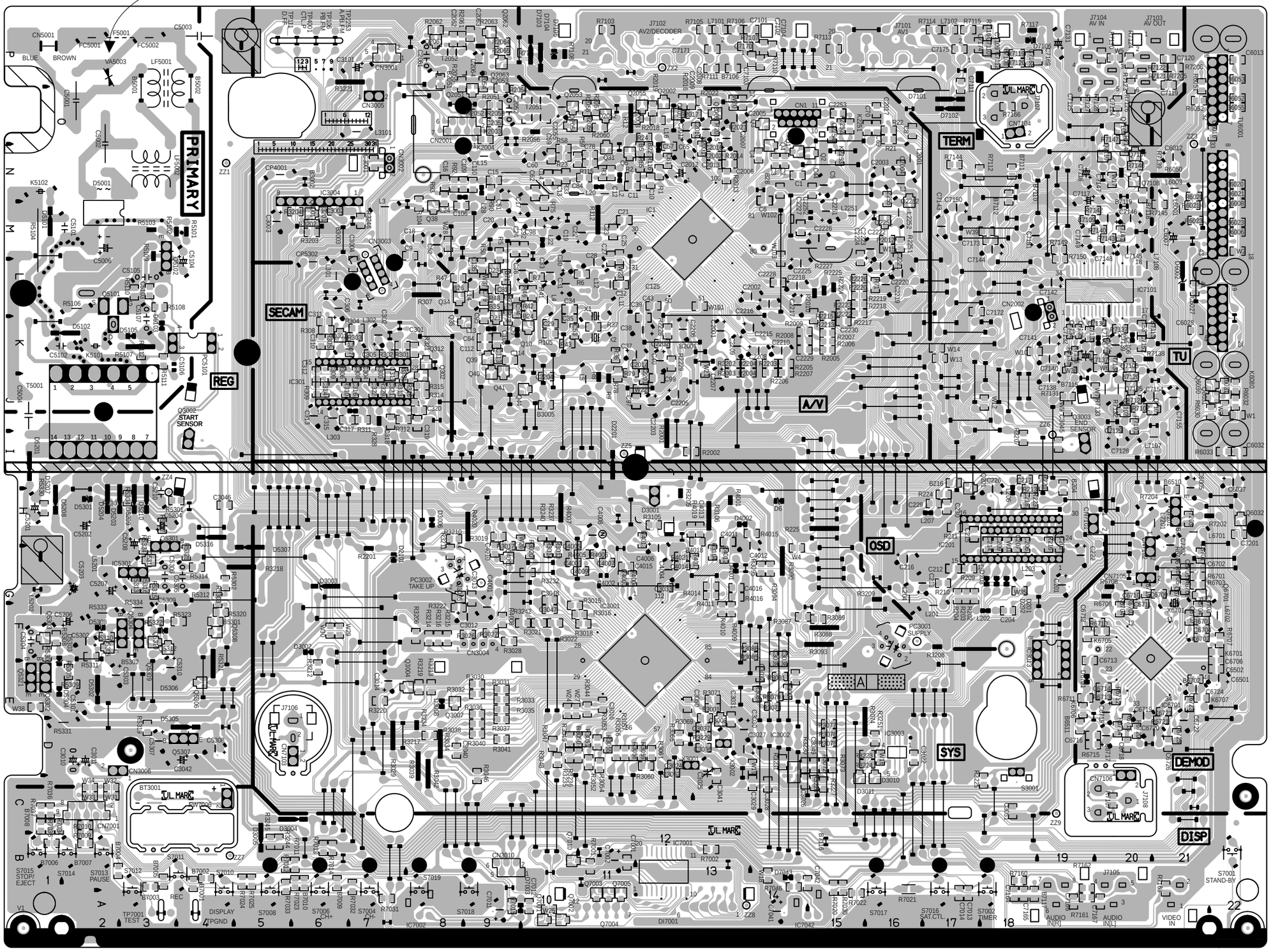
ELECTROLYTIC

CERAMIC

<03> MAIN
LPB10131-002C

DANGEROUS VOLTAGE

<28> MINI FRONT
LPB20005-001A



COMPONENT PARTS LOCATION GUIDE <MAIN >

CAPACITOR

REF.NO.	LOCATION
C1	B C 14N
C2	B C 14N
C3	B C 14N
C4	B C 14N
C5	A D 15N
C6	B C 14N
C7	B C 13O
C8	B C 16O
C9	B C 8M
C10	B C 12N
C11	B C 11N
C12	B C 11N
C13	B C 10N
C14	B C 10N
C15	B C 9N
C16	B C 8N
C17	A D 10M
C18	A D 8M
C19	A D 10M
C20	A D 9M
C21	B C 11M
C22	A D 11M
C23	B C 11M
C24	B C 9M
C25	B C 11M
C26	B C 11M
C27	B C 11L
C28	A D 11L
C29	B C 10K
C30	A D 10L
C31	A D 10L
C32	B C 11L
C33	A D 10L
C34	B C 10L
C35	B C 10K
C36	A D 10L
C37	A D 11K
C38	A D 12K
C39	B C 12K
C40	A D 12K
C43	B C 12L
C44	B C 15N
C51	A D 9N
C52	B C 8M
C53	B C 10K
C57	B C 12N
C59	B C 10N
C60	A D 10N
C61	B C 12N
C62	B C 10N
C64	B C 9K
C65	A D 12N
C69	B C 16O
C70	B C 16O
C78	B C 11N
C79	B C 9L
C81	B C 9L
C84	B C 11N
C92	B C 10M
C94	B C 9L
C95	B C 9L
C97	B C 12J
C98	A D 10M
C99	B C 12J
C106	B C 8M
C108	B C 9K
C109	B C 9N
C110	B C 9N
C112	B C 9K
C113	B C 9K
C114	B C 9K
C125	A D 12L
C135	B C 9L
C201	A D 19G
C202	B C 19H
C204	B C 18F
C206	B C 18H
C207	B C 18H
C209	B C 18H
C212	B C 17G
C213	A D 17G
C214	B C 18H
C215	B C 17H
C216	A D 16G
C217	B C 18I
C218	B C 18H
C222	A D 19G
C226	A D 18H
C229	B C 17H
C230	B C 17H
C301	B C 7K
C302	A D 7K
C303	B C 7J
C304	B C 7J
C305	B C 7K
C306	A D 6L
C307	B C 7K
C308	B C 7J
C309	B C 6J
C310	B C 6K
C311	B C 6K
C312	B C 6J
C313	A D 6J
C314	B C 6J
C315	A D 6J
C316	B C 7J
C317	B C 6J
C318	B C 7J
C319	B C 8J
C320	B C 8J
C321	B C 7J
C322	B C 7J
C2001	A D 13K
C2002	A D 13L
C2003	A D 16N
C2004	B C 16N
C2005	A D 13O
C2006	B C 13N
C2007	A D 13O
C2008	A D 13O
C2009	B C 12O
C2010	B C 13O
C2011	A D 12O
C2012	A D 12N
C2013	B C 13N
C2014	B C 12K
C2016	B C 13N
C2017	B C 16O
C2051	B C 9O
C2052	A D 9O
C2053	B C 9O
C2054	B C 9P
C2055	A D 10O
C2061	A D 8P
C2062	B C 8P
C2063	B C 9P
C2064	A D 9P
C2201	B C 12J
C2202	B C 12K
C2203	A D 12J
C2204	B C 10J
C2205	A D 12J
C2206	A D 12K
C2207	A D 13K
C2208	A D 14K
C2209	A D 13K
C2210	A D 14K
C2215	A D 13K
C2216	A D 14L
C2217	A D 14L
C2218	A D 14L
C2219	A D 16L
C2220	A D 16L
C2221	B C 16L
C2222	A D 16L
C2223	A D 16M
C2224	B C 15M
C2225	A D 14L
C2226	A D 15M
C2227	B C 14M
C2228	B C 14L
C2229	B C 14K
C2230	B C 15K
C2251	A D 15M
C2252	A D 15M
C2253	B C 15O
C2254	B C 15O
C2255	B C 16N
C3001	B C 7N
C3002	B C 6M
C3003	A D 5M
C3004	B C 7L
C3010	A D 2D
C3011	A D 2D
C3012	A D 8F
C3013	B C 9G
C3014	A D 7E
C3016	B C 11E
C3022	B C 16D
C3024	B C 12D
C3025	A D 13C
C3026	B C 14C
C3027	A D 13D
C3028	B C 14C
C3029	B C 14C
C3030	A D 13D
C3031	B C 13D
C3032	B C 14E
C3033	B C 12G
C3036	B C 13D
C3037	B C 13D
C3038	B C 14F
C3039	B C 14F
C3040	B C 8D
C3041	B C 13C
C3042	A D 4D
C3045	B C 19I
C3046	B C 4H
C3047	B C 10F
C3048	B C 10G
C3049	B C 15D
C3050	B C 12E
C3051	B C 18C
C3101	A D 7P
C3201	B C 22H
C4001	A D 9G
C4002	A D 11G
C4003	B C 10G
C4004	A D 12G
C4005	B C 10H
C4006	A D 12G
C4007	B C 11G
C4008	A D 11H
C4009	B C 11G
C4010	B C 9G
C4011	B C 13H
C4012	A D 14H
C4013	B C 13H
C4014	B C 12G
C4015	B C 11G
C4016	B C 13G
C5001	A D 2P
C5002	A D 2O
C5003	A D 4P
C5004	A D 1J
C5006	A D 2M
C5101	A D 2M
C5102	A D 1K
C5103	B C 3L
C5104	A D 4M
C5105	A D 3L
C5106	A D 3J
C5107	A D 3L
C5201	A D 1H
C5202	A D 2H
C5203	A D 2G
C5204	A D 3H
C5206	A D 1F
C5207	A D 3G
C5208	A D 3H
C5210	A D 3H
C5301	A D 2E
C5302	A D 2F
C5303	A D 2E
C5304	A D 1F
C5305	A D 4G
C5306	A D 3G
C5307	A D 3D
C5308	A D 4D
C5309	A D 3F
C5310	A D 3E
C6005	A D 21I
C6006	B C 22M
C6007	A D 21M
C6008	B C 22M
C6012	A D 21N
C6013	B C 22P
C6016	B C 22O
C6020	B C 22N
C6021	B C 22N
C6023	B C 22M
C6027	B C 21L
C6028	B C 21K
C6032	B C 22I
C6037	A D 22I
C6052	B C 22O
C6053	B C 22P
C6055	B C 22O
C6501	A D 22E
C6502	B C 22E
C6701	B C 21G
C6702	B C 21G
C6703	B C 21F
C6704	B C 21F
C6705	B C 21G
C6706	B C 22F
C6707	B C 21F
C6708	B C 21G
C6709	B C 21G
C6710	B C 20G
C6711	B C 20F
C6712	B C 19F
C6713	B C 19F
C6714	B C 20E
C6715	A D 20E
C6716	B C 19D
C6717	A D 20D
C6718	B C 20D
C6719	A D 20E
C6720	A D 21D
C6721	B C 21E
C6722	A D 21E
C6723	B C 21E
C6724	A D 21E
C6725	B C 21D
C6726	B C 21D
C7001	B C 11B
C7002	A D 11B
C7011	A D 9A
C7012	B C 10A
C7013	B C 17A
C7014	B C 17A
C7041	A D 14A
C7042	B C 15B
C7101	B C 14P
C7102	B C 14P
C7103	B C 14P
C7104	B C 14P
C7105	B C 18P
C7106	B C 18P
C7109	B C 18P
C7110	B C 18P
C7111	B C 17P
C7112	B C 18P
C7117	A D 20N
C7118	A D 19N
C7119	B C 21P
C7120	B C 21P
C7124	B C 20O
C7125	B C 19O
C7128	A D 20I
C7129	B C 20J
C7131	A D 19P
C7132	A D 19K
C7133	B C 19K
C7134	B C 19K
C7135	B C 19K
C7136	B C 20K
C7137	B C 20K
C7138	A D 19J
C7139	A D 20K
C7140	A D 19K
C7141	A D 19K
C7142	A D 19L
C7143	A D 17M
C7144	A D 18M
C7145	A D 20M
C7146	A D 20M
C7147	A D 20M
C7148	A D 20M
C7149	A D 19M
C7150	A D 17M
C7151	A D 18M
C7152	B C 20K
C7153	B C 20K
C7154	A D 20J
C7155	A D 21J
C7164	B C 18A
C7165	B C 18A
C7166	B C 19A
C7167	B C 20A
C7168	B C 18P
C7169	B C 19P
C7170	B C 13P
C7171	B C 13P
C7172	B C 17L
C7173	B C 18M
C7174	B C 17P
C7175	B C 17P
C7202	A D 21H

CONECTOR

CN1	A	D	14O
CN2001	A	D	9O
CN2002	A	D	19L
CN3001	A	D	7P
CN3002	A	D	7N
CN3003	A	D	7L
CN3004	A	D	9F
CN3005	A	D	7O
CN3006	A	D	3D
CN3010	A	D	10B
CN5001	A	D	1P
CN7001	A	D	2C
CN7101	A	D	19H
CN7102	A	D	20H
CN7103	A	D	6D
CN7104	A	D	18O
CN7105	A	D	20G
CN7106	A	D	20D

DIODE

D6	A	D	14H
D201	A	D	18G
D202	A	D	18G
D203	A	D	18G
D2101	A	D	7G
D2201	A	D	11I
D3001	A	D	6F
D3002	A	D	6F
D3003	A	D	6G
D3004	A	D	5C
D3005	A	D	5C
D3006	A	D	8H
D3008	A	D	8E
D3010	B	C	16C
D3011	B	C	15C
D4001	A	D	13G
D4002	A	D	14H
D5001	B	C	2M
D5101	A	D	1M
D5102	A	D	2K
D5103	A	D	3K
D5105	A	D	3K
D5201	A	D	1I
D5203	A	D	3I
D5204	A	D	2I
D5207	A	D	1I
D5208	A	D	1I
D5209	A	D	3I
D5210	A	D	3I
D5301	A	D	2H
D5302	A	D	2E
D5303	A	D	1F
D5304	A	D	1E
D5305	A	D	3D
D5306	A	D	3F
D5307	A	D	5G
D5308	A	D	2F
D5316	A	D	4H
D6002	A	D	21M
D6701	A	D	19E
D7003	A	D	10A
D7043	A	D	14B
D7101	A	D	17O
D7102	A	D	17O
D7103	A	D	10P
D7104	A	D	10P
D7105	A	D	10P
D7106	A	D	18P
DI7001	A	D	12A

IC

IC1	B	C	12M
IC201	A	D	19G
IC301	A	D	8J
IC3001	B	C	12F
IC3002	B	C	14D
IC3003	B	C	16D
IC3004	A	D	7N
IC3013	A	D	19F
IC5301	A	D	3G
IC5701	B	C	20F
IC7001	B	C	12B
IC7002	A	D	8A
IC7042	A	D	15A
IC7101	B	C	20L

COIL

L1	A	D	16N
L2	A	D	11N
L3	A	D	7M
L4	A	D	10L
L5	A	D	11K
L11	A	D	11L
L12	A	D	11L
L13	A	D	9K
L14	A	D	9L
L15	A	D	9N
L16	A	D	12O
L20	A	D	11N
L22	A	D	10M
L24	A	D	8N
L27	A	D	9K
L28	A	D	9N
L201	A	D	17F
L202	A	D	17F
L203	A	D	19G
L204	A	D	16G
L206	A	D	18I
L207	A	D	16H
L301	A	D	6L
L302	A	D	6K
L303	A	D	6J
L2001	A	D	16N
L2251	A	D	15M
L2252	A	D	16M
L3101	A	D	7O
L5201	A	D	2G
L5202	A	D	1G
L6001	A	D	21M
L6003	A	D	21N
L6701	A	D	21H
L6702	A	D	22F
L7101	B	C	13P
L7102	B	C	17P
L7105	A	D	20K
L7106	A	D	20K
L7107	A	D	21I
L7108	A	D	20L
L7201	A	D	21H

TRANSISTOR

Q1	B	C	14N
Q2	B	C	15N
Q3	B	C	14O
Q4	B	C	14N
Q5	B	C	11N
Q10	B	C	10K
Q21	B	C	9K
Q23	B	C	9L
Q31	B	C	11N
Q34	B	C	8L
Q35	B	C	9K
Q38	B	C	8M
Q39	B	C	9K
Q40	B	C	9K
Q41	B	C	9K
Q44	B	C	10J
Q201	B	C	17I
Q301	B	C	6K
Q302	B	C	8J
Q311	B	C	7J
Q312	B	C	8K
Q2001	B	C	12O
Q2002	B	C	12O
Q2003	B	C	12O
Q2006	B	C	13O
Q2051	B	C	9O
Q2052	B	C	11O
Q2053	B	C	10O
Q2054	B	C	10O
Q2055	B	C	12O
Q2061	B	C	8P
Q2062	B	C	9P
Q2063	B	C	9P
Q2251	B	C	16M
Q2252	B	C	16N
Q3001	B	C	6M
Q3002	A	D	4I
Q3003	A	D	19I
Q3004	B	C	8E
Q3005	B	C	8G
Q3007	B	C	8E
Q3008	B	C	13D
Q4001	B	C	9G
Q5101	A	D	2L
Q5102	A	D	3M
Q5301	A	D	3G
Q5302	A	D	1E
Q5303	B	C	1F
Q5304	A	D	3F
Q5305	B	C	2F
Q5306	B	C	4E
Q5307	A	D	4D
Q5308	B	C	4F
Q5309	A	D	3F
Q5310	B	C	3F
Q5311	B	C	3G
Q5312	B	C	3F
Q5321	A	D	1E
Q6030	B	C	22J
Q6031	B	C	22J
Q6032	B	C	22H
Q6701	B	C	21G
Q7001	B	C	10A
Q7002	B	C	10A
Q7003	B	C	11A
Q7004	B	C	11A
Q7005	B	C	11A
Q7010	B	C	10B
Q7101	B	C	21J
Q7102	B	C	20J
Q7105	B	C	20J
Q7106	B	C	20K
Q7107	B	C	20N
Q7108	B	C	20N
Q7109	B	C	20O
Q7110	B	C	20N
Q7201	A	D	21H

RESISTOR

R1	B	C	12N
R2	B	C	11N
R3	B	C	11N
R5	B	C	9M
R6	B	C	11L
R7	B	C	10L
R8	A	D	11K
R9	A	D	11K
R12	A	D	11O
R21	B	C	16O
R22	B	C	16O
R23	B	C	10N
R24	B	C	12O
R33	B	C	10N
R36	B	C	11K
R37	B	C	11K
R41	B	C	10L
R42	B	C	10L
R43	B	C	10K
R46	B	C	10L
R47	B	C	8L
R48	B	C	9L
R50	B	C	9L
R58	B	C	10N
R59	B	C	10N
R65	B	C	12N
R71	B	C	16L
R72	B	C	9L
R73	B	C	9K
R75	B	C	10M
R77	B	C	10P
R78	B	C	11J
R79	B	C	11K
R90	B	C	9N
R92	B	C	8N
R93	B	C	8N
R104	B	C	8M
R105	B	C	10K
R112	A	D	11N
R115	B	C	11N
R116	B	C	12N
R202	B	C	17G
R203	B	C	17G
R204	B	C	17G
R209	B	C	17G
R210	B	C	17G
R211	B	C	17H
R213	B	C	18H
R216	B	C	19H
R220	B	C	19I
R223	B	C	18H
R224	B	C	17H
R225	A	D	14H
R301	B	C	7K
R302	B	C	7K
R303	B	C	7K
R304	B	C	7K
R305	B	C	6K
R306	B	C	6J
R307	A	D	8L
R308	B	C	6K
R309	B	C	6J
R310	B	C	6J
R311	B	C	7J
R312	B	C	7J
R313	B	C	7J
R314	B	C	8J
R315	B	C	8J
R316	B	C	8J
R321	B	C	8K
R328	A	D	7J
R329	B	C	7J
R2001	A	D	12I
R2002	B	C	12I
R2003	B	C	13K
R2004	B	C	13K
R2005	B	C	15K
R2006	B	C	15K
R2007	B	C	15K
R2008	B	C	14K
R2009	B	C	14K
R2010	B	C	15L
R2012	B	C	16M
R2013	B	C	13N
R2014	B	C	13N
R2015	B	C	13O
R2016	B	C	12O
R2017	B	C	13O
R2018	B	C	12O
R2019	B	C	12O
R2021	B	C	13O
R2022	B	C	13O
R2051	B	C	9O
R2052	B	C	9O
R2053	B	C	9O
R2054	B	C	9O
R2055	B	C	8P
R2056	A	D	10O
R2057	B	C	11O
R2058	B	C	11O
R2059	B	C	11O
R2060	B	C	11O
R2061	B	C	8P
R2062	B	C	8P
R2063	A	D	9P
R2064	B	C	2F
R2065	B	C	9P
R2201	A	D	7G
R2202	B	C	13K
R2203	B	C	14K
R2204	B	C	13K
R2205	B	C	14K
R2206	B	C	14K
R2207	B	C	14K
R2213	B	C	15K
R2215	B	C	15L
R2217	B	C	15L
R2218	B	C	15L
R2219	B	C	15L
R2220	B	C	15L
R2222	B	C	15L
R2223	B	C	15L
R2224	A	D	15L
R2225	A	D	15L
R2226	B	C	15L
R2227	A	D	15L
R2228	B	C	12K
R2229	B	C	12K
R2251	B	C	16M
R3013	B	C	10G
R3014	B	C	10G
R3015	B	C	10F
R3016	B	C	11F
R3017	B	C	9H
R3018	B	C	11F
R3019	B	C	9H
R3020	B	C	10G
R3021	B	C	10F
R3022	B	C	10F
R3026	B	C	9F
R3027	B	C	9F
R3028	B	C	9F
R3029	A	D	7E
R3030	B	C	9E
R3031	B	C	9E
R3032	B	C	9E
R3033	B	C	9E
R3034	A	D	8D
R3035	B	C	9E
R3036	B	C	9E
R3037	B	C	9D
R3038	B	C	9D
R3039	A	D	8D
R3040	B	C	9D
R3041	B	C	9D
R3042	A	D	8D
R3044	B	C	11E
R3046	B	C	9C
R3047	B	C	10D
R3048	B	C	10D
R3049	B	C	10D
R3050	B	C	11D
R3051	B	C	11D
R3052	B	C	11D
R3053	B	C	11D
R3054	B	C	11D
R3055	B	C	11D
R3056	B	C	11D
R3057	B	C	11D
R3058	B	C	11D
R3059	B	C	12D
R3060	B	C	12D
R3061	B	C	12D
R3062	B	C	12D
R3066	B	C	12D
R3069	B	C	13E
R3071	B	C	13E
R3072	B	C	15D
R3073	B	C	15D
R3074	A	D	16D
R3075	B	C	15D
R3076	B	C	15D
R3077	B	C	15D
R3078	B	C	14E
R3079	B	C	14E
R3080	B	C	14E
R3081	B	C	14E
R3083	B	C	14E
R3085	B	C	14F
R3086	B	C	14F
R3087	B	C	14F
R3088	A	D	15F
R3089	B	C	15F
R3090	A	D	14H
R3093	A	D	15F
R3094	B	C	14G
R3095	B	C	14G
R3104	B	C	13G
R3105	B	C	12H
R3106	A	D	13H
R3201	B	C	6M
R3202	B	C	6M
R3203	B	C	6M
R3204	B	C	6M
R3205	A	D	12H
R3206	B	C	8F
R3207	B	C	18I
R3208	A	D	17F
R3209	A	D	16G
R3210	B	C	8H
R3211	B	C	8G
R3212	B	C	6E
R3213	B	C	8E
R3214	B	C	8F
R3215	B	C	8F
R3216	B	C	8F
R3217	B	C	8D
R3218	A	D	4G
R3219	B	C	8E
R3220	B	C	7E
R3221	A	D	7P
R3222	B	C	8F
R3223	B	C	16D
R3224	B	C	16D
R3225	B	C	18C
R3226	B	C	15C
R3227	B	C	15C
R3229	B	C	13D
R3230	B	C	14D
R3231	B	C	14D
R3232	B	C	10G
R3234	A	D	8E
R3235	B	C	10D
R3236	B	C	11D
R3237	B	C	10H
R3240	B	C	10H
R3242	B	C	10F
R3244	B	C	5B
R3245	B	C	5B
R3246	B	C	7M
R3251	B	C	16D
R4001	A	D	13H
R4003	B	C	11G
R4004	B	C	11G
R4005	B	C	11G
R4006	B	C	11G
R4007	A	D	10H
R4008	B	C	9F
R4009	B	C	13F
R4010	B	C	13F
R4011	B	C	13G
R4012	B	C	13G
R4013	B	C	12H
R4014	B	C	13G
R4015	B	C	14H
R4016	B	C	13G
R4017	B	C	13G
R4018	B	C	13H
R4019	B	C	12H
R4020	A	D	9H
R4021	B	C	12G
R5101	A	D	4M
R5102	A	D	4M
R5103	A	D	3M
R5104	A	D	1L
R5106	A	D	2L
R5107	A	D	3K
R5108	B	C	3L
R5109	A	D	3M
R5110	B	C	3L
R5111	B	C	3K
R5112	B	C	3K
R5301	B	C	4H
R5302	B	C	4G
R5303	B	C	4G
R5304	B	C	3H
R5305	B	C	2E
R5306	B	C	1F
R5307	B	C	2H
R5308	B	C	1F
R5309	B	C	2E
R5310	B	C	2F
R5311	B	C	2F
R5312	A	D	4G
R5313	B	C	3G
R5314	B	C	4G
R5315	B	C	3G
R5316	B	C	3G
R5317	B	C	3H
R5319	B	C	3D
R5320	B	C	4F
R5321	A	D	4E
R5322	B	C	3F
R5323	B	C	4F
R5324	B	C	3G
R5325	B	C	4G
R5330	B	C	1H
R5331	A	D	1D
R5333	A	D	2F
R5334	A	D	3F
R6020	B	C	21N
R6021	B	C	21M
R6023	B	C	22J
R6030	B	C	22J
R6031	B	C	22J
R6032	B	C	22J
R6033	B	C	22I
R6050	A	D	21N
R6051	B	C	21P
R6052	B	C	21O
R6701	B	C	21G
R6702	B	C	21G
R6703	B	C	21G
R6704	B	C	21F
R6705	B	C	21G
R6706	B	C	21G
R6707	B	C	22F
R6708	A	D	20G
R6709	A	D	20G
R6710	B	C	20F
R6711	B	C	19E
R6712	B	C	20E
R6713	B	C	20E
R6714	B	C	20D
R6715	B	C	19D
R6716	B	C	20D
R6719	B	C	20G
R6720	B	C	20D
R6721	B	C	21D
R7001	B	C	11B
R7002	B	C	13B
R7009	B	C	2B
R7010	B	C	2C
R7011	B	C	6B
R7012	B	C	5B
R7013	B	C	6B
R7014	B	C	6B
R7015	B	C	9A
R7020	B	C	15B
R7021	B	C	16B
R7022	B	C	15A
R7023	B	C	6B
R7024	B	C	5B
R7025	B	C	5B
R7030	B	C	15B
R7031	B	C	7A
R7032	B	C	7B
R7033	B	C	5B
R7034	B	C	1C
R7035	B	C	1C
R7036	B	C	1C
R7037	B	C	1C
R7046	B	C	14B
R7101	B	C	20J
R7102	B	C	20J
R7103	B	C	11P
R7105	B	C	13P
R7106	B	C	13P
R7107	B	C	14P
R7108	A	D	10P
R7110	B	C	14P
R7111	B	C	13P
R7112	B	C	18N
R7113	B	C	15P
R7114	B	C	17P
R7115	B	C	17P
R7116	B	C	18P
R7117	A	D	19P
R7119	B	C	18P
R7120	B	C	18P
R7121	B	C	21P
R7122	B	C	21P
R7123	B	C	20P
R7124	B	C	20P
R7126	B	C	20O
R7127	B	C	19O
R7128	B	C	19O
R7129	B	C	20P
R7130	B	C	19J
R7131	B	C	20J
R7132	A	D	20J
R7133	A	D	20J
R7134	B	C	20K
R7135	B	C	19K
R7136	B	C	19K
R7137	B	C	20K
R7138	A	D	20K
R7139	A	D	20N
R7140	B	C	20M
R7141	B	C	20M
R7142	B	C	19M
R7143	B	C	20M
R7144	B	C	17N
R7145	B	C	21M
R7146	B	C	20N
R7147	B	C	20O
R7148	B	C	20N
R7149	B	C	19M
R7150	B	C	19M
R7160	B	C	18B
R7161	B	C	19A
R7162	B	C	19B
R7163	B	C	21B
R7166	B	C	18O
R7167	B	C	20C
R7202	A	D	22H
R7203	B	C	21H
R7204	A	D	20H
R7205	B	C	21P
R7206	B	C	21P
S3001	A	D	18C

SWITCH

S7001	A	D	22B
S7002	A	D	18B
S7004	A	D	7B
S7006	A	D	6B
S7008	A	D	5B
S7010	A	D	4B
S7011	A	D	4B
S7012	A	D	3B
S7013	A	D	2B
S7014	A	D	2B
S7015	A	D	1B
S7016	A	D	17B
S7017	A	D	16B
S7018	A	D	9B
S7019	A	D	8B

TEST POINT

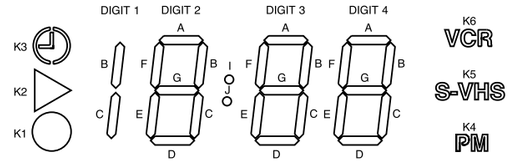
TP106	A	D	6P
TP111	A	D	5P
TP2253	A	D	6P
TP4001	A	D	6P
TP7001	A	D	3A

OTHER

CP4001	A	D	5N
F5001	A	D	2P
FC5001	A	D	2P
FC5002	A	D	3P
FW7006	A	D	4C
CP5302	A	D	6L
LF5001	A	D	4P
LF5002	A	D	3N
PC0292	A	D	2G
PC0299	A	D	3I
PC3001	A	D	16F
PC3002	A	D	8G
PC5101	A	D	4K
X1	A	D	11L
X2	A	D	11K
X3001	A	D	12D
X3002	A	D	13D
X6701	A	D	21G

4.11 FDP GRID ASSIGNMENT AND ANODE CONNECTION

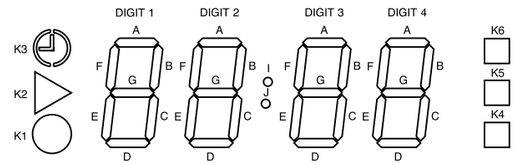
GRID ASSIGNMENT



ANODE CONNECTION

No.	CONNECTION
1	CATHODE 2G, 3G, 4G, I, J
2	CATHODE 2F, 3F, 4F, K6
3	CATHODE 2E, 3E,4E, K1
4	CATHODE 2D, 3D, 4D, K4
5	CATHODE 1C, 2C, 3C, 4C, K5
6	CATHODE 1B, 2B, 3B, 4B, K2
7	CATHODE 2A, 3A, 4A, K3
8	COMMON ANODE K3, K2, K5, K4, K1, K6, I, J
9	COMMON ANODE DIGIT4
10	COMMON ANODE DIGIT3
11	COMMON ANODE DIGIT2
12	COMMON ANODE DIGIT1

GRID ASSIGNMENT



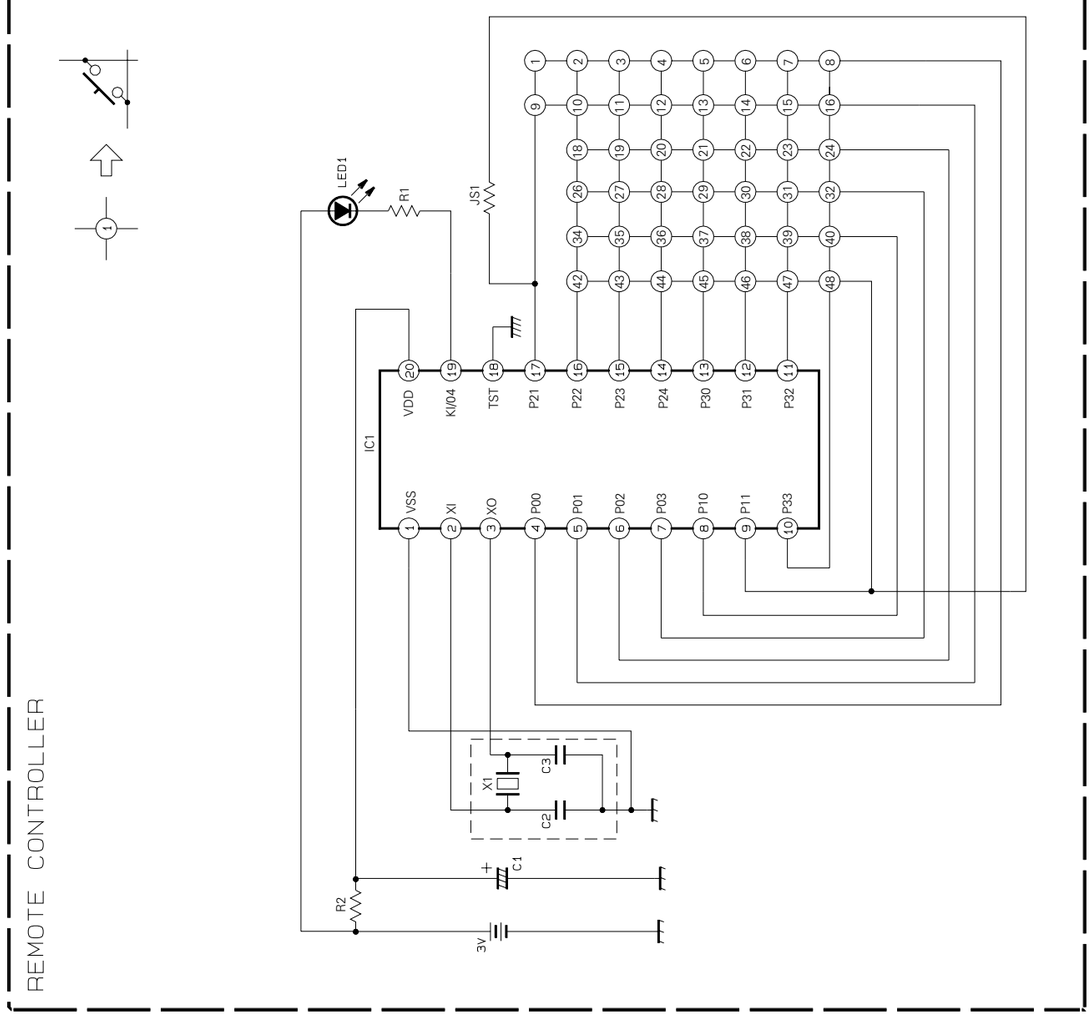
ANODE CONNECTION

No.	CONNECTION
1	CATHODE 1G, 2G, 3G, 4G, I, J
2	CATHODE 1F, 2F, 3F, 4F, K6
3	CATHODE 1E, 2E, 3E,4E, K1
4	CATHODE 1D, 2D, 3D, 4D, K4
5	CATHODE 1C, 2C, 3C, 4C, K5
6	CATHODE 1B, 2B, 3B, 4B, K2
7	CATHODE 1A, 2A, 3A, 4A, K3
8	COMMON ANODE K3, K2, K5, K4, K1, K6, I, J
9	COMMON ANODE DIGIT4
10	COMMON ANODE DIGIT3
11	COMMON ANODE DIGIT2
12	COMMON ANODE DIGIT1

4.12 REMOTE CONTROLLER SCHEMATIC DIAGRAM

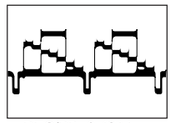
NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entire unit only.

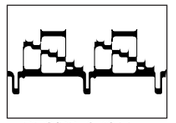
Key No.	Key Name
1	TV
2	PROG
3	PROG CHECK
4	ENTER/OSD
5	SKIP
6	TV PROG(CH)–
7	DATE –
8	DISPLAY
9	REC
10	REW
11	TV PROG(CH)+
12	START+
13	STOP +
14	DATE +
15	START –
16	STOP –
18	MENU
19	0
20	8
21	4
22	/TV PROG-
23	>>/TV VOL+
24	TIMER
26	AUDIO/MUTE
27	PLAY
28	CANCEL
29	7
30	POWER
31	5
32	PAUSE
34	2
35	6
36	TV/VCR
37	- /TV
38	<</TV VOL-
39	C.MEMORY
40	∧TV PROG+
42	3
43	FF
44	STOP
45	RE-VIEW
46	1
47	9
48	OK
9+27	REC START
9+32	REC PAUSE
1+30	POWER
1+36	TV/VCR
1+26	MUTE
1+37	MAIN/SUB
1+38	TV VOL–
1+40	TV PROG+
1+23	TV VOL+
1+22	TV PROG–

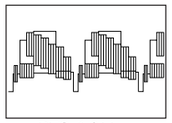


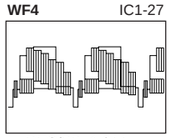
4.13 WAVEFORMS

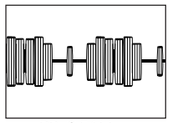
< VIDEO >

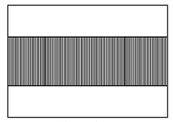
WF1 IC1-11

REC/PB 0.48 Vp-p
20 mV/20 sec/DIV

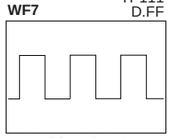
WF2 IC1-13

REC/PB 0.48 Vp-p
20 mV/20 sec/DIV

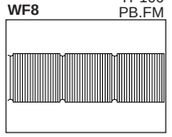
WF3 IC1-18

REC 1.0 Vp-p
20 mV/20 sec/DIV

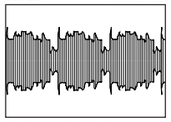
WF4 IC1-27

REC/PB 1.0 Vp-p
50 mV/20 sec/DIV

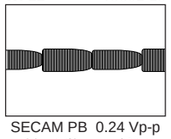
WF5 IC1-30

PB 0.54 Vp-p
20 mV/20 sec/DIV

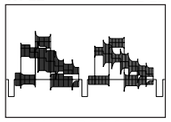
WF6 IC1-85

REC 1.6 Vp-p
50 mV/5 msec/DIV

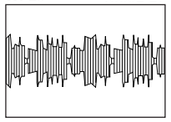
WF7 TP111 D.FF

REC/PB 3.7 Vp-p
0.1 V/10 msec/DIV

WF8 TP106 PB.FM

PB 0.4 Vp-p
20 mV/5 msec/DIV

WF10 IC301-11

SECAM REC 0.44 Vp-p
10 mV/20 µsec/DIV

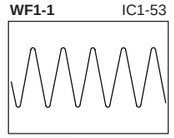
WF11 IC301-13

SECAM PB 0.24 Vp-p
20 mV/2 msec/DIV

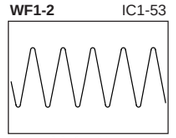
WF12 IC301-15

SECAM REC/PB 1.3 Vp-p
50 mV/20 µsec/DIV

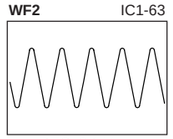
WF13 IC301-17

SECAM PB 0.44 Vp-p
10 mV/20 µsec/DIV

***WF10 - WF13 is used only for HR-J280MS/J480MS.**

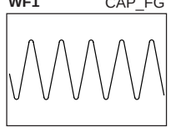
< AUDIO >

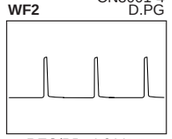
WF1-1 IC1-53

REC 1.1 Vp-p
20 mV/0.5 msec/DIV

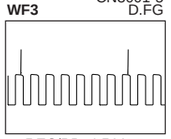
WF1-2 IC1-53

PB 1.5 Vp-p
20 mV/0.5 msec/DIV

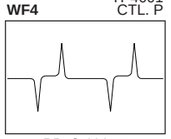
WF2 IC1-63

REC 0.1 Vp-p
5 mV/0.5 msec/DIV

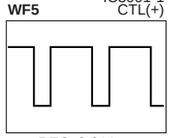
< SYSCON >

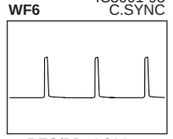
WF1 CN3003-2 CAP_FG

REC/PB 2.2 Vp-p
50 mV/0.5 msec/DIV

WF2 CN3001-4 D.PG

REC/PB 4.6 Vp-p
0.2 V/10 msec/DIV

WF3 CN3001-5 D.FG

REC/PB 4.5 Vp-p
0.1 V/5 msec/DIV

WF4 TP4001 CTL. P

PB 2.4 Vp-p
50 mV/10 msec/DIV

WF5 IC3001-1 CTL(+)

REC 3.6 Vp-p
0.1 V/10 msec/DIV

WF6 IC3001-98 C.SYNC

REC/PB 4.2 Vp-p
0.1 V/20 µsec/DIV

4.14 VOLTAGE CHARTS

<MAIN>

MODE PIN NO.	REC	PLAY
IC1		
1	1.7	2.1
2	2.8	2.8
3	2.5	2.5
4	1.8	1.3
5	1.8	1.3
6	2.4	2.1
7	1.7	0.6
8	0	0
9	2.6	1.9
10	2.4	2.4
11	3.1	3.1
12	2.8	2.3
13	3.1	3.1
14	2.3	2.4
15	0	0
16	2.8	2.8
17	1.5	1.5
18	2.8	2.8
19	0	2.6
20	2.8	2.8
21	2.0	1.9
22	2.8	2.8
23	2.8	2.8
24	5.0	5.0
25	0.3	0.3
26	0	0
27	2.4	1.9
28	2.3	2.3
29	1.9	1.8
30	2.1	2.1
31	0	0
32	2.6	2.6
33	5.0	5.0
34	2.7	2.4
35	5.0	5.0
36	2.6	2.6
37	2.3	2.2
38	2.1	2.1
39	1.2	1.2
40	1.6	1.6
41	2.6	2.6
42	2.1	2.1
43	0	0
44	2.2	2.2
45	4.7	4.7
46	4.7	4.7
47	2.8	2.8
48	2.5	2.5
49	5.0	5.0
50	2.5	2.5
51	2.8	2.8
52	0	0
53	2.5	2.5
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0
63	0	0
64	0	0
65	2.0	2.0
66	0	0
67	0	0
68	0	0
69	0	0
70	0	0
71	0	0
72	0	0
73	3.1	3.1
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	5.0	5.0
80	5.0	5.0
81	0	0
82	0	0
83	0	0
84	2.3	2.3
85	2.4	2.3
86	2.4	2.3
87	5.0	5.0
88	0	0
89	0	0
90	0	0
91	0	3.2
92	2.5	2.5
93	2.1	0.4
94	0	0
95	2.5	2.5
96	2.5	2.5
97	2.5	2.5
98	0	0
99	2.4	2.5
100	4.7	4.6

MODE PIN NO.	REC	PLAY
IC201		
1	0	0
2	2.6	2.8
3	4.9	4.9
4	0	0
5	4.5	4.5
6	2.5	2.5
7	2.5	2.7
8	5.4	5.4
9	3.1	3.1
10	4.5	4.5
11	0.7	0.7
12	5.4	5.4
13	2.8	3.0
14	2.8	3.0
15	0	0
16	1.2	1.2
17	0	0
18	5.4	5.4
19	2.3	2.3
20	0	0
21	2.3	2.3
22	0.3	0.5
23	5.4	5.4
24	2.9	3.2
25	2.5	2.7
26	5.4	5.4
27	4.6	4.6
28	3.6	4.0
29	5.4	5.4
30	5.4	5.4
IC301		
1	0	0
2	1.9	1.9
3	3.4	3.4
4	0.4	0.4
5	0	0
6	2.9	2.9
7	0	0
8	2.5	2.5
9	2.5	2.5
10	2.3	2.3
11	2.6	0
12	4.3	4.3
13	2.5	2.5
14	3.1	2.0
15	2.7	2.7
16	0.2	5.0
17	0	2.7
18	2.1	2.1
19	2.4	2.4
20	2.5	2.5
21	2.5	2.5
22	5.0	5.0
23	2.9	2.9
24	2.9	2.9
25	2.8	2.8
26	0	0
27	0.4	0.4
28	0.2	0.2
IC3001		
1	2.7	2.4
2	0	0
3	0	2.4
4	2.4	2.4
5	0	0
6	2.4	2.4
7	2.4	0
8	2.4	2.4
9	4.9	4.9
10	4.9	4.9
11	0	0
12	0	0
13	0	0
14	0	1.8
15	4.7	4.7
16	4.9	4.9
17	0	0.3
18	4.9	4.9
19	0	0
20	0	3.4
21	4.0	4.3
22	4.6	4.3
23	0	0
24	4.8	4.8
25	0	4.9
26	4.9	4.9
27	4.9	4.9
28	0	0
29	4.9	4.9
30	4.2	4.2
31	4.9	4.9
32	0	0
33	0	0
34	4.8	4.8
35	0	0
36	0	0
37	0	0
38	4.8	4.8
39	0	0
40	0	0

MODE PIN NO.	REC	PLAY
41	0	2.7
42	0	0
43	0	0
44	0	0
45	4.9	4.9
46	0	0
47	0	0
48	4.9	4.9
49	4.7	4.7
50	4.8	4.8
51	4.9	4.9
52	0.8	0.8
53	4.5	4.5
54	-	-
55	0	0
56	0	0
57	0	0
58	4.9	4.9
59	-	-
60	0	4.9
61	0	4.9
62	0	0
63	0	0
64	-	-
65	-	-
66	-	-
67	-	-
68	0	0
69	-	-
70	4.9	4.9
71	4.9	4.9
72	4.9	4.9
73	4.9	4.9
74	0	0
75	4.5	4.5
76	4.6	4.6
77	5.4	5.4
78	3.1	3.1
79	0	4.9
80	0	0
81	0	0
82	4.9	4.9
83	0	0
84	0	0
85	0	0
86	4.6	4.6
87	4.9	4.9
88	0	0
89	4.9	4.9
90	0	0
91	0	0
92	0	0
93	4.9	4.9
94	0	0
95	0	0
96	0	0
97	0	0
98	0.3	0.3
99	0	2.5
100	2.5	2.5
101	2.5	2.7
102	1.4	1.4
103	0	0
104	4.9	0
105	4.9	0
106	4.9	0
107	0.1	0.1
108	1.5	1.5
109	4.9	4.9
110	0	0
111	0	0
112	2.4	2.4
IC3002		
1	4.9	4.9
2	4.9	4.9
3	0	0
4	0	0
IC3003		
1	0	0
2	0	0
3	0	0
4	0	0
5	4.6	4.6
6	4.5	4.5
7	0	0
8	4.9	4.9
IC3004		
1	11.7	11.7
2	0.2	0.2
3	0	0
4	0.2	0.2
5	11.7	11.7
6	11.7	11.7
7	0	0
8	0	0
9	0	0
IC5301		
1	2.5	2.5
2	0	0
3	4.4	4.4
IC7001		

MODE PIN NO.	REC	PLAY
1	0	0
2	0	0
3	4.9	4.9
4	4.9	4.9
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	0	0
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	1.0	4.9
19	2.2	2.2
20	4.9	4.9
IC7002		
1	4.9	4.9
2	4.9	4.9
3	0	0
IC7101		
1	3.0	3.0
2	10.4	10.4
3	2.7	2.7
4	10.4	10.4
5	3.1	3.1
6	4.9	4.9
7	4.9	4.9
8	4.8	4.8
9	0	0
10	4.8	4.8
11	9.8	9.8
12	4.8	4.8
13	0	0
14	4.8	4.8
15	0	0
16	4.9	4.9
17	0	0
18	0	0
19	0	0
20	4.8	4.8
21	4.9	4.9
22	4.9	4.9
23	4.8	4.8
24	4.8	4.8
25	4.9	4.9
26	4.9	4.9
27	4.8	4.8
28	2.7	2.7
29	2.2	2.2
30	2.0	2.0
31	1.7	1.7
32	4.6	4.6
33	4.5	4.5
34	0	0
CN1		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.4	2.3
6	2.4	2.3
7	2.4	2.3
8	2.4	2.3
CN2001		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	2.1	2.4
7	2.4	2.4
CN2002		
1	0	0
2	0	0
CN3001		
1	11.8	11.7
2	0	0
3	1.3	1.3
4	0.1	0.1
5	1.4	1.4
CN3002		
1	0	0
2	0	0
CN3003		
1	0	0
2	2.5	2.5
3	2.3	2.5
4	5.1	5.1
5	0	0
6	4.9	4.9
7	0	0
8	11.8	11.7
CN3004		
1	4.9	4.9
2	4.9	4.9
3	0	0

MODE PIN NO.	REC	PLAY
4	0	0
CN7001		
1	0.5	0.5
2	0.6	0.5
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	3.2	4.9
9	4.0	4.9

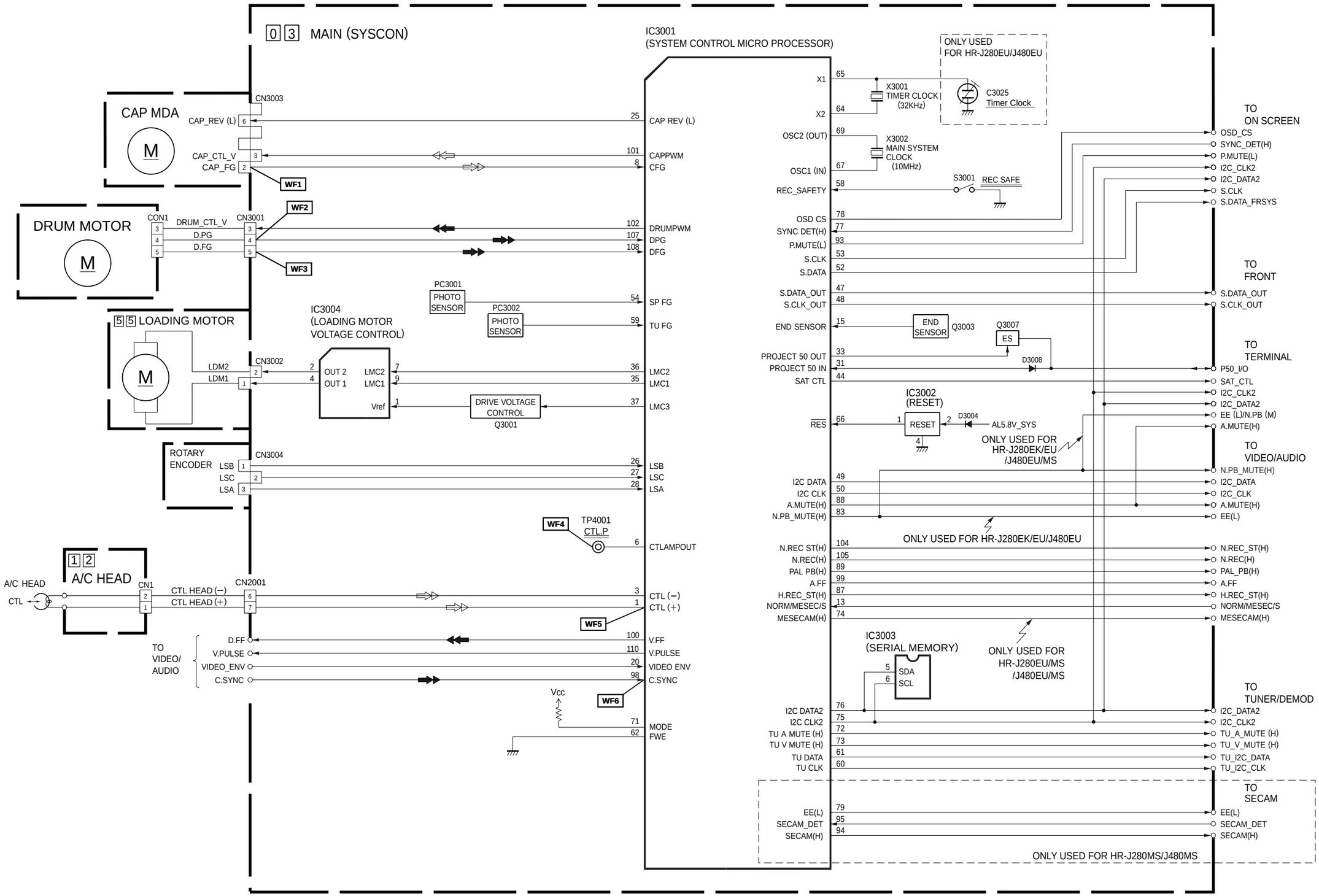
4.15 CPU PIN FUNCTION

<SYSCON IC3001>

PIN NO.	LABEL	IN/OUT	FUNCTION
1	CTL(+)	IN/OUT	CTL(+)SIGNAL
2	SVSS	-	GND
3	CTL(-)	IN/OUT	CTL(-)SIGNAL
4	CTLBIAS	-	CTL BIAS VOLTAGE
5	CTLFB	IN	CTL PULSE FEEDBACK [NC]
6	CTLAMPOUT	OUT	CTL PULSE OUTPUT
7	CTLSMTIN	IN	CTL PULSE INPUT
8	CFG	IN	CAPSTAN FG PULSE INPUT
9	SVCC	-	SYSTEM POWER
10	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
11	NC	-	NC
12	NC	-	NC
13	NORM/MESEC/S	IN	NORMAL MODE:L/MESECAM MODE:M/NC
14	A.ENV/ND(L)	IN	AUDIO PB FM ENV.INPUT/NON HiFi MODE:L
15	END SENSOR	IN	END SENSOR
16	KEY1	IN	OPERATION CONTROL SIGNAL
17	START SENSOR	-	NC
18	KEY2	IN	OPERATION CONTROL SIGNAL
19	SCR(H)	IN	SCRAMBLE CONTROL INPUT (SCRAMBLE:H)
20	VIDEO ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
21	RF AGC	IN	CHANGES IN ATS+IC OUTPUT AS CAUSED BY CHANGES IN RECEIVER SENSITIVITY WHEN THE SAME CHANNEL IS RECEIVED MORE THAN ONCE ARE INPUT.
22	AFC	IN	TUNING LOCK
23	AVSS	-	GND FOR ANALOG CIRCUIT
24	CTL GAIN	OUT	CONTROL AMP OUT FREQUENCY RESPONSE SWITCHING
25	CAP REV(L)	OUT	CAPSTAN MOTOR REVERSE CONTROL (FWD:H/REV:L)
26	LSB	IN	MECHANISM MODE DETECT(B)
27	LSC	IN	MECHANISM MODE DETECT(C)
28	LSA	IN	MECHANISM MODE DETECT(A)
29	RC	IN	REMOTE CONTROL DATA INPUT
30	PROTECT	IN	DETECTION SIGNAL FOR SW POWER SUPPLY
31	PROJECT 50 IN	IN	CONTROL SIGNAL FOR TV LINK
32	POWER DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
33	PROJECT 50 OUT	OUT	CONTROL SIGNAL FOR TV LINK
34	STB/TEST	OUT	STROBE SIGNAL (FOR FDP DRIVER)
35	LMC1	OUT	LOADING MOTOR DRIVE(1)
36	LMC2	OUT	LOADING MOTOR DRIVE(2)
37	LMC3	OUT	LOADING MOTOR DRIVE(3)
38	P.CTL(H)	OUT	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
39	LOCK(L)	IN	TUNING PLL LOCK DETECT: L
40	V_UP(H)	-	NC
41	SIDE BAND GAIN	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
42	SW1	OUT	TUNER SYSTEM "L" MODEL: H
43	VSS	-	GND
44	SAT_CTL	OUT	REMOTE CONTROL OUTPUT FOR SATELLITE RECEIVER [NC]
45	VCC	-	SYSTEM POWER
46	NC	-	NC
47	S.DATA_OUT	OUT	SERIAL DATA INPUT FOR THE FDP DRIVER
48	S.CLK_OUT	OUT	SERIAL DATA TRANSMISSION CLOCK FOR THE FDP DRIVER
49	I2C DATA	IN/OUT	SERIAL DATA TRANSFER INPUT/OUTPUT
50	I2C CLK	OUT	SERIAL DATA TRANSFER CLOCK
51	P.SAVE(L)	-	NC
52	S.DATA	OUT	SERIAL DATA TRANSFER OUTPUT TO THE ON-SCREEN IC
53	S.CLK	OUT	SERIAL DATA TRANSMISSION CLOCK FOR THE ON-SCREEN IC
54	SP FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
55	SW2	OUT	TUNER SYSTEM "L" MODE:L
56	JSA	IN	INPUT FOR JOG SHUTTLE [NC]

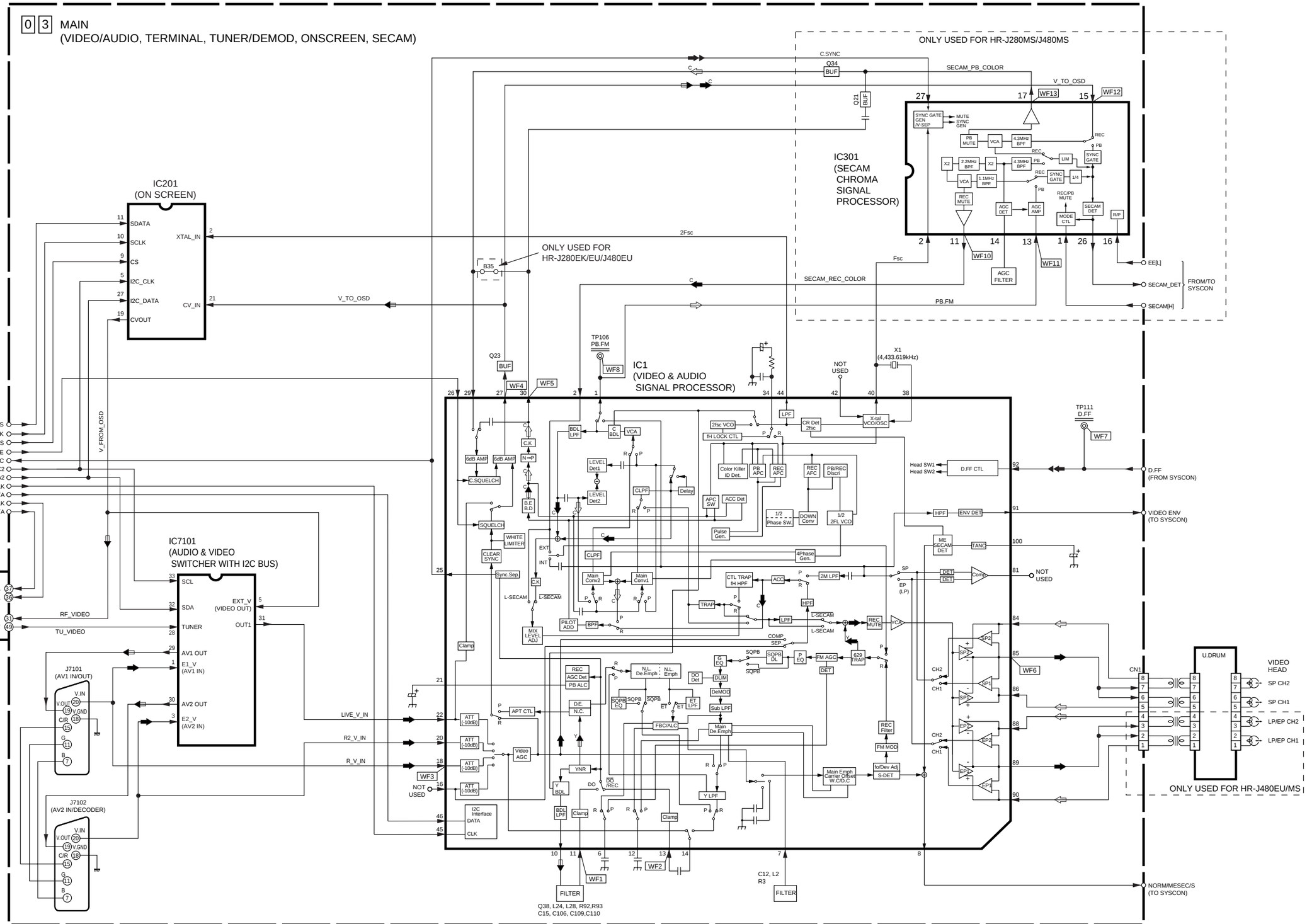
PIN NO.	LABEL	IN/OUT	FUNCTION
57	JSB	IN	INPUT FOR JOG SHUTTLE [NC]
58	REC_SAFETY	IN	REC SAFETY SWITCH DETECT (SW ON: L)
59	TU FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
60	TU CLK	OUT	CLOCK FOR DATA TRANSFER TO THE TUNER UNIT
61	TU DATA	OUT	TUNING DATA
62	FWE	-	NC
63	NMI(L)	-	NC
64	X2	-	TIMER CLOCK (32.768 kHz)
65	X1	-	TIMER CLOCK (32.768 kHz)
66	RES(L)	-	RESET TERMINAL (RESET ON:L)
67	OSC1(IN)	-	MAIN SYSTEM CLOCK (10MHz)
68	VSS	-	GND
69	OSC2(OUT)	-	MAIN SYSTEM CLOCK (10MHz)
70	VCC	-	SYSTEM POWER
71	MODE	-	NC
72	TU A MUTE(H)	OUT	TUNER AUDIO MUTE CONTROL (MUTE:H)
73	TU V MUTE(H)	OUT	TUNER VIDEO CONTROL (MUTE:H)
74	MESECAM(H)	OUT	MESECAM:H [HR-J280EU/MS/J480EU/MS]
75	I2C CLK2	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
76	I2C DATA2	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR MEMORY IC
77	SYNC DET(H)	IN	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)
78	OSD CS	OUT	CHIP SELECT FOR THE ON-SCREEN IC
79	EE(L)	OUT	MODE SWITCHING CONTROL [HR-J280MS/J480MS]
80	R.PAUSE	IN	REMOTE PAUSE CONTROL [HR-J780EU]
81	N.PB_MUTE(H)	OUT	NORMALAUDIO UTE CONTROL (MUTE:H)
82	VCC	-	SYSTEM POWER
83	NC	-	NC
84	VSS	-	GND
85	SP_SHORT(H)	OUT	MODE SELECT
86	LP_SHORT(H)	OUT	MODE SELECT
87	H.REC ST(H)	OUT	HiFi AUDIO SOUND RECORDING START
88	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE:H)
89	PAL_PB(H)	OUT	PAL MODE:H
90	3.58NTSC[H]	-	NC
91	T1	-	NC
92	T2	-	NC
93	P.MUTE(L)	OUT	PICTURE MUTE CONTROL (MUTE:L)
94	SECAM(H)	OUT	COLOUR SYSTEM SECAM:H [HR-J280MS/J480MS]
95	SECAM_DET	IN	DETECTION SIGNAL FOR SECAM [HR-J280MS/J480MS]
96	T3	-	NC
97	T4	-	NC
98	C.SYNC	IN	COMPOSITE SYNC
99	A.FF	OUT	AUDIO FF OUTPUT
100	V.FF	OUT	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
101	CAPPWM	OUT	CAPSTAN MOTOR CONTROL
102	DRUMPWM	OUT	DRUM MOTOR CONTROL
103	NC	-	NC
104	N.REC ST(H)	OUT	NORMAL AUDIO SOUND RECORDING START
105	N.REC(H)	OUT	NORMAL AUDIO REC MODE CONTROL (REC:H)
106	FULLE_ON[H]	OUT	FULL ERASE ON:H
107	DPG	IN	DRUM PICKUP PULSE INPUT (SWITCHING PULSE)
108	DFG	IN	DRUM FG PULSE INPUT
109	VCC	-	SYSTEM POWER
110	V.PULSE	OUT	V.PULSE ADDITION TIMING CONTROL
111	VSS	-	GND
112	CTLREF	-	CTL REFERENCE VOLTAGE

4.16 SYSTEM CONTROL BLOCK DIAGRAM



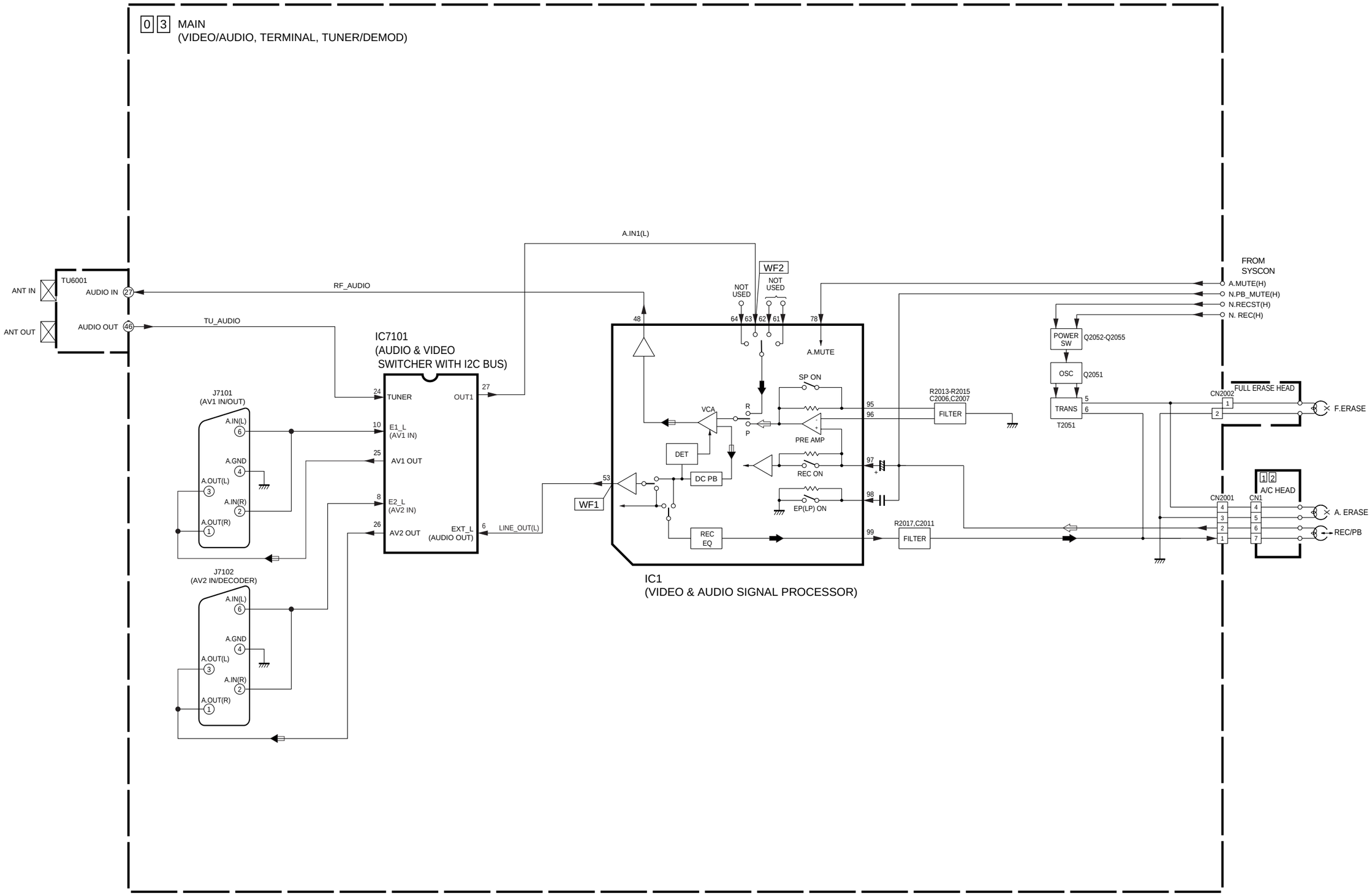
Note : For the waveforms in this block diagram, refer to page 4-26.

4.17 VIDEO BLOCK DIAGRAM



Note : For the waveforms in this block diagram, refer to page 4-26.

4.18 AUDIO BLOCK DIAGRAM



Note : For the waveforms in this block diagram, refer to page 4-26.