



eqss™ Gen-3 LMS Telehandler Load Management System

Installation Manual for JCB 550-140



PLEASE NOTE:

*****Do Not Swap Components between Gen3-LMS kits*****
When installing multiple Gen3-LMS kits, make sure the serial number on the sticker matches the serial number on the machine.

*****Failure To Follow Installation Manual Will Void Warranty*****

Documentation Conventions

The list below highlights important documentation conventions.



Text presented in this manner is intended to provide the user with some general information. The user should ensure information presented in this manner is clearly understood.



Text presented in this manner provides the user with information to assist in completion of the current procedure being explained.



Text presented in this manner indicates that a failure to follow directions could result in damage to equipment, loss of information, bodily harm, or loss of life.

Important Information

Information contained in this publication regarding this device's applications and the like is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that the application or our equipment meets with your specifications.

EQUIPMENT SAFETY SYSTEMS MAKE NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, STATUTORY OR OTHERWISE, RELATED TO THE INFORMATION, INCLUDING BUT NOT LIMITED TO, IT'S CONDITION, QUALITY, PERFORMANCE, MERCHANTABILITY OR FITNESS FOR PURPOSE.

Equipment Safety Systems disclaims all liability arising from this information and its use. Use of Equipment Safety Systems' products as critical components in life support systems is not authorised except with express written approval by Equipment Safety Systems. No licenses are conveyed, implicitly or otherwise, under any Equipment Safety Systems intellectual property rights.

Table of Contents

Tools Required for Installation.....	5
Covers.....	6
Cable Reeler Installation.....	7
Cable Reeler Mounting Position.....	9
Pressure Sensor Installation.....	10
Main Cylinder Pressure Sensors.....	10
Compensation Pressure Sensors.....	12
Reverse Camera.....	13
Forward Camera.....	14
Signal Light Installation.....	15
Stabiliser Harness.....	18
Can Pressure Input Module (CPIM).....	19
Can Cabin Interface Module (CCIM).....	20
External Cable Completion.....	21
Dashboard Switches.....	22
Display Installation.....	23
Machine Connections.....	25
Finalisation.....	28
Set Time & Sensor Calibration.....	32
Appendix A: Attaching Display Connectors.....	35
Appendix B: Reattach Ferrites.....	39
Indexes and Tables.....	40

Tools Required for Installation

The tools required to perform the installation of the TSS are listed below

- Pencil or Texta
- Drill
- Drill bits
 - 3.3 mm
 - 4.5 mm
 - 5 mm
 - 6.25 mm
 - 6.8 mm
 - 8.5 mm
- Centre punch
- Tap T-Handle
- Taps
 - M6
 - M7 x 0.75
 - M8
- Drill and tap oil
- Metric Allen keys
- Phillips Head screw driver
- Spanners and sockets
 - 7 mm
 - 10 mm
 - 13 mm
- Loctite thread locker
- Side cutters
- Stanley knife
- Crimpers
- Wire strippers
- Hole saw
 - 31 mm
 - 34 mm

Covers

Remove the following covers before starting the installation






<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	Release the dashboard display bolts	
2.	Remove the indicator display behind the steering wheel	
3.	Remove the cover for the hydraulics behind the cabin	



Table 3: Cover removal

Cable Reeler Installation

The cable reeler is used to measure the boom extension to determine the maximum lifting capacity.

 A false N07 fault can occur if the boom jumps off the stow switch due to pressurising the hydraulic system and without operating the boom extension control. Ensure the stow switch arm is correctly adjusted to prevent this error.

 When mounting the cable anchor ensure it is mounted on the first extendable section not on the last section. If mounted on the last section the cable reeler will be damaged when the boom is extended.

<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	<p>Drill and tap holes for the cable reeler according to the mounting diagram on page 9.</p> <p>Mount using the supplied bolts and standoffs.</p>	
2.	<p>Drill and tap an M8 hole for the cable anchor. Ensure the cable anchor is positioned so the cable runs in line with the boom</p> <p>Mount the cable anchor and attach the cable with the supplied M8 washer and the M8 nylock nut.</p> <p>Note: Ensure the anchor is mounted on the first extendable section not on the last section. If mounted on the last section the cable reeler will be damaged when the boom is extended.</p>	



<i>Step</i>	<i>Description</i>	<i>Diagram</i>
3.	<p>Drill and tap the M6 holes for the stow switch trigger. Ensure the stow switch arm is pressed/switched when the boom is retracted.</p> <p>Mount the stow switch trigger using the supplied 17mm spacers and M6 bolts.</p>	
4.	<p>Connect the supplied M12 10 metre cable (CB001027) into the cable reeler connection.</p> <p>Cable tie to the hydraulic pipes running underneath the boom then onto the flexible hydraulic hoses down to the chassis. Make sure the cable isn't pinched or stretched when the boom is raised or lowered.</p>	

Table 4: Cable Reeler Installation

Cable Reeler Mounting Position

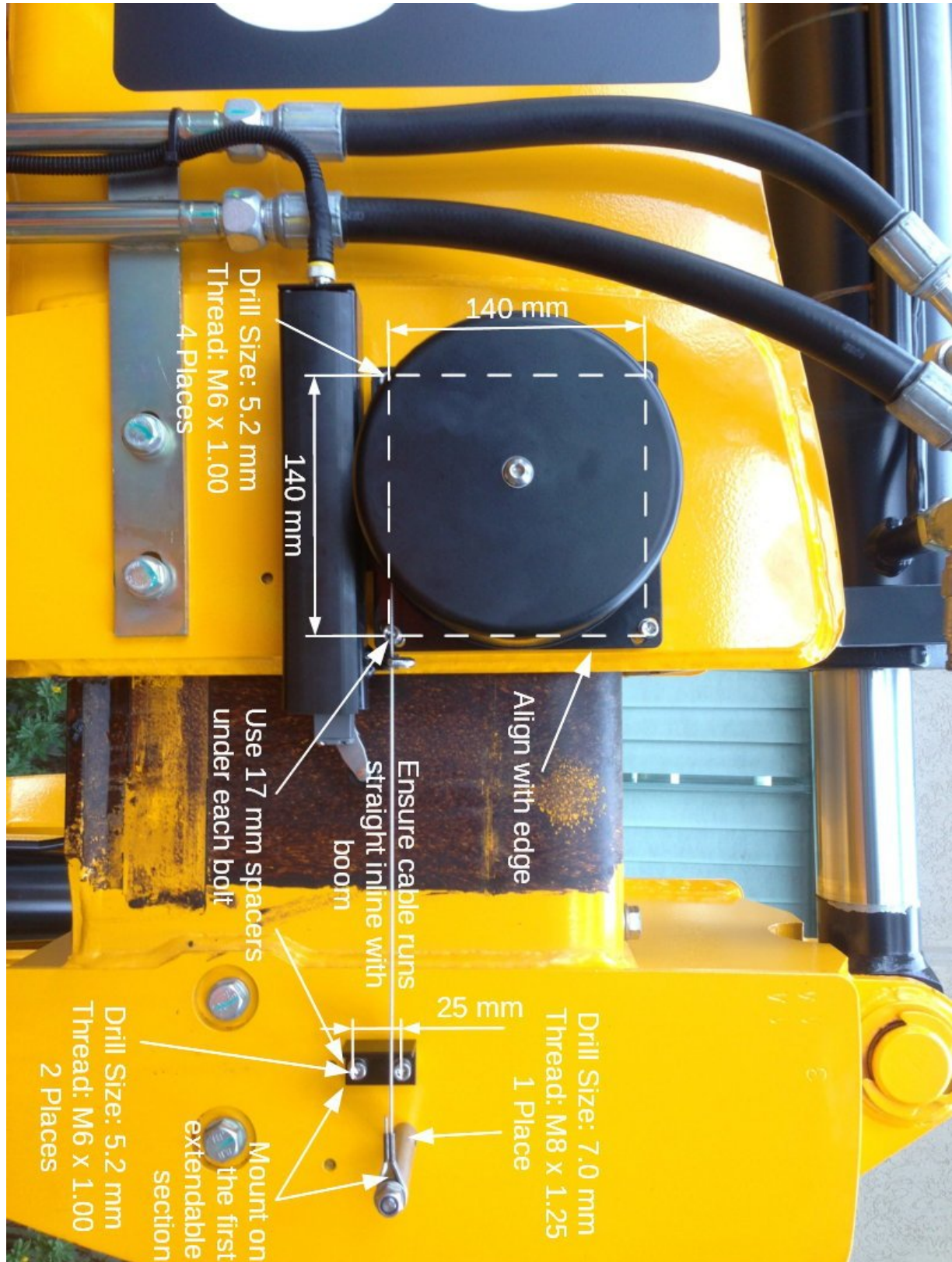




Illustration 1: Cable Reeler Mounting Position

Pressure Sensor Installation

The hydraulic pressure sensors are used to measure the lifting load of the telehandler.

Main Cylinder Pressure Sensors

<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	<p>Raise the boom to approximately 40 degrees.</p> <p>Support and secure the boom using an A Frame or similar apparatus. It must support at least 2 tons.</p> <p>Apply the handbrake and insert chock under wheels.</p> <p>Release the blanking cap on the hydraulic port.</p> <p>Removing the blanking cap will release the hydraulic pressure which may result in a spray of oil.</p> <p>Install the supplied pressure sensor and ensure it is tightly sealed.</p>	
2.	<p>Locate the 5/8 BSPP to 3/8 BSPP Hydraulic Tee (Not Supplied, JCB #: 816/90143) and connect to rod pressure sensor connections using the supplied seal as shown.</p>	


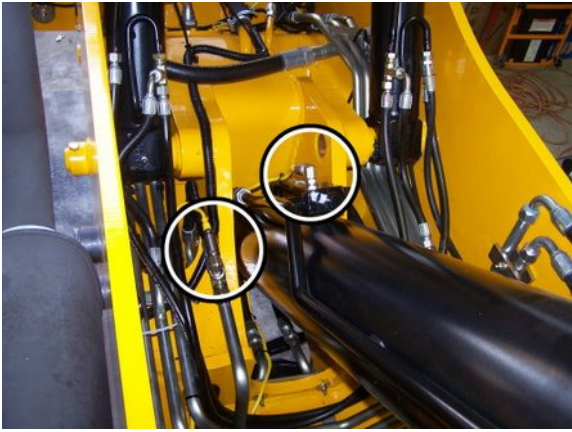
<i>Step</i>	<i>Description</i>	<i>Diagram</i>
3.	<p>Install the tee connector and pressure sensor into the rod of the main lift cylinder, where the flexible hose is connected to the solid hose on the chassis under the lift cylinder.</p> <p>Start the machine, pressurise the boom and check for leaks.</p>	
4.	<p>Connect the supplied M12 4 metre cables (CB001026) into each of the pressure sensors.</p> <p>Cable tie the head pressure sensor cable to the flexible hydraulic hoses connected to the main lift cylinder. Make sure the cable isn't pinched or stretched when the boom is raised or lowered.</p> <p>Run the cables towards the cabin and cable tie with the other cables during External Cable Completion on page 21.</p>	

Table 5: Pressure Sensor Installation

Compensation Pressure Sensors



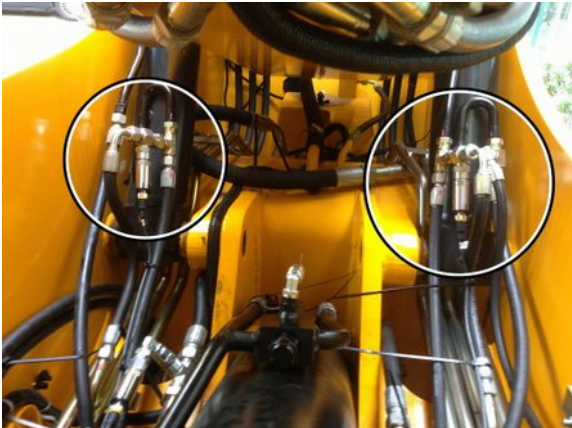
Step	Description	Diagram
1.	<p>Undo the hydraulic connection for the head compensation into the flexible hydraulic line on the left compensation cylinder.</p> <p>Install the supplied tee piece and pressure sensor in line with the hydraulic connection.</p>	 <p>View from under the boom</p>
2.	<p>Undo the hydraulic connection for the rod compensation into the flexible hydraulic line on the right compensation cylinder.</p> <p>Install the supplied tee piece and pressure sensor in line with the hydraulic connection.</p> <p>Start the machine, pressurise the boom and check for leaks.</p>	 <p>View from under the boom</p>
3.	<p>Connect the supplied M12 4 metre cables (CB001026) into each of the pressure sensors.</p> <p>Add both cables to 2 m of snake tube.</p> <p>Run the snake tube and cables towards the cabin and cable tie with the other cables during External Cable Completion on page 21.</p>	

Table 6: Compensation Pressure Sensor Installation

Reverse Camera

The rear camera video is displayed on the screen when the machine is in reverse gear to allow the operator to see behind the telehandler while reversing.



<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	<p>Drill a 31mm hole in the location shown. Making sure to leave enough room for a license plate</p> <p>Insert the camera through the hole and adjust the angle using the alignment washers.</p> <p>Connect the camera power and signal connectors to the supplied 5m camera cable (CB001032).</p> <p>Note; The white connector is not used.</p> <p>Secure the camera cable to the license plate light cables</p> <p>Run the remainder of the cable towards the cabin and cable tie with the other cables during External Cable Completion on page 21.</p>	

Table 7: Reverse Camera Installation



The camera's viewing angle may need to be adjusted once the system is installed and the display is operational.

Forward Camera

The forward camera video is displayed on the screen when the machine is in forward gear to allow the operator to see past the boom to obstructions that would damage the right front tyre.




<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	Mount the camera to the side mirror using the p-clips in the location shown.	
2.	<p>Secure using two M6 nuts.</p> <p>Connect the camera power and signal connectors to the supplied 5m camera cable (CB001032).</p> <p>Note; The white connector is not used.</p> <p>Run the cable along the same path as the headlight cable, run it through the headlight post, then under the chassis to the side of the cabin.</p> <p>Cable tie with the signal light cable during External Cable Completion on page 21.</p>	

Table 8: Forward Camera Installation




The camera's viewing angle may need to be adjusted once the system is installed and the display is operational.




Signal Light Installation

The signal light warns other workers when the telehandler is lifting loads close to its maximum capacity.



Ensure the power supply voltage is greater than 13.5V otherwise the signal light may not illuminate correctly.

<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	<p>Remove the magnet from the bottom of the signal light mounting bracket and flip the signal light mounting bracket so the mounting holes are on the bottom.</p> <p>Cut and remove 0.5 m of snake tube from the end of the cable starting at the signal light.</p> <p>Drill two M4 holes to mount the signal light bracket to the left headlight support bracket on the roof.</p> <p>Note: The signal light can instead be mounted to the right headlight support bracket for better protection but reduced visibility.</p> <p>Mount using the supplied M4 bolts and nuts.</p>	

<i>Step</i>	<i>Description</i>	<i>Diagram</i>
2.	<p>Inside the cabin, remove the covers at the top of the windshield and at the side housing the LMI indicator.</p>	
3.	<p>Cut the signal light cable approximately 300 mm from where the cable exits out the base of the signal light.</p> <p>Feed the cable through one of the existing grommets for the headlight cable into the cabin.</p> <p>Note: As an alternative to cutting the cable the grommet hole can be enlarged to fit the m12 connector.</p> <p>Note: The signal light cable must be run through an existing grommet hole. Drilling another hole in the cabin will invalidate the ROPS/FOPS protection of the cabin.</p>	
4.	<p>Inside the cabin, reconnect the 4 wire cable using the supplied crimp joiners.</p> <p>Secure the joined connections using electrical tape (not shown)</p>	


<i>Step</i>	<i>Description</i>	<i>Diagram</i>
5.	<p>Run the cable along the same path as the headlight cables to inside the dashboard and secure using cable ties.</p> <p>Replace the dashboard covers.</p>	

Table 9: Signal Light Installation

Stabiliser Harness

The stabiliser indicate to the Gen3 system when the machine has greater stability and adjusts the rated capacity accordingly.

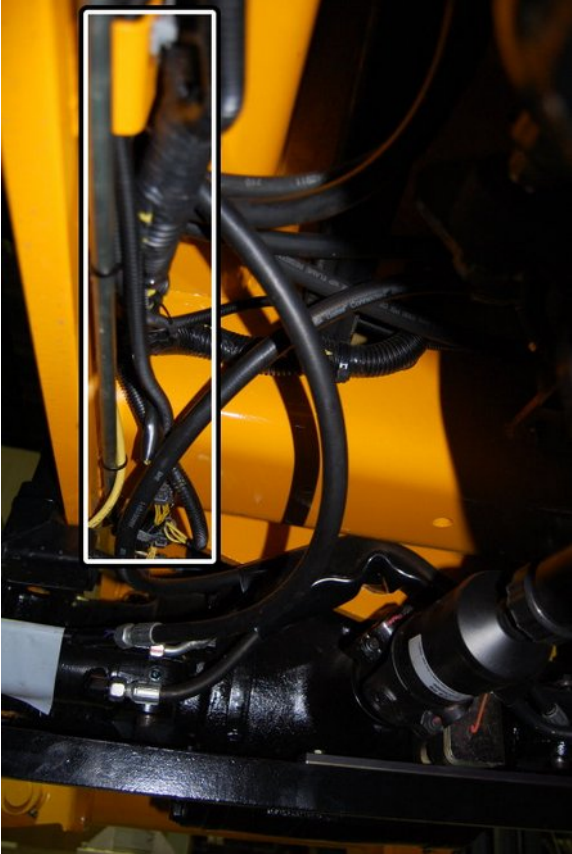
<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	<p>The stabiliser harness is made of two wires; green and blue, with one side containing female connector pins and the other side bare, contained inside of snake tube.</p> <p>Starting from underneath the front of the machine, run the harness with the bare wires ends out the hole of the front of the chassis, along the existing wiring for the stabilisers. The blue wires goes towards the left stabiliser and the green wires goes towards the right stabiliser. The wires will be spliced into the stabiliser pressure sensors during Machine Connections on page 25.</p> <p>Run the other side of the harness with the connector pins towards the cabin and cable tie with the other cables during External Cable Completion on page 21.</p>	

Table 10: Stabiliser Harness Installation

Can Pressure Input Module (CPIM)

The CPIM is responsible for processing the information sent from the pressure sensors.



Accidentally swapping the pressure sensor connections will not damage system and can be determined if the display is showing a negative load.



Do not plug the pressure sensor cable into the far right side boom cable. This will damage the system.

Step	Description	Diagram
1.	<p>Drill two M8 holes for the CPIM bracket in the side of the cabin.</p> <p>Mount using the supplied M8 bolts and nuts.</p>	
2.	<p>Connect the cables for the pressure sensors and boom cable to the CPIM according to the picture shown.</p> <p>Connect the supplied M12 4 metre cable (CB001026) into the free connection out of the right side of the CPIM for the CCIM cable.</p> <p>Run the CCIM cable towards the hole into the cabin.</p>	

Table 11: Can Pressure Input Module (CPIM) Installation

Can Cabin Interface Module (CCIM)

The CCIM connects the system into the machine electronics.




<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	<p>Connect the CCIM and signal light cables to the M12 connectors on the CCIM.</p> <p>Note: It doesn't matter which of the M12 connectors the CCIM and signal light cables are plugged into.</p>	
2.	<p>Connect the Power/Camera and IO Harnesses to the bulkhead connectors on the CCIM.</p> <p>Position the CCIM underneath the dashboard using double sided velcro tape.</p> <p>Note: Make sure to leave enough room for the connectors and that the dashboard displays can be reinstalled.</p>	
3.	<p>Install the backup battery behind the indicator display using double sided velcro tape.</p>	

Table 12: CCIM Installation

External Cable Completion

All external cabling is completed in this step.




<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	<p>Locate the reverse camera, boom and compensation pressure cables at the rear of the machine and cable tie to the existing snake tube and hydraulic lines running towards and underneath the cabin.</p> <p>Coil up any additional cable and store under the side panel beside the cabin.</p>	 <p>View from under the boom towards the rear of the machine</p>
2.	<p>At the front of the machine cable tie the signal light, front camera and stabiliser cables together up to the side of the cabin.</p> <p>Note: The older light tower is shown in the picture</p>	
3.	<p>Run the CCIM, signal light, stabiliser and camera cables through the hole into the cabin</p>	 <p>View from under the boom in the middle of the chassis towards the cabin</p>

Table 13: External Cable Completion

Dashboard Switches

The user control and override switch are installed in the dashboard.



<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	Remove a blanking switch plate from the dashboard and install the override switch.	
2.	<p>Drill a 34 mm hole into the dashboard.</p> <p>Install the user control in the dashboard, aligned so the Enter cap is facing up.</p>	

Table 14: Dashboard Switches Installation

Display Installation

The display shows the current safety status of the telehandler.

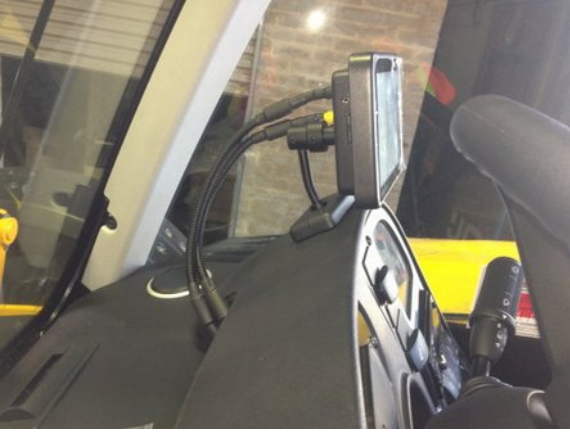



Step	Description	Diagram
1.	<p>Position the display bracket in the top right of the dashboard in the approximate location shown.</p> <p>Drill two 7 mm holes to attach the bracket to the dashboard.</p> <p>Secure the bracket to the dashboard using the supplied large washers and nuts</p> <p>Attach the display to the bracket and tighten the grub screw</p>	
2.	<p>Run the 8 pin cable from the CCIM and the 5 pin cable from the user control dial out between the dashboard and cabin plastic mounts and attach to the connectors in the back of the display.</p>	

Table 15: Display Installation



Adjust the display bracket for optimal viewing angle once the display is powered




If the M12 screw lock connectors on the display are over tightened it will twist the connector pins attaching the connector to the PCB. See Appendix A: Attaching Display Connectors on page 35 for the correct method of attaching to the display connectors.

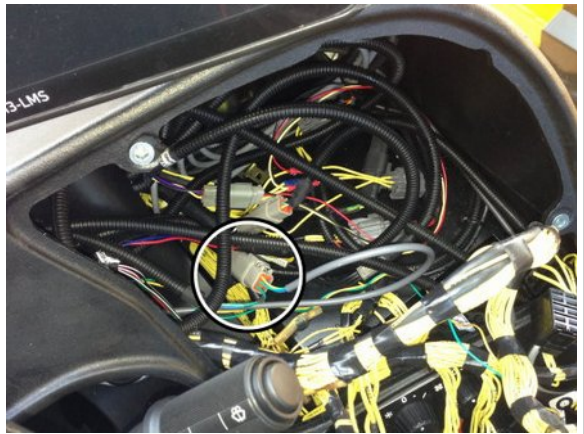


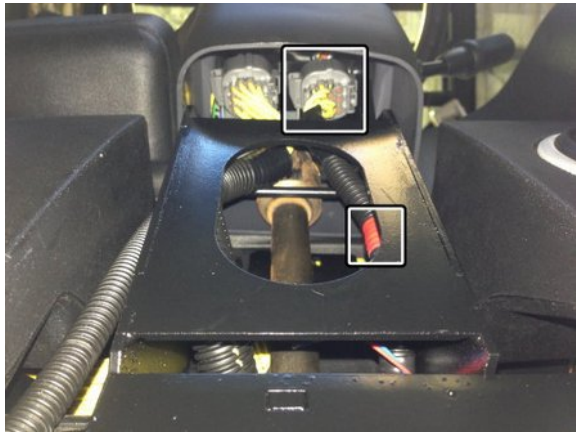


If the clip-on ferrites were removed from the CCIM and user control cables. See Appendix B: Reattach Ferrites and page 39 for the correct reattachment position.

Machine Connections

The following procedures connect the safety systems to the existing electronics in the machine.

	<p>Isolate the main battery before starting the machine connections</p>
---	---

<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	<p>On the front of the machine, remove the hydraulic covers on the two stabilisers.</p> <p>Locate the 4 pin connector for the left stabiliser pressure sensor and splice the green wire from the stabiliser harness into wire #495 pin 3 of the connector.</p> <p>Locate the 4 pin connector for the right stabiliser pressure sensor and splice the blue wire from the stabiliser harness into wire #496 pin 3 of the connector.</p> <p>Cable tie the stabiliser harness to the existing hydraulic lines running to the cabin and run the 2 pin connector through the hole into the cabin.</p>	

<i>Step</i>	<i>Description</i>	<i>Diagram</i>										
2.	<p>Splice the following wire colours from the machine input harness with the 4 pin connector into the connector for the left steering column switch (marked with red tape).</p> <p>Note: Remove the steering wheel height adjustment lever, to move the steering wheel higher, to get better access to the switch connector</p> <table border="1" data-bbox="308 757 823 884"> <thead> <tr> <th><u>Wire Colour</u></th> <th><u>Wire Number</u></th> </tr> </thead> <tbody> <tr> <td>Orange</td> <td>809</td> </tr> <tr> <td>Red</td> <td>808</td> </tr> </tbody> </table>	<u>Wire Colour</u>	<u>Wire Number</u>	Orange	809	Red	808					
<u>Wire Colour</u>	<u>Wire Number</u>											
Orange	809											
Red	808											
3.	<p>Locate the hydraulic block behind the cabin.</p> <p>Run the machine cutout harness from underneath the dashboard down to the hydraulic block.</p>											
4.	<p>Attach the supplied 2 pin connectors to the machine cutout harness according to the table below.</p> <table border="1" data-bbox="308 1541 823 1749"> <thead> <tr> <th><u>Wire Colour</u></th> <th><u>Pin Number</u></th> </tr> </thead> <tbody> <tr> <td>Black</td> <td>Male - 1</td> </tr> <tr> <td>Violet</td> <td>Male - 2</td> </tr> <tr> <td>Blue</td> <td>Female - 1</td> </tr> <tr> <td>Violet</td> <td>Female - 2</td> </tr> </tbody> </table>	<u>Wire Colour</u>	<u>Pin Number</u>	Black	Male - 1	Violet	Male - 2	Blue	Female - 1	Violet	Female - 2	
<u>Wire Colour</u>	<u>Pin Number</u>											
Black	Male - 1											
Violet	Male - 2											
Blue	Female - 1											
Violet	Female - 2											


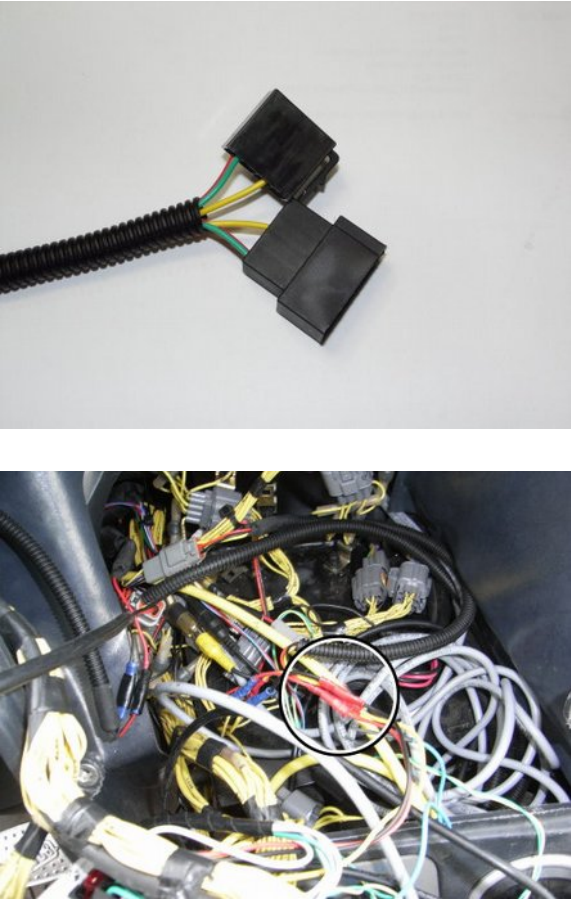

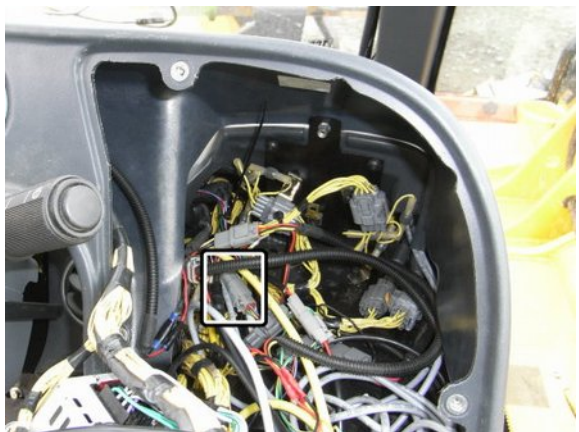
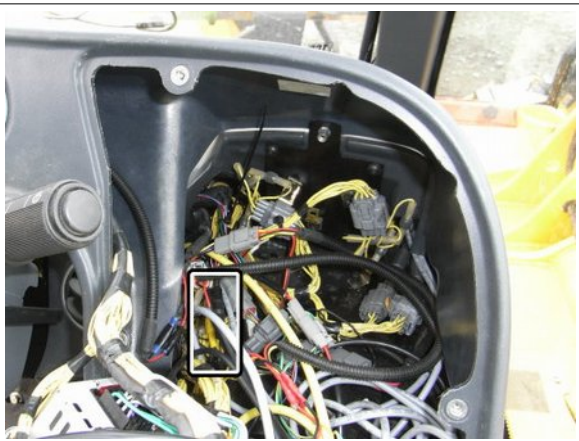
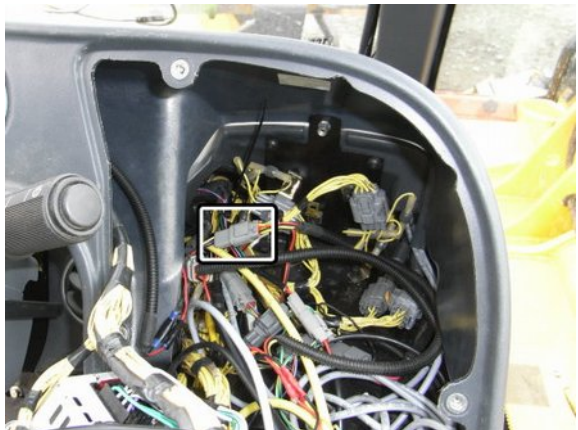

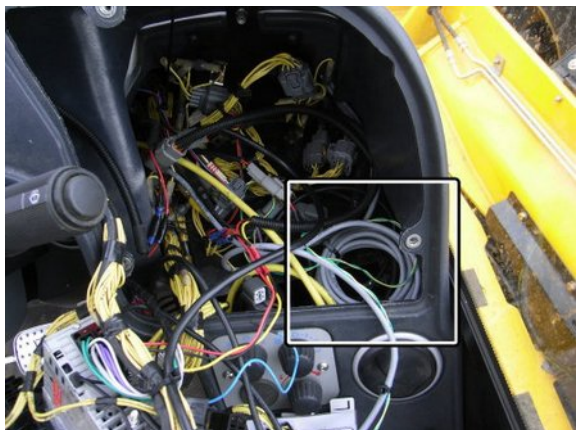

<i>Step</i>	<i>Description</i>	<i>Diagram</i>								
5.	<p>Connect the tee connectors from the machine cutout harness into the bottom solenoid connector shown.</p> <p>Disconnect the tee connector from the solenoid, to allow for complete boom function until the installation is completed in the section Finalisation.</p>									
6.	<p>Attach the radio power harness to the radio connector.</p> <p>Note: If the radio connector is not installed in the machine. Cut off the tee connectors from the radio power harness and splice into the 4 pin radio power connector located under the dashboard according to the table below.</p> <table border="1" data-bbox="308 1451 842 1615"> <thead> <tr> <th><u>Wire Colour</u></th> <th><u>Wire Number</u></th> </tr> </thead> <tbody> <tr> <td>Black</td> <td>601AG</td> </tr> <tr> <td>Violet</td> <td>181</td> </tr> <tr> <td>Yellow</td> <td>301F</td> </tr> </tbody> </table>	<u>Wire Colour</u>	<u>Wire Number</u>	Black	601AG	Violet	181	Yellow	301F	
<u>Wire Colour</u>	<u>Wire Number</u>									
Black	601AG									
Violet	181									
Yellow	301F									


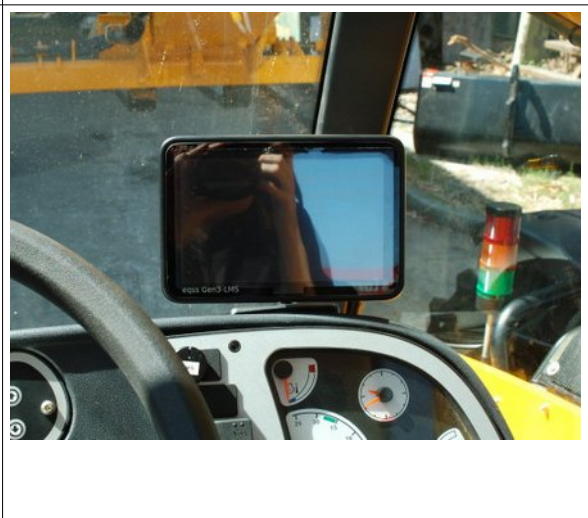
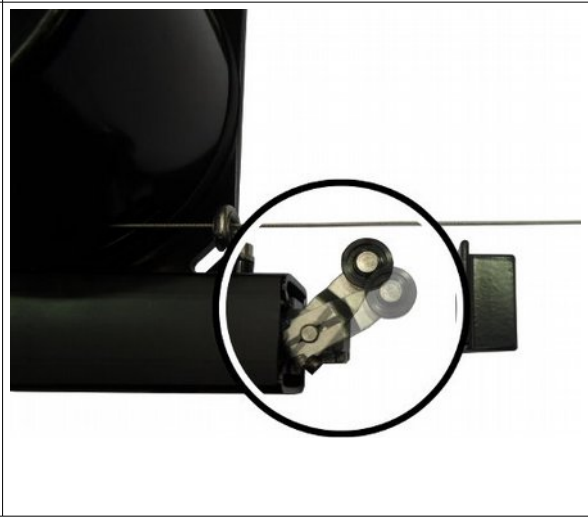
Table 16: Machine Connections

Finalisation

This section will complete the final power connections to power the system and finish any additional items.

<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	<p>Connect the spade terminals from the machine input harness into the override switch</p> <p>Connect the 4 pin connector from the machine input harness into the I/O harness.</p>	
2.	<p>Connect the 2 pin and 6 pin connectors from the stabiliser and cutout harnesses to the I/O harness.</p>	
3.	<p>Connect the camera power and signal cables from the front and rear cameras to the power/camera harness connectors.</p> <p>Note: The white connector is not used.</p>	

<i>Step</i>	<i>Description</i>	<i>Diagram</i>
4.	Connect the 3 pin connector into the Power/Camera harness.	
5.	<p>Connect the spade lug on the black wire to the negative (black) battery terminal.</p> <p>Connect the spade lug on the blue wire to the positive (red) battery terminal.</p>	
6.	Coil up the extra cables and store underneath the dashboard cover.	
7.	Reconnect the tee connector back into the hydraulic block behind the cabin.	

<i>Step</i>	<i>Description</i>	<i>Diagram</i>
8.	<p>Reconnect the main battery from the isolation switch.</p> <p>Turn the machine onto first stage /accessories and ensure the system is activated.</p>	
9.	<p>Adjust the display bracket for optimal viewing</p> <p>Set the machine into forward gear to activate the forward camera. Adjust the forward camera so the front right wheel is visible.</p> <p>Set the machine into reverse gear to activate the reverse camera. Adjust the reverse camera so the video is level.</p>	
10.	<p>Operate the boom movement controls to test if a false N07 fault occurs.</p> <p>If a N07 fault does occur, adjust the arm on the stow switch forwards towards the stow switch trigger.</p> <p>Note: The actual switch arm orientation may differ from the picture.</p>	


<i>Step</i>	<i>Description</i>	<i>Diagram</i>
11.	<p>Perform a final check on all the cabling and sensors.</p> <p>Replace all the covers</p>	


Table 17: Finalisation



Complete the system checklist once installation has been completed.

Set Time & Sensor Calibration

Once the installation is complete, the time will need to be set and the sensors will require calibration.



A sensor calibration must be performed once the cable reeler and CPIM have been mounted. If the cable reeler or CPIM have been moved/repositioned a recalibration must be performed

<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	<p>Press Enter on the user control dial to enter the menu system.</p> <p>Press the arrow buttons to select System Menu.</p> <p>Press Enter to select the menu.</p>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;"><small>Main Menu</small></p> <hr/> <p style="text-align: center; margin: 0;">Attachment Selection Menu</p> <hr/> <div style="background-color: #4a7ebb; color: white; text-align: center; padding: 5px; margin: 0;">System Menu</div> <hr/> <p style="text-align: center; margin: 0;">Exit Menu</p> <hr/> </div>
2.	Select Advanced Menu	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;"><small>System Menu</small></p> <hr/> <p style="text-align: center; margin: 0;">Volume / Brightness</p> <hr/> <p style="text-align: center; margin: 0;">Status Menu</p> <hr/> <p style="text-align: center; margin: 0;">Diagnostics Menu</p> <hr/> <p style="text-align: center; margin: 0;">System Tests</p> <hr/> <div style="background-color: #4a7ebb; color: white; text-align: center; padding: 5px; margin: 0;">Advanced Menu</div> <hr/> <p style="text-align: center; margin: 0;">Return to Main Menu</p> <hr/> </div>

<i>Step</i>	<i>Description</i>	<i>Diagram</i>														
3.	Enter the password (Default Password: 2-8-4)	<table border="1"> <thead> <tr> <th colspan="2">Enter Password</th> </tr> </thead> <tbody> <tr> <td>Number 1</td> <td>2</td> </tr> <tr> <td>Number 2</td> <td>8</td> </tr> <tr> <td>Number 3</td> <td>4</td> </tr> <tr> <td colspan="2">Submit Password</td> </tr> <tr> <td colspan="2">Return to System Menu</td> </tr> </tbody> </table>	Enter Password		Number 1	2	Number 2	8	Number 3	4	Submit Password		Return to System Menu			
Enter Password																
Number 1	2															
Number 2	8															
Number 3	4															
Submit Password																
Return to System Menu																
4.	Select Set Time / Date	<table border="1"> <thead> <tr> <th colspan="2">Advanced Settings</th> </tr> </thead> <tbody> <tr> <td colspan="2">Set Time / Date</td> </tr> <tr> <td colspan="2">Sensor Calibrations</td> </tr> <tr> <td colspan="2">Change Language</td> </tr> <tr> <td colspan="2">Change Password</td> </tr> <tr> <td colspan="2">Return to System Menu</td> </tr> </tbody> </table>	Advanced Settings		Set Time / Date		Sensor Calibrations		Change Language		Change Password		Return to System Menu			
Advanced Settings																
Set Time / Date																
Sensor Calibrations																
Change Language																
Change Password																
Return to System Menu																
5.	<p>Enter the correct time and date for your area.</p> <p>Press the arrow keys to select a time/date parameter</p> <p>Press Enter and the parameter will change to red, press the arrow keys to change the value and then press the Enter key to store the value.</p> <p>Note: The hour parameter is in 24 hour clock</p> <p>Repeat for the rest of the time values</p>	<table border="1"> <thead> <tr> <th colspan="2">Set Time / Date</th> </tr> </thead> <tbody> <tr> <td>Hour</td> <td>15</td> </tr> <tr> <td>Minute</td> <td>54</td> </tr> <tr> <td>Day</td> <td>10</td> </tr> <tr> <td>Month</td> <td>2</td> </tr> <tr> <td>Year</td> <td>2016</td> </tr> <tr> <td>Region</td> <td>Melbourne</td> </tr> </tbody> </table>	Set Time / Date		Hour	15	Minute	54	Day	10	Month	2	Year	2016	Region	Melbourne
Set Time / Date																
Hour	15															
Minute	54															
Day	10															
Month	2															
Year	2016															
Region	Melbourne															

<i>Step</i>	<i>Description</i>	<i>Diagram</i>
6.	Scroll to the next page and select Save to store the new time/date and return to the Advanced Menu.	<p style="text-align: center;">Save</p> <p style="text-align: center;">Return to Advanced Menu</p>
7.	Select Sensor Calibrations	<p style="text-align: center;">Advanced Settings</p> <p style="text-align: center;">Set Time / Date</p> <p style="text-align: center;">Sensor Calibrations</p> <p style="text-align: center;">Change Language</p> <p style="text-align: center;">Change Password</p> <p style="text-align: center;">Return to System Menu</p>
8.	Select Calibrate Carrier Angle and then follow the instructions on the screen to complete the calibration. Repeat for Calibrate Boom Angle and Calibrate Boom Length.	<p style="text-align: center;">Sensor Calibration Menu</p> <p style="text-align: center;">Calibrate Carrier Angle</p> <p style="text-align: center;">Calibrate Boom Angle</p> <p style="text-align: center;">Calibrate Boom Length</p> <p style="text-align: center;">Return to Advanced Menu</p>

Table 18: Sensor Calibration

Appendix A: Attaching Display Connectors

The procedure below describes the correct method of attaching the cables to the screw lock connectors on the display.



If the M12 screw lock connectors on the display are over tightened, it will twist the connector pins attaching the connector to the PCB.

<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	<p>Connect the cable from the user control to the top 5 pin connector on the display.</p> <p>Connect the cable from the CCIM to the bottom 8 pin connector on the display.</p>	
2.	<p>Line up the alignment hole on the cable connector with the alignment notch on the display connector.</p>	




<i>Step</i>	<i>Description</i>	<i>Diagram</i>
3.	Push the female connector from the cable into the male connector on the display.	
4.	Rotate the nut on the female connector by hand in a clockwise direction, until the tension on the nut starts to increase.	
5.	Push the cable in again and repeat steps 3 and 4 until the connector is secure.	

Table 19: Install Display Connector Procedure



The method to correctly secure the cable is to push-twist-push-twist until the connector is fully inserted and secure. This will minimise the twisting force applied to the connector.

Below is a picture of a damaged connector on the PCB inside the display. This damaged occurred because the connector was over tightened.

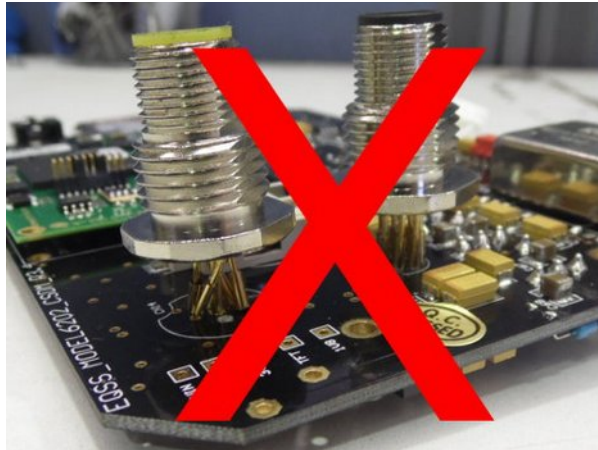


Illustration 2: Damaged Display Connector



Do not use any tools to tighten the connector.



Illustration 3: Do Not Use Tools To Tighten Connector



Do not over-tighten the nuts on the back of the display connectors. These nuts should only be hand tightened. If the nuts are overtightened it will damage the PCB inside the display.




Illustration 4: Do Not Over Tighten Nuts



Damage to the display connectors is not covered under warranty.

Appendix B: Reattach Ferrites

If the clip-on ferrites on the displays are removed during installation, they will need to be reattached as shown in the procedure below.



If the ferrites are not reinstalled or attached in the specified location the Gen3-LMS kit will not meet the AS/NZS CISPR 22:2006 certification.

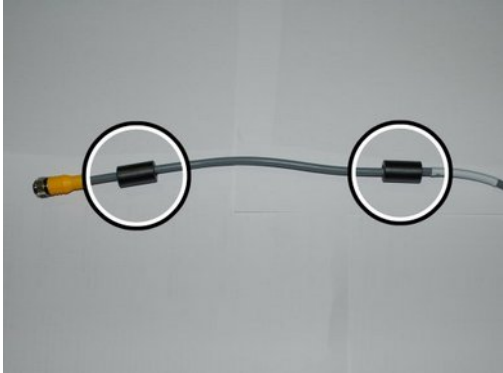
<i>Step</i>	<i>Description</i>	<i>Diagram</i>
1.	<p>Attach the two clip-on ferrites at a location of 60 mm and 260 mm from the start of the connector to the start of the ferrite.</p> <p>Do this for both the CCIM and user control cables that plug into the display.</p>	

Table 20: Reattach Ferrites Procedure

Indexes and Tables

Illustration Index

Illustration 1: Cable Reeler Mounting Position.....	9
Illustration 2: Damaged Display Connector.....	37
Illustration 3: Do Not Use Tools To Tighten Connector.....	37
Illustration 4: Do Not Over Tighten Nuts.....	38

Index of Tables

Table 3: Cover removal.....	6
Table 4: Cable Reeler Installation.....	8
Table 5: Pressure Sensor Installation.....	11
Table 6: Compensation Pressure Sensor Installation.....	12
Table 7: Reverse Camera Installation.....	13
Table 8: Forward Camera Installation.....	14
Table 9: Signal Light Installation.....	17
Table 10: Stabiliser Harness Installation.....	18
Table 11: Can Pressure Input Module (CPIM) Installation.....	19
Table 12: CCIM Installation.....	20
Table 13: External Cable Completion.....	21
Table 14: Dashboard Switches Installation.....	22
Table 15: Display Installation.....	23
Table 16: Machine Connections.....	27
Table 17: Finalisation.....	31
Table 18: Sensor Calibration.....	34
Table 19: Install Display Connector Procedure.....	36
Table 20: Reattach Ferrites Procedure.....	39

Equipment Safety Systems Pty. Ltd. ABN: 31 061 789 151
27 Cumberland Drive, Seaford 3198, Victoria, Australia

Tel: +61 3 8770 6555
Fax: +61 3 8770 6590
Web: www.eqss.com.au