

Critical Event Video

Installation Guide

80-JC584-1 Rev. F

May 2018

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Overview

This Guide describes the steps required to properly install the Omnitracs Critical Event Video (CEV) camera system. This camera system is intended for use with the following Omnitracs platforms: IVG, MCP200, MCP110, or XRS Mobile.

Note: MCP110 requires either a Wi-Fi enabled WIB or the MCP110 Wi-Fi Dongle to function properly with the CEV system.

Items Included in the CEV Package

Omnitracs ships the CEV Enclosure assembled and ready to install in a vehicle. The CEV package contains the following:

- 1x Fully assembled Critical Event Video Enclosure system containing the following:
 - o A forward-facing camera
 - A driver-facing camera
 NOTE: Depending on the CEV Package ordered from Omnitracs, the CEV package may contain only a forward-facing camera.
- 1x Power Cable
- 1x CEV Installation Kit consisting of the following:
 - o 3M™ Silane Glass Treatment Wipe
 - o Alcohol swab
 - o Adhesive P-clamps
 - o Zip ties for cable securement

CEV Camera System Components

The Critical Event Video system consists of the Camera Mount Enclosure, one or more camera units and a power cable. The unit can be mounted to the vehicle windshield using the included double-sided adhesive.

NOTE: Depending on the selected kit, the CEV Enclosure may include only a forward-facing camera or both cameras.

The Critical Event Video system uses built in Wi-Fi (802.11b/g/n) to connect to devices running Omnitracs software applications.

Omnitracs Critical Event Video functionality supports the following high and low resolution settings:

- High 704x480 @ 10 FPS
- Low 352x240 @ 10 FPS





The forward-facing camera is intended to be mounted in a road-facing position in order to capture events that occur in front of the vehicle.



Driver-Facing Camera

The driver-facing camera is intended to be mounted in a driver-facing position to capture video of the driver in the event of a critical event.

CAUTION: Do not connect or disconnect the Driver Facing Camera while the unit is powered on.



Power Cable

The power cable is used to connect the CEV Enclosure with a vehicle power source. The power cable contains a power (red) and ground (black) wire.

Micro-SD Card



A Micro-SD memory card is installed in the forward-facing camera.

CAUTION: In order to prevent data loss, do not insert or remove the SD Memory card while the Camera is powered on.

Preparing to Install the CEV Camera System

Before beginning installation, ensure you have all the parts and tools required. You will also need to download and install the BlackVue app on a mobile device to live stream the image from the camera during installation. You will also need to predetermine where you want to mount the CEV enclosure and what power source you will connect the CEV camera system to.

Note: There are several steps during the installation. Do not permanently attach the enclosure or route the power cable until you are sure you have a good image and are instructed to do so. Also, once you connect the camera to a power source, do not disconnect it until you complete the installation process. You can move the enclosure and make adjustments without disconnecting it from power.

Recommended Tools and Supplies

- T10 Security Torx Tamper Resistant Screwdriver or long shank bit
- Voltmeter or multimeter
- Mobile device with internet access
- Wire Strippers/Cutters
- Butt Splice Crimping Tool
- 16ga Butt Splices (blue) and/or terminating connectors specific to the make and model of vehicle

Using the BlackVue App

Download and install the BlackVue app by Pittasoft from the Google Play or Apple App store. The BlackVue app is used to view a live camera feed from the CEV camera(s). This is critical to ensure a consistent and correct image from the cameras. It is recommended that you use the app throughout the install in order to verify and confirm the position of each camera.

Connecting to the CEV Camera(s)

While installing the CEV camera system you will need to connect to the camera(s) several times to view a live feed from the camera in order to confirm the camera is getting a good image and to adjust the positioning of the camera.

Note for users of Omnitracs XRS: It is recommended that technicians performing the install not use the same Android device that has the XRS app for the vehicle. If technicians must use the BlackVue app on the same device that is used by the driver, the BlackVue app should be uninstalled from the device before releasing the vehicle to the driver.

Using the BlackVue App

To view the camera's live feed through the BlackVue App on an Android or iOS device:

- 1. Open the Wi-Fi settings on your mobile device to see a list of Wi-Fi connections available.
 - **NOTE**: If no camera units are available, verify the white Wi-Fi light is lit on the end of the forward-facing camera.
- Connect to the SSID for the CEV camera system you are installing. Note: The SSID is listed on the barrel of the forward-facing camera. Be sure to make a note of the SSID. You will need the SSID to pair with the IVG/MCP or XRS Mobile.
 - a. The default password for new devices is "omnitrac"
 - b. Customers can create custom passwords for their fleets. Confirm with your company's CEV admin for current passwords.
- 3. Launch the BlackVue app on your mobile device.
- 4. Tap Blackvue Wi-Fi.
- 5. Once the BlackVue app connects to the CEV camera system,
 - a. Tap the settings button to verify the camera firmware version.
 - b. Tap the camera icon at the bottom of the screen to view the live stream from the forward-facing camera.
- 6. To switch the view between the forward-facing and driver-facing cameras, if used, tap the car icon.

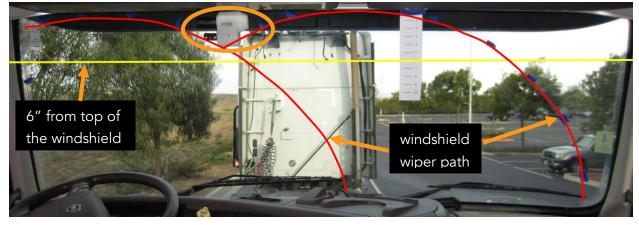
Selecting a Mounting Location

The CEV Enclosure must be installed in the correct location on the vehicle windshield in order to properly capture video and comply with applicable regulations.

A properly installed CEV Enclosure should meet the following criteria

- Be firmly attached to the Vehicle Windshield
- Not obstruct the view of the driver
- Comply with Federal rules and regulations. See the Regulatory Compliance Information section of this guide for more details.
- The forward-facing camera should have a clear view of the road including the hood of the vehicle. For vehicles that are equipped with hood or fender mounted mirrors, the camera should be positioned to capture both mirrors.
- The driver-facing camera view, if used, should include the vehicle operator's head and a view of the steering wheel in any position.

In order to remain compliant with current regulations, Omnitracs recommends the CEV Enclosure be installed at the top-center of the windshield within 6" from the top of the windshield and out of the windshield wiper swipe patch. For vehicles that have a splitwindshield, the CEV Enclosure is best suited for installation on the driver side.





Finding a Power Source

The CEV camera system requires a power source of at least 12.4 volts or higher in order to power up. Once powered, the camera(s) require a minimum of 11.8 volts in order to remain on.

Find an available power connection within the vehicle that can provide power that meets these minimum requirements. This power source should also provide constant power. This means it should NOT be connected to an intermittent or ignition controlled power source. If available, look for a power source connected to the low voltage disconnect module. If no low voltage disconnect is available, the power cable that comes with the CEV camera system does have a built in low voltage disconnect that will completely power down the camera if the voltage drops below 11.8 volts in order to prevent the camera from draining the vehicle's battery. Test the vehicle power connection with a voltmeter to ensure enough power is provided to power the CEV camera(s). Vehicles that have not been running may have batteries that are below 12.4 volts. The CEV camera system will not start up even though other vehicle accessories are on. If below 12.4 volts, allow the batteries to recharge to a point above 12.4 volts.

Camera continuous current draw is:

a. Forward-facing only: ~.35A@12V

b. Forward and driver facing: ~.42A@12V

Installing the CEV Camera System

Note: Due the variety of vehicle models and installation requirements, installers are responsible for determining the best method to install the CEV power cable in each vehicle. When determining how and where the cable will be routed, consider how to secure the cable to ensure that cable is not pinched, bent, or subject to excessive rubbing or movement.

1. Connect the power cable's power wire to positive and constant power. Do not connect to ignition voltage.

Plug and T10

Torx TR screw

on a dual

enclosure

- 2. Connect the power cable's ground wire to a ground source. Omnitracs recommends grounding to the frame or chassis.
- 3. Remove the plug covering the T10 tamper resistant screw holding the CEV enclosure together.

Note: This step only applies for the dual enclosure.

- 4. Using a T10 Torx tamper resistant screwdriver, remove the front cover of the CEV enclosure.
- 5. Plug the power cable into the DC in connection on the forward-facing camera. Once powered on, the CEV camera system must maintain constant power. You can make adjustments to the camera while it is powered on.

Note: When using a driver-facing camera, connect it to the forward-facing camera before powering on the forward-facing camera. Do not connect or disconnect the driver-facing camera while the forward-facing camera is powered on.

- 6. Using the BlackVue app, connect to the CEV camera system you are installing. Instructions for using the BlackVue app for connecting to the CEV camera system are in the Connecting to the CEV Camera(s) section.
- 7. Manually hold the CEV enclosure to the mounting location and confirm the camera(s) can provide a good image. Do not remove the protective film covering the adhesive backing until instructed to in step 12.

Note: The forward-facing camera should have a clear view of the road including the hood of the vehicle. For vehicles that are equipped with hood or fender mounted mirrors, the camera should be positioned to capture both mirrors. The driver-facing camera view, if used, should include the vehicle operator's head and a view of the steering wheel in any position. Some adjustments may be needed to fine tune the image that is captured but at this step you simply want to confirm the camera is capable of showing images from the planned mounting location.

- a. If the selected mounting location will not allow for a good image to be captured by the camera(s), select a new mounting location and repeat step 7.
- b. If the selected mounting location will allow for a good image to be captured by the camera(s), proceed to step 8.



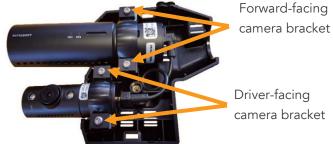
Good Forward-Facing Camera Image



Good Driver-Facing Camera Image

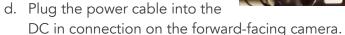
- 8. From the selected power source, route the length of the power cable to the selected mounting location at the top of the Windshield. Depending on the power source location, it may be necessary to remove the dashboard and pillar covers in order to hide the power cable from view.
- 9. Thoroughly clean the selected mounting position with glass or windshield cleaner (not provided).
- 10. Wipe the selected mounting position on the windshield with the included alcohol swab to create a clean mounting surface, removing any residue left from the cleaner.
- 11. Allow the surface to dry completely. Under normal conditions, it is recommended to wait at least two minutes, but high humidity environments will require waiting longer. Any moisture on the surface will cause poor adhesion.

- 12. Wipe the surface you just cleaned with the included 3M[™] Silane Glass Treatment Wipe thoroughly to seal the windshield and allow for better adhesion. Wait two minutes to allow the sealant to dry.
- 13. Remove the protective film from the adhesive on the enclosure to expose the adhesive surface.
- 14. Carefully but firmly press the CEV Enclosure into the selected mounting position on the vehicle windshield and hold for 30 seconds.
- 15. Make adjustments to the forward-facing camera, if needed.
 - a. Using a T10 Torx tamper resistant screwdriver or bit, loosen the camera bracket screws holding the forward-facing camera.
 - b. Using the live feed from the camera, adjust the camera to achieve a good image.
 - c. Tighten the camera bracket screws to secure the camera.Hand tighten only and be sure to securely tighten the screws.



- d. Confirm the camera is providing a good image that includes the top of the vehicle hood and both side mirrors, if available.
- 16. Make adjustments to the driver-facing camera, if used and needed.
 - a. Using a T10 Torx tamper resistant screwdriver or bit, loosen the camera bracket screws holding the driver-facing camera.
 - b. Using the live feed from the camera, adjust the camera to achieve a good image.
 - c. Tighten the camera bracket screws to secure the camera. Hand tighten only and be sure to securely tighten the screws.
 - d. Confirm the camera is providing a good image that includes the vehicle operator's head and a view of the steering wheel in any position.
- 17. Disconnect the Wi-Fi connection between your mobile device and the camera. If you connected with the BlackVue app, closing the BlackVue app will disconnect. If you connected your phone to the camera directly through your phone's Wi-Fi settings, you will need to manually disconnect the Wi-Fi connection through those same settings.
- 18. If you have not done so yet, write down the SSID for the camera before proceeding. This information will be needed when pairing the CEV system with an Omnitracs product that supports CEV.
- 19. Secure the power cable in the CEV enclosure with slack.

- a. Disconnect the power cable from the forward-facing camera.
- Route the power cable into the CEV enclosure from top of the enclosure.
- Create a J loop with the power cable inside the enclosure.



e. Attach a zip tie to the power cable right where it enters the enclosure to secure the J loop and power cable slack in the enclosure.

Attach zip tie

here.

Create a J loop with

the power cable

- f. Run the power cable through the included grommet then place the grommet in the notch at the top of the enclosure.
- 20. Reattach the CEV enclosure cover.
 - a. Place the CEV enclosure cover over the CEV enclosure, ensuring the grommet stays in place in the notch.
 - b. Tighten the T10 tamper resistant screw to secure the CEV enclosure
 - c. Replace the plug covering the T10 tamper resistant screw, if a dual enclosure.
- 21. Stow and secure any excess cable. Usually excess cable can be tied and secured behind the dashboard cover.
- 22. Please ensure that vehicle batteries are fully charged and that available power to camera will continue to stay above 12.4 volts. DO NOT Disconnect Power to the camera during the pairing and configuration process.

Pairing the Camera(s) with Omnitracs products that support Critical Event Video

Once installation of the CEV Enclosure is complete, pair the CEV camera(s) with an Omnitracs device that supports CEV. This allows users to retrieve videos from the camera.

Pairing with an Omnitracs mobile unit

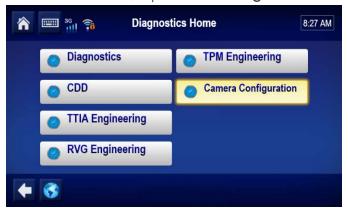
Critical Event Video is currently supported on the IVG, MCP200, and MCP110. The MCP110 may require additional hardware to enable wi-fi.

Note: In order to pair a camera with an Omnitracs mobile unit, you **must** have the mobile unit in an operational profile with Critical Event Reporting and Critical Event Video applications enabled. The operational profile is also where you configure the camera. For more information about configuring the camera, see the Critical Event Video Configuration Guide, 80-JC585-1.

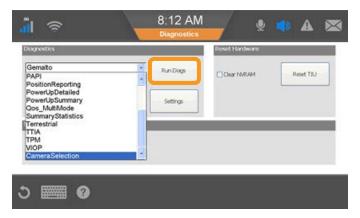
1. On the mobile unit, open the diagnostics screen.

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- 2. Depending on your mobile unit, choose Camera Configuration or CameraSelection.
 - a. For the MCP200 and MCP110, tap Camera Configuration.



b. For the IVG, tap the drop down menu in the Diagnostics box and select CameraSelection then tap **Run Diags**.



- 3. Tap the Camera ID for the camera you want to pair the MCP with. To ensure you do not pair with a nearby camera in another vehicle, verify that you choose the correct SSID for the camera you installed in the same vehicle. The SSID is on the barrel of the camera.
- 4. Tap Pair.
- 5. If this is the first time you are pairing this camera to this MCP, tap Yes to delete the camera's video files.
- 6. The pairing process will take up to 5 minutes. A confirmation will display in green text once pairing is complete.



- 7. Wait 5 minutes after pairing completes for the camera to configure its SD card.
- 8. Trigger a manual critical event on the mobile unit to confirm the unit will provide a video event to the Critical Event Reporting Portal. (You must be logged in to the IVG to do this.) This is a required step and the system will not function properly until this is done.

Pairing with Omnitracs XRS

In order to pair a CEV system with Omnitracs XRS, you must have a login to Omnitracs XRS with admin-level privileges and the vehicle you want to pair with must already exist in Omnitracs XRS.

- 1. Login to Omnitracs XRS
- 2. Click Admin.
- 3. From the Entities column, click Vehicles.
- 4. Locate the vehicle you want to add a CEV system to and click Edit Vehicle.
- 5. Click Camera.
- 6. Click Add Camera.
- 7. From the Add Camera screen:
 - a. Select BlackVue as the Camera Model
 - Select Camera Hotspot as the Connection Type
 - c. Enter the SSID for the CEV system you want to pair with.
 - d. Enter the password for your CEV System



- i. The default password for new devices is "omnitrac"
- ii. Customers can create custom passwords for their fleets. Confirm with your company's CEV admin for current passwords.
- e. Click OK.
- 8. If you have additional CEV systems to pair to a vehicle, repeat steps 6 and 7.
- 9. Click Save.

Using Critical Event Video with Omnitracs Critical Event Reporting

For information on setting up the CEV Enclosure with Omnitracs Critical Event Reporting, see 80-JC585-1, Critical Event Video Configuration Guide.

Using Critical Event Video with Omnitracs XRS

For information on setting up the CEV Enclosure with XRS Mobile, log into the XRS host website, select Help Knowledge Base from the main menu, and search for "Critical Event Video."

Troubleshooting

Camera LED Lights

The CEV cameras have a series of LED lights, providing quick diagnosis of various issues.

Forward Facing Camera

Front Security LED (directly below camera lens)

- Slow blinking normal or parking mode
- Fast blinking an event is being recorded (critical event detected) or motion detected in parking mode

GPS LED

• Solid light when GPS is on

Recording LED

- Orange blinking normal mode
- Red blinking an event is being recorded (critical event detected)
- Green blinking motion detected in parking mode

The CEV camera system will not power on

The CEV camera system requires a power source of at least 12.4 volts or higher in order to power up. Once powered, the camera(s) require a minimum of 11.8 volts in order to remain on.

Ensure the power supply you connected to is providing at least 12.4 volts of continuous power and not an ignition source. Vehicles that have not been running may have batteries that are below 12.4 volts. The CEV camera system will not start up even though other vehicle accessories are on. If below 12.4 volts, allow the batteries to recharge to a point above 12.4 volts.

Ensure all power connections are tightly secured. Check the power cable's connection to the vehicle power source and ensure the power cable plus is snugly secure in the camera's DC IN connection.

Ensure the vehicle power source is providing continuous power. Once connected to power, the CEV camera system needs to maintain continuous power until the installation is complete.

The CEV camera system will not pair with the mobile device

The CEV camera system can only be paired with one device at a time and also must be properly configured in either the operational profile on the Customer Portal (IVG and MCP users) or on the XRS Portal (XRS users).

First, check to ensure the mobile device you used to livestream the camera and verify the picture during installation is not still connected to the CEV camera system. If it is still connected, disconnect it through your mobile device's Wi-Fi settings and choose the option to "Forget Network" to ensure it does not reconnect automatically. Then attempt to pair again.

If the that does not fix the issue, work with your system administrator to ensure the Operational Profile or XRS Portal are properly configured for the CEV Camera system to associate with the vehicle you are installing it in. Configuring the CEV Camera system and operational profile for IVG and MCP users is covered in the Critical Event Video Configuration Guide, 80-JC585-1. For help setting up the CEV camera system in the XRS Portal, see the XRS knowledgebase.

Installation Videos

Scan the QR codes below with a QR code or barcode scanner on your mobile device to launch a video detailing the installation process. Omnitracs recommends viewing these videos while connected to Wi-Fi. Standard mobile phone carrier and data usage charges may apply.



IVG





XRS

MCP200 or MCP110

RMA

When returning a defective camera, only return the camera and the SD card. Keep the CEV enclosure and the brackets that secure the camera in the enclosure and any cabling. Only the serialized camera(s) are returnable. Only request an RMA for the defective camera. You will need the serial number of the defective camera(s) when requesting an RMA.

RMA Instructions

If your CEV system is not functioning correctly, please attempt to find a solution in the troubleshooting section first. If that does not work, please contact your Customer Experience Representative or Omnitracs Technical Support (800-541-7490 or www-ocus@omnitracs.com). If instructed to return a defective unit, follow these instructions to initiate an RMA:

- 1. Log in to Omnitracs Customer Portal at https://customer.omnitracs.com.
- 2. Click the Returns icon.
- 3. Click Continue under Initiate RMA.
- 4. After you are issued an RMA number, a replacement will be shipped.
- 5. Return the defective device within 30 days.

Regulatory Compliance Information

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

All objects mounted to the vehicle windshield must be mounted in a manner that limits the impact to driver visibility and complies with FMCSA regulations.

Do not locate the CEV unit or associated hardware where it obstructs the driver's field of vision, distracts the driver from the driving task, or interferes with the driver's operation of controls or instruments.

FMCSA regulation 393.60 (e) and (2) describe the allowed locations to mount objects to the vehicle windshield.

For additional information about FMCSA regulation 393, see https://www.fmcsa.dot.gov/regulations/title49/section/393.60.

FMCSA Regulation 393.60 (e) and (2) PARTS AND ACCESSORIES NECESSARY FOR SAFE OPERATION

- § 393.60: Glazing in specified openings.
- (e) Prohibition on obstructions to the driver's field of view —(1) Devices mounted at the top of the windshield. Antennas, transponders, and similar devices must not be mounted more than 152 mm (6 inches) below the upper edge of the windshield. These devices must be located outside the area swept by the windshield wipers, and outside the driver's sight lines to the road and highway signs and signals.
- (2) Decals and stickers mounted on the windshield. Commercial Vehicle Safety Alliance (CVSA) inspection decals, and stickers and/or decals required under Federal or State laws may be placed at the bottom or sides of the windshield provided such decals or stickers do not extend more than 115 mm (4 1/2inches) from the bottom of the windshield and are located outside the area swept by the windshield wipers, and outside the driver's sight lines to the road and highway signs or signals.

Appendix A: IVG/MCP Installation Check List

Pre-I	 nstallation Vehicle (mobile unit) is in an operational profile that has Critical Event Video enabled Mobile unit contains the following firmware or newer: IVG: DA0318R MCP110/MCP200: AA1512R
Insta	llation
	Connect the camera to constant power
	Ensure the camera is NOT wired to ignition
	Use the BlackVue App to:
	o Confirm the camera view is good
	o Verify the camera's firmware is 1.019 or newer
	Pair the camera with the mobile device
	o Ensure the correct camera is being paired if installing multiple units at one time
Insta	llation Confirmation
	Wait at least 5 minutes after pairing
	Trigger a manual critical event on the mobile unit to register the camera in the CEV database

Appendix B: Omnitracs XRS Installation Check List

Pre-I	nstallation The vehicle record in XRS must have a camera added
nsta	llation
	Connect the camera to constant power
	Ensure the camera is NOT wired to ignition
	Use the BlackVue App to:
	 Confirm the camera view is good Verify the camera's firmware is 1.019 or newer Pair the camera with the mobile device Ensure the correct camera is being paired if installing multiple units at one time
nsta	Ilation Confirmation Wait at least 5 minutes after pairing Create a Video Request using the XRS Website

Appendix C: Disabling the Driver Facing Camera

For customers who are also licensed for Hours of Service, the driver facing camera is automatically disabled if the driver switches his duty status to Off Duty or Sleeper Berth status on the mobile device. The camera will automatically begin recording again once the duty status switches to any other status, including if the duty status is automatically changed due to vehicle movement.

The driver facing camera is also disabled if no driver is logged in to the mobile device.

If you are not licensed for Hours of Service or prefer to use a different configuration to determine when the driver facing camera records, CEV can also be setup to disable the driver facing camera when the parking brake is engaged. Contact your CER to discuss enabling alternate configurations.

Mobile Unit Status	Hours of Service Status	Driver Facing Camera Behavior	Forward Facing Camera Behavior
Driver is Logged Out	N/A	Disabled	Always recording
	Off Duty	Disabled	
Driver is Logged IN	Sleeper Berth	Disabled	as long as battery is
	Driving	Recording	above 11.8v
	On Duty	Recording	

Appendix D: Parts List

The following parts list can be referenced in order to order replacement parts from Omnitracs. To order replacement parts for the Critical Event Video Enclosure, visit the Customer Portal at https://customer.omnitracs.com or contact your Customer Experience Representative.

System Component	MCN			
Critical Event Video System Master Packs				
MPack, Critical Event Video System, Two Camera Enclosure	MK10-JC584-1			
MPack, Critical Event Video System, Forward Camera,	MK10-JC602-1			
Individual Camera Enclosure, CEV				
MPack, Critical Event Video System, Driver Camera, Individual	MK10-JC603-1			
Camera Enclosure, CEV				
Critical Event Video Installation Kits				
Kit, Install, CEVS	65-JC588-1			
Critical Event Video System Miscellaneous Components				
Camera, Forward, 64MB, Serialized, CEVS	CA90-JC584-1			
Camera, Driver, IR, Serialized, CEVS	CA90-JC584-2			
Assembly, Critical Event Video System, Two Camera Enclosure	55-JC584-1			
Assembly, Critical Event Video, Forward Camera, Individual	55-JC602-1			
Camera Enclosure				
Assembly, Critical Event Video, Driver Camera, Individual	55-JC603-1			
Camera Enclosure				
Cable Assembly, Batt_V, Gnd, CEVS	45-JC584-A188			
Kit, Tape, VHB, 10 Pack, FWD Camera, Individual Camera	65-JC638-1			
Enclosure, CEV				
Kit, Tape, VHB, 10 Pack, Driver Camera, Individual Camera	65-JC639-1			
Enclosure, CEV				
Critical Event Video System Documentation				
Critical Event Video Getting Started Guide	80-JC586-1			
Critical Event Video Configuration Guide	80-JC585-1			