ROSCO®
VISION SYSTEMS

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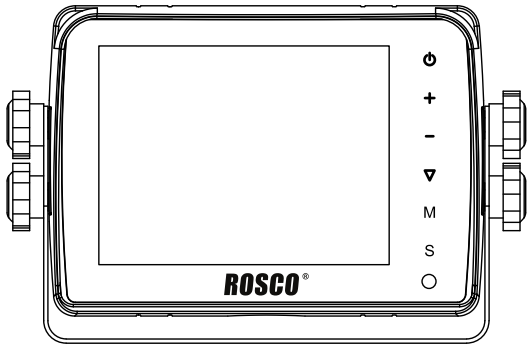
REARVIEW CAMERA SYSTEMS



STSK5065
5" Monitor and Camera Kit

INSTALLATION/USER MANUAL

RoHS FC

Lit. PN: MNL5065

Manual Revision Date: 7/23/2015

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INTRODUCTION

Rosco Vision Systems introduces a revolutionary new backup camera system for commercial vehicles. The STSK5065 5" backup camera system utilizes a 5" inch monitor to display a 4:3 LCD screen when the vehicle shifts into reverse. This monitor allows the driver to see obstructions behind the vehicle for added convenience and safety.

The camera uses an advanced visible light through infrared CCD image sensor to process excellent views in both bright and pitch-black environments. A 120° diagonal field of vision yields superb coverage behind the vehicle, and complies with the latest U.S. DOT guidelines when installed properly.

⚠ WARNING

- To prevent electrical shock, **DO NOT OPEN THE MONITOR CASE.** There are dangerous voltages inside the monitor. There are no user serviceable parts.
- Avoid exposing monitor to water, rain, moisture etc. The monitor is NOT waterproof. Any moisture inside the monitor could cause extensive damage.
- Do not disassemble the camera. This voids the warranty. Disassembling the camera will compromise the waterproof seal.

SYSTEM TECHNICAL SPECIFICATIONS

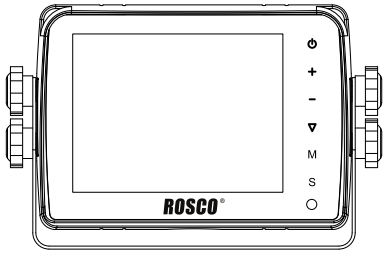
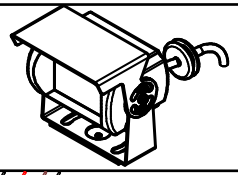
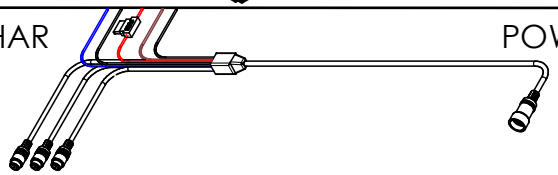
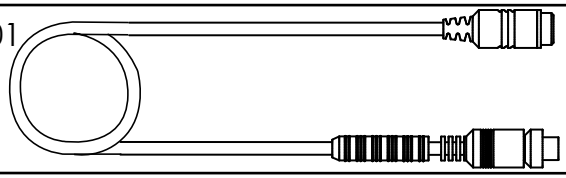
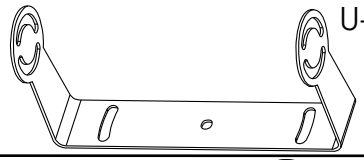
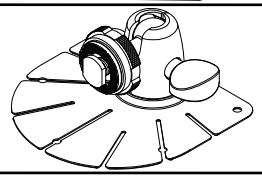
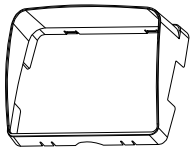
STSM206 MONITOR: (Includes STSK5065/PHAR, BAS4550, STSDF1009)

Screen Description	5" Digital TFT-LCD Color Display
Screen Ratio	4:3
Sync System	Internal
Video System	NTSC
Screen Brightness	200cd/m2
Resolution (Color Depth) (Dithering)	640 x 480 (24 bit) (16.7M)
Voltage Input	10~32 Vdc
Audio Output	1 W
Power Consumption	6 W (500mA at 12 Vdc)
Contrast Ratio	500:1
Maximum No. of Cameras	3
Impact (Shock) Rating	100 G
Mechanical (Vibration) Rating	15 G
Color Configuration	RGB Stripe
Operating Temperature F° (C°)	-4° to +158° (-20° to +70°)
Storage Temperature F° (C°)	-22° to +172° (-30° to +80°)
Dimension WxHxD inches (mm)	6.14 x 4.21 x 1.26 (156 x 107 x 32)
Weight lb. (Kg)	0.95 (0.43)
Other Features	Selectable Mirror/Normal View, Optional On-Screen Distance Scale, Automatic Dimming, Illuminated Buttons

STSC101 CAMERA: (Includes Sunshade and Mounting Hardware)

Image Device:	1/3" CCD
TV System:	NTSC
Effective Pixels:	512 x 492 pixels
Sensing Area:	4.9 mm (H) × 3.7 mm (V)
Scanning System:	2:1 Interlace
Sync. System:	Internal
Resolution:	420 TV Lines
Horizontal Sync. Frequency:	15.734 KHz
Vertical Sync. Frequency:	60 Hz
Minimum Illumination:	0.1 Lux (day), 0 Lux (with IR) (Night vision view distance = 50ft w/ 18 infrared LED's)
Microphone:	Yes
Video Output:	1.0 vp-p, 75 Ohm
Gamma Consumption:	0.45
AGC:	Auto
S/N Ratio:	Better than 48 dB
White Balance:	Auto
Electronic Shutter:	1/60 ~ 1/100,000 second
BLC:	Auto
Current Consumption:	Max. 250 mA
Voltage Input:	DC 12-24 V
Connection:	4 PIN
Anti-vibration:	10 g
Operating Temperature:	-20°C~70°C, RH 95% MAX.
Storage Temperature:	-40°C~80°C, RH 95% MAX.
Lens:	f = 2.8 mm F = 2.0
Lens Angle:	120°

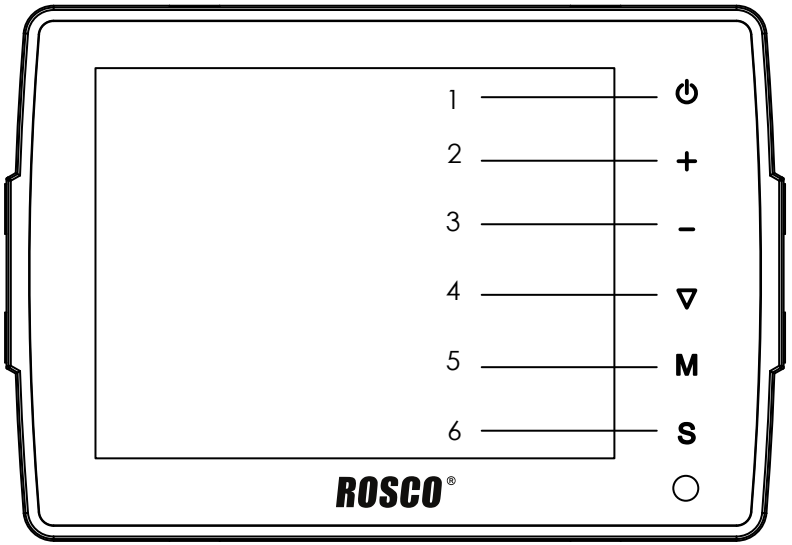
COMPONENT LIST AND DESCRIPTION

PART NO.		DESCRIPTION
STSM206		5" MONITOR KIT MONITOR SUN SHIELD DUCK FOOT MOUNT U-BRACKET MOUNT POWER HARNESS
STSC101		120° REARVIEW CAMERA
STSK5065/PHAR		POWER HARNESS
STSH301		4 PIN DIN 65 FT EXTENSION CABLE
STSU1002		U-BRACKET (MONITOR MOUNT OPTION)
STSDF1009		DUCKFOOT (MONITOR MOUNT OPTION)
BAS4550		MONITOR SUNSHADE

DISCLAIMER:

Please read this manual carefully before installing and using the product. The backup camera 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 vehicle safety regulations must still be obeyed.

SUMMARY OF MONITOR FEATURES



FRONT VIEW

1. Power Button / Power Indicator
2. Menu setting Increase (example: Brightness)
3. Menu setting Decrease (example: Brightness)
4. Toggle menu setting selection
5. Open/exit monitor settings menu
6. Toggle between cameras 1, 2, or 3

CAMERA INSTALLATION

- Select a high and centered location at the rear of the vehicle and close to the rear marker lights to mount the STSC101 camera. This installation location will ensure that the image transmitted by the camera will show the rear bumper and area behind the vehicle. See FIGURE 1 and FIGURE 3.
- We do not recommend mounting the camera near the lower area of the vehicle (eg. the bumper). This reduces the view of the camera and increases the chance of physical damage to the camera.
- Using the camera mounting bracket as a guide, use a 3/16 drill bit to drill four screw holes into the vehicle. Be sure to clear any obstacles (e.g. electrical wiring), etc. before drilling holes. See FIGURE 2. Use a 5/8 drill bit to drill a camera cable hole into the vehicle close to camera mounting bracket. See FIGURE 1.
- Screw the camera mounting bracket securely into place using the supplied sheet metal screws. Insert the wire grommet into the camera cable hole and carefully pass the camera wire through. See FIGURE 1. Install the camera and camera sunshade onto the camera mounting bracket. Angle the camera such as indicated in FIGURE 3.
- To finalize the camera installation, attach the camera cable to the male end of the camera extension cable (STSH301). Hand tighten the coupling ring on the female camera connector to ensure a secure connection between the cables. Route the extension cable per the instructions on page 6 of this manual.

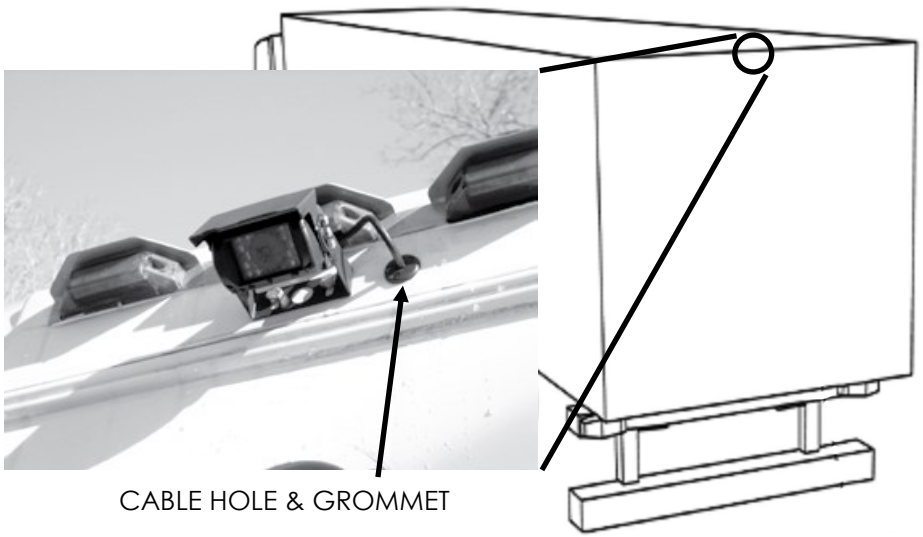


FIGURE 1: RECOMMENDED CAMERA MOUNT LOCATION

MONITOR SETTING MENUS

WARNING: Never change settings while the vehicle is in operation.
NOTE: You may wait 3 seconds for the monitor to automatically exit any menu. No changes can be made to the monitor while the vehicle is in reverse. (Press M to toggle through the menu's. Press ∇ to toggle through the settings in each menu).

FIGURE 7: Appearance of the Scale grid

PICTURE (Press to M once to access this menu)

- **BRIGHT:** Press +/- to increase/reduce the brightness.
- **CONTRAST:** Press +/- to increase/reduce the contrast.
- **COLOR:** Press +/- to increase/reduce the saturation.
- **VOLUME:** Press +/- to increase/reduce the monitor speaker volume.
- **AUTO DIM:** Press +/- to toggle Auto Dim on/off. If Auto Dim is on, the monitor will automatically adjust the screen brightness depending on the brightness of the environment.
- **SCALE ADJUST:** (Note: The scale is a grid displayed on the screen to assist with distances etc. See Figure 7.) Press +/- to toggle between "Off" and ↑↓. When ↑↓ is chosen, the scale can be moved up or down with +/- whenever the scale is displayed.

OPTION (Press to M twice to access this menu)

- **LANG:** Press +/- to toggle the language of the menu.
- **SCALE:** Press +/- to toggle the Scale on/off. If toggled on, the Scale will appear when the REVERSE (Brown) wire is triggered.
- **CAM 1, CAM 2, or CAM3:** Press +/- to toggle "Normal" or "Mirror" for each of the cameras. "Mirror" will mirror the image horizontally.

SYSTEM (Press to M three times to access this menu)

- **COLOR SYS:** Press +/- to toggle the video system between "AUTO", "NTSC", and "PAL". It is recommended to choose "AUTO" since choosing a system incompatible with the camera will result in a black & white image.
- **BLUE BACK:** Press +/- to toggle on/off. "On" will display a blue screen for any unplugged/unpowered cameras, "off" will display black.
- **HORIZONTAL:** Press +/- to flip the screen horizontally.
- **VERTICAL:** Press +/- to flip the screen vertically.

AUTO SCAN (Press to M four times to access this menu)

- **AUTO SCAN:** Press +/- to toggle Auto Scan on/off. Auto Scan mode will automatically switch the view between all selected cameras at selected time intervals (see below).
- **SCAN TIME:** Press +/- to increase/decrease the time spent on each camera (choose 1 to 90 seconds)
- **CAM 1, CAM 2, or CAM 3:** Press +/- to toggle On/Off. "On" will allow the camera to participate in the auto scan.

MONITOR FUNCTIONS AND OPERATIONS

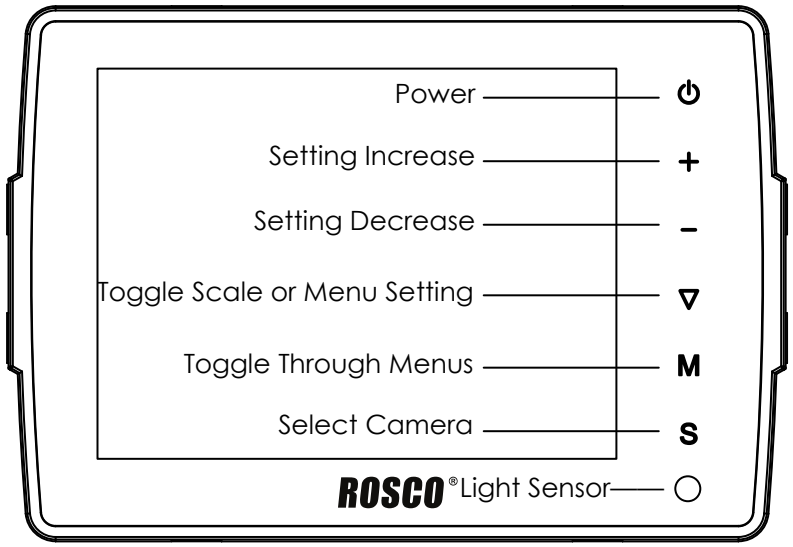
⏻ When the ignition is switched on, the monitor will be in standby mode and this button will illuminate red to indicate it is energized. No image will appear on the screen until the "Power" button is pushed or until a trigger wire (blue, white, or brown) on the STSK5065/PHAR power harness is energized by 12VDC power from a backup light or other circuit. Once the monitor is powered, this button will illuminate GREEN. The image captured by the selected/triggered camera will appear on the monitor.

+ / − By default, these buttons will increase/decrease the screen brightness. If inside a monitor menu, use these buttons to adjust the selected setting within the monitor menu (E.g. screen brightness or audio volume).

▽ By default, this button toggles the Scale on/off. (Note: The scale is a grid displayed on the screen to assist with distances etc. See Figure 7.) If in a monitor menu, press this button to toggle through the settings in the menu.

M Press this button to open up the menu. You can then keep pressing this button to toggle through all 4 menus: PICTURE, OPTION, SYSTEM, and AUTO SCAN.

S Toggle between Camera 1, 2, 3.



CAMERA INSTALLATION

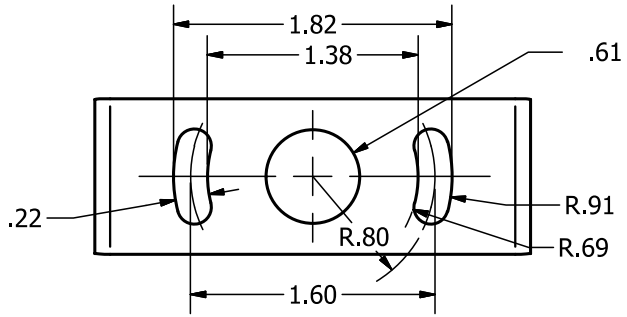


FIGURE 2: CAMERA MOUNTING HOLE PATTERN (DIMENSIONS: INCHES)

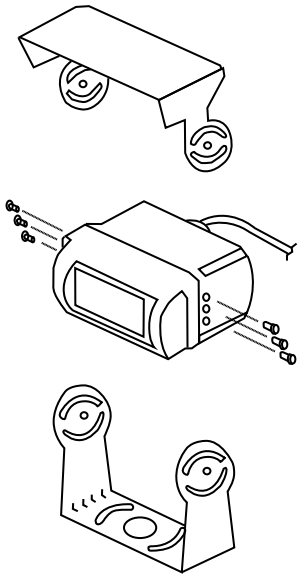
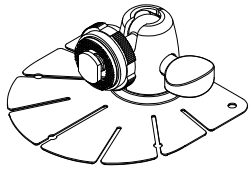


FIGURE 3: CAMERA MOUNTING (LEFT). TYPICAL MONITOR IMAGE FROM A PROPERLY INSTALLED CAMERA (RIGHT).

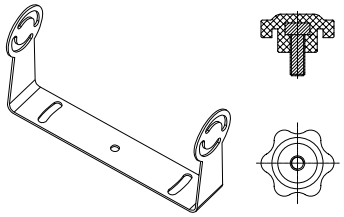
MONITOR INSTALLATION

Choose a location for the monitor convenient to the driver (ex. center of dash, overhead, or flush-mounted in dash). The STSK5065 camera backup kit offers 2 options for monitor installation:

- "Duck Foot" Mount (STSDF1009)



- U-Bracket Mount with thumb screws (STSU1003)

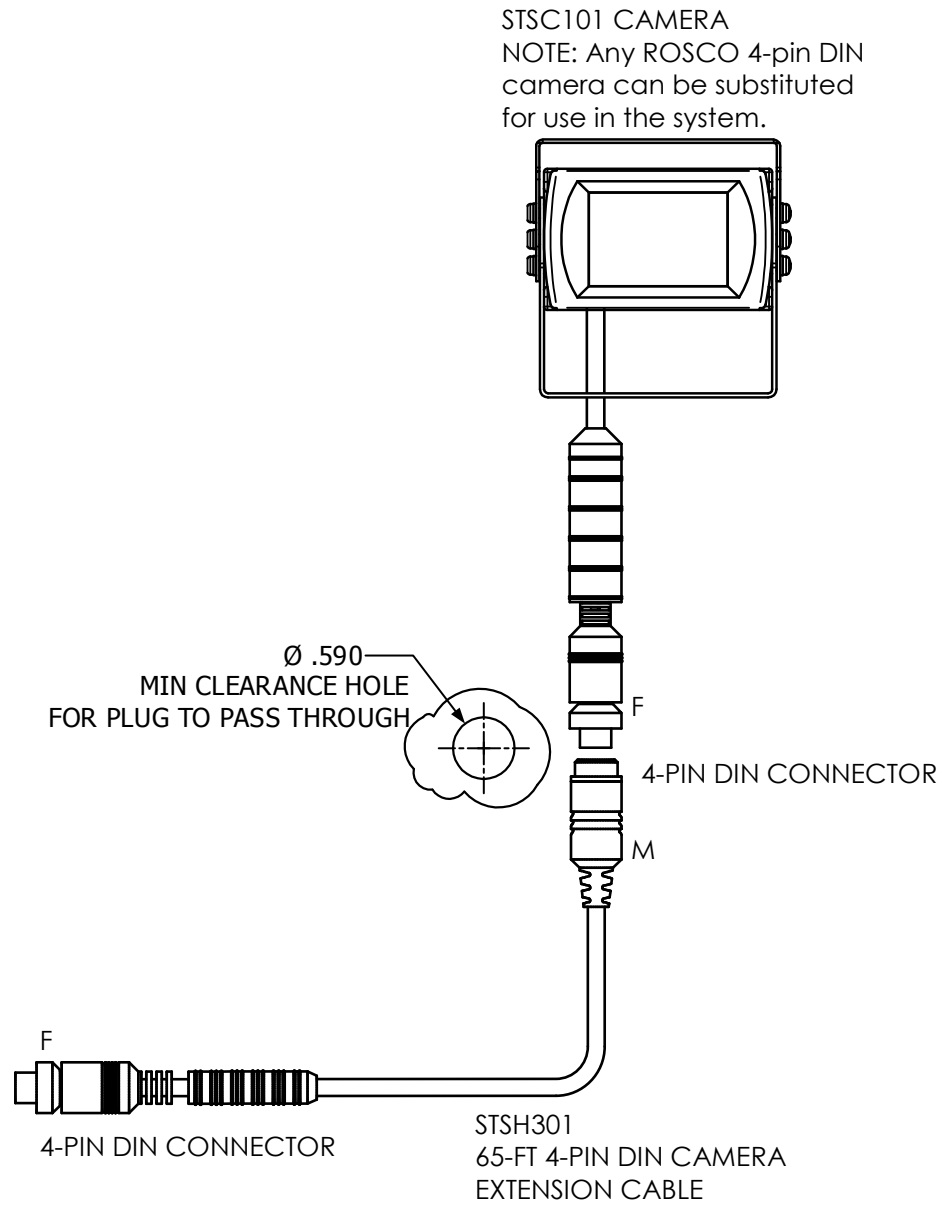


DUCK FOOT MOUNT INSTALLATION

- Attach the "duck foot" bracket to the dashboard or to the headline using self-tapping screws and/or adhesive pad.
- Slide the monitor onto the to duck foot mounting tip and secure the monitor using the locking ring on the mount. Adjust the monitor angle for optimum driver viewing comfort and tighten the knob to fix the monitor angle in place.

U-BRACKET MOUNT INSTALLATION

- Attach the "U" bracket to the dashboard or to the headline using self-tapping screws.
- Fasten monitor to the U-bracket using the provided plastic thumb screws and adjust mounting angle to allow optimum driver viewing comfort. Firmly secure the viewing angle using the plastic thumb screws.



WIRING DIAGRAM B **(BACKUP SYSTEM ALWAYS ON)**

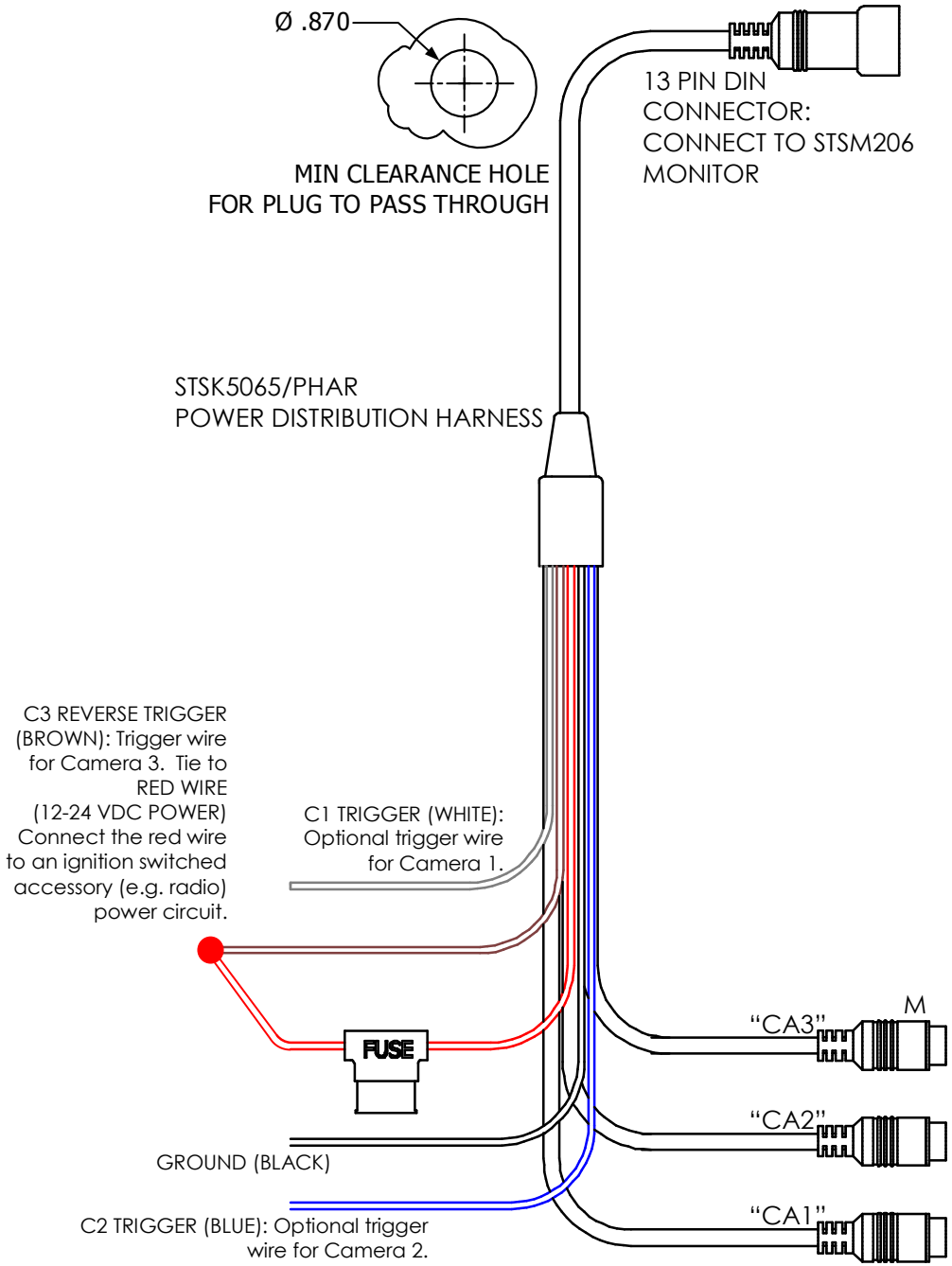


FIGURE 6: CABLE HARNESS CONNECTIONS

CABLE HARNESS INSTALLATION

- Ensure the camera is installed per page 3.
- Connect the 13-pin connector of the power harness cable to the 13-pin connector of the monitor cable. See FIGURE 5.
- Connect the red wire of the power harness (STSK5065/PHAR) to an ignition switched accessory (ex. radio) power source, and connect the black wire to chassis ground. See wiring diagram for connections (FIGURE 5).
- The BROWN wire is the REVERSE trigger wire. In a typical rear-view installations, connecting this wire to the vehicle's backup light circuit will activate the rear-view image whenever the vehicle shifts into reverse. This brown trigger wire will override any other trigger wire. See FIGURE 5. If the monitor needs to be always on, connect the brown wire to the same connection point of the red wire. See FIGURE 6 for this function.
- ROUTING NOTES: Route the 65-ft extension cable (STSH301) from the rear-mounted camera to the front of the vehicle cabin, ensuring sufficient slack and bend radii greater than 1/2 in. Keep all cables AWAY from rotating and electrically noisy components. Make sure all cables are fastened properly in order to prevent wire chafing, kinks, cuts, etc. Do not run the cable over sharp edges or corners.
- Connect the female connector of the extension cable to the connector of the "CA3" leg of the power harness cable (STSK5065/PHAR). See FIGURE 5.
- CONNECTOR MATING: Stretch and tightly wrap self-fusing tape around the mating connectors. Cut any excess tape. Hand tighten the tape to ensure a tight fit and weather-tight seal. The tape will additionally tighten over time. See FIGURE 4.
- **FUEL TANKERS & OTHER SPECIALTY VEHICLES: All electrical equipment fitted to petroleum vehicles must be connected via the battery master switch and must be isolated from the battery while the vehicle is loading and unloading. For other specialty vehicles, please check the applicable codes and regulations prior to installation.**
- Always consult your dealer when fitting any electrical or electronic equipment to a vehicle fitted with a CAN-bus multiplex system.

FIGURE 4: CABLE MATING AND ELECTRICAL SHRINK TAPE INSTALLATION

WIRING DIAGRAM A **(BACKUP SYSTEM POWERED ON ONLY DURING VEHICLE REVERSE)**

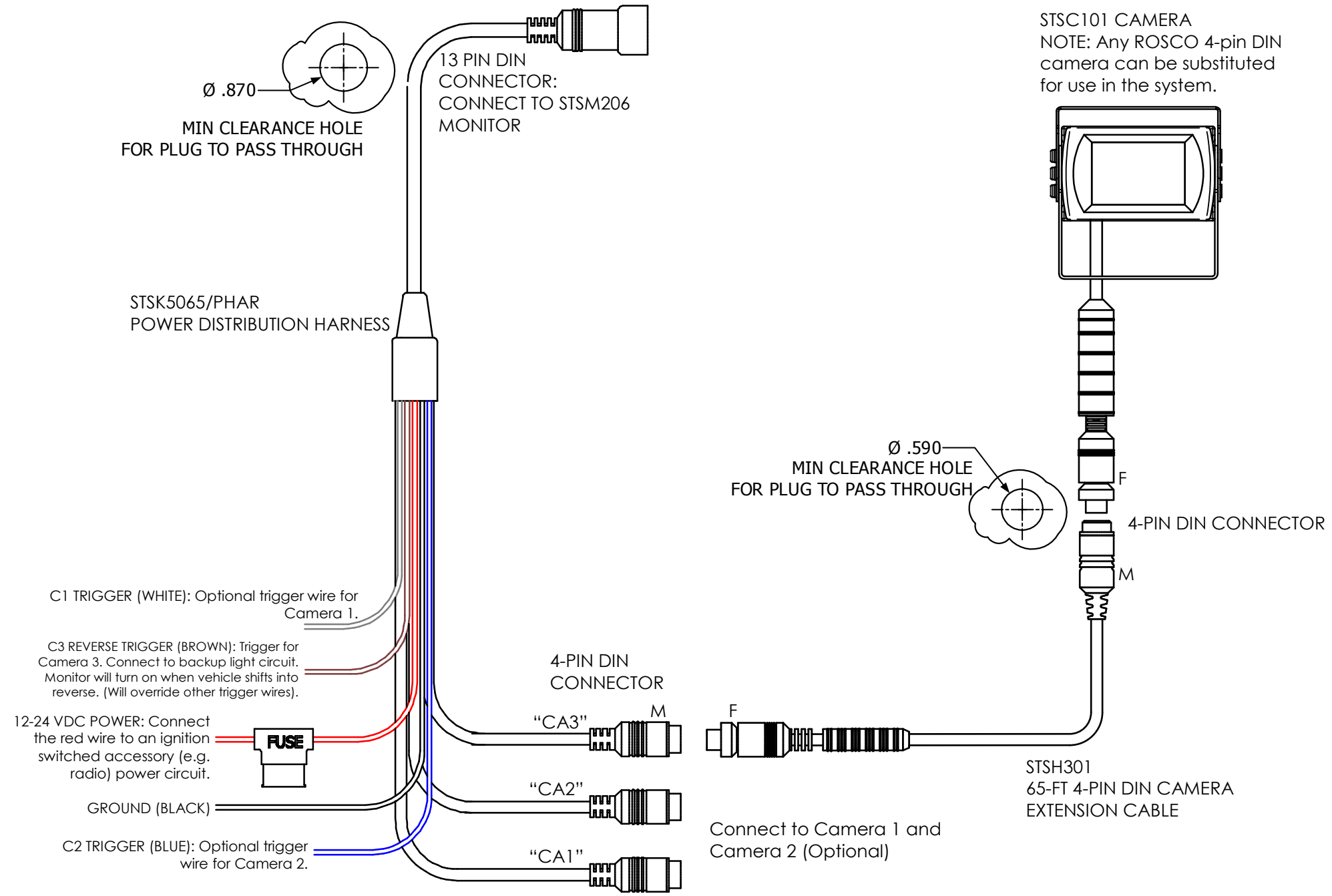


FIGURE 5: CABLE HARNESS CONNECTIONS FOR STANDARD BACKUP CAMERA USE