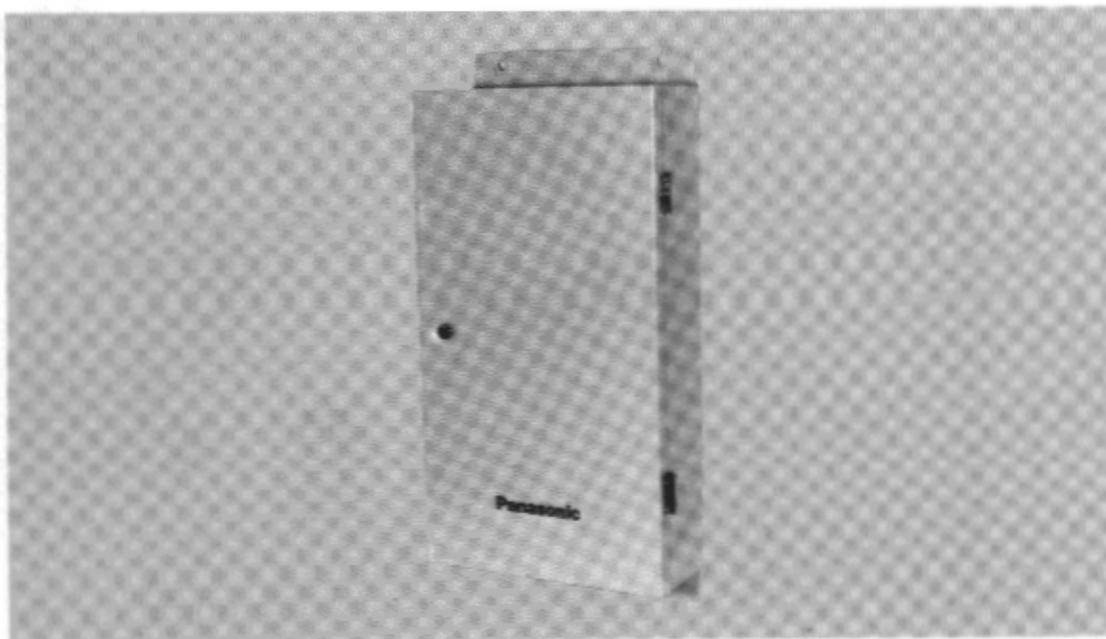


Operating Instructions & Installation Manual

Outdoor Receiver
WV-RC150



Panasonic®

Before attempting to connect or operate this product, please read these instructions completely.

PREFACE

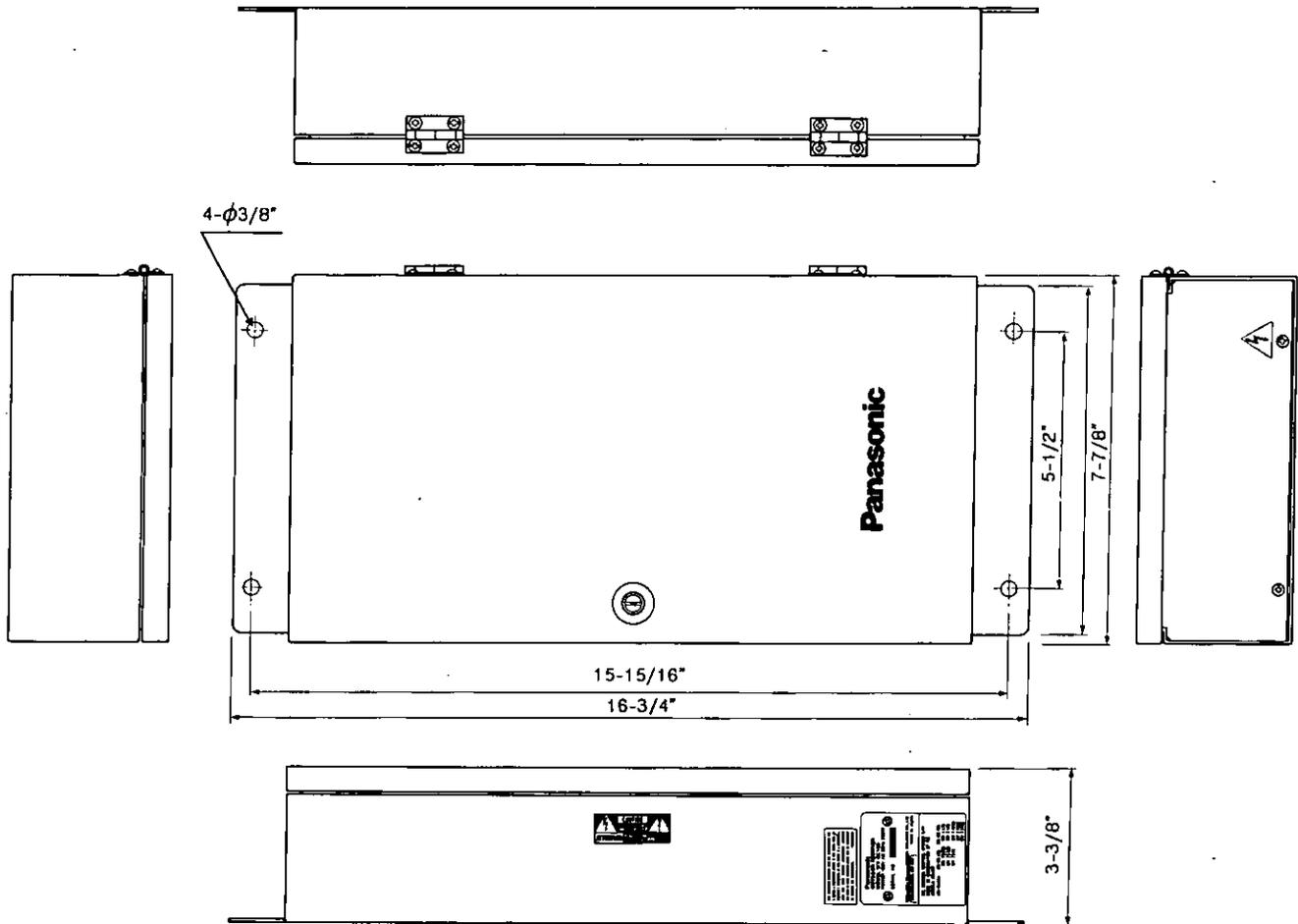
The Outdoor Receiver, WV-RC150, is designed for a relay unit to be stationed in between the operator room and the camera site. WV-RC150 controls the powers or functions of the camera site, such as Pan/Tilt Head, Camera Housing and Cameras, and is remotely operated by the System Controller WV-CU254. The control data from WV-CU254 is multiplexed on the video signal so that the complicated wiring will not be necessary.

The optional Audio Board enable to make a bi-directional audio signal transmission to expand the system capability.

FEATURES

1. Since the control data is multiplexed on the video signal, only single coaxial cable can be connected between the Receiver and the System Controller.
2. The movement of the random panning is controlled by this Receiver with a specified Pan/Tilt Head.
3. Lens control voltage can be adjusted for a variety of lenses.
4. Built-in two Aux terminals for external equipment.
5. Controls of the supply of the power to the Camera, Fan/Heater, Defroster and Wiper.
6. The bi-directional audio signal transmission will be available using an optional Audio Board.

APPEARANCE



SPECIFICATIONS

Power Source :	120V AC $\pm 10\%$ 60Hz
Input Signal	
Camera Input :	1Vp-p/75 Ω (Multiplexed video signal) (BNC)
Mic Input :	600 Ω Balanced, -78dBV (with WV-PB10) (1/4" phone jack) (possible to use 600 Ω Unbalanced)
Output Signal	
Video Output :	1Vp-p/75 Ω (Multiplexed video signal) (BNC)
Audio Output :	-10dBV, 10k Ω Minimum Load Impedance (with WV-PB10)
Speaker Output :	8 Ω , 1W Max.
Control Terminal	
Aux-1 :	125V AC, 3.5A (COS $\phi=0.4$)
Aux-2 :	125V AC, 3.5A (COS $\phi=0.4$)
Lens Voltage Supply :	6V DC or 12V DC switchable (Fine adjustable)
Ambient operating temperature :	-22°F - +122°F (-30°C - +50°C)
Dimension :	3-3/8"(H) x 7-7/8"(W) x 16-3/4"(D) 85(H) x 200(W) x 425(D) mm
Weight :	18.5lbs (8.3kg)

Weight and dimensions indicated are approximate.
Specifications are subject to change without notice.

INSTRUCTIONS FOR INSTALLATION

For qualified service personnel or system installer only

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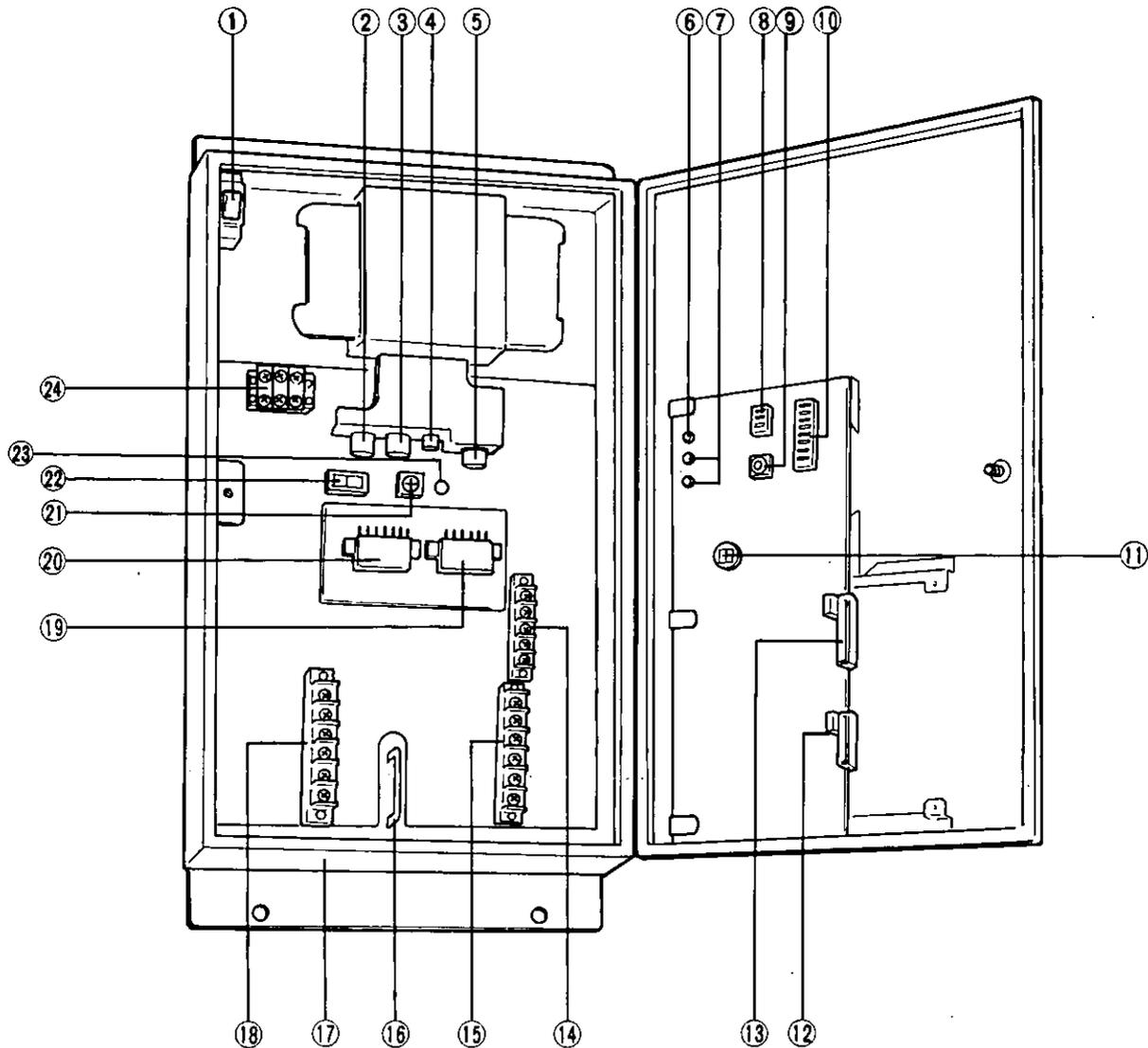
PRECAUTIONS

1. The recommended camera which is used with the Receiver is either WV-BL600 series or WV-CL700 series. Also, the other Panasonic 24V AC camera will be able to use in this Receiver. Quote the qualified personnel for selection of the camera.
2. This unit should be operated under the temperature of -22°F - $+122^{\circ}\text{F}$ (-30°C - $+50^{\circ}\text{C}$) and the humidity of 95% or less.
3. This unit is not a water proof type so that install the unit where minimal exposure of the rain or moisture.
4. Read carefully the electrical specifications when the external product is connected with this unit.

CAUTION

To prevent fire or shock hazard, the UL listed wire VW-1, style 1015, AWG 18 or UL listed power supply cord, type SJT should be used for the cable for 120V AC Power Terminal.

MAJOR OPERATING CONTROLS, TERMINALS AND THEIR FUNCTIONS



1. Power ON/OFF Switch

When this switch is depressed, the unit is turned on and the Power Indicator LED (6) lights.

Be sure to turn this switch off when connecting the AC power cord to the 120V AC Power Terminal (24) or any other wiring with this unit.

2. Camera Input Connector (CAMERA)

The video signal from a camera site will be connected here.

3. Video Output Connector (CONTROLLER)

The multiplexed video signal is supplied from this output to the camera input of the System Controller (WV-CU254).

4. Audio Output Connector

(AUDIO OUT)-(RCA connector)

An optional audio amplifier can be connected to this connector when the optional Audio Board (WV-PB10) is installed in the Receiver.

5. Mic. Input Connector (MIC)-(1/4" phone jack)

A 600Ω balanced type (possible to use 600Ω unbalanced type) microphone can be connected to this connector to pick up the sound of the camera site. This sound will be transmitted to the System Controller WV-CU254.

An optional Audio Board is necessary for both WV-RC150 and WV-CU254. WV-PB10 for WV-RC150, WV-PB11 for WV-CU254.

6. **Power Indicator LED (LED-3/POWER)**
When the Power ON/OFF Switch (1) turns ON, this LED lights up (red color).
7. **Data Indicator LED (LED-1, -2/CHECK)**
These indicators (amber, green) blink while the Receiver is receiving and transmitting the data. Also it blinks when the System Test Switch (9) is pressed.
8. **Mode Switch (SW2)**
This switch is a slide type switch. Three functions are included in this switch such as Aux1, Aux2 and Random Pan mode. See the details of the operation on page 10.
9. **System Test Switch (SW3)**
This switch is a push type switch. When this switch is pressed, every optional product which is connected with the Receiver will be tested its operation whether it is worked properly. This switch will be used also for the time setting of the Random Panning operation. See the details of the operation on page 11.
10. **Active/Non Active Switch (SW1)**
This switch is a slide type switch. Eight functions are included in this switch such as Aux1, Aux2, Auto Pan, Camera AC, Defroster, Wiper, Reserved 1, -2. See the details of the operation on page 10.
11. **Random Panning Control Volume (VR201)**
This Control Volume adjusts the time of movement of the Random Panning unit and is related to the Random Pan mode of the Mode Switch (8). See the details of the operation on page 10.
12. **10 pin Connector of the Audio Board (CN12)**
The optional Audio Board (WV-PB10) will be installed in CN11 and CN12, for the audio transmission. See the WV-PB10 Operating Instructions for details.
13. **12 pin connector of the Audio board (CN11)**
The optional Audio Board (WV-PB10) will be installed in with CN12 and CN11 for the audio transmission. See the WV-PB10 Operating Instructions for details.
14. **Speaker Terminal (5 pin)**
The speaker cable from the optional speaker (8Ω) will be connected to this terminal.
An optional Audio Board (WV-PB10) should be installed when a speaker is used.
See the details of the connection on page 11.
15. **Aux-2 Terminal (6 pin)**
There is a dual switching circuit on this terminal. See the details of the connection on page 12.
16. **Cable Clamping Angle**
All cables should be clamped by the Cable Clamp (supplied) at this angle.
17. **Bottom Plate**
The proper size of the hole should be made in order to pass the cables into the Receiver from optional products.
18. **Aux-1 Terminal (6 pin)**
There is a dual switching circuit on this terminal. See the details of the connection on page 12.
19. **Prewired Cable Connector (12 pin)**
The 12 pin connector of the prewired cable WV-CA50 from Pan/Tilt Head or Camera Housing will be connected to this connector.
20. **Prewired Cable Connector (14 pin)**
The 14 pin connector of the prewired cable WV-CA50 from Pan/Tilt Head or Camera Housing will be connected to this connector.
21. **Lens Voltage Fine Control (VR301)**
This is a fine adjustment of the voltage to be supplied to the power zoom lens.
See details of the operation on page 12.
22. **Lens Voltage Selection Switch (SW301)**
This is a coarse setting switch of the voltage to be supplied to the power zoom lens.
See details of the operation on page 12.
23. **Test Point**
Use this test point for the fine adjustment of the lens supply voltage.
24. **120V AC Power Terminal (L $\frac{\perp}{\equiv}$ N)**
Connect 120V AC power cord (local procurement) with this terminal.
L : Live, N : Neutral, $\frac{\perp}{\equiv}$: Earth

CAUTION:

CONNECT TO 120V AC CLASS 1 SUPPLY ONLY.

Caution:

To prevent fire or shock hazard, the UL listed wire VW-1, style 1015, AWG 18 or UL listed power supply cord, type SJT should be used for the cable for 120V AC Power Terminal.

EXPLANATION OF FUNCTIONAL FEATURES

The Outdoor Receiver, WV-RC150, is composed of several blocks of the functions. The followings is the explanation of each block for further understanding with the Outdoor Receiver.

A. Power Control Function

1. 24V AC line control
The following products can be controlled with 24V AC supply.
 - Camera
 - Pan/Tilt Head (up, down, right, left, auto pan, random pan)
 - Wiper
 - Defroster
2. Lens voltage control
The following items will be controlled with DC voltage supply.
 - Iris
 - Focus
 - ZoomAdjustable from 2V DC to 15V DC

Remarks :

The above powers are supplied through the prewired cable WV-CA50 from WV-RC150.

3. Aux terminal control
 - The Aux-1, -2 have the power capacity of 3.5A, 125V AC, $\cos\phi = 0.4$ each. The rush current should be considered when the external product is connected with.

B. Data Transfer Function

1. Multiplexed video transmission
Only single coaxial cable is necessary between the Video Output connector (3) of WV-RC150 and the Camera Input of the System Controller WV-CU254 due to multiplexed data transmission system.
2. Internal Dummy Sync Function
Even if no video signal is supplied to WV-RC150, the control data will be transmitted between WV-CU254 and WV-RC150 using a internal Dummy Sync.

C. Video Signal Function

The control data is multiplexed on the video signal to perform bi-directional data transmission.

D. Audio Signal Function

When the Audio Board (WV-PB11 for WV-CU254 and WV-PB10 for WV-RC150) is installed in both WV-CU254 and WV-RC150, the following functions will be made.

1. The sound picked up by the external microphone of WV-CU254 can be heard at the camera site by connecting the external speaker with WV-RC150.
2. The sound picked up by the external microphone of WV-RC150 will be transmitted to WV-CU254.
3. WV-RC150 has an Audio Output Connector (4) to hook up an external amplifier for bigger sound.
4. An external speaker (Max. 1W) can be connected to the Speaker Terminal (14).

E. Other Useful Functions

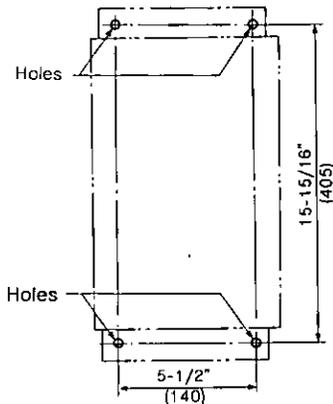
1. Two kinds of the random operation mode for the Pan/Tilt Head can be selected.
Mode-1 : This mode operates like an intermittent auto panning movement.
Mode-2 : This is a random panning which is almost impossible to predict a movement of the Panning Head.
Refer to item-B of OPERATION on page 10.
2. The setting up of the status for the optional accessories can be displayed on the monitor through WV-CU254.
Refer to item-A of OPERATION on page 10.
3. Automatic testing for the optional accessories will be performed by simply pressing a System Test Switch (9)-(SW3).
Refer to item-C of OPERATION on page 11.
4. The mode of the relay for auxiliary switching circuit can be set up either a Latch mode or Momentary mode by the Mode Switch (SW2)-(8).
Refer to item-B of OPERATION on page 10.
5. The supply voltage for the power zoom lens can be adjusted.
Refer to item-F of OPERATION on page 12.

INSTALLATION

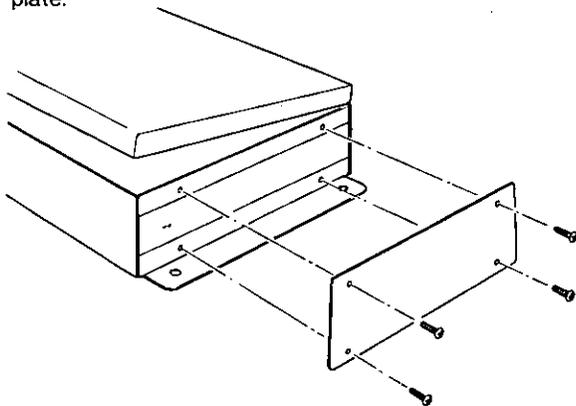
1. Installation of the Receiver

Caution :

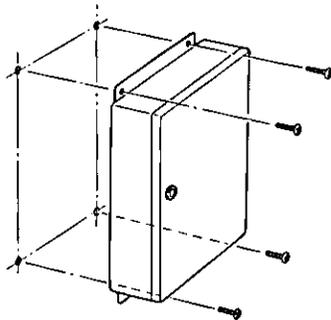
- WV-RC150 is designed for outdoor use. However, install it where the exposure to the rain and the moisture could be minimum as much as possible.
 - Never install it up-side down.
 - It is recommended to install WV-RC150 close to the Pan/Tilt Head.
 - To prevent fire or shock hazard, the UL listed wire VW-1, style 1015, AWG 18 or UL listed power supply cord, type SJT should be used for the cable for 120V AC Power Terminal (23).
- (1) Drill four holes for mounting the bolts onto the mounting surface referring the following measurements.



- (2) Remove the Bottom Plate (17) for wiring through this plate.



- (3) Make a hole around the center position of the Bottom Plate (17). The diameter of the hole should be calculated with the bunch of the cables which is to be conducted through this hole.
- (4) Mount the Receiver with four mounting bolts. (To be local procurement.)



- (5) Open the cover and make a necessary wiring with terminals through the Bottom Plate (17).

- (6) Be sure to secure all cables to the Cable Clamping Angle (16) with a Cable Clamp (provided).
- (7) After complete the wiring, be sure to proof against the water at the wiring hole.

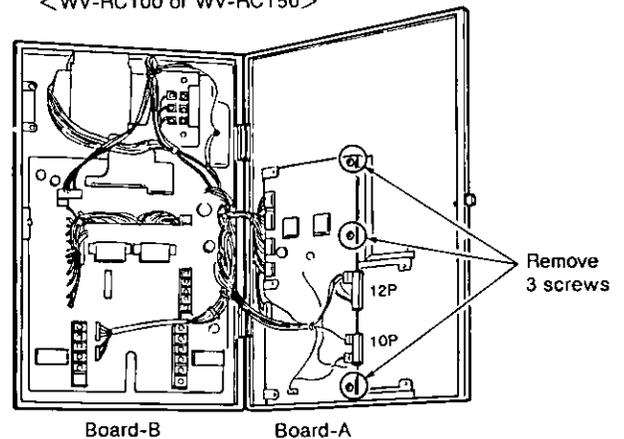
Note :

When WV-CA50, the prewired cable with a rubber bushing, is used for wiring, remove this rubber bushing from the cable and do not utilize it for the waterproof purpose.

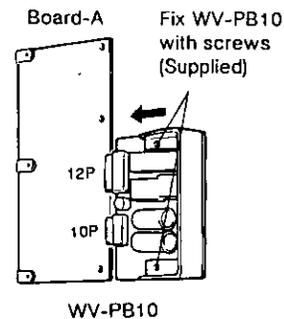
2. Installation of the optional Audio Board (WV-PB10)

- (1) Turn off the power of the Receiver.
- (2) Remove three screws of the circuit board-A. (See Fig. 1.)
- (3) Insert the connectors of WV-PB10 into the connectors on the circuit board-A. (See Fig. 2.)
- (4) Fix the circuit board-A with WV-PB10 back on the chassis with three screws.
- (5) Fix WV-PB10 with two screws. (See Fig. 2.)

< WV-RC100 or WV-RC150 >



(Fig. 1)



(Fig. 2)

Caution :

The electrical parts on the back of the circuit board should not touch the chassis when re-install the circuit boards.

3. Installation of the prewired cable WV-CA50

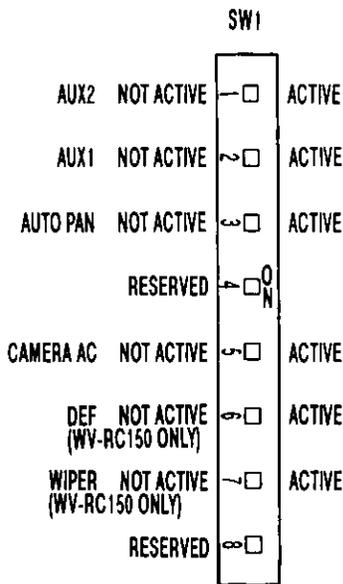
- (1) Connect the BNC connector of WV-CA50 to the Camera Input Connector (2) of WV-RC150.
- (2) Connect the prewired connectors, 12 pin and 14 pin, of WV-CA50 to the Prewired Cable Connectors (19), (20) of WV-RC150.

OPERATIONS

A. Active/Non-Active Switch (SW1)-(10)

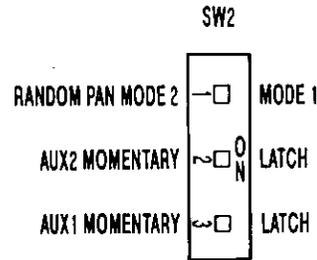
There are eight individual switches in SW1 and is corresponding to each input function. In case that any of these switches is turned to ACTIVE position, its function will become active status. On the contrary, when the switch is turned to NOT ACTIVE position, its function will not work even if the product is hooked up with WV-RC150. These status will be displayed on the monitor TV through WV-CU254.

- Switch 1 (AUX2) :
For the product of Aux-2
- Switch 2 (AUX1) :
For the product of Aux-1
- Switch 3 (AUTO PAN) :
For the Panning Head which has an Auto Pan function.
- Switch 4 (RESERVED) :
This switch is for the future function and should be in the off position all the time.
- Switch 5 (CAMERA AC) :
For the power supply for the 24V AC camera.
- Switch 6 (DEF) :
For the power supply for the Defroster on the camera housing.
- Switch 7 (WIPE) :
For the power supply for the Wiper on the camera housing.
- Switch 8 (RESERVED) :
This switch is for the future function and should be in the off position all the time.



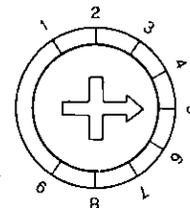
B. Mode Switch (SW2)-(8)

There are three individual switches in SW2 and is correspond to each input function. The SW2 is a switch for selecting the mode of the function.



1. **Switch 1 (RANDOM PAN/MODE2 - MODE 1)**
For the selection of MODE1 or MODE2 of the Random Panning function.
 - (1) **MODE1**
 - This mode operates like an intermittent auto panning movement.
 - Turn the Power ON/OFF switch (1) on while pressing the System Test Switch (9). The panning head moves to right (or left) for a pre-adjusted time. Then it stops. And it starts to move again to reverse direction. The time of the movement can be adjusted by the Random Panning Control Volume (VR201)-(11).
 - For the reference of the adjustment of the Random Panning Control Volume VR201, see the table below.

Position of Arrow	The rough calculation of the panning time (Approximate)
1	5 sec
2	5 or 10 sec
3	10 or 15 sec
4	20 or 25 sec
5	30 or 35 sec
6	40 or 45 sec
7	50 or 55 sec
8	55 or 60 or 65 sec
9	65 or 70 sec



VR201

Random Panning Control Volume (VR201)

Note :
No numbers along the VR201 on the actual circuit board.

When the setting up of the panning time of above table exceeds the pre-set limitation than that of a Panning Head, the Panning Head will turn back from the Pan Limit Stops of the Panning Head.

Refer to the Operating Instructions of the Panning Head for the adjustment of the Pan Limit Stops.

- Adjust the panning angle or the panning time longer than that of the time between two Pan Limit Stops of the Panning Head.
- The stopping time of the Panning Head is double as moving time. That is, if Panning Head moves for 5 sec, it stops for 10 sec.

(2) MODE2

- This is a random panning which is almost impossible to predict a movement of the Panning Head.
- Turn the Power ON/OFF Switch (1) on while pressing the System Test Switch (9).
- Adjust the Random Panning Control Volume (VR201)-(11) in order to pan the Panning Head just slightly wider than the angle of the Pan Limit Stops of the Panning Head.

2. Switch 2 (AUX2/MOMENTARY - LATCH)

The mode of AUX2 relay can be switched either a MOMENTARY mode or a LATCH mode.

MOMENTARY mode :

The Relay of AUX2 makes on while Auxiliary Switch (19) of WV-CU254 is pressing.

LATCH mode :

The relay of AUX2 keeps on when Auxiliary Switch (19) of WV-CU254 is pressed.

3. Switch 3 (AUX1/MOMENTARY - LATCH)

The mode of AUX1 relay can be switched either a MOMENTARY mode or a LATCH mode.

MOMENTARY mode :

The relay of AUX1 makes on while Auxiliary Switch (19) of WV-CU254 is pressing.

LATCH mode :

The relay of AUX1 keeps on when Auxiliary Switch (19) of WV-CU254 is pressed.

C. System Test Switch (SW3)-(9)

When this switch is pressed, the optional accessories which are connected with the Receiver will be operated for a short time automatically in order to make sure if they function properly.

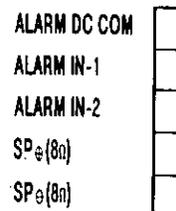
The following items will be tested in order.

- (1) Pan/Tilt Head
 - To Left for 5 sec then stops for 2 sec
 - ↓
 - To Right for 5 sec then stops for 2 sec
 - ↓
 - To Up for 5 sec then stops for 2 sec
 - ↓
 - To Down for 5 sec then stops for 2 sec
 - ↓
 - Auto Pan for 5 sec then stops.
 - ↓
- (2) The power of the camera shuts off for 5 sec then turns on.
- (3) The Defroster operates for 5 sec then shut off.
- (4) After 2 sec, the Wiper operates for 5 sec then stops.
- (5) Iris (Motor driven manual iris only)
 - Open (+) for 5 sec then stops for 2 sec.
 - ↓
 - Close (-) for 5 sec then stops.
 - ↓
- (6) Focus (Motor driven manual focus only)
 - FAR (-) for 5 sec then stops for 2 sec.
 - ↓
 - Near (+) for 5 sec then stops.
 - ↓
- (7) Zoom (Motorized power zoom only)
 - Tele (+) for 5 sec then stops for 2 sec.
 - ↓
 - Wide (-) for 5 sec then stops.
 - ↓
- (8) Aux-1 relay makes for 5 sec then breaks.
- (9) After 2 sec, Aux-2 relay makes for 5 sec then breaks.
- (10) Returns to the normal operation mode.

Note :

1. Above times are approximate.
2. The marked (+), (-) means a polarity of DC supply voltage.
3. When the System Test Switch (9) is pressed during the system testing, the testing will stop and keep its condition. Press the switch again to start the testing again from that condition.

D. Speaker Terminal (5 pin)-(14)



- SP ⊕ (8Ω), SP ⊖ (8Ω)
In case that an optional Audio Board (WV-PB10) is installed in WV-RC150, hook up the speaker (8Ω) to this terminal. The Hot of the speaker line should be connected to SP ⊕ (8Ω).
The voice from the System Controller WV-CU254 will be transmitted to the speaker.

Note :

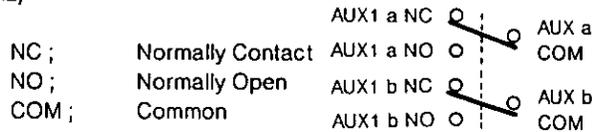
1. ALARM DC COM, ALARM IN-1, ALARM IN-2
These terminal are for the future functions. It is of no use at this moment.
2. An optional Audio Board (WV-PB11) should be installed in WV-CU254.

E. AUX Terminal (6 pin)-(15), (18).



The AUX1 is composed of dual switching circuit such as AUX1 a, AUX1 b. (Same as AUX2)

The circuit diagram of AUX1 is shown below. (Same as AUX2)



The electric capacity of each contact, such as AUX1 a, is 3.5A, 125V AC at a load of $\cos\phi=0.4$. (Same as AUX1 b)

AUX1 or AUX2 has a choice of mode with relay operation. Refer to E-4 of EXPLANATION OF FUNCTIONAL FEATURES on page 8.

Either Latch mode or Momentary mode of operation will be available.

For example, a Lighting kit for the camera, Buzzer, Door-Lock etc. may be connected with this auxiliary terminals.

Note :

The AUX relay will be damaged if the rush current exceeds the specifications of the relay.

The specifications of the contact of this relay is,

- 3.5A, 125V AC at $\cos\phi=0.4$
- 1/10 HP, 125V AC

F. Supply of the power for the Power Zoom Lens

There are a coarse setting and a fine adjustment for the supply of the lens voltage.

1. Coarse Setting :

When the Lens Voltage Selection Switch (SW301)-(22) is turned to left, the center voltage will be 6V DC. And when this switch is turned to right, the center voltage will be 12V DC. Select either 6V DC or 12V DC according to the lens.

2. Fine Adjustment :

Use the Lens Voltage Fine Control (VR301)-(21) for fine adjustment of the voltage.

6V DC can be adjusted from 2V DC up to 9V DC.

12V DC can be adjusted from 8V DC up to 15V DC.

Note :

Observe the Test Point (23) when adjusting the Lens Voltage Fine Control (VR301)-(21).

Caution :

1. The Lens Voltage has been set at 6V DC at factory.
2. The reference voltage and current to the lens.
 - In case of 6V lens, the total current should be less than 180 mA.
 - In case of 12V lens, the total current should be less than 330 mA.
3. See the Service Manual of WV-RC150 for the procedure of the adjustment.

G. Prewired Cable Connector (12 pin, 14 pin)-(19), (20)

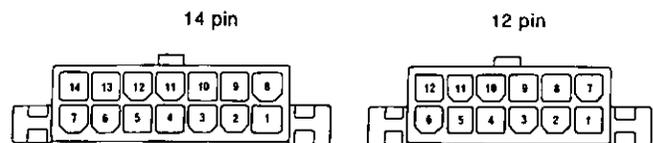
These connectors are used for the connection of the pre-assembled cable, WV-CA50.

WV-CA50 is a multi-conductors cable which is connected between WV-RC150 and the Outdoor Pan/Tilt Head or the Outdoor Camera Housing.

The control signals and the powers for the Pan/Tilt Head and the Camera Housing are transmitted over this cable.

The pin configuration is shown below.

(14 pin connector)		(12 pin connector)	
NBR	Contents	NBR	Contents
1	Fan Heater (Housing)	1	(N. C.)
2	AC common	2	(N. C.)
3	AC common	3	(N. C.)
4	AC common	4	GND
5	(N. C.)	5	GND
6	Defroster	6	Lens DC common
7	Wiper	7	(N. C.)
8	Fan Heater (Housing)	8	(N. C.)
9	Pan Left	9	Lens Zoom
10	Pan Right	10	Lens Focus
11	Tilt Up	11	Lens Iris
12	Tilt Down	12	(N. C.)
13	Pan Auto		
14	Camera 24V AC		



<Front View of the Male Connector>

Remarks :

When the local procurement cable is used with provided 12 pin and 14 pin connectors, instead of using WV-CA50, refer to the Operating Instructions or the Service Manual of the Camera Housing or Pan/Tilt Head.



Panasonic

Communications & Systems Company

Panasonic Communications & Systems Company
Division of Matsushita Electric Corporation of America

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SOUTHERN ZONE:

Dallas Region: 4500 Amon Carter Blvd., Ft Worth, TX 76155 (817) 685-1117

Atlanta Region: 1854 Shackelford Ct. Suite 115, Norcross, GA 30093 (404) 925-6841

WESTERN ZONE:

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