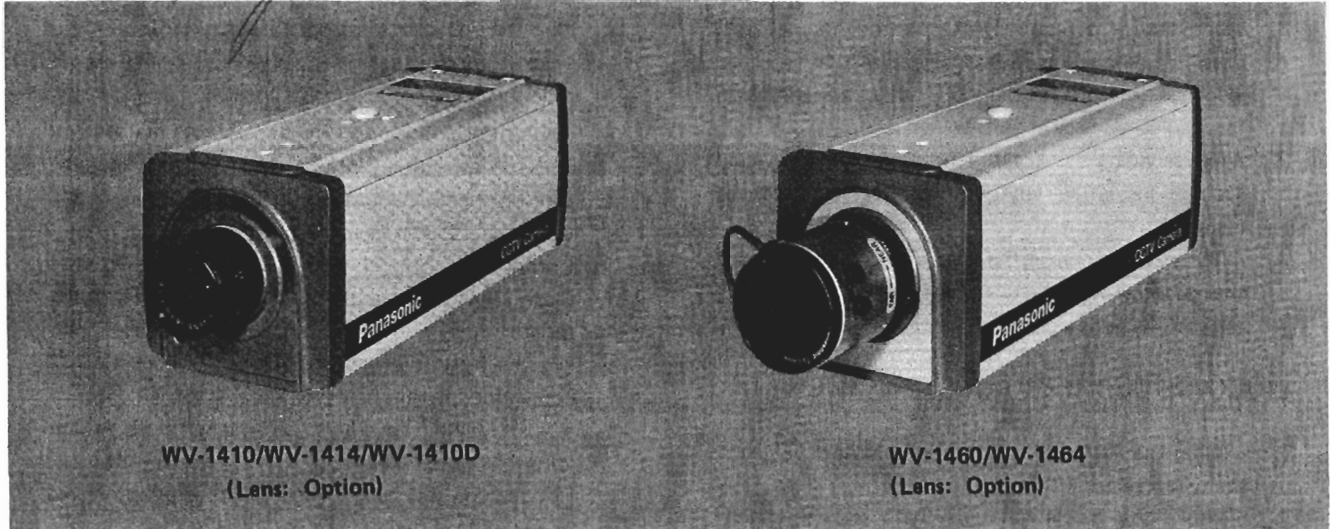


Service Manual

CCTV Camera

WV-1410 Series



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PRODUCT COMPLIES WITH DHHS RULES 21 CFR SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE

SAFETY PRECAUTION

GENERAL GUIDELINE

1. When service is required, observe the original lead dress. Components, wires or cables that indicate evidence of overheating or other electrical or mechanical damage should be replaced.
2. After servicing see to that all the protective devices, such as insulation tape, shields must be properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc.
When the exposed metallic part has a return path to the chassis, the reading should be between 1M ohms and 5.2M ohms. When the exposed metal does not have a return path to the chassis, the reading must be ∞ . (infinity)
Any resistance value below this range indicates an abnormality which requires corrective action.
3. Repeat the test with the AC switch in the "OFF" position.

LEAKAGE CURRENT HOT CHECK

1. Plug the AC cord directly into adaptor socket and plug adaptor into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5K ohms/10 watt resistor, paralleled by 0.15 μ F capacitor, between each exposed metallic part on the unit and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check all exposed metallic parts of the cover (BNC connector, Handle bracket, Metallic cabinet, Screw-heads, Metallic overlays, etc.), and measure the voltage at each point.
5. Reverse the AC plug in the AC plug adaptor and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75V RMS.

A leakage current tester (SIMPSON MODEL 229 or equivalent) may be used to make the hot checks. Leakage current must not exceed 0.5 milliampere. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and corrective action must be taken before returning the instrument to the customer.

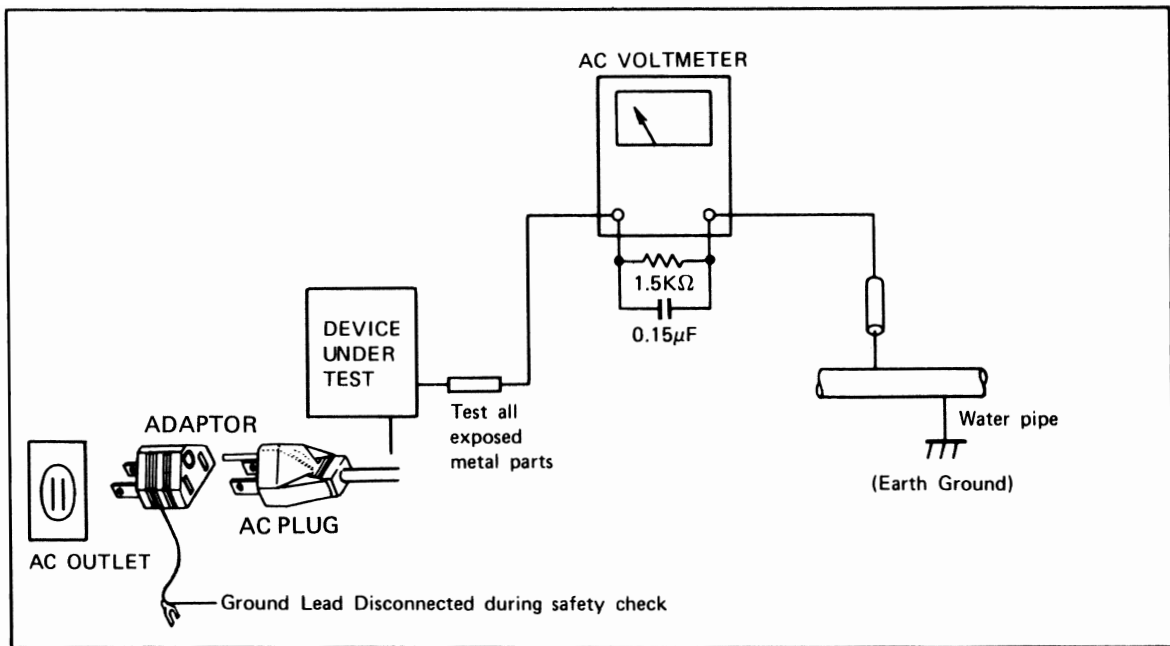


Figure 1. Leakage Current Hot Check

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK) NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are shaded on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

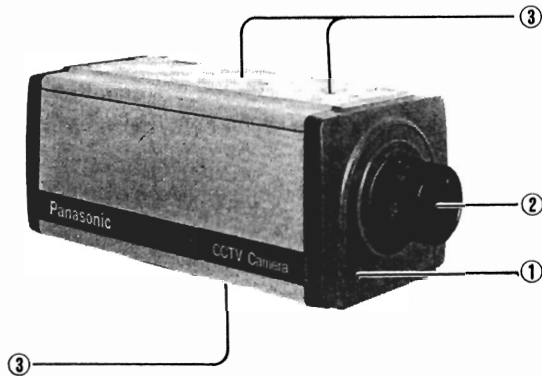
SPECIFICATIONS

Power Source:	WV-1410/WV-1460: 120V AC, 60Hz WV-1414/WV-1464: 24V AC, 60Hz
Power Consumption (Approx.):	WV-1410: 9 Watts WV-1414: 10 Watts WV-1464: 10 Watts WV-1464: 11 Watts
Pick-up Tube:	WV-1410/WV-1414: Magnetic focus, magnetic deflection, separate mesh 2/3" vidicon, 20PE13A WV-1460/WV-1464: Magnetic focus, magnetic deflection, separate mesh 2/3" Newvi-con, S4075
Scanning:	525 lines/60 fields/30frames
Synchronizing:	EIA RS-170 or vertical line locked (switchable internally)
Video Output:	1.0Vp-p composite/75 ohms (BNC connector)
Horizontal Resolution (at center):	550 lines
Signal-to-Noise Ratio:	More than 43dB (with 4.5MHz filter)
White Suppress:	1.0 Vp-p
Gamma Correction:	WV-1410/WV-1414: 1.0 (fixed) WV-1460/WV-1464: 0.7 (fixed)
Automatic Light Compensation:	WV-1410/WV-1414: 20,000:1 WV-1460/WV-1464: 40,000 ~ 66,000:1 (Depending on the model of the Automatic Iris Lens)
Minimum Required Illumination: (with f 1.4 lens and 2800°K incandescent lamp)	Usable Picture: WV-1410/WV-1414: 0.5 footcandle (5 lux) WV-1460/WV-1464: 0.05 footcandle (0.5 lux) Recommended Illumination: WV-1410/WV-1414: 5.0 footcandles (50 lux) WV-1460/WV-1464: 0.5 footcandle (5 lux)
External Controls:	Power ON/OFF, Mechanical Focus
Ambient Operating Temperature:	14°F ~ 122°F (-10° C ~ +50°C)
Ambient Operating Humidity:	Less than 90%
Lens Mounting:	Standard C-mount
Camera Mounting:	Top: Two 1/4"-20 threaded holes Bottom: One 1/4"-20 threaded hole
Dimensions:	3-9/16" (W) x 3-5/16" (H) x 8-3/8" (D) [91(W) x 84(H) x 212(D) mm]
Weight:	WV-1410: 3.5 lbs (1.6kg) WV-1414: 3.3 lbs (1.5 kg) WV-1460: 3.5 lbs (1.6 kg) WV-1464: 3.3 lbs (1.5 kg)
Standard Accessories:	WV-1460/WV-1464: Lens cleaning paper 1 set Lens Connector. 1pc

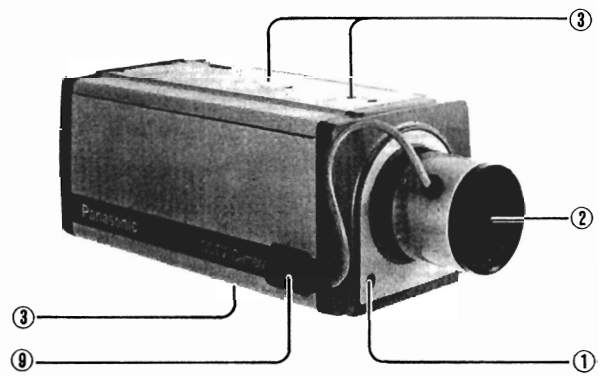
Specifications are subject to change without notice.

MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS

WV-1410/WV-1414

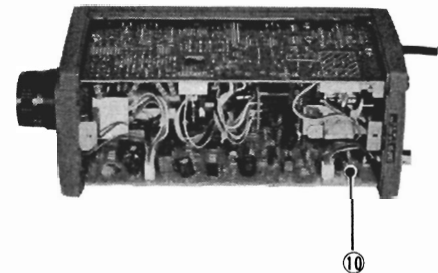
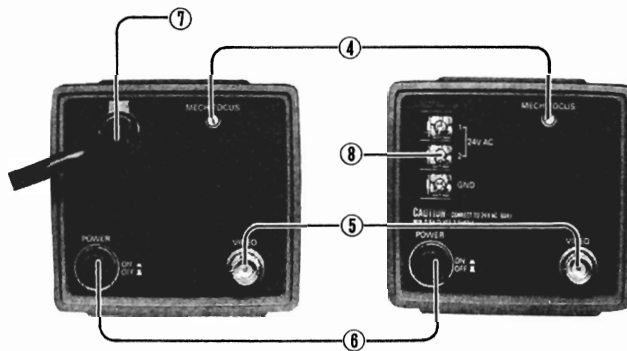


WV-1414/WV-1464



WV-1410/WV-1460

WV-1414 /WV1464



1 Power Indicator

2 Lens

WV-1410/WV-1414: Option

WV-1460/WV-1464: Automatic Iris Lens (option)

3 Camera Mounting Screw Holes

Standard photographic pan-head screw size ($\frac{1}{4}$ " - 20).

4 Mechanical Focus [MECH FOCUS]

Adjust the distance from the pick-up tube to the lens by moving the pick-up tube carrier along its optical axis. If required, this allows the minimum working distance between the camera and object to be reduced. In the case of a zoom lens, focus tracking can be adjusted with this control.

5 Video Output Connector [VIDEO]

Use a coaxial cable with a BNC connector. Video output signal is fed to a video monitor or VTR.

6 Power ON/OFF Switch [POWER ON/OFF]

7 AC Power Cord — Models WV-1410/1460

3-wire power cord for connecting to power outlet (120V AC, 60Hz).

8 24V AC Power Terminal Strip — Models WV-1414/ WV-1464

Accepts 24V AC 60Hz power source. Be sure to connect grounding lead to the GND terminal.

9 Connector for Automatic Iris Lens

This supplies the power and the video signal to the Automatic Iris Lens. The video signal controls the iris with the servo control circuit in the Automatic Iris Lens.

10 Sync Selector Switch [LL-INT]

This switch selects the internal sync mode.

L.L.: Vertical line locked random interlace mode.

INT: 2:1 interlace (EIA RS-170) mode.

This switch has been factory-preset to the L.L. position. If the 2:1 interlace (EIA RS-170) is required, this switch should be set to the INT position.

CONNECTIONS

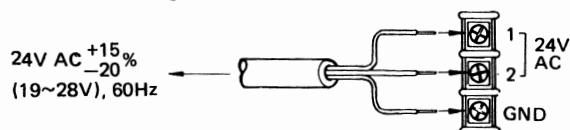
Power Cable

A. WV-1410/WV-1464

1. Keep the camera Power Switched OFF during installation.
2. Connect the AC Power Cord ⑦ to a 60Hz grounded electrical outlet, 120V AC.

B. WV-1414/WV-1464

1. Keep the camera POWER switched OFF during the installation.
2. A power supply of 24V AC 60Hz is required.
3. Connect the power cable to the 24V AC Power Terminal Strip ⑧ on the rear panel of the camera.



Be careful not to obstruct the operation of Power ON /OFF Switch ⑥

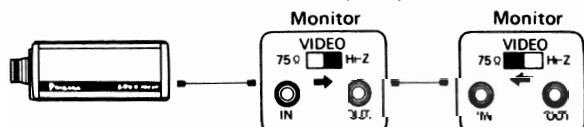
Recommended wire gauge sizes for 24V AC line.

Copper wire size (AWG)		#24 (0.22mm ²)	#22 (0.33mm ²)	#20 (0.52mm ²)	#18 (0.83mm ²)
Length of Cable (Approx.) [ft]	WV-1414	230	350	550	900
	WV-1464	200	325	500	825

Wire should have a flame-retardant rating (FR-1).

Video Cable

1. Use a video monitor whose resolution is at least equal to the camera's.
2. Terminate the camera output in a 75Ω resistor at the furthest end of its cable run.
 - A. Use 75Ω coaxial cable. (RG-59, RG-59B/U, RG-59/U, RG-6/U or RG-11/U)
 - B. Always set the last monitor's termination switch to 75Ω, and set the termination switches of intermediate monitors to HIGH (Hi-Z).



3. Wiring Precautions:

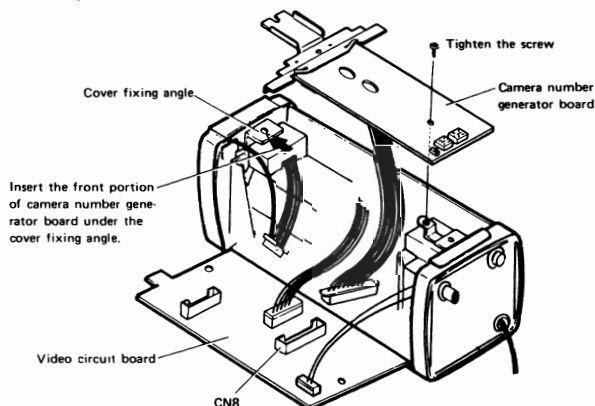
- Do not bend coaxial cable into a curve whose radius is smaller than 10 times its diameter.
- Never staple the cable — not even with circular staples. Mismatching will occur.
- Never crush or pinch the cable.

All these will change the impedance of the cable and cause poor picture quality.

INSTALLATION AND SETTING UP/ADJUSTMENT OF CAMERA NUMBER GENERATOR BOARD WV-Q90

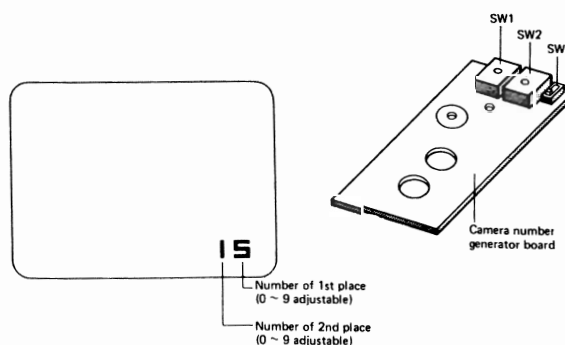
Installation

1. Remove two screws fixing the cover of WV-1410, WV-1414, WV-1460 and WV-1464 cameras and remove the cover.
2. Remove two screws fixing the video circuit board and open the circuit board.
3. Connect the 10 pin connector from the camera number generator board to the connector CN8 on the video circuit board and fix the video circuit board with two screws.
4. Install the camera number generator board onto the camera with one screw (attached to the camera number generator board).
5. Mount the cover after completing the setting up/adjustment.



Setting Up/Adjustment

1. Connect the camera and the video monitor with a coaxial cable, and turn ON the power switches.
2. While observing the video monitor, rotate two camera number setting switches (SW1, SW2) on the camera number generator for desired number. If the number of 2nd place is unnecessary, set the 2nd place ON/OFF switch (SW3) to the OFF position.
3. After setting the camera number, mount the cover.



FIELD ADJUSTMENT

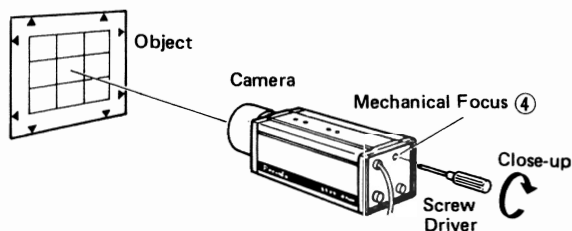
1. Mechanical Focus [MECH, FOCUS] ④

The camera will focus from about 20.5 inches (52cm) to infinity with the f1.6 16mm lens (WV-1410/WV-1414/ WV-1460/WV-1464: not supplied) and with the pick-up tube in its factory set position.

For a fixed focal lens, extreme closeups can be made, and non-standard lenses can be used easily by changing the pick-up tube position with a screw adjustment at the back of the camera.

For a zoom lens, this mechanical focus control is adjusted as:

- (1) Set zoom lens at Tele position
- (2) Adjust the focus ring on the lens for best focus.
- (3) Set zoom lens at Wide position.
- (4) Adjust the mechanical focus control on the rear of the camera for best focus.
- (5) Zoom in again and adjust the focus ring on the lens for best focus.
- (6) Zoom out again and adjust the mechanical focus control on the rear of the camera for best focus.
- (7) Repeat the process (1) — (6) until the focus tracks the zoom range of the lens.



2. Focus Control

Turn the Control slowly until picture on monitor is shapest.

ADJUSTMENT

1. TESE EQUIPMENT

The following test equipment is required for adjustment of WV-1410 series TV cameras.

- Oscilloscope
- Digital voltmeter (DVM)
- Underscanned video monitor
- Lens

For WV-1410/WV-1414: f1.6, 16mm C-mount lens

For WV-1460/WV-1464: Panasonic WV-LA16 (f1.6 16mm, automatic iris, C-mount) or equivalent

- Resolution chart (YVW1400RB99)

2. DISASSEMBLING FOR ADJUSTMENT

- Remove two screws fixing the cover and remove the cover. (Fig. 1).

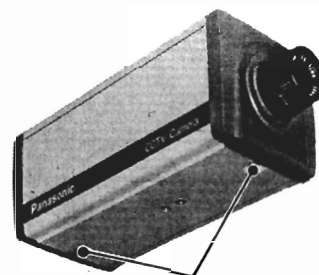


Fig. 1

3. PICK-UP TUBE REPLACEMENT

- Disassemble the camera referring to "2. DISASSEMBLING FOR ADJUSTMENT" on page 6.
- Remove the lens.
- Loosen the pick-up tube holding screw. (Fig. 2)

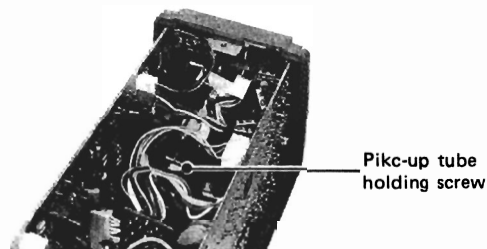


Fig. 2

- Push the pick-up tube out (in the direction of the lens).
- Insert the new pick-up tube (WV-1410/WV-1414: Vidicon 20PE13A WV-1460/WV-1464: Newvicon S4075) into the deflection coil and push it completely until it stops.

- Note:** 1. When inserting the vidicon in place, be careful not to expose the target directly to bright light.
2. Before inserting the Newvicon, note the value of target voltage Esj stamped on the Newvicon neck (Fig. 3). The value of Esj will be used for the target voltage adjustment.

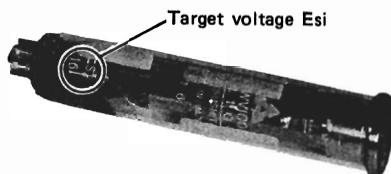


Fig. 3

3. Make sure that the blank-pin portion of pick-up tube positions on the right (viewed from the rear). (Fig. 4)

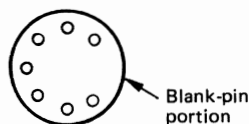


Fig. 4

- Tighten the pick-up tube holding screw (Fig. 2) to secure the pick-up tube in place.
- Clean the faceplate of pick-up tube with the lens cleaning tissue or cloth.
- Mount the lens.

4. SETTING UP FOR ADJUSTMENT

■ Connection

- Connect the coaxial cable between the camera and the video monitor.
- Terminate the video input of monitor with 75 ohms.
- Position the resolution chart (YWV1400RB99) in front of the camera as shown in Fig. 5.

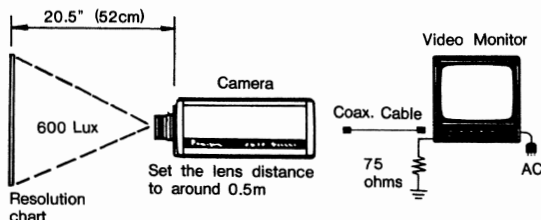


Fig. 5

■ Position of switches on the camera

- Set the switches on the camera as follows; (Refer to page 9 for the switches.)
Sync Selector Switch (SW401) INT position

Steps denoted by shaded outlines do not have to be performed if only pick-up tube is replaced.

5. ADJUSTMENT PROCEDURE

- Refer to page 9 for the position of test points and adjusting controls.

(a) H. frequency adjustment

Test point:	TP4	Video Board
Adjust:	L401 (H. FREQ.)	" "

- Connect the DVM probe to TP4.
- Adjust H. FREQUENCY L401 for $2.5V \pm 0.1V$

(b) Target voltage adjustment for Newvicon — Models WV-1460/WV-1464

Test point:	TP3	Power Board
Adjust:	VR202 (TARGET)	" "

- Connect the DVM probe to TP3.
- Adjust TARGET VR202 so that the voltage at TP3 is equal to the Esj value stamped on the Newvicon neck. (Fig. 6)

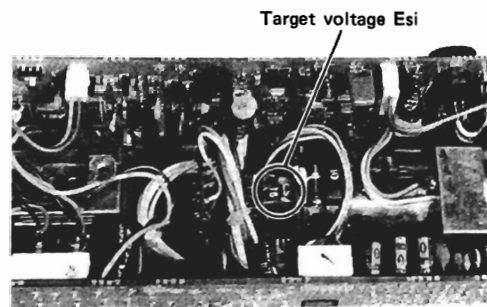


Fig. 6

(c) Beam and focus coarse adjustment

Adjusts:	VR201 (BEAM)	Power Board
	VR101 (FOCUS)	" "

- Turn BEAM-VR201 fully counterclockwise.
- Then turn it back slowly and stop it at a point where the picture just appears.
- Adjust FOCUS VR101 for best resolution.

(d) Beam alignment adjustment

Adjusts:	VR101 (FOCUS)	Power Board
	Alignment magnets	Coil Assembly

- While turning FOCUS VR101 clockwise and counterclockwise, rotate the alignment magnets (Fig. 7) so that the picture appears rotating around the center. In other words, as the picture goes in and out of focus, the center of picture will not move.
- After completing the above adjustment, adjust FOCUS VR101 for best resolution.

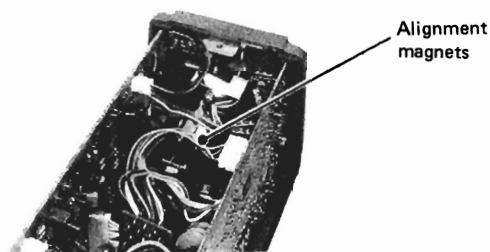


Fig. 7

(e) Mechanical focus adjustment

Adjust: Mechanical focus control	Rear Panel
----------------------------------	------------

- Aim the camera at a object further than 10m (33ft).
Note: Lower the light level for the Newvicon model WV-1460/WV-1464 so that the lens iris opens fully in order to have minimum depth of focus.
- Set the lens focus ring to the infinity (∞) position.
- Adjust MECHANICAL FOCUS control on the rear of camera for the best focus.

(f) Picture tilt adjustment

Adjust: Coil assembly

- Make sure that the camera is level with the chart.
- Loosen one deflection coil holding screws. (Fig. 8)
- Turn the deflection coil so that the image is straight.
- Tighten the deflection coil holding screw. (Fig. 8)

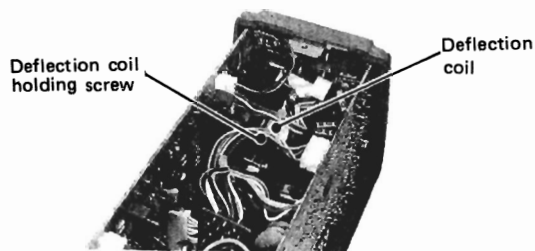


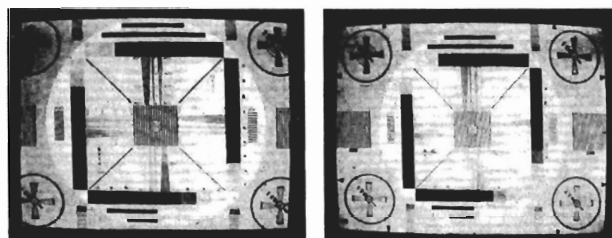
Fig. 8

(g) H. size and V. size adjustment

Adjusts: VR301 (H. SIZE)	Power Board
VR302 (V. SIZE)	" "

Steps denoted by shaded outlines do not have to be performed if only pick-up tube is replaced.

- Set the distance between the camera and chart to 20.5 inch (52cm) as shown in Fig. 5.
- Adjust H. SIZE VR301 and V. SIZE VR302 so that the reference arrow heads in the resolution chart line up with the edge of the raster on the underscanned monitor. (Fig. 9)



NO GOOD

GOOD

Fig. 9

(h) Target voltage adjustment for Vidicon — Models WV-1410/WV-1414

Test point: TP2	Video Board
Adjust: VR202 (TARGET)	Power Board

- Connect the oscilloscope to TP2.
- Adjust TARGET VR202 so that the video signal level is $0.7^{+0.02}_{-0.05}$ Vp-p. (Fig. 10)

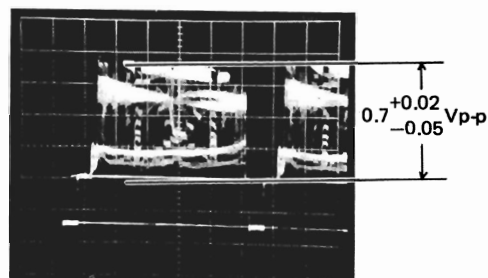


Fig. 10

(i) Beam adjustment

Test point: TP2	Video Board
Adjust: VR201 (BEAM)	Power Board

- Connect the oscilloscope to TP2.
- Aim the camera at the scene which contains small lamps of fluorescent lamp.
- Turn BEAM VR201 so that the signal level is 1 ± 0.05 Vp-p. (Fig 11)

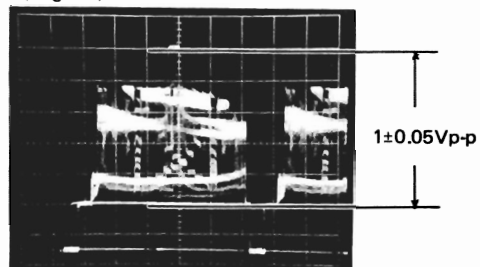


Fig. 11

Steps denoted by shaded outlines do not have to be performed if only pick-up tube is replaced.

(j) Focus adjustment

Adjust: VR101 (FOCUS) Power Board

- Adjust FOCUS VR101 for best resolution.

(k) Line-lock vertical phase adjustment

Test points: TP2 Video Board
Power line
Adjust: VR401 (V. PHASE) Video Board

- Set the sync selector switch SW401 to the LL (line) position.
- Connect the oscilloscope to the power line and TP2.
- Set the trigger of oscilloscope to the LINE position.
- Adjust V. PHASE VR401 so that the leading edge of sync signal and zero-cross point of power line wave-form are coincident. (Fig. 12)

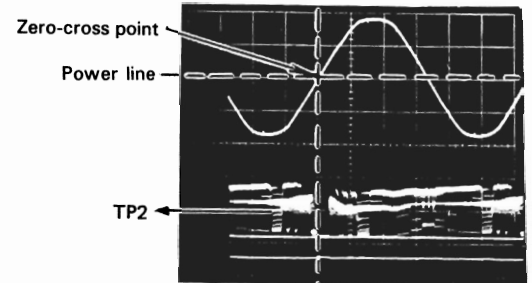
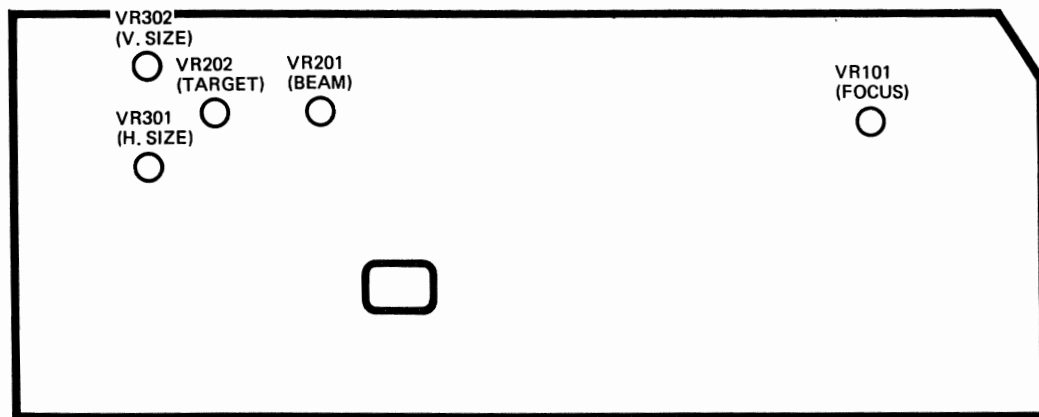


Fig. 12

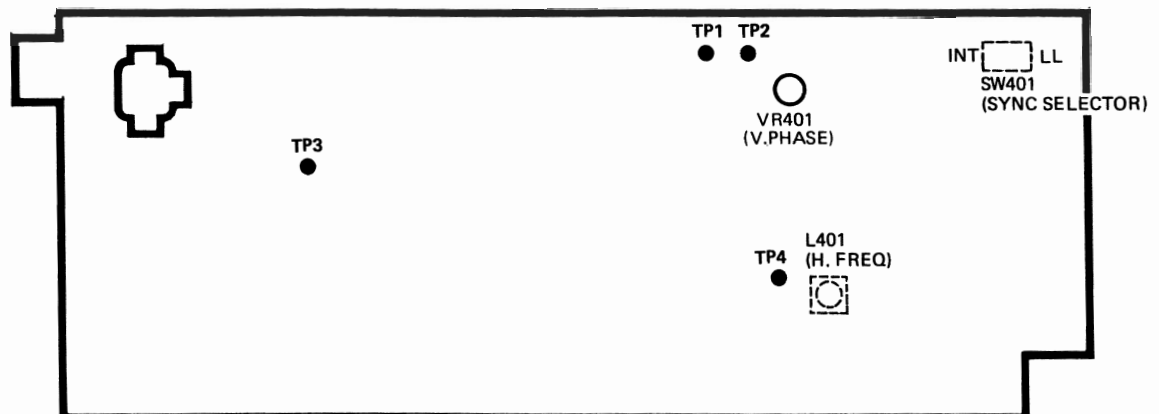
LOCATION OF TEST POINTS AND ADJUSTING CONTROLS

— View from conductor side —

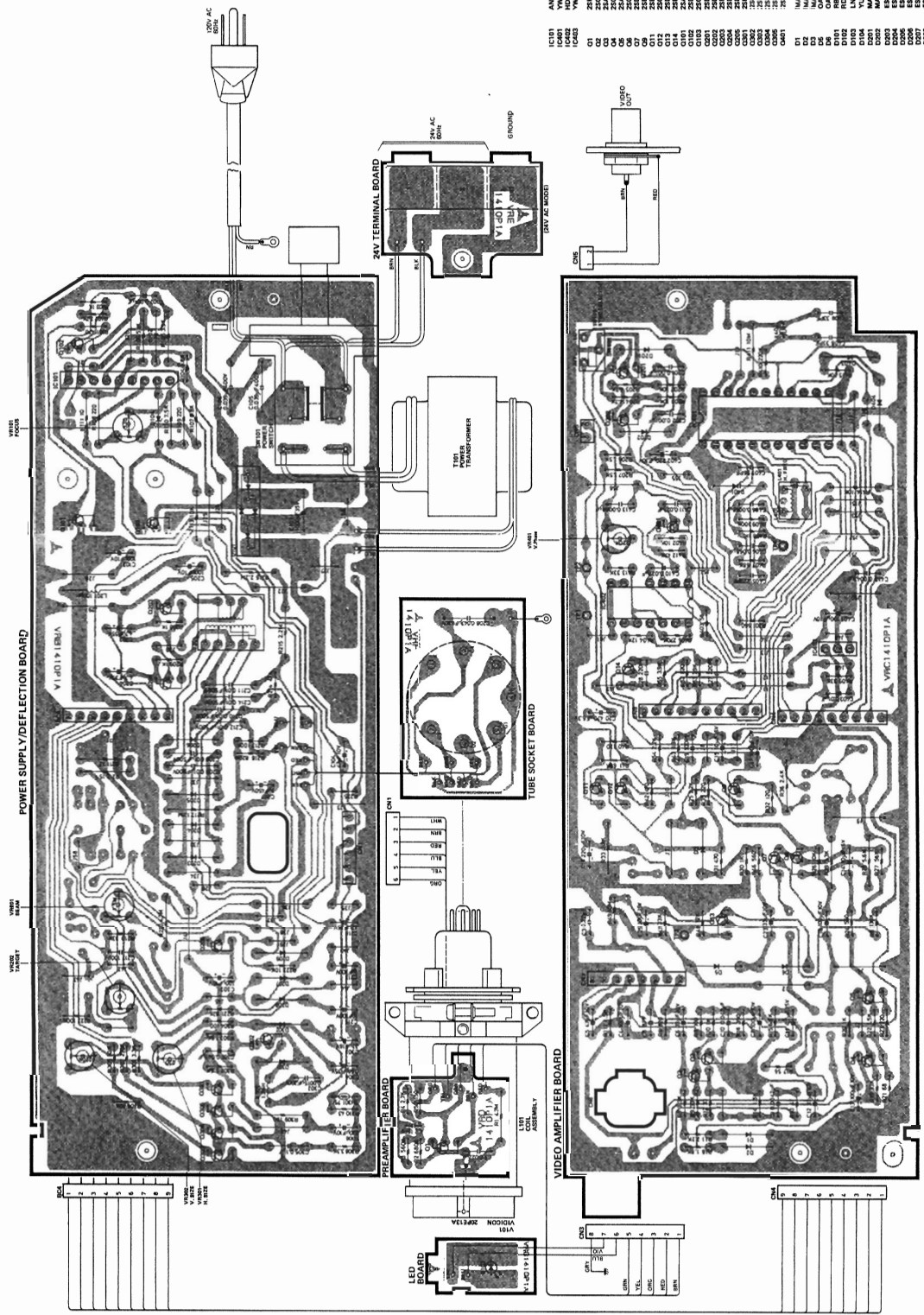
POWER SUPPLY/DEFLECTION BOARD(POWER BOARD)



VIDEO AMPLIFIER BOARD (VIDEO BOARD)



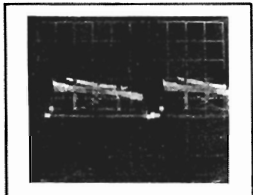
CONDUCTOR VIEW OF WV-1410/WV-1414



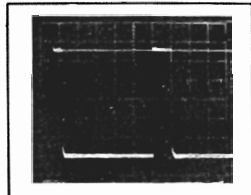
IC101	AN 6851	D4	A1
IC102	YV100A33	A4	A2
IC103	YV100A33	A5	A3
Q1	25K12E OR	C1	A4
Q2	25K12E OR	A2	A5
Q3	25K12E OR	A2	A5
Q4	25K12E OR	A2	A5
Q5	25K12E OR	A2	A5
Q6	25K12E OR	A2	A5
Q7	25K12E OR	A2	A5
Q8	25K12E OR	A2	A5
Q9	25K12E OR	A2	A5
Q10	25K12E OR	A2	A5
Q11	25K12E OR	A2	A5
Q12	25K12E OR	A2	A5
Q13	25K12E OR	A2	A5
Q14	25K12E OR	A2	A5
Q15	25K12E OR	A2	A5
Q16	25K12E OR	A2	A5
Q17	25K12E OR	A2	A5
Q18	25K12E OR	A2	A5
Q19	25K12E OR	A2	A5
Q20	25K12E OR	A2	A5
Q21	25K12E OR	A2	A5
Q22	25K12E OR	A2	A5
Q23	25K12E OR	A2	A5
Q24	25K12E OR	A2	A5
Q25	25K12E OR	A2	A5
Q26	25K12E OR	A2	A5
Q27	25K12E OR	A2	A5
Q28	25K12E OR	A2	A5
Q29	25K12E OR	A2	A5
Q30	25K12E OR	A2	A5
Q31	25K12E OR	A2	A5
Q32	25K12E OR	A2	A5
Q33	25K12E OR	A2	A5
Q34	25K12E OR	A2	A5
Q35	25K12E OR	A2	A5
Q36	25K12E OR	A2	A5
Q37	25K12E OR	A2	A5
Q38	25K12E OR	A2	A5
Q39	25K12E OR	A2	A5
Q40	25K12E OR	A2	A5
Q41	25K12E OR	A2	A5
Q42	25K12E OR	A2	A5
Q43	25K12E OR	A2	A5
Q44	25K12E OR	A2	A5
Q45	25K12E OR	A2	A5
Q46	25K12E OR	A2	A5
Q47	25K12E OR	A2	A5
Q48	25K12E OR	A2	A5
Q49	25K12E OR	A2	A5
Q50	25K12E OR	A2	A5
Q51	25K12E OR	A2	A5
Q52	25K12E OR	A2	A5
Q53	25K12E OR	A2	A5
Q54	25K12E OR	A2	A5
Q55	25K12E OR	A2	A5
Q56	25K12E OR	A2	A5
Q57	25K12E OR	A2	A5
Q58	25K12E OR	A2	A5
Q59	25K12E OR	A2	A5
Q60	25K12E OR	A2	A5
Q61	25K12E OR	A2	A5
Q62	25K12E OR	A2	A5
Q63	25K12E OR	A2	A5
Q64	25K12E OR	A2	A5
Q65	25K12E OR	A2	A5
Q66	25K12E OR	A2	A5
Q67	25K12E OR	A2	A5
Q68	25K12E OR	A2	A5
Q69	25K12E OR	A2	A5
Q70	25K12E OR	A2	A5
Q71	25K12E OR	A2	A5
Q72	25K12E OR	A2	A5
Q73	25K12E OR	A2	A5
Q74	25K12E OR	A2	A5
Q75	25K12E OR	A2	A5
Q76	25K12E OR	A2	A5
Q77	25K12E OR	A2	A5
Q78	25K12E OR	A2	A5
Q79	25K12E OR	A2	A5
Q80	25K12E OR	A2	A5
Q81	25K12E OR	A2	A5
Q82	25K12E OR	A2	A5
Q83	25K12E OR	A2	A5
Q84	25K12E OR	A2	A5
Q85	25K12E OR	A2	A5
Q86	25K12E OR	A2	A5
Q87	25K12E OR	A2	A5
Q88	25K12E OR	A2	A5
Q89	25K12E OR	A2	A5
Q90	25K12E OR	A2	A5
Q91	25K12E OR	A2	A5
Q92	25K12E OR	A2	A5
Q93	25K12E OR	A2	A5
Q94	25K12E OR	A2	A5
Q95	25K12E OR	A2	A5
Q96	25K12E OR	A2	A5
Q97	25K12E OR	A2	A5
Q98	25K12E OR	A2	A5
Q99	25K12E OR	A2	A5
Q100	25K12E OR	A2	A5

SIGNAL WAVEFORMS

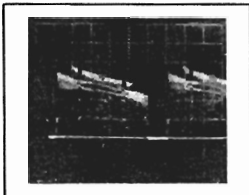
1 0.05V/DIV, 10μs/DIV



2 0.5V/DIV, 10μs/DIV



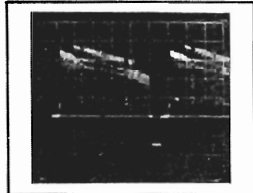
3 0.5V/DIV, 10μs/DIV



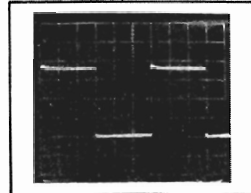
4 0.5V/DIV, 10μs/DIV



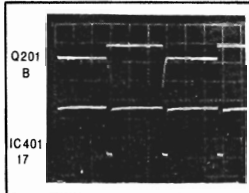
5 0.2V/DIV, 10μs/DIV



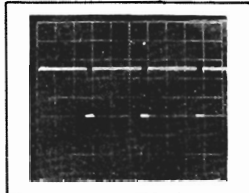
6 1V/DIV, 20μs/DIV



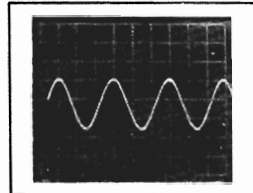
7 2V/DIV, 20μs/DIV



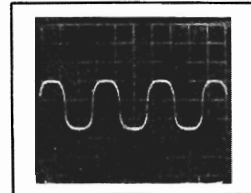
8 2V/DIV, 20μs/DIV



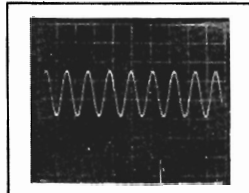
9 0.5V/DIV, 10μs/DIV



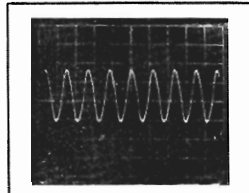
10 2V/DIV, 10μs/DIV



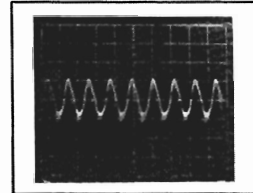
11 0.5V/DIV, 0.2μs/DIV



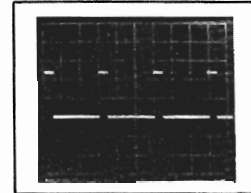
12 1V/DIV, 0.2μs/DIV



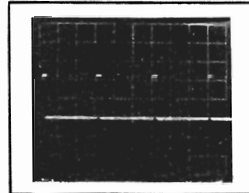
13 0.01V/DIV, 0.2μs/DIV



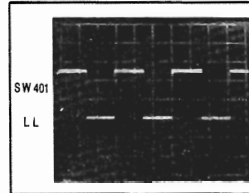
14 2V/DIV, 20μs/DIV



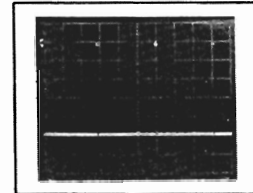
15 2V/DIV, 20μs/DIV



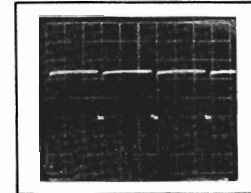
16 2V/DIV, 5ms/DIV



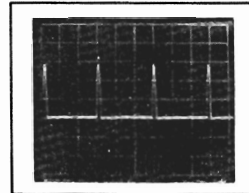
17 1V/DIV, 5ms/DIV



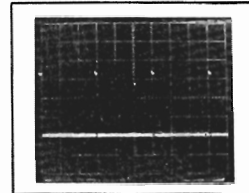
18 2V/DIV, 20μs/DIV



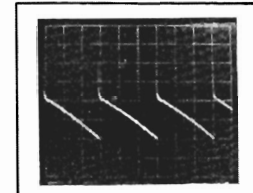
19 50V/DIV, 20μs/DIV



20 0.2V/DIV, 5ms/DIV



21 2V/DIV, 5ms/DIV



IC101-a
IC101-t
IC401
IC402
IC403
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q11
Q12
Q13
Q14
Q101
Q102
Q103
Q201
Q202
Q203
Q204
Q205
Q301
Q302
Q303
Q304
Q305
Q401

D1
D2
D3
D5
D6
D101
D102
D103
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D206
D207
D208
D209
D301
D302
D401
D403
D404

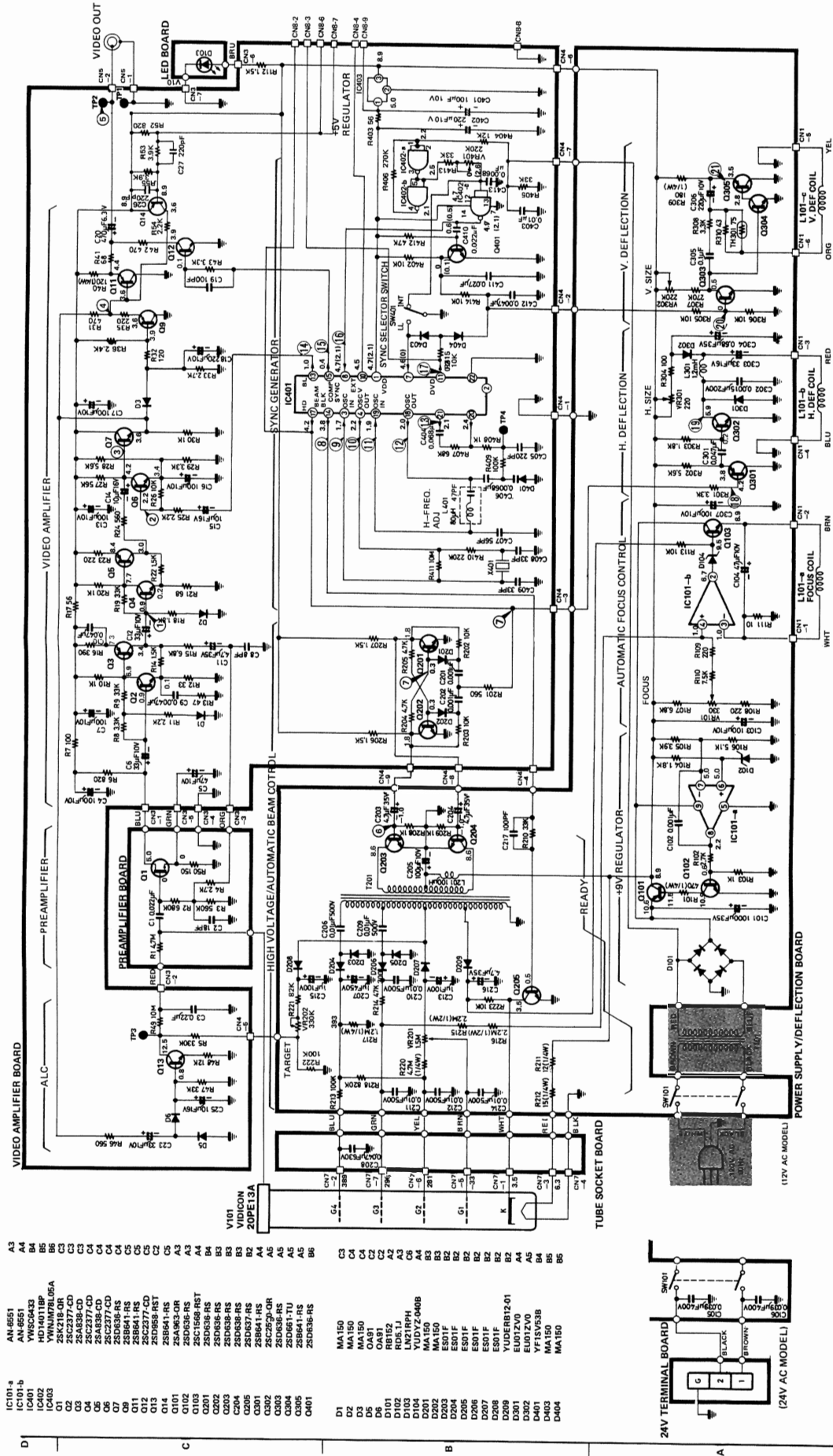
24V TERM



PRODUCT SAFETY NOTE

The shaded area on this schematic diagram incorporates special features important for protection from X-Radiation, fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

SCHEMATIC DIAGRAM OF WV-1410/WV-1414



NOTE: () VOLTAGES ARE MEASURED AT LL MODE (SW401).

SCHEMATIC DIAGRAM OF WV-1460/WV-1464

SGNA

1 0.05V/I



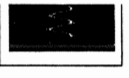
5 0.2V/D



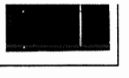
9 0.5V/DI



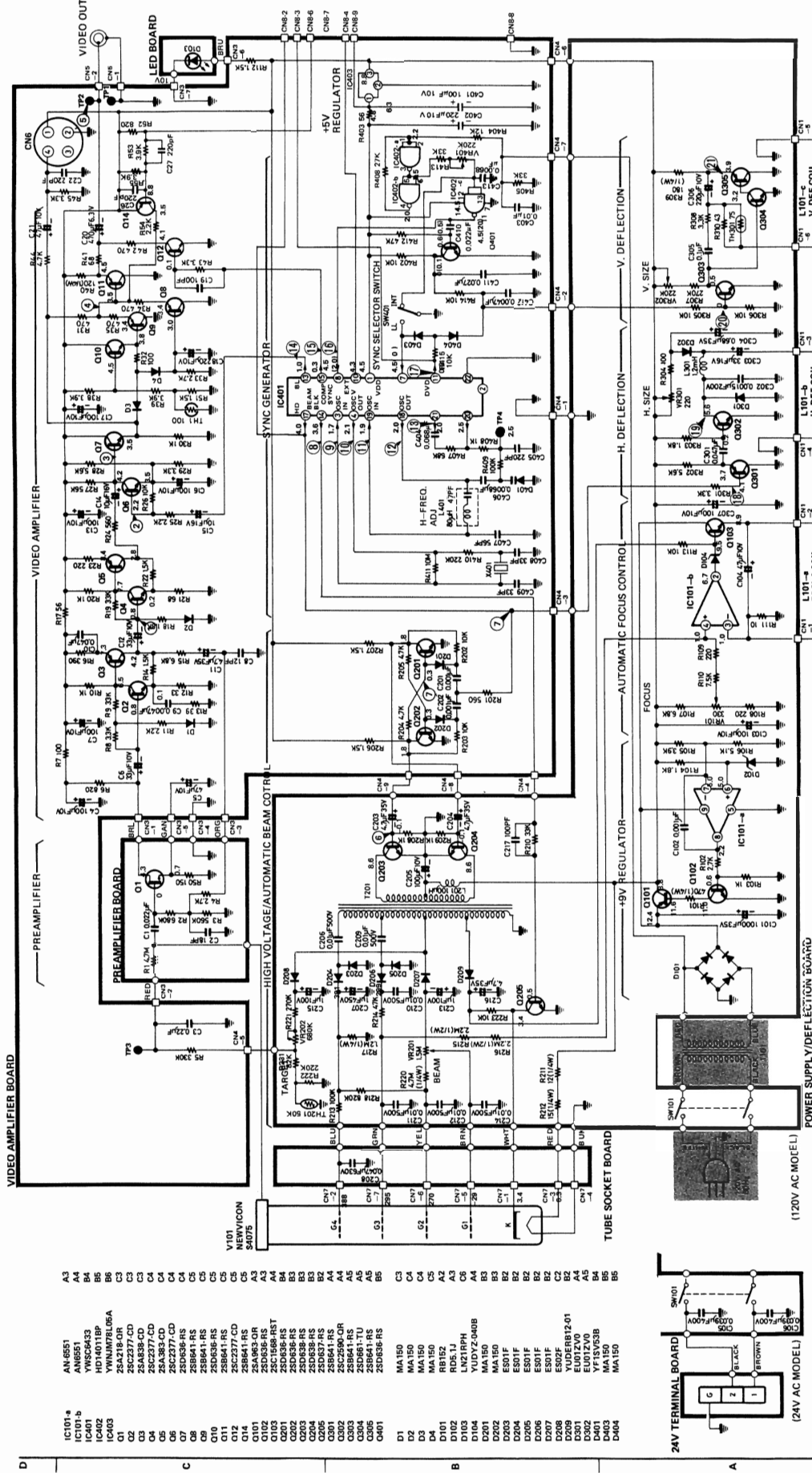
13 0.01V/I



17 1V/DI



21 2V/DI

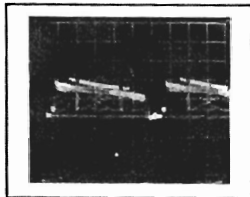


PRODUCT SAFETY NOTE

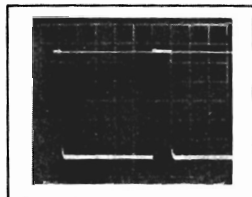
The shaded area on this schematic diagram incorporates special features important for protection from X-Radiation, fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

SIGNAL WAVEFORMS

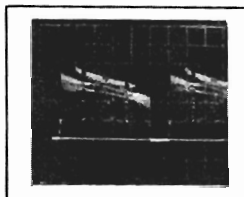
1 0.05V/DIV, 10 μ s/DIV



2 0.5V/DIV, 10 μ s/DIV



3 0.5V/DIV, 10 μ s/DIV



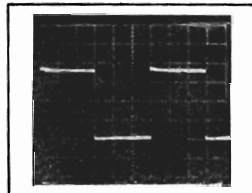
4 0.5V/DIV, 10 μ s/DIV



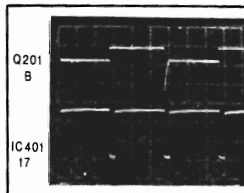
5 0.2V/DIV, 10 μ s/DIV



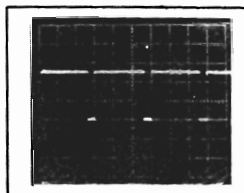
6 1V/DIV, 20 μ s/DIV



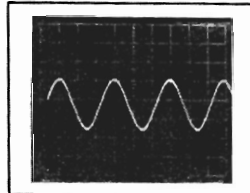
7 2V/DIV, 20 μ s/DIV



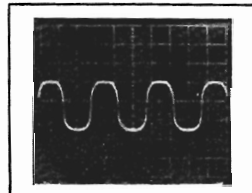
8 2V/DIV, 20 μ s/DIV



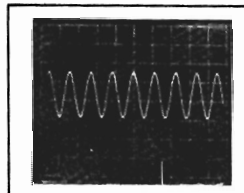
9 0.5V/DIV, 10 μ s/DIV



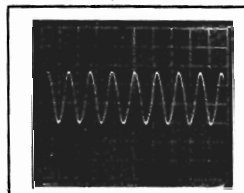
10 2V/DIV, 10 μ s/DIV



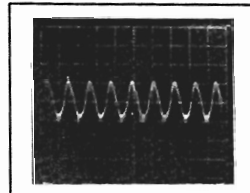
11 0.5V/DIV, 0.2 μ s/DIV



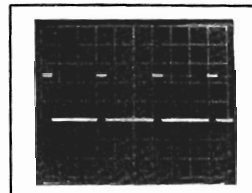
12 1V/DIV, 0.2 μ s/DIV



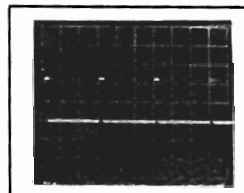
13 0.01V/DIV, 0.2 μ s/DIV



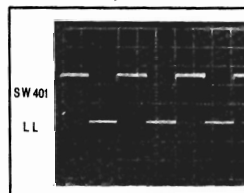
14 2V/DIV, 20 μ s/DIV



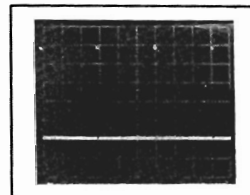
15 2V/DIV, 20 μ s/DIV



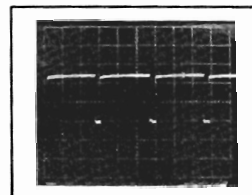
16 2V/DIV, 5ms/DIV



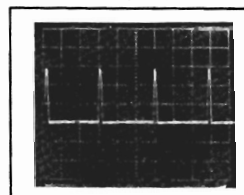
17 1V/DIV, 5ms/DIV



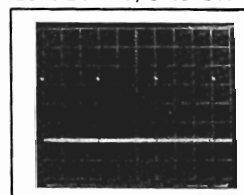
18 2V/DIV, 20 μ s/DIV



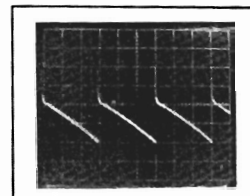
19 50V/DIV, 20 μ s/DIV



20 0.2V/DIV, 5ms/DIV



21 2V/DIV, 5ms/DIV



EO OUT
)

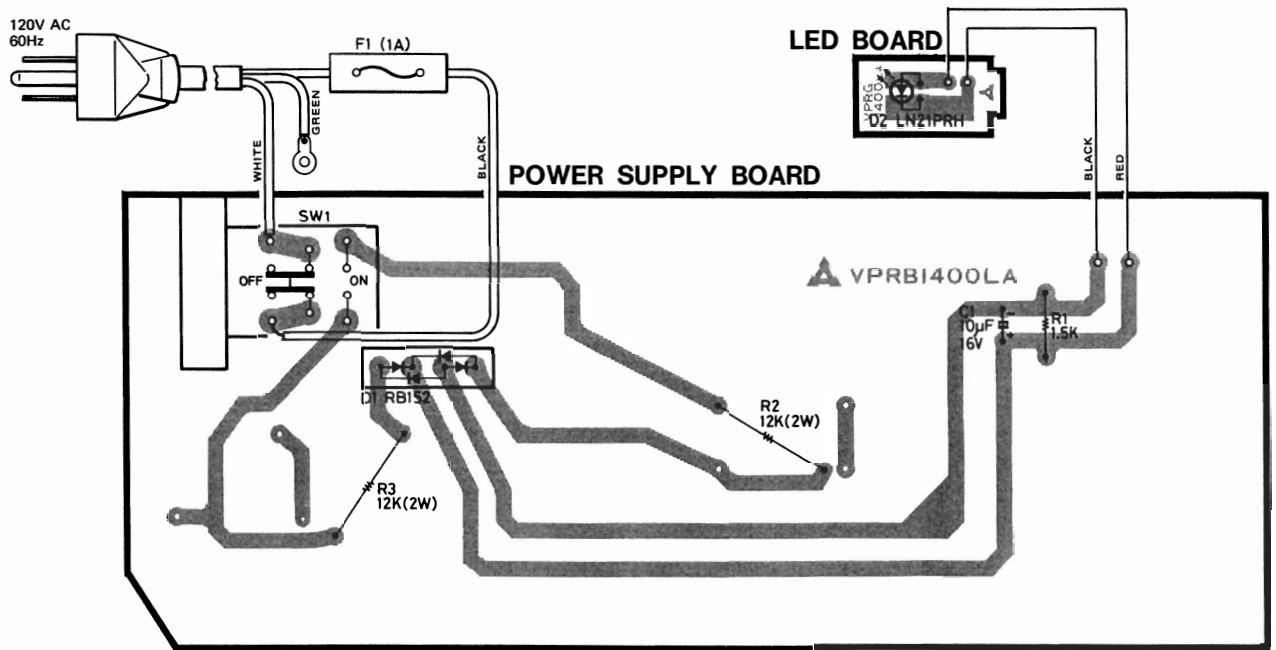
ARD

CN8-2
CN8-3
CN8-6
CN8-7
CN8-4
CN8-9

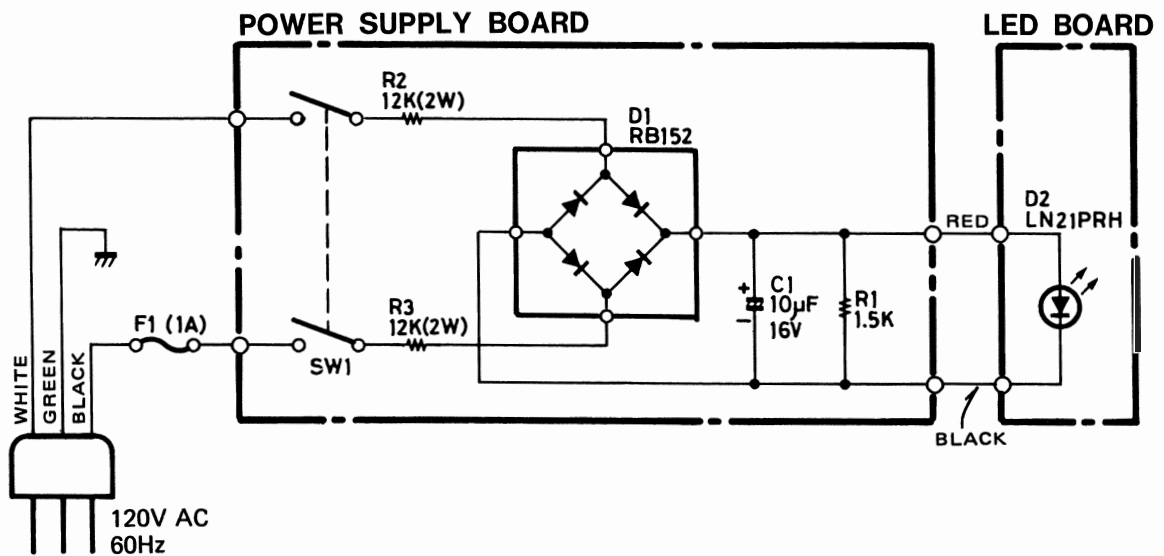
N8-8



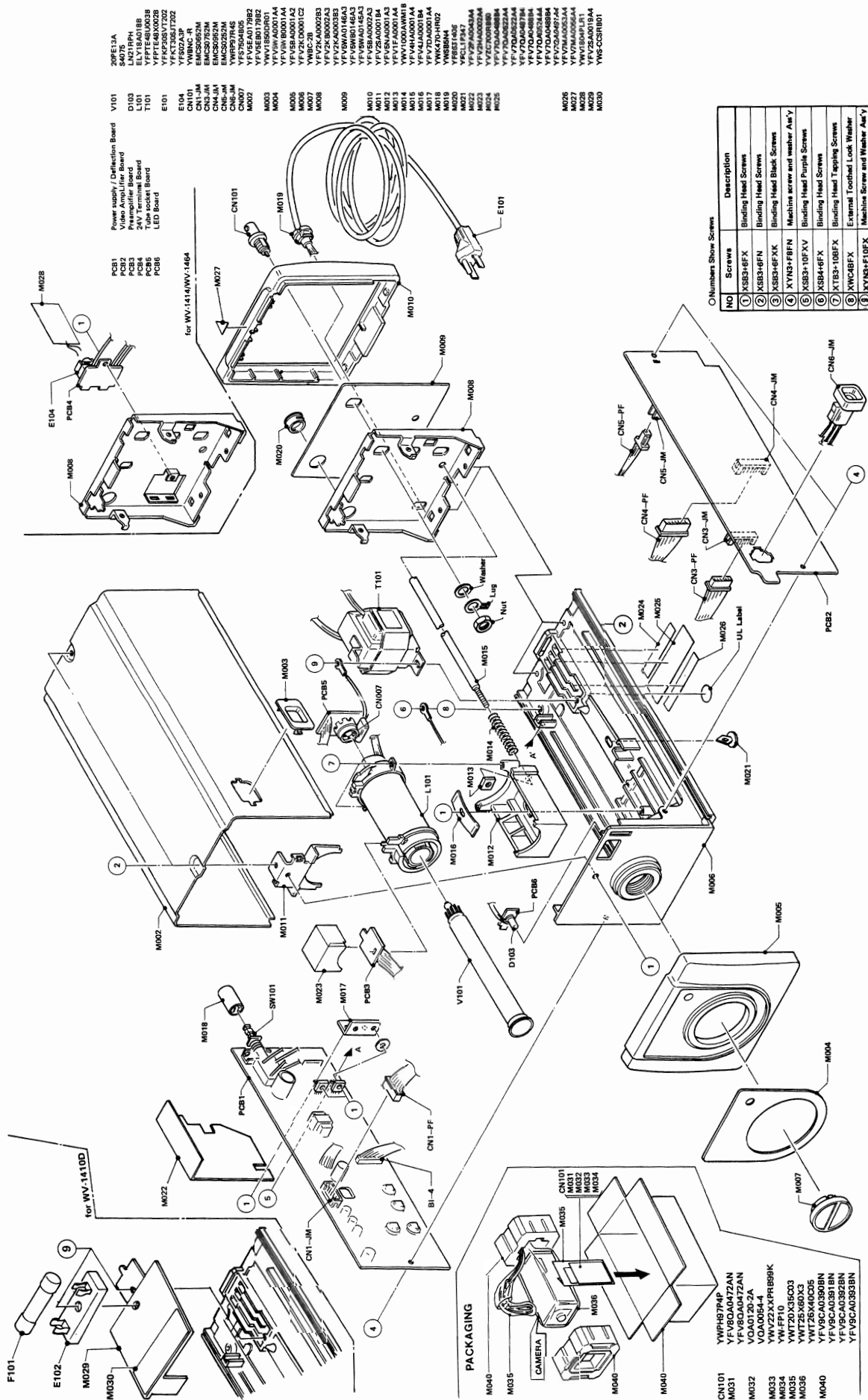
CONDUCTOR VIEW OF WV-1410D



SCHEMATIC DIAGRAM OF WV-1410D



EXPLODED VIEW OF CAMERA



REPLACEMENT PARTS LIST

Important Notice

1. Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
2. Components identified by * mark are new parts used from this model.
3. Complete printed circuit board assembly is not available as replacement part.

MODEL WV-1410/WV-1414
WV-1460/WV-1464

SYM-BOL NO.	PART NO.	DESCRIPTION	SYM-BOL NO.	PART NO.	DESCRIPTION
WV-1410/WV-1414/WV-1460/WV1464/WV-1460D MISCELLANEOUS			M026	Δ *YFV7MA0053A4	Cauton Label A for WV-1410 Series USA
V101	20PE13A	Vidicon Tube for WV-1410/WV-1414		Δ YFV7MA0033A4	Cauton Label A for WV-1410 Series CANADA
L101	S-4075	Newvicon for WV-1460/WV-1464	M027	Δ *YFV7MA0056A4	Cauton Label B for WV-1410 Series USA
T101	Δ ELY18A018B	Deflection Coil Ass'y	M028	Δ YWV1804PLR1	Cauton Tuck for WV-1414/WV-1464
	Δ YFPTE48U003B	Power Transformer for WV-1410 WV-1460	M029	Δ YFV25SA0019A4	Mounting Angle for Fuse Holder
	Δ YFPTE48X002B	Power Transformer for WV-1414 WV-1464	M030	Δ YWS-CCSRB01	Fuse Cauton Label
F101	Δ YWST6-1A	Fuse 1A for WV-1410D	PCB1 POWER SUPPLY/DEFLECTION BOARD		
E101	Δ YFKP30SVT202	AC Power Cord for WV-1410 USA/WV-1460 USA/WV-1410D	IC101	AN-6551	Integrated Circuit
	Δ YFKP30SJT202	AC Power Cord for WV-1410 CANADA/WV-1460 CANADA	Q101	2SA963-QR	Transistor
E102	YWXN1175-03	Fuse Holder for WV-1410D	Q102	2SD636-RS	Transistor
CN101	YWBNC-R	BNC Connector	Q103	2SC1568-RST	Transistor
M002	*YFV5EA0179A2	Upper Cover for WV-1410/WV-1414	Q203,204	2SD638-RS	Transistor
	*YFV5EB0179A2	Upper Cover for WV-1460/WV-1464	Q205	2SD637-RS	Transistor
M003	YWV1850DR01	ALC Cover for WV-1460/WV1464	Q301	2SB641-RS	Transistor
M004	YFV5WA0001A4	Front Panel for WV-1410/WV-1414	Q302	2SC2590-QR	Transistor
	YFV5WB0001A4	Front Panel for WV-1460/WV-1464	Q303	2SD636-RS	Transistor
M005	YFV5BA0001A2	Front Escutcheon	Q304	2SD661-TU	Transistor
M006	*YFV2KD0001C2	Main Chassis	Q305	2SB641-RS	Transistor
M007	YWBC-2B	Body Cap.	D1	RB152	Rectifier Diode for WV-1410D
M008	*YFV2KA0002B3	Rear Chassis for WV-1410 USA/ WV-1460 USA	D101	RB152	Rectifier Diode
	YFV2KB0002A3	Rear Chassis for WV-1410 CANADA/ WV-1460 CANADA	D102	RD501J	Diode
	*YFV2KA0003B3	Rear Chassis for WV-1414/WV-1464	D104	YUDYZ-040B	Diode
M009	*YFV5WA0146A3	Rear Panel for WV-1414/WV-1464 USA	D203~208	ES01F	Diode
	YFV5WB0146A3	Rear panel for WV-1410 CANADA/ WV-1460 CANADA	D209	YUDERB12-01	Diode
	*YFV5WA0145A3	Rear Panel for WV-1404/WV-1454	D301,302	EU01ZV0	Diode
M010	YFV5BA0002A3	Rear Escutcheon	TH201	ERTD2FHL503S	Thermistor for WV-1460/WV-1454
M011	*YFV2SA0001B4	Mounting Angle	TH301	ERTD2FGK750S	Thermistor
M012	YFV5NA0001A3	Coil Standl	R1	ERD25FJ152	Carbon 1.5K Ω 1/4W
M013	YFV1FA0001A4	Nut Plate	R2	ERG2ANJ123	Metal 12K Ω 2W
M014	YWV1000AWM1B	Coil Spring	R3	ERG2ANJ123	Metal 12K Ω 2W
M015	YFV4HA0001A4	Coil Shaft			for WV1410D
M016	*YFV4JA0001B4	Spring Plate	R101	ERD25FJ471	Carbon 470 Ω 1/4W
M019	YWSR5N-4	Cord Bushing for WV-1410 USA/WV-1460 USA	R102	ERD10TJ272	Carbon 2.7K Ω 1/8W
	YWSR-6N3-4	Cord Bushing for WV-1410 Canada/ WV-1460 CANADA	R103	ERD10TJ102	Carbon 1K Ω 1/8W
M020	YFB531406	Part Holder	R104	ERD10TJ182	Carbon 1.8K Ω 1/8W
M021	YFCL1P347	Barrier for WV-1410 Series USA	R105	ER025CKF3901	Metal 3.9K Ω 1/4W
M024	YVZC700RB50	Serial No. Label	R106	ER025CKF5101	Metal 5.1K Ω 1/4W
M025	Δ *YFV7QA0486B4	Main Label for WV-1410 USA	R107	ER025CKF6801	Metal 6.8K Ω 1/4W
	Δ *YFV7QA0522A4	Main Label for WV-1410 CANADA	R108,109	ERO25CKF2200	Metal 220 Ω 1/4W
	Δ *YFV7QA0487B4	Main Label for WV-1414	R110	ERO25CKF7501	Metal 7.5K Ω 1/4W
	Δ *YFV7QA0488B4	Main Label for WV-1460 USA	R111	ERO25CKF10R0	Metal 10 Ω 1/4W
	Δ *YFV7QA0524A4	Main Label for WV-1460 CANADA	R113	ERD25FJ103	Carbon 10K Ω 1/4W
	Δ *YFV7QA0489B4	Main Label for WV-1464	R208,209	ERD10TJ102	Carbon 1K Ω 1/8W
	Δ *YFV7QA0491B4	Main Label for WV-1410D	R210	ERD10TJ333	Carbon 33K Ω 1/8W
			R211	ERD25FJ120	Carbon 12 Ω 1/4W
			R212	ERD25FJ150	Carbon 15 Ω 1/4W
			R213	ERD10TJ104	Carbon 100K Ω 1/8W
			R214	ERD10TJ473	Carbon 47K Ω 1/8W
			R215,216	ERO50CKF2204	Metal 2.2M Ω 1/2W
			R217	ERD25FJ125	Carbon 1.2M Ω 1/4W
			R218	ERD10TJ824	Carbon 820K Ω 1/8W
			R220	ERD10TJ475	Carbon 4.7M Ω 1/8W

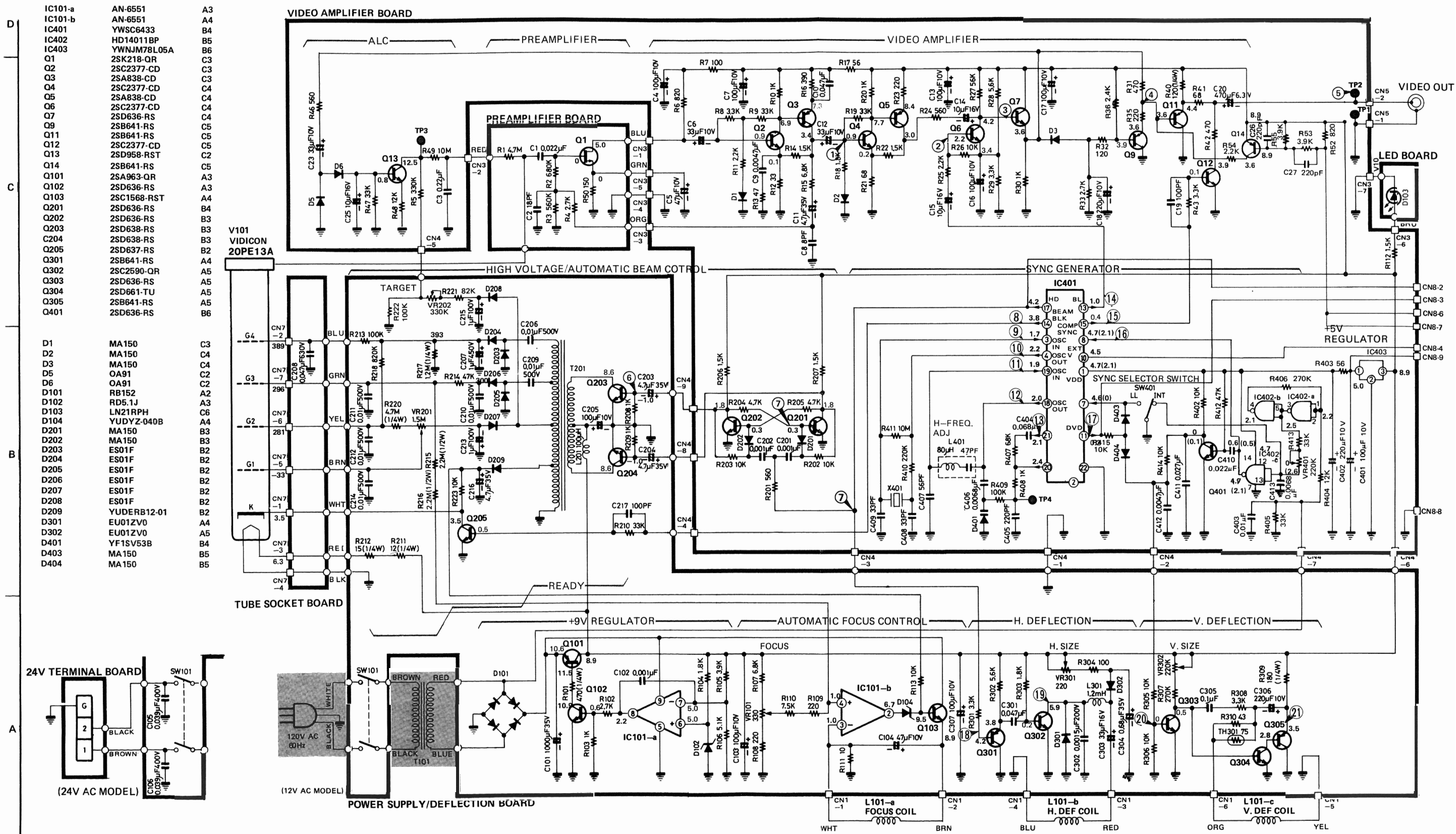
SYM- BOL NO.	PART NO.	DESCRIPTION	SYM- BOL NO.	PART NO.	DESCRIPTION
R221	ERD10TJ823	Carbon 82K Ω 1/8W for WV-1410/WV-1414	PCB 2 VIDEO AMPLIFIER BOARD		
	ERD10TJ274	Carbon 270K Ω 1/8W for WV-1460/WV-1464	IC401	YWSC6433	Integrated Circuit
R222	ERD10TJ104	Carbon 100K Ω 1/8W for WV-1410/WV-1414	IC402	HD14011BP	Integrated Circuit
	ERD10TJ224	Carbon 220K Ω 1/8W for WV-1460/WV-1464	IC403	YWNJM78L05A	Integrated Circuit
R223	ERD10TJ103	Carbon 10K Ω 1/8W	Q2	2SC2377-CD	Transistor
R231	ERD10TJ823	Carbon 82K Ω 1/8W for WV-1460/WV-1464	Q3	2SA838-CD	Transistor
R301	ERD10TJ332	Carbon 3.3K Ω 1/8W	Q4	2SC2377-CD	Transistor
R302	ERD10TJ562	Carbon 5.6K Ω 1/8W	Q5	2SA838-CD	Transistor
R303	ERD10TJ182	Carbon 1.8K Ω 1/8W	Q6	2SC2377-CD	Transistor
			Q7	2SD636-RS	Transistor
R304	ERD10TJ101	Carbon 100 Ω 1/8W	Q8	2SB641-RS	Transistor for WV-1460/WV-1464
R305,306	ERD10TJ103	Carbon 10K Ω 1/8W	Q9	2SB641-RS	Transistor
R307	ERD10TJ274	Carbon 270K Ω 1/8W	Q10	2SD636-RS	Transistor for WV-1460/WV-1464
R308	ERD10TJ332	Carbon 3.3K Ω 1/8W	Q11	2SB641-RS	Transistor
R309	ERD25FJ181	Carbon 180 Ω 1/4W	Q12	2SC2377-CD	Transistor
			Q13	2SD958-RST	Transistor for WV-1410/WV-1414
R310	ERD10TJ430	Carbon 43 Ω 1/8W	Q14	2SB641-RS	Transistor
VR101	YFCR19R330B	Variable Resistor 330 Ω	Q201,202	2SD636-RS	Transistor
VR201	YFSR19R1.5MB	Variable Resistor 1.5M Ω	Q401	2SD636-RS	Transistor
VR202	YFSR19R330KB	Variable Resistor 330K Ω for WV-1410/WV-1414	D1~3	MA150	Diode
	YWSR19R680KB	Variable Resistor 680K Ω for WV-1460/WV-1464	D4	MA150	Diode for WV-1460/WV-1464
VR301	YWSR19R220B	Variable Resistor 220 Ω	D5,6	0A91	Diode for WV-1410/WV-1414
VR302	YWSR19R220KB	Variable Resistor 220K Ω	D201,202	MA150	Diode
C1	ECEA1CS100	Electrolytic 10 μ F 16V for WV-1410D	D401	YF1SV53B	Diode
C101	ECEA1VSS102	Electrolytic 1000 μ F 35V	D403,404	MA150	Diode
C102	ECOM1H102KZ	Polyester 0.001 μ F 50V	X401	YWBWVHS315K	Crystal Oscillator
C103	ECEA1ASS101	Electrolytic 100 μ F 10V	TH1	PTH60BM101M	Thermistor for WV-1460/WV-1464
C104	ECEA1ASS470	Electrolytic 47 μ F 10V	R5	ERD10TJ334	Carbon 330K Ω 1/8W
C105,106	ECQE4393KZ	Metal 0.039 μ F 400V for WV-1414/WV-1464	R6	ERD10TJ821	Carbon 820 Ω 1/8W
C203,204	ECEA1VSS4R7	Electrolytic 4.7 μ F 35V	R7	ERD10TJ101	Carbon 100 Ω 1/8W
C205	ECEA1ASS101	Electrolytic 100 μ F 10V	R8	ERD10TJ332	Carbon 3.3K Ω 1/8W
C206	ECKW2H103PE	Ceramic 0.01 μ F 500V	R9	ERD10TJ333	Carbon 33K Ω 1/8W
C207	ECEA2WS010	Electrolytic 1 μ F 450V	R10	ERD10TJ102	Carbon 1K Ω 1/8W
C209~212	ECKW2H103PE	Ceramic 0.01 μ F 500V	R11	ERD10TJ222	Carbon 2.2K Ω 1/8W
C213	ECEA2AS010	Electrolytic 1 μ F 100V	R12	ERD10TJ330	Carbon 33 Ω 1/8W
C214	ECKW2H103PE	Ceramic 0.01 μ F 500V	R13	ERD10TJ470	Carbon 47 Ω 1/8W for WV-1410/WV-1414
C215	ECEA2AS010	Electrolytic 1 μ F 100V		ERD10TJ390	Carbon 39 Ω 1/8W for WV-1460/WV-1464
C216	ECEA1VSS4R7	Electrolytic 4.7 μ F 35V	R14	ERD10TJ152	Carbon 1.5K Ω 1/8W
C217	ECCR1H101J	Ceramic 100pF 50V	R15	ERD10TJ 682	Carbon 6.8K Ω 1/8W
C301	ECQM1H473K	Polyester 0.047 μ F 50V	R16	ERD10TJ391	Carbon 390 Ω 1/8W
C302	ECQM2152KZW	Polyester 0.0015 μ F 200V	R17	ERD10TJ560	Carbon 56 Ω 1/8W
C303	ECSF16E33E	Tantalum 33 μ F 16V	R18	ERD10TJ182	Carbon 1.8K Ω 1/8W
C304	ECSF35ER68E	Tantalum 0.68 μ F 35V	R19	ERD10TJ333	Carbon 33K Ω 1/8W
C305	ECQV05104JZ	Metal 0.1 μ F 50V	R20	ERD10TJ102	Carbon 1K Ω 1/8W
C306	ECEA1ASS221	Electrolytic 220 μ F 10V	R21	ERD10TJ680	Carbon 68 Ω 1/8W
C307	ELEA1ASS101	Electrolytic 100 μ F 10V	R22	ERD10TJ152	Carbon 1.5K Ω 1/8W
L201	YFELEA101KAT	Inductor 100 μ H	R23	ERD10TJ221	Carbon 220 Ω 1/8W
L301	YWL8122J	Inductor 1.2mH	R24	ERD10TJ561	Carbon 560 Ω 1/8W
T201	YFHVT2H3022	Converter Transformer	R25	ERD10TJ222	Carbon 2.2K Ω 1/8W
SW1	YW1P31AC202A	Power Push Switch for WV-1410D	R26	ERD10TJ103	Carbon 10K Ω 1/8W
SW101	YW1P31AC202A	Power Push Switch	R27	ERD10TJ563	Carbon 56K Ω 1/8W
CN1-JM	EMCS0652M	6 pin Jack Male	R28	ERO25CKF5601	Metal 5.6K Ω 1/8W
M017	YFV7DA0001A4	Heat Sink	R29	ERO25CKF3301	Metal 3.3K Ω 1/8W
M018	YWK470-HR02	Knob	R30	ERD10TJ102	Carbon 1K Ω 1/8W
M022	*YFV2PA0043A4	Insulator Paper	R31	ERD10TJ471	Carbon 470 Ω 1/8W

SYM- BOL NO.	PART NO.	DESCRIPTION	SYM- BOL NO.	PART NO.	DESCRIPTION
R32	ERD10TJ121	Carbon 120Ω 1/8W for WV-1410/WV-1414	C5	ECEA1ASS470	Electrolytic 47μF 10V
	ERD10TJ101	Carbon 100Ω 1/8W for WV-1460/WV-1464	C6	ECEA1ASS330	Electrolytic 33μF 10V
R33	ERO25CKF2701	Metal 2.7KΩ 1/4W	C7	ECEA1ASS101E	Electrolytic 100μF 10V
R34	*ERD10TJ471	Carbon 470Ω 1/8W for WV-1460/WV-1464	C8	ECCR1H080D	Ceramic 8pF 50V for WV-1410/WV-1414
R35	ERD10TJ221	Carbon 220Ω 1/8W for WV-1410/WV-1414		ECCR1H120J	Ceramic 12pF 50V for WV-1460/WV-1464
	ERD10TJ471	Carbon 470Ω 1/8W for WV-1460/WV-1464	C9	ECQM1H472KZ	Polyester 0.0047μF 50V
R36	ERO25CKF2401	Metal 2.4KΩ 1/4W for WV-1410/WV-1414	C10	ECQM1H473KZ	Polyester 0.047μF 50V
R38,39	ERO25CKF3901	Metal 3.9KΩ 1/4W for WV-1460/WV-1464	C11	ECEA1VSS4R7	Electrolytic 4.7μF 35V
R40	ERD25FJ121	Carbon 120Ω 1/4W	C12	ECEA1ASS330	Electrolytic 33μF 10V
R41	ERD10TJ680	Carbon 68Ω 1/8W	C13	ECEA1ASS101	Electrolytic 100μF 10V
R42	ERD10TJ471	Carbon 470Ω 1/8W	C14,15	ECEA1CSS100	Electrolytic 10μF 16V
R43	ERD10TJ332	Carbon 3.3KΩ 1/8W	C16,17	ECEA1ASS101	Electrolytic 100μF 10V
R44	ERD10TJ472	Carbon 4.7KΩ 1/8W for WV-1460/WV-1464	C18	ECEA1ASS221	Electrolytic 220μF 10V
R45	ERD10TJ332	Carbon 3.3KΩ 1/8W for WV-1460/WV-1464	C19	ECCR1H101J	Ceramic 100pF 50V
R46	ERD10TJ561	Carbon 560Ω 1/8W for WV-1410/WV-1414	C20	ECEA0JSS471E	Electrolytic 470μF 6.3V
R47	ERD10TJ333	Carbon 33KΩ 1/8W for WV-1410/WV-1414	C21	ECEA1ASS470	Electrolytic 47μF 10V for WV-1460/WV-1464
R48	ERD10TJ123	Carbon 12KΩ 1/8W for WV-1410/WV-1414	C22	ECCR1H221K	Ceramic 220pF 50V for WV-1460/WV-1464
R49	ERC14GK106	Solid 10MΩ 1/4W for WV-1410/WV-1414	C23	ECEA1ASS330	Electrolytic 33μF 10V for WV-1410/WV-1414
R51	ERD10TJ152	Carbon 1.5KΩ 1/8W for WV-1460/WV-1464	C25	ECEA1CSS100	Electrolytic 10μF 16V for WV-1410/WV-1414
R52	ERD10TJ821	Carbon 820Ω 1/8W	C26,27	ECCR1H221K	Ceramic 220pF 50V
R53	ERD10TJ392	Carbon 3.9KΩ 1/8W	C201,202	ECQM1H102KZ	Polyester 0.001μF 50V
R54	ERD10TJ222	Carbon 2.2KΩ 1/8W	C401	ECEA1ASS101	Electrolytic 100μF 10V
R55	ERD10TJ392	Carbon 3.9KΩ 1/8W	C402	ECEA1ASS221	Electrolytic 220μF 10V
R112	ERD10TJ152	Carbon 1.5KΩ 1/8W	C403	ECQM1H103KZ	Polyester 0.01μF 50V
R201	ERD10TJ561	Carbon 560Ω 1/8W	C404	ECQV05683JZ	Metallized Plastic 0.068μF 50V
R202,203	ERD10TJ103	Carbon 10KΩ 1/8W	C405	ECCR1H221K	Ceramic 220pF 50V
R204,205	ERD10TJ472	Carbon 4.7KΩ 1/8W	C406	ECQM1H682KZ	Polyester 0.0068μF 50V
R206,207	ERD10TJ152	Carbon 1.5KΩ 1/8W	C407	ECCR1H560J	Ceramic 56pF 50V
R402	ERD10TJ103	Carbon 10KΩ 1/8W	C408,409	ECCR1H330JC	Ceramic 33pF 50V
R403	ERD10TJ560	Carbon 56Ω 1/8W	C410	ECQV05223JZ	Metallized Plastic 0.022μF 50V
R404	ERD10TJ123	Carbon 12KΩ 1/8W	C411	ECQV05273JZ	Metallized Plastic 0.027μF 50V
R405	ERD10TJ333	Carbon 33KΩ 1/8W	C412	ECQM1H472KZ	Polyester 0.0047μF 50V
R406	ERD10TJ274	Carbon 270KΩ 1/8W	C413	ECQM1H682KZ	Polyester 0.0068μF 50V
R407	ERD10TJ683	Carbon 68KΩ 1/8W	L401	YF7P7553C	Inductor
R408	ERD10TJ102	Carbon 1KΩ 1/8W	SW401	YWSSS21200	Sync Detector Switch
R409	ERD10TJ104	Carbon 100KΩ 1/8W	CN3-JM	EMCS0852M	8 pin Jack Male
R410	ERD10TJ224	Carbon 220KΩ 1/8W	CN4-JM	EMCS0952M	9 pin Jack Male
R411	ERC14GK106	Solid 10MΩ 1/4W	CN5-JM	EMCS0252M	2 pin Jack Male
R412	ERD10TJ473	Carbon 47KΩ 1/8W	CN6-JM	YWRP97R4S	ALC Connector for WV-1460/ WV-1464
R413	ERD10TJ333	Carbon 33KΩ 1/8W	CN8-JM	EMCS1052M	10 pin Jack Male
R414	ERD25FJ103	Carbon 10KΩ 1/4W	E1 ~ 4	YW32BH7R5	Terminal
R415	ERD10TJ103	Carbon 10KΩ 1/8W	PCB 3 PREAMPLIFIER BOARD		
VR401	YWSR19R220KB	Variable Resistor 220KΩ			
C3	ECQV05224JZ	Metallized Plastic 0.22μF 50V	Q1	2SK218-QR	Transistor
C4	ECEA1ASS101E	Electrolytic 100μF 10V	R1	ERD25FJ475	Carbon 4.7MΩ 1/4W
			R2	ERD10TJ684	Carbon 680KΩ 1/8W
			R3	ERD10TJ564	Carbon 560KΩ 1/8W

MODEL WV-1410/WV-1414
WV-1460/WV-1464

SYM- BOL NO.	PART NO.	DESCRIPTION	SYM- BOL NO.	PART NO.	DESCRIPTION
R4	ERD10TJ272	Carbon 2.7K Ω 1/8W			
R50	ERD10TJ151	Carbon 150 Ω 1/8W			
C1	ECQV05223JZ	Metal 0.022 μ F 50V			
C2	ECCF1H180JC	Ceramic 18pF 50V			
M023	YFV2HA0002A4	Shield Case			
PCB 4 24V TERMINAL BOARD for WV-1414/WV-1464					
E104	YFS02A3P	Terminal Block 3P			
PCB 5 TUBE SOCKET BOARD					
C208	ECQE6473KZ	Metal 0.047 μ F 600V			
CN007	YFS7504B05	Tube Socket			
PCB 6 LED BOARD					
D103 D2	LN21RPH LN21RPH	Light Emitting Diode (Red) Light Emitting Diode for WV-1410D			
ACCESSORY PARTS/PACKAGING PARTS					
CN101 M031	YWRP97P4P *YFV8QA0471AN *YFV8QA0472AN	Lens Connector Operating Instruction for WV-1410/WV-1414 Operating Instruction for WV-1460/WV-1464			
M032	VQA0120-2A VQA0054-4	Warranty Card for WV-1410 Series USA Warranty Card for WV-1410 Series CANADA			
M033	YVW22XPRB99K	Service Center List for WV-1410 Series USA			
M034	YW-FP10	Lens Paper for WV-1460/WV-1464			
M035 M036	YWT20X35C03 YWT25X60X3 YWT26X40C05	Polyethylene Bay (x2) Polyethylene Bay for WV-1410/WV-1460 Polyethylene Bay for WV-1414/WV-1464			
M040	*YFV9CA0390BN *YFV9CA0391BN *YFV9CA0392BN *YFV9CA0393BN *YFV9CA0395BN	Packaging for WV-1410 Packaging for WV-1414 Packaging for WV-1460 Packaging for WV-1464 Packaging for WV-1460D			

SCHEMATIC DIAGRAM OF WV-1410/WV-1414



**NOTE: () VOLTAGES ARE MEASURED AT
LL MODE (SW401).**