

EQSS Model6253 – OverWatch™ Snorkel Sxxxx Series



**** Failure to follow this installation manual will void warranty ****



REV 1.2

27/05/2024

Model6253 OverWatch™ Installation Manual

Document # DO001629

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DOCUMENT ABSTRACT:

This Installation Manual details the manufacturer's installation instructions for installing the Model6253 OverWatch on a Snorkel Sxxxx Scissor Lift.

PRODUCT NAME:

Model6253 OverWatch Operator Detection System

REFERENCE DOCUMENTS:

DO001195 Model6253 OverWatch - User Manual

CURRENT DOCUMENT REVISION:

1.2

REVISION INFORMATION:

- 1.0 Initial Document Creation for installation on a Snorkel Sxxxx Scissor Lift.
- 1.1 Update on Operator Sensor mounting position and Harness Schematics.
- 1.2 Inclusion of Operator Sensor mounting angle position.

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in this publication regarding this device's applications and the like, is provided only for your convenience and may be superseded by updates.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.

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This is a class A product certified to AS/NZS CISPR 22:2006. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

N23041



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Preparation

Required Tools

The OverWatch has been designed to be fitted using basic workshop tools. Shown below is a list of tools required to complete the installation

Item	Tool / Description
1	Electric Drill
2	Centre punch
3	Hammer
4	Side Cutters
5	Drill 3.2mm
6	Drill 5.0mm
7	Metric sockets or spanners
8	Needle nose pliers
9	Screw drivers

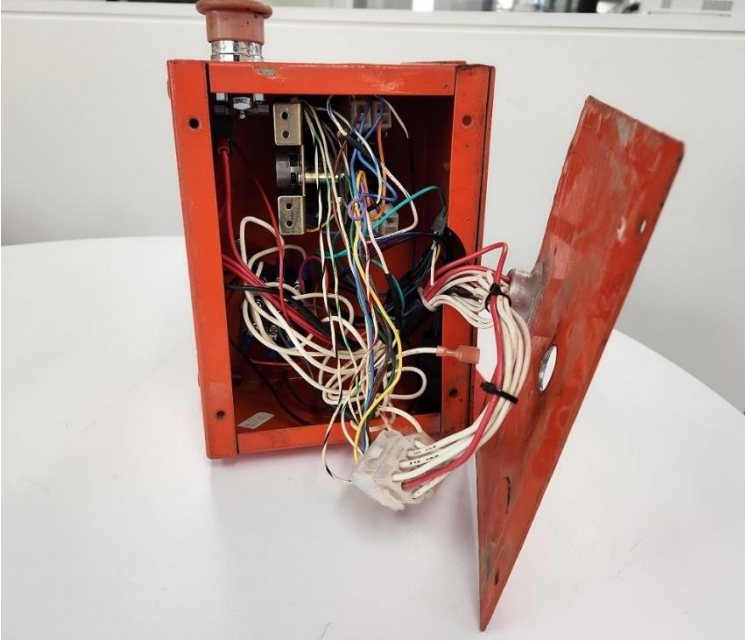
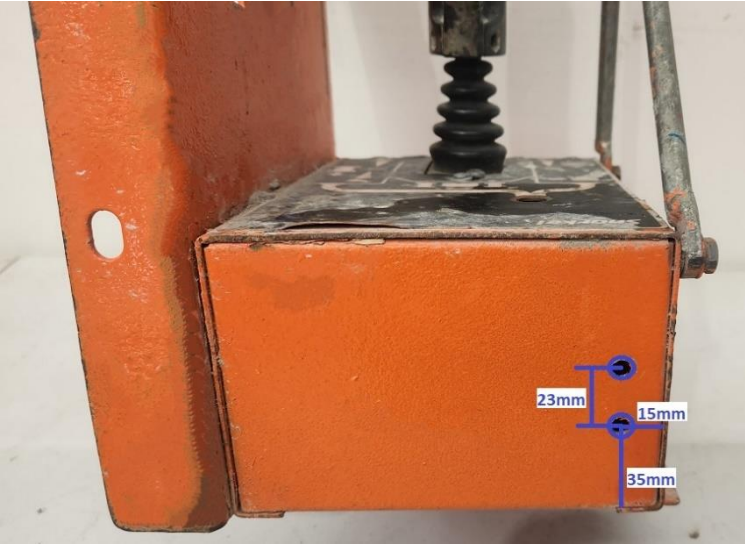
Installation Time

The suggested time required to install the OverWatch is as detailed below.

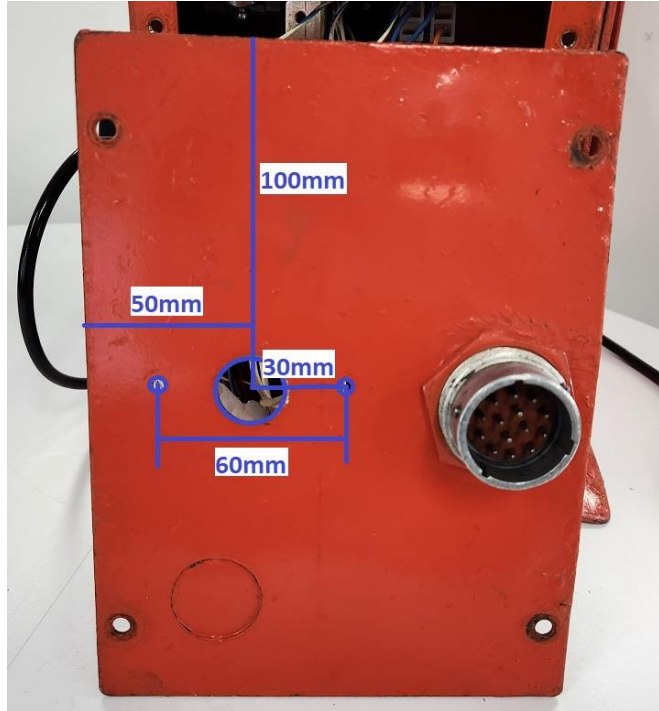
Task	Estimated Time (Minutes)
Open the operator control box	1
Drilling of all mounting holes for the various components	13
Mechanical assembly	10
Electrical assembly	20
Post installation system tests	10
Close the operator control box	1
Total	55

Installation Instructions

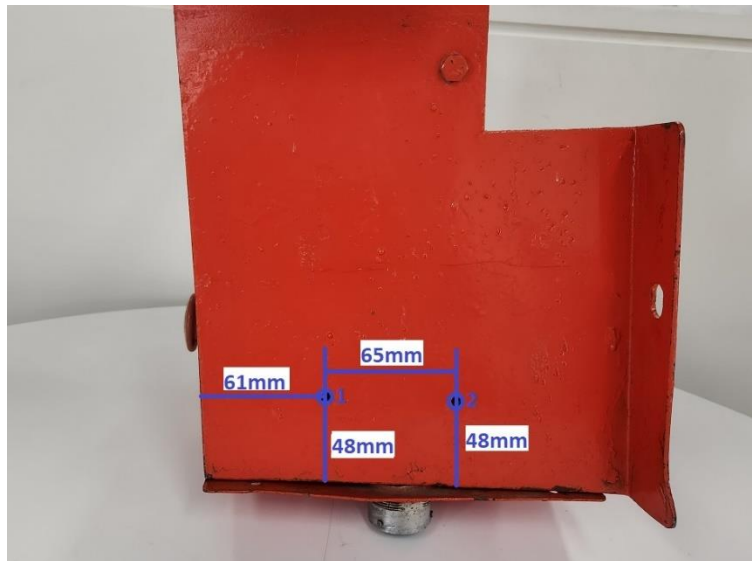
Operator Sensor

Step	Description	Diagram
1.	Remove the bottom cover of the control module.	
2.	Drill two 6mm holes into the metal housing as shown in the location. These holes are required to mount the operator sensor bracket. Note: Use sensor bracket (ME001864) as a drilling template.	

3. Drill a **20mm** hole and two **5.2mm** holes for the operator sensor gland and cable gland guard as shown in the image.



4. Drill two **5.2mm** holes to mount the ECU module.
 Note that the two holes are **65mm** apart.



5. Mount the operator sensor bracket to the control box enclosure by using the nuts, bolts, and washers.

Use the following hardware from the kit.

- 2 x M6 x 16mm Button Head Screws
- 2 x M6 Lock Nuts
- 4 x M6 Washers



6. **Sensor Mounting Guard V2 (AS002326)**

This bracket (AS002326) supersedes the original V1 design. Attach the bracket in the **45-degree** position using M5 nuts and washers. Make sure that the sensor is on the 7.5-degree angle, such that it is twisted outwards from the joystick controller.

The 7.5-degree twist is achieved by rotating the sensor inside the assembly and using the bolt hole as show in the image.

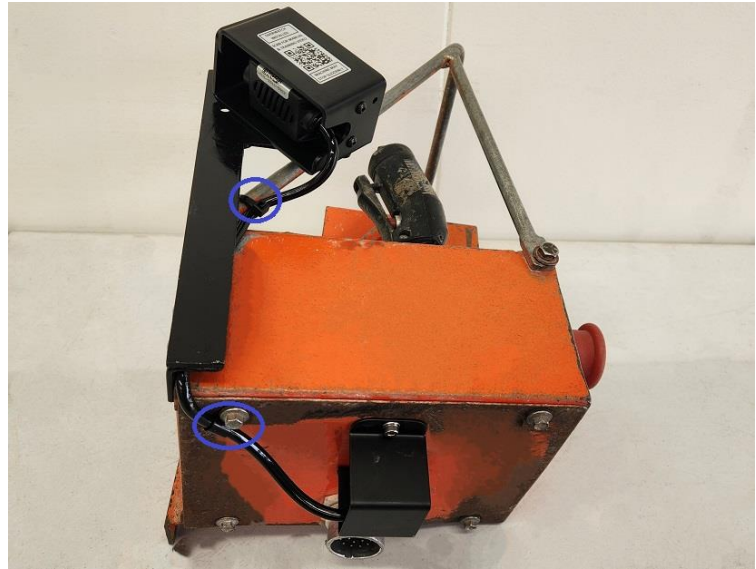
PARTS LIST			
ITEM	QTY	STOCK NUMBER	DESCRIPTION
1	1	AS002326	Sensor Mounting Guard V2
2	1	AS001910	OverWatch Operator Sensor
3	2	FA001174	Washer, Plain, M5, 304 St. St.
4	2	FA001219	Nut, Hex, M5 x 0.8mm, Nylock

Alignment Bolt Installed Here

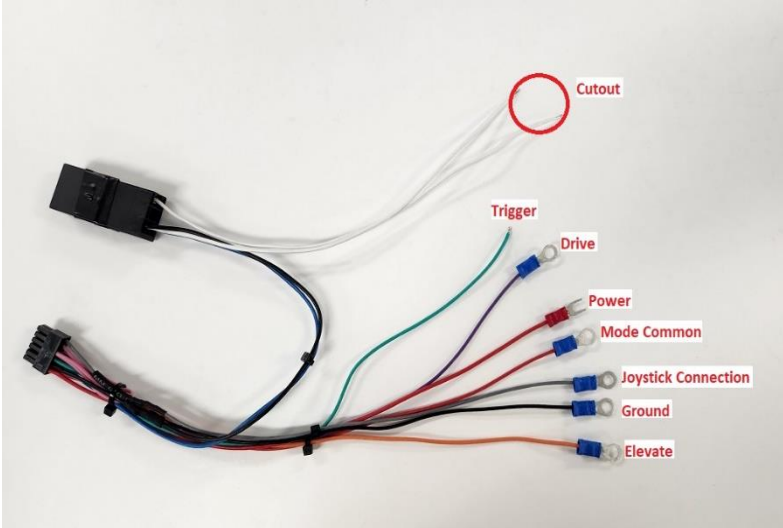

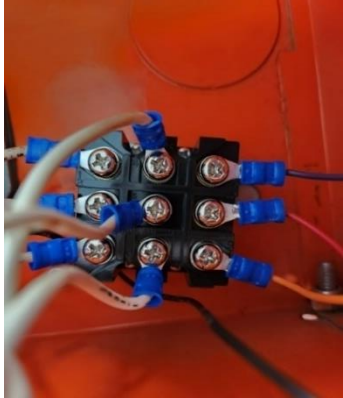
Bottom View

OverWatch 7.5 degree Alignment

7. Install the cable gland and gland guard. Route the operator sensor cable as shown in the image and secure the cable to the metal enclosure by using the P-clip and cable tie. Use the existing bottom metal cover screw for the P-clip.



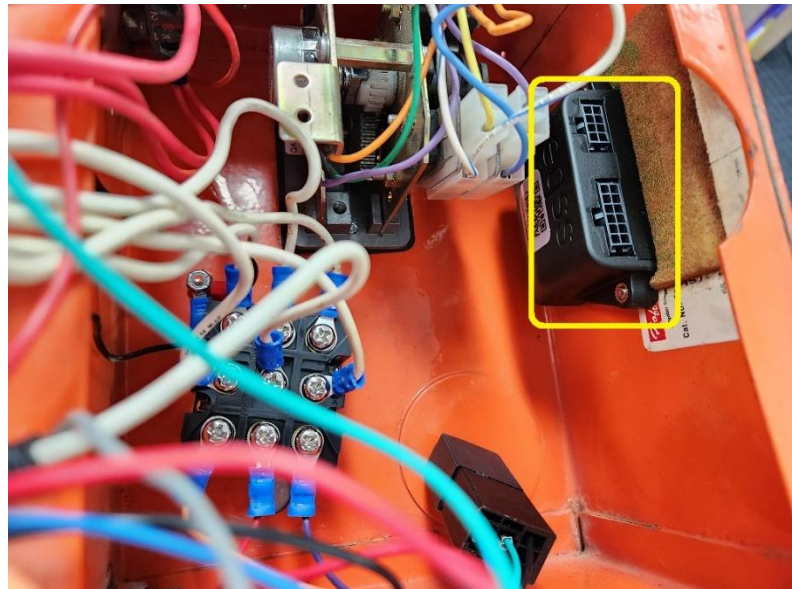
Control Module

Step	Description	Diagram															
1.	Wiring connections are made from the OverWatch harness AS002324 .																
2.	<p>Remove the existing Drive/Elevate switch SW31 from the control box and replace with the provided 3PDT switch. Rotate and tighten the switch according to the decal shown on the control box.</p> <p>Remove all the existing red lug ring terminals connected on the Snorkel switch and replace with provided 5mm blue ring terminals.</p> <p>Connect each ring terminal to the corresponding pin numbers 1 to 6 as shown on the switches.</p> <p>Note: Check the pin and wire numbers on the snorkel switch SW31 before transferring to 3PDT switch. Each terminal is transferred to their corresponding pin based on the wire numbers only.</p>	 <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px; text-align: center;"> Snorkel Switch </div> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">5</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">6</td> </tr> </table> <ul style="list-style-type: none"> Wire 17 Wire 18 Wire 125 Wire 126 Wire 103 Wire 222  <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px; text-align: center;"> 3PDT Switch </div> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">4</td> <td style="text-align: center;">7</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">5</td> <td style="text-align: center;">8</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">6</td> <td style="text-align: center;">9</td> </tr> </table> <ul style="list-style-type: none"> Wire 222 Wire 103 Wire 126 Wire 125 Wire 18 Wire 17 	1	4	2	5	3	6	1	4	7	2	5	8	3	6	9
1	4																
2	5																
3	6																
1	4	7															
2	5	8															
3	6	9															

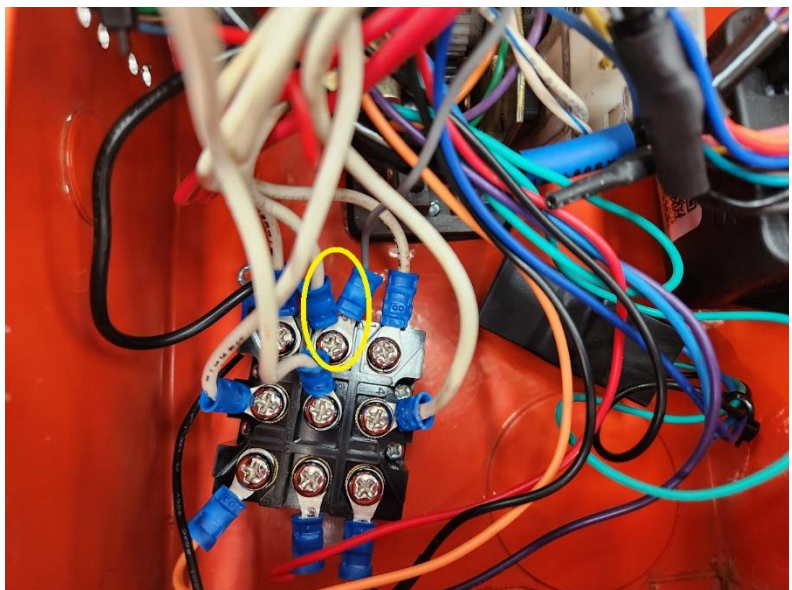
3. Follow the table shown for the switch **SW31** terminal and wire number connections.

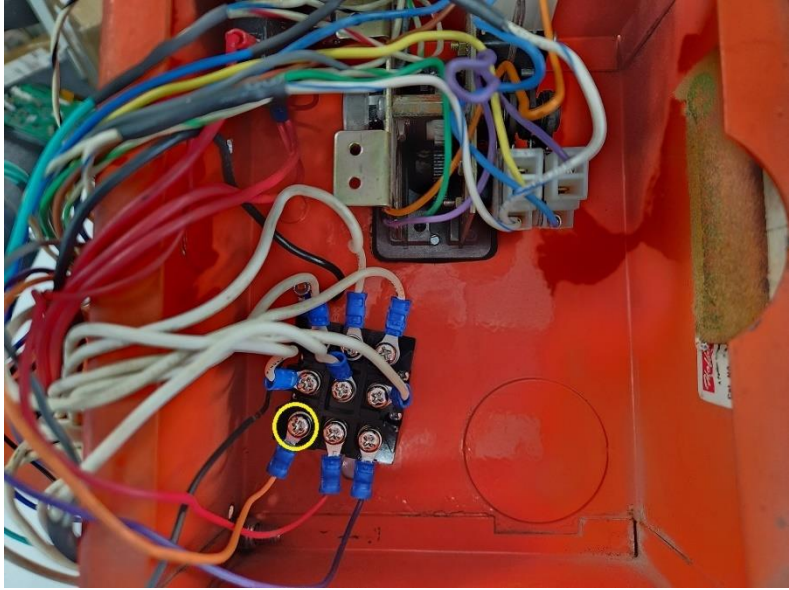
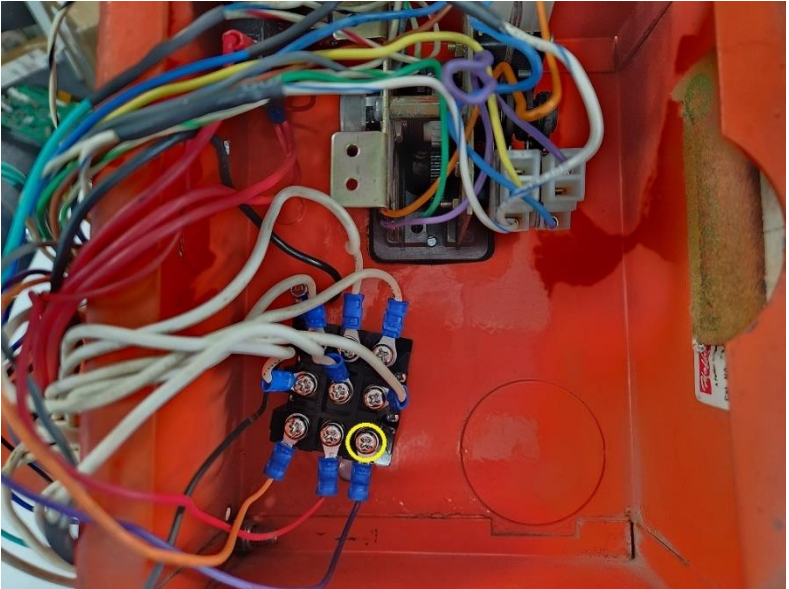
Description	Snorkel Switch 31 Wire #	3PDT Switch
Forward Drive	Wire – 17(SW31-1)	Pin 6
Forward/Down	Wire – 125(SW31-2)	Pin 5
Platform Down	Wire – 103(SW31-3)	Pin 4
Reverse Drive	Wire – 18(SW31-4)	Pin 3
Reverse/Lift	Wire – 126(SW31-5)	Pin 2
Platform lift	Wire – 222(SW31-6)	Pin 1

4. Install the OverWatch ECU module by using the supplied M4 screws and washers as shown in the image. The ECU must be mounted so the connectors are facing downwards to avoid any potential water ingression.

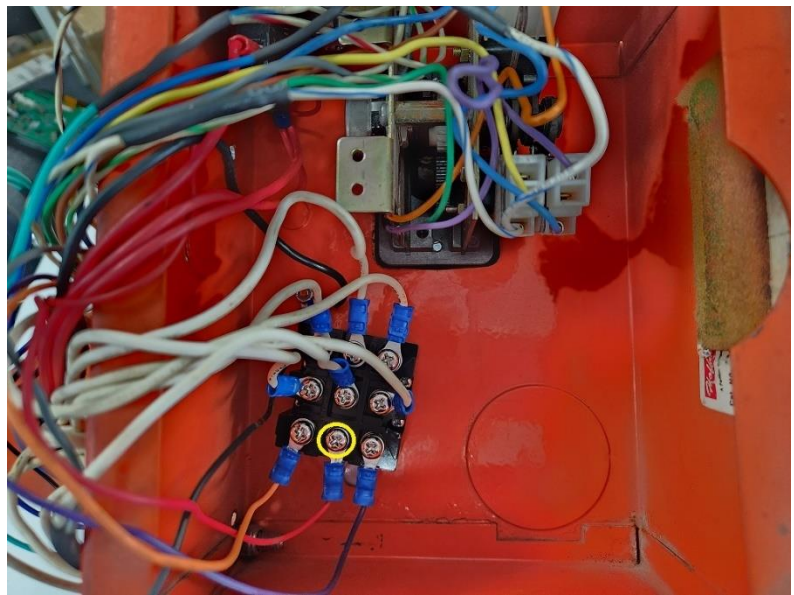


5. **Joystick Connection:**
 Install the **Grey** wire from the OverWatch harness to the **PIN2(wire 126)** on the switch as shown in the image.

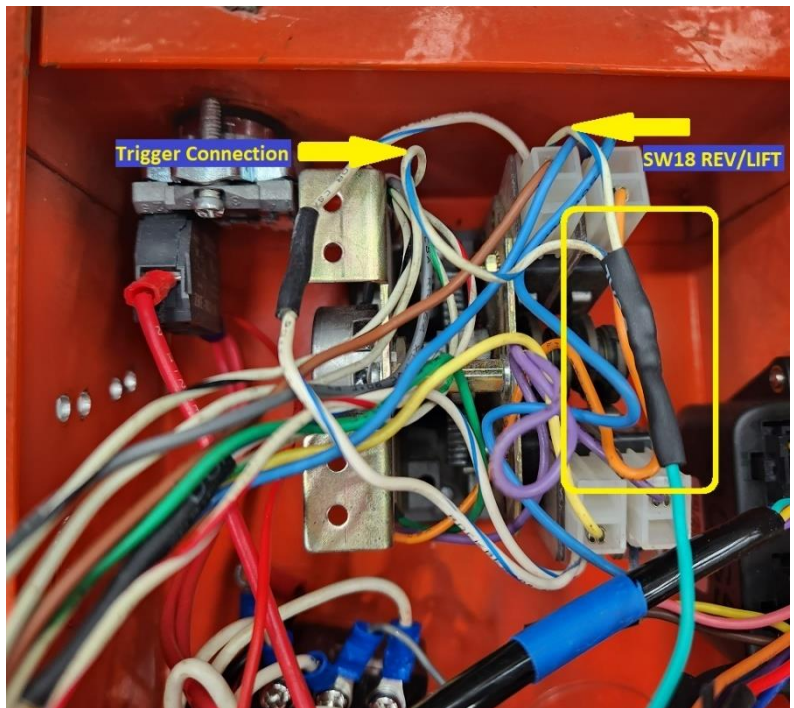


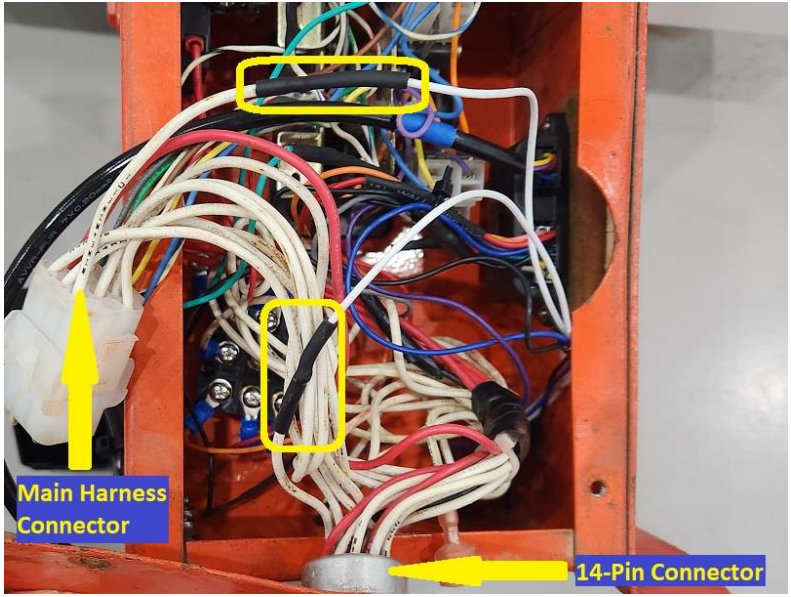
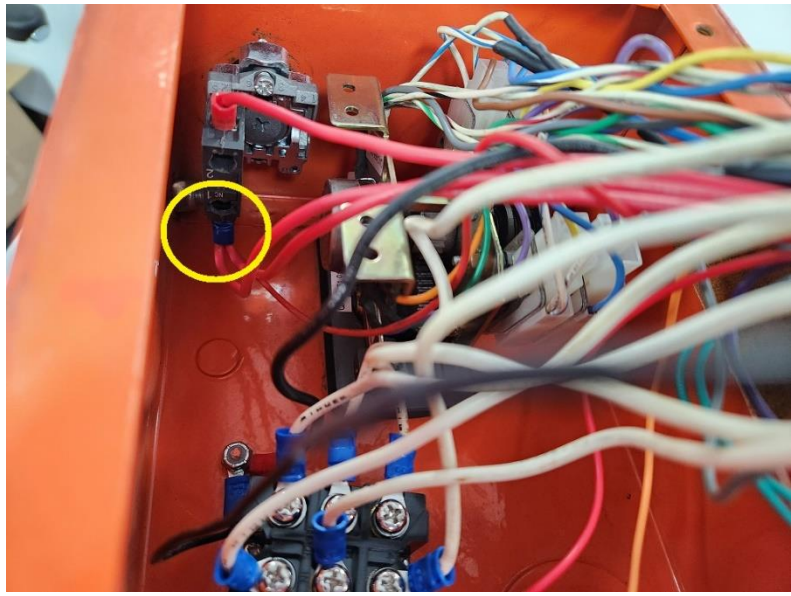
<p>6. Elevate Connection:</p> <p>Install the Orange wire from the OverWatch harness into the PIN9 on the switch as shown in the image.</p>		
<p>7. Drive Connection:</p> <p>Install the Purple wire from the OverWatch harness into the PIN7 on the switch as shown in the image.</p>		

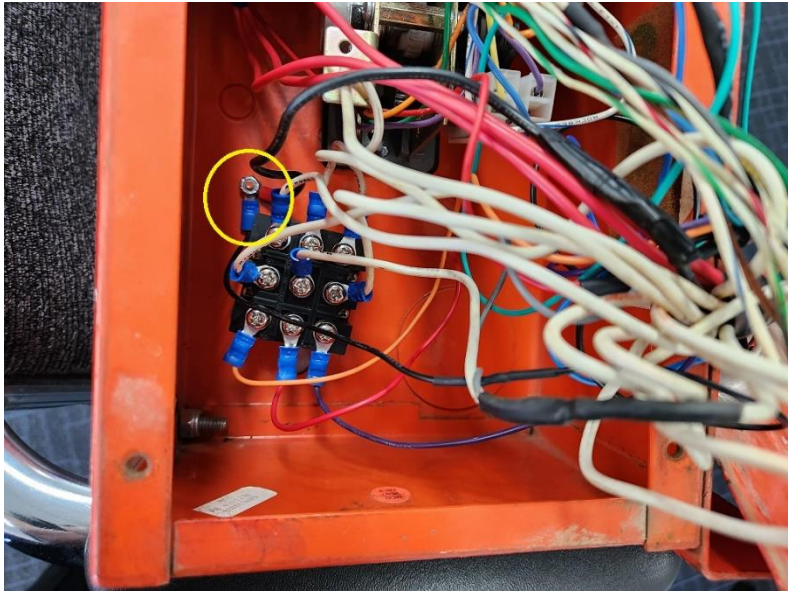

8. **Mode common:**
 Install the **Red** wire from the OverWatch harness into the **PIN8** on the switch as shown in the image.



9. **Trigger Connection:**
 Splice the **Green** wire from the OverWatch harness to the **White/Blue** wire from the joystick trigger and **SW18 REV/LIFT**.



<p>10.</p>	<p>Cutout Connection:</p> <p>Cut the Pin9 (Wire 101) wire from the main harness connector. Solder one white wire from the OverWatch harness relay to the main harness connector side and solder another white wire from the relay to the 14-pin connector side.</p>	
<p>11.</p>	<p>Power Connection:</p> <p>At the back of the E-Stop, attach the red wire from the OverWatch harness into the E-Stop PIN2 as shown in the image.</p> <p>Note: This cable might need to be changed to terminal 1 if the OverWatch is powered with the E-stop pushed in.</p>	

<p>12.</p>	<p>Ground connection:</p> <p>Install the Black wire from the OverWatch harness to the control box ground connection as shown in the location.</p>	
<p>13.</p>	<p>Connect the 8-Pin connector from the operator sensor and the 12-Pin connector from the OverWatch harness, into the ECU module.</p> <p>Make sure to tie all the wires together by using a cable tie to avoid any damages during the closure.</p>	

14.

Re-fit the machine control box and close the bottom cover.

Care must be taken when closing the boxes, make sure all internal wires are clear of the box edges and bolt inserts, do not pinch or crush any internal wires when closing the boxes.



Post Installation Configuration

Overview

After the system has been installed it must be configured with the parameters to suit the machine. Follow the instructions below to configure the OverWatch.

Minimum system requirements

Any smart phone, tablet or laptop that meets the following requirements:

- The device can connect to a Wi-Fi access point
- The device has an up to date web browser installed. Firefox, Chrome or Safari are recommended.

Wi-Fi Connection & Web Page Access

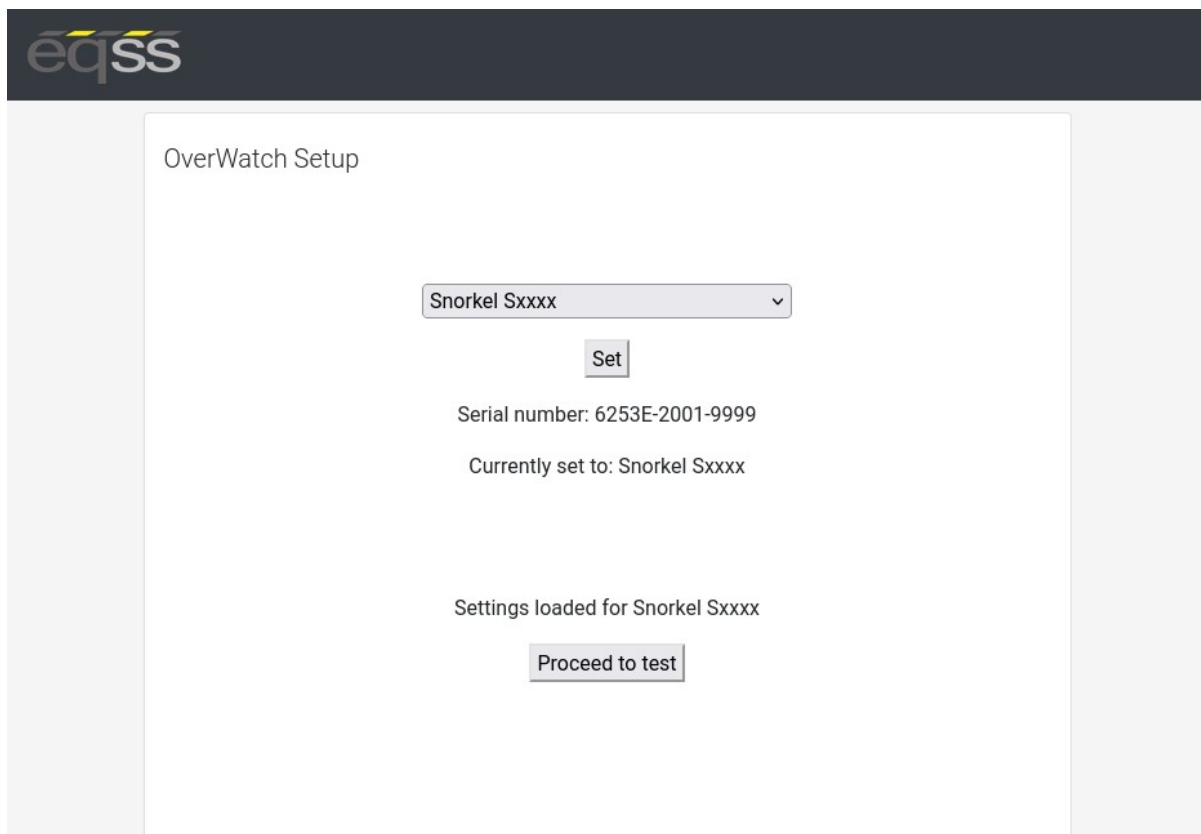
To enable the Wi-Fi connection on the OverWatch to complete the configuration follow the steps below.

1. Power down the platform control box with the ESTOP
2. Wait 5 seconds
3. Power up the platform control box with the ESTOP
4. While standing **in front of the operator sensor**, switch on the OverWatch
5. As the welcome chime starts to play, cover the sensor. The LED will flash white then black to acknowledge.
6. Remove your hand from the sensor. The LED will flash white then black to acknowledge.
7. After covering then uncovering the sensor this way 2 more times, "Wi-Fi On" will be announced
8. On your Wi-Fi enabled device (laptop, tablet, smartphone, etc), show the available wireless networks
9. Select the wireless network (starts with "overwatch") to connect to the OverWatch
10. When prompted, enter the **password 12345678**
11. Open your preferred web browser (Chrome, Firefox, Safari)
12. Enter the following into the address bar <http://192.168.4.1> to open the OverWatch main page

Machine Model Selection

Follow the instructions below to configure the OverWatch.

1. Select the Setup option
2. If there is a password field at the bottom of the page, follow the instructions in Change Model Configuration to obtain the password and enter the password field
3. Select the EWP Model from the drop-down list and click Set
4. Click on Proceed to Test to begin the installation test



OverWatch Setup

Snorkel Sxxxx

Set

Serial number: 6253E-2001-9999

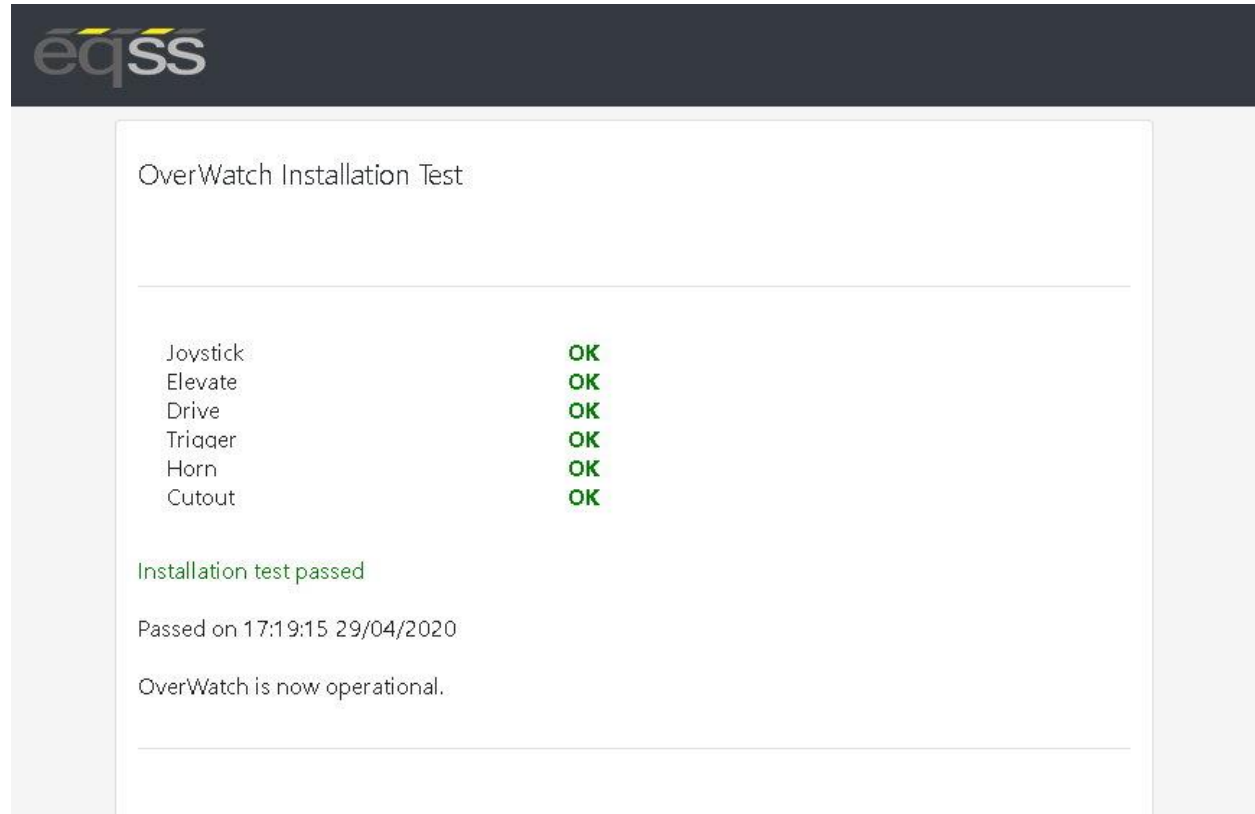
Currently set to: Snorkel Sxxxx

Settings loaded for Snorkel Sxxxx

Proceed to test

Installation Test

After the model configuration has been set or updated an Installation Test must be performed. This will ensure the installation has been correctly performed and the OverWatch is functioning correctly. Follow the instructions on the web page to complete the Installation Test.



The screenshot shows a web interface for the OverWatch Installation Test. At the top left is the eqss logo. The main heading is "OverWatch Installation Test". Below this is a table of test results:

Joystick	OK
Elevate	OK
Drive	OK
Trigger	OK
Horn	OK
Cutout	OK

Below the table, the text "Installation test passed" is displayed in green. This is followed by "Passed on 17:19:15 29/04/2020" and "OverWatch is now operational." at the bottom of the test results section.

Change Model Configuration

To reconfigure the OverWatch for a different model requires an authorisation password. The authorisation password is generated from the EQSS website. The EQSS website requires a login username and password, contact EQSS for these details.

Follow the instructions below to obtain an authorisation password. It is important to note that each ECU has a unique serial number and a unique password.

1. Open your web and enter the following into the address bar <http://www.eqss.com.au/overwatch> to open the Login page
2. Enter your username and password
3. Enter the EUC serial number which is shown on the setup page or on the ECU serial number sticker, also enter the owner and model details of the EWP and then click Generate Hash
4. The generated Hash code or password can be used to change the model configuration.



The screenshot shows a web interface with the EQSS logo at the top left. Below the logo is a section titled 'Details' containing a table of user and system information.

Details	
Name	John Smith
Email	john.smith@company.com
Phone	+61 9 9999 9999
EQSS Overwatch Serial Number	6253E-2004-0000
Scissor Lift Model	Snorkel Sxxxx
Hash	50244

System Settings

Default Parameters

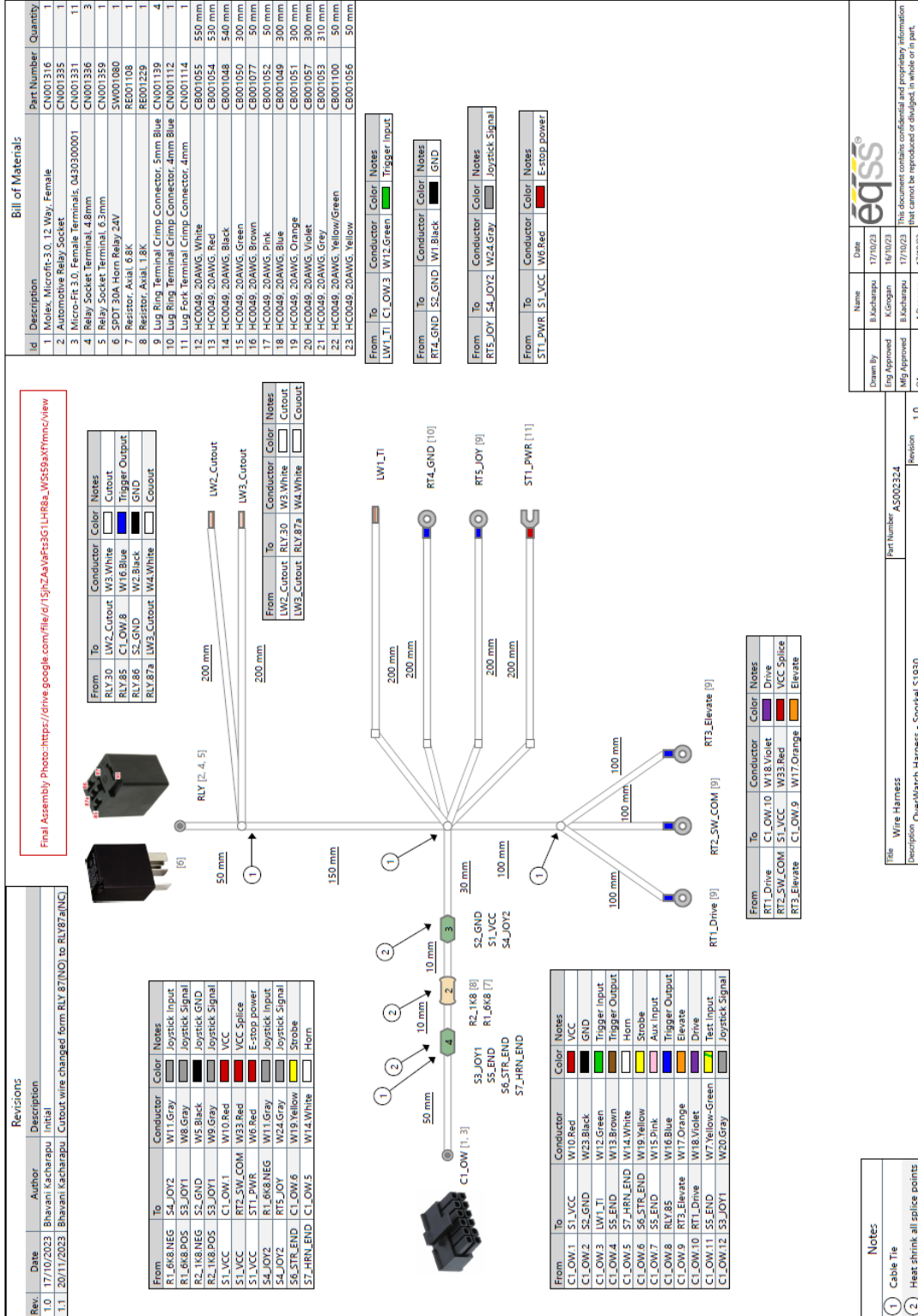
The OverWatch is configured with the following default parameters.

Setting Name	Description	Default
max_safe_velocity	This is the velocity threshold for the cutout in cm/s for drive mode.	95
max_safe_displacement	This is the maximum permitted distance in cm the operator may be away from the calibration position in drive mode.	50
max_safe_velocity_elevate	This is the velocity threshold for the cutout in cm/s for elevate mode.	75
max_safe_displacement_elevate	This is the maximum permitted distance in cm the operator may be away from the calibration position in elevate mode.	50
fwddispadj	The proportion of the calibration distance toward the sensor permitted to the operator.	0.7
fwdveloadj	The coefficient to apply to the maximum allowable velocity when the movement of the operator is toward the sensor.	1.0
zone_obstruction	If the lidar sensor reading is below this, the lidar is considered to be obstructed (with paint or thick coat of dust) and the system is cutout until the obstruction is cleared.	5
zone_minimum	The minimum calibration distance. If the operator is closer to the sensor than this "operator zone" will be announced.	17
zone_maximum	The maximum calibration distance. If the operator is further from the sensor than this "operator zone" will be announced.	120
adc_elevate_threshold	Threshold value for the elevate ADC input.	2200
adc_drive_threshold	Threshold value for the drive ADC input.	2200
adc_trigger_threshold	Threshold value for the trigger ADC input.	2000
adc_joystick_fwd_threshold	Forward threshold value for the joystick ADC input.	1500
adc_joystick_bwd_threshold	Backward threshold value for the joystick ADC input.	1400
throttle_time	Period after the trigger is pressed (ms) during which initial velocity reading is computed.	500
driving_state_timeout	Mode selection switch timeout (ms)	7000

Polarity and Input Style

<i>Setting Name</i>	<i>Description</i>	<i>Default</i>
joystick_drive_forward	Direction of joystick to move machine forward	forward
joystick_elevate_upward	Direction of joystick to move machine upwards	backward
elevate_polarity	Direction of signal logic	low
drive_polarity	Direction of signal logic	low
trigger_polarity	Direction of signal logic	high
joystick_polarity	Direction of signal logic	low
driving_state_input	Direct or timer based	direct

Harness Drawing AS002324



Name	Date
B. Kacharapu	17/10/23
K. Gangan	16/10/23
B. Kacharapu	17/10/23
A. Donagan	17/10/23

Eng Approved: B. Kacharapu
Mfg Approved: A. Donagan

File	Wire Harness	Part Number	Revision
AS002324		AS002324	1.0

Description: OverWatch Harness - Snorkel 51930

From	To	Conductor	Color	Notes
RT1_Drive	C1_LOW.10	W18	Violet	Drive
RT2_SW_COM	S1_VCC	W33	Red	VCC Splice
RT3_Elevate	C1_LOW.9	W17	Orange	Elevate

From	To	Conductor	Color	Notes
C1_LOW.1	S1_VCC	W10	Red	VCC
C1_LOW.2	S2_GND	W23	Black	GND
C1_LOW.3	LW1_T1	W12	Green	Trigger Input
C1_LOW.4	S5_END	W13	Brown	Trigger Output
C1_LOW.5	S7_HRN_END	W14	White	Horn
C1_LOW.6	S6_STR_END	W19	Yellow	Strobe
C1_LOW.7	S5_END	W15	Pink	Aux Input
C1_LOW.8	RLY85	W16	Blue	Trigger Output
C1_LOW.9	RT3_Elevate	W17	Orange	Elevate
C1_LOW.10	RT1_Drive	W18	Violet	Drive
C1_LOW.11	S5_END	W17	Yellow-Green	Test Input
C1_LOW.12	S3_JOY1	W20	Gray	Joystick Signal

Replacement Parts

Replacement parts for this OverWatch kit are available from EQSS, for all inquiries please email sales@eqss.com.au
Shown below are the part numbers for the major components included in this model specific kit.

Part Number	Description
AS002323	OverWatch - Complete kit for Snorkel Sxxxx Series Control Box
AS001910	OverWatch - Operator Sensor with M20 gland
AS001916	OverWatch - Electronic Control Unit (ECU)
AS002324	OverWatch - Snorkel Sxxxx Series Harness
AS002326	OverWatch - Sensor Guard V2
ME001864	OverWatch - Sensor vertical support bracket