



# eqss<sup>TM</sup> Gen-3 LMS Telehandler Load Management System

Installation Manual for JCB 535-95 & 533-105  
2018 Model



**\*\*\*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.

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## Table of Contents

Tools Required for Installation.....	5
Installation Index.....	6
Covers.....	10
Cable Reeler Installation.....	12
Cable Reeler Mounting Position.....	14
Pressure Sensor Installation.....	15
Main Cylinder Pressure Sensors.....	15
Compensation Pressure Sensors.....	17
Reverse Camera.....	18
Forward Camera.....	20
Signal Light Installation.....	22
Stabiliser Harness.....	24
Can Pressure Input Module (CPIM).....	25
External Cable Completion.....	27
Can Cabin Interface Module (CCIM).....	28
Dashboard Switches.....	29
Display Installation.....	30
Dashboard Cables.....	31
Machine Connections.....	32
Finalisation.....	35
Set Time & Sensor Calibration.....	39
Appendix A: Attaching Display Connectors.....	42
Appendix B: Reattach Ferrites.....	46
Indexes and Tables.....	47

# 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

# Installation Index

The components and cables of the Gen-3 Telehandler Load Management System are outline in the tables below. The following pages show where the components are installed and the cable routing.

See the appropriate manual section for a detailed installation description for each component.



Refer to this section for any component placement or cable routing issues

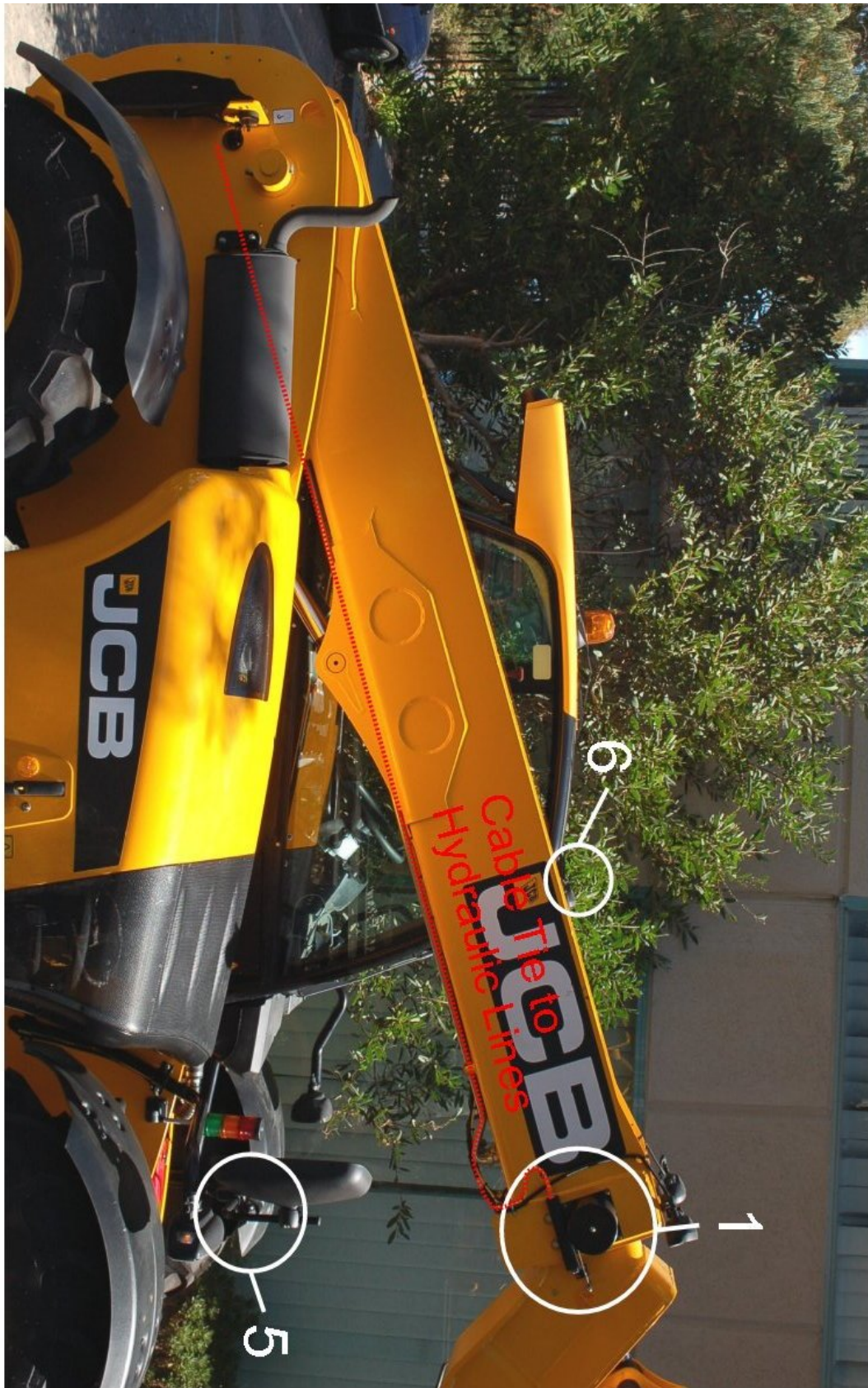
<i>Item</i>	<i>Component Description</i>
1	Cable Reeler
2	Main Lift Cylinder Head Pressure Sensor
3	Main Lift Cylinder Rod Pressure Sensor
4	Compensation Pressure Sensors
5	Can Pressure Input Module (CPIM)
6	Reverse Camera
7	Forward Camera
8	Light Tower
9	Can Cabin Interface Module (CCIM)
10	Display Module

*Table 1: Component Installation Index*

<i>Colour</i>	<i>Cable Description</i>
Red	Boom Cable
Dark Green	Main Cylinder Head Pressure Sensor Cable
Brown	Main Cylinder Rod Pressure Sensor Cable
Dark Blue	Compensation Cylinder Pressure Sensors Cables
Light Blue	Forward Camera Cable
Violet	Light Tower Cable
Aqua	Rear Camera Cable
Dark Purple	CCIM Cable
Light Green	Cutout Harness

*Table 2: Cable Installation Index*





*Illustration 1: Machine Boom*



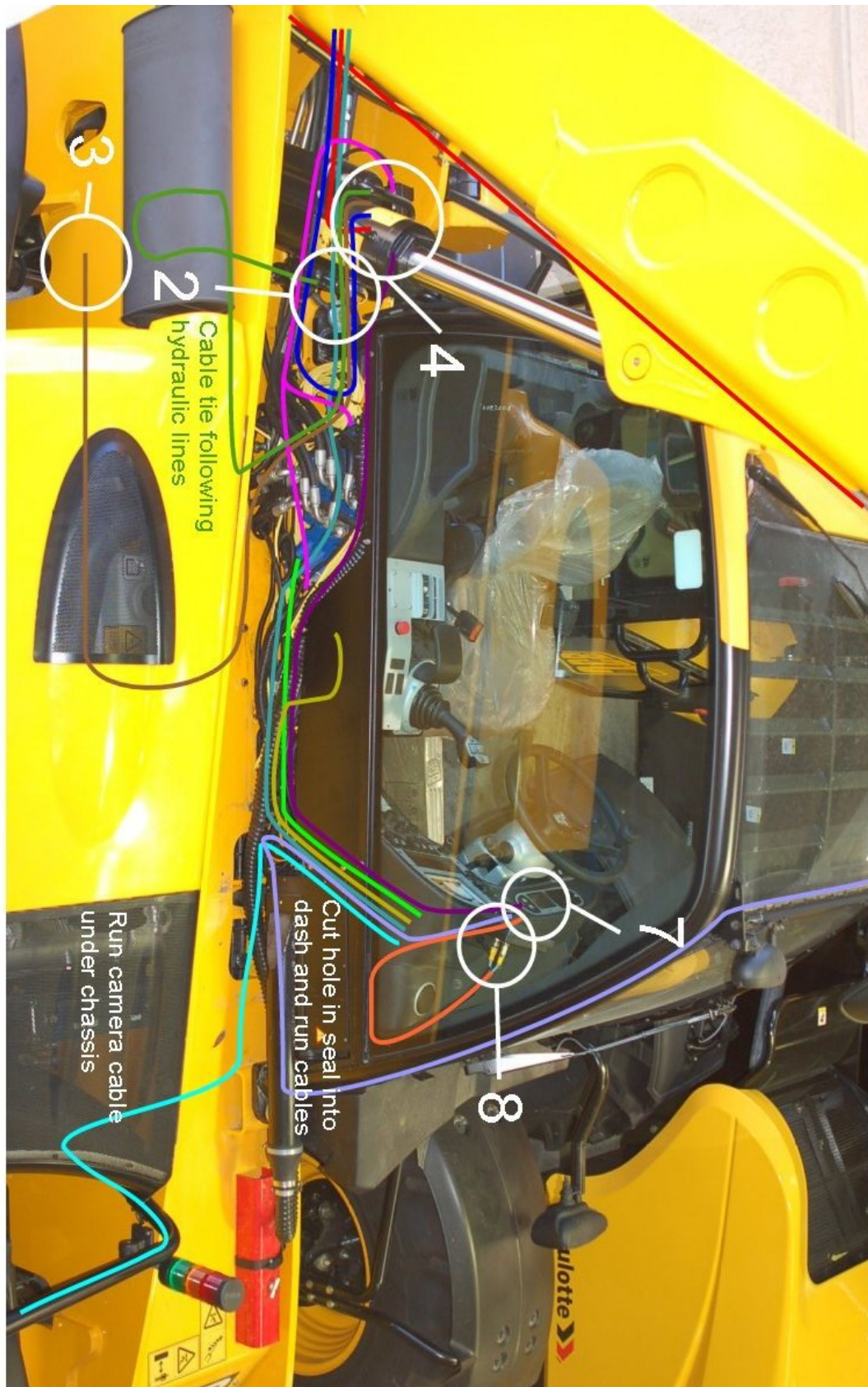
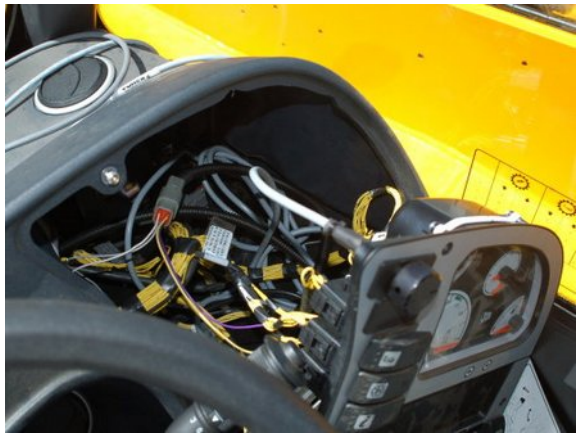




Illustration 2: Machine Chassis

# 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 on the side of the cabin.	


<i>Step</i>	<i>Description</i>	<i>Diagram</i>
4.	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.


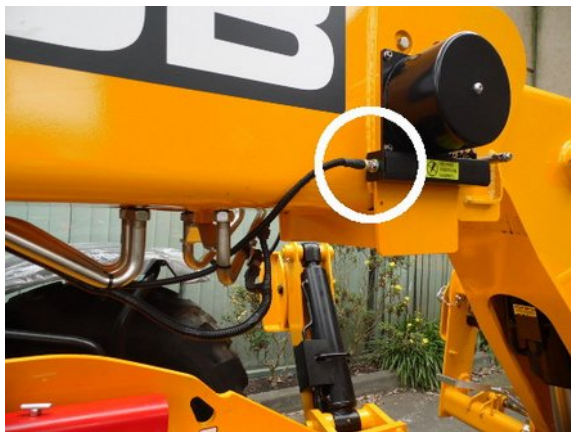


A false N07 fault can occur if the boom jumps off the stow switch due to pressurising the hydraulic system and without operating the boom extension control. Ensure the stow switch arm is correctly adjusted to prevent this error.



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.

Step	Description	Diagram
1.	<p>Drill and tap holes for the cable reeler according to the mounting diagram on page 14.</p> <p>Mount using the supplied bolts.</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 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 3: 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

Step	Description	Diagram
1.	<p>Raise the boom to approximately 40 degrees.</p> <p>Support and secure the boom using an A Frame or similar apparatus. <b>It must support at least 2 tons.</b></p> <p>Apply the handbrake and insert chock under wheels.</p> <p>Release the blanking cap on the hydraulic port.</p> <p><b>Removing the blanking cap will release the hydraulic pressure which may result in a spray of oil.</b></p> <p>Install the supplied pressure sensor and ensure it is tightly sealed.</p>	
2.	<p>Install the tee connector and pressure sensor into the rod of the main lift cylinder, where the flexible hose connects to the rod of the lift cylinder.</p> <p><b>Start the machine, pressurise the boom and check for leaks.</b></p>	



<i>Step</i>	<i>Description</i>	<i>Diagram</i>
3.	<p>Connect the supplied M12 4 metre cables (CB001026) into each of the pressure sensors.</p> <p>Cable tie the pressure sensor cables 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 27.</p> <p><b>Ensure the pressure sensors and cables do not collide with the boom and chassis structures and the cables do not stretch or pinch when the boom is raised and lowered.</b></p>	

*Table 5: Pressure Sensor Installation*

# Compensation Pressure Sensors

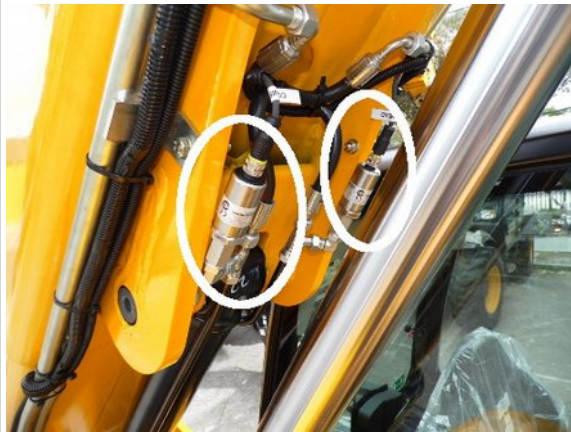


Step	Description	Diagram
1.	<p>Undo the hydraulic connection for the head compensation where the fixed hydraulic pipe from the compensation cylinder is connected into the flexible hydraulic line under the boom.</p> <p>Install the supplied tee piece and pressure sensor in line with the hydraulic connection.</p>	
2.	<p>Undo the hydraulic connection for the rod compensation where the fixed hydraulic pipe from the compensation cylinder is connected into the flexible hydraulic line under the boom.</p> <p>Install the supplied tee piece and pressure sensor in line with the hydraulic connection.</p> <p><b>Start the machine, pressurise the boom and check for leaks.</b></p>	
3.	<p>Connect the supplied M12 4 metre cables (CB001026) into each of the pressure sensors.</p> <p>Run the cables along the flexible hydraulic hoses on the boom down to the chassis.</p> <p>Run the cables towards the cabin and cable tie with the other cables during External Cable Completion on page 27.</p> <p><b>Ensure the pressure sensors and cables do not collide with the boom and chassis structures and the cables do not stretch or pinch when the boom is raised and lowered.</b></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.



Do not disconnect the camera power connection while the system is operating as this can damage the fuse.

Step	Description	Diagram
1.	<p>Drill a 31mm hole in the location shown. Making sure to leave enough room for a license plate and clearance behind the cover.</p> <p>Insert the camera through the hole and adjust the angle using the alignment washers.</p>	
2.	<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 27.</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.



For further details on running the camera cable refer to the Installation Index on page 6



# 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.



Do not disconnect the camera power connection while the system is operating as this can damage the fuse.



Step	Description	Diagram
1.	Mount the camera to the side mirror using the p-clips as shown.  Secure using two M6 nuts.	
2.	Connect the camera power and signal connectors to the supplied 5m camera cable (CB001032).  Note; The white connector is not used.  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.  Cable tie with the light tower cable during External Cable Completion on page 27.	

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.



For further details on running the camera cable refer to the Installation Index on page 6

# Signal Light Installation

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



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

Step	Description	Diagram
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>	
2.	<p>Inside the cabin, remove the covers at the top of the windshield and at the side housing the LMI indicator.</p>	






<i>Step</i>	<i>Description</i>	<i>Diagram</i>
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>	
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.

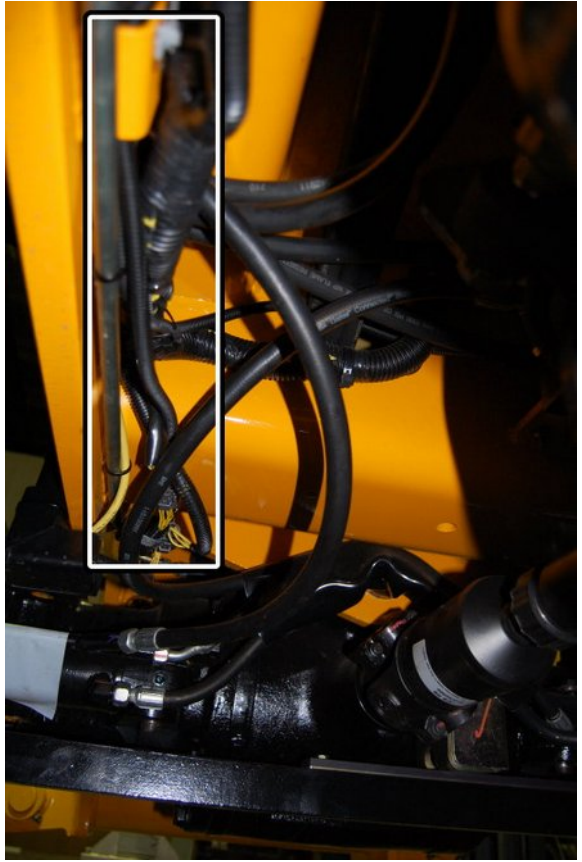
Step	Description	Diagram
1.	<p>The stabiliser harness is made of two wires; green and blue, with one side containing female connector pins and the other side bare, contained inside of snake tube.</p> <p>Starting from underneath the front of the machine, run the harness with the bare wires ends out the 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 32.</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 27.</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 chassis behind the cabin.</p> <p>Mount using the supplied M8 bolts, washers 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 connection out of the right side of the CPIM for the CCIM cable.</p> <p>Run the CCIM cable towards the cabin.</p>	

Table 11: Can Pressure Input Module (CPIM) Installation



For further details on running the cables refer to the Installation Index on page 6



# External Cable Completion

All external cabling is completed in this step.




Step	Description	Diagram
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 front camera and stabiliser cables together up to the side of the cabin.</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 12: External Cable Completion

# Can Cabin Interface Module (CCIM)

The CCIM connects the system into the machine electronics.




Step	Description	Diagram
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 13: CCIM Installation

# Dashboard Switches

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



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

Table 14: Dashboard Switches Installation



# Display Installation

The display shows the current safety status of the telehandler.


<i>Step</i>	<i>Description</i>	<i>Diagram</i>
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>	

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 42 for the correct method of attaching to the display connectors.

# Dashboard Cables

The dashboard cables connects the display and the machine connections to the Gen 3 system.


Step	Description	Diagram
1.	<p>Run the 5 pin user control cable and the 8 pin cable from the CCIM through the gap between the window and the dashboard.</p> <p>Connect into the 5 and 8 pin connectors into the display.</p> <p>Insert the section of cable from the window to the display in snake tube.</p> <p>Coil up additional cable underneath the dashboard.</p>	

Table 16: Cabin Loom Installation



For further details on dashboard cables refer to the Installation Index on page 6




If the clip-on ferrites were removed from the CCIM and user control cables. See Appendix B: Reattach Ferrites and page 46 for the correct reattachment position.



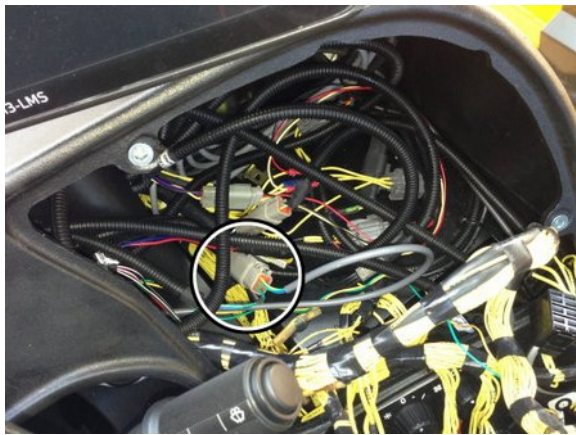
If the M12 screw lock connectors on the display are over tightened it will twist the connector pins attaching the connector to the PCB. See Appendix A: Attaching Display Connectors on page 42 for the correct method of attaching to the display connectors.

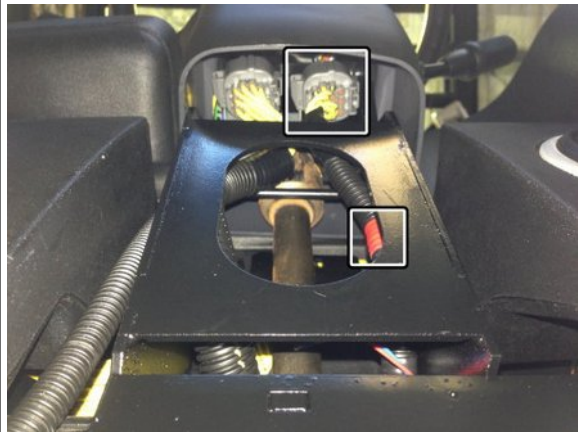


# Machine Connections

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



Isolate the main battery before starting the machine connections

Step	Description	Diagram
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>	

Step	Description	Diagram										
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><tr><td>Wire Colour</td><td>Wire Number</td></tr><tr><td>Orange</td><td>809</td></tr><tr><td>Red</td><td>808</td></tr></table>	Wire Colour	Wire Number	Orange	809	Red	808					
Wire Colour	Wire Number											
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><tr><td>Wire Colour</td><td>Pin Number</td></tr><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></table>	Wire Colour	Pin Number	Black	Male - 1	Violet	Male - 2	Blue	Female - 1	Violet	Female - 2	
Wire Colour	Pin Number											
Black	Male - 1											
Violet	Male - 2											
Blue	Female - 1											
Violet	Female - 2											




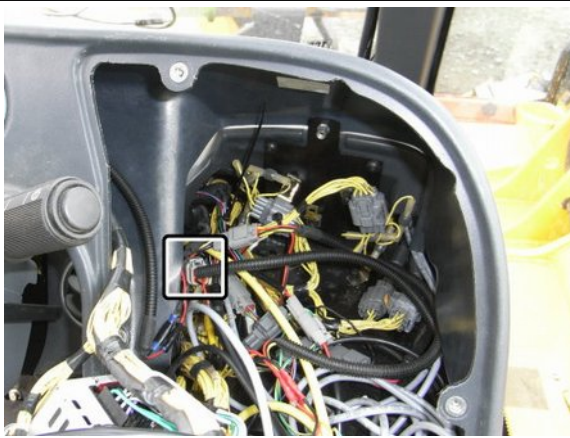
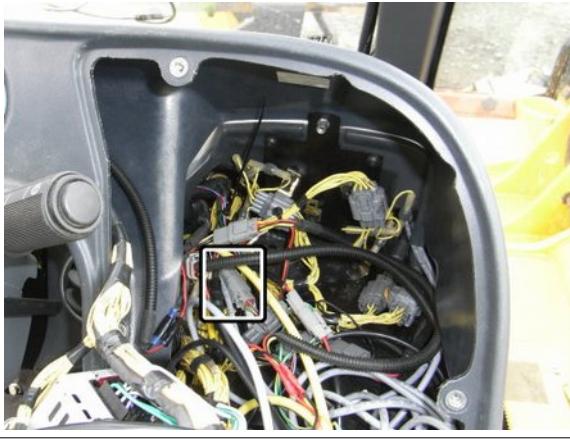

Step	Description	Diagram								
5.	<p>Connect the tee connectors from the machine cutout harness into the bottom solenoid connector shown.</p> <p>Disconnect the tee connector from the solenoid, to allow for complete boom function until the installation is completed in the section Finalisation.</p>									
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><tr><th>Wire Colour</th><th>Wire Number</th></tr><tr><td>Black</td><td>601AG</td></tr><tr><td>Violet</td><td>181</td></tr><tr><td>Yellow</td><td>301F</td></tr></table>	Wire Colour	Wire Number	Black	601AG	Violet	181	Yellow	301F	 
Wire Colour	Wire Number									
Black	601AG									
Violet	181									
Yellow	301F									

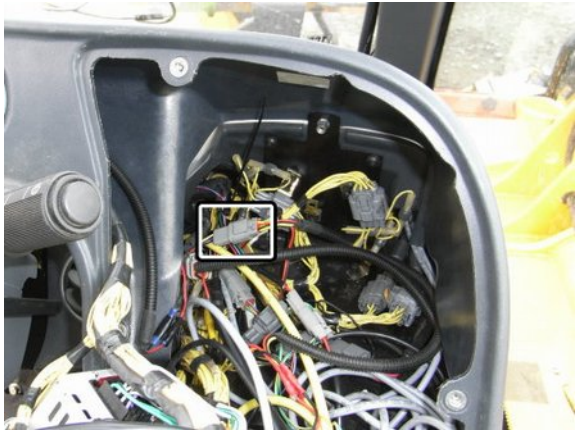

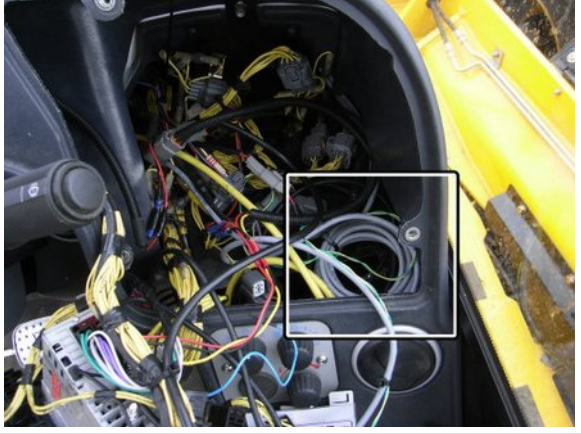

Table 17: Machine Connections



# 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.	





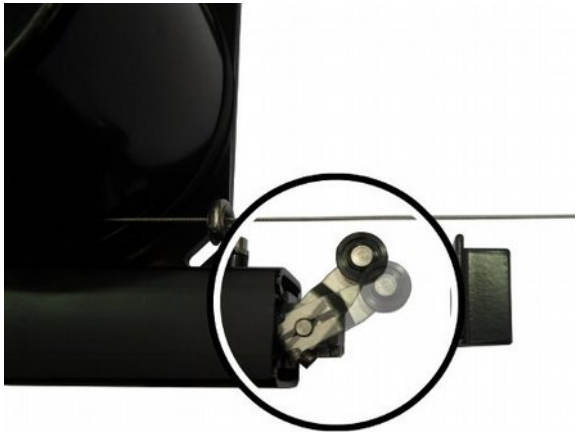
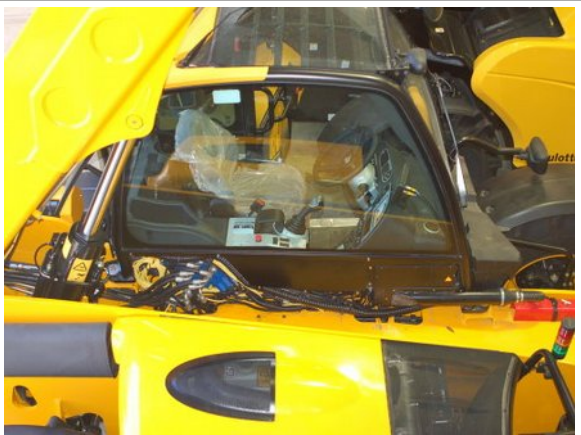
<i>Step</i>	<i>Description</i>	<i>Diagram</i>
8.	<p>Reconnect the main battery from the isolation switch.</p> <p>Turn the machine onto first stage /accessories and ensure the system is activated.</p>	
9.	<p>Adjust the display bracket for optimal viewing</p> <p>Set the machine into forward gear to activate 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>	
11.	<p>Perform a final check on all the cabling and sensors.</p> <p>Replace all the covers</p>	

Table 18: 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> <div>Main Menu</div> <div>Attachment Selection Menu</div> <div>System Menu</div> <div>Exit Menu</div> </div>
2.	Select Advanced Menu	<div> <div>System Menu</div> <div>Volume / Brightness</div> <div>Status Menu</div> <div>Diagnostics Menu</div> <div>System Tests</div> <div>Advanced Menu</div> <div>Return to Main Menu</div> </div>

Step	Description	Diagram														
3.	Enter the password (Default Password: 2-8-4)	<table><tr><th colspan="2">Enter Password</th></tr><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></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><tr><th colspan="2">Advanced Settings</th></tr><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></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.	Enter the correct time and date for your area.  Press the arrow keys to select a time/date parameter  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.  Note: The hour parameter is in 24 hour clock  Repeat for the rest of the time values	<table><tr><th colspan="2">Set Time / Date</th></tr><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></table>	Set Time / Date		Hour	15	Minute	54	Day	10	Month	2	Year	2016	Region	Melbourne
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Month	2															
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Region	Melbourne															



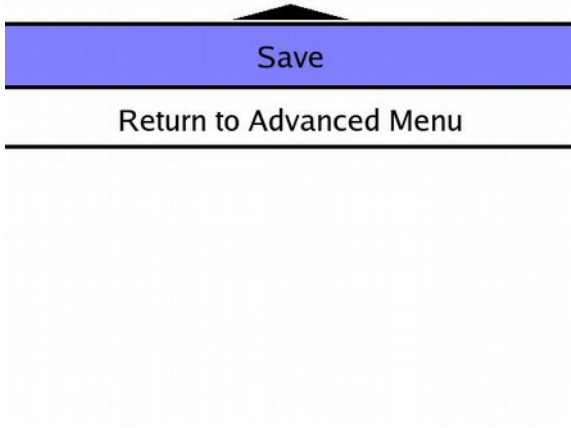
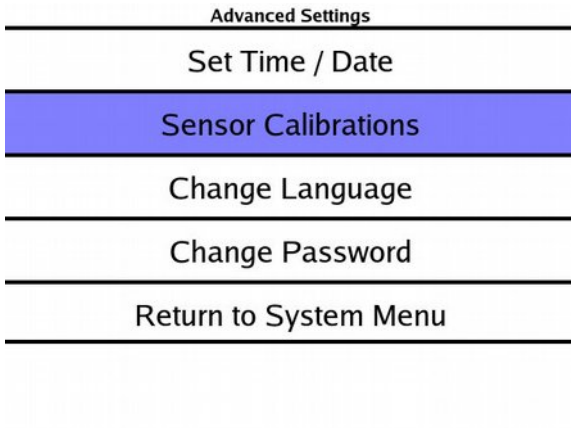
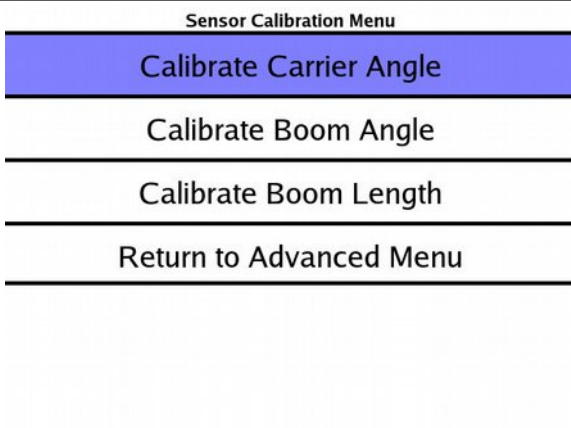
<i>Step</i>	<i>Description</i>	<i>Diagram</i>
6.	Scroll to the next page and select Save to store the new time/date and return to the Advanced Menu.	 <p>The diagram shows a menu interface. At the top, there is a blue button labeled 'Save'. Below it, there is a text option 'Return to Advanced Menu'.</p>
7.	Select Sensor Calibrations	 <p>The diagram shows a menu titled 'Advanced Settings'. The options listed are 'Set Time / Date', 'Sensor Calibrations' (highlighted in blue), 'Change Language', 'Change Password', and '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>The diagram shows a menu titled 'Sensor Calibration Menu'. The options listed are 'Calibrate Carrier Angle' (highlighted in blue), 'Calibrate Boom Angle', 'Calibrate Boom Length', and 'Return to Advanced Menu'.</p>

Table 19: 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.

Step	Description	Diagram
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>	




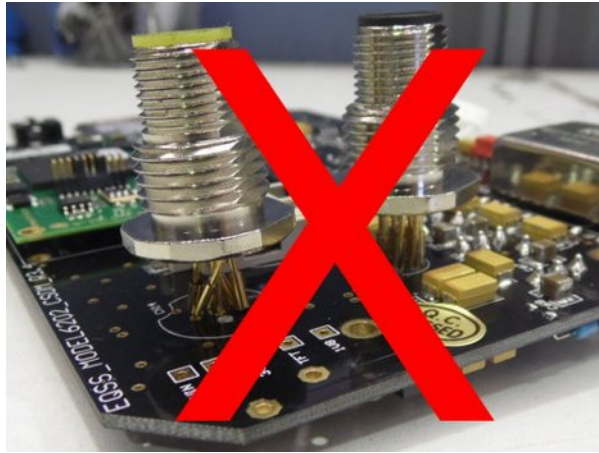
<i>Step</i>	<i>Description</i>	<i>Diagram</i>
3.	Push the female connector from the cable into the male connector on the display.	
4.	Rotate the nut on the female connector by hand in a clockwise direction, until the tension on the nut starts to increase.	
5.	Push the cable in again and repeat steps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

Table 20: 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 4: Damaged Display Connector*



Do not use any tools to tighten the connector.



*Illustration 5: 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 6: 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.

Step	Description	Diagram
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 21: Reattach Ferrites Procedure

# Indexes and Tables

## Illustration Index

Illustration 1: Machine Boom.....	8
Illustration 2: Machine Chassis.....	9
Illustration 3: Cable Reeler Mounting Position.....	14
Illustration 4: Damaged Display Connector.....	44
Illustration 5: Do Not Use Tools To Tighten Connector.....	44
Illustration 6: Do Not Over Tighten Nuts.....	45

## Index of Tables

Table 1: Component Installation Index.....	6
Table 2: Cable Installation Index.....	7
Table 3: Cover removal.....	11
Table 4: Cable Reeler Installation.....	13
Table 5: Pressure Sensor Installation.....	16
Table 6: Compensation Pressure Sensor Installation.....	17
Table 7: Reverse Camera Installation.....	18
Table 8: Forward Camera Installation.....	20
Table 9: Signal Light Installation.....	23
Table 10: Stabiliser Harness Installation.....	24
Table 11: Can Pressure Input Module (CPIM) Installation.....	25
Table 12: External Cable Completion.....	27
Table 13: CCIM Installation.....	28
Table 14: Dashboard Switches Installation.....	29
Table 15: Display Installation.....	30
Table 16: Cabin Loom Installation.....	31
Table 17: Machine Connections.....	34
Table 18: Finalisation.....	38
Table 19: Sensor Calibration.....	41
Table 20: Install Display Connector Procedure.....	43
Table 21: Reattach Ferrites Procedure.....	46

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