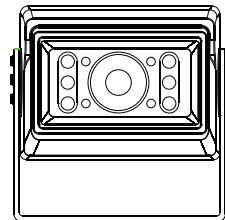
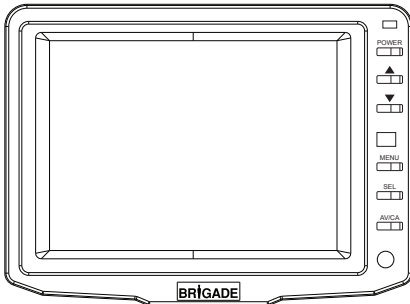




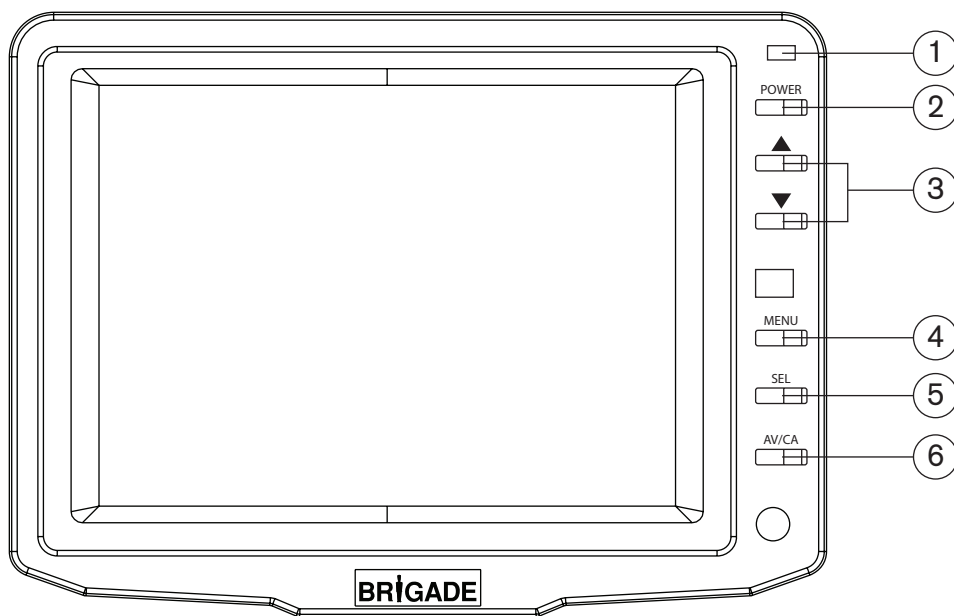
VBV-650 VEHICLE CCTV SYSTEM

VBV-650M MONITOR VBV-600C CAMERA



Front view

1. Power LED
2. Power ON/OFF Switch
3. ▲+▼ CONTROL BUTTON
4. MENU
5. SELECT
6. CAMERA CA/AV



VBV-650 VEHICLE CCTV SYSTEM

INTRODUCTION

This vehicle CCTV system has been designed to provide years of trouble-free operation. Please read this manual thoroughly. This manual contains instructions to make the installation of the camera and monitor easier. The vehicle CCTV system is a supplement to standard rear-view mirror systems, and will provide additional rear-view vision when installed and maintained properly. It is not intended in any way to be a substitute for careful and cautious driving. All applicable traffic laws and motor safety regulations must still be adhered to.

FEATURES

VBV-600C CAMERA

- 300,000 pixel image sensor
- 0.1 Lux sensitivity (10 IR-LED)
- Auto White Balance (AWB)
- Field of view 120° Diagonal
- Back Light Compensation (BLC)
- Automatic electronic iris provides a clearer, more consistent image in low and bright light
- Compact and lightweight design installed easily into most vehicles
- Waterproof cable connection (IP67)
- EMC approved

VBV-650M TFT LCD COLOUR 5.0" (127mm) MONITOR

- Menu button for Picture, System and Options
- Camera 1/AV (Audio on AV channel only)
- Power/stand-by switch
- EMC approved

CONTENTS OF 1 COMPLETE SYSTEM

VBV-600C CCD CAMERA

- 1 Camera
- 1 Camera bracket
- 4 Attachment screws with washers

VBV-650M MONITOR

- 1 VBV-650M MONITOR
- 1 Monitor bracket

BEFORE INSTALLATION

1. This system operates from 10 volts DC to 32 volts DC, negative ground.
2. Please install this system according to the instructions in this manual.
3. Do not disassemble the camera or the monitor. This voids the warranty. Disassembling the camera will compromise the waterproof seal.
4. Connect the system to an ignition switched power source. Connection to a battery source will reduce battery life.

WARNING

1. To prevent electrical shock, **DO NOT OPEN THE MONITOR CASE**. There are potentially lethal voltages inside the monitor. There are no user serviceable parts inside. If evidence of tampering is detected, the warranty will be considered void.
2. Keep monitor away from leaking water, rain, moisture etc. It is NOT waterproof. Any moisture inside the monitor could cause extensive damage.
3. Use the self-tapping screws to mount the monitor to the dashboard or headliner.

INSTALLATION INSTRUCTIONS

VBV-600C CAMERA

1. Attach camera bracket (see Fig. 1) to upper portion of vehicle. Attachment point must be sturdy enough to support camera and bracket.
2. Attach camera to bracket using screws provided. Adjust angle as indicated in Fig. 2. (Use rear bumper and back of vehicle as a reference point.)

VBV-650M MONITOR

1. Attach monitor inside vehicle in a location convenient to the driver (e.g. centre of dash, overhead or in dash).
3. Adjust mounting angle of the monitor to allow driver to easily view the screen from all seat positions. (See Fig. 3)

CABLE

1. The camera to cable connection is waterproof. Be sure to position the cable properly. The male end attaches to the camera. The female end attaches to the main power cable. (See Fig. 4)
2. Do not run the cable over sharp edges or corners. Do not kink the cable. Keep the cable away from hot and

- rotating parts.
3. Place all excess cable in convoluted tubing.
4. Wire the cable securely.

WIRING CAMERA AND MONITOR

1. See wiring diagram for connections to ignition, ground and back up circuit. (See Fig. 4.)
2. Wiring camera: Drill a 20mm (0.8in) diameter hole into vehicle body near the camera and bracket. Connect camera connector to extension cable in vehicle. Push extra cable into vehicle (be careful not to kink cable) and fit grommet into hole. Apply sealant around grommet to increase resistance to water penetration.
3. Wiring the monitor: Insert extension cable into Camera1 reversing camera position; if AV is used be sure to have the correct cable. **DO NOT** bundle excess cable together. Use a cable tie or vinyl tape. This will avoid possible damage to cable during operation.
4. The red wire is connected to an ignition power source, the black wire is connected to chassis ground, the brown wire is connected to the vehicle's back light circuit.
5. **ONLY PETROLEUM ROAD TANKERS:** All electrical equipment fitted to petroleum vehicles must be fitted via battery master switch and must be isolated from the battery while the vehicle are loading and unloading.
6. Always consult your dealer when fitting any electrical or electronic equipment to a vehicle fitted with a CAN-bus or multiplex system.

FUNCTIONS AND OPERATION

MONITOR

1. POWER LED
When the red LED is on, it indicates power on
When a trigger is selected, the image shown by cameras will be shown on the monitor
2. Stand by ON/OFF Switch
3. ▲/▼ CONTROL BUTTON
These control buttons are used to scroll up and down to select menu options
4. SEL
SELECT CONTROL BUTTON
Use these buttons in order to select the required option in the menus.
5. 'MENU' Button
If you press the 'MENU' button, the following list of functions will be shown on the monitor
 - PICTURE
 - OPTION
 - SYSTEMThe menu list will disappear if no selection is chosen within 5 seconds.
6. AV/CA
Camera selector button
Enables selection of CA1 & AV
The OSD indicates which camera is currently operating.

HOW TO SET YOUR MONITOR TO YOUR REQUIREMENTS

1. PICTURE CONTROL
 - 1.1 Press the MENU button
 - 1.2 Select PICTURE
 - 1.3 Move the cursor to the CONTRAST, BRIGHT, COLOUR and SHARP with the SEL button
 - 1.4 Press the ▲/▼ button
 - 1.5 Select one of four options
 - 1.6 Press the 'MENU' button
2. OPTION CONTROL
 - 2.1 Press the 'MENU' button
 - 2.2 Select 'OPTION'
 - 2.3 Move the cursor to the HORIZONTAL and VERTICAL (Switch the picture) with the SEL button
 - 2.4 Press the ▲/▼ button
 - 2.5 Select one of two option
3. SYSTEM CONTROL
 - 3.1 Press the 'MENU' button
 - 3.2 Select 'SYSTEM'
 - 3.3 Move the cursor to the INPUT, (CA or AV) COLOUR SYSTEM (NTSC/PAL/AUTO) and LANGUAGE with the SEL button.
 - 3.4 Press the ▲/▼ button
 - 3.5 Select one of three options
 - 4.0 AV Model (Audio)
 - 4.1 Press the AV/CA to select the AV function
 - 4.2 Press the ▲/▼ button to adjust volume.

CAUTION

1. **DO NOT OPEN THE CAMERA CASE.** This will break the camera's waterproof seal. If evidence of tampering is detected, the warranty will be considered void.
2. We do not recommend mounting the camera near the lower area of the vehicle (e.g. bumper). This reduces the view of the camera and increases the chance of physical damage to the camera.
3. Use only the inner hexagonal screw and washers to mount the camera.

MAINTENANCE

Remove dust and dirt with a damp soft cloth. Heavier dirt should be removed with a damp soft cloth and mild detergent. Do not use strong cleaning agents containing gasoline, thinner, benzene or alcohol. These substances may damage the exterior surface of the monitor.

CAUTION

1. Before drilling, be sure no cable or wire is on the other side. Be sure to drill a 20mm (0.8in) diameter hole only.
2. Feed as much cable as possible into the vehicle and clamp securely. This reduces the possibility of it being hooked or snagged.
3. Keep all cables away from HOT, ROTATING and ELECTRICALLY NOISY components.
4. To increase protection of cable, place all excess wire and extension cable in convoluted tubing.
5. Do not twist camera cable and do not cut camera pigtail or cable

SPECIFICATIONS

VBV-600C CAMERA

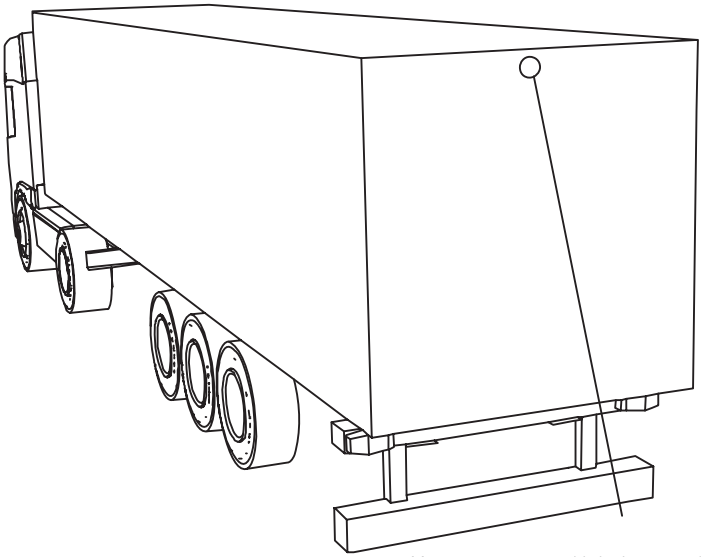
TV SYSTEM	PAL/NTSC
PICTURE ELEMENTS	512(H) x 582(V) PAL 512(H) x 492(V) NTSC
SENSING AREA	2.8mm
IMAGE SIZE	1/4 inch
SYNCHRONIZATION	INTERNAL
HORIZONTAL RESOLUTION	420 TV LINES
REQUIRED ILLUMINATION	0.1 LUX MINIMUM
SIGNAL TO NOISE RATIO	MINIMUM 48dB (At AGC OFF)
POWER SUPPLY	12Vdc
CURRENT CONSUMPTION	Max. 80mA
LENS ANGLE	120°(D), 96°(H), 72°(V)
OPERATION TEMPERATURE	-10°C to +70°C
STORAGE TEMPERATURE	-20°C to +80°C
WEIGHT	224g
DIMENSIONS (WxHxD)	2.0x1.5x2.0in (52.3x40.3x54.4mm)

VBV-650M MONITOR

PICTURE TUBE	5.0 inch (127mm), COLOUR TFT-LCD 50°(LEFT/RIGHT), 15°(TOP), 35°(DOWN)
DEFLECTION ANGLE	8W/650mA
POWER CONSUMPTION	12/24Vdc
POWER SOURCE	PAL/NTSC
TV SYSTEM	COMPOSITE VIDEO SINGLE
VIDEO INPUT/OUTPUT	1VP-P 75 OHM 960(H) x 234(V) 350:1
RESOLUTION	300cd/m2
CONTRAST	OPERATING TEMPERATURE -10°C to +60°C
BRIGHTNESS	STORAGE TEMPERATURE -20°C to +70°C
OPERATING TEMPERATURE	WEIGHT
STORAGE TEMPERATURE	OUTER DIMENSIONS (WxHxT)
WEIGHT	5.8kg/3x1.0in (146x107.5x25.4mm)

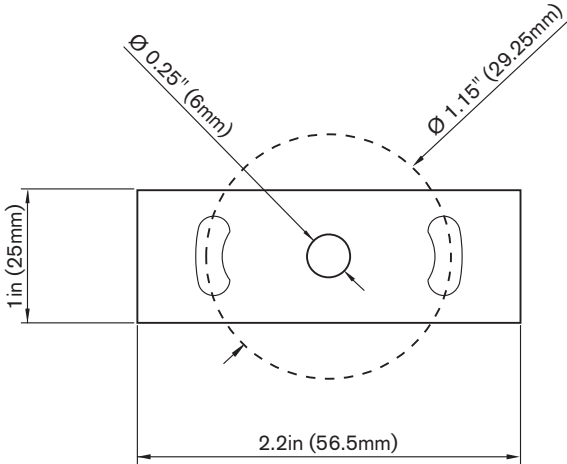
DISCLAIMER

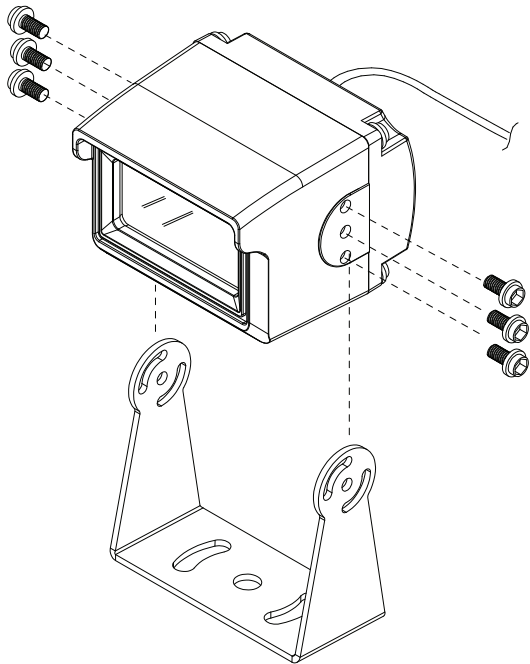
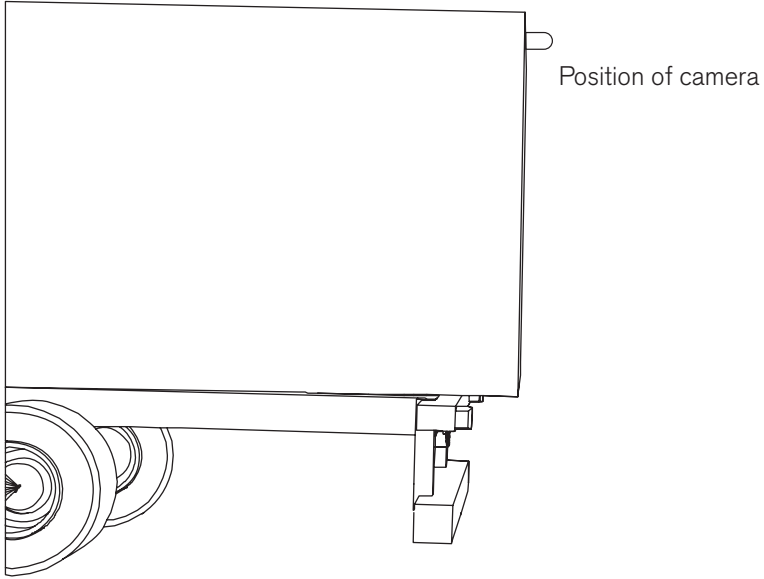
The use of the VBV-650 Vehicle CCTV system should not in any way be used as a substitute for careful and cautious driving. Traffic laws and motor safety regulations must always be adhered to. Original equipment manufacture bodybuilder guide or aftermarket installation guidelines must be followed when installing this product. Failure to comply with this may invalidate the vehicle's warranty. Specification subject to change without any notice.

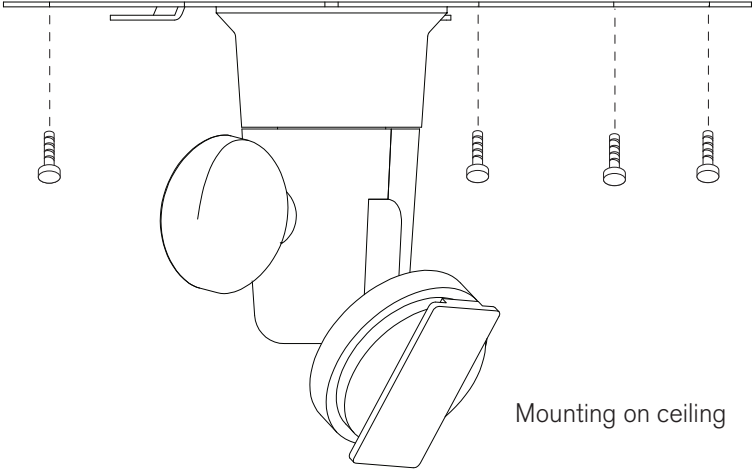


Mount camera assembly high mounted. (Centred.)

Camera mounting hole pattern.







Mounting on ceiling

Mounting on the dash,
console etc.

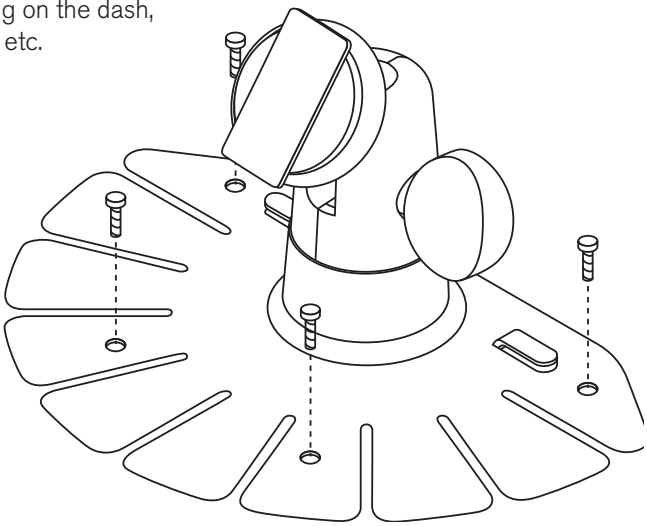
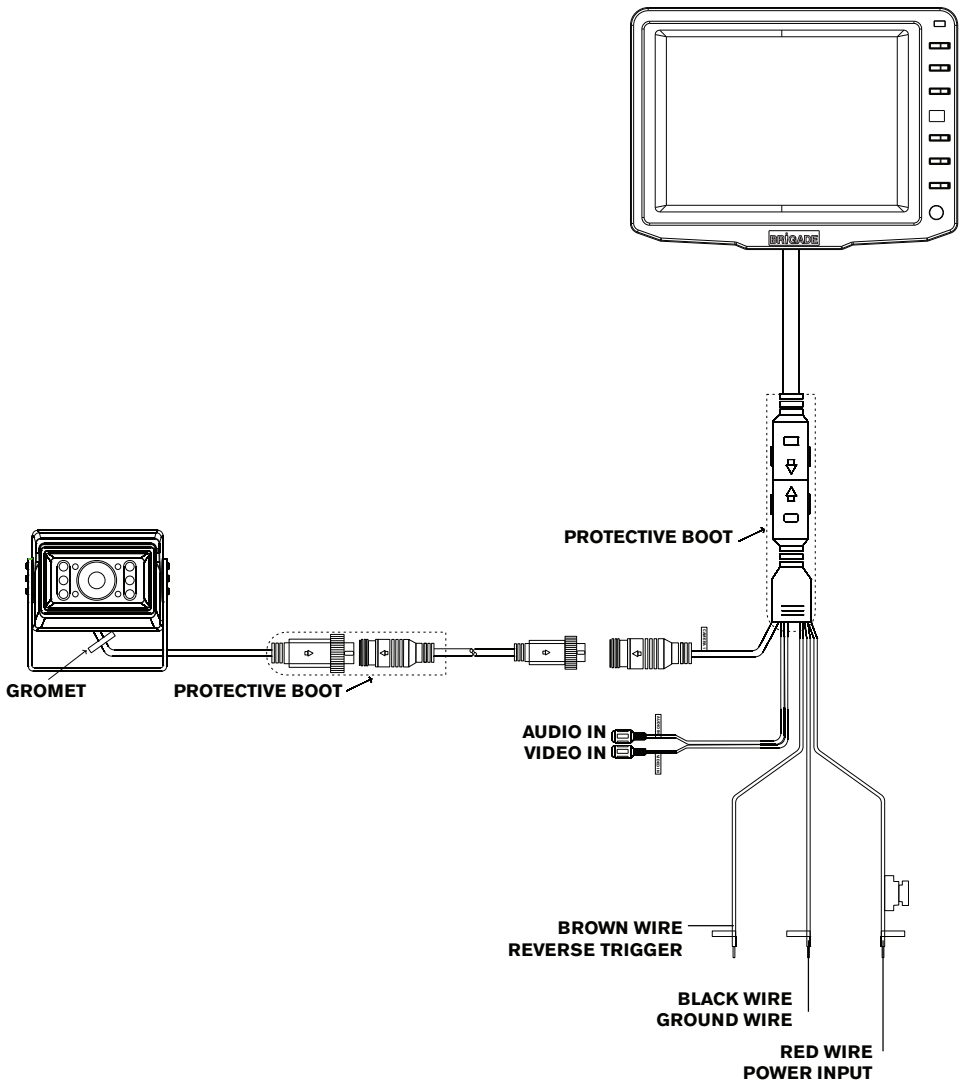
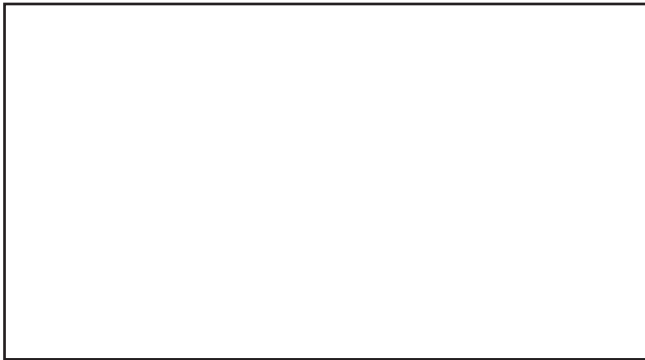


Fig. / Abb. 4





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