Operating Instructions

Combination Camera

WV-BS304
WV-BSR304
WV-BST304

Panasonic®

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

CONTENTS

PREFACE

Panasonic presents highly advanced CCVE technology to meet the demand of new and ever-changing applications. This model is utilized B/W video surveillance device that incorporates a Digital Signal Processing (DSP) high-performance camera, pan/tilt mechanism, x10 zoom lens and receiver in its compact enclosure.

The camera portion incorporating a high-sensitivity CCD provides 570-line horizontal resolution and an S/N ratio of 48 dB. With its advanced digital signal processing circuit, this unit is equipped to handle the surveillance tasks of the coming age.

The pan/tilt portion, allowing 360-degree endless panning, is designed to meet specific user needs.

This utilized surveillance device offers cutting-edge technology for advanced video surveillance.

FEATURES

1. The following functions are built in.
   (1) Automatic Lighting Control (ALC)/Manual Override Iris
   (2) Character Generator
   (3) Back Light Compensation (Auto: Factory preset, Manual: Manual photometric measuring area set)
   (4) Electronic Shutter Function

2. Signal-to-noise ratio of 46 dB

3. Minimum illumination of 0.08 lx (0.008 foot-candle) for WV-BS304 and WV-BSR304, and 0.2 lx (0.02 foot-candle) for WV-BST304.

4. 570 lines of horizontal resolution

5. High quality picture:
   (1) 2H type vertical enhancer for greater picture sharpness
   (2) Minimum of aliasing on fine object
   (3) Expanded dynamic range by use of knee circuit
   (4) Highlight aperture correction for greater picture detail of bright object

6. Back Light Compensation for use under unusual lighting condition

7. 360-degree endless panning

8. There is no distance limit for remote access with the specified extension unit. (only for WV-BSR304)

PRECAUTIONS

- Do not attempt to disassemble this unit. There are no user serviceable parts inside. Refer servicing to qualified service personnel.
- This unit is designed for indoor use or locations where it is protected from rain and moisture.
- Be sure to mount on a flat ceiling.
- Do not drop metallic parts through slots. This could permanently damage this unit. Turn the power off immediately and refer servicing to qualified service personnel.
- Wipe the cover regularly with a soft and dry cloth, or a cloth moistened with a solution of water and normal kitchen detergent.
  Do not use chemicals for cleaning the cover as it may damage the surface.
- Refer all work related to the installation of this product to qualified service personnel or system installers.
- Use this unit in an environment where the temperature is within −10°C - +50°C (14°F - 122°F), and the relative humidity within 90%.
- Never aim the camera at bright objects. Whether the camera is in use or not, never aim it at the sun, or other extremely bright objects as this could cause blooming.
- This unit is designed exclusively for ceiling installation. If installed in standup position, the picture will be upside down and the pan/tilt movement will be reversed.

CAUTION

To prevent fire or electric shock hazard, use a UL listed wire, VW-1, style 1015, AWG 18 or UL listed power supply cord, type SJT for the cable for AC 24V input terminals.

CONSTRUCTION
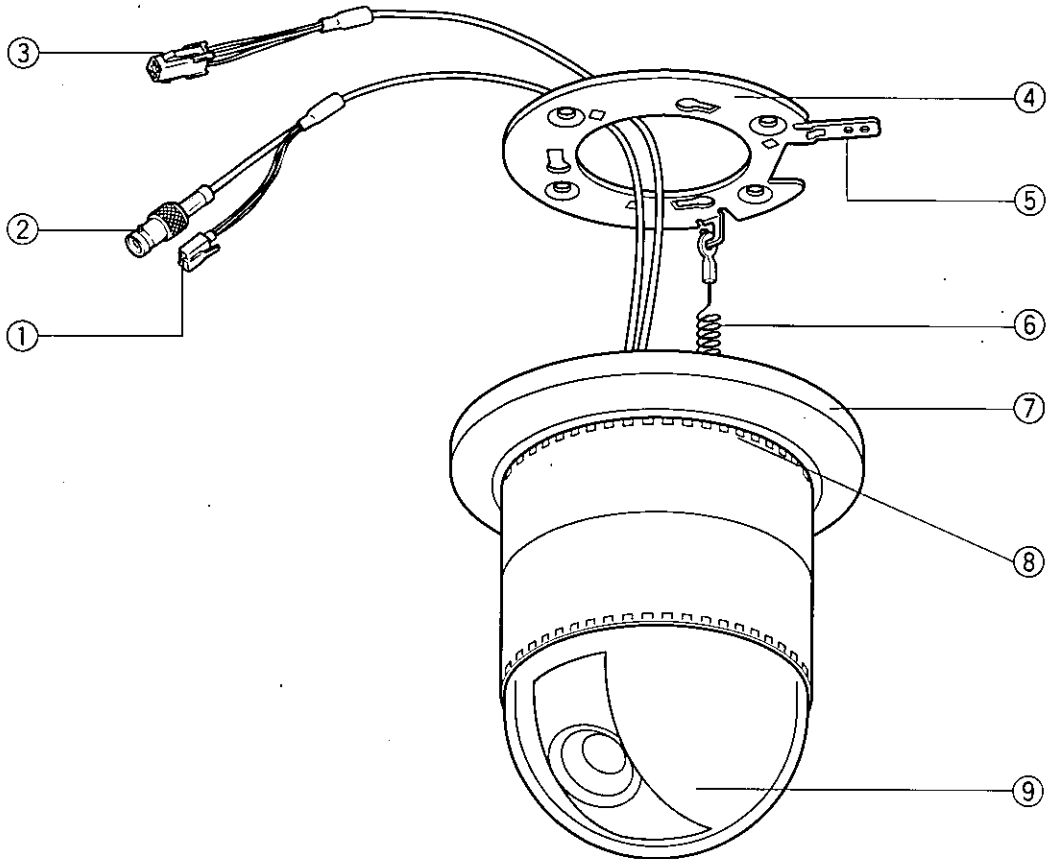
(1) Data Cable (only for WV-BSR304)

(2) Video Output Connector

(3) Power Cable

(4) Camera Mounting Angle

(5) Panning Start Point

(6) Fall Prevention Wire

(7) Decoration Cover

(8) Cooling Holes

(9) Dome Cover

Note:
The menus described in **bold** are displayed only when WV-BSR304 is used.

UNIT NUMBER	TRANSMISSION SPEED	DATA BIT	PARITY BIT	STOP BIT	XON/ XOFF	WAIT TIME	ALARM DATA	DELAY TIME

Auto Pan ON/OFF	Special Menu

AP Gain	Pedestal	Camera Reset
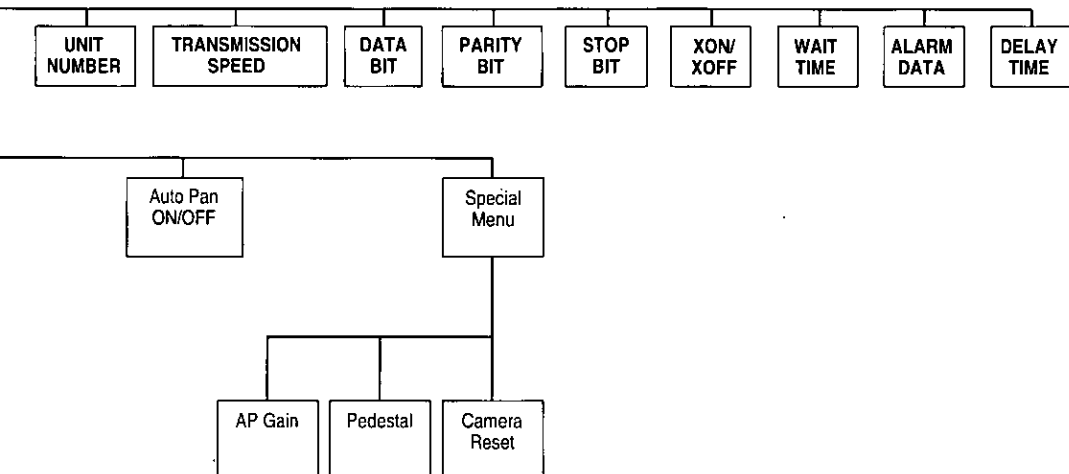
• WV-RM70
(available only with WV-BS304 or WV-BST304)

Up Switch:	Moves the cursor upwards.
Down Switch:	Moves the cursor downwards.
Right Switch:	Moves the cursor right. This switch also selects the mode and can be used to adjust certain Levels.
Left Switch:	Moves the cursor left. This switch also selects the mode and can be used to adjust certain Levels.
Set Switch:	This switch is for setting the mode and switching between menus.

Up Switch

Left Switch

Right Switch

Set Switch

Down Switch
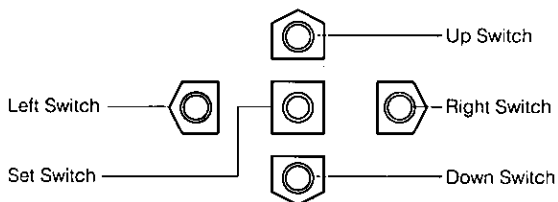
SETUP PROCEDURE

■ Setup Menu

This camera utilizes a user setup menu that is displayed on-screen.
This setup menu contains various sub menus that form a tree-type structure as shown below.
This menu is described in the "Setup Menu Description".
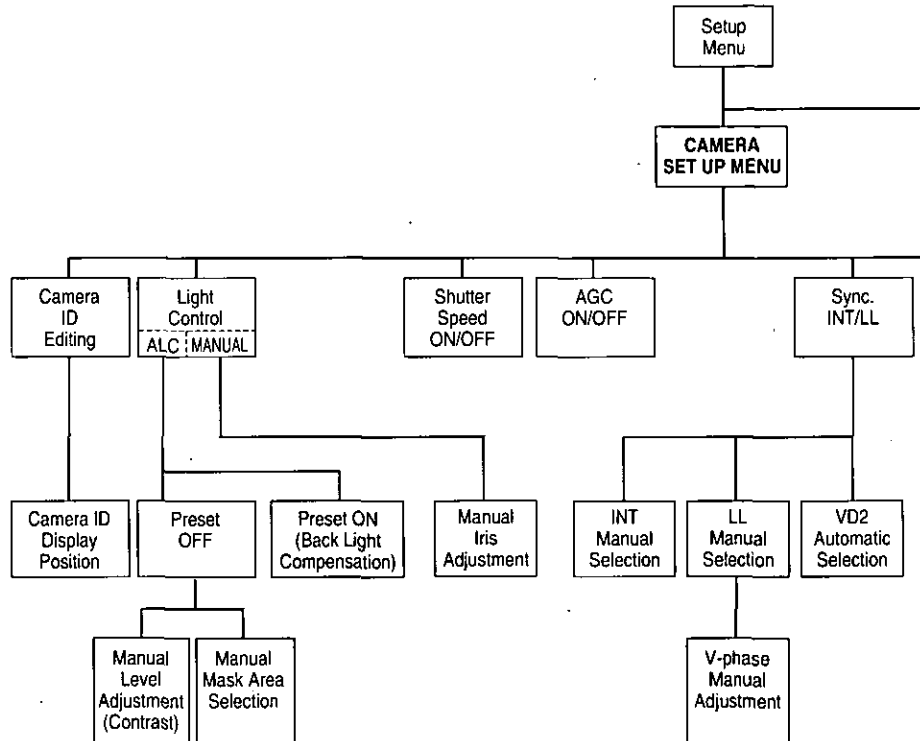
The above menus should be set with the following switches.

• **WV-CU550A**

Joystick: Used to move the Cursor Upward/Downward/Right/Left and select the mode. Also used to adjust the level.

CAM (SET) Key: This key is for setting the mode and switching between menus.

Joystick

CAM (SET) Key
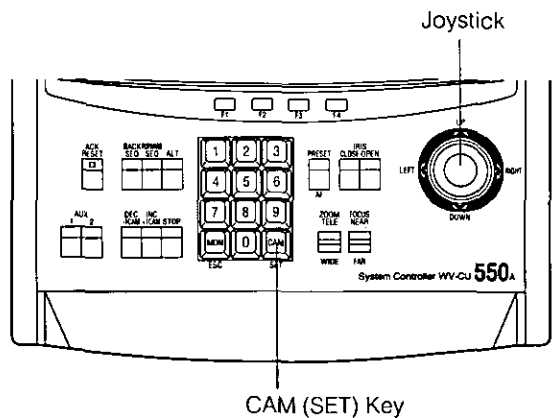
■ Setup Menu Description

● RS485 site communication (only WV-BSR304)

Communication parameters
* Full/Half duplex (page 16)
* Transmission speed (2400 - 19200 bps) (page 7)
* Parity check, Stop bit, Characters, Flow control (page 7 and 8)
* Retransmit time, Delay time (page 8)
* Camera units (96 units max.) (page 16)
* Termination ON/OFF (page 16)
* Reset parameters (page 16)

● Camera

(1) Camera Identification (CAMERA ID)
You can use the camera identification (CAMERA ID) to assign a name to the camera. The camera ID consists of up to 16 alphanumeric characters. You can select whether to have the camera ID displayed on the monitor screen or not.

Note:
See page 9 for the setting.

(2) Light Control (ALC/MANUAL)
You can select the mode for adjusting the lens iris.
The modes are as follows:
ALC: The lens iris is automatically adjusted according to the brightness of the object.
MANUAL: The lens iris is fixed at the value you have set regardless of the brightness of the object.

* **Back Light Compensation (BACK LIGHT COMP)**
Back light compensation is available in ALC mode. It eliminates interference by strong background lighting which makes the camera picture dark, such as a spotlight. You can select one of two modes (PRESET ON or PRESET OFF) for back light compensation.
This function is disabled in MANUAL mode.

* **Factory Setup Mode (PRESET ON)**
In normal use the important object in a scene is placed in the center of the monitor's screen. In the factory setup mode, more photometric weight is given to the center of the screen (where the important object is located) than to the edge of the picture (where a bright back light would most likely be located). In this mode, even though the back light may vary, the object at the center of the screen can still be clearly seen.

Note:
See page 10 for the setting.

* **Field Setup Mode (PRESET OFF)**
This mode is effective when the main object in the scene is not located in the center of the screen and a source of bright light is located near the center of the screen. In this mode, the picture is divided into 48 areas. If there is a source of brightness that interferes with the clarity of the picture in these masks, corresponding areas mask the light to keep the clarity of the picture.
Generally, when a light from the background is too strong such as a spotlight, all objects except the main object in the picture are displayed darker because the lens iris is adjusted with respect to strong brightness. This model ignores strong brightness by masking the source of the strong brightness, thereby all objects are displayed clearly.

Note:
The result of field setup of the mask area and level adjustment is fed back (effected) to the lens iris control in ALC mode.

(3)Shutter Speed (SHUTTER)

You can select the shutter speed from 1/60 (OFF), 1/100, 1/250, 1/500, 1/1000, 1/2000. 1/4000, and 1/10000 second.

Note:

See page 11 for the setting.

(4) Gain Control (AGC)

You can set the gain (brightness level portion of an image) to automatic adjustment (Automatic Gain Control ON) or fixed (Automatic Gain Control OFF).

Note:

See page 11 for the setting.

(5) Synchronization (SYNC)

You can select internal sync mode (INT) or line-lock sync (LL). Additionally, this model accepts the VD2 signal (multiplexed vertical drive signal) with the composite video output signal from a specified component. Whenever the VD2 signal is supplied to this camera, the camera automatically switches to the VD2 sync mode.

When you select line-lock sync (LL), you can set vertical phase adjustment for synchronization.

Important Notice:

The priority of sync modes is as follows:

1. Multiplexed Vertical Drive (VD2) (Highest)
2. Line-lock (LL)
3. Internal Sync (INT) (Lowest)

Note:

The priority of automatic sync mode is the same as shown above. See page 12 for the setting.

(6) Auto Panning (AUTO PAN)

Select one of the two panning mode shown below.

OFF: The camera turns only manually.

ON: The camera automatically turns within the preset panning range.

See page 13 for the setting method.

(7) Special Menu (SPECIAL)

This menu allows you to adjust the aperture level and pedestal level. You can also reset your parameters to the values preset at the factory.

See page 15 for the setting.

■ Setting Procedures

The following setting procedures are described on the assumption that this model is used in combination with the WJ-SX550A matrix switcher and WV-CU550A system controller. If used with the WV-RM70 camera controller, refer to "WV-RM70" on page 4 for operation.

■ Menu Display

● Setup Menu Display

1. Select the number of the camera you want to set up and a monitor to display the SET UP MENU.

2. Display the D4 menu on the LCD by pressing the appropriate cursor buttons.

D4 menu

```
┌─────────────────────────┐
│ Camera  Set  Up  Menu   │
│   On              Exit  │
└─────────────────────────┘
```

[F1] F2   F3   F4

```
┌─────────────────────────┐
│ Camera  Set  Up  Menu   │
│          Res  A.Res Exit│
└─────────────────────────┘
```
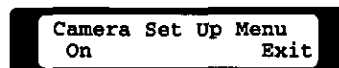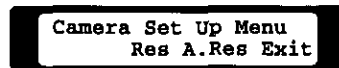
F1   F2   F3   [F4]

3. Press the F1 button.
   The SET UP MENU appears on the monitor screen.

4. To close the SET UP MENU, press the F4 button.

   Note:
   Do not change the SET UP MENU settings of the WV-BSR304 except CAMERA*. If those settings are changed, the camera and the controller may get out of control.

```
*** SET UP MENU ***
CAMERA*
 UNIT NUMBER      ·  1
 BAUD RATE        19200
 DATA BIT          8
 PARITY BIT       NONE
 XON/XOFF         NOT USE
 WAIT TIME        OFF
 ALARM DATA       AUTO 2
 DELAY TIME       OFF
 COM. SET UP DISABLE
```

● **Submenu Display**

The items marked * can be selected/changed on the submenu.

1. Move the cursor to an item with the * mark and press the CAM (SET) key. The submenu is displayed.

   Note:
   When you use the WV-BSR304, move the cursor to CAMERA on the SET UP MENU and press the CAM (SET) key. The same SET UP menu as for the WV-BS304 (or WV-BST304) appears in the display.

Setup menu
(WV-BS304 or WV-BST304)

```
** SET UP **
CAMERA ID     OFF *
ALC/MANUAL    ALC *
SHUTTER       OFF
AGC           ON
SENS UP       OFF
SYNC          INT
AUTO PAN      OFF

 SPECIAL *
```
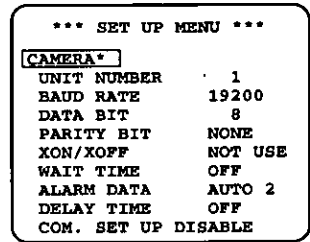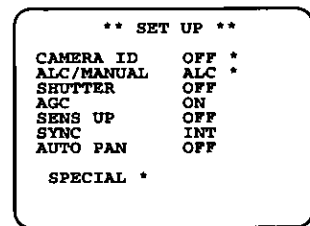
■ Communication Parameter Setting

● **Initial camera communication parameters**

- Confirm the communication parameters of the matrix switcher (WJ-SX550A), and display the camera SET UP MENU.
  The initial camera communication parameters are shown in illustration above.
  The other parameters are as follows:
      Daisy : OFF
      Camera In Number : 1
      F/H Duplex : Full

● **Changing the camera communication parameters**

· 1. Display the SET UP MENU. Move the cursor to COM. SET UP DISABLE and press the CAM (SET) key to select COM. SET UP ENABLE.
  2. Move the cursor to the item and select the parameter by moving the joystick to the left or right.

The following communication parameters can be set:

UNIT NUMBER
Specifies the camera ID numbers in case more than two cameras and WV-RM70 controllers are daisy chain connected. Select (1-32), (33-64) or (65-96) with the dip switch. The factory setting is 1.

BAUD RATE
Specifies the transmission speed (2400, 4800, 9600, 19200 bps). The factory setting is 19200.

DATA BIT
Specifies the number of data bits (7 or 8 bits). The factory setting is 8.

PARITY CHECK
Specifies the parity (NONE, ODD, EVEN).The factory setting is NONE.

STOP BIT

Specifies the number of stop bits (1 or 2 bits). The factory setting is 1.

X ON/X OFF

Specifies whether to apply flow control or not (NOT USE, USE). The factory setting is NOT USE.

WAIT TIME

Specifies the time to wait until retransmitting after confirming that no data is received from the controller. (OFF: no transmission, 100, 200, 400, 1000 ms).

ALARM DATA

Specifies the alarm data transmission mode (POLLING, AUTO 1, AUTO 2). The factory setting is AUTO 2.

> **Note:**
> This mode is not available on this camera.

DELAY TIME

Specifies the time to transmit the acknowledge request when communicating on a two-line connection. (OFF, 10, 20, 40, 100 ms) The factory setting is OFF.
This menu appears only when a two lines communication is used.

The settings become effective with closing of the SET UP MENU.
> **Note:**
> If the conditions of the communication for the camera became effective, the communication between the camera and the controller may not work. Set the conditions of the communication for the controller to the same as the camera's. The communication between the camera and the controller works correctly.
> Setting the dip switch C inside the camera unit to ON resets the conditions of the communication for the camera to the factory preset settings. (See page 16)

■ Camera Setting

1. To display the Camera Setting Menu

* Move the cursor to CAMERA*, and press the CAM (SET) key. The camera setting menu is displayed (WV-BSR304 only).

Setup menu

```
*** SET UP MENU ***
CAMERA*
UNIT NUMBER        1
BAUD RATE          19200
DATA BIT           8
PARITY BIT         NONE
XON/XOFF           NOT USE
WAIT TIME          OFF
ALARM DATA         AUTO 2
DELAY TIME         OFF
COM. SET UP DISABLE
```

Camera setting menu

```
** SET UP **

CAMERA ID     OFF *
ALC/MANUAL    ALC *
SHUTTER       OFF
AGC           ON
SENS UP       OFF
SYNC          INT
AUTO PAN      OFF

SPECIAL *
```

2. Camera Identification Setting (CAMERA ID)

- Move the cursor to CAMERA ID, and select ON (to display the camera identification) or OFF by using the joystick.

- Follow the steps below to edit the camera ID characters:
  1. Move the cursor to CAMERA ID and press the CAM (SET) key to display the character editing menu. The character cursor on the letter "A" and the editing cursor on the left of the editing area start blinking.
  2. Move the character cursor to the character you want to change by using the joystick, and press the CAM (SET) key. The selected character appears in the editing area. (The blinking editing cursor moves to the right automatically at this moment.)
  3. Repeat the steps above until all characters are edited.

- After editing the camera identification characters, follow the steps below to set the position of the CAMERA ID on the monitor screen.
  1. Move the cursor to POSI, and press the CAM (SET) key to display the ID position menu. The CAMERA ID starts blinking and the ID position menu appears in the display.
  2. Use the joystick to decide the position of the CAMERA ID on the monitor screen. Press the MON (ESC) key to fix the position, and return to the character editing menu.

Notes:
1. When you want the editing cursor to move to a specific character in the editing area, move the character cursor to "←" or "→", and press the CAM (SET) key. This function helps you to edit or correct a specific character.
2. When you want a blank space in the CAMERA ID, move the character cursor to SPACE, and press the CAM (SET) key.
3. When you want to erase all characters in the editing area, move the cursor to RESET and press the CAM (SET) key.

4. The positioning of the CAMERA ID stops at the edges of the screen.
5. The CAMERA ID moves faster when the joystick is kept inclined for more than 0.5 seconds.
6. To return to SET UP for setting other items, move the cursor to RET, and press the CAM (SET) key.

```
        ** SET UP **

CAMERA ID        OFF; *
ALC/MANUAL       ALC  *
SHUTTER          OFF
AGC              ON
SENS UP          OFF
SYNC             INT
AUTO PAN         OFF

  SPECIAL  *
```

Character editing menu

```
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
0123456789
().,'":;&#!?=
+-*/%$

←  →  SPACE
[POSI] RET RESET

WV-BS304.......
```

Blinking

```
WV-BS304
```

```
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
0123456789
().,'":;&#!?=
+-*/%$

[←]→  SPACE
POSI RET RESET

WV-BS304.......
```

```
ABCDEFGHIJKLM
NOPQRSTUVWXYZ
0123456789
().,'":;&#!?=
+-*/%$

←  →  SPACE
POSI RET RESET|

WV-BS304.......
```
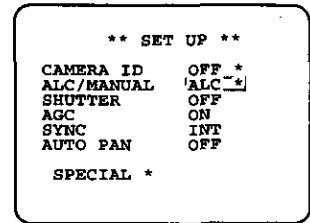
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3. Light Control Setting (ALC/MANUAL)

- Display SET UP on the monitor screen.
  If necessary, refer to Setup Menu Display for details on displaying the SET UP on the monitor screen.
- Move the cursor to ALC/MANUAL and select ALC or MANUAL by using the joystick. When you select ALC, set back light compensation.

Note:
> The back light compensation submenu associated with this menu is described separately and should be set up after installing the camera at the site and observing the actual site picture.
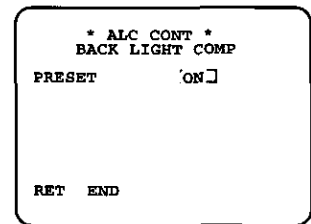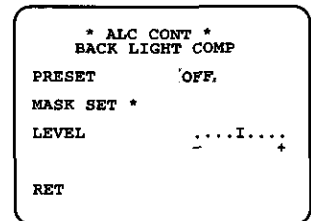
Camera setting menu

```
** SET UP **

CAMERA ID      OFF_*
ALC/MANUAL     'ALC_*]
SHUTTER        OFF
AGC            ON
SYNC           INT
AUTO PAN       OFF

SPECIAL *
```

(1) ALC with Factory Setup Mode (PRESET ON)

- Select ALC and press the CAM (SET) key to display the back light compensation menu.
- Move the cursor to PRESET and select ON by using the joystick. The back light compensation is automatically set.
- Move the cursor to RET by using the joystick and press the CAM (SET) key to return to SET UP.

Back light compensation menu

```
* ALC CONT *
BACK LIGHT COMP

PRESET        'OFF,

MASK SET *

LEVEL         ....I....
              -        +

RET
```

```
* ALC CONT *
BACK LIGHT COMP

PRESET        'ON]




RET  END
```

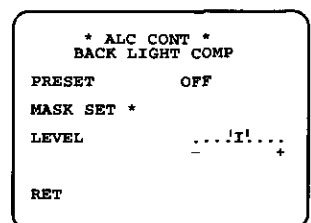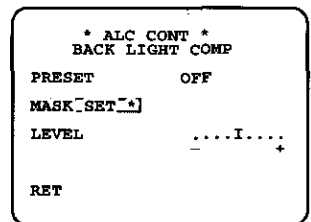### (2) ALC with Field Setup Mode (PRESET OFF)

- Select ALC and press the CAM (SET) key to display the back light compensation menu.
- Move the cursor to PRESET and select OFF by using the joystick.
  The field setup menu appears on the monitor screen as shown in the illustration.
- Move the cursor to MASK SET and press the CAM (SET) key.
  The 48 mask areas appear on the monitor screen. The cursor is blinking in the top left corner of the screen.
- Press the CAM (SET) key to mask this area. The mask and the cursor start blinking alternately.
- Move the cursor to the desired area by using the joystick to mask the next area and press the CAM (SET) key to mask that area. The mask turns white.
- When the cursor is moved on an area that has already been masked, the mask and cursor start blinking.
- Press the CAM (SET) key if you want to cancel masking of this area.
- Press the F2 button of the WV-CU550A if you want to cancel masking of all areas. (For the WV-RM70, press Left switch and Right switch simultaneously.)

```
* ALC CONT *
BACK LIGHT COMP

PRESET        OFF

MASK_SET_*]

LEVEL         ....I....
              -        +

RET
```

```
* ALC CONT *
BACK LIGHT COMP

PRESET        OFF

MASK SET *

LEVEL         ...!I!....
              -        +

RET
```

After masking is completed, press the MON (ESC) key. The 48 mask areas on the monitor screen disappear and the field setup menu appears.

- If you want to change the video output level (picture contrast), move the cursor to LEVEL and use the joystick to adjust the iris of the ALC lens. When you move the cursor to the right (+) with the joystick, the lens iris opens wider to raise the level of video output. If you move the cursor to the left (−), the reverse effect is obtained.
- Move the cursor to RET by using the joystick and press the CAM (SET) key to return to SET UP.

Blinking   Blinking   Turns to white —   Blinking —
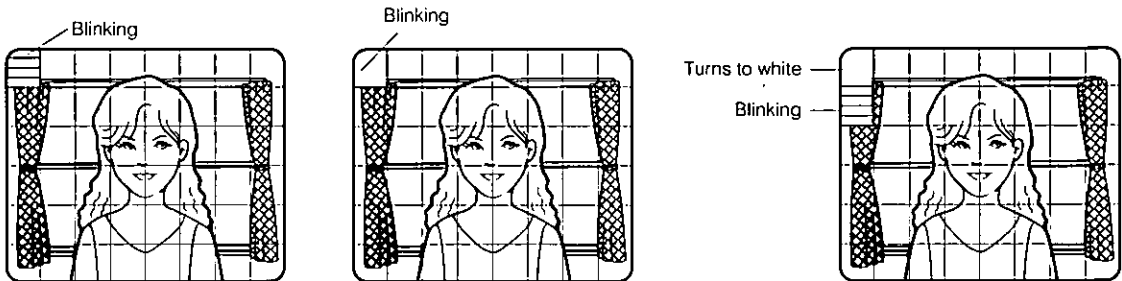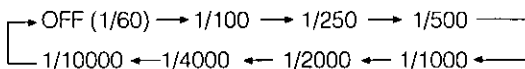
(3) MANUAL Mode

- Move the cursor to ALC/MANUAL and select MANUAL by using the joystick.
- Press the CAM (SET) key so that the manual setting menu appears. Control the level by using the joystick.
- Move the cursor to RET by using the joystick and press the CAM (SET) key to return to SET UP.

Manual setting menu

```
* MANUAL CONT *

IRIS              ....I....
              CLOSE     OPEN



RET
```
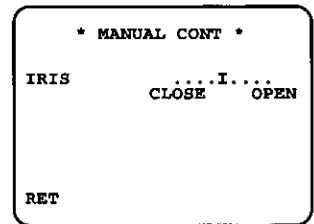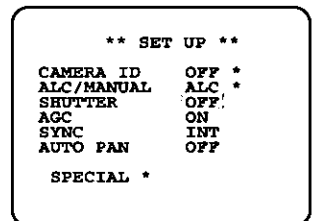
4. Shutter Speed Setting (SHUTTER)

- Display SET UP on the monitor screen.
  If necessary, refer to Setup Menu Display for details on displaying the SET UP menu on the monitor screen.
- Move the cursor to SHUTTER and select the electronic shutter speed by using the joystick.
  The electronic shutter speed changes as follows by operating the joystick:

$$\begin{array}{l} \rightarrow \text{OFF (1/60)} \rightarrow 1/100 \rightarrow 1/250 \rightarrow 1/500 \rightarrow \\ 1/10000 \leftarrow 1/4000 \leftarrow 1/2000 \leftarrow 1/1000 \leftarrow \end{array}$$

Camera setting menu

```
** SET UP **
CAMERA ID      OFF *
ALC/MANUAL     ALC *
SHUTTER        OFF!
AGC            ON
SYNC           INT
AUTO PAN       OFF

  SPECIAL *
```

5. Gain Control Setting (AGC ON/OFF)

- Display SET UP on the monitor screen.
  If necessary, refer to Setup Menu Display for details on displaying the SET UP menu on the monitor screen.
- Move the cursor to AGC and select ON or OFF by using the joystick.

Camera setting menu

```
** SET UP **
CAMERA ID      OFF *
ALC/MANUAL     ALC *
SHUTTER        OFF
AGC            ON.
SYNC           INT
AUTO PAN       OFF

  SPECIAL *
```

- 11 -
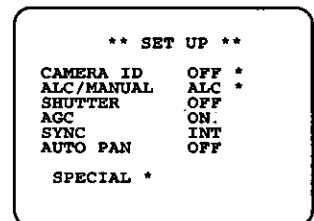
6. Synchronization Setting (SYNC)

- Display SET UP on the monitor screen.
  If necessary, refer to Setup Menu Display for details on displaying the SET UP menu on the monitor screen.
- Move the cursor to SYNC and select line-lock(LL) or internal(INT) by using the joystick.

Important Notice:
1. The priority of SYNC modes is as follows;
    1. Multiplexed vertical drive (VD2) (highest priority)
    2. Line-lock (LL)
    3. Internal sync (INT) (lowest priority)
2. To use internal sync, select INT.
3. Whenever the vertical drive pulse (VD2) is supplied to the camera, the camera sync mode is automatically switched to the multiplexed vertical drive (VD2) regardless which sync mode is selected.

Line-lock Sync Mode (LL)
- Display SET UP on the monitor screen.
  (Refer to Setup Menu Display for details on displaying the SET UP menu on the monitor screen.)

- Move the cursor to SYNC and select LL by using the joystick. LL sync mode is not available when the multiplexed vertical drive (VD2) pulse is supplied.

- After selecting LL, press the CAM (SET) key.
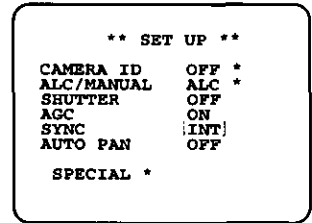 The SYNC menu appears on the monitor screen.

- Supply the video output signal of the camera to be adjusted and the reference camera video output signal (for example, Camera 1) to a dual-trace oscilloscope.

- Set the dual-trace oscilloscope to the vertical rate and expand the vertical sync portion on the oscilloscope.

- Use the joystick to match the vertical phases for both video output signals as closely as possible. (COARSE adjustment can be incremented in steps of 49 degrees (8 steps) with the joystick.)
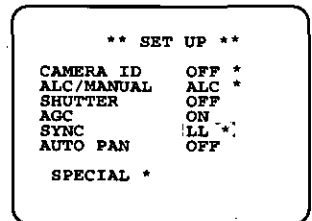
```
1 (1 - - - 8): 0 degrees
2 (1 - - - 8): 49 degrees

8 (1 - - - 8): 346 degrees
```
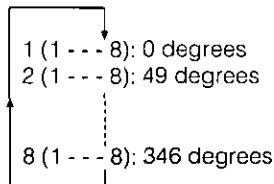
Note: After the 8 steps, the adjustment returns to the first step.

- Move the cursor to FINE by using the joystick. The cursor starts blinking.

- Use the joystick to match the vertical phase for both video output signals as closely as possible.

Camera setting menu

```
** SET UP **

CAMERA ID      OFF *
ALC/MANUAL     ALC *
SHUTTER        OFF
AGC            ON
SYNC           :INT:
AUTO PAN       OFF

  SPECIAL *
```

Camera setting menu

```
** SET UP **

CAMERA ID      OFF *
ALC/MANUAL     ALC *
SHUTTER        OFF
AGC            ON
SYNC           :LL *:
AUTO PAN       OFF

  SPECIAL *
```

SYNC menu

```
** SYNC **

V PHASE

COARSE         1'(1---8)

FINE           .I........
               -        +

RET
```

```
** SYNC **

V PHASE

COARSE         1(1---8)

FINE           .I.......
               -        +

RET
```
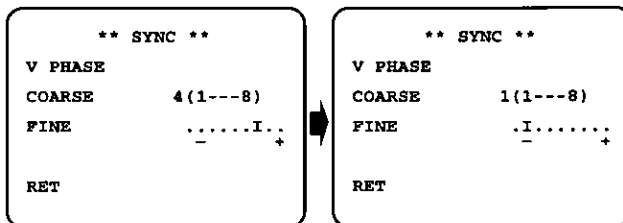
Notes:

1. When the "I" cursor reaches the "+" end, it jumps back to "−". At the same time, COARSE is incremented by one step to enable a continuous adjustment. The reverse takes place when the "I" cursor reaches the "−" end.
2. When the joystick is kept to the right or left for more than one second, the "I" cursor moves quickly.
3. To reset COARSE and FINE to the values preset at the factory, press the F2 button of the WV-CU550A. (For the WV-RM70, press the Left and Right switches simultaneously.) COARSE is preset at the factory to zero-crossing of the AC line phase.
4. If the AC line contains noise (spike noise, etc., the stability of the vertical phase of the camera video output signal may be disturbed.
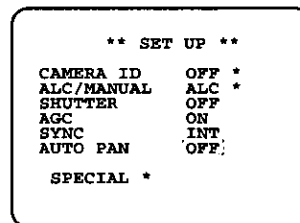
• Move the cursor to RET by moving the joystick and press the CAM (SET) key to return to SET UP.

```
┌─────────────────────────┐      ┌─────────────────────────┐
│      ** SYNC **          │      │      ** SYNC **          │
│  V PHASE                 │      │  V PHASE                 │
│                          │      │                          │
│  COARSE       4(1---8)   │  ▶   │  COARSE       1(1---8)   │
│  FINE        ......I..    │      │  FINE        .I........  │
│               −        + │      │               −        + │
│                          │      │                          │
│  RET                     │      │  RET                     │
│                          │      │                          │
└─────────────────────────┘      └─────────────────────────┘
```
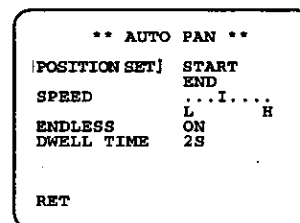
7. Auto Panning Setting (AUTO PAN)

• Display SET UP on the monitor screen.
(Refer to Setup Menu Display for details on displaying the SET UP menu on the monitor screen.)
• Move the cursor to AUTO PAN and select either ON or OFF by moving the joystick to the left or right.
ON: Auto panning mode is activated.
OFF: Auto panning mode is not activated.

• Move the cursor to AUTO PAN and select ON by moving the joystick. Then press the CAM (SET) key to display the AUTO PAN setting menu.

Camera setting menu

```
┌─────────────────────────┐
│      ** SET UP **        │
│  CAMERA ID     OFF *     │
│  ALC/MANUAL    ALC *     │
│  SHUTTER       OFF       │
│  AGC           ON        │
│  SYNC          INT       │
│  AUTO PAN      OFF       │
│   SPECIAL *              │
│                          │
└─────────────────────────┘
```

AUTO PAN setting menu

```
┌─────────────────────────┐
│      ** AUTO PAN **      │
│  POSITION SET  START     │
│                END       │
│  SPEED         ...I....  │
│                L       H │
│  ENDLESS       ON        │
│  DWELL TIME    2S        │
│                          │
│  RET                     │
└─────────────────────────┘
```

- To set a panning start position and panning end position
  Follow the steps below.
    (1) Move the cursor to POSITION SET and press the CAM (SET) key.
    The cursor moves to START.

    (2) Move the joystick to the left or right to select a panning start
    position and press the CAM (SET) key.
    This determines the start position and the cursor moves to END.

    (3) Move the joystick to the left or right to select a panning end
    position and press the CAM (SET) key.
    This determines the end position and the cursor moves to
    POSITION SET.

```
       ** AUTO PAN **
POSITION SET  |START|
              END
SPEED         ...I....
              L        H
ENDLESS       ON
DWELL TIME    2S

RET
```

```
       ** AUTO PAN **
POSITION SET  START
              END
SPEED         ...I....
              L        H
ENDLESS       ON
DWELL TIME    2S

RET
```

- To set a panning speed
  Move the cursor to SPEED, and move the joystick to the left or right to
  set a panning speed.
  The panning speed increases when the joystick is moved to the right,
  and decreases when it is moved to the left.

```
       ** AUTO PAN **
POSITION      START
              END
SPEED         ...I'....
              L        H
ENDLESS       ON
DWELL TIME    2S

RET
```

- To set endless turn ON/OFF
  Move the cursor to ENDLESS, and move the joystick to the left or right
 to set endless turn ON or OFF.
    ON: The camera pans from the start position to the end position, then
    keeps rotating in the same direction to return to the start position.
    OFF: The camera pans from the start position to the end position,
    then rotates backward to the start position.
    This movement is repeated over and over.
- To set a dwell time
  Move the cursor to DWELL TIME and select a dwell time by moving
  the joystick to the left or right. Dwell time changes as follows:
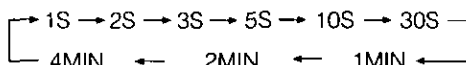
```
       ** AUTO PAN **
POSITION      START
              END
SPEED         ...I....
              L        H
ENDLESS       ON
DWELL TIME    2S

RET
```

```
┌─► 1S ─► 2S ─► 3S ─► 5S ─► 10S ─► 30S ─┐
└─ 4MIN  ◄─   2MIN  ◄─  1MIN ◄─────────┘
```

- Move the cursor to RET by moving joystick and press the CAM (SET)
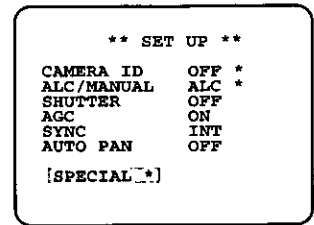 key to return to SET UP.

  Note: When the panning, tilting, lens zoom or focus operation is
  controlled manually, the Auto pan function should be canceled.
  To activate Auto pan, select AUTO PAN ON again.

```
       ** AUTO PAN **
POSITION      START
              END
SPEED         ...I....
              L        H
ENDLESS       ON
DWELL TIME    |2S|

RET
```

8. Special Menu

This menu lets you adjust and set up the video signal of the camera to meet your requirements.
- Display SET UP on the monitor screen.
  (Refer to Setup Menu Display for details on displaying the SET UP on the monitor screen.)
- Move the cursor to SPECIAL and press the F2 button of the WV-CU550A. The special menu appears on the monitor screen.
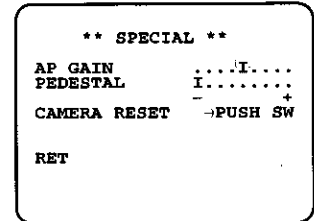 (For the WV-RM70, keep pressing the Right and Left switches simultaneously for more than 2 seconds.)

(1) Aperture Level Setting (AP GAIN)
1. Move the cursor to AP GAIN. The "I" cursor starts blinking.
2. While observing the video monitor, adjust the aperture level with the joystick. The "I" cursor moves to the left (soft) or right (sharp).
   To reset to the factory setup, press the F2 button.
   (For the WV-RM70, keep pressing the Right and Left switches simultaneously for more than 2 seconds.)

(2) Pedestal Level Setting (PEDESTAL)
1. Move the cursor to PEDESTAL. The "I" cursor starts blinking.
2. While observing the waveform monitor/oscilloscope or video monitor, adjust the pedestal level (black level) by moving the joystick. The "I" cursor moves to the left (low, dark) or right (high, bright).
   To reset to the factory setup, press the F2 button.
   (For the WV-RM70, keep pressing the Right and Left switches simultaneously for more than 2 seconds.)
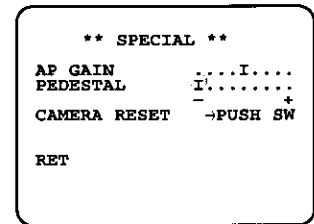
(3) Camera Resetting
Move the cursor to CAMERA RESET by using the joystick and press the F3 button.
The camera is reset all the settings to initial state.
(For the WV-RM70, keep pressing the Right, Left and Set switches simultaneously for more than 2 seconds.)
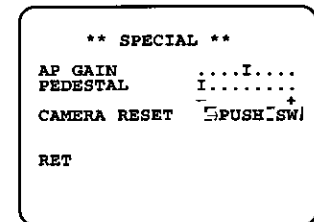
(4) To close the SPECIAL menu
Move the cursor to RET and press the CAM (SET) key.
The SET UP menu appears on the monitor screen.
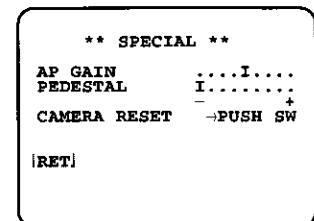
Notes:
■ How to reset to the factory preset parameters
Any of the above settings plus the ALC/MANUAL level control and phase adjustments can be reset to the factory preset parameters by placing the cursor over the desired mode and then press the F2 button of the WV-CU550A.
(For the WV-RM70, keep pressing the Right and Left switches simultaneously for more than 2 seconds.)

Camera setting menu

```
      ** SET UP **

CAMERA ID     OFF *
ALC/MANUAL    ALC *
SHUTTER       OFF
AGC           ON
SYNC          INT
AUTO PAN      OFF

[SPECIAL *]
```

Special menu

```
    ** SPECIAL **

AP GAIN       ....I....
PEDESTAL      I........
                    -       +
CAMERA RESET  →PUSH SW

RET
```

```
    ** SPECIAL **

AP GAIN       ....I....
PEDESTAL      I........
                    -       +
CAMERA RESET  →PUSH SW

RET
```

```
    ** SPECIAL **

AP GAIN       ....I....
PEDESTAL      I........
                    -       +
CAMERA RESET  →PUSH SW

RET
```

```
    ** SPECIAL **

AP GAIN       ....I....
PEDESTAL      I........
                    -       +
CAMERA RESET  →PUSH SW

[RET]
```

INSTALLATION

Precaution:

The following installations should be made by qualified service personnel or system installers.

Setting the camera switches (only for WV-BSR304)

- To reset the communication parameters to the factory preset values, for example, when operating multiple cameras in a daisy chain connection, set the switches inside the camera as shown in the table below.
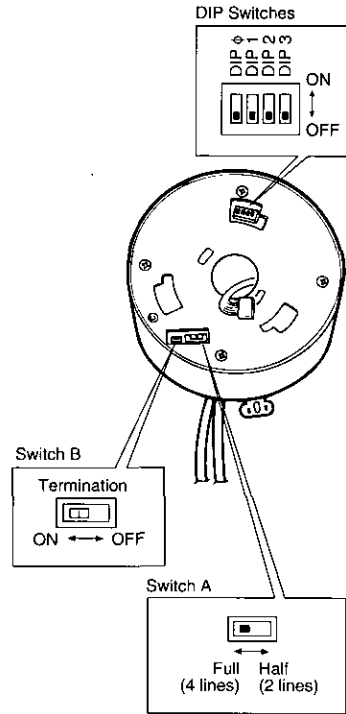
1. Disassemble the camera

Confirm that the power is turned off.

Remove the screw from inside the hole for the fall prevention wire. Hold the diecast case containing the camera and rotate it to the left as shown below.

Note: Setting of switches while the power is on may cause a malfunction. Make sure the power is turned off before setting the switches.

Diecast Case
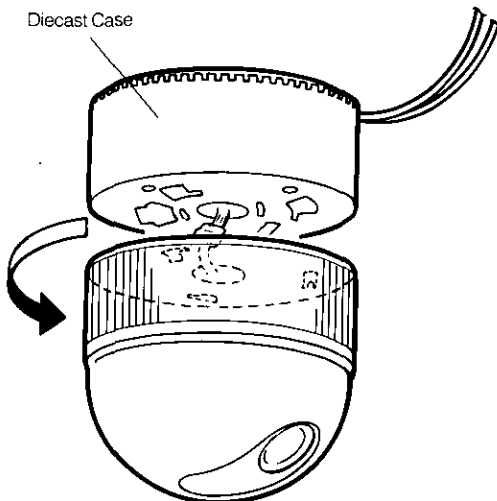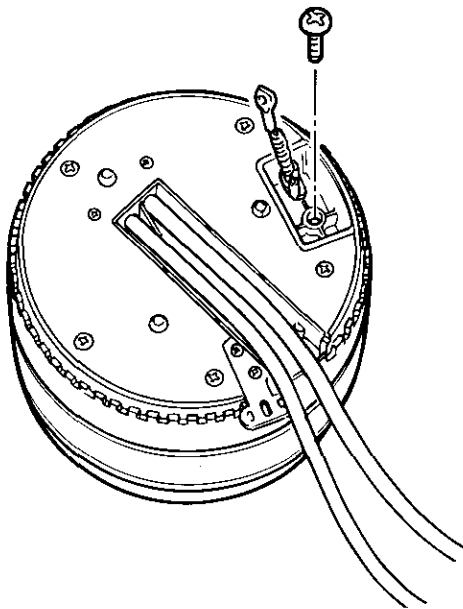
2. Setting the switches

Set the switches as follows:

DIP Switches

Switch B
Termination
ON ←→ OFF

Switch A
Full   Half
(4 lines)   (2 lines)

Switch A: Full duplex (four lines)/Half duplex (two lines) switch
Switch B: Termination ON/OFF switch
Switch C: Dip switches (become effective when the power is turned on)

Initialization of soft-ware communication parameters	DIP 3	OFF	Normal Setting
		ON	Initial Settings

Notes:

- Select OFF· after resetting the parameters by selecting ON.
- The factory settings is OFF.

	DIP 1	DIP 2	
	OFF	OFF	01 - 32
Camera Unit No.	OFF	ON	33 - 64
	ON	OFF	65 - 96
	ON	ON	Inhibition

The factory settings for the dip switch 1 and 2 are OFF both.

CCIR or EIA	DIP φ	OFF	EIA
		ON	CCIR

Note: The dip switch φ is not for changing EIA to CCIR or CCIR to EIA. This switch is set at factory. Do not change the setting of this switch. The factory setting is OFF.

3. Assemble the camera

Reverse the disassembly procedure. Take care not to cut any cables.

Precautions:

1. The following installation work should be referred to qualified service personnel or system installers and must conform with local codes.
2. Be sure to select a ceiling board that is strong enough to support this camera.

a. Sideway cable exit

Prepare a cutout in the diecast case and decoration cover as shown in the following drawing.

Diecast Case
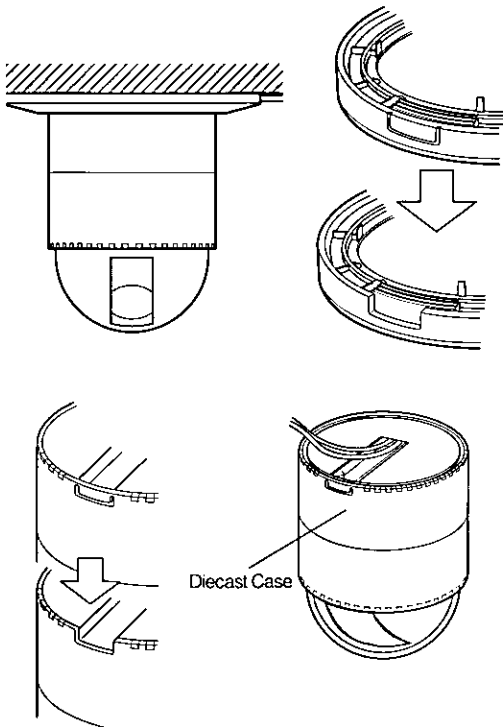
Note: Be sure to protect the video and power cables. Otherwise, the cut edges will damage the cables.

b. Top cable exit
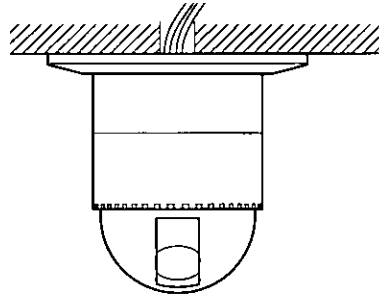
1. Remove the mounting screw (M3) from the camera mounting angle (provided).
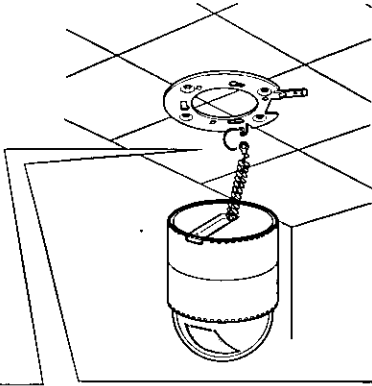2. Mark the mounting holes on the ceiling, using the removed camera mounting angle as a template.

Marking
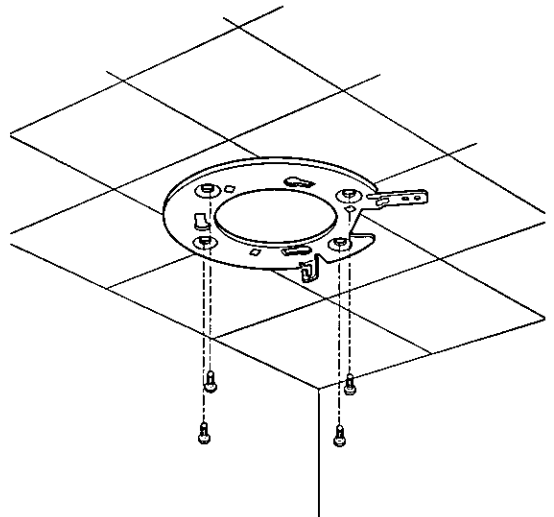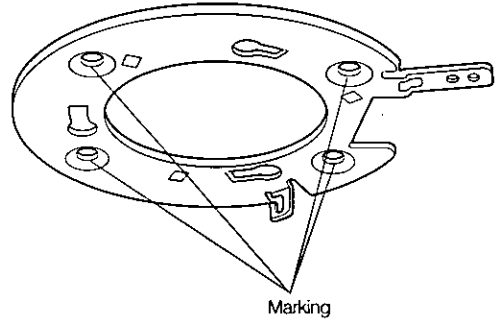
3. Fix the camera mounting angle to the ceiling with four screws (not provided).
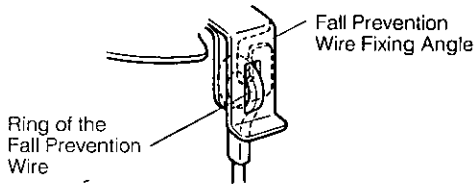
   Caution:

   The installation should be strong enough to support 4 times the total weight.

4. Hook the Fall prevention wire on the camera mounting angle.

Be sure to match the wire with the fall prevention wire fixing angle as shown below.

Fall Prevention Wire Fixing Angle

Ring of the Fall Prevention Wire

5. Mount the camera on the camera mounting angle and rotate the camera clockwise.
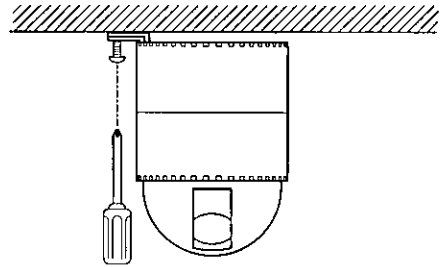

15°
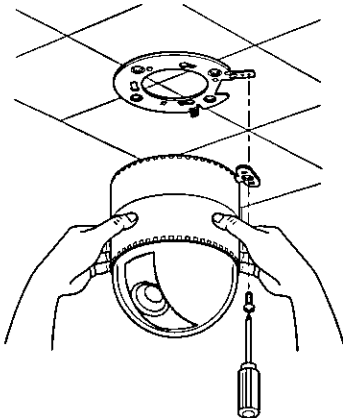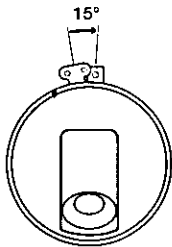
6. Tighten the fixing screw M3 (provided).
   Notes :
   1. Tighten the camera fixing screw with a screwdriver.

2. Follow the instructions given here to ensure that the camera and camera mounting angle are installed safely.
3. When removing the camera from the camera mounting angle, loosen and press up the camera fixing screw (M3) by using a screwdriver.

7. Fix the decoration cover to the camera mounting angle.
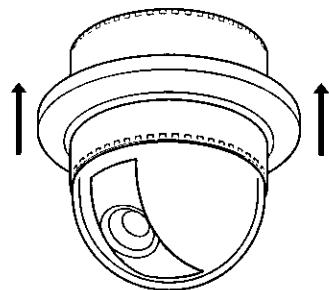
a. Sideway cable exit
Pass the cables through the cutout made in the diecast case and decoration cover (refer to item a, INSTALLATION).
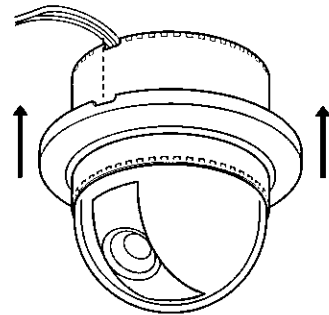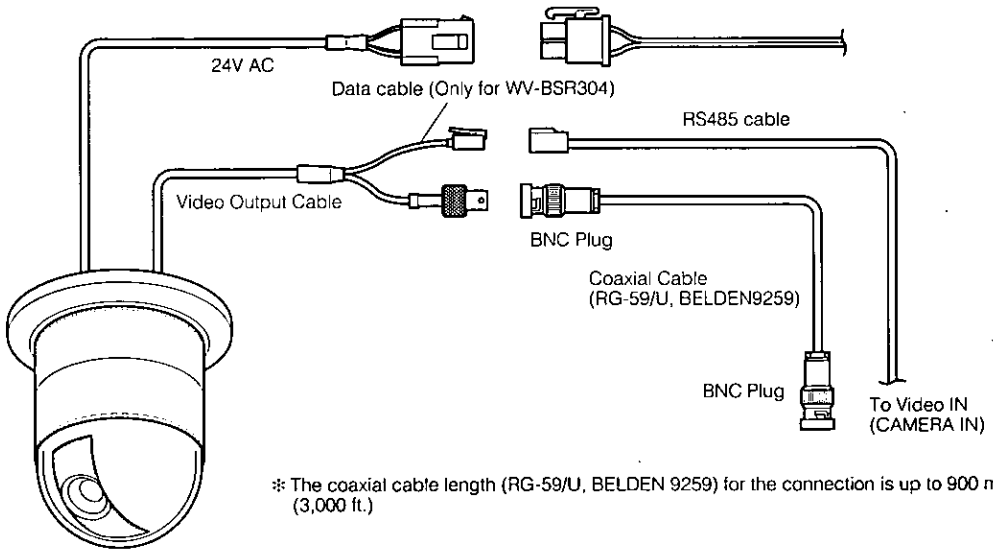

b. Top cable exit
Push the decoration cover against the camera mounting angle.

CONNECTIONS

Precaution:
The following connections should be made by qualified service personnel or system installers in accordance with NEC 725-51.

24V AC

Data cable (Only for WV-BSR304)

RS485 cable

Video Output Cable

BNC Plug

Coaxial Cable
(RG-59/U, BELDEN9259)

BNC Plug

To Video IN
(CAMERA IN)

✻ The coaxial cable length (RG-59/U, BELDEN 9259) for the connection is up to 900 meter
(3,000 ft.)

Note: When powered up, the unit performs a self-check (including one panning, tilting, zooming and focusing operation).
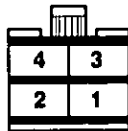
• Power supply connection

Recommended wire gauge sizes for 24V AC line.

Copper wire size (AWG)	#24 (0.22mm²)	#22 (0.33mm²)	#20 (0.52mm²)	#18 (0.83mm²)
Length of Cable (Approx.)	(m)	20	30	45	75
	(ft)	65	100	160	260

Accessory Connector Information

Pin No.	Power Source
1 :	AC 24 V LIVE
2 :	AC 24 V NEUTRAL
3 :	Ground
4 :	Not used

4	3
2	1

How to assemble the cable with the accessory connector
Strip back the cable jacket approx. 3 mm (0.1 inch) and separate the individual conductors.

Approx.
3 mm (0.1 inch)   Wire

Up   A

Contact   Insert

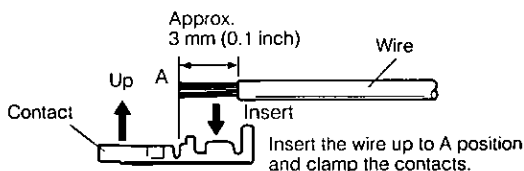Insert the wire up to A position
and clamp the contacts.

Prepare the individual conductors for clamping. Use MOLEX band tool part number 57027-5000 (for UL-Style Cable UL1015) or 57026-5000 (for UL-Style UL-1007) for clamping the contacts.
After clamping the contacts, push them into the proper holes in the accessory connector of this camera until they snap in place.

Up   Wire

Contact

- RS485 site connection
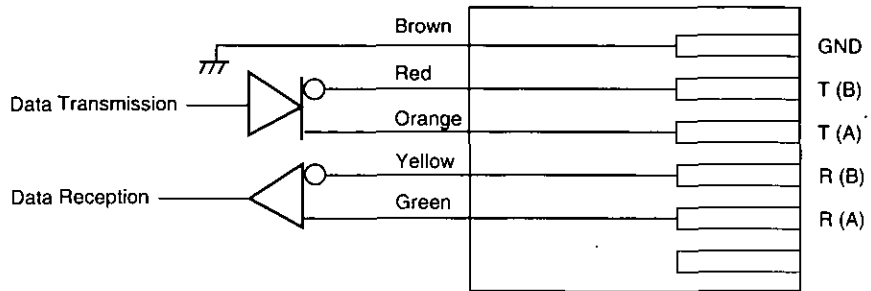
For daisy chain connection of multiple cameras, make sure to match each male connector with its female counterpart.

Note:
Use the cable that is described below for RS485 site communication by using WV-BSR304.
- Shielded, two twisted pairs cable
- Low impedance
- Wire gauge size is thicker than AWG#22 (0.33mm²).

SYSTEM CONNECTIONS

Combination Camera

WV-BSR304   WV-BST304
             WV-BS304

Max. 64 Cameras

Personal Computer
RS-232C Port

Alarm Inputs

Printer

System Status
Monitor

Matrix
Switcher

VCRs (up to 16)

Monitors (up to 16)

Control Units (up to 8)
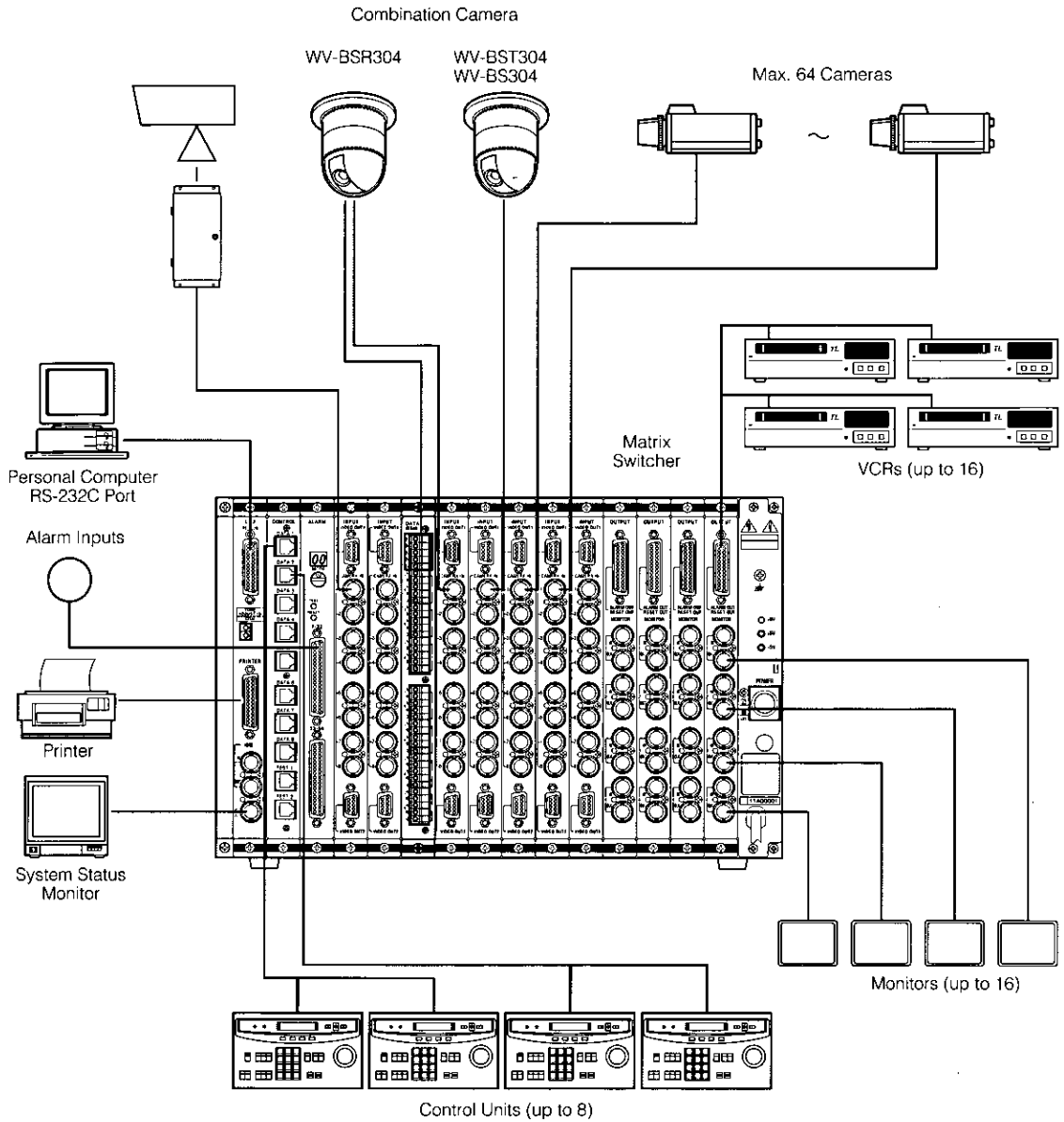
Note: Eight cameras are maximum that can be connected with a data board even if the cameras are connected by the daisy chain connection.

PREVENTION OF BLOOMING AND SMEAR

When the camera is aimed at a bright light, such as a spotlight, or a surface that reflects bright light, smear or blooming may appear. Therefore, the camera should be operated carefully in the vicinity of extremely bright objects to avoid smear or blooming.
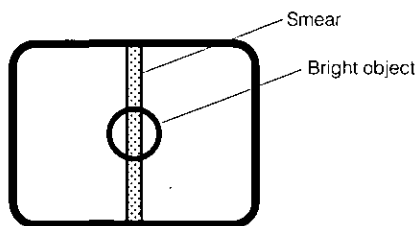

SPECIFICATIONS

Combination Camera

	WV-BS304	WV-BST304	WV-BSR304
Power Source	24V AC, 60Hz		
Power Consumption	9W		12W
Ambient Operating Temperature	−10°C - +50°C (14°F - 122°F)		
Dimensions	130 (D) x 191 (H) mm (5-1/8" (D) x 7-1/2" (H))	130 (D) x 195 (H) mm (5-1/8" (D) x 7-11/16" (H))	130 (D) x 191 (H) mm (5-1/8" (D) x 7-1/2" (H))
Weight	APPROX. 2 kg (4.4 lbs.)		

Camera

		WV-BS304	WV-BST304	WV-BSR304
Effective Pixels		771 (H) x 492 (V)	768 (H) x 492 (V)	771 (H) x 492 (V).
Scanning Area		1/3"	1/4"	1/3"
Synchronization		Internal/Line-lock/Multiplexed Vertical Drive (VD2)		
Horizontal Scanning Frequency		15.734 KHz		
Vertical Scanning Frequency		59.94 Hz		
Video Output		1.0 V[p-p] EIA Composite/75 Ω		
Horizontal Resolution		More than 570 lines at center		
Vertical Resolution		More than 350 lines at center		
Signal-to-noise Ratio		46 dB (AGC OFF)		
Minimum Illumination		0.08 lx (0.008 foot-candle)	0.2 lx (0.02 foot-candle)	0.08 lx (0.008 foot-candle)
Zoom Speed		Approx. 6 s (TELE/ WIDE) in Manual mode		
Focus Speed		Approx. 5 s (FAR/NEAR) in Manual mode		
Iris		Automatic (Open / Close is possible)/Manual		
Maximum Aperture Ratio		1 : 1.2 (WIDE) - 1.9 (TELE)	1 : 1.7 (WIDE) - 2.5 (TELE)	1 : 1.2 (WIDE) - 1.9 (TELE)
Focal Length		5 - 50 mm	6.5 - 65 mm	5 - 50 mm
Angular field of View	H	5.2° - 52.3°	3.3° - 32.1°	5.2° - 52.3°
	V	4.0° - 39.7°	2.4° - 24.0°	4.0° - 39.7°
Electronic Shutter		1/60 (OFF), 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000		
Back Light Compensation		Normal/Automatic/Preset mode		
Zoom Ratio		x 10		
Iris Range		F1.2 - 22, CLOSE	F1.7 - 22, CLOSE	F1.2 - 22, CLOSE

Pan / Tilt

Panning Range	360° Endless
Panning Angle Setting	Possible (in Auto Pan mode)
Panning mode	Manual/Auto Pan
Panning Speed	Manual : Approx. 3°/s - 24°/s eight steps
Tilting Range	0° - 90°
Tilting Speed	Manual : Approx. 1.5°/s - 12.0°/s. eight steps

Weights and dimensions indicated are approximate.

Specifications are subject to change without notice.

ACCESSORIES

Camera Fixing Screw .... 1 pc.
Camera Mounting Angle .... 1 pc.
Connector .... 1 pc.
Decoration Cover .... 1 pc.

OPTIONAL ACCESSORY

Dome Cover (Smoked type) WV-CS1S

Panasonic
Video Imaging Systems Company

A Division of Panasonic Broadcast & Television Systems Company
A Unit of Matsushita Electric Corporation of America

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