INSTABOOM
Mobile Barrier Gate

INSTABOOM®

PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE PROCEEDING WITH OPERATION

Version 2.5

14 May 2024

Contents

Product Introduction:

INSTABOOM is the market leading solar hybrid portable barrier that is fully HSE compliant and UKCA marked. Built to meet the highest safety standards and also rugged enough to withstand being on a worksite INSTABOOM is the 'game changer' in highway safety.

The Instaboom barrier arm is suited for traffic management of major projects and construction sites. Having a physical barrier arm provides instant demarcation for your worksite. The Instaboom Barrier can be set up in minutes.

Included in this manual are two TMP diagrams showing two possible uses of the INSTABOOM in the road environment that allow for the control of traffic with the arm.

Always check www.rtl.co.nz for new versions of this installation manual – Search Instaboom Barrier

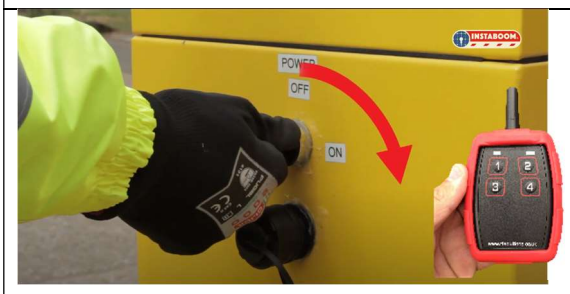
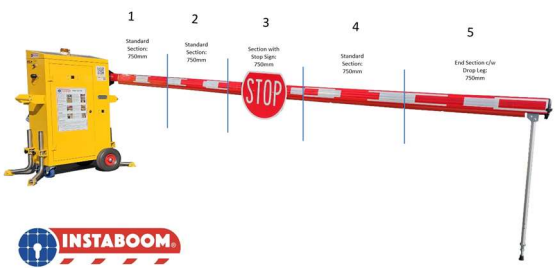
Component List:

Component list

- 1x mobile barrier
- 5x modular boom sections - 3x standard sections, 1x standard section with stop sign and 1x end section with drop leg section
- 1x 4 button remote fob (red)
- 1x Stop Sign bolted to one of the standard sections
- 24v System – (2x 12v Batteries in series) and external charging port for mains charging

Setup:

Normal Operation

 	Position the barrier on firm level ground so the barrier faces into the roadway. Loosen the hand knobs and swing out the each of the four swing out the stabilizing legs. Retighten each hand knob. Ensure each clamp is tight. This fixes the Instaboom in position and adds to stability under operation. For best performance, locate the INSTABOOM product in natural daylight, ideally in direct sun.
	Connect **<u>two</u>** boom sections to the short upright section. The pieces slot together and click into place with spring clips. Ensure buttons are engaged.
	Turn the INSTABOOM on using the two position switch. Using the remote, lower the barrier arm.
	Connect the remaining boom sections. New Zealand specifications require a Stop Sign to be mounted to the barrier arm boom. One section will have a bolted stop sign - this is supplied with your purchase and used mid way. The section with the drop leg is last and must be used.
	**Standard Boom Order:** 1 standard section 2 standard section 3 section with stop sign 4 standard section 5 section with drop leg All 5x sections = 4000mm overall length.

	Turn on, perform 1 complete up/down sequence with fob. Adjust drop leg and ensure support legs secure to minimise rocking when moving.
	Press the button on the fob which corresponds to the INSTABOOM you have selected. The barrier will come down. Click the same button again to send it up to the vertical position. The barrier works on a “push to open, push to close” basis. *It is possible to programme a barrier to each of the buttons on the remote fob. Please see guide below for a guide on this process.*

Transporting

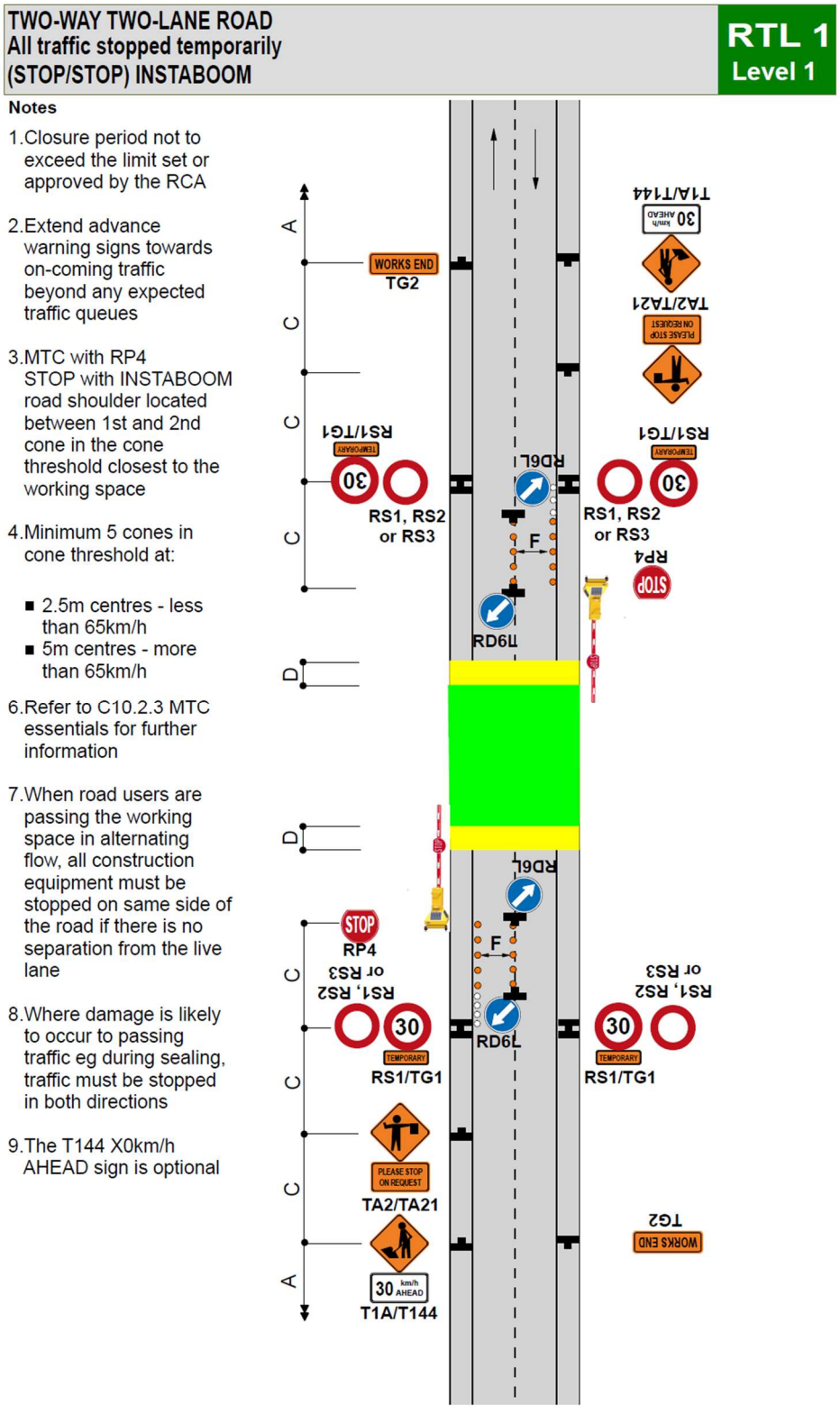
Loading and unloading the instaboom can be undertaken in a variety of ways. The wheels allow you to easily maneuver it on and off vehicles fitted with tail lifts, it is fitted with the lifting eye for unloading via a crane and finally the side arms allow it to be lifted on and off with a forklift deployment.

	**1)** Tail Lift
	**2)** Lifting Eye
	**3)** Forklift

Operation:

Mobile Barriers should be operated within a clear line of sight by the operator to verify if the boom arm is in the raised or lowered position. This is a manually controlled, remote operated barrier arm; responsibility for safe operation lies entirely with the operator of the plant.

See Traffic Management Diagram suggestion at the end of this document for recommended site layout to use the boom safely and in accordance with CoPTTM layout requirements when working in the public road environment.

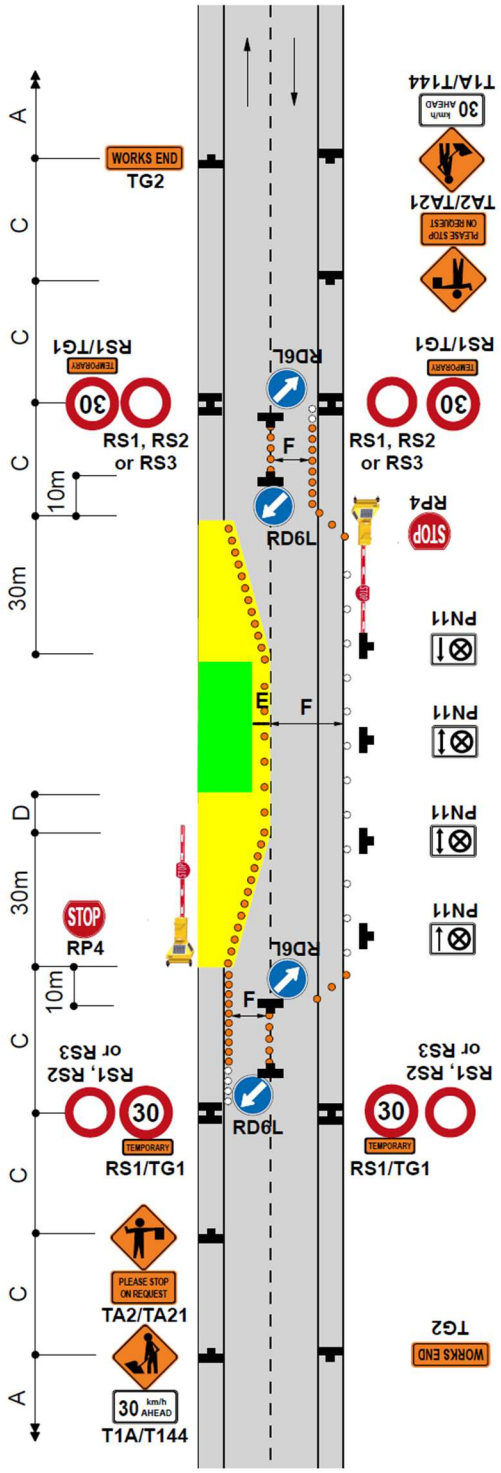


TWO-WAY TWO-LANE ROAD
Single-lane alternating flow
Manual traffic control (STOP/GO) INSTABOOM

RTL 2
Level 1

Notes

1. Extend or place extra advance warning signs towards on-coming traffic beyond any expected traffic queues
2. A 30m return taper at the end of the closure is mandatory
3. Cones are required on edge of the temporary lane opposite closure if road is not well defined
4. To allow heavy vehicles to manoeuvre, cones in the channel must be offset by at least 10m where the direction changes. Refer C8.2.12
5. Use PN11 no stopping signs, if necessary
6. MTC with RP4 STOP paddle with INSTABOOM on road shoulder located between 1st and 2nd cone in the cone threshold closest to the working space
7. Minimum 5 cones in cone threshold at:
   - 2.5m centres - less than 65km/h
   - 5m centres - more than 65km/h
8. Refer to C10.2.3 MTC essentials for further information
9. Delays cannot exceed the time approved by the RCA (normally 5 to 10 minutes)
10. The T144 30km/h AHEAD sign is optional



Safety Features:

Non-contact safety

The INSTABOOM is equipped with a Class 1 laser sensor to scan the area under the boom to prevent the barrier coming down and striking objects or people. If an object interrupts the laser beam in an area between 300mm and 4000mm in a direct line out from the laser window, the barrier will not come down. If an object is detected while the barrier is moving to come down, it will reverse direction and return to the vertical.

See **How to Adjust the Safety Laser** for adjusting the laser settings.

Contact safety

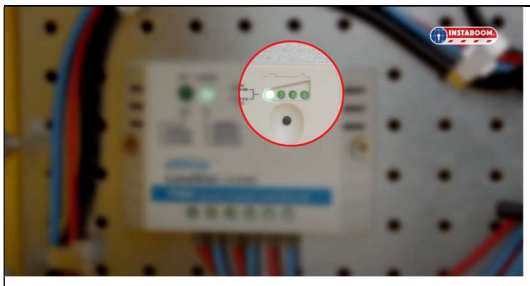
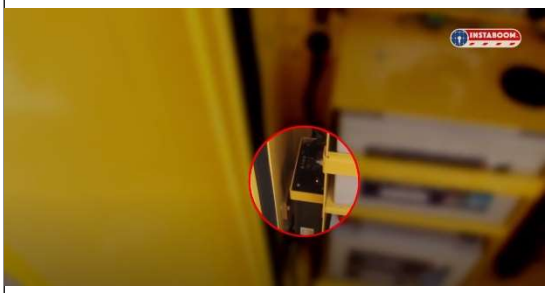
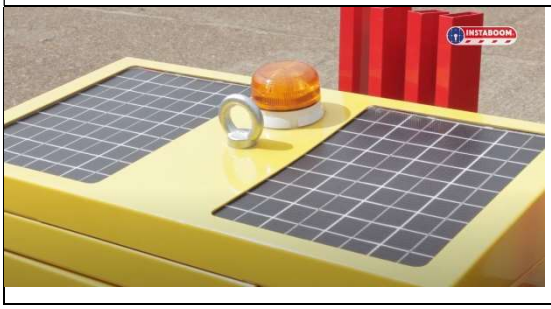
If the boom does come into contact with an otherwise undetected object while moving to the horizontal position, it will detect this and reverse direction, returning to the vertical and then will attempt to cycle again.

Charging:

The battery chargers fitted to INSTABOOMs are specially designed to charge up the deep cycle batteries used in solar applications. In this way they are not intended for quick charging of the machine. Charging is a two-step process.

During the first stage the charger is working at a high voltage to get the batteries to about 80% charge, the ORANGE light will be illuminated at this time. Once this is achieved the charger will drop to a lower operating voltage and this is called the “float” charge.

At this time the GREEN light will be illuminated and it is during this time that the most valuable charging is taking place. The advice is to leave your INSTABOOM for as long as you can in this state, ideally over-night.

	Your INSTABOOM is a 24v system designed to be solar/hybrid. Operational voltage is between 24v-24v. This means that, while it is equipped with solar, it will require periodic charging dependent on use and weather conditions. If two or less, of the four lights on the regulator are illuminated the Instaboom needs charging.
	**Connect the charger** Your INSTABOOM has an integrated mains charger. Connect mains lead to external socket (110-240v AC). Disconnect when regulator shows 4 lights. One charge will allow 1000 opens.
	**Charger** During the initial phase of charging the charger will illuminate orange this achieves 80 percent charge the charge will then switched to a trickle/ float charge phase to achieve the last 20 percent and the light will illuminate green this takes longer and we advise leaving it plugged in overnight
	**Cleaning the Solar Panels** For optimal charging, solar panels should be periodically wiped clean with a soft cloth.

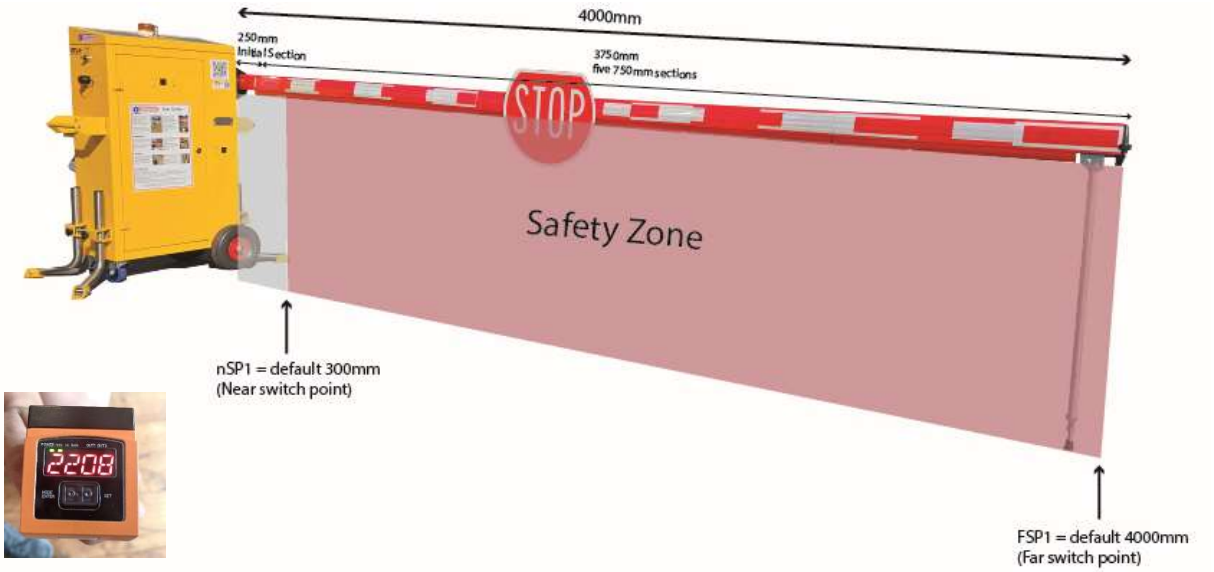
How to Adjust the Safety Laser:

By default, the inbuilt laser values are set to min: 300mm and max: 4000mm i.e. 4000mm is for when all 5x boom sections are used. The laser settings are adjustable, based on the number of sections used.

For some applications, not all boom sections are required - i.e. a narrow lane, site entry etc. Therefore, the FSP1 (far switch point) can be adjusted down to suit the number of sections used.

Note: Always test the safety laser before deploying onsite to ensure the appropriate settings are programmed. This includes sufficient coverage near the end of the barrier arm for pedestrians & vehicles.

If the barrier arm is not working, check if the laser is hitting an object or structure – concrete barrier, tree, building, wall etc and adjust accordingly. Also, keep all objects clear of laser zone – cones, cone bars, personnel etc – if the sensor is blocked the barrier arm will not operate (as there is an object detected).



The laser has two buttons MODE/ENTER or SET and a display that shows the menu option selected and the settings chosen. Below are the steps to adjust the values.

To MANUALLY set the switch points for operation
Use Mode button to cycle through menus: OU1 > NSP1 > FSP1 > DS1 > DR1

1. Click MODE/ENTER until **nSP1** is shown in the display (Near Switch Point for Output 1)
2. Press SET once to select
3. Click and hold SET until the display stops flashing
4. Click or click and hold the SET button until the appropriate setting is shown. This will be 300 for an INSTABOOM
5. Click MODE/ENTER to confirm the selection

Repeat the steps above to set the **FSP1** (Far Switch Point for Output 1) for your unit. For a standard setup, using all 5x sections – this is 4000mm. The **FSP1** distance can be adjusted to suit the number of boom sections that are used.

Settings reference:

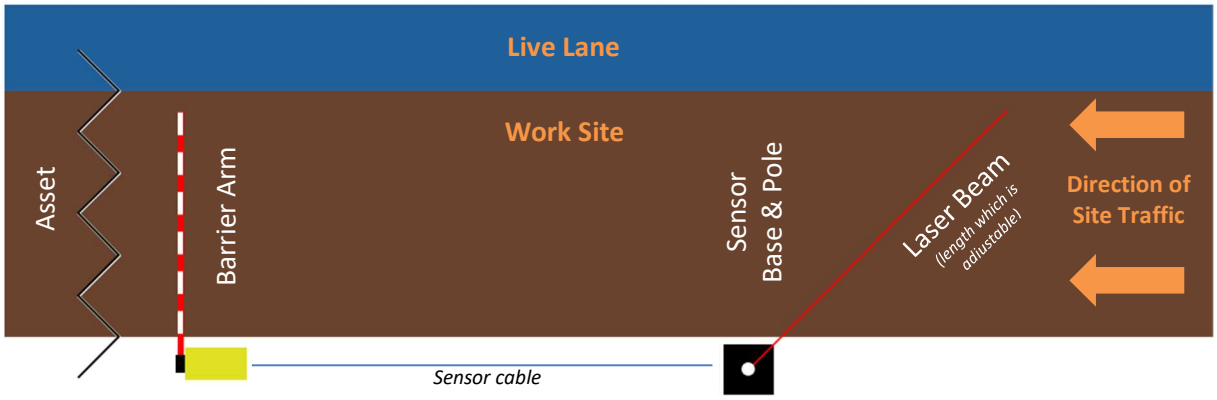
PARAMETER	INSTABOOM BARRIER ARM	OVER HEIGHT SENSOR
OU1 (SWITCH OUTPUT 1)	FnO	FnO
NSP1 (NEAR SWITCH POINT)	300	300
FSP1 (FAR SWITCH POINT)	4000	4000
DS1 (SWITCH ON DELAY)	0.0	0.0
DR1 (SWITCH OFF DELAY)	0.2	0.2

Over Height Detection Sensor – Site Information:

The INSTABOOM GS6 Over Height Sensor, used in conjunction with a Instaboom Barrier, is an over height warning system and asset protection system, for projects, construction sites and railways, that physically closes a work lane as a breach is detected.

The system (made up of barrier and connected sensor) can be used for the duration of the project, to provide interim protection of any existing structure or asset including a bridge, gantry, or overhead power lines from an over height vehicle strike.

Typical Set up:



Setting up the Barrier:

Position barrier at least 9m from protected asset. Over height sensor should be placed further up the work lane towards the traffic flow.

Setting up the Sensor:

Distance from the barrier should be considered such as to allow time for barrier to close before works vehicle reaches it. This is dependent on the site speed limit. **At 15km/h, please allow a minimum distance of 31m**. **It is recommended to use the over height sensor, in combination with a site speed limit not to exceed 10-15km per hour.**

Summary of recommendations:

- Equipment to be used in conjunction with standard bunting and cones
- Have site speed limit in force– 10km to 15km per hour.
- Sensor must be placed on level ground
- Angle Sensor at 45 degrees to traffic flow
- Distance to barrier relative to site speed limit

Daily Tests & Checks:

- Carry out daily test and checks, by interrupting the over height sensor to test the functionality of the setup, to ensure the barrier comes down as intended. Use the remote, to bring barrier back up.

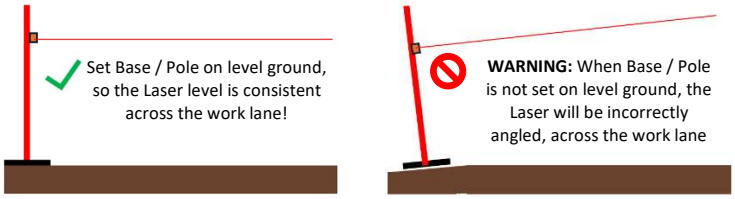
Setting Length of Laser Beam:

- The default Beam length of the over height sensor is set to 6m. Follow instructions under **How to Adjust the Safety Laser (Page 9).** For example, if the laser is too long and encroaches into the live lane (see above graphic), false positive triggers may occur. Adjust beam length so it covers the width of the work site only.

See next page for set up guide.

1. Set Sensor Height

2 . Place extendable Pole into Base Plate (lock it off). Base plate can be weighed down using sand bags.
3 . Connect the cable to the Sensor by lining up the connector with the laser screw terminal. It will only fit on in one position only. Screw the collar on.
4. Raise the extendable pole until the sensor is at the desired height and orientate at 45 degrees to the traffic flow.
5. Consideration should be made to place the sensor on level ground and allow suitable clearance headroom.
6. Bear in mind a small deviation from vertical will result in a large variation in the height detected by the sensor.
i.e. a 5-degree variation from vertical results in a 260mm variation in height measured at 3000mm from the sensor.



7. Run cable back to the Barrier Arm (do not connect yet)

8. Connecting the sensor to the Barrier

9. If not done already, carry out standard Instaboom set up and connecting booms etc.
10. Switch the barrier on and commission it for normal operation
11. Raise the boom up into the raised position.
12. Connect cable by lining up the top groove in the plug with the socket and drawing back the sleeve on the socket.
13. This is a waterproof connection and location must be secure.

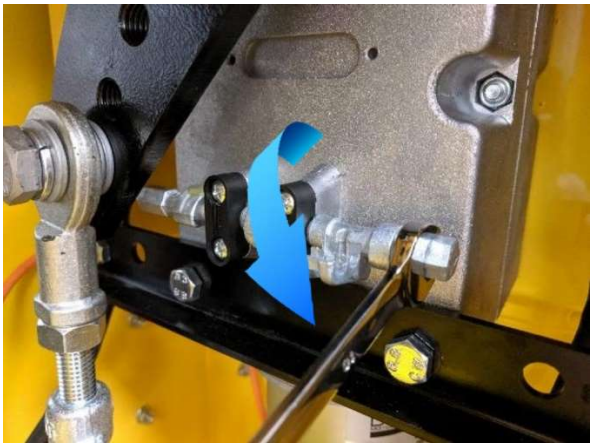
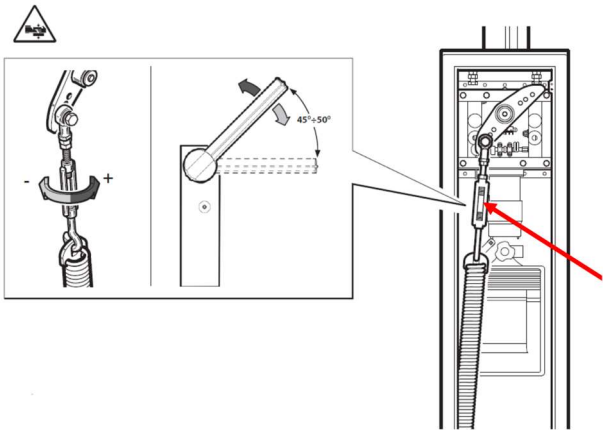
14. Disable Instaboom Safety Sensor:

15. In the event of over height detection, it is critical that the barrier closes.
16. The safety sensor on the barrier must therefore be deactivated for this operating mode.
17. Open control cabinet and slide the safety switch to the “Off” position.

Note: when using the Instaboom without the over height sensor, the safety sensor, must be left on.

How to Adjust the Spring Tension:

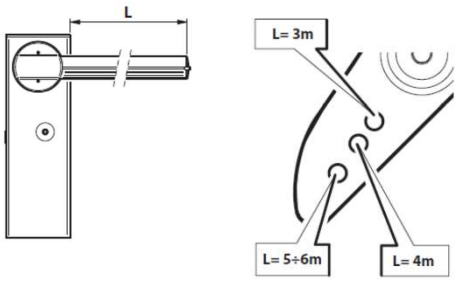
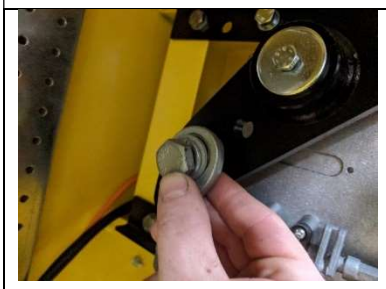
The Instaboom Barrier, with its versatile design, can be used with a 1m boom all the way up to a 4m boom. The aim of this procedure is to balance the boom, regardless of the number of sections. Please follow this guide whenever reducing or increasing the number of boom sections.

	Using the remote fob, send the barrier to the UP (vertical) position.
	Using a 10mm spanner, manually release (disengage) the motor gearbox. **<u>The whole boom MUST Be attached before carrying out this procedure.</u>** **Ideally disengage the gearbox when the boom is in the upright position.** The spring exerts significant force and can damage the barrier or create risk to personnel if this procedure is incorrectly followed.
	The aim of this procedure is to balance the boom to 45 degrees. Turn the bottlescrew until the required tension is reached. For a 4-section boom, with the spring mounted on the middle hole of the spring arm, this is usually achieved with a 65mm gap between the sections of threaded bar inside the bottlescrew.
	When the tension is correct, manipulate the boom to an upright position and reengage the gearbox. Run the barrier a few times to confirm correct functionality. ±65mm gap

Main Bolt Adjustment (If Required):

For further adjustment where the spring tension adjustment doesn't work, the bolt can be adjusted to accommodate further weight or very short length boom lengths etc.

In all instances, please always try spring tension adjustment first.

	To move the mount position, move the barrier to the Up position
	Slacken the bottle screw / spring tensioner
	Detach the spring from the hook at the bottom of the cabinet.
	Once detached, unscrew the bolt and then bolt it into the appropriate hole on the spring arm. Ensure bolt is sufficiently tight A 10mm spanner is required.

Pairing Remote Fobs:

Erase/Unpair:

It is good practice to erase all pairings from the fob, to prevent unwanted operation.

This needs to be done at each unit, one at a time.

 	Unscrew the whip antenna and remove the device from the red boot
 	The arrows show the activation point of each device. This is required for the next step.
	Remove the cover from the top turret by unscrewing the 6 retaining screws
	Touch the bottom left of the transmitter against the top left of the receiver for 1 second, as shown. The receiver will beep once. Press the chosen number switch on the transmitter you wish to pair. The receiver will beep twice to confirm pairing.

Additional

The receiver can store up to 30 transmitter pairings so when a barrier returns to base it is good practice to erase all fob pairings from its memory to prevent unwanted operation. To achieve this, touch the bottom left of the transmitter against the top left of the receiver, as described above, but **hold it in position for over 5 seconds**. The receiver will emit a long beep to confirm all pairings have been erased. You will then need to follow the steps above to pair a new remote fob.

Replacing Remote Fob Batteries:

 	Unscrew the whip antenna and remove the device from the green boot
	Remove the six case screws with a small Philips screwdriver
	Open the case and remove the two black Philips screws from the battery case
	Exchange the three AAA batteries and reassemble the handset by reversing this process

Telematics Portal:

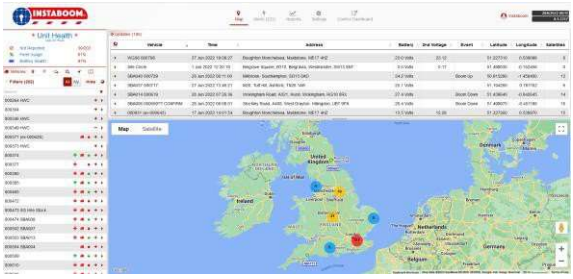
Navigate to www.solargates.co.uk/instaboom/login

And click on the “Tracker log in” link

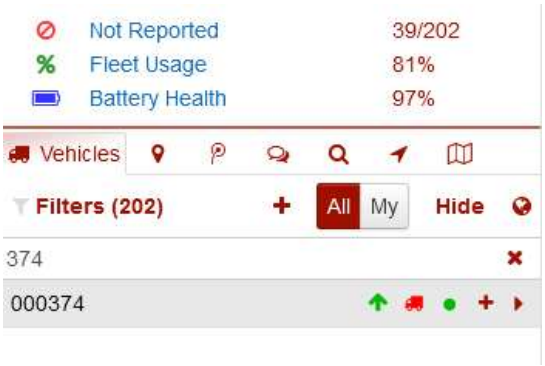
Log in with your User name and Password credentials

User name: **CONTACT RTL**

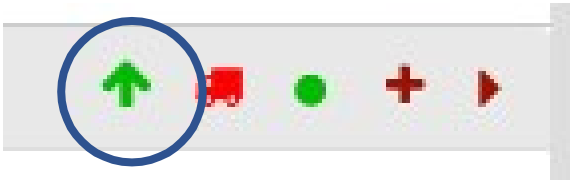
Password: **CONTACT RTL**



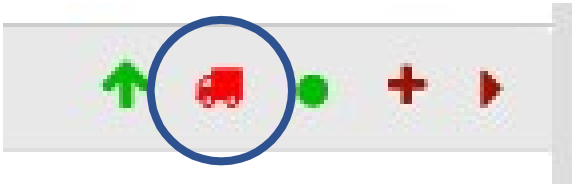
Items of plant are shown on the left hand side. GPS positions are shown on the map panel. The top panel shows the feed of status updates, in order of occurrence.



User the side panel to search for a specific item of plant.



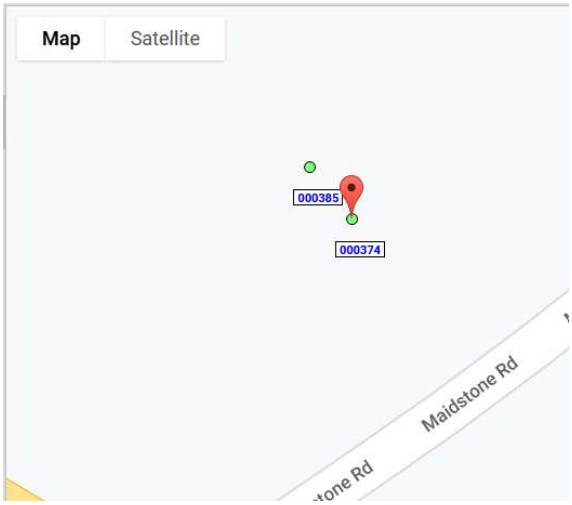
This icon depicts the state of the boom – either up or down.



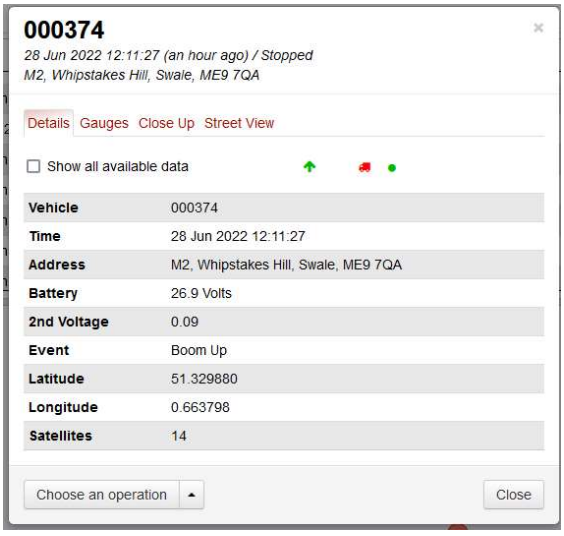
This icon depicts whether the item of plant is being transported.

This icon depicts the power state of the barrier. Green is ON and red is OFF.

Click the triangle to focus the map on the GPS position of this item of plant.



The barriers are shown as green dots on the map. Click on them to bring up the dashboard of telemetry recorded on the that barrier, shown in the next step.



This is the unit dashboard, allowing you to see all the current readouts from an individual device.

It is possible to set up notifications based on triggers such as battery voltage or movements into or out of custom geofences. Please contact us at Solar Gates for assistance with this.