

Operating Instructions

Video Multiplexer
WJ-FS216



Panasonic

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

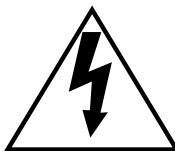
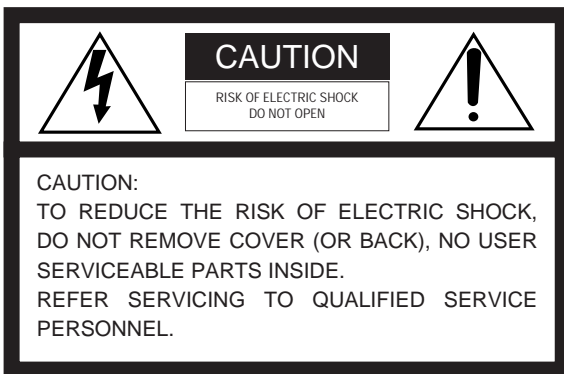
ENGLISH VERSION

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.



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.

The serial number of this product may be found on the rear of the unit.

You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. _____

Serial No. _____

CAUTION:

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



For U.K.

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.

A 13 amp fuse is fitted in this plug.

Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 13 amp and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark  or the BSI mark  on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.

If you lose the fuse cover the plug must not be used until a replacement cover is obtained.

A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY. THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.

If in any doubt please consult a qualified electrician.

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 wire in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows.

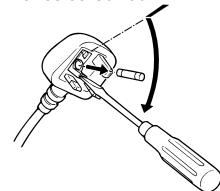
The wire which is coloured **green-and-yellow** must be connected to the terminal in the plug which is marked with the letter **E** or by the earth symbol  or coloured **green** or **green-and-yellow**.

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

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

How to replace the fuse

Open the fuse compartment with a screwdriver and replace the fuse and fuse cover.



WARNING:

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

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Wij verklaren als enige aansprakelijke, dat het product waarop deze verklaring betrekking heeft, voldoet aan de volgende normen of andere normatieve documenten, 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 vårt fulla ansvar för att den produkt till vilken denna deklaration hänvisar är i överensstämmelse med standarddokument, eller andra normativa dokument som framställs 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 følger bestemmelsene i direktiven 73/23/EEC og 89/336/EEC.

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.

Wir erklären in alleiniger Verantwortung, daß das Produkt, auf das sich diese Erklärung bezieht, mit der folgenden Normen oder normativen Dokumenten übereinstimmt. Gemäß den Bestimmungen der Richtlinie 73/23/EEC und 89/336/EEC.

Nous déclarons sous notre seule responsabilité que le produit auquel se réfère cette déclaration est conforme aux normes ou autres documents normatifs conformément aux dispositions de la directive 73/23/CEE et 89/336/CEE.

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.

PREFACE

The WJ-FS216 Video Multiplexer is designed to pick up the field signals from video cameras and record the camera images on a time lapse VTR. The pictures of up to 16 cameras can be monitored in single, quad or multi picture mode. Camera/pictures can be called from the time lapse VTR output by a title added to the camera picture or by simply pressing the selection button for the respective camera.

FEATURES

The WJ-FS216 Video Multiplexer is designed to pick up the field signals from video cameras and record the camera images on a time lapse VTR. Up to 16 cameras (black & white or colour cameras) can be connected to the WJ-FS216 regardless of whether the camera signals are synchronized or not.

The functions of the two available modes, MULTIPLEX and MULTISCR, are as follows:

- MULTIPLEX mode
 1. Monitoring sequential or single (spot) pictures and simultaneously recording them on the time lapse VTR.
 2. Easy selection of playback picture from the time lapse VTR and displaying it as a single (spot) or multi picture (quad, 3x3, or 4x4) by simply pushing the camera selection button.
The Quad Shift function allows you to shift between up to four quad pictures (each consisting of 4 pictures).
 3. Pauses can be inserted in the pictures reproduced by the time lapse VTR (STILL ON mode). In multi picture mode, pauses can also be inserted in any monitored pictures, and single spot pictures can be zoomed up to twofold.
- MULTISCR mode
 1. You can monitor sequential, single (spot) or multi pictures (quad, 3x3, or 4x4).
In multi picture mode, all camera pictures are displayed on the multiscreen skipping some frames.
 2. You can switch between display patterns (spot, quad, 3x3, or 4x4) by simply pressing any of the camera selection buttons 1 to 3.
 3. The Quad Shift function allows you to display up to four quad pictures (each consisting of 4 pictures) on one screen.
 4. You can pause (STILL ON mode) or zoom the playback picture. In multi picture mode, all pictures monitored can be paused, but only one specified picture can be zoomed.
- Common to both modes
 1. Remote control
 2. An alarm beeps to indicate that a cable is disconnected.
 3. Memory backup (approx. 72 hours) for menus.

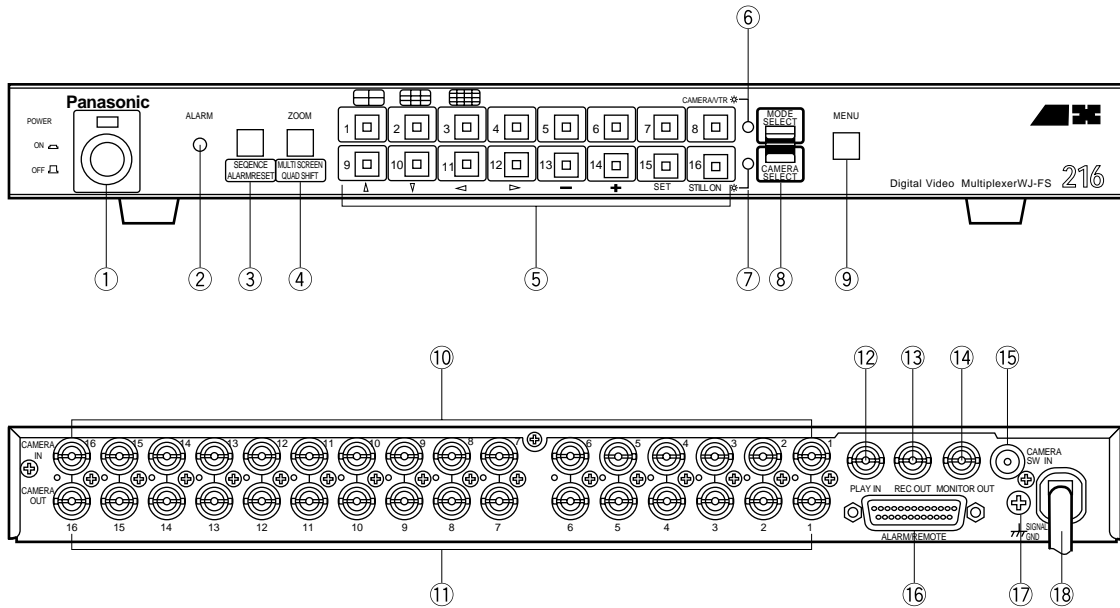
IMPORTANT NOTICES

- While playing back the picture of the time lapse VTR with linear mode, the picture of another channel may be reproduced and break in. In this case, play back again in normal mode or time lapse mode.
- This unit does not accept the camera motion detector alarm signal.

PRECAUTIONS

- Do not attempt to disassemble the unit. In order to prevent electrical shock, do not remove screws or covers. There are no user-serviceable parts inside.
- Do not abuse the unit. Avoid striking, shaking etc. It could be damaged by improper handling or storage.
- Do not use strong or abrasive detergents when cleaning the unit body.
- Do not expose the unit to water or moisture, and do not operate it in wet or humid areas.
- Do not use the unit in an extreme environment where high temperature or high humidity exists.
- Handle the unit with care.
- Take immediate action if ever the unit does become wet. Turn the power off and refer servicing to qualified service personnel. Moisture can damage the unit and also create a danger of electric shock.
- Use the unit under conditions where temperature is within -10°C to $+50^{\circ}\text{C}$ (14°F to 122°F), and humidity is below 90%. When installing the unit in the rack, it is recommended to install the fan.
- The input power source is 220 - 240 V AC, 50 Hz.
- Refer all installation work to qualified service personnel or system installers.

MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS

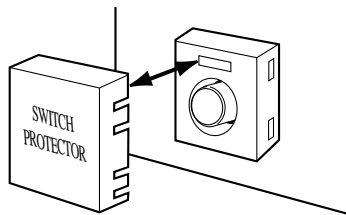


1. Power ON/OFF Switch (POWER ON/OFF)

This switch is used to turn the power of this unit on or off. The POWER indicator lights when the power of this unit is on.

Switch Protector (Standard Accessory)

To prevent that the power of the video multiplexer is turned off accidentally, install the supplied switch protector as shown below.



2. Alarm LED (ALARM)

This LED flashes while the alarm signal is received. It lights in the following cases:

- When the ALARM/REMOTE connector receives the alarm reset signal.
- When the alarm reset time specified for AUTO RESET in MENU 1 OF 3 has elapsed (in multi-screen mode).

To turn off the LED, press the ALARM RESET button.

3. Sequence/Alarm Reset Button (SEQUENCE/ALARM RESET)

This button activates sequence mode when the MODE SELECT/CAMERA SELECT switch is in CAMERA SELECT position.

In alarm condition, this button serves as ALARM RESET button regardless of the MODE SELECT/CAMERA SELECT switch position.

• Sequence Button

This button is used to activate the sequence mode. In this mode, a series of pictures is displayed in succession on the monitor screen in the order and for the duration or dwell time you set.

• Alarm Reset Button

This button is used to cancel an active alarm. Press while the alarm function is activated to reset the alarm and the unit to the condition before the alarm function was activated.

4. Zoom/Multiscreen/Quad Shift Button (ZOOM/MULTISCREEN/QUAD SHIFT)

This button has three functions. The functions change according to the position of the MODE SELECT/CAMERA SELECT switch as follows:

When the MODE SELECT/CAMERA SELECT switch is in CAMERA SELECT position, this button works as the MULTISCREEN or the QUAD SHIFT button. When the MODE SELECT/CAMERA SELECT switch is in MODE SELECT position, this button works as the ZOOM button.

• MULTISCREEN button








Pressing this button changes the picture (camera picture or playback picture from the time lapse VTR) to four (quad), 3x3 or 4x4 (multi) pictures.

• QUAD SHIFT button

Pressing this button when monitoring a quad picture shifts to another of up to four quad pictures. See page 17 for details.

• ZOOM button

Pressing this button zooms up a specified portion of the monitored picture. See page 19 or 21 for details.

5. Camera Selection Button (1...16, , , , CAMERA/VTR, , , , , -, +, SET, STILL ON)

When the MODE SELECT/CAMERA SELECT switch is in CAMERA SELECT position, these buttons can be used to select the desired camera. The LED in the button lights to indicate the number of the selected camera.

Except for buttons 4, 5, 6 and 7, the function of these buttons changes when the MODE SELECT/CAMERA SELECT switch is set to MODE SELECT position. The functions of each button are as follows:

Button No.1 ()

When the MULTIPLEX mode is selected, the playback picture is displayed as a quad picture.

When the MULTISCR mode is selected, the camera picture is displayed as a quad picture.

Button No.2 ()

When MULTIPLEX mode is selected, the monitor screen is divided into nine fields for displaying playback pictures.

When MULTISCR mode is selected, the screen is divided into nine fields for displaying camera pictures.

Button No.3 ()

When MULTIPLEX mode is selected, the monitor screen is divided into sixteen fields for displaying playback pictures.

When MULTISCR mode is selected, the screen is divided into sixteen fields for displaying camera pictures.

Button No.8 (CAMERA / VTR)

This button is used to select the camera picture or playback picture to be displayed on the monitor. While the playback picture is displayed, the CAMERA/VTR indicator lights to indicate that VTR is selected.

Button No.9 ()

Moves the "+" sign (zoom cursor) upward.

Use this button to move the cursor on the menu.

Button No.10 ()

Moves the "+" sign (zoom cursor) downward.

Use this button to move the cursor on the menu.

Button No.11 ()

Moves the "+" sign (zoom cursor) to the left.

Use this button to move the cursor on the menu.

Button No.12 ()

Moves the "+" sign (zoom cursor) to the right.

Use this button to move the cursor on the menu.

Button No.13 (-)

Moves the character selection cursor in reverse alphabetical order.

Button No.14 (+)

Moves the character selection cursor in alphabetical order.

Button No.15 (SET)

This button is used as the SET button in setting procedures.

Button No.16 (STILL ON)

This button is used to pause the picture on the screen and monitor the still picture (STILL ON mode).

6. CAMERA/VTR Indicator

While this indicator is lit, the playback picture can be displayed on the monitor.

7. STILL ON indicator

While this indicator is lit, the picture can be made still by pressing one of the camera selection buttons.

8. MODE SELECT/CAMERA SELECT Switch

This switch is used to change the functions of the buttons on the front panel.

When this switch is positioned at CAMERA SELECT, the buttons operate as indicated by the printed button name in the gray square.

When this switch is positioned at MODE SELECT, the buttons operate normally as indicated by the printed button name.

9. Menu button (MENU)

This button is used to display the setup menu. Pressing this button for 2 seconds or longer will display the menu on the monitor screen. To return to monitoring, press this button again for 2 seconds or longer.

10. Camera Input Connectors

These connectors input the composite video signal from the cameras.

Note:

If the video signal is interrupted due to a cable disconnection, for example, the message "CHXXLOSS" is displayed and the buzzer beeps. Check that the connections are correct and firm, then input the video signal again or press the SEQUENCE/ALARM RESET button. This stops the buzzer and resets the alarm and the unit to the condition before the video signal was interrupted.

Caution:

The picture may be disturbed when switching non-synchronized camera signals. This can be avoided by synchronizing the camera signals.

11. Camera Output Connectors (CAMERA OUT)

The signals from the input cameras are looped through at these connectors. Connecting a coaxial cable will automatically select high impedance video loop.

12. Playback Input Connector (PLAY IN)

The playback signal from the time lapse VTR is supplied to this connector. This connector works only when MULTIPLEX mode is selected.

13. Recording Output Connector (REC OUT)

This connector supplies the recording signal for the time lapse VTR.

Caution:

In MULTIPLEX mode, the unit adds codes to video signals during vertical blanking while they are recorded on the VTR. This is the reason why video signals with a certain code are not recordable during vertical blanking.

14. Monitor Output Connector (MONITOR OUT)

This connector supplies a composite video signal for monitoring. Sequential picture, time lapse VTR playback pictures and the menus can be displayed on a connected monitor.

15. Camera Switching Signal Input Connector (CAMERA SW IN)

The camera switching signal from the time lapse VTR is supplied to this connector. This connector works only when the MULTIPLEX mode is selected.

Note:

When REC MODE is set to T/L but no camera switching signal is supplied, time lapse recording will not work properly.

16. ALARM/REMOTE Connector

This connector is used for remote controlling. You can control the following functions:

- Alarm Output
- Recover Input
- MULTISCREEN
- SEQ
- Receiving the alarm input signal at the camera site, or the remote input signal for the camera selection buttons.

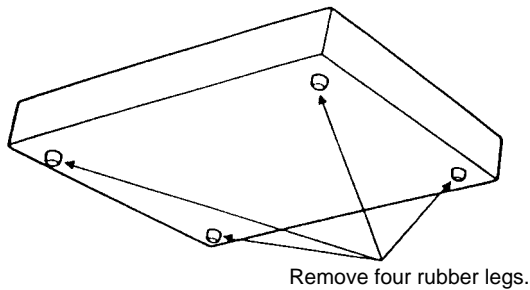
17. Ground Terminal

18. Power Cord

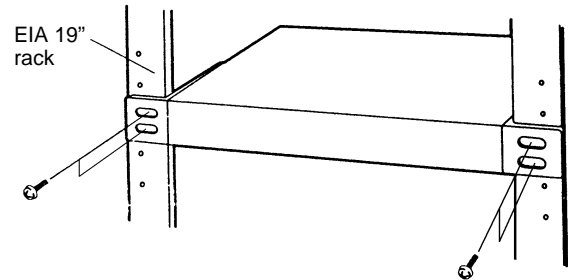
RACK MOUNTING

To install the WJ-FS216 Video Multiplexer in an EIA 19-inch rack, use the rack mounting brackets (provided) and eight screws (provided, M3x10).

1. Turn off the power of the unit.
2. Remove the four screws fixing the rubber legs and remove the four rubber legs from the unit.



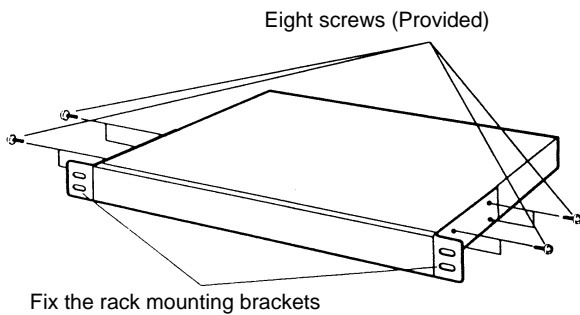
4. Install the unit in the rack with four screws (to be procured locally).



Cautions:

1. Leave one space free both above and below the unit, or install a cooling fan in the rack.
2. If the rack is subject to vibrations, secure the rear of the unit to the rack using additional rack mounting brackets (to be procured locally).

3. Attach the rack mounting brackets on both sides and fix them with eight screws (provided).



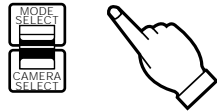
SETTING UP THE MENU

• Before the settings

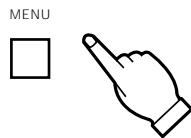
1. Confirm that the cameras and peripherals are connected correctly and firmly.
2. Turn on the power of this unit and connected peripherals.

1. Displaying the Menus

1. Set the MODE SELECT/CAMERA SELECT switch to MODE SELECT position.



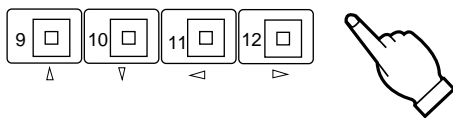
2. Press the MENU button for 2 seconds. MENU 1 OF 3 appears on the monitor.



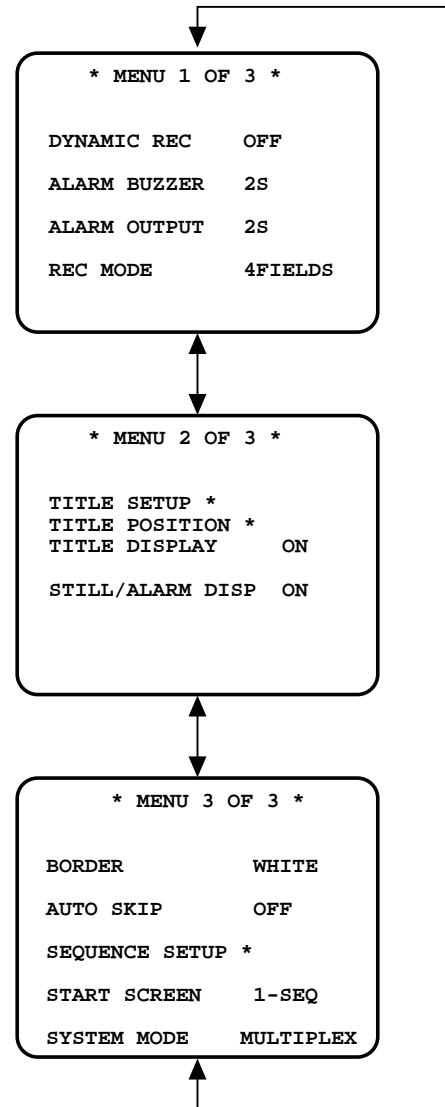
2. Selecting the system mode

This unit can be adapted to specific user needs. Before performing other settings, follow the steps below to select the system mode that best meets your requirements.

1. After displaying MENU 1 OF 3, use buttons 9 - 12 (Δ, ∇, ◀, ▶) to display MENU 3 OF 3. The functions of these buttons in the menu are as follows:



- Button 9 (Δ)
Moves the cursor upward. Pressing this button when the cursor is on the first menu item displays the previous menu.
- Button 10 (∇)
Moves the cursor downward. Pressing this button when the cursor is on the last menu item displays the next menu.
- Button 11 (◀)
Moves the cursor to the left or upward. Pressing this button when the cursor is on the first menu item displays the previous menu.
- Button 12 (▶)
Moves the cursor to the right or downward. Pressing this button when the cursor is on the last menu item displays the next menu.



2. Move the cursor to SYSTEM MODE by pressing button 9 (Δ) or 10 (∇).
3. Select MULTIPLEX or MULTISCR by pressing button 13 (-) or 14 (+).

MULTIPLEX:

Select this mode to monitor the camera pictures or playback pictures.

In MULTIPLEX mode you can perform the following monitoring operations:

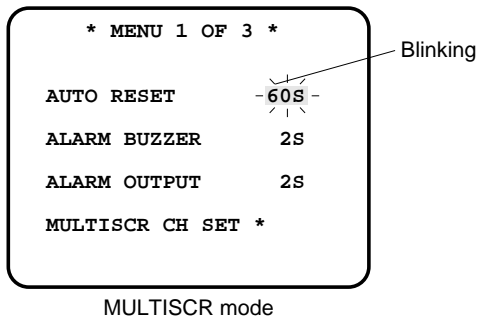
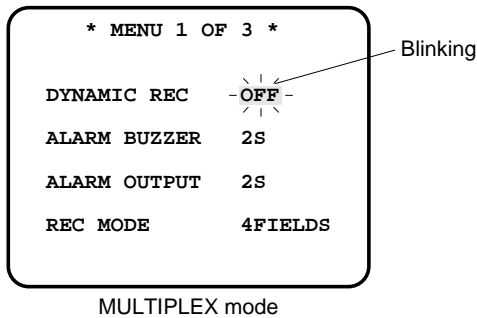
1. Camera picture
 - Single spot picture
 - Single spot picture sequence
2. Playback picture of the time lapse VTR
 - Single spot picture
 - Single spot picture sequence
 - Multi spot picture
 - Quad picture sequence
 - Still single spot picture
 - Still multi spot picture
 - Single spot picture zoom

MULTISCR:

Select this mode to monitor the camera pictures. In MULTISCR mode you can perform the following monitoring operations:

1. Camera picture
 - Single spot picture
 - Multi spot picture
 - Single spot picture sequence
 - Quad picture sequence
 - Still multi spot picture
 - Multi spot picture zoom

The menu content is different depending on the selected mode. (Compare MENU 1 OF 3 for MULTIPLEX and MULTISCR mode below.) This is described in more detail on the following pages.



4. Press the MENU button to return to monitoring.

• How to Operate the Menus

To select the desired item, press buttons 9-12 (Δ , ∇ , \triangleleft , \triangleright). Each time you press a button, the cursor moves to the parameter of the selected item.

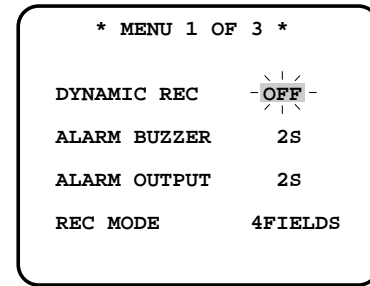
To set or select the desired parameter of the selected item, press button 13 (-) or 14 (+).

Note:

Some items have a submenu (for example, TITLE SETUP in MENU 2 OF 3). To make settings in a submenu, press button 15 (SET).

A. Setting up MENU 1 OF 3 in MULTIPLEX mode

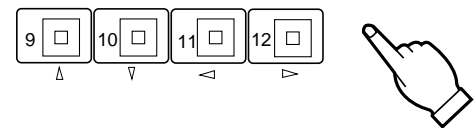
The content of MENU 1 OF 3 in MULTIPLEX mode is as shown below.



1. DYNAMIC REC

When ON is selected for DYNAMIC REC, the camera picture of a channel that receives an alarm signal is recorded with more fields than normal. If the alarm signal is received by multiple channels, the pictures of all these channels are recorded.

1. Move the cursor to the DYNAMIC REC parameter.



2. Select ON or OFF.

ON: The video signal of the channel that receives the alarm signal is recorded with more fields than normal. If the alarm signal is received by multiple channels, the pictures of all these channels are recorded.

OFF: The video at field rate are recorded from channels number 1 to 16 regardless of any channels receiving the alarm signal.

The factory setting is OFF.

- If you do not change any other parameters, press the MENU button for 2 seconds. The setup menu is closed and the display returns to the monitoring picture.

Before turning the power off, make sure to finalize your settings by pressing the MENU button. Otherwise the new settings will not be stored and the previous settings remain in effect. Turn the power off after the monitoring picture appears on the display.

2. ALARM BUZZER

The buzzer beeps when this unit receives the alarm signal. You can adjust the buzzer time between 1 and 60 seconds by changing the ALARM BUZZER parameter.

1. Move the cursor to the ALARM BUZZER parameter.
2. Select the buzzer time.

OFF: The alarm buzzer does not beep when the alarm signal is received.

1-30, 60S: The buzzer keeps on beeping for the duration you set. The letter "S" stands for seconds.

The factory setting is 2S.

* MENU 1 OF 3 *	
DYNAMIC REC	OFF
ALARM BUZZER	2S
ALARM OUTPUT	2S
REC MODE	4FIELDS

3. ALARM OUTPUT

When alarm is received, the alarm signal is supplied to the other device through the ALARM/REMOTE connector. You can adjust the duration the alarm signal is output between 1 and 60 seconds.

1. Move the cursor to the ALARM OUTPUT parameter.

* MENU 1 OF 3 *	
DYNAMIC REC	OFF
ALARM BUZZER	2S
ALARM OUTPUT	2S
REC MODE	4FIELDS

2. Select the duration the alarm signal is output.

1-30, 60S: The alarm signal is output for the duration you set. The letter "S" stands for seconds.

The factory setting is 2S.

4. REC MODE

The recording mode can be set to 4-255 fields or time lapse recording.

1. Move the cursor to the REC MODE parameter.

* MENU 1 OF 3 *	
DYNAMIC REC	OFF
ALARM BUZZER	2S
ALARM OUTPUT	2S
REC MODE	4FIELDS

2. Select the recording mode.

4-255 FIELDS: The output signal to be recorded on the VTR is switched each time after the number of fields you have set.

T/L: The recording output signal is supplied to the VTR for time lapse recording.

The factory setting is 4 FIELDS.

Note:

When T/L is selected and no camera switching signal supplied, there will be no correct time lapse recording. In this case, either supply the camera switching signal or select 4 - 255 fields in REC mode for normal recording.

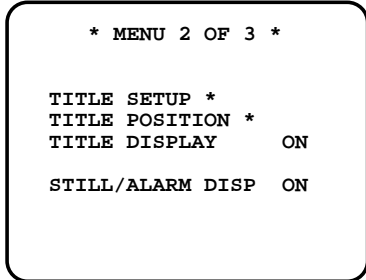
B. Setting up MENU 2 OF 3 in MULTIPLEX mode

The context of MENU 2 OF 3 will not change if the SYSTEM MODE parameter in MENU 3 OF 3 is changed.

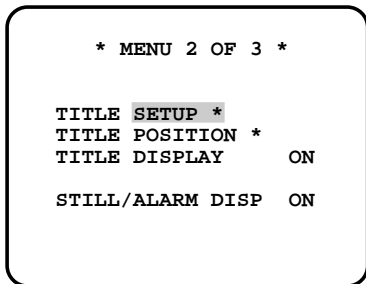
An example is shown below.

1. TITLE SETUP

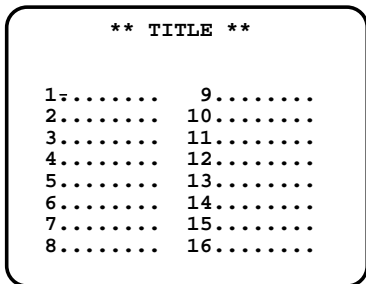
A title consisting of up to 8 alphanumeric characters can be displayed on the monitor.



1. Move the cursor to SETUP in TITLE SETUP.



2. Press button 15 (SET). The TITLE menu appears on the monitor.



3. Move the cursor to the channel number whose title is to be edited by pressing buttons 9-12 (Δ , ∇ , \triangleleft , \triangleright).
4. Select the first character for the title by pressing button 13 (-) or 14 (+). Characters for the title can be selected from the following list:

ABCDEFGHIJKLM
NOPQRSTUVWXYZÄÜÖËÑÅ
0123456789
 $\leftarrow \rightarrow = ? ' " \# \& () * + ,$
 $- . / : ; .$ (space mark)

5. After selecting the first character, press button 12 (\triangleright). Then select the second character.
6. Repeat steps 3 to 5 above to complete the title.
7. Repeat steps 3 to 6 to edit the other channels.
8. Press button 15 (SET) to finalize the character selection. The title is set, and the display returns to MENU 2 OF 3.

To erase a specific character

1. Select a character to be erased.
2. Select "*" (space mark) to erase the character.

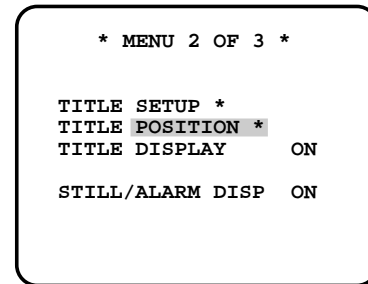
To erase the title of a specific channel

1. Move the cursor to the channel number whose title is to be erased.
2. Press buttons 13 (-) and 14 (+) simultaneously.

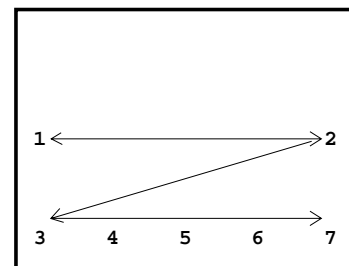
2. TITLE POSITION

You can select the position on the monitor where you want the title to be displayed.

1. Move the cursor to POSITION in TITLE POSITION.



2. Press button 15 (SET). The TITLE POSITION setting is on stand by.



3. Select the position where the title is to be displayed by pressing button 11 (\triangleleft) or 12 (\triangleright). You can select any of the 7 positions shown in the diagram above.
4. Press button 15 (SET) to finalize the title position. The title position is set, and the display returns to MENU 2 OF 3.

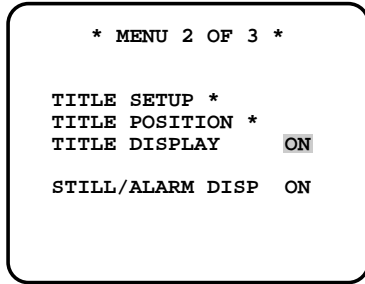
Note:

All channel titles will be displayed in the same position. You cannot specify a different position for each title.

3. TITLE DISPLAY

This parameter lets you decide whether or not to have the title displayed.

1. Move the cursor to the TITLE DISPLAY parameter.



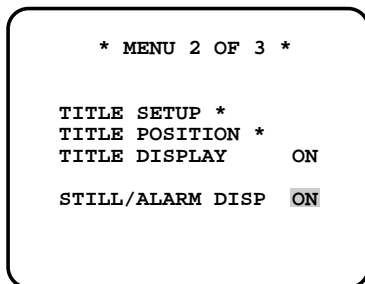
2. Select ON or OFF.
ON: Title display
OFF: No title display

The factory setting is ON.

4. STILL/ALARM DISP

This parameter lets you decide whether or not to have the word "STILL" displayed when a picture is paused by pressing button 16 (STILL ON), or the word "ALARM" when the unit receives the alarm signal.

1. Move the cursor to the STILL/ALARM DISP parameter.

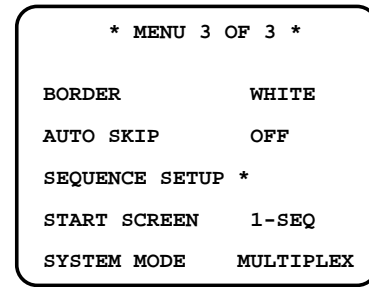


2. Select ON or OFF.
ON: "STILL" and "ALARM" are displayed.
OFF: "STILL" and "ALARM" are not displayed.

The factory setting is ON.

C. Setting up MENU 3 OF 3 in MULTIPLEX mode

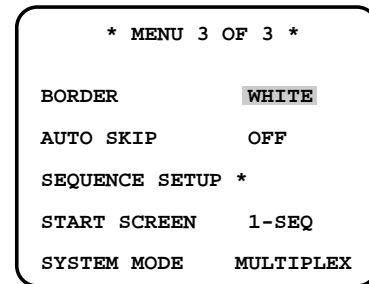
The content of MENU 3 OF 3 in MULTIPLEX mode is as shown below.



1. BORDER

This parameter lets you select the colour of the borders that divide the screen.

1. Move the cursor to the BORDER parameter.



2. Select the colour of the borders.

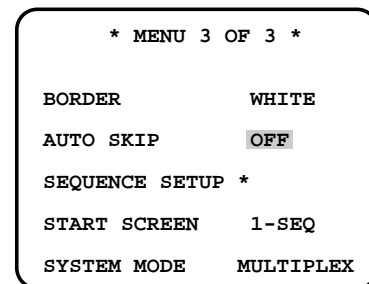
OFF: No borders
BLACK: Black borders
GRAY: Grey (Gray) borders
WHITE: White borders

The factory setting is WHITE.

2. AUTO SKIP

This parameter lets you select automatic skipping of channels to which no camera is connected.

1. Move the cursor to the AUTO SKIP parameter.

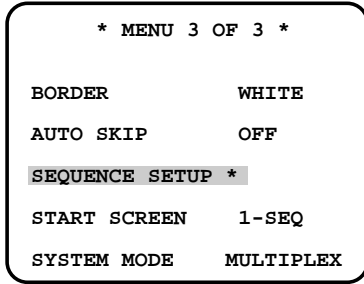


2. Select ON or OFF.
ON: Channels to which no camera is connected are skipped.
OFF: No channels are skipped.
The factory setting is OFF.

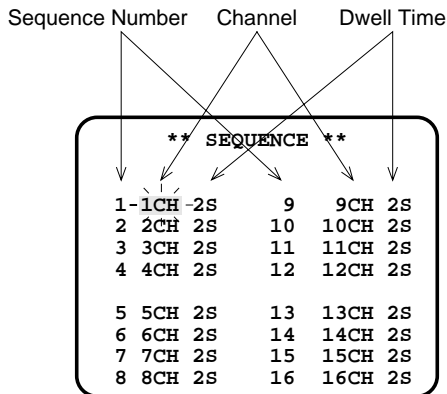
3. SEQUENCE SETUP

This parameter lets you set the sequential order and dwell time for camera switching.

1. Move the cursor to SEQUENCE SETUP.



2. Press button 15 (SET). The SEQUENCE menu appears on the monitor.



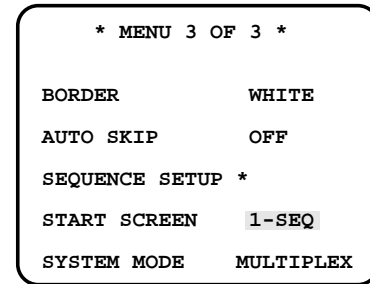
3. Move the cursor to the sequence number by pressing buttons 9-12 (Δ , ∇ , \triangleleft , \triangleright).
4. Select the channel by pressing button 13 (-) or 14 (+).
5. Move the cursor to the dwell time by pressing button 12 (\triangleright).
6. Select the desired dwell time by pressing button 13 (-) or 14 (+).
If you select OFF for the dwell time, the selected channel is automatically skipped.
7. Repeat steps 3 to 6 to determine the sequential order and dwell time.
8. Press button 15 (SET) to finalize the sequential order. The display returns to MENU 3 OF 3.

Note: When monitoring a quad picture, the dwell time indicated for sequence numbers 1-4 refers to that of the four quad pictures.

4. START SCREEN

This parameter lets you select a display pattern for your startup screen. When the power is turned on, the picture is displayed in the selected pattern.

1. Move the cursor to the START SCREEN parameter.



2. Select FULL or 1-SEQ.

FULL: A single picture is displayed.

1-SEQ: A sequence of a single picture is displayed. The factory setting is 1-SEQ.

5. SYSTEM MODE

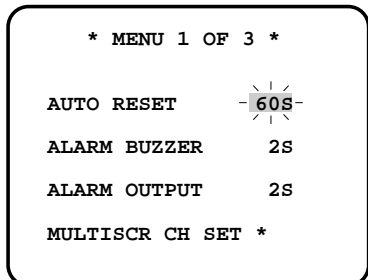
See "Selecting the system mode" on page 6 for settings and procedures.

A. Setting up MENU 1 OF 3 in MULTISCREEN mode

1. AUTO RESET

This parameter lets you set the time until the unit recovers after receiving the alarm signal.

1. Move the cursor to the AUTO RESET parameter.



2. Select the recover time.

OFF: The alarm condition is maintained until the ALARM RESET button on the front panel is pressed or the alarm recover signal from the time lapse VTR is supplied to the ALARM/REMOTE connector.

1-30, 60S: The alarm condition is maintained for the length of the recover time you set. The letter "S" stands for seconds.

The factory setting is 60S.

2. ALARM BUZZER

This item is the same as in MENU 1 OF 3 in the MULTIPLEX mode. See page 9 for the settings and procedures.

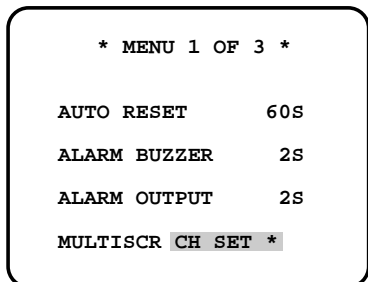
3. ALARM OUTPUT

This item is the same as in MENU 1 OF 3 in the MULTIPLEX mode. See page 9 for the settings and procedures.

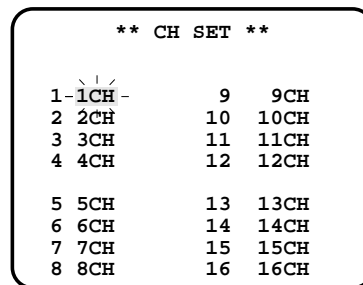
4. MULTISCR CH SET

This parameter lets you assign the channel to be displayed to a specific divided screen.

1. Move the cursor to CH SET in MULTISCR CH SET.



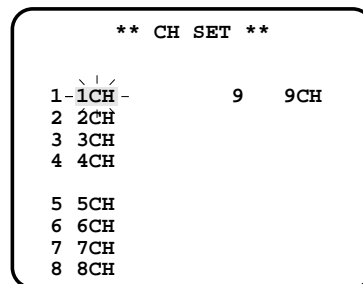
2. Press button 15 (SET). The CH SET menu appears on the monitor.



3. Press button 1 (⊞) or 2 (⊞) to select the CH SET menu for MULTISCREEN.

Button 1: Displays the CH SET menu for quad and 4x4 multiscreen.

Button 2: Displays the CH SET menu for 3x3 multiscreen.



4. Move the cursor to the number of the divided screen by pressing buttons 9-12 (Δ, ∇, ◀, ▶).
5. Select the channel number to be assigned to the selected divided screen by pressing button 13 (-) or 14 (+).
6. Repeat steps 4 and 5 above to assign the other channels to the divided screens.
7. Press button 15 (SET) to finalize channel assignment. The display returns to MENU 1 OF 3.

B. Setting up MENU 2 OF 3 in MULTISCREEN mode

MENU 2 OF 3 in the MULTISCR mode is the same as in the MULTIPLEX mode. See page 10 for the settings and procedures of the MENU 2 OF 3.

C. Setting up MENU 3 OF 3 in MULTISCREEN mode

1. BORDER

This item is the same as in MENU 3 OF 3 in the MULTIPLEX mode. See page 11 for the settings and procedures.

2. AUTO SKIP

This item is the same as in MENU 3 OF 3 in the MULTIPLEX mode. See page 11 for the settings and procedures.

3. SEQUENCE SETUP

This item is the same as in MENU 3 OF 3 in the MULTIPLEX mode. See page 12 for the settings and procedures.

4. START SCREEN

This item is the same as in MENU 3 OF 3 in MULTIPLEX mode, although the parameters are different.

1. Move the cursor to the START SCREEN parameter.
2. Select a display pattern for your startup screen.
 - FULL:** A single spot picture is displayed.
 - QUAD:** Four pictures are displayed on a screen divided into four segments.
 - 3x3:** Nine camera pictures are displayed on a screen divided into nine segments.
 - 4x4:** Sixteen camera pictures are displayed on a screen divided into sixteen segments.
 - 1-SEQ:** A sequence of a single spot picture is displayed.
 - 4-SEQ:** Sequences of pictures from four cameras are displayed on a screen divided into four segments.

5. SYSTEM MODE

See "Selecting the system mode" on page 7 for settings and procedures.

OPERATION

Before starting operation, set up the items in MENU 1-3 OF 3.

Set SYSTEM MODE in MENU 3 OF 3 to MULTIPLEX or MULTISCR depending on your specific needs.

MULTIPLEX Mode

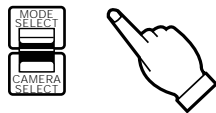
Select this mode to monitor camera pictures or playback pictures.

The operations enabled in MULTIPLEX mode are described below.

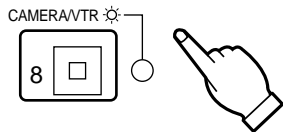
■ Monitoring the Camera Picture

Caution: Set the time lapse VTR to the stop mode or recording mode.

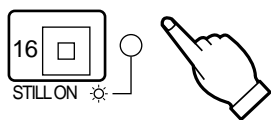
1. Set the MODE SELECT/CAMERA SELECT switch to MODE SELECT.



2. Press button 8 (CAMERA/VTR). The CAMERA / VTR indicator goes off.

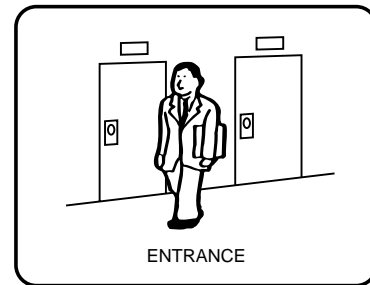


3. Press button 16 (STILL ON). The STILL ON indicator goes off.



A. Single Spot Picture

1. Set the MODE SELECT/CAMERA SELECT switch to CAMERA SELECT.
2. Press one of the camera selection buttons for display on the monitor.
The LED on the selected button lights and the selected camera picture appears on the monitor.

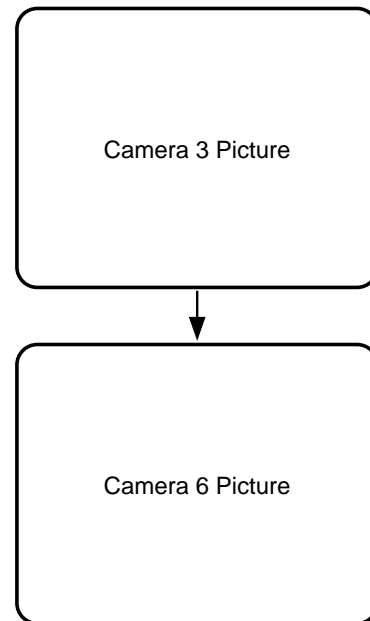


Camera Picture

B. Single Spot Picture Sequences

1. Set the MODE SELECT / CAMERA SELECT switch to CAMERA SELECT.
2. Press the SEQUENCE / ALARM RESET button.
A sequence of single pictures is displayed in the order and dwell time selected for the SEQUENCE SETUP parameter in MENU 3 OF 3.

Example of single spot picture sequence



3. To cancel the sequence, press the desired camera selection button.
The selected camera picture appears in spot on the monitor.

■ Recording on the Time Lapse VTR

Confirm the REC MODE parameter. See page 9 for details.

Note: When T/L is selected but no camera switching signal is supplied, time lapse recording will not work properly. In this case, supply the camera switching signal or set REC MODE to 4-255 FIELDS for normal recording.

■ Monitoring the Playback Picture

Caution:

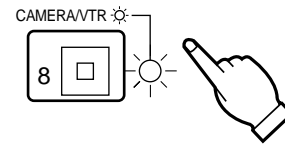
Set the time lapse VTR to the playback mode. Recorded tapes should be played back in NORMAL or TIME LAPSE for the time mode.

Notes:

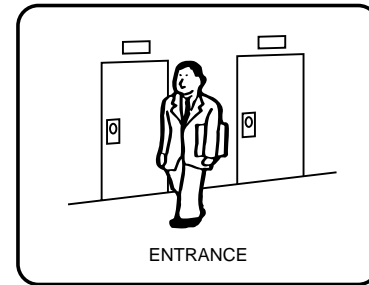
- This unit does not reproduce a clear picture in reverse playback.
- The playback picture may be skewed (horizontally distorted) under certain circumstances, but this does not indicate a malfunction.
- The picture or title may vibrate vertically because they are recorded at field rate, but this does not indicate a malfunction.
- Depending on the condition of the video heads, the picture of a channel other than the selected one may be displayed. If this occurs frequently, adjust the tracking or slow-tracking of the VTR. This usually eliminates the problem.
- The size of pictures displayed in quad format is smaller than in single picture format, which makes the titles hard to read. Select single picture (spot) to make titles easier to read.
- While playing back a tape in forward or reverse search, or a tape that has been recorded in MULTISCR mode, the looped through video may appear on the monitor.
- Playing back in linear mode (L12H, L18H, L24H) may produce noise or the picture of the other channel is reproduced on the monitor in any recording mode of the time lapse VTR. In this case, play back in normal mode (3H) or time lapse mode.

A. Single Spot Picture

1. Operate the VTR in playback mode.
2. Set the MODE SELECT / CAMERA SELECT switch to MODE SELECT.
3. Press button 8 (CAMERA / VTR). The CAMERA / VTR indicator lights.



4. Set the MODE SELECT / CAMERA SELECT switch to CAMERA SELECT.
5. Press one of the camera selection buttons to display the desired playback picture on the monitor. The LED on that button lights up, and the selected playback picture appears on the monitor.

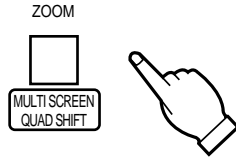


Playback Picture

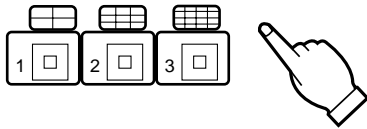
B. Multi Spot Picture

First select a display pattern.

1. Operate the VTR in playback mode.
2. Set the MODE SELECT/CAMERA SELECT switch to MODE SELECT.
3. Press button 8 (CAMERA/VTR).
The CAMERA/VTR indicator lights.
4. Set the MODE SELECT/CAMERA SELECT switch to CAMERA SELECT.
5. Press the ZOOM/MULTISCREEN/QUAD SHIFT button. The multi spot playback picture appears on the monitor screen.



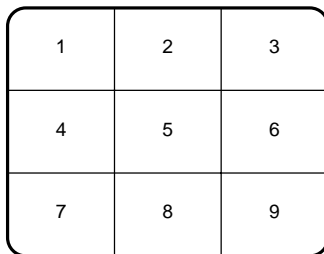
6. Set the MODE SELECT/CAMERA SELECT switch to MODE SELECT.
7. Press button 1 (2x2 grid icon), 2 (3x3 grid icon), or 3 (4x4 grid icon) to select multiscreen pattern (quad, 3x3, or 4x4).



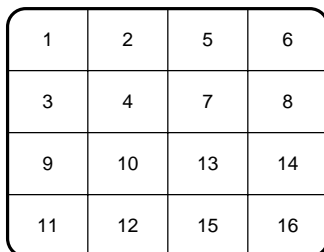
Note: The channel assignment is as shown in the following diagrams.



Quad



3 x 3



4 x 4

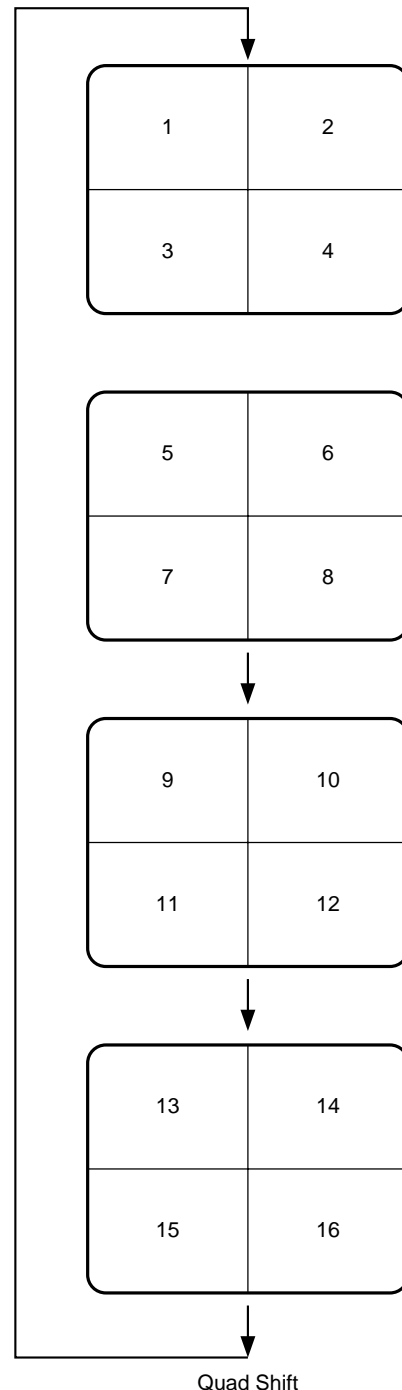
The LEDs on the camera selection buttons light to indicate the channels now displayed on the monitor screen.

• Quad Shift

When you monitor the quad picture while the MODE SELECT/CAMERA SELECT switch is set to CAMERA SELECT, the quad picture will be switched to another quad picture by pressing the ZOOM/MULTISCREEN/QUAD SHIFT button.

Note:

The quad picture is skipped to another quad picture if there is no picture in the next quad picture.



C. Single Spot or Quad Playback Picture Sequences

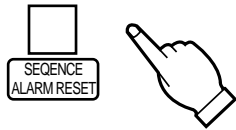
1. Repeat procedures A (Single Spot Picture) to monitor a single spot playback picture or procedures B (Multi Spot Picture) to monitor quad playback pictures.

Note: To monitor quad multi spot pictures, press button 1 (☐). Sequential 3x3 and 4x4 playback pictures are not available.

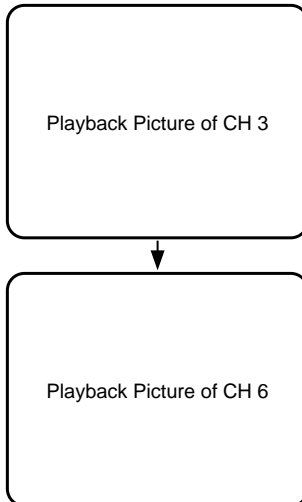
2. Press the SEQUENCE/ALARM RESET button for sequential display of playback pictures.

Note: Sequential pictures appear in the last selected mode.

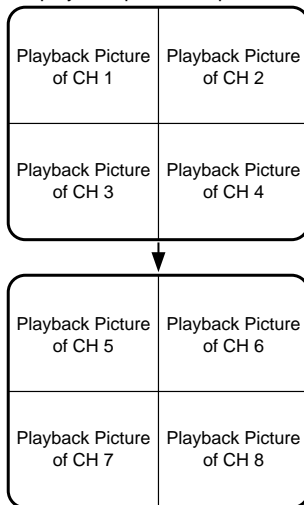
Sequential single spot pictures are displayed on a single picture screen, and sequential quad pictures on a quad screen.



Example of single spot playback picture sequence



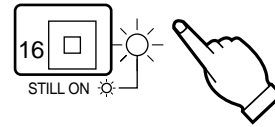
Example of quad playback picture sequence



3. To cancel sequential picture display, press the desired camera selection button. The selected playback picture appears on the single picture screen of the monitor.

D. Still Playback Picture

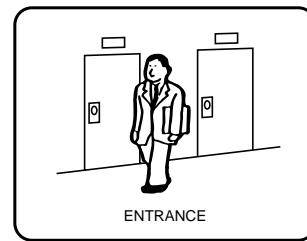
1. Repeat procedures A (Single Spot Picture) or procedures B (Multi Spot Picture) to monitor playback pictures.
2. Set the MODE SELECT/CAMERA SELECT switch to MODE SELECT.
3. Press button 16 (STILL ON). The STILL ON indicator lights.



4. Set the MODE SELECT/CAMERA SELECT switch to CAMERA SELECT.
5. Press one of the camera selection buttons whose indicator is lit.

The LED on the pressed button starts blinking, and the picture corresponding to that button appears still on the monitor.

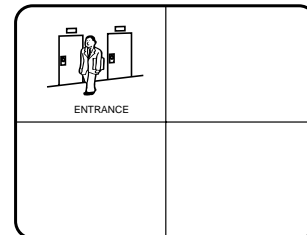
The word STILL appears blinking on the monitor screen.



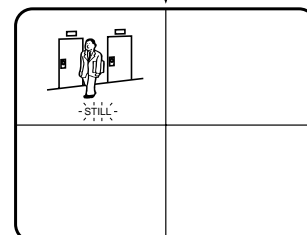
Normal Playback Picture



Still Picture (The word "STILL" blinks)



Normal Playback Picture



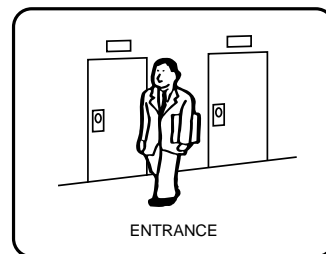
Still Picture (The word "STILL" blinks)

Note: Two or more pictures on the monitor can be selected in multi picture mode.

- Press the camera selection button whose indicator is blinking.
The selected picture is displayed again for normal monitoring.
- To release STILL ON mode, set the MODE SELECT/CAMERA SELECT switch to MODE SELECT, then press button 16 (STILL ON).
The STILL ON indicator goes out.

Notes:

- If you press the camera selection button for a camera whose picture is not displayed on the monitor screen, the operation is ignored.
- The word "STILL" is not displayed if STILL/ALARM DISP in MENU 2 OF 3 is set to OFF.
- While the still picture is displayed, the VTR keeps playing the playback picture.



Normal Playback Picture



Playback Picture with the "+" sign



Zoomed Playback Picture

E. Single Spot Picture Zoom

The following function is available in single spot picture mode only.

- Repeat procedures A (Single Spot Picture) to monitor the playback picture.
- Set the MODE SELECT/CAMERA SELECT switch to CAMERA SELECT.
- Press the ZOOM/MULTISCREEN/QUAD SHIFT button.
The "+" sign appears in the picture.
Note: The "+" sign disappears if no operation is performed within approx. 5 seconds.
- Press button 14 (+) to zoom in, or button 13 (-) to zoom out.

Notes:

- Each time button 14 (+) is pressed, the picture is zoomed in. Zooming stops when it reaches the maximum level.
 - The picture cannot be zoomed out to be smaller than the original size by pressing button 13 (-).
- To move the picture, press buttons 9 - 12 (Δ , ∇ , \triangleleft , \triangleright). The zoomed picture will move up, down, left, or right depending on the button pressed. The picture will stop at the edge of the monitor screen.

Notes:

- In monitoring single spot playback pictures, only one zoom level is available.
- The title in the picture disappears when the ZOOM/MULTISCREEN/QUAD SHIFT button is pressed. The title remains off the screen even after the "+" sign disappears.
To call the title back on the screen, quit the zoom function and operate another function.

MULTISCR Mode

Select this mode to monitor the camera pictures. Selection of MULTISCR mode permits the following operations.

Monitoring the camera picture

A. Single Spot Picture

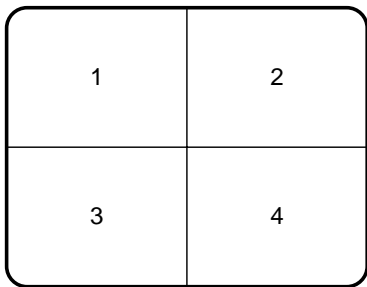
Proceed as described in "Monitoring the Camera Picture, A. Single Spot Picture" on page 15.

B. Multi Spot Picture

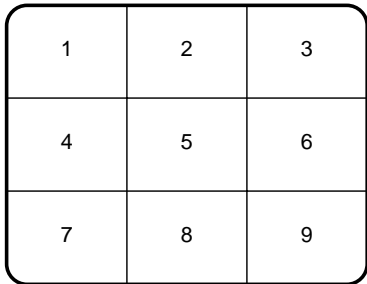
1. Set the MODE SELECT/CAMERA SELECT switch to CAMERA SELECT.
2. Press the ZOOM/MULTISCREEN/QUAD SHIFT button. The multiscreen appears on the monitor.
3. Set the MODE SELECT/CAMERA SELECT switch to MODE SELECT.
4. Press button 1 (⊞), 2 (⊞⊞), or 3 (⊞⊞⊞) to select multiscreen pattern (quad, 3x3, or 4x4).

Notes:

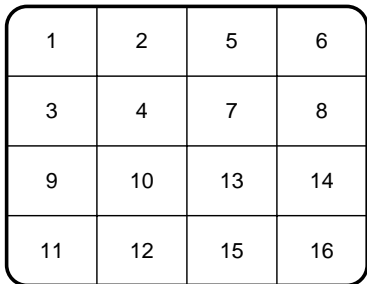
- Some frames are skipped as the picture segments are displayed.
- Multi spot pictures being monitored may sometimes vibrate vertically, but this does not indicate a malfunction.
- Quad shift is available by pressing the ZOOM/MULTISCREEN/QUAD SHIFT button. Refer to page 17 for more details.



Quad



3 x 3



4 x 4

C. Single Spot or Quad Picture Sequences

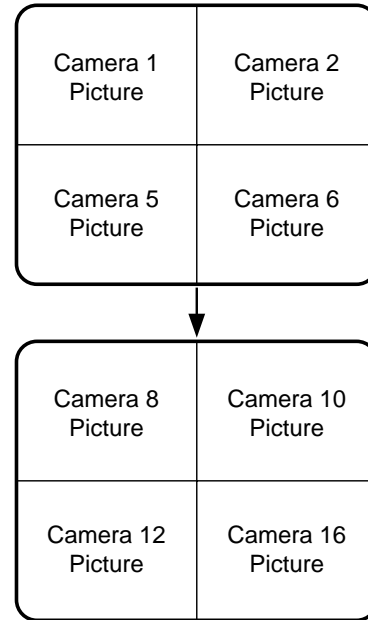
You can monitor sequential spot pictures or quad pictures. First select a display pattern.

To monitor sequential single spot pictures, take the same steps as described in procedures B for "Single Spot Picture Sequences of Monitoring Camera Pictures" on page 15.

To monitor sequential quad pictures, proceed as described in the following procedures.

1. Take steps 1 to 3 of Procedures B for Multi Spot Pictures.
2. Press button 1 (⊞) to select quad pictures.
3. Press the SEQUENCE/ALARM RESET button. The quad pictures appear sequentially in the order of dwell times set in the SEQUENCE SETUP in MENU 3 OF 3.

Example of quad picture sequence

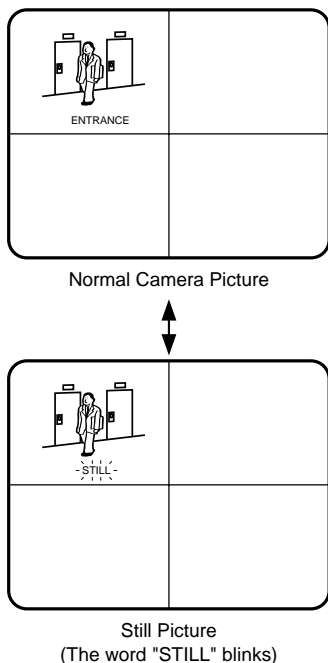


4. To cancel sequential picture display, press the desired camera selection button. The selected camera picture appears on the single picture screen of the monitor.

D. Still Multi Spot Picture

The following function is available in multi spot picture mode only.

1. Set the MODE SELECT/CAMERA SELECT switch to MODE SELECT.
2. Press the (STILL ON) button 16. The STILL ON indicator lights.
3. Set the MODE SELECT/CAMERA SELECT to CAMERA SELECT.
4. Press one of the camera selection buttons whose indicator is lit.
The LED on the pressed button starts blinking and the picture corresponding to that button appears still on the monitor.
The word STILL appears blinking on the monitor screen.
5. Press the camera selection button whose indicator is blinking.
The selected picture is displayed again for normal monitoring.
6. To release STILL ON mode, set the MODE SELECT/CAMERA SELECT switch to MODE SELECT, then press button 16 (STILL ON).
The STILL ON indicator goes out.



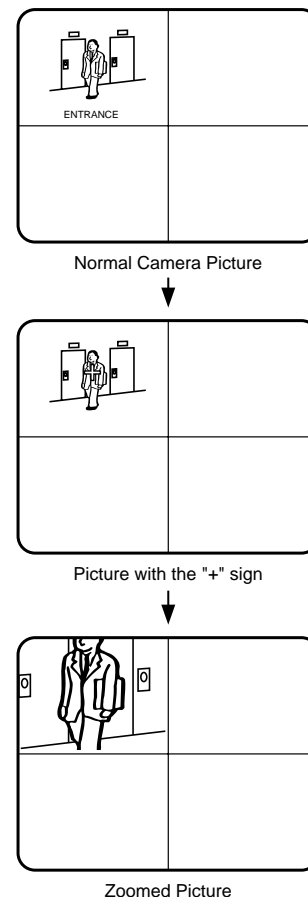
Notes:

- If you press the camera selection button for a camera whose picture is not displayed on the monitor screen, the operation is ignored.
- The word "STILL" is not displayed if STILL/ALARM DISP in MENU 2 OF 3 is set to OFF.

E. Zoomed Multi Spot Picture

The following function is available in multi spot picture mode only.

1. Set the MODE SELECT/CAMERA SELECT switch to MODE SELECT.
2. Press the ZOOM/MULTISCREEN/QUAD SHIFT button. The "+" sign appears in the picture.
Note: The "+" sign disappears if no operation takes place within approx. 5 seconds.
3. Move the "+" sign to the picture you want to zoom by pressing buttons 9-12 (Δ , ∇ , \triangleleft , \triangleright).
4. Press button 14 (+) to zoom in. To zoom out, press button 13 (-).
Notes:
 - Each time button 14 (+) is pressed, the picture is zoomed in. Zooming stops when it reaches the maximum level.
 - The picture cannot be zoomed out to be smaller than the original size by pressing button 13 (-).
5. To move the picture, press buttons 9 - 12 (Δ , ∇ , \triangleleft , \triangleright). The zoomed picture will move up, down, left, or right depending on the button pressed. The picture will stop at the edge of the monitor screen.

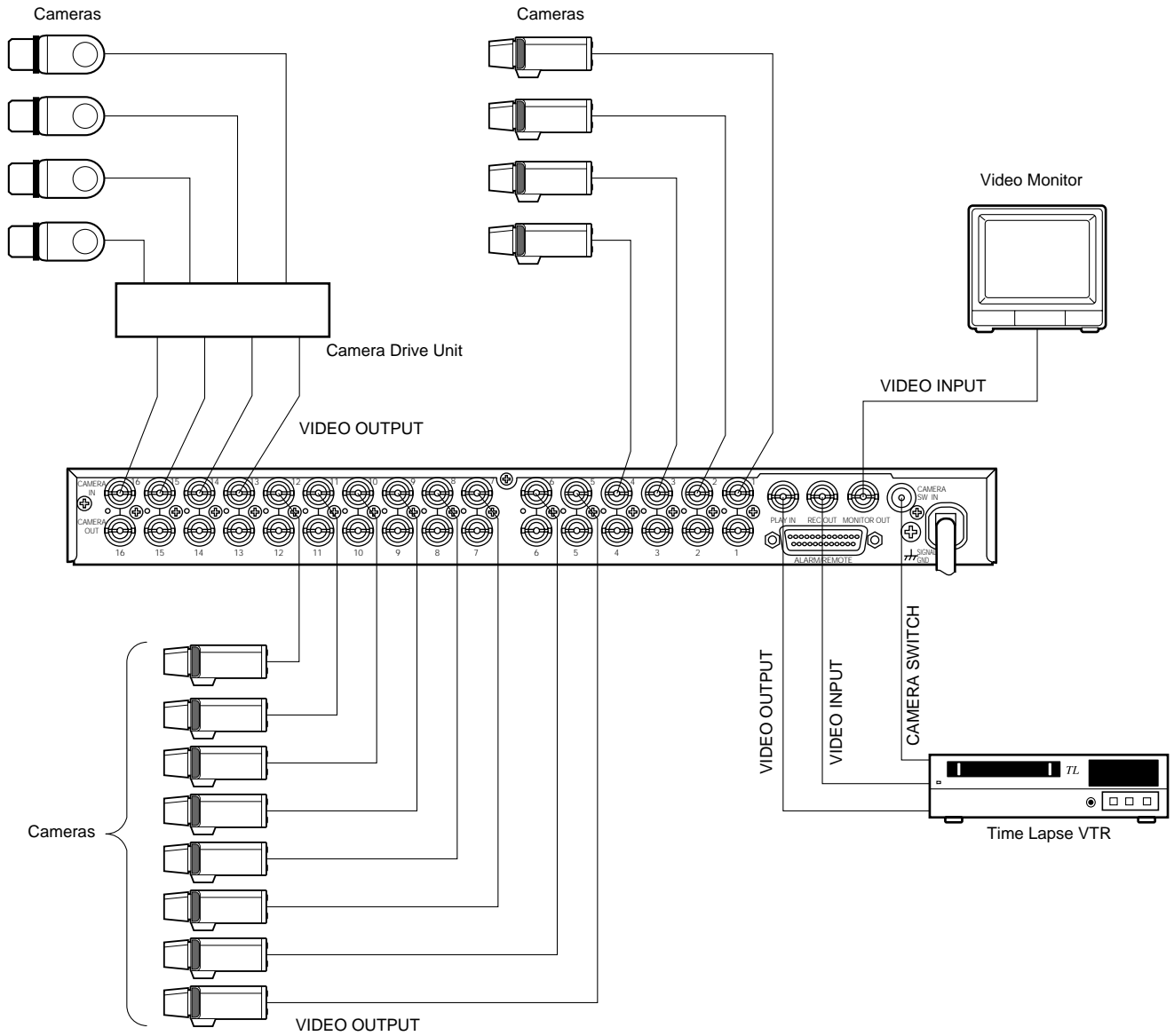


Notes:

- When you change the multiscreen pattern (for example, quad to 3x3), the size of the zoomed picture is not the same even if the picture is from the same channel.
- The title in the picture disappears when the ZOOM/MULTISCREEN/QUAD SHIFT button is pressed. The title remains off the screen even after the "+" sign disappears.
To call the title back on the screen, quit the zoom function and operate another function.

CONNECTION

■ Refer to the operating instructions of each system component for connection and operation.



Note: The WV-80 cannot be used in this system.

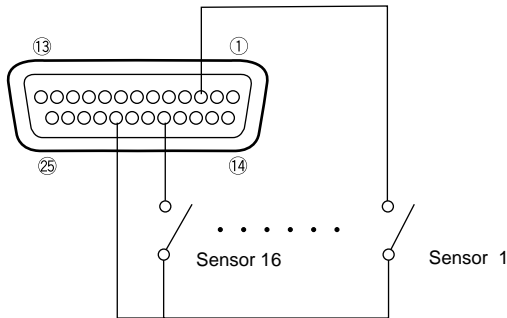
• **Connection with the Alarm Sensor**

You can connect an alarm sensor to record the pictures of channels that receive alarm input signal.

Use an alarm sensor that meets the following conditions:

1. The power capacity must be less than 5 V DC (open collector output or normally open contact).
2. The voltage between the alarm connector and the ground terminal must be 0-0.8 V when contact is made.

Connect the sensor switch and the alarm input connector.



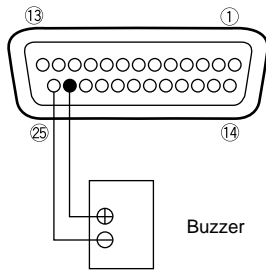
Note:

Leave connector pin 23 blank.

• **Connection with the Alarm Output Connector**

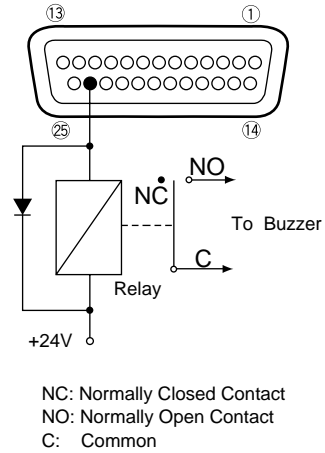
Power capacity of alarm output connector less than 100 mA:

- Make sure to match the polarity when connecting the buzzer to the alarm output connector.
- Connect the positive pole (+) of the buzzer to pin 24 of the alarm output connector.



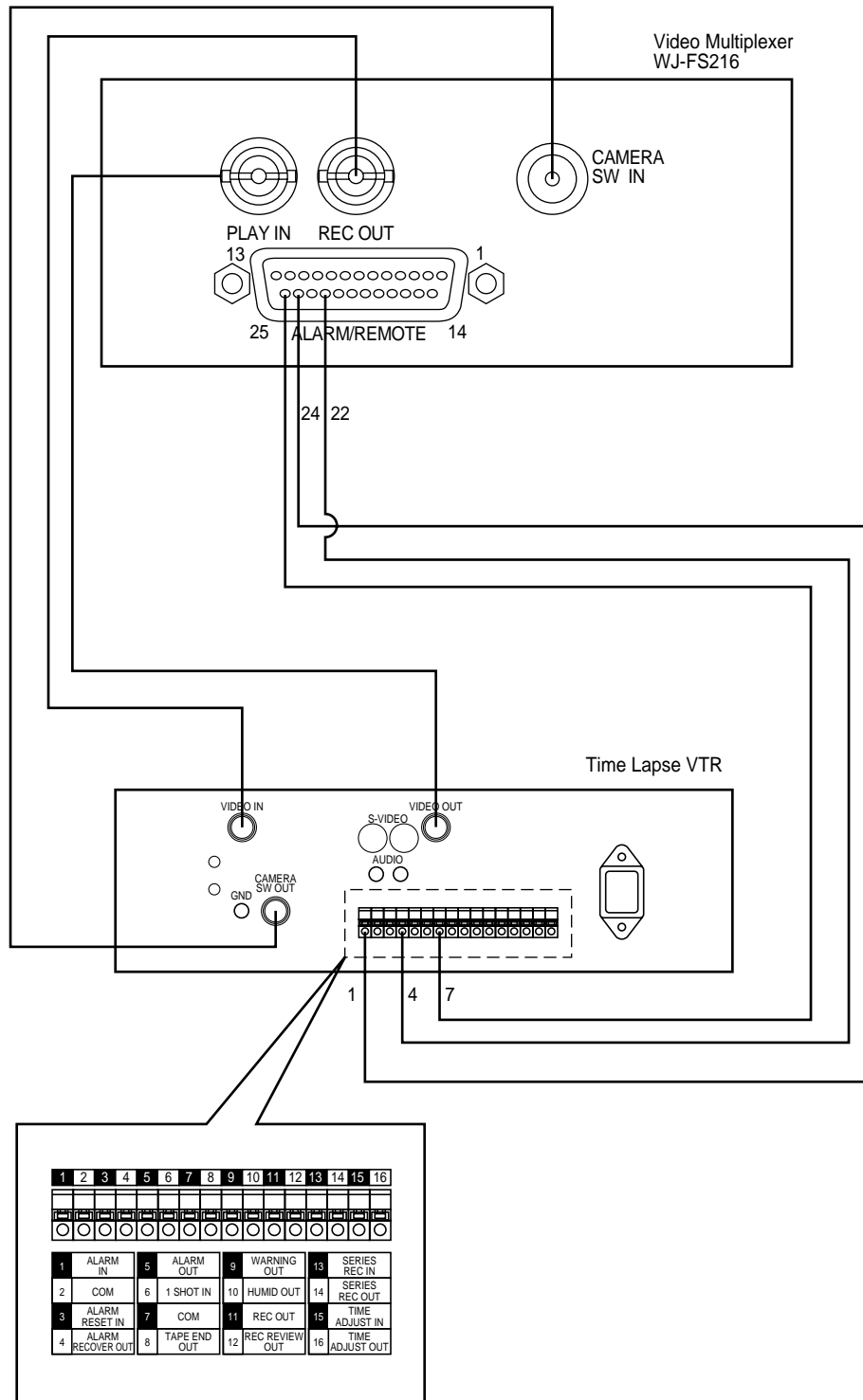
Power capacity of alarm output connector more than 100 mA:

- Connect the buzzer through a relay circuit to pin 24 of the alarm output connector. Do not connect it directly.



■ Connection with the Time Lapse VTR

Connect the time lapse VTR as shown in the example below.



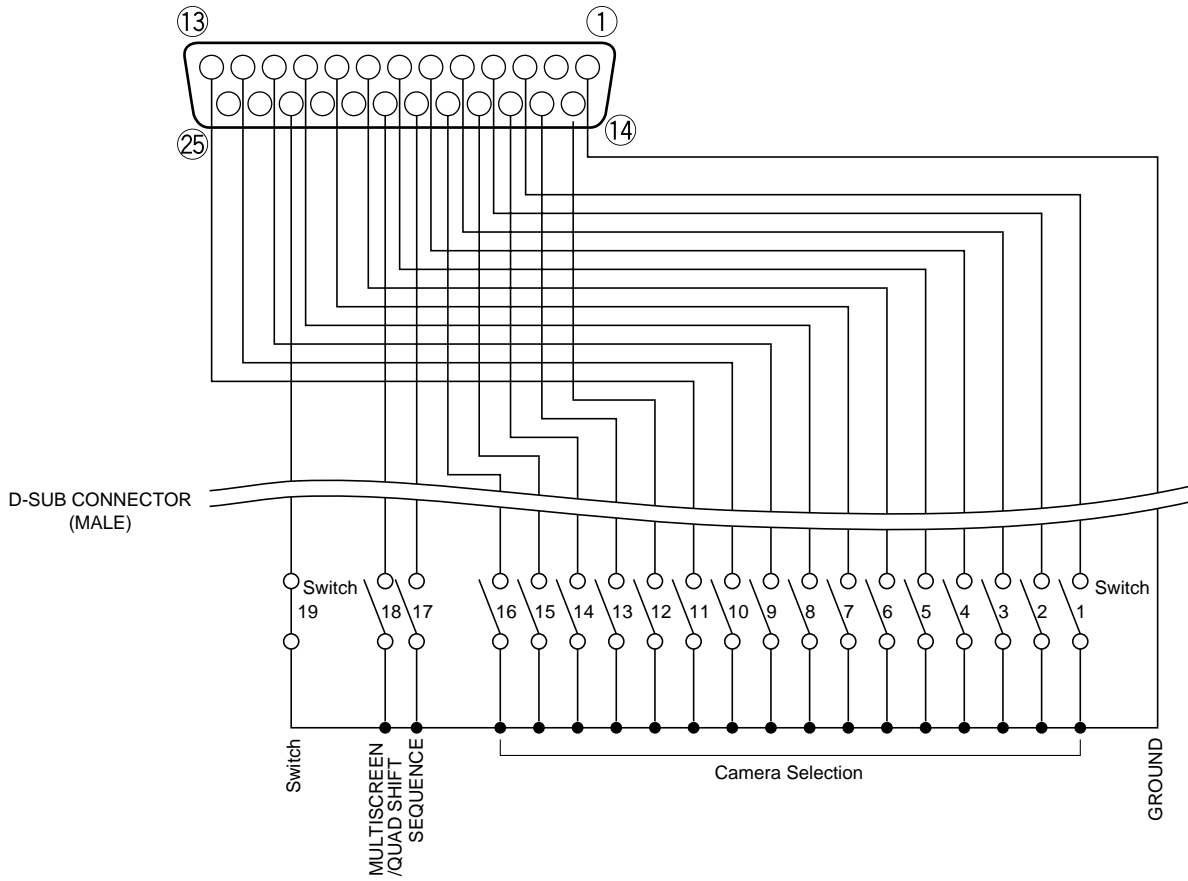
• **Remote Control**

You can control the SEQUENCE, MULTISCREEN/QUAD SHIFT, and the camera selection buttons from a remote controller. These functions are activated by contact with the ground terminal (open collector output or normally open contact).

- Connect the ALARM/REMOTE connector (pin 23) to the ground terminal as shown below. Switches 1 - 16 select the cameras (they do not control the alarm input).

Notes:

- Any two or more switches closed at the same time will cause this unit to malfunction.
- SEQUENCE is assigned to switch 17 and MULTISCREEN/QUAD SHIFT to switch 18.
- When no operation is taking place, all switches except switch 19 must be open as shown below.



SPECIFICATIONS

Power Source:	220 - 240 V AC 50 Hz
Power Consumption:	12 W
Camera Input:	16 (BNC) 2:1 interlaced VBS 1.0V[p-p]/75 Ω automatic termination/looping through
Playback Input:	1 (BNC) VBS 1.0V[p-p]/75 Ω
Monitor Output:	1 (BNC) VBS 1.0V[p-p]/75 Ω
Recording Output:	1 (BNC) VBS 1.0V[p-p]/75 Ω
Camera Switching Input:	1 RCA pin jack
Alarm Input:	16
Alarm Output:	1 Open-collector 24V DC 100 mA max.
Alarm Recover Input:	1
Operating Temperature:	-10°C - +50°C (14°F - 122°F)
Operating Humidity:	Less than 90%
Dimensions:	420 (W) x 44 (H) x 350 (D) [16-9"(W) x 3-7/16(H) x 13-3/4"(D)]
Weight:	4 kg (8.8 lbs)

Dimensions and weight are approximate.
Specifications are subject to change without notice.

STANDARD ACCESSORIES

Rack Mounting Angle	2 pcs.
Screws (M3 x 10)	8 pcs.
Switch Protector	1 pc.

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