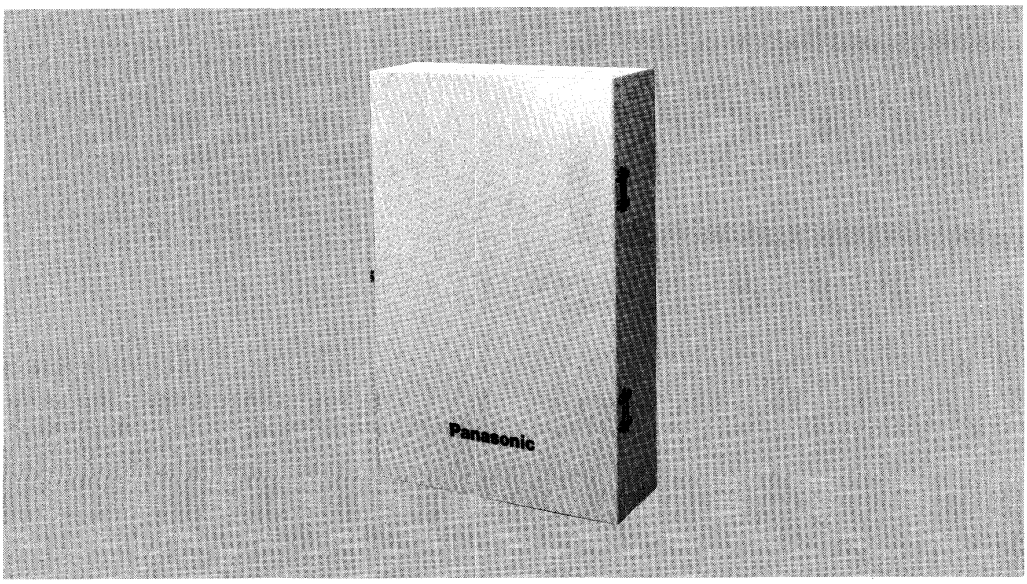
Operating Instructions & Installation Manual

Indoor Receiver
WV-RC100



Panasonic

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

ENGLISH VERSION

CONTENTS

We declare under our sole responsibility that the product to which this declaration relates is in conformity with the standards or other normative documents following the provisions of Directives EEC/73/23 and EEC/89/336.

Nosotros declaramos bajo nuestra única responsabilidad que el producto a que hace referencia esta declaración está conforme con las normas u otros documentos normativos siguiendo las estipulaciones de la directivas CEE/73/23 y CEE/89/336.

Noi dichiariamo sotto nostra esclusiva responsabilità che il prodotto a cui si riferisce la presente dichiarazione risulta conforme ai seguenti standard o altri documenti normativi conformi alle disposizioni delle direttive CEE/73/23 e CEE/89/336.

Wij verklaren als enige aansprakelijke, dat het product waarop deze verklaring betrekking heeft, voldoet aan de volgende normen of andere normatiefve dokumenten, overeenkomstig de bepalingen van Richtlijnen 73/23/EEC en 89/336/EEC.

Vi erklærer os eneansvarlige for, at dette produkt, som denne deklaration omhandler, er i overensstemmelse med den følgende standarder eller andre normative dokumenter i følge bestemmelserne i direktivene 73/23/EEC og 89/336/EEC.

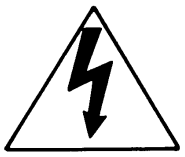
Vi deklarerar härmed värt fulla ansvar för att den produkt till vilken denna deklaration hänvisar är i överensstämmelse med standarddokument, eller andra normativa dokument som framstölls i Direktiv 73/23/EEC och 89/336/EEC.

Ilmoitamme yksinomaisella vastuullamme, että tuote, jota tämä ilmoitus koskee, noudattaa seuraavia standardeja tai muita ohjeellisia asiakirjoja, jotka noudattavat direktiivien 73/23/EEC ja 89/336/EEC. säädöksiä.

Vi erklærer oss alene ansvarlige for at produktet som denne erklæringen gjelder for, er i overensstemmelse med følgende normer eller andre normgivende dokumenter som fælger bestemmelsene i direktiven 73/23/EEC og 89/336/EEC.

CAUTION:

Before attempting to connect or operate this product, please read the label on the bottom.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

For U.K.

PLEASE READ FOLLOWING INSTRUCTION IF YOUR POWER SOURCE VOLTAGE IS MORE THAN 200V.

WARNING

THIS APPARATUS MUST BE EARTHED.
IMPORTANT

The wires in this mains lead are coloured in accordance with the following code.

Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

For Australia

THIS APPARATUS MUST BE EARTHED.

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring. Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities.

The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

PREFACE

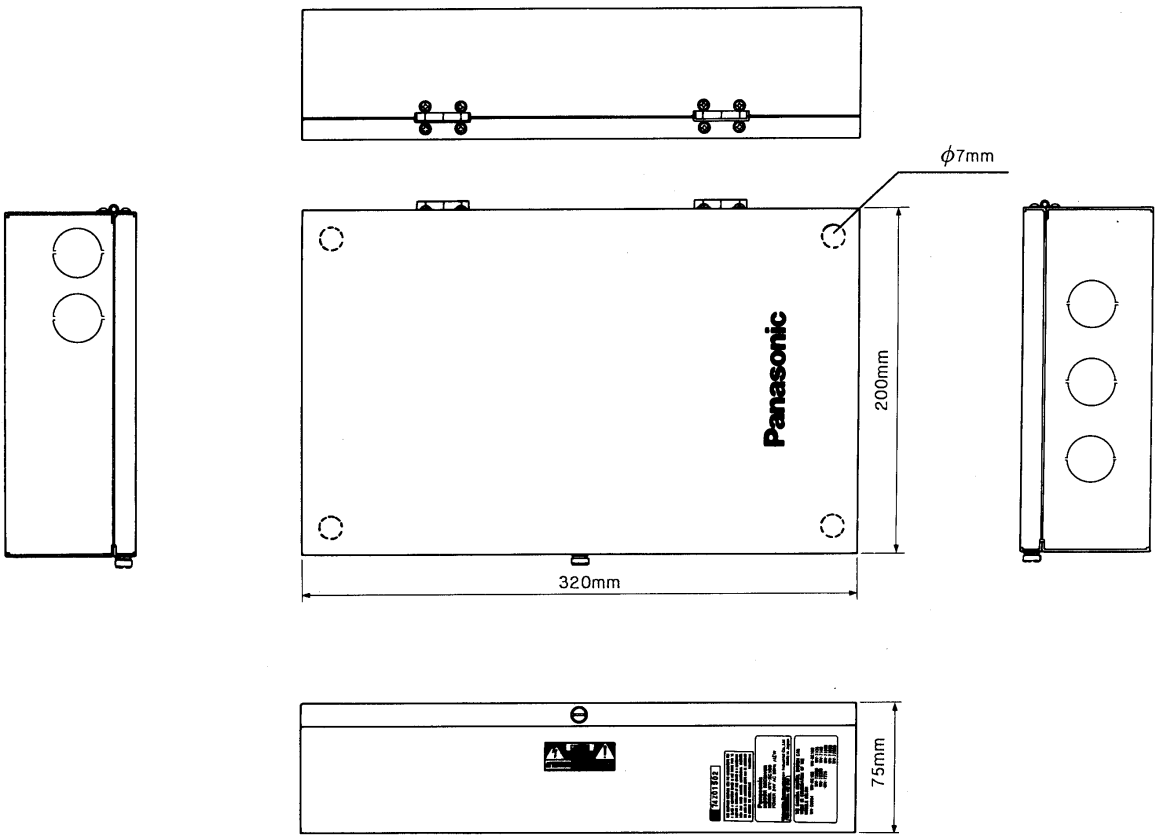
The Panasonic Indoor Receiver WV-RC100 receives a control data from compatible optional System Controller such as the WV-CU254 or WV-CU300, and relays commands signals to the camera and accessories. The Indoor Receiver WV-RC100 transmits status information back to the System Controller such as WV-CU254 or WV-CU300, and also supply operating voltages for the camera and accessories. In most applications, the Indoor Receiver WV-RC100 can be placed at the camera location, and can easily be connected to the Pan/Tilt Head with a multiconductor cable.

The Indoor Receiver WV-RC100 can be equipped with an optional Audio Board (WV-PB10E) to enable continuous two-way audio transmission between control room and camera locations using an optional Audio Board (WV-PB11E) installed in a System Controller WV-CU254 or WV-CU300. The control data between the System Controller such as WV-CU254 or WV-CU300 and the Indoor Receiver WV-RC100, including audio, is multiplexed onto the video signal so that information can be transmitted on a single coaxial cable, which simplifies wiring and installation, as well as minimizing costs.

FEATURES

1. Since the control data and the audio signal are multiplexed on the video signal, only single coaxial cable can be connected between the Indoor Receiver WV-RC100 and the System Controller WV-CU254 or WV-CU300.
2. Supplies power to the camera, as well as control signals for the pan/tilt head and zoom lens.
3. A system test function enables self - diagnostic status checks of pan/tilt operation, iris of lens, focus of lens, zoom of lens and auxiliary operation at camera location.
4. Both auto and random pan functions are available with compatible optional panning head such as the Indoor Panning Head WV-7220DE or the Indoor Pan/Tilt Head WV-7225E.
5. Provides two auxiliary (AUX) terminals for connection of external equipment.
6. Lens control voltage can be adjusted, enabling use of a variety of lenses.
7. The bidirectional audio communication is available using an optional Audio Board (WV-PB11E).

APPEARANCE



SPECIFICATIONS

Power Source:	WV-RC100/B: 230/240V AC 50Hz WV-RC100/G: 230V AC 50Hz
Power Consumption:	85W
Input Signal	
Camera Input:	1Vp-p/75 ohms (Multiplexed video and control data signal) (BNC connector)
Mic Input:	600 ohms Balanced, −78dBV (with WV-PB10E) (1/4" phone jack) (possible to use 600 ohms Unbalanced)
Output Signal	
Video Output:	1Vp-p/75 ohms (Multiplexed FM audio, video and control data signal) (BNC connector)
Audio Output:	−10dBV (at load impedance 10k ohms or more with WV-PB10E)
Speaker Output:	1 watt with 8 ohms, (maximum)
Control Terminal	
Aux - 1:	240V AC, 3.5A cosϕ = 0.4 (Power factor)
Aux - 2:	240V AC, 3.5A cosϕ = 0.4 (Power factor)
Lens Voltage Supply:	6V DC or 12V DC switchable (Fine adjustable)
Ambient operating temperature:	−10°C - +50°C
Ambient operating humidity:	Less than 95%
Dimension:	200 (W) × 75 (H) × 320 (D) mm
Weight:	4.7kg

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

STANDARD ACCESSORIES

Cable Clamp ..... 1pc.
Rubber Bushing ..... 3 pcs.

MAJOR OPTIONAL ACCESSORIES

Audio Board WV-PB10E
System controller WV-CU300, WV-CU254
Pan/Tilt Head WV-7220DE, WV-7225E
Multiplex Unit WJ-MP404
Camera WV-BL604, WV-CL704

CAUTION
THE ALL NECESSARY WIRINGS, CONNECTIONS AND ADJUSTMENTS WITH REGARD TO INSTALL THIS PRODUCT MUST BE MADE BY QUALIFIED SERVICE PERSONNEL OR SYSTEM INSTALLER.
ONLY THOSE QUALIFIED SERVICE APERSONNEL OR SYSTEM INSTALLER WILL BE ALLOWED TO FOLLOW "INSTRUCTIONS FOR INSTALLATION" FROM NEXT PAGE.

INSTRUCTIONS FOR INSTALLATION

For qualified service personnel or system installer only

CONTENTS

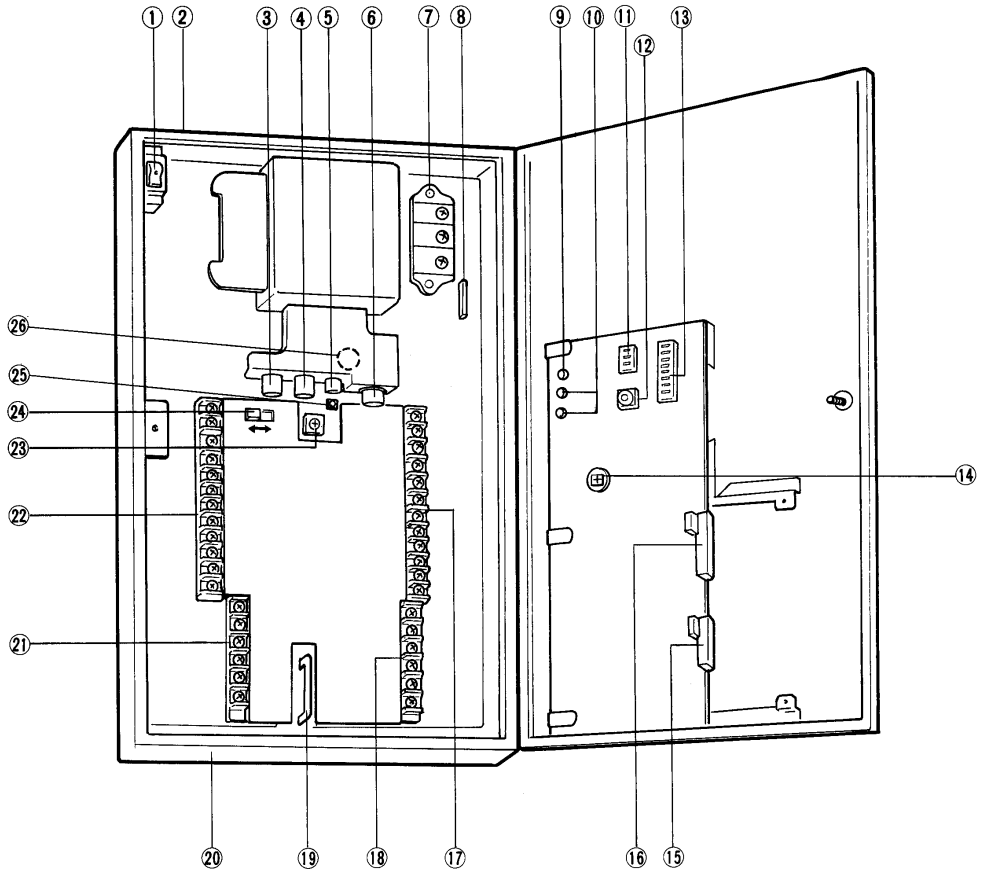
PRECAUTIONS

1. The recommended camera to be used with the Indoor Receiver WV-RC100 is either WV-BL600 series or WV-CL700 series. Also, the other Panasonic 24V AC camera can be to use in this Receiver. Refer to the qualified personnel for selection of the camera.
2. Read carefully the electrical specifications when the optional product is connected with this unit.
3. Do not attempt to disassemble the instrument. In order to prevent electric shock, do not remove screws or covers. There are no user-serviceable parts inside. Do refer all servicing to qualified service personnel.
4. Do not abuse the instrument. Avoid striking, shaking, etc. It could be damaged by improper handing or storage. Do handle the instrument with care.
5. Do not use strong or abrasive detergents when cleaning the instrument body. Do use a dry cloth to clean the instrument when dirty.In case the dirt is hard to remove, use mild detergent and wipe gently.
6. Do not expose the instrument to water or moisture, and do not operate it in wet area. Do take immediate action if ever the instrument does become wet. Turn the power off and refer servicing to qualified service personnel. Moisture can damage the instrument and also create the danger of electric shock.
7. Do not use the instrument in an extreme environment where high temperature or high humidity exist. Use the instrument under conditions where temperatures are within $-10^{\circ}C$ - $+50^{\circ}C$, and humidity is below 95%

CAUTION:

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

MAJOR OPERATING CONTROLS, TERMINALS AND THEIR FUNCTIONS



1. **Power ON/OFF Switch**
   When this switch is pressed, the unit is turned on and the Power Indicator LED (9) lights up. Be sure to turn this switch off when connecting the AC power cord to the AC Power Terminal (7) or any other wiring with this unit.

2. **Top Plate**
   The proper hole should be made in order to pass the cable into the Indoor Receiver WV-RC100 from optional products. There are same type of holes on the Bottom Plate (20). Refer to the Installation of the Indoor Receiver on page 10.

3. **Camera Input Connector (CAMERA)**
   The multiplexed video and control data signal from a camera should be supplied to this connector.

4. **Video Output Connector (CONTROLLER)**
   The multiplexed camera-site FM audio, video and control data signal is transmitted from this connector to the Video (Multiplexed) Input Connector of the System Controller WV-CU254 or the Multiplex Unit WJ-MP404.

5. **Audio Output Connector (AUDIO OUT) - (RCA connector)**
   When the audio from the control room is to be monitored with loud sound, install the optional audio amplifier and speaker and connect the audio cable between the Audio Output Connector (5) and the audio input of the optional amplifier.
   Notes:
   1. The optional Audio Board WV-PB10E should be installed on the Indoor Receiver WV-RC100. Refer to the Installation of the Audio Board on page 11.
   2. The optional Audio Board WV-PB11E should be installed on the System Controllers WV-CU254 or WV-CU300.

6. **Mic. Input Connector (MIC) - (1/4" phone jack)**
   A 600 ohms balanced or unbalanced type of microphone can be used for this microphone input. The audio is multiplexed on the video signal and is transmitted to the control room over the single coaxial cable.
   Notes:
   1. The optional Audio Board WV-PB10E should be installed on the Indoor Receiver WV-RC100. Refer to the Installation of the Audio Board on page 11.
   2. The optional Audio Board WV-PB11E should be installed on the System Controllers WV-CU254 or WV-CU300.

7. **AC Power Terminal (L ⏚ N)**
Wire the AC power cord (local procurement) to this terminal.
L: Live, N: Neutral, ⏚ : Earth
Refer to the wiring of the AC power cord on page 10 for wiring.

8. **Upper Cable Clamping Angle**
All cables should be clamped using the Cable Clamp (provided) to this angle or to the Lower Cable Clamping Angle (19).

9. **Power Indicator LED (LED-3/POWER)**
When the Power ON/OFF Switch (1) is turned on, this LED lights up (red color).

10. **Data Indicator LED (LED-1, -2/CHECK)**
These indicators (amber, green) blink while the Indoor Receiver WV-RC100 is receiving and transmitting the data. Also these LED's blink when the System Test Switch (12) is pressed.

11. **Mode Switches (SW2)**
These switches are slide type switches. Three modes are available on this switch such as Auxiliary 1, Auxiliary 2 and Random Panning mode. Refer to B. Mode Switches (SW2) on page 21 for the operation.

12. **System Test Switch (SW3)**
This switch is a push type switch. When this switch is pressed, every optional product connecting to the Indoor Receiver WV-RC100 can be tested its operation automatically. Refer to C. System Test Switch (SW3) on page 22 for the operation.

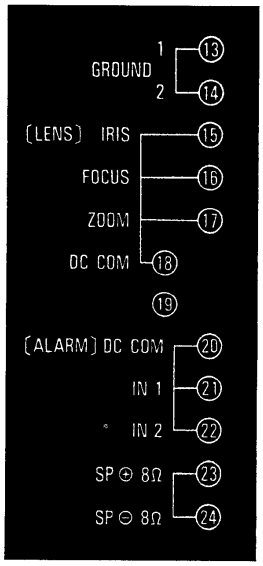
13. **Active/Non Active Switches (SW1)**
These switches are slide type switches. Six functios are available on this switch such as Auxiliary 1, Auxiliary 2, Auto Panning, Camera AC, Reserved-1 and -2. Refer to A. Active/Non Active Switches (SW1) on page 20 for the operation.

14. **Random Panning Control Volume (VR201)**
This control volume adjusts the time of the random movement of the Panning Head. Refer to B. Mode Switches (SW2) for operation on page 21.

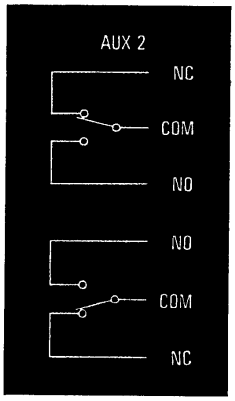
15. **10-pin Connector (CN12)**
When the optional Audio Board WV-PB10E is installed, engage this connector and the 10-pin connector of the Audio Board WV-PB10E should be engaged. Refer to the Installation of the Audio Board (WV-PB10E) on page 11 for installation.

16. **12-pin Connector (CN11)**
When the optional Audio Board WV-PB10E is installed, engage this connector and the 12-pin connector of the Audio Board WV-PB10E should be engaged. Refer to the Installation of the Audio Board (WV-PB10E) on page 11 for installation.

17. **Lens/Alarm/Speaker Terminals**
The control signals and the power for the power zoom lens, and the audio signal for the speaker are sent out from this terminals. The control signal from the alarm sensor/switcher is supplied to this terminals. Refer to the System Connection on page 11 for the connection.



18. **Aux-2 Terminals (AUX 2)**
There are two switching circuits (relay circuits) on this terminals. An additional product such as a lighting kit, a buzzer or a door lock may be installed to this terminal. The electric capacity of each terminal is 240V AC, 3.5A at a load of $\cos\phi = 0.4$ (power factor). This terminal has two operating modes such as the latch mode and the momentary mode. Refer to B. Mode Switches (SW2) on page 21 for operation.



19. Cable Clamping Angle

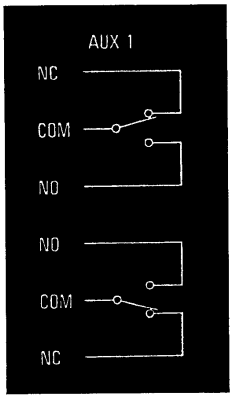
All cables should be clamped using the Cable Clamp (provided) to this angle or to the Upper Cable Clamping Angle (8).

20. Bottom Plate

The proper hole should be made in order to pass the cables into the Indoor Receiver WV-RC100 from optional products. There are same type of holes on the Top Plate (2). Refer to the Installation of the Indoor Receiver on page 10.

21. Aux-1 Terminals (AUX 1)

There are two switching circuits (relay circuits) on this terminals. An additional product such as a lighting kit, a buzzer or a door lock may be installed to this terminal. The electric capacity of each terminal is 240V AC, 3.5A at a load of $\cos\phi = 0.4$ (power factor). This terminal has two operating modes such as the latch mode and the momentary mode. Refer to B. Mode Switches (SW2) on page 21 for operation.



22. Housing/Pan-Tilt Head Terminals

The power for the camera and the control signals for the pan/tilt head are sent out from this terminals. Refer to the System Connection on page 11 for the connection.

23. Lens Voltage Fine Control (LENS DC ADJ)

This is a fine adjustment control for the voltage to be supplied to the power zoom lens. Refer to the Adjustment of the Lens Voltage on page 20 for the adjustment.

24. Lens Voltage Selection Switch (LOW HIGH)

This is a center voltage setting switch for the voltage to be supplied to the power zoom lens. This switch has been preset to LOW position at factory. Refer to the Adjustment of the Lens Voltage on page 20 for setting up.

25. Test Point

Use this test point for the adjustment of the lens supply voltage.

26. Lens Voltage Coarse Setting Control (VR302)

This control is a factory preset control for the lens voltage. Do not use this control when adjusting the lens voltage. Refer to the service manual when this control is to be adjusted.

FUNCTIONAL FEATURES

The Indoor Receiver WV-RC100 is composed of 5 functional features. Refer to the following explanation of each functional feature for further understanding with the Indoor Receiver WV-RC100.

A. Power Control Function

1. 24V AC line control
   The 24V AC power supply for the following products is controlled from the control room through the Indoor Receiver WV-RC100.
   - Camera
   - Pan/Tilt Head (up, down, right, left, auto pan, random pan)
2. Lens voltage control
   The DC voltage supply for the Iris/Focus/Zoom of the lens is controlled from the control room through the Indoor Receiver WV-RC100. Refer to the Adjustment of the Lens Voltage on page 20 for the adjustment.
3. Auxiliary terminal control
   - The power for the optional unit is controlled from the control room through the Aux-1 Terminals (21) and the Aux-2 Terminals (18). Refer to the System Connection on page 11 for the electrical specifications.

B. Data Transfer Function

1. Multiplexed FM audio, video and control data signal transmission
   Only single coaxial cable is necessary between the Video Output connector (4) of WV-RC100 and the Video (Multiplexed) Input Connectors (26) of the System Controller WV-CU254 or Video (Multiplexed) Input Connector (2) of the Multiplex Unit WJ-MP404 due to Multiplexed FM audio, video and control data signal transmission system.
2. Dummy Sync Generator
   The Indoor Receiver WV-RC100 has a Dummy Sync Generator in it. Even if no video signal is supplied to the Indoor Receiver WV-RC100, the control data can be transmitted between the System Controller WV-CU254 or WV-CU300 and the Indoor Receiver WV-RC100 using a multiplexed control data on the Dummy Sync.

C. Video Signal Function

The control data is multiplexed on the video signal to perform bidirectional data transmission.

D. Audio Signal Function

When the Audio Board WV-PB11E is installed in the System Controller WV-CU254 or WV-CU300 and the Audio Board WV-PB10E is installed in the Indoor Receiver WV-RC100, the following functions can be performed.

1. The audio picked up by the optional microphone of the System Controller WV-CU254 or WV-CU300 can be heard at the camera site by connecting the optional speaker with the Indoor Receiver WV-RC100.
2. The audio picked up by the optional microphone of WV-RC100 can be transmitted to the System Controller WV-CU254 or WV-CU300.
3. The Indoor Receiver WV-RC100 has an Audio Output Connector (5) to hook up an optional amplifier for louder sound.
4. An optional speaker (1w, 8 ohms) can be connected to the Lens/Alarm/Speaker Terminals (17) using an audio cable.

E. Other Functions

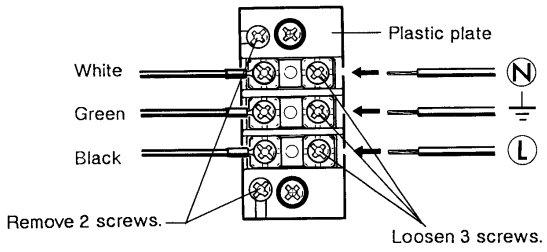
1. Two kinds of the random operation mode for the pan/tilt head can be selected.
   Mode-1: When this mode is selected, the pan/tilt head rotates right or left for a pre-adjusted time.
   Mode-2: When this mode is selected, the pan/tilt head rotates right or left at random. It can not be predicted its movement.
   Refer to B. Mode Switches (SW2) on page 21 for the operation.
2. The setting up of the status for the optional accessories can be displayed on the video monitor connected to the Monitor Output Connector (28) of the System Controller WV-CU254 or the Video Output Connector (47) of the System Controller WV-CU300. Refer to A. Active/Non-Active Switches (SW1) on page 20 for the setting up of the status.

ELE ZOOM	: POS-1
SHUTTER	: 1/250
SENS UP	: OFF
RANDOM	: OFF
AUTO PAN	: OFF
CAMERA	: ON
WIPER	: OFF
DEF	: OFF
AUX 1	: OFF
AUX 2	: OFF

3. Automatic testing for the optional accessories can be performed by simply pressing a System Test Switch (12). Refer to C. System Test Switch (SW3) on page 22 for operation.
4. The mode of the relay operation of the auxiliary switching terminal can be selected either a Latch mode or Momentary mode by the Mode Switches (11). Refer to B. Mode Switches (SW2) on page 21 for operation.
5. The supply voltage for the power zoom lens can be adjusted. Refer to the Adjustment of the Lens Voltage on page 20 for adjustment.

WIRING OF THE AC POWER CORD

1. Remove two screws fixing the plastic plate and remove the plastic plate.
2. Loosen three screws on the AC Power Terminal (7).
3. Wire the tips of the AC power cord to the AC Power Terminal (7). The polarities of the AC line are marked on the AC Power Terminal (7). Be sure to match these polarities with the polarities of the local power line.
4. Secure the AC power cord by tightening three screws firmly on the AC power Terminal (7).
5. Re-install the plastic plate on the AC Power Terminal (7) by fixing two screws.



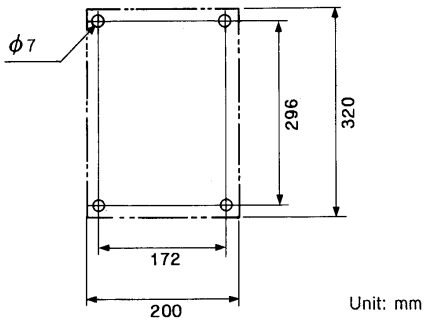
INSTALLATION

1. Installation of the Indoor Receiver WV-RC100

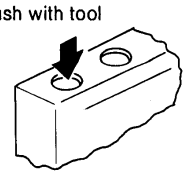
Cautions:

- The Indoor Receiver WV-RC100 is designed for indoor use. Avoid mounting it outdoors under the eaves or in areas of rain or moisture.
- Never install it up-side down.
- It is recommended to install this unit close to the pan/tilt head.

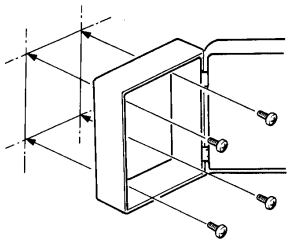
1. Drill four holes for mounting the bolts onto the mounting surface referring to the following measurements.



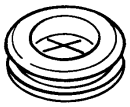
2. Push out the desired holes on the Top Plate (2) or the Bottom Plate (20).



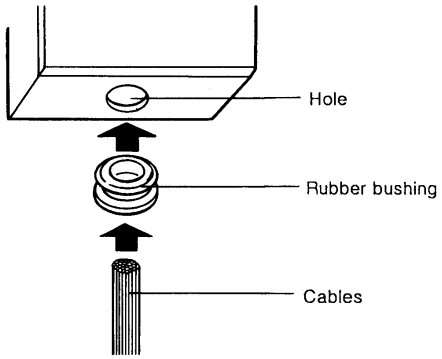
3. Mount the Indoor Receiver WV-RC100 with four mounting bolts. (To be local procurement)



4. Slit in the rubber bushing (provided) as shown to pass the cables through it.



5. Insert and secure the rubber bushing to the hole on the Top Plate (2) or the Bottom Plate (20) and pass the cables through the bushing as shown.



6. Be sure to secure all cables to the Upper Cable Clamping Angle (8) or the Lower Cable Clamping Angle (19) with a Cable Clamp (provided). When the hole on the Top Plate (2) is used, use the Upper Cable Clamping Angle of (8). And When the hole on the Bottom Plate (20) is used, use the Lower Cable Clamping Angle of (19).

2. Installation of the Audio Board (WV-PB10E)

1. Turn off the power of the Receiver WV-RC100.
2. Remove three screws fixing the circuit board-A and lift slightly the circuit board-A up. (See Fig. 1)
3. Install the Audio Board WV-PB10E onto the circuit board-A by engaging 10-pin and 12-pin connectors on the Audio Board WV-PB10E and that of the circuit board-A.
4. Re-install the circuit board-A with Audio Board WV-PB10E on the chassis by fixing the three screws for the circuit board-A and the two screws provided with the Audio Board WV-PB10E for the Audio Board WV-PB10E.

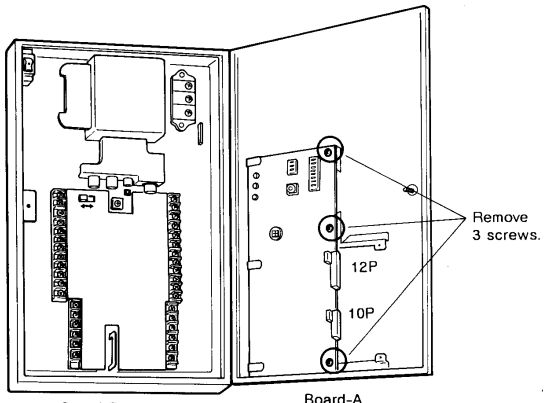


Fig. 1

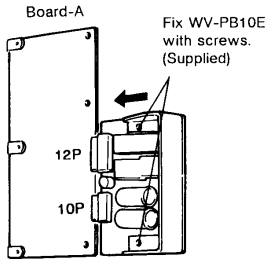


Fig. 2

Caution:

Pay special attention to the electronical parts on both circuit boards not to touch to the chassis when re-install the circuit boards.

SYSTEM CONNECTION

1. The Receiver WV-RC100 with Indoor Pan/Tilt Head WV-7225E and System Controller WV-CU300

The multiplexed video and control data signal from the camera is supplied to the Indoor Receiver WV-RC100 through the Indoor Pan-Tilt Head WV-7225E. The camera-site FM audio is multiplexed on the multiplexed video and control data signal at the Indoor Receiver WV-RC100. The multiplexed camera-site FM audio, video and control data signal is transmitted between the Indoor Receiver WV-RC100 and the control-site (control room) over the single coaxial cable. The Multiplex Unit WJ-MP404 should be used for this purpose. The Audio Board WV-PB10E should be installed in the Indoor Receiver WV-RC100 and the Audio Board WV-PB11E should be installed in the System Controller WV-CU300 to make an audio communication between the camera-site and the control-site (control room).

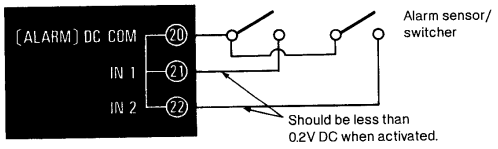
1-1 Cable Connections for the Camera Site #1.

1. Connect the coaxial cable between the Video Output Connector (4) of the Indoor Receiver WV-RC100 and the Video (Multiplexed) Input Connector (2) on the Multiplex Unit WJ-MP404.
2. Connect the coaxial cable between the Camera Input Connector (3) of the Indoor Receiver WV-RC100 and the Video Output Terminal (15) of the Pan Tilt Head WV-7225E.
3. Connect the audio cable between the Audio Output Connector (5) of the Indoor Receiver WV-RC100 and the Audio Input Connector of the external audio amplifier.
4. Connect the speaker cable between the camera-site speaker(#1) and the speaker output terminal of the audio amplifier.
5. Connect the microphone cable of the camera-site to the Microphone Input Connector (6) on the Indoor Receiver WV-RC100.
6. Connect the coaxial cable between the Sync Output Connector on the external Sync Generator and the External Sync Input Terminal on the Indoor Pan/Tilt Head WV-7225E if the external Sync Generator is required.
7. Connect the coaxial cable marked (V) from the Indoor Pan/Tilt Head WV-7225E to the Video Output Connector on the camera.
8. Connect the coaxial cable marked (S) from the Indoor Pan/Tilt Head WV-7225E to the Gen-Lock Input Connector on the camera if the Gen-Lock signal is required.
9. Connect the Camera Power Cable from the Indoor Pan/Tilt Head WV-7225E to the 24V AC In Power Terminal on the camera. Refer to the operating instructions of the camera for the connection.
10. Refer to the wiring table below for the cable connections among the Housing/Pan-Tilt Head Terminals (22) and the Lens/Alarm/Speaker Terminals (17) of the Indoor Receiver WV-RC100 and the Control Terminals (18) of the Pan/Tilt Head WV-7225E and optional products such as alarm switch, speaker, lamp and relay.

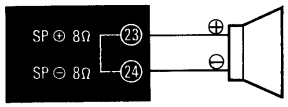
WV-7225E		WV-RC100			Optional product
Terminal	Contents	Terminal	Contents		
7	AC common	1	AC Common	(AC COM)	
7	AC common	2	AC Common	(AC COM)	
		3	Housing	(HOUSING)	
1	Left	4	Left	(LEFT)	
2	Right	5	Right	(RIGHT)	
4	Up	6	Up	(UP)	
5	Down	7	Down	(DOWN)	
3	Auto panning	8	Auto panning	(AUTO PAN)	
6	Camera	9	Camera	(CAMERA)	
		10	Wiper	(WIPER)	
		11	Defroster	(DEFROSTER)	
		12	No connection	(RESERVED)	
12	Ground	13	Ground	(GROUND)	
12	Ground	14	Ground	(GROUND)	
9	Iris	15	Iris	(IRIS)	
10	Focus	16	Focus	(FOCUS)	
11	Zoom	17	Zoom	(ZOOM)	
8	DC common	18	DC common	(DC COM)	
		19	No connection	(RESERVED)	
		20	DC common	(DC COM)	To alarm switch (Common)
		21	Alarm in -1	(IN 1)	To alarm switch
		22	Alarm in -2	(IN 2)	To alarm switch
		23	Speaker (Hot)	(SP ⊕)	To speaker (#2) (Hot)
		24	Speaker (Cold)	(SP ⊖)	To speaker (#2) (Cold)
		NC	AUX 1		To the product or relay having
		COM	AUX1		the specifications of 240V AC,
		NO	AUX1		3.5A at cosϕ = 0.4 (power factor)
		NC	AUX 1		
		COM	AUX1		-Same-
		NO	AUX1		
		NC	AUX 2		
		COM	AUX2		-Same-
		NO	AUX2		
		NC	AUX 2		
		COM	AUX2		-Same-
		NO	AUX2		

Notes:

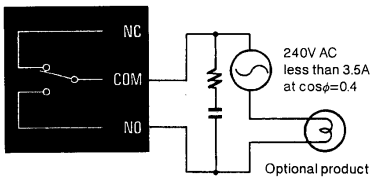
1. Installation of the alarm sensor/switcher
   - The wiring for the alarm sensor/switchers should be two wires.
   - When the alarm sensor/switch is activated, the voltage at the terminal number 21 or number 22 should be less than 0.2V DC.



2. Installation of the speaker #2
   - The polarity of the speaker and the terminal number 23 and 24 should be matched.



3. Installation of the optional product to the auxiliary input.
   (1) When the power consumption of the optional product is less than 240V AC, 3.5A at cosϕ = 0.4 (power factor), the optional product can be installed as shown below.



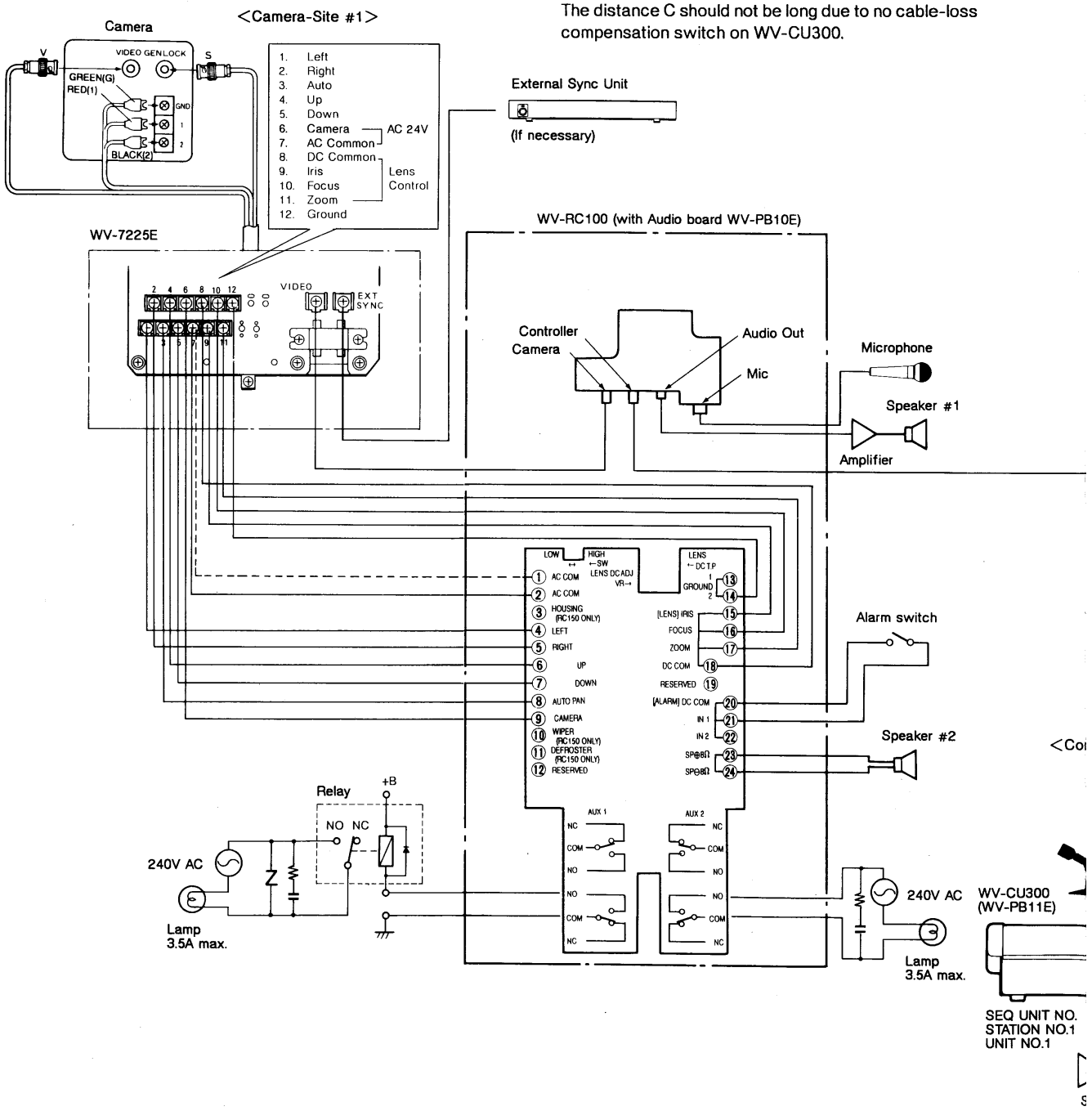
(1) Setting up on WJ-MP404

	Position of the switch on WJ-MP404
0 ≤ A < 500m ⟶	S
500 ≤ A < 900m ⟶	M
900 ≤ A < 1200m ⟶	L

(2) Setting up on WJ-SQ508

Position of the switch on WJ-MP404		Position of the switch on WJ-SQ508
S:	0 ≤ A+B < 500m ⟶	S
S:	500 ≤ A+B < 900m ⟶	M
S:	900 ≤ A+B < 1200m ⟶	L
M:	500 ≤ A+B < 900m ⟶	S
M:	900 ≤ A+B < 1200m ⟶	M
L:	⟶	S

The distance C should not be long due to no cable-loss compensation switch on WV-CU300.



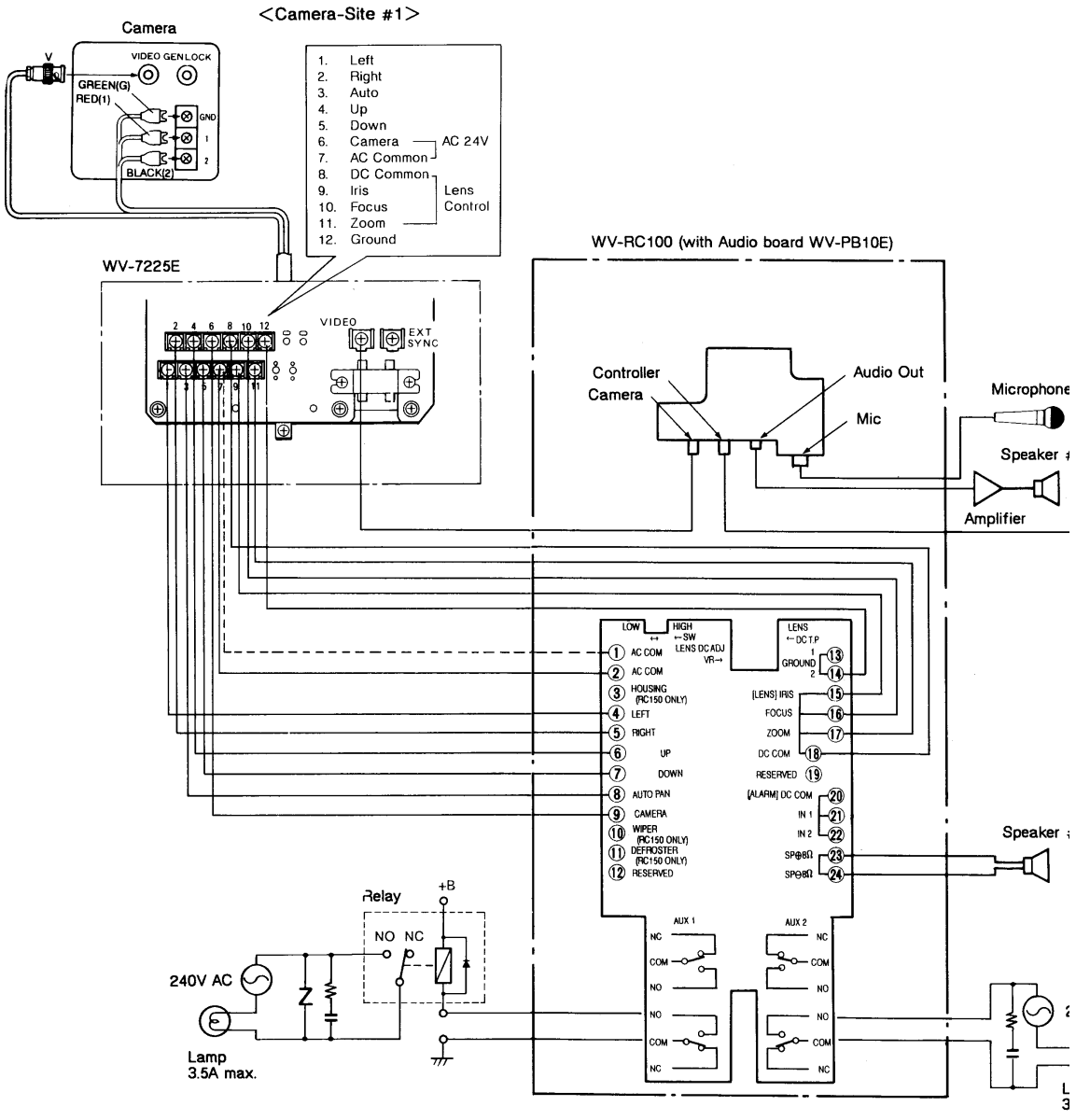
2. The Receiver WV-RC100 with the Indoor Pan/Tilt Head WV-7225E and System Controller WV-CU254

The multiplexed video and control data signal from the camera is supplied to the Indoor Receiver WV-RC100 through the Indoor Pan-Till Head WV-7225E. The camera-site FM audio is multiplexed on the multiplexed video and control data signal at the Indoor Receiver WV-RC100. The multiplexed camera-site FM audio, video and control data signal is transmitted between the Indoor Receiver WV-RC100 and the control-site (control room) (System Controller WV-CU254) over the single coaxial cable.

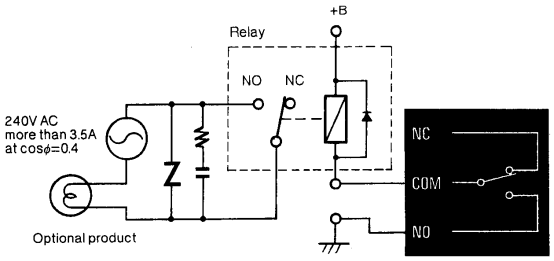
The Audio Board WV-PB10E should be installed in the Indoor Receiver WV-RC100 and the Audio Board WV-PB11E should be installed in the System Controller WV-CU254 to make an audio communication between the camera-site and the control-site (control room).

2-1 Cable Connections for the Camera Site #1

1. Connect the coaxial cable between the Video Output Connector (4) of the Indoor Receiver WV-RC100 and the Video (Multiplexed) Input Connector (26) on the System Controller WV-CU254.



(2) When the power consumption of the optional product is more than 240V AC 3.5A at cosϕ = 0.4 (power factor), the optional product should be installed with the relay as shown below.



1-2 Cable Connections for the Camera-Site #2.

1. Connect the multi-conductor cable(s) between the Pan/Tilt Head(s) WV-7225E, WV-7260DE and the Receiver(s) WV-RC100, WV-RC150. (Refer to the operating instructions of the Pan/Tilt Head and Receiver)
2. Connect the speaker cable(s) between the speaker output terminals on the Receiver(s) WV-RC100, WV-RC150 and the camera-site speaker(s).
3. Connect the microphone cable(s) of the camera-site to the Mic Input Connector(s) on the Receiver(s) WV-RC100, WV-RC150.
4. Connect the coaxial cable(s) between the Video Output Connector(s) on the Receiver(s) WV-RC100, WV-RC150 and the Video (Multiplexed) Input Connector(s) (2) on the Multiplex Unit WJ-MP404.
5. Connect the coaxial cable(s) between the Video Output Connector(s) (3) on the Multiplex Unit WJ-MP404 and the Video Input Connector(s) (21) on the Sequential Switcher WJ-SQ508.

1-3 Cable Connections for Control-Site (Control Room)

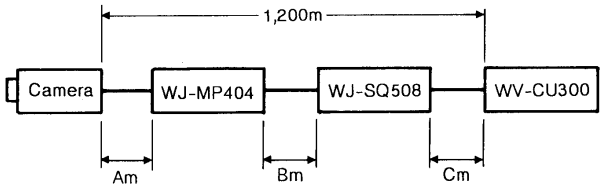
1. Connect the coaxial cable between the Data Input/Output Connector (5) on the Multiplex Unit WJ-MP404 and the Data Input/Output Connector (28) on the Sequential Switcher WJ-SQ508.
2. Connect the coaxial cable between the Data Input/Output Connector (28) on the Sequential Switcher WJ-SQ508 and the Data Input/Output Connector (45) on the System Controller WV-CU300.
3. Connect the coaxial cable(s) between the Video Output Connector(s) (45) on the Sequential Switcher WJ-SQ508 and the Video Input Connector(s) (2) on the Audio Mix & Selector WJ-DA464.
4. Connect the Spot Channel Cable (6 pins) (Provided with the Audio Mix & Selector WJ-DA464) between the Spot Channel Output Connector 1-4 CH (37) on the Sequential Switcher WJ-SQ508 and the Spot Channel Input Connector (4) on the Audio Mix & Selector WJ-DA464.
5. Connect the coaxial cable between the FM Audio Output Connector (49) on the System Controller WV-CU300 and the FM Audio Input Connector(7) on the Audio Mix & Selector WJ-DA464.
6. Connect the control cable with pin-plugs between the Timing Output Connector on the Time Lapse VTR and the External Timing Input Connector (32) on the Sequential Switcher WJ-SQ508.
7. Connect the coaxial cable between the Alarm/Sequence Video Output Connector (22) on the Sequential Switcher WJ-SQ508 and the Video Input Connector on the Time Lapse VTR.
8. Connect the coaxial cable between the Spot/Sequence Video Output Connector (23) on the Sequential Switcher WJ-SQ508 and the Video Input Connector (48) on the System Controller WV-CU300.
9. Connect the coaxial cable between the Video Output Connector (47) on the System Controller WV-CU300 and the Video Input Connector on the Video Monitor.
10. Connect the coaxial cable between the Video Output Connector on the Time Lapse VTR and the Video Input Connector on the Video Monitor.
11. Connect the microphone cable of the control-site (control room) to the Mic Input Connector (40) on the System Controller WV-CU300.
12. Connect the audio cable between the Audio Output Connector (46) on the System Controller WV-CU300 and the input connector of the audio amplifier.
13. Connect the speaker cable between the control room speaker and the speaker output terminal of the audio amplifier.

1-4 Setup Procedure

1. Set the Channel Selection Switch (5) on the Audio Mix & Selector WJ-DA464 to 1-4 CH position.
2. Set the Station Number Selection Switch (29) to the position-1 and the Unit Number Selection Switch (30) to the position-1 on the Sequential Switcher WJ-SQ508.
3. Set the Cable-loss Compensation Switch on the Sequential Switcher WJ-SQ508 by referring to the Setting up of the cable-loss compensation switch as shown below.
4. Set the Unit Number Selection Switch (11) to the position-1, the Data Clock Switch (6) to SND position and the Channel Selection Switch (10) to 1-4 CH position on the Multiplex Unit WJ-MP404.
5. Set the Cable-loss Compensation Switch (4) on the Multiplex Unit WJ-MP404 by referring to the Setting up of the cable-loss compensation switch as shown below.
6. Set the Sequence Unit Number Selection Switch (42) to the position-1, the Station Number Selection Switch (41) to the position-1, the Controller Number Selection Switch (43) to the position-1 and the Data Clock Switch (44) to RCV position on the System Controller WV-CU300.

Setting up of the cable-loss compensation switch

The maximum cable length in the system is approximately 1200 m with 5C-2V coaxial cable or equivalent. See the diagram and tables below and set up the cable-loss compensation switch for each unit accordingly.



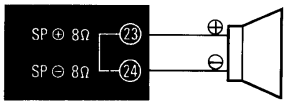
7. Connect the Camera Power Cable from the Indoor Pan/Tilt Head WV-7225E to the 24V AC In Power Terminal on the camera. Refer to the operating instructions of the camera for the connection.

8. Refer to the wiring table below for the cable connections among the Housing/Pan-Tilt Head Terminals (22) and the Lens/Alarm/Speaker Terminals (17) of the Indoor Receiver WV-RC100 and the Control Terminals (18) of the Pan/Tilt Head WV-7225E and optional products such as alarm switch, speaker, lamp and relay.

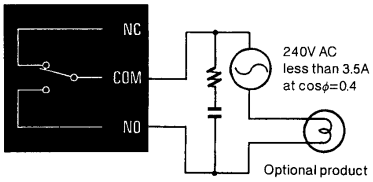
WV-7225E		WV-RC100			Optional product
Terminal	Contents	Terminal	Contents		
7	AC common	1	AC Common	(AC COM)	
7	AC common	2	AC Common	(AC COM)	
		3	Housing	(HOUSING)	
1	Left	4	Left	(LEFT)	
2	Right	5	Right	(RIGHT)	
4	Up	6	Up	(UP)	
5	Down	7	Down	(DOWN)	
3	Auto panning	8	Auto panning	(AUTO PAN)	
6	Camera	9	Camera	(CAMERA)	
		10	Wiper	(WIPER)	
		11	Defroster	(DEFROSTER)	
		12	No connection	(RESERVED)	
12	Ground	13	Ground	(GROUND)	
12	Ground	14	Ground	(GROUND)	
9	Iris	15	Iris	(IRIS)	
10	Focus	16	Focus	(FOCUS)	
11	Zoom	17	Zoom	(ZOOM)	
8	DC common	18	DC common	(DC COM)	
		19	No connection	(RESERVED)	
		20	DC common	(DC COM)	To alarm switch (Common)
		21	Alarm in -1	(IN 1)	To alarm switch
		22	Alarm in -2	(IN 2)	To alarm switch
		23	Speaker (Hot)	(SP ⊕)	To speaker (#2) (Hot)
		24	Speaker (Cold)	(SP ⊖)	To speaker (#2) (Cold)
		NC	AUX 1		To the product or relay having
		COM	AUX1		the specifications of 240V AC,
		NO	AUX1		3.5A at cosϕ = 0.4 (power factor)
		NC	AUX 1		
		COM	AUX1		-Same-
		NO	AUX1		
		NC	AUX 2		
		COM	AUX2		-Same-
		NO	AUX2		
		NC	AUX 2		
		COM	AUX2		-Same-
		NO	AUX2		

Notes:

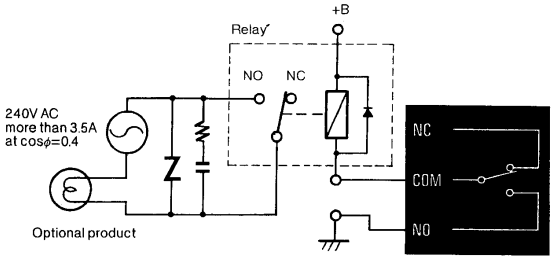
1. Installation of the speaker #2
   - The polarity of the speaker and the terminal number 23 and 24 should be matched.



2. Installation of the optional product to the auxiliary input.
   (1) When the power consumption of the optional product is less than 240V AC, 3.5A at cosϕ = 0.4 (power factor), the optional product can be installed as shown below.



(2) When the power consumption of the optional product is more than 240V AC 3.5A at cosϕ = 0.4 (power factor), the optional product should be installed with the relay as shown below.



2-2 Cable Connections for the Camera Site #2.

1. Connect the multi-conductor cable(s) between the Pan/Tilt Head(s) WV-7225E, WV-7260DE and the Receiver(s) WV-RC100, WV-RC150. (Refer to the operating instructions of the Pan/Tilt Head and Receiver)
2. Connect the speaker cable(s) between the speaker output terminals on the Receiver(s) WV-RC100, WV-RC150 and the camera-site speaker(s).
3. Connect the microphone cable(s) of the camera-site to the Mic Input Connector(s) on the Receiver(s) WV-RC100, WV-RC150.
4. Connect the coaxial cable(s) between the Video Output Connector(s) on the Receiver(s) WV-RC100, WV-RC150 and the Video (Multiplexed) Input Connector(s) (26) on the System Controller WV-CU254.

2-3 Cable Connections for Control-Site (Control Room)

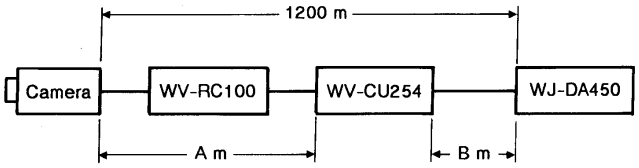
1. Connect the coaxial cable(s) between the Video (Multiplexed) Output Connector(s) (25) on the System Controller WV-CU254 and the Video (Multiplexed) Input Connectors (2) on the AV Demodulator WJ-DA450.
2. Connect the coaxial cable between the Video Output Connector (27) on the System Controller WV-CU254 and the Video Input Connector on the Time Lapse VTR.
3. Connect the audio cable with pin-plugs between the Audio Output Connector (29) on the System Controller WV-CU254 and the Audio Input Connector on the Time Lapse VTR.
4. Connect the coaxial cable between the Monitor Output Connector (28) on the System Controller WV-CU254 and the Video Input Connector on the video monitor.
5. Connect the coaxial cable(s) between the Video Output Connectors (4) on the AV Demodulator WJ-DA450 and the Video Input Connector(s) on the video monitor(s).
6. Connect the audio cable with pin-plugs between the Audio Output Connectors (5) on the AV Demodulator WJ-DA450 and the Audio Input Connector(s) on the external audio amplifier(s).
7. Connect the speaker cable(s) between the control room speaker(s) and the speaker output terminal of the audio amplifier(s).

2-4 Setup Procedure

1. Set the Station Number Selection Switch (32) to the position-1 and the Control Signal ON/OFF Switch (33) to the OFF position of the System Controller WV-CU254.
2. Set the Cable-loss Compensation Switch (31) on the System Controller WV-CU254 by referring to the Setting up of the cable-loss compensation switch as shown below.
3. Set the Cable-loss Compensation Switch (6) on the AV Demodulator WJ-DA450 by referring to the Setting up of the cable-loss compensation switch as shown below.

Setting up of the cable-loss compensation switch

The maximum cable length in the system is approximately 1200 m with 5C-2V coaxial cable or equivalent. See the diagram and tables below and set up the cable-loss compensation switch for each unit accordingly.



(1) Setting up on WV-CU254

	Position of the switch on WV-CU254
$0 \leq A <$ 500m ⟶	S
$500 \leq A <$ 900m ⟶	M
$900 \leq A <$ 1200m ⟶	L

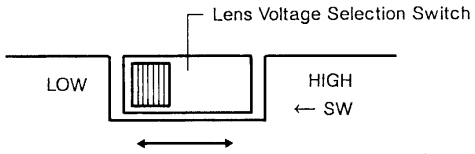
(2) Setting up on WJ-DA450

	Position of the switch on WJ-DA450
$0 \leq A+B <$ 500m ⟶	S
$500 \leq A+B <$ 900m ⟶	M
$900 \leq A+B <$ 1200m ⟶	L

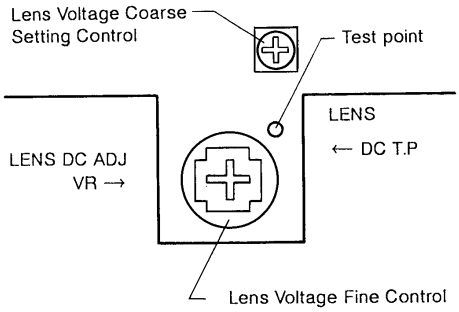
ADJUSTMENT OF THE LENS VOLTAGE

When the lens on the camera requires the external power for the iris, the focus and the zoom, the power (DC voltage) is supplied by the Indoor Receiver WV-RC100 to the lens. The DC voltage can be adjusted from 2V DC to 15V DC with following adjustment procedure.

1. **The center voltage setting**
   When the Lens Voltage Selection Switch (24) is turned to the LOW position, the center voltage is set to 6V DC. When the Lens Voltage Selection Switch (24) is turned to the HIGH position, the center voltage is set to 12V DC.



2. **Fine voltage adjustment**
   Observe the Test Point (25) by using the volt-meter and adjust the Lens Voltage Fine Control (23) to have the right voltage for the lens.



- When the Lens Voltage Selection Switch (24) is turned to the LOW position, the voltage of 6V DC can be adjusted from 2V DC to 9V DC.
- When the Lens Voltage Selection Switch (24) is turned to the HIGH position, the voltage of 12V DC can be adjusted from 8V DC to 15V DC.

Remarks:

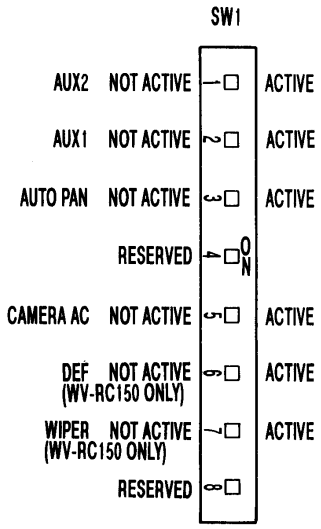
1. The lens voltage has been preset to 6V DC at the factory.
2. The reference voltage and the current to the lens.
   - In case of 6V DC operation lens, the total current should be less than 180 mA.
   - In case of 12V DC operation lens, the total current should be less than 330 mA.
3. Do not adjust the Len Voltage Coarse Setting Control (26) when adjusting the lens supply voltage. This control is factory preset control and refer to the service manual if this control is to be adjusted.

OPERATIONS

A. Active/Non-Active Switch (SW1)

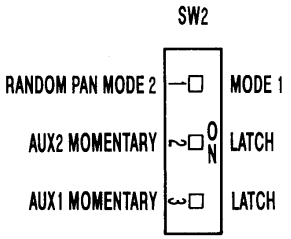
There are eight individual switches on the Active/Non-Active Switch (13). In case that any of these switches is turned to ACTIVE position, its function becomes active status. On the contrary, when the switch is turned to NOT ACTIVE position, its function can not be operated even if the external product is used with the Indoor Receiver WV-RC100. The switch number 4,6,7 and 8 on the Active/Non-Active Switch (13) are not used for the Indoor Receiver WV-RC100. These status are displayed on the video monitor connected to the Monitor Output Connector (28) of the System Controller WV-CU254 or the Video Output Connector (47) of the System Controller WV-CU300.

- Switch 1 (AUX2):
  For the product connected to AUX-2 on the Aux-2 Terminals (18)
- Switch 2 (AUX1):
  For the product connected to AUX-1 on the Aux-1 Terminals (21)
- Switch 3 (AUTO PAN):
  For the Panning Head having an Auto Panning 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 Outdoor Receiver WV-RC150 only. No use for the Indoor Receiver WV-RC100. Should be in NOT ACTIVE position.
- Switch 7 (WIPE):
  For the Outdoor Receiver WV-RC150 only. No use for the Indoor Receiver WV-RC100. Should be in NOT ACTIVE position.
- Switch 8 (RESERVED):
  This switch is for the future function and should be in the off position all the time.



B. Mode Switches (SW2)

There are three individual mode switches on the Mode Switches (11), the random pan mode, auxiliary 1 mode and auxiliary 2 mode. Refer to the following explanations for the operation of each mode.



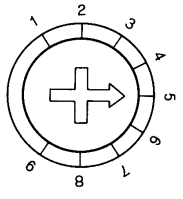
1. **Switch 1 (RANDOM PAN/MODE 1-MODE 2)**
   Either the Mode 1 or Mode 2 of the random panning mode can be selected by this switch. The random panning function is available for the Panning Head WV-7220DE and the Pan/Tilt Head WV-7225E.

1-1 Mode 1

- When this mode is selected, the panning head pans for a desired angle and stops for two times as long as the panning time.
- Turn off the power of Indoor Receiver WV-RC100 before proceeding the following operation.

1. Set the Switch 1 on the Mode Switches (11) to the MODE 1 position.
2. Set the panning angle of the panning head by adjusting the position of the Pan Limit Stop Screws on the panning head.
3. Turn the Power ON/OFF Switch (1) to the ON position while pressing the System Test Switch (12). The panning head starts to rotate.
4. Adjust the Random Panning Control Volume (14) referring to the table-1
5. After completing the adjustment, turn the Power ON/OFF Switch (1) to the OFF position.

Position of Arrow	The setting of the panning angle
1	Less than 10°
2	10° ~ 25°
3	25° ~ 55°
4	55° ~ 80°
5	80° ~ 110°
6	110° ~ 130°
7	130° ~ 150°
8	150° ~ 170°
9	More than 170°



Random Panning Control Volume (VR201)

Note :

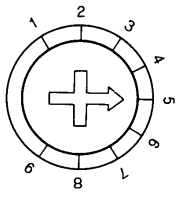
No numbers along the VR201 on the actual circuit board.

1-2 Mode 2

- When this mode is selected, the panning head pans to right or left at random. It is impossible to predict the movement of the panning head.
- Turn off the power of the Indoor Receiver WV-RC100 before proceeding the following operation.

1. Set the Switch 1 on the Mode Switches (11) to the MODE 2 position.
2. Set the panning angle of the panning head by adjusting the position of the Pan Limit Stop Screws on the panning head.
3. Turn the Power ON/OFF Switch (1) to the ON position while pressing the System Test Switch (12). The panning head stats to rotate.
4. Adjust the Random Panning Control Volume (14) so that the stopping time of the panning head at the Pan Limit Stop Screw on the panning head becomes minimum referring to the table-2.

Position of Arrow	The setting of the panning angle
1	Less than 25°
2	25° ~ 55°
3	55° ~ 100°
4	100° ~ 165°
5	165° ~ 220°
6	200° ~ 275°
7	275° ~ 300°
8	300° ~ 350°
9	More than 350°



Random Panning Control Volume (VR201)

Notes:

1. When the stopping time is long, turn the Random Panning Control Volume (14) to counterclockwise.
2. When the panning head changes the direction before reaching to the Pan Limit Stop Screw, turn the Random Panning Control Volume (14) to clockwise.
3. After completing the adjustment, turn the Power ON/OFF Switch (1) to the OFF position.
4. No numbers along the VR201 on the actual circuit board.

2. **Switch 2 (AUX 2/MOMENTARY-LATCH)**
The operation mode of the auxiliary input (AUX 2) on the Indoor Receiver WV-RC100 can be selected either a momentary (MOMENTARY) mode or a latch (LATCH) mode by this switch.
   1. Momentary (MOMENTARY) mode:
   The relay on the AUX 2 terminal keeps on while the Auxiliary Switch (28) of the System Controller WV-CU300 or the Auxiliary Switch (19) of the System Controller WV-CU254 is being pressing.
   2. Latch (LATCH) mode:
   The relay on the AUX 2 terminal makes on when the Auxiliary Switch (28) of the System Controller WV-CU300 or the Auxiliary Switch (19) of the System Controller WV-CU254 is pressed.
3. **Switch 3 (AUX 1/MOMENTARY-LATCH)**
The operation mode of the auxiliary input (AUX 1) on the Indoor Receiver WV-RC100 can be selected either a momentary (MOMENTARY) mode or a latch (LATCH) mode by this switch.
   1. Momentary (MOMENTARY) mode:
   The relay on the AUX 1 terminal keeps on while the Auxiliary Switch (28) of the System Controller WV-CU300 or the Auxiliary Switch (19) of the System Controller WV-CU254 is being pressing.
   2. Latch (LATCH) mode:
   The relay on the AUX 1 terminal makes on when the Auxiliary Switch (28) of the System Controller WV-CU300 or the Auxiliary Switch (19) of the System Controller WV-CU254 is pressed.

C. System Test Switch (SW 3)

This switch is used to make sure if the optional accessories connecting to the Indoor Receiver WV-RC100 functions properly. When this switch is pressed, the following items are tested automatically.

1. Testing of the Pan/Tilt Head
   The Pan/Tilt Head moves to left for 5 second then stops for 2 seconds.
   ↓ ↓
   The Pan/Tilt Head moves to right for 5 seconds then stops for 2 seconds.
   ↓ ↓
   The Pan/Tilt Head moves to upwards for 5 seconds then stops for 2 seconds.
   ↓ ↓
   The Pan/Tilt Head moves to downwards for 5 seconds then stops for 2 seconds.
   ↓ ↓
   The Pan/Tilt Head performs the auto panning for 5 seconds then stops.
   ↓ ↓
2. The power of the camera is shut off for 5 seconds then the power is turned on again.
   After 12 seconds...,
   ↓ ↓
3. Testing of the lens iris operation (Motor driven manual iris only)
   The iris opens (+) for 5 seconds then stops for 2 seconds.
   ↓ ↓
   The iris closes (+) for 5 seconds then stops.
4. Testing of the lens focus operation (Motor driven manual focus only)
   The focus ring rotates to far focus direction (—) for 5 seconds then stops for 2 seconds.
   ↓ ↓
   The focus ring rotates to near focus direction (+) for 5 seconds then stops.
   ↓ ↓
5. Testing of the lens zoom operation (Motorized power zoom only)
   The zoom ring rotates to tele-photo angle direction (+) for 5 seconds then stops for 2 seconds.
   ↓ ↓
   The zoom ring rotates to wide angle direction (—) for 5 seconds then stops.
   ↓ ↓
6. Testing of the Auxiliary-1 relay.
   The relay makes for 5 seconds then breaks.
   After 2 second...,
   ↓ ↓
7. Testing of the Auxiliary-2 relay
   The relay makes for 5 seconds then breaks
   ↓ ↓
8. The system testing has been completed. The Indoor Receiver WV-RC100 returns to the normal operation mode.

Notes:
1. The times mentioned above are approximate.
2. The marked (+), (—) means a polarity of DC supply voltage.
3. When the System Test Switch (12) is pressed again during the system testing, the Indoor Receiver WV-RC100 stops the testing and keeps the current condition. When the testing is to be started again from that condition, press the System Test Switch (12) one more time.

SYSTEM APPLICATION

In addition to the System Connection on page 11, two system applications using different panning head are introduced as follows.

1. The Receiver WV-RC100 with the Indoor Panning Head WV-7220DE and System Controller WV-CU254

The multiplexed video and control data signal from the camera is supplied to the Indoor Receiver WV-RC100 through the Indoor Panning Head WV-7220DE. The camera-site FM audio is multiplexed on the multiplexed video and control data signal at the Indoor Receiver WV-RC100. The multiplexed camera-site FM audio, video and control data signal is transmitted between the Indoor Receiver WV-RC100 and the control-site (control room) (System Controller WV-CU254) over the single coaxial cable.

The Audio Board WV-PB10E should be installed in the Indoor Receiver WV-RC100 and the Audio Board WV-PB11E should be installed in the System Controller WV-CU254 to make an audio communication between the camera site and the control-site (control room).

1-1 Cable Connections for the Camera Site #1

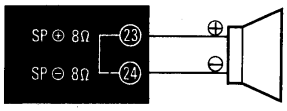
1. Connect the coaxial cable between the Video Output Connector (4) of the Indoor Receiver WV-RC100 and the Video (Multiplexed) Input Connector (26) on the System Controller WV-CU254.

WV-7220DE		WV-RC100			Optional product
Terminal	Contents	Terminal	Contents		
		1	AC Common	(AC COM)	
5	AC common	2	AC Common	(AC COM)	
		3	Housing	(HOUSING)	
1	Left	4	Left	(LEFT)	
2	Right	5	Right	(RIGHT)	
		6	Up	(UP)	
		7	Down	(DOWN)	
3	Auto panning	8	Auto panning	(AUTO PAN)	
4	Camera	9	Camera	(CAMERA)	
		10	Wiper	(WIPER)	
		11	Defroster	(DEFROSTER)	
		12	No connection	(RESERVED)	
6	Ground	13	Ground	(GROUND)	
		14	Ground	(GROUND)	
		15	Iris	(IRIS)	
		16	Focus	(FOCUS)	
		17	Zoom	(ZOOM)	
		18	DC common	(DC COM)	
		19	No connection	(RESERVED)	
		20	DC common	(DC COM)	To alarm switch (Common)
		21	Alarm in -1	(IN 1)	To alarm switch
		22	Alarm in -2	(IN 2)	To alarm switch
		23	Speaker (Hot)	(SP ⊕)	To speaker (#2) (Hot)
		24	Speaker (Cold)	(SP ⊖)	To speaker (#2) (Cold)
		NC	AUX 1		To the product or relay having
		COM	AUX1		the specifications of 240V AC,
		NO	AUX1		3.5A at cosϕ = 0.4 (power factor)
		NC	AUX 1		
		COM	AUX1		-Same-
		NO	AUX1		
		NC	AUX 2		
		COM	AUX2		-Same-
		NO	AUX2		
		NC	AUX 2		
		COM	AUX2		-Same-
		NO	AUX2		

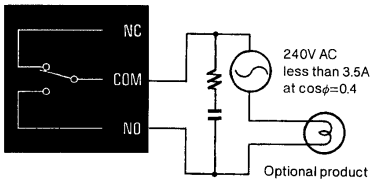
2. Connect the coaxial cable between the Camera Input Connector (3) of the Indoor Receiver WV-RC100 and the Video Terminal Board (14) of the Indoor Panning Head WV-7220DE.
3. Connect the audio cable between the Audio Output Connector (5) of the Indoor Receiver WV-RC100 and the Audio Input Connector of the external audio amplifier.
4. Connect the speaker cable between the camera-site speaker(#1) output terminal of the audio amplifier.
5. Connect the microphone cable of the camera-site to the Microphone Input Connector (6) on the Indoor Receiver WV-RC100.
6. Connect the coaxial cable marked (V) from the Indoor Panning Head WV-7220DE to the Video Output Connector on the camera.
7. Connect the Camera Power Cable from the Indoor Panning Head WV-7220DE to the 24V AC In Power Terminal on the camera. Refer to the operating instructions of the camera for the connection.
8. Refer to the wiring table below for the cable connections among the Housing/Pan-Tilt Head Terminals (22) and the Lens/Alarm/Speaker Terminals (17) of the Indoor Receiver WV-RC100 and the Terminal Strip (12) of the Panning Head WV-7220DE and optional products such as alarm switch, speaker, lamp and relay.

Notes:

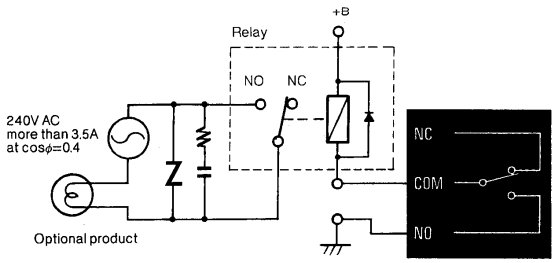
1. Installation of the speaker
   - The polarity of the speaker and the terminal number 23 and 24 should be matched.



2. Installation of the optional product to the auxiliary input.
   (1) When the power consumption of the optional product is less than 240V AC, 3.5A at cosϕ = 0.4 (power factor), the optional product can be installed as shown below.



   (2) When the power consumption of the optional product is more than 240V AC 3.5A at cosϕ = 0.4 (power factor), the optional product should be installed with the relay as shown below.



1-2 Cable Connections for the Camera Site #2

1. Connect the multi-conductor cable(s) between the Pan/Tilt Head(s) WV-7225E, WV-7260DE and the Receiver(s) WV-RC100, WV-RC150. (Refer to the operating instructions of the Pan/Tilt Head and Receiver)
2. Connect the speaker cable(s) between the speaker output terminals on the Receiver(s) WV-RC100, WV-RC150 and the camera-site speaker(s).
3. Connect the microphone cable(s) of the camera-site to the Mic Input Connector(s) on the Receiver(s) WV-RC100, WV-RC150.
4. Connect the coaxial cable(s) between the Video Output Connector(s) on the Receiver(s) WV-RC100, WV-RC150 and the Video (Multiplexed) Input Connector(s) (26) on the System Controller WV-CU254.

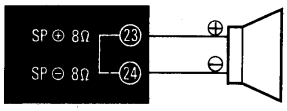
1-3 Cable Connections for Control Room

1. Connect the coaxial cable(s) between the Video (Multiplexed) Output Conector(s) (25) on the System Controller WV-CU254 and the Video (Multiplexed) Input Connectors (2) on the AV Demodulator WJ-DA450.
2. Connect the coaxial cable between the Video Output Connector (27) on the System Controller WV-CU254 and the Video Input Connector on the Time Lapse VTR.
3. Connect the audio cable with pin-plugs between the Audio Output Connector (29) on the System Controller WV-CU254 and the Audio Input Connector on the Time Lapse VTR.
4. Connect the coaxial cable between the Monitor Output Connector (28) on the System Controller WV-CU254 and the Video Input Connector on the video monitor.
5. Connect the coaxial cable(s) between the Video Output Connectors (4) on the AV Demodulator WJ-DA450 and the Video Input Connector(s) on the video monitor(s).
6. Connect the audio cable with pin-plugs between the Audio Output Connectors (5) on the AV Demodulator WJ-DA450 and the Audio Input Connector(s) on the external audio amplifier(s).
7. Connect the speaker cable(s) between the control room speaker(s) and the speaker output terminal of the audio amplifier(s).

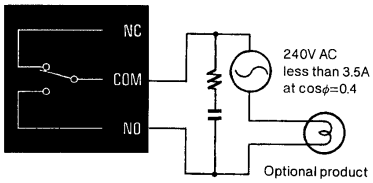
2. Connect the coaxial cable between the Camera Input Connector (3) of the Indoor Receiver WV-RC100 and the Video Terminal Board (14) of the Indoor Panning Head WV-7220DE.
3. Connect the audio cable between the Audio Output Connector (5) of the Indoor Receiver WV-RC100 and the Audio Input Connector of the external audio amplifier.
4. Connect the speaker cable between the camera-site speaker(#1) output terminal of the audio amplifier.
5. Connect the microphone cable of the camera-site to the Microphone Input Connector (6) on the Indoor Receiver WV-RC100.
6. Connect the coaxial cable marked (V) from the Indoor Panning Head WV-7220DE to the Video Output Connector on the camera.
7. Connect the Camera Power Cable from the Indoor Panning Head WV-7220DE to the 24V AC In Power Terminal on the camera. Refer to the operating instructions of the camera for the connection.
8. Refer to the wiring table below for the cable connections among the Housing/Pan-Tilt Head Terminals (22) and the Lens/Alarm/Speaker Terminals (17) of the Indoor Receiver WV-RC100 and the Terminal Strip (12) of the Panning Head WV-7220DE and optional products such as alarm switch, speaker, lamp and relay.

Notes:

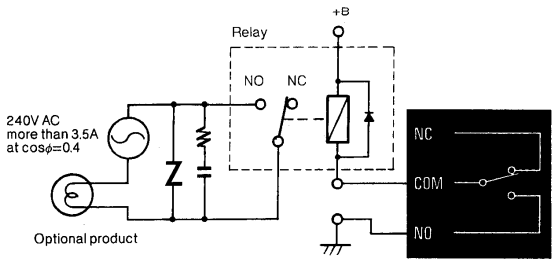
1. Installation of the speaker
   - The polarity of the speaker and the terminal number 23 and 24 should be matched.



2. Installation of the optional product to the auxiliary input.
   (1) When the power consumption of the optional product is less than 240V AC, 3.5A at cosϕ = 0.4 (power factor), the optional product can be installed as shown below.



   (2) When the power consumption of the optional product is more than 240V AC 3.5A at cosϕ = 0.4 (power factor), the optional product should be installed with the relay as shown below.



1-2 Cable Connections for the Camera Site #2

1. Connect the multi-conductor cable(s) between the Pan/Tilt Head(s) WV-7225E, WV-7260DE and the Receiver(s) WV-RC100, WV-RC150. (Refer to the operating instructions of the Pan/Tilt Head and Receiver)
2. Connect the speaker cable(s) between the speaker output terminals on the Receiver(s) WV-RC100, WV-RC150 and the camera-site speaker(s).
3. Connect the microphone cable(s) of the camera-site to the Mic Input Connector(s) on the Receiver(s) WV-RC100, WV-RC150.
4. Connect the coaxial cable(s) between the Video Output Connector(s) on the Receiver(s) WV-RC100, WV-RC150 and the Video (Multiplexed) Input Connector(s) (26) on the System Controller WV-CU254.

1-3 Cable Connections for Control Room

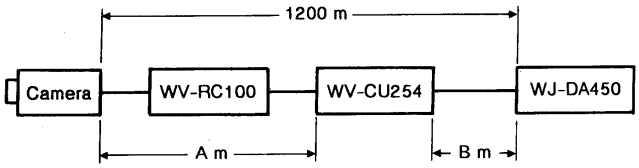
1. Connect the coaxial cable(s) between the Video (Multiplexed) Output Conector(s) (25) on the System Controller WV-CU254 and the Video (Multiplexed) Input Connectors (2) on the AV Demodulator WJ-DA450.
2. Connect the coaxial cable between the Video Output Connector (27) on the System Controller WV-CU254 and the Video Input Connector on the Time Lapse VTR.
3. Connect the audio cable with pin-plugs between the Audio Output Connector (29) on the System Controller WV-CU254 and the Audio Input Connector on the Time Lapse VTR.
4. Connect the coaxial cable between the Monitor Output Connector (28) on the System Controller WV-CU254 and the Video Input Connector on the video monitor.
5. Connect the coaxial cable(s) between the Video Output Connectors (4) on the AV Demodulator WJ-DA450 and the Video Input Connector(s) on the video monitor(s).
6. Connect the audio cable with pin-plugs between the Audio Output Connectors (5) on the AV Demodulator WJ-DA450 and the Audio Input Connector(s) on the external audio amplifier(s).
7. Connect the speaker cable(s) between the control room speaker(s) and the speaker output terminal of the audio amplifier(s).

1-4 Setup Procedure

1. Set the Station Number Selection Switch (32) to the position-1 and the Control Signal ON/OFF Switch (33) to the OFF position of the System Controller WV-CU254.
2. Set the Cable-loss Compensation Switch (31) on the System Controller WV-CU254 by referring to the Setting up of the cable-loss compensation switch as shown below.
3. Set the Cable-loss Compensation Switch (6) on the AV Demodulator WJ-DA450 by referring to the Setting up of the cable-loss compensation switch as shown below.

Setting up of the cable-loss compensation switch

The maximum cable length in the system is approximately 1200 m with 5C-2V coaxial cable or equivalent. See the diagram and tables below and set up the cable-loss compensation switch for each unit accordingly.

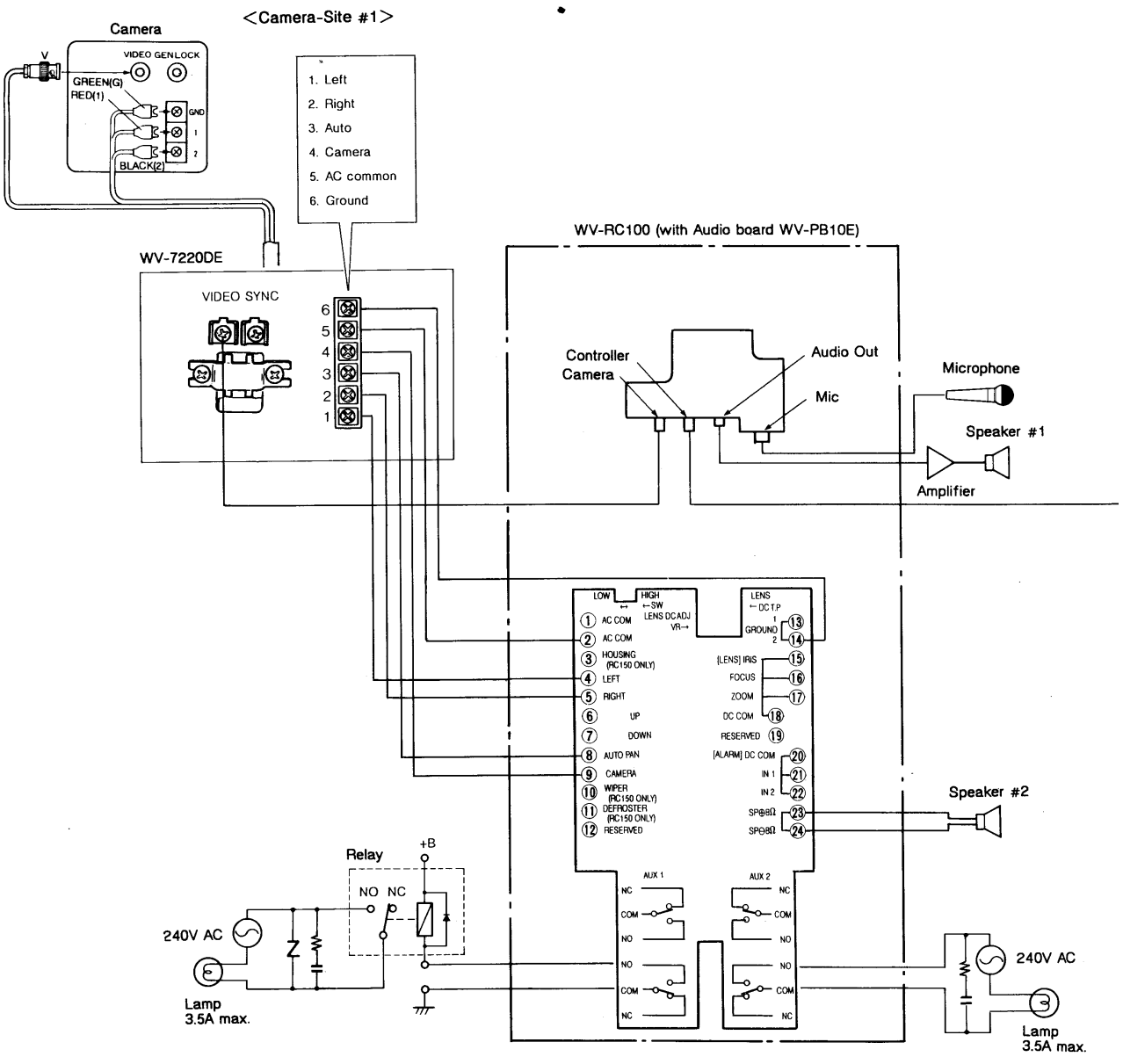


(1) Setting up on WV-CU254

	Position of the switch on WV-CU254
$0 \leq A < 500m \longrightarrow$	S
$500 \leq A < 900m \longrightarrow$	M
$900 \leq A < 1200m \longrightarrow$	L

(2) Setting up on WJ-DA450

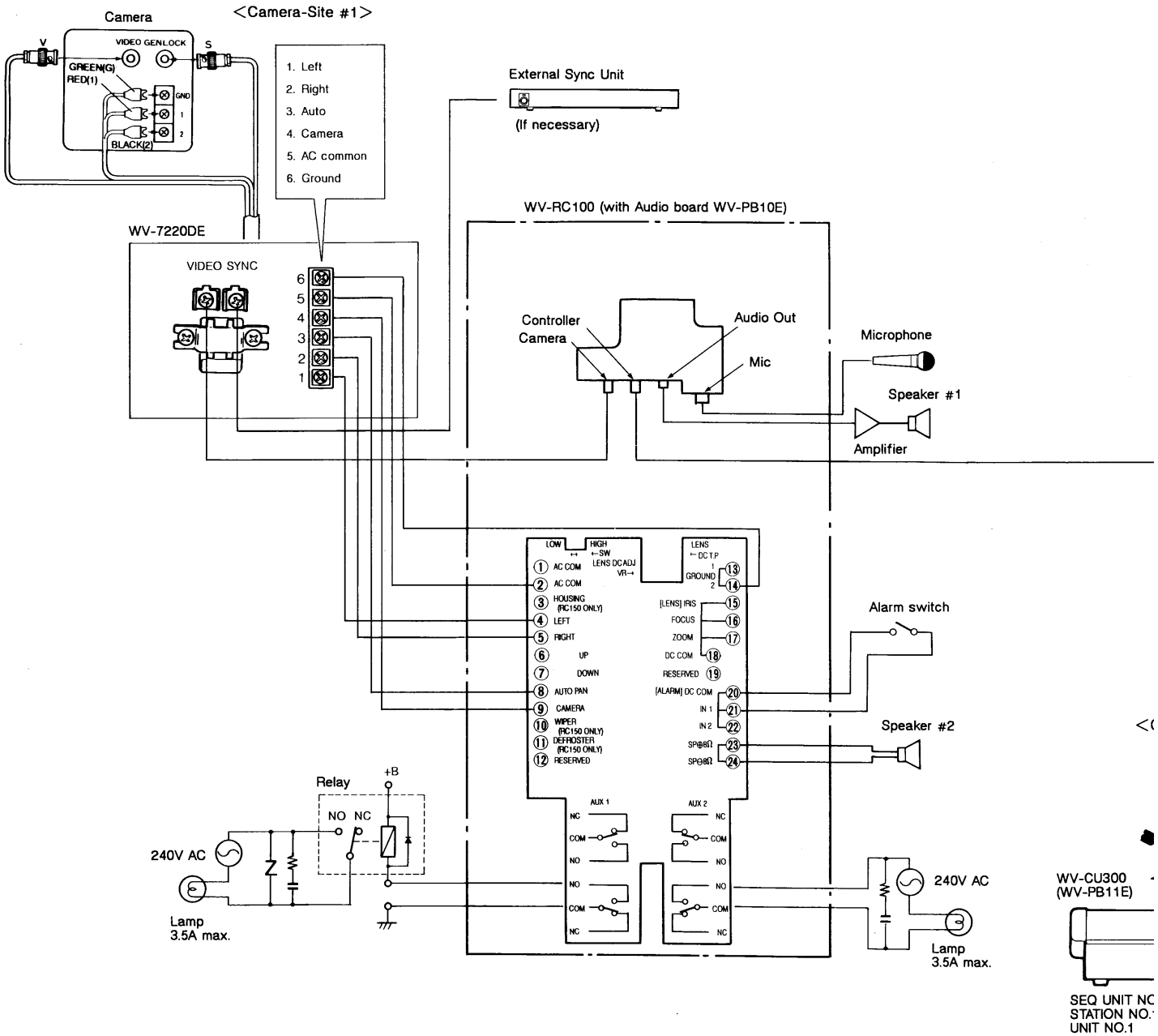
	Position of the switch on WJ-DA450
$0 \leq A+B < 500m \longrightarrow$	S
$500 \leq A+B < 900m \longrightarrow$	M
$900 \leq A+B < 1200m \longrightarrow$	L



2. The Receiver WV-RC100 with the Indoor Panning Head WV-7220DE and System Controller WV-CU300

The multiplexed video and control data signal from the camera is supplied to the Indoor Receiver WV-RC100 through the Indoor Panning Head WV-7220DE. The camera-site FM audio is multiplexed on the multiplexed video and control data signal at the Indoor Receiver WV-RC100.

The multiplexed camera-site FM audio, video and control data signal is transmitted between the Indoor Receiver WV-RC100 and the control-site (control room) over the single coaxial cable. The Multiplex Unit WJ-MP404 should be used for this purpose. The Audio Board WV-PB10E should be installed in the Indoor Receiver WV-RC100 and the Audio Board WV-PB11E should be installed in the System Controller WV-CU300 to make an audio communication between the camera site and the control room.

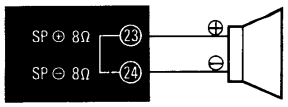


7. Connect the coaxial cable marked (V) from the Indoor Panning Head WV-7220DE to the Video Output Connector on the camera.
8. Connect the coaxial cable marked (S) from the Indoor Panning Head WV-7220DE to the Gen-Lock Input Connector on the camera if the Gen-Lock signal is required.
9. Connect the Camera Power Cable from the Indoor Panning Head WV-7220DE to the 24V AC In Power Terminal on the camera. Refer to the operating instructions of the camera for the connection.
10. Refer to the wiring table below for the cable connections among the Housing/Pan-Tilt Head Terminals (22) and the Lens/Alarm/Speaker Terminals (17) of the Indoor Receiver WV-RC100 and the Control Terminals (18) of the Panning Head WV-7220DE and optional products such as alarm switch, speaker, lamp and relay.

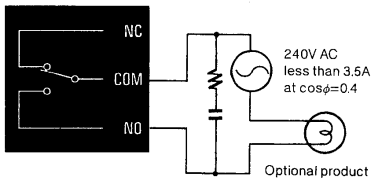
WV-7220DE		WV-RC100			Optional product
Terminal	Contents	Terminal	Contents		
		1	AC Common	(AC COM)	
5	AC common	2	AC Common	(AC COM)	
		3	Housing	(HOUSING)	
1	Left	4	Left	(LEFT)	
2	Right	5	Right	(RIGHT)	
		6	Up	(UP)	
		7	Down	(DOWN)	
3	Auto panning	8	Auto panning	(AUTO PAN)	
4	Camera	9	Camera	(CAMERA)	
		10	Wiper	(WIPER)	
		11	Defroster	(DEFROSTER)	
		12	No connection	(RESERVED)	
6	Ground	13	Ground	(GROUND)	
		14	Ground	(GROUND)	
		15	Iris	(IRIS)	
		16	Focus	(FOCUS)	
		17	Zoom	(ZOOM)	
		18	DC common	(DC COM)	
		19	No connection	(RESERVED)	
		20	DC common	(DC COM)	To alarm switch (Common)
		21	Alarm in -1	(IN 1)	To alarm switch
		22	Alarm in -2	(IN 2)	To alarm switch
		23	Speaker (Hot)	(SP ⊕)	To speaker (#2) (Hot)
		24	Speaker (Cold)	(SP ⊖)	To speaker (#2) (Cold)
		NC	AUX 1		To the product or relay having
		COM	AUX1		the specifications of 240V AC,
		NO	AUX1		3.5A at cosϕ = 0.4 (power factor)
		NC	AUX 1		
		COM	AUX1		-Same-
		NO	AUX1		
		NC	AUX 2		
		COM	AUX2		-Same-
		NO	AUX2		
		NC	AUX 2		
		COM	AUX2		-Same-
		NO	AUX2		

Notes:

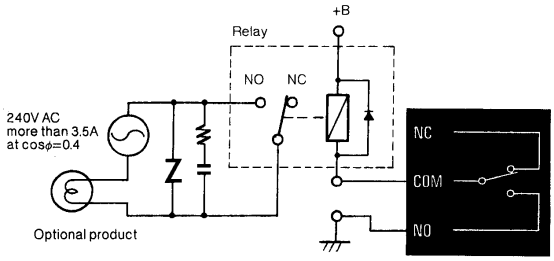
1. Installation of the speaker
   - The polarity of the speaker and the terminal number 23 and 24 should be matched.



2. Installation of the optional product to the auxiliary input.
   (1) When the power consumption of the optional product is loss then 240V AC, 3.5A at cosϕ = 0.4 (power factor), the optional product can be installed as shown below.



   (2) When the power consumption of the optional product is more than 240V AC 3.5A at cosϕ = 0.4 (power factor), the optional product should be installed with the relay as shown below.



2-2 Cable Connections for the Camera Site #2

1. Connect the multi-conductor cable(s) between the Pan/Tilt Head(s) WV-7225E, WV-7260DE and the Receiver(s) WV-RC100, WV-RC150. (Refer to the operating instructions of the Pan/Tilt Head and Receiver)
2. Connect the speaker cable(s) between the speaker output terminals on the Receiver(s) WV-RC100, WV-RC150 and the camera-site speaker(s).
3. Connect the microphone cable(s) of the camera-site to the Mic Input Connector(s) on the Receiver(s) WV-RC100, WV-RC150.
4. Connect the coaxial cable(s) between the Video Output Connector(s) on the Receiver(s) WV-RC100, WV-RC150 and the Video (Multiplexed) Input Connector(s) (2) on the Multiplex Unit WJ-MP404.
5. Connect the coaxial cable(s) between the Video Output Connector(s) (3) on the Multiplex Unit WJ-MP404 and the Video Input Connector(s) (21) on the Sequential Switcher WJ-SQ508.

2-3 Cable Connections for Control-Site (Control Room)

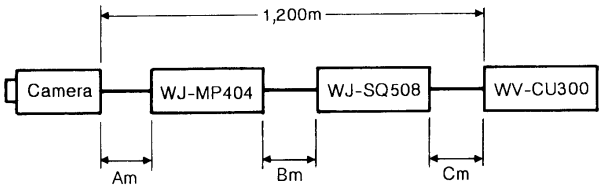
1. Connect the coaxial cable between the Data Input/Output Connector (5) on the Multiplex Unit WJ-MP404 and the Data Input/Output Connector (28) on the Sequential Switcher WJ-SQ508.
2. Connect the coaxial cable between the Data Input/Output Connector (28) on the Sequential Switcher WJ-SQ508 and the Data Input/Output Connector (45) on the System Controller WV-CU300.
3. Connect the coaxial cable(s) between the Video Output Connector(s) (45) on the Sequential Switcher WJ-SQ508 and the Video Input Connector(s) (2) on the Audio Mix & Selector WJ-DA464.
4. Connect the Spot Channel Cable (6 pins) (Provided with the Audio Mix & Selector WJ-DA464) between the Spot Channel Output Connector 1-4 CH (37) on the Sequential Switcher WJ-SQ508 and the Spot Channel Input Connector (4) on the Audio Mix & Selector WJ-DA464.
5. Connect the coaxial cable between the FM Audio Output Connector (49) on the System Controller WV-CU300 and the FM Audio Input Connector (7) on the Audio Mix & Selector WJ-DA464.
6. Connect the control cable with pin-plugs between the Timing Output Connector on the Time Lapse VTR and the External Timing Input Connector (32) on the Sequential Switcher WJ-SQ508.
7. Connect the coaxial cable between the Alarm/Sequence Video Output Connector (22) on the Sequential Switcher WJ-SQ508 and the Video Input Connector on the Time Lapse VTR.
8. Connect the coaxial cable between the Spot/Sequence Video Output Connector (23) on the Sequential Switcher WJ-SQ508 and the Video Input Connector (48) on the System Controller WV-CU300.
9. Connect the coaxial cable between the Video Output Connector (47) on the System Controller WV-CU300 and the Video Input Connector on the Video Monitor.
10. Connect the coaxial cable between the Video Output Connector on the Time Lapse VTR and the Video Input Connector on the Video Monitor.
11. Connect the microphone cable of the control-site (control room) to the Mic Input Connector (40) on the System Controller WV-CU300.
12. Connect the audio cable between the Audio Output Connector (46) on the System Controller WV-CU300 and the input connector of the audio amplifier.
13. Connect the speaker cable between the control-site speaker and the speaker output terminal of the audio amplifier.

2-4 Setup Procedure

1. Set the Channel Selection Switch (5) on the Audio Mix & Selector WJ-DA464 to 1-4 CH position.
2. Set the Station Number Selection Switch (29) to the position-1 and the Unit Number Selection Switch (30) to the position-1 on the Sequential Switcher WJ-SQ508.
3. Set the Cable-loss Compensation Switch on the Sequential Switcher WJ-SQ508 by referring to the Setting up of the cable-loss compensation switch as shown below.
4. Set the Unit Number Selection Switch (11) to the position-1, the Data Clock Switch (6) to SND position and the Channel Selection Switch (10) to 1-4 CH position on the Multiplex Unit WJ-MP404.
5. Set the Cable-loss Compensation Switch (4) on the Multiplex Unit WJ-MP404 by referring to the Setting up cable-loss compensation switch as shown below.
6. Set the Sequence Unit Number Selection Switch (42) to the position-1, the Station Number Selection Switch (41) to the position-1, the Controller Number Selection Switch (43) to the position-1 and the Data Clock Switch (44) to RCV position on the System Controller WV-CU300.

Setting up of the cable-loss compensation switch

The maximum cable length in the system is approximately 1200 m with 5C-2V coaxial cable or equivalent. See the diagram and tables below and set up the cable-loss compensation switch for each unit accordingly.



(1) Setting up on WJ-MP404

	Position of the switch on WJ-MP404
$0 \leq A < 500m \longrightarrow$	S
$500 \leq A < 900m \longrightarrow$	M
$900 \leq A < 1200m \longrightarrow$	L

(2) Setting up on WJ-SQ508

Position of the switch on WJ-MP404		Position of the switch on WJ-SQ508
S:	$0 \leq A+B < 500m \longrightarrow$	S
S:	$500 \leq A+B < 900m \longrightarrow$	M
S:	$900 \leq A+B < 1200m \longrightarrow$	L
M:	$500 \leq A+B < 900m \longrightarrow$	S
M:	$900 \leq A+B < 1200m \longrightarrow$	M
L:	$\longrightarrow$	S

The distance C should not be long due to no cable-loss compensation switch on WV-CU300.