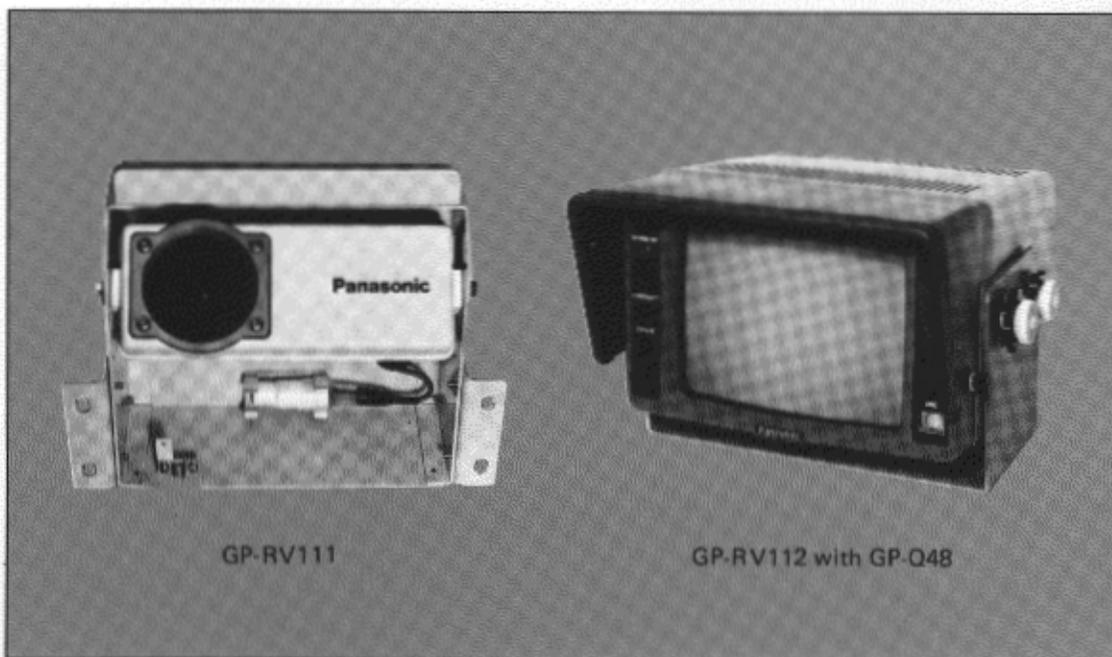


Operating Instructions

Rearview TV System
GP-RV110



GP-RV111

GP-RV112 with GP-Q48

Panasonic

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

PREFACE

The Panasonic rearview TV System GP-RV110 consisting of rearview camera GP-RV111 and driver's monitor GP-RV112, significantly reduces dangerous blind spots.

The rearview camera and driver's monitor have been developed exclusively for large trucks, buses and other commercial vehicles.

FEATURES

o Rearview Camera GP-RV111

1. 1/2" Interline Transfer CCD Image Sensor with 422(H) x 489(V) pixels.
2. 300 lines of horizontal resolution.
3. 0.5 footcandles (5 lux) of minimum illumination.
4. 40 dB of signal to noise ratio.
5. Wide rearview field of vision by newly developed wide angle lens $f = 3.0\text{mm}$, F1.4.
6. High resistance to image burning.
7. Long life
8. High resistance to effects of shock and vibration
9. Single coaxial cable connection enables easy installation.

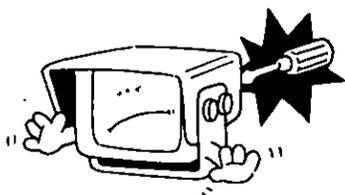
o Driver's Monitor GP-RV112

1. Easy-to-see Screen :
7" flat, square and non-glare screen
2. Automatic Brightness Control (ABC) to compensate for ambient light.
3. Remote STANDBY/ON control by reverse position signal
4. Manual STANDBY/ON mode selection
5. Compact designed 7" B/W monitor enables to fit almost anywhere.

PRECAUTIONS

1. Do not attempt to disassemble the camera and monitor.

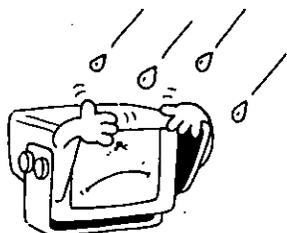
To prevent electric shock, do not remove screws or cover. There are no user-serviceable parts inside. Refer servicing to qualified service personnel.



2. Do not expose the monitor to rain or moisture, and avoid operation in wet areas.

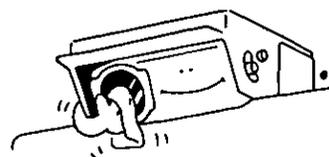
Take immediate action if the monitor should become wet. Set the ignition to the LOCK position or pull the ignition key out and request servicing from qualified service personnel.

Moisture can damage the monitor and create the danger of electric shock.



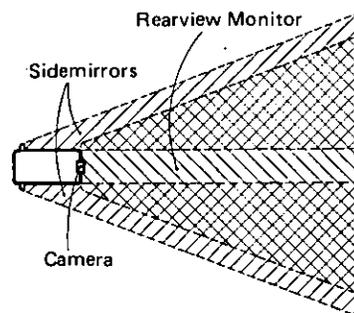
3. Keep the face of the camera lens glass clean.

Whenever cleaning the car body, clean the lens glass of the camera using a mild dry cloth. In case the dirt is hard to remove, use mild detergent and wipe gently.

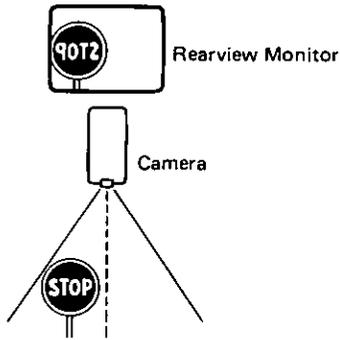


4. Use both the sidemirrors and driver's monitor when backing the car.

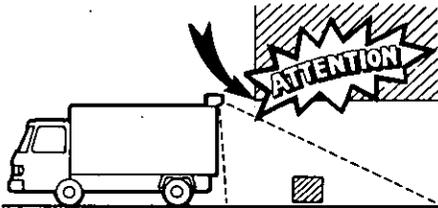
Avoid use only the driver's monitor to confirm the back of car since the view range of the driver's monitor is limited.



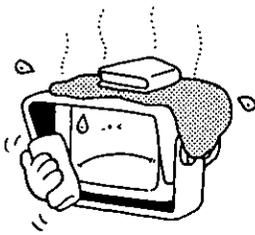
5. Note that the left and right of image on the monitor is reversed as well as that of the rearview mirror.



6. Pay attention to the obstacle located at the same height of the rearview camera since it is out of the view range of the rearview camera.

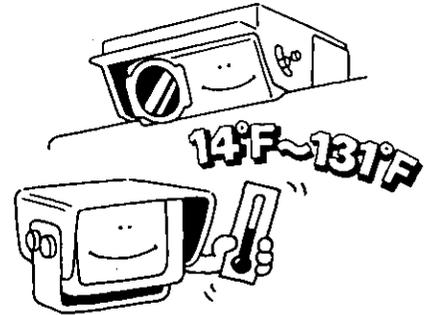


7. Do not block the ventilation slits on the monitor. Install the monitor paying attention to the ventilation space for the monitor.



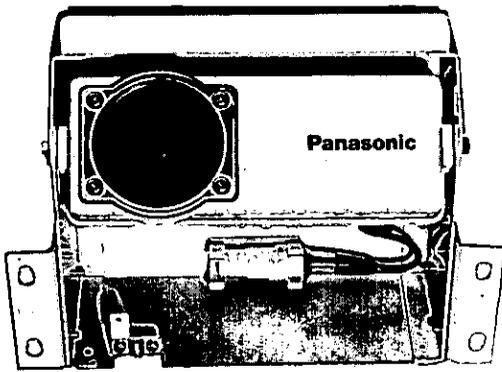
8. Do not use the camera and monitor beyond its temperature, humidity or power source ratings. The camera is designed for outdoor use and the monitor is designed for indoor use.

- The ambient temperature must not range beyond 14°F - 131°F (-10°C - +55°C) for the camera and monitor.
- Avoid using the monitor when the humidity is above 90%.
- The input power source for the monitor must be.

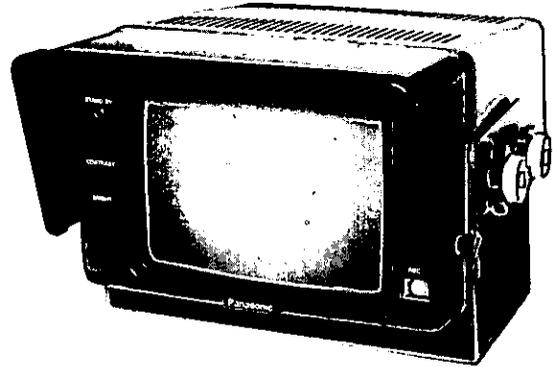


PRODUCT LINE-UP

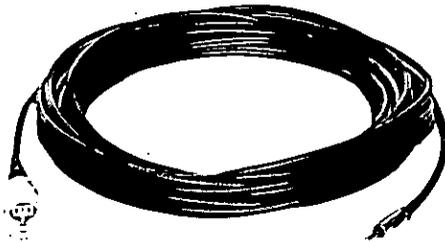
GP-RV110 — Rearview Camera GP-RV111
 Driver's Monitor GP-RV112



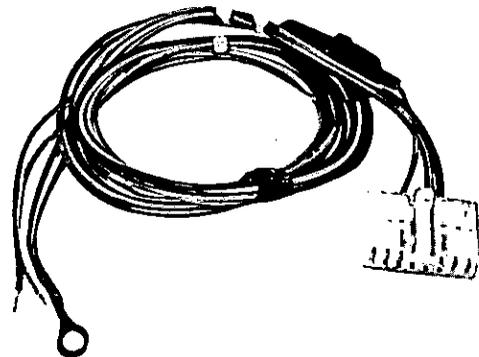
GP-RV111



GP-RV112 with GP-Q48 (Hood, Sold separately)



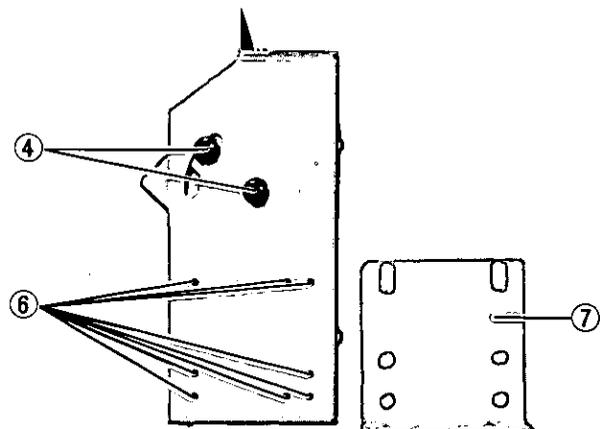
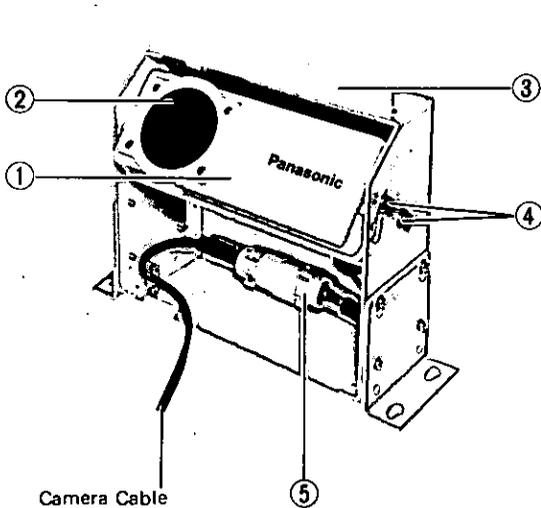
Camera Cable (Sold Separately)
 GP-CA40 (33 ft)
 GP-CA41 (66 ft)



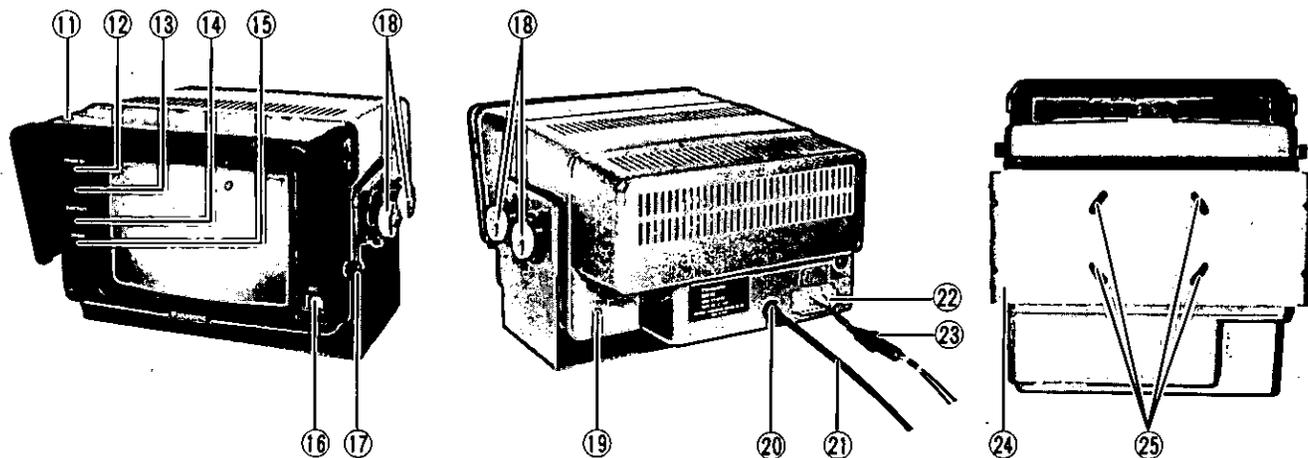
Remote Cable for Monitor
 (Standard Accessory of GP-RV112)

MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS

■ Rearview Camera



■ **Driver's Monitor**



■ **Rearview Camera**

1. **Camera Unit**

The 1/2" B/W CCD camera is inside.

Caution : Even though the camera unit is installed in the water-proof housing, do not spray the water jet directly to the camera unit at cleaning.

2. **Lens**

This auto iris wide angle lens is inside.

The focal length is 3.0 mm and Angular of view is 100° in horizontal and 83° in vertical.

Note : Keep the lens glass always clean.

3. **Sun Shield**

4. **Camera Angle Adjusting Screws**

These 4 screws are used to secure the camera unit. By changing the fixing position of these screws, the view angle of the camera can be changed approx. 45°.

5. **Camera Cable Connector**

This connector is a drip-proof type connector and is used to connect the optional camera cable.

Caution : Whenever disconnecting this connector for maintenance, turn the ignition to the LOCK position to turn off the power.

6. **Screw Holes for Camera Fixing Plates**

These threaded holes are used to fix the camera fixing plate.

7. **Camera Fixing Plate**

■ **Driver's Monitor**

11. **Monitor Hood**

12. **Mode Indicator (STANDBY)**

This indicator shows the operation mode as follows.

STANDBY : The indicator will be lit up to green.

ON : The indicator will be lit up to amber.

13. **Mode Selection Switch**

This switch is a push-push type and is used to select the operation mode as follows.

STANDBY : The heater of CRT on the monitor is preheated and all other circuits including the rearview camera are shut off.

ON : The rearview picture will be displayed on the monitor.

14. **Contrast Control (CONTRAST)**

This control is used to adjust the contrast of the picture on the monitor.

15. **Brightness Control (BRIGHT)**

This control is used to adjust the brightness of the picture on the monitor.

16. **Auto Brightness Control Sensor (ABC)**

This sensor detects the ambient luminance to compensate the brightness as follows.

Ambient luminance	Brightness compensation
More than 0.5 footcandles	No compensation
Less than 0.5 footcandles	Reduce it approx. 20%

INSTALLATION

17. Monitor Hood Fixing Screws

These 2 screws are used to secure the monitor hood.

18. Monitor Fixing Screws

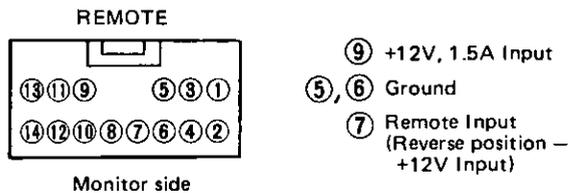
These 4 screws are used to secure the monitor. The tilt of the monitor can be changed approx. 30° by loosening these screws.

19. Focus Control (FOCUS)

This control is used to adjust the focus of the monitor.

20. Camera Cable Connector (CAMERA)

This connector is used to connect the optional Camera Cable GP-CA40 (33 ft) or GP-CA41 (66 ft).



21. Camera Cable (Sold Separately)

22. Power Source and Remote Connector (REMOTE)

This 14-pin connector is used to connect the supplied power and Remote Cable.

23. Fuse Holder

Caution: When replacing the fuse, use only specified one.
 (3 Amp. Part No. YWTSC3A)

24. Monitor Fixing Plate

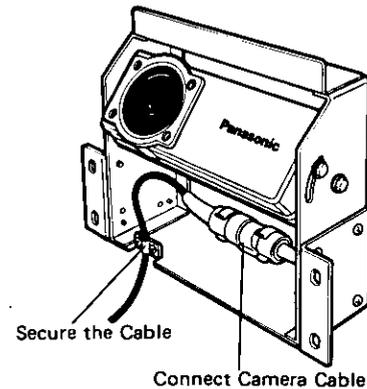
This is used to install the monitor to the car.

25. Fixing Holes

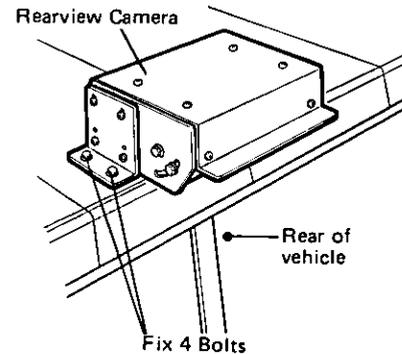
These 4 holes are used to fix the monitor fixing plate to the car.

■ Mounting the Camera onto the Top of Rear-end Roof

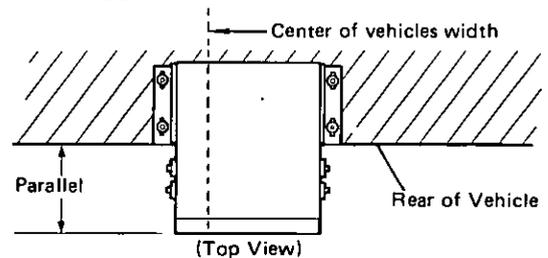
1. Connect the camera cable to the camera cable connector and secure the cable as shown below.



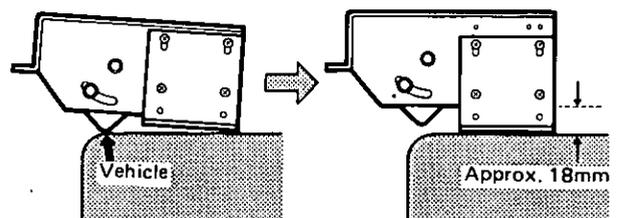
2. Secure the camera onto the rear-end of the roof using 4 bolts (prepared locally (6mmφ bolt)).



Note: Secure the camera so that the camera positions in parallel with the rear-end line of vehicle.

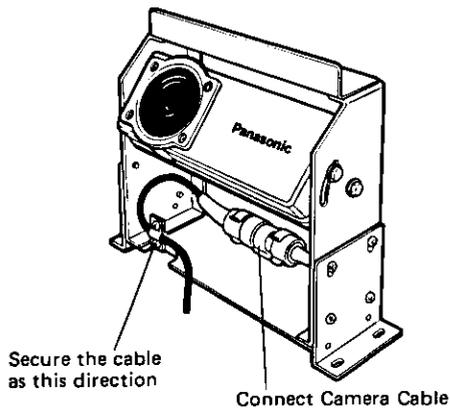


Caution: In case the camera touches to the roof of vehicle, slide the camera fixing plate as shown below.

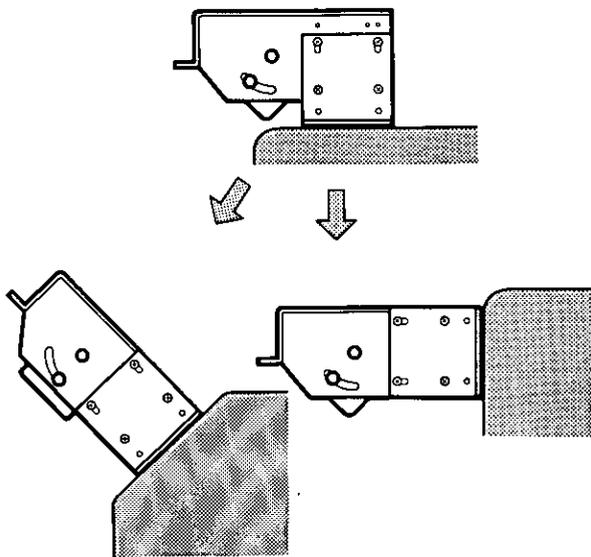


■ **Mounting the Camera on the Top of Rear Panel (Plate)**

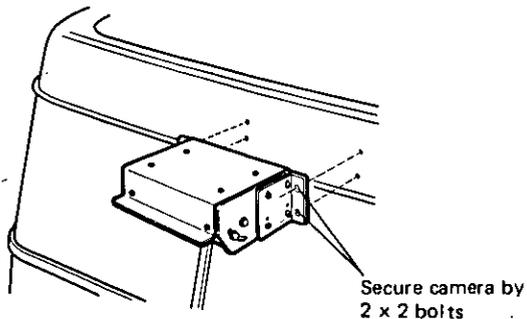
1. Connect the camera cable to the camera cable connector and secure the cable as shown below.



2. Change the direction of the camera fixing plate as follows.

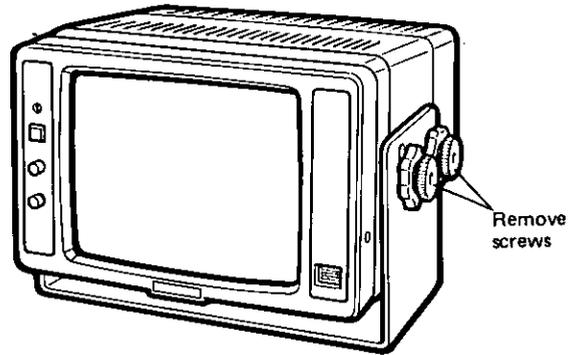


3. Secure the camera onto the rear panel of the vehicle.

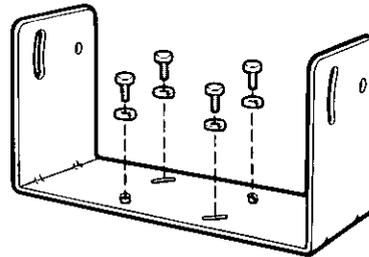


■ **Driver's Monitor Installation**

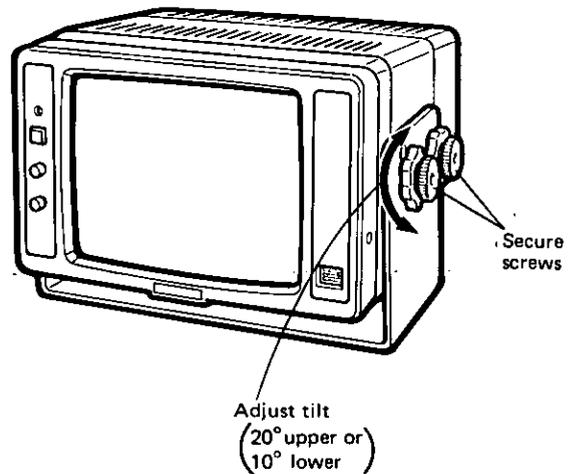
1. Remove 4 monitor fixing screws which hold the monitor fixing plate and remove the monitor fixing plate.



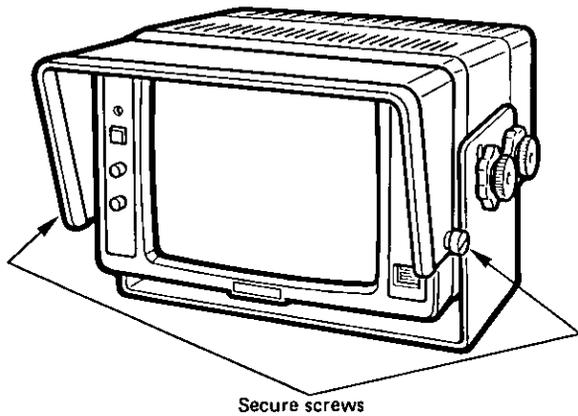
2. Secure the monitor fixing Plate using 4 bolts (prepared locally (6mmφ bolt)).



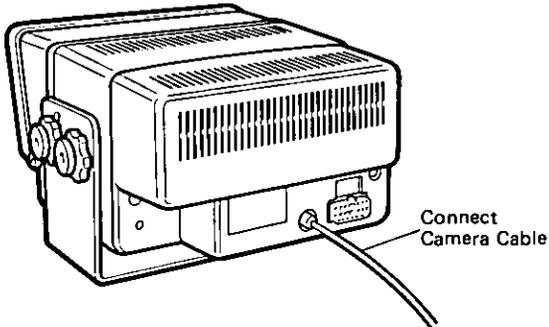
3. Secure the monitor onto the monitor fixing plate using supplied 4 monitor fixing screws and adjust the tilt of the monitor.



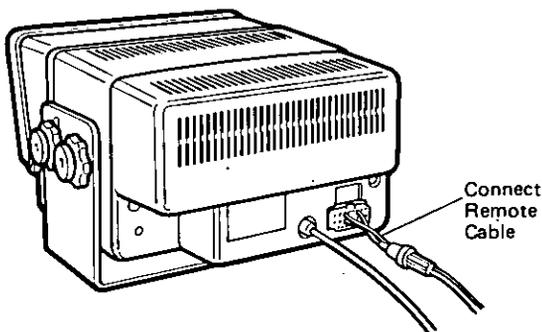
4. Mount the monitor hood GP-Q48 (Sold separately) using 2 monitor hood fixing screws.



5. Connect the optional camera cable GP-CA40 (33 ft) or GP-CA41 (66 ft) the camera cable connector.



6. Connect the supplied remote cable for monitor to the power and remote connector on the rear of the monitor.



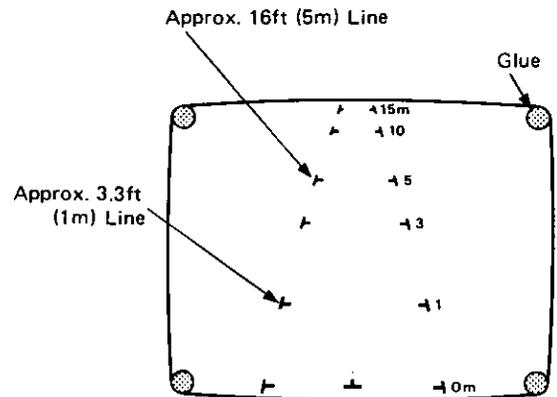
7. Connect the +12V wire (Red) to the +12V line which is after ignition switch, the remote input wire (Blue) to the +12V line for the reverse light and the ground wire (Green) with lug to the chassis.

ADJUSTMENT

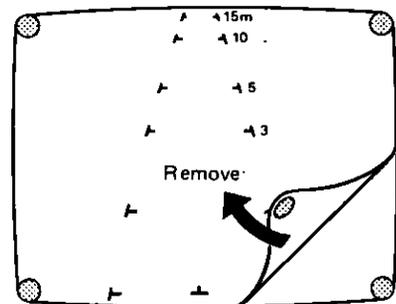
The following adjustment should be made by qualified service personnel or system installers.

1. The distance seals (for 6.6ft (2.0m) to 9.2ft (2.8m) and 9.2ft (2.8m) and higher of body height) for the monitor screen are attached as standard accessories.

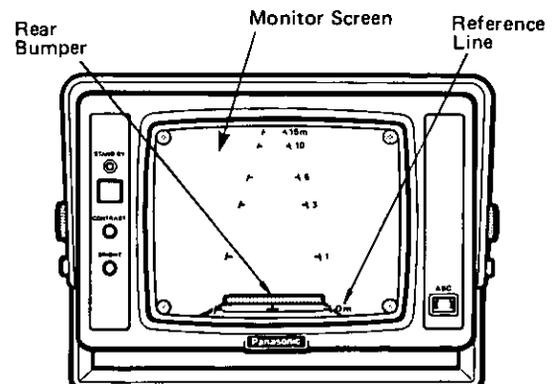
Note : By putting the distance seal onto the monitor screen, the ambient light may be reflected even the monitor screen is a non-glare type. When less reflection is required, do not put the distance seal onto the monitor screen.



2. Choose the distance seal which is the closest to the body height and remove the protection seal for scratches.

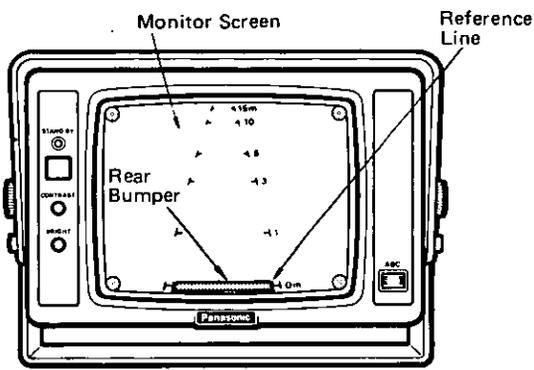
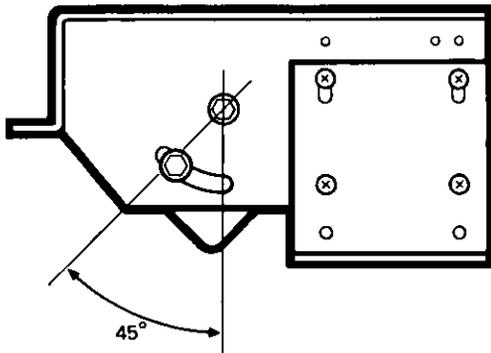


3. Clean the monitor screen and put the distance seal onto the monitor screen after removing the reverse paper on the glues on the 4 corners of the seal.



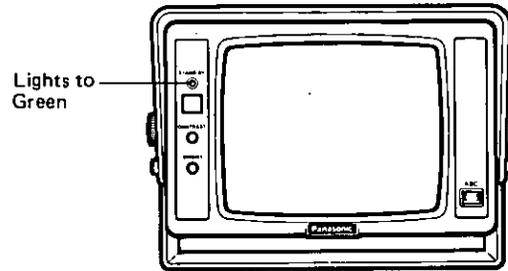
OPERATING PROCEDURE

- Adjust the camera tile by loosening 4 hex bolts so that the rear bumper positions on the reference line of the distance chart on the monitor screen.

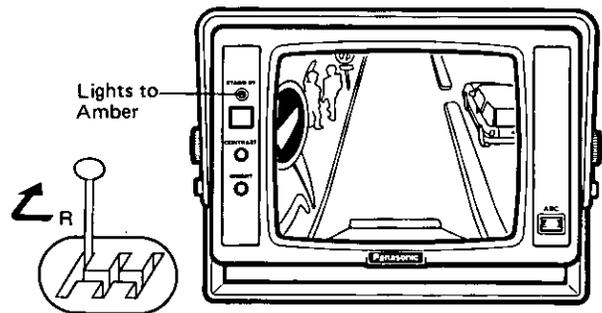


Caution : The distance lines indicated on the distance seal are distances on the ground level. The obstacles in the mid air may be seen more distance than that in the actual fact.

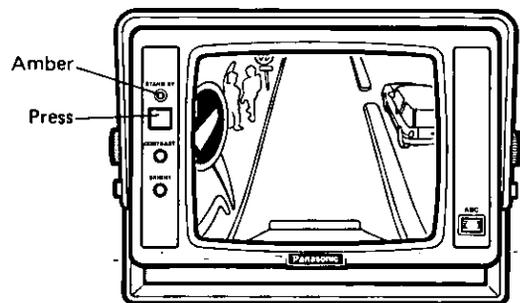
- Turn the ignition to ON position and confirm that the Mode Indicator (12) LED lights to green (STANDBY mode).



- Whenever changing the gear shift to the reverse position, the Mode Indicator (12) LED turns into amber (ON mode) and the rearview picture can automatically be seen on the monitor screen in few seconds.

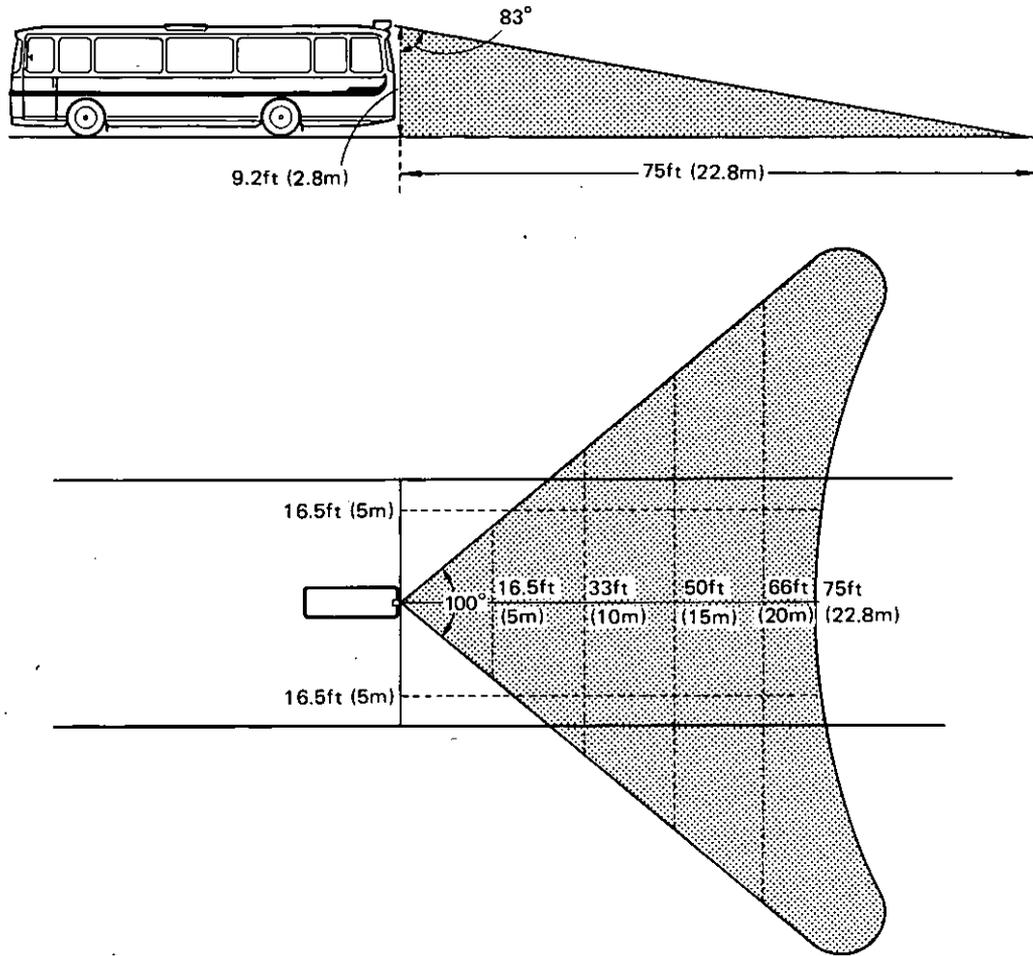


- Whenever changing the gear shift to other than reverse position, the Mode Indicator (12) LED turns into green and the picture on the monitor will disappear.
- Even the gear shift positions other than reverse position, the rearview picture can be seen by pressing the Mode Selection Switch (13) once.

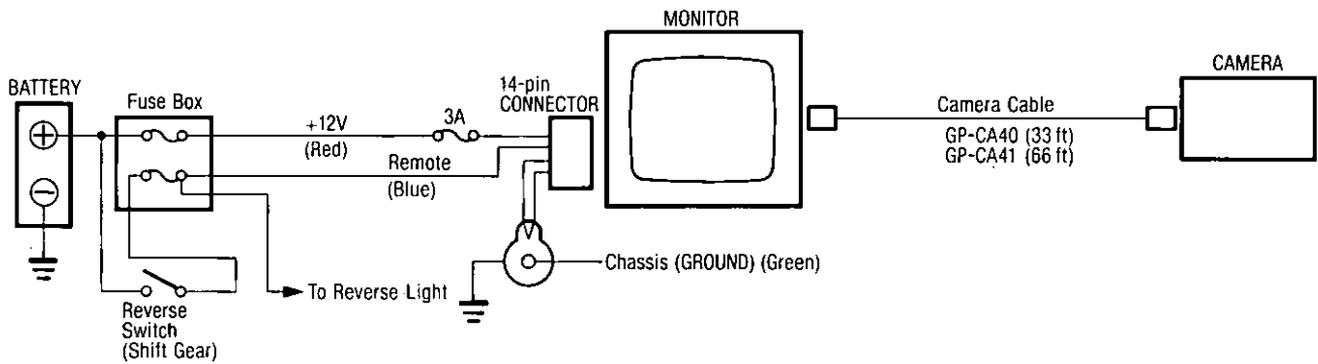


- To reset the monitor to standby mode, press the Mode Selection Switch (13) once again.
- Adjust the Brightness and Contrast controls for the clear picture.

VIEW RANGE

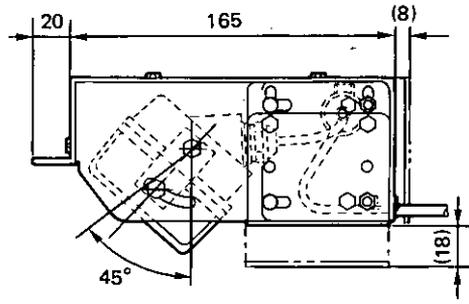
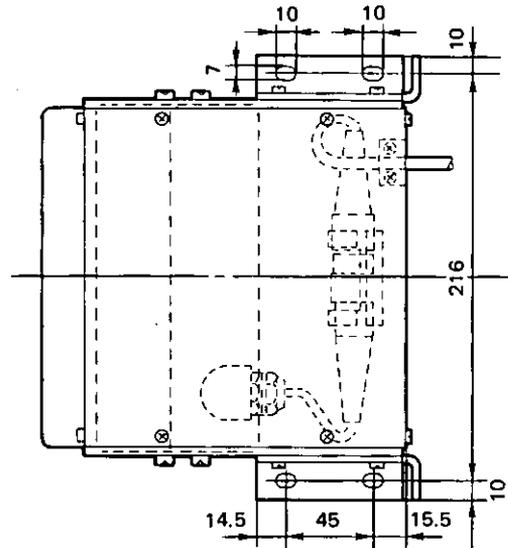
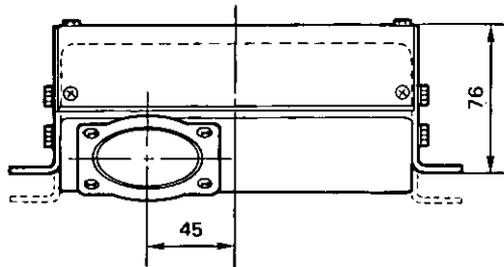


SYSTEM CONNECTION

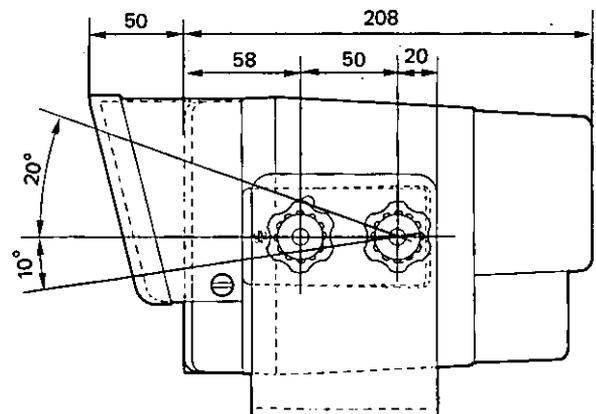
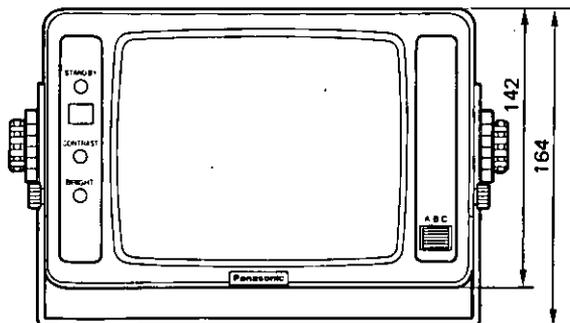
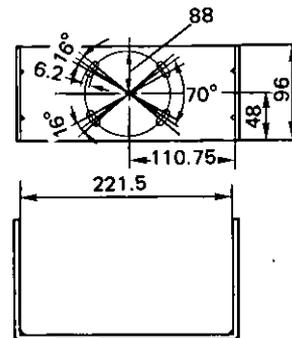
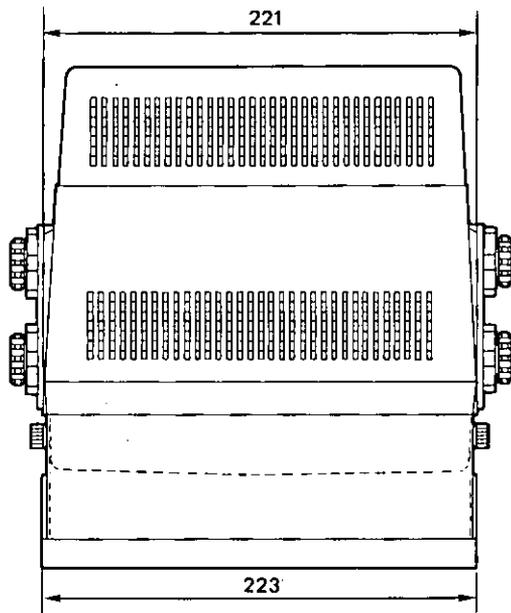


MECHANICAL DATA

■ CAMERA (Unit : mm)



■ MONITOR (Unit : mm)



SPECIFICATIONS

■ Overall Specifications GP-RV110

Power Source :	DC 12V, 1.5A
DC Input Voltage for Power Source :	DC 10V ~ 16V
Grounding :	Minus (–) Ground
Scanning :	2:1 Interlace
Scanning Lines :	525 lines
Horizontal Scanning Frequency :	15.734 kHz
Vertical Scanning Frequency :	60 Hz
Synchronization :	Internal Sync by Built-in Sync Generator
Horizontal Resolution :	300 lines at center
Signal to Noise Ratio :	40 dB
Minimum Illumination :	0.5 footcandles (5 lux)
Vibration Resistance :	4.4G (10Hz - 100Hz)
Ambient Temperature :	14°F - 131°F (–10°C - +55°C)
Ambient Humidity :	Less than 90%

■ Camera GP-RV111

Power Source :	Supplied from Monitor GP-RV112 DC 200mA, Approx. DC 12V
Pick-up Device :	1/2" Interline Transfer CCD with 422(H) x 489(V) pixels
Lens :	F1.4, f3.0mm, Auto Iris Control Lens
Angular Field of View :	100° (H) x 83° (V)
Dimensions :	9-1/4" (W) x 3-9/16" (H) x 7-1/4" (D) (236(W) x 93(H) x 185(D) mm)
Weight :	4.2 lbs (1.89 kg)

■ Monitor GP-RV112

Power Source :	DC 12V, 1.5A
DC Input Voltage for Power Source :	DC 10V ~ 16V
Cathode Ray Tube :	7" Flat, Square and Non-glare Screen
Automatic Brightness Control :	Yes
Dimensions :	8-11/16" (W) x 5-9/16" (H) x 8-3/16" (D)
(Excluding Hood and Fixing Plate)	(221(W) x 142(H) x 208(D) mm)
Weight :	9.55 lbs (4.3 kg)

Weights and Dimensions indicated are approximate.
Specifications are subject to change without notice.

STANDARD ACCESSORIES

- o Remote Cable for Monitor 1 pc

OPTIONAL ACCESSORIES

- o Camera Cable GP-CA40 (33 ft)
- o Camera Cable GP-CA41 (66 ft)
- o Monitor Hood GP-Q48

Panasonic Industrial Company

Division of Matsushita Electric Corporation of America

INDUSTRIAL CAMERA DIVISION

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PANASONIC SALES COMPANY

DIVISION OF MATSUSHITA ELECTRIC OF PUERTO RICO, INC.

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