



SERVICE CENTER INFORMATION

SCI19-21

DATE :	May 2019	SECTION : 23 ACCESSORIES
SUBJECT :	PERIMETER CAMERAS INSTALLATION	

First Release

05-09-2019

DESCRIPTION

This document shows how to install exterior perimeter cameras and interior cameras. It also shows how to make the setup with the monitor.

MATERIAL

Kit #SCI19-21 includes the following parts:

Part No.	Description	Qty
900270	KIT RECORDER BRIGADE (MDR 508, GPS)	1
900272	KIT INTERIOR CAMERAS (4X) + HARNESS	1
900273	KIT BRIGADE 360 CAMERAS PERIMETER AND MONITOR	1
5001411	SCREW MA FL PH XLN BK M4-0.7X20	4
500589	NUT RUBBER M4-0.7 (23/64" DE)	4
502725	SCREW MA OV PH SS NSS M4-0.7X10	4
562387	LOOM CONV 0.25 ID BLACK SPLIT 20"	1
3201455	CABLE COVER	1
406046	MIRROR TOP FINISHING MOLDING	1
504107	POP RIVET DOME AL OE 1/8# (0.250_0.312)	2
406109	DRIVER SUNSHADE GUIDE	1
401059	DRIVER SUNSHADE GUIDE BOTTOM SUPPORT	1
504637	CABLE TIE MIDDLE SIZE	12
5001091	SCREW TC PAN PH BK 4-40X1/4	1
5001155	SCREW SELF THREAD PH N050 #8X3/4	2
687957	GLUE TEROSON MS 9399, 400ML	1
684685	SEALANT SIMSON ISR 70-03 NOIR	1

Other parts that may be required:

Part No.	Description	Qty
686010	TAPE MTI 12MM	REQUIS
680212	TAPE 1" , 25.4MM	REQUIS
687959	CLEANER TEROSTAT 450	REQUIS

Tools you will need:

Part No.	TOOLS	Qty
901734	MATTRESS CALIBRATION TRIANGLE	4
	BRIGADE CALIBRATION MODULE	1

NOTE

Material can be obtained through regular channels.

PROCEDURE



DANGER

Park vehicle safely, apply parking brake, stop the engine. Prior to working on the vehicle, set the ignition switch to the OFF position and trip the main circuit breakers equipped with a trip button. On Commuter type vehicles, set the battery master switch (master cut-out) to the OFF position.

Lock out & Tag out (LOTO) must be performed during set-up, maintenance or repair activities. Refer to your local procedure for detailed information regarding the control of hazardous energy.

FRONT CAMERA INSTALLATION

1. Prepare installation of 4 exterior cameras. Figure 1 shows parts.

NOTE

Mounting screws are different for the front/rear cameras and for the side cameras.



Figure 1

2. Drill 3 holes in front of the vehicle as shown in Figure 2. Predrill $\varnothing 3/16"$.

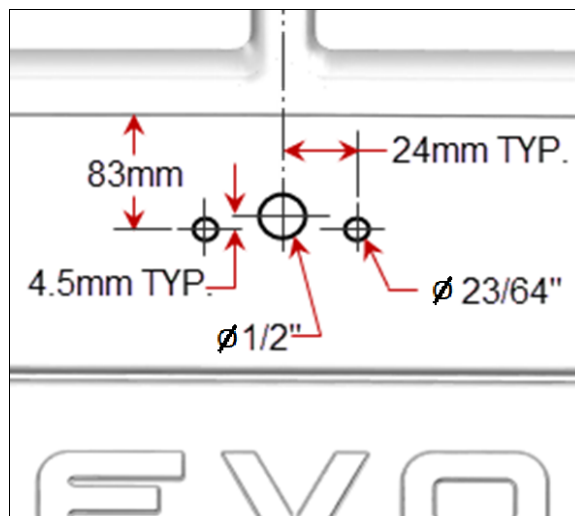


Figure 2

3. Break sharp edges of all holes with a blade.
4. Clean the mounting face with silicone remover.



Figure 3

5. Insert rubber nuts into small holes.



Figure 4

6. Install gasket on the wiring.
7. Insert wiring into the center hole. Apply sealant (Simson 70-03) around the hole.



Figure 5

8. Install the camera with screws #509827.
9. Remove plastic protector on the camera eye.
10. Clean the area.



Figure 6

11. Remove dashboard vertical panel.

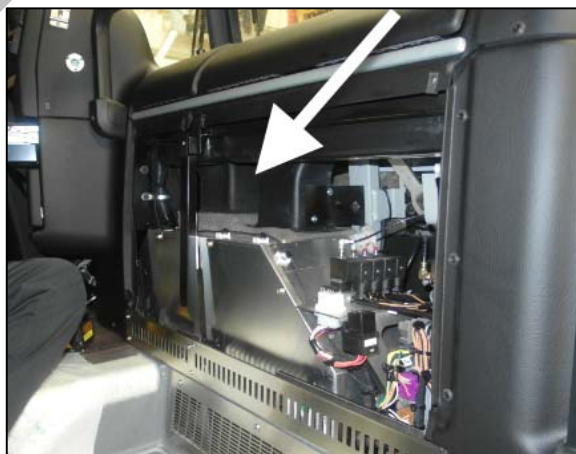


Figure 7

12. Remove dashboard cover (5 screws M4-07X20).

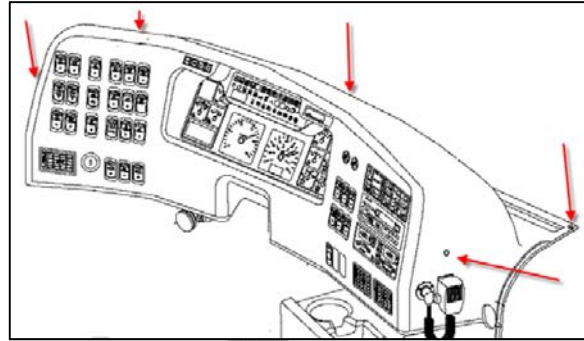


Figure 8

13. Install wiring #901712 into the dashboard and connect to the front camera. The other end goes to the monitor.
14. Secure the wiring with cable ties. Make sure the wiring is not interfering with the wiper arms.

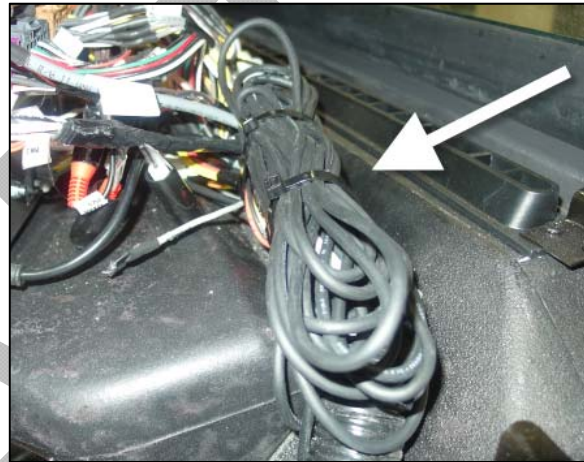


Figure 9

REAR CAMERA INSTALLATION

15. Remove plastic finishing molding (item 1, Figure 10) on the top of the lavatory mirror.
16. Discard the molding.
17. Remove the top mirror support (8 screws).



CAUTION!

Keep holding the mirror when proceeding previous steps.

18. Remove the mirror (item 2, Figure 10) and keep in a safe place.
19. Remove mirror bottom support (7 screws).

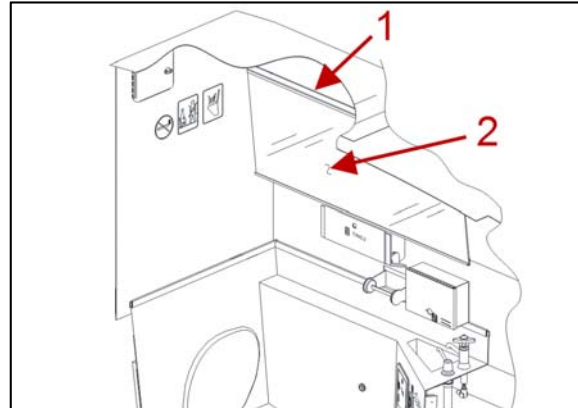


Figure 10



Figure 11

20. Remove screws (3) under the paper sheet distributor and remove the support.



Figure 12

21. Remove the rivets (2) at the top of the paper sheet distributor. Use drill $\varnothing 1/8"$.



Figure 13

22. In one piece, cut the foam 3" height by 6" wide around the rear camera position to get access to the wiring.
23. Keep the cutting piece of foam for reinstallation later.
24. Locate the cam connector.



Figure 14

25. On the vehicle rear panel, drill 3 holes as shown in Figure 15. Use drill $\varnothing 3/16"$ for predrilling.
26. Break sharp edges with a blade.
27. Clean the mounting face with silicone remover.
28. Insert rubber nuts into small holes.

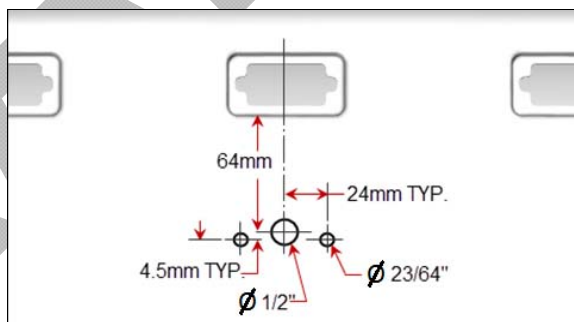


Figure 15

29. Install gasket on the wiring.
30. Insert wiring into the center hole. Apply sealant (Simson 70-03) around the hole.



Figure 16

31. Install camera with 2 screws #509827.
32. Remove plastic protector on the camera eye.
33. Clean the area.



Figure 17

34. Connect camera.
35. Secure the new wiring with existing cables. Keep loose wire for future camera replacement from the exterior.



Figure 18

36. Install the cutting piece of foam and use sealant as glue (Simson 70-03 #685124).



Figure 19

MONITOR INSTALLATION

37. Remove existing driver sunshade RH guide and discard.

38. Remove existing guide support and discard.



Figure 20

39. Install cover-up molding over the monitor wiring.



Figure 21

40. Install monitor support.

41. Drill 2 holes #21 (Ø0.159").

42. Use 2 screws #500957.



CAUTION!

Do not tighten too much. Material is made of composite.



Figure 22

43. Install the new driver sunshade RH guide with the new support.



CAUTION!

Do not tighten too much. Material is made of composite.



Figure 23

44. Install screw #5001091 to hold the guide into the support.

SIDE CAMERAS INSTALLATION

45. Clean the mounting face of the supports with silicone remover.



Figure 24

46. From the rear end of the top extrusion, position the supports at 5939 mm ± 5 on the driver side and at 5609 ± 5 on the curb side.

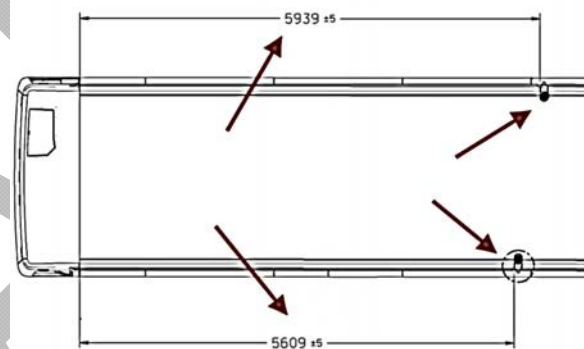


Figure 25

47. If necessary, reposition the support to clear the roof rivets.
48. Clean the mounting area with silicone remover. Make sure no water on the mounting face.

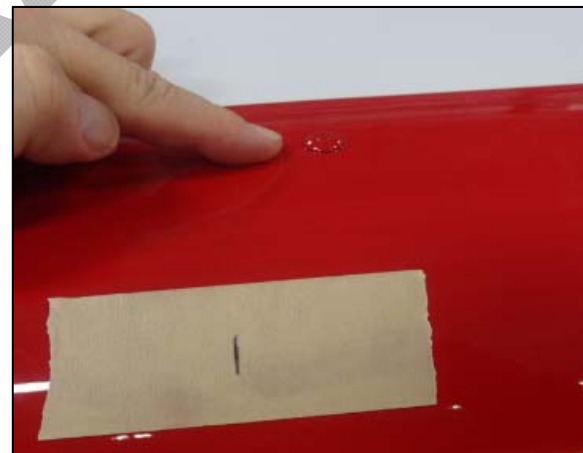


Figure 26

49. Temporary install the support on the roof.
50. Use a drill Ø3/16" to predrill through the roof.
51. Drill Ø1/2".



Figure 27

52. Install 10" of loom on the wiring.



Figure 28

53. Install a cable tie on the loom close to the camera.

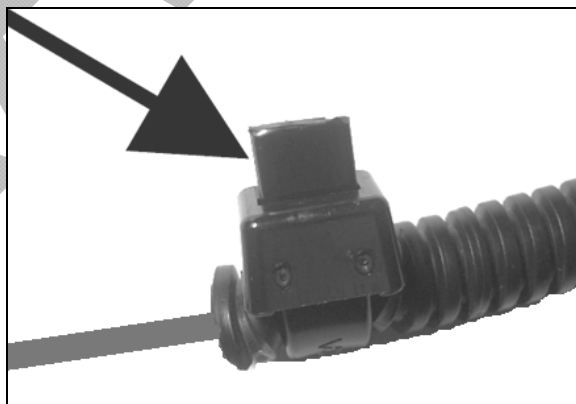


Figure 29

54. Install the gasket and insert the wiring through the hole.

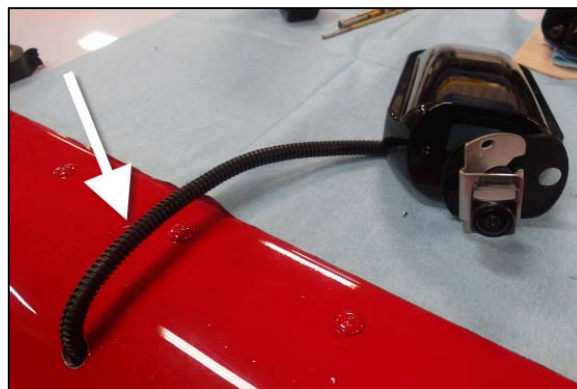


Figure 30

55. Remove cover into the overhead compartment.
56. Connect the cameras.
57. Secure the wiring.



Figure 31

58. Install tape all around the support. Keep a gap of $\frac{1}{4}$ " at the base without tape.



Figure 32

59. Install the support on the roof and install a tape 1" wide all around the support. Keep a gap of $\frac{1}{4}$ " with the support without tape.

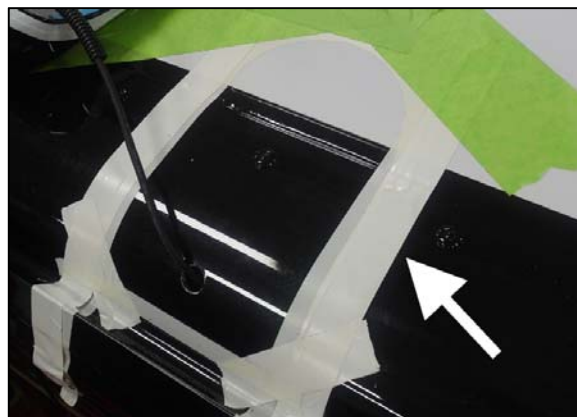


Figure 33

60. Clean the mounting face with Teroson 450 cleaner.
61. Let dry 10 minutes.

	CAUTION!
Teroson cleaner may generate stain. Make sure to only apply on the mounting face.	



Figure 34

62. Prepare tool to apply glue.



Figure 35

NOTE

Use new tip for each support application to avoid applying dried portion of glue.



Figure 36

- 63. Apply glue #687957 as shown in Figure 37.
- 64. Do not apply glue around the wiring exit to allow water to drain.



Figure 37

- 65. Install the support on the roof and push to make a good contact between components.



Figure 38

66. Remove exceeding glue with a finger.



Figure 39

67. Apply sealant Simson around the support.



Figure 40

68. Spread sealant with a finger.



Figure 41

69. Remove the tape.



Figure 42

70. Insert the wiring through hole and keep enough space to apply sealant.

71. Apply sealant (Simson) around the wiring.

72. Let the glue and the sealant to dry for 30 minutes before to install the camera on the support.

73. Install camera on the support with screws 502725.

74. Remove protector on the camera eye.

75. Clean the area.



Figure 43

CALIBRATION

76. Download the Brigade calibration software on your compute with the necessary files. You can get the files on the Brigade website or contact a service representative.
77. Install 2 mattresses in front of the vehicle, 30" from the bumper.



Figure 44

78. Install 2 mattresses at the back of the vehicle, 15" from the bumper.



Figure 45

79. Install 2 small length of tape on each side of the vehicle in line with the wheel and 48" from the tires.

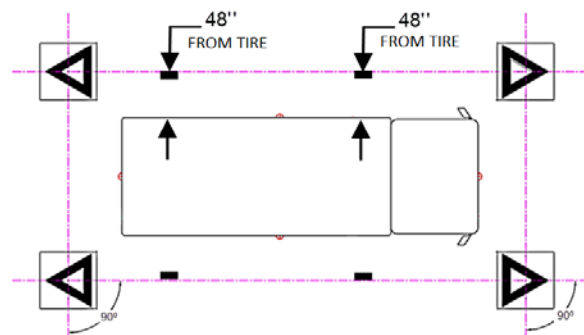


Figure 46

80. Align the middle of the triangles with a chalk line and use tape to position the mattresses.



Figure 47

81. Use tape to hold the mattresses in place.



Figure 48

82. Insert a SD card into the computer.



Figure 49

83. Click right button on SD CARD (D:).

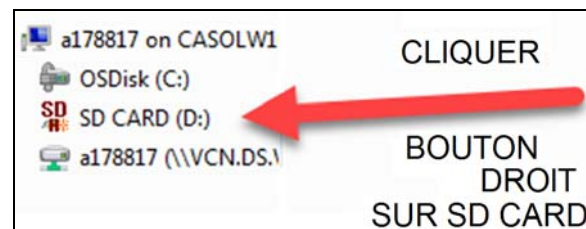


Figure 50

84. Select Format menu.

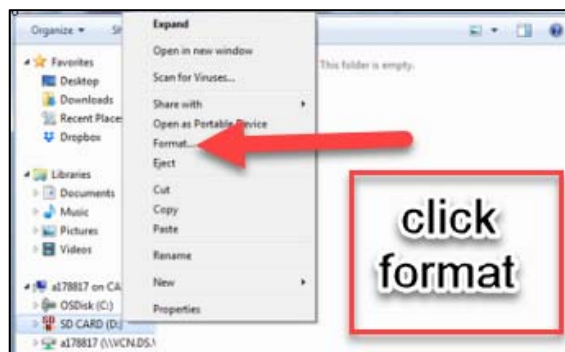


Figure 51

85. Click on Start button.

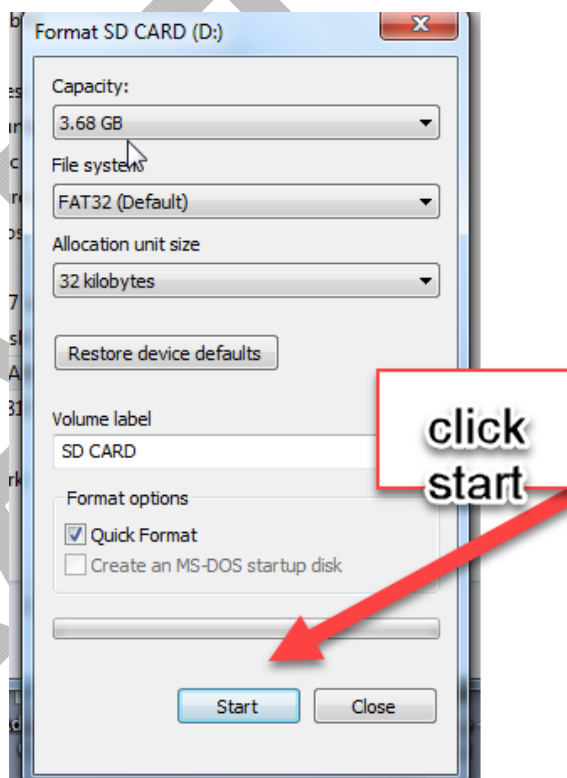


Figure 52

86. Click OK "Warning".

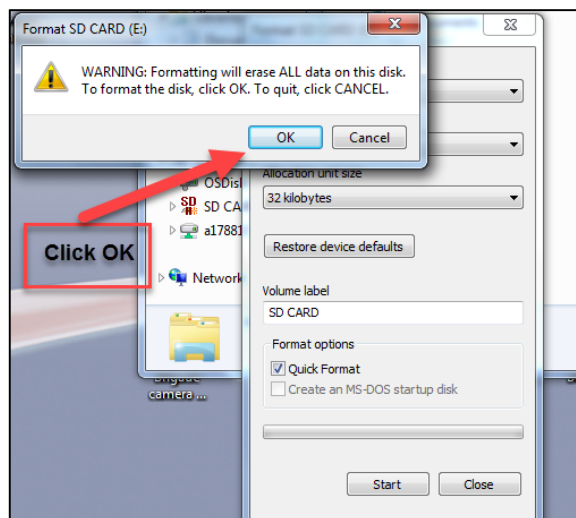


Figure 53

87. Click "OK".

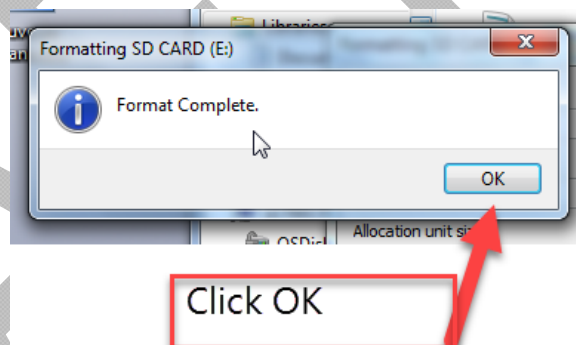


Figure 54

88. Open folder Brigade 360.

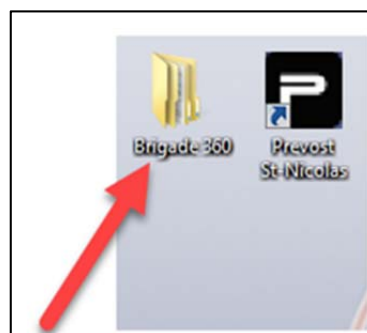


Figure 55

89. Open folder 3.0 SD Card Data.

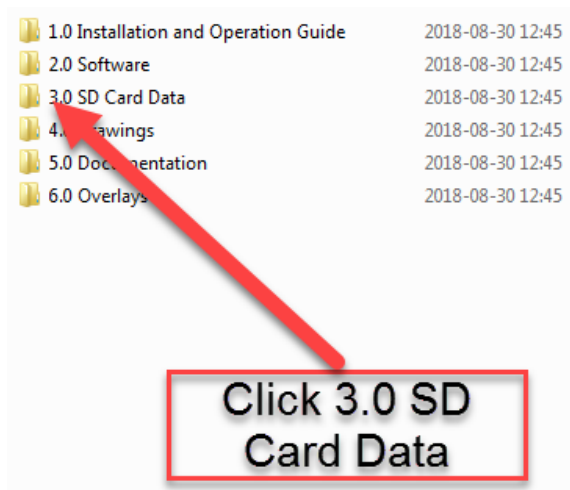


Figure 56

90. Open folder 3.1 EN.



Figure 57

91. Open folder L1.

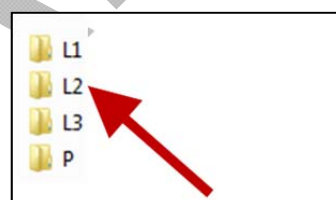


Figure 58

92. Copy folder Backeye from the computer to the SD card.

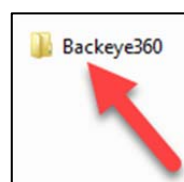


Figure 59

93. Connect 110V power line to the vehicle.
94. Remove all objects in line with the mattresses.
95. Close all baggage compartment doors.
96. Bring the SD card and the Brigade calibration module into the vehicle.
97. Close the entrance door.

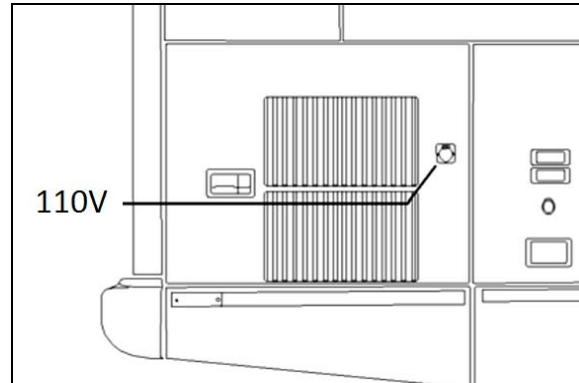


Figure 60

98. Turn ignition to "OFF" position.
99. Connect the Brigade calibration module.
100. Turn ignition to "ON" position.



Figure 61

101. Wait for the message "Please insert SD Card".



Figure 62

102. Insert SD card into the Brigade calibration module.



Figure 63

103. Make sure nobody walks between the mattresses.
104. On the controller module, push for three seconds on the button with the vehicle icon.



Figure 64

105. Wait until all pictures are saved.



Figure 65

106. When the message "Finish to save image (OK)" appears, remove the SD card from the Brigade calibration module.
107. People may walk now around the vehicle.

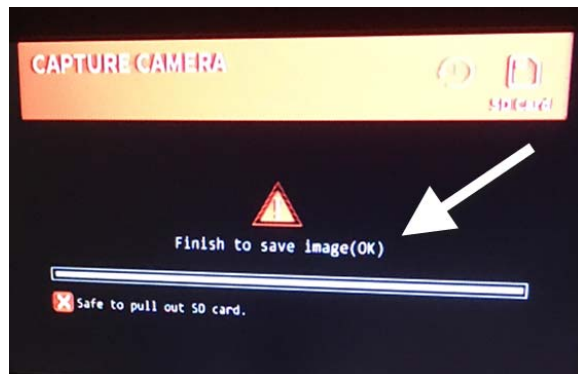


Figure 66

108. Insert SD card into the computer.

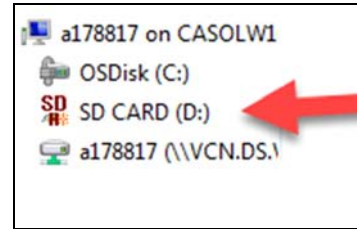


Figure 67

109. Open folder SD CARD (D).
110. Open folder 360 Select Calibration Tool.

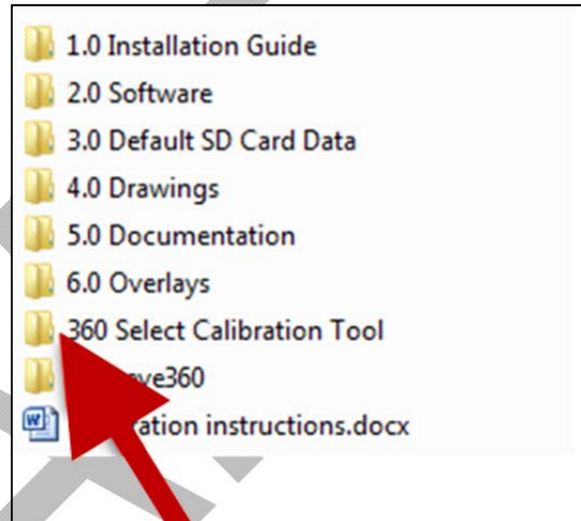


Figure 68

111. Launch "calibration.exe".

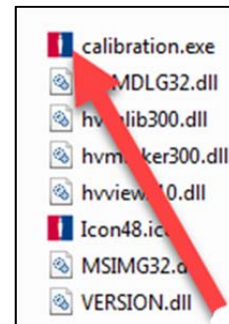


Figure 69

112. Click on "ConfigLoad" menu.



Figure 70

113. Click on "O" button.

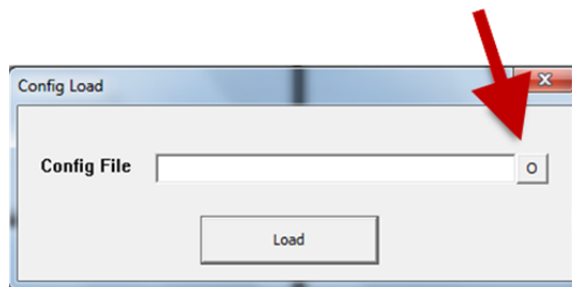


Figure 71

114. Open folder SD CARD (D:).

115. Open folder Backeye360.

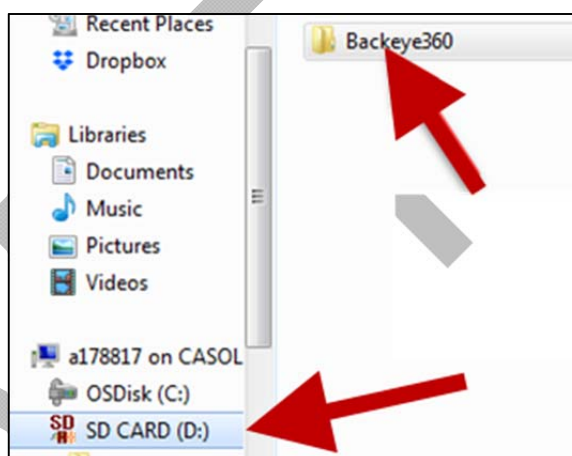


Figure 72

116. Open folder "config".

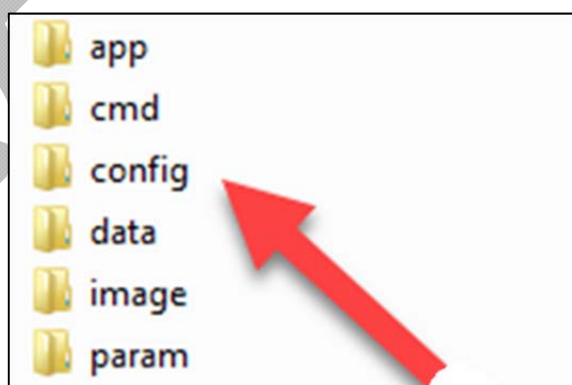


Figure 73

117. Select file "nbConfig.bin".

118. Click "Open".

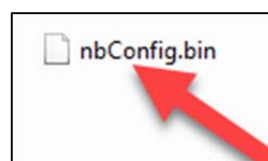


Figure 74

119. Click "Load".

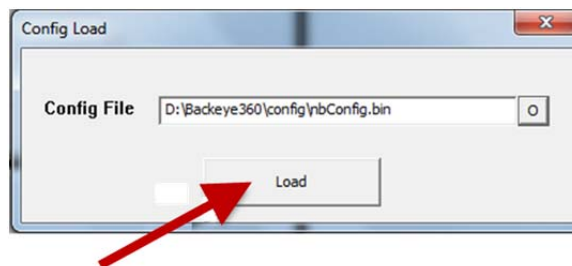


Figure 75

120. Click "ImageLoad" menu.



Figure 76

121. Select "Removable Disk".

122. Click "Load".

123. Wait until the end of loading then 4 cameras appear on screen.

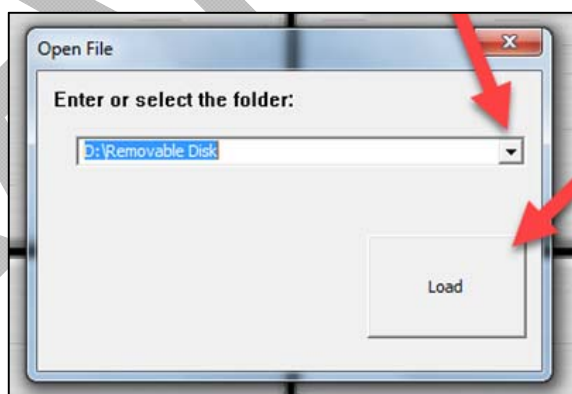


Figure 77

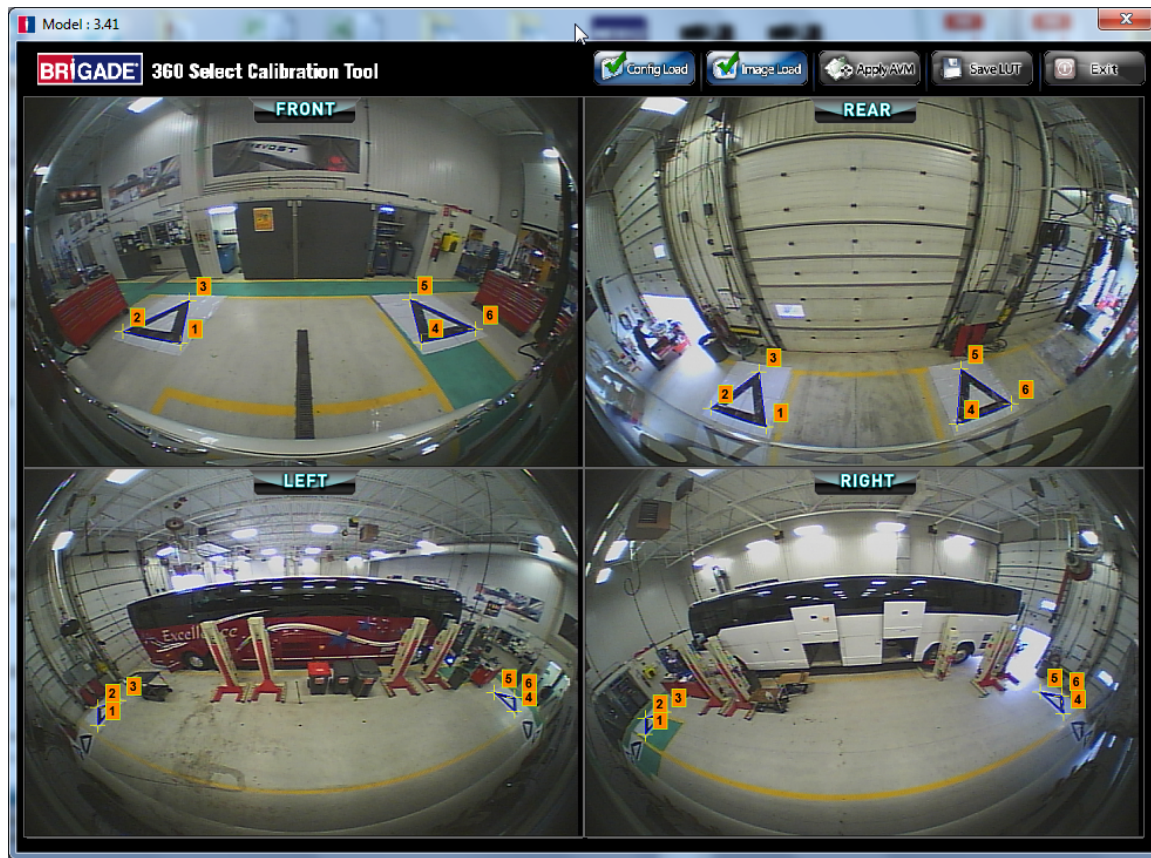


Figure 78

124. Adjust 3 corners of each triangle to all cameras.
125. Double click on a picture to show it full screen.
126. Select a yellow cross to show it in red into the magnifying window.
127. With the keyboard arrows on the computer, move the red cross close to the blue corner.
128. Repeat for all corners for all pictures.

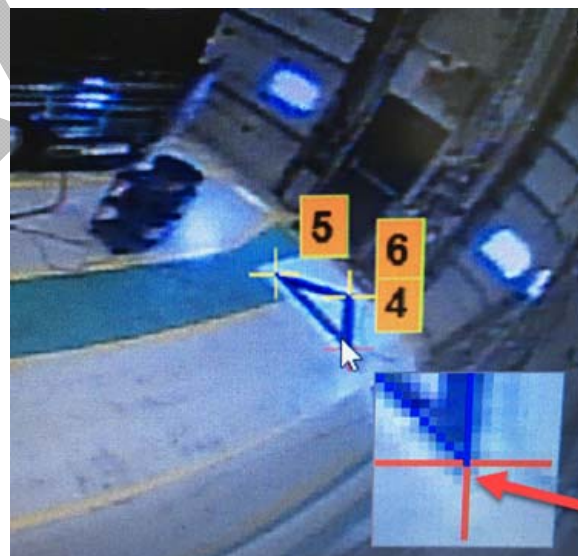


Figure 79

129. Click "Apply AVM" menu.



Figure 80

130. Click "OK".

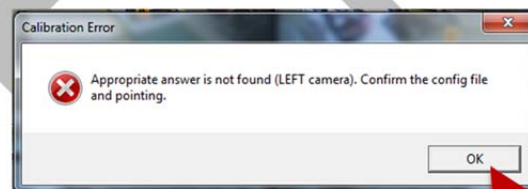


Figure 81

131. **Step 1 :** Select "nbTop" for the "Select a View" list.

132. **Step 2 :** Modify Vehicle Dimensions, Overall width and Overall length until the black rectangle completely cover the red zone.

133. Click Enter.

134. **Step 3 :** Use arrows on the screen to adjust the triangle on the side of the picture.

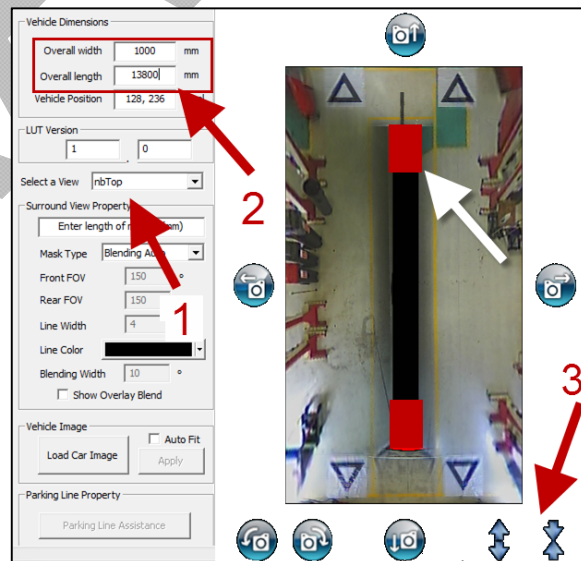


Figure 82

135. Click Load Car Image.

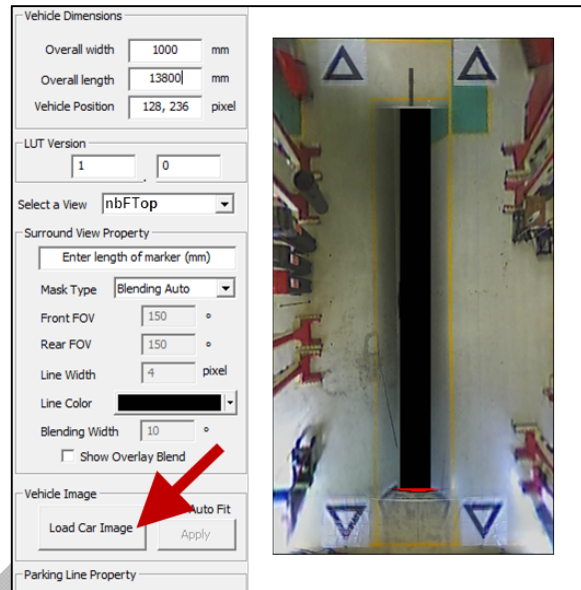


Figure 83

136. Open Desktop.

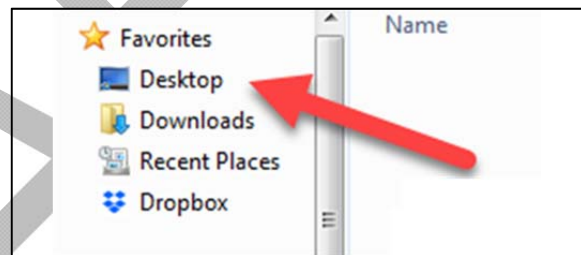


Figure 84

137. Open folder Brigade Camera.

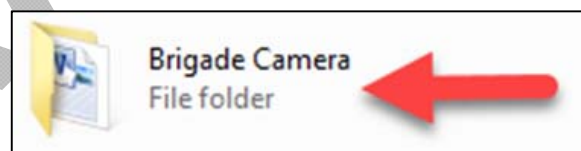


Figure 85

138. Open folder 6.0 Overlays.

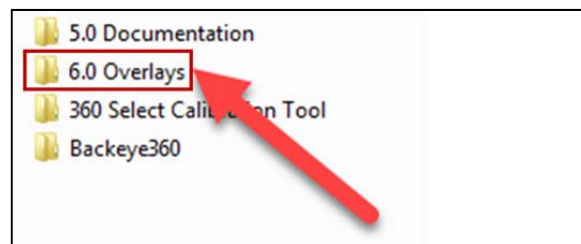


Figure 86

139. Open folder **6.1 Standard system vehicle images** or folder **6.1 landscape vehicle images**.

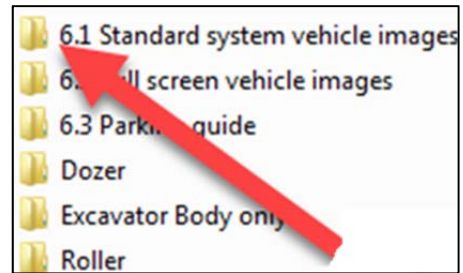


Figure 87

140. Open folder 6.1.3 Bus.



Figure 88

141. Select file Bus.White.BMP.
142. Click Open button.

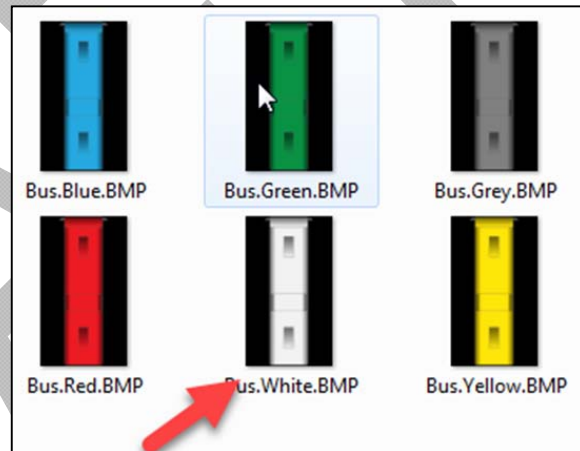


Figure 89

143. Select the silver top of the vehicle to show the dimensioning and positioning white dots.
144. Adjust the silver top dimensions and position with the black rectangle.

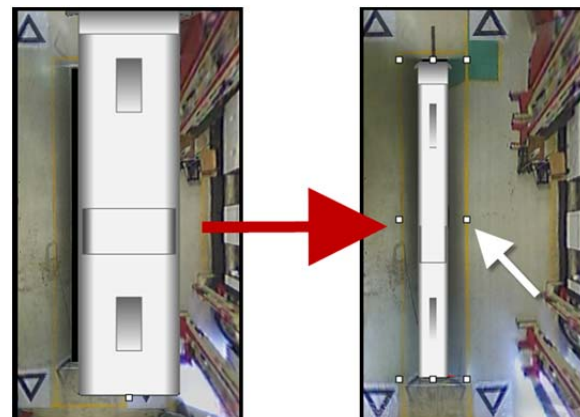


Figure 90

145. Click Apply button.

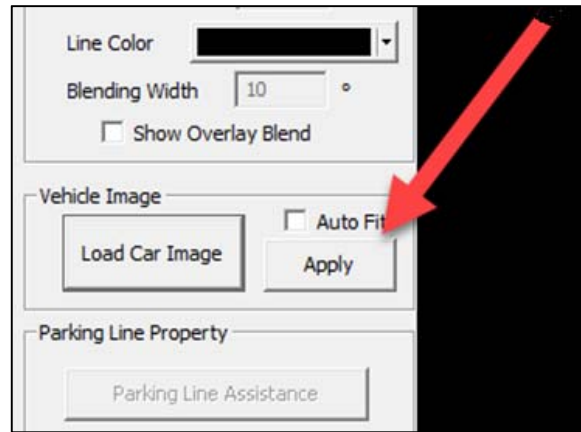


Figure 91

146. Select "nbRTop" into the "Select a View" list.

147. Click on Load Car Image button.

148. Repeat steps 136 to 145.

149. Click Apply button.

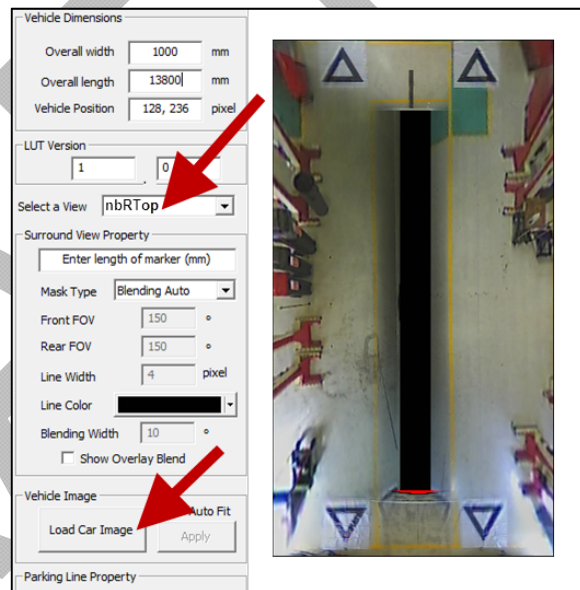


Figure 92

150. Select "nbFTop" into the "Select a View" list.
151. Click on Load Car Image button.
152. Repeat steps 136 to 145.
153. Click Apply button.



Figure 93

154. Click on Save LUT menu.

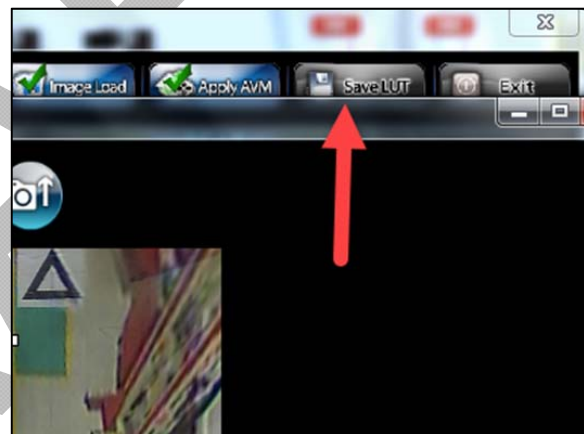


Figure 94

155. Click "OK".

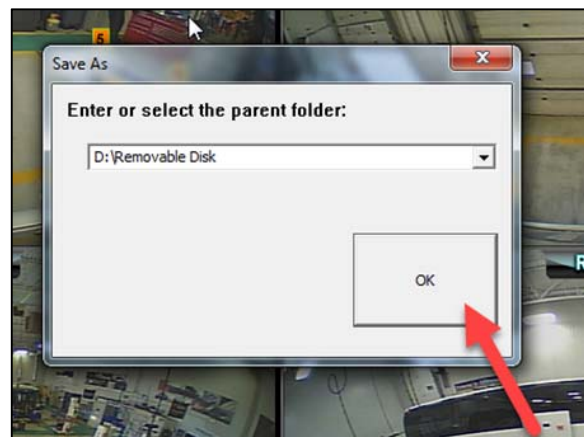


Figure 95

156. Click "OK".

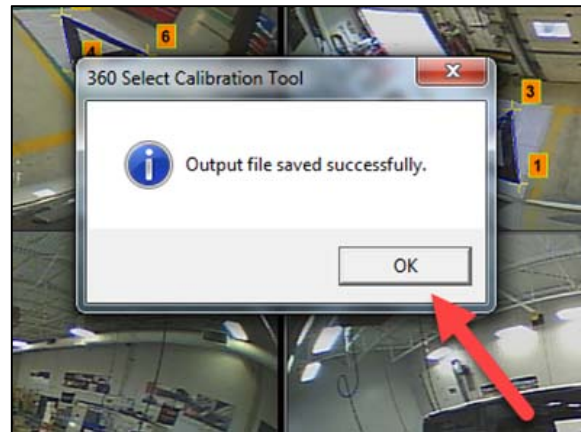


Figure 96

157. Open folder SD CARD (D:).

158. Open folder Backeye360.

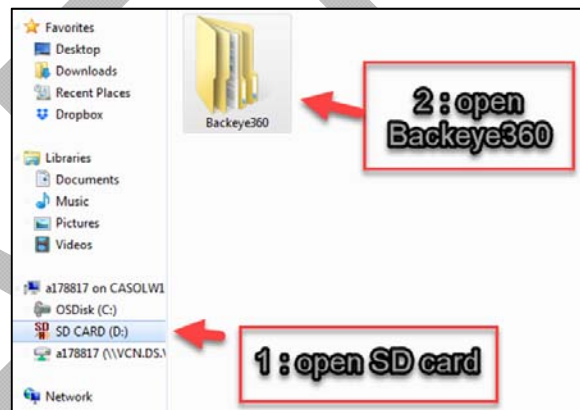


Figure 97

159. Open folder "cmd".

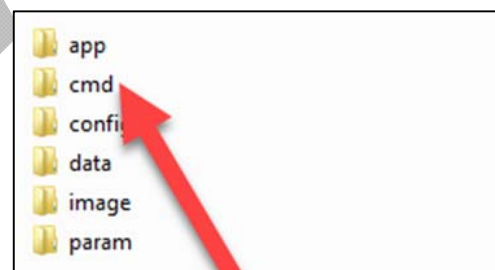


Figure 98

160. Right click on file "image.cmd" or on file "capture.cmd" and rename it "update.cmd".

161. Remove SD card from the computer.

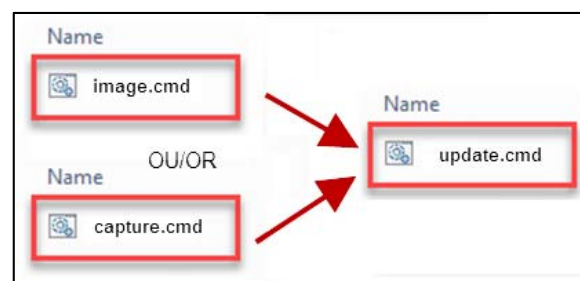


Figure 99

162. Into the vehicle, turn ignition to "ON" position, and then insert the SD card into the Brigade calibration module.



Figure 100

163. The system downloads automatically the pictures.



Figure 101

164. Wait until the menu shown in Figure 102 appears.

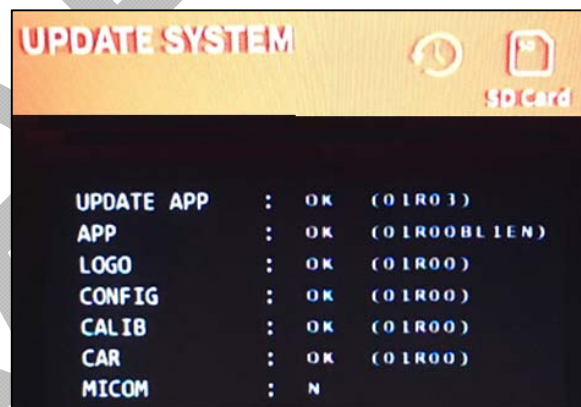


Figure 102

165. Push "R" button on the Brigade calibration module to restart the process.
166. Wait until the menu shown in Figure 102 appears.



Figure 103

167. Remove the SD card from the Brigade calibration module.



Figure 104

168. When image shown in Figure 105 appears, disconnect the Brigade calibration module.

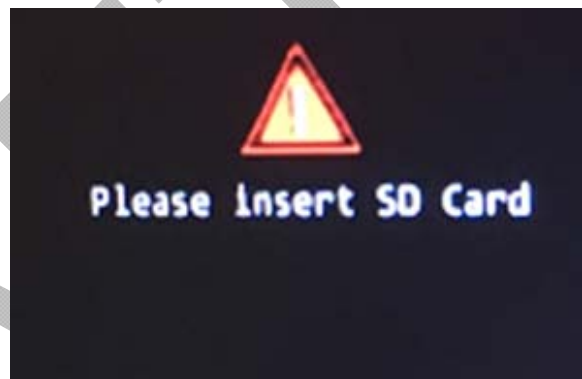


Figure 105

169. Reinstall the cap.



Figure 106

- 170. Insert SD card on the computer.
- 171. Open folder Backeye360.

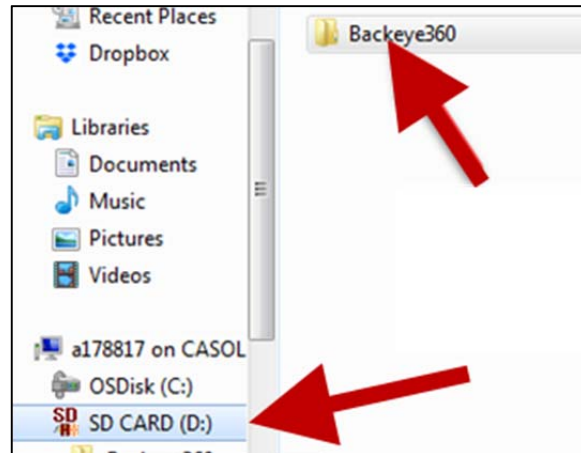


Figure 107

- 172. Open folder "image".

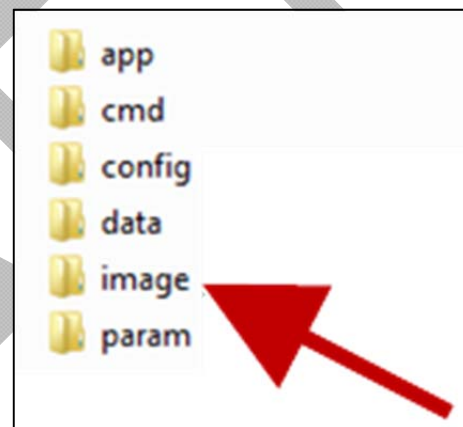


Figure 108

- 173. Copy the list of files (4) shown in Figure 109 on a USB key into a new folder with a name including the VIN and give it to the service manager.
- 174. Copy the list of files (4) shown in Figure 109 into a new compressed folder with a name including the VIN and send it by email to the service manager.

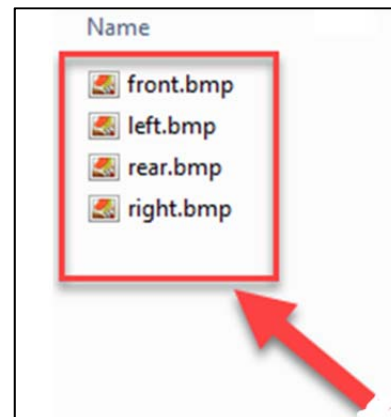


Figure 109

175. Return into the vehicle.
176. The remote control is delivered with the battery upside down. Reposition the battery with the letter on the top.



Figure 110

177. Position the remote control close to the antenna.
178. Push "MENU" button on the remote control to show menus on the screen.

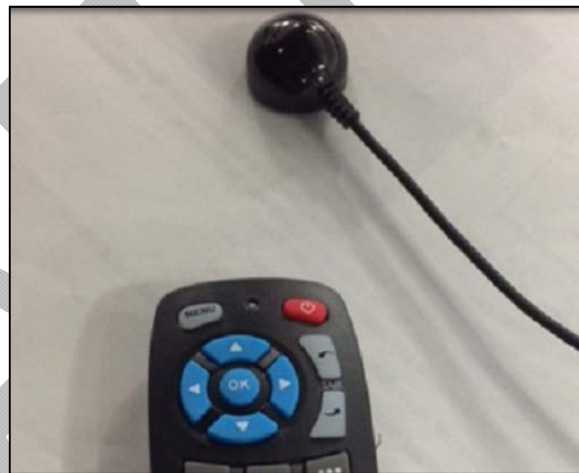


Figure 111

179. Make the SETUP icon highlighted.
180. Push "OK" button on the remote control to move to next step.

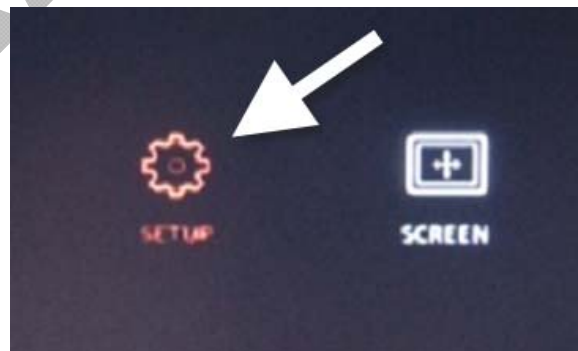


Figure 112

181. Use "TAB" buttons to show options on the screen.
182. Use "OK" button to activate a highlighted option.



Figure 113

183. By default, the first screen allows the set up of the rear view (Top Rear).

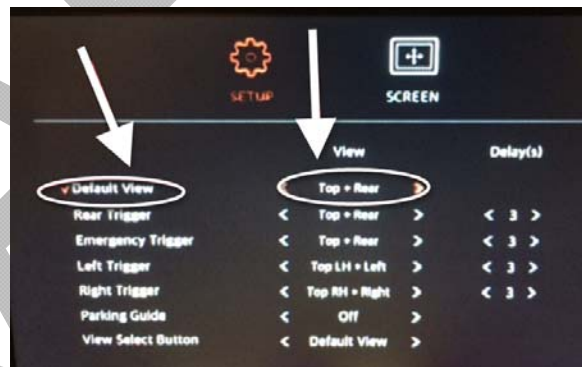


Figure 114

184. With the remote control and the "TAB" buttons, select "Top Front" as default view.

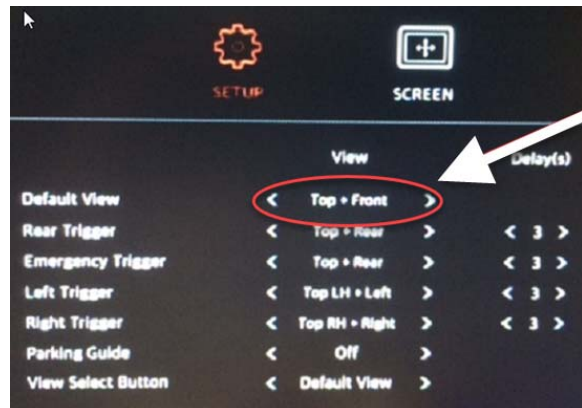


Figure 115

185. With the remote control and the "TAB" buttons, highlight the right arrow and then click "OK" button to move to next page.



Figure 116

186. Set the "Speed Tragger" to "ON".
187. Adjust "Pulses-per-second" to a value of 130.

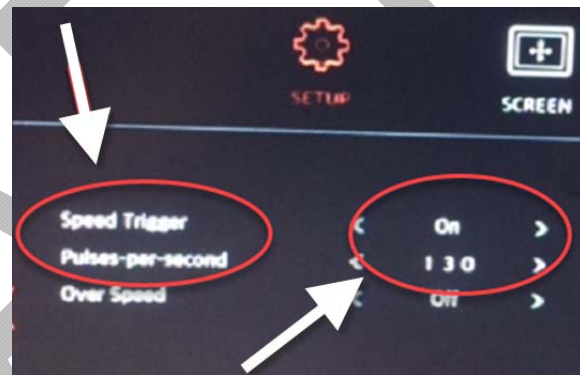


Figure 117

188. Move back to SETUP Figure 118.
189. Push and keep pushing on the "MENU" button of the remote control for 10 seconds to get out of the system.

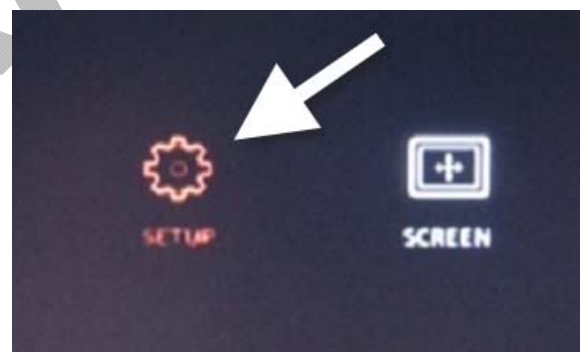


Figure 118

190. When the image is back, turn the ignition to "OFF" position and then to "ON" position to register the data.



Figure 119

191. Check image generation on the monitor. Start the engine and select the backup position for the transmission, move to neutral and then stop the engine.
192. Make a road test and check if the monitor turns off when the vehicle speed gets over 20 km/h.
193. The installation is complete



Figure 120

TEMPS ESTIMÉ

Le temps alloué est de XX minutes.

DISPOSITION DES PIÈCES

- Rebuter selon les règlements environnementaux applicables (mun. /prov. /féd.).