DSR-PD100/PD100P

SERVICE MANUAL Self Diagnosis







MEMORY STICK

C MECHANISM



Photo: DSR-PD100

US Model Canadian Model DSR-PD100

> AEP Model DSR-PD100P

NTSC model: DSR-PD100 PAL model: DSR-PD100P

Digital Camcorder

System

Video recording system Two rotary heads, Helical scanning

Audio recording system Rotary heads, PCM system Quantization: Fs 32kHz (12bits,

stereo 1, stereo 2), Fs 48kHz (16bits,

Video signal DSR-PD100: NTSC color, EIA standards

DSR-PD100P: PAL color, CCIR standards

Usable cassette

Mini DVCAM cassette with logo printed

Tape speed
DSR-PD100: Approx. 28.218 mm/s DSR-PD100P: Approx. 28.246 mm/s Recording/playback time 40 minutes (PDVM-40ME)

Fast forward/rewind time Approx. 2 min. 30 s (PDVM-40ME) Image device

3CCD (Charge Coupled Device

Viewfinder

Electric viewfinder (color)

Combined power zoom lens, 48x (Digital), 12x (Optical)

SPECIFICATIONS

Focal distance $f = 4.3 \text{ to } 51.6 \text{ mm} (^3/_{16} \text{ to } 2^1/_{8} \text{ in.})$ $(41.3 \text{ to } 496 \text{ mm } (1^{11}/16 \text{ to } 19^{5}/8 \text{ in.})$ when converted into a 35 mm still camera)

F1.6 - 2.8

TTL autofocus system inner focus wide macro system

Color temperature

Auto, №One push, -A-Indoor (3200K), *Outdoor (5800K)

Minimum illumination 4 lux at F 1.6

Illumination range 4 to 100,000 lux Recommended illumination

More than 100 lux

LCD screen

Picture

3.5 inches measured diagonally 72.4×50.4 mm ($2^{7}/8 \times 2$ in.) On-screen display

TN LCD/TFT active matrix method Total dot number 184,580 (839 x 220)

Input and output connectors

S VIDEO input/output Input/output auto switch 4-pin mini DIN Luminance signal: 1 Vp-p, 75 ohms, unbalanced, sync negative Chrominance signal: 0.286 Vp-p (DSR-PD100), 0.3 Vp-p (DSR-PD100P), 75 ohms, unbalanced

Audio/Video input/output

Input/output auto switch AV MINI JACK, 1 Vp-p, 75 ohms, unbalanced, sync negative 327 mV, (at output impedance more than 47 kilohms) Output impedance with less than 2.2 kilohms/Stereo minijack (ø 3.5mm)

Input impedance more than 47 kilohms

DV input/output 4-pin special connector

Headphones Stereo minijack (ø 3.5 mm)

Stereo minijack (ø 3.5mm):0.388mV,

DC2.5V Input impedance 6.8 kilohms

CLANC jack Stereo miniminijack (ø 2.5 mm)

General

Power requirements

7.2 V (battery insertion input) 8.4 V (DC IN jack)

Average power consumption 4.3 W during camera recording

using viewfinder 5.3 W during camera recording using LCD screen

Operating temperature 0°C to 40°C (32°F to 104°F)

Storage temperature -20°C to 60°C (-4°F to 140°F) Dimensions

Approx. 93 x 112 x 193.5 mm (w/h/d) $(3^{3/4} \times 4^{1/2} \times 7^{5/8} \text{ in.})$

Mass

Approx. 900 g (1 lb 16 oz) excluding the battery pack and the cassette. Approx. 985 g (2 lb 3 oz) including the XLR adaptor Approx. 1.28 kg (2 lb 13 oz) including the XLR adaptor, wide conversion lens and wide conversion lens hood.

Microphone

Electret condenser microphone, Stereo type Speaker Dynamic-speaker Supplied accessories See page 2.

AC power adaptor

Power requirements 100 to 240 V AC, 50/60 Hz Power consumption

Output voltage DC OUT: 8.4 V, 1.5 A in operating mode

Operating temperature 0°C to 40°C (32°F to 104°F) Storage temperature -20°C to 60°C (-4°F to 140°F)

Dimensions (Approx.) $125 \times 39 \times 62 \text{ mm (w/h/d) } (5 \times 19/16 \times 10^{-10})$ $2^{1/2}$ in.)

Mass (Approx.)

280 g (9.8 oz) excluding power code

Continued on next page —







SELF-DIAGNOSIS FUNCTION

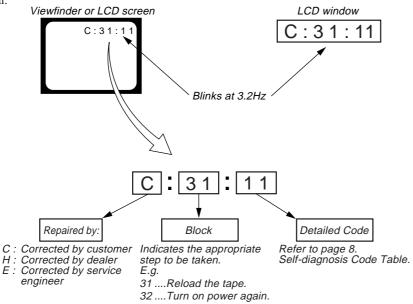
1. SELF-DIAGNOSIS FUNCTION

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder, LCD screen or LCD window what to do. This function consists of two display; self-diagnosis display and service mode display.

Details of the self-diagnosis functions are provided in the Instruction manual

2. SELF-DIAGNOSIS DISPLAY

When problems occur while the unit is operating, the counter of the viewfinder, LCD screen or LCD window consists of an alphabet and 4-digit numbers, which blinks at 3.2 Hz. This 5-character display indicates the "repaired by:", "block" in which the problem occurred, and "detailed code" of the problem.

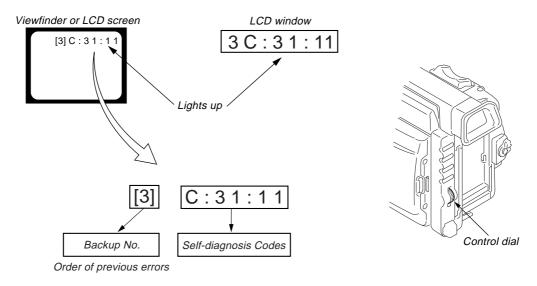


3. SERVICE MODE DISPLAY

The service mode display shows up to six self-diagnosis codes shown in the past.

3-1. Display Method

While pressing the "STOP" key, set the switch from OFF to "VTR or PLAYER", and continue pressing the "STOP" key for 5 seconds continuously. The service mode will be displayed, and the counter will show the backup No. and the 5-character self-diagnosis codes.



3-2. Switching of Backup No.

By rotating the control dial, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

[1]: Occurred first time [4]: Occurred fourth time [2]: Occurred second time [5]: Occurred fifth time [6]: Occurred the last time

3-3. End of Display

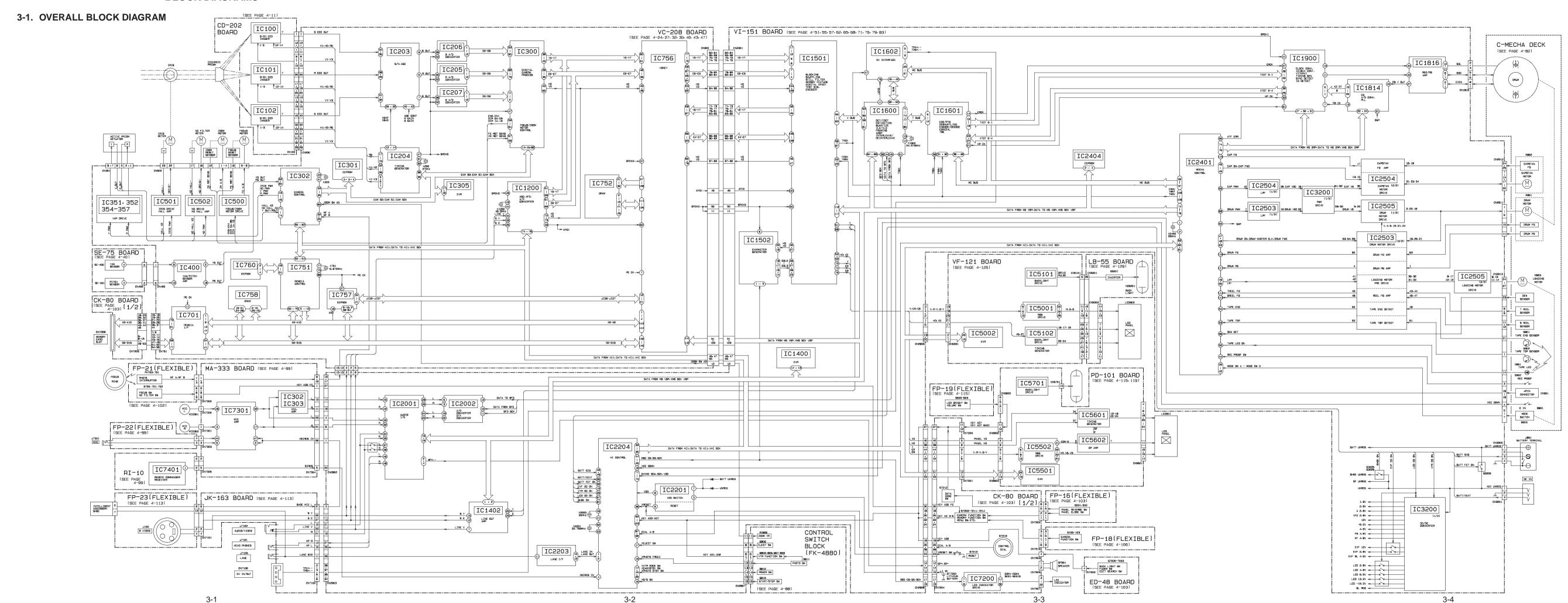
Turning OFF the power supply will end the service mode display.

Note: The "self-diagnosis display" data will be backed up by the coin-type lithium battery of CK-80 board BT7200. When this coin-type lithium battery is removed, the "self-diagnosis display" data will be lost by initialization.

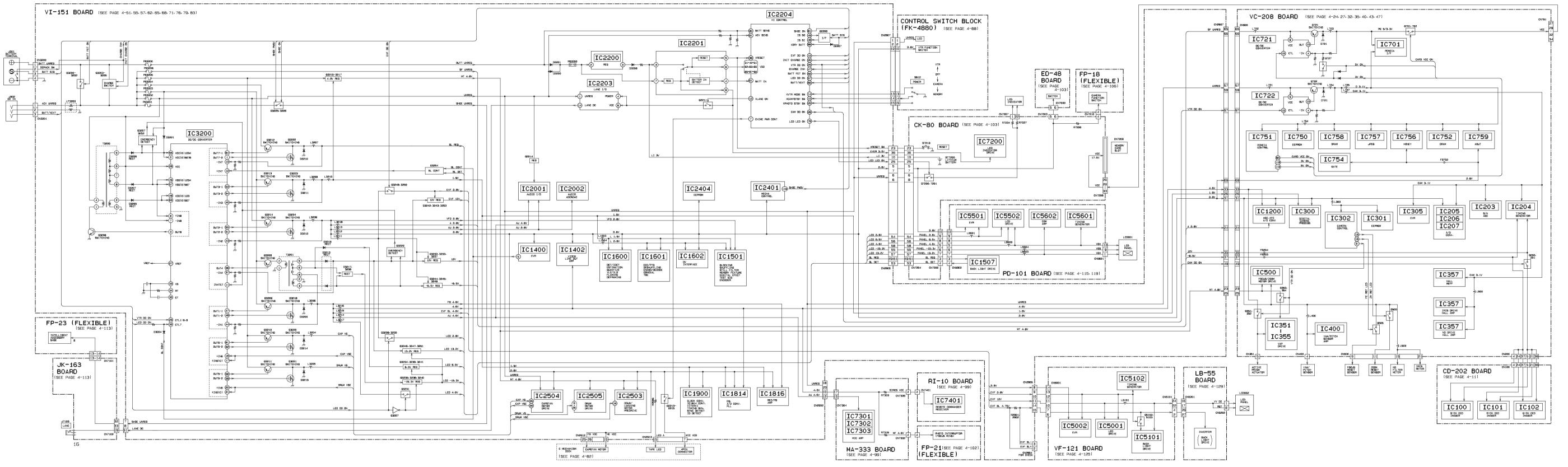
4. SELF-DIAGNOSIS CODE TABLE

S	Self-diagnosis Code						
Repaired by:	Block Function		Detailed Code		Symptom/State	Correction	
С	2	1	0	0	Condensation.	Remove the cassette, and insert it again after one hour.	
С	2	2	0	0	Video head is dirty.	Clean with the optional cleaning cassette.	
С	2	3	0	0	Non-standard battery is used.	Use the info LITHIUM battery.	
С	3	1	1	0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.	
С	3	1	1	1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.	
С	3	1	2	0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.	
С	3	1	2	1	Winding S reel fault when counting the rest of tape.	Load the tape again, and perform operations from the beginning.	
С	3	1	2	2	T reel fault.	Load the tape again, and perform operations from the beginning.	
С	3	1	2	3	S reel fault.	Load the tape again, and perform operations from the beginning.	
С	3	1	2	4	T reel fault.	Load the tape again, and perform operations from the beginning.	
С	3	1	3	0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.	
С	3	1	4	0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.	
С	3	1	4	2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.	
С	3	1	1	0	LOAD direction loading motor time- out.	Remove the battery or power cable, connect, and perform operations from the beginning.	
С	3	1	1	1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.	
С	3	2	2	0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.	
С	3	2	2	1	Winding S reel fault when counting the rest of tape.	Remove the battery or power cable, connect, and perform operations from the beginning.	
С	3	2	2	2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.	
С	3	2	2	3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.	
С	3	2	2	4	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.	
С	3	2	3	0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.	
С	3	2	4	0	FG fault when starting drum	Remove the battery or power cable, connect, and perform operations from the beginning.	
С	3	2	4	2	FG fault during normal drum operations	Remove the battery or power cable, connect, and perform operations from the beginning.	
Е	6	1	0	0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus reset sensor (Pin 100 of CN500 of VC-208 board) when focusing is performed when the control dial is rotated in the focus manual mode, and the focus motor drive circuit (IC500 of VC-208 board) when the focusing is not performed.	
Е	6	1	1	0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom reset sensor (Pin ② of CN500 of VC-208 board) when zooming is performed when the zoom lens is operated and the zoom motor drive circuit (IC500 of VC-208 board) when zooming is not performed.	
Е	6	2	0	0	Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE451 of SE-75 board) peripheral circuits.	
Е	6	2	0	1	Steadyshot function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE450 of SE-75 board) peripheral circuits.	

SECTION 3 BLOCK DIAGRAMS

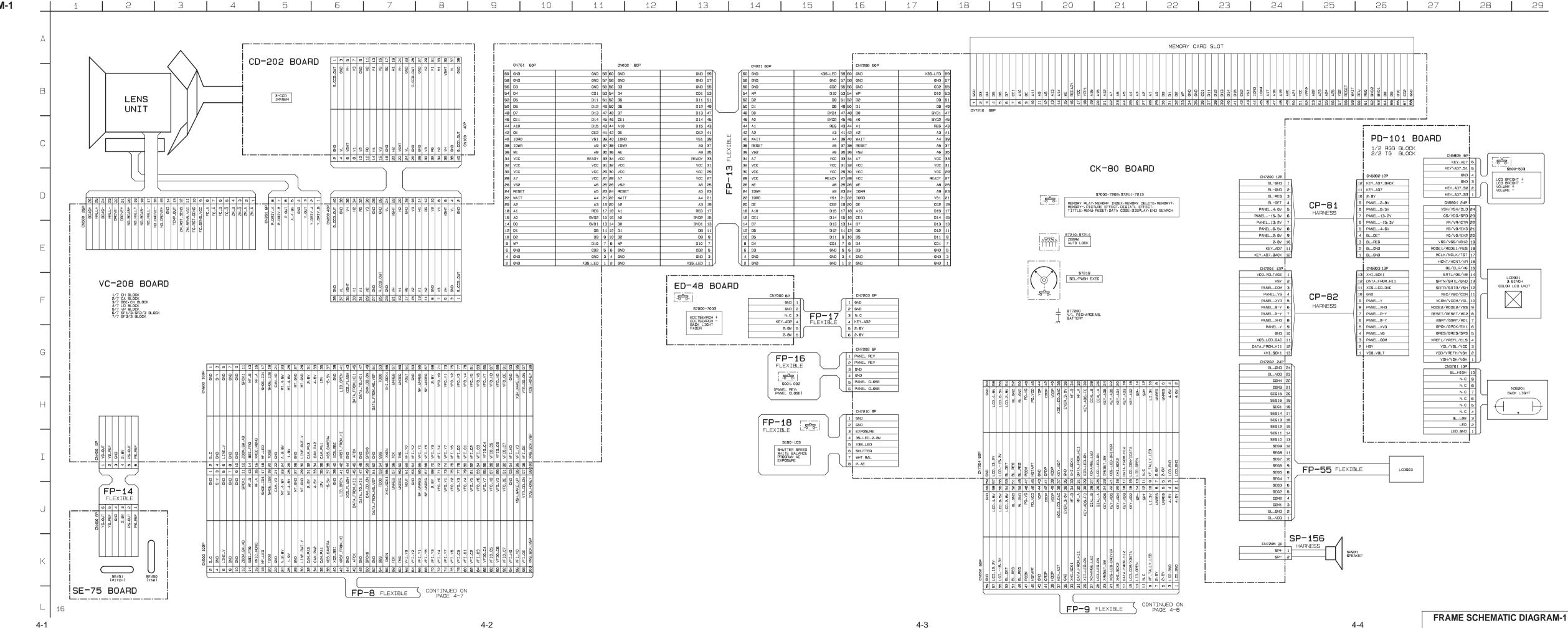


3-2. POWER BLOCK DIAGRAM

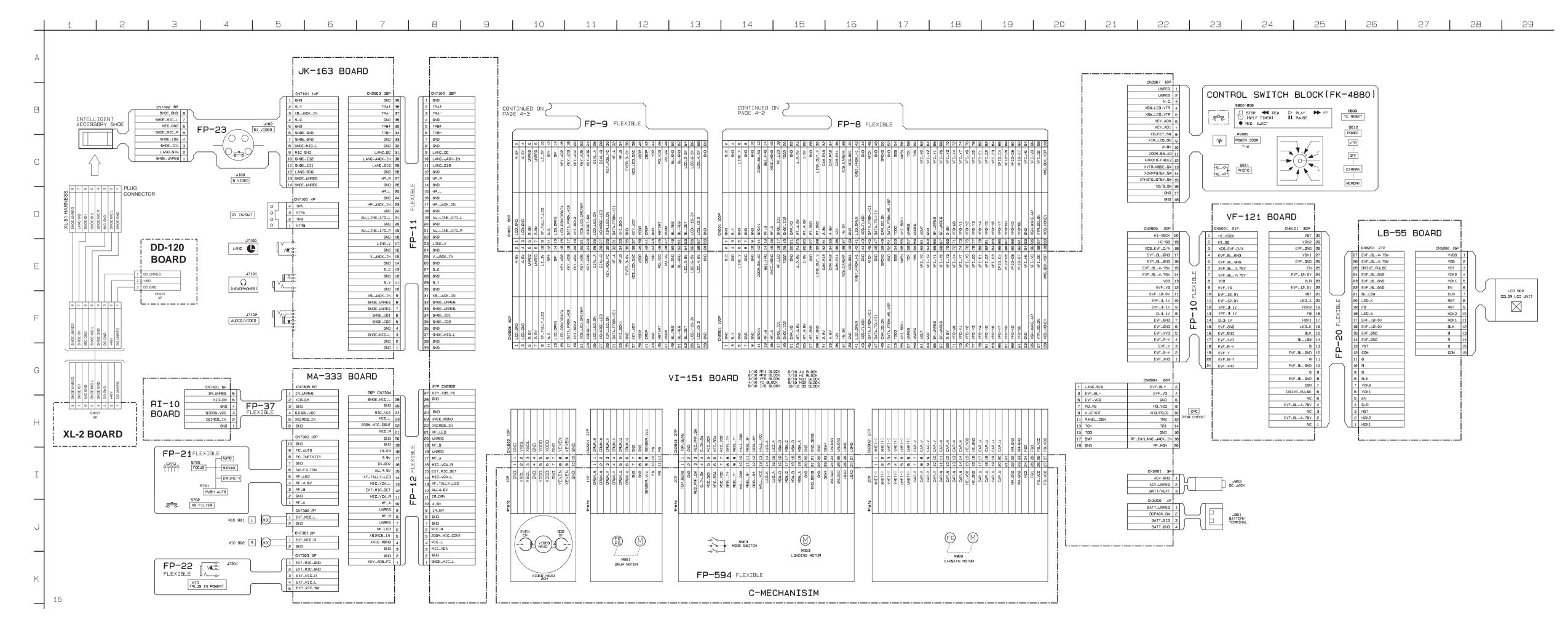


3-5 3-7 3-8E

4-1. FRAME SCHEMATIC DIAGRAM-1



FRAME SCHEMATIC DIAGRAM-2



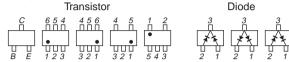
4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS (In addition to this, the necessary note is printed in each block)

(For printed wiring boards)

- : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.

Chip parts.



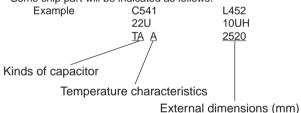
(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μμF. 50V or less are not indicated except for electrolytics and
- Chip resistors are 1/10W unless otherwise noted. $k\Omega$ =1000 Ω , $M\Omega$ =1000 $k\Omega$.
- Caution when replacing chip parts.

New parts must be attached after removal of chip.

Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.

Some chip part will be indicated as follows.



 Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.

In such cases, the unused circuits may be indicated.

- Parts with ★ differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name

 $XEDIT \rightarrow \overline{EDIT}$ PB/XREC \rightarrow PB/ \overline{REC} • - : non flammable resistor

• +wv : fusible resistor

: panel designation

: B+ Line * • --- : B- Line *

• 🖒 : IN/OUT direction of (+,-) B LINE. * adjustment for repair.

Circled numbers refer to waveforms. *

* Indicated by the color red.

The components identified by $\text{mark} \, \triangle \, \text{or dotted line with mark}$ \triangle are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ${\boldsymbol{\vartriangle}}$ sont critiques pour la sécurité. Ne les remplacer que par une

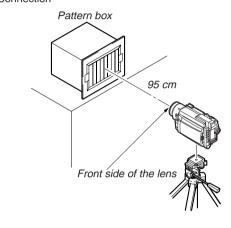
pièce portant le numéro spécifié.

(Measuring conditions voltage and waveform)

 Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference wave-

(VOM of DC 10 MW input impedance is used.).

- Voltage values change depending upon input impedance of VOM used.)
- 1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

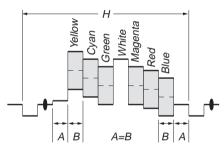


Fig. a (Video output terminal output waveform)

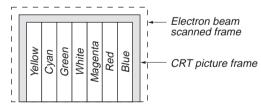
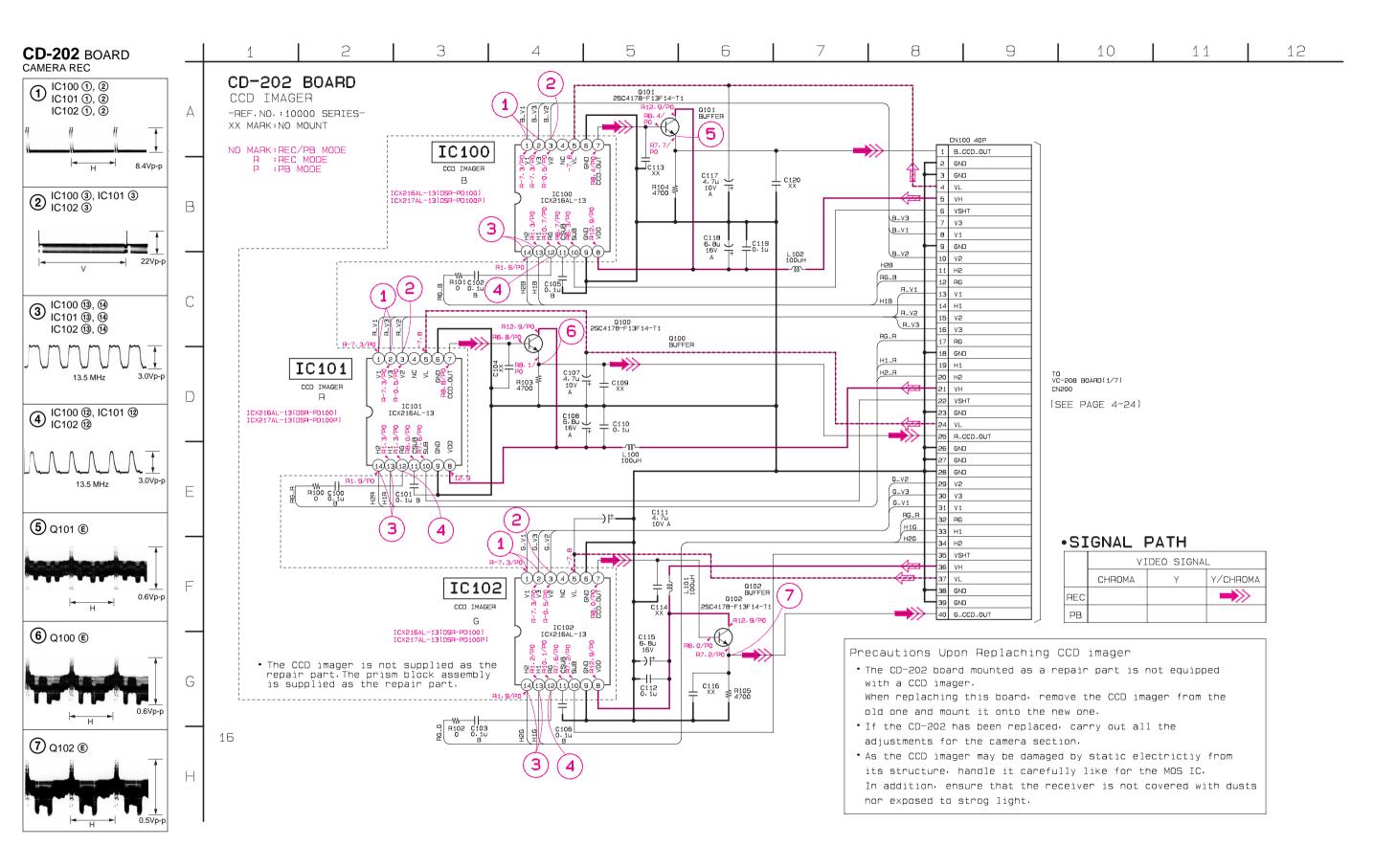


Fig.b (Picture on monitor TV)

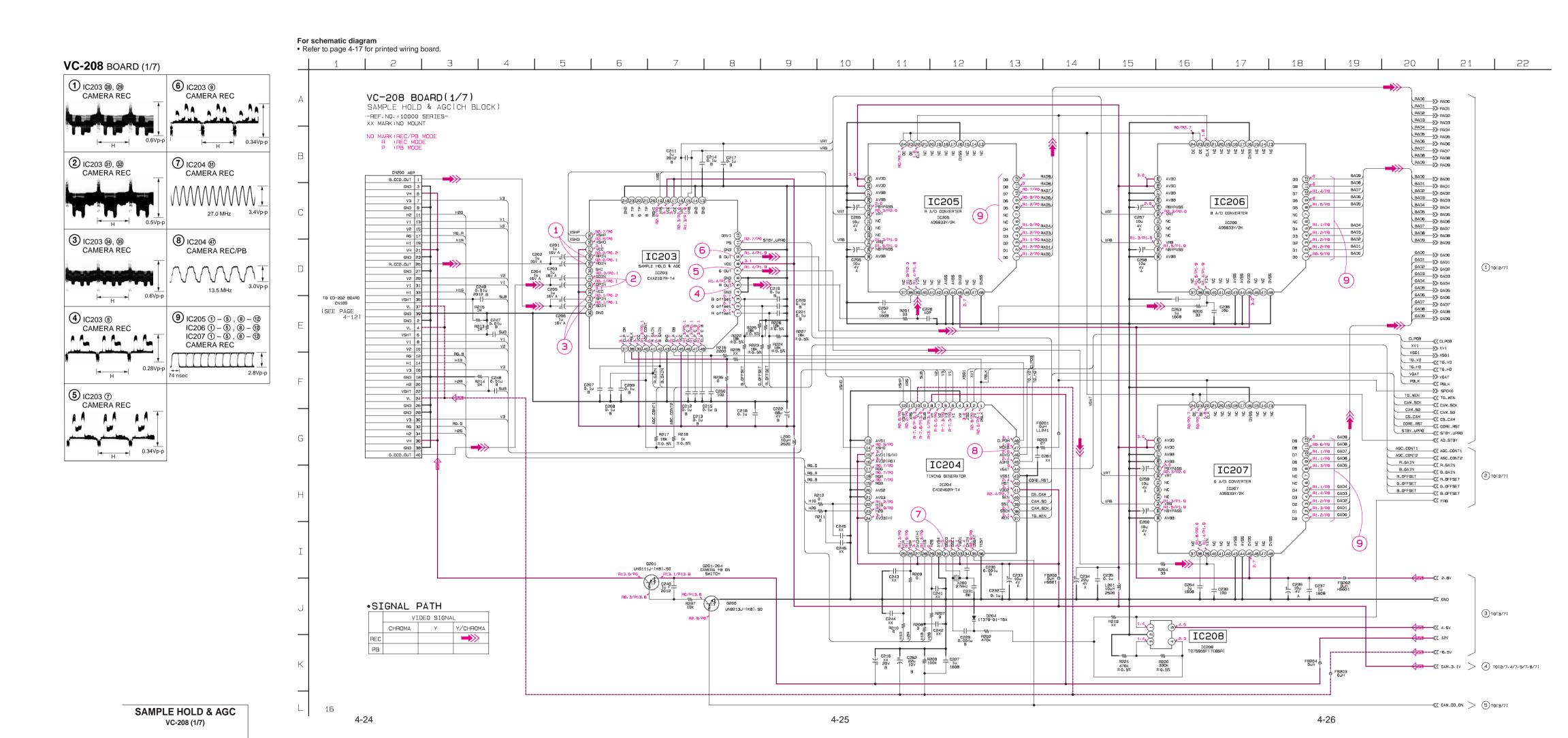
- 3. The LINE REC waveform shows the waveform when the color for signal (video signal) is input from a color bar pattern.
- The LINE OUT waveform shows the waveform when the signals are connected to the S-VIDEO and VIDEO/AUDIO jacks but not to other jacks.

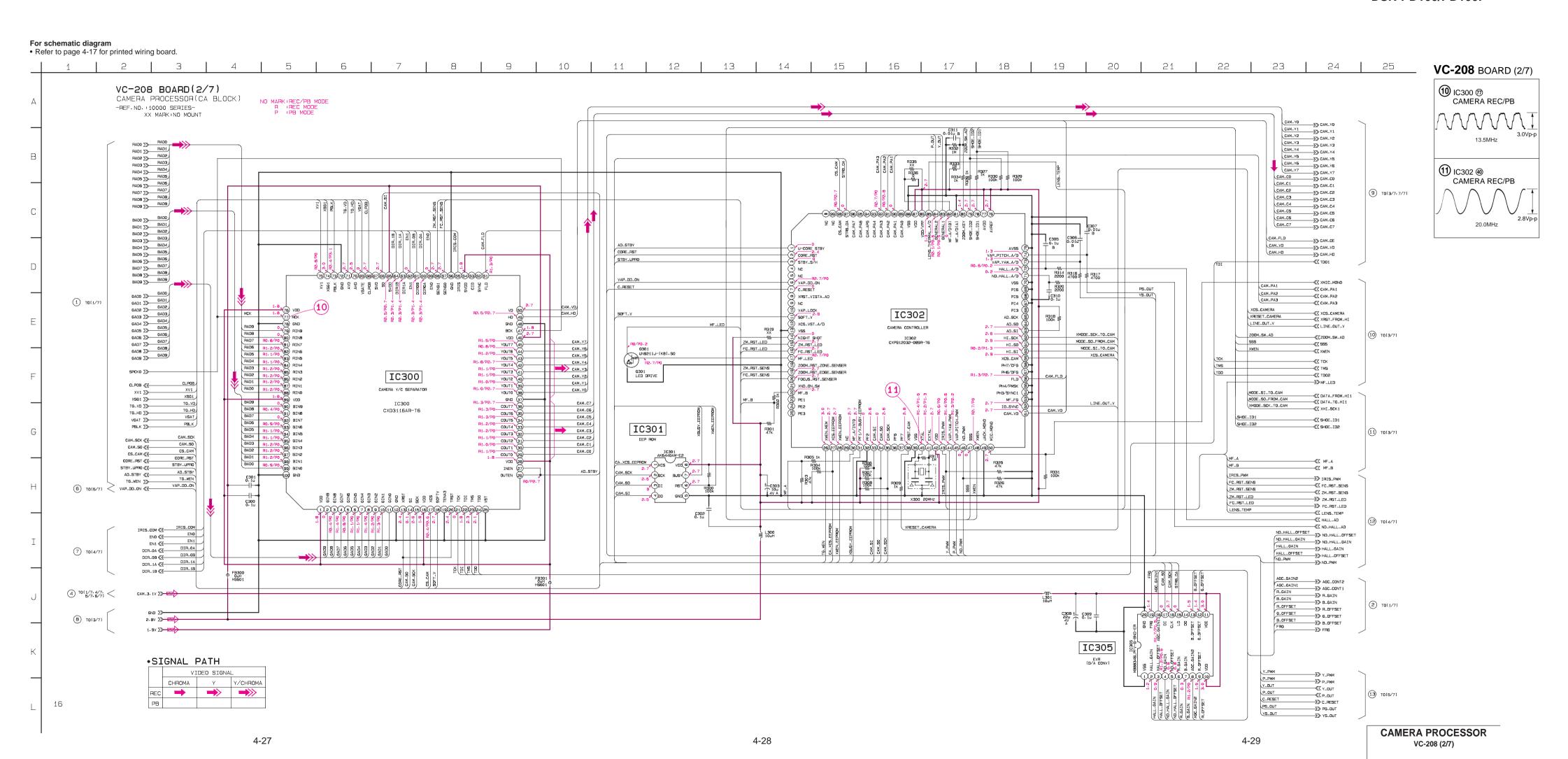
When indicating parts by reference number, pleas include the board name.

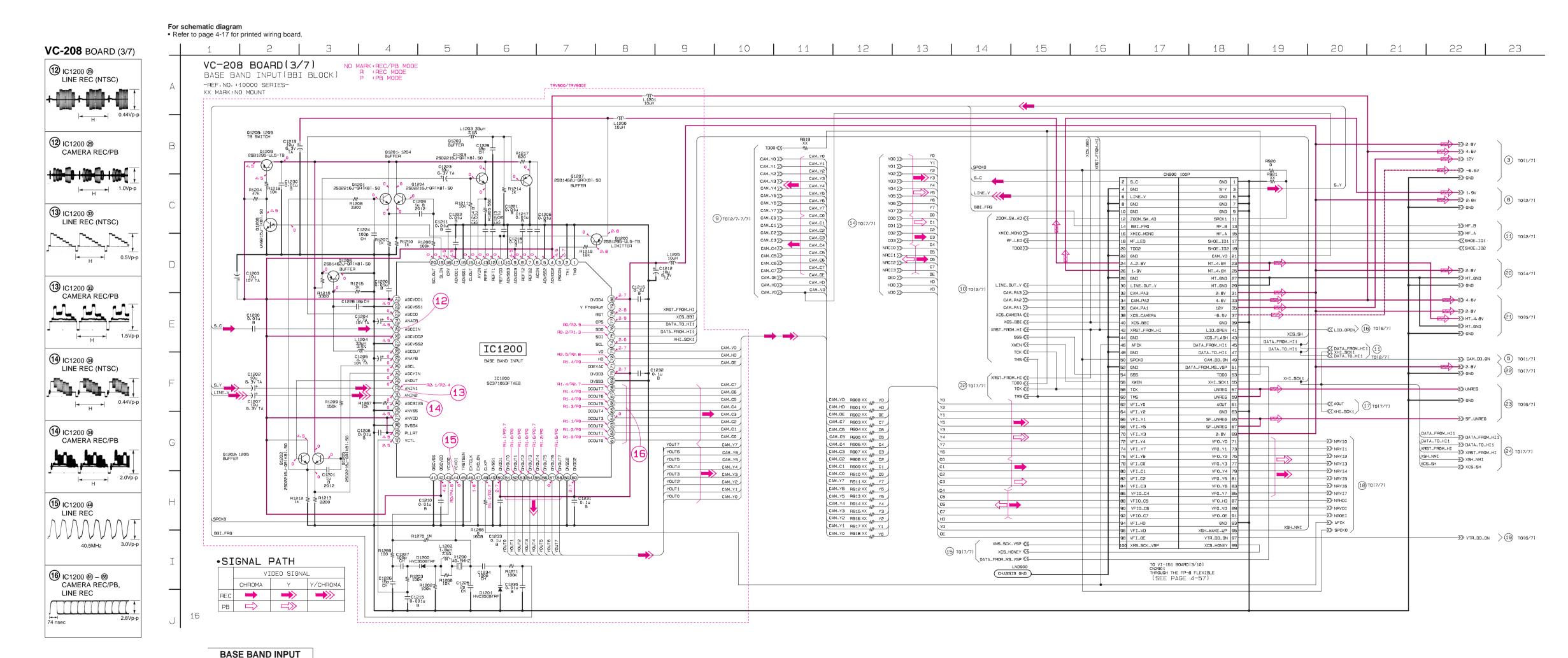


CCD IMAGER CD-202

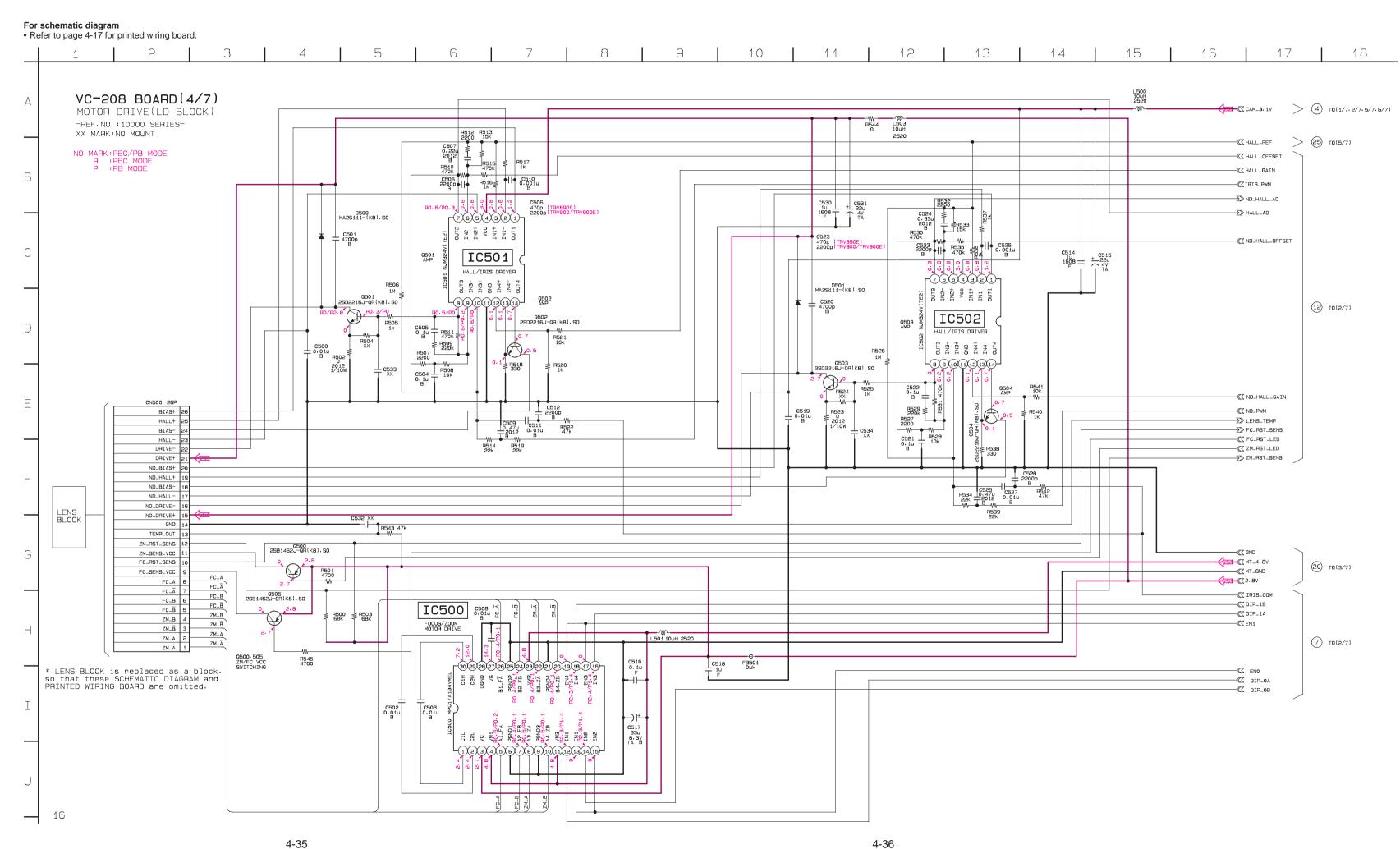
4-11 4-12







4-32



MOTOR DRIVE

VC-208 (4/7)

SE-75 (YAW/PITCH SENSOR) PRINTED WIRING BOARD

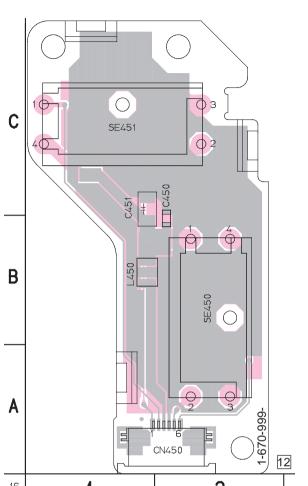
SE-75 BOARD

C450 B-2 C451 A-2

CN450 A-2 L450 B-1

— Ref. No. SE-75 Board; 10,000 Series —

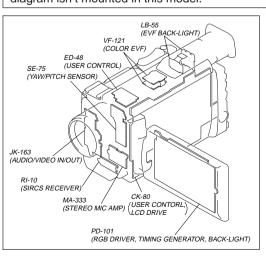
SE-75 BOARD (SIDE A)



For printed wiring boards

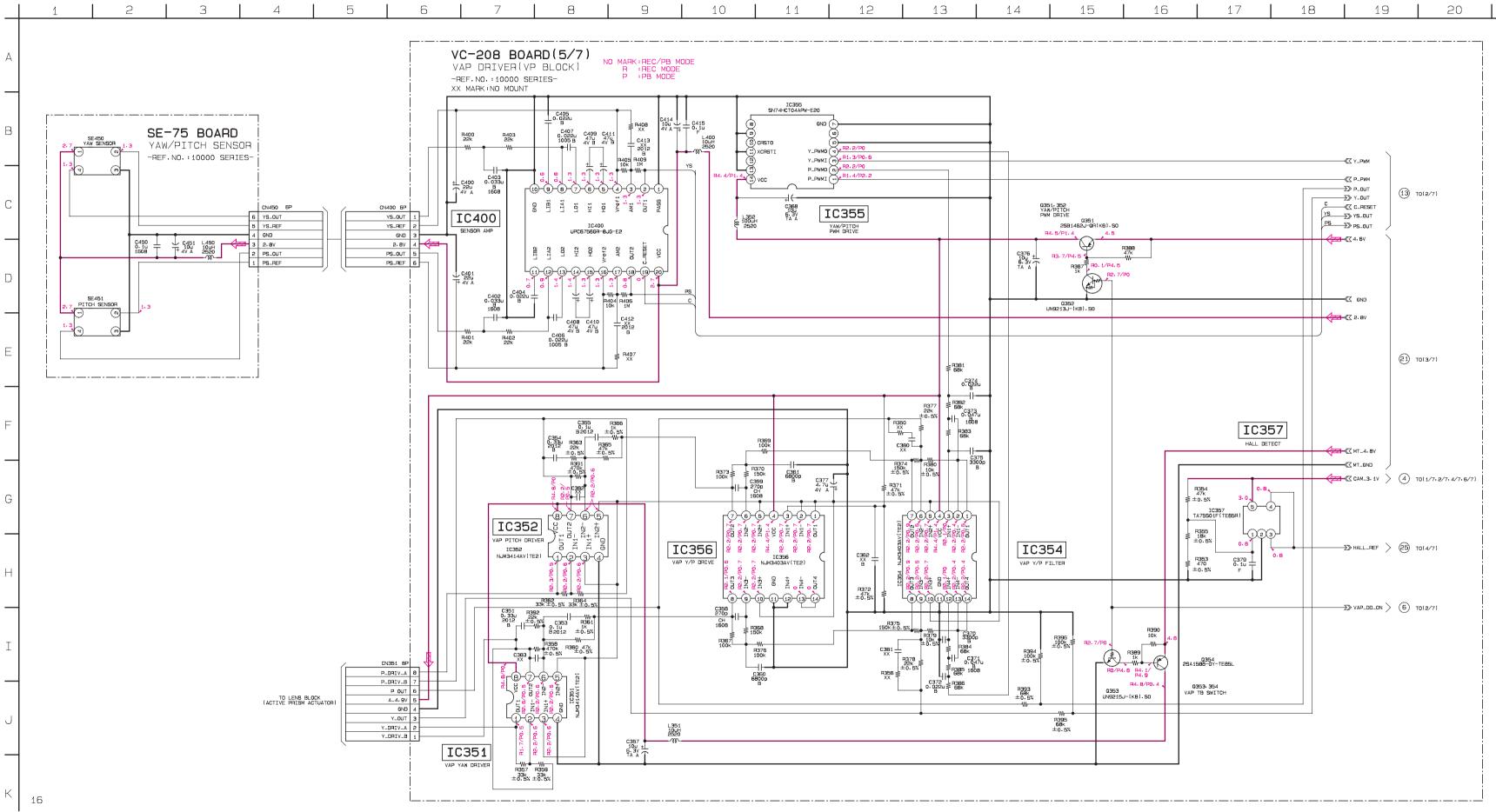
• This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are few cases that the part printed on this diagram isn't mounted in this model.



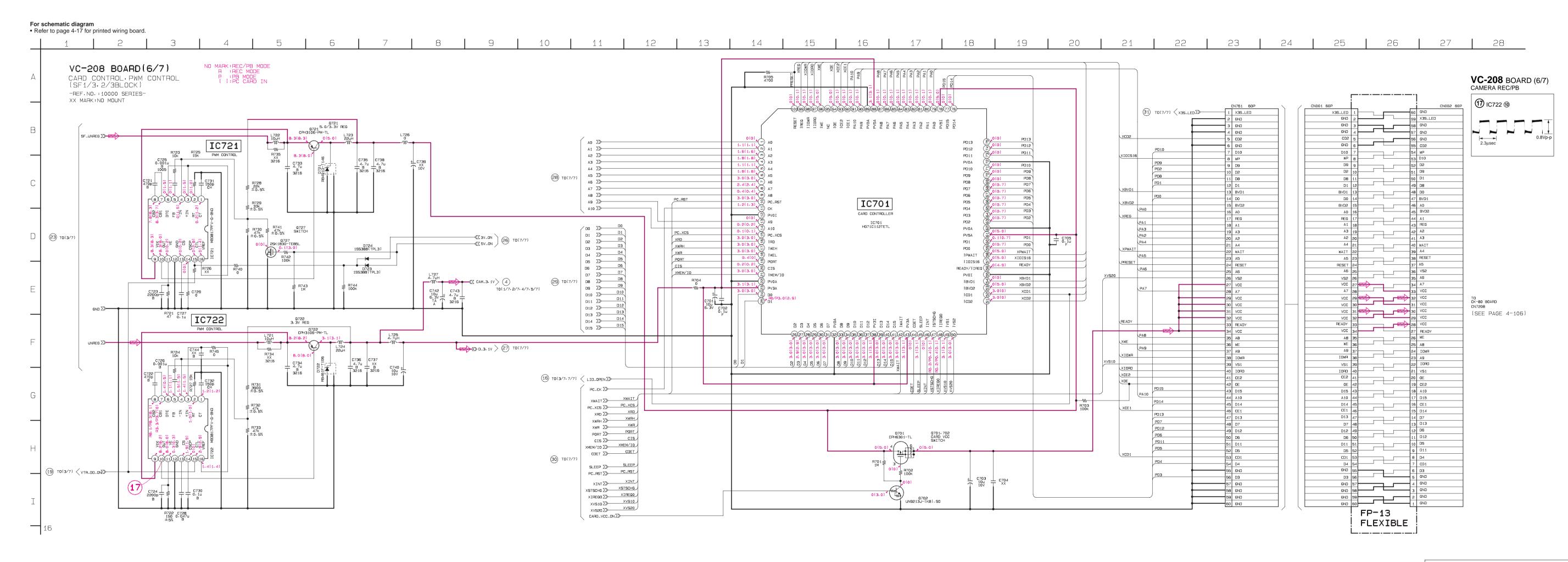
4-39

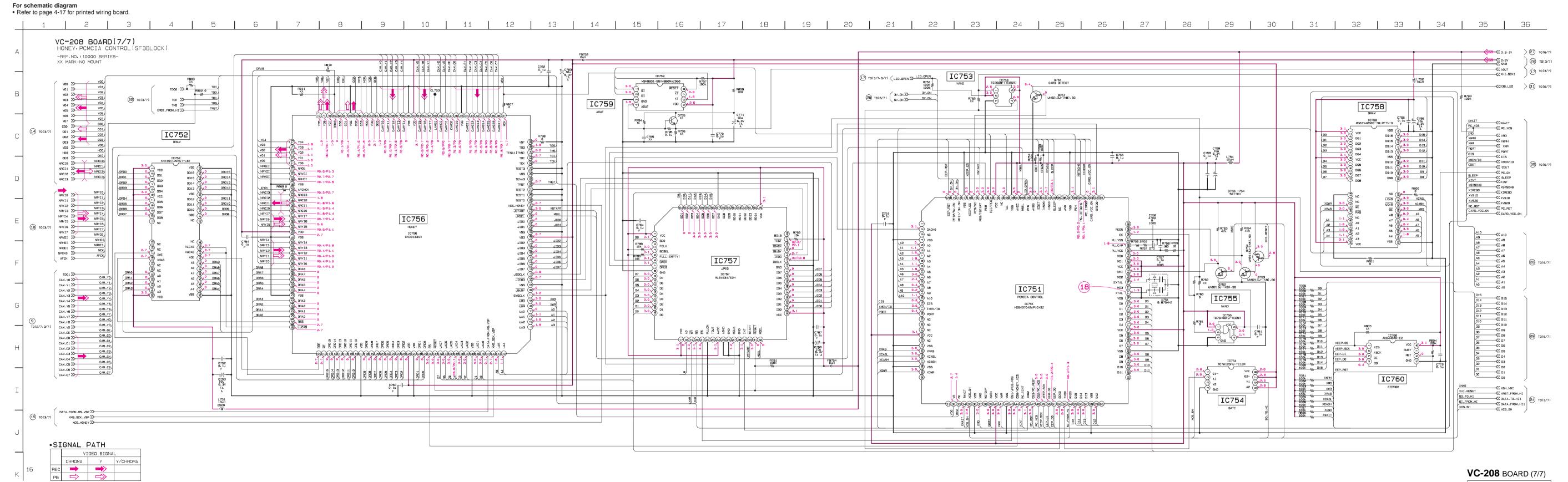
For schematic diagram
• Refer to page 4-17 for printed wiring board of VC-208.



4-41

VAP DRIVER / YAW/PITCH SENSOR VC-208 (5/7)



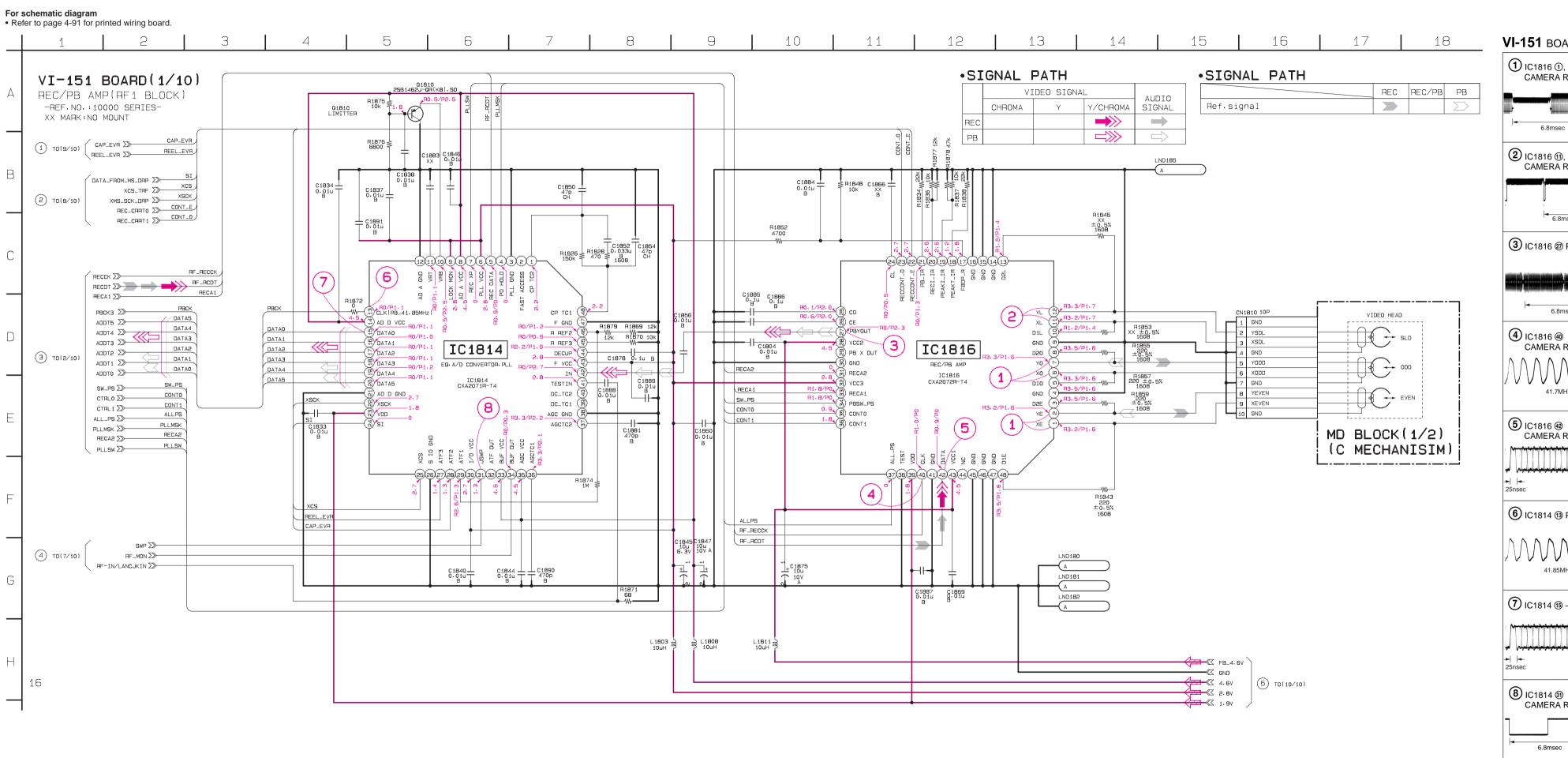


CAMERA REC/PB

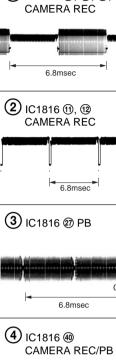
6.85MHz

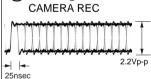
3.8Vp-p

4-47



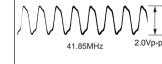
VI-151 BOARD (1/10) 1 IC1816 (1), (2), (6), (7)



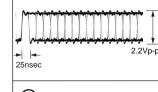


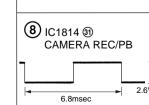
41.7MHz



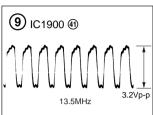


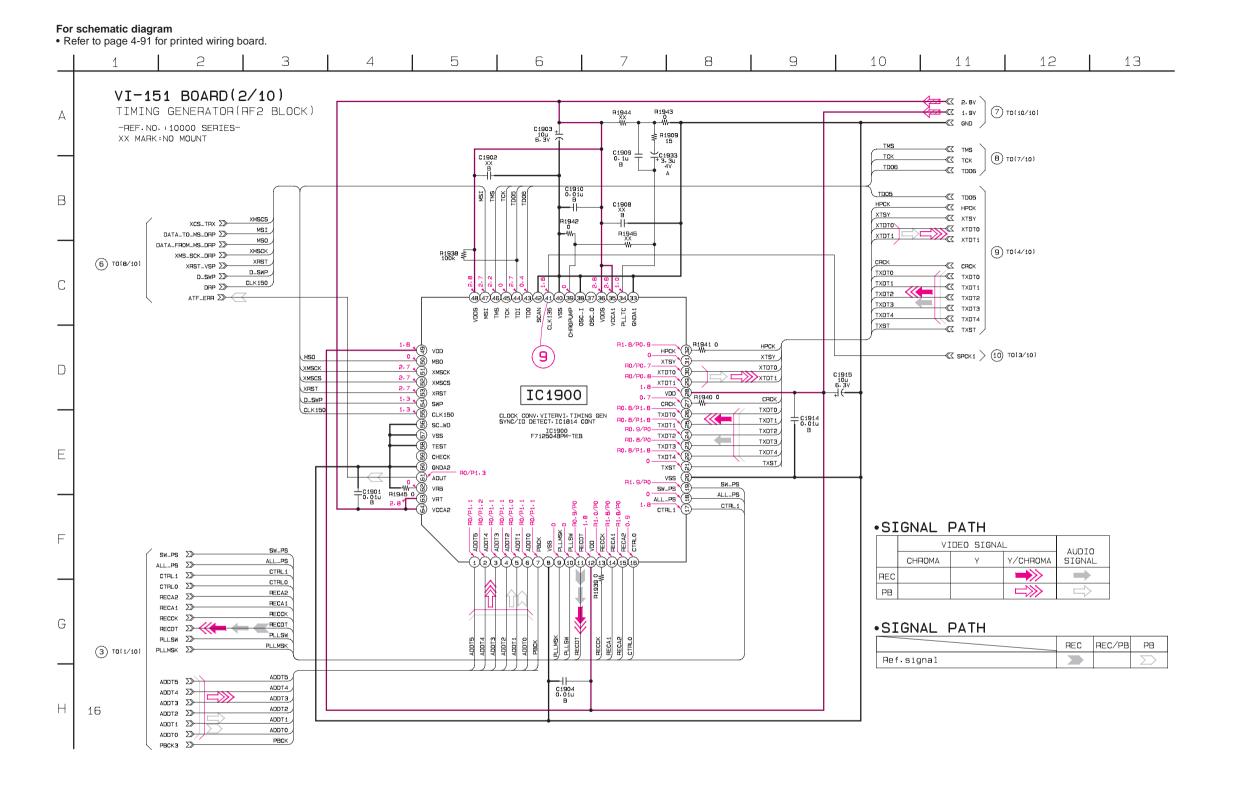


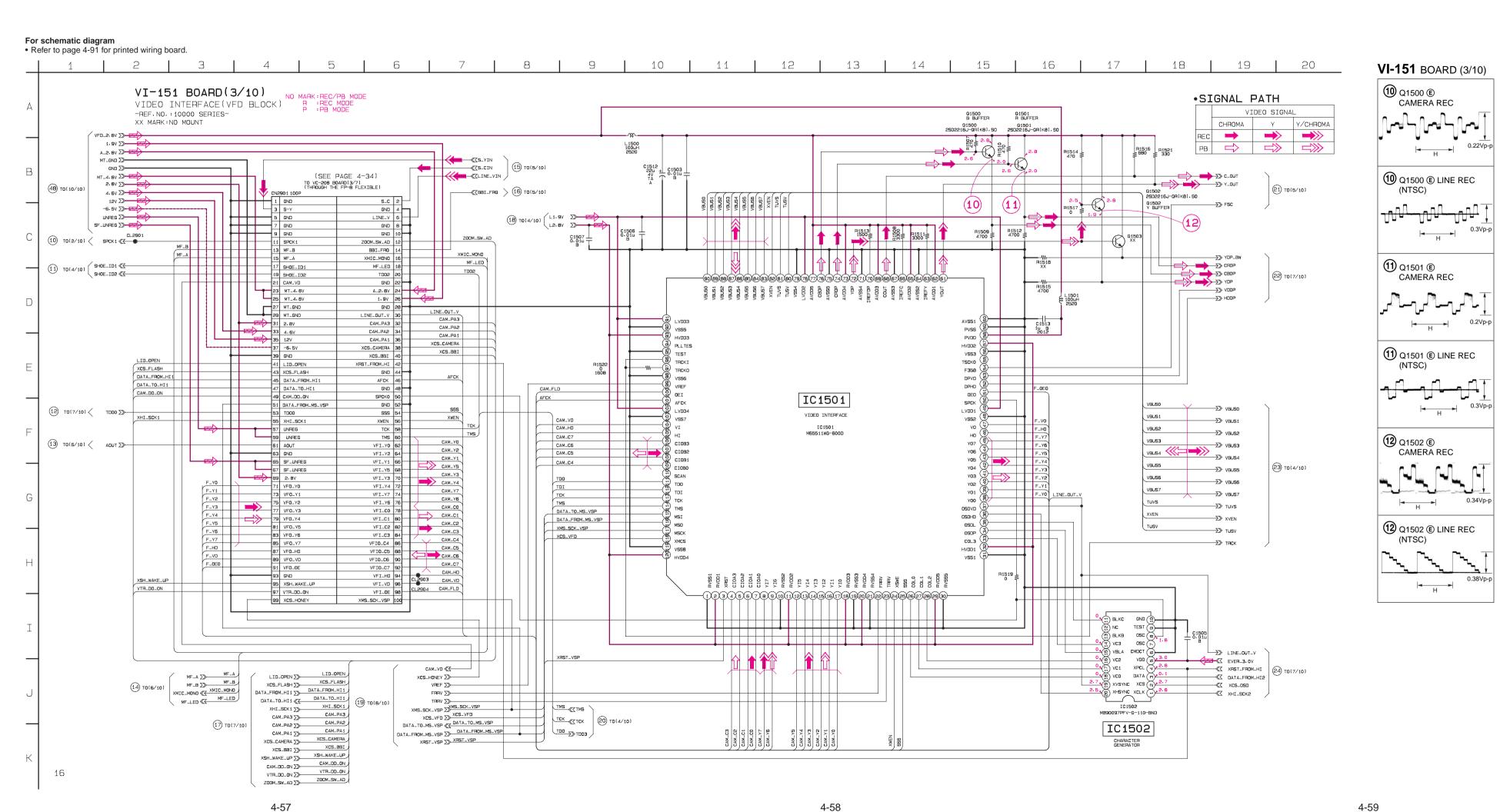


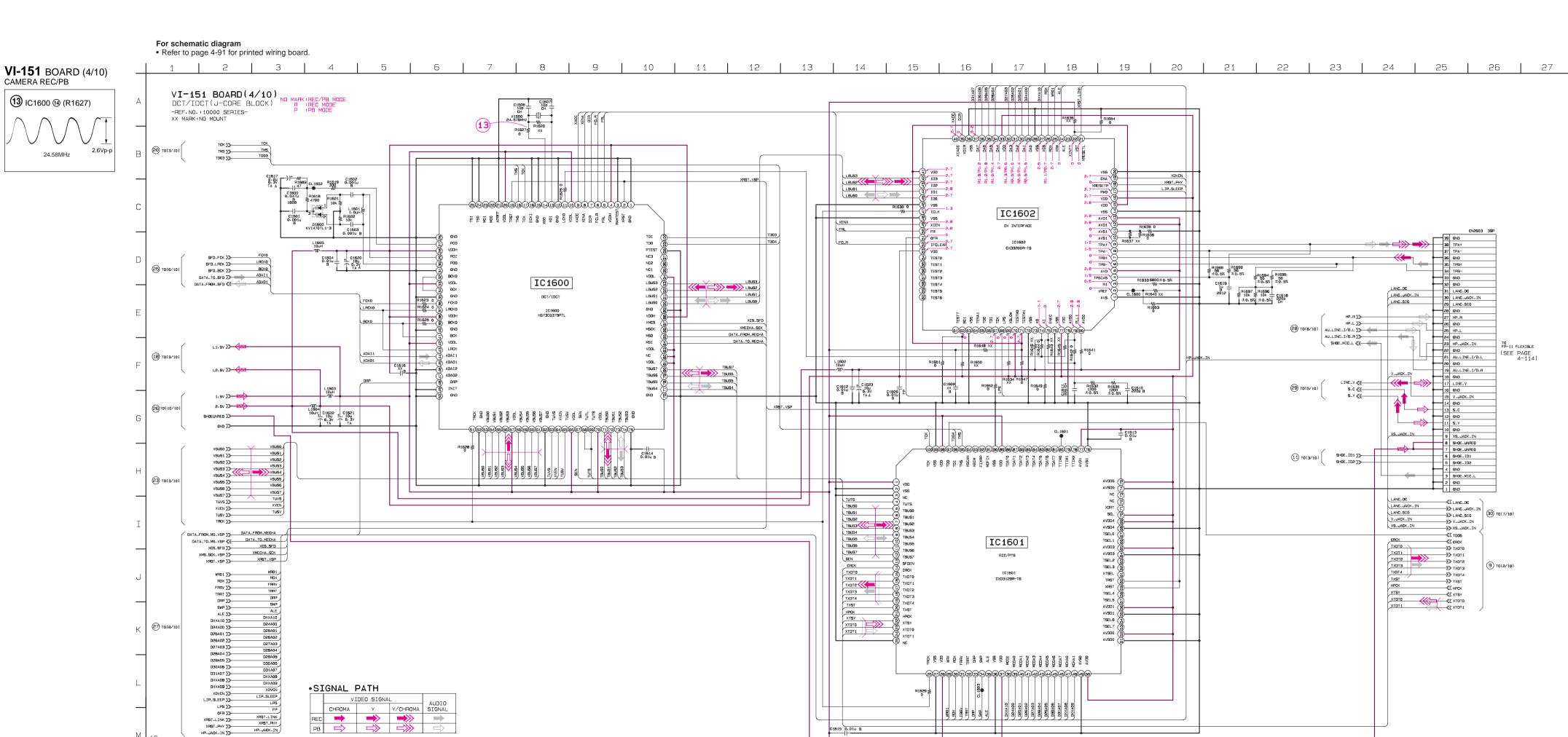


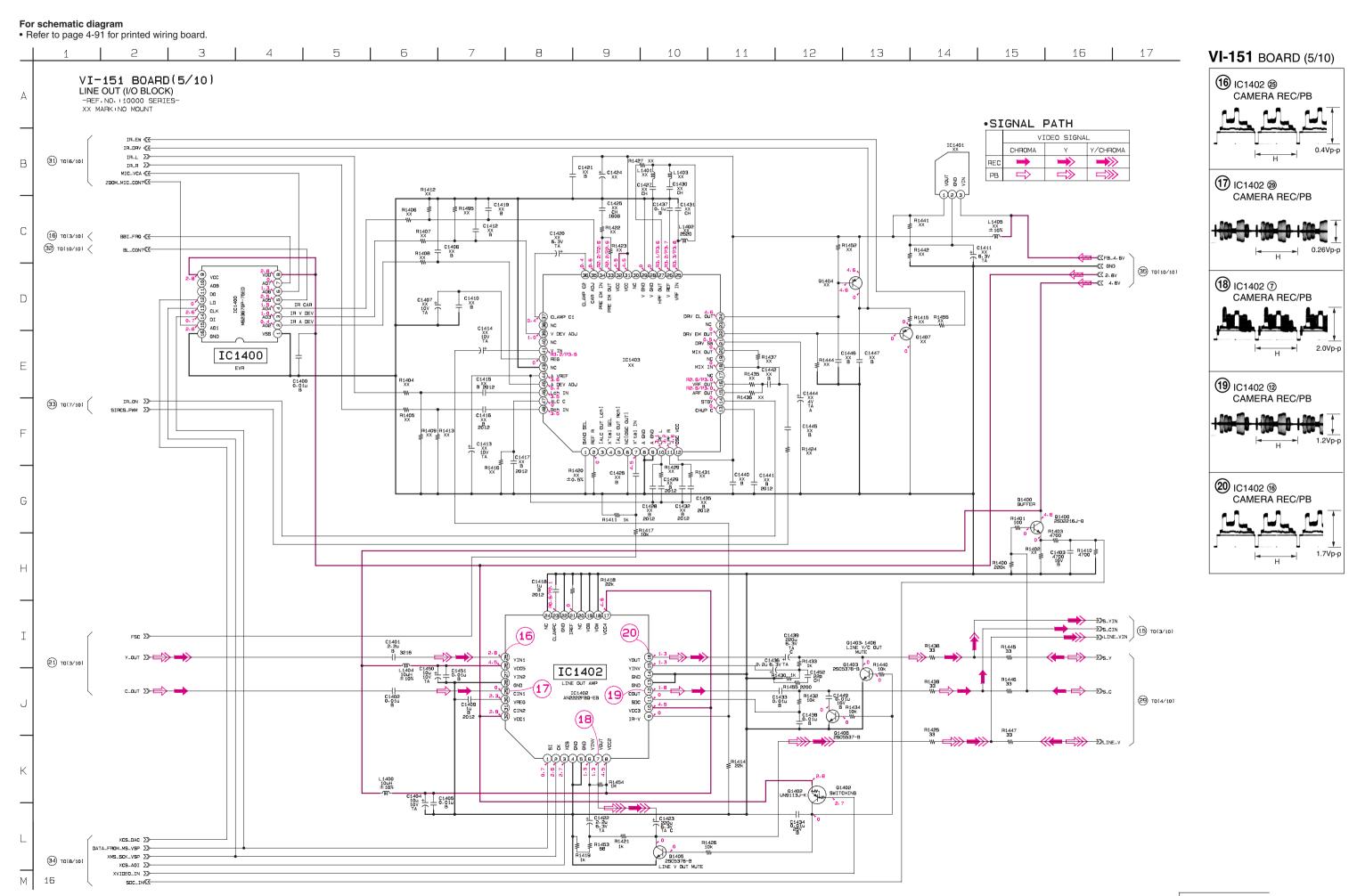
VI-151 BOARD (2/10) CAMERA REC

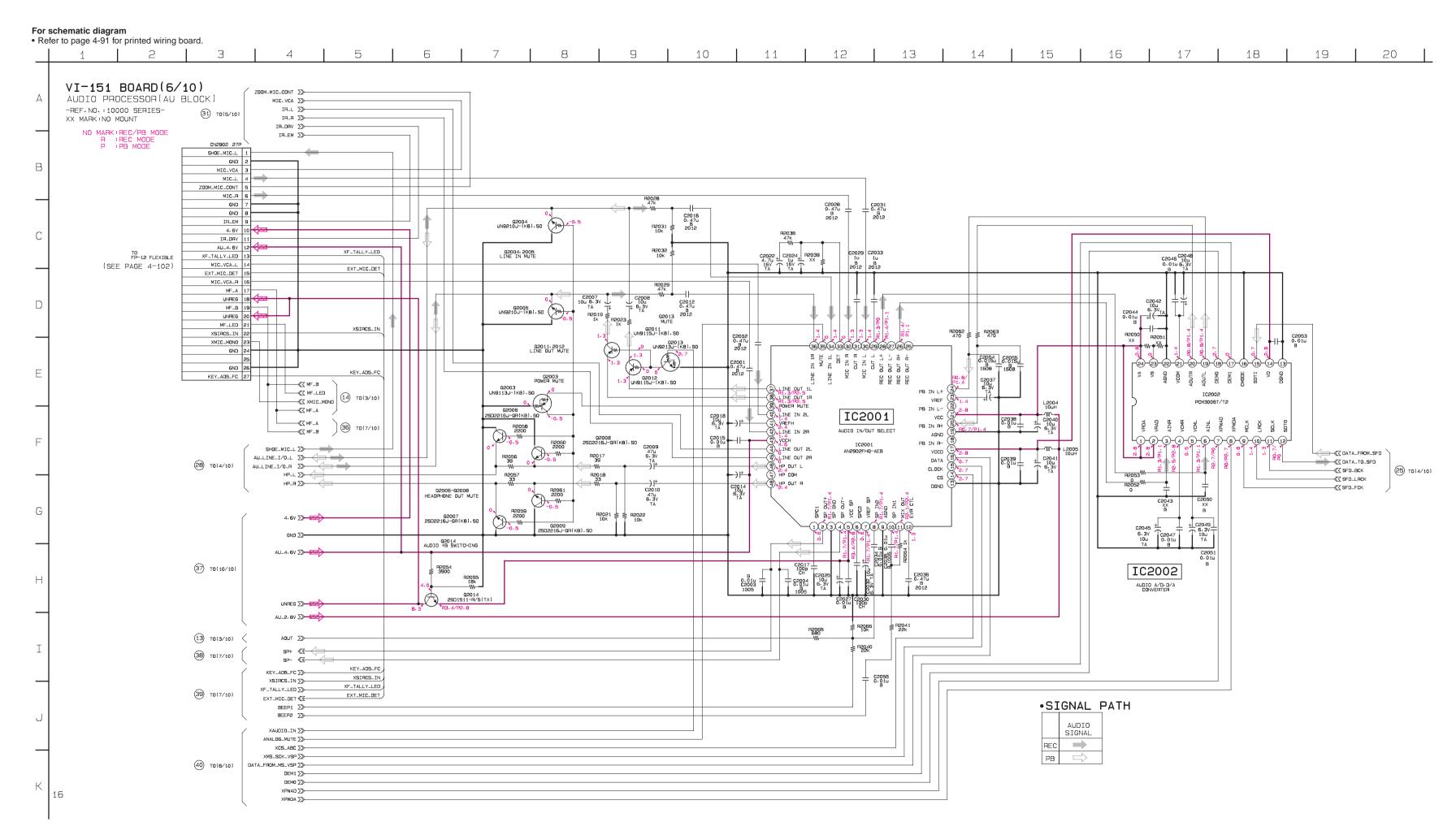




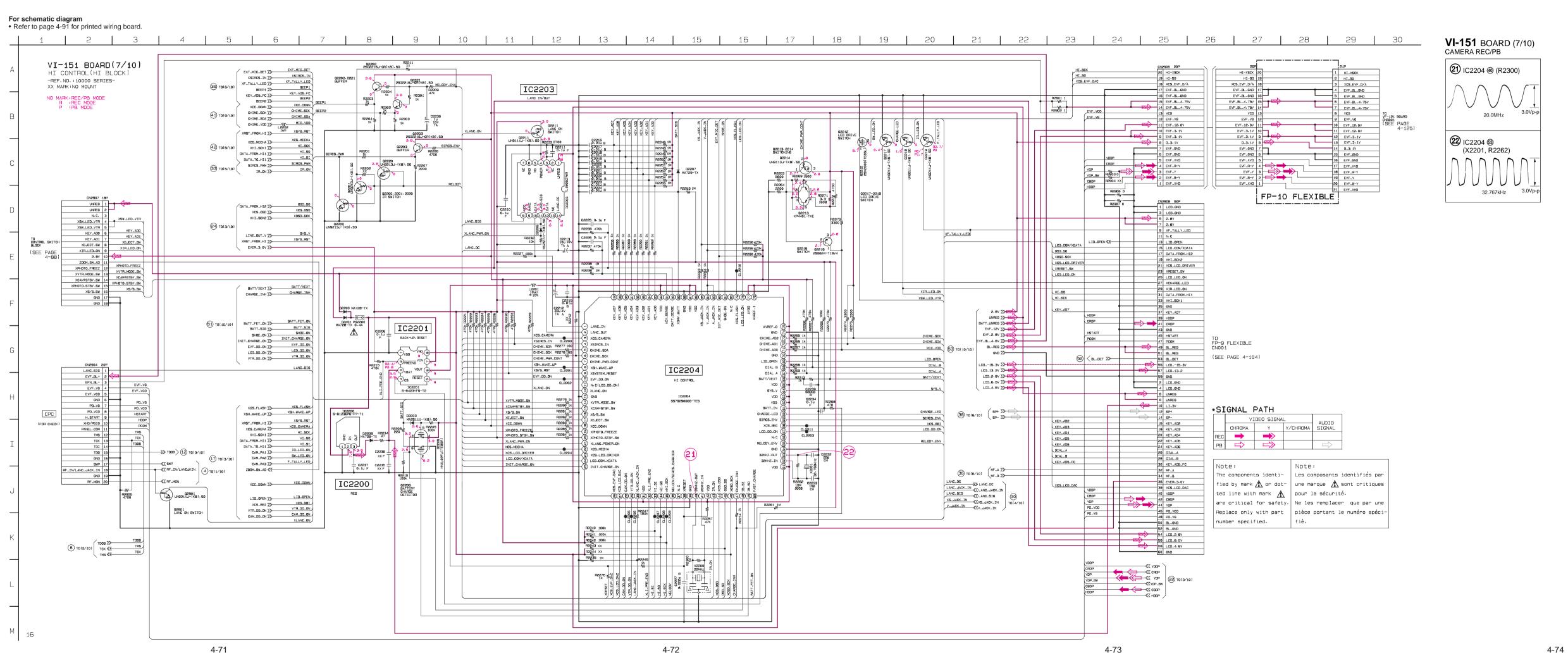


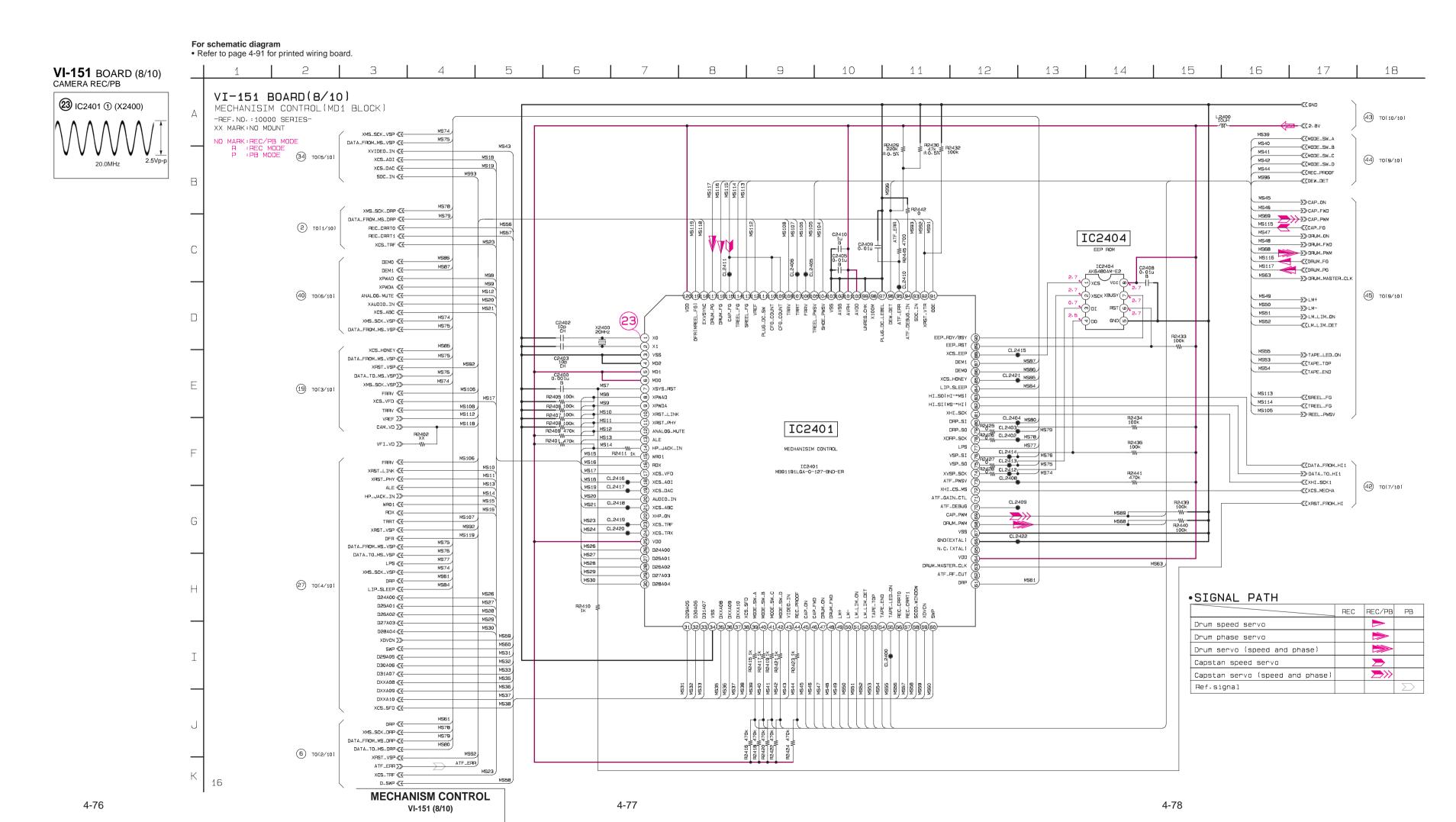


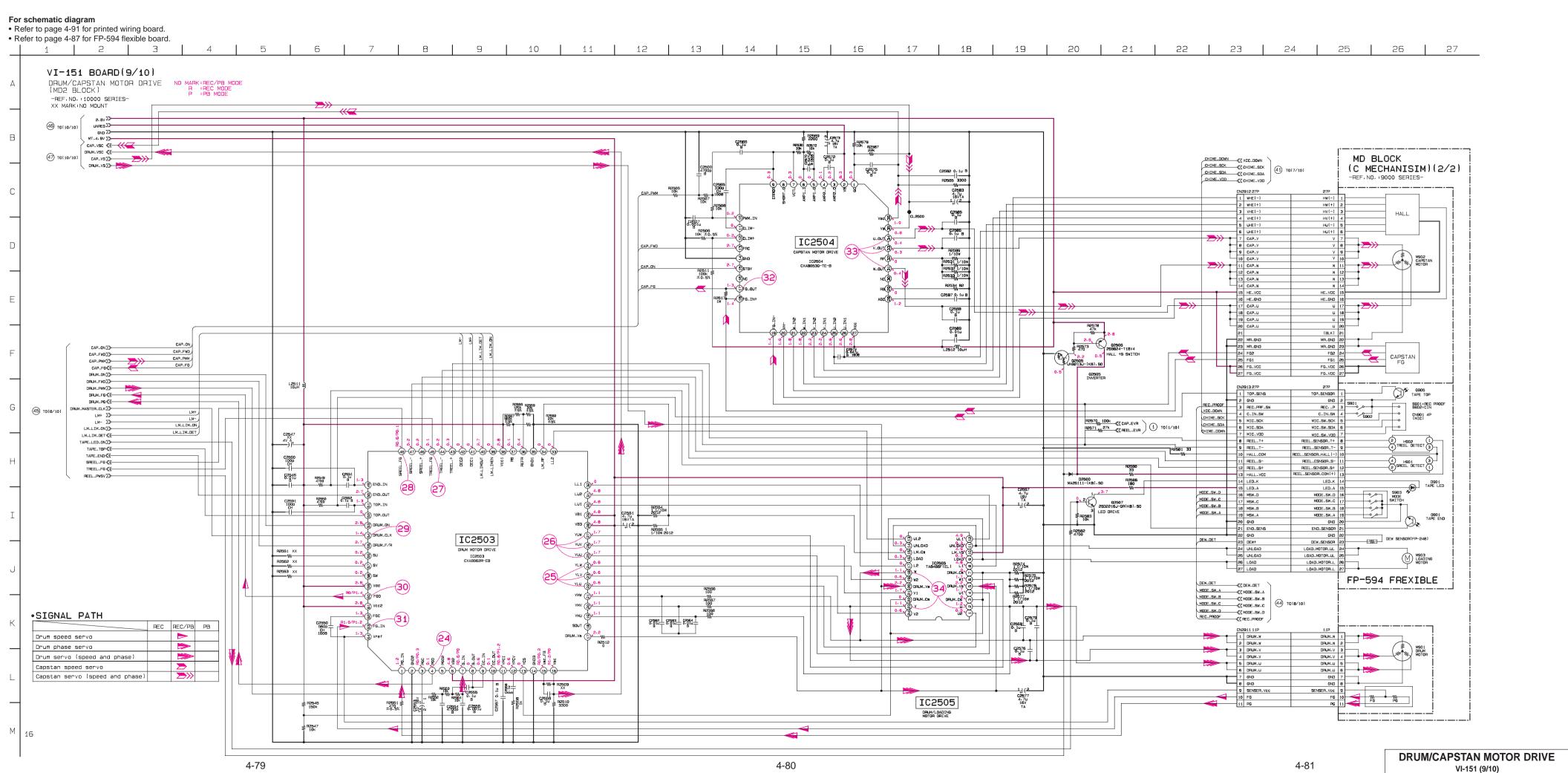




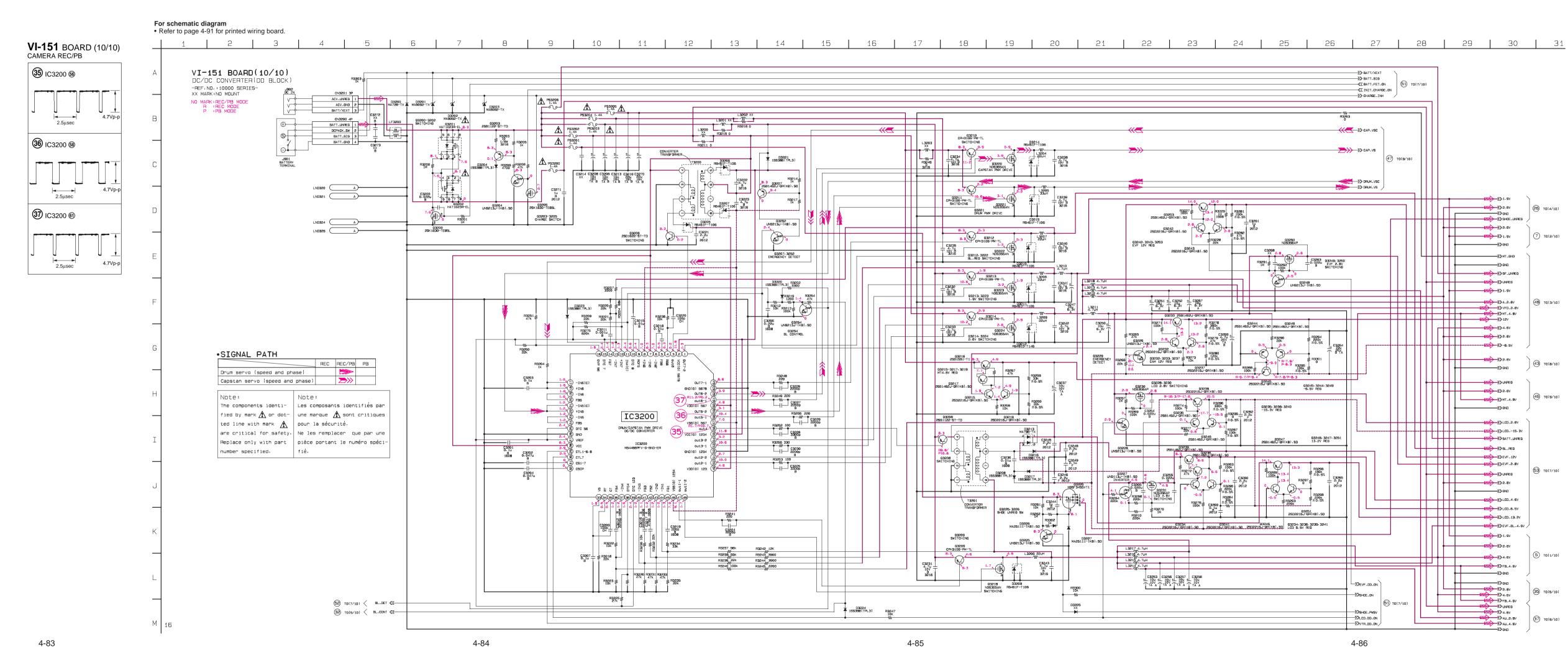
4-68 4-70







VI-151 BOARD (9/10) CAMERA REC/PB **24** IC2503 (4) **30** IC2503 @ € 6.7msec **(25)** IC2503 (29, (29, (24) 31) IC2503 (6) 900kHz 0.23Vp-p **32** IC2504 ¹⁷ **26** IC2503 **25**, **26**, **27** 2.3Vp-p | - | 0.92msec : DV 0.63msec : DVCAM 1.1msec ► 33 IC2504 (9), (3), (34) **27** IC2503 **4**5 0.56sec : DV 0.3sec : DVCAM **34** IC2505 ②, ¹⁸, ²³ **28** IC2503 48 0.76sec : DV 0.3 sec : DVCAM **29** IC2503 54 3μsec ►

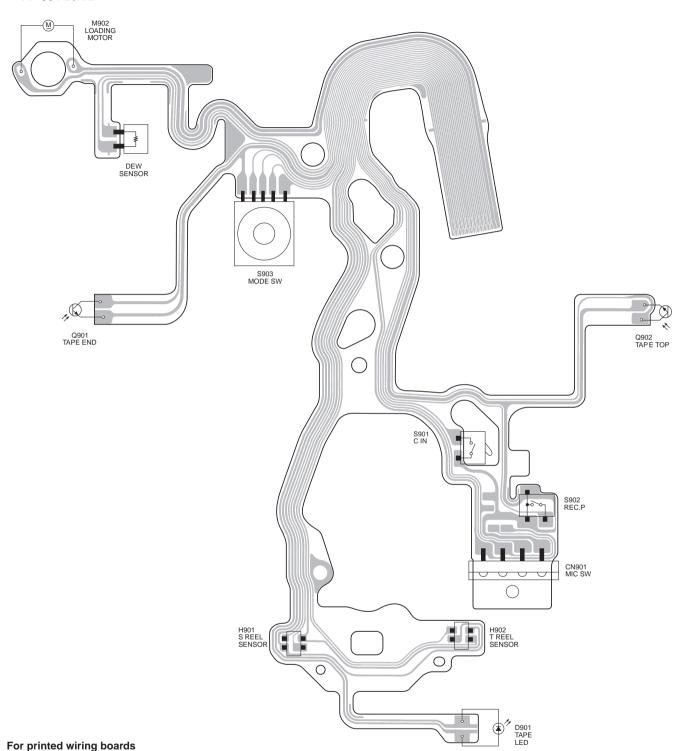


4-85 4-83 4-84

FP-594 (LOADING MOTOR, S/T REEL SENSOR) PRINTED WIRING BOARD

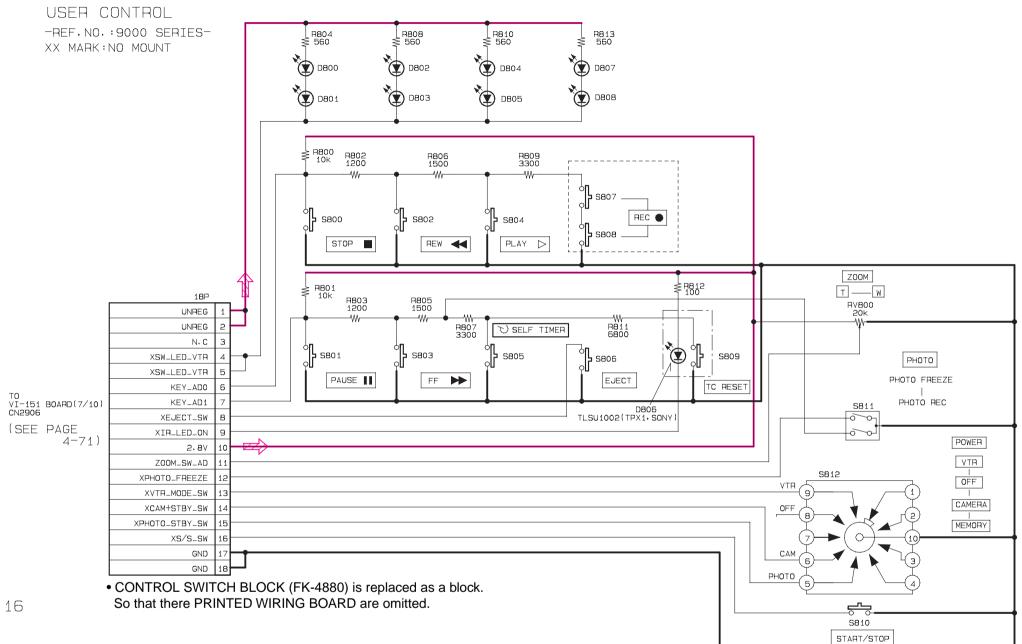
— Ref. No.: FP-594 Board; 9,000 Series —

FP-594 BOARD



CONTROL SWITCH BLOCK(FK-4880)

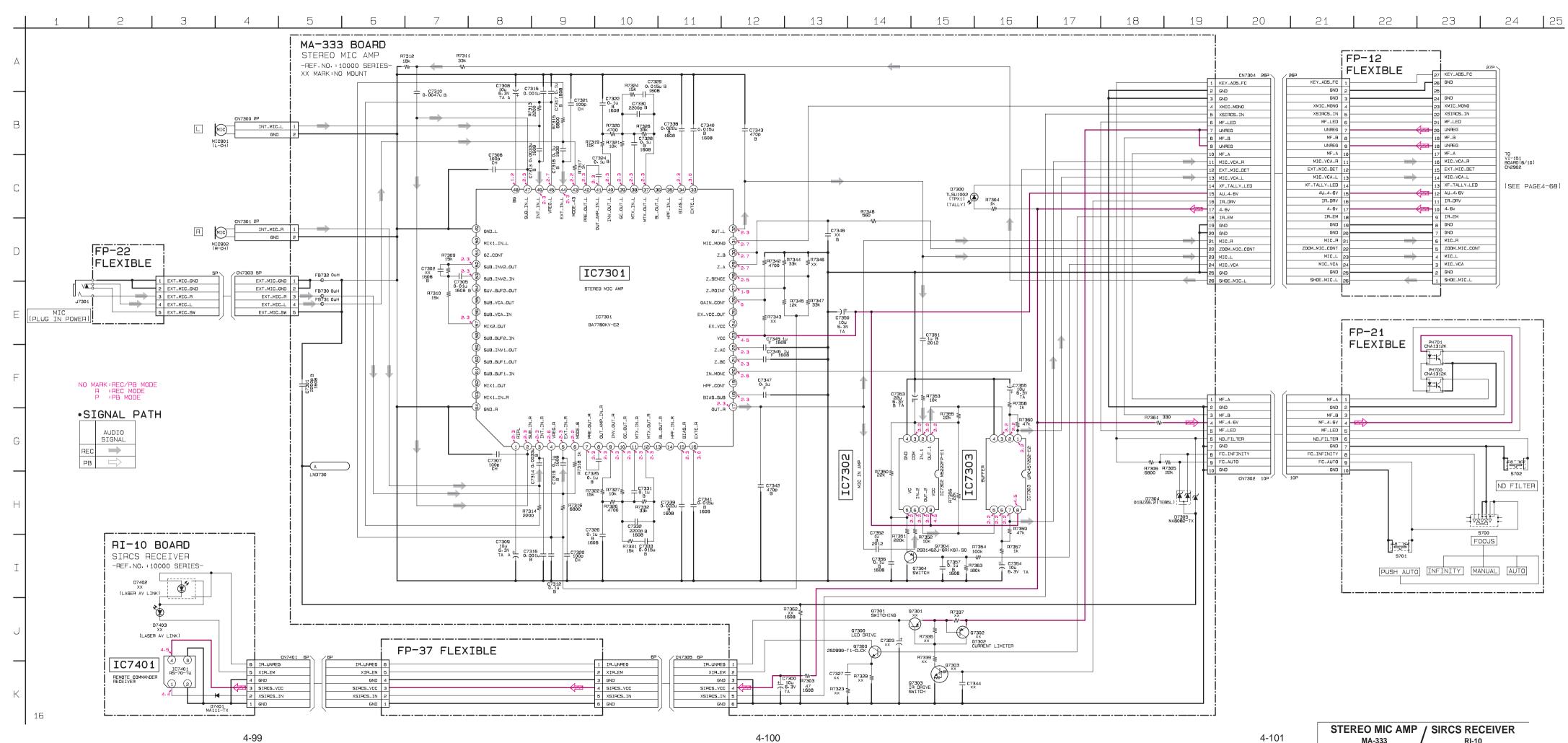
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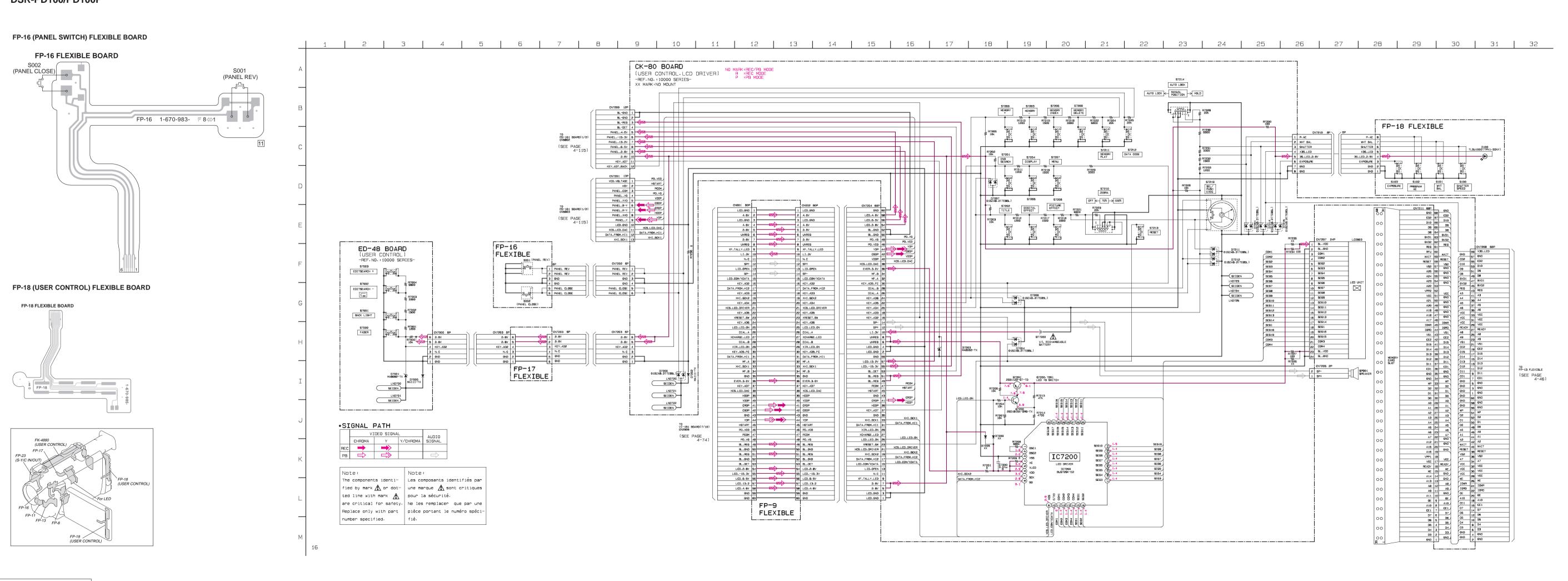


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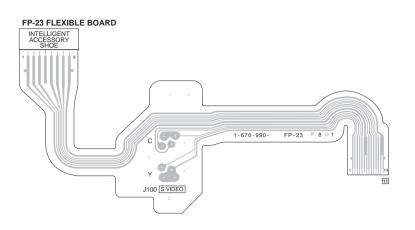
• Refer to page 4-82 for FP-594 board schematic diagram.





USER CONTROL CK-80, ED-48, FP-16, FP-18 4-103 4-104

FP-23 (S VIDEO) FLEXIBLE BOARD



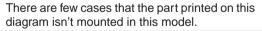
JK-163 BOARD

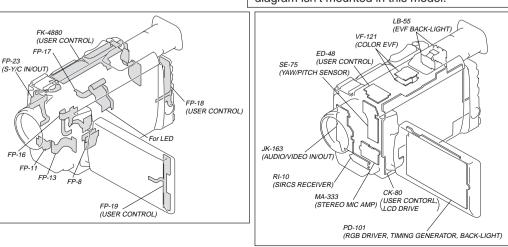
7100	C-4	FB715	C-5
7101	D-4	FB716	C-1
7102	C-5	FB717	C-1
7103	D-4	FB718	C-1
7104	C-1		
		J7100	C-2
N7100	B-2	J7101	C-2
N7101	C-1	J7102	D-2
N7102	B-5		
		L7100	C-4
7100	B-4	L7101	C-5
7102	B-1	L7102	C-5
7103	C-5	L7103	D-4
7104	D-5	L7104	C-1
7105	C-5		
7106	C-5	R7102	C-4
B710	B-4	VDR711	C-4
B711	C-4	VDR714	C-5
B712	B-1	VDR715	B-5
B713	D-1	VDR717	
B714	C-1	VDR718	C-5

For printed wiring boards This hoard is six-layer print

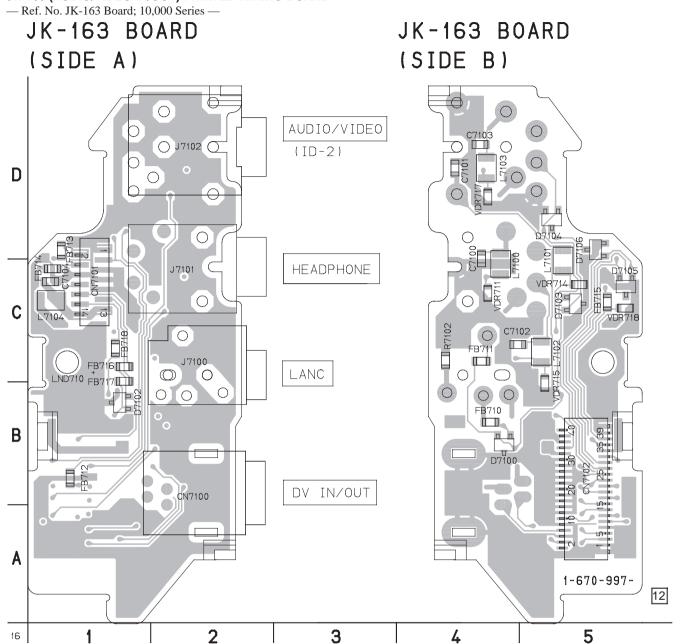
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.
- Chip parts
 Diodo

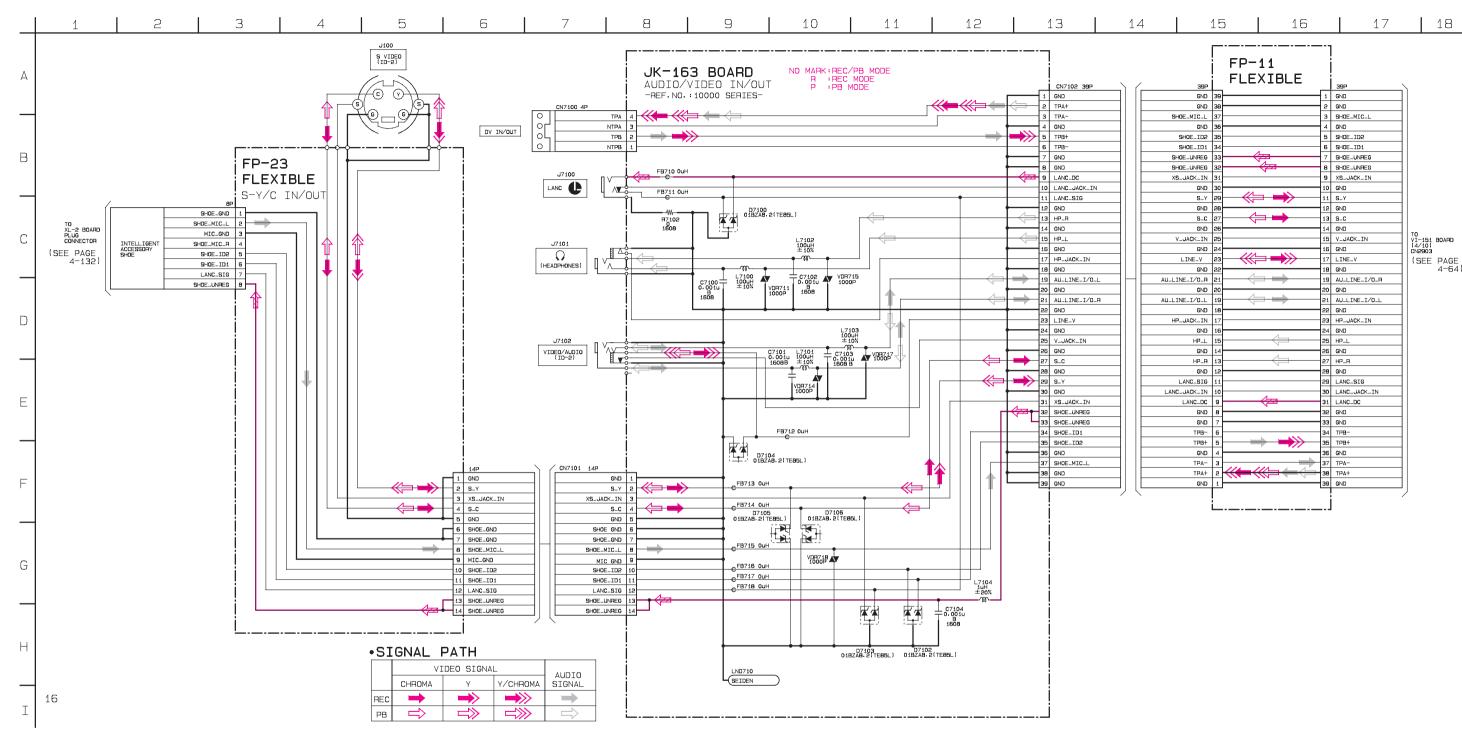






JK-163 (AUDIO/VIDEO IN/OUT) PRINTED WIRING BOARD

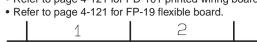


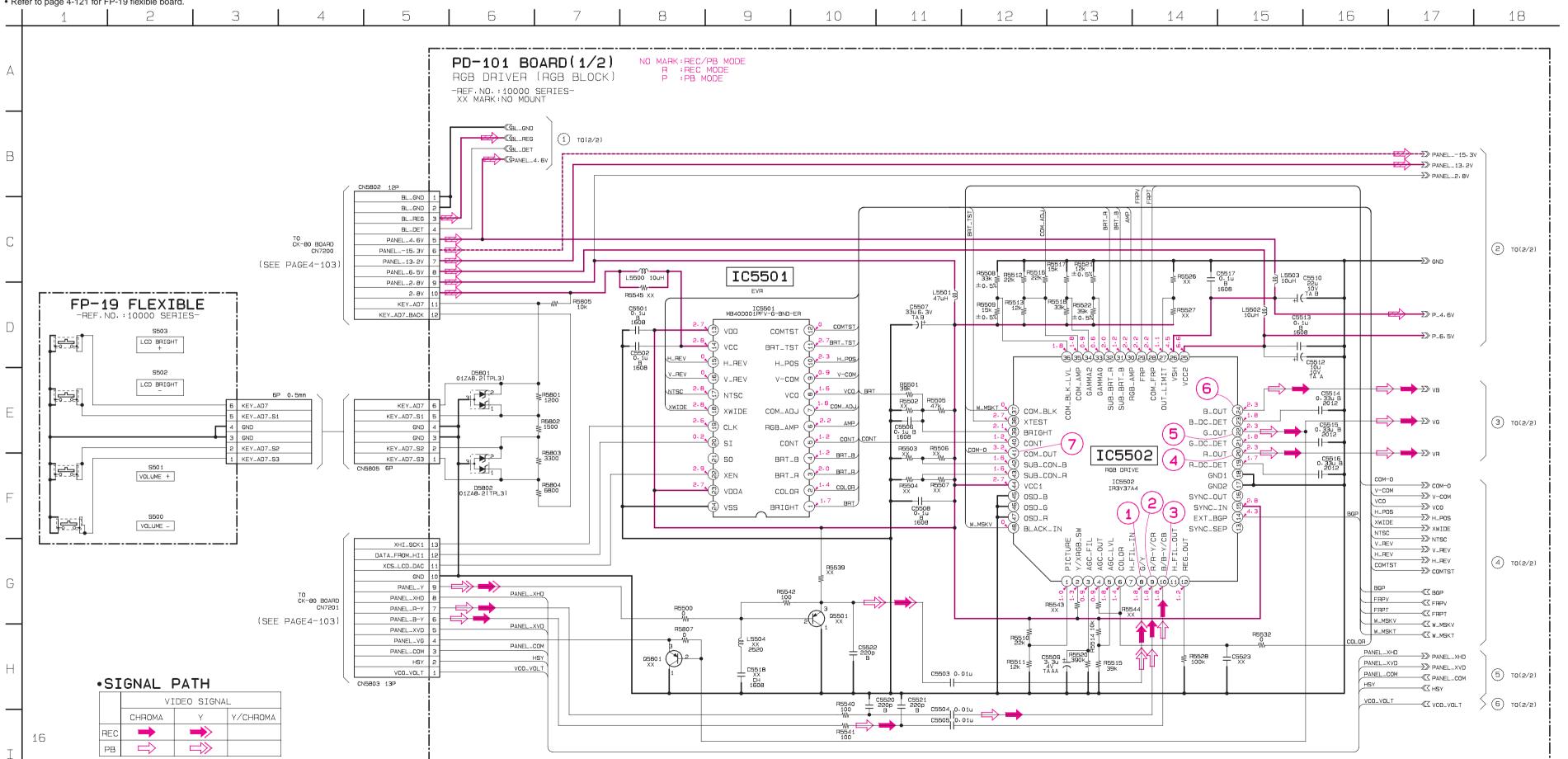


S-Y/C IN/OUT / AUDIO/VIDEO IN/OUT FP-23 / JK-163 4-111 4-114

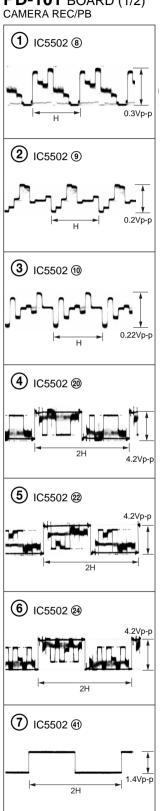
For schematic diagram

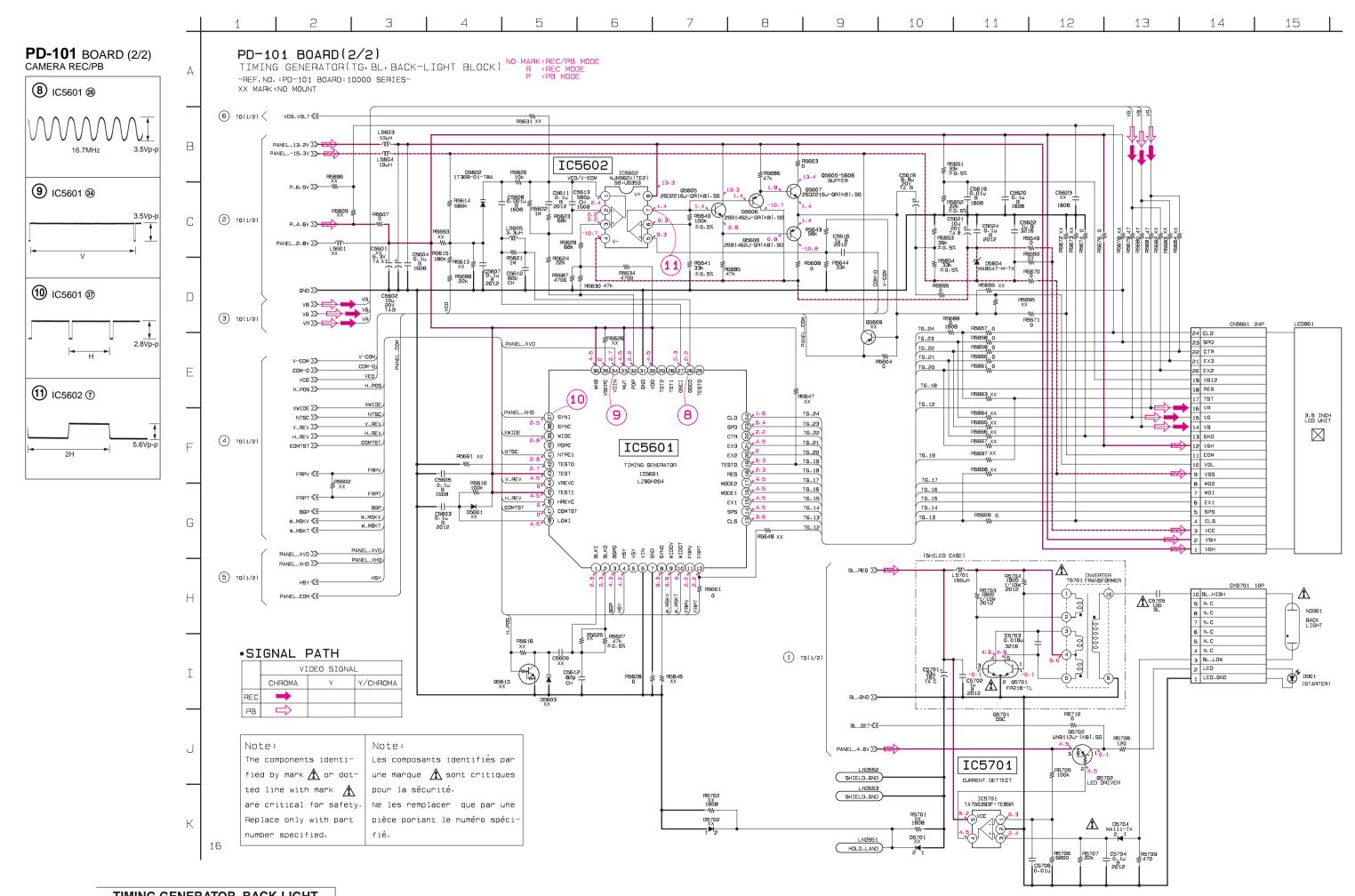
• Refer to page 4-121 for PD-101 printed wiring board.

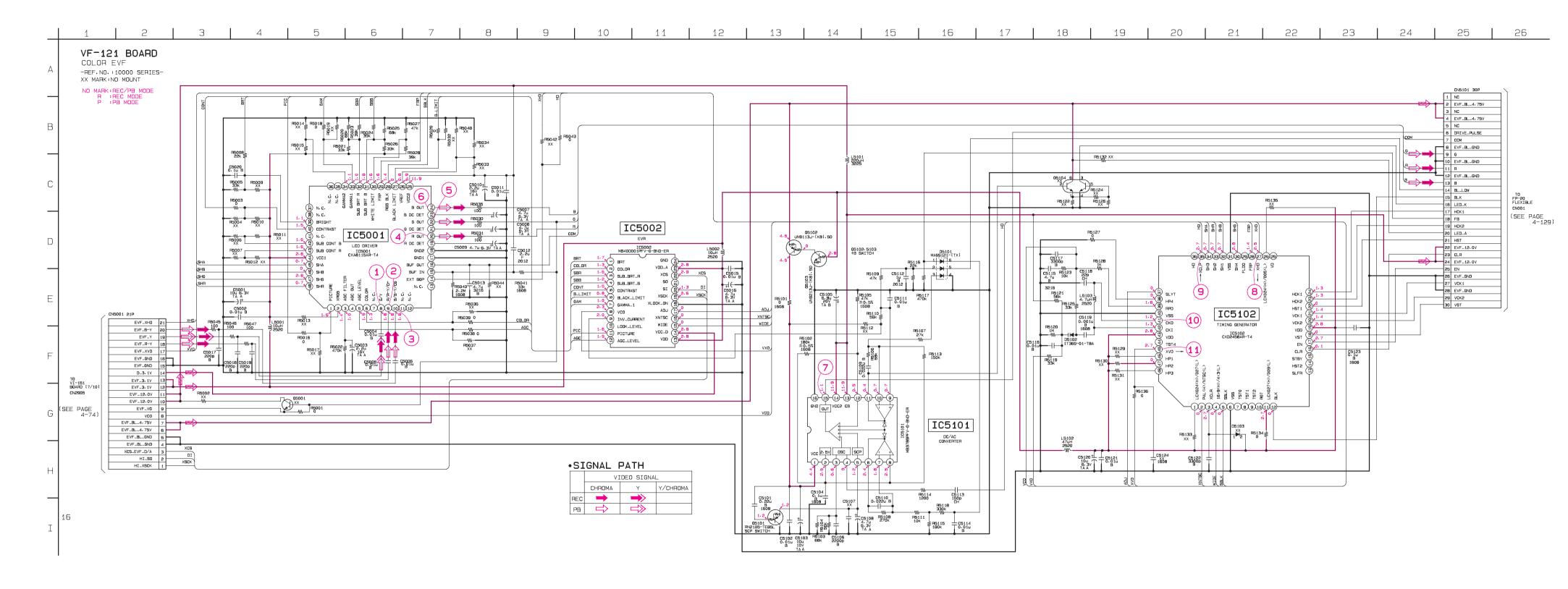




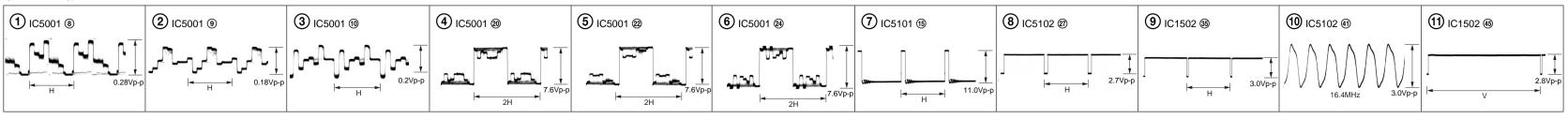
PD-101 BOARD (1/2)

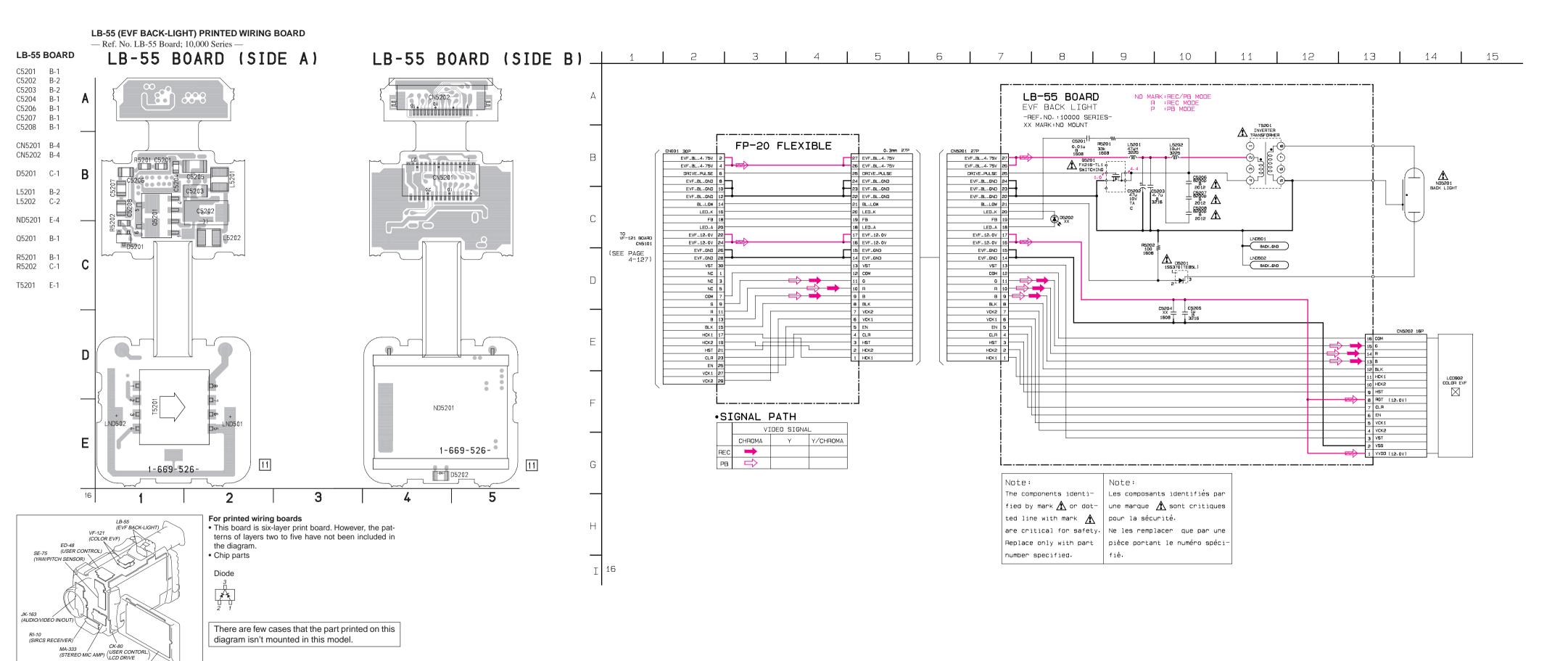






VF-121 BOARD CAMERA REC/PB

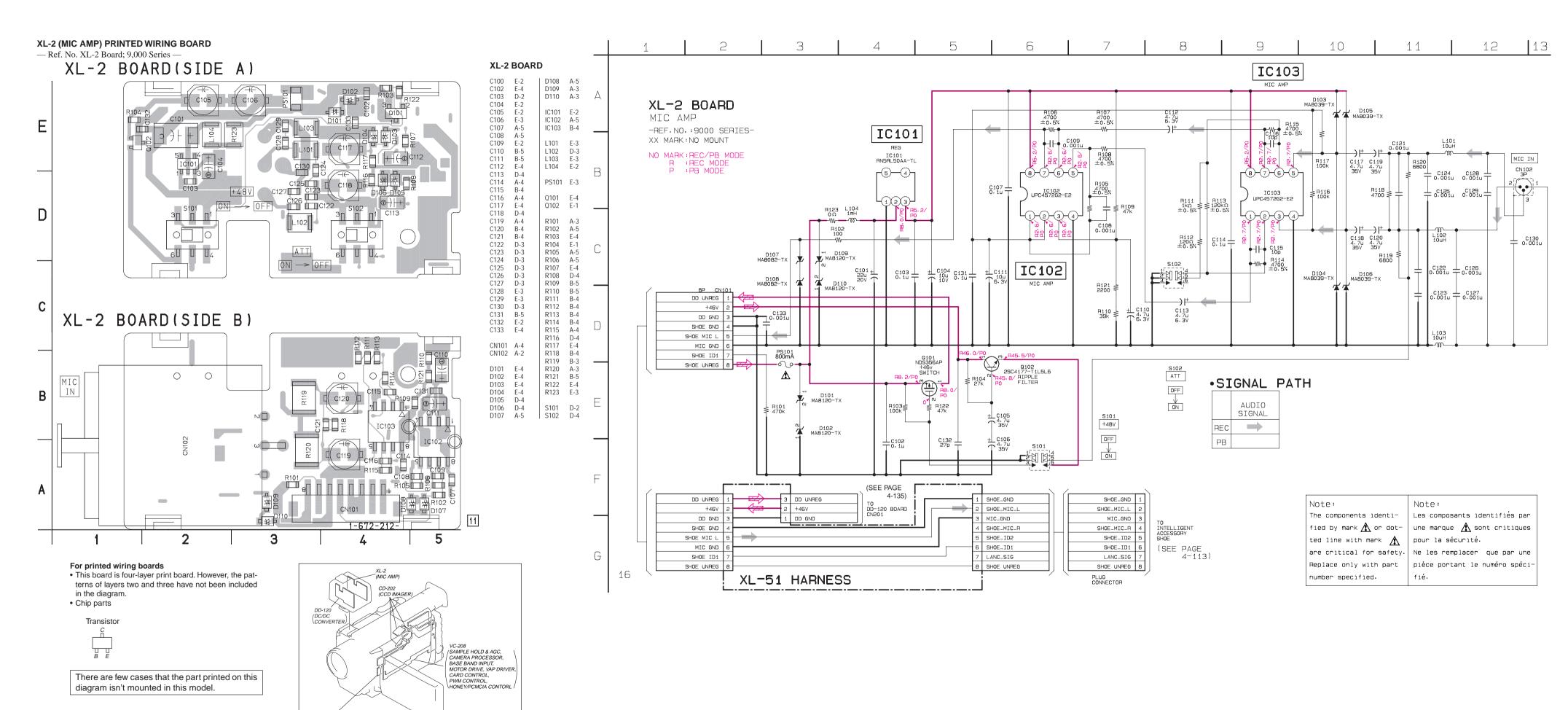




EVF BACK-LIGHT LB-55

PD-101 (RGB DRIVER, TIMING GENERATOR, BACK-LIGHT)

4-128 4-130

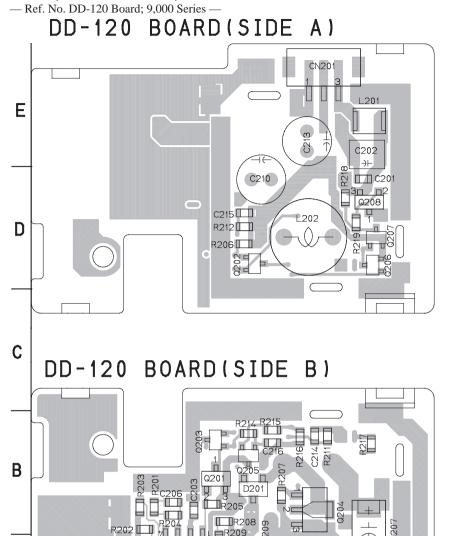


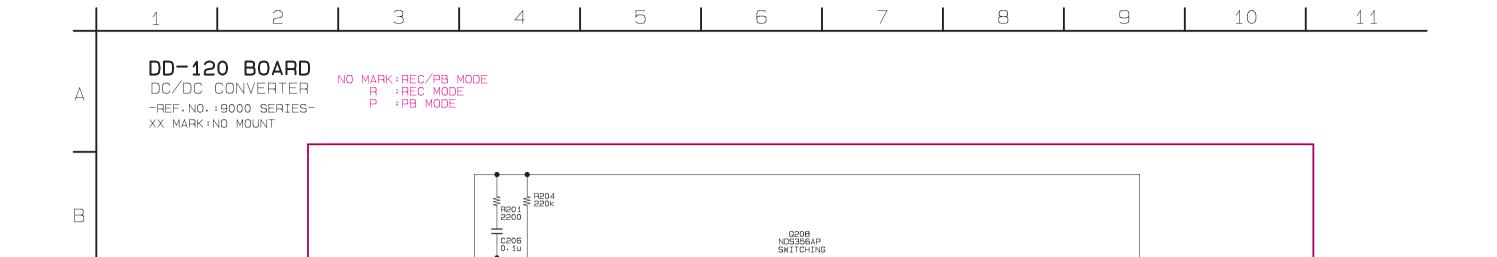
VI-131 / REC/PB AMP, TIMING GENERATOR, VIDEO INTERFACE, DCT/IDCT, LINE OUT, AUDIO PROCESSOR, HI CONTROL, MECHANISM CONTROL, DRUM/CAPSTAN MOTOR DRIVE, DC/DC CONVERTER

DD-120 BOARD

C201 D-3
C202 E-3
C203 B-2
C204 A-1
C205 A-1
C206 B-2
C207 B-3
C208 A-2
C209 A-2
C210 D-2
C211 A-2
C212 A-3
C213 E-3
C214 B-3
C215 D-2
C216 B-2 O202 D-2
O203 B-2
O204 B-3
O205 B-2
O206 D-3
O207 D-3
O208 D-3 R201 B-2 R201 B-2 R202 B-1 R203 B-1 R204 B-2 R205 B-2 R206 D-2 R207 B-3 R208 B-2 R209 A-2 CN201 E-3 R210 A-2 R211 B-3 D201 B-2 R212 D-2 R213 A-2 IC201 A-2 R214 B-2 R215 B-2 R216 B-3 R217 B-3 R218 D-3 R219 D-3 L201 E-3 L202 D-3 L203 A-2 Q201 B-2

DD-120 (DC/DC CONVERTER) PRINTED WIRING BOARD





R218 100k ≸

0202 2SC4177-T1L5L6 BUFFER

R212 {

RO.5/PC Q203 2SA1611T1-M5M6 BUFFER

0207 2SC4177-T1L5L6

D201 SB02-09CP-TB

c\$ôa †

4-136E

L203 150uH

H209 18k ±0.5%

R213 5600 $\pm 0.5\%$

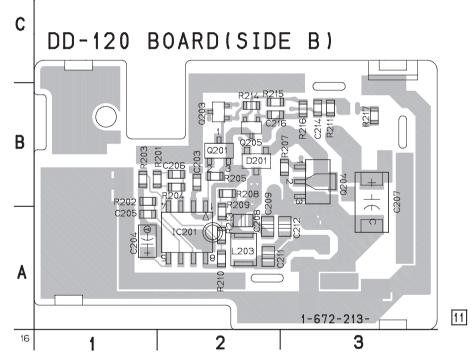
R210 1k ±0.5%

L202 33uH

IC201

SWITCHING REG.

R205 ≱

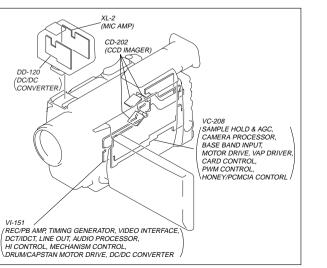


For printed wiring boards

- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.
- Chip parts

Transistor Diode

There are few cases that the part printed on this diagram isn't mounted in this model.



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 \square

(SEE PAGE 4-132)

16

CN201 DD UNREG +46V

DD GND

DC/DC CONVERTER DD-120