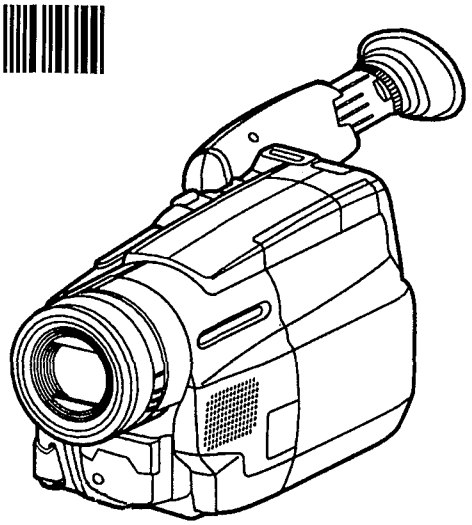
# HITACHI

# SERVICE MANUAL

V18432



TK | No.6710E

# VM-E535LA/E635LA
# VM-H835LA

## TH MECHANISM

**Manuals related to the VM-H835LA/ VM-E635LA/VM-E535LA**

This model uses a TH MECHANISM.
Refer to the "TH MECHANISM Servise Manual (No. 6406E)" for the TH MECHANISM.

This manual also includes the exploded view and parts list of the VM-ACE3A (AC adapter/charger).

Hi8

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

8mm VIDEO CAMERA/RECORDER

April 1997 Image & Information Media Systems Division, Tokai

## CAUTION (COLOR LCD EVF)

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 535 | VM-E535LA |
| TYPE 635 | VM-E635LA |
| TYPE 637 | Not used |
| TYPE 835 | VM-H835LA |
| TYPE 837 | Not used |

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This describes only the differences from the "TH MECHANISM Service Manual (No.6406E)" issued previously.

# CHAPTER 1 GENERAL INFORMATION

## SPECIFICATIONS

### General Specifications

| | |
|---|---|
| Power requirements: | 7.2V DC |
| Power consumption: | 4.4W (when recording/LCD monitor OFF) (For VM-H835LA)<br>5.5W (When recording/LCD monitor ON) (For VM-H835LA)<br>4.3W (when recording/LCD monitor OFF) (For VM-E535LA/ E635LA)<br>5.4W (When recording/LCD monitor ON) (For VM-E535LA/ E635LA) |
| Dimensiond: | 4-1/8"W × 4-1/2"H × 9-7/16"D<br>(104mm × 115mm × 239mm) |
| Weight: | 2.03lbs(approx. 920g) without battery pack or cassette |
| Operating temperature: | 32 °F - 104 °F (0℃ - 40℃) |
| Storage temperature: | -4 °F - 140 °F (-20℃ - 60℃) |

### Video Recorder Specifications

| | |
|---|---|
| Format: | 8mm |
| Record/playback: | Two video record/playback heads |
| Video signal: | EIA standard NTSC color |
| Tape speed: | 14.3mm/sec |
| Video input: | 1.0Vp-p, 75 ohm (For VM-H835LA) |
| Video output: | 1.0Vp-p, 75 ohm |
| Audio input: | -7.8dBs (316mVrms) (For VM-H835LA) |
| Audio output: | -7.8dBs (316mVrms) |
| Fast forward/rewind time: | Less than 8 minutes with P6-120 cassette |

### Camera Specifications

| | |
|---|---|
| Scanning: | 525 lines/60 fields/30frames |
| Required minimum illumination: | 1 lux (8 lux measured by EIA method) (For VM-H835LA)<br>0.8 lux (4 lux measured by EIA method) (For VM-E535LA/ E635LA) |
| Pickup device: | 1/4" C.C.D |
| Lens diameter: | 46mm |

# COMPARISON OF FEATURES

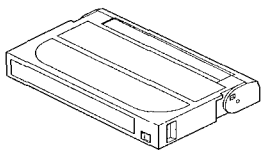
| | ITEM | VM-E535LA/E635LA/H835LA | VM-E625LA/H725LA/H825LA |
|---|---|---|---|
| GENERAL | POWER REQUIREMENTS | 7.2V DC | 6.0V DC |
| | POWER CONSUMPTION | 5.4Watts (For VM-E535LA)<br>5.4Watts (For VM-E635LA)<br>5.5Watts (For VM-H835LA)<br>(when recording/LCD monitor ON) | 7.3Watts (For VM-E625LA)<br>7.7Watts (For VM-H725LA)<br>7.8Watts (For VM-H825LA)<br>(when recording/LCD monitor ON) |
| | DIMENSIONS (W × H × Dmm) | 104 × 115 × 239 | 118 × 120 × 211 |
| | WEIGHT | Approx. 920g | Approx. 1050g (For VM-E625LA)<br>Approx. 1040g (For VM-H725LA)<br>Approx. 1050g (For VM-H825LA) |
| | OPERATION TEMPERATURE/ HUMIDITY | 32 °F - 104 °F | Same as left |
| | STORAGE TEMPERATURE | -4 °F - 140 °F | Same as left |
| VIDEO | FORMAT | 8mm (For VM-E535LA/E635LA)<br>8mm (Hi-8) (For VM-H835LA) | 8mm (For VM-E625LA)<br>8mm (Hi-8) (For VM-H725LA/H825LA) |
| | RECORD/PLAYBACK SYSTEM | 2 HEADS + Flying Erase HEAD | Same as left |
| | TAPE SPEED | SP : 14.3mm/sec | Same as left |
| | F.F/REW TIME | Less than 8minutes<br>With P6-120 cassette | Same as left |
| | HEAD WEEL | 40mm | Same as left |
| | BASIC CHASSIS TYPE | TH MECHANISM | Same as left |
| CAMERA | REQUIRED MINIMUM ILLUMINATION | 1 lux (VM-H835LA)<br>0.8 lux (VM-E535LA/E635LA) | 2 lux (VM-H725LA/H825LA)<br>1 lux (VM-E625LA) |
| | CAMERA DEVICE | 1/4" C.C.D | Same as left |
| | LENS DIAMETER | 46mm | Same as left |
| | ZOOM RATIO/APERTURE | 16 : 1 (4mm - 64mm) / f1.6 | 12 : 1 (4mm - 48mm) / f1.6 |
| | ZOOM SPEED | 1 SPEED | Same as left |
| OTHER FEATURES | ELECTRONIC VIEWFINDER | CRT (Black & White) | Same as left |
| | ELECTRONIC IMAGE STABILIZER | YES (For VM-E635LA/H835LA) | YES (For VM-E625LA/H825LA) |
| | ELECTRICAL ZOOM | MAX: × 130 (86 × 1.5) | MAX: × 36 (24 × 1.5) |
| | INSTANT (INST.) ZOOM | YES (× 1.5) | Same as left |
| | AUTOFOCUS SYSTEM | VIDEO AF | Same as left |
| | PROGRAM AE (SHUTTER SPEED) | YES (Program AE only) | Same as left |
| | TITLER | YES (2 LINE) | Same as left |
| | AV INPUT FUNCTION | YES (For VM-H835LA) | YES |
| | S-CONNECTOR OUTPUT | YES (For VM-H835LA) | YES (For VM-H725LA/H825LA) |
| | CAMERA DC LIGHT SHOE | NO | YES |
| | MICROPHONE | STEREO (For VM-H835LA)<br>MONAURAL (For VM-E535LA/E635LA) | STEREO (For VM-H725LA/H825LA)<br>MONAURAL (For VM-E625LA) |
| | FADE | YES (White/Wipe/Zoom/Black & White) | YES (White/Wipe/Zoom) |
| | DATE SERCH | YES | Same as left |
| | 16 × 9 MODE | YES | Same as left |
| | AUTOMATIC WIND CUT | YES (For VM-H835LA) | YES (For VM-H725LA/H825LA) |
| | AUTOFOCUS/MANUAL FOCUS | SELECTIVE | Same as left |
| | OPTICAL CONNECTION | NO | YES (For VM-H825LA) |
| | LCD DISPLAY | YES (3-inch) | Same as left |
| ACCESSORIES | AC ADAPTER/CHARGER | VM-ACE3A | VM-AC85A |
| | AV OPTICAL WIRELESS RECEIVER | NO | VM-IR20A (For VM-H825LA) |
| | BATTERY PACK | VM-BPL13 | VM-BP84A |
| | REMOTE CONTROL | VM-RM38A (For VM-H835LA)<br>VM-RME311A (For VM-E535LA/E635LA) | VM-RME70A |
| | EASY EDIT REMOTE CONTROL | NO | VM-RM20EDA |

# COMPARISON OF MAIN CONTROL ICs

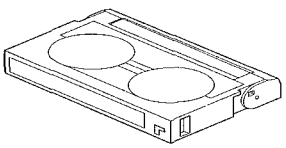
| ITEM | VM-E535LA/E635LA/H835LA | | VM-E625LA/H725LA/H825LA | |
|---|---|---|---|---|
| | SENSOR/GYRO | | | |
| CCD SENSOR | ICX206(Normal)/ICX208(Hi-8) | (IC1001) | ICX068(Normal)/ICX086(Hi-8) | (IC1001) |
| GYRO(VERT.) | ENC-05EA-02 | (IC1401) | ENC-05EA-02 | (IC1401) |
| GIRO(HORIZ.) | ENC-05EA-02 | (IC1402) | ENC-05EA-02 | (IC1402) |
| GYRO AMP | NJM062M-TE1 | (IC1403) | NJU7032M | (IC1403) |
| GYRO RESET | TC4W66F | (IC1404) | Same as left | |
| | PROCESS | | | |
| CDS/AGC | HD49332F | (IC1101) | HA118184F | (IC1101) |
| A/D CONV. | | | HD49319A | (IC1102) |
| DIGITAL PROCESS | HG51CS035TE | (IC1102) | HG51CS035TEA | (IC1103) |
| DRIVE PULSE GEN. | µPD16510GR | (IC1103) | µPD16510GR | (IC1104) |
| DIGITAL µP (D-µP) | HD6433042ST-E3 | (IC1104) | HD6433042ST13F | (IC1106) |
| EEP-ROM | MX25S67MR | (IC1105) | MX25S67MR | (IC1107) |
| | AUTOFOCUS | | | |
| F.DET/IRIS DRIVE | UPC5023GS-105 | (IC1201) | Same as left | |
| ZOOM MOTOR DRIVE | MPC17A34ZVM | (IC1301) | MPC17AT85VM | (IC1301) |
| FOCUS MOTOR DRIVE | | | MPC17AT85VM | (IC1302) |
| | SYSTEMCONTROL/SERVO | | | |
| SYSTEM/SERVO CONTROL µP | CXP87240-117R | (IC0901) | CXP87240-110Q | (IC0901) |
| BACK-UP DET | S84233FS | (IC0902) | S84206F | (IC0902) |
| CHARA.GEN. | BU6229FV | (IC0904) | XLU5949AFS | (IC0904) |
| LEVEL SHIFT | ——— | | HD74HCT125T | (IC0903) |
| LEVEL SHIFT | SN74AHCT126PW | (IC0905) | ——— | |
| ATF | UPC5023GS-122-E1 | (IC0601) | UPC5023GS-079-E1 | (IC0601) |
| CYL. MOTOR DRIVE | LB1950V-TLM | (IC0631) | LB1888V | (IC0631) |
| LOADING MOTOR DRIVE | BA6417F | (IC0671) | Same as left | |
| CAPST. MOTOR DRIVE | LB1881V (On the capst. motor) | | Same as left | |
| | AUDIO | | | |
| AUDIO PROCESS | HA118193F(Stereo)<br>HA118193F-01(Monaural) | (IC0401) | Same as left | |
| | DC-DCCONVERTER | | | |
| PWM | TL1464IPT | (IC0551) | BA9735KV | (IC0551) |
| | PREAMP | | | |
| VIDEO HEAD SW | HA118189MPER | (IC0101) | Same as left | |
| PHASE EQ/FM PEAK | UPC5023GS-101-E1 | (IC0102) | Same as left | |
| | LUMINANCE/CHROMA | | | |
| LUMA/CHROMQA PROCESS | HA119192AF | (IC0201) | HA118192AF/372F | (IC0201) |
| 1H DELAY | CXL5516N | (IC0202) | Same as left | |
| CCD 1H DELAY | CXL5507M | (IC0203) | Same as left | |
| VIDEO AMP | UPC5023GS-104-E1 | (IC0204) | Same as left | |
| | CRT(W/B)EVF | | | |
| VIDE AMP./V.H DEFLECTION | HA118179F | (IC2001) | Same as left | |
| | LCDDISPLAY | | | |
| LCD MODULE | ——— | | TS9622 | (LD3501) |
| LCD VIDEO PROCESS | IR3Y29AM | (IC5301) | ——— | |
| LCD REG. | TL5001CD | (IC5401) | ——— | |
| LCD REG. | TL5001CD | (IC5501) | ——— | |
| LED DRIVE | NJM2406F | (IC5502) | ——— | |
| LCD DRIVE | LZ95NA1 | (IC5601) | ——— | |
| PULSE GEN. | NJM3414 | (IC5602) | ——— | |

# JIGS AND TAPES FOR ADJUSTMENT

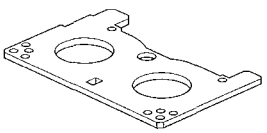
**1.** Alignment Tape
Color Bar/400Hz
(20HSC-2) No. 7099231



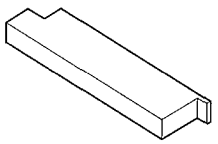
**2.** Cassette Torque Meter
SRK-8T-132 : No. 7099235
SRK-8T-112 : No. 7099385



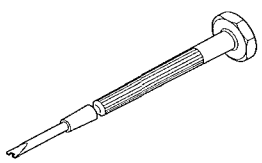
**3.** Master Plane
No. 7099237



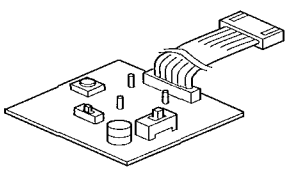
**4.** Reel Disk Height Jig
No. 7099238



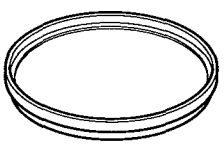
**5.** Special Driver
No. 7099239



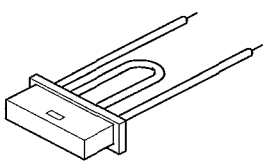
**6.** ATF-R Jig *(*1, *2)*
No. 7099461



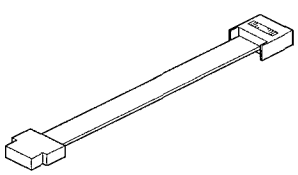
**7.** C12 Light Balance
Filter 46mm $\phi$
No. 7099369



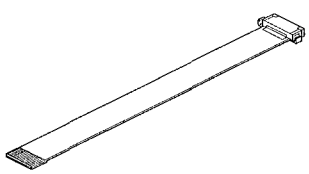
**§8.** 10-Pin Extension Cable
No. 7069183



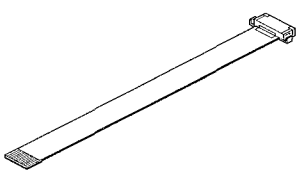
**9.** 2-Pin Extension Cable
No. 7069038



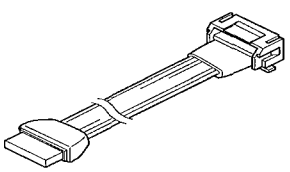
**10.** 10-Pin Extension Cable
No. 7069039



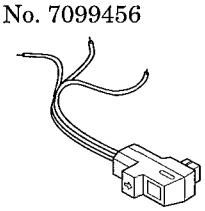
**11.** 9-Pin Extension Cable
No. 7069040



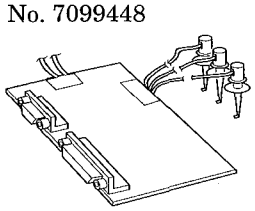
**12.** 20-Pin Extension Cable
No. 7069112



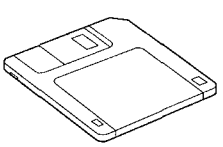
**13.** DSP AV Output Jig
No. 7099456



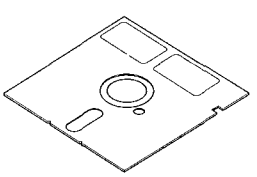
**14.** DSP-R Jig
No. 7099448



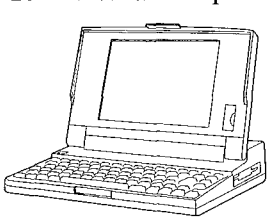
**§15.** Adjustment Floppy Disk
(3.5inch)
No.7069188



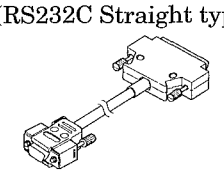
**§16.** Adjustment Floppy Disk
(5inch) No.7069189



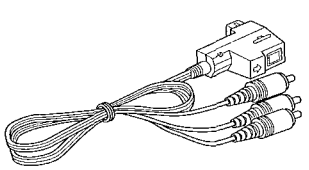
*ϕ* **17.** Personal Computer



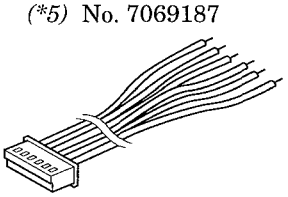
*ϕ* **18.** Personal Computer
Cable 9-PIN or 25-PIN
(RS232C Straight type)



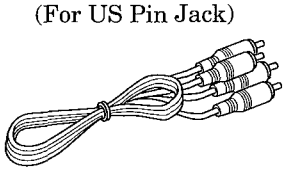
**$19.** AV INPUT CABLE
*(*3, *4)*



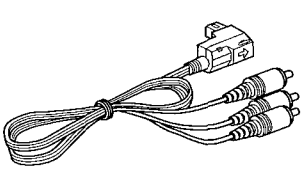
**§20.** 6P-Pin Extension Cable
*(*5)* No. 7069187



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



(For 20 Pin AV Jack)



For marks :
§: New jigs and tools  *ϕ* : Goods on the Market  $: Optional Accessory  #: Accessory

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.
**4.* To supply video and audio signals to the normal 8 model, the AV input cable must be modified.
(See next page for how to modify it).
**5.* The 6-pin extension cable (No.7069187) is necessary only with models having a color EVF.

# HOW TO USE THE EXTENSION CABLE

| NAME OF JIGS | PARTS No. | HOW TO USE |
|---|---|---|
| 10-Pin Extension Cable | 7069183 | Power supply cable for power shutoff level adjustment. (Cable to power the camera/recorder after the case is removed) [Red: Positive, Black: Negative] |
| 2-Pin Extension Cable | 7069038 | Installed between the VCA circuit board and loading motor. |
| 10-Pin Extension Cable | 7069039 | Installed between the VCA circuit board and cylinder.<br>NOTE: Using this extension cable causes noise to occur in the playback picture.<br>This cable is used to check voltage and waveforms.<br>Check the picture quality in the regular connection state. |
| 9-Pin Extension Cable | 7069040 | Installed between the VCA circuit board and capstan motor. |
| 20-Pin Extension Cable | 7069112 | Installed between the SE and VCA circuit boards. |
| 6-Pin Extension Cable | 7069187 | Cable exclusively for LCD color EVF adjustment (not necessary for models having a B&W EVF) |

## Procedure to modify the AV input cable (for normal 8 models)

Although normal 8 models do not have AV input function, you can modify the AV input cable so that video and audio signals can be input. For adjustment and performance check, modify the AV input cable by following the procedure below, to input signals:

**Caution 1**: Do not modify the AV input cable for purposes other than adjustment or performance check.

**Caution 2**: Modify the AV input cable correctly. If an improperly modified cabl e is connected to a camcorder, it will result in malfunctions.

**Caution 3**: Since Hi-8 models have an AV input function, use an unmodified AV i nput cable to input the video and audio signals.

**Modify the AV input cable.**

Change the connection of pin 13 of the AV input cable from ground to pin 2 (DC5V). (After checking that pin 13 and ground are not connected, connection of pin 13 to pin 2 (DC5V).)

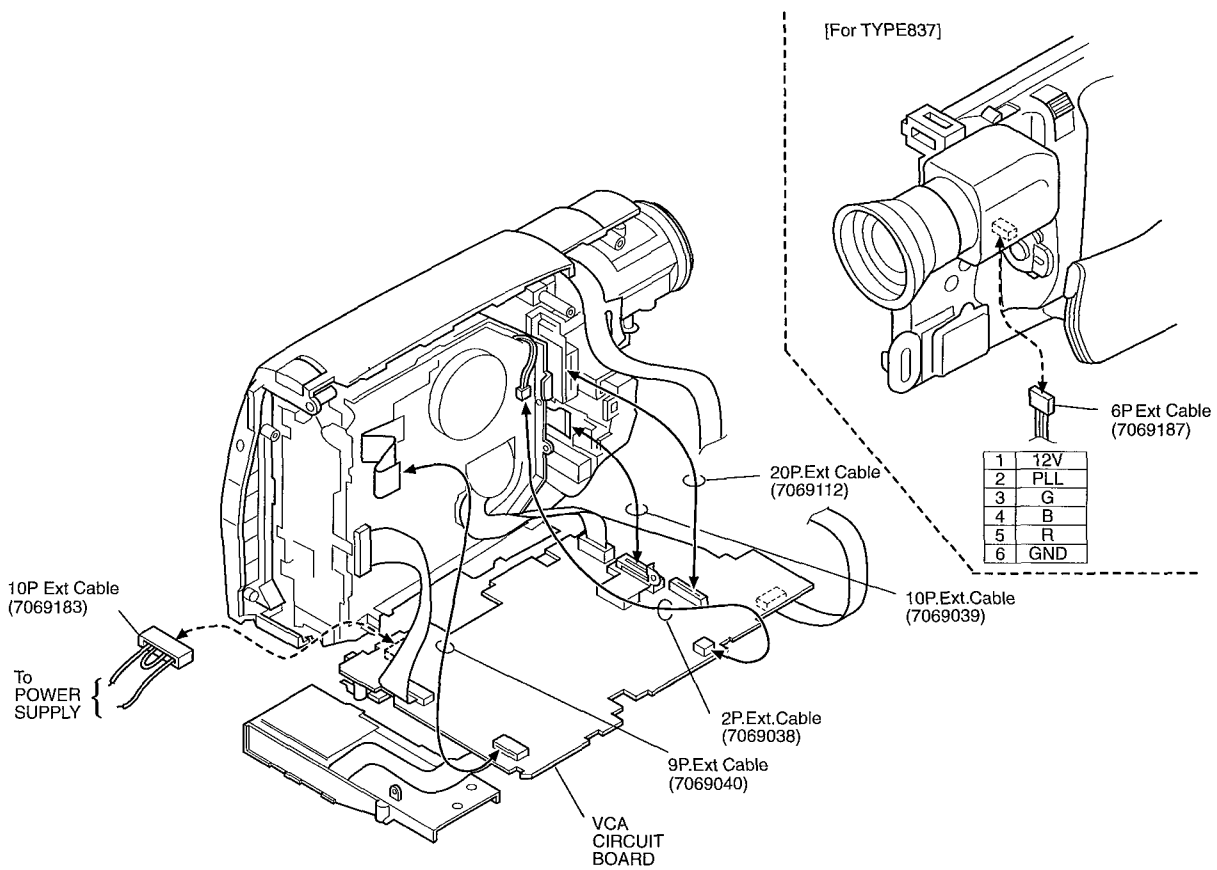



Fig.1-1 Extension Cable Connection Diagram

# 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 |
| HB | Hi-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) |

# LEADLESS (CHIP) COMPONENT IDENTIFICATION

### 1. Leadless Transistor

The part name of a leadless transistor is indicated by a code on its surface, using one letter, one letter and one numeral,two letters, two letters and one numeral, two numerals, two numerals and one letter, three letters, or four letters.

Note: There are transistors with the same code but different part names, or with the same part name but different codes. Refer to the parts lists to finally identify a transistor.

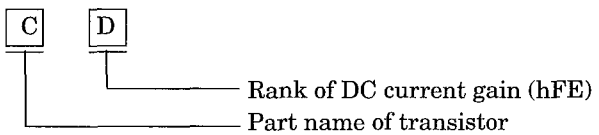
| CODE | PART NAME | CODE | PART NAME |
|---|---|---|---|
| Leadless (Chip) Transistor | | | |
| 3925 | 2SC3925 | BQ | 2SB709A |
| 1CQ | 2SCB902 | BR | 2SC4081R |
| 1D | 2SC3127 | BR | 2SC2412K |
| 1DS | 2SD1328S | BR | 2SC4617 |
| 1DT | 2SD1328 | BS | 2SC2412K |
| 1R | 2SB970TX | C-7 | 2SA811 |
| 2BQ | 2SK374PQ | C1G | KSC1623 |
| 2BR | 2SK374QR | CB | 2SC3646 |
| 2Y | 2SC3757 | CC | 2SA1122C |
| 2YQ | 2SC4691 | CC | 2SC3647T |
| 3N | 2SK620 | CC | 2SC3647 |
| 4N | XN5601 | CD | 2SA1122D |
| 4Q | XN1B301 | CE | 2SA1122E |
| 4R | XN1C301 | CK | 2SD999 |
| 5C | XN4601 | CP | 2SC4097 |
| 5C | XP4601 | CQ | 2SC2411K |
| 5H | XP4501 | CR | 2SB710 |
| 5H | XN4501 | CR | 2SC2411 |
| 5K | XP4401 | CR | 2SB1219 |
| 5K | XN4401 | D16 | 2SC1622A |
| 5L | XN5501 | D17 | 2SC1622A |
| 5N | XN6501 | D18 | 2SC1622A |
| 5O | XN6401 | DB | 2SD1766 |
| 5R | XP1501 | DE | 2SC2463 |
| 5R | XN1501 | DF | 2SD1623 |
| 5S | XN1504 | DF | 2SD1898 |
| 5V | XN1401 | DG | 2SD1624 |
| 5W | XN2501 | DK | 2SB798 |
| 5X | XN4504 | EC | 2SA1022 |
| 7R | XN2401 | F-2 | 2SC1009F2 |
| 7S | XN1601 | F-3 | 2SC1009F3 |
| AA | 2SD1757K | F-4 | 2SC1009F4 |
| AKQ | 2SA1738 | FC | 2SC2619 |
| AKQ | 2SA1806 | FR | 2SA1774 |
| AL | 2SA1791 | FR | 2SA1037K |
| AM | 2SC4656 | FR | 2SA1576R |
| AO | 2SB709AQR | FS | 2SA1037K |
| AQ | 2SB709AQ | GC | 2SC2734 |
| AQ | 2SB766 | GM | 3SD1615 |
| AR | 2SB1462 | HQ | 2SA1036K |
| AR | 2SB766 | IC | 2SC3016 |
| AR | 2SB709ARS | IRD | 2SA1484 |
| AR | 2SB1218R | IS | 2SB792S |
| AS | 2SB766 | IT | 2SB792T |
| AS | 2SB709AS | L-4 | 2SC1623L4 |
| B3 | 2SC1621B3 | L-5 | 2SC1623L5 |
| B4 | 2SC1621B4 | L-6 | 2SC1623L6 |
| BC | 2SB1188 | L-6 | 2SC2812L6 |
| BD | 2SB1121 | L-7 | 2SC2812L7 |
| BE | 2SB1260 | L5 | MMBC1623L5 |
| BF | 2SB1123 | L6 | MMBC1623L6 |
| BF | 2SB1308 | LB | 2SC2462B |
| BG | 2SB1124 | LC | 2SC2462C |
| BH | 2SB1001 | LD | 2SC2462D |
| LR | 2SC2412KLN | T2 | IMT2 |
| M-5 | 2SA812 | UD | 2SC2404 |
| M-6 | 2SA1179 | ZS | 2SD874S |
| MC | 2SA1052MC | VR | 2DS968A |
| MD | 2SA1052MC-D | W1 | FMW1 |
| N3 | 2SC1653 | W10 | FMW10 |
| ND | 2SD1306ND | W2 | FMW2 |
| NE | 2SD1306NE | W3 | FMW3 |
| PD | 2SA1171D | WR | 2SD602 |
| PS | 2SD814 | X1 | UMX1 |
| QB | 2SC2520QB | X1 | IMX1 |
| QC | 2SC2620QC | X2 | IMX2 |
| QO | 2SC2714 | Y1 | FMY1 |
| R22 | 2SC4226 | Y12 | 2SA1464 |
| R22 | 2SC3356 | Y25 | NTM3906 |
| R32 | 2SC4227 | Y3 | FMY3 |
| R34 | 2SC3583 | YCD | 2SK197 |
| R42 | 2SC3585 | YI | 2SA1666 |
| RB | 2SC2618RB | YQ | 2SD601YQ |
| RC | 2SC2618RC | YR | 2SD601YR |
| RK | 2SC3357 | YR | 2SD1819R |
| S1 | FMS1 | YR | 2SD2216 |
| S2 | FMS2 | YS | 2SD601YS |
| SC | 2SA1121 | Z1 | IMZ1 |
| SO | 2SA1162 | Z2 | IMZ2 |
| SP | 2SC3082K | ZO | 2SD874T |
| T1 | IMT1 | ZQ | 2SD601A |
| T1 | UMT1 | ZR | 2SD874R |
| Digital Transistor | | | |
| 3 | DTC143TK | 6C | UN9113 |
| 4 | DTC114TK | 6S | NP4113 |
| 6 | DTC144TK | 8B | UN5212 |
| 13 | DTA143EK | 8C | UN9213 |
| 14 | DTA144EK | 8C | UN2213 |
| 15 | DTA124K | 8S | XP4213 |
| 15 | DTA124EU | 9L | XP1213 |
| 16 | DTA144EU | 9L | XN1213 |
| 16 | XDA144EK | A1 | FMA1 |
| 16 | DTA144EE | A1 | UMA1 |
| 23 | DTC143EK | A2 | FMA2 |
| 24 | DTC114EU | B2 | UMB2 |
| 24 | DTC144EK | B2 | IMB2 |
| 25 | DTC124EU | C2 | FMC2 |
| 25 | DTC124K | C5 | FMC5 |
| 26 | DTC144EE | D2 | IMD2 |
| 26 | DTC144EU | F52 | DTB123 |
| 26 | XDC144EK | G1 | FMG1 |
| 33 | DTA143XK | G2 | FMG2 |
| 43 | DTC143XK | G21 | DTD113ZK |
| 52 | DTA123YK | G5 | FMG5 |
| 60 | UN511F | H03 | DTC343TK |
| 64 | DTC114YK | H2 | IMH2 |
| 80 | UN521F | H2 | UNH2 |
| 4P | XN1A312T | H27 | DTC363EK |
| 6B | UN5112 | RO4 | KSR1104 |
| 6C | UN2113 | R31 | FP1L2Q |
| FET | | | |
| 30 | 2SK621 | KB | 2SK323 |
| 1FQ | 2SK321FQ | WS | 2SK322T |
| 1FR | 2SK321FQR | WT | 2SK322T |
| 1KP | 2SK316 | X15 | 2SK425 |
| 2BQ | 2SK663 | X4 | 2SK94 |
| DY | 2SK1579 | XAF | 2SK980FG |
| JO | 2SK208 | YC | 2SK197YC |
| K | 3SK166 | YD | 2SK197YD |
| K4 | 2SK160K4 | YE | 2SK197YE |
| K5 | 2SK160K5 | ZD | 2SK217ZD |

(1) Identification with two letters

Use this code and the following chart for transistor identification.

Example :

| Code | Part name |
|---|---|
| CD | 2SA1122D |
| LD | 2SC2462D |

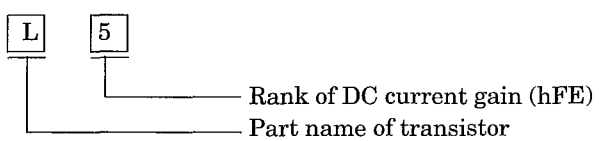



(2) Identification with one letter and one numeral

Use this code and the following chart for transistor identification.

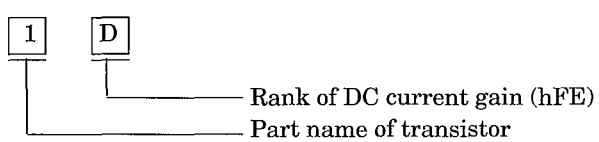
Example :

| Code | Part name |
|---|---|
| L5 | 2SC1623(5) |
| L6 | 2SC1623(6) |




Example :

| Code | Part name |
|---|---|
| 1D | 2SC3127D |



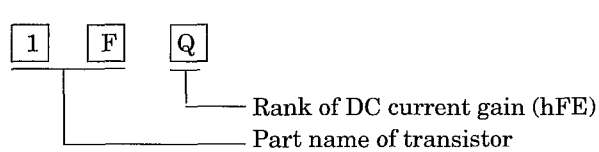

Note: Codes S1,S2,T1,W1,W2,W3,X1,Y1,Y3,Z1 and Z2 encode only the part names.

(3) Identification with one numeral and two letters

Use this code and the following chart for transistor identification.

Example :

| Code | Part name |
|---|---|
| 1FQ | 2SK321Q |

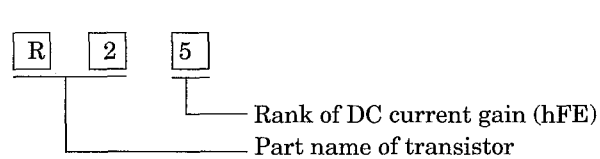



(4) Identification with one letter and two numerals

Use this code and the following chart for transistor identification.

Example :

| Code | Part name |
|---|---|
| R25 | 2SC3356 |

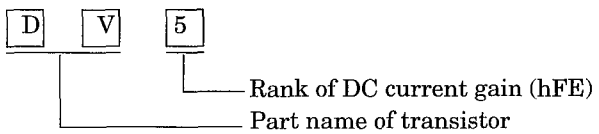



(5) Identification with two letters and one numeral

Use this code and the following chart for transistor identification.

Example :

| Code | Part name |
|---|---|
| DV5 | 2SD596 |

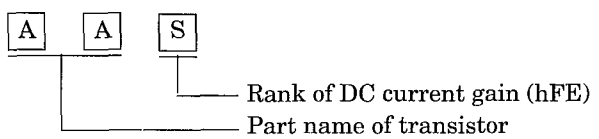



(6) Identification with three letters

Use this code and the following chart for transistor identification.

Example :

| Code | Part name |
|---|---|
| AAS | 2SD1757KS |




**2. Leadless Diode**

The part name of a leadless diode is indicated by a code on the surface, using one letter and one numeral,two letters, two letters and one numeral, two numerals and one letter, or three numerals. Use this code and the following table to identify the part name of a diode.

Note: Refer to the parts lists to finally identify a diode.

| CODE | PART NAME | CODE | PART NAME |
|---|---|---|---|
| Diode | | | |
| 0 | HVU300A | 3D | RB715F |
| 1.0 | ISV201 | 3.0L | MA3030L |
| 2.0 | MA3020 | 3.6L | MA3036L |
| 5.1 | MA3051L | 3.9L | MA3039L |
| 5.1 | MA3051M | 4.3H | MA3043H |
| 6.8 | MA3068 | 4.3L | MA3043L |
| 6.8 | MA3068M | 4.3M | MA3043M |
| 7.5 | MA3075L | 4.7L | MA3047L |
| 8.2 | MA3082M | 4.7M | MA3047M |
| 9.1 | MA3091 | 5.1H | MA3051H |
| 20 | HZM6 | 5.1L | MA3051L |
| 24 | ISV221 | 5.1M | MA3051M |
| 27 | RD2.7M B | 5.6M | MA3056M |
| 30 | RD3.0M B | 6.2L | MA3062L |
| 51 | RD5.1M B2 | 6.2M | MA3062M |
| 56 | RD5.6M B | 6.8H | MA3068H |
| 91 | RD9.1M B | 6.8L | MA3068L |
| 102 | RD10M B2 | 6.8M | MA3068M |
| 122 | RD12M B2 | 6.8M | MA3068 |
| 163 | RD16M B3 | 7.5H | MA3075H |
| 182 | RD10M B2 | 7.5L | MA3075L |
| 271 | RD2.7M B | 8A | UN221D |
| 272 | D2.7M B2 | 8.2H | MA3082H |
| 301 | RD3.0M B | 8.2M | MA3082M |
| 362 | D3.6M B2 | 9.1M | MA3091M |
| 391 | D3.9M B1 | 9.1M | MA3091 |
| 512 | RD5.1M B2 | 10L | MA3100L |
| 561 | RD5.6M B | 10M | MA3100M |
| 621 | RD6.2M B1 | 11L | MA3110L |
| 681 | RD6.8M | 12M | MA3120M |
| 683 | RD6.8M B3 | 13H | MA3130H |
| 911 | RD9.1M B | 18M | MA3180M |
| 2.7H | MA3027H | 36M | MA3360 |

| CODE | PART NAME | CODE | PART NAME |
|---|---|---|---|
| Zener Diode | | | |
| 1A | MA110 | M3A | MA199 |
| A3 | 1S2835 | MC | MA153 |
| A4 | HSM2836C | MC | MA143 |
| A5 | 1S2837 | MH | MA141K |
| A6 | HSM2838C | MH | MA151K |
| B | SB0505CP | MH | MA152K |
| B64 | SFPB64 | MI | MA132K |
| B74 | SFPB74 | MN | MA141WA |
| BE | 1SV172 | MN | MA152WK |
| C1 | HSM88S | MN | MA132WA |
| C2 | HSM276S | MO | MA152WA |
| C3 | 1SS226 | MO | MA133 |
| C4 | HSM88WK | MP | MA151WK |
| F7 | KV1470 | MT | MA141WK |
| H5 | HVM14 | MT | MA141WK |
| J | SB07-03C | MU | MA132WK |
| K | DA221 | MU | MA151WA |
| M1A | MA159 | N | DAN222 |
| M1C | MA158 | N | DAN202T |
| M1M | MA721 | NU | MA152WK |
| M1N | MA713DAT | P | DAP202T |
| M1P | MA714 | S4 | DIFS4 |
| M2A | MA122 | SA | SB10-05P |
| M2B | MA123 | Z | DA106K |

### 3. Leadless Resistor

The resistor value is indicated on its surface, using three numerals, or one letter and one numeral.

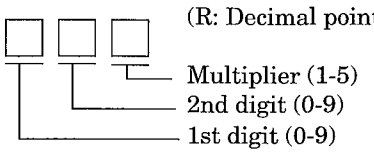
(1) Identification with three numerals

Read this code following the same procedure as when reading the color code on discrete resistors.

Example:

| Code | Value |
|---|---|
| 330 | 33 × 100 = 33 ohms |
| 561 | 56 × 101 = 560 ohms |
| 123 | 12 × 103 = 12K ohms |
| 1R2 | 1 + 0.2 = 1.2 ohms |

(R: Decimal point)



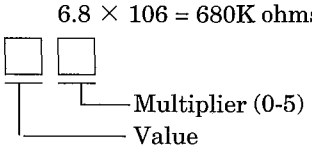

(2) Identification with one letter and one numeral

Use this code and the following chart for resistor identification.

| Letter | Value | Letter | Value | Letter | Value |
|---|---|---|---|---|---|
| A | 1 | J | 2.2 | S | 4.7 |
| C | 1.2 | L | 2.7 | U | 5.6 |
| E | 1.5 | N | 3.3 | W | 6.8 |
| G | 1.8 | Q | 3.9 | Y | 8.2 |

Example:

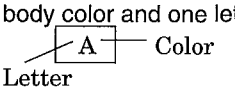
| Code | Value |
|---|---|
| A1 | 1 × 101 = 10 ohms |
| G2 | 1.8 × 102 = 180 ohms |
| L3 | 2.7 × 103 = 2700 ohms |
| S4 | 4.7 × 104 = 47K ohms |
| W5 | 6.8 × 106 = 680K ohms |




### 4. Leadless Capacitors

The capacitor value is indicated on its surface, using body color and one letter, or one letter and one numeral.

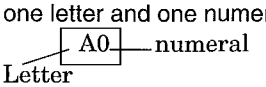
(1) Identification with body color and one letter




| Body Color | Letter | Value | Body Color | Letter | Value |
|---|---|---|---|---|---|
| Red | A | 1(PF) | Blue | G | 180(PF) |
| | C | 2 | | J | 220 |
| | E | 3 | | L | 270 |
| | G | 4 | | N | 330 |
| | J | 5 | | Q | 390 |
| | L | 6 | | S | 470 |
| | N | 7 | | U | 560 |
| | Q | 8 | | W | 680 |
| | S | 9 | | Y | 820 |
| Black | A | 10(PF) | White | A | 0.001(μF) |
| | C | 12 | | E | 0.0015 |
| | E | 15 | | J | 0.0022 |
| | G | 18 | | L | 0.0027 |
| | J | 22 | | N | 0.0033 |
| | L | 27 | | S | 0.0047 |
| | N | 33 | | W | 0.0068 |
| | Q | 39 | Green | A | 0.01(μF) |
| | S | 47 | | E | 0.015 |
| | U | 56 | | J | 0.022 |
| | W | 68 | | N | 0.033 |
| | Y | 82 | | S | 0.047 |
| Blue | A | 100(PF) | | U | 0.056 |
| | C | 120 | | W | 0.068 |
| | E | 150 | | Y | 0.082 |
| | | | Yellow | A | 0.1(μF) |

| Example : | Color | Letter | Value |
|---|---|---|---|
| | Red | A | 1PF |
| | Black | A | 10PF |

(2) Identification with one letter and one numeral



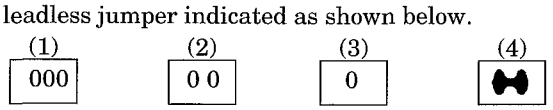

| Letter/Numeral | Value | Letter/Numeral | Value |
|---|---|---|---|
| A0 | 1(PF) | A2 | 100(PF) |
| H0 | 2 | C2 | 120 |
| M0 | 3 | E2 | 150 |
| d0 | 4 | G2 | 180 |
| f0 | 5 | J2 | 220 |
| m0 | 6 | L2 | 270 |
| n0 | 7 | N2 | 330 |
| t0 | 8 | Q2 | 390 |
| y0 | 9 | S2 | 470 |
| A1 | 10(PF) | U2 | 560 |
| C1 | 12 | W2 | 680 |
| E1 | 15 | Y2 | 820 |
| G1 | 18 | A3 | 0.001(μF) |
| J1 | 22 | E3 | 0.0015 |
| L1 | 27 | J3 | 0.0022 |
| N1 | 33 | N3 | 0.0033 |
| Q1 | 39 | S3 | 0.0047 |
| S1 | 47 | W3 | 0.0068 |
| U1 | 56 | A4 | 0.01(μP) |
| W1 | 68 | E4 | 0.015 |
| Y1 | 82 | J4 | 0.022 |
| | | N4 | 0.033 |
| | | S4 | 0.047 |
| | | U4 | 0.056 |
| | | W4 | 0.068 |
| | | A5 | 0.1 |

Example :

| Letter/Numeral | Value |
|---|---|
| A0 | 1PF |
| A1 | 10PF |

### 5. Leadless Jumper

The leadless jumper indicated as shown below.



# MAINTENANCE/INSPECTION PROCEDURE

## 1. Required Maintenance

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise to ensure compatible with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure a good picture, periodic inspection and maintenance, including replacement of worn-out parts and lubrications, is necessary.

## 2. Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is done every 500 hours. Table 1 shows the relation between time used per day and inspection period.

Table 1

| | When inspection is necessary | | |
|---|---|---|---|
| Average hours used per day | About 6 months ↓ | About 9 months ↓ | About 18 months ↓ |
| One hour | | | |
| Two hours | | | |
| Three hours | | | |

## 3. Check before starting Repairs

The faults occurring in the playback picture as shown in Table 2 can be remedied by cleaning and oiling. Check the need for lubrication and the conditions of cleanliness in the unit. Check with the customer to find out how often the unit is used. If from that you determine that the unit is ready for inspection and maintenance, check the parts shown in Table 2.

Table 2

| Phenomenon | Inspection Location |
|---|---|
| Poor S/N, no color | Dirt on video head or worn video head |
| Tape does not run or tape is slack | Dirt on pressure roller, cylinder or in tape transport system |
| Vertical jitter | Dirt on video head or in tape transport system |
| Low volume or sound distorted | Dirt on video head or worn video head |

## 4. Tools Needed for Inspection and Maintenance

(1) Head cleaning kit
(2) VCR oil and grease (Table 3)
(3) Alcohol
(4) Gauze
(5) Cleaning tape [Maxell 8M-CL MCA (dry type)]

Table 3 Locations for Greasing and Oiling

| Name | Oil or Greasing Location |
|---|---|
| Sonic Slidas Oil (#1600) | Oil low-speed rotating sections |
| Froil (G31-SA) | Lubricate metal or molded section under light load |
| Molicoat (PG-641) | Lubricate metal or molded sections under light load |
| Lock paint | Fix adjustment screws and nuts. |

## 5. Maintenance Procedures

### 5-1 Cleaning

**(1) Cleaning video head**

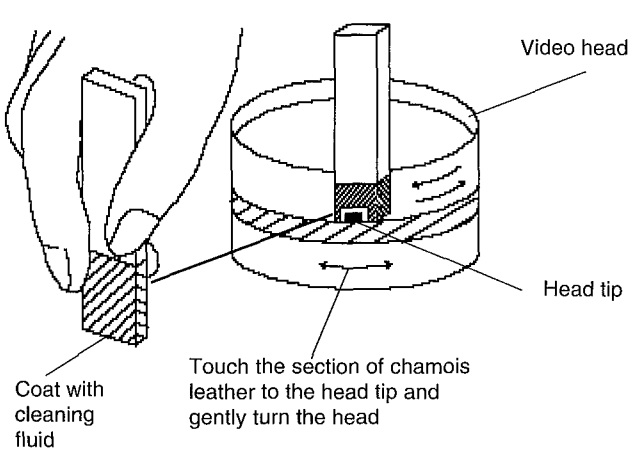
First use a cleaning tape. Be sure to use the specified cleaning tape and read its instruction sheet carefully before using it. If dirt on head is too stubborn to remove by tape, use the cleaning kit. Moisten the cleaning stick with cleaning fluid at the point indicated. Touch the stick to the head tip and gently turn the head (rotating cylinder) to the right and left. (Do not move the stick vertically and make sure that only the chamois leather on the stick comes into contact with the head. Otherwise, the head may be damaged.) Thoroughly dry the head. Then test run a tape. If cleaning fluid remains on the video head, the tape may be damaged when it comes into contact with the head surface.

**(2) Cleaning the tape transport system and drive system, etc.**

Wipe with gauze moistened with alcohol.

**Notes:** 1) The tape transport system is the system which comes into contact with the running tape. The drive system consists of those parts which run the tape.

2) Make sure that during cleaning you do not touch the tape transport system with the tip of a screwdriver and that no force is applied to the system that could deform it.



### 5-2 Lubrication

**(1) Guide lines for lubricating with oil**

Use the oiler to apply one or two drop or Sonic Slidas oil. Make sure not to use too mach oil because it may spill over or leak out coming into contact with rotating parts and causing slippage or other problems. If too much oil is applied, wipe clean with a alcohol.

**(2) Periodic oil lubrication**

Lubricate the specified locations only when replacing components. Refer to the exploded views for the lubricating locations.

### 5-3 Greasing

**(1) Greasing guide lines**

Apply grease Froil or Molicoat, with a stick or brush. Do not use excess grease. It may come into contact with the tape transport or drive system. Wipe any excess and clean with gauze moistend with alcohol.

**(2) Periodic greasing**

Grease the specified locations only when replacing components. Refer to the exploded views for the greasing locations.

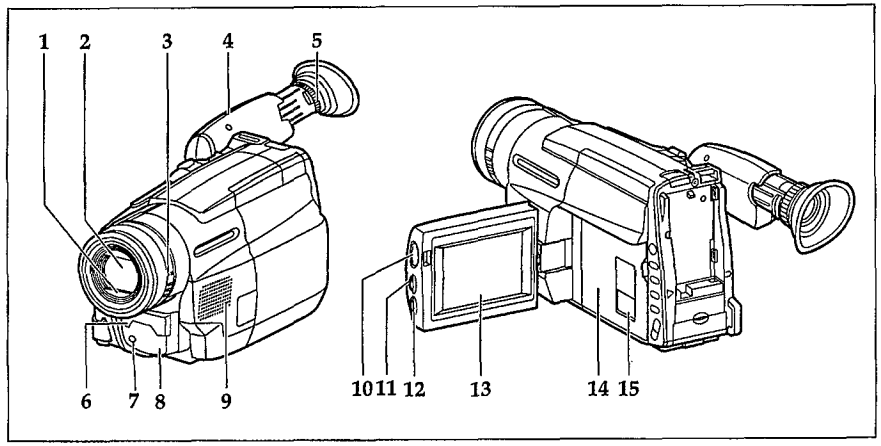
Table 4 Parts to be Maintained/Inspected and Maintenance/Inspection Schedules

**Caution**: The following table does not apply to all units. The maintenance/inspection schedules depend on how the unit is used and the environment in which it is used.

| Component \ Hours | 500 | 1000 | 1500 | 2000 | 2500 | 3000 |
|---|---|---|---|---|---|---|
| Video heads (cylinder assembly) | C | C／R | C | C／R | C | C／R |
| Supply guide roller | C | C | C | C | C | C |
| Supply guide pole | C | C | C | C | C | C |
| Take-up guide roller | C | C | C | C | C | C |
| Pull-out pole | C | C | C | C | C | C |
| Tension pole | C | C | C | C | C | C |
| Tension band | | R | | R | | R |
| Supply reel disk | C | C | C | C／R | C | C |
| Take-up reel disk | C | C | C | C／R | C | C |
| Pressure roller | C | C | C | C／R | C | C |
| Impedance roller | C | C | C | C | C | C |
| Capstan belt | | | | R | | |
| Reel drive idler | | | | R | | |
| Capstan shaft (capstan motor) | C | C | C | C／R | C | C |
| Loading motor | | | | R | | |

C : Cleaning
R : Parts replacing

# Identifying Controls




## 1. Lens Door
Slide the lens door opener to open and close the lens door. To protect the lens, keep the lens door closed when not recording.

## 2. Lens
F1.4 – 2.8 (4~64mm) 16:1 power zoom lens with auto focus and auto iris functions.

## 3. Lens Door Opener
Slide the opener to open and close the lens door. Align with OPEN to open the lens door for recording. Align with CLOSE to close it.
Hold down the small button in the opener as you slide it to CLOSE. However, you need not hold it down to slide the opener to OPEN.

## 4. Electronic Viewfinder

## 5. Diopter Control
To use the electronic viewfinder, turn this control for your optimum focus adjustment.

## 6. Stereo Microphone
Sensitive to sounds coming from the direction in which the camera is pointed.

## 7. Record Indicator
This indicator lights when the camcorder is recording.

## 8. Infrared Receiver
The area where infrared signals from the wireless remote are received. Aim the remote control to this area for best results.

## 9. Speaker
You can listen to the recorded sound.

## 10. OPEN Button
Push this button to open the LCD monitor.

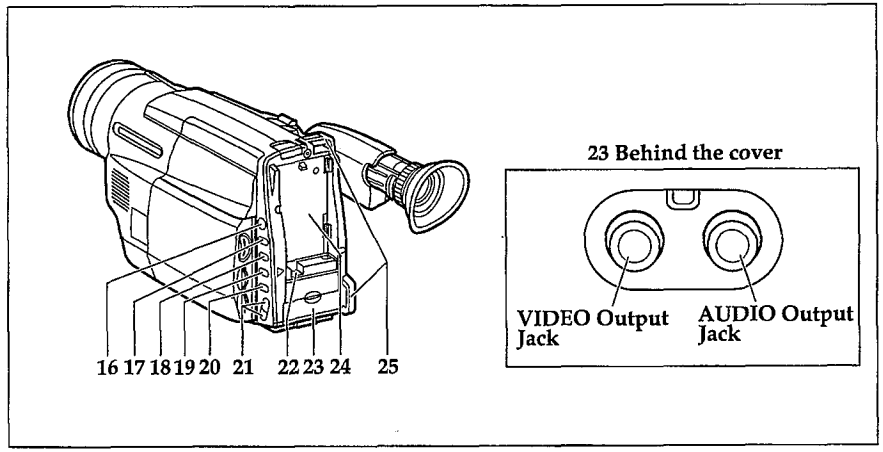
## 11. Bright Control
Use this to adjust the brightness of the LCD monitor screen ("Adjusting the Brightness of the LCD Screen", p19).

## 12. Volume Control
Use this to adjust the volume when viewing a played back picture on the LCD monitor ("Playback", p28).

## 13. LCD Monitor
You can view the pictures as they are being recorded and play them back immediately after recording on the 3-inch LCD screen.

## 14. Cassette Holder
A power source must be connected to the camcorder before a cassette can be inserted or removed.

## 15. Cassette Holder Close Button
**CAUTION:** Be sure to press this button to close the cassette holder. Otherwise, the tape may become slack and may be damaged.




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

## 17. EIS (Electronic Image Stabilizer) Button
EIS corrects slight shaking of an image ("Using the Electronic Image Stabilizer," p39).

## 18. D.EFFECT Button
Use this button to add special effects to your recording. You can select five modes – the 16 x 9 mode, negative/positive mode, X130 digital zoom mode, half-mirror mode and mosaic mode. (See "Digital Effects Recording" on page 36.)

## 19. FADE Button
The FADE button features four modes; white fade, wipe fade, zoom fade and black-and-white fade ("Using Fade", p38).

## 20. 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 ("Setting the Date and Time", p22 and "Date Recording", p35).
In the VIDEO mode, the DATE/DISP. button is used as the DISPLAY button ("Using the Display Button", p40).

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

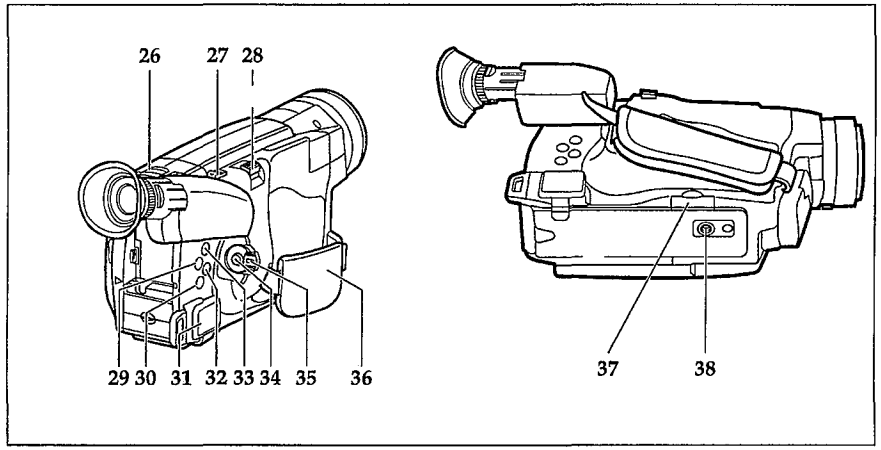
## 21. FOCUS Control Buttons
Press these buttons simultaneously to select manual or automatic focus. For manual focusing ("Using Manual Focus", p26), press the ▲ or ▼ buttons to bring the subject into focus. When using manual focus, "FOCUS" appears in the viewfinder or LCD monitor.

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

## 23. AUDIO/VIDEO Output Jacks (Behind the jack cover)
You can use an audio/video cable (not supplied) instead of the AV stereo output cable (provided) when viewing the playback picture on the TV, etc.
- 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).
- The playback sound becomes monaural.

## 24. Power Supply Attachment Section
Attach the battery here ("Camcorder Batteries", p16).

## 25. Shoulder Strap Slots
Attach the shoulder strap here.




## 26. BATTERY EJECT Lever
Releases the battery attached to camcorder.

## 27. EJECT Switch
Slide this switch to open the cassette door. A power source must be connected before cassettes can be inserted or removed though the CAM/OFF/VIDEO switch may be set to OFF ("Inserting and Removing Cassettes", p18).

## 28. Power Zoom Control
Use this to zoom automatically ("Using the Power Zoom", p26).

## 29. PLAY Button
Use to playback recorded tapes.

## 30. STOP Button
Use this button to stop playback, fast forward, or reverse. Also use this button to set date and time.

## 31. Audio/Video Input/Output Jack (Behind the jack cover)
Use this jack to connect the camcorder to a VCR or television ("Playing Back Your Recording on Your TV", p30, 31, "Dubbing from the Camcorder to a VCR", p45 "Recording Television Programs", p53).

## 32. REW/REVIEW Button
Use this button to fast rewind tapes or for visual search. During visual search the camcorder rewinds at approximately 7 times normal playback speed ("Using Forward and Reverse Search", p29). Also use this button to set date and time. Furthermore, use this button to review the last few seconds of the tape you are recording.

## 33. F.FWD Button
Use this button to fast forward tapes or for visual search. During visual search the camcorder fast forwards at approximately 9 times normal playback speed ("Using Forward and Reverse Search", p29). Also use this button to set date and time.

## 34. Start/Stop Button
When the CAM/OFF/VIDEO switch is in CAM press this button to start recording. When pressed a second time the camera pauses.
During playback use this button to stop the tape temporarily. Pressing a second time resumes normal playback.

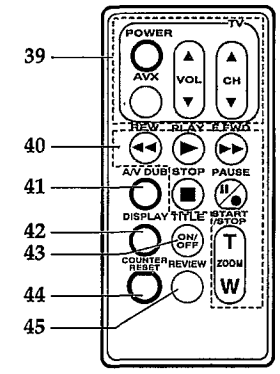
## 35. CAM/OFF/VIDEO Power Switch
This switch turns the camcorder on and off. Set the switch to CAM for camera recording, and to VIDEO for playback. Hold down the small red button as you slide the switch to CAM or VIDEO. You do not need to hold down the red button to slide the switch to OFF.

## 36. Hand Strap
Refer to page 20.

## 37. Clock Battery Compartment
Pull the battery holder and install the clock battery (provided). (See "Loading Clock and Remote Control Batteries" on page 14.)

## 38. Tripod Mounting Threaded Socket
Use this threaded socket to mount the camcorder to a tripod.






## 39. TV Control Buttons
Used for controlling the TV

- POWER . Turns the TV on and off.
- AVX : Used for recording picture and sound from an auxiliary input.
- VOLUME: Increase (▲) or decrease (▼) the volume.
- CHANNEL · Top (▲) button switches to the next higher channel, bottom (▼) button switches to the next lower channel. For these to operate, you must have preset your channels.

("Controlling your TV with the Camcorder's Remote Control", p50).

## 40. Recorder's Remote Control
The shaded buttons on the remote control have the same functions as the corresponding buttons on the camcorder.

## 41. A/V DUB Button (only on the remote control)
Use this button to record new audio and video over existing audio and video.

## 42. DISPLAY Button
Use this button to select the viewfinder or LCD monitor and TV display ("Using the Display Button", p40). This button can be used instead of the DATE/DISP button on the camcorder in the VIDEO mode.

## 43. TITLE ON/OFF Button (only on the remote control)
Use this button to create and record titles for your tapes ("Creating and Recording a Title", p 43).

## 44. COUNTER RESET Button (only on the remote control)
Use this button to reset the linear time counter to "0:00:00".

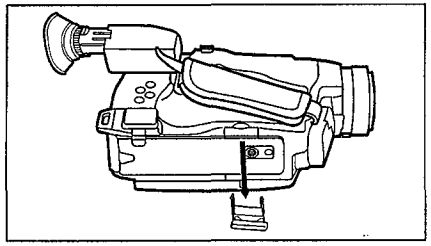
## 45. REVIEW Button
Used to review the last few seconds of the recorded segment in the record/pause mode.

# Loading Clock and Remote Control Batteries

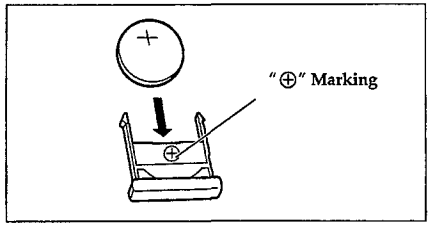
*Install the batteries to prevent misplacing them.*

## Clock Battery

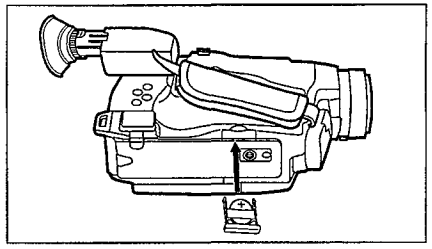
1. Pull out the battery holder.



2. Insert the battery with the "+" terminal facing up.

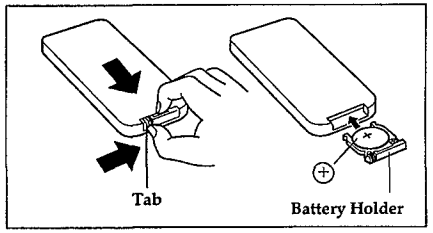



3. Fully insert the battery holder into the camcorder.



## Remote Control Battery

1. Push the tab to the right of the remote control and hold it, then remove the battery holder.




2. Press the PLAY button and hold it for about two seconds.
3. Insert the battery with "+" terminal facing up as shown in the figure.
4. Replace the battery holder with battery in the remote control making sure that it is fully inserted.

**WARNING: KEEP THE BATTERIES AWAY FROM CHILDREN AND PETS.**

**IF SWALLOWED CONSULT A PHYSICIAN IMMEDIATELY FOR EMERGENCY TREATMENT.**

**Note:** Replace the batteries with 3V micro lithium cells such as Maxell CR2025 or its equivalent.

**Note:** Dispose of batteries safely in accordance with local laws. Do not dispose of in fire.

**Note:** Do not short circuit the batteries.

**Note:** Do not take apart the batteries.

**Note:** Do not hold the batteries with the metallic tweezers.

**Note:** Do not recharge the batteries.

**Note:** Keep the batteries in a dark, cool, dry place.

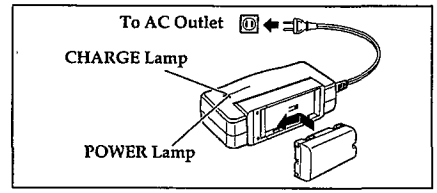


# Charging the Battery

*The first step is to set the battery to charge. To charge the battery, use the provided AC adapter/charger.*

**Note:** This camcorder operates with the Lithium Ion battery such as VM-BPL13/VM-BPL27.

Charge the battery on a flat surface without vibration.




1. Plug the AC adapter/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 adapter/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 flash at 3-second cycles 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 adapter/charger from the AC outlet and remove the battery from the AC adapter/charger.

**Note:** You can use the battery before it is completely charged.

**Note:** Remove the DC cord from the AC adapter/charger before attempting to charge the battery.

**Note:** If you re-attach the fully charged battery to the AC adapter/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 Time

| Charging \ Battery pack | VM-BPL13 | VM-BPL27 |
|---|---|---|
| Full charge | 130 min. | 230 min. |
| 70% charge | 70 min. | 140 min. |

**Note:** Charge the battery at temperatures 32~104°F (0~40°C). At temperatures outside this range, charging will take longer.

**Note:** The battery cannot be charged at extremely high or low temperatures. The CHARGE lamp will flash at rapid cycles to show that charging is not taking place.

## Operating Time

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

| Recording | LCD monitor | VM-BPL13 | VM-BPL27 |
|---|---|---|---|
| Continuous recording | OFF | 120 min. | 270 min. |
| | ON | 100 min. | 220 min. |
| Typical recording | OFF | 70 min. | 150 min. |
| | ON | 55 min. | 120 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 14°F (–10°C) or above 113°F (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 adapter/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 adapter/charger. Allow it to cool. Attaching a hot battery to the AC adapter/charger causes the POWER lamp to flash.

THERE ARE NO USER-SERVICEABLE PARTS INSIDE THE BATTERY OR AC ADAPTER/CHARGER.

THROWING THE BATTERY INTO FIRE OR EXPOSING IT TO EXCESSIVE HEAT (ABOVE 140°F [60°C]) MAY CAUSE INJURY.

SHORTING THE BATTERY'S TERMINAL INCREASES RISK OF FIRE OR ELECTRICAL SHOCK.

# Inserting and Removing Cassettes

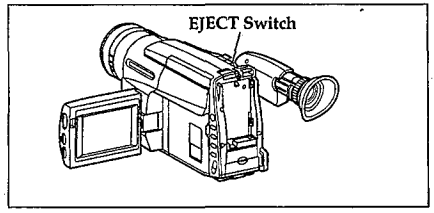
*A power source must be connected before inserting or removing cassettes. Once connected, cassettes can be inserted or removed whether the CAM/OFF/VIDEO switch is on or off.*

## Inserting a Cassette

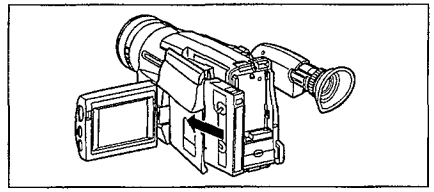
1. Press the OPEN button to open the LCD monitor ("Opening the LCD Monitor", p19).
2. Slide the EJECT switch. " EJECT" will appear on the LCD monitor, and the cassette door will open automatically.

   **Caution:** Be careful not to catch your fingers between the cassette door and the camcorder as it could cut you.

   **Note:** Cassette cannot be inserted or ejected unless the LCD monitor is open.

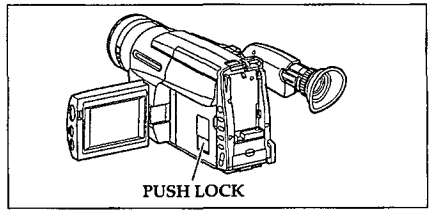



3. Place the cassette in the cassette holder so that the transparent window faces away from the body of the camcorder and the sprockets toward the body of the camcorder.



4. Push the cassette holder, which is embossed PUSH LOCK on the left hand side, until it "clicks" into place. The camcorder automatically closes.

   **Caution:** Be sure that you push the cassette holder embossed PUSH LOCK to close the holder. Otherwise, the holder will not click into place and the tape may be slack which could lead to damage.



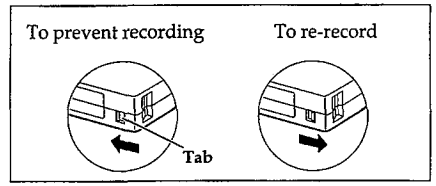

**Note:** If "TAPE" flashes in the viewfinder or LCD monitor, remove the cassette and check that the tape is not damaged, is not slack or no dust adheres to it, etc. After making sure that there is no abnormality, reinsert the cassette. If "TAPE" reappears, see "Troubleshooting" on page 57.

## Removing a Cassette

Press the EJECT switch. " EJECT" will appear on the LCD monitor, and the cassette door will open automatically. Remove the cassette.

## Protecting Recorded Material

Protect 8mm cassettes from accidental erasure by sliding the tab on the side of the cassette towards the opposite side until the tab is completely visible. Slide the tab in the opposite direction, until the tab disappears, to record on the cassette again.





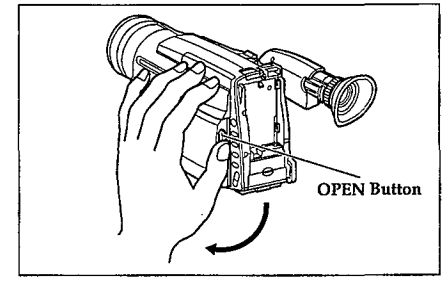

# LCD Monitor

*When using the LCD monitor during recording and playback, you can adjust the brightness of its screen and the angle of the monitor.*

## Opening the LCD Monitor

1. Press the OPEN button to open the LCD monitor.

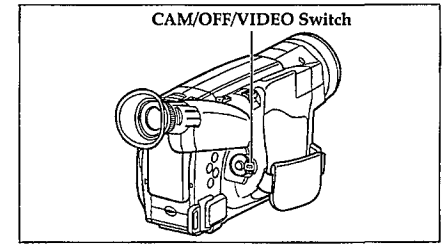
   **Note:** Opening or closing the LCD monitor switches the picture so that it appears on the LCD monitor or in the viewfinder.



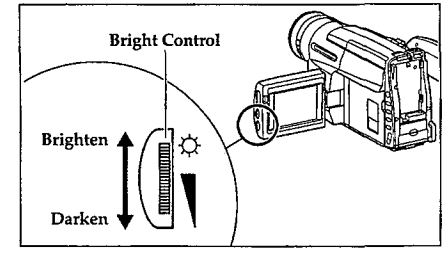

## Adjusting the Brightness of the LCD Screen

**Note:** Even when the picture on the LCD monitor is adjusted, the recorded video will not change.

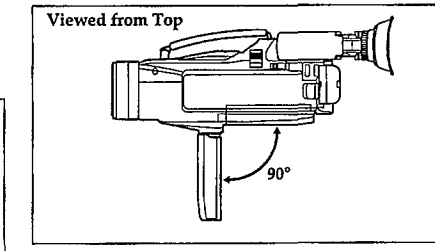
1. Load the battery ("Loading Batteries: Camcorder Batteries", p16). Press the red button on the CAM/OFF/VIDEO switch as you slide it to CAM or VIDEO.

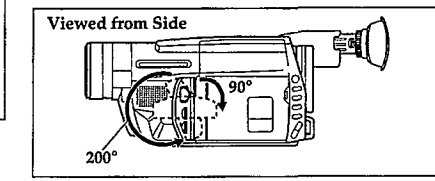


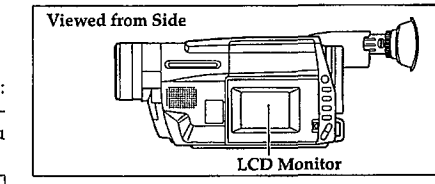

2. Use the bright control on the side of the LCD monitor to adjust the brightness of the LCD screen.




## Range in which the LCD Monitor can be moved




## Cautions on LCD Monitor Screen

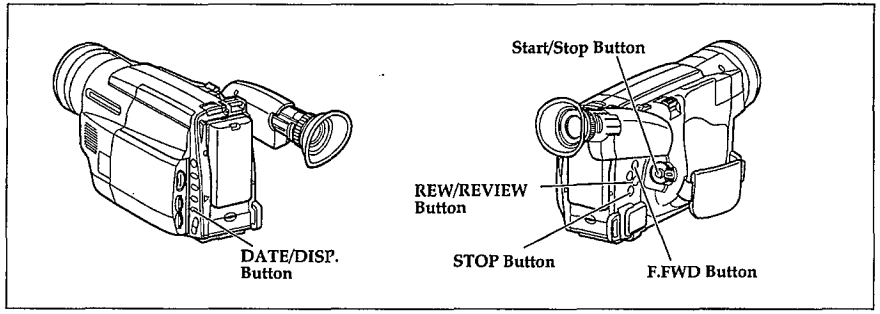
- Do not touch the LCD screen with your fingers as the screen could get dirty and the picture will not be seen clearly. If the LCD screen becomes dirty, use a soft cloth to wipe off the dirt.
- If the camcorder is used in a cold place and becomes too cold, the LCD screen will be dim for a while after the power is turned on. When the temperature inside the camcorder rises, the brightness of the picture will become normal.
- Do not hold by the LCD monitor as this could cause a malfunction.
- Open the LCD monitor by 90° before changing its direction. If you were to attempt to invert its direction before opening it completely, it could cause a malfunction.
- Close the LCD monitor after making sure it is parallel with the camcorder. If you were to close the monitor while it faces the same direction as the lens or it is diagonal, it could damage the LCD monitor.
- Do not disassemble the LCD monitor as this might cause a malfunction.
- When opening the LCD monitor, be careful that no water droplets adhere the monitor screen and that no water or dust enters the camcorder through the gap as it could cause a malfunction.

# Setting the Date and Time

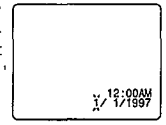
*Take the time to set the date and time now. The date and time can be recorded on your tapes to act as a handy reference when viewing them later. Use the following procedure to set up the display for the current date and time.*

**Note:** 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 camcorder is removed.

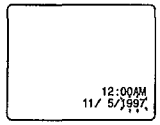
Make sure that the current time is displayed correctly before you start filming.



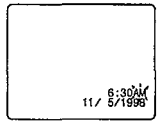

1. Load the battery ("Loading the Batteries: Camcorder batteries" p16). Press the red button on the CAM/OFF/VIDEO switch as you slide it to CAM.
2. Press the DATE/DISP. button and look into the viewfinder or LCD monitor. The date and time should appear in the lower right with the "1" flashing.




3. Pressing the F.FWD button gives you higher numbers while the REW/REVIEW button gives you lower numbers. Select the right month and press STOP button. Use the F.FWD, REW/REVIEW and STOP buttons to select the proper day, year, hour, minute, and AM or PM.




4. After setting the AM/PM, press the DATE/DISP. button. The display changes and the internal clock starts.




**Note:** After the date and time are set, "AUTO" appears and the camcorder enters the automatic date recording mode. See "Date Recording" on page 35.

### Correcting the Date and Time

1. Press the DATE/DISP. button while pressing the STOP button. The flashing cursor appears at the month.
2. Move to where you need to make the correction with the STOP button and use the F.FWD and REW/REVIEW to correct.
3. Press the DATE/DISP. button to set the corrected date and time.

# Controlling Your TV with the Camcorder's Remote Control

*The remote control is designed to be compatible with many televisions, but will not work with every one made. If your TV does not respond the way it should when you program it as explained below, this remote may be incapable of operating it.*

*Once you have programmed the remote, you won't have to do it again until you change the battery.*

This remote control can be used with your TV as well as the camcorder, as long as your TV comes with a remote control. This feature comes in handy—you don't have to juggle two remotes.

The remote control is compatible with the fourteen makers of TVs listed on the next page—but don't be alarmed if yours is not on our list. You may still be able to program the remote for your TV.

Every TV that comes with a remote control is set up to detect certain infrared signals. You need to program the camcorder remote control to send signals that your TV will recognize and respond to. Here's what to do:

## Programming the Remote Control

- Turn the television on (any channel is okay).
- Aim the camcorder's remote control at your TV set. Hold down the CH(▲) button while you press the button corresponding to your brand of television as shown in the chart (page 51).

For example, if you have an RCA television, press CH(▲) and DISPLAY at the same time. If this button combination sends a signal that matches your TV, the channel will change on the TV, and you'll know the remote is set to control the television.

- If that button combination does not change the TV channel, go through the whole list of button combinations one by one until you find one that does change your TV channel.

Also, if your brand of TV is not listed in the chart, try all the buttons. One of them may work for you.

If the TV channel still doesn't change after going through all the button combinations listed, it is likely that you will not be able to program this remote control for your TV.

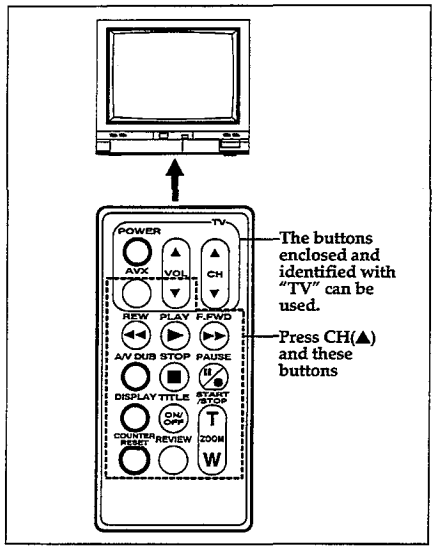
| TV Brands | Press CH (▲) and This Button |
|---|---|
| Hitachi | AVX |
| Zenith | VOL (▼) |
| Sony | ZOOM. (W) |
| Magnavox | REW |
| Sanyo | PLAY |
| Gold Star 1 | F.FWD |
| Toshiba | AV DUB |
| Gold Star 2 | STOP |
| NEC | PAUSE (START/STOP) |
| RCA | DISPLAY |
| Panasonic | TITLE ON/OFF |
| Mitsubishi | ZOOM. (T) |
| JVC | COUNTER RESET |
| Sharp | REVIEW |

## Controlling the TV

Once programmed, the camcorder's remote control is ready to control the TV.

- Press the button of the TV function that you want.

Be aware that not all of your TV's functions may work even though the remote control is correctly programmed.




**Note:** It may not be possible to control all TVs listed in the Table.

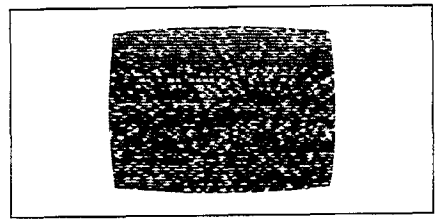
**Note:** The AVX Button can't be used with Gold Star 2 and Sharp TVs.

# General Maintenance

## Cleaning the Camcorder Heads

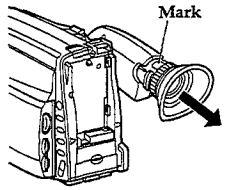
Dirt can accumulate on the video heads on the camcorder causing the playback picture to become blurred or appear as if video information is lost. This often means that the video heads are dirty. Use a video head cleaner such as a dry type head cleaning tape to clean the heads.

If after cleaning the heads the picture does not clear up consult your nearest dealer or VCR service center for professional head cleaning.

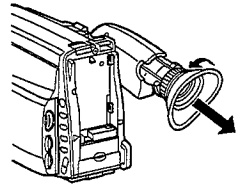


## Cleaning the Lens and Picture Tube of the Electronic Viewfinder

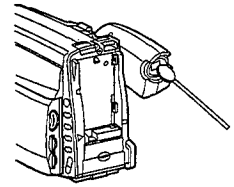
*The lens of the electronic viewfinder can be user-cleaned if dust, dirt, or other foreign matter adheres to it.*



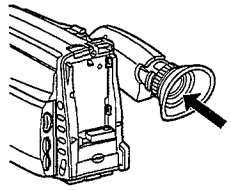

1. Pull out the eye cup to the position where a mark can be seen (up to a half where it is pulled out all the way). The side with the mark should be up.



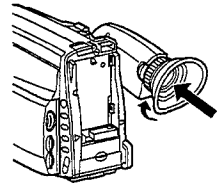
2. Turn the eye cup counterclockwise until it stops, then pull it out to remove.



3. Clean the picture tube face and lens. To prevent scratching, use a soft non abrasive cloth, swab or lens cleaning paper.



4. Face the rib up as shown above and push and the eye cup in until it stops.



5. Turn the eye cup clockwise until it stops, the push it in all the way.



## Periodic Maintenance

A precision electromechanical device, the Hitachi VM-H835LA requires maintenance after a period of normal use. We expect that no maintenance other than head cleaning will be required during the period of warranty unless the camcorder is used either heavily or seldom. Defective parts are covered by the warranty. Normal maintenance is the responsibility of the owner. Consult your dealer or local VCR service center for recommendations regarding normal maintenance based on your use patterns, location, and the age of the camcorder.

## Troubleshooting

*Quality is very important at Hitachi. We inspect and check every camcorder carefully at the factory under the most rigid quality control and inspection systems. If problems develop please check the following possible solutions before inquiring about professional service.*

**INSERTING OR REMOVING THE CASSETTE**

| Symptom | Check Point & Correction |
|---|---|
| Cassette holder cannot be opened when you slide the EJECT switch. | • Connect the power source. |
| | • Open the LCD monitor, then slide the EJECT switch. |
| Cassette cannot be inserted into cassette compartment. | • Load cassette in direction indicated by arrow on cassette. |
| | • Cassette window must be toward outside. |

**CAMERA RECORDING**

| Symptom | Check Point & Correction |
|---|---|
| Picture does not appear in the viewfinder or LCD monitor. | • Open the lens door. |
| | • Slide the CAM/OFF/VIDEO switch to CAM. |
| | • Disconnect the AV input cable from the camcorder. |
| The camcorder cannot go into the recording mode, even when the start/stop button is pressed. | • Check the record-protect tab on the cassette. See page 18 for details. |
| | • Push the cassette holder embossed PUSH LOCK to close it. |
| | • Slide the CAM/OFF/VIDEO switch to CAM. |
| Picture is out of focus.<br>Auto-focus does not operate. | • Make sure that "FOCUS" does not appear in the viewfinder or LCD monitor. If it is displayed, press FOCUS Control buttons to erase it. |
| | • Auto-Focus does not operate if a special-effects filter is attached or the objects shown on page 25 are being recorded. |
| The created title does not appear. | • Insert the clock battery, then create a title. |
| | • Do not remove the clock battery after creating a title. |

**RECORDING TV PROGRAMS OFF THE AIR**

| Symptom | Check Point & Correction |
|---|---|
| The camcorder cannot be set to the recording mode, even when the Start/Stop button on the camcorder is pressed. | • Check the record-protect tab on the cassette. See page 18 for details. |
| | • Set the CAM/OFF/VIDEO switch to CAM. |
| | • Connect the camcorder and TV or VCR. |

**PLAYBACK OF PRERECORDED CASSETTE**

| Symptom | Check Point & Correction |
|---|---|
| The PLAY button cannot be engaged. | • Set the CAM/OFF/VIDEO switch to VIDEO. |
| No picture appears on television screen when the PLAY button is pressed. (TV is connected to the camcorder by using RF output adapter.) | • Set the television to the camcorder channel (3or4) depending upon the selected channel in the RF channel select switch of RF output adapter. |
| Interference on playback picture. (TV is connected to the camcorder by using RF output adapter.) | • When you see the playback picture on your TV, adjust fine tuning knob on television set to obtain best picture. |
| Picture bends at the top of TV screen. | • TV receiver is of older type. It needs to be modified to work properly with camcorder. |
| | • Tape is damaged. Try another cassette. |
| Color of your TV screen is too bright, too faint or change. | • TV set has VIR circuit. Turn it off during playback. |
| Date search function does not operate. | • Slide the CAM/OFF/VIDEO switch to VIDEO. |
| | • Insert the clock battery, set the date and time, then start recording. |
| | • Do not remove the clock battery after recording. |
| | • Do not eject the recorded cassette. Leave it in the camcorder. |

**BATTERY CONDITION**

| Symptom | Check Point & Correction |
|---|---|
| The ( ▬ ) indication in the electronic viewfinder or LCD monitor flashes to indicate battery is discharged. | • Try another battery or charge the battery. |
| 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. |

**NO OPERATION IS ACCEPTED**

| Symptom | Check Point & Correction |
|---|---|
| Power is turned on, but no button operations are accepted. | • Remove the power source and the date/title battery. And after about one minute, the display in the viewfinder or LCD monitor will be reset. Then set the information again. |



**TAPE DISPLAY**

| Symptom | Check Point & Correction |
|---|---|
| "TAPE" appears in the viewfinder or LCD monitor. | • Have you moved the camcorder 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, use a cleaning tape to clean the heads and replace the cassette. |

# CHAPTER 2 DISASSEMBLY

## 1. HOW TO SET TO THE EJECT STATE MANUALLY

This is not necessary for camera/recorders which are set to the eject state normally.

· This camera/recorder will not perform the eject peration unless the LCD monitor is open. Do the following if cassette cannot be ejected by pressing the EJECT button after a power supply is connected and the LCD monitor is opened. (Check the connection of PG905 on the VCA board (see Fig. 1-1) and LCD open/close switch.)

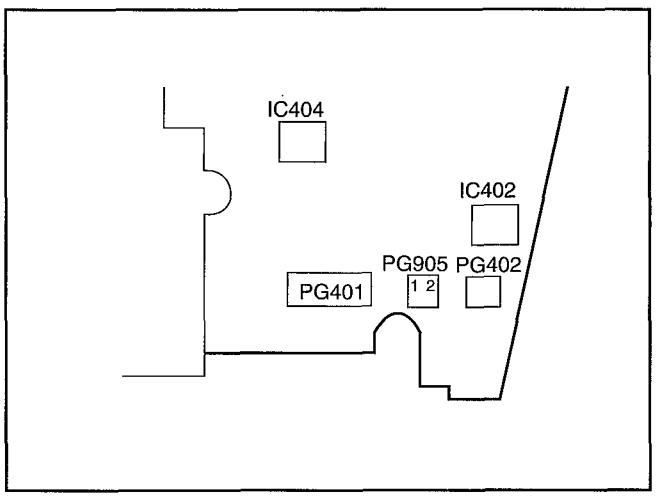



Fig. 1-1

### 1.1 REMOVE THE CASSETTE LID

<PROCEDURE>

(1) Lift the cassette lid in the direction of arrow (A) and insert tweezers between the cassette lid and left case. (Fig. 1-2)

(2) Release two tabs (C) of the plate spring in the cassette lid in the direction of arrows (B) and remove the cassette lid in the direction of arrow (D).

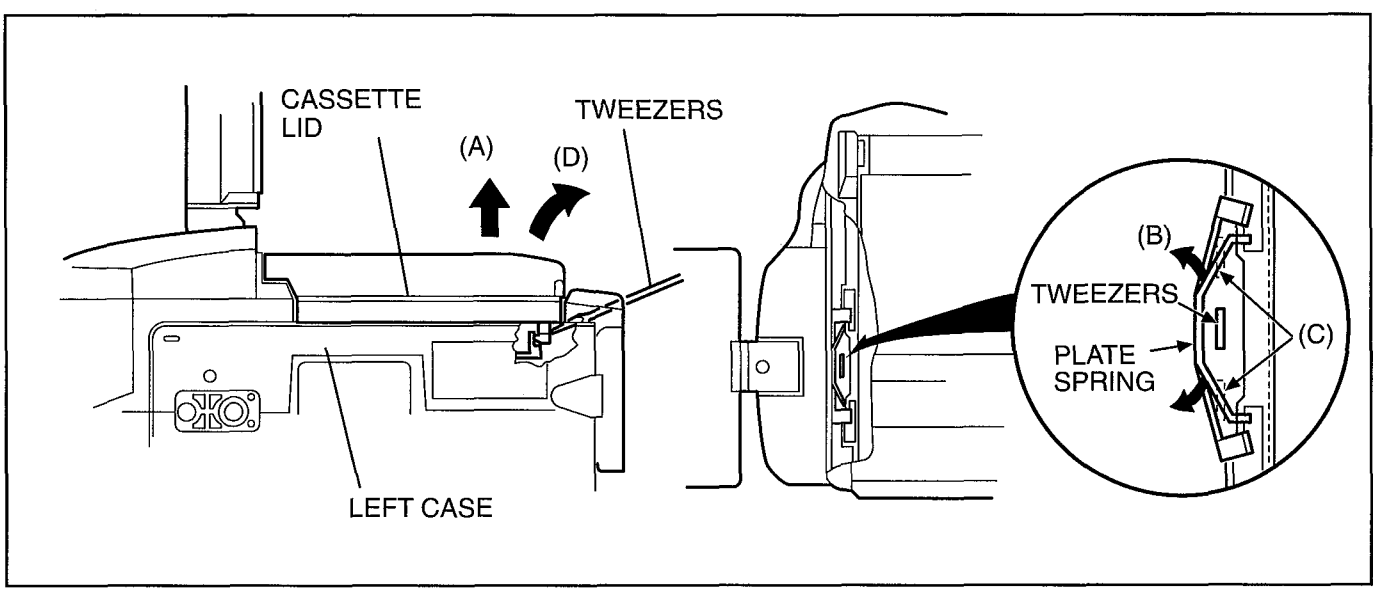



Fig.1-2

### 1.2 UNLOADING METHOD

If the electrical circuit is defective, apply a voltage to the connector terminals of the loading motor after the components up to the right case block are removed. The camera/recorder can be set to the eject state. (Fig. 1-3)

Be careful of the following when supplying power.

#### 1.2.1 When the Loading Motor is Normal (Fig. 1-3)

<PROCEDURE>

(1) Set the power supply to 3-5 V DC.

(2) Connect the red wire to the positive terminal and the brown wire to the negative terminal to activate unloading. Connect the brown wire to the positive terminal and the red wire to the negative terminal to activate loading.

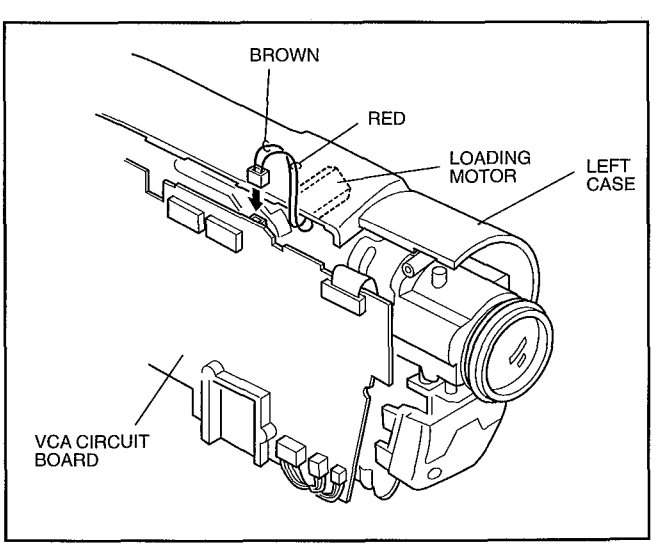



Fig.1-3

### 1.2.2 When the Loading Motor is Faulty

(Fig.1-4)

<PROCEDURE>

(1) Remove the following parts in advance, referring to subsequent items.
  1) Right case Block
  2) Main Block, Camera Block, Rear Case
  3) VCA Circuit Board, VCR Frame, Mechanism Block
  4) Loading motor

(2) Turn the Loading Gear (1) in the direction of arrow (F) to unload.

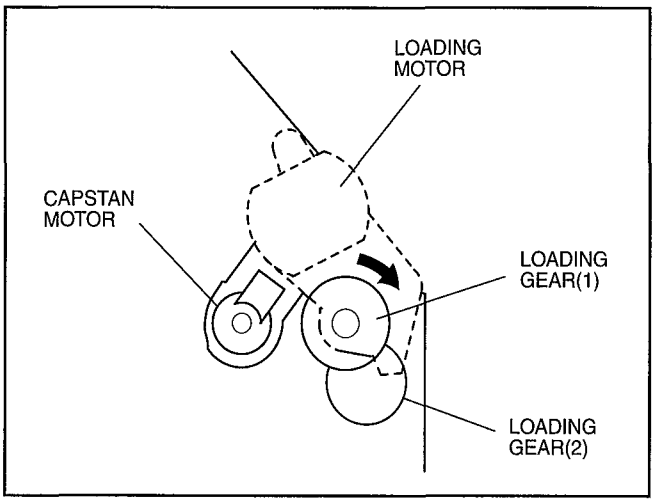



Fig. 1-4

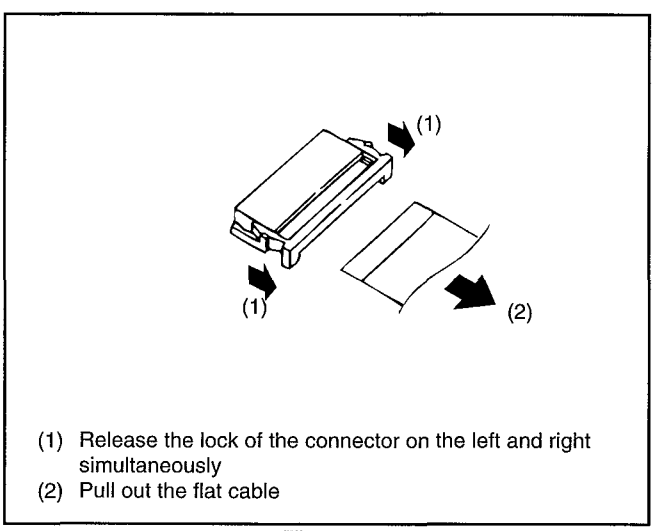
## 2. BEFORE STARTING DISASSEMBLY

(1) Be sure not to disassemble the lens block.

(2) Set the camera/recorder to the eject state before dismantling it. If the camera/recorder will not enter the eject state due to a defect, refer to "1. HOW TO SET TO THE EJECT STATE MANUALLY".

(3) 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 EJ ECT button (See Fig. 1-1).

(4) Disconnect flat cables from connectors by the procedure shown in Fig. 2-1. Since many circuit boards in the camera/recorder are connected by in-board connectors, be sure to follow DISASSEMBLYwhen removing the circuit boards.




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

Fig. 2-1

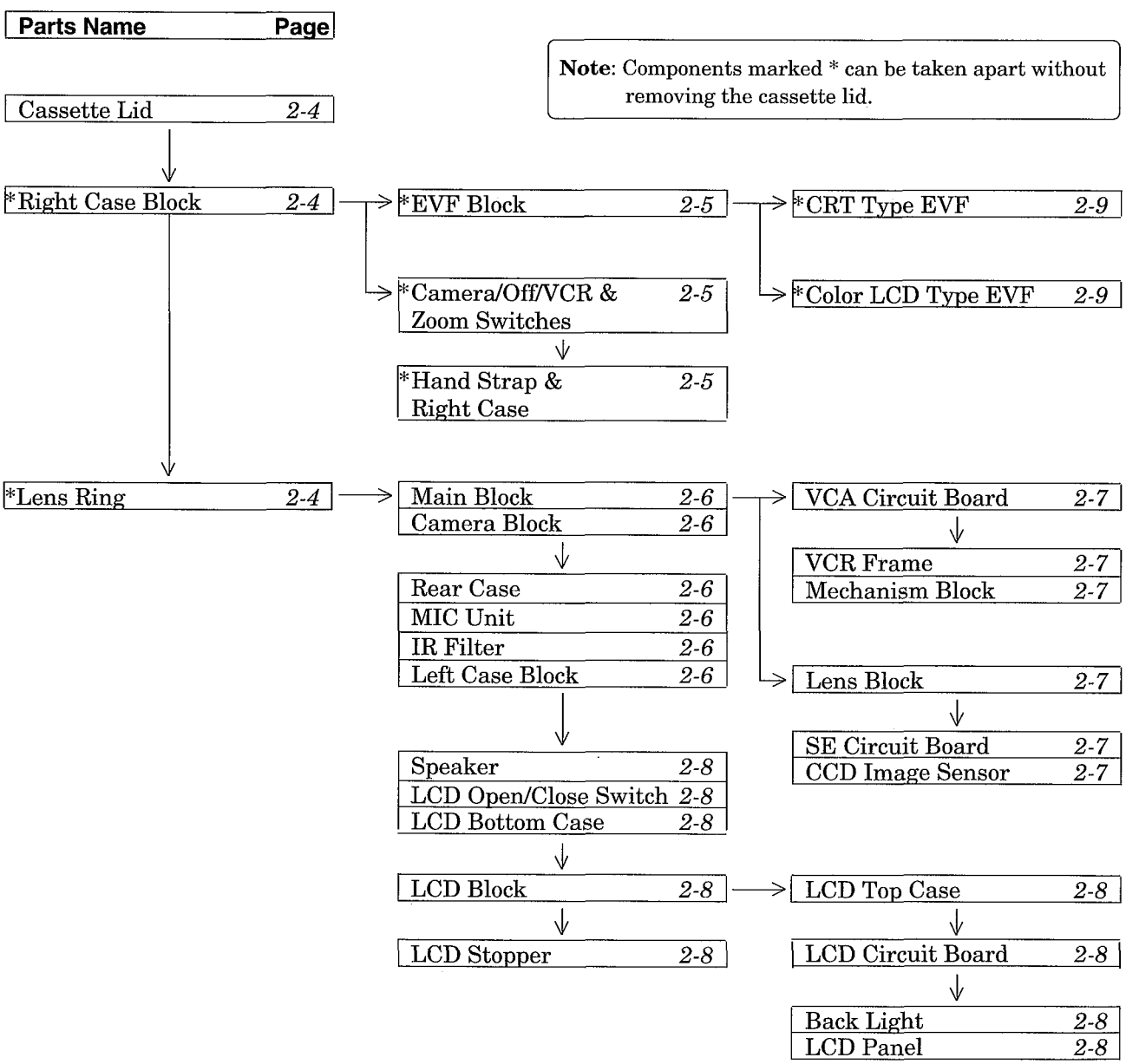
## 3. CASES AND CIRCUIT BOARD, MECHANISM BLOCK REMOVAL

Refer to the following "parts hierarchy chart" first when replacing defective parts. This chart shows the parts removal procedure as the hierarchy in which parts should be replaced.

### How to use the parts hierarchy chart

(1) Search for the part to be replaced in the chart.
(2) Check the part in the rank above the part to be replaced and then start dismantling.
(3) Replace the defective part and install it by the reverse procedure to that in the hierarchy chart.
(4) **[Procedure when removing]**
Remove the components in the order of letter (1, 2, 3....) in the illustrations.
**[Procedure when reinstalling]**
Reinstall the components by the reverse procedure to removal when not otherwise specified.

### PARTS HIERARCHY CHART



## 3.1 CASSETTE LID, RIGHT CASE BLOCK, LENS RING (Fig. 3-1)

<CAUTION>

1) Set the unit to the eject state. (This camcorder will not perform the eject operation unless the LCD monitor is open.)
2) The rubber o-ring is removed on its own when the lens ring is removed. Be sure to reinstall the rubber ring as shown in Figure A.
3) Open the AV output jack covers of right side before removing the right case block.

<PROCEDURE>

· Cassette Lid Removal: (1)-(2)
· Right Case Block & Lens Ring Removal: (3)-(4)-(5)-(6)-(7)-(8)

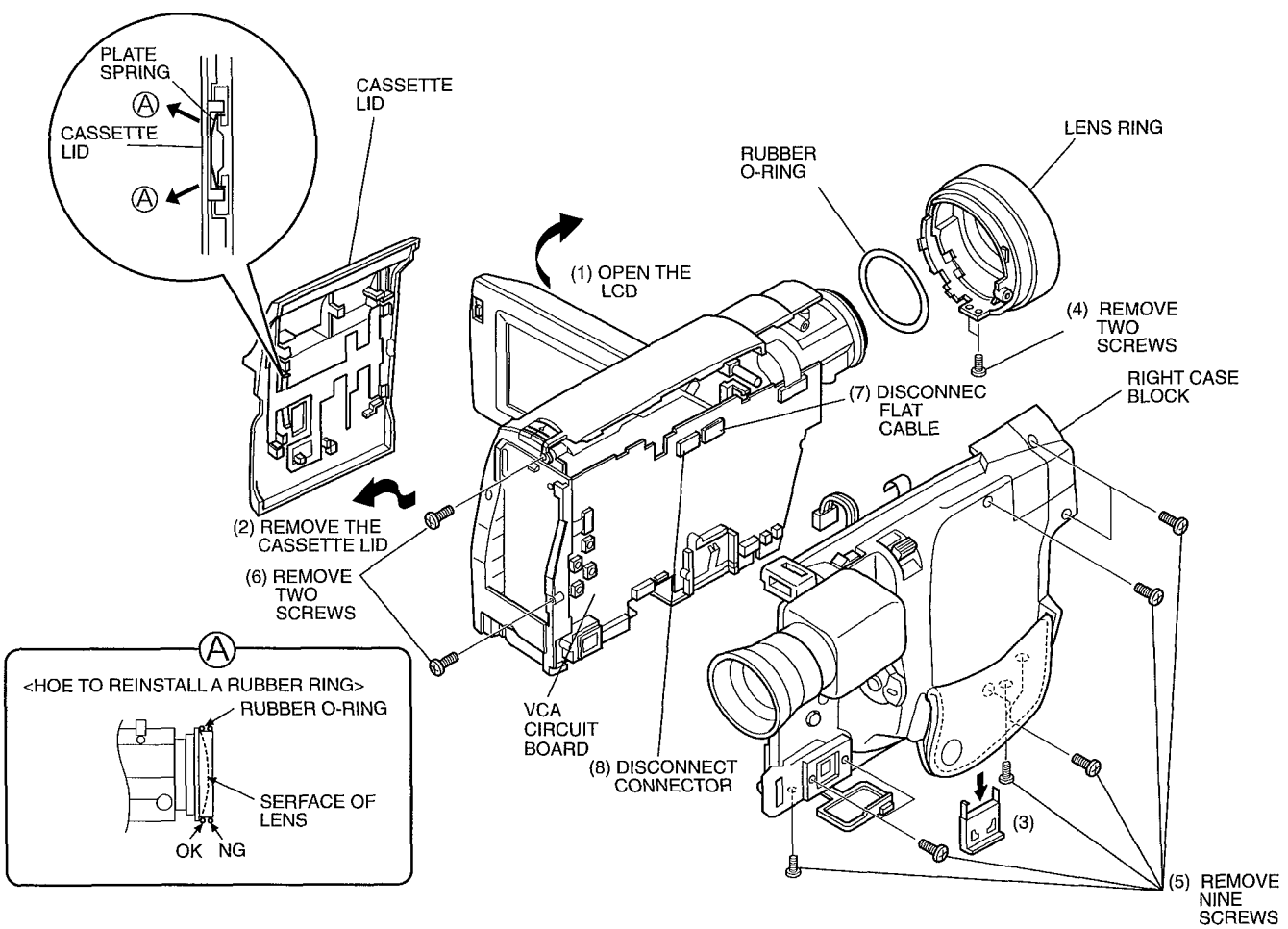



Fig. 3-1

## 3.2 CAMERA/OFF/VCR & ZOOM SWITCHES, EVF BLOCK, HAND STRAP, RIGHT CASE (Fig. 3-2)

<CAUTION>

1) The EVF plate and plate spring are removed on their own when the EVF block is removed.

<PROCEDURE>

- EVF Block Removal: (1)
- Camera/Off/VCR & Zoom Switches Removal: (2)-(3)
- Hand Strap & Right Case Removal: (2)-(3)-(4)-(5)

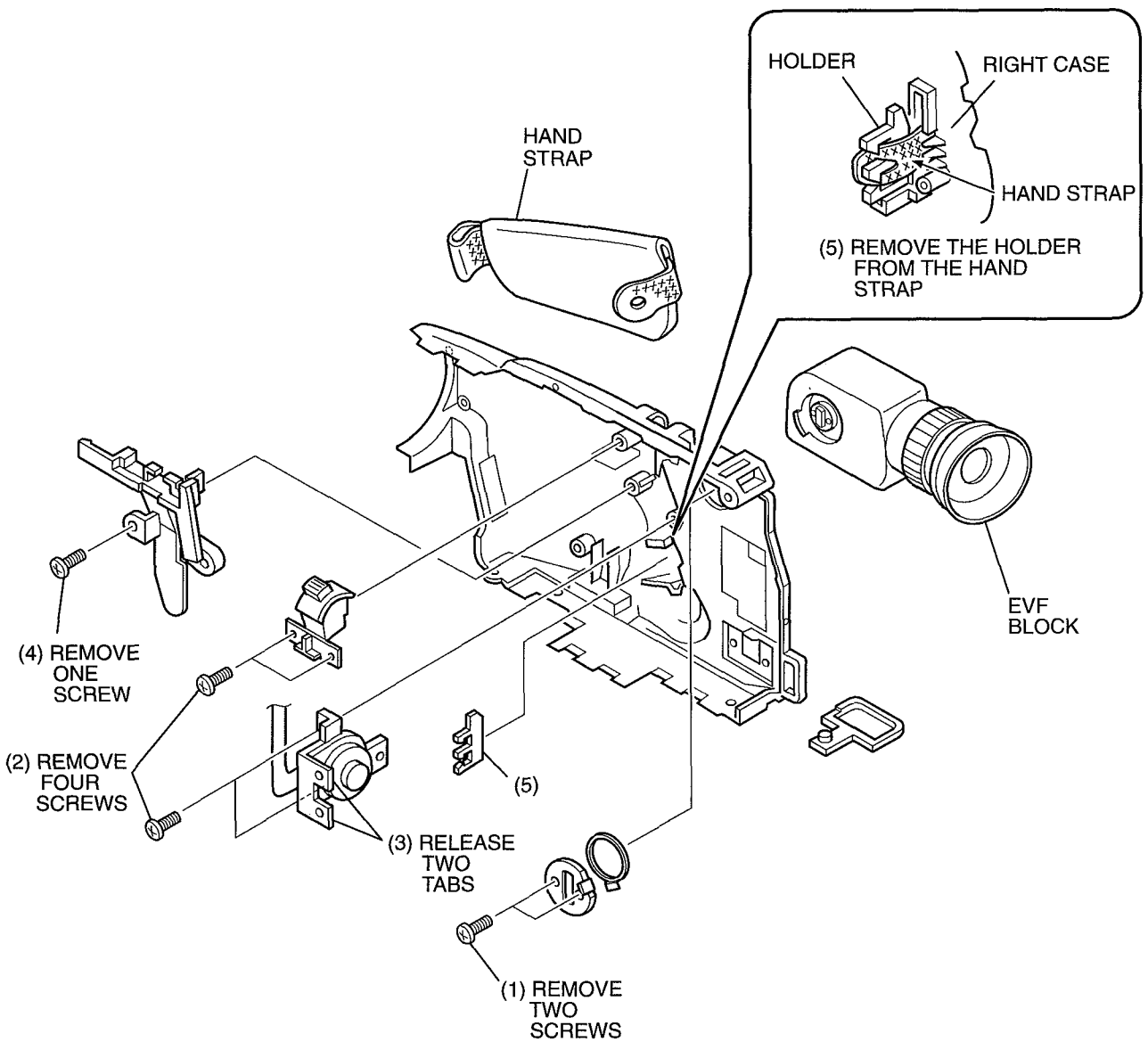



Fig. 3-2

## 3.3 MAIN BLOCK, CAMERA BLOCK, REAR CASE, MIC (MICROPHONE) UNIT, IR FILTER, LEFT CASE BLOCK (Fig. 3-3)

<CAUTION>

1) Open the AV output jack covers of rear side before removing the rear case.

<PROCEDURE>

· Main Block & Camera Block Removal:
(1)-(2)-(3)-(4)-(5)-(6)-(7)-(8)-(9)

· Rear Case Removal: (1)-(2)-(3)-(4)-(5)-(6)-(7)-(8)-(9)-(10)

· MIC Unit, IR Filter & Left Case Block Removal:
(1)-(2)-(3)-(4)-(5)-(6)-(7)-(8)-(9)-(10)-(11)-(12)-(13)

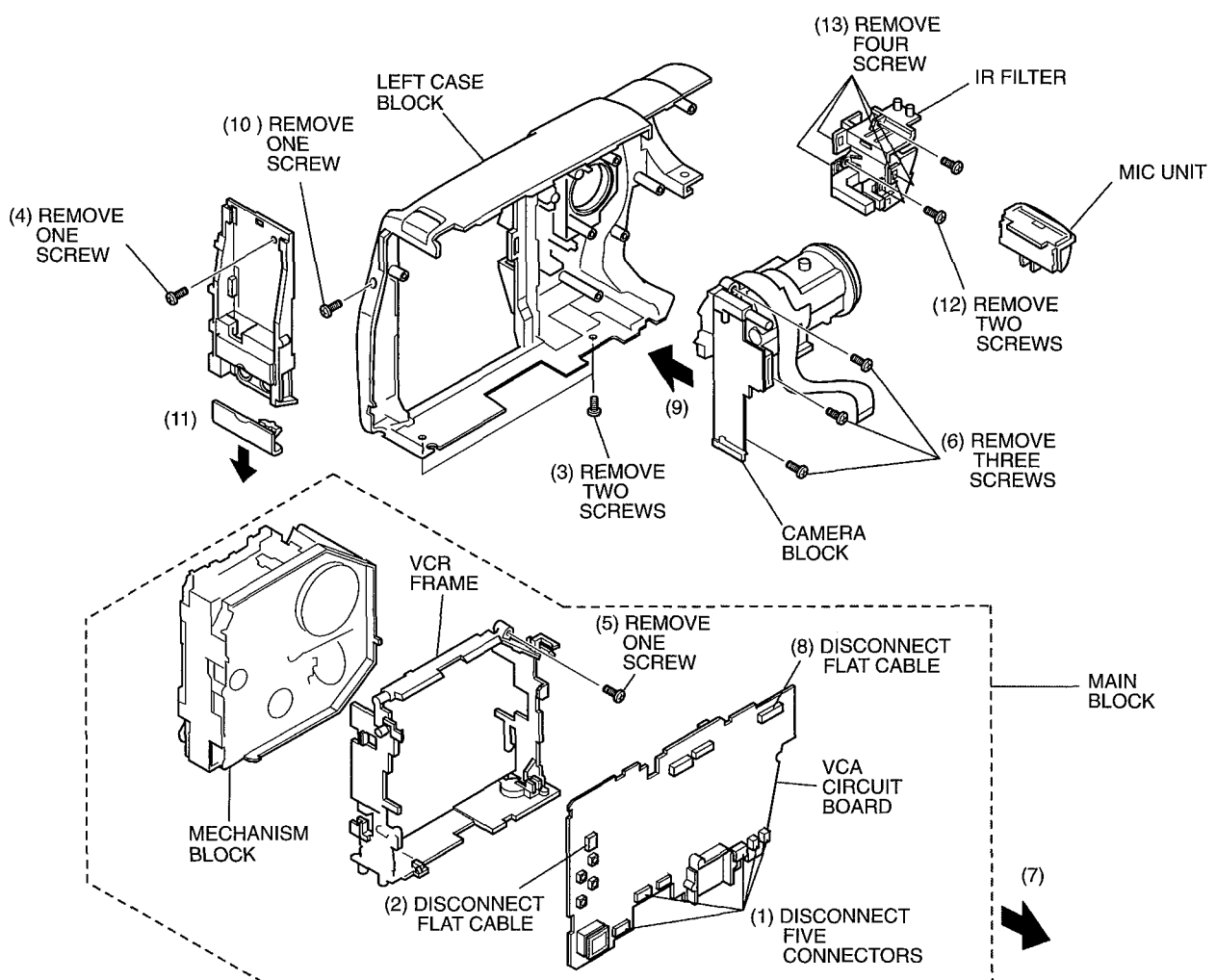



Fig. 3-3

### 3.4 VCA CIRCUIT BOARD, VCR FRAME, MECHANISM BLOCK (Fig. 3-4)

<PROCEDURE>

· VCACircuit Board Removal: (1)-(2)-(3)-(4)-(5)

· VCR Frame & Mechanism Block Removal:
(1)-(2)-(3)-(4)-(5)-(6)-(7)

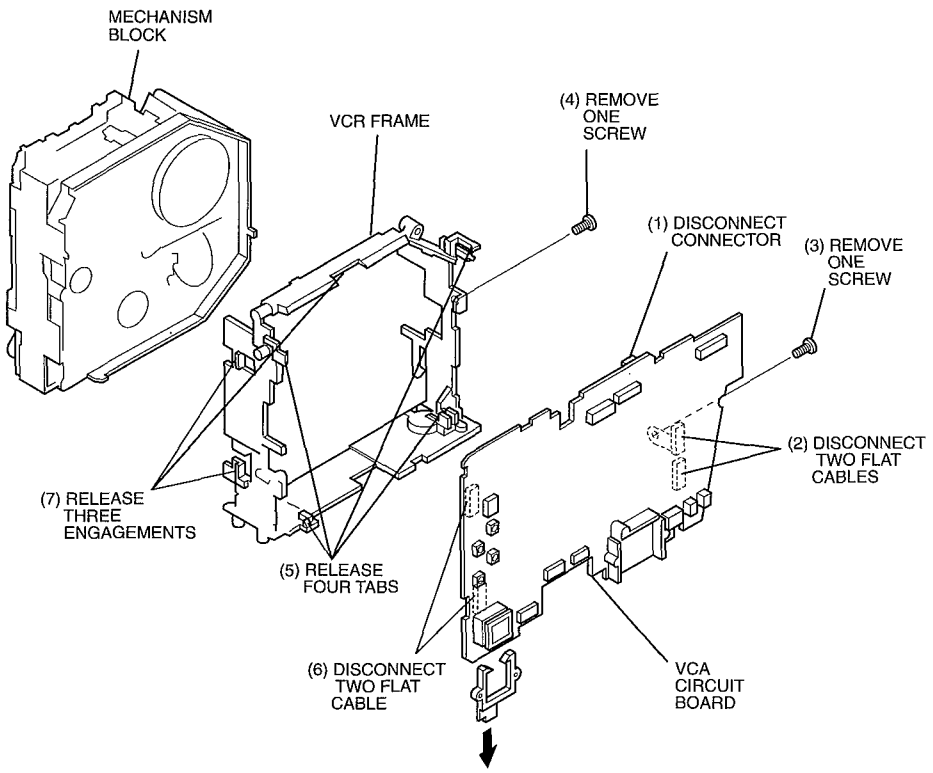



Fig. 3-4

### 3.5 LENS BLOCK, SE CIRCUIT BOARD, CCD IMAGE SENSOR (Fig. 3-5)

<CAUTION>

1) When the lens block is removed, the crystal filter and sensor rubber are removed on their own. Be careful not to damege the crystal filter.
2) Be sure not to disassemble the lens block. Otherwise the camera/recoder will not operate nomally.

<PROCEDURE>

· Lens Block Removal: (1)-(2)-(3)

· SE Circuit Board & CCD Image Sensor Removal:
(1)-(2)-(3)-(4)-(5)

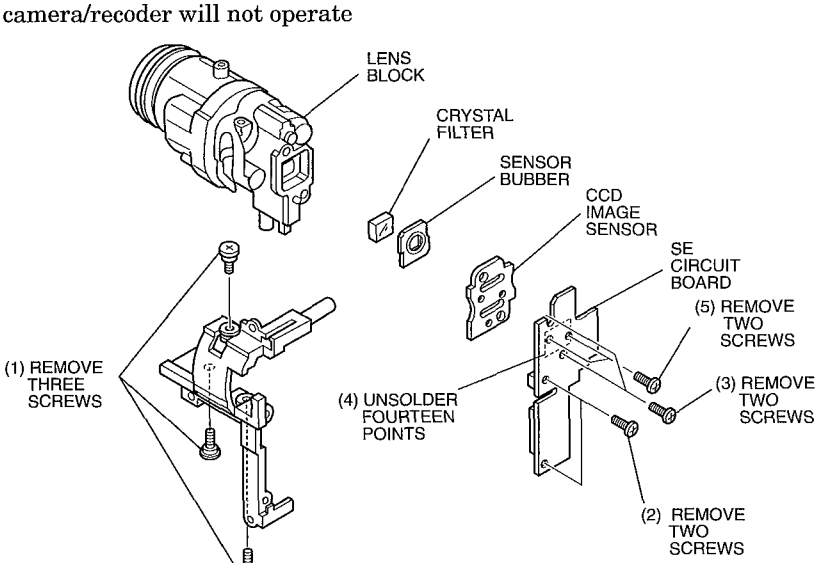



Fig. 3-5

## 3.6 SPEAKER, LCD OPEN/CLOSE SWITCH, LCD BOTTOM CASE, LCD BLOCK, LCD STOPPER

(Fig. 3-6)

<CAUTION>

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, light sheet and backlight with extreme care.

<PROCEDURE>

- Speaker Removal: (1)-(2)
- LCD Open/Close Switch Removal: (1)-(3)-(4)
- LCD Bottom Case Removal: (1)-(3)-(5)-(6)
- LCD Block Removal: (1)-(3)-(5)-(6)-(7)-(8)-(9)
- LCD Stopper Removal: (1)-(3)-(5)-(6)-(7)-(8)-(9)-(10)-(11)-(12)

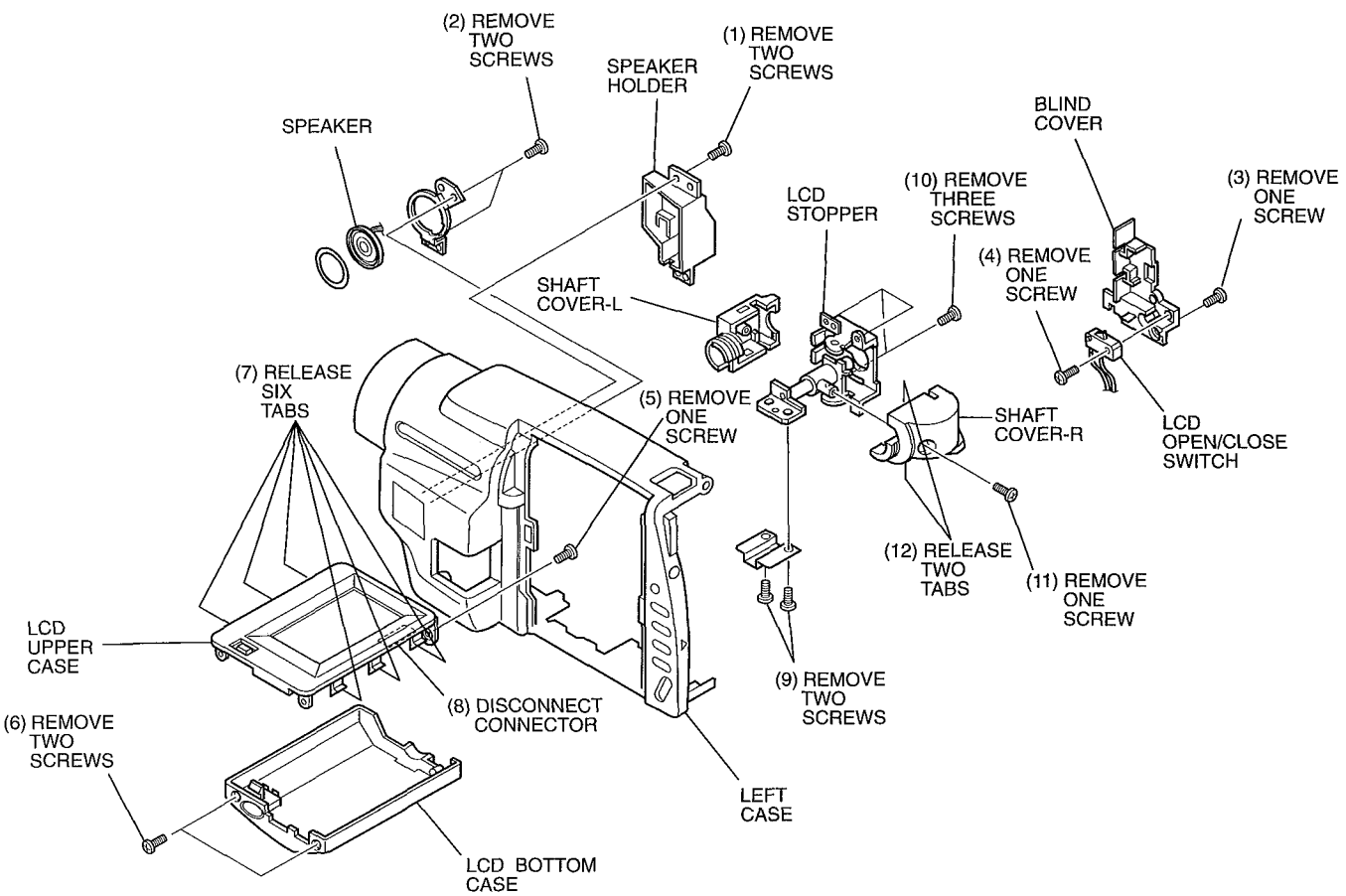



Fig. 3-6

## 3.7 LCD TOP CASE, LCD CIRCUIT BOARD, BACK LIGHT, LCD PANEL (Fig. 3-7)

<CAUTION>

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, light sheet and backlight with extreme care.

<PROCEDURE>

- LCD Top Case Removal: (1)
- LCD Circuit Board Removal: (1)-(2)-(3)
- Back Light & LCD Panel Removal: (1)-(2)-(3)-(4)

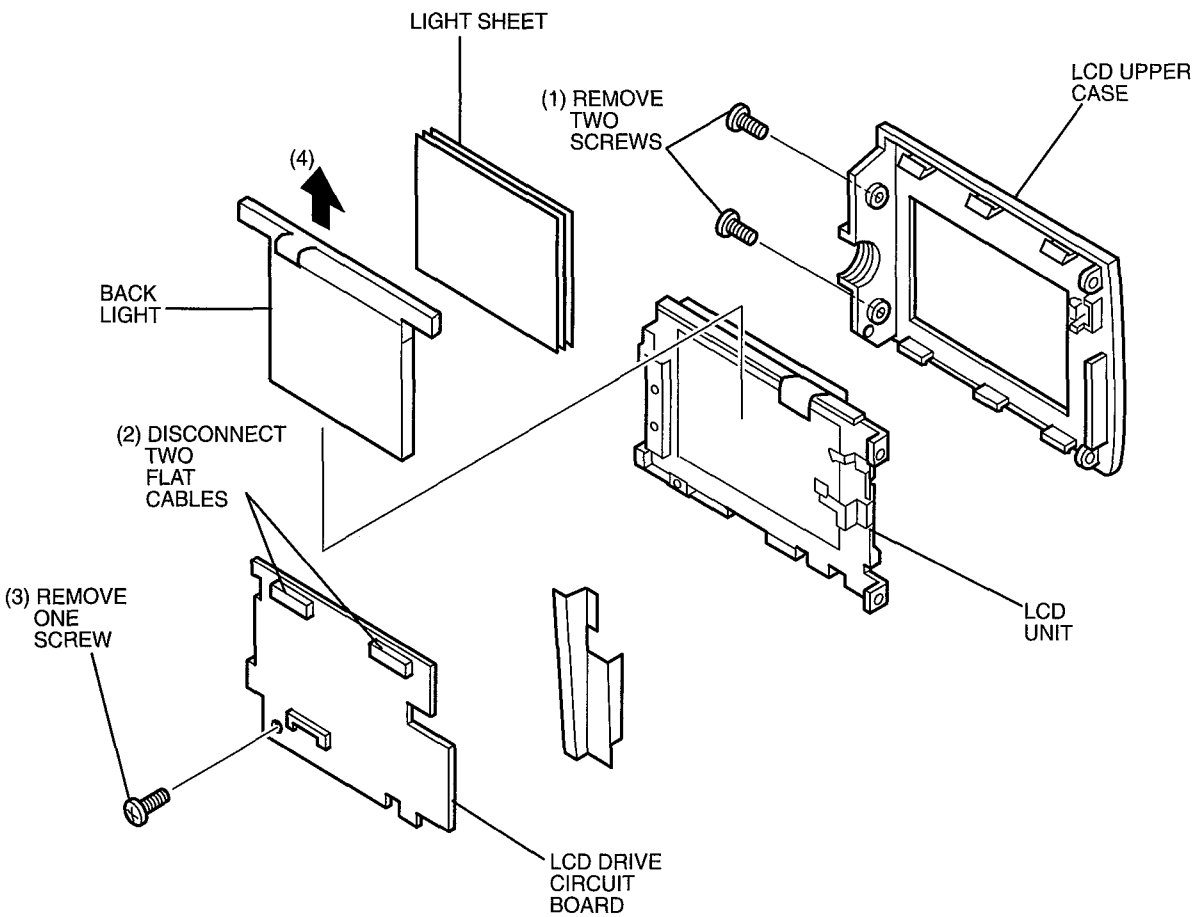



Fig. 3-7

### 3.8 CRT TYPE EVF (Fig. 3-8)

<CAUTION>

1) Be careful that the CRT is not subject to shocks.

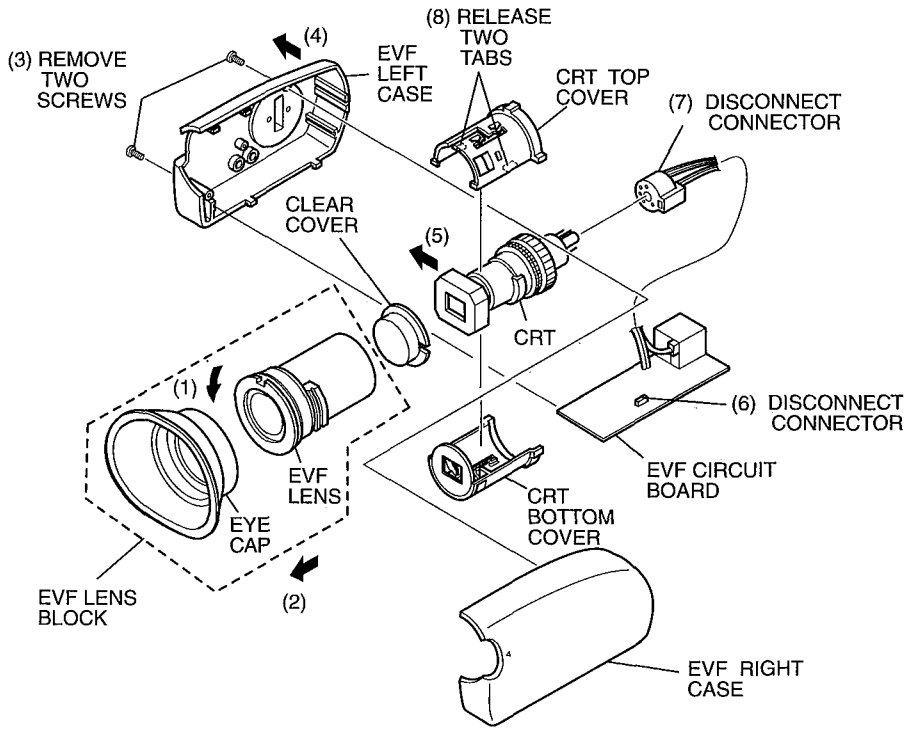



Fig. 3-8

### 3.9 COLOR LCD TYPE EVF (Fig. 3-9)

<CAUTION>

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.

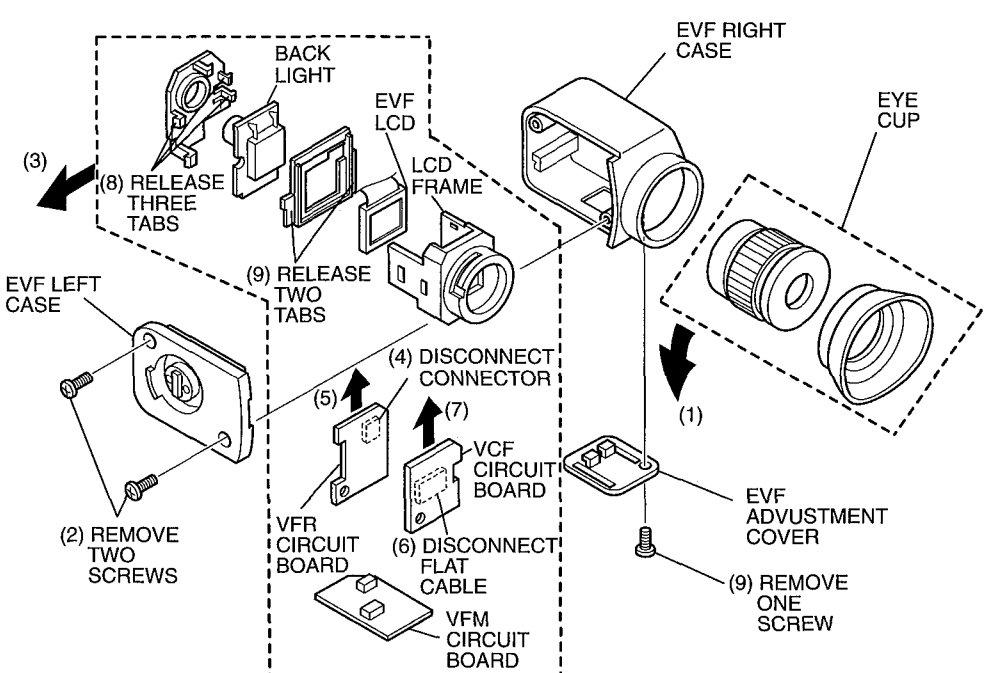



Fig. 3-9

# CHAPTER 3 ELECTRIC CIRCUIT ADJUSTMENT

**Abbreviation**
MAP: Digital adjustment program .
DSP: Digital signal processor

## 1. CONNECTION FOR ADJUSTMENT

- Most adjustment items can be done without dismantling the camera/recoder.
- Connect the EVF to display the operation mode on the monitor screen.

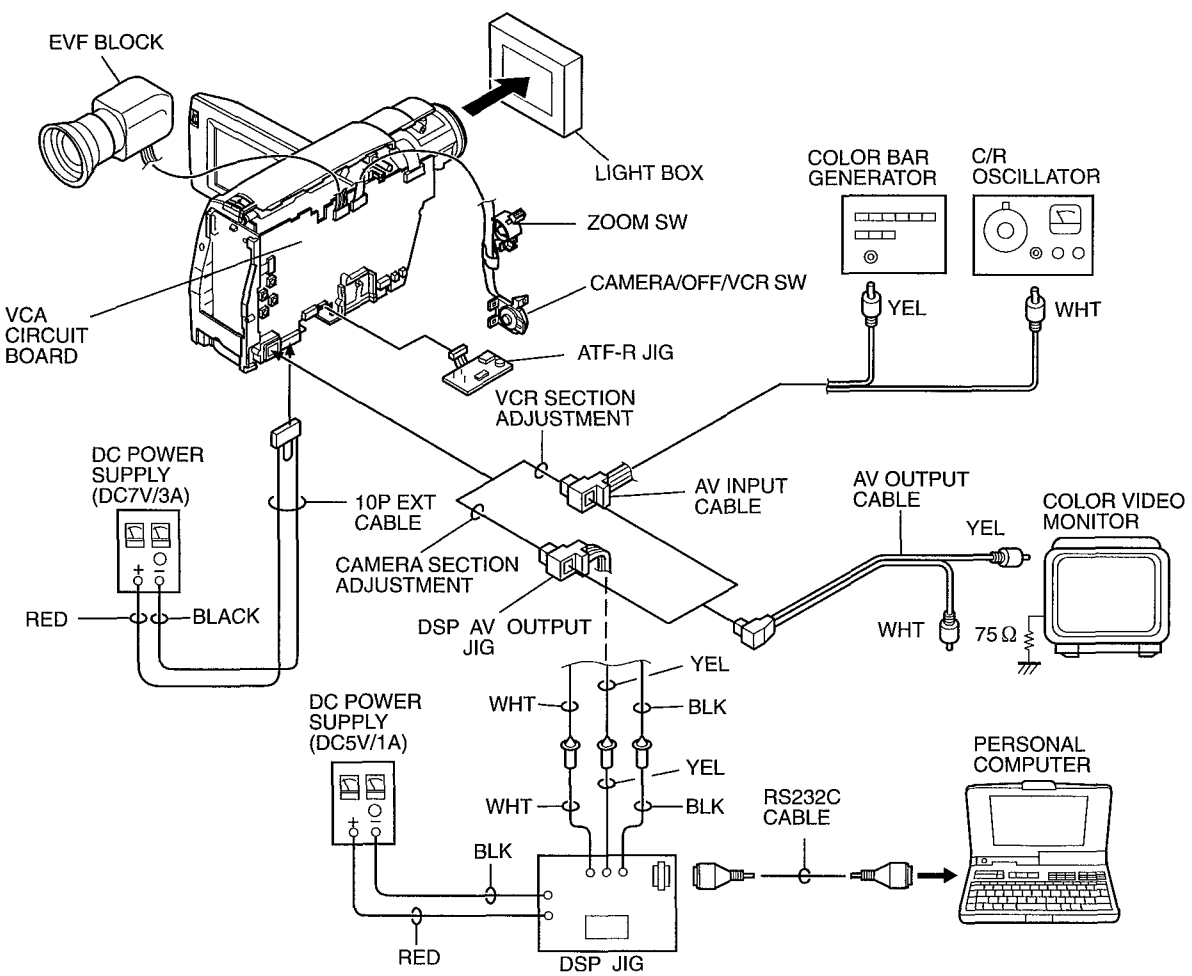



Fig. 1-1 Connection for adjustment

# 2. CAMERA SECTION ADJUSTMENT

## 2.1 CIRCUIT BOARD LOCATIONS

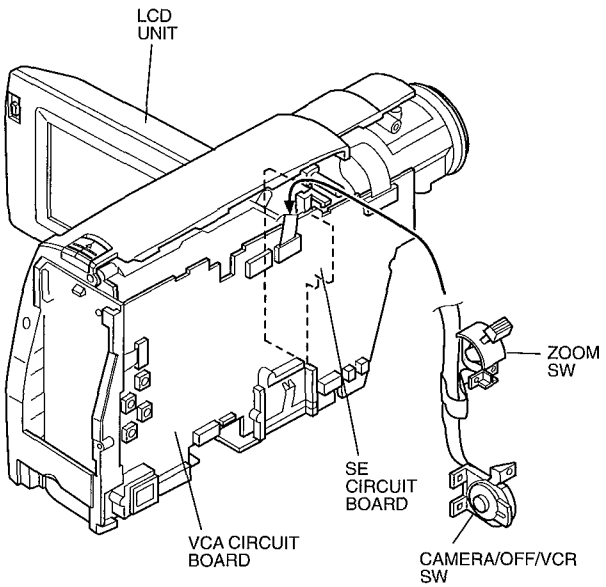



Fig. 2-1

## 2.2 TEST EQUIPMENT AND CHARTS NECESSARY FOR ADJUSTMENT

**Test Equipment**

- Oscilloscope (dual trace) [& Vectorscope]
- Digital Voltmeter (DVM)
- Frequency Counter
- Color Video Monitor

**Charts, etc.**

- 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)
- Gray Scale Chart
- Color Bar Chart
- Resolution Chart
- Backfocus Adjustment Chart
- Light Balancing Filter C12
- DC Power Supply (DC7V/3A)
- DC Power Supply (DC5V/1A)

## 2.3 ADJUSTMENT CONDITION

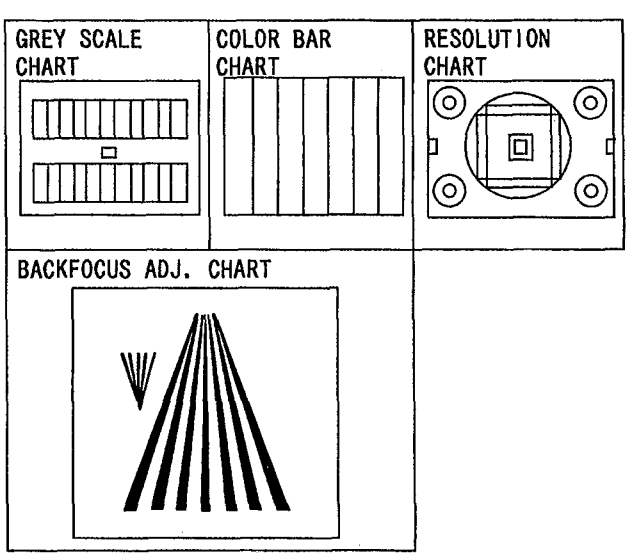
1) Check that the VCR section has been adjusted correctly before adjusting the camera section.
2) Use a light box with minimum flickering. Control the color temperature of the light box strictly.
3) Connect this unit, a power supply and a color video monitor as shown in Fig. 1-1.
4) When using the video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

## 2.4 PRESET POSITIONS OF SWITCHES AND CONTROLS DURING ADJUSTMENT

- CAMERA/OFF/VIDEO switch ..... "CAMERA" position
- INST. ZOOM ..... Not Display mode
- DATE ..... Not Display mode
- DISPLAY ..... Not Display mode
- TITLE ..... Not Display mode
- FOCU ..... SAutofocus mode
- E.I.S ..... OFF mode
- 16 × 9 ..... OFF mode
- FADE ..... OFF mode

## 2.5 LIST OF CHARTS FOR CAMERA ADJUSTMENT

Table 2-1



## 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.

| ITEM No. | NAME OF ADJUSTMENT | NAME OF MAJOR COMPONENTS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SE Board | VCA Board | IC1001 | IC1102 | IC1104 | IC1105 | IC1201 | IC1401 IC1402 | IC1403 | Lens Block | |
| ---- | Initial Setting by Model | | ◇ | | | | ◇ | | | | | |
| *ELECTRIC VOLUME ADJUSTMENT PROCEDURE* | | | | | | | | | | | | |
| (1) | CDS Sampling Pulse Adjust. | | ◇ | | ◇ | | ◇ | | | | | |
| *DIGITAL ADJUSTMENT PROCEDURE* | | | | | | | | | | | | |
| (1) | Auto Iris Control Adjustment | ◇ | ◇ | ◇ | | ◇ | ◇ | ◇ | | | ◇ | |
| (2) | Matrix Adjustment | ◇ | ◇ | ◇ | | | ◇ | | | | | |
| (3) | White Balance Adjustment | ◇ | ◇ | ◇ | | | ◇ | | | | | |
| (4) | Chroma Gain Adjustment | ◇ | ◇ | ◇ | | | ◇ | | | | | |
| *AUTO FOCUS ADJUSTMENT PROCEDURE* | | | | | | | | | | | | |
| (1) | Zoom Trace Adjustment | ◇ | ◇ | ◇ | | | ◇ | | | | ◇ | |
| (2) | AF Noise Level Adjustment | ◇ | ◇ | ◇ | | | ◇ | | | | ◇ | |
| *STABILIZER ADJUSTMENT PROCEDURE* | | | | | | | | | | | | |
| (1) | Stabilizer Adjustment | ◇ | ◇ | | | | ◇ | | ◇ | ◇ | | |
| *SPOT NOISE ADJUSTMENT PROCEDURE* | | | | | | | | | | | | |
| (1) | Spot Noise Adjustment | ◇ | ◇ | | | | ◇ | | | | | |

## 2.7 CAMERA SECTION ADJUSTMENT PROCEDURE

**Note**
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 folloeing 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

**<PROCEDURE>**

1) Turn the personal computer on and start the MS-DOS system. (Fig. 2-2)
2) Load the adjustment floppy disk into disk
   · drive A and press **A:** then [ENTER].
   or
   · drive B and press **B:** then [ENTER].
   (Fig. 2-3)
3) Press **MAP_IBM** [SPACE] **1** [ENTER].
   The MAP starts and the MODEL SELECT shown Fig. 2-6 appears.
   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.
4) Select the number accodding to the model.
   If [ESC] (escape) is pressed, the display before the MAP starts (MS-DOS) is restored.
5) Press **Y** key. (Fig. 2-7)
   If **N** key is pressed, the computer's display returns to Fig. 2-6 (MODEL SELECT).

**Note**

1) If you specify the wrong model, press [ESC] (escape) to restore the MODEL SELECT display, then specify the correct model.
2) If you select number without a model name by mistake, the message shown in Fig. 2-9 will appear in the computer's display.
   Press any key to return the display to Fig. 2-6 (MODEL SELECT).
3) If the required model is not found, press the **P** key and select the model from the next screen.

*MESSAGE WHEN OPERATED BY MISTAKE*

```
Can not find the DATA FILE
**** PRESS ANY KEY ****
```

Fig. 2-9

```
C>
```

Fig. 2-2

LOAD THE CAMERA ADJ. FLOPPY DISK INTO DISK DRIVE B

Press **A :** [ENTER]

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

Fig. 2-3

Press **MAP_IBM** [SPACE] **1** [ENTER]

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

Fig. 2-4

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

Fig. 2-5

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

Fig. 2-6

Press numeric key

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

Fig. 2-7

Press **Y**

*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]   EVF
          [ESC] END
     Please select [A] - [H] or [ESC]
```

Fig. 2-8

### 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 LCD Color EVF Adjustment Procedure
   - 3.7 System Control/Servo Circuits Adjustment

**<PROCEDURE>**

1) Start the MAP.
2) Press **A** key to select INITIALIZE. (Figs. 2-10, 2-11)
3) Press **Y** key to start. (Figs. 2-11, 2-12)
   Press **N** to return to MAIN MENU. (Fig. 2-11)
4) If there are no abnormalities in the camera/recorder, the message shown in Fig. 2-12 is displayed in the computer's display for a while, and then the message informing you that the initial setting has been completed (shown in Fig. 2-13) is displayed.
5) If the message shown in Fig. 2-13 appears in the computer's display, press any key.
   The computer's display returns to Fig. 2-10 (MAIN MENU).

*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]     EVF
        [ESC]   END
        Please select [A] - [H] or [ESC]
```

Fig. 2-10

Press **A**

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

Fig. 2-11

Press **Y**

```
« DATA WRITING »
PLEASE WAIT A MOMENT.
```

Fig. 2-12

```
« DATA WRITING »
PLEASE WAIT A MOMENT.
FINISHED WRITING DATA.
PRESS ANY KEY.
```

Fig. 2-13

Press any key to return to Fig. 2-10

### 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.

**<PROCEDURE>**
1) Start the MAP.
2) Press B to select ELETRIC VOLUME. (Figs. 2-14, 2-15)
3) Select the number of the required adjustment.

**Note**
1) If [ESC] (escape) is pressed, the computer's display returns to Fig. 2-14 (MAIN MENU).
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.

*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]     EVF
        [ESC]   END
        Please select [A] - [H] or [ESC]
```

Fig. 2-14

Press **B**

*ELECTRIC VOLUME ADJ. MENU*

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

Fig. 2-15

#### (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 to select the CDS SAMPLING PULSE.

```
« ADJUSTMENT OF CDS SAMPLING PULSE »
« NOW ADJUSTING »
```

```
« ADJUSTMENT OF CDS SAMPLING PULSE »
FINISHED WRITING DATA.
ADJUSTMENT COMPLETED.
PRESS ANY KEY.
```

Press any key to return to ELECTRIC VOLUME MENU.

### 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.

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

**<PRROCEDURE>**

1) Start the MAP.
2) Press **C** to select ADJUSTMENT. (Figs. 2-16, 2-17)
3) Select the number of the required adjustment.

**Note**

1) If [ESC] (escape) is pressed, the computer's display returns to Fig. 2-16 (MAIN MENU).
2) To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

*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]     EVF
        [ESC]   END
        Please select [A] - [H] or [ESC]
```

Fig. 2-16

Press **C**

*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]
```

Fig. 2-17

### (1) Auto Iris Control Adjustment

| | |
|---|---|
| *Purpose* | · To set the iris control data. |
| *Incompleted Phenomenon* | · The picture becomes too bright.<br>· 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
        [2]    MATRIX
        [3]    WHITE BALANCE
        [4]    CHROMA GAIN
        [ESC]  RETURN TO MAIN MENU
          Please select [1]- [4] or [ESC]
```

Press **1** key to select the AUTO IRIS CONTROL.

```
« ADJUSTMENT OF IRIS OPEN & CLOSE »
PLEASE WAIT AROUND 10 SEC.
```

```
« ADJUSTMENT OF IRIS OPEN & CLOSE »
PLEASE WAIT AROUND 10 SEC.
DATA WRITEN INTO EEPROM
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Press any key, and the display changes as follows.

```
« ADJUSTMENT IRIS »
PLEASE WAIT AROUND 20 SEC.
```

*$1*

```
« ADJUSTMENT IRIS »
PLEASE WAIT AROUND 20 SEC.
ROUGH ADJUSTMENT      : ×× TIMES
FINE ADJUSTMENT       : ×× TIMES
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Press any key, and the display changes as follows.

```
« ADJUSTMENT OF HALLCURVE »
PLEASE WAIT AROUND 30 SEC.
```

*$2*

```
« ADJUSTMENT OF HALLCURVE »
PLEASE WAIT AROUND 30 SEC.
*
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C
```

```
« ADJUSTMENT OF HALLCURVE »
PLEASE WAIT AROUND 30 SEC.
                * * * * * * * * * * * *
ADJUSTMENT POINT 0 1 2 3 4 5 6 7 8 9 A B C
DATA WRITEN INTO EEPROM
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Press any key, and the display changes as follows.

```
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Press any key to return to ADJUSTMENT MENU.

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

**Note**

1) With some units the following parameter may not be displayed in the display marked *$1*.
   This is normal; continue adjustment.
   ROUGH ADJUSTMENT: ×× TIMES
2) The * mark flashes above the numerals and letters in sequence in the display marked *$2*.

**(2) Matrix Adjustment** (Fig. 2-18)

| | |
|---|---|
| *Purpose* | · To compensate for uneveness in the chroma signal. |
| *Incompleted Phenomenon* | · Color reproduction becomes defective. |
| *Test Point* | · Video Out (AV OUT) |
| *Equipment / Jig* | · Oscilloscope |
| *Condition* | · Point at a color bar chart. |

**<PROCEDURE>**

*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]
```

Press **2** Key to select the MATRIX.

```
« ADJUSTMENT OF BLUE MATRIX »
        ROUGH ADJUSTMENT
  [U]           UP
  [D]           DOWN

        FINE ADJUSTMENT
  [Ctrl] + [U]  UP
  [Ctrl] + [D]  DOWN

  [ENTER]       RETURN TO MENU
  [ESC]         QUIT
```

***For Noemal 8 Molel:***

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 3:8.
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 3:8.

***For Hi-8 Molel:***

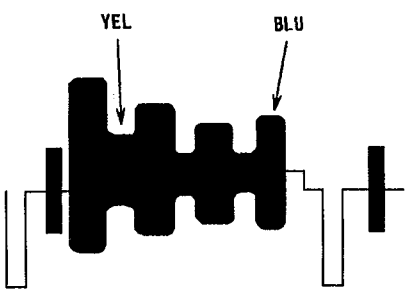
Press the **D** key to minimize the yellow (YEL) level.
Press the **U** key so the ratio between yellow (YEL) and blue (BLU) levels is 1:2.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the ratio between yellow (YEL) and blue (BLU) levels is 1:2.

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.




YEL : BLU
3 : 8 [For Normal 8]
1 : 2 [For Hi-8]
(200mV/50μs.div.)

Fig. 2-18

### (4) 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.<br>· A white subject is not seen as white. |
| *Test Point* | · Video Out (AV OUT) |
| *Condition* | · Attach a C12 filter.<br>· Point at a gray scale chart (at wide-angle). |

**<PROCEDURE>**

*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]
```

Press **3** Key to select the WHITE BALANCE.

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

***For Normal 8 Model:***
Press **1 9** to input the data.

***For Hi-8 Model:***
Press **1 5** to input the data.

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

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

***For Normal 8 Model:***
Press **0**(ZERO) **B** to input the data.

***For Hi-8 Model:***
Press **0**(ZERO) **C** to input the data.

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

```
« WHITE BALANCE ADJUSTMENT »
PLEASE WAIT A MOMENT.
```

```
« WHITE BALANCE ADJUSTMENT »
ADJUSTMENT COMPLETED.
COMPLETED EEPROM WRITE.
PRESS ANY KEY.
```

Press any key to return to ADJUSTMENT MENU.

### (5) Chroma Gain Adjustment (Figs. 2-19, 2-20)

| | |
|---|---|
| *Purpose* | · To set the color saturation under the reference color temperature. |
| *Incompleted Phenomenon* | · Color of the picture is denser than that of the subject.<br>· Color of the picture is lighter than that of the subject. |
| *Test Point* | · Video Out (AV OUT) |
| *Equipment / Jig* | · Oscilloscope (Vectorscope) |
| *Condition* | · Attach a C12 filter.<br>· Point at a color bar chart. |

**<PROCEDURE>**

*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]
```

Press **4** Key to select the CHROMA GAIN.

```
« 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
```

***WHEN USING 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. 2-19)

***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. 2-20)

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.

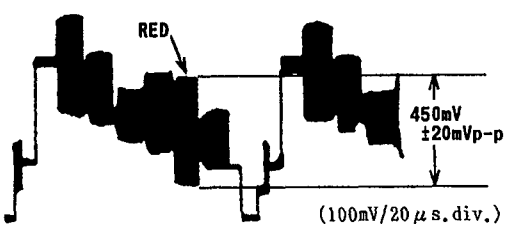



Fig. 2-19

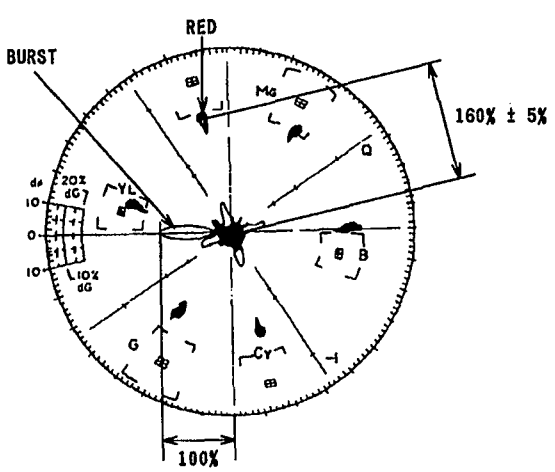



Fig. 2-20

### 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).

**<PRROCEDURE>**
1) Start the MAP.
2) Press **E** to select AUTO FOCUS. (Figs. 2-21, 2-22)
3) Select the number of the required adjustment.

**Note**
1) If [ESC] (escape) is pressed, the computer's display returns to Fig. 2-21 (MAIN MENU).
2) To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.

*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]     EVF
        [ESC]   END
        Please select [A] - [G] or [ESC]
```

Fig. 2-20

Press **E**.

*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]
```

Fig. 2-21

#### (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<br>· Backfocus Chart |
| *Test Point* | · Video Out (AV OUT) |
| *Condition* | · Point at the backfocus chart, 1500 ± 5 mm away from the lens surface.<br>· 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 to select ADJUSTMENT OF ZOOM/FOCUS TRACKING

```
« ADJUSTMENT OF ZOOM/FOCUS TRACKING »
        |       |       |
        0%      50%     100%
```

```
« ADJUSTMENT OF ZOOM/FOCUS TRACKING »
        [■■■■■■■■■■■■■■■]
        0%      50%     100%
        ADJUSTMENT COMPLETED.
        PRESS ANY KEY.
```

Press any key to return to AF ADJ. MENU.

### (2) AF Noise Level Adjustment

| | |
|---|---|
| *Purpose* | · To set the noise level. |
| *Incompleted Phenomenon* | · It takes time until a subject is brought into focus. |
| *Equipment / Jig* | · Correct focus is not obtained.<br>· Color Video Monitor |
| *Test Point* | · Video Out (AV OUT) |
| *Condition* | · Set the focus to AUTO.<br>· 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.<br>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 to select ADJUSTMENT OF AF NOISE LEVEL.

```
« ADJUSTMENT OF AF NOISE LEVEL »
0%        50%        100%
```

```
« ADJUSTMENT OF AF NOISE LEVEL »
0%        50%        100%
ADJUSTMENT COMPLETED.
PRESS ANY KEY.
```

Press any key to return to AF ADJ. MENU.

## 2.7.7 Stabilizer Adjustment Procedure

[For TYPE 635, 835, 837]

**Before Starting Adjustment**

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

**<PRROCEDURE>**

1) Start the MAP.
   - If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU.
   - 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) Press **F** to select EIS.
3) Prees **Y** key.
   - If **N** key is pressed, the computer's display returns to MAIN MENU.
   - If a key other than **Y** or **N** key is pressed, "PLEASE SELECT (Y/N)?" is displayed.
4) The stabilizer data is rewritten automatically.
5) Press any key to return to MAIN MENU.

*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]    EVF
          [ESC]  END
          Please select [A] - [H] or [ESC]
```

Press **F**.

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

Press **Y**.

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

Press any key to return to MAIN MENU.

## 2.7.8 SPOT NOISE ADJUSTMENT PROCEDURE

**Before Starting Adjustment**

- The spot noise is identified as the fine white noise that appears when the lens cap is attached after the power is turned on.
- 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.)
- After replacing the CCD image sensor or VCA circuit board (EEPROM), check whether or not spot noise occurs and then proceed with adjustment.

**<PRROCEDURE>**

1) Start the MAP.
   - If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU.
   - 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) Cap the lens.
3) Connect the color video monitor to video out.
4) Press **G** to select SPOT NOISE.

**Note**
The adjustment procedure in this item is different depending on the amount of spot noise.

*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]     EVF
        [ESC]   END
        Please select [A] - [H] or [ESC]
```

Press **G**.

**Note**: The amount of spot noise is display in place marked × .

**One spot noise**

```
**********************************
   SPOT NOISE COMPENSATE
**********************************
   A SPOT NOISE FOUND.
   PRESS ANY KEY.
```

**Much spot noise**

```
**********************************
   SPOT NOISE COMPENSATE
**********************************
   × SPOT NOISE FOUND.
   PRESS ANY KEY.
```

**Spot noise is not defected (When camera/recorder free from spot noise are adjusted)**

```
**********************************
   SPOT NOISE COMPENSATE
**********************************
   CANNOT FIND THE SPOT NOISE.
   PRESS ANY KEY.
```

Press any key to return to MAIN MENU.

Press any key.

**(A)**

(A)

↓

```
**************************************************
              SPOT NOISE COMPENSATE
**************************************************
      CAN YOU SEE THE BLINKING CURSOR ?(Y/N)
```

A cursor blinks in the section where spot noise occurs on the monitor screen.

↓ YES

Press **Y** Key.

```
**************************************************
              SPOT NOISE COMPENSATE
**************************************************
            LOOK AT THE CURSOR POINT.
 WHILE YOU CAN SEE THE SPOT NOISE,
                          PRESS SPACE KEY.
 IF THE SPOT NOISE CLEARS,
                  THEN PRESS ENTER KEY.
```

Check whether or not spot noise disappears after auto adjustment is completed.

If it does not disappear: Press the space key.
If it disappears: Press the enter key.

↓ NO

Press **N** Key.

```
**************************************************
              SPOT NOISE COMPENSATE
**************************************************
   THIS SPOT NOISE IS IN THE
                      BLANKING AREA OF TV.
            PRESS ANY KEY.
```

Press any key.

→ There are other occurrences of spot noise. → (A)

↓

Spot noise compensation is completed.

```
**************************************************
              SPOT NOISE COMPENSATE
**************************************************
                    COMPLETE.
                PRESS ANY KEY.
```

Press any key to Return to MAIN MENU.

## 2.8 CRT B/W ELECTRONIC VIEWFINDER (EVF) ADJUSTMENT [For Type 535, 635, 835]

### 2.8.1 Adjustment Parts Location

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

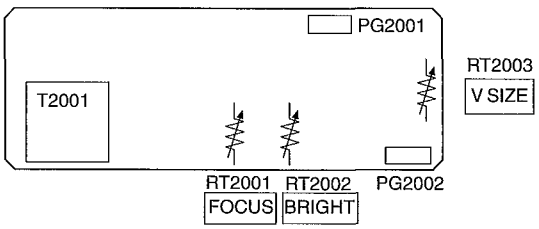



Fig. 2-51 EVF Circuit Board (Side-B)

### 2.8.2 Adjustment Procedure

#### (1) Deflection Yoke Position, EVF Centering Adjustment

| **Purpose** | · This adjustment procedure eliminates picture tilt in the EVF display.<br>· This adjustment centers the image observed by the camera in the EVF display. | | |
|---|---|---|---|
| **Equipment/Jigs** | **Test Points** | **Condition** | **Adjustment point** |
| · EVF Dispaly | | · Aim the resolution chart | · Deflection Yoke (Deflection Yoke Position)<br>· Centering Magnets (EVF Centerig) |

**Adjustment procedure**

**Deflection Yoke Position**

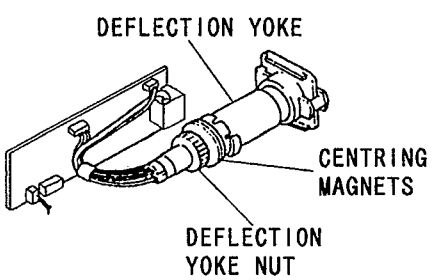
1) Loosen the deflection yoke nut.
2) Turn the deflection yoke so that the EVF picture (chart) is horizontal, matching the edges of the CRT.

**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.

**Adjustment Point**




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

| **Purpose** | · This adjustment determines the vertical size of the image appearing in the EVF display. | | |
|---|---|---|---|
| **Equipment/Jigs** | **Test Points** | **Condition** | **Ajustment point** |
| · EVF Dispaly | | · Aim the resolution chart | · RT2003 (V.SIZE) EVF |

**Adjustment 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/Jigs** | **Test Points** | **Condition** | **Ajustment point** |
| · EVF Dispaly | | · Aim the resolution chart | · RT2002 (BRIGHT) EVF |

**Adjustment 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/Jigs** | **Test Points** | **Condition** | **Ajustment point** |
| · EVF Dispaly | | · Aim the resolution chart | · RT2001 (FOCUS) EVF |

**Adjustment procedure**

1) RT2001: Set the EVF picture is clear.

## 2.9 LCD COLOR ELECTRONIC VIEWFINDER (EVF) ADJUSTMENT [For Type 837]

### 2.9.1 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 LCD color EVF adjustments.
- Picture appears on the EVF only when the LCD monitor is close.

**<PROCEDURE>**

1) Start the MAP, refering to "2.7.2 How to Start the MAP".
2) Press **H** to select EVF. (Fig. 2-101)
3) Select the number of the required adjustment.

**Note**
1) If [ESC] (escape) is pressed, the computer's display returns to Fig. 2-101 (MAIN MENU).
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.

*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]    EVF
          [ESC]  END
          Please select [A] - [H] or [ESC]
```

Fig. 2-101

*EVF ADJ. MENU*

```
**************************************************
               EVF ADJUSTMENT
**************************************************
               [1]    Ref. VOLTAGE
               [2]    PLL VCO
               [3]    BRIGHT
               [4]    CONTRAST
               [5]    R-BRT
               [6]    B-BRT
               [7]    TINT
               [8]    COLOR
               [ESC]  END
          PLEASE SELECT [1] - [8] or [ESC]
```

Fig. 2-102

### (1) EVF Output Voltage Adjustment

| | |
|---|---|
| *Purpose* | · This adjustment determines the reference output voltage of the EVF. |
| *Incompleted Phenomenon* | · Color flickering occurs.<br>· The top of screen becomes pink. |
| *Test Point* | · PG2303-1 (6P Extention Cable) |
| *Equipmet / Jig* | · DVM |

**<PROCEDURE>**

*EVF ADJ. MENU*

```
**************************************************
               EVF ADJUSTMENT
**************************************************
               [1]    Ref. VOLTAGE
               [2]    PLL VCO
               [3]    BRIGHT
               [4]    CONTRAST
               [5]    R-BRT
               [6]    B-BRT
               [7]    TINT
               [8]    COLOR
               [ESC]  END
          PLEASE SELECT [1] - [8] or [ESC]
```

Press **1** key to selectb the Ref. VOLTAGE.

```
**************************************************
                Ref. VOLTADE
**************************************************
          [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 DVM reads 12.0V ± 0.1V.

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

### (2) EVF Horizontal Drive Frequency Adjustment

| | |
|---|---|
| *Purpose* | · This adjustment determines the frequency of the horizontal sync signal. |
| *Incompleted Phenomenon* | · Synchronization is distored. |
| *Test Point* | · PG2303-2 (6P extention Cable) |
| *Equipmet / Jig* | · DVM |

**<PROCEDURE>**

*EVF ADJ. MENU*

```
**************************************************
                EVF ADJUSTMENT
**************************************************
          [1]    Ref. VOLTAGE
          [2]    PLL VCO
          [3]    BRIGHT
          [4]    CONTRAST
          [5]    R-BRT
          [6]    B-BRT
          [7]    TINT
          [8]    COLOR
          [ESC]  END
      PLEASE SELECT [1] - [8] or [ESC]
```

Press **2** key to select the PLL VCO.

```
**************************************************
                   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 DVM reads 2.5V ± 0.1V.

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

### (3) EVF Brightness Adjustment (Fig. 2-103)

| | |
|---|---|
| *Purpose* | · This adjustment sets the brightness of the picture in the EVF display. |
| *Incompleted Phenomenon* | · The picture is too dark or too bright. |
| *Test Point* | · PG2303-3 (6P extention Cable) |
| *Equipmet / Jig* | · Oscilloscope |
| *Condition* | · Aim the camera at the gray scale chart |

**<PROCEDURE>**

*EVF ADJ. MENU*

```
**************************************************
                EVF ADJUSTMENT
**************************************************
          [1]    Ref. VOLTAGE
          [2]    PLL VCO
          [3]    BRIGHT
          [4]    CONTRAST
          [5]    R-BRT
          [6]    B-BRT
          [7]    TINT
          [8]    COLOR
          [ESC]  END
      PLEASE SELECT [1] - [8] or [ESC]
```

```
**************************************************
                   BRIGHT
**************************************************
      [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 2.7V ± 0.1V. (See Fig. 2-103)

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

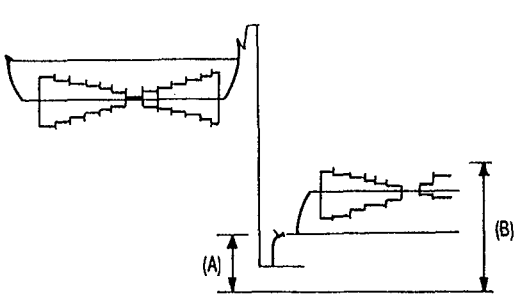



Fig. 2-103

### (4) EVF Contrast Adjustment (Fig. 2-103)

| | |
|---|---|
| *Purpose* | · This adjustment optimize the contrast of the EVF picture. |
| *Incompleted Phenomenon* | · Too dark.<br>· Too bright. |
| *Test Point* | · PG2303-3 (6P Extention Cable) |
| *Equipmet / Jig* | · Oscilloscope |
| *Condition* | · Aim the camera at the gray scale chart |

**<PROCEDURE>**

*EVF ADJ. MENU*

```
**************************************************
                EVF ADJUSTMENT
**************************************************
          [1]    Ref. VOLTAGE
          [2]    PLL VCO
          [3]    BRIGHT
          [4]    CONTRAST
          [5]    R-BRT
          [6]    B-BRT
          [7]    TINT
          [8]    COLOR
          [ESC]  END
       PLEASE SELECT [1] - [8] or [ESC]
```

Press **4** key to select the CONTRAST.

```
**************************************************
                  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 4.8 ± 0.1V. (See Fig. 2-103)

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

### (5) EVF Sub Bright-R Adjustment (Fig. 2-104)

| | |
|---|---|
| *Purpose* | · This adjustment set the brightness of the picture in the EVF display. |
| *Incompleted Phenomenon* | · When a white object is pointed out, the picture becomes blue and red. |
| *Test Point* | · PG2303-3 (6P Extention Cable)<br>· PG2303-5 (6P Extention Cable) |
| *Equipmet / Jig* | · Oscilloscope |
| *Condition* | · Aim the camera at the gray scale chart.<br>· Connect an oscilloscope (CH-1) to PG2303-3.<br>· Connect an oscilloscope (CH-2) to PG2303-5. |

**<PROCEDURE>**

*EVF ADJ. MENU*

```
**************************************************
                EVF ADJUSTMENT
**************************************************
          [1]    Ref. VOLTAGE
          [2]    PLL VCO
          [3]    BRIGHT
          [4]    CONTRAST
          [5]    R-BRT
          [6]    B-BRT
          [7]    TINT
          [8]    COLOR
          [ESC]  END
       PLEASE SELECT [1] - [8] or [ESC]
```

Press **5** key to select the R-BRT.

```
**************************************************
                   R-BRT
**************************************************
        [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 CH-1 and CH-2 waveforms are overlapped. (See Fig. 2-104)

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

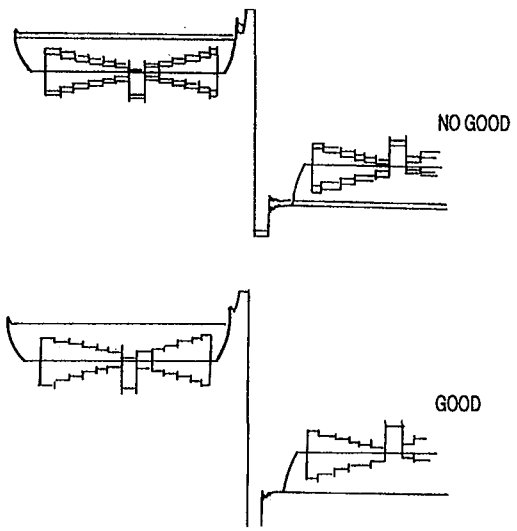



Fig. 2-104

**(6) EVF Sub Bright-B Adjustment** (Fig. 2-104)

| | |
|---|---|
| *Purpose* | · This adjustment set the brightness of the picture in the EVF display. |
| *Incompleted Phenomenon* | · When a white object is pointed out, the picture becomes yellow and blue. |
| *Test Point* | · PG2303-3 (6P Extention Cable)<br>· PG2303-4 (6P Extention Cable) |
| *Equipmet / Jig* | · Oscilloscope |
| *Condition* | · Aim the camera at the gray scale chart.<br>· Connect an oscilloscope (CH-1) to PG2303-3.<br>· Connect an oscilloscope (CH-2) to PG2303-4. |

**<PROCEDURE>**

*EVF ADJ. MENU*

```
**************************************************
                EVF ADJUSTMENT
**************************************************
                [1]     Ref. VOLTAGE
                [2]     PLL VCO
                [3]     BRIGHT
                [4]     CONTRAST
                [5]     R-BRT
                [6]     B-BRT
                [7]     TINT
                [8]     COLOR
                [ESC]   END
          PLEASE SELECT [1] - [8] or [ESC]
```

Press **6** key to select the B-BRT.

```
**************************************************
                      B-BRT
**************************************************
        [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 CH-1 and CH-2 waveforms are overlapped. (See Fig. 2-104)

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

### (7) EVF Tint Adjustment (Fig. 2-105)

| | |
|---|---|
| *Purpose* | · This adjustment optimize the tint. |
| *Incompleted Phenomenon* | · The tint drifts.<br>· The picture becomes blank. |
| *Test Point* | · PG2303-5 (6P Extention Cable) |
| *Equipmet / Jig* | · Oscilloscope |
| *Condition* | · Aim the camera at the color bar chart. |

**<PROCEDURE>**

*EVF ADJ. MENU*

```
**************************************************
                EVF ADJUSTMENT
**************************************************
          [1]    Ref. VOLTAGE
          [2]    PLL VCO
          [3]    BRIGHT
          [4]    CONTRAST
          [5]    R-BRT
          [6]    B-BRT
          [7]    TINT
          [8]    COLOR
          [ESC]  END
       PLEASE SELECT [1] - [8] or [ESC]
```

Press **7** key to select the TINT.

```
**************************************************
                     TINT
**************************************************
     [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 as section (A) [Mg and R] of the waveform are equal. (See Fig. 2-105)

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

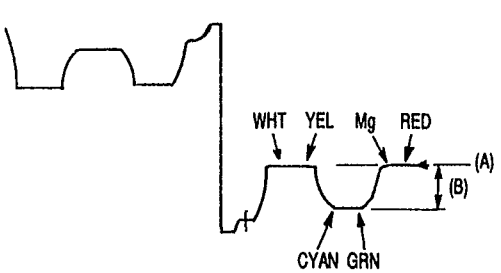



Fig. 2-105

### (8) EVF Chroma Level Adjustment (Fig. 2-105)

| | |
|---|---|
| *Purpose* | · This adjustment optimize the chroma level |
| *Incompleted Phenomenon* | · The colors are faint. |
| *Test Point* | · PG2303-5 (6P Extention Cable) |
| *Equipmet / Jig* | · Oscilloscope |
| *Condition* | · Aim the camera at the color bar chart. |

**<PROCEDURE>**

*EVF ADJ. MENU*

```
**************************************************
                EVF ADJUSTMENT
**************************************************
          [1]    Ref. VOLTAGE
          [2]    PLL VCO
          [3]    BRIGHT
          [4]    CONTRAST
          [5]    R-BRT
          [6]    B-BRT
          [7]    TINT
          [8]    COLOR
          [ESC]  END
       PLEASE SELECT [1] - [8] or [ESC]
```

Press **8** key to select the COLOR.

```
**************************************************
                    COLOR
**************************************************
     [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 as section (B) [G - Mg or R] of the waveform is 1.5V ± 0.1V. (See Fig. 2-105)

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

## 2.10 COLOR LCD DISPLAY ADJUSTMENT

### 2.10.1 Adjustment Parts Location

**Note**: Picture appears on the LCD only when the LCD monitor is open. To displa y 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.

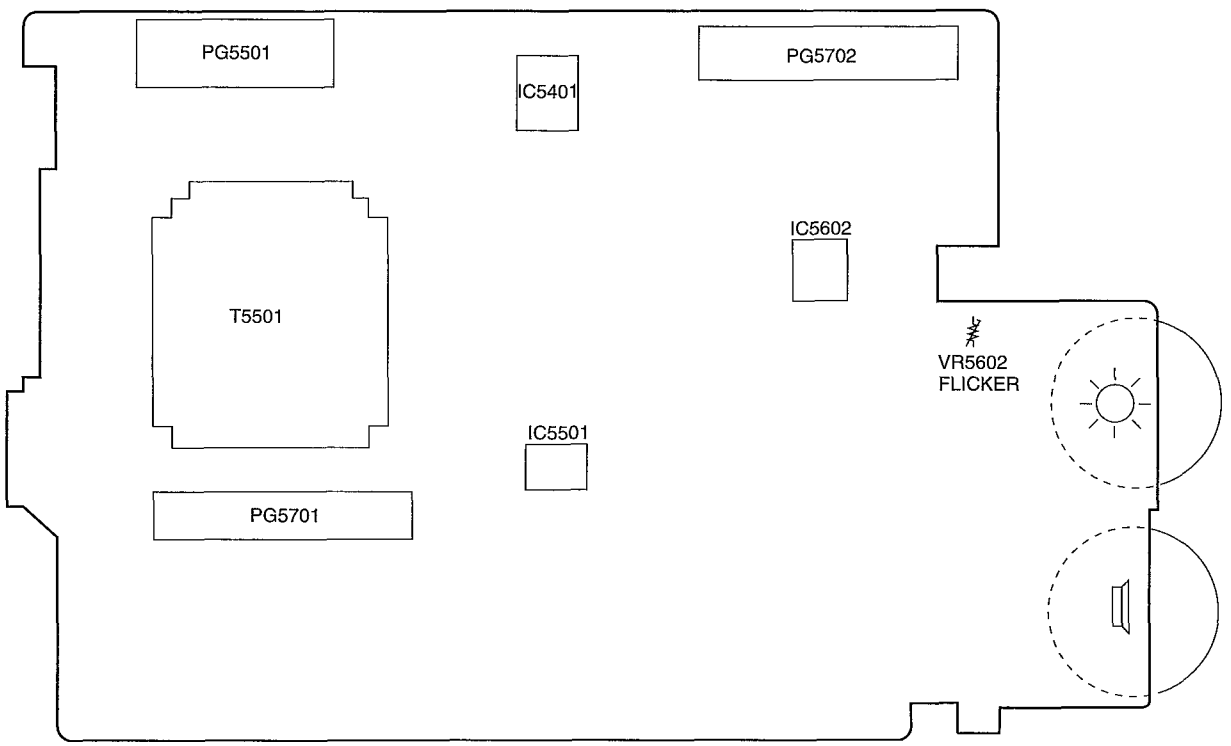



Fig. 2-201 LCD Circuit Board (Side-B)

### 2.10.2 Adjustment Procedure

**(1) LCD Flicker Adjustment** (Fig. 2-201)

Be sure to perform this adjustment after replacing the LCD board and LCD panel.

| **Purpose** | · To minimize flickering in the LCD picture. | | |
|---|---|---|---|
| **Incompleted Phenomenon** | · Color quality of the LCD picture declines.<br>· Contrast of the LCD picture becomes duller. | | |
| **Equipment/Jigs** | **Test Points** | **Condition** | **Adjustment point** |
| · Alignment Tape<br>· LCD Display | | · Playback the alignment tape (Color Bar)<br>· Set the BRIGHT control to center click position. | RV5602 LCD (FLICKER) |

**Adjustment procedure**

1) VR5602:
To optimize the tint of color bars. (When the variable resistor is move d one turn, there will be a range where the picture does not change. Perform a djustment outside this range.)

# 3. VCR SECTION ADJUSTMENT

## 3.1 CIRCUIT BOARD LOCATIONS

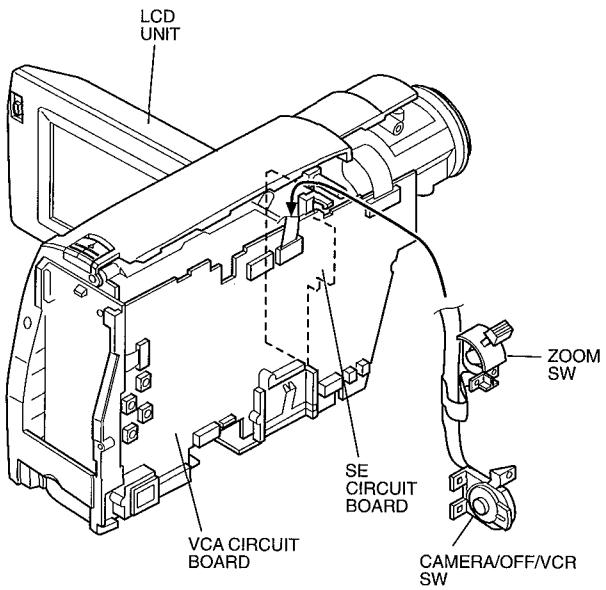



Fig. 3-1

## 3.2 TEST EQUIPMENT AND ALIGNMENT TAPES NECESSARY FOR ADJUSTMENT

**Test Equipment**

- Oscilloscope (dual trace)
- Digital Voltmeter (DVM)
- Frequency Counter
- Millivoltmeter
- Color Video Monitor
- Color Bar Generator

**Alignment Tape, etc.**

- Adjustment Floppy Disk
- Personal Computer
- Personal Computer 9-pin or 25-pin (RS232C) Cable
- DSP-R Jig
- DSP AV Output Jig
- Alignment Tape
- Blank Tape
- ATF-R Jig
- DC Power Supply (DC 0 - 7V/3A)
- DC Power Supply (DC 5V/1A)

## 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.
   · Set the CAMERA/OFF/VCR switch to the CAMERA position.
   · Press the REC START/STOP button on the unit (or REC START/STOP button on the remote control).5)
   Before adjusting the resistors marked with asterisks (*) in the following text, remove the corresponding laser trimming resistors to replace them with the specified semi-variable resistors.
6) Before unsoldering laser trimming resistors be sure to confirm each adjustment value.
   Remove only the resistors used in the adjustment items that should be adjusted.
7) 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.
2) To supply video and audio signals to the normal 8 model, the AV input cable must be modified.
3) Since Hi-8 models have an AV input function, use an unmodified AV input cable to input the video and audio signals.

**Procedure to modify the AV input cable (for normal 8 models)**

Although normal 8 models do not have AV input function, you can modify the AV input cable so that video and audio signals can be input.
For adjustment and p erformance check, modify the AV input cable by following the procedure below, to input signals.

**Note 1:** Do not modify the AV input cable for purposes other than adjustment or performance check.

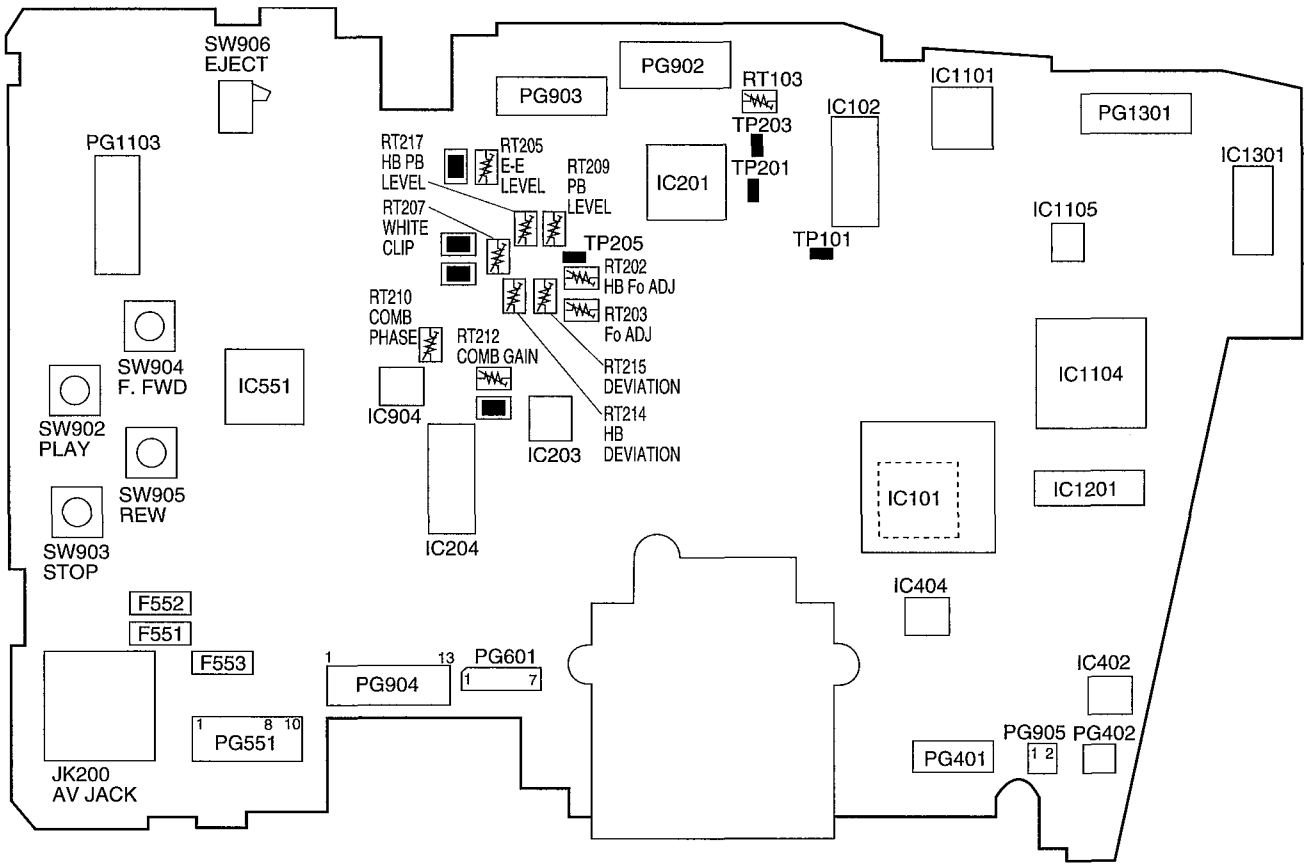
**Note 2:** Modify the AV input cable correctly.
If an improperly modified cabl e is connected to a camcorder, it will result in malfunctions.

Change the connection of pin 13 of the AV input cable from ground to pin 2 (DC5V).
(After checking that pin 13 and ground are not connected, connection of pin 13 to pin 2 (DC5V).)

## 3.4 PRESET POSITIONS OF SWITCHES AND CONTROLS DURING ADJUSTMENT

· CAMERA/OFF/VCR switch ..... "VCR" position
· TITLE ..... Not Display mode

## 3.5 ADJUSTMENT COMPONENTS LOCATIONS

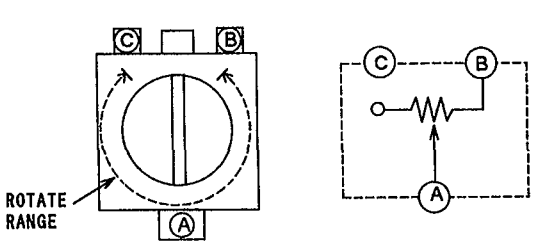



**Note**
- Variable resistors are laser trimming resistor.
- Test point (TP) are not actually provided on the circuit board.

Fig. 3-2 Main (VCA) Circuit Board ÅkSIDE AÅI

Table.3-1 SEMI-VARIABLE RESISTORS TABLE

| ADJUST POINT | SEMI-VARIABLE RESISTOR (Ω) | NAME OF ADJUSTMENT | ADJUST POINT | SEMI-VARIABLE RESISTOR (Ω) | NAME OF ADJUSTMENT |
|---|---|---|---|---|---|
| RT0103 | 470 | REC LUMA LEVEL | RT0210 | 470 | COMB PHASE |
| RT0202 | 22K | HB Fo ADJ [For Hi-8] | RT0212 | 2.2K | COMB GAIN |
| RT0203 | 22K | Fo ADJ | RT0214 | 10K | HB DEVIATION[For Hi-8] |
| RT0205 | 10K | E-E LEVEL | RT0215 | 10K | DEVIATION |
| RT0207 | 22K | WHITE CLIP | RT0217 | 22K | HB PB LEVEL [For Hi-8] |
| RT0209 | 22K | PB LEVEL | | | |

| ADJUSTMENT RENGE | INSTALLATION METHOD |
|---|---|
|  | Remove the laser trimming resistor andattach the specified semi-variableresistor. |

## 3.6 CHECK AFTER REPLACING MAJOR COMPONENTS IN THE VCR SECTION

After replacing major components, perform checks, referring to the table below.
The following table shows the minimum adjustments required after major components are placed.
The table below may not apply when several components are replaced, depending on the symptom of the defect.
**Caution**: After replacing the parts, check each adjustment. If you find the items necessary to be adjusted, remove the corresponding laser trimming resistors and replace them with variable resistors for adjustment.

| ITEM No. | NAME OF ADJUSTMENT | NAME OF MAJOR COMPONENTS | | | | | |
|---|---|---|---|---|---|---|---|
| | | VCA BOARD | CYLINDER | IC0901 | IC0201 | IC0202 | |
| | *SYSTEM CONTROL / SERVO CIRCUITS ADJUSTMENT* | | | | | | |
| (1) | Power Shut Off Level Adjustment | ◇ | | ◇ | | | |
| (2) | Head Switching Point Adjustment | ◇ | ◇ | ◇ | | | |
| | *LUMINANCE / CHROMA CIRCUIT ADJUSTMENT* | | | | | | |
| (1) | Comb Filter Adjustment | | | | ◇ | ◇ | |
| (2) | E-E Video Signal Level Adjustment | | | | ◇ | | |
| (3) | White Clip Adjustment | | | | ◇ | | |
| (4) | Carrier Frequency Adjustment | | | | ◇ | | |
| (5) | Deviation Adjustment | | | | ◇ | | |
| (6) | Record Luminance Level Adjustment | | | | ◇ | | |
| (7) | Playback Luminance Level Adjustment | | | | ◇ | | |

## 3.7 SYSTEM CONTROL/SERVO CIRCUITS ADJUSTMENT

**Before Starting Adjustment**

- 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 aadjustment.
- Be sure to perform this adjustment after replaceing or initializing the EEP ROM and VCA circuit board.
- When an error message appears during adjustment, refer to "4. Error Massage".
- If [ESC] (escape) is pressed, the computer's display returns Fig. 3-3 (MAIN MENU).
- To complete adjustment, pres to [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jigs.

**<PROCEDURE>**

1) Start the MAP.
2) Press **E** key to select VCR ADJUSTMNT (Figs. 3-3, 3-4)
3) Select the number of the required adjustment.

*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]     EVF
        [ESC]   END
        Please select [A] - [H] or [ESC]
```

Fig. 3-3

Press **D**

*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]
```

Fig. 3-4

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

| | | | |
|---|---|---|---|
| **Purpose** | · To set the minimum voltage required to opreate the camera/recorder. | | |
| **Incompleted Phenomenon** | · The usable time of the battery becomes short.<br>· The camera/recorder doesn't operate normally. | | |
| **Equipment/Jigs** | **Test Points** | **Condition** | **Adjustment point** |
| · DVM | · PG0551-1 VCA<br>· PG0551-8 (GND) VCA | | |
| · DC Power Supply (0 - 7V) | · PG0551-1 VCA<br>· PG0551-8 (GND) VCA | · Supply power (7.2V ± 0.5V) to PG0551. | |
| · Blamk Tape | | · 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 to select the ADJUSTMENT OF ODC.

```
« 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

### (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.<br>· Switching noise appears across the bottom of the monitor screen. | | |
| **Equipment/Jigs** | **Test Points** | **Condition** | **Adjustment point** |
| · Alignment Tape | | · 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 to select the ADJUSTMENT OF SWITCING POINT

```
« 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.
```

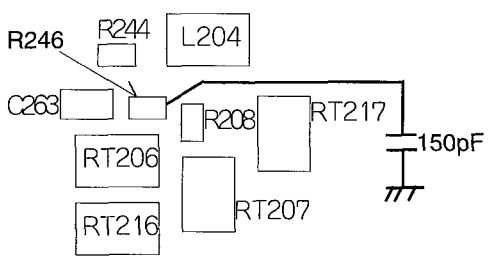
Turn the power off.

Press any key to return to VCR ADJ. MENU.

**Caution**

If adjustment cannot be done by the above procedure, connect a 150 pF capacitor between R246 and GND on the VCA board, and then perform the adjustment again.

After the adjustment is completed, disconnect the capacitor .




(VCA CIRCUIT BOARD -SIDE B-)

## 3.8 LUMINANCE/CHROMA CIRCUIT ADJUSTMENT

### (1) Comb Filter Adjustment (Fig. 3-2)

| **Purpose** | · To set the characteristic of the comb filter. | | |
|---|---|---|---|
| **Incompleted Phenomenon** | · Jamming occurs at the edges.<br>· The chroma S/N deteriorates. | | |
| **Equipment/Jigs** | **Test Points** | **Condition** | **Adjustment point** |
| · Oscilloscope<br>· Color Bar Generater<br>· Blank Tape (Nor-8) | · TP0203 VCA<br>· Video IN (AV IN) | · Input the color bar signal<br>· STOP mode | *RT0212 VCA (COMB GAIN)<br>*RT0210 VCA (COMB PHASE) |

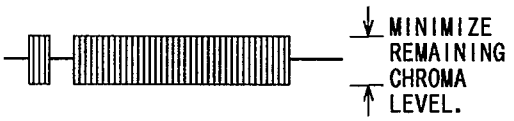
**<PROCEDURE>**

1) Load the blank tape for normal 8.
2) RT0212, RT0210:
   Set the chroma components to minimize the residual.

*- Settings of oscilloscope -*

· Trigger with video signal.

*- Waveforms -*




(50mV/50µsec.div.)

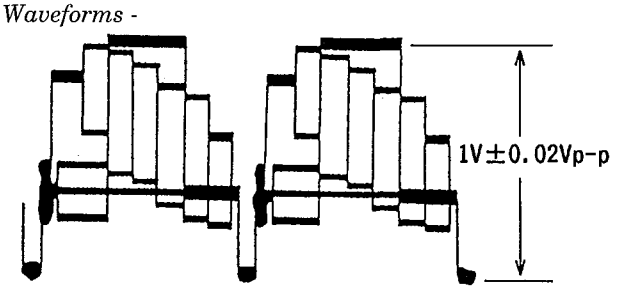
### (2) E-E Video Siganl Level Adjustment (Fig. 3-2)

| **Purpose** | · To set the video output level in the E-E mode. | | |
|---|---|---|---|
| **Incompleted Phenomenon** | · The picture becomes dark or whitish in the E-E mode. | | |
| **Equipment/Jigs** | **Test Points** | **Condition** | **Adjustment point** |
| · Oscilloscope<br>· Color Bar Generater<br>· Blank Tape (Nor-8) | · Video Out (AV OUT)<br>· Video IN (AV IN) | · Input the color bar signal<br>· STOP mode | *RT0205 VCA (E-E LEVEL) |

**<PROCEDURE>**

1) Load the blank tape for normal 8.
2) RT0205:
   Set the video output level to 1V ± 0.02Vp-p.

*- Waveforms -*




(200mV/20µsec.div.)

### (3) White Clip Adjustmen (Fig. 3-2)

| **Purpose** | · To set thewhite clip level | | |
|---|---|---|---|
| **Incompleted Phenomenon** | · No color apperrs in the highly bright subject. | | |
| **Equipment/Jigs** | **Test Points** | **Condition** | **Adjustment point** |
| · Oscilloscope<br>· Color Bar Generater<br>· Blank Tape (Nor-8) | · TP0205 VCA<br>· Video IN (AV IN) | · Input the color bar signal<br>· STOP mode | *RT0207 VCA (WHITE CLIP) |

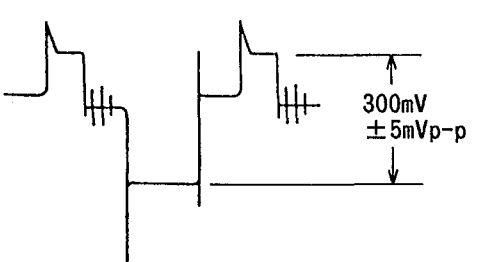
**<PROCEDURE>**

1) Load the blank tape for normal 8.
2) RT0207:
   Set the white clip level to 300mV ± 5mVp-p.

*- Settings of oscilloscope -*

· Trigger with video signal.

*- Waveforms -*




(100mV/100µsec.div.)

### (4) Carrier Frequency Adjustment (Fig. 3-2)

| Purpose | · To set the modulation frequency at the sync tip of the FM modulator to the specified value. | | |
|---|---|---|---|
| **Incompleted Phenomenon** | · Black and white are inverted in the picture. | | |
| **Equipment/Jigs** | **Test Points** | **Condition** | **Adjustment point** |
| · Oscilloscope<br>· Color Bar Generater<br>· Blank Tape (Nor-8, Hi-8) | · TP0101 VCA<br>· Video IN (AV IN) | · Input the white (100%) signal<br>· STOP mode | *RT0203 VCA (Fo ADJ)<br>*RT0202 VCA (HB Fo ADJ) |

**<PROCEDURE>**

1) Load the blank tape for normal 8.
2) RT0203:
   Set the period of the widest pulse is 235ns ± 3ns.

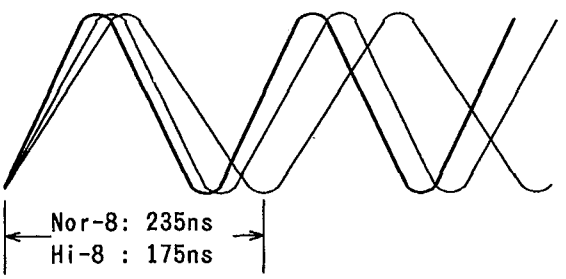
*[For Hi-8 Model]*

3) Load the blank tape for Hi-8.
4) RT0202:
   Set the period of the widest pulse is 175ns ± 3ns.

*- Settings of oscilloscope -*

· Trigger with video signal.

*- Waveforms -*




(500mV/50nsec.div.)

### (5) Deviation Adjustment (Fig. 3-2)

| Purpose | · To set the modulation frequency at the white peak of the FM modulator to the specified value. | | |
|---|---|---|---|
| **Incompleted Phenomenon** | · The picture becomes dark or whitish during recording and playback. | | |
| **Equipment/Jigs** | **Test Points** | **Condition** | **Adjustment point** |
| · Oscilloscope<br>· Color Bar Generater<br>· Blank Tape (Nor-8, Hi-8) | · TP0101 VCA<br>· Video IN (AV IN) | · Input the white (100%) signal<br>· STOP mode | *RT0215 VCA (DEVIATION)<br>*RT0214 VCA (HB DEVIATION) |

**<PROCEDURE>**

1) Load the blank tape for normal 8.
2) RT0215:
   Set the period of the narrowest pulse is 184ns ± 2ns.

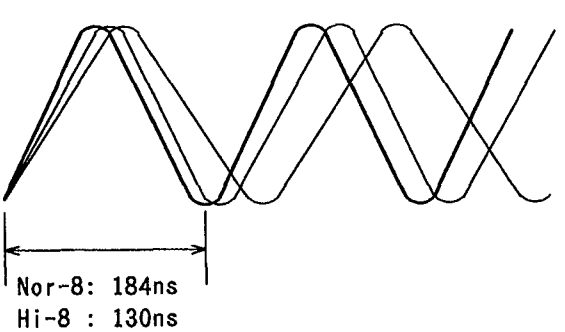
*[For Hi-8 Model]*

3) Load the blank tape for Hi-8.
4) RT0214:
   Set the period of the narrowest pulse is 130ns ± 2ns.

*- Settings of oscilloscope -*

Trigger with video signal.

*- Waveforms -*




(500mV/50nsec.div.)

### (6) Record Luminance Adjustment (Fig. 3-2)

| Purpose | · To set the luminance signal to the specified value. | | |
|---|---|---|---|
| Incompleted Phenomenon | · The luminance S/Ns diteriorate.<br>· Cross-beats appear on the monitor screen. | | |
| **Equipment/Jigs** | **Test Points** | **Condition** | **Adjustment point** |
| · Oscilloscope | · CH-1: Video Out (AV OUT)<br>· CH-2: TP0101 VCA | · Input the white (100%) signal<br>· STOP mode | *RT0103 VCA<br>(REC LUMA LEVEL) |
| · Color Bar Generater | · Video IN (AV IN) | | |
| · ATF-R Jig (SW3: ON) | · PG0601 VCA | | |
| · Blank Tape (Nor-8, Hi-8) | | | |

**<PROCEDURE>**

*[For Normal 8 Model]*

1) Load the blank tape for normal 8.

*[For Hi-8 Model]*

1) Load the blank tape for Hi-8.

2) Connect the ATF-R jig to PG0601 and turn the power off.
3) Set the camera/recorder to the test mode by the following procedure.

*- Procedure to set to the test mode -*

1. Remove the power supply from the camera/recorder.
2. Set the CAMERA/OFF/VCR switch to CAMERA position.
3. Check that the ATF-R jig (SW1:OFF, SW3:ON) is connected and then press the playback button and hold it , then supply the power again to the camera/recorder.

4) Set the unit to the loading state.

*[For Normal 8 Model]*

5) RT0103:
Set the sync tip section in record luminance signal is 500mV ± 5mVp-p.

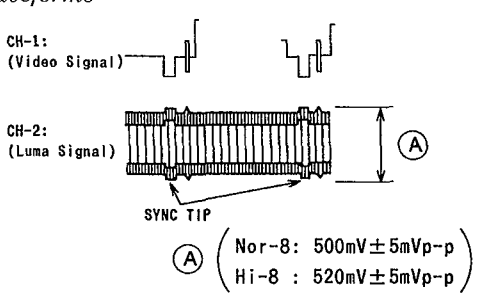
*[For Hi- 8 Model]*

5) RT0103:
Set the sync tip section in record luminance signal is 520mV ± 5mVp-p.

*- Settings of oscilloscope -*

· Trigger with video signal.

*- Waveforms -*




(50mV/20µsec.div.)

### (7) Playback Luminance Adjustment (Fig. 3-2)

**Note**: Perform this adjustment after completing the record luminance level adjustment.

| Purpose | · To set the luminance signal to the specified value. | | |
|---|---|---|---|
| Incompleted Phenomenon | · The picture becomes dark or whitish ruring playback. | | |
| **Equipment/Jigs** | **Test Points** | **Condition** | **Adjustment point** |
| · Oscilloscope<br>· Blank Tape (Nor-8, Hi-8)<br>· Color Bar Generater | · Video Out (AV OUT) | · Record color bar siganl and play it back with same VCR | *RT0209 VCA<br>(PB LEVEL)<br>*RT0217 VCR<br>(HB PB LEVEL) |

**<PROCEDURE>**

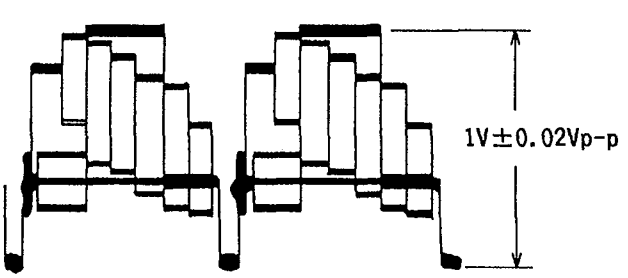
*[For Normal 8 Model]*

1) Playback the Nor-8 tape.
2) RT0209:
Set the playback luminance level to 1V ± 0.02Vp-p.

*[For Hi-8 Model]*

1) Playback the Hi-8 tape.
2) RT0217:
Set the playback luminance level to 1V ± 0.02Vp-p.

*- Waveforms -*




(200mV/20µsec.div.)

# 4. ERROR MESSAGE

## 4.1 CAMERA ELECTRIC VOLUME AND DIGITAL ADJUSTMENTS

| ERROR MESSAGE | COUNTERMEASURE |
|---|---|
| ERROR OCCURRED. IRIS TROUBLE<br>PRESS ANY KEY | · Check whether or not power is supplied.<br>· Check the values of the iris drive circuit.<br>· Defective soldering, damage to pattern, etc. in the above circuit.<br>· Check the iris block and replace it if necessary. |
| ERROR OCCURRED ON da ADJUSTMENT<br>PRESS ANY KEY | · Check the values in the hall amp circuit.<br>· Defective soldering, damage to pattern, etc. in the above circuit. |
| D RANGE OVER. ERROR ON da ADJUSTMENT<br>PRESS ANY KEY. | · Check the values in the hall amp circuit.<br>· Defective soldering, damage to pattern, etc. in theabove circuit. |
| ERROR OCCURRED ON da0 and<br>da1 ADJUSTMENT<br>PRESS ANY KEY | · Check the values in the hall amp circuit and its peripheral circuits.<br>· Defective soldering, damage to pattern, etc. in the above circuits. |
| FILE NOT FOUND !!!!<br>PRESS ANY KEY | · The adjustment program (file) cannot be found.<br>· Check the adjustment floppy disk and replace it if necessary. |
| FILE OPEN ERROR !!!!<br>PRESS ANY KEY | · The adjustment program (file) does not start.<br>· Check the adjustment floppy disk and replace it if necessary. |
| ERROR OCCURRED ON C DUTY ADJUSTMENT<br>PRESS ANY KEY | · Check the values of the iris drive circuit.<br>· Defective soldering, damage to pattern, etc. in the above circuit. |
| ERROR OCCURRED ON FDET ADJUSTMENT<br>PRESS ANY KEY | · Supply power again and re-adjust.<br>· Check the values in the hall amp circuit.<br>· Defective soldering, damage to pattern, etc. in the above circuit. |
| ERROR OCCURRED. ZOOM DOES NOT WORK<br>PRESS ANY KEY | · Supply power again and re-adjust. |
| TOO BRIGHT<br>PRESS ANY KEY | · The subject is too bright.<br>· Move the camera further away from the light box. |
| TOO DARK<br>PRESS ANY KEY | · The subject is too dark.<br>· Check the light box.<br>· Move the camera closer to the light box. |
| D RANGE OVER ERROR ON HALL AMP<br>IRIS CANNOT OPEN ANY MORE<br>PRESS ANY KEY | · Supply power again and re-adjust.<br>· The subject is too dark.<br>· Check the light box.<br>· Move the camera closer to the light box.<br>· Check the values in the hall amp circuit.<br>· Defective soldering, damage to pattern, etc. in the above circuit. |
| STAURATION ERROR. TOO BRIGHT<br>PRESS ANY KEY | · The subject is too bright.<br>· Move the camera further away from the light box. |
| CAN'T ADJUST WHITE BALANCE<br>PLEASE RETRY<br>PRESS ANY KEY | · The subject is too bright or too dark.<br>· Check the light box.<br>· Move the camera closer to or away from the light box.<br>· Supply power again and re-adjust. |

## 4.2 AUTO FOCUS ADJUSTMENT

| ERROR MESSAGE | COUNTERMEASURE |
|---|---|
| TIME OUT ERROR ON FOCUS | · Check the conditions of subject.<br>· If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective.<br>· 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.<br>· Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS. |
| TIME OUT ERROR ON AF STEP | · Check the conditions of subject.<br>· If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective.<br>· Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS. |

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

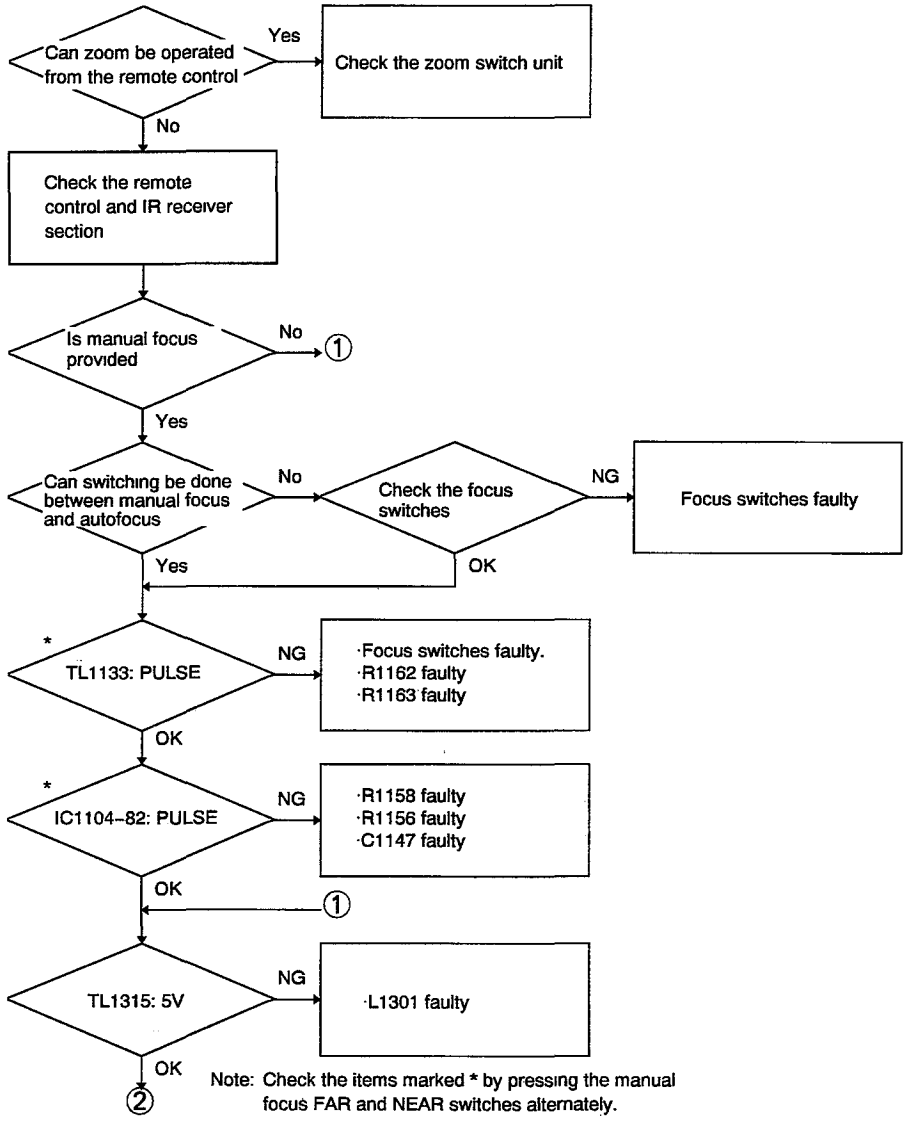
### 4.3 SPOT NOISE ADJUSTMENT

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

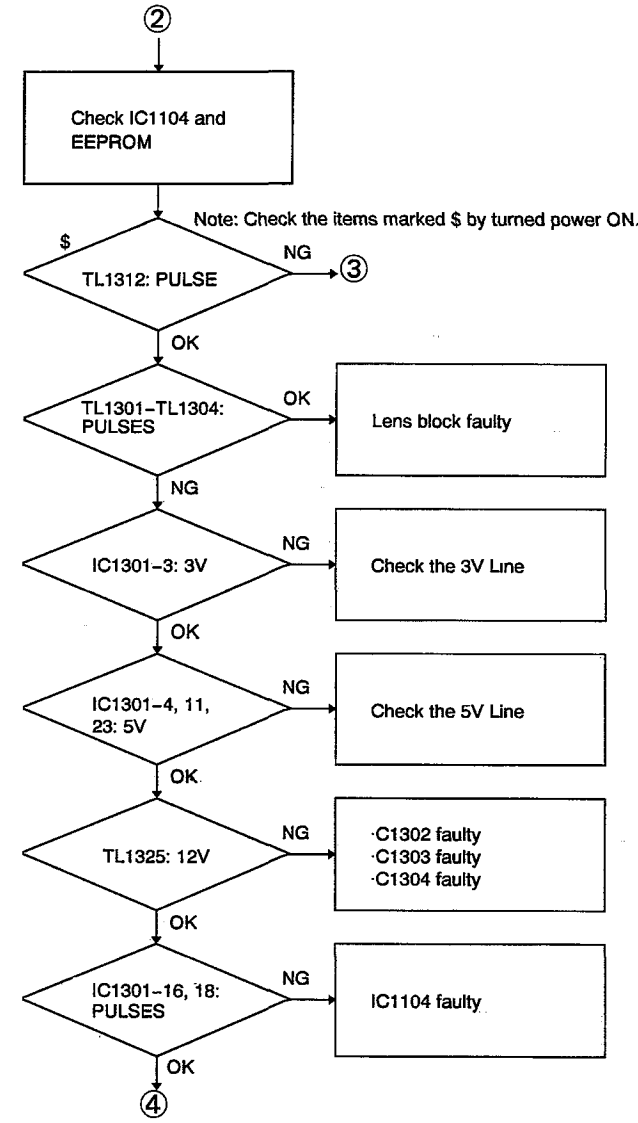
### 4.4 VCR ADJUSTMENT

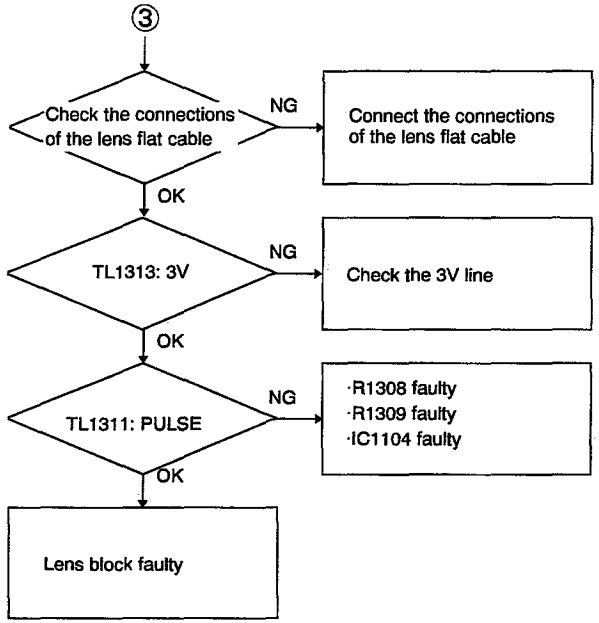
| ERROR MESSAGE | COUNTERMEASURE |
|---|---|
| ERROR: SWP_TEST>DAT FILE NOT FOUND! | · The adjustment program cannot be found.<br>· Check the adjustment floppy disk and replace it if necessary. |
| ERROR: INVALID MODEL<br>PRESS ANY KEY | · A wrong model has been selected.<br>· The adjustment program cannot be found.<br>· Check the adjustment floppy disk and replace it if necessary. |
| THIS MODEL NEED NOT BE ADJUSTED<br>PRESS ANY KEY | · A wrong model has been selected.<br>· A product that needs analog adjustment is connected. |
| ADJUSTMENT INCOMPLETED<br>PRESS ANY KEY | · The value set by adjustment defective.<br>· Re-adjust.<br>· Check cylinder.<br>· Check the alignment tape.<br>· 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<br>PRESS ANY KEY | · No playback video.<br>· Check the playback signal. |
| ERROR OCCURRED NO V.SYNC FOUND<br>PRESS ANY KEY | · Vertical sync loss.<br>· Check the vertical sync signal. |
| INVALID MODEL<br>PRESS ANY KEY | · A wrong model has been selected.<br>· The adjustment program cannot be found.<br>· Check the adjustment floppy disk and replace it if necessary. |
| ERROR OCCURRED CAN'T RECORD<br>PRESS ANY KEY | · No video recording.<br>· Check the recording signal. |

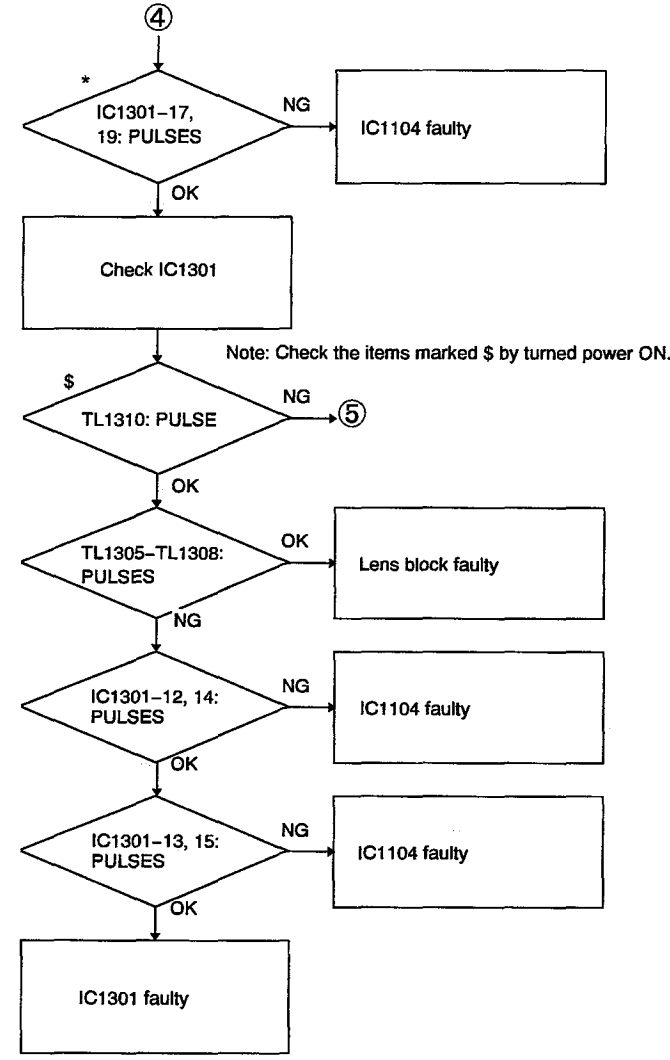
## (1) NO ZOOM AND FOCUS OPERATION

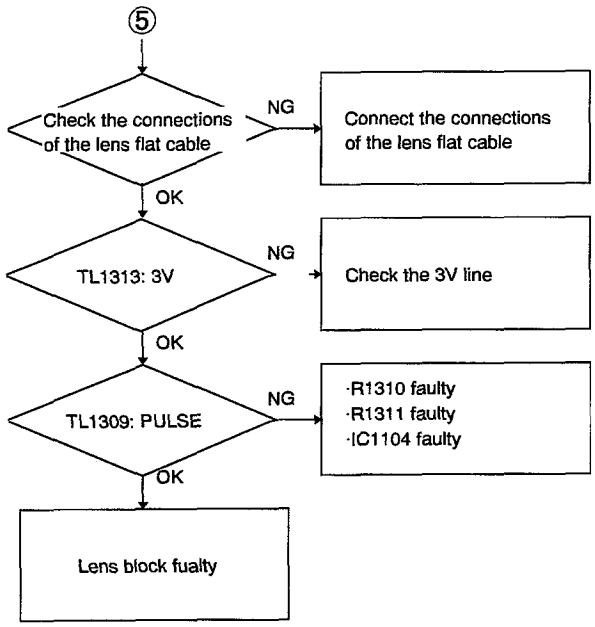



Note: Check the items marked * by pressing the manual focus FAR and NEAR switches alternately.

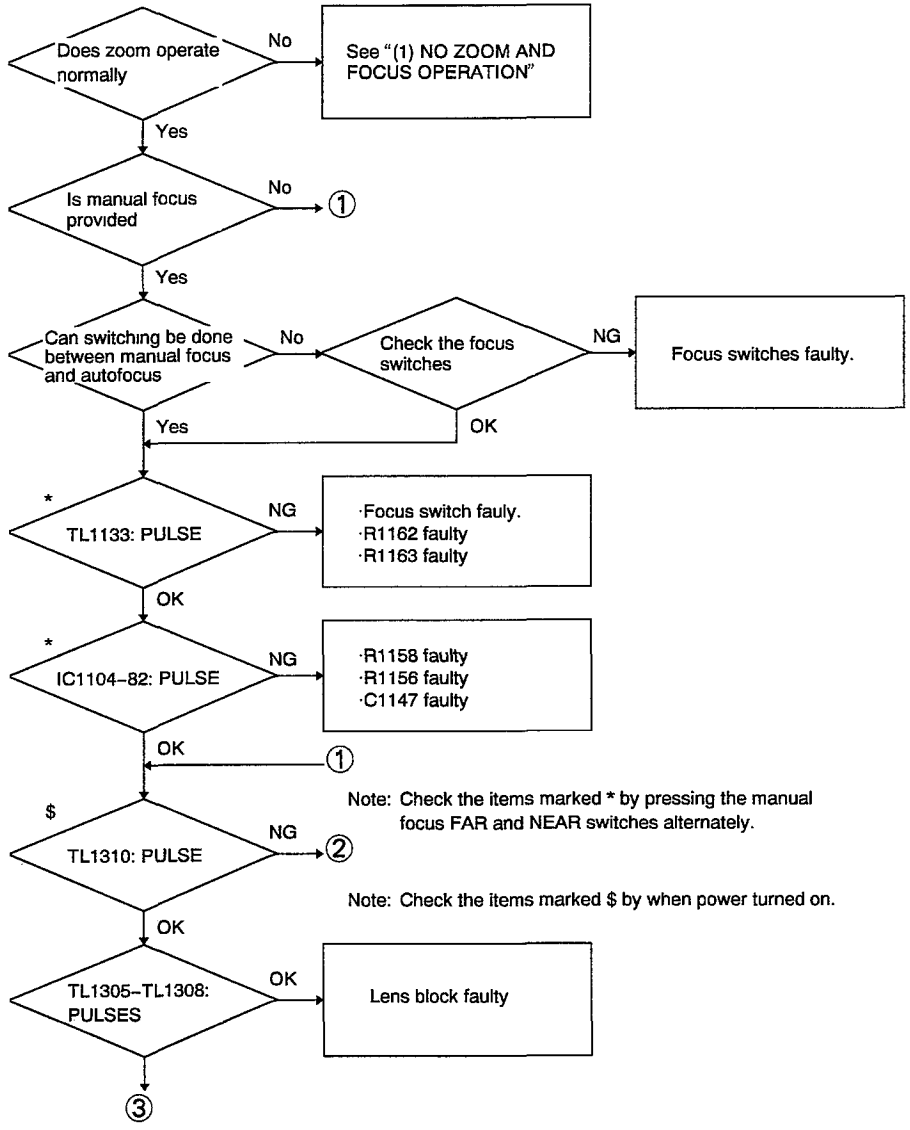



③
Check the connections of the lens flat cable
NG
Connect the connections of the lens flat cable
OK
TL1313: 3V
NG
Check the 3V line
OK
TL1311: PULSE
NG
·R1308 faulty
·R1309 faulty
·IC1104 faulty
OK
Lens block faulty


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

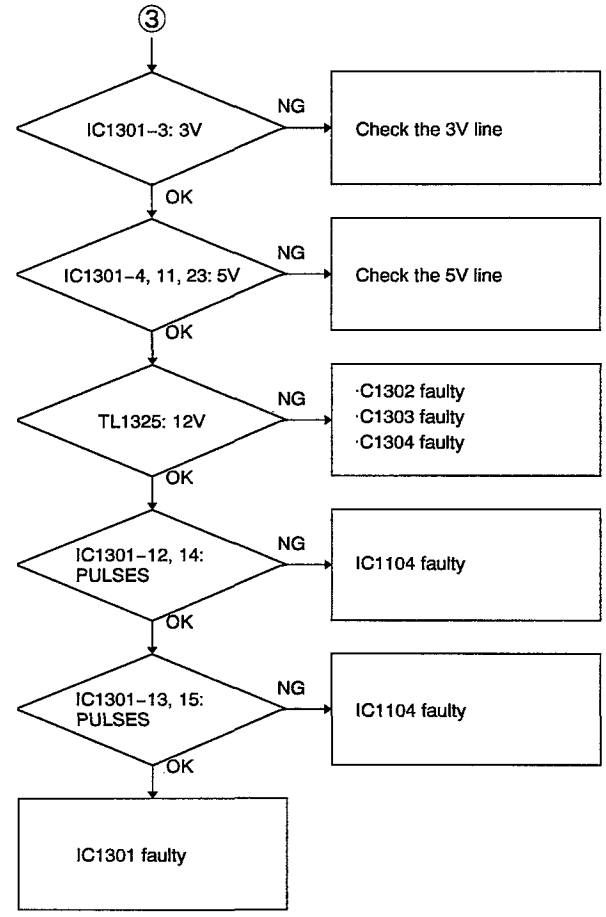

⑤
Check the connections of the lens flat cable
NG
Connect the connections of the lens flat cable
OK
TL1313: 3V
NG
Check the 3V line
OK
TL1309: PULSE
NG
·R1310 faulty
·R1311 faulty
·IC1104 faulty
OK
Lens block fualty

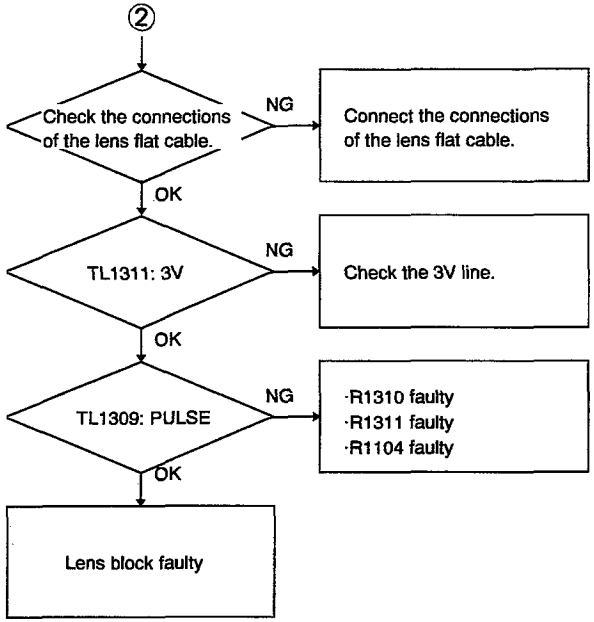
## (2) NO FOCUS LENS OPERATION



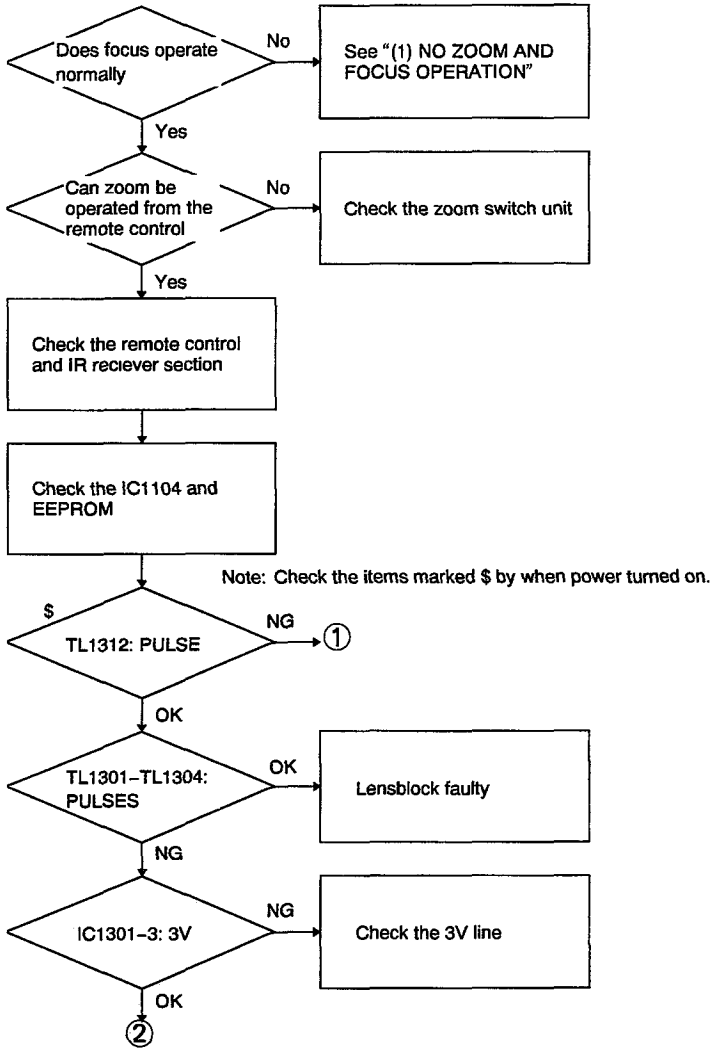

Note: Check the items marked * by pressing the manual focus FAR and NEAR switches alternately.

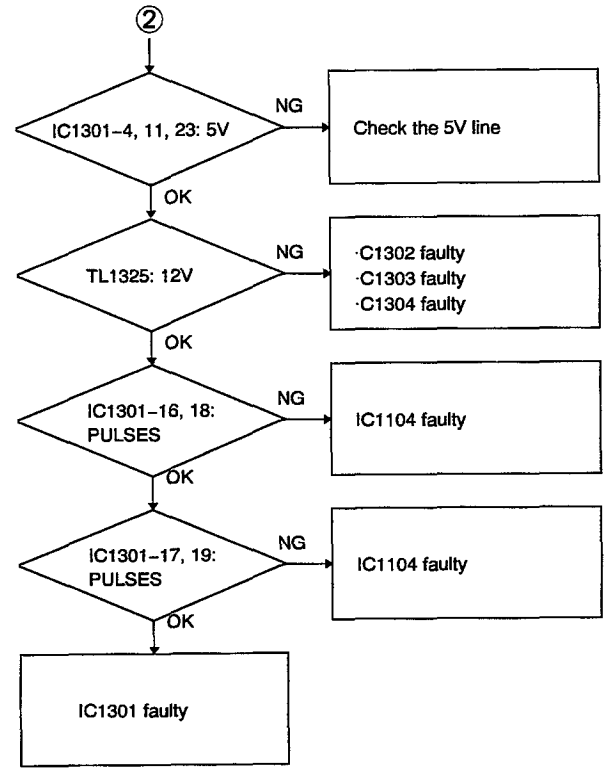
Note: Check the items marked $ by when power turned on.

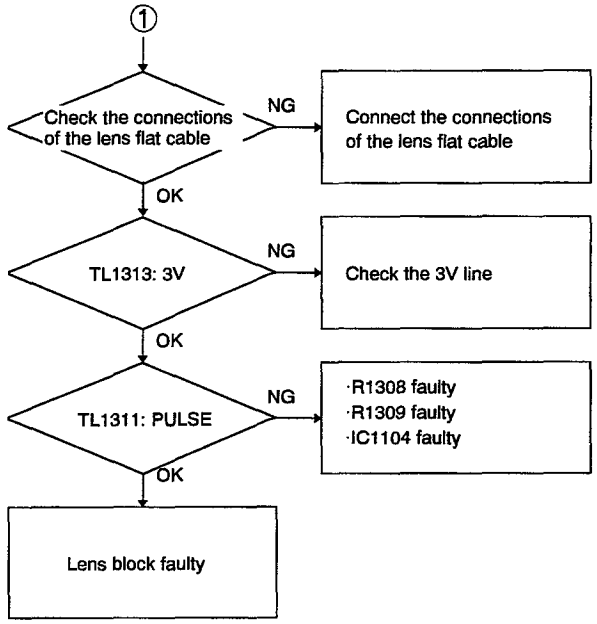



②
Check the connections of the lens flat cable.
NG
Connect the connections of the lens flat cable.
OK
TL1311: 3V
NG
Check the 3V line.
OK
TL1309: PULSE
NG
·R1310 faulty
·R1311 faulty
·R1104 faulty
OK
Lens block faulty

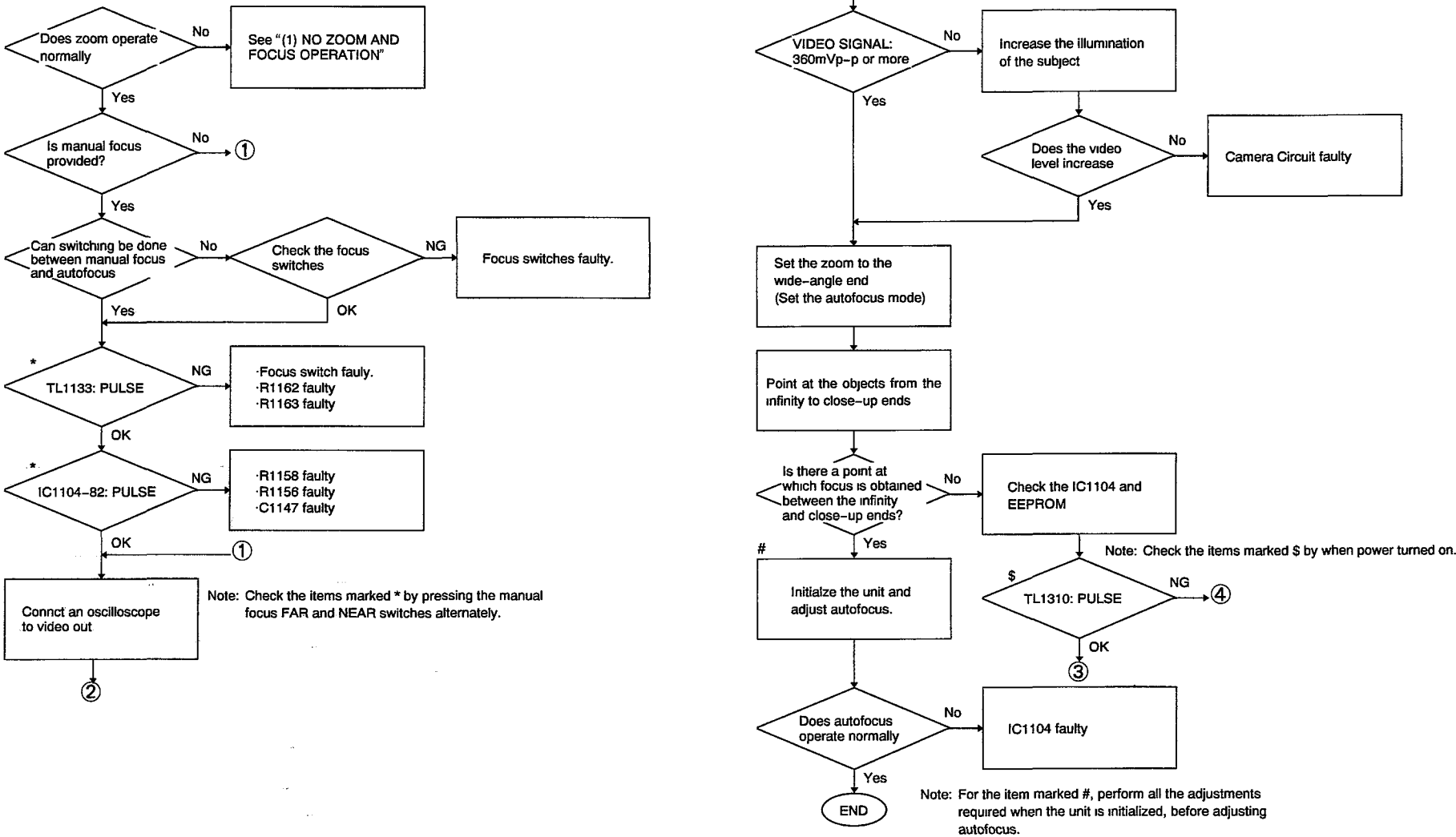
## (3) NO ZOOM OPERATION

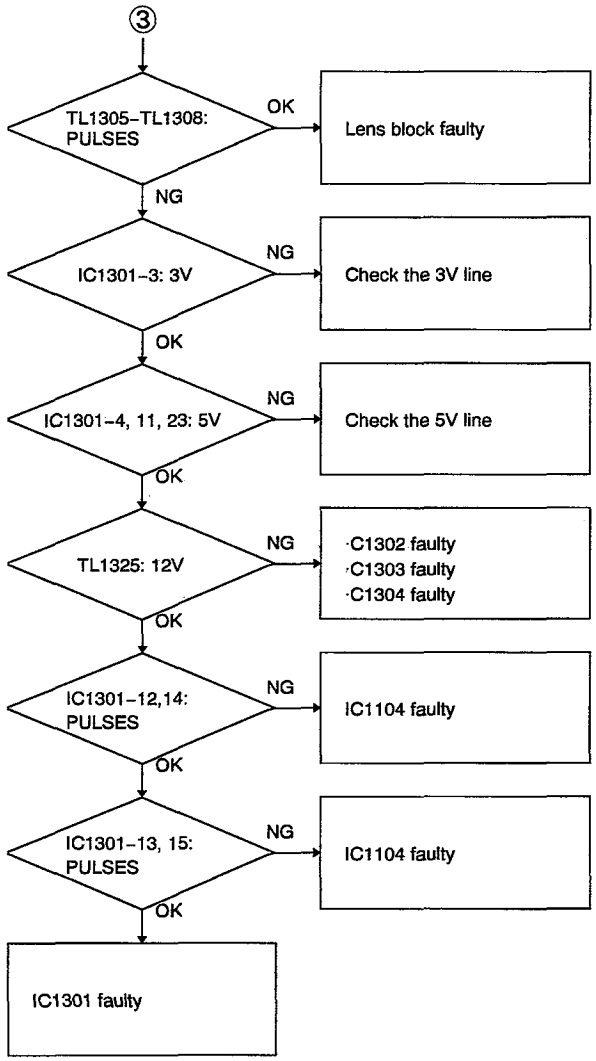


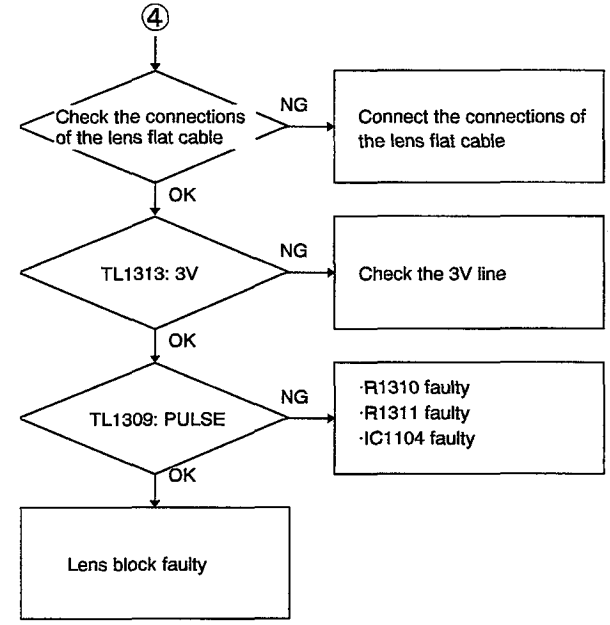




①
Check the connections of the lens flat cable
NG
Connect the connections of the lens flat cable
OK
TL1313: 3V
NG
Check the 3V line
OK
TL1311: PULSE
NG
·R1308 faulty
·R1309 faulty
·IC1104 faulty
OK
Lens block faulty

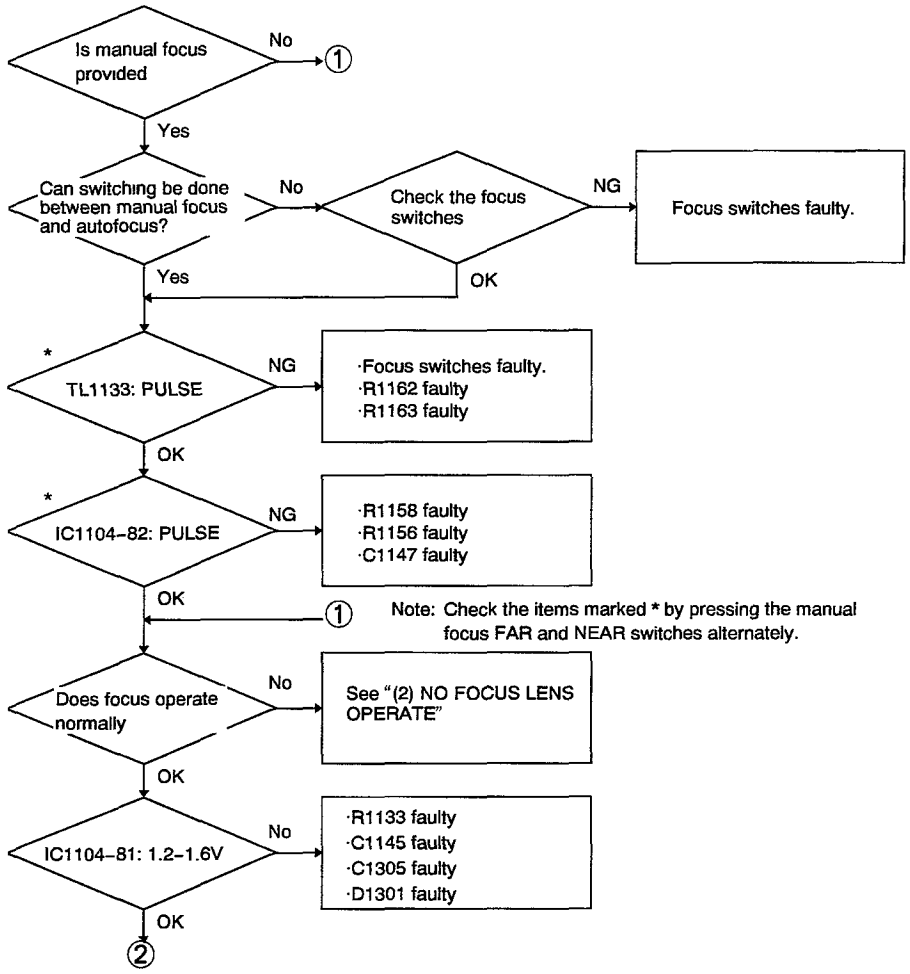
## (4) NO AUTOFOCUS OPERATION

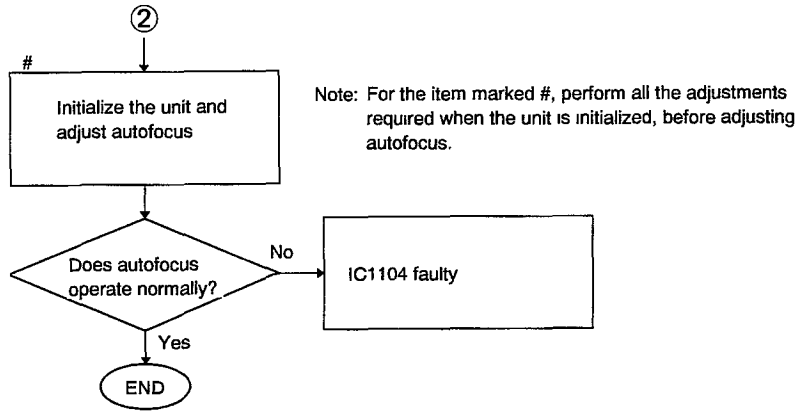



③
TL1305–TL1308: PULSES
OK
Lens block faulty
NG
IC1301–3: 3V
NG
Check the 3V line
OK
IC1301–4, 11, 23: 5V
NG
Check the 5V line
OK
TL1325: 12V
NG
·C1302 faulty
·C1303 faulty
·C1304 faulty
OK
IC1301–12,14: PULSES
NG
IC1104 faulty
OK
IC1301–13, 15: PULSES
NG
IC1104 faulty
OK
IC1301 faulty


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

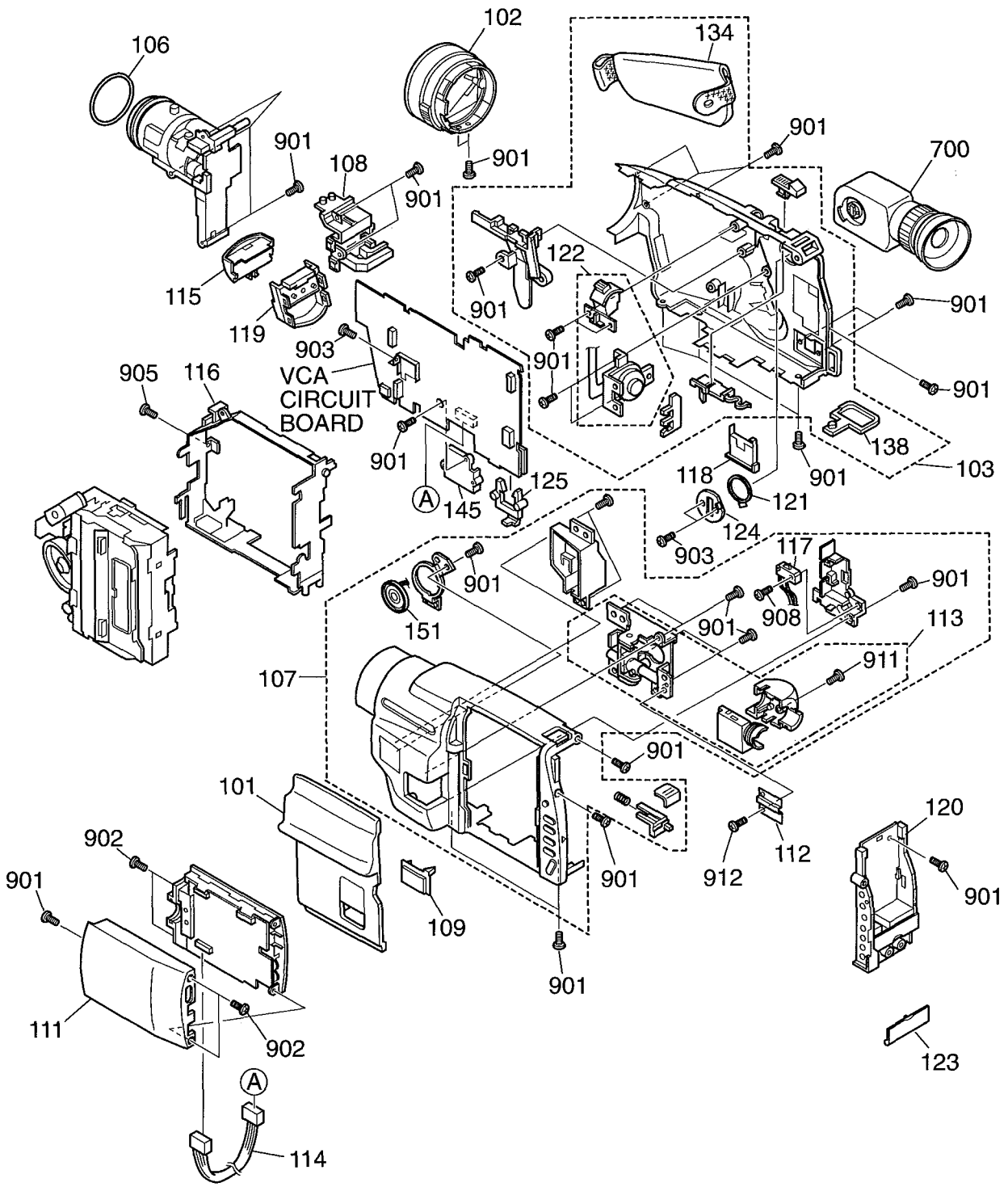
## (5) SUBJECT IS GREATLY OUT-OF-FOCUS WHEN ZOOMED



# CHAPTER 4 EXPLODED VIEWS

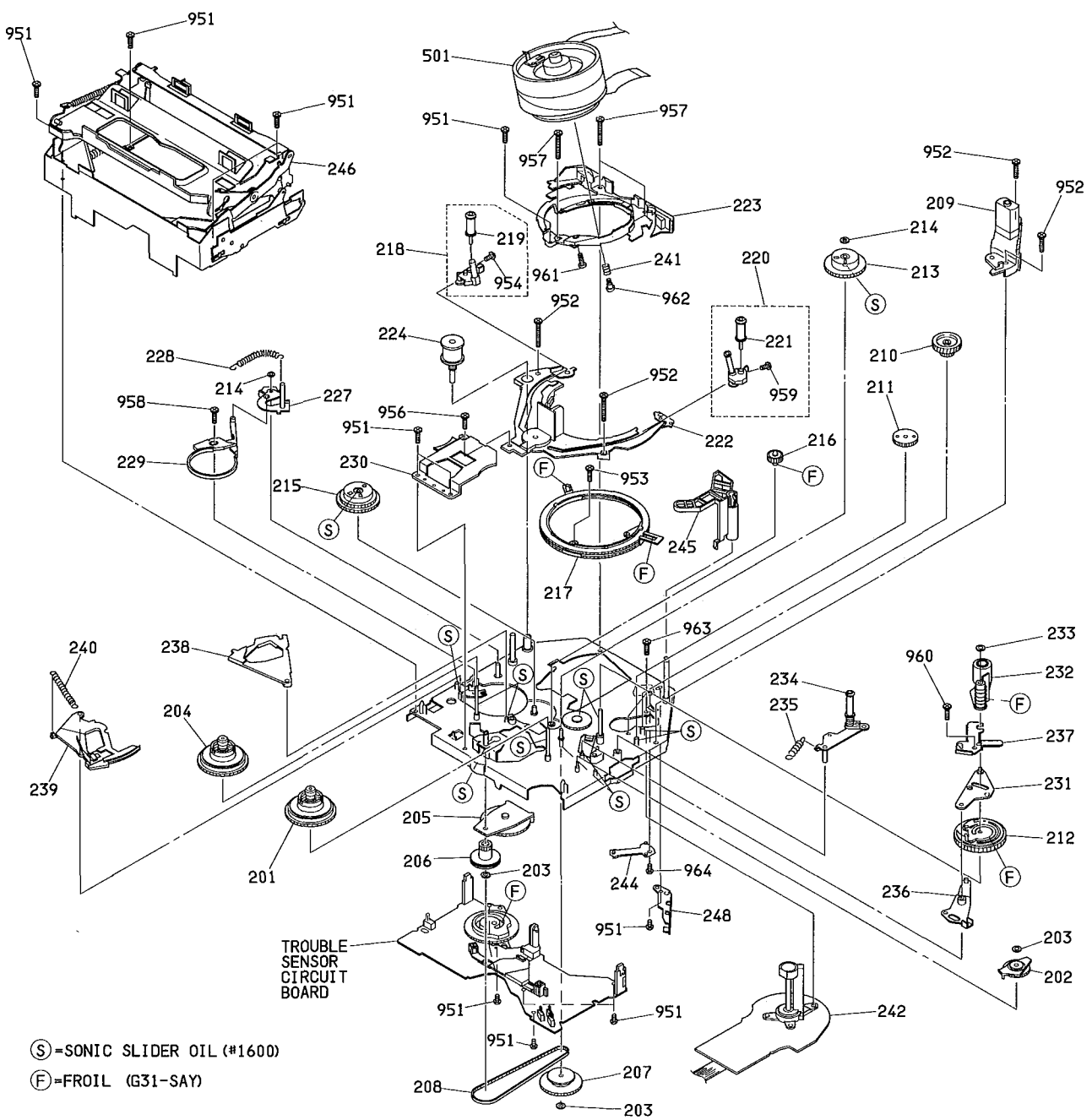
## 1. CABINET SECTION

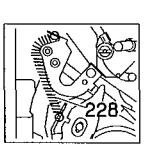


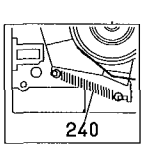

NOTE: The synthetic resin members that can be dismantled are shown by abbreviations using letters.

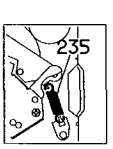
## 2. CHASSIS SECTION

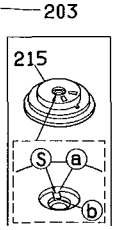
NOTE: If you change the Loading Relay Gears, please use oiler to apply Sonic Slidas oil between ⓐ to ⓑ. If oil is not applied, Loading Relay Gears will be locked.

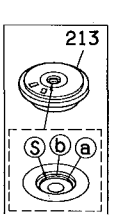


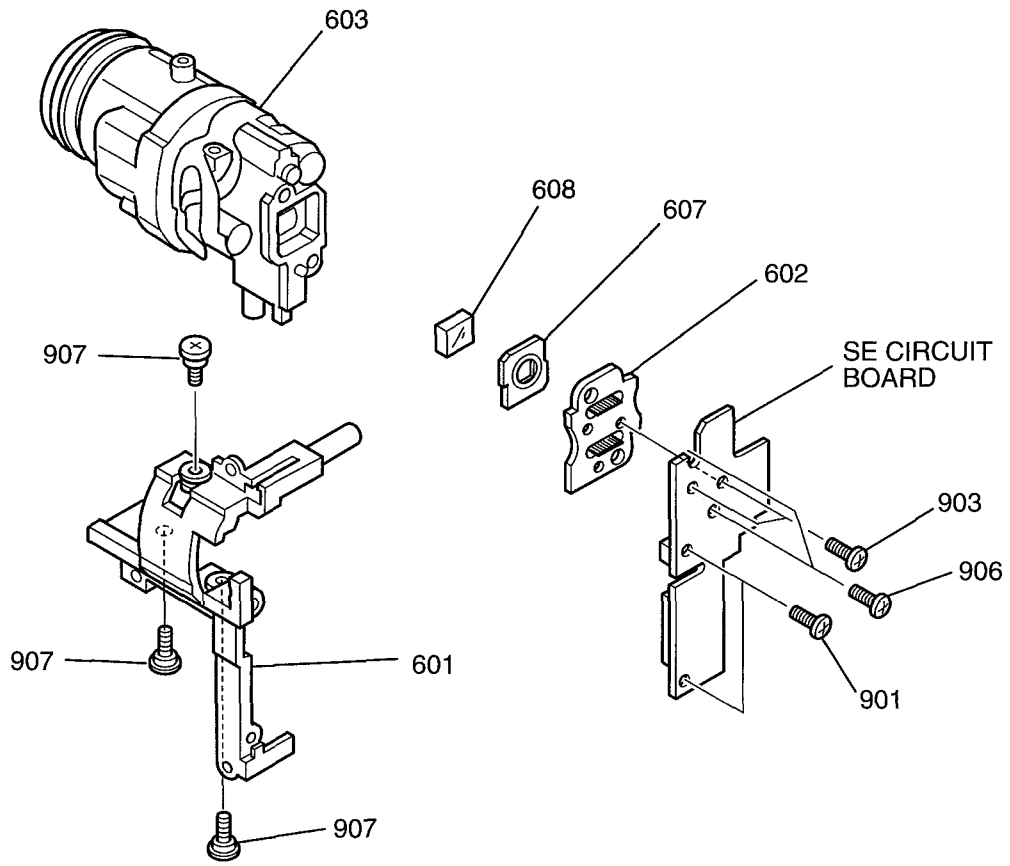



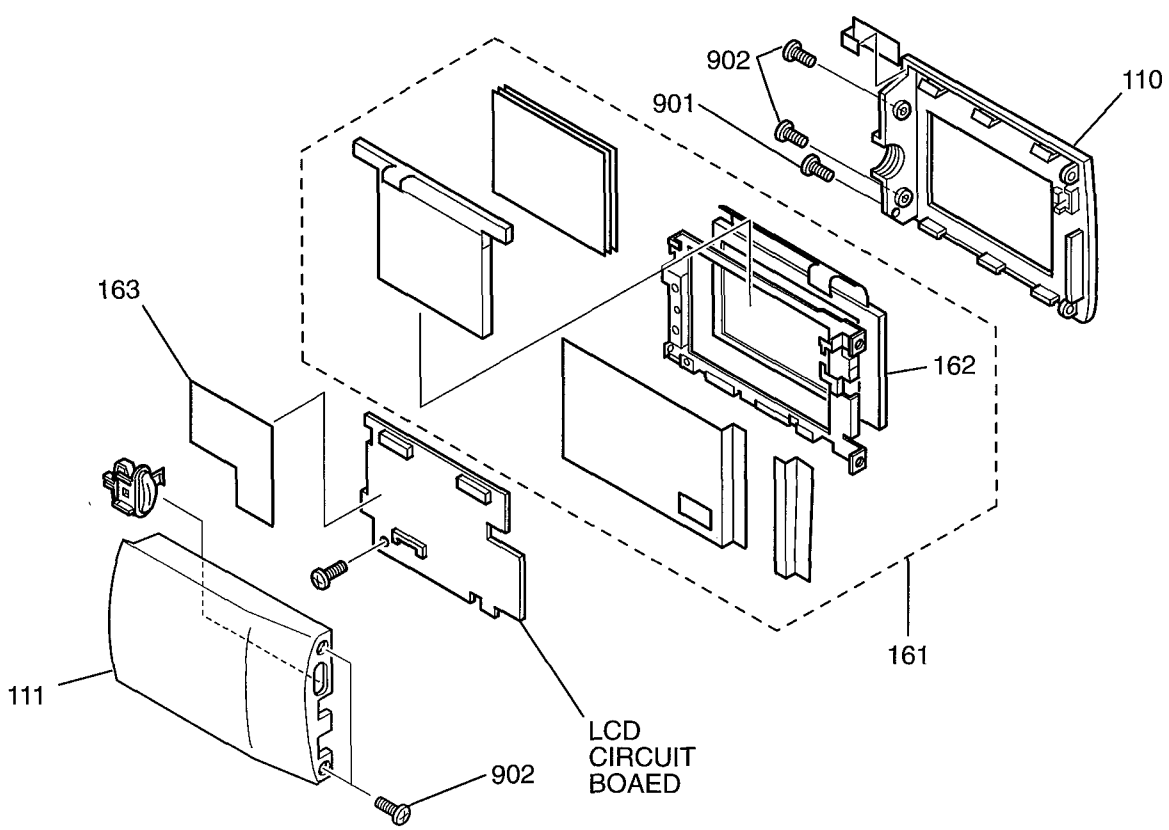



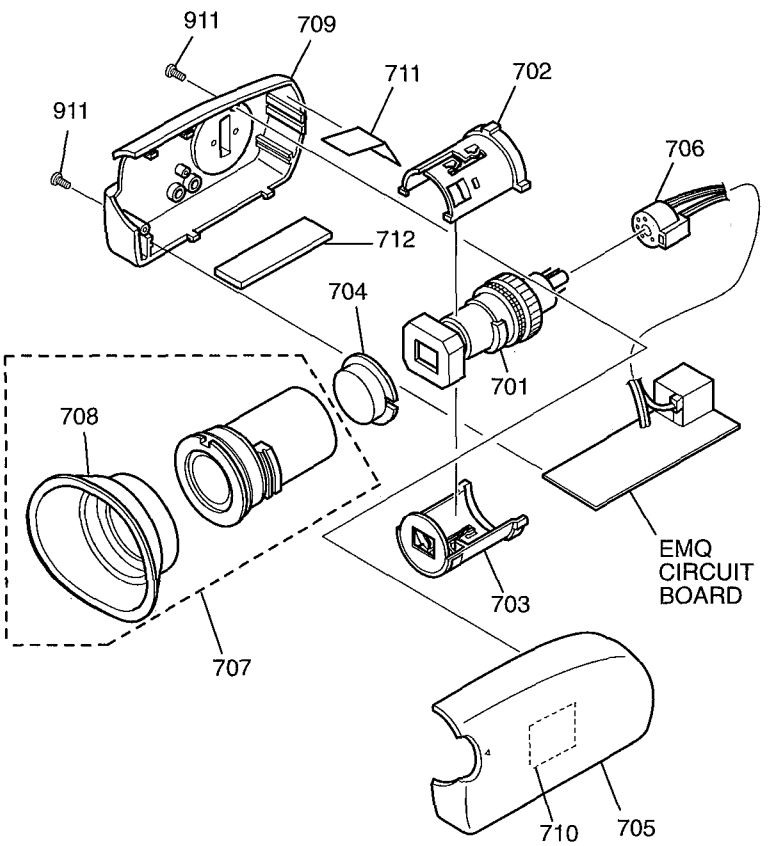
## 3. CAMERA BLOCK SECTION



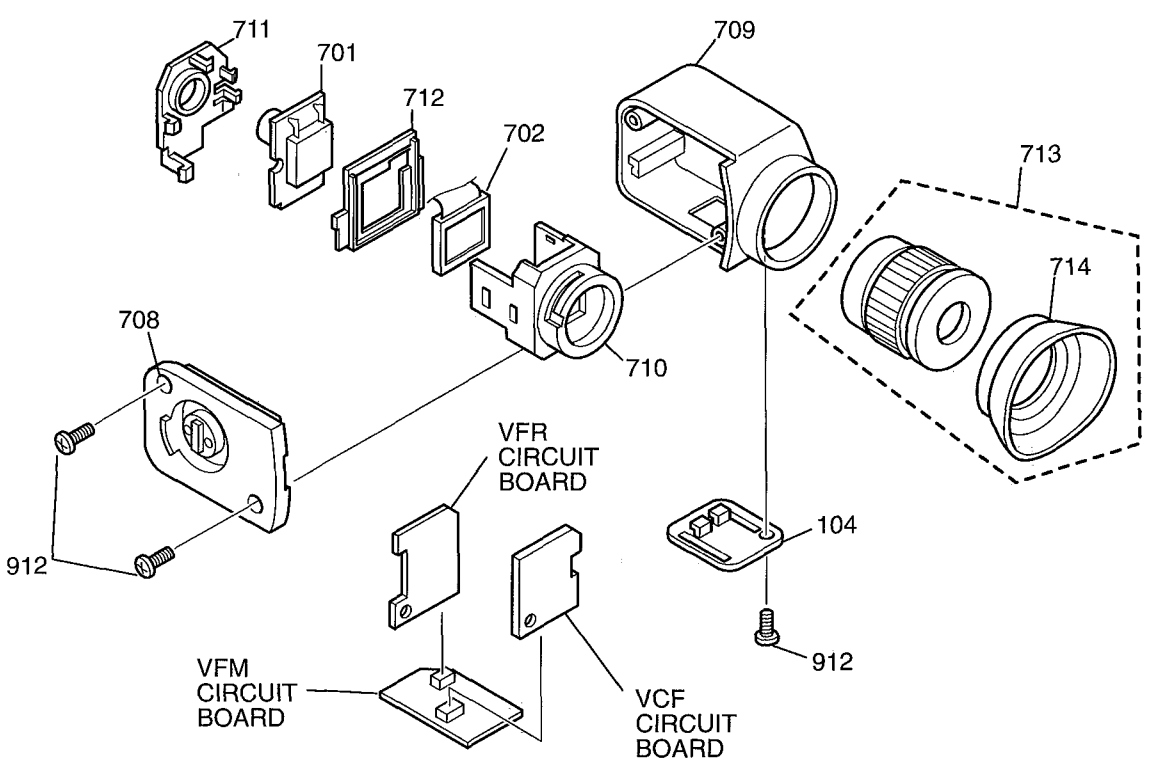

## 4. LCD DISPALY SECTION



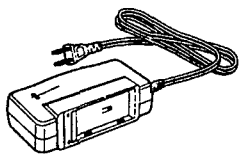
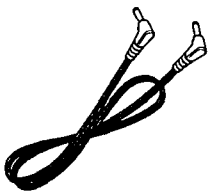
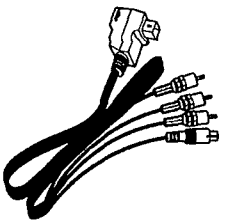
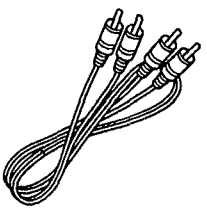
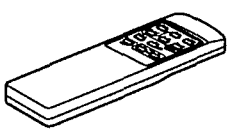
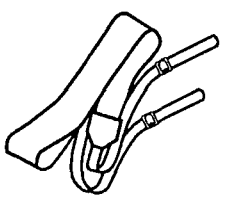
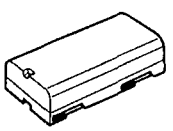
## 5. CRT B/W ELECTRONIC VIEW FINDER (EVF) SECTION



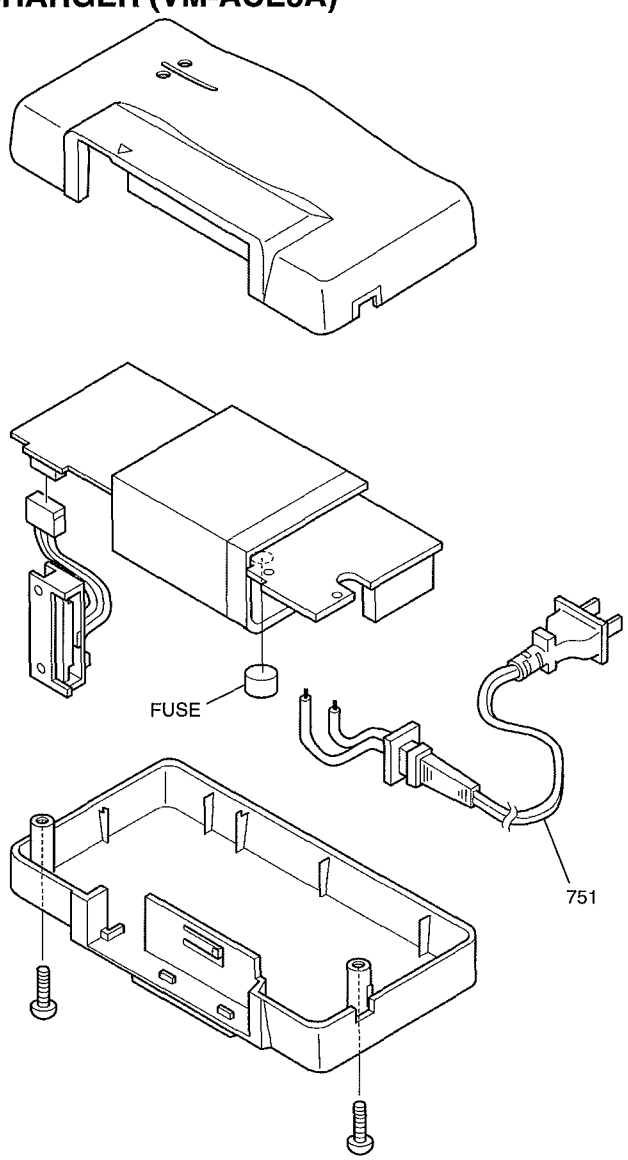

## 6. LCD COLOR ELECTRONIC VIEW FINDER (EVF) SECTION



## 7. ACCESSORIES

| 802 | 803 | 804 [For TYPE 835] | 804 [For TYPE 535, 635] |
|---|---|---|---|
|  (VM-ACE3A) |  |  |  |
| **805 [For TYPE835]** | **805 [For TYPE 535, 635]** | **807** | **BATTERY** |
| (VM-RM38A) |  (VM-RME311A) |  |  |

## 8. AC ADAPTER/CHARGER (VM-ACE3A)



# CHAPTER 5 REPLACEMENT PARTS LIST

## 1. MECHANICAL PARTS LIST

| SYMBOL-NO | P-NO | DESCRIPTION | |
|---|---|---|---|
| | | MECHANISM SECTION | |
| 101 | QD15201 | LID, CASSETTE | [TYPE835] |
| 101 | QD15202 | LID, CASSETTE | [TYPE635] |
| 101 | QD15206 | LID, CASSETTE | [TYPE535] |
| 102 | QD15081 | RING, LENS | [TYPE535, 635] |
| 102 | QD15082 | RING, LENS | [TYPE835] |
| 103 | FH10351 | SWITCH, CASE (R) | [TYPE535, 635] |
| 103 | FH10352 | SWITCH, CASE (R) | [TYPE835] |
| 106 | NX11243 | RING, O | |
| 107 | QD15011 | CASE, SIDE (L) | [TYPE635, 835] |
| 107 | QD15012 | CASE, SIDE (L) | [TYPE535] |
| 108 | NJ11331 | HOLDER, IR | |
| 109 | PC13251 | BUTTON, LID | |
| 110 | QD15131 | CASE, LCD (B) | |
| 111 | QD15142 | CASE, LCD (U) | [TYPE835] |
| 111 | QD15144 | CASE, LCD (U) | [TYPE635] |
| 111 | QD15145 | CASE, LCD (U) | [TYPE535] |
| 112 | MN12761 | SPACER | |
| 113 | NX15051 | SUPPORTING BLOCK | |
| 114 | EF10277 | CONNECTOR | |
| 115 | GH10291 | MICROPHONE, MONORAL | [TYPE535, 635] |
| 115 | GH10301 | MICROPHONE, STEREO | [TYPE838] |
| 116 | NT10951 | FRAME, MECHA | |
| 117 | FH10361 | SWITCH | |
| 118 | QD15281 | CASE, BATTERY | |
| 119 | QD15071 | FILTER, IR | [TYPE835] |
| 119 | QD15072 | FILTER, IR | [TYPE535, 635] |
| 120 | FH10331 | SWITCH, REAR UNIT | |
| 121 | 4899872 | SPRING | |
| 122 | FH10371 | SWITCH, T/W | |
| 123 | QX12791 | COVER, JACK | |
| 124 | NA15041 | STOPPER | |
| 125 | NJ11301 | HOLDER | |
| 134 | PV10241 | STRAP, HAND | |
| 138 | QX12801 | COVER | |
| 145 | NX15461 | HOLDER, BATTERY | |
| 151 | GK10251 | SPEAKER | |
| 161 | DT10191 | LIGHT, BACK | |
| 162 | DB10471 | DISPLAY, LIQUID CRYSTAL | |
| 163 | MD12071 | SHEET, SHIELD | |
| 201 | 6404062 | REEL DISK, TAKE-UP | |
| 202 | 6406114 | GEAR | |
| 203 | 7787733 | WASHER | |
| 204 | 6404073 | REEL DISK, SUPPLY | |
| 205 | 6401644 | GEAR, IDLER | |
| 206 | 6406211 | GEAR | |
| 207 | KF11411 | GEAR, PULLY | |
| 208 | 6358471 | BELT | |
| 209 | KX18141 | BLOCK, LOADING | |
| 210 | 6376312 | GEAR, DRIVE | |
| 211 | 6406082 | GEAR | |
| 212 | 6406242 | GEAR | |
| 213 | 6405834 | GEAR (R) | |
| 214 | 7787731 | WASHER | |
| 215 | 6405824 | GEAR (L) | |
| 216 | 6406131 | GEAR | |
| 217 | 4588464 | RING, LOADING | |
| 218 | 4589354 | BAS, GUIDE ROLLER(I) | |
| 219 | KX10172 | ROLLER, GUIDE | |
| 220 | 4589366 | BASE, GUIDE ROLLER(O) | |
| 221 | KX11161 | GUIDE ROLLER | |
| 222 | 4587796 | PLATE | |
| 223 | KX15651 | BASE, CYLINDER | |
| 224 | KF11771 | ROLLER, IMPEDANCE | |
| 227 | 4589015 | ARM, TENSION | |
| 228 | 6554231 | SPRING | |
| 229 | 4588553 | BAND, TENSION | |
| 230 | 6408832 | COVER, IDLER | |
| 231 | NA10601 | PLATE | |
| 232 | 4588294 | ARM, PRESSURE ROLLER | |
| 233 | 7787571 | WASHER | |
| 234 | 4588702 | ARM | |
| 235 | 6554201 | SPRING | |
| 236 | KX10731 | LEVER | |
| 237 | 4588532 | SPRING | |
| 238 | 4588429 | PLATE | |
| 239 | 4588353 | BRAKE | |
| 240 | 6554221 | SPRING | |
| 241 | 6554214 | SPRING | |
| 242 | GP10511 | MOTOR, CAPSTAN | |
| 244 | 5794021 | BRUSH | |
| 245 | 4588995 | COVER | |
| 246 | KX10761 | CASSETTE HOLDER ASSY | |
| 248 | 4827262 | BRACKET | |
| 501 | HX10251 | CYLINDER ASSY (CY-53CN) | [TYPE535, 63 |
| 501 | HX10253 | CYLINDER ASSY (CY-53C3-F) | [TYPE835] |
| 601 | NT10961 | FRAME, LENS | |
| 602 | UE12323 | CCD IMAGE SENSOR ASSY | [TYPE535, 635] |
| 602 | UE12325 | CCD IMAGE SENSOR ASSY | [TYPE835] |
| 603 | KQ10521 | LENS, ZOOM | |
| 607 | NX11252 | RUBBER | |
| 608 | DT10141 | CRYSTAL | [TYPE535, 635] |
| 608 | DT10151 | CRYSTAL | [TYPE835] |
| 700 | UX10561 | EVF ASSY | |
| 701 | 5319063 | CRT | |
| 702 | 4715252 | CASE, CRT | |
| 703 | 4715241 | CASE, CRT(B) | |
| 704 | 4592241 | COVER | |
| 705 | QD15401 | CASE, EVF (R) | |
| 706 | EF10248 | CONNECTOR | |
| 708 | QX11991 | CAP, EYE | |
| 709 | QD15391 | CASE, EVF (L) | |
| 710 | 4345001 | SPACER | |
| 711 | 4344291 | SPACER | |
| 712 | MN10461 | SHEET | |
| 901 | 7775946 | SCREW(2X6) | |
| 902 | 7775964 | SCREW(2X4) | |
| 903 | 7775945 | SCREW(2X5) | |
| 904 | 7775963 | SCREW(2X3) | |
| 905 | 7773891 | SCREW | |
| 906 | 8650103 | SCREW(2X3) | |
| 907 | MJ10221 | SCREW | |
| 908 | 8699108 | SCREW(2X8) | |
| 911 | 8619003 | SCREW 1.7X5 | |
| 912 | 8650104 | SCREW | |
| 951 | 8712024 | PAN HEAD SCREW-1.4MMDX3MM | |
| 952 | 8700272 | SCREW(1.7X5) | |
| 953 | 7775921 | SCREW(1.4X2) | |
| 954 | 8714004 | SCREW(1.4X2.5) | |
| 956 | 8619065 | SCREW(1.7X6) | |
| 957 | 8700976 | SCREW(1.7X8.0) | |
| 958 | 7770791 | SCREW | |
| 959 | 8712904 | SCREW(1.4X2.0) | |
| 960 | 8619063 | SCREW(1.7X3) | |
| 961 | 8711105 | SCREW(2X5) | |
| 962 | 7785886 | SCREW | |
| 963 | 8700264 | 1.7X2 SCREW | |
| 964 | 8741103 | SCREW(2X3) | |

# 2. ELECTRICAL PARTS LIST

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | AC ADAPTER/CHARGER |
| 751 | 4115381 | CORD, POWER |
| | | ACCESSARIES |
| 802 | TS13052 | AC ADAPTOR (VM-ACE3A) |
| 803 | EV10411 | CORD, PLUG |
| 804 | 5856293 | AV OUTPUT CORD [TYPE835] |
| 804 | EW10941 | CORD[TYPE535, 635] |
| 805 | 5616583 | REMOTE HAND SET (VT-RM38A) [TYPE835] |
| 805 | HL10771 | REMOTE HAND SET(VT-RME311A) [TTYPE535] |
| 807 | TS13691 | STRAP, SHOULDER |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| | | CAMERA & VCR SECTION |
| C0101 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C0102 | 0806174 | ELECTROLYTIC 100UF 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 | 0893008 | CERAMIC CHIP 0.1UF +-10% 16V |
| C0112 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C0113 | 0893008 | CERAMIC CHIP 0.1UF +-10% 16V |
| C0115 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| 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 | 0806174 | ELECTROLYTIC 100UF 6.3V |
| C0130 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0131 | 0806168 | ELECTROLYTIC 47UF 6.3V |
| C0132 | 0893014 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0133 | 0893119 | CERAMIC CHIP 33PF+-5% 50V |
| C0134 | 0893104 | CERAMIC CHIP 2.0PF 50V[TYPE835] |
| C0134 | 0893119 | CERAMIC CHIP 33PF+-5% 50V[TYPE535, 63 |
| C0136 | 0893115 | CERAMIC CHIP 15PF+-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 | 0893214 | CERAMIC CHIP 2700PF+-10% 50V |
| C0145 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0146 | 0893106 | CERAMIC CHIP 4.0PF+-0.25% 50V[TYPE83 |
| C0146 | 0893115 | CERAMIC CHIP 15PF+-5% 50V[TYPE535, 63 |
| C0147 | 0893114 | CERAMIC CHIP 12PF+-5% 50V |
| C0148 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0149 | 0893117 | CERAMIC CHIP 22PF+-5% 50V |
| C0150 | 0893114 | CERAMIC CHIP 12PF+-5% 50V |
| 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 | 0893014 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0165 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0168 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C0169 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C0170 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0171 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0172 | 0806153 | ELECTROLYTIC 10UF 16V |
| C0173 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0174 | 0806133 | ELECTROLYTIC 10UF 6V |
| C0175 | 0893106 | CERAMIC CHIP 4.0PF+-0.25% 50V |
| C0176 | 0893117 | CERAMIC CHIP 22PF+-5% 50V |
| C0177 | 0893116 | CERAMIC CHIP 18PF+-5% 50V |
| C0178 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0179 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0180 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C0181 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| C0182 | 0893008 | CERAMIC CHIP 0.1UF +-10% 16V |
| C0183 | 0806153 | ELECTROLYTIC 10UF 16V |
| C0184 | 0893067 | CERAMIC CHIP 0.1UF+80-20% 25V |
| C0185 | 0806024 | ELECTROLYTIC 3.3UF 6V |
| C0187 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0188 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0189 | 0893125 | CERAMIC CHIP 82PF+-5% 50V |
| C0190 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0191 | 0893124 | CHIP CERAMIC 68PF+-5% 50V |
| C0192 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C0193 | 0893127 | CERAMIC CHIP 120PF+-5% 50V |
| C0194 | 0893114 | CERAMIC CHIP 12PF+-5% 50V |
| C0195 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C0201 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0202 | 0893113 | CERAMIC CHIP 10PF+-0.5% 50V |
| C0203 | 0893113 | CERAMIC CHIP 10PF+-0.5% 50V |
| C0204 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0205 | 0893197 | CERAMIC CHIP 0.022UF+-10% 25V |
| C0206 | 0893197 | CERAMIC CHIP 0.022UF+-10% 25V |
| C0207 | 0893115 | CERAMIC CHIP 15PF+-5% 50V |
| C0208 | 0893127 | CERAMIC CHIP 120PF+-5% 50V |
| C0209 | 0893122 | CERAMIC CHIP 47PF+-5% 50V |
| C0210 | 0893109 | CERAMIC CHIP 7.0PF 50V |
| C0213 | 0893102 | CERAMIC CHIP 1.0PF+-0.25% 50V |
| C0214 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0215 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0216 | 0806174 | ELECTROLYTIC 100UF 6.3V |
| C0217 | 0893014 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0218 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C0219 | 0806024 | ELECTROLYTIC 3.3UF 6.3V |
| C0224 | 0893127 | CERAMIC CHIP 120PF+-5% 50V |
| C0226 | 0202327 | CERAMIC CHIP 0.22UF+-10% 16V |
| C0227 | 0893197 | CERAMIC CHIP 0.022UF+-10% 25V |
| C0228 | 0893059 | CERAMIC CHIP 0.47UF+80-20% 16V |
| C0230 | 0893122 | CERAMIC CHIP 47PF+-5% 50V |
| C0231 | 0806168 | ELECTROLYTIC 47UF 6.3V |
| C0232 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0235 | 0893124 | CHIP CERAMIC 68PF+-5% 50V |
| C0237 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0238 | 0893197 | CERAMIC CHIP 0.022UF+-10% 25V |
| C0239 | 0893188 | CERAMIC CHIP 0.047UF+-10% 16V |
| C0240 | 0893114 | CERAMIC CHIP 12PF+-5% 50V |
| C0242 | 0893008 | CERAMIC CHIP 0.1UF +-10% 16V |
| C0243 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0244 | 0806027 | ELECTROLYTIC 4.7UF 4V |
| C0245 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0246 | 0806133 | ELECTROLYTIC 10UF 6V |
| C0247 | 0806027 | ELECTROLYTIC 4.7UF 4V |
| C0248 | 0893118 | CERAMIC CHIP 27PF+-5% 50V |
| C0249 | 0893127 | CERAMIC CHIP 120PF+-5% 50V |
| C0250 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C0251 | 0806027 | ELECTROLYTIC 4.7UF 4V |
| C0252 | 0806027 | ELECTROLYTIC 4.7UF 4V |
| C0253 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0254 | 0806133 | ELECTROLYTIC 10UF 6V |
| C0255 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C0256 | 0893126 | CERAMIC CHIP 100PF+-5% 50V |
| C0257 | 0806174 | ELECTROLYTIC 100UF 6.3V |
| C0258 | 0893059 | CERAMIC CHIP 0.47UF+80-20% 16V |
| C0259 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C0260 | 0893197 | CERAMIC CHIP 0.022UF+-10% 25V |
| C0261 | 0893117 | CERAMIC CHIP 22PF+-5% 50V |
| C0262 | 0893108 | CERAMIC CHIP 6.0PF+-0.5% 50V |
| C0263 | 0893011 | CERAMIC CHIP 0.15UF+-10% 16V |
| C0264 | 0893132 | CERAMIC CHIP 270PF+-5% 50V |
| C0265 | 0893164 | CERAMIC CHIP 150PF+-5% 50V |
| C0266 | 0893164 | CERAMIC CHIP 150PF+-5% 50V |
| C0267 | 0893117 | CERAMIC CHIP 22PF+-5% 50V |
| C0270 | 0893008 | CERAMIC CHIP 0.1UF +-10% 16V |
| C0271 | 0806133 | ELECTROLYTIC 10UF 6V |
| C0272 | 0893118 | CERAMIC CHIP 27PF+-5% 50V |
| 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 |
| C0359 | 0806027 | ELECTROLYTIC 4.7UF 4V |
| C0360 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0362 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0364 | 0806153 | ELECTROLYTIC 10UF 16V |
| C0365 | 0893014 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0367 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0368 | 0893131 | CERAMIC CHIP 220PF+-5% 50V |
| C0369 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C0391 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0392 | 0893014 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0395 | 0202328 | CERAMIC CHIP 1.0UF+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 |
| C0403L | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0403R | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0404L | 0893213 | CERAMIC CHIP 2200PF+-10% 50V |
| C0404R | 0893213 | CERAMIC CHIP 2200PF+-10% 50V |
| C0405L | 0893211 | CERAMIC CHIP 1500PF+-10% 50V |
| C0405R | 0893211 | CERAMIC CHIP 1500PF+-10% 50V |
| C0406L | 0806168 | ELECTROLYTIC 47UF 6.3V |
| 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 |
| C0408R | 0806027 | ELECTROLYTIC 4.7UF 4V |
| C0409L | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0409R | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0410L | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0410R | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0411L | 0202327 | CERAMIC CHIP 0.22UF+-10% 16V |
| C0411R | 0202327 | CERAMIC CHIP 0.22UF+-10% 16V |
| C0412L | AA00362R | CERAMIC CHIP 2.2UF+-10% 16V |
| C0412R | AA00362R | CERAMIC CHIP 2.2UF+-10% 16V |
| C0413 | AA00362R | CERAMIC CHIP 2.2UF+-10% 16V |
| C0415L | 0893197 | CERAMIC CHIP 0.022UF+-10% 25V |
| C0415R | 0893197 | CERAMIC CHIP 0.022UF+-10% 25V |
| C0416 | 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 |
| C0418R | 0893197 | CERAMIC CHIP 0.022UF+-10% 25V |
| C0419L | 0893197 | CERAMIC CHIP 0.022UF+-10% 25V |
| C0419R | 0893197 | CERAMIC CHIP 0.022UF+-10% 25V |
| C0420 | AA00362R | CERAMIC CHIP 2.2UF+-10% 16V |
| C0421 | 0893186 | CERAMIC CHIP 0.033UF+-10% 16V |
| C0422 | 0806133 | ELECTROLYTIC 10UF 6V |
| C0423 | 0806133 | ELECTROLYTIC 10UF 6V |
| C0424L | 0893186 | CERAMIC CHIP 0.033UF+-10% 16V |
| C0424R | 0893186 | CERAMIC CHIP 0.033UF+-10% 16V |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| C0425 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0426 | 0202327 | CERAMIC CHIP 0.22UF+-10% 16V |
| C0428 | 0806168 | ELECTROLYTIC 47UF 6.3V |
| C0430L | 0202327 | CERAMIC CHIP 0.22UF+-10% 16V |
| C0430R | 0202327 | CERAMIC CHIP 0.22UF+-10% 16V |
| C0431L | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0431R | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0432 | AA00362R | CERAMIC CHIP 2.2UF+-10% 16V |
| C0439 | 0202327 | CERAMIC CHIP 0.22UF+-10% 16V |
| C0441L | 0202327 | CERAMIC CHIP 0.22UF+-10% 16V |
| C0441R | 0202327 | CERAMIC CHIP 0.22UF+-10% 16V |
| C0443 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0445 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C0458 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0459 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0460 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0462L | 0202327 | CERAMIC CHIP 0.22UF+-10% 16V |
| C0462R | 0202327 | CERAMIC CHIP 0.22UF+-10% 16V |
| C0465 | 0806168 | ELECTROLYTIC 47UF 6.3V |
| C0466 | 0806174 | ELECTROLYTIC 100UF 6.3V |
| C0467 | 0202327 | CERAMIC CHIP 0.22UF+-10% 16V |
| C0473 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C0474 | 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 | 0893195 | CERAMIC CHIP 0.015UF+-10% 25V |
| C0476R | 0893195 | CERAMIC CHIP 0.015UF+-10% 25V |
| C0477 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C0483 | 0893193 | CERAMIC CHIP 0.01UF+-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 | 0893014 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0507 | 0893014 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0508 | 0893039 | CERAMIC CHIP 4700PF+-10% 50V |
| C0509 | 0893126 | CERAMIC CHIP 100PF+-5% 50V |
| C0510 | 0893008 | CERAMIC CHIP 0.1UF +-10% 16V |
| C0511 | 0893089 | CERAMIC CHIP 0.018UF+-10% 16V |
| C0513 | 0893227 | CERAMIC CHIP 0.22UF+80-20% 16V |
| C0514 | 0893039 | CERAMIC CHIP 4700PF+-10% 50V |
| C0516 | 0893039 | CERAMIC CHIP 4700PF+-10% 50V |
| C0517 | 0893039 | 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 | AA00802R | CERAMIC CHIP 10UF+80-20% 16V |
| C0531 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| C0535 | AA00802R | CERAMIC CHIP 10UF+80-20% 16V |
| C0537 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| C0538 | 0806157 | ELECTROLYTIC 22UF 6.3V |
| C0539 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| C0540 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| C0541 | AA00335R | CHIP CERAMIC 1.0UF+80-20% 25V |
| C0542 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| C0543 | AA00335R | CHIP CERAMIC 1.0UF+80-20% 25V |
| C0544 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| C0545 | AA00802R | CERAMIC CHIP 10UF+80-20% 16V |
| C0546 | AA00802R | CERAMIC CHIP 10UF+80-20% 16V |
| C0547 | 0806168 | ELECTROLYTIC 47UF 6.3V |
| C0548 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| C0550 | AA00802R | CERAMIC CHIP 10UF+80-20% 16V |
| C0551 | AA00802R | CERAMIC CHIP 10UF+80-20% 16V |
| C0552 | AA00802R | CERAMIC CHIP 10UF+80-20% 16V |
| C0554 | AA00802R | CERAMIC CHIP 10UF+80-20% 16V |
| C0555 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0556 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0557 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0558 | 0893208 | CERAMIC CHIP 1000PF+-10% 50V |
| C0559 | AA00802R | CERAMIC CHIP 10UF+80-20% 16V |
| C0560 | AA00802R | CERAMIC CHIP 10UF+80-20% 16V |
| 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 |
| C0635 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0636 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0637 | 0893195 | CERAMIC CHIP 0.015UF+-10% 25V |
| C0638 | 0893195 | CERAMIC CHIP 0.015UF+-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 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0650 | 0893217 | CERAMIC CHIP 4700PF+-10% 50V |
| C0651 | 0893217 | CERAMIC CHIP 4700PF+-10% 50V |
| C0652 | 0893217 | CERAMIC CHIP 4700PF+-10% 50V |
| 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 |
| C0902 | 0806169 | ELECTROLYTIC 47UF 16V |
| C0904 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C0905 | 0806174 | ELECTROLYTIC 100UF 6.3V |
| C0906 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0907 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0908 | 0806168 | ELECTROLYTIC 47UF 6.3V |
| C0909 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C0910 | 0893188 | CERAMIC CHIP 0.047UF+-10% 16V |
| C0911 | 0893107 | CERAMIC CHIP 5PF+-0.25% 50V |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| C0912 | 0893107 | CERAMIC CHIP 5PF+-0.25% 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 |
| C0923 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C0924 | 0893119 | CERAMIC CHIP 33PF+-5% 50V |
| C0925 | 0893125 | CERAMIC CHIP 82PF+-5% 50V |
| C0928 | 0893117 | CERAMIC CHIP 22PF+-5% 50V |
| C0929 | 0893117 | CERAMIC CHIP 22PF+-5% 50V |
| C0930 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C0932 | 0806174 | ELECTROLYTIC 100UF 6.3V |
| C0939 | 0806168 | ELECTROLYTIC 47UF 6.3V |
| C0942 | 0806174 | ELECTROLYTIC 100UF 6.3V |
| C0943 | 0806174 | ELECTROLYTIC 100UF 6.3V |
| C0944 | 0806174 | ELECTROLYTIC 100UF 6.3V |
| C0999 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1002 | 0806169 | ELECTROLYTIC 47UF 16V |
| C1003 | 0893014 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1004 | 0893211 | CERAMIC CHIP 1500PF+-10% 50V |
| C1005 | 0806169 | ELECTROLYTIC 47UF 16V |
| C1006 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1007 | 0893113 | CERAMIC CHIP 10PF+-0.5% 50V[TYPE835] |
| C1007 | 0893117 [TYPE535,635] | CERAMIC CHIP 22PF+-5% 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 |
| 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 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1414 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1415 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C1417 | 0806157 | ELECTROLYTIC 22UF 6.3V |
| C1418 | 0893225 | CERAMIC CHIP 0.1UF+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 |
| C1108 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C1109 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1110 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1111 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C1112 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C1113 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1114 | 0893014 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1115 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C1116 | 0893117 | CERAMIC CHIP 22PF+-5% 50V |
| C1119 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1120 | 0893124 | CHIP CERAMIC 68PF+-5% 50V |
| C1121 | 0893125 | CERAMIC CHIP 82PF+-5% 50V |
| C1122 | 0202319 | CERAMIC CHIP 22PF+-2% 50V |
| C1123 | 0806168 | ELECTROLYTIC 47UF 6.3V |
| C1125 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C1126 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C1127 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C1128 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1129 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1131 | 0893117 | CERAMIC CHIP 22PF+-5% 50V |
| C1132 | 0806168 | ELECTROLYTIC 47UF 6.3V |
| C1134 | 0893067 | CERAMIC CHIP 0.1UF+80-20% 25V |
| C1135 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| C1136 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| C1139 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1141 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1142 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| C1143 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1144 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1145 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| 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 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| C1151 | 0893067 | CERAMIC CHIP 0.1UF+80-20% 25V |
| C1152 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1155 | 0893014 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1156 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1157 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1158 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1161 | 0806174 | ELECTROLYTIC 100UF 6.3V |
| C1168 | 0806178 | ELECTROLYTIC 220UF 4V |
| C1169 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| 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 |
| C1212 | 0893067 | CERAMIC CHIP 0.1UF+80-20% 25V |
| 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 |
| C1311 | 0893225 | CERAMIC CHIP 0.1UF+80-20% 16V |
| C1312 | 0893062 | CERAMIC CHIP 1UF+80-20% 16V |
| C1313 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C1314 | 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 |
| C5311 | 0893232 | CERAMIC CHIP 0.1UF+80-20% 25V |
| 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 |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| 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 | 0893116 | CERAMIC CHIP 18PF+-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 |
| 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 68UF 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 | 0893008 | CERAMIC CHIP 0.1UF +-10% 16V |
| C5502 | 0893093 | CERAMIC CHIP 2.2UF+80-20% 16V |
| C5503 | 0806122 | ELECTROLYTIC 6.8UF 6.3V |
| C5504 | 0893184 | CERAMIC CHIP 0.022UF+-10% 16V |
| C5505 | 0893193 | CERAMIC CHIP 0.01UF+-10% 25V |
| C5506 | 0893008 | CERAMIC CHIP 0.1UF +-10% 16V |
| C5507 | 0806129 | ELECTROLYTIC 22UF 10V |
| C5508 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C5509 | 0893116 | CERAMIC CHIP 18PF+-5% 50V |
| C5510 | 0893118 | CERAMIC CHIP 27PF+-5% 50V |
| C5511 | AD10276R | ELECTROLYTIC 33UF 10V |
| C5512 | 0202328 | CERAMIC CHIP 1.0UF+80-20% 16V |
| C5513 | AF10112R | CAPACITOR 0.01UF+-5% 50V |
| C5514 | AA10644R | CERAMIC CHIP 12PF+-5% 3KV |
| C5515 | AF10112R | CAPACITOR 0.01UF+-5% 50V |
| C5516 | AF10112R | CAPACITOR 0.01UF+-5% 50V |
| C5517 | AF10112R | CAPACITOR 0.01UF+-5% 50V |
| C5601 | 0893131 | CERAMIC CHIP 220PF+-5% 50V |
| C5602 | 0893168 | CERAMIC CHIP 330PF+-5% 50V |
| 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 |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| 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 | 0893179 | CERAMIC CHIP 0.1UF+-10% 16V |
| C5614 | 0893172 | CERAMIC CHIP 560PF+-5% 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 |
| R0010 | 0103930 | CHIP RESISTOR 390OHM+-5% 1/8W |
| R0011 | 0103838 | RESISTOR CHIP 390OHM+-5% 0.1W |
| 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 | 0790028 | CHIP RESISTOR 220 OHM+-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 |
| R0112 | 0790024 | CHIP RESISTOR 100 OHM+-5% 1/16W |
| R0113 | 0790039 | CHIP RESISTOR 1.5KOHM+-5% 1/16W |
| R0114 | 0790039 | CHIP RESISTOR 1.5KOHM+-5% 1/16W |
| R0115 | 0790029 | CHIP RESISTOR 270 OHM+-5% 1/16W |
| R0116 | 0790034 | CHIP RESISTOR 560 OHM+-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 |
| R0132 | 0790044 | CHIP RESISTOR 3.3KOHM+-5% 1/16W |
| R0134 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0138 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R0140 | 0790044 | CHIP RESISTOR 3.3KOHM+-5% 1/16W |
| R0141 | 0790029 | CHIP RESISTOR 270 OHM+-5% 1/16W |
| R0142 | 0790044 | CHIP RESISTOR 3.3KOHM+-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 | 0790055 | CHIP RESISTOR 22KOHM+-5% 1/16W |
| 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 |
| R0153 | 0790041 | CHIP RESISTOR 1.8KOHM+-5% 1/16W |
| R0154 | 0790055 | CHIP RESISTOR 22KOHM+-5% 1/16W |
| R0156 | 0790029 | CHIP RESISTOR 270 OHM+-5% 1/16W |
| R0157 | AQ00205R | 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 | 0790028 | CHIP RESISTOR 220 OHM+-5% 1/16W |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| R0161 | 0790034 | CHIP RESISTOR 560 OHM+-5% 1/16W |
| R0162 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0163 | 0790029 | CHIP RESISTOR 270 OHM+-5% 1/16W |
| R0164 | 0790044 | CHIP RESISTOR 3.3KOHM+-5% 1/16W |
| R0165 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0167 | 0790028 | CHIP RESISTOR 220 OHM+-5% 1/16W |
| R0168 | 0790065 | CHIP RESISTOR 120KOHM+-5% 1/16W |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| R0255 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0257 | 0790039 | CHIP RESISTOR 1.5KOHM+-5% 1/16W |
| R0258 | 0790036 | CHIP RESISTOR 820 OHM+-5% 1/16W |
| R0259 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0260 | 0790036 | CHIP RESISTOR 820 OHM+-5% 1/16W |
| R0261 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0265 | 0790042 | CHIP RESISTOR 2.2KOHM+-5% 1/16W |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| R0415 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0417L | 0790075 | CHIP RESISTOR 680KOHM+-5% 1/16W |
| R0417R | 0790075 | CHIP RESISTOR 680KOHM+-5% 1/16W |
| R0418L | 0790041 | CHIP RESISTOR 1.8KOHM+-5% 1/16W [TYPE535,635] |
| R0418L | 0790043 | CHIP RESISTOR 2.7KOHM+-5% 1/16W[TYPE835] |
| R0418R | 0790043 | CHIP RESISTOR 2.7KOHM+-5% 1/16W |
| R0419L | 0790025 | CHIP RESISTOR 120 OHM+-5% 1/16W[TYPE835] |
| R0419L | 0790031 | CHIP RESISTOR 330 OHM+-5% 1/16W [TYPE535,635] |
| R0419R | 0790025 | CHIP RESISTOR 120 OHM+-5% 1/16W[TYPE835] |
| R0420L | 0790045 | CHIP RESISTOR 3.9KOHM+-5% 1/16W |
| R0420R | 0790045 | CHIP RESISTOR 3.9KOHM+-5% 1/16W |
| R0421L | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R0421R | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R0428 | 0790055 | CHIP RESISTOR 22KOHM+-5% 1/16W |
| R0429L | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0429R | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0435 | 0790075 | CHIP RESISTOR 680KOHM+-5% 1/16W |
| R0436L | 0790066 | CHIP RESISTOR 150KOHM+-5% 1/16W |
| R0436R | 0790066 | CHIP RESISTOR 150KOHM+-5% 1/16W |
| R0445 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0447 | 0790049 | CHIP RESISTOR 8.2KOHM+-5% 1/16W |
| R0464 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R0466 | 0790068 | CHIP RESISTOR 220KOHM+-5% 1/16W |
| R0467 | 0790068 | CHIP RESISTOR 220KOHM+-5% 1/16W |
| R0468 | 0790049 | CHIP RESISTOR 8.2KOHM+-5% 1/16W |
| R0469 | 0790073 | CHIP RESISTOR 470KOHM+-5% 1/16W |
| R0470 | 0790028 | CHIP RESISTOR 220 OHM+-5% 1/16W |
| R0473 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0474 | 0790038 | CHIP RESISTOR 1.2KOHM+-5% 1/16W |
| R0477 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0479 | 0790056 | CHIP RESISTOR 27KOHM+-5% 1/16W |
| R0480 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R0481 | 0790028 | CHIP RESISTOR 220 OHM+-5% 1/16W |
| R0482 | 0790048 | CHIP RESISTOR 6.8KOHM+-5% 1/16W |
| R0484 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0485 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0486 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0487 | 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 | 0790053 | CHIP RESISTOR 15KOHM+-5% 1/16W |
| R0492R | 0790053 | CHIP RESISTOR 15KOHM+-5% 1/16W |
| R0493L | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0493R | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0494L | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0494R | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0501 | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R0502 | 0790047 | CHIP RESISTOR 5.6KOHM+-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 | 0104269 | CHIP RESISTOR 43KOHM+-1% 1/10W |
| 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 | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R0519 | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R0522 | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R0525 | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R0529 | 0790058 | CHIP RESISTOR 39KOHM+-5% 1/16W |
| R0530 | 0104301 | CHIP RESISTOR 4.7KOHM+-0.5% 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 |
| R0555 | 0790067 | CHIP RESISTOR 180KOHM+-5% 1/16W |
| R0556 | 0104303 | CHIP RESISTOR 12KOHM+-0.5% 1/16W |
| R0558 | 0104301 | CHIP RESISTOR 4.7KOHM+-0.5% 1/16W |
| R0561 | 0790048 | CHIP RESISTOR 6.8KOHM+-5% 1/16W |
| R0562 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R0566 | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R0567 | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R0583 | 0790023 | CHIP RESISTOR 82 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 |
| 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 | 0790037 | CHIP RESISTOR 1KOHM+-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 |
| R0662 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0663 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| 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 |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| R0695 | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R0696 | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R0701 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0702 | 0790058 | CHIP RESISTOR 39KOHM+-5% 1/16W |
| R0703 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0704 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0705 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0706 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0707 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0708 | 0790036 | CHIP RESISTOR 820 OHM+-5% 1/16W |
| R0714 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0718 | 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 | 0790049 | CHIP RESISTOR 8.2KOHM+-5% 1/16W |
| R0733 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0739 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0740 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0741 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0743 | 0790057 | CHIP RESISTOR 33KOHM+-5% 1/16W |
| R0744 | 0790064 | CHIP RESISTOR 100KOHM+-5% 1/16W |
| R0746 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0751 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0752 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0753 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0754 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0755 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0901 | 0790064 | CHIP RESISTOR 100KOHM+-5% 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 | 0790059 | CHIP RESISTOR 47KOHM+-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 |
| R0936 | 0790064 | CHIP RESISTOR 100KOHM+-5% 1/16W |
| R0937 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0938 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| R0941 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0942 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0943 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0944 | 0790064 | CHIP RESISTOR 100KOHM+-5% 1/16W |
| R0945 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0946 | 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 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0951 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0952 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0953 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0954 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0955 | AQ0021R | CHIP RESISTOR 10KOHM+-1% 1/16W |
| R0957 | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R0958 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R0961 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0962 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0963 | 0790045 | CHIP RESISTOR 3.9KOHM+-5% 1/16W |
| R0964 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0966 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R0969 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0970 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0971 | 0790061 | CHIP RESISTOR 56KOHM+-5% 1/16W |
| R0972 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0974 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0975 | 0790037 | CHIP RESISTOR 1KOHM+-5% 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 | 0790054 | CHIP RESISTOR 18KOHM+-5% 1/16W |
| R0981 | 0790054 | CHIP RESISTOR 18KOHM+-5% 1/16W |
| R0982 | 0790057 | CHIP RESISTOR 33KOHM+-5% 1/16W |
| R0983 | 0790057 | CHIP RESISTOR 33KOHM+-5% 1/16W |
| R0984 | 0790033 | CHIP RESISTOR 470 OHM+-5% 1/16W |
| R0985 | 0790033 | CHIP RESISTOR 470 OHM+-5% 1/16W |
| R0986 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R0987 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R0991 | 0790039 | CHIP RESISTOR 1.5KOHM+-5% 1/16W |
| R0992 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R0994 | 0790075 | CHIP RESISTOR 680KOHM+-5% 1/16W |
| R0995 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0996 | 0790036 | CHIP RESISTOR 820 OHM+-5% 1/16W |
| R0997 | 0790045 | CHIP RESISTOR 3.9KOHM+-5% 1/16W |
| R0998 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R0999 | 0790037 | CHIP RESISTOR 1KOHM+-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 22OHM+-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 | 0790028 | CHIP RESISTOR 220 OHM+-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 |
| R1118 | BM00137R | FILTER 750 |
| R1119 | BM00137R | FILTER 750 |
| R1120 | 0790024 | CHIP RESISTOR 100 OHM+-5% 1/16W |
| R1121 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R1122 | 0790077 | CHIP RESISTOR 1MOHM+-5% 1/16W |
| R1123 | 0790034 | CHIP RESISTOR 560 OHM+-5% 1/16W |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| R1124 | AQ00214R | CHIP RESISTOR 5.6KOHM+-1% 1/16W |
| R1125 | AQ00235R | CHIP RESISTOR 36KOHM+-1% 1/16W |
| R1126 | AQ00209R | CHIP RESISTOR 3.9KOHM+-1% 1/16W |
| R1127 | AQ00235R | CHIP RESISTOR 36KOHM+-1% 0.063W |
| R1128 | 0790038 | CHIP RESISTOR 1.2KOHM+-5% 1/16W |
| R1129 | 0790042 | CHIP RESISTOR 2.2KOHM+-5% 1/16W |
| R1130 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R1131 | 0104545 | CHIP RESISTOR 1.24KOHM+-1% 1/16W |
| R1132 | 0790038 | CHIP RESISTOR 1.2KOHM+-5% 1/16W |
| R1133 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R1136 | 0790034 | CHIP RESISTOR 560 OHM+-5% 1/16W |
| R1137 | 0790043 | CHIP RESISTOR 2.7KOHM+-5% 1/16W |
| R1142 | 0790033 | CHIP RESISTOR 470 OHM+-5% 1/16W |
| R1143 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| 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 |
| R1175 | AQ00194R | CHIP RESISTOR 1KOHM+-1% 1/16W |
| 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 | 0790036 | CHIP RESISTOR 820 OHM+-5% 1/16W |
| R1226 | 0790047 | CHIP RESISTOR 5.6KOHM+-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 | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R1403 | 0790045 | CHIP RESISTOR 3.9KOHM+-5% 1/16W |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| 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 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R1410 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R1411 | 0790067 | CHIP RESISTOR 180KOHM+-5% 1/16W |
| R1412 | 0790067 | CHIP RESISTOR 180KOHM+-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 |
| R5301 | 0790024 | CHIP RESISTOR 100 OHM+-5% 1/16W |
| R5302 | 0790034 | CHIP RESISTOR 560 OHM+-5% 1/16W |
| R5303 | 0790034 | CHIP RESISTOR 560 OHM+-5% 1/16W |
| R5304 | 0790024 | CHIP RESISTOR 100 OHM+-5% 1/16W |
| R5307 | AQ00232R | CHIP RESISTOR 27KOHM+-1% 1/16W |
| R5308 | AQ00236R | CHIP RESISTOR 39KOHM+-1% 1/16W |
| R5309 | 0790077 | CHIP RESISTOR 1MOHM+-5% 1/16W |
| R5310 | 0790077 | CHIP RESISTOR 1MOHM+-5% 1/16W |
| R5311 | AQ00232R | CHIP RESISTOR 27KOHM+-1% 1/16W |
| R5312 | AQ00236R | CHIP RESISTOR 39KOHM+-1% 1/16W |
| R5313 | 0790047 | CHIP RESISTOR 5.6KOHM+-5% 1/16W |
| R5314 | 0790049 | CHIP RESISTOR 8.2KOHM+-5% 1/16W |
| R5315 | 0790042 | CHIP RESISTOR 2.2KOHM+-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% 1/10W |
| R5320 | AQ00234R | CHIP RESISTOR 33KOHM+-1% 1/16W |
| R5323 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R5324 | 0790057 | CHIP RESISTOR 33KOHM+-5% 1/16W |
| R5325 | AQ00232R | CHIP RESISTOR 27KOHM+-1% 1/16W |
| R5326 | AQ00238R | CHIP RESISTOR 47KOHM+-1% 1/16W |
| R5327 | 0790045 | CHIP RESISTOR 3.9KOHM+-5% 1/16W |
| R5328 | 0790057 | CHIP RESISTOR 33KOHM+-5% 1/16W |
| R5329 | 0790045 | CHIP RESISTOR 3.9KOHM+-5% 1/16W |
| R5330 | 0790057 | CHIP RESISTOR 33KOHM+-5% 1/16W |
| R5331 | 0790077 | CHIP RESISTOR 1MOHM+-5% 1/16W |
| R5332 | 0790034 | CHIP RESISTOR 560 OHM+-5% 1/16W |
| R5333 | 0790053 | CHIP RESISTOR 15KOHM+-5% 1/16W |
| R5334 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R5336 | 0105203 | CHIP RESISTOR 18KOHM+-0.5% 1/16W |
| R5338 | 0790071 | CHIP RESISTOR 330KOHM+-5% 1/16W |
| R5339 | 0790063 | CHIP RESISTOR 82KOHM+-5% 1/16W |
| R5340 | 0790061 | CHIP RESISTOR 56KOHM+-5% 1/16W |
| R5341 | 0790061 | CHIP RESISTOR 56KOHM+-5% 1/16W |
| R5342 | 0790062 | CHIP RESISTOR 68KOHM+-5% 1/16W |
| R5351 | 0790075 | CHIP RESISTOR 680KOHM+-5% 1/16W |
| R5356 | 0790072 | CHIP RESISTOR 390KOHM+-5% 1/16W |
| R5357 | AQ00252R | CHIP RESISTOR 150KOHM+-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 |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| 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 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R5502 | AQ10634R | CHIP RESISTOR 120KOHM+-0.5% 1/16W |
| R5503 | AQ10631R | CHIP RESISTOR 27KOHM+-0.5% 1/16W |
| R5504 | 0105196 | CHIP RESISTOR 6.8KOHM+-0.5% 1/16W |
| R5505 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R5506 | 0105193 | CHIP RESISTOR 1.8KOHM+-0.5% 1/16W |
| R5507 | 0105209 | CHIP RESISTOR 3.3KOHM+-0.5% 1/16W |
| R5508 | 0105196 | CHIP RESISTOR 6.8KOHM+-0.5% 1/16W |
| R5509 | 0790039 | CHIP RESISTOR 1.5KOHM+-5% 1/16W |
| R5510 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R5511 | 0790039 | CHIP RESISTOR 1.5KOHM+-5% 1/16W |
| R5512 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R5513 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R5514 | 0790036 | CHIP RESISTOR 820 OHM+-5% 1/16W |
| R5515 | 0790055 | CHIP RESISTOR 22KOHM+-5% 1/16W |
| R5518 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R5519 | 0790064 | CHIP RESISTOR 100KOHM+-5% 1/16W |
| R5521 | 0790025 | CHIP RESISTOR 120 OHM+-5% 1/16W |
| R5522 | 0790034 | CHIP RESISTOR 560 OHM+-5% 1/16W |
| R5523 | 0790055 | CHIP RESISTOR 22KOHM+-5% 1/16W |
| R5524 | 0790034 | CHIP RESISTOR 560 OHM+-5% 1/16W |
| R5525 | AQ00205R | METAL FILM RESISTOR 2.7KOHM+-1% 1/10 |
| R5526 | AQ00205R | METAL FILM RESISTOR 2.7KOHM+-1% 1/10 |
| R5527 | AQ00203R | CHIP RESISTOR 2.2KOHM+-1% 1/16W |
| R5528 | AQ00203R | CHIP RESISTOR 2.2KOHM+-1% 1/16W |
| R5529 | AQ00181R | CHIP RESISTOR 330 OHM+-1% 1/16W |
| R5601 | 0790063 | CHIP RESISTOR 82KOHM+-5% 1/16W |
| R5602 | 0790063 | CHIP RESISTOR 82KOHM+-5% 1/16W |
| R5603 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R5604 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R5605 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R5606 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R5607 | 0790055 | CHIP RESISTOR 22KOHM+-5% 1/16W |
| R5609 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R5610 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R5611 | 0790064 | CHIP RESISTOR 100KOHM+-5% 1/16W |
| R5612 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R5613 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R5614 | 0790056 | CHIP RESISTOR 27KOHM+-5% 1/16W |
| R5615 | 0790077 | CHIP RESISTOR 1MOHM+-5% 1/16W |
| R5616 | 0790066 | CHIP RESISTOR 150KOHM+-5% 1/16W |
| R5617 | 0790053 | CHIP RESISTOR 15KOHM+-5% 1/16W |
| R5618 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R5619 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R5620 | 0790062 | CHIP RESISTOR 68KOHM+-5% 1/16W |
| R5621 | 0790064 | CHIP RESISTOR 100KOHM+-5% 1/16W |
| R5622 | 0790077 | CHIP RESISTOR 1MOHM+-5% 1/16W |
| R5623 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R5624 | 0790077 | CHIP RESISTOR 1MOHM+-5% 1/16W |
| R5625 | 0790055 | CHIP RESISTOR 22KOHM+-5% 1/16W |
| R5626 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R5627 | 0790062 | CHIP RESISTOR 68KOHM+-5% 1/16W |
| R5628 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R5629 | 0790046 | CHIP RESISTOR 4.7KOHM+-5% 1/16W |
| R5630 | 0790062 | CHIP RESISTOR 68KOHM+-5% 1/16W |
| R5631 | AQ10635R | CHIP RESISTOR 270KOHM+-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+-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 |
| R5645 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R5646 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R5647 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R5648 | 0790037 | CHIP RESISTOR 1KOHM+-5% 1/16W |
| R5650 | 0790051 | CHIP RESISTOR 10KOHM+-5% 1/16W |
| R5708 | 0790028 | CHIP RESISTOR 220 OHM+-5% 1/16W |
| R5710 | 0790042 | CHIP RESISTOR 2.2KOHM+-5% 1/16W |
| R5711 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R5712 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| R5713 | 0790059 | CHIP RESISTOR 47KOHM+-5% 1/16W |
| RT0103 | 5040201 | VARIABLE RESISTOR 470 OHM |
| RT0202 | 0104167 | CHIP RESISTOR 5.6KOHM+-10% 1/8W |
| RT0203 | 5040205 | VARIABLE RESISTOR 4.7KOHM |
| RT0204 | 0104167 | CHIP RESISTOR 5.6KOHM+-10% 1/8W |
| RT0205 | 5040204 | VARIABLE RESISTOR 10KOHM |
| RT0206 | 0104159 | CHIP RESISTER 1.5KOHM+-10% 1/8W |
| RT0207 | 5040205 | VARIABLE RESISTOR 4.7KOHM |
| RT0209 | 5040205 | VARIABLE RESISTOR 4.7KOHM |
| RT0210 | 5040201 | VARIABLE RESISTOR 470 OHM |
| RT0211 | 0104159 | CHIP RESISTER 1.5KOHM+-10% 1/8W |
| RT0212 | 5040202 | SEMI VARIABLE 2.2KOHM |
| RT0214 | 0104163 | CHIP RESISTOR 2.7KOHM+-10% 1/8W |
| RT0215 | 5040204 | VARIABLE RESISTOR 10KOHM |
| RT0216 | 0104167 | CHIP RESISTOR 5.6KOHM+-10% 1/8W |
| RT0217 | 0104166 | METAL FILM 4.7KOHM+-10% 1/8W |
| RT5301 | 0104734 | CHIP RESISTOR 22KOHM+-10% 1/16W |
| RT5302 | 0104732 | CHIP RESISTOR 12KOHM+-10% 1/16W |
| RT5307 | 0104732 | CHIP RESISTOR 12KOHM+-10% 1/16W |
| RT5308 | 0104734 | CHIP RESISTOR 22KOHM+-10% 1/16W |
| RT5311 | 0104734 | CHIP RESISTOR 22KOHM+-10% 1/16W |
| RT5312 | 0104732 | CHIP RESISTOR 12KOHM+-10% 1/16W |
| RT5313 | 0104732 | CHIP RESISTOR 12KOHM+-10% 1/16W |
| RT5314 | 0104734 | CHIP RESISTOR 22KOHM+-10% 1/16W |
| RT5315 | 0104732 | CHIP RESISTOR 12KOHM+-10% 1/16W |
| RT5316 | 0104734 | CHIP RESISTOR 22KOHM+-10% 1/16W |
| RT5601 | 0104734 | CHIP RESISTOR 22KOHM+-10% 1/16W |
| RT5602 | 0104733 | CHIP RESISTOR 15KOHM+-10% 1/16W |
| RT5603 | 0104734 | CHIP RESISTOR 22KOHM+-10% 1/16W |
| RT5604 | 0104734 | CHIP RESISTOR 22KOHM+-10% 1/16W |
| RV5602 | 5040127 | SEMI VARIABLE 22KOHM |
| RV5701 | 5002244 | VARIABLE RESISTOR 10KOHM |
| RV5702 | 5002245 | VARIABLE RESISTOR |
| D0001 | CH10451 | DIODE GL453J |
| D0101 | 5337422 | DIODE DA221 |
| D0102 | 5337351 | DIODE MA132WK |
| D0201 | 5337422 | DIODE DA221 |
| D0305 | 5337351 | DIODE MA132WK |
| D0352 | 5337351 | DIODE MA132WK |
| D0394 | 5337422 | DIODE DA221 |
| D0401 | 5337422 | DIODE DA221 |
| D0551 | 5337372 | DIODE SB07-03C |
| D0552 | CC10291R | DIODE 1SS353 |
| D0553 | CC10291R | DIODE 1SS353 |
| D0601 | CC10291R | DIODE 1SS353 |
| D0901 | CC10291R | DIODE 1SS353 |
| D0902 | CC10291R | DIODE 1SS353 |
| D1002 | CC10291R | DIODE 1SS353 |
| D1101 | 5328305 | DIODE MA151WA |
| D1102 | CC10291R | DIODE 1SS353 |
| D1103 | CC10291R | DIODE 1SS353 |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| D1104 | CC10771R | DIODE SML-010LT |
| D1105 | CC10291R | DIODE 1SS353 |
| D1201 | 5337422 | DIODE DA221 |
| D1301 | 5337422 | DIODE DA221 |
| D5401 | CC10291R | DIODE 1SS353 |
| D5402 | CC10291R | DIODE 1SS353 |
| D5403 | 5326022 | DIODE MA160-M1D |
| D5404 | 5337421 | DIODE DAN222 |
| D5501 | CC10291R | DIODE 1SS353 |
| D5601 | CC10331R | DIODE HVU200A |
| D5602 | CC10331R | DIODE HVU200A |
| IC0101 | 1366631 | IC HA118189MP |
| IC0102 | CK13461R | IC UPC5023GS-101-E1 |
| IC0201 | 1366924 | IC HA118192AF |
| IC0202 | CK12041R | IC CXL5516N |
| IC0203 | 1352331 | IC CXL5507M |
| IC0204 | CK13471R | IC UPC5023GS-104-E1 |
| IC0401 | CK12231 | IC HA118193F |
| IC0401 | CK12241 | IC HA118193F |
| IC0402 | CK16471R | IC TDA7052AT |
| IC0404 | 1351431 | IC M5223FP |
| IC0405 | 1351431 | IC M5223FP |
| IC0551 | CK16251U | IC BA9735KV |
| IC0601 | CK18321R | IC UPC5023GS-122-E1 |
| IC0631 | CK18331R | IC LB1950V-TLM |
| IC0671 | 1366651 | IC BA6417F |
| IC0901 | CK18311U | IC CXP87240117R |
| IC0902 | CK18271R | IC S84233FS-T2 |
| IC0904 | CK18261R | IC BU6229FV |
| IC0907 | CE10171R | MODULE GP1U101X |
| IC1001 | UE12323 | CCD IMAGE SENSOR ASSY [TYPE535,635] |
| IC1001 | UE12325 | CCD IMAGE SENSOR ASSY [TYPE835] |
| IC1101 | CK18721U | IC HD49322F |
| IC1102 | CK12132U | IC HG51CS035TEA |
| IC1103 | CK12061R | IC UPD16510GR |
| IC1104 | CK18401U | IC HD6433042ST29F |
| IC1105 | CK14171R | IC MX25S67MR |
| IC1201 | CK13791R | IC UPC5023GS-105-E1 |
| IC1301 | CK18711R | IC MPC17A34ZVM |
| IC1401 | FU10251 | SENSOR,GYRO |
| IC1402 | FU10252 | SENSOR,GYRO |
| IC1403 | 5362204 | IC NJM062M-TE1 |
| IC1404 | 1359931 | IC TC4W66F |
| IC5301 | CK18371U | IC IR3Y29AM |
| IC5401 | CK18431R | IC TL5001CD |
| IC5501 | CK18431R | IC TL5001CD |
| IC5502 | 1351761 | IC NJM2406F |
| IC5601 | CK18381U | IC LZ95NA1 |
| IC5602 | CK15331R | IC NJM3414AV |
| Q0001 | 1322341 | TRANSISTOR PT4810F |
| Q0002 | 5327521 | PHOTO TRANSISTOR SPI-315-C |
| Q0003 | 5327521 | PHOTO TRANSISTOR SPI-315-C |
| Q0004 | 1322341 | TRANSISTOR PT4810F |
| Q0101 | 1323301 | TRANSISTOR 2SB1219 |
| Q0102 | 1323294 | TRANSISTOR 2SA1774RS |
| Q0103 | 1323294 | TRANSISTOR 2SA1774RS |
| Q0104 | 1323279 | TRANSISTOR DTC114YE |
| Q0105 | 1323301 | TRANSISTOR 2SB1219 |
| Q0106 | 1323279 | TRANSISTOR DTC114YE |
| Q0107 | 1323294 | TRANSISTOR 2SA1774RS |
| Q0108 | 1323279 | TRANSISTOR DTC114YE |
| Q0109 | 1323294 | TRANSISTOR 2SA1774RS |
| Q0110 | 5328966 | TRANSISTOR 2SA1037K-FST |
| Q0111 | 1323283 | TRANSISTOR UMH1N |
| Q0112 | 1323291 | TRANSISTOR 2SC4617 |
| Q0116 | 1323279 | TRANSISTOR DTC114YE |
| Q0117 | 1323279 | TRANSISTOR DTC114YE |
| Q0120 | 1323301 | TRANSISTOR 2SB1219 |
| Q0123 | 1323291 | TRANSISTOR 2SC4617 |
| Q0130 | 1323279 | TRANSISTOR DTC114YE |
| Q0131 | 1323279 | TRANSISTOR DTC114YE |
| Q0140 | 1323241 | TRANSISTOR XP1213 |
| Q0170 | 1323301 | TRANSISTOR 2SB1219 |
| Q0171 | 1323253 | TRANSISTOR XP4401 |
| Q0173 | 1323253 | TRANSISTOR XP4401 |
| Q0175 | 1323291 | TRANSISTOR 2SC4617 |
| Q0176 | 1323294 | TRANSISTOR 2SA1774RS |
| Q0178 | 1323291 | TRANSISTOR 2SC4617 |
| Q0179 | 1323294 | TRANSISTOR 2SA1774RS |
| Q0201 | 1323241 | TRANSISTOR XP1213 |
| Q0202 | 1323279 | TRANSISTOR DTC114YE |
| Q0203 | 1323241 | TRANSISTOR XP1213 |
| Q0204 | 1323291 | TRANSISTOR 2SC4617 |
| Q0206 | 1323253 | TRANSISTOR XP4401 |
| Q0208 | 1323241 | TRANSISTOR XP1213 |
| Q0209 | 1323241 | TRANSISTOR XP1213 |
| Q0210 | 1323291 | TRANSISTOR 2SC4617 |
| Q0216 | 1323279 | TRANSISTOR DTC114YE |
| Q0217 | 1323279 | TRANSISTOR DTC114YE |
| Q0219 | 1323241 | TRANSISTOR XP1213 |
| Q0221 | 1323241 | TRANSISTOR XP1213 |
| Q0224 | 1323181 | TRANSISTOR XP4213 |
| Q0225 | 1323294 | TRANSISTOR 2SA1774RS |
| Q0226 | 1323279 | TRANSISTOR DTC114YE |
| Q0228 | 1323279 | TRANSISTOR DTC114YE |
| Q0229 | 1323241 | TRANSISTOR XP1213 |
| Q0231 | 1323279 | TRANSISTOR DTC114YE |
| Q0232 | 1323294 | TRANSISTOR 2SA1774RS |
| Q0233 | 1323294 | TRANSISTOR 2SA1774RS |
| Q0350 | 1323291 | TRANSISTOR 2SC4617 |
| Q0352 | 1323294 | TRANSISTOR 2SA1774RS |
| Q0353 | 1323279 | TRANSISTOR DTC114YE |
| Q0356 | 1323291 | TRANSISTOR 2SC4617 |
| Q0357 | 1323279 | TRANSISTOR DTC114YE |
| Q0358 | 1323291 | TRANSISTOR 2SC4617 |
| Q0360 | 1323279 | TRANSISTOR DTC114YE |
| Q0361 | 1323278 | TRANSISTOR DTA114YE |
| Q0362 | 1323279 | TRANSISTOR DTC114YE |
| Q0363 | 1323279 | TRANSISTOR DTC114YE |
| Q0364 | 1323279 | TRANSISTOR DTC114YE |
| Q0365 | 1323279 | TRANSISTOR DTC114YE |
| Q0366 | 1323278 | TRANSISTOR DTA114YE |
| Q0367 | 1323278 | TRANSISTOR DTA114YE |
| Q0368 | 1323279 | TRANSISTOR DTC114YE |
| Q0370 | 1323291 | TRANSISTOR 2SC4617 |
| Q0371 | 1323291 | TRANSISTOR 2SC4617 |
| Q0372 | 1323294 | TRANSISTOR 2SA1774RS |
| Q0373 | 1323279 | TRANSISTOR DTC114YE |
| Q0374 | 1323279 | TRANSISTOR DTC114YE |
| Q0390 | 1323279 | TRANSISTOR DTC114YE |
| Q0395 | 1323291 | TRANSISTOR 2SC4617 |
| Q0401L | 1323279 | TRANSISTOR DTC114YE |
| Q0401R | 1323279 | TRANSISTOR DTC114YE |
| Q0402 | 1323279 | TRANSISTOR DTC114YE |
| Q0403L | 1323291 | TRANSISTOR 2SC4617 |
| Q0403R | 1323291 | TRANSISTOR 2SC4617 |
| Q0404 | 1323291 | TRANSISTOR 2SC4617 |
| Q0409 | 1323291 | TRANSISTOR 2SC4617 |
| Q0410 | 1323291 | TRANSISTOR 2SC4617 |
| Q0411 | 1323301 | TRANSISTOR 2SB1219 |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| Q0412 | 1323279 | TRANSISTOR DTC114YE |
| Q0413 | 1323294 | TRANSISTOR 2SA1774RS |
| Q0414 | 1323279 | TRANSISTOR DTC114YE |
| Q0415 | 1323291 | TRANSISTOR 2SC4617 |
| Q0551 | 1308011 | TRANSISTOR MPL1 |
| Q0552 | CA10271R | TRANSISTOR 2SB1424 |
| Q0553 | CA10271R | TRANSISTOR 2SB1424 |
| 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 |
| Q0601 | 1323278 | TRANSISTOR DTA114YE |
| Q0602 | 1323291 | TRANSISTOR 2SC4617 |
| 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 |
| Q0909 | 1323279 | TRANSISTOR DTC114YE |
| Q0911 | 1323291 | TRANSISTOR 2SC4617 |
| Q0912 | 1323291 | TRANSISTOR 2SC4617 |
| Q1001 | 5328221 | TRANSISTOR 2SC2620-QC |
| Q1101 | 5328966 | TRANSISTOR 2SA1037K-FST |
| Q1102 | 5328975 | TRANSISTOR 2SC2412K |
| Q1103 | 5328966 | TRANSISTOR 2SA1037K-FST |
| Q1108 | 1323279 | TRANSISTOR DTC114YE |
| Q1201 | 5328975 | TRANSISTOR 2SC2412K |
| Q1202 | 5328975 | TRANSISTOR 2SC2412K |
| Q1203 | 1323141 | TRANSISTOR 2SC2411K |
| Q1401 | 1323279 | TRANSISTOR DTC114YE |
| Q5301 | 1323294 | TRANSISTOR 2SA1774RS |
| Q5302 | 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 | 1323272 | TRANSISTOR DTA144EE |
| Q5502 | 1323279 | TRANSISTOR DTC114YE |
| Q5503 | 1323271 | TRANSISTOR DTC144EE |
| Q5504 | 1323271 | TRANSISTOR DTC144EE |
| Q5505 | 1323293 | TRANSISTOR 2SC4617 (R/S) |
| Q5506 | 1323293 | TRANSISTOR 2SC4617 (R/S) |
| Q5507 | 1323271 | TRANSISTOR DTC144EE |
| Q5508 | 1323272 | TRANSISTOR DTA144EE |
| Q5509 | 1323271 | TRANSISTOR DTC144EE |
| Q5510 | 1323293 | TRANSISTOR 2SC4617 (R/S) |
| Q5511 | CA10771R | TRANSISTOR FP102-TL |
| Q5512 | 1323012 | TRANSISTOR 2SC3647 |
| Q5513 | 1323012 | TRANSISTOR 2SC3647 |
| Q5514 | 1323278 | TRANSISTOR DTA114YE |
| Q5601 | 1323293 | TRANSISTOR 2SC4617 (R/S) |
| Q5602 | 1323294 | TRANSISTOR 2SA1774RS |
| Q5604 | 1323271 | TRANSISTOR DTC144EE |
| Q5605 | 1323279 | TRANSISTOR DTC114YE |
| Q5606 | 1323279 | TRANSISTOR DTC114YE |
| ZD5601 | CC10575R | DIODE RD5.1UMB2 |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| ZD5702 | CC10448R | DIODE MA3056M |
| T0551 | 5148333 | TRANSFORMAR,POWER |
| T5401 | BC10211R | TRANSFORMER,DC |
| T5501 | BC10201U | TRANSFORMER |
| L0101 | 0773001 | CHOCE COIL 10UH+-10% |
| L0102 | 0773004 | COIL 100UH |
| L0103 | 0773124 | CHOKE COIL 27UH+-5% |
| L0104 | 0773001 | CHOCE COIL 10UH+-10% |
| L0105 | 0773117 | CHOKE COIL 8.2UH+-5% |
| L0107 | BA10315R | COIL 150UH |
| L0108 | 0773135 | CHOKE COIL 180UH+-5% |
| L0109 | BA10318R | COIL 470UH |
| L0110 | BA10309R | COIL 22UH |
| L0111 | BA10317R | COIL 330UH |
| L0170 | 0773001 | CHOCE COIL 10UH+-10% |
| L0171 | 0773001 | CHOCE COIL 10UH+-10% |
| L0172 | BA10313R | COIL 68UH |
| L0173 | BA10308R | COIL 15UH |
| L0201 | 0773124 | CHOKE COIL 27UH+-5% |
| L0203 | BA10307R | COIL 10UH |
| L0204 | 0773133 | CHOKE COIL 120UH+-5% |
| L0205 | 0773003 | COIL 47UH |
| L0206 | 0773003 | COIL 47UH |
| L0207 | BA10313R | COIL 68UH |
| L0350 | 0773003 | COIL 47UH |
| L0401 | 0773003 | COIL 47UH |
| L0402 | 0773001 | CHOCE COIL 10UH+-10% |
| L0551 | BA10127R | COIL 10UH |
| L0552 | BA10128R | COIL 22UH |
| L0554 | BA10128R | COIL 22UH |
| L0556 | BA10135R | COIL 10UH |
| L0559 | 0773004 | COIL 100UH |
| L0560 | 0773004 | COIL 100UH |
| L0561 | BA10129R | COIL 47UH |
| L0563 | BA10127R | COIL 10UH |
| L0564 | BA10129R | COIL 47UH |
| L0565 | BA10129R | COIL 47UH |
| L0566 | 0773001 | CHOCE COIL 10UH+-10% |
| L0601 | 0773002 | COIL 22UH |
| L0902 | BA10308R | COIL 15UH |
| L0903 | 0773002 | COIL 22UH |
| L0904 | 0773001 | CHOCE COIL 10UH+-10% |
| L0906 | 0773002 | COIL 22UH |
| L0908 | 0773003 | COIL 47UH |
| L0909 | 0773003 | COIL 47UH |
| L1101 | 0773003 | COIL 47UH |
| L1102 | 0773005 | COIL 220UH |
| L1103 | BA10314R | COIL 100UH |
| L1104 | 0773003 | COIL 47UH |
| L1105 | 0773001 | CHOCE COIL 10UH+-10% |
| L1106 | 0773001 | CHOCE COIL 10UH+-10% |
| L1107 | 0773002 | COIL 22UH |
| L1109 | 0773005 | COIL 220UH |
| L1301 | 0773002 | COIL 22UH |
| L5301 | BA10334R | COIL 10UH |
| L5302 | BA10336R | COIL 47UH |
| L5303 | 0773181 | COIL 100UH |
| L5401 | BA10334R | COIL 10UH |
| L5402 | BA10337R | COIL 100UH |
| L5403 | BA10337R | COIL 100UH |
| L5404 | BA10337R | COIL 100UH |
| L5501 | BA10333R | COIL 4.7UH |
| L5502 | BA10136R | COIL 22UH |
| L5503 | BA10137R | COIL 150UH |
| L5601 | BA10334R | COIL 10UH |

| SYMBOL-NO | P-NO | DESCRIPTION |
|---|---|---|
| L5602 | BA10334R | COIL 10UH |
| L5603 | BA10334R | COIL 10UH |
| L5604 | 0773172 | COIL 22UH |
| X0201 | 1930211 | CRYSTAL |
| X0901 | BL10572R | CRYSTAL |
| X0902 | BL10311R | CRYSTAL |
| X1101 | 1930094 | CRYSTAL |
| X5301 | BL10192R | CRYSTAL |
| CN0901 | 1880371 | CONNECTOR |
| CP0202 | BE10231R | LC FILTER |
| CP0203 | BE10341R | FILTER, BAND PASS |
| CP0204 | BE10343R | FILTER, BAND PASS |
| CP0205 | 5172734 | DELAY LINE |
| CP0206 | 5172735 | FILTER, LOW PASS |
| CP1101 | BE10411R | FILTER, LOW PASS |
| CP1101 | BE10412R | FILTER, LOW PASS |
| ⚠ F0551 | FM10132R | FUSE 1.6A |
| ⚠ F0552 | FM10134R | FUSE 125V |
| ⚠ F0553 | FM10134R | FUSE 125V |
| JK0200 | 5695292 | JACK |
| PG0001 | 5666921 | MINI PLUG |
| PG0101 | EA10501R | PLUG |
| PG0401L | 5668671 | MINI PLUG |
| PG0401R | 5668673 | MINI PLUG |
| PG0402 | 5669191 | PLUG |
| PG0551 | 5669175 | PLUG |
| PG0601 | 5692362 | MINI PLUG |
| PG0602 | EA10641R | PLUG |
| PG0603 | EA10501R | PLUG |
| PG0604 | 5668671 | MINI PLUG |
| PG0901 | EA10651R | PLUG |
| PG0902 | 5668754 | PLUG |
| PG0903 | 5669193 | MINI PLUG |
| PG0904 | 5669197 | PLUG |
| PG0905 | 5669166 | PLUG |
| PG1001 | 1830344 | PLUG |
| PG1101 | 1830343 | PLUG |
| PG1103 | 1830355 | PLUG |
| PG1301 | EA10377R | PLUG |
| PG5501 | EA10132R | PLUG |
| PG5701 | 5669197 | PLUG |
| PG5702 | EA11071R | PLUG |
| S0003 | 5636171 | SWITCH |
| S0004 | 5636171 | SWITCH |
| S0005 | 5636171 | SWITCH |
| S0006 | 5635331 | SWITCH |
| S0007 | 5613523 | SWITCH |
| SW0902 | 1742011 | SWITCH |
| SW0903 | 1742011 | SWITCH |
| SW0904 | 1742011 | SWITCH |
| SW0905 | 1742011 | SWITCH |
| SW0906 | FB10201R | SWITCH |
| SW5701 | FB10201R | SWITCH |
| | | B/W EVF[EMQ]SECTION[TYPE510,110] |
| C2001 | 0806169 | ELECTROLYTIC 47UF 16V |
| C2002 | 0806169 | ELECTROLYTIC 47UF 16V |
| C2003 | 0806146 | ELECTROLYTIC 2.2UF 50V |
| C2004 | 0268437 | POLYPROPYLENE 4700PF+-5% 100V |
| C2005 | 0256871 | ELECTROLYTIC 47UF 25V |
| 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 | 0268521 | MYLAR 0.1UF+-10% 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 |
| R2001 | 0103852 | CHIP RESISTOR 5.6KOHM+-5% 0.1W |
| 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 | 0103862 | CHIP RESISTOR 39KOHM+-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 |
| R2021 | 0103855 | CHIP RESISTOR 10KOHM+-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 | 5337133 | DIODE MA141K |
| D2002 | 5337321 | DIODE MA199 |
| IC2001 | 1365881 | IC HA118179F |
| Q2001 | 5323831 | TRANSISTOR 2SD974 |
| Q2002 | 5326682 | TRANSISTOR XN1B301 |
| T2001 | 5240566 | TRANSFORMER |
| L2001 | 0773003 | COIL 47UH |
| L2002 | 5244017 | COIL |
| CN2002 | EF10248 | CONNECTOR |
| ⚠CS2001 | 5887005 | SOCKET |
| PG2001 | 5669631 | CONNECTOR |
| PG2002 | 5668469 | PLUG |

# 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<br>K ..... k Ω<br>M ..... M Ω |
| Tolerance | No indication ..... ± 5%<br>(All tolerances other than ± 5% are indicated in the schematic diagrams) |
| Power capacitance | No indication ..... 1/8W<br>(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 ..... μ F<br>P ..... pF |
| Dielectric strength | No indication ..... 50V<br>(All dielectric strengths other than 50V are indicated in the schematic diagrams.) |

[Coils]

| Item | Indication |
|---|---|
| Value | μ ..... μ H<br>m ..... mH |

### 2. Markings in schematic diagrams

1) Parts marked " ■ " with circuit numbers in the schematic diagrams are discrete parts.
2) Parts marked " ● " with circuit numbers in the schematic diagrams are leadless parts.

## Cautions when using circuit board diagrams

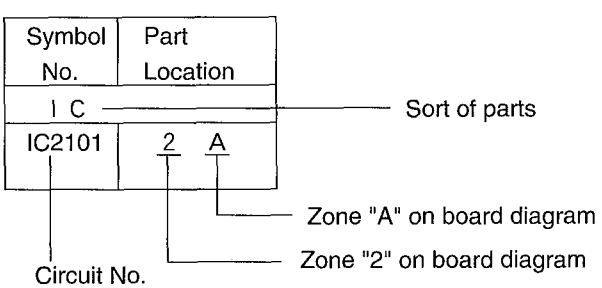
### 1. Identifications of sides A/B in circuit board diagrams

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.

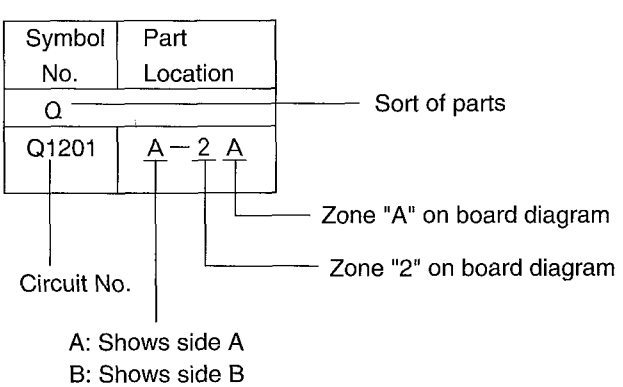
### 2. Table for indexing locations of parts

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.

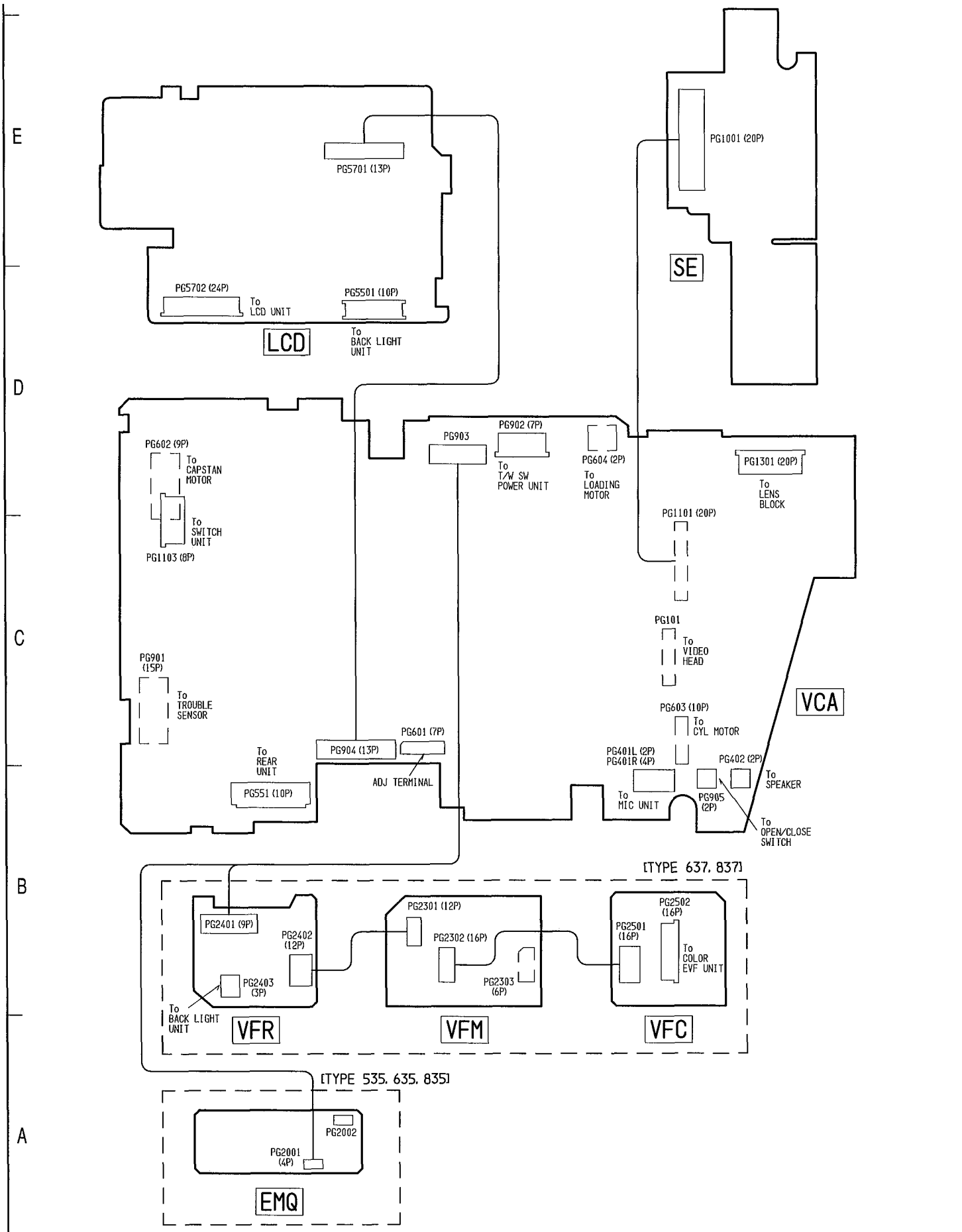
1) In case of one-layer board




2) In case of side A/B indication board



# INTERNAL WIRING DIAGRAM

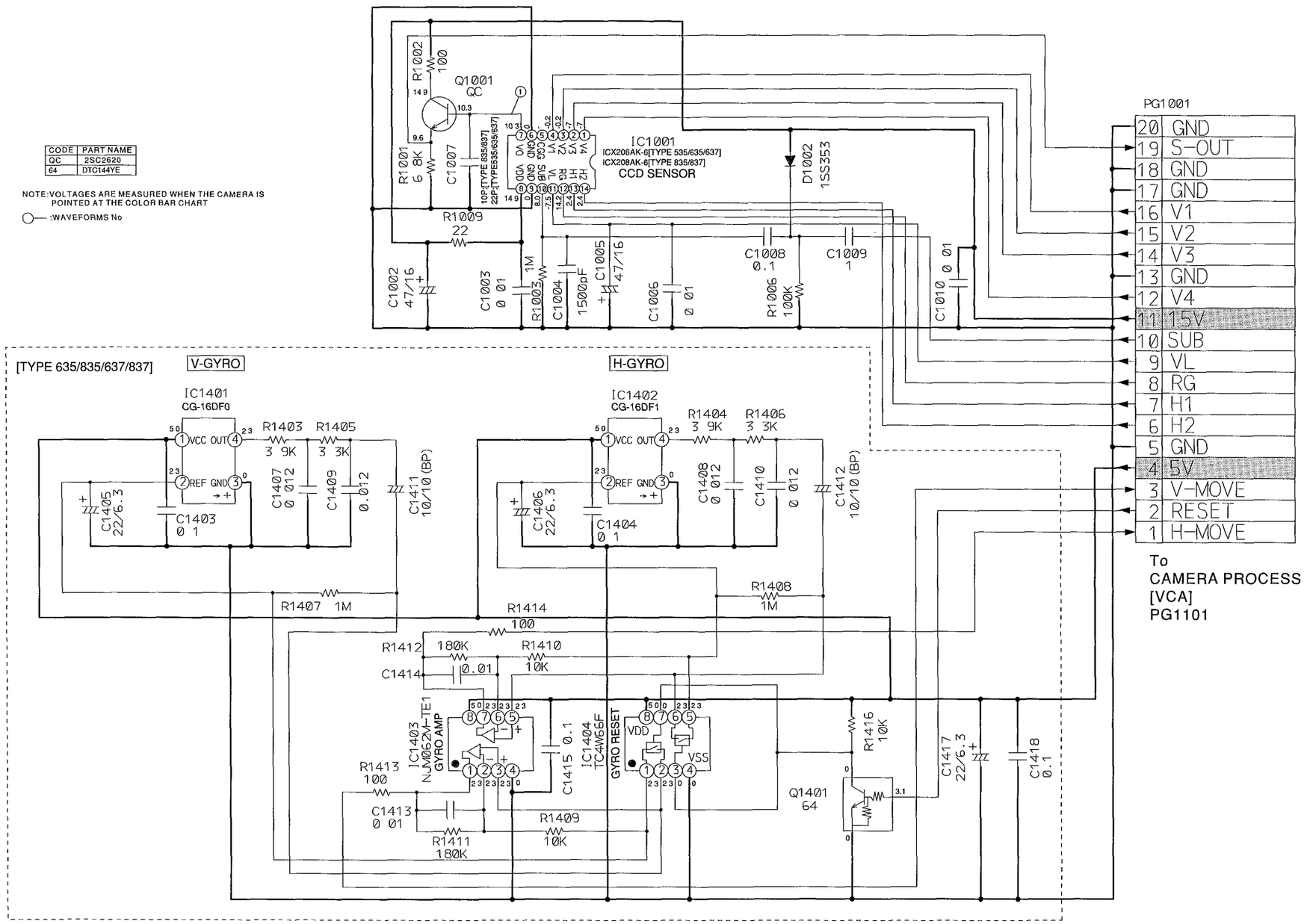


# SENSOR/GYRO [SE] SCHEMATIC DIAGRAM

| CODE | PART NAME |
|---|---|
| QC | 2SC2620 |
| 64 | DTC144YE |

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

○— :WAVEFORMS No




## SENSOR/GYRO[SE]

# CAMERA PROCESS [VCA] SCHEMATIC DIAGRAM

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

| CODE | PART NAME |
|---|---|
| BR | 2SC2412K |
| CQ | 2SC2411K |
| FR | 2SA1037K |
| 64 | DTC114YE |
| C | 1SS353SP |
| K | DA221 |
| MN | MA151WA |

:VIDEO SIGNAL

:WAVEFORMS No

CP1101
5 2M[TYPE 535/635/637]
7.2M[TYPE 835/837]

To SENSOR/ GYRO [SE] PG1001

PG1101: GND 20, S-OUT 19, GND 18, GND 17, V1 16, V2 15, V3 14, GND 13, V4 12, 15V 11, SUB 10, V1 9, RG 8, H1 7, H2 6, GND 5, 5V 4, V-MOVE 3, RESET 2, H-MOVE 1

IC1101 HD49322F CDS/ADC

IC1102 HG51CS035TE DIGITAL PROCESS(DSP)

IC1103 UPD16510GR DRIVE PULSE GEN.

IC1104 HD6433042ST-29F μP

IC1105 MX2556AMI EEPROM

IC1201 UPC5023QS-10S F DET/IRIS DRIVE

IC1301 MPC17A34ZVM MOTOR DRIVE

To LUMINANCE/ CHROMA 1F-5F: CAM.C 3F, CAM.Y 1F, GND(CAM) 2F, RD 4F, SD 5F

To SYSTEM CONTROL 1M-9M: TELE 1M, WIDE 2M, OSD-DATE 3M, S-DATA 6M, D-CLOCK 7M, D-DATA 5M, CAM-RST 8M, D-STB 4M, DATE 9M

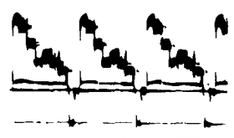
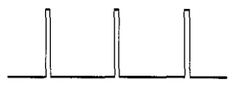
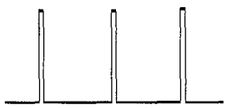
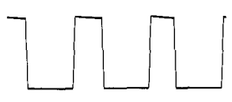
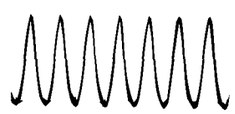
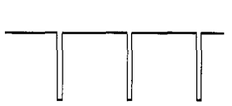
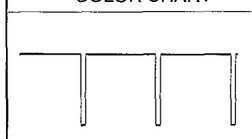
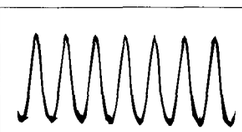
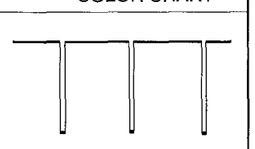
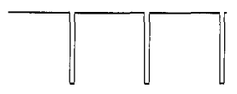
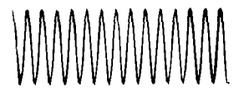
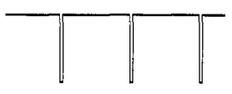
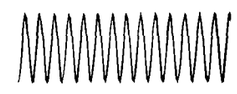
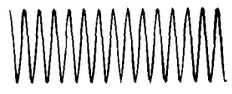
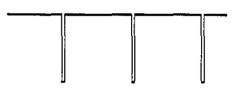
To DC-DC CONVERTER 1J-10J: 15V2 6J, 7V 7J, GND(CAM) 8J, 3V2 9J, 3V3 4J, 5V4 2J, GND(5V4) 11J, PROTECT 8J, 5V8 5J, SCP2 10J

To LENS BLOCK: PG1301 ZOOM.SENSE 20, ZOOM.VCC 19, ZOOM.LED 18, FOCUS.SENSE 17, FOCUS.VCC 16, FOCUS.LED 15, FOCUS.B+ 14, FOCUS.B- 13, FOCUS.A- 12, FOCUS.A+ 11, HALL.IN- 10, HALL.OUT+ 9, DRIVE+ 8, HALL.IN+ 7, HALL.OUT- 6, DRIVE- 5, ZOOM.B+ 4, ZOOM.B- 3, ZOOM.A+ 2, ZOOM.A- 1

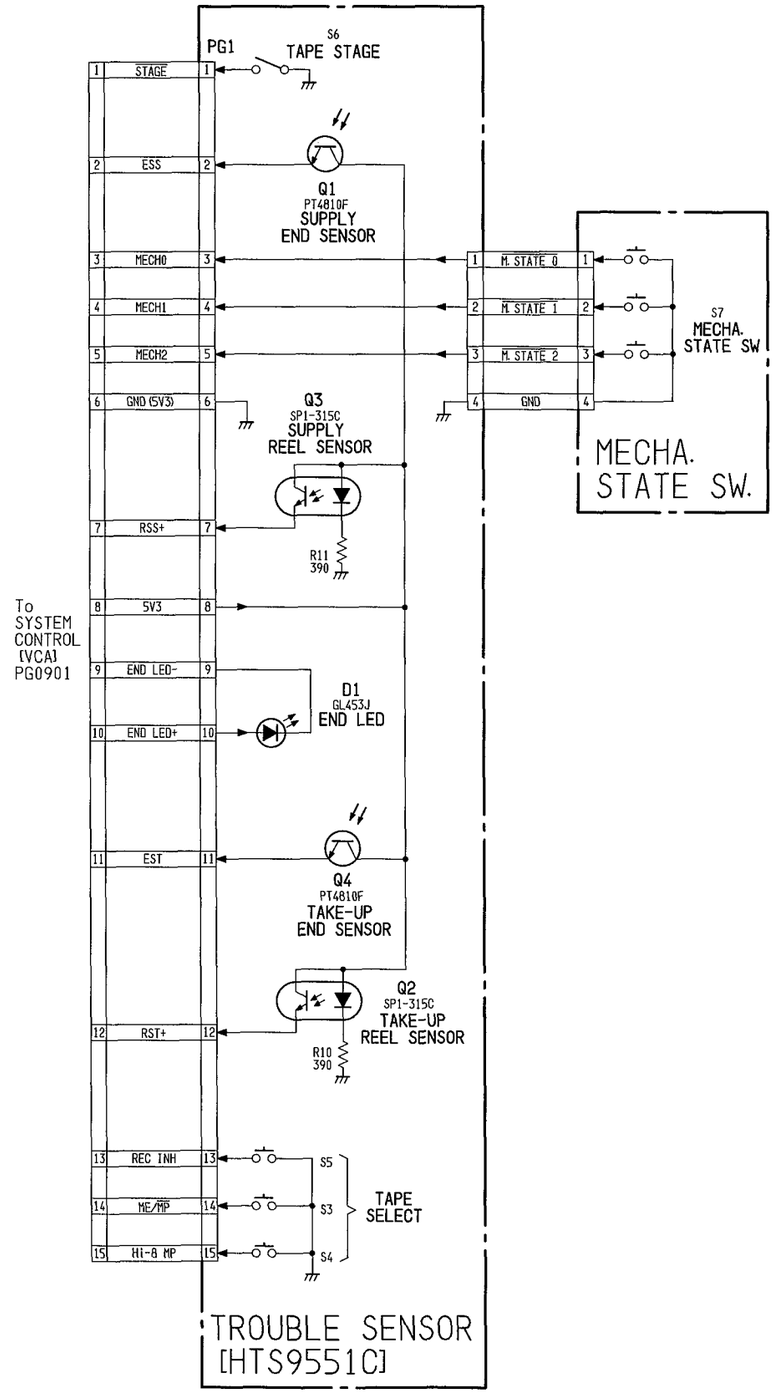
To SWITCH UNIT: PG1103 1 GND, 2 I.ZOOM, 3 EIS, 4 D.EFFECT, 5 FADE, 6 DATE, 7 FOCUS-F, 8 FOCUS-N

CAMERA PROCESS[VCA]

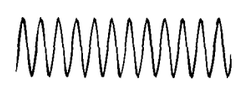
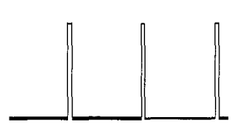
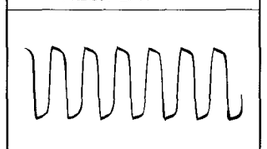
## WAVEFORMS[CAMERA]

| | | | |
|---|---|---|---|
| 1-A IC1001-7 1.1Vp-p<br>0 2V/20 0 sec.cm<br>COLOR CHART | 7-A IC1102-42 550mVp-p<br>0.2V/20.0 sec cm<br>COLOR CHART | 13-A IC1102-115 3.1Vp-p<br>1V/20.0 sec cm<br>COLOR CHART | 19-A IC1103-3 7.3Vp-p<br>2V/20.0 sec cm<br>COLOR CHART |
| | | | |
| 2-A IC1101-27 1.1Vp-p<br>0.2V/20.0 sec.cm<br>COLOR CHART | 8-A IC1102-46 1 0Vp-p<br>0.2V/20.0 sec.cm<br>COLOR CHART | 14-A IC1102-116 3.1Vp-p<br>1V/20 0 sec.cm<br>COLOR CHART | 20-A IC1103-5 7.3Vp-p<br>2V/20 0 sec.cm<br>COLOR CHART |
| |  |  |  |
| 3-A IC1102-10 3 0Vp-p<br>1V/5 0msec.cm<br>COLOR CHART | 9-A IC1102-106 4.2Vp-p<br>1V/50.0nsec cm<br>COLOR CHART | 15-A IC1102-117 3.1Vp-p<br>1V/20.0 sec cm<br>COLOR CHART | 21-A IC1103-17 7.3Vp-p<br>2V/20.0 sec.cm<br>COLOR CHART |
|  |  |  | |
| 4-A IC1102-16 3 0Vp-p<br>1V/5 0msec.cm<br>COLOR CHART | 10-A IC1102-107 4.2Vp-p<br>1V/50.0nsec.cm<br>COLOR CHART | 16-A IC1102-118 3.1Vp-p<br>1V/20.0 sec.cm<br>COLOR CHART | 22-A IC1103-18 7 3Vp-p<br>2V/20.0 sec.cm<br>COLOR CHART |
|  |  | |  |
| 5-A IC1102-19 3.0Vp-p<br>1V/20.0 sec cm<br>COLOR CHART | 11-A IC1102-110 7.0Vp-p<br>2V/100 sec cm<br>COLOR CHART | 17-A IC1102-119 3.1Vp-p<br>1V/5.0msec.cm<br>COLOR CHART | |
|  |  |  | |
| 6-A IC1102-27 1 6Vp-p<br>0.5V/50 0nsec.cm<br>COLOR CHART | 12-A IC1102-111 7 0Vp-p<br>2V/100nsec.cm<br>COLOR CHART | 18-A IC1102-120 3.1Vp-p<br>1V/5.0msec cm<br>COLOR CHART | |
|  |  |  | |

## TROUBLE SENSOR [HTS9551C] SCHEMATIC DIAGRAM




## WAVEFORMS[SERVO]

| | | | | |
|---|---|---|---|---|
| 1-A IC901-41 2.8Vp-p<br>1V/100nsec.cm<br>REC/PLAY | 2-A IC901-64 4 9Vp-p<br>1V/20.0 sec.cm<br>REC/PLAY | 3-A IC901-68 3.2Vp-p<br>1V/500 sec.cm<br>REC/PLAY | 4-A IC901-85 3.4Vp-p<br>1V/20 0 sec.cm<br>REC/PLAY | |
|  |  | |  | |

# SYSTEM CONTROL [VCA] SCHEMATIC DIAGRAM

| CODE | PART NAME |
|---|---|
| BR | 2SC4617 |
| FR | 2SA1774RS |
| 54 | DTA114YE |
| 64 | DTC114YE |
| C | 1SS353SP |

:WAVEFORMS No

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

IC0901
CXP87240117R
SYSTEM CONTROL(S)-μP

IC0902
S84233FS
BACK-UP DET

IC0904
BU6229FV
CHARA GEN

IC0907
GP1U101X
IR
RECEIVER

BATTERY HOLDER
(BACK UP)

To LCD DRIVE [LCD] PG5701

To OPEN/CLOSE SWITCH PG0905

To T/W+POWER UNIT PG0902

To ELECTRONIC VIEWFINDER [EMQ] PG2002 [TYPE 535/635/835]

To EVF REG [VFR] PG2401 [TYPE 637/837]

To DC-DC CONVERTER 1H-18H

To AUDIO 1C-8C

To LUMINANCE/ CHROMA 1E-32E

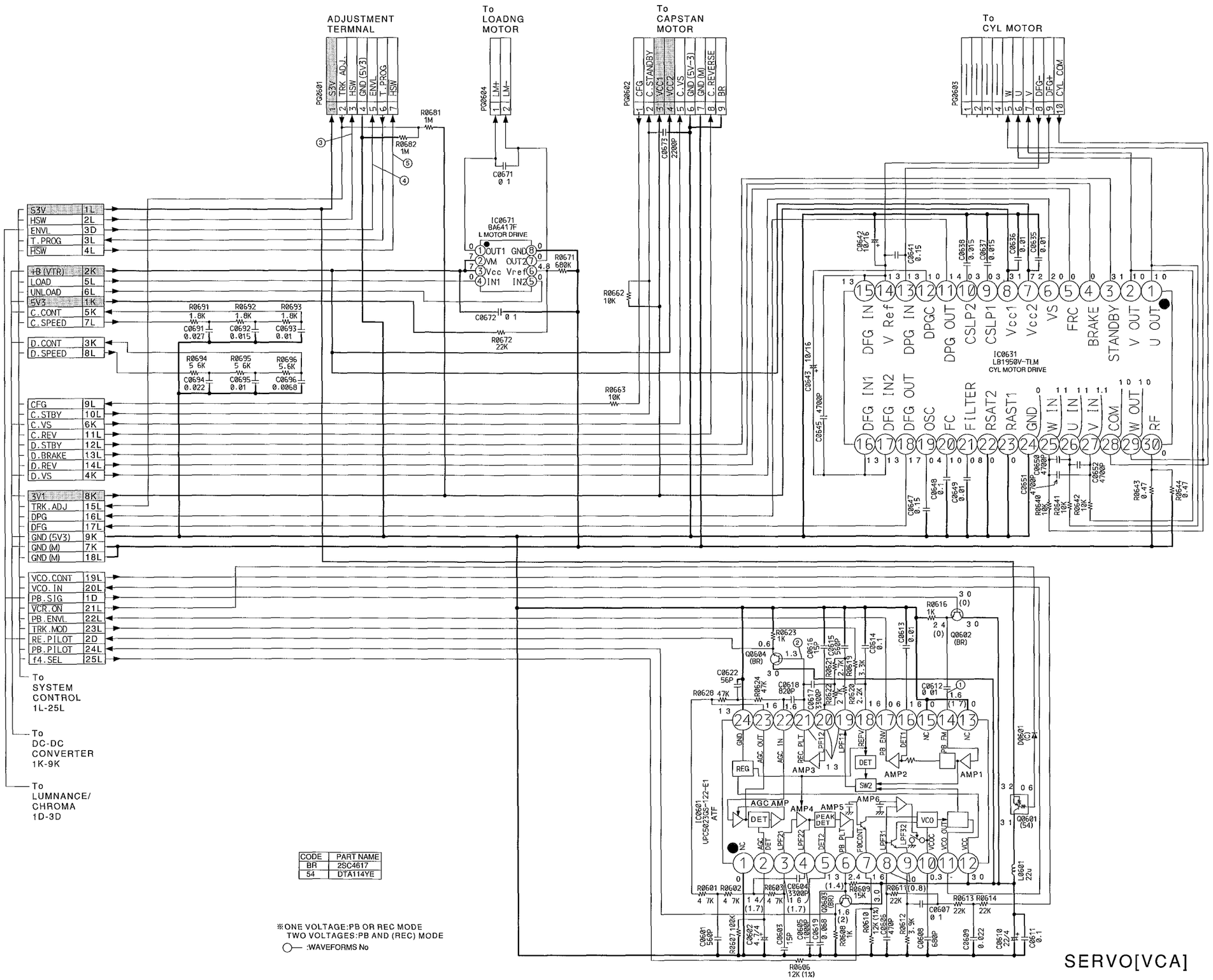
To CAMERA PROCESS 1M-9M

To SERVO 1L-25L

To TROUBLE SENSOR [HTS9551C] PG1

SYSTEM CONTROL[VCA]

# SERVO [VCA] SCHEMATIC DIAGRAM

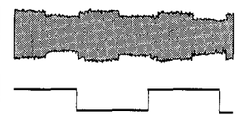



| CODE | PART NAME |
|---|---|
| BR | 2SC4617 |
| 54 | DTA114YE |

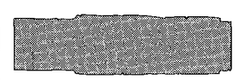
※ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE
○— :WAVEFORMS No

## WAVEFORMS[SERVO]

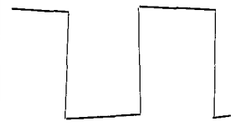
1-A IC601-14 200mVp-p
0 1V/5 0msec.cm
PLAY



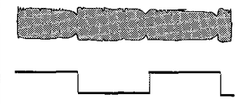
2-A IC601-21 560mVp-p
0 2V/5.0msec cm
REC



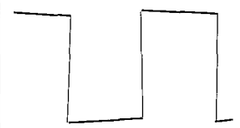
3-A PG601-3 3 3Vp-p
1V/5.0msec.cm
REC/PLAY



4-A 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]

# AUDIO-MONAURAL [VCA] SCHEMATIC DIAGRAM [TYPE 535,635,637]

| CODE | PART NAME |
|---|---|
| BR | 2SC4617 |
| CR | 2SB1219 |
| 64 | DTC114YE |
| K | DA221 |

➡ :REC SIGNAL
⇨ :PB SIGNAL

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

To DC-DC CONVERTER 1A-7A

| | |
|---|---|
| 5V7 | 5A |
| AUD (US) | 7A |
| | 4A |
| 3V1 | 3A |
| 5V2 | 1A |
| GND (5V2) | 2A |
| GND (20P) | 6A |

To LUMINANCE/ CHROMA 1B-8B

| | |
|---|---|
| A.OUT.R | 4B |
| A.IN.R | 5B |
| GND (5V2) | 6B |
| A.OUT.L | 8B |
| A.IN.L | 7B |
| PB.FMA | 1B |
| REC.FMA | 2B |
| FSC | 3B |

To SYSTEM CONTROL 1C-8C

| | |
|---|---|
| T.FADE | 1C |
| MUTE | 2C |
| SSB.DATA | 3C |
| SSB.CLK | 4C |
| HSW-AUD | 5C |
| CAM/LIN | 6C |
| SP.VOL | 7C |
| | 8C |

IC0401
HA118193F-01
AUDIO PROCESS

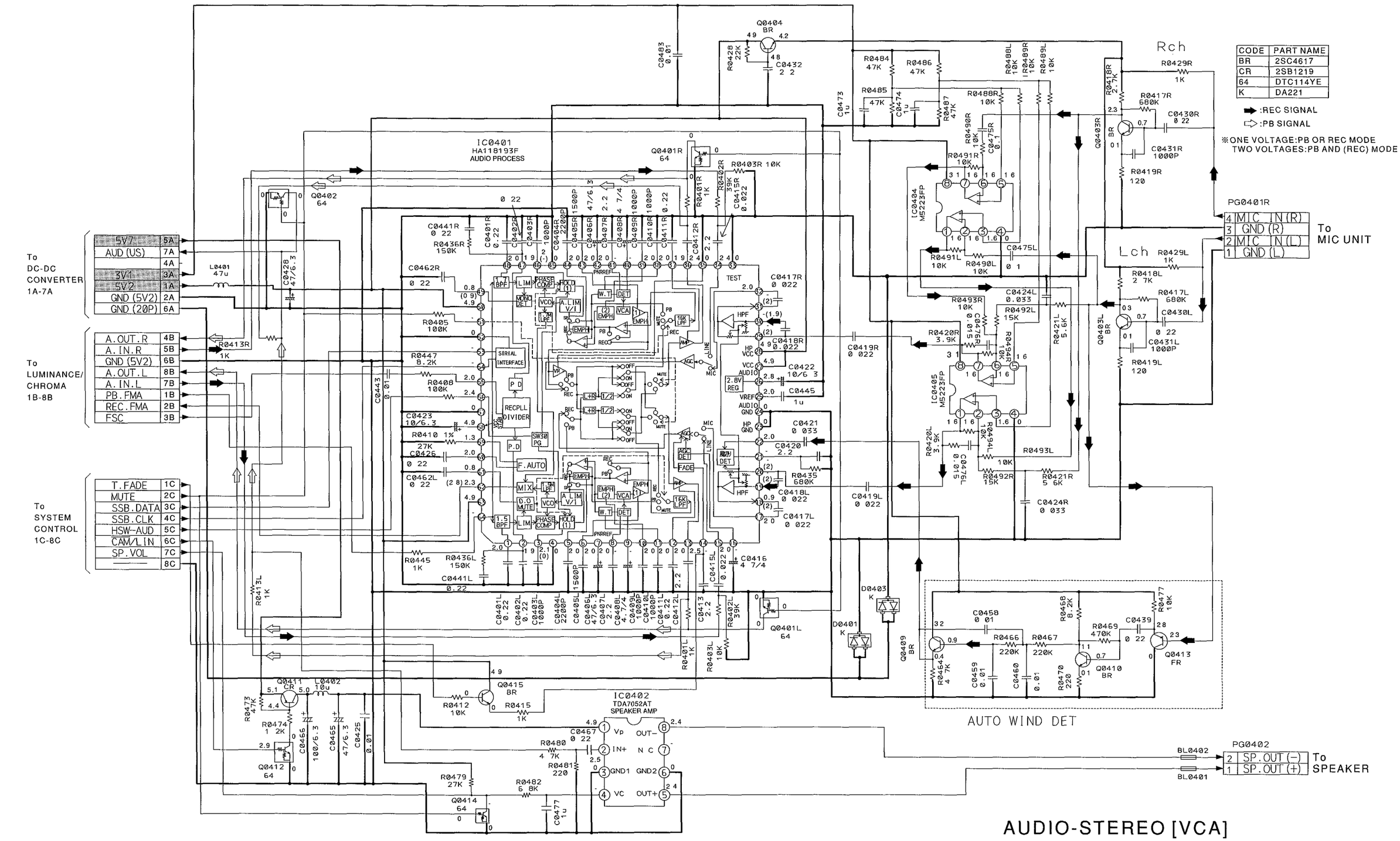
IC0402
TDA7052AT
SPEAKER AMP

PG0401L
2 MIC IN(L)
1 GND (L)
To MIC UNIT

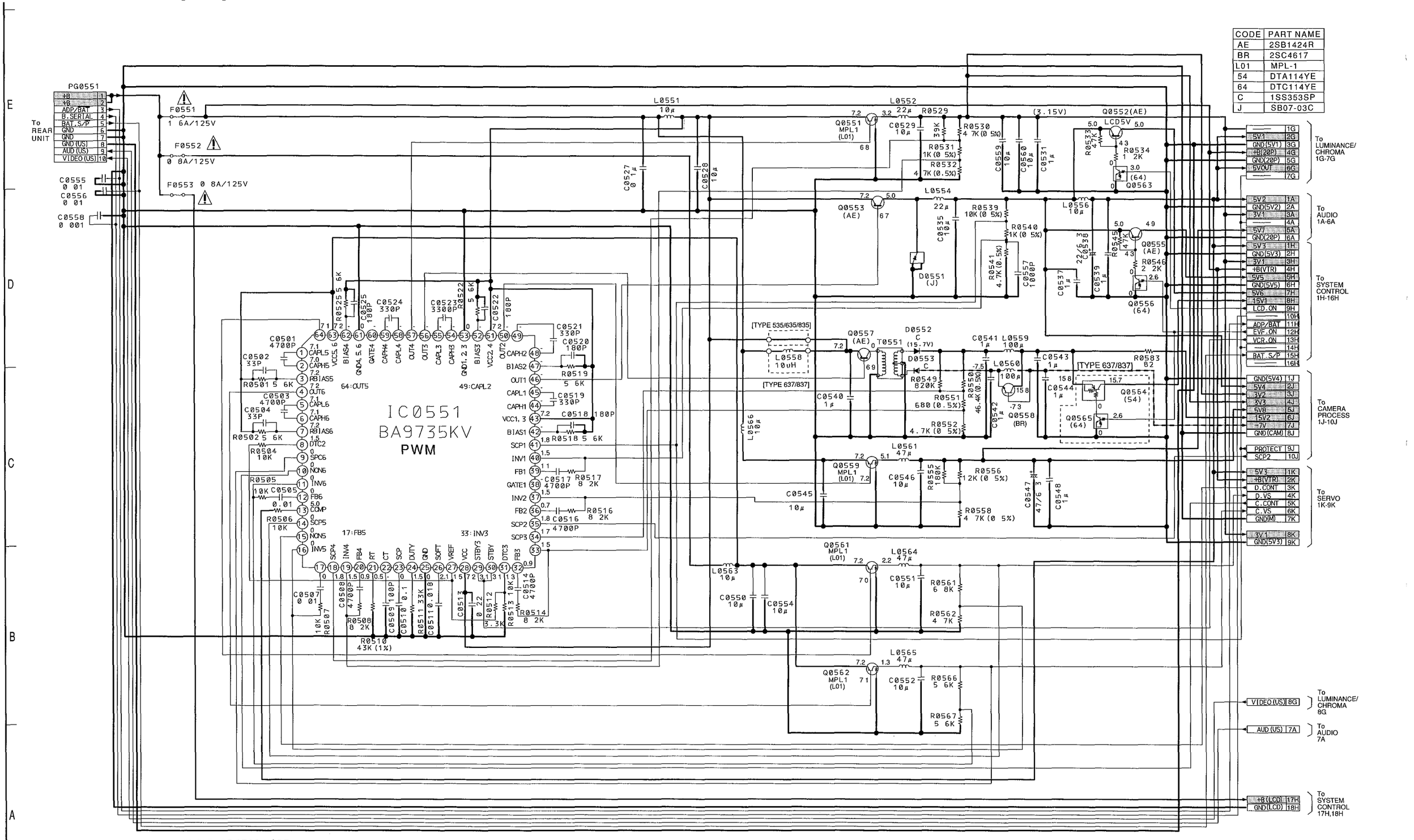
PG0402
2 SP.OUT (-)
1 SP.OUT (+)
To SPEAKER

AUDIO-MONAURAL [VCA]

# AUDIO-STEREO [VCA] SCHEMATIC DIAGRAM [TYPE 835,837]



# DC-DC CONVERTER [VCA] SCHEMATIC DIAGRAM




| CODE | PART NAME |
|---|---|
| AE | 2SB1424R |
| BR | 2SC4617 |
| L01 | MPL-1 |
| 54 | DTA114YE |
| 64 | DTC114YE |
| C | 1SS353SP |
| J | SB07-03C |

# LUMINANCE/CHROMA [VCA] SCHEMATIC DIAGRAM [TYPE 535,635,637]

| CODE | PART NAME |
|---|---|
| BR | 2SC4617 |
| CR | 2SB1219 |
| FR | 2SA1774RS |
| FS | 2SA1037K |
| 54 | DTA114YE |
| 64 | DTC114YE |
| 9L | XP1213 |
| H1 | IMH1 |
| 5K | XP4401 |
| 8C | DTC114YE |
| 8S | XP4213 |
| MU | MA132WK |
| K | DA221 |

:REC SIGNAL

:PB SIGNAL

:REC/PB SIGNAL

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

○— :WAVEFORMS No.

PG0101

| | |
|---|---|
| GND | 1 |
| CH1PB | 2 |
| CH1REC | 3 |
| GND | 4 |
| GND | 5 |
| CH2PB | 6 |
| CH2REC | 7 |
| GND | 8 |
| FE GND | 9 |
| FE | 10 |

To VIDEO HEADS

IC0101 HA118189MPER VIDEO HEAD AMP

IC0102 UPC6025G5-101-E1 PHASE EQ/FM PEAK

IC0202 CXL5516N 1H DELAY

IC0201 HA119192AF

IC0204 UPC5927G5-184-E1 VIDEO AMP

[TYPE 635/535]

[TYPE 635/637]

JK0200 AV 20P

| | | To |
|---|---|---|
| PB.SIG | 1D | SERVO 1D-3D |
| RF.PILOT | 2D | |
| ENVL | 3D | |
| LCD-C | 1E | SYSTEM CONTROL 1E-27E |
| FE.CONT | 2E | |
| CAM.SW | 3E | |
| HSW | 4E | |
| HSW | 5E | |
| CH2.REC | 6E | |
| CH1.REC | 7E | |
| PR.CONT | 8E | |
| C.SYNC | 10E | |
| OSD-LCD | 11E | |
| OSD-EVF | 12E | |
| OSD-COUNT | 13E | |
| REC.SYNC | 14E | |
| V.SYNC | 15E | |
| LCDVIDEO | 16E | |
| GND(5V1) | 17E | |
| EVFVIDEO | 18E | |
| PB | 19E | |
| ADDV+SG | 20E | |
| | 21E | |
| | 22E | |
| | 23E | |
| SSB.DATA | 24E | |
| SSB.CLK | 25E | |
| TRI.CK | 26E | |
| CAM.CLIN | 27E | |
| CAM.V | 1F | CAMERA PROCESS 1F-5F |
| GND(CAM) | 2F | |
| CAM.C | 3F | |
| RD | 4F | |
| SD | 5F | |
| PB.FMA | 1B | AUDIO 1B-8B |
| REC.FMA | 2B | |
| FSC | 3B | |
| A.OUT(R) | 4B | |
| A.IN(R) | 5B | |
| GND(5V2) | 6B | |
| A.IN(L) | 7B | |
| A.OUT(L) | 8B | |
| 5V1 | 1G | DC-DC CONVERTER 1G-8G |
| GND(5V1) | 2G | |
| GND | 3G | |
| GND | 5G | |
| GND(20P) | 4G | |
| +B(20P) | 8G | |
| VIDEO(US) | 6G | |
| 5V.OUT | 7G | |
| AV.CONT | 28E | SYSTEM CONTROL 28E-32E |
| REMOTE | 29E | |
| REM.DATA | 30E | |
| S.EDIT | 31E | |
| | 32E | |

LUMINANCE/CHROMA[VCA]

# LUMINANCE/CHROMA [VCA] SCHEMATIC DIAGRAM [TYPE 835,837]

| CODE | PART NAME |
|---|---|
| BR | 2SC4617 |
| CR | 2SB1219 |
| FR | 2SA1774RS |
| FS | 2SA1037K |
| 54 | DTA114YE |
| 64 | DTC114YE |
| 9L | XP1213 |
| H1 | IMH1 |
| 5K | XP4401 |
| 8C | DTC114YE |
| 8S | XP4213 |
| MU | MA132WK |
| K | DA221 |

:REC SIGNAL

:PB SIGNAL

:REC/PB SIGNAL

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

○— :WAVEFORMS No.

PG0101

| | |
|---|---|
| GND | 1 |
| CH1PB | 2 |
| CH1REC | 3 |
| GND | 4 |
| GND | 5 |
| CH2PB | 6 |
| CH2REC | 7 |
| GND | 8 |
| FE GND | 9 |
| FE | 10 |

To VIDEO HEADS

IC0101 HA11B1859MPER VIDEO HEAD AMP

IC0202 CXL5516N

IC0201 HA119192AF

IC0203 CXL5503M-121-E1 PHASE EQ/FM PEAK

IC0204 UPC8025GS-184-E1 VIDEO AMP

TP103 TP101 TP204 TP205 TP206 TP201 TP203 TP207

JK0200 AV 20P

LUMINANCE/CHROMA[VCA]

To SERVO 1D-3D

| | | |
|---|---|---|
| PB.SIG | 1D | |
| RE.PILOT | 2D | |
| ENVL | 3D | |

To SYSTEM CONTROL 1E-27E

| | | |
|---|---|---|
| LCD-C | 1E | |
| FE.CONT | 2E | |
| CAM.SW | 3E | |
| HSW | 4E | |
| HSW | 5E | |
| CH2.REC | 6E | |
| CH1.REC | 7E | |
| PR.CONT | 8E | |
| C.SYNC | 10E | |
| OSD-LCD | 11E | |
| OSD-EVF | 12E | |
| OSD-COUNT | 13E | |
| REC | 14E | |
| V.SYNC | 15E | |
| LCDVIDEO | 16E | |
| GND(5V1) | 17E | |
| EVFVIDEO | 18E | |
| PB | 19E | |
| ADDV+SQ | 20E | |
| HI.BAND | 21E | |
| ME/MP | 22E | |
| ME/MP | 23E | |
| SSB.DATA | 24E | |
| SSB.CLK | 25E | |
| TRICK | 26E | |
| CAM/LIN | 27E | |

To CAMERA PROCESS 1F-5F

| | | |
|---|---|---|
| CAM.Y | 1F | |
| GND(CAM) | 2F | |
| CAM.C | 3F | |
| RD | 4F | |
| SD | 5F | |

To AUDIO 1B-8B

| | | |
|---|---|---|
| PB.FMA | 1B | |
| REC.FMA | 2B | |
| FSC | 3B | |
| A.OUT(R) | 4B | |
| A.IN(R) | 5B | |
| GND(5V2) | 6B | |
| A.IN(L) | 7B | |
| A.OUT(L) | 8B | |

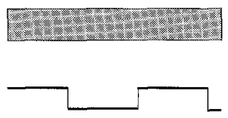
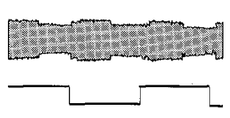
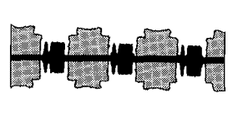
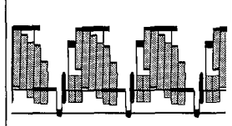
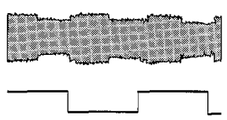
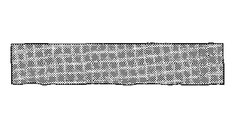
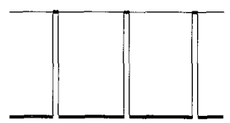
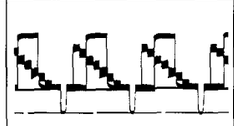
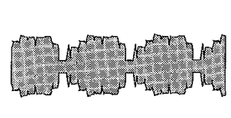
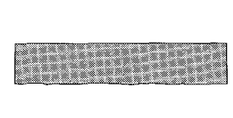
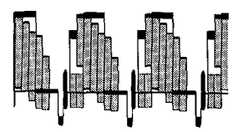
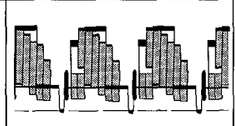
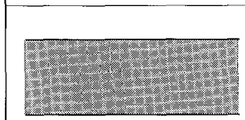
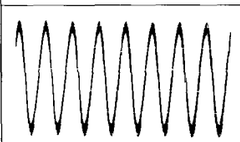
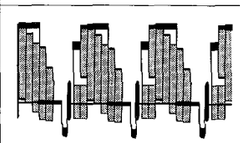
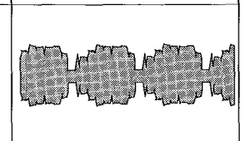
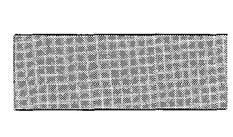
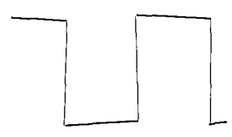
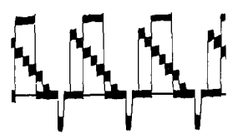
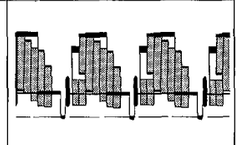
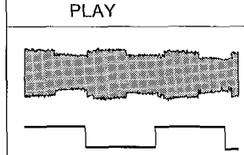
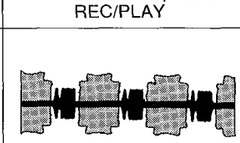
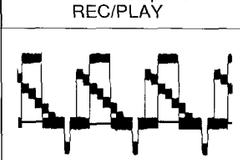
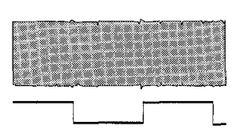
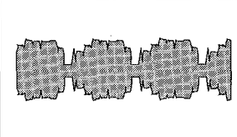
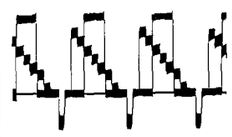
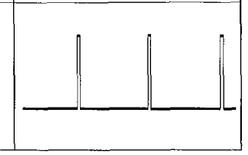
To DC-DC CONVERTER 1G-8G

| | | |
|---|---|---|
| 5V1 | 1G | |
| 5V1 | 2G | |
| GND(5V1) | 3G | |
| GND | 7G | |
| GND(20P) | 5G | |
| +B(20P) | 4G | |
| VIDEO(US) | 8G | |
| 5V OUT | 6G | |

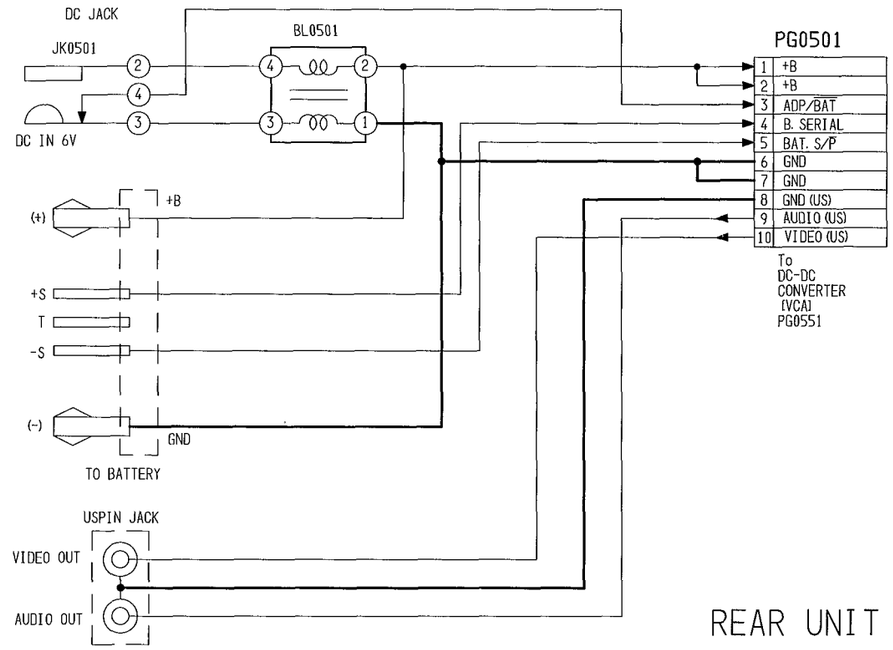
To SYSTEM CONTROL 28E-32E

| | | |
|---|---|---|
| AV.CONT | 28E | |
| REMOTE | 29E | |
| REM.DATA | 30E | |
| S.EDIT | 31E | |
| S.EDIT | 32E | |

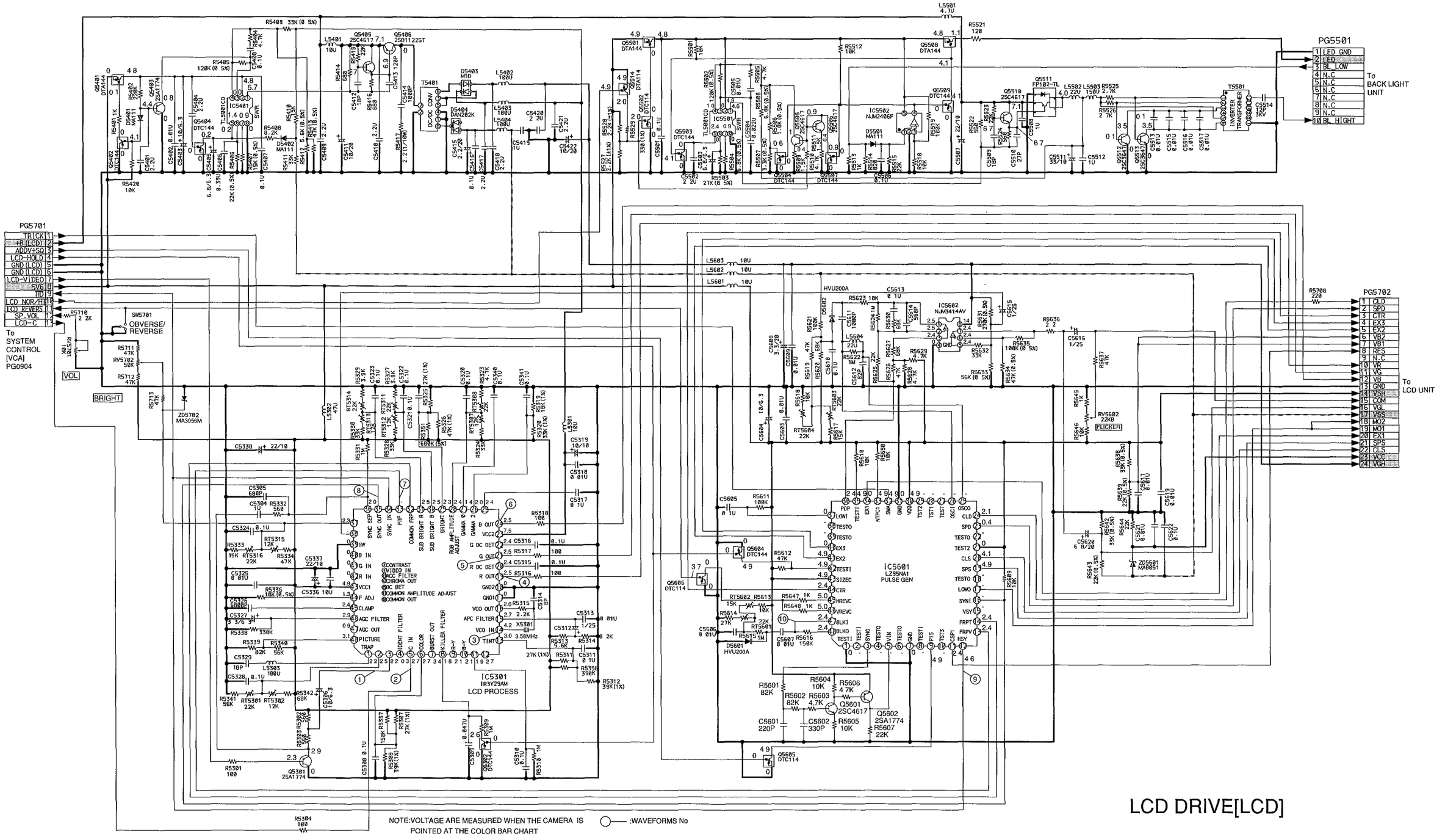
# WAVEFORMS[VIDEO]

| | | | |
|---|---|---|---|
| 1-B IC101-22 300mVp-p 0 2V/5 0msec cm PLAY | 8-B IC201-10 310mVp-p 0 2V/5 0msec cm PLAY | 15-A IC201-39 610mVp-p 0 2V/20.0µsec cm REC/PLAY | 21-A IC204-3 2 0Vp-p 0 5V/20 0µsec cm REC |
|  |  |  |  |
| 2-B IC101-27 200mVp-p 0 1V/5 0msec cm PLAY | 9-A IC201-19 400mVp-p 0.2V/20.0µsec cm REC/PLAY | 16-A IC201-47 4 8Vp-p 1V/20 0µsec cm REC/PLAY | 21-B IC204-3 2 2Vp-p 0.5V/20 0µsec cm PLAY |
|  |  |  |  |
| 3-A IC102-6 380mVp-p 0 1V/20.0µsec cm REC | 10-A IC201-22 400mVp-p 0 2V/20.0µsec.cm REC/PLAY | 17-A IC201-49 1.0Vp-p 0 2V/20 0µsec cm REC | 22-A IC204-4 2 0Vp-p 0 5V/20 0µsec cm REC/PLAY |
|  |  |  |  |
| 4-A IC102-11 520mVp-p 0 2V/20 0µsec cm REC | 11-A IC201-23 750mVp-p 0 2V/200nsec.cm REC/PLAY | 18-A IC201-51 1 1Vp-p 0.2V/20 0µsec cm REC | 23-B IC204-7 1.2Vp-p 0 5V/20.0µsec.cm PLAY |
|  |  |  |  |
| 5-A IC102-15 700mVp-p 0 2V/20 0µsec cm REC | 12-A IC201-27 3 0Vp-p 1V/5 0msec cm REC/PLAY | 18-B IC201-51 1 2Vp-p 0 2V/20 0µsec cm PLAY | 24-A IC204-8 2 1Vp-p 0 5V/20 0µsec.cm REC/PLAY |
|  |  |  |  |
| 6-B IC102-22 340mVp-p 0 2V/5 0msec cm PLAY | 13-A IC201-36 110mVp-p 50mV/20 0µsec cm REC/PLAY | 19-A IC201-53 350mVp-p 0 1V/20 0µsec cm REC/PLAY | 25-A IC204-9 4 6Vp-p 1V/5 0msec cm REC/PLAY |
|  |  |  | |
| 7-B IC201-8 560mVp-p 0 2V/5 0msec cm PLAY | 14-A IC201-38 200mVp-p 50mV/20 0µsec cm REC/PLAY | 20-A IC201-54 490mVp-p 0 1V/20 0µsec cm REC/PLAY | 26-A IC204-10 2 5Vp-p 1V/5.0msec cm REC/PLAY |
|  |  |  |  |

# REAR UNIT

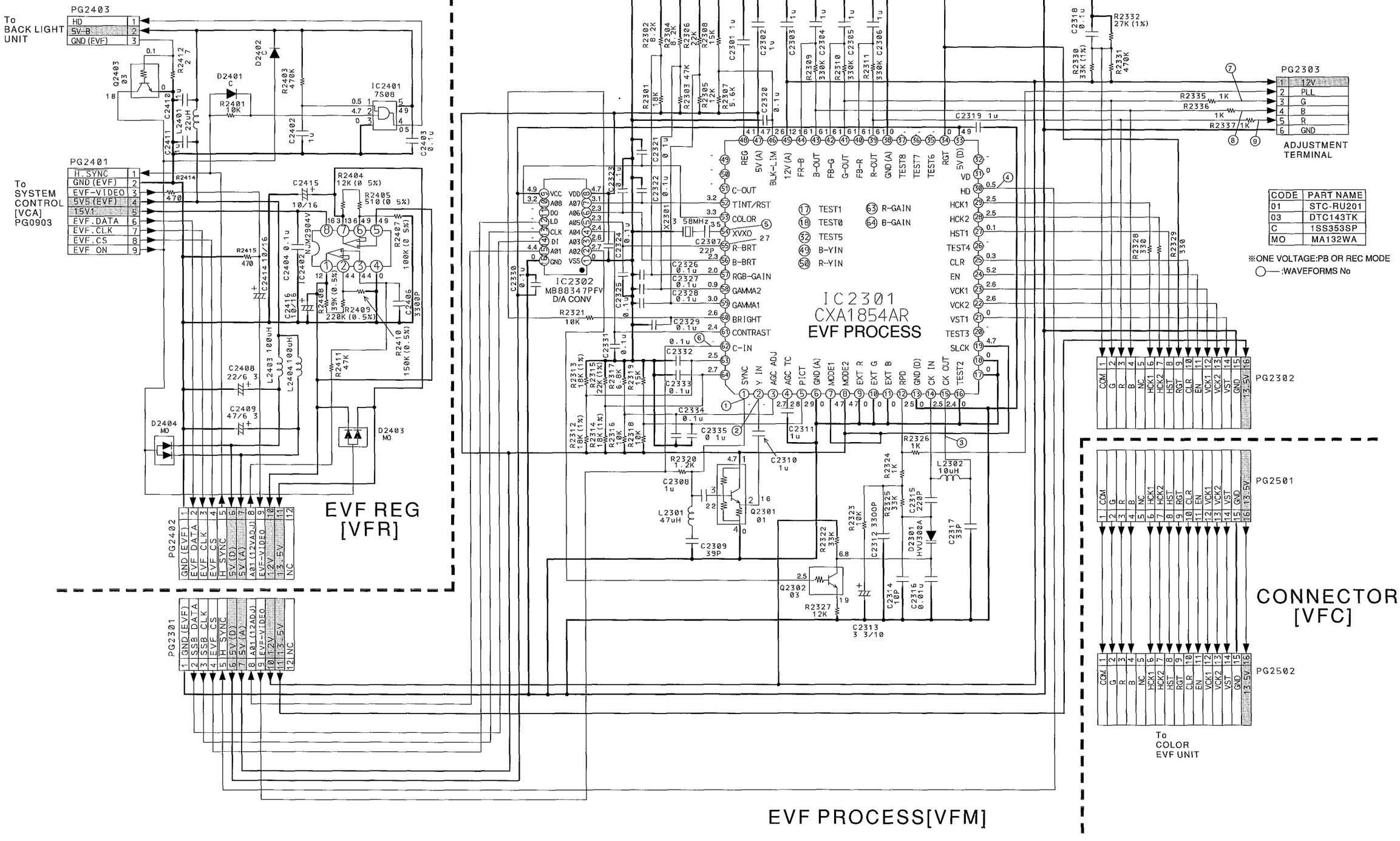


# LCD DRIVE [LCD] SCHEMATIC DIAGRAM




LCD DRIVE[LCD]

# EVF REG [VFR], EVF PROCESS [VFM], CONNECTOR [VFC] SCHEMATIC DIAGRAMS [TYPE 637,837]

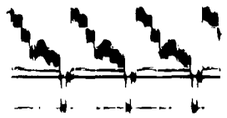



| CODE | PART NAME |
|---|---|
| 01 | STC-RU201 |
| 03 | DTC143TK |
| C | 1SS353SP |
| MO | MA132WA |

# WAVEFORMS

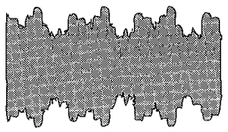
## [LCD]

1-A IC5301-3 1 0Vp-p
0 2V/20.0sec.cm
COLOR CHART



1-B IC5301-3 500mVp-p
0.1V/20.0 sec.cm
VIDEO IN

2-A IC5301-5 1 1Vp-p
0 2V/20.0 sec cm
COLOR CHART



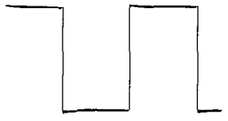
3-A IC5301-14 400mVp-p
0.1V/200nsec.cm
COLOR CHART

4-A IC5301-19 4 3Vp-p
1V/20 0 sec cm
COLOR CHART

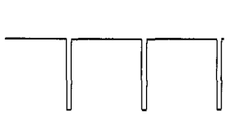
5-A IC5301-21 4.3Vp-p
1V/20 0 sec cm
COLOR CHART

6-A IC5301-24 4 3Vp-p
1V/20.0 sec.cm
COLOR CHART

7-A IC5301-33 5.0Vp-p
1V/20 0 sec cm
COLOR CHART

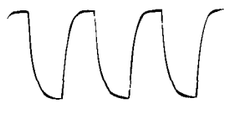


8-A IC5301-35 4.9Vp-p
1V/20 0 sec cm
COLOR CHART



9-A IC5601-12 5.0Vp-p
1V/20.0 sec.cm
COLOR CHART

10-A IC5601-47 4 3Vp-p
1V/20.0 sec.cm
COLOR CHART

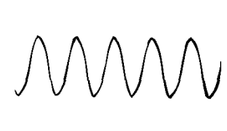


## [VFM]

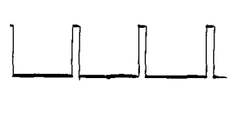
1-A IC2301-1 420mVp-p
0.1V/20 0 sec cm
COLOR CHART

2-A IC2301-2 420mVp-p
0.1V/20.0 sec.cm
COLOR CHART

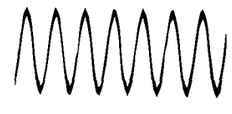
3-A IC2301-15 5.6Vp-p
2V/50 0nsec cm
COLOR CHART



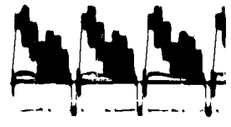
4-A IC2301-30 5.0Vp-p
2V/20.0 sec.cm
COLOR CHART



5-A IC2301-54 400mVp-p
0 1V/200nsec.cm
COLOR CHART



6-A IC2301-62 500mVp-p
0.1V/20.0 sec cm
COLOR CHART

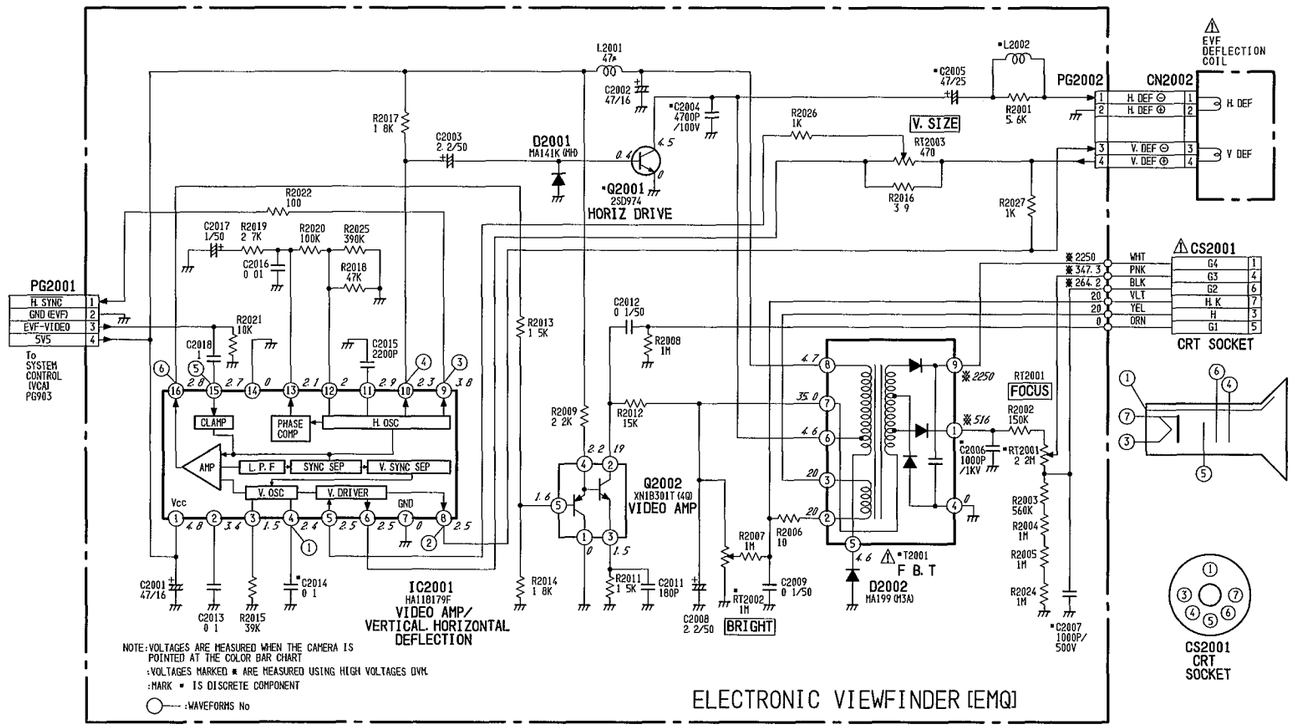


7-A PG2303-3 9.4Vp-p
2V/20.0 sec.cm
COLOR CHART

8-A PG2303-4 9.4Vp-p
2V/20 0 sec cm
COLOR CHART

9-A PG2303-5 9.4Vp-p
2V/20 0 sec cm
COLOR CHART

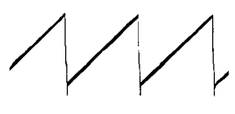
# ELECTRONIC VIEWFINDER [EMQ] SCHEMATIC DIAGRAM
# [TYPE 535,635,835]



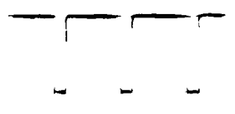

## WAVEFORMS[EMQ]

1-A IC2001-4 870mVp-p
0 2V/5.0msec.cm
COLOR CHART

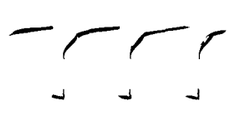
2-A IC2001-8 2.2Vp-p
0.5V/5 0msec cm
COLOR CHART



3-A IC2001-9 1.9Vp-p
0.5V/20.0 sec.cm
COLOR CHART

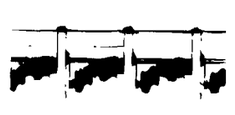


4-A IC2001-10 1 7Vp-p
0.5V/20.0 sec.cm
COLOR CHART



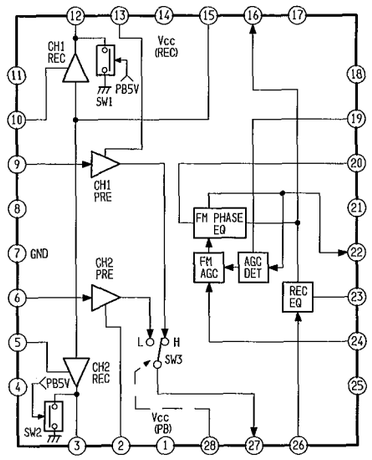
5-A IC2001-15 1.0Vp-p
0.2V/20 0 sec cm
COLOR CHART

6-A IC2001-16 2.9Vp-p
1V/20 0 sec.cm
COLOR CHART

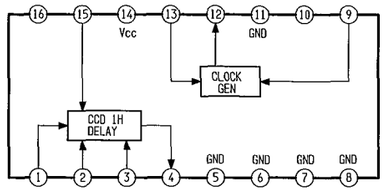


# IC BLOCK DIAGRAMS

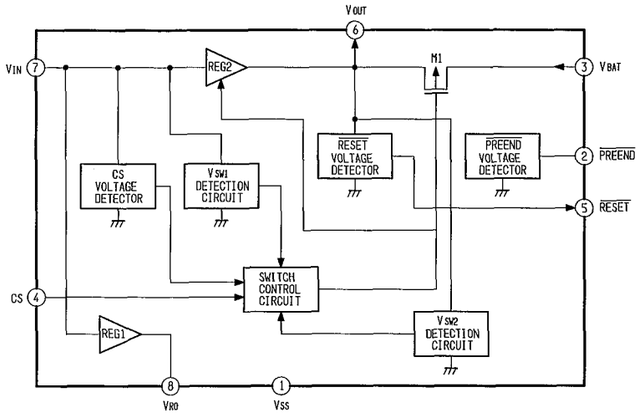
## IC101
HA118189MPER
VIDEO HEAD SW



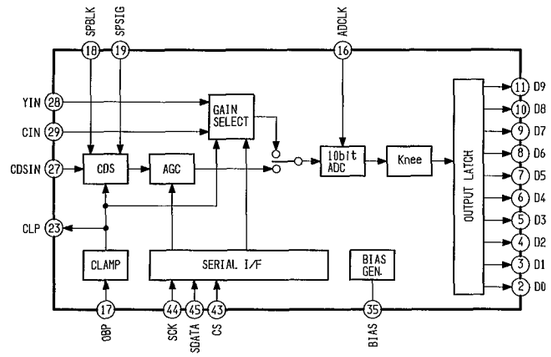

## IC202
CXL5516N
1H DELAY



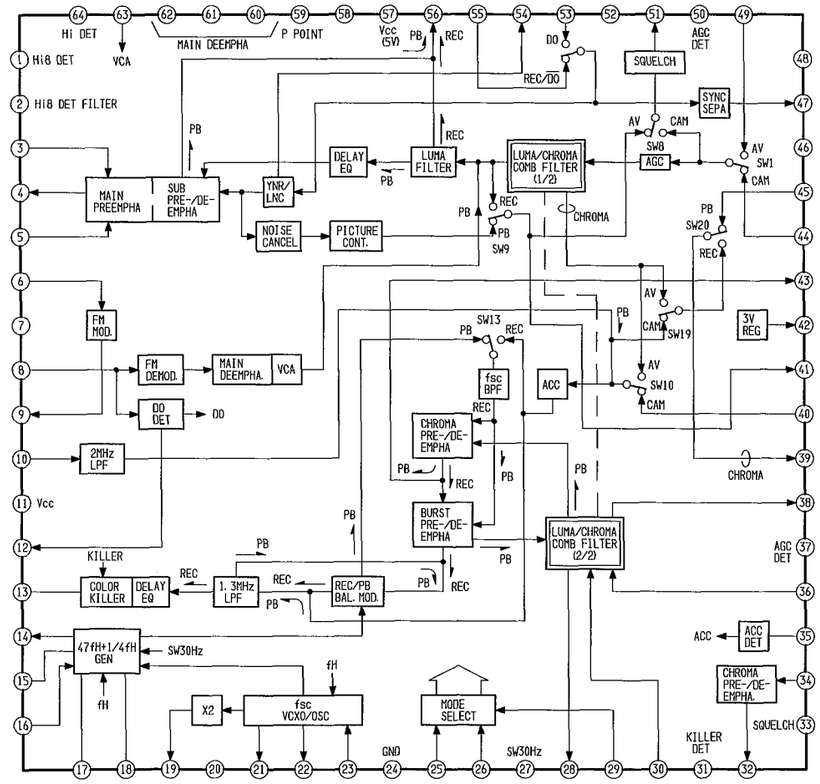

## IC902
S84233FS
BACK-UP DET



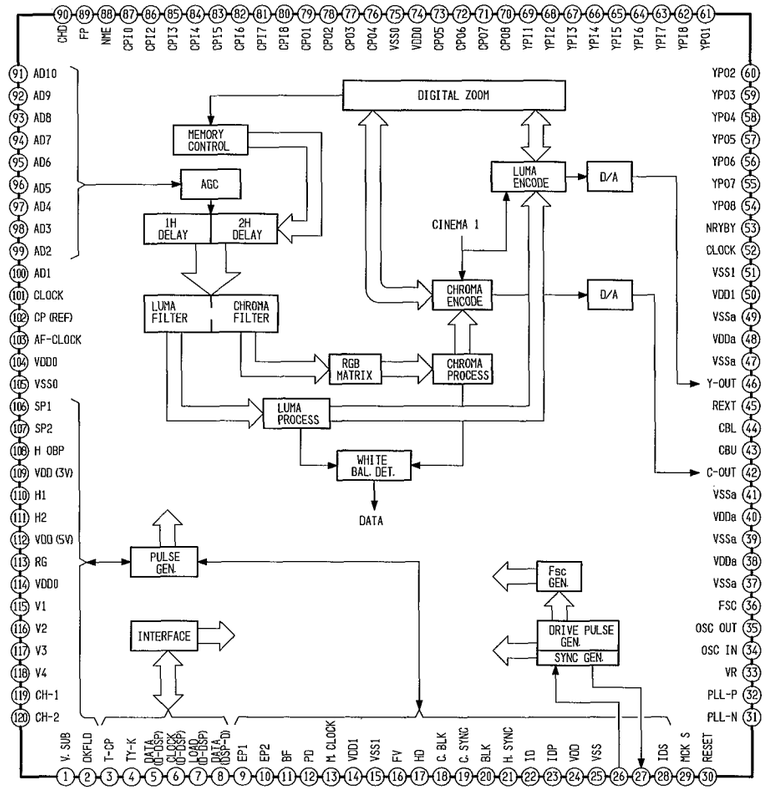

## IC1101
HD49322F
CDS/DAC



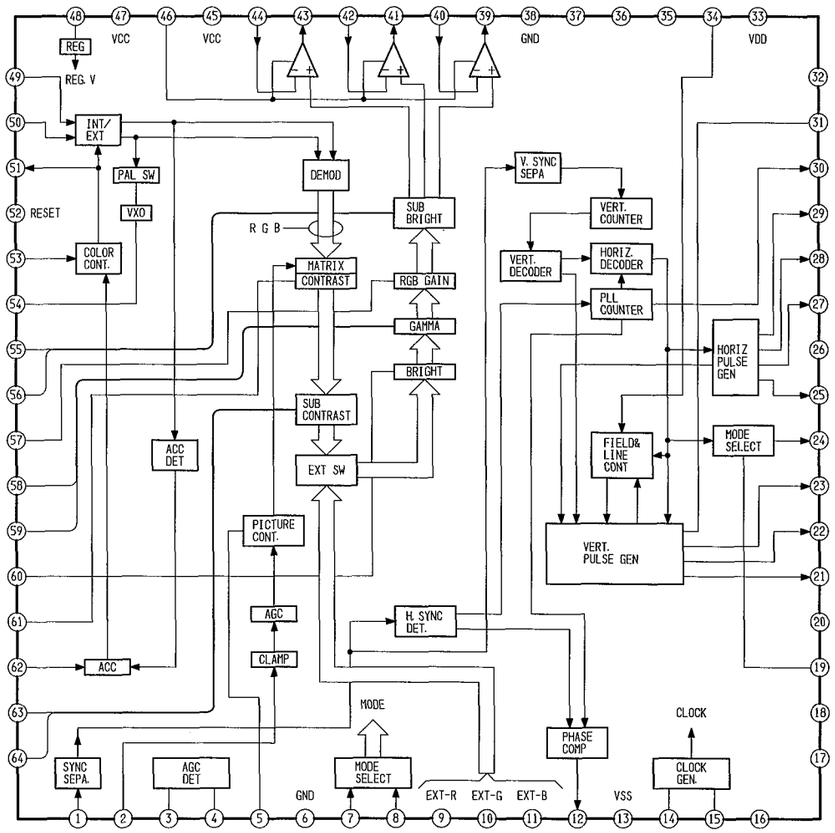

## IC201
HA118192AF
LUMA/CHROMA PROCESS



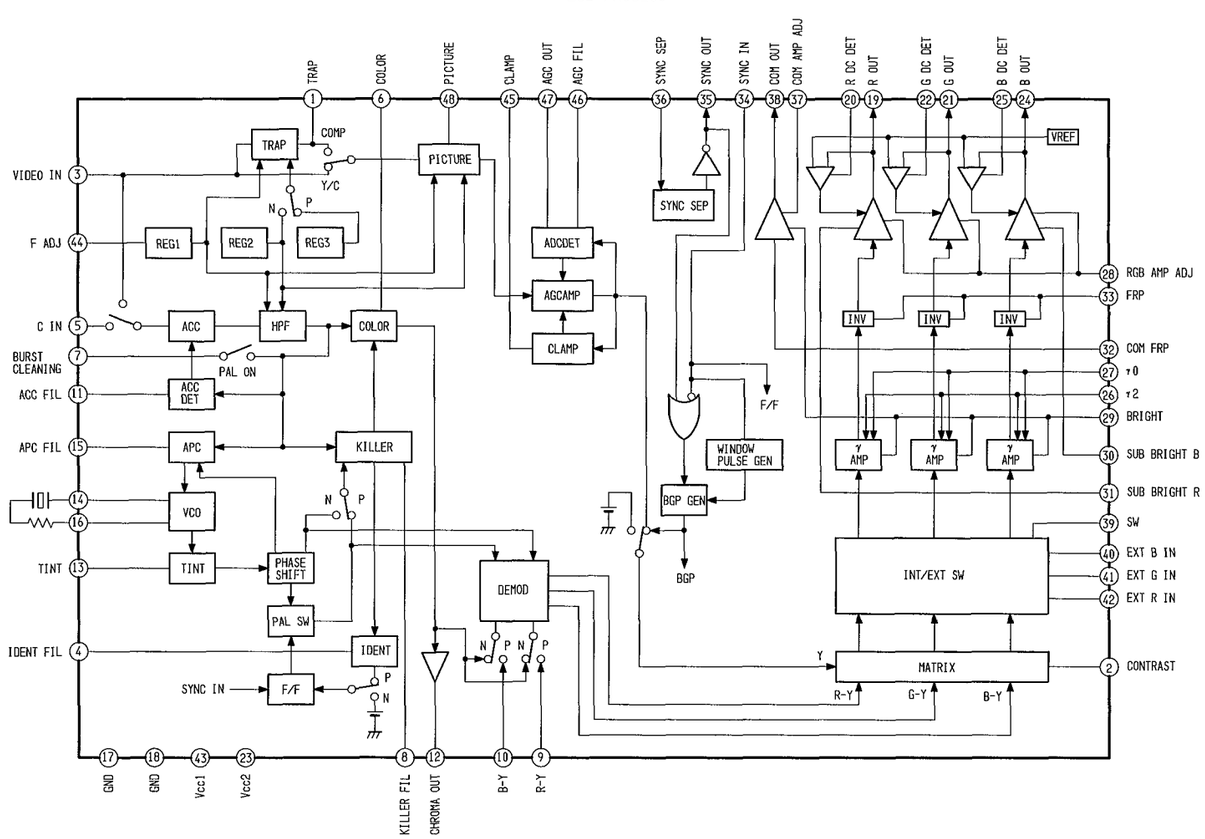

## IC1102
HG51CS0351E
DIGITAL PROCESS (DSP)

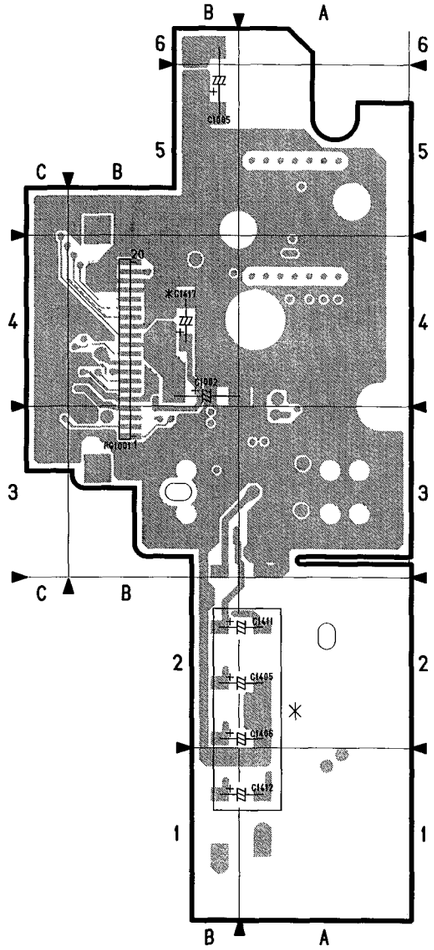


IC2301
CXA1854AR
EVF PROCESS

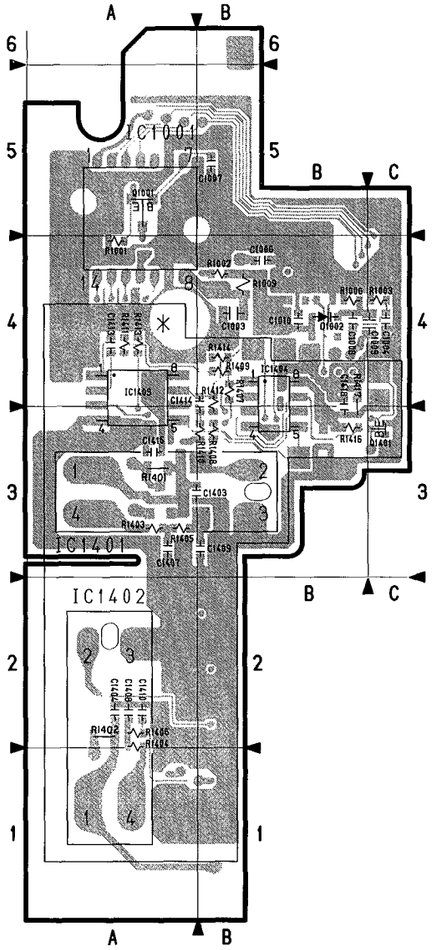



IC5301
IR3Y29AM
LCD PROCESS





SE(SENSOR/GYRO)-SIDE A-
[PATTERN No.JA1381-5]



SE(SENSOR/GYRO)-SIDE B-
[PATTERN No.JA1381-5]

SE [SENSOR/GYRO] – SIDE A –
DIFFERENCE TABLE

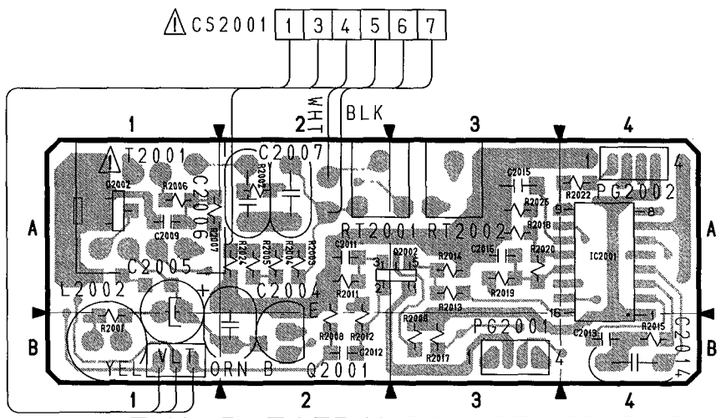
NOTE: This table listes the different components marked with asterisks (*) in the circuit board diagrams

| SYMBOL No | TYPE535 | TYPE 635/637/835/837 |
|---|---|---|
| C1405 | × | O |
| C1406 | × | O |
| C1411 | × | O |
| C1412 | × | O |
| C1417 | × | O |

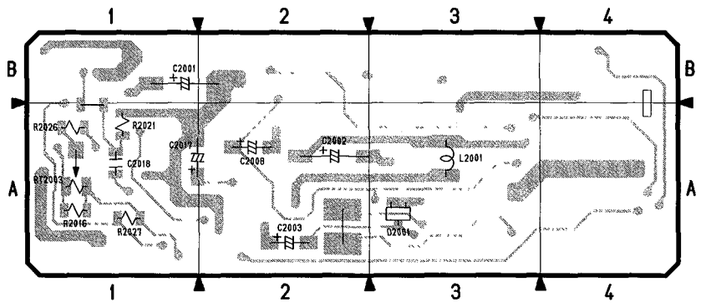
SE [SENSOR/GYRO] – SIDE B –
DIFFERENCE TABLE

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

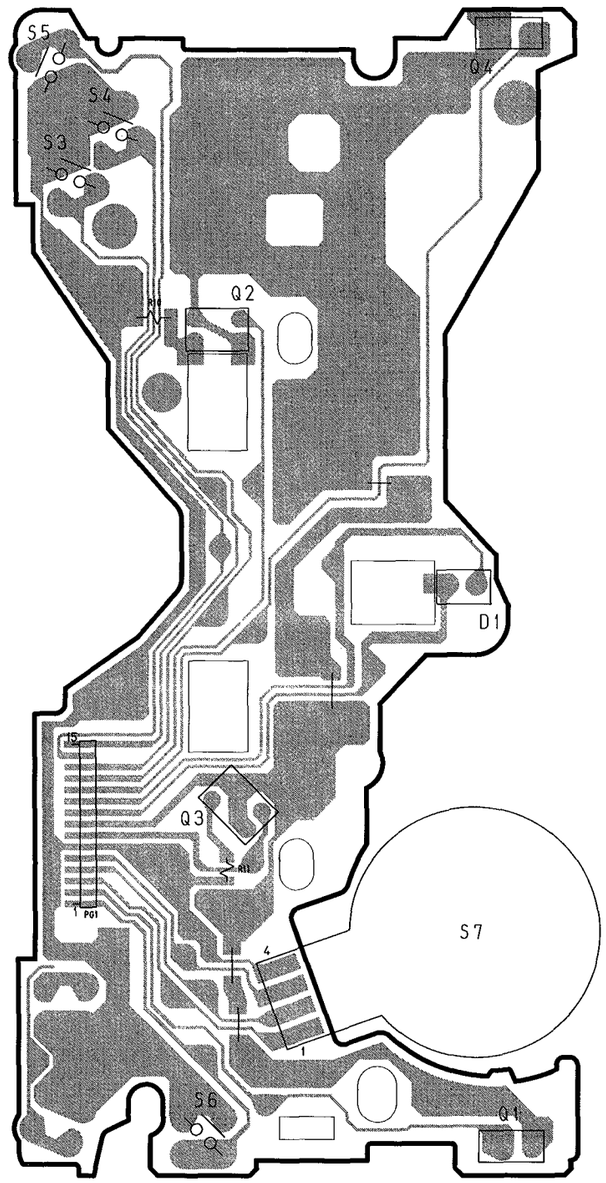
| SYMBOL No | TYPE535 | TYPE 635/637/835/837 |
|---|---|---|
| C1403 | × | O |
| C1404 | × | O |
| C1407 | × | O |
| C1408 | × | O |
| C1409 | × | O |
| C1410 | × | O |
| C1413 | × | O |
| C1414 | × | O |
| C1415 | × | O |
| C1418 | × | O |
| IC1401 | × | O |
| IC1402 | × | O |
| IC1403 | × | O |
| IC1404 | × | O |
| Q1401 | × | O |
| R1401 | × | JUMPER |
| R1402 | × | JUMPER |
| R1403 | × | O |
| R1404 | × | O |
| R1405 | × | O |
| R1406 | × | O |
| R1407 | × | O |
| R1408 | × | O |
| R1409 | × | O |
| R1410 | × | O |
| R1411 | × | O |
| R1412 | × | O |
| R1413 | × | O |
| R1414 | × | O |
| R1416 | × | O |
| R1417 | × | JUMPER |



EMQ(ELECTRONIC VIEWFINDER)
-SIDE A-
[PATTERN No.152035-2]

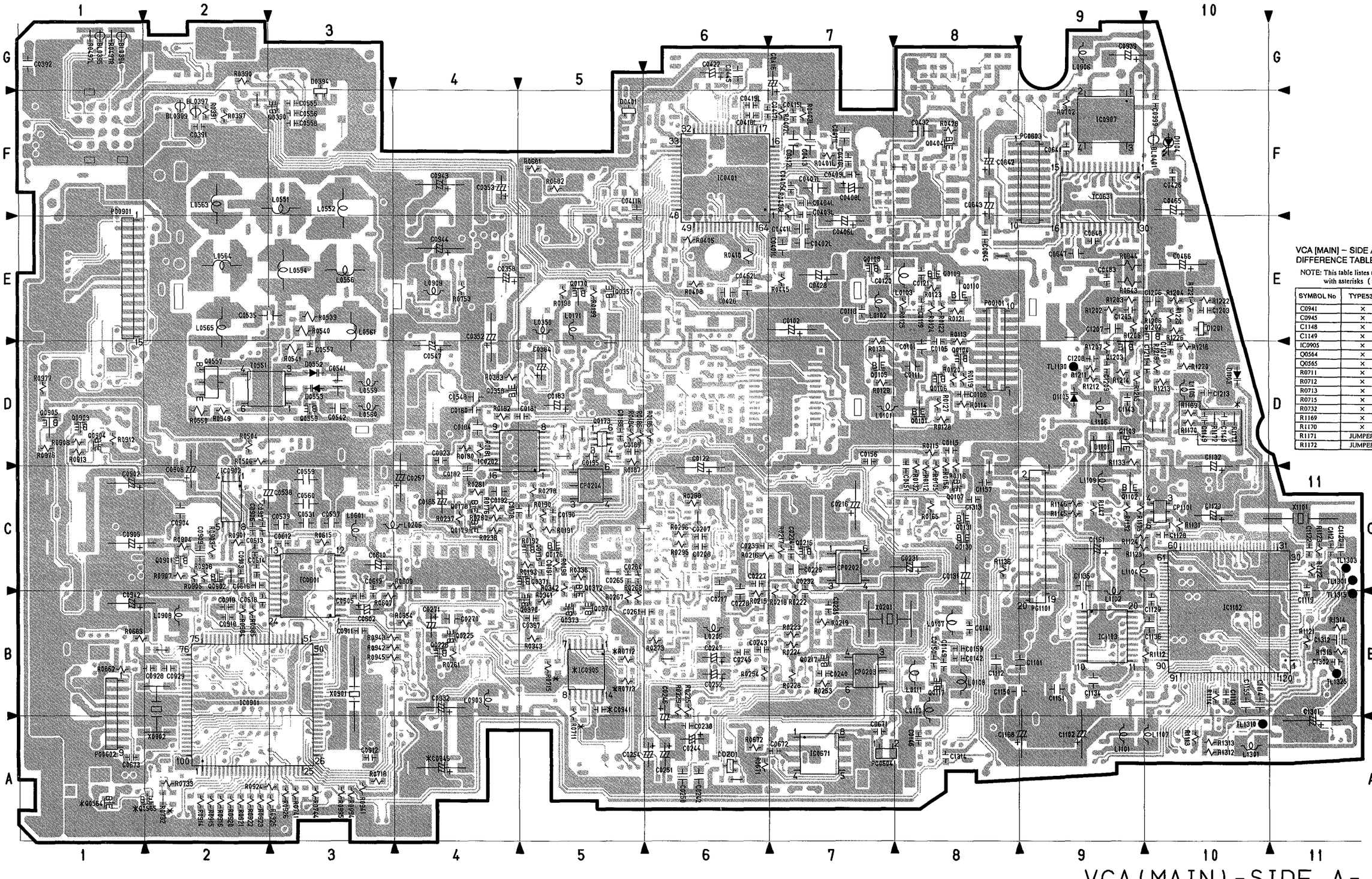


EMQ(ELECTRONIC VIEWFINDER)
-SIDE B-



TROUBLE SENSOR(HTS9551C)
[PATTERN No.155190-2]

# VCA CIRCUIT BOARD -SIDE･A-
[TYPE 535,635,637]



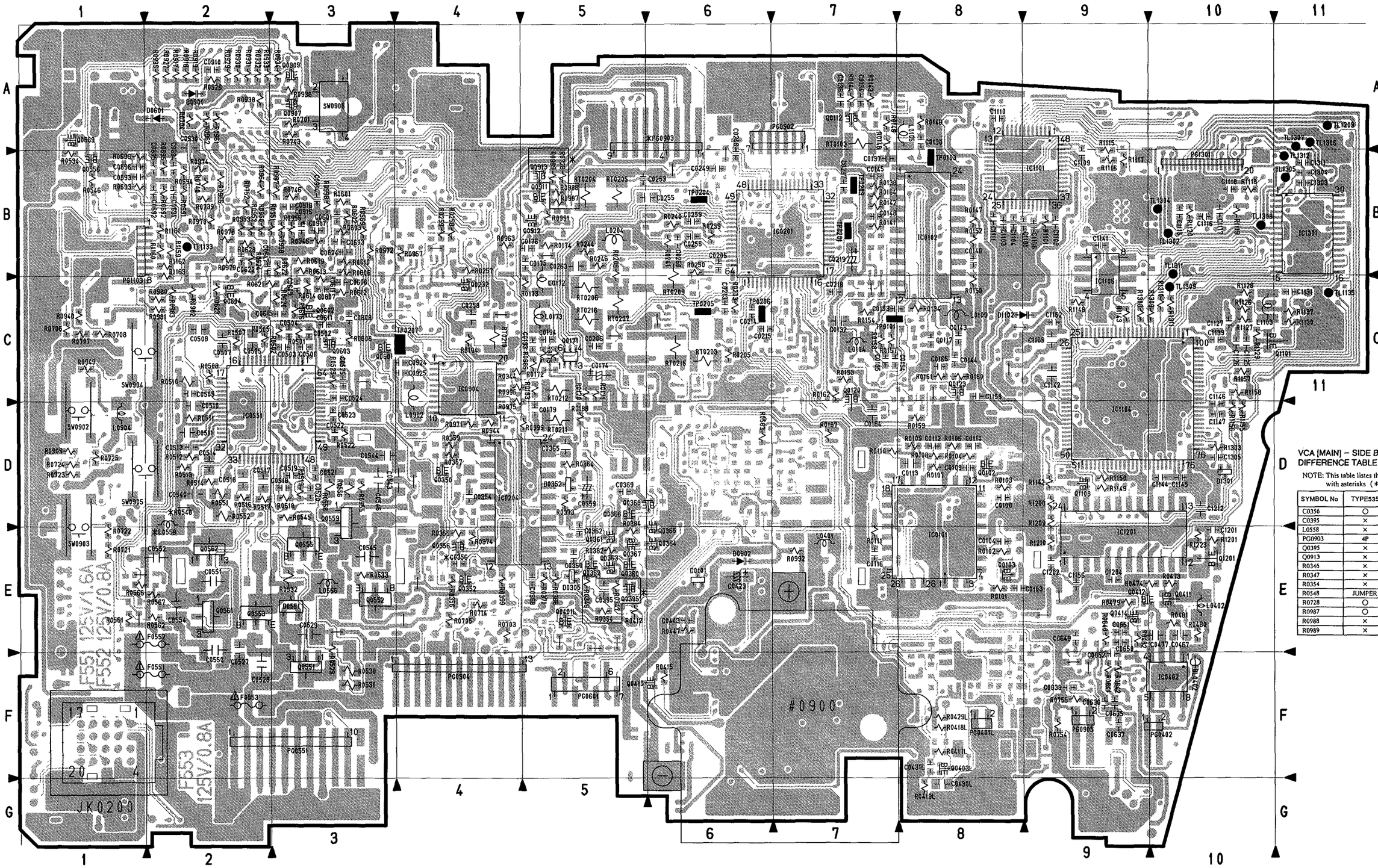
## VCA [MAIN] – SIDE A – DIFFERENCE TABLE

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

| SYMBOL No | TYPE535 | TYPE835 | TYPE837 |
|---|---|---|---|
| C0941 | × | × | ○ |
| C0945 | × | × | ○ |
| C1148 | × | ○ | ○ |
| C1149 | × | ○ | ○ |
| IC0905 | × | × | ○ |
| Q0564 | × | × | ○ |
| Q0565 | × | × | ○ |
| R0711 | × | × | ○ |
| R0712 | × | × | ○ |
| R0713 | × | × | ○ |
| R0715 | × | × | ○ |
| R0732 | × | × | JUMPER |
| R1169 | × | ○ | ○ |
| R1170 | × | ○ | ○ |
| R1171 | JUMPER | × | × |
| R1172 | JUMPER | × | × |

## VCA(MAIN)-SIDE A-
[PATTERN No.JA1381-5]

# VCA CIRCUIT BOARD -SIDE･B-
[TYPE 535,635,637]



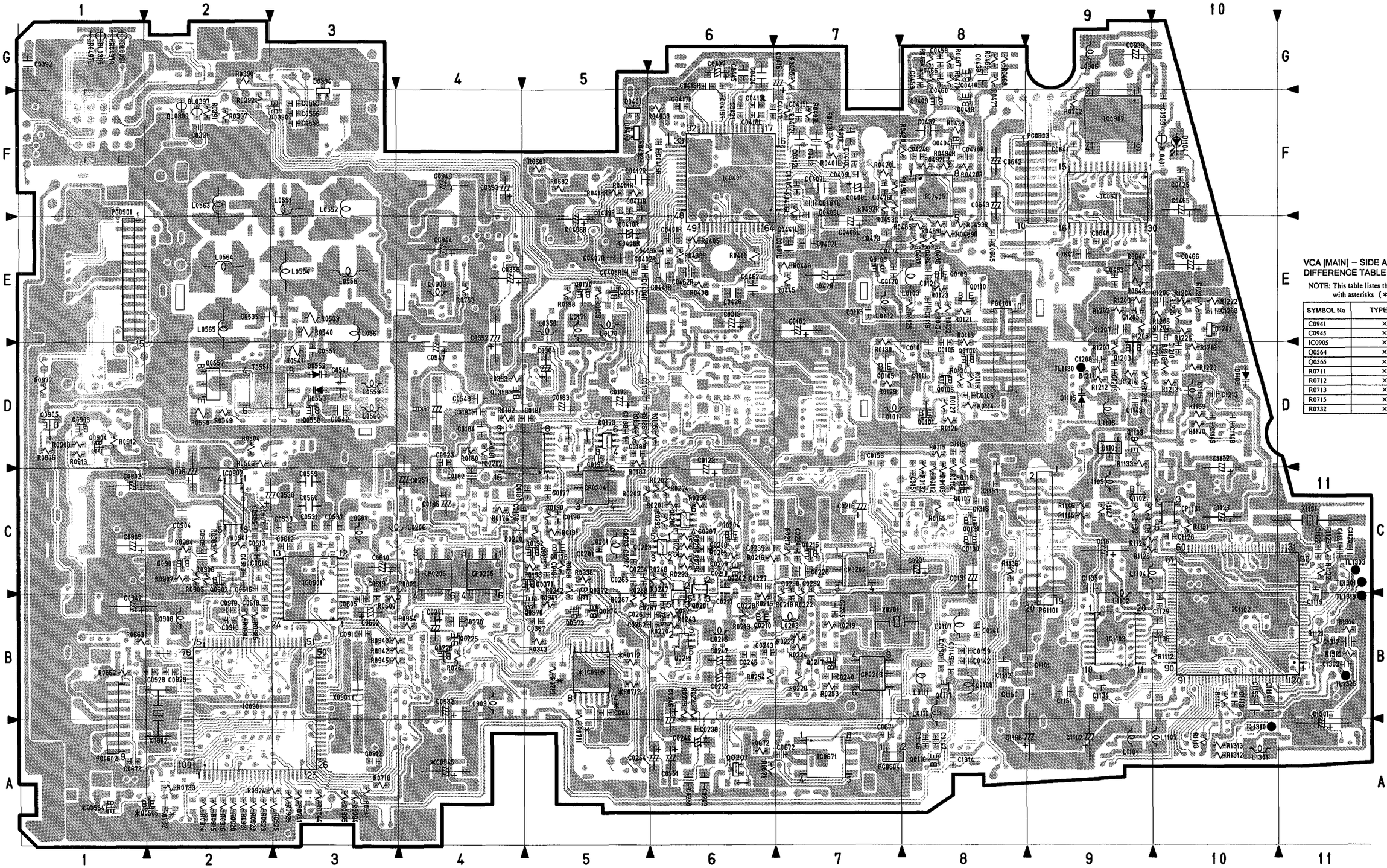

VCA (MAIN) - SIDE B -
[PATTERN No.JA1381-5]

VCA [MAIN] – SIDE B –
DIFFERENCE TABLE

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

| SYMBOL No | TYPE535 | TYPE635 | TYPE637 |
|---|---|---|---|
| C0356 | ○ | ○ | × |
| C0395 | × | ○ | ○ |
| L0558 | × | × | ○ |
| PG0903 | 4P | 4P | 9P |
| Q0395 | × | ○ | ○ |
| Q0913 | × | × | ○ |
| R0346 | × | ○ | ○ |
| R0347 | × | ○ | ○ |
| R0354 | × | ○ | ○ |
| R0548 | JUMPER | JUMPER | × |
| R0728 | ○ | ○ | × |
| R0987 | ○ | ○ | × |
| R0988 | × | × | ○ |
| R0989 | × | × | ○ |

# VCA CIRCUIT BOARD -SIDE･A-
[TYPE 835,837]



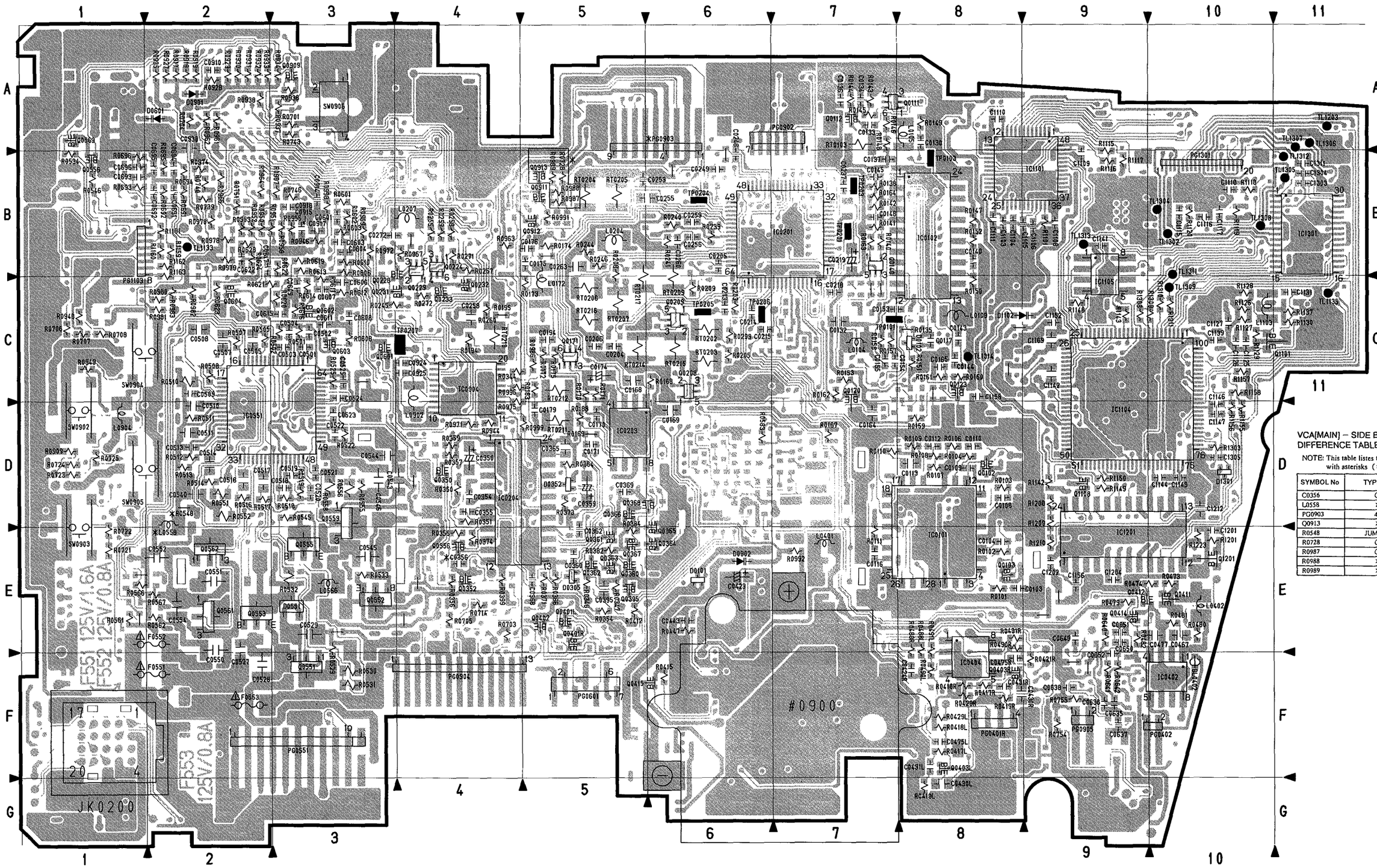
VCA (MAIN) – SIDE A –
DIFFERENCE TABLE

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

| SYMBOL No | TYPE835 | TYPE837 |
|---|---|---|
| C0941 | × | ○ |
| C0945 | × | ○ |
| IC0905 | × | ○ |
| Q0564 | × | ○ |
| Q0565 | × | ○ |
| R0711 | × | ○ |
| R0712 | × | ○ |
| R0713 | × | ○ |
| R0715 | × | ○ |
| R0732 | × | JUMPER |

VCA(MAIN)-SIDE A-
[PATTERN No.JA1381-5]

VCA CIRCUIT BOARD -SIDE･B-
[TYPE 835,837]



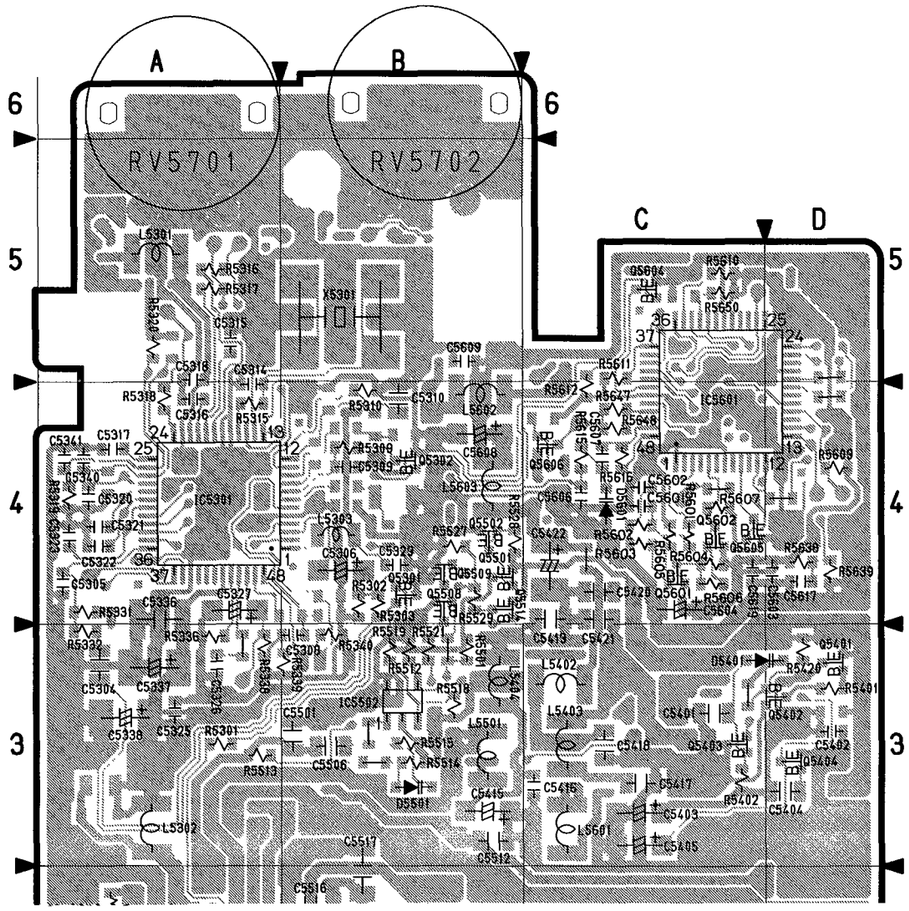

VCA[MAIN] – SIDE B –
DIFFERENCE TABLE

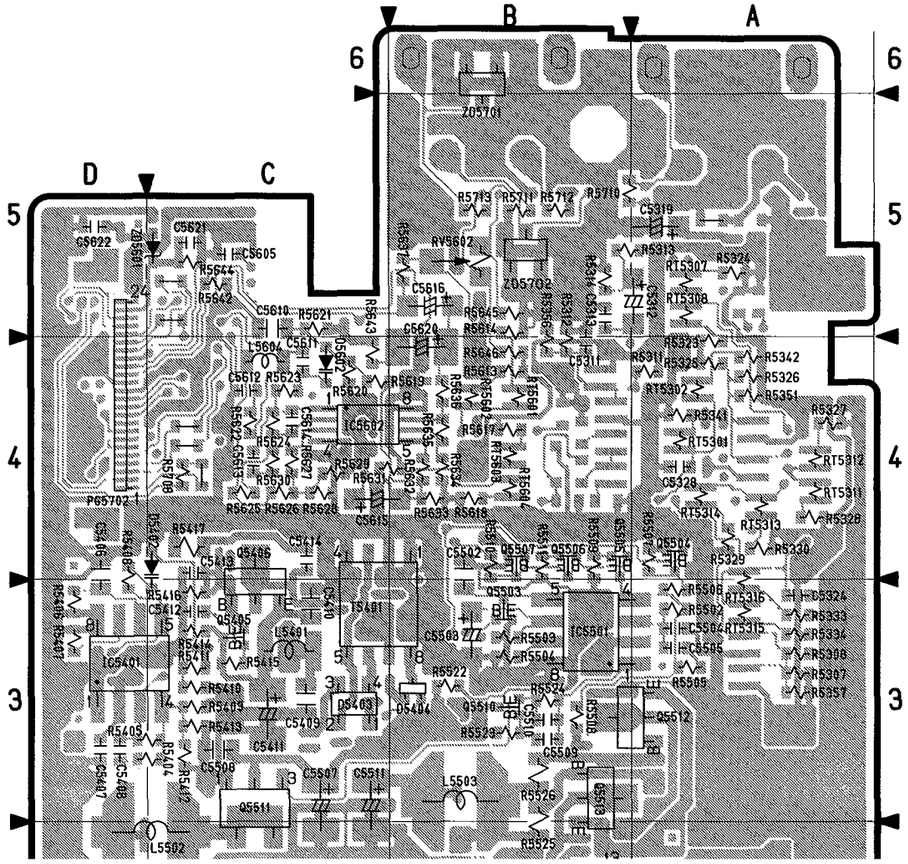
NOTE: This table listes the different components marked with asterisks (＊) in the circuit board diagrams

| SYMBOL No | TYPE835 | TYPE837 |
|---|---|---|
| C0356 | ○ | × |
| L0558 | × | ○ |
| PG0903 | 4P | 9P |
| Q0913 | × | ○ |
| R0548 | JUMPER | × |
| R0728 | ○ | × |
| R0987 | ○ | × |
| R0988 | × | ○ |
| R0989 | × | ○ |

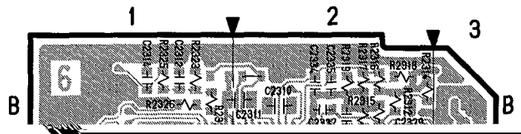
VCA(MAIN)-SIDE B-
[PATTERN No.JA1381-5]

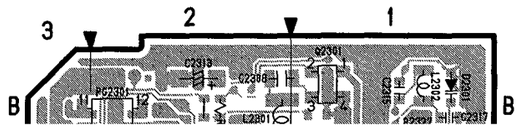
# LCD CIRCUIT BOARD



# VFR,VFM,VFC CIRCUIT BOARDS
[TYPE 637,837]




# IDENTIFICATION OF PARTS LOCATION

## SE [SENSOR/GYRO]

| Symbol No | Parts Location |
|---|---|
| **C** | |
| C1002 | A-4B |
| C1003 | B-4B |
| C1004 | B-4C |

| Symbol No | Parts Location |
|---|---|
| R1414 | B-4B |
| R1416 | B-3B |
| R1417 | B-3B |

## EMQ [ELECTRONIC VIEWFINDER]

| Symbol No | Parts Location |
|---|---|
| **C** | |
| C2001 | B-1B |
| C2002 | B-2A |
| C2003 | B-2A |

| Symbol No | Parts Location |
|---|---|
| R2027 | B-1A |
| **RT** | |
| RT2001 | A-2A |
| RT2002 | A-3A |

# VCA [MAIN] (TYPE 535, 635, 637)

| Symbol No | Parts Location |
|---|---|
| **BL** | |
| BL0394 | A-1G |
| BL0395 | A-1G |
| BL0397 | A-2F |
| BL0399 | A-2F |
| BL0401 | A-10F |
| BL0402 | B-10F |
| **C** | |
| C0101 | A-8D |
| C0102 | A-7E |
| C0103 | B-8E |
| C0104 | B-8E |
| C0105 | A-8D |
| C0106 | A-8D |
| C0108 | B-8D |
| C0109 | B-8D |
| C0110 | B-8D |
| C0111 | A-8D |
| C0112 | B-8D |
| C0113 | B-8D |
| C0115 | A-8D |
| C0116 | B-7E |
| C0117 | B-8C |
| C0118 | A-7E |
| C0119 | A-8E |
| C0120 | A-7E |
| C0121 | A-8E |
| C0122 | A-6C |
| C0130 | B-8A |
| C0131 | A-8C |
| C0132 | B-7C |
| C0134 | B-7A |
| C0136 | B-7A |
| C0137 | B-7B |
| C0140 | B-8B |
| C0141 | A-8B |
| C0142 | A-8B |
| C0143 | B-8C |
| C0144 | B-8C |
| C0145 | B-7B |
| C0146 | A-8A |
| C0148 | B-7B |
| C0149 | A-8B |
| C0150 | A-8B |
| C0151 | A-8C |
| C0153 | B-7C |
| C0154 | B-7C |
| C0155 | B-7C |
| C0156 | A-7D |
| C0159 | A-8B |
| C0164 | B-7D |
| C0165 | B-8C |
| C0174 | B-5C |
| C0175 | B-5B |
| C0176 | B-5B |
| C0178 | A-5C |
| C0179 | B-5D |
| C0180 | A-4D |
| C0181 | A-5D |
| C0182 | A-4C |
| C0183 | A-5D |
| C0184 | A-4D |
| C0185 | A-4C |
| C0188 | A-5D |
| C0189 | A-5D |
| C0190 | A-5C |
| C0191 | A-5C |
| C0192 | A-4C |
| C0193 | B-5C |
| C0194 | B-5C |
| C0195 | A-5D |
| C0205 | B-6B |
| C0206 | B-5C |
| C0207 | A-6C |
| C0208 | A-6C |
| C0213 | B-6C |
| C0214 | B-6C |
| C0215 | B-6C |
| C0216 | A-7C |
| C0217 | A-6C |
| C0218 | B-7C |
| C0219 | B-7B |
| C0224 | A-7C |
| C0226 | A-7C |
| C0227 | A-6C |
| C0228 | A-6B |
| C0231 | A-8C |
| C0232 | A-7B |
| C0235 | A-7B |
| C0237 | B-7B |
| C0238 | A-6A |
| C0239 | A-6C |
| C0240 | A-7B |
| C0242 | A-6A |
| C0243 | A-6B |
| C0244 | A-6A |
| C0245 | A-6B |
| C0246 | A-6A |
| C0247 | A-6B |
| C0248 | B-6B |
| C0249 | B-6B |
| C0250 | A-6A |
| C0251 | A-6A |
| C0252 | A-6B |
| C0253 | B-5B |
| C0254 | A-6A |
| C0255 | B-6B |
| C0256 | B-6B |
| C0257 | A-4C |
| C0258 | B-4C |
| C0259 | B-6B |
| C0260 | B-6B |
| C0261 | A-6B |
| C0263 | B-5B |
| C0264 | A-5C |
| C0265 | A-5C |
| C0270 | A-4B |
| C0271 | A-4B |
| C0352 | A-4E |
| C0353 | A-4F |
| C0354 | B-4D |
| C0356 | B-4E |
| C0358 | A-4E |
| C0359 | B-5D |
| C0360 | B-5E |
| C0362 | B-5E |
| C0364 | A-5D |
| C0365 | B-5D |
| C0367 | A-5B |
| C0368 | B-5E |
| C0369 | B-5D |
| C0391 | A-2F |
| C0392 | A-1G |
| C0395 | B-5E |
| C0401L | A-7E |
| C0402L | A-7E |
| C0403L | A-7F |
| C0404L | A-7F |
| C0405L | A-7F |
| C0406L | A-7E |
| C0407L | A-7F |
| C0408L | A-7F |
| C0409L | A-7F |
| C0410L | A-7F |
| C0411L | A-7F |
| C0411R | A-5F |
| C0412L | A-7F |
| C0413 | A-7F |
| C0415L | A-7F |
| C0416 | A-7G |
| C0417L | A-6F |
| C0418L | A-6F |
| C0419L | A-6F |
| C0422 | A-6G |
| C0423 | B-6E |
| C0425 | A-10F |
| C0426 | A-6E |
| C0428 | A-7E |
| C0430L | B-8G |
| C0431L | B-8F |
| C0432 | A-8F |
| C0441L | A-7E |
| C0443 | B-6E |
| C0445 | A-6G |
| C0462L | A-6E |
| C0465 | A-10F |
| C0466 | A-10E |
| C0467 | B-10E |
| C0477 | B-10E |
| C0483 | A-9E |
| C0501 | B-3C |
| C0502 | B-3C |
| C0503 | B-3C |
| C0504 | B-3C |
| C0505 | B-2C |
| C0507 | B-2C |
| C0508 | B-2C |
| C0509 | B-2C |
| C0510 | B-2D |
| C0511 | B-2D |
| C0513 | B-2D |
| C0514 | B-2D |
| C0516 | B-2D |
| C0517 | B-2D |
| C0518 | B-3D |
| C0519 | B-3D |
| C0520 | B-3D |
| C0521 | B-3D |
| C0522 | B-3D |
| C0523 | B-3D |
| C0524 | B-3C |
| C0525 | B-3C |
| C0527 | B-2E |
| C0528 | B-2F |
| C0529 | B-3E |
| C0531 | A-3C |
| C0535 | A-3E |
| C0537 | A-3C |
| C0538 | A-2C |
| C0539 | A-3C |
| C0540 | B-2D |
| C0541 | A-3D |
| C0542 | A-3D |
| C0543 | B-4D |
| C0544 | B-3D |
| C0545 | B-3E |
| C0546 | B-3D |
| C0547 | A-4D |
| C0548 | A-4D |
| C0550 | B-2E |
| C0551 | B-2E |
| C0552 | B-2E |
| C0554 | B-2E |
| C0555 | A-3F |
| C0556 | A-3F |
| C0557 | A-3D |
| C0558 | A-3F |
| C0559 | A-3C |
| C0560 | A-3C |
| C0601 | B-3B |
| C0602 | A-3B |
| C0603 | B-3B |
| C0604 | B-3B |
| C0605 | A-3B |
| C0606 | B-3C |
| C0607 | B-3C |
| C0608 | B-3C |
| C0609 | B-3C |
| C0610 | A-3C |
| C0611 | B-3C |
| C0612 | A-3C |
| C0613 | A-2C |
| C0614 | A-2C |
| C0615 | B-3C |
| C0616 | A-2C |
| C0617 | B-2B |
| C0618 | A-2B |
| C0619 | A-3B |
| C0622 | B-2B |
| C0635 | B-9F |
| C0636 | B-9F |
| C0637 | B-9F |
| C0638 | B-9F |
| C0641 | A-9F |
| C0642 | A-8F |
| C0643 | A-8F |
| C0645 | A-8E |
| C0647 | A-9E |
| C0648 | A-9E |
| C0649 | B-9E |
| C0650 | B-9E |
| C0651 | B-9E |
| C0652 | B-9F |
| C0671 | A-7A |
| C0672 | A-7A |
| C0673 | A-1A |
| C0691 | B-2B |
| C0692 | B-2B |
| C0693 | B-1B |
| C0694 | B-2B |
| C0695 | B-2B |
| C0696 | B-1B |
| C0902 | A-1C |
| C0904 | A-2C |
| C0905 | A-1C |
| C0906 | A-2C |
| C0907 | A-2C |
| C0908 | A-2C |
| C0909 | A-2C |
| C0910 | B-2A |
| C0911 | A-3B |
| C0912 | A-3A |
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| C0917 | B-3B |
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| C0919 | A-2B |
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| C0925 | B-4C |
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| C1132 | A-10C |
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| C1158 | B-8C |
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| C1203 | A-10E |
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| C1212 | B-10D |
| C1213 | A-10D |
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| C1303 | B-11B |
| C1304 | B-11B |
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| C1312 | A-11B |
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| C1314 | A-8A |
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| CP0202 | A-7C |
| CP0203 | A-7B |
| CP0204 | A-5C |
| CP1101 | A-10C |
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| D0201 | A-6A |
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| D0352 | B-5D |
| D0394 | A-3F |
| D0401 | A-5F |
| D0551 | B-3E |
| D0552 | A-3D |
| D0553 | A-3D |
| D0601 | B-2A |
| D0901 | B-2A |
| D0902 | B-6E |
| D1101 | A-9D |
| D1102 | B-9C |
| D1103 | A-10D |
| D1104 | A-10F |
| D1105 | A-9D |
| D1201 | A-10E |
| D1301 | B-10D |
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| F0552 | B-2E |
| F0553 | B-2F |
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| IC0202 | A-5D |
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| IC0904 | B-4C |
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| IC0907 | A-9F |
| IC1101 | B-9B |
| IC1102 | A-10B |
| IC1103 | A-9B |
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| L0108 | A-8B |
| L0109 | B-8C |
| L0110 | A-8B |
| L0111 | A-8B |
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| L0173 | B-5C |
| L0204 | B-5B |
| L0205 | A-6B |
| L0206 | A-3C |
| L0350 | A-5E |
| L0401 | B-7E |
| L0402 | B-10E |
| L0551 | A-3F |
| L0552 | A-3F |
| L0554 | A-3E |
| L0556 | A-3E |
| L0558 | B-2D |
| L0559 | A-3D |
| L0560 | A-3D |
| L0561 | A-3E |
| L0563 | A-2F |
| L0564 | A-2E |
| L0565 | A-2E |
| L0566 | B-3E |
| L0601 | A-3C |
| L0902 | B-4C |
| L0903 | A-4B |
| L0904 | B-1D |
| L0906 | A-9G |
| L0908 | A-2B |
| L0909 | A-4E |
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| L1102 | A-9B |
| L1103 | B-10C |
| L1104 | A-10C |
| L1105 | A-10D |
| L1106 | A-9D |
| L1107 | A-10A |
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| L1301 | A-10A |
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| PG0604 | A-7A |
| PG0901 | A-1E |
| PG0902 | B-7A |
| PG0903 | B-6A |
| PG0904 | B-4F |
| PG0905 | B-9F |
| PG1101 | A-9C |
| PG1103 | B-1B |
| PG1301 | B-10B |
| **Q** | |
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| Q0106 | A-8D |
| Q0107 | A-8C |
| Q0108 | A-7E |
| Q0109 | A-8E |
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| Q0117 | A-8B |
| Q0120 | B-7C |
| Q0123 | B-8C |
| Q0130 | A-8C |
| Q0131 | A-8C |
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| Q0171 | B-5C |
| Q0173 | A-5D |
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| Q0176 | A-5C |
| Q0178 | A-4C |
| Q0179 | A-4C |
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| Q0217 | A-7B |
| Q0225 | A-4B |
| Q0226 | A-4B |
| Q0232 | B-4C |
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| Q0356 | B-4E |
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| Q0362 | B-5E |
| Q0363 | B-5E |
| Q0364 | B-6E |
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| Q0366 | B-5D |
| Q0367 | B-5E |
| Q0368 | B-6D |
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| Q0373 | A-5B |
| Q0374 | A-5B |
| Q0390 | A-3F |
| Q0395 | B-5E |
| Q0401L | B-5E |
| Q0403L | B-8F |
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| Q0412 | B-9E |
| Q0414 | B-9E |
| Q0415 | B-6F |
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| Q0552 | B-3E |
| Q0553 | B-2E |
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| Q0559 | B-3D |
| Q0561 | B-2E |
| Q0562 | B-2E |
| Q0563 | B-1A |
| Q0564 | A-1A |
| Q0565 | A-2A |
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| Q0603 | B-3C |
| Q0604 | B-2C |
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| Q0902 | A-2C |
| Q0903 | A-1D |
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| Q0912 | B-5B |
| Q0913 | B-5B |
| Q1101 | B-11C |
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| Q1103 | A-9D |
| Q1108 | B-9D |
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| Q1203 | A-9D |
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| R0374 | B-4E |
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| R0419L | B-8G |
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| R1133 | A-9D |
| R1136 | A-8C |
| R1137 | B-11C |
| R1142 | B-9D |
| R1143 | B-9C |
| R1145 | A-9C |
| R1146 | A-9C |
| R1147 | A-9C |
| R1148 | B-9C |
| R1149 | B-9D |
| R1150 | B-9D |
| R1155 | B-10D |
| R1156 | B-10D |
| R1157 | B-10C |
| R1158 | B-10C |
| R1159 | B-2B |
| R1160 | B-2B |
| R1161 | B-2B |
| R1162 | B-2B |
| R1163 | B-2B |
| R1169 | A-10D |
| R1170 | A-10D |
| R1171 | A-10D |
| R1172 | A-10D |
| R1175 | A-9C |
| R1201 | B-10E |
| R1202 | A-9E |
| R1203 | A-9E |
| R1204 | A-10E |
| R1205 | A-9E |
| R1206 | A-10E |
| R1207 | A-9D |
| R1208 | B-9D |
| R1209 | B-9D |
| R1210 | B-9E |
| R1211 | A-9D |
| R1212 | A-9D |
| R1213 | A-10D |
| R1214 | A-9D |
| R1215 | A-9D |
| R1216 | A-10D |
| R1218 | A-10D |
| R1220 | A-10D |
| R1221 | A-10E |
| R1222 | A-10E |
| R1223 | B-10E |
| R1225 | A-10E |
| R1226 | A-10E |
| R1303 | B-10D |
| R1308 | B-9C |
| R1309 | B-10C |
| R1310 | B-10C |
| R1311 | B-10C |
| R1312 | A-10A |
| R1313 | A-10A |
| R1314 | A-11B |
| R1315 | A-11B |
| **RT** | |
| RT0103 | B-7A |
| RT0203 | B-6C |
| RT0204 | B-5B |
| RT0205 | B-5B |
| RT0206 | B-5C |
| RT0207 | B-5C |
| RT0209 | B-6C |
| RT0210 | B-4C |
| RT0211 | B-5D |
| RT0212 | B-5C |
| RT0215 | B-6C |
| RT0216 | B-5C |
| **SW** | |
| SW0902 | B-1D |
| SW0903 | B-1D |
| SW0904 | B-1C |
| SW0905 | B-1D |
| SW0906 | B-3A |
| **T** | |
| T0551 | A-2D |
| **TL** | |
| TL1130 | A-9D |
| TL1133 | B-2B |
| TL1135 | B-11C |
| TL1203 | B-11A |
| TL1301 | A-11C |
| TL1302 | B-10B |
| TL1303 | A-11C |
| TL1304 | B-10B |
| TL1305 | B-11B |
| TL1306 | B-11A |
| TL1307 | B-11A |
| TL1308 | B-10B |
| TL1309 | B-10C |
| TL1310 | A-10A |
| TL1311 | B-10B |
| TL1312 | B-11B |
| TL1315 | A-11B |
| TL1325 | A-11B |
| **TP** | |
| TP0101 | B-7C |
| TP0103 | B-8B |
| TP0201 | B-7B |
| TP0203 | B-7B |
| TP0204 | B-6B |
| TP0205 | B-6C |
| TP0206 | B-6C |
| TP0207 | B-4C |
| **X** | |
| X0201 | A-7B |
| X0901 | A-3B |
| X0902 | A-2B |
| X1101 | A-11C |

# MAS [MAIN] (TYPE 835, 837)

| Symbol No | Parts Location |
|---|---|
| **BL** | |
| BL0394 | A-1G |
| BL0395 | A-1G |
| BL0397 | A-2F |
| BL0399 | A-2F |
| BL0401 | A-10F |
| BL0402 | B-10F |
| **C** | |
| C0101 | A-8D |
| C0102 | A-7E |
| C0103 | B-8E |
| C0104 | B-8E |
| C0105 | A-8D |
| C0106 | A-8D |
| C0108 | B-8D |
| C0109 | B-8D |
| C0110 | B-8D |
| C0111 | A-8D |
| C0112 | B-8D |
| C0113 | B-8D |
| C0115 | A-8D |
| C0116 | B-7E |
| C0117 | B-8C |
| C0118 | A-7E |
| C0119 | A-8E |
| C0120 | A-7E |
| C0121 | A-8E |
| C0122 | A-6C |
| C0130 | B-8A |
| C0131 | A-8C |
| C0132 | B-7C |
| C0133 | B-7A |
| C0134 | B-7A |
| C0136 | B-7A |
| C0137 | B-7B |
| C0140 | B-8B |
| C0141 | A-8B |
| C0142 | A-8B |
| C0143 | B-8C |
| C0144 | B-8C |
| C0145 | B-7B |
| C0146 | A-8A |
| C0147 | A-8A |
| C0148 | B-7B |
| C0149 | A-8B |
| C0150 | A-8B |
| C0151 | A-8C |
| C0153 | B-7C |
| C0154 | B-7C |
| C0155 | B-7C |
| C0156 | A-7D |
| C0159 | A-8B |
| C0164 | B-7D |
| C0165 | B-8C |
| C0168 | B-5C |
| C0169 | B-6D |
| C0170 | B-5D |
| C0171 | B-5D |
| C0172 | A-5D |
| C0173 | A-5D |
| C0174 | B-5C |
| C0175 | B-5B |
| C0176 | B-5B |
| C0177 | A-5C |
| C0178 | A-5C |
| C0179 | B-5D |
| C0180 | A-4D |
| C0181 | A-5D |
| C0182 | A-4C |
| C0183 | A-5D |
| C0184 | A-4D |
| C0185 | A-4C |
| C0187 | A-5C |
| C0188 | A-5D |
| C0189 | A-5D |
| C0190 | A-5C |
| C0191 | A-5C |
| C0194 | B-5C |
| C0195 | A-5D |
| C0201 | A-5C |
| C0202 | A-5C |
| C0203 | A-5C |
| C0204 | B-5C |
| C0205 | B-6B |
| C0206 | B-5C |
| C0207 | A-6C |
| C0208 | A-6C |
| C0209 | A-6C |
| C0210 | A-6C |
| C0213 | B-6C |
| C0214 | B-6C |
| C0215 | B-6C |
| C0216 | A-7C |
| C0217 | A-6C |
| C0218 | B-7C |
| C0219 | B-7B |
| C0224 | A-7C |
| C0226 | A-7C |
| C0227 | A-6C |
| C0228 | A-6B |
| C0230 | A-7B |
| C0231 | A-8C |
| C0232 | A-7B |
| C0235 | A-7B |
| C0237 | B-7B |
| C0238 | A-6A |
| C0239 | A-6C |
| C0240 | A-7B |
| C0242 | A-6A |
| C0243 | A-6B |
| C0244 | A-6A |
| C0245 | A-6B |
| C0246 | A-6A |
| C0247 | A-6B |
| C0248 | B-6B |
| C0249 | B-6B |
| C0250 | A-6A |
| C0251 | A-6A |
| C0252 | A-6B |
| C0253 | B-5B |
| C0254 | A-6A |
| C0255 | B-6B |
| C0256 | B-6B |
| C0257 | A-4C |
| C0258 | B-4C |
| C0259 | B-6B |
| C0260 | B-6B |
| C0261 | A-6B |
| C0262 | A-6B |
| C0263 | B-5B |
| C0264 | A-5C |
| C0265 | A-5C |
| C0266 | A-6B |
| C0267 | A-6B |
| C0270 | A-4B |
| C0271 | A-4B |
| C0272 | B-3B |
| C0350 | B-4D |
| C0351 | A-4D |
| C0352 | A-4E |
| C0353 | A-4F |
| C0354 | B-4D |
| C0355 | B-4D |
| C0356 | B-4E |
| C0358 | A-4E |
| C0359 | B-5D |
| C0360 | B-5E |
| C0362 | B-5E |
| C0364 | A-5D |
| C0365 | B-5D |
| C0367 | A-5B |
| C0368 | B-5E |
| C0369 | B-5D |
| C0391 | A-2F |
| C0392 | A-1G |
| C0395 | B-5E |
| C0401L | A-7E |
| C0401R | A-6E |
| C0402L | A-7E |
| C0402R | A-6E |
| C0403L | A-7F |
| C0403R | A-6E |
| C0404L | A-7F |
| C0404R | A-5E |
| C0405L | A-7F |
| C0405R | A-5E |
| C0406L | A-7E |
| C0406R | A-5E |
| C0407L | A-7F |
| C0407R | A-5E |
| C0408L | A-7F |
| C0408R | A-5E |
| C0409L | A-7F |
| C0409R | A-5F |
| C0410L | A-7F |
| C0410R | A-5F |
| C0411L | A-7F |
| C0411R | A-5F |
| C0412L | A-7F |
| C0412R | A-5F |
| C0413 | A-7F |
| C0415L | A-7F |
| C0415R | A-6F |
| C0416 | A-7G |
| C0417L | A-6F |
| C0417R | A-6F |
| C0418L | A-6F |
| C0418R | A-6G |
| C0419L | A-6F |
| C0419R | A-6F |
| C0420 | A-6G |
| C0421 | A-6F |
| C0422 | A-6G |
| C0423 | B-6E |
| C0424L | A-8F |
| C0424R | B-8F |
| C0425 | A-10F |
| C0426 | A-6E |
| C0428 | A-7E |
| C0430L | B-8G |
| C0430R | B-8F |
| C0431L | B-8F |
| C0431R | B-8F |
| C0432 | A-8F |
| C0439 | A-8G |
| C0441L | A-7E |
| C0441R | A-6E |
| C0443 | B-6E |
| C0445 | A-6G |
| C0458 | A-8G |
| C0459 | A-8G |
| C0460 | A-8G |
| C0462L | A-6E |
| C0462R | A-6E |
| C0465 | A-10F |
| C0466 | A-10E |
| C0467 | B-10E |
| C0473 | A-7E |
| C0474 | A-8E |
| C0475L | B-8F |
| C0475R | B-8F |
| C0476L | A-7F |
| C0476R | A-8F |
| C0477 | B-10E |
| C0483 | A-9E |
| C0501 | B-3C |
| C0502 | B-3C |
| C0503 | B-3C |
| C0504 | B-3C |
| C0505 | B-2C |
| C0507 | B-2C |
| C0508 | B-2C |
| C0509 | B-2C |
| C0510 | B-2D |
| C0511 | B-2D |
| C0513 | B-2D |
| C0514 | B-2D |
| C0516 | B-2D |
| C0517 | B-2D |
| C0518 | B-3D |
| C0519 | B-3D |
| C0520 | B-3D |
| C0521 | B-3D |
| C0522 | B-3D |
| C0523 | B-3D |
| C0524 | B-3C |
| C0525 | B-3C |
| C0527 | B-2E |
| C0528 | B-2F |
| C0529 | B-3E |
| C0531 | A-3C |
| C0535 | A-3E |
| C0537 | A-3C |
| C0538 | A-2C |
| C0539 | A-3C |
| C0540 | B-2D |
| C0541 | A-3D |
| C0542 | A-3D |
| C0543 | B-4D |
| C0544 | B-3D |
| C0545 | B-3E |
| C0546 | B-3D |
| C0547 | A-4D |
| C0548 | A-4D |
| C0550 | B-2E |
| C0551 | B-2E |
| C0552 | B-2E |
| C0554 | B-2E |
| C0555 | A-3F |
| C0556 | A-3F |
| C0557 | A-3D |
| C0558 | A-3F |
| C0559 | A-3C |
| C0560 | A-3C |
| C0601 | B-3B |
| C0602 | A-3B |
| C0603 | B-3B |
| C0604 | B-3B |
| C0605 | A-3B |
| C0606 | B-3C |
| C0607 | B-3C |
| C0608 | B-3C |
| C0609 | B-3C |
| C0610 | A-3C |
| C0611 | B-3C |
| C0612 | A-3C |
| C0613 | A-2C |
| C0614 | A-2C |
| C0615 | B-3C |
| C0616 | A-2C |
| C0617 | B-2B |
| C0618 | A-2B |
| C0619 | A-3B |
| C0622 | B-2B |
| C0635 | B-9F |
| C0636 | B-9F |
| C0637 | B-9F |
| C0638 | B-9F |
| C0641 | A-9F |
| C0642 | A-8F |
| C0643 | A-8F |
| C0645 | A-8E |
| C0647 | A-9E |
| C0648 | A-9E |
| C0649 | B-9E |
| C0650 | B-9E |
| C0651 | B-9E |
| C0652 | B-9F |
| C0671 | A-7A |
| C0672 | A-7A |
| C0673 | A-1A |
| C0691 | B-2B |
| C0692 | B-2B |
| C0693 | B-1B |
| C0694 | B-2B |
| C0695 | B-2B |
| C0696 | B-1B |
| C0902 | A-1C |
| C0904 | A-2C |
| C0905 | A-1C |
| C0906 | A-2C |
| C0907 | A-2C |
| C0908 | A-2C |
| C0909 | A-2C |
| C0910 | B-2A |
| C0911 | A-3B |
| C0912 | A-3A |
| C0913 | A-2C |
| C0914 | B-3B |
| C0915 | B-3B |
| C0916 | B-3B |
| C0917 | B-3B |
| C0918 | A-2B |
| C0919 | A-2B |
| C0923 | A-4D |
| C0924 | B-4C |
| C0925 | B-4C |
| C0928 | A-2B |
| C0929 | A-2B |
| C0930 | B-2A |
| C0932 | A-4B |
| C0939 | A-9G |
| C0941 | A-5B |
| C0942 | A-1B |
| C0943 | A-4F |
| C0944 | A-4E |
| C0945 | A-4A |
| C0999 | A-10F |
| C1101 | A-9B |
| C1102 | A-9A |
| C1103 | B-8B |
| C1104 | B-8B |
| C1105 | B-9B |
| C1106 | B-9B |
| C1108 | B-9B |
| C1109 | B-9B |
| C1110 | B-8A |
| C1111 | B-8B |
| C1112 | A-8B |
| C1113 | A-10B |
| C1114 | A-10B |
| C1115 | B-10B |
| C1116 | B-10B |
| C1117 | B-10B |
| C1118 | B-10B |
| C1119 | A-11C |
| C1120 | A-11C |
| C1121 | A-11C |
| C1122 | A-11C |
| C1123 | A-10C |
| C1125 | B-10C |
| C1126 | B-10C |
| C1127 | B-10C |
| C1128 | A-10C |
| C1129 | A-10B |
| C1131 | B-11C |
| C1132 | A-10C |
| C1134 | A-9B |
| C1135 | A-9C |
| C1136 | A-10B |
| C1139 | B-10C |
| C1141 | B-9B |
| C1142 | B-9C |
| C1143 | A-9D |
| C1144 | B-10D |
| C1145 | B-10D |
| C1146 | B-10D |
| C1147 | B-10D |
| C1148 | A-10D |
| C1149 | A-10D |
| C1150 | A-9B |
| C1151 | A-9B |
| C1152 | B-9C |
| C1155 | A-10B |
| C1156 | B-9E |
| C1157 | A-8C |
| C1158 | B-8C |
| C1161 | A-9C |
| C1168 | A-9A |
| C1169 | B-9C |
| C1201 | B-10E |
| C1202 | B-9E |
| C1203 | A-10E |
| C1204 | B-9E |
| C1205 | A-9E |
| C1206 | A-10E |
| C1207 | A-9E |
| C1208 | A-9D |
| C1209 | A-9D |
| C1210 | A-10D |
| C1211 | A-10D |
| C1212 | B-10D |
| C1213 | A-10D |
| C1301 | A-11A |
| C1302 | A-11B |
| C1303 | B-11B |
| C1304 | B-11B |
| C1305 | B-10D |
| C1311 | B-11B |
| C1312 | A-11B |
| C1313 | A-8C |
| C1314 | A-8A |
| **CP** | |
| CP0202 | A-7C |
| CP0203 | A-7B |
| CP0204 | A-5C |
| CP0205 | A-4C |
| CP0206 | A-4C |
| CP1101 | A-10C |
| **D** | |
| D0101 | B-6E |
| D0102 | B-8C |
| D0201 | A-6A |
| D0305 | B-5E |
| D0352 | B-5D |
| D0394 | A-3F |
| D0401 | A-5F |
| D0403 | A-5F |
| D0551 | B-3E |
| D0552 | A-3D |
| D0553 | A-3D |
| D0601 | B-2A |
| D0901 | B-2A |
| D0902 | B-6E |
| D1101 | A-9D |
| D1102 | B-9C |
| D1103 | A-10D |
| D1104 | A-10F |
| D1105 | A-9D |
| D1201 | A-10E |
| D1301 | B-10D |
| **F** | |
| F0551 | B-2F |
| F0552 | B-2E |
| F0553 | B-2F |
| **IC** | |
| IC0101 | B-8E |
| IC0102 | B-8B |
| IC0201 | B-7B |
| IC0202 | A-5D |
| IC0203 | B-5D |
| IC0204 | B-4D |
| IC0401 | A-6F |
| IC0402 | B-10F |
| IC0404 | B-8F |
| IC0405 | A-8F |
| IC0551 | B-3C |
| IC0601 | A-3C |
| IC0631 | A-9F |
| IC0671 | A-7A |
| IC0901 | A-2B |
| IC0902 | A-2C |
| IC0904 | B-4C |
| IC0905 | A-5B |
| IC0907 | A-9F |
| IC1101 | B-9B |
| IC1102 | A-10B |
| IC1103 | A-9B |
| IC1104 | B-9C |
| IC1105 | B-9B |
| IC1201 | B-9E |
| IC1301 | B-11B |
| **JK** | |
| JK0200 | B-1F |
| **L** | |
| L0101 | A-7D |
| L0102 | A-7E |
| L0103 | A-8E |
| L0104 | B-7C |
| L0105 | B-8A |
| L0107 | A-8B |
| L0108 | A-8B |
| L0109 | B-8C |
| L0110 | A-8B |
| L0111 | A-8B |
| L0170 | A-5E |
| L0171 | A-5E |
| L0172 | B-5C |
| L0201 | A-5C |
| L0203 | A-7B |
| L0204 | B-5B |
| L0205 | A-6B |
| L0206 | A-3C |
| L0207 | B-4B |
| L0350 | A-5E |
| L0401 | B-7E |
| L0402 | B-10E |
| L0551 | A-3F |
| L0552 | A-3F |
| L0554 | A-3E |
| L0556 | A-3E |
| L0558 | B-2D |
| L0559 | A-3D |

# MAS [MAIN] (TYPE 835, 837)

| Symbol No. | Parts Location |
|---|---|
| L0560 | A-3D |
| L0561 | A-3E |
| L0563 | A-2F |
| L0564 | A-2E |
| L0565 | A-2E |
| L0566 | B-3E |
| L0601 | A-3C |
| L0902 | B-4C |
| L0903 | A-4B |
| L0904 | B-1D |
| L0906 | A-9G |
| L0908 | A-2B |
| L0909 | A-4E |
| L1101 | A-9A |
| L1102 | A-9B |
| L1103 | B-10C |
| L1104 | A-10C |
| L1105 | A-10D |
| L1106 | A-9D |
| L1107 | A-10A |
| L1109 | A-9C |
| L1301 | A-10A |
| **PG** | |
| PG0101 | A-8D |
| PG0401R | B-8F |
| PG0402 | B-10F |
| PG0551 | B-3F |
| PG0601 | B-5F |
| PG0602 | A-1B |
| PG0603 | A-9F |
| PG0604 | A-7A |
| PG0901 | A-1E |
| PG0902 | B-7A |
| PG0903 | B-6A |
| PG0904 | B-4F |
| PG0905 | B-9F |
| PG1101 | A-9C |
| PG1103 | B-1B |
| PG1301 | B-10B |
| **Q** | |
| Q0101 | A-8D |
| Q0102 | B-8D |
| Q0103 | B-8E |
| Q0104 | A-8D |
| Q0105 | A-7D |
| Q0106 | A-8D |
| Q0107 | A-8C |
| Q0108 | A-7E |
| Q0109 | A-8E |
| Q0110 | A-8E |
| Q0111 | B-7A |
| Q0112 | B-7A |
| Q0116 | A-8A |
| Q0117 | A-8B |
| Q0120 | B-7C |
| Q0123 | B-8C |
| Q0130 | A-8C |

| Symbol No. | Parts Location |
|---|---|
| Q0131 | A-8C |
| Q0140 | B-7B |
| Q0170 | A-5E |
| Q0171 | B-5C |
| Q0173 | A-5D |
| Q0175 | A-5C |
| Q0176 | A-5C |
| Q0201 | A-6C |
| Q0202 | A-6C |
| Q0203 | A-6C |
| Q0204 | A-6C |
| Q0206 | A-6C |
| Q0208 | B-6C |
| Q0209 | B-6C |
| Q0210 | A-6B |
| Q0216 | A-7C |
| Q0217 | A-7B |
| Q0219 | A-6B |
| Q0221 | A-6B |
| Q0224 | B-4B |
| Q0225 | A-4B |
| Q0226 | A-4B |
| Q0228 | B-4B |
| Q0229 | B-4B |
| Q0231 | B-4C |
| Q0232 | B-4C |
| Q0233 | B-4C |
| Q0350 | B-4D |
| Q0352 | B-4E |
| Q0356 | B-4E |
| Q0357 | A-5E |
| Q0358 | A-4D |
| Q0360 | B-5E |
| Q0361 | B-5E |
| Q0362 | B-5E |
| Q0363 | B-5E |
| Q0364 | B-6E |
| Q0365 | B-6E |
| Q0366 | B-5D |
| Q0367 | B-5E |
| Q0368 | B-6D |
| Q0370 | A-5B |
| Q0371 | A-5C |
| Q0372 | A-5B |
| Q0373 | A-5B |
| Q0374 | A-5B |
| Q0390 | A-3F |
| Q0395 | B-5E |
| Q0401L | B-5E |
| Q0401R | B-5E |
| Q0402 | B-5E |
| Q0403L | B-8F |
| Q0403R | B-8F |
| Q0404 | A-8F |
| Q0409 | A-8F |
| Q0410 | A-8G |
| Q0411 | B-10E |

| Symbol No. | Parts Location |
|---|---|
| Q0412 | B-9E |
| Q0413 | A-8F |
| Q0414 | B-9E |
| Q0415 | B-6F |
| Q0551 | B-3F |
| Q0552 | B-3E |
| Q0553 | B-2E |
| Q0555 | B-3E |
| Q0556 | B-1B |
| Q0557 | A-2D |
| Q0558 | A-3D |
| Q0559 | B-3D |
| Q0561 | B-2E |
| Q0562 | B-2E |
| Q0563 | B-1A |
| Q0564 | A-1A |
| Q0565 | A-2A |
| Q0601 | B-3C |
| Q0602 | B-3C |
| Q0603 | B-3C |
| Q0604 | B-2C |
| Q0901 | A-2C |
| Q0902 | A-2C |
| Q0903 | A-1D |
| Q0904 | A-1D |
| Q0905 | A-1D |
| Q0909 | B-3A |
| Q0911 | B-5B |
| Q0912 | B-5B |
| Q0913 | B-5B |
| Q1101 | B-11C |
| Q1102 | A-9C |
| Q1103 | A-9D |
| Q1108 | B-9D |
| Q1201 | B-10E |
| Q1202 | A-10E |
| Q1203 | A-9D |
| **R** | |
| R0101 | B-8E |
| R0102 | B-8E |
| R0103 | B-8D |
| R0104 | B-8D |
| R0105 | A-8C |
| R0106 | B-8D |
| R0107 | B-8D |
| R0108 | B-8D |
| R0109 | B-8D |
| R0110 | B-7D |
| R0111 | B-7E |
| R0112 | A-8C |
| R0113 | A-8D |
| R0114 | A-8D |
| R0115 | A-8D |
| R0116 | A-8C |
| R0119 | A-8D |
| R0120 | A-8D |
| R0121 | A-8E |

| Symbol No | Parts Location |
|---|---|
| R0122 | A-8E |
| R0123 | A-8E |
| R0124 | A-8E |
| R0125 | A-8E |
| R0127 | A-8D |
| R0128 | A-8D |
| R0129 | A-7D |
| R0130 | A-7D |
| R0132 | A-8C |
| R0138 | B-7B |
| R0140 | B-7B |
| R0141 | B-7B |
| R0142 | B-7B |
| R0143 | B-7A |
| R0144 | B-7A |
| R0145 | B-7A |
| R0146 | B-7A |
| R0147 | B-8B |
| R0148 | B-7A |
| R0149 | B-8A |
| R0150 | B-8C |
| R0151 | B-8C |
| R0152 | B-8B |
| R0153 | B-7C |
| R0156 | A-8C |
| R0157 | B-7C |
| R0158 | B-7C |
| R0159 | B-8D |
| R0160 | B-8C |
| R0161 | B-8C |
| R0162 | B-7C |
| R0163 | B-7B |
| R0164 | B-7B |
| R0165 | A-8C |
| R0167 | B-7D |
| R0168 | B-6C |
| R0170 | B-5C |
| R0171 | B-5C |
| R0172 | B-5C |
| R0173 | B-5C |
| R0174 | B-5B |
| R0175 | B-5C |
| R0176 | A-4C |
| R0180 | A-4D |
| R0181 | A-4D |
| R0182 | A-4D |
| R0183 | B-5C |
| R0184 | A-5D |
| R0185 | A-6D |
| R0186 | A-5D |
| R0187 | A-5D |
| R0188 | B-5D |
| R0190 | A-5C |
| R0191 | A-5C |
| R0192 | A-5C |
| R0193 | A-5C |
| R0194 | B-4C |

| Symbol No | Parts Location |
|---|---|
| R0196 | A-5C |
| R0198 | A-5E |
| R0199 | A-5E |
| R0201 | A-6C |
| R0202 | A-6C |
| R0203 | B-6C |
| R0205 | B-6C |
| R0207 | A-5C |
| R0208 | B-5B |
| R0209 | B-6C |
| R0213 | A-6B |
| R0215 | A-6B |
| R0216 | A-6C |
| R0217 | A-7C |
| R0218 | A-7B |
| R0219 | A-7B |
| R0222 | A-7B |
| R0223 | A-7B |
| R0224 | A-7B |
| R0225 | A-6B |
| R0228 | A-7B |
| R0229 | A-6B |
| R0239 | B-6B |
| R0240 | B-6B |
| R0241 | B-6B |
| R0243 | A-6B |
| R0244 | B-5B |
| R0245 | B-3C |
| R0246 | B-5B |
| R0247 | A-6C |
| R0248 | A-6C |
| R0253 | A-7B |
| R0254 | A-6B |
| R0255 | B-4B |
| R0257 | B-4B |
| R0258 | B-4B |
| R0259 | B-4B |
| R0260 | B-4C |
| R0261 | A-4B |
| R0265 | A-6C |
| R0267 | A-5B |
| R0268 | A-5B |
| R0270 | A-6B |
| R0271 | B-4B |
| R0272 | B-4C |
| R0274 | A-6C |
| R0292 | A-6C |
| R0293 | A-6C |
| R0294 | A-6C |
| R0295 | A-6C |
| R0296 | A-6C |
| R0298 | A-6C |
| R0299 | B-6C |
| R0336 | A-5C |
| R0341 | A-5B |
| R0342 | A-5C |
| R0343 | A-5B |

| Symbol No. | Parts Location |
|---|---|
| R0344 | B-4C |
| R0346 | B-5E |
| R0347 | B-5E |
| R0350 | B-4D |
| R0351 | B-4D |
| R0354 | B-5E |
| R0355 | B-4E |
| R0356 | B-4E |
| R0357 | B-4D |
| R0359 | B-4D |
| R0364 | B-5D |
| R0366 | B-5E |
| R0371 | B-5E |
| R0373 | B-5D |
| R0374 | B-4E |
| R0382 | B-5E |
| R0383 | A-4D |
| R0384 | B-5E |
| R0390 | A-2G |
| R0391 | A-2F |
| R0392 | A-2F |
| R0397 | A-2F |
| R0399 | B-4E |
| R0401L | A-7F |
| R0401R | A-5F |
| R0402L | A-7F |
| R0402R | A-6F |
| R0403L | A-7F |
| R0403R | A-6F |
| R0405 | A-6E |
| R0408 | A-6E |
| R0410 | A-6E |
| R0412 | B-5E |
| R0413L | A-7F |
| R0413R | A-5F |
| R0415 | B-6F |
| R0417L | B-8F |
| R0417R | B-8F |
| R0418L | B-8F |
| R0418R | B-8F |
| R0419L | B-8G |
| R0419R | B-8F |
| R0420L | A-7F |
| R0420R | A-8F |
| R0421L | A-8F |
| R0421R | B-9F |
| R0428 | A-8F |
| R0429L | B-8F |
| R0429R | B-8F |
| R0435 | A-7G |
| R0436L | A-7F |
| R0436R | A-6E |
| R0445 | A-7E |
| R0447 | B-6E |
| R0464 | A-8G |
| R0466 | A-8G |
| R0467 | A-8G |

| Symbol No | Parts Location |
|---|---|
| R0468 | A-8G |
| R0469 | A-8G |
| R0470 | A-8G |
| R0473 | B-10E |
| R0474 | B-10E |
| R0477 | A-8G |
| R0479 | B-9E |
| R0480 | B-10E |
| R0481 | B-10E |
| R0482 | B-9E |
| R0484 | A-8E |
| R0485 | A-8E |
| R0486 | A-8E |
| R0487 | A-8E |
| R0488L | B-8E |
| R0488R | B-8E |
| R0489L | A-8E |
| R0489R | A-8E |
| R0490L | B-8F |
| R0490R | B-8E |
| R0491L | B-8E |
| R0491R | B-8E |
| R0492L | A-8F |
| R0492R | A-7F |
| R0493L | A-7F |
| R0493R | A-8E |
| R0494L | A-7F |
| R0494R | A-8F |
| R0501 | B-3C |
| R0502 | B-3C |
| R0504 | A-2D |
| R0505 | B-2C |
| R0506 | A-2D |
| R0507 | B-2C |
| R0508 | B-2C |
| R0510 | B-2C |
| R0511 | B-2D |
| R0512 | B-2D |
| R0513 | B-2D |
| R0514 | B-2D |
| R0516 | B-2D |
| R0517 | B-2D |
| R0518 | B-3D |
| R0519 | B-3D |
| R0522 | B-3D |
| R0525 | B-3C |
| R0529 | B-3E |
| R0530 | B-3F |
| R0531 | B-3F |
| R0532 | B-3E |
| R0533 | B-3E |
| R0534 | B-1B |
| R0539 | A-3E |
| R0540 | A-3E |
| R0541 | A-3D |
| R0545 | B-3D |
| R0546 | B-1B |

| Symbol No | Parts Location |
|---|---|
| R0548 | B-2D |
| R0549 | A-2D |
| R0550 | A-2D |
| R0551 | B-2D |
| R0552 | B-2D |
| R0555 | B-3D |
| R0556 | B-3D |
| R0558 | B-3D |
| R0561 | B-1E |
| R0562 | B-2E |
| R0566 | B-1E |
| R0567 | B-2E |
| R0583 | B-6D |
| R0601 | B-3B |
| R0602 | B-3B |
| R0603 | B-3B |
| R0606 | B-3B |
| R0607 | A-3B |
| R0608 | B-3C |
| R0609 | A-4C |
| R0610 | B-3B |
| R0611 | B-3C |
| R0612 | B-3C |
| R0613 | B-3B |
| R0614 | B-3C |
| R0616 | B-3C |
| R0619 | B-3B |
| R0620 | B-3C |
| R0621 | B-3C |
| R0622 | B-3B |
| R0623 | B-2C |
| R0624 | B-2B |
| R0628 | B-2B |
| R0640 | B-9E |
| R0641 | B-9F |
| R0642 | B-9F |
| R0643 | A-9E |
| R0644 | A-9E |
| R0662 | A-1B |
| R0663 | A-1B |
| R0671 | A-6A |
| R0672 | A-6A |
| R0681 | A-5F |
| R0682 | A-5F |
| R0691 | B-2B |
| R0692 | B-2B |
| R0693 | B-1B |
| R0694 | B-2B |
| R0695 | B-2B |
| R0696 | B-1B |
| R0701 | B-3A |
| R0702 | A-9F |
| R0703 | B-4E |
| R0704 | B-2A |
| R0705 | B-4E |
| R0706 | B-1C |
| R0707 | B-1C |

| Symbol No | Parts Location |
|---|---|
| R0708 | B-1C |
| R0711 | A-5B |
| R0712 | A-5B |
| R0713 | A-5B |
| R0714 | B-4E |
| R0715 | A-5B |
| R0718 | A-3A |
| R0721 | B-1E |
| R0722 | B-1E |
| R0723 | B-1D |
| R0724 | B-1D |
| R0725 | B-1D |
| R0728 | B-5B |
| R0732 | A-2A |
| R0733 | A-2A |
| R0739 | B-2B |
| R0740 | B-2B |
| R0741 | A-3A |
| R0743 | B-3A |
| R0744 | A-3A |
| R0746 | B-3B |
| R0751 | B-2B |
| R0753 | A-4E |
| R0754 | B-9F |
| R0755 | B-9F |
| R0901 | A-2C |
| R0903 | A-2C |
| R0904 | A-2C |
| R0905 | A-2C |
| R0906 | A-2C |
| R0907 | A-2C |
| R0908 | A-1D |
| R0909 | B-1D |
| R0912 | A-1D |
| R0913 | A-1D |
| R0914 | A-2A |
| R0915 | A-2A |
| R0916 | A-2A |
| R0917 | B-2A |
| R0918 | B-2A |
| R0919 | B-2A |
| R0920 | A-2A |
| R0921 | A-2A |
| R0922 | A-2A |
| R0923 | A-2A |
| R0924 | A-3A |
| R0925 | A-3A |
| R0926 | A-3A |
| R0927 | B-2A |
| R0928 | B-2A |
| R0929 | B-2A |
| R0930 | B-2A |
| R0931 | B-2A |
| R0932 | B-2A |
| R0933 | B-2A |
| R0934 | B-3A |
| R0935 | B-2A |

## MAS [MAIN] (TYPE 835, 837)

| Symbol No | Parts Location |
|---|---|
| R0936 | B-3A |
| R0937 | B-3A |
| R0938 | B-2A |
| R0941 | A-3A |
| R0942 | A-3B |
| R0943 | A-3B |
| R0944 | B-4D |
| R0945 | A-3B |
| R0946 | B-3B |
| R0948 | B-1C |
| R0949 | B-1C |
| R0950 | B-2B |
| R0951 | B-3B |
| R0952 | B-2B |
| R0953 | B-2B |
| R0954 | A-4B |
| R0955 | B-3B |
| R0957 | B-4B |
| R0958 | B-3B |
| R0961 | B-2A |
| R0962 | B-2A |
| R0963 | B-4B |
| R0964 | B-2B |
| R0966 | B-2B |
| R0969 | B-3B |
| R0970 | B-2B |
| R0971 | B-4D |
| R0972 | B-3B |
| R0974 | B-2B |
| R0975 | B-4D |
| R0976 | A-1D |
| R0977 | A-1D |
| R0978 | B-2B |
| R0979 | B-2B |
| R0980 | B-2C |
| R0981 | B-2C |
| R0982 | B-2C |
| R0983 | B-2C |
| R0984 | A-2B |
| R0985 | A-2B |
| R0986 | B-5C |
| R0987 | B-5B |
| R0988 | B-5B |
| R0989 | B-5B |
| R0991 | B-5B |
| R0992 | B-7E |
| R0994 | A-3A |
| R0995 | A-3A |
| R0996 | B-4C |
| R0997 | B-3B |
| R0998 | B-3B |
| R0999 | B-5D |
| R1101 | B-9B |
| R1112 | A-10B |
| R1113 | A-10A |
| R1114 | A-10B |
| R1115 | B-9B |
| R1116 | B-9B |
| R1117 | B-9B |
| R1118 | B-10B |
| R1119 | B-10B |
| R1120 | B-10B |
| R1121 | A-11B |
| R1122 | A-11C |
| R1123 | A-11C |
| R1124 | A-9C |
| R1125 | A-9C |
| R1126 | B-10C |
| R1127 | B-10C |
| R1128 | B-10C |
| R1129 | B-10C |
| R1130 | B-11C |
| R1131 | A-10C |
| R1132 | A-9C |
| R1133 | A-9D |
| R1136 | A-8C |
| R1137 | B-11C |
| R1142 | B-9D |
| R1143 | B-9C |
| R1145 | A-9C |
| R1146 | A-9C |
| R1147 | A-9C |
| R1148 | B-9C |
| R1149 | B-9D |
| R1150 | B-9D |
| R1155 | B-10D |
| R1156 | B-10D |
| R1157 | B-10C |
| R1158 | B-10C |
| R1159 | B-2B |
| R1160 | B-2B |
| R1161 | B-2B |
| R1162 | B-2B |
| R1163 | B-2B |
| R1169 | A-10D |
| R1170 | A-10D |
| R1175 | A-9C |
| R1201 | B-10E |
| R1202 | A-9E |
| R1203 | A-9E |
| R1204 | A-10E |
| R1205 | A-9E |
| R1206 | A-10E |
| R1207 | A-9D |
| R1208 | B-9D |
| R1209 | B-9D |
| R1210 | B-9E |
| R1211 | A-9D |
| R1212 | A-9D |
| R1213 | A-10D |
| R1214 | A-9D |
| R1215 | A-9D |
| R1216 | A-10D |
| R1218 | A-10D |
| R1220 | A-10D |
| R1221 | A-10E |
| R1222 | A-10E |
| R1223 | B-10E |
| R1225 | A-10E |
| R1226 | A-10E |
| R1303 | B-10D |
| R1308 | B-9C |
| R1309 | B-10C |
| R1310 | B-10C |
| R1311 | B-10C |
| R1312 | A-10A |
| R1313 | A-10A |
| R1314 | A-11B |
| R1315 | A-11B |
| **RT** | |
| RT0103 | B-7A |
| RT0202 | B-6C |
| RT0203 | B-6C |
| RT0204 | B-5B |
| RT0205 | B-5B |
| RT0206 | B-5C |
| RT0207 | B-5C |
| RT0209 | B-6C |
| RT0210 | B-4C |
| RT0211 | B-5D |
| RT0212 | B-5C |
| RT0214 | B-5C |
| RT0215 | B-6C |
| RT0216 | B-5C |
| RT0217 | B-5C |
| **SW** | |
| SW0902 | B-1D |
| SW0903 | B-1D |
| SW0904 | B-1C |
| SW0905 | B-1D |
| SW0906 | B-3A |
| **T** | |
| T0551 | A-2D |
| **TL** | |
| TL1130 | A-9D |
| TL1133 | B-2B |
| TL1135 | B-11C |
| TL1203 | B-11A |
| TL1301 | A-11C |
| TL1302 | B-10B |
| TL1303 | A-11C |
| TL1304 | B-10B |
| TL1305 | B-11B |
| TL1306 | B-11A |
| TL1307 | B-11A |
| TL1308 | B-10B |
| TL1309 | B-10C |
| TL1310 | A-10A |
| TL1311 | B-10B |
| TL1312 | B-11B |
| TL1313 | B-9B |
| TL1314 | B-8C |
| TL1315 | A-11B |
| TL1325 | A-11B |
| **TP** | |
| TP0101 | B-7C |
| TP0103 | B-8B |
| TP0201 | B-7B |
| TP0203 | B-7B |
| TP0204 | B-6B |
| TP0205 | B-6C |
| TP0206 | B-6C |
| TP0207 | B-4C |
| **X** | |
| X0201 | A-7B |
| X0901 | A-3B |
| X0902 | A-2B |
| X1101 | A-11C |

## LCD [LCD DRIVE]

| Symbol No | Parts Location |
|---|---|
| **C** | |
| C5304 | A-3A |
| C5305 | A-4A |
| C5306 | A-4B |
| C5308 | A-3B |
| C5309 | A-4B |
| C5310 | A-4B |
| C5311 | B-4B |
| C5312 | B-5A |
| C5313 | B-5B |
| C5314 | A-4A |
| C5315 | A-5A |
| C5316 | A-4A |
| C5317 | A-4A |
| C5318 | A-5A |
| C5319 | B-5A |
| C5320 | A-4A |
| C5321 | A-4A |
| C5322 | A-4A |
| C5323 | A-4A |
| C5324 | B-3A |
| C5325 | A-3A |
| C5326 | A-3A |
| C5327 | A-4A |
| C5328 | B-4A |
| C5329 | A-4B |
| C5336 | A-4A |
| C5337 | A-3A |
| C5338 | A-3A |
| C5340 | A-4A |
| C5341 | A-4A |
| C5401 | A-3C |
| C5402 | A-3D |
| C5403 | A-3C |
| C5404 | A-3D |
| C5405 | A-3C |
| C5406 | B-4D |
| C5407 | B-3D |
| C5408 | B-3D |
| C5409 | B-3C |
| C5410 | B-3C |
| C5411 | B-3C |
| C5412 | B-3C |
| C5413 | B-4C |
| C5414 | B-4C |
| C5415 | A-3B |
| C5416 | A-3C |
| C5417 | A-3C |
| C5418 | A-3C |
| C5419 | A-4C |
| C5420 | A-4C |
| C5421 | A-4C |
| C5422 | A-4C |
| C5501 | A-3B |
| C5502 | B-4B |
| C5503 | B-3B |
| C5504 | B-3A |
| C5505 | B-3A |
| C5506 | A-3B |
| C5507 | B-3C |
| C5508 | B-3C |
| C5509 | B-3B |
| C5510 | B-3B |
| C5511 | B-3C |
| C5512 | A-3B |
| C5513 | A-2B |
| C5514 | B-1C |
| C5515 | A-2B |
| C5516 | A-2B |
| C5517 | A-2B |
| C5601 | A-4C |
| C5602 | A-4C |
| C5603 | A-4D |
| C5604 | A-4C |
| C5605 | B-5C |
| C5606 | A-4C |
| C5607 | A-4C |
| C5608 | A-4B |
| C5609 | A-5B |
| C5610 | B-5C |
| C5611 | B-4C |
| C5612 | B-4C |
| C5613 | B-4C |
| C5614 | B-4C |
| C5615 | B-4C |
| C5616 | B-5B |
| C5617 | A-4D |
| C5619 | A-4C |
| C5620 | B-4B |
| C5621 | B-5C |
| C5622 | B-5D |
| **D** | |
| D5401 | A-3D |
| D5402 | B-4C |
| D5403 | B-3C |
| D5404 | B-3B |
| D5501 | A-3B |
| D5601 | A-4C |
| D5602 | B-4C |
| **IC** | |
| IC5301 | A-4A |
| IC5401 | B-3D |
| IC5501 | B-3B |
| IC5502 | A-3B |
| IC5601 | A-4C |
| IC5602 | B-4C |
| **L** | |
| L5301 | A-5A |
| L5302 | A-3A |
| L5303 | A-4B |
| L5401 | B-3C |
| L5402 | A-3C |
| L5403 | A-3C |
| L5404 | A-3B |
| L5501 | A-3B |
| L5502 | B-2C |
| L5503 | B-3B |
| L5601 | A-3C |
| L5602 | A-4B |
| L5603 | A-4B |
| L5604 | B-4C |
| **PG** | |
| PG5501 | B-2D |
| PG5701 | B-2B |
| PG5702 | B-4D |
| **Q** | |
| Q5301 | A-4B |
| Q5302 | A-4B |
| Q5401 | A-3D |
| Q5402 | A-3D |
| Q5403 | A-3C |
| Q5404 | A-3D |
| Q5405 | B-3C |
| Q5406 | B-3C |
| Q5501 | A-4B |
| Q5502 | A-4B |
| Q5503 | B-3B |
| Q5504 | B-4A |
| Q5505 | B-4B |
| Q5506 | B-4B |
| Q5507 | B-4B |
| Q5508 | A-4B |
| Q5509 | A-4B |
| Q5510 | B-3B |
| Q5511 | B-3C |
| Q5512 | B-3B |
| Q5513 | B-3B |
| Q5514 | A-4B |
| Q5601 | A-4C |
| Q5602 | A-4C |
| Q5604 | A-5C |
| Q5605 | A-4C |
| Q5606 | A-4C |
| **R** | |
| R5301 | A-3A |
| R5302 | A-4B |
| R5303 | A-4B |
| R5304 | A-2A |
| R5307 | B-3A |
| R5308 | B-3A |
| R5309 | A-4B |
| R5310 | A-4B |
| R5311 | B-4A |
| R5312 | B-4B |
| R5313 | B-5B |
| R5314 | B-5B |
| R5315 | A-4A |
| R5316 | A-5A |
| R5317 | A-5A |
| R5318 | A-4A |
| R5319 | A-4A |
| R5320 | A-5A |
| R5323 | B-4A |
| R5324 | B-5A |
| R5325 | B-4A |
| R5326 | B-4A |
| R5327 | B-4A |
| R5328 | B-4A |
| R5329 | B-4A |
| R5330 | B-4A |
| R5331 | A-4A |
| R5332 | A-3A |
| R5333 | B-3A |
| R5334 | B-3A |
| R5336 | A-3A |
| R5338 | A-3A |
| R5339 | A-3B |
| R5340 | A-3B |
| R5341 | B-4A |
| R5342 | B-4A |
| R5351 | B-4A |
| R5356 | B-4B |
| R5357 | B-3A |
| R5401 | A-3D |
| R5402 | A-3C |
| R5404 | B-3C |
| R5405 | B-3C |
| R5406 | B-3D |
| R5407 | B-3D |
| R5408 | B-4D |
| R5409 | B-3C |
| R5410 | B-3C |
| R5411 | B-3C |
| R5412 | B-3C |
| R5413 | B-3C |
| R5414 | B-3C |
| R5415 | B-3C |
| R5416 | B-3C |
| R5417 | B-4C |
| R5420 | A-3D |
| R5501 | A-3B |
| R5502 | B-3A |
| R5503 | B-3B |
| R5504 | B-3B |
| R5505 | B-3A |
| R5506 | B-3A |
| R5507 | B-4A |
| R5508 | B-3B |
| R5509 | B-4B |
| R5510 | B-4B |
| R5511 | B-4B |
| R5512 | A-3B |
| R5513 | A-3A |
| R5514 | A-3B |
| R5515 | A-3B |
| R5518 | A-3B |
| R5519 | A-3B |
| R5521 | A-3B |
| R5522 | B-3B |
| R5523 | B-3B |
| R5524 | B-3B |
| R5525 | B-2B |
| R5526 | B-3B |
| R5527 | A-4B |
| R5528 | A-4B |
| R5529 | A-4B |
| R5601 | A-4C |
| R5602 | A-4C |
| R5603 | A-4C |
| R5604 | A-4C |
| R5605 | A-4C |
| R5606 | A-4C |
| R5607 | A-4C |
| R5609 | A-4D |
| R5610 | A-5C |
| R5611 | A-5C |
| R5612 | A-4C |
| R5613 | B-4B |
| R5614 | B-5B |
| R5615 | A-4C |
| R5616 | A-4C |
| R5617 | B-4B |
| R5618 | B-4B |
| R5619 | B-4C |
| R5620 | B-4C |
| R5621 | B-5C |
| R5622 | B-4C |
| R5623 | B-4C |
| R5624 | B-4C |
| R5625 | B-4C |
| R5626 | B-4C |
| R5627 | B-4C |
| R5628 | B-4C |
| R5629 | B-4C |
| R5630 | B-4C |
| R5631 | B-4C |
| R5632 | B-4B |
| R5633 | B-4B |
| R5634 | B-4B |
| R5635 | B-4B |
| R5636 | B-4B |
| R5637 | B-5B |
| R5638 | A-4D |
| R5639 | A-4D |
| R5642 | B-5C |
| R5643 | B-4C |
| R5644 | B-5C |
| R5645 | B-5B |
| R5646 | B-4B |
| R5647 | A-4C |
| R5648 | A-4C |
| R5650 | A-5C |
| R5708 | B-4C |
| R5710 | B-5B |
| R5711 | B-5B |
| R5712 | B-5B |
| R5713 | B-5B |
| **RT** | |
| RT5301 | B-4A |
| RT5302 | B-4A |
| RT5307 | B-5A |
| RT5308 | B-5A |
| RT5311 | B-4A |
| RT5312 | B-4A |
| RT5313 | B-4A |
| RT5314 | B-4A |
| RT5315 | B-3A |
| RT5316 | B-3A |
| RT5601 | B-4B |
| RT5602 | B-4B |
| RT5603 | B-4B |
| RT5604 | B-4B |
| **RV** | |
| RV5602 | B-5B |
| RV5701 | A-6A |
| RV5702 | A-6B |
| **SW** | |
| SW5701 | A-1B |
| **T** | |
| T5401 | B-3C |
| T5501 | A-2B |
| **X** | |
| X5301 | A-5B |
| **ZD** | |
| ZD5601 | B-5C |
| ZD5702 | B-5B |

## VFR [EVF REG]

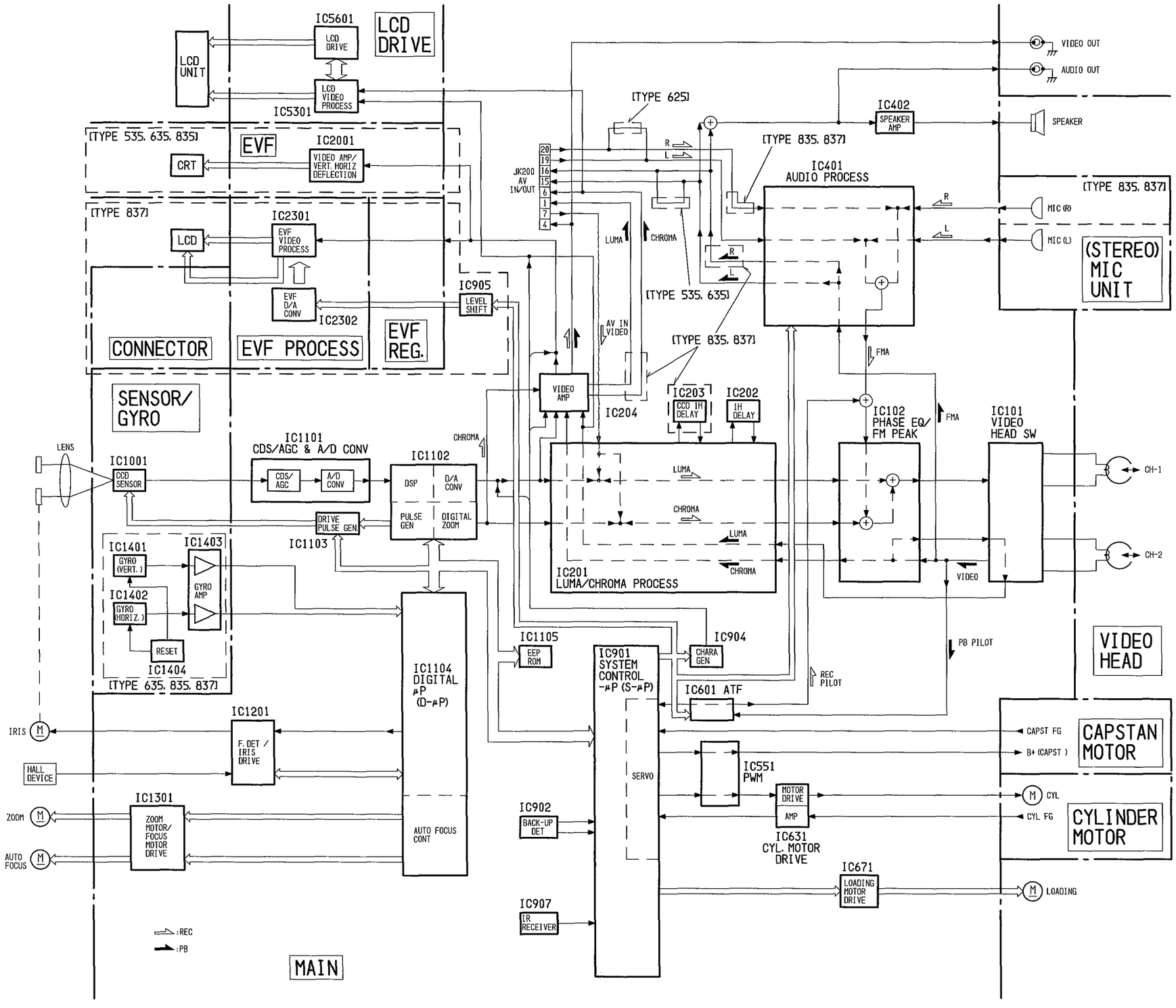
| Symbol No | Parts Location |
|---|---|
| **C** | |
| C2402 | B-2A |
| C2403 | B-1A |
| C2404 | B-1A |
| C2406 | B-1A |
| C2408 | A-2A |
| C2409 | A-1A |
| C2410 | B-2A |
| C2411 | B-1A |
| C2414 | A-2A |
| C2415 | A-1A |
| C2416 | A-1A |
| **D** | |
| D2401 | B-2A |
| D2402 | B-2A |
| D2403 | B-1A |
| D2404 | B-2A |
| **IC** | |
| IC2401 | B-2A |
| IC2402 | B-1A |
| **L** | |
| L2401 | B-2A |
| L2403 | B-2B |
| L2404 | B-1B |
| **PG** | |
| PG2401 | A-2B |
| PG2402 | A-1A |
| PG2403 | A-2A |
| **Q** | |
| Q2403 | B-2A |
| **R** | |
| R2401 | B-2A |
| R2403 | B-2A |
| R2404 | B-1A |
| R2405 | B-1A |
| R2407 | B-1A |
| R2408 | B-1A |
| R2409 | B-1A |
| R2410 | B-1A |
| R2411 | B-1A |
| R2412 | B-2A |
| R2414 | A-2A |
| R2415 | A-2A |

## VFM [EVF PROCESS]

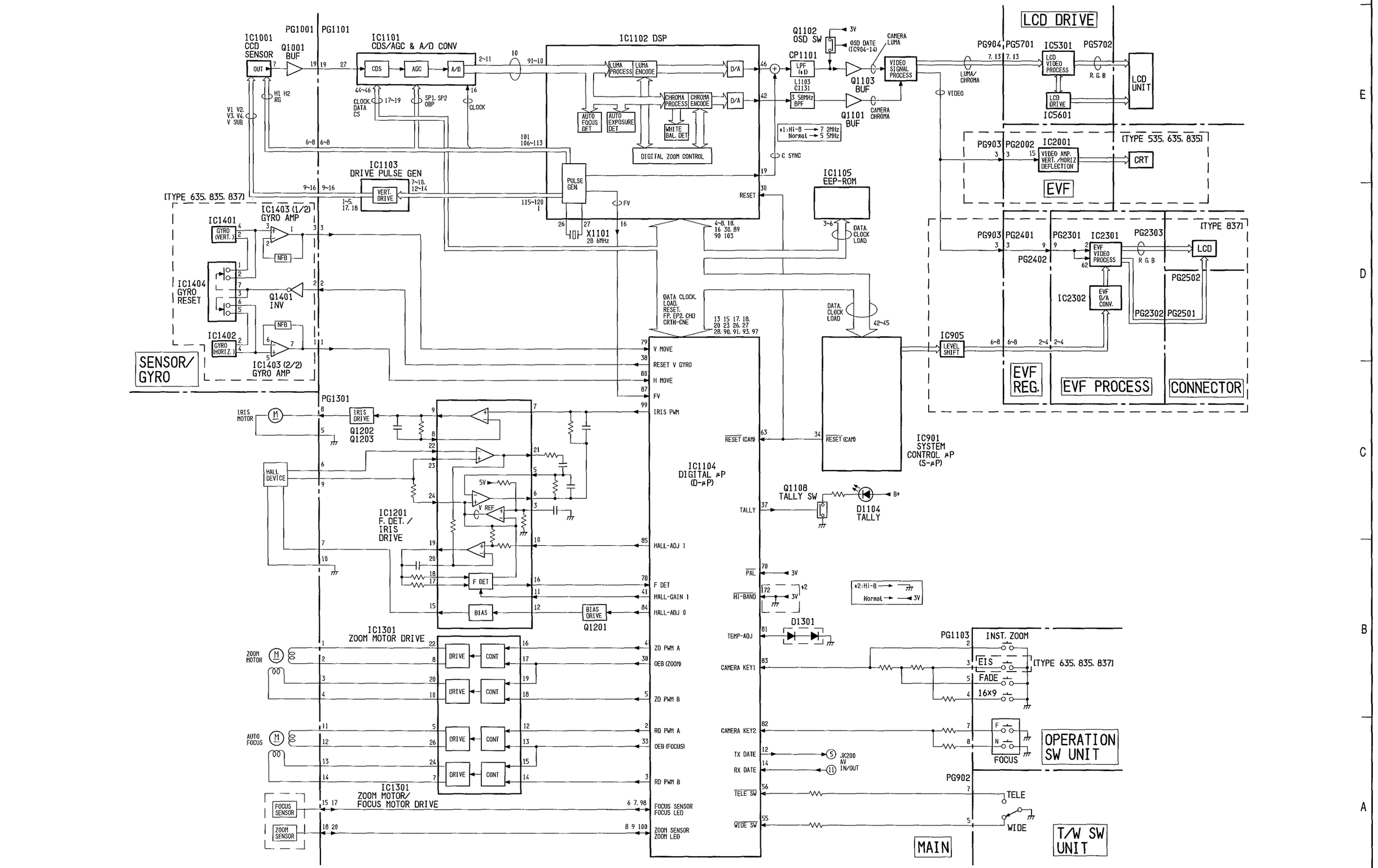
| Symbol No. | Parts Location |
|---|---|
| **C** | |
| C2301 | A-2A |
| C2302 | A-2A |
| C2303 | A-2A |
| C2304 | A-2A |
| C2305 | A-1A |
| C2306 | A-1A |
| C2307 | A-2A |
| C2308 | B-2B |
| C2309 | B-1B |
| C2310 | A-2B |
| C2311 | A-2B |
| C2312 | A-1B |
| C2313 | B-2B |
| C2314 | A-1B |
| C2315 | B-1B |
| C2316 | B-1B |
| C2317 | B-1B |
| C2318 | B-1A |
| C2319 | A-1A |
| C2320 | B-2A |
| C2321 | A-2A |
| C2322 | A-2A |
| C2323 | A-2B |
| C2324 | B-2A |
| C2325 | A-2B |
| C2326 | A-2A |
| C2327 | A-2B |
| C2328 | A-2B |
| C2329 | A-2B |
| C2330 | B-2A |
| C2331 | A-3B |
| C2332 | A-2B |
| C2333 | A-2B |
| C2334 | A-2B |
| C2335 | A-2B |
| **D** | |
| D2301 | B-1B |
| **IC** | |
| IC2301 | A-2A |
| IC2302 | B-3A |
| **L** | |
| L2301 | B-2B |
| L2302 | B-1B |
| **PG** | |
| PG2301 | B-2B |
| PG2302 | B-2A |
| PG2303 | A-1A |
| **Q** | |
| Q2301 | B-1B |
| Q2302 | B-1B |
| **R** | |
| R2301 | B-1A |
| R2302 | B-2A |
| R2303 | B-1A |
| R2304 | B-2A |
| R2305 | B-1A |
| R2306 | B-2A |
| R2307 | B-2A |
| R2308 | B-2A |
| R2309 | A-2A |
| R2310 | A-2A |
| R2311 | A-1A |
| R2312 | A-2B |
| R2313 | A-2B |
| R2314 | A-2B |
| R2315 | A-2B |
| R2316 | A-2B |
| R2317 | A-2B |
| R2318 | A-2B |
| R2319 | A-2B |
| R2320 | B-2B |
| R2321 | A-3B |
| R2322 | B-1A |
| R2323 | A-1B |
| R2324 | A-1B |
| R2325 | A-1B |
| R2326 | A-1B |
| R2327 | B-1B |
| R2328 | B-1A |
| R2329 | B-1A |
| R2330 | B-1A |
| R2331 | B-1A |
| R2332 | B-1A |
| R2335 | B-1A |
| R2336 | B-1A |
| R2337 | B-1A |
| **X** | |
| X2301 | A-2A |

# BLOCK DIAGRAMS

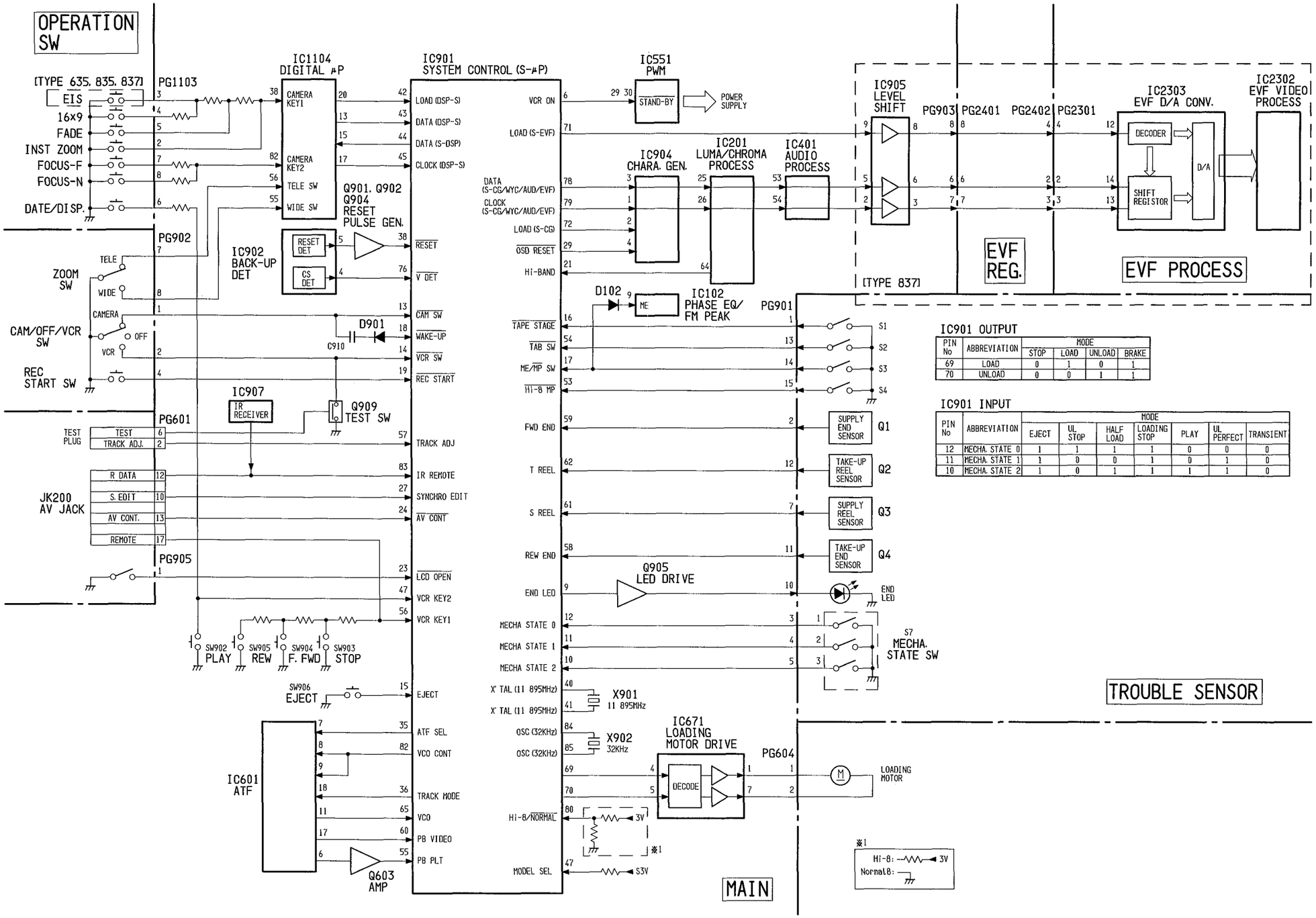
## 1.OVERALL BLOCK DIAGRAM



# 2.CAMERA BLOCK DIAGRAM



# 3.SYSTEM CONTROL BLOCK DIAGRAM



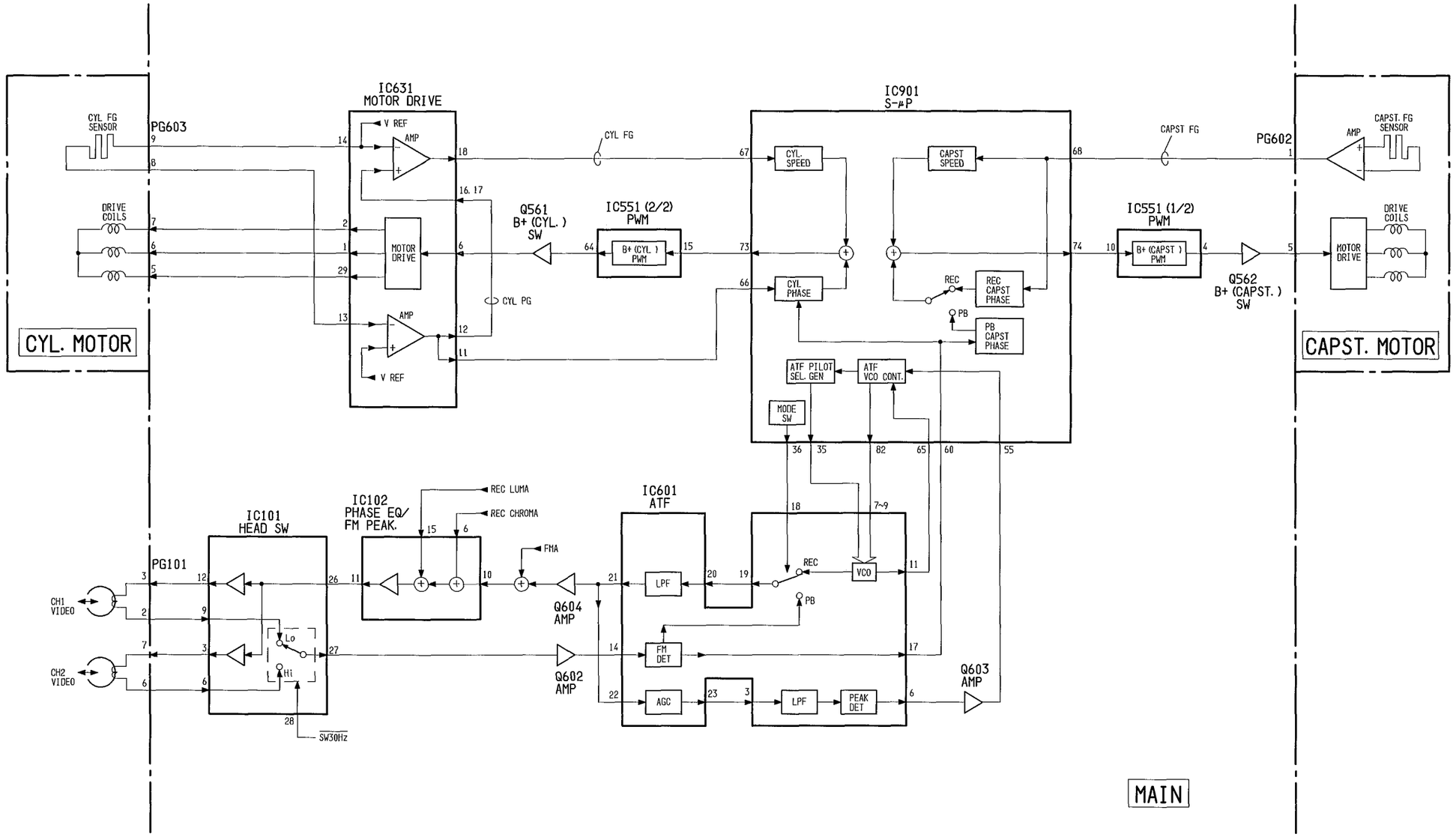

IC901 OUTPUT

| PIN No | ABBREVIATION | MODE | | | |
|---|---|---|---|---|---|
| | | STOP | LOAD | UNLOAD | BRAKE |
| 69 | LOAD | 0 | 1 | 0 | 1 |
| 70 | UNLOAD | 0 | 0 | 1 | 1 |

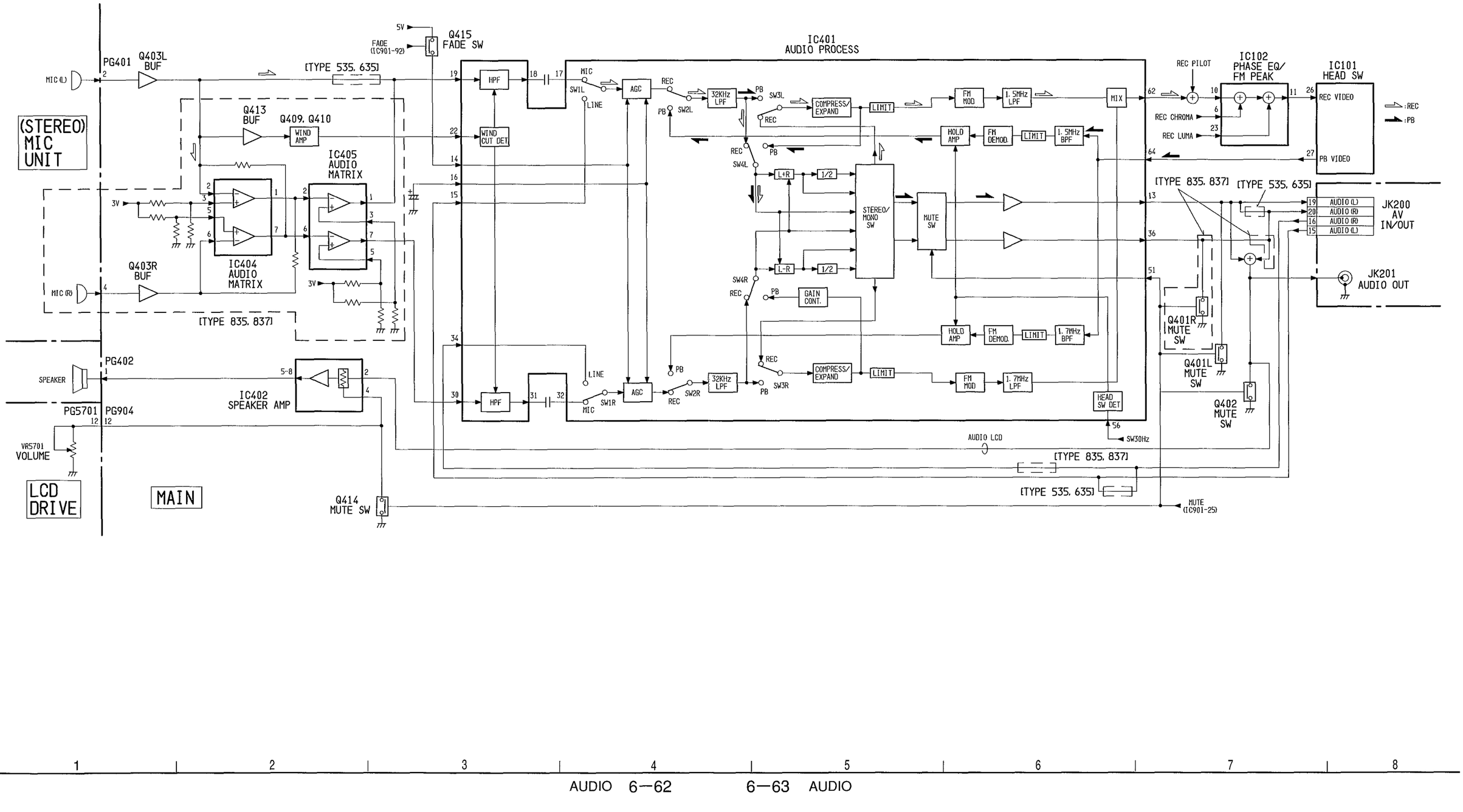
IC901 INPUT

| PIN No | ABBREVIATION | MODE | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | EJECT | UL STOP | HALF LOAD | LOADING STOP | PLAY | UL PERFECT | TRANSIENT |
| 12 | MECHA. STATE 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |
| 11 | MECHA. STATE 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 |
| 10 | MECHA. STATE 2 | 1 | 0 | 1 | 1 | 1 | 1 | 0 |

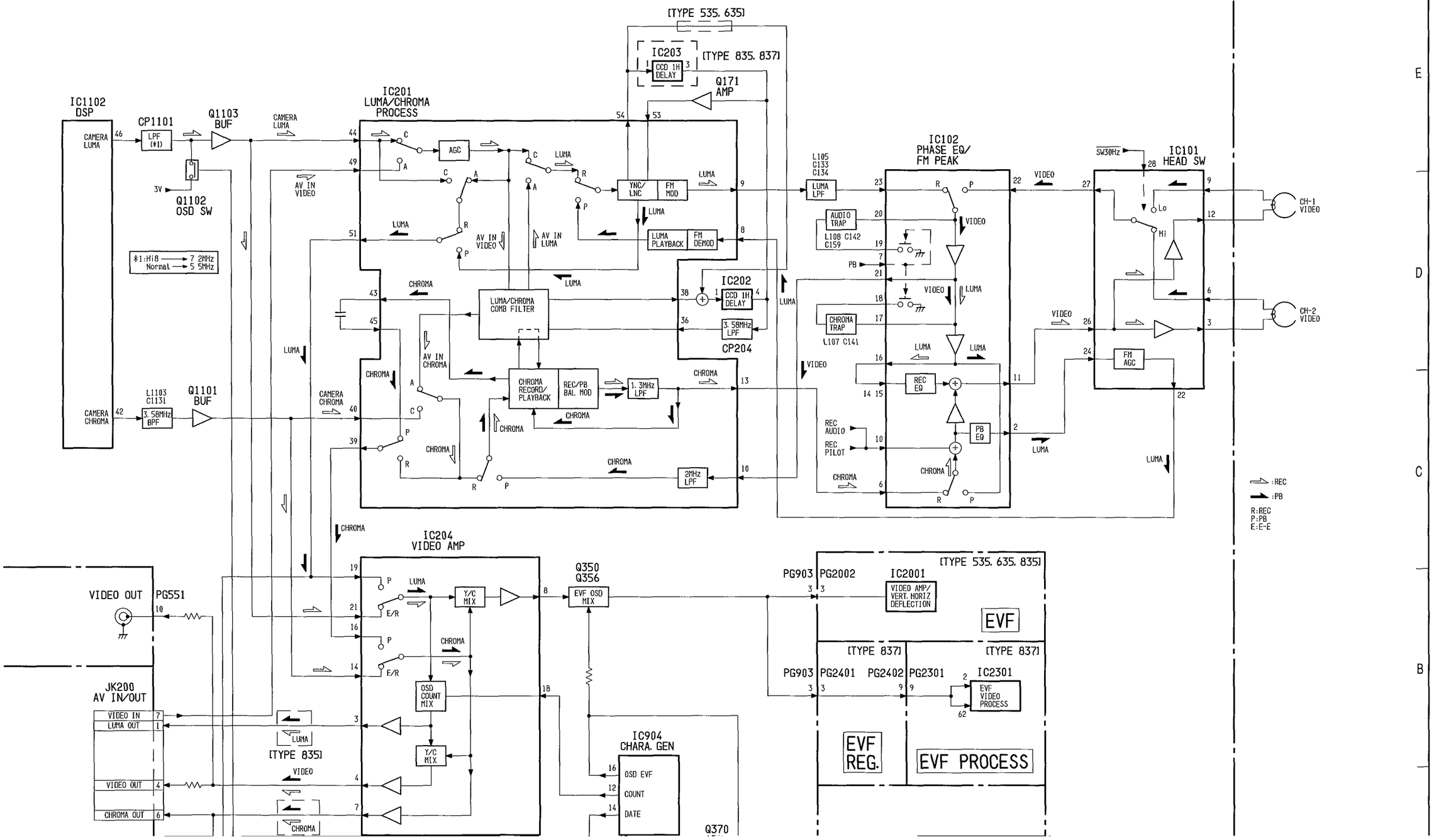
# 4.SERVO BLOCK DIAGRAM



# 5.AUDIO BLOCK DIAGRAM



# 6.VIDEO BLOCK DIAGRAM



# 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) | ZOOM LED1 | Output pulses to drive the LEDs in the zoom reset switches (ZOOM RESET SW). |
| 9 | O | (Pulse) | ZOOM 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) | S1 | |
| 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. |

| 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) | SW30Hz | Head switching pulse output. |
| 5 | O | Hi/Lo | LCD. ON | LCD power control output. Outputs "Hi" when power is turned on. |
| 6 | O | Hi/Lo | VCR ON | Power control output. Outputs "Hi" when power is turned on. |
| 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.<br>Hi: ME (metal evaporated) tape, Lo: MP (metal powder) 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 |

| Pin No. | I/O | Active Level | Abbreviation | Function |
|---|---|---|---|---|
| 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 | Controls the LCD control circuit operation mode. Outputs "Hi" during trick play. |
| 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. |
| 33 | O | Hi/Lo | LCD NOR/ HI[Lo] | Output to select the LCD display mode. |
| 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(DS) | |
| 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 | 0V-5V | SHT. DET | Input to detect the short-circuits in the power circuit. |
| 49 | I | 0V-5V | BATTERY | Input to detect the battery remaining level |
| 50 | ----- | ----- | GND | Grounded. |
| 51 | I | ----- | AVref | Reference voltage input. |
| 52 | ----- | ----- | AVdd | 5V power input. |
| 53 | I | 0V-5V | HI8MP | Hi-8 MP tape detection input. |
| 54 | I | 0V-5V | REC INH | Erase prevention tab 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 | LCD REVERSE [Lo] | LCD position detection input. Hi: Normal position, Lo: Reverse position. |
| 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. |

| Pin No. | I/O | Active Level | Abbreviation | Function |
|---|---|---|---|---|
| 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 IC2303 (EVF D/A CONV). |
| 72 | O | (Pulse) | OSD-CS | Activates communications with IC904 (CHARA. GEN.). |
| 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 | I | Hi/Lo | BATT SERIAL | Battery serial time detection input. |
| 78 | O | (Pulse) | SSB DATA | For data communications with IC904 (CHARA. GEN.), IC201 (LUMA/CHROMA PROCESS), IC401 (AUDIO PROCESS) and IC2303 (EVF D/A CONV) [For LCD color EVF] |
| 79 | O | (Pulse) | SSB CLK | |
| 80 | I | Hi/Lo | HI8/NORMAL [Lo] | Internal mode select input (Hi: Hi-8 models, Lo: models used exclusively with normal tapes). |
| 81 | I | Hi/Lo | SANYO/PANA [Lo] | Maker of the battery 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 | 5V 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 | 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. |
| 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+SQ | Artificial V. sync signal + video muting signal output |
| 97 | O | (Pulse) | SW30Hz[Lo] | Inverted head switching pulse output |
| 98 | O | Hi/Lo | LCD-HOLD | Controls the LCD control circuit operation mode. |
| 99 | O | (Pulse) | AUDIO30 | Outputs switching pulses to IC401 (AUDIO PROCESS). |
| 100 | O | (Pulse) | D.BRAKE | Output the cylinder brake pulse. |

# CHAPTER 7 APPENDIX

## SELF-DIAGNOSIC FUNCTION

### 1. OVERVIEW

The camera/recorder has the following self-diagnosic 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.

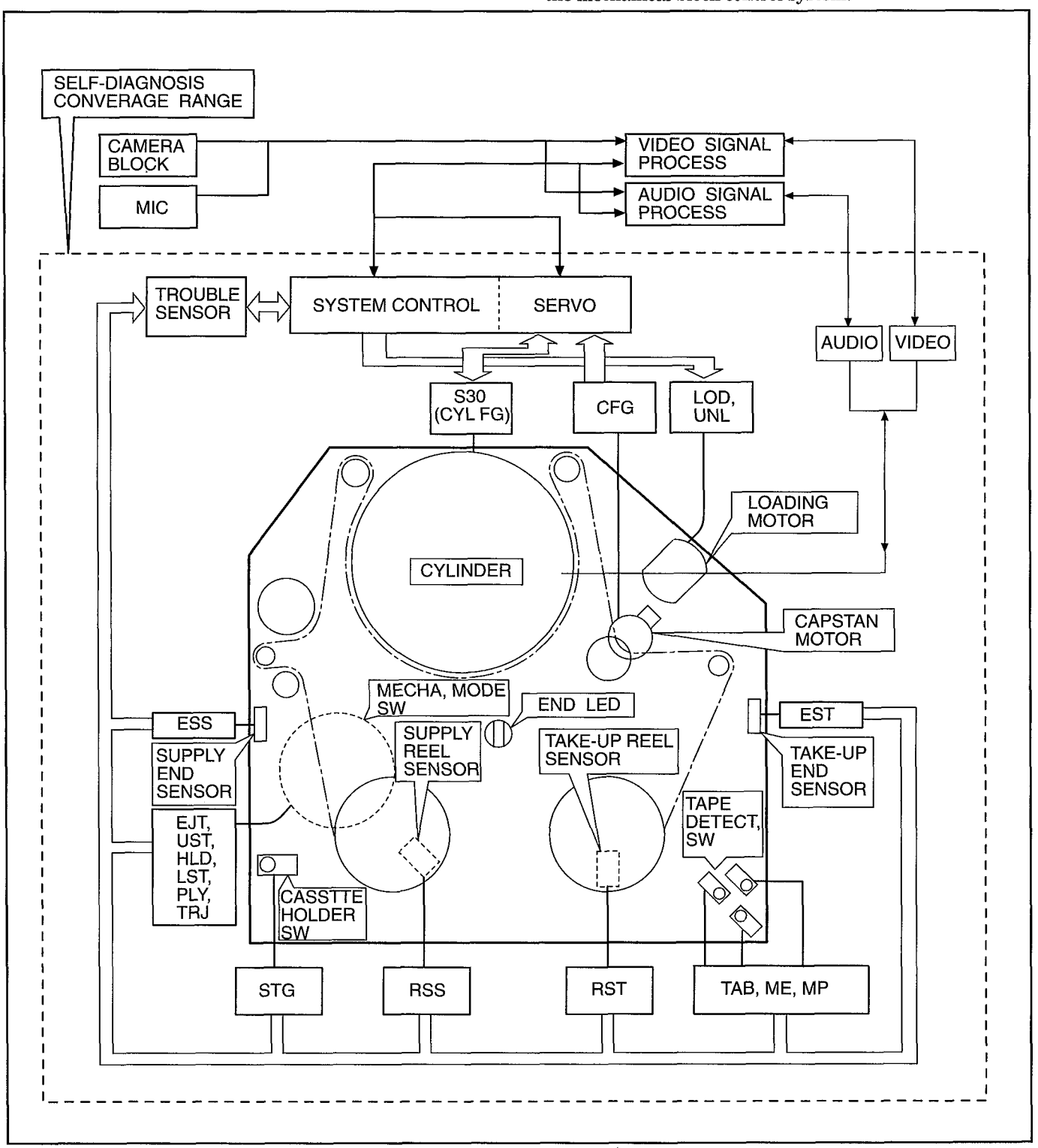



Fig. 1-1 Self-Diagnostic Coverage Range

## 2. DETAILS OF DISPLAY/DETECTION AND APPLICATIONS

Table 2-1 summarizes the details of display/detection of the self-diagnostic functions and their applications.
Fig. 2-1 shows the operational processes of the self-diagnostic functions.

Table 2-1 Details of Display/Detection of Self-Diagnostic Functions and their Applications

| | **Occasional defect self-diagnostic function (A mode)** | **Mechanical block self-diagnostic** |
|---|---|---|
| **Details of display/** | The system control μ P memorizes and display detection 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<br>· Take-up end sensor (EST)<br>· Supply end sensor (ESS)<br>· Take-up reel sensor (RST)<br>· Supply reel sensor (RSS)<br>Cylinder (S30)<br>Capstan motor (CFG) | Trouble sensors<br>· Take-up end sensor (EST)<br>· Supply end sensor (ESS)<br>· Take-up reel sensor (RST)<br>· Supply reel sensor (RSS)<br>Cylinder (S30)<br>Capstan motor (CFG)<br>Loading motor (LOD, UNL)<br>Mechanism mode switch<br>(EJT, UST, HLD, PLY, LST, TRJ)<br>Tape detection switches, etc.<br>· Erase prevention tab detection switch (TAB)<br>· ME/MP detection switch (ME)<br>· Hi-8 MP detection switch (MP)<br>· 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.<br>If the B mode is engaged first, the defect data may be erased. |

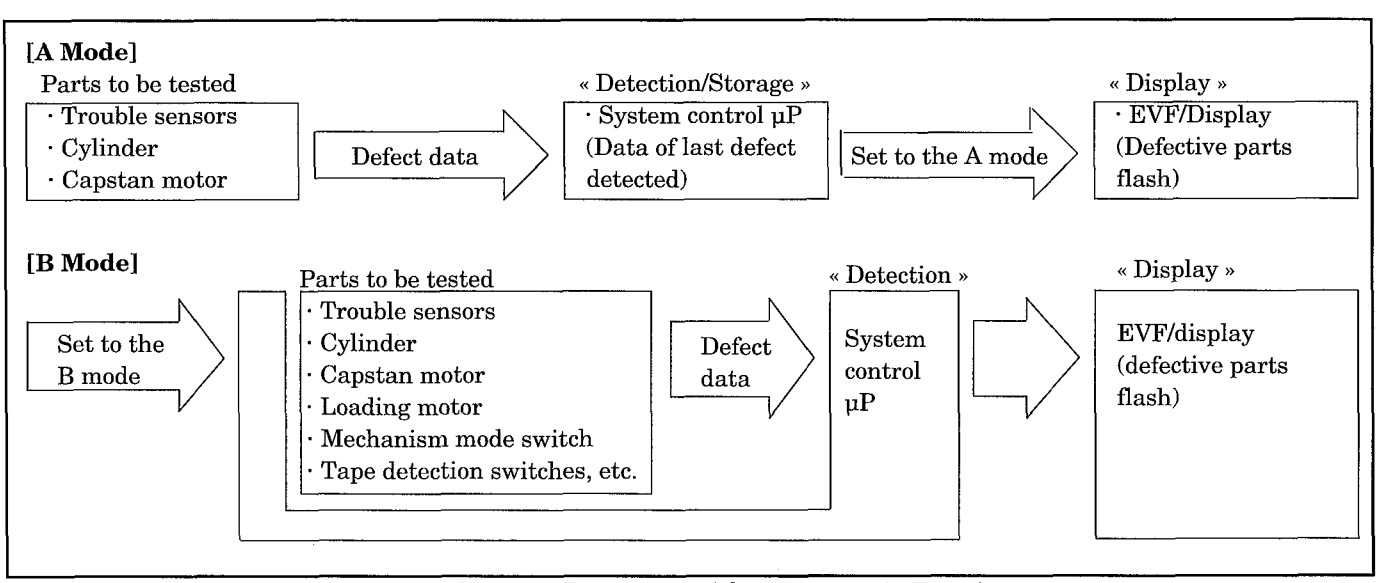



Fig. 2-1 Oeration Processes of Self-Diagnostic Functions

# 3. SETTING PROCEDURE AND DETAILS OF DIAGNOSIS

## 3.1 OCCATIONAL DEFECT SELF-DIAGNOSTIC FUNCTION (A MODE)

### 3.1.1 Setting Procedure

1) Connect (attach) a power supply (battery).

2) Set the power switch to"CAMERA" or "VIDEO".

3) Press the DATE button. [Within half a second]

4) Press the DATE and REW buttons simultaneously and hold them for 3-5 seconds.

```
XX,X<XX.XX> 199X/XX/XX
      LOD        EJT        UNL
      RSS        UST        RST
      ESS        HLD        EST
      CGF        LST        S30
      TAB        PLY        STG
      ME         TRJ        MP
□       0 1 2 3 4 5 6 7 8 9 A B C D E F
0000  H: 0 0 0 0 0 0 0 0 0 2 0 0 1 0 0 0
      L: 1 1 0 1 1 1 1 8 0 1 0 0 B D 0 0
XXX/XXX  WYCCOAD  AUDD1 4 0
```

**« Results of self-diagnosis »**
- The shaded items flash if they are defective.
- See Table 3-1 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.

### 3.1.2 Results of Diagnosis

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

Table 3-1 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<br>· Trouble sensor (reel sensor)<br>· IC0901 |
| | RST | The pulse from the take-up reel sensor is defective. | · Take-up reel disk<br>· Trouble sensor (reel sensor)<br>· IC0901 |
| | ESS | The pulse from the supply end sensor is defective. | · Trouble sensors (end sensor/end LED)<br>· Q0905<br>· IC0901<br>· DC-DC converter circuit (B+ line) |
| | EST | The pulse from the take-up end sensor is defective. | · Trouble sensors (end sensor/end LED)<br>· Q0905<br>· IC0901<br>· DC-DC converter circuit (B+ line) |
| Cylinder | S30 | The SW30 (CYL. FG) pulse is defective. | · Cylinder<br>· IC0631<br>· IC0901<br>· DC-DC converter circuit |
| Capstan | CFG | The CAPST. FG pulse is defective. | · Capstan motor<br>· IC0631<br>· IC0901<br>· DC-DC converter circuit |

## 3.2 MECHANICAL BLOCK SELF-DIAGNOSTIC FUNCTION (B MODE)

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

### 3.2.1 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 "CAMERA" or "VIDEO" (Hold this state for a few seconds.) [Within 3 seconds].

4) Close the cassette lid.

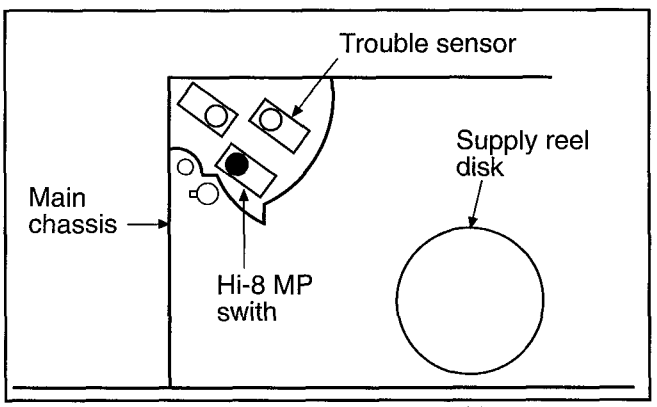
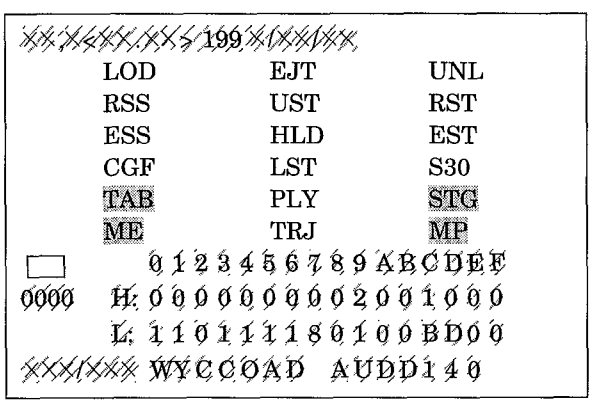



Fig.1-2 Hi-8 MP Switch Position




**« 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 3-2 for the results of diagnosis.

**Cautions**:

- Do not press any buttons other than those specified during self-diagnosis; otherwise, it may cause a malfunction.
- 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.

### 3.2.2 Results of diagnosis

Table 3-2 summarizes the results of diagnosis and the circuits/parts deemed to be defective in the B mode.

Table 3-2 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<br>· Rotation of drive gears in mechanical block faulty.<br>· IC0671<br>· IC0901<br>· IC0902<br>· Power supply (5V, B+) lines. |
| | UND | 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 one pulse or less withinte two seconds.) | · Supply reel disk<br>· Trouble sensor (reel sensor)<br>· Capstan motor<br>· IC0901 |

Table 3-2 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<br>· Trouble sensor (reel sensor)<br>· Capstan motor<br>· 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)<br>· Q0905<br>· IC0901<br>· 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)<br>· Q0905<br>· IC0901<br>· 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.<br>· Trouble sensor<br>· 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<br>· IC0631<br>· IC0901<br>· DC-DC converter circuit |
| Cylinder | S30 | The SW30 (CYL. FG) pulse is defective. (No pulse is input normally within two seconds.) | · Cylinder<br>· IC0631<br>· IC0901<br>· 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.<br>· Mechanism mode switch<br>· Trouble sensor<br>· IC0901<br>· Defective rotation/phase of drive gears in mechanical block.<br>· Loading motor.<br>· Tape transport components.<br>· Guide roller rails<br>· DC-DC converter circuit. |
| | HLD | The half loading position detection signal is defective. | |
| | LST | The loading stop position detection signal is defective. | |
| | PLY | The play position detection signal is defective. | |
| | TRJ | The transient position detection signal is defective. | |
| | EJT | The eject position detection signal is defective. | |

# DEMONSTRATION (DEMO) MODE

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

## 1. SETTING THE DEMO MODE

The camcorder can be set to the demo mode following the procedure below:

## 3. OPERATION DURING THE DEMO MODE

**Cautions:**

1) The following buttons and switches cannot be used in the demo mode:

| Order | Demo mode | On-screen display | Picture | Remarks |
|---|---|---|---|---|
| 16 | 16 × 9 | 16 × 9 indicator | 16 × 9 picture | For 2 seconds |
| 17 | Negative/positive inversion | NEGPOS indicator | Negative picture | For 2 seconds |
| 18 | × 130 zoom | ZM:2 indicator | Magnifies subject up to 130 times. | For 2 seconds |
| 19 | Half mirror | MIRROR indicator | Half-mirror picture | For 2 seconds |
| 20 | Mosaic | MOSAIC indicator | Mosaic picture | For 2 seconds |
| 21 | Normal | | Normal picture | For 3 seconds, and then goes back to step 1. |

**Note**: Steps 1-21 will be repeated during the demo mode.

This describes only the differences from the "TH MECHANISM" service manual (No.6406E) issued previously.

# DISASSEMBLY

### 2-1. Cassette holder (Fig.2-1)

1) Move the eject lever in the direction of arrow (A) and set the unit to the eject state.

**Caution when reinstalling**

· Reinstall the cassette holder so that section (B) of the eject lock slider is inserted into section (C) of the eject lock arm.

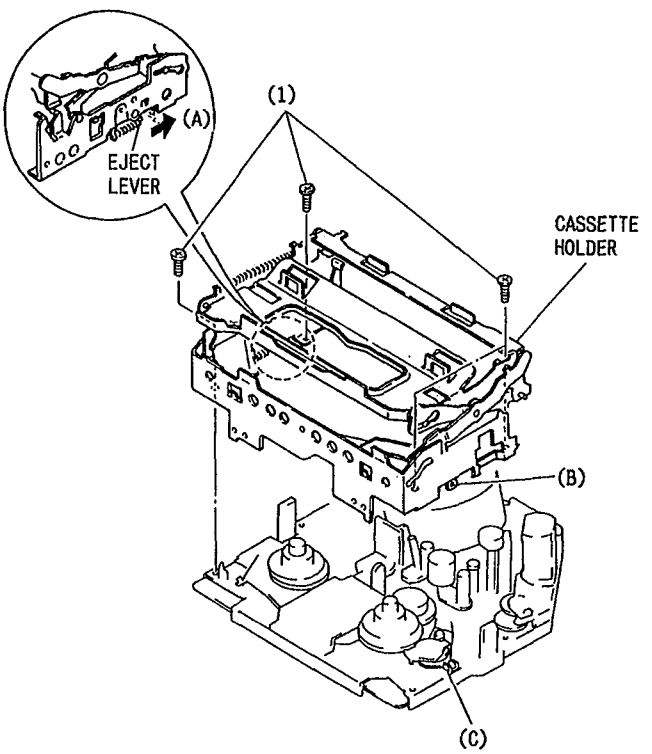



Fig. 2-1

### 2-3. Loading motor, loading gears (Fig.2-3)

1) Remove two screws (1) holding the loading motor.
2) Remove the loading motor and loading gears (1) and (2) from the chassis in the direction of arrow (A).

**Adjustment after reinstalling**

· After reinstalling the loading motor and loading gears ((1) and (2)), be sure to preform the following adjustment.
"3. PHASE MATCHING IN ASSEMBLY" in chapter 1.

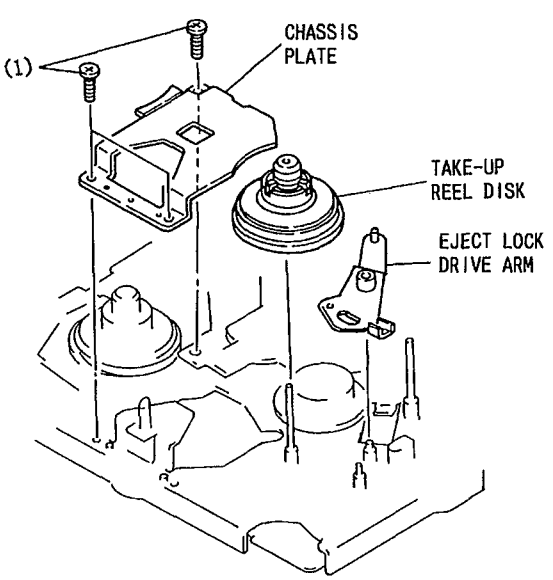



Fig. 2-3

## 2-12. Chassis plate, Take-up reel disk (Fig.2-13)

1) Remove screw (1) holding the chassis plate.
2) Remove the chassis plate from the chssis.
3) Pull out the take-up reel disk from the take-up reel disk shaft.

**Caution when reinstalling**

- When reinstalling the chassis plate, make sure the flange covers over the edges of the tension band.

## 2-13. Eject lock drive arm (Fig.2-13)

1) Remove the eject lock drive arm from the eject lock arm.

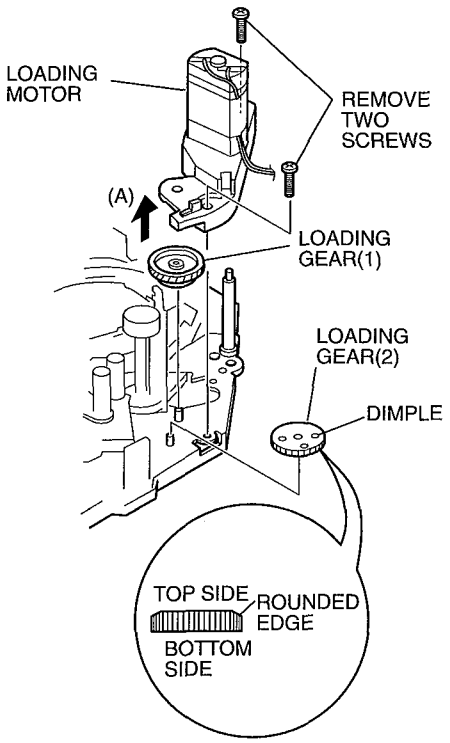



Fig. 2-13

## 3-2. Loading Gears and Loading Ring

(Figs. 3-2, 3-3)

**Caution**

· Be careful that the phase of the mechanism state switch which was matched in item 3-1 does not drift.

**Procedure of phase matching in assembly**

1) Align the markings of the loading ring and gears as hown in Fig. 3-2.

**Caution**: When reinstalling the pressure roller cam gear, set the eject lock drive arm to the position shown in Fig. 3-3 and check that pin (j) is inserted into groove (J) in the back of the pressure roller cam gear.

**Advice**: If it is difficult to see marking (D) on the lower loading ring, match the phase by the following procedure.

(1) Set the upper and lower loading rings to the state shown in Fig. 3-2. (Watch the guide roller fixing section.)

(2) Move the upper and lower loading rings so that holes (H) overlap each other.

(3) If holes (H) overlap each other, the phase of the loading ring is correct.

(4) If holes (K) overlap each other, the phase of the loading relay gear (4) is correct.

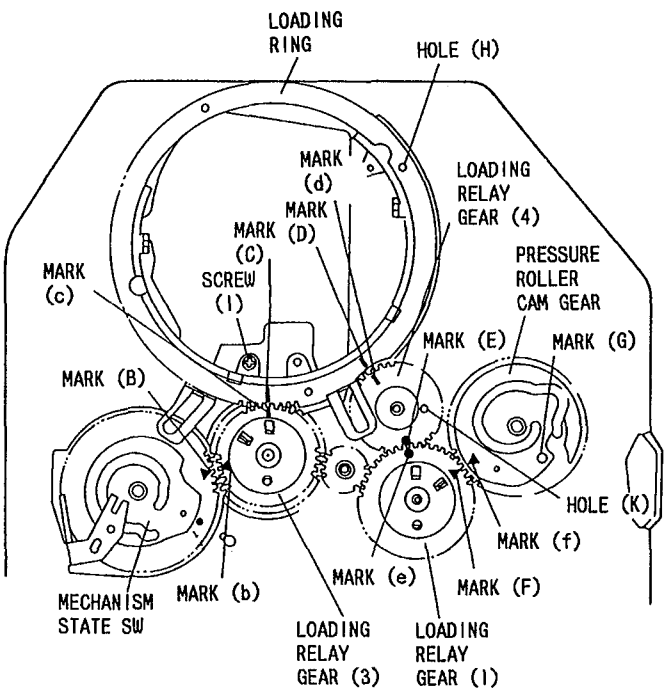



Fig. 3-2

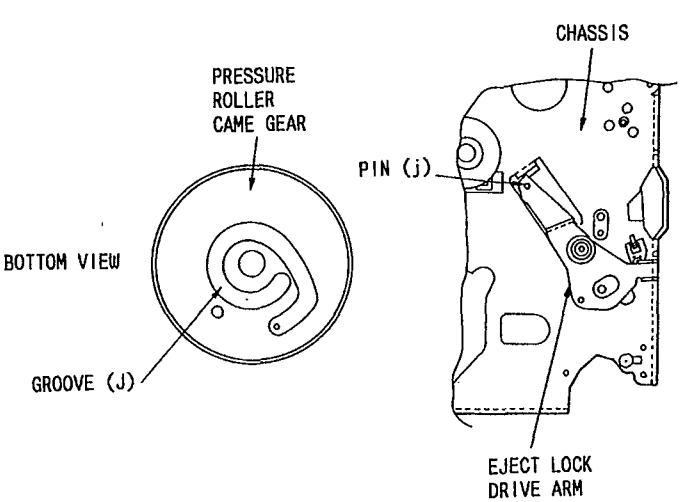



Fig. 3-3

## 4. PHOTOS OF MECHANISM

· Refer to these when reinstalling and perform phase matching in assembly.

### 4-1. Top View of Mechanism

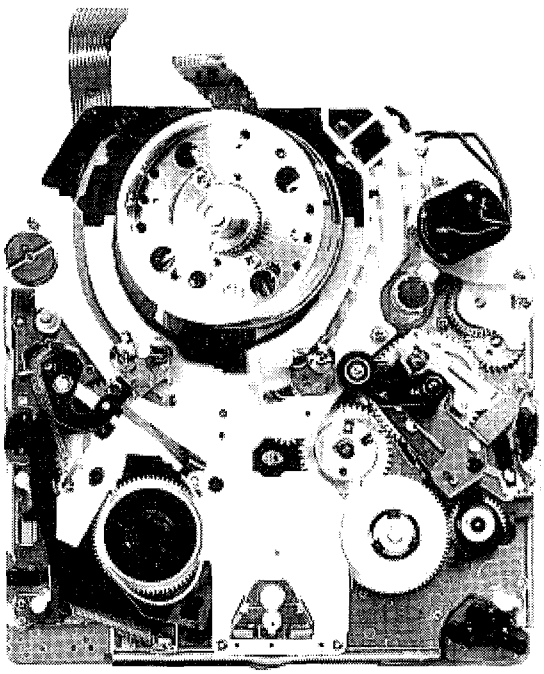


Fig. 4-1

### 4-2. Bottom View of Mechanism

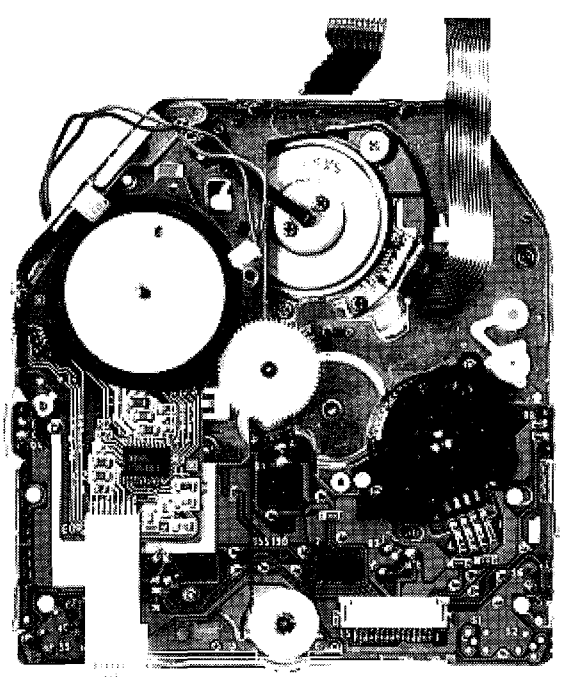


Fig. 4-2

# MECHANISM ADJUSTMENT

### 3-3. Supply/Take-up Guide Roller Height Adjustment (Figs. 3-4, 3-5)

**Caution**

· Be sure to check this item after reinstalling the supply guide roller and take-up guide roller. Basically, the height of the supply/take-up guide rollers should not be adjusted. Adjust these heights only if they are abnormal.

| Test equipment/jigs | Test equipment/jigs connection points | State of VCR | Adjustment point |
|---|---|---|---|
| · Alignment tape<br>· Oscilloscope<br>· ATF-R jig<br>· Special driver | · Test Plug on Main board<br>· TP1(SW25/30) on ATF-R jig<br>· TP2(GND) on ATF-R jig<br>· TP3(FM OUT) on ATF-R jig | · Connect the ATF-R jig to test plug.<br>· ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center) | · Top of guide rollers |

**Adjustment procedure**

**Caution**: Before performing this adjustment, refer to Fig. 6-1 and modify the ATF-R jig. Connect the ATF-R jig before suppling power.

1) Load an alignment tape that has been completely rewound. Press the PLAY button and hold it, then set the POWER switch to VIDEO position.
2) Connect an oscilloscope to TP3 on the ATF-R jig.
3) Synchronize the oscilloscope with TP1 (SW25/30) on the ATF-R jig.
4) Set the osilloscope to (+) slope.

**Supply Guide Roller** (Fig. 3-4)

5) Press SW2 on the ATF-R jig and hold it, then perform the following steps.
6) Adjust the height of the supply guide roller so the waveform is flat.
7) Adjust the voltage level control of the oscilloscope so that portion (A) of the waveform is set to 4 graduations.
8) Set SW1 on the ATF-R jig to ON.
9) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is 1.8 ± 0.1V. Then check that point (B) of the waveform is set to 3 graduation.
10) Adjust the height of the supply guide roller so minimum amplitude of the waveform is set to NTSC:2.3 ± 0.3/PAL:2.5 ± 0.3 graduations.

**Take-up Guide Roller** (Fig. 3-5)

11) Set the oscilloscope to (-) slope.
12) Adjust the voltage level control of the oscilloscope so that portion (B) of the waveform is set to 4 graduarions.
13) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is 1.8 ± 0.1V. Then check that point (B) of the waveform is set to 3 graduation.
14) Adjust the height of the take-up guide roller so the minimum amplitude of the waveform is set to NTSC:2.5 ± 0.3/PAL:2.3 ± 0.3 graduations.

**Caution**: After adjustment is completed, be sure to reverse the modification to ATF-R jig.

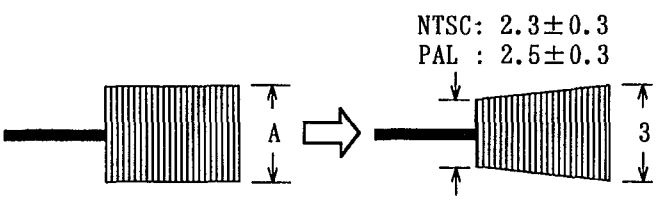



Fig. 3-4

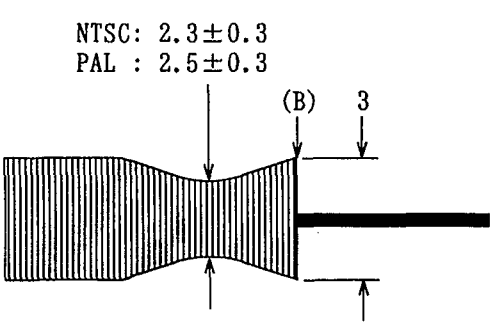



Fig. 3-5

## 4. ADJUSTMENT AFTER REPLACING THE CYLINDER (Figs. 4-1, 4-2)

When the cylinder is replaced, the height relative to the guide roller drifts, therefore the tape transport system and servo circuit should be adjusted. Check and adjust in the following order.

| Test equipment/jigs | Test equipment/jigs connection points | State of VCR | Adjustment point |
|---|---|---|---|
| · Alignment tape<br>· Oscilloscope<br>· ATF-R jig<br>· Special driver | · Test Plug on Main board<br>· TP1(SW25/30) on ATF-R jig<br>· TP2(GND) on ATF-R jig<br>· TP3(FM OUT) on ATF-R jig | · Connect the ATF-R jig to test plug.<br>· ATF-R jig (SW1: OFF, SW3: ON, RT1: mechanical center) | · Top of guide rollers |

**Adjustment procedure**

**Caution**: Before performing this adjustment, refer to Fig. 6-1 and modify the ATF-R jig.

1) Load an alignment tape that has been completely rewound. Press the PLAY button and hold it, then set the POWER switch to the VIDEO position.
2) Connect an oscilloscope to TP3 on the ATF-R jig.
3) Syncronise the oscilloscope with TP1(SW25/30) on the ATF-R jig.
4) Set the oscilloscope to (+) slope.
5) Press SW2 on the ATF-R jig and hold it, then perform the following steps.
6) Adjust the voltage level control of the oscilloscope so that portion (A) of the waveform is set to 4 graduations.
7) Set SW1 on the ATF-R jig to ON.
8) Turn RT1 on the ATF-R jig counterclockwise so that portion (A) of the waveform is set to 3 graduations.
9) Adjust the height of the supply guide roller so the minimum amplitude of the waveform is set to NTSC:2.3 ± 0.3/PAL:2.5 ± 0.3 graduations. (See Fig. 4-1)
10) If this cannot be confirmed, adjust the height of the supply guide roller, referring to "3-3. Supply/ Take-up Guide Roller Height Adjustment".
11) Set the osilloscope to (-) slope.
12) Turn RT1 on the ATF-R jig counterclockwise so the voltage at point (C) on the ATF-R jig is 1.8 ± 0.1V. Then check that point (B) of the waveform is set to 3 graduation.
13) Check that the minimum amplitude of the waveform is set to NTSC:2.3 ± 0.3/PAL:2.5 ± 0.3 graduations. (See Fig.4-2)
    If this cannot be confirmed, adjust the height of the take-up guide roller, referring to "3-3. Supply/ Take-up Guide Roller Height Adjustment".
14) Perform the following electrical adjustments.
    Head switching point adjustment
    Record luminance/chroma level adjustment

**Caution**: After adjustment is complete, be sure to reverse the modification to ATF-R jig.

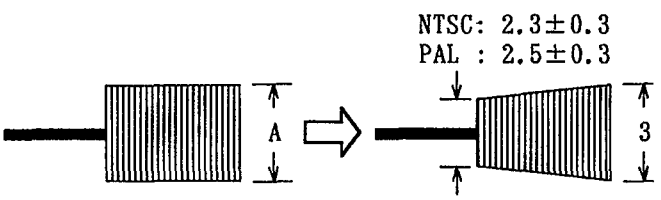



Fig. 4-1

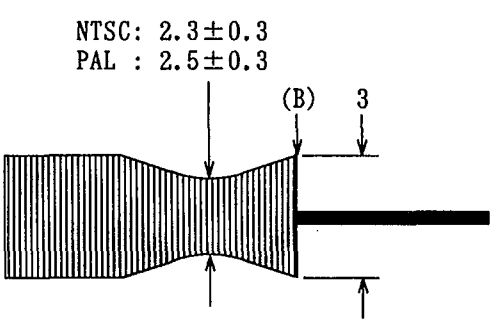



Fig. 4-2

## 5. CHECKING THE TORQUE

There are two types of cassette torque meter.
Choose the applicable one for the measurement to be performed.

| Item | VCR mode | Measured reel disk | Torque value | Torque cassette used |
|---|---|---|---|---|
| Take-up torque | Playback | Take-up | 7-13 g-cm | SRK-8T-212<br>SRK-8T-232 |
| Rewind torque | Reverse search | Supply | 25-37 g-cm | SRK-8T-232 |
| Take-up brake torque | Reverse search to stop | Take-up | 10 g-cm ro more | SRK-8T-212<br>SRK-8T-232 |
| Slack removal torque | Unloading | Supply | 25-37 g-cm | SRK-8T-232 |

## 6. MODIFICATION TO ATF-R JIG (Fig. 6-1)

**Caution**

The ATF-R jig must be modified for the following adjustments.
After completing these, be sure to reverse the modification.

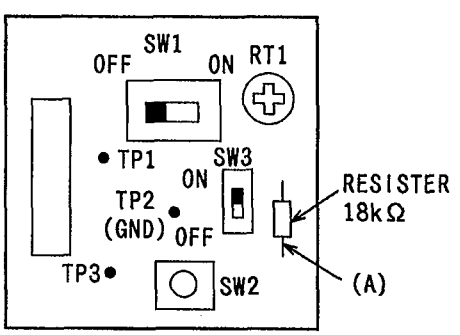
- 3-3. Supply/Take-up Guide Roller Height Adjustment
- 4. ADJUSTMENT AFTER REPLACING THE CYLINDER

**Procedure**

1) Short terminal (A) of the resister on theATF-R jig and pin 1 (5V) of the connector.

**Note**: This modification makes SW2 on the ATF-R jig a PCM area observation switch.

**Caution**: Use a shorting clip, etc. to short the parts; this can be removed easily after adjustment is completed.
A modification is also necessary in the same way when the ATF jig is used.



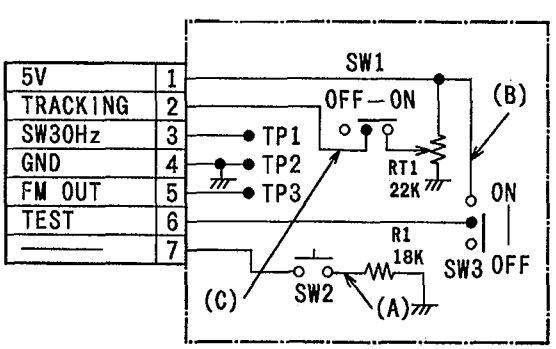




Fig. 6-1

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