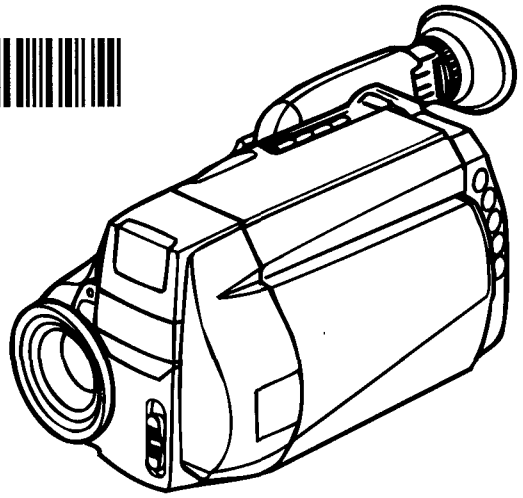
HITACHI

SERVICE MANUAL

V21869



TK | No.6809E

VM-E645LE/E648LE
VM-H845LE/H946LE
AC Adapter/Charger **VM-ACE4E**

UH MECHANISM

This model uses a UH mechanism.
When servicing the UH mechanism, use this manual with the UH Mechanism Service Manual (No. 6811E).

This manual does not include the color LCD display electrical adjustment procedure.
For this adjustment procedure, refer to the VM-E645LE/E648LE/H845LE/H946LE Service Manual Supplement (No. 6809E-1).

8
Hi8

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

June 1998 Image & Information Media Systems Division, Tokai

CAUTION

Lithium battery; danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacuturer's instructions.

When replacing the lithium battery it is important to use the same type and connect it correctly.

WARNING:
- Lithium batteries contain dangerous chemicals.
- Handle and dispose of with great care.
- Do not throw in a fire.
- Do not short circuit it.
- For disposal place in a plastic bag and put in waste bin.

CAUTION (COLOR LCD)

LCD display; the liquid crystal display (LCD) panel is mode by highly precise technology.
More than 99.99% of its picture elements (pixels) are effective, but some (less than 0.01%) may appear as colored bright dots. This mode not indicate a fault as the LCD panel stretches the limits of current technology.

CAUTION (CRT EVF)

Be careful of the section painted in white on the electronic viewfinder circuit board as it generates a high voltage.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

X-RAY RADIATION

The primary source of X-ray radiation in this viewfinder is the picture tube. The tube used in this viewfinder is specially constructed to limit X-ray radiation emission. For continued X-ray radiation protection, the replacement tube must be same type as the original, Hitachi approved one.

How to discriminate the "TYPE" identifications in the manual

The parts and circuits are identified by "TYPE" in this manual to discriminate the differences between models. The TYPE numbers are the same as the model numbers. The table below shows how to read the type identifications.

TYPE identification	Model name
TYPE 645	VM-E645LE
TYPE 648	VM-E648LE
TYPE 845	VM-H845LE
TYPE 946	VM-H946LE

ENGLISH

C O N T E N T S

CHAPTER 1 GENERAL INFORMATION

SPECIFICATIONS (For VM-E645LE/H845LE/H946LE)

■ General

Power requirements	7.2V DC
Power consumption	VM-E645LE: 3.5 W (when recording/LCD monitor OFF) 4.4 W (when recording/LCD monitor ON) VM-H845LE: 3.7 W (when recording/LCD monitor OFF) 4.6 W (when recording/LCD monitor ON) VM-H946LE: 3.7 W (when recording/LCD monitor OFF) 4.9 W (when recording/LCD monitor ON)
Operating temperature	0°C to 40°C
Operating humidity	< 80%
Storage temperature	– 20°C to 60°C
Dimensions	118.5 (W) × 102.5 (H) × 181 (D) mm
Weight	VM-E645LE/VM-H845LE: Approx. 860g (without battery pack and cassette) VM-H946LE: Approx. 870g (without battery pack and cassette)

■ Video Recorder Section

Format	8 mm
Record/playback system	Two video record/playback heads
Video signal	PAL colour & CCIR monochrome signals 625 lines
Tape speed	SP: 20.05 mm/sec.
Video output	1.0 Vp-p, 75 ohm
Audio output	– 8 dBs, less than 1K ohm
Fast forward/rewind time	Approx. 6 minutes with P5-90 cassette

■ Camera Section

Scanning	625 lines/50 fields/25 frames
Required minimum illumination	0.5 lux
Camera device	1/4" C.C.D
Lens	F1.4 – 2.8 (4 ~ 64 mm) 16:1 power zoom lens with auto focus and auto iris functions
Lens diameter	46 mm

COMPARISON OF FEATURES

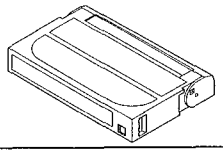
ITEM	VM-E635LE/VM-H835LE	VM-E543LE/E545LE VM-E548LE	VM-E645LE/E648LE VM-H845LE/H946LE
		GENERAL	
Power Requirements	7.2V DC		
Power Consumption	5.4 W [VM-E635LE] 5.6 W [VM-H835LE]	5.1W	4.4W [VM-E645LE/E648LE] 4.6W [VM-H845LE] 4.9W [VM-H946LE]
Dimensions (W x H x D mm)	104 x 115 x 239	104 x 115 x 239	118.5 x 102.5 x 181
Weight	Approx. 920 g	Approx. 920 g	Approx. 860g [VM-E645LE/ E648LE/H845LE] Approx. 870g [VM-H946LE]
		VIDEO	
Format	8 mm [VM-E635LE] 8 mm (Hi-8) [VM-H835LE]	8 mm	8mm [VM-E645LE/E648LE] 8mm (Hi-8) [VM-H845LE/H946LE]
Record/Playback System	Two video record/playback heads		
Video Signal	PAL colour & CCIR monochrome signal 625 lines		
Tape Speed	20.05 mm/sec		
F.F/Rew Time	Less than 8 minutes with P5-90 cassette		
Head Weel	40 mm		
Basic Chassis Type	TH		UH
		CAMERA	
Scanning	625 lines/50fields/25 frame		
Required Minimum Illumination	1 lux [VM-E635LE] 2 lux [VM-H835LE]	0.8 lux	0.5 lux
Camera Device	1/4" C.C.D		
Lens Diameter	46 mm		
Zoom Ratio	16 : 1 (4.0 - 64.0mm)		
Aperture	F1.4		F1.4 - 2.8
Zoom Speed	1 Speed		
		FEATURES	
Electronic Viewfinder (EVF)	CRT (Black & White)		
Electrical Zoom Function	Yes (x 200)		Yes (x 240)
INST. ZOOM Function	Yes (x 1.5)		
Autofocus System	Video AF System		
Program AE (Shutter Speed)	Yes (Programe AE only)		
Titler	Yes (2 Line/1Page)		
S-Connector Output	No [VM-E635LE] Yes [VM-H835LE]	No	No[VM-E645LE/E648LE] Yes [VM-H845LE/H946LE]
Microphone	Monaural [VM-E635LE] Stereo [VM-H835LE]	Monaural	Monaural [VM-E645LE/E648LE] Stereo [VM-H845LE/H946LE]
Multi Playback (PAL 60 Conversion)	No		Yes
Fade	Yes		
Date Serch	Yes		
Electronic Image Stabilizer (E.I.S)	Yes		
Manual Focus	Yes (Auto/Manual selective)		
LCD Display	3-inch	2.5-inch	3-inch [VM-E645LE/E648LE/ H845LE] 3.5-inch [VM-H946LE]
Internal DC Light	No		No [VM-E645LE/E648LE] Yes [VM-H845LE/H946LE]
		ACCESSORY	
AC Adapter/Charger	VM-ACE3E	VM-ACE4E	
Battery Pack	VM-BPL13		
Remote Control	VM-RME311A	VM-RME411A	

COMPARISON OF MAIN CONTROL ICs

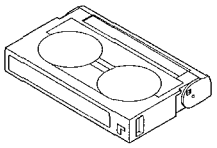
ITEM	VM-E635LE/VM-H835LE	VM-E543LE/E545LE VM-E548LE	VM-E645LE/E648LE VM-H845LE/H946LE
	CAMERA (AUTO FOCUS)		
CCD Sensor	ICX209 [For Normal] ICX211 [For Hi-8] (IC1001)	ICX207AK (IC1001)	ICX211 (IC1001)
Gyro (Vert.)	CG-16DF0 (IC1401)		ENC-03JA -03(IC1401)
Gyro (Horiz.)	CG-16DF1 (IC1402)		ENC-03JB -03(IC1402)
Gyro Amp	NJM062M-TE1 (IC1403)		NJM064V (IC1403)
Gyro Reset	TC4W66F (IC1404)		XP4501 (Q1402)
CDS/AGC & A/D Conv.	HD49322F (IC1101)		HD49323F (IC1101)
DSP	HG51CS035TE (IC1102)	HG73C012TE (IC1102)	HG73C012TE (IC1102)
Drive Pulse Generator	µPD16510GR (IC1103)		
D (Digital) -µP	HD6433042ST-29F (IC1104)	HD6433042ST36F (IC1104)	HD6433042ST39F (IC1104)
EEPROM	MX25S67MR (IC1105)		X2509V-217 (IC1105)
F Det./Iris Drive	µPC5023GS-105 (IC1201)	µPC5023GS-147 (IC1201)	µPC5023GS-147GJG (IC1201)
Zoom /Focus Motor Driver	MPC17A34ZVM (IC1301)		
	CRT EVF		
Video Amp/Vertical & Horizontal Deflection	HA118179F (IC2001)		
	SYSTEM CONTROL (POWER) & SERVO		
System Control µP	CXP87240-117R (IC901)	CXP87240-136R (IC901)	CXP87248A-147R (IC901)
Back-up Det.	S84233FS (IC902)		NJU7284EV (IC902)
Character Gen.	BU6229FV (IC904)	BU6294FV (IC904)	BU6294AFV (IC904)
Level Shift	Not provided		SN74AHC126PW (IC906)
IR Receiver	GP1U101X (IC907)		
ATF	µPC5023GS-122-E1 (IC601)		
Cylinder Motor Drive	LB1950V-TLM (IC631)		LB1950V (IC631)
Loading Motor Drive	BA6417F (IC671)		
Capstan Motor Drive	LB1951V (on the capstan motor)		LB1991V (IC651)
PWM	BA9735KV (IC551)		
	LUMINANCE/CHROMA & AUDIO		
VideoHead Switch	HA118189MPER (IC101)		
Phase EQ/FM Peak	µPC5023GS-101-E1 (IC102)		µPC5023GS-146 (IC102)
Luma/Chroma Process	HA118192AF (IC201)		Not provided
Video DSP	Not provided		HG73C029TE (IC201)
1H Delay	CXL5517N (IC202)		Not provided
V. RAM	Not provided		NN51V4260A-50 (IC202)
CCD 1H Delay	CXL5508M-T3 [For Hi8] (IC203)	Not provided	Not provided
Sync Sepa.	Not provided		BA7071F (IC203)
Video Amp	µPC5023GS-104-E1 (IC204)		µPC5023GS-153 (IC204)
Skew Compe.	CXA2003N (IC301)		
Audio Process	HA118193F (IC401)	LA7458W (IC401)	HA118193F [For Stereo] LA7458W [For Monaurul] (IC401)
Speaker Amp	TDA7052AT (IC402)	Not provided	TDA7052AT (IC402S) [For Stereo]
MIC Amp	M5223FP (IC404, IC405) [For Stereo]	Not provided	M5223FP (IC404S, IC405S) [For Stereo]
	LCD DISPLAY		
LCD Process	IR3Y29AM (IC5301)	IR3Y18A (IC5301)	IR3Y29BM (IC5301)
LCD SWR.	TL5001CD (IC5401,IC 5501)		TL5001CD (IC5401)
TRANS INV.	Not provided		HLMM936 (IC5501)
LED Cont.	NJM2406F (IC5502)		
Pulse Gen.	LZ95NA1 (IC5601)	CM7013L2 (IC5601)	LZ9GH16 [For 3-inch] LZ9GH17 [For 3.5-inch] (IC5601)
OSC Cont.	NJM3414 AV (IC5602)		
OSC Cont.	Not Provid	NJM2107F (IC5603)	Not provided

JIGS AND TAPES FOR ADJUSTMENT

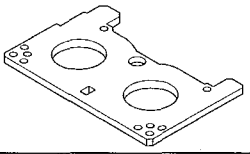
1. Alignment Tape
Color Bar/400Hz
(20HSC-3) No. 7099232



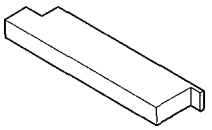
2. Cassette Torque Meter
SRK-8T-232 : No. 7099236
SRK-8T-212 : No. 7099402



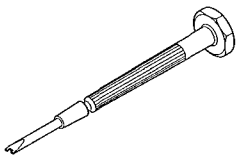
3. Master Plane
No. 7099237



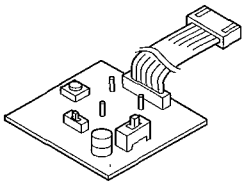
4. Reel Disk Height Jig
No. 7099238



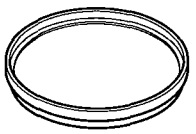
5. Special Driver
No. 7099239



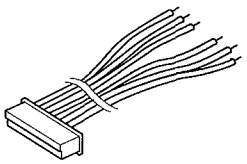
6. ATF-R Jig *(*1, *2)*
No. 7099461



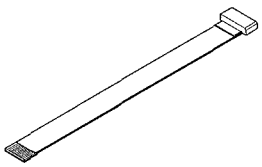
7. C12 Light Balance
Filter 46mm Ø
No. 7099369



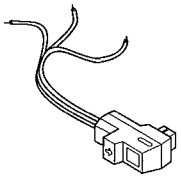
8. 10-Pin Extension Cable
No. 7069183



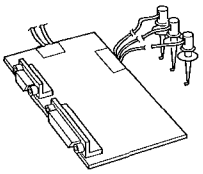
9. 4-Pin Extension Cable
[New Jig] No. 7069203



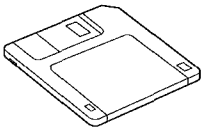
10. DSP AV Output Jig
No. 7099456



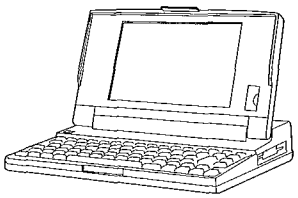
11. DSP-R Jig
No. 7099448



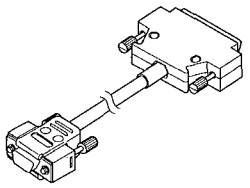
12. Adjustment Floppy Disk
(3.5inch) **[New Jig]**
No. 7069202



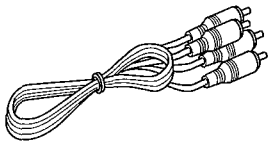
13. Personal Computer
[Good on the Maket]



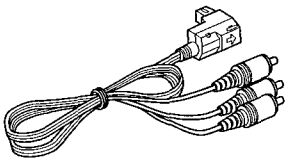
14. Personal Computer
Cable 9-Pin or 25-Pin
(RS232C Straight type)
[Good on the Maket]



15. AV Output Cable *(*3)*
(For US Pin Jack)



[Accessory]
(For 20 Pin AV Jack)



Caution for jigs :

**1.* Always set SW3 on the ATF-R jig to ON.
**2.* The ATF jig (No.7099386) can also be used in place of ATF-R jig to adjust this model.
**3.* Either the monaural or stereo AV input/output cable can be used.

HOW TO USE THE EXTENSION CABLE

NAME OF JIGS	PARTS No.	HOW TO USE
10-Pin Extension Cable	7069183	Cable to power the camera/recorder after the case is removed. [Pin 1 and 2: Positive, Pin 6 and 7: Negative] Power supply cable for power shut off level adjustment. **NOTE**: It it is used for the power shut off level adjustment, short pins 3 and 5 to pins 6 and 7 (GND).
4-Pin Extension Cable	7069203	Installed between the VCA circuit board and mode switch (mechanism state switch).

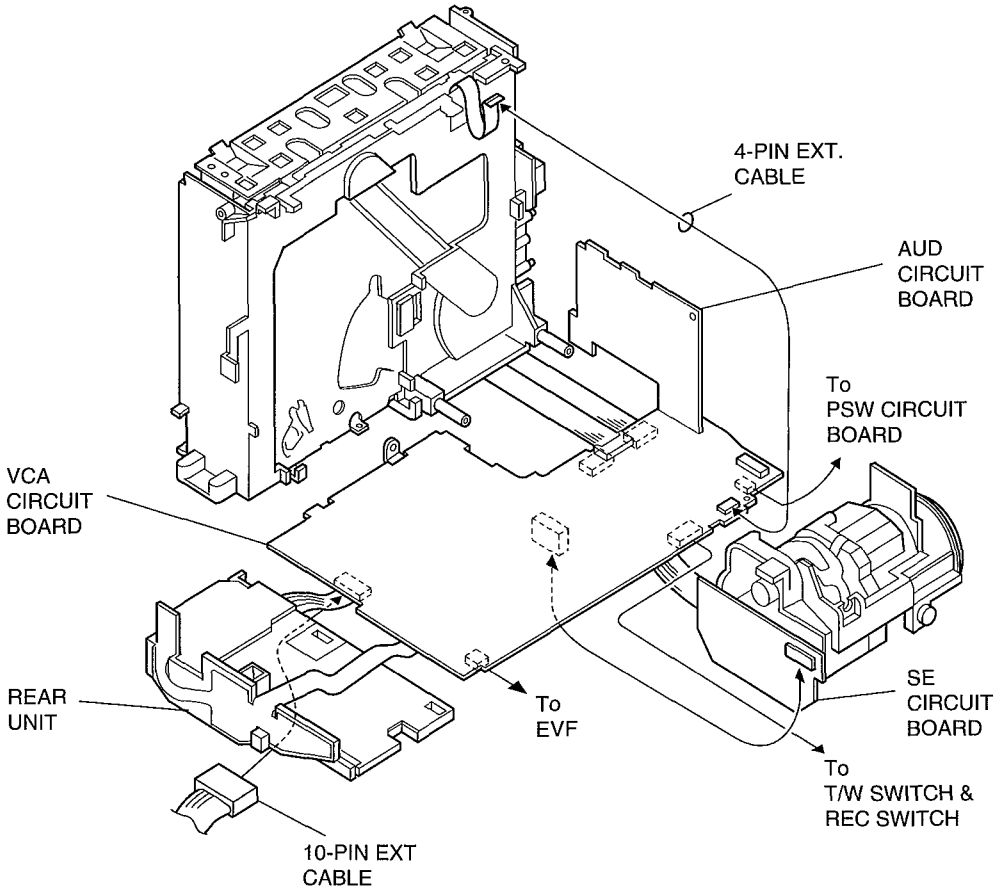


Fig.1-1 Extension Cable Connection Diagram

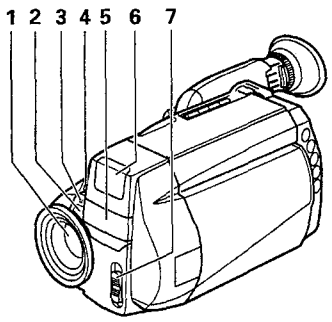
SERVICE MANUAL ABBREVIATION LIST

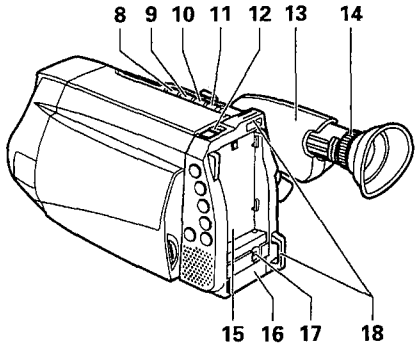
A	
ACC	Automatic Color Control
ADD	Adder
ADRS	Address
AF	Automatic focus (Autofocus)
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
AGC KILLER	AGC Killer Voltage
AI	Automatic Intelligence
AIC	Automatic Iris Control
ALC	Automatic Level Conrol
AMP	Amplifier
APC	Automatic Phase Control
ASBL	Assemle (Phase Matching)
AUD.	Audio
AUX	Auxiliary
A/D	Analog-to-Digital Converter
A.DUB	Audio Dubbing
B	
B (BLU)	Color Signal Blue
BATT.	Battery
BF	Burst Flag
BG	Burst Gate or Back Ground
BGP	Burst Gate Pulse
BLK	Blanking
BPF	Bandpass Filter
BUF.	Buffer Amplifier
B-YL	Color Difference Signal B-YL
C	
C (CHROMA)	Chrominance Signal
CAM	Camera
CAPST.	Capstan
CARRI.	Carrier
CATV	Cable TV
C.BLK	Composite Blanking
CCD	Charge Coupled Device
CDS	Correlated Double Sampling
CG	Character Generator
C.FG (CFG)	Capstan Frequency Generater
C.FREE RUN	Capstan Free Run
CH (Ch or ch)	Channel
CHARA.	Character
CHD	Camera Horizontal Drive Pulse
C.MEMORY	Counter Memory
CNR	Chroma Noise Reducer
COM.	Common
COMPA.	Comparator
COMPE.	Compensator
COMP-EXP	Compressor-Expander
COMPO	Composite
CONT.	Control
CONV.	Converter
COUNT.	Counter
CP	CP
C.PAUSE	Camp Pulse
C/R	Capacitor/Resistor
C.RESET	Countor Reset or Camera Reset

C	
C.REVERSE	Count Reverse
CS	Communication Signal
CST	Cassette
C.SYNC	Composite Synchronizing Signal
CTL	Control Track Pulse (Control)
CYL	Cylinder
D	
D (Digital)	Digital
DA	Double Azimuth
D/A	Digital to Analog Converter
D-D	Direct Drive
DEEMPHA.	Deephasis
DEF	Deflefction
DEMOD.	Demodulator
DET	Detector
DIFF. AMP	Differential Amplifier
DISP.	Display
DL Delay Line	
DO	Dropout
DOC	Dropout Compensator
DSP	Digital Signal Processor
D/W	Dark/White
D.ZOOM (DZ)	Digital Zoom
E	
EAROM (EA-ROM)	Electrically Alterable Read Only Memory
EEPROM (EEP-ROM)	Electrical Erasable Proframmed
E-E	Electronic-to-Electronic
EIS (E.I.S.)	Electronic Image Stabilizer
EMPHA. (EMPH)	Emphasis
EQ	Equalizer
ESS	Supply End Sensor
EST	Take-up End Sensor
EVF	Electronic Viewfinder
EXT.	External
E.ZOOM	Electronic Zoom
F	
F.ADV	Frame Advance
F/V	Frequency-to-Voltage Converter
FB	Feed back
FE	Full Erase
FF (F/F)	Flip Flop
F.FWD	Fast Forward
FG	Frequency Generator
FM	Frequency Modulation
FREQ.	Frequency
fsc	Sub Carrier Frequency
FWD	Forward
G	
GEN.	Generator
GND	Ground
H	
H (HORIZ.)	Horizontal
HBHi-Band	

H	
HBF	Horizontal Burst Flag
HD	Horizontal Drive
Hi-Fi	High Fidelity
HPF	High-pass Filter
I	
IF	Intermediate Frequency
INDI.	Indicator
INST.	Instant
INT.	Internal
INV.	Inverter
I/O	In/Out (Input/Output)
IR	Infrared Rays
L	
LB	Low-Band
LCD	Liquid Crystal Dissplay
LIN.	Linear
LM	Loading Motor
LNC	Line Noise Canceller
LOG	Logarithm
LP	Long Play
LPF	Low-pass Filter
LUMA	Luminance
L/R	Left/Right
M	
MAN	Manual
M.BRAKE	Main Brake
M.CUT	Monitor Cut
MEM.	Memory
MIC	Microphone
MIX	Mixer
MMV	Monostable Multivibator
MOD.	Modulator
M.STATE	Mechanism State
M.STOP	Memory Stop
N	
NEG	Negative
NFB	Negative Feed Back
NOR. (NORM)	Normal
NR	Noise Reduction
O	
OB	Optial Black
OSC	Oscillator
OSD	On-Screen Display
P	
PB (PLAY)	Playback
PG	Pulse Generator
PLL	Phase Locked Loop
POS.	Positive
PROG.	Program
PROT.	Protector
PWM	Pulse Width Modulation
R	
R (RED)	Color Signal Red
RAM	Random Access Memory
REC	Record
RECT.	Rectifier

R	
REF.	Reference
REG.	Regulator
REV	Review
REW	Rewind
RF	Radio Frequency
ROM	Read Only Memory
RSS	Supply Reel Sensor
RST	Take-up Reel Sensor
R-YL	Color Difference Signal R-YL
S	
SAW	Sawtooth Signal
SC1 (0°)	3.58MHz Subcarrier Signal 1 (0-degree Phase Shifted)
SC2 (90°)	3.58MHz Subcarrier Signal 2 (90-degree Phase Shifted)
SEPA. (SEP)	Separator
S/H	Samle and Hold
SP	Standard Play or Speaker
S.REEL	Supply Reel Sensor
SRCH	Search
SRV	Servo
STABI.	Stabilizer
S.TRACK	Slow Tracking
STBY	Standby Mode
S-VHS	Super VHS
SW	Switch
SW30Hz (15 or 25Hz)	30Hz Head Switching Pulse (15 or 25Hz Head Switching Pulse)
SYNC	Synchronizing signal
SYS.CON	System Control
T	
T (TELE)	Telephoto Angle
T.BRAKE	Take-up Brake
TP	Test Point
T.REEL	Take-up Reel Sensor
TRS	Transfer
V	
V (VERT.)	Vertical
V.AGC	AGC Voltage
VCO	Voltage Controlled Oscillator
VD	Vertical Drive
V.DUB	Video Dubbing
VHS	Video Home System
VOL.	Volume
VP	Voltage Pulse
VCXO	Voltage Controlled Crystal Oscillator
W	
W (WIDE)	Wide Angle
WHT	Color Sifnal White
WHD	Wide Horizontal Drive
WHT BAL.	White Balance
Y	
Y	Luminance Signal
Y/C	Luminance/Chrominance
YEL (Ye)	Color Signal Yellow
YL	Luminance Signal (Low Component)





1. Lens Door
The door will automatically open when the CAM/OFF/VIDEO switch is set to "CAM". Setting the switch to "OFF" will close the door.

2. Infrared Ray Receiving Section
Receives infrared rays from the remote control unit.

3. Record Indicator
This indicator flashes to indicate that the camera/recorder is recording.

4. Active Light Switch (for VM-H845LE/VM-H946LE)
When this switch is set to AUTO, the active light turns on or off automatically according to the brightness of the object. When switch is set to ON, the active light turns on. Set the switch to OFF to turn the light off manually.

5. Microphone
Sensitive to sounds coming from the direction in which the camera is pointed.

6. Active Light (for VM-H845LE/VM-H946LE)
When the CAM/OFF/VIDEO switch is in CAM position, the active light is turned on and off automatically or manually in the record and record pause modes depending on the position of the light switch. Turn the active light off after use.

NOTE: The active light turns on only in the record and record pause modes.

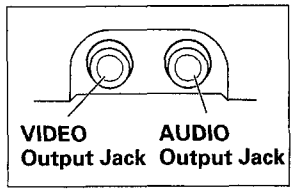
7. CAM/OFF/VIDEO Switch
This switch turns the camera/recorder on and off. Set the switch to CAM for camera recording, and to VIDEO for playback. Hold down the small red button as you slide the switch to CAM or VIDEO. You do not need to hold down the red button to slide the switch to OFF.

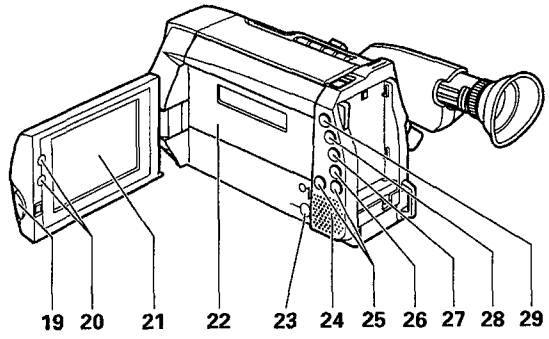
8. F.FWD Button
Press this button during stop or rewind mode, and fast-forwarding starts. During fast forward, press and hold this button to visually scan the tape forward at 7 times the normal playback speed. Press the button during playback of tape, and the tape is played back in the forward direction approximately 7 times faster than the normal speed to confirm the recorded content. Press PLAY button to return to normal playback mode or press STOP button to stop tape movement ("F-SEARCH AND R-SEARCH", page 24). Also use F.FWD button when setting the date/time and creating a title.

NOTE: You can also visually scan forward when the camera/recorder is in record/pause (stand-by) mode by pressing and holding this button.

9. PLAY Button
Use to play back recorded tapes and create a title.

NOTE: When the camera/recorder is in record/pause (stand-by) mode, pressing and holding this button will play the tape at normal.





10. REW/REVIEW Button
Press this button during stop or fast forward mode, and fast-rewinding starts. During rewind, press and hold this button to visually scan the tape backwards at 5 times the normal playback speed. Press the button during playback of tape, and the tape is played back in the rewind direction approximately 5 times faster than the normal speed to confirm the recorded contents. Press PLAY button to return to normal playback mode or press STOP button to stop tape movement ("F-SEARCH AND R-SEARCH", page 24). Also use this button to review the last few seconds of the tape you are recording. Use REW/REVIEW button when setting the date/time and creating a title.

NOTE: You can also visually scan backward when the camera/recorder is in record/pause (stand-by) mode by pressing and holding this button.

11. STOP Button
The STOP button is used to stop playback, rewind, and fast forward operations. The STOP button has no effect during record operation. Also use STOP button when setting the date/time and creating a title.

12. BATTERY Release Lever
Releases the battery attached to camera/recorder.

13. Electronic Viewfinder

14. Diopter Control
To use the electronic viewfinder, pull the eye cup all the way, and then turn this control for your optimum focus adjustment.

15. Power Supply Attachment Section
Attach the battery pack (provided) here.

16. AUDIO/VIDEO Output Jacks (Behind the cover)
Use this jack to connect the camera/recorder to a VCR or television. (See pages 45, 49, 57.)

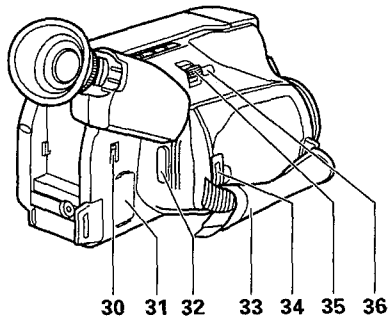
- Connect the yellow plug of the audio/video cable to the yellow jack (VIDEO OUT) and the white plug to the white jack (AUDIO OUT).

17. DC IN Jack
When using the AC adaptor/charger, connect one end of the DC cord (provided) to this jack and the other end to the DC OUT jack of the AC adaptor/charger. When using the car battery cord (optional), connect this jack and the DC OUTPUT jack of the car battery cord.

NOTE: The DC cord cannot be connected to camera/recorder if a battery pack is attached.

18. Shoulder Strap Slots
Attach the shoulder strap here.

19. OPEN Button
Push this button to open the LCD monitor.



20. Bright Control Buttons
Use these buttons to adjust the brightness of the LCD monitor screen.

21. LCD Monitor
You can view the pictures as they are being recorded and play them back immediately after recording on the LCD screen.

22. Cassette Holder
Press the EJECT button to open the cassette holder. Be aware of the cassette direction when inserting.

NOTE: Power source must be connected to open the cassette holder.

23. EJECT Button
Operates with the CAM/OFF/VIDEO switch either on or off, if a power source is connected to the camera/recorder.

NOTE: The EJECT button is inoperable unless the LCD monitor is completely open.

24. Speaker
You can listen to the recorded sound.

NOTE: No sound is heard when the LCD monitor is closed.

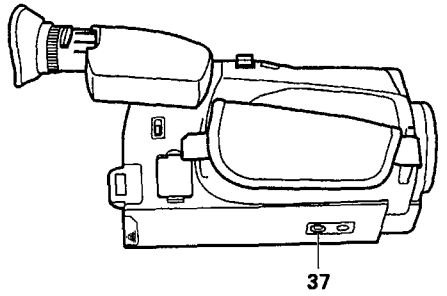
25. FOCUS/VOL. (volume) Control Buttons
When the CAM/OFF/VIDEO switch is set to CAM, these buttons will be the focus control buttons. Press them simultaneously to select manual or automatic focusing. To control focus manually, press the ▲ or ▼ button to bring the subject into focus. When manual focus has been engaged, "FOCUS" will appear in the viewfinder or on the LCD monitor. When you are viewing playback pictures on the LCD monitor with the CAM/OFF/VIDEO switch set to VIDEO, these buttons can be used to control the volume of the built-in speaker.

26. DATE/DISP. Button
When the CAM/OFF/VIDEO switch is set to CAM, this button can be used as the DATE button; set the date and time, and select the date display you want to record. In the VIDEO mode, the DATE/DISP. button is used as the DISPLAY button.

NOTE: Be sure to insert the clock battery before setting the date and time or creating a title.

27. D.EFFECT Button
Use this button to digitally process the image you are going to record or the playback image. During recording, you can select among six modes: 16×9, negative/positive, ×240 digital zoom, half-mirror, mosaic, or art. During playback, you can select among three modes: 16×9, art, or sepia.

28. FADE Button
During recording you can add a professional touch to your recordings by fading in and out of the scenes. You can select the four fade modes — the wipe fade, mosaic fade, art fade and black-and-white fade.



29. EIS (Electronic Image Stabilizer) Button
Press to display " " in the viewfinder or on the LCD monitor. EIS corrects slight shaking of the image to be recorded.

30. PAL60 Switch (Multi Playback)
Used when playing NTSC tapes recorded in the SP mode.
Set this switch to OFF for ordinary camera/recorder use. Set to PAL60 only when connecting the camera/recorder to a PAL TV which handles PAL60 mode signal and has vertical sync adjustment circuitry for 60Hz.

NOTES:
- A PAL recorded tape cannot be normally played back when the PAL60 switch is set to PAL60.
- The PAL60 switch is effective during playback only.
- See TV instruction manual for details about setting of PAL60 mode.
- Depending on the state of the tape recorded, the PAL60 switch may not operate normally.

31. Audio/Video Output Jack (Behind the cover)
For VM-E645LE: Use the RF Converter Unit (optional) to connect this jack to a TV to view the pictures played back by the camera/recorder.
For VM-H845LE/VM-H946LE: Use the Audio/Video output cable (provided) or RF Converter Unit (optional) to connect this jack to a TV to view the pictures played back by the camera/recorder.

32. Start/Stop Button
This button is used to control the camera/recorder. When this button is pressed with the camera/recorder set to the record/pause mode, the tape runs to start recording.
When this button is pressed again, the tape stops and the camera/recorder enters the record/pause (stand-by) mode. This button may also be used to display a still picture during playback mode.

33. Hand Strap
Adjust to best fit to your hand. (Refer to page 10.)

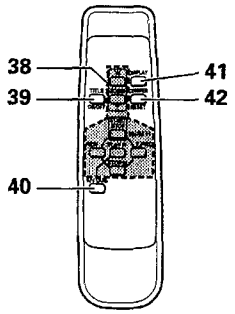
34. Clock Battery Compartment
Pull the battery holder and install the lithium battery (provided).

35. Power Zoom Control
This control performs zooming electrically.
"W": Picture becomes wider gradually.
"T": Picture becomes telescopic gradually.

36. INST. ZOOM (Instant Zoom) Button
Use this button to magnify the image being recorded 1.5 times momentarily.

37. Tripod Mount Screw
Use this screw to mount the camera/recorder on a tripod (generally available).

CONTROLS AND FUNCTIONS



38. Camera/Recorder Control Buttons
These shaded buttons on the remote control function the same as those on the camera/recorder.

39. TITLE ON/OFF Button
(only on the remote control)
Use this button to store a title in memory or recall the stored title and record it superimposed on the picture being shot.

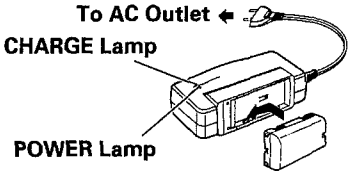
40. A/V DUB Button
(only on the remote control)
This button is used to record new audio and video in place of existing audio and video.

41. DISPLAY Button
Use this button to select the display in the viewfinder or on the LCD monitor.

42. COUNTER RESET Button
(only on the remote control)
Press this button to reset the linear time counter in the viewfinder or on the LCD monitor to "0:00:00".

CHARGING THE BATTERY

The first step is to set the battery to charge. To charge the battery, use the provided AC adaptor/charger.
Charge the battery at a temperature range of 10°C – 30°C to prevent damage to the battery.
NOTE: This camera/recorder operates with the lithium ion battery such as VM-BPL13/VM-BPL27/VM-BPL30.
Charge the battery on a flat surface without vibration.



1. Plug the AC adaptor/charger power cord into an AC outlet. The POWER lamp (red) lights up.
2. Align the bottom of the battery with mark ▶ on the AC adaptor/charger, and then slide it in the direction of the arrow as shown in the figure. The CHARGE lamp (green) lights up.
3. The CHARGE lamp will repeatedly light for 3 seconds and then go off to show that the battery has been charged approximately 70% of full charge. When the CHARGE lamp goes out, the battery has been completely charged. After the lamp goes out, unplug the AC adaptor/charger from the AC outlet and remove the battery from the AC adaptor/charger.

NOTES:
- You can use the battery before it is completely charged.
- Remove the DC cord from the AC adaptor/charger before attempting to charge the battery.
- If you re-attach the fully charged battery to the AC adaptor/charger after the CHARGE lamp goes out, the lamp will light. This simply informs you that the battery has been completely charged; it does not indicate that the charge has been insufficient.
- Charging at low temperatures will decrease charge capacity.

Charging time

Battery pack / Charging	VM-BPL13	VM-BPL27	VM-BPL30
Full charge	130 min.	230 min.	260 min.
70% charge	70 min.	140 min.	160 min.

Operating time
The camcorder operating time depends on how often you turn power on/off and use start/stop and zoom.

- **Continuous recording**

	Battery pack / LCD monitor	VM-BPL13	VM-BPL27	VM-BPL30
VM-E645LE	OFF	160 min.	330 min.	370 min.
	ON	120 min.	260 min.	290 min.
VM-H845LE	OFF	150 min.	320 min.	340 min.
	ON	120 min.	250 min.	280 min.
VM-H946LE	OFF	150 min.	320 min.	340 min.
	ON	110 min.	240 min.	260 min.

- **Typical recording**

	Battery pack / LCD monitor	VM-BPL13	VM-BPL27	VM-BPL30
VM-E645LE	OFF	90 min.	190 min.	200 min.
	ON	70 min.	150 min.	170 min.
VM-H845LE	OFF	80 min.	180 min.	190 min.
	ON	60 min.	140 min.	160 min.
VM-H946LE	OFF	80 min.	180 min.	190 min.
	ON	60 min.	140 min.	150 min.

Notes on the battery
- It is recommended that the battery always be left in the discharged state when not in use, and charged before you use it.
- Avoid storing a fully charged battery, and do not store it in a place where the temperature is high: this will damage the battery.
- Do not operate the battery at temperature below –10°C or above 45°C. At extremely low temperatures operation time decreases, while at high

temperature the battery may be damaged.

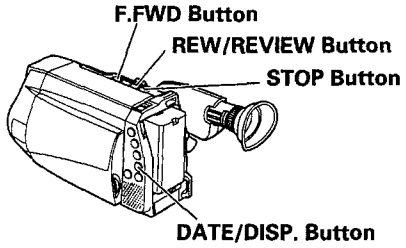
- If the POWER lamp begins to flash during charging, remove the battery and then reattach it to the AC adaptor/charger. If the POWER lamp continues to flash after several attempts to attach it, the battery is unable to take a charge and must be replaced.
- Do not attach a hot battery to the AC adaptor/charger. Allow it to cool.
- There are no user-serviceable parts inside the battery or AC adaptor/charger.
- Throwing the battery into fire or exposing it to excessive heat (above 60°C) may cause injury.
- Shorting the battery's terminal increases risk of fire or electrical shock.

DATE/TIME SETTING

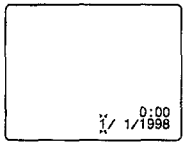
The date and time can be recorded on your tapes to act as a handy reference when viewing them at a later time. Use the following procedure to set up this display for the current date and time.
Make sure that the current time is displayed correctly before you start recording.

NOTES:

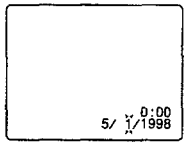
- Be sure to insert the clock battery before setting the date and time. Although the date and time can be set without the clock battery inserted, they will disappear when the battery providing power to the camera/recorder is removed.
- If you leave the powered camera/recorder for 10 minutes without a cassette inserted when the date has not been set or the clock battery is dead, the camera/recorder demonstration mode will start. To cancel the demo mode, disconnect power from camera/recorder and reconnect it, or insert a cassette.



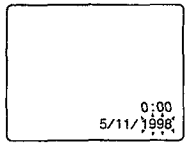
1. Slide the CAM/OFF/VIDEO switch to "CAM".
2. Press the DATE/DISP. button. "0:00" and "1/1/1998" appears in the viewfinder or on the LCD monitor and "1" flashes.



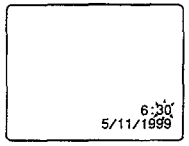
3. Press the F.FWD button to select correct date. Hold button down to advance rapidly. If you go past the date you want to set, press the REW/REVIEW button. When the correct date appears, press the STOP button.



4. Press the F.FWD button to select correct month. Hold button down to advance rapidly. If you go past the month you want to set, press the REW/REVIEW button. When the correct month appears, press the STOP button.



5. Use the F.FWD, REW/REVIEW and STOP buttons to select the correct year, hour and minute.



6. After setting to the correct minute, press the DATE/DISP. button to change the display and start the internal clock. It is recommended that you press the DATE/DISP. button to match the time signal.

NOTE: After the date and time are set, "◷ AUTO" appears and the camera/recorder enters the automatic date recording mode. See "DATE RECORDING" on page 28.

TROUBLESHOOTING

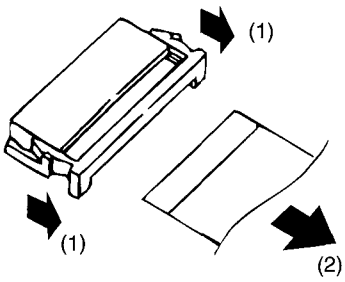
Symptom	Check Point & Correction
Cassette holder cannot be opened when you press the EJECT button.	Connect the power source.
Cassette cannot be inserted into cassette compartment.	Load cassette in direction indicated by arrow on cassette.
	The cassette window must be towards the outside.
Picture does not appear in the viewfinder or on the LCD monitor.	Slide the CAM/OFF/VIDEO switch to "CAM" position.
The camera/recorder cannot go into the recording mode, even when Start/Stop button is pressed.	Check the record-protect tab on the cassette. See page 19 for details.
	Set the CAM/OFF/VIDEO switch to "CAM" position.
	The " ▬ " indication in the viewfinder or on the LCD monitor flashes to indicate battery is discharged. Try another battery or charge the battery.
PLAY button cannot be engaged.	Set the CAM/OFF/VIDEO switch to "VIDEO" position.
Interference on playback picture. (The TV is connected to the camera/recorder using the RF converter unit.)	When you see the playback picture on your TV, adjust fine tuning knob on television set to obtain the best picture.
Picture is out of focus. Auto-focus does not operate correctly.	Press the FOCUS control buttons simultaneously to erase "FOCUS" in the viewfinder or on the LCD monitor.
	Auto-focus does not operate correctly if a special-effects filter is attached or with the objects shown on page 30.
The created title does not appear.	Insert the clock battery, then create a title.
	Do not remove the clock battery after creating a title.
	When the stored title (prememo) is displayed in the viewfinder or on the LCD monitor, press the PLAY button.
Power is interrupted.	If the record pause mode continues for more than 5 minutes, power is shut off automatically. Press the Start/Stop button to restore the power.

Symptom	Check Point & Correction
The LCD screen is black and white. The colour of the LCD screen is not normal. Power is not turned on. Power is turned on, but no button operations are accepted.	Remove the power source and the clock battery. And after about one minute, the display in the viewfinder or on the LCD monitor will be reset. Then set the information again.
"TAPE" appears in the viewfinder or on the LCD monitor.	Have you moved the camera/recorder or cassette from a cold place to a warm place so that its temperature changed abruptly? If the temperature has changed, remove the cassette and set the CAM/OFF/VIDEO switch to OFF, then wait for about one hour.
	Remove the cassette and then try to reinsert: remove it several times. If the indication is still shown in the viewfinder or LCD monitor, use a cleaning tape to clean the heads and replace the cassette.
The battery level indicator " ▭ " appears differently on the LCD monitor and in the viewfinder.	This does not indicate a fault; it is because the power consumed by the LCD monitor and viewfinder is different.

CHAPTER 2 DISASSEMBLY

1. BEFORE STARTING DISASSEMBLY

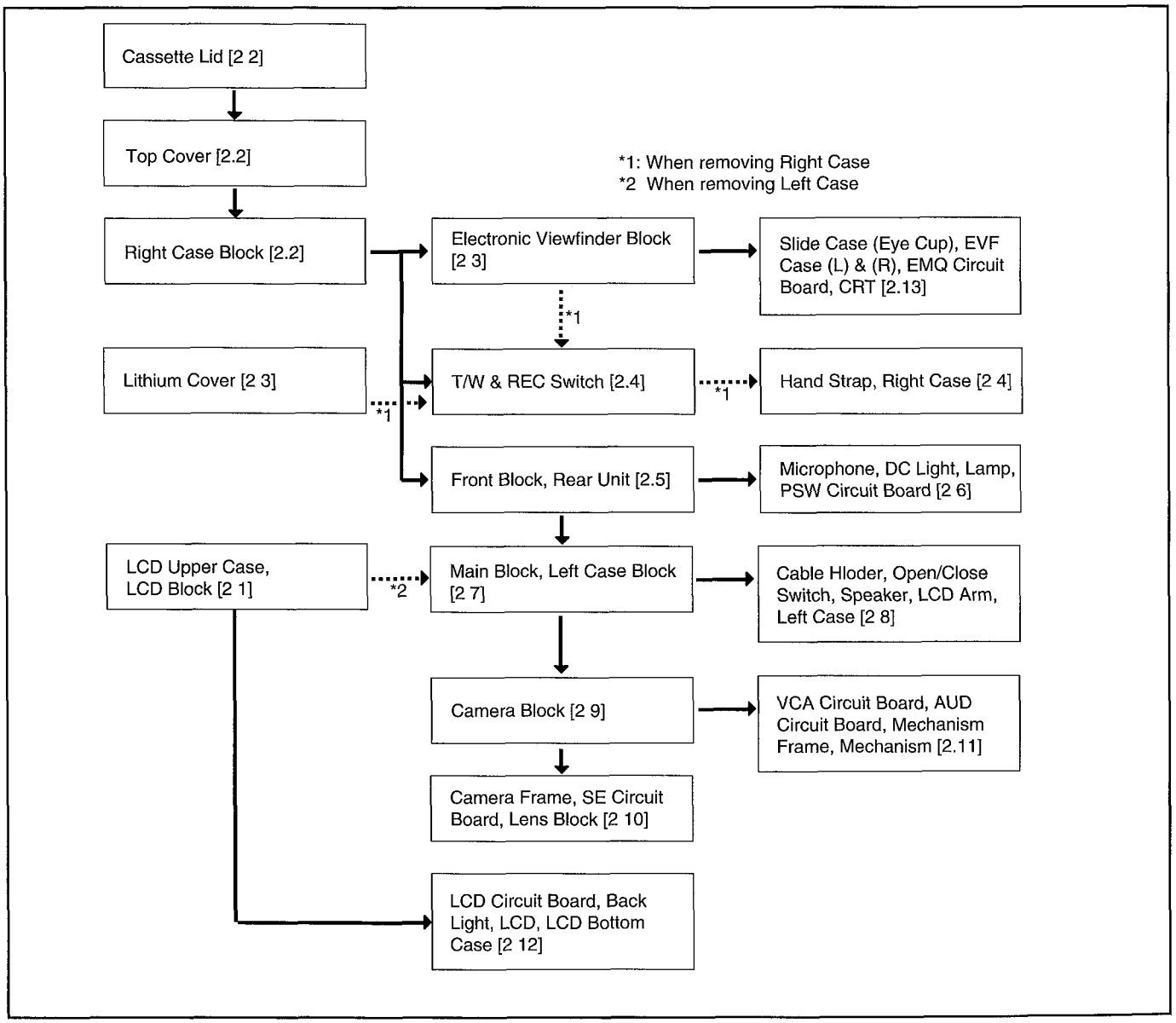
(1) This camera/recorder must basically be dismantled in the unloading stop state.
To manually set the mechanism to the unloading stop state, refer to "3. Method for Manual Unloading".
(2) This camera/recorder will not perform the eject operation unless the LCD monitor is open.
(3) Dismantle each component according to "1.1 Disassembly Procedure".
(4) For reassembly, perform the reverse procedure to disassembly when not otherwise specified.
(5) Be sure not to disassemble the lens block.
(6) Disconnect flat cables from connectors by the procedure shown in Fig. 1 -1. Since many circuit boards in the camera/recorder are connected by in-board connectors, be sure to follow DISASSEMBLY when removing the circuit boards.



(1) Release the lock of the connector on the left and right simultaneously
(2) Pull out the flat cable

Fig. 1-1

1.1 Disassembly Procedure



2. CASES AND CIRCUIT BOARDS (MECHANISM BLOCK) REMOVAL

2.1 LCD Upper Case, LCD Block (Fig. 2-1)

Notes: 1. Be careful that the LCD screen is not damaged or smudged. (If dirt adheres to it, use a soft cloth to wipe it off.)
2. Handle the LCD panel and backlight with extreme care.

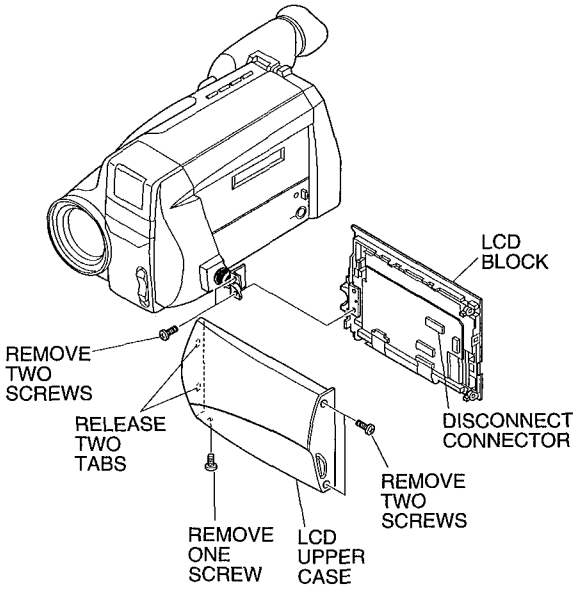
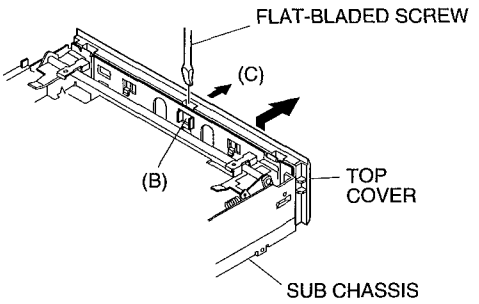


Fig. 2-1

2.2 Cassette Lid, Top Cover, Right Case Block (Figs. 2-2, 2-3)

■ Top Cover Removal

(1) Insert a flat-bladed screwdriver between the top cover and subchassis, and push section (B) of the plate spring in the direction of arrow (C), to remove the top cover in the direction of the arrow. (See Figs. 2-2, 2-3)



Reinstallation procedure and caution:

1. To install the cassette lid, first engage sections (A) with the cassette holder.
2. When installing the right case block, make sure of engagement between switch (E) and switch knob (D).

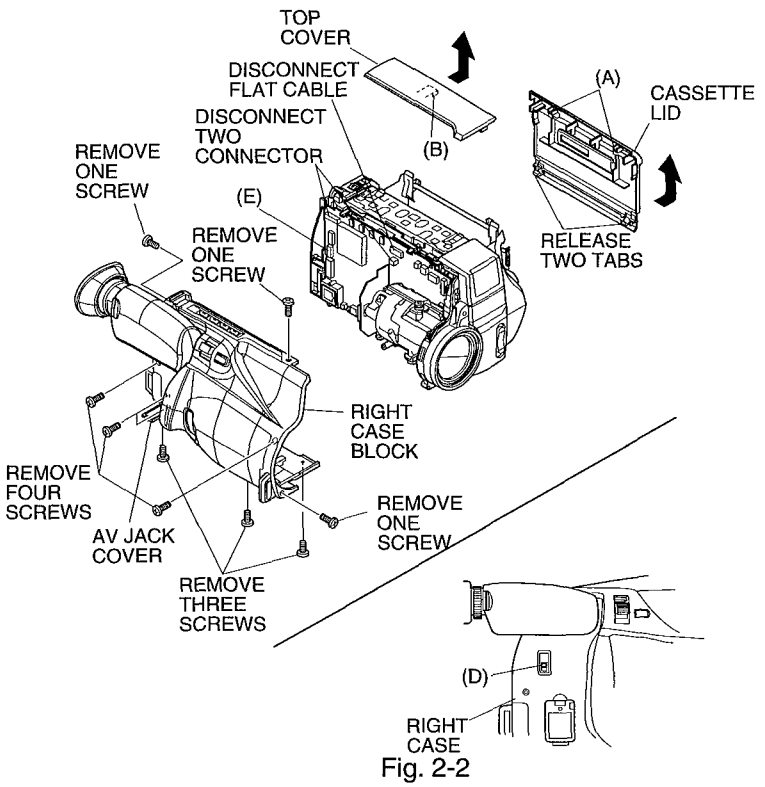


Fig. 2-2

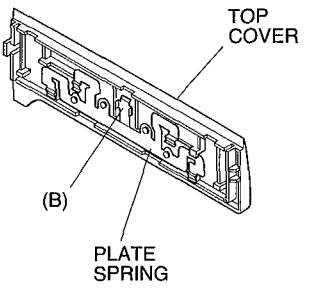


Fig. 2-3

2.3 Electronic Viewfinder (EVF) Block, Lithium Cover (Fig. 2-4)

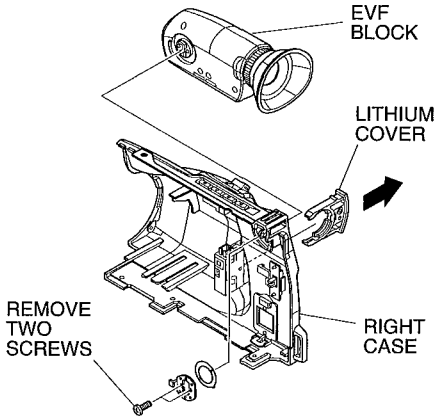


Fig. 2-4

2.4 T/W & REC Switch, Hand Strap, Right Case (Fig. 2-5)

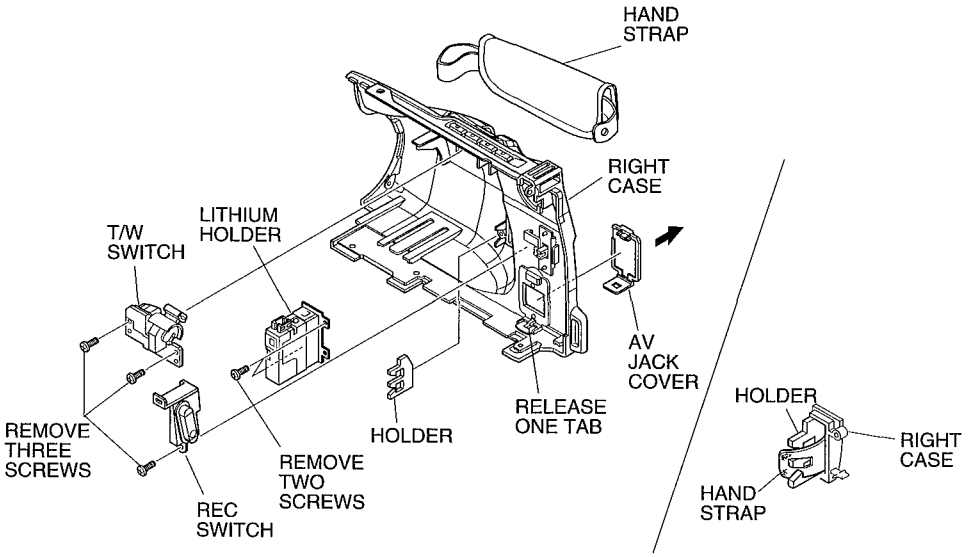
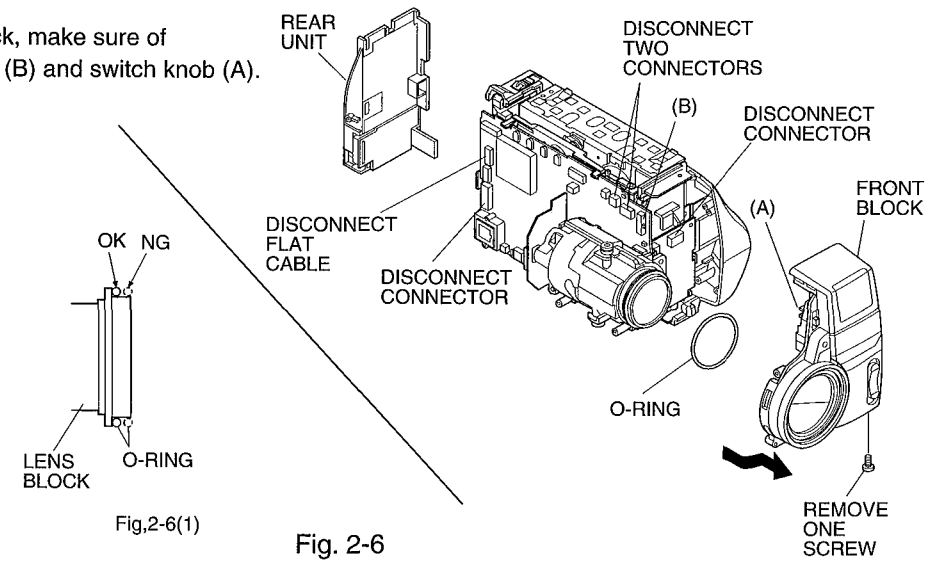


Fig. 2-5

2.5 Front Block, Rear Unit (Fig. 2-6)

Reinstallation procedure and caution:

1. The O-ring must be installed in the position shown in Fig. 2-6(1).
2. When installing the front block, make sure of engagement between switch (B) and switch knob (A).



Fig,2-6(1)

Fig. 2-6

2.6 Microphone (MIC), DC Light, Lamp, PSW Circuit Board (Fig. 2-7)

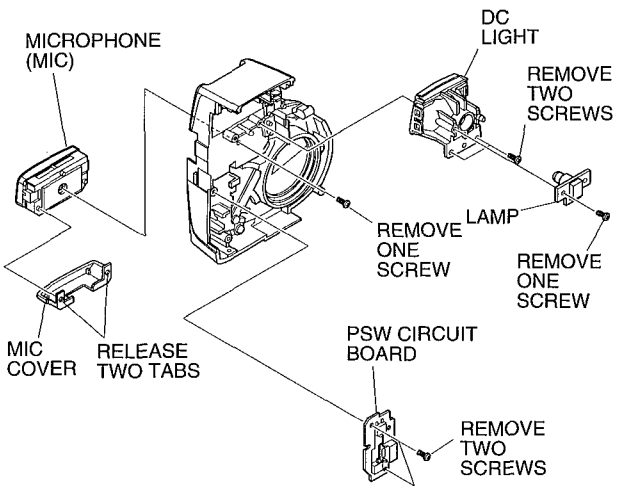


Fig. 2-7

2.7 Main Block, Left Case Block (Fig. 2-8)

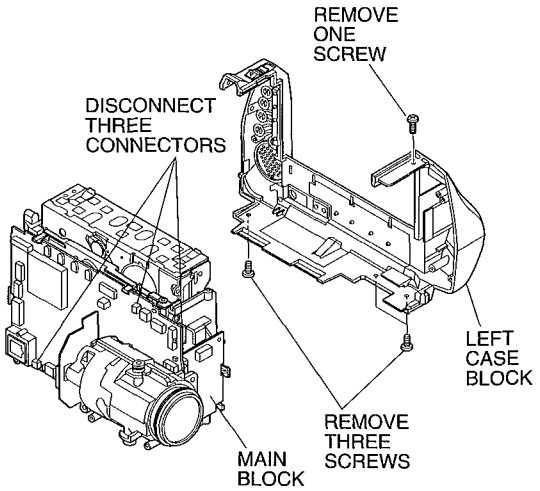


Fig. 2-8

2.8 Cable Holder, Open/Close Switch, Speaker, LCD Arm, Left Case (Fig. 2-9)

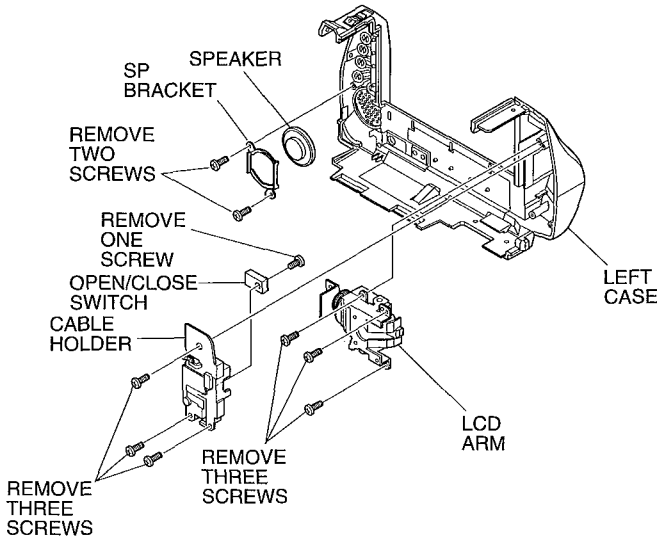


Fig. 2-9

2.9 Camera Block (Fig. 2-10)

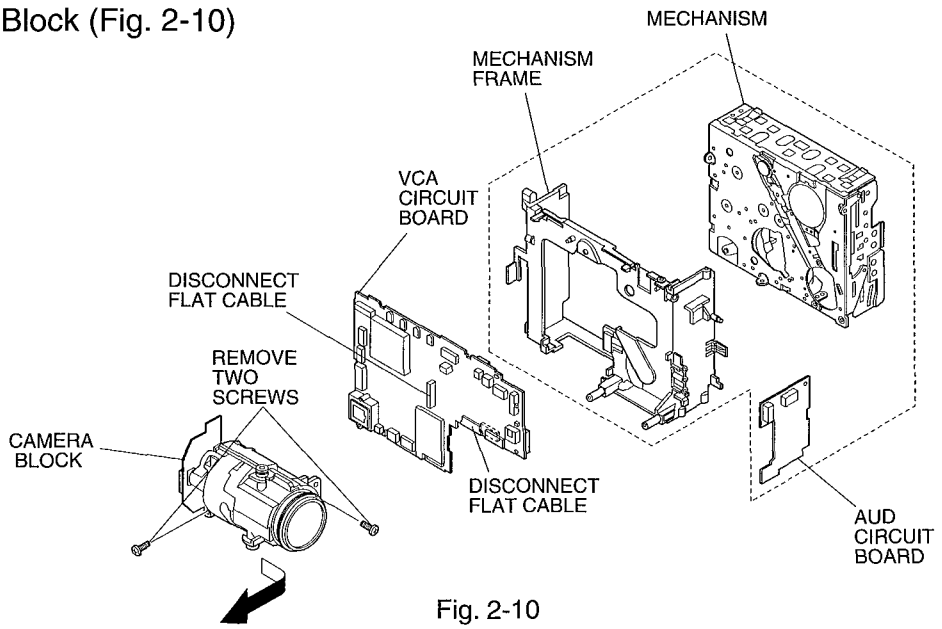


Fig. 2-10

2.10 Camera Frame, SE Circuit Board, Lens Block (Fig. 2-11)

Note: Be careful not to damage the crystal filter.

Reinstallation procedure and caution:

1. The crystal filter is non-directional.
2. Fit in the CCD image sensor parallel to the SE board, fix it with screws, and then solder it.

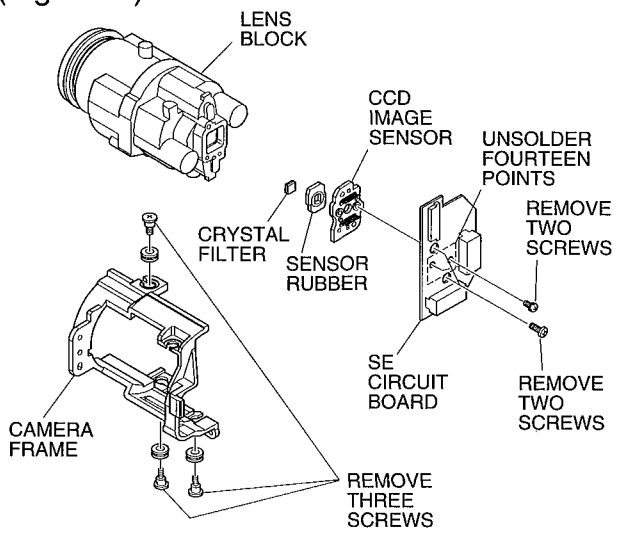


Fig. 2-11

2.11 VCA Circuit Board, AUD Circuit Board, Mechanism Frame, Mechanism (Fig. 2-12)

Reinstallation procedure and caution:

1. Connect connectors (A) and (B) securely.

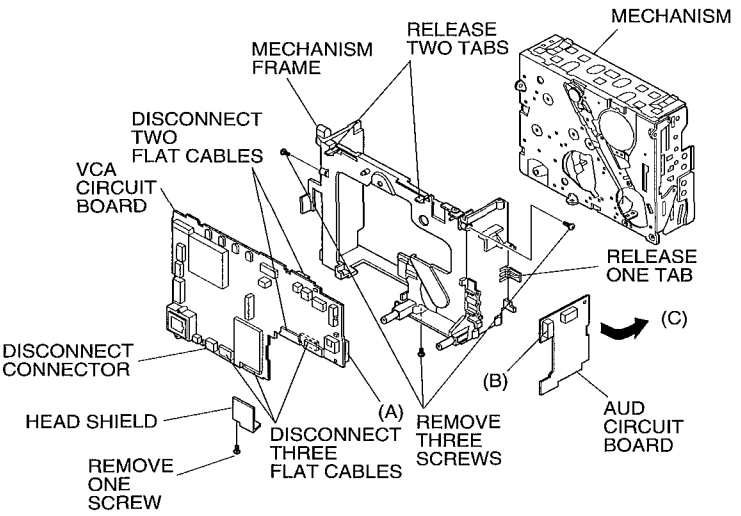


Fig. 2-12

2.12 LCD Circuit Board, Back Light, LCD, LCD Bottom Case (Fig. 2-13)

Notes: 1. Be careful that the LCD screen is not damaged or smudged. (If dirt adheres to it, use a soft cloth to wipe it off.)
2. Handle the LCD panel and backlight with extreme care.

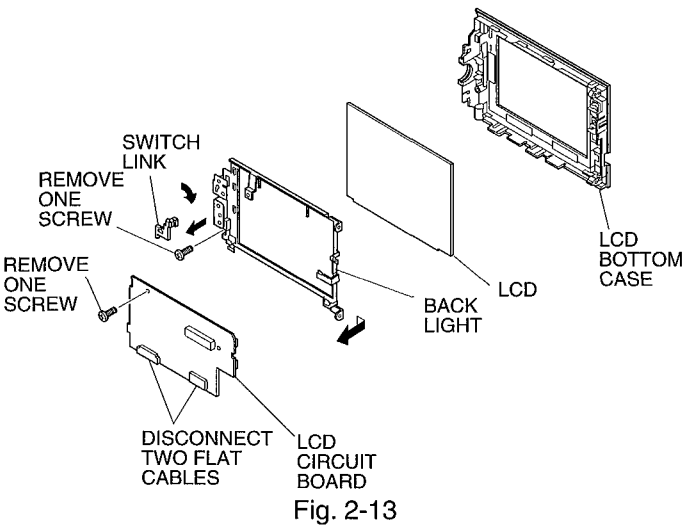


Fig. 2-13

2.13 Slide Case (Eye Cup), EVF Case (L) & (R), EMQ Circuit Board, CRT (Fig. 2-14)

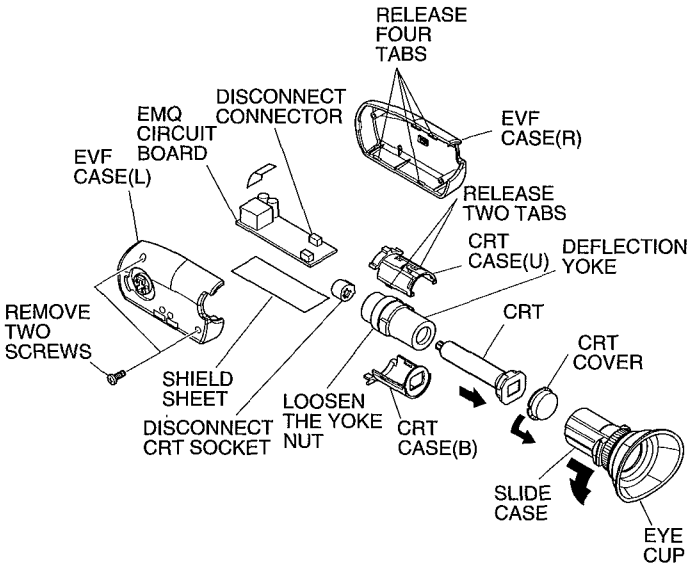


Fig. 2-14

3. METHOD FOR MANUAL UNLOADING

CAUTION :

Perform this procedure for emergency only when normal unloading is not possible because the electrical circuits or loading motor is defective.

(1) Open the LCD monitor. (See Figs. 3-1, 3-2)
[Or, remove the LCD block, referring to Fig. 2-1.]
(2) Lift the top cover at the right side (near the section of the arrow), to provide a gap. (See Fig. 3-1)
(3) Insert a flat-bladed screwdriver into section (A), and jump the plate spring to release the top cover in the direction of the arrow. (See Figs. 3-1, 3-2)
(4) Remove the right case block. (See Fig. 2-2)
(5) Disconnect connector (CN905) from PG905 on the VCA board, and short pins 1 and 2 of PG905. (See Fig. 3-3)
(6) Disconnect connector (CN604) from PG604 on the VCA board, and supply 4V DC to CN604 (directly to the loading motor), by connecting the positive terminal to brown wire, and negative terminal to the red wire, for unloading.

Notes: 1. If tape is loaded, also turn the capstan motor manually to take up the tape.
2. Connecting CN604 red wire (+) and brown wire (-) results in loading.

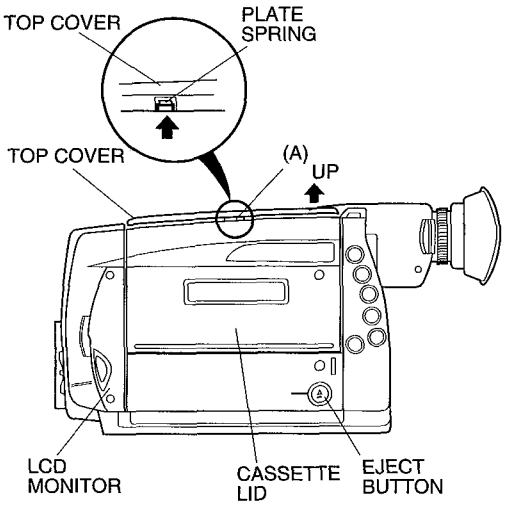


Fig. 3-1

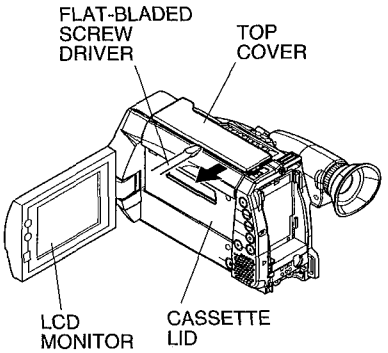
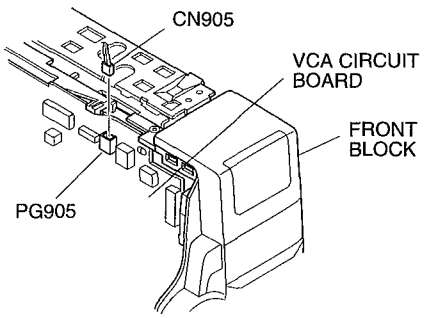


Fig. 3-2



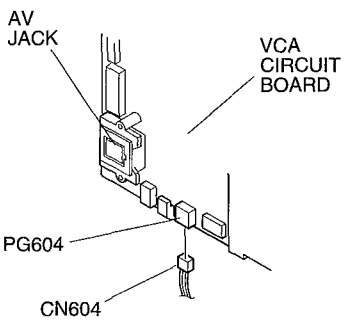


Fig.3-3

If unloading does not occur even when 4V DC is directly supplied to the loading motor, perform the following procedure:

(7) Remove the front block and rear unit. (SeeFig. 2-6)
(8) Remove the camera block. (See Fig. 2-10)
(9) Remove the VCA circuit board and mechanism frame. (See Fig. 2-12)
(10) Remove 7 screws holding the left case and remove the main block in the direction of the arrow from the left case. (See Fig. 3-4)
(11) Remove the cassette lid. (See Fig. 2-2)
(12) Release 2 tabs and pull out the loading motor from the loading motor holder. (See Fig. 3-5)

Note: The above removal is different from normal removal. In normal circumstances, remove the loading motor assembled with the loading motor holder. (The loading motor and loading motor holder comprise an assembly.)

(13) Turn over the mechanism.

Note: Do not turn over with the idler cover removed.

(14) Use a flat-bladed screwdriver, etc. to turn cam gear (A) or cam gear (B) in the directions of the arrows.

Notes: 1. Be careful not to damage the cam gears.
2. If tape is loaded, also turn the capstan motor manually to take up the tape.

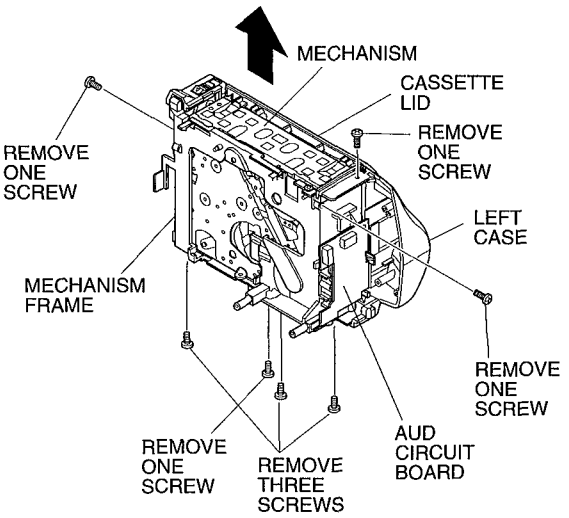


Fig.3-4

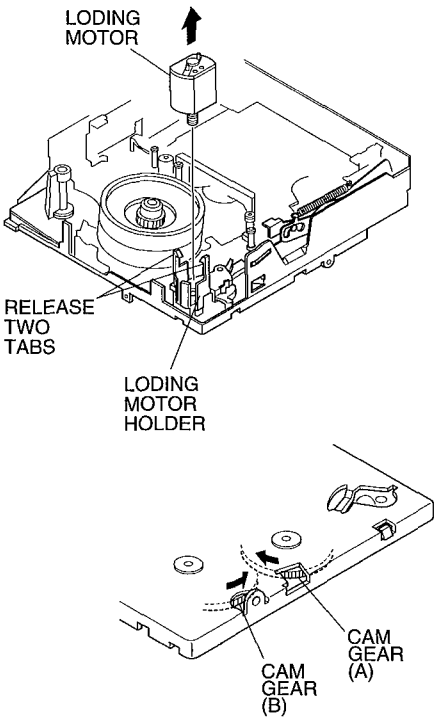


Fig.3-5

CHAPTER 3 ELECTRIC CIRCUIT ADJUSTMANT

Trademark
MS-DOS is a registered trademark of Microsoft Corporation.

Abbreviation
MAP: Digital adjustment program for the camera.
DSP: Digital signal processor

Before Starting Adjustment
Set the DATE of the camera/recorder.

1. CONNECTION FOR ADJUSTMENT

Notes: 1. Perform the camera section adjustment and system control/servo circuit adjustment in VCR section using a personal computer.
2. It is not necessary to remove cases for camera section and system control/servo circuit adjustments (except for power shut off level adjustment).
3. The 10-pin extension cable (7069183) is a jig which is to be used in the Power Shut Off Level Adjustment. For other adjustments, the AC adapter/charger can be used as a power supply.
4. The 10-pin extension cable (7069183) must be modified when it is used in the Power Shut Off Level Adjustment. See page 3-15 for its modification.

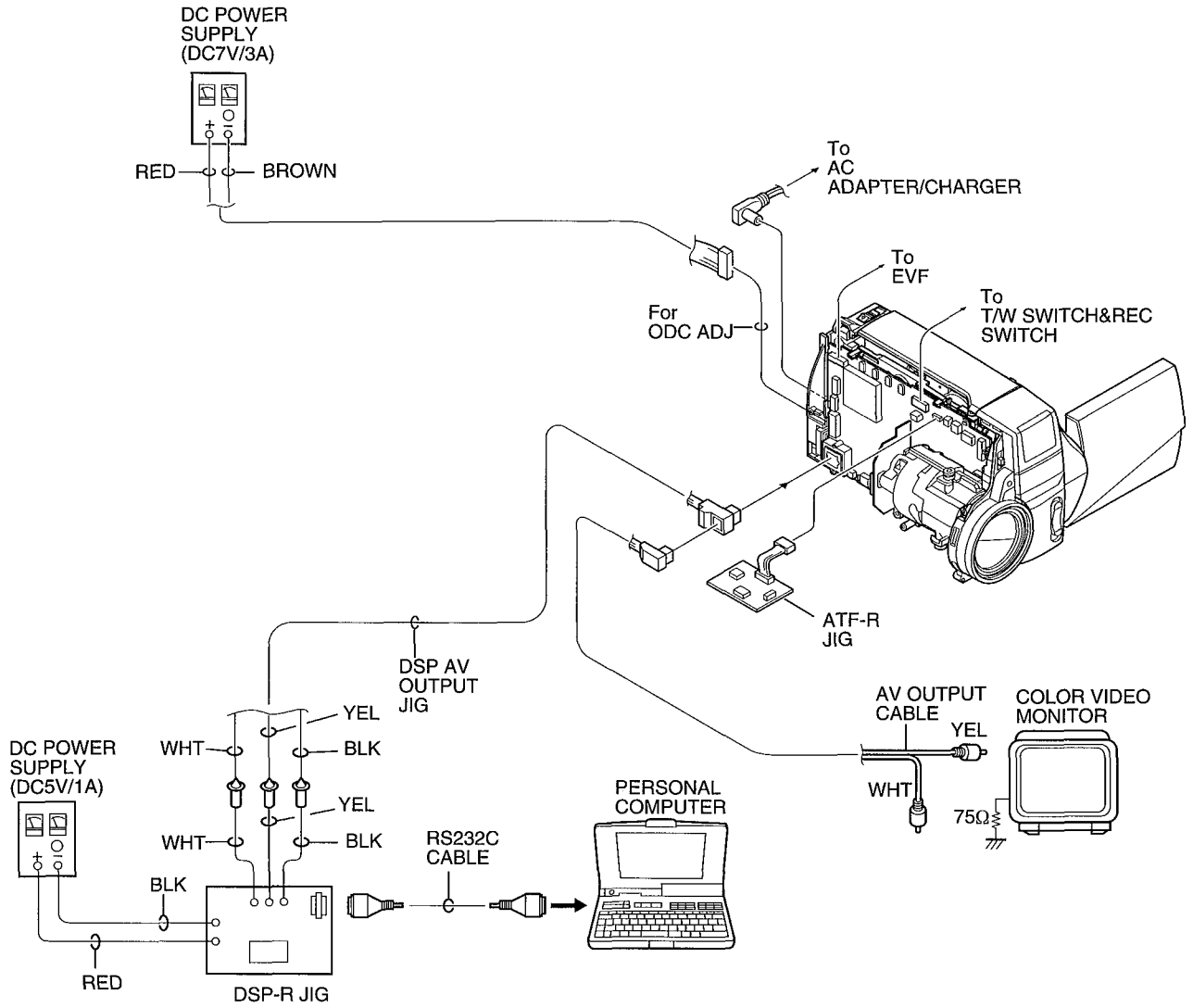
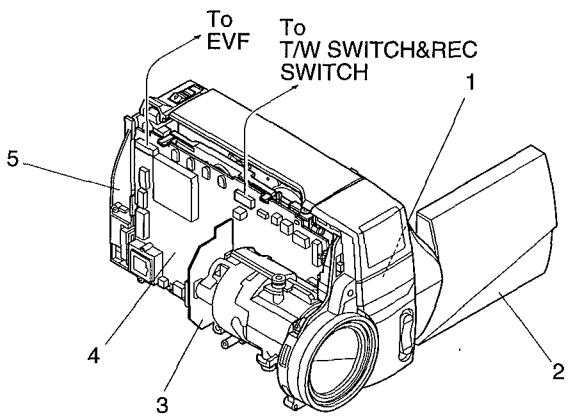


Fig. 1-1 Connection for adjustment

2. CAMERA SECTION ADJUSTMENT

2.1 Circuit Board Locations



1. AUD Circuit Board
2. LCD Block
3. SE Circuit Board
4. VCA Circuit Board
5. Rear Unit

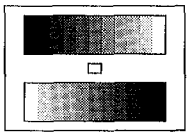
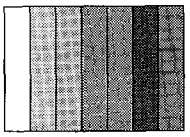
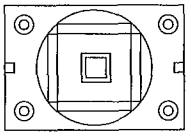
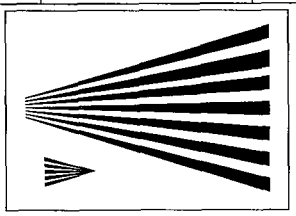
Fig. 2-1

2.2 Test Equipment Necessary for Adjustment

Oscilloscope (dual trace) [& Vectorscope]
Digital Voltmeter (DVM)
Frequency Counter
Color Video Monitor
Adjustment Floppy Disk
Personal Computer
Personal Computer 9-pin or 25-pin (RS232C) Cable
DSP-R Jig
DSP AV Output Jig
Light Box (3100°K)
Light Balancing Filter C12
DC Power Supply (DC7V/3A)
DC Power Supply (DC5V/1A)

2.3 List of Charts for Camera Adjustment

Table 2-1

Gray Scale Chart	Color Bar Chart	Resolution Chart
		
Backfocus Adjustmant Chart		

2.4 Adjustment Condition

1. Check that the VCR section has been adjusted correctly before adjusting the camera section.
2. Use a light box with minimum flickering. Control the color temperature of the light box strictly.
3. When using the video out (AV OUT) to perform adjustment, be sure to terminate the AV OUT jack with 75 ohms.
4. Place the light box approx. 30cm away from the camera (lens surface) when otherwise not specified.
5. Point the camera at the chart to full the video period when otherwise not specified.
6. Use the 10:1 probe of the oscilloscope when otherwise not specified.
7. When "Trigger the oscilloscope internally" is specified, set the time base of the oscilloscope to 10μs/div.

2.5 Preset Positions of Switches and Controls During Adjustment

CAM/OFF/VIDEO switch ..... "CAM" position
INST. ZOOM ..... Not Display mode
DATE ..... Not Display mode
DISPLAY ..... Not Display mode
TITLE ..... Not Display mode
FOCUS ..... Autofocus mode
E.I.S ..... OFF mode
DIGITAL EFFECT ..... OFF mode
FADE ..... OFF mode

2.6 Check After Replacing Major Components in the Camera Section

After replacing major components, perform adjustments, referring to the table below.
The following table shows the minimum adjustments required after major components are replaced.
The table below may not apply when several components are replaced, depending on the symptom of the defect.

Caution: When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.7.3 Initial Setting by Model" then perform all the camera section and system control/servo circuits adjustments.

Table 3-2

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS									
		SE Circuit Board	VCA Circuit Board	IC1001	IC1102	IC1104	IC1105	IC1201	IC1401 IC1402 IC1403	Lens Block	
INITIAL SETTING BY MODEL			●				●				
ELECTRIC VOLUME ADJUSTMENT PROCEDURE											
(1)	CDS Smpling Pulse Adjustment		●		●		●				
DIGITAL ADJUSTMENT PROCEDURE											
(1)	Auto Iris Control Adjustment	●	●	●		●	●	●		●	
(2)	Matrix Adjustment	●	●	●			●				
(3)	White Balance Adjustment	●	●	●			●				
(4)	Chroma Gain Adjustment	●	●	●			●				
AUTOFOCUS ADJUSTMENT PROCEDURE											
(1)	Zoom Trace Adjustment	●	●				●			●	
(2)	AF Noise Level Adjustment	●	●				●			●	
STABILIZER ADJUSTMENT PROCEDURE		●	●				●		●		
SPOT NOISE ADJUSTMENT PROCEDURE		●	●				●				

2.7 Adjustment Procedure

Notes: 1. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.
2. The following describes an example of the instructions of the personal computer and the menu display; they are different depending on the personal computer manufacturer and model. Refer to the instruction manual of personal computer.
3. When the error message appears during adjustment, refer to "4. Error Message". If a key is pressed after an error message appears, the ADJUSTMENT MENU is restored.

2.7.1 Connections for Adjustment

Connect the camera/recorder, DSP jig, personal computer, power supply, etc. as shown in Fig. 1-1.
Check that the camera/recorder is turned on.

2.7.2 How to Start the MAP

(1) Turn the personal computer on and start the MS-DOS system.

Note: Refer to the instruction manual of the personal computer for how to start computer.

(2) Load the adjustment floppy disk in to disk drive A and press **A:** [ENTER]

```
C>A:
A>
```

(3) Press **MAP_IBM** [SPACE] **1** [ENTER].

Note: When you use a personal computer with two serial interface connectors and connect the DSP jig to serial interface connector 2, press MAP_IBM 2.

```
C>
A>MAP_IBM 1
```

```
Manual adjustment program for service station
Copyright (C) Hitachi LTD
```

```
**************************************************
                MODEL SELECT
**************************************************
          [1]     xxxxxxx
          [2]     xxxxxxx
          [3]     xxxxxxx
          [4]     xxxxxxx
          [5]     xxxxxxx
          [P]     NEXT SELECTION
          [ESC]   END
        Please select the type of the set.
        Press [1] - [5] or [P] or [ESC]
```

(4) Select the number accodding to the model.
If [ESC] (escape) is pressed, the display before the MAP starts (MS-DOS) is restored.

Notes: 1. If the required model is not found, press the **P** key and select the model from the next screen.
2. If you specify the wrong model, press [ESC] (escape) to restore the MODEL SELECT display, then specify the correct model.
3. If you select number without a model name by mistake, the message shown in "MESSAGE WHEN OPERATED BY MISTAKE" will appear in the computer's display. Press any key to return the display to MODEL SELECT dispaly.

MESSAGE WHEN OPERATED BY MISTAKE

```
CAN NOT FIND THE DATA FILE
**** PRESS ANY KEY ****
```

```
Selected model is x x x x x x x
Are you sure ? (Y/N)
```

(5) Press **Y** key.
If **N** key is pressed, the computer's display returns to MODEL SELECT display.

MAIN MENU

```
**************************************************
          MANUAL ADJUSTMENT PROGRAM
**************************************************
          [A]     DATA INITIALIZE
          [B]     ELECTRIC VOLUME
          [C]     ADJUSTMENT
          [D]     VCR ADJUSTMENT
          [E]     AUTO FOCUS
          [F]     EIS
          [G]     SPOT NOISE
          [H]     LCD
          [ESC]   END
        Please select [A] - [H] or [ESC]
```

2.7.3 Initial Setting by Model

Before Starting Initial Setting

1. This item describes how to initialize the EEP ROM. Be sure to perform this item after replacing EEP ROM or the VCA circuit board.
   When other components are replaced, normally, it is not necessary to initialize the EEP ROM.
   Press [ESC] (escape) to return the computer's display to MAIN MENU.
2. Be sure to perform the following adjustments after completing the initial setting.
   - 2.7.4 Electric Volume Adjustment Procedure
   - 2.7.5 Digital Adjustment Procedure
   - 2.7.6 Autofocus Adjustment Procedure
   - 2.7.7 Stabilizer Adjustment Procedure
   - 2.7.8 Spot Noise Adjustment Procedure
   - 2.9 Color LCD Display Adjustment
   - 3.7 System Control/Servo Circuits Adjustment

(1) Start the MAP.

MAIN MENU

```
**************************************************
        MANUAL ADJUSTMENT PROGRAM
**************************************************
        [A]     DATA INITIALIZE
                :
                :
        Please select [A] - [H] or [ESC]
```

(2) Press **A** key.

```
        « DATA WRITING »
START TO SEND DATA.  (Y/N)
```

(3) Press **Y** key to start.
Press **N** to return to MAIN MENU display.

(4) Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

2.7.4 Electric Volume Adjustment Procedure

Before Starting Adjstment

When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.7.3 Initial Setting By Model" then perform all the electric volume adjustments.

(1) Start the MAP.

MAIN MENU

```
**************************************************
        MANUAL ADJUSTMENT PROGRAM
**************************************************
                :
        [B]     ELECTRIC VOLUME
                :
        Please select [A] - [H] or [ESC]
```

(2) Press **B** key.

ELECTRIC VOLUME ADJ. MENU

```
**************************************************
        ELECTRIC VOLUME
**************************************************
        [1]     CDS SAMPLING PULSE
        [ESC]   RETURN TO MAIN MENU
        Please select [1] or [ESC]
```

Note: 1. If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU display.
2. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

(1) CDS Sampling Pulse Adjustment

Purpose:

To suppress noise in the CCD sensor output signal and maximize the signal level.

Incompleted Phenomenon:

Diagonal beats and horizontal noise occur.

Condition:

Leave the camera/recorder for more than 2 minutes untill the circuits are stabilized after turing it on, then start adjustment.

Procedure:

ELECTRIC VOLUME ADJ. MENU

```
**************************************************
              ELECTRIC VOLUME
**************************************************
        [1]     CDS SAMPLING PULSE
        [ESC]   RETURN TO MAIN MENU
          Please select [1] or [ESC]
```

Press **1** key.

Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

2.7.5 Digital Adjustment Procedure

Before Starting Adjstment

When EEP ROM or the VCA circuit board is replaced, initialize the EEP ROM, referring to "2.7.3 Initial Setting By Model" then perform all the digital adjustments

Note: If an old light box is used , this adjustnment may not be done. Use the following procedure to adjust without using a light box.

1) Illuminate a white sheet of paper using anappropriate light source of 2,000-2,500lux (a halogen light of 3,200K is desirable).
2) Point the camera/recoder at the illuminated white sheet of paper to fill the screen as far as possible (at wide-angle).
3) Adjust the distance between the camera/recoder and white sheet of paper so that no error message appears.

(1) Start the MAP.

MAIN MENU

```
**************************************************
          MANUAL ADJUSTMENT PROGRAM
**************************************************
                        :
              [C]       ADJUSTMENT
                        :
          Please select [A] - [H] or [ESC]
```

(2) Press **C** key.

ADJUSTMENT MENU

```
**************************************************
                   ADJUSTMENT
**************************************************
              [1]     AUTO IRIS CONTROL
              [2]     MATRIX
              [3]     WHITE BALANCE
              [4]     CHROMA GAIN
              [ESC]   RETURN TO MAIN MENU
                Please select [1]- [4] or [ESC]
```

(3) Select the number of the required adjustment.

Notes: 1. If [ESC] (escape) is pressed, the computer's display returns toMAIN MENU display.
2. To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

(1) Auto Iris Control Adjustment

Purpose:

To set the iris control data.

Incompleted Phenomenon:

The picture becomes too bright.
The picture becomes too dark.

Condition:

Point the camera at the light box without a chart to full the screen (at wide-angle).

Procedure:

ADJUSTMENT MENU

```
**************************************************
                  ADJUSTMENT
**************************************************
        [1]     AUTO IRIS CONTROL
                       :
        Please select [1]- [4] or [ESC]
```

Press **1** key.

Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

```
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Press any key to return to ADJUSTMENT MENU display.

Turn the power off for 5 seconds and then on again.

(2) Matrix Adjustment (Fig. 2-2)

Purpose:

To compensate for uneveness in the chroma signal.

Incompleted Phenomenon:

Color reproduction becomes defective.

Equipment/Jig:

Oscilloscope

Test Point:

Video Out (AV OUT)

Condition:

Attach a C12 filter.
Point at a color bar chart.

Procedure:

ADJUSTMENT MENU

```
**************************************************
                  ADJUSTMENT
**************************************************
                       :
        [2]     MATRIX
                       :
        Please select [1]- [4] or [ESC]
```

Press **2** key.

```
« ADJUSTMENT OF BLUE MATRIX »
        ROUGH ADJUSTMENT
[U]             UP
[D]             DOWN
        FINE ADJUSTMENT
[Ctrl] + [U]    UP
[Ctrl] + [D]    DOWN
[ENTER]         RETURN TO MENU
[ESC]           QUIT
```

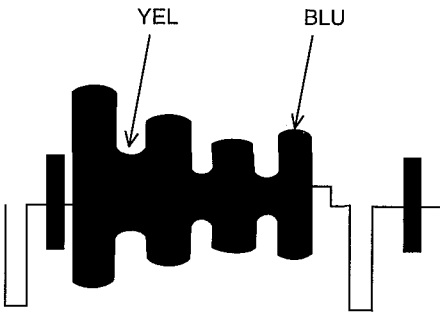
Press the **D** key to minimize the yellow (YEL) level.
Press the **U** key so the ratio between yellow (YEL) and blue (BLU) levels is 2:5.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the ratio between yellow (YEL) and blue (BLU) levels is 2:5.

Press [Enter] Key, and the dispaly changes as follows.

« ADJUSTMENT OF BLUE MATRIX »
DATA WRITING TO EEPROM

« ADJUSTMENT OF BLUE MATRIX »
ADJUSTMENT FINISHED
PRESS ANY KEY

Press any key to return to ADJUSTMENT MENU display.



YLE : BLU
2 · 5

Fig. 2-2

(3) White Balance Adjustment

Purpose:

To set white balance under the color temperature which becomes a reference for the auto white balance circuit.

Incompleted Phenomenon:

Color of the subject is different from that of the picture.
A white subject is not seen as white.

Test Point:

Video Out (AV OUT)

Condition:

Attach a C12 filter.
Point at a gray scale chart (at wide-angle).

Procedure:

ADJUSTMENT MENU

```
**************************************************
                  ADJUSTMENT
**************************************************
                      :
          [3]     WHITE BALANCE
                      :
          Please select [1]- [4] or [ESC]
```

Press **3** key.

« WHITE BALANCE ADJUSTMENT »
INPUT DATA OF OFFSET FOR R-B --> 00

Press **1 A** to input the data.

Press [Enter] key, and the display changes as follows.

« WHITE BALANCE ADJUSTMENT »
INPUT DATA OF OFFSET FOR Mg-G --> 00

Press **1 7** to input the data.

Press [Enter] key, and the display changes as follows.

Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

(4) Chroma Gain Adjustment (Figs. 2-3, 2-4)

Purpose:

To set the color saturation under the reference color temperature.

Incompleted Phenomenon:

Color of the picture is denser than that of the subject.
Color of the picture is lighter than that of the subject.

Equipment/Jig:

Oscilloscope (Vectorscope)

Test Point:

Video Out (AV OUT)

Condition:

Attach a C12 filter.
Point at a color bar chart.

Procedure:

ADJUSTMENT MENU

```
**************************************************
                  ADJUSTMENT
**************************************************
                      :
          [4]     CHROMA GAIN
          [ESC]   RETURN TO MAIN MENU
            Please select [1]- [4] or [ESC]
```

Press **4** key.

```
« ADJUSTMENT OF CHROMA GAIN »
          ROUGH ADJUSTMENT
[U]           CHROMA GAIN UP
[D]           CHROMA GAIN DOWN
          FINE ADJUSTMENT
[Ctrl] + [U]  CHROMA GAIN UP
[Ctrl] + [D]  CHROMA GAIN DOWN
[ENTER]       SAVE & RETURN TO MENU
[ESC]         QUIT
```

WhenUsing an Oscilloscope:

Press the **U** and **D** keys to set the red level to around 450mVp-p.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the red level is 450mV ± 20mVp-p. (Fig. 2-3)

When Using a Vectorscope:

Press the **U** and **D** keys to set the red vector to around 160% of the burst.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the red vector is 160% ± 5%. (Fig. 2-4)

Press [Enter] key, and the display changes as follows.

```
« ADJUSTMENT OF CHROMA GAIN »
DATA WRITING INTO EEPROM.
```

```
« ADJUSTMENT OF CHROMA GAIN »
ADJUSTMENT FINISHED.
PRESS ANY KEY.
```

Press any key to return to ADJUSTMENT MENU display.

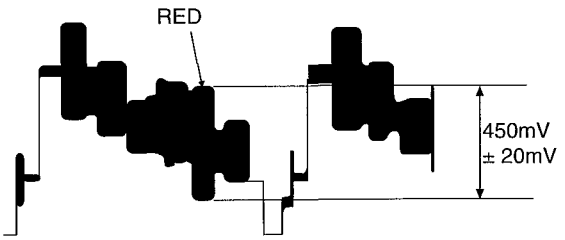


Fig. 2-3

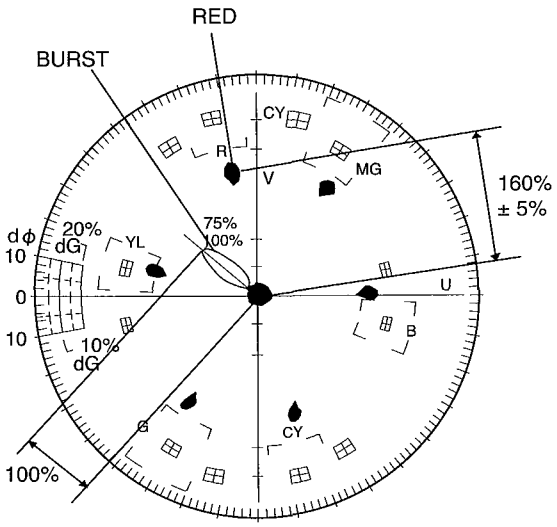


Fig. 2-4

2.7.6 Autofocus Adjustment Procedure

Before Starting Adjustment
Be sure to perform this adjustment after replacing or initializing the lens block, parts in the VCA circuit board (EEPROM).

(1) Start the MAP.

MAIN MENU

```
**************************************************
        MANUAL ADJUSTMENT PROGRAM
**************************************************
                    :
        [E]     AUTO FOCUS
                    :
        Please select [A] - [H] or [ESC]
```

(2) Press **E** key.

AF ADJ. MENU

```
**************************************************
          AUTO FOCUS ADJUSTMENT
**************************************************
[1]   ADJUSTMENT OF ZOOM/FOCUS TRACKING
[2]   ADJUSTMENT OF AF NOISE LEVEL
[ESC] RETURN TO MENU
        Please select [1], [2] or [ESC]
```

(3) Select the number of the required adjustment.

Note: To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

(1) Zoom Trace Adjustment

Purpose:
To set the out-of-focus correction level during zooming.

Incompleted Phenomenon:
Focus is lost during zooming.

Equipment/Jig:
Color Video Monitor
Backfocus Chart

Test Point:
Video Out (AV OUT)

Condition:
Point at the backfocus chart, 1500 ± 5 mm away from the lens surface.
Light the chart with 200-400 lux.

Caution When Adjustment:
1) Measure the distance between the chart and lens surface precisely.
2) Place the chart as parallel as possible to the lens surface.
3) The backfocus chart should always be at the center of the monitor screen when the zoom is set to the wide-angle and telephoto ends.
4) The zoom trace adjustment procedure is completed within 2 minutes after it is selected.
5) Do not place any obstruction between the lens and chart during adjustment.

Procedure:

AF ADJ. MENU

```
**************************************************
          AUTO FOCUS ADJUSTMENT
**************************************************
[1]   ADJUSTMENT OF ZOOM/FOCUS TRACKING
[2]   ADJUSTMENT OF AF NOISE LEVEL
[ESC] RETURN TO MENU
        Please select [1], [2] or [ESC]
```

Press **1** key.

Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

(2) AF Noise Level Adjustment

Purpose:

To set the noise level in the autofocus circuit.

Incompleted Phenomenon:

It takes time until a subject is brought into focus.
Correct focus is not obtained.

Equipment/Jig:

Color Video Monitor

Test Point:

Video Out (AV OUT)

Condition:

Set the focus to AUTO.
Point at a light box without a chart inserted at a distance of up to 10cm.

Caution When Adjustment:

1) Place the light box as parallel as possible to the lens surface.
2) The AF noise level adjustment procedure will be completed within thirty seconds after it is selected.

Procedure:

AF ADJ. MENU

```
**************************************************
          AUTO FOCUS ADJUSTMENT
**************************************************
[1]    ADJUSTMENT OF ZOOM/FOCUS TRACKING
[2]    ADJUSTMENT OF AF NOISE LEVEL
[ESC]  RETURN TO MENU
          Please select [1], [2] or [ESC]
```

Press **2** key.

Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

2.7.7 Stabilizer Adjustment Procedure

Before Starting Adjustment

1. Be sure to perform this adjustment after replacing or initializing the SE circuit board and VCA circuit board (EEPROM).
2. This item describes how to rewrite the stabilizer data. The average of the stabilizer data will be written.

(1) Start the MAP.

MAIN MENU

```
**************************************************
          MANUAL ADJUSTMENT PROGRAM
**************************************************
                    :
          [F]    EIS
                    :
          Please select [A] - [H] or [ESC]
```

(2) Press **F** key.

```
« DATA WRITING »
START TO SEND DATA (Y/N)
```

(3) Press **Y** key.

```
FINISHED WRITING DATA.
PRESS ANY KEY.
```

(4) The stabilizer data is rewritten automatically.

(5) Press any key to return to MAIN MENU display.

Note: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

2.7.8 Spot Noise Adjustment Procedure

Before Starting Adjustment

1. The spot noise is identified as the fine white noise that appears when the lens cap is attached after the power is turn on.
2. Perform this adjustment only for products with which spot noise occurs. (However, there is no problem even if products free from spot noise are adjusted.)
3. After replacing the CCD image sensor or VCA circuit board (EEPROM), check whether or not spot noise occurs and then proceed with adjustment.

(1) Start the MAP.

MAIN MENU

```
**************************************************
        MANUAL ADJUSTMENT PROGRAM
**************************************************
                      :
        [G]     SPOT NOISE
                      :
        Please select [A] - [H] or [ESC]
```

(2) Cap the lens.

(3) Connect the color video monitor to video out.

(4) Press **G** key.

(5) Perform adjustment according to the computer display hereafter.
See "4. Error Messages" if an error message appears on the computer display.

Note: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig

2.8 CRT B/W ELECTRONIC VIEWFINDER (EVF) ADJUSTMENT

2.8.1 Adjustment Parts Location

Note: Picture appears on the EVF only when the LCD monitor is close.

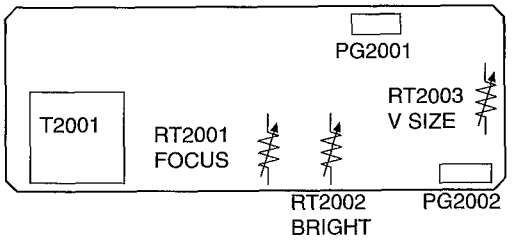


Fig. 2-51 EMQ Circuit Board (Side-B)

2.8.2 Adjustment Procedure

(1) Deflection Yoke Position, EVF Centering Adjustment (Fig. 2-52)

Purpose:
This adjustment procedure eliminates picture tilt in the EVF display.
This adjustment centers the image observed by the camera in the EVF display.

Equipment/Jig:
EVF Display

Condition:
Aim the resolution chart

Adjustment Point:
Deflection Yoke (Deflection Yoke Position)
Centering Magnets (EVF Centerig)

Procedure:

Deflection Yoke Position:

1) Loosen the deflection yoke nut.
2) Turn the deflection yoke so that the EVF picture (chart) is horizontal, matching the edges of the CRT.

Note: After adjustment is completed, tighten the deflection yoke nut.

EVF Centring:

1) Remove the locking paint from the centring magnet.
2) Adjust the centring magnets until the center of the picture viewed by the camera is positioned in the center of the EVF display.

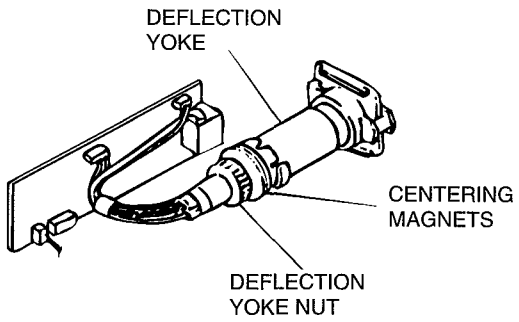


Fig. 2-52

(2) EVF Vertical Size Adjustment (Fig. 2-51)

Purpose:

This adjustment determines the vertical size of the image appearing in the EVF display.

Equipment/Jig:

EVF Dispaly

Condition:

Aim the resolution chart

Adjustment Point:

RT2003 (V.SIZE) on the EMQ Circuit Board

Procedure:

1) RT2003: Set the top and bottom edges of the chart match the top and bottom edges of the CRT.

(3) EVF Brightness Adjustment (Fig. 2-51)

Purpose:

This adjustment sets the brightness of the picture in the EVF display.

Equipment/Jig:

EVF Dispaly

Condition:

Aim the resolution chart

Adjustment Point:

RT2002 (BRIGHT) on the EMQ Circuit Board

Procedure:

1) RT2002: Set to optimize the EVF picture.

(4) EVF Focus Adjustment (Fig. 2-51)

Purpose:

This control adjusts for optimum focus of the electronic viewfinder picture.

Equipment/Jig:

EVF Dispaly

Condition:

Aim the resolution chart

Adjustment Point:

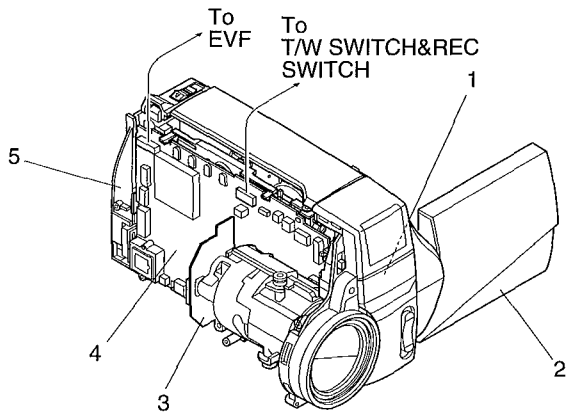
RT2001 (FOCUS) on the EMQ Circuit Board

Procedure:

1) RT2001: Set the EVF picture is clear.

3. VCR SECTION ADJUSTMENT

3.1 Circuit Board Locations



1. AUD Circuit Board
2. LCD Block
3. SE Circuit Board
4. VCA Circuit Board
5. Rear Unit

Fig. 3-1

3.2 Test Equipment and Alignment Tapes Necessary for Adjustment

Test Equipment

Digital Voltmeter (DVM)
Color Video Monitor
DC Power Supply (DC 0 - 7V/3A)
DC Power Supply (DC 5V/1A)

Alignment Tape, etc.

Adjustment Floppy Disk
Personal Computer
Personal Computer 9-pin or 25-pin (RS232C) Cable
DSP-R Jig
DSP AV Output Jig
10-Pin Extension Cable
Alignment Tape
Blank Tape

3.3 Adjustment Condition

1. Check that the camera section has been adjusted correctly before adjusting the VCR section.
2. Connect this unit, a power supply and a color video monitor as shown in Fig. 1-1.
3. Use the 10:1 probe of the oscilloscope when other not specified.
4. When "Record mode" is specified, load a blank tape and set the 8mm video camera/recorder to the record mode by the following procedure.
   1) Set the CAM/OFF/VCR switch to the CAM position.
   2) Press the REC START/STOP button on the unit (or REC START/STOP button on the remote control).
5. Earth of test equipment: Pre-Amp Shield (GND).

Caution:

1. This camera/recorder will not perform the eject operation unless the LCD monitor is open. To set it to the eject state with the case dismantled, short PG905 pins 1 and 2 on the VCA board with a shorting clip, etc., and then press the EJECT button.

3.4 Preset Positions of Switches and Controls During Adjustment

CAM/OFF/VIDEO switch ..... "VCR" position
TITLE ..... Not Display mode

3.5 Check After Replacing Major Components in the VCR Section

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS		
		VCA Circuit Board	Cylinder	IC901
SYSTEM CONTROL/SERVO CIRCUITS ADJUSTMENT				
(1)	Power Shut Off level Adjustment	●		●
(2)	Head Switching Point Adjustment	●	●	●

3.6 System Control/Servo Circuits Adjustment

Before Starting Adjustment

1. System control/servo circuits adjustment also needs a personal computer. Connect the camera/recorder, jigs, power supply, etc. in the same way as in camera section adjustment.
2. Be sure to perform this adjustment after replaceing or initializing the EEP ROM and VCA circuit board.
3. When an error message appears during adjustment, refer to "4. Error Massage".
4. If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU display.
5. To complete adjustment, pres to [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jigs.

(1) Start the MAP.

MAIN MENU

```
**************************************************
          MANUAL ADJUSTMENT PROGRAM
**************************************************
          [A]    DATA INITIALIZE
          [B]    ELECTRIC VOLUME
          [C]    ADJUSTMENT
          [D]    VCR ADJUSTMENT
          [E]    AUTO FOCUS
          [F]    EIS
          [G]    SPOT NOISE
          [H]    LCD
          [ESC]  END
          Please select [A] - [H] or [ESC]
```

(2) Press **E** key.

VCR ADJ. MENU

```
**************************************************
          VCR ADJUSTMENT
**************************************************
    [1]    ADJUSTMENT OF ODC
    [2]    ADJUSTMENT OF SWITCHING POINT
    [ESC]  RETURN TO MAIN MENU
          Please select [1], [2] or [ESC]
```

(3) Select the number of the required adjustment.

(*1) : Modufy the 10-Pin Extention Cable (7069183)

- Pin 1 and 2: Positive (Red), Pin 6 and 7: Negative (Brown).
- If it is used for this adjustment, short pins 3 and 5 to pin 6 or pin 7 (GND).

(1) Power Shut Off Level (ODC: Over Discharge Control) Adjustment

Purpose:

To set the minimum voltage required to operate the camera/recorder.

Incompleted Phenomenon:

The usable time of the battery becomes short.
The camera/recorder doesn't operate normally.

Equipment/Jig:

DVM
DC Power Supply (0 - 7V)
Blank Tape
10-Pin Extension Cable (No. 7069183) ***(*1)***

Test Point:

PG0551-1 on the VCA circuit Board
PG0551-6 (GND) on the VCA Circuit Board

Condition:

Supply power (7.2V ± 0.5V) to PG0551.
Load the brank tape.

Procedure:

VCR ADJ. MENU

```
**************************************************
          VCR ADJUSTMENT
**************************************************
    [1]    ADJUSTMENT OF ODC
    [2]    ADJUSTMENT OF SWITCHING POINT
    [ESC]  RETURN TO MAIN MENU
          Please select [1], [2] or [ESC]
```

Press **1** key.

```
« SET UP OF ODC ADJUSTMENT STARTED »
PRESET POSITION OF 'CAMERA/OFF/VCR' SWITCH
'VCR' POSITION
SET POWER SOURCE AT 5.8 (+/- 0.05) V.
START ADJUSTING.
PRESS ANY KEY.
```

Set the voltage of PG0551-1 to 5.8V ± 0.05V.

Press any key, and the display changes as follows.

```
« SETUP OF ODC ADJUSTMENT COMPLETED »
« ODC ADJUSTMENT STARTED »
« ODC ADJUSTMENT COMPLETED »
PRESS ANY KEY.
```

Press any key to return to VCR ADJ. MENU display.

(2) Head Switching Point Adjustment

Note: Be sure to perform this adjustment after replacing the cylinder assembly and VCA circuit board.

Purpose:

To set the switching point of the video heads during playback.

Incompleted Phenomenon:

Vertical jitter occurs.

Switching noise appears across the bottom of the monitor screen.

Equipment/Jig:

Alignment Tape

Condition:

Playback the alignment tape.

Procedure:

VCR ADJ. MENU

```
**************************************************
              VCR ADJUSTMENT
**************************************************
  [1]    ADJUSTMENT OF ODC
  [2]    ADJUSTMENT OF SWITCHING POINT
  [ESC]  RETURN TO MAIN MENU
         Please select [1], [2] or [ESC]
```

Press **2** key.

```
« ADJUSTMENT OF SWITCHING POINT »
PRESET POSITIONS OF 'CAMERA/OFF/VCR' SWITCH
'VCR' POSITION
PRESS ANY KEY
```

```
SET UP OF SW POINT ADJUSTMENT STARTED.
SET UP OF SW POINT ADJUSTMENT COMPLETED.
SW POINT ADJUSTMENT STARTED.
```

```
SW POINT ADJUSTMENT DATA CHEACKING.
FINISHED WRITING DATA.
ADJUSTMENT FINISHED.
PRESS ANY KEY.
```

Turn the power off.

Press any key to return to VCR ADJ. MENU display.

4. ERROR MESSAGE

4.1 Camera Electric Volume and Digital Adjustments

ERROR MESSAGE	COUNTERMEASURE
ERROR OCCURRED. IRIS TROUBLE PRESS ANY KEY	· Check whether or not power is supplied. · Check the values of the iris drive circuit. · Defective soldering, damage to pattern, etc. in the above circuit. · Check the iris block and replace it if necessary.
ERROR OCCURRED ON dax ADJUSTMENT PRESS ANY KEY	· Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
D RANGE OVER. ERROR ON dax ADJUSTMENT PRESS ANY KEY.	· Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in theabove circuit.
ERROR OCCURRED ON da0 and da1 ADJUSTMENT PRESS ANY KEY	· Check the values in the hall amp circuit and its peripheral circuits. · Defective soldering, damage to pattern, etc. in the above circuits.
FILE NOT FOUND !!!! PRESS ANY KEY	· The adjustment program (file) cannot be found. · Check the adjustment floppy disk and replace it if necessary.
FILE OPEN ERROR !!!! PRESS ANY KEY	· The adjustment program (file) does not start. · Check the adjustment floppy disk and replace it if necessary.

ERROR MESSAGE	COUNTERMEASURE
ERROR OCCURRED ON C DUTY ADJUSTMENT PRESS ANY KEY	· Check the values of the iris drive circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON FDET ADJUSTMENT PRESS ANY KEY	· Supply power again and re-adjust. · Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED. ZOOM DOES NOT WORK PRESS ANY KEY	· Supply power again and re-adjust.
TOO BRIGHT PRESS ANY KEY	· The subject is too bright. · Move the camera further away from the light box.
TOO DARK PRESS ANY KEY	· The subject is too dark. · Check the light box. · Move the camera closer to the light box.
D RANGE OVER ERROR ON HALL AMP IRIS CANNOT OPEN ANY MORE PRESS ANY KEY	· Supply power again and re-adjust. · The subject is too dark. · Check the light box. · Move the camera closer to the light box. · Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
STAURATION ERROR. TOO BRIGHT PRESS ANY KEY	· The subject is too bright. · Move the camera further away from the light box.
CAN'T ADJUST WHITE BALANCE PLEASE RETRY PRESS ANY KEY	· The subject is too bright or too dark. · Check the light box. · Move the camera closer to or away from the light box. · Supply power again and re-adjust.

4.2 Autofocus Adjustment

ERROR MESSAGE	COUNTERMEASURE
TIME OUT ERROR ON FOCUS	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON ZOOM	· If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON AF STEP	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
AF LIMIT OVER	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
AF ERROR	· If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TOO DARK	·Insufficient lighting. Check the subject.

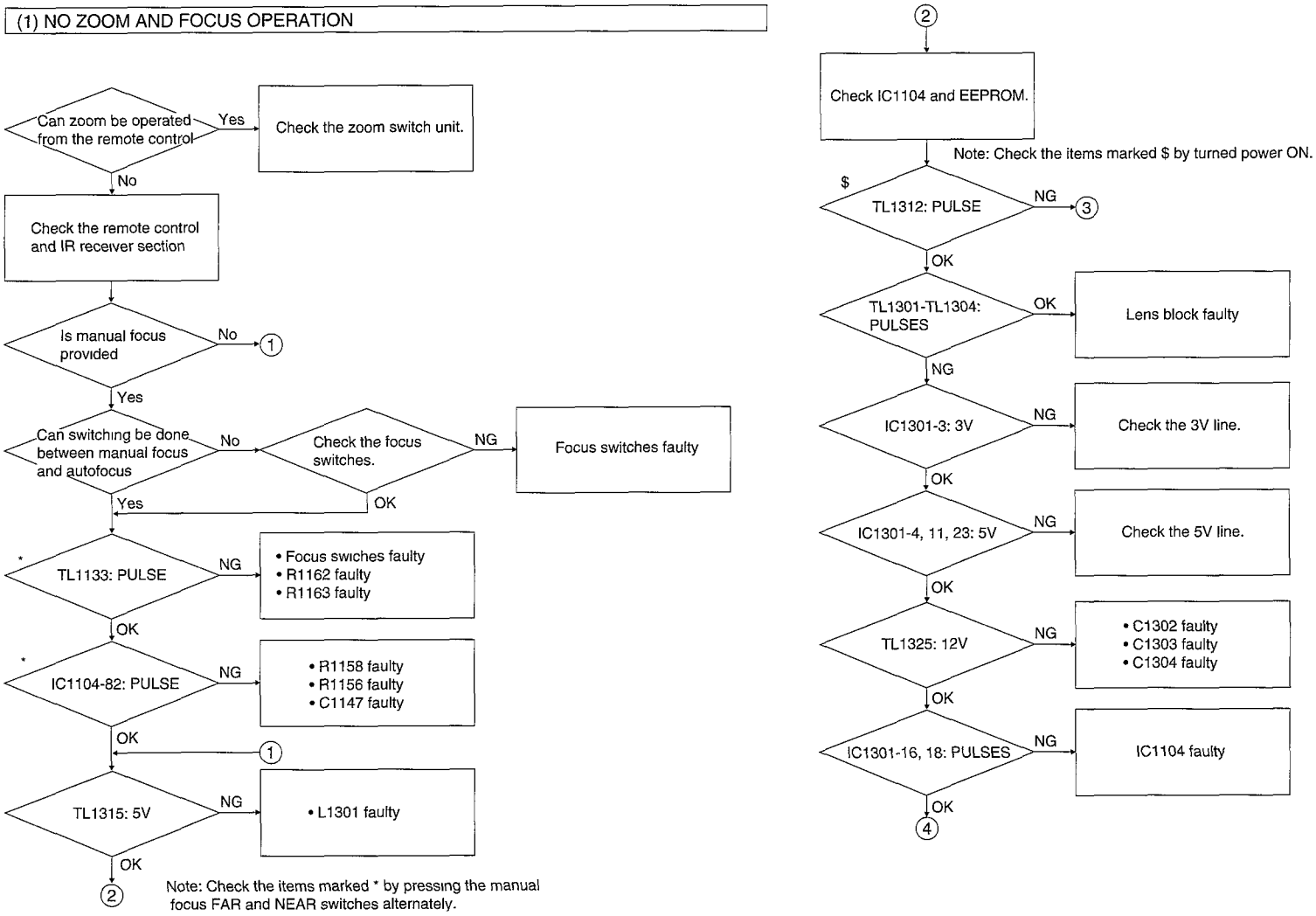
4.3 Spot Noise Adjustment

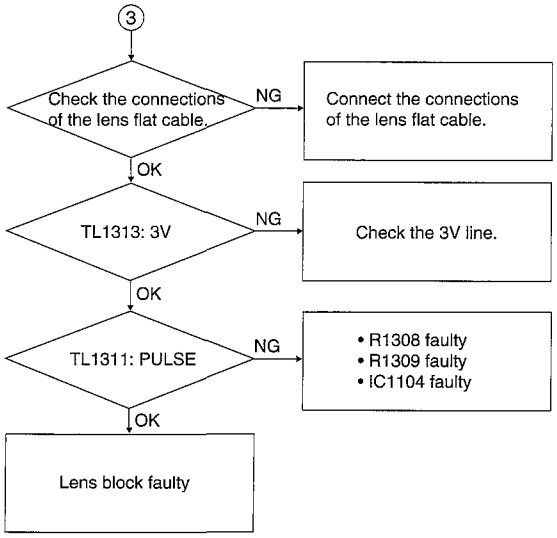
ERROR MESSAGE	COUNTERMEASURE
ERROR!! SPOT NOISE COMPENSATION IS STOPPED BY INITIAL DATA. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	· Spot noise compensation is inhibited by the data in the EEPROM. · Turn the power on again. · Data in the EEPROM is defective. (Initialize it.) · Check the EEPROM,and if necessary,replace it.
ERROR!! THRESHOLD DATA ERROR. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	· Turn the power on again. · Data in the EEPROM is defective. (Initialize it.) · Check the EEPROM,and if necessary,replace it.
ERROR!! THE SPOT NOISE IS TOO MANY. CAN'T COMPENSATE ANY MORE. PRESS ANY KEY.	· The amount of spot noise that can be compensated reaches the limit. · Turn the power on again. · Check the CCD image sensor,and if necessary,replace it.

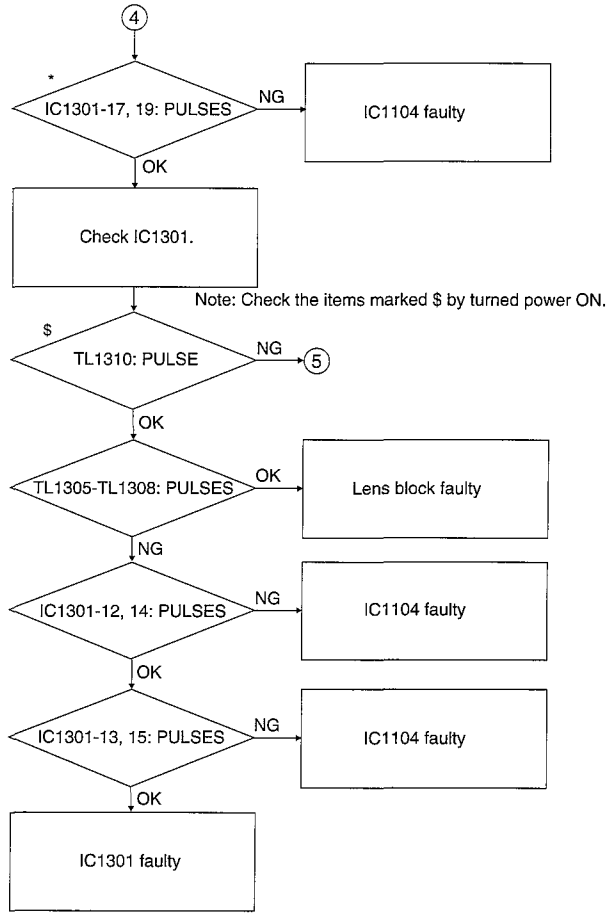
4.4 VCR Adjustment

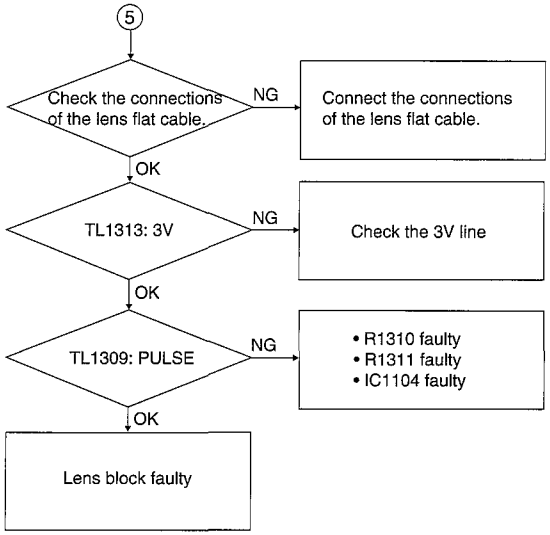
ERROR MESSAGE	COUNTERMEASURE
ERROR: SWP_TEST>DAT FILE NOT FOUND!	· The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
ERROR: INVALID MODEL PRESS ANY KEY	· A wrong model has been selected. · The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
THIS MODEL NEED NOT BE ADJUSTED PRESS ANY KEY	· A wrong model has been selected. · A product that needs analog adjustment is connected.
ADJUSTMENT INCOMPLETED PRESS ANY KEY	· The value set by adjustment defective. · Re-adjust. · Check cylinder. · Check the alignment tape. · Check whether or not the usual operation is done correctly.
RETRY ADJUSTING. PRESS ANY KEY	· Supply power again and re-adjust.
CAMERA IS NOT READY	· Check whether or not power is supplied.
ERROR OCCURRED CAN'T PLAY BACK PRESS ANY KEY	· No playback video. · Check the playback signal.
ERROR OCCURRED NO V.SYNC FOUND PRESS ANY KEY	· Vertical sync loss. · Check the vertical sync signal.
INVALID MODEL PRESS ANY KEY	· A wrong model has been selected. · The adjustment program cannot be found. · Check the adjustment floppy disk and replace it if necessary.
ERROR OCCURRED CAN'T RECORD PRESS ANY KEY	· No video recording. · Check the recording signal.

(1) NO ZOOM AND FOCUS OPERATION

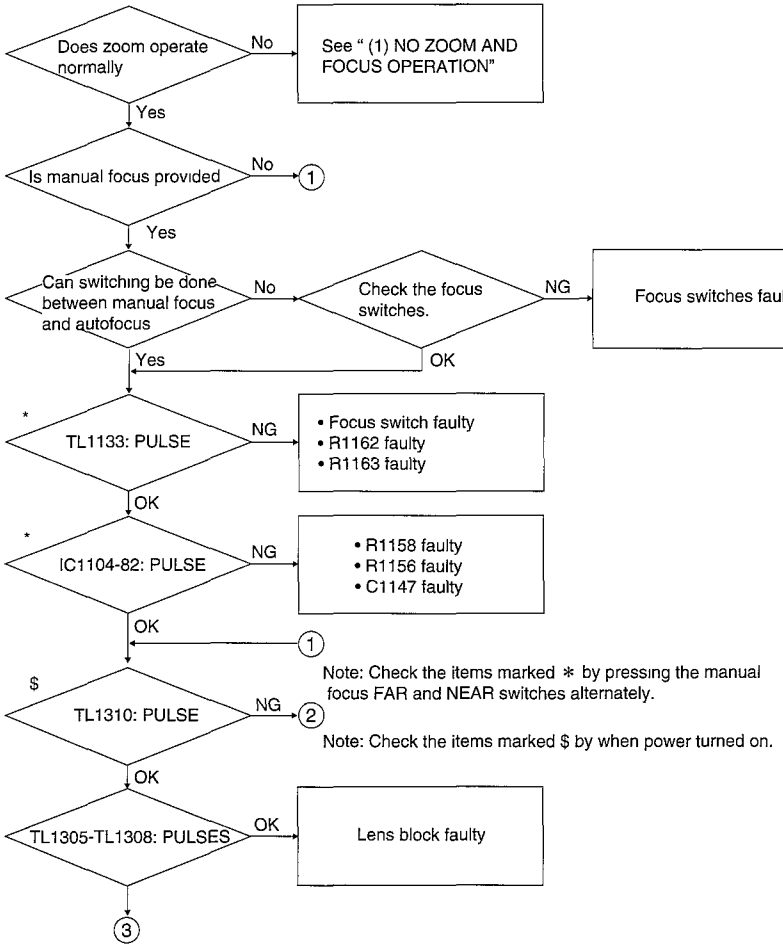



3
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1313: 3V
NG
Check the 3V line.
OK
TL1311: PULSE
NG
• R1308 faulty
• R1309 faulty
• IC1104 faulty
OK
Lens block faulty


4
*
IC1301-17, 19: PULSES
NG
IC1104 faulty
OK
Check IC1301.
Note: Check the items marked $ by turned power ON.
$
TL1310: PULSE
NG
5
OK
TL1305-TL1308: PULSES
OK
Lens block faulty
NG
IC1301-12, 14: PULSES
NG
IC1104 faulty
OK
IC1301-13, 15: PULSES
NG
IC1104 faulty
OK
IC1301 faulty

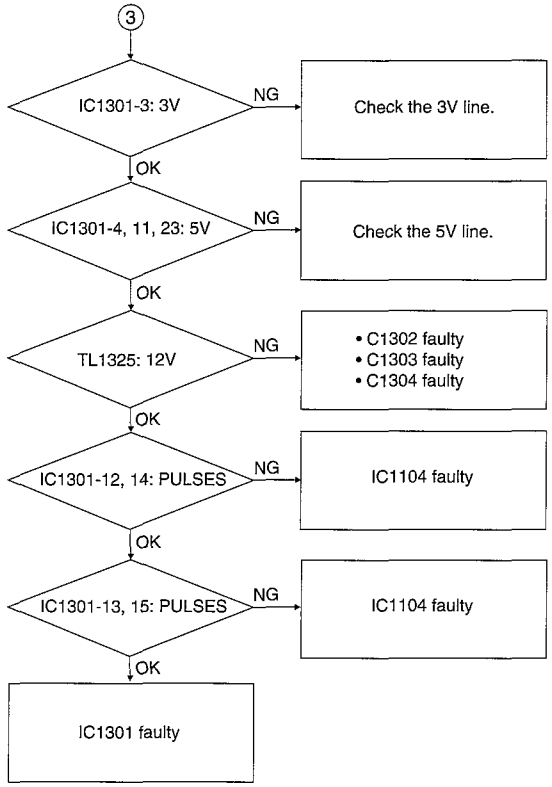

5
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1313: 3V
NG
Check the 3V line
OK
TL1309: PULSE
NG
• R1310 faulty
• R1311 faulty
• IC1104 faulty
OK
Lens block faulty

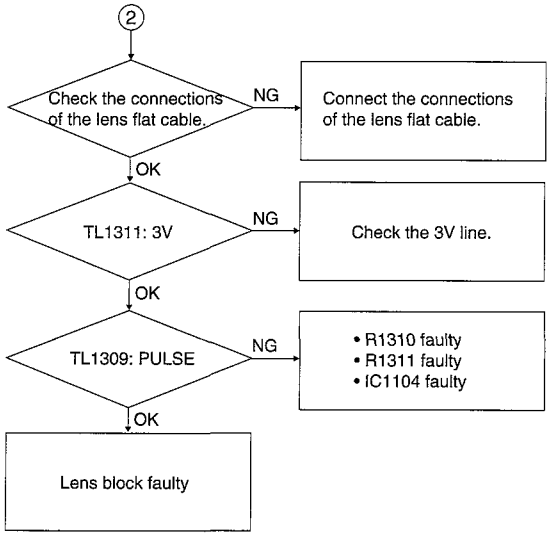
(2) NO FOCUS LENS OPERATION



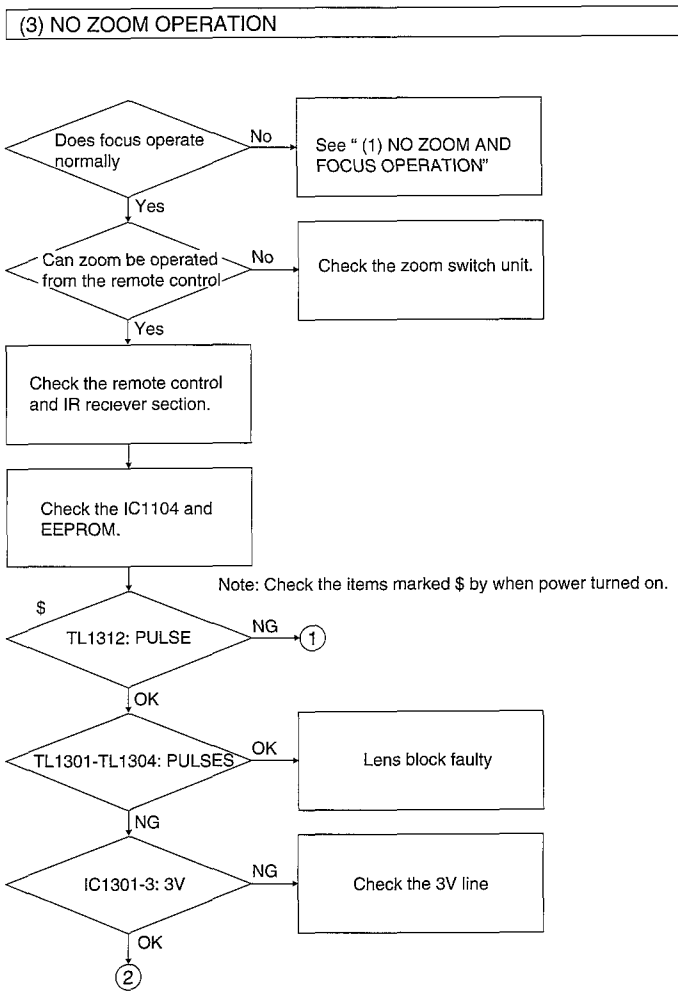
Note: Check the items marked * by pressing the manual focus FAR and NEAR switches alternately.

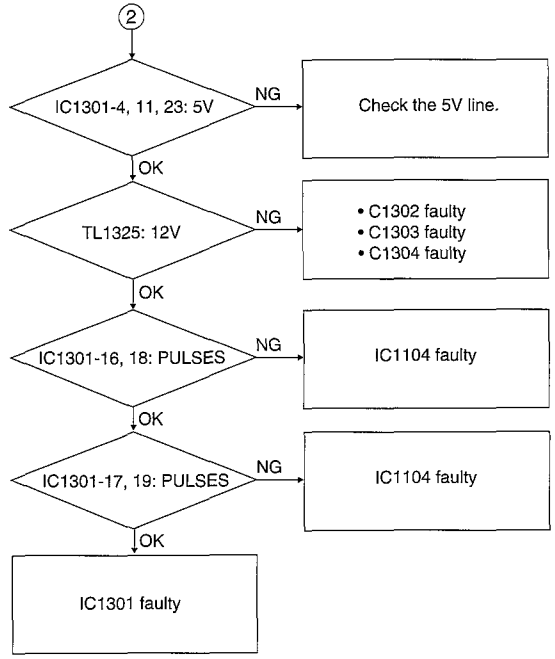
Note: Check the items marked $ by when power turned on.

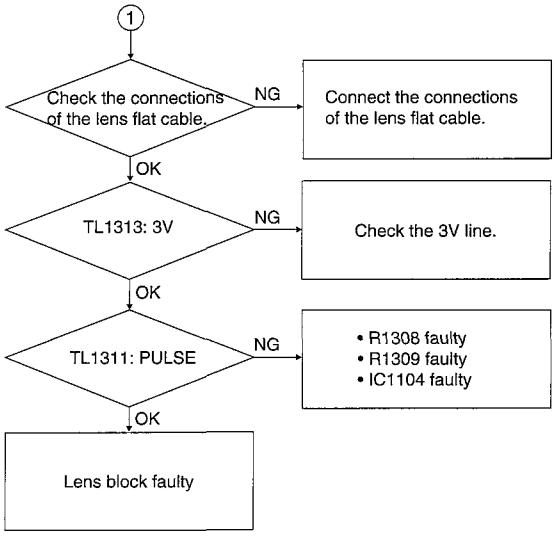



2
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1311: 3V
NG
Check the 3V line.
OK
TL1309: PULSE
NG
• R1310 faulty
• R1311 faulty
• IC1104 faulty
OK
Lens block faulty

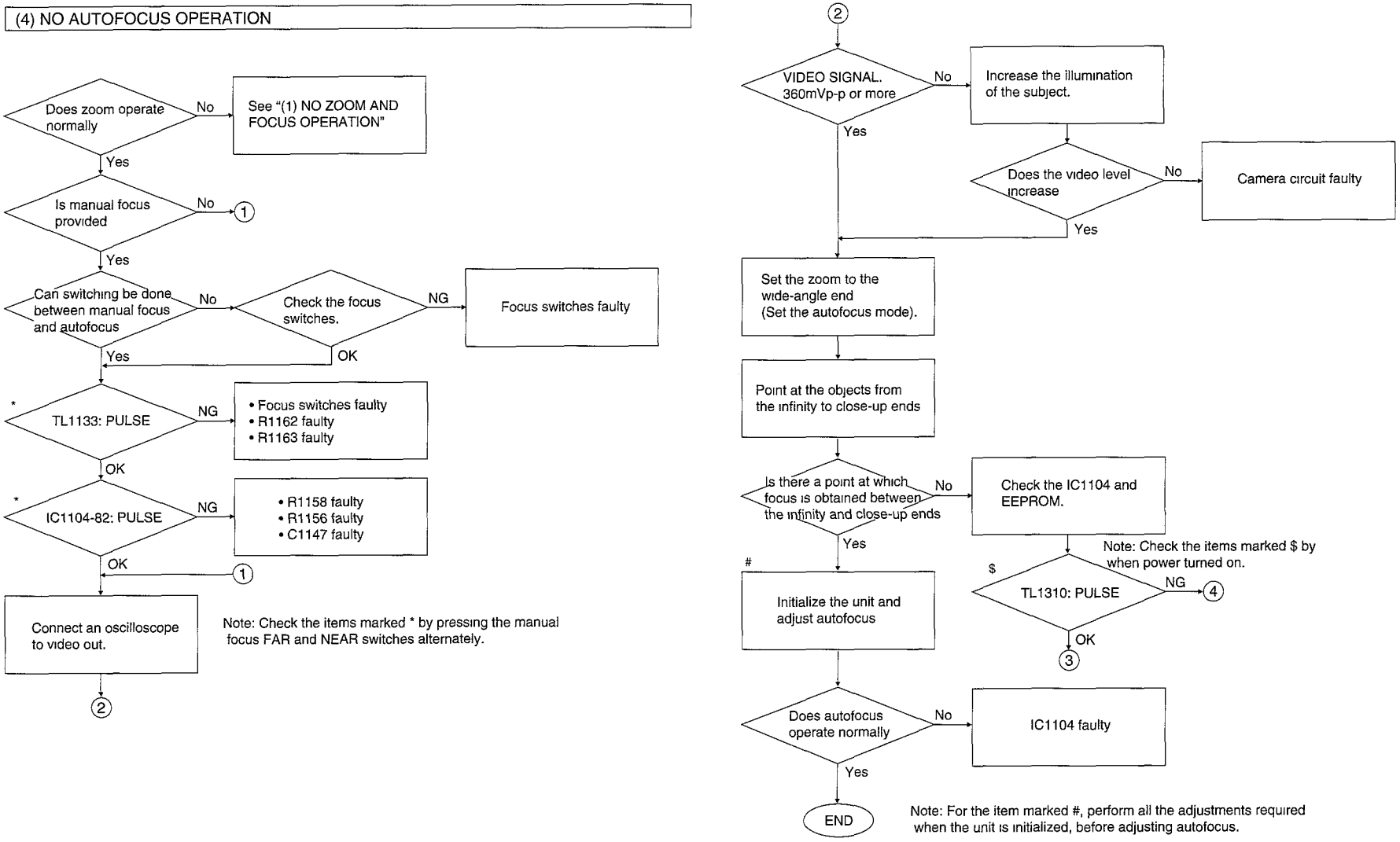
(3) NO ZOOM OPERATION

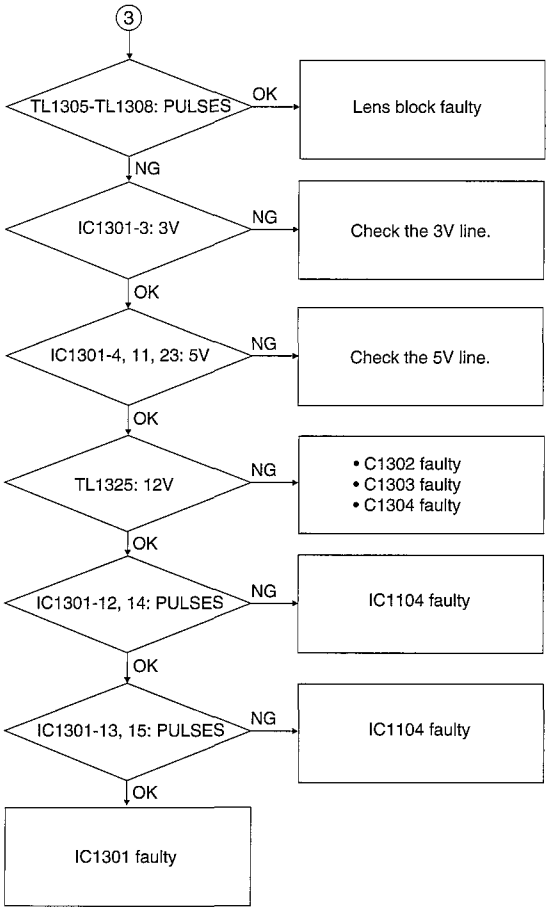


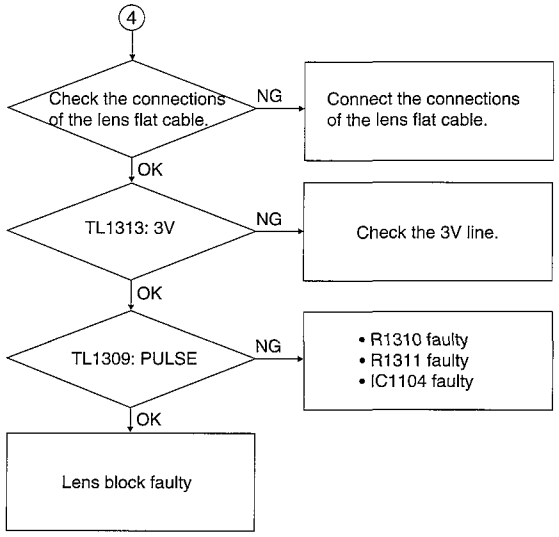



1
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1313: 3V
NG
Check the 3V line.
OK
TL1311: PULSE
NG
• R1308 faulty
• R1309 faulty
• IC1104 faulty
OK
Lens block faulty

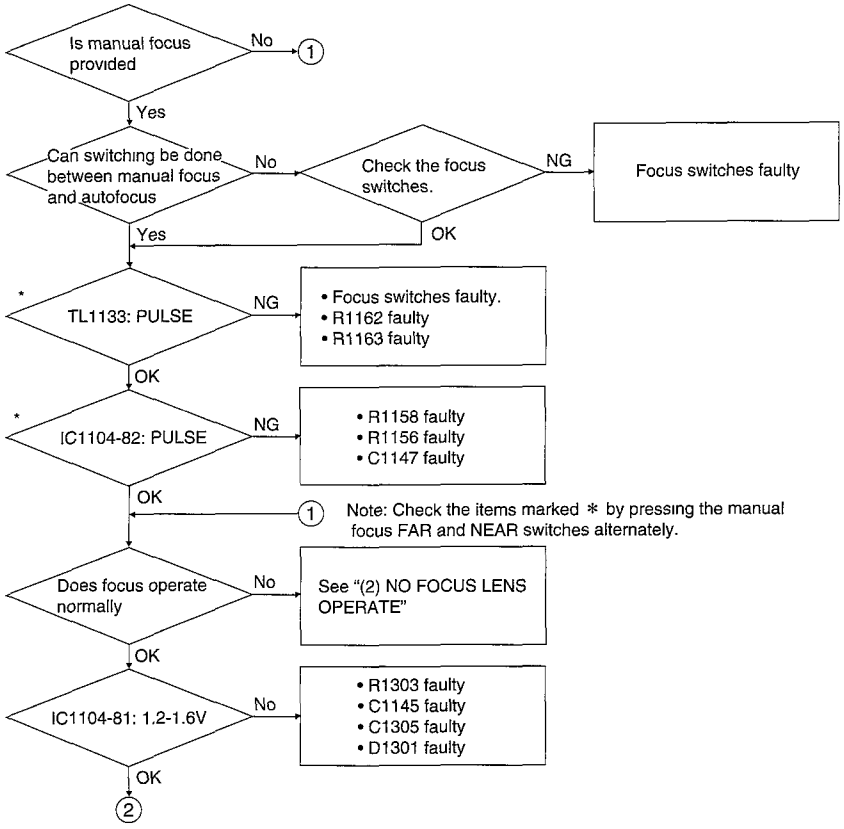
(4) NO AUTOFOCUS OPERATION

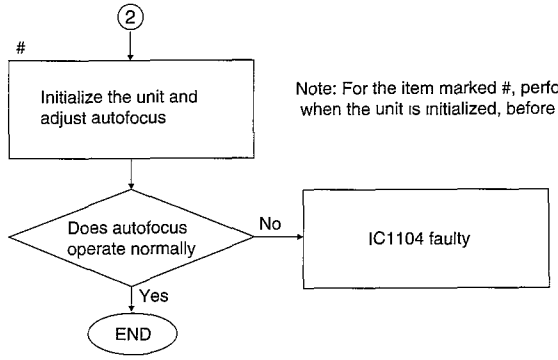



3
TL1305-TL1308: PULSES
OK
Lens block faulty
NG
IC1301-3: 3V
NG
Check the 3V line.
OK
IC1301-4, 11, 23: 5V
NG
Check the 5V line.
OK
TL1325: 12V
NG
• C1302 faulty
• C1303 faulty
• C1304 faulty
OK
IC1301-12, 14: PULSES
NG
IC1104 faulty
OK
IC1301-13, 15: PULSES
NG
IC1104 faulty
OK
IC1301 faulty


4
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1313: 3V
NG
Check the 3V line.
OK
TL1309: PULSE
NG
• R1310 faulty
• R1311 faulty
• IC1104 faulty
OK
Lens block faulty

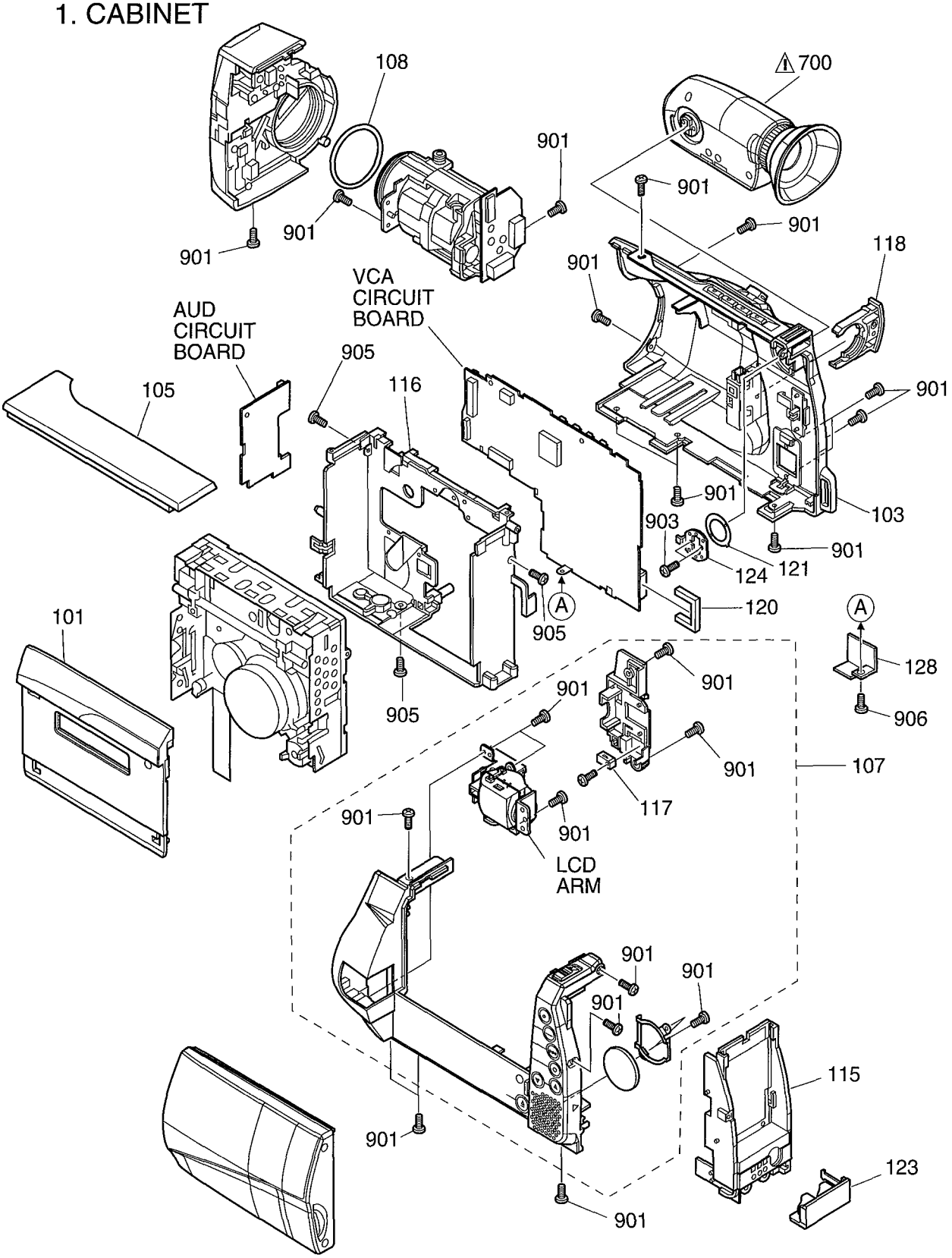
(5) SUBJECT IS GREATLY OUT-OF-FOCUS WHEN ZOOMED





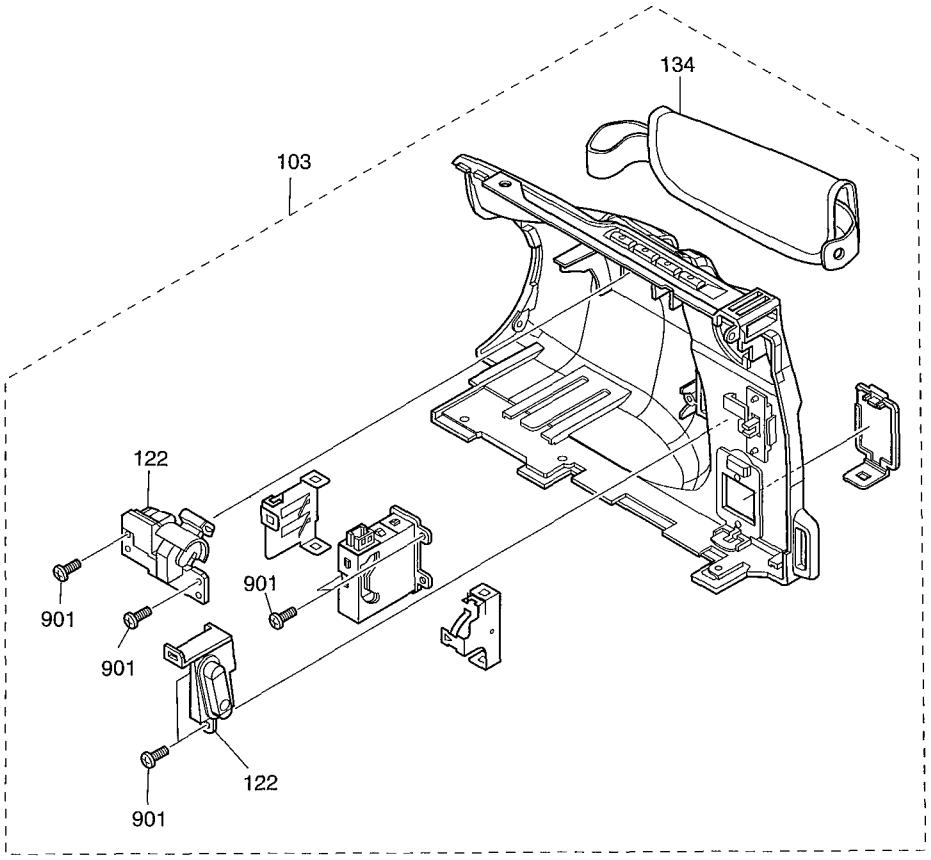
Note: For the item marked #, perform all the adjustments required when the unit is initialized, before adjusting autofocus.

1. CABINET

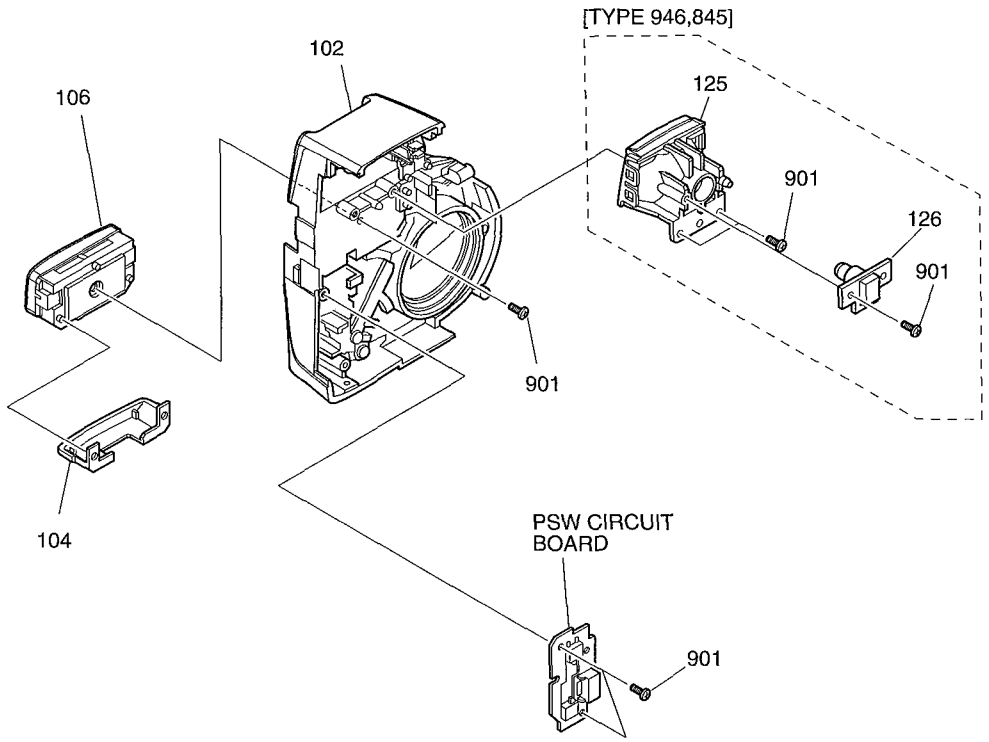


NOTE: The synthetic resin members that can be dismantled are shown by abbreviations using letters.

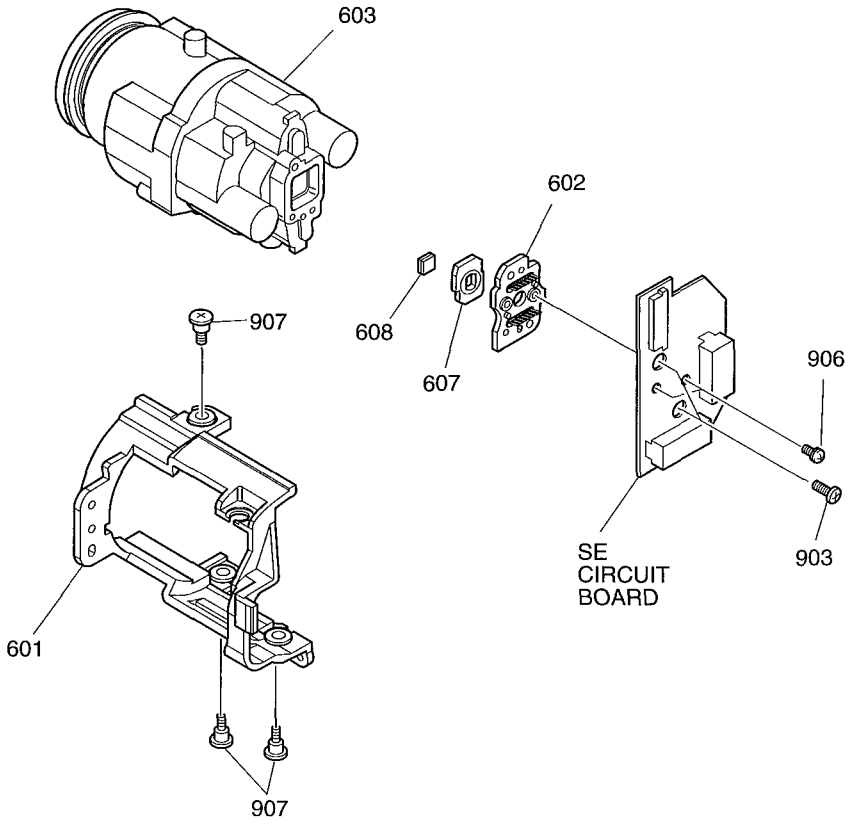
2. RIGHT CASE



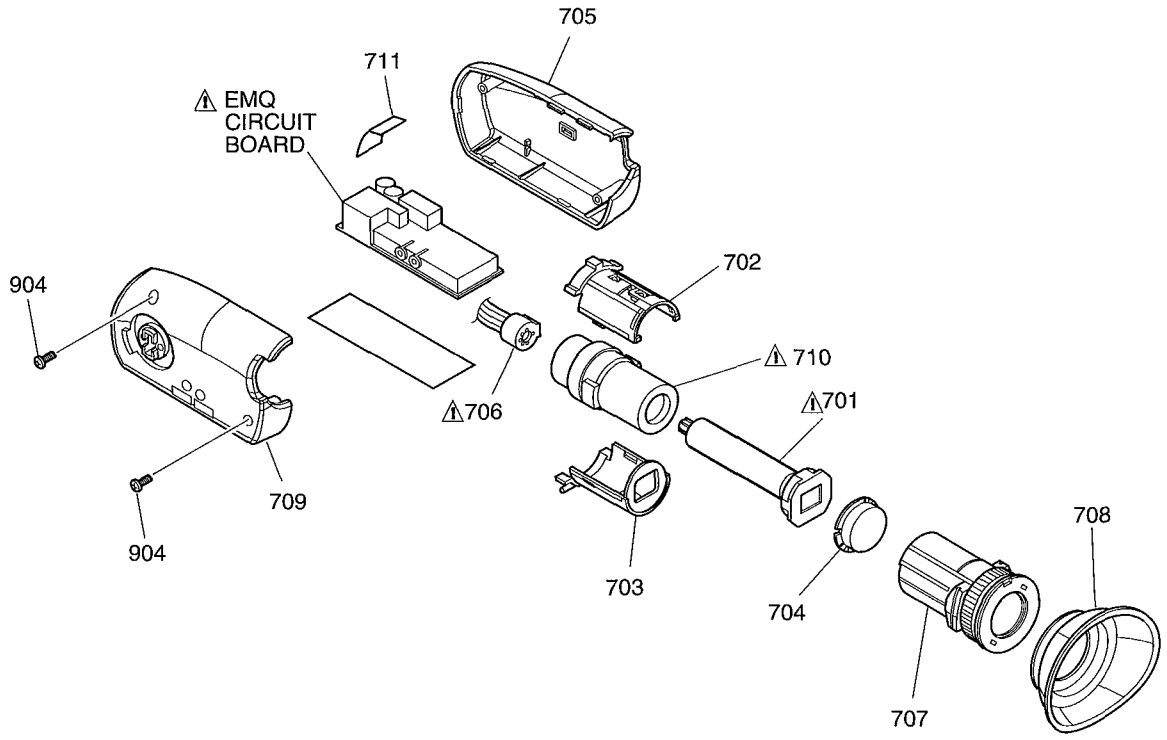
3. FRONT



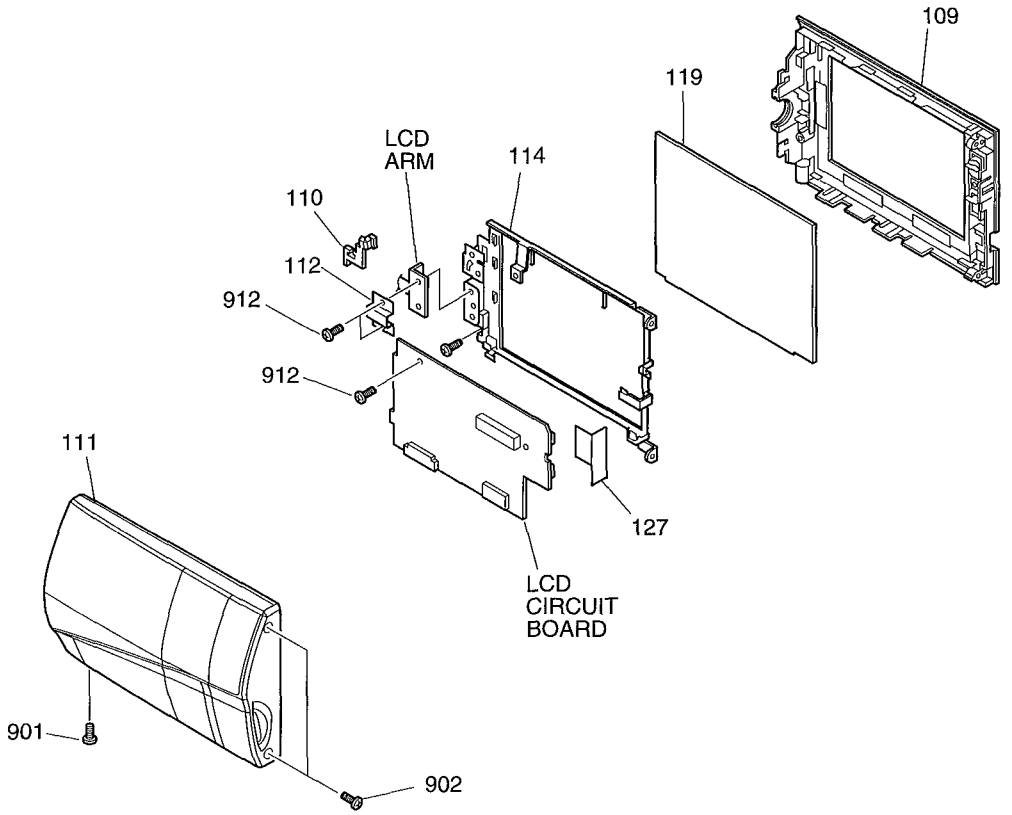
4. CAMERA



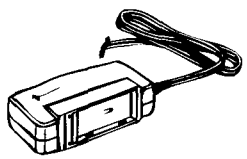
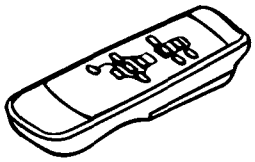
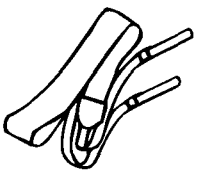
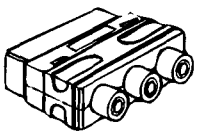
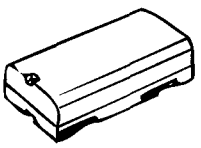
5. ELECTRONIC VIEWFINDER (EVF)



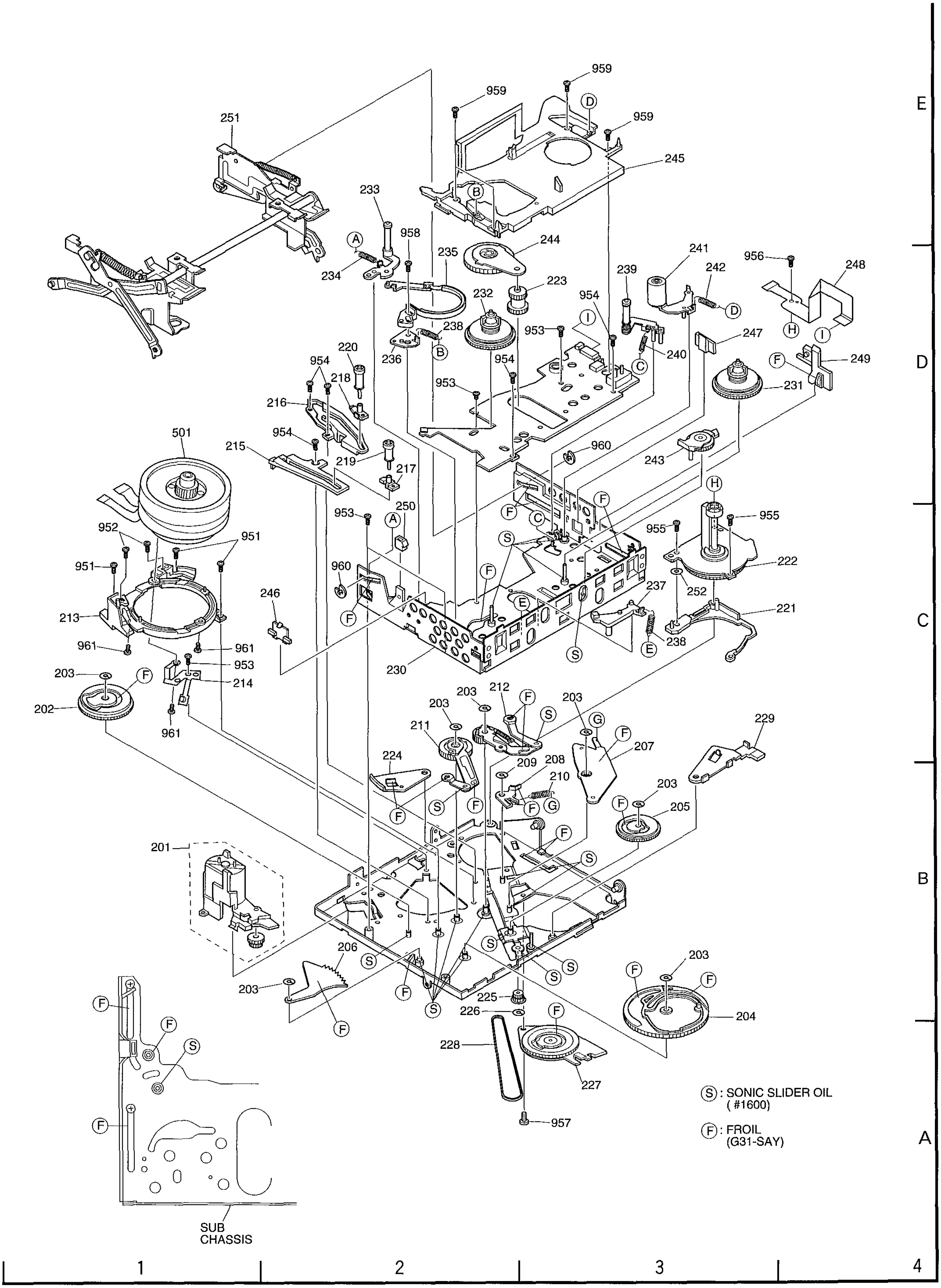
6. LCD



7. ACCESSOREIS

⚠ **802**  (VM-ACE4E)	**803** 	**804** [TYPE 845, 946] 	**804** [TYPE 645, 648] 
805 	**807** 	**808** [TYPE 645, 845, 946] 	⚠ **Battery** 

8. MECHANISM



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957
S : SONIC SLIDER OIL
(#1600)
F : FROIL
(G31-SAY)
SUB
CHASSIS
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D
C
B
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4

CHAPTER 5 REPLACEMENT PARTS LIST

1. MECHANICAL PARTS LIST

SYMBOL NO	P-NO	DESCRIPTION
		MECHANISM SECTION
101	QD16563	LID, CASSETTE [TYPE 845, 946]
101	QD16564	LID, CASSETTE [TYPE 645, 648]
102	QD16631	CASE, FRONT [TYPE 845, 946]
102	QD16633	CASE, FRONT [TYPE 645, 648]
103	QD17385	CASE, SIDE(R) [TYPE 648]
103	QD17392	CASE, SIDE(R) [TYPE 645, 845, 946]
104	QD16602	COVER, MICROPHONE [TYPE 845, 946]
104	QD16601	COVER, MICROPHON [TYPE 645, 648]
105	QD16541	COVER, TOP [TYPE 845, 946]
105	QD16542	COVER, TOP [TYPE 645, 648]
106	GH10321	MICROPHONE, STEREO [TYPE 845, 946]
106	GH10322	MICROPHONE, MONORAL [TYPE 645, 648]
107	QD17381	CASE, SIDE(L) [TYPE 845, 946]
107	QD17384	CASE, SIDE(L) [TYPE 645]
107	QD17392	CASE, SIDE(R) [TYPE 648]
108	NX11243	RING, O
109	QD16381	CASE, LCD(B) [TYPE 946]
109	QD16411	CASE, LCD(B) [TYPE 645, 648, 845]
110	NX16761	LINK, SWITCH
111	QD16445	CASE, LCD(U) [TYPE 946]
111	QD16446	CASE, LCD(U) [TYPE 845]
111	QD16448	CASE, LCD(U) [TYPE 645]
111	QD16449	CASE, LCD(U) [TYPE 648]
112	MN12761	SPACER
114	DT10211	LIGHT, BACK [TYPE 946]
114	DT10221	LIGHT, BACK [TYPE 645, 648, 845]
115	FH10412	REAR UNIT
116	NT11231	FRAME, MECHA
117	FH10364	SWITCH
118	QD16491	COVER, BATTERY
119	DB10561	DISPLAY, LIQUID CRYSTAL [TYPE 946]
119	DB10571	DISPLAY, LIQUID CRYSTAL [TYPE 645, 648, 845]
120	NJ10411	HOLDER
121	4899872	SPRING
122	FH10441	SWITCH T/W
123	QX13201	COVER, JACK
124	NA17141	STOPPER
125	KS10651	LIGHT, DC [TYPE 845, 946]
126	DP10261	LAMP [TYPE 845, 946]
127	MN14221	SHEET
128	MD12831	SHIELD, HEAD
130	MD12621	SHIELD, MECHA
134	PV10241	STRAP, HAND
201	KX19871	HOLDER, LOADING MOTOR
202	KX20251	GEAR, CAM(A)
203	7787731	WASHER
204	KX20261	GEAR, CAM(B)
205	KX20271	GEAR, CAM(C)
206	KX19801	ARM, DRIVE
207	KX21021	LEVER, DRIVE
208	KX19821	PLATE, PRESSURE
209	7787735	WASHER
210	KL12652	SPRING
211	KX19701	LINK(L)
212	KX19652	LINK(R)
213	KX19611	BASE, CYLINDER
214	FU10311	BRUSH
215	KX20551	GUIDE RAIL(I)
216	KX20561	GUIDE RAIL(O)
217	KX20572	BASE, GUIDE ROLLER(I)
218	KX20582	BASE, GUIDE ROLLER(O)
219	KF13071	ROLLER, GUIDE(I)
220	KF13111	ROLLER, GUIDE(O)
221	KX20291	BASE, CM
222	GP10662	MOTOR, CAPSTAN
223	KF12911	GEAR, CENTER
224	KX19831	PLATE, OPERATION
225	KF12901	GEAR, PULLY
226	7787733	WASHER
227	KX19641	SWITCH, MODE
228	KK10331	BELT, TIMING
229	KX20982	ARM, ED
230	UE13522	CHASSIS, SUB
231	KH10352	REEL DISK, TAKE-UP
232	KH10362	REEL DISK, SUPPLY
233	KX20301	ARM, TENSION
234	KL12661	SPRING, TENSION
235	KX20201	BAND, TENSION
236	KX19841	BASE, B
237	KX19851	BRAKE
238	KL12671	SPRING
239	KX20493	ARM, OHD
240	KL12681	SPRING
241	KX20351	ARM, PRESSURE
242	KL12691	SPRING
243	KG10281	GEAR, BRAKE
244	KG10301	IDLER ASSY
245	KX20481	COVER, IDLER
246	KX20461	GUIDE, LIGHT(L)
247	KX20472	GUIDE, LIGHT(R)
248	EK11131	FLEXIBLE, MECHA
249	KX20241	HOLDER, EJECT
250	KX19791	LID OPENER
251	KX19601	CASSETTE HOLDER ASSY
252	KX21112	WASHER
501	HX10256	CYLINDER ASSY(CY-53LR) [TYPE 645, 648]
501	HX10258	CYLINDER ASSY(CY-53L5-F) [TYPE 845, 946]
601	NT11241	FRAME, LENS
602	UE13387	CCD IMAGE SENSOR ASSY
603	KQ10521	LENS, ZOOM
607	NX11252	RUBBER
608	DT10151	CRYSTAL
⚠700	UX10591	EVF ASSY
⚠701	DE10112	CRT
702	QD16301	CASE, CRT(U)
703	QD16311	CASE, CRT(B)
704	4592241	COVER
705	QD16321	CASE. EVF(R)
⚠706	EF10248	CONNECTOR
707	QD15415	CASE, SLIDE
708	QX11991	CAP, EYE
709	QD16331	CASE, EVF(L)
⚠710	5242113	DEFLECTION YOKE
711	4344292	SPACER
901	7775946	SCREW (2X6)
902	7775966	SCREW(2X6)
903	7775945	SCREW(2X5)
904	8619003	SCREW 1.7X5
905	7773891	SCREW
906	8650103	SCREW(2X3)
907	MJ10221	SCREW
912	8650104	SCREW
951	8700268	SCREW(1.7X3)
952	MK11231	SCREW(M1.4)
953	7775911	SCREW(1.4X1.6)
954	7775921	SCREW(1.4X2)
955	8712970	SCREW(1.4X4)

SYMBOL NO	P-NO	DESCRIPTION
956	8712974	SCREW(1.4X6)
957	8712968	SCREW(1.4X3P)
958	7770791	SCREW
959	8714026	SCREW (1.4X3.5)
960	7778394	E RING
961	8711105	SCREW(2X5)
		ACCESSARIES
⚠802	TS14503	AC ADAPTOR (VM-ACE4E)[EXCEPT FOR AU]
⚠802	TS14505	AC ADAPTOR (VM-ACE4E)[FOR AU]
803	EV10511	CORD,PLUG
804	5856293	AV OUTPUT CORD [TYPE 845,946]
804	EW10943	CORD [TYPE 645,648]
805	HL11041	REMOTE HAND SET(VM-RME411A)
807	TS14621	STRAP,SHOULDER
808	TS12981	AV PLUG ADAPTER [TYPE 645,845,946]

SYMBOL NO	P-NO	DESCRIPTION

2. ELECTRICAL PARTS LIST

SYMBOL NO	P-NO	DESCRIPTION
		CAMERA & VCR SECTION
C0101	AA00381R	CERAMIC CHIP 10UF+-10% 6.3V
C0102	0806186	ELECTROLYTIC 220UF 6.3V
C0103	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0104	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0105	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0106	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0108	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0109	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0110	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0111	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0112	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0113	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0116	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0117	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0118	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0119	0893119	CERAMIC CHIP 33PF+-5% 50V
C0120	0893122	CERAMIC CHIP 47PF+-5% 50V
C0121	0893121	CERAMIC CHIP 39PF+-5% 50V
C0122	0893118	CERAMIC CHIP 27PF+-5% 50V
C0124	0893114	CERAMIC CHIP 12PF+-5% 50V
C0125	0893114	CERAMIC CHIP 12PF+-5% 50V
C0126	0893124	CHIP CERAMIC 68PF+-5% 50V
C0128	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0130	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0132	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0133	0893119	CERAMIC CHIP 33PF+-5% 50V
C0134	0893104	CERAMIC CHIP 2.0PF 50V [TYPE 845,946]
C0134	0893119	CERAMIC CHIP 33PF+-5% 50V [TYPE 645,648]
C0136	0893117	CERAMIC CHIP 22PF+-0.5% 50V
C0137	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0140	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0141	0893133	CERAMIC CHIP 330PF+-5% 50V
C0142	0893123	CERAMIC CHIP 56PF+-5% 50V
C0143	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0144	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0145	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0146	0893109	CERAMIC CHIP 7.0PF 50V [TYPE 845,946]
C0146	0893117	CERAMIC CHIP 22PF+-5% 50V [TYPE 645,648]
C0147	0893115	CERAMIC CHIP 15PF+-0.5% 50V
C0148	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0151	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0153	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0154	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0155	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0159	0893109	CERAMIC CHIP 7.0PF 50V
C0164	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0165	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0170	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0172	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0173	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0176	0893111	CERAMIC CHIP 8PF+-0.5% 50V
C0177	0893126	CERAMIC CHIP 100PF+-5% 50V
C0178	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0179	0893123	CERAMIC CHIP 56PF+-5% 50V
C0201	0806153	ELECTROLYTIC 10UF 16V
C0202	0806153	ELECTROLYTIC 10UF 16V
C0204	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0206	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0207	AA00381R	CERAMIC CHIP 10UF+-10% 6.3V
C0208	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0209	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0210	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0211	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0212	0806153	ELECTROLYTIC 10UF 16V
C0213	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0214	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0216	0202322	CHIP CERAMIC 33PF+-2% 50V
C0217	0893122	CERAMIC CHIP 47PF+-5% 50V
C0218	0893106	CERAMIC CHIP 4.0PF+-0.25% 50V
C0219	0893122	CERAMIC CHIP 47PF+-5% 50V
C0220	0806153	ELECTROLYTIC 10UF 16V
C0221	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0222	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0223	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0224	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0225	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0226	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0227	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0228	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0229	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0230	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0231	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0232	0893116	CERAMIC CHIP 18PF+-5% 50V
C0233	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0234	0806133	ELECTROLYTIC 10UF 6V
C0235	0893111	CERAMIC CHIP 8PF+-0.5% 50V
C0237	0893126	CERAMIC CHIP 100PF+-5% 50V
C0238	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0242	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0243	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0270	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C0301	0806111	ELECTROLYTIC 0.47UF 35V
C0302	0806111	ELECTROLYTIC 0.47UF 35V
C0303	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0304	0806167	ELECTROLYTIC 47UF 4V
C0305	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0306	0893133	CERAMIC CHIP 330PF+-5% 50V
C0307	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0308	0893174	CERAMIC CHIP 820PF+-5% 50V
C0310	0806133	ELECTROLYTIC 10UF 6V
C0350	0806133	ELECTROLYTIC 10UF 6V
C0351	0806178	ELECTROLYTIC 220UF 4V
C0352	0806178	ELECTROLYTIC 220UF 4V
C0353	0806133	ELECTROLYTIC 10UF 6V
C0354	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0355	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0356	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0358	0806168	ELECTROLYTIC 47UF 6.3V
C0360	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0364	0806027	ELECTROLYTIC 4.7UF 4V
C0365	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0367	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0391	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0392	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0395	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0396	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0401L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0401R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0402L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0402R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0403	0893208	CERAMIC CHIP 1000PF+-10% 50V[845,946]
C0403	0893193	CERAMIC CHIP 0.01UF+-10% 25V[645,648]
C0403R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0404L	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0404M	0893188	CERAMIC CHIP 0.047UF+-10% 16V

SYMBOL NO	P-NO	DESCRIPTION
C0404R	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0405L	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0405R	0893211	CERAMIC CHIP 1500PF+-10% 50V
C0406M	AD10266R	ELECTROLYTIC 22UF 4V
C0406R	0806168	ELECTROLYTIC 47UF 6.3V
C0407L	AA00362R	CERAMIC CHIP 2.2UF+-10% 16V
C0407R	AA00362R	CERAMIC CHIP 2.2UF+-10% 16V
C0408L	0806027	ELECTROLYTIC 4.7UF 4V
C0408M	0806027	ELECTROLYTIC 4.7UF 4V
C0408R	0806027	ELECTROLYTIC 4.7UF 4V
C0409L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0409M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0409R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0410L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0410M	0806027	ELECTROLYTIC 4.7UF 4V
C0410R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0411L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0411M	AA00362R	CERAMIC CHIP 2.2UF+-10% 16V
C0411R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0412L	0806133	ELECTROLYTIC 10UF 6V
C0412M	0806133	ELECTROLYTIC 10UF 6V
C0412R	0806133	ELECTROLYTIC 10UF 6V
C0413M	0806027	ELECTROLYTIC 4.7UF 4V
C0413S	0806019	ELECTROLYTIC 2.2UF 10V
C0414M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0415	0893197	CERAMIC CHIP 0.022UF+-10% 25V[845,946]
C0415	0893191	CERAMIC CHIP 6800PF+-10% 25V [645,648]
C0416M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0416S	0806027	ELECTROLYTIC 4.7UF 4V
C0417L	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0417R	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0418L	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0418M	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0418R	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0419L	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0419M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0419R	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0420M	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0422M	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0422S	0806133	ELECTROLYTIC 10UF 6V
C0423M	AA00358R	CHIP CERAMIC 1.0UF+-10% 16V
C0423S	0806133	ELECTROLYTIC 10UF 6V
C0424L	0893177	CAPACITOR 0.068UF+-10% 16V
C0424R	0893177	CAPACITOR 0.068UF+-10% 16V
C0425	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0426S	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0428	0806168	ELECTROLYTIC 47UF 6.3V
C0429M	0806133	ELECTROLYTIC 10UF 6V
C0430L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0430M	AA00358R	CHIP CERAMIC 1.0UF+-10% 16V
C0430R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0431L	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0431M	AA00358R	CHIP CERAMIC 1.0UF+-10% 16V
C0431R	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0432	AA00362R	CERAMIC CHIP 2.2UF+-10% 16V
C0433	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0434M	0806027	ELECTROLYTIC 4.7UF 4V
C0435M	0806156	ELECTROLYTIC 22UF 4V
C0436M	0893091	CERAMIC CHIP 0.022UF+-10% 16V
C0437M	0893099	CERAMIC CHIP 0.47UF+-10% 16V
C0438M	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0439M	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0440M	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0441L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0441R	0202327	CERAMIC CHIP 0.22UF+-10% 16V

SYMBOL NO	P-NO	DESCRIPTION
C0442	0806174	ELECTROLYTIC 100UF 6.3V
C0442M	0806133	ELECTROLYTIC 10UF 6V
C0443	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0445S	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0446M	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0447M	0806027	ELECTROLYTIC 4.7UF 4V
C0448	0806168	ELECTROLYTIC 47UF 6.3V[TYPE 845,946]
C0448	0806163	ELECTROLYTIC 33UF 10V [TYPE 645,648]
C0449S	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0450S	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0451S	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0452S	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0462L	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0462R	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0463	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0467S	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C0472M	0893004	CERAMIC CHIP 0.047UF+-10% 16V
C0473S	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0474S	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0475L	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0475R	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0476L	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C0476R	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C0482	0806167	ELECTROLYTIC 47UF 4V
C0483S	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0484M	0806168	ELECTROLYTIC 47UF 6.3V
C0485M	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0485S	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0501	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0502	0893119	CERAMIC CHIP 33PF+-5% 50V
C0503	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0504	0893119	CERAMIC CHIP 33PF+-5% 50V
C0505	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0507	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0508	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0509	0893126	CERAMIC CHIP 100PF+-5% 50V
C0510	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0511	0893183	CHIP CERAMIC 0.018PF+-10% 16V
C0513	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C0514	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0516	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0517	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0518	0893129	CERAMIC CHIP 180PF+-5% 50V
C0519	0893133	CERAMIC CHIP 330PF+-5% 50V
C0520	0893129	CERAMIC CHIP 180PF+-5% 50V
C0521	0893133	CERAMIC CHIP 330PF+-5% 50V
C0522	0893129	CERAMIC CHIP 180PF+-5% 50V
C0523	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0524	0893133	CERAMIC CHIP 330PF+-5% 50V
C0525	0893129	CERAMIC CHIP 180PF+-5% 50V
C0527	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0528	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0529	AA00381R	CERAMIC CHIP 10UF+-10% 6.3V
C0530	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0534	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0535	AA00381R	CERAMIC CHIP 10UF+-10% 6.3V
C0538	0806157	ELECTROLYTIC 22UF 6.3V
C0540	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0541	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0542	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0543	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C0544	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0545	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0546	AA00381R	CERAMIC CHIP 10UF+-10% 6.3V
C0550	AA00802R	CERAMIC CHIP 10UF+80-20% 16V

SYMBOL NO	P-NO	DESCRIPTION
C0551	AA00381R	CERAMIC CHIP 10UF+-10% 6.3V
C0552	AA00381R	CERAMIC CHIP 10UF+-10% 6.3V
C0555	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0556	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0558	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0559	AA00381R	CERAMIC CHIP 10UF+-10% 6.3V
C0562	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0577	0893058	CERAMIC CHIP 0.33UF+80-20% 16V
C0578	0806174	ELECTROLYTIC 100UF 6.3V
C0581	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C0583	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C0587	AA00381R	CERAMIC CHIP 10UF+-10% 6.3V
C0601	0893205	CERAMIC CHIP 560PF+-10% 50V
C0602	0806027	ELECTROLYTIC 4.7UF 4V
C0603	0893115	CERAMIC CHIP 15PF+-5% 50V
C0604	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0605	0893208	CERAMIC CHIP 1000PF+-10% 50V
C0606	0893204	CERAMIC CHIP 470PF+-10% 50V
C0607	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0608	0893206	CERAMIC CHIP 680PF+-10% 50V
C0609	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0610	0806156	ELECTROLYTIC 22UF 4V
C0611	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0612	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0613	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0614	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0615	0893205	CERAMIC CHIP 560PF+-10% 50V
C0616	0893115	CERAMIC CHIP 15PF+-5% 50V
C0617	0893215	CERAMIC CHIP 3300PF+-10% 50V
C0618	0893207	CERAMIC CHIP 820PF+-10% 50V
C0619	0893177	CAPACITOR 0.068UF+-10% 16V
C0622	0893123	CERAMIC CHIP 56PF+-5% 50V
C0631	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0632	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0633	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0635	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0636	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0637	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0638	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0641	0893226	CERAMIC CHIP 0.15UF+80-20% 16V
C0642	0806153	ELECTROLYTIC 10UF 16V
C0643	0806153	ELECTROLYTIC 10UF 16V
C0645	0893217	CERAMIC CHIP 4700PF+-10% 50V
C0647	0893011	CERAMIC CHIP 0.15UF+-10% 16V
C0648	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0649	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0650	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0651	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0652	0893191	CERAMIC CHIP 6800PF+-10% 25V
C0655	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0656	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0657	0893059	CERAMIC CHIP 0.47UF+80-20% 16V
C0658	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0659	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0660	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0661	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0671	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0672	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C0673	0893213	CERAMIC CHIP 2200PF+-10% 50V
C0691	0893198	CERAMIC CHIP 0.027UF+-10% 25V
C0692	0893195	CERAMIC CHIP 0.015UF+-10% 25V
C0693	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0694	0893197	CERAMIC CHIP 0.022UF+-10% 25V
C0695	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0696	0893191	CERAMIC CHIP 6800PF+-10% 25V

SYMBOL NO	P-NO	DESCRIPTION
C0902	0806169	ELECTROLYTIC 47UF 16V
C0904	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0905	0806173	ELECTROLYTIC 100UF 4V
C0906	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0907	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0908	0806167	ELECTROLYTIC 47UF 4V
C0909	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0910	0893188	CERAMIC CHIP 0.047UF+-10% 16V
C0911	0893109	CERAMIC CHIP 7.0PF 50V
C0912	0893109	CERAMIC CHIP 7.0PF 50V
C0913	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0914	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0915	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0916	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0917	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0918	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0919	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0920	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0921	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0922	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0923	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0924	0893122	CERAMIC CHIP 47PF+-5% 50V
C0925	0893124	CHIP CERAMIC 68PF+-5% 50V
C0926	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0927	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0928	0893117	CERAMIC CHIP 22PF+-5% 50V
C0929	0893116	CERAMIC CHIP 18PF+-5% 50V
C0930	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C0932	0893131	CERAMIC CHIP 220PF+-5% 50V
C0934	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C0935	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0942	0806173	ELECTROLYTIC 100UF 4V
C0962	0806174	ELECTROLYTIC 100UF 6.3V
C0971	AD10129R	ELECTROLYTIC 220UF 6.3V
C0974	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C0998	0806168	ELECTROLYTIC 47UF 6.3V
C0999	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1002	0806169	ELECTROLYTIC 47UF 16V
C1004	0893211	CERAMIC CHIP 1500PF+-10% 50V
C1005	0806169	ELECTROLYTIC 47UF 16V
C1006	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1007	0893107	CERAMIC CHIP 5PF+-0.25% 50V
C1008	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1009	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1010	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1011	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1012	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1101	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1102	0806178	ELECTROLYTIC 220UF 4V
C1103	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1104	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1105	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1106	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1107	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1108	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1109	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1111	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1112	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1113	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1114	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1115	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1116	0893117	CERAMIC CHIP 22PF+-5% 50V
C1117	0893119	CERAMIC CHIP 33PF+-5% 50V
C1118	0893119	CERAMIC CHIP 33PF+-5% 50V
C1123	0806168	ELECTROLYTIC 47UF 6.3V

SYMBOL NO	P-NO	DESCRIPTION
C1128	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1129	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1134	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1135	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1136	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1138	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1139	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1140	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1141	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1142	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1143	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1144	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1146	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1147	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1148	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1149	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1150	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1151	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1155	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1159	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1161	0806157	ELECTROLYTIC 22UF 6.3V
C1165	0806167	ELECTROLYTIC 47UF 4V
C1167	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1172	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1204	0893132	CERAMIC CHIP 270PF+-5% 50V
C1205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1206	0893007	CERAMIC CHIP 0.082UF+-10% 16V
C1207	0202327	CERAMIC CHIP 0.22UF+-10% 16V
C1208	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1209	0893133	CERAMIC CHIP 330PF+-5% 50V
C1210	0893133	CERAMIC CHIP 330PF+-5% 50V
C1211	0893133	CERAMIC CHIP 330PF+-5% 50V
C1213	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1301	0806186	ELECTROLYTIC 220UF 6.3V
C1302	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1303	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1304	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1305	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1314	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1403	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1404	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1405	0806157	ELECTROLYTIC 22UF 6.3V
C1406	0806157	ELECTROLYTIC 22UF 6.3V
C1407	0893244	CERAMIC CHIP 0.012UF+-10% 50V
C1408	0893244	CERAMIC CHIP 0.012UF+-10% 50V
C1409	0893244	CERAMIC CHIP 0.012UF+-10% 50V
C1410	0893244	CERAMIC CHIP 0.012UF+-10% 50V
C1411	0206647	ELECTROLYTIC 10UF 10V
C1412	0206647	ELECTROLYTIC 10UF 10V
C1413	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1414	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1415	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1417	0806157	ELECTROLYTIC 22UF 6.3V
C1418	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1419	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1420	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C5304	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C5305	0893173	CERAMIC CHIP 680PF+-5% 50V
C5306	0806133	ELECTROLYTIC 10UF 6V
C5308	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5309	0893246	CERAMIC CHIP 0.047UF+80-20% 50V
C5310	0893008	CERAMIC CHIP 0.1UF +-10% 16V

SYMBOL NO	P-NO	DESCRIPTION
C5312	0806113	ELECTROLYTIC 1UF 25V
C5313	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5314	0893111	CERAMIC CHIP 8PF+-0.5% 50V
C5315	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5316	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5317	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5318	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5319	AD10263R	ELECTROLYTIC 10UF 10V
C5320	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5321	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5322	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5323	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5324	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5325	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5326	0893191	CERAMIC CHIP 6800PF+-10% 25V
C5327	0806024	ELECTROLYTIC 3.3UF 6.3V
C5328	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5329	0893118	CERAMIC CHIP 27PF+-5% 50V
C5330	0893173	CERAMIC CHIP 680PF+-5% 50V
C5331	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5332	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5333	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5334	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5335	0893125	CERAMIC CHIP 82PF+-5% 50V
C5336	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C5337	0806129	ELECTROLYTIC 22UF 10V
C5338	0806129	ELECTROLYTIC 22UF 10V
C5340	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5341	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5342	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5343	0893175	CERAMIC CHIP 1000PF+-5% 50V
C5390	0806133	ELECTROLYTIC 10UF 6V
C5401	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5402	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5403	0806133	ELECTROLYTIC 10UF 6V
C5404	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5405	0806122	ELECTROLYTIC 6.8UF 6.3V
C5406	0893095	CERAMIC CHIP 0.33UF+-10% 16V
C5407	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5408	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5409	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5410	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5411	AD10275R	ELECTROLYTIC 10UF 20V
C5412	0893116	CERAMIC CHIP 18PF+-5% 50V
C5413	0893127	CERAMIC CHIP 120PF+-5% 50V
C5414	0893208	CERAMIC CHIP 1000PF+-10% 50V
C5415	0806131	CHIP CAPACITOR 2.2UF+-20% 20V
C5416	0893232	CERAMIC CHIP 0.1UF+80-20% 25V
C5417	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5418	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5419	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C5420	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5421	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5422	AD10275R	ELECTROLYTIC 10UF 20V
C5501	0893213	CERAMIC CHIP 2200PF+-10% 50V
C5502	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5503	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5504	0893166	CERAMIC CHIP 220PF+-5% 50V
C5505	0893227	CERAMIC CHIP 0.22UF+80-20% 16V
C5506	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C5507	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C5508	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C5509	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C5510	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C5512	0893193	CERAMIC CHIP 0.01UF+-10% 25V

SYMBOL NO	P-NO	DESCRIPTION
C5513	0893099	CERAMIC CHIP 0.47UF+-10% 16V
C5514	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C5515	AA00802R	CERAMIC CHIP 10UF+80-20% 16V
C5516	0893093	CERAMIC CHIP 2.2UF+80-20% 16V
C5517	0893248	CHIP CERAMIC 0.33UF+80-20% 16V
C5518	0893248	CHIP CERAMIC 0.33UF+80-20% 16V
C5603	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5604	0806133	ELECTROLYTIC 10UF 6V
C5605	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C5606	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5607	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5608	AD10256R	ELECTROLYTIC 3.3UF 20V
C5609	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5610	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C5611	0893208	CERAMIC CHIP 1000PF+-10% 50V
C5612	0893125	CERAMIC CHIP 82PF+-5% 50V
C5613	0893215	CERAMIC CHIP 3300PF+-10% 50V
C5615	0806113	ELECTROLYTIC 1UF 25V
C5616	0806113	ELECTROLYTIC 1UF 25V
C5617	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5619	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5620	AD10274R	ELECTROLYTIC 6.8UF 20V
C5621	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C5622	0893179	CERAMIC CHIP 0.1UF+-10% 16V
C5623	0806117	ELECTROLYTIC 3.3UF 16V
C5624	0893126	CERAMIC CHIP 100PF+-5% 50V
R0101	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0102	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0103	0790007	CHIP RESISTOR 5.6 OHM+-5% 1/16W
R0104	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R0105	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0106	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0107	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0108	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0109	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0110	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
R0111	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0113	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0114	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0119	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0120	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0121	0790008	CHIP RESISTOR 6.8 OHM+-5% 1/16W
R0122	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0123	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0124	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0125	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0127	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0128	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0129	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0130	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0131	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0132	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0134	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0139	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0140	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0141	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W [845,946]
R0141	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W[645,648]
R0142	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0143	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0144	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0145	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0146	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0147	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0148	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0149	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0150	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0151	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0152	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0157	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0158	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0159	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0160	0790027	CHIP RESISTOR 180 OHM+-5% 1/16W
R0161	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0163	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0164	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0165	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0167	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0168	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0170	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0171	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0172	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0173	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0174	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0175	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0176	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0178	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0180	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0181	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0182	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0183	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0185	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0188	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0190	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0191	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0194	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0195	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0196	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0197	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0198	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0199	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0201	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0202	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R0203	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0205	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0206	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0207	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0208	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0209	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0210	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0211	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0212	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0214	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0215	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0216	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0217	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0219	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R0220	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0222	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0223	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0224	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R0225	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0227	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0230	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0231	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0232	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0233	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0234	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R0238	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0239	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0243	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0262	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0263	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0265	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0266	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0267	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0268	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0269	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0271	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0272	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0301	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0302	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0303	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0305	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0310	0790018	CHIP RESISTOR 39 OHM+-5% 1/16W
R0311	0790018	CHIP RESISTOR 39 OHM+-5% 1/16W
R0312	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0315	AQ00247R	CHIP RESISTOR 100KOHM+-1% 1/16W
R0350	0790022	CHIP RESISTOR 68 OHM+-5% 1/16W
R0351	0790022	CHIP RESISTOR 68 OHM+-5% 1/16W
R0354	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0361	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0362	0104084	CHIP RESISTOR 2.2MOHM+-5% 1/16W
R0373	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0374	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0391	0790022	CHIP RESISTOR 68 OHM+-5% 1/16W
R0397	0790022	CHIP RESISTOR 68 OHM+-5% 1/16W
R0402L	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0402M	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0402R	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0403R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0405S	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0408S	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0409S	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0410M	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0410S	0104121	CHIP RESISTOR 27KOHM+-1% 1/10W
R0412M	0790069	CHIP RESISTOR 270KOHM+-5% 1/16W
R0413L	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0413R	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0414S	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0415S	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0417L	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0417M	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0417R	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0418L	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0418M	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0418R	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0419L	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0419R	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R0420L	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0420M	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0420R	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0421L	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0421R	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0422M	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0423M	0790062	CHIP RESISTOR 68KOHM+-5% 1/16W
R0424M	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0425M	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0428M	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0429R	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0430M	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0432	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W[845,946]
R0432	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W[645,648]
R0433	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0435S	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0436M	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0436R	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0437M	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0441M	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0443M	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0445S	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0447S	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0449	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0451M	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0453M	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0455M	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0458M	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0459M	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0460	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0461	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0462	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0471	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0472	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0472M	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0473S	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0474S	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0475	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0476	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0480S	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0481S	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R0483	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W[845,946]
R0483	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W[645,648]
R0484S	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0485S	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0486S	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0487S	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0488L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0488R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0489L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0489R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0490L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0490R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0491L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0491R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0492L	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0492R	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0493L	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0493R	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0494L	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0494R	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R0496L	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0496R	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0497	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0501	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0502	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0504	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0505	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0506	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0507	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0508	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0510	AQ00238R	CHIP RESISTOR 47KOHM+-1% 1/16W
R0511	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0512	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0513	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0514	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0516	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0517	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0518	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0519	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0522	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0525	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0529	AQ00211R	CHIP RESISTOR 4.3KOHM+-1% 1/16W
R0531	0104292	CHIP RESISTOR 1.0KOHM+-0.5% 1/16W
R0532	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0533	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0534	0790038	CHIP RESISTOR 1.2KOHM+-5% 1/16W
R0539	0104297	CHIP RESISTOR 10KOHM+-0.5% 16V
R0540	0104292	CHIP RESISTOR 1.0KOHM+-0.5% 1/16W
R0541	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0545	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0546	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0549	0790076	CHIP RESISTOR 820KOHM+-5% 1/16W
R0550	AQ10274R	CHIP RESISTOR 46.4KOHM+-0.5% 1/16W
R0551	AQ10273R	CHIP RESISTOR 680 OHM+-0.5% 1/16W
R0552	0104301	CHIP RESISTOR 4.7KOHM+-0.5% 1/16W
R0556	AQ00198R	CHIP RESISTOR 1.5KOHM+-1% 1/16W
R0557	AQ00192R	CHIP RESISTOR 820 OHM+-1% 1/16W
R0558	AQ00214R	CHIP RESISTOR 5.6KOHM+-1% 1/16W
R0561	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0562	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0566	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0567	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0568	AQ00216R	CHIP RESISTOR 6.8KOHM+-1% 1/16W
R0569	AQ00203R	CHIP RESISTOR 2.2KOHM+-1% 1/16W
R0583	0790023	CHIP RESISTOR 82 OHM+-5% 1/16W
R0585	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R0586	AQ00223R	CHIP RESISTOR 12KOHM+-1% 1/16W
R0587	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0588	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0597	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0598	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0599	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0601	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0602	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0603	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0604	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0605	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R0606	AQ00223R	CHIP RESISTOR 12KOHM+-1% 1/16W
R0607	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0608	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0609	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0610	AQ00223R	CHIP RESISTOR 12KOHM+-1% 1/16W
R0611	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0612	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0613	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0614	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0616	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R0619	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0620	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0621	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0622	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0623	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0624	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0628	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0640	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0641	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0642	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0643	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W
R0644	0105815	CHIP RESISTOR 0.47 OHM+-10% 1/4W
R0661	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0662	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0664	0790002	CHIP RESISTOR 2.2 OHM+-5% 1/16W
R0665	0790002	CHIP RESISTOR 2.2 OHM+-5% 1/16W
R0666	0790002	CHIP RESISTOR 2.2 OHM+-5% 1/16W
R0667	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R0668	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0671	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0672	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R0681	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0682	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0691	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0692	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0693	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R0694	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0695	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0696	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R0701	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0702	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R0703	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0704	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0706	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0707	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0709	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0717	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0718	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0719	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0721	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R0722	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0723	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0724	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0725	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R0728	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0733	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0901	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0902	AQ00249R	CHIP RESISTOR 120KOHM+-1% 1/16W
R0903	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0904	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0905	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0906	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0907	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0908	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R0909	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R0912	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0913	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0914	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0915	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0916	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0917	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0918	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0919	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0920	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0921	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0922	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0923	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0924	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R0925	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0926	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0927	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0928	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R0929	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0930	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0931	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0932	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0933	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0934	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R0935	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0938	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0939	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0941	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R0942	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0943	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R0944	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0945	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0947	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0948	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0949	AQ00221R	CHIP RESISTOR 10KOHM+-1% 1/16W
R0950	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0951	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R0952	0790043	CHIP RESISTOR 2.7KOHM+-5% 1/16W
R0953	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R0954	AQ00245R	CHIP RESISTOR 82KOHM+-1% 1/16W
R0955	AQ00227R	CHIP RESISTOR 18KOHM+-1% 1/16W
R0956	AQ00234R	CHIP RESISTOR 33KOHM+-1% 1/16W
R0957	AQ00247R	CHIP RESISTOR 100KOHM+-1% 1/16W
R0958	AQ00236R	CHIP RESISTOR 39KOHM+-1% 1/16W
R0959	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0960	AQ00221R	CHIP RESISTOR 10KOHM+-1% 1/16W
R0963	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0964	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0966	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R0969	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0970	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0971	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R0972	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R0973	AQ00247R	CHIP RESISTOR 100KOHM+-1% 1/16W
R0974	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R0975	AQ00232R	CHIP RESISTOR 27KOHM+-1% 1/16W
R0976	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R0977	0790017	CHIP RESISTOR 33 OHM+-5% 1/16W
R0978	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0979	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0980	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0981	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0982	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0983	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R0984	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0985	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0986	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R0987	0790042	CHIP RESISTOR 2.2KOHM+-5% 1/16W
R0988	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0989	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0990	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0992	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0993	AQ00227R	CHIP RESISTOR 18KOHM+-1% 1/16W
R0994	AQ00234R	CHIP RESISTOR 33KOHM+-1% 1/16W
R0995	AQ00245R	CHIP RESISTOR 82KOHM+-1% 1/16W
R0997	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R0999	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R1001	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1003	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1006	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1009	0103823	CHIP RESISTOR 220HM+-5% 0.1W
R1101	AQ00231R	CHIP RESISTOR 24KOHM+-1% 1/16W
R1112	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1113	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1114	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1115	0790012	CHIP RESISTOR 12 OHM+-5% 1/16
R1116	0790012	CHIP RESISTOR 12 OHM+-5% 1/16
R1117	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1120	0790011	CHIP RESISTOR 10 OHM+-5% 1/16W
R1121	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1136	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1141	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1142	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R1143	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R1145	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1146	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1147	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1148	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1149	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1150	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1155	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1156	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1157	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1158	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1159	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1160	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1161	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R1162	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1163	0790063	CHIP RESISTOR 82KOHM+-5% 1/16W
R1169	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1170	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1179	BM00135R	COIL
R1201	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1202	0790069	CHIP RESISTOR 270KOHM+-5% 1/16W
R1203	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1204	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1205	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1206	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1207	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1208	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1209	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1210	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1211	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1212	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1213	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1214	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1215	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1216	AQ00231R	CHIP RESISTOR 24KOHM+-1% 1/16W
R1218	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1220	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1221	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1223	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1225	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1226	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1303	AQ00223R	CHIP RESISTOR 12KOHM+-1% 1/16W
R1308	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1309	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1310	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1311	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1312	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1313	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1314	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1315	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1403	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R1404	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R1405	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1406	0790044	CHIP RESISTOR 3.3KOHM+-5% 1/16W
R1407	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1408	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1409	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R1410	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R1411	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R1412	0790074	CHIP RESISTOR 560KOHM+-5% 1/16W
R1413	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1414	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1416	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1418	AQ00224R	CHIP RESISTOR 13KOHM+-1% 1/16W
R1419	AQ00224R	CHIP RESISTOR 13KOHM+-1% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R1420	AQ00222R	CHIP RESISTER 11KOHM+-1% 1/16W
R1421	AQ00222R	CHIP RESISTER 11KOHM+-1% 1/16W
R1424	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1425	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5301	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5302	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5304	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5307	AQ00236R	CHIP RESISTOR 39KOHM+-1% 1/16W
R5308	AQ00232R	CHIP RESISTOR 27KOHM+-1% 1/16W
R5309	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5310	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5313	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R5314	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R5315	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R5316	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5317	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5318	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R5319	AQ00227R	CHIP RESISTOR 18KOHM+-1% 1/16W
R5320	AQ00234R	CHIP RESISTOR 33KOHM+-1% 1/16W
R5325	AQ00232R	CHIP RESISTOR 27KOHM+-1% 1/16W
R5326	AQ00238R	CHIP RESISTOR 47KOHM+-1% 1/16W
R5331	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R5332	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R5336	0105203	CHIP RESISTOR 18KOHM+-0.5% 1/16W
R5338	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R5339	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5340	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R5343	0104256	CHIP RESISTOR 10MOHM+-5% 1/10W
R5345	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5346	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5347	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R5349	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R5351	0790075	CHIP RESISTOR 680KOHM+-5% 1/16W
R5357	0790067	CHIP RESISTOR 180KOHM+-5% 1/16W
R5361	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5362	0790056	CHIP RESISTOR 27KOHM+-5% 1/16W
R5363	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5364	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5365	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5366	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5367	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5390	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R5401	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5402	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R5404	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5405	AQ10634R	CHIP RESISTOR 120KOHM+-0.5% 1/16W
R5406	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R5407	0104727	CHIP RESISTOR 15KOHM+-1% 1/16W
R5408	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R5409	AQ10632R	CHIP RESISTOR 33KOHM+-0.5% 1/16W
R5410	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R5411	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R5412	0105213	CHIP RESISTOR 5.6KOHM+-0.5% 1/16W
R5413	0105215	CHIP RESISTOR 47KOHM+-5% 1/16W
R5414	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R5415	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R5416	0790035	CHIP RESISTOR 680 OHM+-5% 1/16W
R5417	0104251	CHIP RESISTOR 2.2 OHM+-5% 1/10W
R5420	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5501	AQ00224R	CHIP RESISTOR 13KOHM+-1% 1/16W
R5502	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R5503	AQ00202R	CHIP RESISTOR 2.0KOHM+-1% 1/16W
R5504	AQ00235R	CHIP RESISTOR 36KOHM+-1% 0.063W
R5505	AQ00227R	CHIP RESISTOR 18KOHM+-1% 1/16W
R5506	AQ00218R	CHIP RESISTOR 8.2KOHM+-1% 1/16W
R5507	AQ00265R	CHIP RESISTOR 470KOHM+-1% 1/16W
R5508	AQ00239R	CHIP RESISTOR 51KOHM+-1% 1/16W
R5509	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5510	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5511	AQ00239R	CHIP RESISTOR 51KOHM+-1% 1/16W
R5512	AQ00239R	CHIP RESISTOR 51KOHM+-1% 1/16W
R5513	AQ00221R	CHIP RESISTOR 10KOHM+-1% 1/16W
R5514	AQ00196R	CHIP RESISTOR 1.2KOHM+-1% 1/16W
R5515	0105708	CHIP RESISTOR 5.1MOHM+-5% 1/16W
R5516	0105708	CHIP RESISTOR 5.1MOHM+-5% 1/16W
R5520	0790054	CHIP RESISTOR 18KOHM+-1% 1/16W
R5524	0790029	CHIP RESISTOR 270 OHM+-5% 1/16W
R5531	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5533	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5601	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R5603	0790011	CHIP RESISTOR 10 OHM+-5% 1/16W
R5610	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5611	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R5612	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5615	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5616	0790066	CHIP RESISTOR 150KOHM+-5% 1/16W
R5617	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5618	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5619	0790058	CHIP RESISTOR 39KOHM+-5% 1/16W
R5620	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5621	0790054	CHIP RESISTOR 18KOHM+-5% 1/16W
R5622	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R5623	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R5625	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5627	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5631	AQ10635R	CHIP RESISTOR 270KOHM+-0.5% 1/16W
R5632	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R5633	AQ10633R	CHIP RESISTOR 56KOHM+-0.5% 1/16W
R5634	0105215	CHIP RESISTOR 47KOHM+-0.5% 1/16W
R5635	0104721	CHIP RESISTOR 100KOHM+-0.5% 1/16W
R5636	0790002	CHIP RESISTOR 2.2 OHM+-5% 1/16W
R5637	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R5638	AQ10632R	CHIP RESISTOR 33KOHM+-0.5% 1/16W
R5639	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R5642	AQ10632R	CHIP RESISTOR 33KOHM+-0.5% 1/16W
R5643	0105197	CHIP RESISTOR 22KOHM+-0.5% 1/16W
R5644	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R5651	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R5654	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5655	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5656	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R5657	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R5658	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R5708	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R5716	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R5717	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
D0101	5337422	DIODE DA221
D0102	5337421	DIODE DAN222
D0203	5337421	DIODE DAN222
D0401	5337422	DIODE DA221
D0552	CC10291R	DIODE 1SS353
D0553	CC10291R	DIODE 1SS353
D0601	CC10291R	DIODE 1SS353
D0662	5337422	DIODE DA221
D0901	CC10291R	DIODE 1SS353
D0902	CC10291R	DIODE 1SS353
D0905	5337422	DIODE DA221
D0907	5337372	DIODE SB07-03C
D1002	CC10291R	DIODE 1SS353
D1101	5337352	DIODE MA132WA

SYMBOL NO	P-NO	DESCRIPTION
D1104	CC10771R	DIODE SML-010LT
D1301	5337422	DIODE DA221
D1302	CC10291R	DIODE 1SS353
D5301	CC10331R	DIODE HVU200A
D5401	CC10291R	DIODE 1SS353
D5402	CC10291R	DIODE 1SS353
D5403	5326022	DIODE MA160-M1D
D5404	5337421	DIODE DAN222
D5501	5337422	DIODE DA221
D5502	5337422	DIODE DA221
D5601	CC10331R	DIODE HVU200A
D5602	CC10331R	DIODE HVU200A
IC0101	1366631	IC HA118189MP
IC0102	CK21231R	IC UPC5023GS146
IC0201	CK21291U	IC HG73C029TE
IC0202	CK21282U	IC NN51V4260A50
IC0203	CK21261R	IC BA7071F
IC0204	CK21251R	IC UPC5023GS153
IC0401	CK12241	IC HA118193F[TYPE 845,946]
IC0401	CK20271R	IC LA7458W [TYPE 645,648]
IC0402S	CK16471R	IC TDA7052AT
IC0404S	1351431	IC M5223FP
IC0405S	1351431	IC M5223FP
IC0551	CK16251U	IC BA9735KV
IC0553	CK06711R	IC PQ7VZ5U
IC0601	CK18321R	IC UPC5023GS-122-E1
IC0631	CK18331R	IC LB1950V-TRM
IC0651	CK22031R	IC LB1991V
IC0671	1366651	IC BA6417F
IC0901	CK21311U	IC CXP87248A-147R
IC0902	CK21711R	IC NJU7284EV(TE1)
IC0904	CK18263R	IC BU6294AFV[TYPE 645,845,946]
IC0904	CK21321R	IC BU6296FV [TYPE 648]
IC0906	CK18301R	IC SN74AHCT126PW
IC0907	CE10171R	MODULE GP1U101X
IC1001	UE13387	CCD IMAGE SENSOR ASSY
IC1101	CK21331U	IC HD49323F
IC1102	CK20631U	IC HG73C012TE
IC1103	CK12061R	IC UPD16510GR
IC1104	CK21341U	IC HD6433042ST39F
IC1105	CK21351R	IC X25097V1-2.7
IC1201	CK20621R	IC UPC5023GS-147-GJG
IC1301	CK18711R	IC MPC17A34ZVM
IC1401	FU10321	SENSOR GYRO (ENC-03JA-03)
IC1402	FU10322	SENSOR GYRO (ENC-03JB-03)
IC1403	CK21271R	IC NJM064V
IC5301	CK18373U	IC IR3Y29BM
IC5302	CK16691R	IC M62352GP
IC5401	CK18431R	IC TL5001CD
IC5501	CK21301R	IC HLMM936
IC5601	CK21941U	IC LZ9GH16
IC5601	CK21951U	IC LZ9GH17
IC5602	CK15331R	IC NJM3414AV
Q0101	1323301	TRANSISTOR 2SB1219
Q0102	1323294	TRANSISTOR 2SA1774RS
Q0103	1323294	TRANSISTOR 2SA1774RS
Q0104	1323286	TRANSISTOR UMH9N
Q0105	1323301	TRANSISTOR 2SB1219
Q0107	1323291	TRANSISTOR 2SC4617
Q0108	1323279	TRANSISTOR DTC114YE
Q0109	1323294	TRANSISTOR 2SA1774RS
Q0110	CA11273R	TRANSISTOR 2SA1037K-S
Q0111	1323283	TRANSISTOR UMH1N
Q0112	1323291	TRANSISTOR 2SC4617
Q0113	1323294	TRANSISTOR 2SA1774RS
Q0116	1323279	TRANSISTOR DTC114YE
Q0117	1323279	TRANSISTOR DTC114YE
Q0118	1323291	TRANSISTOR 2SC4617
Q0119	1323291	TRANSISTOR 2SC4617
Q0123	1323291	TRANSISTOR 2SC4617
Q0130	1323279	TRANSISTOR DTC114YE
Q0131	1323279	TRANSISTOR DTC114YE
Q0133	1323278	TRANSISTOR DTA114YE
Q0139	1323286	TRANSISTOR UMH9N
Q0140	1323291	TRANSISTOR 2SC4617
Q0142	1323279	TRANSISTOR DTC114YE
Q0143	1323279	TRANSISTOR DTC114YE
Q0144	1323294	TRANSISTOR 2SA1774RS
Q0180	1323291	TRANSISTOR 2SC4617
Q0201	1323291	TRANSISTOR 2SC4617
Q0203	1323291	TRANSISTOR 2SC4617
Q0205	1323291	TRANSISTOR 2SC4617
Q0206	1323252	TRANSISTOR XP4501
Q0207	1323279	TRANSISTOR DTC114YE
Q0395	1323279	TRANSISTOR DTC114YE
Q0401L	1323279	TRANSISTOR DTC114YE
Q0401R	1323279	TRANSISTOR DTC114YE
Q0402	1323279	TRANSISTOR DTC114YE
Q0403L	1323291	TRANSISTOR 2SC4617
Q0403M	1323278	TRANSISTOR DTA114YE
Q0403R	1323291	TRANSISTOR 2SC4617
Q0404	1323291	TRANSISTOR 2SC4617
Q0411S	1323301	TRANSISTOR 2SB1219
Q0412S	1323279	TRANSISTOR DTC114YE
Q0414S	1323279	TRANSISTOR DTC114YE
Q0415	1323291	TRANSISTOR 2SC4617
Q0417M	1323292	TRANSISTOR 2SA1774
Q0551	1308011	TRANSISTOR MPL1
Q0552	CA10271R	TRANSISTOR 2SB1424
Q0553	1308011	TRANSISTOR MPL1
Q0555	CA10271R	TRANSISTOR 2SB1424
Q0556	1323279	TRANSISTOR DTC114YE
Q0557	CA10271R	TRANSISTOR 2SB1424
Q0558	1323291	TRANSISTOR 2SC4617
Q0559	1308011	TRANSISTOR MPL1
Q0561	1308011	TRANSISTOR MPL1
Q0562	1308011	TRANSISTOR MPL1
Q0563	1323279	TRANSISTOR DTC114YE
Q0570	CA10271R	TRANSISTOR 2SB1424
Q0571	1323291	TRANSISTOR 2SC4617
Q0601	1323278	TRANSISTOR DTA114YE
Q0602	1323294	TRANSISTOR 2SA1774RS
Q0603	1323291	TRANSISTOR 2SC4617
Q0604	1323291	TRANSISTOR 2SC4617
Q0901	1323294	TRANSISTOR 2SA1774RS
Q0902	1323291	TRANSISTOR 2SC4617
Q0903	1323278	TRANSISTOR DTA114YE
Q0904	1323294	TRANSISTOR 2SA1774RS
Q0905	5328975	TRANSISTOR 2SC2412K
Q0907	1323279	TRANSISTOR DTC114YE
Q0908	1323279	TRANSISTOR DTC114YE
Q0909	1323279	TRANSISTOR DTC114YE
Q0910	1323279	TRANSISTOR DTC114YE
Q0911	1323291	TRANSISTOR 2SC4617
Q0913	1323278	TRANSISTOR DTA114YE
Q1001	5328221	TRANSISTOR 2SC2620-QC
Q1108	1323279	TRANSISTOR DTC114YE
Q1201	1323291	TRANSISTOR 2SC4617
Q1202	1323291	TRANSISTOR 2SC4617
Q1203	1323141	TRANSISTOR 2SC2411K

SYMBOL NO	P-NO	DESCRIPTION
Q1401	1323279	TRANSISTOR DTC114YE
Q1402	1323252	TRANSISTOR XP4501
Q5301	1323294	TRANSISTOR 2SA1774RS
Q5302	1323271	TRANSISTOR DTC144EE
Q5303	1323293	TRANSISTOR 2SC4617 (R/S)
Q5304	1323293	TRANSISTOR 2SC4617 (R/S)
Q5390	1323271	TRANSISTOR DTC144EE
Q5401	1323272	TRANSISTOR DTA144EE
Q5402	1323271	TRANSISTOR DTC144EE
Q5403	1323294	TRANSISTOR 2SA1774RS
Q5404	1323271	TRANSISTOR DTC144EE
Q5405	1323293	TRANSISTOR 2SC4617 (R/S)
Q5406	CA10793R	TRANSISTOR 2SB1122ST
Q5501	CA11611R	TRANSISTOR 2SK2463
Q5502	1323272	TRANSISTOR DTA144EE
Q5503	1323271	TRANSISTOR DTC144EE
Q5504	1323272	TRANSISTOR DTA144EE
Q5607	1323279	TRANSISTOR DTC114YE
Q5608	1323279	TRANSISTOR DTC114YE
Q5611	1323279	TRANSISTOR DTC114YE
Q5612	1323279	TRANSISTOR DTC114YE
Q5613	1323279	TRANSISTOR DTC114YE
Q5614	1323279	TRANSISTOR DTC114YE
Q5615	1323272	TRANSISTOR DTA144EE
ZD0404	CC10937R	ZENER DIODE MA8056-M
ZD0405	CC10937R	ZENER DIODE MA8056-M
ZD0901	CC10937R	ZENER DIODE MA8056-M
ZD0902	CC10937R	ZENER DIODE MA8056-M
ZD5601	CC10575R	DIODE RD5.1UMB2
ZD5701	CC10448R	DIODE MA3056M
T0551	5148333	TRANSFORMAR,POWER
T5401	BC10211R	TRANSFORMER,DC/DC
T5501	BM10281U	TRANS
L0101	BA10334R	COIL 10UH
L0102	BA10582R	COIL 47UH
L0103	BA10148R	COIL 27UH
L0105	0773117	CHOKE COIL 8.2UH+-5%
L0107	BA10315R	COIL 150UH
L0108	0773135	CHOKE COIL 180UH+-5%
L0109	BA10317R	COIL 330UH
L0110	BA10147R	COIL 22UH
L0113	BA10149R	COIL 33UH
L0114	BA10147R	COIL 22UH
L0116	BA10145R	COIL 15UH
L0117	BA10154R	COIL 82UH
L0201	BA10582R	COIL 47UH
L0202	BA10582R	COIL 47UH
L0203	BA10582R	COIL 47UH
L0204	BA10142R	COIL 68UH
L0205	BA10145R	COIL 15UH
L0207	BA10582R	COIL 47UH
L0208	BA10582R	COIL 47UH
L0301	BA10582R	COIL 47UH
L0350	BA10582R	COIL 47UH
L0401	BA10582R	COIL 47UH
L0403	BA10582R	COIL 47UH
L0405	BA10334R	COIL 10UH [TYPE 845,946]
L0405	BA10336R	COIL 47UH [TYPE 645,648]
L0551	BA10127R	COIL 10UH
L0552	BA10128R	COIL 22UH
L0554	BA10129R	COIL 47UH
L0556	BA10127R	COIL 10UH
L0558	BA10577R	COIL 10UH
L0559	BA10582R	COIL 47UH
L0560	BA10582R	COIL 47UH

SYMBOL NO	P-NO	DESCRIPTION
L0561	BA10129R	COIL 47UH
L0562	BA10577R	COIL 10UH
L0563	BA10127R	COIL 10UH
L0564	BA10129R	COIL 47UH
L0565	BA10129R	COIL 47UH
L0601	BA10579R	COIL 22UH
L0902	BA10145R	COIL 15UH
L0903	BA10334R	COIL 10UH
L0904	BA10577R	COIL 10UH
L0906	BA10579R	COIL 22UH
L0908	BA10336R	COIL 47UH
L0909	BA10334R	COIL 10UH
L1101	BA10336R	COIL 47UH
L1102	BA10577R	COIL 10UH
L1104	BA10334R	COIL 10UH
L1105	BA10577R	COIL 10UH
L1301	0773002	COIL 22UH
L5301	BA10334R	COIL 10UH
L5302	BA10336R	COIL 47UH
L5303	BA10152R	COIL 47UH
L5304	BA10149R	COIL 33UH
L5305	BA10334R	COIL 10UH
L5401	BA10334R	COIL 10UH
L5402	BA10337R	COIL 100UH
L5403	BA10337R	COIL 100UH
L5404	BA10337R	COIL 100UH
L5501	BA10334R	COIL 10UH
L5502	BA10334R	COIL 10UH
L5503	BA10128R	COIL 22UH
L5601	BA10334R	COIL 10UH
L5602	BA10334R	COIL 10UH
L5603	BA10334R	COIL 10UH
L5604	BA10143R	COIL 10UH [TYPE 946]
L5604	BA10146R	COIL 18UH [TYPE 645,648,845]
X0201	1930093	CRYSTAL
X0901	BL10572R	CRYSTAL
X0902	BL10311R	CRYSTAL
X5301	BL10193R	CRYSTAL
BL0394	BM00136R	FILTER
BL0395	BM00136R	FILTER
CH5501	BC10282R	COIL 6.0UH
CN0907	EF11051	CONNECTOR [TYPE 845,946]
CN0907	EF11049	CONNECTOR [TYPE 645,648]
CN0908	5847083	CONNECTOR
CN1001	JD10851	FLEXIBLE
CP0203	BE10412R	FILTER,LOW PASS
⚠F0551	FM10211R	FUSE
⚠F0552	FM10211R	FUSE
⚠F0553	FM10211R	FUSE
JK0200	5695292	JACK
PG0101	EA11472R	PLUG
PG0201	1830103	CONNECTOR
PG0401	5668673	MINI PLUG [TYPE 845,946]
PG0401	5668671	MINI PLUG [TYPE 645,648]
PG0402	5669191	PLUG
PG0405	EA10942	PLUG
PG0551	5669175	PLUG
PG0552	5668671	MINI PLUG
PG0601	5692362	MINI PLUG
PG0602	EA11474R	PLUG
PG0603	EA11471R	PLUG
PG0604	5668671	MINI PLUG
PG0701	5668672	PLUG
PG0901	EA11473R	PLUG
PG0902	EA10653R	PLUG

SYMBOL NO	P-NO	DESCRIPTION
PG0903	5669193	MINI PLUG
PG0904	5669198	PLUG
PG0905	5669166	PLUG
PG0907	5668672	PLUG
PG0908	5669031	MINI PLUG
PG1001	EA10409R	PLUG
PG1101	EA10348R	CONNECTOR
PG1103	1830355	PLUG
PG1104	5668751	MINI PLUG
PG1301	EA10407R	CONNECTOR
PG5301	EA10133R	PLUG
PG5501	EA10132R	PLUG
PG5701	5669198	PLUG
PG5702	EA11071R	PLUG
SW0701	FB10201R	SWITCH
SW0702	FB10201R	SWITCH
SW0902	FB10271R	SWITCH
SW0903	FB10271R	SWITCH
SW0904	FB10271R	SWITCH
SW0905	FB10271R	SWITCH
SW0907	5621951	SWITCH
SW0908	5621713	SWITCH
SW5701	FB10201R	SWITCH
SW5702	5634862	SWITCH
SW5703	5634862	SWITCH
		B/W EVF[EMQ]SECTION
C2001	0806169	ELECTROLYTIC 47UF 16V
C2002	0806169	ELECTROLYTIC 47UF 16V
C2003	0806146	ELECTROLYTIC 2.2UF 50V
C2004	0268437	POLYPROPYLENE 4700PF+-5%50V
C2005	0207709	CAPACITOR 47UF+-20% 35V
C2006	0249655	CERAMIC CHIP 1000PF+-10% 1000V
C2007	0249656	CERAMIC CHIP 1000PF+-10% 500V
C2008	0806146	ELECTROLYTIC 2.2UF 50V
C2009	0893086	CERAMIC CHIP 0.1UF+80-20% 50V
C2011	0209852	CERAMIC CHIP 180PF+-5% 50V
C2012	0893086	CERAMIC CHIP 0.1UF+80-20% 50V
C2013	0893086	CERAMIC CHIP 0.1UF+80-20% 50V
C2014	0880194	CAPACITOR 0.1UF+-5% 50V
C2015	0202151	CERAMIC CHIP 2200PF+-5% 50V
C2016	0893044	CERAMIC CHIP 0.01UF+-10% 50V
C2017	0806145	ELECTROLYTIC 1UF 50V
C2018	0893062	CERAMIC CHIP 1UF+80-20% 16V
R2002	0103869	CHIP RESISTOR 150KOHM+-5% 0.1W
R2003	0103876	CHIP RESISTOR 560KOHM+-5% 0.1W
R2004	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2005	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2006	0103819	CHIP RESISTOR 10 OHM+-5% 0.1W
R2007	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2008	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2009	0103847	CHIP RESISTOR 2.2KOHM+-5% 0.1W
R2011	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R2012	0103857	CHIP RESISTOR 15KOHM+-5% 0.1W
R2013	0103845	CHIP RESISTOR 1.5KOHM+-5% 0.1W
R2014	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R2015	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R2016	0103814	CHIP RESISTOR 3.9 OHM+-10% 0.1W
R2017	0103846	CHIP RESISTOR 1.8KOHM+-5% 0.1W
R2018	0103863	CHIP RESISTOR 47KOHM+-5% 0.1W
R2019	0103848	CHIP RESISTOR 2.7KOHM+-5% 0.1W
R2020	0103867	CHIP RESISTOR 100KOHM+-5% 0.1W
R2022	0103831	CHIP RESISTOR 100 OHM+-5% 0.1W
R2024	0103879	CHIP RESISTOR 1MOHM+-5% 0.1W
R2025	0103874	CHIP RESISTOR 390KOHM+-5% 0.1W
R2026	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
R2027	0103843	CHIP RESISTOR 1KOHM+-5% 0.1W
RT2001	5035204	SEMI VARIABLE 2.2MOHM
RT2002	5030251	SEMI VARIABLE 1MOHM
RT2003	5040103	SEMI VARIABLE 470 OHM
D2001	5337137	DIODE MA141K
D2002	5337322	DIODE MA199
IC2001	1365881	IC HA118179F
Q2001	5323831	TRANSISTOR 2SD974
Q2002	5326685	TRANSISTOR XN1B301
⚠T2001	5240568	TRANS
L2001	0773003	COIL 47UH
L2002	5244016	COIL
⚠CS2001	EF11242	SOCKET,CRT
PG2001	5669631	CONNECTOR
PG2002	5668469	PLUG
⚠TF2001	5721352	FUSE

CHAPTER 6 SCHEMATIC, CIRCUIT BOARD AND BLOCK DIAGRAMS/ MICROPROCESSOR PIN FUNCTION TABLE

Cautions when using schematic diagrams

Caution for safety

The parts marked ⚠ are critical for safety. Be sure to use the specified parts to ensure safety when replacing them.

1. Values in schematic diagrams

The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

[Resistors]

Item	Indication
Value	No indication ..... Ω K ..... k Ω M ..... M Ω
Tolerance	No indication ..... ±5% (All tolerances other than ± 5% are indicated in the schematic diagrams)
Power capacitance	No indication .... 1/8W (1/16W for leadless resistors without indication) All capacitances other than the above are indicated in the schematic diagrams.

[Capacitors]

Item	Indication
Value	No indication ..... μF P ..... pF
Dielectric strength	No indication ..... 50V (All dielectric strengths other than 50V are indicated in the schematic diagrams.)

[Coils]

Item	Indication
Value	μ .... μH m ..... mH

Cautions when using circuit board diagrams

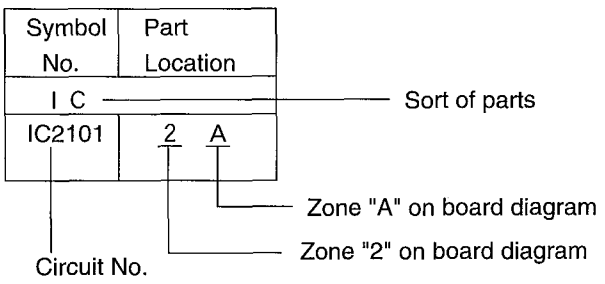
1. Identifications of sides A/B in circuit board diagrams

1) Board having a pattern on one side and parts on both sides.
   - Side A: Shows discrete parts, viewed from the pattern side.
   - Side B: Shows leadless parts, viewed from the pattern side.
2) Board having patterns on both sides and parts on both sides.
   - Side A: Shows parts and patterns which can be seen when the case is opened.
   - Side B: Shows parts and the pattern on the back of side A.

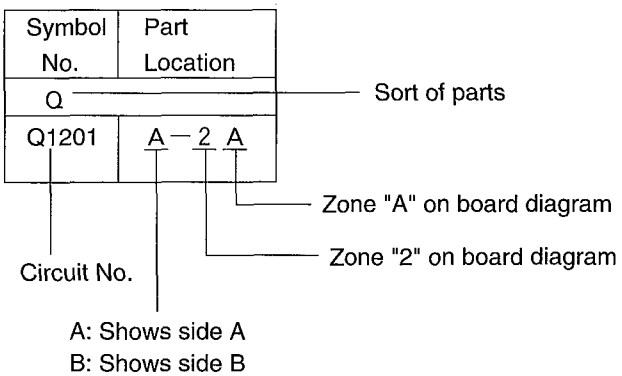
2. Table for indexing locations of parts

This table shows locations of each part on the circuit board diagrams. The locations are indicated using the guide scales on the external lines of diagrams.

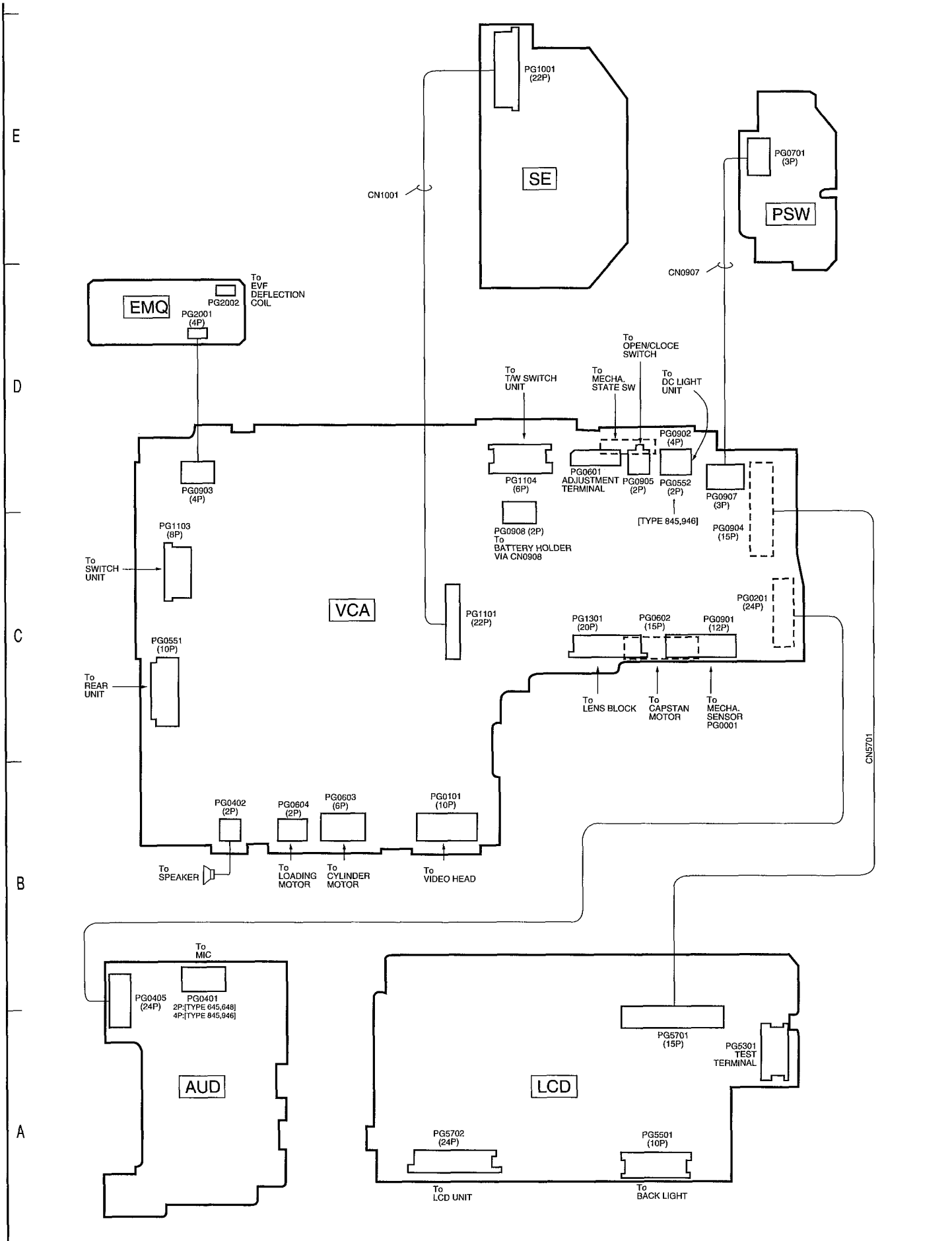
1) In case of one-layer board



2) In case of side A/B indication board



INTERNAL WIRING DIAGRAM

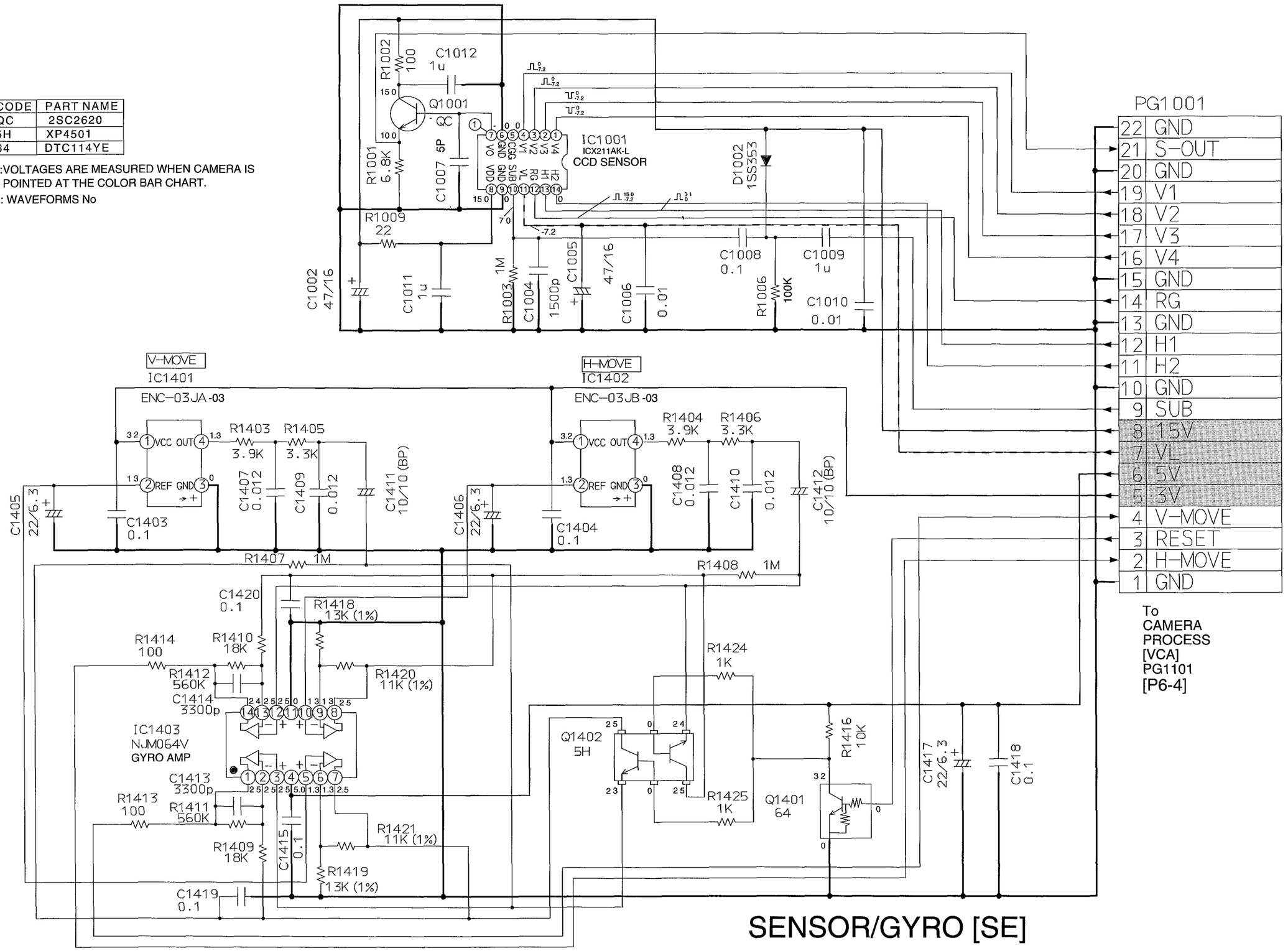


SENSOR/GYRO [SE] SCHEMATIC DIAGRAM

CODE	PART NAME
QC	2SC2620
5H	XP4501
64	DTC114YE

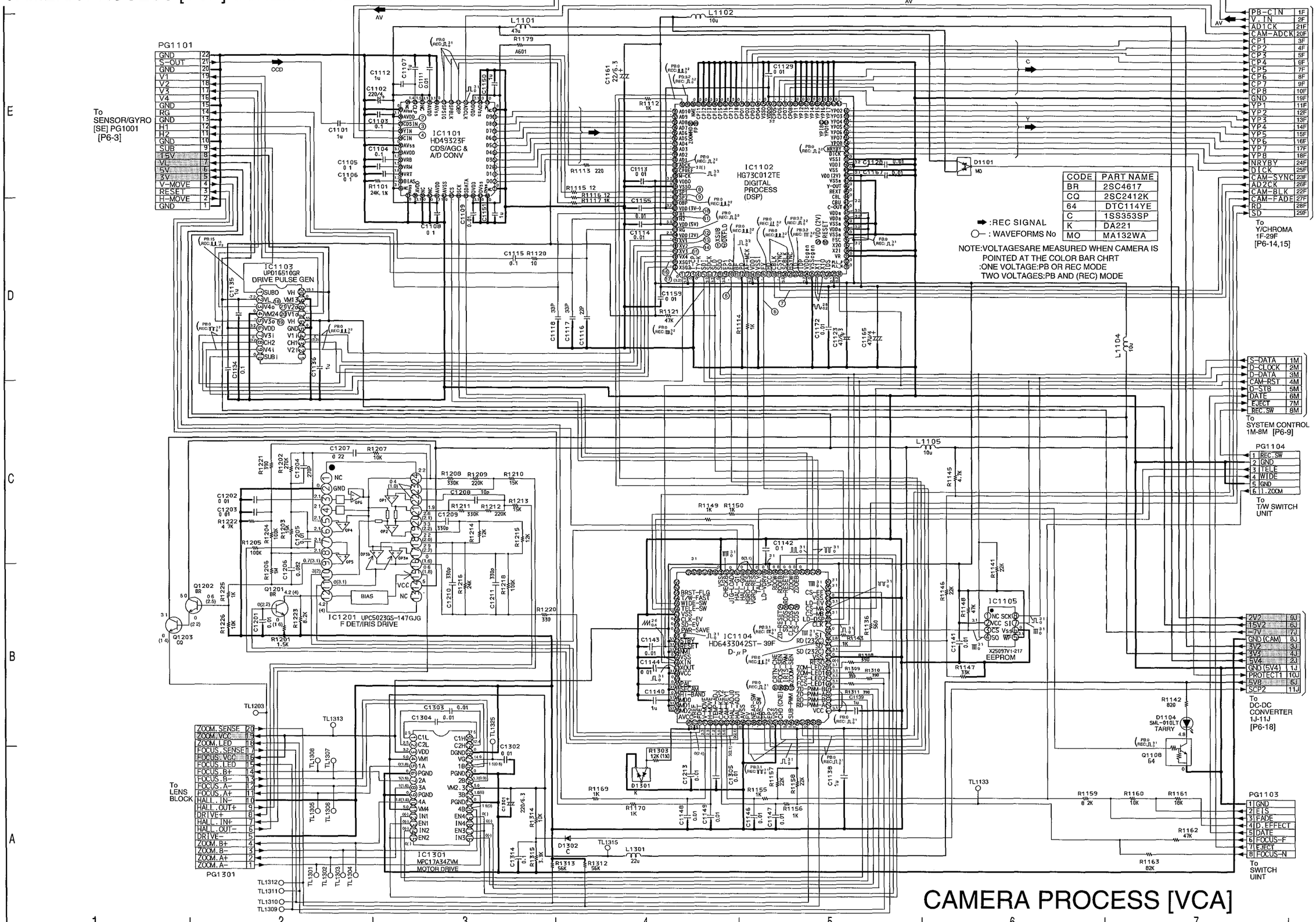
NOTE:VOLTAGES ARE MEASURED WHEN CAMERA IS POINTED AT THE COLOR BAR CHART.

○— : WAVEFORMS No



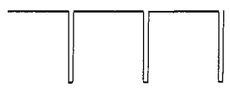
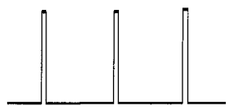
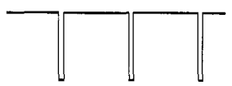
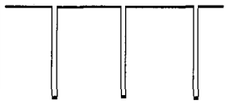
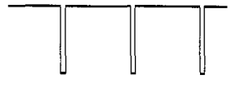
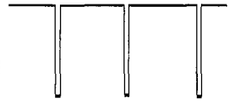
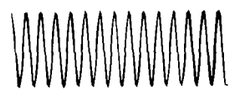
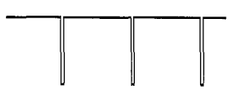
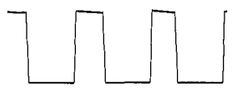
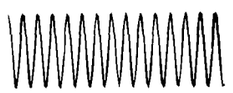
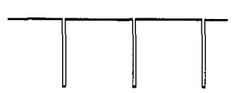
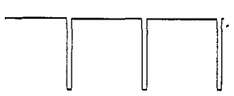
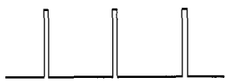
SENSOR/GYRO [SE]

CAMERA PROCESS [VCA] SCHEMATIC DIAGRAM

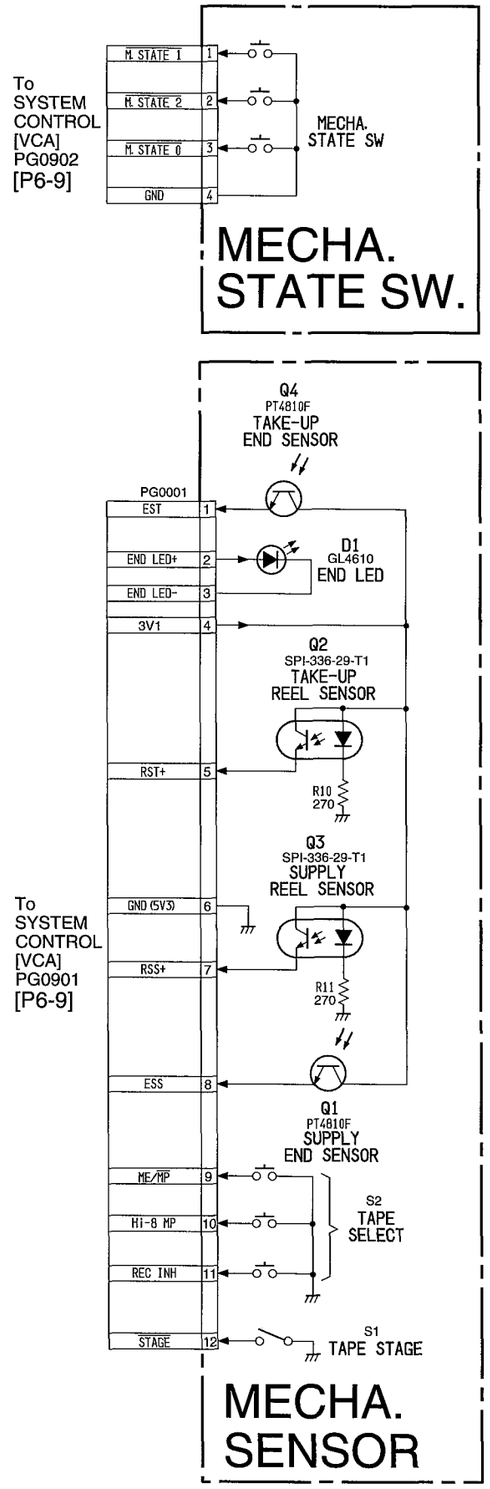


CAMERA PROCESS [VCA]

CAMERA WAVEFORMS

1-A IC1001-7 1.1Vp-p 0 2V/20.0µsec.cm COLOR CHART	7-A IC1102-19 3.0Vp-p 1V/20 0µsec.cm COLOR CHART	13-A IC1102-116 3.1Vp-p 1V/20 0µsec.cm COLOR CHART	19-A IC1103-5 7.3Vp-p 2V/20.0µsec.cm COLOR CHART
			
2-A IC1101-27 1.1Vp-p 0.2V/20 0µsec cm COLOR CHART	8-A IC1102-106 4.2Vp-p 1V/50.0nsec.cm COLOR CHART	14-A IC1102-117 3.1Vp-p 1V/20 0µsec.cm COLOR CHART	20-A IC1103-17 7.3Vp-p 2V/20.0µsec.cm COLOR CHART
			
3-A IC1101-28 500mVp-p 0.1V/20 0µsec.cm VIDEO IN	9-A IC1102-107 4.2Vp-p 1V/50.0nsec.cm COLOR CHART	15-A IC1102-118 3.1Vp-p 1V/20.0µsec.cm COLOR CHART	21-A IC1103-18 7 3Vp-p 2V/20.0µsec.cm COLOR CHART
			
4-B IC1101-29 360mVp-p 0.1V/20.0µsec.cm PLAY	10-A IC1102-110 7 0Vp-p 2V/100nsec.cm COLOR CHART	16-A IC1102-119 3.1Vp-p 1V/5 0msec.cm COLOR CHART	
			
5-A IC1102-10 3.0Vp-p 1V/5 0msec.cm COLOR CHART	11-A IC1102-111 7 0Vp-p 2V/100nsec.cm COLOR CHART	17-A IC1102-120 3.1Vp-p 1V/5.0msec.cm COLOR CHART	
			
6-A IC1102-16 3.0Vp-p 1V/5 0msec.cm COLOR CHART	12-A IC1102-115 3.1Vp-p 1V/20.0µsec.cm COLOR CHART	18-A IC1103-3 7.3Vp-p 2V/20 0µsec.cm COLOR CHART	
			

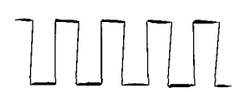
MECHA, STATE SW/MECHA, SENSOR SCHEMATIC DIAGRAMS



SYSTEM CONTROL WAVEFORMS

1-A IC901-41 2 8Vp-p 1V/100nsec.cm REC/PLAY

2-A IC901-64 4.9Vp-p 1V/20.0µsec cm REC/PLAY

3-A IC901-68 3.2Vp-p 1V/500µsec.cm REC/PLAY

4-A IC901-85 3.4Vp-p 1V/20.0µsec.cm REC/PLAY


SYSTEM CONTROL [VCA] SCHEMATIC DIAGRAM

CODE	PART NAME
BR	2SC4617
*BR	2SC2412K
FR	2SA1774RS
54	DTA114YE
64	DTC114YE
C	1SS353SP
J	SB07-03C
K	DA221
8056M	MA8056M

NOTE:ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
◯— : WAVEFORMS No

IC0901
CXP87248A-147R
SYSTEM CONTROL(S-μP)

IC0904
BU6294AFV[TYPE 645,845,946]
BU6296FV:[TYPE 648]
CHARA GEN

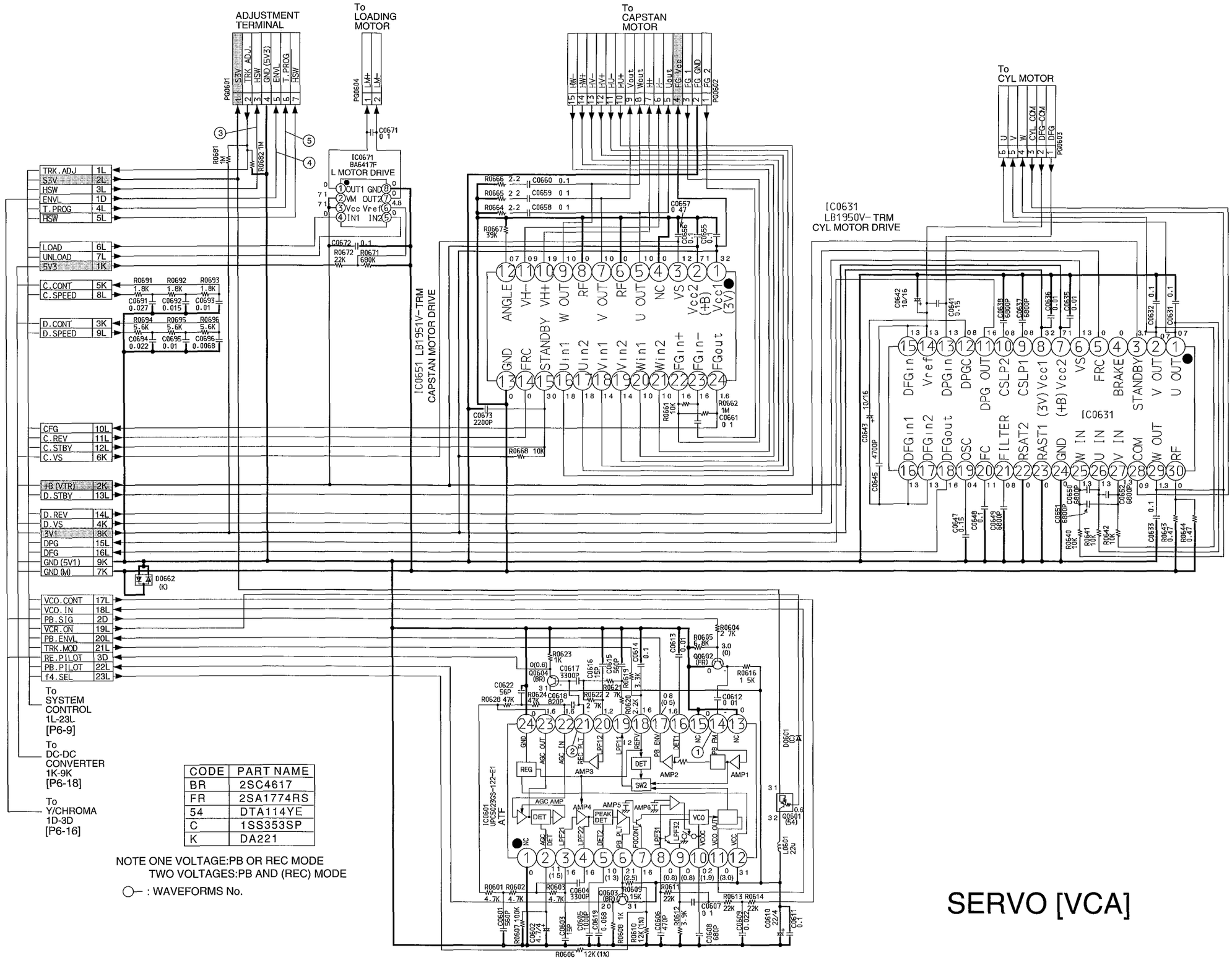
IC0906
SN74AHCT126PW
LEVEL SHIFT

IC0907
GP1UT01X
IR RECEIVE

BACK-UP DET
NJU7284EV (TE1)
IC0902

SYSTEM CONTROL [VCA]

SERVO [VCA] SCHEMATIC DIAGRAM



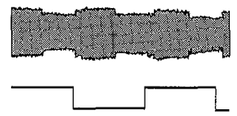
CODE	PART NAME
BR	2SC4617
FR	2SA1774RS
54	DTA114YE
C	1SS353SP
K	DA221

NOTE ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE

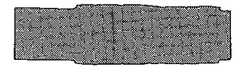
○— : WAVEFORMS No.

SERVO WAVEFORMS

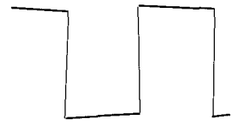
1-B IC601-14 200mVp-p
0 1V/5.0msec.cm
PLAY



2-A IC601-21 560mVp-p
0 2V/5.0msec.cm
REC

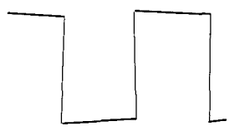


3-A PG601-3 3.3Vp-p
1V/5.0msec.cm
REC/PLAY



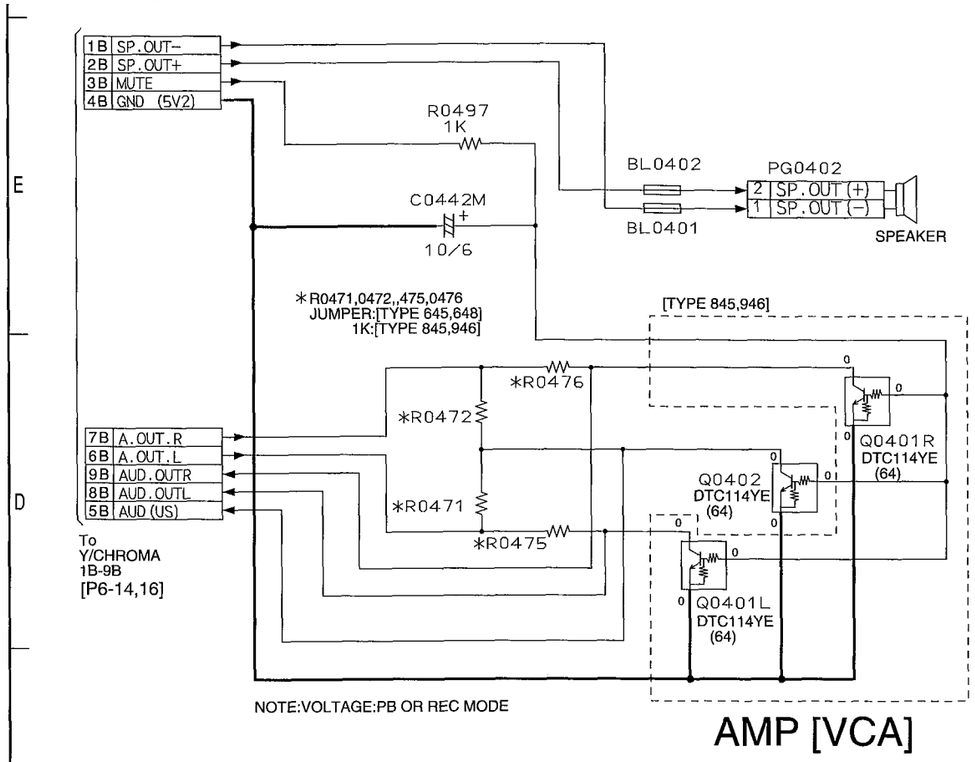
4-B PG601-5 150mVp-p
0.1V/5 0msec.cm
PLAY

5-A PG601-7 2 4Vp-p
0.5V/5.0msec.cm
REC/PLAY



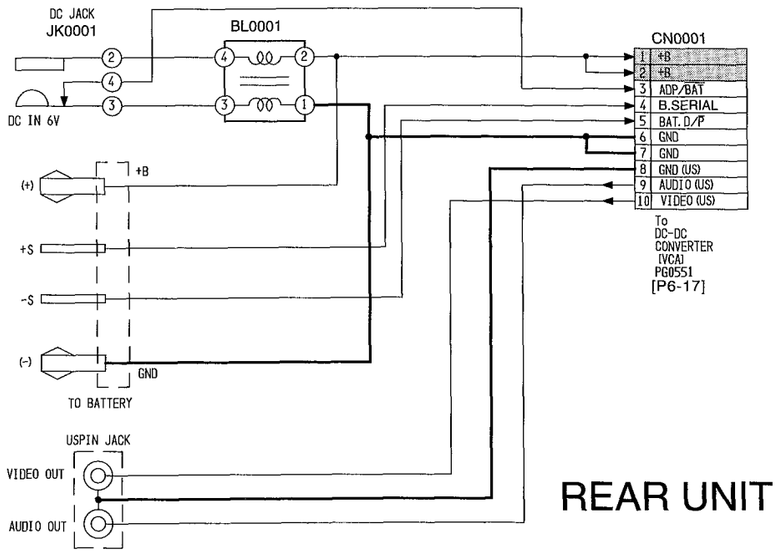
SERVO [VCA]

AMP [VCA] SCHEMATIC DIAGRAM



AMP [VCA]

REAR UNIT SCHEMATIC DIAGRAM

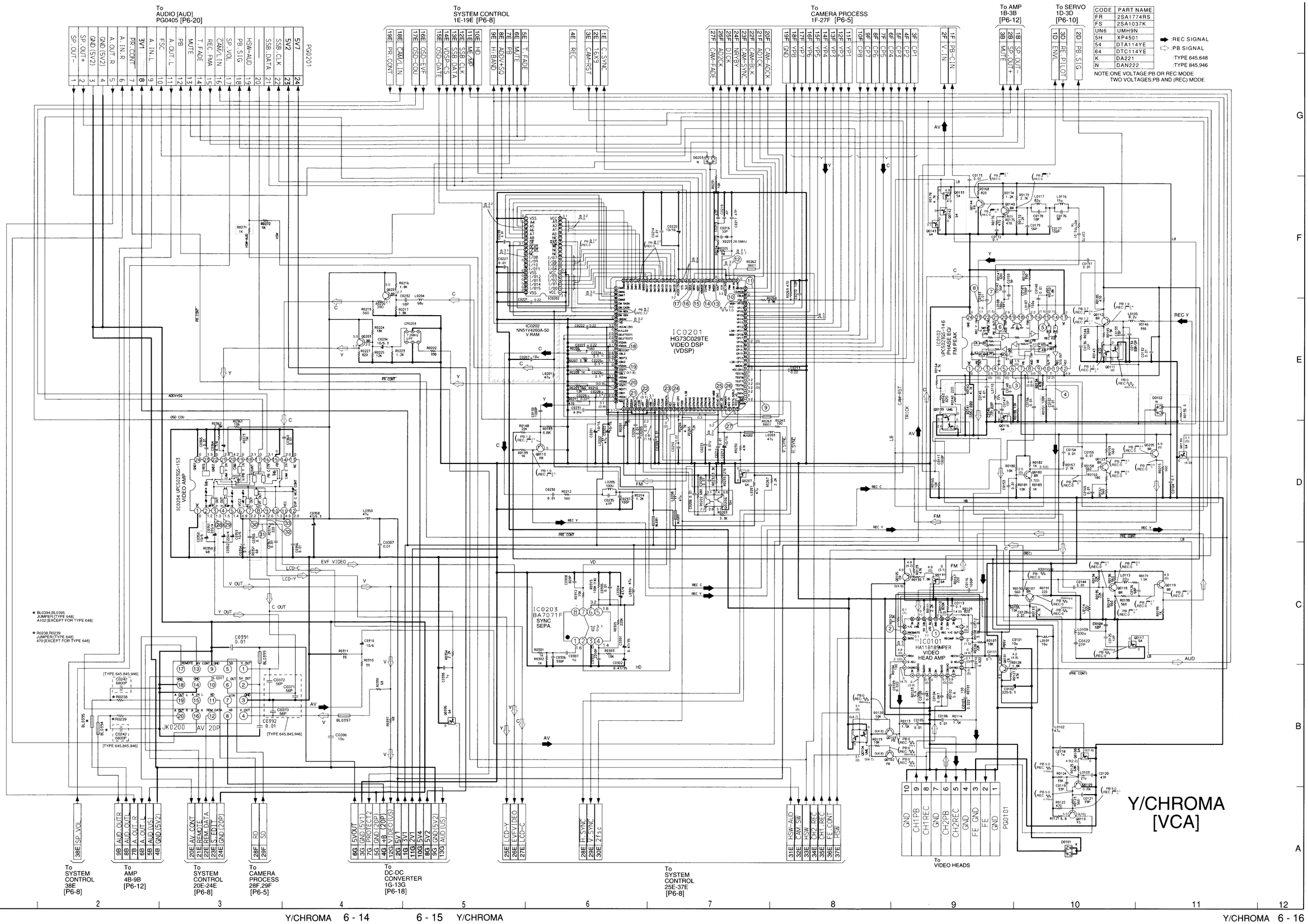


REAR UNIT

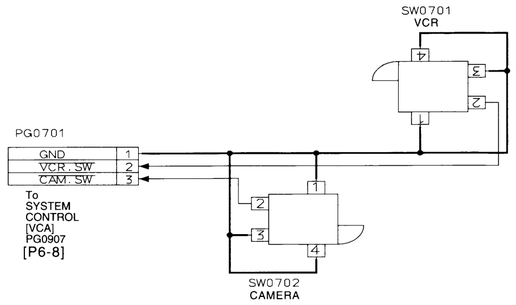
VIDEO WAVEFORMS

1-B IC101-22 300mVp-p 0.2V/5.0msec.cm PLAY	8-A IC102-23 670mVp-p 0.1V/20.0µsec.cm REC	14-A IC201-39 3.1Vp-p 1V/20.0µsec.cm REC/PLAY	20-A IC201-86 730mVp-p 0.2V/20 0µsec.cm REC/PLAY	27-A IC201-120 3.1Vp-p 1V/5.0msec.cm REC/PLAY
2-B IC101-27 200mVp-p 0.1V/5.0msec.cm PLAY	9-A IC201-1 3.1Vp-p 1V/20.0µsec.cm REC	15-A IC201-40 1.7Vp-p 0.5V/20.0µsec.cm REC/PLAY	21-A IC201-90 730mVp-p 0.2V/20.0µsec.cm REC	28-A IC204-3 1.8Vp-p 0.5V/20.0µsec.cm REC/PLAY
3-A IC102-6 380mVp-p 0 1V/20.0µsec.cm REC	9-B IC201-1 3.1Vp-p 1V/20.0µsec.cm REC	16-A IC201-42 3.1Vp-p 1V/5.0msec.cm REC/PLAY	22-B IC201-94 850mVp-p 0.5V/5.0msec.cm PLAY	29-A IC204-4 1.8Vp-p 0.5V/20.0µsec.cm REC/PLAY
4-A IC102-11 450mVp-p 0 2V/20.0µsec.cm REC	10-A IC201-28 3.1Vp-p 1V/20.0µsec.cm COLOR CHART	17-A IC201-43 3.1Vp-p 1V/20.0msec cm REC/PLAY	23-A IC201-103 3 1Vp-p 1V5 0msec.cm REC/PLAY	30-A IC204-7 1 1Vp-p 0.5V/20.0µsec cm REC/PLAY
5-A IC102-15 500mVp-p 0 2V/20.0µsec.cm REC	11-A IC201-29 3.1Vp-p 1V/20.0µsec.cm COLOR CHART	18-A IC201-77 720mVp-p 0.2V/20.0µsec.cm REC	24-A IC201-104 3.1Vp-p 1V/20.0µsec.cm REC/PLAY	31-A IC204-8 930mVp-p 0.2V/20.0µsec.cm REC/PLAY
6-B IC102-21 360mVp-p 0.1V/20.0µsec cm PLAY	12-A IC201-32 1.0Vp-p 0.5V/50 0nsec.cm COLOR CHART	19-A IC201-82 670mVp-p 0.2V/20.0µsec.cm REC	25-A IC201-116 2.7Vp-p 1V/100nsec cm COLOR CHART	32-A IC204-9 480mVp-p 0 1V/20.0µsec.cm REC/PLAY
7-B IC102-22 340mVp-p 0.2V/5.0msec.cm PLAY	13-A IC201-36 800mVp-p 0 2V/50.0nsec.cm COLOR CHART	19-B IC201-82 860mVp-p 0.2V/20.0µsec.cm PLAY	26-A IC201-117 2.7Vp-p 1V/100nsec cm COLOR CHART	33-A IC201-10 280mVp-p 0.1V/20.0µsec cm REC/PLAY

Y/CHROMA [VCA] SCHEMATIC DIAGRAM

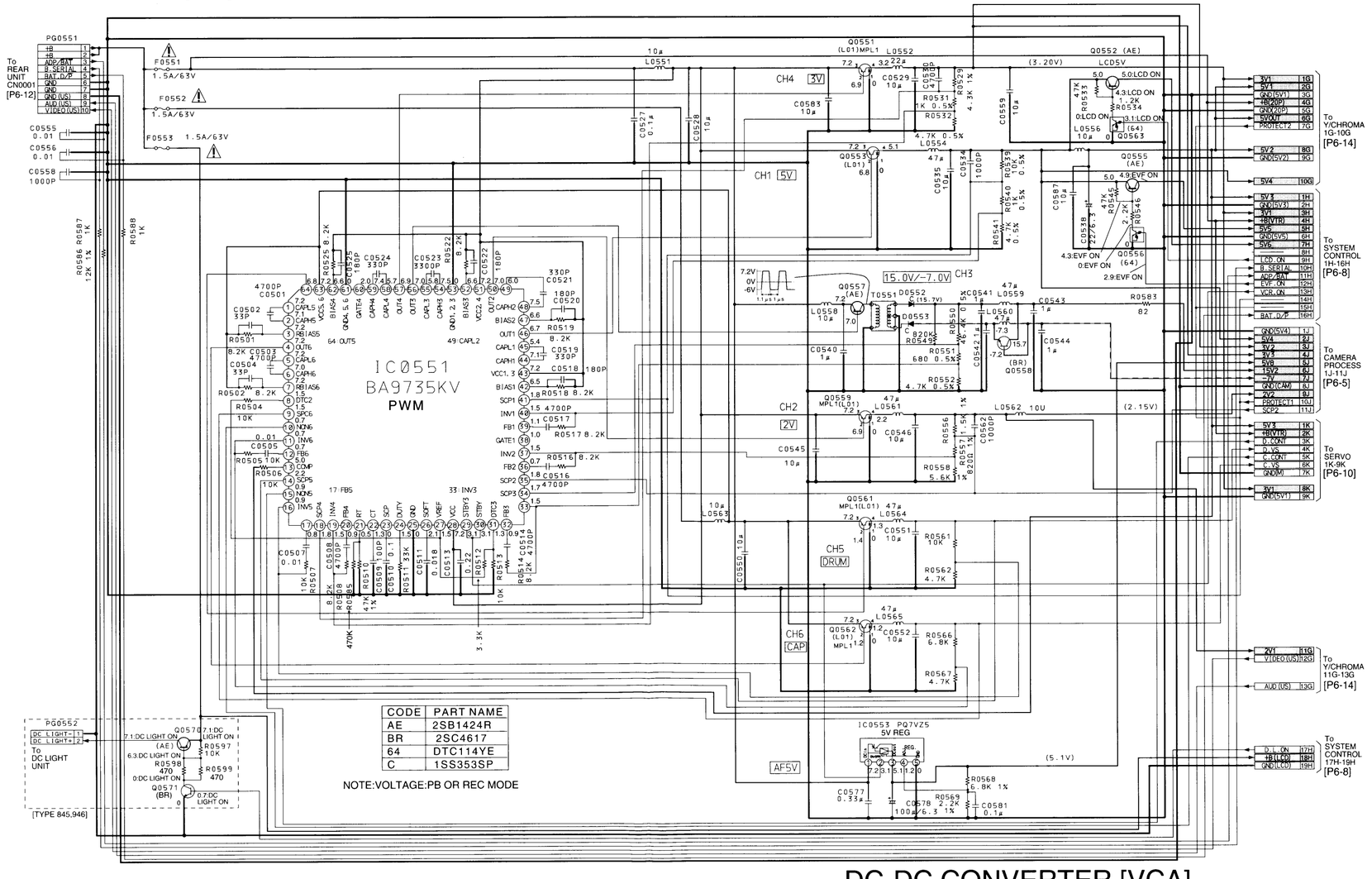


POWER SWITCH [PSW] SCHEMATIC DIAGRAM



POWER SWITCH [PSW]

DC-DC CONVERTER [VCA] SCHEMATIC DIAGRAM

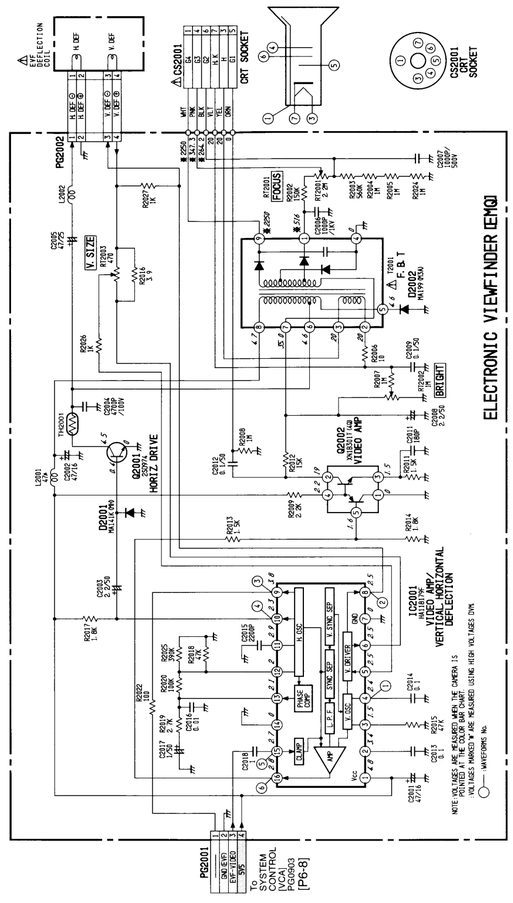


CODE	PART NAME
AE	2SB1424R
BR	2SC4617
64	DTC114YE
C	1SS353SP

NOTE:VOLTAGE:PB OR REC MODE

DC-DC CONVERTER [VCA]

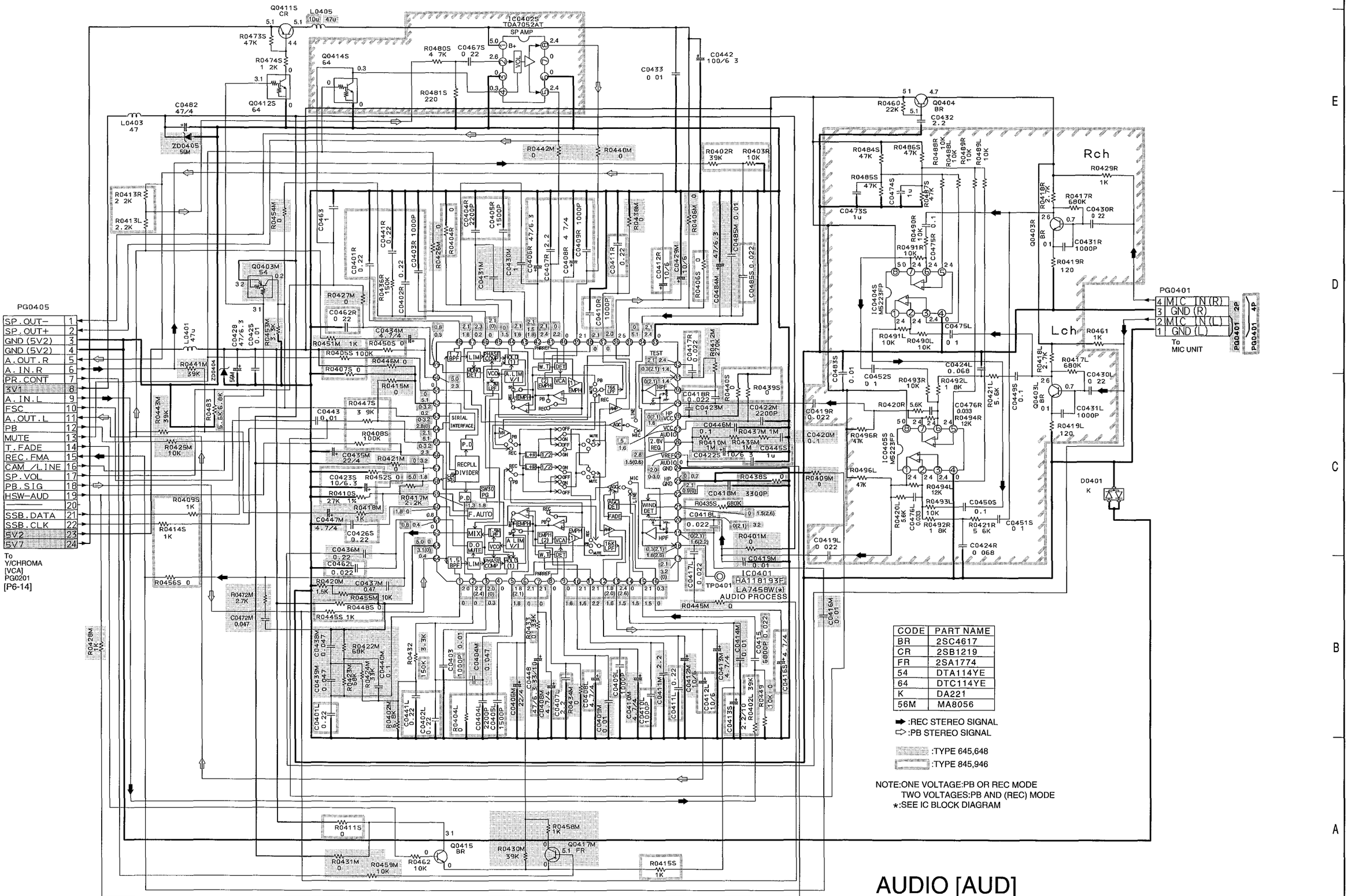
ELECTORNIC VIEWFINDER [EMQ] SCHEMATIC DIAGRAM



ELECTRONIC VIEWFINDER WAVEFORMS

1-A IC2001-4 870mVp-p 0.2V/5.0msec.cm COLOR CHART	2-A IC2001-8 2.2Vp-p 0.5V/5.0msec.cm COLOR CHART	3-A IC2001-9 1.9Vp-p 0.5V/20.0µsec.cm COLOR CHART
4-A IC2001-10 1.7Vp-p 0.5V/20.0µsec.cm COLOR CHART	5-A IC2001-15 1.0Vp-p 0.2V/20.0µsec.cm COLOR CHART	6-A IC2001-16 2.9Vp-p 1V/20.0µsec.cm COLOR CHART

AUDIO [AUD] SCHEMATIC DIAGRAM



CODE	PART NAME
BR	2SC4617
CR	2SB1219
FR	2SA1774
54	DTA114YE
64	DTC114YE
K	DA221
56M	MA8056

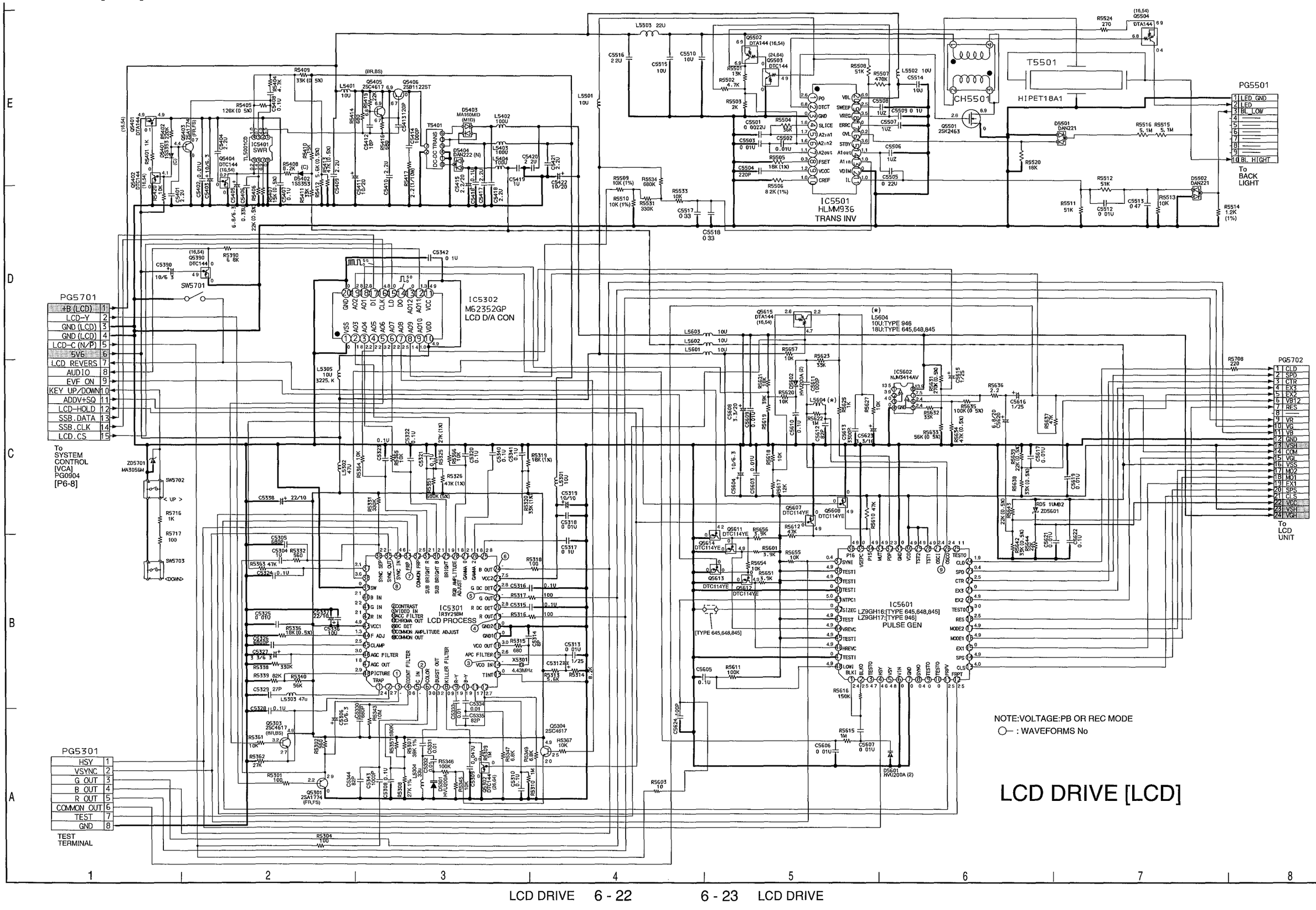
➡ :REC STEREO SIGNAL
⇨ :PB STEREO SIGNAL

:TYPE 645,648
:TYPE 845,946

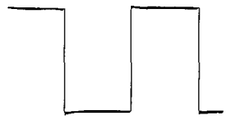
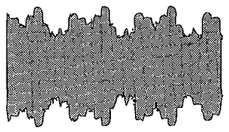
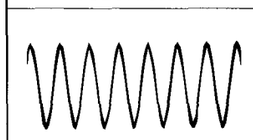
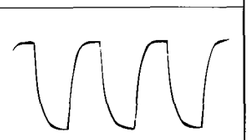
NOTE:ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
*:SEE IC BLOCK DIAGRAM

AUDIO [AUD]

LCD DRIVE [LCD] SCHEMATIC DIAGRAM

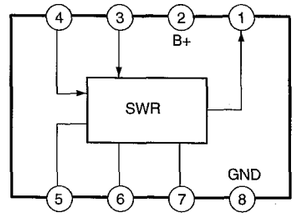


LCD WAVEFORMS

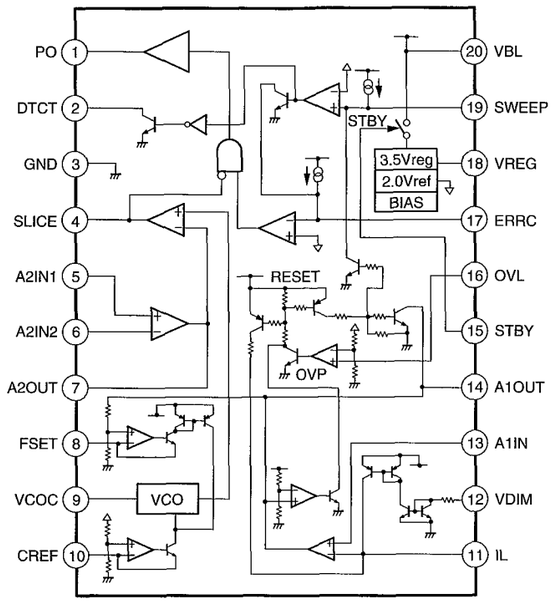
1-A IC5301-3 510mVp-p 0.1V/20 0µsec.cm COLOR CHART	6-A IC5301-24 5 4Vp-p 1V/20.0µsec.cm COLOR CHART
	
1-B IC5301-3 500mVp-p 0.1V/20.0µsec.cm VIDEO IN	7-A IC5301-33 4.8Vp-p 1V/20.0µsec cm COLOR CHART
	
2-A IC5301-5 300mVp-p 0.1V/20.0µsec.cm COLOR CHART	8-A IC5301-35 4.7Vp-p 1V/20 0µsec.cm COLOR CHART
	
3-A IC5301-14 450mVp-p 0.1V/200nsec.cm COLOR CHART	9-A IC5601-26 5 3Vp-p 1V/20 0µsec.cm COLOR CHART
	
4-A IC5301-19 5.4Vp-p 1V/20 0µsec.cm COLOR CHART	
	
5-A IC5301-21 5.4Vp-p 1V/20.0µsec cm COLOR CHART	
	

IC BLOCK DIAGRAMS

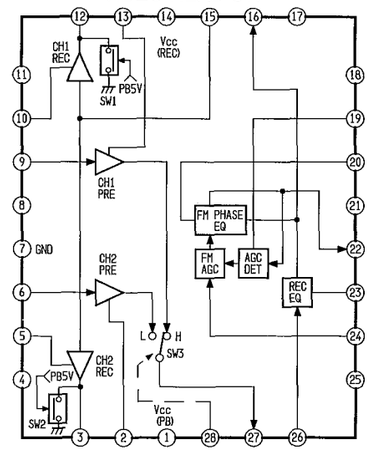
IC5401
TL5001CD
SWR



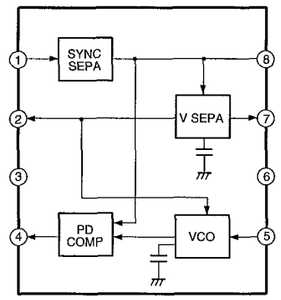
IC5501
HLMM936
TRANS.INV.



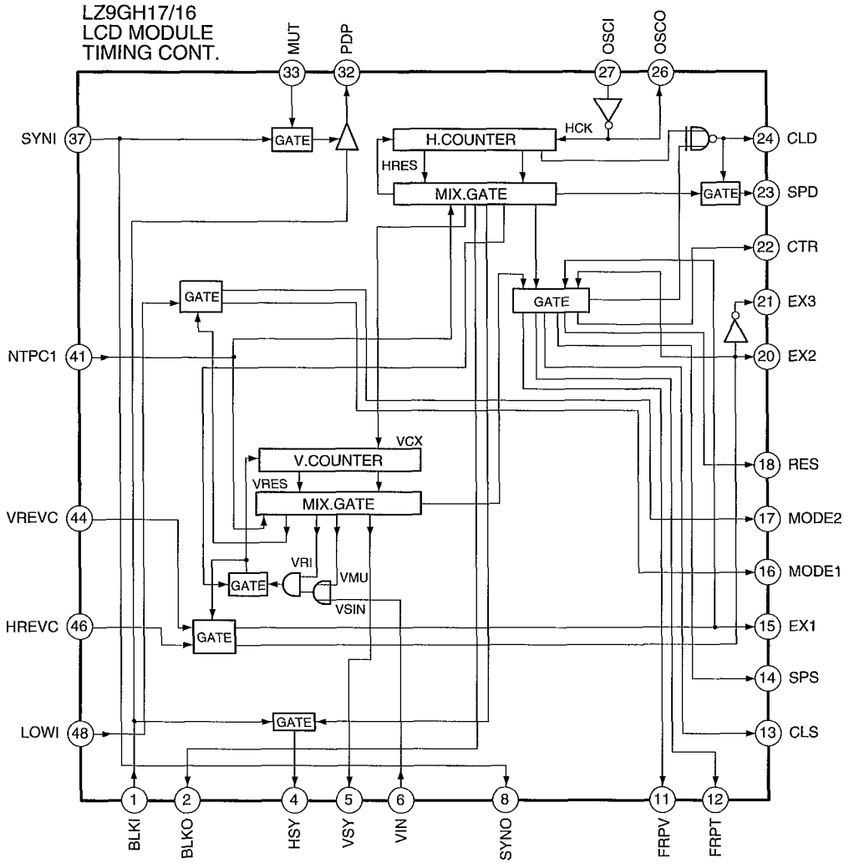
IC0101
HA118189MPER
VIDEO HEAD SW



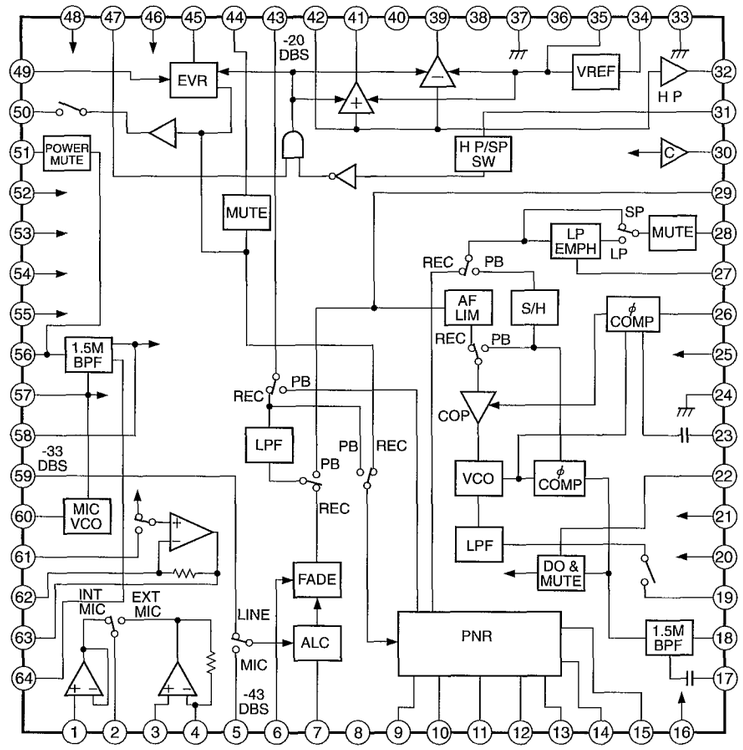
IC0203
BA7071F
SYNC SEPA/AFC



IC5601
LZ9GH17/16
LCD MODULE
TIMING CONT.

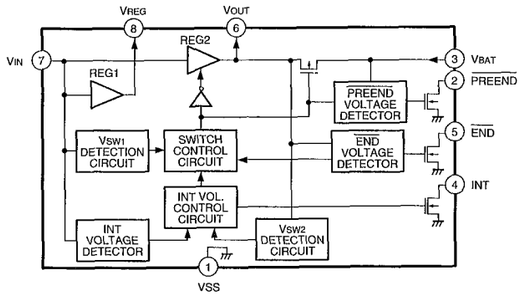


IC0401
LA7458W
MONAURAL
AUDIO PROCESS

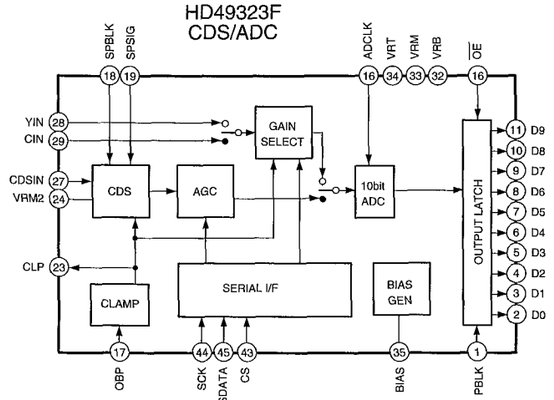


IC BLOCK DIAGRAMS

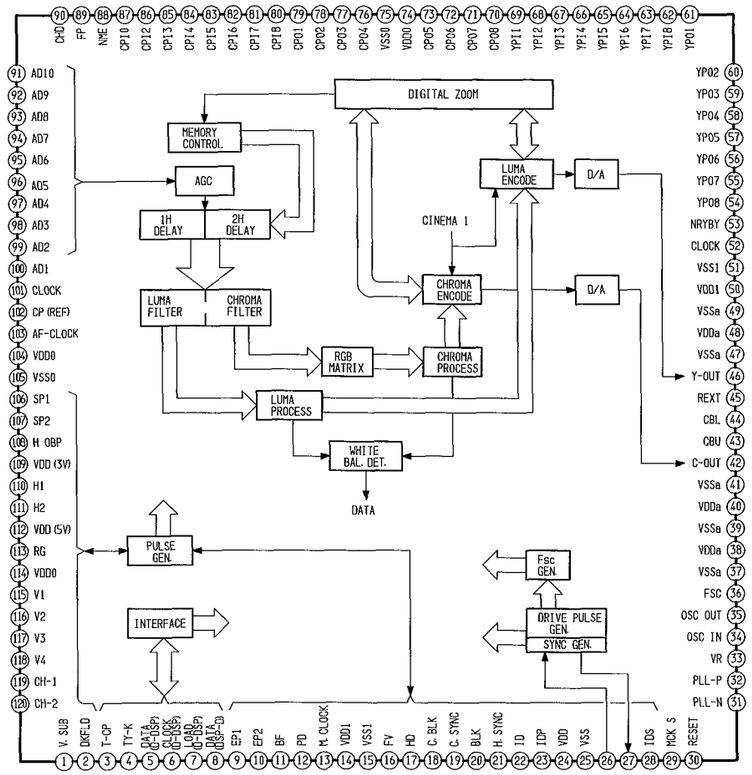
IC0902
NJU7284EV
BACK-UP DET



IC1101
HD49323F
CDS/ADC



IC1102
HG73C012TE
DIGITAL
CAMERA PROCESS(DSP)



DIFFERENCE TABLE

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

AUD -SIDE A-

SYMBOL No.	TYPE 645/648	TYPE 845/946
C0402L	×	○
C0406R	×	○
C0407R	×	○
C0408L	×	○
C0408R	×	○
C0409L	×	○
C0409R	×	○
C0410L	×	○
C0411L	×	○
C0411R	×	○
C0412R	×	○
C0413S	×	○
C0416S	×	○
C0422S	×	○
C0423S	×	○
C0426S	×	○
C0430L	×	○
C0430R	×	○
C0431L	×	○
C0431R	×	○
C0435M	○	×
C0441L	×	○
C0445S	×	○
C0449S	×	○
C0450S	×	○
C0451S	×	○
C0452S	×	○
C0462L	×	○
C0467S	×	○
C0473S	×	○
C0474S	×	○
C0483S	×	○
C0484M	○	×
C0485S	×	○
PG0401	2P	4P
Q0403L	×	○
Q0403R	×	○
Q0414S	×	○
R0402M	○	×
R0402R	×	○

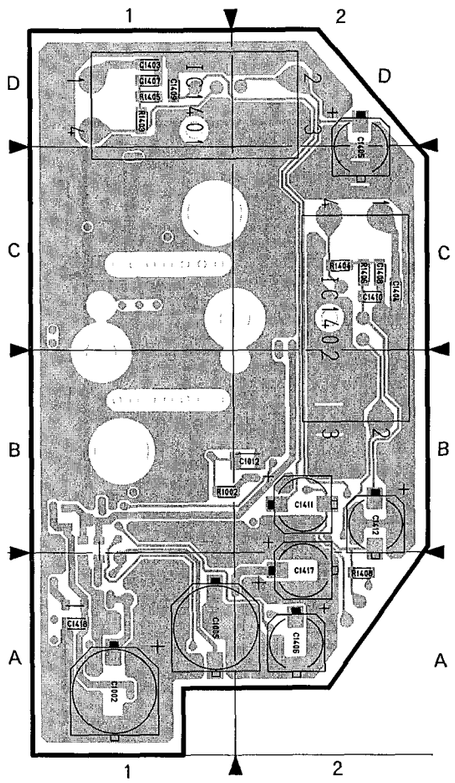
SYMBOL No.	TYPE 645/648	TYPE 845/946
R0403R	×	○
R0404L	×	JUMPER
R0405S	×	○
R0406S	×	JUMPER
R0407S	×	JUMPER
R0408S	×	○
R0409S	×	○
R0410S	×	○
R0411S	×	JUMPER
R0413L	×	○
R0413R	×	○
R0414S	×	○
R0415S	×	○
R0417L	×	○
R0417R	×	○
R0418L	×	○
R0418R	×	○
R0419L	×	○
R0419R	×	○
R0427M	JUMPER	×
R0429R	×	○
R0433	○	JUMPER
R0435S	×	○
R0438S	×	JUMPER
R0439S	×	JUMPER
R0440S	×	JUMPER
R0445S	×	○
R0447S	×	○
R0448S	×	JUMPER
R0450S	×	JUMPER
R0452S	×	JUMPER
R0480S	×	○
R0481S	×	○
R0484S	×	○
R0485S	×	○
R0486S	×	○
R0487S	×	○
R0488L	×	○
R0488R	×	○
ZD0405	○	×

AUD -SIDE B-

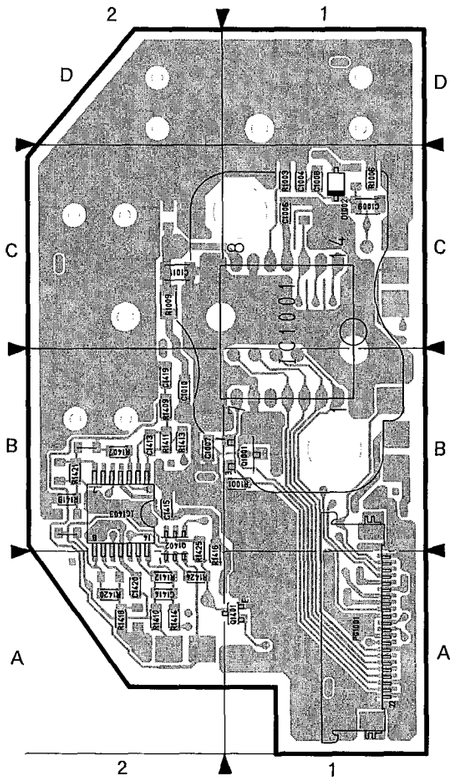
SYMBOL No	TYPE 645/648	TYPE 845/946
C0401L	×	○
C0401R	×	○
C0402R	×	○
C0403R	×	○
C0404L	×	○
C0404M	○	×
C0404R	×	○
C0405L	×	○
C0405R	×	○
C0406M	○	×
C0407L	×	○
C0408M	○	×
C0409M	○	×
C0410M	○	×
C0410R	×	○
C0411M	○	×
C0412L	×	○
C0412M	○	×
C0413M	○	×
C0414M	○	×
C0416M	○	×
C0417L	×	○
C0417R	×	○
C0418L	×	○
C0418M	○	×
C0418R	×	○
C0419L	×	○
C0419M	○	×
C0419R	×	○
C0420M	○	×
C0422M	○	×
C0423M	○	×
C0424L	×	○
C0424R	×	○
C0429M	○	×
C0430M	○	×
C0431M	○	×
C0434M	○	×
C0436M	○	×
C0437M	○	×
C0438M	○	×
C0439M	○	×
C0440M	○	×
C0441R	×	○
C0446M	○	×
C0447M	○	×
C0462R	×	○
C0475L	×	○
C0475R	×	○
C0476L	×	○
C0476R	×	○
C0485M	○	×
IC0402S	×	○
IC0404S	×	○
IC0405S	×	○
Q0403M	○	×
Q0417M	○	×

SYMBOL No.	TYPE 645/648	TYPE 845/946
R0401M	○	×
R0402L	×	×
R0404R	×	JUMPER
R0406M	JUMPER	×
R0409M	JUMPER	×
R0410M	○	×
R0412M	○	×
R0415M	○	×
R0417M	○	×
R0418M	○	×
R0420L	×	○
R0420M	○	×
R0420R	×	○
R0421L	×	○
R0421M	JUMPER	×
R0421R	×	○
R0422M	○	×
R0423M	○	×
R0424M	○	×
R0425M	○	×
R0426M	JUMPER	×
R0428M	○	×
R0430M	○	×
R0431M	JUMPER	×
R0434M	JUMPER	×
R0436M	○	×
R0436R	×	○
R0437M	○	×
R0438M	JUMPER	×
R0440M	JUMPER	×
R0441M	○	×
R0442M	JUMPER	×
R0443M	○	×
R0445M	JUMPER	×
R0446M	JUMPER	×
R0449	JUMPER	○
R0451M	○	×
R0453M	○	×
R0454M	JUMPER	×
R0455M	○	×
R0456S	×	JUMPER
R0458M	○	×
R0459M	○	×
R0489L	×	○
R0489R	×	○
R0490L	×	○
R0490R	×	○
R0491L	×	○
R0491R	×	○
R0492L	×	○
R0492R	×	○
R0493L	×	○
R0493R	×	○
R0494L	×	○
R0494R	×	○
R0496L	×	○
R0496R	×	○

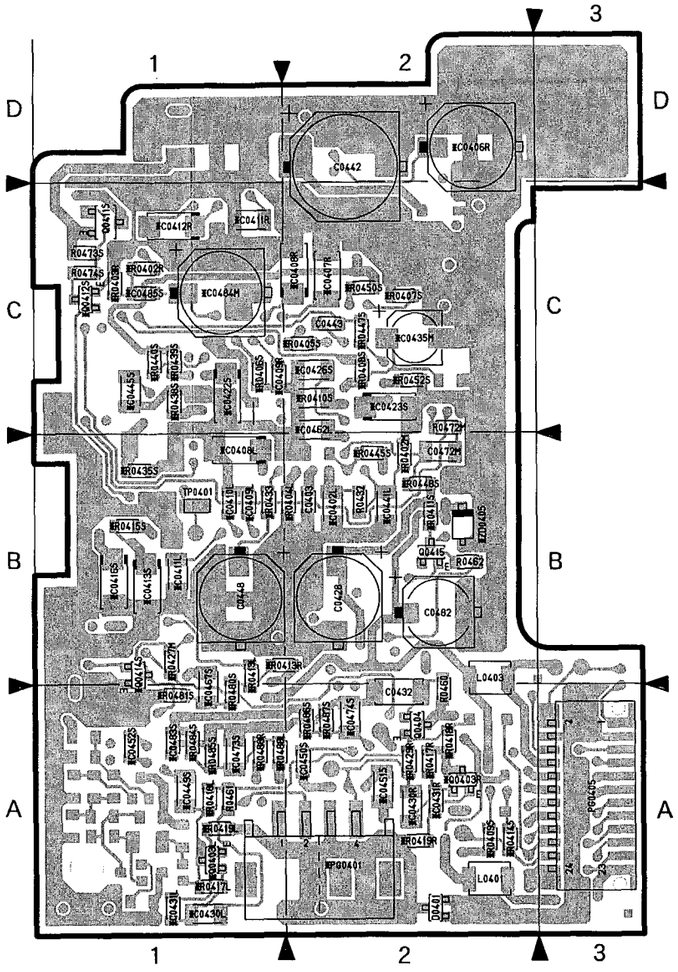
SE, AUD, EMQ CIRCUIT BOARD



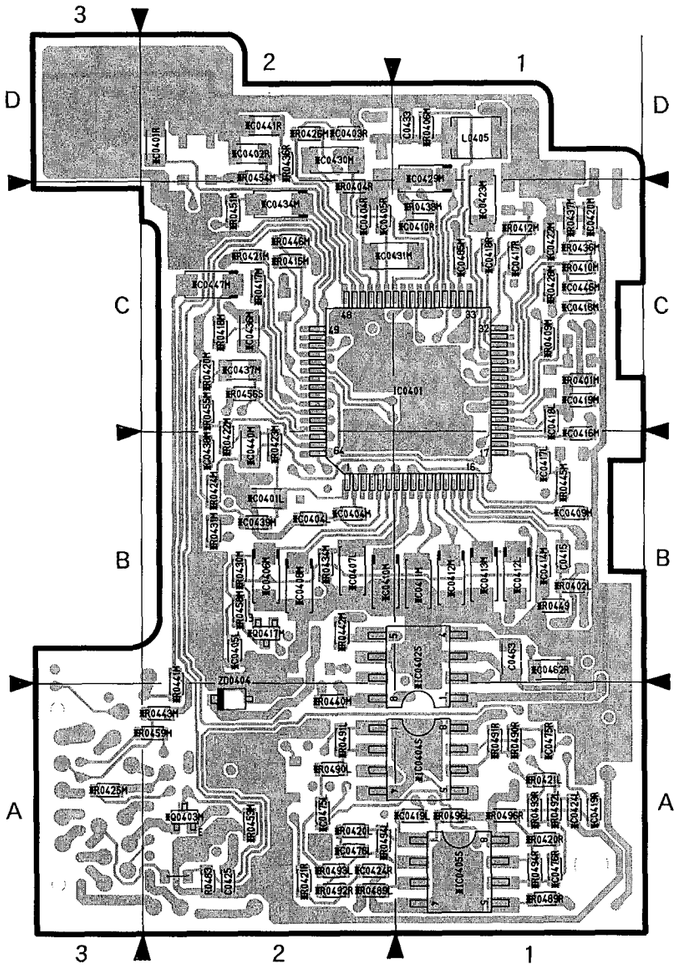
SE [SENSOR/GYRO]
—SIDE A—



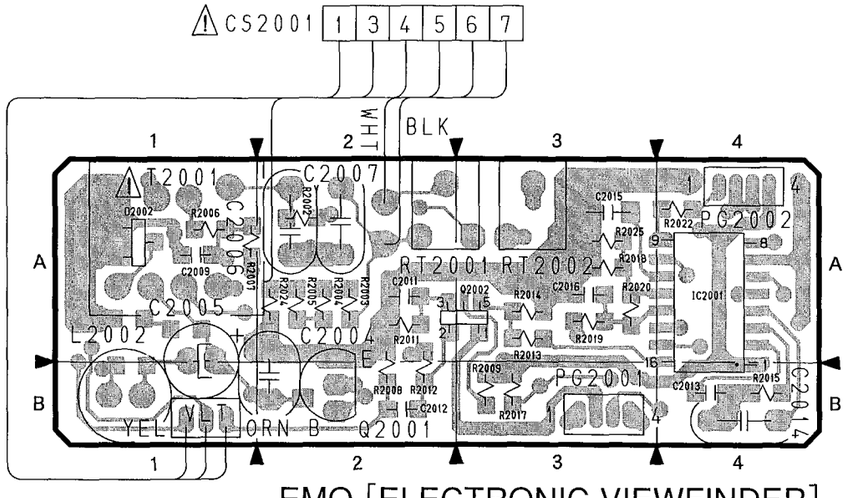
SE [SENSOR/GYRO]
—SIDE B—
[PATTERN No. JA1524-9]



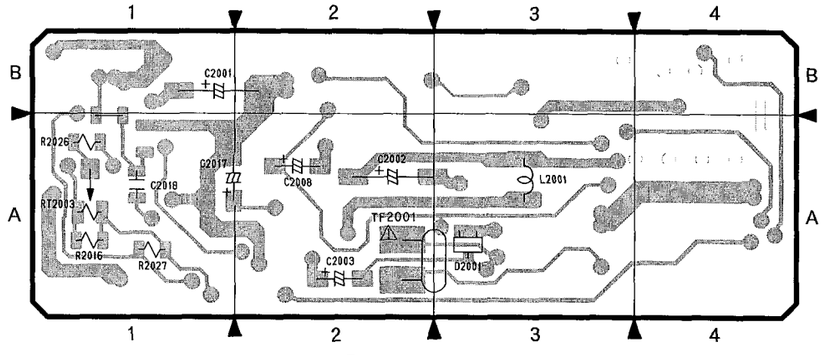
AUD [AUDIO]
—SIDE A—



AUD [AUDIO]
—SIDE B—
[PATTERN No. JA1524-9]

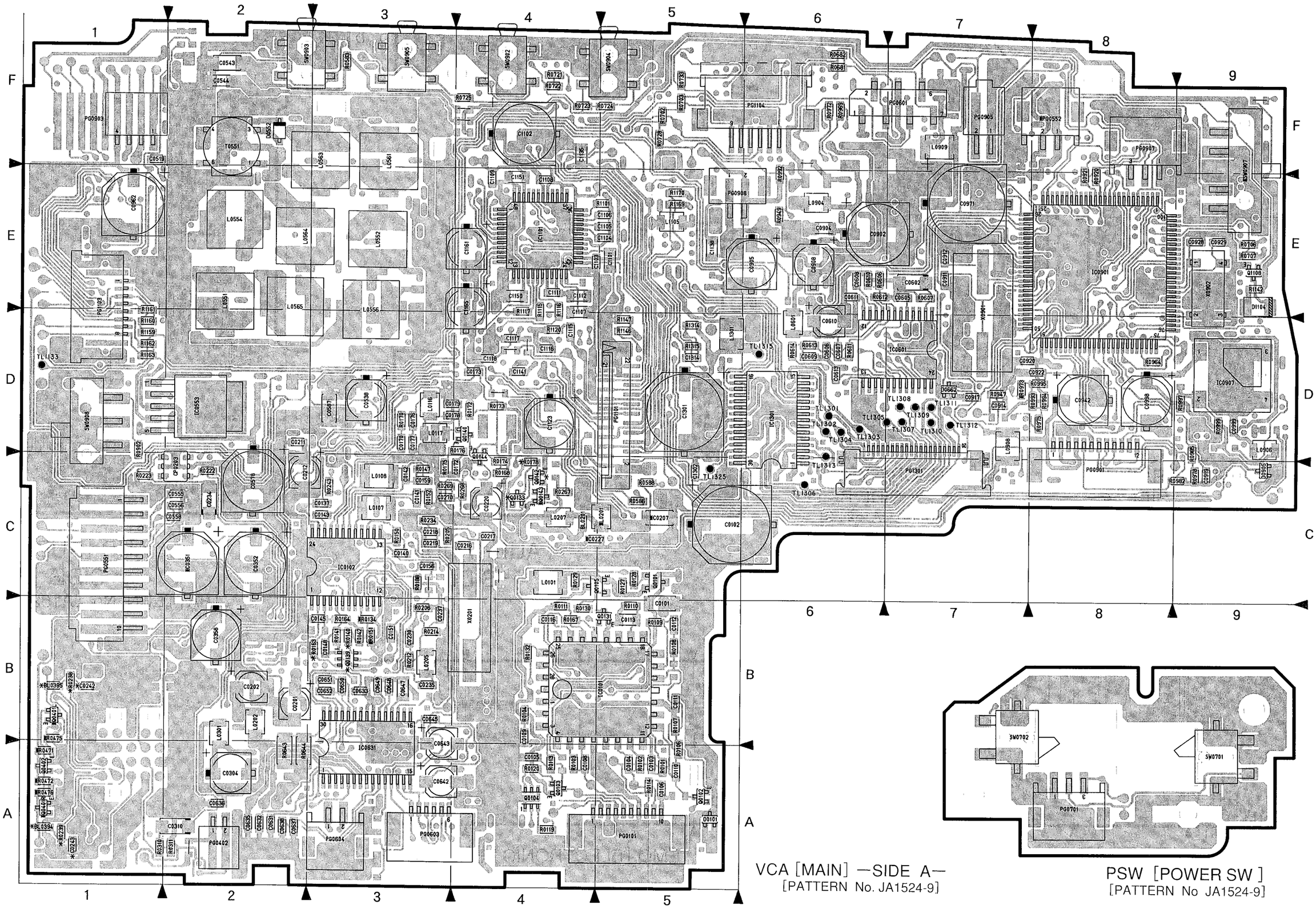


EMQ [ELECTRONIC VIEWFINDER]
—SIDE A—



EMQ [ELECTRONIC VIEWFINDER]
—SIDE B—
[PATTERN No. 152035-2]

VCA CIRCUIT BOARD – SIDE A –



VCA [MAIN] —SIDE A—
[PATTERN No. JA1524-9]

PSW [POWER SW]
[PATTERN No JA1524-9]

DIFFERENCE TABLE

VCA -SIDE A-

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

SYMBOL No.	TYPE 845/946	TYPE 648	TYPE 645
BL0394	○	JUMPER	○
BL0395	○	JUMPER	○
C0207	○	×	×
C0227	○	×	×
C0242	○	×	○
C0243	○	×	○
C0351	○	×	×
L0201	○	×	×
PG0552	○	×	×
Q0133	○	×	×
Q0139	○	×	×
Q0142	○	×	×
Q0143	○	×	×
Q0401L	○	×	×
Q0401R	○	×	×
R0134	×	○	○
R0140	○	×	×
R0151	○	×	×
R0163	○	×	×
R0178	○	×	×
R0238	○	JUMPER	○
R0239	○	JUMPER	○
R0471	○	JUMPER	JUMPER
R0472	○	JUMPER	JUMPER
R0475	○	JUMPER	JUMPER
R0476	○	JUMPER	JUMPER
R0973	○	×	×
SW0907	○	×	×

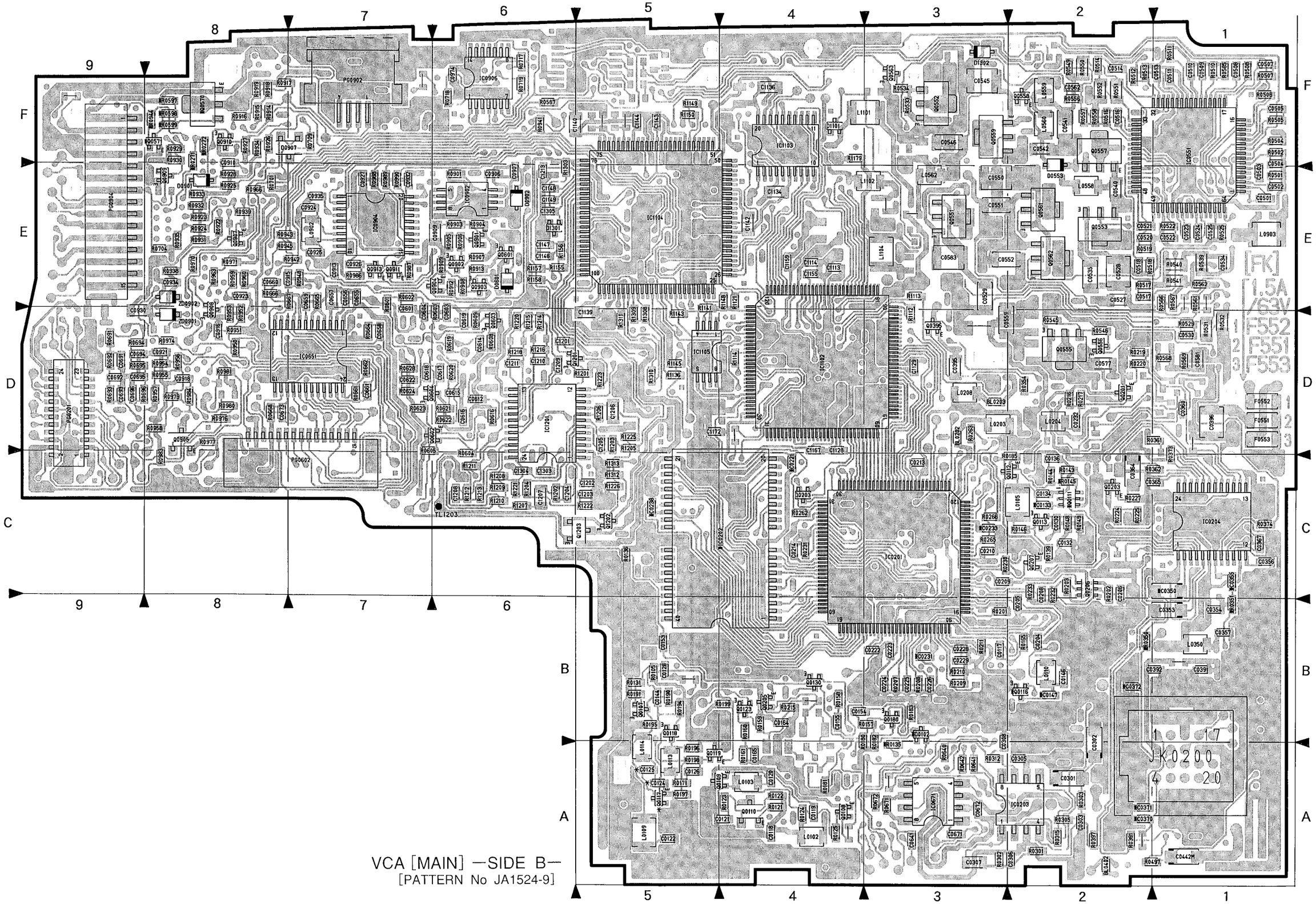
DIFFERENCE TABLE

VCA -SIDE B-

NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams.

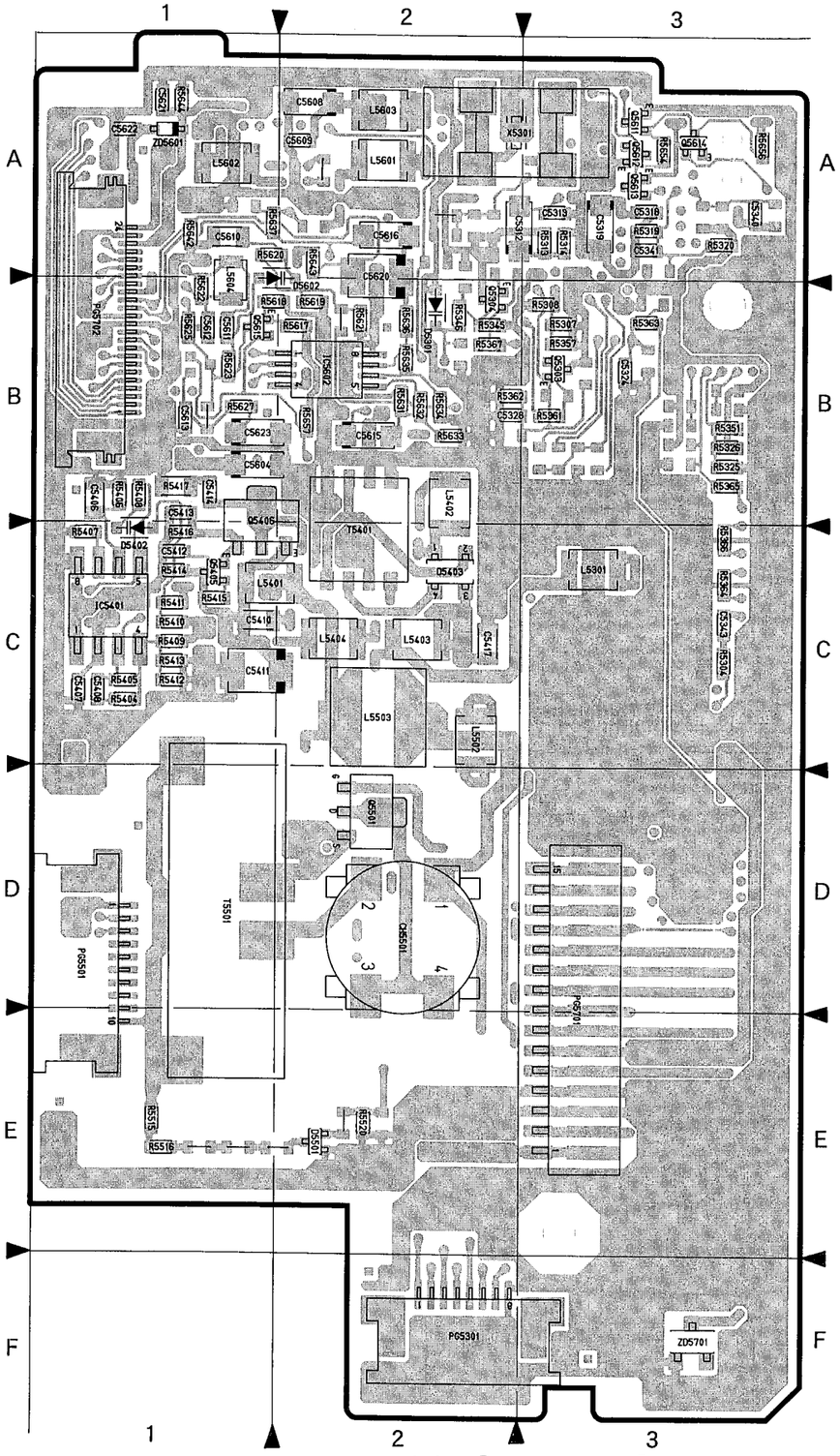
SYMBOL No.	TYPE 845/946	TYPE 648	TYPE 645
C0124	×	○	○
C0125	○	×	×
C0133	○	×	×
C0147	○	×	×
C0221	○	×	×
C0238	○	×	×
C0350	○	×	×
C0355	○	×	×
C0370	○	×	○
C0371	○	×	○
C0372	○	×	○
D0102	○	×	×
IC0202	○	×	×
Q0111	○	×	×
Q0116	○	×	×
Q0117	○	×	×
Q0570	○	×	×
Q0571	○	×	×
R0135	JUMPER	×	×
R0145	○	×	×
R0271	○	×	×
R0272	×	○	○
R0350	○	×	×
R0351	○	×	×
R0597	○	×	×
R0598	○	×	×
R0599	○	×	×
R0944	○	×	×

VCA CIRCUIT BOARD – SIDE B –

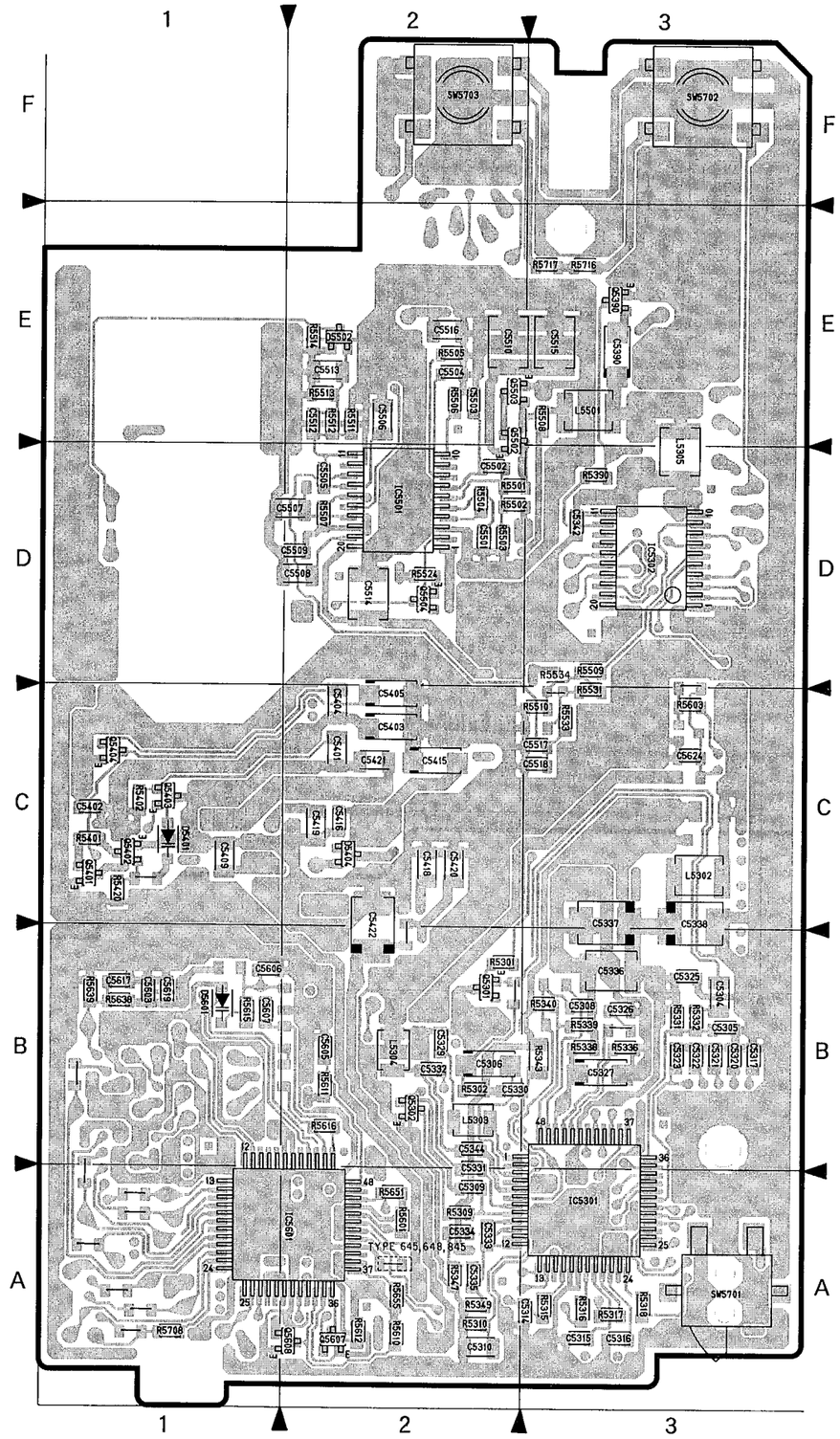


VCA [MAIN] –SIDE B–
[PATTERN No JA1524-9]

LCD CIRCUIT BOARD



LCD [LCD DRIVE] —SIDE A—



LCD [LCD DRIVE] —SIDE B—
[PATTERN No JA1534-6]

IDENTIFICATION OF PARTS LOCATION

VCA [MAIN]

Symbol No	Parts Location
BL	
BL0201	A-4C
BL0202	B-3D
BL0203	B-3D
BL0394	A-1A
BL0395	A-1B
BL0402	B-2A
C	
C0101	A-5B
C0102	A-5C
C0103	A-5A
C0104	A-5A
C0105	A-4A
C0106	A-5A
C0108	A-4A
C0109	A-4B
C0110	A-5A
C0111	A-5B
C0112	A-5B
C0113	A-5B
C0116	A-4B
C0117	B-3B
C0118	B-4A
C0119	B-4A
C0120	B-4A
C0121	B-4A
C0122	B-5A
C0124	B-5A
C0125	B-5A
C0126	B-5A
C0128	B-5B
C0130	B-2C
C0132	B-2C
C0133	B-2C
C0134	B-2C
C0136	B-2C
C0137	A-3C
C0140	A-3C
C0141	A-3C
C0142	A-3C
C0143	A-3C
C0144	B-5B
C0145	A-3B
C0146	B-2B
C0147	B-2B
C0148	A-3B
C0151	A-3B
C0153	B-5B
C0154	B-4B
C0155	B-4B
C0156	A-3C
C0159	A-3C
C0164	B-4B
C0165	B-4A
C0170	A-3D
C0172	A-4C
C0173	A-4D
C0176	A-3D
C0177	A-3D
C0178	A-4D
C0179	A-4D
C0201	A-2B
C0202	A-2B
C0204	B-2B
C0205	B-2B
C0206	B-2C
C0207	A-5C
C0208	B-2C
C0209	B-3C
C0210	B-3C
C0211	A-2D
C0212	A-2C
C0213	B-3C
C0214	B-4C
C0216	A-4C
C0217	A-4C
C0218	A-3C
C0219	A-3C
C0220	A-4C
C0221	B-4C
C0222	B-3B
C0223	B-3B
C0224	B-3B
C0225	B-3B
C0226	B-3B
C0227	A-4C
C0228	B-3B
C0229	B-3B
C0230	A-3B
C0231	B-3B
C0232	B-2D
C0233	B-3C
C0234	A-2C
C0235	A-3B
C0237	A-3B
C0238	B-5C
C0242	A-1B
C0243	A-1A
C0270	A-3C
C0301	B-2A
C0302	B-2A
C0303	B-2A
C0304	A-2A
C0305	B-2A
C0306	B-2A
C0307	B-3A
C0308	B-3B
C0310	A-2A
C0350	B-1C
C0351	A-2C
C0352	A-2C
C0353	B-1B
C0354	B-1B
C0355	B-1C
C0356	B-1C
C0357	B-1B
C0358	A-2B
C0360	B-1D
C0364	B-2C
C0365	B-1C
C0367	B-1C
C0370	B-2A
C0371	B-2A
C0372	B-2B
C0391	B-1B
C0392	B-1B
C0395	B-3D
C0396	B-1D
C0501	B-1E
C0502	B-1E
C0503	B-1E
C0504	B-1F
C0505	B-1F
C0507	B-1F
C0508	B-1F
C0509	B-1F
C0510	B-1F
C0511	B-1F
C0513	B-1F
C0514	B-2F
C0516	B-2F
C0517	B-2E
C0518	B-2E
C0519	A-1F
C0520	B-2E
C0521	B-2E
C0522	B-1E
C0523	B-1E
C0524	B-1E
C0525	B-1E
C0527	B-2E
C0528	B-2E
C0529	B-3E
C0530	B-1D
C0534	B-1E
C0535	B-2E
C0538	A-3D
C0540	B-2E
C0541	B-2F
C0542	B-2F
C0543	A-2F
C0544	A-2F
C0545	B-3F
C0546	B-3F
C0550	B-3E
C0551	B-3E
C0552	B-3E
C0555	A-2C
C0556	A-2C
C0558	A-2C
C0559	B-3D
C0562	B-2F
C0577	B-2D
C0578	A-2C
C0581	B-1D
C0583	B-3E
C0587	A-3D
C0601	B-7D
C0602	A-7E
C0603	B-6D
C0604	B-7D
C0605	A-7E
C0606	A-6D
C0607	A-6D
C0608	A-6E
C0609	A-6D
C0610	A-6D
C0611	A-6E
C0612	B-6D
C0613	A-6D
C0614	B-6D
C0615	B-6D
C0616	B-6D
C0617	B-6D
C0618	B-7D
C0619	B-6D
C0622	B-7D
C0631	A-2A
C0632	A-2A
C0633	A-3B
C0635	A-2A
C0636	A-2A
C0637	A-2A
C0638	A-2A
C0641	B-3A
C0642	A-3A
C0643	A-3A
C0645	A-3B
C0647	A-3B
C0648	A-3B
C0649	A-3B
C0650	A-3B
C0651	A-3B
C0652	A-3B
C0655	B-7E
C0656	B-7E
C0657	B-7E
C0658	B-7D
C0659	B-7E
C0660	B-8E
C0661	B-7D
C0671	B-3A
C0672	B-3A
C0673	B-8D
C0691	B-9D
C0692	B-9D
C0693	B-9D
C0694	B-9D
C0695	B-9D
C0696	B-9D
C0902	A-6E
C0904	A-6E
C0905	A-6E
C0906	B-6E
C0907	B-6E
C0908	A-6E
C0909	B-6E
C0910	B-8F
C0911	A-7E
C0912	A-7E
C0913	B-7E
C0914	A-7D
C0915	B-8E
C0916	B-8D
C0917	A-7D
C0918	B-8D
C0919	A-9C
C0920	A-7D
C0921	B-8D
C0922	A-8D
C0923	B-8E
C0924	B-7E
C0925	B-7E
C0926	B-7E
C0927	B-7E
C0928	A-9E
C0929	A-9E
C0930	B-9D
C0932	B-7E
C0934	B-8E
C0935	B-7E
C0942	A-8D
C0962	A-1E
C0971	A-7E
C0974	B-6F
C0998	A-8D
C0999	A-9D
C1101	A-5E
C1102	A-4F
C1103	A-4E
C1104	A-5E
C1105	A-5E
C1106	A-5E
C1107	A-4E
C1108	A-4E
C1109	A-4E
C1111	A-4E
C1112	A-4E
C1113	B-4E
C1114	B-4E
C1115	A-4D
C1116	A-4D
C1117	A-4D
C1118	A-4D
C1123	A-4D
C1128	B-4D
C1129	B-3D
C1134	B-4E
C1135	A-4F
C1136	B-4F
C1138	A-5E
C1139	B-5D
C1140	B-6F
C1141	A-4D
C1142	B-4E
C1143	B-5F
C1144	B-5F
C1146	B-6E
C1147	B-6E
C1148	B-6E
C1149	B-6E
C1150	A-4E
C1151	A-4E
C1155	B-4E
C1159	B-4E
C1161	A-4E
C1165	A-4E
C1167	B-4D
C1172	B-5D
C1201	B-6D
C1202	B-5C
C1203	B-5C
C1204	B-6C
C1205	B-5D
C1206	B-5D
C1207	B-6C
C1208	B-6C
C1209	B-6D
C1210	B-6D
C1211	B-6D
C1213	B-6E
C1301	A-5D
C1302	A-5C
C1303	B-6C
C1304	B-6C
C1305	B-6E
C1314	A-5D
C0	
C00442	B-1A
CP	
CP0203	A-2C
D	
D0101	A-5A
D0102	B-3B
D0203	B-4C
D0552	A-2F
D0553	B-2F
D0601	B-6E
D0662	A-7D
D0901	B-8E
D0902	B-6E
D0905	A-9C
D0907	B-7F
D1101	B-4F
D1104	A-9E
D1301	B-6E
D1302	B-3F
F	
F0551	B-1D
F0552	B-1D
F0553	B-1D
IC	
IC0101	A-5B
IC0102	A-3C
IC0201	B-3C
IC0202	B-4C
IC0203	B-2A
IC0204	B-1C
IC0551	B-1F
IC0553	A-2D
IC0601	A-7D
IC0631	A-3A
IC0651	B-7D
IC0671	B-3A
IC0901	A-8E
IC0902	B-6E
IC0904	B-7E
IC0906	B-6F
IC0907	A-9D
IC1101	A-4E
IC1102	B-4D
IC1103	B-4F
IC1104	B-5E
IC1105	B-5D
IC1201	B-6D
IC1301	A-6D
JK	
JK0200	B-1A
L	
L0101	A-4C
L0102	B-4A
L0103	B-4A
L0105	B-2C
L0107	A-3C
L0108	A-3C
L0109	B-5A
L0110	B-2B
L0113	B-5A
L0114	B-5A
L0116	A-3D
L0117	A-3D
L0201	A-5C
L0202	A-2B
L0203	B-3D
L0204	B-2D
L0205	A-3B
L0207	A-4C
L0208	B-3D
L0301	A-2B
L0350	B-1B
L0551	A-2E
L0552	A-3E
L0554	A-2E
L0556	A-3E
L0558	B-2E
L0559	B-2F
L0560	B-2F
L0561	A-3F
L0562	B-3E
L0563	A-3F
L0564	A-2E
L0565	A-2E
L0601	A-6D
L0902	B-7E
L0903	B-1E
L0904	A-6E
L0906	A-9D
L0908	A-7D
L0909	A-7F
L1101	B-3F
L1102	B-3E
L1104	B-3E
L1105	A-5E
L1301	A-5D
PG	
PG0101	A-5A
PG0201	B-9D
PG0402	A-2A
PG0551	A-1C
PG0552	A-8F
PG0601	A-7F
PG0602	B-7D
PG0603	A-3A
PG0604	A-3A
PG0901	A-8D
PG0902	B-7F
PG0903	A-1F
PG0904	B-9E
PG0905	A-7F
PG0907	A-8F
PG0908	A-5E
PG1101	A-5D
PG1103	A-1E
PG1104	A-6F
PG1301	A-7C
Q	
Q0101	A-5C
Q0102	A-5A
Q0103	A-4A
Q0104	A-4A
Q0105	A-5C
Q0107	B-5B
Q0108	B-4A
Q0109	B-4A
Q0110	B-4A
Q0111	B-2C
Q0112	B-2C
Q0113	B-2C
Q0116	B-2B
Q0117	B-5A
Q0118	B-5B
Q0119	B-5A
Q0123	B-4B
Q0130	B-4B
Q0131	A-5B
Q0133	A-4C
Q0139	A-3B
Q0140	A-4D
Q0142	A-4C
Q0143	A-4C
Q0144	A-4C
Q0180	B-3B
Q0201	B-2D
Q0203	B-2C
Q0205	B-4B
Q0206	B-2C
Q0207	B-2C
Q0395	B-3D
Q0401	A-1A
Q0401	A-1B
Q0402	A-1A
Q0551	B-3E
Q0552	B-3F
Q0553	B-2E
Q0555	B-2D
Q0556	B-2D
Q0557	B-2F
Q0558	B-2F
Q0559	B-3F
Q0561	B-2E
Q0562	B-2E
Q0563	B-3F
Q0570	B-8F
Q0571	B-8F
Q0601	B-6E
Q0602	B-6D
Q0603	B-6D
Q0604	B-7D
Q0901	B-6E
Q0902	B-6E
Q0903	B-6E
Q0904	B-6E
Q0905	B-8D
Q0907	B-8E
Q0908	B-8D
Q0909	B-8E
Q0910	B-8F
Q0911	B-7E
Q0913	B-7E
Q1108	A-9E
Q1201	B-6D
Q1202	B-5C
Q1203	B-5C
R	
R0101	A-5A
R0102	A-5A
R0103	A-4A
R0104	A-4B
R0105	B-5B
R0106	A-5A
R0107	A-5B
R0108	A-5B
R0109	A-5B
R0110	A-5B
R0111	A-4B
R0113	A-4A
R0114	A-5A
R0119	A-4A
R0120	A-4A
R0121	B-4A
R0122	B-4A
R0123	B-4A
R0124	B-4A
R0125	B-4A
R0127	A-5C
R0128	A-5C
R0129	A-4C
R0130	A-4B
R0131	B-5B
R0132	A-4B
R0134	A-3B
R0135	B-3A
R0136	B-5C
R0139	B-2C
R0140	A-3B
R0141	A-3B
R0142	A-3B
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R0144	B-2C
R0145	B-2C
R0146	B-2C
R0147	A-3C
R0148	B-2C
R0149	B-2C
R0150	A-3C
R0151	A-3B
R0152	A-3C
R0157	B-3B
R0158	B-4B
R0159	B-4B
R0160	B-4B
R0161	B-4A
R0163	A-3B
R0164	A-3B
R0165	B-2B
R0167	A-4B
R0168	A-4C
R0170	A-3D
R0171	B-5A
R0172	A-4D
R0173	A-4D
R0174	A-4C
R0175	A-3C
R0176	A-4D
R0178	A-4C
R0180	B-4A
R0181	B-4A
R0182	B-3A
R0183	B-3B
R0185	B-2C
R0188	A-3C
R0190	B-5B
R0191	B-5B
R0194	B-5B
R0195	B-5B
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R0201	B-3B
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R0214	A-3B
R0215	B-4B
R0216	B-2D
R0217	B-2D
R0219	B-2D
R0220	B-2D
R0222	A-2C
R0223	A-1C
R0224	B-2C
R0225	B-2C
R0227	B-2C
R0230	B-3C
R0231	B-4C
R0232	B-2C
R0233	B-2C
R0234	A-3C
R0238	A-1B
R0239	A-1A
R0243	A-3C
R0262	B-4C
R0263	B-3D
R0265	B-3C
R0266	B-3C
R0267	A-4C
R0268	A-4C
R0269	A-3C
R0271	B-8F
R0272	B-8F
R0301	B-2A
R0302	B-3A
R0303	B-2A
R0305	B-2A
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R0311	A-2A
R0312	B-3A
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R0350	B-2B
R0351	B-1B
R0354	B-2D
R0361	B-1D
R0362	B-1C
R0373	B-1C
R0374	B-1C
R0391	B-2A
R0397	B-2A
R0471	A-1A
R0472	A-1A
R0475	A-1B
R0476	A-1A
R0497	B-1A
R0501	B-1E
R0502	B-1F
R0504	B-1F
R0505	B-1F
R0506	B-1F
R0507	B-1F
R0508	B-1F
R0510	B-1F
R0511	B-1F
R0512	B-2F
R0513	B-2F
R0514	B-2F
R0516	B-2F
R0517	B-2E
R0518	B-2E
R0519	B-2E
R0522	B-1E
R0525	B-1E
R0529	B-1D
R0531	B-1D
R0532	B-1D
R0533	B-3F
R0534	B-3F
R0539	B-1E
R0540	B-1E
R0541	B-1E
R0545	B-2D
R0546	B-2D
R0549	B-2F
R0550	B-2F
R0551	B-2F
R0552	B-2F
R0556	B-2F
R0557	B-2F
R0558	B-2F
R0561	B-1E
R0562	B-1E
R0566	B-1E
R0567	B-1E
R0568	B-1D
R0569	B-1D
R0583	A-3F
R0585	B-1F
R0586	A-5C
R0587	B-6F
R0588	A-5C
R0597	B-8F
R0598	B-8F
R0599	B-8F
R0601	B-7E
R0602	B-7E
R0603	B-6D
R0604	B-6C
R0605	B-7D
R0606	A-6E
R0607	A-7E
R0608	B-6D
R0609	B-6D
R0610	A-6E
R0611	A-6D
R0612	A-6E
R0613	A-6D
R0614	A-6D
R0616	B-6D
R0619	B-6D
R0620	B-6D
R0621	B-6D
R0622	B-6D
R0623	B-7D
R0624	B-7D
R0628	B-7D
R0640	B-3A
R0641	B-3A
R0642	B-3A
R0643	A-2A
R0644	A-2A
R0661	B-7D
R0662	B-7D
R0664	B-7D
R0665	B-7E
R0666	B-8E
R0667	B-7E
R0668	B-8D
R0671	B-3A
R0672	B-3A
R0681	A-6F
R0682	A-6F
R0691	B-9D
R0692	B-9D
R0693	B-9D
R0694	B-9D
R0695	B-9D
R0696	B-9D
R0701	B-8E
R0702	A-5F
R0703	A-5F
R0704	B-8E
R0706	A-9E
R0707	A-9E
R0709	B-7F
R0717	B-6F
R0718	B-6F
R0719	B-6F
R0721	A-4F
R0722	A-4F
R0723	A-4F
R0724	A-5F
R0725	A-4F
R0728	A-5F
R0733	A-5F
R0901	B-6E
R0902	A-1D
R0903	B-6E
R0904	B-6E
R0905	B-6E
R0906	B-6E
R0907	B-6E
R0908	B-6E
R0909	B-6E
R0912	B-6E
R0913	B-6E
R0914	B-8F
R0915	B-8F
R0916	B-8F
R0917	B-8F
R0918	B-8F
R0919	B-8F
R0920	A-8E
R0921	A-8E
R0922	B-8E
R0923	B-8E
R0924	B-8E
R0925	B-8E
R0926	B-8F
R0927	B-8F
R0928	B-8E
R0929	B-8F
R0930	B-8F
R0931	B-8E
R0932	B-8E
R0933	B-8E
R0934	B-8F
R0935	B-8E
R0938	B-8E
R0939	B-8E
R0941	B-6F
R0942	B-7E
R0943	B-8E
R0944	B-8F
R0945	B-8E
R0947	A-7D
R0948	B-7E
R0949	A-6E
R0950	B-8D
R0951	B-8D
R0952	B-8D
R0953	B-8D
R0954	B-8D
R0955	B-8D
R0956	B-8D
R0957	B-8D
R0958	B-8D
R0959	B-8E
R0960	B-8E
R0963	B-8E
R0964	A-8D
R0966	B-8E
R0969	A-6F
R0970	B-8E
R0971	B-8E
R0972	A-6F
R0973	A-7D
R0974	B-8D
R0975	A-8D
R0976	B-8D
R0977	B-8D
R0978	A-9C
R0979	B-8D
R0980	B-8D
R0981	B-8D
R0982	A-9C
R0983	B-8C
R0984	B-8D
R0985	A-9D
R0986	B-7E
R0987	B-7E
R0988	B-7E
R0989	B-7E
R0990	B-7E
R0992	A-6E
R0993	A-8D
R0994	A-8D
R0995	A-8D
R0997	A-9D
R0999	A-9D
R1101	A-5E
R1112	B-3D
R1113	B-3E
R1114	B-4D
R1115	A-4E
R1116	A-4E
R1117	A-4E
R1120	A-4D
R1121	B-4E
R1136	B-5D
R1141	B-5E
R1142	A-9E
R1143	B-5D
R1145	B-5D
R1146	A-5D
R1147	A-5D
R1148	B-4E
R1149	B-5F
R1150	B-5F
R1155	B-6E
R1156	B-6E
R1157	B-6E
R1158	B-6E
R1159	A-1D
R1160	A-1D
R1161	A-1E
R1162	A-1D
R1163	A-1D
R1169	A-5E
R1170	A-5E
R1179	B-4F
R1201	B-5D
R1202	B-6C
R1203	B-5D
R1204	B-6C
R1205	B-5D
R1206	B-5D
R1207	B-6C
R1208	B-6C
R1209	B-6C
R1210	B-6C
R1211	B-6C
R1212	B-6C
R1213	B-6C
R1214	B-6D
R1215	B-6D
R1216	B-6D
R1218	B-6D
R1220	B-6D
R1221	B-6C
R1222	B-5C
R1223	B-5D
R1225	B-5D
R1226	B-5C
R1303	B-6E
R1308	B-5D
R1309	B-5D
R1310	B-5D
R1311	B-5D
R1312	B-5C
R1313	B-5C
R1314	A-5D
R1315	A-5D
SW	
SW0902	A-4F
SW0903	A-2F
SW0904	A-5F
SW0905	A-3F
SW0907	A-9F
SW0908	A-1D
T	
T0551	A-2F
TL	
TL1133	A-1D
TL1203	B-6C
TL1301	A-6D
TL1302	A-6D
TL1303	A-6D
TL1304	A-6D
TL1305	A-7D
TL1306	A-6C
TL1307	A-7D
TL1308	A-7D
TL1309	A-7D
TL1310	A-7D
TL1311	A-7D
TL1312	A-7D
TL1313	A-6D
TL1315	A-6D
TL1325	A-5C
X	
X0201	A-4B
X0901	A-7E
X0902	A-9E
ZD	
ZD0901	B-8D
ZD0902	B-8E

IDENTIFICATION OF PARTS LOCATION

SE [SENSOR/GYRO]

Symbol No	Parts Location
C	
C1002	A-1A
C1004	B-1C
C1005	A-1A
C1006	B-1C
C1007	B-2B
C1008	B-1C
C1009	B-1C
C1010	B-2B
C1011	B-2C
C1012	A-2B
C1403	A-1D
C1404	A-2C
C1405	A-2D
C1406	A-2A
C1407	A-1D
C1408	A-2C
C1409	A-1D
C1410	A-2C
C1411	A-2B
C1412	A-2B
C1413	B-2B
C1414	B-2A
C1415	B-2B
C1417	A-2A
C1418	A-1A
C1419	B-2B
C1420	B-2A
D	
D1002	B-1C
IC	
IC1001	B-1C
IC1401	A-1D
IC1402	A-2C
IC1403	B-2B
PG	
PG1001	B-1A
Q	
Q1001	B-1B
Q1401	B-1A
Q1402	B-2B
R	
R1001	B-1B
R1002	A-1B
R1003	B-1C
R1006	B-1C
R1009	B-2C
R1403	A-1D
R1404	A-2C
R1405	A-1D
R1406	A-2C
R1407	B-2B
R1408	A-2A
R1409	B-2B
R1410	B-2A
R1411	B-2B
R1412	B-2A
R1413	B-2B
R1414	B-2A
R1416	B-2A
R1418	B-2A
R1419	B-2B
R1420	B-2A
R1421	B-2B
R1424	B-2A
R1425	B-2A

AUD [AUDIO]

Symbol No	Parts Location
C	
C0401	B-2B
C0401	B-2D
C0402	A-2B
C0402	B-2D
C0403	A-2B
C0403	B-2D
C0404	B-2B
C0404	B-2B
C0404	B-2C
C0405	B-2B
C0405	B-2C
C0406	A-2D
C0406	B-2B
C0407	A-2C
C0407	B-2B
C0408	A-1B
C0408	A-2C
C0408	B-2B
C0409	A-1B
C0409	A-1C
C0409	B-1B
C0410	A-1B
C0410	B-1C
C0410	B-2B
C0411	A-1B
C0411	A-1C
C0411	B-1B
C0412	A-1C
C0412	B-1B
C0412	B-1B
C0413	A-1B
C0413	B-1B
C0414	B-1B
C0415	B-1B
C0416	A-1B
C0416	B-1B
C0417	B-1B
C0417	B-1C
C0418	B-1C
C0418	B-1C
C0418	B-1C
C0419	B-1A
C0419	B-1A
C0419	B-1C
C0420	B-1C
C0422	A-1C
C0422	B-1C
C0423	A-2C
C0423	B-1C
C0424	B-1A
C0424	B-2A
C0425	B-2A
C0426	A-2C
C0428	A-2B
C0429	B-1D
C0430	A-1A
C0430	A-2A
C0430	B-2D
C0431	A-1A
C0431	A-2A
C0431	B-1C
C0432	A-2A
C0433	B-1D
C0434	B-2C
C0435	A-2C
C0436	B-2C
C0437	B-2C
C0438	B-2B
C0439	B-2B
C0440	B-2B
C0441	A-2B
C0441	B-2D
C0442	A-2D
C0443	A-2C
C0445	A-1C
C0446	B-1C
C0447	B-2C
C0448	A-1B
C0449	A-1A
C0450	A-2A
C0451	A-2A
C0452	A-1A
C0462	A-2C
C0462	B-1B
C0463	B-1B
C0467	A-1A
C0472	A-2B
C0473	A-1A
C0474	A-2A
C0475	B-1A
C0475	B-2A
C0476	B-1A
C0476	B-2A
C0482	A-2B
C0483	A-1A
C0484	A-1C
C0485	A-1C
C0485	B-1C
D	
D0401	A-2A
IC	
IC0401	B-1C
IC0402	B-1B
IC0404	B-1A
IC0405	B-1A
L	
L0401	A-2A
L0403	A-2B
L0405	B-1D
PG	
PG0401	A-2A
PG0405	A-3A
Q	
Q0403	A-1A
Q0403	A-2A
Q0403	B-2A
Q0404	A-2A
Q0411	A-1C
Q0412	A-1C
Q0414	A-1B
Q0415	A-2B
Q0417	B-2B
R	
R0401	B-1C
R0402	A-1C
R0402	A-2B
R0402	B-1B
R0403	A-1C
R0404	A-2B
R0404	B-2C
R0405	A-2C
R0406	A-1C
R0406	B-1D
R0407	A-2C
R0408	A-2C
R0409	A-2A
R0409	B-1C
R0410	A-2C
R0410	B-1C
R0411	A-2B
R0412	B-1C
R0413	A-1B
R0413	A-1B
R0414	A-2A
R0415	A-1B
R0415	B-2C
R0417	A-1A
R0417	A-2A
R0417	B-2C
R0418	A-1A
R0418	A-2A
R0418	B-2C
R0419	A-1A
R0419	A-2A
R0420	B-1A
R0420	B-2A
R0420	B-2C
R0421	B-1A
R0421	B-2A
R0421	B-2C
R0422	B-2B
R0423	B-2B
R0424	B-2B
R0425	B-3A
R0426	B-2D
R0427	A-1B
R0428	B-1C
R0429	A-2A
R0430	B-2B
R0431	B-2B
R0432	A-2B
R0433	A-1B
R0434	B-2B
R0435	A-1B
R0436	B-1C
R0436	B-2D
R0437	B-1C
R0438	A-1C
R0438	B-1C
R0439	A-1C
R0440	A-1C
R0440	B-2A
R0441	B-2A
R0442	B-2B
R0443	B-2A
R0445	A-2B
R0445	B-1B
R0446	B-2C
R0447	A-2C
R0448	A-2B
R0449	B-1B
R0450	A-2C
R0451	B-2C
R0452	A-2C
R0453	B-2A
R0454	B-2D
R0455	B-2C
R0456	B-2C
R0458	B-2B
R0459	B-2A
R0460	A-2A
R0461	A-1A
R0462	A-2B
R0472	A-2C
R0473	A-1C
R0474	A-1C
R0480	A-1A
R0481	A-1A
R0483	B-2A
R0484	A-1A
R0485	A-1A
R0486	A-2A
R0487	A-2A
R0488	A-1A
R0488	A-1A
R0489	B-1A
R0489	B-2A
R0490	B-1A
R0490	B-2A
R0491	B-1A
R0491	B-2A
R0492	B-1A
R0492	B-2A
R0493	B-1A
R0493	B-2A
R0494	B-1A
R0494	B-2A
R0496	B-1A
R0496	B-1A
TP	
TP0401	A-1B
ZD	
ZD0404	B-2A
ZD0405	A-2B

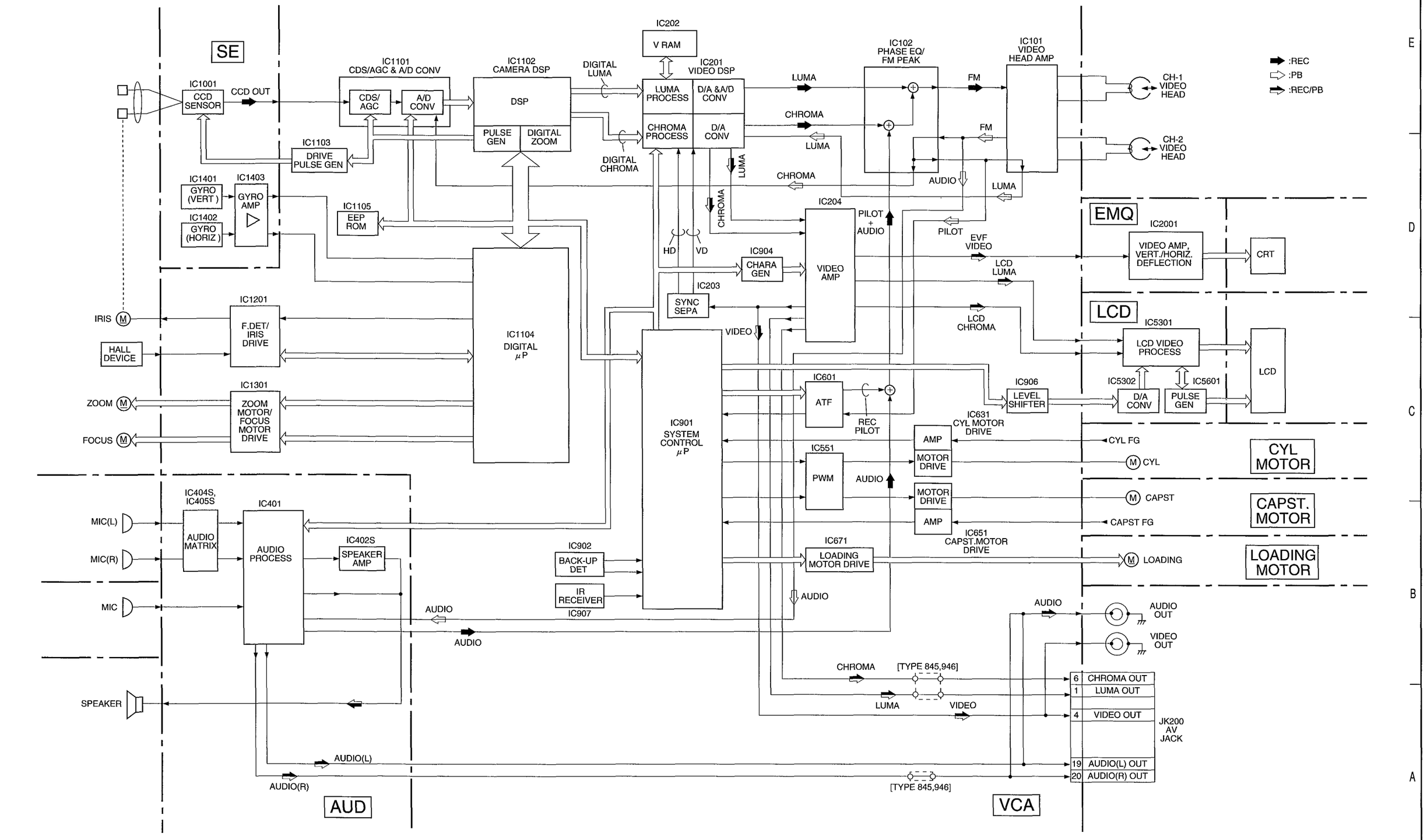
EMQ [ELECTRONIC VIEWFINDER]

Symbol No	Parts Location
C	
C2001	B-1B
C2002	B-2A
C2003	B-2A
C2004	A-2B
C2005	A-1A
C2006	A-2A
C2007	A-2A
C2008	B-2A
C2009	A-1A
C2011	A-2A
C2012	A-2B
C2013	A-4B
C2014	A-4B
C2015	A-3A
C2016	A-3A
C2017	B-1A
C2018	B-1A
D	
D2001	B-3A
D2002	A-1A
IC	
IC2001	A-4A
L	
L2001	B-3A
L2002	A-1B
PG	
PG2001	A-3B
PG2002	A-4A
Q	
Q2001	A-2B
Q2002	A-3A
R	
R2002	A-2A
R2003	A-2A
R2004	A-2A
R2005	A-2A
R2006	A-1A
R2007	A-1A
R2008	A-2B
R2009	A-3B
R2011	A-2A
R2012	A-2B
R2013	A-3A
R2014	A-3A
R2015	A-4B
R2016	B-1A
R2017	A-3B
R2018	A-3A
R2019	A-3A
R2020	A-3A
R2022	A-4A
R2024	A-2A
R2025	A-3A
R2026	B-1A
R2027	B-1A
RT	
RT2001	A-2A
RT2002	A-3A
RT2003	B-1A
T	
T2001	A-1A
TF	
TF2001	B-2A

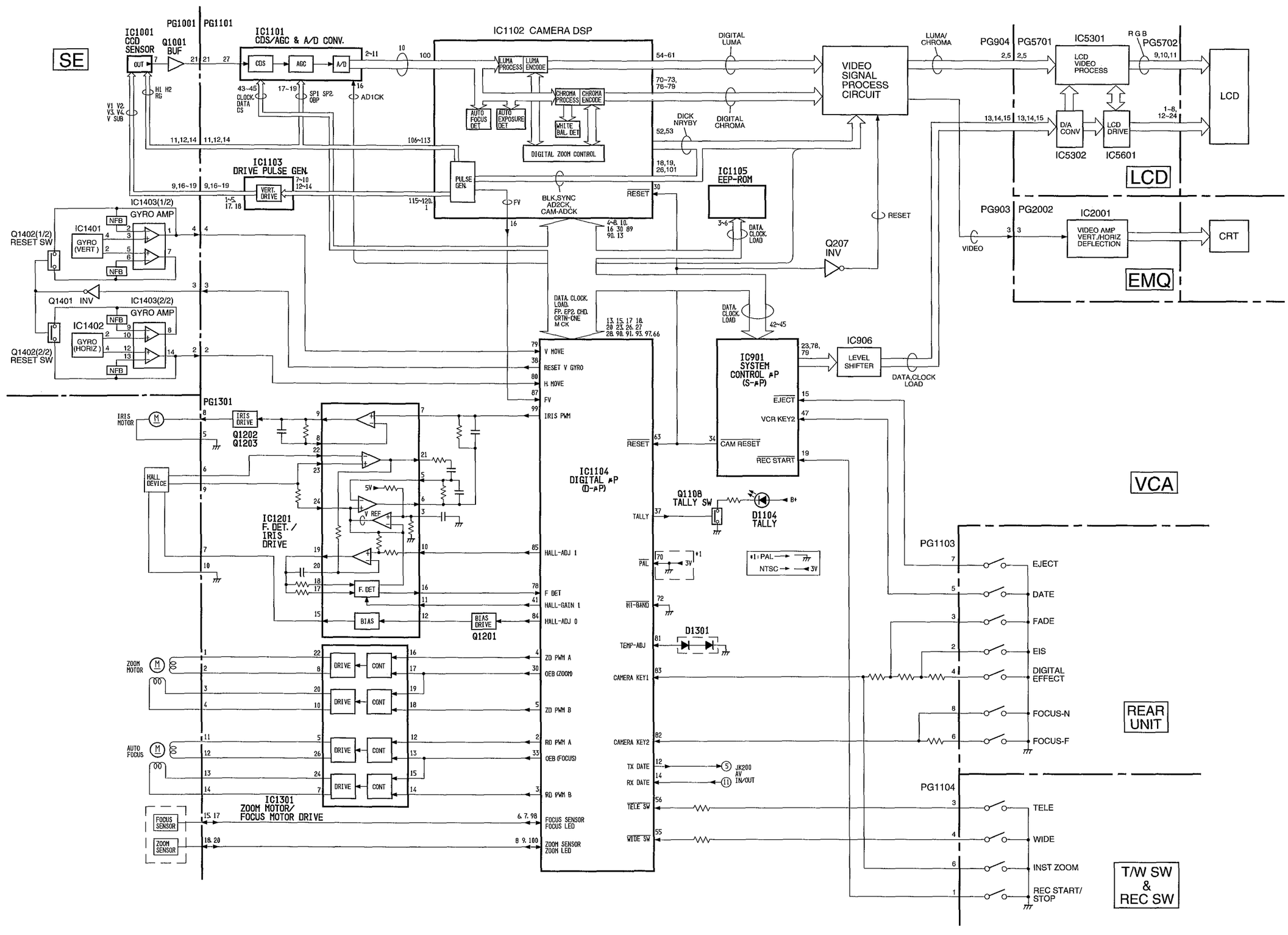
LCD [LCD DRIVE]

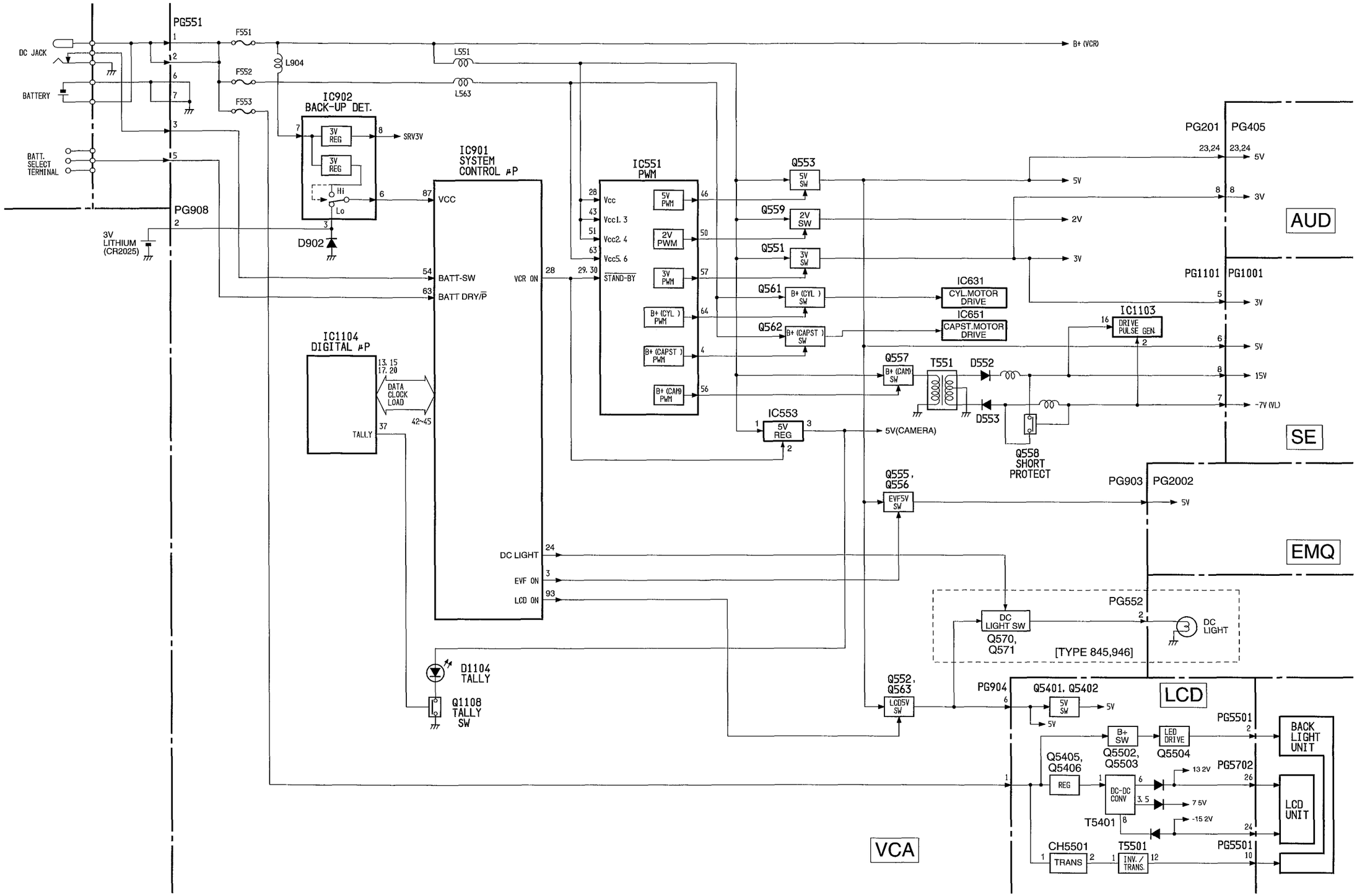
Symbol No	Parts Location
C	
C5304	B-3B
C5305	B-3B
C5306	B-2B
C5308	B-3B
C5309	B-2A
C5310	B-2A
C5312	A-2A
C5313	A-3A
C5314	B-3A
C5315	B-3A
C5316	B-3A
C5317	B-3B
C5318	A-3A
C5319	A-3A
C5320	B-3B
C5321	B-3B
C5322	B-3B
C5323	B-3B
C5324	A-3B
C5325	B-3B
C5326	B-3B
C5327	B-3B
C5328	A-2B
C5329	B-2B
C5330	B-2B
C5331	B-2A
C5332	B-2B
C5333	B-2A
C5334	B-2A
C5335	B-2A
C5336	B-3B
C5337	B-3C
C5338	B-3C
C5340	A-3A
C5341	A-3A
C5342	B-3D
C5343	A-3C
C5344	B-2B
C5390	B-3E
C5401	B-2C
C5402	B-1C
C5403	B-2C
C5404	B-2C
C5405	B-2C
C5406	A-1B
C5407	A-1C
C5408	A-1C
C5409	B-1C
C5410	A-1C
C5411	A-1C
C5412	A-1C
C5413	A-1B
C5414	A-1B
C5415	B-2C
C5416	B-2C
C5417	A-2C
C5418	B-2C
C5419	B-2C
C5420	B-2C
C5421	B-2C
C5422	B-2C
C5501	B-2D
C5502	B-2D
C5503	B-2E
C5504	B-2E
C5505	B-2D
C5506	B-2E
C5507	B-2D
C5508	B-2D
C5509	B-2D
C5510	B-2E
C5512	B-2E
C5513	B-2E
C5514	B-2D
C5515	B-3E
C5516	B-2E
C5517	B-3C
C5518	B-3C
C5603	B-1B
C5604	A-1B
C5605	B-2B
C5606	B-1B
C5607	B-1B
C5608	A-2A
C5609	A-2A
C5610	A-1A
C5611	A-1B
C5612	A-1B
C5613	A-1B
C5615	A-2B
C5616	A-2A
C5617	B-1B
C5619	B-1B
C5620	A-2A
C5621	A-1A
C5622	A-1A
C5623	A-1B
C5624	B-3C
CH	
CH5501	A-2D
D	
D5301	A-2B
D5401	B-1C
D5402	A-1C
D5403	A-2C
D5404	B-2C
D5501	A-2E
D5502	B-2E
D5601	B-1B
D5602	A-2B
IC	
IC5301	B-3A
IC5302	B-3D
IC5401	A-1C
IC5501	B-2D
IC5601	B-2A
IC5602	A-2B
L	
L5301	A-3C
L5302	B-3C
L5303	B-2B
L5304	B-2B
L5305	B-3D
L5401	A-1C
L5402	A-2B
L5403	A-2C
L5404	A-2C
L5501	B-3E
L5502	A-2C
L5503	A-2C
L5601	A-2A
L5602	A-1A
L5603	A-2A
L5604	A-1B
PG	
PG5301	A-2F
PG5501	A-1D
PG5701	A-3E
PG5702	A-1B
Q	
Q5301	B-2B
Q5302	B-2B
Q5303	A-3B
Q5304	A-2B
Q5390	B-3E
Q5401	B-1C
Q5402	B-1C
Q5403	B-1C
Q5404	B-1C
Q5405	A-1C
Q5406	A-1C
Q5501	A-2D
Q5502	B-2E
Q5503	B-2E
Q5504	B-2D
Q5607	B-2A
Q5608	B-2A
Q5611	A-3A
Q5612	A-3A
Q5613	A-3A
Q5614	A-3A
Q5615	A-1B
R	
R5301	B-2B
R5302	B-2B
R5304	A-3C
R5307	A-3B
R5308	A-3B
R5309	B-2A
R5310	B-2A
R5313	A-3A
R5314	A-3A
R5315	B-3A
R5316	B-3A
R5317	B-3A
R5318	B-3A
R5319	A-3A
R5320	A-3A
R5325	A-3B
R5326	A-3B
R5331	B-3B
R5332	B-3B
R5336	B-3B
R5338	B-3B
R5339	B-3B
R5340	B-3B
R5343	B-3B
R5345	A-2B
R5346	A-2B
R5347	B-2A
R5349	B-2A
R5351	A-3B
R5357	A-3B
R5361	A-3B
R5362	A-2B
R5363	A-3B
R5364	A-3C
R5365	A-3B
R5366	A-3C
R5367	A-2B
R5390	B-3D
R5401	B-1C
R5402	B-1C
R5404	A-1C
R5405	A-1C
R5406	A-1B
R5407	A-1C
R5408	A-1B
R5409	A-1C
R5410	A-1C
R5411	A-1C
R5412	A-1C
R5413	A-1C
R5414	A-1C
R5415	A-1C
R5416	A-1C
R5417	A-1B
R5420	B-1C
R5501	B-2D
R5502	B-2D
R5503	B-2D
R5504	B-2D
R5505	B-2E
R5506	B-2E
R5507	B-2D
R5508	B-3E
R5509	B-3D
R5510	B-3C
R5511	B-2E
R5512	B-2E
R5513	B-2E
R5514	B-2E
R5515	A-1E
R5516	A-1E
R5520	A-2E
R5524	B-2D
R5531	B-3C
R5533	B-3C
R5534	B-3C
R5601	B-2A
R5603	B-3C
R5610	B-2A
R5611	B-2B
R5612	B-2A
R5615	B-1B
R5616	B-2B
R5617	A-2B
R5618	A-1B
R5619	A-2B
R5620	A-1A
R5621	A-2B
R5622	A-1B
R5623	A-1B
R5625	A-1B
R5627	A-1B
R5631	A-2B
R5632	A-2B
R5633	A-2B
R5634	A-2B
R5635	A-2B
R5636	A-2B
R5637	A-1A
R5638	B-1B
R5639	B-1B
R5642	A-1A
R5643	A-2A
R5644	A-1A
R5651	B-2A
R5654	A-3A
R5655	B-2A
R5656	A-3A
R5657	A-2B
R5708	B-1A
R5716	B-3E
R5717	B-3E
SW	
SW5701	B-3A
SW5702	B-3F
SW5703	B-2F
T	
T5401	A-2C
T5501	A-1D
X	
X5301	A-2A
ZD	
ZD5601	A-1A
ZD5701	A-3F

BLOCK DIAGRAM
1. OVERALL

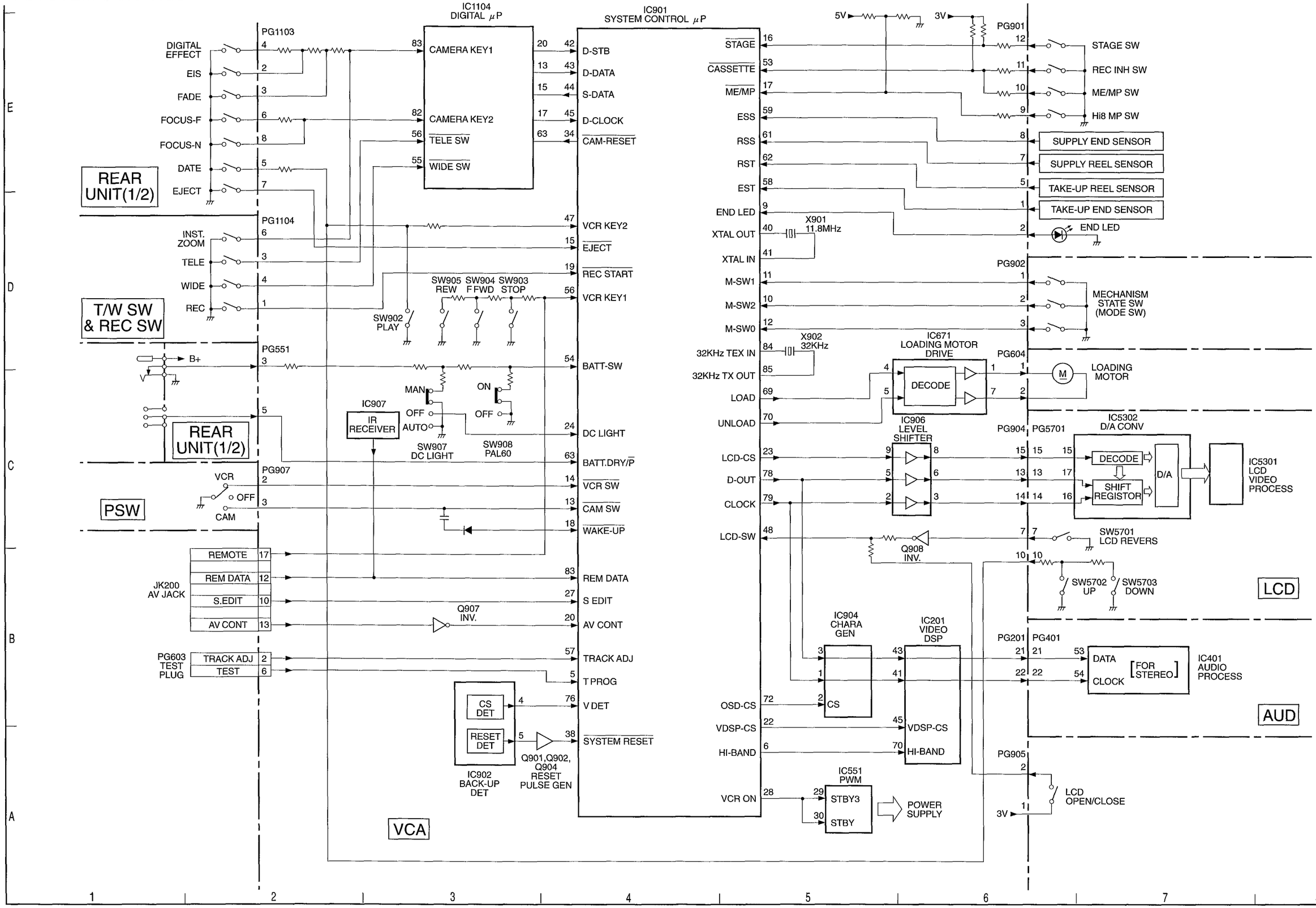


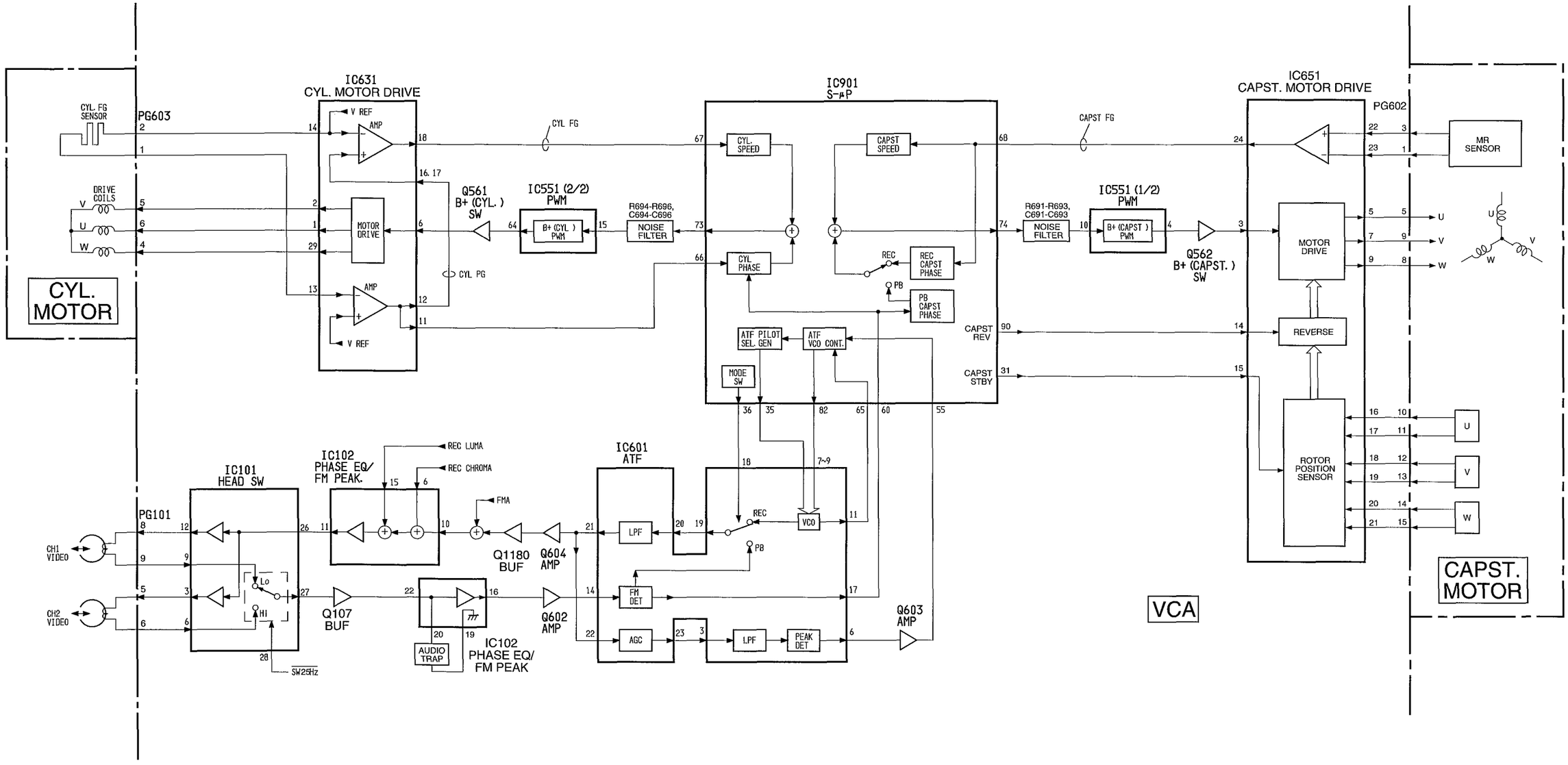
2. CAMERA


SE
IC1001 CCD SENSOR
Q1001 BUF
PG1001 PG1101
IC1101 CDS/AGC & A/D CONV.
CDS
AGC
A/D
IC1102 CAMERA DSP
LUMA PROCESS
LUMA ENCODE
CHROMA PROCESS
CHROMA ENCODE
AUTO FOCUS DET
AUTO EXPOSURE DET
WHITE BAL. DET
DIGITAL ZOOM CONTROL
DIGITAL LUMA
DIGITAL CHROMA
DICK NRYBY
VIDEO SIGNAL PROCESS CIRCUIT
LUMA/ CHROMA
PG904 PG5701
IC5301
LCD VIDEO PROCESS
RGB
PG5702
D/A CONV
LCD DRIVE
IC5302
IC5601
LCD
IC1103 DRIVE PULSE GEN.
VERT. DRIVE
PULSE GEN
IC1105 EEP-ROM
RESET
FV
BLK,SYNC AD2CK, CAM-ADCK
DATA, CLOCK, LOAD
Q207 INV
PG903 PG2002
IC2001
VIDEO AMP VERT./HORIZ DEFLECTION
CRT
VIDEO
EMQ
IC1403(1/2) GYRO AMP
IC1401
GYRO (VERT)
Q1402(1/2) RESET SW
Q1401 INV
IC1403(2/2) GYRO AMP
IC1402
GYRO (HORIZ)
Q1402(2/2) RESET SW
NFB
PG1301
IRIS MOTOR
IRIS DRIVE
Q1202 Q1203
HALL DEVICE
IC1201 F. DET./ IRIS DRIVE
F. DET
BIAS
BIAS DRIVE
Q1201
ZOOM MOTOR
AUTO FOCUS
DRIVE
CONT
IC1301 ZOOM MOTOR/ FOCUS MOTOR DRIVE
FOCUS SENSOR
ZOOM SENSOR
IC1104 DIGITAL µP (D-µP)
V MOVE
RESET V GYRO
H MOVE
FV
IRIS PWM
HALL-ADJ 1
F DET
HALL-GAIN 1
HALL-ADJ 0
ZD PWM A
OEB (ZOOM)
ZD PWM B
RD PWM A
OEB (FOCUS)
RD PWM B
FOCUS SENSOR FOCUS LED
ZOOM SENSOR ZOOM LED
IC901 SYSTEM CONTROL µP (S-µP)
IC906 LEVEL SHIFTER
DATA,CLOCK LOAD
EJECT
VCR KEY2
CAM RESET
REC START
Q1108 TALLY SW
D1104 TALLY
D1301
TEMP-ADJ
CAMERA KEY1
CAMERA KEY2
TX DATE
RX DATE
JK200 AV IN/OUT
TELE SW
WIDE SW
PAL
NTSC
HI-BAND
VCA
PG1103
EJECT
DATE
FADE
EIS
DIGITAL EFFECT
FOCUS-N
FOCUS-F
REAR UNIT
PG1104
TELE
WIDE
INST ZOOM
REC START/ STOP
T/W SW & REC SW

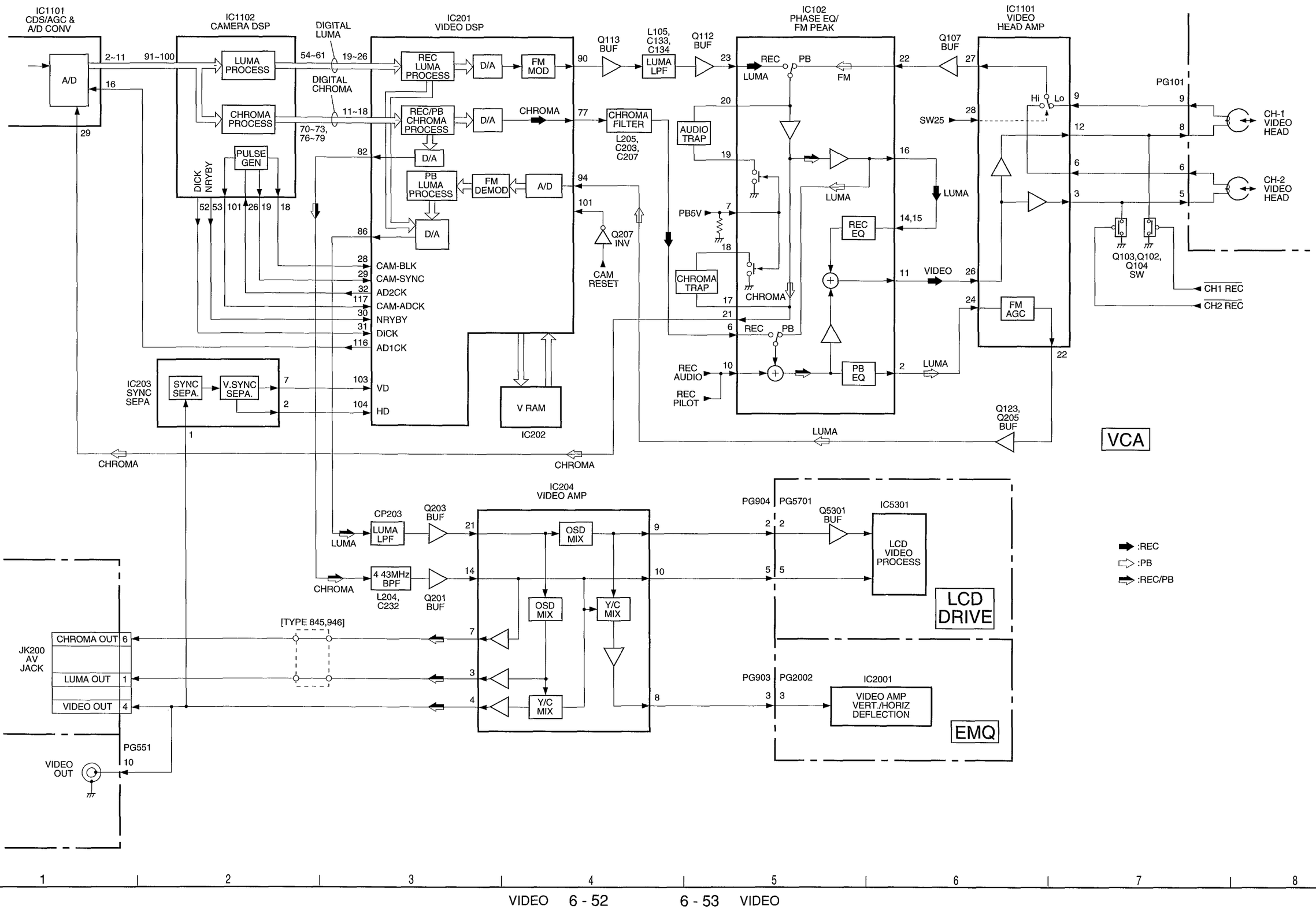

PG551
DC JACK
BATTERY
BATT. SELECT TERMINAL
F551
F552
F553
L904
L551
L563
B+ (VCR)
IC902
BACK-UP DET.
3V REG
3V REG
Hi
Lo
SRV3V
D902
3V LITHIUM (CR2025)
PG908
IC901
SYSTEM CONTROL μP
VCC
BATT-SW
BATT DRY/P
VCR ON
STAND-BY
IC551
PWM
Vcc
Vcc1. 3
Vcc2. 4
Vcc5. 6
5V PWM
2V PWM
3V PWM
B+ (CYL) PWM
B+ (CAPST) PWM
B+ (CAM) PWM
Q553
5V SW
Q559
2V SW
Q551
3V SW
Q561
B+ (CYL) SW
Q562
B+ (CAPST) SW
Q557
B+ (CAM) SW
IC631
CYL.MOTOR DRIVE
IC651
CAPST.MOTOR DRIVE
T551
D552
D553
IC1103
DRIVE PULSE GEN.
Q558
SHORT PROTECT
IC553
5V REG
5V(CAMERA)
IC1104
DIGITAL μP
DATA
CLOCK
LOAD
TALLY
42~45
Q555, Q556
EVF5V SW
PG903
PG2002
PG201
PG405
AUD
PG1101
PG1001
SE
EMQ
DC LIGHT
EVF ON
LCD ON
PG552
DC LIGHT SW
Q570, Q571
[TYPE 845,946]
DC LIGHT
D1104
TALLY
Q1108
TALLY SW
Q552, Q563
LCD5V SW
PG904
Q5401, Q5402
5V SW
LCD
PG5501
BACK LIGHT UNIT
B+ SW
Q5502, Q5503
LED DRIVE
Q5504
Q5405, Q5406
REG
DC-DC CONV
PG5702
LCD UNIT
T5401
CH5501
TRANS
T5501
INV./ TRANS.
VCA

4. SYSTEM CONTROL

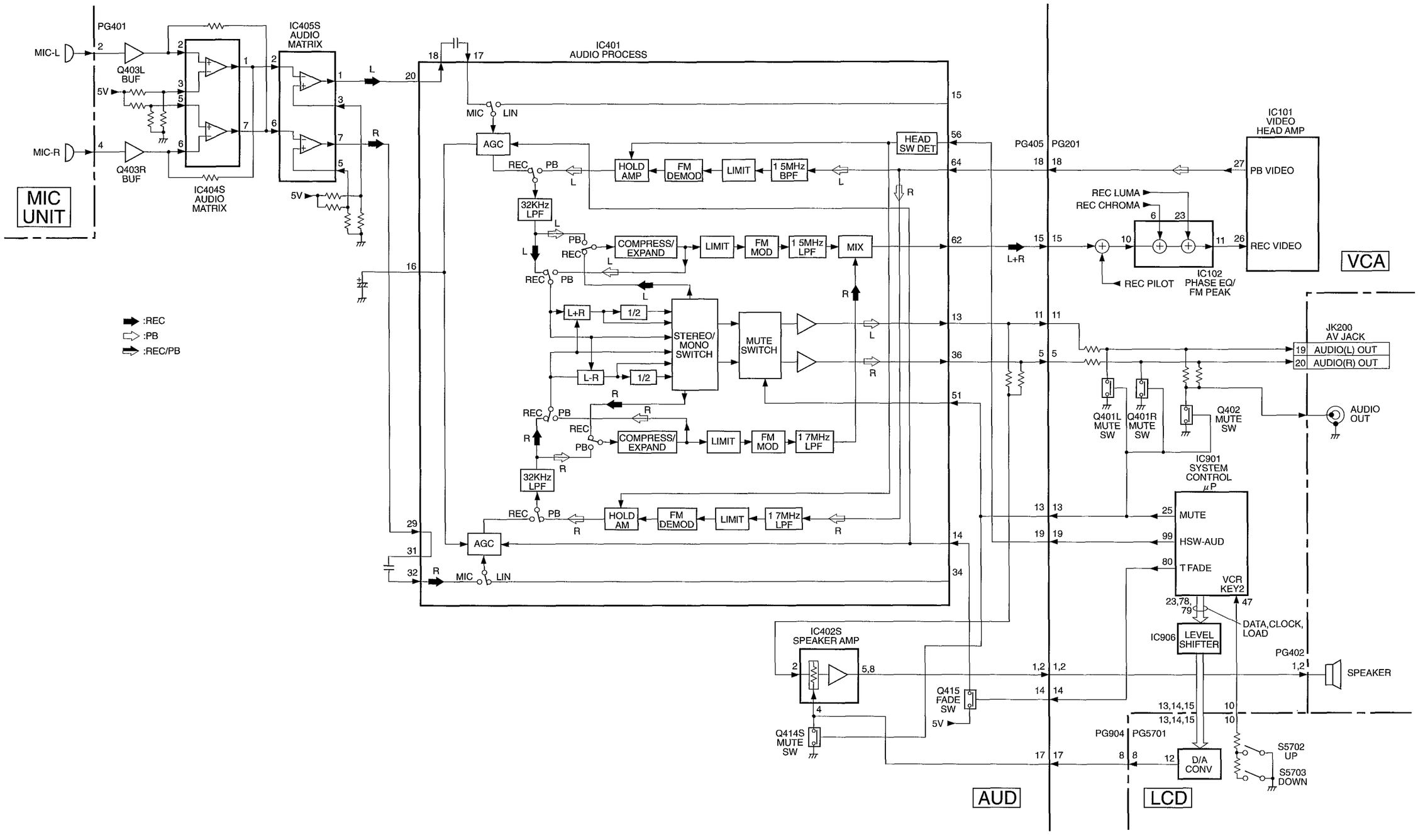



CYL. MOTOR
CYL. FG SENSOR
PG603
DRIVE COILS
V
U
W
IC631
CYL. MOTOR DRIVE
V REF
AMP
MOTOR DRIVE
CYL PG
Q561
B+ (CYL.) SW
IC551 (2/2) PWM
B+ (CYL) PWM
R694-R696, C694-C696
NOISE FILTER
CYL FG
IC901 S-µP
CYL. SPEED
CYL PHASE
CAPST SPEED
REC
REC CAPST PHASE
PB
PB CAPST PHASE
ATF PILOT SEL. GEN
ATF VCO CONT.
MODE SW
CAPST REV
CAPST STBY
CAPST FG
R691-R693, C691-C693
IC551 (1/2) PWM
B+ (CAPST) PWM
Q562
B+ (CAPST.) SW
IC651
CAPST. MOTOR DRIVE
PG602
MR SENSOR
MOTOR DRIVE
REVERSE
ROTOR POSITION SENSOR
U
V
W
CAPST. MOTOR
VCA
IC101
HEAD SW
PG101
CH1 VIDEO
CH2 VIDEO
Lo
HI
SW25Hz
IC102
PHASE EQ/ FM PEAK.
REC LUMA
REC CHROMA
FMA
Q107
BUF
Q1180
BUF
Q604
AMP
Q602
AMP
AUDIO TRAP
IC102
PHASE EQ/ FM PEAK
IC601
ATF
LPF
REC
VCO
PB
FM DET
AGC
LPF
PEAK DET
Q603
AMP

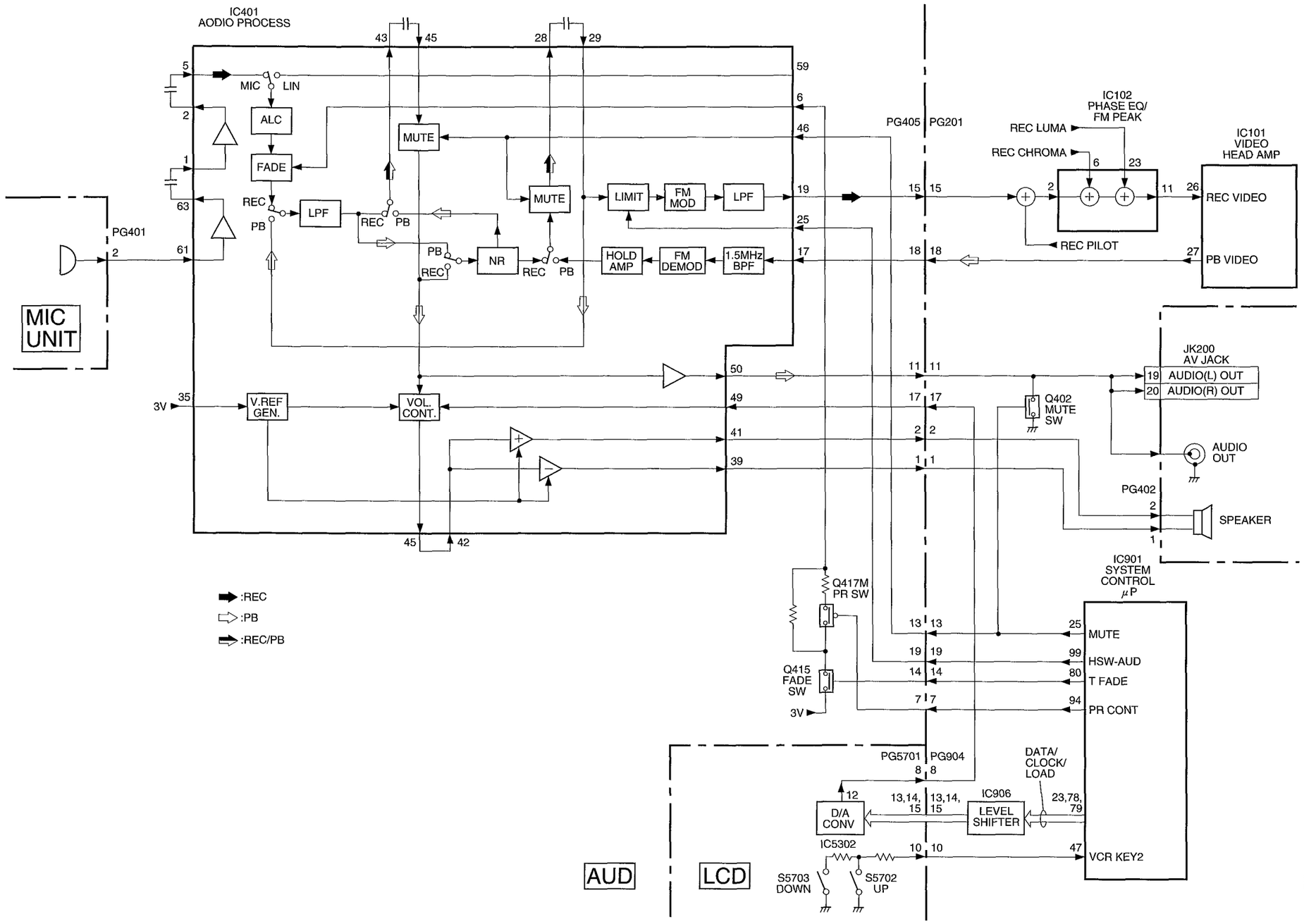
6. VIDEO


IC1101
CDS/AGC &
A/D CONV
A/D
2~11
16
29
91~100
IC1102
CAMERA DSP
LUMA
PROCESS
CHROMA
PROCESS
PULSE
GEN
DICK
NRYBY
52
53
101
26
19
18
DIGITAL
LUMA
54~61
19~26
DIGITAL
CHROMA
11~18
70~73,
76~79
82
86
IC201
VIDEO DSP
REC
LUMA
PROCESS
REC/PB
CHROMA
PROCESS
PB
LUMA
PROCESS
D/A
FM
MOD
FM
DEMOD
A/D
90
94
101
CHROMA
77
Q113
BUF
L105,
C133,
C134
LUMA
LPF
Q112
BUF
CHROMA
FILTER
L205,
C203,
C207
Q207
INV
CAM
RESET
28
CAM-BLK
29
CAM-SYNC
32
AD2CK
117
CAM-ADCK
30
NRYBY
31
DICK
116
AD1CK
IC203
SYNC
SEPA
SYNC
SEPA.
V.SYNC
SEPA.
7
2
1
103
VD
104
HD
V RAM
IC202
CHROMA
CHROMA
IC102
PHASE EQ/
FM PEAK
23
REC
PB
LUMA
FM
20
AUDIO
TRAP
19
PB5V
7
18
CHROMA
TRAP
17
CHROMA
21
6
REC
PB
REC
AUDIO
10
REC
PILOT
REC
EQ
PB
EQ
22
16
LUMA
14,15
LUMA
11
VIDEO
26
2
LUMA
Q107
BUF
27
IC1101
VIDEO
HEAD AMP
Hi
Lo
9
28
SW25
12
8
6
6
3
5
22
FM
AGC
PG101
9
CH-1
VIDEO
HEAD
8
6
CH-2
VIDEO
HEAD
5
Q103,Q102,
Q104
SW
CH1 REC
CH2 REC
LUMA
Q123,
Q205
BUF
VCA
IC204
VIDEO AMP
CP203
LUMA
LPF
Q203
BUF
21
LUMA
4.43MHz
BPF
L204,
C232
Q201
BUF
14
CHROMA
OSD
MIX
OSD
MIX
Y/C
MIX
Y/C
MIX
9
10
8
7
3
4
[TYPE 845,946]
JK200
AV
JACK
CHROMA OUT 6
LUMA OUT 1
VIDEO OUT 4
PG551
10
VIDEO
OUT
PG904
PG5701
2
2
5
5
Q5301
BUF
IC5301
LCD
VIDEO
PROCESS
LCD
DRIVE
PG903
PG2002
3
3
IC2001
VIDEO AMP
VERT./HORIZ
DEFLECTION
EMQ
:REC
:PB
:REC/PB

7. AUDIO [STEREO]



8. AUDIO [MONAURAL]



MICROPROCESSOR PIN FUNCTION TABLES

1. Digital Microprocessor (IC1104: D-μP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	-----	------	VCC	3V power input.
2	O	PWM	RD-PWM-A	Outputs focus motor drive signal to IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
3	O	PWM	RD-PWM-B	
4	O	PWM	ZD-PWM-A	Outputs zoom motor drive signal to IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
5	O	PWM	ZD-PWM-B	
6	O	(Pulse)	FCS-LED1	Output pulses to drive the LEDs in the focus reset switches (FOCUS RESET SW).
7	O	(Pulse)	FCS-LED2	
8	O	(Pulse)	ZOM- LED1	Output pulses to drive the LEDs in the zoom reset switches (ZOOM RESET SW).
9	O	(Pulse)	ZOM- LED2	
10	-----	-----	RESO[Lo]	Not used. Open.
11	-----	-----	VSS	Ground.
12	O	(Pulse)	SD (232C)	Used for initial settings and adjustment. For data communications with personal computer.
14	I	(Pulse)	RD (232C)	
13	O	(Pulse)	SD	For data communications with IC1102 (DSP), IC1105 (EEP-ROM) and IC901(S-μP).
15	I	(Pulse)	SI	
17	O	(Pulse)	CLK	
16	-----	-----	----------	Not used. Open.
18	O	(Pulse)	LD-DSP	Activates data communications with IC1102 (DSP).
19	-----	-----	CS-MB	Not used. Open.
20	O	(Pulse)	CS-MA	Activates data communications with IC901 (S-μP).
21	-----	-----	LD-EV	Not used. Open.
22	-----	-----	VSS	Ground.
23	O	Lo	CS-EE	Activates data communications with IC1105 (EEP-ROM).
24	-----	-----	----------	Not used. Open.
25	-----	-----	----------	
26	O	(Pulse)	CS-CDS	Transfer data to IC1101 (CDS/AGC).
27	O	(Pulse)	CLK-CDS	
28	O	(Pulse)	SD-CDS	
29	-----	-----	ZD-RESET	Not used. Open.
30	O	Hi	ZDOEB	Activates data communications with IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
31	-----	-----	ZDCW	Not used. Open.
32	-----	-----	RD-RESET	
33	O	(Pulse)	RDOEB	Activates data communications with IC1301 (FOCUS MOTOR/ZOOM MOTOR DRIVE).
34	-----	-----	RDCW	Not used. Open.
35	-----	-----	VCC	3V power input.
36	-----	-----	LD-VDRV	Not used. Open.
37	O	Hi	TALLY	Drives Q1108 (TALLY SW) to turn on the record LED during recording.
38	O	Hi	VGRO-RES	Drives Q1402 (GYRO RESET) via Q1401 (INV.) to reset IC1401 (V. GYRO) and IC1402 (H. GYRO).
39	-----	-----	HGRO-RES	Not used. Open.
40	-----	-----	HALL G0	
41	O	Hi	HALL G1	Control the amplification (gain of Hall device) of IC1201 (F.DET/IRIS DRIVE).
42	-----	-----	JIG-LOAD	Not used. Open.
43	-----	-----	CHECKB	
44	-----	-----	VSS	Ground.
45	----	-----	----------	Not used. Open.
46	----	-----	----------	
47	----	-----	----------	
48	----	-----	----------	
49	----	-----	----------	
50	----	-----	----------	

Pin No.	I/O	Active Level	Abbreviation	Function
51	-----	-----	----------	Not used. Open.
52	-----	-----	----------	
53	-----	-----	BRST-FLG	
54	-----	-----	T/W-FAST	
55	I	Lo	WIDE-SW	Zoom switch detection inputs.
56	I	Lo	TELE-SW	
57	-----	-----	VSS	Ground.
58	-----	-----	CLK-EV	Not used. Open.
59	-----	-----	SD-EV	
60	-----	-----	PWR-SAVE	
61	-----	-----	----------	
62	I	Lo	STBY[Lo]	No used. Connected to 3V power supply.
63	I	Lo	RESET[Lo]	Reset signal input from IC901 (S-µP).
64	I	Lo	NM1[Lo]	Not used. Connected to 3V power supply.
65	-----	-----	VSS	Ground.
66	I	(Pulse)	XIN	Clock pulse input from IC1102 (DSP).
67	-----	-----	XOUT	Not used. Open.
68	-----	-----	VCC	3V power input.
69	-----	-----	----------	Not used. Open.
70	I	Hi/Lo	PAL[Lo]	NTSC model: Not used. Connected to 3V power supply. PAL model: Used. Connected to ground.
71	I	Hi/Lo	SECAM[Lo]	Not used. Connected to 3V power supply.
72	I	Hi/Lo	Hi-BAND[Lo]	Used. Connected to ground.
73	I	Hi	MD0	Not used. Connected to 3V power supply.
74	I	Hi	MD1	
75	I	Hi	MD2	
76	-----	-----	AVCC	5V power input (for analog circuits in microprocessor).
77	-----	-----	VREF	A/D reference voltage input (connected to 5V power supply).
78	-----	0V-5V	FDET	F-value detection input. Receives the F.DET voltage detected by IC1201 (F.DET/ IRIS DRIVE) and compares this with the reference voltage input via pin 77 to detect the F-value.
79	I	0V-5V	V-MOVE	Receives vertical camera shake correction data from IC1401 (GYRO (VERT.)) via IC1403 (GYRO AMP).
80	I	0V-5V	H-MOVE	Receives horizontal camera shake correction data from IC1402 (GYRO (HORIZ.)) via IC1403 (GYRO AMP).
81	I	0V-5V	TEMP-ADJ	Temperature change detection input. Detects variations in the forward voltage at the connected diode to correct the back-focus.
82	I	0V-5V	CAM-KEY2	Camera switch detection input (Manual focus).
83	I	0V-5V	CAM-KEY1	Camera switch detection input (EIS, fade, degital effect, instant zoom).
84	O	0V-5V	HAL-ADJ0	Drives bias generator in IC1201 (F.DET/IRIS DRIVE) via Q1201 (BUF) to control the bias voltage of the Hall devices.
85	O	0V-5V	HAL-ADJ.1	Controls the offset voltage of IC1201 (F.DET/IRIS DRIVE).
86	-----	-----	AVSS	Ground.
87	I	(Pulse)	FV	Receives the vertical sync pulses that detect the iris detection area, from IC1102 (DSP).
88	-----	-----	NEAR-SW	Not used. Open.
89	-----	-----	FAR-SW	
90	I	(Pulse)	FP	Field discrimination pulse input.
91	I	(Pulse)	EP2	Receives pulses which discriminate the iris detection area.
92	----	-----	VSS	Ground.
93	I	(Pulse)	CHD(CNE)	Horizontal sync input.
94	-----	-----	----------	Not used. Open.
95	-----	-----	SUB-PWM	
96	-----	-----	----------	

Pin No.	I/O	Active Level	Abbreviation	Function
97	O	(Pulse)	CRTN-CNE	Supplies pulses to IC1102 (DSP) to control the wipe fade operation.
98	I	(Pulse)	FOCS-SEN	Focus motor position detection input.
99	-----	(Pulse)	IRIS PWM	Iris motor drive output .
100	I	(Pulse)	ZOOM-SEN	Zoom motor position detection input.

2. System Control Microprocessor (IC901: S-μP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	O	Lo	CH2. REC[Lo]	Output the signals to select the video heads for recording.
2	O	Lo	CH1. REC[Lo]	Go "Lo" in the corresponding channel period during recording.
3	O	Hi/Lo	EVF ON	EVF power control output. Outputs "Hi" when power is turned on.
4	O	(Pulse)	SW30/SW25	Head switching pulse output.
5	I	Hi	TEST/NOR[Lo]	Test program start detection input. A test program is executed when "Hi" is input.
6	I	Hi	HIBAND	Playback mode detection input. IC901 receives the playback mode detection signal sensed by IC201 (VIDEO DIGITAL PROCESS) and instructs IC904 (CHARA. GEN.) to generate the display signals and also transfers the operation mode data to IC201. Open for models with which only normal tapes are used.
7	O	Hi/Lo	PB	Output to control the mode of the video processor. Goes "Hi" during playback.
8	O	Hi	D-STANDBY	Cylinder motor start auxiliary output. Outputs "Hi" for 50 ms when the motor is started in the forward rotation direction.
9	O	(Pulse)	END LED	End LED drive output. Outputs pulses of approx. 50Hz when power is turned on.
10	I	0V-5V	M-SW2	Mechanism state switch position (mode) detection input.
11	I	0V-5V	M-SW1	
12	I	0V-5V	M-SW0	
13	I	Lo	CAM SW[Lo]	Power switch detection input. "Lo" is input during recording (camera mode).
14	I	Lo	VCR SW[Lo]	Power switch detection input. "Lo" is input during playback (VCR mode).
15	I	Lo	EJECT SW[Lo]	Eject switch detection input. When "Lo" is input, the camcorder performs the eject operation even when the power is turned off (standby release input).
16	I	Lo	STAGE[Lo]	Cassette holder open/close detection input. "Lo" is input when the cassette holder is closed.
17	I	Hi/Lo	ME/MP[Lo]	Input to discriminate the type of tape. Hi: ME (metal evaporated) tape, Lo: MP (metal particle) tape.
18	I	Lo	WAKE UP[Lo]	Standby release input. When the camera power is turned on, "Lo" is input to release the standby mode. IC901 detects the inputs of each switch to start operation.
19	I	Lo	REC START[Lo]	Recording start/stop switch detection input.
20	I	Lo	AV CONT	Input to detect whether an external AV signal is input or not. "Lo" is input when an AV input cable is connected to the AV input/output connector (JK200: AV IN/OUT).
21	O	(Pulse)	AUD-CS	Not used. Open
22	O	(Pulse)	VDSP-CS	Activates data communications with IC201 (VIDEO DIGITAL PROCESS).
23	O	(Pulse)	LCD-CS	Activates data communications with IC5302 (LCD D/A CONV.).
24	I	Hi/Lo	DC LIGHT ON	DC light switch (SW907) detection input.
25	O	Hi	MUTE	Audio muting output. Outputs "Hi" to mute sound.
26	O	Hi/Lo	CAM[Lo]/LINE	Video processor mode control output. Outputs "Lo" during camera recording and "Hi" with an external (line) signal.
27	O	Lo	S.EDIT[Lo]	Table-top VCR mode control output. The operation mode of the VCR connected to JK200 (AV IN/OUT) is controlled remotely using the pause switch.
28	O	Hi/Lo	VCR ON	Power control output. Outputs "Hi" when power is turned on.
29	O	Lo	OSD RESET [Lo]	Outputs "Lo" with power on and is set to open with power off to initialize IC904 (CHARA. GEN.).
30	O	Lo	TRICK	Not used. Open.
31	O	Hi	C.STANDBY	Capstan motor power control output.
32	O	Lo	SW+B(VCR ON) [Lo]	Power control output. Outputs "Lo" when power is turned off.

Pin No.	I/O	Active Level	Abbreviation	Function
33	O	Hi/Lo	LCD PAL60	Output to select the LCD display mode (NTSC or PAL 60).
34	O	Lo	CAM RESET [Lo]	Camera block power supply control output. Outputs "Hi" when power is turned on and "Lo" when power is turned off to initialize the camera block (IC1104: D-μP).
35	O	Hi/Lo	f4SEL	Auto track finding (ATF) pilot signal select output.
36	O	Hi/Lo	TRK. MOD	Output to select the pilot signal from IC601 (ATF). Hi: VCO output, Lo: Playback (PB) FM signal
37	-----	-----	GND	Grounded.
38	I	Lo	SYSTEM RESET[Lo]	Microprocessor reset input. "Lo" input resets the microprocessor.
39	-----	-----	GND	Grounded.
40	O	(Pulse)	XTAL OUT 12MHz	Drive X901 to generate 12MHz main clock pulses.
41	I	(Pulse)	EXTAL IN 12MHz	
42	I	(Pulse)	D-STB(DSP)	For data communications with IC1104 (D-μP).
43	I	(Pulse)	D-DATA(DSP)	
44	O	(Pulse)	S-DATA(DSP)	
45	I	(Pulse)	D-CLOCK(DSP)	
46	I	0V-5V	MODEL	Internal mode select input. (Select the NTSC(USA)/NTSC(JAPAN)/PAL etc.)
47	I	0V-5V	VCR KEY2	VCR operation switch detection input (playback, date/title).
48	I	Hi/Lo	LCD SW	Input to siscriminate the state of LCD panel is opened or closed. Hi: Close, Lo: Open.
49	I	0V-5V	BATTERY	Input to detect the battery remaining level.
50	-----	-----	GND	Grounded.
51	I	-----	AVref	Reference voltage input. Connect to 3V line.
52	-----	-----	AVdd	3V power input.
53	I	Hi/Lo	CASETTE-SW	Erase prevention tab and Hi-8/Normal of the casette detection input.
54	I	0V-5V	BATT-SW	DC light switch (SW907), PAL60 switch (SW908) and power supply detection input.
55	I	(Pulse)	PB PILOT	Playback pilot signal (PB PILOT) input.
56	I	0V-5V	VCR KEY1	VCR operation switch detection input (rewind, fast forward, stop).
57	I	0V-5V	TRACK ADJ.	For the connection of a tracking control for adjustment. When an ATF-R jig is connected to PG601 (test plug), the variable resistor on the ATF-R jig can be used as a tracking control.
58	I	(Pulse)	EST	Take-up tape end detection inputs.
59	I	(Pulse)	ESS	Supply tape end detection inputs.
60	I	(Pulse)	PB.ENV	Playback (PB) FM signal input.
61	I	(Pulse)	RSS	Supply/take-up reel sensor inputs. Used to calculate the remaining tape and to detect reel lock.
62	I	(Pulse)	RST	
63	I	Hi/Lo	BATT DRY/ P[Lo]	Maker of the battery detection input.
64	I	(Pulse)	C.SYNC	Composite sync signal input. The separated vertical sync signal is divided by two to generate the 1/2V.SYNC pulse which is used tocontrol the cylinder speed during recording (reference signal).
65	I	(Pulse)	VCO IN	Receive the signal from the VCO in IC601 (ATF) to fix the frequency of the recording pilot signal (VCO's output).
82	O	(Pulse)	VCO CONT	
66	I	(Pulse)	DPG	Tach pulse input. Feedback signal that controls the recording phase of the cylinder.
67	I	(Pulse)	DFG	Cylinder FG (CYL. FG) pulse input. Controls the cylinder speed during recording and playback.
68	I	(Pulse)	CFG	Capstan FG (CAPST.FG) pulse input. Used for counting of the linear time counter and recording restart control (assemble recording).
69	O	Hi	LOAD	Loading motor drive outputs.
70	O	Hi	UNLOAD	
71	O	(Pulse)	EVF-CS	For LCD color EVF. Activates communications with EVF D/A convertor.
72	O	(Pulse)	OSD-CS	Activates communications with IC904 (CHARA. GEN.).

Pin No.	I/O	Active Level	Abbreviation	Function
73	O	PWM	D.SPEED	Cylinder servo control outputs.
74	O	PWM	C.SPEED	Capstan servo control outputs.
75	I	(Pulse)	CFG	Capstan FG (CAPST.FG) pulse input. Used for counting of the linear time counter and recording restart control (assemble recording).
76	I	Lo	V-DET[Lo]	Inputs whether a battery is attached or not. "Lo" is input when the battery is detached, to shift the microprocessor to the backup mode in which the data is saved.
77	-----	-----	----------	Not used.
78	O	(Pulse)	D. OUT	For data communications with IC904 (CHARA. GEN.), IC201 (DIGITAL VIDEO
79	O	(Pulse)	CLOCK	PROCESS), IC401 (AUDIO PROCESS(For Stereo)) and IC5302 (LCD D/A CONV).
80	O	Hi	T.FADE	Rapid audio fading output. Outputs "Hi" when fading is started to fade the audio signal in rapidly, synchronized with the video signal.
81	I	Hi/Lo	BATT SERIAL	Battery serial time detection input.
83	I	(Pulse)	REMOCON	Remote operation signal input from the infrared receiver.
84	I	(Pulse)	32MHz TEX IN	Generate 32kHz sub-clock pulses.
85	O	(Pulse)	32MHz TX OUT	
86	-----	-----	GND	Grounded.
87	-----	-----	Vdd	3V power input.
88	-----	-----	----------	Not used. Connected to 5V power supply.
89	O	Hi	D.REVERSE	Cylinder motor reversing control output.
90	O	Hi	C.REVERSE	Capstan motor reversing control output.
91	O	Hi	REC	Output to control the video processor during recording.
92	-----	-----	OPT. ON	Not used. Open.
93	O	Hi	FE CONT	Flying erase head oscillation control output .
94	O	Lo	PR CONT	Preamp activation signal. Outputs"Hi" during playback to activate the preamp.
95	O	(Pulse)	HD	Artificial H. sync signal output.
96	O	(Pulse)	ADDV+ SQUELCH	Artificial V. sync signal + video muting signal output.
97	O	Hi/Lo	16 x 9	Output to select the display mode (normal or 16x9 (wide vition)).
98	O	Hi/Lo	LCD-HOLD	Controls the LCD control circuit operation mode.
99	O	(Pulse)	AUDIO30/25	Outputs switching pulses to IC401 (AUDIO PROCESS).
100	O	Hi/Lo	LCD ON	LCD power control output. Outputs "Hi" when power is turned on.

CHAPTER 7 APPENDIX

1. SELF-DIAGNOSTIC FUNCTION

1. 1 Overview

The camera/recorder has the following self-diagnostic function.

- Occasional defect self-diagnostic function (A mode)
- Mechanical block self-diagnostic function (B mode)

Fig. 1-1 shows the self-diagnostic coverage range. The self-diagnostic functions of the camera/recorder are engaged by the system control (main) μP (IC0901) which detects, memorizes and displays data related to defects in the mechanical block control system.

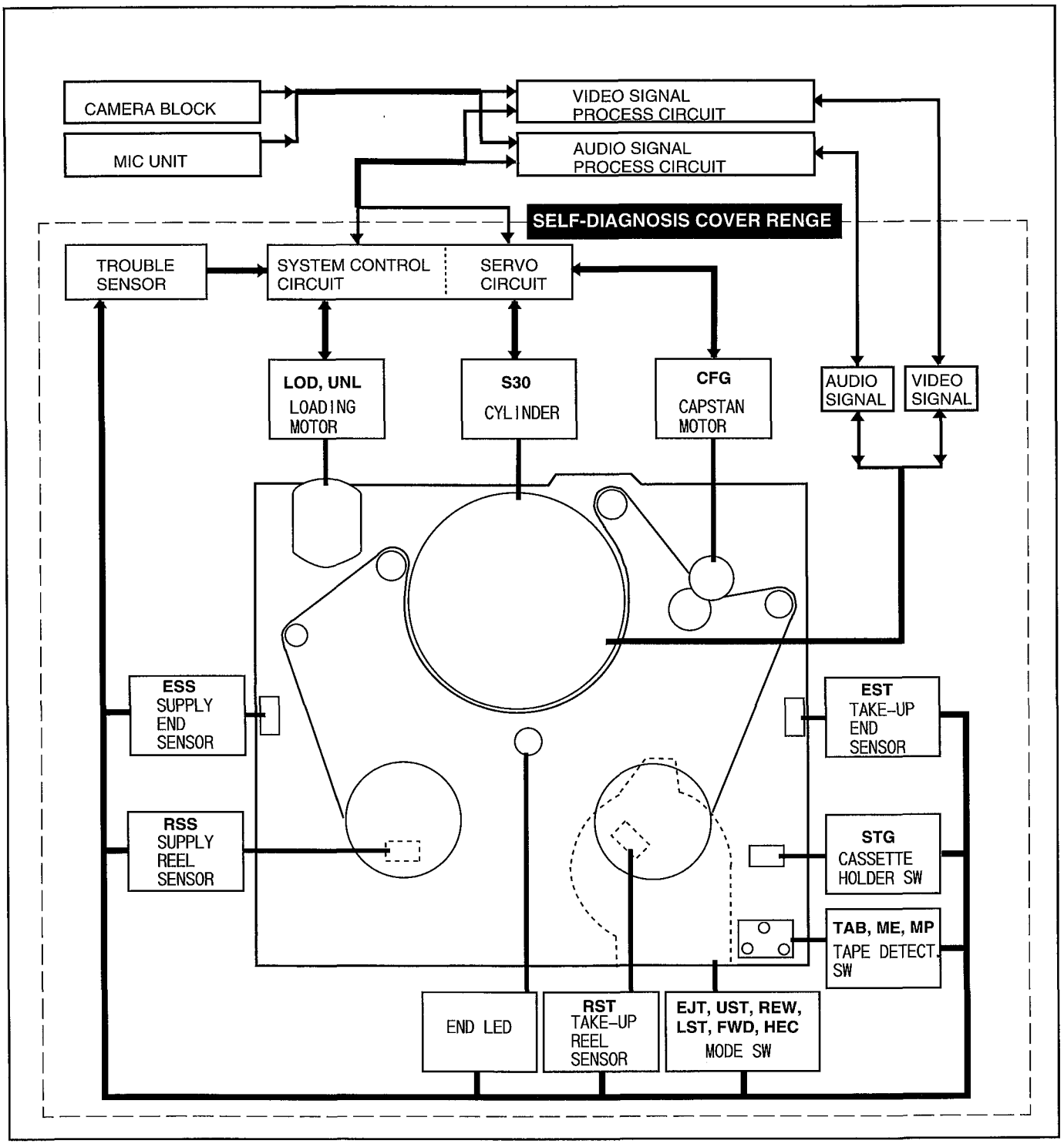


Fig. 1-1 Self-Diagnostic Coverage Range

1.2 Details of Display/Detection and Applications

Table 1-1 summarizes the details of display/detection of the self-diagnostic functions and their applications.

Fig. 1-2 shows the operational processes of the self-diagnostic functions.

Table 1-1 Details of Display/Detection of Self-Diagnostic Functions and their Applications

	Occasional defect self-diagnostic function (A mode)	**Mechanical block self-diagnostic function (B mode)**
Details of display/ detection	The system control μ P memorizes and displays the defect data. (If several defects have occurred, only the last defect detected is memorized.)	Displays the data for the defect that has occurred when the B mode is set.
Application	Used when the defective symptom is not reproduced during servicing.	Used to detect the cause of the defect (in the mechanical block or electrical circuits) and to determine the defective position of the mechanical block.
Detected parts	Trouble sensors • Take-up end sensor (EST) • Supply end sensor (ESS) • Take-up reel sensor (RST) • Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG)	Trouble sensors • Take-up end sensor (EST) • Supply end sensor (ESS) • Take-up reel sensor (RST) • Supply reel sensor (RSS) Cylinder (S30) Capstan motor (CFG) Loading motor (LOD, UNL) Mechanism mode switch (EJT, UST, REW, LST, FWD, HEC) Tape detection switches, etc. • Erase prevention tab detection switch (TAB) • ME/MP detection switch (ME) • Hi-8 MP detection switch (MP) • Cassette holder switch (STG)
Cautions	When the rewind mode is entered, the defect data is erased.	Engage the B mode after completing the A mode. If the B mode is engaged first, the defect data may be erased.

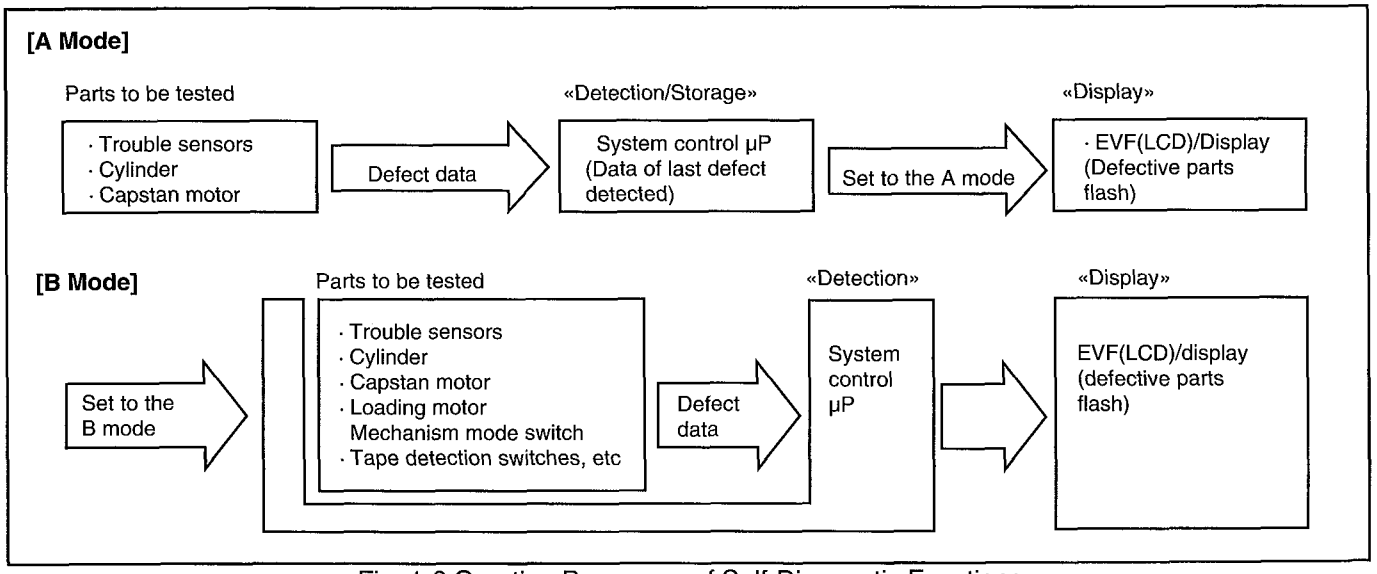


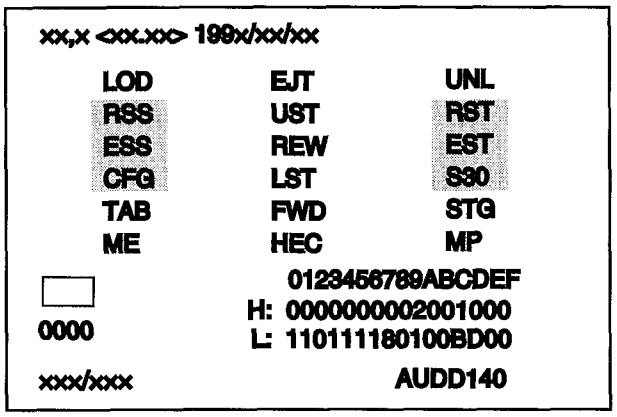
Fig. 1-2 Oeration Processes of Self-Diagnostic Functions

1.3 Setting Procedure and Details of Diagnosis

1.3.1 Occasional Defect Self-Diagnostic Function (A Mode)

(1) Setting Procedure

1) Connect (attach) a power supply (battery).
2) Set the power switch to"CAM" or "VCR".
3) Press the DATE button. [Within half a second]
4) Press the DATE and REW buttons simultaneously and hold them for 3-5 seconds.



«Results of self-diagnosis»
- The shaded items flash if they are defective.
- See Table 1-2 for the results of diagnosis.

Cautions:
- Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
- Only the shaded items are tested in the A mode.
- Other items are ignored.

[To release]
- Set the power switch to "OFF".
- Press the DATE and REW buttons simultaneously.

(2) Results of Diagnosis

Table 1-2 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the A mode.

Table 1-2 Details of A Mode Self-Diagnosis

Part	Display	Results of diagnosis	Parts/circuits deemed to be defective
Trouble sensors	RSS	The pulse from the supply reel sensor is defective.	Supply reel disk Trouble sensor (reel sensor) IC0901
	RST	The pulse from the take-up reel sensor is defective.	Take-up reel disk Trouble sensor (reel sensor) IC0901
	ESS	The pulse from the supply end sensor is defective.	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective.	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
Cylinder	S30	The SW30/25 (CYL. FG) pulse is defective.	Cylinder IC0631 IC0901 DC-DC converter circuit
Capstan	CFG	The CAPST. FG pulse is defective.	Capstan motor IC0651 IC0901 DC-DC converter circuit

1.3.2 Mechanical Block Self-Diagnostic Function (B Mode)

Caution: Complete the A mode before engaging the B mode.

(1) Setting Procedure

1) Connect (attach) a power supply (battery).
2) Press the EJECT button to set to the eject state.
3) Press the "Hi-8 MP" switch on the trouble sensor and the DATE button and hold them, then set the power switch to "CAM" or "VCR" (Hold this state for a few seconds.) [Within 3 seconds].
4) Close the cassette lid.

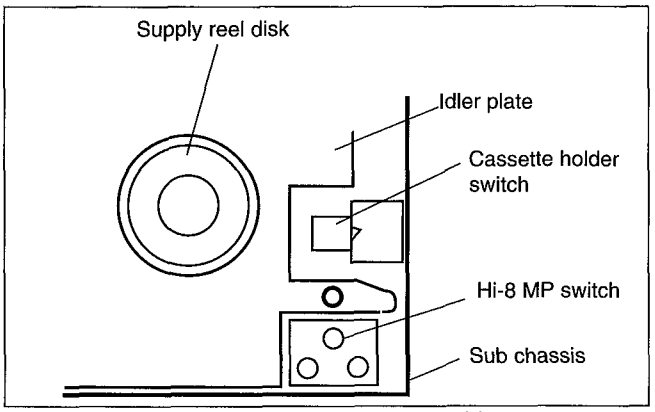
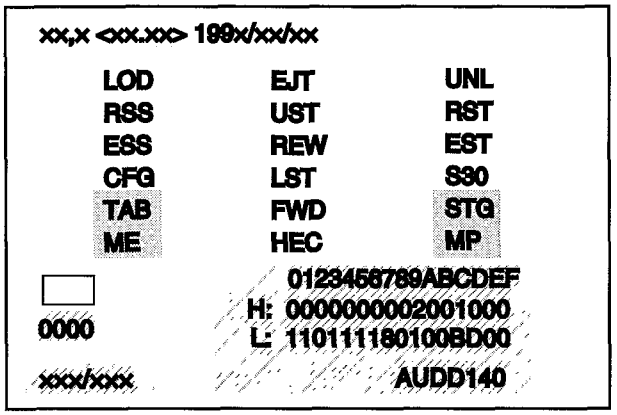


Fig.1-3 Hi-8 MP Switch Position



«Results of self-diagnosis»
- The defective items flash.
- The shaded items are the tape detection switches and cassette holder switch which flash when they are not pressed.
- See Table 1-3 for the results of diagnosis.

Cautions:
- Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
- The indications in dotted lines are not covered by the self-diagnostic functions.
- It is normal for the diagnostic procedure to end in the eject state. Do not close the cassette lid thereafter.

[To release]
- Set the power switch to "OFF".

5) The procedure ends in the eject state.

Caution: Do not close the cassette lid.

(2) Results of diagnosis

Table 1-3 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the B mode.

Table 1-3 Results of B Mode Self-Diagnosis (1/2)

Part	Display	Results of diagnosis (Detect display conditions)	Parts/circuits deemed to be defective
Loading motor	LOD	The loading motor is defective when running forward. (Does not load within 10 seconds.)	Loading motor Rotation of drive gears in mechanical block faulty. IC0671 IC0901 IC0902 Power supply (5V, B+) lines.
	UNL	The loading motor is defective when runnig in reverse. (Does not unload within 10 seconds.)	
Trouble sensors	RSS	The pulse from the supply reel sensor is defective. (There is cne pulse or less withinte two seconds.)	Supply reel disk Trouble sensor (reel sensor) Capstan motor IC0901

Table 1-3 Results of B Mode Self-Diagnosis (2/2)

Part	Display	Results of diagnosis (Detect display conditions)	Parts/circuits deemed to be defective
Trouble sensor	RST	The pulse from the take-up reel sensor is defective. (There is one pulse or less within two seconds.)	Take-up reel disk Trouble sensor (reel sensor) Capstan motor IC0901
	ESS	The pulse from the supply end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
	EST	The pulse from the take-up end sensor is defective. (No pulse is input for more than 100 ms continuously within two seconds.)	Trouble sensors (end sensor/end LED) Q0905 IC0901 DC-DC converter circuit (B+ line)
Tape detection switches, etc.	TAB	The erase prevention tab detection switch detects the record inhibit state (OFF).	**Caution**: These switches flash when they are not pressed. It is abnormal if they flash when pressed. Trouble sensor IC0901
	ME	The ME/MP tape detection switch detects the MP state (OFF).	
	MP	The Hi-8 MP tape detection switch detects the normal MP state (OFF).	
	STG	The cassette holder switch detects the state where the cassette holder is not lowered (OFF).	
Capstan motor	CFG	The CAPST. FG pulse is defective. (150 pulses or less within two seconds.)	Capstan motor IC0651 IC0901 DC-DC converter circuit
Cylinder	S30	The SW30/25 (CYL. FG) pulse is defective. (No pulse is input normally within two seconds.)	Cylinder IC0631 IC0901 DC-DC converter circuit
Mechanism mode switch	UST	The unloading stop position detection signal is defective.	**Caution**: The positions shown on the left are detected in the order described within 10 seconds. Mechanism mode switch Trouble sensor IC0901 Defective rotation/phase of drive gears in mechanical block. Loading motor. Tape transport components. Guide roller rails DC-DC converter circuit.
	REW	The rewind position detection signal is defective.	
	LST	The loading stop position detection signal is defective.	
	FWD	The play or fast forward position detection signal is defective.	
	HEC	Between the fast forward position and unloading stop position detection signal isdefective.	
	EJT	The eject position detection signal is defective.	

2. Demonstration (Demo) Mode

This camera/recorder has a demonstration (demo) mode function.

2.1 Setting the Demo Mode

The camera/recorder can be set to the demo mode following the procedure below:

2.1.1 Setting Conditions

1) Connect the AC adapter/charger or a fully charged battery pack.
2) Set the power switch to "OFF".
3) Do not insert a cassette.

2.1.2 Setting Procedure

Hold the PLAY button down and set thepower switch to "CAM".

Note: The camera/recorder also enters the Demo mode in the following status:
If the power switch is set to "CAM" for more than 10 minutes when the date has not been set.

2.2 Exiting the Demo Mode

Perform either of the following to finish (release) the demo mode:

1) Disconnect the AC adapter/charger or battery.
2) Insert a cassette.
3) Set the power switch to "CAM".

2.3 Operation During the Demo Mode

Cautions:

1) The following buttons and switches cannot be used in the demo mode:
   VCR system:
   PLAY, F.FWD, REW, REC START/STOP
   Camera system:
   EIS, FADE, DIGITAL EFFECT, FOCUS, INST.ZOOM
2) If the AC input cable is connected while in the demo mode, the demo mode wi ll be interrupted, and the operation mode when the cable has been connected will be maintained.
3) When the power switch is set to "VCR" during the demo mode, the demo mode will be interrupted, and the operation mode when the switch has been changed will be maintained.

2.3.1 Operation sequence

The following table shows the operation sequence in the demo mode and the display in the EVF (LCD) and on the monitor screen.

Caution:

Only functions provided with specific models will be demonstrated. (T his section describes models provided with all functions of this series of camera/recorder.)

Order	Demo mode	On-screen display	Picture	Remarks
1		No display	Continues one second.	
2		DIGITAL		Displays characters every half second.
3		DIGITAL DEMONSTRATION		DEMOSNTRATION is displayed under DIGITAL
4		No display		Continues half a second.
5		DEMO		Lights for a second, and then continues to flash.
6	EIS	EIS indicator and OFF at center	Shakes noticeably in the vertical direction.	For 5 seconds
7		EIS indicator	Shaking lessens.	For 3 seconds
8		EIS indicator and OFF at center	Shakes noticeably in the horizontal direction.	For 3 seconds
9		EIS indicator	Shaking lessens.	For 5 seconds
10	INST.ZOOM (Instant Zoom)	I.ZOOM indicator	INST. ZOOM is ON	For 2 seconds
11		(DEMO flashes)	INST. ZOOM is OFF	For 2 seconds
12		I.ZOOM indicator	INST. ZOOM is ON	For 2 seconds
13		(DEMO flashes)	INST. ZOOM is OFF	For 2 seconds
14	FADE	Wipe fade indicator	Wipe fade in	The fade modes will switch sequences every demo mode cycle.
15			Wipe fade out	
14'		Mosaic fade indicator	Mosaic fade in	
15'			Mosaic fade out	
14'		Art fade indicator	Art fade in	
15'			Art fade out	
14'		Black-and-white (B&W) fade indicator	B/W fade in	
15'			B/W fade out	

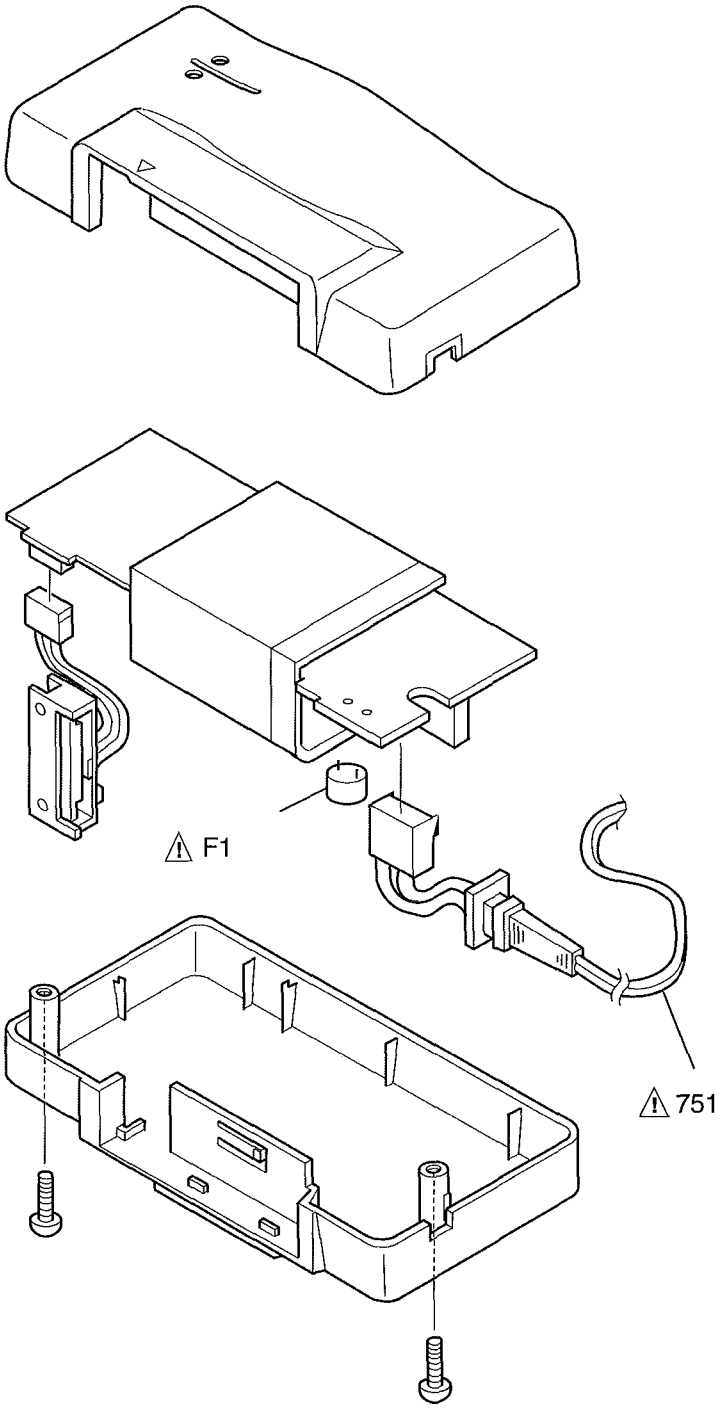
Order	Demo mode	On-screen display	Picture	Remarks
16	Digital effect	16 x 9 indicator	16 x 9 picture	For 1.25 seconds
17		NEGPOS indicator	Negative picture	For 1.25 seconds
18		ZM:2 indicator	Magnifies subject up to 240 times.	For 1.25 seconds
19		MIRROR indicator	Half-mirror picture	For 1.25 seconds
20		MOSAIC indicator	Mosaic picture	For 1.25 seconds
21		ART indicator	Art picture	For 1.25 seconds
22	Stored Title		The registered titles appear in sequence. [The number of titles is different for each model (destination).]	For 0.3 to 1 second for each
23	Normal		Normal picture	For 3 seconds, and then goes back to step 1.

Note: Steps 1-23 will be repeated during the demo mode.

CHAPTER 8 VM-ACE4E (AC ADAPTER/CHARGER)

EXPLODED VIEW & REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
⚠ 751	EV10462	CODE, POWER (For AU)
⚠ 751	EV10442	CODE, POWER (Except for AU)
⚠ F1	FN10261R	FUSE 1.6A



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SERVICE MANUAL

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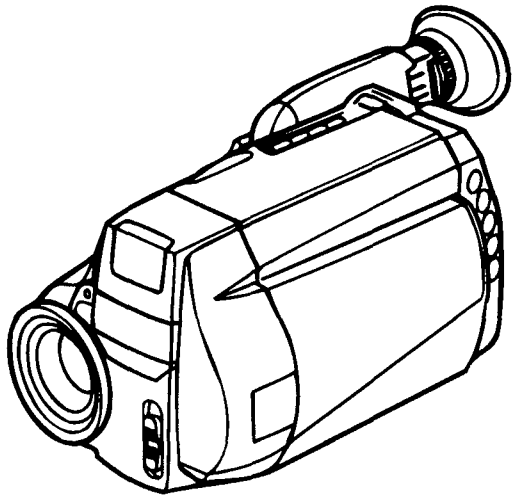


TK | No.6809E-1

VM-E645LE/E648LE
VM-H845LE/H946LE

SUPPLEMENT

Refer to this manual for the following items, which are not included in the VM-E645LE/ E648LE/H845LE/H946LE Service Manual (No. 6809E):

- Color LCD Display Adjustment

8
Hi8

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

July 1998 Image & Information Media Systems Division, Tokai

CONTENTS

Before Starting Adjustment

Set the DATE of the camera/recorder.

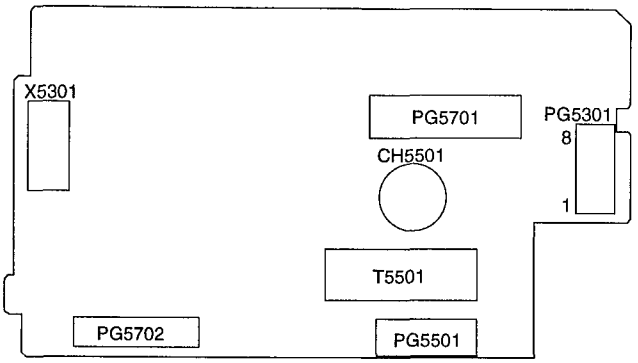
Abbreviation

MAP: Digital adjustment program for the camera.
DSP: Digital signal processor

Trademark

2.9 Color LCD Display Adjustment

2.9.1 Adjustment Parts Location



PG5301

8	GND
7	TEST
6	COMMOM OUT
5	R OUT
4	B OUT
3	G OUT
2	VSYNC
1	HSY

Fig. 2-101 LCD Circuit Board

2.9.2 Adjustment Procedure

Before Starting Adjustment

Be sure to perform this adjustment after replacing the LCD unit, components on the LCD circuit board or the VCA circuit board (EEPROM), or initializing the EEPROM.

Note: Picture appears on the LCD only when the LCD display is open. To display a picture while the case (LCD OPEN/CLOSE switch) is off, short pins 1 and 2 of PG905 on the VCA board using a shorting clip, etc.

(1) Start the MAP.

MAIN MENU

```
**************************************************
        MANUAL ADJUSTMENT PROGRAM
**************************************************
                      :
        [H]     LCD
                      :
        Please select [A] - [H] or [ESC]
```

(2) Press **H** key.

LCD ADJ. MENU

```
**************************************************
                LCD ADJUSTMENT
**************************************************
          [1]    PLL VCO
          [2]    H. POSITION
          [3]    RGB GAIN
          [4]    sub B
          [5]    sub R
          [6]    CONTRAST
          [7]    COM
          [8]    BURST CLEAN
          [9]    FLICKER
          [ESC]  RETURN TO MENU
           Please select [1] - [9] or [ESC]
```

(3) Select the number of the required adjustment.

Notes: 1. To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.
2. When an adjustment item is selected from the color LCD adjustment menu, the adjustment mode will be automatically set, and the signal necessary for adjustment will be supplied from the system control μP.

(1) PLL VCO Adjustment

Purpose:
To adjust the VCO free-running frequency.

Incompleted Phenomenon:
Picture cannot be synchronized.

Equipment/Jig:
Frequency Counter

Test Point:
PG5301-1 on the LCD Circuit Board
PG5301-8 (GND) on he LCD Circuit Board

Condition:
Short PG5301 pins 7 and 8.

Procedure:

LCD ADJ. MENU

```
**************************************************
                LCD ADJUSTMENT
**************************************************
          [1]    PLL VCO
                   :
           Please select [1] - [9] or [ESC]
```

Press **1** key.

```
**************************************************
                   PLL VCO
**************************************************
          [U]          UP
          [D]          DOWN
          [RETURN]     SAVE & RETURN TO MENU
          [ESC]        RETURN TO MENU
          Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the fregency counter reads 15.625kHz ± 0.05kHz.

After setting is completed, press the [RETURN (ENTER)] key.

Release the short-circuit between PG5301 pins 7 and 8.

(2) Horizontal Position Adjustment (Fig. 2-102)

Purpose:

To adjust the horizontal position of LCD picture:

Incompleted Phenomenon:

The horizontal center position of LCD picture is drifting.

Equipment/Jig:

Oscilloscope

Test Point:

PG5301-1 on the LCD Circuit Board
PG5301-2 on the LCD Circuit Board
PG5301-8 (GND) on the LCD Circuit Board

Condition:

Connect the CH-1 of oscilloscope toPG5301-2.
Connect the CH-2 of oscilloscope to PG5301-1.

Procedure:

LCD ADJ. MENU

```
**************************************************
                LCD ADJUSTMENT
**************************************************
                      :
          [2]    H. POSITION
                      :
          Please select [1] - [9] or [ESC]
```

Press **2** key.

```
**************************************************
                H. POSITION
**************************************************
     [U]          UP
     [D]          DOWN
     [RETURN]  SAVE & RETURN TO MENU
     [ESC]        RETURN TO MENU
     Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the relationship between CH-1 and CH-2 waveforms is as shown in Fig. 2-102.

After setting is completed, press the [RETURN (ENTER)] key.

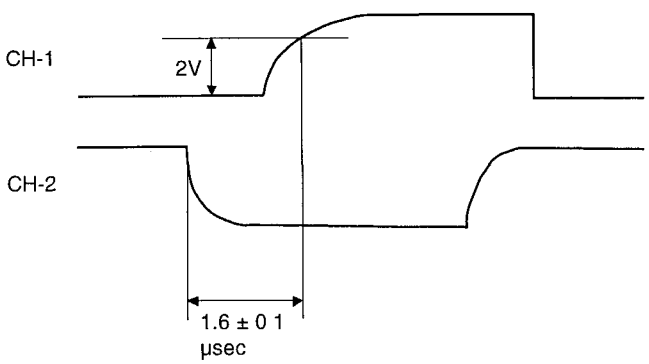


Fig. 2-102

(3) RGB Gain Adjustment (Fig. 2-103)

Purpose:

To adjust the D range of RGB decoder·

Incompleted Phenomenon:

Color reproduction is poor.

Equipment/Jig:

Oscilloscope

Test Point:

PG5301-3 on the LCD Circuit Board
PG5301-8 (GND) on the LCD Circuit Board

Procedure:

LCD ADJ. MENU

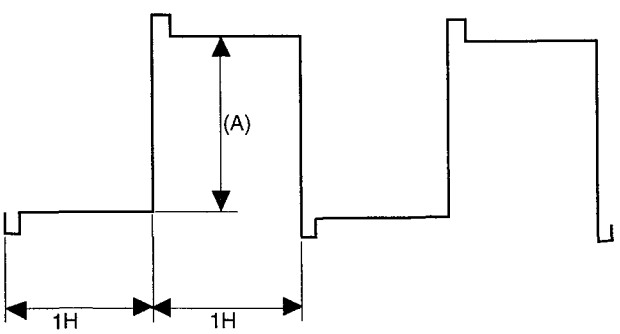
```
**************************************************
                LCD ADJUSTMENT
**************************************************
                      :
          [3]    RGB GAIN
                      :
          Please select [1] - [9] or [ESC]
```

Press **3** key.

```
**************************************************
                RGB GAIN
**************************************************
     [U]          UP
     [D]          DOWN
     [RETURN]  SAVE & RETURN TO MENU
     [ESC]        RETURN TO MENU
     Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the level ats section (A) of the waveform is 4.0V ± 0.05Vp-p. (See Fig. 2-103)

After setting is completed, press the [RETURN (ENTER)] key.



Note: Waveform may not invert every H because of the thinning-out period.

Fig. 2-103

(4) Sub Bright B Adjustment (Fig. 2-103)

Purpose:

To set the white balance of the LCD screen together with the sub bright R adjustment:

Incompleted Phenomenon:

White is seen as bluish or reddish

Equipment/Jig:

Oscilloscope

Test Point:

PG5301-4 on the LCD Circuit Board
PG5301-8 (GND) on the LCD Circuit Board

Procedure:

LCD ADJ. MENU

```
**************************************************
                LCD ADJUSTMENT
**************************************************
                      :
          [4]    sub B
                      :
          Please select [1] - [9] or [ESC]
```

Press **4** key.

```
**************************************************
                      sub B
**************************************************
      [U]          UP
      [D]          DOWN
      [RETURN]     SAVE & RETURN TO MENU
      [ESC]        RETURN TO MENU
      Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the level at section (A) of the waveform is 4.0V ± 0.05Vp-p (the same level as in the RGB gain adjustment). (See Fig. 2-103)

After setting is completed, press the [RETURN (ENTER)] key.

(5) Sub Bright R Adjustment (Fig. 2-103)

Purpose:

To set the white balance of the LCD screen together with the sub bright B adjustment:

Incompleted Phenomenon:

White is seen as bluish or reddish.

Equipment/Jig:

Osciiloscope

Test Point:

PG5301-5 on the LCD Circuit Board
PG5301-8 (GND) on the LCD Circuit Board

Procedure:

LCD ADJ. MENU

```
**************************************************
                LCD ADJUSTMENT
**************************************************
                      :
          [5]    sub R
                      :
          Please select [1] - [9] or [ESC]
```

Press **5** key.

```
**************************************************
                      sub R
**************************************************
      [U]          UP
      [D]          DOWN
      [RETURN]     SAVE & RETURN TO MENU
      [ESC]        RETURN TO MENU
      Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the level at section (A) of the waveform is 4.0V ± 0.05Vp-p (the same level as in the RGB gain adjustment). (See Fig. 2-103)

After setting is completed, press the [RETURN (ENTER)] key.

(6) Contrast Adjustment (Fig. 2-104)

Purpose:

To adjust the maximum amplitude of RGB output:

Incompleted Phenomenon:

Contrast is abnormal.

Equipment/Jig:

Osilloscope

Test Point:

PG5301-3 on the LCD Circuit Board

PG5301-8 (GND) on the LCD Circuit Board

Procedure:

LCD ADJ. MENU

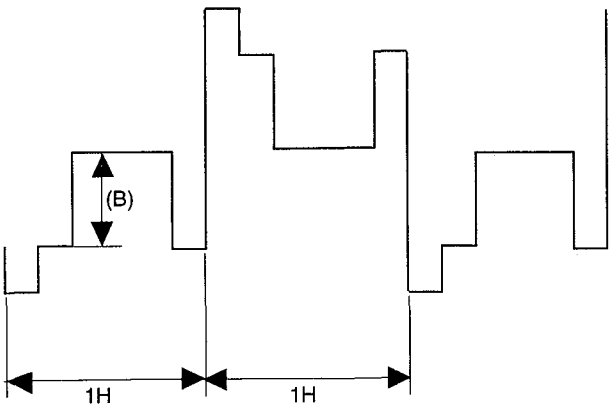
```
**************************************************
                LCD ADJUSTMENT
**************************************************
                      .
          [6]    CONTRAST
                      :
        Please select [1] - [9] or [ESC]
```

Press **6** key.

```
**************************************************
                   CONTRAST
**************************************************
        [U]        UP
        [D]        DOWN
        [RETURN]   SAVE & RETURN TO MENU
        [ESC]      RETURN TO MENU
        Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the level ats section (B) of the waveform is 2.1V ± 0.02Vp-p. (See Fig. 2-104)

After setting is completed, press the [RETURN (ENTER)] key.



Note: Waveform may not invert every H because of the thinning-out period.

Fig. 2-104

(7) Commom Amp Gain Adjustment (Fig. 2-105)

Purpose:

To adjust the brightness of the LCD screen:

Incompleted Phenomenon:

Picture is too bright or too dark.

Equipment/Jig:

Oscilloscope

Test Point:

PG5301-6 on the LCD Circuit Board

PG5301-8 (GND) on the LCD Circuit Board

Procedure:

LCD ADJ. MENU

```
**************************************************
                LCD ADJUSTMENT
**************************************************
                      :
          [7]    COM
                      :
        Please select [1] - [9] or [ESC]
```

Press **7** key.

```
**************************************************
                      COM
**************************************************
        [U]        UP
        [D]        DOWN
        [RETURN]   SAVE & RETURN TO MENU
        [ESC]      RETURN TO MENU
        Please select  [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys so the level ats section (C) of the waveform is 6.5V ± 0.2Vp-p. (See Fig. 2-105)

After setting is completed, press the [RETURN (ENTER)] key.

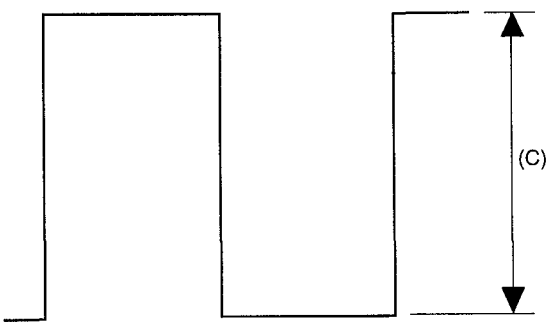


Fig. 2-105

(8) Burst Cleaning Adjustment

Purpose:

To adjust chroma phase:

Incompleted Phenomenon:

Horizontal line noise appears in the scene with high saturation.

Equipment/Jig:

Oscilloscope

Test Point:

PG5301-5 on the LCD Circuit Board

PG5301-8 (GND) on the LCD Circuit Board

Procedure:

LCD ADJ. MENU

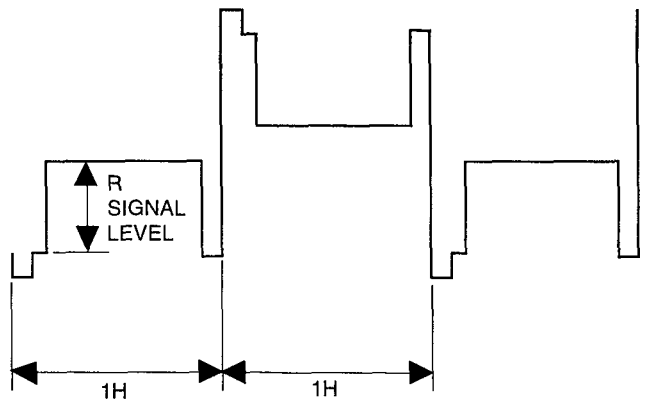
```
**************************************************
                LCD ADJUSTMENT
**************************************************
                      :
          [8]    BURST CLEAN
                      :
        Please select [1] - [9] or [ESC]
```

Press **8** key.

```
**************************************************
                    FLICKER
**************************************************
      [U]          UP
      [D]          DOWN
      [RETURN]     SAVE & RETURN TO MENU
      [ESC]        RETURN TO MENU
      Please select [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys to align the R signal levels at each H. (The waveform will not stabilize unless the levels match.)

After setting is completed, press the [RETURN (ENTER)] key.



Note: Waveform may not invert every H because of the thinning-out period.

Fig. 2-106

(9) Flicker Adjustment

Purpose:

To minimize flickering on the LCD screen:

Incompleted Phenomenon:

Flickering is present in the picture.

Condition:

Set the CAM/OFF/VIDEO switch to VIDEO position.
Load the alignment tape and it the playback (color bar section).

Procedure:

LCD ADJ. MENU

```
**************************************************
                LCD ADJUSTMENT
**************************************************
                      :
          [9]    FLICKER
        Please select [1] - [9] or [ESC]
```

Press **9** key.

```
**************************************************
                    FLICKER
**************************************************
      [U]          UP
      [D]          DOWN
      [RETURN]     SAVE & RETURN TO MENU
      [ESC]        RETURN TO MENU
      Please select [U], [D], [RETURN] or [ESC]
```

Press the **U** and **D** keys until the picture on the LCD screen is optimal quality.

After setting is completed, press the [RETURN (ENTER)] key.

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