INSTALL MANUAL

EQSS Model6253 – OverWatch™
Mid-Size RT Scissors, Silver Control Box, Installation Manual

Failure to follow this installation manual will void warranty

AUTHORS:	AUTHORISED BY:	CHECKED BY:
Kieren Grogan	Kieren Grogan	Andrew Donegan

DOCUMENT ABSTRACT:
This Installation Manual details the manufacturer's installation instructions for installing the Model6253 OverWatch on a Skyjack Mid-Size Rough Terrain Scissor Lift with a Sliver control box

PRODUCT NAME:
Model6253 OverWatch Operator Detection System

REFERENCE DOCUMENTS:
DO0001195 Model6253 OverWatch User Manual

CURRENT DOCUMENT REVISION:
1.4

REVISION INFORMATION:

- 1.1 Initial Document Creation for installation on a Skyjack SJIII RT
- 1.2 Update of wiring installation procedures
- 1.3 Update of document name to define RT scissors with a sliver control box
- 1.4 Inclusion of sensor guard V2 and update of machine configuration instructions

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this publication regarding this device's applications and the like, is provided only for your convenience and may be superseded by updates.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

N23041

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.

Table of Contents

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 5.0mm
6	Metric sockets or spanners
7	Needle nose pliers
8	Screw drivers

Installation Time

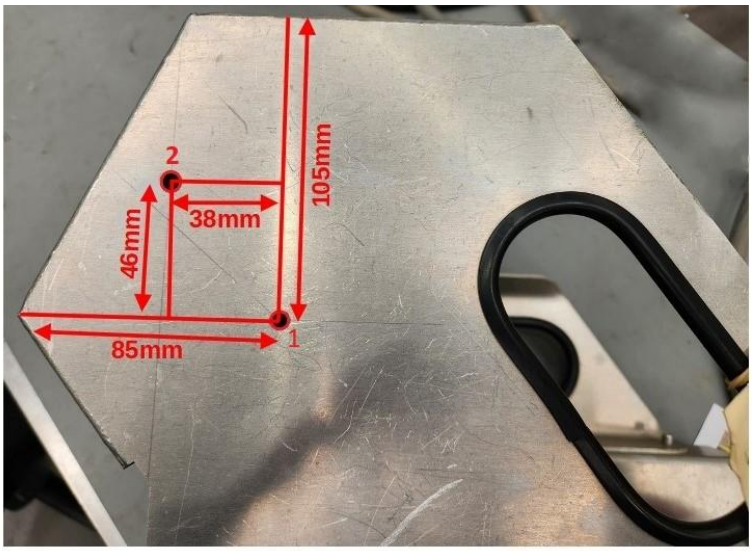
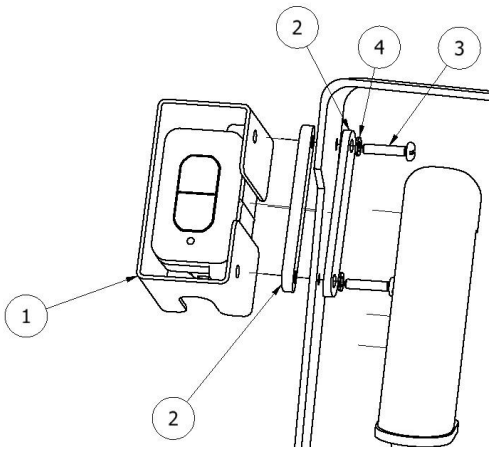
The suggested time required to install the OverWatch is as detailed below.

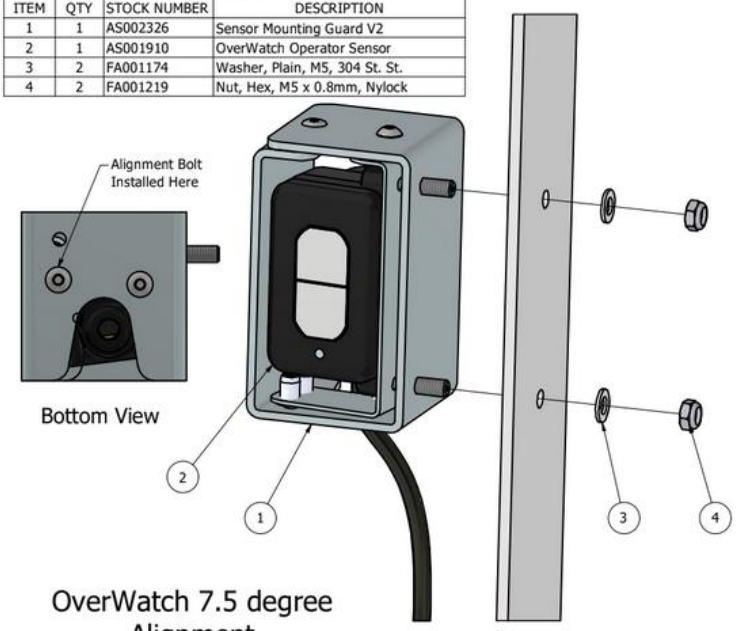
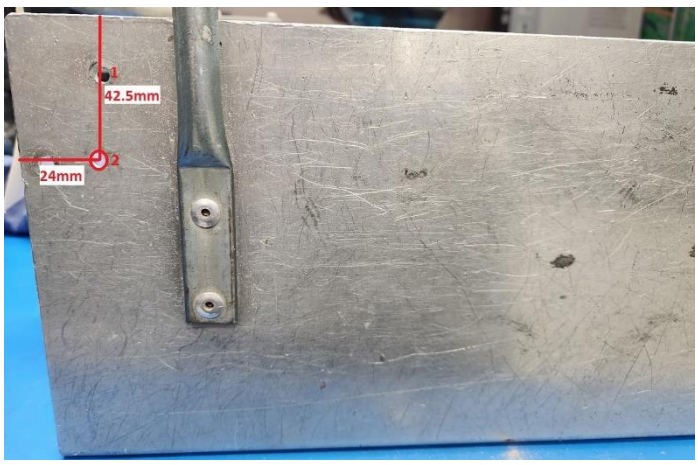
Task	Estimated Time (Minutes)
Open the operator control box	1
Drilling of all mounting holes for the various components	13
Mechanical assembly	10
Electrical assembly	10
Post installation system tests	10
Close the operator control box	1
Total	**45**

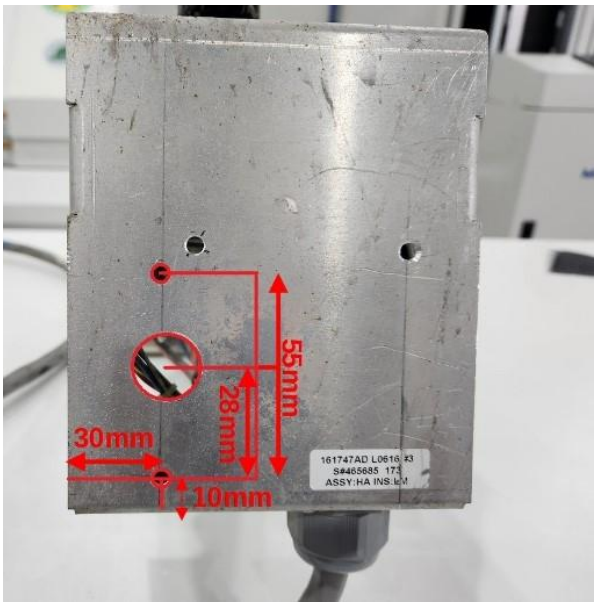
Installation Instructions

If any decals are damaged during the installation process or if any decals are obstructed following the installation, they should be replaced accordingly.

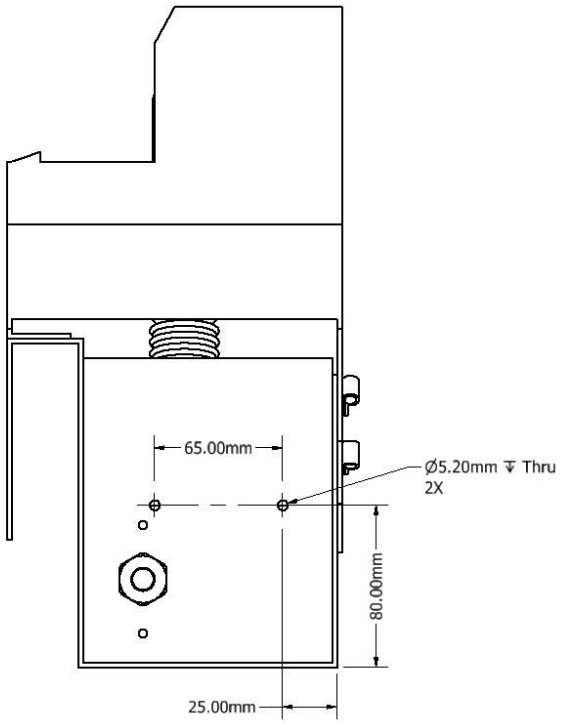
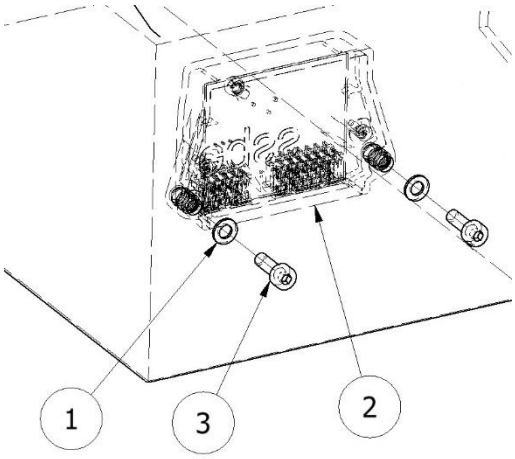
Operator Sensor

Step	Description	Diagram
1.	Separate the joystick from the enclosure and drill two **5.2mm** holes to mount the operator sensor in the position shown in the diagram. The distance between the two holes is **61mm**. The angle between the two holes is **45-degrees** measured from the vertical of the metal enclosure.	
2.	**Sensor Mounting Guard V1 (ME001794)** Mount the module in the located position using the wedges, sensor guard, bolts, and washers. The **7.5-degree** angled wedge blocks must be positioned in the correct orientation such that the sensor is **twisting outwards** from the joystick.	PARTS LIST ITEM | QTY | PART NUMBER | DESCRIPTION 1 | 1 | AS001910 | OverWatch Operator Sensor 2 | 1 | ME001794 | OverWatch Operator Sensor Guard 3 | 2 | ME001798 | Operator Sensor Alignment Wedge 4 | 2 | FA001422 | M4 x 20mm Security Screw 5 | 2 | FA001235 | M4 Plain Washer 

3.	**Sensor Mounting Guard V2 (AS002326)** This bracket (AS002326) supersedes the original V1 design. Attach the bracket in position using the 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  OverWatch 7.5 degree Alignment
4.	If the operator control box does not have metal side cover use the supplied bracket ME001813 and M4 nuts and bolts to create a support structure for the operator sensor. Such that the operator is mounted at an angle of **40 degrees.** Use an existing hole 1 on the control box and drill hole 2 to mount the bracket as shown in the image.	 

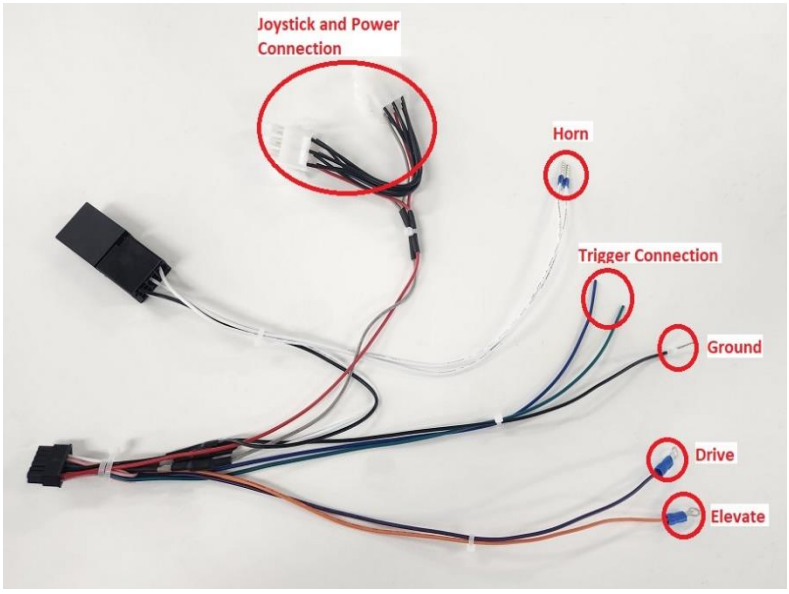
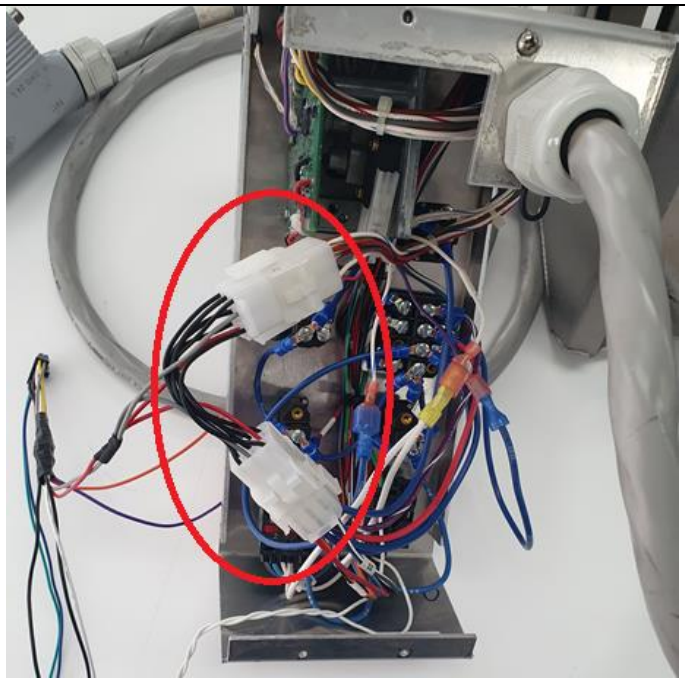
5.	Make sure the operator sensor cable runs clear to the joystick enclosure and tighten the M20 gland to seal the cable entry point as shown in the image.	
6.	Drill a **20mm** hole to run the operator sensor M20 cable gland and drill two **5.2mm** holes for the cable gland guard.	
7.	Install the cable gland in the location by using the M4 screws, nuts and washers as shown in the image. Use two P-clips to secure the operator sensor cable.	

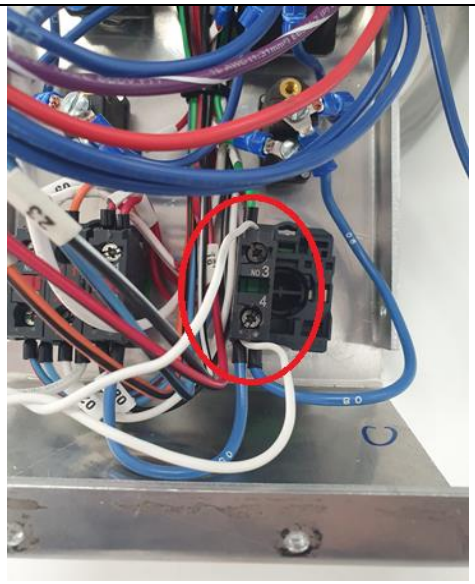
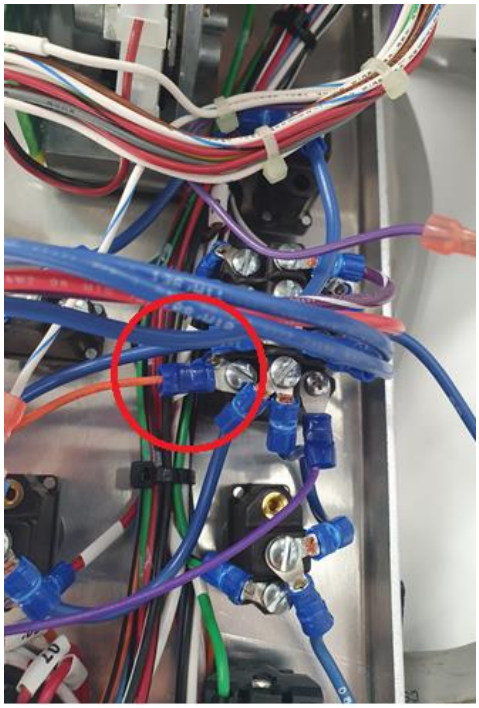
Control Module

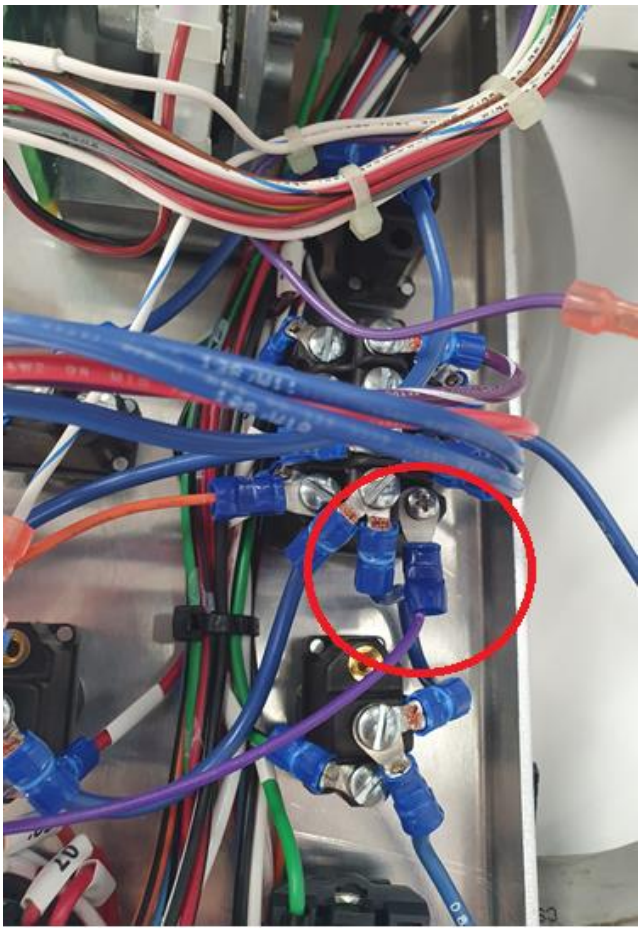
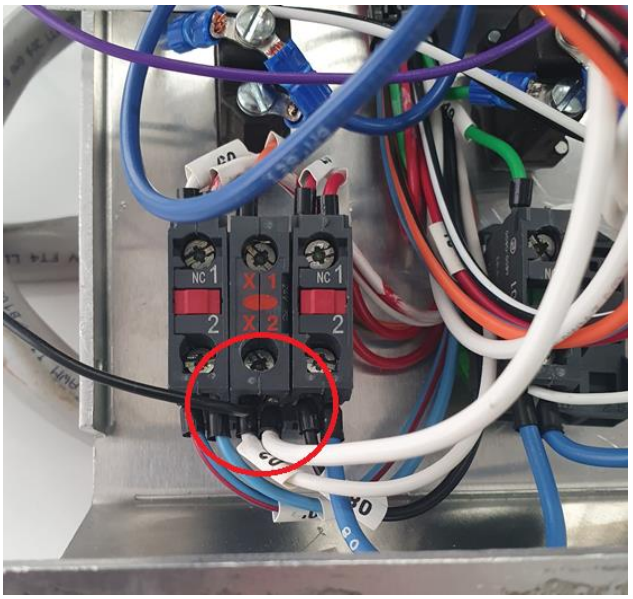
Step	Description	Diagram
1.	Drill two **5.2mm** holes to mount the ECU as shown in the image.	
2.	Mount the ECU module by using the bolts, and washers.	

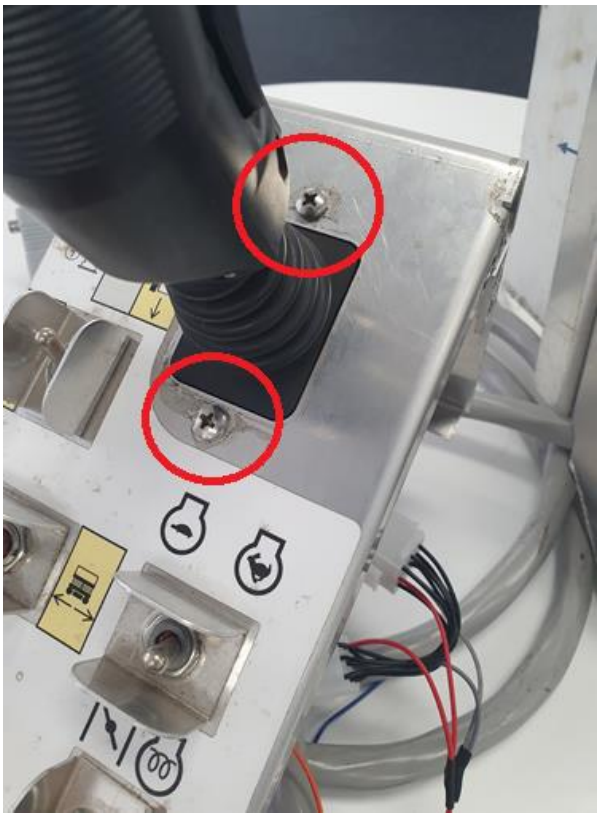
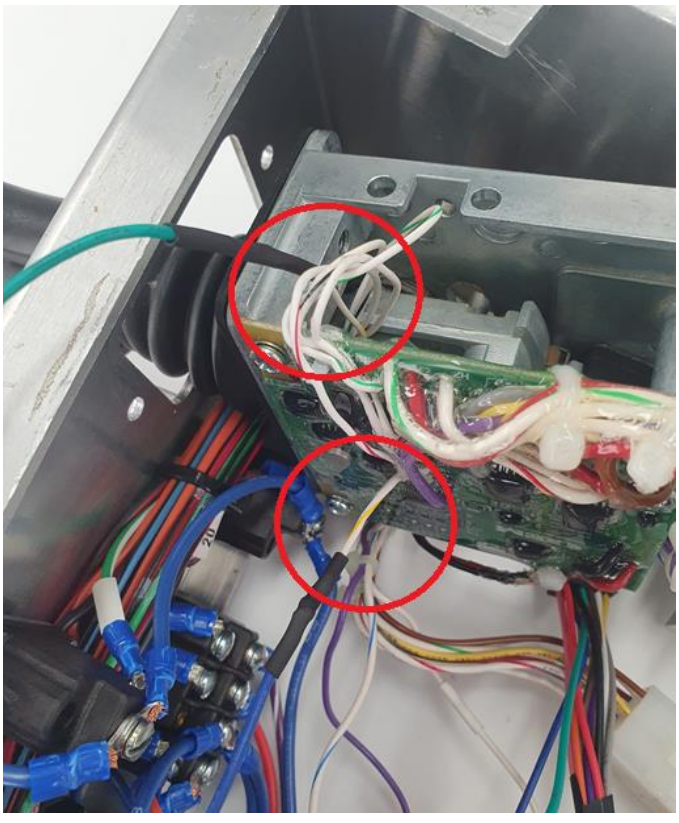
PARTS LIST

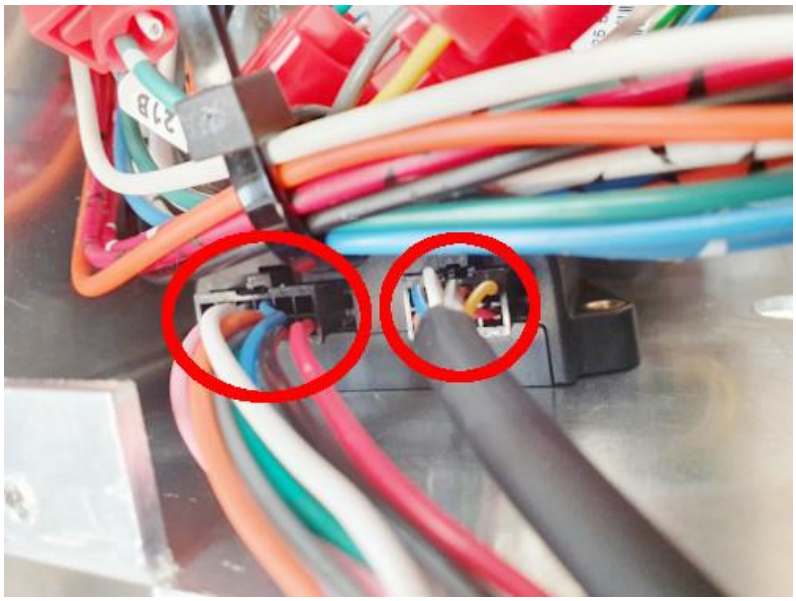
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	FA001235	M4 Plain Washer
2	1	AS001916	OverWatch ECU Module
3	2	FA001211	M4 x 12mm Socket Head Cap Screw

3.	Wiring connections are made with the **AS001987** harness.	
4.	**Joystick Connection:** Disconnect the 9-Pin connector from the joystick and install the OverWatch harness in series.	

5.	**Horn Connection:** At the back of the horn push button, install the OverWatch white wires to the terminals **3 and 4** as shown in the image.	
6.	**Elevate Connection:** At the back of the Drive/Elevate switch: 1. Identify the switch block with the power wire ID **08**. 2. Install the **orange** wire from the OverWatch harness to the switch block terminal as shown in image.	

7.	**Drive Connection:** At the back of the Drive/Elevate switch: On the same switch block with the power wire **ID 08**, install the **purple** wire from the OverWatch harness to the switch block terminal as shown in image.	
8.	**Ground Connection:** Install the **black** wire from the OverWatch harness with the wire **ID 02** on the switch block as shown in the image.	

9.	Remove the screws on the front plate which secure the joystick block in place.	
10.	**Trigger Connection:** Cut the white/yellow wire from the joystick. Solder the green wire from the OverWatch harness to the white/yellow wire from the joystick side. Solder the other end of the white/yellow wire from the circuit side to the blue wire from the OverWatch harness.	

11.	Connect the 8-Pin connector from the operator sensor and the 12-Pin connector from the OverWatch harness, into the ECU. Re-assemble the joystick back into the enclosure.	

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

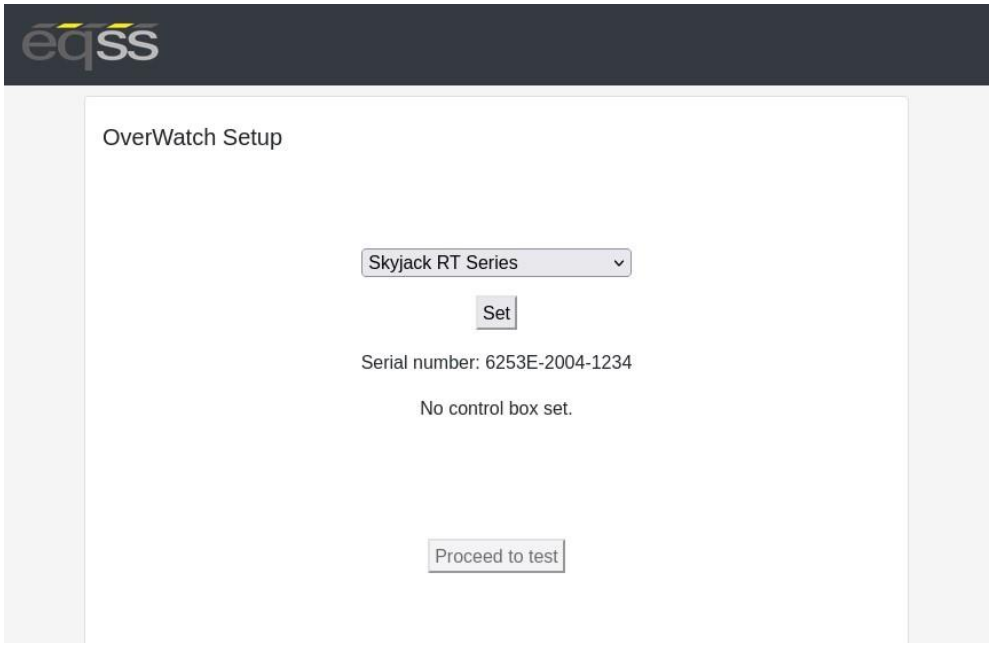
To enable the Wi-Fi connection on the OverWatch to complete the configuration follow the steps below.

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.

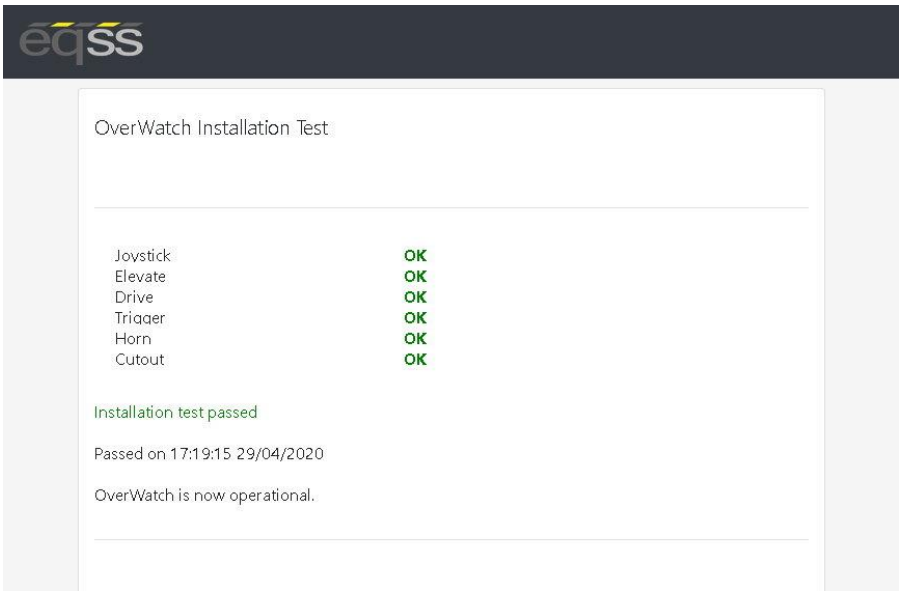
1. Select the Setup option
2. If there is a password field at the bottom of the page, follow the instructions in Change Model Configuration to obtain the password and enter the password field
3. Select the EWP Model from the drop-down list and click Set
4. Click on Proceed to test to begin the installation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



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.

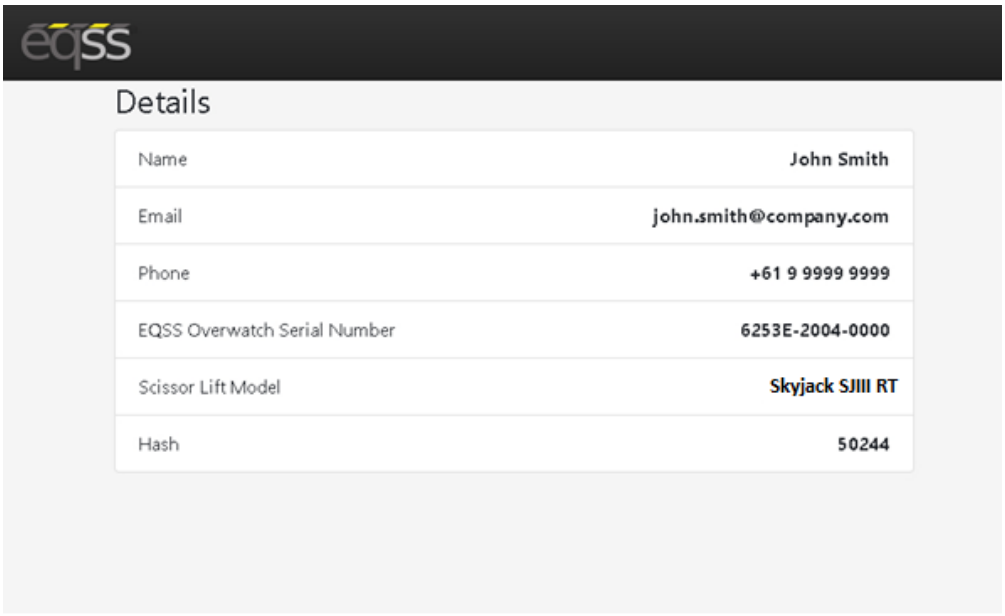


Change Model Configuration

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.



System Settings

Default Parameters

The OverWatch is configurated with the following default parameters.

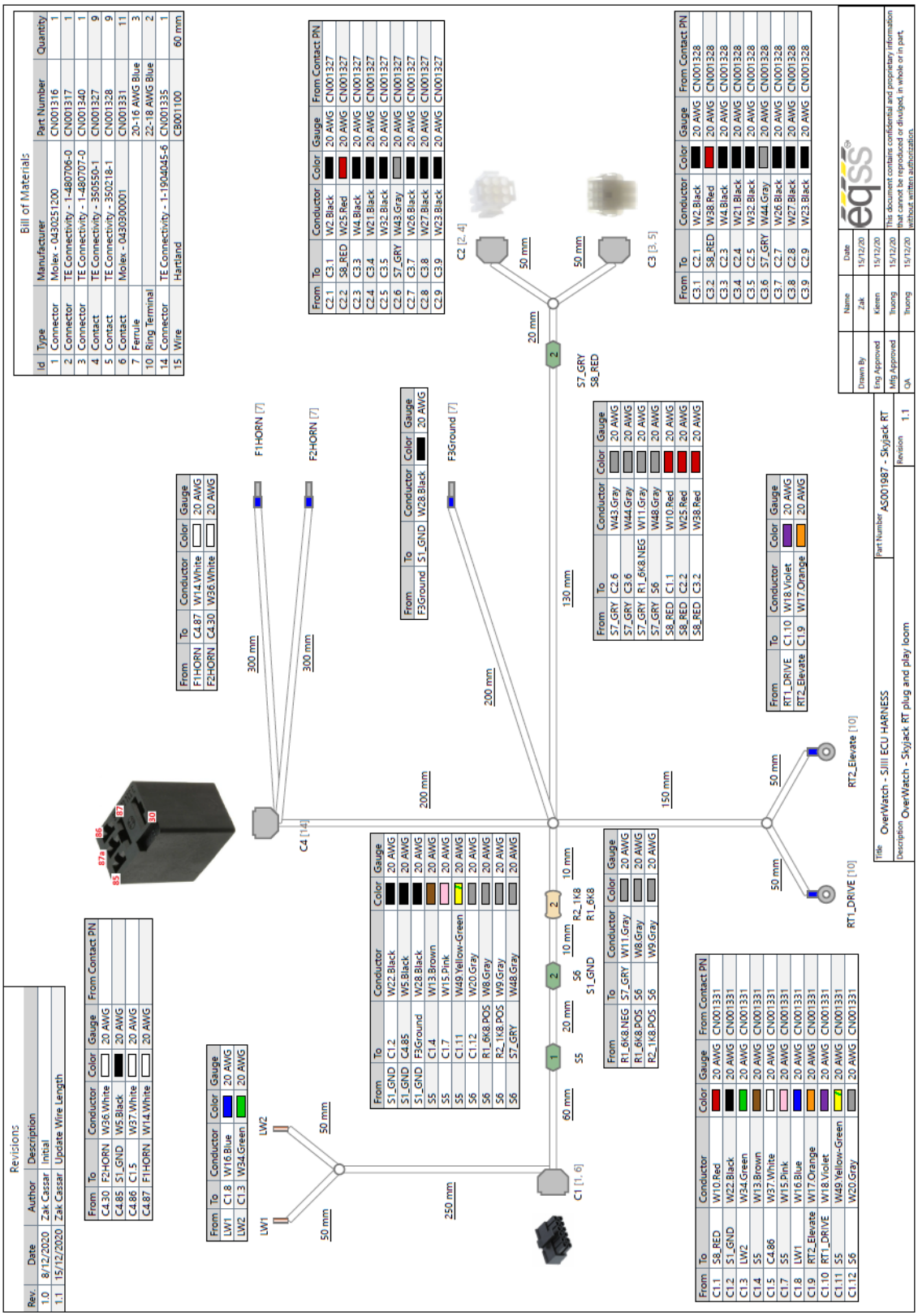
Setting Name	Description	Default
max_safe_velocity	This is the velocity threshold for the cutout in cm/s for drive mode.	95
max_safe_displacement	This is the maximum permitted distance in cm the operator may be away from the calibration position in drive mode.	50
max_safe_velocity_elevate	This is the 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.	900
adc_drive_threshold	Threshold value for the drive ADC input.	900
adc_trigger_threshold	Threshold value for the trigger ADC input.	900
adc_joystick_fwd_threshold	Forward threshold value for the joystick ADC input.	100
adc_joystick_bwd_threshold	Backward threshold value for the joystick ADC input.	200
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

The table below describes each setting

Setting Name	Description	Default
joystick_drive_forward	Direction of joystick to move machine forward	forward
joystick_elevate_upward	Direction of joystick to move machine upwards	forward
elevate_polarity	Direction of signal logic	high
drive_polarity	Direction of signal logic	high
tigger_polarity	Direction of signal logic	high
joystick_polarity	Direction of signal logic	low
driving_state_input	Direct or timer based	direct

Harness Drawing AS001987



Replacement Parts

Replacement parts for this OverWatch kit are available from EQSS, 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
AS001985	OverWatch - Complete kit for Skyjack SJ-III RT series
AS001910	OverWatch - Operator sensor with M20 gland
AS001916	OverWatch - Electronic Control Unit (ECU)
AS001987	OverWatch – Skyjack SJ-III RT series harness
AS002326	OverWatch - Sensor guard V2
ME001813	OverWatch - Sensor mounting bracket (45 Degree)