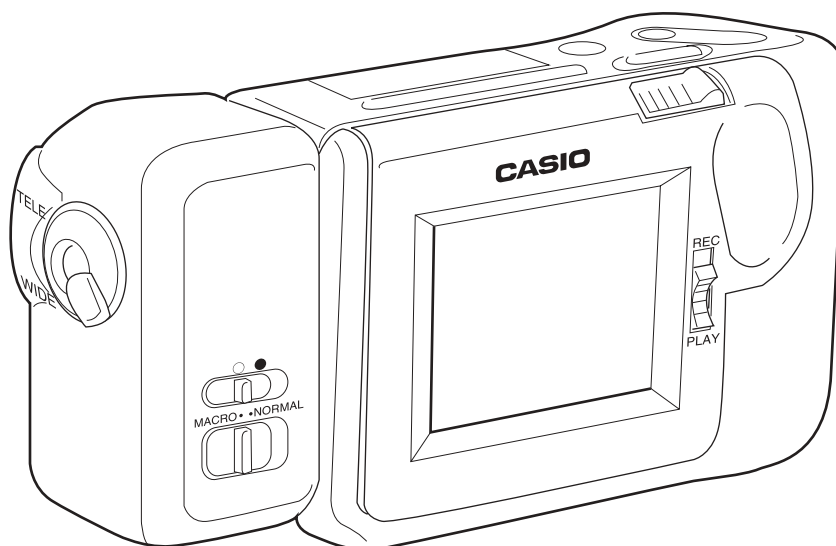


SERVICE MANUAL & PARTS LIST (without price)

QV-30 (B) (KX-724B)
(For NTSC)

APR. 1996



INDEX

CASIO®

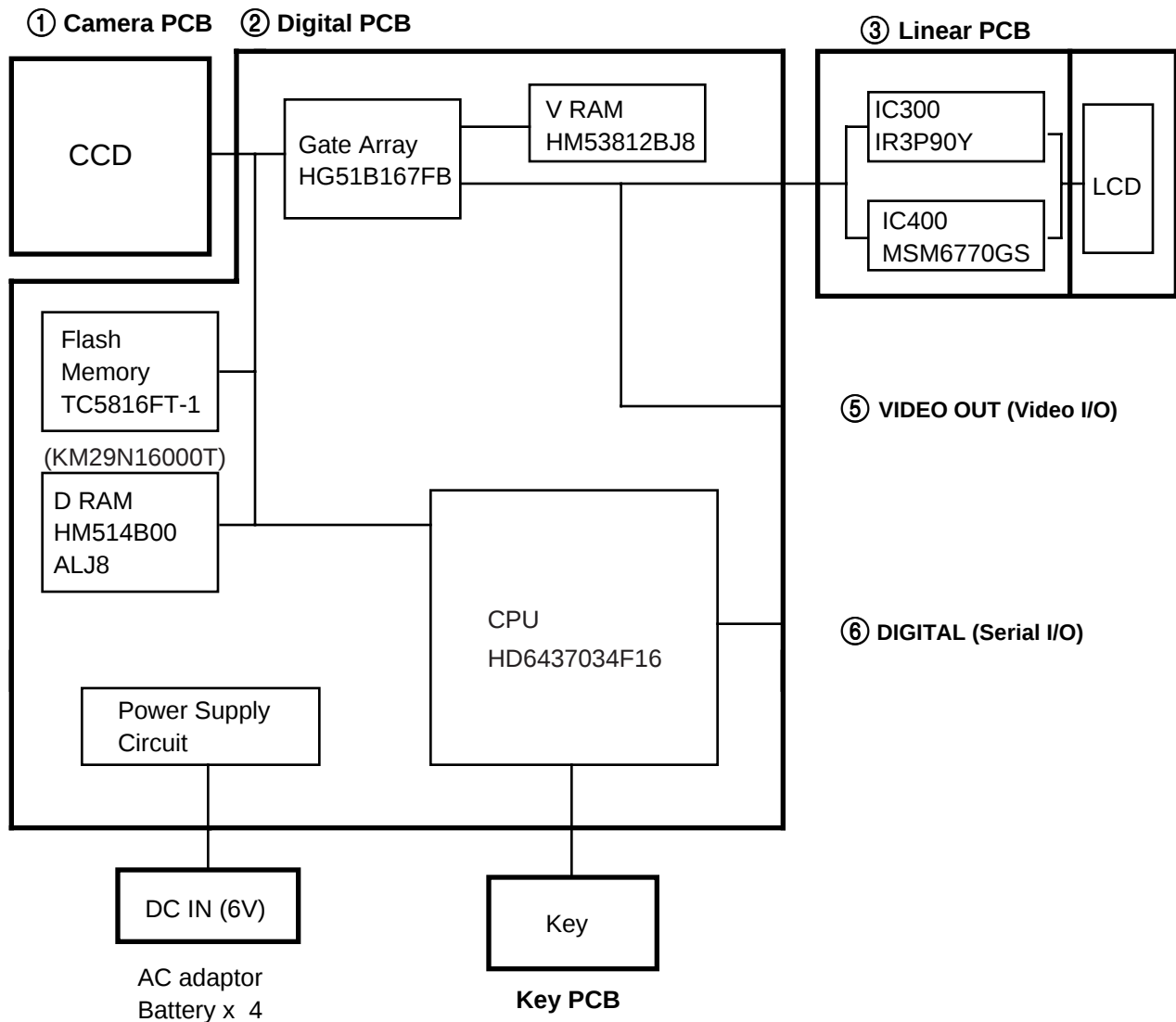
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SPECIFICATIONS

Item	Specification
1. Recording System	Digital (JPEG based)/Field recording
2. Video Signal System	NTSC
3. Recording Medium	Built-in 16-Mbit flash memory
4. Number of pages	96
5. Delete Functions	Single page; All pages (with page protect feature)
6. Imaging Device	1/5-inch CCD (Total Number of Pixels: 250,000)
7. Lens	2 focal points with macro position: F2.8 f=4.0 mm/f=9.0 mm
8. Aperture	F2.8/F8 manual switching
9. Focal Length	f=4.0 mm F2.8/NORMAL : 50 cm ~ ∞ f=4.0 mm F2.8/MACRO : 10 cm ~ 13 cm f=4.0 mm F8/NORMAL : 24 cm ~ ∞ ; f=4.0 mm F8/MACRO : 8 cm ~ 19 cm f=9.0 mm F2.8/NORMAL : 250 cm ~ ∞ f=9.0 mm F2.8/MACRO : 50 cm ~ 65 cm f=9.0 mm F8/NORMAL : 120 cm ~ ∞ ; f=9.0 mm F8/MACRO : 40 cm ~ 95 cm
10. Light Metering	TTL center point by photographic element
11. Exposure Metering	Aperture priority AE
12. Exposure Range	EV +5 to 18
13. Exposure Adjustment	-2 EV to +2 EV
14. Shutter System	Electronic
15. Shutter Speed	1/8 to 1/4000 second
16. White Balance	Automatic
17. Self-timer	10-second
18. Monitor	61,380-pixel 2.5-inch TFT low-glare color LCD
19. Terminals	DIGITAL; VIDEO OUT; DC IN 6 V
20. Power Supply	Batteries (AA-size Alkaline batteries $\times$ 4)/AC Adaptor
21. Battery Life	Approximately 120 minutes (Playback mode)
22. Dimensions	72 (H) $\times$ 162 (W) $\times$ 49 (D) mm/ 2.8" (H) $\times$ 6.4" (W) $\times$ 1.9" (D)
23. Weight	Approximately 240 g / 8.5 oz (excluding batteries)
24. Accessories	Wrist strap; soft case; special video cable; Alkaline batteries (LR6 $\times$ 4); cleaning cloth

BLOCK DIAGRAM



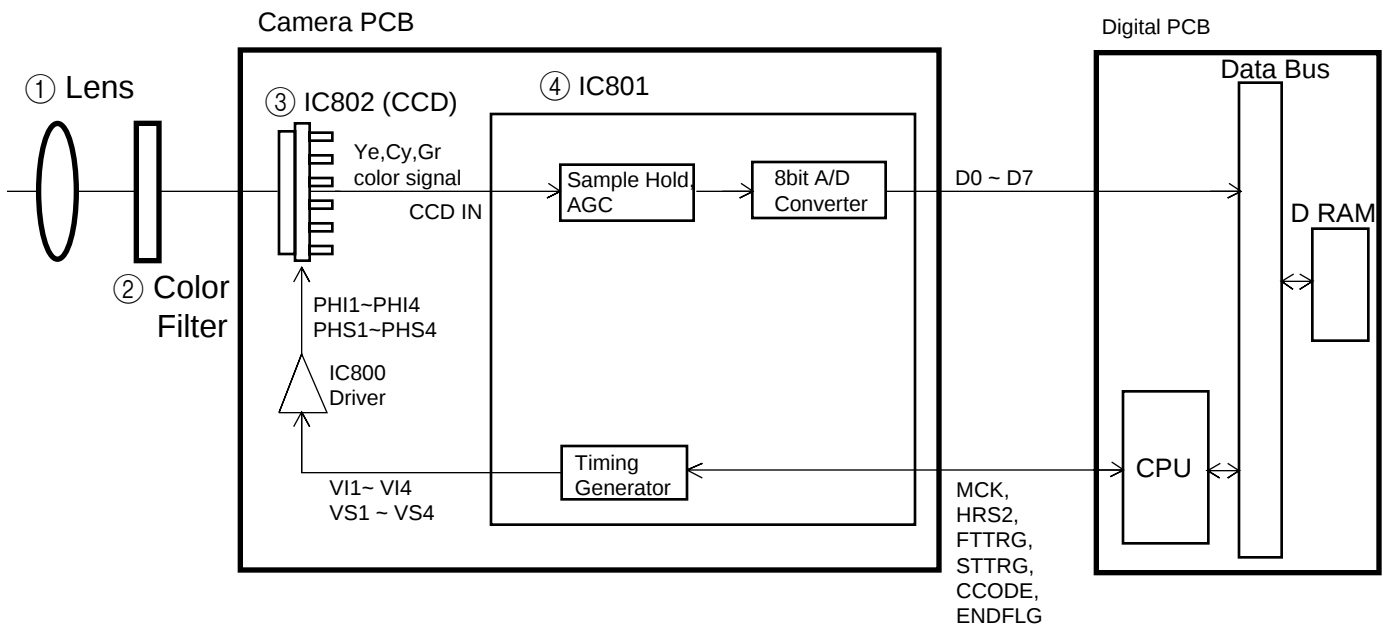
- ① Camera Unit: It is used to provide color information.
- ② Digital PCB: It controls the CCD, compressed data, stores image in memory.
- ③ Linear PCB: It generates the tricolor and controls the LCD display.
- ④ LCD: 61,380-pixel 1.8-inch Thin Film Transistor low-glare color LCD.
- ⑤ VIDEO OUT(Video I/O): Use this terminal when connecting to the VIDEO IN terminal of a TV, video tape deck, video printer, or other similar device.
- ⑥ DIGITAL (SERIAL I/O): Use this terminal when connecting to a personal computer.

CIRCUIT OPERATIONS

CAMERA UNIT (CAMERA PCB)

The camera unit is composed a lens, color filter, CCD (IC802), driver (IC800) and signal processor (IC801). It produces voltages R, B, and G, for the colors red, blue, and green when light from a scene is focused on the surface. These voltage values vary according to the intensity of the respective color being scanned.

The camera unit must be replaced with whole unit when it is defective, because the precise adjustment is required when the individual parts are replaced, and can be done only at our factory.



① Lens

Concentrates light rays to a point.

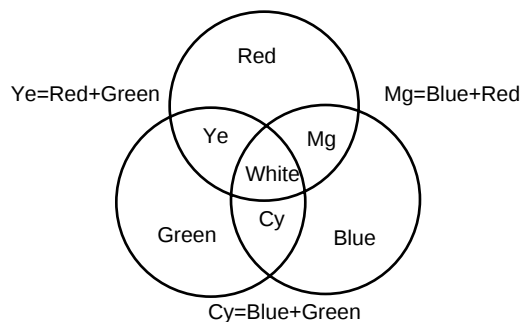
② Color filter

The striped color filter in front of the CCD detector is used to provide color information. It has three colors, yellow, green and cyan.

Array of color filter and signal processing (IC801) for camera are extremely close relationship.

1	2	3	~	506	507	508
Ye	G	Cy		Ye	G	Cy
Ye	G	Cy		Ye	G	Cy
Ye	G	Cy		Ye	G	Cy
Ye	G	Cy		Ye	G	Cy
Ye	G	Cy		Ye	G	Cy

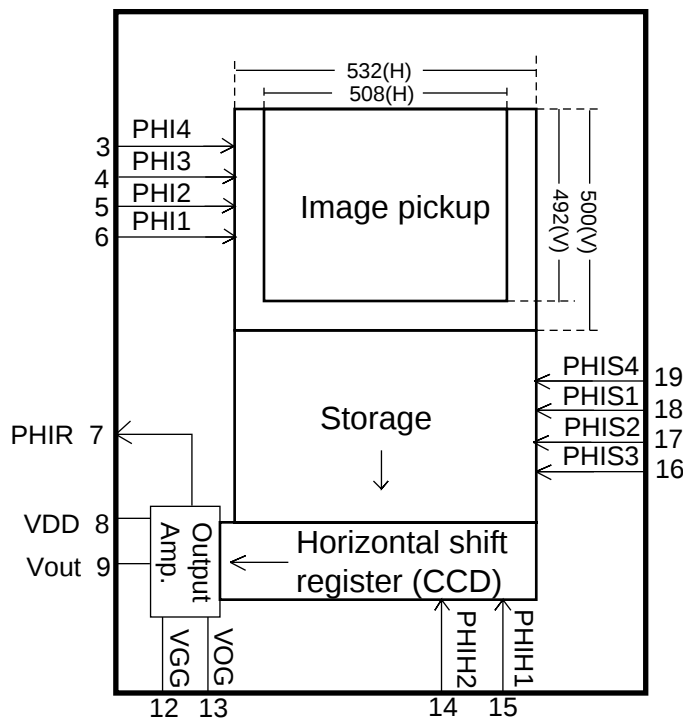
Array of color filter



Three Primary colors

③ CCD (IC802)

A charge-coupled device in which charges are introduced when light from a scene is focused on the surface of the device. The image points are accessed sequentially to produce a television-type output signal.



Effective picture element:

$$249,936 = 508 (H) \times 492 (V)$$

PHIS1~PHIS4:

Clock pulse for the storage.

PHI1~PHI4:

Clock pulse for the image pickup.

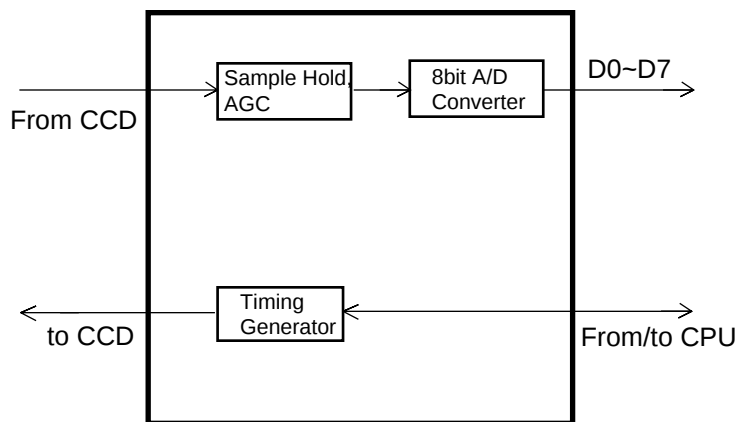
PHIH1~PHIH2:

Clock pulse for the horizontal shift register.

PHIR:

CCD analog signal output.

④ Camera Signal Processor (IC801)



D0~D7:

Digital signal of the luminance and the color difference B-Y and R-Y signal.

CCD IN:

CCD analog signal input.

VI1~VI4/VS1~VS4:

Clock pulse for the CCD control signal.

Sample Hold

Selects a desired signal from the CCD.

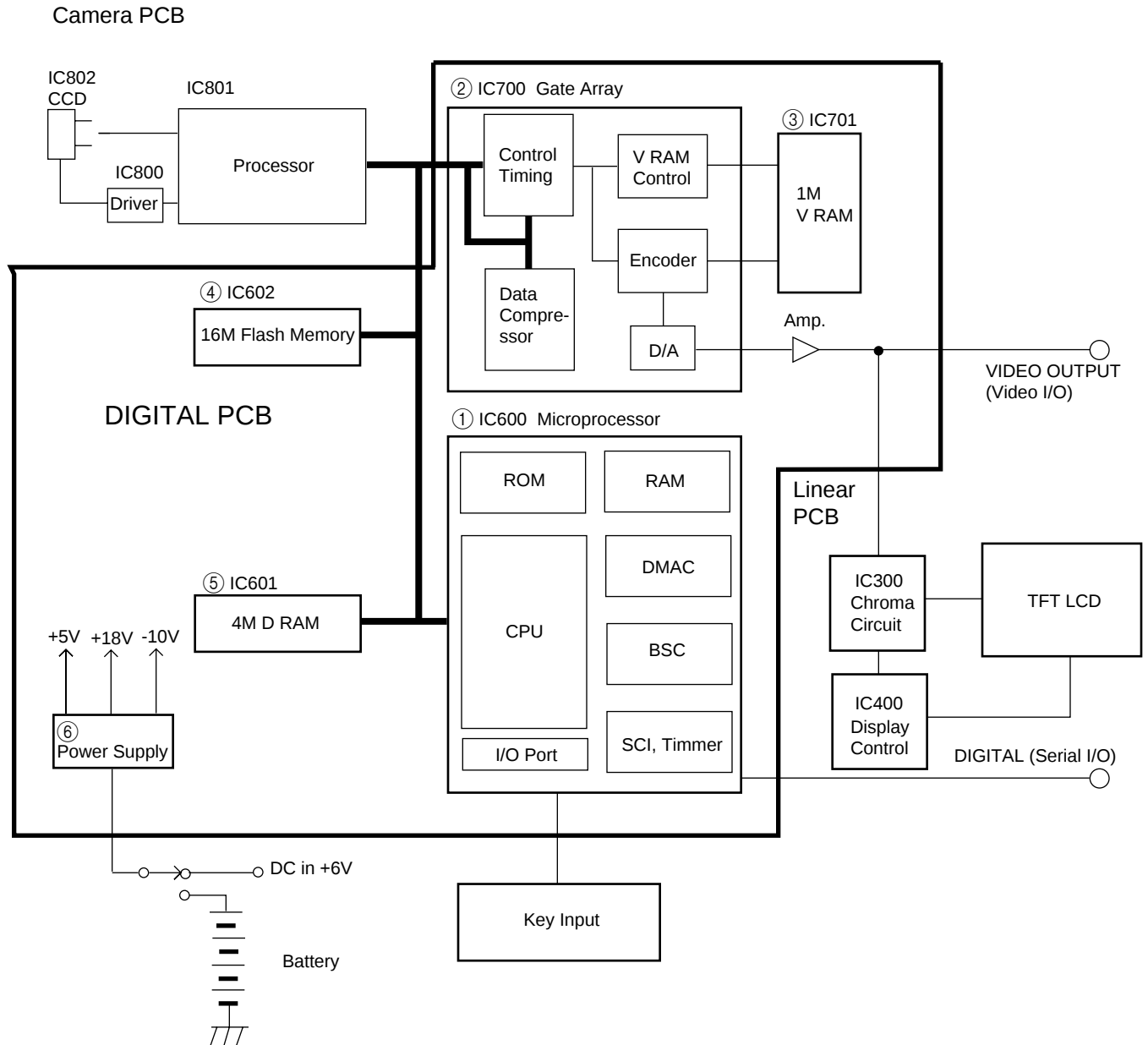
Timing Genarator

Generates the clock pulse for the CCD.

8-bit AD converter

Analog signal from the CCD is converted into 8-bit digital signal of the luminance and the color difference B-Y and R-Y signal.

DIGITAL PCB



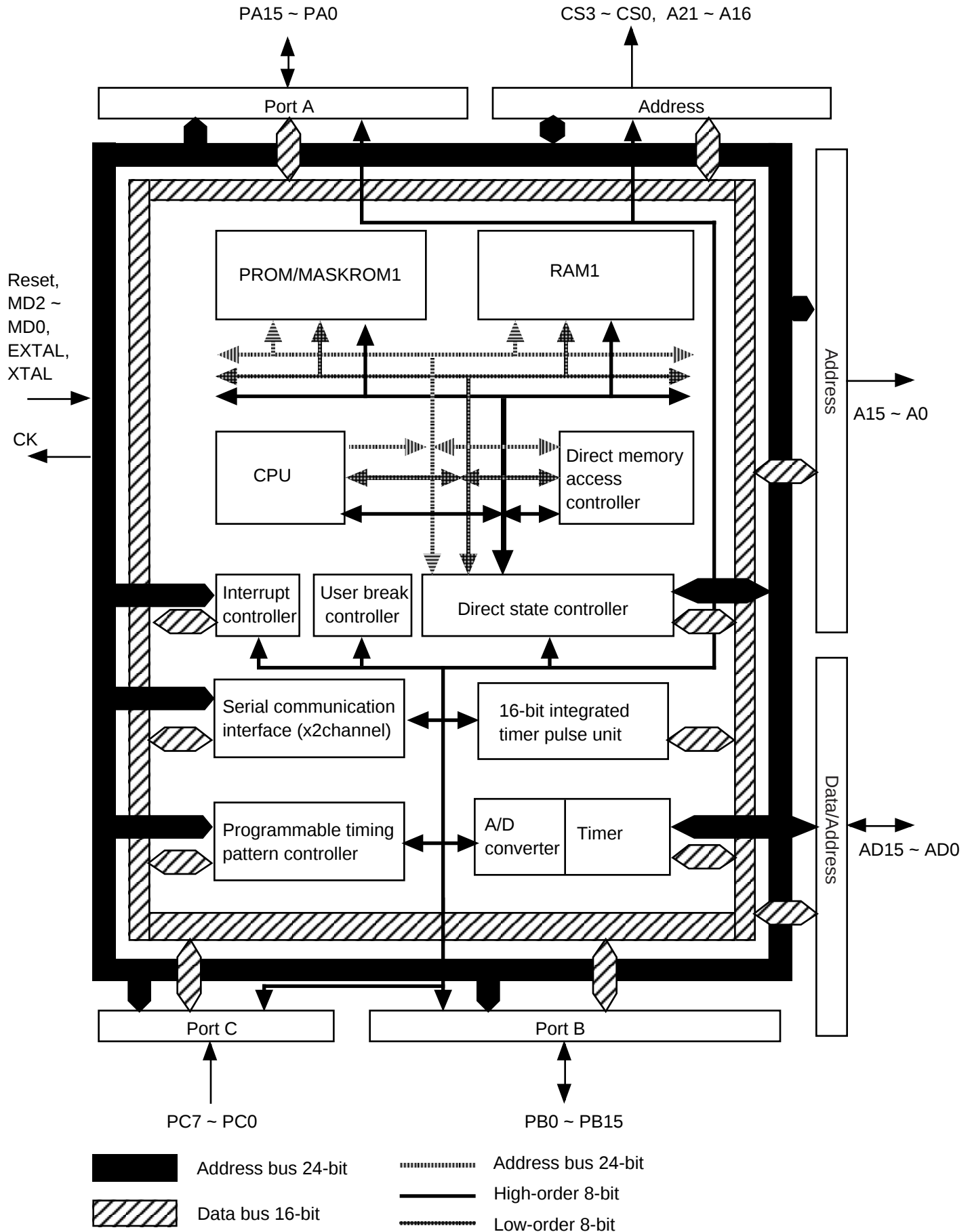
Digital PCB is composed Microprocessor (IC600), D RAM (IC601), Flash Memory (IC602), Gate Array (IC700), and V RAM (IC701).

Microprocessor controls the CCD, D RAM, Flash Memory and key operation. Gate array compresses data for the color and the luminance from the CCD to increase the number of memory, and up to 96 images can be stored in flash memory. The color and the luminance data are mixed in the gate array to make the video signal.

As to spare parts for digital PCB, Casio supplies PCB ass'y and the individual parts.

① CPU (IC600)

Controls the CCD, D RAM, Flash memory and key operation.

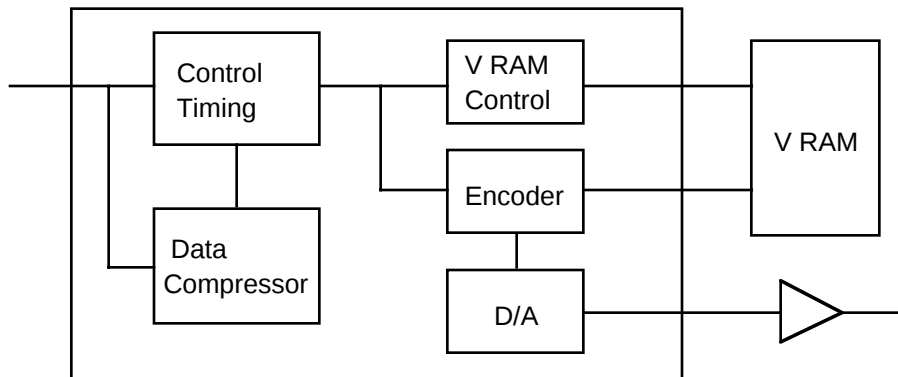


CPU PIN FUNCTION

Pin No.	Terminal Name	IN/OUT	Function
1	PB14	OUT	Timing pattern output.
2	PB15	-	Not used.
3	VSS	IN	Ground terminal.
4 - 11	AD0 - AD7	IN/OUT	Address bus.
12	VSS	IN	Ground terminal.
13 - 14	AD8 - AD9	-	Not used.
15	VCC	IN	Power source.
16 - 21	AD10 - AD15	-	Not used.
22	VSS	IN	Ground terminal.
23 - 30	A0 - A7	OUT	Address bus.
31	VSS	IN	Ground terminal.
32 - 33	A8, A9	OUT	Address bus.
34 - 39	A10 - A15	-	Not used.
40	VSS	IN	Ground terminal.
41, 42	A16, A17	-	Not used.
43	VCC	IN	Power source.
44 - 47	A18 - A21	-	Not used.
48 - 50	CS0 - CS2	-	Not used.
51	CASL	OUT	CAS(Column Address Strobe) signal for D RAM.
52	VSS	IN	Ground terminal.
53	PAO	-	Not used.
54	RAS	OUT	RAS(Row Address Strobe) signal for D RAM.
55	CS6	OUT	Chip select signal.
56	WAIT	-	Not used.
57	WR	OUT	Write enable signal for outer memory (low-order 8-bit).
58	PA5	OUT	Write enable signal for outer memory (high-order 8-bit).
59	RD	OUT	Read enable signal for outer memory.
60	PA7	-	Not used.
61	VSS	IN	Ground terminal.
62	PA8	IN	Bus request signal.
63	PA9	OUT	Interrupt request signal.
64 - 66	PA10 - PA12	-	Not used.
67	DREQ0	IN	Interrupt request signal.
68	IRQ2	IN	Interrupt request signal.
69	PA15	IN	Interrupt request signal.
70	VCC	IN	Power source.
71	CK	OUT	System clock pulse.
72	VSS	IN	Ground terminal.
73	EXTAL	IN	Clock pulse input.
74	XTAL	-	Not used.
75 - 77	VCC, NMI, VPP	IN	Power source.
78	WDTOVF	-	Not used.
79	RES	IN	Reset signal input.
80	MD0	IN	Ground terminal.
81	MD1	IN	Connected to VCC3.
82	MD2	IN	Connected to ground.
83, 84	VCC	IN	Power source.

Pin No.	Terminal Name	IN/OUT	Function
85, 86	AVCC, AVREF	IN	Connected to VCC3.
87 - 89	PC0 - PC2	IN	Key input terminal.
90	PC3	IN	Low battery detection terminal.
91	AVSS	IN	Ground terminal.
92 - 95	PC4 - PC7	-	Not used.
96	VSS	IN	Power source.
97, 98	PB0, PB1	IN/OUT	Port B.
99	VCC	IN	Power source.
100 - 105	PB2 - PB7	IN/OUT	Port B.
106	VSS	IN	Ground terminal.
107	RXDO	IN	Data input terminal from a personal computer.
108	TXDO	OUT	Data output terminal to a personal computer.
109, 110	PB10, PB11	IN/OUT	Port B.
111	PB12	-	Not used.
112	PB13	-	Not used.

② Gate Array (IC700)



Data Compressor

The color difference and the luminance data is compressed about 1/7 to increase the number of images in memory. Up to 96 images can be stored.

Y (luminance signal) data	: 480 x 224 byte		
Cb (color difference signal B-Y) data	: 160 x 112 byte		
Cr (color difference signal R-Y) data	: 160 x 112 byte		
		↔ 1/7	21,120 byte

Total: 143,360 byte

21,120 byte

Encoder

The color and the luminance data are mixed internally to make the video signal, and send it to the linear PCB and the video out terminal.

③ V RAM

It is used for encoder function.

④ Flash Memory

Up to 96 images can be stored in memory. Flash memory does not require electrical power to store data, so image data is retained in memory even when you turn camera power off.

If batteries go dead, simply load a set of new batteries or connect the AC adaptor and you will be able to view images in camera memory.

Memory Map

Header record	Image data Max; 96 images	Color Information
---------------	------------------------------	-------------------

⑤ D RAM

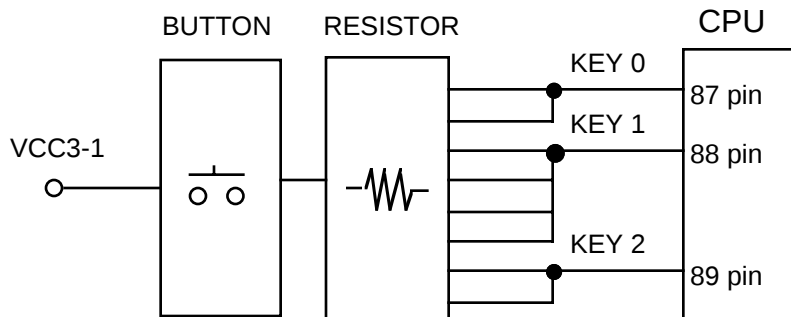
There is area of work space that the microprocessor uses for storing temporary data, the intermediate results of calculations, and all sorts of pieces of information that the system needs to remember.

⑥ Power supply

Terminal	Voltage	Purpose
VCC3-0	4.75 ~ 5.15 (V)	Logic circuit
VCC3-1	4.70 ~ 5.15 (V)	Video output
VCC3-2	4.60 ~ 5.15 (V)	Digital I/O
VCC6	17.80 ~ 18.20 (V)	CCD
VEE3	-9.6 ~ -10.6 (V)	CCD

KEY PCB

Block Diagram



Key Matrix

VOLTAGE	BUTTON	RESISTOR	KEY MATRIX	CPU
VCC3-1	Shutter	R900(1.8K)	KEY0	87pin
VCC3-1	[+]	R901(15K)	KEY0	87pin
VCC3-1	MODE	R902(1.8K)	KEY1	88pin
VCC3-1	DISP	R903(4.7K)	KEY1	88pin
VCC3-1	ZOOM	R904(10K)	KEY1	88pin
VCC3-1	SELF	R905(27K)	KEY1	88pin
VCC3-1	[-]	R906(1.8K)	KEY2	89pin
VCC3-1	DEL	R907(15K)	KEY2	89pin

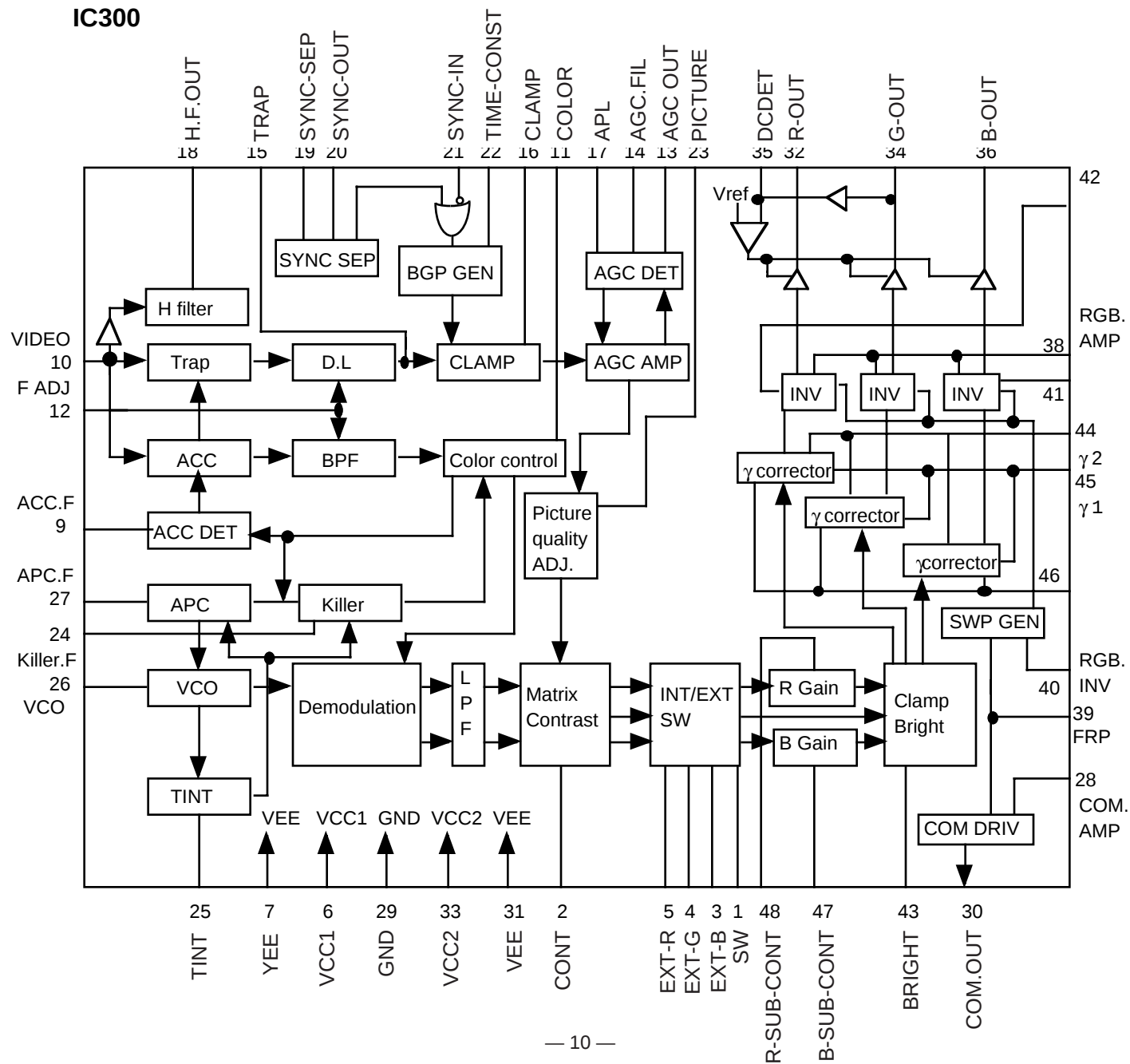
LINEAR PCB

IC300 generates the tricolor (red, green and blue) from the video signal, and IC400 controls the TFT-LCD display.

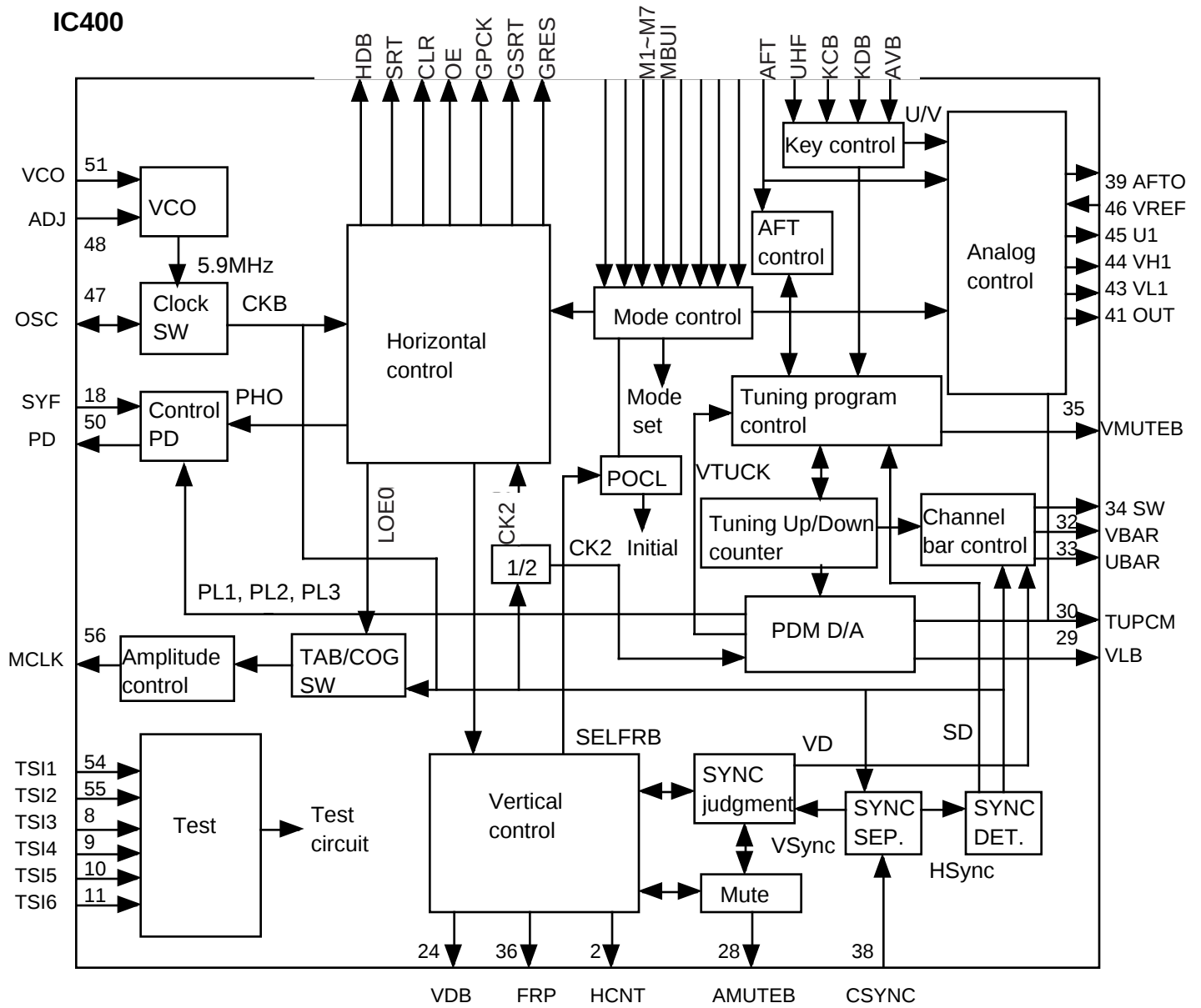
Power Supply

Terminal	Voltage	Purpose
VCC2	4.3 ~ 4.7 (V)	Logic circuit
VCC4	9.5 ~ 11.0 (V)	Display
VEE2	-7.0 ~ -8.0 (V)	Display
VEE4	-16.5 ~ -17.9 (V)	Display

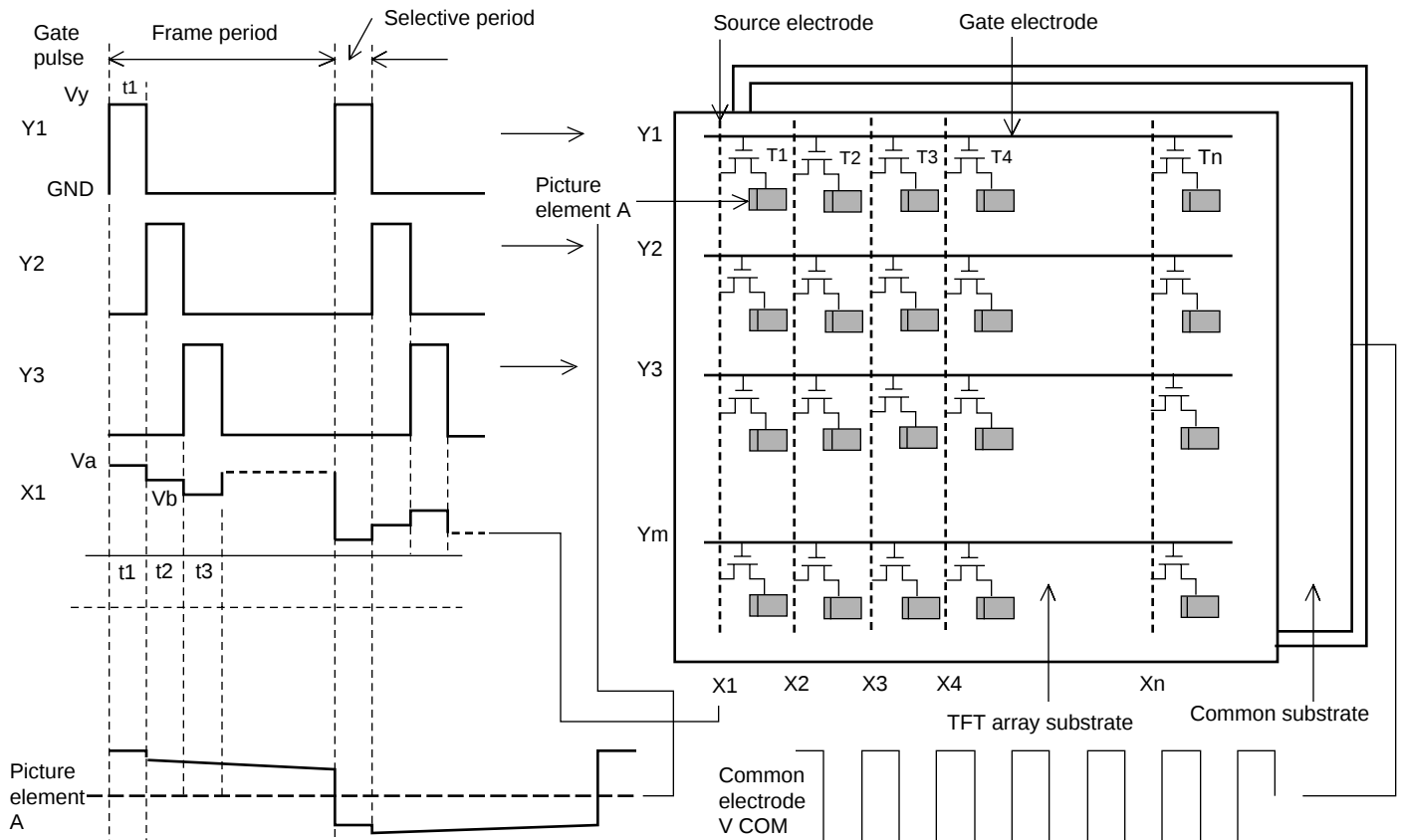
IC300



IC400



TFT-LCD



Each picture element electrode is controlled by a transistor. To the gate electrodes, the gate pulse is applied timesharing. VCOM voltage is applied to the common electrodes. The above figure shows the operation of TFT-LCD. If the gate pulse is not applied to the gate electrodes, the transistors do not operate even when the potential difference is given between the common electrodes and source electrodes, and no effect is given to the liquid crystal. If the gate pulse is applied to Y1, the transistor T1 is in operation during a period of t1, and voltage of source electrode of Va is applied to the LCD layer of picture element A, then electric charges are stored in the picture element of A. After the period of t1, T1 is turned off, and voltage in the LCD layer of A is held until next gate pulse comes, but it drops little by little through off leak resistance of TFT and leak resistance of LCD itself.

BACK LIGHT

The camera unit is equipped with a fluorescent light source to provide the back lighting for its LCD. The normal service life of the backlight is approximately six years, when the camera is used for about two hours a day.

The backlight is consumption items, so even under guarantee replace it under charge basis.

COLOR ADJUSTMENT

Each of this model has a color information in its flash memory due to the CCD camera has a color characteristic. The color information is loaded in the flash memory when the color adjustment is done after assembling of this model in our factory. A brand-new flash memory and digital PCB ass'y stocked in our spare parts center do not have the color information, so the color adjustment should be done after the following situation.

- Replacing the digital PCB ass'y with the brand-new one
- Replacing the flash memory with the brand-new one

And it also should be done, after the following situation due to change of the color characteristic.

- Replacing the camera unit

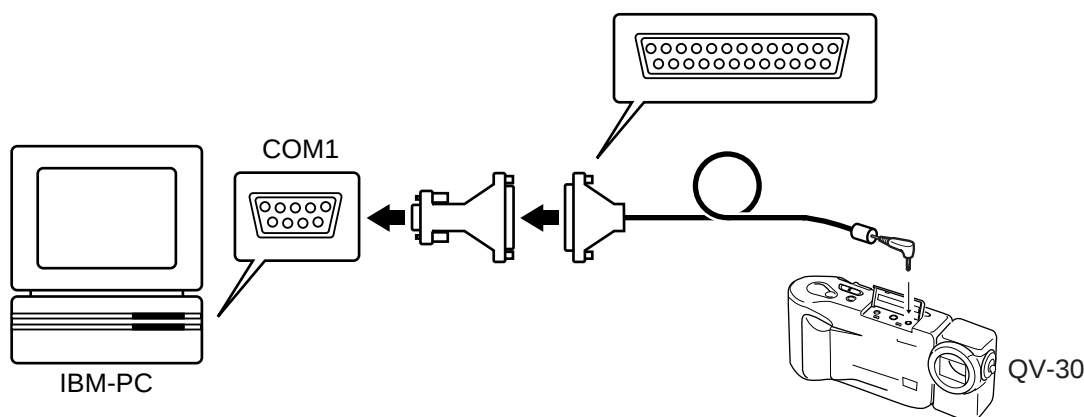
The following items are required for the color adjustment.

- PC
 - IBM PC/AT or compatible
 - RS-232C serial port
 - 4 MB RAM minimum (8 MB recommended)
 - Microsoft MS-DOS Ver. 3.1 or later
- QV-30 support utility disk
 - Color adjustment utility: ADJ724.EXE (ADJ724.EXE will be run on MS-DOS)
- Light box
- Color filter
- Cable and adapter for LK-1 connection kit

- Notes:**
- The support utility disk for QV-30 does not work for QV-30.
 - Use an AC adapter for the power source of the QV-30 to avoid the failure of the adjustment.
 - QV-30 support utility disk is supplied from CASIO. Please contact to Technical Dept., Overseas Service Div.
 - The light source and color filter are available in our spare parts center. Please order to our spare parts div.

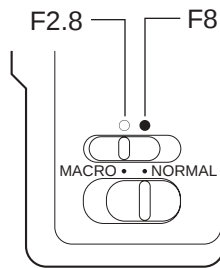
Preparation for the color adjustment

1. Copy the ADJ724.EXE file from the support utility disk to the hard disk in the PC.
2. Connect QV-30 to the RS-232C serial port (COM1) of PC with the cable for LK-1.

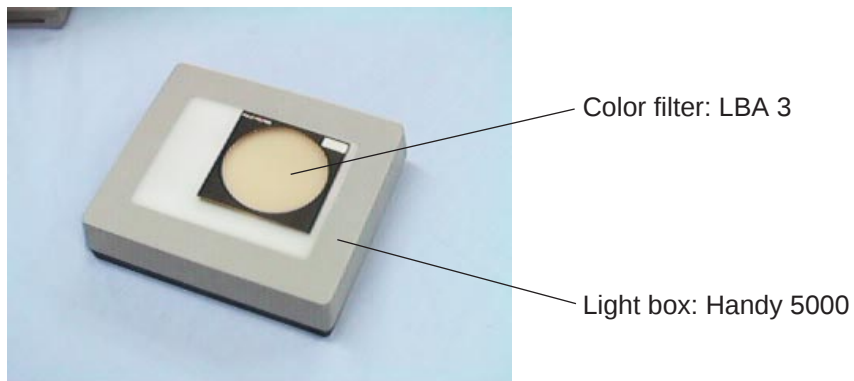


Execution of the color adjustment

1. Set the aperture switch to F8 position, and turn on QV-30.



2. Put the color filter on the light source, and turn on the light box.



3. Put the QV-30 with its lens toward the light source.



4. Execute "ADJ724.EXE" on MS-DOS.
Type "ADJ724" and press Enter.
The message "WAIT" appears on the monitor of QV-30.
Some parameters appear on the screen of your computer, then the color adjustment will be finished.

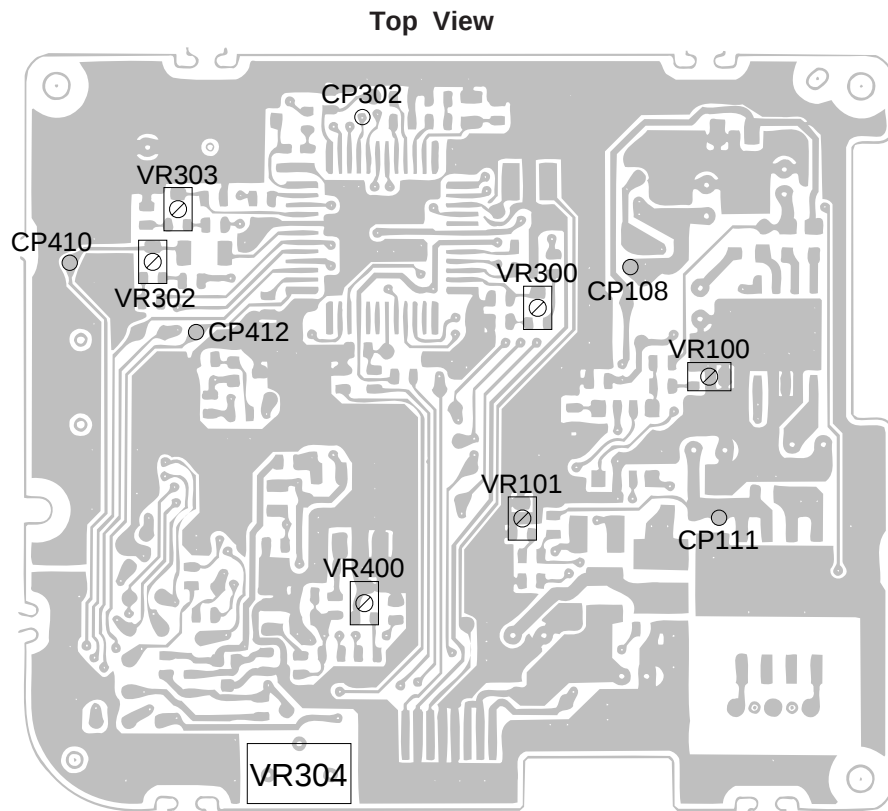
ADJUSTMENT

LINEAR PCB

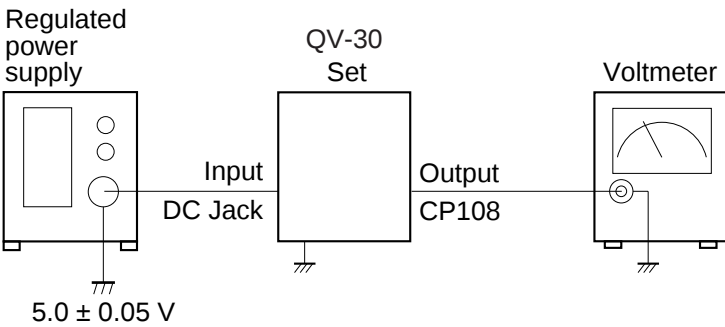
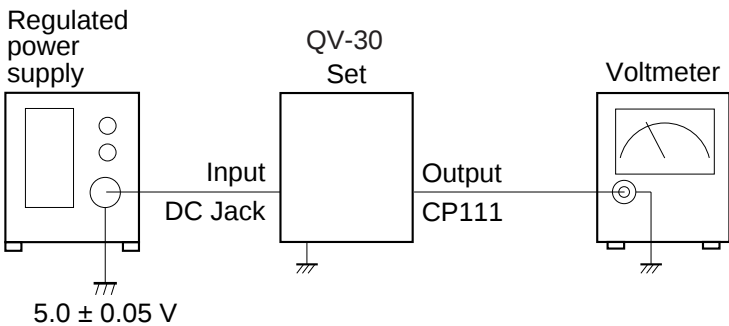
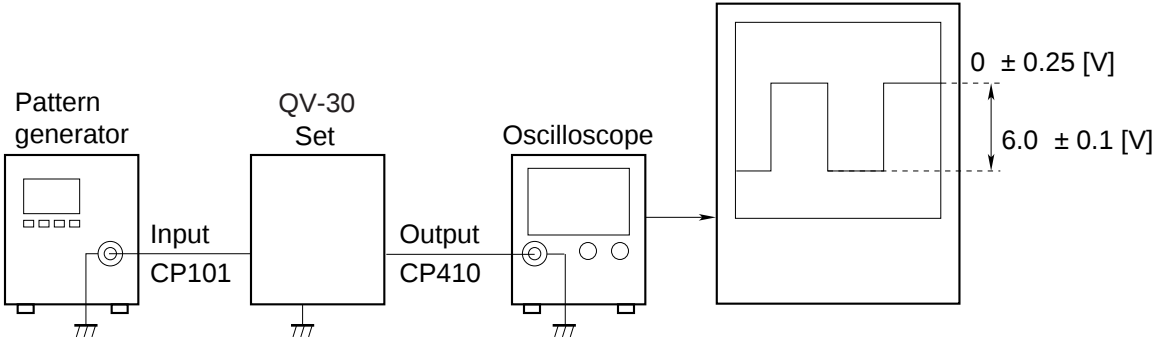
Items to Be Adjusted

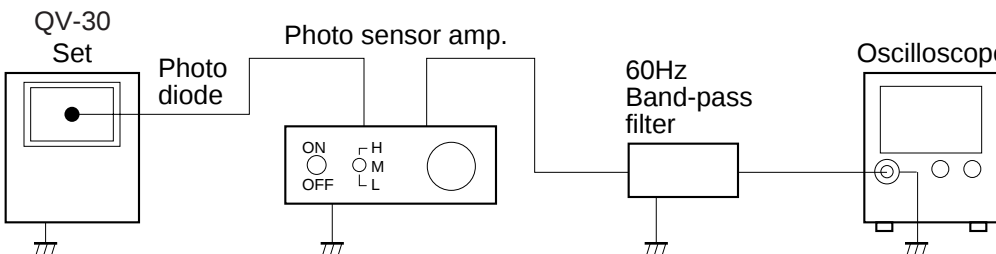
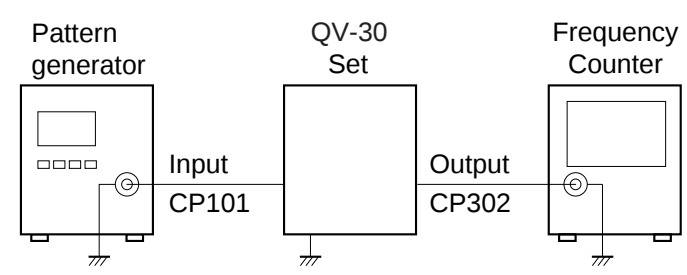
Item	Measuring Instrument
VCC2 voltage setting	Voltmeter, Regulated power supply
VBL voltage setting	Voltmeter, Regulated power supply
Vcom adjustment	Pattern generator, Oscilloscope, Regulated power supply, Photo sensor amp., Band pass filter
Free-running Frequency adjustment	Pattern generator, Oscilloscope, Regulated power supply
Bright and Contrast adjustment	Pattern generator, Oscilloscope, Regulated power supply

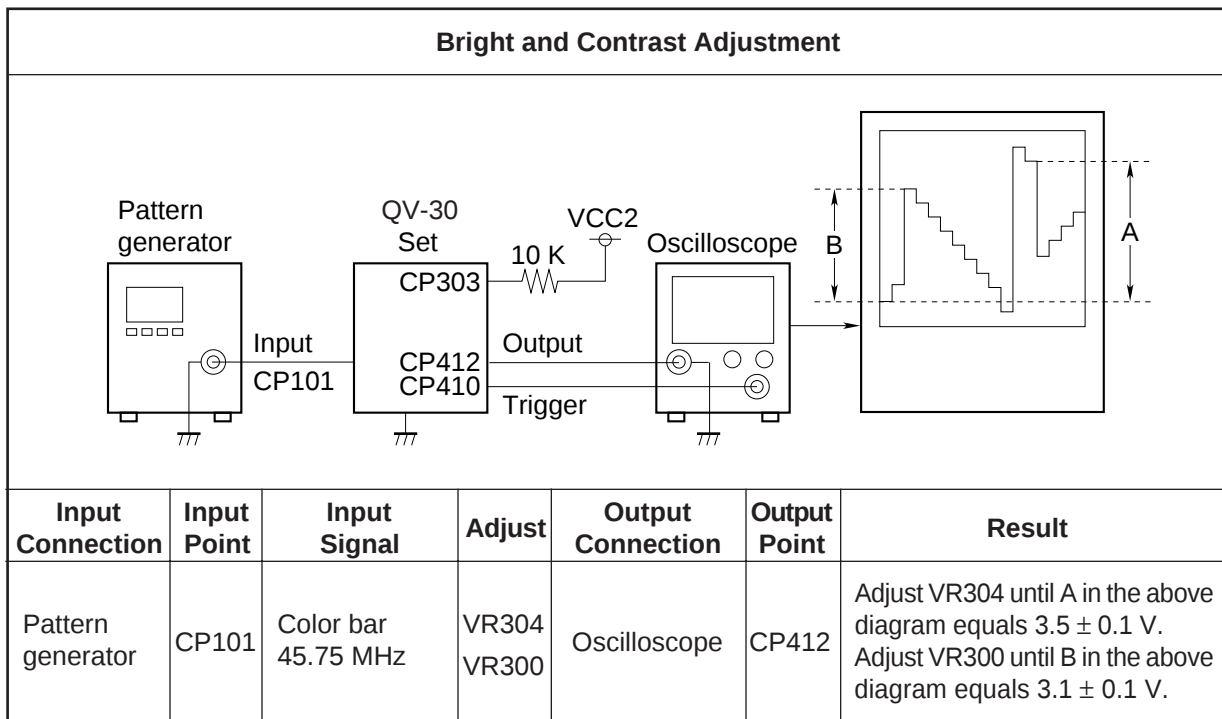
Adjustment and Test Point Locations



Equipment Connection / Adjustment Procedure

VCC2 Voltage Setting						
 Regulated power supply QV-30 Set Voltmeter Input DC Jack Output CP108 5.0 ± 0.05 V						
Input Connection	Input Point	Input Signal	Adjust	Output Connection	Output Point	Result
—	—	—	VR100	Voltmeter	CP108	Adjust for 4.50 ± 0.02 V reading on voltmeter.
VBL Voltage Setting						
 Regulated power supply QV-30 Set Voltmeter Input DC Jack Output CP111 5.0 ± 0.05 V						
—	—	—	VR101	Voltmeter	CP111	Adjust for 5.0 ± 0.05 V reading on voltmeter.
Vcom Adjustment						
 Pattern generator QV-30 Set Oscilloscope Input CP101 Output CP410 0 ± 0.25 [V] 6.0 ± 0.1 [V]						
Pattern generator	CP101	Color bar 45.75 MHz	VR303 VR302	Oscilloscope	CP410	Adjust VR303 so that square-wave to read 6.0 ± 0.1 V. Adjust VR302 so that high level of the square-wave is at 0.0 ± 0.25 V.

Vcom Adjustment						
1) While pressing the MODE and the shutter button, slide to the right to turn on power. 2) Press the self-timer and the DEL button at a time. 3) Press [+] or [-] to select the BLACK. 4) Press the shutter button. 5) Place a photo diode on the middle of the display.						
						
Input Connection	Input Point	Input Signal	Adjust	Output Connection	Output Point	Result
_____	_____	_____	VR302	Photo sensor amp. Band pass filter Oscilloscope	_____	Adjust for ripple at minimum.
Free-running Frequency Adjustment						
						
Pattern generator	CP101	Color bar 45.75 MHz	VR400	Frequency Counter	CP302	Adjust for a reading of 15.734 ± 0.1 KHz.



TROUBLESHOOTING

No Display

1. Check the slide switch on the key PCB.
2. Check the fuse (FU500) on the digital PCB.
3. Check the fuse (FU100) on the linear PCB.
4. Check the jack (JK500) on the digital PCB.
5. Check the flat cable between the digital and linear PCBs.
6. Check the back light.
7. Check the LCD.

No Display at Record Mode

1. Check the camera unit.

Defect of the Camera Unit

The camera unit must be replaced with whole unit when it is defective, because the precise adjustment is required when the individual parts of the camera unit are replaced, and it can be done only at our factory. (Except for replacing the outer case of the camera unit)

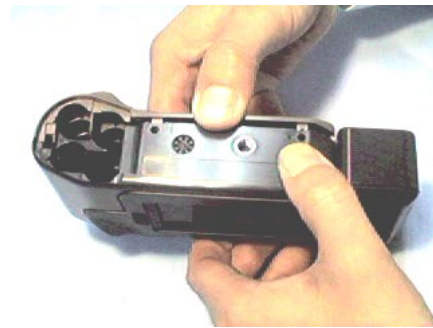
DISASSEMBLY

To disassemble the main unit

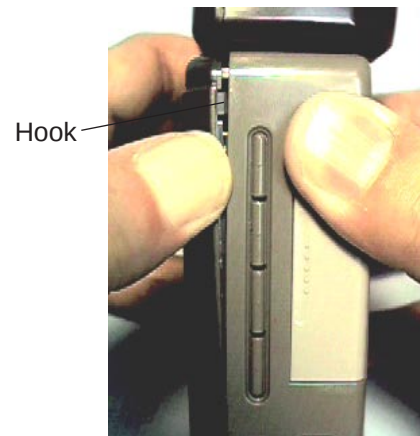
1. Rotate the camera unit then remove the two screws on the side of the unit.



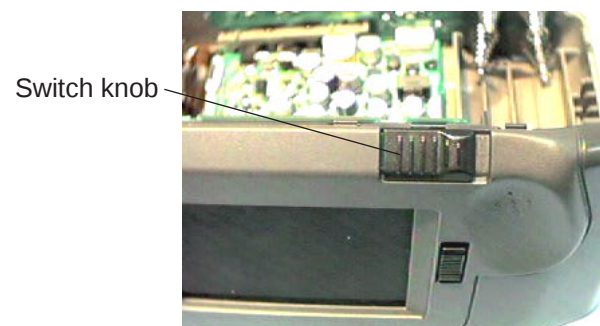
2. Remove the two screws on the bottom of the unit and the battery cover. Then remove the upper case at the bottom of the unit.



3. Then remove the upper case at the top of the unit.



4. Be careful not to lose the switch knob.



To disassemble the camera unit

Note: The camera unit must be replaced with whole unit when it is defective, because the precise adjustment is required when the individual parts of the camera unit are replaced, and it can be done only at our factory.

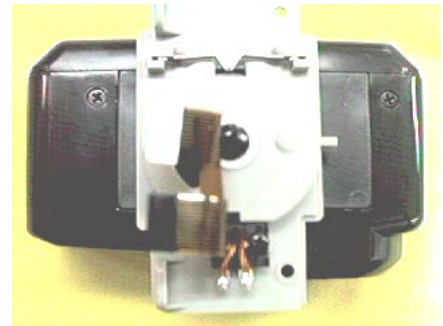
(Except for the replacing the outer case.)

1. Be sure to turn the lever to "TELE".

Lever

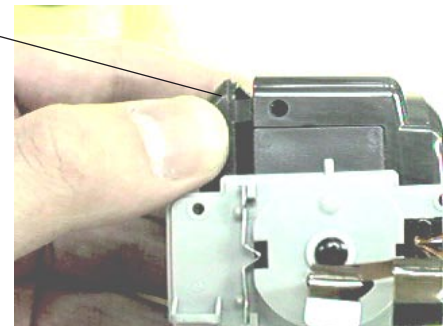


2. Remove the two screws.

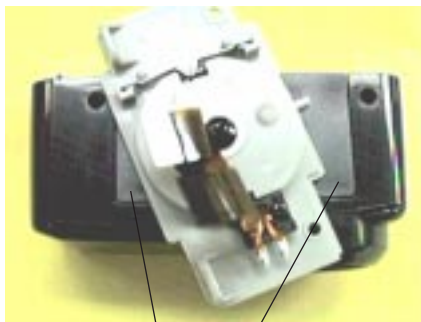


3. Remove the cover of the camera unit at the opposite side of the lever.

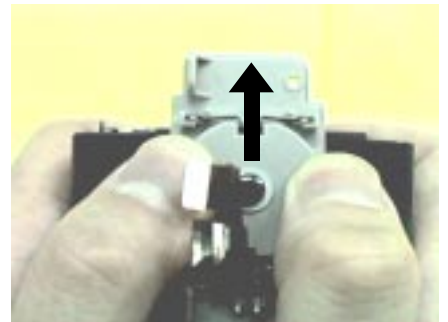
Cover



4. Unhook and remove the lens and CCD unit from the outer case as shown in the picture.



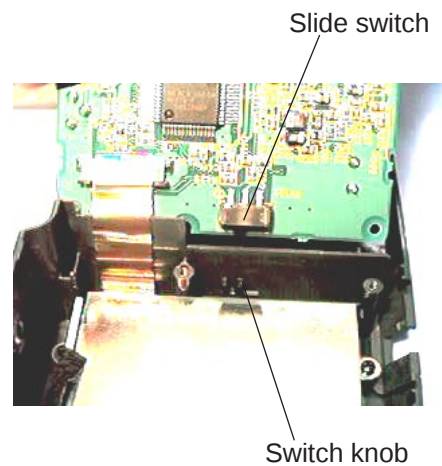
Hook



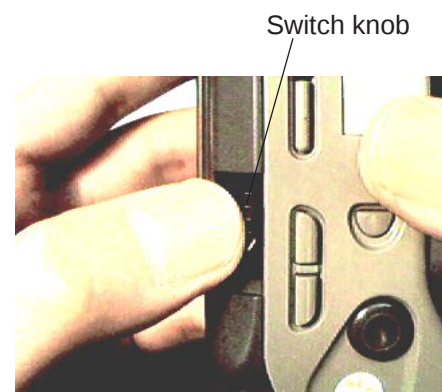
ASSEMBLY

To assemble the main unit

1. Be sure to align the slide switch on the linear PCB with the switch knob.



2. Be sure to align the slide switch on the key PCB with the switch knob.

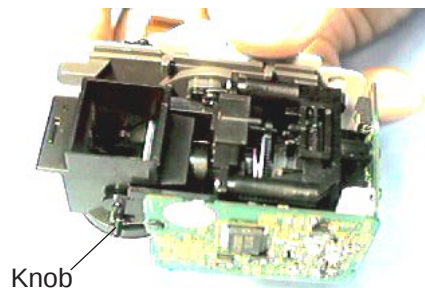


3. Push hard the upper case with both hands.

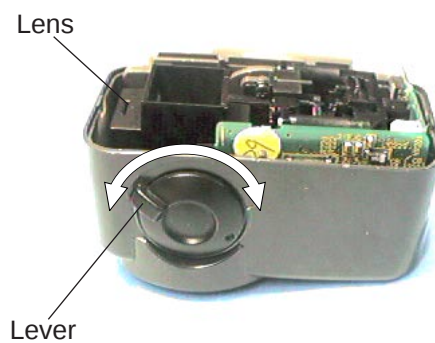


To assemble the main unit

1. Be sure to turn the lever to "TELE".
2. Be sure to align the lever of the outer case with the knob of the lens.



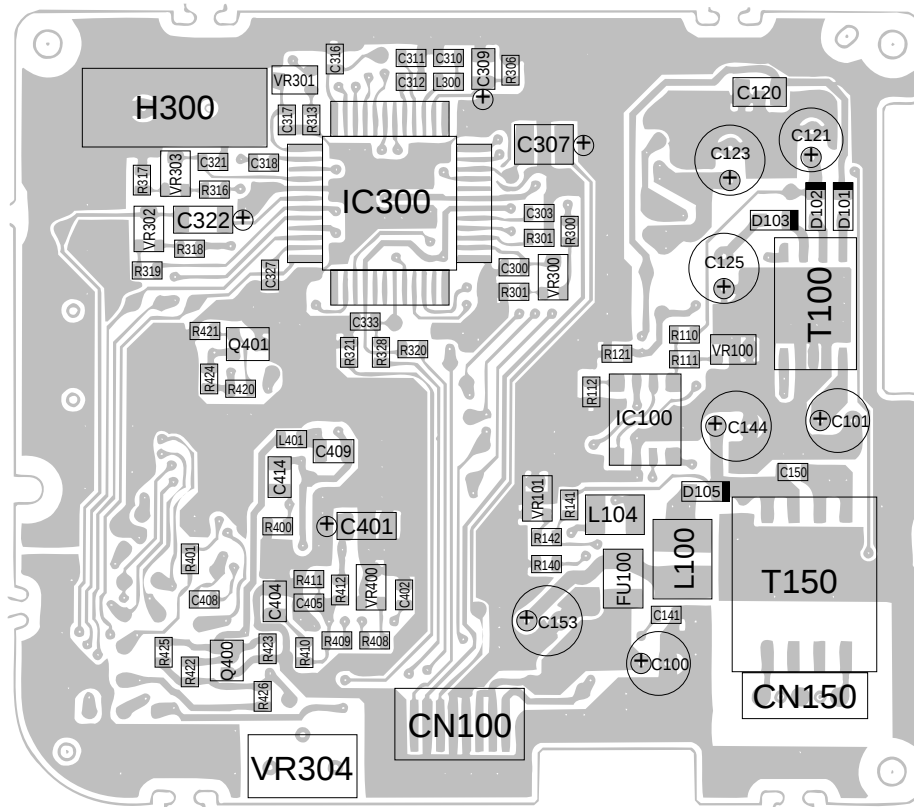
3. Confirm if the lens is switched by the lever.



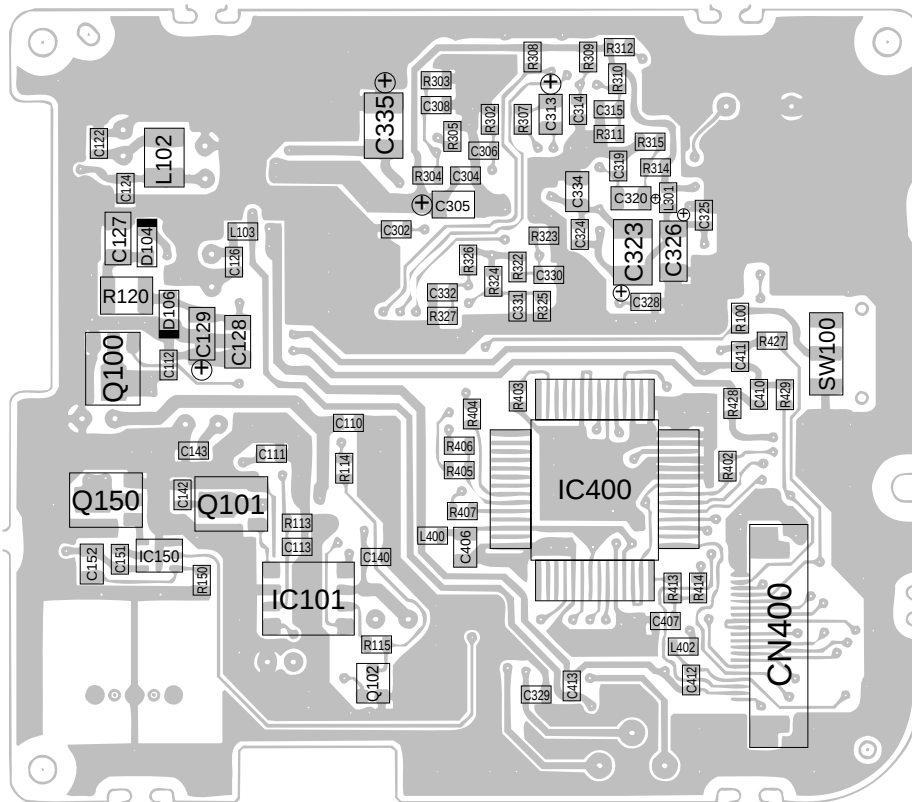
4. Be sure to align the switch knobs of the cover with the switches.



LINEAR

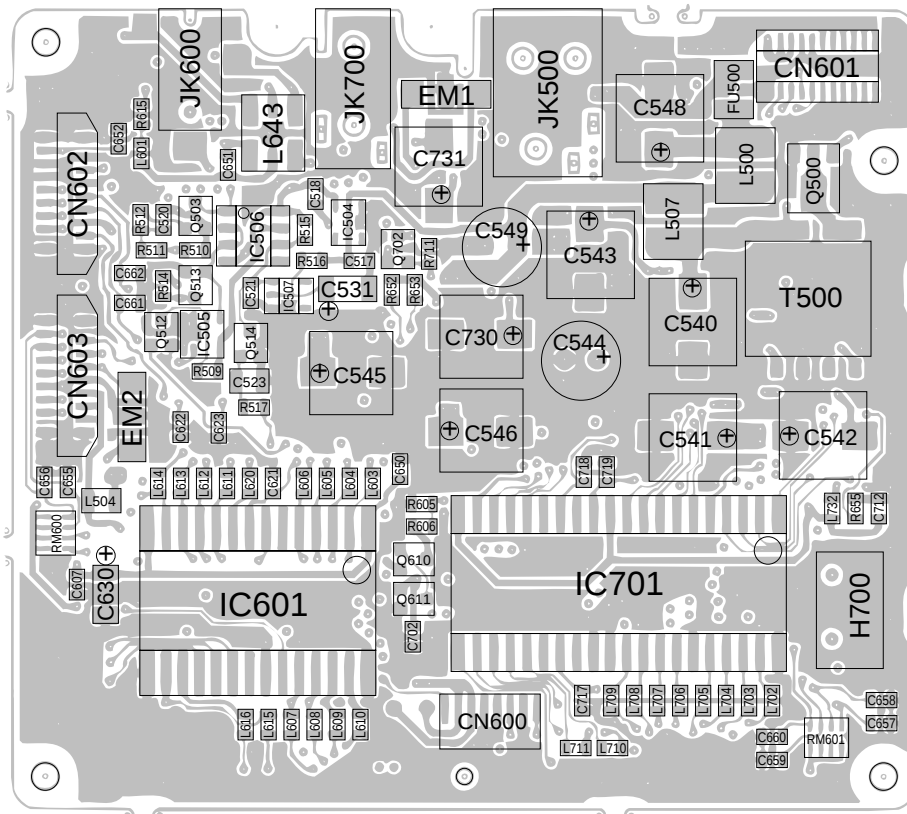


Top View

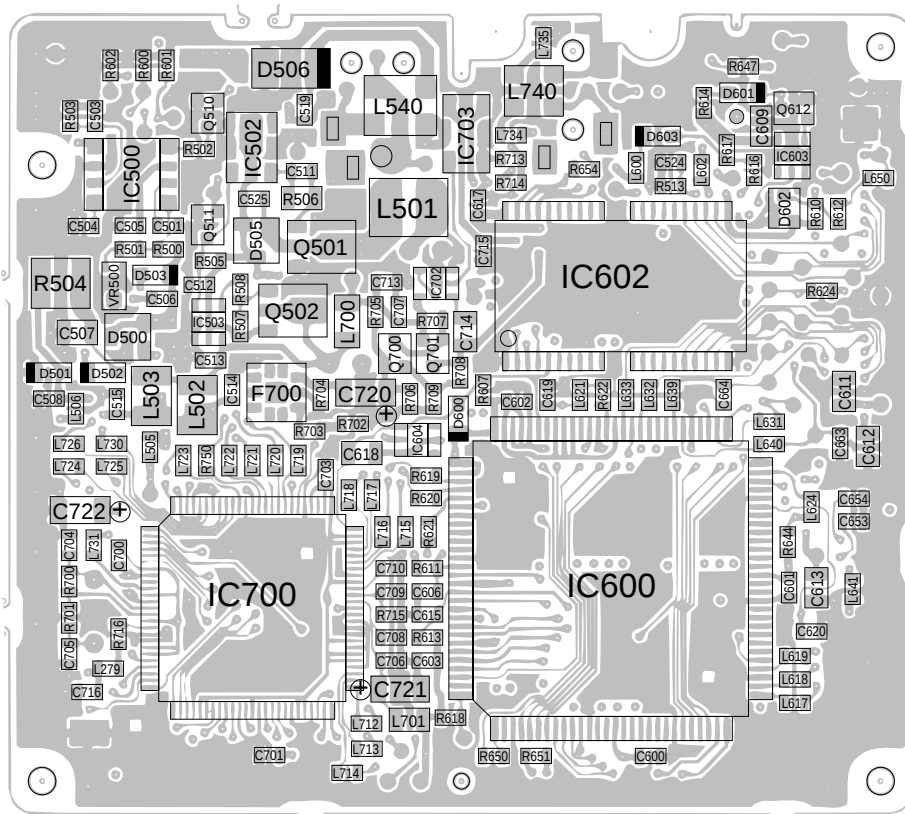


Bottom View

DIGITAL

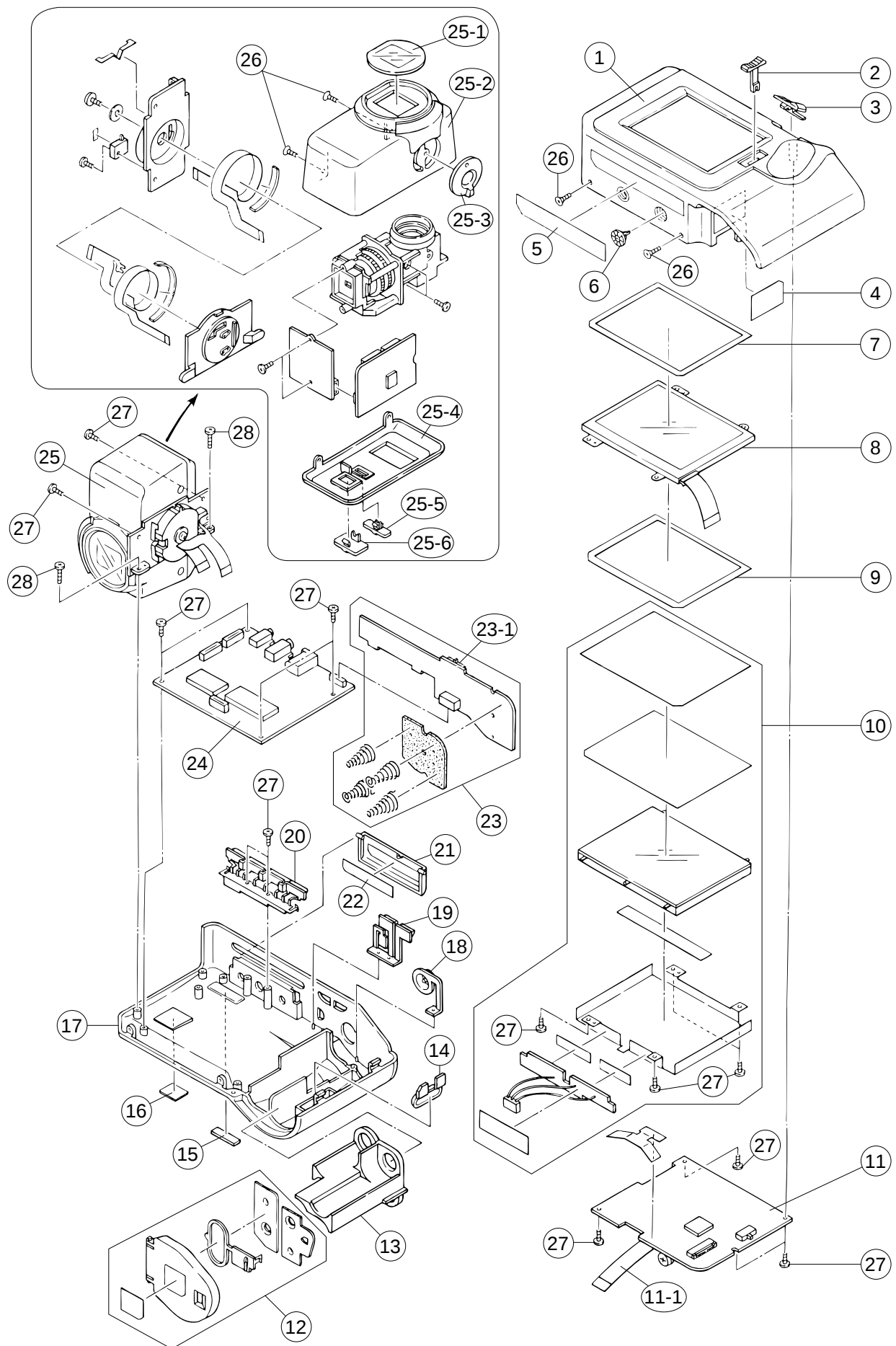


Top View



Bottom View

EXPLODED VIEW



PARTS LIST

LINEAR PCB ASS'Y

Item	Code No.	Parts Name	Specification	Q	R
Connector					
CN400	3502 1410	Connector	52745-2090	1	C
Diodes					
D101	7101 1194	Chip diode	MA111-(TX)	1	C
D102	2390 1379	Schottky diode	MA729-(TX)	1	C
D103	2390 1379	Schottky diode	MA729-(TX)	1	C
D104	7101 1194	Chip diode	MA111-(TX)	1	C
D105	2390 1379	Schottky diode	MA729-(TX)	1	C
D106	2360 2359	Chip zener diode	MA8180-L(TX)	1	C
Fuse					
FU100	3122 2772	IC protector	ICP-S0.7TN	1	B
ICs					
IC100	2114 3150	IC	MB3776APNF-EF	1	C
IC101	2114 3150	IC	MB3776APNF-EF	1	C
IC150	2105 3990	IC	TC7S02F-TE85L	1	C
IC300	2114 3633	Linear IC	IR3P90Y-1	1	C
IC400	2011 8337	LSI	MSM6770GS-VK-675-F	1	C
Transistors					
Q100	2253 0308	Chip transistor	2SD1119-R(TX)	1	B
Q101	2253 0308	Chip transistor	2SD1119-R(TX)	1	B
Q102	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q150	2253 0700	Chip transistor	2SK1485-T1	1	B
Q400	2251 0189	Chip transistor	2SB1218A-R(TX)	1	B
Q401	2251 0189	Chip transistor	2SB1218A-R(TX)	1	B
Switch					
SW100	3412 1106	Slide switch	SSSS212-12	1	C
Converter and Transformaer					
T100	3065 0483	DC-DC converter	TTV6DD360M01	1	B
T150	3012 1477	Inverter transformer	ETJ09K20AM	1	B

Notes: Q – Quantity used per unit
R – Rank

DIGITAL PCB ASS'Y

Item	Code No.	Parts Name	Specification	Q	R
Diodes					
D500	2390 2268	Chip diode	MA727-(TX)	1	C
D501	2360 1876	Chip zener diode	MA8100-M(TX)	1	C
D502	2390 1379	Schottky diode	MA729-(TX)	1	C
D503	7101 1194	Chip diode	MA111-(TX)	1	C
D505	2390 2261	Chip diode	MA720-(TX)	1	C
D506	2390 1421	Chip schottky diode	MA738-(TX)	1	C
D600	7101 1194	Chip diode	MA111-(TX)	1	C
D601	2390 1379	Schottky diode	MA729-(TX)	1	C
D602	2390 1470	Chip diode	MA143A-(TX)	1	C
D603	2390 1379	Schottky diode	MA729-(TX)	1	C
Fuse					
FU500	3632 0651	IC protector	F1206A1R00FW-TP	1	A
ICs					
IC500	2114 3654	IC	MB3800PNF-G-BND-EF	1	C
IC502	2105 3969	IC	RH5RH503B-T1	1	C
IC503	2105 3689	MOS-IC	RN5RG50AA-TR	1	C
IC504	2105 3976	IC	RN5RL25AA-TR	1	C
IC505	2105 1407	CMOS-IC	TC7S00F-TE85L	1	C
IC506	2105 3269	L-MOS	TC7W74F-TE12L	1	C
IC507	2105 3983	IC	RN5VL32AA-TR	1	C
IC600	2012 3535	LSI	HD6437034F16-SK10F	1	C
IC601	2011 9436	LSI	HM514800ALJ8	1	C
IC602	2012 2317	LSI	KM29N16000T	1	C
IC603	2105 1414	CMOS-IC	TC7S04F-TE85L	1	C
IC604	2105 4214	LSI	RN5VL38AA-TR	1	C
IC700	2011 9457	LSI	HG51B167FB	1	C
IC701	2011 9464	LSI	HM538123BJ8	1	C
IC702	2105 5663	IC	TC7S66F(TE85L)	1	C
IC703	2114 2093	Linear IC	MM1031XMR	1	C
Jacks					
JK500	3501 8281	Jack	HEC0811-010010	1	C
JK600	3501 6538	Jack	HSJ1169-012010	1	C
JK700	3501 5439	Jack	HSJ1456-01-210	1	C
Transistors					
Q500	2253 0308	Chip transistor	2SD1119-R(TX)	1	B
Q501	2253 0308	Chip transistor	2SD1119-R(TX)	1	B
Q502	2251 0847	Chip transistor	2SB1386-T100R	1	B
Q503	2251 0189	Chip transistor	2SB1218A-R(TX)	1	B
Q510	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q511	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q512	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q513	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q514	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q610	2259 2205	Digital transistor	DTA114EUAT106	1	B
Q611	7911 0126	Digital transistor	DTC144EUAT106	1	B
Q612	2254 0448	Chip FET	2SK1580-T1	1	B
Q700	2253 0133	Chip transistor	2SD1819A-R(TX)	1	B
Q701	2251 0189	Chip transistor	2SB1218A-R(TX)	1	B
Q702	2253 0133	Chip transistor	2SD1819A-R(TX)	1	B
DC-DC converter					
T500	3701 0693	DC-DC converter	CEE98-05	1	B

Notes: Q – Quantity used per unit
R – Rank

KEY PCB ASS'Y

Item	Code No.	Parts Name	Specification	Q	R
Switches					
SW900	3412 1421	Slide switch	ESD165227	1	A
SW901	3412 0882	Switch	SKHUPD-T	1	C
SW902	3412 0882	Switch	SKHUPD-T	1	C
SW903	3412 0882	Switch	SKHUPD-T	1	C
SW904	3412 0882	Switch	SKHUPD-T	1	C
SW905	3412 0882	Switch	SKHUPD-T	1	C
SW906	3412 0882	Switch	SKHUPD-T	1	C
SW907	3412 0882	Switch	SKHUPD-T	1	C
SW908	3412 0882	Switch	SKHUPD-T	1	C

Notes: Q – Quantity used per unit
R – Rank

MAIN COMPONENT

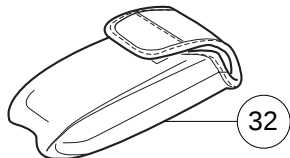
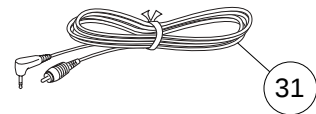
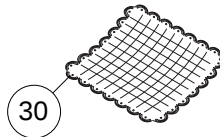
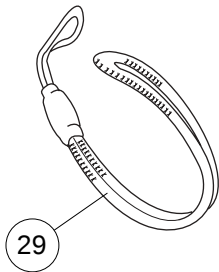
Item	Code No.	Parts Name	Specification	Q	R
1	6611 0670	Upper case K724AAA	C140275-1	1	X
2	6611 0680	R-P knob K724AAA	C340701-1	1	X
3	6611 0440	Power switch knob K724AAA	C340700-1	1	X
4	6611 0470	Battery label K724AAA	C441180-1	1	X
5	6611 1090	Rating plate K724BAA	C441158-2	1	X
6	6603 8924	C knob A-K310	K3741D-1	1	X
7	6611 0690	Tape for LCD K724AAA	C441068-1	1	X
8	2725 1183	LCD	COD25T2002RB	1	B
9	6611 0700	Spacer for LCD K724AAA	C441069-1	1	X
10	6611 0384	BL block	C340812*1	1	B
11	6611 0383	Linear PCB ass'y	C240604*1	1	B
11-1	6609 7340	Flat cable A-K720	K411997-1	1	B
12	6611 0375	Battery cover ass'y	C340811*1	1	C
13	6611 0410	Battery holder K724AAA	C340693-1	1	X
14	6611 0420	Blinder K724AAA	C340695-1	1	X
15	6611 0460	Plate K724AAA	C441170-1	1	X
16	6609 7440	Badge A-K720	K440063-1	1	X
17	6611 0790	Lower case K724AAA	C140276-1	1	X
18	6611 0810	Shutter button K724AAA	C340698-1	1	X
19	6611 0800	DEL button K724AAA	C340697-1	1	X
20	6611 0820	MENU button K724AAA	C340699-1	1	X
21	6611 0430	Connector cover K724AAA	C340696-1	1	X
22	6610 2540	Cover label B-K720	K440064-2	1	X
23	6611 0387	Key PCB ass'y	C340813*1	1	C
23-1	3412 1421	Slide switch	ESD165227	1	A
24	6611 1050	Digital PCB ass'y	C240603*2	1	B
25	6611 0374	Camera unit	C240573*1	1	B
25-1	6611 0510	Protector K724AAA	C441074-1	1	X
25-2	6611 0500	Camera case A-K724AAA	C240523-1	1	X
25-3	6611 0530	T-W knob K724AAA	C340715-1	1	X
25-4	6611 0520	Camera case B-K724AAA	C240524-1	1	X
25-5	6611 0550	Iris knob K724AAA	C340713-1	1	X
25-6	6611 0540	Focus knob K724AAA	C340714-1	1	X
26	5860 9009	Screw	PT3 1.7X4.5 Bk	4	X
27	5860 1477	Screw	BT3 1.7X3.5 Bk	16	X
28	5112 0868	Screw	BT3 1.7X5 Bk	2	X

Notes: Q – Quantity used per unit
R – Rank

ACCESSORY

Item	Code No.	Parts Name	Specification	Q	R
29	5860 8085	Wrist strap	ST3-340A	1	X
30	6608 9210	Cleaning cloth A-K613	K412004-1	1	X
31	1014 8773	Video cable	C-K723-FC	1	X
32	1014 8857	Soft case	SC-724	1	X

Notes: Q – Quantity used per unit
R – Rank



The following electrical parts will be not supplied from CASIO. (For QV-30B)

C100	10SL10M	C334	EMK212F105Z-T	C621	10N1HCH330J-T1
C101	10SL47M	C335	ECST1CX156R	C622	10N1HCH330J-T1
C110	GR39W5R103K50PT	C401	ECST0JY156R	C623	10N1HCH330J-T1
C111	GR39Y5V104Z25PT	C402	GR39Y5V103Z50PT	C630	ECST0JY156R
C112	GR39W5R332K50PT	C404	EMK212BJ224K-T	C650	GR39Y5V104Z25PT
C113	GR39CH471J50PT	C405	GR39W5R562K50PT	C651	GR39CH220J50PT
C120	EMK316F225Z-T	C406	EMK212F105Z-T	C652	GR39W5R471K50PT
C121	6SL15M	C408	GR39Y5V103Z50PT	C653	10N1HCH470J-T1
C122	GR39W5R103K50PT	C409	EMK212F105Z-T	C654	10N1HCH470J-T1
C123	6SL47M	C410	GR39Y5V103Z50PT	C655	10N1HCH470J-T1
C124	GR39W5R103K50PT	C411	GR39Y5V103Z50PT	C656	10N1HCH470J-T1
C125	10SL47M	C412	GR39Y5V104Z25PT	C657	10N1HCH470J-T1
C126	GR39W5R103K50PT	C413	GR39Y5V104Z25PT	C658	10N1HCH470J-T1
C127	TMK316F105Z-T	C414	EMK212BJ224K-T	C659	10N1HCH470J-T1
C128	TMK316F105Z-T	C501	EMK107BJ104K-T	C660	10N1HCH470J-T1
C129	ECST1DY335R	C503	10N1HB152K-T1	C661	GR39CH220J50PT
C140	GR39Y5V104Z25PT	C504	GR39Y5V104Z25PT	C662	GR39CH220J50PT
C141	GR39Y5V104Z25PT	C505	GR39Y5V104Z25PT	C663	GR39CH220J50PT
C142	GR39W5R152K50PT	C506	GR39Y5V104Z25PT	C664	GR39CH220J50PT
C143	GR39W5R103K50PT	C507	C2012JF1C225Z-TP	C700	GR39Y5V104Z25PT
C144	16SL15M	C508	GR39Y5V104Z25PT	C701	GR39Y5V104Z25PT
C150	C2012JB2A332KT	C511	GR39W5R103K50PT	C702	GR39Y5V104Z25PT
C151	GR39Y5V104Z25PT	C512	GR39Y5V104Z25PT	C703	GR39Y5V104Z25PT
C152	EMK212BJ224K-T	C513	GR39Y5V104Z25PT	C704	10N1HCH330J-T1
C153	10SL47M	C514	GR39Y5V104Z25PT	C705	10N1HCH270J-T1
C300	GR39Y5V103Z50PT	C515	GR39Y5V104Z25PT	C706	GR39Y5V104Z25PT
C301	GR39Y5V103Z50PT	C517	GR39Y5V104Z25PT	C707	GR39Y5V104Z25PT
C302	GR39Y5V103Z50PT	C518	GR39Y5V104Z25PT	C708	GR39Y5V104Z25PT
C303	GR39Y5V103Z50PT	C519	GR39Y5V104Z25PT	C709	GR39W5R102K50PT
C304	GR39Y5V103Z50PT	C520	GR39Y5V104Z25PT	C710	GR39Y5V104Z25PT
C305	ECST0JY156R	C521	GR39Y5V104Z25PT	C712	GR39Y5V104Z25PT
C306	GR39Y5V104Z25PT	C523	LMK212BJ105K-T	C713	GR39Y5V104Z25PT
C307	ECST1CX106R	C524	10N1HCH120J-T1	C714	TMK212B104K-T
C308	GR39Y5V103Z50PT	C525	GR39CH101J50PT	C715	GR39Y5V104Z25PT
C309	TESVSP1A105M8R	C531	ECST1AY106R	C716	GR39CH101J50PT
C310	GR39CH560J50PT	C540	16CV220GX	C717	10N1HCH330J-T1
C311	GR39W5R562K50PT	C541	25CV100GX	C718	10N1HCH330J-T1
C312	GR39W5R153K25PT	C542	16CV220GX	C719	10N1HCH330J-T1
C313	TESVSP1A105M8R	C543	16CV220GX	C720	ECST0JY156R
C314	GR39CH151J50PT	C544	6SL47M	C721	ECST0JY156R
C315	GR39Y5V103Z50PT	C545	6.3CV220GX	C722	ECST0JY156R
C316	GR39Y5V473Z50PT	C546	6.3CV220GX	C730	6.3CV220GX
C317	GR39Y5V103Z50PT	C548	16CV220GX	C731	6.3CV220GX
C318	GR39CH150J50PT	C549	10SL47M	CB900	GR39Y5V104Z25PT
C319	GR39Y5V103Z50PT	C600	GR39Y5V104Z25PT	CB901	GR39Y5V104Z25PT
C320	TESVSP1C474M8R	C601	GR39Y5V104Z25PT	D900	MA143A-(TX)
C321	GR39Y5V103Z50PT	C602	GR39Y5V104Z25PT	D901	MA143A-(TX)
C322	ECST1CY335R	C603	GR39Y5V104Z25PT	D902	MA143A-(TX)
C323	ECST1CX156R	C606	GR39Y5V104Z25PT	D903	MA142WK-(TX)
C324	GR39Y5V103Z50PT	C607	GR39Y5V104Z25PT	EM1	EXC-CET271UV
C325	GR39Y5V103Z50PT	C609	GR39Y5V104Z25PT	EM2	EXC-CET470UV
C326	ECST0JY156R	C611	C2012JF1C225Z-TP	F700	MXF3535L5R00T011
C327	GR39Y5V103Z50PT	C612	C2012JF1C225Z-TP	H300	HC-49/U-S-A
C328	GR39Y5V103Z50PT	C613	C2012JF1C225Z-TP	H700	HC-49/U-S-C
C329	GR39Y5V103Z50PT	C615	GR39CH101J50PT	L100	CD43-220MC-T
C330	GR39Y5V103Z50PT	C617	GR39Y5V104Z25PT	L102	NLC322522-101K-TP
C331	GR39Y5V103Z50PT	C618	C2012JF1C225Z-TP	L103	BK1608HS601-T
C332	GR39Y5V103Z50PT	C619	GR39CH220J50PT	L104	NLC322522-470K-TP
C333	GR39Y5V103Z50PT	C620	10N1HCH330J-T1	L300	LK1608-330K-TP

The following electrical parts will be not supplied from CASIO. (For QV-30B)

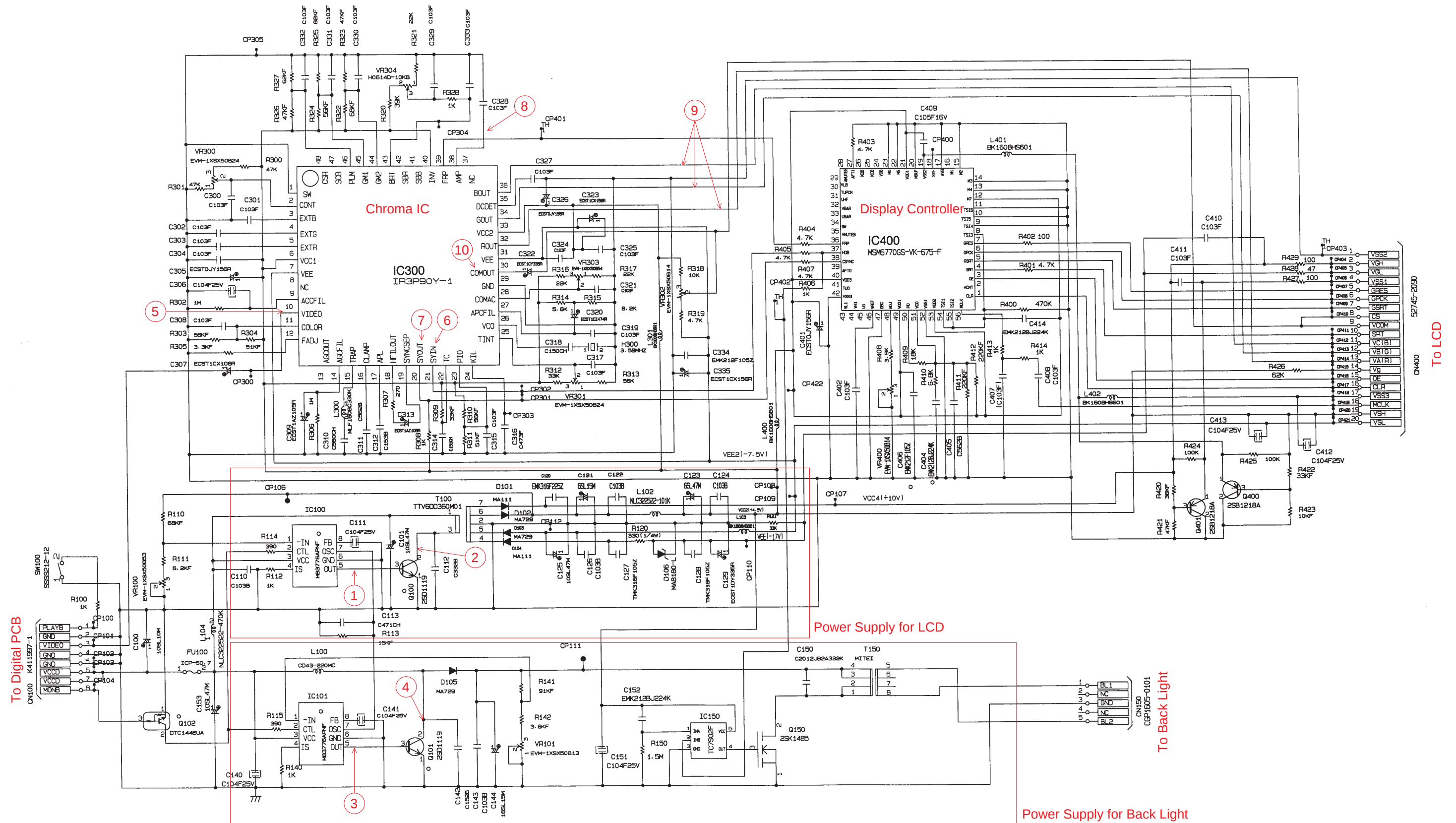
L301	BK1608HS601-T	L714	ERJ-3GEYJ470V	R326	ERJ-3GEYF473V
L400	BK1608HS601-T	L715	ERJ-3GEYJ470V	R327	ERJ-3GEYF623V
L401	BK1608HS601-T	L716	ERJ-3GEYJ470V	R328	ERJ-3GEYJ102V
L402	BK1608HS601-T	L717	ERJ-3GEYJ470V	R400	ERJ-3GEYJ474V
L500	CD43-100MC-T	L718	ERJ-3GEYJ470V	R401	ERJ-3GEYJ472V
L501	CD43-220MC-T	L719	ERJ-3GEYJ470V	R402	ERJ-3GEYJ101V
L502	NLC322522-100K-TP	L720	ERJ-3GEYJ470V	R403	ERJ-3GEYJ472V
L503	NLC322522-470K-TP	L721	ERJ-3GEYJ470V	R404	ERJ-3GEYJ472V
L504	BK2125HM601-T	L722	ERJ-3GEYJ470V	R405	ERJ-3GEYJ472V
L505	BK1608HM601-T	L723	BK1608HM601-T	R406	ERJ-3GEYJ102V
L506	BK1608HM601-T	L724	BK1608HM601-T	R407	ERJ-3GEYJ472V
L507	CD43-100MC-T	L725	BK1608HM601-T	R408	ERJ-3GEYJ392V
L540	ACM4532-801-2P-TP	L726	BK1608HM601-T	R409	ERJ-3GEYJ183V
L600	BK1608HM601-T	L729	BK1608HS121-T	R410	ERJ-3GEYJ682V
L601	BK1608HM601-T	L730	BK1608HS601-T	R411	ERJ-3GEYF224V
L602	BK1608HM601-T	L731	BK1608HM601-T	R412	ERJ-3GEYF224V
L603	ERJ-3GEYJ270V	L732	BK1608HM601-T	R413	ERJ-3GEYJ102V
L604	ERJ-3GEYJ270V	L734	BK1608HS121-T	R414	ERJ-3GEYJ102V
L605	ERJ-3GEYJ270V	L735	BK1608HS121-T	R420	ERJ-3GEYF363V
L606	ERJ-3GEYJ270V	L740	ACM3225-102-2P-TP	R421	ERJ-3GEYF473V
L607	ERJ-3GEYJ270V	R100	ERJ-3GEYJ102V	R422	ERJ-3GEYF333V
L608	ERJ-3GEYJ270V	R110	ERJ-3GEYF683V	R423	ERJ-3GEYF103V
L609	ERJ-3GEYJ270V	R111	ERJ-3GEYF622V	R424	ERJ-3GEYJ104V
L610	ERJ-3GEYJ270V	R112	ERJ-3GEYJ102V	R425	ERJ-3GEYJ104V
L611	ERJ-3GEYJ270V	R113	ERJ-3GEYF153V	R426	ERJ-3GEYJ623V
L612	ERJ-3GEYJ270V	R114	ERJ-3GEYJ391V	R427	ERJ-3GEYJ101V
L613	ERJ-3GEYJ270V	R115	ERJ-3GEYJ391V	R428	ERJ-3GEYJ470V
L614	ERJ-3GEYJ270V	R120	ERJ-14YJ331U	R429	ERJ-3GEYJ101V
L615	ERJ-3GEYJ270V	R121	ERJ-3GEYJ333V	R500	ERJ-3GEYF333V
L616	ERJ-3GEYJ270V	R140	ERJ-3GEYJ102V	R501	ERJ-3GEYF821V
L617	ERJ-3GEYJ270V	R141	ERJ-3GEYF913V	R502	ERJ-3GEYJ391V
L618	ERJ-3GEYJ270V	R142	ERJ-3GEYF362V	R503	ERJ-3GEYJ182V
L619	ERJ-3GEYJ270V	R150	ERJ-3GEYJ155V	R504	ERJ-14YJ101U
L620	ERJ-3GEYJ270V	R300	ERJ-3GEYJ473V	R505	ERJ-3GEYJ473V
L621	BK1608HS121-T	R301	ERJ-3GEYJ473V	R506	ERJ-6GEYJ331V
L622	ERJ-3GEYJ470V	R302	ERJ-3GEYJ105V	R507	ERJ-3GEYJ103V
L624	BK1608HM601-T	R303	ERJ-3GEYF563V	R508	ERJ-3GEYJ272V
L631	BK1608HM601-T	R304	ERJ-3GEYF513V	R509	ERJ-3GEYJ473V
L632	ERJ-3GEYJ470V	R305	ERJ-3GEYF332V	R510	ERJ-3GEYJ473V
L633	BK1608HM601-T	R306	ERJ-3GEYJ105V	R511	ERJ-3GEYJ102V
L639	ERJ-3GEYJ470V	R307	ERJ-3GEYJ271V	R512	ERJ-3GEYJ473V
L640	ERJ-3GEYJ470V	R308	ERJ-3GEYJ102V	R513	ERJ-3GEYJ473V
L641	BK1608HM601-T	R309	ERJ-3GEYF333V	R514	ERJ-3GEYJ473V
L643	ACM4532-102-3P-TP	R310	ERJ-3GEYF563V	R515	ERJ-3GEYJ473V
L650	BK1608HM601-T	R311	ERJ-3GEYF513V	R516	ERJ-3GEYJ223V
L700	MLF3216E100K-TP	R312	ERJ-3GEYJ333V	R517	ERJ-3GEYJ103V
L701	BK2125HM601-T	R313	ERJ-3GEYJ563V	R600	ERJ-3GEYJ123V
L702	BK1608HM601-T	R314	ERJ-3GEYJ562V	R601	ERJ-3GEYJ123V
L703	BK1608HM601-T	R315	ERJ-3GEYJ822V	R602	ERJ-3GEYJ123V
L704	BK1608HM601-T	R316	ERJ-3GEYJ223V	R605	ERJ-3GEYF223V
L705	BK1608HM601-T	R317	ERJ-3GEYJ223V	R606	ERJ-3GEYF473V
L706	ERJ-3GEYJ470V	R318	ERJ-3GEYJ103V	R607	ERJ-3GEYJ223V
L707	ERJ-3GEYJ470V	R319	ERJ-3GEYJ472V	R610	ERJ-3GEYJ473V
L708	ERJ-3GEYJ470V	R320	ERJ-3GEYJ393V	R611	ERJ-3GEYJ473V
L709	ERJ-3GEYJ470V	R321	ERJ-3GEYJ223V	R612	ERJ-3GEYJ102V
L710	ERJ-3GEYJ470V	R322	ERJ-3GEYF683V	R613	ERJ-3GEYJ222V
L711	ERJ-3GEYJ470V	R323	ERJ-3GEYF473V	R614	ERJ-3GEYJ222V
L712	ERJ-3GEYJ470V	R324	ERJ-3GEYF563V	R615	ERJ-3GEYJ471V
L713	ERJ-3GEYJ470V	R325	ERJ-3GEYF823V	R616	ERJ-3GEYJ472V

The following electrical parts will be not supplied from CASIO. (For QV-30B)

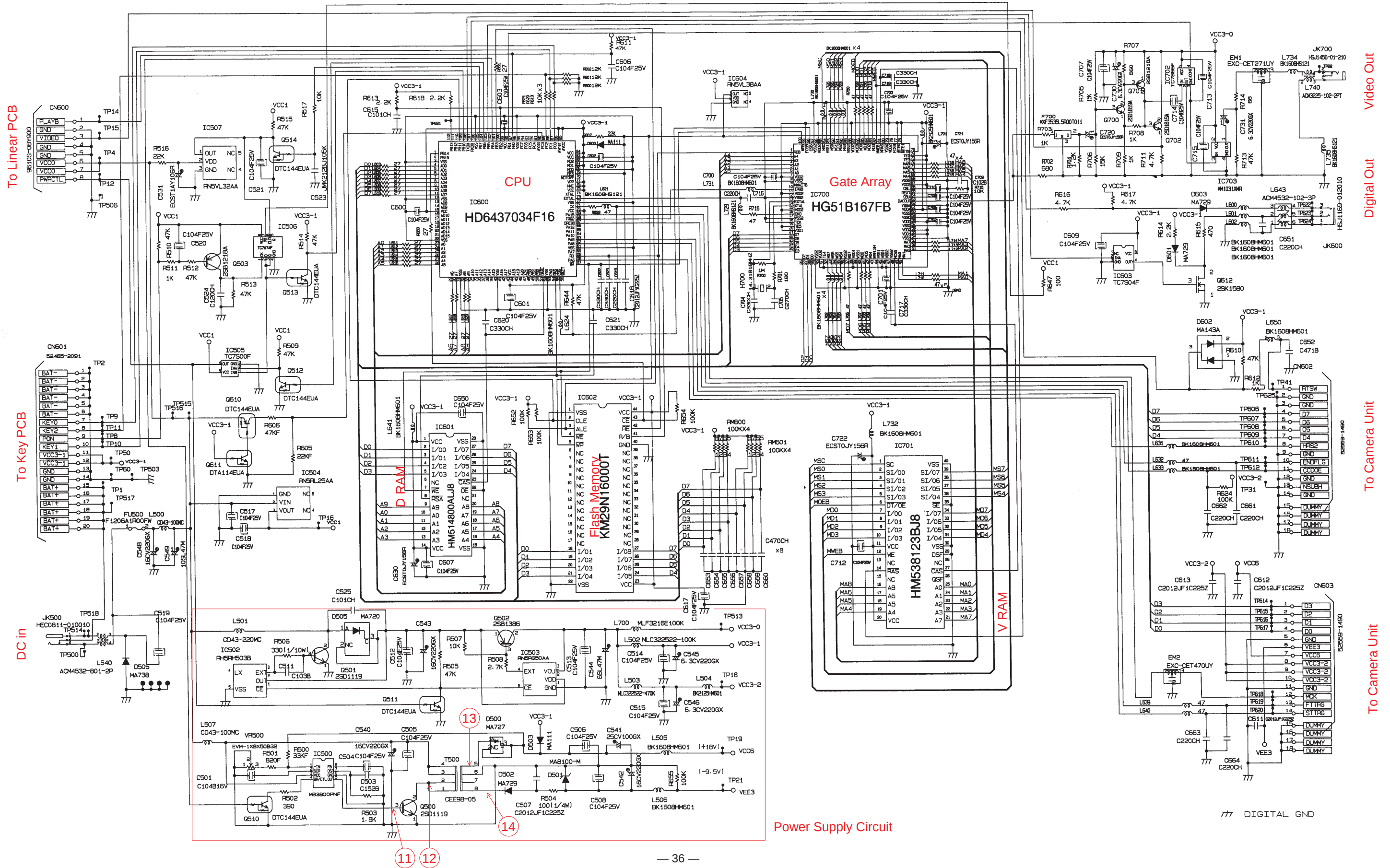
R617	ERJ-3GEYJ472V
R618	ERJ-3GEYJ222V
R619	ERJ-3GEYJ103V
R620	ERJ-3GEYJ103V
R621	ERJ-3GEYJ103V
R624	ERJ-3GEYJ104V
R644	ERJ-3GEYJ473V
R647	ERJ-3GEYJ101V
R650	ERJ-3GEYJ270V
R651	ERJ-3GEYJ270V
R652	ERJ-3GEYJ104V
R653	ERJ-3GEYJ104V
R654	ERJ-3GEYJ104V
R655	ERJ-3GEYJ104V
R700	ERJ-3GEYJ105V
R701	ERJ-3GEYJ181V
R702	ERJ-3GEYJ681V
R703	ERJ-3GEYJ102V
R704	ERJ-3GEYJ122V
R705	ERJ-3GEYJ153V
R706	ERJ-3GEYJ153V
R707	ERJ-3GEYJ561V
R708	ERJ-3GEYJ102V
R709	ERJ-3GEYJ102V
R711	ERJ-3GEYJ472V
R713	ERJ-3GEYJ473V
R714	ERJ-3GEYJ680V
R715	ERJ-3GEYJ103V
R716	ERJ-3GEYJ470V
R750	ERJ-3GEYJ470V
R900	ERJ-3GEYJ182V
R901	ERJ-3GEYJ153V
R902	ERJ-3GEYJ182V
R903	ERJ-3GEYJ472V
R904	ERJ-3GEYJ103V
R905	ERJ-3GEYJ273V
R906	ERJ-3GEYJ182V
R907	ERJ-3GEYJ153V
R908	ERJ-3GEYJ102V
R909	ERJ-3GEYJ102V
R910	ERJ-3GEYJ102V
RM600	MNR14E0AJ104
RM601	MNR14E0AJ104
VR100	EVM-1XSX50B53
VR101	EVM-1XSX50B13
VR300	EVM-1XSX50B24
VR301	EVM-1XSX50B24
VR302	EVM-1XSX50B14
VR303	EVM-1XSX50B54
VR304	H0614D-10KB
VR400	EVM-1XSX50B14
VR500	EVM-1XSX50B32

LINEAR

SCHEMATIC DIAGRAM

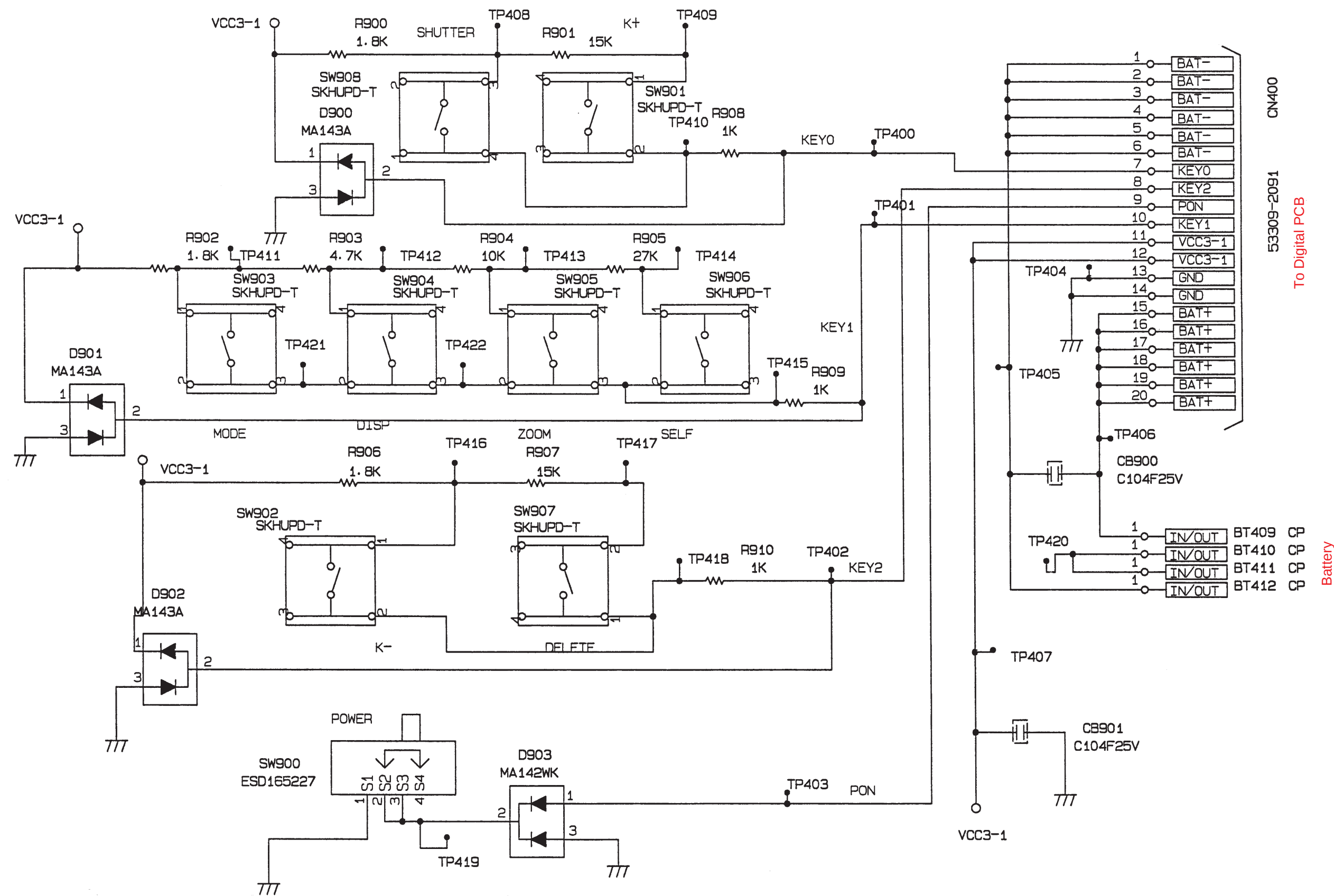


DIGITAL

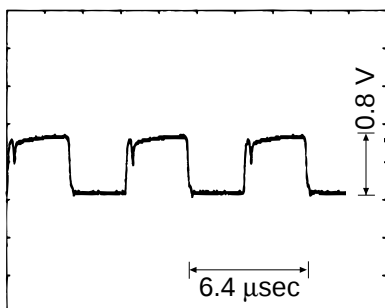


Power Supply Circuit

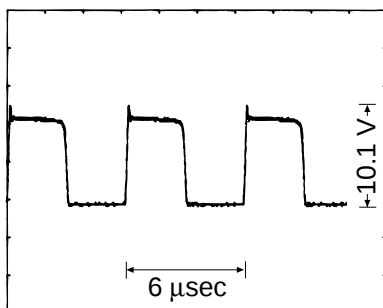
KEY



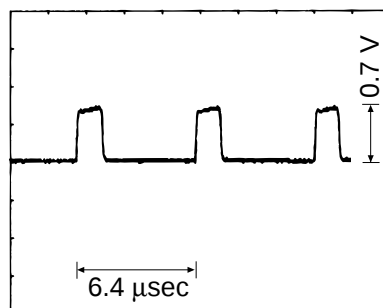
WAVEFORMS



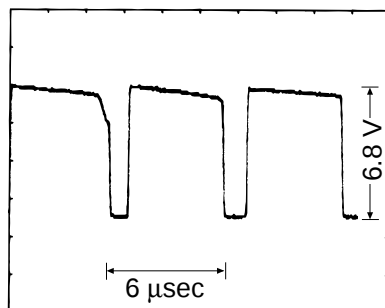
① IC100 pin 5



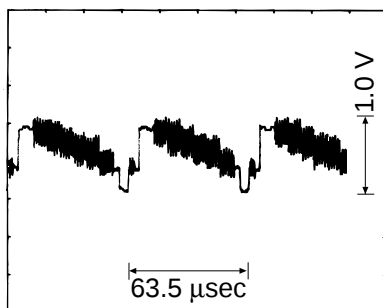
② Q100 collector



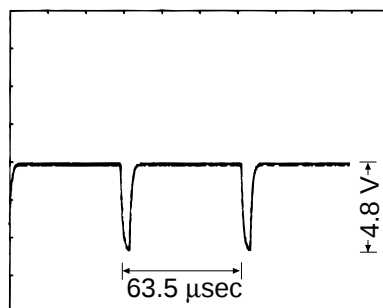
③ IC101 pin 5



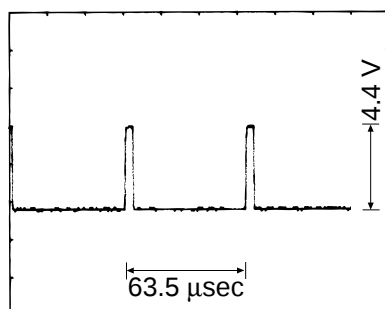
④ Q101 collector



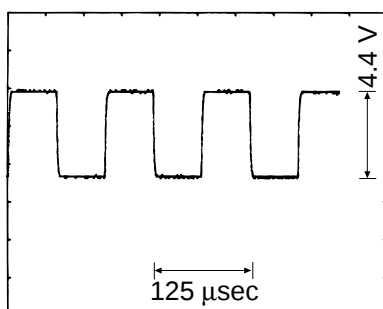
⑤ IC300 pin 10



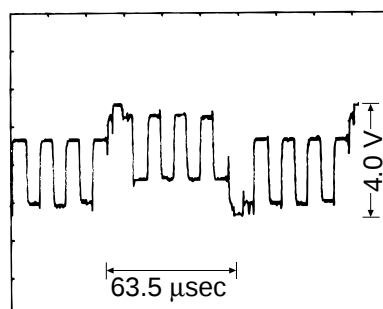
⑥ IC300 pin 21



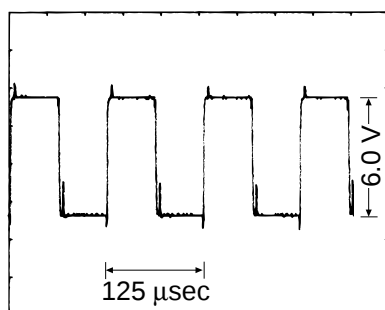
⑦ IC300 pin 20



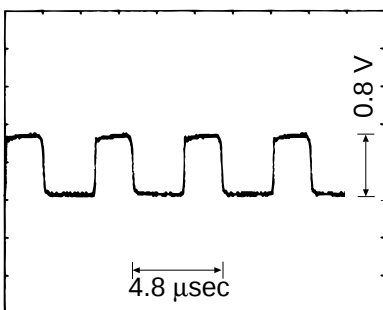
⑧ IC300 pin 39



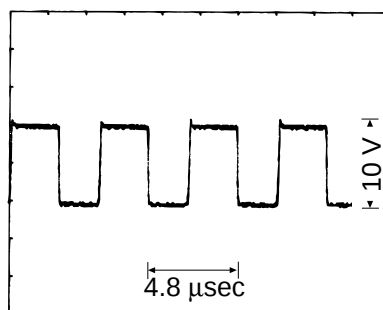
⑨ IC300 pins 32, 34, 36



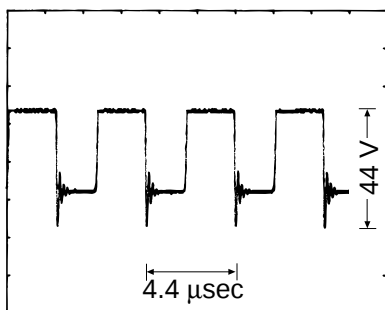
⑩ IC300 pin 30



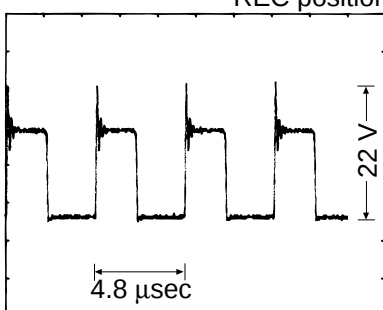
⑪ IC500 pin 5 (Switch to the REC position.)



⑫ T500 pin 1 (Switch to the REC position.)



⑬ T500 pin 5 (Switch to the REC position.)



⑭ T500 pin 8 (Switch to the REC position.)

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