


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.

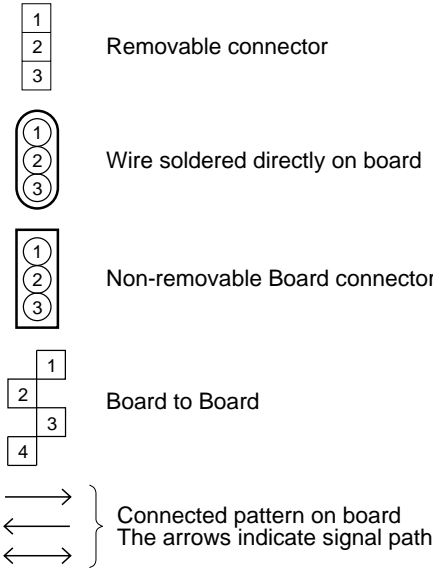
1. Units of components on the schematic diagram

- 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: 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
AUX or AUX(L) : Active at low

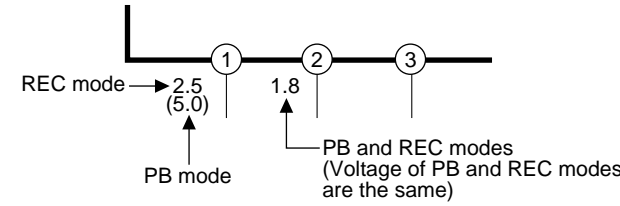
3. Interpreting Connector indications



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

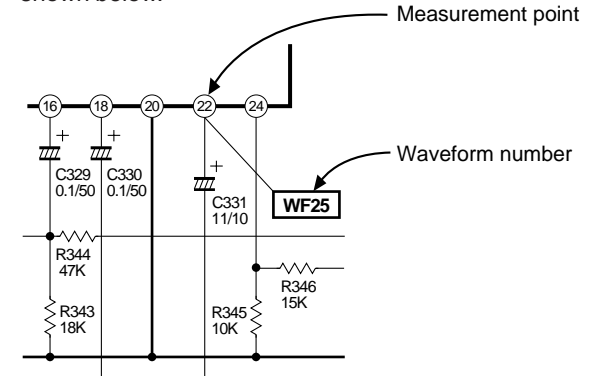
- 4) Indication on schematic diagram
Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



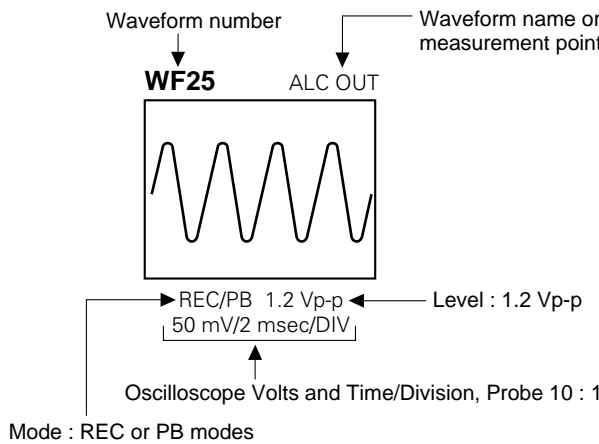
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

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 charts in the E-E mode
- 4) Indication on schematic diagram
Waveform indications on the schematic diagram are as shown below.

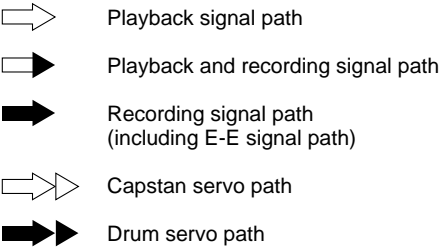


5) Waveform indications

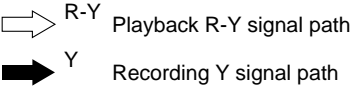


6. Signal path Symbols

The arrows indicate the signal path as follows.

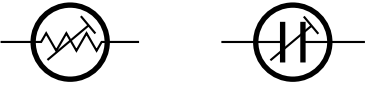


(Example)



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.



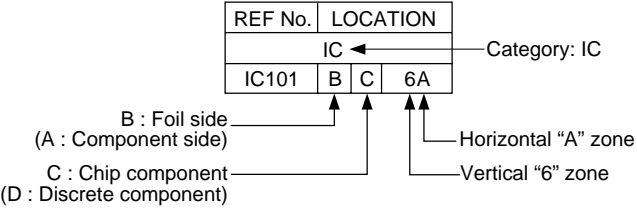
CIRCUIT BOARD NOTES

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.

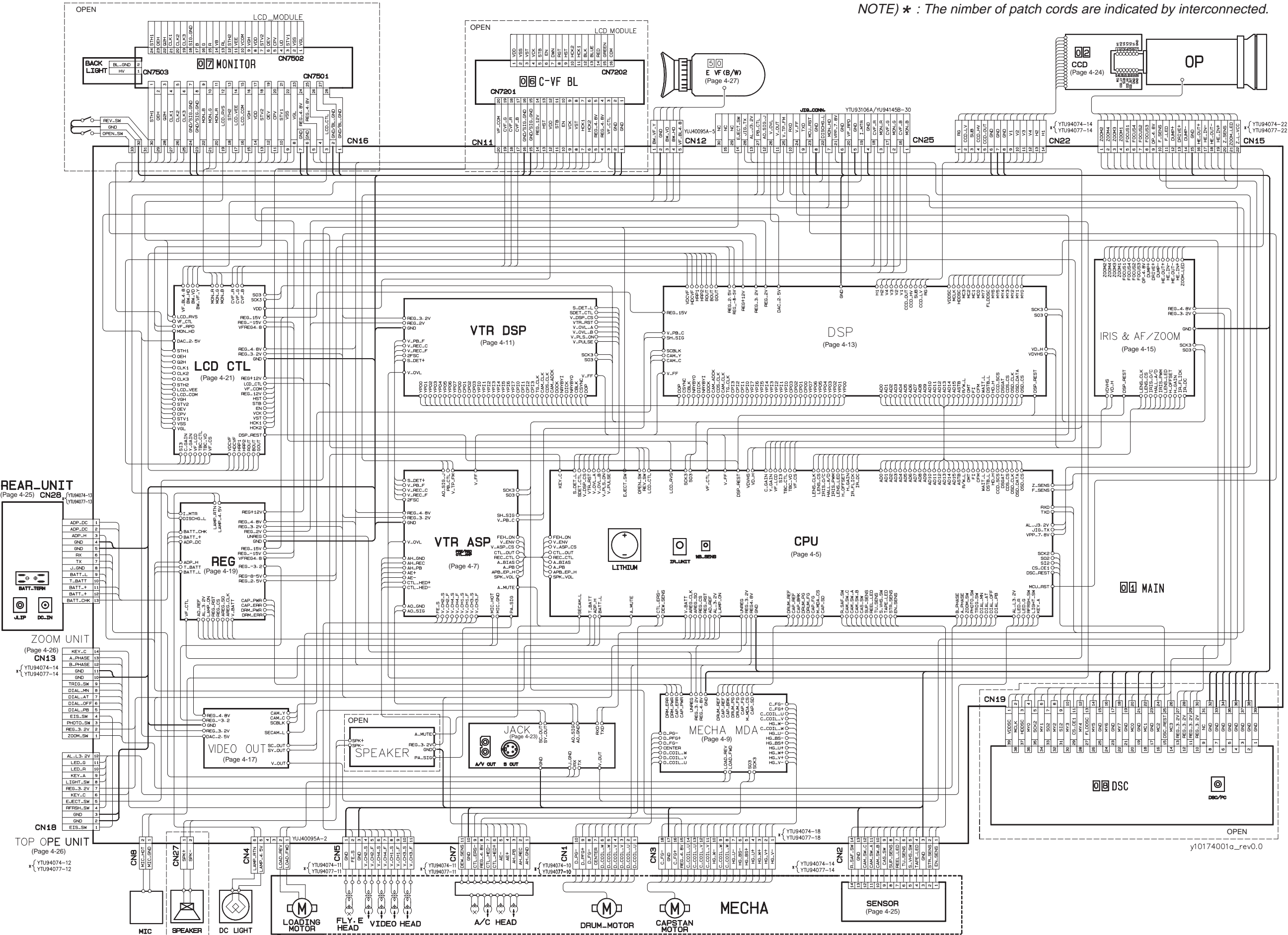


Note:

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

NOTE) * : The number of patch cords are indicated by interconnected.

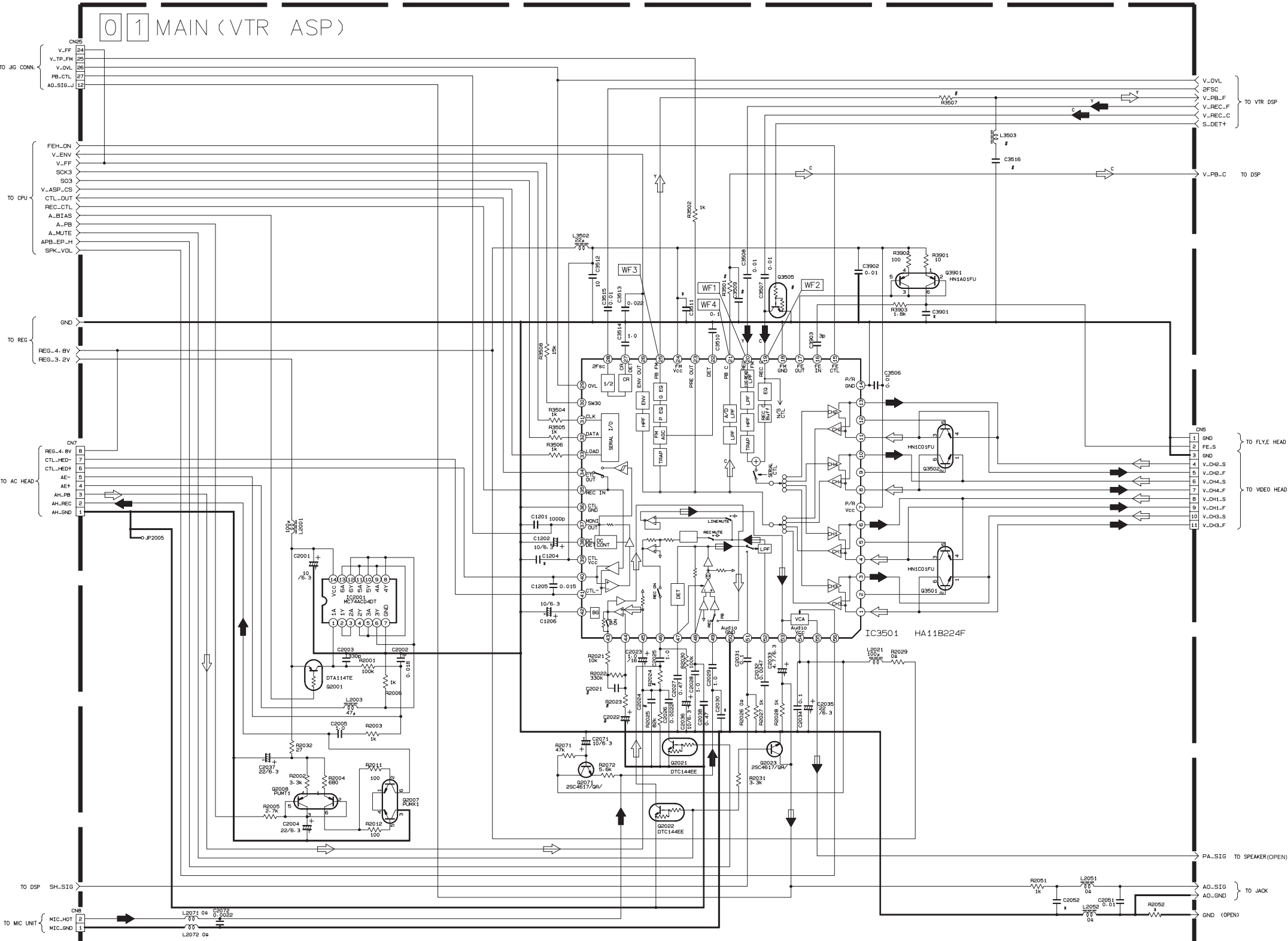


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NOTE: • For the destination of each signal and further line connections that are cut off from this diagram, refer to “4.1 BOARD INTERCONNECTIONS”
• When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



NOTE: • For the destination of each singnal and further line connections that are cut off from this diagram, refer to “4.1 BOARD INTERCONNECTIONS”
•When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



NOTES: 1. THE PARTS WITH MARKED (*) IS NOT USED.
2. For VTR ASP waveforms, please refer to page 4-49.

EXCHANGE PARTS LIST

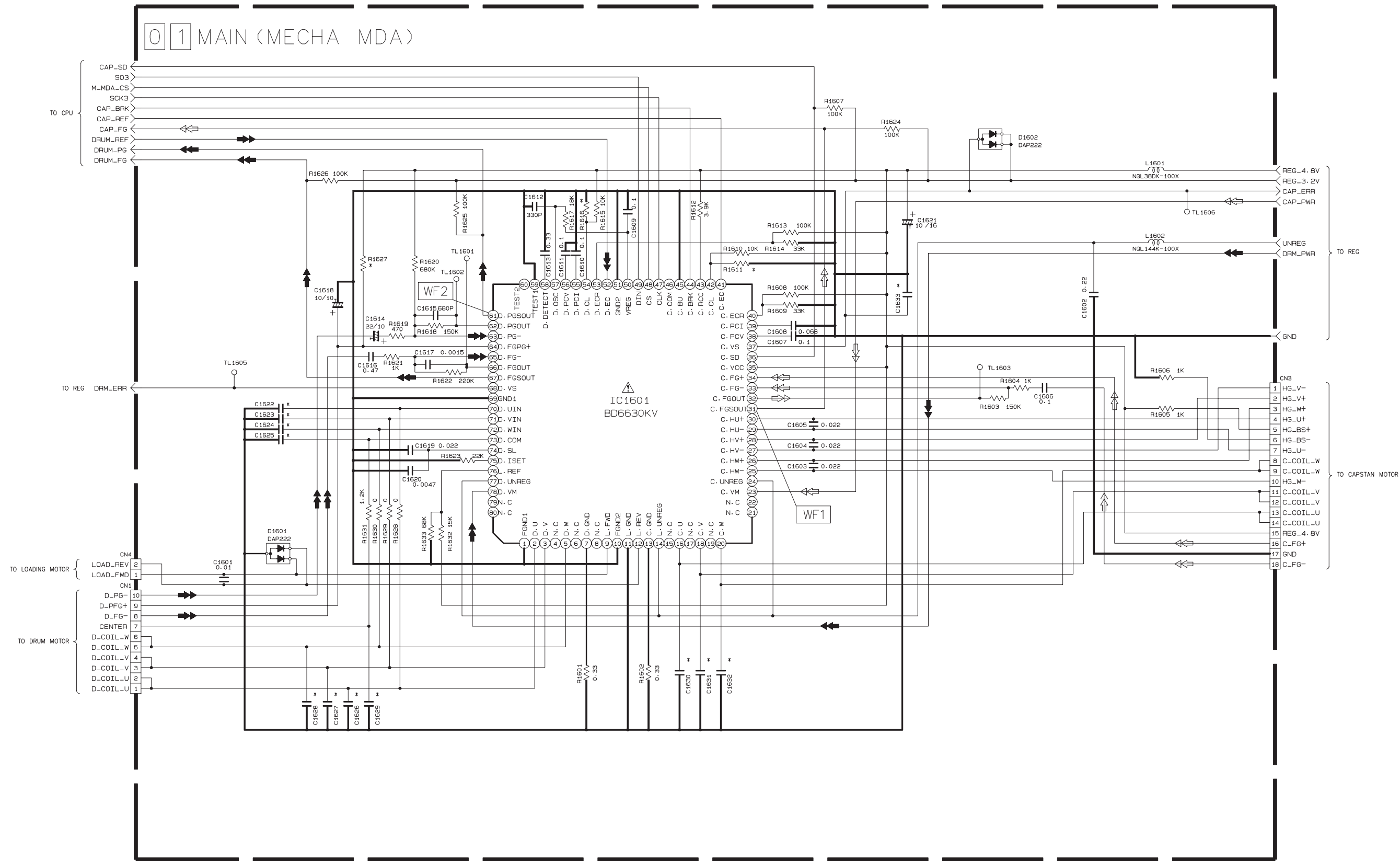
[VIDEO]			[AUDIO]		
VHS MODEL	NTSC	PAL	VHS MODEL	NTSC	PAL
G3505	x	DTC144 EE	R3507	0	100
			L3503	*	5.5
			C3516	*	10p
			R3501	0	220
			C3509	*	220p
			R2023	150	B2
			R2024	13k	18k
			C2021	0.0068	0.01
			C2022	10μ/6.3	15μ/6.3
			C2024	0.0012	0.001

*... NO WEAR

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4.4 MECHA MDA SCHEMATIC DIAGRAM

NOTE: • For the destination of each singnal and further line connections that are cut off from this diagram, refer to “4.1 BOARD INTERCONNECTIONS”
•When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



NOTES : 1. THE PARTS WITH MARKED (*) IS NOT USED.
2. For MECHA MDA waveforms, please refer to page 4-49.

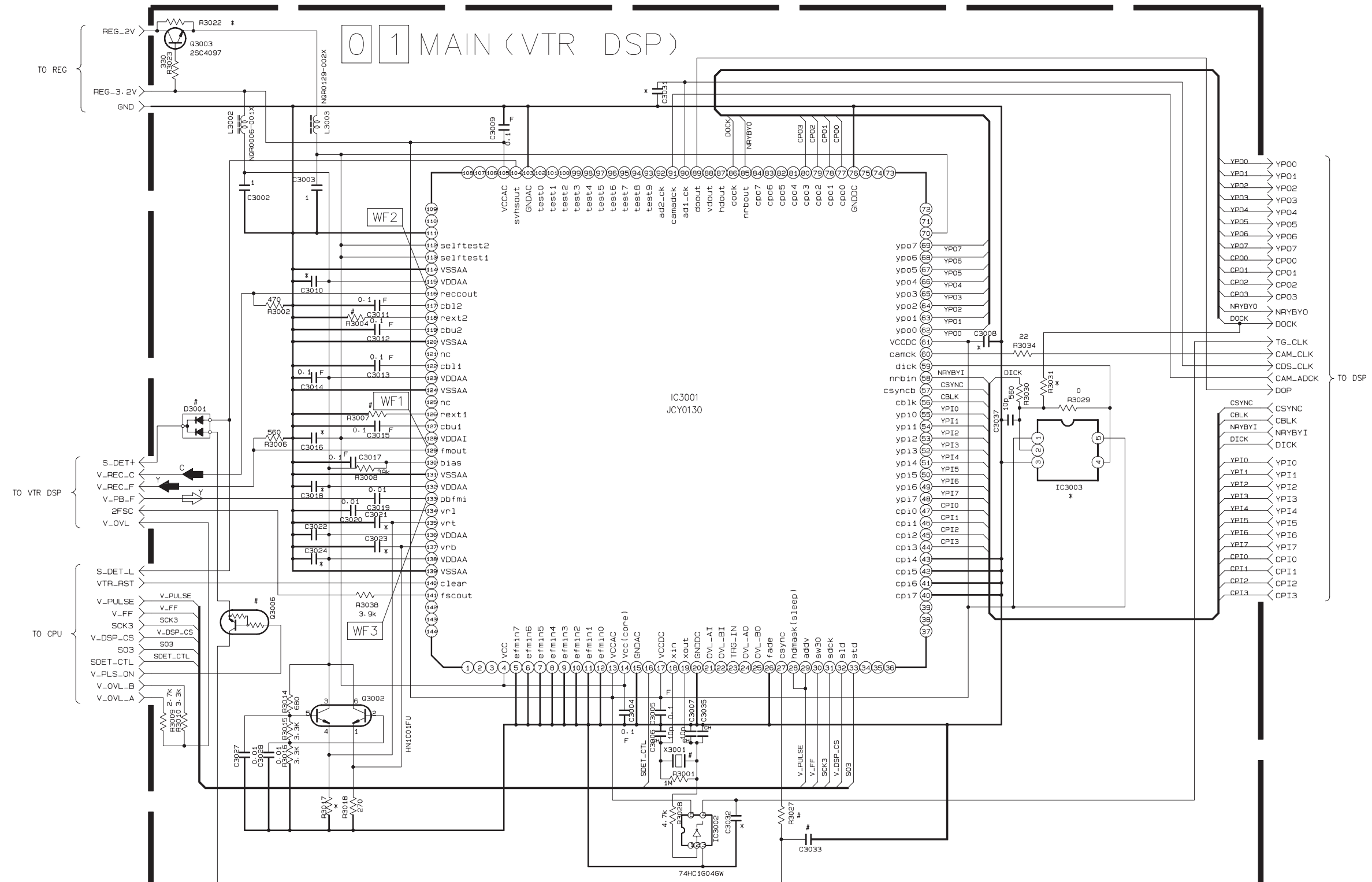
EXCHANGE PARTS LIST.

	NTSC	PAL
C1620	*	0.0047

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4.5 VTR DSP SCHEMATIC DIAGRAM

NOTE: • For the destination of each signal and further line connections that are cut off from this diagram, refer to “4.1 BOARD INTERCONNECTIONS”
• When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



NOTES : 1. THE PARTS WITH MARKED (x) IS NOT USED.
2. For VTR DSP waveforms, please refer to page 4-49.

EXCHANGE PARTS LIST

	PAL	NTSC
X3001	QAX0596-001 or QAX0609-001	QAX0565-001 or QAX0608-001
R3004	33k	27k
R3007	18k	15k

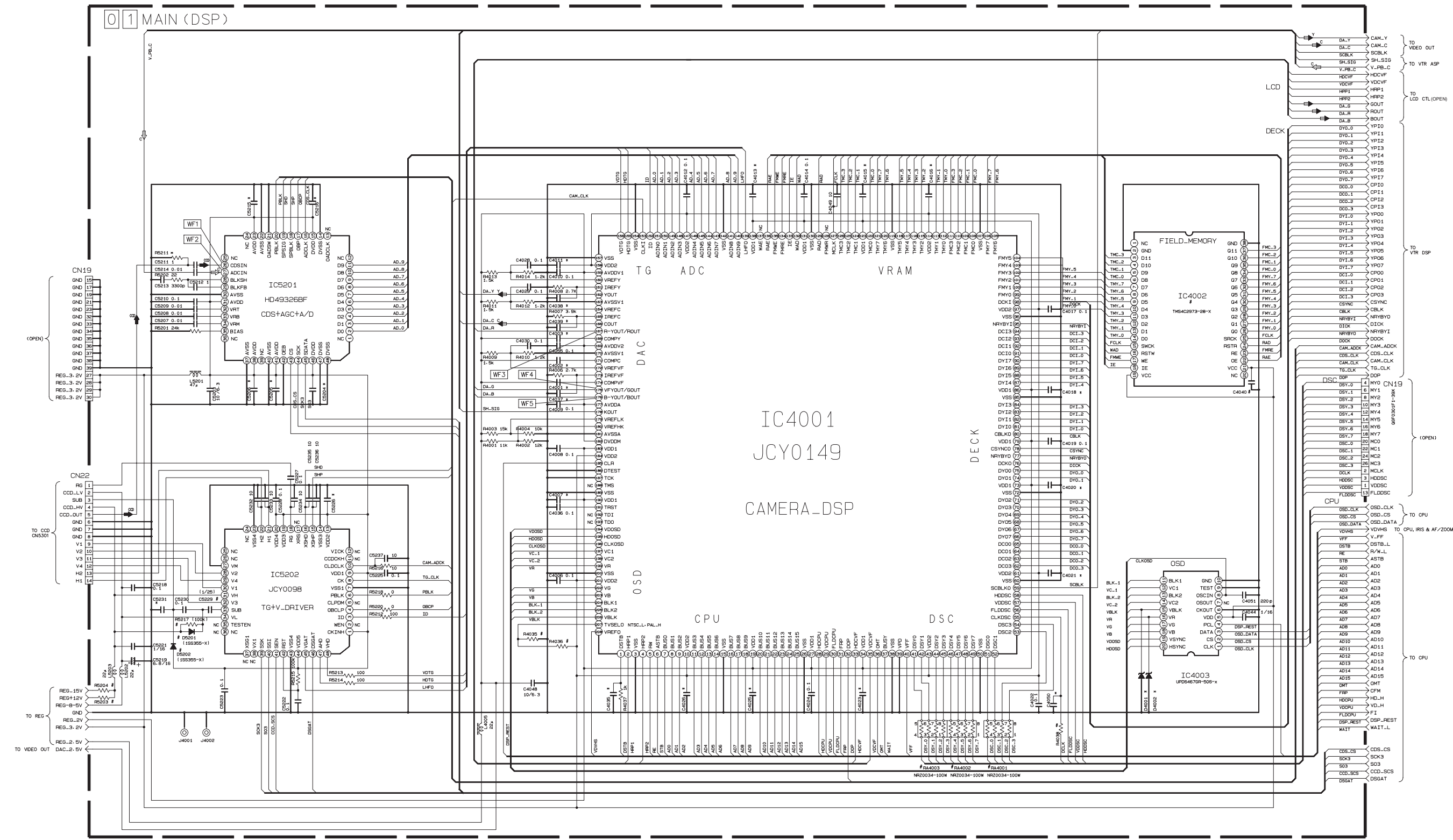
	VHS MODEL	SVHS MODEL
D3001	x	DAN22
G3006	x	DTC144
R3027	x	10K
C3033	x	0.1

*... NO WEAR

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4.6 DSP SCHEMATIC DIAGRAM

NOTE: • For the destination of each signal and further line connections that are cut off from this diagram, refer to "4.1 BOARD INTERCONNECTIONS"
• When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



NOTES: 1. THE PARTS WITH MARKED (X) IS NOT USED.
2. For DSP waveforms, please refer to page 4-49.

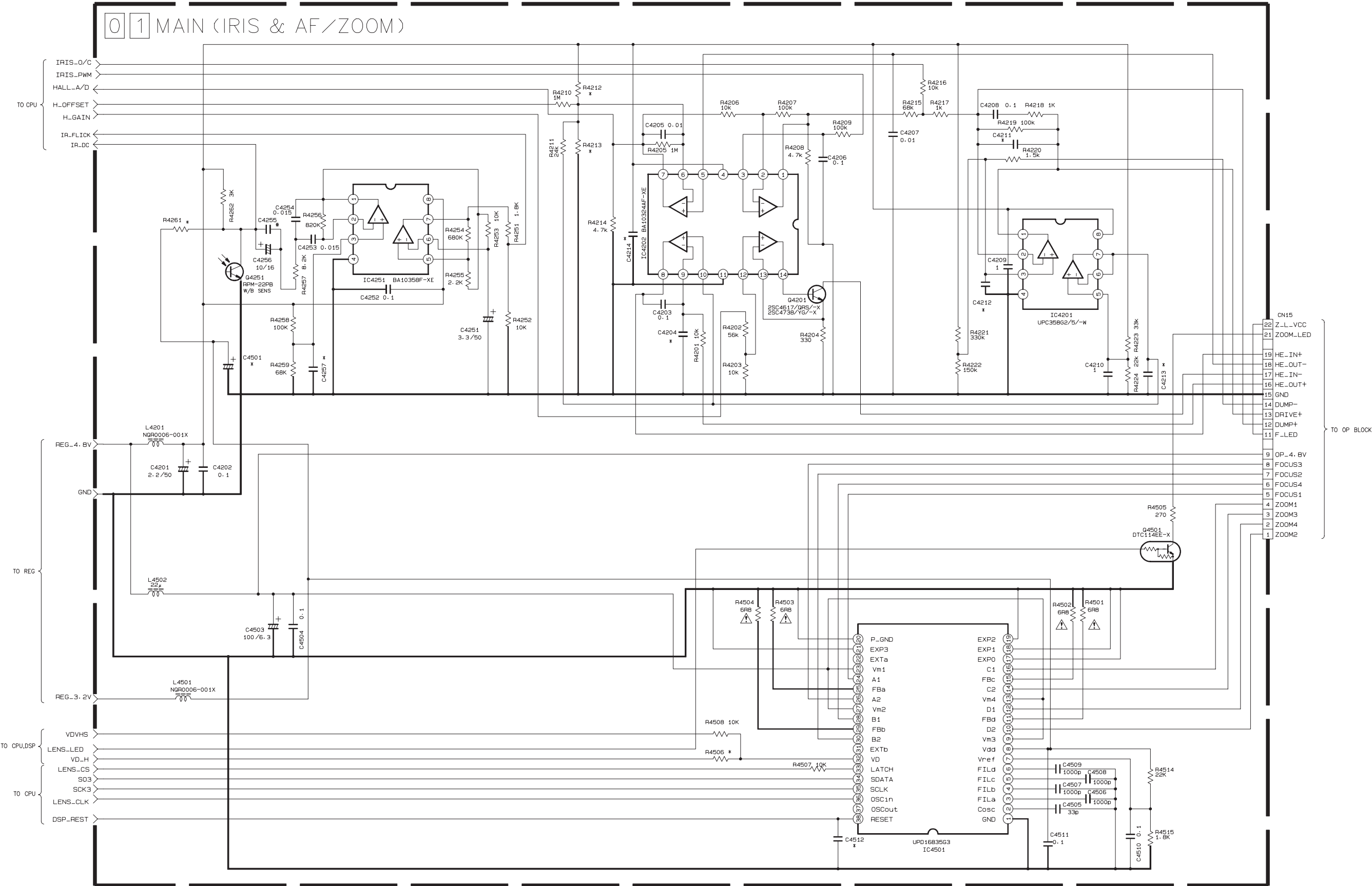
EXCHANGE PARTS LIST									
CCD	R4035	R4036	R5203	R5204	D5201	D5202	R5217	C5229	
NTSC-L	TC09621P	0	*	0	*	155395-X	*	0	
NTSC-L	MK91138FT	0	*	0	155395-X	*	100K	1/25	
PAL-L	MK972138FT	*	0	*	0	155395-X	*	100K	1/25
PAL-L	10X227AK	*	0	0	*	155395-X	*	100K	1/25
PAL-L	MK99244FT	*	0	0	*	155395-X	*	100K	1/25
PAL-L	10X229AK	*	0	0	*	155395-X	*	100K	1/25

IC4002	C4040	R4038	RA4001	RA4002	RA4003
M186	*	*	*	*	*
M187	TMS4C2973-28-X	1	*	*	*
M188	TMS4C2973-28-X	1	100	NR20034-100W	NR20034-100W

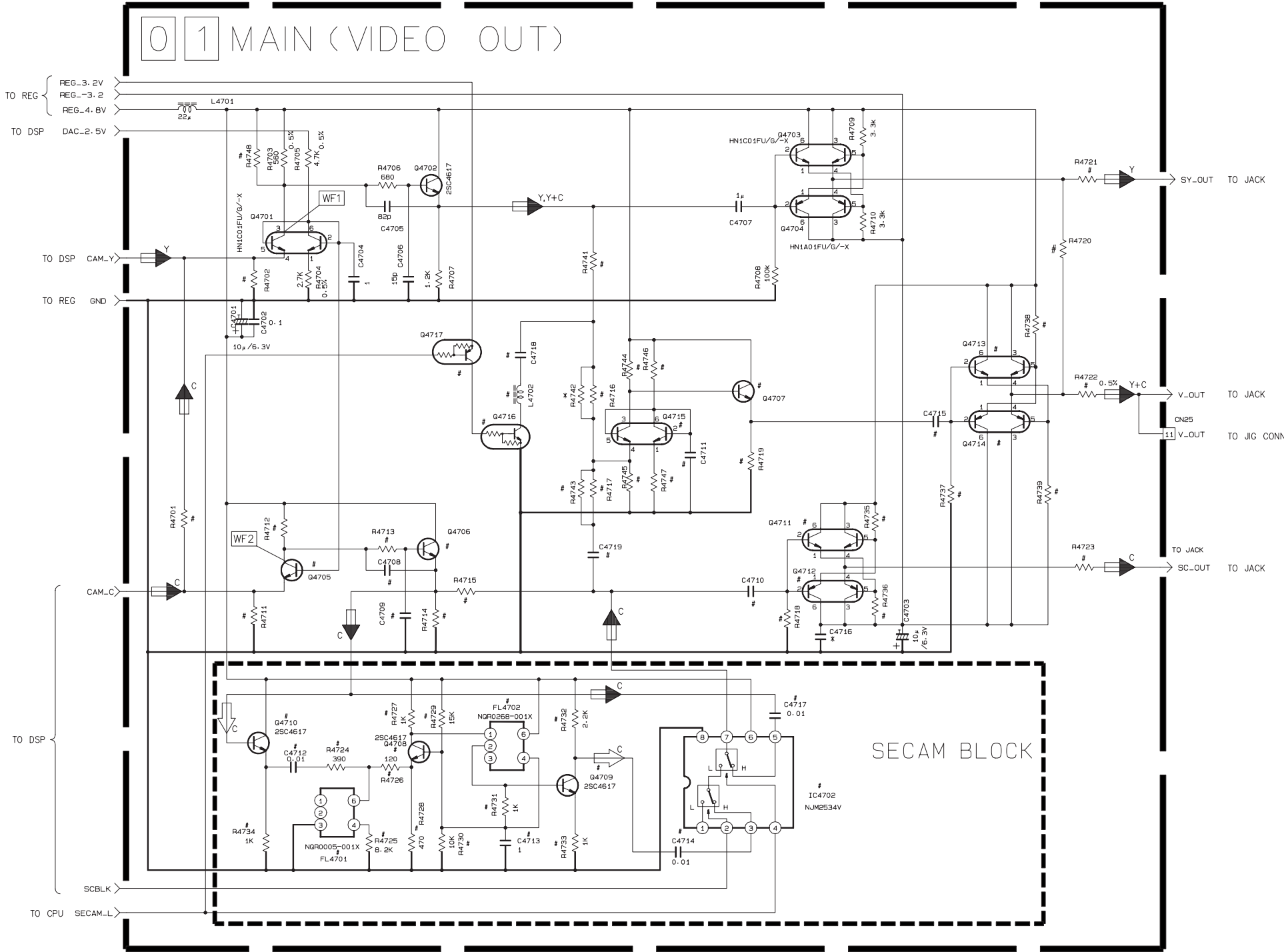
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4.7 IRIS & AF/ZOOM SCHEMATIC DIAGRAM

NOTE: • For the destination of each singnal and further line connections that are cut off from this diagram, refer to “4.1 BOARD INTERCONNECTIONS”
•When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



NOTE: • For the destination of each singnal and further line connections that are cut off from this diagram, refer to “4.1 BOARD INTERCONNECTIONS”
•When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



NOTES: 1. THE PARTS WITH MARKED (x) IS NOT USED.
2. For VIDEO OUT waveforms, please refer to page 4-49.

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EXCHANGE PARTS LIST

	R4711	R4712	R4713	R4714	C4708	C4709	Q4705	Q4706	R4721	C4710	R4718	R4735	R4736	Q4711	Q4712	R4723	R4741	R4716	R4717	C4719	R4744	R4745	R4746	R4747	Q4715	C4711	Q4707	R4719	C4715	R4737	Q4713	Q4714	R4738	R4739
VHS MODEL	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SVHS MODEL	150	510 0.5%	680	1.2K	82p	15p	2SC 4617	2SC 4617	75 0.5%	0.01	100K	3.3K	3.3K	HN1C 01FU	HN1A 01FU	68 0.5%	1.5K 0.5%	620 0.5%	2.2K 0.5%	0.01	2.2K 0.5%	470	2.2K 0.5%	470 0.5%	HN1C 01FU	1	2SC 4617	2.2K	1	100K	HN1C 01FU	HN1A 01FU	3.3K	3.3K

	R4715	Q4716	Q4717	L4702	C4718	SECAM BLOCK
VHS MODEL	*	*	*	*	*	*
SVHS EG MODEL	*	DTC144 EE	DTA144 EE	56	24p	○
SVHS OTHER MODEL	0Ω	*	*	*	*	*

	R4701	R4702	R4720	R4722	R4743	R4748
VHS MODEL	0Ω	75	0Ω	75 0.5%	*	33K 0.5%
VHS MODEL NTSC	↑	↑	↑	↑	↑	*
SVHS MODEL PAL	*	100	*	68 0.5%	15K 0.5%	*
SVHS MODEL NTSC	↑	↑	↑	↑	22K 0.5%	↑

*... NO WEAR

4.9 REGULATOR SCHEMATIC DIAGRAM

NOTE: • For the destination of each singnal and further line connections that are cut off from this diagram, refer to “4.1 BOARD INTERCONNECTIONS”
•When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

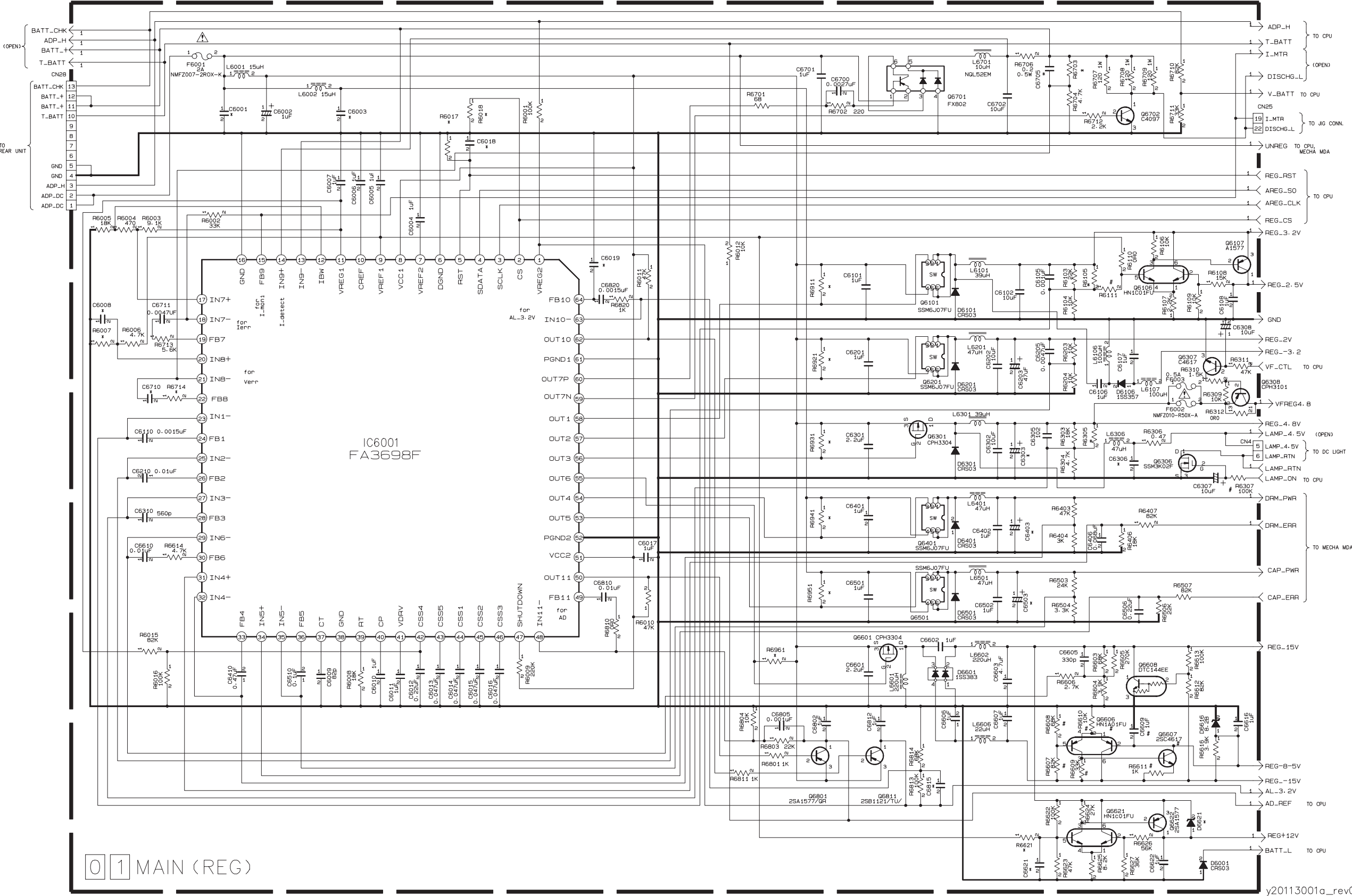
5

4

3

2

1



0 1 MAIN (REG)

NOTE : THE PARTS WITH MARKED (*) IS NOT USED.
EXCHANGE LIST

1. LIGHT YES OR NO

LIGHT	YES	NO
Q6306	exist	open
L6306	exist	open
C6307	exist	open
R6306-6307	exist	open

2. LCD YES OR NO

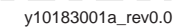
LCD	YES	NO
Q6307-6308	exist	open
R6309-6311	exist	open
C6308	exist	open
R6312	open	OR0

3. CCD VOLTAGE

CCD VOLTAGE	PAL	NTSC
picture elements	LOW	others
memory	NO	
D6616	8.2V	5.1V 8.2V

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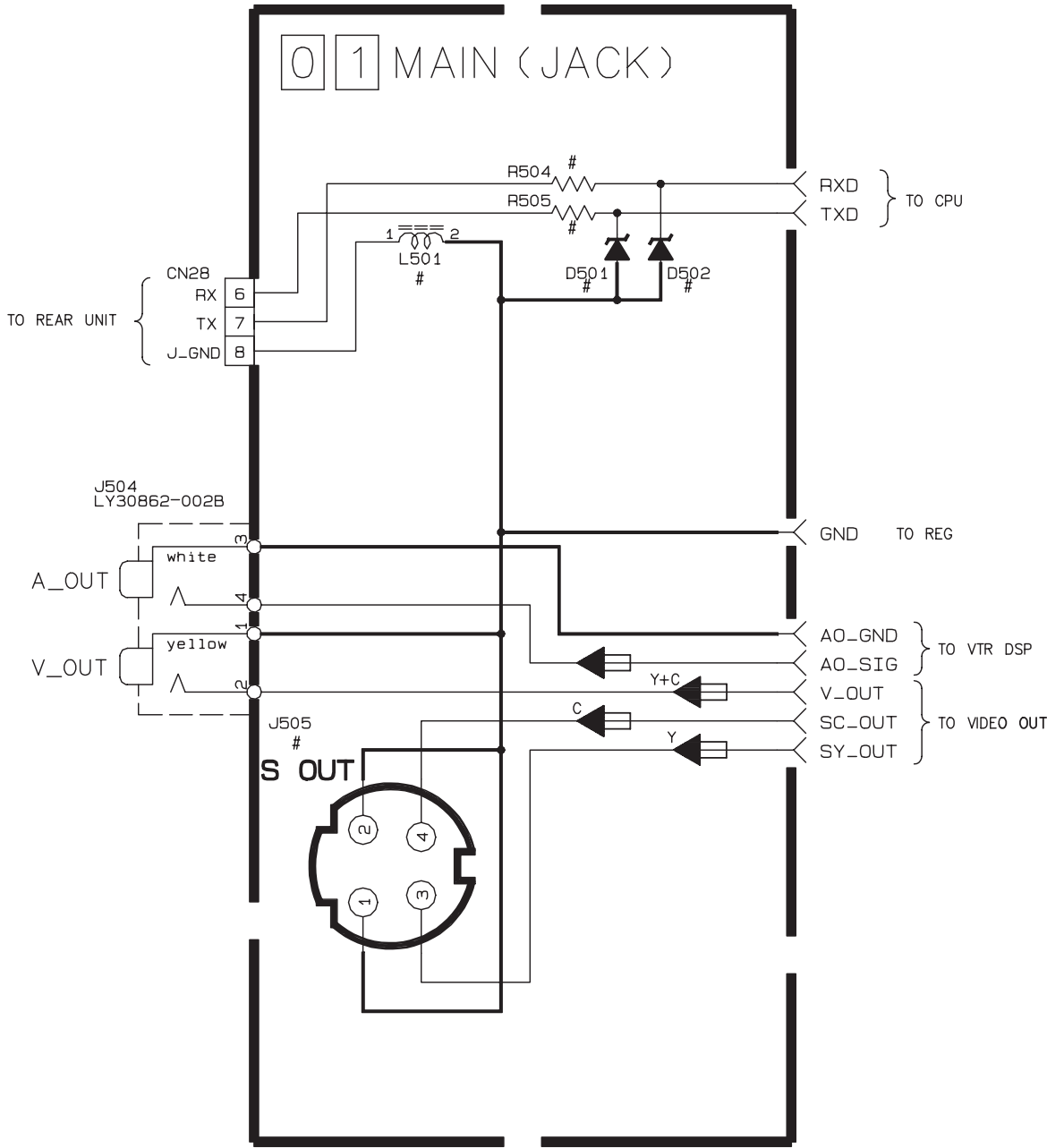
NOTE: • For the destination of each signal and further line connections that are cut off from this diagram, refer to "4.1 BOARD INTERCONNECTIONS"
• When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



NOTE : THE PRTS WITH MARKD (*) IS NOT USED

NOTE: • For the destination of each singnal and further line connections that are cut off from this diagram,
refer to “4.1 BOARD INTERCONNECTIONS”
•When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

- JACK -



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EXCHANGE PARTS LIST

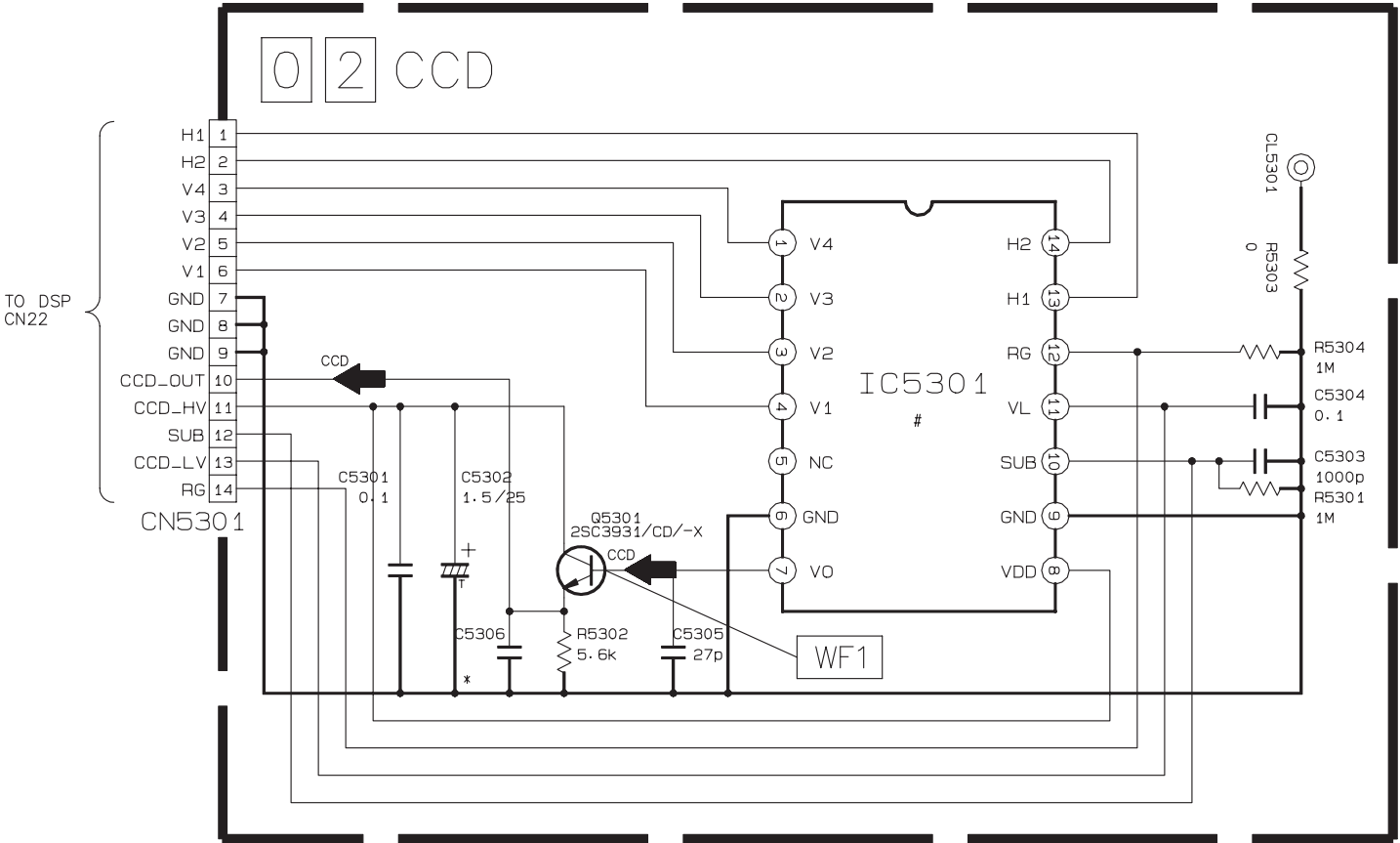
	JLIP-MODEL	NON JLIP-MODEL
L501	NGR0129-002	*
D501	MA8068-X	*
D502	MA8068-X	*
R504	NRSA63J-221X	*
R505	NRSA63J-331X	*

	S-VHS MODEL	N-VHS MODEL
J505	GND0078-001	*

* :NO WEAR

- CCD -

Note : IC5301 is incorporated in the CCD base assembly.
When IC5301 needs replacement, replace CCD base
assembly in whole because it cannot be replaced alone.



NOTES : 1. THE PARTS WITH MARKED (*) IS NOT USED.
2. For CCD waveforms, please refer to page 4-49.

y40065001a_rev0.1

EXCHANGE PARTS LIST

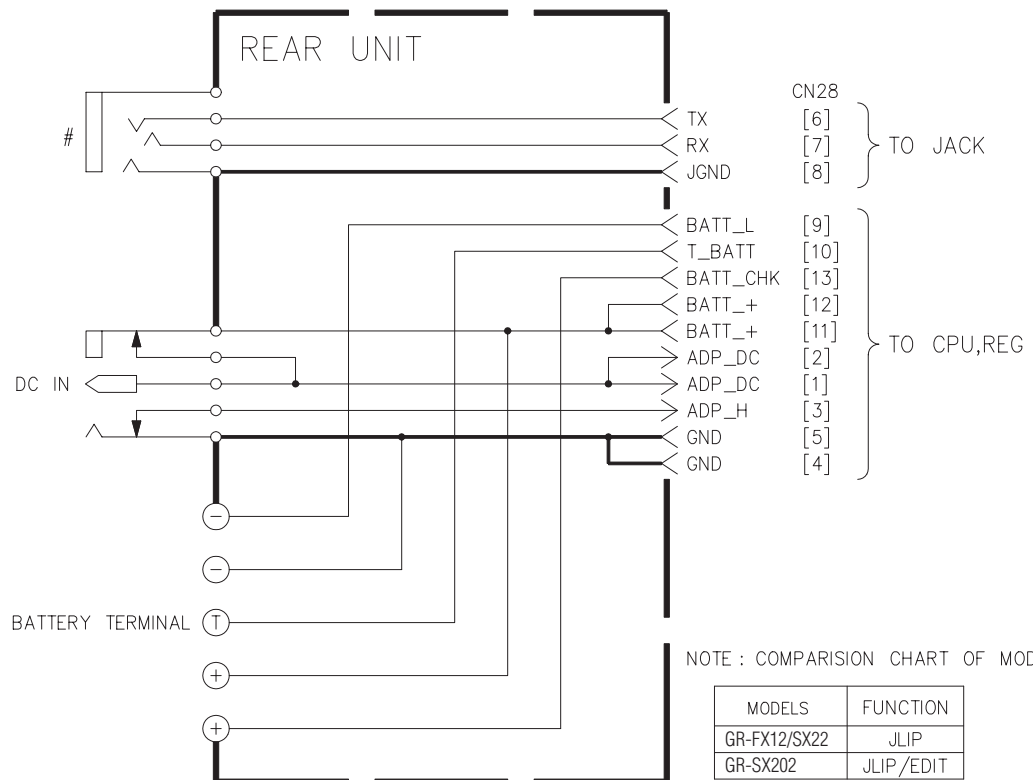
MODEL	CCD PWB ASSY	IC5301	R5301	R5304	C5303	CCD-HV	CCD-LV
NTSC-L	YB20899C-##	TCD5621P	*	*	*	15V	-8V
NTSC-L	YB20899B-##	MN39117FT	1M	*	1000p	15V	-8V
PAL-L	YB20899A-##	MN372132FT	1M	1M	1000p	15V	-8V
PAL-L	YB20899A-##	ICX227AK	1M	1M	1000p	12V	-5V
PAL-H	YB20899A-##	MN39241FT	1M	1M	1000p	15V	-8V
PAL-H	YB20899A-##	ICX229AK	1M	1M	1000p	12V	-5V

4.12 REAR UNIT AND SENSOR SCHEMATIC DIAGRAMS

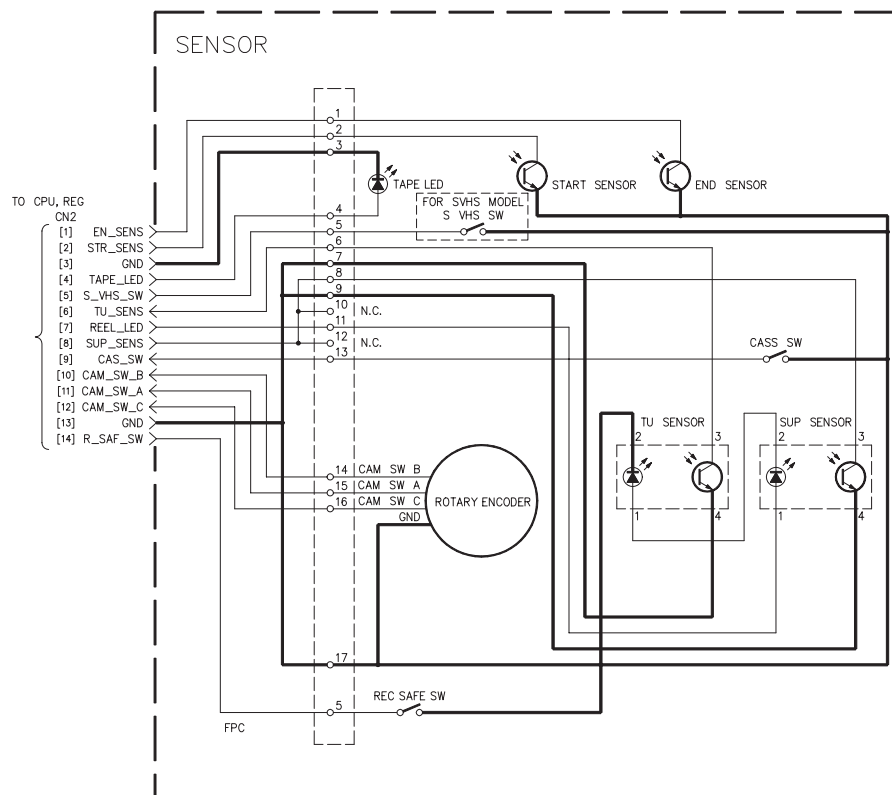
NOTE: • For the destination of each signal and further line connections that are cut off from this diagram, refer to “4.1 BOARD INTERCONNECTIONS”

•When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

- REAR UNIT -



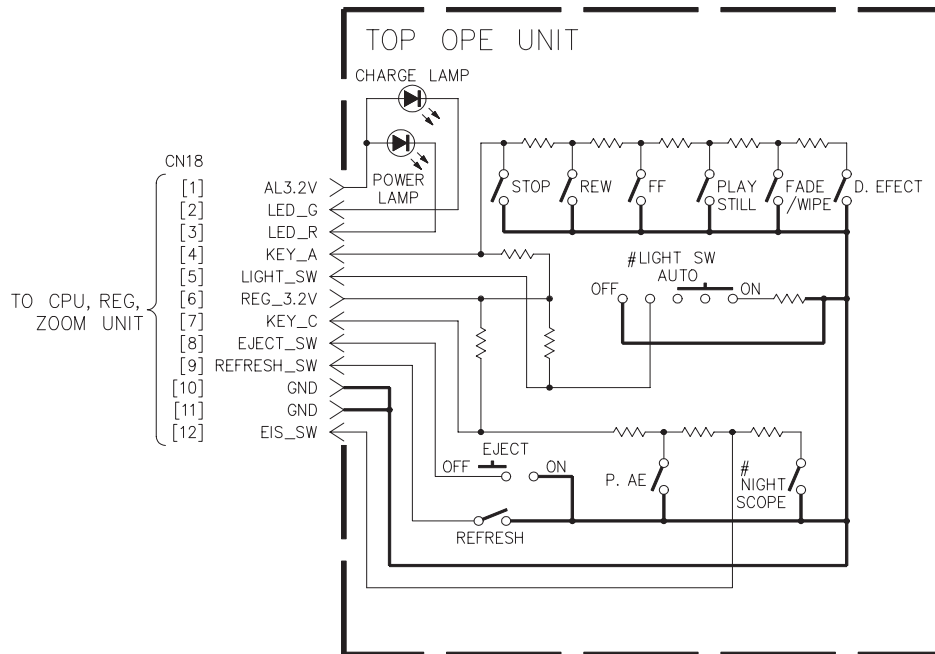
- SENSOR -



4.13 TOP OPE AND ZOOM UNIT SCHEMATIC DIAGRAMS

NOTE: • For the destination of each signal and further line connections that are cut off from this diagram, refer to “4.1 BOARD INTERCONNECTIONS”
• When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

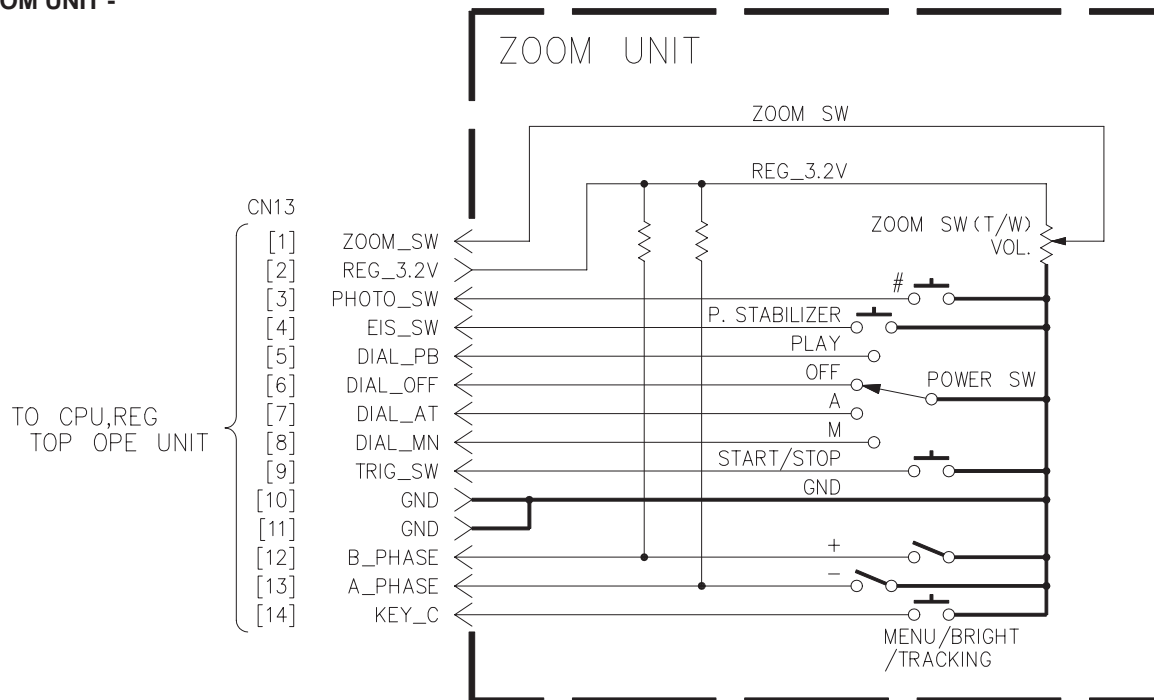
- TOP OPE UNIT -



NOTE : COMPARISON CHART OF MODELS & MARKS (#).

FUNCTION \ MODELS	GR-FX12EG	GR-SX22EG	GR-SX22EK	GR-SX202EG
LIGHT SW	NOT USED	USED	USED	USED
NIGHT SCOPE	NOT USED	NOT USED	NOT USED	USED

- ZOOM UNIT -

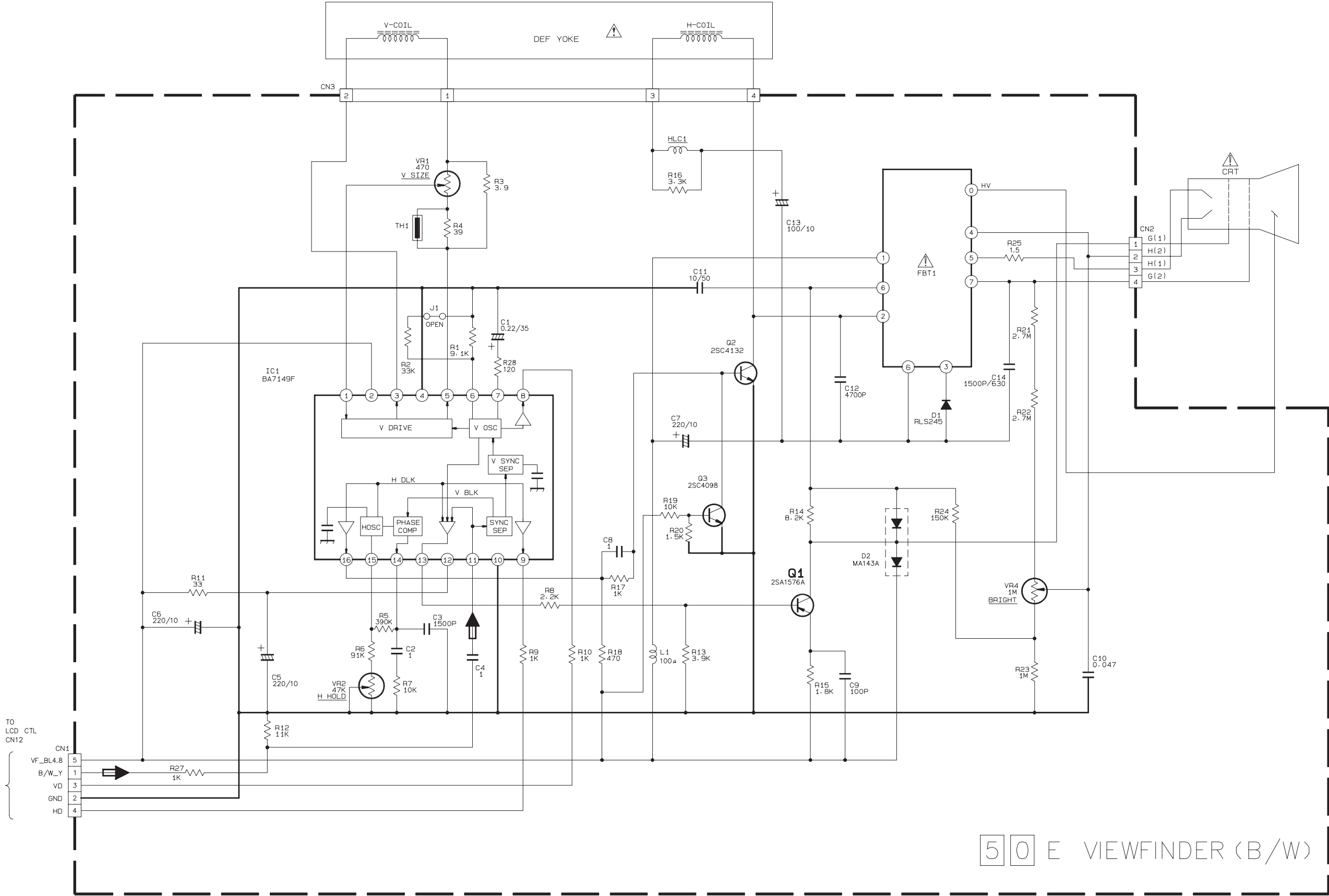


NOTE : COMPARISON CHART OF MODELS & MARKS (#).

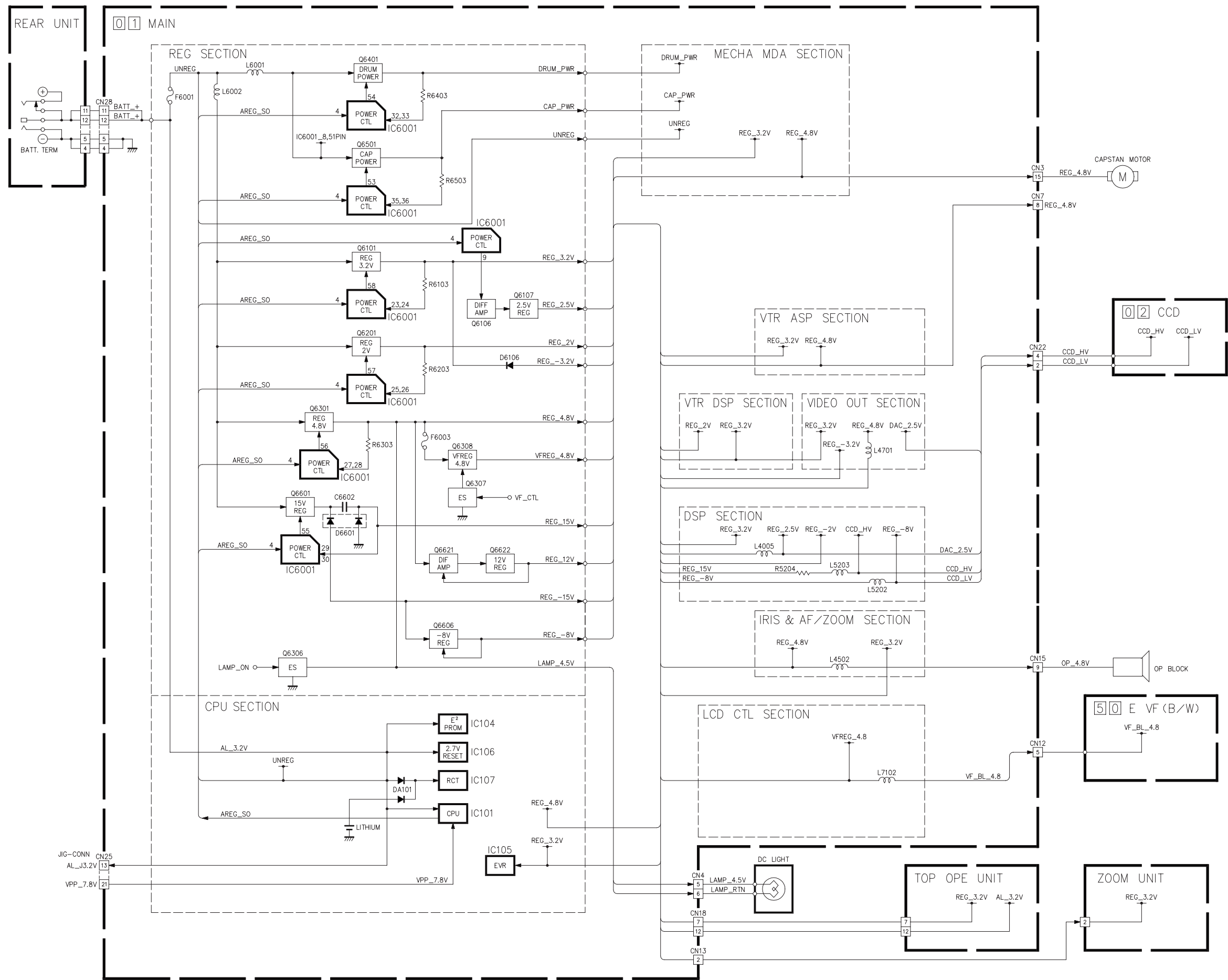
MODEL	FUNCTION	MODEL	FUNCTION
GR-FX12EG	5 SEC REC	GR-SX22EK	5 SEC REC
GR-SX22EG	5 SEC REC	GR-SX202EG	SNAP SHOT

4.14 B/W ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM

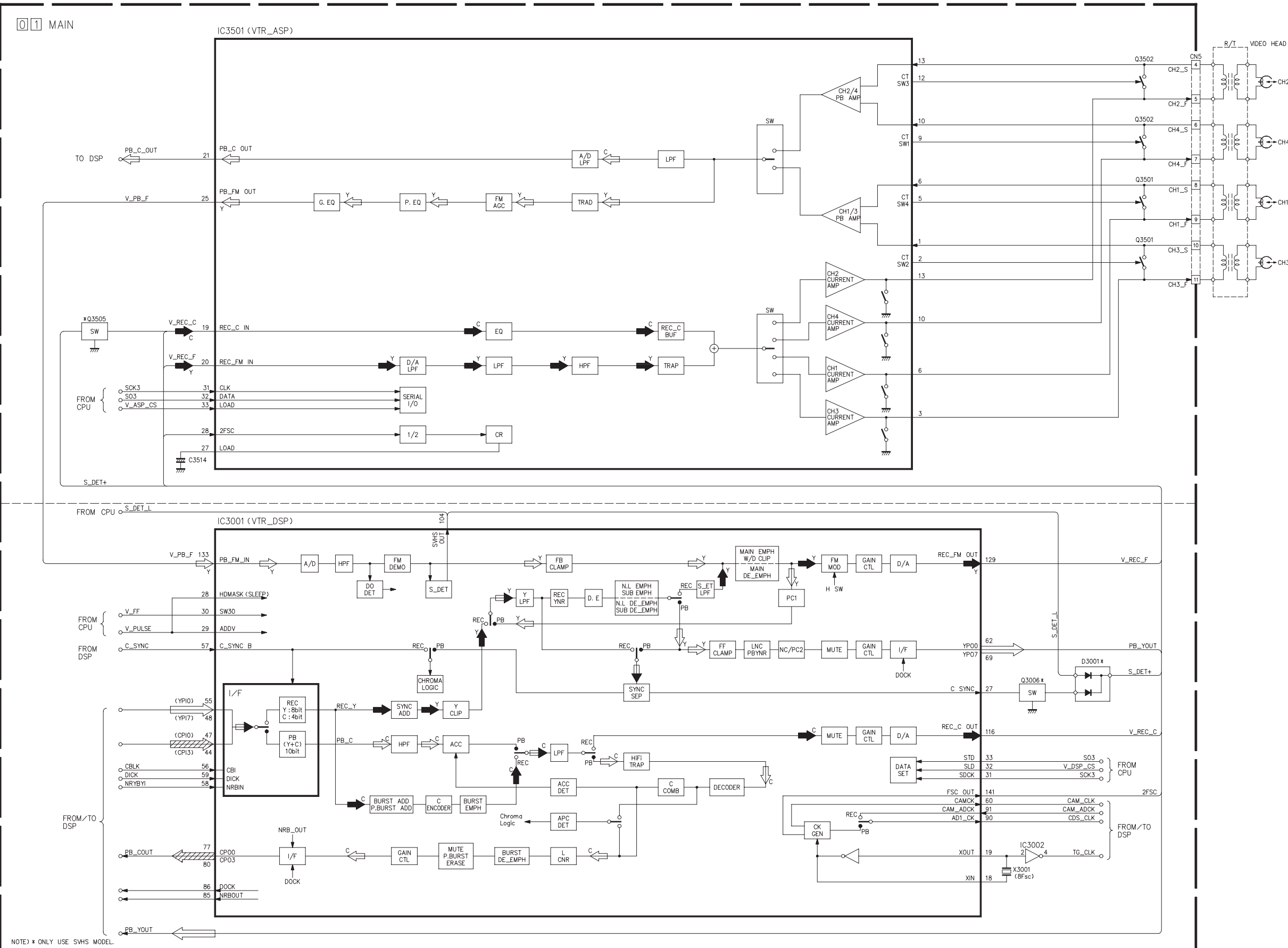
NOTE: • For the destination of each signal and further line connections that are cut off from this diagram, refer to "4.1 BOARD INTERCONNECTIONS"
• When ordering parts, be sure to order according to the Part Number indicated in the Parts List.



4.18 POWER SYSTEM BLOCK DIAGRAM

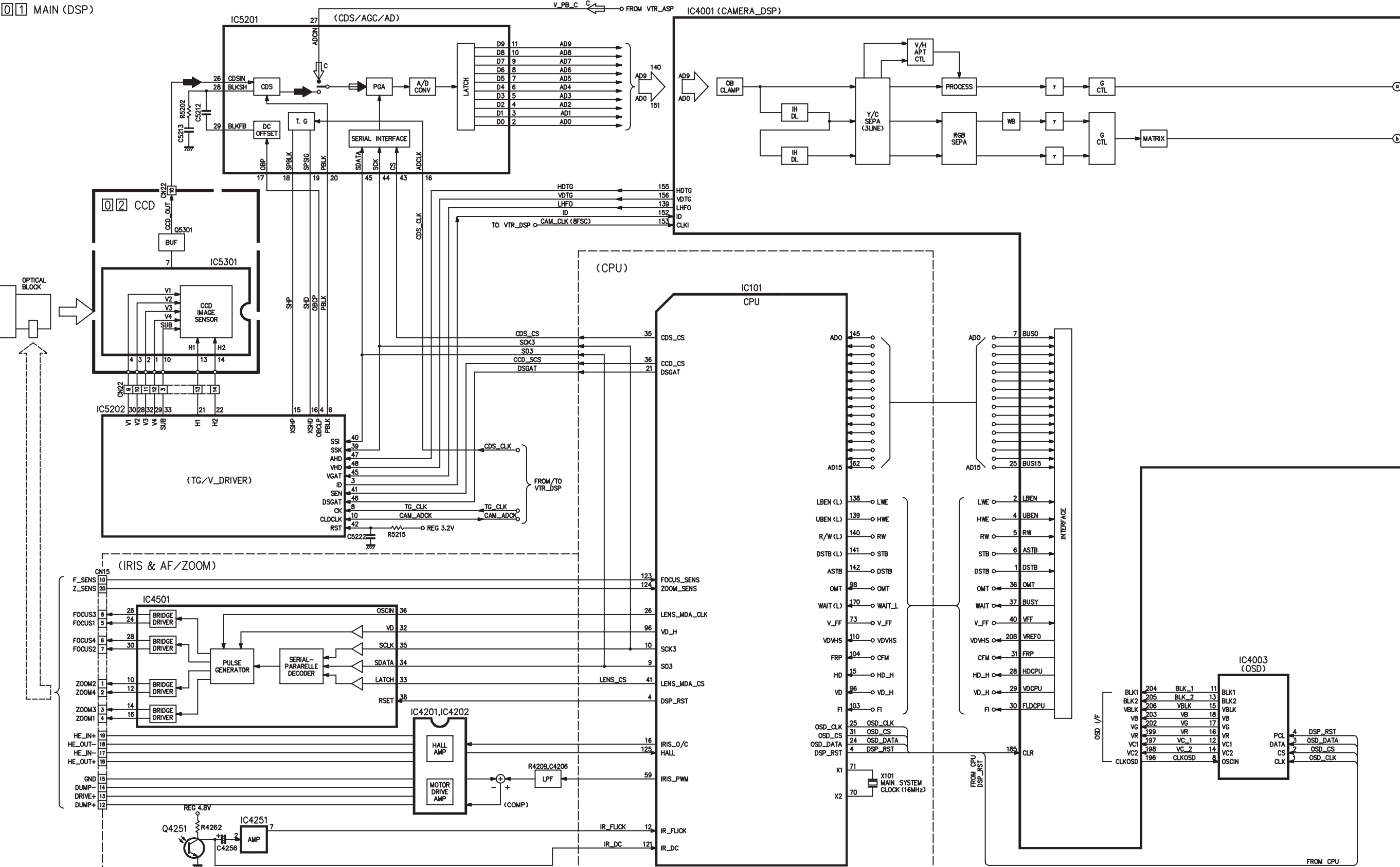


4.19 Y/C BLOCK DIAGRAM

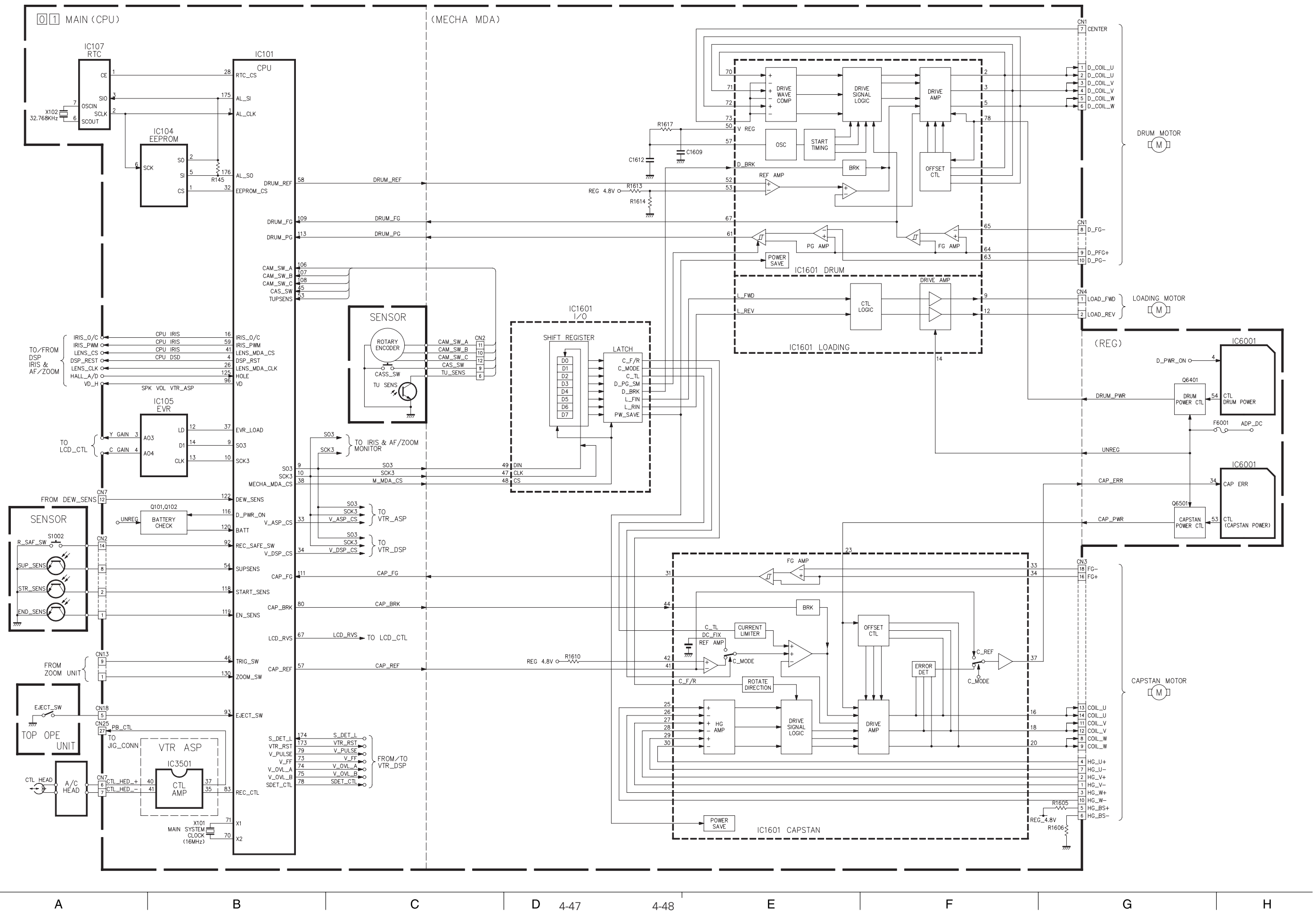


4.20 CAMERA BLOCK DIAGRAM

01 MAIN (DSP)

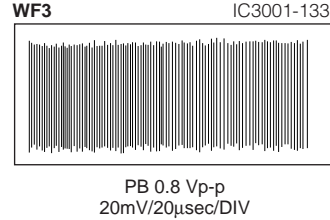
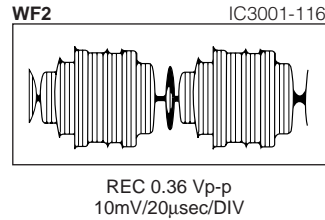
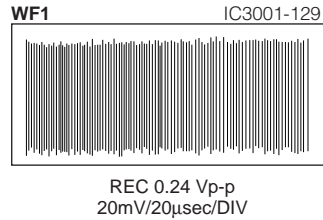


4.21 CPU/MDA BLOCK DIAGRAM

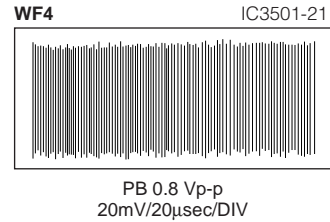
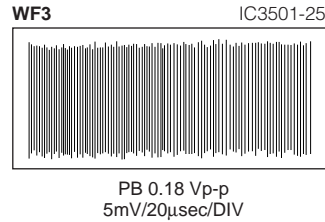
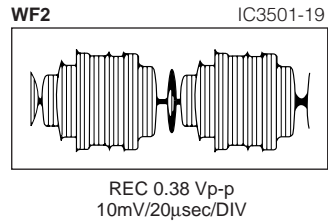
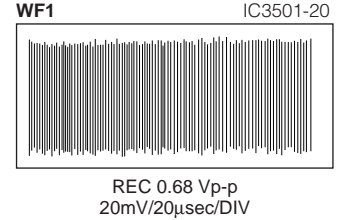


4.22 WAVEFORMS

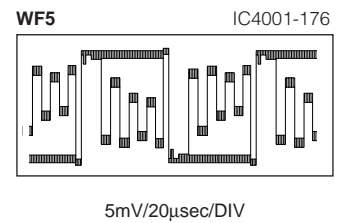
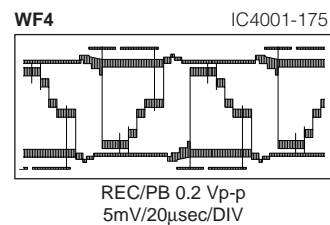
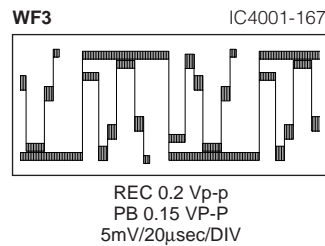
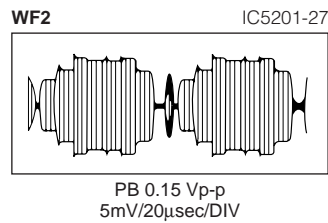
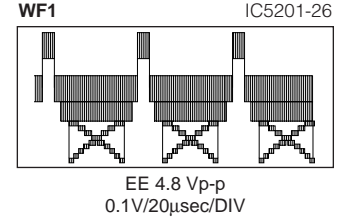
– VTR DSP –



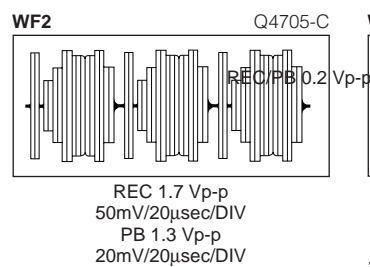
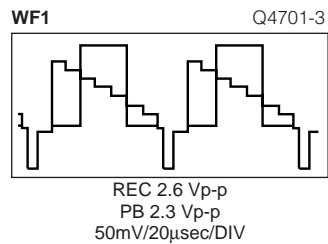
– VTR ASP –



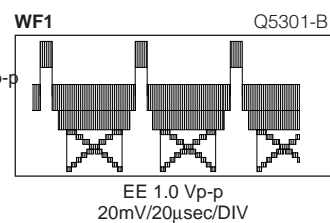
– DSP –



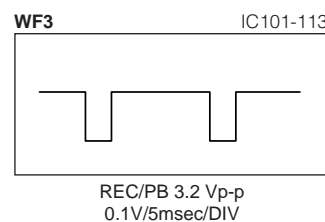
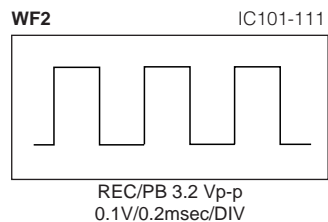
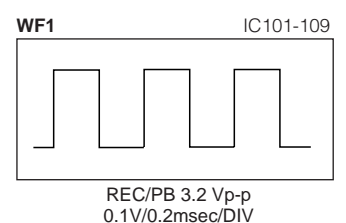
– VIDEO OUT –



– CCD –



– CPU –



– MECHA MDA –

