SONY CCD AU300

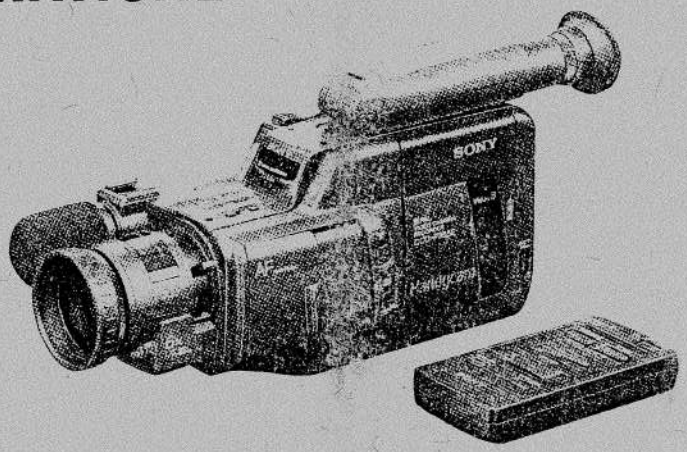
MODEL

SERVICE MANUAL

CCD-F355E
RMT-506

SERVICE MANUAL

AEP Model
UK Model



Handycam
Video 8

U MECHANISM

CCD-F355E is the model which adds remote control functions to CCD-F350E. In this service manual, the differences between CCD-F355E and CCD-F350E are described.
When servicing, see the CCD-AU230/F350E/F350EPAK service manual with this.

Mainly difference portion
1. RM-51P board addition
2. Connector addition on RC board (RC-40P → RC-46P)
3. Microprocesser(IC651) change on CK board

The name and part number of the following pc boards differ from those of CCD-F350E, but schematic diagram and printed wiring boards of the pc boards are the same as those of CCD-F350E.

Pc boards of CCD-F355E		Pc boards of CCD-F350E	
Name	Part number	Name	Part number
CD-69P	1-639-432-11	CD-40P	1-634-184-21
CK-52P	1-639-433-11	CK-43P	1-634-185-21
DK-16P	1-639-441-11	DK-10P	1-634-186-21
KS-13P	1-639-443-11	KS-11P	1-634-188-21
CC-65P	1-639-435-11	CC-51P	1-634-190-21
VK-20P	1-639-434-11	VK-11P	1-634-189-21
MA-107P	1-639-442-11	MA-66P	1-634-187-21
PS-288P	1-639-436-11	PS-263P	1-634-191-21

Note: Parts of CCD-F350E are supplied for replacement on those boards except CK-52P board.

MICROFILM

8 VIDEO CAMERA RECORDER

SONY

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red sa shown below. This enables to find the location on the board easily when servicing.

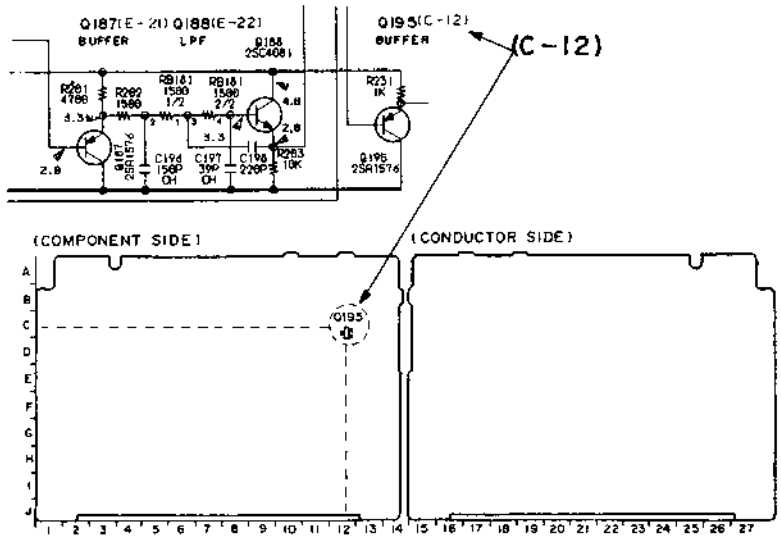


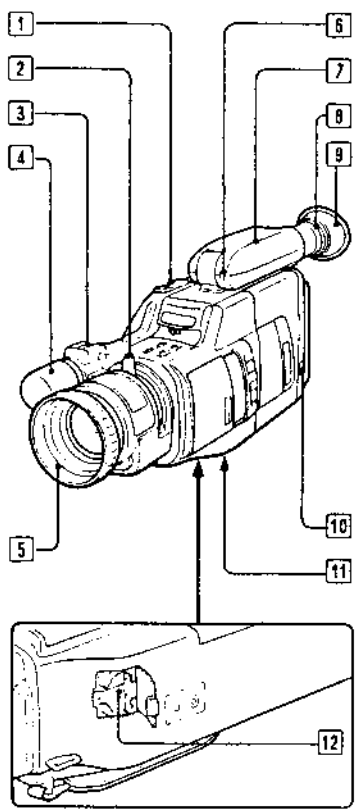
TABLE OF CONTENTS

SECTION 1
GENERAL

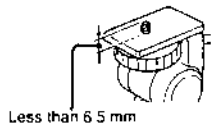
This section is extracted from instruction manual.

Identifying the Parts

(A-1)



(A-2)



For details on the use of each control, refer to the pages indicated in the circle.

(A-1)

1 **Power zoom button**

2 **Zoom lever and Macro button**

3 **Accessory shoe**
Attach a video light, external microphone, etc. (not supplied).

4 **Built-in microphone (monaural)**

5 **Lens hood**
Also functions as focus ring.

6 **Camera recording/battery lamp**

7 **Viewfinder**
The picture being recorded or played back can be monitored in black and white here. Also, marks such as caution indicators and function mode appear here.

8 **Viewfinder lens adjustment ring**

9 **Eyecup**

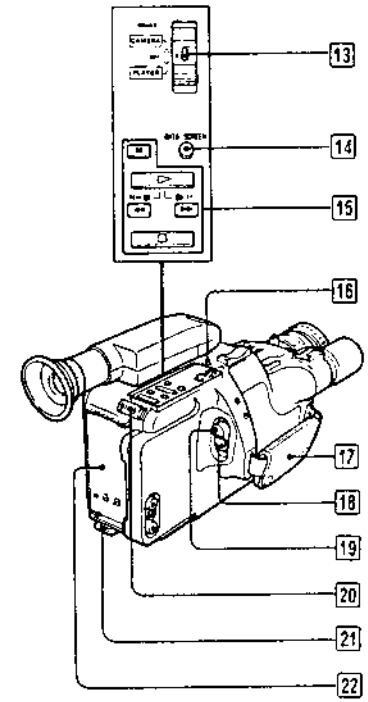
10 **BATT (battery eject) knob**

11 **Tripod receptacle (bottom)**

12 **Lithium battery compartment (bottom)**

Note (A-2)
When attaching a tripod other than Sony's, make sure that the length of the camera mounting screw is less than 6.5mm.
Otherwise the screw may damage the inner parts of the camcorder

(A-3)



(A-3)

13 **POWER switch**
CAMERA: for camera recording
PLAYER: for playing back or editing tapes
OFF: power off

14 **DATA SCREEN button**

15 **Tape transport buttons**
▷ (playback)
▶▶ FF (fast forward)
◀◀ REW (rewind)
□ (stop)
II (pause)

16 **REC MODE (recording mode)/EDIT switch**

Switch it depending on the operating mode.

Mode	Recording	Playback	Editing
Setting	REC MODE SP LP	EDIT	EDIT
Function	Recording mode switch	EDIT switch	

17 **Grip belt**
Adjust the length so that your thumb and fingers can easily manipulate the START/STOP button and the power zoom button.

18 **START/STOP button**
Press to start and stop camera recording.

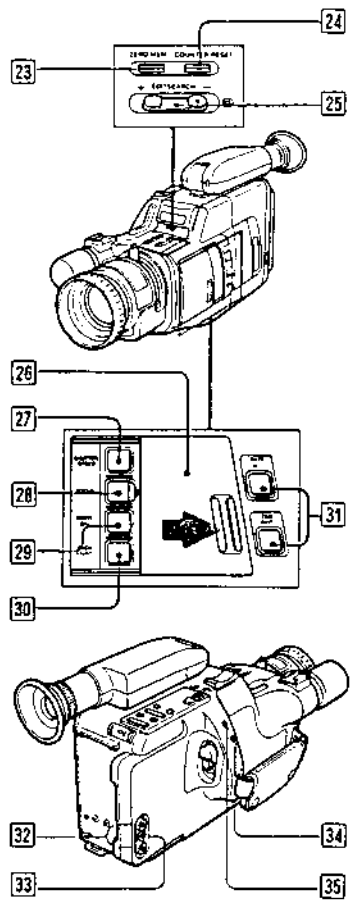
19 **STANDBY switch**
Slide up to set the camcorder to standby mode.

20 **EJECT (cassette eject) button**

21 **Hook for shoulder strap**

22 **Battery mounting surface**

(A-4)



(A-4)

23 **ZERO MEM (zero memory) button**

24 **COUNTER RESET button**

25 **EDITSEARCH (and recording review) button**

26 **AUTO LOCK cover**
To adjust the focus, white balance, back light, or shutter speed manually, slide open this cover so that the buttons inside can be seen.

27 **SHUTTER SPEED button**

28 **FOCUS button**

29 **WHITE BAL (white balance) button**

30 **BACK LIGHT button**

31 **DATE (+) and TIME (NEXT) buttons**

32 **VIDEO/AUDIO OUT (output) jacks (phono jacks)**

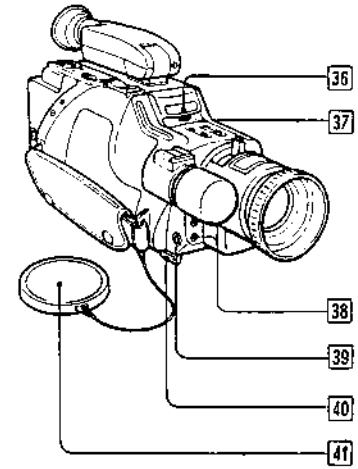
33 **RFU DC OUT (RFU adaptor DC output) jack (special minijack)**
Attach the supplied RFU adaptor here.

34 **🎧 (earphone) jack (minijack)**

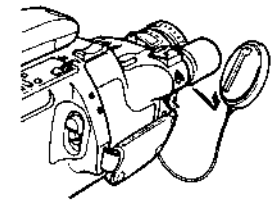
35 **REMOTE (LANC)* control connector (stereo mini-minijack)**
Connect an optional wired GP-80 Remote Commander or wired RM-95 Remote Commander.
Do not connect other equipment.

***About the (LANC)**
stands for Local Application Control Bus System. The LANC connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE.

(A-5)



(A-6)



(A-5)

36 **Remote sensor**

37 **(REMOTE COMMANDER) ON/OFF switch**

Set to "ON" when using the supplied wireless Remote Commander. When you do not use the Commander, set to "OFF" to keep the unit from being operated incorrectly by another Commander etc.

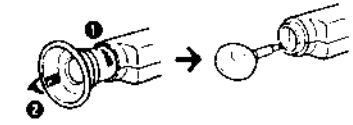
38 **MIC jack and DC OUT (microphone power output) jack**
Connect an external microphone.
The MIC jack accepts "plug-in-power" microphones and supplies power to them.

39 **REC START/STOP button (for low position recording)**
Use this button instead of the START/STOP button for easier low-position recording.

40 **Hook for shoulder strap**

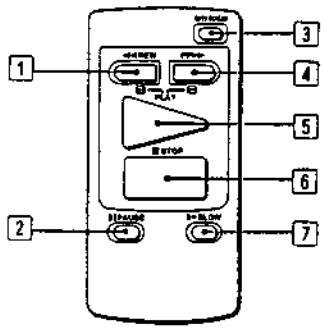
41 **Lens cap**
Squeeze both sides of the lens cap to remove it. Hook it to the grip strap so it won't be lost or hanging loose while recording.
(A-6)

(A-7)



To remove dust from inside the viewfinder (A-7)
Detach the eyecup as illustrated and clean the surface of the screen with a blower.

(A-8)



Identifying the Parts

Wireless Remote Commander

You can play back a tape from a distance. The buttons on the Commander with the same name or mark as those on the camcorder have the same function.

When you use the Commander
Be sure to set the REMOTE COMMANDER ON/OFF switch on the camcorder to "ON", and then start operation of the camcorder, with the Commander pointing towards the remote sensor.

(A-8)

1 ◀◀ REW (rewind) button

2 II PAUSE button

3 DATA SCREEN button

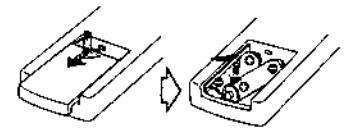
4 FF ▶▶ (fast forward) button

5 ▷ PLAY (playback) button

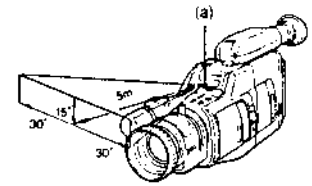
6 ■ STOP button

7 ▮▸ SLOW button

(A-9)



(A-10)



Inserting batteries
(A-9)
Insert two R6 (size AA) batteries with polarity positioned correctly.

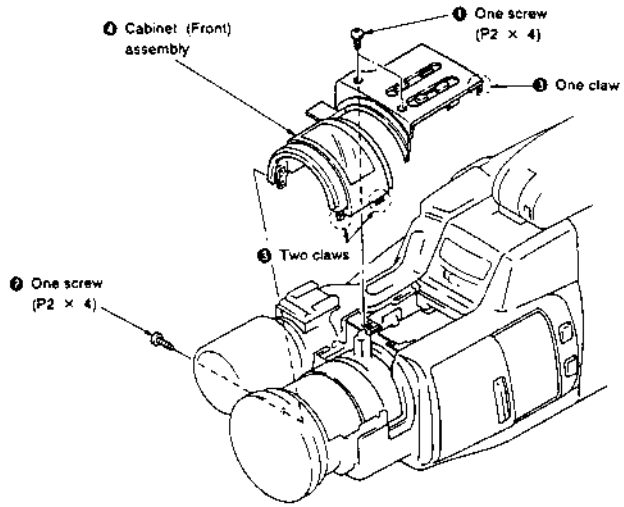
Guide of remotely controllable area
(A-10)
Point the Commander towards the remote sensor (a).

Notes on batteries
With normal operation, batteries will last for about six months. However, if the Commander will not be used for a long period, remove the batteries to avoid possible damage from battery leakage.

Notes on the Remote Commander
- Be sure that there is no obstacle between the remote sensor and Commander.
- The command mode of the Commander is VTR2. Avoid to use the Sony VTRs with the same command mode at the same time.
- Be sure to set the REMOTE COMMANDER ON/OFF switch on the camcorder to "OFF" when you connect the receiver of a remote control kit (not supplied) to the REMOTE control connector.
- Keep the remote sensor away from the strong light source such as direct sunlight or illumination. Remote control with the Commander may not be effective.

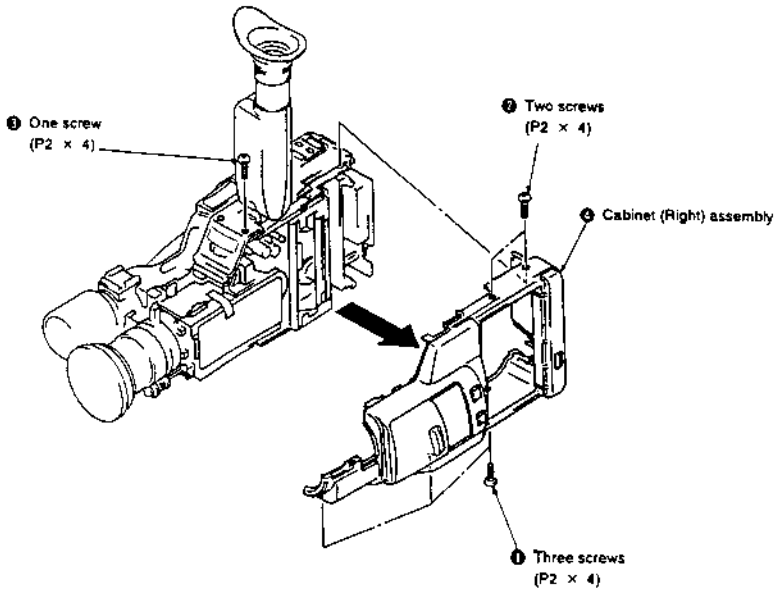
SECTION 2
DISASSEMBLY

2-1. REMOVAL OF CABINET (FRONT) ASSEMBLY

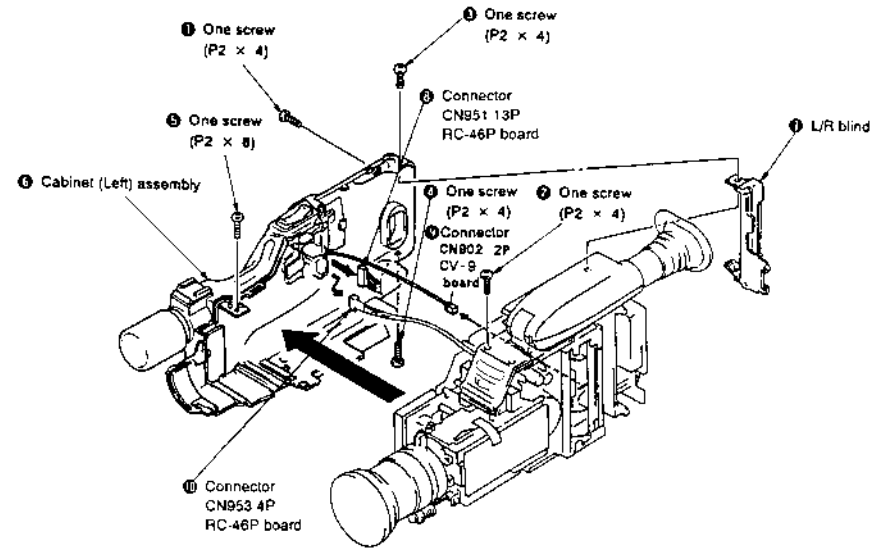


2-2. REMOVAL OF CABINET (RIGHT) ASSEMBLY

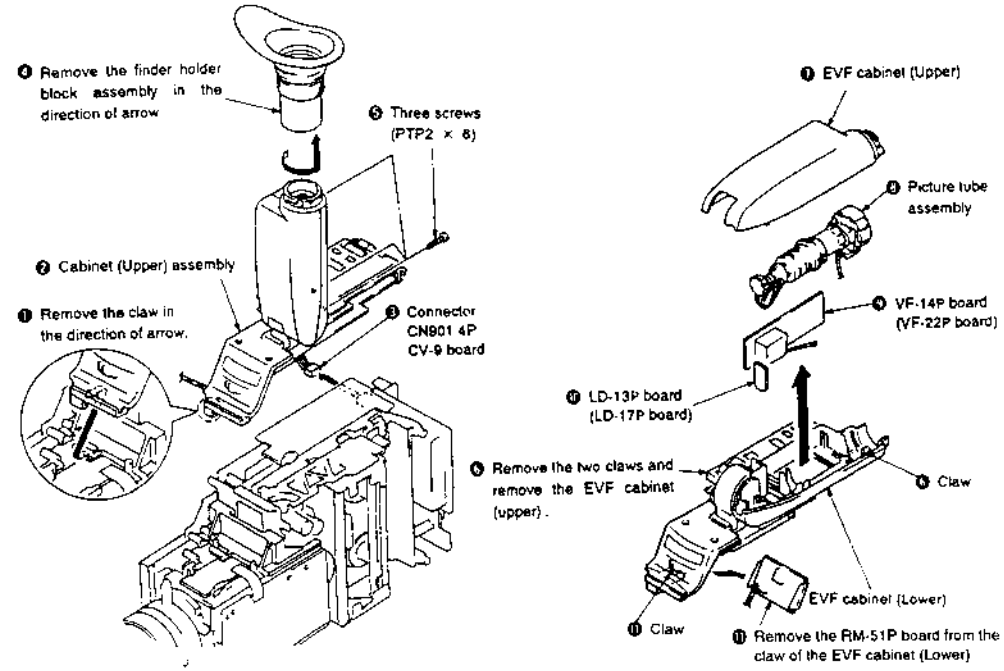
Note: Perform this servicing with EVF raise as the figure below



2-3. REMOVAL OF CABINET (LEFT) ASSEMBLY

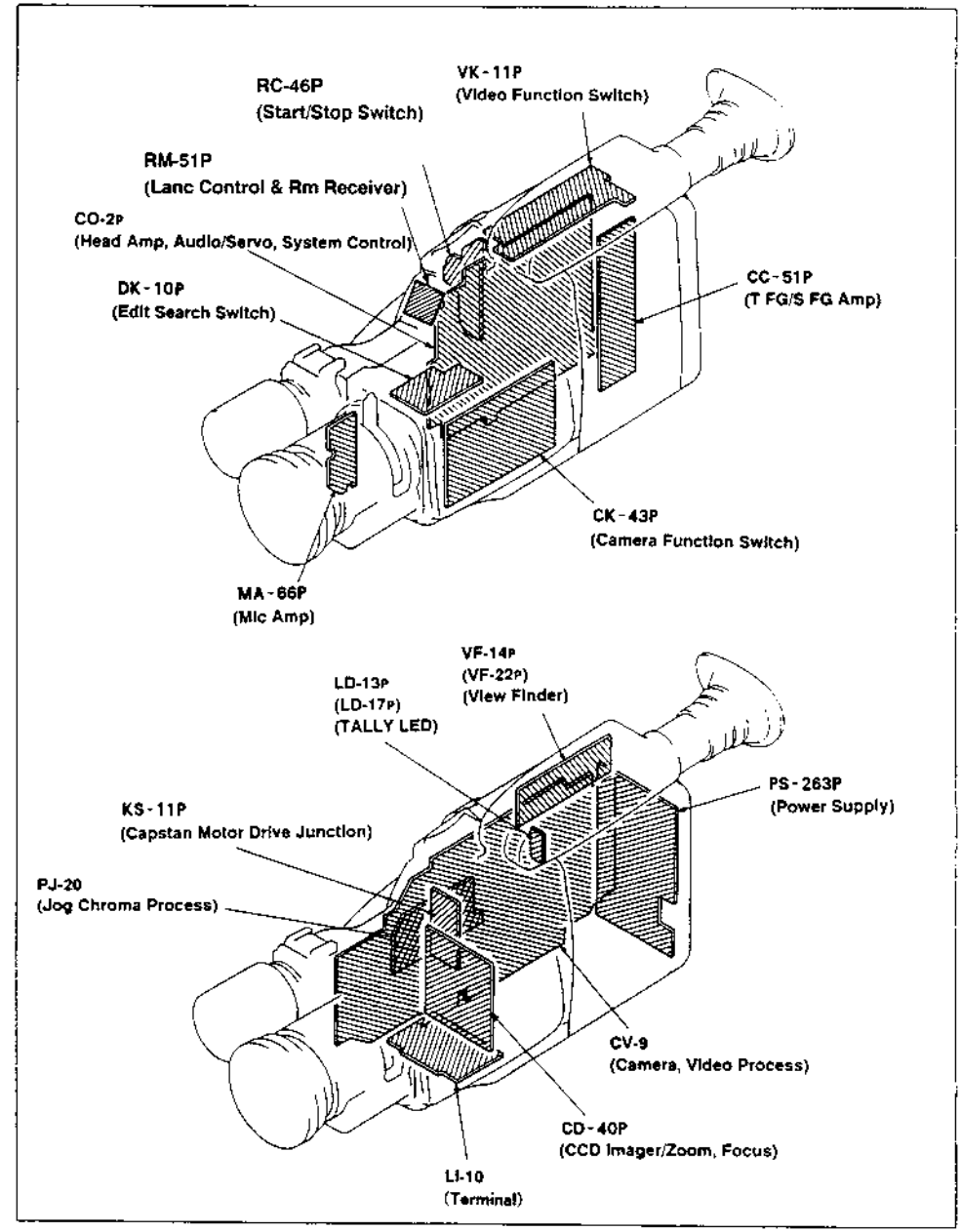


2-4. REMOVAL OF CABINET (UPPER) ASSEMBLY AND EVF



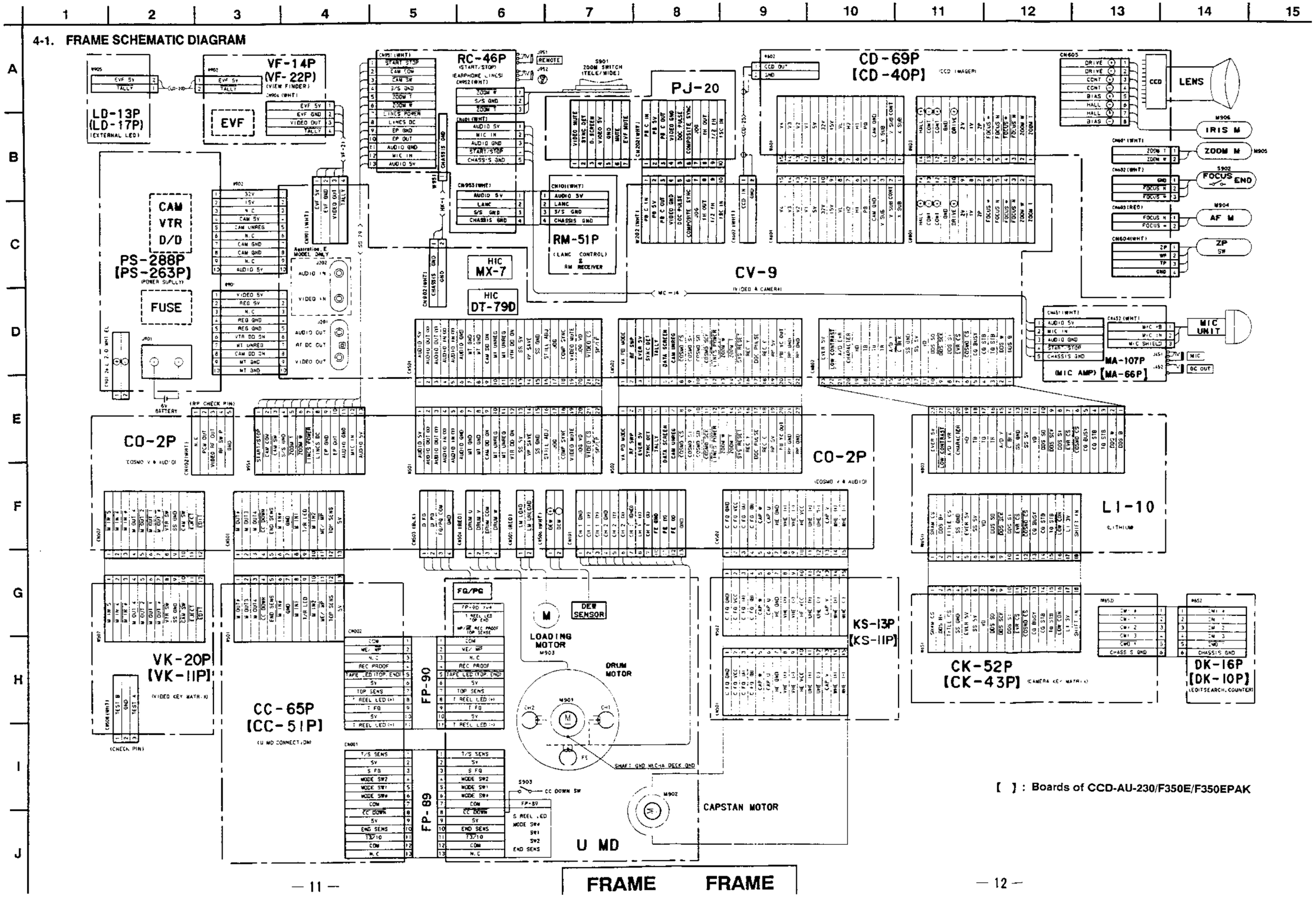
SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION



SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



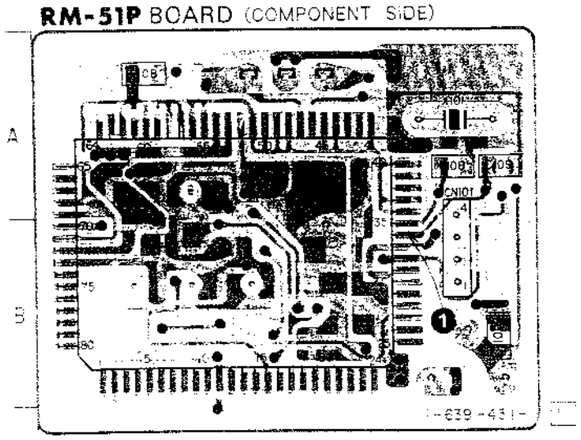
【 】: Boards of CCD-AU-230/F350E/F350EPAK

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

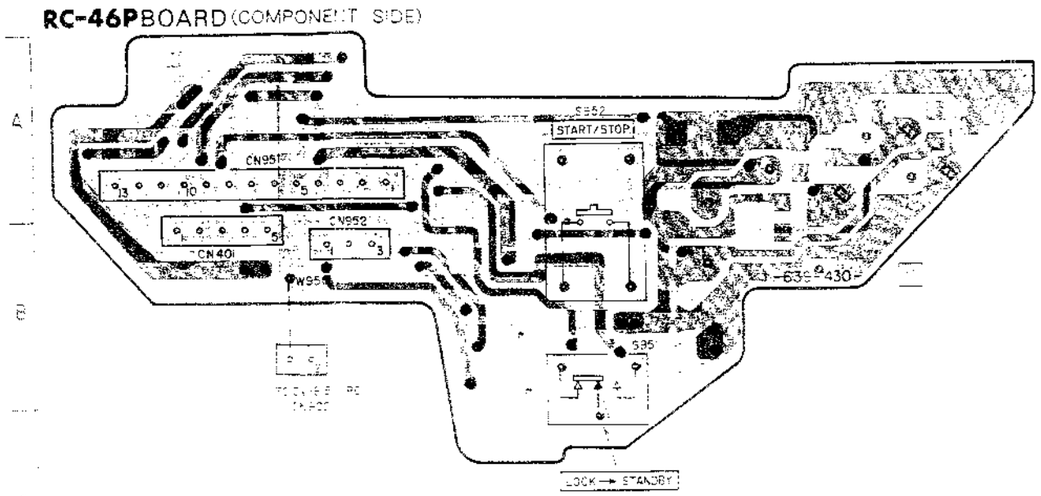
RM-51P (LANC CONTROL & RM RECEIVER), RC-46P (START/STOP SWITCH) PRINTED WIRING BOARDS

-- Ref. No. RM-51P BOARD: 11000 series, RC-46P BOARD: 10000 series --

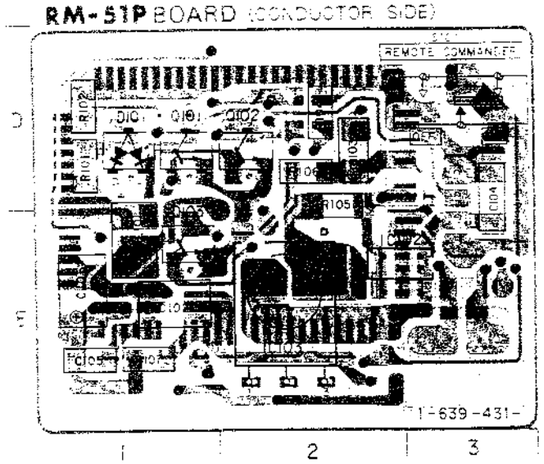
RM-51P BOARD (COMPONENT SIDE)



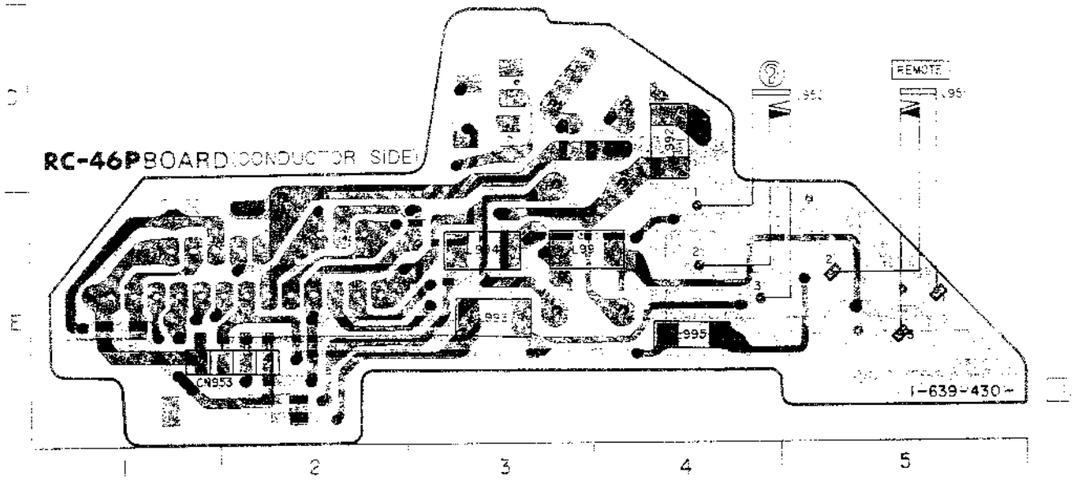
RC-46P BOARD (COMPONENT SIDE)



RM-51P BOARD (CONDUCTOR SIDE)



RC-46P BOARD (CONDUCTOR SIDE)



6-[illegible]-[illegible]A RM-51P BOARD, COMPLETE

****

(Ref. No. 11,000 Series)

< DIODE >

D101 8-719-614-44 DIODE DAP202K

< IC >

IC101 8-752-618-57 IC CXP50116-054Q
IC102 8-759-946-08 IC S-8054ALR-LN4-S
IC103 8-749-622-83 IC SENSOR, REMOCON ISU5E6

< TRANSISTOR >

Q101 8-729-901-01 TRANSISTOR DTC144EK
Q102 8-729-901-01 TRANSISTOR DTC144EK
Q103 8-729-901-01 TRANSISTOR DTC144EK

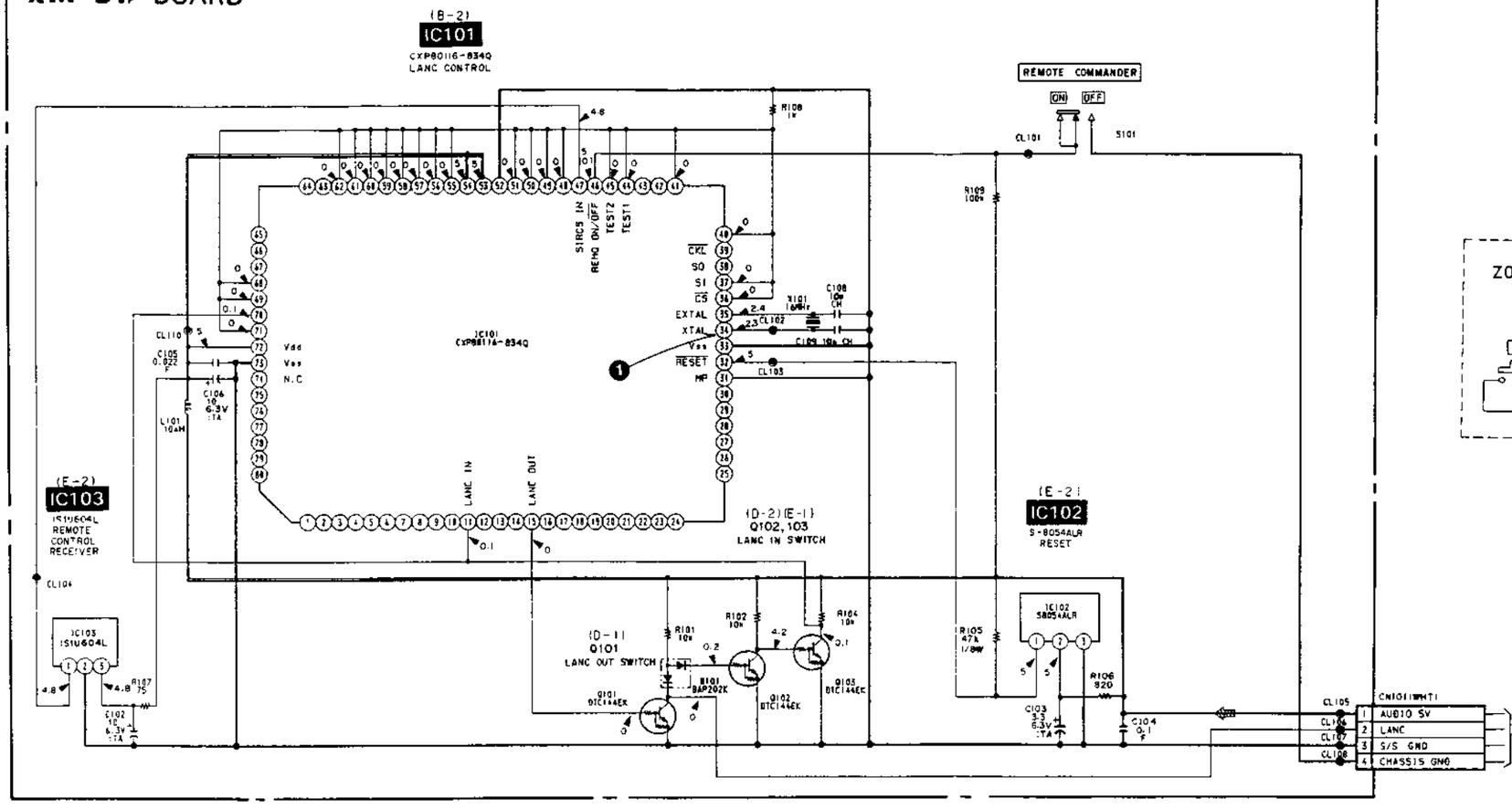
LANC CONTROL

LANC CONTROL

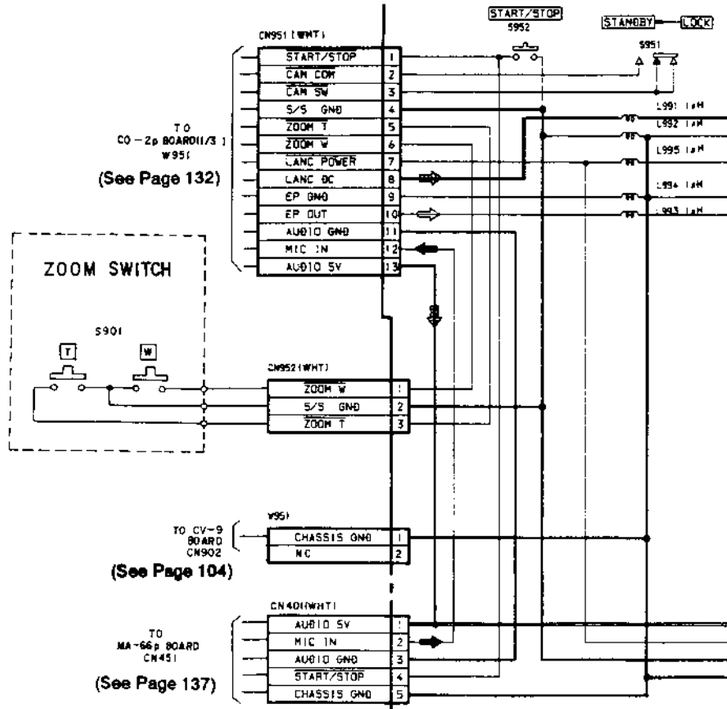
— Ref. No. RM-51P BOARD: 11000 series, RC-46P BOARD: 10000 series —

RM-51P BOARD

no mark : CAMERA REC mode
( ) : S101 OFF



RC-46P BOARD



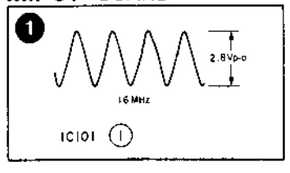
SYSTEM CONTROL MICROCOMPUTER (CXP80116:IC101 on RM-51P Board)

PORT FUNCTIONS DESCRIPTION

Pin No.	Signal	I/O	Description
11	LANC IN	I	LANC signal input
15	LANC OUT	O	LANC signal output
31	MP	I	Microprocessor mode input terminal. L:Single chip mode
32	$\overline{\text{RESET}}$	I	Reset input. Reset:L
33	VSS	–	GND
34	XTAL	O	System clock. 16MHz crystal oscillator connecting terminal.
35	EXTAL	I	
46	REMO ON/$\overline{\text{OFF}}$	I	Remote control ON/OFF select signal. OFF:L
47	SIRCS IN	I	SIRCS signal input
52	AVSS	–	Power supply input for A/D converter
53	AVREF	–	Reference voltage input for A/D converter
54	AVSS	–	GND terminal for A/D converter
70	LANC IN	I	LANC signal input
72	VDD	–	Power supply input
73	VSS	–	GND

Note: Ports excepting those aforementioned is not used.

RM-51P BOARD

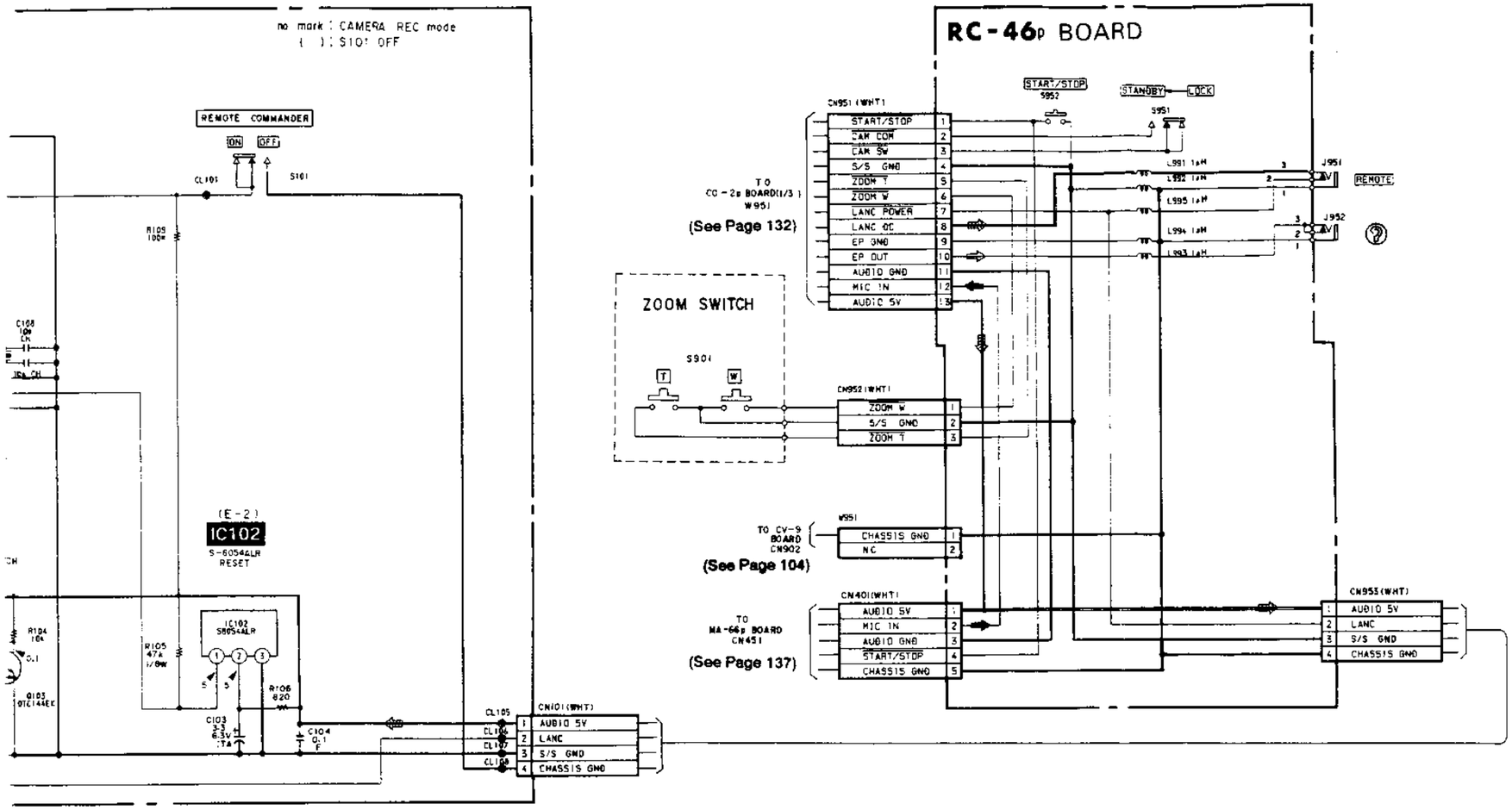


• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

• The pages above correspond to SERVICE MANUAL (Original)

8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19



iP Board)

Description
input
output
sor mode input terminal, L:Single chip mode
t, Reset:L
ck, 16MHz crystal oscillator connecting terminal.
trol ON/OFF select signal, OFF:L
al input
y input for A/ nverter
voltage input D converter
al for A/D converter
l input
ly input

sed.

• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

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

- **For printed wiring boards.**
- ○— : indicated a lead wire mounted on the component side.
- —— : indicated a lead wire mounted on the conductor side.
- ● : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- Circled numbers refer to waveforms.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the pattern face are indicated.

- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- : adjustment for repeair.
- : B+ Line.
- : IN/OUT direction of (+, –) B LINE.
- Circled numbers refer to waveforms.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safty. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

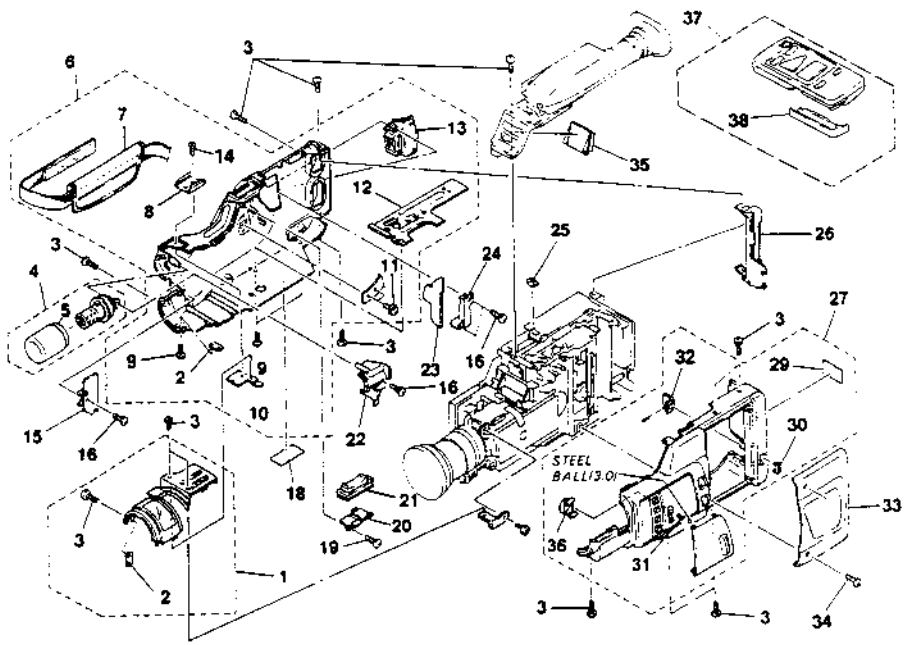
When indicating parts by reference number, please include the board name.

SECTION 5
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

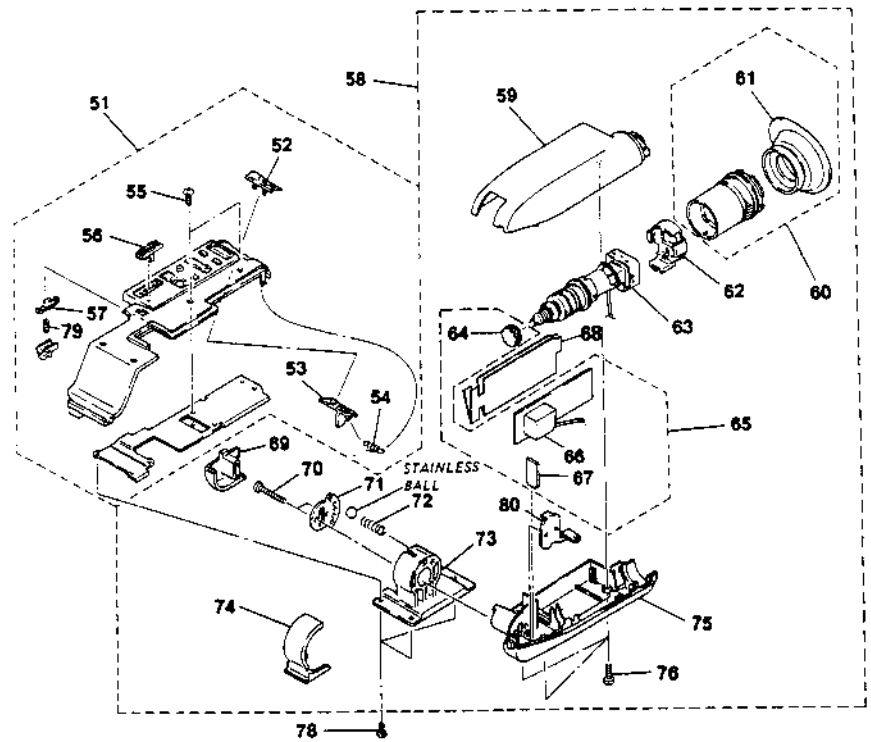
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

5-1. CABINET (R, L) ASSEMBLY



Ref. No.	Part No.	Description	Remark
1	X-3940-632-1	CABINET (FRONT) ASSY	2, 3
2	3-732-912-01	JOINT, L/R	
3	3-719-381-01	SCREW (M2X4)	
4	1-542-125-21	MICROPHONE (C-202T)	5
5	3-707-650-11	SCREEN, WIND	
6	X-3940-635-1	CABINET (L) ASSY	2, 7-14
7	3-719-323-01	BELT, GRIP	
8	3-724-511-01	SHOE, ACCESSORY	
9	3-719-381-31	SCREW (M2X3)	
10	3-737-723-01	RETAINER, SHOE	
11	3-669-480-21	+ PTPWH 2	
12	* 3-732-911-01	SHEET METAL, TRIPOD	
13	X-3940-633-1	KNOB ASSY, SP	
14	3-719-831-21	SCREW (M2X4)	
15	* A-7062-205-A	MA-66P BOARD, COMPLETE	
16	3-713-790-31	SCREW (M2X8), TAPPING, P3	
18	* 3-942-543-01	LABEL, MODEL NUMBER (AE) (AEP MODEL)	
18	* 3-943-268-01	LABEL, MODEL NUMBER (UX) (UK MODEL)	
19	3-713-790-21	SCREW (M2X6), TAPPING, P3	
20	* 3-732-937-01	RETAINER, ZOOM BUTTON	
21	1-571-837-11	SWITCH, PUSH (ZOOM SWITCH) (S901)	
22	3-737-737-21	HOUSING, MICROPHONE	
23	* A-7071-419-A	RC-46P BOARD, COMPLETE	
24	* 3-732-928-01	STOPPER, RC	
25	3-732-926-01	BUTTON, EDIT	
26	3-732-924-41	BLIND, L/R	
27	X-3940-631-1	CABINET (R) ASSY	28-32, 36
28	3-426-503-00	SPRING, COMPRESSION	
29	* 3-719-663-01	LABEL, BATTERY FITTING	
30	3-732-905-01	BUTTON, BATTERY RELEASE	
31	3-576-998-00	SPRING, COMPRESSION	
32	3-732-906-01	LOCK, BATTERY	
33	X-3940-580-1	LID ASSY, CASSETTE	
34	3-733-912-01	SCREW (M2X2.5), SPECIAL HEAD	
35	* A-7062-771-A	RM-51P BOARD, COMPLETE	
36	* 3-737-735-01	CAP, SPRING	
37		1-465-720-11 REMOTE COMMANDER (CAM CODER) (RMT-506)	38
38	3-942-755-01	COVER, BATTERY	

5-2. CABINET (UPPER), EVF ASSEMBLY (TYPE A)

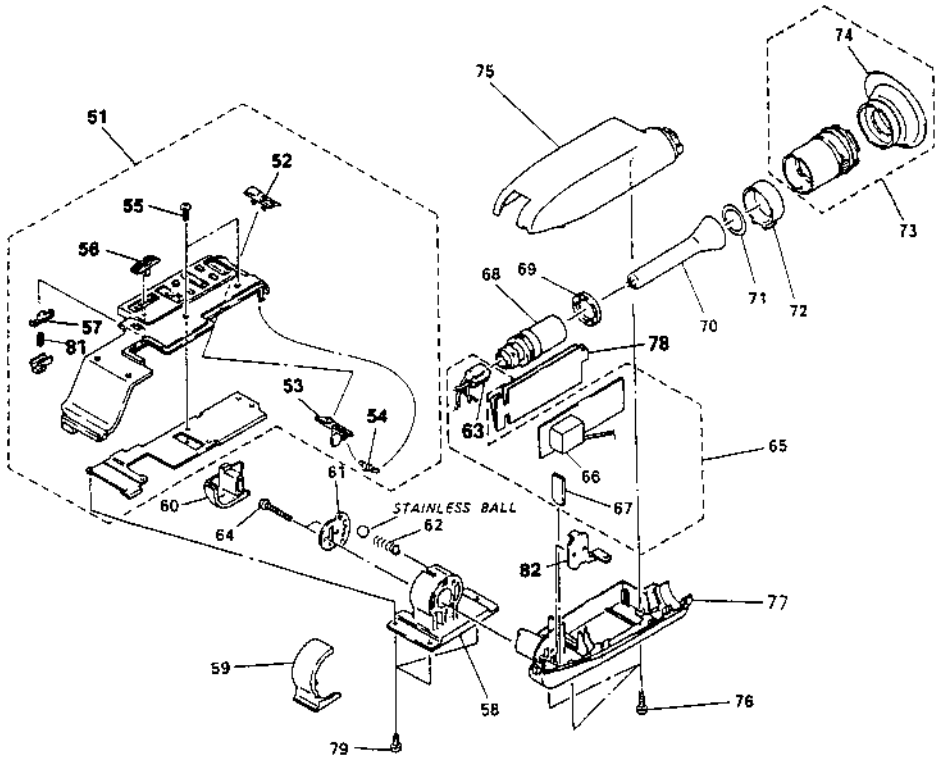


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
51	X-3940-579-1	CABINET (UPPER) ASSY	52-57, 79
52	3-732-919-01	BUTTON, EJECT	
53	3-732-920-01	LOCK, EJECT	
54	3-669-440-00	SPRING, TENSION	
55	3-719-381-01	SCREW (M2X4)	
56	3-718-226-01	BUTTON, POWER	
57	* 3-718-257-11	BUTTON, PUSH, POWER	
58	A-7019-305-A	EVF COMPLETE ASSY	59-75
59	3-732-948-81	CABINET (UPPER), EVF	
60	A-7081-614-A	HOLDER BLOCK ASSY, FINDER	61
61	3-733-922-01	EYE CUP	
62	X-3732-910-1	HOLDER ASSY, CRT	
63	⚠ 1-452-482-11	CRT ASSY (M91JYZ50WB)	
64	⚠ 1-540-019-21	SOCKET ASSY, CRT (WS01)	
65	* A-7061-609-A	VF-14P BOARD, COMPLETE	64, 66, 67
66	⚠ 1-439-431-11	TRANSFORMER ASSY, FLYBACK (T901)	
67	* 1-629-384-21	LD-13P BOARD	
68	* 3-733-914-01	INSULATOR, EVF	
69	3-732-949-41	BLIND, EVF CABINET (LOWER)	
70	3-732-987-01	SCREW (M2X20), +P	
71	3-732-947-01	PLATE, LOCK	
72	3-732-946-01	SPRING, COMPRESSION	
73	* 3-732-944-01	BEARING, EVF	
74	3-732-950-41	BLIND, EVF	
75	X-3940-634-1	CABINET (LOWER) ASSY, EVF	
76	3-713-790-31	SCREW (M2X8), TAPPING, P3	
78	3-732-988-01	SCREW (M2X2.5)	
79	3-303-973-00	SPRING, COMPRESSION	
80	* 3-732-979-01	REINFORCEMENT, EVF	

5-3.

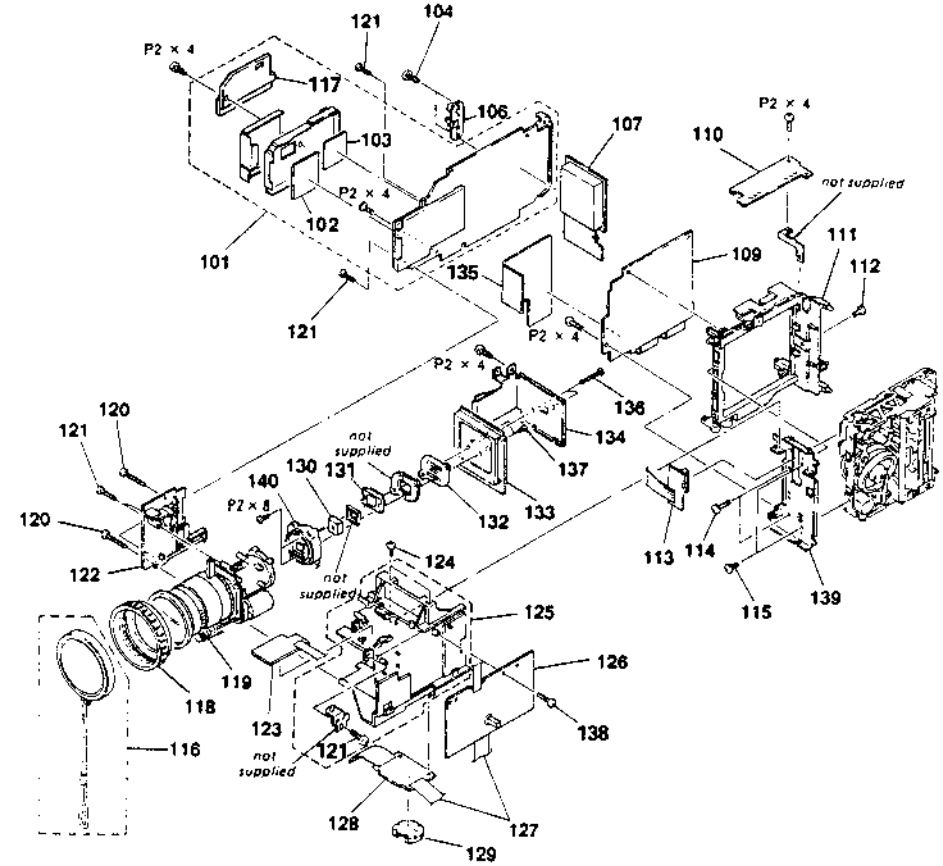
5-3. CABINET (UPPER), EVF ASSEMBLY (TYPE B)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
51	X-3940-579-1	CABINET (UPPER) ASSY	52-57, 81
52	3-732-919-01	BUTTON, EJECT	
53	3-732-920-01	LOCK, EJECT	
54	3-669-440-00	SPRING, TENSION	
55	3-719-381-01	SCREW (M2X4)	
56	3-718-226-01	BUTTON, POWER	
57	* 3-718-257-11	BUTTON, PUSH, POWER	
58	* 3-732-944-01	BEARING, EVF	
59	3-732-950-41	BLIND, EVF	
60	3-732-949-41	BLIND, EVF CABINET (LOWER)	
61	3-732-947-01	PLATE, LOCK	
62	3-732-946-01	SPRING, COMPRESSION	
63	⚠ 1-526-978-21	SOCKET ASSY, CRT (CRT-901)	
64	3-732-987-01	SCREW (M2X20), +P	
65	* A-7067-012-A	VF-22P BOARD, COMPLETE	63, 66, 67
66	⚠ 1-439-428-11	TRANSFORMER ASSY, FLYBACK (T901)	
67	* A-7071-044-A	LD-17P BOARD, COMPLETE	
68	⚠ 1-451-310-21	DEFLECTION YOKE (B/W)	
69	3-724-549-01	LOCK, CRT	
70	⚠ 1-546-085-11	CATHODE-RAY TUBE, B/W (M01XCS007WB)	
71	3-724-576-01	RING, CRT FIXED	
72	X-3724-509-1	HOLDER ASSY, CRT	
73	A-7081-614-A	HOLDER BLOCK ASSY, FINDER	74
74	3-733-922-01	EYE CUP	
75	3-732-948-81	CABINET (UPPER), EVF	
76	3-713-790-31	SCREW (M2X8), TAPPING, P3	
77	X-3940-634-1	CABINET (LOWER) ASSY, EVF	
78	* 3-733-914-01	INSULATOR, EVF	
79	3-732-988-01	SCREW (M2X2.5)	
81	3-303-973-00	SPRING, COMPRESSION	
82	* 3-732-979-01	REINFORCEMENT, EVF	

5-4. MAIN BOARD ASSEMBLY



Ref. No.	Part No.	Description	Remark
101	* A-7062-204-A	CV-9 BOARD, COMPLETE	102, 103, 117
102	A-7068-178-A	DT-79D BOARD, COMPLETE (HIC)	
103	A-6768-128-A	MX-7 BOARD, COMPLETE (HIC)	
104	3-719-695-01	SCREW (M1.7X3.5), SPECIAL HEAD	
106	1-537-142-11	TERMINAL BOARD (AUDIO/RFU DC/VIDEO OUT) (J201)	
107	* A-7062-202-A	PS-263P BOARD, COMPLETE	
109	* A-7061-599-A	CO-2P BOARD, COMPLETE	
110	* 1-534-189-21	VX-11P BOARD	
111	* 3-732-932-01	HOLDER, MD	
112	3-732-791-31	SCREW (M2X3)	
113	* 1-534-188-21	KS-11P BOARD	
114	3-713-790-11	SCREW (M2X5), TAPPING, P3	
115	3-732-816-31	SCREW, STEP	
116	A-7090-806-A	CAP ASSY, HOOD	
117	* A-7051-359-A	PJ-20 BOARD, COMPLETE	
118	3-728-269-01	HOOD	
119	1-547-407-11	LENS, ZOOM (VCL-706WA)	
120	3-713-790-31	SCREW (M2X8), TAPPING, P3	
121	3-713-790-21	SCREW (M2X6), TAPPING, P3	
122	3-741-521-01	HOLDER (BT6), LENS	
123	* 1-634-186-21	DK-10P BOARD	
124	3-719-381-01	SCREW (M2X4)	
125	X-3737-707-1	HOLDER ASSY, LENS	121
126	* A-7062-759-A	CK-52P BOARD, COMPLETE	123
127	1-575-064-11	CABLE, FLAT (1.0MM PITCH) 18P (W651)	
128	* 1-630-547-11	LI-10 BOARD	
129	1-550-104-32	HOLDER, BATTERY	
130	1-547-408-11	FILTER, INFRARED CUT (IR-83)	
131	8-752-604-52	IC ICX045AKA-1 (CCD IMAGER) (IC601)	
132	* 3-741-525-01	SHEET, INSULATING, CCD	
133	* A-7062-197-A	CD-40P BOARD, COMPLETE	
134	* X-3737-709-1	SHIELD (CD) ASSY, CAMERA	
135	* 3-741-576-01	SHIELD, FE	
136	3-335-640-91	SCREW (M2X11)	
137	3-719-408-01	SCREW (B2), TAPPING, P3	
138	3-713-786-51	SCREW (M2X3)	
139	3-732-936-02	PLATE, FRAME, MD	
140	3-941-342-01	HOLDER, CCD	

RC-46P RM-51P

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items
- SEMICONDUCTORS
  In each case, u: μ , for example
  uA...: μA..., uPA...: μPA...
  uPB...: μPB..., uPC...: μPC...
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref.No.	Part No.	Description	Remark
	* A-7071-419-A	RC-46P BOARD, COMPLETE	
		********** (Ref.No 10,000 Series)	
		< CONNECTOR >	
CN401	1-566-760-11	PIN, CONNECTOR (PC BOARD) 5P	
CN951	* 1-568-521-11	PIN, CONNECTOR (PC BOARD) 13P	
CN952	* 1-566-182-11	PIN, CONNECTOR (PC BOARD) 3P	
CN953	1-580-057-11	PIN, CONNECTOR 4P	
		< JACK >	
J951	1-565-276-21	JACK, ULTRA SMALL 3P (REMOTE)	
J952	1-507-923-00	JACK (EARPHONE)	
		< COIL >	
L991	1-410-369-11	INDUCTOR CHIP 1uH	
L992	1-410-369-11	INDUCTOR CHIP 1uH	
L993	1-410-369-11	INDUCTOR CHIP 1uH	
L994	1-410-369-11	INDUCTOR CHIP 1uH	
L995	1-410-192-51	INDUCTOR CHIP 1uH	
		< SWITCH >	
S951	1-553-977-00	SWITCH, SLIDE (STANDBY/LOCK)	
S952	1-571-838-11	SWITCH, TACTIL (START/STOP)	
		**********	
	* A-7062-771-A	RM-51P BOARD, COMPLETE	
		********** (Ref.No 11,000 Series)	
		< CAPACITOR >	
C102	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C103	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C104	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C105	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C106	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C108	1-163-227-11	CERAMIC CHIP 10PF 5% 50V	
C109	1-163-227-11	CERAMIC CHIP 10PF 5% 50V	
		< CONNECTOR >	
CN101	* 1-565-878-11	PIN, CONNECTOR (PC BOARD) 4P	
		< DIODE >	
D101	8-719-914-44	DIODE DAP202K	
		< IC >	
IC101	8-752-819-57	IC CXP60116-834Q	
IC102	8-759-946-03	IC S-8054ALR-LN-S	
IC103	8-749-622-63	IC SENSOR, REMOCON IS1U60	
		< COIL >	
L101	1-412-029-11	INDUCTOR CHIP 10uH	
		< TRANSISTOR >	
Q101	8-729-901-01	TRANSISTOR DTC144EK	
Q102	8-729-901-01	TRANSISTOR DTC144EK	
Q103	8-729-901-01	TRANSISTOR DTC144EK	
		< RESISTOR >	
R101	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R102	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R104	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R105	1-216-238-00	METAL CHIP 47K 5% 1/8W	
R106	1-216-047-00	METAL CHIP 820 5% 1/10W	
R107	1-216-022-00	METAL CHIP 75 5% 1/10W	
R108	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R109	1-216-097-00	METAL CHIP 100K 5% 1/10W	

Ref.No.	Part No.	Description	Remark
		< SWITCH >	
S101	1-553-977-00	SWITCH, SLIDE (REMOTE COMMANDER ON/OFF)	
		< CRYSTAL >	
X101	1-567-927-11	VIBLATOR, CERAMIC (16MHz)	
		**********	
		MISCELLANEOUS	
		**********	
4	1-547-125-31	MICROPHONE (C-2027)	S
21	1-571-837-11	SWITCH, PUSH (ZOOM SWITCH) (S901)	
37	1-465-720-11	REMOTE COMMANDER (CAM CODER) (RMT-506)	38
A-53 ⚠	1-452-482-11	CRT ASSY (M91JYZ80WB)	
B-53 ⚠	1-526-578-21	SOCKET ASSY, CRT (CRT-901)	
A-64 ⚠	1-540-015-21	SOCKET ASSY, CRT (W901)	
A-65 ⚠	1-439-431-11	TRANSFORMER ASSY, FLYBACK (T901)	
B-66 ⚠	1-439-428-11	TRANSFORMER ASSY, FLYBACK (T903)	
B-68 ⚠	1-451-310-21	DEFLECTION YOKE (B/W)	
B-70 ⚠	1-546-085-11	CATHODE-RAY TUBE, B/W (M01KGG07WB)	
119	1-547-407-11	LENS, ZOOM (VCL-706WA)	
127	1-575-064-11	CABLE, FLAT (1.0MM PITCH) 18P (W651)	
128	1-550-104-32	HOLDER, BATTERY	
130	1-547-408-11	FILTER, INFRARED CUT (IR-03)	
131	8-752-604-51	IC ICX045AKA-1 (CCD IMAGER) (IC601)	
		**********	

Ref.No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-465-720-11	REMOTE COMMANDER (CAM CODER) (RMT-506)	
*	3-340-514-01	BAG, PROTECTION	
	3-753-261-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-753-261-41	MANUAL, INSTRUCTION (FRENCH/GERMAN/SPANISH) (AEP MODEL)	
	3-753-261-51	MANUAL, INSTRUCTION (AEP MODEL) (DUTCH/SWEDISH/ITALIAN) (AEP MODEL)	
	3-753-261-61	MANUAL, INSTRUCTION (PORTUGUESE) (AEP MODEL)	
	3-753-261-71	MANUAL, INSTRUCTION (DANISH/FINNISH) (AEP MODEL)	
*	3-764-631-12	INSTRUCTION, DEW CONDENSATION	
		*** ACCESSORIES & PACKING MATERIALS (KIT) ***	
		**********	
	A-6767-767-A	RFU ADAPTOR (RFU-89EA) (UK MODEL)	
	A-6768-254-A	RFU ADAPTOR (RFU-90E) (AEP MODEL)	
	1-571-164-11	SWITCH, ANTENNA CHANGE (CABLE) (UK MODEL)	
	3-712-673-01	SCREWDRIVER (UK MODEL)	
	3-741-582-01	BELT, SHOULDER	
*	3-942-771-01	INDIVIDUAL CARTON	
**		AC ADAPTOR (AC-V35)	
***		BATTERY PACK (NP-66)	

Note

** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.
*** MARK PARTS ARE AVAILABLE AS OPTIONAL ACCESSORIES.

****

HARDWARE LIST
****

7-621-155-01 STEEL BALL 3.0
7-621-255-50 SCREW +P 2X8
7-627-553-48 PRECISION SCREW +P 2X4 TYPE 3
7-632-701-38 TAPE, POLYESTER (#630) (6MMX30M)
7-671-156-01 BALL, STAINLESS

****

CK-52P board is all the same as CK-43P except for the following parts.

	CCD-F355E CK-52P		CCD-AU230/F350/F350EPAK CK-43P	
Ref.No.	Part No.	Description	Part No.	Description
	A-7062-759-A	CK-52P BOARD, COMPLETE (Ref.No. 4,000 Series)	A-7062-200-A	CK-43P BOARD, COMPLETE (Ref.No. 4,000 Series)
IC651	8-759-154-36	IC uPD75088GB-SCX981G	8-759-149-16	IC uPD75088GB-516

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

CCD-AU300/F355E/F355EPK
RMT-506

SONY
SERVICE MANUAL

AEP Model
UK Model
CCD-F355E
E Model
CCD-F355E/F355EPK
Australian Model
CCD-AU300

SUPPLEMENT-1

Change of RM board

- Three items for RM-51P board are changed as follows.
  And each change is not overlapped.

  1. Adding RM-58 board to RM-51P board

  2. Changing RM-51P board to RM-59 board

  3. Changing IC101 on RM-51P board

Page	Ref. No.	FORMER		NEW	
		Part No.	Description	Part No.	Description
22	IC101	8-752-819-57	IC CXP80116-834Q	8-752-831-41	IC CXP80116-838Q

  When servicing RM board, following procedures should be adopted respectively.

  1. RM-58 board should not be supplied newly.
     After exchanging RM-58 board, replace the IC101 on RM-51P board with the NEW TYPE above mentioned in 3.

  2. RM-59 board should not be supplied newly.
     After exchanging RM-59 board for the mounted RM-51P board (A-7062-771-A), replace the IC101 with the NEW TYPE above mentioned in 3.

  3. In case of exchanging RM-51P board, replace the IC101 on the mounted RM-51P board which is supplied with the NEW TYPE.

- IC102 on RM-51P board change

Page	Ref. No.	FORMER		NEW	
		Part No.	Description	Part No.	Description
22	IC102	8-759-946-03	IC S-8054ALR-LN-S	8-759-937-56	IC S-8054ALB-LM-S

SECTION 4

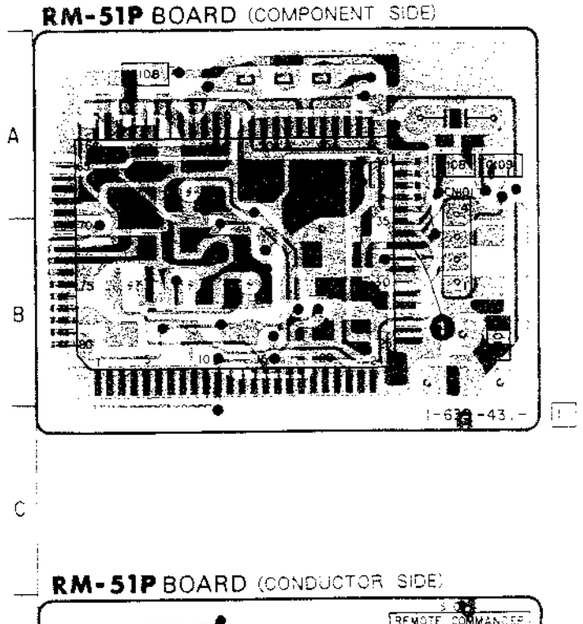
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

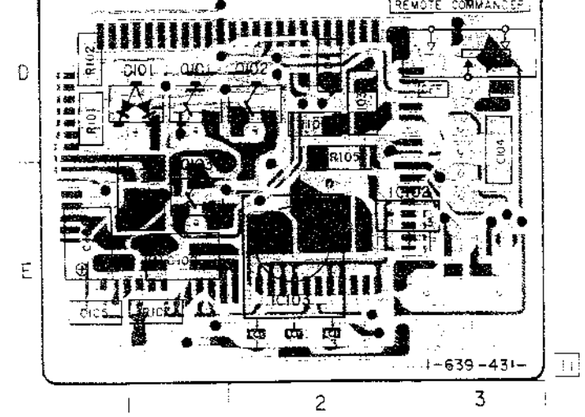
RM-51P (LANC CONTROL & RM RECEIVER), RC-46P (START/STOP SWITCH), RM-58 (VOLTAGE RISING CURVE ACCELERATOR) PRINTED WIRING BOARDS

— Ref. No. RC-46P BOARD: 10,000 series, RM-51P BOARD: 11,000 series, RM-58 BOARD: 13,000 series —

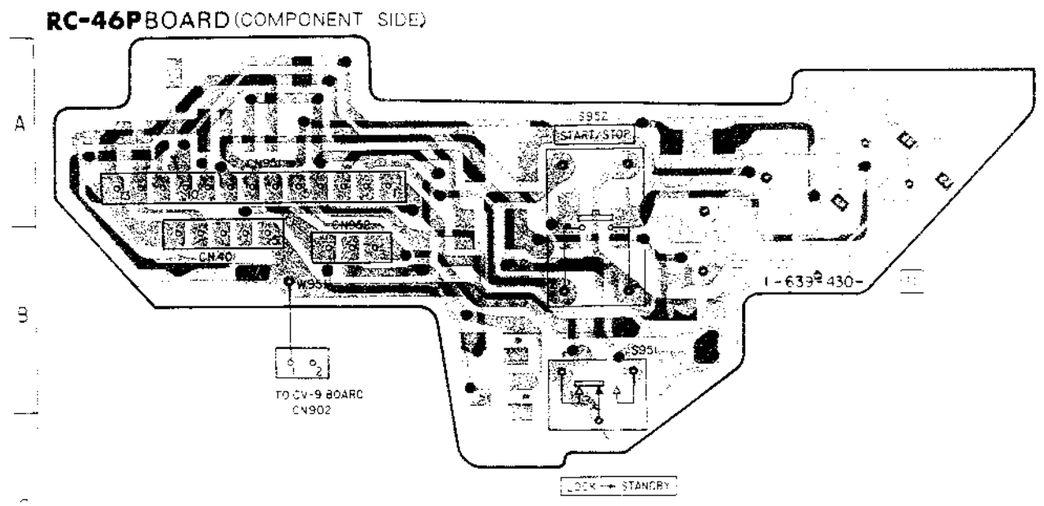
RM-51P BOARD (COMPONENT SIDE)



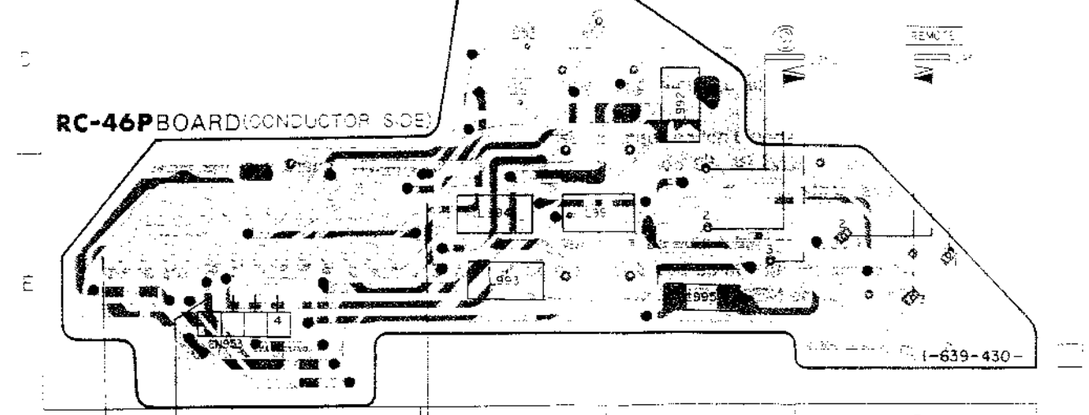
RM-51P BOARD (CONDUCTOR SIDE)



RC-46P BOARD (COMPONENT SIDE)



RC-46P BOARD (CONDUCTOR SIDE)



* A-7062-771-A RM-51P BOARD, COMPLETE
****
(Ref. No. 11,000 Series)

< DIODE >

D101 8-719-914-44 DIODE DAP202K

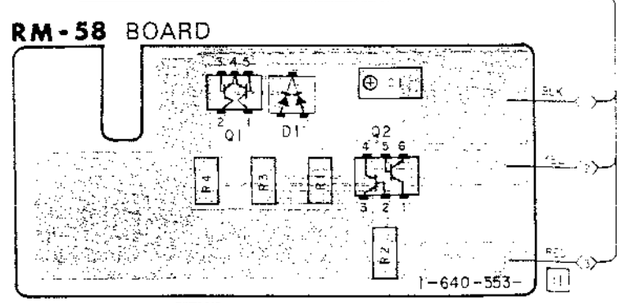
< IC >

IC101 8-752-813-57 IC CXP30116-934Q
IC102 8-753-945-93 IC S-8054ALR-LN-S
IC103 8-749-622-83 IC SENSOR, REMOCON ISiU604L

< TRANSISTOR >

Q101 8-729-931-01 TRANSISTOR DTC144EK
Q102 8-729-931-01 TRANSISTOR DTC144EK
Q103 8-729-991-01 TRANSISTOR DTC144EK

RM-58 BOARD



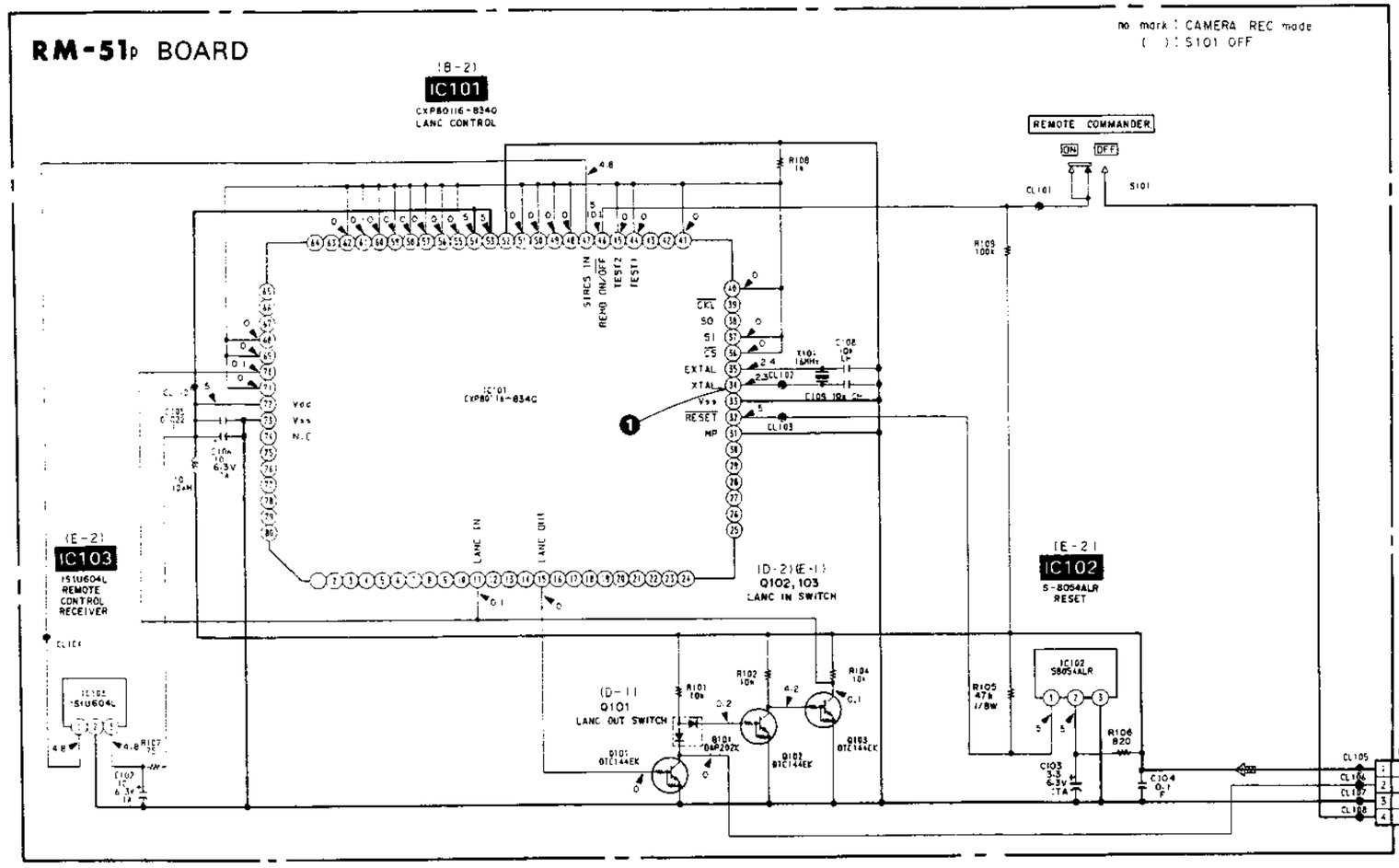
RM-58 BOARD (Ref. No. 13,000 Series)
****

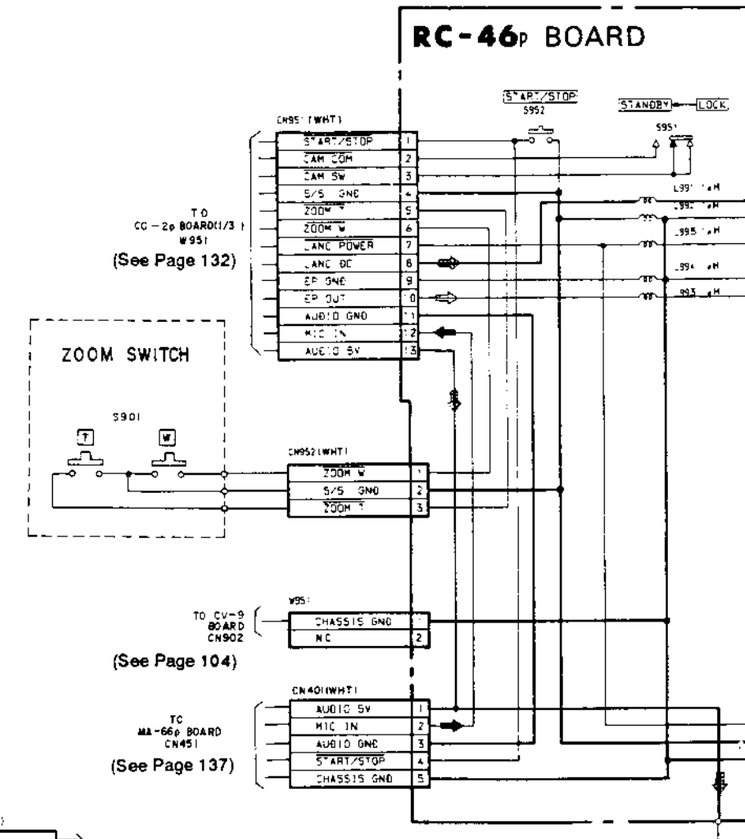
< DIODE >

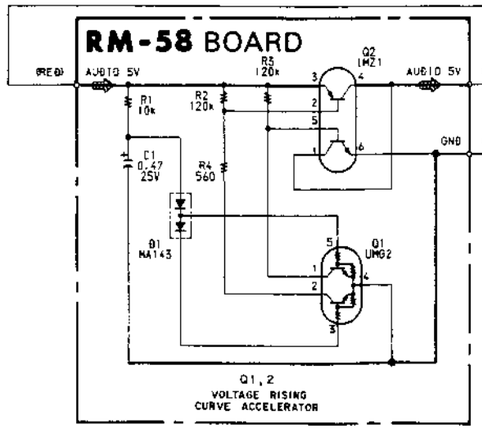
D001 8-719-404-52 DIODE MA143

< TRANSISTOR >

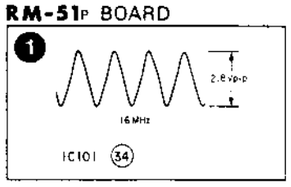
Q001 8-729-907-74 TRANSISTOR UMG2
Q002 8-729-907-47 TRANSISTOR UMZ1





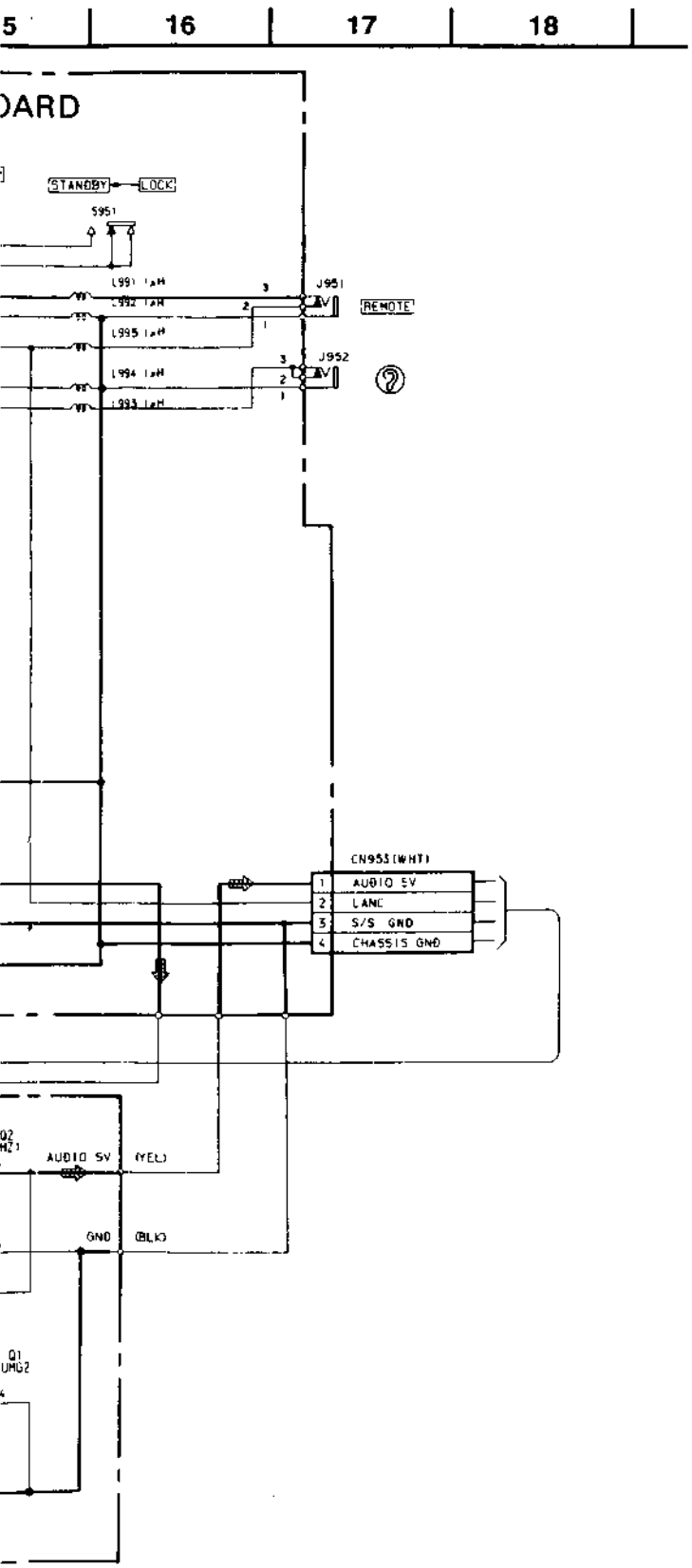


RM-51P BOARD



• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨



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

- **For printed wiring boards.**
- ○— : indicated a lead wire mounted on the component side.
- —— : indicated a lead wire mounted on the conductor side.
- ● : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- Circled numbers refer to waveforms.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the pattern face are indicated.

- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- : adjustment for repeair.
- : B+ Line.
- : IN/OUT direction of (+, –) B LINE.
- Circled numbers refer to waveforms.

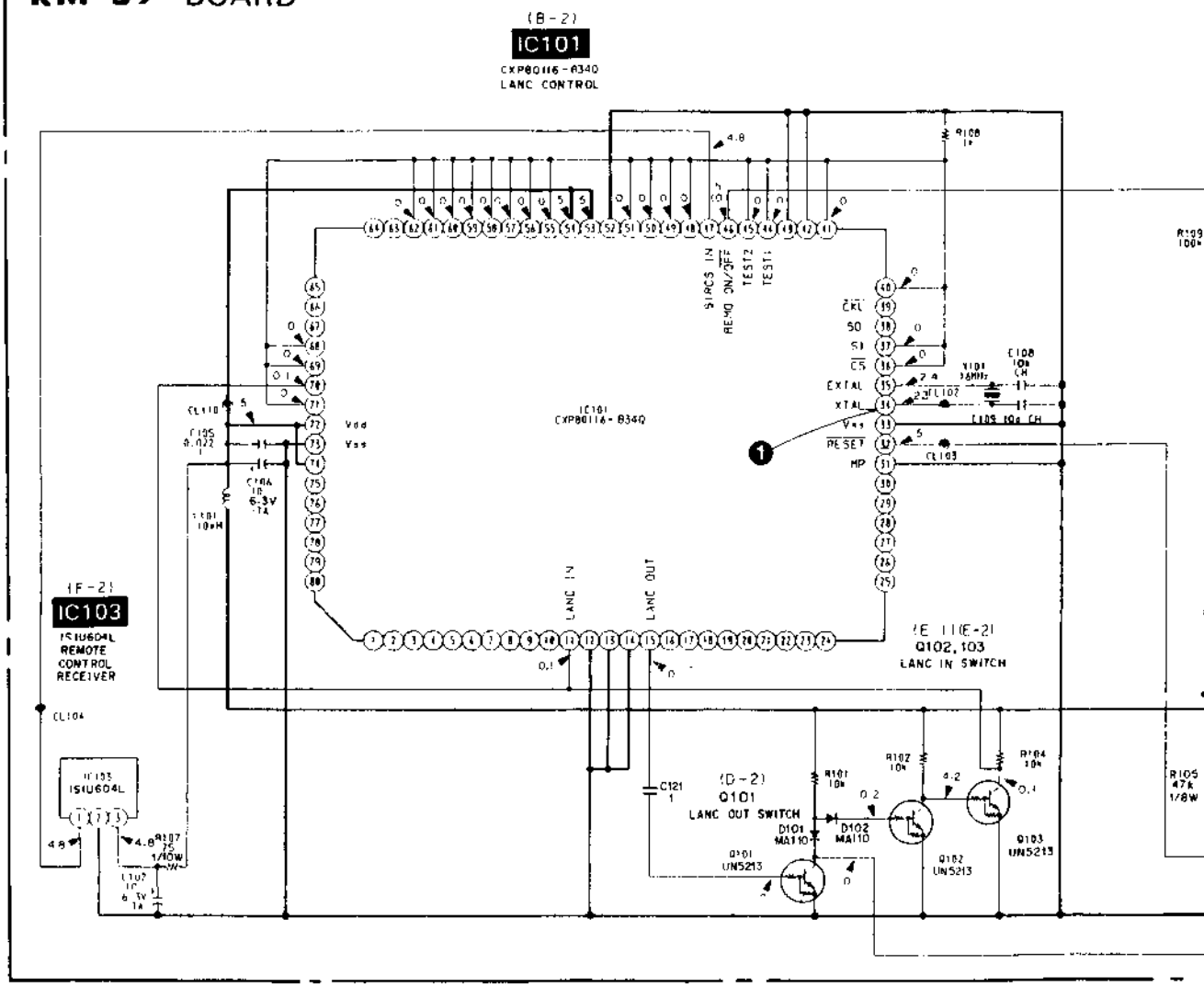
Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safty. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

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

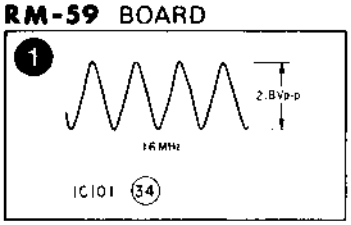
RM-59 (LANC CONTROL, RM RECEIVER, VOLTAGE RISING CURVE ACCELERATOR), RC-46P (START/STOP SWITCH)

— Ref. No. RC-46P BOARD: 10,000 series, RM-59 BOARD: 12,000 series —

RM-59 BOARD

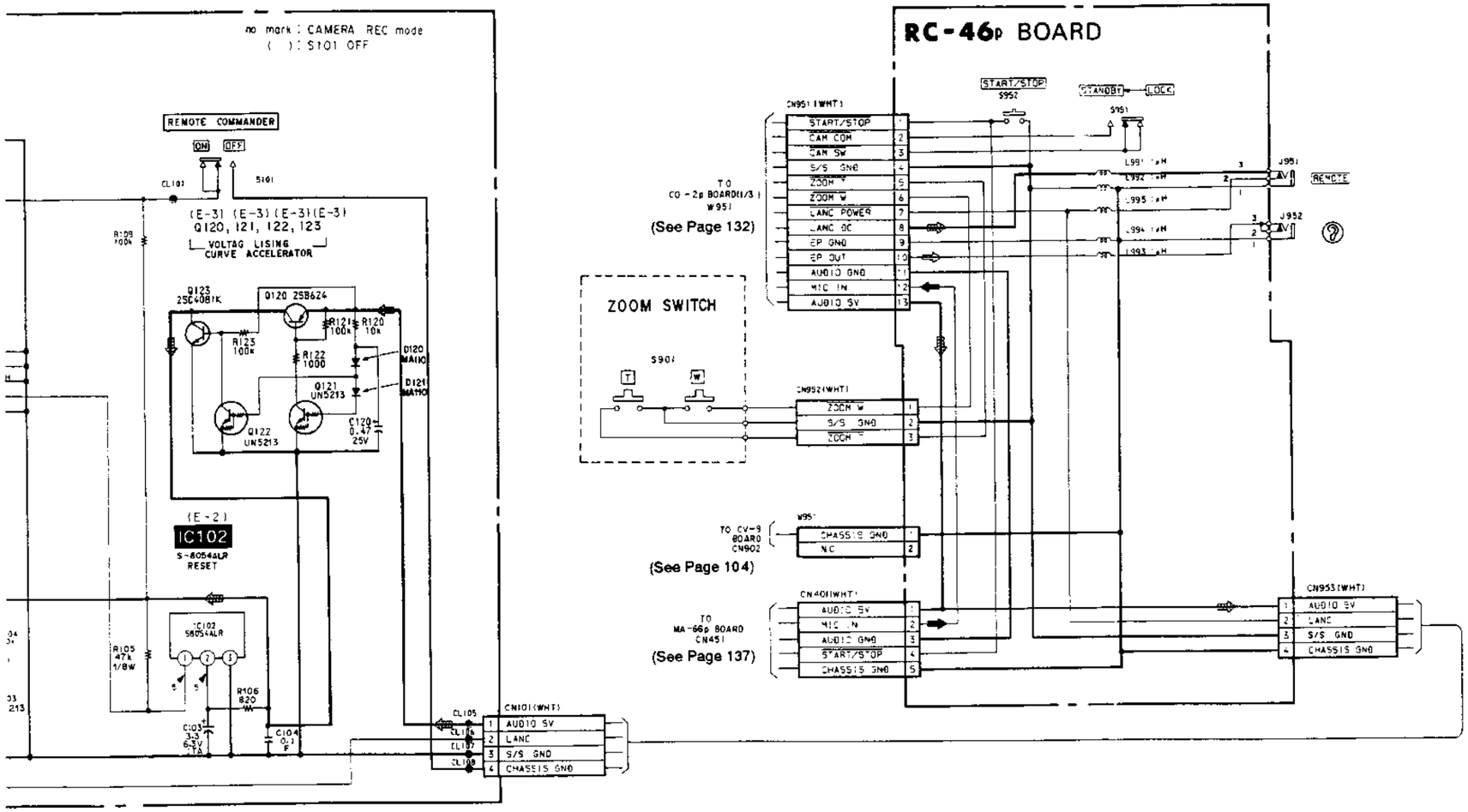


RM-59 BOARD



LANC CONTROL

8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18



• **SIGNAL PATH (ANALOG)**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

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

- **For printed wiring boards.**
- ○— : indicated a lead wire mounted on the component side.
- —— : indicated a lead wire mounted on the conductor side.
- ● : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- Circled numbers refer to waveforms.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the pattern face are indicated.

- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/16W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- : adjustment for repeair.
- : B+ Line.
- : IN/OUT direction of (+, −) B LINE.
- Circled numbers refer to waveforms.

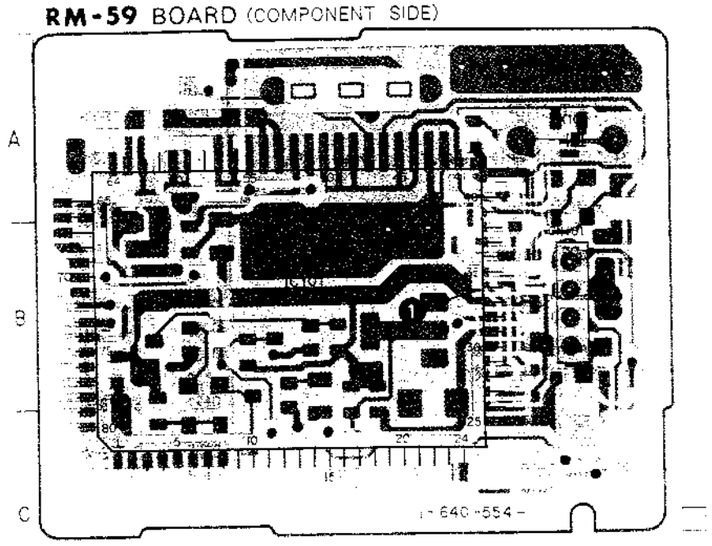
Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safty. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

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

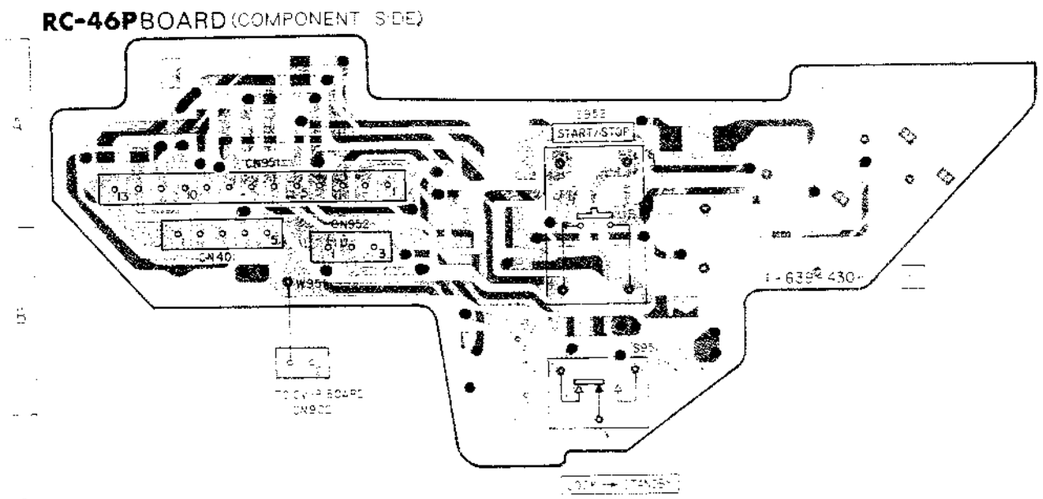
RM-59 (LANC CONTROL, RM RECEIVER, VOLTAGE RISING CURVE ACCELERATOR), RC-46P (START/STOP SWITCH) PRINTED WIRING BOARDS

— Ref. No. RC-46P BOARD: 10,000 series, RM-59 BOARD: 12,000 series —

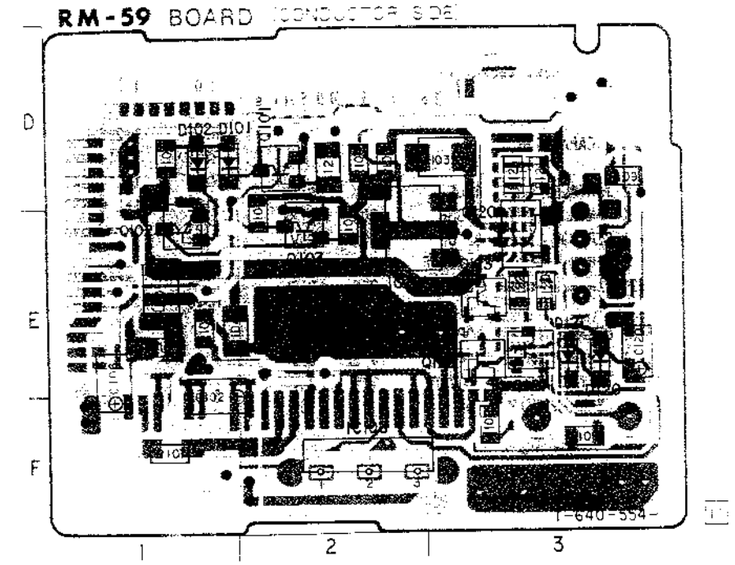
RM-59 BOARD (COMPONENT SIDE)



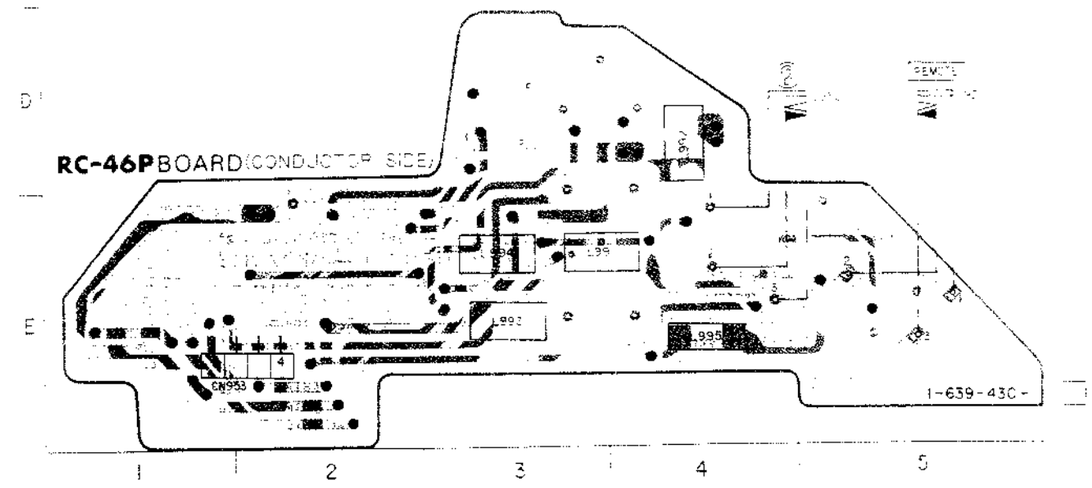
RC-46P BOARD (COMPONENT SIDE)



RM-59 BOARD (CONDUCTOR SIDE)



RC-46P BOARD (CONDUCTOR SIDE)



A-7062-771-A RM-59 BOARD, COMPLETE

****

(Ref. No. 12,000 Series)

< DIODE >

D101	8-719-404-46	DIODE	MA110
D102	8-719-404-46	DIODE	MA110
D120	8-719-404-46	DIODE	MA110
D121	8-719-404-46	DIODE	MA110

< IC >

IC101	8-752-831-41	IC	CXP80116-838Q
IC102	8-759-946-03	IC	S-8054ALR
IC103	8-749-922-63	IC	SENSOR, REMOCON IS1U60L

< TRANSISTOR >

Q101	8-729-402-42	TRANSISTOR	UN5213
Q102	8-729-402-42	TRANSISTOR	UN5213
Q103	8-729-402-42	TRANSISTOR	UN5213
Q120	8-729-141-48	TRANSISTOR	2SB624-BV345
Q121	8-729-402-42	TRANSISTOR	UN5213
Q122	8-729-402-42	TRANSISTOR	UN5213
Q123	8-729-402-32	TRANSISTOR	2SD1819A-R

SECTION 6
ELECTRICAL PARTS LIST

RC-46P **RM-51P**

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items
- SEMICONDUCTORS
  In each case, μ: μ, for example
  uA... μA..., uPA... μPA...
  uPB... μPB..., uPC... μPC...
  uPD... μPD...
- CAPACITORS
  uF: μF
- COILS
  uH: μH

Ref. No.	Part No.	Description	Remark
	* A-7071-419-A	RC-46P BOARD, COMPLETE	
		********** (Ref. No 10,000 Series)	
		< CONNECTOR >	
CN401	1-566-760-11	PIN, CONNECTOR (PC BOARD) 5P	
CN951	* 1-568-521-11	PIN, CONNECTOR (PC BOARD) 13P	
CN952	* 1-566-182-11	PIN, CONNECTOR (PC BOARD) 3P	
CN953	1-580-057-11	PIN, CONNECTOR 4P	
		< JACK >	
J951	1-565-276-21	JACK, ULTRA SMALL 4P (REMOTE)	
J952	1-507-921-00	JACK (EARPHONE)	
		< COIL >	
L991	1-410-369-11	INDUCTOR CHIP 1uH	
L992	1-410-369-11	INDUCTOR CHIP 1uH	
L993	1-410-369-11	INDUCTOR CHIP 1uH	
L994	1-410-369-11	INDUCTOR CHIP 1uH	
L995	1-410-192-51	INDUCTOR CHIP 1uH	
		< SWITCH >	
S951	1-553-977-00	SWITCH, SLIDE (STANDBY/LOCK)	
S952	1-571-838-11	SWITCH, TACTIL (START/STOP)	
		**********	
	* A-7062-771-A	RM-51P BOARD, COMPLETE	
		********** (Ref. No 11,000 Series)	
		< CAPACITOR >	
C102	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C103	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C104	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C105	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C106	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C108	1-163-227-11	CERAMIC CHIP 10PF 5% 50V	
C109	1-163-227-11	CERAMIC CHIP 10PF 5% 50V	
		< CONNECTOR >	
CN101	* 1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P	
		< DIODE >	
D101	8-719-914-44	DIODE DAP202K	
		< IC >	
IC101	8-752-831-41	IC CXP80116-838Q	
IC102	8-759-946-03	IC S-8054ALR-LN-S	
IC103	8-749-922-63	IC SENSOR, REMOCON #S1U604L	
		< COIL >	
L101	1-412-029-11	INDUCTOR CHIP 10uH	
		< TRANSISTOR >	
Q101	8-729-901-01	TRANSISTOR DTC144EK	
Q102	8-729-901-01	TRANSISTOR DTC144EK	
Q103	8-729-901-01	TRANSISTOR DTC144EK	
		< RESISTOR >	
R101	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R102	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R104	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R105	1-216-238-00	METAL CHIP 47K 5% 1/8W	
R106	1-216-047-00	METAL CHIP 820 5% 1/10W	
R107	1-216-022-00	METAL CHIP 75 5% 1/10W	
R108	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R109	1-216-097-00	METAL CHIP 100K 5% 1/10W	
		(SWITCH)	
S101	1-553-977-00	SWITCH, SLIDE (REMOTE COMMANDER ON/OFF)	
		(CRYSTAL)	
X101	1-567-927-11	VIBRATOR, CERAMIC (16MHz)	

RM-58 **RM-59**

Ref. No.	Part No.	Description	Remark
		**********	
		RM-58 BOARD (Ref. No. 13,000 Series)	
		**********	
		(CAPACITOR)	
C001	1-135-145-11	TANTALUM CHIP 0.47uF 20% 25V	
		(DIODE)	
D001	8-719-404-52	DIODE MA143	
		(TRANSISTOR)	
D001	8-729-907-74	TRANSISTOR UMG2	
Q002	8-729-907-47	TRANSISTOR IMZ1	
		(RESISTOR)	
R001	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R002	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R003	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R004	1-216-043-00	METAL CHIP 560 5% 1/10W	
		**********	
	A-7062-771-A	RM-59 BOARD, COMPLETE (RM-51P)	
		********** (Ref. No. 12,000 Series)	
		(CAPACITOR)	
C102	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C103	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C104	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C105	1-162-995-11	CERAMIC CHIP 0.022uF 50V	
C106	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C108	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C109	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C120	1-135-145-11	TANTALUM CHIP 0.47uF 10% 25V	
C121	1-164-634-11	CERAMIC CHIP 1uF 16V	
		(CONNECTOR)	
CN101	* 1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P	
		(DIODE)	
D101	8-719-404-46	DIODE MA110	
D102	8-719-404-46	DIODE MA110	
D120	8-719-404-46	DIODE MA110	
D121	8-719-404-46	DIODE MA110	
		(IC)	
IC101	8-752-831-41	IC CXP80116-838Q	
IC102	8-759-946-03	IC S-8054ALR	
IC103	8-749-922-63	IC SENSOR, REMOCON #S1U604L	
		(COIL)	
L101	1-410-381-11	INDUCTOR CHIP 10uH	
		(TRANSISTOR)	
Q101	8-729-402-42	TRANSISTOR UN5213	
Q102	8-729-402-42	TRANSISTOR UN5213	
Q103	8-729-402-42	TRANSISTOR UN5213	
Q120	8-729-141-48	TRANSISTOR 2SB624-BV345	
Q121	8-729-402-42	TRANSISTOR UN5213	
Q122	8-729-402-42	TRANSISTOR UN5213	
Q123	8-729-402-32	TRANSISTOR 2SD1819A-R	
		(RESISTOR)	
R101	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R102	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R104	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R105	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R106	1-216-820-11	METAL CHIP 820 5% 1/16W	
R107	1-216-022-00	METAL CHIP 75 5% 1/10W	
R108	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R109	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R120	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R121	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R122	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R123	1-216-845-11	METAL CHIP 100K 5% 1/16W	
		(SWITCH)	
S101	1-553-977-00	SWITCH, SLIDE (REMOTE COMMANDER ON/OFF)	
		(CRYSTAL)	
X101	1-567-927-11	VIBLATOR, CERAMIC (16MHz)	
		**********	

Published by Customer Relations and Service Group 9-973-12

SERVICE MANUAL

CCD-F350E

AEP Model
UK Model
CCD-F350E
E Model
CCD-F350E/F350EPAK
Australian Model
CCD-AU230

Handycam
Video 8

U MECHANISM

For MECHANUSM ADJUSTMENTS, refer to the "8 mm Video MECHANUSM ADJUSTMENT MANUAL III (U MECHANISM)" (9-972-732-11).

SPECIFICATIONS

System

Video recording system	Rotary two heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	PAL colour, CCIR standards
Usable cassette	8 mm video format cassette
Tape speed	SP: Approx. 20.051 mm/sec. LP: Approx. 10.058 mm/sec.
Recording	SP mode: 1 hour 30 min. (P5-90) LP mode: 3 hours (P5-90)
Playback time	SP mode: 1 hour 30 min. (P5-90) LP mode: 3 hours (P5-90)
Fast forward/rewind time	Approx. 6 min. 30 sec. (P5-90)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (black and white)
Lens	Combined 6 × power zoom lens f=7–42 mm, F 1.4 with macro Filter diameter: 46 mm
Auto focus system	TTL
Colour temperature	AUTO, HOLD ☼ (indoor) 3,200 K • (outdoor) 5,800 K
Minimum illumination	5 lux
Illumination range	5 lux–100,000 lux (0.5–9,294 footcandles)
Recommended illumination	More than 300 lux (28 footcandles)
Aperture correction	Automatic Back light adjustment

Input and output connector

Video output*	Phono jack, 1 Vp-p, 75 ohms unbalanced sync negative
Audio output*	Phono jack, −7.5 dBs, (at output impedance less than 2.2 kilohms)
RFU DC OUT	Special minijack, DC 5 V
Video input	Phono jack, 1 Vp-p, 75 ohms unbalanced, sync negative
Audio input	Phono jack, −7.5 dBs, input impedance more than 47 kilohms
Earphone jack	Minijack, 8-ohm impedance
Remote jack	Stereo mini-minijack
MIC jack	Minijack, −66 dBs, low impedance with 2.5 – 3 V DC output, impedance 6.8 kilohms
Microphone power output jack	Special minijack, 5V DC

*CCD-AU230/F350E (E model) only have output connector.

– Continued on next page –

MICROFILM

8 VIDEO CAMERA RECORDER

SONY

General

Power requirements	
	On battery mounting surface 6.0 V (battery pack) 7.5 V (AC power adaptor) 9.0 V (alkaline batteries)
Power consumption	
	6.9 W (camera recording) including the viewfinder
Installation	Vertically, horizontally
Operating temperature	
	0°C to 40°C
Storage temperature	
	-20°C to +60°C
Dimensions	Approx. 122 × 153 × 317 mm (w/h/d) including lens hood
Weight	Approx. 1.2 kg excluding the battery and cassette
Microphone	Electret condenser microphone, omni directional monaural type

Design and specifications are subject to change without notice.

Supplied accessories

- Battery pack
  NP-55 (1) (AU230/F350E (E model))
  NP-66 (1) (F350E (AEP, UK model))
- AC Power adaptor AC-V35 (1)
- RF-U adaptor
  RFU-90AS (1) (AU230)
  RFU-90E (1) (F350E (AEP, model))
  RFU-89EA (1) (F350E (UK, E model))
  With the RFU-89EA, an aerial selector and a screwdriver are supplied
- Lithium battery CR2025 (1)
- Lens cap (1)*
- Shoulder strap (1)

Note

CCD-F350EPAK is model that carring case is added in CCD F350E.

Only accessories and packing materials (See page 193) are different from those in CCD-F350E.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red sa shown below. This enables to find the location on the board easily when servicing.

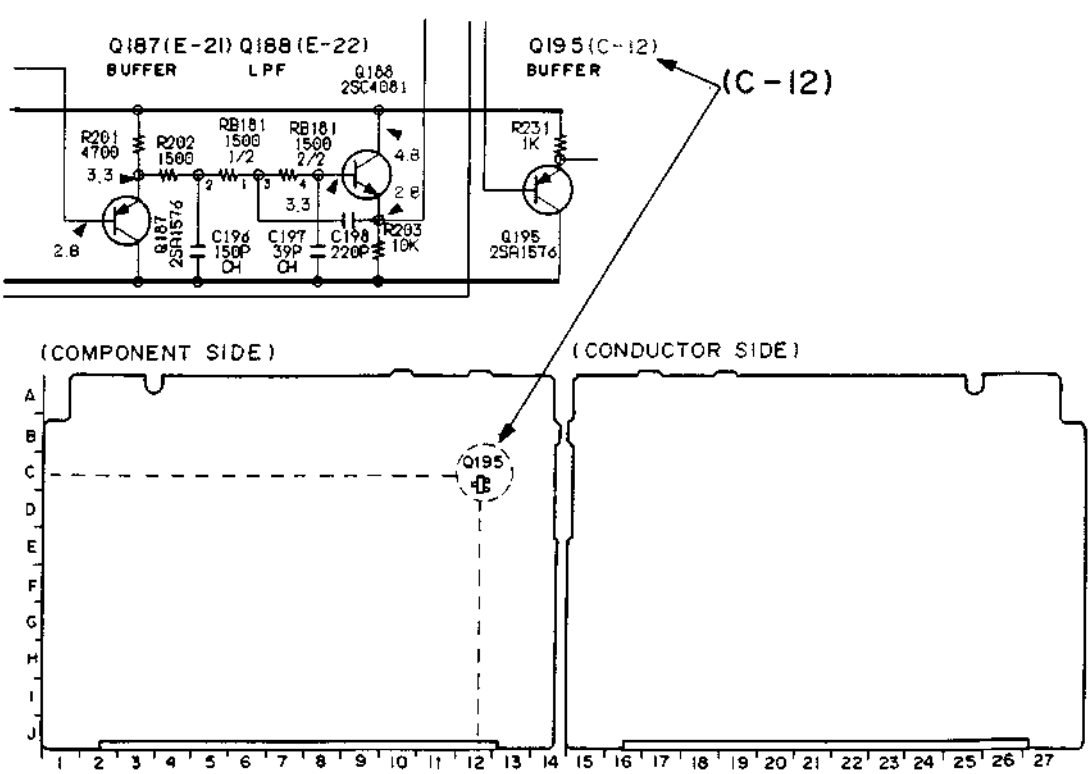


TABLE OF CONTENTS

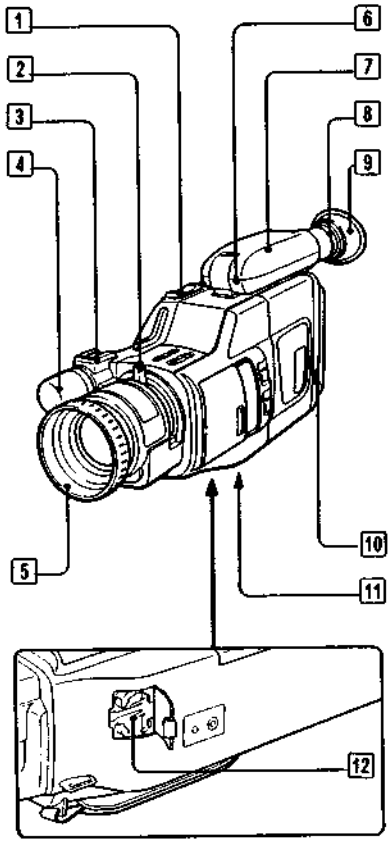
Refer to the separate "8 mm Video Mechanical Adjustment Manual III U Mechanism" for adjustment and checking of the mechanism block and for replacement of mechanical parts.

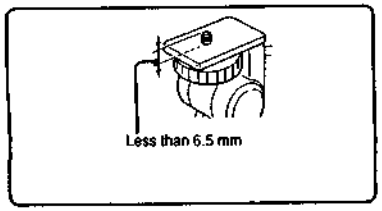
SECTION 1
GENERAL

This section is extracted from CCD-F350E (E Model) / AU230 instruction manual

Identifying the Parts

(A-1)





For details on the use of each control, refer to the pages indicated in the circle.

(A-1)

1 **Power zoom button**

2 **Zoom lever and Macro button**

3 **Accessory shoe**
Attach an external microphone video light, etc.

4 **Built-in microphone (monaural)**

5 **Lens hood**
Also functions as focus ring.

6 **Camera recording/battery lamp**
Lights during camera recording. It blinks when the battery is exhausted.

7 **Viewfinder**
The picture being recorded or played back can be monitored in monochrome here. Also, data such as caution indications and function mode are displayed on the viewfinder screen.

8 **Viewfinder lens adjustment ring**
Adjust to your eyesight to assure good focus. Be sure to adjust this ring when shooting for the first time.

9 **Eyecup**

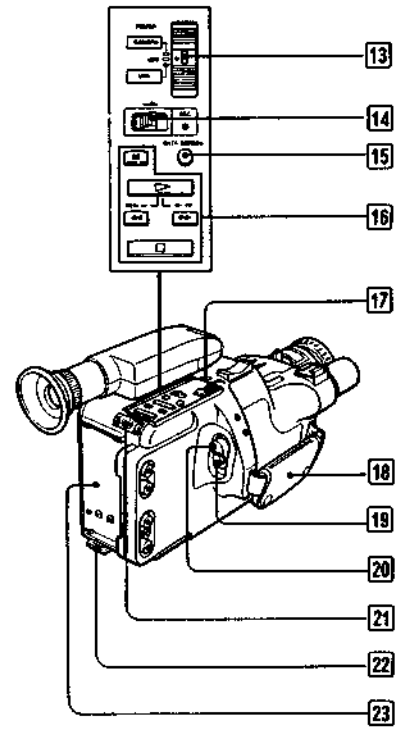
10 **BATT (battery eject) knob** ❸

11 **Tripod receptacle (bottom)**

12 **Lithium battery compartment** ❺

Note when attaching a tripod not manufactured by Sony
When attaching a tripod not manufactured by Sony, the length of the camera mounting screw must be less than 6.5 mm.
Otherwise the screw may damage the inner parts of the camera.

(A-2)



(A-2)

13 **POWER switch**
CAMERA: For camera recording
VTR: For playing back or editing tapes
OFF: Power off

14 **● REC (recording) switch**
Slide in the direction of the arrow.

15 **DATA SCREEN button**
Press to display the indication on the viewfinder screen on the TV.

16 **Tape transport buttons**
▷ (playback)
▶▶ FF (fast forward)
◀◀ REW (rewind)
□ (stop)
II (pause)

17 **REC MODE (recording mode)/EDIT switch**

Switch it depending on the operating mode.

Mode	Recording	Playback	Editing
Setting	REC MODE SP LP	EDIT	EDIT
Function	Recording mode switch	EDIT switch	

18 **Grip belt**

19 **START/STOP button**
Press to start and stop camera recording.

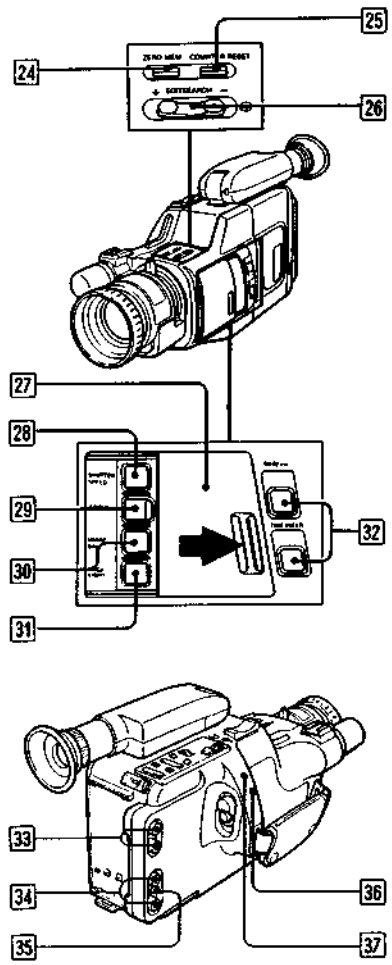
20 **STANDBY switch**
Slide up to STANDBY to set the unit to recording pause mode.

21 **EJECT (cassette eject) button**

22 **Hook for shoulder strap**
Attach a shoulder strap.

23 **Battery mounting surface**

(A-3)



(A-3)

24 **ZERO MEM (zero memory) button**
Used to memorize the counter zero point.

25 **COUNTER RESET button**
Press to reset the counter to zero.

26 **EDITSEARCH (and recording review) button**

27 **AUTO LOCK cover**
Keep this cover closed when adjusting the focus, white balance, or shutter speed automatically. To adjust them manually, slide open this cover so that the buttons inside can be seen.

28 **SHUTTER SPEED button**
Used to select the shutter speed.

29 **FOCUS button**
Used for manual focusing.

30 **WHITE BAL (balance) button**
Used for manual white balance adjustment.

31 **BACK LIGHT button**

32 **DATE (+) and TIME (NEXT) buttons**
Press to display or turn off the date or time.

33 **VIDEO/AUDIO IN (input) jacks (phono jacks)**

34 **VIDEO/AUDIO OUT (output) jacks (phono jacks)**

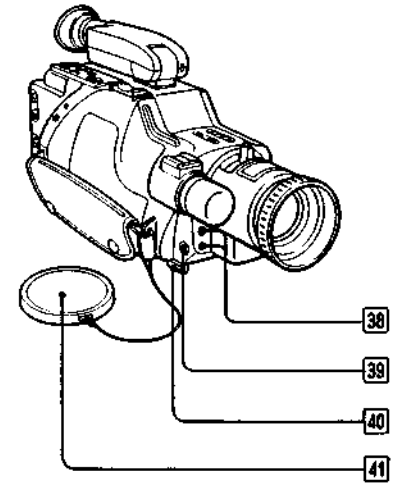
35 **RFU DC OUT (RFU adaptor DC output) jack (special minijack)**
Supplies power to the RFU adaptor.

36 **Ω (earphone) jack (minijack)**

37 **REMOTE Ψ connector (stereo mini-minijack)**
Connect an optional GP-80 wired Remote Commander or RM-95 wired Remote Commander .
Do not connect other equipment.

About Ψ
Ψ means the LANC connector.
Ψ stands for Local Application Control Bus System. The Ψ connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE

(A-4)



(A-4)

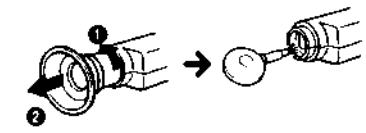
38 **MIC jack and DC OUT (microphone power output) jack**
Connect an external microphone.
The MIC jack accepts Sony "plug-in-power" microphones and supplies power to them.

39 **REC START/STOP button for low position**

40 **Hook for shoulder strap**
Attach a shoulder strap.

41 **Lens cap**
Squeeze both sides of the lens cap to remove it.

(A-5)



(A-5)

To remove dust from inside the viewfinder
Detach the eyecup as illustrated and clean the surface of the screen with a blower.

Connecting the Power Sources

First, Choose the Power Source.

Place	Power source	Accessory to be used
Outdoors	Battery pack	Battery pack NP-55, NP-66H, NP-77H or NP-77
	Alkaline batteries	Battery case EBP-77 or EBP-55
Indoors	House current	AC power adaptor AC-V35, AC-V30 or AC-V55
In the car	12V or 24V car battery	DC pack DCP-55, or AC power adaptor AC-V55 and car battery cord DCC-16AE

Note on power sources
Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. In this case supply the power again immediately.

Using the Battery Pack

Step 1

Charge the battery pack. (B-1)

1 **Connect the AC power adaptor to a wall outlet.**

2 **Align the groove on the battery pack with that on the AC power adaptor.**

3 **Slide in the battery pack to the right.**

4 **Set the CHARGE/VTR selector to CHARGE.**

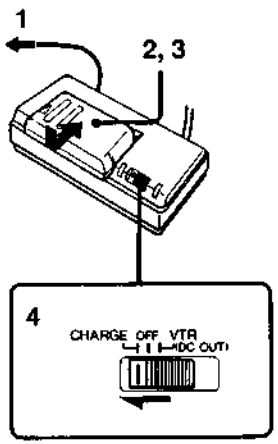
Charging time

	NP-55	NP-66H	NP-77	NP-77H
Required charging time	60	100	120	140

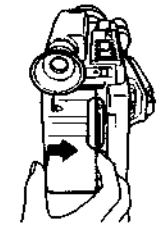
(approx. minutes using AC-V35)

See the instruction manual of the AC power adaptor for details.

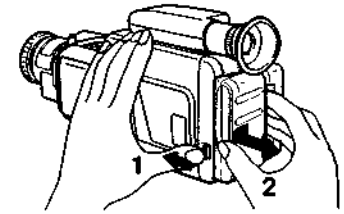
(B-1)



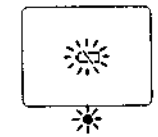
(B-2)



(B-3)



(B-4)



Step 2

Mount the battery pack on the camcorder. (B-2)

1 **Align the right side of the battery pack with the white line on the camcorder.**

2 **Slide in the battery pack to the right.**
Note: Make sure the battery fits completely on the mounting surface of the camcorder. Imperfect fit may damage the projections on the camcorder.

To remove the battery pack (B-3)
Slide BATT in the arrow direction, and at the same time, slide out the battery pack to the left.

Battery life
A fully charged battery pack lasts for:

	NP-55	NP-66H	NP-77	NP-77H
Battery life	40	75	80	115

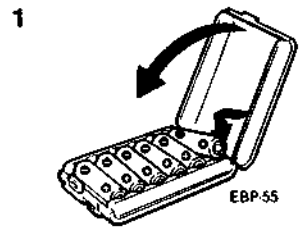
(approx. minutes)

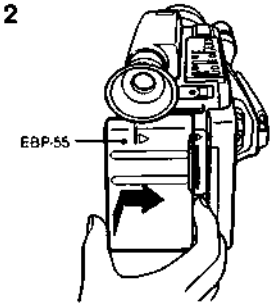
When the battery becomes weak, the ⌧ indication and red lamp blink in the viewfinder.
(B-4)
Replace the battery pack with a fully charged one.

Other options for charging
- AC-V55 AC power adaptor:
  You can charge two battery packs simultaneously.
- BC-55, BC-77 portable battery charger:
  You can charge a battery pack on 100–240 V AC.
- DC-V30 car battery charger:
  You can charge a battery pack by connecting the car battery charger to the cigarette lighter socket.

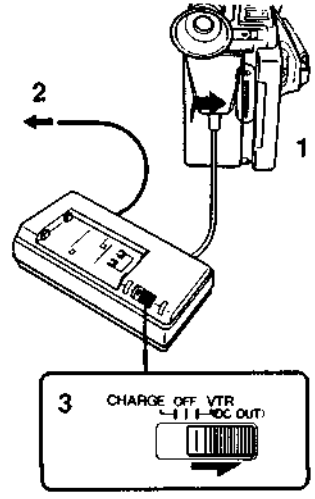
If you have an NP-4000
You can use it for long outdoor recording.

(B-5)





(B-6)



Using Alkaline Batteries

(B-5)
The EBP-55 or EBP-77 battery case is required (not supplied).

1 Insert the R6 alkaline batteries into the battery case.
(6 batteries for EBP-55 and 12 batteries for EBP-77)

2 Attach the case in the same way as the battery pack.

Battery life (when using Sony alkaline batteries)

	EBP-77	EBP-55
Battery life	120	40

(approx. minutes)

Notes on battery life
- Batteries will not last as long in cold places.
- No indication appears in the viewfinder to warn of a weak battery.

Using House Current

(B-6)

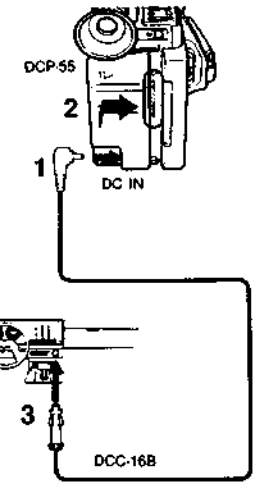
1 Align the right side of the connecting plate with the line on the camcorder, and slide it in to the right.

2 Connect the AC power adaptor to a wall outlet.

3 Set the CHARGE/VTR selector of the AC power adaptor to VTR.
See the instruction manual of the AC power adaptor for details.

Other option
The AC-V55 AC power adaptor can also be used.

(B-7)



Using Car Battery

(B-7)
The DCP-55 DC pack is required (not supplied).

1 Insert the DCC-16B car battery cord supplied with the DCP-55 DC pack into the DC IN jack on the DC pack.

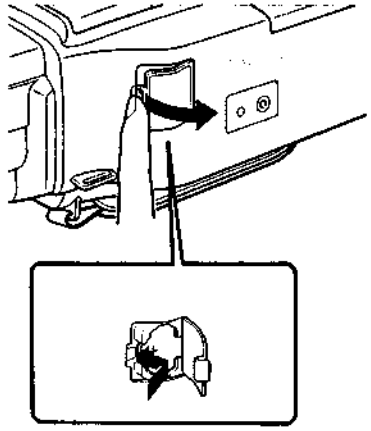
2 Align the right side of the DC pack with the line on the camcorder, and slide it in to the right.

3 Connect the DCC-16B car battery cord to the cigarette lighter socket of a car (12 V or 24 V).

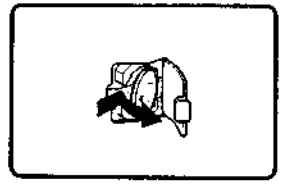
To remove the DC pack
While sliding BATT on the camcorder, slide out the DC pack.

Other options
The AC-V55 AC power adaptor and the DCC-16AE car battery cord can also be used to operate this camcorder on a 12 V or 24 V car battery.

(D-1)



(D-2)



Preparing your camcorder 2

Setting the Date and Time

Inserting the Lithium Battery

(D-1)

This camcorder uses a lithium battery to activate the clock .
Before operating it for the first time, attach the power source and then install the supplied lithium battery.

1 Open the cover of the lithium battery compartment on the bottom.

2 Install the supplied CR2025 lithium battery with the + side facing out.

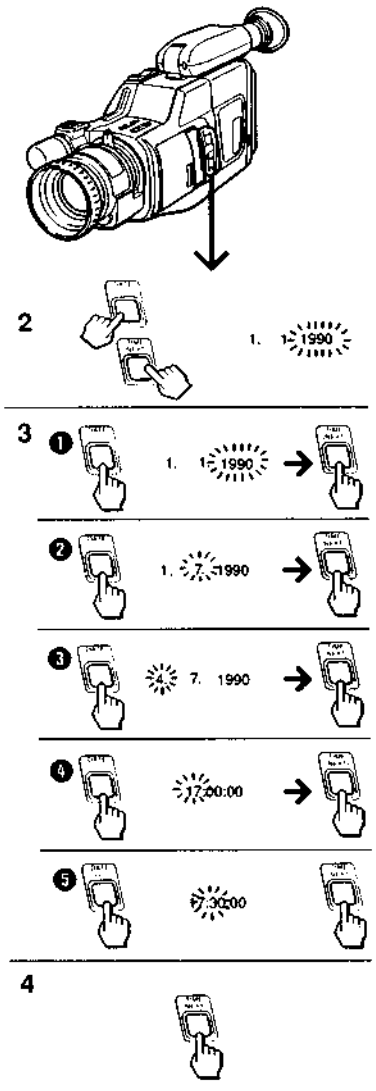
3 Close the cover.

To remove the lithium battery (D-2)
Press the side of the battery in the direction as indicated for installation.

Note on lithium battery life
The battery will last for approximately 1 year in normal operation.
When the lithium battery becomes weak, the time indication will blink on the viewfinder screen for about 5 seconds (when POWER is set to CAMERA). In this case, **replace the battery with a Sony CR2025 or a battery with one of the same type and rating.**
After replacing the battery, readjust the date and time. (If the battery is replaced while the battery pack is attached, the readjustments are not necessary.)

Cautions
- Keep the lithium battery out of the reach of children. Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to assure a good contact.
- Be sure to observe the correct polarity when installing the battery.
- Do not hold the battery with metallic tweezers, otherwise a short-circuit may occur.
- Battery may explode if mistreated. Do not recharge, disassemble or dispose of it in fire.

(D-3)



Setting the Date and Time

(D-3)

1 Make sure that a power source is connected, set POWER to CAMERA, and slide STANDBY up.

2 Press DATE and TIME simultaneously for more than 3 seconds until the date indication appears in the viewfinder.
DATE now functions as + (to advance numbers) and TIME functions as NEXT (to execute).

3 Adjust the year, month, day, hour and minute, in that order.
First adjust the blinking digits with +, and then press NEXT.

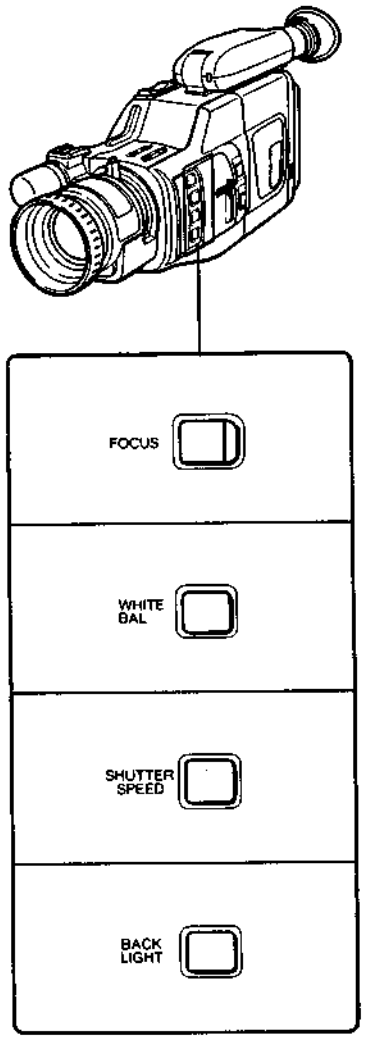
4 Press NEXT to set the second.
The clock starts operating.

To correct date and time setting
Repeat steps 2 to 4.

To advance the digits faster
Keep + pressed.

To check the preset date and time
Press DATE or TIME. When you press the same button again, the indication goes off.

(H)



Selecting the Automatic/ Manual Adjustment

When you keep the AUTO LOCK closed, the white balance, and focus are adjusted automatically and the shutter speed is set to 1/50. The automatic function offers you worry-free operation under most shooting conditions. But under certain circumstances, manual adjustment is better for effective recording. For manual adjustment, open the AUTO LOCK cover and select an appropriate setting.

Looking over each item (H)
Indications changes as follows.

Focus:
Autofocus frame (auto) ↔ ■ (manual)

White Balance:
No indication (auto) → HOLD → • → ☼

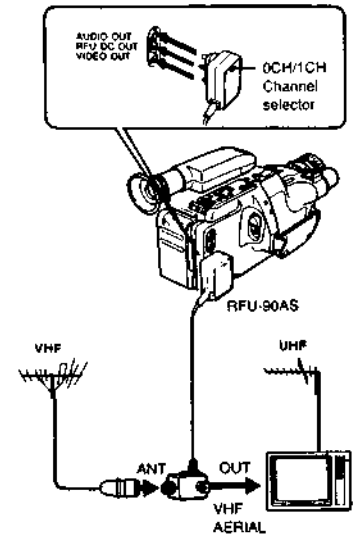
Shutter Speed:
No indication (1/50) → 120 → 250 → 1000 ← 2000 ← 4000

Back Light:
No indication ↔ (Back light)

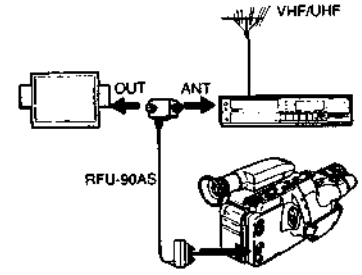
When you attach the battery at the first time
The white balance, focus and exposure are automatically adjusted and the shutter speed is set to normal speed (1/50) regardless of the position of the AUTO LOCK cover

Notes
- As long as you do not remove the battery, even if you set POWER to OFF, the previous settings are stored.
- If you close the AUTO LOCK cover after you have made a manual adjustment and open it again, the previous settings for manual adjustment will be later recalled.

(O-1)



(O-2)



Connections for Playback

To view the playback picture on the TV screen, the camcorder and the TV and/or VTR must be connected properly. Check the following connecting examples and go to the appropriate section to make the necessary connections.

Case 1 Connecting the camcorder directly to the TV without video/audio input jacks

Case 2 Connecting the camcorder directly to the TV with video/audio input jacks

Case 1: Connecting a TV without Video/Audio Input Jacks

For the customers supplied with the RFU-90AS

Step 1

Connecting an RFU adaptor and a TV (O-1)
- Use the supplied RFU adaptor.
- Make sure that the TV is turned off.
- Usually keep the RFU adaptor and the TV connected.

Step 2

Adjusting the TV
Adjust one of the TV progamme positions so that you can receive the camcorder's playback signal.

1 Select the RF unit selector on the adaptor to 0CH or 1CH, which ever is not active in your area.
2 Select the same channel on the TV.

If your TV is connected with a VTR
Disconnect the aerial connection for the TV and the VTR, and insert the RFU adaptor between them (O-2)

Trouble Check

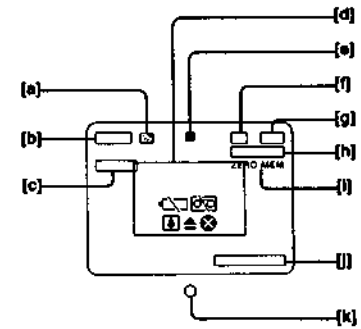
If an indication blinks in the viewfinder screen or a caution lamp on the main unit blinks, check the following table.

□ slow blinking □ fast blinking

	Symptom	Cause	Corrective actions
Camera operation **VTR operation**	 Battery lamp	The battery is weak.	Prepare a charged one.
	 Battery lamp	The battery is used up.	Use a charged battery.
Camera operation	 ⏏ Battery lamp	The tape is at its end.	Use a new tape.
	 Battery lamp	The tape is near its end.	Prepare a new one
		No tape is inserted.	Insert a tape.
	 ⏏	The tab on the tape is out (red).	Slide the tab.
Camera operation **VTR operation**	⊞ or ⏏ DEW lamp	Moisture condensation has occurred.	Remove the tape and leave the camcorder for at least an hour.
	● Caution lamp	The gap of the head is clogged.	Clean the head using the Sony V8-25CLH cleaning tape.
	⏏ Caution lamp	Other troubles may occur.	Consult your nearest Sony dealer.
	"0:00:00" blinks for 5 seconds in the viewfinder after setting POWER to CAMERA.	The lithium battery is not installed. The lithium battery is exhausted	Install the lithium battery.
	The current time blinks for 5 seconds in the viewfinder after setting POWER to CAMERA.	The lithium battery is weak.	Use a new battery

Indications Inside the Viewfinder

(W)

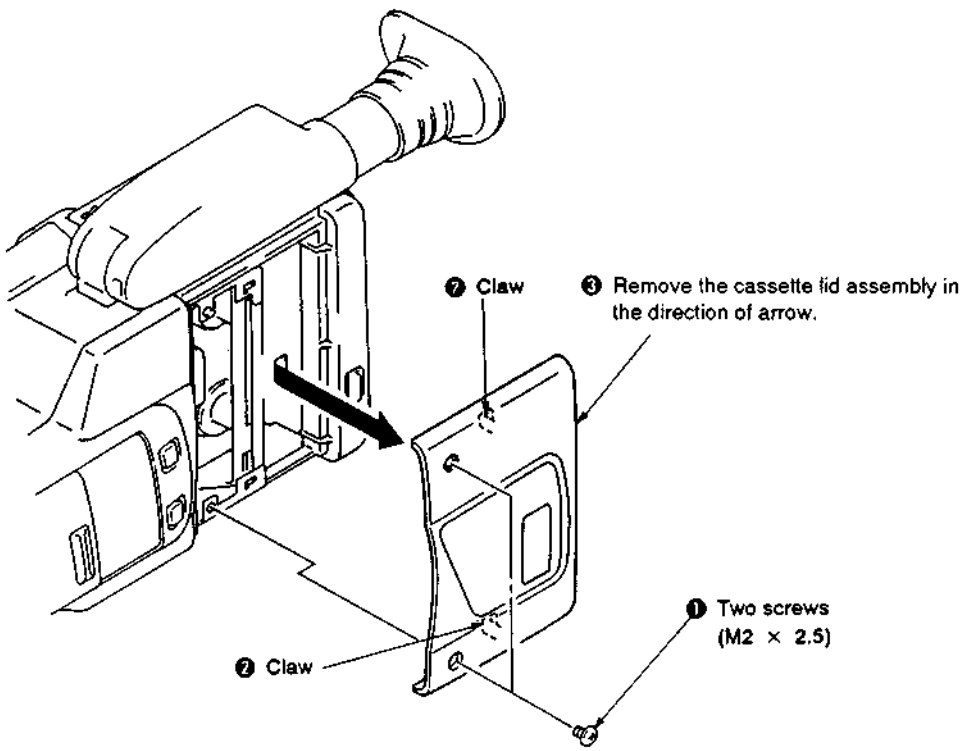


(W)

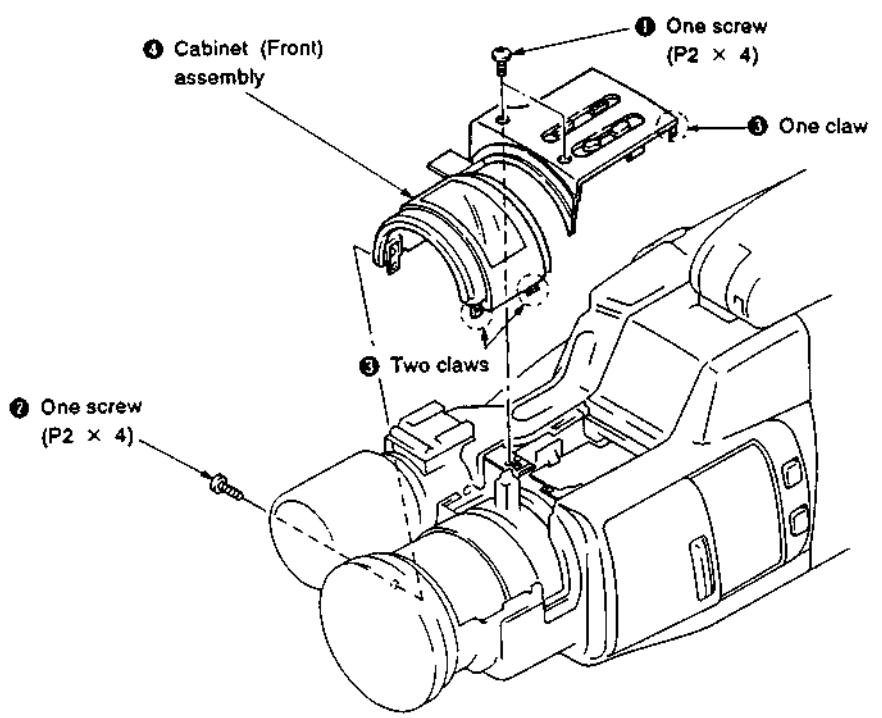
[a] BACK LIGHT is pressed. ()
[b] White balance mode (☀, HOLD)
[c] Shutter speed
[d] Auto focus adjusting range
[e] Shows up during manual focusing.
When blinking: Autofocus malfunctioning
[f] Playback mode (LP)
[g] Tape transport mode
[h] Tape counter
[i] ZERO MEM is pressed.
[j] Date or time
[k] Shows up during recording.
When blinking: "Exchange battery."

SECTION 2
DISASSEMBLY

2-1. REMOVAL OF CASSETTE LID ASSEMBLY

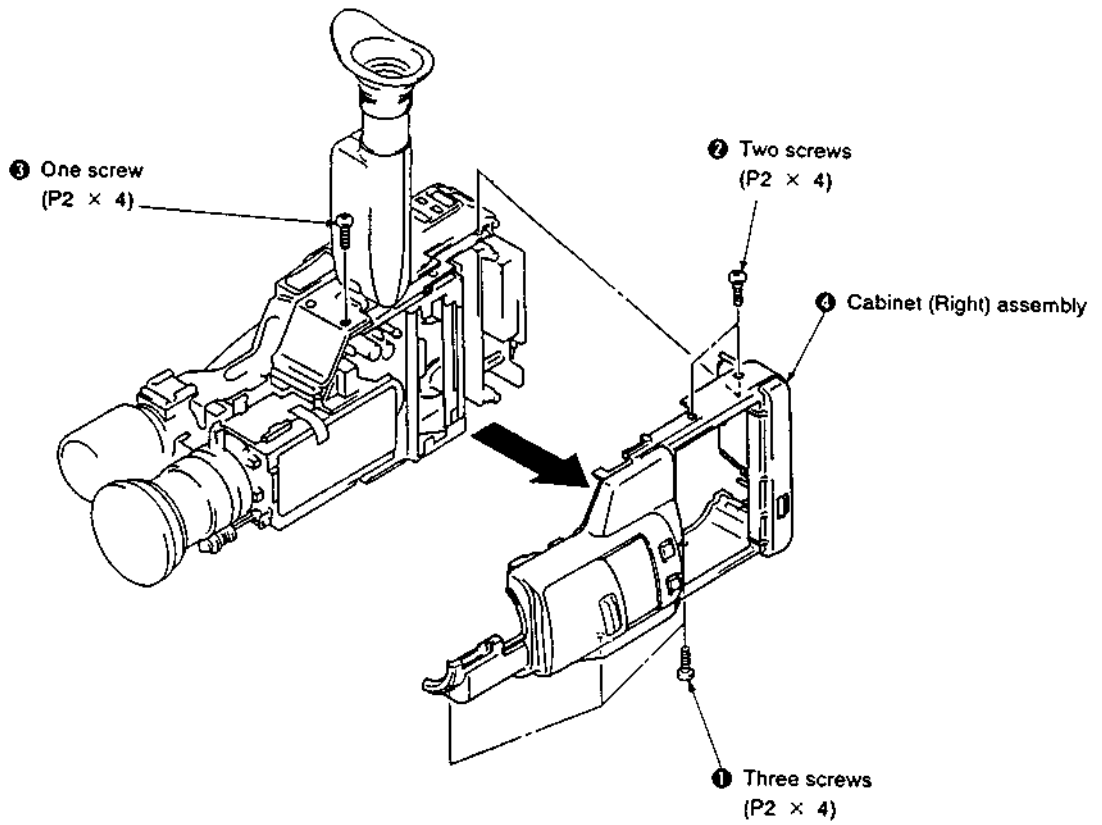


2-2. REMOVAL OF CABINET (FRONT) ASSEMBLY

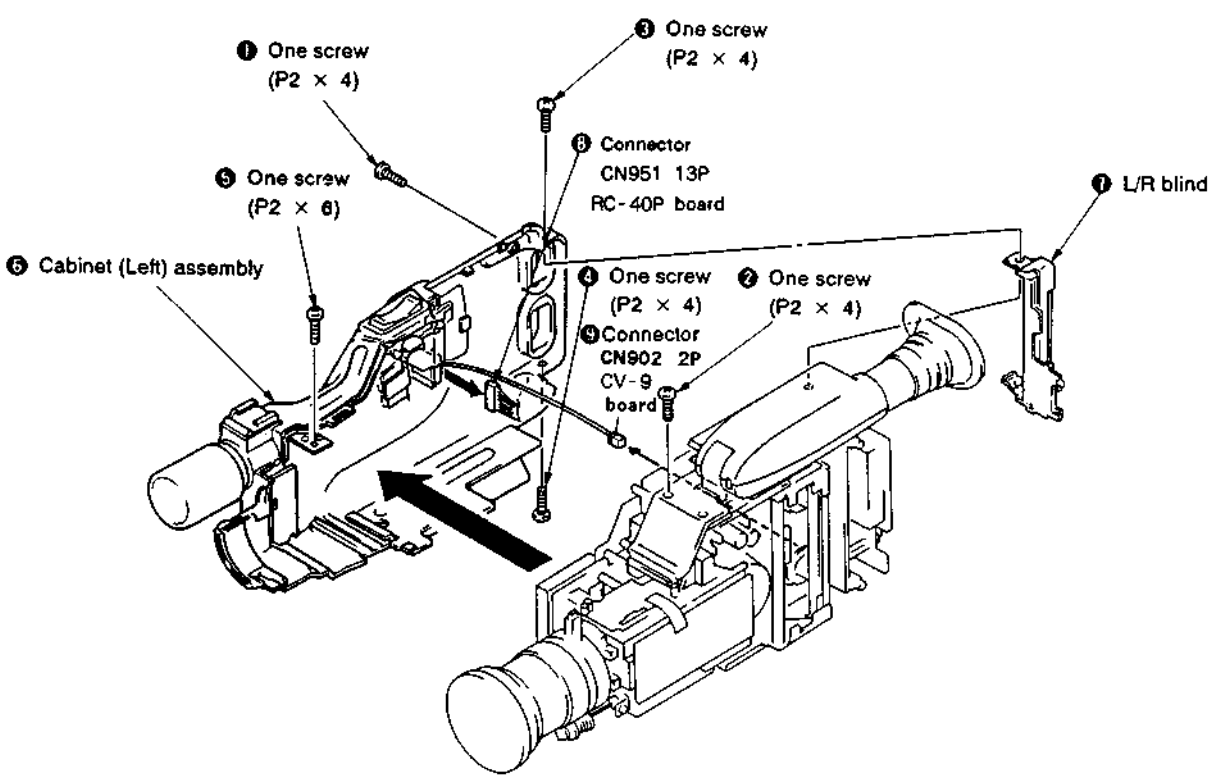


2-3. REMOVAL OF CABINET (RIGHT) ASSEMBLY

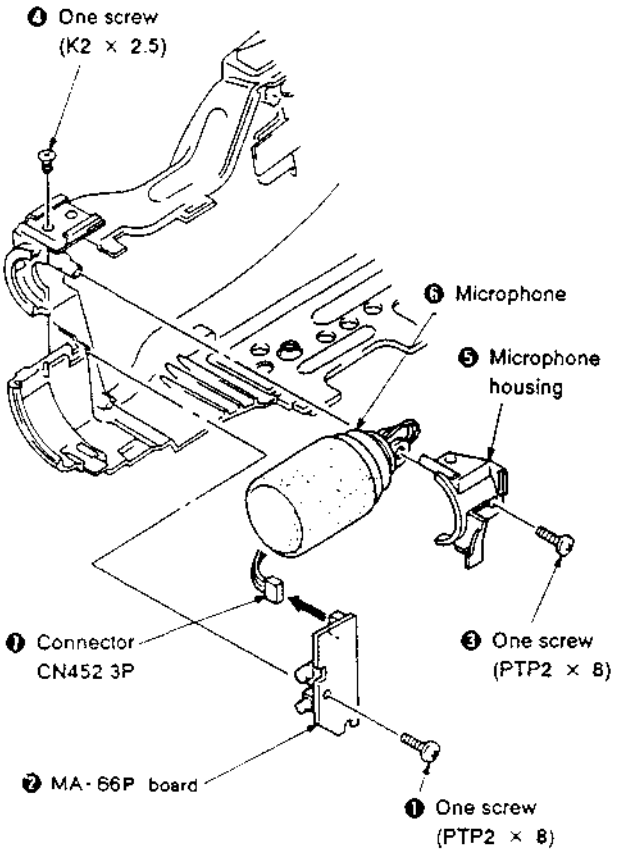
Note: Perform this servicing with EVF raise as the figure below.



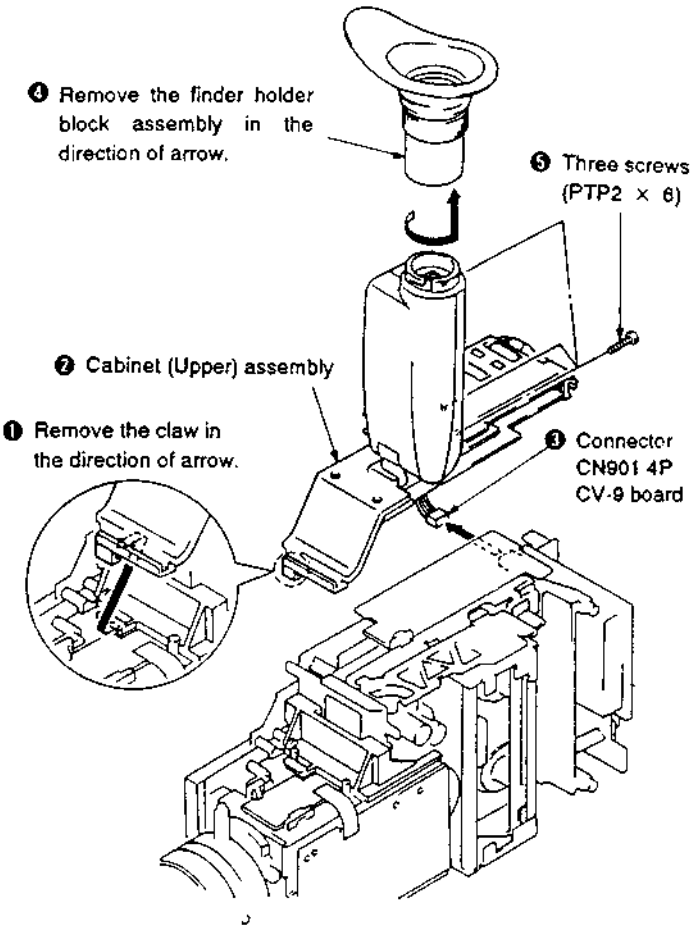
2-4. REMOVAL OF CABINET (LEFT) ASSEMBLY

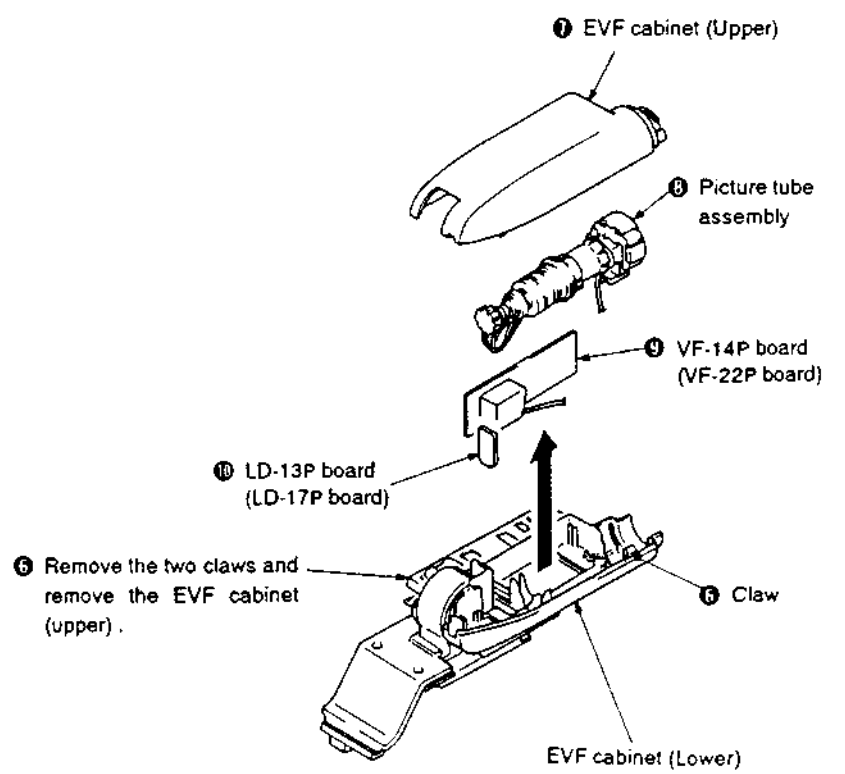


2-5. REMOVAL OF MICROPHONE

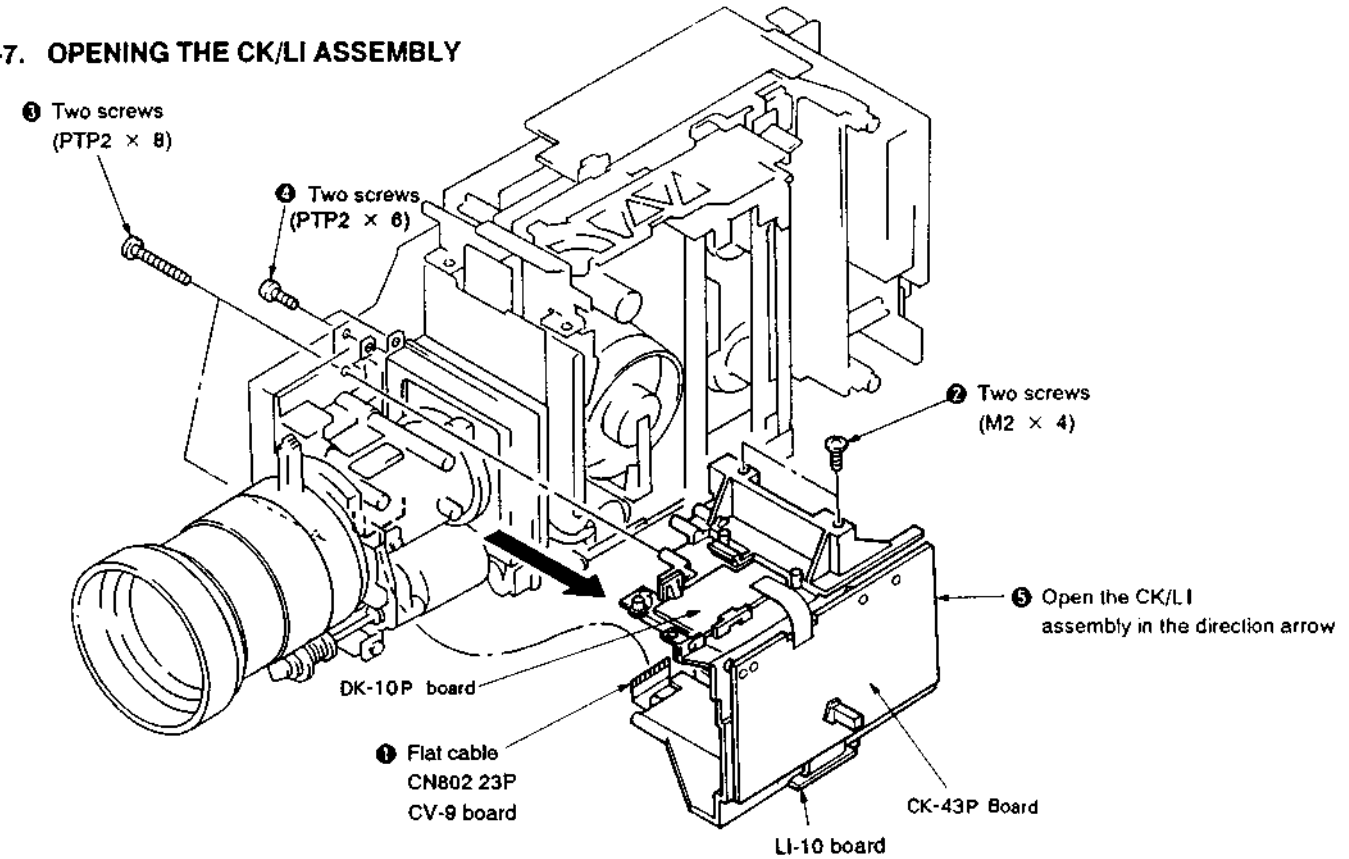


2-6. REMOVAL OF CABINET (UPPER) ASSEMBLY AND EVF

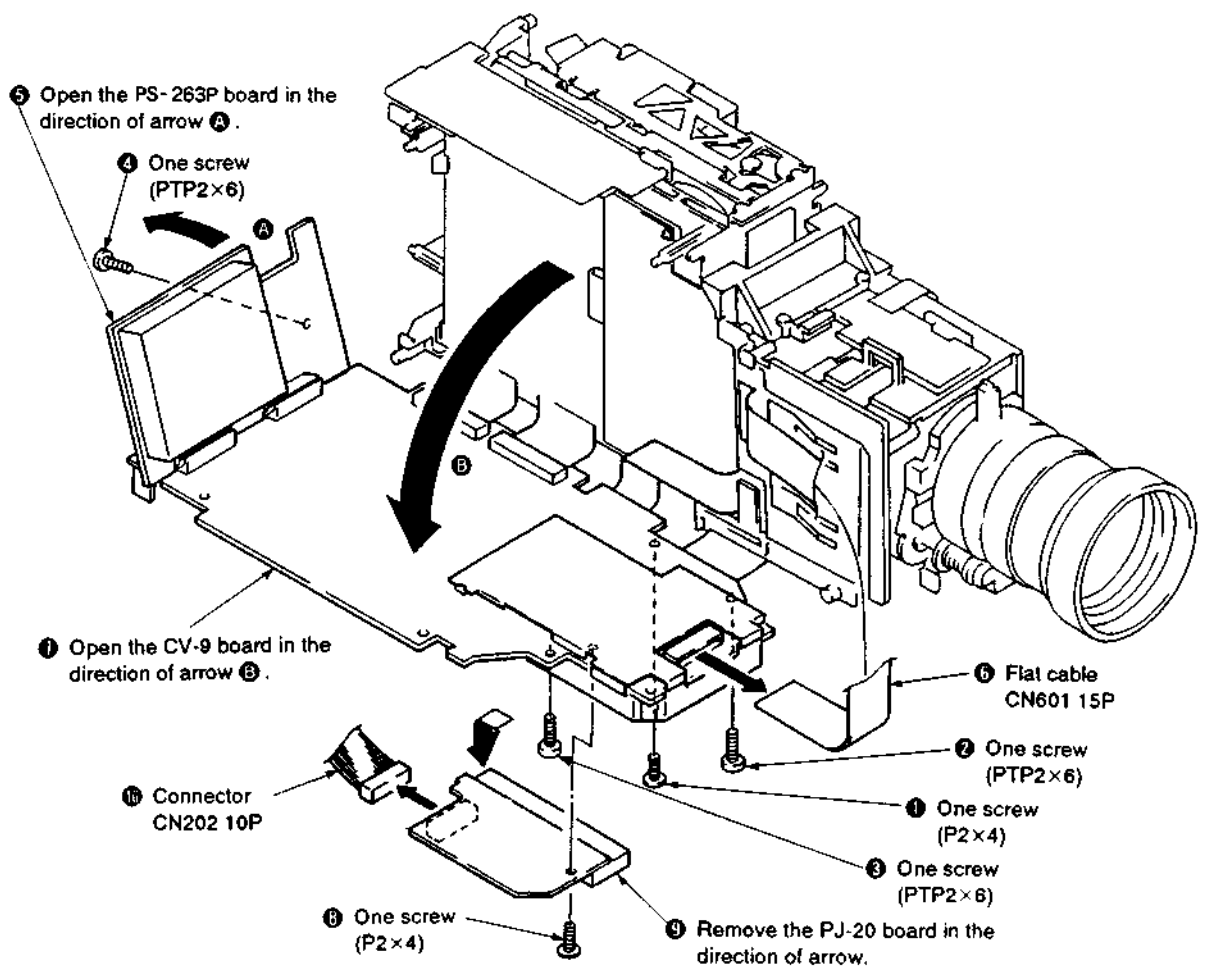




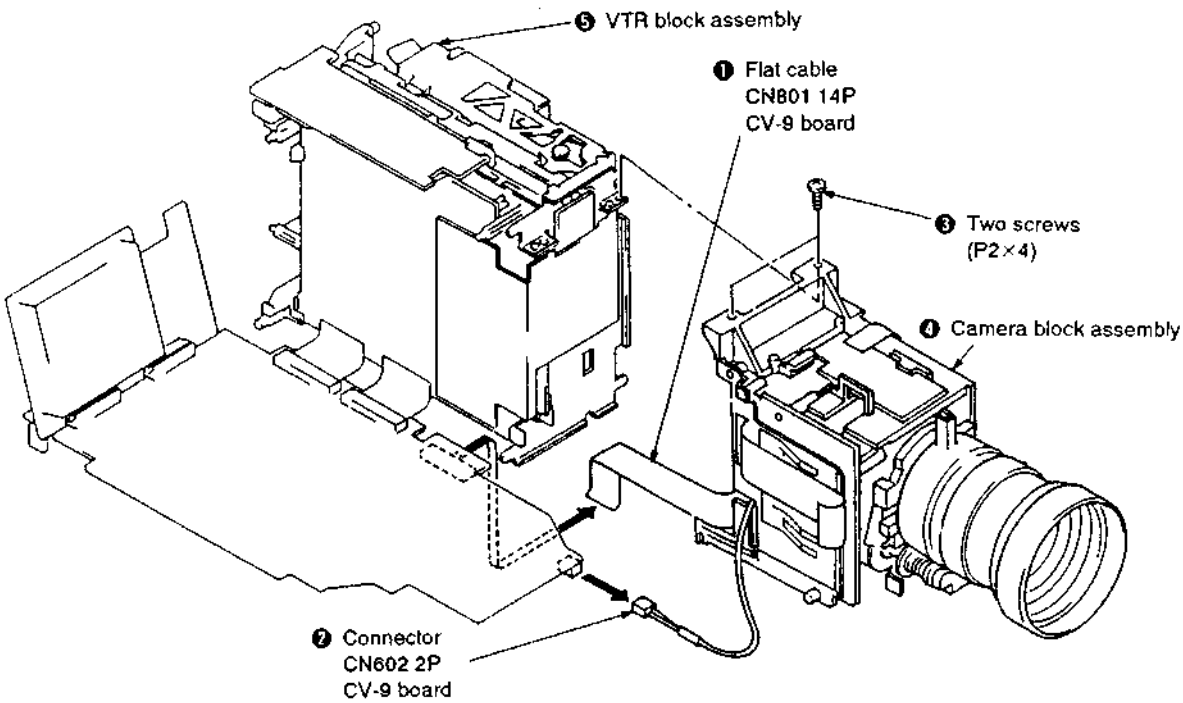
2-7. OPENING THE CK/LI ASSEMBLY



2-8. OPENING THE PS-263P AND CV-9 BOARDS, AND REMOVAL OF PJ-20 BOARD

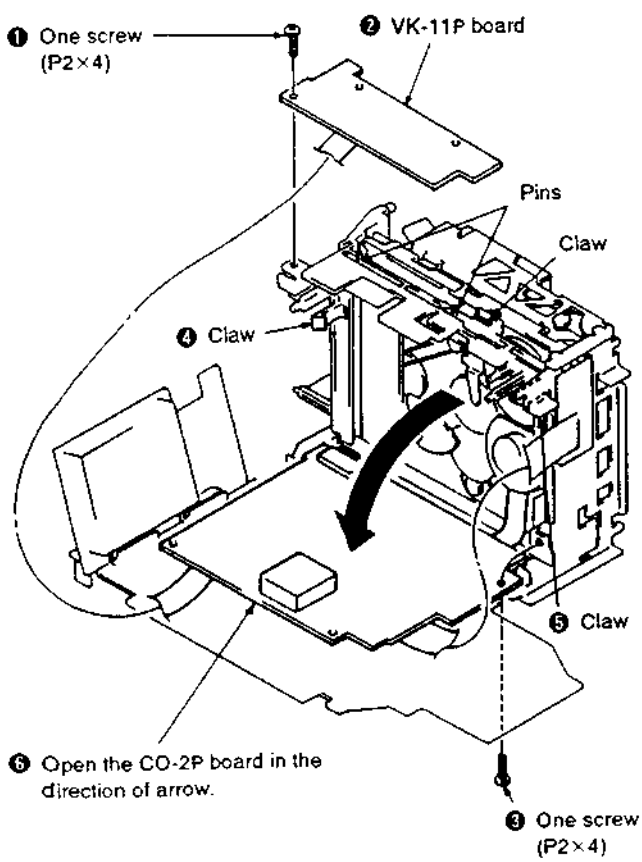


2-9. SEPARATING THE CAMERA AND VTR BLOCKS

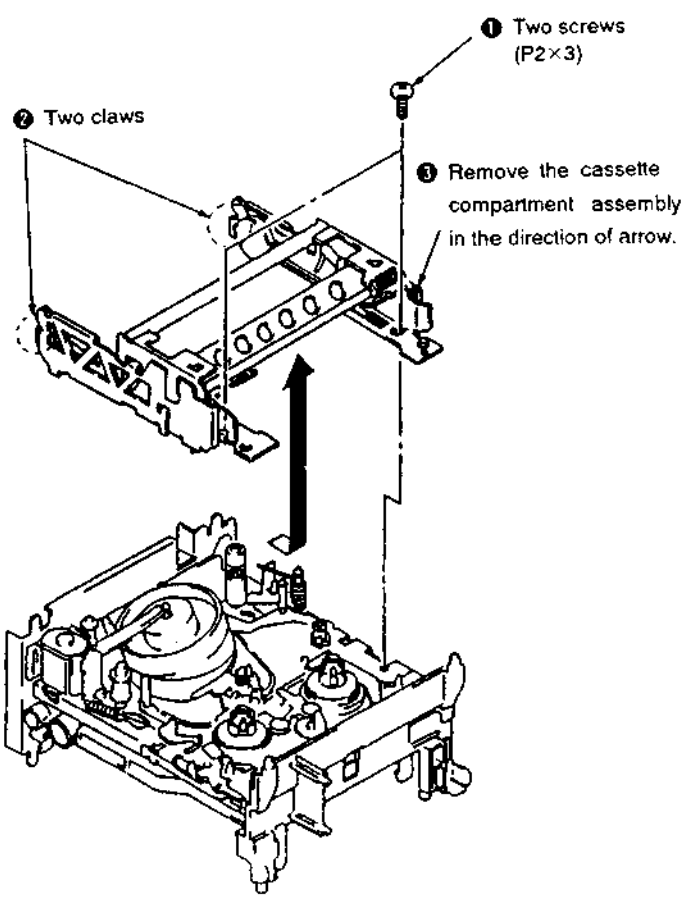


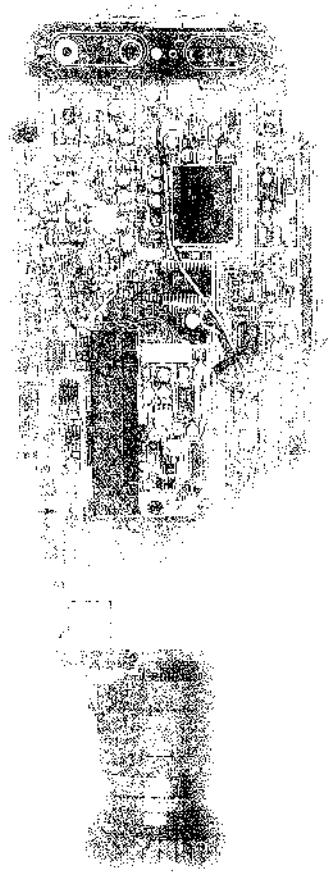
2-10. OPENING THE CO-2P AND VK-11P BOARDS

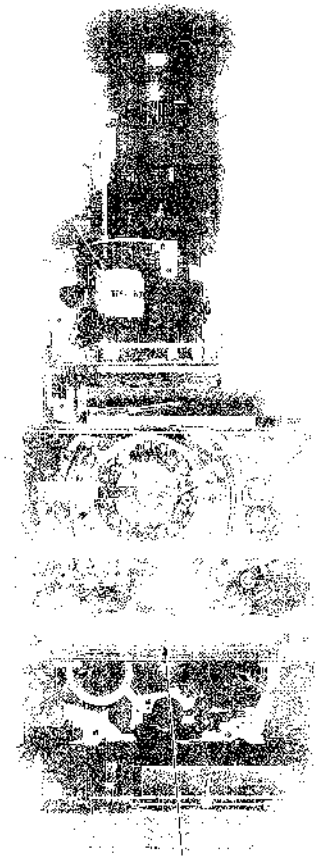
Notes: 1) Pay attention to two pins and a claw when removing the VK-11P board.
2) Care for the FE shield which is adhered to the RP amplifier shield case with a double coated tape.



2-11. REMOVAL OF CASSETTE COMPARTMENT ASSEMBLY

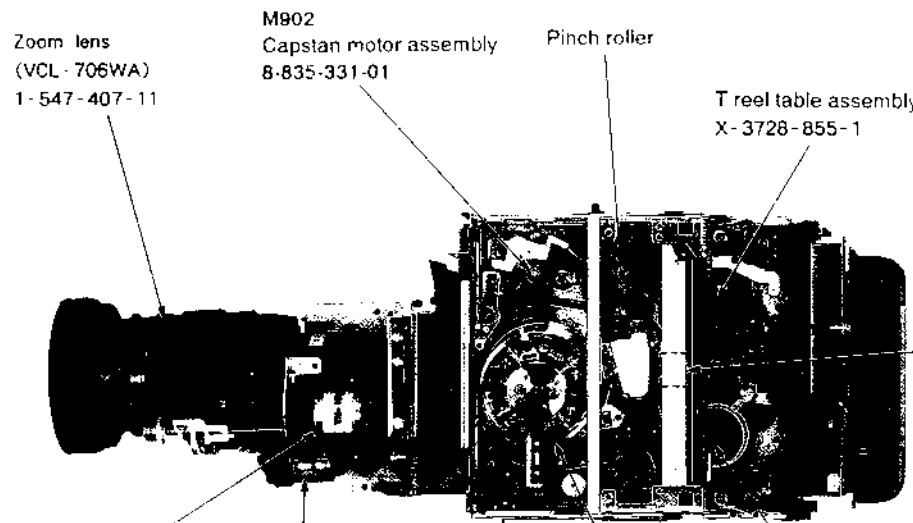




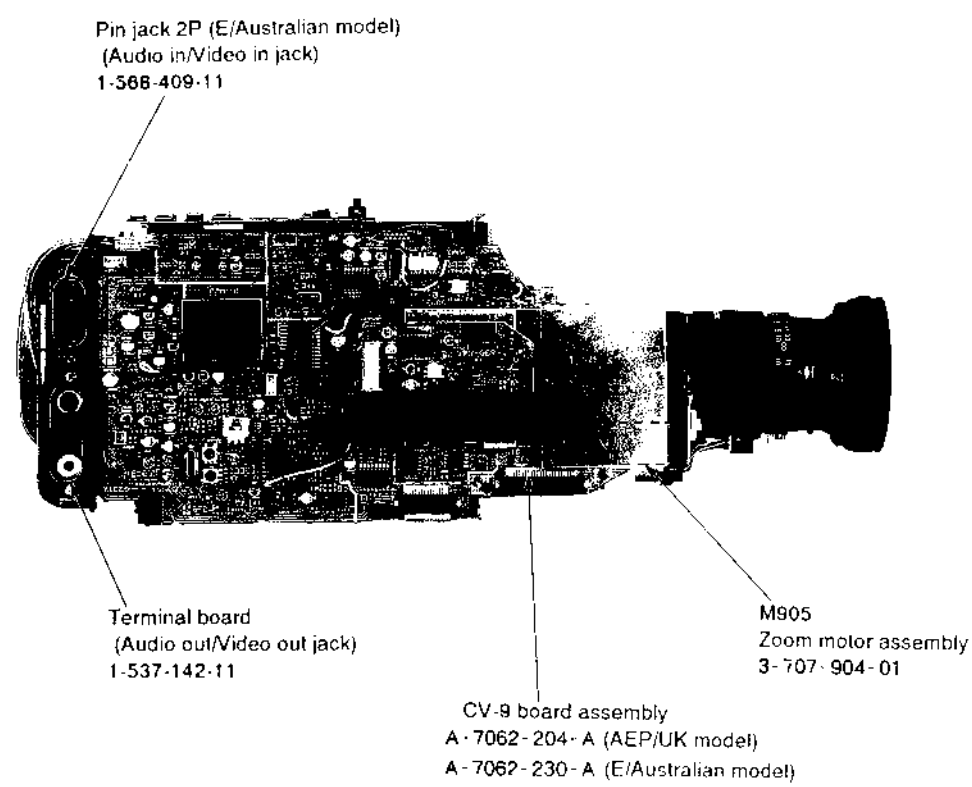


2-12. INTERNAL VIEW

– Right Side –

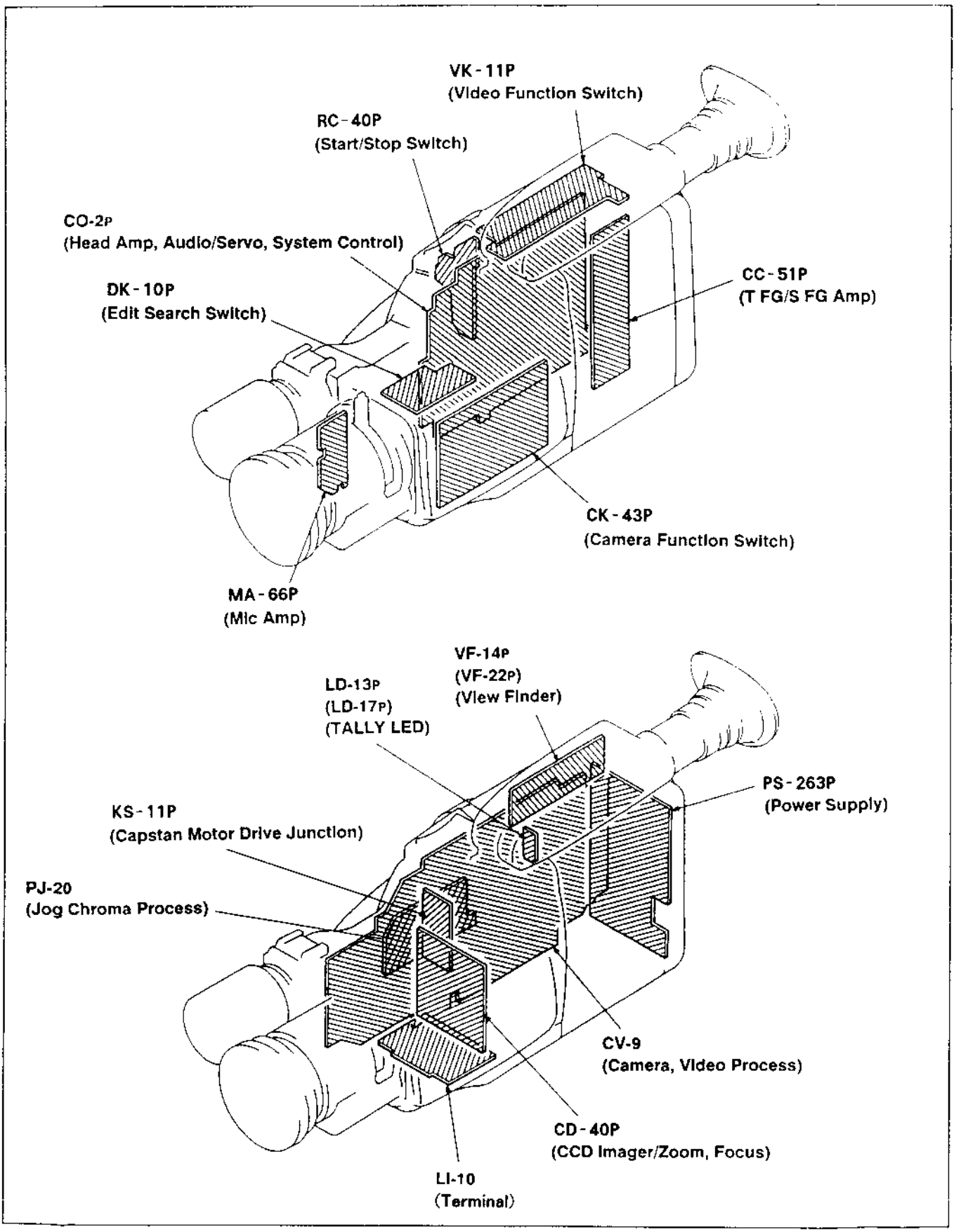


– Left Side –

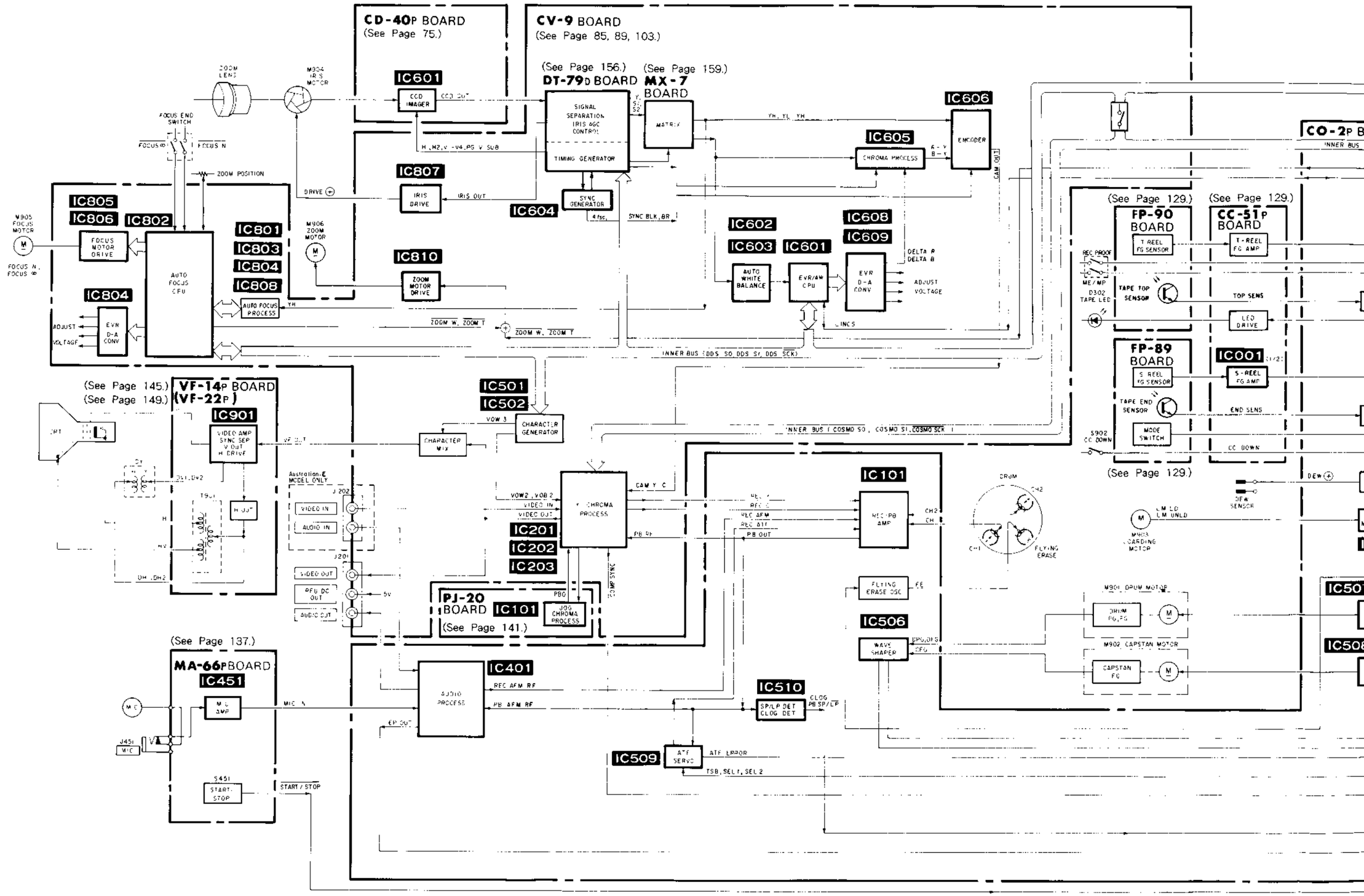


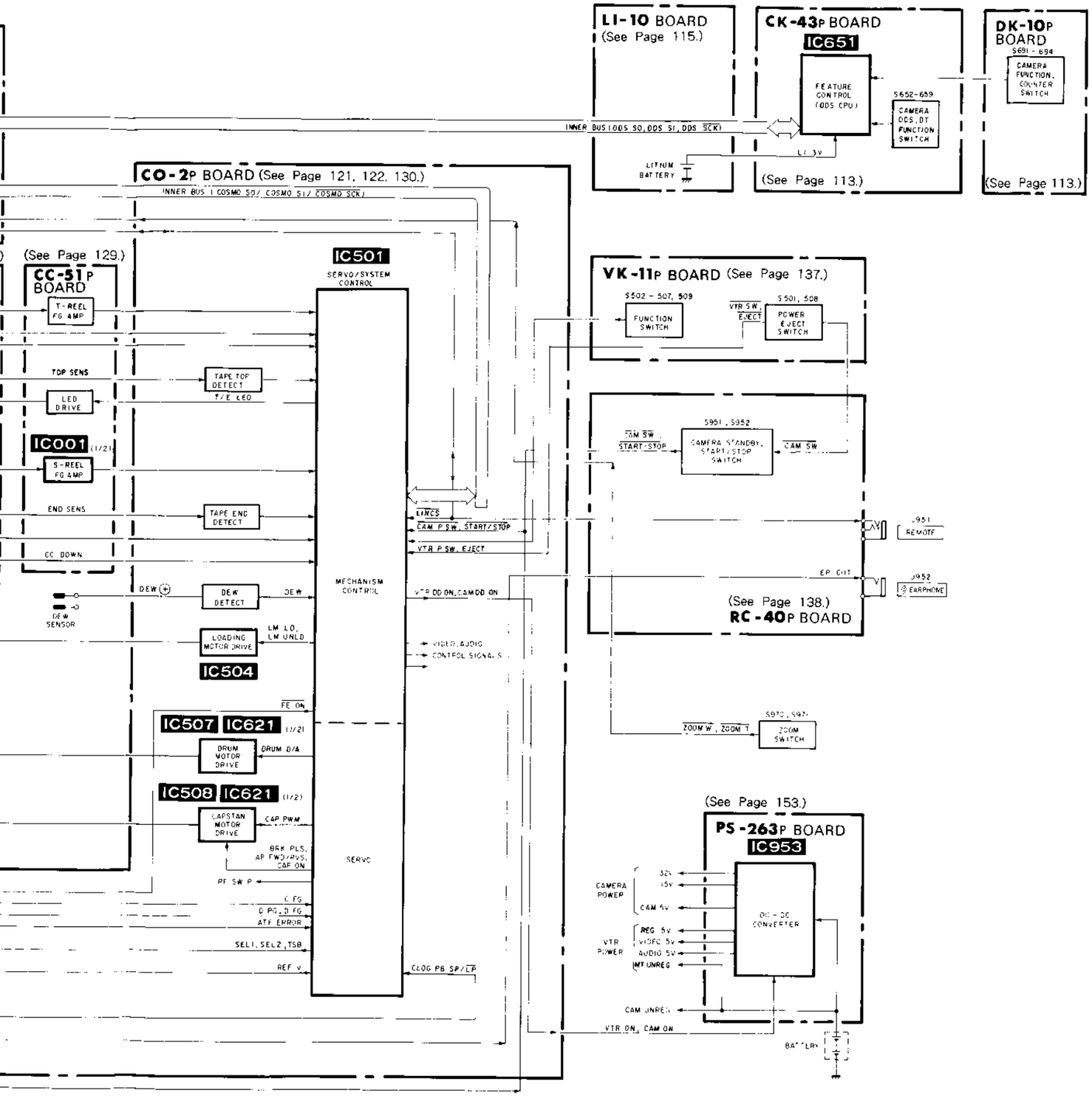
SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

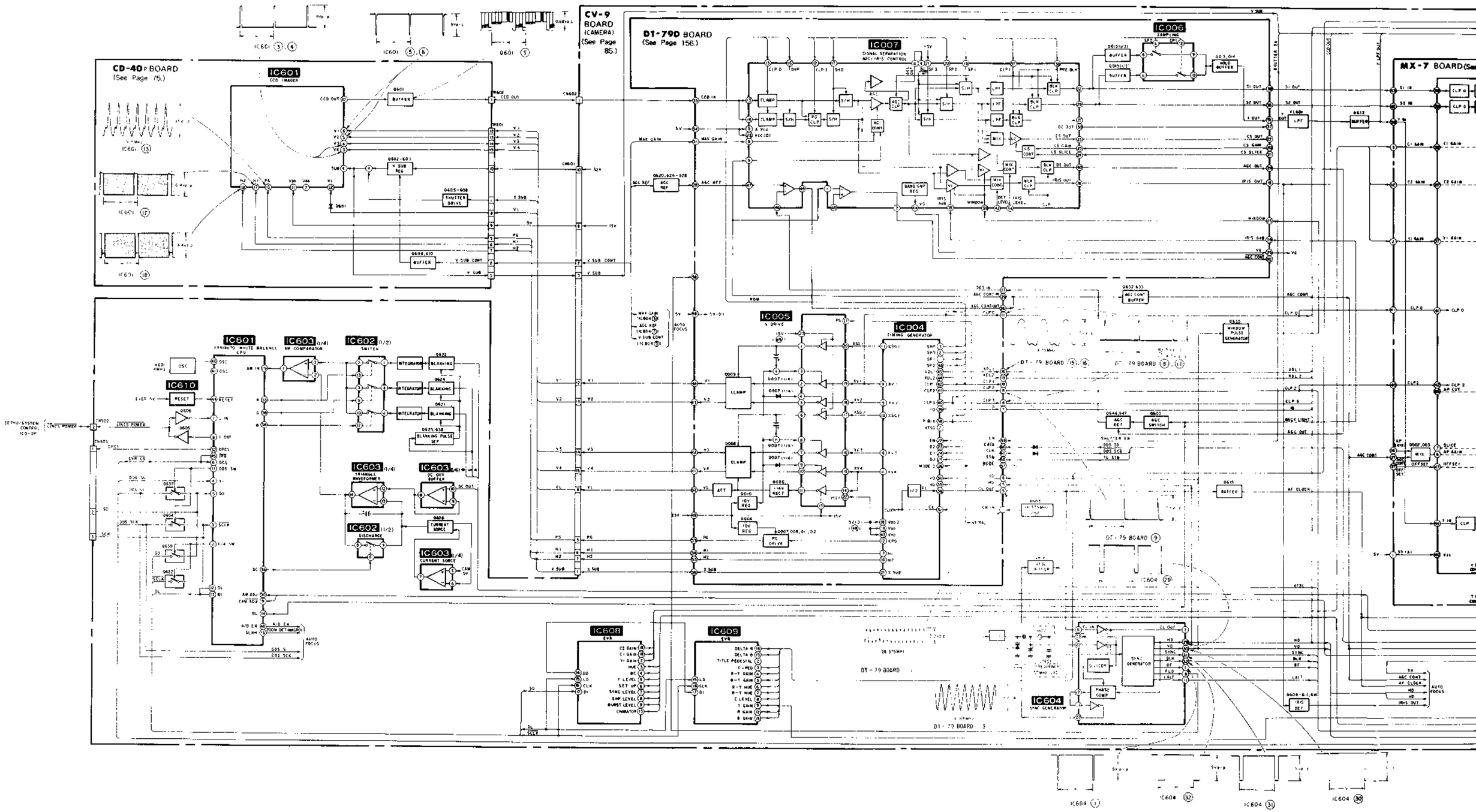


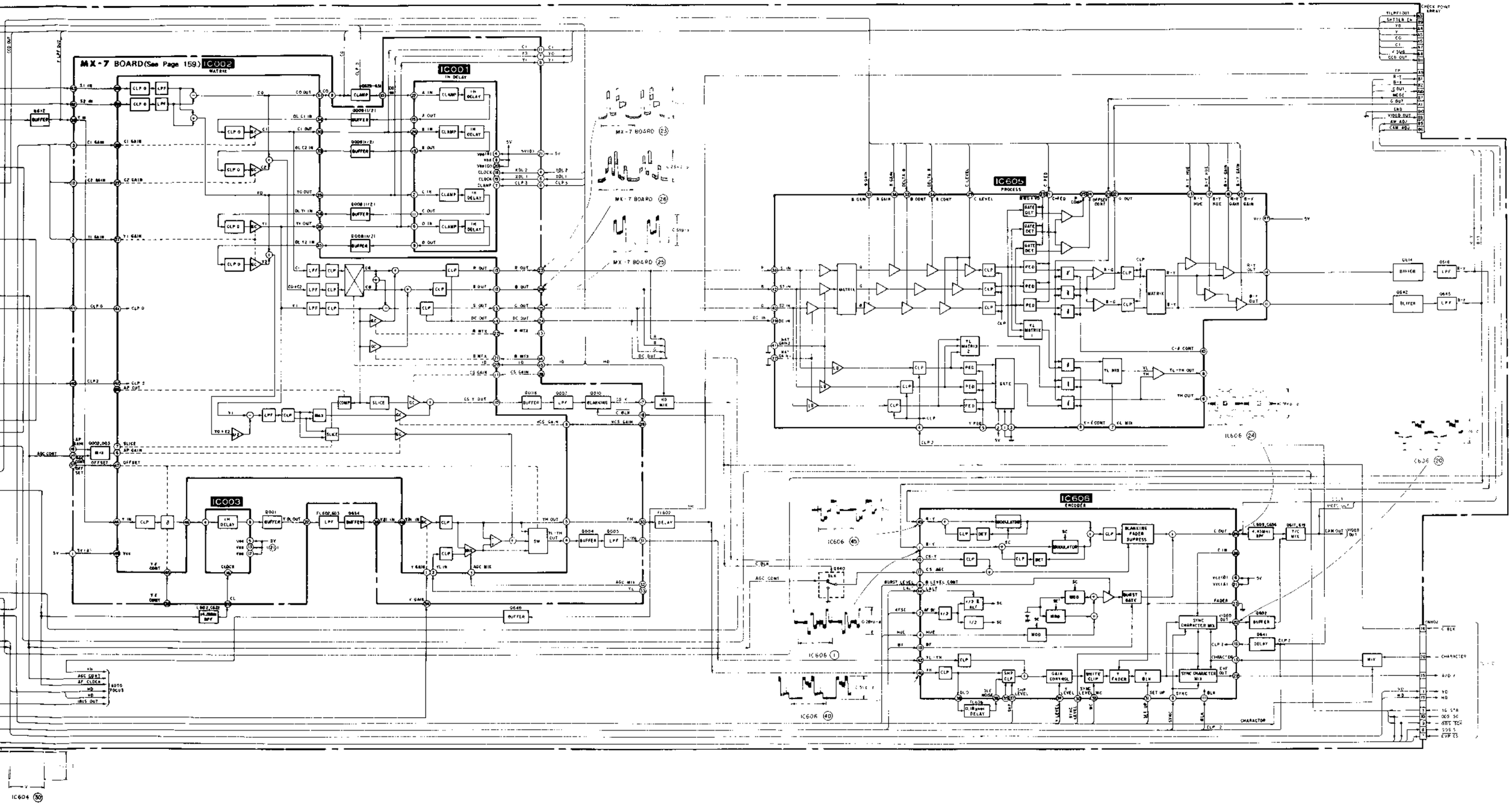
3-2. OVERALL BLOCK DIAGRAM




LI-10 BOARD
(See Page 115.)
CK-43P BOARD
IC651
FEATURE CONTROL (DDS CPU)
S652-659
CAMERA DDS, DT FUNCTION SWITCH
DK-10P BOARD
S691 - 694
CAMERA FUNCTION, COUNTER SWITCH
(See Page 113.)
(See Page 113.)
INNER BUS (DDS SO, DDS SI, DDS SCK)
LITHIUM BATTERY
CO-2P BOARD (See Page 121, 122, 130.)
INNER BUS (COSMO SO, COSMO SI, COSMO SCK)
(See Page 129.)
CC-51P BOARD
T-REEL FG AMP
TOP SENS
TAPE TOP DETECT
T/E LED
LED DRIVE
IC001 (1/2)
S-REEL FG AMP
END SENS
TAPE END DETECT
CC DOWN
DEW
DEW DETECT
DEW SENSOR
LOADING MOTOR DRIVE
LM LO, LM UNLD
IC504
IC501
SERVO/SYSTEM CONTROL
MECHANISM CONTROL
SERVO
LINCS
CAM P SW, START/STOP
VTR P SW, EJECT
VTR DD ON, CAM DD ON
VTR/R. AUDIO
CONTROL SIGNALS
FE ON
IC507 IC621 (1/2)
DRUM MOTOR DRIVE
DRUM D/A
IC508 IC621 (1/2)
CAPSTAN MOTOR DRIVE
CAP PWM
BRK PLS, AP FWD/RVS, CAP ON
RF SW P
C FG
D PG, D FG
ATF ERROR
SEL1, SEL2, TSB
REF v
CLOG PB SP/LP
VK-11P BOARD (See Page 137.)
S502 - 507, 509
FUNCTION SWITCH
VTR SW, EJECT
S501, 508
POWER EJECT SWITCH
S951, S952
CAM SW, START-STOP
CAMERA STANDBY, START/STOP SWITCH
CAM SW
S951 REMOTE
EP CHT
S952 EARPHONE
(See Page 138.)
RC-40P BOARD
S970, S971
ZOOM W, ZOOM T
ZOOM SWITCH
(See Page 153.)
PS-263P BOARD
IC953
CAMERA POWER
32V
15V
CAM 6V
VTR POWER
REG 5V
VIDEC 5V
AUDIO 5V
MT UNREG
DC - DC CONVERTER
CAM UNREG
VTR ON, CAM ON
BATTERY

3-3. CAMERA BLOCK DIAGRAM

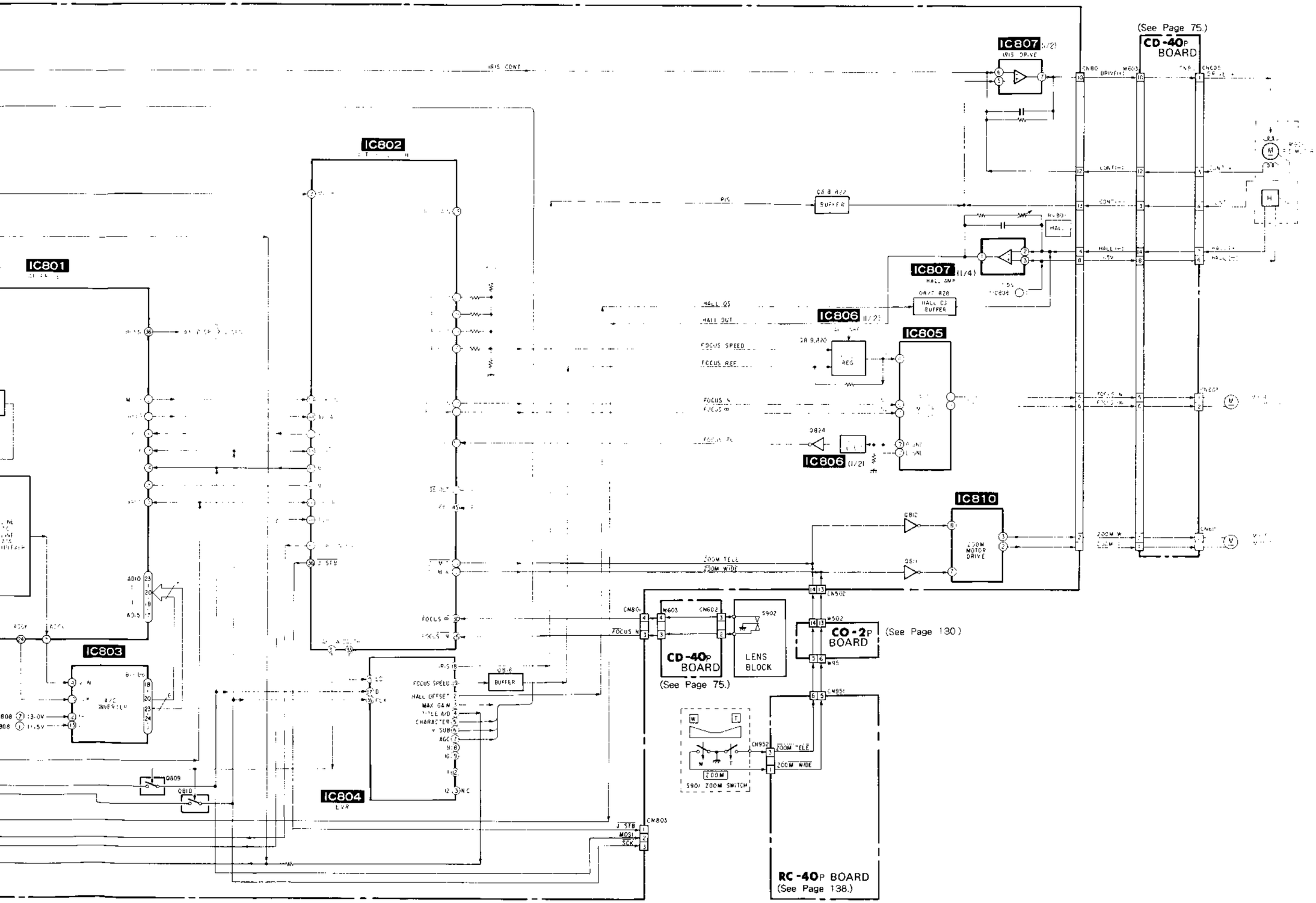



MX-7 BOARD(See Page 159) IC002
MATRIX
IC001
IN DELAY
IC003
IC606
PROCESS
IC606
ENCODER
MX-7 BOARD (23)
MX-7 BOARD (26)
MX-7 BOARD (25)
IC606 (24)
IC606 (45)
IC606 (1)
IC606 (40)
IC604 (30)
CHECK POINT ARRAY
AUTO FOCUS
CHARACTOR

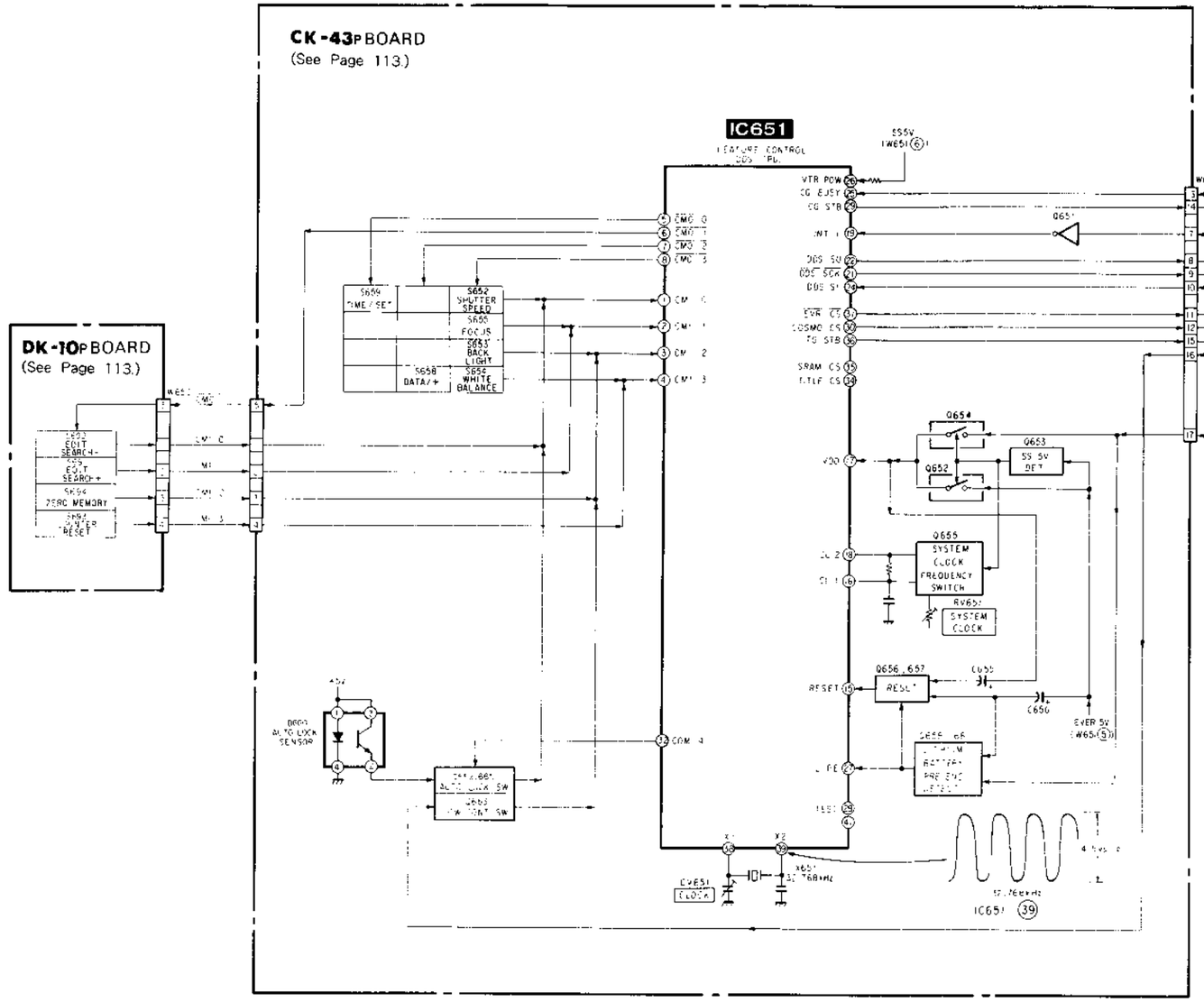
3-4. AUTO FOCUS BLOCK DIAGRAM

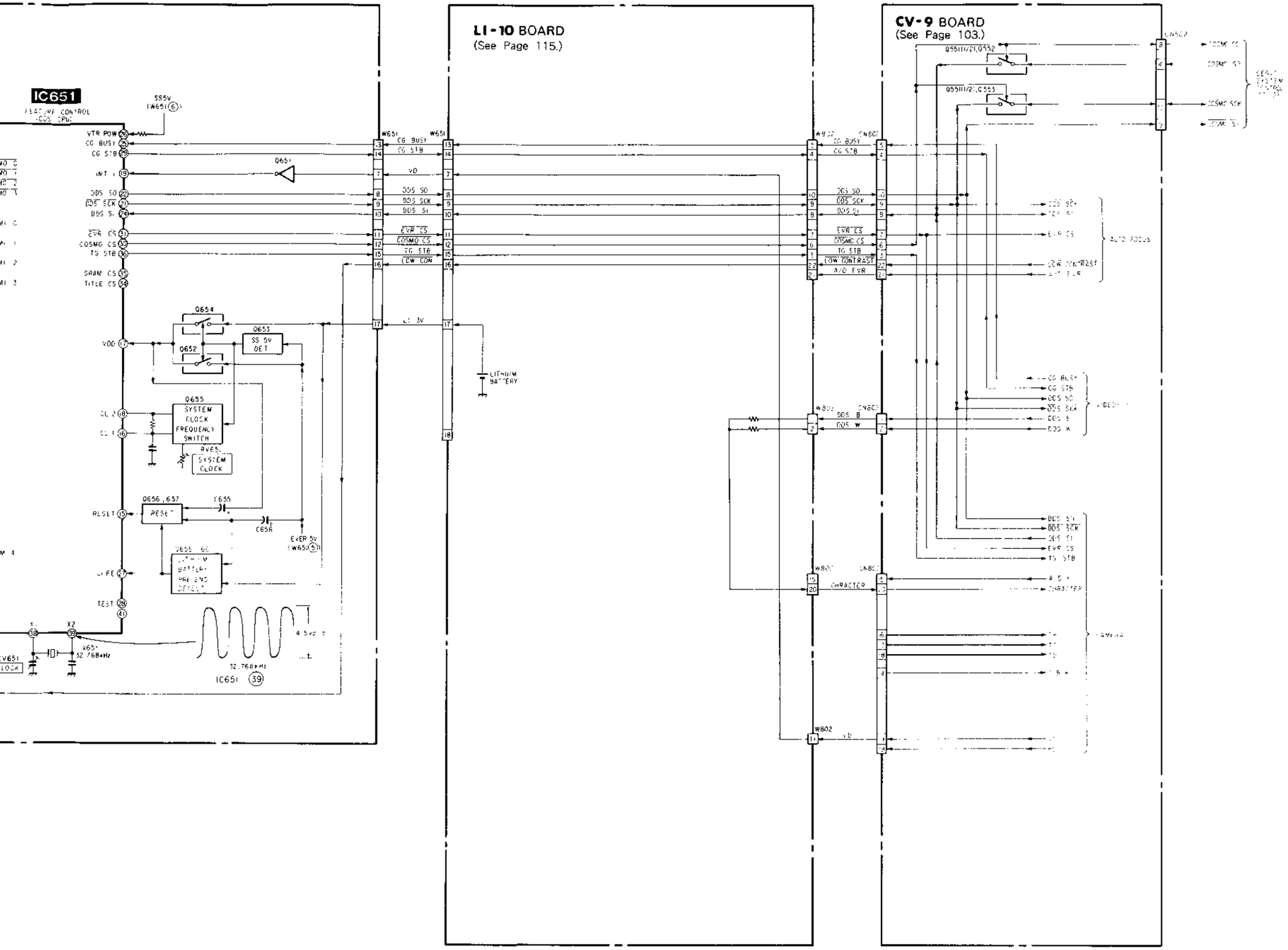
CV - 9 BOARD (AUTO FOCUS)
(See Page 89.)

IRIS OUT (10644)
MAX GAIN
EVD
CHARACTER
V SUB CONT
V SUB
AGC REF
AGC
ZOOM DET (MACRO) (IC601 15)
A/D EN (IC601 46)
CAMERA
IC801
AF CLK (10651)
(CT 79 5) I xC
(CT 79 5) I nC
AGC CONT (10633)
(10648)
Q807
Q806
SW31
Q805
Q803 Q804
Q802
IC808 (7) 3.0V
IC808 (1) 1.5V
IC808
AD REF
3.0V
5V
IC803
ADIO
ADI5
ADI0
IC802
IRIS CONT
STB
IC804
EVR
BUFFER
FOCUS SPEED
HALL OFFSET
MAX GAIN
CHARACTER
V SUB
AGC
IC806 (1/2)
HALL OUT
FOCUS SPEED
FOCUS REF
FOCUS ∞
FOCUS NEAR
Q824
ZOOM TELE
ZOOM WIDE
CN802
CN803
CN804
CN951
CN952
W602
W603
W502
S902
S901 ZOOM SWITCH
CD-40P BOARD
(See Page 75.)
LENS BLOCK
ZOOM POSITION
CO-2P BOARD
RC-40P BOARD
(See Page 138.)
SERVO SYSTEM CONTROL (CC-21P)
SYSTEM RESET
DDS SI
DDS SCK
LOW CONTRAST
EVR CS
A/D EVR
MOSI
SCK

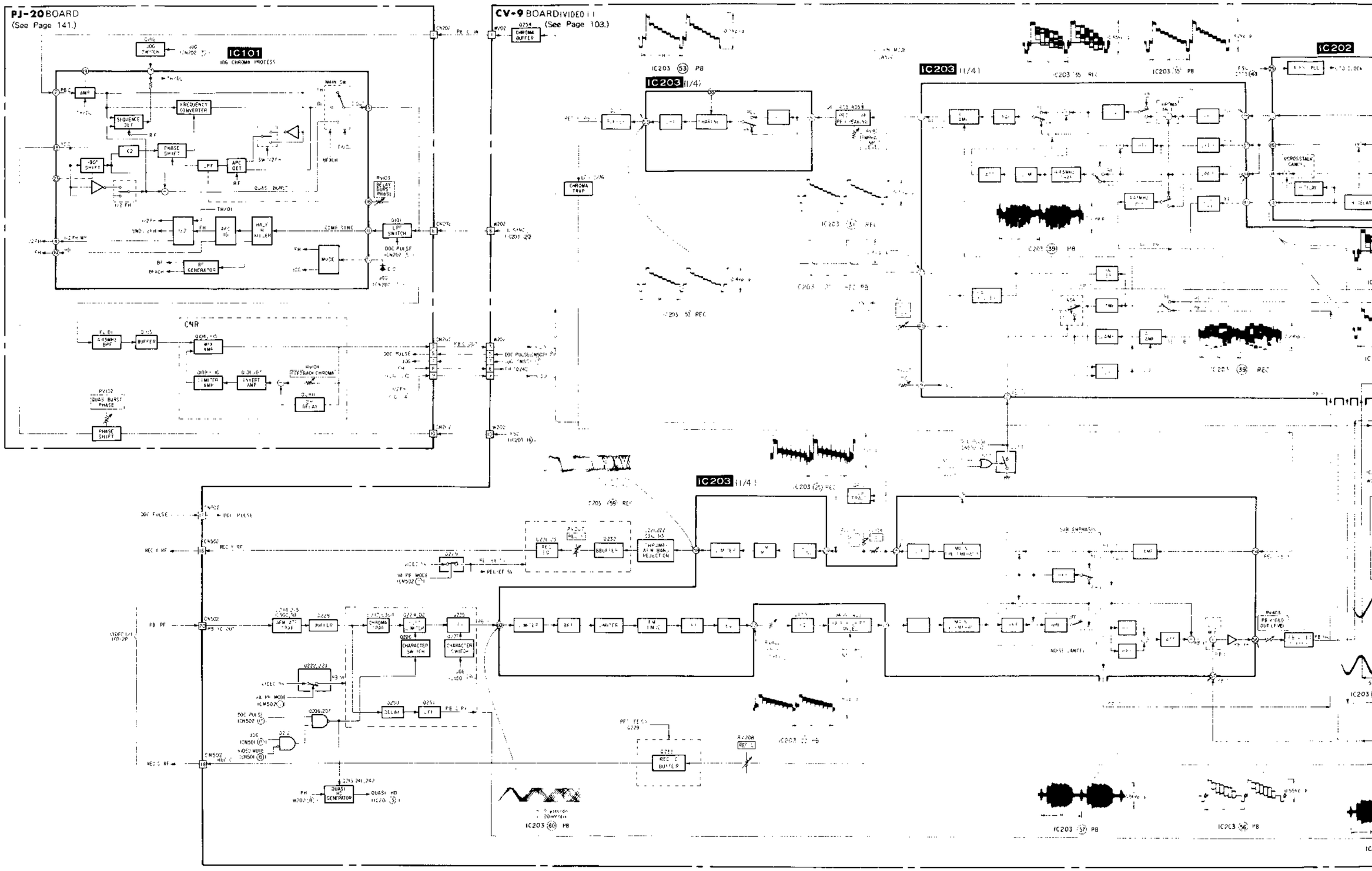

(See Page 75.)
CD-40P BOARD
IC807 (1/2)
IRIS DRIVE
IRIS CONT
IC802
IC801
IC803
IC804
EVR
IC806 (1/2)
IC805
REG
IC807 (1/4)
HALL AMP
IC810
ZOOM MOTOR DRIVE
BUFFER
HALL OUT
FOCUS SPEED
FOCUS REF
ZOOM TELE
ZOOM WIDE
ZOOM
590! ZOOM SWITCH
CO-2P BOARD
(See Page 130)
LENS BLOCK
(See Page 75.)
RC-40P BOARD
(See Page 138.)

3-5. CAMERA FUNCTION BLOCK DIAGRAM




IC651
SYSTEM CONTROL -DDS CPU-
5.5V
VTR POW
CG BUSY
CG STB
INT 1
DDS SO
DDS SCK
DDS SI
EVR CS
COSMO CS
TG STB
SRAM CS
TITLE CS
VDD
CL 2
CL 1
RESET
TEST
X1
X2
X651
32.768kHz
Q654
Q653
Q652
5S 5V DET
Q655
SYSTEM CLOCK FREQUENCY SWITCH
RVES. SYSTEM CLOCK
Q656, 657
RESET
C655
C656
EVER 5V
LITHIUM BATTERY
LOW CON
LI-10 BOARD
(See Page 115.)
CV-9 BOARD
(See Page 103.)
CN801
CN802
CN803
W801
W802
W803
CG BUSY
CG STB
VD
DDS SO
DDS SCK
DDS SI
EVR CS
COSMO CS
TG STB
LOW CONTRAST
A/D EVR
DDS B
DDS W
CHARACTER
Q551/21, Q552
Q551/21, Q553
SERIAL SYSTEM CONTROL
AUDIO PCB

3-6. VIDEO BLOCK DIAGRAM(1)



IC202

IC203 (1/4)

IC201

IC502

IC501

3-7. VIDEO BLOCK DIAGRAM(2)

CO-2P BOARD (VIDEO 2)

(See Page 121.)

CN102 CHECK PIN 2 3 4

RF SW (IIC501 (80)) } SERVO/SYSCON

IC101 REC/PB AMP

RV101 CH1 PB EQ

DRUM

VIDEO HEAD CH1

VIDEO HEAD CH2

FLYING ERASE

CN101 2 CH1(X) 6 CH2(X) 17 FE(X)

CH1 HEAD AMP → CH1 EQ AMP → CH1 / CH2

CH2 HEAD AMP → CH2 EQ AMP → CH1 / CH2

RV102 CH2 PB EQ

RF AGC AMP ⇄ RF AGC DET

Q109, 110 RF AMP

Q116 DOC P INHIBIT

DOC DETECT

+2dB

Q102 BUFFER

Q104 TIME CONSTANT SWITCH

VA PB MODE (IIC501 (9)) }
JOG (IIC501 (8)) } SERVO/SYSCON
RP PB MODE (IIC501 (77)) }

0.6Vp-p

IC101 (16) PB

W501

RF SW (IIC501 (80)) } SERVO/SYSCON

CONTROL LOGIC

4.5Vp-p

IC101 (39) REC/PB

TP101

CH1 REC AMP

CH2 REC AMP

V / P / C switches

Y/C/AFM/ATF MIX

VCA

C/AFM/ATF MIX

PCM/ATF MIX

VCA

NORMAL / MULTI

VCA

6dB AMP

Q115 GAIN SWITCH ← SP/LP (IIC501 (7))

Y

C

AFM

PCM

ATF

REC AFM
PB AFM RF
} AUDIO

REC ATF
PB ATF RF
} SERVO/SYSCON

5.8Vp-p

H

IC101 (28), (33) REC

GAIN SWITCH

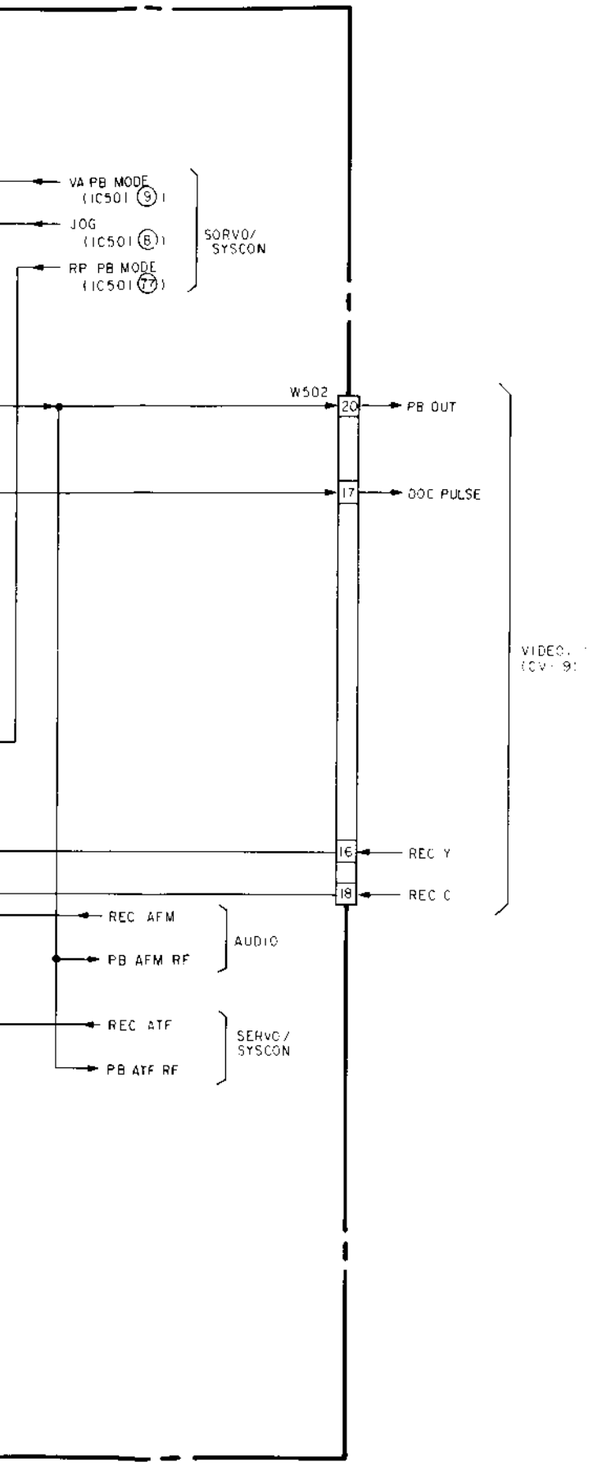
ME/MP (CN501 (11)) } SERVO/SYSCON

TP103

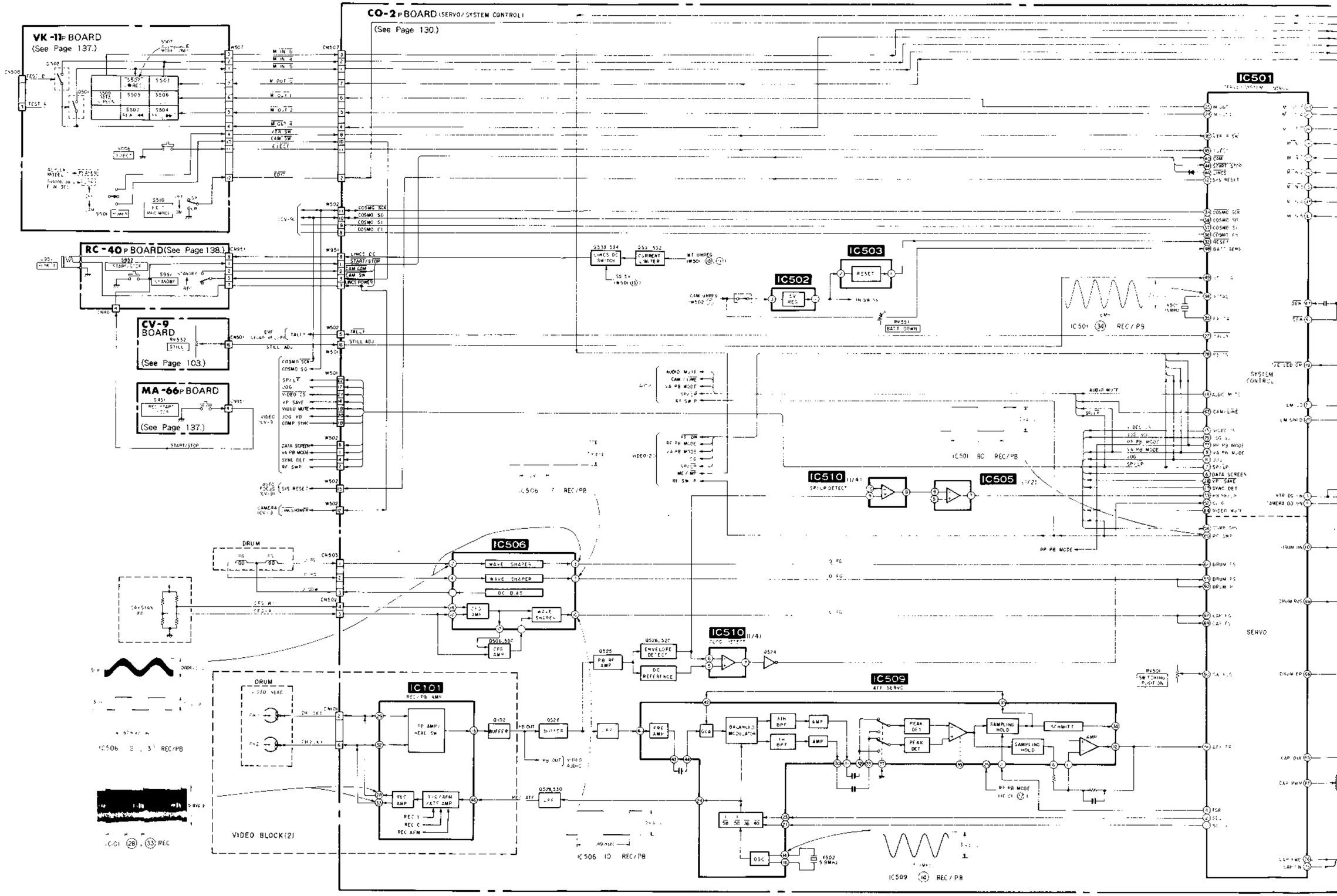
Q112 AMP

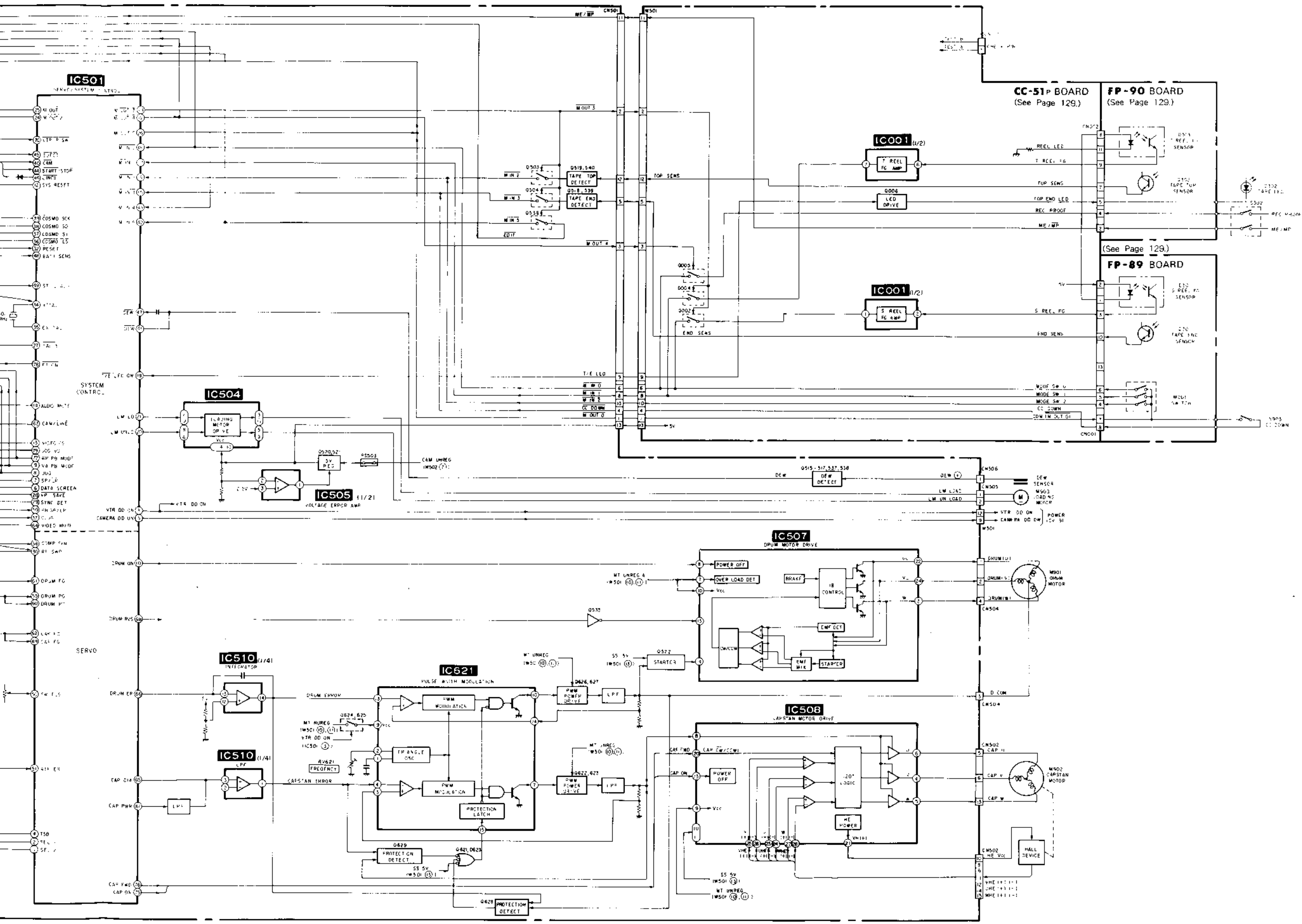
Q113 FLYING ERASE OSC

FE ON (IIC501 (78)) } SERVO/SYSCON


VA PB MODE
(IC501 (9))
JOG
(IC501 (8))
RP PB MODE
(IC501 (77))
SORVO/
SYSCON
W502
20
PB OUT
17
DOC PULSE
VIDEO
(CV-9
16
REC Y
18
REC C
REC AFM
PB AFM RF
AUDIO
REC ATF
PB ATF RF
SERVO/
SYSCON

3-8. SERVO, SYSTEM CONTROL BLOCK DIAGRAM




IC501
SERVO/SYSTEM CONTROL
SYSTEM CONTROL
SERVO
IC504
LOADING MOTOR DRIVE
IC505 (1/2)
VOLTAGE ERROR AMP
5V REG
IC510 (1/4)
INTEGRATOR
IC510 (1/4)
LPF
IC621
PULSE WIDTH MODULATION
PWM MODULATION
TRIANGLE OSC
PROTECTION LATCH
PROTECTION DETECT
IC507
DRUM MOTOR DRIVE
POWER OFF
OVER LOAD DET
BRAKE
IB CONTROL
EMF DET
EMF MIX
STARTER
CW/CCW
IC508
CAPSTAN MOTOR DRIVE
120° LOGIC
HE POWER
PWM POWER DRIVE
LPF
TAPE TOP DETECT
TAPE END DETECT
DEW DETECT
DEW SENSOR
M903 LOADING MOTOR
M901 DRUM MOTOR
M502 CAPSTAN MOTOR
HALL DEVICE
IC001 (1/2)
T REEL FG AMP
S REEL FG AMP
LED DRIVE
TOP SENS
END SENS
CC-51P BOARD
(See Page 129.)
FP-90 BOARD
(See Page 129.)
(See Page 129.)
FP-89 BOARD
REEL LED
T REEL FG
TOP END LED
REC PROOF
ME/MP
S REEL FG
MODE SW 0
MODE SW 1
MODE SW 2
CC DOWN
MODE SWITCH
S903 CC DOWN
VTR DD ON
CAMERA DD ON
POWER

3-9. SYSTEM CONTROL SECTION FUNCTION DESCRIPTION

The system control section consists of the following four microcomputers:

- Mode/mechanism control microcomputer CXP80116
- DDS microcomputer μPD7508BGB
- EVR microcomputer MC68HC05N4FU
- AF microcomputer MC68HC05C4FU

3-9-1. Mode/Mechanism Control Microcomputer CXP80116 (IC501 on CO-2P Board)

1. Function description

1) Power ON/OFF control
2) Key matrix read
   (Playback, record, fast-forward, rewind, pause, stop, data screen)
   * REC key is only provided with E, Australian model.
3) Reading of other keys
   (Power (camera/off/video), cassette eject)
4) Servos
5) Loading motor control
6) Error detection
   - Battery end/pre-end
   - Tape end
   - No cassette
   - Erasure prevention
   - DEW (condensation)
   - PAUSE release
   - CLOG (jamming)
   - L motor emergency
   - Drum rotation
   - Drum phase
   - Reel rotation
   - Capstan rotation
   - Drum/capstan start
6) H.M.S. counter
7) JOG V.D insertion
8) Execution of various modes

2. Abbreviated specifications

- 8-bit high-speed, highly integrated single chip microcomputer
- A/D converter, 8-bit, 8-channel
- Serial interface
- Time/counter
- Time base timer
- Vector interrupts
- High precision timing pattern generation function (high-speed output)
- PWM/DA gate pulse output, 12-bit, 2-channel
- High precision measurement function (FRC) for servo signals
- Power on reset function
- Sleep and stop functions
- External memory expansion mode, microcomputer mode
- ROM: 16 kbytes
- RAM: 352 kbytes
- Speed: 500 ns
- Process: C MOS
- Operating voltage: 4.5 to 5.5V
- Package: 80-pin flat package

3-9-2. DDS Microcomputer μPD7508BGB (IC651 on CK-43P Board)

1. Function description

1) Internal data communication control
2) Date/time measurement
3) Reading of key matrix
   (White balance, electronic shutter, edit search +/–, auto-lock, focus mode, counter reset, zero memory, title, store, color/mode, back light compensation, date/forward, time/set)

2. Operation modes

As shown in the table below, the operation mode is determined according to the position of the power switch (camera/off/video) and whether or not there is a main battery.

Mode	Main Battery	Power Switch	Microcomputer Power	Clock Mode	Main Functions
BACK UP	No	Camera/off/video	Lithium battery	500 ms intermittent oscillation	• Backup of title and tape counter data • Clock count operation
	Yes	Off			
VTR ON	Yes	Video	SS 5V (main battery)	Continuous oscillation	• Serial communication with EVR and mode/mechanism control micro-computer • Indication to EVF • Acceptance of zero memory and counter reset keys
CAM ON	Yes	Camera	SS 5V (main battery)	Continuous oscillation	• VTR ON functions + all camera features • Indication control for white balance, focus, titles, electronic shutter, etc.

3-9-3. EVR Microcomputer MC68HC05N4FU (IC601 on CV-9 Board)

1. Function description

1) EVR control
2) Auto white balance control
3) Electronic shutter

3-9-4. AF

1. Functio

1) AF cont
2) Power f
3) Zoom m

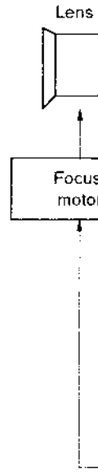
2. Auto fo (A-AF

The high fre luminance si using externa

3. Outline

The frequenc 2 MHz are e digitally integ the evaluati information f finding the p that:

Picture is in frequency co increases



unter data

n EVR and
ol micro-

emory and

all camera

te balance,
tter, etc.

3-9-4. AF Microcomputer MC68HC05C4FU (IC802 on CV-9 Board)

1. Function description

1) AF control
2) Power focus
3) Zoom motor drive

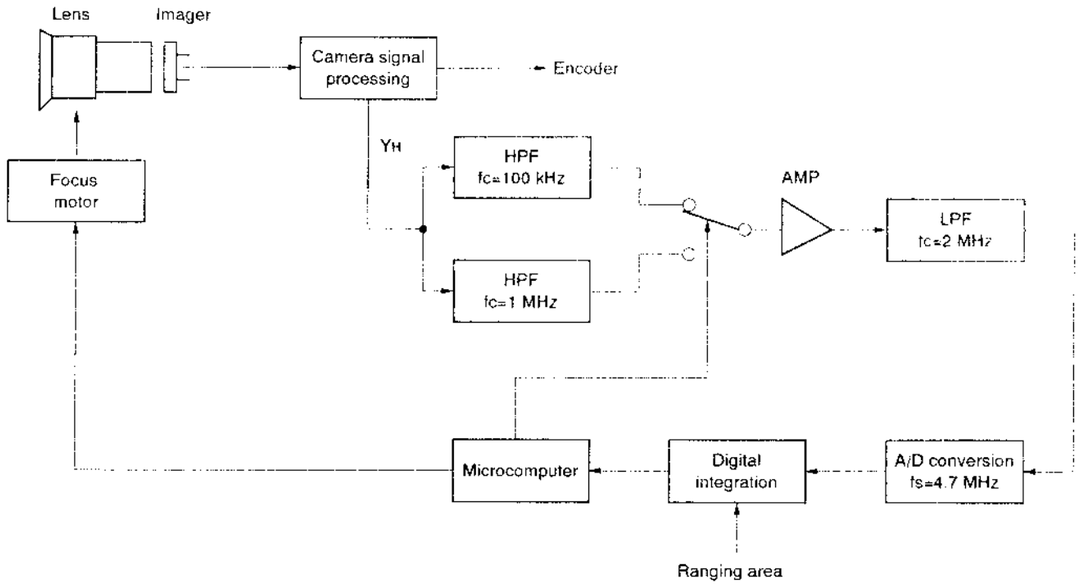
2. Auto focus system of this unit
(Λ -AF: image processing system)

The high frequency components of the video signal (actually luminance signal)are microcomputer processed by TCL without using external sensors to control the focus.

3. Outline of operation

The frequency components from 100k to 2 MHz and from 1M to 2 MHz are extracted from the luminance signal Y, and these are digitally integrated for each field. This integration value is called the evaluation value. This evaluation value becomes the information for auto focusing, and the focus ring is controlled by finding the peaks in the evaluation values based on the concepts that:

Picture is in focus → edges of image become clearer → high frequency components of image increase → evaluation value increases



3-9-5. Mode/Mechanism Control — Video, Audio Block Interface

Signal	I/O	Pin No.	STOP	FF	REW	CUE	REVIEW	PB	PB · PAUSE	REC	REC · PAUSE
ME/MP	O	Pin ⑪ of CN501 on CO-2P board	*1	*1	*1	*1	*1	*1	*1	*1	*1
SP/LP	O	Pin ⑦ of IC501 on CO-2P board	*17	*17	*17	*2	*2	*2	*2	*17	*17
JOG	O	Pin ⑧ of IC501 on CO-2P board	L	L	L	H	H	L	H	L	L
VA PB MODE	O	Pin ⑨ of IC501 on CO-2P board	L	L	L	H	H	H	H	L	L
VIDEO CS	O	Pin ⑬ of IC501 on CO-2P board	*3	*3	*3	*3	*3	*3	*3	*3	*3
AUDIO MUTE	O	Pin ⑭ of IC501 on CO-2P board	L	L	L	H	H	L	H	L	L
$\overline{\text{VP SAVE}}$ *16	O	Pin ㉘ of IC501 on CO-2P board	H	H	H	L	L	L	L	L	H
SYNC DET *14	O	Pin ㉙ of IC501 on CO-2P board	*4	*4	*4	*5	*5	*5	*5	*4	*4
COSMO SO	O	Pin ㉞ of IC501 on CO-2P board	*6	*6	*6	*6	*6	*6	*6	*6	*6
COSMO SCK	O	Pin ㉟ of IC501 on CO-2P board	*7	*7	*7	*7	*7	*7	*7	*7	*7
CLOG	I	Pin ㊲ of IC501 on CO-2P board	H	*8	*8	*8	*8	*8	*8	H	H
COMP SYNC	I	Pin ㊳ of IC501 on CO-2P board	*9	*9	*9	*9	*9	*9	*9	*9	*9
PB SP/LP	I	Pin ㊴ of IC501 on CO-2P board	L	*10	*10	*10	*10	L	L	L	L
CAM/LINE	O	Pin ㊸ of IC501 on CO-2P board	*11	*11	*11	*11	*11	*11	*11	*11	*11
VIDEO MUTE *15	O	Pin ㊹ of IC501 on CO-2P board	L	L	L	L	L	L	L	L	L
RP PB MODE	O	Pin ㊶ of IC501 on CO-2P board	L	L	L	H	H	H	H	L	L
FE ON	O	Pin ㊷ of IC501 on CO-2P board	H	H	H	H	H	H	H	L	H
JOG VD	O	Pin ㊷ of IC501 on CO-2P board	L	L	L	*12	*12	L	*12	L	L
RF SWP	O	Pin ㊵ of IC501 on CO-2P board	H	*13	*13	*13	*13	*13	*13	*13	*13

*1. "L" when using MP tape
*2. According to recorded mode of PB tape (SP: "H", LP: "L")
*3. Approx. 20 msec period "L" pulse. Chip select signal to video IC (IC201 and IC203 on CV-9 board)
*4. "H" when video signals are input.
*5. "H" when video signals are played back.
*6. 1V period "L" pulse train
*7. 1V period "L" pulse train
*8. Video head clog: "H", Normally: "L"
*9. Positive polarity composite sync signal
*10. SP mode recorded tape. "H", LP mode recorded tape: "L"
*11. "L" when the power switch is set to VIDEO position and "H" when CAMERA position.
*12. 1V period "H" pulse
*13. 2V period duty 50% pulse
*14. Detects a composite sync signal input at pin ㉙ of IC501
*15. "H" when STOP to/from PB mode transition period.
*16. This signal switches a power (on/off) of video circuit IC202 and IC203.
*17. Depends on the SP/LP switch (S510 on the VK-11P board) position (SP: "H", LP: "L")

3-9-6. Mode/Mechanism Control — Servo Peripheral Circuit Interface

Signal	I/O	Pin No.	EJECTED	THREAD-ING	UN THREAD-ING	STOP	FF	REW	CUE	REVIEW	PB	PB · PAUSE	REC	REC · PAUSE
SEL 2 *17	O	Pin ① of IC501 on CO-2P board	L	L	L	L	H	H	*3	*3	*2	H	*1	H
SEL 1 *17	O	Pin ② of IC501 on CO-2P board	H	H	H	H	H	H	*3	*3	*2	L	*1	H
TS B *18	O	Pin ④ of IC501 on CO-2P board	L	L	L	L	L	L	*3	*3	*2	*16	*1	L
DRUM ON	O	Pin ⑩ of IC501 on CO-2P board	L	H	H	L	H	H	H	H	H	H	H	H
SW POSI ADJ	I	Pin ㊿ of IC501 on CO-2P board	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5	*5
ATF ERROR	I	Pin ㊶ of IC501 on CO-2P board	*6	*6	*6	*6	*7	*7	*7	*7	*7	*7	*6	*6
DRUM PG	I	Pins ㊺ and ㊻ of IC501 on CO-2P board	L	*8	*8	L	*8	*8	*8	*8	*8	*8	*8	*8
DRUM FG	I	Pin ㊶ of IC501 on CO-2P board	H	*9	*9	H	*9	*9	*9	*9	*9	*9	*9	*9
CAP FG	I	Pins ㊷ and ㊸ of IC501 on CO-2P board	H/L	PULSE	PULSE	H/L	*10	*10	*10	*10	*10	H/L	*10	H/L
CAP D/A	I	Pin ㊹ of IC501 on CO-2P board	L	*11	*11	L	*11	*11	*11	*11	*11	L	*11	L
DRUM D/A	O	Pin ㊺ of IC501 on CO-2P board	L	*12	*12	L	*12	*12	*12	*12	*12	*12	*12	*12
CAP PWM	O	Pin ㊼ of IC501 on CO-2P board	L	*13	*13	L	*13	*13	*13	*13	*13	L	*13	L
DRUM FWD/REV	O	Pin ㊽ of IC501 on CO-2P board	*14	*14	*14	*14	*14	*14	*14	*14	*14	*14	*14	*14
CAP ON	O	Pin ㊾ of IC501 on CO-2P board	L	H	H	L	H	H	H	H	H	L	H	L
CAP FWD/$\overline{\text{RVS}}$	O	Pin ㊿ of IC501 on CO-2P board	L	L	H	L	H	L	H	L	H	L	H	L
RF SWP	O	Pin ㊿ of IC501 on CO-2P board	H	*15	*15	H	*15	*15	*15	*15	*15	*15	*15	*15

*1. See timing chart 1.
*2. See timing chart 2.
*3. See timing chart 3.
*4. 1V period "H" pulse
*5. DC voltage set with RV501 (Switching position adjustment)
*6. Approx. 2.3 Vdc constant
*7. ATF error voltage
*8. 2V period "H" pulse
*9. 1.7 msec period pulse
*10. Pulses of frequecy in proportion to tape speed
*11. "H" pulse output when rising or falling edges of the capstan, Normaly: "HIZ"
*12. 6 msec period PWM signal (tri-state) of "H", "L" and "HIZ" (2.5 Vdc)
*13. 64 μsec period PWM signal
*14. Normally: "H"
*15. 2V period duty 50% pulse
*16. V period "L" pulse
*17. ATF REF PILOT signal frequency (f1 to f4) selecting signal
*18. ATF AGC timing control signal

3-9-7. Mode/Mechanism Control — Mode/Mechanism Control Peripheral Circuit Interface

Signal	I/O	Pin No.	I/O Level
VTR DD ON	O	Pin ③ of IC501 on CO-2P board	VTR DC/DC converter on/off signal "H" when power of video or camera is turned on.
CAM DD ON	O	Pin ⑤ of IC501 on CO-2P board	Camera DC/DC converter on/off signal "H" when power of camera is turned on.
DATA SCREEN	O	Pin ⑥ of IC501 on CO-2P board	"H" when data screen is turned on.
SP/$\overline{LP}$	O	Pin ⑦ of IC501 on CO-2P board	"H" during SP recording mode or playback of tape recorded in SP mode
$\overline{SYS\ RESET}$	O	Pin ⑫ of IC501 on CO-2P board	Reset signal of AF microcomputer (IC802 on the CV-9 board) Normally: "H" ("L" pulse when power of video or camera is turned on.)
$\overline{M\ IN\ 3}$	I	Pin ⑮ of IC501 on CO-2P board	No key matrix input signal: "H" (Other: "L")
$\overline{M\ IN\ 2}$	I	Pin ⑯ of IC501 on CO-2P board	No key matrix input signal: "H" (Other: "L")
$\overline{M\ IN\ 1}$	I	Pin ⑰ of IC501 on CO-2P board	No key matrix input signal: "H" (Other: "L")
$\overline{M\ IN\ 0}$	I	Pin ⑱ of IC501 on CO-2P board	No key matrix input signal: "H" (Other: "L")
T/E LED	O	Pin ⑲ of IC501 on CO-2P board	Tape top/end LED lighting control signal STOP/PB/REC/PB·PAUSE/REC·PAUSE/REVIEW: 170 msec period "H" pulse, CUE: 22 msec period "H" pulse, FF/REW: 4 msec period "H" pulse, EJECT or CASSETTE IN detecting: 22 msec period "H" pulse
LM UNLD	O	Pin ⑳ of IC501 on CO-2P board	Normally: "L" ("H" in Unthreading, "H" pulse is output in Mechanical mode transition)
LM LD	O	Pin ㉑ of IC501 on CO-2P board	Normally: "L" ("H" in Threading, "H" pulse is output in Mechanical mode transition)
M OUT 4	O	Pin ㉒ of IC501 on CO-2P board	Key matrix output signal 20 msec period "H" pulse
M OUT 3	O	Pin ㉓ of IC501 on CO-2P board	Key matrix output signal 20 msec period "H" pulse
$\overline{M\ OUT\ 2}$	O	Pin ㉔ of IC501 on CO-2P board	Key matrix output signal 20 msec period "L" pulse
$\overline{M\ OUT\ 1}$	O	Pin ㉕ of IC501 on CO-2P board	Key matrix output signal 20 msec period "L" pulse
$\overline{M\ OUT\ 0}$	O	Pin ㉖ of IC501 on CO-2P board	Key matrix output signal 20 msec period "L" pulse
$\overline{TALLY}$	O	Pin ㉗ of IC501 on CO-2P board	TALLY LED control signal. Normaliy: "H" ("L" during REC mode when power switch is set to CAMERA position)

Signal	I/O	Pin No.	I/O Level
$\overline{RESET}$	I	Pin ㉜ of IC501 on CO-2P board	Normally: "H" (Reset: "L")
$\overline{COSMO\ CS}$	I	Pin ㉞ of IC501 on CO-2P board	1V period "L" pulse (18 msec period in VTR mode)
COSMO SI	I	Pin ㉟ of IC501 on CO-2P board	1V period "H" pulse train (18 msec period in VTR mode)
COSMO SO	O	Pin ㊱ of IC501 on CO-2P board	1V period "L" pulse train (18 msec period in VTR mode)
$\overline{COSMO\ SCK}$	I/O	Pin ㊲ of IC501 on CO-2P board	1V period "L" pulse train (18 msec period in VTR mode)
$\overline{CAM\ P\ SW}$	I	Pin ㊵ of IC501 on CO-2P board	"L" when power switch (S501 on the VK-11P board) is set to CAMERA position and standby switch (S951 on the RC-40P board) to STANDBY position.
$\overline{M\ IN\ 5}$	I	Pin ㊷ of IC501 on CO-2P board	No key matrix input signal: "H" (Other: "L")
$\overline{M\ IN\ 4}$	I	Pin ㊸ of IC501 on CO-2P board	No key matrix input signal: "H" (Other: "L")
$\overline{START/STOP}$	O	Pin ㊹ of IC501 on CO-2P board	Normally: "H" ("L" when start/stop button (S952 on the RC-40P board or S451 on the MA-66P board) is pressed.)
$\overline{EJECT}$	I	Pin ㊺ of IC501 on CO-2P board	Normally: "H" ("L" when EJECT switch (S508 on VK-11P board) is pressed.)
$\overline{LINCS}$	I	Pin ㊻ of IC501 on CO-2P board	Normally: "H" ("L" pulse when power button of the remote controller is turned on.)
$\overline{DEW}$	I	Pin ㊼ of IC501 on CO-2P board	Normally: "H" ("L" when dew)
BATT DOWN	I	Pin ㊽ of IC501 on CO-2P board	Main battery voltage (CAM UNREG) is divided by RV551 (battery down adjustment) and input. For detecting battery end/pre-end.
STILL ADJ	I	Pin ㊾ of IC501 on CO-2P board	DC voltage set by RV552 (STILL adjustment) on the CV-9 board is input.
CLOG	I	Pin ㊼ of IC501 on CO-2P board	Normal playback: "L" ("H" when PB RF signal is not reproduced due to head clog, etc..
PB SP/$\overline{LP}$	I	Pin ㊾ of IC501 on CO-2P board	Recording speed mode detection signal in FF, REW, CUE or REVIEW mode ("H" in SP mode, "L" in LP mode)
$\overline{VTR\ P\ SW}$	I	Pin ㊿ of IC501 on CO-2P board	"Normally: "H" ("L" when power switch (S501 on the VK-11P board) is set to video position.)

3-9-8. Mode/Mechanism Control — Mechanism Block Interface

Signal	I/O	Pin No.	I/O Level
S REEL FG	I	Pin ③ of CN001 on CC-51P board	Pulse (Approx. 4 Vp-p) that is generated by S-reel rotation. It is approx. 1 sec period in REC/PB (SP) mode.
MODE SW 2	I	Pin ④ of CN001 on CC-51P board	Pins are connected to mode switch for mechanical position detection.
MODE SW 1	I	Pin ⑤ of CN001 on CC-51P board	
MODE SW 0	I	Pin ⑥ of CN001 on CC-51P board	
$\overline{\text{M OUT 0}}$ (COM)	O	Pin ⑦ of CN001 on CC-51P board	
CC DOWN	I	Pin ⑧ of CN001 on CC-51P board	It is connected to cassette compartment down detection (CC DOWN) switch. When cassette compartment comes down, connection between Pins ⑧ and ⑦ are short-circuited. When cassette compartment comes up, connection between Pins ⑧ and ⑦ is open.
$\overline{\text{MOUT 0}}$ (COM)	O	Pin ⑦ of CN001 on CC-51P board	
END SENS	I	Pin ⑩ of CN001 on CC-51P board	Normally: "L" ("H" pulse is output in tape end or cassette unloaded)
13/10	I	Pin ⑪ of CN001 on CC-51P board	Not used
TOP END LED	O	Pin ⑤ of CN002 on CC-51P board	"L" pulse (approx. 1 Vp-p) (pulse period is changed from 12 to 170 msec according to operation mode.)
TOP SENS	I	Pin ⑦ of CN002 on CC-51P board	Normally: "L" ("H" pulse is output in tape top or cassette unloaded)
ME/$\overline{\text{MP}}$	I	Pin ② of CN002 on CC-51P board	"L" in MP tape ("H" pulse (20 msec period) in cassette unloaded)
REC PROOF	I	Pin ④ of CN002 on CC-51P board	"L" when recording possible cassette is loaded. "H" pulse (20 msec period) is output, when recording inhibiting cassette is loaded.
T REEL FG	I	Pin ⑨ of CN002 on CC-51P board	Pulse (Approx. 4 Vp-p) that is generated by T-reel rotation, in REC/PB (SP) mode, it is approx. 1 sec period.

Pins are connected to mode switch for mechanical position detection.

	EJECTED	THREADING UNTHREADING	STOP	REC/PB/FF/ REW/CUE/ REVIEW/PAUSE
MODE SW 2 (④–⑦)	○	○	×	○
MODE SW 1 (⑤–⑦)	×	○	○	×
MODE SW 0 (⑥–⑦)	×	×	○	○

×……Open
○……Short

3-9-9. DDS Microcomputer (IC651 on CK-43P Board) — Peripheral Circuit Interface

PIN No.	Signal Name	I/O	Function and I/O Level
1	CMI 0	I	Key matrix input signal. Normally "H". When key input, "L" pulse for 18 ms (VTR mode) or 1V period (camera mode).
2	CMI 1	I	
3	CMI 2	I	
4	CMI 3	I	
5	$\overline{\text{CMO 0}}$	O	Key matrix output signal. "L" pulse for 18 ms (VTR mode) or 1V period (camera mode).
6	$\overline{\text{CMO 1}}$	O	
7	$\overline{\text{CMO 2}}$	O	
8	$\overline{\text{CMO 3}}$	O	
15	RESET	I	Normally "L".
16	CL 1	I	System clock oscillation pin. • Video power ON or camera power ON Continuous oscillation (oscillation frequency approx. 320 kHz) • Power OFF or backed up by lithium battery 500 ms intermittent oscillation (oscillation frequency approx. 70 kHz)
18	CL 2	O	
19	INT 1	I	Interrupt input by camera VD. VTR mode: "H" Camera mode: 1V period "H" pulse
21	$\overline{\text{DDS SCK}}$	I/O	Serial communication serial clock I/O. V period "L" pulse train.
22	DDS SO	O	Serial communication data output. V period "H" pulse train.
24	DDS SI	I	Serial communication data input. V period "L" pulse train.
25	CG BUSY	I	Busy signal input from character generator. V period "H" pulse train.
26	VTR PWR	I	SS 5V power detection. "H" while power ON.
27	LI PE	I	Lithium battery pre-end detection. Normally "H". "L" when lithium battery voltage drops.
28	$\overline{\text{TEST}}$	I	Test mode input. Normally "H".
29	CG STB	O	Strobe signal for character generator. 1V period "H" pulse train.
30	$\overline{\text{COSMO CS}}$	O	Chip select signal to servo/system control microcomputer (IC501 on CO-2P board). 1V period "L" pulse.
31	$\overline{\text{EVR CS}}$	O	Chip select signal to EVR microcomputer (IC601 on CV-9 board). 1V period "L" pulse.
32	CMO 4	O	Key matrix output signal. "H" pulse for 18 ms (VTR mode) or 1V period (camera mode).
34	TITLE CS	O	Chip select signal to title controller (IC902 on LI-10 board). VTR mode: "L" Camera mode: 1V period "H" pulse.
35	SRAM CS	O	Chip select signal to static RAM (IC903 on LI-10 board). VTR mode: "L" Camera mode: Normally "L". "H" during title operation.
36	TG STB	O	Strobe signal to timing generator (CV-9 board, DT-79 board). Camera mode: 1V period "H" pulse. VTR mode: "L"
38	X1		Crystal oscillation circuit for clock. Oscillation frequency of 32.768 kHz.
39	X2		

3-9-10. EVR Microcomputer (IC601 on CV-9 Board) — Peripheral Circuit Interface

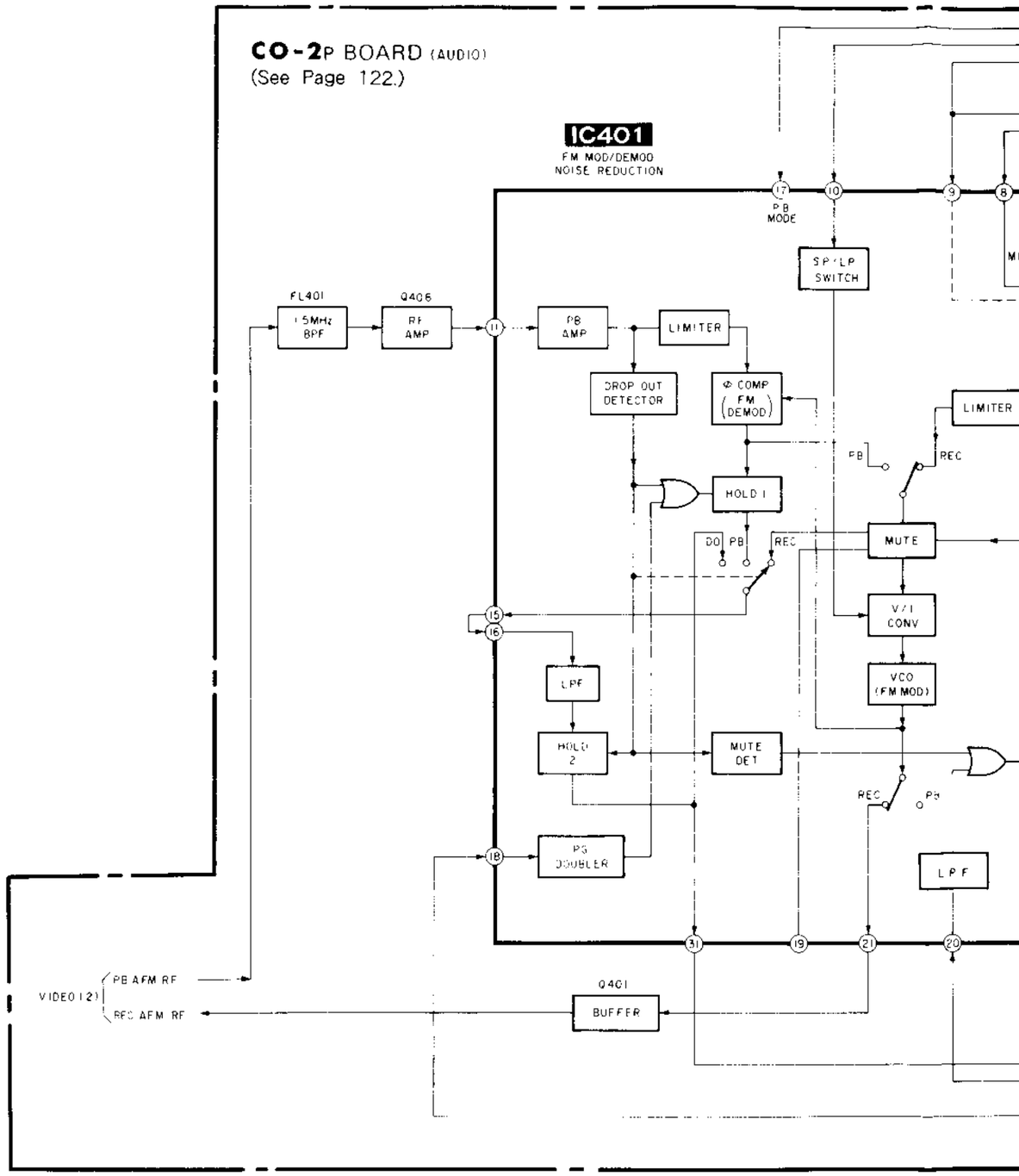
PIN No.	Signal Name	I/O	Function and I/O Level
1	–		–
2	DA SSW	O	"H" only during communication with serial switching D/A converter. V period "H" pulse.
3	$\overline{\text{EVR SCLK}}$	O	Serial clock output. V period "L" pulse train.
4	EVR SI	I	Serial data input. V period "H" pulse train.
5	EVR SO	O	Serial data output. V period "L" pulse train.
6	$\overline{\text{EVR CS}}$	I	Communication request from DDS. V period "L" pulse.
7	L IN	I	LINCS input. L: 0, H: 1. V period "H" pulse train.
8	L OUT	O	LINCS output. L: 0, H: 1. V period "H" pulse train.
9	$\overline{\text{CAM ADJ}}$	I	Normal/Adjust selection. Normally "H". "L" during adjustment.
10	NC	–	NC
11	DDS SSW	O	DDS serial selection. V period "L" pulse.
12, 13	LD	O	Data load instruction to EVR (IC608, IC609). V period "H" pulse.
14	BL	–	"L" for back light compensation ON.
15	IN/OUT	I	Indoors/outdoors mode discrimination input. "H": indoors, "L": outdoors.
16	–		
17	V_{PP}		EEPROM write voltage supply: connected to GND.
18			GND
19	–	–	
20	PAL/$\overline{\text{NTSC}}$	I	Broadcast system selection. L: NTSC, H: PAL.
21	GND		–
22	GND		–
23	GND		–
24, 25	GND		–
26	GND	–	–
27	GND	–	–
28	CAM 5V	I	Camera power on monitoring. L: CAM OFF, H: CAM ON.
29	AW IN	I	AWB A/D timer stop. Pattern drive interrupt. Normally 2V period pulse.
30	AW ADJ	O	AWB preset data fetch. Normally "L". "H" during auto white balance adjustment.
31	–	–	NC
32	DPCS	–	–
33	–	–	–
34	S3SW	O	AWB measurement signal selection. 3V period "H" pulse.
35	S2SW	O	AWB measurement signal selection. 3V period "H" pulse.
36	DISCHG	O	Capacitor reset pulse for timer measurement lamp voltage generation. V period "H" pulse.
37	–	–	–
38	S1SW	O	AWB measurement signal selection. 3V period "H" pulse.
39	–	–	–
40	OSC2	O	Built-in inverter output for oscillation. Oscillation frequency: 4 MHz.
41	OSC1	I	Built-in inverter input for oscillation.
42	V_{DD}		Connected to EVER 5V.
43	–		–
44	$\overline{\text{RESET}}$		Normally "H". "L" when reset.
45	$\overline{\text{IRQ}}$		Connected to $\overline{\text{EVR CS}}$ signal. V period "L" pulse.
46	–	–	EVER 5V
47	–	–	EVER 5V
48	$\overline{\text{A/D EN}}$	O	1-bit A/D converter operation ON/OFF output for titler. Normally "H". Not used.

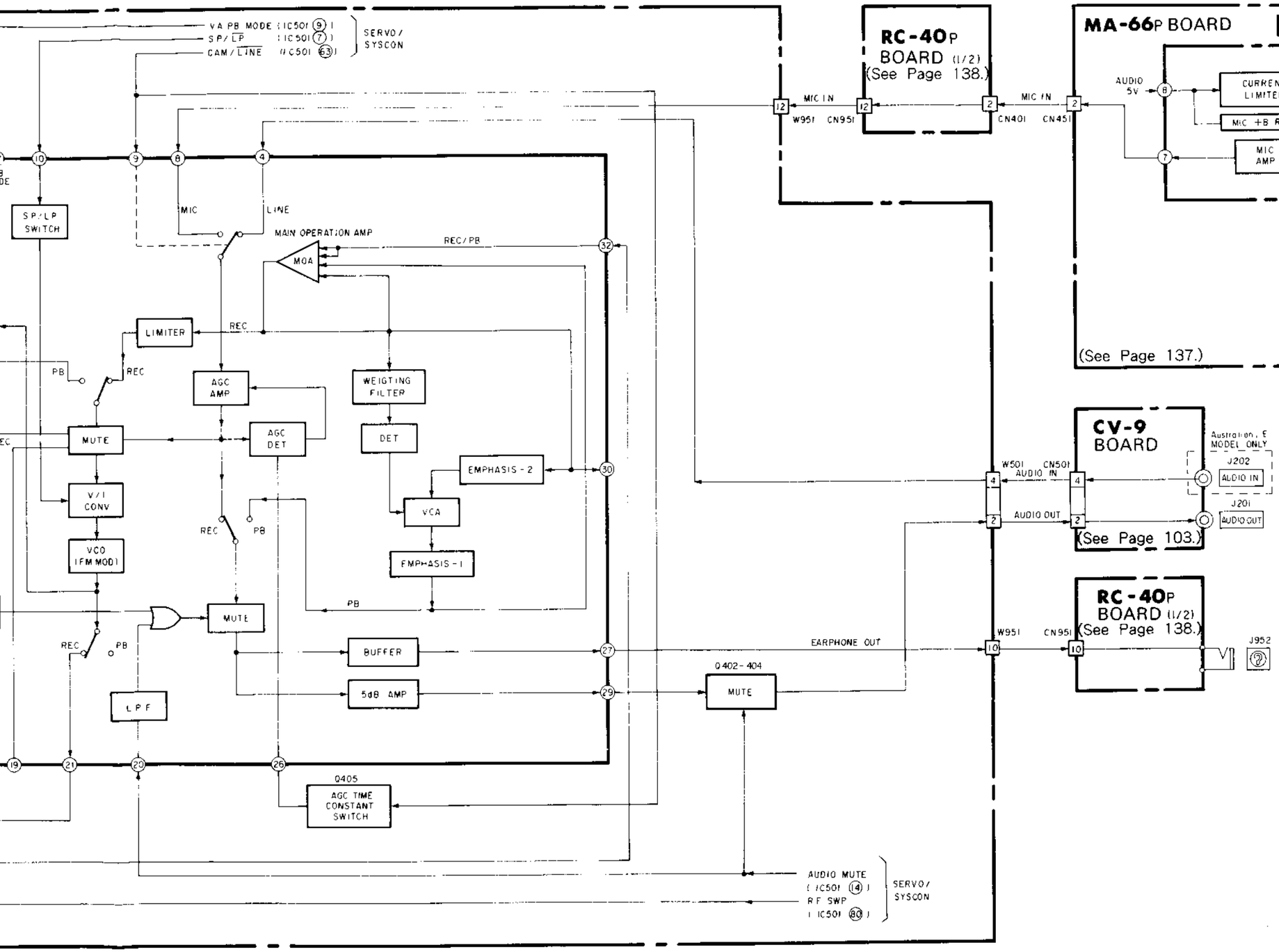
3-9-11. AF Microcomputer (IC802 on CV-9 Board) — Peripheral Circuit Interface

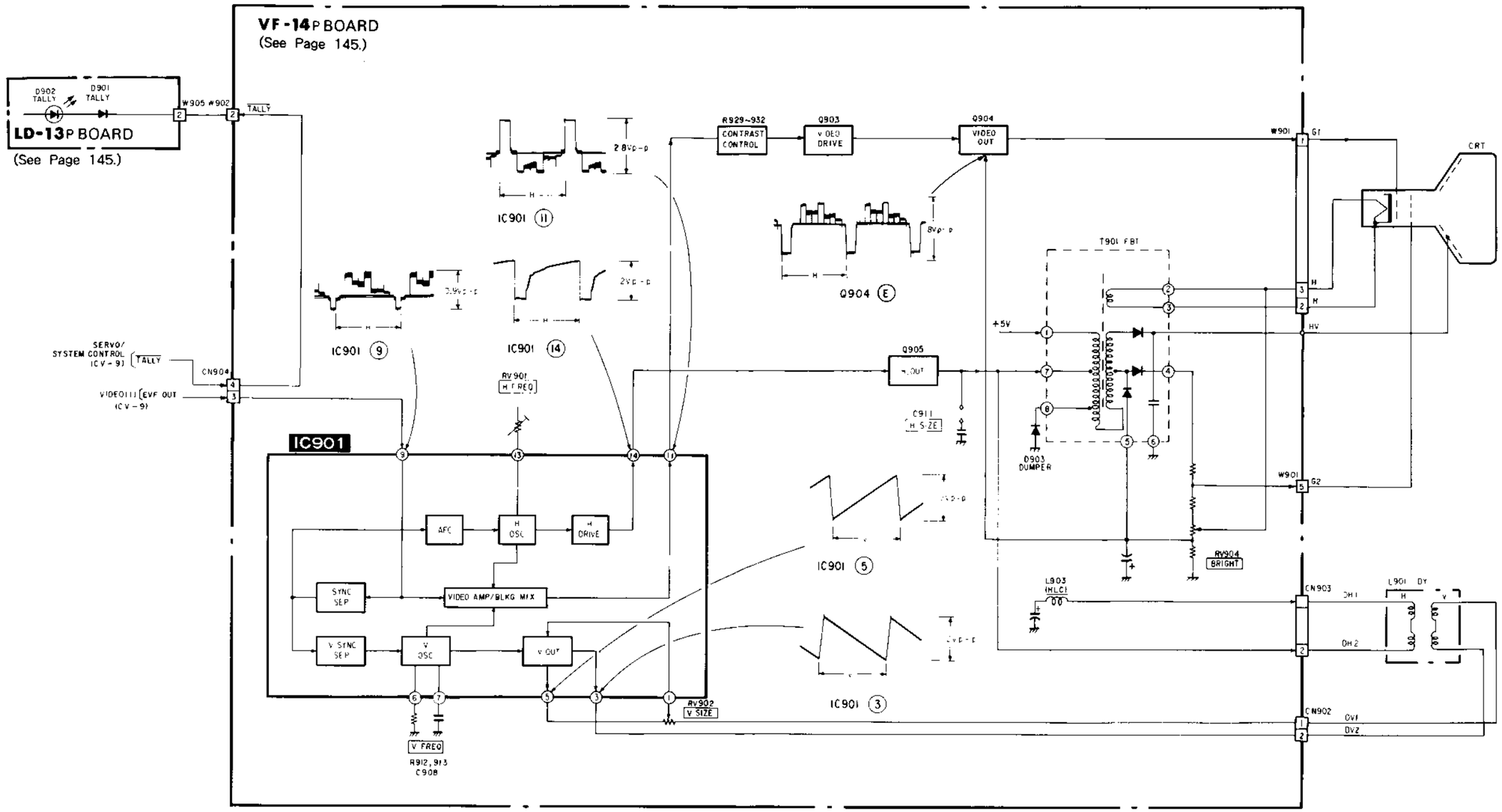
PIN No.	Signal Name	I/O	Function and I/O Level
1	$\overline{\text{SS}}$ OUT	O	EVR data read timing output (PD5 SS input). V period "L" pulse train.
2	IRIS IN/$\overline{\text{OUT}}$	O	Indoors/outdoors determination according to aperture value. "H" for indoors and "L" for outdoors.
3			
4			
5			
6	$\overline{\text{LOW CONTRAST}}$	O	Signal to DDS microcomputer (IC651 on CK-43P board). "L" when subject has low contrast.
7	–	–	
8			Not used.
9	–	–	
10	–	–	
11	$\overline{\text{ZOOM T}}$	O	Normally "H". "L" when zoom motor is rotated in telephoto direction by remote control.
12	$\overline{\text{ZOOM W}}$	O	Normally "H". "L" when zoom motor is rotated in wide angle direction by remote control.
13	Focus N	O	Normally "L". "H" when focus motor is rotated in close range direction.
14	–	–	
15	Focus ∞	O	Normally "L". "H" when focus motor is rotated in far range direction.
16	F SPD ϕ	O	Bit 0 (LSB) of focus motor speed control signal.
17	–	–	
18	F SPD1	O	Bit 1 of focus motor speed control signal.
19	F SPD2	O	Bit 2 of focus motor speed control signal.
20	–	–	
21	F SPD3	O	Bit 3 (MSB) of focus motor speed control signal.
22	–	–	
23	Vss	–	Connected to GND.
24	Vss	–	Connected to GND.
25	–	–	
26	$\overline{\text{Focus N}}$	I	"L" when focus ring is at close range edge.
27	–	–	
28	–	–	
29	–	–	
30	$\overline{\text{FOCUS ∞}}$	O	"L" when focus ring is at far range edge.
31	AF SSW	O	Timing output for bus selection. V period "H" pulse.
32	–	–	
33	DA STB	O	For AF D/A converter data latch. V period "H" pulse train.
34	PAL/$\overline{\text{NTSC}}$	I	NTSC/PAL selection.
35	–	–	
36	$\overline{\text{J STB}}$	O	For external display jig data latch. V period "L" pulse.
37	XCS	O	Active "L" for communication request to IC801 CXD-1204. V period "L" pulse.
38	TEST	–	Connected to V_{DD}.
39	–	–	
40	MODE		Connected to V_{DD}.
41	MISO	I/O	SPI Master: in, Slave: out. V period "H" pulse train.
42	MOSI	I/O	SPI Master: out, Slave: in. V period "L" pulse train.
43	$\overline{\text{SCK}}$	I/O	SPI serial clock. V period "L" pulse train.
44	–	–	
45	$\overline{\text{SS}}$	I	V period "L" pulse train.
46	–	–	

PIN No.	Signal Name	I/O	Function and I/O Level
48	$\overline{\text{EVR CS}}$	I	"L" for EVR data communication request from DDS microcomputer. V period "L" pulse.
49	–	–	
50	–	–	
51	$\overline{\text{Focus FG}}$	I	Interrupt generation at falling edge of focus motor FG. "H" when auto focus OFF. When auto focus ON, "L" pulse with period according to rotational speed of focus motor.
52	CLK OUT	O	Waveform shaped output of Pin ㊹ clock. (1.79 MHz)
53	–	–	
54	CLK IN	I	External clock input. 14.3 MHz clock input to Pin ㉘ of IC801 is divided to 1/8 and input.
55	V_{DD}		CAM 4.9V
56	–	–	
57	–	–	
58	–	–	
59	–	–	
60	$\overline{\text{SYS RST}}$	I	Normally "H". "L" when reset.
61	AREA	I	Interrupt generation at falling edge from CXD-1204 (IC801). V period pulse.
62	V_{PP}		CAM 4.9V
63	WND W/$\overline{\text{N}}$	I	Auto focus range area selection. Connected to V_{DD} by 100 kΩ (fixed at wide range side).
64	–	–	

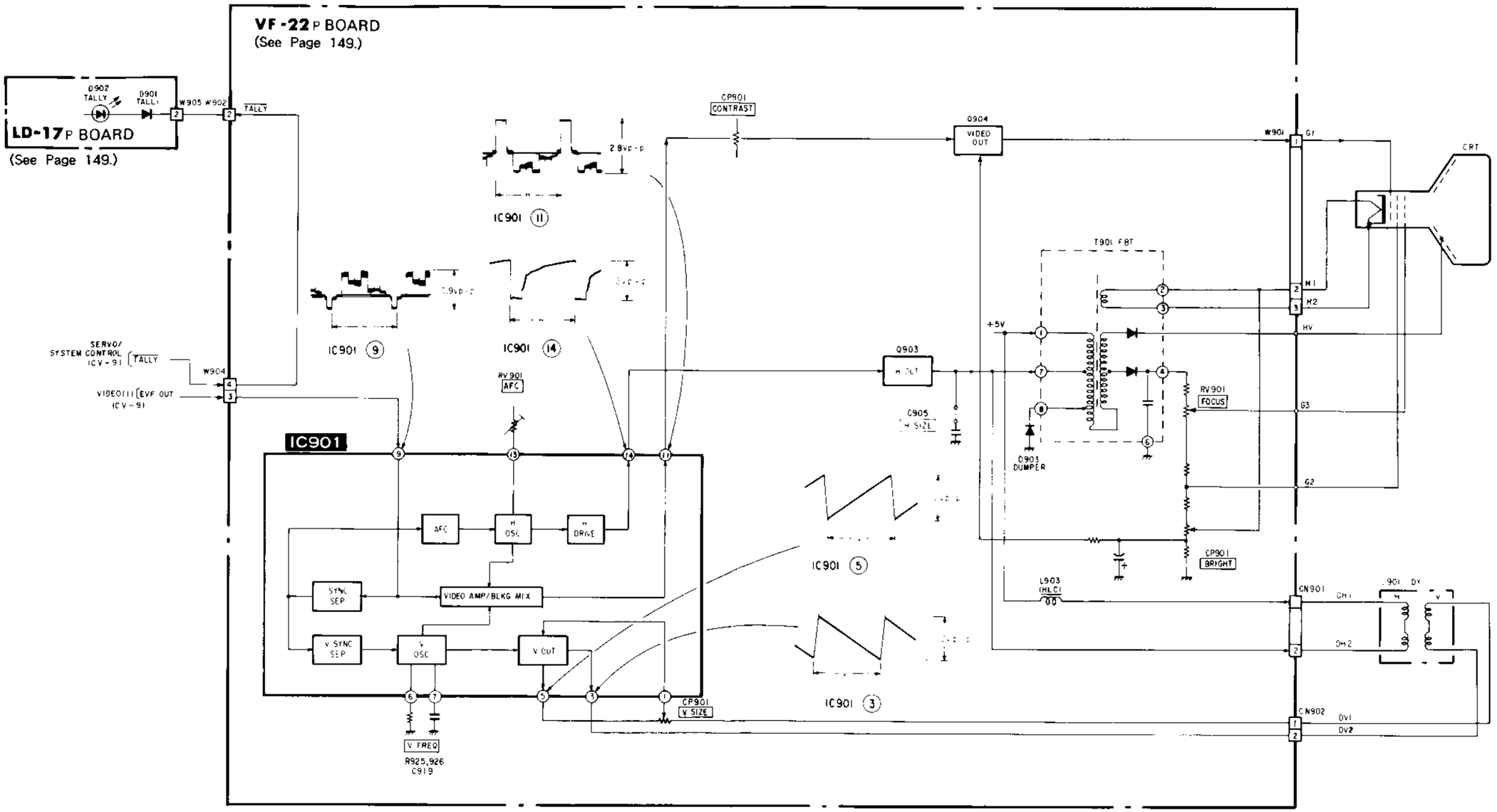
3-10. AUDIO BLOCK DIAGRAM



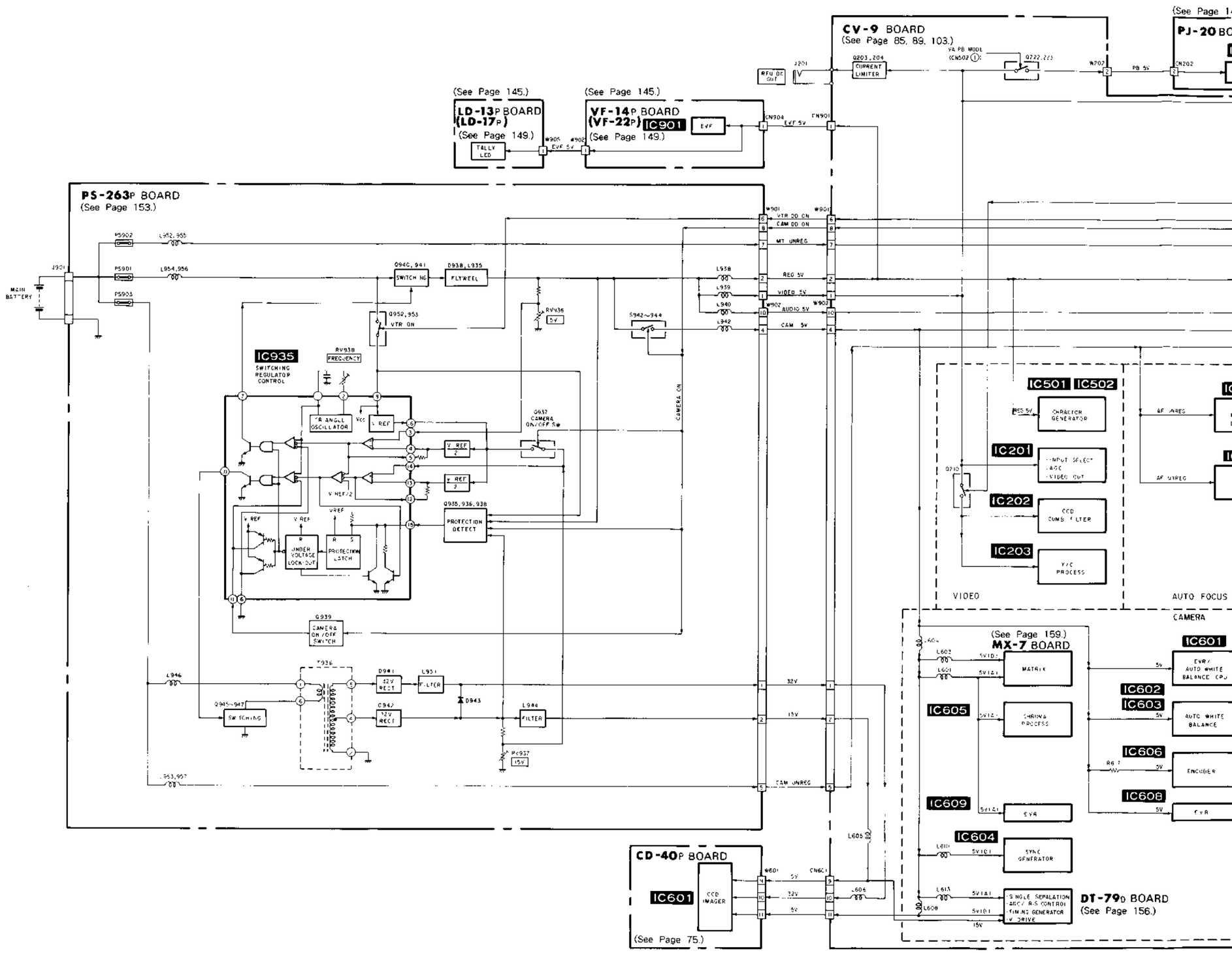

V/A PB MODE (IC501 (9))
SP/LP (IC501 (7))
CAM/LINE (IC501 (63))
SERVO/SYSCON
SP/LP SWITCH
MIC
LINE
MAIN OPERATION AMP
MOA
REC/PB
LIMITER
REC
PB
AGC AMP
AGC DET
WEIGTING FILTER
DET
MUTE
V/I CONV
VCO (FM MOD)
EMPHASIS-2
VCA
EMPHASIS-1
PB
MUTE
BUFFER
5dB AMP
EARPHONE OUT
Q402-404
MUTE
LPF
Q405
AGC TIME CONSTANT SWITCH
AUDIO MUTE (IC501 (14))
RF SWP (IC501 (80))
SERVO/SYSCON
RC-40P BOARD (1/2)
(See Page 138.)
MIC IN
W951 CN951
MIC IN
CN401 CN451
MA-66P BOARD
IC451
AUDIO 5V
CURRENT LIMITER
MIC +B REG
MIC AMP
LOW CUT FILTER
J452
MIC DC OUT
CN452
MIC UNIT
J451
MIC
(See Page 137.)
CV-9 BOARD
W501 CN501
AUDIO IN
AUDIO OUT
Australian, E MODEL ONLY
J202
AUDIO IN
J201
AUDIO OUT
(See Page 103.)
RC-40P BOARD (1/2)
(See Page 138.)
W951
CN951
J952

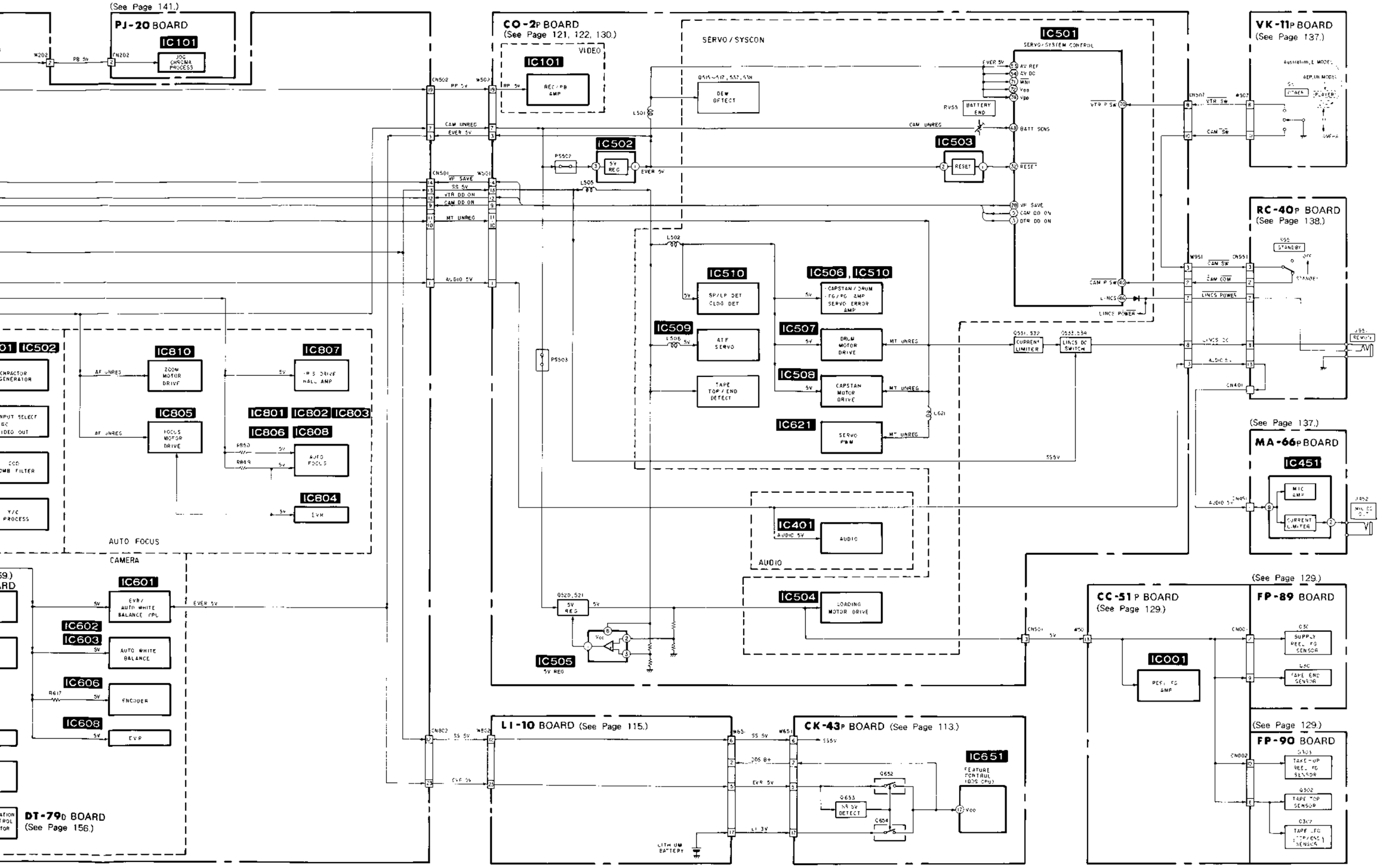

VF-14P BOARD
(See Page 145.)
LD-13P BOARD
(See Page 145.)
D902 TALLY
D901 TALLY
W905 W902
TALLY
SERVO/ SYSTEM CONTROL (CV-9)
VIDEO (EVF OUT (CV-9)
CN904
IC901
IC901 (9)
IC901 (11)
IC901 (14)
IC901 (5)
IC901 (3)
RV901 H FREQ
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
RV902 V SIZE
V FREQ
R912, 913
C908
R929~932
CONTRAST CONTROL
Q903
VIDEO DRIVE
Q904
VIDEO OUT
Q904 (E)
Q905
C911
H SIZE
D903 DUMPER
T901 FBT
+5V
W901
G1
G2
H
HV
CRT
RV904 BRIGHT
L903 (HLC)
CN903
DH1
DH2
L901 DY
CN902
DV1
DV2

3-12. VIEW FINDER BLOCK DIAGRAM (TYPE B)

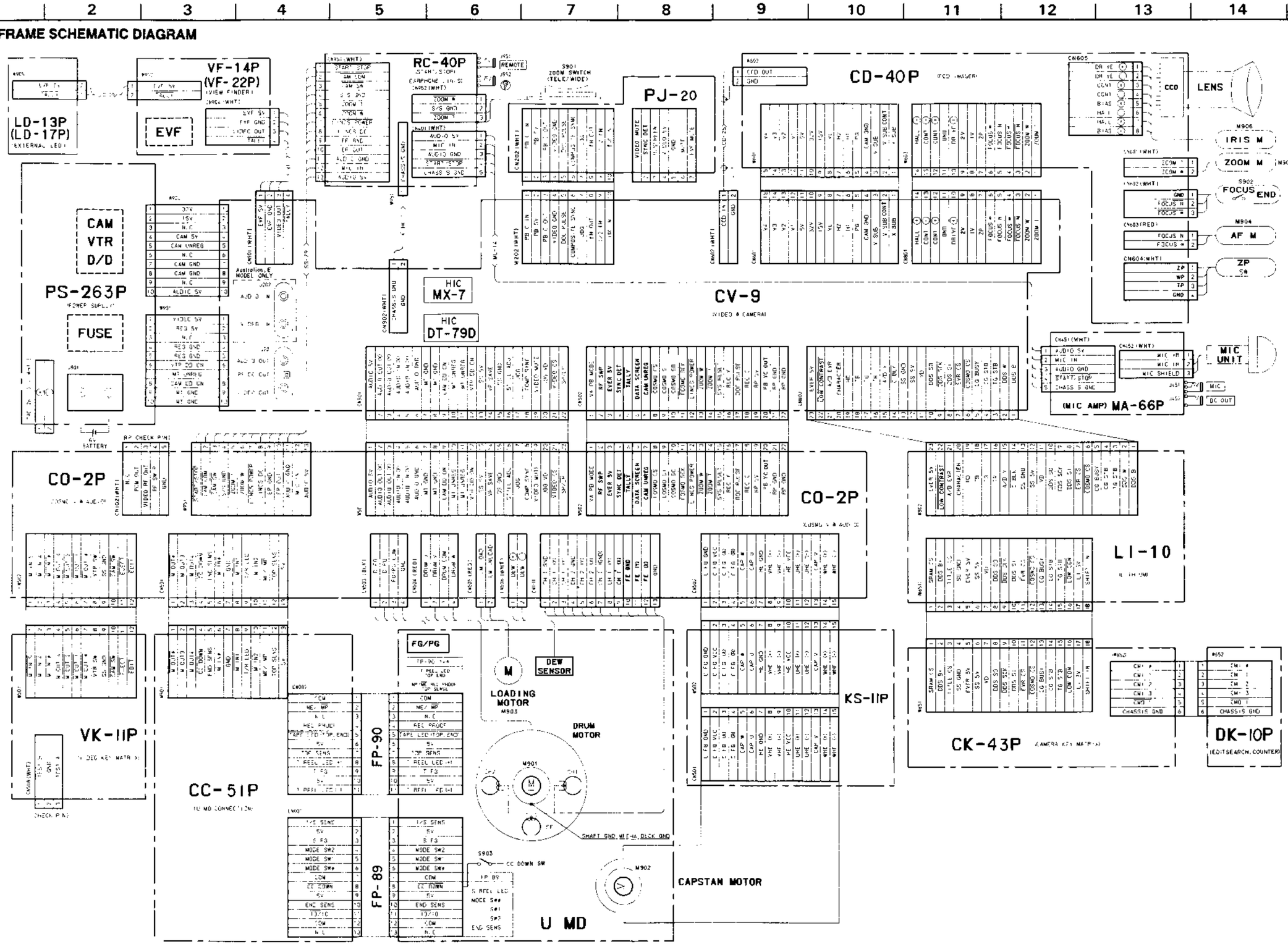


3-13. POWER BLOCK DIAGRAM




(See Page 141.)
PJ-20 BOARD
IC101
JOG CHROMA PROCESS
CO-2P BOARD
(See Page 121, 122, 130.)
VIDEO
IC101
REC / PB AMP
SERVO / SYSCON
IC501
SERVO / SYSTEM CONTROL
DEW DETECT
BATTERY END
IC502
5V REG
IC503
RESET
VK-11P BOARD
(See Page 137.)
RC-40P BOARD
(See Page 138.)
STANDBY
IC510
SP/LP DET
CLOG DET
IC506, IC510
CAPSTAN / DRUM
FG / PG AMP
SERVO ERROR AMP
IC509
ATF SERVO
IC507
DRUM MOTOR DRIVE
IC508
CAPSTAN MOTOR DRIVE
IC621
SERVO PWM
TAPE TOP / END DETECT
CURRENT LIMITER
LINCS DC SWITCH
(See Page 137.)
MA-66P BOARD
IC451
MIC AMP
CURRENT LIMITER
IC810
ZOOM MOTOR DRIVE
IC807
IRIS DRIVE HALL AMP
IC805
FOCUS MOTOR DRIVE
IC801 IC802 IC803
IC806 IC808
AUTO FOCUS
IC804
EVR
AUTO FOCUS
IC401
AUDIO
AUDIO
IC504
LOADING MOTOR DRIVE
IC505
5V REG
CAMERA
IC601
EVR / AUTO WHITE BALANCE CPL
IC602
IC603
AUTO WHITE BALANCE
IC606
ENCODER
IC608
EVR
DT-79D BOARD
(See Page 156.)
(See Page 129.)
CC-51P BOARD
(See Page 129.)
FP-89 BOARD
IC001
PEEL FG AMP
SUPPLY REEL FG SENSOR
TAPE END SENSOR
(See Page 129.)
FP-90 BOARD
TAKE-UP REEL FG SENSOR
TAPE TOP SENSOR
LI-10 BOARD (See Page 115.)
CK-43P BOARD (See Page 113.)
IC651
FEATURE CONTROL (SDS CPU)
LITH UM BATTERY

4-1. FRAME SCHEMATIC DIAGRAM

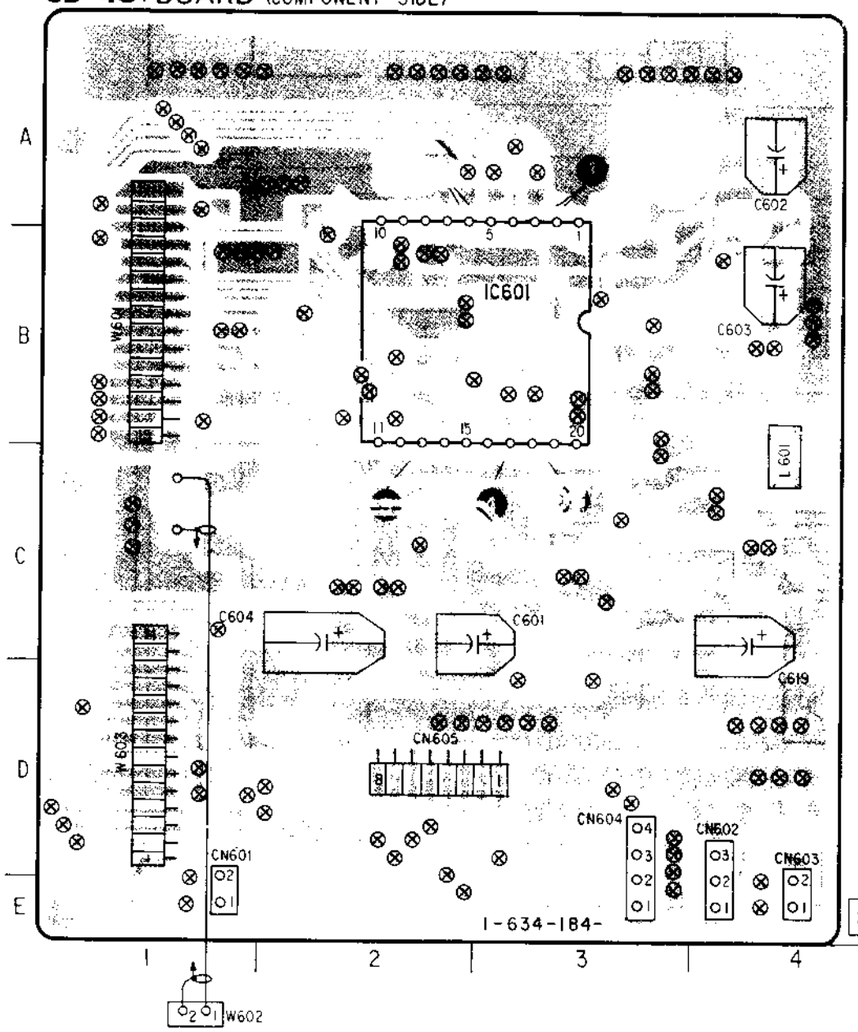


4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

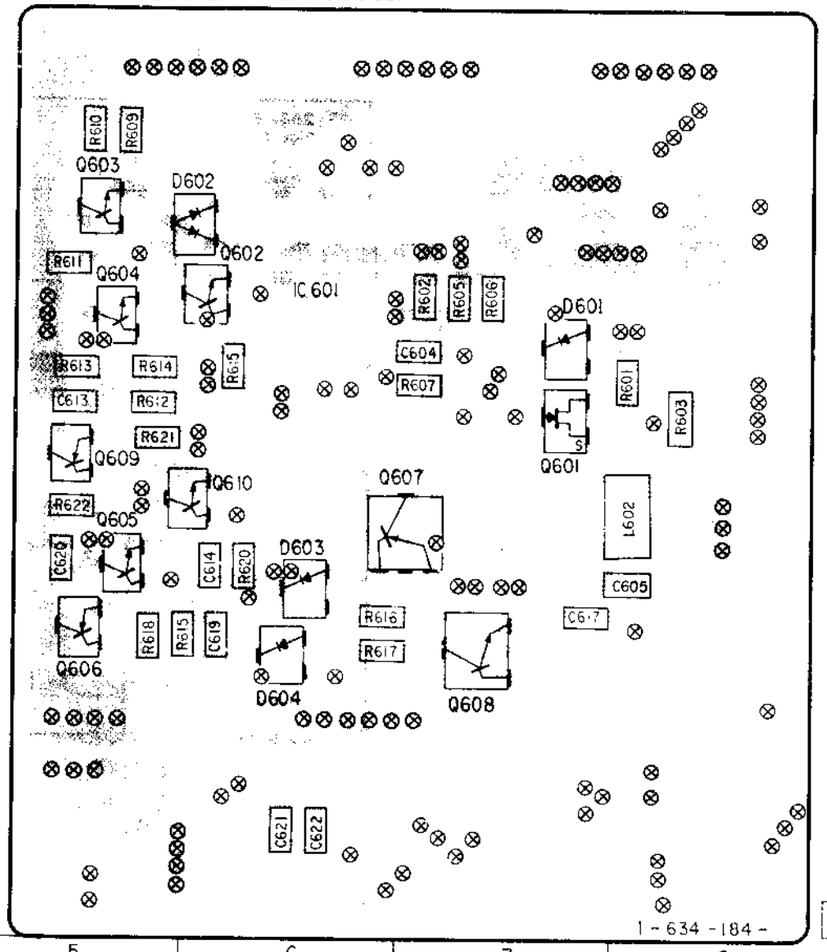
CD-40P (CCD IMAGER/ZOOM, FOCUS) PRINTED WIRING BOARDS

– Ref. No. CD-40P BOARD : 1000 series –

CD-40 PBOARD (COMPONENT SIDE)



CD-40 PBOARD (CONDUCTOR SIDE)



CAUTIONS FOR REPLACEMENT OF CCD IMAGER

- When you replaced the CCD imager adjust the whole camera assembly.
- CCD imager has such a structure that it may be destructed by static electricity, so handle it with a care similar for MOS IC.
  Further, be cartain that the light receiving part has no stick of dust and no entry of bright light.

DIODE

D601	8-719-104-31	DIODE MA152WK
D602	8-719-104-34	DIODE 1S2836
D603	8-719-104-31	DIODE MA152WK
D604	8-719-104-31	DIODE MA152WK

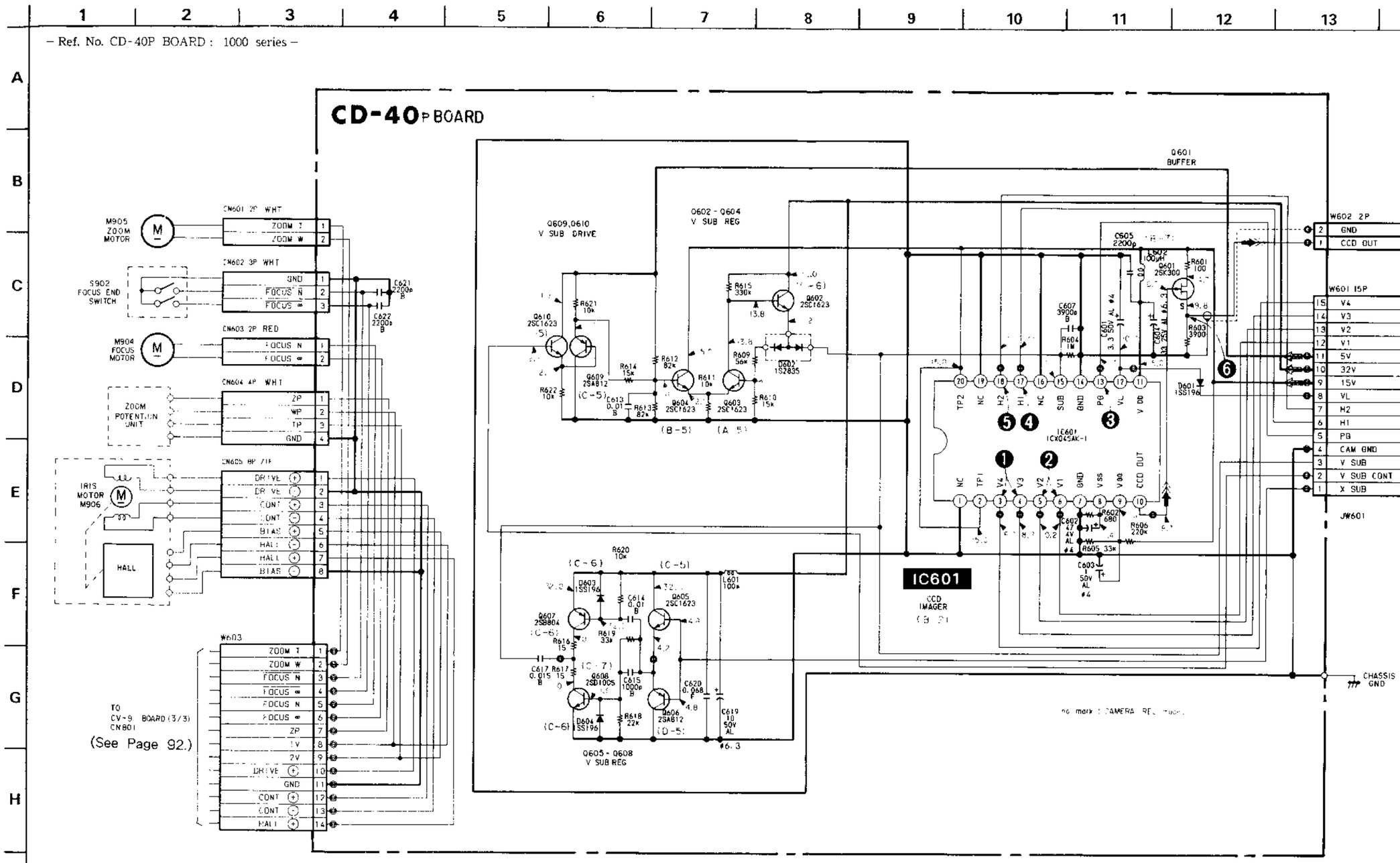
IC

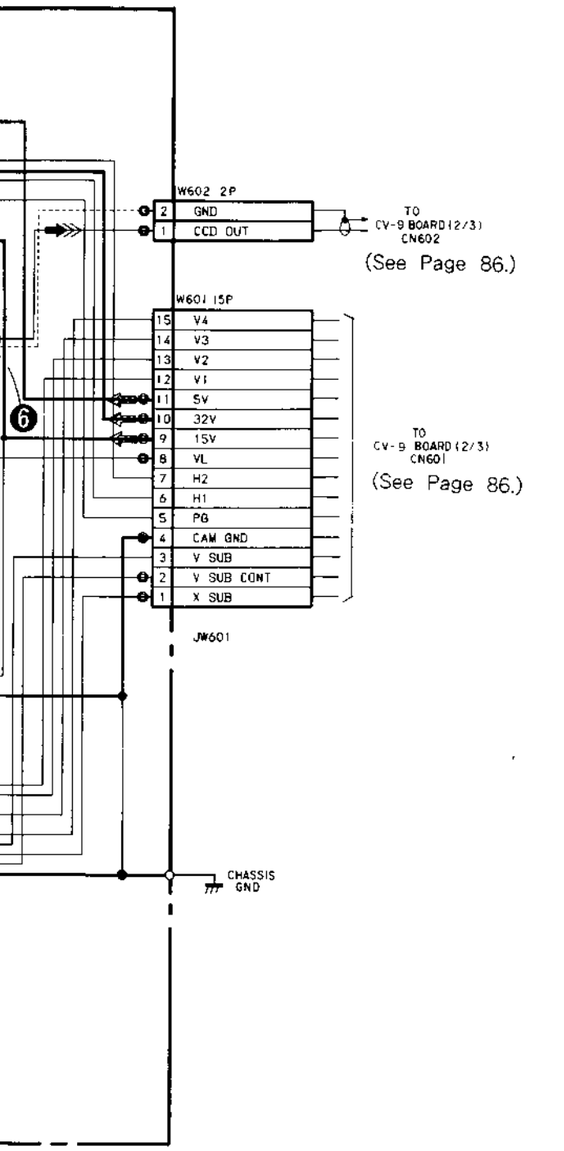
IC601	8-752-604-51	CCD IMAGER ICX045AK-1

TRANSISTOR

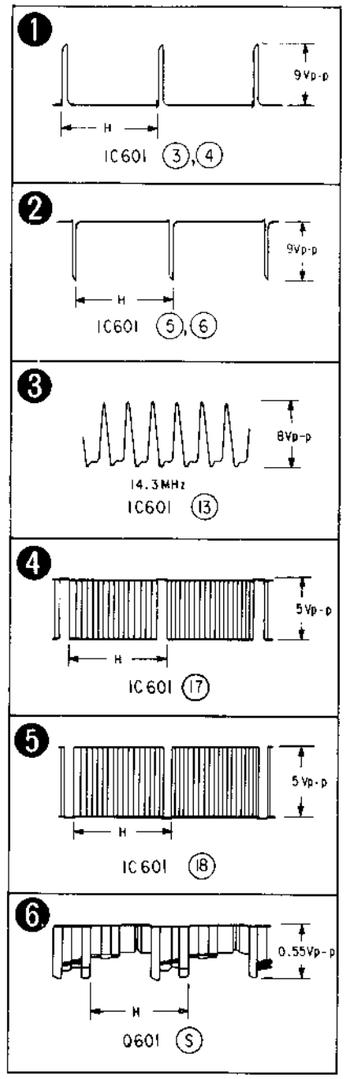
Q601	8-765-420-03	TRANSISTOR 2SK300-4
Q602	8-729-100-66	TRANSISTOR 2SC1623
Q603	8-729-100-66	TRANSISTOR 2SC1623
Q604	8-729-100-66	TRANSISTOR 2SC1623
Q605	8-729-100-66	TRANSISTOR 2SC1623
Q606	8-729-216-22	TRANSISTOR 2SA1162
Q607	8-729-104-26	TRANSISTOR 2SB804
Q608	8-729-103-72	TRANSISTOR 2SD1005
Q609	8-729-216-22	TRANSISTOR 2SA1162
Q610	8-729-100-66	TRANSISTOR 2SC1623

– Ref. No. CD-40P BOARD : 1000 series –





CD-40P BOARD



- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC			➡	
PB				

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

- **For printed wiring boards.**
- ○— : indicated a lead wire mounted on the component side.
- ●— : indicated a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side
- Circled numbers refer to waveforms.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

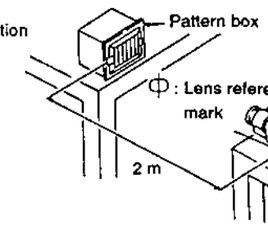
- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- : adjustment for repeair.
- : B+ Line.
- : IN/OUT direction of (+, –) B LINE.
- Circled numbers refer to waveforms.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safty. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

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

- **Measuring conditions voltage valu**
  (CAMERA, VIEW FINDER block)
- The object is color bar chart of pattern bo
- Voltages are dc between ground and mea
  Readings are taken with a digital multimet
- Voltage variations may be noted due
  tolerances.

1. Connection



2. Adjust the distance so that the output wa
   the Fig. b can be obtain.

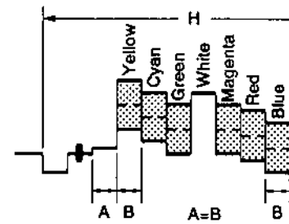


Fig. a (Video output terminal output

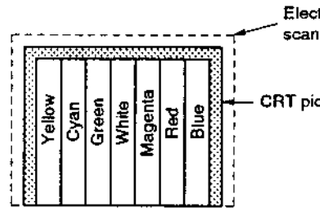
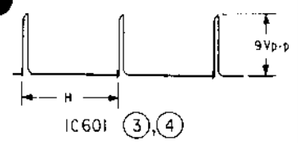


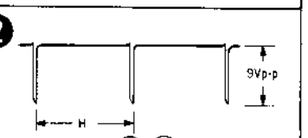
Fig. b (Picture on monitor T

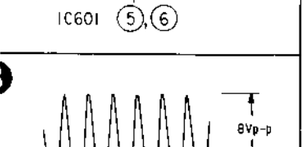
(VIDEO, SERVO/SYSTEM CONTRO
VIDEO FUNCTION, VIEW FINDER b

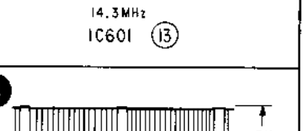
- Voltages are dc between ground and mea
- Readings are taken with a color-bar signal
- Re[illegible]gs are taken with a digital multimete
- [illegible] variations may be noted due t
  tolerances.

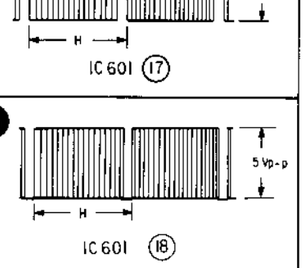
CD-40P BOARD

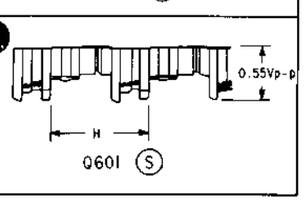
❶


❷


❸


❹


❺


❻


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

- **For printed wiring boards.**
- ○— : indicated a lead wire mounted on the component side.
- ●— : indicated a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- Circled numbers refer to waveforms.

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

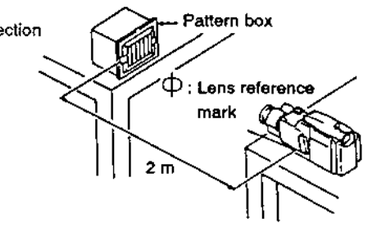
- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μF unless otherwise noted. pF: μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- : adjustment for repeair.
- : B+ Line.
- : IN/OUT direction of (+, −) B LINE.
- Circled numbers refer to waveforms.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safty. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

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

- **Measuring conditions voltage value and waveform. (CAMERA, VIEW FINDER block)**
- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points. Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

1. Connection



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

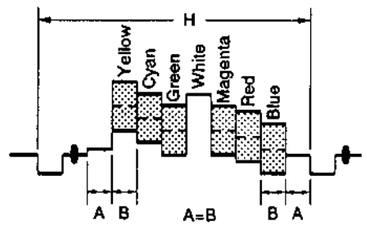


Fig. a (Video output terminal output waveform)

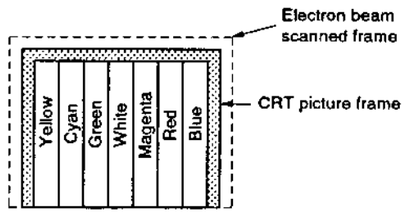


Fig. b (Picture on monitor TV)

(VIDEO, SERVO/SYSTEM CONTROL, VIDEO FUNCTION, VIEW FINDER block)

- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ
- Voltage variations may be noted due to normal p
  tolerances

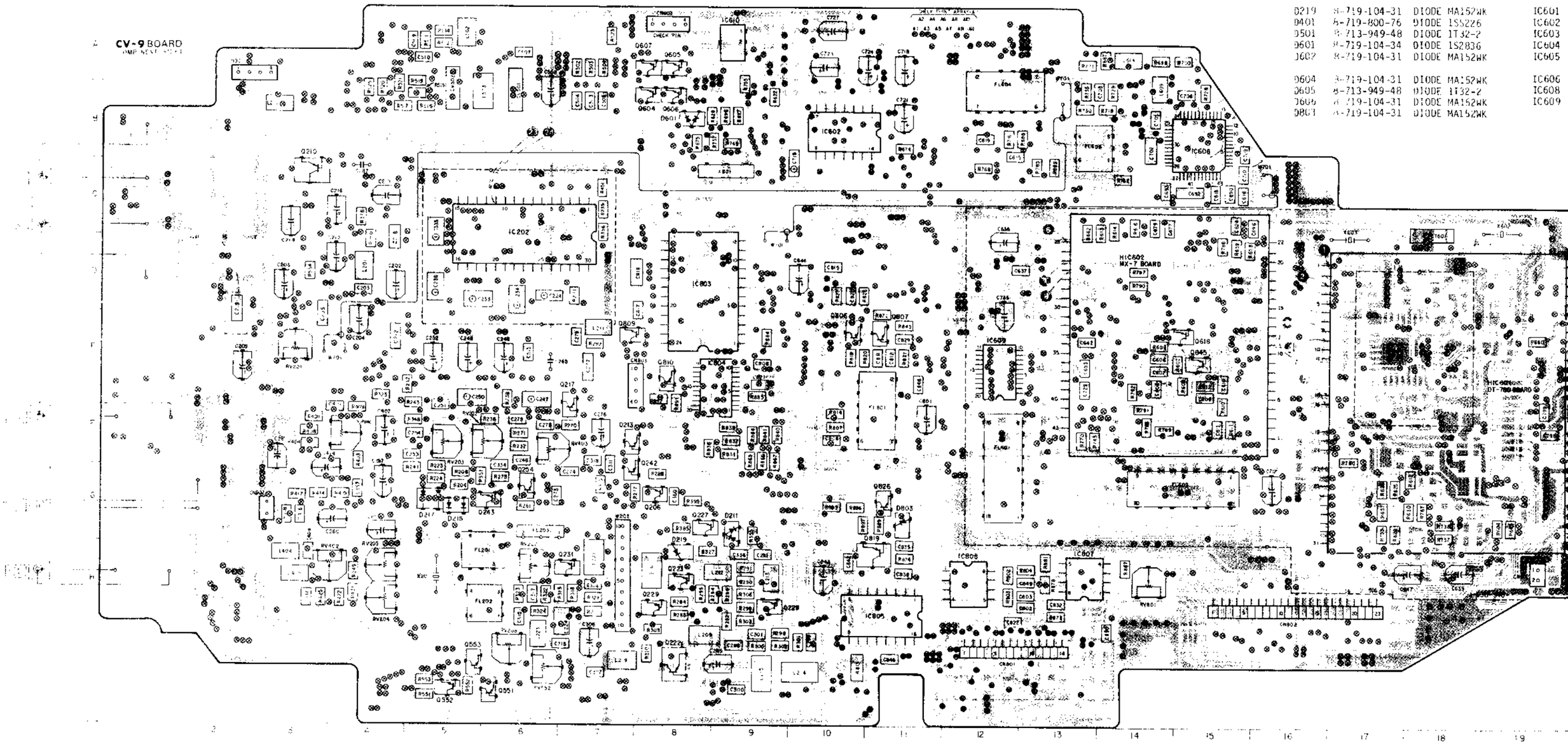
There are not the external input terminal in VIDEO AUDIO IN and REC button in AEP, UK model. To properly perform the following operation for signal input and REC mode.

[illegible] Refer to ADJUSTMENTS [illegible] page 2-44, Fig. 9-21 for the video signal input method.

[illegible] Refer to the transition method to REC mode for [illegible] when the external input terminal is used. Refer to Fig. 9-21.

CV-9 (CAMERA, VIDEO PROCESS) PRINTED WIRING BOARDS

– Ref. No. CV-9 BOARD: 2000 series –



DIODE

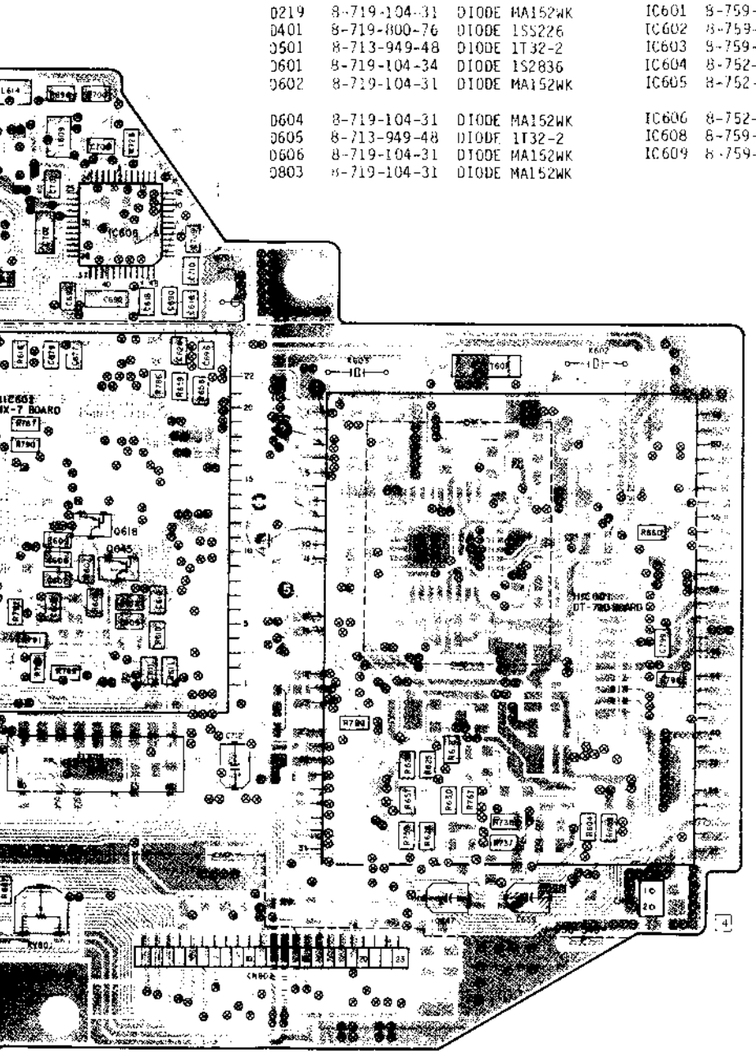
D211	8-719-800-76	DIODE 1SS226	IC201
D213	8-719-104-31	DIODE MA152WK	IC202
D216	8-719-404-13	DIODE MA159-TX	IC203
D217	8-719-404-13	DIODE MA159-TX	IC501
D218	8-719-104-31	DIODE MA152WK	IC502
D219	8-719-104-31	DIODE MA152WK	IC601
D401	8-719-800-76	DIODE 1SS226	IC602
D501	8-713-949-48	DIODE 1T32-2	IC603
D601	8-719-104-34	DIODE 1S2836	IC604
D602	8-719-104-31	DIODE MA152WK	IC605
D604	8-719-104-31	DIODE MA152WK	IC606
D605	8-713-949-48	DIODE 1T32-2	IC608
D606	8-719-104-31	DIODE MA152WK	IC609
D803	8-719-104-31	DIODE MA152WK	

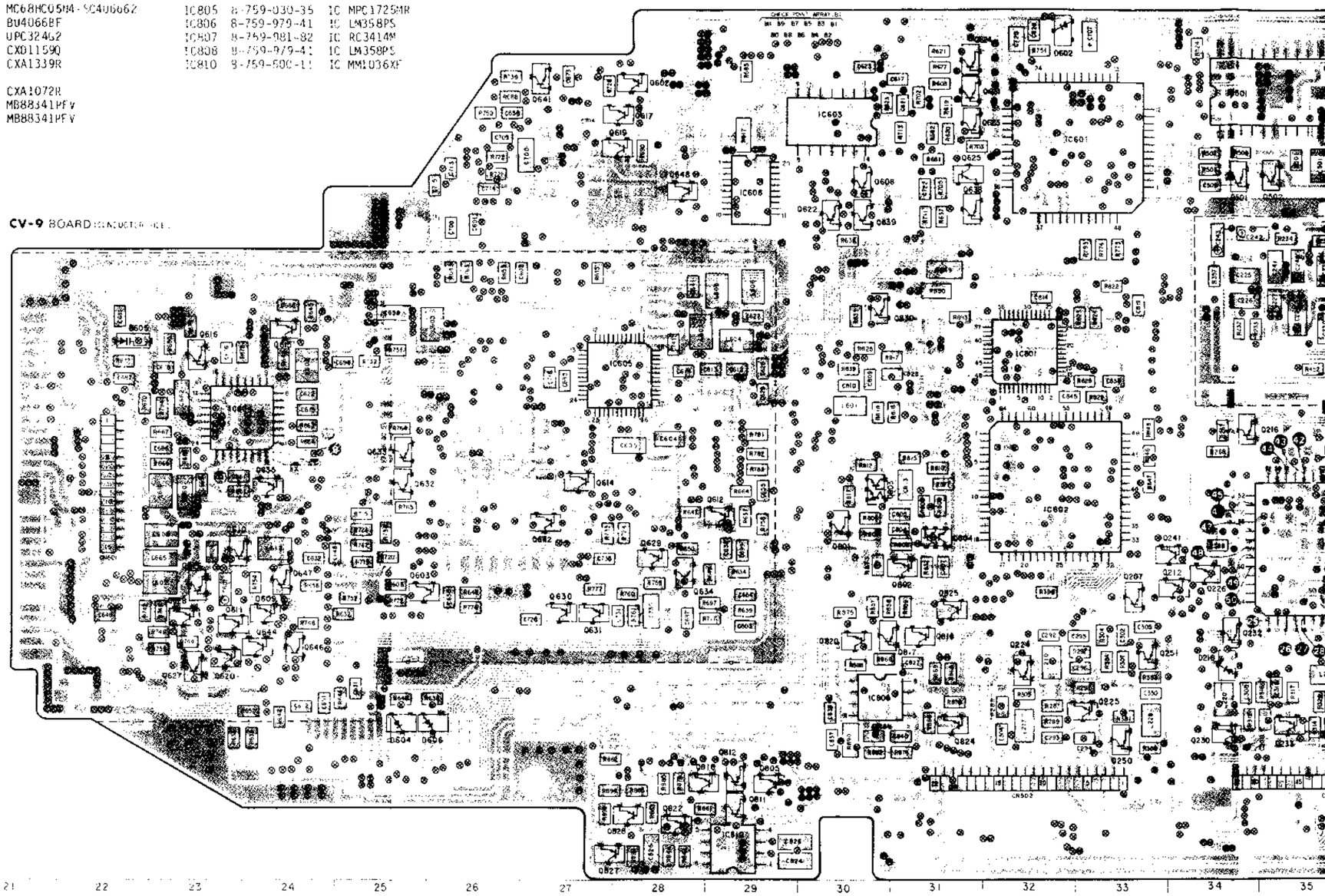
DIODE

D211	8-719-800-76	DIODE 1SS226
D213	8-719-104-31	DIODE MA152WK
D216	8-719-404-13	DIODE MA159-TX
D217	8-719-404-13	DIODE MA159-TX
D218	8-719-104-31	DIODE MA152WK
D219	8-719-104-31	DIODE MA152WK
D401	8-719-800-76	DIODE 1SS226
D501	8-713-949-48	DIODE 1T32-2
D601	8-719-104-34	DIODE 1S2836
D602	8-719-104-31	DIODE MA152WK
D604	8-719-104-31	DIODE MA152WK
D605	8-713-949-48	DIODE 1T32-2
D606	8-719-104-31	DIODE MA152WK
D803	8-719-104-31	DIODE MA152WK

IC

IC201	8-752-033-40	IC CXA1201Q
IC202	8-752-324-87	IC CXL1502M
IC203	8-752-034-46	IC CXA1200BQ
IC501	8-759-140-76	IC UPD6145G-601
IC502	8-759-970-80	IC MB673198U
IC601	8-759-032-00	IC MC68HC05M4-SC406662
IC602	8-759-932-54	IC BU4066BF
IC603	8-759-100-95	IC UPC324G2
IC604	8-752-326-08	IC CXD1159Q
IC605	8-752-034-21	IC CXA1339R
IC606	8-752-033-34	IC CXA1072R
IC608	8-759-946-00	IC MB88341PFV
IC609	8-759-946-00	IC MB88341PFV
IC610	8-759-937-56	IC S-8054ALB-LM-S
IC801	8-752-326-18	IC CXD1204R
IC802	8-759-037-22	IC MC68HC05C4-SC411533
IC803	8-759-971-93	IC MSM62195S
IC804	8-759-946-00	IC MB88341PFV
IC805	8-759-030-35	IC MPC1725MR
IC806	8-759-979-41	IC LM358PS
IC807	8-759-981-82	IC RC3414M
IC808	8-759-979-41	IC LM358PS
IC810	8-759-500-11	IC MM1036XF



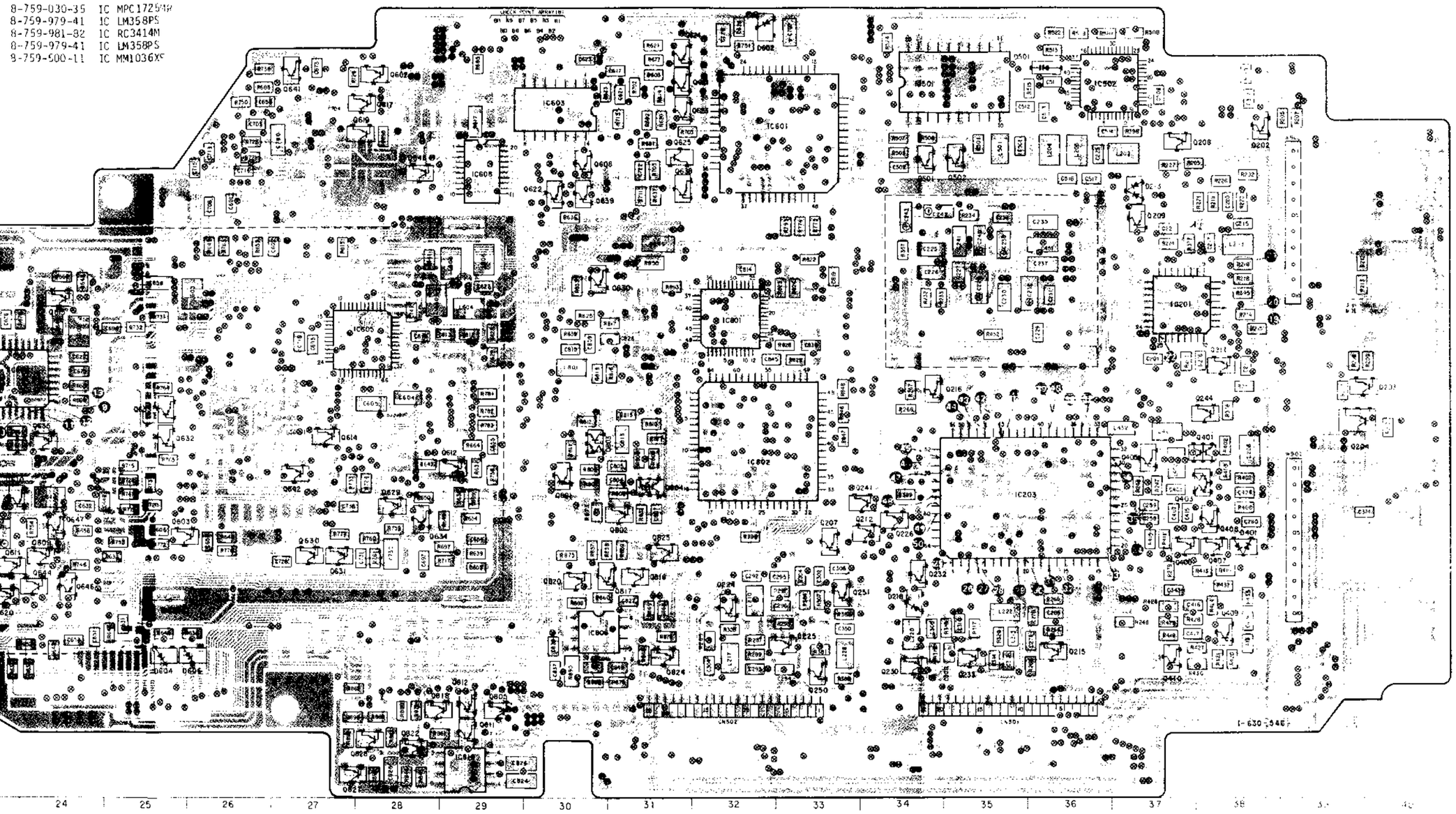


TRANSISTOR

Q202	8-729-100-66	TRANSISTOR 2SC1623
Q203	8-729-100-66	TRANSISTOR 2SC1623
Q204	8-729-101-07	TRANSISTOR 2SB798-DL
Q206	8-729-901-01	TRANSISTOR DTC144EK
Q207	8-729-901-01	TRANSISTOR DTC144EK
Q208	8-729-901-01	TRANSISTOR DTC144EK
Q209	8-729-216-22	TRANSISTOR 2SA1162
Q210	8-729-101-07	TRANSISTOR 2SB798-DL
Q211	8-729-901-01	TRANSISTOR DTC144EK
Q212	8-729-901-01	TRANSISTOR DTC144EK
Q213	8-729-100-66	TRANSISTOR 2SC1623
Q215	8-729-100-66	TRANSISTOR 2SC1623
Q216	8-729-100-66	TRANSISTOR 2SC1623
Q217	8-729-216-22	TRANSISTOR 2SA1162
Q222	8-729-101-07	TRANSISTOR 2SB798-DL
Q223	8-729-901-01	TRANSISTOR DTC144EK
Q224	8-729-102-07	TRANSISTOR 2SC2223-F13
Q225	8-729-100-66	TRANSISTOR 2SC1623
Q226	8-729-901-06	TRANSISTOR DTA144EK
Q227	8-729-805-41	TRANSISTOR 2SC3398
Q228	8-729-100-66	TRAN
Q229	8-729-216-22	TRAN
Q230	8-729-122-63	TRAN
Q231	8-729-102-07	TRAN
Q232	8-729-102-07	TRAN
Q233	8-729-216-22	TRAN
Q241	8-729-901-06	TRAN
Q242	8-729-901-01	TRAN
Q243	8-729-100-66	TRAN
Q244	8-729-901-01	TRAN

8-759-937-56 IC S-8054ALB-LM-S
8-752-326-18 IC CXD1204R
8-759-037-22 IC MC68HC05C4-SC411533
8-759-971-93 IC MSM62195S
8-759-946-00 IC MB88341PFV

8-759-030-35 IC MPC1725MP
8-759-979-41 IC LM358PS
8-759-981-82 IC RC3414M
8-759-979-41 IC LM358PS
8-759-500-11 IC MM1036XS



TRANSISTOR

Q202	8-729-100-66	TRANSISTOR 2SC1623	Q213	8-729-100-66	TRANSISTOR 2SC1623	Q228	8-729-100-66	TRANSISTOR 2SC1623	Q250	8-729-100-66	TRANSISTOR 2SC1623
Q203	8-729-100-66	TRANSISTOR 2SC1623	Q215	8-729-100-66	TRANSISTOR 2SC1623	Q229	8-729-216-22	TRANSISTOR 2SA1162	Q251	8-729-216-22	TRANSISTOR 2SA1162
Q204	8-729-101-07	TRANSISTOR 2SB798-DL	Q216	8-729-100-66	TRANSISTOR 2SC1623	Q230	8-729-122-63	TRANSISTOR 2SA1226	Q254	8-729-100-66	TRANSISTOR 2SC1623
Q206	8-729-901-01	TRANSISTOR DTC144EK	Q217	8-729-216-22	TRANSISTOR 2SA1162	Q231	8-729-102-07	TRANSISTOR 2SC2223-F13	Q401	8-729-402-84	TRANSISTOR XN4601
Q207	8-729-901-01	TRANSISTOR DTC144EK	Q222	8-729-101-07	TRANSISTOR 2SB798-DL	Q232	8-729-102-07	TRANSISTOR 2SC2223-F13	Q403	8-729-421-23	TRANSISTOR XN1216
Q208	8-729-901-01	TRANSISTOR DTC144EK	Q223	8-729-901-01	TRANSISTOR DTC144EK	Q233	8-729-216-22	TRANSISTOR 2SA1162	Q405	8-729-100-66	TRANSISTOR 2SC1623
Q209	8-729-216-22	TRANSISTOR 2SA1162	Q224	8-729-102-07	TRANSISTOR 2SC2223-F13	Q241	8-729-901-06	TRANSISTOR DTA144EK	Q406	8-729-100-66	TRANSISTOR 2SC1623
Q210	8-729-101-07	TRANSISTOR 2SB798-DL	Q225	8-729-100-66	TRANSISTOR 2SC1623	Q242	8-729-901-01	TRANSISTOR DTC144EK	Q407	8-729-100-66	TRANSISTOR 2SC1623
Q211	8-729-901-01	TRANSISTOR DTC144EK	Q226	8-729-901-06	TRANSISTOR DTA144EK	Q243	8-729-100-66	TRANSISTOR 2SC1623	Q408	8-729-216-22	TRANSISTOR 2SA1162
Q212	8-729-901-01	TRANSISTOR DTC144EK	Q227	8-729-805-41	TRANSISTOR 2SC3398	Q244	8-729-901-01	TRANSISTOR DTC144EK	Q409	8-729-102-07	TRANSISTOR 2SC2223-F13

CAMERA CAMERA

• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC	■➡	■➡	■➡	
PB				

CV-9 BOARD (CAMERA)

1 2.2Vp-p, 28.375MHz — DT-79 BOARD (1)

2 1Vp-p, 14.189MHz — DT-79 BOARD (3)

3 (8) 5Vp-p, (11) 4.7Vp-p — DT-79 BOARD (8), (11)

4 5Vp-p — DT-79 BOARD (9)

5 5Vp-p, 4.73MHz — DT-79 BOARD (15), (16)

6 0.5Vp-p — MX-7 BOARD (23)

7 0.6Vp-p — MX-7 BOARD (25)

8 0.26Vp-p — MX-7 BOARD (26)

9 5Vp-p — IC604 (1)

10 1.2Vp-p — IC604 (29)

11 5Vp-p — IC604 (30)

12 5Vp-p — IC604 (31)

13 5Vp-p — IC604 (32)

14 0.28Vp-p — IC606 (1)

15 1Vp-p — IC606 (20)

16 0.76Vp-p — IC606 (24)

17 0.5Vp-p — IC606 (40)

18 0.5Vp-p — IC606 (45)

(See Page 76.)
(See Page 89.)

DT-79D BOARD

MX-7 BOARD

IC609 MB88341PFV EVR

IC604 CXD1159Q SYNC GEN

IC610 S80544L8 SYSTEM RESET

IC601 MC68HC05N4 EVR/WB μCON

IC602 MC14066BF SWITCH

IC603 μPC324G2
⑤⑥⑦ CURRENT SORCE
⑧⑨⑩ DC OUT BUFFER
⑫⑬⑭ TRIANGLE WAVEFORMER
①②③ AW COMPARATOR

IC608 MB88341PFV EVR

IC606 CXA1072R ENCODER

Q646,647 AGC DET

Q603 AGC SWITCH

Q620,626,627,628 AGC DEF

Q629-631 CL AMP

Q632,633 AGC CONT BUFFER

Q612 BUFFER

Q634 BUFFER

Q635 WINDOW PULSE GENERATOR

Q616 4FSC BUFFER

Q615 BUFFER

Q625,638 HIGH LUMI DET BLANKING

Q621,623,624 BLK

Q648 BUFFER

Q608 CURRENT SORCE

Q639 SWITCH

Q622 SWITCH

IC609 MB88341PFV EVR

IC605 CXA1339R CHROMA PROCESS

IC608 CXA1072R ENCODER

IC608 MB88341PFV EVR

Q629-631 CLAMP

Q632,633 AGC CONT BUFFER

Q612 (F-29) BUFFER

Q634 (G-28) BUFFER

Q635 (E-24) WINDOW PULSE GENERATOR

Q616 2SC1623

Q616 (D-23) 4FSC BUFFER

X602 17MHz

Q642 (F-27) BUFFER

Q645 LPF

Q614 (E-27) BUFFER

Q618 LPF

Q642 2SA812

Q617,619 Y/C MIX

Q602 (A-24) Y BUFFER

Q648 (B-28) BUFFER

Q644 (A-27) DELAY

Q639 (C-30) SWITCH

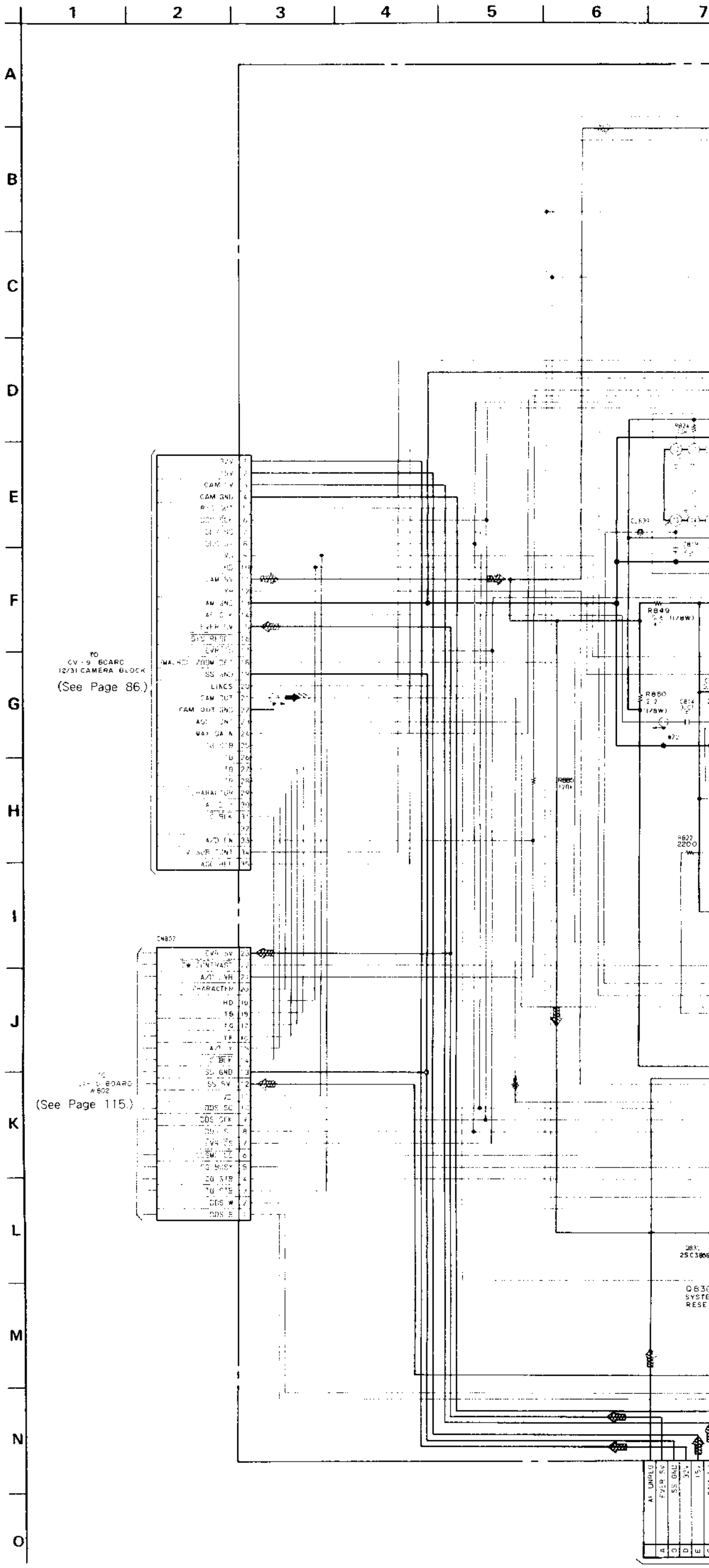
Q622 (C-30) SWITCH

CHECK POINT ARRAY (A)

CHECK POINT ARRAY (B)

CV-9 BOARD (2/3) (CAMERA BLOCK)

— Ref. No. CV-9 BOARD: 2000 series —



CAMERA CAMERA

IC810
MM1036F
ZOOM MOTOR DRIVE

Q811, 812
INVERTER

Q805
DTC144EK

Q805
PROTECT SWITCH

Q816, 817
LEVEL SHIFT

Q816
2SC1623

Q817
2SA812

Q818
2SC1623

Q818, 822
BUFFER

IC804
MB88341PFV
EVR

IC803
MSM6219GS-VK
A/D CONV

Q809, 810
AF SERIAL DATA SW

IC802
MC68HC05N4-SC411533
AUTO FOCUS CPU

IC801
CXD1204R
AF PROCESSOR

Q825, 826
PROTECTION DETECT

IC807
RC3414M
IRIS DRIVE

IC807
RC3414M
HALL AMP

Q827, 828
HALL OS BUFFER

Q819, 820
FOCUS SPEED CONT

IC806
LM358PS
① ② ③ FOCUS SPEED
⑤ ⑥ ⑦ FOCUS FG AMP

Q824
INVERTER

Q806, 807
HPF

Q802
HALF WAVE RECT

Q801
DC BIAS

IC808 (H-12)
LM358PS
AD REF

Q803, 804
AMP

Q830
SYSTEM RESET

Q804
XN6501

Q803
XN6501

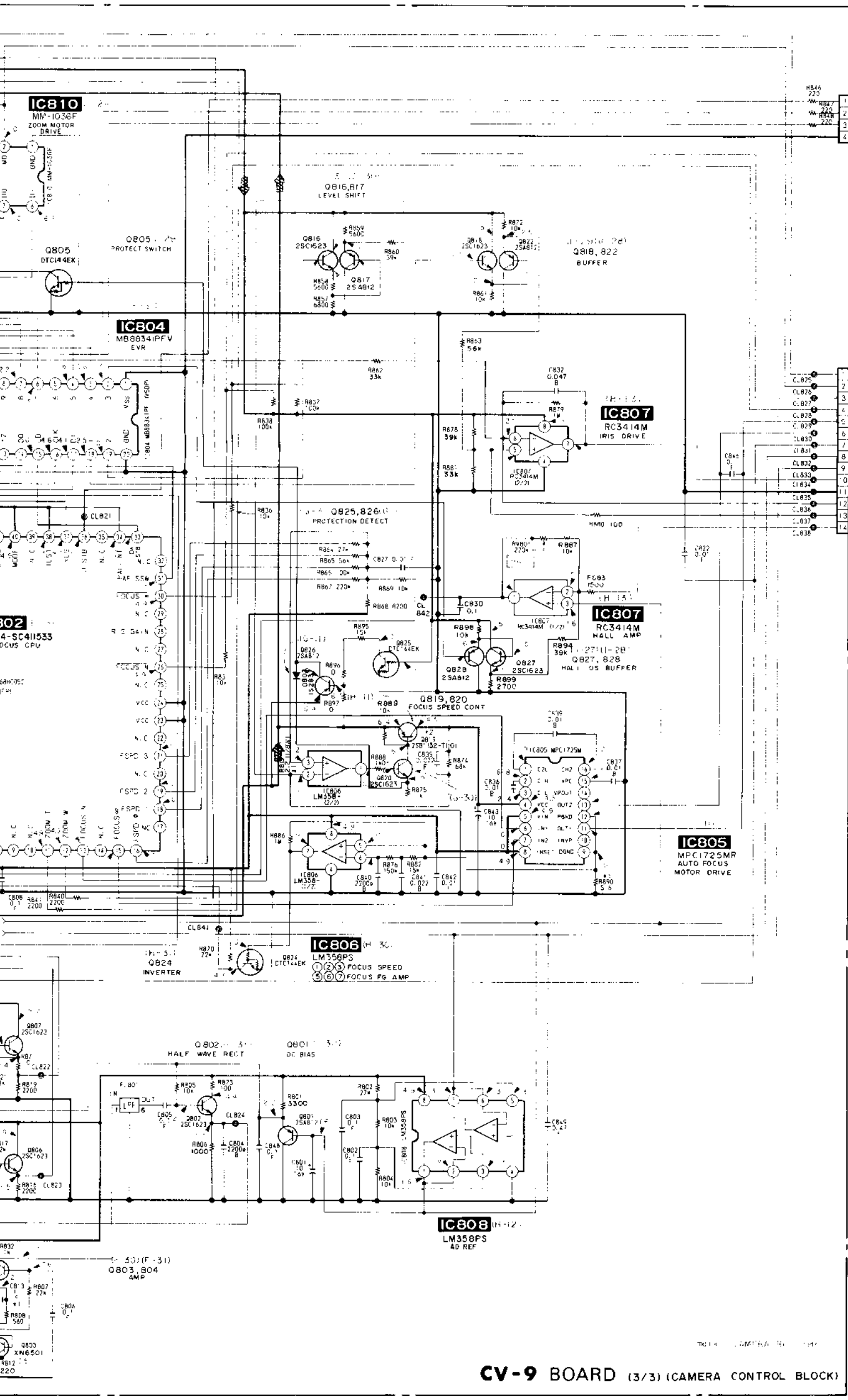
TO CV-9 BOARD (1/3) VIDEO BLOCK
(See Page 104.)

CV-9 BOARD (3/3) (CAM

- **SIGNAL PATH**

		V
	CHROMA	
REC		
PB		

CAMERA



CV-9 BOARD (3/3) (CAMERA CONTROL BLOCK)

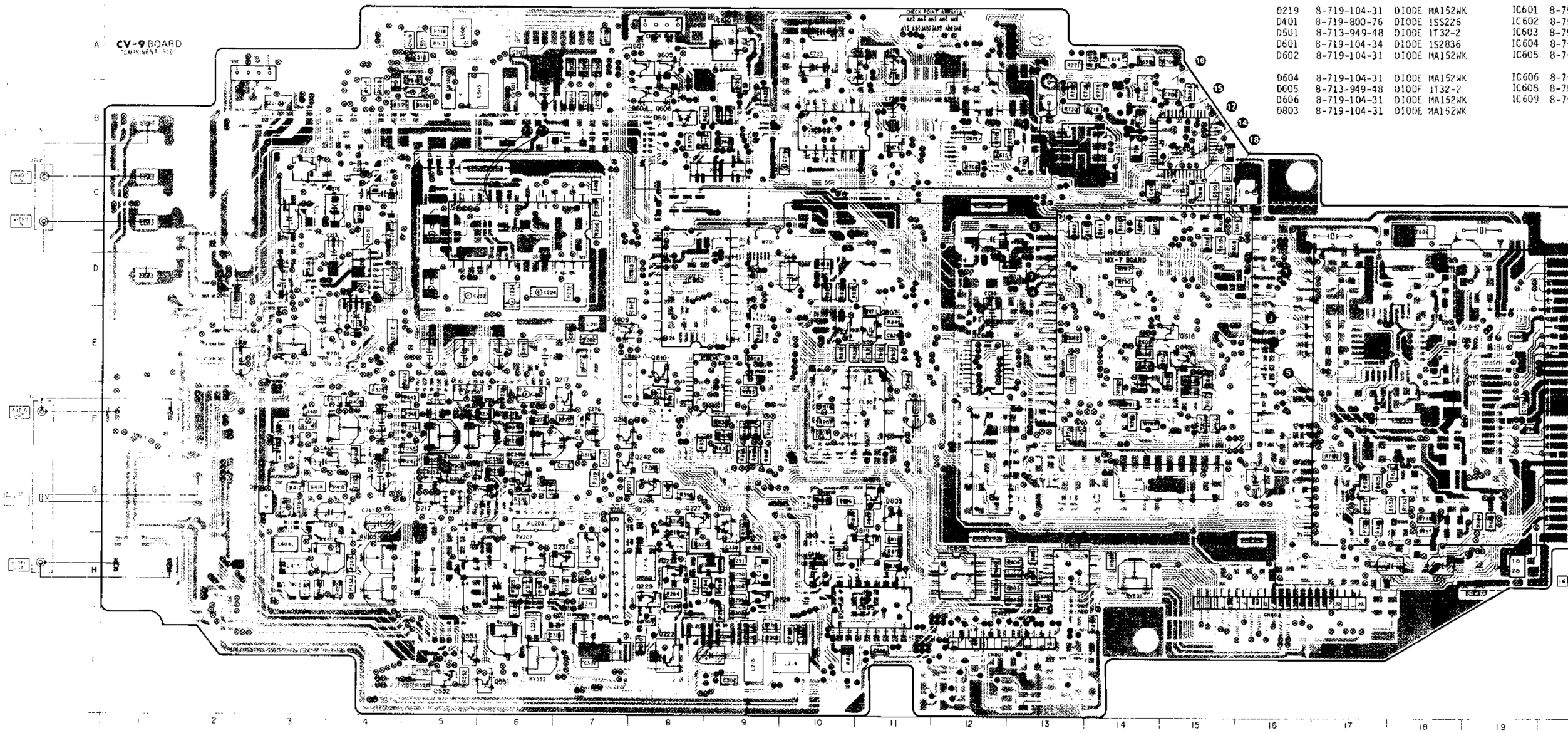
• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC			➡	
PB				

CAMERA CAMERA

CV-9 (CAMERA, VIDEO PROCESS) PRINTED WIRING BOARDS

— Ref. No. CV-9 BOARD: 2000 series —



DIODE

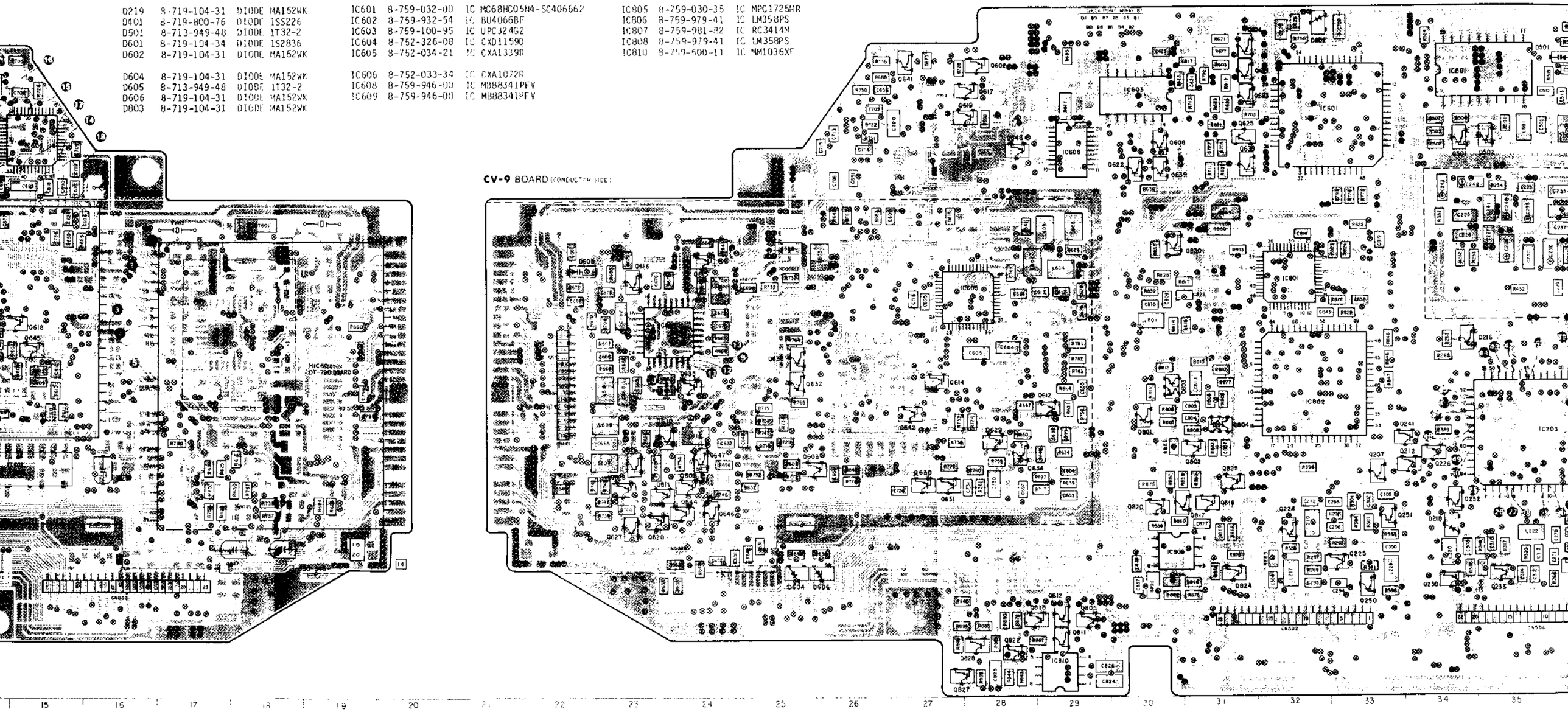
D211	8-719-800-76	DIODE 1SS226	IC201	8-7
D213	8-719-104-31	DIODE MA152WK	IC202	8-7
D216	8-719-404-13	DIODE MA159-TX	IC203	8-7
D217	8-719-404-13	DIODE MA159-TX	IC501	8-7
D218	8-719-104-31	DIODE MA152WK	IC502	8-7
D219	8-719-104-31	DIODE MA152WK	IC601	8-7
D401	8-719-800-76	DIODE 1SS226	IC602	8-7
D501	8-713-949-48	DIODE 1T32-2	IC603	8-7
D601	8-719-104-34	DIODE 1S2836	IC604	8-7
D602	8-719-104-31	DIODE MA152WK	IC605	8-7
D604	8-719-104-31	DIODE MA152WK	IC606	8-7
D605	8-713-949-48	DIODE 1T32-2	IC608	8-7
D606	8-719-104-31	DIODE MA152WK	IC609	8-7
D803	8-719-104-31	DIODE MA152WK		

DIODE

D211	8-719-800-76	DIODE 1SS226	
D213	8-719-104-31	DIODE MA152WK	
D216	8-719-404-13	DIODE MA159-TX	
D217	8-719-404-13	DIODE MA159-TX	
D218	8-719-104-31	DIODE MA152WK	
D219	8-719-104-31	DIODE MA152WK	
D401	8-719-800-76	DIODE 1SS226	
D501	8-713-949-48	DIODE 1T32-2	
D601	8-719-104-34	DIODE 1S2836	
D602	8-719-104-31	DIODE MA152WK	
D604	8-719-104-31	DIODE MA152WK	
D605	8-713-949-48	DIODE 1T32-2	
D606	8-719-104-31	DIODE MA152WK	
D803	8-719-104-31	DIODE MA152WK	

IC

IC201	8-752-033-40	IC CXA1201Q
IC202	8-752-324-87	IC CXL1502M
IC203	8-752-034-40	IC CXA1290BQ
IC501	8-759-140-26	IC μPD6145G-601
IC502	8-759-970-80	IC MB8673180
IC601	8-759-032-00	IC MC68HC05N4-SC406662
IC602	8-759-932-54	IC BU4066BF
IC603	8-759-100-95	IC UPC324G2
IC604	8-752-326-08	IC CXD1159Q
IC605	8-752-034-21	IC CXA1339R
IC606	8-752-033-34	IC CXA1072R
IC608	8-759-946-00	IC MB88341PFV
IC609	8-759-946-00	IC MB88341PFV
IC610	8-759-937-56	IC S-8054ALB-LM-S
IC801	8-752-326-18	IC CXD1204R
IC802	8-759-037-22	IC MC68HC05C4-SC411533
IC803	8-759-971-93	IC MSM6219GS
IC804	8-759-946-00	IC MB88341PFV
IC805	8-759-030-35	IC MPC1725HR
IC806	8-759-979-41	IC LM358PS
IC807	8-759-981-82	IC RC3414M
IC808	8-759-979-41	IC LM358PS
IC810	8-759-600-11	IC MM1036XF

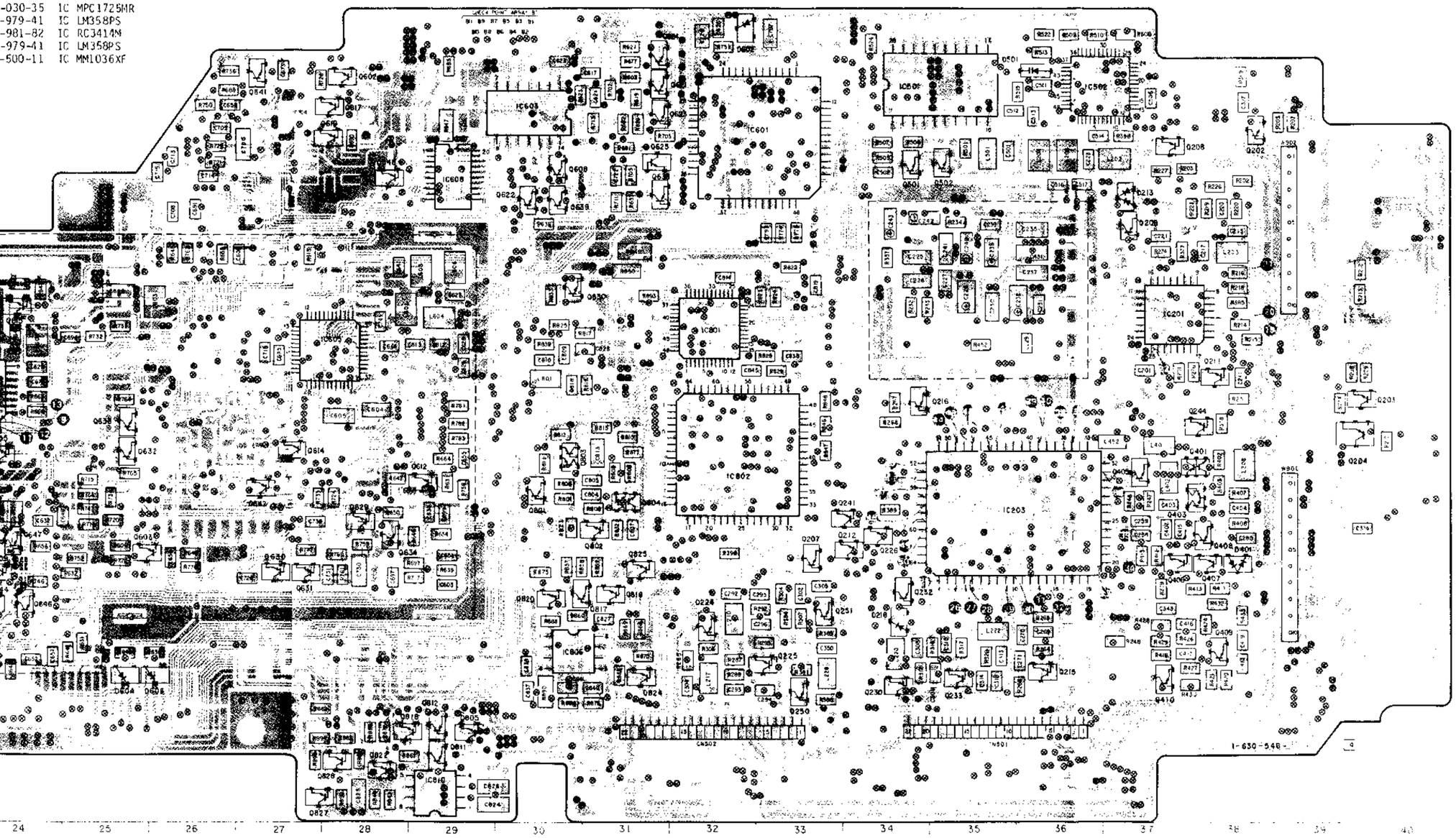


TRANSISTOR

Q202	8-729-100-66	TRANSISTOR 2SC1623
Q203	8-729-100-66	TRANSISTOR 2SC1623
Q204	8-729-101-07	TRANSISTOR 2SB798-DL
Q206	8-729-901-01	TRANSISTOR DTC144EK
Q207	8-729-901-01	TRANSISTOR DTC144EK
Q208	8-729-901-01	TRANSISTOR DTC144EK
Q209	8-729-216-22	TRANSISTOR 2SA1162
Q210	8-729-101-07	TRANSISTOR 2SB798-DL
Q211	8-729-901-01	TRANSISTOR DTC144EK
Q212	8-729-901-01	TRANSISTOR DTC144EK
Q213	8-729-100-66	TRANSISTOR 2SC1623
Q215	8-729-100-66	TRANSISTOR 2SC1623
Q216	8-729-100-66	TRANSISTOR 2SC1623
Q217	8-729-216-22	TRANSISTOR 2SA1162
Q222	8-729-101-07	TRANSISTOR 2SB798-DL
Q223	8-729-901-01	TRANSISTOR DTC144EK
Q224	8-729-102-07	TRANSISTOR 2SD2654 T13
Q225	8-729-100-66	TRANSISTOR 2SC1623
Q226	8-729-901-06	TRANSISTOR DTA144EK
Q227	8-729-805-41	TRANSISTOR 2SC3585
Q228	8-729-100-66	TRANSISTOR 2SC1623
Q229	8-729-216-22	TRANSISTOR 2SA1162
Q230	8-729-122-63	TRANSISTOR 2SC1623
Q231	8-729-102-07	TRANSISTOR 2SB798-DL
Q232	8-729-102-07	TRANSISTOR 2SB798-DL
Q233	8-729-216-22	TRANSISTOR 2SA1162
Q241	8-729-901-05	TRANSISTOR DTA144EK
Q242	8-729-901-01	TRANSISTOR DTC144EK
Q243	8-729-100-66	TRANSISTOR 2SC1623
Q244	8-729-901-01	TRANSISTOR DTC144EK

-937-56 IC S-8054ALB-LM-S
-326-18 IC CXD1204R
-037-22 IC MC68HC05C4-SC411533
-971-93 IC MSM6219GS
-946-00 IC MB88341PFV

-030-35 IC MPC1725MR
-979-41 IC LM358PS
-981-82 IC RC3414M
-979-41 IC LM358PS
-500-11 IC MM1036XF

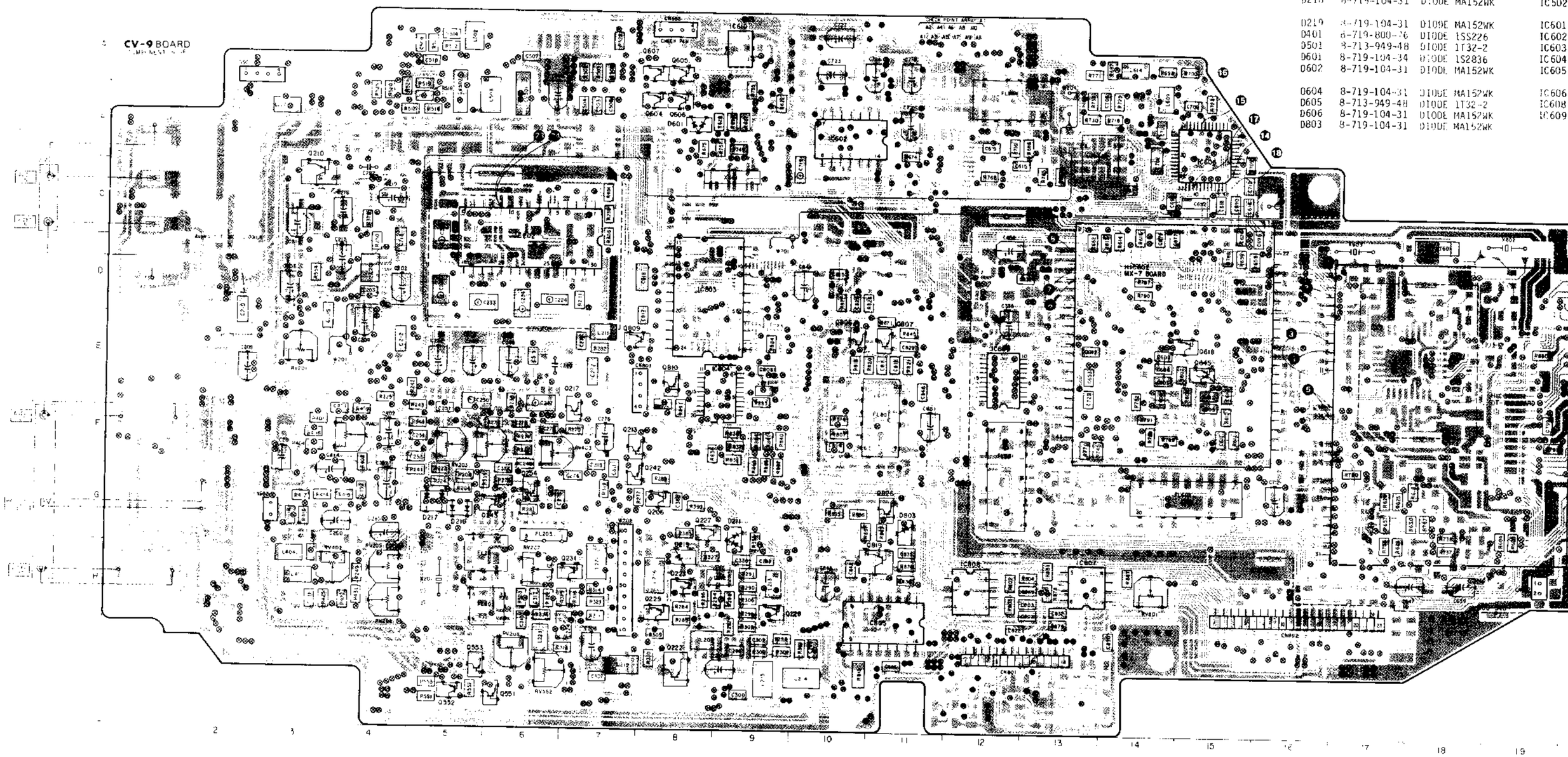


TRANSISTOR

Q202	8-729-100-66	TRANSISTOR 2SC1623
Q203	8-729-100-66	TRANSISTOR 2SC1623
Q204	8-729-101-07	TRANSISTOR 2SB798-DL
Q206	8-729-901-01	TRANSISTOR DTC144EK
Q207	8-729-901-01	TRANSISTOR DTC144EK
Q208	8-729-901-01	TRANSISTOR DTC144EK
Q209	8-729-216-22	TRANSISTOR 2SA1162
Q210	8-729-101-07	TRANSISTOR 2SB798-DL
Q211	8-729-901-01	TRANSISTOR DTC144EK
Q212	8-729-901-01	TRANSISTOR DTC144EK
Q213	8-729-100-66	TRANSISTOR 2SC1623
Q215	8-729-100-66	TRANSISTOR 2SC1623
Q216	8-729-100-66	TRANSISTOR 2SC1623
Q217	8-729-216-22	TRANSISTOR 2SA1162
Q222	8-729-101-07	TRANSISTOR 2SB798-DL
Q223	8-729-901-01	TRANSISTOR DTC144EK
Q224	8-729-102-07	TRANSISTOR 2SC2223-F13
Q225	8-729-100-66	TRANSISTOR 2SC1623
Q226	8-729-901-06	TRANSISTOR DTA144EK
Q227	8-729-805-41	TRANSISTOR 2SC3906
Q229	8-729-100-66	TRANSISTOR 2SC1623
Q229	8-729-216-22	TRANSISTOR 2SA1162
Q230	8-729-122-63	TRANSISTOR 2SA1229
Q231	8-729-102-07	TRANSISTOR 2SC2223-F13
Q232	8-729-102-07	TRANSISTOR 2SC2223-F13
Q233	8-729-216-22	TRANSISTOR 2SA1162
Q241	8-729-901-06	TRANSISTOR DTA144EK
Q242	8-729-901-01	TRANSISTOR DTC144EK
Q243	8-729-100-66	TRANSISTOR 2SC1623
Q244	8-729-901-01	TRANSISTOR DTC144EK
Q250	8-729-100-66	TRANSISTOR 2SC1623
Q251	8-729-100-66	TRANSISTOR 2SC1623
Q254	8-729-100-66	TRANSISTOR 2SC1623
Q401	8-729-402-84	TRANSISTOR XN4601
Q402	8-729-421-23	TRANSISTOR XN1216
Q405	8-729-100-66	TRANSISTOR 2SC1623
Q406	8-729-100-66	TRANSISTOR 2SC1623
Q407	8-729-100-66	TRANSISTOR 2SC1623
Q408	8-729-216-22	TRANSISTOR 2SA1162
Q409	8-729-102-07	TRANSISTOR 2SC2223-F13
Q410	8-729-216-22	TRANSISTOR 2SA1162
Q501	8-729-100-66	TRANSISTOR 2SC1623
Q502	8-729-100-66	TRANSISTOR 2SC1623
Q551	8-729-901-06	TRANSISTOR DTA144EK
Q601	8-729-902-48	TRANSISTOR DTC114EK
Q603	8-729-902-48	TRANSISTOR DTC114EK
Q602	8-729-100-66	TRANSISTOR 2SC1623
Q603	8-729-216-22	TRANSISTOR 2SA1162
Q604	8-729-805-42	TRANSISTOR 2SC3856
Q605	8-729-901-01	TRANSISTOR DTC144EK
Q606	8-729-901-01	TRANSISTOR DTC144EK
Q607	8-729-805-42	TRANSISTOR 2SC3856
Q608	8-729-100-66	TRANSISTOR 2SC1623
Q609	8-729-100-66	TRANSISTOR 2SC1623
Q610	8-729-216-22	TRANSISTOR 2SA1162
Q611	8-729-100-66	TRANSISTOR 2SC1623
Q612	8-729-216-22	TRANSISTOR 2SA1162
Q614	8-729-216-22	TRANSISTOR 2SA1162
Q615	8-729-100-66	TRANSISTOR 2SC1623
Q616	8-729-100-66	TRANSISTOR 2SC1623
Q617	8-729-100-66	TRANSISTOR 2SC1623
Q618	8-729-100-66	TRANSISTOR 2SC1623
Q619	8-729-100-66	TRANSISTOR 2SC1623
Q620	8-729-100-66	TRANSISTOR 2SC1623
Q621	8-729-805-42	TRANSISTOR 2SC3856
Q622	8-729-805-42	TRANSISTOR 2SC3856
Q623	8-729-805-42	TRANSISTOR 2SC3856
Q624	8-729-805-42	TRANSISTOR 2SC3856
Q625	8-729-216-22	TRANSISTOR 2SA1162
Q626	8-729-100-66	TRANSISTOR 2SC1623
Q627	8-729-216-22	TRANSISTOR 2SA1162
Q628	8-729-216-22	TRANSISTOR 2SA1162
Q629	8-729-902-48	TRANSISTOR DTC114EK
Q630	8-729-216-22	TRANSISTOR 2SA1162
Q631	8-729-216-22	TRANSISTOR 2SA1162
Q632	8-729-100-66	TRANSISTOR 2SC1623
Q633	8-729-216-22	TRANSISTOR 2SA1162
Q634	8-729-100-66	TRANSISTOR 2SC1623
Q635	8-729-216-22	TRANSISTOR 2SA1162
Q638	8-729-216-22	TRANSISTOR 2SA1162
Q639	8-729-805-42	TRANSISTOR 2SC3856
Q641	8-729-100-66	TRANSISTOR 2SC1623
Q642	8-729-216-22	TRANSISTOR 2SA1162
Q644	8-729-216-22	TRANSISTOR 2SA1162
Q645	8-729-100-66	TRANSISTOR 2SC1623
Q646	8-729-216-22	TRANSISTOR 2SA1162
Q647	8-729-100-66	TRANSISTOR 2SC1623
Q648	8-729-216-22	TRANSISTOR 2SA1162
Q802	8-729-100-66	TRANSISTOR 2SC1623
Q803	8-729-402-19	TRANSISTOR XN6501
Q804	8-729-402-19	TRANSISTOR XN6501
Q805	8-729-901-01	TRANSISTOR DTC144EK
Q806	8-729-100-66	TRANSISTOR 2SC1623
Q807	8-729-100-66	TRANSISTOR 2SC1623
Q809	8-729-805-42	TRANSISTOR 2SC3856
Q810	8-729-805-42	TRANSISTOR 2SC3856
Q811	8-729-901-06	TRANSISTOR DTA144EK
Q812	8-729-901-06	TRANSISTOR DTA144EK
Q816	8-729-100-66	TRANSISTOR 2SC1623
Q817	8-729-216-22	TRANSISTOR 2SA1162
Q818	8-729-100-66	TRANSISTOR 2SC1623
Q819	8-729-119-76	TRANSISTOR 2SB1132
Q820	8-729-100-66	TRANSISTOR 2SC1623
Q822	8-729-216-22	TRANSISTOR 2SA1162
Q824	8-729-901-01	TRANSISTOR DTC144EK
Q825	8-729-901-01	TRANSISTOR DTC144EK
Q826	8-729-216-22	TRANSISTOR 2SA1162
Q827	8-729-100-66	TRANSISTOR 2SC1623
Q828	8-729-216-22	TRANSISTOR 2SA1162
Q830	8-729-805-42	TRANSISTOR 2SC3856

CV-9 (CAMERA, VIDEO PROCESS) PRINTED WIRING BOARDS

— Ref. No. CV-9 BOARD 2000 series —



DIODE

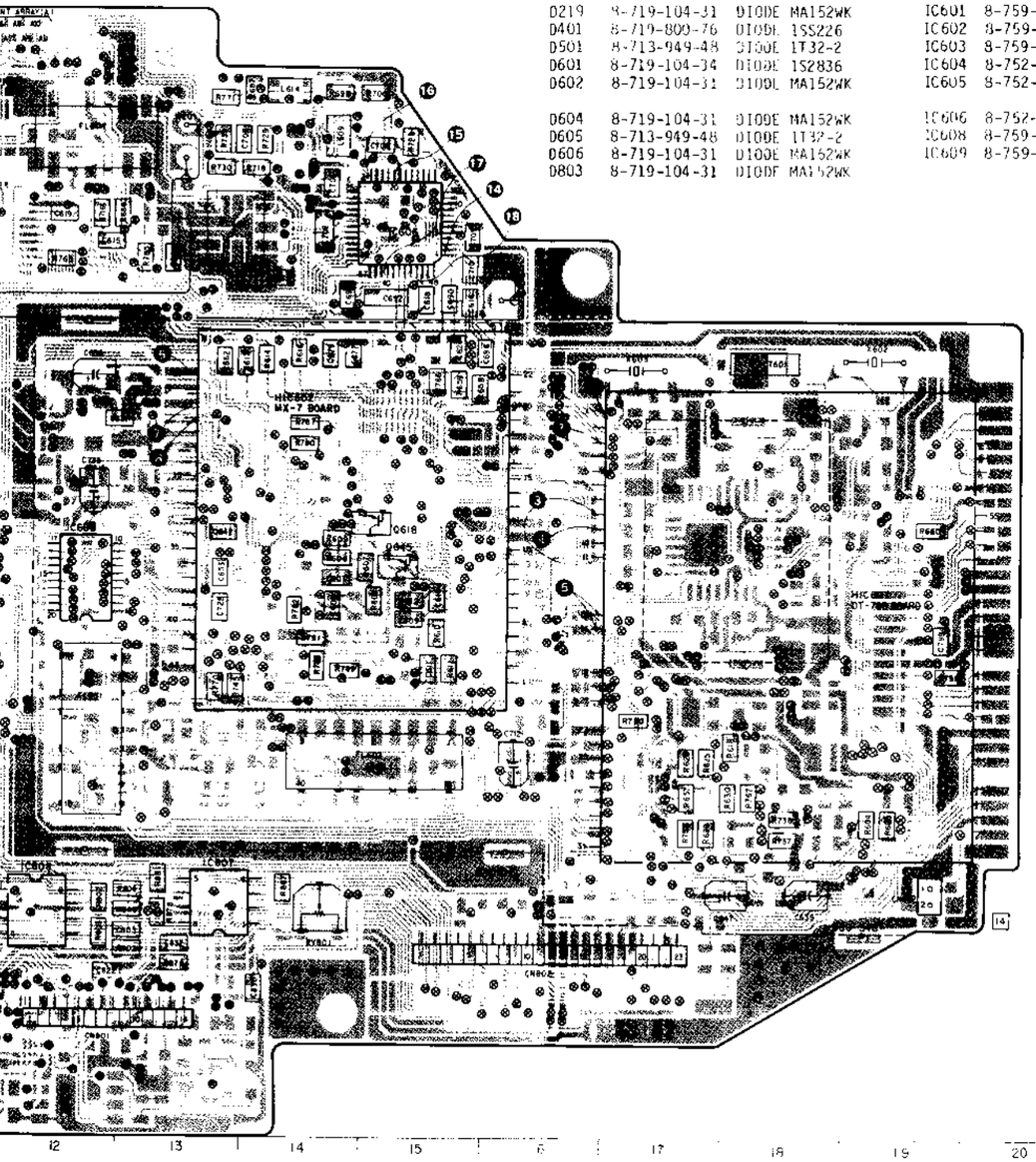
D211	8-719-800-76	DIODE 1SS226	IC201
D213	8-719-104-31	DIODE MA152WK	IC202
D216	8-719-404-13	DIODE MA159-TX	IC203
D217	8-719-404-13	DIODE MA159-TX	IC501
D218	8-719-104-31	DIODE MA152WK	IC502
D219	8-719-104-31	DIODE MA152WK	IC601
D401	8-719-800-76	DIODE 1SS226	IC602
D501	8-713-949-48	DIODE 1T32-2	IC603
D601	8-719-104-34	DIODE 1S2836	IC604
D602	8-719-104-31	DIODE MA152WK	IC605
D604	8-719-104-31	DIODE MA152WK	IC606
D605	8-713-949-48	DIODE 1T32-2	IC608
D606	8-719-104-31	DIODE MA152WK	IC609
D803	8-719-104-31	DIODE MA152WK	

DIODE

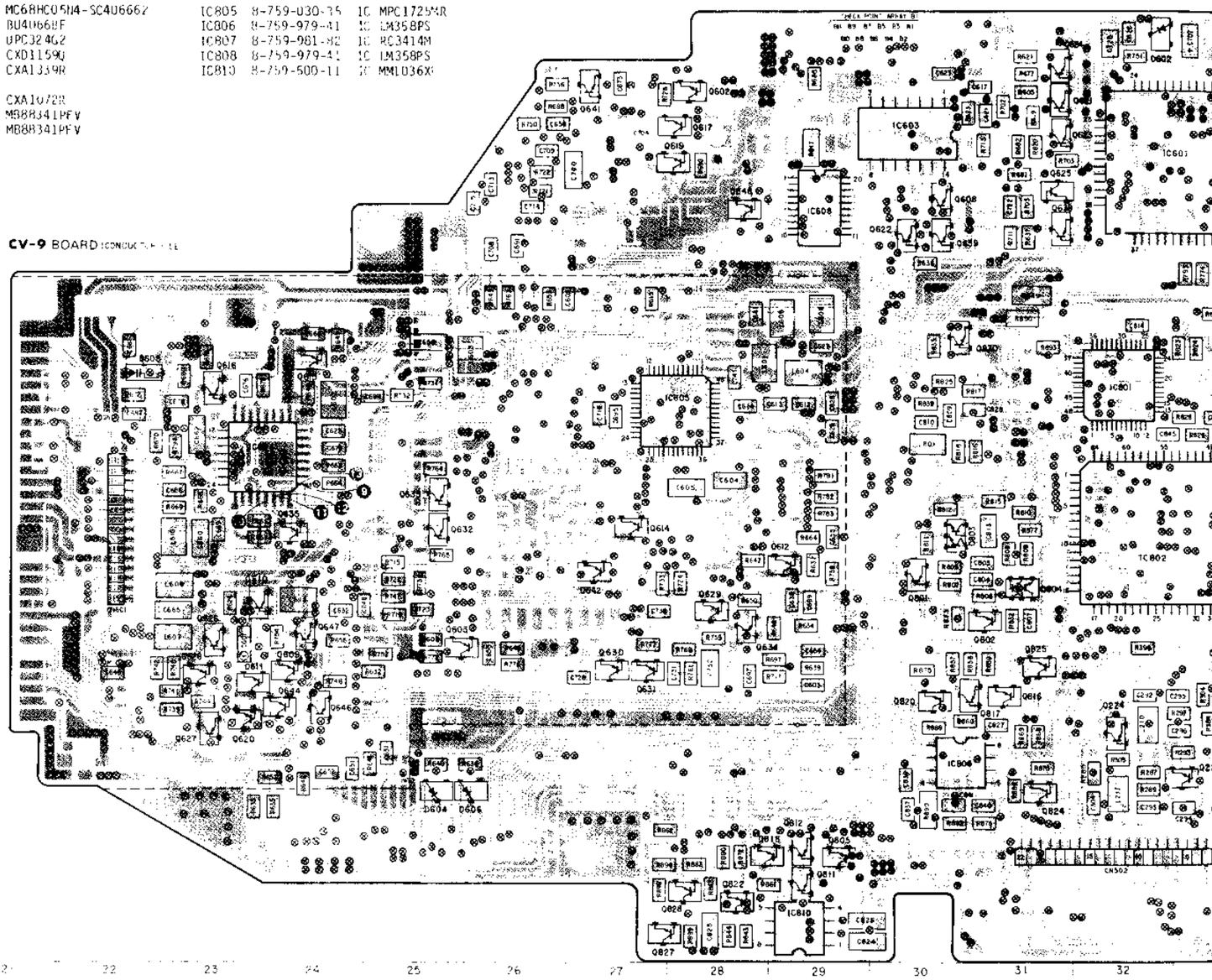
D211	8-719-800-76	DIODE 1SS226	
D213	8-719-104-31	DIODE MA152WK	
D216	8-719-404-13	DIODE MA159-TX	
D217	8-719-404-13	DIODE MA159-TX	
D218	8-719-104-31	DIODE MA152WK	
D219	8-719-104-31	DIODE MA152WK	
D401	8-719-800-76	DIODE 1SS226	
D501	8-713-949-48	DIODE 1T32-2	
D601	8-719-104-34	DIODE 1S2836	
D602	8-719-104-31	DIODE MA152WK	
D604	8-719-104-31	DIODE MA152WK	
D605	8-713-949-48	DIODE 1T32-2	
D606	8-719-104-31	DIODE MA152WK	
D803	8-719-104-31	DIODE MA152WK	

IC

IC201	8-752-033-40	IC CXA1201Q
IC202	8-752-324-87	IC CXL1502M
IC203	8-752-034-40	IC CXA1200BQ
IC501	8-759-140-26	IC UPD6145G-603
IC502	8-759-970-80	IC MB673198U
IC601	8-759-032-00	IC MC68HC05N4-SC4U6662
IC602	8-759-932-54	IC BU4066BF
IC603	8-759-100-95	IC UPC3242G2
IC604	8-752-326-08	IC CXD1159Q
IC605	8-752-034-21	IC CXA1339R
IC606	8-752-033-34	IC CXA1072R
IC608	8-759-946-00	IC MB88341PFV
IC609	8-759-946-00	IC MB88341PFV
IC610	8-759-937-56	IC S-8054ALB-LM-S
IC801	8-752-326-18	IC CXD1204R
IC802	8-759-037-22	IC MC68HC05C4-SC411533
IC803	8-759-971-93	IC MSM6219GS
IC804	8-759-946-00	IC MB88341PFV
IC805	8-759-030-35	IC MPC1725MR
IC806	8-759-979-41	IC LM358PS
IC807	8-759-981-82	IC RC3414M
IC808	8-759-979-41	IC LM358PS
IC810	8-759-500-11	IC MM1036XN



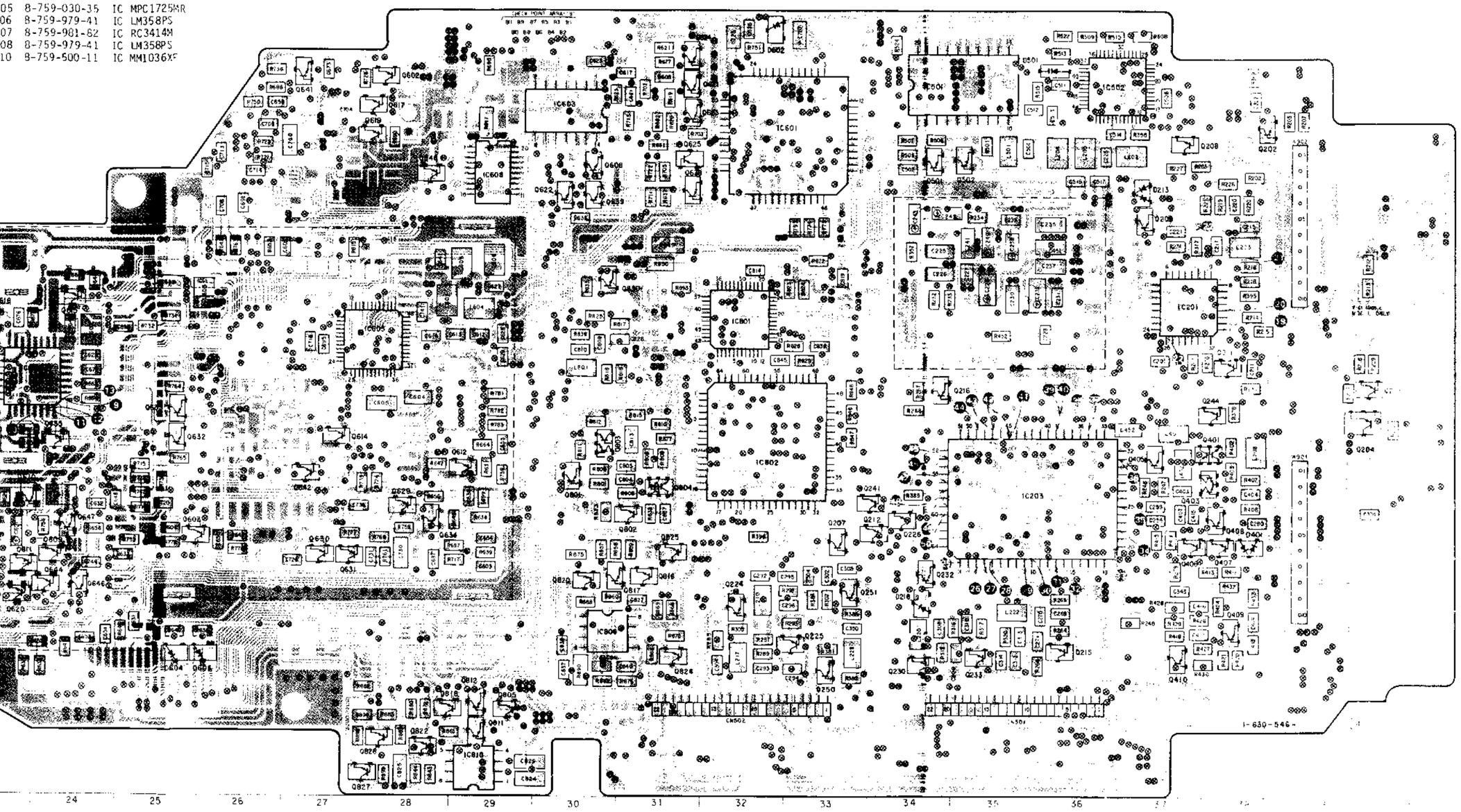
CV-9 BOARD (CONDUCTOR SIDE)



TRANSISTOR

Q202	8-729-130-66	TRANSISTOR 2SC1623	
Q203	8-729-100-66	TRANSISTOR 2SC1623	
Q204	8-729-101-07	TRANSISTOR 2SB798-DL	
Q206	8-729-901-01	TRANSISTOR DTC144EK	
Q207	8-729-901-01	TRANSISTOR DTC144EK	
Q208	8-729-901-01	TRANSISTOR DTC144EK	
Q209	8-729-216-22	TRANSISTOR 2SA1162	
Q210	8-729-101-07	TRANSISTOR 2SB798-DL	
Q211	8-729-901-01	TRANSISTOR DTC144EK	
Q212	8-729-901-01	TRANSISTOR DTC144EK	
Q213	8-729-100-66	TRANSISTOR 2SC1623	
Q215	8-729-100-66	TRANSISTOR 2SC1623	
Q216	8-729-100-66	TRANSISTOR 2SC1623	
Q217	8-729-216-22	TRANSISTOR 2SA1162	
Q222	8-729-101-07	TRANSISTOR 2SB798-DL	
Q223	8-729-901-01	TRANSISTOR DTC144EK	
Q224	8-729-102-07	TRANSISTOR 2SC2223-F	
Q225	8-729-100-66	TRANSISTOR 2SC1623	
Q226	8-729-901-06	TRANSISTOR DTA144EK	
Q227	8-729-805-41	TRANSISTOR 2SC3398	

10	8-759-937-56	IC S-8054ALB-LM-S
01	8-752-326-18	IC CXD1204R
02	8-759-037-22	IC MC68HC05C4-SC411533
03	8-759-971-93	IC MSM6219GS
04	8-759-946-00	IC MB88341PFV
05	8-759-030-35	IC MPC1725MR
06	8-759-979-41	IC LM358PS
07	8-759-981-82	IC RC3414M
08	8-759-979-41	IC LM358PS
10	8-759-500-11	IC MM1036XF

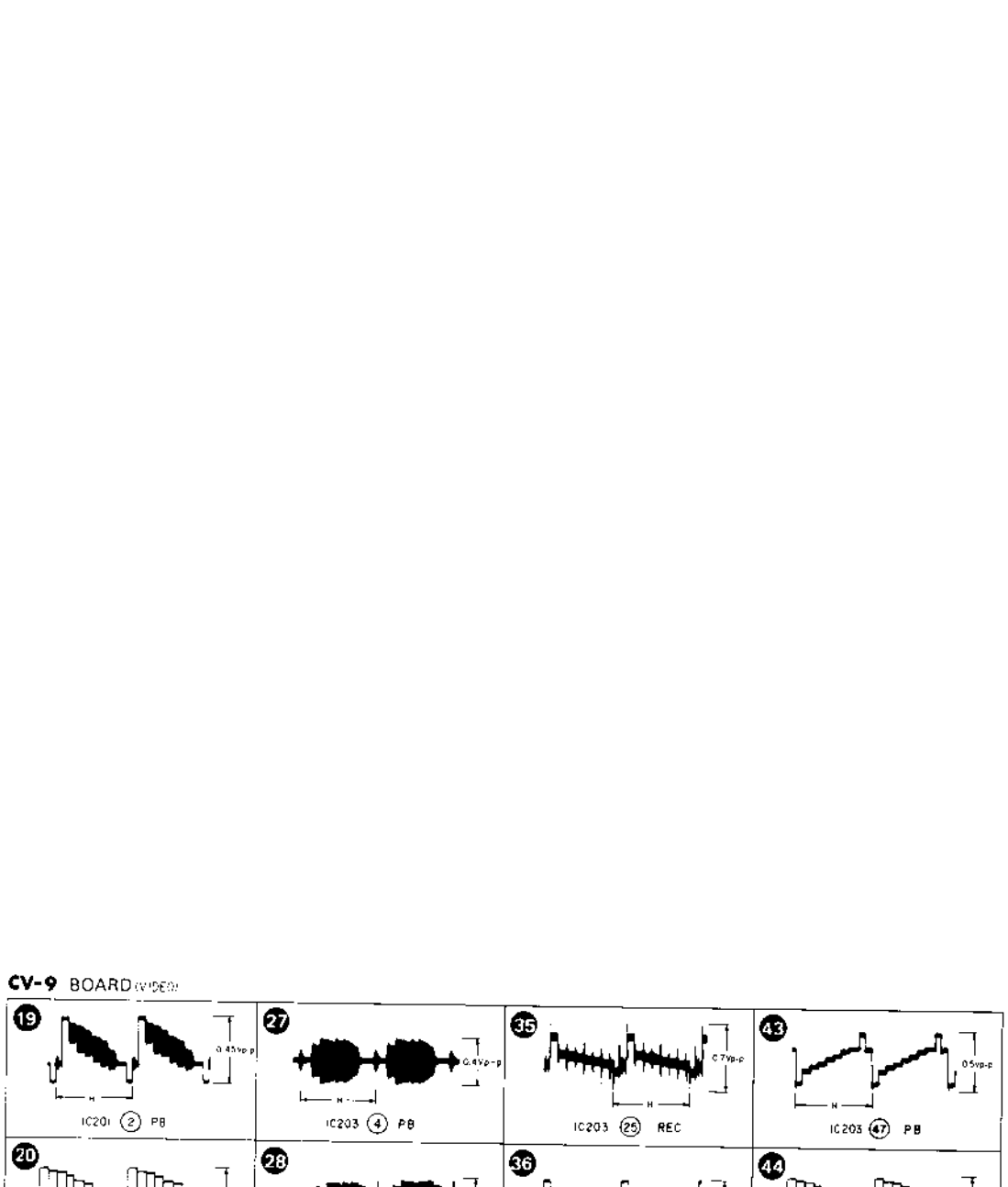


TRANSISTOR

Q202	8-729-100-66	TRANSISTOR 2SC1623
Q203	8-729-100-66	TRANSISTOR 2SC1623
Q204	8-729-101-07	TRANSISTOR 2SB798-DL
Q206	8-729-901-01	TRANSISTOR DTC144EK
Q207	8-729-901-01	TRANSISTOR DTC144EK
Q208	8-729-901-01	TRANSISTOR DTC144EK
Q209	8-729-216-22	TRANSISTOR 2SA1162
Q210	8-729-101-07	TRANSISTOR 2SB798-DL
Q211	8-729-901-01	TRANSISTOR DTC144EK
Q212	8-729-901-01	TRANSISTOR DTC144EK
Q213	8-729-100-66	TRANSISTOR 2SC1623
Q215	8-729-100-66	TRANSISTOR 2SC1623
Q216	8-729-100-66	TRANSISTOR 2SC1623
Q217	8-729-216-22	TRANSISTOR 2SA1162
Q222	8-729-101-07	TRANSISTOR 2SB798-DL
Q223	8-729-901-01	TRANSISTOR DTC144EK
Q224	8-729-102-07	TRANSISTOR 2SC2223-FT3
Q225	8-729-100-66	TRANSISTOR 2SC1623
Q226	8-729-901-06	TRANSISTOR DTA144EK
Q227	8-729-805-41	TRANSISTOR 2SC3398
Q233	8-729-216-22	TRANSISTOR 2SA1162
Q241	8-729-901-06	TRANSISTOR DTA144EK
Q242	8-729-901-01	TRANSISTOR DTC144EK
Q243	8-729-100-66	TRANSISTOR 2SC1623
Q244	8-729-901-01	TRANSISTOR DTC144EK

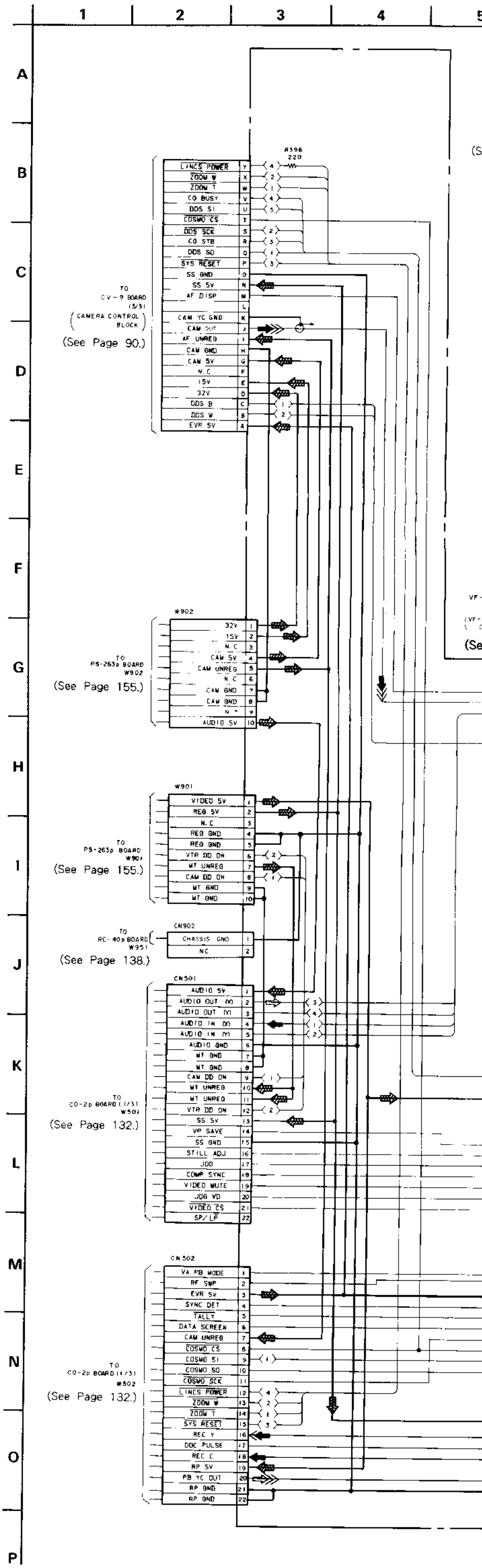
— Ref. No. CV-9 BOARD: 2000 series —

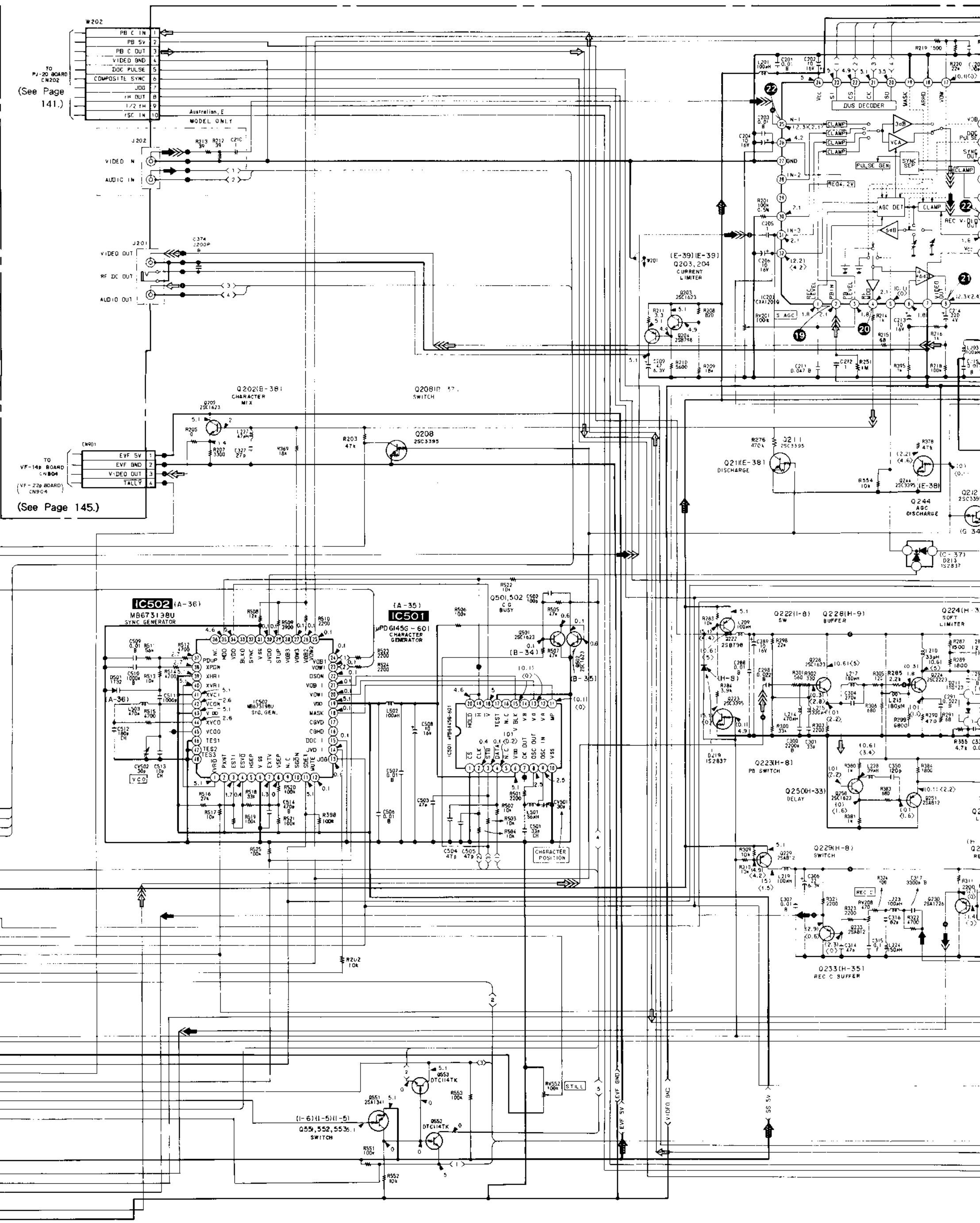
CV-9 BOARD (VIDEO)

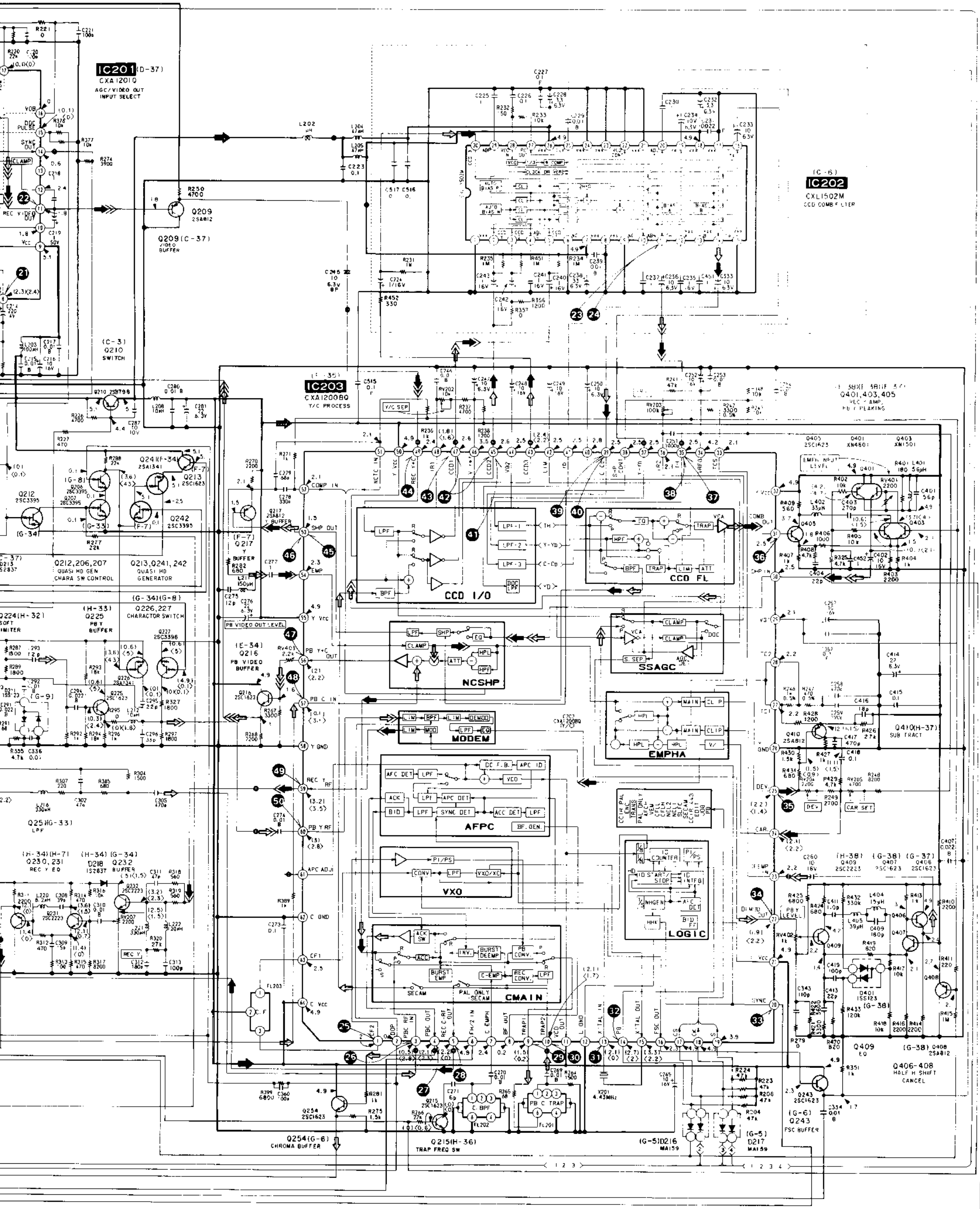


• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨




W202
PB C IN
PB SW
PB C OUT
VIDEO GND
DOC PULSE
COMPOSITE SYNC
JOG
FM OUT
1/2 FM
FSC IN
TO PJ-20 BOARD CN202
(See Page 141.)
Australian, E MODEL ONLY
J202
VIDEO IN
AUDIO IN
J201
VIDEO OUT
RF DC OUT
AUDIO OUT
CN901
EVF 5V
EVF GND
VIDEO OUT
TALLY
TO VF-14p BOARD CN804
(VF-22p BOARD) CN904
(See Page 145.)
Q202(B-3)
CHARACTER MIX
Q208(B-3)
SWITCH
Q208
2SC3395
IC502 (A-3)
MB673138U
SYNC GENERATOR
IC501
μPD6145G-601
CHARACTER GENERATOR
Q501,502
C.G BUSY
CHARACTER POSITION
Q551,552,553
SWITCH
STILL
RV202
10k
(E-39)(E-39)
Q203,204
CURRENT LIMITER
Q203
2SC1623
Q204
2SB798
DUS DECODER
CLAMP
AGC DET
PULSE GEN
SYNC SEP
REG4.2V
REC V-DLY OUT
Q211(E-38)
DISCHARGE
Q244
AGC DISCHARGE
Q212
2SC3395
(C-37)
D213
1S2837
Q222(H-8)
SW
Q228(H-9)
BUFFER
Q224(H-3)
SOFT LIMITER
Q223(H-8)
PB SWITCH
Q250(H-33)
DELAY
Q229(H-8)
SWITCH
Q233(H-35)
REC C BUFFER
D219
1S2837



CV-9 BOARD (1/3) (VIDEO BLOCK)

LI-10 (RELAY), CK-43P (CAMERA FUNCTION SWITC
DK-10P (EDIT SEARCH SWITCH) PRINTED WIRING BOARDS

-- Ref. No. LI-10 BOARD : 3000 series, CK-43P BOARD : 4000 series

DIODE

D651	8-719-938-72	DIODE SB01-05CP
D652	8-719-801-48	DIODE 1SS193
D653	8-719-104-31	DIODE MA152WK
D654	8-719-104-31	DIODE MA152WK
D655	8-719-104-31	DIODE MA152WK
D658	8-719-801-48	DIODE 1SS193
D690	8-719-939-11	DIODE GP2S09-B

IC

IC651	8-759-149-19	IC UPD75080GB-516

TRANSISTOR

Q651	8-729-901-03	TRANSISTOR DTC144WK
Q652	8-729-216-22	TRANSISTOR 2SA1162G
Q653	8-729-901-03	TRANSISTOR DTC144WK
Q654	8-729-220-93	TRANSISTOR 2SK209G
Q655	8-729-216-22	TRANSISTOR 2SA1162G
Q656	8-729-216-22	TRANSISTOR 2SA1162G
Q657	8-729-216-22	TRANSISTOR 2SA1162G
Q658	8-729-100-66	TRANSISTOR 2SC1623
Q659	8-729-100-66	TRANSISTOR 2SC1623
Q660	8-729-216-22	TRANSISTOR 2SA1162G
Q661	8-729-216-22	TRANSISTOR 2SA1162G
Q662	8-729-902-XX	TRANSISTOR DTC114TK
Q663	8-729-902-XX	TRANSISTOR DTC114TK
Q664	8-729-216-22	TRANSISTOR 2SA1162G
Q665	8-729-901-01	TRANSISTOR DTC144EK

CK-4

LI-10 (RELAY), CK-43P (CAMERA FUNCTION SWITCH), DK-10P (EDIT SEARCH SWITCH) PRINTED WIRING BOARDS

– Ref. No. LI-10 BOARD : 3000 series, CK-43P BOARD : 4000 series, DK-10P BOARD : 5000 series –

DIODE

D651	8-719-938-72	DIODE SB01-05CP
D652	8-719-801-48	DIODE 1SS193
D653	8-719-104-31	DIODE MA152WK
D654	8-719-104-31	DIODE MA152WK
D657	8-719-104-31	DIODE MA152WK
D658	8-719-801-48	DIODE 1SS193
D660	8-719-939-11	DIODE GP2S09-B

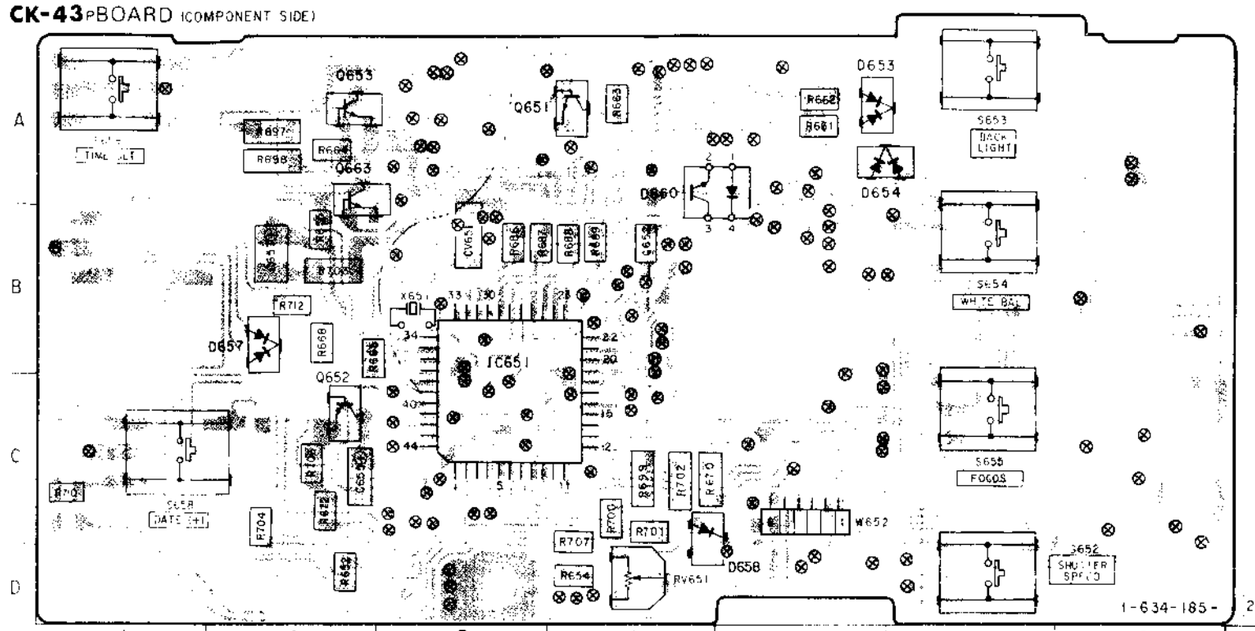
IC

IC651	8-759-149-19	IC UPD7508BGB-516

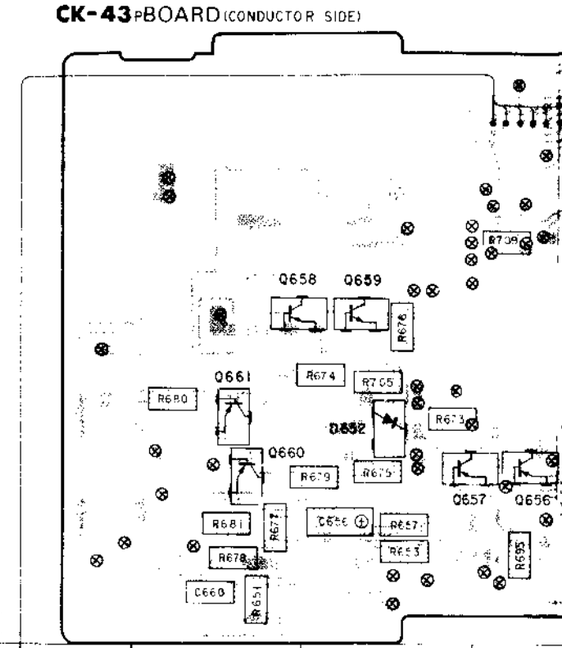
TRANSISTOR

Q651	8-729-901-03	TRANSISTOR DTC144WK
Q652	8-729-216-22	TRANSISTOR 2SA1162G
Q653	8-729-901-03	TRANSISTOR DTC144WK
Q654	8-729-220-93	TRANSISTOR 2SK209G
Q655	8-729-216-22	TRANSISTOR 2SA1162G
Q656	8-729-216-22	TRANSISTOR 2SA1162G
Q657	8-729-216-22	TRANSISTOR 2SA1162G
Q658	8-729-100-66	TRANSISTOR 2SC1623
Q659	8-729-100-66	TRANSISTOR 2SC1623
Q660	8-729-216-22	TRANSISTOR 2SA1162G
Q661	8-729-216-22	TRANSISTOR 2SA1162G
Q662	8-729-902-XX	TRANSISTOR DTC114TK
Q663	8-729-902-XX	TRANSISTOR DTC114TK
Q664	8-729-216-22	TRANSISTOR 2SA1162G
Q665	8-729-901-01	TRANSISTOR DTC144TK

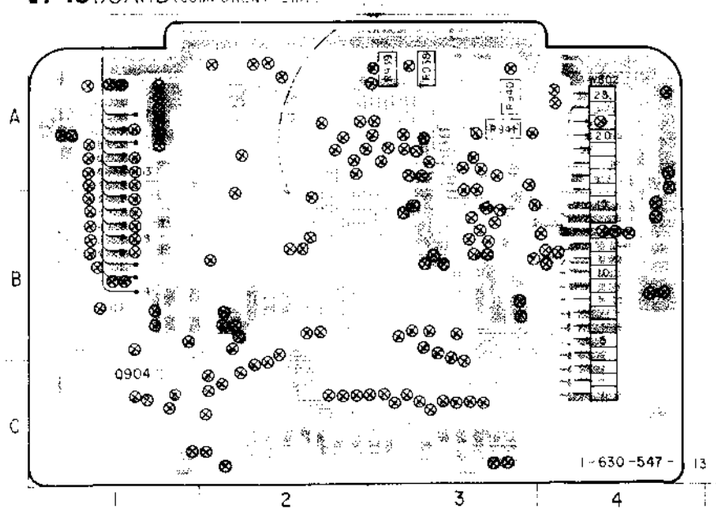
CK-43P BOARD (COMPONENT SIDE)



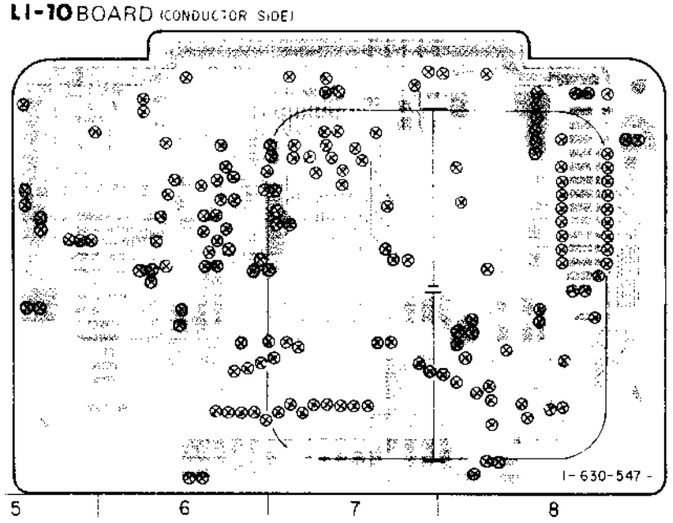
CK-43P BOARD (CONDUCTOR SIDE)



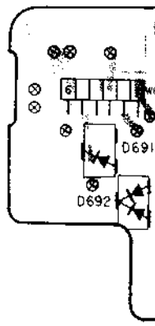
LI-10 BOARD (COMPONENT SIDE)



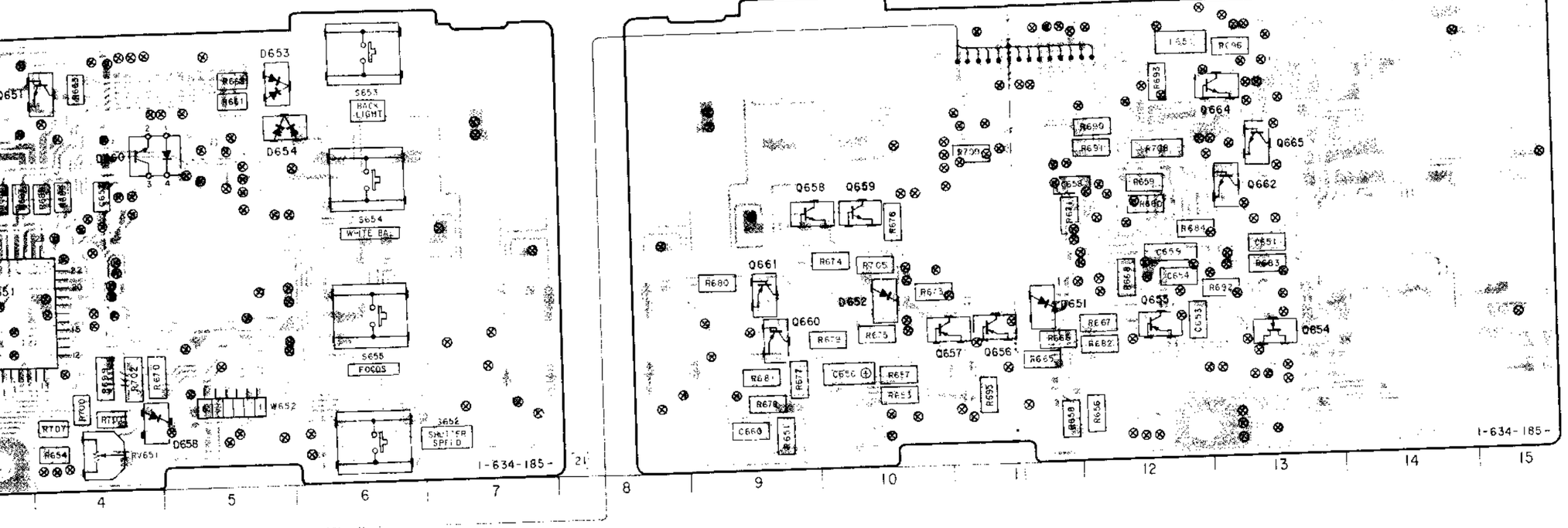
LI-10 BOARD (CONDUCTOR SIDE)



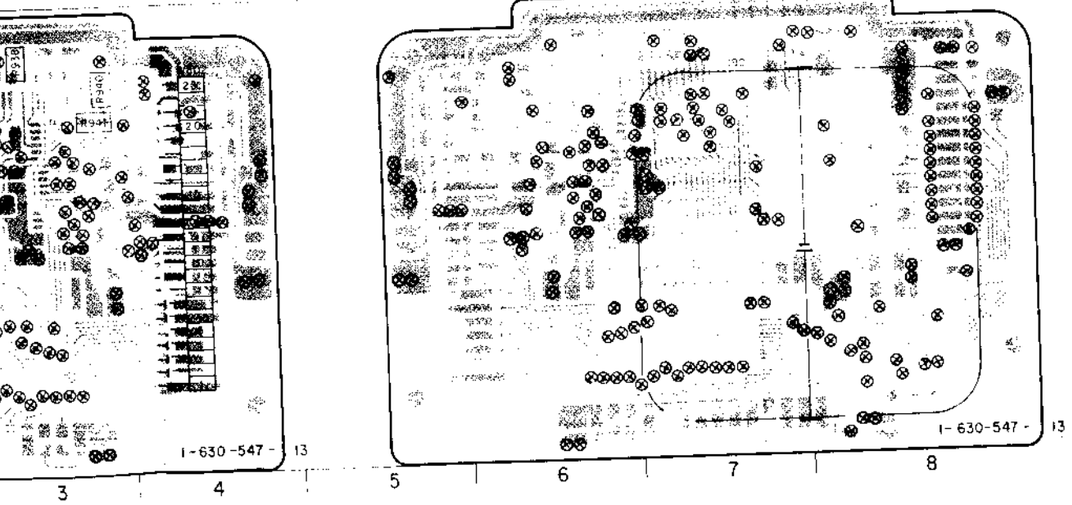
DK-10P BOARD (C



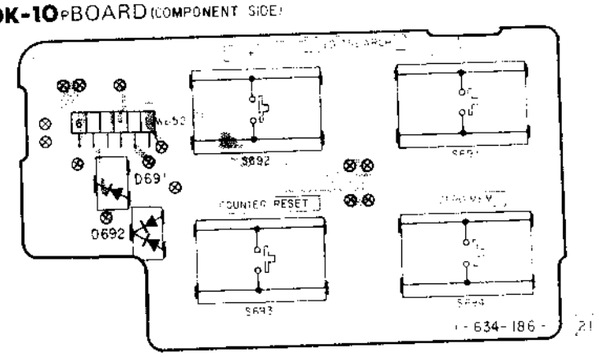
CK-43 P BOARD (CONDUCTOR SIDE)



LI-10 BOARD (CONDUCTOR SIDE)



DK-10 P BOARD (COMPONENT SIDE)

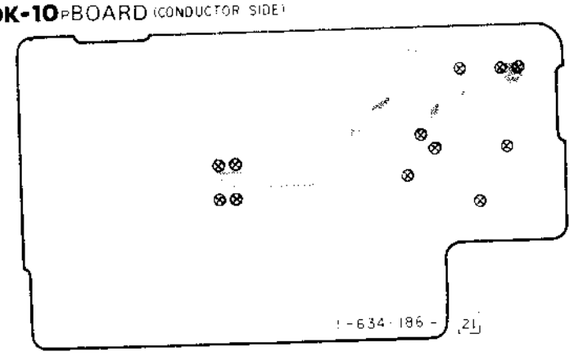


DK-10P BOARD

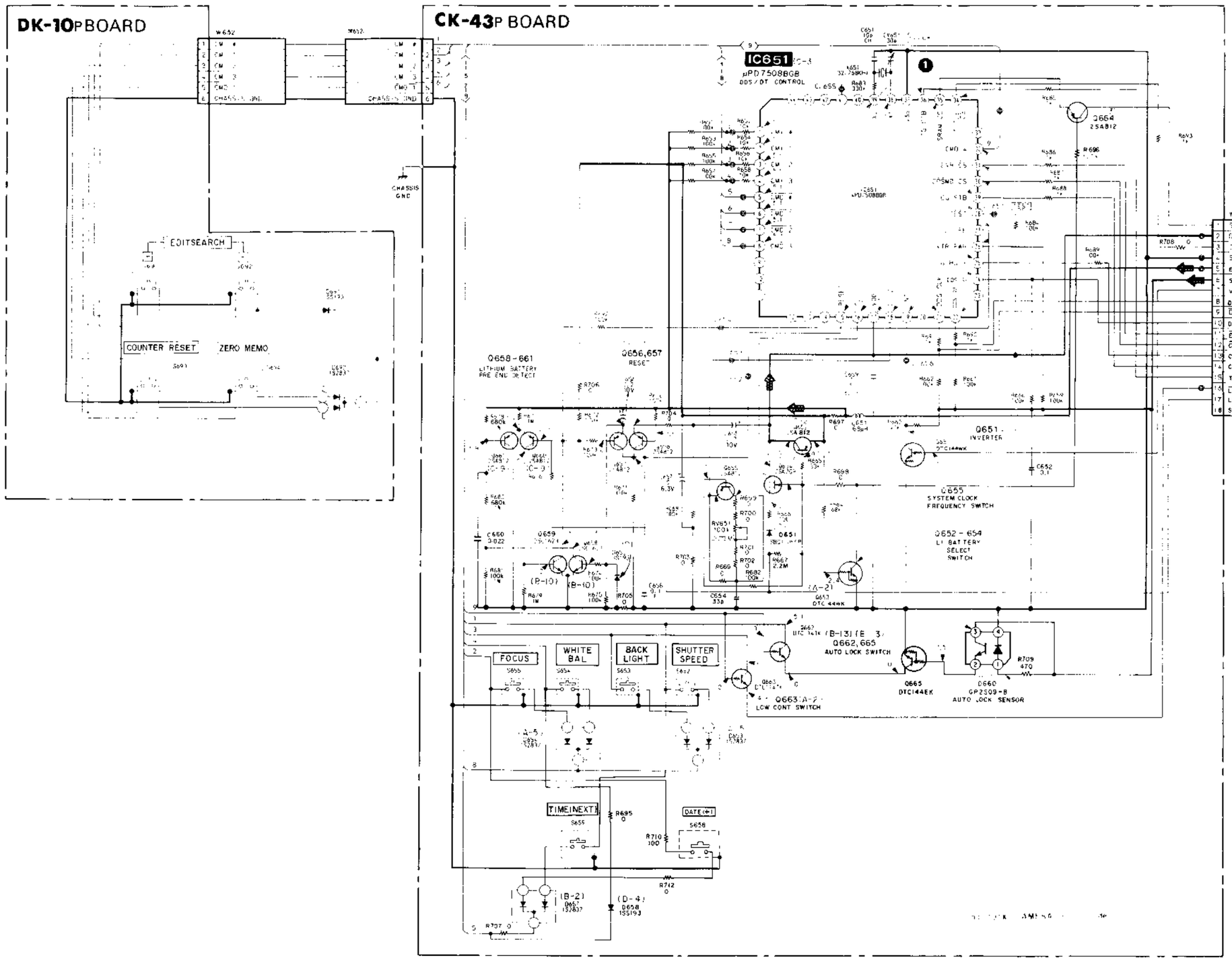
DIODE

D691	8-719-801-48	DIODE 1SS193-TE85L
D692	8-719-104-31	DIODE MA152WK

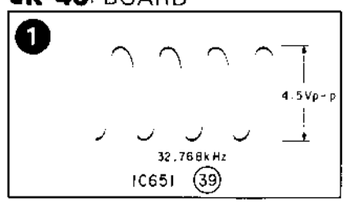
DK-10 P BOARD (CONDUCTOR SIDE)



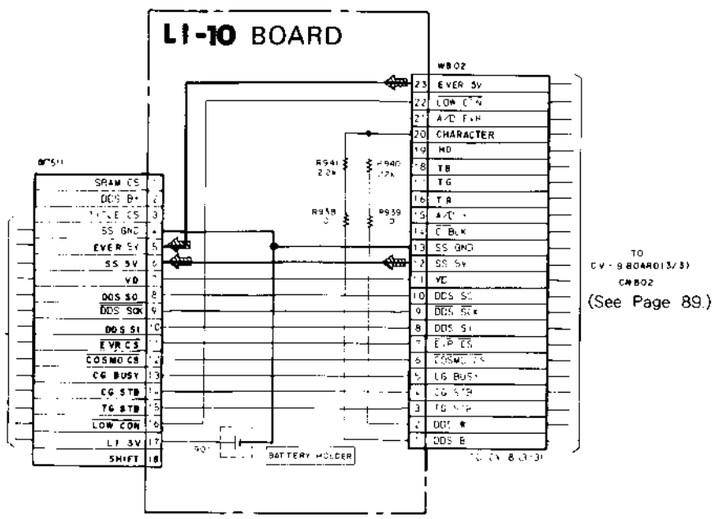
– Ref. No. LI-10 BOARD : 3000 series, CK-43P BOARD : 4000 series, DK-10P BOARD : 5000 series –



CK-43P BOARD



LI-10 BOARD

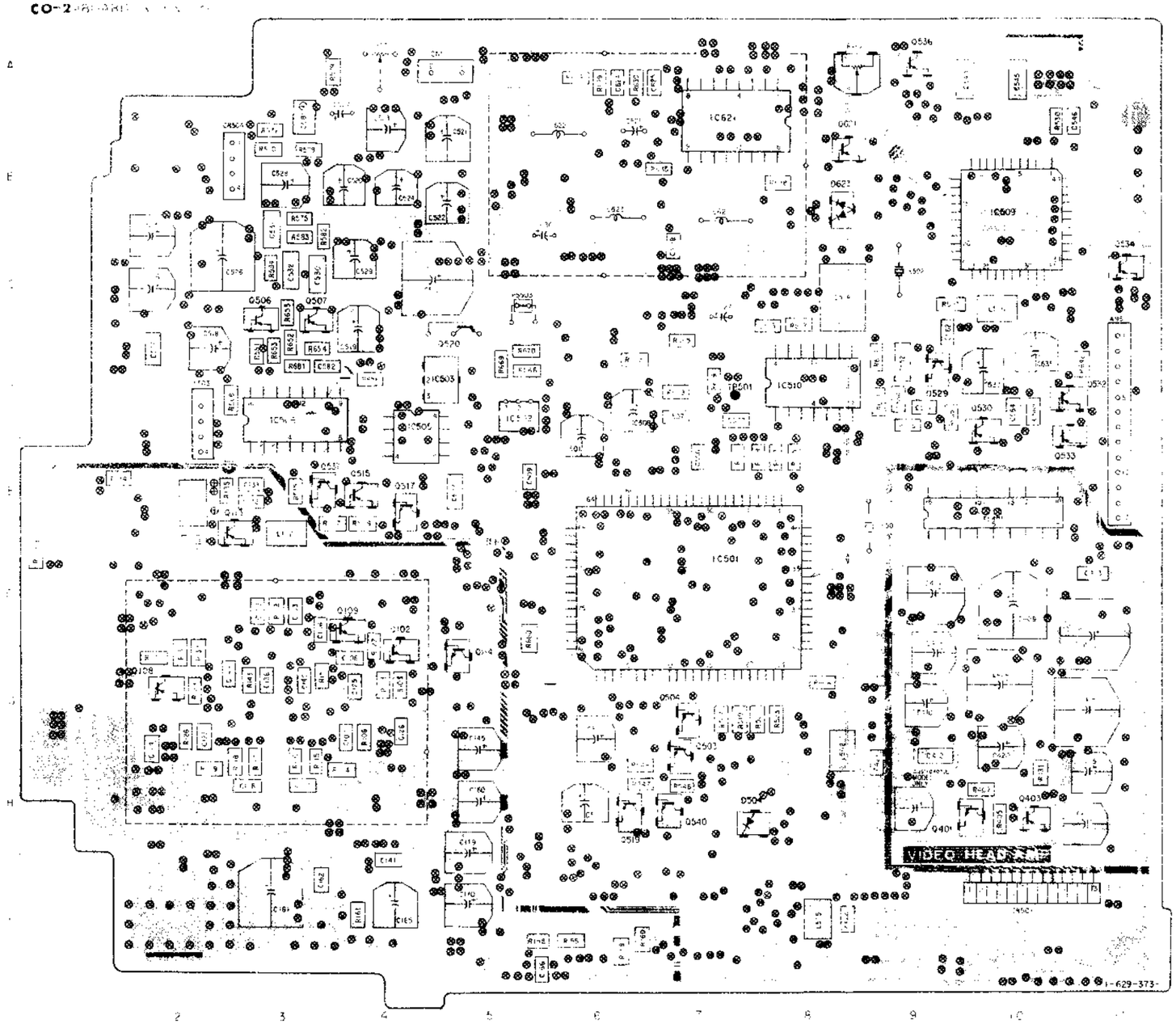


(See Page 89.)

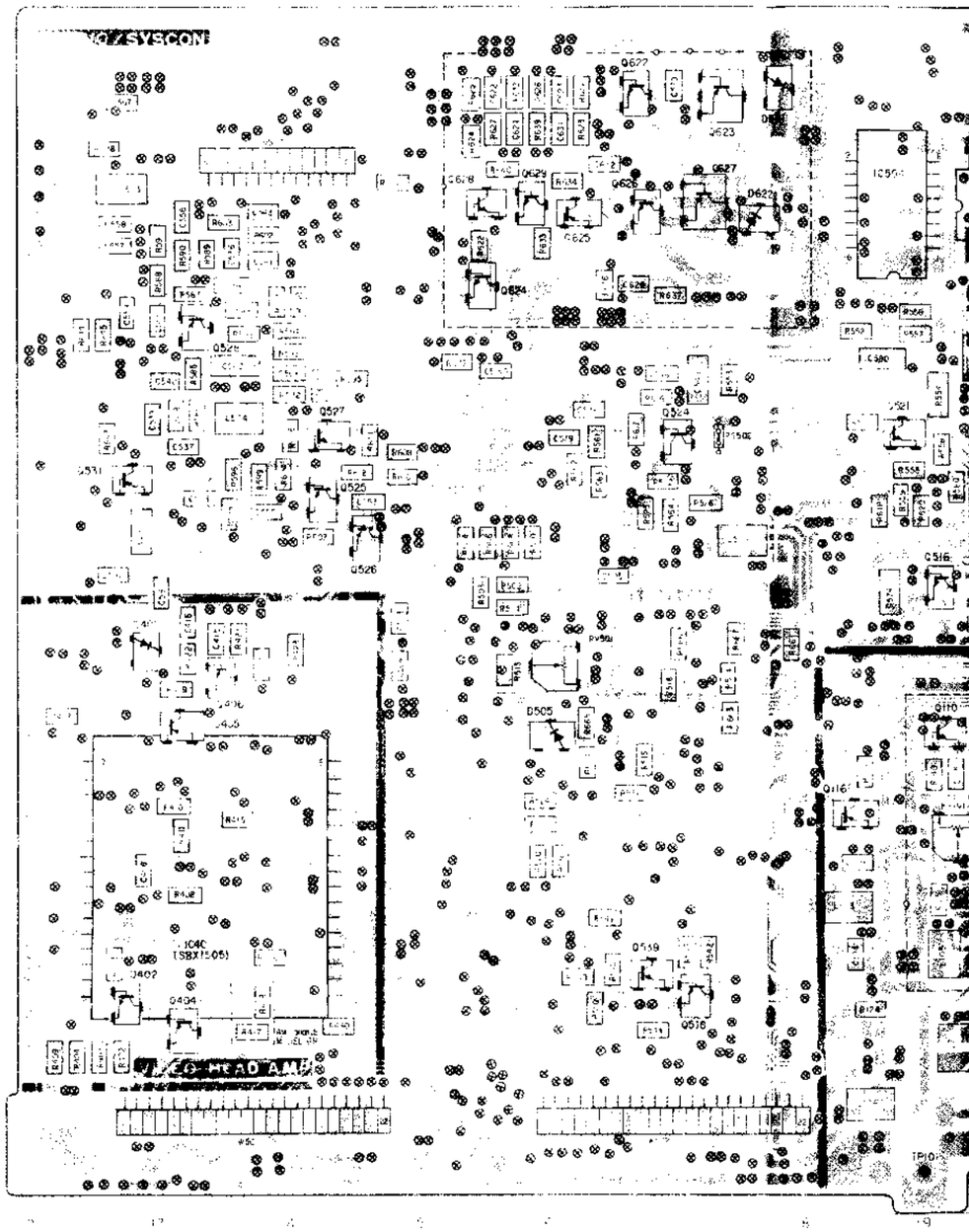
CO-2P (HEAD AMP, AUDIO/SERVO, SYSTEM CONTROL), CC-51P (TFG/SFG AMP), KS-11P (CAPSTAN MOTOR DRIVE JUNCTION), FP-89 (TAPE END SENSOR), FP-90 (TAPE TOP SENSOR) PRINTED WIRING BOARDS

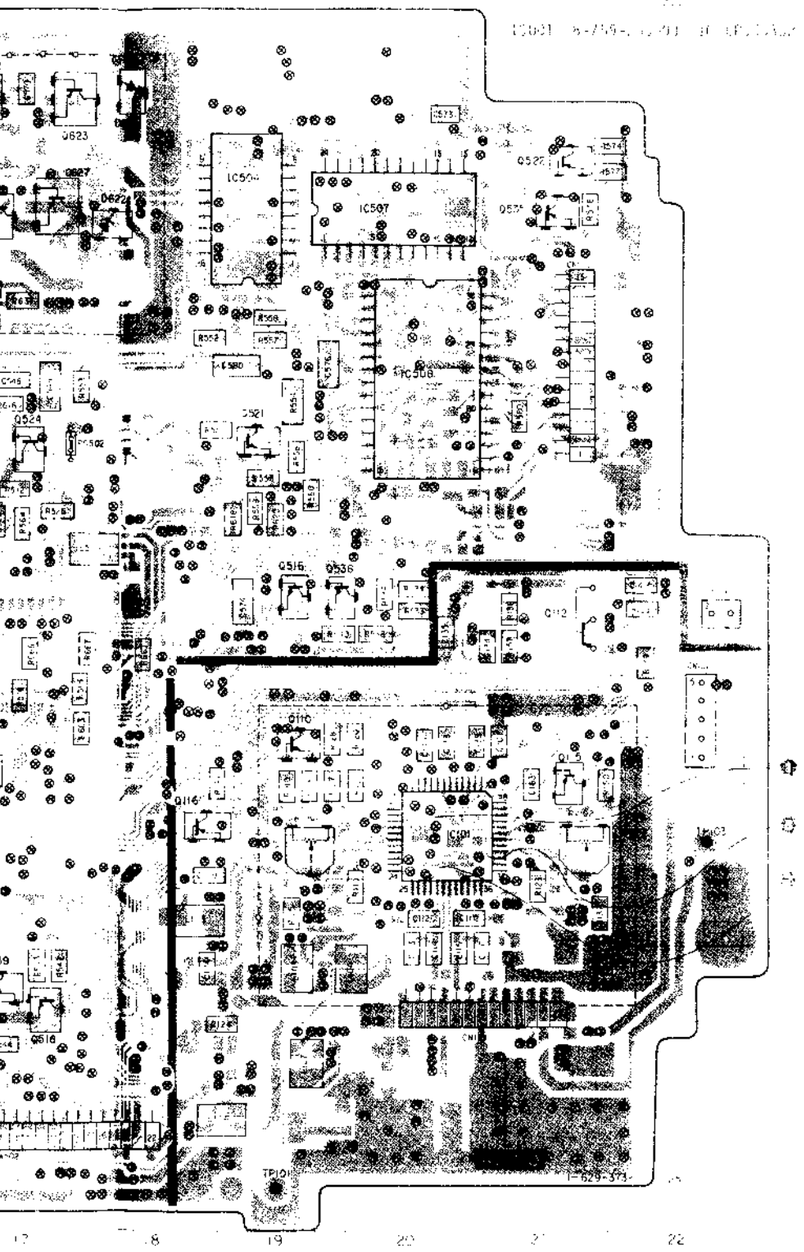
Ref. No. CO-2P, FP-89 BOARDS : 6000 series, CC-51P BOARD : 7000 series, FP-90, KS-11P BOARDS : 8000 series

CO-2P BOARD (component side)



CO-2P BOARD (conductor side)





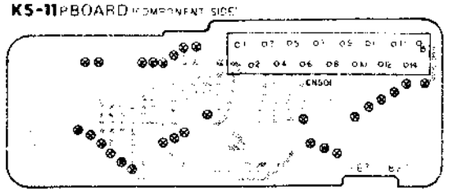
IC

IC501	8-752-033-28	IC	CXA1206R
IC502	8-741-150-51	IC	SPX1505-21
IC506	8-752-811-62	IC	CXP81116-647
IC507	8-759-990-78	IC	S-81250AG-MEB
IC509	8-759-974-21	IC	S-8054ALBA-EB
IC510	8-759-804-12	IC	TB1631M
IC511	8-759-100-94	IC	GP1U58Z
IC512	8-759-107-67	IC	CX20116A
IC513	8-759-202-45	IC	CX20114
IC520	8-759-805-06	IC	CXA1229M
IC609	8-752-209-63	IC	CXA1206Q
IC610	8-759-100-95	IC	GP1U52Z
IC621	8-759-845-17	IC	MB3775PF

TRANSISTOR

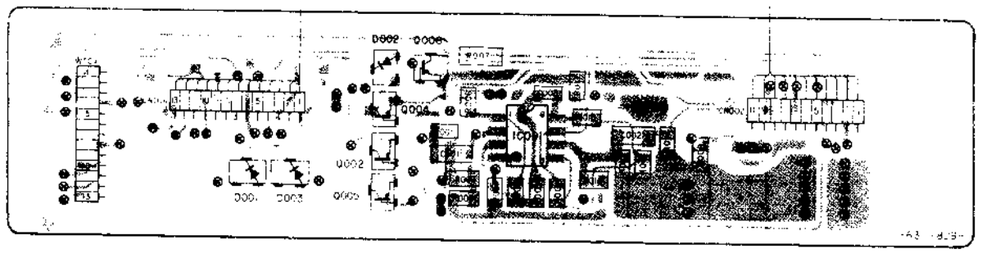
Q502	8-729-903-30	TRANSISTOR DTC144EK
Q504	8-729-903-30	TRANSISTOR DTC144EK
Q505	8-729-903-30	TRANSISTOR DTC144EK
Q506	8-729-903-53	TRANSISTOR DTC114EK

KS-11 PBOARD (COMPONENT SIDE)

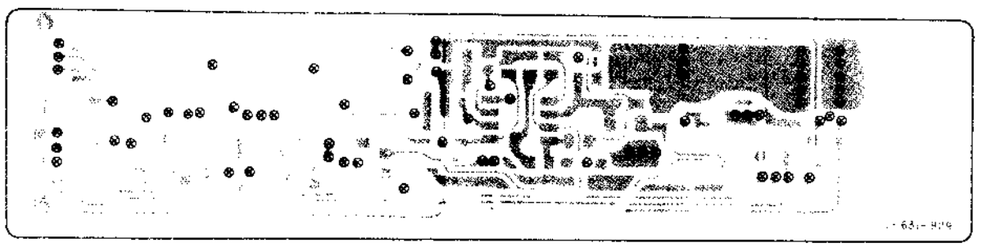


KS-11 PBOARD (CONDUCTOR SIDE)

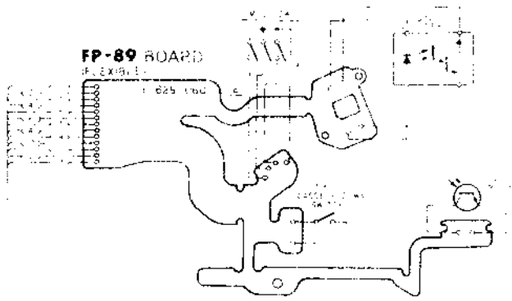
CC-51 PBOARD (COMPONENT SIDE)



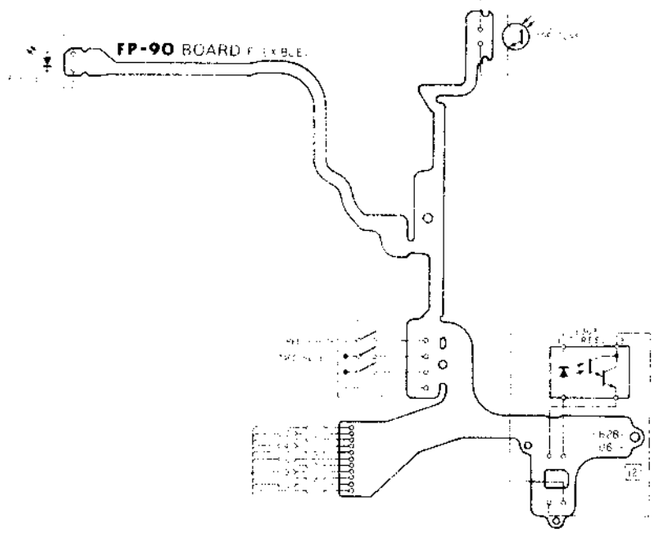
CC-51 PBOARD (CONDUCTOR SIDE)



FP-89 BOARD (FLEXIBLE)



FP-90 BOARD (FLEXIBLE)



CC-2P BOARD

TRANSISTOR

Q102	8-729-100-66	TRANSISTOR 2SC1623
Q108	8-729-901-06	TRANSISTOR DTA144EK
Q109	8-729-100-66	TRANSISTOR 2SC1623
Q110	8-729-100-66	TRANSISTOR 2SC1623
Q112	8-729-119-76	TRANSISTOR 2SA1475-GR
Q113	8-729-216-22	TRANSISTOR 2SA1162
Q114	8-729-901-01	TRANSISTOR DTC144EK
Q115	8-729-901-06	TRANSISTOR DTA144EK
Q116	8-729-901-06	TRANSISTOR DTA144EK
Q401	8-729-100-66	TRANSISTOR 2SC1623
Q402	8-729-100-66	TRANSISTOR 2SC1623
Q403	8-729-901-06	TRANSISTOR DTA144EK
Q404	8-729-901-01	TRANSISTOR DTC144EK
Q405	8-729-901-05	TRANSISTOR DTA144EK
Q406	8-729-100-66	TRANSISTOR 2SC1623
Q503	8-729-805-39	TRANSISTOR 2SC3898
Q504	8-729-805-39	TRANSISTOR 2SC3898
Q506	8-729-216-22	TRANSISTOR 2SA1162
Q507	8-729-216-22	TRANSISTOR 2SA1162
Q515	8-729-216-22	TRANSISTOR 2SA1162
Q516	8-729-100-66	TRANSISTOR 2SC1623
Q517	8-729-100-66	TRANSISTOR 2SC1623
Q518	8-729-100-66	TRANSISTOR 2SC1623
Q519	8-729-100-66	TRANSISTOR 2SC1623
Q520	8-729-134-05	TRANSISTOR 2SB1048A-L
Q521	8-729-100-66	TRANSISTOR 2SC1623
Q522	8-729-216-22	TRANSISTOR 2SA1162
Q524	8-729-100-66	TRANSISTOR 2SC1623
Q525	8-729-100-66	TRANSISTOR 2SC1623
Q526	8-729-216-22	TRANSISTOR 2SA1162
Q527	8-729-100-66	TRANSISTOR 2SC1623
Q528	8-729-216-22	TRANSISTOR 2SA1162
Q529	8-729-100-66	TRANSISTOR 2SC1623
Q530	8-729-216-22	TRANSISTOR 2SA1162
Q531	8-729-216-22	TRANSISTOR 2SA1162
Q532	8-729-216-22	TRANSISTOR 2SA1162
Q533	8-729-216-22	TRANSISTOR 2SA1162
Q534	8-729-901-01	TRANSISTOR DTC144EK
Q535	8-729-901-01	TRANSISTOR DTC144EK
Q536	8-729-805-39	TRANSISTOR 2SC3898
Q537	8-729-216-22	TRANSISTOR 2SA1162
Q538	8-729-100-66	TRANSISTOR 2SC1623
Q539	8-729-100-66	TRANSISTOR 2SC1623
Q540	8-729-100-66	TRANSISTOR 2SC1623
Q621	8-729-901-00	TRANSISTOR DTC124EK
Q622	8-729-100-67	TRANSISTOR 2SC1623-L17
Q623	8-729-805-25	TRANSISTOR 2SB1121
Q624	8-729-901-01	TRANSISTOR DTC144EK
Q625	8-729-901-04	TRANSISTOR DTA124EK
Q626	8-729-100-67	TRANSISTOR 2SC1623-L17
Q627	8-729-805-25	TRANSISTOR 2SB1121
Q628	8-729-100-66	TRANSISTOR 2SC1623
Q629	8-729-100-66	TRANSISTOR 2SC1623

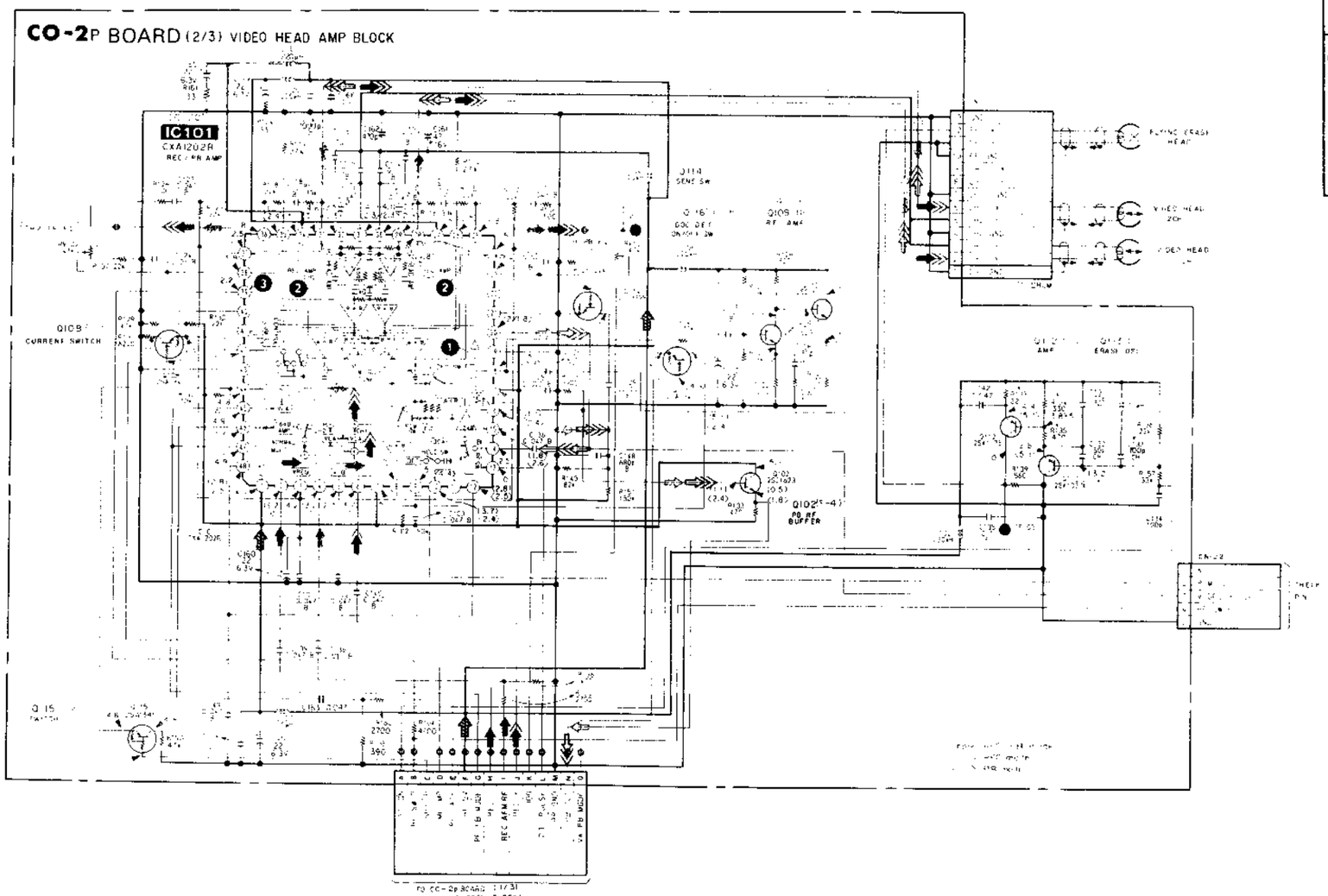
VIDEO／AUDIO

— Ref. No. CO-2 BOARD: 6000 series —

• SIGNAL PATH

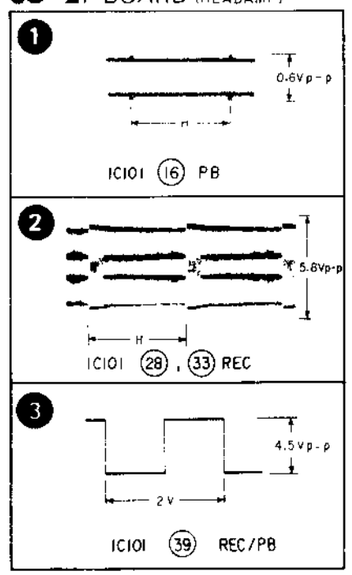
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC	➡	➡	➡	➡
PB			⇨	⇨

CO-2P BOARD (2/3) VIDEO HEAD AMP BLOCK

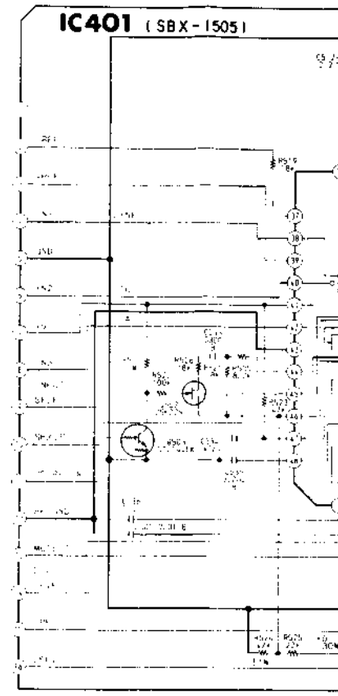


(See Page 132.)

CO-2P BOARD (HEADAMP)

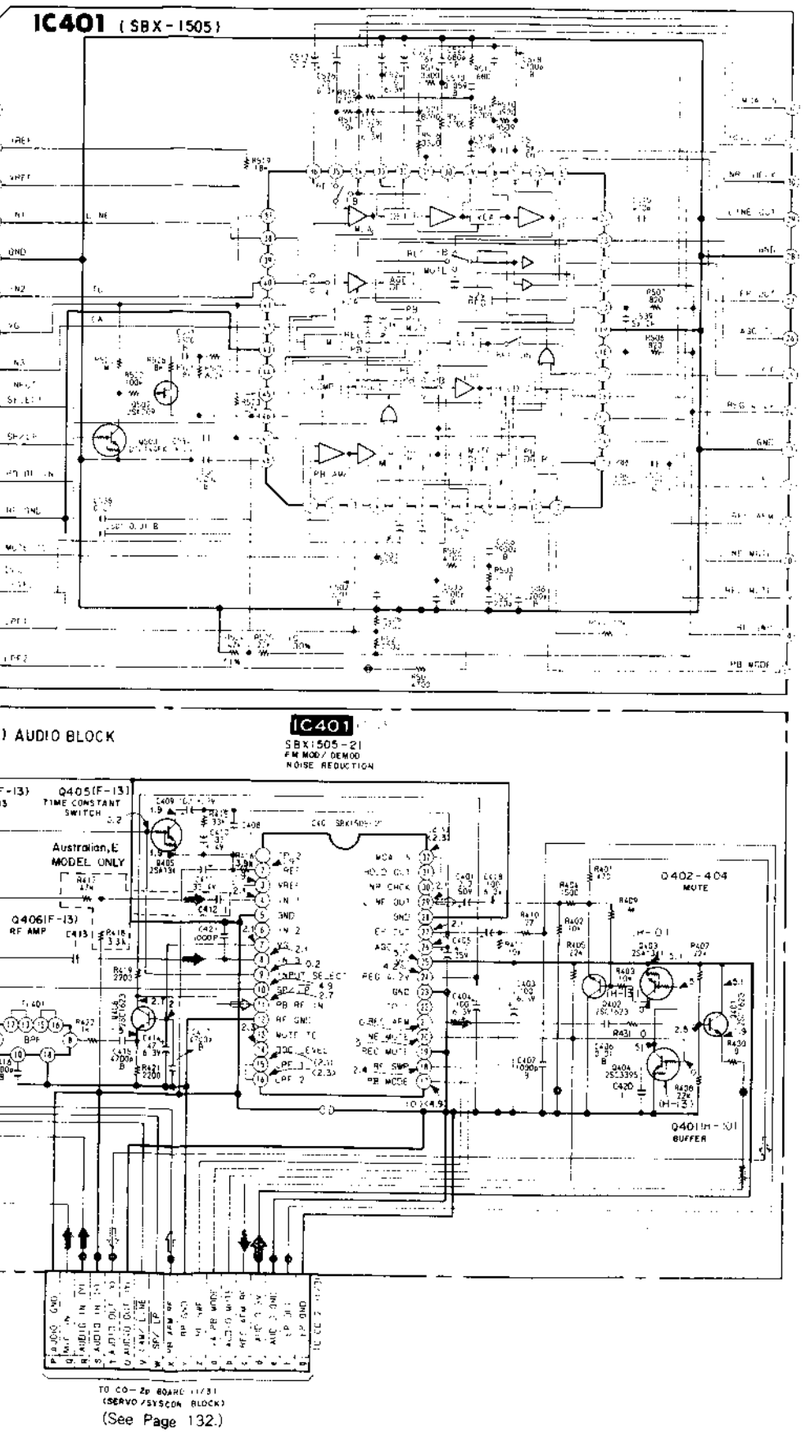


IC401 (SBX-1505)



CO-2P BOARD (3/3) AUDIO BLOCK

(See Page 132.)

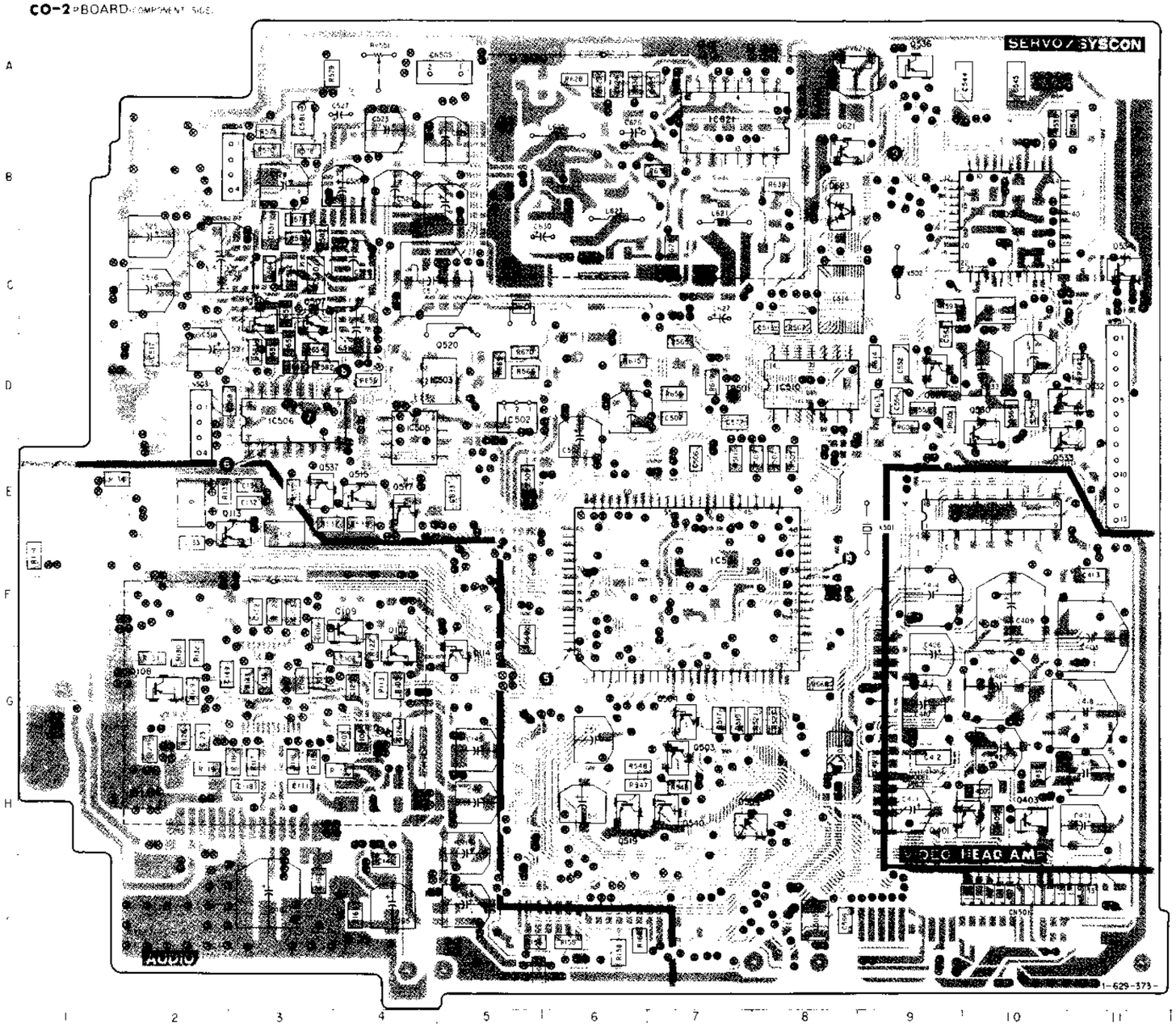

IC401 (SBX-1505)
IC401
SBX1505-21
FM MOD/DEMOD
NOISE REDUCTION
) AUDIO BLOCK
Q405(F-13)
TIME CONSTANT
SWITCH
Australian,E
MODEL ONLY
Q406(F-13)
RF AMP
Q402-404
MUTE
Q401(H-10)
BUFFER
TO CO-ZP BOARD (1/3)
(SERVO/SYSCON BLOCK)

(See Page 132.)

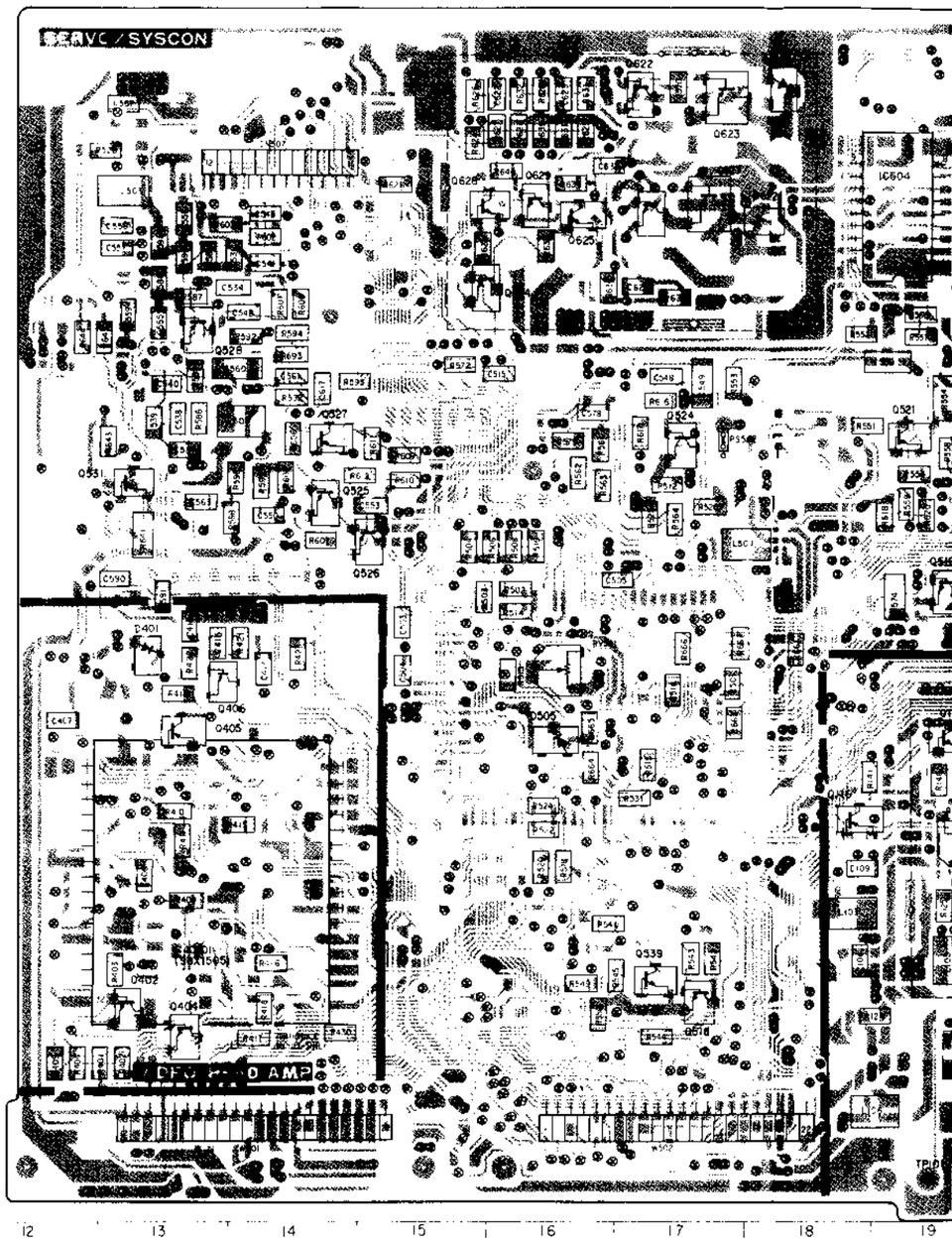
CO-2P (HEAD AMP, AUDIO/SERVO, SYSTEM CONTROL), CC-51P (TFG/SFG AMP), KS-11P (CAPSTAN MOTOR DRIVE JUNCTION), FP-89 (TAPE END SENSOR), FP-90 (TAPE TOP SENSOR) PRINTED WIRING BOARDS

– Ref. No. CO-2P, FP-89 BOARDS : 6000 series, CC-51P BOARD : 7000 series, FP-90, KS-11P BOARDS : 8000 series –

CO-2P BOARD (COMPONENT SIDE)



CO-2P BOARD (CONDUCTOR SIDE)



DIODE

D401	8-719-106-09	DIODE RD6.2M-B3
D504	8-719-400-18	DIODE MA152WK
D505	8-719-400-18	DIODE MA152WK
D621	8-719-938-75	DIODE SB05-05CP
D622	8-719-938-75	DIODE SB05-05CP
D623	8-719-104-34	DIODE 1S2835

IC

IC101	8-752-033-38	IC CXA12
IC401	8-741-150-51	IC SBX15
IC501	8-752-811-52	IC CXP80
IC502	8-759-990-78	IC S-813
IC503	8-759-974-21	IC S-805
IC504	8-759-804-72	IC LB163
IC505	8-759-100-94	IC UPC35
IC506	8-759-107-68	IC CX201
IC507	8-759-202-45	IC CX201
IC508	8-759-805-06	IC CXA11

ENSOR) PRINTED WIRING BOARDS

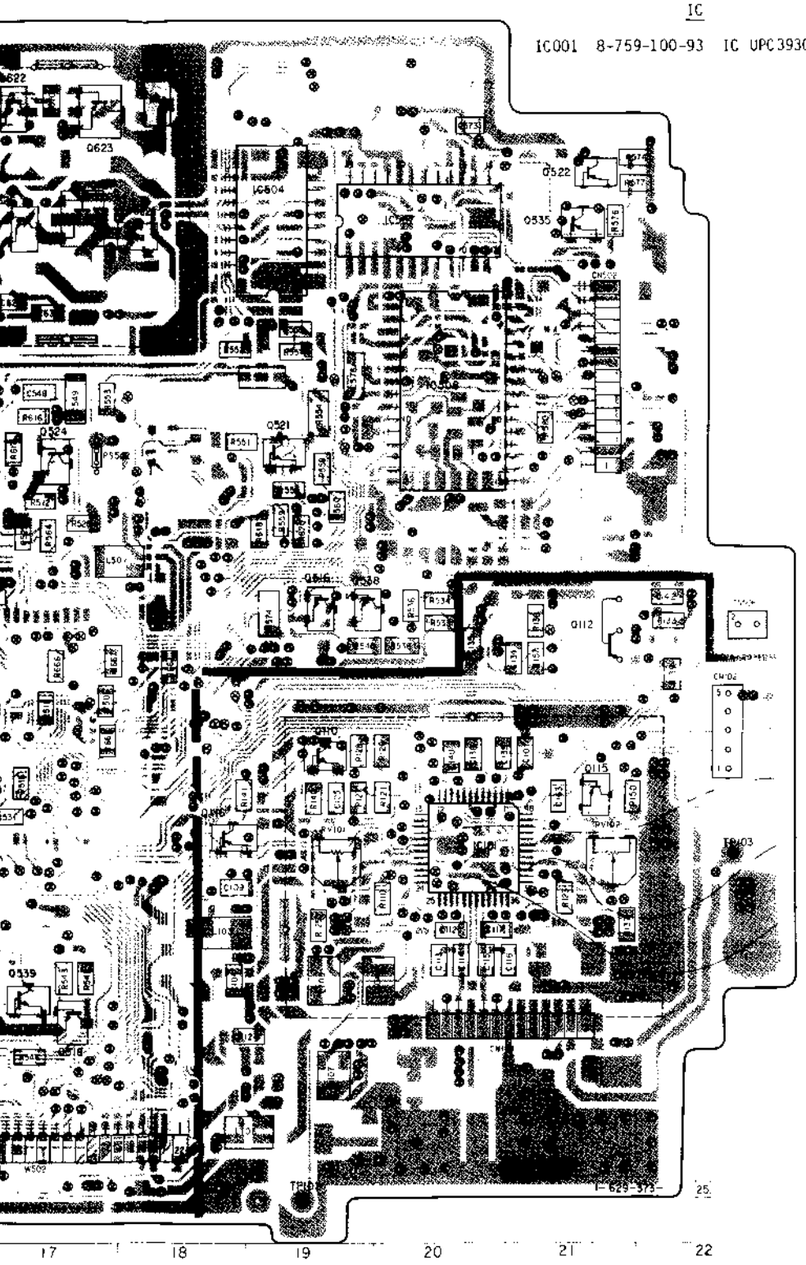
CC-51P BOARD

DIODE

D001	8-719-104-31	DIODE MA152WK
D002	8-719-104-31	DIODE MA152WK
D003	8-719-104-31	DIODE MA152WK

IC

IC001	8-759-100-93	IC UPC393G2



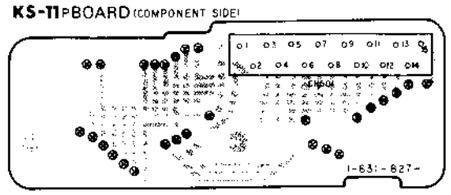
IC

IC101	8-752-033-38	IC CXA1202R	IC509	8-752-209-53	IC CXA1204Q
IC401	8-741-150-51	IC SBX1505-21	IC510	8-759-100-95	IC UPC324G2
IC501	8-752-811-52	IC CXP80116-624Q	IC621	8-759-945-17	IC MB3775PF
IC502	8-759-990-78	IC S-81350AG-REG			
IC503	8-759-974-21	IC S-8054ALRS-LN			
IC504	8-759-804-72	IC LB1631M			
IC505	8-759-100-94	IC UPC358G2			
IC506	8-759-107-68	IC CX20115A			
IC507	8-759-202-45	IC CX20114			
IC508	8-759-805-06	IC CXA1127M			

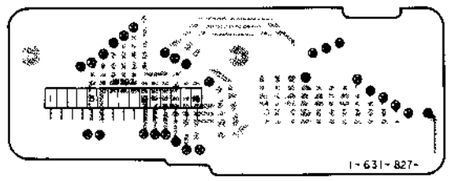
TRANSISTOR

Q002	8-729-903-30	TRANSISTOR DTC144TK
Q004	8-729-903-30	TRANSISTOR DTC144TK
Q005	8-729-903-30	TRANSISTOR DTC144TK
Q006	8-729-900-53	TRANSISTOR DTC114EK

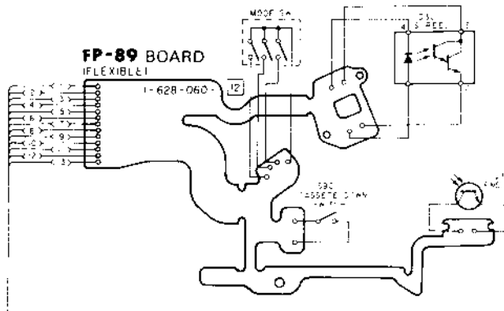
KS-11P BOARD (COMPONENT SIDE)



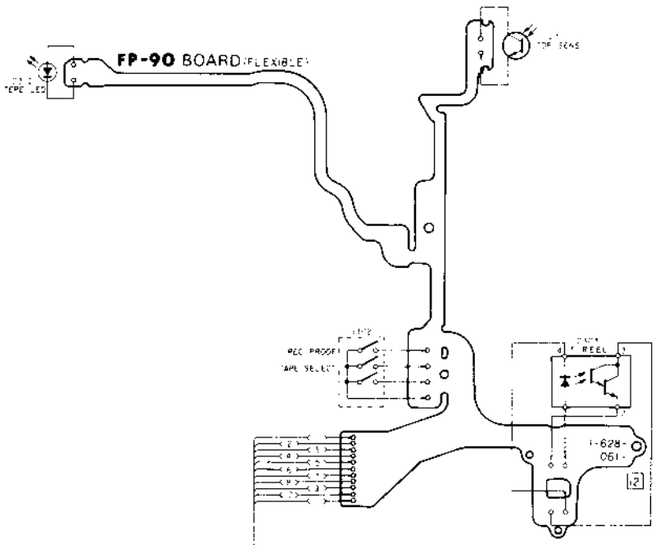
KS-11P BOARD (CONDUCTOR SIDE)



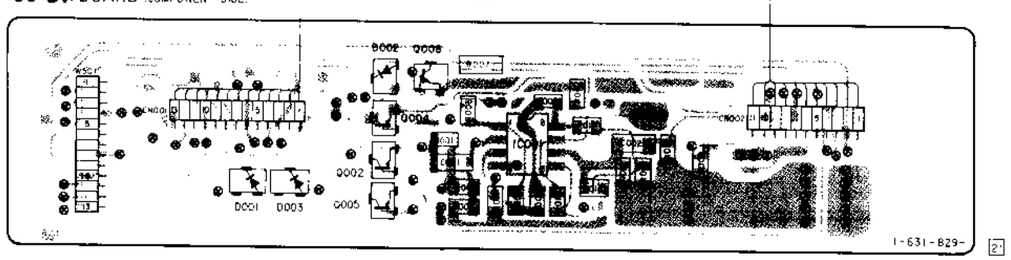
FP-89 BOARD (FLEXIBLE)



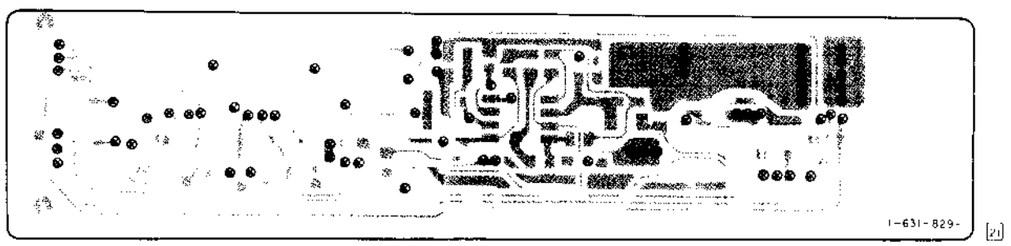
FP-90 BOARD (FLEXIBLE)



CC-51P BOARD (COMPONENT SIDE)



CC-51P BOARD (CONDUCTOR SIDE)



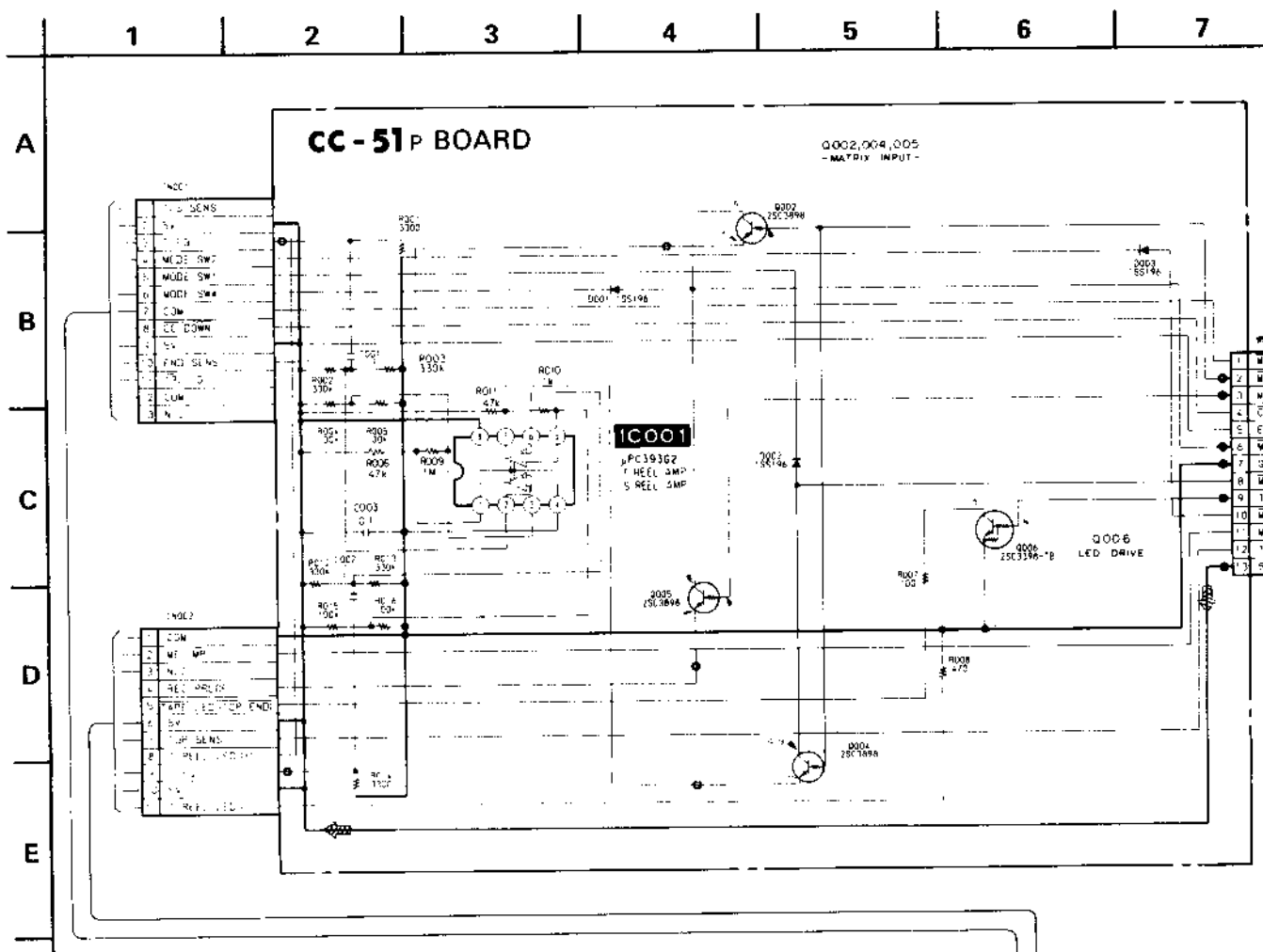
CC-2P BOARD

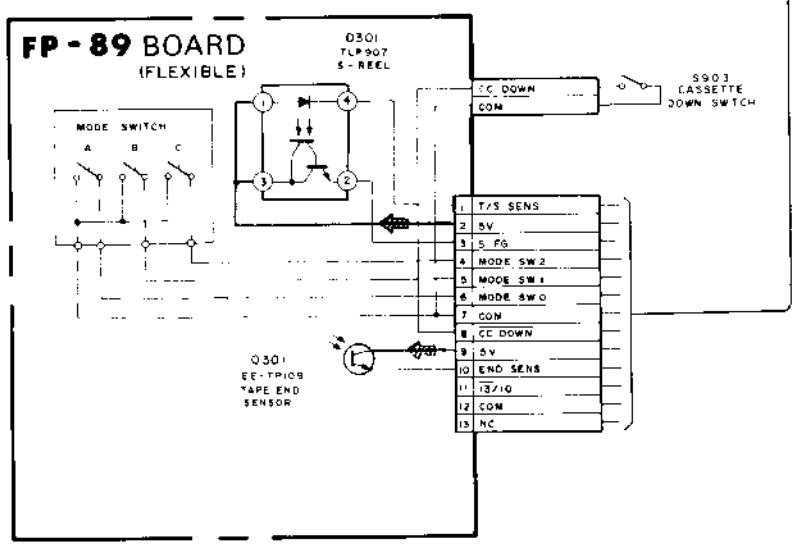
TRANSISTOR

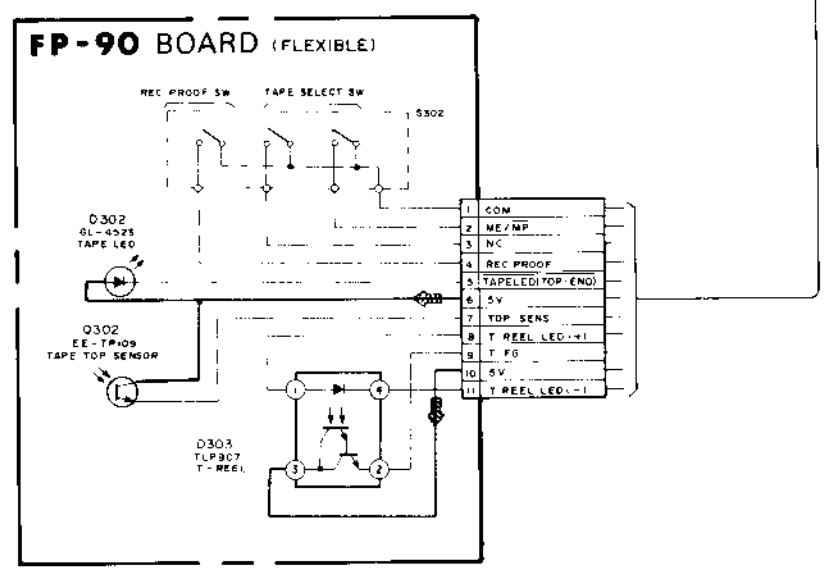
Q107	8-729-100-66	TRANSISTOR 2SC1623
Q108	8-729-901-06	TRANSISTOR DTA144EK
Q109	8-729-100-66	TRANSISTOR 2SC1623
Q110	8-729-100-66	TRANSISTOR 2SC1623
Q112	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q113	8-729-216-22	TRANSISTOR 2SA1162
Q114	8-729-901-01	TRANSISTOR DTC144EK
Q115	8-729-901-06	TRANSISTOR DTA144EK
Q116	8-729-901-06	TRANSISTOR DTA144EK
Q401	8-729-100-66	TRANSISTOR 2SC1623
Q402	8-729-100-66	TRANSISTOR 2SC1623
Q403	8-729-901-06	TRANSISTOR DTA144EK
Q404	8-729-901-01	TRANSISTOR DTC144EK
Q405	8-729-901-06	TRANSISTOR DTA144EK
Q406	8-729-100-66	TRANSISTOR 2SC1623
Q503	8-729-805-39	TRANSISTOR 2SC3898
Q504	8-729-805-39	TRANSISTOR 2SC3898
Q506	8-729-216-22	TRANSISTOR 2SA1162
Q507	8-729-216-22	TRANSISTOR 2SA1162
Q515	8-729-216-22	TRANSISTOR 2SA1162
Q516	8-729-100-66	TRANSISTOR 2SC1623
Q517	8-729-100-66	TRANSISTOR 2SC1623
Q518	8-729-100-66	TRANSISTOR 2SC1623
Q519	8-729-100-66	TRANSISTOR 2SC1623
Q520	8-729-104-95	TRANSISTOR 2SB1040A-5
Q521	8-729-100-66	TRANSISTOR 2SC1623
Q522	8-729-216-22	TRANSISTOR 2SA1162
Q524	8-729-100-66	TRANSISTOR 2SC1623
Q525	8-729-100-66	TRANSISTOR 2SC1623
Q526	8-729-216-22	TRANSISTOR 2SA1162
Q527	8-729-100-66	TRANSISTOR 2SC1623
Q528	8-729-216-22	TRANSISTOR 2SA1162
Q529	8-729-100-66	TRANSISTOR 2SC1623
Q530	8-729-216-22	TRANSISTOR 2SA1162
Q531	8-729-216-22	TRANSISTOR 2SA1162
Q532	8-729-216-22	TRANSISTOR 2SA1162
Q533	8-729-216-22	TRANSISTOR 2SA1162
Q534	8-729-901-01	TRANSISTOR DTC144EK
Q535	8-729-901-01	TRANSISTOR DTC144EK
Q536	8-729-805-39	TRANSISTOR 2SC3898
Q537	8-729-216-22	TRANSISTOR 2SA1162
Q538	8-729-100-66	TRANSISTOR 2SC1623
Q539	8-729-100-66	TRANSISTOR 2SC1623
Q540	8-729-100-66	TRANSISTOR 2SC1623
Q621	8-729-901-00	TRANSISTOR DTC124EK
Q622	8-729-100-67	TRANSISTOR 2SC1623-L7
Q623	8-729-805-25	TRANSISTOR 2SB1121
Q624	8-729-901-01	TRANSISTOR DTC144EK
Q625	8-729-901-04	TRANSISTOR DTA114EK
Q626	8-729-100-67	TRANSISTOR 2SC1623-L7
Q627	8-729-805-25	TRANSISTOR 2SB1121
Q628	8-729-100-66	TRANSISTOR 2SC1623
Q629	8-729-100-66	TRANSISTOR 2SC1623

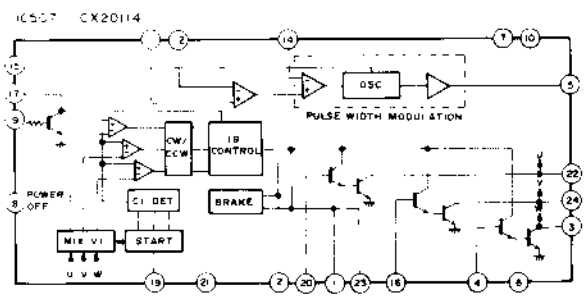
CO-2P (SERVO, SYSTEM CONTROL), CC-51P (TFG/SFG AMP), KS-11P (CAPSTAN MOTOR DRIVE JUNCTION), FP-89

– Ref. No. CO-2P, FP-89 BOARDS : 6000 series, CC-51P BOARD : 7000 series, FP-90, KS-11P BOARDS : 8000 series –



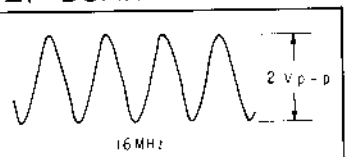






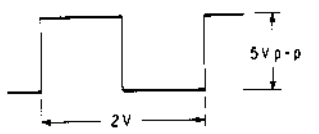
CO-2P BOARD (SERVO / SYSCON)

4



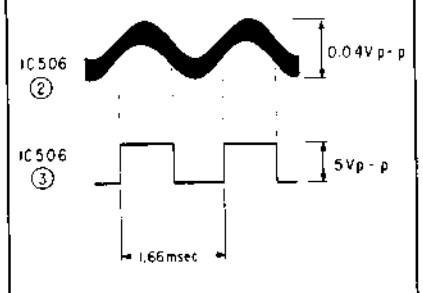
IC501 (34) REC / PB

5



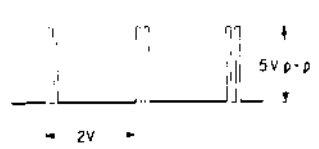
IC501 (80) REC/PB

6



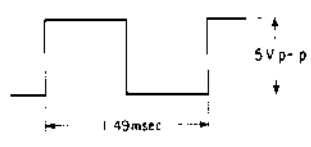
IC506 (2), (3) REC/PB

7



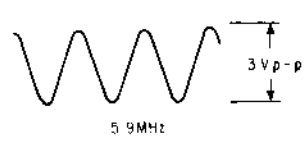
IC506 (7) REC/PB

8



IC506 (10) REC/PB

9



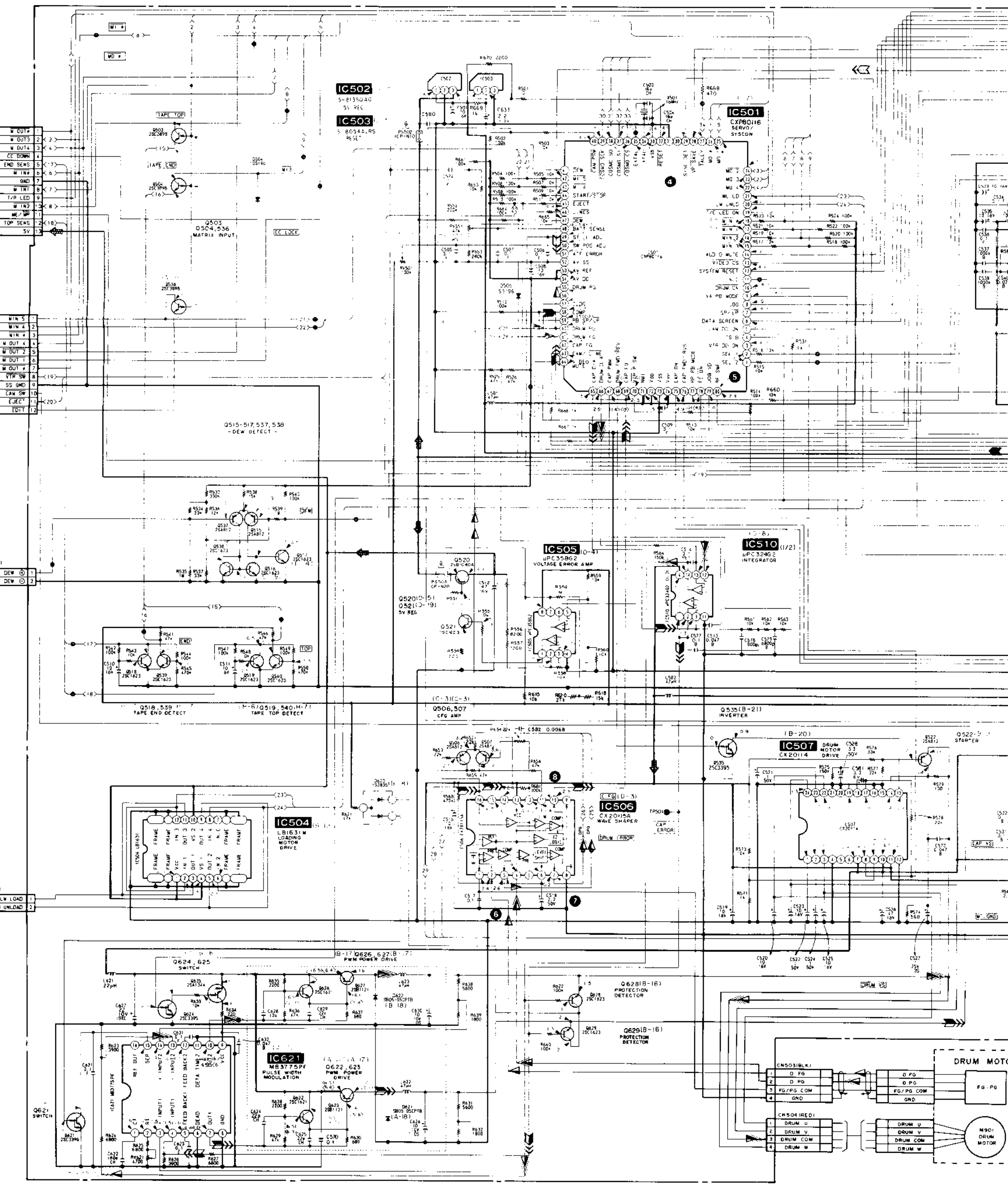
IC509 (14) REC / PB

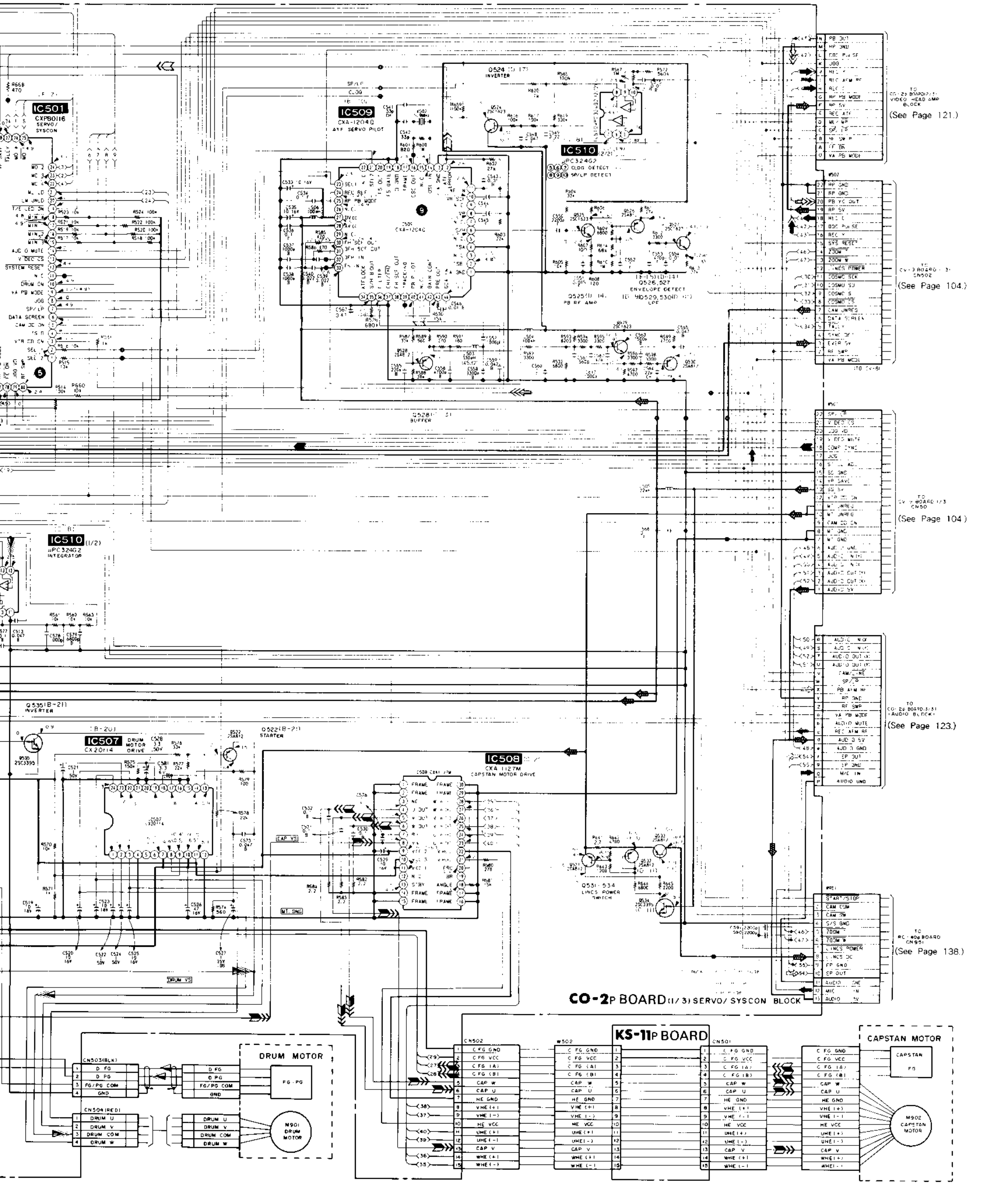
- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC	➡		➡⋙	➡
PB			⇨⋙	⇨

- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo		▻	
Drum phase servo		▻▻	
Drum servo (speed and phase)		▻▻▻	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)		▻»	
Ref. signal	▰		▱

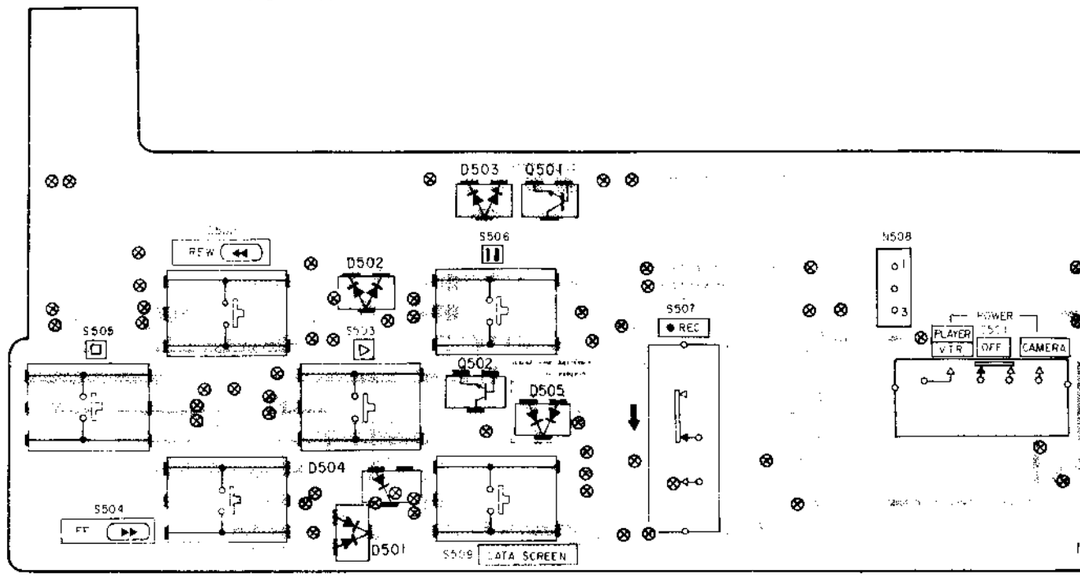

9
10
11
12
13
14
15
16
17
18
19
20
IC502
S-81350AB
5V REG
IC503
S-80545ANP
RESET
IC501
CXP80116
SERVO/SYSCON
IC505
μPC358G2
VOLTAGE ERROR AMP
IC510
μPC324G2
INTEGRATOR
IC504
LB1631M
LOADING MOTOR DRIVE
IC506
CX20115A
WAVE SHAPER
IC507
CX20114
DRUM MOTOR DRIVE
IC621
MB3775PF
PULSE WIDTH MODULATION
Q503
0504,536
MATRIX INPUT
Q515-517,537,538
-DEW DETECT-
Q518,539
TAPE END DETECT
Q519,540
TAPE TOP DETECT
Q520(D-15)
Q521(D-19)
5V REG
Q506,507
CFG AMP
Q535(B-21)
INVERTER
Q624,625
SWITCH
Q622,625
PWM POWER DRIVE
Q628(B-16)
PROTECTION DETECTOR
Q629(B-16)
PROTECTION DETECTOR
Q621
SWITCH
CN503(BLK)
CN504(RED)
DRUM MOTOR
M901
DRUM MOTOR
TAPE TOP
TAPE END
DEW
EJECT
LOAD
UNLOAD
CAP FG
CAP PWM
CAP F/R
CAP ERROR
DRUM FG
DRUM PG
DRUM ERROR
CAP VS
DRUM VS


IC501
CXP80116
SERVO/
SYSCON
IC509
CXA-1204Q
AFF SERVO PILOT
IC510
μPC324G2
CLOG DETECT
SP/LP DETECT
INVERTER
PB RF AMP
ENVELOPE DETECT
LPF
BUFFER
IC510 (1/2)
μPC324G2
INTEGRATOR
INVERTER
STARTER
IC507
CX20114
DRUM
MOTOR
DRIVE
IC508
CXA1127M
CAPSTAN MOTOR DRIVE
LINCS POWER
SWITCH
TO
CO-2P BOARD(2/3)
VIDEO HEAD AMP
BLOCK
(See Page 121.)
TO
CV-3 BOARD (3/3)
CN502
(See Page 104.)
TO
CV-3 BOARD (1/3)
CN501
(See Page 104.)
TO
CO-2P BOARD(3/3)
AUDIO BLOCK
(See Page 123.)
TO
RC-80P BOARD
CN951
(See Page 138.)
CO-2P BOARD (1/3) SERVO/ SYSCON BLOCK
KS-11P BOARD
DRUM MOTOR
CAPSTAN MOTOR
M901
DRUM
MOTOR
M902
CAPSTAN
MOTOR
CN503(BLK)
CN504(RED)
CN502
CN501
W502

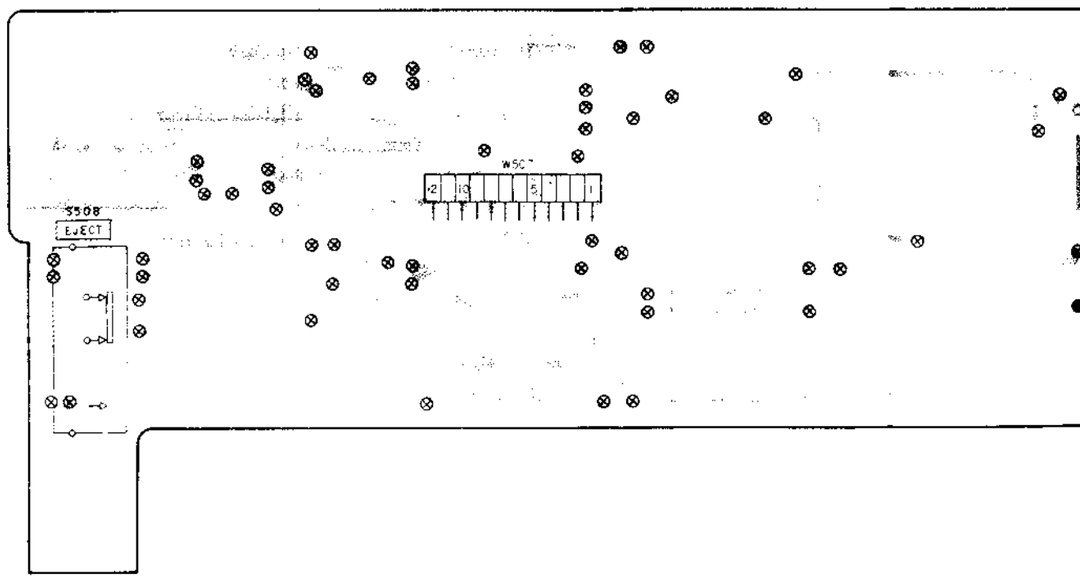
MA-66P (MIC AMP), RC-40P (START/STOP SWITCH), VK-11P (VIDEO FUNCTION SWITCH) PRINTED WIRING BOARDS

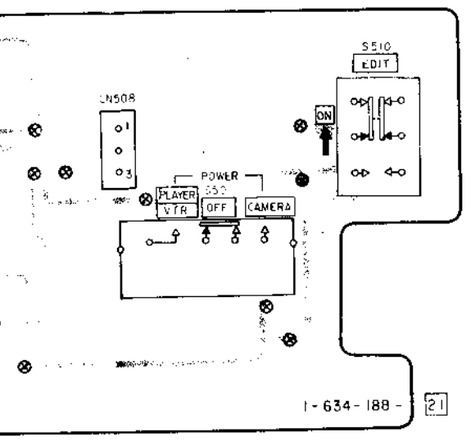
– Ref. No. MA-66P, VK-11P BOARDS : 9000 series, RC-40P BOARD : 10000 series –

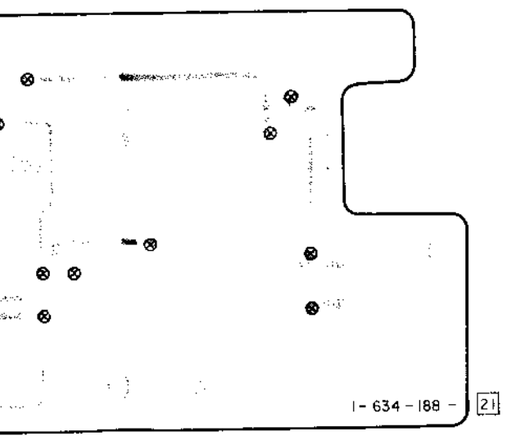
VK-11P BOARD (COMPONENT SIDE)



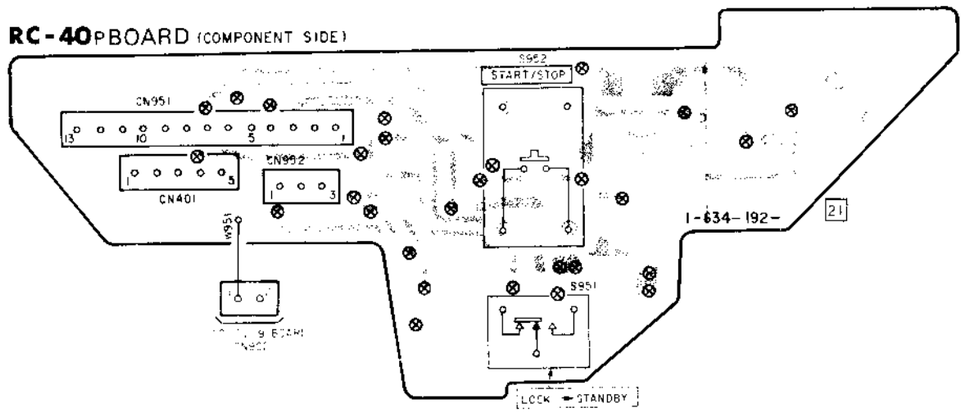
VK-11P BOARD (CONDUCTOR SIDE)



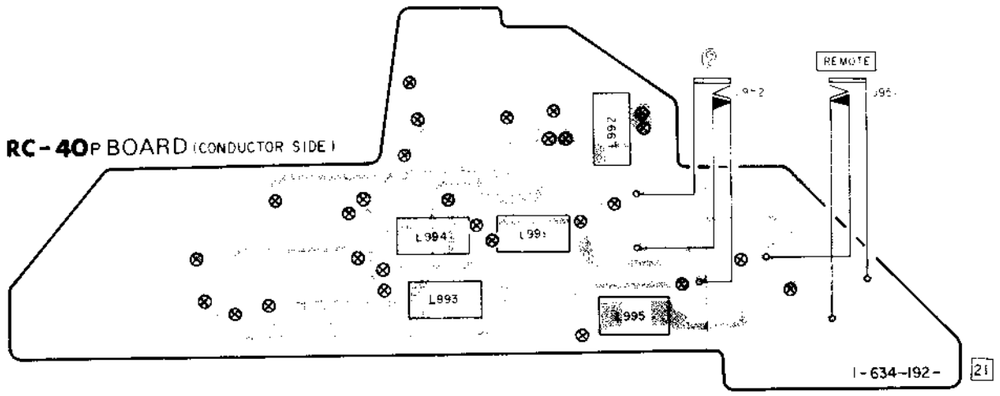




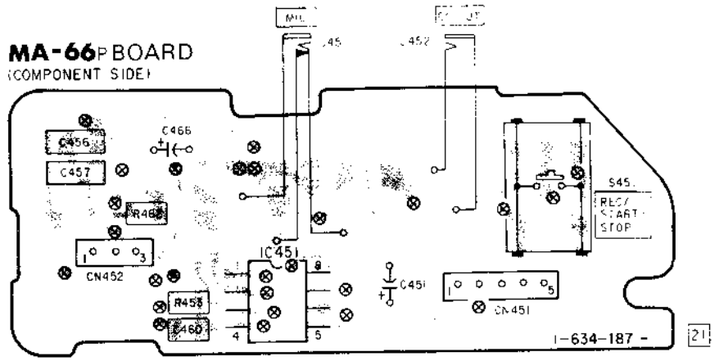
RC-40P BOARD (COMPONENT SIDE)



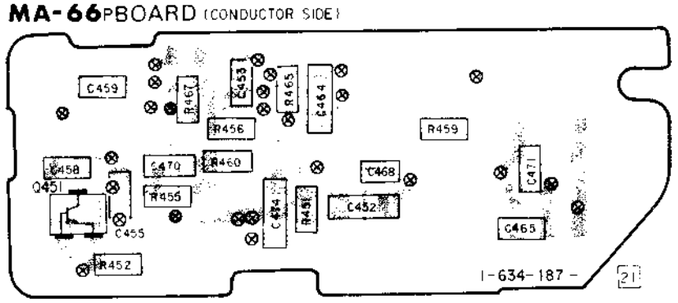
RC-40P BOARD (CONDUCTOR SIDE)



MA-66P BOARD
(COMPONENT SIDE)



MA-66P BOARD (CONDUCTOR SIDE)



VK-11P BOARD

DIODE

D501	8-719-104-31	DIODE MA152WK
D502	8-719-104-34	DIODE 1S2836
D503	8-719-104-34	DIODE 1S2836
D504	8-719-801-41	DIODE 1SS196
D505	8-719-104-31	DIODE MA152WK (AEP/E MODEL)

TRANSISTOR

Q501	8-729-903-30	TRANSISTOR DTC144TK
Q502	8-729-903-30	TRANSISTOR DTC144TK

MA-66P BOARD

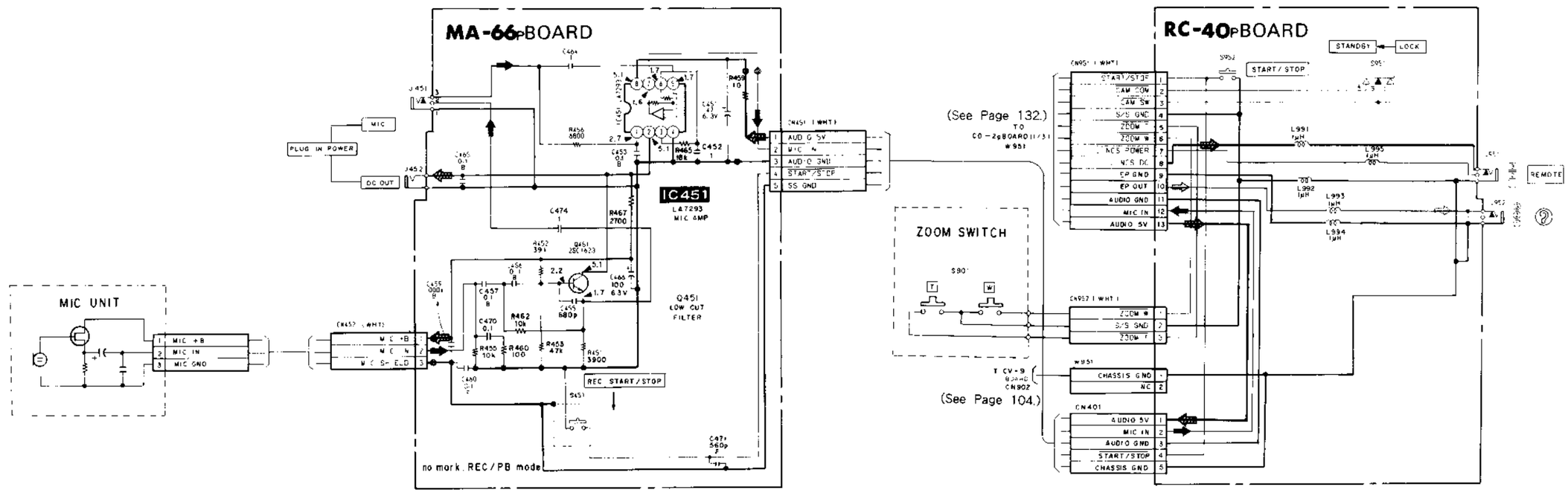
IC

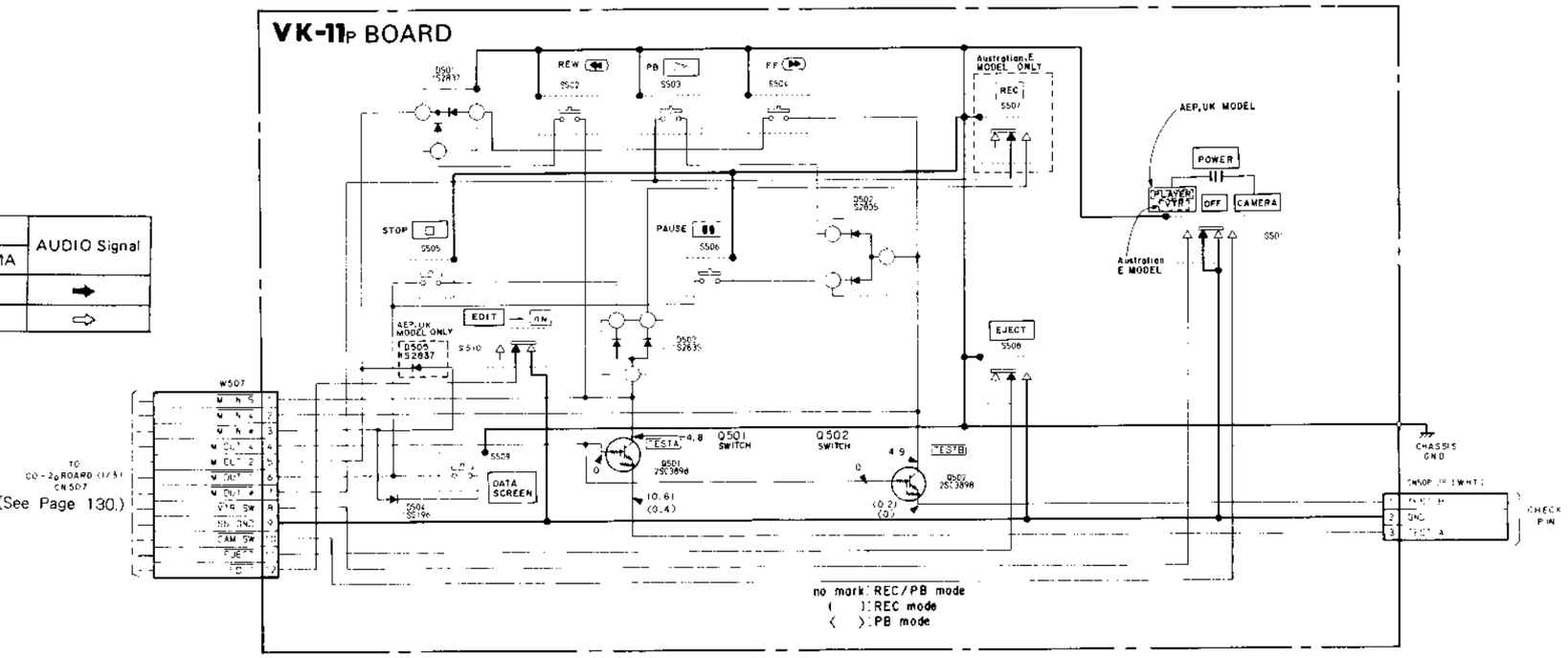
IC451	8-759-822-37	IC LA7293M-TE-L

TRANSISTOR

Q451	8-729-100-66	TRANSISTOR 2SC1623

– Ref. No. MA-66P, VK-11P BOARDS : 9000 series, RC-40P BOARD : 10000 series –





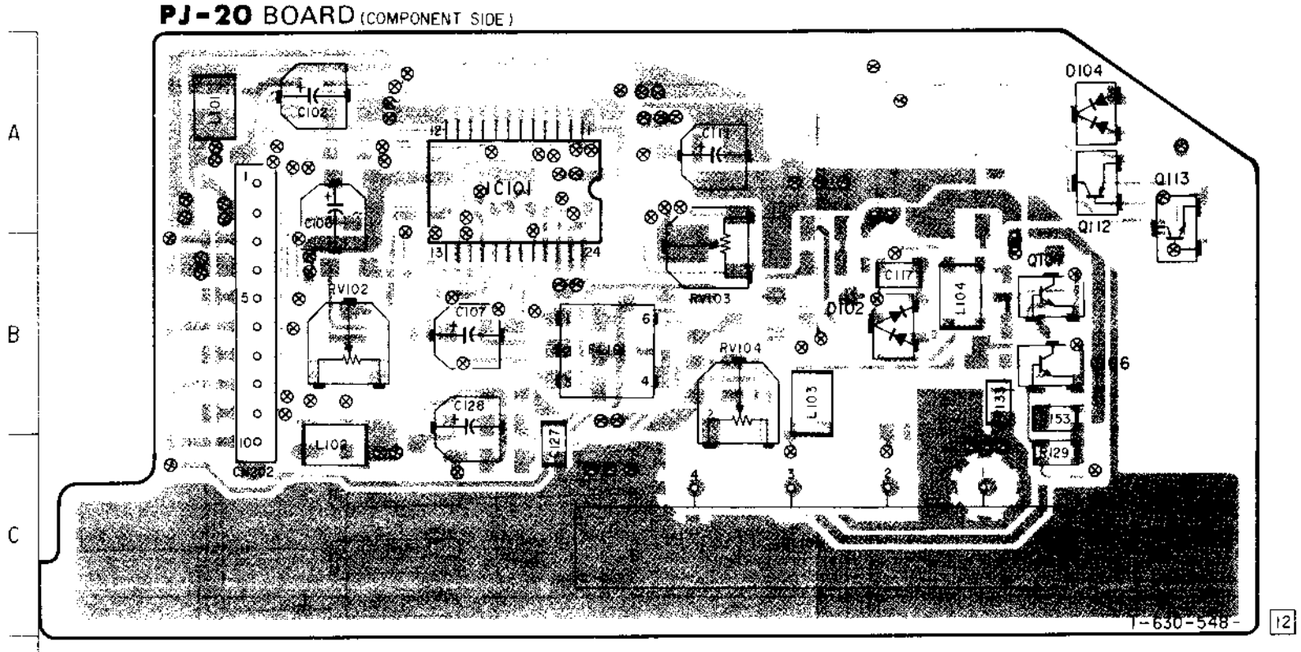
• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC				➡
PB				⇨

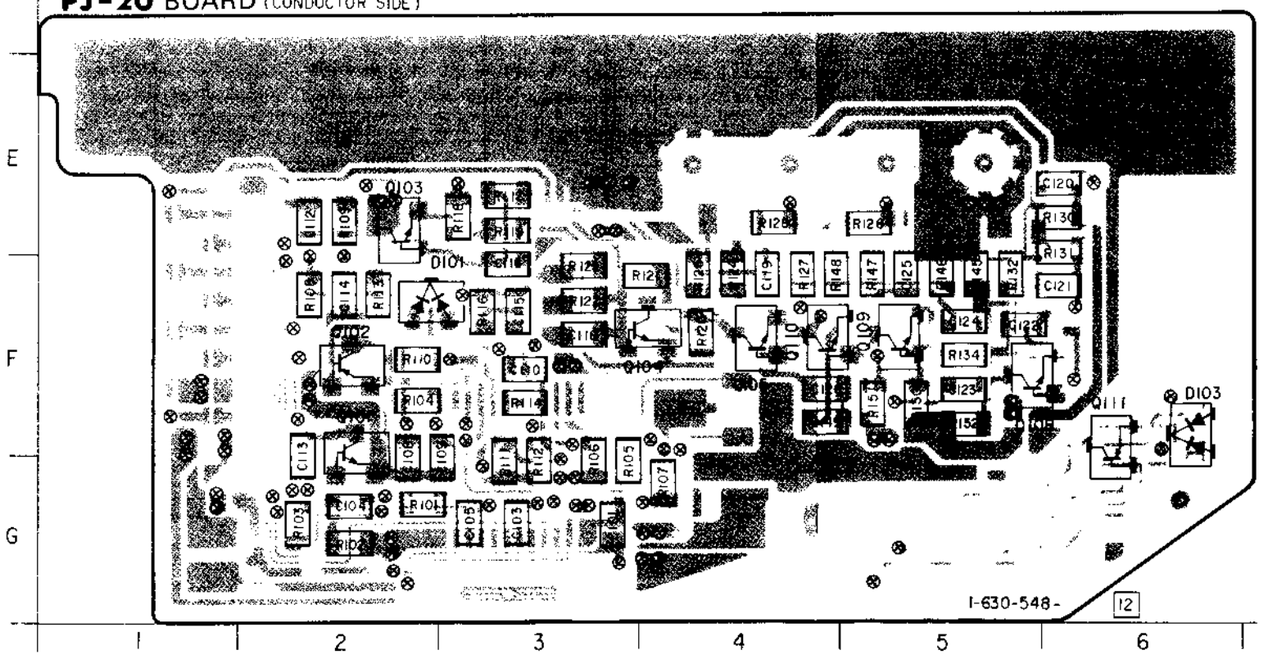
PJ-20 (JOG CHROMA PROCESS) PRINTED WIRING BOARD

— Ref. No. PJ-20 BOARD: 4000 series —

PJ-20 BOARD (COMPONENT SIDE)



PJ-20 BOARD (CONDUCTOR SIDE)



DIODE

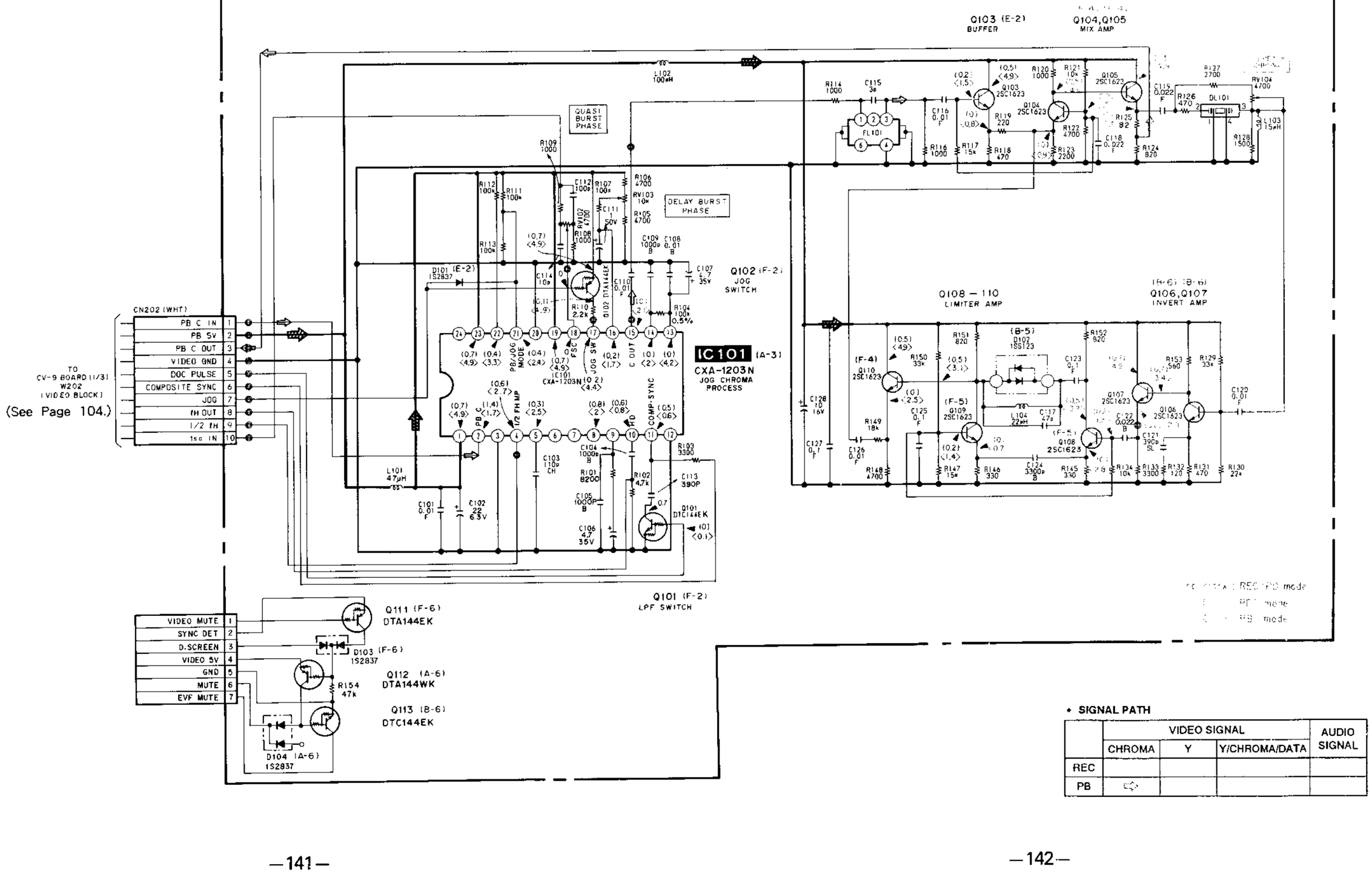
D101	8-719-104-31	DIODE MA152WK
D102	8-719-800-76	DIODE 1SS226
D103	8-719-104-31	DIODE MA152WK
D104	8-719-104-31	DIODE MA152WK

TRANSISTOR

Q101	8-729-901-01	TRANSISTOR DTC144EK
Q102	8-729-901-06	TRANSISTOR DTA144EK
Q103	8-729-100-66	TRANSISTOR 2SC1623
Q104	8-729-100-66	TRANSISTOR 2SC1623
Q105	8-729-100-66	TRANSISTOR 2SC1623
Q106	8-729-100-66	TRANSISTOR 2SC1623
Q107	8-729-100-66	TRANSISTOR 2SC1623
Q108	8-729-100-66	TRANSISTOR 2SC1623
Q109	8-729-100-66	TRANSISTOR 2SC1623
Q110	8-729-100-66	TRANSISTOR 2SC1623
Q111	8-729-901-06	TRANSISTOR DTA144EK
Q112	8-729-901-13	TRANSISTOR DTA144WK
Q113	8-729-901-01	TRANSISTOR DTC144EK

— Ref. No. PJ-20 BOARD: 4000 series —

PJ-20 BOARD

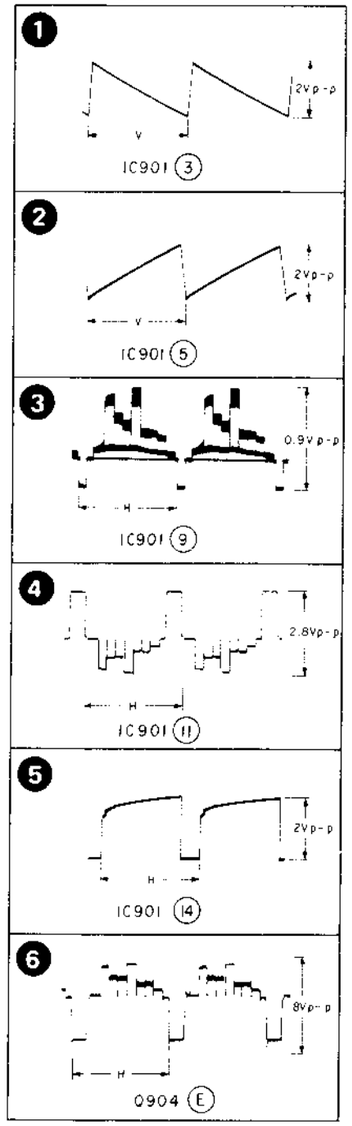


• SIGNAL PATH

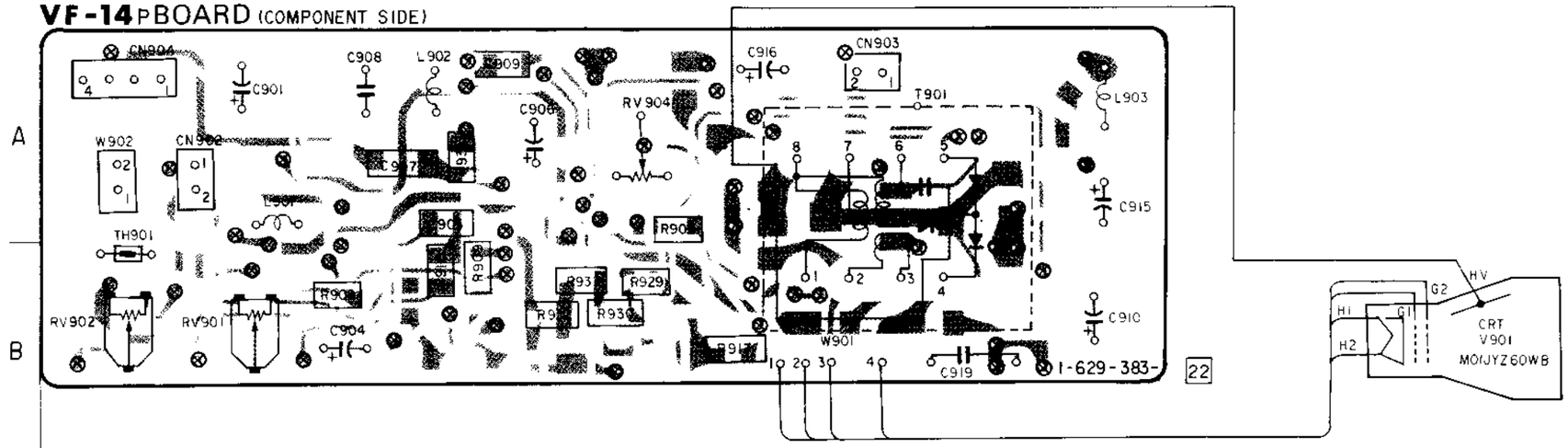
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC				
PB	⇨			

— Ref. No. VF-14P BOARD: 7000 series, LD-13P BOARD: 8000 series —

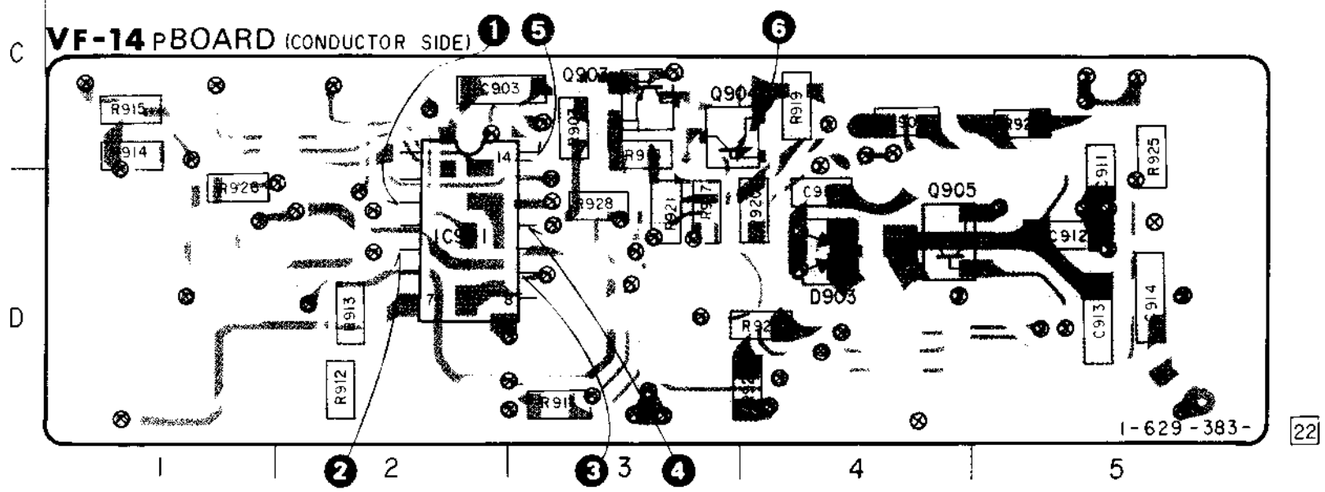
VF-14P BOARD



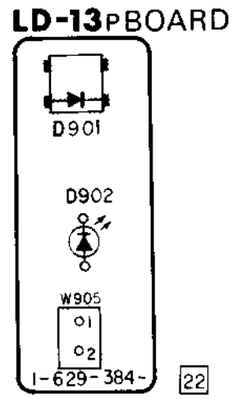
VF-14PBOARD (COMPONENT SIDE)



VF-14PBOARD (CONDUCTOR SIDE) ❶ ❺ ❻



LD-13PBOARD



VF-14P BOARD

DIODE

D903 8-719-400-20 DIODE MA152WA

IC

IC901 8-759-420-01 IC AN2512S

TRANSISTOR

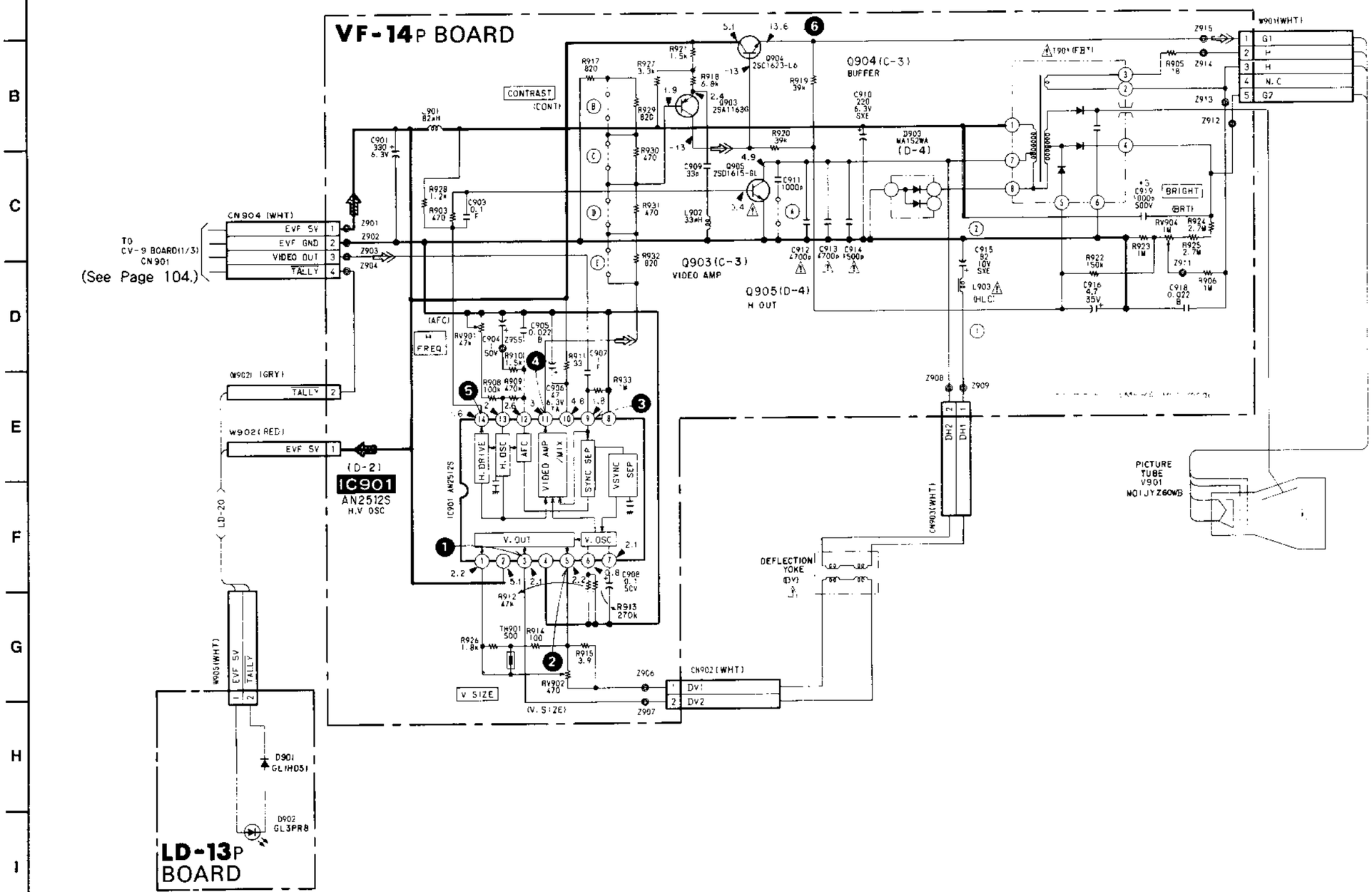
Q903 8-729-216-31 TRANSISTOR 2SA1163G
Q904 8-729-100-66 TRANSISTOR 2SC1623
Q905 8-729-106-68 TRANSISTOR 2SD1615A-GP

LD-13P BOARD

DIODE

D901 8-719-941-34 DIODE GL1MD51-TE84L

— Ref. No. VF-14P BOARD: 7000 series, LD-13P BOARD: 8000 series —



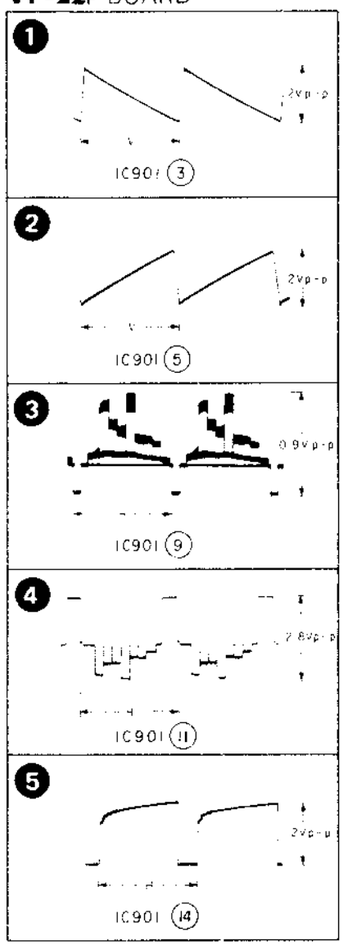
• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC				
PB			⋙	

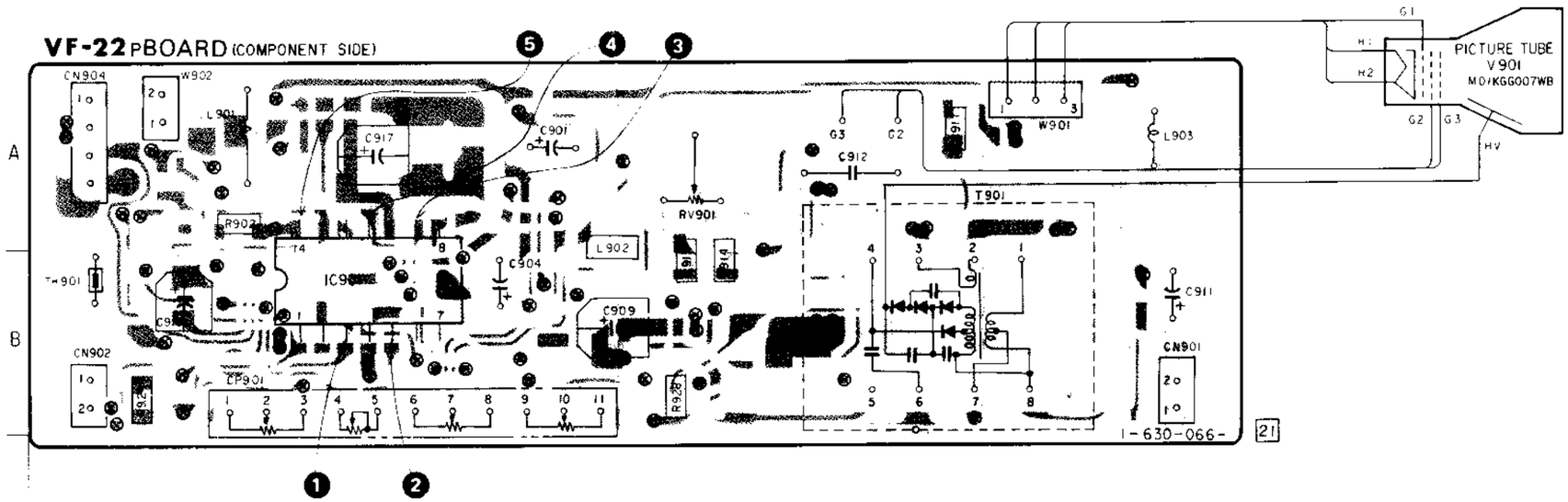
VF-22P (ELECTRONIC VIEW FIDER), LD-17P (TALLY LED) PRINTED WIRING BOARDS

— Ref. No. VF-22P BOARD: 4000 series, LD-17P BOARD: 5000 series —

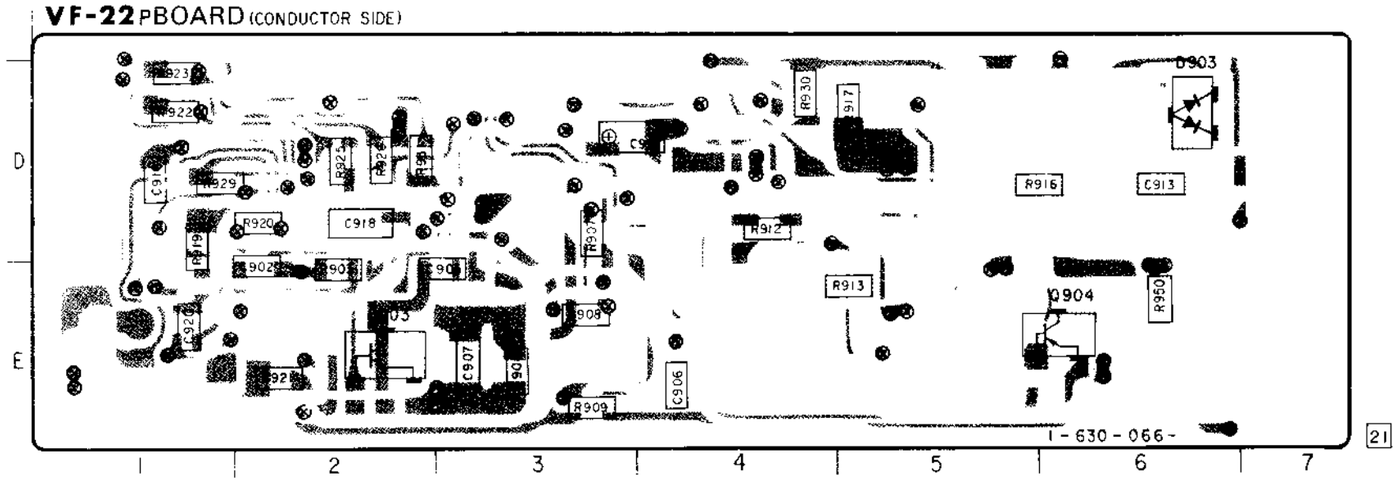
VF-22P BOARD



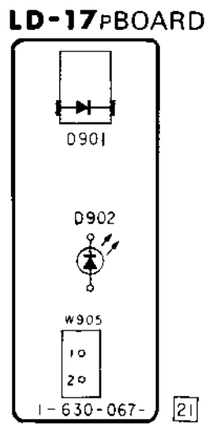
VF-22PBOARD (COMPONENT SIDE)



VF-22PBOARD (CONDUCTOR SIDE)



LD-17PBOARD



VF-22P BOARD

DIODE

D903 8-719-400-20 DIODE MA152WA

IC

IC901 8-759-420-01 IC AN2512S

TRANSISTOR

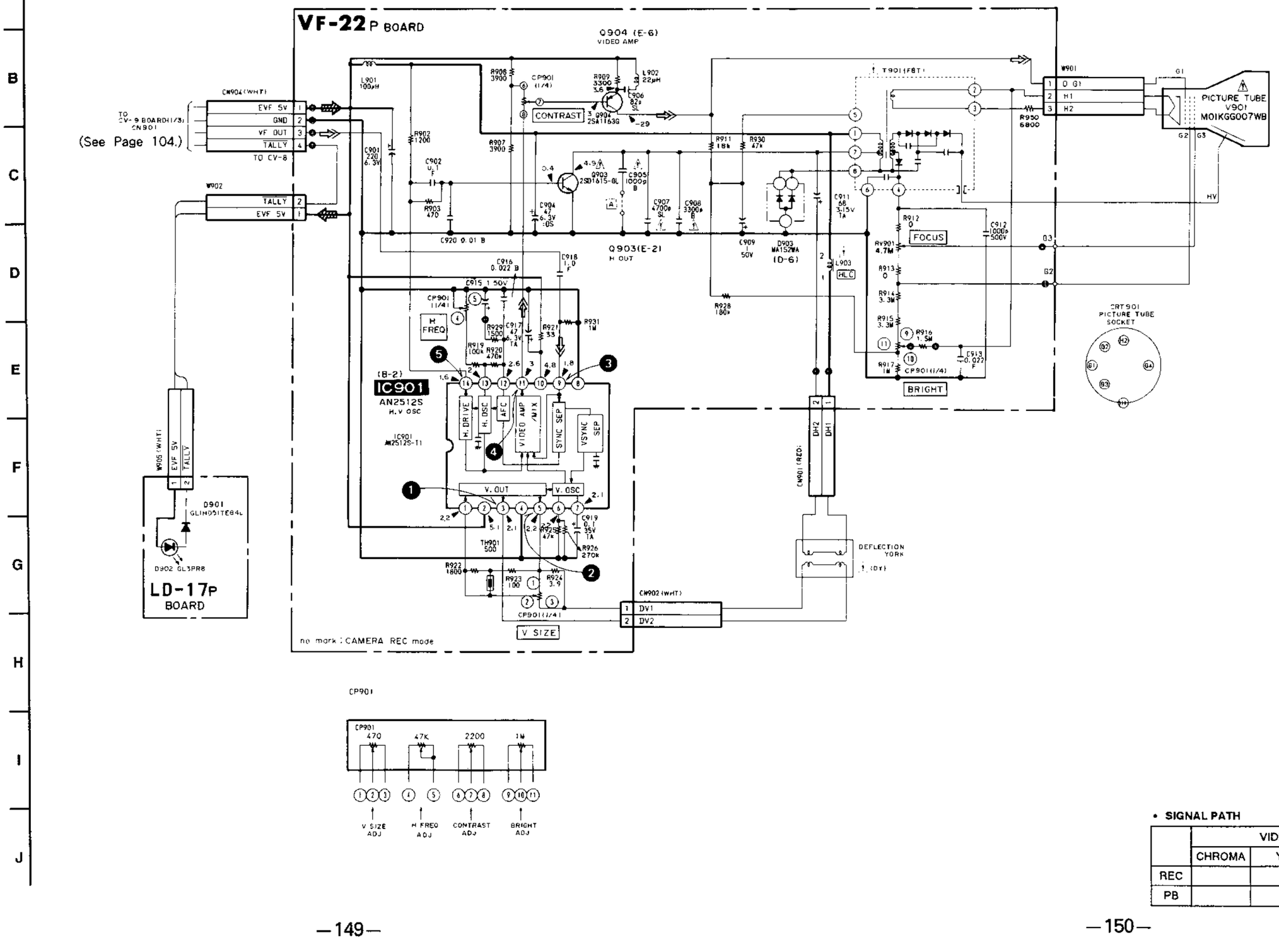
Q903 8-729-106-68 TRANSISTOR 2SD1615A-GP
Q904 8-729-216-31 TRANSISTOR 2SA1163G

LD-17P BOARD

DIODE

D901 8-719-941-34 DIODE GL1HD51-TE84L

— Ref. No. VF-22P BOARD: 4000 series, LD-17P BOARD: 5000 series —



CP901

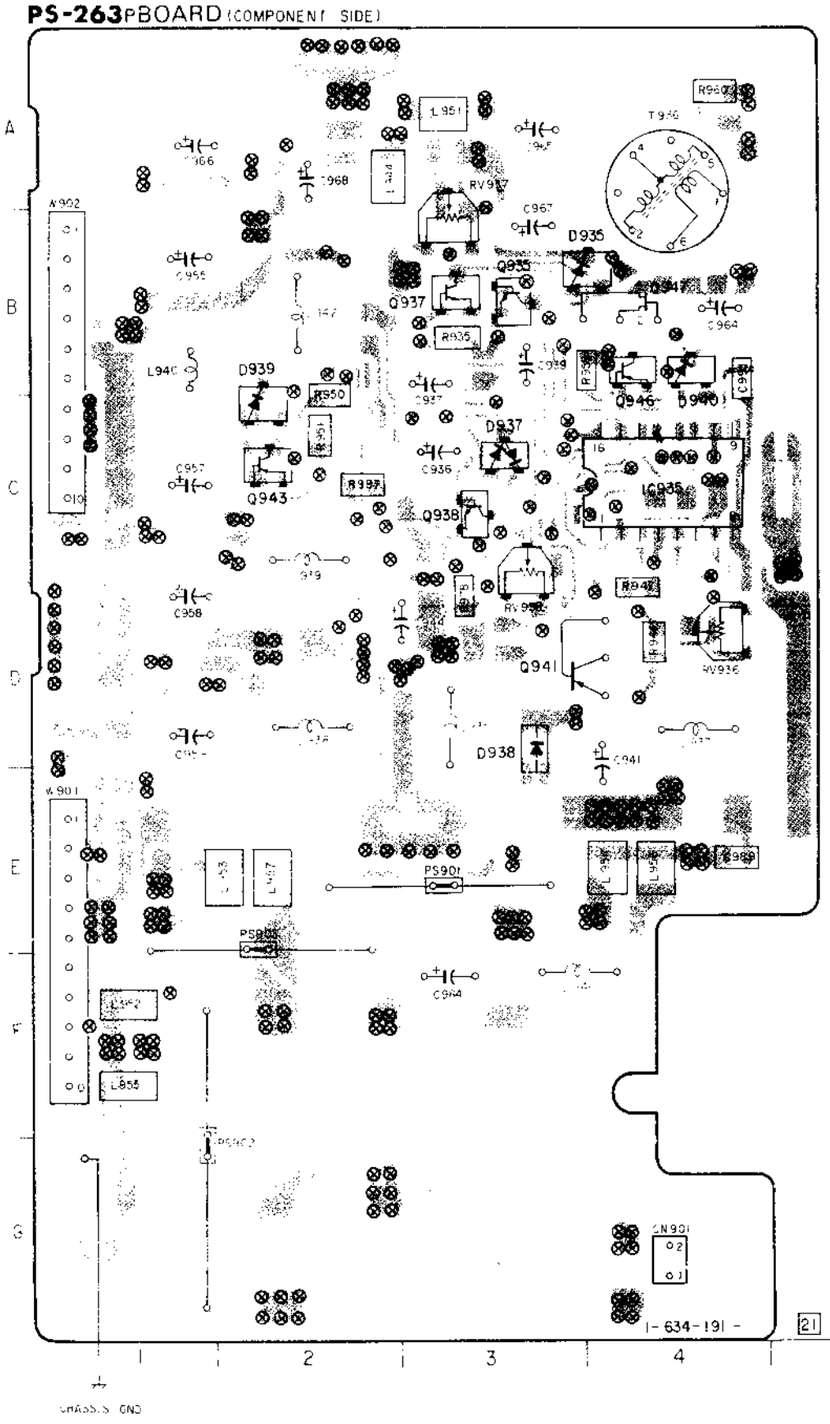
• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC				
PB			⇨	

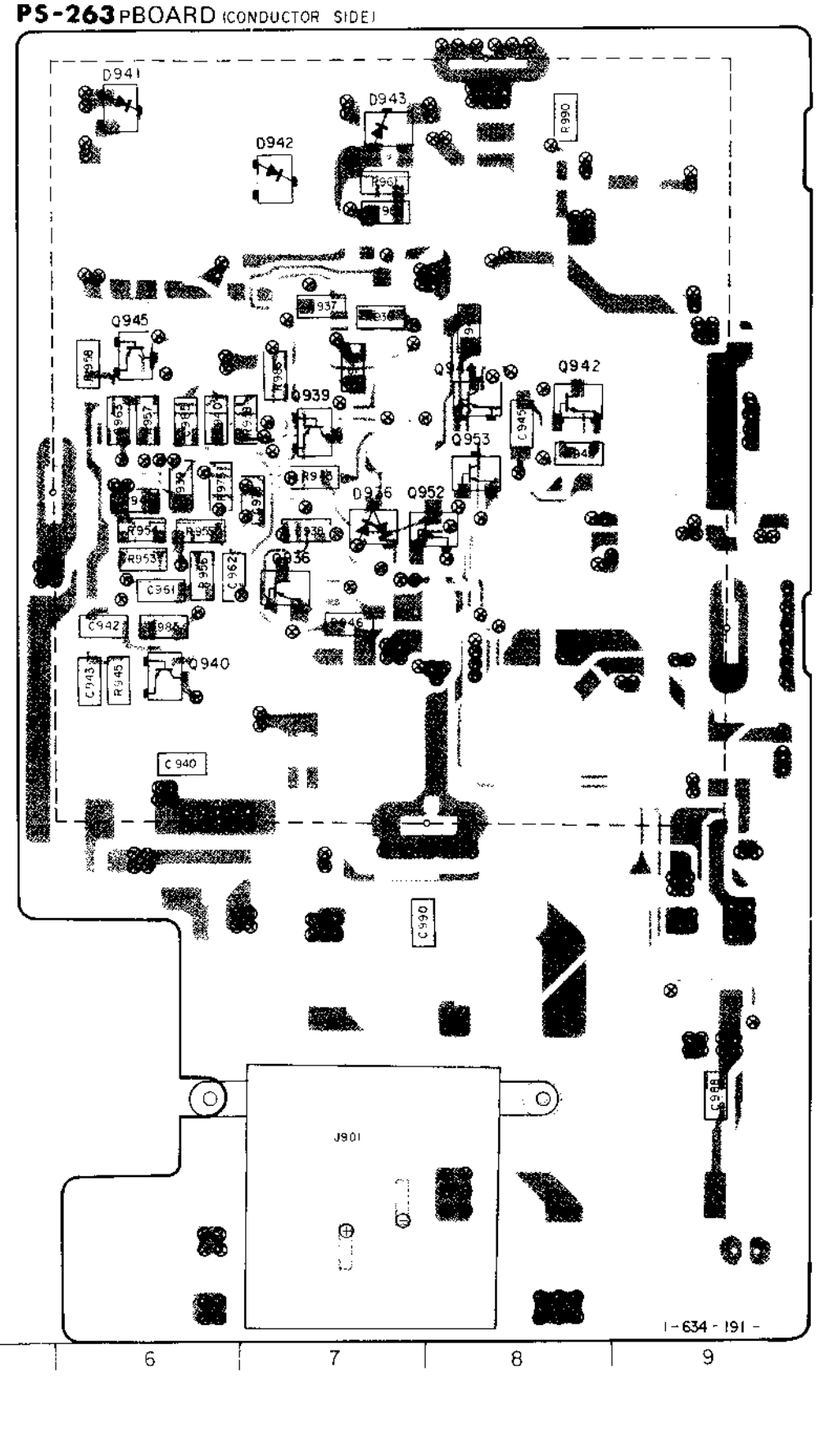
PS-263P (POWER SUPPLY) PRINTED WIRING BOARDS

– Ref. No. PS-263P BOARD : 1000 series –

PS-263P BOARD (COMPONENT SIDE)



PS-263P BOARD (CONDUCTOR SIDE)



DIODE

D935	8-719-106-71	DIODE RD12M-B2
D936	8-719-800-76	DIODE 1SS226
D937	8-719-800-76	DIODE 1SS226
D938	8-719-510-11	DIODE DIFS4
D939	8-719-801-48	DIODE 1SS193
D940	8-719-801-48	DIODE 1SS193
D941	8-719-802-36	DIODE 1SS250
D942	8-719-801-48	DIODE 1SS193
D943	8-719-801-48	DIODE 1SS193

IC

IC935	8-759-937-36	IC TL1451ACNS

TRANSISTOR

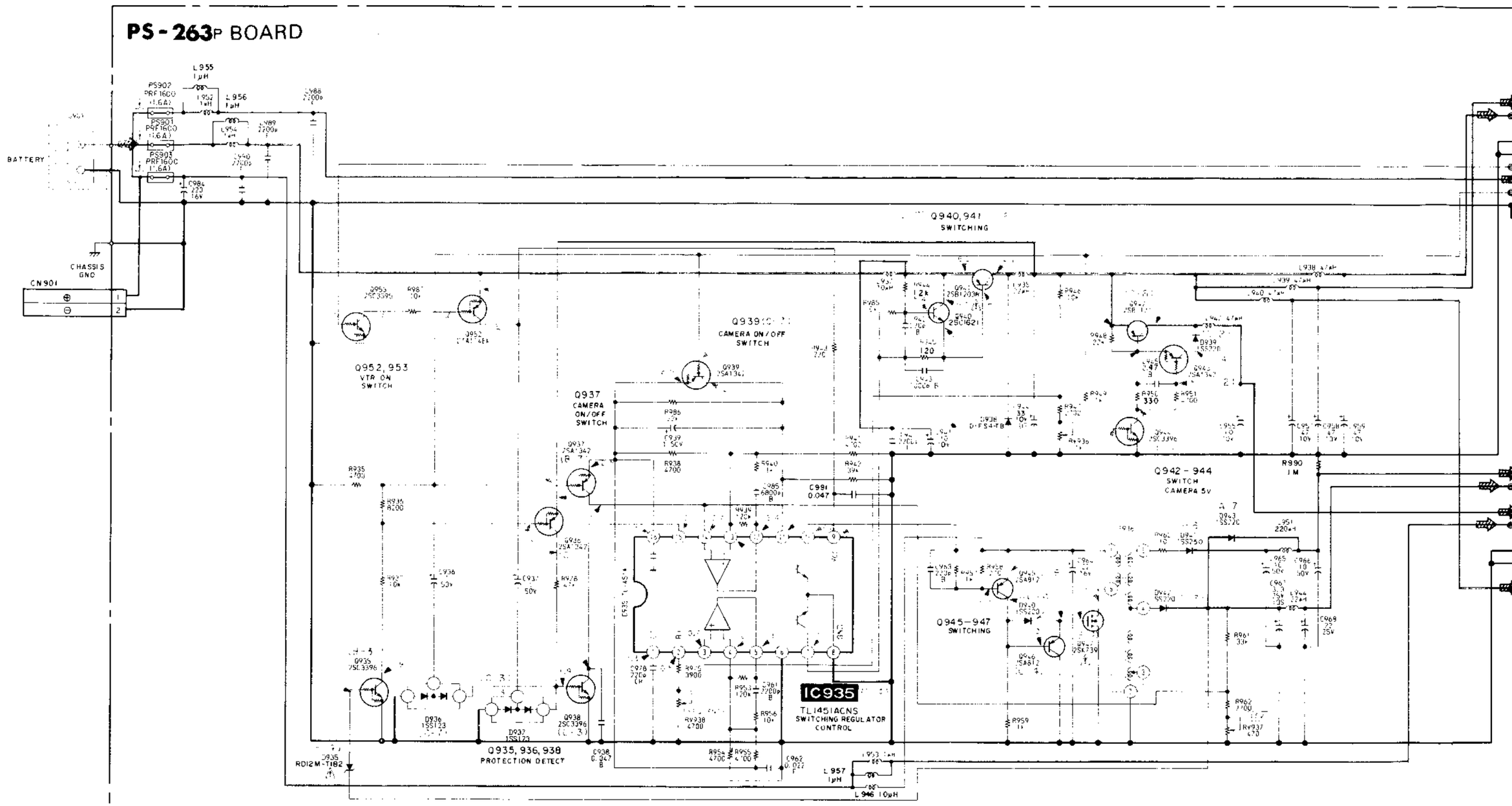
Q935	8-729-901-00	TRANSISTOR DTC124EK
Q936	8-729-901-05	TRANSISTOR DTA124EK
Q937	8-729-901-05	TRANSISTOR DTA124EK
Q938	8-729-901-00	TRANSISTOR DTC124EK
Q939	8-729-901-05	TRANSISTOR DTA124EK
Q940	8-729-100-67	TRANSISTOR 2SC1623-L7
Q941	8-729-105-29	TRANSISTOR 2SB1203-S
Q942	8-729-805-25	TRANSISTOR 2SB1121
Q943	8-729-901-05	TRANSISTOR DTA124EK
Q944	8-729-901-00	TRANSISTOR DTC124EK
Q945	8-729-216-22	TRANSISTOR 2SA1162
Q946	8-729-216-22	TRANSISTOR 2SA1162
Q947	8-729-140-55	TRANSISTOR 2SK739
Q952	8-729-901-04	TRANSISTOR DTA114EK
Q953	8-729-901-01	TRANSISTOR DTC144EK

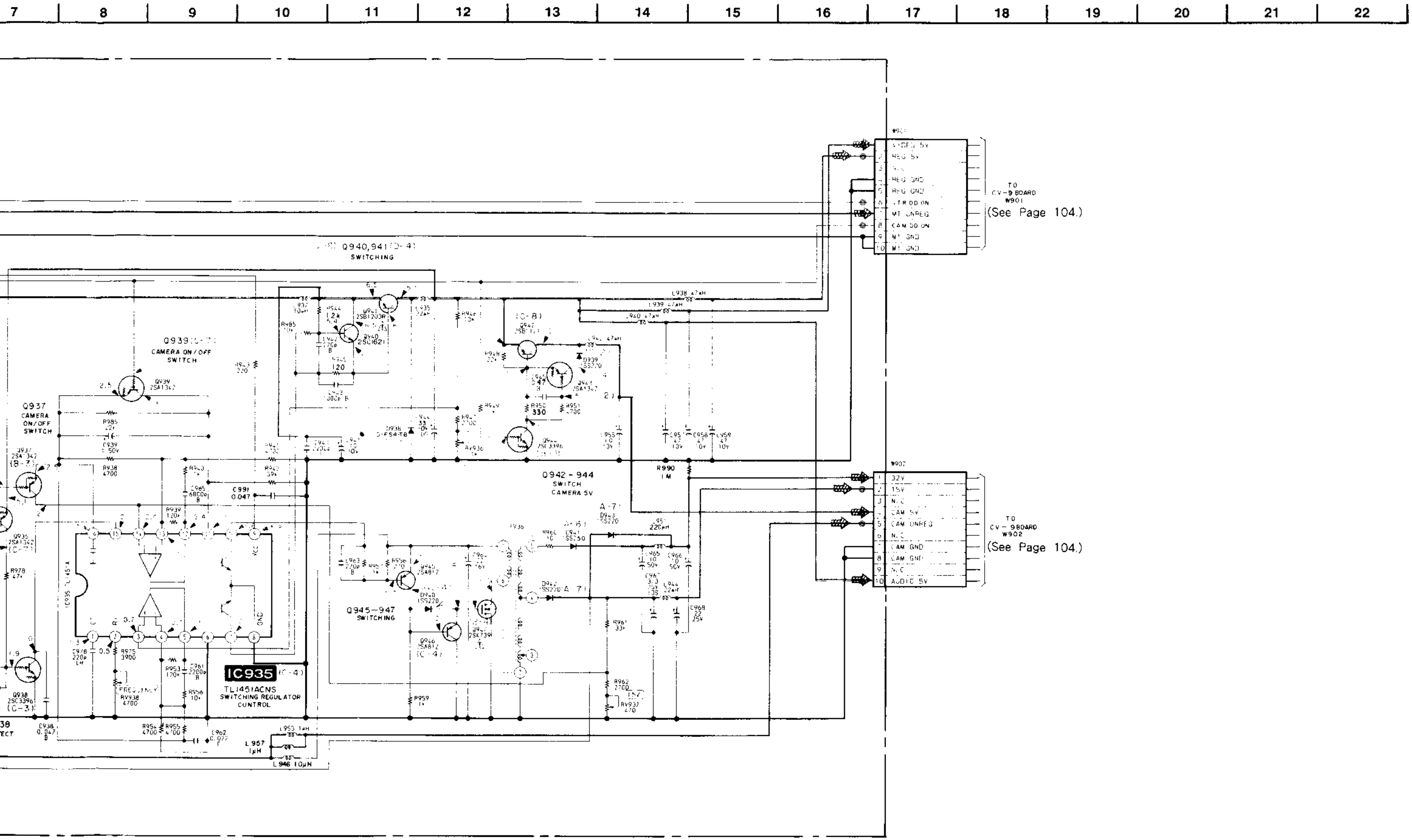
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A B C D E F G H I J

– Ref. No. PS-263P BOARD : 1000 series –

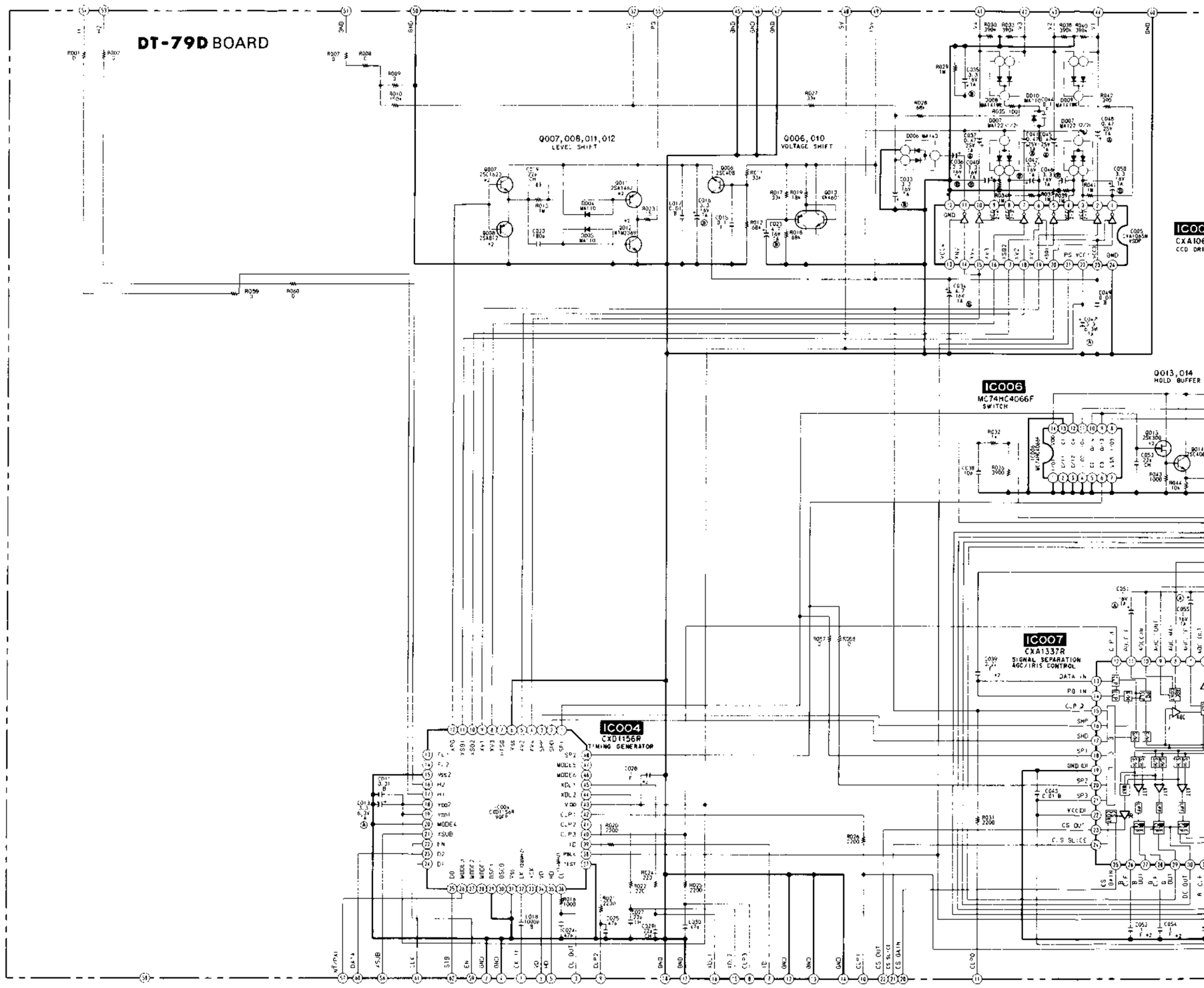
PS-263P BOARD





7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Q940,941 (D-4)
SWITCHING
Q939 (C-7)
CAMERA ON/OFF SWITCH
Q937
CAMERA ON/OFF SWITCH
Q942-944
SWITCH
CAMERA 5V
Q945-947
SWITCHING
IC935 (C-4)
TL1451ACNS
SWITCHING REGULATOR CONTROL
W901
VIDEO 5V
REG 5V
REG GND
REG GND
MT UNREG
CAM DD ON
MT GND
MT GND
TO CV-9 BOARD W901
(See Page 104.)
W902
32V
15V
N.C
CAM 5V
CAM UNREG
N.C
CAM GND
CAM GND
N.C
AUDIO 5V
TO CV-9 BOARD W902
(See Page 104.)

DT-79D board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.



4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

t the PRINTED WIRING BOARD of it is omitted.

D BOARD

Q007, 008, 011, 012
LEVEL SHIFT

Q006, 010
VOLTAGE SHIFT

IC005
CXA1065N
CCD DRIVE

IC006
MC74HC4066F
SWITCH

Q013, 014
HOLD BUFFER

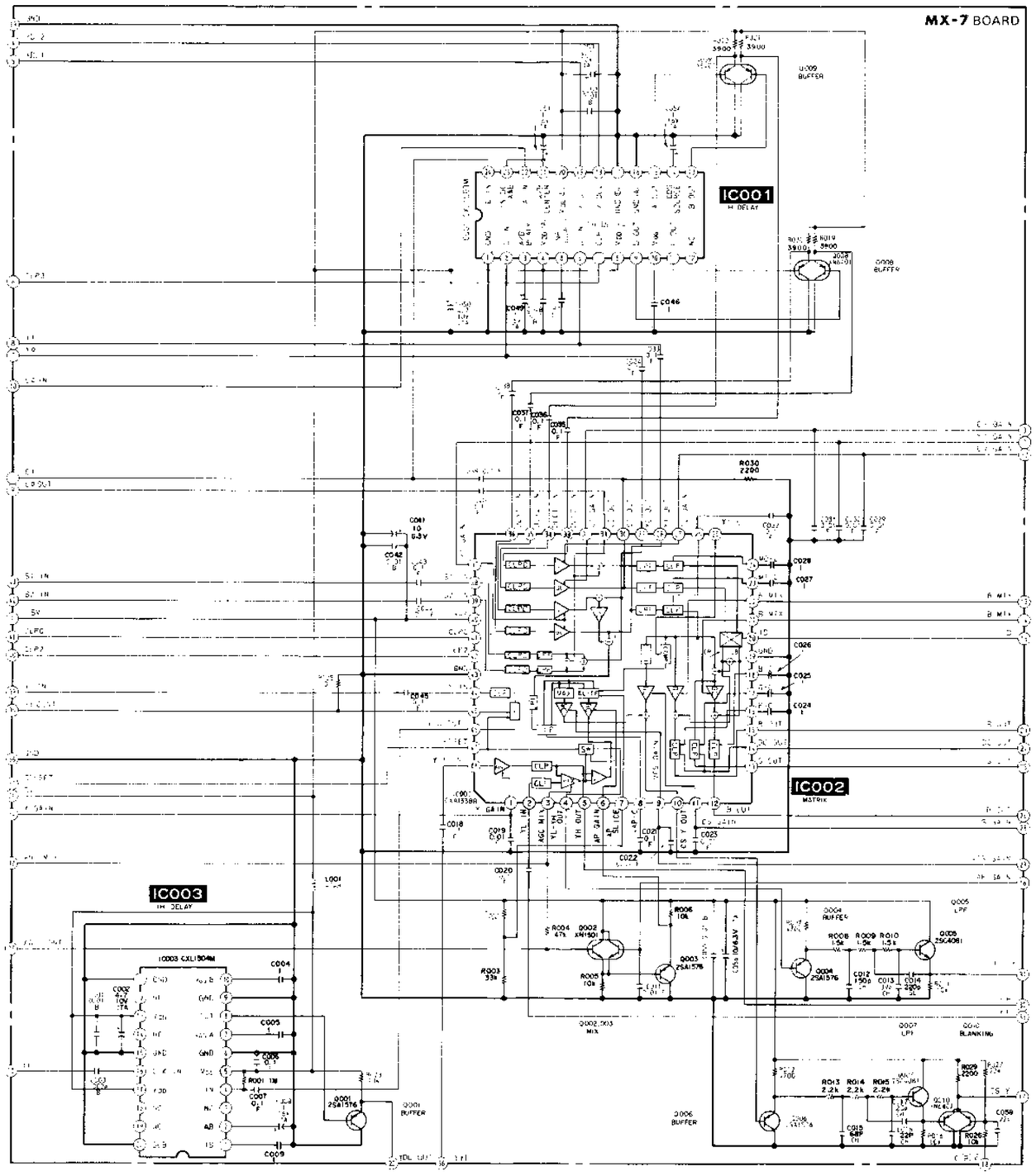
Q015
BUFFER

IC004
CXD1156R
TIMING GENERATOR

IC007
CXA1337R
SIGNAL SEPARATION
AGC/IRIS CONTROL

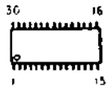
DT-79D
BOARD

MX-7 board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.

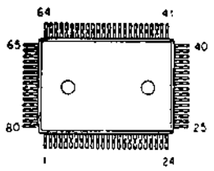


4-3. SEMICONDUCTORS

CXA1127MT
CXL1501M

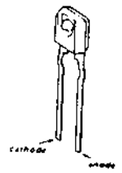


μPD6145G-601

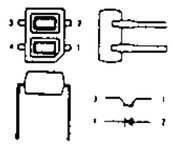


2SA1175-HFE

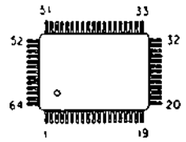
EE-TP109



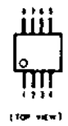
TLP907



CXA1200BQ

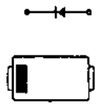


LA7293M
MM1036XF

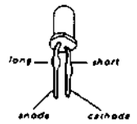


2SA1341

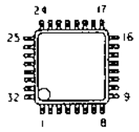
D1FS4-TB



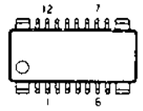
GL3PR8
TLR124



CXA1201Q

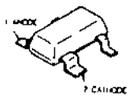


LB1631MT



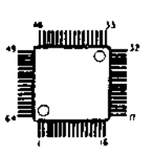
2SA1344

GL-1HD51



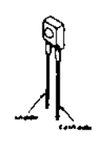
CXA1202R

MB670479U
MC68HC05C4-SC411533

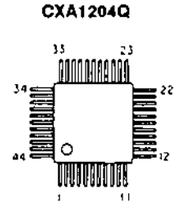


2SA1385
2SB1040A-5

GL452S

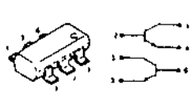


CXA1204Q

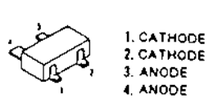


MB88341PFV

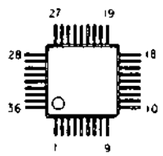
XN6501



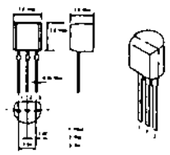
DWA010



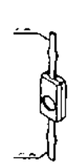
CXD1159Q



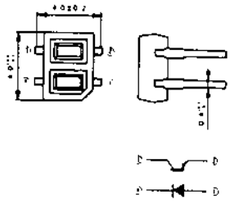
S-81350AG-REG



1T32-2
1T33C



GP2S09-B



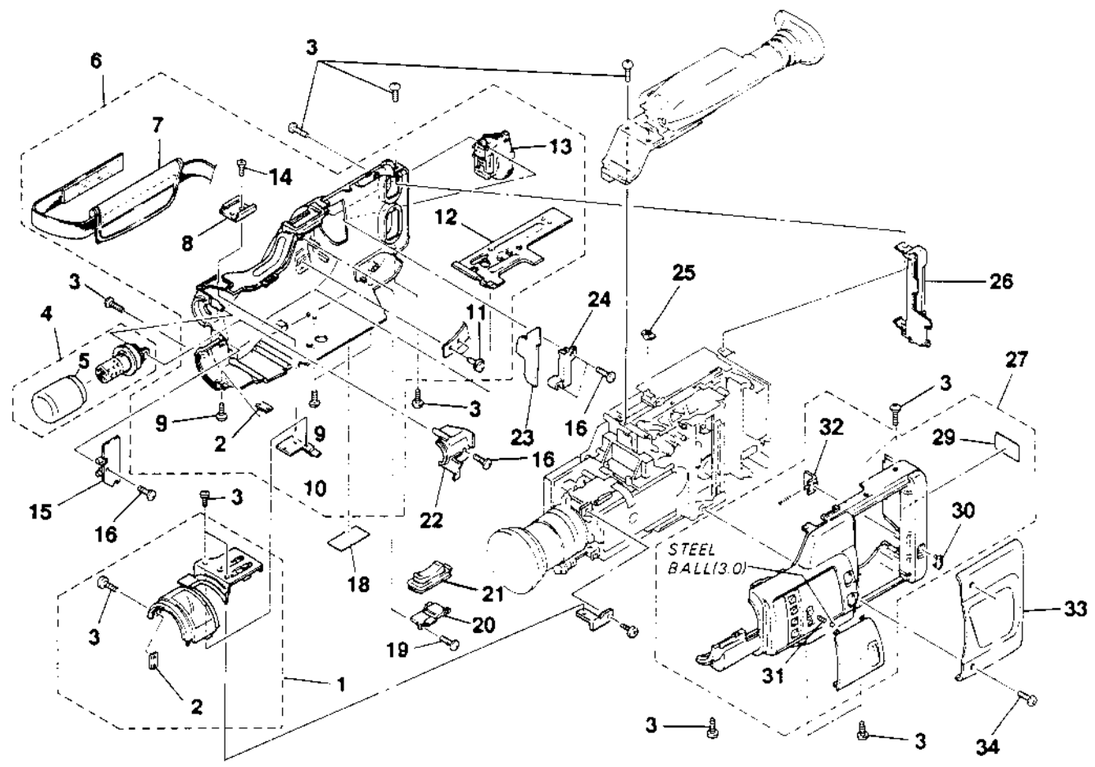
SECTION 5
EXPLODED VIEWS

NOTE:

- –XX, –X mean standardized parts, so they may have some differences from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

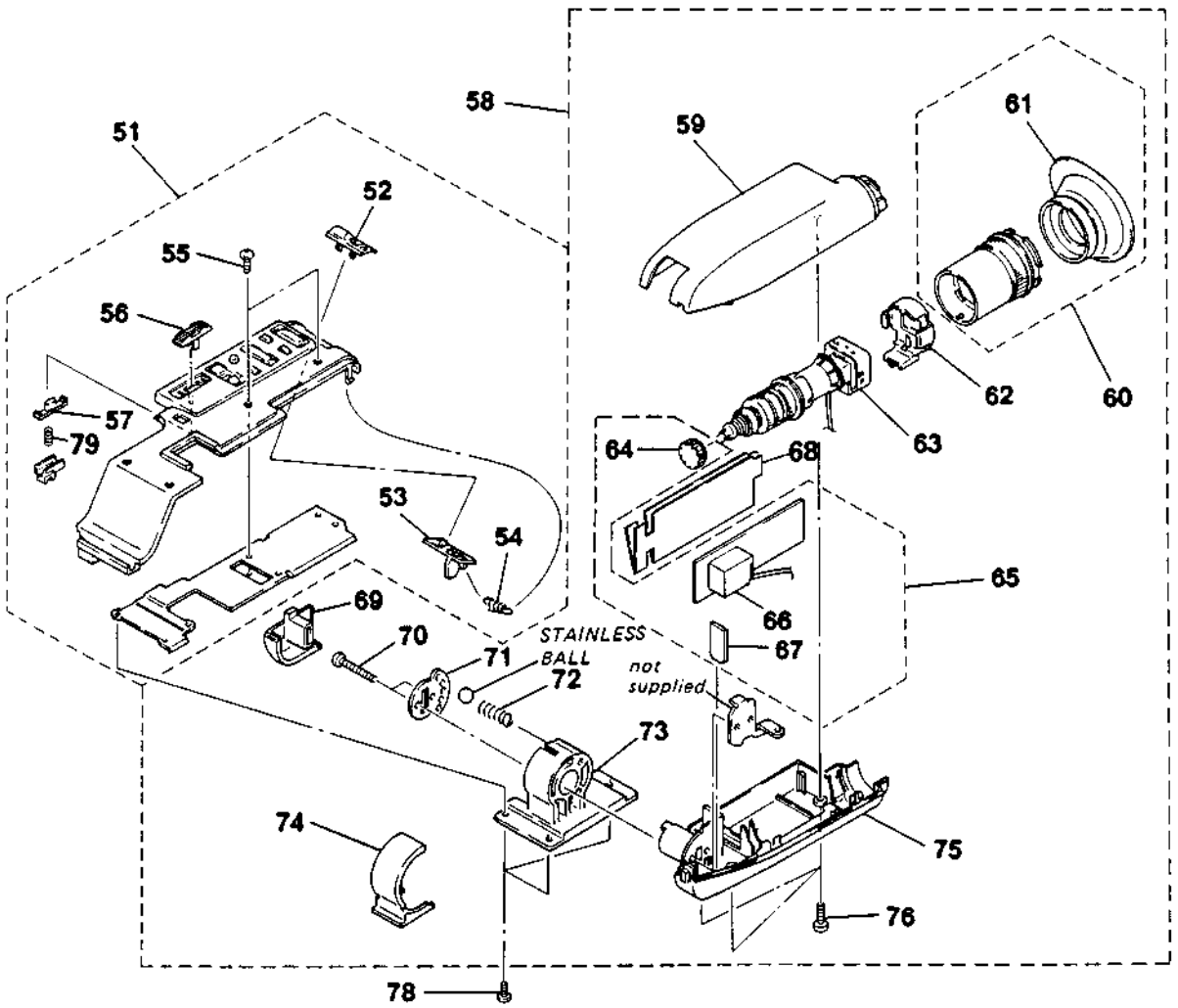
5-1. CABINET (R, L) ASSEMBLY



No.	Part No.	Description	Remark
1	X-3737-743-1	CABINET (FRONT) ASSY(AEP/UK MODEL)	2, 3
	X-3737-768-1	CABINET (FRONT) ASSY	2, 3
2	3-732-912-01	JOINT, L/R	
3	3-719-381-01	SCREW (M2X4)	
4	1-542-101-11	MICROPHONE (C-2020)	5
5	3-707-650-11	SCREEN, WIND	
6	X-3733-944-1	CABINET (L) ASSY (E/Australian)	2, 7-14
	X-3737-738-1	CABINET (L) ASSY (AEP/UK MODEL)	2, 7-14
7	3-719-323-01	BELT, GRIP	
8	3-724-511-01	SHOE, ACCESSORY	
9	3-719-381-31	SCREW (M2X3)	
10	3-737-723-01	RETAINER, SHOE	
11	3-669-480-21	+ PTPWH 2	
12	*3-732-911-01	SHEET METAL, TRIPOD	
13	X-3733-948-1	KNOB ASSY, SP	
14	3-719-831-21	SCREW (M2X4)	
15	*A-7062-205-A	MA-66P BOARD, COMPLETE	
16	3-713-790-31	SCREW (M2X8), TAPPING, P3	
18	*3-741-581-01	LABEL, MODEL NUMBER (AEP MODEL)	
	*3-741-589-01	LABEL, MODEL NUMBER (UK) (UK MODEL)	

No.	Part No.	Description	Remark
18	*3-746-801-01	LABEL, MODEL NUMBER (AU) (Australian)	
	*3-746-802-01	LABEL, MODEL NUMBER (E)	
19	3-713-790-21	SCREW (M2X6), TAPPING, P3	
20	*3-732-937-01	RETAINER, ZOOM BUTTON	
21	1-571-837-11	SWITCH, PUSH (ZOOM SWITCH) (S901)	
22	3-737-737-11	HOUSING, MICROPHONE	
23	*1-634-192-21	RC-40P BOARD	
24	*3-732-928-01	STOPPER, RC	
25	3-732-926-01	BUTTON, EDIT	
26	3-732-924-31	BLIND, L/R	
27	X-3737-711-1	CABINET (R) ASSY (E/Australian)	28-32
	X-3737-742-1	CABINET (R) ASSY (AEP/UK MODEL)	28-32
28	3-426-508-00	SPRING, COMPRESSION	
29	*3-719-683-01	LABEL, BATTERY FITTING	
30	3-732-905-01	BUTTON, BATTERY RELEASE	
31	3-576-098-00	SPRING, COMPRESSION	
32	3-732-906-01	LOCK, BATTERY	
33	X-3737-734-1	LID ASSY, CASSETTE (AEP/UK/E MODEL)	
	X-3737-750-1	LID ASSY, CASSETTE (Australian MODEL)	
34	3-733-912-01	SCREW (M2X2.5), SPECIAL HEAD	

5-2. CABINET (UPPER), EVF ASSEMBLY (TYPE A)

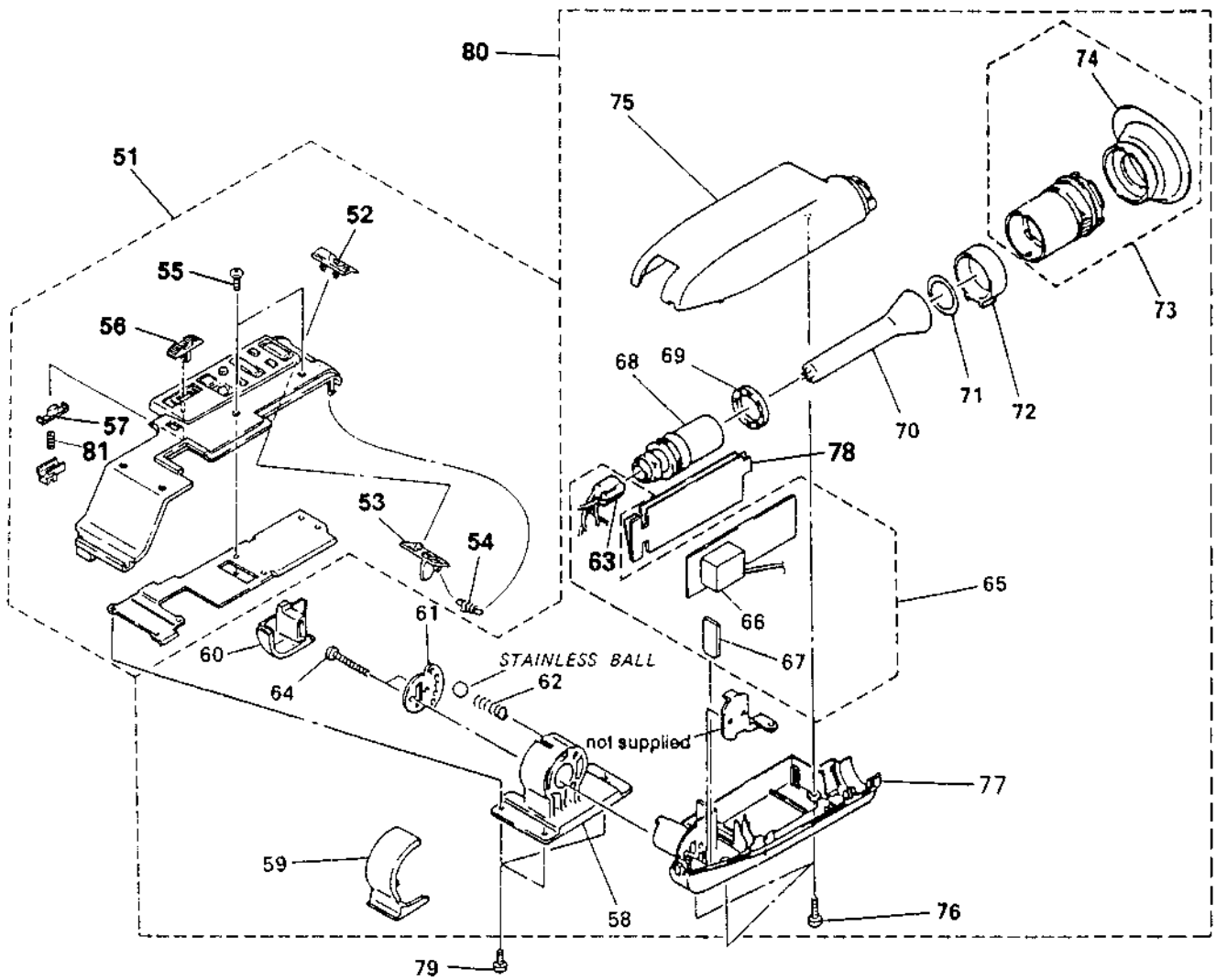


Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

*** A TYPE ***

No.	Part No.	Description	Remark
51	X-3737-740-1	CABINET (UPPER) ASSY (AEP/UK MODEL)	52-57, 79
	X-3737-753-1	CABINET (UPPER) ASSY (E/Australian)	52-57, 79
52	3-732-919-01	BUTTON, EJECT	
53	3-732-920-01	LOCK, EJECT	
54	3-669-440-00	SPRING, TENSION	
55	3-719-381-01	SCREW (M2X4)	
56	3-718-226-01	BUTTON, POWER	
57	*3-718-257-11	BUTTON, PUSH, POWER	
58	*A-7019-220-A	EVF COMPLETE ASSY	59-76
59	3-732-948-51	CABINET (UPPER), EVF	
60	A-7081-148-A	HOLDER BLOCK ASSY, FINDER	61
61	3-733-922-01	EYE CUP	
62	X-3732-910-1	HOLDER ASSY, CRT	
63	⚠1-452-482-11	CRT ASSY (M91JYZ60WB)	
64	⚠1-540-019-21	SOCKET ASSY, CRT (W901)	
65	*A-7061-609-A	VF-14P BOARD, COMPLETE	64, 66, 67
66	⚠1-439-431-11	TRANSFORMER ASSY, FLYBACK (T901)	
67	*1-629-384-21	LD-13P BOARD	
68	*3-733-914-01	INSULATOR, EVF	
69	3-732-949-31	BLIND, EVF CABINET (LOWER)	
70	3-732-987-01	SCREW (M2X20), +P	
71	3-732-947-01	PLATE, LOCK	
72	3-732-946-01	SPRING, COMPRESSION	
73	3-732-944-11	BEARING, EVF	
74	3-732-950-31	BLIND, EVF	
75	X-3737-722-1	CABINET (LOWER) ASSY, EVF	
76	3-713-790-31	SCREW (M2X8), TAPPING, P3	
78	3-732-988-01	SCREW (M2X2.5)	
79	3-303-973-00	SPRING, COMPRESSION	

5-3. CABINET (UPPER), EVF ASSEMBLY (TYPE B)



Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

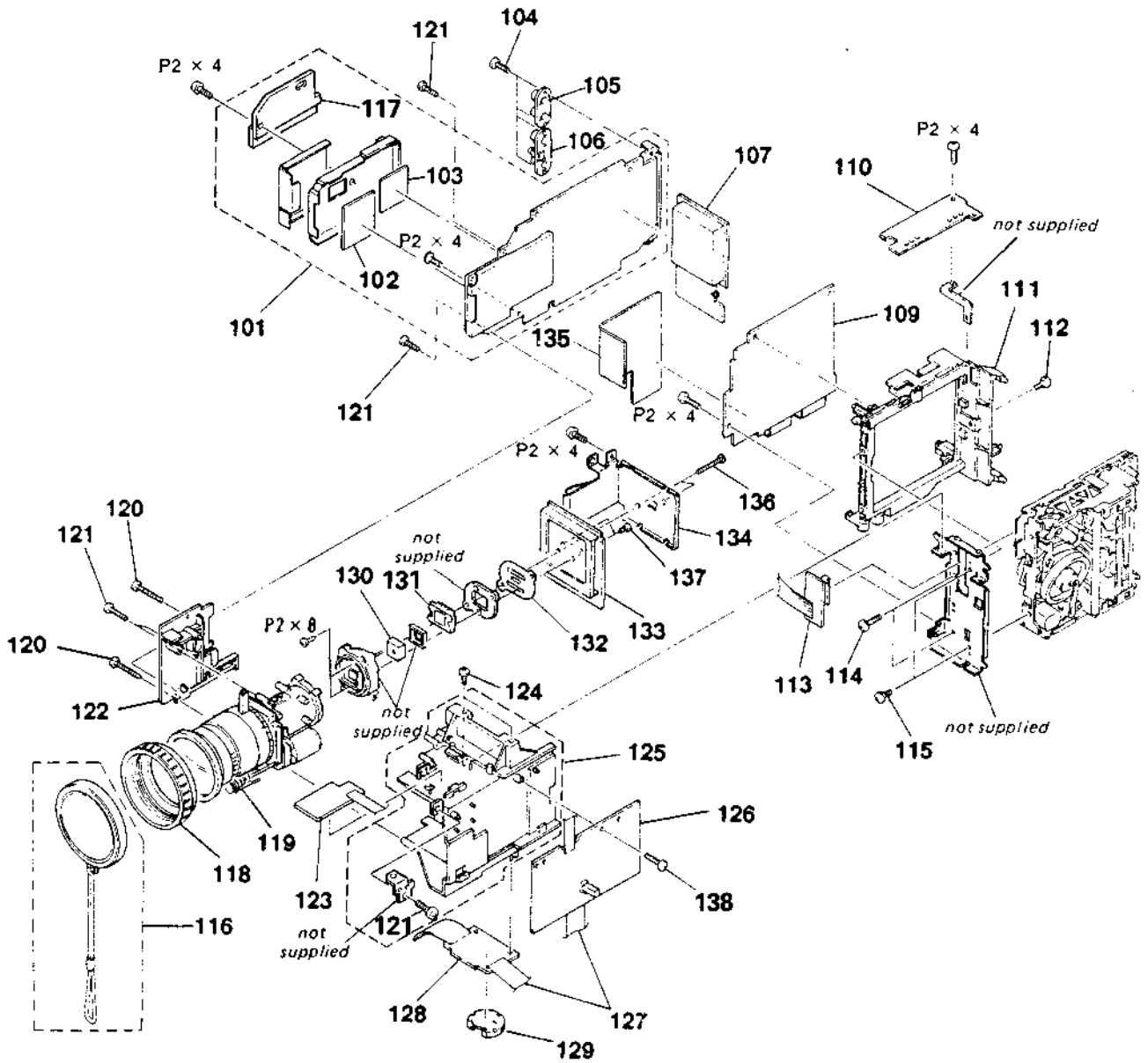
*** B TYPE ***

No.	Part No.	Description	Remark
51	X-3737-740-1	CABINET (UPPER) ASSY (AEP/UK MODEL)	52-57, 81
	X-3737-753-1	CABINET (UPPER) ASSY (E/Australian)	52-57, 81
52	3-732-919-01	BUTTON, EJECT	
53	3-732-920-01	LOCK, EJECT	
54	3-669-440-00	SPRING, TENSION	
55	3-719-381-01	SCREW (M2X4)	
56	3-718-226-01	BUTTON, POWER	
57	*3-718-257-11	BUTTON, PUSH, POWER	
58	3-732-944-11	BEARING, EVF	
59	3-732-950-31	BLIND, EVF	
60	3-732-949-31	BLIND, EVF CABINET (LOWER)	
61	3-732-947-01	PLATE, LOCK	
62	3-732-946-01	SPRING, COMPRESSION	
63	⚠1-526-978-21	SOCKET ASSY, CRT (CRT-901)	
64	3-732-987-01	SCREW (M2X20), +P	

No.	Part No.	Description	Remark
65	*A-7062-012-A	VF-22P BOARD, COMPLETE	63, 66, 67
66	⚠1-439-428-11	TRANSFORMER ASSY, FLYBACK (T901)	
67	*1-630-067-21	LD-17P BOARD	
68	⚠1-451-310-21	DEFLECTION YOKE (B/W)	
69	3-724-549-01	LOCK, CRT	
70	⚠1-546-085-11	CATHODE-RAY TUBE, B/W (M01KGG007WB)	
71	3-724-570-01	RING, CRT FIXED	
72	X-3724-509-1	HOLDER ASSY, CRT	
73	A-7081-148-A	HOLDER BLOCK ASSY, FINDER	74
74	3-733-922-01	EYE CUP	
75	3-732-948-51	CABINET (UPPER), EVF	
76	3-713-790-31	SCREW (M2X8), TAPPING, P3	
77	X-3737-722-1	CABINET (LOWER) ASSY, EVF	
78	*3-733-914-01	INSULATOR, EVF	
79	3-732-988-01	SCREW (M2X2.5)	
80	*A-7019-221-A	EVF COMPLETE ASSY	58-78
81	3-303-973-00	SPRING, COMPRESSION	

5-4. MAIN BOARD ASSEMBLY

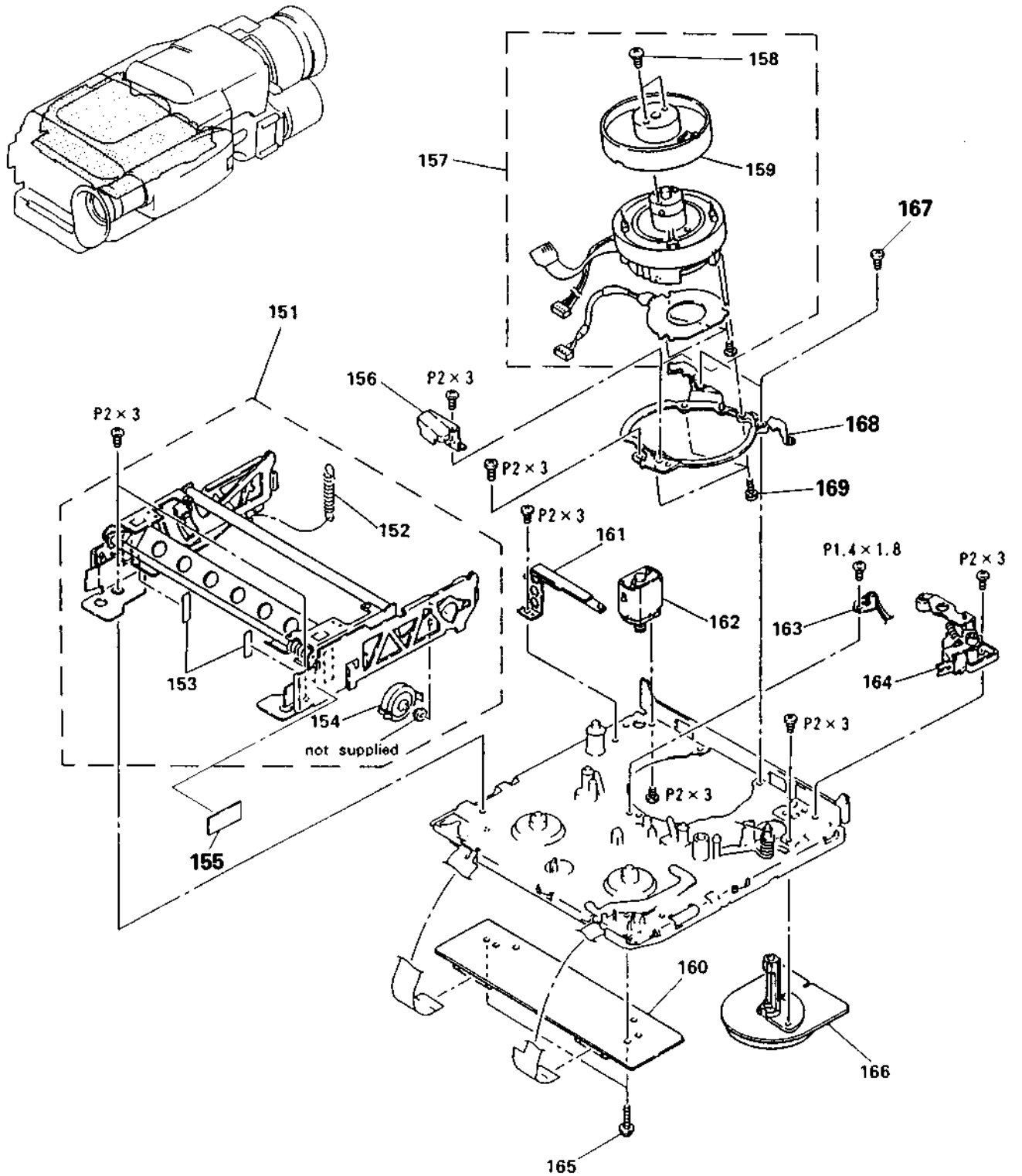
Be sure to read "Precautions for Replacement of CCD Imager" on page 87 when changing the CCD imager.



No.	Part No.	Description	Remark
101	*A-7062-204-A	CV-9 BOARD, COMPLETE (AEP/UK MODEL)	102, 103, 117
	*A-7062-230-A	CV-9 BOARD, COMPLETE (E/Australian)	102, 103, 117
102	A-7068-178-A	DT-79D BOARD, COMPLETE (HIC)	
103	A-7068-128-A	MX-7 BOARD, COMPLETE (HIC)	
104	3-719-695-01	SCREW (M1.7X3.5), SPECIAL HEAD	
105	1-568-409-11	JACK, PIN 2P (AUDIO/VIDEO IN) (J202)	(E/Australian MODEL)
106	1-537-142-11	TERMINAL BOARD	(AUDIO/RFU DC/VIDEO OUT) (J201)
107	*A-7062-202-A	PS-263P BOARD, COMPLETE	
109	*A-7061-599-A	CO-2P BOARD, COMPLETE (AEP/UK MODEL)	
	*A-7061-689-A	CO-2P BOARD, COMPLETE (E/Australian)	
110	*1-634-189-21	VK-11P BOARD	
111	*3-732-932-01	HOLDER, MD	
112	3-732-791-01	SCREW (M2X3)	
113	*1-634-188-21	KS-11P BOARD	
114	3-713-790-11	SCREW (M2X5), TAPPING, P3	
115	3-732-816-01	SCREW, STEP	
116	A-7090-806-A	CAP ASSY, HOOD	
117	*A-7051-959-A	PJ-20 BOARD, COMPLETE	

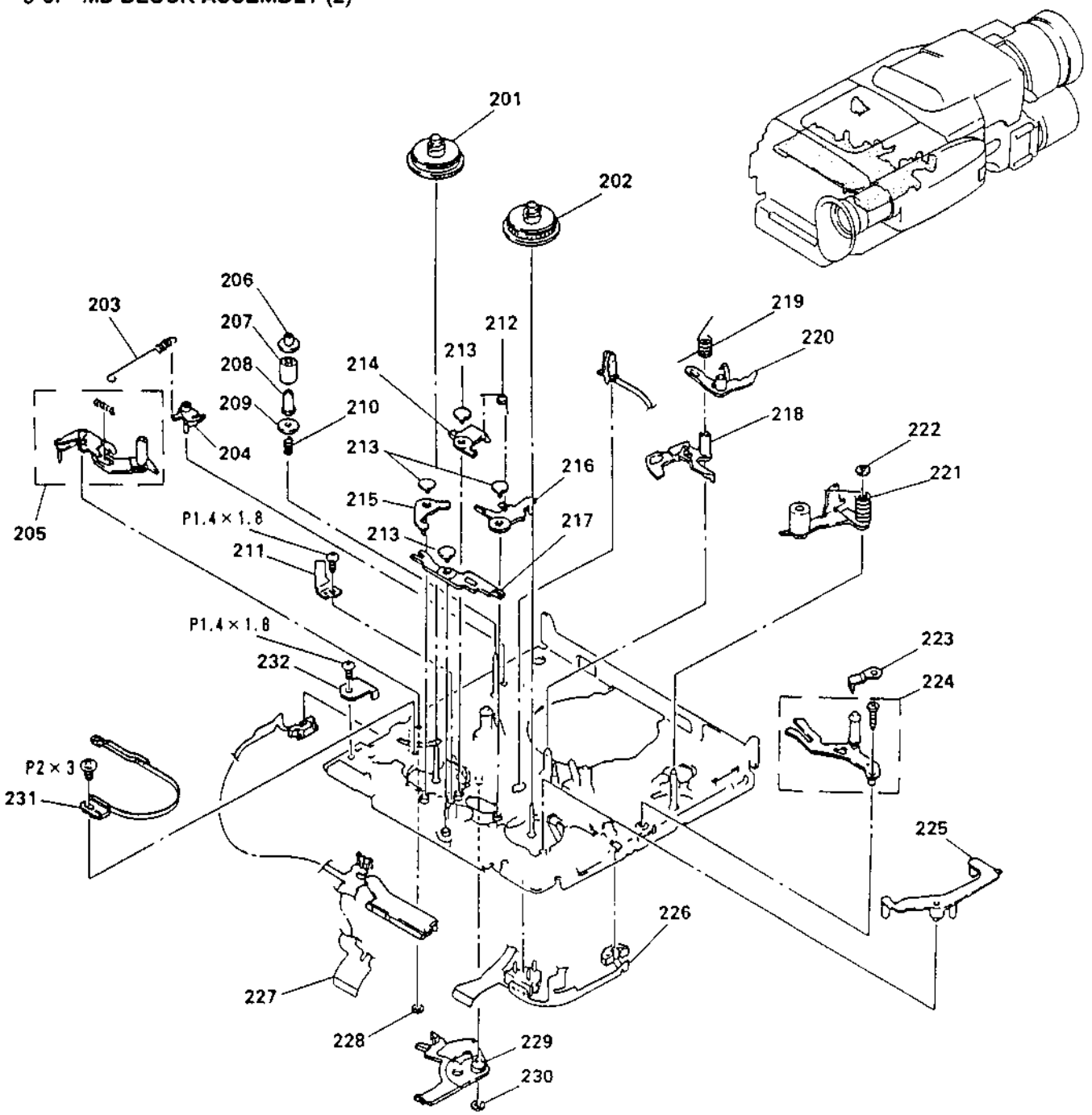
No.	Part No.	Description	Remark
118	3-728-269-01	HOOD	
119	1-547-407-11	LENS, ZOOM (VCL-706WA)	
120	3-713-790-31	SCREW (M2X8), TAPPING, P3	
121	3-713-790-21	SCREW (M2X6), TAPPING, P3	
122	3-741-521-01	HOLDER (BT6), LENS	
123	*1-634-186-21	DK-10P BOARD	
124	3-719-381-01	SCREW (M2X4)	
125	X-3737-707-1	HOLDER ASSY, LENS	121
126	*A-7062-200-A	CK-43P BOARD, COMPLETE	123
127	1-575-064-11	CABLE, FLAT (1.0MM PITCH) 18P (W651)	
128	*1-630-547-11	LI-10 BOARD	
129	1-550-104-32	HOLDER, BATTERY	
130	1-547-408-11	FILTER, INFRARED CUT (IR-03)	
131	8-752-604-51	IC ICX045AK-1 (CCD IMAGER) (IC601)	
132	*3-741-525-01	SHEET, INSULATING, CCD	
133	*A-7062-197-A	CD-40P BOARD, COMPLETE	
134	*X-3737-708-1	SHIELD (CD) ASSY, CAMERA	
135	*3-741-576-01	SHIELD, FE	
136	3-335-640-91	SCREW (M2X11)	
137	3-719-408-01	SCREW (B2), TAPPING, P3	
138	3-713-786-51	SCREW (M2X3)	

5-5. MD BLOCK ASSEMBLY (1)



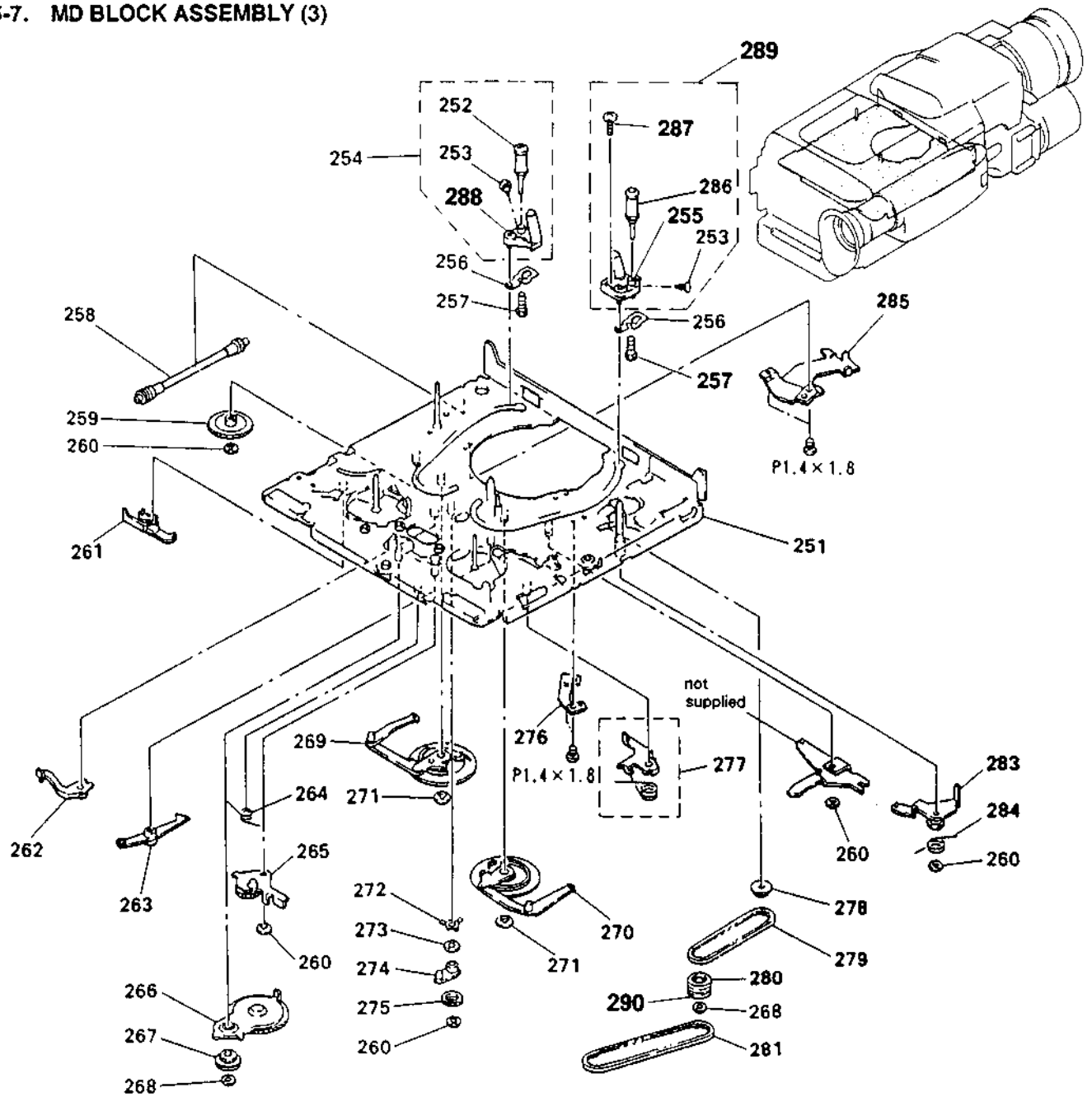
No.	Part No.	Description	Remark
151	X-3728-874-1	CASSETTE COMPARTMENT ASSY (N)	152-154
152	3-728-825-03	SPRING, TENSION	
153	*3-728-829-01	TAPE	
154	3-728-867-02	DAMPER, OIL	
155	*3-730-176-11	SHEET, MD	
156	3-728-868-01	GUARD, GUIDE	
157	A-7048-287-A	DRUM ASSY (DGU-42B-R)	158, 159
158	3-686-493-01	SCREW (M2X5), P1	
159	A-7049-215-A	DRUM ASSY, UPPER, ROTARY (DGR-42R)	
160	*A-7062-198-A	CC-51P BOARD, COMPLETE	
161	X-3728-864-1	GROUND ASSY, SHAFT	
162	A-7040-160-A	MOTOR ASSY, THREADING (M903)	
163	1-808-505-12	SENSOR (DEW)	
164	A-7040-161-B	ROLLER BLOCK ASSY, HC	
165	3-713-790-01	SCREW (M2X5), TAPPING, P3	
166	8-835-331-01	MOTOR, DC U-22A (CAPSTAN) (M902)	
167	3-736-406-01	SCREW (3) (M2X10)	
168	X-3686-474-1	BASE ASSY, DRUM	
169	3-686-493-01	SCREW (M2X5), P1	

5-6. MD BLOCK ASSEMBLY (2)



No.	Part No.	Description	Remark
201	X-3728-851-1	TABLE ASSY, REEL, S	
202	X-3728-855-1	TABLE ASSY, REEL, T	
203	3-736-414-01	SPRING, TENSION	
204	3-728-855-03	ARM, ADJUSTMENT	
205	X-3728-867-1	ARM ASSY (S), TENSION REGULATOR	
206	3-726-884-01	FLANGE, UPPER, TG2	
207	3-726-883-01	ROLLER, TG2	
208	3-726-885-01	SLEEVE, TG2	
209	3-726-882-02	FLANGE, LOWER, TG2	
210	3-726-886-01	SPRING, COMPRESSION	
211	3-726-848-01	RETAINER, TL	
212	3-726-866-01	SPRING (ST), TORSION	
213	3-726-858-01	PIN, SHAFT RETAINER	
214	3-728-849-01	BRAKE, S	
215	3-726-852-01	BRAKE, LB	
216	3-728-850-01	BRAKE, T	
217	3-726-853-01	LEVER, LB	
218	3-728-875-01	STOPPER, RK	
219	3-726-864-01	SPRING (RK), TORSION	
220	3-728-852-02	ARM, RK STOPPER	
221	A-7040-219-A	ARM BLOCK ASSY, PINCH	
222	3-669-465-00	WASHER (1.5), STOPPER	
223	3-728-808-01	SPRING, LEAF	
224	X-3728-869-1	ARM ASSY, TG7	
225	3-728-848-01	ARM, LB RELEASE	
226	1-628-061-12	FP-90 FLEXIBLE BOARD	
227	1-628-060-12	FP-89 FLEXIBLE BOARD	
228	3-321-393-11	WASHER, STOPPER	
229	X-3726-806-2	LEVER ASSY, SW	
230	3-726-829-01	WASHER, STOPPER	
231	X-3726-809-2	BAND ASSY, TENSION REGULATOR	
232	3-730-125-01	RETAINER, SW	

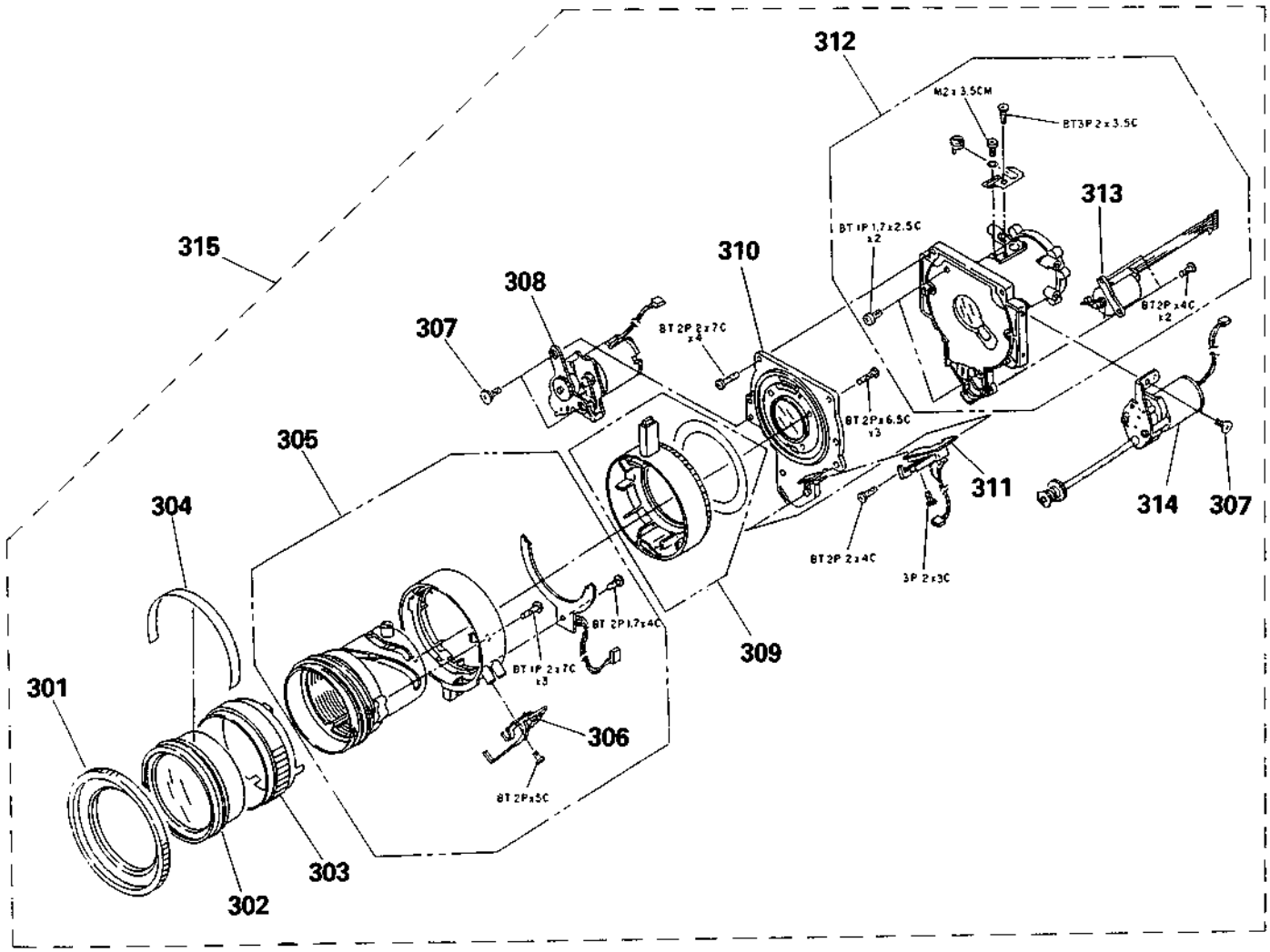
5-7. MD BLOCK ASSEMBLY (3)



No.	Part No.	Description	Remark
251	*X-3728-801-1	CHASSIS ASSY, MECHANICAL	
252	X-3726-820-1	ROLLER ASSY (U), GUIDE	
253	3-726-822-01	SCREW (M1.4X2) (STEP), HEAD	
254	A-7040-128-A	COASTER (LEFT) BLOCK ASSY 252, 253, 288	
255	X-3728-852-1	COASTER (RIGHT) ASSY	
256	3-736-485-01	SPRING, LEAF, COSTER	
257	3-726-830-01	SCREW (M1.4X4) (THREE LOCK)	
258	X-3728-868-1	WORM ASSY	
259	3-744-109-01	GEAR, WHEEL	
260	3-726-829-01	WASHER, STOPPER	
261	3-728-842-01	LEVER, EJECT	
262	3-728-851-01	BRAKE, UL	
263	3-726-854-01	ARM, BRAKE RELEASE	
264	3-726-865-01	SPRING (LB), TORSION	
265	A-7040-130-A	GEAR BLOCK ASSY, LB	
266	X-3728-866-1	GEAR ASSY, RK	
267	X-3728-858-1	GEAR ASSY, RC	
268	3-321-393-11	WASHER, STOPPER	
269	X-3728-842-1	GEAR (LEFT) ASSY, DRIVE	
270	X-3728-843-1	GEAR (RIGHT) ASSY, DRIVE	

No.	Part No.	Description	Remark
271	3-669-465-00	WASHER (1.5), STOPPER	
272	3-726-867-01	SPRING, LEAF	
273	3-701-436-21	WASHER, POLYEHTHYLENE	
274	3-726-857-02	ARM, UL	
275	3-726-856-02	GEAR, UL	
276	*3-726-805-01	REINFORCEMENT (TT)	
277	X-3726-808-2	BRAKE ASSY, TS	
278	X-3726-805-1	GEAR ASSY, JOINT	
279	3-728-866-11	BELT (S), TIMING	
280	X-3726-838-1	PULLEY (UPPER) ASSY, MIDWAY	
281	3-741-197-01	BELT (L), TIMING	
283	X-3726-824-1	ARM ASSY, PINCH SUB	
284	3-726-895-01	SPRING	
285	X-3726-841-1	REINFORCEMENT (SS) ASSY	
286	X-3728-810-1	ROLLER ASSY (U)(PLATING), GUIDE	
287	3-736-473-01	SCREW (M2X6.5) (THREE LOCK)	
288	X-3726-818-1	COASTER (LEFT) ASSY	
289	A-7040-217-A	COASTER (RIGHT)BLOCK ASSY (N1P)	253, 255, 286, 287
290	3-741-196-01	PULLEY (LOWER), BELT MIDWAY	

5-8. LENS BLOCK



No.	Part No.	Description	Remark
301	3-737-789-01	ADAPTOR(T), LENS HOOD	
302	3-707-563-01	RING UNIT, F	
303	3-707-564-01	RING, F SCALE	
304	7-632-701-38	TAPE, POLYESTER	
305	3-707-902-01	MIRROR TUBE ASSY, MAIN	306
306	3-707-905-01	BEARING, F	
307	3-707-904-01	FITTING SCREW, MOTOR	
308	3-707-562-01	MOTOR ASSY, PZ GEAR (M905)	
309	3-707-907-01	RING ASSY, ZOOM	
310	3-707-906-01	FRAME ASSY, MIDWAY	
311	3-707-566-01	SW ASSY, (F) LIMIT	
312	3-707-908-01	MIRROR TUBE ASSY, REAR	313
313	3-707-560-01	METER ASSY, EE	
314	3-707-903-01	MOTOR ASSY, AF GEAR	
315	1-547-407-11	LENS, ZOOM (VCL-706WA)	301-314

VF-14P **LD-13P**

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- –XX, –X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, U : μ, for example:
  UA...: μA..., UPA...: μPA...,
  UPB...: μPB..., UPC...: μPC...,
  UPD...: μPD...
- CAPACITORS
  MF : μF, PF : μμF
- COILS
  MMH : mH, UH : μH

Ref.No	Part No.	Description				Remark
	*A-7061-609-A	VF-14P BOARD, COMPLETE (Ref.No 7,000 Series)				
		**********				
	*3-674-372-00	HOLDER (A), LED				
		CAPACITOR				
C901	1-124-442-00	ELECT	330MF	20%	6.3V	
C903	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C904	1-126-160-11	ELECT	1MF	20%	50V	
C905	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C906	1-131-387-41	TANTALUM	47MF	10%	6.3V	
C907	1-162-638-11	CERAMIC CHIP	1MF		16V	
C908	1-136-165-00	FILM	0.1MF	5%	50V	
C909	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C910	1-124-587-11	ELECT	220MF	20%	6.3V	
C911	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V	
C912	1-162-625-11	CERAMIC CHIP	0.0047MF	5%	50V	⚠
C913	1-162-625-11	CERAMIC CHIP	0.0047MF	5%	50V	⚠
C914	1-163-209-00	CERAMIC CHIP	0.0015MF	5%	50V	⚠
C915	1-126-090-11	ELECT	82MF	20%	10V	
C916	1-126-094-11	ELECT	4.7MF	20%	35V	
C918	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C919	1-102-038-00	CERAMIC	0.001MF		500V	
		CONNECTOR				
CN902	*1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P				
CN903	*1-566-195-21	PIN, CONNECTOR (PC BOARD) 2P				
CN904	*1-566-759-11	PIN, CONNECTOR (PC BOARD) 4P				
		DIODE				
D903	8-719-400-20	DIODE MA152WA				
		IC				
IC901	8-759-420-01	IC AN2512S				
		COIL				
L901	1-410-831-21	INDUCTOR	82UH			
L902	1-408-976-21	INDUCTOR	33UH			
L903	1-459-876-21	COIL, FERRITE (HLC)				⚠
		TRANSISTOR				
Q903	8-729-216-31	TRANSISTOR 2SA1163G				
Q904	8-729-100-66	TRANSISTOR 2SC1623				
Q905	8-729-106-68	TRANSISTOR 2SD1615A-GP				
		RESISTOR				
R903	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R905	1-216-007-00	METAL GLAZE	18	5%	1/10W	
R906	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R908	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R909	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R910	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R911	1-216-013-00	METAL GLAZE	33	5%	1/10W	
R912	1-216-691-11	METAL CHIP	47K	0.50%	1/10W	
R913	1-216-107-00	METAL GLAZE	270K	1%	1/10W	
R914	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R915	1-216-306-11	METAL GLAZE	3.9	5%	1/10W	
R917	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R918	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R919	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R920	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R921	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R922	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R923	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R924	1-216-131-11	METAL GLAZE	2.7M	5%	1/10W	
R925	1-216-131-11	METAL GLAZE	2.7M	5%	1/10W	
R926	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R927	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R928	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R929	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R930	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R931	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R932	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R933	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
		VARIABLE RESISTOR				
RV901	1-230-873-11	RES, ADJ, METAL GLAZE 47K				
RV901	1-230-873-11	RES, ADJ, METAL GRAZE 47K				
RV902	1-230-866-11	RES, ADJ, METAL GLAZE 470				
RV902	1-230-866-11	RES, ADJ, METAL GRAZE 470				
RV904	1-228-762-00	RES, ADJ, METAL GLAZE 1M				
		TRANSFORMER				
T901	1-439-431-11	TRANSFORMER ASSY, FLYBACK				⚠
		THERMISTOR				
TH901	1-807-938-11	THERMISTOR				
		CONNECTOR				
W901	1-540-019-21	SOCKET ASSY, CRT				
		**********				
	*1-629-384-22	LD-13P BOARD (Ref.No 8,000 Series)				
		**********				
		DIODE				
D901	8-719-941-34	DIODE GL1HD51-TE84L				
D902	8-719-812-41	DIODE TLR124				
		**********				

Ref.No	Part No.	Description			Remark
	*A-7061-599-A	CO-2P BOARD, COMPLETE (Ref.No 6,000 Series)			
		********** (AEP/UK MODEL)			
	*A-7061-689-A	CO-2P BOARD, COMPLETE (Ref.No 6,000 Series)			
		********** (E/Australian MODEL)			
		CAPACITOR			
C101	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C102	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C103	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C104	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C105	1-163-109-00	CERAMIC CHIP 47PF	5%	50V	
C106	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	
C107	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C108	1-163-123-00	CERAMIC CHIP 180PF	5%	50V	
C109	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V	
C110	1-124-778-00	ELECT CHIP 22MF	20%	6.3V	
C111	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	
C112	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C113	1-164-633-91	CERAMIC CHIP 0.1MF	10%	25V	
C114	1-164-633-91	CERAMIC CHIP 0.1MF	10%	25V	
C115	1-164-633-91	CERAMIC CHIP 0.1MF	10%	25V	
C116	1-164-633-91	CERAMIC CHIP 0.1MF	10%	25V	
C117	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C118	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	
C119	1-124-778-00	ELECT CHIP 22MF	20%	6.3V	
C123	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C124	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	
C125	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V	
C126	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	
C131	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C132	1-163-121-00	CERAMIC CHIP 150PF	5%	50V	
C133	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C134	1-163-117-00	CERAMIC CHIP 100PF	5%	50V	
C135	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C136	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C138	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	
C139	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C140	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C141	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V	
C142	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C145	1-124-778-00	ELECT CHIP 22MF	20%	6.3V	
C148	1-163-007-11	CERAMIC CHIP 680PF	10%	50V	
C149	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C160	1-124-778-00	ELECT CHIP 22MF	20%	6.3V	
C161	1-126-204-11	ELECT CHIP 47MF	20%	16V	
C162	1-163-133-00	CERAMIC CHIP 470PF	5%	50V	
C163	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C165	1-124-778-00	ELECT CHIP 22MF	20%	6.3V	
C166	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C401	1-126-601-11	ELECT CHIP 2.2MF	20%	50V	
C403	1-126-206-11	ELECT CHIP 100MF	20%	6.3V	
C404	1-126-206-11	ELECT CHIP 100MF	20%	6.3V	
C405	1-126-603-11	ELECT CHIP 4.7MF	20%	35V	
C406	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	
C407	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V	
C408	1-162-638-11	CERAMIC CHIP 1MF		16V	
C409	1-126-206-11	ELECT CHIP 100MF	20%	6.3V	
C410	1-126-207-11	ELECT CHIP 33MF	20%	4V	
C411	1-126-207-11	ELECT CHIP 33MF	20%	4V	
C412	1-162-638-11	CERAMIC CHIP 1MF		16V (E/Australian)	
C413	1-162-638-11	CERAMIC CHIP 1MF		16V	
C414	1-126-205-11	ELECT CHIP 47MF	20%	6.3V	
C415	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V	
C416	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V	
C417	1-163-017-00	CERAMIC CHIP 0.0047MF	10%	50V	
C418	1-126-206-11	ELECT CHIP 100MF	20%	6.3V	
C420	1-162-638-11	CERAMIC CHIP 1MF		16V	
C421	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V	
C501	1-124-779-00	ELECT CHIP 10MF	20%	16V	
C503	1-163-098-00	CERAMIC CHIP 16PF	5%	50V	
C504	1-163-098-00	CERAMIC CHIP 16PF	5%	50V	
C505	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C506	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C507	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C508	1-124-779-00	ELECT CHIP 10MF	20%	16V	
C509	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C510	1-124-779-00	ELECT CHIP 10MF	20%	16V	
C511	1-124-779-00	ELECT CHIP 10MF	20%	16V	
C512	1-126-204-11	ELECT CHIP 47MF	20%	16V	
C513	1-164-247-11	CERAMIC CHIP 0.047MF	10%	16V	
C514	1-136-718-11	FILM 0.1MF	5%	25V	
C515	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	
C516	1-124-779-00	ELECT CHIP 10MF	20%	16V	
C517	1-163-077-00	CERAMIC CHIP 0.1MF		50V	
C518	1-126-601-11	ELECT CHIP 2.2MF	20%	50V	
C519	1-124-779-00	ELECT CHIP 10MF	20%	16V	
C520	1-124-779-00	ELECT CHIP 10MF	20%	16V	
C521	1-126-193-11	ELECT CHIP 1MF	20%	50V	
C522	1-126-193-11	ELECT CHIP 1MF	20%	50V	
C523	1-124-779-00	ELECT CHIP 10MF	20%	16V	
C524	1-126-193-11	ELECT CHIP 1MF	20%	50V	
C525	1-124-779-00	ELECT CHIP 10MF	20%	16V	
C526	1-126-204-11	ELECT CHIP 47MF	20%	16V	
C527	1-127-506-81	ELECT(SOLID) 1MF	20%	25V	
C528	1-126-602-11	ELECT CHIP 3.3MF	20%	50V	
C529	1-124-779-00	ELECT CHIP 10MF	20%	16V	
C530	1-163-077-00	CERAMIC CHIP 0.1MF	10%	25V	
C531	1-163-077-00	CERAMIC CHIP 0.1MF	10%	25V	
C532	1-163-077-00	CERAMIC CHIP 0.1MF	10%	25V	
C533	1-124-779-00	ELECT CHIP 10MF	20%	16V	
C534	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C535	1-124-779-00	ELECT CHIP 10MF	20%	16V	
C536	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C537	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V	

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

CO-2P

Ref.No	Part No.	Description			Remark
C538	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C539	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C540	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C541	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C542	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C543	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C544	1-162-638-11	CERAMIC CHIP	1MF		16V
C545	1-162-638-11	CERAMIC CHIP	1MF		16V
C546	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C548	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C549	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C550	1-164-161-11	CERAMIC CHIP	0.0022MF		50V
C551	1-163-023-00	CERAMIC CHIP	0.015MF		50V
C552	1-162-638-11	CERAMIC CHIP	1MF		16V
C553	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C554	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C555	1-163-125-00	CERAMIC CHIP	220PF	10%	50V
C556	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C557	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C558	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V
C559	1-164-247-11	CERAMIC CHIP	0.047MF	10%	16V
C560	1-162-638-11	CERAMIC CHIP	1MF		16V
C561	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C562	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C563	1-163-011-11	CERAMIC CHIP	0.0015MF	10%	50V
C564	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C565	1-164-247-11	CERAMIC CHIP	0.047MF	10%	16V
C566	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C567	1-164-005-11	CERAMIC CHIP	0.47MF		25V
C570	1-164-633-91	CERAMIC CHIP	0.1MF	10%	25V
C573	1-164-247-11	CERAMIC CHIP	0.047MF	10%	16V
C574	1-162-638-11	CERAMIC CHIP	1MF		16V
C576	1-162-638-11	CERAMIC CHIP	1MF		16V
C577	1-164-633-91	CERAMIC CHIP	0.1MF	10%	25V
C578	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C579	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C580	1-162-638-11	CERAMIC CHIP	1MF		16V
C581	1-135-092-21	TANTAL. CHIP	3.3MF	20%	16V
C582	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C590	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C591	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C617	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C621	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C622	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C623	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C624	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C625	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C626	1-127-489-81	ELECT(SOLID)	10MF	20%	10V
C627	1-124-638-11	ELECT	22MF	20%	10V
C628	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C629	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C630	1-127-489-81	ELECT(SOLID)	10MF	20%	10V
C631	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C632	1-164-247-11	CERAMIC CHIP	0.047MF	10%	16V
C633	1-135-149-21	TANTAL. CHIP	2.2MF	20%	6.3V

CONNECTOR

CN101	1-566-529-11	CONNECTOR, FPC (ZIF) 13P	
CN102	*1-566-184-11	PIN, CONNECTOR (PC BOARD) 5P	
CN501	1-566-529-11	CONNECTOR, FPC (ZIF) 13P	
CN502	1-566-531-11	CONNECTOR, FPC (ZIF) 15P	
CN503	1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P	
CN504	1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P	
CN505	*1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P	
CN506	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P	
CN507	1-566-528-11	CONNECTOR, FPC (ZIF) 12P	

DIODE

D401	8-719-106-09	DIODE RD6.2M-B3
D504	8-719-400-18	DIODE MA152WK
D505	8-719-400-18	DIODE MA152WK
D621	8-719-938-75	DIODE SB05-05CP
D622	8-719-938-75	DIODE SB05-05CP
D623	8-719-104-34	DIODE 1S2835

FILTER

FL401	1-236-145-11	FILTER, BAND PASS
FL401	1-236-145-11	FILTER, BAND PASS

IC

IC101	8-752-033-38	IC CXA1202R
IC401	8-741-150-51	IC SBX1505-21
IC501	8-752-811-52	IC CXP80116-624Q
IC502	8-759-990-78	IC S-81350AG-REG
IC503	8-759-974-21	IC S-8054ALRS-LN
IC504	8-759-804-72	IC LB1631M
IC505	8-759-100-94	IC UPC358G2
IC506	8-759-107-68	IC CX20115A
IC507	8-759-202-45	IC CX20114
IC508	8-759-805-06	IC CXA1127M
IC509	8-752-209-53	IC CXA1204Q
IC510	8-759-100-95	IC UPC324G2
IC621	8-759-945-17	IC MB3775PF

COIL

L101	1-408-777-00	INDUCTOR CHIP	10UH
L102	1-412-033-11	INDUCTOR CHIP	220UH
L103	1-412-029-11	INDUCTOR CHIP	10UH
L104	1-412-033-11	INDUCTOR CHIP	220UH
L105	1-412-033-11	INDUCTOR CHIP	220UH
L106	1-412-033-11	INDUCTOR CHIP	220UH
L107	1-412-033-11	INDUCTOR CHIP	220UH
L501	1-412-031-11	INDUCTOR CHIP	47UH
L502	1-412-031-11	INDUCTOR CHIP	47UH
L503	1-408-795-21	INDUCTOR CHIP	330UH

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

Ref.No	Part No.	Description	Remark
L504	1-412-032-11	INDUCTOR CHIP 100UH	
L505	1-412-030-11	INDUCTOR CHIP 22UH	
L506	1-412-032-11	INDUCTOR CHIP 100UH	
L621	1-410-690-11	COIL, CHOKE 22UH	
L622	1-410-626-11	COIL, CHOKE 47UH	
L623	1-410-626-11	COIL, CHOKE 47UH	
		IC LINK	
PS502	1-532-605-00	LINK, IC ICP-N10 (0.4A)	
PS503	1-532-685-00	LINK, IC ICP-N20 (0.8A)	
		TRANSISTOR	
Q102	8-729-100-66	TRANSISTOR 2SC1623	
Q108	8-729-901-06	TRANSISTOR DTA144EK	
Q109	8-729-100-66	TRANSISTOR 2SC1623	
Q110	8-729-100-66	TRANSISTOR 2SC1623	
Q112	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q113	8-729-216-22	TRANSISTOR 2SA1162	
Q114	8-729-901-01	TRANSISTOR DTC144EK	
Q115	8-729-901-06	TRANSISTOR DTA144EK	
Q116	8-729-901-06	TRANSISTOR DTA144EK	
Q401	8-729-100-66	TRANSISTOR 2SC1623	
Q402	8-729-100-66	TRANSISTOR 2SC1623	
Q403	8-729-901-06	TRANSISTOR DTA144EK	
Q404	8-729-901-01	TRANSISTOR DTC144EK	
Q405	8-729-901-06	TRANSISTOR DTA144EK	
Q406	8-729-100-66	TRANSISTOR 2SC1623	
Q503	8-729-805-39	TRANSISTOR 2SC3898	
Q504	8-729-805-39	TRANSISTOR 2SC3898	
Q506	8-729-216-22	TRANSISTOR 2SA1162	
Q507	8-729-216-22	TRANSISTOR 2SA1162	
Q515	8-729-216-22	TRANSISTOR 2SA1162	
Q516	8-729-100-66	TRANSISTOR 2SC1623	
Q517	8-729-100-66	TRANSISTOR 2SC1623	
Q518	8-729-100-66	TRANSISTOR 2SC1623	
Q519	8-729-100-66	TRANSISTOR 2SC1623	
Q520	8-729-104-95	TRANSISTOR 2SB1040A-5	
Q521	8-729-100-66	TRANSISTOR 2SC1623	
Q522	8-729-216-22	TRANSISTOR 2SA1162	
Q524	8-729-100-66	TRANSISTOR 2SC1623	
Q525	8-729-100-66	TRANSISTOR 2SC1623	
Q526	8-729-216-22	TRANSISTOR 2SA1162	
Q527	8-729-100-66	TRANSISTOR 2SC1623	
Q528	8-729-216-22	TRANSISTOR 2SA1162	
Q529	8-729-100-66	TRANSISTOR 2SC1623	
Q530	8-729-216-22	TRANSISTOR 2SA1162	
Q531	8-729-216-22	TRANSISTOR 2SA1162	
Q532	8-729-216-22	TRANSISTOR 2SA1162	
Q533	8-729-216-22	TRANSISTOR 2SA1162	
Q534	8-729-901-01	TRANSISTOR DTC144EK	
Q535	8-729-901-01	TRANSISTOR DTC144EK	
Q536	8-729-805-39	TRANSISTOR 2SC3898	
Q537	8-729-216-22	TRANSISTOR 2SA1162	
Q538	8-729-100-66	TRANSISTOR 2SC1623	
Q539	8-729-100-66	TRANSISTOR 2SC1623	
Q540	8-729-100-66	TRANSISTOR 2SC1623	
Q621	8-729-901-00	TRANSISTOR DTC124EK	
Q622	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q623	8-729-805-25	TRANSISTOR 2SB1121	
Q624	8-729-901-01	TRANSISTOR DTC144EK	
Q625	8-729-901-04	TRANSISTOR DTA114EK	
Q626	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q627	8-729-805-25	TRANSISTOR 2SB1121	
Q628	8-729-100-66	TRANSISTOR 2SC1623	
Q629	8-729-100-66	TRANSISTOR 2SC1623	
		RESISTOR	
R102	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R103	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R104	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R106	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R110	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R113	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R114	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R115	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R116	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R117	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R118	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R119	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R120	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R121	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R122	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R123	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R124	1-216-013-00	METAL GLAZE 33 5% 1/10W	
R125	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R126	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R127	1-216-035-00	METAL GLAZE 270 5% 1/10W	
R128	1-216-047-00	METAL GLAZE 820 5% 1/10W	
R129	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R130	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R131	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R132	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R133	1-216-009-00	METAL GLAZE 22 5% 1/10W	
R134	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R135	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R136	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R137	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R139	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R140	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R141	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R143	1-216-095-00	METAL GLAZE 82K 5% 1/10W	
R150	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R151	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R155	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R156	1-216-041-00	METAL GLAZE 470 5% 1/10W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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

CO-2P

Ref.No	Part No.	Description				Remark
R157	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R158	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R160	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R161	1-216-013-00	METAL GLAZE	33	5%	1/10W	
R401	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R402	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R403	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R404	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R405	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R407	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R408	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R409	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R410	1-216-011-00	METAL GLAZE	27	5%	1/10W	
R411	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R415	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R416	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R417	1-216-089-00	METAL GLAZE	47K	5%	1/10W (E/Australian)	
R418	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W (E/Australian)	
R419	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R421	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R422	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R423	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R430	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R431	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R501	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R502	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R503	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R504	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R505	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R506	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R507	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R508	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R509	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R510	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R511	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R512	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R513	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R514	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R515	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R516	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R517	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R518	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R519	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R520	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R521	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R522	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R523	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R524	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R525	1-216-691-11	METAL CHIP	47K	0.50%	1/10W	
R526	1-216-691-11	METAL CHIP	47K	0.50%	1/10W	
R528	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R530	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R531	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R532	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R533	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R534	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R535	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R536	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R537	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R538	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R539	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R540	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R541	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R542	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R543	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R544	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R545	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R546	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R547	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R548	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R549	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R550	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R551	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R552	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R553	1-216-106-00	METAL GLAZE	240K	5%	1/10W	
R554	1-216-182-00	METAL GLAZE	220	5%	1/8W	
R555	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R556	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R557	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R558	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R559	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R560	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R561	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R562	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R563	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R564	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R565	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R566	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R567	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R568	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R570	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R571	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R572	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R574	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R575	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R576	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R577	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R578	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R579	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R580	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R581	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R582	1-216-298-00	METAL GLAZE	2.2	5%	1/10W	
R583	1-216-298-00	METAL GLAZE	2.2	5%	1/10W	
R584	1-216-298-00	METAL GLAZE	2.2	5%	1/10W	

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

Ref.No	Part No.	Description				Remark
R585	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R586	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R587	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R588	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R589	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R590	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R591	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R592	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R593	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R594	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R595	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R596	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R597	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R598	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R599	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R600	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R601	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R602	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R603	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R604	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R605	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R606	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R607	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R608	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R609	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R610	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R611	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R612	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R613	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R614	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R615	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R616	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R617	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R618	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R619	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R620	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R621	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R622	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R623	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R624	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R625	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R626	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R627	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R628	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R629	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R630	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R631	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R632	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R633	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R634	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R635	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R636	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R637	1-216-045-00	METAL GLAZE	680	5%	1/10W	

Ref.No	Part No.	Description				Remark
R638	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R639	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R640	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R641	1-216-136-00	METAL GLAZE	2.7	5%	1/8W	
R642	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R643	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R644	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R645	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R652	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R653	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R654	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R655	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R656	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R659	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R660	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R661	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R663	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R664	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R665	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R666	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R667	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R668	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R669	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R670	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R681	1-216-097-00	METAL GLAZE	100K	5%	1/10W	

VARIABLE RESISTOR

RV101	1-230-873-11	RES, ADJ, METAL GRAZE 47K
RV102	1-230-873-11	RES, ADJ, METAL GRAZE 47K
RV501	1-230-874-11	RES, ADJ, METAL GRAZE 100K
RV551	1-238-225-11	RES, ADJ, METAL GLAZE 47K
RV621	1-230-869-11	RES, ADJ, METAL GRAZE 4.7K

CONNECTOR

W501	1-574-451-11	CABLE, FLAT (1.0MM PITCH) 22P
W501	1-574-467-11	CABLE, FLAT (1.0MM PITCH) 22P
W502	1-574-451-11	CABLE, FLAT (1.0MM PITCH) 22P
W502	1-574-467-11	CABLE, FLAT (1.0MM PITCH) 22P

CRYSTAL

X501	1-577-116-11	VIBRATOR, CRYSTAL (16MHz)
X502	1-567-699-11	VIBRATOR, CRYSTAL (5.9MHz)

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*A-7062-012-A	VF-22P BOARD, COMPLETE (Ref.No 4,000 Series)	
	**********	
*3-674-372-00	HOLDER (A), LED	

CAPACITOR

C901	1-126-369-11	ELECT	220MF	20%	6.3V
C902	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C904	1-127-486-11	ELECT(SOLID)	47MF	20%	6.3V
C905	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V

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

Ref.No	Part No.	Description			Remark
C906	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C907	1-162-625-11	CERAMIC CHIP	0.0047MF	5%	50V
C908	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V
C909	1-126-193-11	ELECT CHIP	1MF	20%	50V
C911	1-131-394-21	TANTALUM	68MF	10%	3.15V
C912	1-102-038-00	CERAMIC	0.001MF		500V
C913	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C915	1-126-193-11	ELECT CHIP	1MF	20%	50V
C916	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V
C917	1-135-166-21	TANTAL. CHIP	47MF	20%	6.3V
C918	1-162-638-11	CERAMIC CHIP	1MF		16V
C919	1-135-070-00	TANTAL. CHIP	0.1MF	10%	35V
C920	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V

CONNECTOR

CN901	*1-566-195-21	PIN, CONNECTOR (PC BOARD)	2P
CN902	*1-566-195-11	PIN, CONNECTOR (PC BOARD)	2P
CN904	*1-566-759-11	PIN, CONNECTOR (PC BOARD)	4P

CONPOSITION CIRCUIT BLOCK

CP901	1-238-119-11	RES, ADJ

SOCKET ASSY

CRT901	1-526-978-21	SOCKET ASSY, CRT

DIODE

D903	8-719-400-20	DIODE MA152WA

IC

IC901	8-759-420-01	IC AN2512S

COIL

L901	1-408-421-00	INDUCTOR	100UH
L902	1-410-385-11	INDUCTOR CHIP	22UH
L903	1-459-858-11	COIL, FERRITE (HLC)	

TRANSISTOR

Q903	8-729-106-68	TRANSISTOR 2SD1615A-GP
Q904	8-729-216-31	TRANSISTOR 2SA1163G

RESISTOR

R902	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R903	1-216-041-00	METAL GLAZE	470	5%	1/10W
R907	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R908	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R909	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R911	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R912	1-216-295-00	METAL GLAZE	0	5%	1/10W
R913	1-216-295-00	METAL GLAZE	0	5%	1/10W
R914	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W
R915	1-216-133-00	METAL GLAZE	3.3M	5%	1/10W

Ref.No	Part No.	Description			Remark
R916	1-216-125-00	METAL GLAZE	1.5M	5%	1/10W
R917	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R919	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R920	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R921	1-216-013-00	METAL GLAZE	33	5%	1/10W
R922	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R923	1-216-025-00	METAL GLAZE	100	5%	1/10W
R924	1-216-306-11	METAL GLAZE	3.9	5%	1/10W
R925	1-216-336-11	METAL GLAZE	47K	1%	1/10W
R926	1-216-107-00	METAL GLAZE	270K	1%	1/10W
R928	1-216-870-11	METAL GLAZE	180K	1%	1/10W
R929	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R930	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R931	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R950	1-216-311-00	METAL GLAZE	6.8	5%	1/10W

VARIABLE RESISTOR

RV901	1-238-647-11	RES, ADJ, METAL GLAZE 4.7M

TRANSFORMER

T901	1-439-428-13	TRANSFORMER ASSY, FLYBACK

THERMISTOR

TH901	1-807-938-11	THERMISTOR

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*1-630-067-21 LD-17P BOARD (Ref.No 5,000 Series)
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DIODE

D901	8-719-941-34	DIODE GL1HD51-TE84L
D902	8-719-812-41	DIODE TLR124

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*A-7062-197-A CD-40P BOARD, COMPLETE (Ref.No 1,000 Series)
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3-831-441-XX CUSHION

CAPACITOR

C601	1-126-602-11	ELECT CHIP	3.3MF	20%	50V
C602	1-126-607-11	ELECT CHIP	47MF	20%	4V
C603	1-126-193-11	ELECT CHIP	1MF	20%	50V
C604	1-126-397-11	ELECT CHIP	33MF	20%	25V
C605	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C607	1-163-016-00	CERAMIC CHIP	0.0039MF	10%	50V
C613	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C614	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C615	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C617	1-163-023-00	CERAMIC CHIP	0.015MF	10%	50V
C619	1-126-405-11	ELECT CHIP	10MF	20%	50V
C620	1-163-036-00	CERAMIC CHIP	0.068MF		50V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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

Ref.No	Part No.	Description			Remark
C621	1-164-161-11	CERAMIC CHIP 0.0022MF	10%		50V
C622	1-164-161-11	CERAMIC CHIP 0.0022MF	10%		50V
		CONNECTOR			
CN601	*1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P			
CN602	*1-565-542-11	PIN, CONNECTOR (PC BOARD) 3P			
CN603	*1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P			
CN604	*1-565-543-11	PIN, CONNECTOR (PC BOARD) 4P			
CN605	1-568-164-11	CONNECTOR, FPC (1.0MM) (ZIF) 8P			
		DIODE			
D601	8-719-104-31	DIODE MA152WK			
D602	8-719-104-34	DIODE 1S2836			
D603	8-719-104-31	DIODE MA152WK			
D604	8-719-104-31	DIODE MA152WK			
		IC			
IC601	8-752-604-51	CCD IMAGER ICX045AK-1			
		COIL			
L601	1-410-393-11	INDUCTOR CHIP 100UH			
L602	1-410-393-11	INDUCTOR CHIP 100UH			
		TRANSISTOR			
Q601	8-765-420-03	TRANSISTOR 2SK300-4			
Q602	8-729-100-66	TRANSISTOR 2SC1623			
Q603	8-729-100-66	TRANSISTOR 2SC1623			
Q604	8-729-100-66	TRANSISTOR 2SC1623			
Q605	8-729-100-66	TRANSISTOR 2SC1623			
Q606	8-729-216-22	TRANSISTOR 2SA1162			
Q607	8-729-104-26	TRANSISTOR 2SB804			
Q608	8-729-103-72	TRANSISTOR 2SD1005			
Q609	8-729-216-22	TRANSISTOR 2SA1162			
Q610	8-729-100-66	TRANSISTOR 2SC1623			
		RESISTOR			
R601	1-216-025-00	METAL GLAZE	100	5%	1/10W
R602	1-216-045-00	METAL GLAZE	680	5%	1/10W
R603	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R604	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R605	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R606	1-216-105-00	METAL GLAZE	220K	5%	1/10W
R609	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R610	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R611	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R612	1-216-095-00	METAL GLAZE	82K	5%	1/10W
R613	1-216-095-00	METAL GLAZE	82K	5%	1/10W
R614	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R615	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R616	1-216-005-00	METAL GLAZE	1Ω	5%	1/10W
R617	1-216-005-00	METAL GLAZE	1Ω	5%	1/10W
R618	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R619	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R620	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R621	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R622	1-216-073-00	METAL GLAZE	10K	5%	1/10W
		CONNECTOR			
W601	1-575-151-11	CABLE, FLAT (1.0MM PITCH)			
W603	1-575-063-11	CABLE, FLAT (1.0MM PITCH) 14P			

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*A-7062-198-A CC-51P BOARD, COMPLETE
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		CAPACITOR			
C001	1-162-638-11	CERAMIC CHIP 1MF			16V
C002	1-162-638-11	CERAMIC CHIP 1MF			16V
C003	1-163-038-00	CERAMIC CHIP 0.1MF			25V
		CONNECTOR			
CN001	1-566-529-11	CONNECTOR, FPC (ZIF) 13P			
CN002	1-566-527-11	CONNECTOR, FPC (ZIF) 11P			
		DIODE			
D001	8-719-104-31	DIODE MA152WK			
D002	8-719-104-31	DIODE MA152WK			
D003	8-719-104-31	DIODE MA152WK			
		IC			
IC001	8-759-100-93	IC UPC393G2			
		TRANSISTOR			
Q002	8-729-903-30	TRANSISTOR DTC144TK			
Q004	8-729-903-30	TRANSISTOR DTC144TK			
Q005	8-729-903-30	TRANSISTOR DTC144TK			
Q006	8-729-900-53	TRANSISTOR DTC114EK			
		RESISTOR			
R001	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R002	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R003	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R004	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R005	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R006	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R007	1-216-174-00	METAL GLAZE	100	5%	1/8W
R008	1-216-041-00	METAL GLAZE	470	5%	1/10W
R009	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R010	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R011	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R012	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R013	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R014	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R015	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R016	1-216-097-00	METAL GLAZE	100K	5%	1/10W

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

CC-51P | CK-43P

Ref.No	Part No.	Description			Remark
		CONNECTOR			
W501	1-574-458-11	CABLE, FLAT (1.0MM PITCH) 13P			
W501	1-574-471-11	CABLE, FLAT (1.0MM PITCH) 13P			
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	*A-7062-200-A	CK-43P BOARD, COMPLETE (Ref.No 4,000 Series)			
		**********			
	3-712-410-01	HOLDER, RS			
		CAPACITOR			
C651	1-163-093-00	CERAMIC CHIP 10PF	5%	50V	
C652	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C653	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C654	1-163-105-00	CERAMIC CHIP 33PF	5%	50V	
C655	1-135-149-21	TANTAL. CHIP 2.2MF	20%	10V	
C656	1-135-149-21	TANTAL. CHIP 2.2MF	20%	10V	
C657	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V	
C658	1-163-038-00	CERAMIC CHIP 0.1MF		25V	
C659	1-162-638-11	CERAMIC CHIP 1MF		16V	
C660	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V	
		TRIMMER			
CV651	1-141-368-11	CAP, CHIP TRIMMER 30PF			
		DIODE			
D651	8-719-938-72	DIODE SB01-05CP			
D652	8-719-801-48	DIODE 1SS193			
D653	8-719-104-31	DIODE MA152WK			
D654	8-719-104-31	DIODE MA152WK			
D657	8-719-104-31	DIODE MA152WK			
D658	8-719-801-48	DIODE 1SS193			
D660	8-719-939-11	DIODE GP2S09-B			
		IC			
IC651	8-759-149-19	IC UPD75088GB-516			
		COIL			
L651	1-410-391-11	INDUCTOR CHIP 68UH			
		TRANSISTOR			
Q651	8-729-901-03	TRANSISTOR DTC144WK			
Q652	8-729-216-22	TRANSISTOR 2SA1162G			
Q653	8-729-901-03	TRANSISTOR DTC144WK			
Q654	8-729-220-93	TRANSISTOR 2SK209G			
Q655	8-729-216-22	TRANSISTOR 2SA1162G			
Q656	8-729-216-22	TRANSISTOR 2SA1162G			
Q657	8-729-216-22	TRANSISTOR 2SA1162G			
Q658	8-729-100-66	TRANSISTOR 2SC1623			
Q659	8-729-100-66	TRANSISTOR 2SC1623			
Q660	8-729-216-22	TRANSISTOR 2SA1162G			
Q661	8-729-216-22	TRANSISTOR 2SA1162G			
Q662	8-729-902-XX	TRANSISTOR DTC114TK			
Q663	8-729-902-XX	TRANSISTOR DTC114TK			
Q664	8-729-216-22	TRANSISTOR 2SA1162G			
Q665	8-729-901-01	TRANSISTOR DTC144EK			
		RESISTOR			
R651	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R652	1-216-073-00	METAL GLAZE	10K	5% 1/10W	
R653	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R654	1-216-073-00	METAL GLAZE	10K	5% 1/10W	
R655	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R656	1-216-073-00	METAL GLAZE	10K	5% 1/10W	
R657	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R658	1-216-073-00	METAL GLAZE	10K	5% 1/10W	
R659	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R660	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R661	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R662	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R663	1-216-089-00	METAL GLAZE	47K	5% 1/10W	
R664	1-216-093-00	METAL GLAZE	68K	5% 1/10W	
R665	1-216-085-00	METAL GLAZE	33K	5% 1/10W	
R666	1-216-025-00	METAL GLAZE	100	5% 1/10W	
R667	1-216-129-00	METAL GLAZE	2.2M	5% 1/10W	
R668	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R669	1-216-105-00	METAL GLAZE	220K	5% 1/10W	
R670	1-216-246-00	METAL GLAZE	100K	5% 1/8W	
R671	1-216-109-00	METAL GLAZE	330K	5% 1/10W	
R672	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R673	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R674	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R675	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R676	1-216-109-00	METAL GLAZE	330K	5% 1/10W	
R677	1-216-121-00	METAL GLAZE	1M	5% 1/10W	
R678	1-218-172-11	METAL GLAZE	680K	1% 1/10W	
R679	1-216-121-00	METAL GLAZE	1M	5% 1/10W	
R680	1-218-172-11	METAL GLAZE	680K	1% 1/10W	
R681	1-216-097-00	METAL GLAZE	100K	1% 1/10W	
R682	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R683	1-216-109-00	METAL GLAZE	330K	5% 1/10W	
R684	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R685	1-216-049-00	METAL GLAZE	1K	5% 1/10W	
R686	1-216-049-00	METAL GLAZE	1K	5% 1/10W	
R687	1-216-049-00	METAL GLAZE	1K	5% 1/10W	
R688	1-216-049-00	METAL GLAZE	1K	5% 1/10W	
R689	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R690	1-216-049-00	METAL GLAZE	1K	5% 1/10W	
R691	1-216-049-00	METAL GLAZE	1K	5% 1/10W	
R692	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R693	1-216-049-00	METAL GLAZE	1K	5% 1/10W	
R695	1-216-025-00	METAL GLAZE	100	5% 1/10W	
R696	1-216-097-00	METAL GLAZE	100K	5% 1/10W	
R697	1-216-296-00	METAL GLAZE	0	5% 1/8W	

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

Ref.No	Part No.	Description				Remark
R698	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R699	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R700	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R701	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R702	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R703	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R704	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R705	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R706	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R707	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R708	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R709	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R710	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R712	1-216-295-00	METAL GLAZE	0	5%	1/10W	
		VARIABLE RESISTOR				
RV651	1-230-874-11	RES, ADJ, METAL GLAZE 100K				
		SWITCH				
S652	1-572-078-11	SWITCH, TACTILE (SUTTER SPEED)				
S653	1-572-078-11	SWITCH, TACTILE (BACK LIGHT)				
S654	1-572-078-11	SWITCH, TACTILE (WHITE BAL)				
S655	1-572-078-11	SWITCH, TACTILE (FOCUS)				
S658	1-572-078-11	SWITCH, TACTILE (DATE +)				
S659	1-572-078-11	SWITCH, TACTILE (TIME NEXT)				
		CRYSTAL				
X651	1-527-997-21	VIBRATOR, CRYSTAL (32.768KHz)				
**********						
*1-634-186-21		DK-10P BOARD (Ref.No 5,000 Series)				
		**********				
		DIODE				
D691	8-719-801-48	DIODE 1SS193-TE85L				
D692	8-719-104-31	DIODE MA152WK				
		SWITCH				
S691	1-572-078-11	SWITCH, TACTILE (EDITSEARCH +)				
S692	1-572-078-11	SWITCH, TACTILE (EDITSEARCH -)				
S693	1-572-078-11	SWITCH, TACTILE (COUNTER RESET)				
S694	1-572-078-11	SWITCH, TACTILE (ZERO MEMO)				
		CONNECTOR				
W652	1-575-062-11	CABLE, FLAT (1.0MM PITCH) 6P				
**********						

Ref.No	Part No.	Description				Remark
*A-7062-205-A		MA-66P BOARD, COMPLETE (Ref.No 9,000 Series)				
		**********				
		CAPACITOR				
C451	1-126-154-11	ELECT	47MF	20%	6.3V	
C452	1-162-638-11	CERAMIC CHIP	1MF		16V	
C453	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C455	1-163-137-00	CERAMIC CHIP	680PF	5%	50V	
C456	1-163-077-00	CERAMIC CHIP	0.1MF		50V	
C457	1-163-077-00	CERAMIC CHIP	0.1MF	10%	25V	
C459	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C460	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C464	1-162-638-11	CERAMIC CHIP	1MF		16V	
C465	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C466	1-124-225-00	ELECT	100MF	20%	6.3V	
C470	1-163-038-00	CERAMIC CHIP	0.1MF		25V	
C471	1-163-135-00	CERAMIC CHIP	560PF	5%	50V	
C474	1-162-638-11	CERAMIC CHIP	1MF		16V	
		CONNECTOR				
CN451	1-565-877-11	PIN, CONNECTOR (PC BOARD) 5P				
CN452	*1-566-182-11	PIN, CONNECTOR (PC BOARD) 3P				
		IC				
IC451	8-759-822-37	IC LA7293M-TE-L				
		JACK				
J451	1-507-921-00	JACK (MIC)				
J452	1-563-454-11	JACK, MINIATURE (DC OUT)				
		TRANSISTOR				
Q451	8-729-100-66	TRANSISTOR 2SC1623				
		RESISTOR				
R451	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R452	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R453	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R455	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R456	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R459	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R460	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R462	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R465	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R467	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
		SWITCH				
S451	1-570-910-21	SWITCH, TACTIL (REFLOW TYPE)				
**********						

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

VK-11P | PS-263P

Ref.No	Part No.	Description	Remark
	*1-634-189-21	VK-11P BOARD (Ref.No 9,000 Series) **********	
		CONNECTOR	
CN508	*1-566-182-11	PIN, CONNECTOR (PC BOARD) 3P	
		DIODE	
D501	8-719-104-31	DIODE MA152WK	
D502	8-719-104-34	DIODE 1S2836	
D503	8-719-104-34	DIODE 1S2836	
D504	8-719-801-41	DIODE 1SS196	
D505	8-719-104-31	DIODE MA152WK (AEP/UK MODEL)	
		TRANSISTOR	
Q501	8-729-903-30	TRANSISTOR DTC144TK	
Q502	8-729-903-30	TRANSISTOR DTC144TK	
		SWITCH	
S501	1-571-101-12	SWITCH, SLIDE (POWER)	
S502	1-572-078-11	SWITCH, TACTILE (REW ◀◀)	
S503	1-572-078-11	SWITCH, TACTILE (PB ▷)	
S504	1-572-078-11	SWITCH, TACTILE (FF ▶▶)	
S505	1-572-078-11	SWITCH, TACTILE (■ STOP)	
S506	1-572-078-11	SWITCH, TACTILE (▮▮ PAUSE)	
S507	1-571-102-21	SWITCH, SLIDE (REC) (E/Australian)	
S508	1-571-102-11	SWITCH, SLIDE (EJECT)	
S509	1-572-078-11	SWITCH, TACTILE (DATA SCREEN)	
S510	1-553-977-00	SWITCH, SLIDE (EDIT)	
		CONNECTOR	
W507	1-574-452-12	CABLE, FLAT (1.0MM PITCH) 12P	
W507	1-574-468-11	CABLE, FLAT (1.0MM PITCH) 12P	

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	*A-7062-202-A	PS-263P BOARD, COMPLETE (Ref.No 1,000 Series) **********			
		CAPACITOR			
C936	1-124-438-00	ELECT	1MF	20%	50V
C937	1-124-438-00	ELECT	1MF	20%	50V
C938	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
C939	1-124-438-00	ELECT	1MF	20%	50V
C940	1-164-161-11	CERAMIC CHIP	0.0022MF		50V
C941	1-127-489-81	ELECT(SOLID)	10MF	20%	10V
C942	1-163-125-00	CERAMIC CHIP	220PF	10%	50V
C943	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C944	1-127-561-11	ELECT(SOLID)	33MF	20%	10V
C945	1-162-637-11	CERAMIC CHIP	0.47MF		16V
C955	1-127-489-81	ELECT(SOLID)	10MF	20%	10V
C957	1-124-589-11	ELECT	47MF	20%	10V
C958	1-124-589-11	ELECT	47MF	20%	10V
C959	1-124-589-11	ELECT	47MF	20%	10V
C961	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C962	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C963	1-163-125-00	CERAMIC CHIP	220PF	10%	50V
C964	1-124-234-00	ELECT	22MF	20%	16V
C965	1-124-261-00	ELECT	10MF	20%	50V
C966	1-124-261-00	ELECT	10MF	20%	50V
C967	1-127-509-00	ELECT(SOLID)	3.3MF	20%	25V
C968	1-124-598-11	ELECT	22MF	20%	25V
C978	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C984	1-124-570-11	ELECT	220MF	20%	16V
C985	1-163-019-00	CERAMIC CHIP	0.0068MF	10%	50V
C988	1-164-161-11	CERAMIC CHIP	0.0022MF		50V
C989	1-164-161-11	CERAMIC CHIP	0.0022MF		50V
C990	1-164-161-11	CERAMIC CHIP	0.0022MF		50V
C991	1-163-809-11	CERAMIC CHIP	0.047MF	10%	25V
		CONNECTOR			
CN901	1-506-481-11	PIN, CONNECTOR 2P			
		DIODE			
D935	8-719-106-71	DIODE RD12M-B2			
D936	8-719-800-76	DIODE 1SS226			
D937	8-719-800-76	DIODE 1SS226			
D938	8-719-510-11	DIODE D1FS4			
D939	8-719-801-48	DIODE 1SS193			
D940	8-719-801-48	DIODE 1SS193			
D941	8-719-802-36	DIODE 1SS250			
D942	8-719-801-48	DIODE 1SS193			
D943	8-719-801-48	DIODE 1SS193			
		IC LINK			
PS901	1-532-841-21	LINK, IC PRF1600 (1.6A)			
PS902	1-532-841-21	LINK, IC PRF1600 (1.6A)			
PS903	1-532-841-21	LINK, IC PRF1600 (1.6A)			
		IC			
IC935	8-759-937-36	IC TL1451ACNS			
		JACK			
J901	1-537-241-11	TERMINAL BOARD (BATTERY)			
		COIL			
L935	1-410-690-11	COIL, CHOKE 22UH			
L937	1-421-918-11	COIL, CHOKE 10UH			
L938	1-410-626-11	COIL, CHOKE 47UH			
L939	1-410-626-11	COIL, CHOKE 47UH			
L940	1-410-828-31	INDUCTOR 47UH			
L942	1-410-626-11	COIL, CHOKE 47UH			
L944	1-410-385-11	INDUCTOR CHIP 22UH			
L946	1-421-918-11	COIL, CHOKE 10UH			
L951	1-410-658-31	INDUCTOR CHIP 220UH			
L952	1-412-026-11	INDUCTOR CHIP 1UH			
L953	1-412-026-11	INDUCTOR CHIP 1UH			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

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

Ref.No	Part No.	Description	Remark
L954	1-412-026-11	INDUCTOR CHIP 1UH	
L955	1-412-026-11	INDUCTOR CHIP 1UH	
L956	1-412-026-11	INDUCTOR CHIP 1UH	
L957	1-412-026-11	INDUCTOR CHIP 1UH	
		TRANSISTOR	
Q935	8-729-901-00	TRANSISTOR DTC124EK	
Q936	8-729-901-05	TRANSISTOR DTA124EK	
Q937	8-729-901-05	TRANSISTOR DTA124EK	
Q938	8-729-901-00	TRANSISTOR DTC124EK	
Q939	8-729-901-05	TRANSISTOR DTA124EK	
Q940	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q941 ⚠	8-729-105-29	TRANSISTOR 2SB1203-S	
Q942	8-729-805-25	TRANSISTOR 2SB1121	
Q943	8-729-901-05	TRANSISTOR DTA124EK	
Q944	8-729-901-00	TRANSISTOR DTC124EK	
Q945	8-729-216-22	TRANSISTOR 2SA1162	
Q946	8-729-216-22	TRANSISTOR 2SA1162	
Q947 ⚠	8-729-140-55	TRANSISTOR 2SK739	
Q952	8-729-901-04	TRANSISTOR DTA114EK	
Q953	8-729-901-01	TRANSISTOR DTC144EK	
		RESISTOR	
R935	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R936	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R937	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R938	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R939	1-216-099-00	METAL GLAZE 120K 5% 1/10W	
R940	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R941	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R942	1-216-748-11	METAL GLAZE 39K 5% 1/10W	
R943	1-216-033-00	METAL GLAZE 220 5% 1/10W	
R944	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R945	1-216-027-00	METAL GLAZE 120 5% 1/10W	
R946	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R947	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R948	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R949	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R950	1-216-037-00	METAL GLAZE 330 5% 1/10W	
R951	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R953	1-216-099-00	METAL GLAZE 120K 5% 1/10W	
R954	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R955	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R956	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R957	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R958	1-216-035-00	METAL GLAZE 270 5% 1/10W	
R959	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R960	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R961	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
R962	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R975	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R978	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R985	1-216-073-00	METAL GLAZE 10K 5% 1/10W	

Ref.No	Part No.	Description	Remark
R986	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R987	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R990	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
		VARIABLE RESISTOR	
RV936	1-230-867-11	RES, ADJ, METAL GRAZE 1K	
RV937	1-230-866-11	RES, ADJ, METAL GRAZE 470	
RV938	1-230-869-11	RES, ADJ, METAL GRAZE 4.7K	
		TRANSFORMER	
T936	1-449-454-11	TRANSFORMER, CONVERTER	
		CONNECTOR	
W901	1-564-610-11	CONNECTOR, BOARD TO BOARD	
W902	1-564-610-11	CONNECTOR, BOARD TO BOARD	
**********			
*A-7062-204-A		CV-9 BOARD, COMPLETE (Ref.No 2,000 Series) ********** (AEP/UK MODEL)	
*A-7062-230-A		CV-9 BOARD, COMPLETE (Ref.No 2,000 Series) ********** (E/Australian MODEL)	
A-7068-128-A		MX-7 BOARD, COMPLETE (HIC)	
A-7068-178-A		DT-790 BOARD, COMPLETE (HIC)	
3-719-695-01		SCREW (M1.7X3.5), SPECIAL HEAD	
7-627-553-48		PRECISION SCREW +P 2X4 TYPE 3	
		CAPACITOR	
C201	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C202	1-124-779-00	ELECT CHIP 10MF 20% 16V	
C203	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C204	1-124-779-00	ELECT CHIP 10MF 20% 16V	
C205	1-162-638-11	CERAMIC CHIP 1MF 16V	
C206	1-124-779-00	ELECT CHIP 10MF 20% 16V	
C209	1-126-205-11	ELECT CHIP 47MF 20% 6.3V	
C210	1-162-638-11	CERAMIC CHIP 1MF 16V (E/Australian)	
C211	1-164-247-11	CERAMIC CHIP 0.047MF 10% 16V	
C212	1-162-638-11	CERAMIC CHIP 1MF 16V	
C213	1-124-779-00	ELECT CHIP 10MF 20% 16V	
C214	1-126-246-11	ELECT CHIP 220MF 20% 4V	
C215	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C216	1-124-779-00	ELECT CHIP 10MF 20% 16V	
C217	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C218	1-162-638-11	CERAMIC CHIP 1MF 16V	
C219	1-126-193-11	ELECT CHIP 1MF 20% 50V	
C220	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C221	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C223	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C224	1-135-091-00	TANTAL. CHIP 1MF 20% 16V	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

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

CV-9

Ref.No	Part No.	Description		Remark
C225	1-162-638-11	CERAMIC CHIP 1MF		16V
C226	1-163-077-00	CERAMIC CHIP 0.1MF	10%	25V
C227	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C228	1-135-180-21	TANTAL. CHIP 3.3MF	20%	6.3V
C229	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C230	1-162-638-11	CERAMIC CHIP 1MF		16V
C231	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C232	1-135-180-21	TANTAL. CHIP 3.3MF	20%	6.3V
C233	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V
C234	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V
C235	1-162-638-11	CERAMIC CHIP 1MF		16V
C236	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V
C237	1-162-638-11	CERAMIC CHIP 1MF		16V
C238	1-135-180-21	TANTAL. CHIP 3.3MF	20%	6.3V
C239	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C240	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C241	1-162-638-11	CERAMIC CHIP 1MF		16V
C242	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C243	1-135-091-00	TANTAL. CHIP 1MF	20%	16V
C245	1-126-100-11	ELECT 10MF	20%	6.3V
C246	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C247	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V
C248	1-124-779-00	ELECT CHIP 10MF	20%	16V
C249	1-124-779-00	ELECT CHIP 10MF	20%	16V
C250	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V
C251	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C252	1-124-779-00	ELECT CHIP 10MF	20%	16V
C253	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C254	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C257	1-124-779-00	ELECT CHIP 10MF	20%	16V
C258	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C259	1-163-131-00	CERAMIC CHIP 390PF	5%	50V
C260	1-124-779-00	ELECT CHIP 10MF	20%	16V
C265	1-124-779-00	ELECT CHIP 10MF	20%	16V
C269	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C270	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C271	1-163-089-00	CERAMIC CHIP 6PF	0.25PF	50V
C273	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C274	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C275	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C276	1-124-778-00	ELECT CHIP 22MF	20%	6.3V
C277	1-162-638-11	CERAMIC CHIP 1MF		16V
C278	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C279	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C280	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C281	1-124-778-00	ELECT CHIP 22MF	20%	6.3V
C287	1-124-287-00	ELECT 10MF	20%	10V
C288	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C289	1-124-779-00	ELECT CHIP 10MF	20%	16V
C291	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C292	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C293	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C294	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C295	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C296	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C298	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C300	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C301	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C302	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C304	1-163-127-00	CERAMIC CHIP 270PF	5%	50V
C305	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C306	1-124-778-00	ELECT CHIP 22MF	20%	6.3V
C307	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C308	1-163-107-00	CERAMIC CHIP 39PF	5%	50V
C309	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C310	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C311	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C312	1-163-123-00	CERAMIC CHIP 180PF	5%	50V
C313	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C314	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C315	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C316	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C317	1-164-182-11	CERAMIC CHIP 0.0033MF	10%	50V
C327	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C333	1-135-157-21	TANTAL. CHIP 10MF	20%	6.3V
C334	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C336	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C343	1-163-118-00	CERAMIC CHIP 110PF	5%	50V
C350	1-163-119-00	CERAMIC CHIP 120PF	5%	50V
C357	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C360	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C374	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C401	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C402	1-124-779-00	ELECT CHIP 10MF	20%	16V
C403	1-163-127-00	CERAMIC CHIP 270PF	5%	50V
C404	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C407	1-163-037-11	CERAMIC CHIP 0.022MF	10%	25V
C409	1-163-123-00	CERAMIC CHIP 180PF	5%	50V
C411	1-163-118-00	CERAMIC CHIP 110PF	5%	50V
C413	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C414	1-124-778-00	ELECT CHIP 22MF	20%	6.3V
C415	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C416	1-163-099-00	CERAMIC CHIP 18PF	5%	50V
C417	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C418	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C419	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C451	1-162-638-11	CERAMIC CHIP 1MF		16V
C452	1-162-638-11	CERAMIC CHIP 1MF		16V
C501	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C502	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C503	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C504	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C505	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C506	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C507	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C508	1-124-779-00	ELECT CHIP 10MF	20%	16V

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

Ref.No	Part No.	Description		Remark
C509	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C510	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C511	1-163-141-00	CERAMIC CHIP 0.001MF	5%	50V
C512	1-163-123-00	CERAMIC CHIP 180PF	5%	50V
C513	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C514	1-163-005-11	CERAMIC CHIP 470PF	10%	50V
C515	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C516	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C517	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C601	1-135-181-21	TANTAL. CHIP 4.7MF	20%	6.3V
C602	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C603	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C604	1-162-638-11	CERAMIC CHIP 1MF		16V
C605	1-162-638-11	CERAMIC CHIP 1MF		16V
C606	1-163-100-00	CERAMIC CHIP 20PF	5%	50V
C607	1-163-118-00	CERAMIC CHIP 110PF	5%	50V
C608	1-163-114-00	CERAMIC CHIP 75PF	5%	50V
C609	1-163-100-00	CERAMIC CHIP 20PF	5%	50V
C610	1-163-118-00	CERAMIC CHIP 110PF	5%	50V
C611	1-163-114-00	CERAMIC CHIP 75PF	5%	50V
C612	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C613	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C614	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C615	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C616	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C617	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C618	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C619	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C621	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C622	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C623	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C624	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C626	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C627	1-163-005-11	CERAMIC CHIP 470PF	10%	50V
C628	1-163-005-11	CERAMIC CHIP 470PF	10%	50V
C629	1-163-005-11	CERAMIC CHIP 470PF	10%	50V
C631	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C632	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C636	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C637	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C638	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C639	1-124-779-00	ELECT CHIP 10MF	20%	16V
C640	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C641	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C642	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C647	1-124-778-00	ELECT CHIP 22MF	20%	6.3V
C648	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C650	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C651	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C652	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C653	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C654	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C655	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C656	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C658	1-162-638-11	CERAMIC CHIP 1MF		16V
C660	1-162-638-11	CERAMIC CHIP 1MF		16V
C661	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C662	1-162-638-11	CERAMIC CHIP 1MF		16V
C665	1-162-638-11	CERAMIC CHIP 1MF		16V
C666	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C669	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C673	1-163-131-00	CERAMIC CHIP 390PF	5%	50V
C675	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C676	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C677	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C678	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C679	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C681	1-163-005-11	CERAMIC CHIP 470PF	10%	50V
C686	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C687	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C690	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C691	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C692	1-162-638-11	CERAMIC CHIP 1MF		16V
C693	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C694	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C695	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C696	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C697	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C699	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C700	1-162-638-11	CERAMIC CHIP 1MF		16V
C701	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C702	1-162-638-11	CERAMIC CHIP 1MF		16V
C703	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C704	1-124-566-11	ELECT 120MF	20%	6.3V
C705	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C706	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C707	1-135-145-11	TANTAL. CHIP 0.47MF	20%	25V
C708	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C709	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C710	1-164-005-11	CERAMIC CHIP 0.47MF		25V
C712	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C713	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C714	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C715	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C716	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C718	1-126-602-11	ELECT CHIP 3.3MF	20%	50V
C719	1-135-072-21	TANTAL. CHIP 0.22MF	20%	35V
C721	1-124-779-00	ELECT CHIP 10MF	20%	16V
C722	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C723	1-126-602-11	ELECT CHIP 3.3MF	20%	50V
C724	1-126-602-11	ELECT CHIP 3.3MF	20%	50V
C725	1-162-638-11	CERAMIC CHIP 1MF		16V
C726	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C727	1-126-602-11	ELECT CHIP 3.3MF	20%	50V
C729	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C730	1-162-638-11	CERAMIC CHIP 1MF		16V

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

CV-9

Ref.No	Part No.	Description		Remark
C731	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C735	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C736	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C741	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C798	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C799	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C801	1-124-779-00	ELECT CHIP 10MF	20%	16V
C802	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C803	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C804	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C805	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C806	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C807	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C808	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C809	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C810	1-163-119-00	CERAMIC CHIP 120PF	5%	50V
C811	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C812	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C813	1-162-638-11	CERAMIC CHIP 1MF		16V
C814	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C815	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C817	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C818	1-162-638-11	CERAMIC CHIP 1MF		16V
C819	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C820	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C821	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C822	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C824	1-162-638-11	CERAMIC CHIP 1MF		16V
C825	1-162-637-11	CERAMIC CHIP 0.47MF		16V
C826	1-162-637-11	CERAMIC CHIP 0.47MF		16V
C827	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C828	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C829	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C830	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C832	1-163-809-11	CERAMIC CHIP 0.047MF	10%	25V
C835	1-163-033-00	CERAMIC CHIP 0.022MF		50V
C836	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C837	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C838	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C839	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C840	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C841	1-163-033-00	CERAMIC CHIP 0.022MF		50V
C842	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C843	1-124-779-00	ELECT CHIP 10MF	20%	16V
C844	1-126-205-11	ELECT CHIP 47MF	20%	6.3V
C845	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V
C846	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C848	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C849	1-164-005-11	CERAMIC CHIP 0.47MF		25V

CONNECTOR

CN501	1-568-165-11	CONNECTOR, FPC (1.0MM) (ZIF) 22P	
CN502	1-568-165-11	CONNECTOR, FPC (1.0MM) (ZIF) 22P	
CN601	1-566-547-11	CONNECTOR, FPC (NON ZIF) 15P	
CN602	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P	
CN801	1-566-530-11	CONNECTOR, FPC (ZIF) 14P	
CN802	1-568-207-11	CONNECTOR, FPC (ZIF) 23P	
CN803	*1-565-543-11	PIN, CONNECTOR (PC BOARD) 4P	
CN901	*1-566-759-11	PIN, CONNECTOR (PC BOARD) 4P	
CN902	*1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P	

TRIMMER

CT601	1-141-331-11	CAP, VAR, TRIMMER (CHIP)
CV501	1-141-331-11	CAP, VAR, TRIMMER (CHIP)
CV502	1-141-331-11	CAP, VAR, TRIMMER (CHIP)

DIODE

D211	8-719-800-76	DIODE 1SS226
D213	8-719-104-31	DIODE MA152WK
D216	8-719-404-13	DIODE MA159-TX
D217	8-719-404-13	DIODE MA159-TX
D218	8-719-104-31	DIODE MA152WK
D219	8-719-104-31	DIODE MA152WK
D401	8-719-800-76	DIODE 1SS226
D501	8-713-949-48	DIODE 1T32-2
D601	8-719-104-34	DIODE 1S2836
D602	8-719-104-31	DIODE MA152WK
D604	8-719-104-31	DIODE MA152WK
D605	8-713-949-48	DIODE 1T32-2
D606	8-719-104-31	DIODE MA152WK
D803	8-719-104-31	DIODE MA152WK

FILTER

FL201	1-409-446-11	FILTER, TRAP
FL202	1-236-186-11	FILTER, BAND PASS
FL203	1-577-162-11	FILTER, CERAMIC
FL601	1-236-266-11	FILTER, LOW PASS (YH)
FL602	1-236-267-11	FILTER, LOW PASS (YDL)
FL604	1-236-192-11	FILTER, LOW PASS
FL606	1-415-669-21	DL (LC)
FL801	1-236-209-11	FILTER, LOW PASS

IC

IC201	8-752-033-40	IC CXA1201Q
IC202	8-752-324-87	IC CXL1502M
IC203	8-752-034-40	IC CXA1200BQ
IC501	8-759-140-26	IC UPD6145G-601
IC502	8-759-970-80	IC MB673198U
IC601	8-759-032-00	IC MC68HC05N4-SC406662
IC602	8-759-932-54	IC BU4066BF
IC603	8-759-100-95	IC UPC324G2
IC604	8-752-326-08	IC CXD1159Q
IC605	8-752-034-21	IC CXA1339R
IC606	8-752-033-34	IC CXA1072R
IC608	8-759-946-00	IC MB88341PFV
IC609	8-759-946-00	IC MB88341PFV

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

Ref.No	Part No.	Description	Remark
IC610	8-759-937-56	IC S-8054ALB-LM-S	
IC801	8-752-326-18	IC CXD1204R	
IC802	8-759-037-22	IC MC68HC05C4-SC411533	
IC803	8-759-971-93	IC MSM6219GS	
IC804	8-759-946-00	IC MB88341PFV	
IC805	8-759-030-35	IC MPC1725MR	
IC806	8-759-979-41	IC LM358PS	
IC807	8-759-981-82	IC RC3414M	
IC808	8-759-979-41	IC LM358PS	
IC810	8-759-500-11	IC MM1036XF	
		JACK	
J201	1-537-142-11	TERMINAL BOARD (AUDEO/RFU DC/VIDEO OUT)	
J202	1-568-409-11	JACK, PIN 2P (AUDIO/VIDEO IN)	(E/Australian MODEL)
		COIL	
L201	1-412-032-11	INDUCTOR CHIP 100UH	
L202	1-412-026-11	INDUCTOR CHIP 1UH	
L203	1-412-032-11	INDUCTOR CHIP 100UH	
L204	1-412-031-11	INDUCTOR CHIP 47UH	
L205	1-412-031-11	INDUCTOR CHIP 47UH	
L208	1-412-029-11	INDUCTOR CHIP 10UH	
L209	1-412-032-11	INDUCTOR CHIP 100UH	
L210	1-410-387-11	INDUCTOR CHIP 33UH	
L211	1-410-656-11	INDUCTOR CHIP 150UH	
L212	1-410-381-11	INDUCTOR CHIP 10UH	
L213	1-410-657-21	INDUCTOR CHIP 180UH	
L214	1-408-797-11	INDUCTOR CHIP 470UH	
L215	1-408-795-21	INDUCTOR CHIP 330UH	
L216	1-408-795-21	INDUCTOR CHIP 330UH	
L217	1-410-657-21	INDUCTOR CHIP 180UH	
L219	1-412-032-11	INDUCTOR CHIP 100UH	
L220	1-410-380-31	INDUCTOR CHIP 8.2UH	
L221	1-408-795-21	INDUCTOR CHIP 330UH	
L222	1-410-655-31	INDUCTOR CHIP 120UH	
L223	1-410-393-11	INDUCTOR CHIP 100UH	
L224	1-410-656-11	INDUCTOR CHIP 150UH	
L227	1-410-389-31	INDUCTOR CHIP 47UH	
L228	1-410-388-21	INDUCTOR CHIP 39UH	
L401	1-410-390-11	INDUCTOR CHIP 56UH	
L402	1-410-387-11	INDUCTOR CHIP 33UH	
L404	1-410-383-31	INDUCTOR CHIP 15UH	
L405	1-410-388-21	INDUCTOR CHIP 39UH	
L501	1-410-390-11	INDUCTOR CHIP 56UH	
L502	1-412-032-11	INDUCTOR CHIP 100UH	
L503	1-408-797-11	INDUCTOR CHIP 470UH	
L601	1-412-031-11	INDUCTOR CHIP 47UH	
L602	1-412-029-11	INDUCTOR CHIP 10UH	
L603	1-412-029-11	INDUCTOR CHIP 10UH	
L604	1-412-026-11	INDUCTOR CHIP 1UH	
L605	1-412-026-11	INDUCTOR CHIP 1UH	
L606	1-412-026-11	INDUCTOR CHIP 1UH	
L607	1-412-032-11	INDUCTOR CHIP 100UH	
L608	1-412-029-11	INDUCTOR CHIP 10UH	
L609	1-412-032-11	INDUCTOR CHIP 100UH	
L610	1-412-029-11	INDUCTOR CHIP 10UH	
L613	1-412-031-11	INDUCTOR CHIP 47UH	
L614	1-410-657-21	INDUCTOR CHIP 180UH	
L801	1-410-655-31	INDUCTOR CHIP 120UH	
		TRANSISTOR	
Q202	8-729-100-66	TRANSISTOR 2SC1623	
Q203	8-729-100-66	TRANSISTOR 2SC1623	
Q204	8-729-101-07	TRANSISTOR 2SB798-DL	
Q206	8-729-901-01	TRANSISTOR DTC144EK	
Q207	8-729-901-01	TRANSISTOR DTC144EK	
Q208	8-729-901-01	TRANSISTOR DTC144EK	
Q209	8-729-216-22	TRANSISTOR 2SA1162	
Q210	8-729-101-07	TRANSISTOR 2SB798-DL	
Q211	8-729-901-01	TRANSISTOR DTC144EK	
Q212	8-729-901-01	TRANSISTOR DTC144EK	
Q213	8-729-100-66	TRANSISTOR 2SC1623	
Q215	8-729-100-66	TRANSISTOR 2SC1623	
Q216	8-729-100-66	TRANSISTOR 2SC1623	
Q217	8-729-216-22	TRANSISTOR 2SA1162	
Q222	8-729-101-07	TRANSISTOR 2SB798-DL	
Q223	8-729-901-01	TRANSISTOR DTC144EK	
Q224	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q225	8-729-100-66	TRANSISTOR 2SC1623	
Q226	8-729-901-06	TRANSISTOR DTA144EK	
Q227	8-729-805-41	TRANSISTOR 2SC3398	
Q228	8-729-100-66	TRANSISTOR 2SC1623	
Q229	8-729-216-22	TRANSISTOR 2SA1162	
Q230	8-729-122-63	TRANSISTOR 2SA1226	
Q231	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q232	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q233	8-729-216-22	TRANSISTOR 2SA1162	
Q241	8-729-901-06	TRANSISTOR DTA144EK	
Q242	8-729-901-01	TRANSISTOR DTC144EK	
Q243	8-729-100-66	TRANSISTOR 2SC1623	
Q244	8-729-901-01	TRANSISTOR DTC144EK	
Q250	8-729-100-66	TRANSISTOR 2SC1623	
Q251	8-729-216-22	TRANSISTOR 2SA1162	
Q254	8-729-100-66	TRANSISTOR 2SC1623	
Q401	8-729-402-84	TRANSISTOR XN4601	
Q403	8-729-421-23	TRANSISTOR XN1216	
Q405	8-729-100-66	TRANSISTOR 2SC1623	
Q406	8-729-100-66	TRANSISTOR 2SC1623	
Q407	8-729-100-66	TRANSISTOR 2SC1623	
Q408	8-729-216-22	TRANSISTOR 2SA1162	
Q409	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q410	8-729-216-22	TRANSISTOR 2SA1162	
Q501	8-729-100-66	TRANSISTOR 2SC1623	
Q502	8-729-100-66	TRANSISTOR 2SC1623	
Q551	8-729-901-06	TRANSISTOR DTA144EK	

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

CV-9

Ref.No	Part No.	Description	Remark
Q552	8-729-902-XX	TRANSISTOR DTC114TK	
Q553	8-729-902-XX	TRANSISTOR DTC114TK	
Q602	8-729-100-66	TRANSISTOR 2SC1623	
Q603	8-729-216-22	TRANSISTOR 2SA1162	
Q604	8-729-805-42	TRANSISTOR 2SC3859	
Q605	8-729-901-01	TRANSISTOR DTC144EK	
Q606	8-729-901-01	TRANSISTOR DTC144EK	
Q607	8-729-805-42	TRANSISTOR 2SC3859	
Q608	8-729-100-66	TRANSISTOR 2SC1623	
Q609	8-729-100-66	TRANSISTOR 2SC1623	
Q610	8-729-216-22	TRANSISTOR 2SA1162	
Q611	8-729-100-66	TRANSISTOR 2SC1623	
Q612	8-729-216-22	TRANSISTOR 2SA1162	
Q614	8-729-216-22	TRANSISTOR 2SA1162	
Q615	8-729-100-66	TRANSISTOR 2SC1623	
Q616	8-729-100-66	TRANSISTOR 2SC1623	
Q617	8-729-100-66	TRANSISTOR 2SC1623	
Q618	8-729-100-66	TRANSISTOR 2SC1623	
Q619	8-729-100-66	TRANSISTOR 2SC1623	
Q620	8-729-100-66	TRANSISTOR 2SC1623	
Q621	8-729-805-42	TRANSISTOR 2SC3859	
Q622	8-729-805-42	TRANSISTOR 2SC3859	
Q623	8-729-805-42	TRANSISTOR 2SC3859	
Q624	8-729-805-42	TRANSISTOR 2SC3859	
Q625	8-729-216-22	TRANSISTOR 2SA1162	
Q626	8-729-100-66	TRANSISTOR 2SC1623	
Q627	8-729-216-22	TRANSISTOR 2SA1162	
Q628	8-729-216-22	TRANSISTOR 2SA1162	
Q629	8-729-920-08	TRANSISTOR DTC124TK	
Q630	8-729-216-22	TRANSISTOR 2SA1162	
Q631	8-729-216-22	TRANSISTOR 2SA1162	
Q632	8-729-100-66	TRANSISTOR 2SC1623	
Q633	8-729-216-22	TRANSISTOR 2SA1162	
Q634	8-729-100-66	TRANSISTOR 2SC1623	
Q635	8-729-216-22	TRANSISTOR 2SA1162	
Q638	8-729-216-22	TRANSISTOR 2SA1162	
Q639	8-729-805-42	TRANSISTOR 2SC3859	
Q641	8-729-100-66	TRANSISTOR 2SC1623	
Q642	8-729-216-22	TRANSISTOR 2SA1162	
Q644	8-729-216-22	TRANSISTOR 2SA1162	
Q645	8-729-100-66	TRANSISTOR 2SC1623	
Q646	8-729-216-22	TRANSISTOR 2SA1162	
Q647	8-729-100-66	TRANSISTOR 2SC1623	
Q648	8-729-216-22	TRANSISTOR 2SA1162	
Q802	8-729-100-66	TRANSISTOR 2SC1623	
Q803	8-729-402-19	TRANSISTOR XN6501	
Q804	8-729-402-19	TRANSISTOR XN6501	
Q805	8-729-901-01	TRANSISTOR DTC144EK	
Q806	8-729-100-66	TRANSISTOR 2SC1623	
Q807	8-729-100-66	TRANSISTOR 2SC1623	
Q809	8-729-805-42	TRANSISTOR 2SC3859	
Q810	8-729-805-42	TRANSISTOR 2SC3859	
Q811	8-729-901-06	TRANSISTOR DTA144EK	
Q812	8-729-901-06	TRANSISTOR DTA144EK	
Q816	8-729-100-66	TRANSISTOR 2SC1623	
Q817	8-729-216-22	TRANSISTOR 2SA1162	
Q818	8-729-100-66	TRANSISTOR 2SC1623	
Q819	8-729-119-76	TRANSISTOR 2SB1175-HFE	
Q820	8-729-100-66	TRANSISTOR 2SC1623	
Q822	8-729-216-22	TRANSISTOR 2SA1162	
Q824	8-729-901-01	TRANSISTOR DTC144EK	
Q825	8-729-901-01	TRANSISTOR DTC144EK	
Q826	8-729-216-22	TRANSISTOR 2SA1162	
Q827	8-729-100-66	TRANSISTOR 2SC1623	
Q828	8-729-216-22	TRANSISTOR 2SA1162	
Q830	8-729-805-42	TRANSISTOR 2SC3859	

RESISTOR

Ref.No	Part No.					Remark
R201	1-216-699-11	METAL CHIP	100K	0.50%	1/10W	
R202	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R203	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R204	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R205	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R206	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R207	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R208	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R209	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R210	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R211	1-216-304-11	METAL GLAZE	3.3	5%	1/10W	
R212	1-216-015-00	METAL GLAZE	39	5%	1/10W	(E/Australian)
R213	1-216-015-00	METAL GLAZE	39	5%	1/10W	(E/Australian)
R214	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R215	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R216	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R218	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R219	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R220	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R221	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R223	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R224	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R226	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R227	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R231	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R232	1-216-029-00	METAL GLAZE	150	5%	1/10W	
R233	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R234	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R235	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R236	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R237	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R238	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R241	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R242	1-216-663-11	METAL CHIP	3.3K	0.50%	1/10W	
R243	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R246	1-216-651-11	METAL CHIP	1K	0.50%	1/10W	
R247	1-216-643-11	METAL CHIP	470	0.50%	1/10W	
R248	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	

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

Ref.No	Part No.	Description				Remark
R249	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R250	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R251	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R264	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R265	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R266	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R267	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R268	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R270	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R271	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R274	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R275	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R276	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R277	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R279	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R281	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R282	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R283	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R284	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R285	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R287	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R288	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R289	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R290	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R291	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R292	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R293	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R294	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R295	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R296	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R297	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R298	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R299	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R300	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R301	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R302	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R303	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R304	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R305	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R306	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R307	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R309	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R310	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R311	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R312	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R313	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R314	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R315	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R316	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R317	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R318	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R319	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R320	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R321	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R322	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R323	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R324	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R325	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R327	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R348	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R351	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R355	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R356	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R357	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R369	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R376	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R377	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R378	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R380	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R381	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R383	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R384	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R385	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R389	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R395	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R396	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R398	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R399	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R401	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R402	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R403	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R404	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R405	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R406	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R407	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R408	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R409	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R410	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R411	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R413	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R414	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R415	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R416	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R417	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R418	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R419	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R420	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R421	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R422	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R424	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R425	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R426	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R427	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R428	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R429	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R430	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	

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

CV-9

Ref.No	Part No.	Description				Remark
R431	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R432	1-216-109-00	METAL GLAZE	330K	5%	1/10W	
R433	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R451	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R452	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R501	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R502	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R503	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R504	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R505	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R506	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R507	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R508	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R509	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R510	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R511	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R512	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R513	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R514	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R515	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R516	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R517	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R518	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R519	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R520	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R521	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R522	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R523	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R524	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R525	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R551	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R552	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R553	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R554	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R603	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R604	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R605	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R606	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R607	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R608	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R609	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R610	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R611	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R612	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R613	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R614	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R615	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R616	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R617	1-216-134-00	METAL GLAZE	2.2	5%	1/8W	
R618	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R619	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R620	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R621	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R622	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R623	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R624	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R625	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R626	1-216-068-00	METAL GLAZE	6.2K	5%	1/10W	
R627	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R628	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R629	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R630	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R631	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R632	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R633	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R634	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R635	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R636	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R637	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R638	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R639	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R640	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R641	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R642	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R643	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R644	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R645	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R646	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R647	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R648	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R649	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R650	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R651	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R652	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R653	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R656	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R657	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R658	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R659	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R660	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R662	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R663	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R664	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R667	1-216-131-11	METAL GLAZE	2.7M	5%	1/10W	
R668	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R669	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R670	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R672	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R674	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R675	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R677	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R678	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R679	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R680	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R681	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R682	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

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

Ref.No	Part No.	Description				Remark
R685	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R686	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R687	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R688	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R690	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R696	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R697	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R698	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R699	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R700	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R702	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R703	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R705	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R711	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R713	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R715	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R716	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R717	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R718	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R719	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R720	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R721	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R722	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R723	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R724	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R726	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R728	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R729	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R730	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R731	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R732	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R733	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R734	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R735	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R736	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R737	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R738	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R739	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R740	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R741	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R742	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R744	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R745	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R746	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R747	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R749	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R750	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R751	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R752	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R753	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R754	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R755	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R757	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R758	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R759	1-216-072-00	METAL GLAZE	9.1K	5%	1/10W	
R760	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R761	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R762	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R763	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R764	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R765	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R767	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R768	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R770	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R771	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R772	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R773	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R774	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R776	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R777	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R780	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R781	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R782	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R783	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R785	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R786	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R787	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R788	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R789	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R790	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R791	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R792	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R793	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R794	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R801	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R802	1-218-158-11	METAL GLAZE	27K	1%	1/10W	
R803	1-216-324-11	METAL GLAZE	10K	1%	1/10W	
R804	1-216-324-11	METAL GLAZE	10K	1%	1/10W	
R805	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R806	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R807	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R808	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R809	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R810	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R811	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R812	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R813	1-216-134-00	METAL GLAZE	2.2	5%	1/8W	
R814	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R815	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R816	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R817	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R818	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R819	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R820	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R821	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R822	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	

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

Ref.No	Part No.	Description				Remark
R823	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R824	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R825	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R826	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R827	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R828	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R829	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R831	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R832	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R833	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R836	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R837	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R838	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R839	1-216-043-00	METAL GLAZE	560	5%	1/10W	
R840	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R841	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R843	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R844	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R845	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R846	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R847	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R848	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R849	1-216-144-00	METAL GLAZE	5.6	5%	1/8W	
R850	1-216-134-00	METAL GLAZE	2.2	5%	1/8W	
R857	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R858	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R859	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R860	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R861	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R862	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R863	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R864	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R865	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R866	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R867	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R868	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R869	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R870	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R871	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R872	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R873	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R874	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R875	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R876	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R877	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R878	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R879	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R880	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R881	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R882	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R883	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R884	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R885	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R886	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R887	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R888	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R889	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R890	1-216-144-00	METAL GLAZE	5.6	5%	1/8W	
R891	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R892	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R893	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R894	1-216-748-11	METAL GLAZE	39K	5%	1/10W	
R895	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R896	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R897	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R898	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R899	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	

VARIABLE RESISTOR

RV201	1-230-874-11	RES, ADJ, METAL GLAZE	100K
RV202	1-230-870-11	RES, ADJ, METAL GLAZE	10K
RV203	1-230-874-11	RES, ADJ, METAL GLAZE	100K
RV204	1-230-868-11	RES, ADJ, METAL GLAZE	2.2K
RV205	1-230-869-11	RES, ADJ, METAL GLAZE	4.7K
RV207	1-230-868-11	RES, ADJ, METAL GLAZE	2.2K
RV208	1-230-866-11	RES, ADJ, METAL GLAZE	470
RV401	1-230-868-11	RES, ADJ, METAL GLAZE	2.2K
RV402	1-230-867-11	RES, ADJ, METAL GLAZE	1K
RV403	1-230-868-11	RES, ADJ, METAL GLAZE	2.2K
RV552	1-230-874-11	RES, ADJ, METAL GLAZE	100K
RV801	1-230-875-21	RES, ADJ, METAL GLAZE	220K

CRYSTAL

X201	1-577-117-21	VIBRATOR, CRYSTAL (4.43MHz)
X601	1-577-118-11	VIBRATOR, LITHIUM NIOBATE (4MHz)
X602	1-567-733-11	VIBRATOR, CRYSTAL (17MHz)
X603	1-577-119-11	OSCILLATOR, CRYSTAL (28MHz)

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*A-7051-959-A PJ-20 BOARD, COMPLETE (Ref.No 4,000 Series)

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CAPACITOR

C101	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C102	1-124-778-00	ELECT CHIP	22MF	20%	6.3V
C103	1-163-118-00	CERAMIC CHIP	110PF	5%	50V
C104	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C105	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C106	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C107	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C108	1-164-232-11	CERAMIC CHIP	0.01MF	10%	50V
C109	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C110	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C111	1-126-193-11	ELECT CHIP	1MF	20%	50V
C112	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C113	1-163-131-00	CERAMIC CHIP	390PF	5%	50V

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

Ref.No	Part No.	Description		Remark
C114	1-163-093-00	CERAMIC CHIP 10PF	5%	50V
C115	1-163-086-00	CERAMIC CHIP 3PF	0.25PF	50V
C116	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C117	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C118	1-163-033-00	CERAMIC CHIP 0.022MF		50V
C119	1-163-033-00	CERAMIC CHIP 0.022MF		50V
C120	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C121	1-163-131-00	CERAMIC CHIP 390PF	5%	50V
C122	1-163-033-00	CERAMIC CHIP 0.022MF		50V
C123	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C124	1-164-182-11	CERAMIC CHIP 0.0033MF	10%	50V
C125	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C126	1-164-232-11	CERAMIC CHIP 0.01MF		50V
C127	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C128	1-124-779-00	ELECT CHIP 10MF	20%	16V
		CONNECTOR		
CN202	*1-565-882-11	PIN, CONNECTOR (PC BOARD) 10P		
		DIODE		
D101	8-719-104-31	DIODE MA152WK		
D102	8-719-800-76	DIODE 1SS226		
D103	8-719-104-31	DIODE MA152WK		
D104	8-719-104-31	DIODE MA152WK		
		DELAY LINE		
DL101	1-415-593-11	DELAY LINE, ULTRASONIC GLASS		
		FILTER		
FL101	1-236-188-11	FILTER, BAND PASS		
		IC		
IC101	8-759-605-61	IC CXA1203N		
		COIL		
L101	1-412-031-11	INDUCTOR CHIP 47UH		
L102	1-412-032-11	INDUCTOR CHIP 100UH		
L103	1-410-383-31	INDUCTOR CHIP 15UH		
L104	1-410-385-11	INDUCTOR CHIP 22UH		
		TRANSISTOR		
Q101	8-729-901-01	TRANSISTOR DTC144EK		
Q102	8-729-901-06	TRANSISTOR DTA144EK		
Q103	8-729-100-66	TRANSISTOR 2SC1623		
Q104	8-729-100-66	TRANSISTOR 2SC1623		
Q105	8-729-100-66	TRANSISTOR 2SC1623		
Q106	8-729-100-66	TRANSISTOR 2SC1623		
Q107	8-729-100-66	TRANSISTOR 2SC1623		
Q108	8-729-100-66	TRANSISTOR 2SC1623		
Q109	8-729-100-66	TRANSISTOR 2SC1623		
Q110	8-729-100-66	TRANSISTOR 2SC1623		
Q111	8-729-901-06	TRANSISTOR DTA144EK		
Q112	8-729-901-13	TRANSISTOR DTA144WK		
Q113	8-729-901-01	TRANSISTOR DTC144EK		
		RESISTOR		
R101	1-216-071-00	METAL GLAZE	8.2K 5%	1/10W
R102	1-216-065-00	METAL GLAZE	4.7K 5%	1/10W
R103	1-216-061-00	METAL GLAZE	3.3K 5%	1/10W
R104	1-216-699-11	METAL CHIP	100K 0.50%	1/10W
R105	1-216-065-00	METAL GLAZE	4.7K 5%	1/10W
R106	1-216-065-00	METAL GLAZE	4.7K 5%	1/10W
R107	1-216-097-00	METAL GLAZE	100K 5%	1/10W
R108	1-216-049-00	METAL GLAZE	1K 5%	1/10W
R109	1-216-049-00	METAL GLAZE	1K 5%	1/10W
R110	1-216-057-00	METAL GLAZE	2.2K 5%	1/10W
R111	1-216-097-00	METAL GLAZE	100K 5%	1/10W
R112	1-216-097-00	METAL GLAZE	100K 5%	1/10W
R113	1-216-097-00	METAL GLAZE	100K 5%	1/10W
R114	1-216-049-00	METAL GLAZE	1K 5%	1/10W
R116	1-216-049-00	METAL GLAZE	1K 5%	1/10W
R117	1-216-077-00	METAL GLAZE	15K 5%	1/10W
R118	1-216-041-00	METAL GLAZE	470 5%	1/10W
R119	1-216-033-00	METAL GLAZE	220 5%	1/10W
R120	1-216-049-00	METAL GLAZE	1K 5%	1/10W
R121	1-216-073-00	METAL GLAZE	10K 5%	1/10W
R122	1-216-065-00	METAL GLAZE	4.7K 5%	1/10W
R123	1-216-057-00	METAL GLAZE	2.2K 5%	1/10W
R124	1-216-047-00	METAL GLAZE	820 5%	1/10W
R125	1-216-023-00	METAL GLAZE	82 5%	1/10W
R126	1-216-041-00	METAL GLAZE	470 5%	1/10W
R127	1-216-059-00	METAL GLAZE	2.7K 5%	1/10W
R128	1-216-053-00	METAL GLAZE	1.5K 5%	1/10W
R129	1-216-085-00	METAL GLAZE	33K 5%	1/10W
R130	1-216-081-00	METAL GLAZE	22K 5%	1/10W
R131	1-216-041-00	METAL GLAZE	470 5%	1/10W
R132	1-216-027-00	METAL GLAZE	120 5%	1/10W
R133	1-216-061-00	METAL GLAZE	3.3K 5%	1/10W
R134	1-216-073-00	METAL GLAZE	10K 5%	1/10W
R145	1-216-037-00	METAL GLAZE	330 5%	1/10W
R146	1-216-037-00	METAL GLAZE	330 5%	1/10W
R147	1-216-077-00	METAL GLAZE	15K 5%	1/10W
R148	1-216-065-00	METAL GLAZE	4.7K 5%	1/10W
R149	1-216-079-00	METAL GLAZE	18K 5%	1/10W
R150	1-216-085-00	METAL GLAZE	33K 5%	1/10W
R151	1-216-047-00	METAL GLAZE	820 5%	1/10W
R152	1-216-047-00	METAL GLAZE	820 5%	1/10W
R153	1-216-043-00	METAL GLAZE	560 5%	1/10W
R154	1-216-089-00	METAL GLAZE	47K 5%	1/10W
		VARIABLE RESISTOR		
RV102	1-230-869-11	RES, ADJ, METAL GLAZE 4.7K		
RV103	1-230-870-11	RES, ADJ, METAL GLAZE 10K		
RV104	1-230-869-11	RES, ADJ, METAL GLAZE 4.7K		

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

KS-11P | RC-40P | LI-10 | FP-89 | FP-90

Ref.No	Part No.	Description	Remark
	*1-634-188-21	KS-11P BOARD (Ref.No 8,000 Series) **********	
		CONNECOTR	
CN501	*1-562-880-21	CONNECOTR, CARD EDGE 15P	
		CONNECTOR	
W502	1-574-456-11	CABLE, FLAT (1.0MM PITCH) 15P	
W502	1-574-470-11	CABLE, FLAT (1.0MM PITCH) 15P	
**********			
	*1-634-192-21	RC-40P BOARD (Ref.No 10,000 Series) **********	
		CONNECTOR	
CN401	1-566-760-11	PIN, CONNECTOR (PC BOARD) 5P	
CN951	*1-568-521-11	PIN, CONNECTOR (PC BOARD) 13P	
CN952	*1-566-182-11	PIN, CONNECTOR (PC BOARD) 3P	
		JACK	
J951	1-565-276-11	JACK, ULTRA SMALL 1P	
J952	1-507-921-00	JACK	
		COIL	
L991	1-410-369-11	INDUCTOR CHIP 1UH	
L992	1-410-369-11	INDUCTOR CHIP 1UH	
L993	1-410-369-11	INDUCTOR CHIP 1UH	
L994	1-410-369-11	INDUCTOR CHIP 1UH	
L995	1-410-192-51	INDUCTOR CHIP 1UH	
		SWITCH	
S951	1-553-977-00	SWITCH, SLIDE (STANDBY/LOCK)	
S952	1-571-838-11	SWITCH, TACTIL (START/STOP)	
**********			
	*1-630-547-11	LI-10 BOARD (Ref.No 3,000 Series) **********	
		RESISTOR	
R938	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R939	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R940	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R941	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
		CONNECTOR	
W802	1-574-457-12	CABLE, FLAT (1.0MM PITCH) 23P	
W802	1-574-471-11	CABLE, FLAT (1.0MM PITCH) 23P	
**********			

Ref.No	Part No.	Description	Remark
	1-628-060-12	FP-89 FLEXIBLE BOARD (Ref.No 6,000 ********** Series)	
	1-572-253-11	SWITCH, SLIDE (ENCODER)	
	3-728-869-02	HOLDER, SENSOR	
		DIODE	
D301	8-719-820-44	PHOTO COUPLER TLP907-O	
		TRANSISTOR	
Q301	8-729-906-48	TRANSISTOR EE-TP109	
**********			
	1-628-061-12	FP-90 FLEXIBLE BOARD (Ref.No 8,000 ********** Series)	
	3-728-837-01	HOLDER, LED	
	3-728-869-02	HOLDER, SENSOR	
		DIODE	
D302	8-719-940-81	DIODE GL452S	
D303	8-719-820-44	PHOTO COUPLER TLP907-O	
		TRANSISTOR	
Q302	8-729-906-48	TRANSISTOR EE-TP109	
		SWITCH	
S302	1-571-680-11	SWITCH, PUSH (3 KEY) (REC PROOF/TAPE SELECT)	
**********			
		MISCELLANEOUS **********	
	1-451-310-21	DEFLECTION YOKE (B/W) (VF-22P BOARD)	
	1-542-101-11	MICROPHONE (C-2020)	
	1-575-064-11	CABLE, FLAT (1.0MM PITCH) 18P (CK-43P BOARD (W651))	
	1-808-505-12	SENSOR (DEW)	
IC601	8-752-604-51	IC ICX045AK-1 (CCD IMAGER)	
M902	8-835-331-01	MOTOR, DC U-22A (CAPSTAN)	
M903	A-7040-160-A	MOTOR ASSY, THREADING	
M904	3-707-803-01	MOTOR ASSY, AF GEAR (FOCUS)	
M905	3-707-802-01	MOTOR ASSY, PZ GEAR (ZOOM)	
M906	3-707-810-01	MOTOR, IRIS	
S901	1-571-837-11	SWITCH, PUSH (ZOOM)	
S902	3-707-805-01	SWITCH ASSY, AF	
S903	1-571-099-11	SWITCH (CASSETTE DOWN)	
V901	1-452-482-11	CRT ASSY (M91JYZ60WB) (VF-14P BOARD)	
V901	1-546-085-11	CATHODE-RAY TUBE, B/W (M01KGG007WB) (VF-22P BOARD)	
**********			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

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

ACCESSORIES AND PACKING MATERIALS

Part No.	Description	Remark
*3-340-514-01	BAG, PROTECTION	
*3-701-625-00	BAG, POLYETHYLENE	
*3-732-952-01	CUSHION (UPPER) (E/Australian MODEL)	
*3-732-953-01	CUSHION (LOWER) (E/Australian MODEL)	
*3-733-985-01	CUSHION (UPPER) (AEP/UK MODEL)	
*3-733-986-01	CUSHION (LOWER) (AEP/UK MODEL)	
3-751-369-11	MANUAL, INSTRUCTION (English)	(AEP/UK MODEL)
3-751-369-41	MANUAL, INSTRUCTION (French, German, Spanish) (AEP MODEL)	
3-751-369-51	MANUAL, INSTRUCTION (Dutch, Swedish, Italian) (AEP MODEL)	
3-751-369-61	MANUAL, INSTRUCTION (Portuguese)	(AEP MODEL)
3-751-797-11	MANUAL, INSTRUCTION (English)	(E/Australian MODEL)
3-751-797-41	MANUAL, INSTRUCTION (French, German, Spanish) (E MODEL)	
3-751-797-51	MANUAL, INSTRUCTION (Arabic) (E MODEL)	
*3-764-631-12	INSTRUCTION, DEW CONDENSATION	(AEP/UK/E MODEL)

**** ACCESSORIES AND PACKING MATERIALS (KIT) ****

A-6767-706-A	RFU ADAPTOR (RFU-89EA) (E MODEL)	
A-6767-707-A	RFU ADAPTOR (RFU-89EA) (UK MODEL)	
A-6768-254-A	RFU ADAPTOR (RFU-90E) (AEP MODEL)	
A-6768-255-A	RFU ADAPTOR (RFU-90AS)(Australian MODEL)	
1-571-164-11	SWITCH, ANTENNA CHANGE (CABLE)	(E/UK MODEL)
3-712-673-01	SCREWDRIVER (E/UK MODEL)	
*3-733-975-41	INDIVIDUAL CARTON (AEP/UK MODEL)	
*3-737-771-91	INDIVIDUAL CARTON (E MODEL)	
*3-741-532-01	CUSHION, ACC (E/Australian MODEL)	
3-741-582-01	BELT, SHOULDER	
*3-741-590-01	CUSHION, ACC (AEP/UK MODEL)	
*3-746-806-01	INDIVIDUAL CARTON (Australian MODEL)	

** AC ADAPTOR (AC-V35)
*** BATTERY PACK (NP-55) (E/Australian MODEL)
*** BATTERY PACK (NP-66) (AEP/UK MODEL)

Note

** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.
*** MARK PARTS ARE AVAILABLE AS OPTIONAL ACCESSORIES.

****

HARDWARE LIST

SCREW

7-621-255-50	SCREW +P 2X8	
7-627-553-48	PRECISION SCREW +P 2X4 TYPE 3	

STEEL BALL

7-671-155-01	STEEL BALL 3.0	
7-671-156-01	BALL, STAINLESS	

****

CCD-F350EPAK is model that carring case is added in CCD-F350E.
Only following parts differ from CCD-F350E.

ACCESSORIES AND PACKING MATERIALS (CCD-F350EPAK)

Part No.	Description	Remark
A-6767-706-A	RFU ADAPTOR (RFU-89EA) (E MODEL)	
1-571-164-11	SWITCH, ANTENNA CHANGE (CABLE)	
*3-340-514-01	BAG, PROTECTION	
3-701-625-00	BAG, PROTECTION	
3-712-673-01	SCREWDRIVER	
*3-741-578-31	INDIVIDUAL CARTON	
*3-741-579-01	CUSHION (UPPER)	
*3-741-580-01	CUSHION (LOWER)	
3-741-582-01	BELT, SHOULDER	
3-741-583-11	CASE (MAIN), CARRING	
3-751-797-11	MANUAL, INSTRUCTION (ENGLISH)	
3-751-797-41	MANUAL, INSTRUCTION	(French, German, Spanish)
3-751-797-51	MANUAL, INSTRUCTION (Arabic)	
*3-764-631-12	INSTRUCTION, DEW CONDENSATION	

** AC ADAPTOR (AC-V35)
*** BATTERY PACK (NP-55)

Note

** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.
*** MARK PARTS ARE AVAILABLE AS OPTIONAL ACCESSORIES.

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

SECTION 7
CAMERA ADJUSTMENTS

During the adjustment, see the adjustment element location to the adjustment from page 228.

7-1. PRE-ADJUSTMENT PREPARATIONS (CAMERA BLOCK)

7-1-1. List of Servicing Jigs

- Oscilloscope
- Regulated power supply (2 units)
- Adjusting screwdriver
- Color monitor
- Vectorscope
- Digital voltmeter

Ref. No.	Part Name	Part No.	Use
J-1	Filter (C14) for color temperature correction	J-6080-054-A	Auto white balance adjustment
J-2	ND filter 1.0	J-6080-808-A	Max. gain adjustment (two used)
	ND filter 0.4	J-6080-806-A	Iris adjustment, Max. gain adjustment, iris in/out adjustment (two used)
	ND filter 0.1	J-6080-807-A	Iris adjustment, iris in/out adjustment
J-3	Pattern box PTB-500 *	J-6029-140-A	
J-4	Pattern box color chart	J-6020-250-A	
J-5	Siemens star	J-6080-875-A	For flange back adjustment, auto-focus adjustment
J-6	AF microcomputer data reading jig	J-6082-025-A	
J-7	Adjustment remote controller	J-6082-053-A	
J-8	Extension cable	J-6082-019-A	Extension between W602 on CD-40P board and CN601 on CV-9 board.

* PTB-100 is not available.

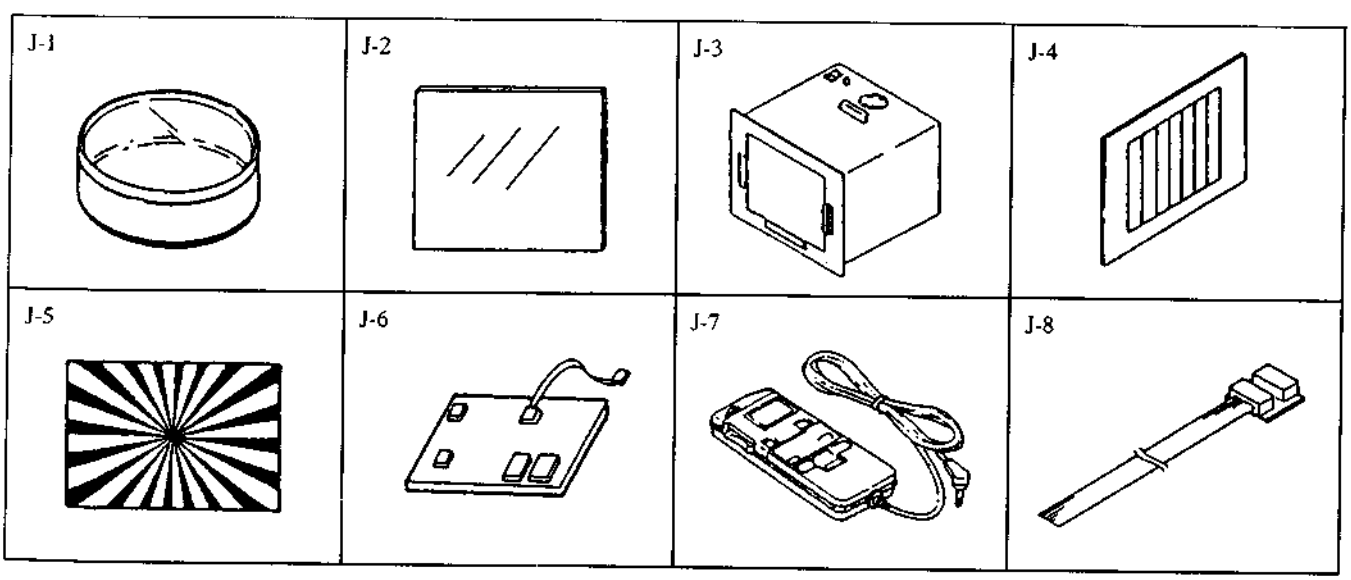


Fig. 7-1.

7-1-2. Preparations

Note: Refer to "SECTION 2 DISASSEMBLY" for details on removal of the cabinet and various boards.

1) Connect the various devices for adjustment as shown in Fig. 7-3.
2) The EVF (electronic viewfinder) is needed for confirmation of the white balance mode and shutter speed. This can confirmed on the monitor screen by turning on the data screen (ON/OFF by S509 on VK-11P board). Remove CN901 on the CV-9 board when the EVF is not needed.
3) The mic amplifier (MA-66P board) is not needed. Remove CN401 on the CO-2P board.

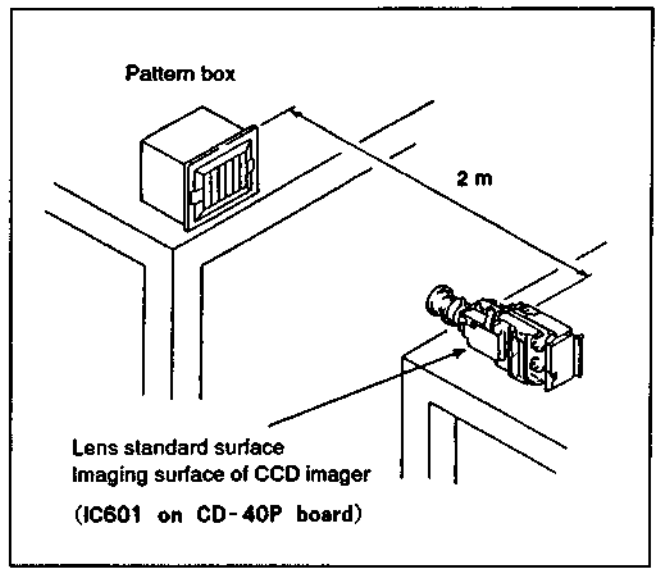


Fig. 7-2.

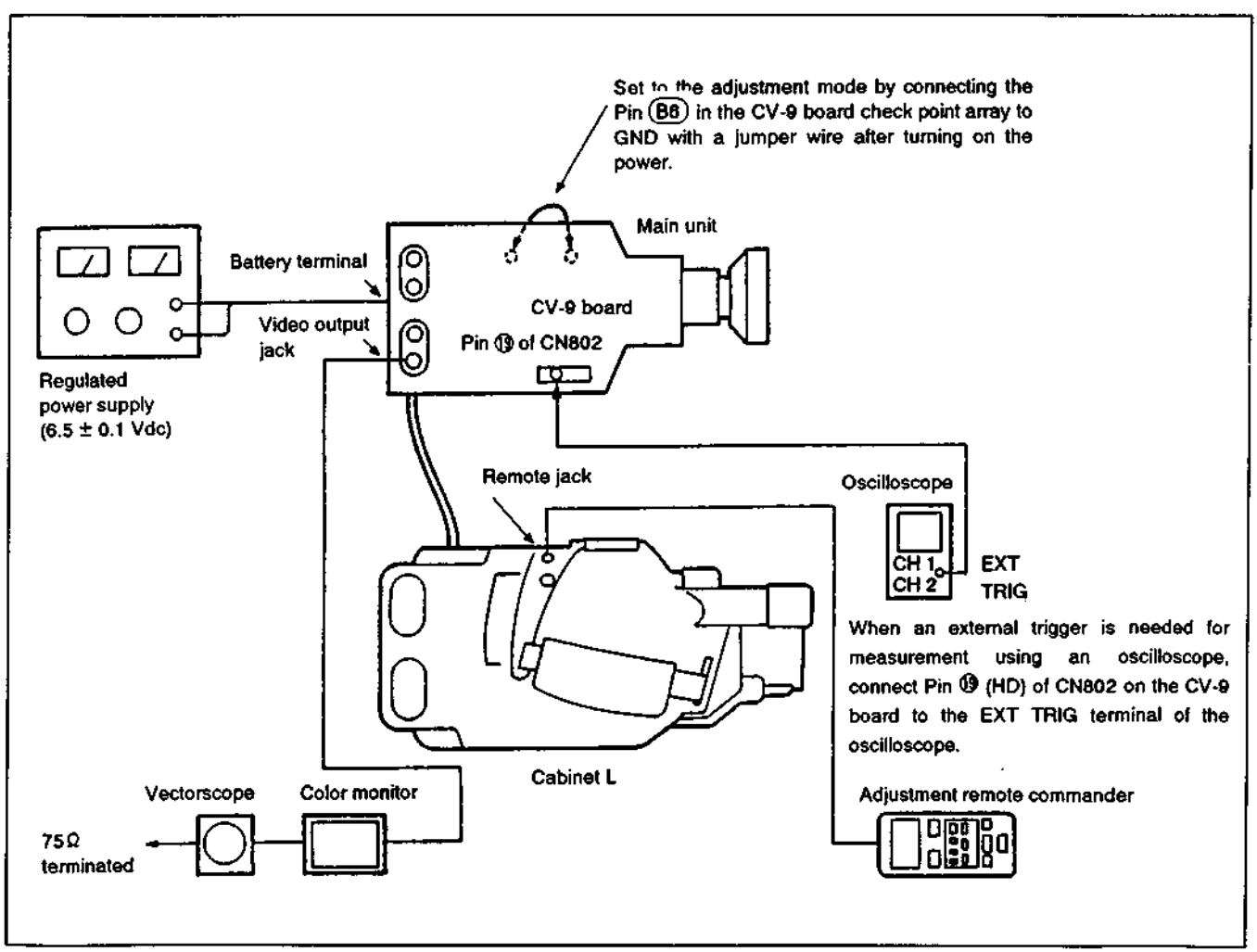


Fig. 7-3.

7-1-3. Precautions

1) Setting of Switches
Unless indicated otherwise, the switches are set to the following positions and adjustment is made without a cassette inserted.
1. Camera/video power switch (S501 on VK-11P board) .....camera
2. Standby switch (S951 on RC-40P board) .....ON
3. Auto-lock switch (Auto lock cover) .....OFF (When cabinet (right) is removed, the nuit goes into OFF states automatically)
4. White balance button (S654 on CK-43P board) ..... ☼ (indoors white balance mode)
5. Shutter button (S652 on CK-43P board) .....normal (1/50)

2) Adjustment Order
As a rule, the adjustments are performed in the listed order.

3) Subjects
1. Color bar chart (standard picture frame)
When performing adjustment using the color bar chart, adjusting the picture frame shown in Fig. 7-4. (standard picture frame).
2. White pattern (standard picture frame)
Remove the color bar chart from the pattern box and use the zoom lever so that the white pattern has the same size and is the same position as the color bar chart (standard picture frame).

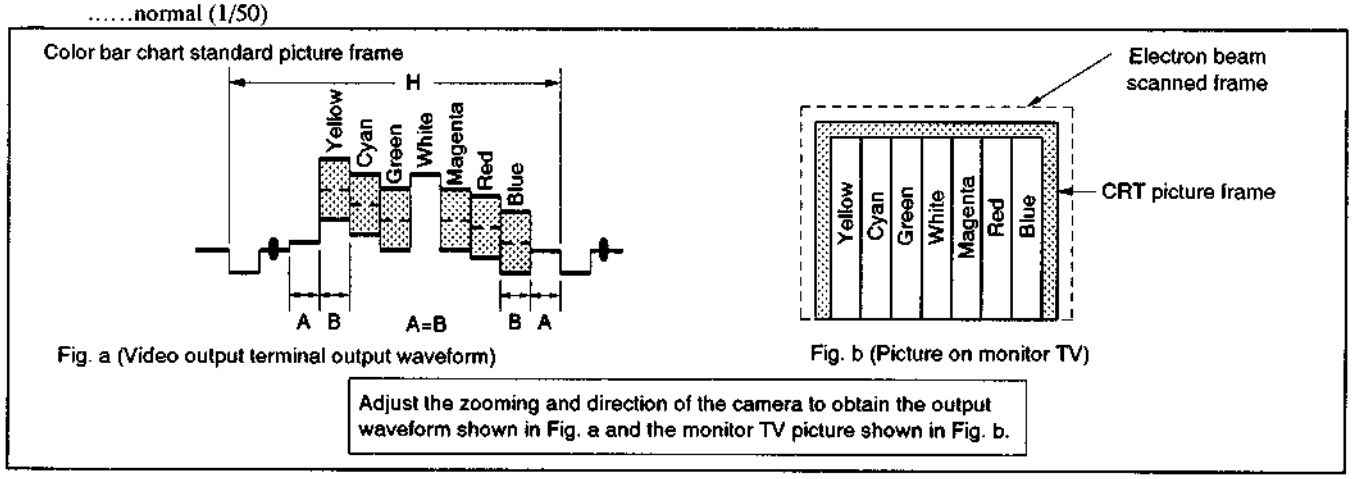


Fig. 7-4.

3. All white pattern
Remove the color bar chart from the pattern box and set the zoom lever fully to the TELE (42 mm) side.
4. High luminance pattern
Create the high luminance pattern as shown in Fig. 7-5., and adjust for the picture frame shown in Fig. 7-6.
5. Siemens star (J-6080-875-A)
Adjust the direction of the camera so that center of the Siemens star is lined up with the center of the monitor screen on the monitor TV screen.

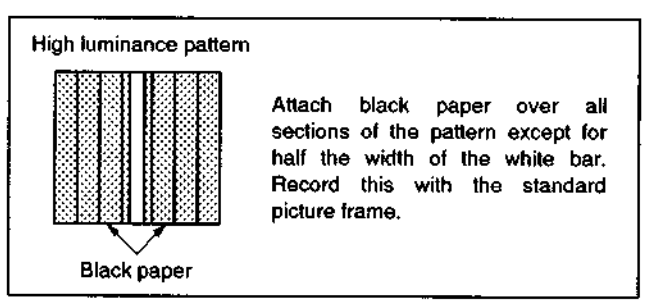


Fig. 7-5.

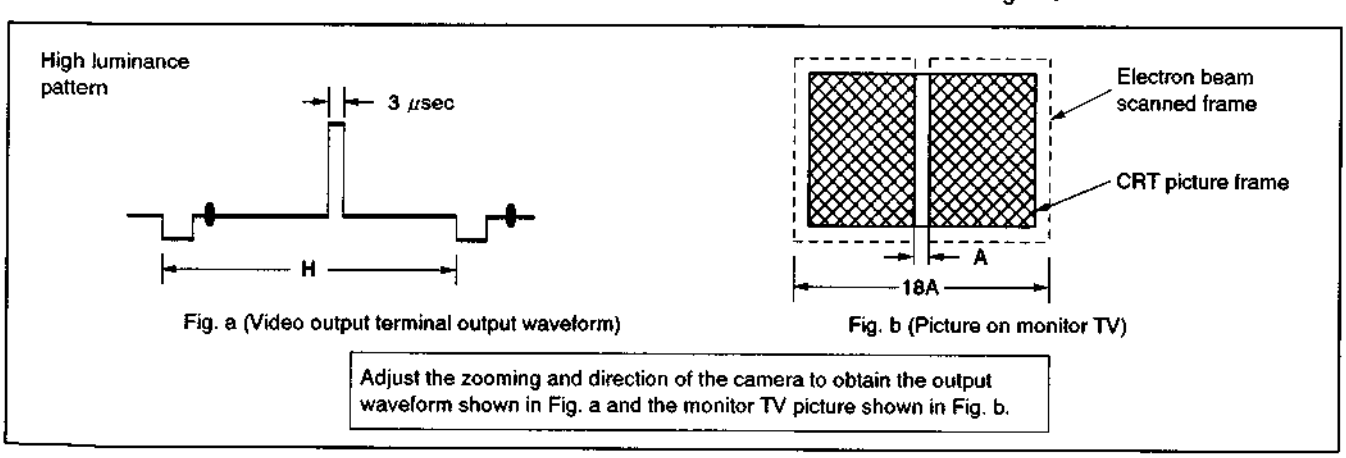


Fig. 7-6.

7-1-4. Adjustment Remote Controller

An EVR (electronic variable resistor) is used as the adjustment element for the camera block, replacing the conventional semi-fixed resistor. The EVR is controlled by the EVR/AWB microcomputer (IC601 on CV-9 board). This microcomputer reads the data written in the nonvolatile memory of the microcomputer and sends it to the EVR. The EVR D-A converts this data (8 bits for each adjustment point) and creates the adjustment voltage.

Thus, it is necessary to change the adjustment data contained in the nonvolatile memory when adjusting the camera block, and the adjustment memory is used for this purpose.

The adjustment remote controller performs bidirectional communications with the camera block microcomputer using the remote control signal lines (LINCS). Adjustment addresses and adjustment data increment/decrement commands are sent to the camera block microcomputer from the adjustment remote controller. Adjustment addresses and adjustment data are sent from the camera block microcomputer to the adjustment remote controller.

1. Use of adjustment remote controller

Solder the lead wire to Pin (B6) (refer to 7-1-5) of the check point array on the CV-9 board.

1) Connect the adjustment remote controller to the remote terminal (J951 on RC-40P board). (Set the HOLD switch of the adjustment remote controller to the HOLD position (SERVICE position).)
2) Turn on the power of the main unit.
3) Connect Pin (B6) ($\overline{\text{CAM ADJ}}$) of the check point array to GND using a jumper wire.
   (This connection causes the EVR/AWB microcomputer to cease normal remote control operation and to begin adjustment dedicated communications.)
   Note: Be sure to make this connection only after turning on the power. The following will be displayed on the LCD of the adjustment remote controller if the connection is normal. (Adjustment data varies according to the unit.)

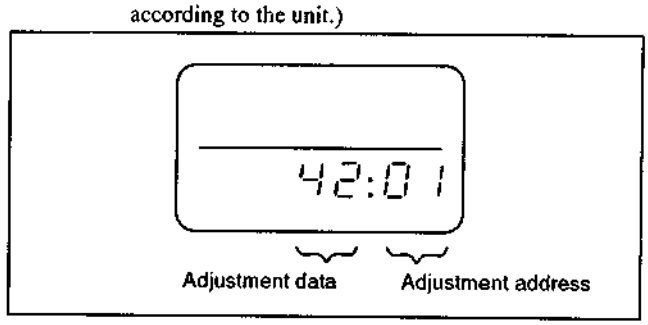


Fig. 7-7.

4) Designate the desired adjustment address using the adjustment remote controller. The adjustment address is incremented by pressing the FF (▸▸) button and decremented by pressing the REW (◂◂) button. (The adjustment address is indicated in decimal, and there are 89 addresses from 01 to 89. The adjustment address corresponds to the EVR (CV-9 board, IC608, IC609, IC804) output terminals. Refer to Table 7-3. for the adjustment contents of the various addresses.)

5) Perform adjustment by incrementing or decrementing the adjustment data.
The adjustment data is incremented by pressing the PLAY (►) button. The adjustment data is decremented by pressing the STOP (■) button.
- The adjustment data is indicated in hexadecimal. There are 256 values from 00 to FF.

Hexadecimal	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Indication on LCD	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal equivalent	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 7-1.

- The adjustment data corresponds to the EVR (CV-9 board, IC608, IC609, IC804) output voltage, and is as follows.

Adjustment data ( ) is decimal equivalent	EVR output voltage
FF (=255)	Maximum value (approx. 5 Vdc)
F0 (=240)	
E0 (=224)	
D0 (=208)	
C0 (=192)	
B0 (=176)	
A0 (=160)	
90 (=144)	
80 (=128)	Center value (approx. 2.5 Vdc)
70 (=112)	
60 (=96)	
50 (=80)	
40 (=64)	
30 (=48)	
20 (=32)	
10 (=16)	
00 (=0)	Minimum value (approx. 0 Vdc)

Table 7-2.

6) The adjustment address is changed using the FF (►►) button or REW (◄◄) button to store the adjustment data in the nonvolatile memory of EVR/AWB microcomputer (IC601 on CV-9 board).
(The new adjustment data is not stored in the nonvolatile memory unless this operation is performed.)

2. Precautions on use of adjustment remote controller

It is possible to accidentally erase correct adjustment data due to an error in operation of the adjustment remote controller. In order to prevent this, we recommend that you make a note of all adjustment data before adjustment and record the new adjustment data after completing each adjustment item.

3. Adjustment address table

Adjustment Address	Adjustment Voltage Output Terminal	Adjustment Item	Remarks	Adjustment Data Memo Column
01	Pin ⑱ of IC609	DELTA R	Auto white balance adjustment	
02	Pin ⑲ of IC609	DELTA B		
03	Pin ② of IC609	TITLE PEDESTAL	Not used	–
04	Pin ③ of IC609	C-PED	Fixed at "99"	99
05	Pin ④ of IC609	R–Y GAIN	Color reproduction (gain) adjustment	
06	Pin ⑤ of IC609	B–Y GAIN		
07	Pin ⑥ of IC609	R–Y HUE	Color reproduction (hue) adjustment	
08	Pin ⑦ of IC609	B–Y HUE		
09	Pin ⑧ of IC609	C LEVEL		
10	Pin ⑨ of IC609	Y GAIN		
11	Pin ⑫ of IC609	R GAIN	Pre-white balance adjustment	
12	Pin ⑬ of IC609	B GAIN		
13	Pin ⑱ of IC608	C2 GAIN	Chroma matrix adjustment	
14	Pin ⑲ of IC608	C1 GAIN		
15	Pin ② of IC608	Y1 GAIN	Y matrix adjustment	
16	Pin ③ of IC608	HUE CONT	Burst phase adjustment	
17	Pin ④ of IC608	WC	White clip adjustment	
18	Pin ⑤ of IC608	Y LEVEL		
19	Pin ⑥ of IC608	SET UP		
20	Pin ⑦ of IC608	SYNC LEVEL		
21	Pin ⑧ of IC608	APERTURE	Aperture adjustment	
22	Pin ⑨ of IC608	BURST LEVEL		
23		———		–
24	Pin ⑬ of IC608	CHARACTOR	Fixed at "00"	00
25	Pin ⑱ of IC804	IRIS		
26	Pin ⑲ of IC804	FOCUS SPEED		
27	Pin ② of IC804	HALL OFFSET	Hall adjustment	
28	Pin ③ of IC804	MAX GAIN		
29	Pin ④ of IC804	TITLE A/D		
30		———		–
31	Pin ⑥ of IC804	V SUB		
32	Pin ⑦ of IC804	AGC		
33		———		–
34		———		–
35		———		–
36		———		–

Table 7-3. (1)

<table>
<tr><th>Adjustment Address</th><th>Adjustment Voltage Output Terminal</th><th>Adjustment Item</th><th>Remarks</th><th>Adjustment Data Memo Column</th></tr>
<tr><td>37</td><td></td><td>MODE</td><td>The following adjustment modes are selected by changing the adjustment data.
<table><tr><th>Adjustment data</th><th>Adjustment mode</th></tr><tr><td>00</td><td>Release</td></tr><tr><td>01</td><td>Focus hunching</td></tr><tr><td>03</td><td>Zoom position</td></tr><tr><td>05</td><td>Hall, iris close</td></tr><tr><td>07</td><td>Hall, iris open</td></tr><tr><td>09</td><td>Hall in/out threshold</td></tr><tr><td>0B</td><td>Auto-focus LLA</td></tr><tr><td>FD</td><td>Auto-focus filter fixed at FA</td></tr><tr><td>FF</td><td>Auto-focus filter fixed at FH</td></tr></table></td><td>00</td></tr>
<tr><td>38</td><td></td><td>———</td><td>Not used</td><td>—</td></tr>
<tr><td>39</td><td></td><td>MACRO</td><td></td><td></td></tr>
<tr><td>40</td><td></td><td>IN/OUT DOOR</td><td>Fixed at F1</td><td>F1</td></tr>
<tr><td>41</td><td></td><td>———</td><td>Not used</td><td>—</td></tr>
<tr><td>42</td><td></td><td>FH B</td><td>Auto-focus adjustment</td><td></td></tr>
<tr><td>43</td><td></td><td>STEP A</td><td>Fixed at 08</td><td>08</td></tr>
<tr><td>44</td><td></td><td>WIDE-THR</td><td>Fixed at 15</td><td>15</td></tr>
<tr><td>45</td><td></td><td>Hysteresis</td><td rowspan="2">Iris in/out adjustment</td><td></td></tr>
<tr><td>46</td><td></td><td>HALL LEVEL</td><td></td></tr>
<tr><td>47</td><td></td><td>FH BASE</td><td>Fixed at 08</td><td>08</td></tr>
<tr><td>48</td><td></td><td>FA BASE</td><td>Fixed at 14</td><td>14</td></tr>
<tr><td>49</td><td></td><td>KATAMUKI</td><td>Fixed at 06</td><td>06</td></tr>
<tr><td>50</td><td></td><td>———</td><td>Not used</td><td>—</td></tr>
<tr><td>51</td><td></td><td>BACK RUSH</td><td>Fixed at F2</td><td>F2</td></tr>
<tr><td>52</td><td></td><td>FH W</td><td rowspan="3">Auto-focas adjustment</td><td></td></tr>
<tr><td>53</td><td></td><td>AGC W</td><td></td></tr>
<tr><td>54</td><td></td><td>AGC B</td><td></td></tr>
<tr><td>55</td><td></td><td>———</td><td>Not used</td><td>—</td></tr>
<tr><td>56</td><td></td><td>M12-THR</td><td>Fixed at C8</td><td>C8</td></tr>
<tr><td>57</td><td></td><td>———</td><td>Not used</td><td>—</td></tr>
<tr><td>58</td><td></td><td>———</td><td>Not used</td><td>—</td></tr>
<tr><td>59</td><td></td><td>START R</td><td>Preset R CONT data for reset start</td><td>30</td></tr>
<tr><td>60</td><td></td><td>START B</td><td>Preset B CONT data for reset start</td><td>41</td></tr>
<tr><td>61</td><td></td><td>BTM SLP R</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>62</td><td></td><td>BTM SLP B</td><td>Fixed at 41</td><td>41</td></tr>
<tr><td>63</td><td></td><td>MDL SLP R</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>64</td><td></td><td>MDL SLP B</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>65</td><td></td><td>TOP SLP R</td><td rowspan="2">Auto white balance adjustment</td><td></td></tr>
<tr><td>66</td><td></td><td>TOP SLP B</td><td></td></tr>
<tr><td>67</td><td></td><td>KEIKO R</td><td>Fixed at 21</td><td>21</td></tr>
<tr><td>68</td><td></td><td>KEIKO B</td><td>Fixed at 01</td><td>01</td></tr>
<tr><td>69</td><td></td><td>BTM UP</td><td>Fixed at B4</td><td>B4</td></tr>
<tr><td>70</td><td></td><td>BTM DWN</td><td>Fixed at 84</td><td>84</td></tr>
</table>

Table 7-3. (2)

<table>
<tr><th>Adjustment Address</th><th>Adjustment Voltage Output Terminal</th><th>Adjustment Item</th><th>Remarks</th><th>Adjustment Data Memo Column</th></tr>
<tr><td>71</td><td></td><td>MDL UP</td><td>Fixed at 80</td><td>80</td></tr>
<tr><td>72</td><td></td><td>MDL DWN</td><td>Fixed at 69</td><td>69</td></tr>
<tr><td>73</td><td></td><td>TOP UP</td><td rowspan="2">Auto white balance adjustment</td><td></td></tr>
<tr><td>74</td><td></td><td>TOP DWN</td><td></td></tr>
<tr><td>75</td><td></td><td>KEIKO DWN</td><td>Fixed at 58</td><td>58</td></tr>
<tr><td>76</td><td></td><td>R DWN LMT</td><td>Fixed at 1E</td><td>1E</td></tr>
<tr><td>77</td><td></td><td>B UP LMT</td><td rowspan="5">Auto white balance adjustment</td><td></td></tr>
<tr><td>78</td><td></td><td>R OUT LMT</td><td></td></tr>
<tr><td>79</td><td></td><td>B OUT LMT</td><td></td></tr>
<tr><td>80</td><td></td><td>R OUTDOOR</td><td></td></tr>
<tr><td>81</td><td></td><td>B OUTDOOR</td><td></td></tr>
<tr><td>82</td><td></td><td>BM DIVID</td><td>Fixed at 23</td><td>23</td></tr>
<tr><td>83</td><td></td><td>DELAY TM</td><td>Auto white balance tracking speed. Fixed at 10</td><td>10</td></tr>
<tr><td>84</td><td></td><td>FAST TM</td><td>Fixed at 20</td><td>20</td></tr>
<tr><td>85</td><td></td><td>CAM DDS 0</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>86</td><td></td><td></td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>87</td><td></td><td></td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>88</td><td></td><td>CAM ALN</td><td>Fixed at 00</td><td>00</td></tr>
<tr><td>89</td><td></td><td>AWB mode</td><td>The following auto white balance adjustment modes are selected by changing the adjustment data.<table><tr><th>Adjustment data</th><th>Adjustment mode</th></tr><tr><td>00</td><td>Release</td></tr><tr><td>10</td><td>White balance value output (within tracking zone)</td></tr><tr><td>E0</td><td>Auto white balance adjustment possible</td></tr><tr><td>F0</td><td>Auto white balance tracking zone evaluation invalid</td></tr></table></td><td>00</td></tr>
</table>

Table 7-3. (3)

7-1-5. Check Point Array

Almost all of the measurement points for camera block adjustment are located in the check point array on the CV-9 board. Solder short lead wires onto the terminals needed for adjustment and connect an oscilloscope, etc.

The terminal numbers and signal names for the check point array are shown in Table 7-4.

Terminal No.	Signal Name	Terminal No.	Signal Name
A1	G OUT	B1	R–Y
A2	N.C	B2	B–Y
A3	N.C	B3	Y(LPF)OUT
A4	Y0	B4	V SUB
A5	Y1	B5	AW ADJ
A6	C0	B6	CAM ADJ
A7	C1	B7	MODE
A8	N.C	B8	VIDEO OUT
A9	YH	B9	SHUTTER EN
A10	C-OUT	B10	GND
A11	N.C	B11	CCD OUT

Table 7-4. * N.C.....no connection

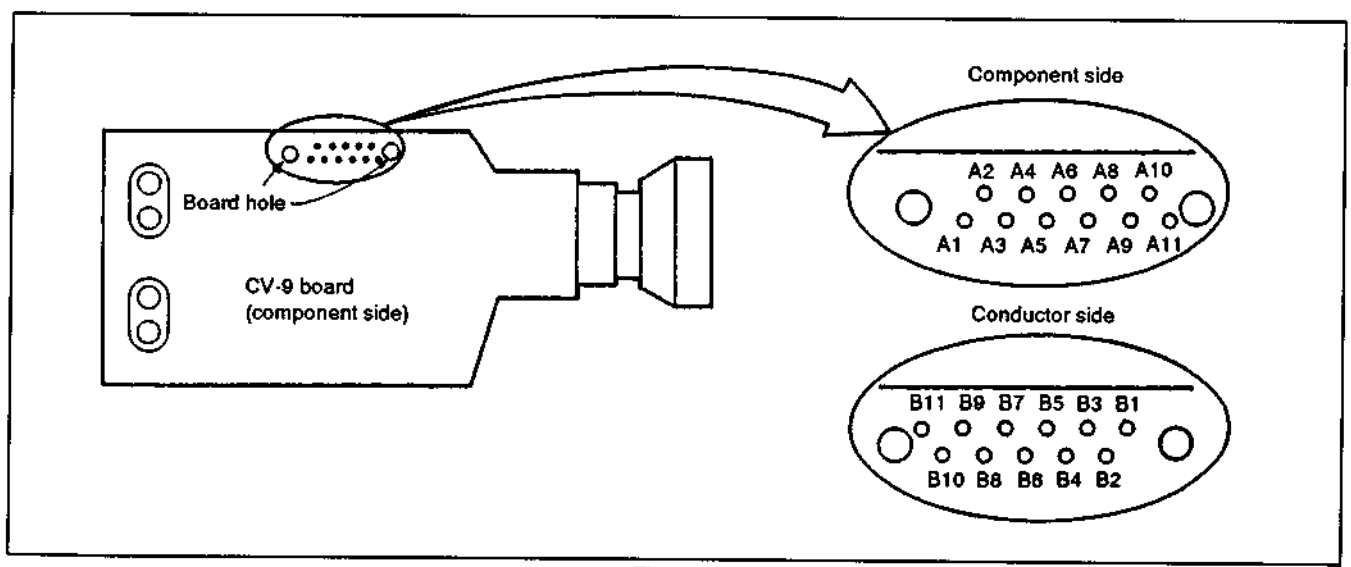


Fig. 7-8.

7-1-6. AF Microcomputer Data Reading Jig

The AF microcomputer data reading jig converts the serial data (output data varies according to hall (iris) state, focus state, focus motor speed, zoom ring position, etc.) for adjustment output from the AF microcomputer (IC802 on CV-9 board) into a 2-digit hexadecimal code and displays it on the LED.

Connections:
Connect as shown in the diagram below.

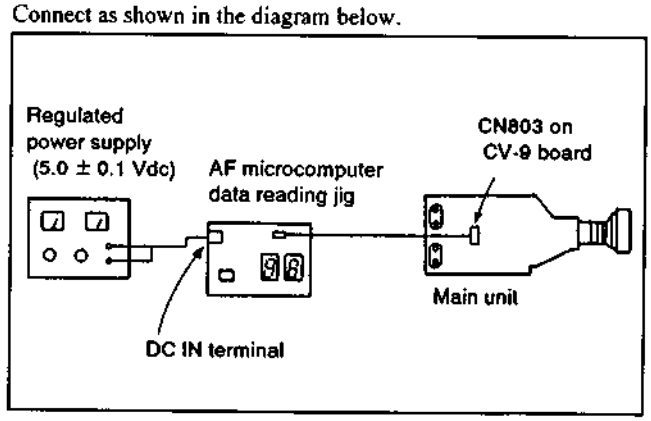


Fig. 7-9.

7-1-7. Data Processing

For some of the adjustment items, calculation from the data (hexadecimal) indicated on the AF microcomputer data reading jig and adjustment remote controller is needed to obtain the adjustment data. In these cases, convert the hexadecimal values to decimal before calculation and reconvert the result to hexadecimal to obtain the adjustment data. A hexadecimal-decimal conversion table is shown in Table 7-5.

Hexadecimal-Decimal Conversion Table

Hexadecimal lower digit / Hexadecimal upper digit	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

① → B (b) row

② → D (d) column

Note: ( ) is the indication on the jig or adjustment remote commander.

Example: The indication on the jig or adjustment remote commander is BD (b d).
As the upper digit is B (b) and the lower digit is D (d), a decimal value of 189 is obtained from the intersection of ① and ② in the above table.

Table 7-5.

7-2. CAMERA SYSTEM ADJUSTMENT

7-2-1. Flange Back Adjustment

Subject	Siemens star (2m directly in front of lens reference ("⌀" marked)
Measurement Point	Check with a monitor TV
Measuring Instrument	
Adjustment Element	Flange back adjusting pin
Tools	Phillips screwdriver, flat blade (–) screwdriver

Adjustment method:

1) Press the FOCUS switch (S655 on CK-43P board) to set to the MANUAL mode.
2) Position a Siemens star 2m directly in front of the lens reference plane (See Fig. 7-2.).
3) Orient the camera block to have the center of the Siemens star imaged on the monitor TV screen coincide with the monitor screen center.
4) Check to assure the smooth motion of the lens zoom lever to both its extreme WIDE position (7 mm) and TELE position (42 mm), and then set it at the extreme WIDE position. (In this process, also check the monitor image to assure proper zooming operation.)
5) To set the iris to the open state, lower the illumination on the Siemens star in the range in which the proper image with no noise can be displayed on the monitor TV screen.
6) Set the lens focusing mark at the center of "2".

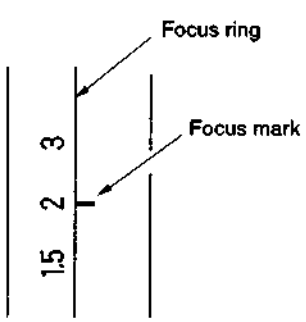


Fig. 7-10.

7) Open the DK-10P board and loosen flange back setscrew ❶ with a Phillips screwdriver. (See Fig. 7-12.)
8) By turning the flange back adjusting pin ❷ while watching the monitor screen, attain the optimum definition of a wedge at the Siemens star center on the screen. (Turn it a few turns to the left and right to ensure optimum definition.)
   Note: Do not turn the adjusting pin excessively in either direction.
9) While holding the flange back adjusting pin ❷ to prevent further rotation, retighten the flange back setscrew ❶.
10) With the zoom lever fixed at its WIDE end, turn the focusing ring and set it to the position that provides the optimum definition image of the wedge. Check to assure the focusing mark position is within the range shown in Fig. 7-11. Also, rotate the focusing ring to the close (1.1m) and far (∞) extremes and confirm that the wedge is no longer in focus.

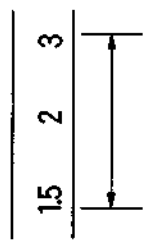


Fig. 7-11.

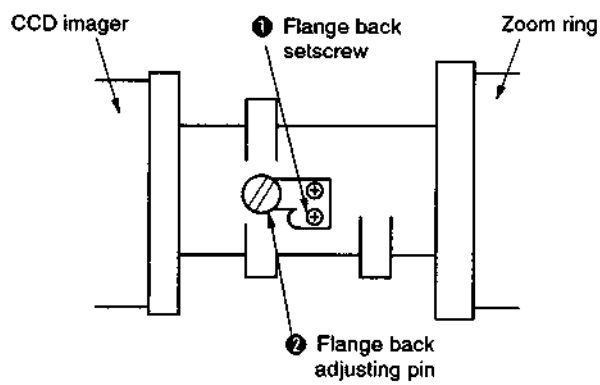


Fig. 7-12.

11) Fix the zoom lever at the extreme TELE position.
12) Turn the focusing ring and stop at the position where the wedge has optimum definition.
    Confirm that the focus mark is within ± 1.5 mm of "2".

7-2-2. 15V Power Supply Adjustment (PS-263P Board)

Measurement Point	Pin ② of W902
Measuring Instrument	Digital voltmeter
Adjustment Element	RV962
Specified Value	15.0 ± 0.5 Vdc

Adjustment method:

1) Adjust to 15.0 ± 0.5 Vdc with RV962.

7-2-3. Power Supply Check (PS-263P Board)

Measuring Instrument	Digital voltmeter
CAM 5V Check	
Measurment Point	Pin ④ of W902
Specified Value	5.05 ± 0.2 Vdc
32V Check	
Measurement Point	Pin ① of W902
Specified Value	32 ± 2 Vdc

Checking method:

1) Each power supply voltage should be at its specified level.

7-2-4. EVR Initial Settings

Set to the following initial settings of the adjustment data only when the EVR/AWB microcomputer (IC602 on CV-9 board) was replaced.

Adjustment Address	Adjustment Data Initial Value	Adjustment Address	Adjustment Data Initial Value	Adjustment Address	Adjustment Data Initial Value
01 (DELTA R)	50	44 (WIDE THR)	15	70 (BTM DWN)	84
02 (DELTA B)	50	47 (FH BASE)	08	71 (MDL UP)	80
04 (C-PED)	99	48 (FA BASE)	14	72 (MDL DWN)	69
16 (HUE CONT)	AE	49 (KATAMUKI)	06	75 (KEIKO DWN)	58
17 (WHITE CLIP)	FF	51 (BACK RUSH)	F2	76 (R DWN LMT)	1E
18 (Y LEVEL)	40	56 (M12-THR)	C8	82 (AWB)	23
24 (CHARACTOR)	00	59 (START R)	30	83 (D TM)	10
25 (IRIS)	80	60 (START B)	41	84 (F TM)	20
28 (MAX GAIN)	B0	61 (BTM SLP R)	00	85 (CAM DDS O)	00
31 (V SUB)	80	62 (BTM SLP B)	41	86	00
32 (AGC)	FF	63 (MDL SLP R)	00	87	00
37 (MODE)	00	64 (MDL SLP B)	00	88 (CAM ALN)	00
39 (MACRO)	00	67 (KEIKO R)	21	89 (AWB MODE)	00
40 (IN/OUT DOOR)	F1	68 (KEIKO B)	01		
43 (STEPA)	08	69 (BTM UP)	B4		

Table 7-6.

Adjustment method:

1) Set the adjustment data at the various adjustment addresses to the initial values using the adjustment remote controller.
2) Change the adjustment address to store the last adjustment data in the memory.

7-2-5. PLL Adjustment (CV-9 Board)

Measurement Point	Pin ⑳ of IC604
Measuring Instrument	Digital voltmeter
Adjustment Element	CT601
Specified Value	2.5 ± 0.2 Vdc

Adjustment method:

1) Adjust to 2.5 ± 0.2 Vdc with CT601.

7-2-6. V SUB Adjustment (CV-9 Board)

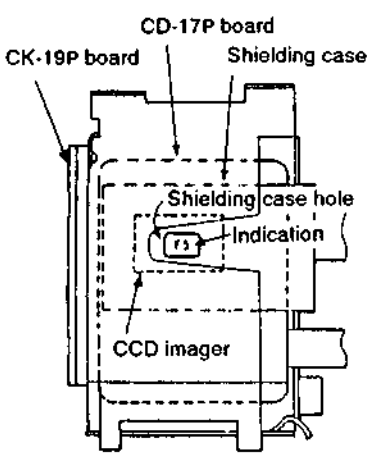
Subject	Not needed
Measurement Point	Pin (B4) (V SUB) of check point array
Measuring Instrument	Digital voltmeter
Adjustment Address	31 (V SUB)
Specified Value	(Voltage indicated by the imager) ± 0.1 Vdc

Adjustment method:

1) Set the adjustment address to 31 using the adjustment remote controller.
2) Change the adjustment data using the adjustment remote controller to set the V SUB voltage (Voltage indicated by the imager) to ± 0.1 Vdc.
3) Change the adjustment address to store the adjustment data in the memory.

Note: The specified value of V SUB voltage is indicated by the abbreviation on the CCD imager.

Integer section abbreviation	Integer value
E	9.0
F	9.5
G	10.0
H	10.5
J	11.0
K	11.5
L	12.0
M	12.5
N	13.0
P	13.5
Q	14.0
R	14.5
S	15.0
T	15.5
U	16.0
V	16.5
W	17.0
X	17.5
Y	18.0
Z	18.5



(Example)
When "3J" is indicated,
3 means the specified value of PGL voltage. (The PGL voltage adjustment is not required.)
J means the specified value of V SUB voltage. (J=11.0 Vdc)

Fig. 7-13.

7-2-7. Hall Adjustment (CV-9 Board)

Subject	All black (cover lens with black cap)
Measurement Point	CN803
Measuring Instrument	AF microcomputer data reading jig
Adjustment Element	RV801
Adjustment Address	27 (Hall Offset)
Specified Value	When iris closed: Minimum value of 01 to 04 When iris open: 3D or 3E

Adjustment method:

1) Set the adjustment address to 37 with the adjustment remote controller, and set the adjustment data to 05. (Setting when iris closed)
2) Change the adjustment address to 27.
3) Change the adjustment data until the indication on the AF microcomputer data reading jig is the minimum value in the range of 01 to 04. (Hall offset adjustment)
4) Change the adjustment address to 37 and set the adjustment data to 07. (Setting when iris open)
5) Adjust RV801 until the indication on the AF microcomputer data reading jig is either 3D or 3E. (3D is indicated as 3d .)
6) Repeat steps 1) through 5) until the specified values are satisfied.
7) Set the adjustment address to 37 and set the adjustment data to 00. (Releases adjustment mode)
8) Change the adjustment address to store the adjustment data in the memory.

7-2-8. Iris Adjustment (CV-9 Board)

Subject	Color bar chart standard picture frame
Filter	ND filter 0.4 and 0.1
Measurement Point	Pin(B11) (CCD OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	25 (Iris)
Specified Value	360 ± 20 mVp-p

Adjustment method:

1) Set the adjustment address to 25 with the adjustment remote controller.
2) Without attaching an ND filter, change the adjustment data with the adjustment remote controller to set the IRIS OUT signal level to 360 ± 20 mVp-p.
3) Attach the ND filter 0.5 (0.4 ± 0.1) to the front of the lens and confirm that there is a smooth change in the signal level.
4) Remove the ND filter and confirm that the signal level is 360 ± 20 mVp-p.
5) Repeat 2) through 4) if the specified value is not met.
6) Change the adjustment address to store the adjustment data in the memory.

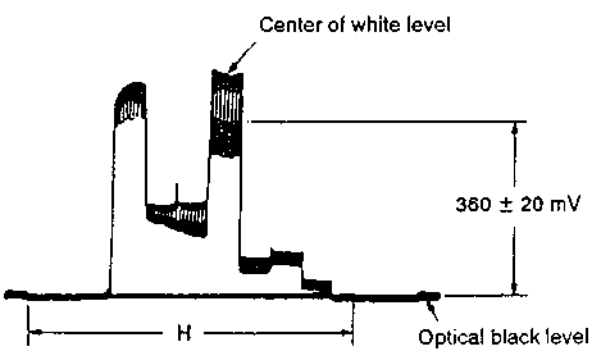


Fig. 7-14.

7-2-9. Iris In/Out Adjustment (CV-9 Board)

Subject	White pattern standard picture frame
Filter	ND filter 0.4 (two) and 0.1 (one)
Measurement Point	CN803
Measuring Instrument	AF microcomputer data reading jig
Adjustment Address	46 (hall level) 45 (hysteresis)

Adjustment method:

1) Cover the lens with the ND filter 0.8 (0.4+0.4).
2) Set the adjustment address to 37 with the adjustment remote controller and set the adjustment data to 09. (Hall in/out threshold mode setting)
3) Read the data indicated on the AF microcomputer data reading jig. This data will be a.
4) Change the adjustment address to 46 and enter a as the adjustment data.
5) Remove the ND filter 0.8 and replace it with ND filter 0.5 (0.4+0.1).
6) Read the data indicated on the AF microcomputer data reading jig. This data will be b.
7) Subtract data b from data a to obtain data c.
   (Refer to Table 7-5. Hexadecimal-Decimal Conversion Table)
   (Example)
   If a=1A and b=15, c=a–b =1A(26) – 15(21) =05
   ( ) indicates decimal value
8) Obtain the hysteresis data from data c using the table below.

Data c	Hysteresis Data
02, 03	01
04, 05, 06	02
07, 08, 09	03

   (Example)
   The hysteresis data is 02 if c=05.
9) Change the adjustment address to 45 and enter the hysteresis data as the adjustment data.
10) Change the adjustment address to 37 and set the adjustment data to 00.
    (Releases hall in/out threshold mode)
11) Change the adjustment address to store the adjustment data in the memory.

7-2-10. AGC Adjustment (CV-9 Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin (B3) (Y (LPF) OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	32 (AGC)
Specified Value	160 ± 5 mVp-p

Adjustment method:

1) Set the adjustment address to 32 using the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to set the Y (LPF) signal level to 160 ± 5 mVp-p.
3) Change the adjustment address to store the adjustment data in the memory.

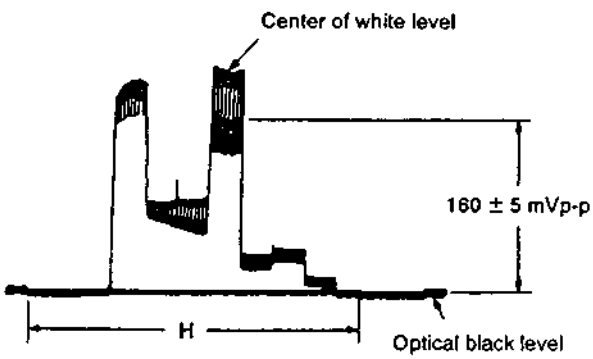


Fig. 7-15.

7-2-11. Y Signal Matrix Adjustment (CV-9 Board)

Subject	Color bar standard picture frame
Measurement Point	1: Pin (A4) (Y0) of check point array 2: Pin (A5) (Y1) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	15 (Y1 GAIN)
Specified Value	Y1 signal level=Y0 signal level

Adjustment method:

1) Connect the oscilloscope to Pin (A4) of the check point array and measure the Y0 signal level.
2) Connect the oscilloscope to Pin (A5) of the check point array.
3) Set the adjustment address to 15 using the adjustment remote controller.
4) Change the adjustment data until the Y1 signal level is the same as the Y0 signal level measured in 1).
5) Change the adjustment address to store the adjustment data in the memory.

Fig. 7-16.

7-2-12. Chroma Signal Matrix Adjustment (1) (CV-9 Board)

Subject	Color bar standard picture frame
Measurement Point	1: Pin (A6) (C0) of check point array 2: Pin (A7) (C1) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	14 (C1 GAIN)
Specified Value	C1 signal level=C0 signal level

Adjustment method:

1) Connect the oscilloscope to Pin (A6) of the check point array and measure the C0 signal level. (The C0 signal level is the larger of the CR and CB signal levels.)
2) Connect the oscilloscope to Pin (A7) of the check point array.
3) Set the adjustment address to 14 using the adjustment remote controller.
4) Change the adjustment data until the C1 signal level is the same as the C0 signal level measured in 1).
5) Change the adjustment address to store the adjustment data in the memory.

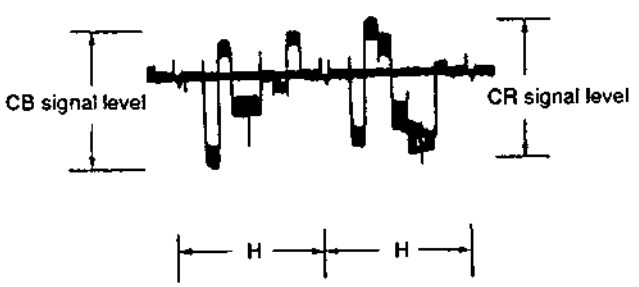


Fig. 7-17. C0 and C1 signal levels

7-2-13. Chroma Signal Matrix Adjustment (2) (CV-9 Board)

Subject	Color bar standard picture frame
Measurement Point	CH1 (X): Pin (B2) (B–Y) of check point array or emitter of Q642 CH2 (Y): Pin (B1) (R–Y) of check point array or emitter of Q614
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	13 (C2 GAIN)
Specified Value	Separate color luminance points become one.

Note: Adjustment can be made in the same manner using a vectorscope.
(Vectorscope connection terminal: video output terminal)

Adjustment method:

1) Set the adjustment address to 13 using the adjustment remote controller.
2) Change the adjustment data so that the two separate color luminance points become one respectively.
3) Change the adjustment address to store the adjustment data in the memory.

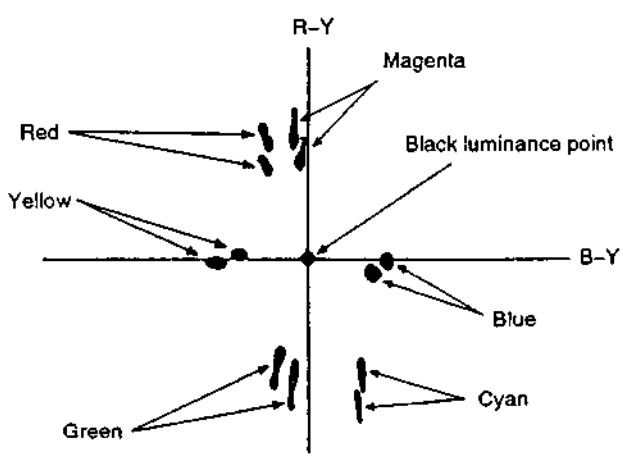


Fig. 7-18.

7-2-14. YH Level Adjustment (CV-9 Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin(A9) (YH) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	10 (Y GAIN)
Specified Value	900 ± 40 mVp-p

Adjustment method:

1) Set the adjustment address to 10 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to set the YH signal level to 900 ± 40 mVp-p.
3) Change the adjustment address to store the adjustment data in the memory.

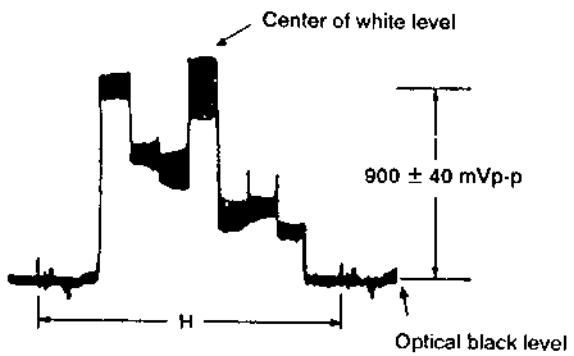


Fig. 7-19.

7-2-15. Sync Level Adjustment (CV-9 Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin (B8) (VIDEO OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	20 (SYNC LEVEL)
Specified Value	150 ± 5 mVp-p

Adjustment method:

1) Set the adjustment address to 20 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to set the sync level to 150 ± 5 mVp-p.
3) Change the adjustment address to store the adjustment data in the memory.

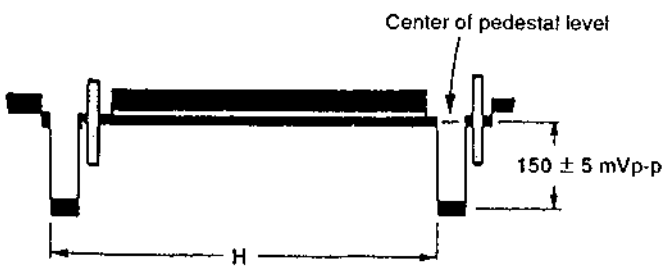


Fig. 7-20.

7-2-16. Setup Adjustment (CV-9 Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin (B8) (VIDEO OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	19 (SET UP)
Specified Value	15 ± 5 mV

Note: 1) and 2) are steps taken to reduce noise.

Adjustment method:

1) Set the address to 21 (APERTURE) with the adjustment remote controller, and enter 00 as the adjustment data after making a note of the adjustment data for this at address.
2) Set the address to 28 (MAX GAIN) with the adjustment remote controller, and enter 00 as the adjustment data after making a note of the adjustment data for this address.
3) Set the adjustment address to 19 with the adjustment remote controller.
4) Change the adjustment data with the adjustment remote controller to set the setup level to 15 ± 5 mV.
5) Set the adjustment address to 21 and enter the adjustment data recorded in 1).
6) Set the adjustment address to 28 and enter the adjustment data recorded in 2).
7) Change the adjustment address to store the adjustment data in the memory.

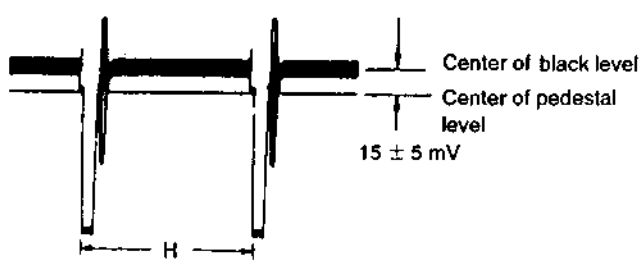


Fig. 7-21.

7-2-17. Y Level Adjustment (CV-9 Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin (B8) (VIDEO OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	18 (Y LEVEL)
Specified Value	315 ± 10 mV

Adjustment method:

1) Set the adjustment address to 17 with the adjustment remote controller, and make a note of the adjustment data for this address.
2) Set the adjustment data to FF with the adjustment remote controller.
3) Set the adjustment address to 18 with the adjustment remote controller.
4) Change the adjustment data with the adjustment remote controller to set the Y signal level to 315 ± 10 mV.
5) Set the adjustment address to 17 and enter the adjustment data recorded in 1).
6) Change the adjustment address to store the adjustment data in the memory.

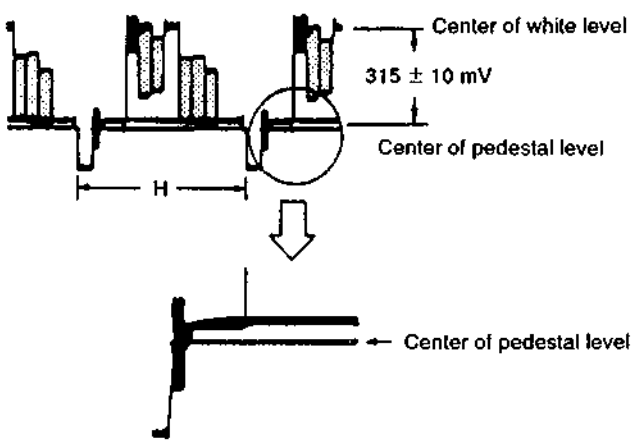


Fig. 7-22.

7-2-18. White Clip Adjustment (CV-9 Board)

Subject	High luminance pattern
Measurement Point	Pin (B8) (VIDEO OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	17 (WHITE CLIP)
Specified Value	420 ± 10 mV

Adjustment method:

1) Set the adjustment address to 18 with the adjustment remote controller, and make a note of the adjustment data for this address.
2) Set the adjustment data to 40 with the adjustment remote controller.
3) Set the adjustment address to 17 with the adjustment remote controller.
4) Change the adjustment data with the adjustment remote controller to set the white clip level to 420 ± 10 mV.
5) Set the adjustment address to 18 and enter the adjustment data recorded in 1).
6) Change the adjustment address to store the adjustment data in the memory.

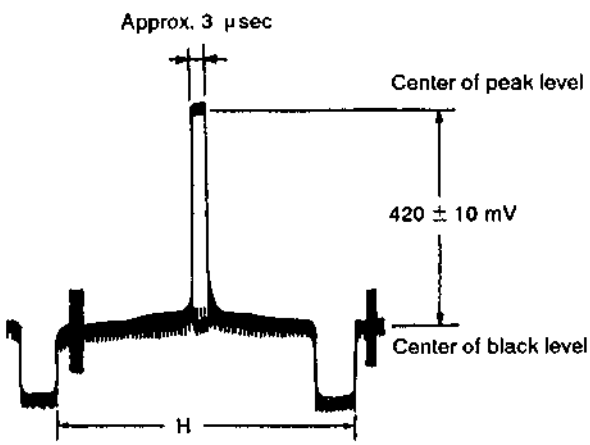


Fig. 7-23.

7-2-19. Aperture Adjustment (CV-9 Board)

Subject	Color bar chart standard picture frame
Measurement Point	Emitter of Q602
Measuring Instrument	Oscilloscope
Adjustment Address	21 (APERTURE)
Specified Value	70 ± 10 mV

Adjustment method:

1) Focus the camera and set the aperture level (lower peak between green and white) to maximum.
2) Change the adjustment data to set the lower peak between green and white to 70 ± 10 mV above the pedestal level.
3) Change the adjustment address to store the adjustment data in the memory.

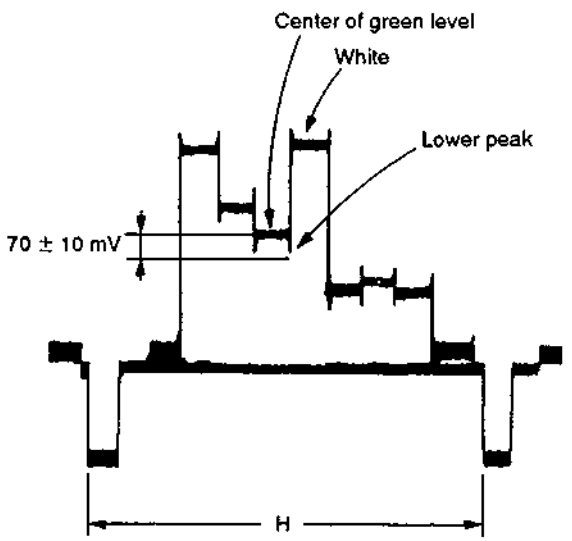


Fig. 7-24.

7-2-20. Max. Gain Adjustment (CV-9 Board)

Subject	Color bar chart standard picture frame
Filter	ND filters 1.0 (two) and 0.4
Measurement Point	Pin (B8) (VIDEO OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	28 (MAX GAIN)
Specified Value	160 ± 10 mV

Adjustment method:

1) Cover the lens with the ND filter 2.4 (1.0+1.0+0.4).
2) Set the adjustment address to 28 with the adjustment remote controller.
3) Change the adjustment data with the adjustment remote controller to set the Y signal level to 160 ± 10 mV.
4) Change the adjustment address to store the adjustment data in the memory.

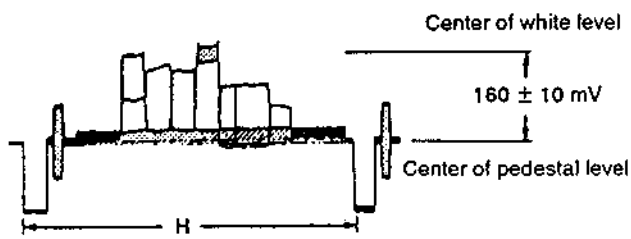


Fig. 7-25.

7-2-21. Chroma Level Adjustment (CV-9 Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin (A1) (G OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	09 (C LEVEL)
Specified Value	320 ± 20 mVp-p

Connections:

1) Connect Pin (B7) (MODE) of the check point array to GND using a jumper wire.

Adjustment method:

1) Set the adjustment address to 09 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to set the G OUT signal level to 320 ± 20 mVp-p.
3) Change the adjustment address to store the adjustment data in the memory.

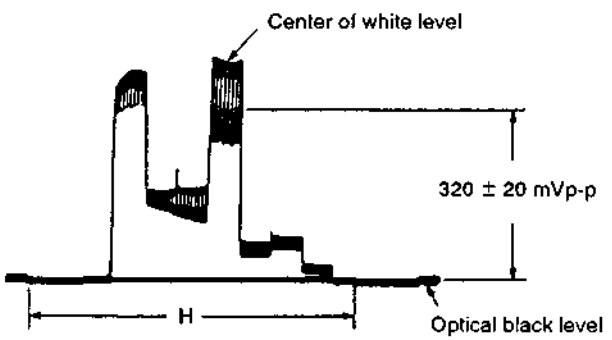


Fig. 7-26.

7-2-22. Indoor White Balance Adjustment (Method Using Vectorscope)

Subject	White pattern standard picture frame
Measurement Point	Video output terminals
Measuring Instrument	Vectorscope
Adjustment Address	11 (R GAIN) 12 (B GAIN)
Specified Value	The white luminance point is within a circle with a diameter of 1 mm centered around the origin.

Adjustment method:

1) Set the adjustment address to 11 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to move the white luminance point to the origin point.
3) Set the adjustment address to 12.
4) Change the adjustment data to move the white luminance point to the origin point.
5) Repeat steps 1) through 4).
6) Change the adjustment address to store the adjustment data in the memory.

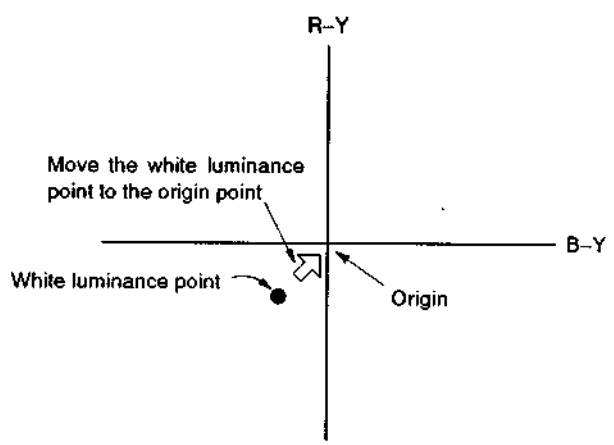


Fig. 7-27.

7-2-23. Indoor White Balance Adjustment (Method Using Oscilloscope) (CV-9 Board)

Subject	White pattern
Measurement Point	CH1 (X): Pin (B2) (B–Y) of check point array or emitter of Q642 CH2 (Y): Pin (B1) (R–Y) of check point array or emitter of Q614
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	11 (R GAIN) 12 (B GAIN)
Specified Value	Move the white luminance point to the black luminance point.

Adjustment method:

1) Set the adjustment address to 11 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to move the white luminance point with the black luminance point.
3) Set the adjustment address to 12.
4) Change the adjustment data to move the white luminance point to the black luminance point.
5) Repeat steps 1) through 4).
6) Change the adjustment address to store the adjustment data in the memory.

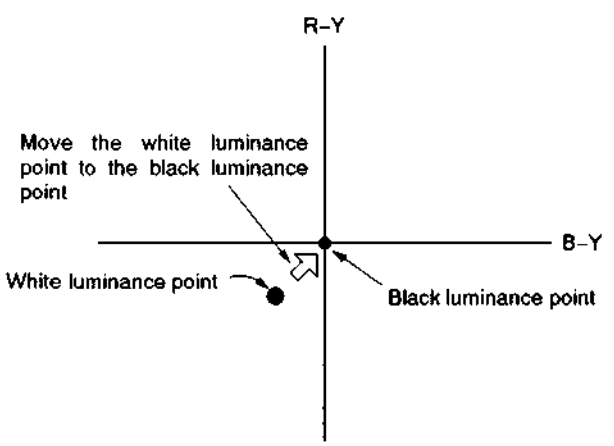


Fig. 7-28.

7-2-24. Burst Phase Adjustment (Method Using Vectorscope)

Subject	All black (cover lens with black cap)
Measurement Point	Video output terminals
Measuring Instrument	Vectrscope
Adjustment Address	16 (HUE CONT)
Specified Value	135° ± 1°

Adjustment method:

1) Set adjustment address to 16 with the adjustment remote controller.
2) Change adjustment data so as to set the burst luminance point in the 135° ± 1° position.
3) Change the adjustment address to store the adjustment data in the memory.
4) Perform Burst Level Adjustment.

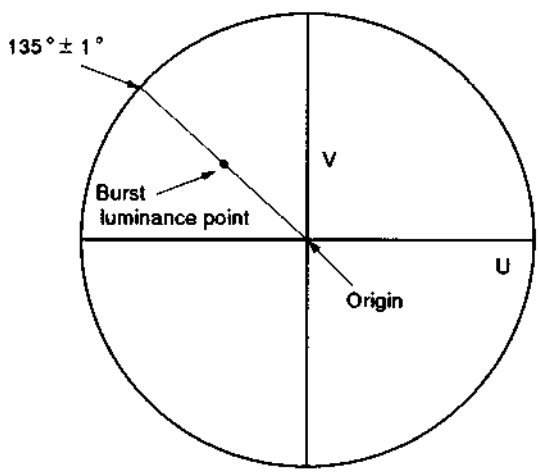


Fig. 7-29.

7-2-25. Burst Phase Adjustment (CV-9 Board) (Method Using Oscilloscope)

Subject	All black (cover lens with black cap)
Measurement Point	Pin (B8) (VIDEO OUT) of check point array
Measuring Instrument	Oscilloscope (Trigger slope:+)
Adjustment Address	16 (HUE CONT)
Specified Value	Burst phase should become a single line.

Adjusing method:

1) Set adjustment address to 16 with the adjustment remote controller.
2) Change the adjustment data so as to turn the burst waveform into a single line.
3) Change the adjustment address to store the adjustment data in the memory.
4) Perform Burst Level Adjustment.

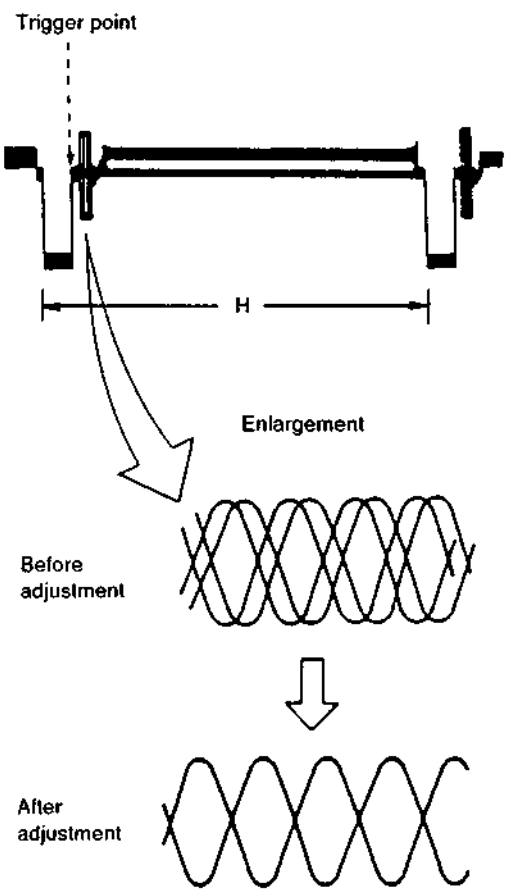


Fig. 7-30.

7-2-26. Burst Level Adjustment (CV-9 Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin (B8) (VIDEO OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	22 (BURST LEVEL)
Specified Value	150 ± 5 mVp-p

Adjustment method:

1) Set the adjustment address to 22 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to set the burst level to 150 ± 5 mVp-p.
3) Change the adjustment address to store the adjustment data in the memory.

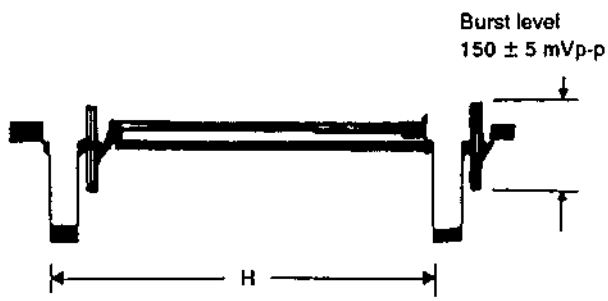


Fig. 7-31.

7-2-27. Color Reproduction Adjustment (Method Using Vectorscope)

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminals
Measuring Instrument	Vectorscope
Adjustment Address	05 (R–Y GAIN) 06 (B–Y GAIN) 07 (R–Y HUE) 08 (B–Y HUE)
Specified Value	All color luminance points are within color reproduction frame.

Note: Confirm that Burst Phase Adjustment, Burst Level Adjustment and Indoor White Balance Adjustment have been completed.

Adjustment method:

1) Adjust the phase and gain of the vectorscope to set the burst luminance points to the designated position on the color reproduction frame.
2) Change the adjustment data at the various adjustment addresses using the adjustment remote controller until all color luminance points are within the color reproduction frame.
3) Change the adjustment address to store the adjustment data in the memory.

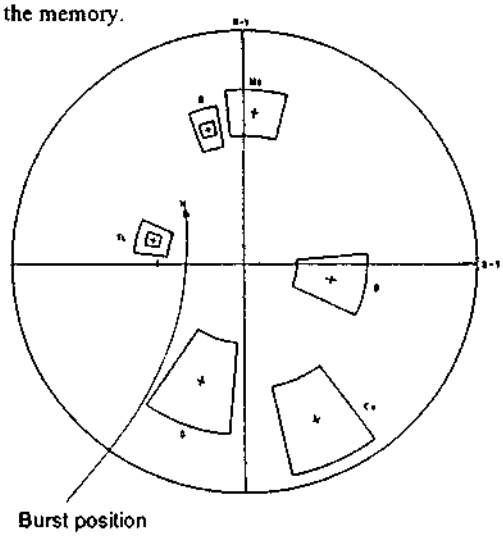


Fig. 7-32.

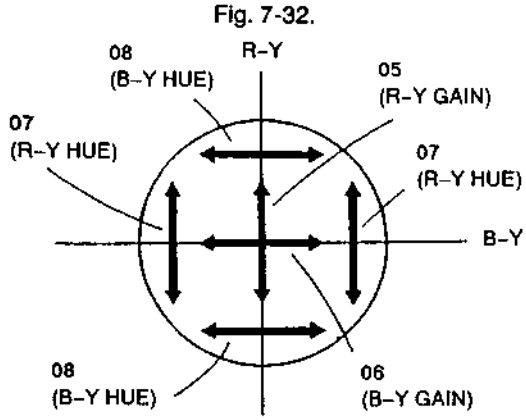


Fig. 7-33. Adjustment address and direction of luminance point movement

7-2-28. Color Reproduction Adjustment (Method Using Oscilloscope)

1. Gain adjustment (CV-9 board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin (B8) (VIDEO OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Address	05 (R-Y GAIN) 06 (B-Y GAIN)
Specified Value	Red level: 263 ± 16 mVp-p Yellow level: 175 ± 12 mVp-p

Note: Confirm that Indoor White Balance Adjustment has been completed.

Adjustment method:

1) Set the adjustment address to 06 with the adjustment remote controller and set the adjustment data to B0.
2) Set the adjustment address to 07 and set the adjustment data to B0.
3) Set the adjustment address to 08 and set the adjustment data to B0.
4) Set the adjustment address to 05 and change the adjustment data to set the chroma signal red level to 263 ± 16 mVp-p.
5) Set the adjustment address to 06 and change the adjustment data to set the chroma signal yellow level to 175 ± 12 mVp-p.
6) Repeat steps 4) and 5).
7) Change the adjustment address to store the adjustment data in the memory.
8) Perform Hue Adjustment.

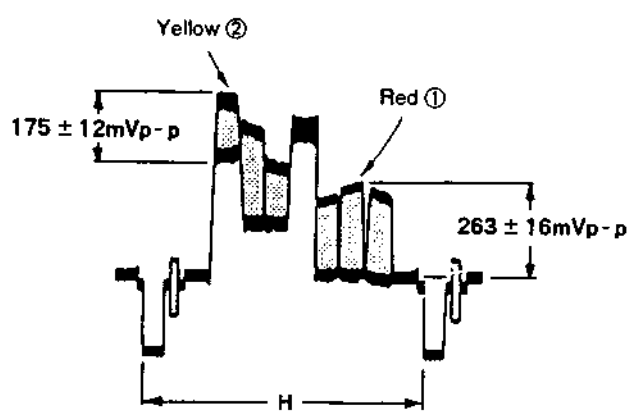


Fig. 7-34.

2. Hue adjustment

Subject	Color bar chart standard picture frame
Measurement Point	CH1 (X): Pin (B2) (B–Y) of check point array or emitter of Q642 CH2 (Y): Pin (B1) (R–Y) of check point array or emitter of Q614
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Address	07 (R–Y HUE) 08 (B–Y HUE)
Specified Value	Various color luminance points within color reproduction frame.

Note: Make sure that Indoor White Balance Adjustment has been completed.

Adjustment method:

1) Move the black luminance point on the oscilloscope to the origin point of the color reproduction frame.
2) Change the adjustment data at adjustment addresses 07 and 08 with the adjustment remote controller to bring the various color luminance points into the color reproduction frame.
3) Check the hue reproduced on the monitor TV and fine adjust the adjustment data at adjustment addresses 07 and 08 if necessary.
4) Change the adjustment address to store the adjustment data in the memory.

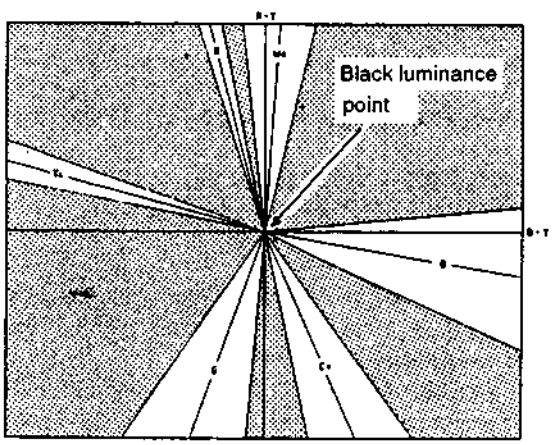


Fig. 7-35.

7-2-29. Auto White Balance Adjustment

Note: Be sure to first perform Preset Adjustment followed by Auto White Balance Adjustment.

1. Preset adjustment (CV-9 board)

Subject	White pattern standard picture frame

Note: 1) Perform preset adjustment after supplying power to the unit for at least 30 seconds.
2) When performing preset adjustment again, repeat after first turning the power off and then back on.

Preparations:

1) Prepare a 1 kΩ resistor for connecting Pin (B5) (AWB ADJ) of the check point array and Pin ④ (CAM 5V) of W902.

Adjustment method:

1) Turn the power OFF and then ON, and connect Pin (B6) (CAM ADJ) of the check point array to GND using a jumper wire.
2) Select adjustment address 89 (AWB MODE) and set the adjustment data to E0. Wait at least five seconds.
3) Change the adjustment address to store the adjustment data in the memory. Wait at least five seconds.
4) Remove the jumper wire between Pin (B6) (CAM ADJ) of the check point array and GND.
5) Connect Pin (B5) (AWB ADJ) of the check point array and Pin ④ of W902 (CAM 5V)with a 1 kΩ resistor.
6) Connect Pin (B6) (CAM ADJ) of the check point array to GND using a jumper wire.
7) Confirm that the indication (adjustment address 01) of the adjustment remote controller is changed.
8) Remove the jumper wire connected to Pin (B6) (CAM ADJ) of the check point array after allowing one second or more to elapse.
9) Remove the 1 kΩ resistor connected to Pin (B5) (AWB ADJ) of the check point array.
10) Connect Pin (B6) (CAM ADJ) of the check point array to GND using a jumper wire.

2. Auto white balance adjustment (CV-9 board)

Note: Be sure to perform this adjustment after completing Preset Adjustment.

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction
Measuring Instrument	Oscilloscope (X-Y Mode)
Measurement Point	CH1 (X): Pin (B2) (B–Y) of check point array or emitter of Q642 CH2 (Y): Pin (B1) (R–Y) of check point array or emitter of Q614
Adjustment Address	01 (DELTA R) 02 (DELTA B) 80 (R OUTDOOR) 81 (B OUTDOOR) 77 (B UP LIMIT) 78 (R OUT LIMIT) 79 (B OUT LIMIT) 65 (TOP SLP R) 66 (TOP SLP R) 73 (TOP UP) 74 (TOP DWN)
Specified Value	Move the white luminance point to the black luminance point.

Note: 1) Make connection to the video output terminals when the vectorscope is used.
2) All calculations in this section are made in decimal.

Adjustment method:

1) Select adjustment address 89 (AWB MODE) with the adjustment remote controller and enter adjustment data of 10.
2) Change the adjustment data of adjustment addresses 01 and 02 with the adjustment remote controller to move the white luminance point and black luminance point.
(Move the white luminance point to pthe origin point when using the vectorscope.)
The adjustment data of adjustment address 01 is D_1 and the adjustment data of adjustment address 02 is D_2.
3) Select adjustment address 78 to enter adjustment data D_1.
4) Convert adjustment data D_1 to decimal to obtain D_1'.
Convert adjustment data D_2 to decimal to obtain D_2'.
(See Table 7-5 Hexadecimal-Decimal Conversion Table)
5) Obtain D_{80}' and D_{81}' by the following formula.
$D_{80}'=D_1'+1$
$D_{81}'=D_2'+3$
6) Convert D_{80}' and D_{81}' to hexadecimal and call this value D_{80} and D_{81}.
7) Select adjustment address 80 and enter adjustment data D_{80}.
Select adjustment address 81 and enter adjustment data D_{81}.
(Outdoor white balance adjustment.)
8) Obtain D_{77}' by the following formula.
$D_{77}'=(D_2' \times 1.9) - 43.2$
9) Convert D_{77}' to hexadecimal and call this value D_{77}.
(Round off the decimal portion)
10) Select adjustment address 77 with the adjustment remote controller and enter adjustment data D_{77}.
11) Obtain D_{79}' by the following formula.
$D_{79}'=D_2'+10$
12) Convert D_{79}' to hexadecimal and call this value D_{79}.
13) Select adjustment address 79 with the adjustment remote controller and enter adjustment data D_{79}.
14) Obtain d' by the following formula.
$d'=(D_1' \times 5) + D_2'$
The adjustment procedure in 15) through 17) varies according to the value of d'.

[d' > 308]

15) Obtain D_{73}' and D_{74}' by the following formulas.
$D_{73}'=(D_1' \times 3) + (D_2' \div 2) + 30$
$D_{74}'=D_{73}' - 44$
16) Convert D_{73}' and D_{74}' to hexadecimal and call these values D_{73} and D_{74}.
(Round off the decimal portion)
17) Use the adjustment remote controller to enter the adjustment data shown in the table below for the indicated adjustment addresses.

Adjustment address	Adjustment data
65	20
66	01
73	D_{73}
74	D_{74}

Perform the adjustment steps beginning from 18).

[308 ≥ d' ≥ 278]

15) Obtain D_{73}' and D_{74}' by the following formulas.
$D_{73}'=(d' \div 2) + 25$
$D_{74}'=D_{73}' - 41$
16) Convert D_{73}' and D_{74}' to hexadecimal and call these values D_{73} and D_{74}.
(Round off the decimal portion)
17) Use the adjustment remote controller to enter the adjustment data shown in the table below for the indicated adjustment addresses.

Adjustment address	Adjustment data
65	41
66	01
73	D_{73}
74	D_{74}

Perform the adjustment steps beginning from 18).

[278 > d']

15) Obtain D_{73}' and D_{74}' by the following formulas.
$D_{73}'=(D_1' \times 3) + D_2'+30$
$D_{74}'=D_{73}'-44$

16) Convert D_{73}' and D_{74}' to hexadecimal and call these values D_{73} and D_{74}. (Round off the decimal portion)

17) Use the adjustment remote controller to enter the adjustment data shown in the table below for the indicated adjustment addresses.

Adjustment address	Adjustment data
65	20
66	00
73	D_{73}
74	D_{74}

18) Select adjustment address 89 and enter adjustment data 00.

19) Select adjustment address 89 and enter adjustment data F0.

20) Change the adjustment data of adjustment addresses 01 and 02 with the adjustment remote controller to move the white luminance point and black luminance point.
(Move the white luminance point to the origin point when using the vectorscope.)

21) Select adjustment address 89 and enter adjustment data of 00.

22) Change the adjustment address to store the adjustment data in the memory.

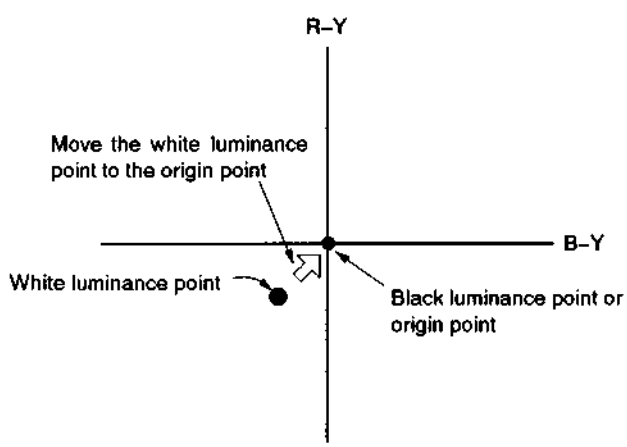


Fig. 7-36.

(Example)
When the adjustment data obtained in Step 2) has the following values.

Adjustment address	Adjustment data
01	2A
02	53

→ Entered into adjustment address 78.

D_1=2A and D_2=53 when there is conversion to decimal using Table 7-5.
D_1'=42
D_2'=83

Thus,
D_{80}'=42+1=43
D_{81}'=83+3=86
D_{77}'=(83 × 1.9)–43.2=114.5

Rounding off the decimal portion and converting to hexadecimal by Table 7-5 results in,
D_{80}=2B → Entered into adjustment address 80.
D_{81}=56 → Entered into adjustment address 81.
D_{77}=73 → Entered into adjustment address 77
In the same manner,
D_{79}'=(83+10)=93
D_{79}=5D → Entered into adjustment address 79

In addition,
d'=(42 × 5)+83=293

Thus, [308 ≧ d' ≧ 278]
D_{73}'=(293 ÷ 2)+25=171.5
∴ D_{73}=AC → Entered into adjustment address 73
D_{74}'=171.5–41=130.5
∴ D_{74}=83 → Entered into adjustment address 74

Also, adjustment data of 41 is entered into adjustment address 65, and adjustment data of 01 is entered into adjustment address 66.
The steps beginning from 18) are then performed.

7-2-30. Outdoor White Balance Confirmation (CV-9 Board)

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	When vectorscope used: video output terminals When oscilloscope used: CH1 (X): Pin (B2) (B–Y) of check point array or emitter of Q642 CH2 (Y): Pin (B1) (R–Y) of check point array or emitter of Q614
Measuring Instrument	
Specified Value	See Fig. 7-37.

Connections:

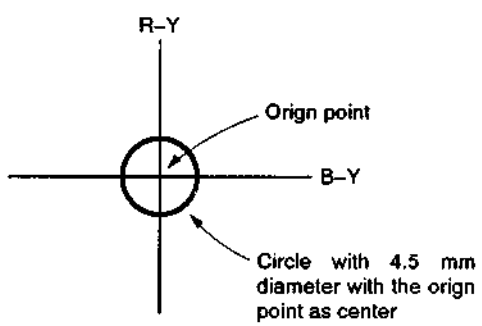
1) Remove the jumper wire connected to Pin (B6) (CAM ADJ) of the check point array. (Turns off the EVR adjustment mode)

Checking method:

1) Press the white balance button to select the outdoor white balance mode. (☀ mark is displayed on EVF screen or monitor TV screen (when data screen ON).)
2) Confirm that the center of the white luminance point is within the circle shown in the figure below.

Note: When using a vectorscope, adjust the GAIN and PHASE of the vectorscope so that burst luminance point move to with the burst position of the color reproduction frame.

(When using vectorscope)



(When using oscilloscope)

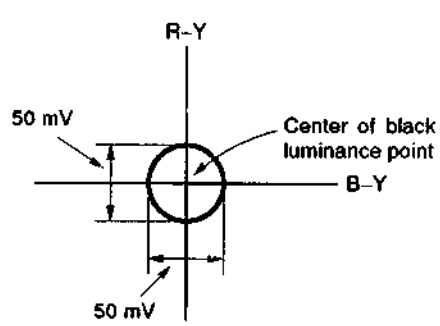


Fig. 7-37.

7-2-31. Focus Motor Speed Adjustment (CV-9 Board)

Subject	Arbitrary
Measurement Point	CN803
Measuring Instrument	AF microcomputer data reading jig
Adjustment Address	A26 (FOCUS SPEED)
Specified Value	Average value of data indicated on jig=7.0 ± 0.5

Remarks: The rotation time from the close extreme to far extreme of the focus ring should be approximately 2.1 seconds after completion of adjustment.

Adjustment method:

1) Turn on the auto focus with FOCUS button (S655 on CK-43P board).
2) Select adjustment address 37 with the adjustment remote controller and enter adjustment data of 01. (Sets hunching mode)
3) Set the adjustment address to 26.
4) Change the adjustment data so that the indication on the AF microcomputer data reading jig is 07 while the ring is rotating.
5) Press the HOLD button of the AF microcomputer data reading jig while the focus ring is rotating to read the indication value.
6) Repeat step 4) ten times and obtain the average value.
   Specified value=7.0 ± 0.5
   Repeat steps 3) and 4) if the specified value is not satisfied.
7) Set the adjustment address to 37 and set the adjustment data to 00. (Releases hunching mode)
8) Change the adjustment address to store the adjustment data in the memory.

7-2-32. Macro Area Adjustment (CV-9 Board)

Subject	Arbitrary
Measurement Point	CN803
Measuring Instrument	AF microcomputer data reading jig
Adjustment Address	39 (MACRO)
Specified Value	(Value at WIDE position) –1

Adjustment method:

1) Set the zoom ring to the WIDE position (7 mm position).
2) Select adjustment address 37 with the adjustment remote controller and set the adjustment data to 03. (Sets zoom position indication mode)
3) Read the data indicated on the AF microcomputer data reading jig. (Data in the range of 00 to 0E is displayed if normal.)
4) Change the adjustment address to 39.
5) Subtract 1 from the data read from jig and enter as the adjustment data.
6) Change the adjustment address to 37 and set the adjustment data to 00. (Releases zoom position indication mode)
7) Change the adjustment address to store the adjustment data in the memory.

7-2-33. Auto-Focus Adjustment

1. Adjustment in all black pattern (CV-9 board)

Subject	All black (cover lens with black cap)
Measurement Point	CN803
Measuring Instrument	AF microcomputer data reading jig
Adjustment Address	42 (FH B), 54 (AGC B)

Adjustment method:

1) Turn off the auto-focus with the FOCUS button (S655 on CK-43P board).
2) Select adjustment address 37 with the adjustment remote controller and enter adjustment data of FF.
3) Read the indication on the AF microcomputer data reading jig and confirm this value (FH B). (FH B should be 00 to 1C.)
4) Select adjustment address 42 with the adjustment remote controller and enter the value (FH B) as the adjustment data.
5) Select adjustment address 37 with the adjustment remote controller and enter adjustment data of 0B.
6) Read the data indicated on the AF microcomputer data reading jig and call this value AGC B.
7) Select adjustment address 54 with the adjustment remote controller and enter the value (AGC B) as the adjustment data.
8) Select adjustment address 37 and enter adjustment data of 00.
9) Change the adjustment address to store the adjustment data in the memory.
10) Perform "Adjustment in white pattern".

2. Adjustment in white pattern (CV-9 board)

Subject	White pattern standard picture frame (Position 1.5 m from the front of the lens reference plane (⊕ mark))
Measurement Point	CN803
Measuring Instrument	AF microcomputer data reading jig
Adjustment Address	52 (FH W), 53 (AGC W)

Measurement method:

1) Confirm that the white pattern is not soiled.
2) Confirm that the auto-focus is turned off.
3) Select adjustment address 37 with the adjustment remote controller and enter adjustment data of FF.
4) Read the indication of the AF microcomputer data reading jig and confirm this value (FH W), (FH W should be 00 to 0F)
5) Select adjustment address 52 with the remote controller and enter the value (FH W) as the adjustment data.
6) Select adjustment address 37 with the adjustment remote controller and enter adjustment data of 0B.
7) Read the data indicated on the AF microcomputer data reading jig and call this value AGC W.
8) Select adjustment address 53 with the adjustment remote controller and enter the value (AGC W) as the adjustment data.
9) Select adjustment address 37 and enter adjustment data of 00.
10) Chenge the adjustment address to store the adjustment data.

7-2-34. Auto-Focus Confirmation

Subject	Siemens star (position 1.5m from the front of the lens reference plane ("⌀" mark)

Note: Perform adjustment with the EVF (electronic viewfinder) attached.

Measuring method:

1) Place the Siemens star 1.5m from the front of the lens reference surface (See Fig. 7-2.).
2) Set the zoom lever to the TELE position (42 mm) and turn on auto focus with the FOCUS button.
3) Adjust the direction of the camera so that center of the Siemens star is lined up with the center of the monitor screen on the monitor TV screen.
4) To open the iris, reduce the illumination of the Siemens star. (Or cover lens with the ND filter)
5) Turn off the auto-focus with the FOCUS button.
6) Manually rotate the focus ring to set the focus. Confirm that the focus mark is inside the range shown in Fig. 7-38 at this time.
   Perform Flange Back Adjustment if this condition is not satisfied.
7) Rotate the focus ring to the close extreme (1.1m).
8) Turn on the auto-focus with the FOCUS button.
9) Confirm that there is focusing within two seconds and a sharp image can be obtained.
10) Turn off the auto-focus and rotate the focus to the far extreme (∞).
11) Turn on the auto-focus.
12) Confirm that there is focusing within three seconds and a sharp image can be obtained.

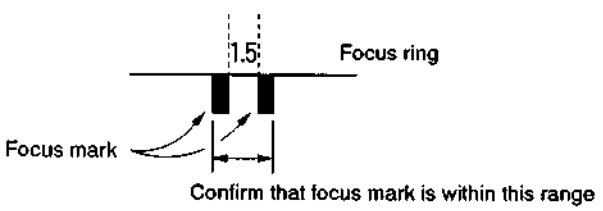


Fig. 7-38.

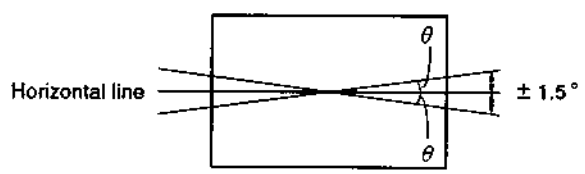
7-3. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT(TYPE A) (VF-14P BOARD)

7-3-1. Horizontal Tilt Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Specified Value	See Fig. 7-39.

Adjustment method:

1) By turning RV904 (BRIGHT), adjust for a luminance level which provides appropriate visibility of the CRT screen.
2) Loosen the DY (deflection yoke) tightening nut.
3) Make the image horizontal by rotating DY.
4) Retighten the DY tightening nut. (Do not tighten excessively.)



Specified value: Image orientation within ± 1.5° of horizontal line.

Fig. 7-39.

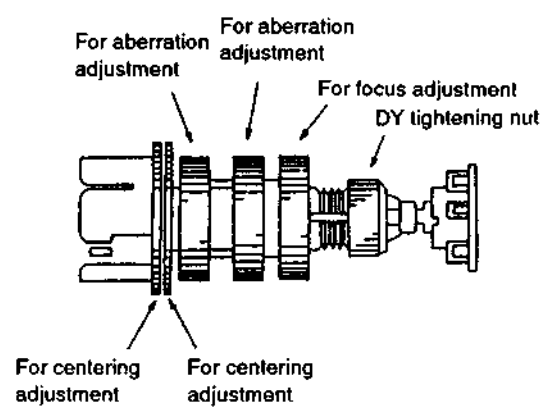


Fig. 7-40.

7-3-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Specified Value	See Fig. 7-41.

Adjustment method:

1) Turn the centering adjustment rings to provide an image with even right, left, upper and lower margins. (See Fig. 7-40.)

Note: Since the centering position is affected by the earth magnetism, turn the equipment over 360° horizontally, and make adjustments at the orientation which exhibits median displacements of the image.

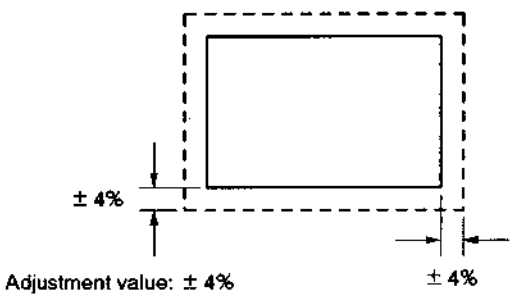


Fig. 7-41.

7-3-3. Focus Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion

Adjustment method:

1) Adjust for optimum focus using the focus ring. (See Fig. 7-40.)

7-3-4. Aberration Adjustment

Mode	E-E
Signal	Dot pattern
Specified Value	See Fig. 7-42.

Adjustment method:

1) Use the aberration adjustment rings to adjust any trailing dots to within 2 times the dot diameter and any fan shaped aberrations to within the dot diameter.
2) If off center, repeat the Centering Adjustment.

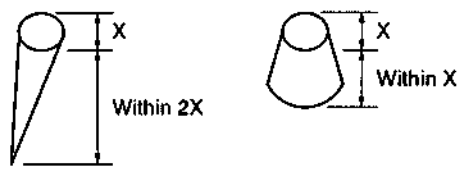


Fig. 7-42.

7-3-5. Horizontal Oscillation Frequency Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP)
Measurement Point	Positive terminal of C904
Measuring Instrument	Digital voltmeter or oscilloscope (DC range)
Adjustment Element	RV901
Specified Value	2.60 ± 0.05 Vdc

Adjustment method:

1) Adjust to 2.60 ± 0.05 Vdc using RV901.

7-3-6. Horizontal Amplitude Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment Element	C911
Specified Value	6 ± 3%

Adjustment method:

1) Line up the upper and lower sections of the monoscope image with the upper and lower edges of the screen by rotating RV902.
2) Rotate RV904 to set the brightness to the normal level.
3) Short or open the pattern (A) of the H size adjustment capacitor (C911) to provide horizontal overscans of 6 ± 3% (total of left and right).
   (See Fig. 7-44.)

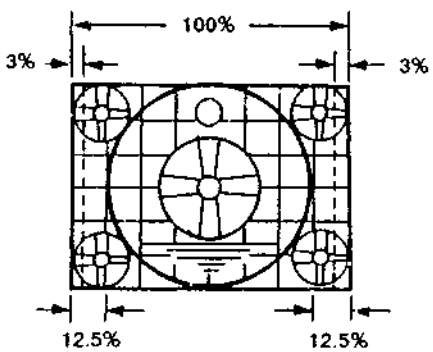
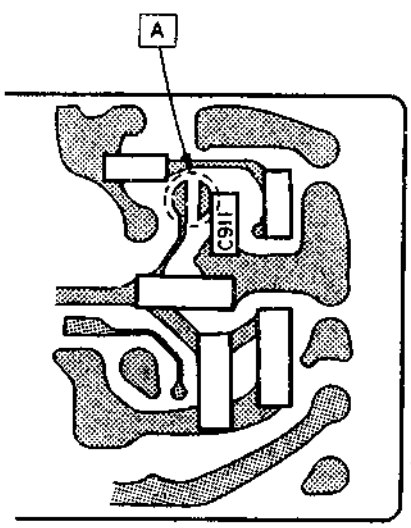


Fig. 7-43.



A section	H size
Open	Large
Short	Small

Fig. 7-44.

7-3-7. Vertical Amplitude Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment Element	RV902
Specified Value	5 ± 3%

Adjustment method:

1) By turning RV902, adjust vertical overscan to 5 ± 3% (upper and lower total).

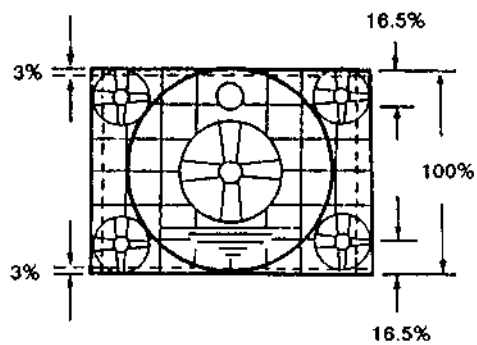


Fig. 7-45.

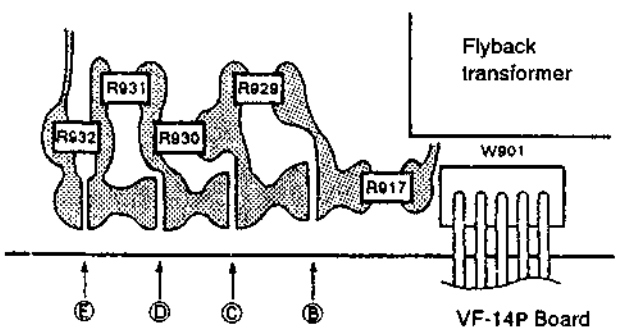
7-3-8. Brightness, Contrast Adjustments

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment Element	Brightness: RV904 Contrast: see Fig. 7-46.

Adjustment method:

1) Perform brightness and contrast adjustments alternately until the bright and dark areas of a gray scale are displayed correctly. (The bright areas should not be made too bright to avoid a fuzzy display of the cross-hatches in the monoscope circle, and the brightness of the dark areas should be such that discrimination between the darkest and second darkest area is possible.)

Use sections Ⓑ to Ⓔ of VF-14P board to open and short for contrast adjustment.



Sections to be shorted	Contrast
Ⓓ and Ⓔ	High
Ⓔ	
Ⓓ	
All open	
Ⓒ	
Ⓑ	
Ⓑ and Ⓒ	Low

Fig. 7-46.

7-3-9. Horizontal Amplitude, Vertical Amplitude and Focus Checks

Values should conform to specifications given in 7-3-6. Horizontal Amplitude Adjustment and 7-3-7. Vertical Amplitude Adjustment. If not, readjust accordingly, and repeat 7-3-8. Brightness, Contrast Adjustments. In this case, focus needs to be checked. If the image is not clear, perform 7-3-3. Focus Adjustment and 7-3-4. Aberration Adjustment.

7-4. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT (TYPE B) (VF-22P BOARD)

7-4-1. Horizontal Tilt Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Specified Value	See Fig. 7-48.

Adjustment method:

1) Adjust the volume array Ⓓ (BRIGHT) for appropriate brightness on CRT screen. (See Fig. 7-49.)
2) Loosen the DY (deflection yoke) tightening nut. (See Fig. 7-47.)
3) Make a picture horizontal by turning the DY.
4) Retighten the nut. (Do not tighten excessively.)

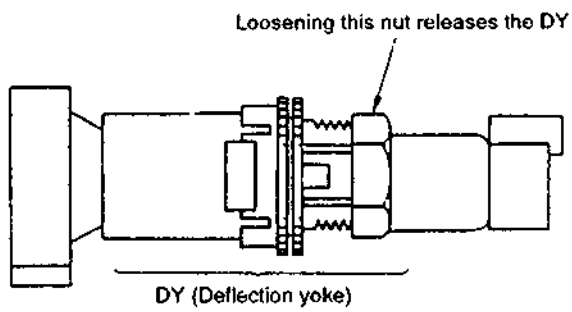
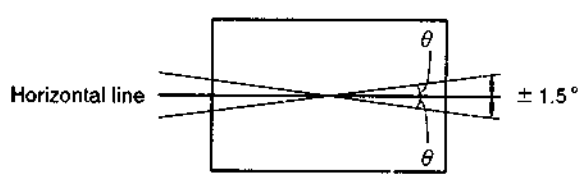
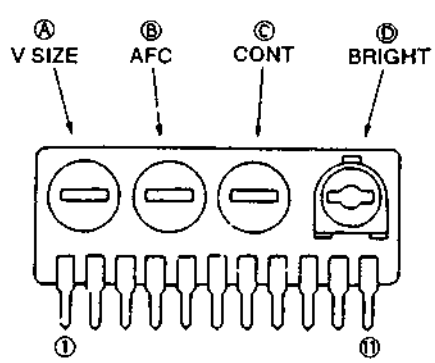


Fig. 7-47.



Specified value: Image orientation within ± 1.5° of horizontal line.

Fig. 7-48.



Volume array (CP901)

Fig. 7-49.

7-4-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Specified Value	See Fig. 7-51.

Adjustment method:

1) Turn the centering adjustment rings to provide an image with even right, left, upper and lower margins. (See Fig. 7-50.)

Note: Since the centering position is affected by the earth magnetism, turn the equipment over 360 ° horizontally, and make adjustments at the orientation which exhibits median displacements of the image.

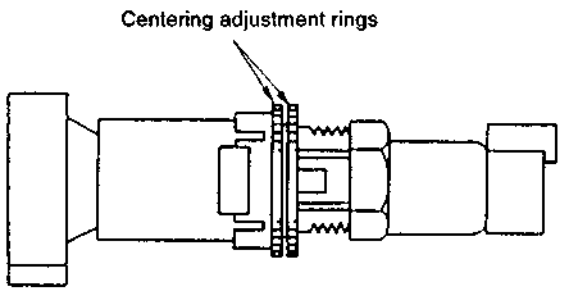


Fig. 7-50.

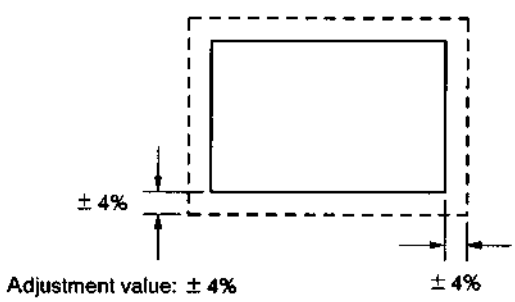


Fig. 7-51.

7-4-3. AFC Adjustment

Mode	E-E or Camera standby
Signal	Color bar
Measurement Point	C915 ⊕ side
Measuring Instrument	Digital voltmeter or oscilloscope (DC range)
Adjustment Element	Volume array Ⓑ (AFC)
Specified Value	2.6 ± 0.2 Vdc

Adjustment method:

1) Adjust volume array Ⓑ (AFC) for 2.6 ± 0.2 Vdc. (See Fig. 7-49.)

7-4-4. Horizontal Amplitude Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment Element	C905
Specified Value	6 ± 3%

Adjustment method:

1) Line up the upper and lower sections of the monoscope image with the upper and lower edges of the screen by rotating volume array Ⓐ (V SIZE). (See Fig. 7-49.)
2) Rotate volume array Ⓓ (BRIGHT) to set the brightness to the normal level.
3) Short or open the pattern [A] of the H size adjustment capacitor (C905) to provide horizontal overscans of 6 ± 3% (total of left and right).
(See Fig. 7-53.)

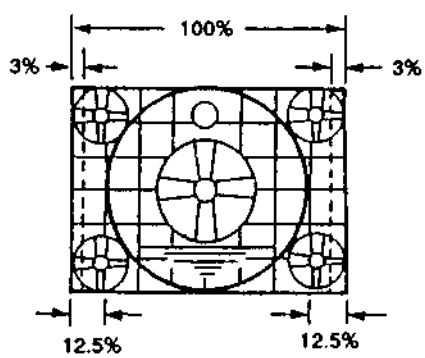
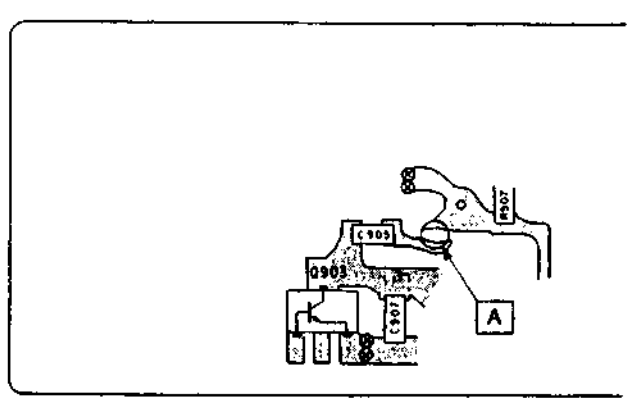


Fig. 7-52.



VF-22P board (conductor side)

A section	H size
Open	Large
Short	Small

Fig. 7-53.

7-4-5. Vertical Amplitude Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment Element	Volume array Ⓐ (V SIZE)
Specified Value	5 ± 3%

Adjustment method:

1) By turning volume array Ⓐ (V SIZE), adjust vertical overscan to 5 ± 3% (upper and lower total). (See Fig. 7-49.)

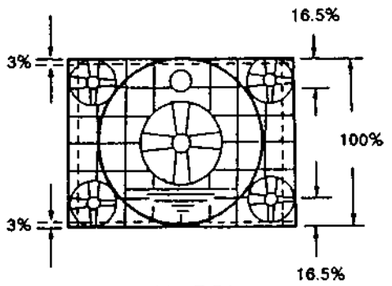


Fig. 7-54.

7-4-6. Focus Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment Element	RV901

Adjustment method:

1) Adjust to the best focus point with RV901.

7-4-7. Brightness, Contrast Adjustments

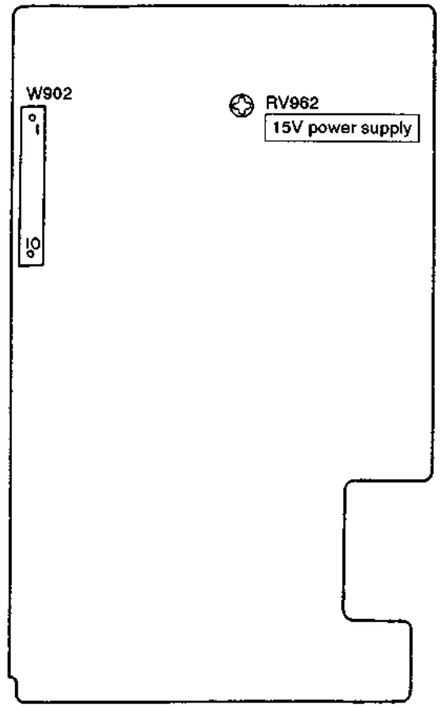
Mode	Playback
Signal	Alignment tape for checking operation (WR5-5CSP) Monoscope portion
Adjustment Element	Brightness: Volume array Ⓓ (BRIGHT) Contrast: Volume array Ⓒ (CONT)

Adjustment method:

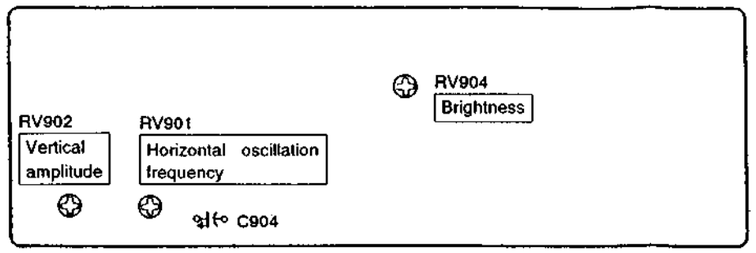
1) Adjust volume array Ⓓ (BRIGHT) and Ⓒ (CONT) alternately until the bright and dark areas of a gray scale are displayed correctly. (The bright areas should not be made too bright to avoid a fuzzy display of the cross-hatches in the monoscope circle, and the brightness of the dark areas should be such that discrimination between the darkest and second darkest area is possible.) (See Fig. 7-49.)

7-5. ADJUSTMENT ELEMENTS LOCATION

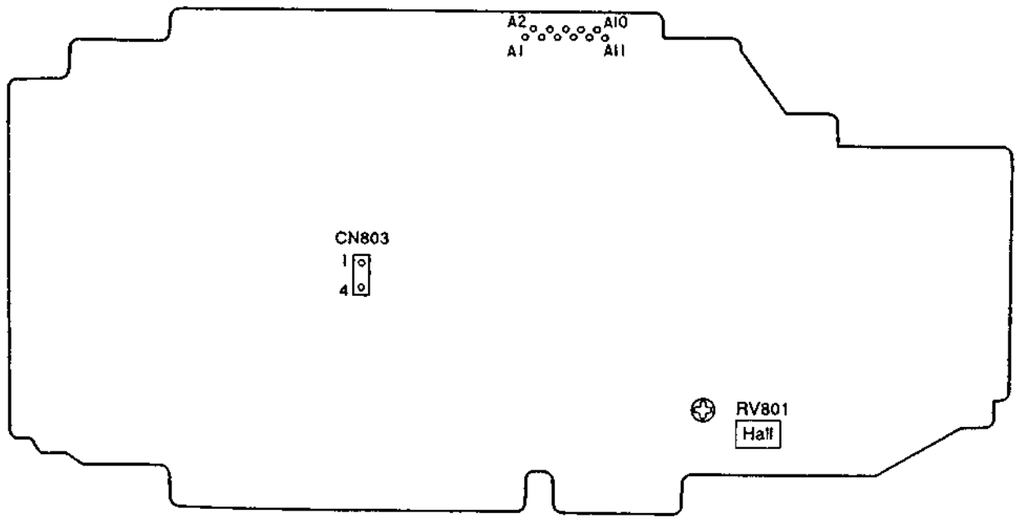
PS-263P BOARD (COMPONENT SIDE)



VF-14P BOARD (COMPONENT SIDE)



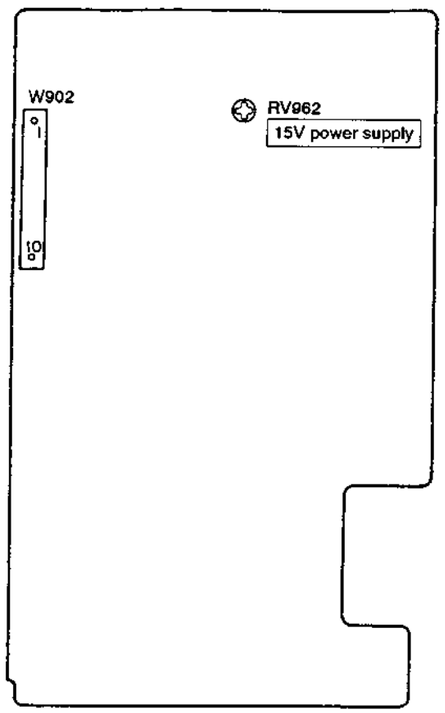
CV-9 BOARD (COMPONENT SIDE)



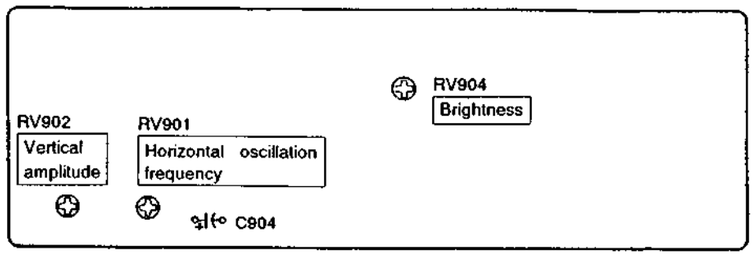
CV-9 BO

7-5. ADJUSTMENT ELEMENTS LOCATION

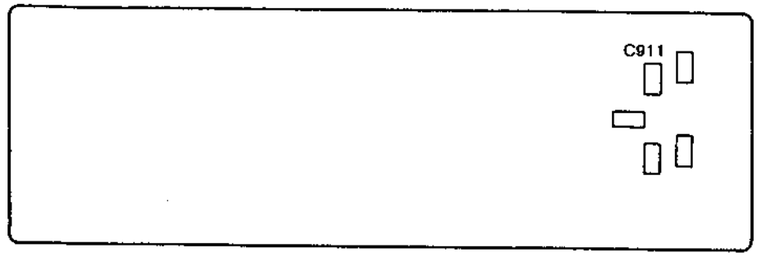
PS-263P BOARD (COMPONENT SIDE)



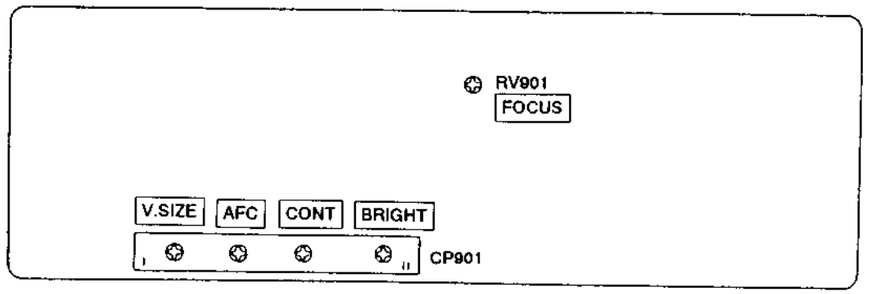
VF-14P BOARD (COMPONENT SIDE)



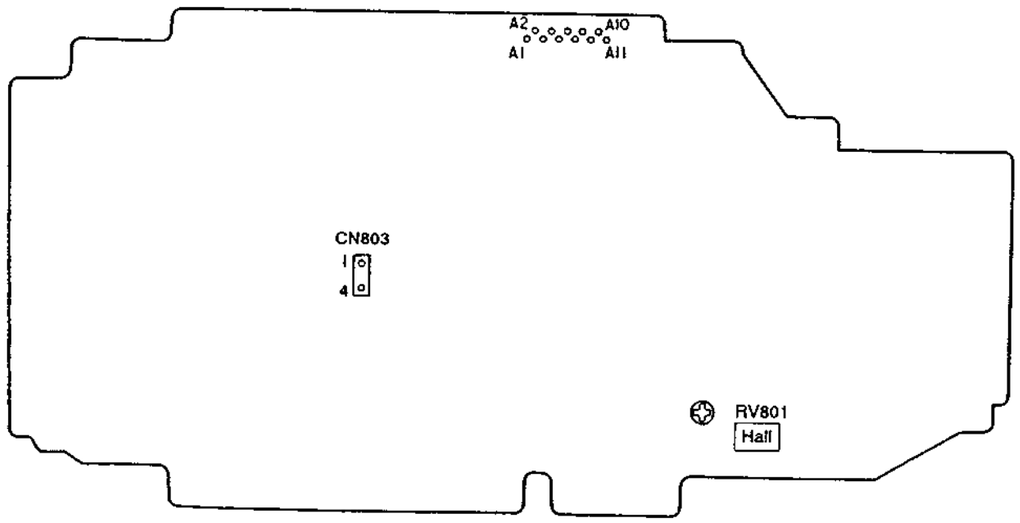
VF-14P BOARD (CONDUCTOR SIDE)



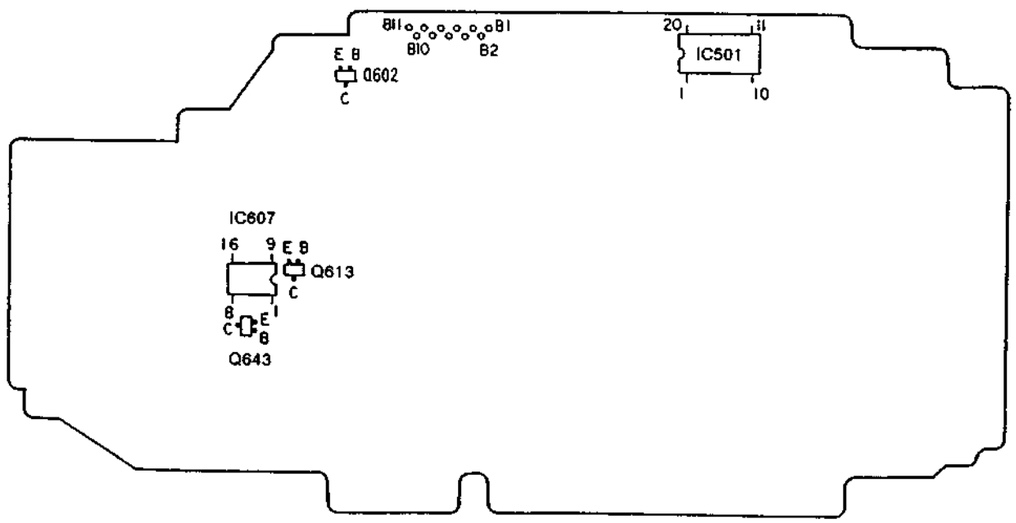
VF-22P BOARD (COMPONENT SIDE)

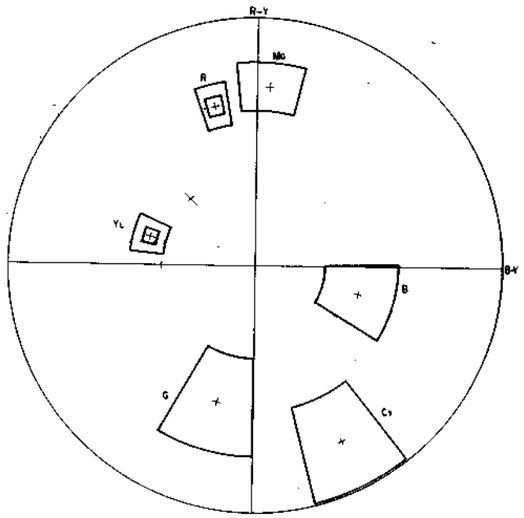


CV-9 BOARD (COMPONENT SIDE)

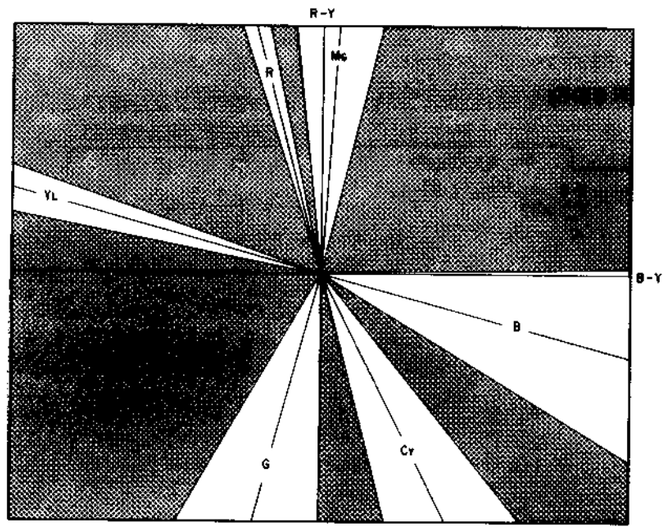


CV-9 BOARD (CONDUCTOR SIDE)





For Vectorscope



For Oscilloscope

CCD-F350E

SECTION 8
MECHANISM BLOCK ADJUSTMENTS

Mechanism Block Adjustments

Refer to the separate "8mm Video Mechanical Adjustment Manual Ⅲ U Mechanism" for adjustment and checking of the mechanism block and for replacement of mechanical parts.
Refer to the following for setting of track shift mode.

8-1. TRACK SHIFT MODE SETTING

[Setting method]

- Connect the TEST A terminal and TEST B terminal to the COM terminal. Connect Pin ① and Pin ③ of CN508 on the VK-11P board to Pin ②. (See Fig. 8-1.)

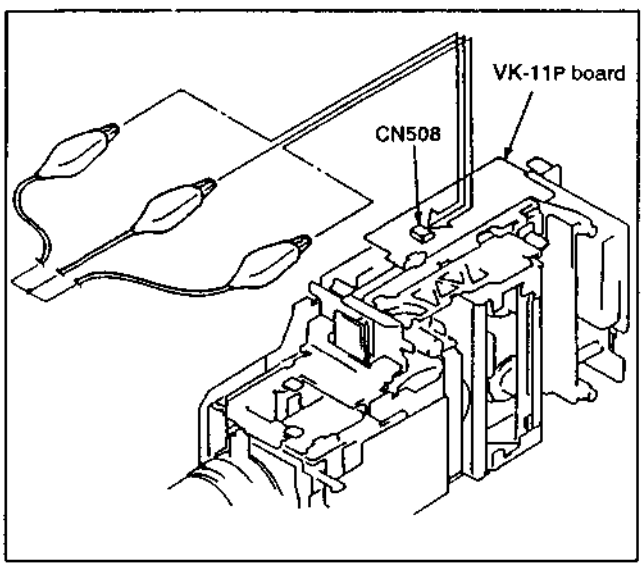


Fig. 8-1.

8-2. PREPARATION FOR ADJUSTMENT

1) Perform cleaning of the tape running surface (tape guides, drums, capstan shafts, and pinch rollers).
2) Connection of oscilloscope
   CH 1: RF signal output (V RF OUT) of drum head
   Pin ③ (V RF OUT) of CN102 on the CO-2P board
   External trigger: External trigger output (RF SW.P)
   Pin ④ of CN102 on the CO-2P board.
3) Play back the alignment tape (WR5-1CP, Ref No. J-5) for tracking.
4) Confirm that the RF waveform on oscilloscope at both entrance and exit sides is flat. (See Fig. 8-3.)
   Perform the adjustment described below if not flat.

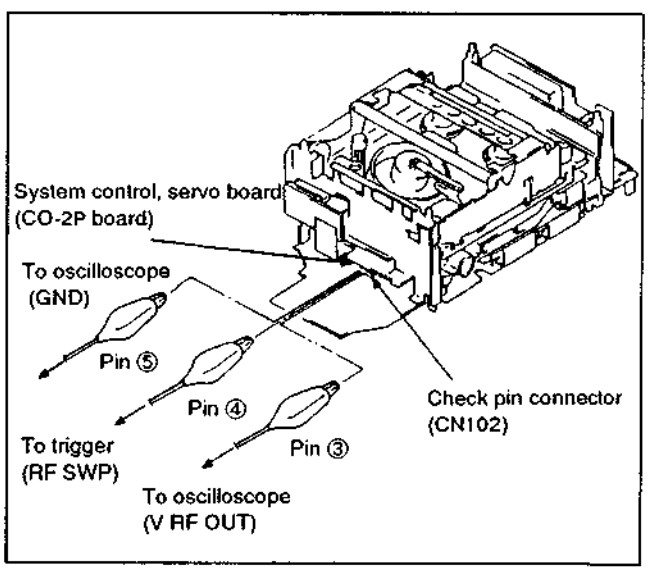


Fig. 8-2.

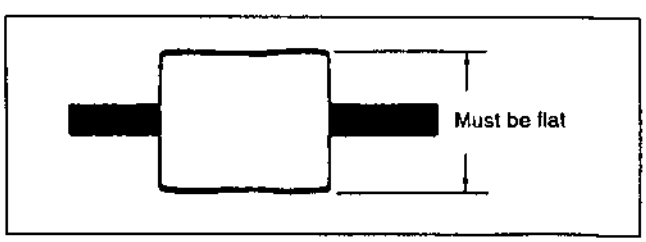


Fig. 8-3.

SECTION 9
VIDEO BLOCK ADJUSTMENTS

During the adjustments, see the adjustment element location to the adjustment from page 250.

Use the following measuring instruments for adjustment of the VTR block.

[Equipment to be used]

1) Monitor TV
2) Dual trace oscilloscope of over 10 MHz band, incorporates delay mode. (Use 10 : 1 probe unless otherwise specified)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply
11) Alignment tapes
    Tracking adjustment (WR5-1CP)*1
    Parts Code: 8-967-995-07
    Video frequency characteristics adjustment (WR5-6C)*2
    Parts Code: 8-967-995-17
    Operation check (WR5-4CL)*3
    Parts Code: 8-967-995-56
    (WR5-5CSP)*4
    Parts Code: 8-967-995-47

    Note:
    *1 WR5-1C (8-967-995-06) is also available.
    *2 WR5-2C (8-967-995-16) is also available.
    *3 WR5-3CL (8-967-995-36) is also available.
    *4 WR5-3CSP (8-967-995-27) and WR5-4CSP (8-967-995-46) are also available.
12) Adjustment remote controller (J-6082-053-A)

[Connection of equipment]

Unless otherwise specified, adjustment is made with the measuring instrument connected as shown in the diagram below.

• Camera/video power switch.....Video position

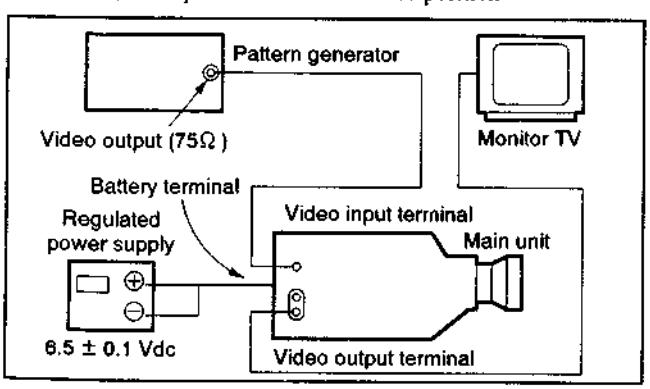


Fig. 9-1.

Note: When adjusting with the CV-9 board open, remove the follwing connectors:
1. CN601, CN602, CN801
2. CN802
3. CN901
4. CN902

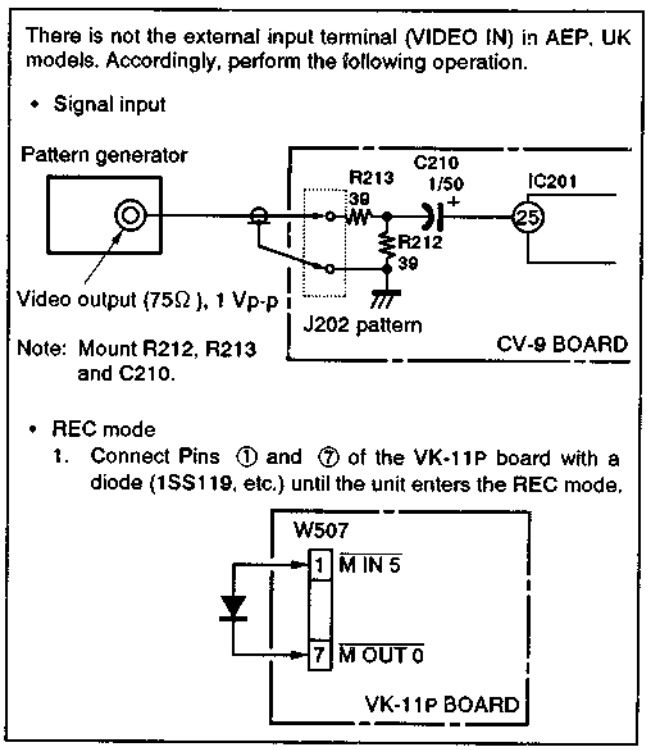


Fig. 9-2.

[Set-up during adjustment]

Since the video output signal obtained from the pattern generator is used as the adjusting signal for the VTR block, it is necessary that this video output signal be within the required specifications. Connect an oscilloscope to J202 (video input terminal) on the CV-9 board and make sure that the amplitude of the video SYNC signal is approximately 0.3V, that the video block amplitude is approximately 0.7V, that the burst signal amplitude is approximately 0.3V with flat characteristics, and the signal level ratio between the burst signal and "Red" signal is 0.30 : 0.66. The video signal (color bars) used for VTR block electrical adjustment are shown in Fig. 9-3.

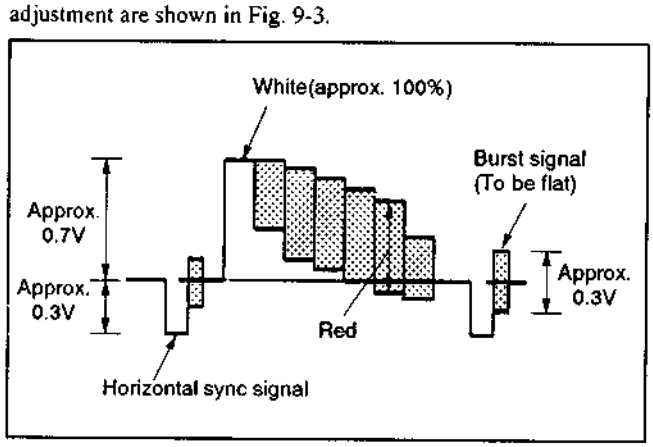
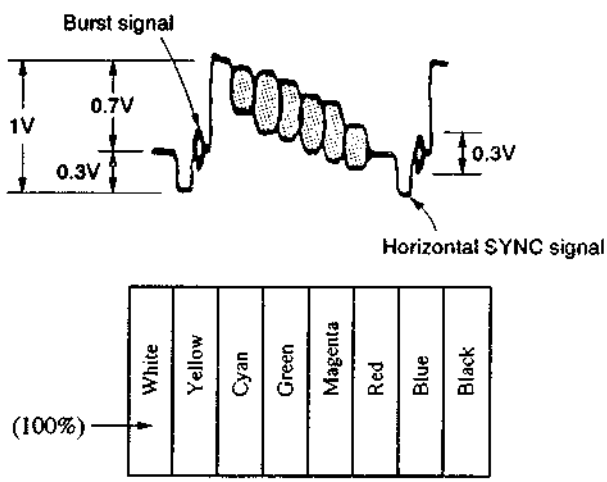


Fig. 9-3. Color bar signal of pattern generator

[Alignment tapes]

Tape	Content	Use
Tracking (WR5-1CP)	1. Recording area: PCM – video 2. Recording content: CH2:1MHz linearity adjustment signal (CH1: 9MHz)	Drum linearity adjustment
Video Frequency Response (WR5-6C)	1. Recording area: Video 2. Recording content: RF sweep 0 to 10MHz 3. Maker: 1, 3.58, 5.5 and 7MHz	Frequency response adjustment
Operation Check SP mode (WR5-5CSP) LP mode (WR5-4CL) Note: PCM area is not included in WR5-4CL	1. Recording area: Video 2. Recording content: ■ Video track •Video signals Color bars 4 minutes Monoscope 4 minutes (Color bars)  •Audio signals(AFM) 400Hz 60% modulation ■ PCM area •Audio signals(PCM) 1kHz 4 minutes Color bar 20Hz 2sec 400Hz 4sec } Iterative Monoscope 14kHz 2sec	Operation check

E, Australian model

[I/O level and Impedance]

Video input Pin jack
Input signal: 1 Vp-p, 75Ω unbalanced, negative sync

Video output Pin jack
Output signal: 1 Vp-p, 75Ω unbalanced, negative sync

Audio input Pin jack
Input level: –7.5 dBs (0 dBs=0.775 Vrms)
Input impedance: More than 47 kΩ

Audio output Pin jack
Specified output: –7.5 dBs
Output impedance: More than 2.2 kΩ

AEP, UK model

[Output level and Impedance]

Video output Pin jack
Output signal: 1 Vp-p, 75Ω unbalanced, negative sync

Audio output Pin jack
Specified output: –7.5 dBs
Output impedance: More than 2.2 kΩ

[Service modes]

This unit is equipped with service modes for adjustment and operation checking.

There are the following two service modes and switching between them is by connection between GND and Pin (B6) of the check point array on the CV-9 board.

Service Mode	Function	Connection between GND and Pin (B6) of the check point array (CV-9 board)
Status indication mode	For video block adjustment, operation checking	Open (no connection)
EVR adjustment mode	For adjustment of camera block	Shorted

Refer to Camera Block Adjustment for details on the EVR adjustment mode.

1. Invoking service mode

1) Connect the adjustment remote controller to the remote terminal (J951 on RC-40P board) of the main unit.
2) Set the HOLD switch of the adjustment remote controller to the HOLD position (SERVICE position).

The status indication mode is invoked by the above operation. (To select the EVR adjustment mode, connection between Pin (B6) of the check point array and GND is required.)

2. Indication on adjustment remote controller LCD in status indication mode

Note: In categories 1 through 4, the same information is displayed in the EVF screen and on the monitor screen (when the data screen is ON).

①..... Minus segment flashes to indicate that the service mode has been invoked.
②..... Indicates service mode category.
③..... Indicates battery voltage, LAST EMG, PRESET EMG, or MODE SW CODE according to current category.

3. Category selection and Indication in each category

Select the desired category with the FF or REW button of the adjustment remote controller. There are four categories (1 through 4) and the indications are different for each. (Note that category 0 is the EVR adjustment mode.)

Caategory	Indication on LCD
1	A/D conversion value for battery voltage (decimal indication)*1 00 : 00 – 02 : 55
2	LAST EMG (last emergency)*2 Refer to Service Mode Error Indications.
3	PRESENT EMG (current emergency)*3 Refer to Service Mode Error Indications.
4	MODE SW CODE (mechanism status) 00 : 00 EJECT 00 : 01 I.A 00 : 02 UNLOAD 00 : 03 I.B 00 : 04 STOP (threading completed) 00 : 05 I.C 00 : 06 RP(REC, PB, FF, REW, CUE, REVIEW, PAUSE) 00 : AA Mode switch error

Notes: 1) Indicates a value proportional to the battery voltage.
2) LAST EMG indicates the error occurring last before entering service mode. Even if an error occurs in the service mode, it is not indicated.
3) PRESENT EMG indicates the status when the FF or REW button of the adjustment remote controller was pressed. So, the indication does not change even if the error is eliminated.

- **Service mode error indication**

Error Status	PRESENT EMG Indication LAST EMG	Indication
No error	00 : 00	00 : 00
Loading motor	00 : 01	00 : 01
REEL FG error during unthreading	00 : 02	00 : 02
REEL FG error not during unthreading	00 : 03	00 : 03
Capstan error	00 : 04	00 : 04
DRUM PG error (0) when starting drum	00 : 05	00 : 05
DRUM PG error (1) when starting drum	01 : 05	00 : 14 or 00 : 0E
DRUM PG error (2) when starting drum	02 : 05	00 : 15 or 00 : 0F
No DRUM PG (0) when starting drum	00 : 06	00 : 06
No DRUM PG (1) when starting drum	01 : 06	00 : 14 or 00 : 0E
No DRUM PG (2) when starting drum	02 : 06	00 : 15 or 00 : 0F
DRUM FG error (0) when drum stationary	00 : 07	00 : 07
DRUM FG error (1) when drum stationary	01 : 07	00 : 14 or 00 : 0E
DRUM FG error (2) when drum stationary	02 : 07	00 : 15 or 00 : 0F
No DRUM PG (0) when drum stationary	00 : 08	00 : 08
No DRUM PG (1) when drum stationary	01 : 08	00 : 14 or 00 : 0E
No DRUM PG (2) when drum stationary	02 : 08	00 : 15 or 00 : 0F
Phase error (0) when drum stationary	00 : 09	00 : 09

(1) During tape threading
(2) During tape unthreading
(0) Other

4. Releasing service mode

The service mode is released by returning the HOLD switch of the adjustment remote controller to the NORMAL position or by disconnecting the adjustment remote controller from the remote terminal.

[Test modes]

This unit has three test modes which are invoked by connecting the terminals of CN508 on the VK-11P board.

Test Mode	Connection of CN508 on VK-11P Board	Function
1	Pin ③ (TEST A) and Pin ② (GND) short-circuited	1. Switching position adjustment possible. 2. Error detection disabled.
2	Pin ① (TEST B) and Pin ② (GND) short-circuited	1. For battery end detection adjustment BATTERY SENSE voltage (input voltage to Pin ㊽ of IC501) is displayed in EVF and monitor screen (only when data screen is ON). − 1 : 03 : 05 ↑ Mode indication ↑ BATTERY SENSE voltage
3	Pin ③ (TEST A) and Pin ② (GND)/Pin ① (TEST B) and Pin ② short-circuited.	1. For tape path adjustment (Tracking shifted by 1/4 track) Refer to MECHANISM ADJUSTMENTS.

9-1. POWER SUPPLY ADJUSTMENTS AND CHECKS

9-1-1. Oscillation Frequency Adjustment (PS-263P Board)

Mode	Stop (POWER ON)
Measurement Point	Collector of Q941
Measuring Instrument	Frequency counter
Adjustment Element	RV938
Specified Value	475 ± 5 kHz

Adjustment method:
1) Adjust the oscillation frequency to 475 ± 5 kHz with RV938.

9-1-2. Video 5V Adjustment (PS-263P Board)

Mode	Stop (POWER ON)
Measurement Point	Pin ① of W901
Measuring Instrument	Digital voltmeter
Adjustment Element	RV936
Specified Value	5.0 ± 0.05 Vdc

Adjustment method:
1) Adjust with RV936 so that it becomes 5.0 ± 0.05 Vdc.

9-2. SYSTEM CONTROL ADJUSTMENTS

9-2-1. Battery Down Adjustment (CO-2P Board)

Mode	Camera recording
Signal	Arbitrary
Measurement Point	Confirmation on monitor screen
Measuring Instrument	
Adjustment Element	RV551
Specified Value	Battery indication ( ) flashes at a rate of 3.8 times per second (3.8 Hz) and counter value is approximately "–1 : 02 : 85".

Connections:

1) Connect a regulated power supply and digital voltmeter as shown in Fig. 9-4.
2) Connect Pin ① (TEST B) and Pin ② (GND) of CN508 on the VK-11P board with a jumper wire. (Test 2 mode)

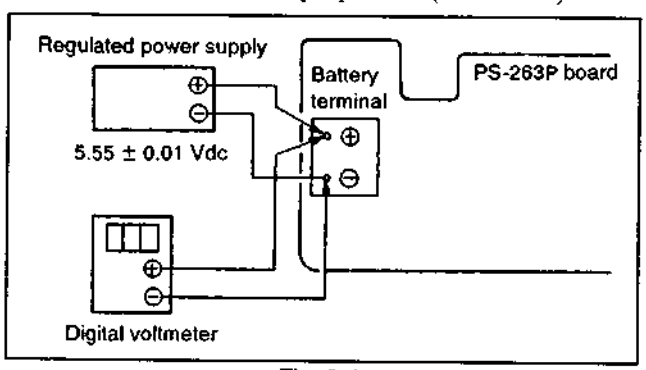


Fig. 9-4.

Adjustment method:

1) Press the data screen button (S509) on the VK-11P board to display the counter on the monitor screen. (See Fig. 9-5.)
2) Confirm that the indication on the digital voltmeter is 5.55 ± 0.01 Vdc.
3) Slowly rotate RV551 and set to the closest point at which the battery indication ( ) on the monitor screen flashes at a rate of 3.2 times per seconds (3.2 Hz) and the counter value is "–1 : 02 : 85".

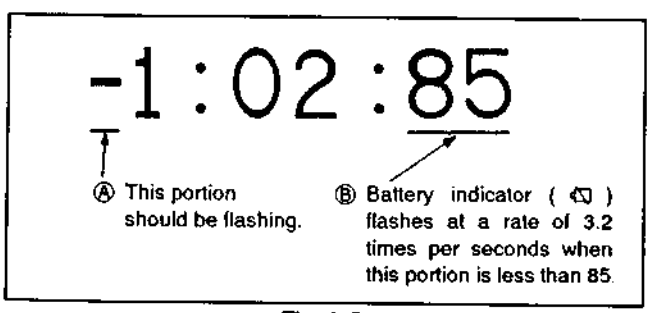


Fig. 9-5.

Checking method:

Perform the following checks and repeat the adjustments again if the required conditions are not satisfied.

1) Adjust the output voltage of the regulated power supply so that the indication of the digital voltmeter becomes 6.30 ± 0.01 Vdc.
2) Set the unit to the camera REC mode after turning the power off and then on.
3) Press the data screen button on the VK-11P board so that there is data indication on the monitor screen.
4) Slowly lower the output voltage of the regulated power supply until the indication on the digital voltmeter becomes 5.60 ± 0.01 Vdc.
5) Confirm that the battery indicator ( ) on the monitor screen is out or flashing at a rate of 0.8 times per second.
6) Slowly lower the output voltage of the regulated power supply until the indication on the digital voltmeter becomes 5.50 ± 0.01 Vdc.
7) Confirm that the battery indicator ( ) is flashing on the monitor screen at a rate of 3.2 times per second (3.2 Hz).

9-2-2. System Clock Adjustment (CK-43P Board)

Mode	Power ON
Measurement Point	Pin ⑱ of IC651
Measuring Instrument	Frequency counter
Adjustment Element	RV651
Specified Value	330 ± 5 kHz

Adjustment method:

1) Adjust with RV651 so that it becomes 330 ± 5 kHz.

9-2-3. Clock Precision Adjustment (CK-43P Board)

Mode	Power OFF
Measurement Point	Pin ㉑ of IC651
Measuring Instrument	Frequency Counter
Adjustment Element	CV651
Specified Value	8192.00 ± 0.04 Hz

Adjustment method:

1) Disconnect the main power supply and lithium battery.
2) Connect Pin ㉘ (TEST) of IC651 to ground using a jumper wire (TEST mode).
3) Supply 3V (3.0 ± 0.05 Vdc) of power to the lithium battery terminals from a regulated power supply.
4) Adjust to 8192.00 ± 0.04 Hz using CV651.
5) Disconnect the regulated power supply and the jumper wire.

9-3. SERVO SYSTEM ADJUSTMENTS

9-3-1. Oscillation Frequency Adjustment (CO-2P Board)

Mode	Recording (SP mode)
Signal	Color bar
Measurement Point	Pin ⑩ of IC621
Measuring Instrument	Frequency counter
Adjustment Element	RV621
Specified Value	480 ± 5 kHz

Adjustment method:

1) Set the oscillation frequency to 480 ± 5 kHz using RV621.

9-3-2. REC ATF Level Checking (CO-2P Board)

Mode	Recording
Signal	No signal
Measurement Point	Emitter of Q530
Measuring Instrument	Oscilloscope
Specified Value	Approx. 900 mVp-p

Checking method:

1) Confirm that the REC ATF signal level is approximately 900 mVp-p.

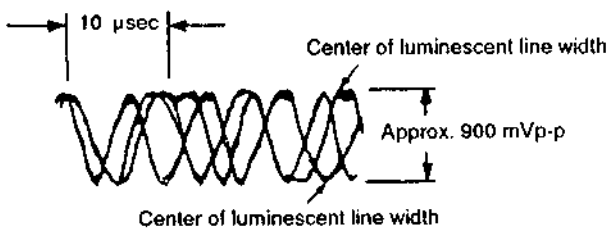


Fig. 9-6. REC ATF level checking

9-3-3. Switching Position Adjustment (CO-2P Board)

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5CSP)
Measurement Point	CH-1: J201 (video output) on CV-9 board CH-2: Pin ④ (RF SWP) of CN102
Measuring Instrument	Oscilloscope
Adjustment Element	RV501
Specified Value	6.5 ± 0.3H (410 ± 20 µs)

Connections:

1) Connect Pin ③ (TEST A) and Pin ② (GND) of CN508 on the VK-11P board using a jumper wire. (Test 1 mode)

Adjustment method:

1) Adjust with RV501 so that it becomes 6.5 ± 0.3H (410 ± 20 µs).

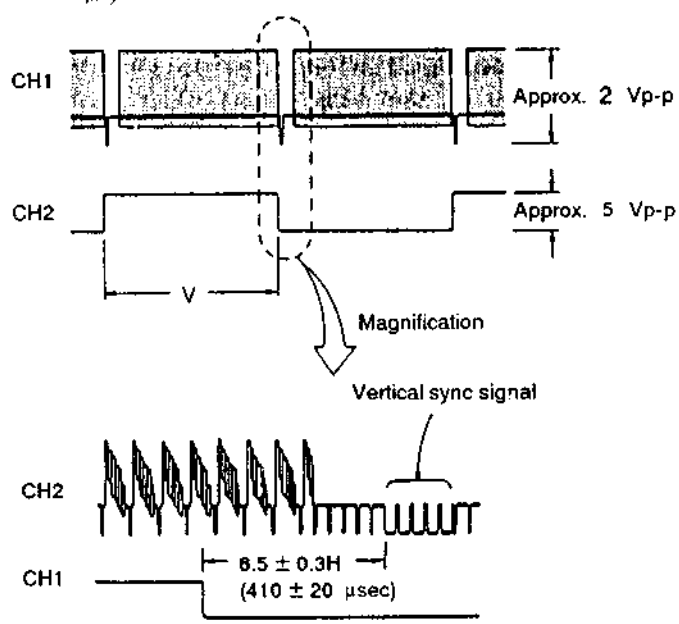


Fig. 9-7. Switching position adjustment

9-3-4. Still Adjustment (CV-9 Board)

Mode	Playback pause (LP)
Signal	Self-recorded tape of color bars signal
Measurement Point	Monitor TV screen
Measuring Instrument	
Adjustment Element	RV552
Specified Value	Equal top and bottom noise bands

Note: Use the midsection of a tape (1/4 to 3/4) for adjustment.

Adjustment method:

1) Play back the self-recorded tape and press the PAUSE button to set the playback pause mode after the image has stabilized.
2) Confirm that the noise bands on top and bottom of the screen are eual.
3) If the specified condition is not satisfied, adjust RV552, and repeat 1) and 2).

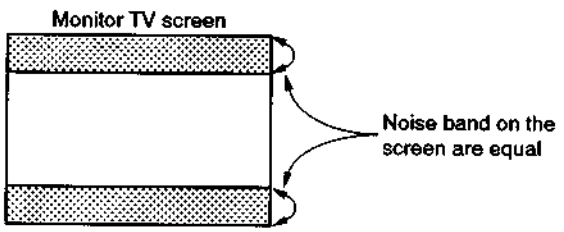


Fig. 9-8. Still adjustment

9-3-5. Capstan FG Adjustment (CO-2P Board) (E, Australian Model only)

Mode	Recording (LP mode)
Signal	Arbitrary
Measurement Point	Pin ① of IC510
Measuring Instrument	Oscilloscope
Adjustment Element	RV502
Specified Value	Minimum amplitude

Adjusting method:

1) Adjust amplitude of the output waveform (capstan error) at Pin ① of IC510 to the minimum with RV502.

Fig. 9-9.

9-4. VIDEO BLOCK ADJUSTMENT

The adjustment of the video system should in principle follow the adjustment procedure outlined below.
The color video signal supplied from the pattern generator is utilized as the video input signal for video system adjustment in the recording mode. Make sure that the sync signal and color burst signal match the specifications given in set-up for adjustment, as shown in Fig. 9-3.

[Adjustment procedure]

1) Playback frequency characteristics adjustment
2) Flying erase check
3) Crystal oscillator fo adjustment
4) Y/C separation adjustment
5) IR2 adjustment
6) SYNC AGC adjustment
7) Emphasis input level adjustment
8) PB Y level adjustment
9) PB video out level adjustment
10) Y FM carrier frequency adjustment
11) Y FM deviation adjustment
12) Chroma emphasis fo adjustment
13) REC Y level adjustment
14) REC C level adjustment
15) Feedback chroma adjustmrnt
16) Quasi burst phase adjustment
17) Delay burst phase adjustment
18) DDS character position adjustment
19) Character generator fo adjustment

9-4-1. Playback Frequency Characteristics Adjustment (CO-2P Board)

1. CH1, CH2 adjustment

The adjusting element for CH2 is shown in parentheses [ ].

Mode	Playback
Signal	Alignment tape: For frequency characteristics adjustment (WR5-6C)
Measurement Point	Pin ③ of CN102 External trigger: Pin ④ of CN102 Trigger slope: +, [–]
Measuring Instrument	Oscilloscope
Adjustment Element	RV101 [RV102]
Specified Value	3.58 MHz level : 5.5 MHz level=4 : 3

Adjustment method:

1) Adjust RV101 [RV102] so that the ratio of the 3.58 MHz level to the 5.5 MHz level is 4 : 3 [4 : 3].

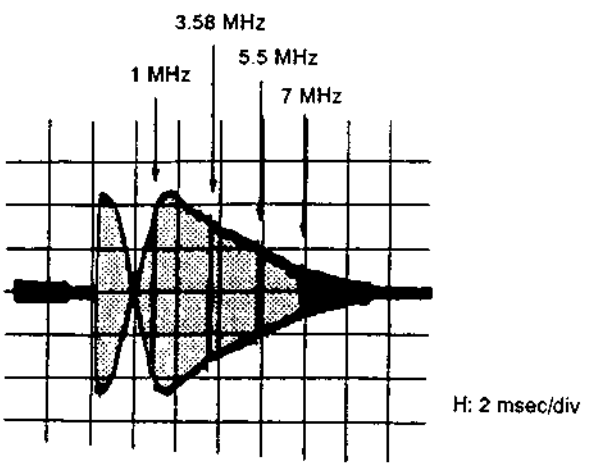


Fig. 9-10. Playback frequency characteristics adjustment

9-4-2. Flying Erase Check (CO-2P Board)

Mode	Recording
Signal	Arbitrary
Measurement Point	Pin ⑫ of CN101 (TP103: FE (X))
Measuring Instrument	Oscilloscope and frequency counter
Specified Value	Frequency: 7.95 ± 5.5 MHz Voltage: 7.75 ± 0.75 Vp-p

Note: Be sure to use MP type tape. (Pin ⑪ of CN501 should be "L".)

Checking method:

1) Confirm that the oscillation frequency is 7.95 ± 5.5 MHz and the oscillation voltage is 7.75 ± 0.75 Vp-p.

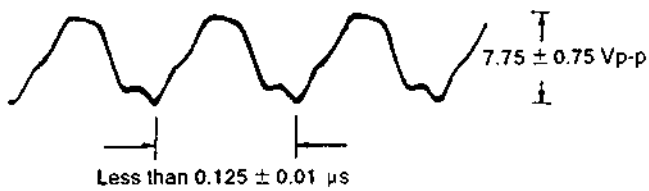


Fig. 9-11.

9-4-3. Crystal Oscillator fo Checking (CV-9 Board)

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5CSP)
Measurement Point	Pin ⑩ of W202 (fSC IN)
Measuring Instrument	Frequency counter
Specified Value	4433619 $^{+50}_{-60}$ Hz

Checking method:

1) Confirm that the oscillation frequency at Pin ⑩ of W202 is 4433619 $^{+50}_{-60}$ Hz.

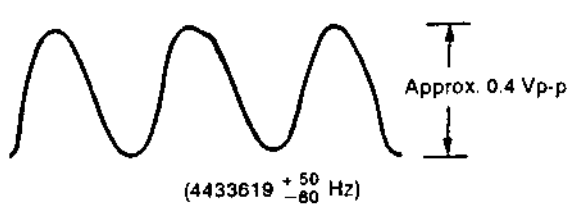


Fig. 9-12. Crystal oscillator fo adjustment

9-4-4. Y/C Separation Adjustment (CV-9 Board)

Mode	Recording
Signal	Color bars
Measurement Point	Any terminal of RV204 (DEV) (Pin ㉘ of IC203)
Measuring Instrument	Oscilloscope
Adjustment Element	RV202
Specified Value	Minimum residual chroma component

Connections:

1) Connect Pin ㊴ of IC203 (Pin ⑭ of IC202) to GND with a 10 μF/16V electrolytic capacitor. (Capacitor negative side to GND)

Adjustment method:

1) Set the residual chroma component to minimum with RV202.

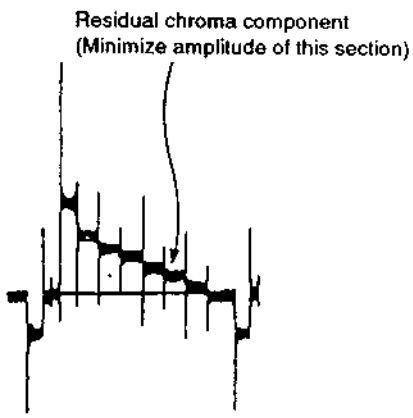


Fig. 9-13. Y/C separation adjustment

9-4-5. IR2 Adjustment (CV-9 Board)

Mode	Recording
Signal	Color bars
Measurement Point	Pin ⑧ of IC203
Measuring Instrument	Oscilloscope
Adjustment Element	RV203
Specified Value	6.9 ± 0.2 μsec

Connections:

1) Connect Pin ⑧ of IC 203 to GND with a 3.9 kΩ resistor.

Adjustment method:

1) Adjust RV203 so that it becomes 6.9 ± 0.2 μsec.

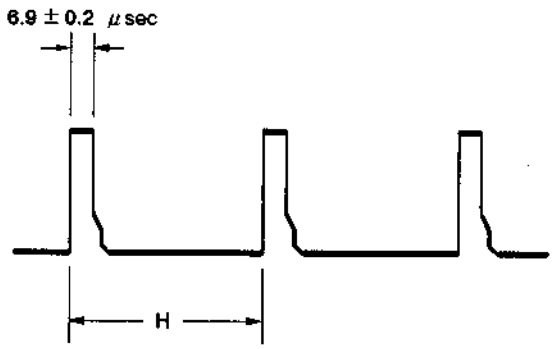


Fig. 9-14. IR2 adjustment

9-4-6. SYNC AGC Adjustment (CV-9 Board)

Mode	Recording
Signal	Color bar
Measurement Point	J201 (VIDEO OUT)
Measuring Instrument	Oscilloscope
Adjustment Element	RV201
Specified Value	1.00 ± 0.05 Vp-p

Note: Terminate VIDEO OUT (J201) at 75Ω .

Adjustment method:

1) Adjust with RV201 so that it becomes 1.00 ± 0.05 Vp-p.

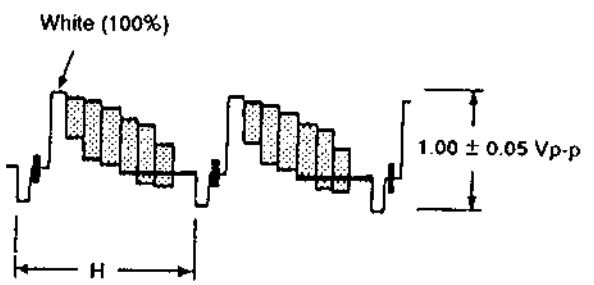


Fig. 9-15. SYNC AGC adjustment

9-4-7. Emphasis Input Level Adjustment (CV-9 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Pin ㊹ of IC203
Measuring Instrument	Oscilloscope
Adjustment Element	RV401
Specified Value	0.50 ± 0.02 Vp-p

Adjustment method:

1) Adjust with RV401 so that it becomes 0.50 ± 0.02 Vp-p.

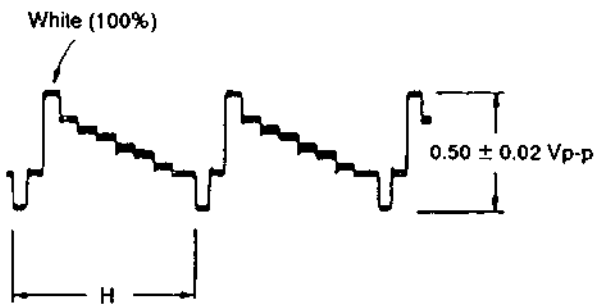


Fig. 9-16. Emphasis input level adjustment

9-4-8. PB Y Level Adjustment (CV-9 Board)

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5CSP) Color bar section
Measurement Point	Pin ㊼ of IC203
Measuring Instrument	Oscilloscope
Adjustment Element	RV402
Specified Value	0.50 ± 0.02 Vp-p

Adjusting method:

1) Adjust to 0.50 ± 0.02 Vp-p with RV402.
2) Always perform "PB video out level adjustment" after this adjustment.

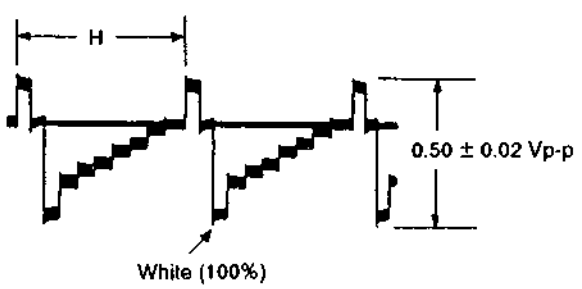


Fig. 8-17. PB Y level adjustment

9-4-9. PB Video Out Level Adjustment (CV-9 Board)

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5CSP) Color bar section
Measurement Point	J201 (VIDEO OUT)
Measuring Instrument	Oscilloscope
Adjustment Element	RV403
Specified Value	1.00 ± 0.04 Vp-p

Note: Terminate VIDEO OUT (J201) at 75Ω .

Adjustment method:

1) Adjust with RV403 so that it becomes 1.00 ± 0.04 Vp-p.

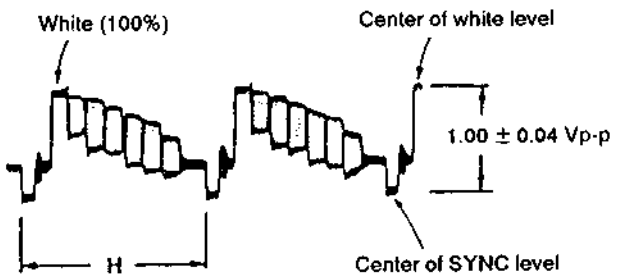


Fig. 9-18. PB video out level adjustment

9-4-10. Y FM Carrier Frequency Adjustment (CV-9 Board)

Mode	Recording
Signal	No signal
Measurement Point	Emitter of Q232 or center terminal of RV207 (REC Y)
Measuring Instrument	Frequency counter
Adjustment Element	RV205
Specified Value	4.39 ± 0.02 MHz

Adjustment method:

1) Adjust to 4.39 ± 0.02 MHz with RV205.
2) Perform "Deviation Adjustment".

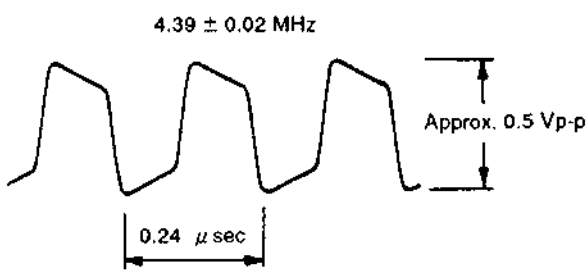


Fig. 9-19. Y FM carrier frequency adjustment

9-4-11. Y FM Deviation Adjustment (CV-9 Board)

Mode	Recording and playback
Signal	Color bar
Measurement Point	J201 (VIDEO OUT)
Measuring Instrument	Oscilloscope
Adjustment Element	RV204
Specified Value	Playback level is 1.00 ± 0.04 Vp-p

Notes: 1) Confirm that "PB Y Level Adjustment", "PB Video Out Level Adjustment" and "Y FM Carrier Frequency Adjustment" have been completed.
2) Terminate VIDEO OUT (J201) at 75Ω .

Adjustment method:
1) Record the color bar signal.
2) Playback the recorded signal.
3) Confirm the playback output.
Specified value: 1.00 ± 0.04 Vp-p
4) If the specified value is not satisfied, repeat 1) to 3) after turning RV204 in the following manner.

	Rotation direction of RV204
When smaller than specified value	Clockwise (↻)
When larger than specified value	Counterclockwise (↺)

Table 9-1.

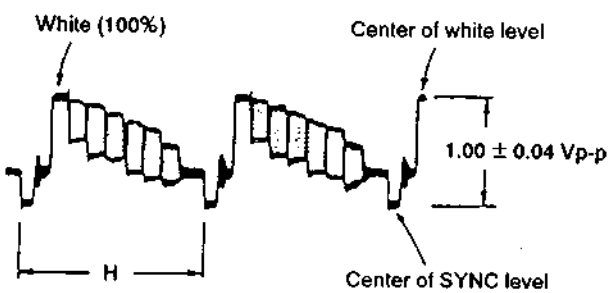


Fig. 9-20. Y FM deviation adjustment

9-4-12. Chroma Emphasis fo Adjustment (CV-9 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Center terminal of RV208 (REC C)
Measuring Instrument	Oscilloscope
Adjustment Element	FL202
Specified Value	Minimum fo component

Adjustment method:
1) Adjust with FL202 so that amplitude of the flat section of the chroma signal RED section becomes minimum.

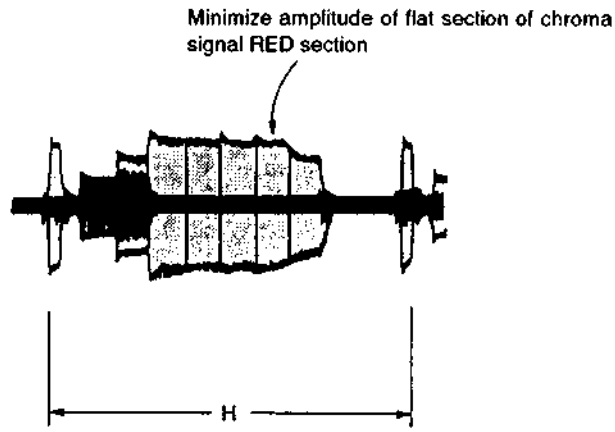


Fig. 9-21. Chroma emphasis fo adjustment

9-4-13. REC Y Level Adjustment (CV-9 Board)

Mode	Recording
Signal	No signal
Measurement Point	Emitter of Q230 (Pin ⑯ of CN502)
Measuring Instrument	Oscilloscope
Adjustment Element	RV207
Specified Value	230 ± 10 mVp-p

Adjustment method:
1) Adjust with RV207 so that it becomes 230 ± 10 mVp-p.

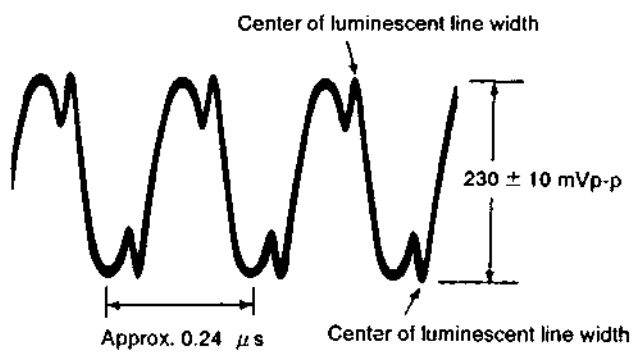


Fig. 9-22. REC Y level Adjustment

9-4-14. REC C Level Adjustment (CV-9 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Emitter of Q233 (Pin ⑱ of CN502)
Measuring Instrument	Oscilloscope
Adjustment Element	RV208
Specified Value	110 ± 10 mVp-p

Adjustment method:

1) Adjust with RV208 so that it becomes 110 ± 5 mVp-p.

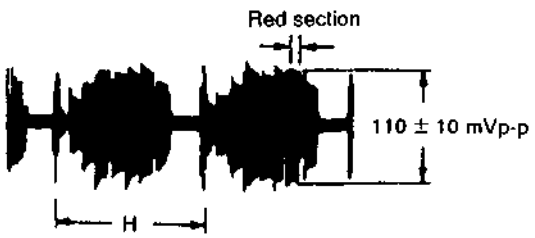


Fig. 9-23. REC C level adjustment

9-4-15. Feedback Chroma Adjustment (PJ-20 Board)

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5CSP)
Measurement Point	Emitter of Q107
Measuring Instrument	Oscilloscope
Adjustment Element	RV104
Specified Value	Mininum residual component

Adjusting method:

1) Adjust RV104 so as to mininize the residual chroma component.

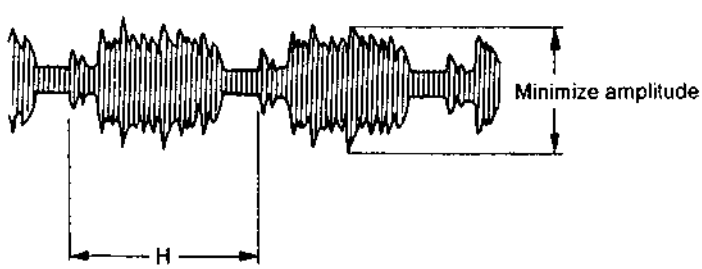


Fig. 9-24.

9-4-16. Quasi Burst Phase Adjustment (PJ-20 Board)

1. Method using vectorscope

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5CSP)
Measurement Point	VIDEO OUT terminal
Measuring Instrument	Vectorscope
Adjusting Element	RV102
Specified Value	Phase of color luminance points in quasi burst mode is same as phase of color luminance points in through burst mode

Adjusting method:

1) Memorize of the phase of the color luminance points (especially yellow). (Through burst mode)
2) Connect Pin ㉑ of IC101 and Pin ② of CN202 with a diode (1SS119, etc.). (Quasi burst mode)

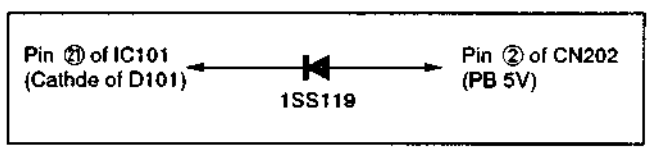


Fig. 9-25.

3) Confirm the color of color bars on the monitor screen. If abnormal, stop the unit and then set the playback mode again.
4) Adjust RV102 so that the phase of the color luminance points is the same as the phase memorized in 1).
5) Remove the diode.

2. Method using monitor TV

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5CSP)
Measurement Point	Confirmation on monitor TV screen
Measuring Instrument	
Adjusting Element	RV102
Specified Value	Minimum chroma flickering

Connection:

1) Connect Pin ㉑ of IC101 and Pin ② of CN502 on CV-9 board (RF SWP) using a diode (1SS119, etc.).

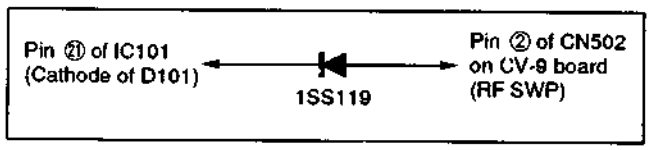


Fig. 9-26.

Adjusting method:

1) Observe the monitor screen. If color is abnormal and considerable chroma flicker occurs, stop the unit and then set the playback mode again.
2) Set the monitor color level to maximum and its bright level to minimum.
3) Minimize chroma flicker with RV102 so that horizontal black stripes cannot longer be seen.
4) Remove the diode.

9-4-17. Delay Burst Phase Adjustment (PJ-20 Board)

Mode	Playback pause (LP mode)
Signal	Alignment tape: For operation checking (WR5-4CL) color bars
Measurement Point	Confirmation on monitor TV screen
Measuring Instrument	
Adjusting Element	RV103
Specified Value	Minimum chroma flickering

Adjusting method:

1) Set the monitor color level to maximum and its bright level to minimum.
2) Rotate RV103 fully in the counterclockwise direction(↺).
3) Turn RV103 slowly clockwise and stop where chroma flicker is minimum and horizontal black stripes are least visible.

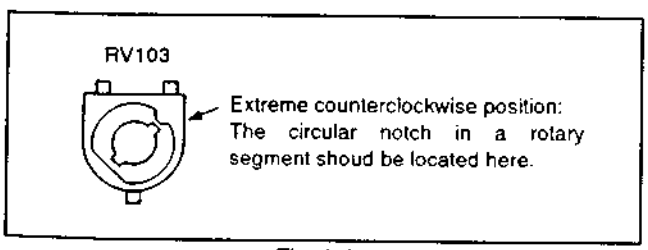


Fig. 9-27.

9-4-18. DDS Character Position Adjustment (CV-9 Board)

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5CSP) Color bar section
Measurement Point	Confirm on monitor TV screen
Measuring Instrument	
Adjustment Element	CV501
Specified Value	See Fig. 9-28.

Adjustment method:

1) Press the data screen button for indication of the counter on the monitor TV screen.
2) Adjust CV501 until the right inner contour of the number at the right side of the count indication is lined up with the border line between the blue and black color bars.

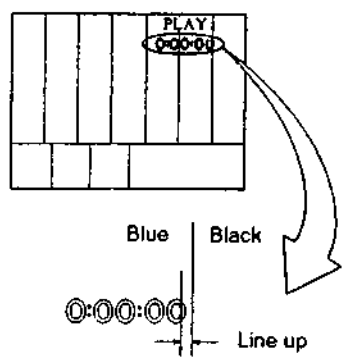


Fig. 9-28.

9-4-19. Character Generator fo Adjustment (CV-9 Board)

Mode	E-E
Signal	Non-signal
Measurement Point	Pin ⑲ of IC501
Measuring Instrument	Frequency counter
Adjustment Element	CV502
Specified Value	15625 ± 100 Hz

Adjustment method:

1) Adjust CV502 so that it becomes 15625 ± 100 Hz.

9-5. AUDIO SYSTEM ADJUSTMENT

- Perform adjustment with the color bar signal used as the video input signal.

[Connection of audio measuring instruments]

In addition to the video system measuring instruments, connect the audio system measuring instruments as shown in the figure below, and set the power switch to the video position for adjustment.

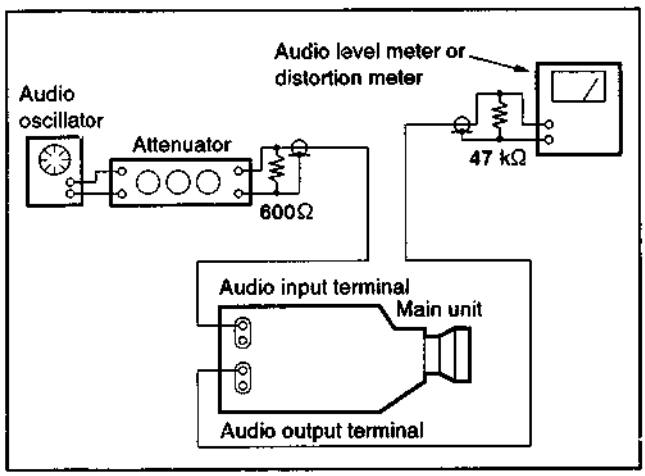


Fig. 9-29.

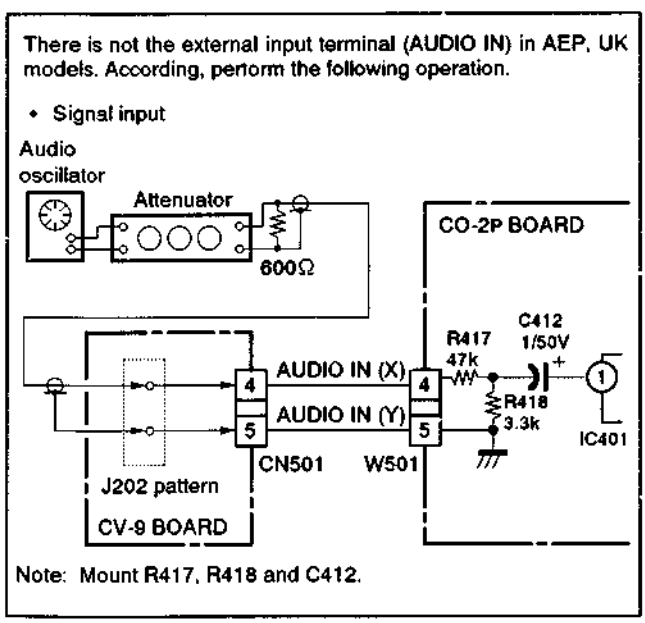


Fig. 9-30.

9-5-1. AFM Carrier Frequency Check (CO-2P Board)

Mode	Recording
Signal	Non-signal
Measurement Point	Pin ㉑ of IC401(REC AFM)
Measuring Instrument	Frequency counter
Specified Value	1.50 ± 0.05 MHz

Note: Connect the frequency counter through a buffer amplifier (oscilloscope, etc.) having high impedance and low capacitance.

Checking method:

1) Turn OFF the audio oscillator output.
2) Confirm that the AFM carrier frequency is 1.50 ± 0.05 MHz.

9-5-2. REC AFM Carrier Level Check (CO-2P Board)

Mode	Recording
Signal	Non-signal
Measurement Point	Pin ㉑ of IC401 (REC AFM)
Measuring Instrument	Oscilloscope
Specified Value	160 ± 40 mVp-p

Checking method:

1) Confirm that the level is 160 ± 40 mVp-p.

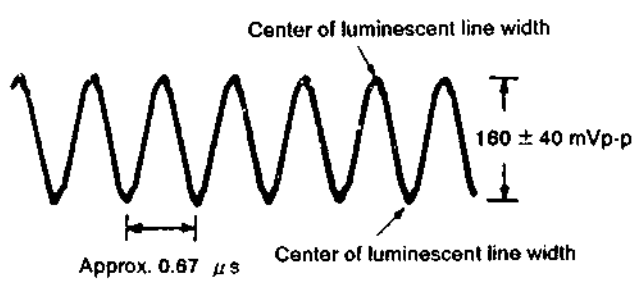


Fig. 9-31. REC AFM recording current adjustment

9-5-3. Playback Level Check

Mode	Playback
Signal	Alignment tape: Operation checking (WR5-5CSP)
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter
Specified Value	–7.5 ± 2 dBs

Checking method:

1) Confirm that the audio output level is –7.5 ± 2 dBs.

9-5-4. E-E Output Level Check

Mode	E-E
Signal	400 Hz, –7.5 dBs
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter
Specified Value	–7.5 ± 2 dBs

Checking method:
1) Make sure that the audio output level is –7.5 ± 2 dBs.

9-5-5. Overall Level Characteristics Check

Mode	Self-recording and playback
Signal	400 Hz, –7.5 dBs
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter
Specified Value	–7.5 ± 3 dBs

Checking method:
1) Record the signal.
2) Playback the recorded section.
3) Make sure that the audio output level is –7.5 ± 3 dBs.

9-5-6. Overall Frequency Characteristics Check

Mode	Self-recording and playback
Signal	Ⓐ 400 Hz, –17.5 dBs Ⓑ 30 Hz, –17.5 dBs Ⓒ 14 kHz, –17.5 dBs
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter
Specified Value	With the 400 Hz playback output level as 0 dB, the playback output level of 30 Hz and 14 kHz is 0 ± 3 dB

Checking method:
1) Record signal Ⓐ through Ⓒ in order.
2) Playback the recorded sections.
3) With the 400 Hz playback output level as 0 dB, confirm that the playback output level of 30 Hz and 14 kHz is 0 ± 3 dB.

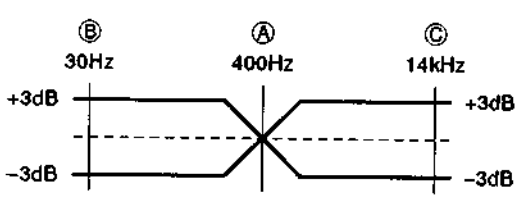


Fig. 9-32. AFM overall frequency characteristics

9-5-7. Overall Distortion Check

Mode	Self recording and playback
Signal	400 Hz, –7.5 dBs
Measurement Point	Audio output terminal
Measuring Instrument	Distortion meter
Specified Value	Less than 0.5% *1

Checking method:
1) Record the signal.
2) Playback the recorded section.
3) Confirm that the distortion is less than 0.5%. *1

*1 Value when 200 Hz – 6 kHz BPF is used

9-5-8. Overall Noise Level Check

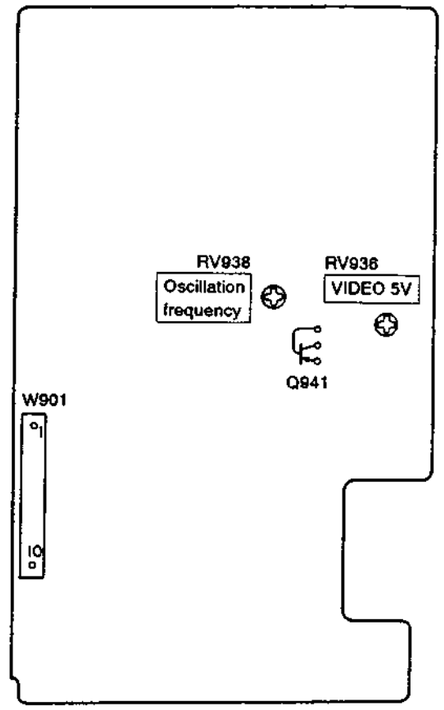
Mode	Self-recording and playback
Signal	No signal (shorting plug is inserted into audio input jack)
Measurement Point	Audio input terminal
Measuring Instrument	Audio level meter
Specified Value	Less than –67 dBs*2

Checking method:
1) Record the signal.
2) Playback the recorded section.
3) Make sure that the noise level is less than –67 dBs. *2

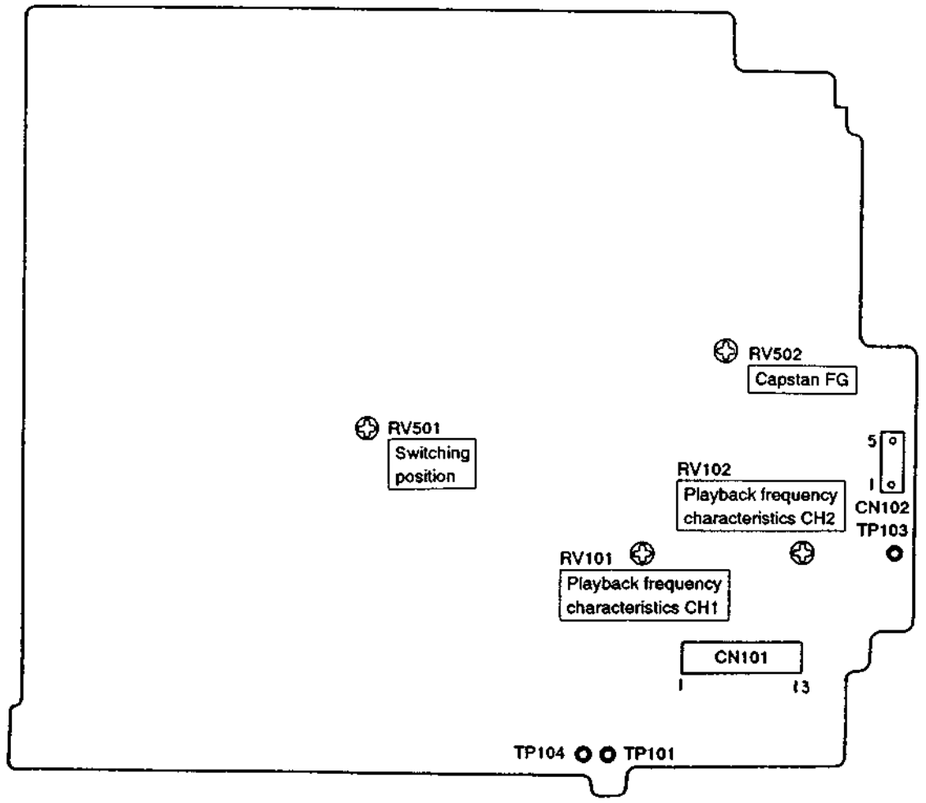
*2 Value when IHF-A hearing correction filter is used.

9-6. ADJUSTMENT ELEMENTS LOCATION

PS-263P BOARD (COMPONENT SIDE)



CO-2P BOARD (CONDUCTOR SIDE)

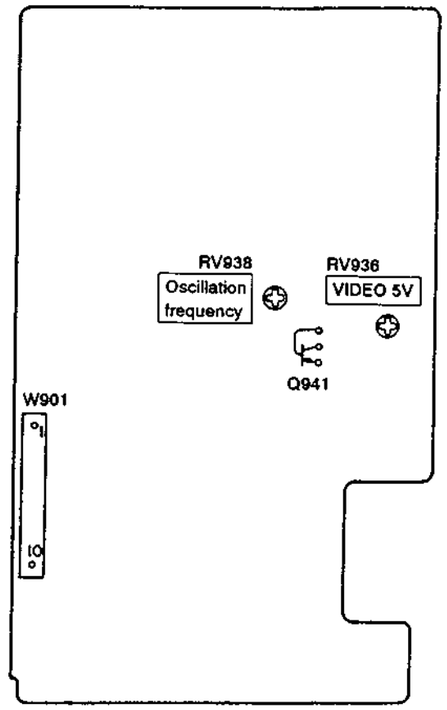


CK-43P BOAR

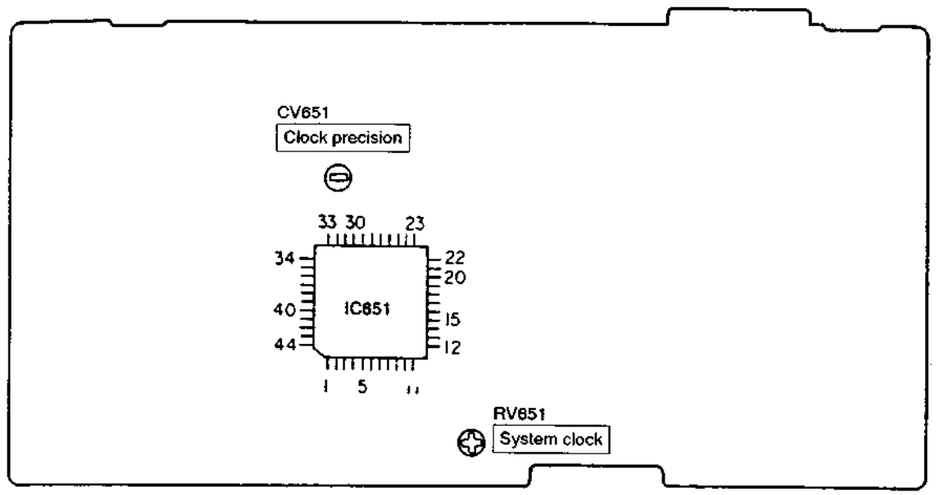
CO-2P BO

9-6. ADJUSTMENT ELEMENTS LOCATION

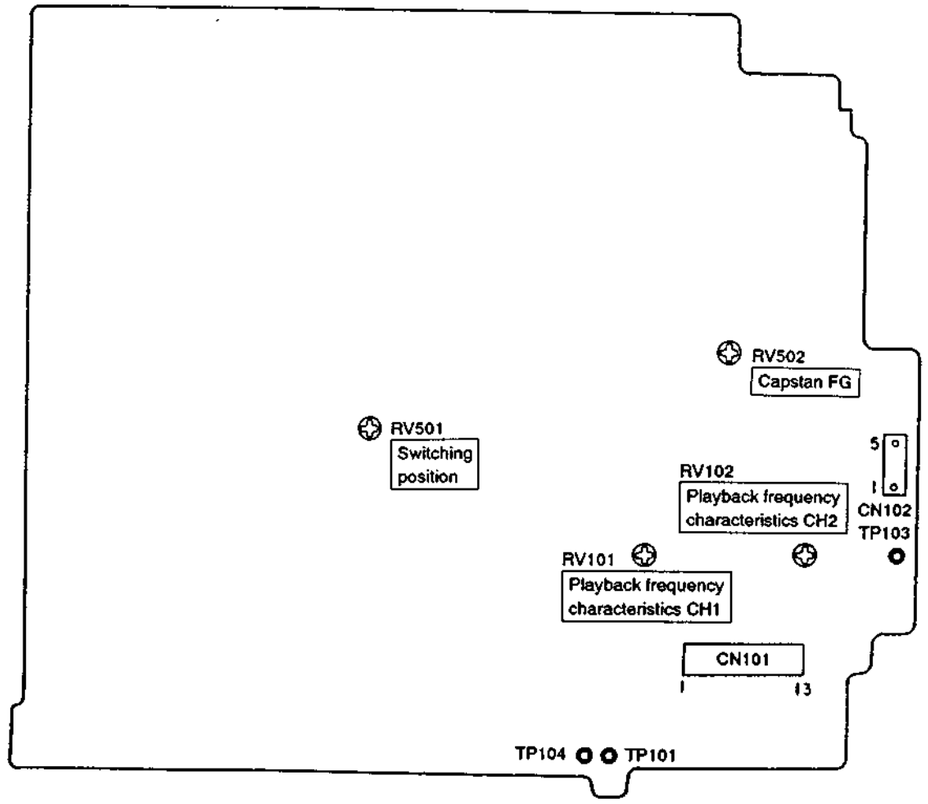
PS-263P BOARD (COMPONENT SIDE)



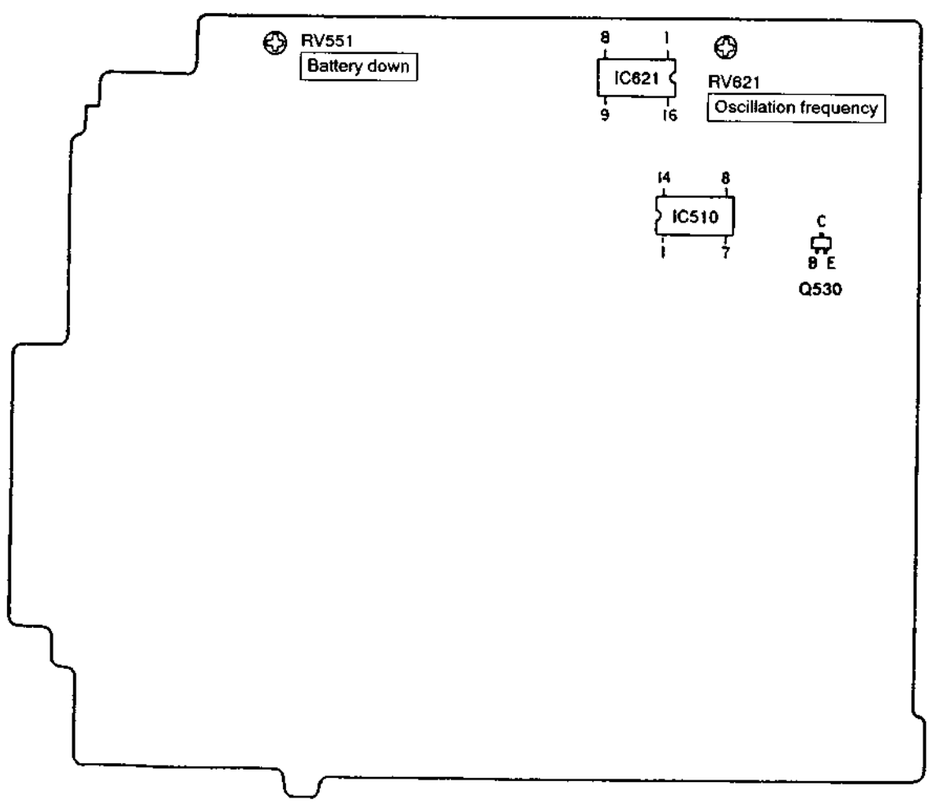
CK-43P BOARD (COMPONENT SIDE)



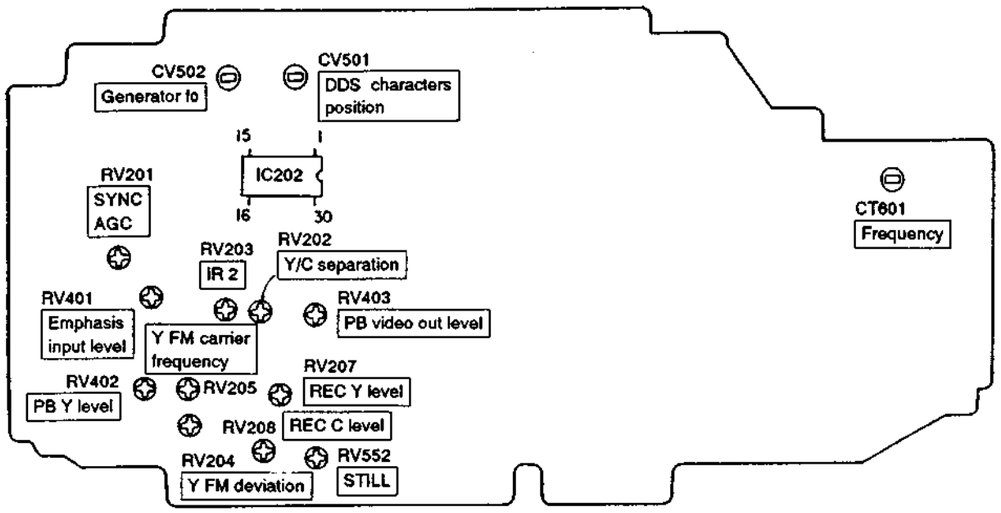
CO-2P BOARD (CONDUCTOR SIDE)



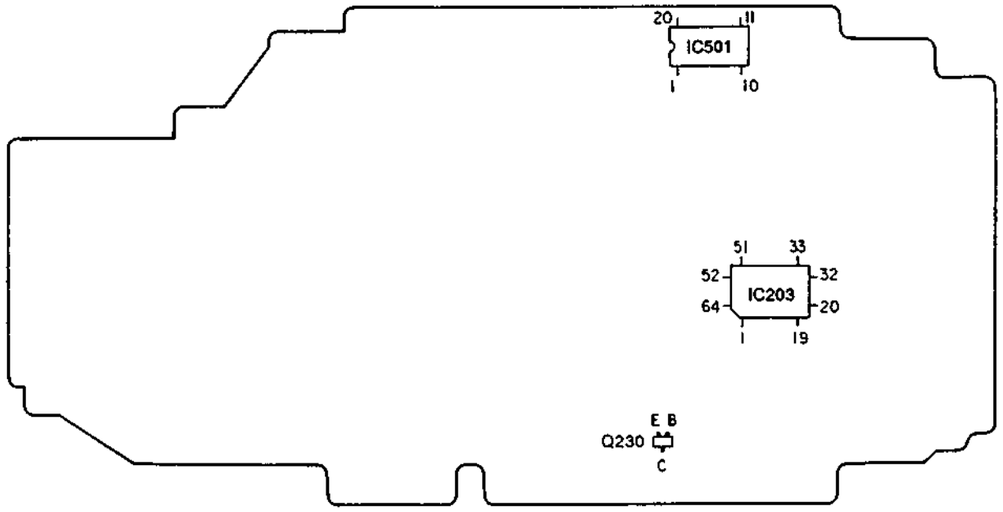
CO-2P BOARD (COMPONENT SIDE)



CV-9 BOARD (COMPONENT SIDE)



CV-9 BOARD (CONDUCTOR SIDE)



PJ-20 BOARD (COMPONENT SIDE)