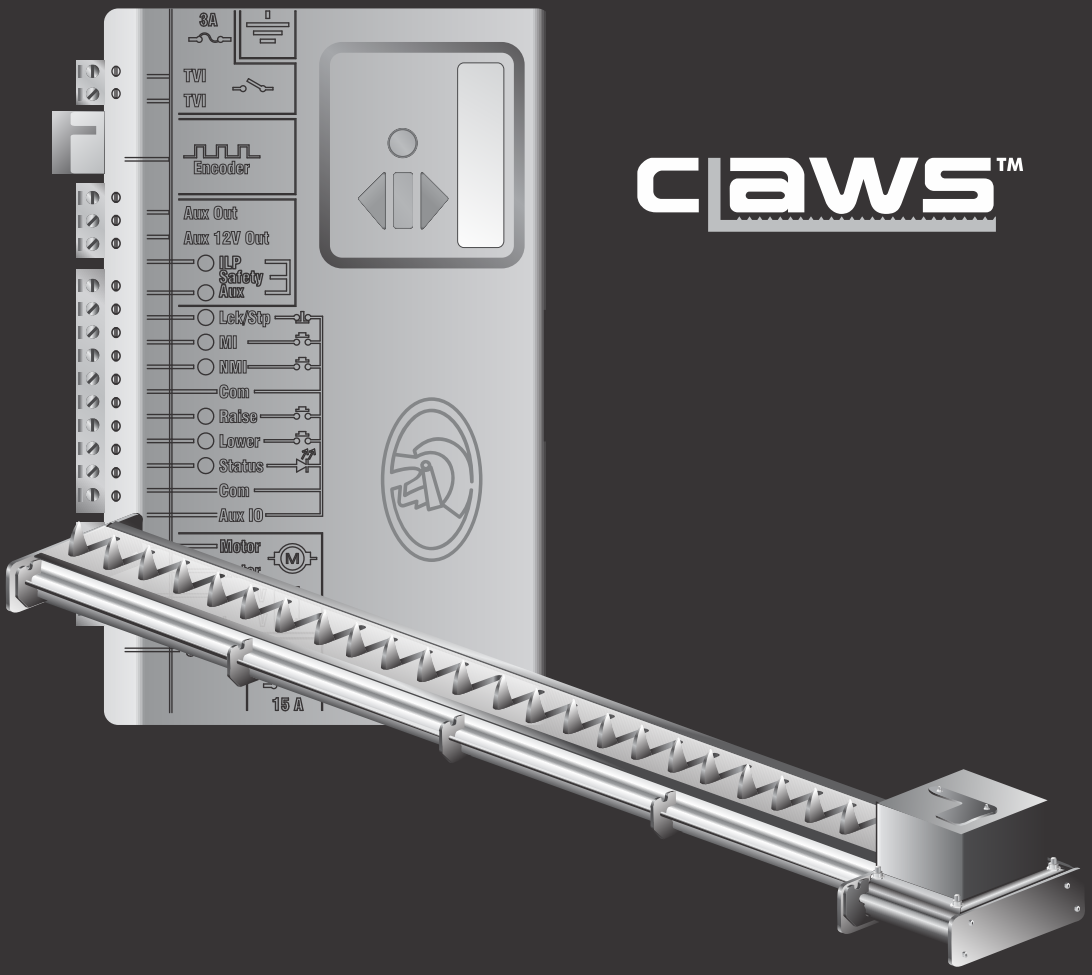
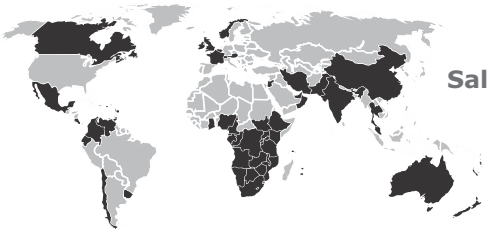
# CLAWS Flush Mount
# Mechanical Installation Manual



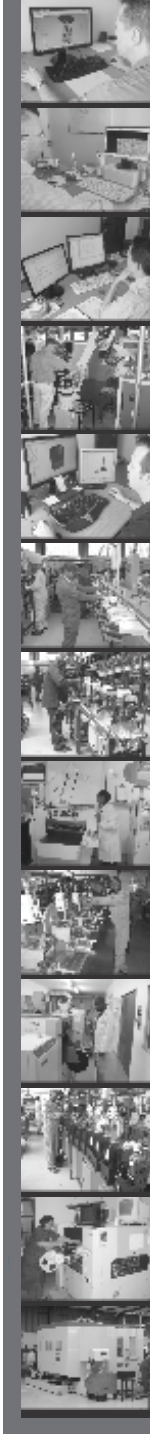

**Centurion Systems (Pty) Ltd** **www.CentSys.com**

# Company Profile

1986 1990 1995 1999 Today

**Sales and technical support to Africa, Europe, Asia, the Americas, Australia and the Pacific**



# Contents

# Contents

# Mechanical setup

These abbreviated instructions are for the experienced installer who needs a checklist to get a standard installation up and running in the minimum amount of time.

Detailed installation features and functions are referred to later in this manual.

# Electrical setup



# Commissioning and handover

# IMPORTANT
## Safety Instructions

### ATTENTION

**To ensure the safety of people, it is important that you read all the following instructions. Incorrect installation or incorrect use of the product could cause serious harm to people.**

**The installer, being either professional or DIY, is the last person on the site who can ensure that the operator is safely installed, and that the whole system can be operated safely.**

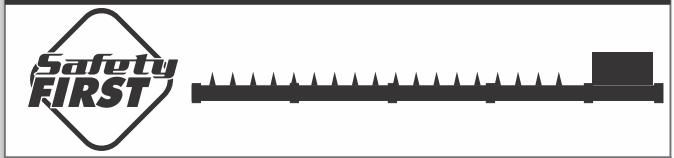
## Warnings for the installer

CAREFULLY READ AND FOLLOW ALL INSTRUCTIONS before beginning to install the product.

- All installation, repair, and service work to this product must be done by a suitably qualified person.
- Do not activate the **CLAWS** unless you can see them and can determine that the **CLAWS** are clear of people, pets, vehicles or any obstructions.
- Nothing must be placed, and nobody must be near the trench covers at any time. Always keep people and objects away from the spikes' area of travel.
- Children should be supervised to ensure that they do not play with or around the spikes and trench cover.
- This device is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Secure all easily accessed **CLAWS** controls in order to prevent unauthorised use of the gate.
- Do not in any way modify the components of the automated system.
- Do not install the equipment in an explosive atmosphere. The presence of flammable gas or fumes is a serious danger to safety.
- Before attempting any work on the system, cut electrical power and disconnect the batteries.
- The mains power supply of the automated system must be fitted with an all-pole switch with contact opening distance of 3mm or greater. Use of a 5A thermal breaker with all-pole circuit break is recommended.

- Make sure that an earth leakage circuit breaker with a threshold of 30mA is fitted upstream of the system.
- Never short circuit the battery and do not try to recharge the batteries with power supply units other than that supplied with the product, or by **Centurion Systems (Pty) Ltd**.
- Make sure that the earthing system is correctly constructed, and that all metal parts of the system are suitably earthed.
- Safety devices must be fitted to the installation to guard against mechanical movement risks such as crushing, dragging and shearing.
- It is recommended that at least one warning indicator light be fitted to every system.
- Always fit a warning sign visibly to the inside and outside of the entrance and exit.
- The installer must explain and demonstrate the manual operation of the system in case of an emergency, and must hand the User Guide and Safety Instructions over to the end user.
- Explain these safety instructions to all persons authorised to use the system, and be sure that they understand the hazards associated with the system.
- Do not leave packing materials (plastic, polystyrene, etc.) within reach of children as such materials are potential sources of danger.
- Dispose of all waste products like packaging materials, worn out batteries, etc. according to local regulations.
- Always check the obstruction detection system, and safety devices for correct operation.
- **Centurion Systems (Pty) Ltd** does not accept any liability caused by improper installation or use of the product, or for use other than that for which the automated system was intended.
- This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the service life/operation of the product and/or be a source of danger.
- Everything not expressly specified in these instructions is not permitted.

**WARNING! WARNING! WARNING! WARNING! WARNING!**




**MOVING PARTS CAN CAUSE SERIOUS INJURY, AMPUTATION OR DEATH. KEEP CLEAR! CLAWS SPIKES MAY MOVE AT ANY TIME. DO NOT ALLOW CHILDREN TO PLAY IN AREA OR OPERATE THE SYSTEM.**

# 1. Section left intentionally blank

# 2. General description

**CLAWS** flush mounted barrier spikes are designed to enhance the security at the entrance to high-volume application. They provide a formidable deterrent to would-be criminals and due to their robust construction they are very difficult to defeat. They are mounted level with the roadway, creating a seamless blend into the roadway for a smooth and secure access control point.

Clever modular design allows the **CLAWS** to be ordered ex stock and can be configured into a variety of different lengths. The orientation of the spikes can also be easily changed depending on the direction of the traffic flow. Their external limit switches allow for safe operation of the system.

**CLAWS** are easy to install and use a standard SECTOR controller and a standard SECTOR gearbox, saving you time and reducing your spares inventory. They boast all-weather construction and have been designed to allow for all moving parts to be removed easily for quick and easy maintenance.

**CLAWS** also provide onboard support for a traffic light interface, and the Independent Drive **CLAWS** models have variable speed control and Multiple Modes of operation.

# 3. Specifications

## 3.1 Physical dimensions

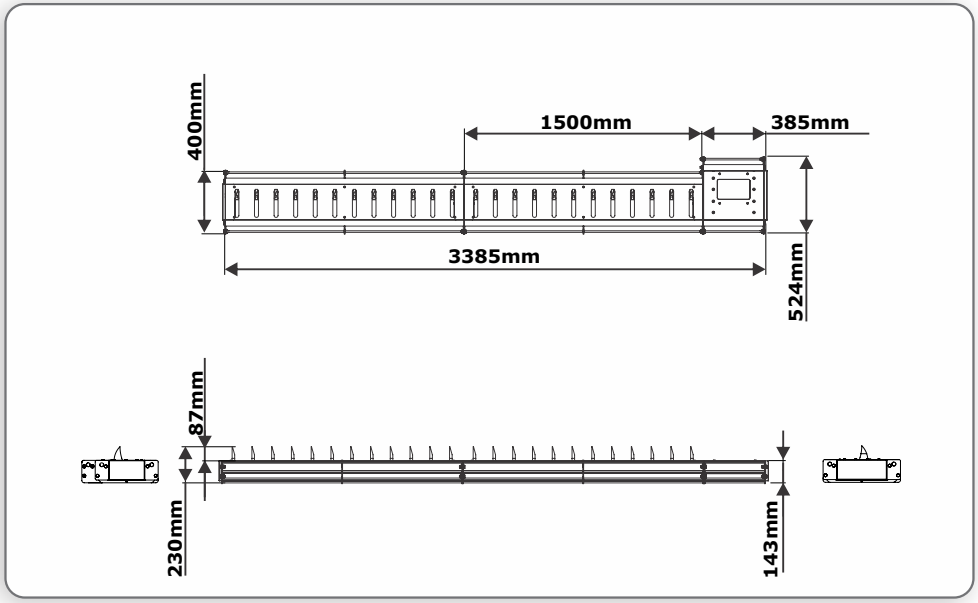



**FIGURE 1. DIRECT DRIVE SURFACE MOUNT CLAWS OVERALL DIMENSIONS**

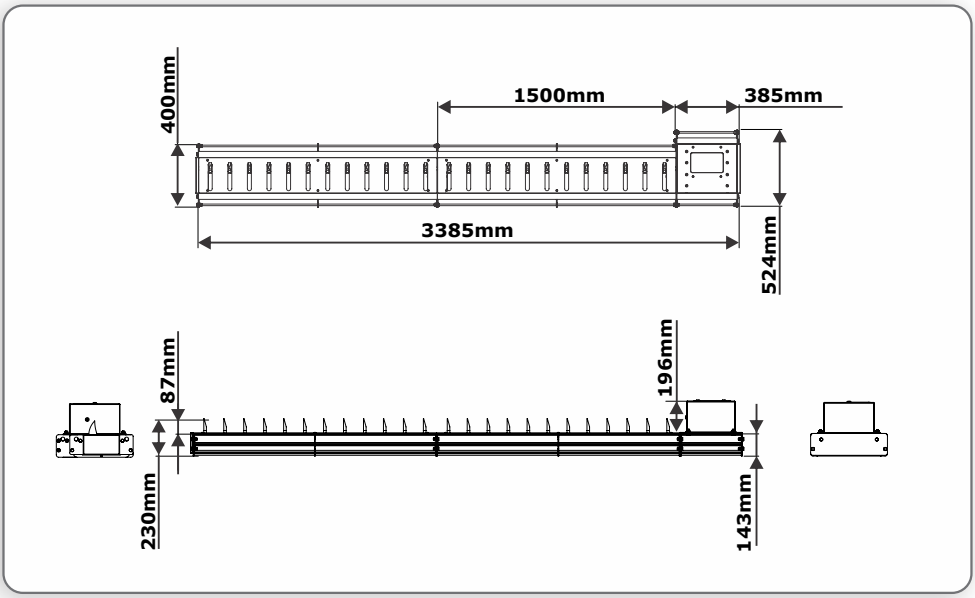



**FIGURE 2. INDEPENDENT DRIVE FLUSH MOUNT CLAWS OVERALL DIMENSIONS**

# 4. Icons used in this user guide

This icon indicates tips and other information that could be useful during the installation.

This icon denotes variations and other aspects that should be considered during installation.

This icon indicates warning, caution or attention! Please take special note of critical aspects that MUST be adhered to in order to prevent injury.

# 5. Product identification

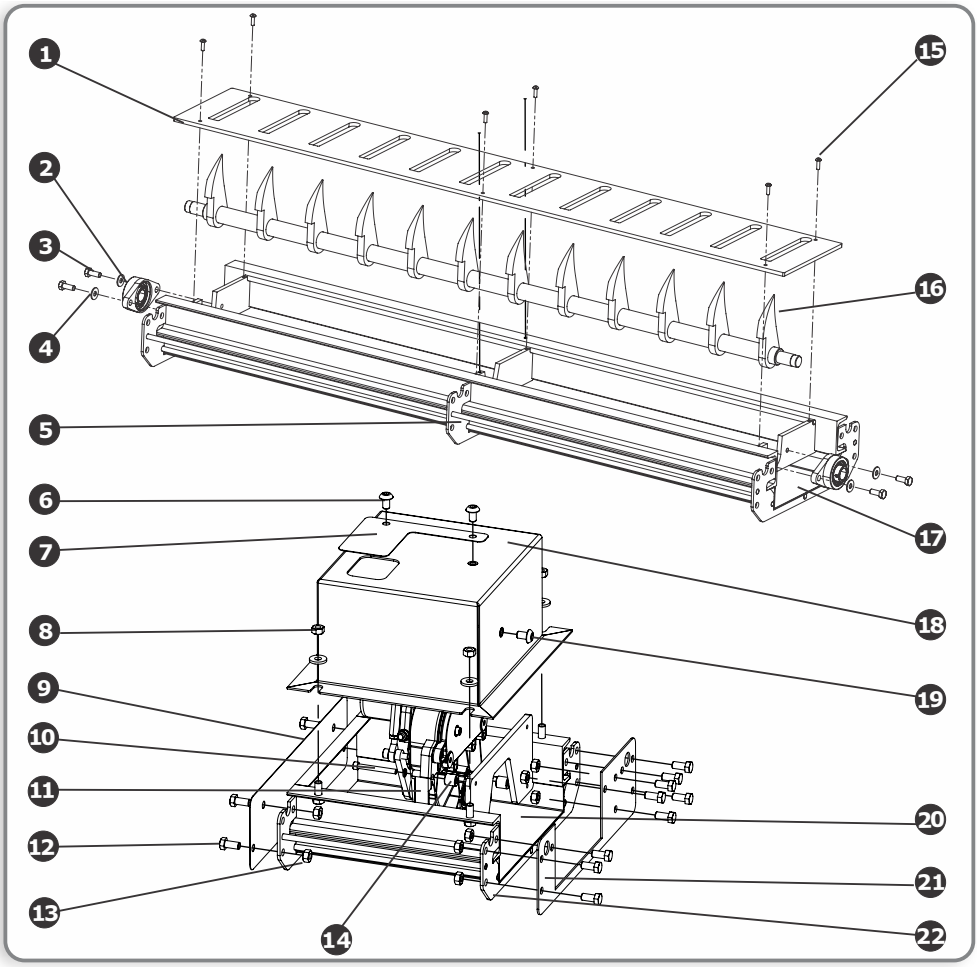



**FIGURE 3. PRODUCT IDENTIFICATION**

1. 1.5m Trench cover
2. Y-Bearing, flanged
3. Set screw galvanised M10 x 22mm
4. Washer flat head galvanised M10 X 25 X 2
5. 1.5m Module frame - flush mount
6. Hex socket button head M12 x 20
7. Gearbox cover blanking plate
8. Nut full galvanised M12
9. Main end cover - flush mount
10. SS hex cap screw M8 x 70
11. Gearbox assembly
12. Set screw galvanised M12 x 25mm
13. Nut full galvanised M12
14. Gearbox spacer
15. Hex socket button head M6 x 20
16. 1.5m Spike shaft - welded assembly
17. 1.5m Module gutter - flush mount
18. Gearbox cover - welded assembly
19. Hex socket button head M12 x 20
20. Main gutter - flush mount
21. Sandwich plate - flush mount
22. Main frame - flush mount

# 6. Required tools and equipment

- 8mm Socket drive allen key
- Spanner – 17mm
- Screwdriver – 3.5mm flat
- Allen key – 6mm; 4mm
- Crimping tool and pin lugs
- Side cutters
- Spirit level
- Measuring tape

**If digging the trench for the gutter:**

- Pick
- Spade

# 7. Introduction

This document describes the basic steps to follow when installing the flush mount **CLAWS**

The installation described in this document is a 3 metre installation. For wider installations, modules of 1.5 or 1.0 metres can be added to achieve a width of up to 6 metres.

The installation of the **CLAWS** requires a minimum of two persons.

# 8. Installation considerations

The Flush Mount **CLAWS** can be installed in eight different configurations. The configuration is dependent on three factors:

- Direct Drive or Independent Drive **CLAWS** models
- Orientation of installation – either left hand or right hand orientation
- Direction of vehicle travel to spike impact

## Type of drive

The **CLAWS** can either be driven by an Independent Drive gearbox or by a Direct Drive linkage system, which attaches to the SECTOR barrier.

## Orientation of installation

The orientation of an installation is described as either a left or a right hand orientation. This is determined by looking at whether the drive gearbox or drive linkage is installed to the left hand side or to the right hand side of the **CLAWS** as viewed from the usual approach direction. In other words when driving up to the **CLAWS** and the drive is installed on the right hand side of the vehicle, it's deemed a right hand installation. And when driving up to the **CLAWS** and the drive is installed on the left hand side of the vehicle, it's deemed a left hand installation.

## Spike impact direction

The **CLAWS** are designed to take a much larger impact in one direction. Thus, the **CLAWS** can be installed to take larger or more frequent impact in one direction. In other words, the **CLAWS** can be installed to face either towards oncoming (planned) traffic or face towards traffic trying to enter from the wrong direction or lane.

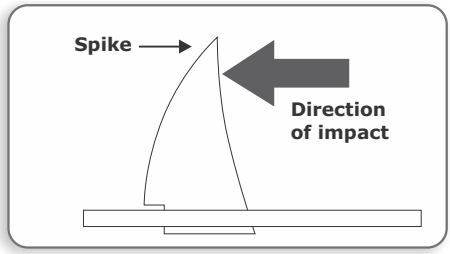



**FIGURE 4. SPIKE IMPACT DIRECTION**

## Configurations

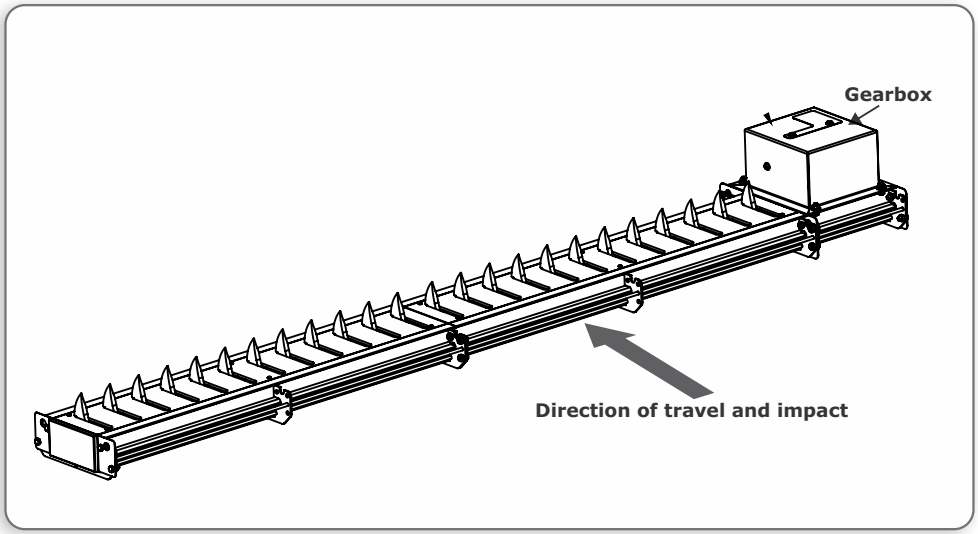



FIGURE 5. RIGHT HAND ORIENTATION INDEPENDENT DRIVE WITH COMMON TRAVEL AND IMPACT DIRECTIONS

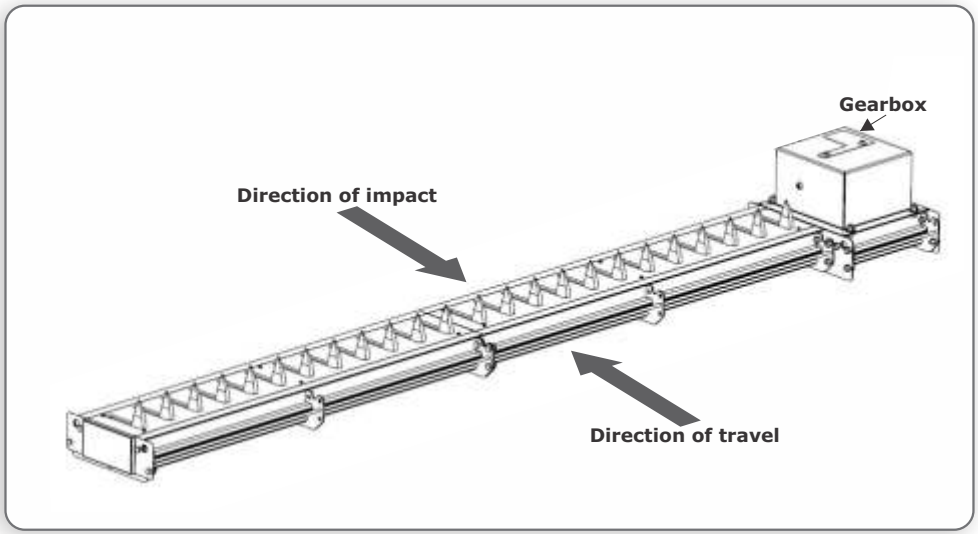



FIGURE 6. RIGHT HAND ORIENTATION INDEPENDENT DRIVE WITH OPPOSED TRAVEL AND IMPACT DIRECTIONS

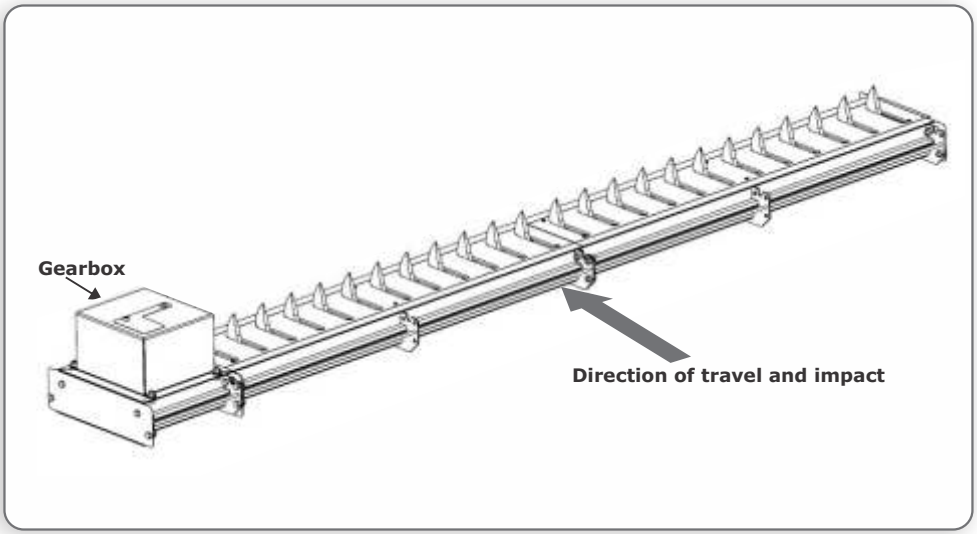



FIGURE 7. LEFT HAND ORIENTATION INDEPENDENT DRIVE WITH COMMON TRAVEL AND IMPACT DIRECTIONS

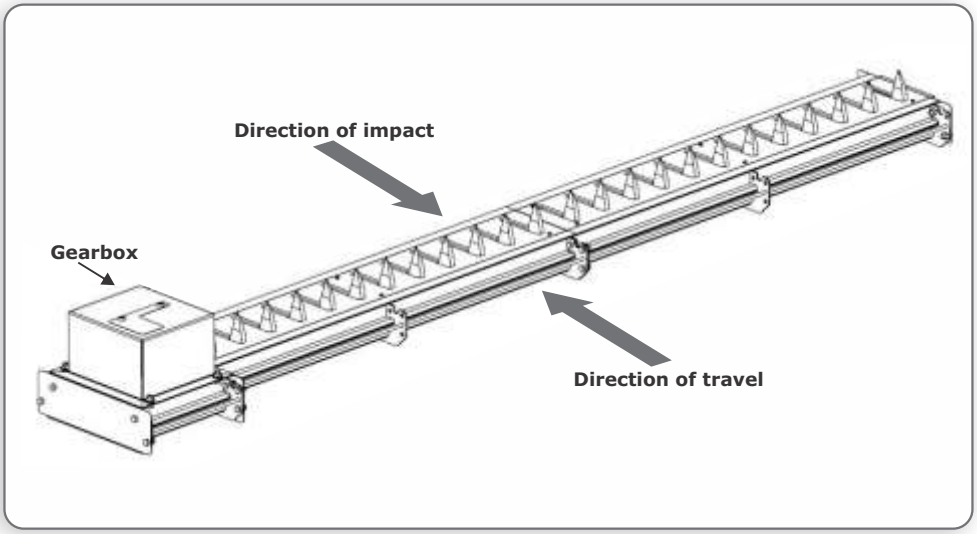



FIGURE 8. LEFT HAND ORIENTATION INDEPENDENT DRIVE WITH OPPOSED TRAVEL AND IMPACT DIRECTIONS

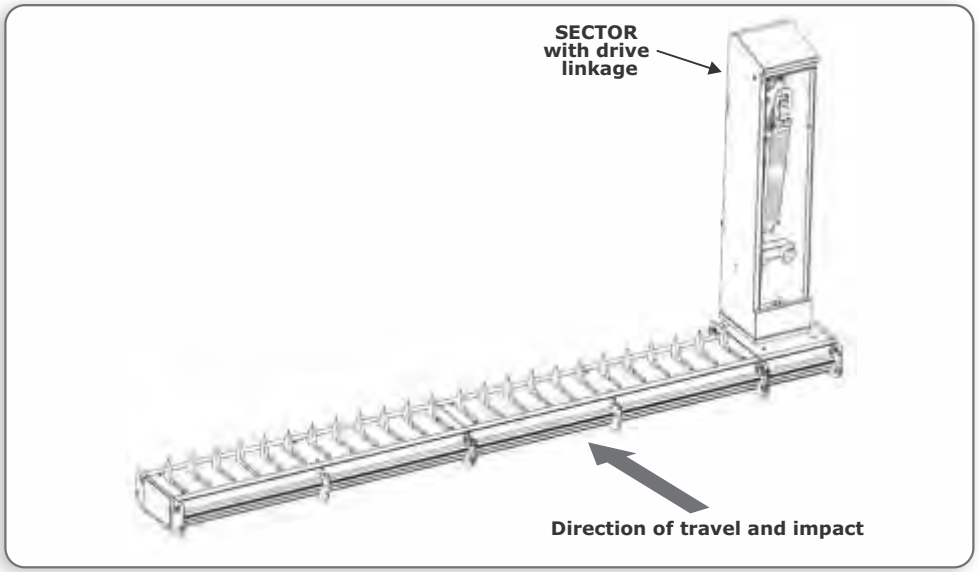



**FIGURE 9. RIGHT HAND ORIENTATION DIRECT DRIVE WITH COMMON TRAVEL AND IMPACT DIRECTION**

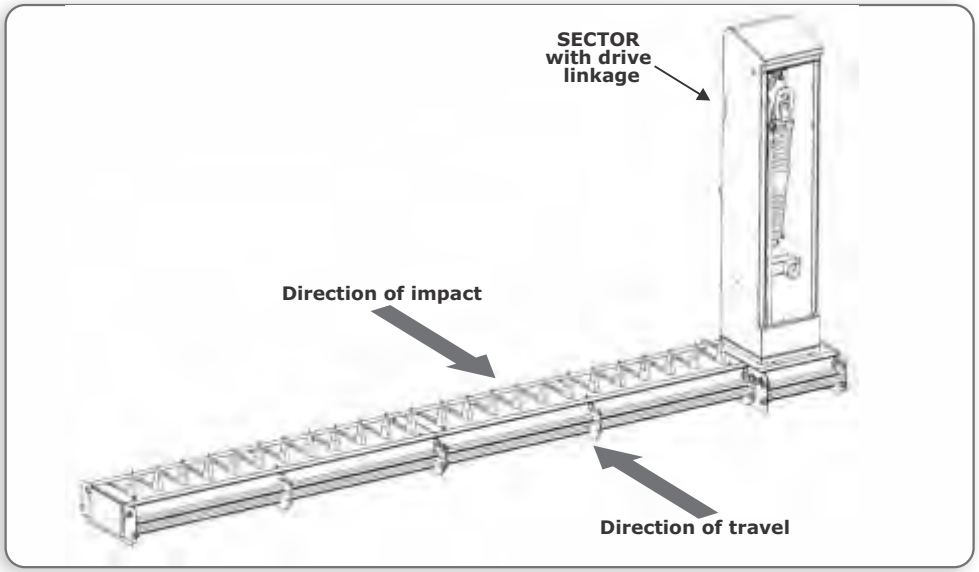



**FIGURE 10. RIGHT HAND ORIENTATION DIRECT DRIVE WITH OPPOSED TRAVEL AND IMPACT DIRECTIONS**

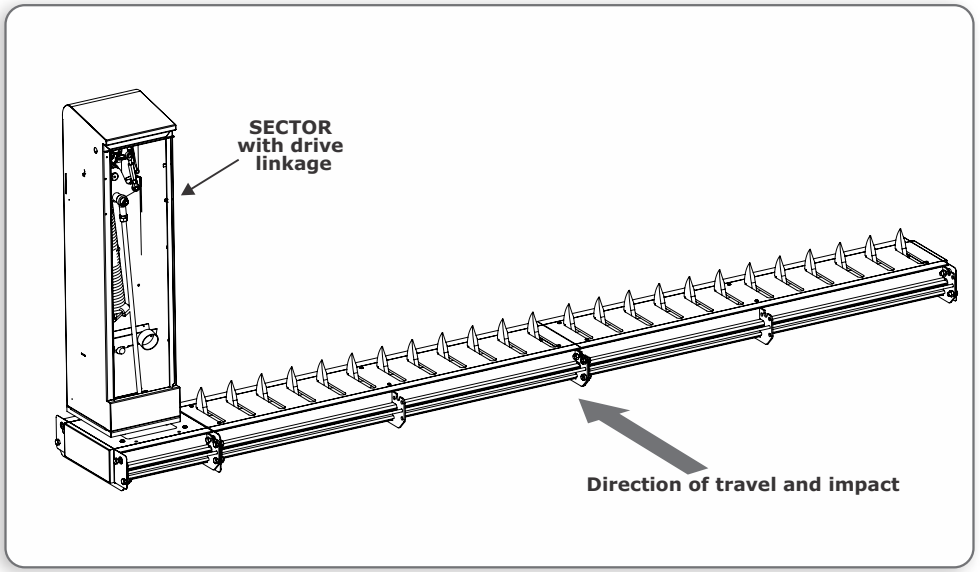



**FIGURE 11. LEFT HAND ORIENTATION DIRECT DRIVE WITH COMMON TRAVEL AND IMPACT DIRECTION**

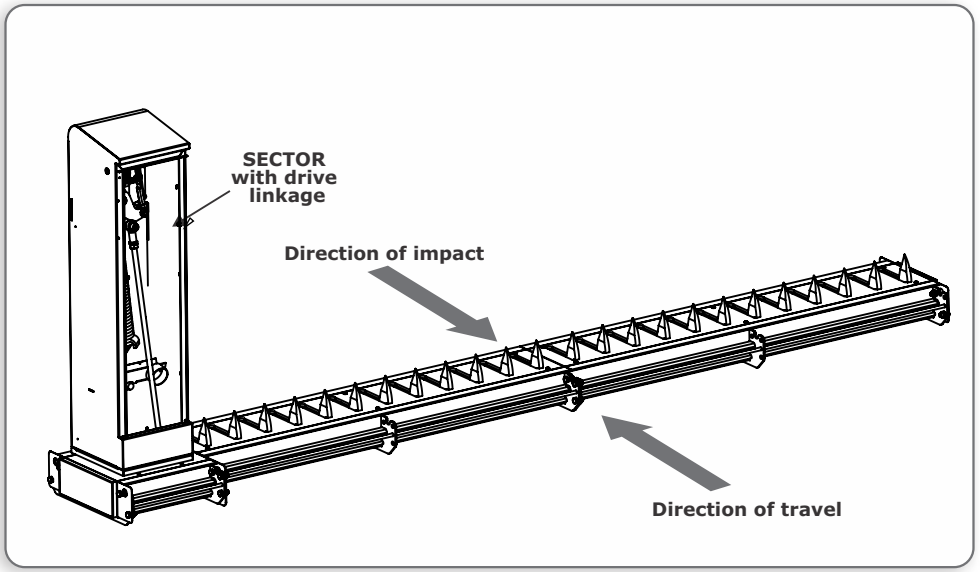



**FIGURE 12. LEFT HAND ORIENTATION DIRECT DRIVE WITH OPPOSED TRAVEL AND IMPACT DIRECTIONS**

# 9. Spike structure preparation

## Critical installation checklist

These guidelines must be closely adhered to in order to ensure the reliable operation of the CLAWS roadway spike system. The points presented in the following Critical Installation Checklist have been identified by the our R & D team as being absolutely critical to the installation, operation and safety of this product.

**It is highly recommended that the CLAWS system is first assembled and the operation tested prior to securing it in concrete or mounting it on the road surface.**

1. Decide on the configuration of the system taking into account the orientation, travel and impact directions. Refer to pages 12 to 15 of this installation manual.
2. Ensure that the correct length drive arm for the chosen configuration is used. Refer to pages 25 to 27.
3. The drive arm must always face downward when assembling the linkage!
4. For Direct Drive installations, ensure that the SECTOR traffic barrier is mounted the correct distance from the edge of the linkage cover. Refer to Figure 38 on page 29.

## Assemble the modular structures

1. Assemble the modular structures using six M12 bolts and nuts.

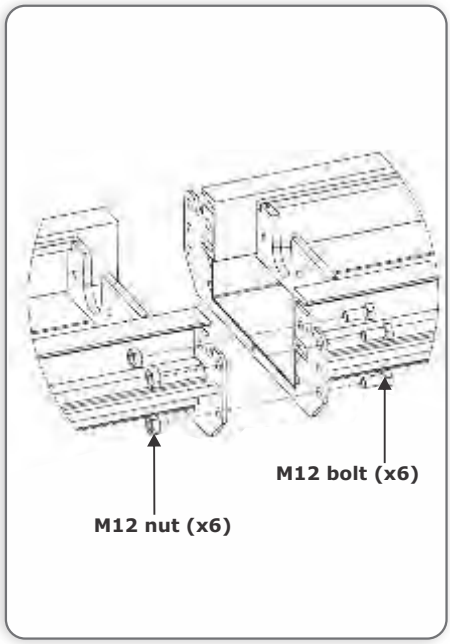



**FIGURE 13. ASSEMBLE MODULAR STRUCTURE**

# Attach the main structure

**Independent Drive**

1. Attach the main structure onto the end of the modular structures using nine M12 bolts and nuts.

Be sure to assemble the Sandwich Plate between the two structures.

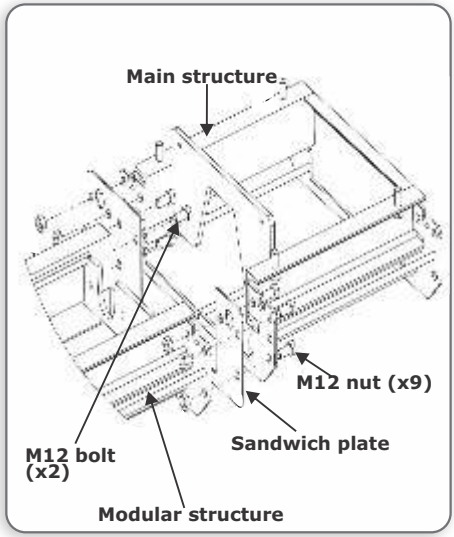



**FIGURE 14. ATTACH MAIN STRUCTURE (INDEPENDENT DRIVE)**

**Direct Drive**

2. Attach the main structure onto the end of the modular structures using nine M12 bolts and nuts.

Be sure to assemble the Sandwich Plate between the two structures.

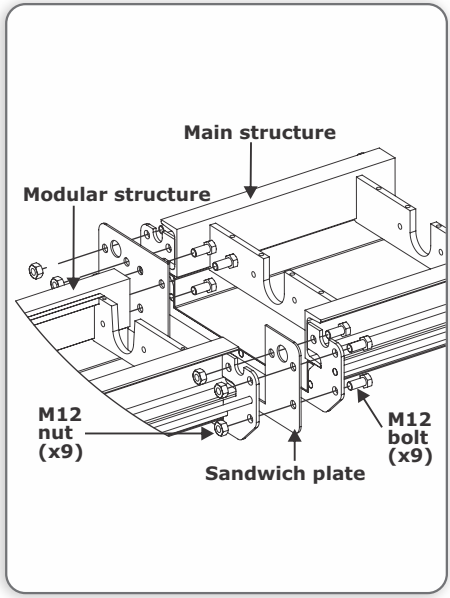



**FIGURE 15. ATTACH MAIN STRUCTURE (DIRECT DRIVE)**

# Fitting the end covers

1. Fit the end covers using four M12 bolts and nuts on the main structure side and four M12 bolts and nuts on the modular side.

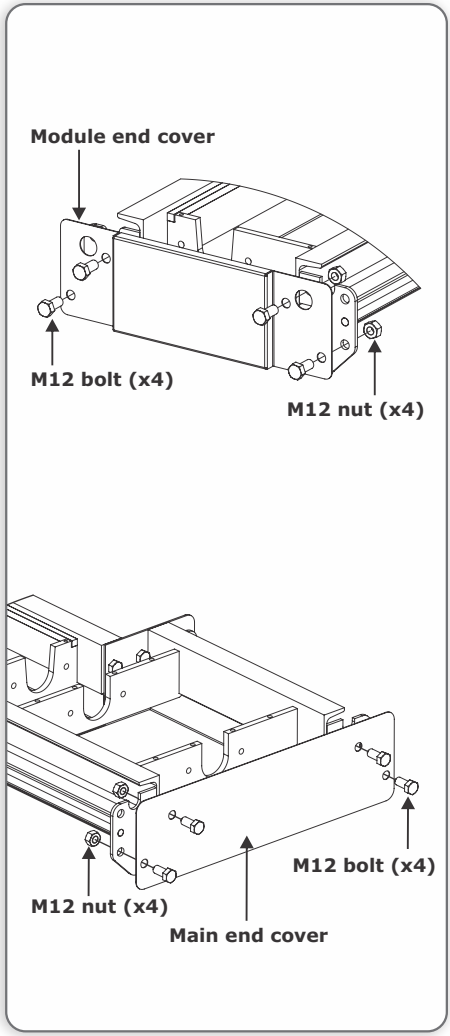



FIGURE 16. FITTING THE END COVERS

## Prepare drainage pipe(s)

Drainage pipes should be laid at one or both ends of the trench. These pipes should allow water to drain either into storm water drains or into any other area designed for storm water runoff away from the installation.

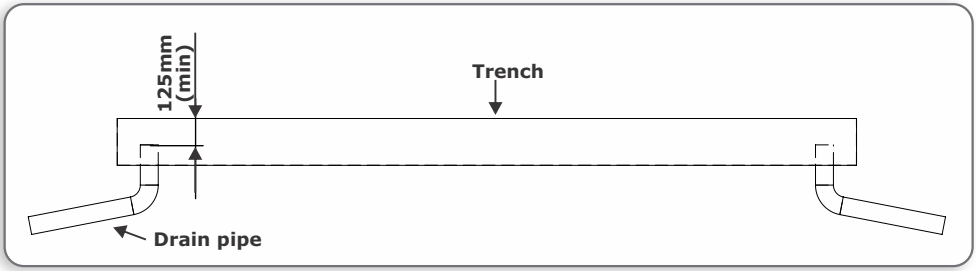



FIGURE 17. DRAIN PIPES

1. Cut or saw holes in the gutters to coincide with the drain pipes.

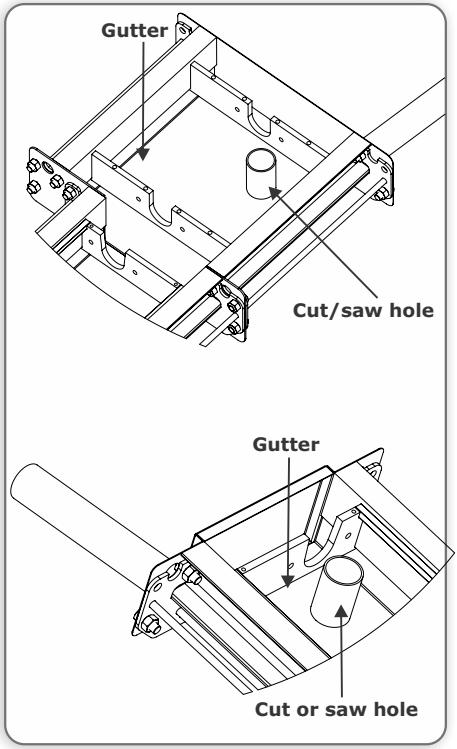



FIGURE 18. MAKE HOLES IN THE GUTTERS

## Secure the structure in concrete

1. Place the modular structure in the trench.
2.. Ensure that it is level using an appropriate type of propping or jacking method.
3. Make sure that the top of the modular structure is either in line with or slightly higher than the ground level.

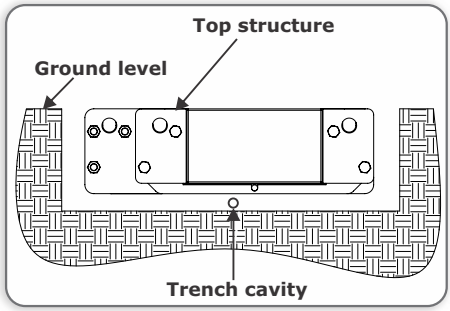



FIGURE 19. POSITION STRUCTURE IN TRENCH

4. When the structure is level, pour the concrete into the trench cavity.

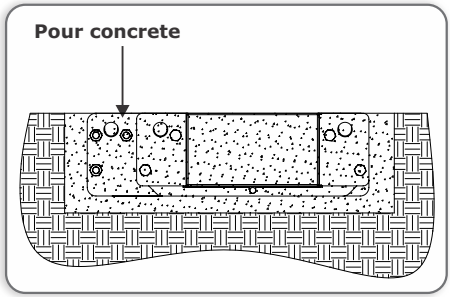



FIGURE 20. POUR CONCRETE

5. Trim the drain pipes flush with the gutters, and then seal the joints using an outdoor water sealant.

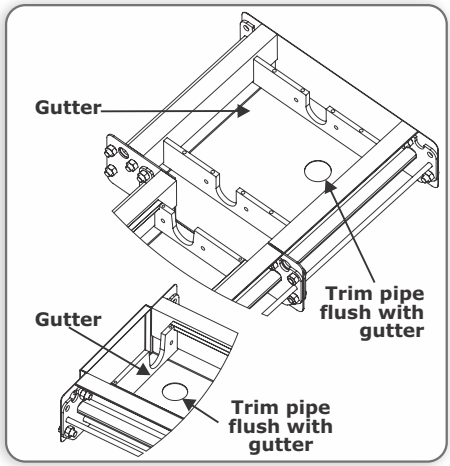



FIGURE 21. TRIM DRAIN PIPES

# 10. Fitting the spike modules

## Fit the spike shafts

1. Assemble the spike shafts into the structure using the bearing blocks and the M10 bolts and washers.

Do not tighten the M10 bolts yet, only fit and tighten the bolts by hand.

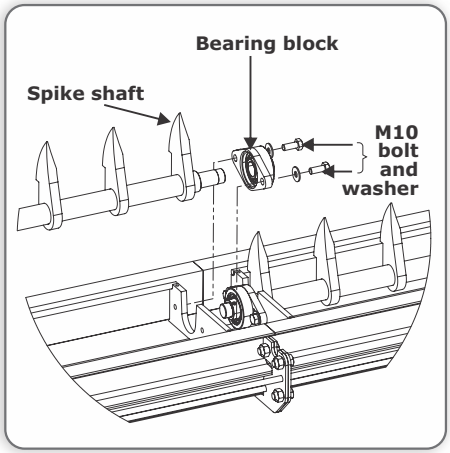



FIGURE 22. POSITION STRUCTURE IN TRENCH

## Fit the limits cam (Independent Drive)

1. Fit the limits cam to the end of the spike shaft in the module that is the furthest away from the drive gearbox.
2. Fasten the cam with the M6 grub screw.

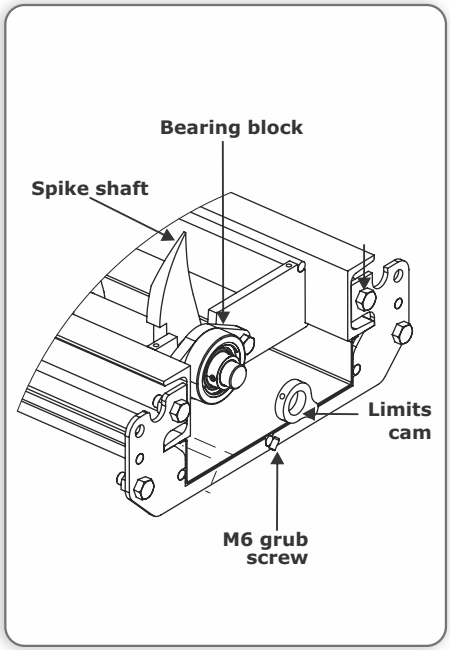



FIGURE 23. FIT THE LIMITS CAM

## Limits cam (Independent Drive)

Tighten the inner M10 bolt on the bearing block

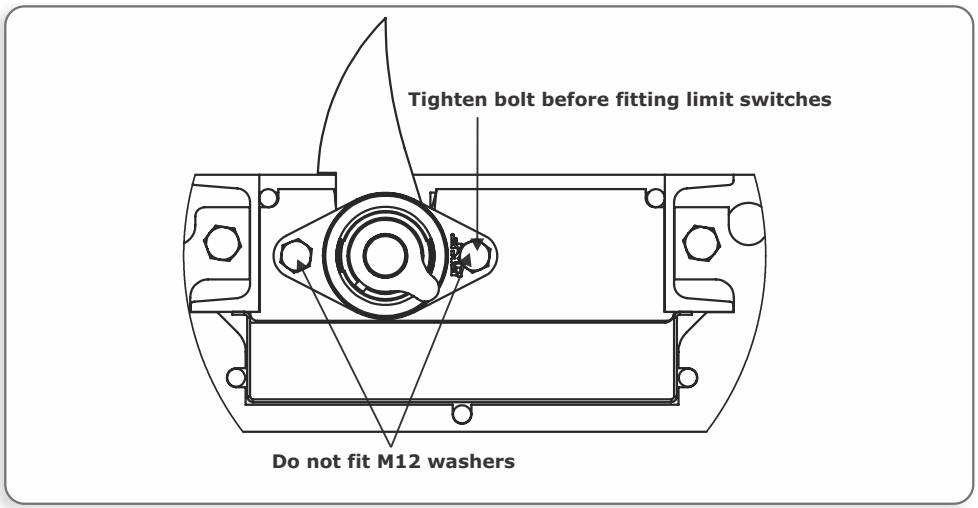



FIGURE 24. LIMITS CAM

## Fit the limit switches (Independent Drive)

1. Fit the limit switches onto the limit switch bracket using the M4 cap screws.
2. Lower the limit switches and bracket assembly into the spike module where the limits cam is installed.

Fit the limit switches and bracket assembly with the spikes in the raised position.

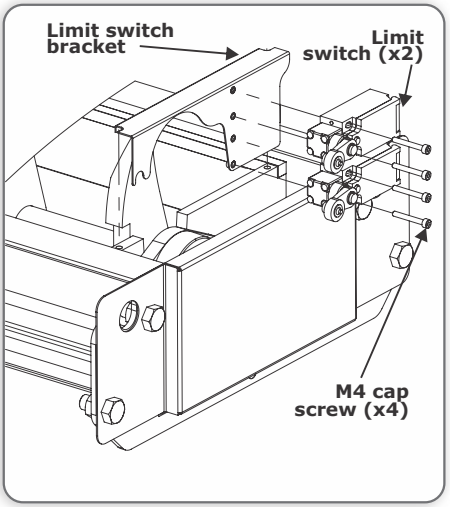



FIGURE 25. FITTING THE LIMIT SWITCHES

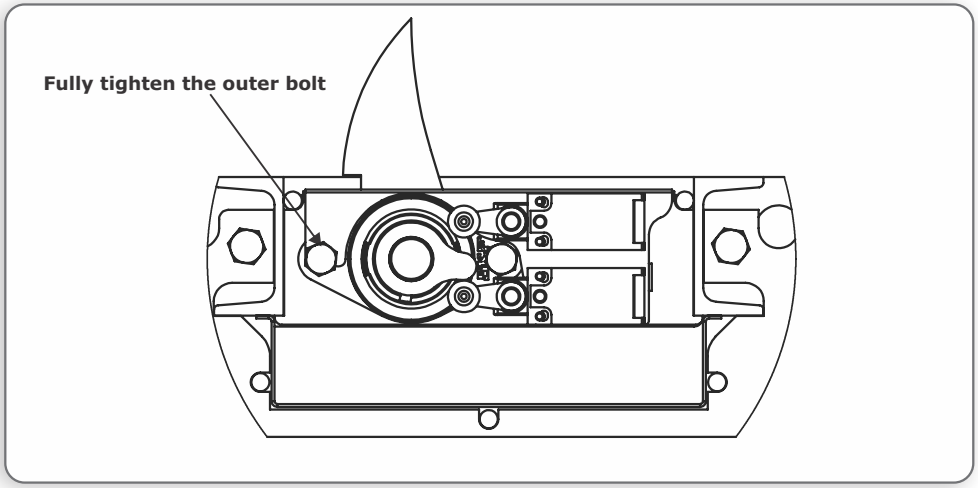



**FIGURE 26. LIMIT SWITCHES**

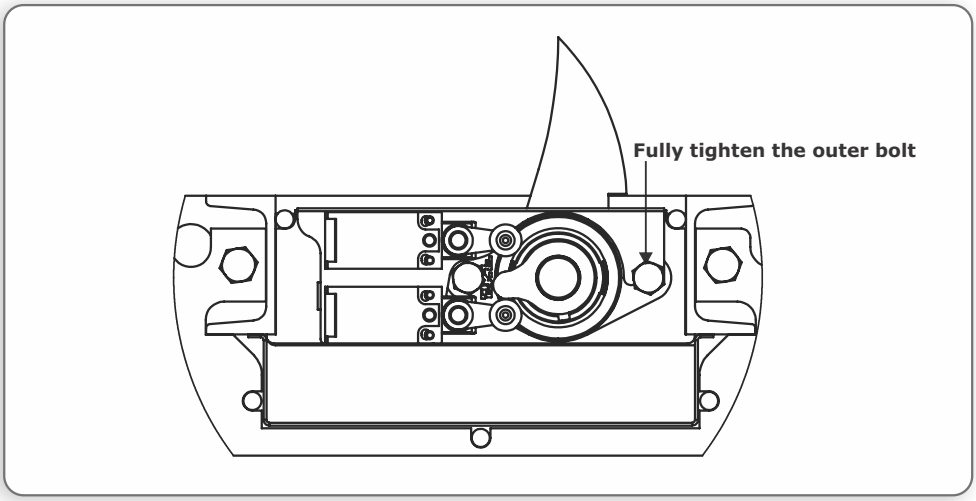



**FIGURE 27. LIMIT SWITCHES**

3. Wire in the limit switches whilst leaving the wires long.
4. Fit conduit or any other suitable wire protection all along the structure. Half moon and hole features have been provided for running conduit along the structure.

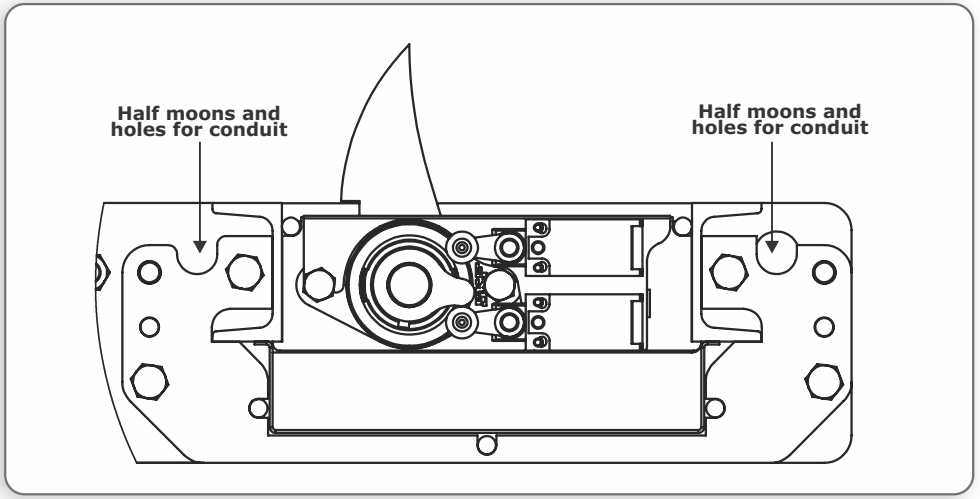



**FIGURE 28. FIT CONDUIT**

# 11. Fit the Drive

## Independent Drive

1. Fit the gearbox coupler onto the gearbox output shaft with the M10 cap screw, washers and nylon nut.
2. Fit the gearbox assembly to the main structure using three M8 cap screws and spring washers.

Be sure to fit the gearbox spacers between the gearbox and the mounting plate.

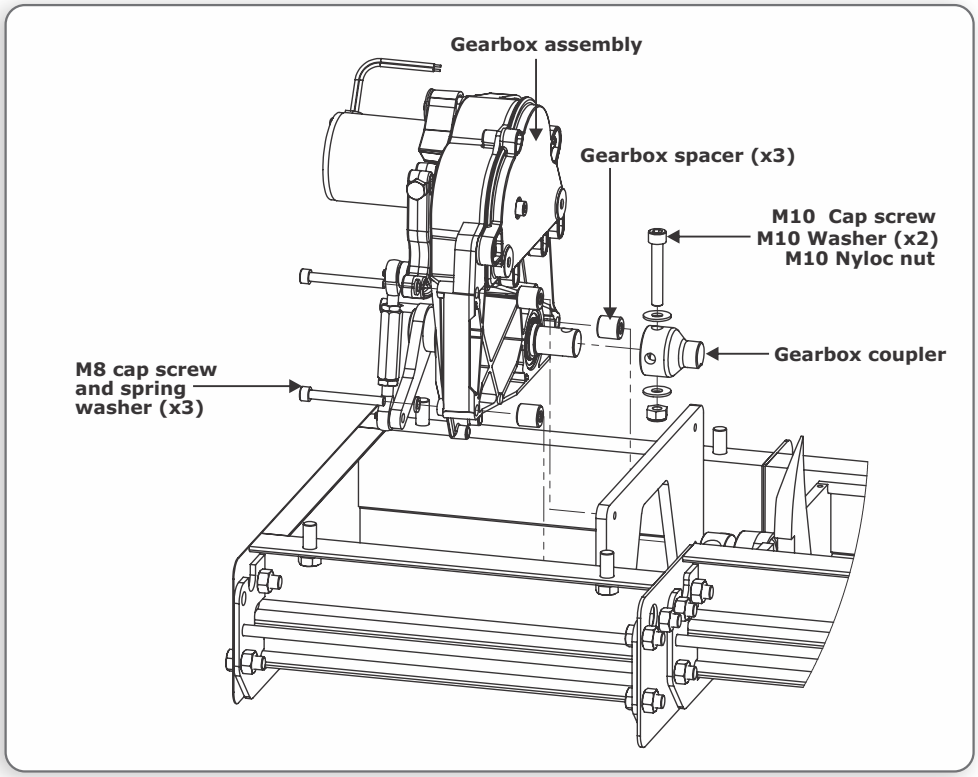



FIGURE 29. FITTING GEARBOX AND COUPLER

# Direct Drive

### Assemble the linkage

1. Attach the drive arm onto the drive shaft.
2. Fit the drive shaft onto the main structure with the two off bearing blocks and four M10 bolts and washers.

Do not tighten the M10 bolts yet. Only fit and hand tighten

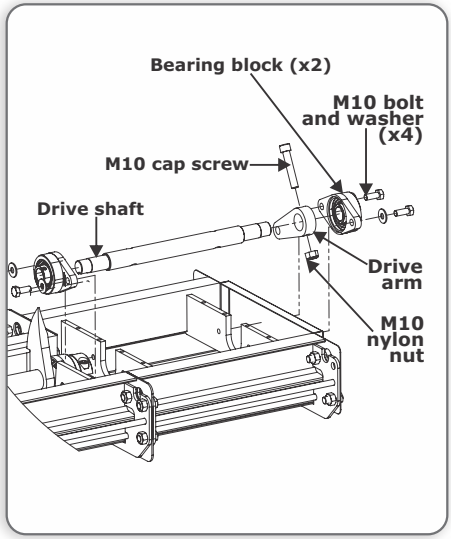



FIGURE 30. LINKAGE ASSEMBLY

### Drive arm configurations

There are two types of drive arms; a long and a short type.

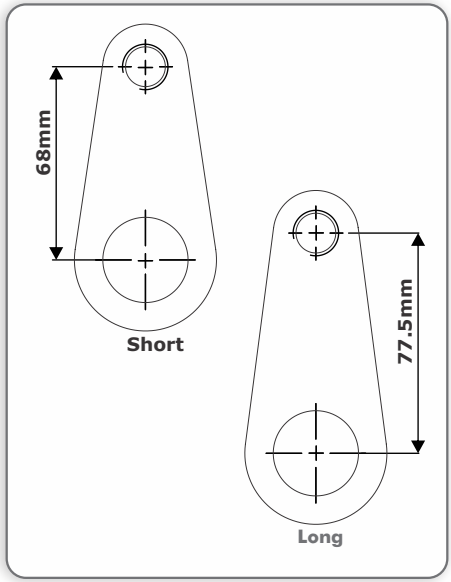



FIGURE 31. DRIVE ARMS

**Right hand orientation, Direct Drive, with common travel and impact direction**

The drive arm(s) are fitted differently in each configuration. Configuration as per Figure 9.

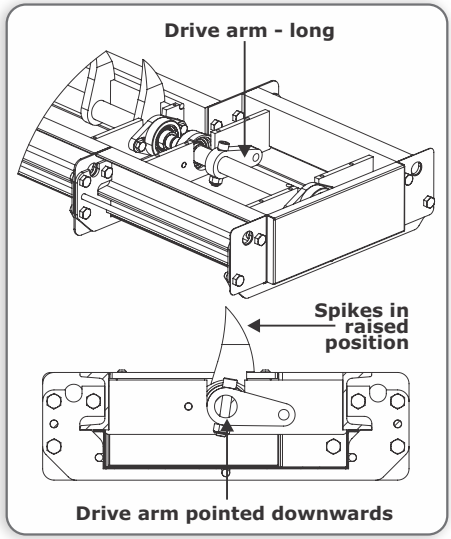



**FIGURE 32. DRIVE ARM CONFIGURATION (RIGHT HAND – COMMON)**

**Right hand orientation, Direct Drive, with opposed travel and impact directions**

Configuration as per Figure 10.

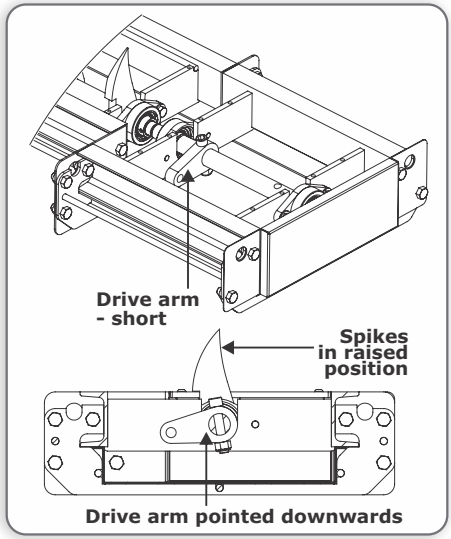



**FIGURE 33. DRIVE ARM CONFIGURATION (RIGHT HAND - OPPOSED)**

**Left hand orientation, Direct Drive, with common travel and impact direction**

Configuration as per Figure 11.

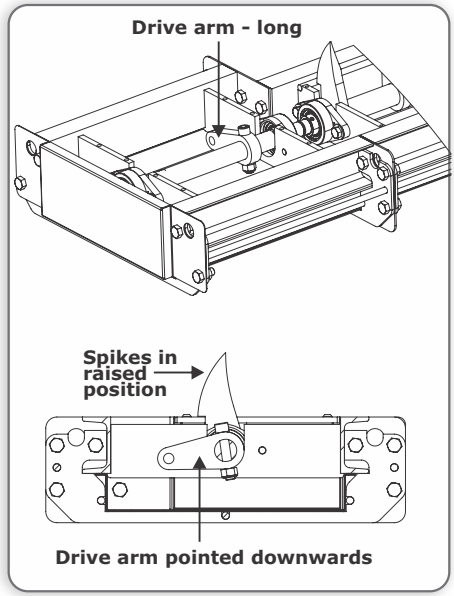



**FIGURE 34. DRIVE ARM CONFIGURATION (LEFT HAND - COMMON)**

**Left hand orientation, Direct Drive, with opposed travel and impact directions**

Configuration as per Figure 12.

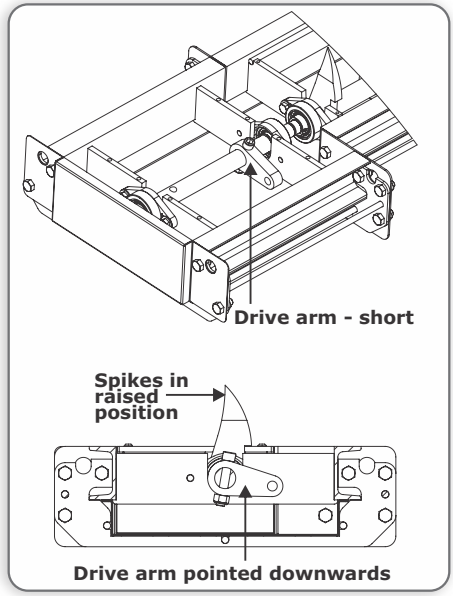



**FIGURE 35. DRIVE ARM CONFIGURATION (LEFT HAND - OPPOSED)**

# Fitting the CLAWS shaft coupler

When joining two or more CLAWS modules or connecting a CLAWS module to a drive module, it is necessary to fit a shaft coupler. The procedure described below contains steps and information that are imperative to a safe and reliable CLAWS installation and as such must be adhered to as closely as possible.

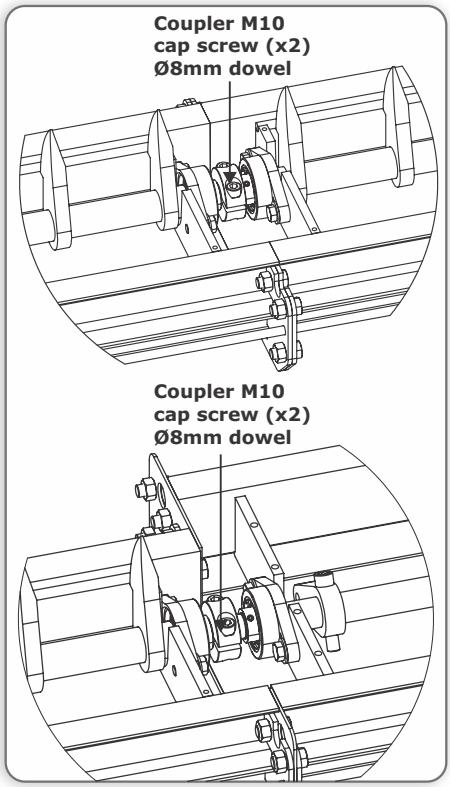



FIGURE 36. FIT THE COUPLERS

1. Hand-tighten the M10 bolts securing the flanged bearings to the sub-frame.
2. Assemble the split coupler around the shafts, fit the M10 cap screws and tighten them by hand. Ensure that the coupler is centred between the flanged bearings.
3. Tighten the coupler M10 cap screws in sequence; in other words, for every number of turns applied to one screw, the same number of turns (approximately) must be applied to the second screw. Failure to adhere to this procedure will result in one screw pulling the other skew and the coupler's thread stripping.

It is useful to use a torque wrench when tightening the coupler around the shaft. We recommend tightening the cap screws to 65Nm

4. Finally, tighten the M10 bolts securing the flanged bearings to the sub-frame using a 17mm spanner.

Do not over-tighten the bolts, as doing so will cause the thread to strip!

# Fit the linkage cover (Direct Drive)

1. Fit the linkage cover using the eight M8 button head screws.

Be sure to fit the linkage cover so that the drive arm is fully accessible through the aperture.

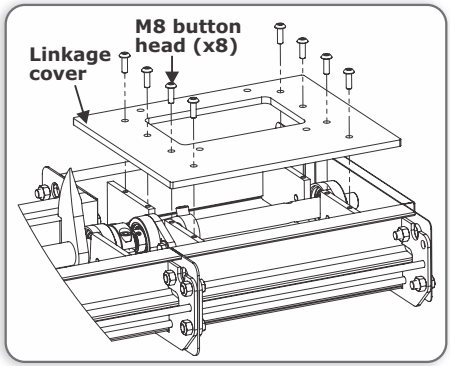



FIGURE 37. FIT THE LINKAGE COVER

All the measurements are from the edge of linkage cover to the barrier as shown in Figure 38a

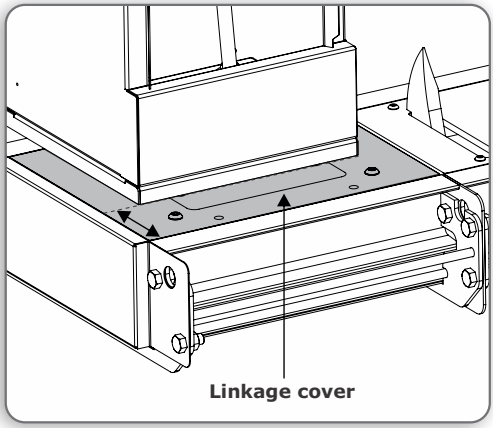



**FIGURE 38a. SECTOR MOUNTING POSITION**

2. Fit the SECTOR barrier on top of the linkage cover.
3. Be sure to mount the barrier either 103mm or 33mm from the edge of the main frame, depending on the installation configuration. See Figure 38b for clarity.

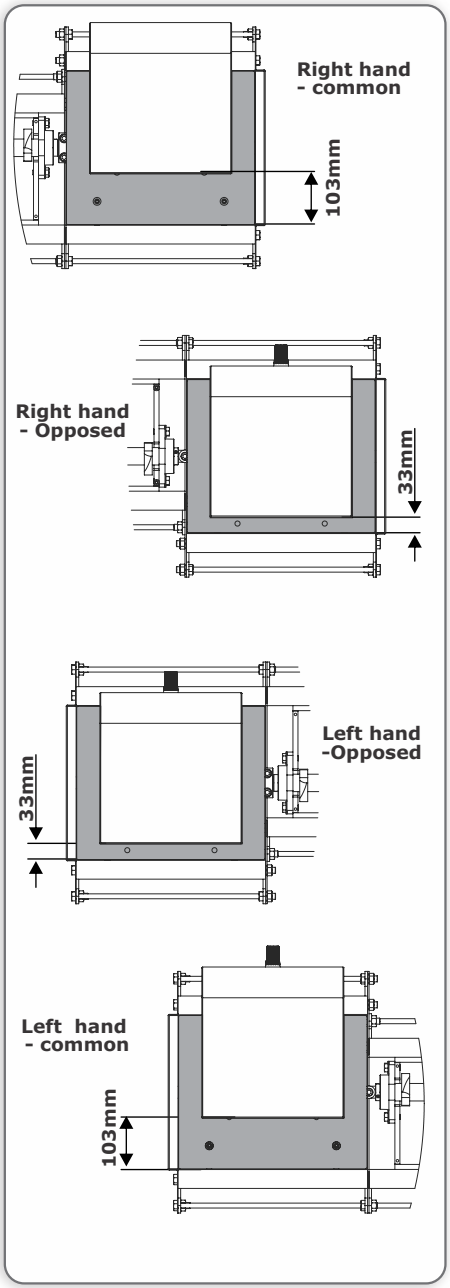



**FIGURE 38b. SECTOR MOUNTING POSITION**

4. Secure the SECTOR barrier to the main structure using two M12 bolts and washers and the retaining bracket.

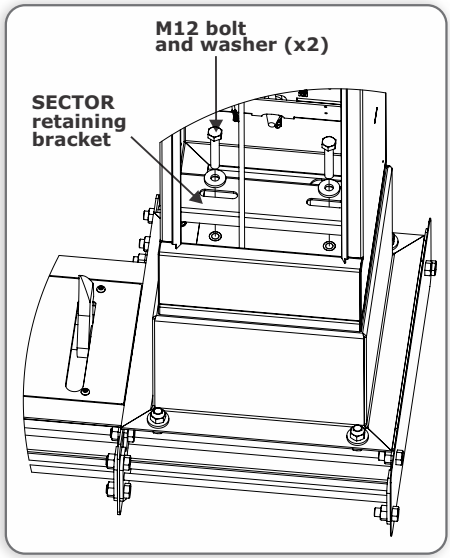



FIGURE 39 FIT RETAINING BRACKET

5. Fit the Conrod assembly to the linkage's drive arm using the M16 cap screw.

It is recommended to put thread locking gel (such as Loctite) on the bolt threads.

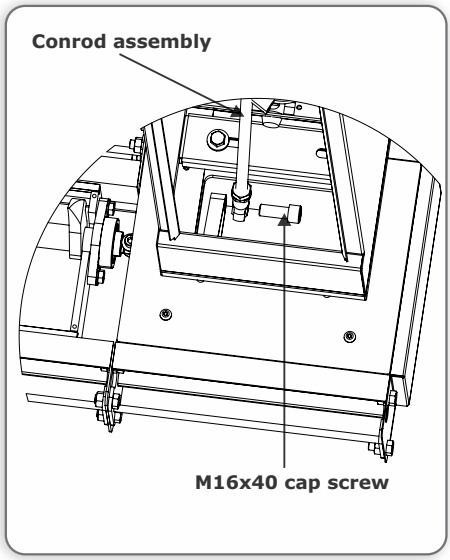



FIGURE 40. FIT THE CONROD - BOTTOM

6. Fit the Conrod assembly to the output plate next to the counterbalance spring in the SECTOR barrier using the M16 cap screw.

It is recommended to put thread locking gel (such as Loctite) on the bolt threads.

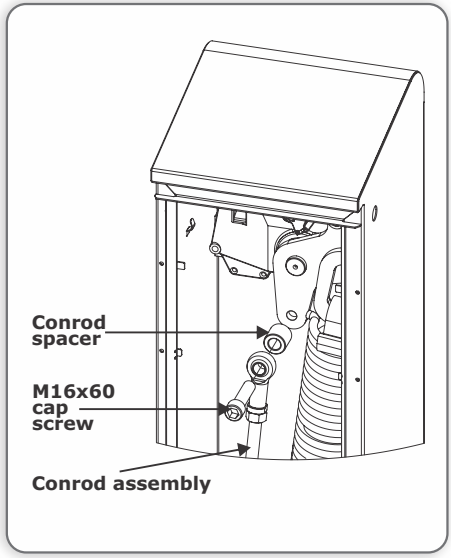



**FIGURE 41. FIT CONROD - TOP**

# 12. Covers and setup

## Fit the trench covers

1. Fit the trench covers then fasten them with M6 button head screws

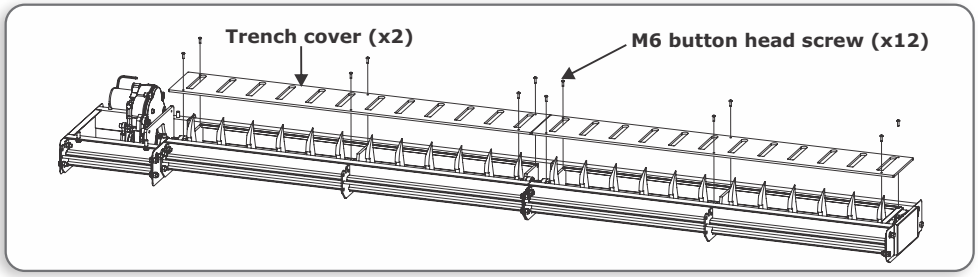



**FIGURE 42. FIT THE TRENCH COVERS**

## Adjust the spikes

**Independent Drive**

The position of the drive arm when the spikes are in the "**UP**" position varies from right hand Common and left hand Opposed to left hand Common and right hand Opposed installations.

1. Using a 12V battery, drive the motor so that the drive arm rests up on the endstop when the spikes are in the "**UP**" position as shown in Figure 44.
2. Loosen the locknuts on the adjustment link.
3. Turn the adjustment link to rotate the spikes until they butt up against the trench cover.
4. Tighten the locknuts on the adjustment link.

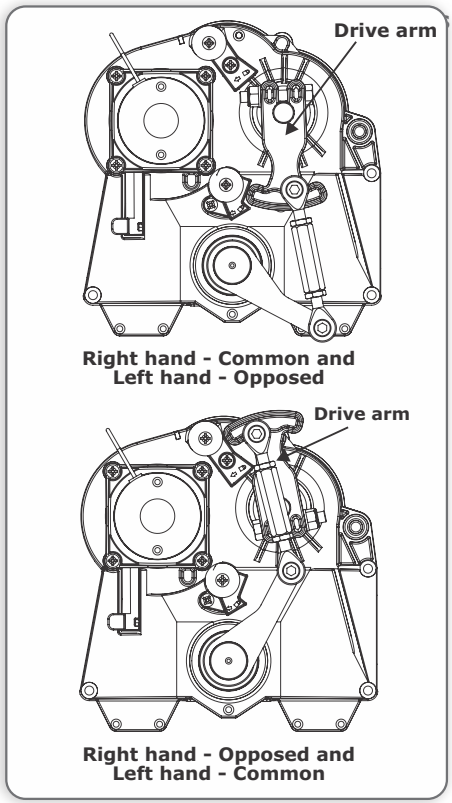



**FIGURE 43. DRIVE ARM POSITION (SPIKES "UP")**

5. Loosen the locknuts on the adjustment link.
6. Turn the adjustment link to rotate the spikes until they butt up against the trench cover.
7. Tighten the locknuts on the adjustment link.

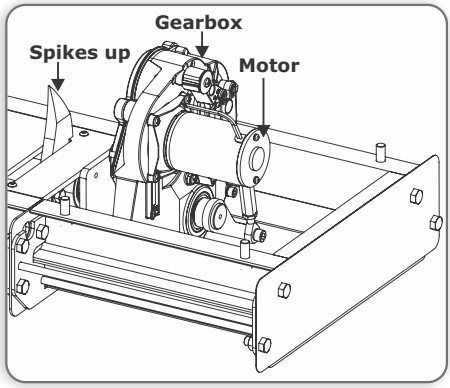



**FIGURE 44. ADJUSTING THE SPIKES – INDEPENDENT DRIVE**

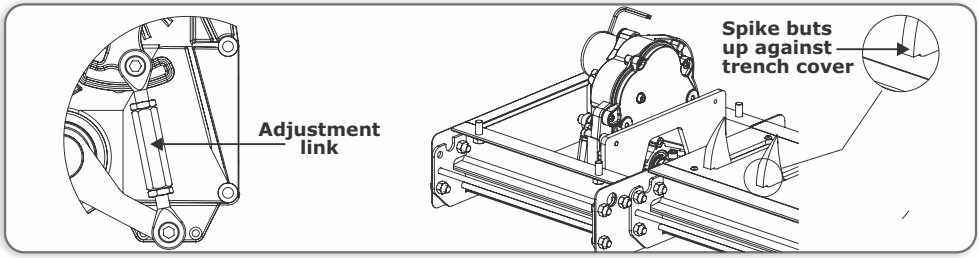



**FIGURE 45. ADJUSTING THE SPIKES – INDEPENDENT DRIVE**

**Direct Drive**

Make sure the SECTOR barrier is in the lowered (horizontal) position with the drive arm resting up on the endstop when the spikes are in the "**UP**" position.

1. Loosen the locknuts on the Conrod Link.
2. Turn the Conrod Link to rotate the spikes until they butt up against the trench cover.
3. Tighten the locknuts on the Conrod Link.

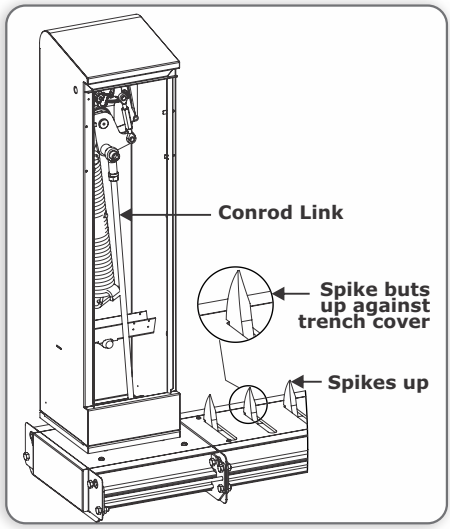



**FIGURE 46. ADJUSTING THE SPIKES – DIRECT DRIVE**

# Fit the main cover (Independent Drive)

1. Fit the main cover and fasten with four M12 bolts and washers.
2. Also fit the M12 button head screw into the front of the cover.

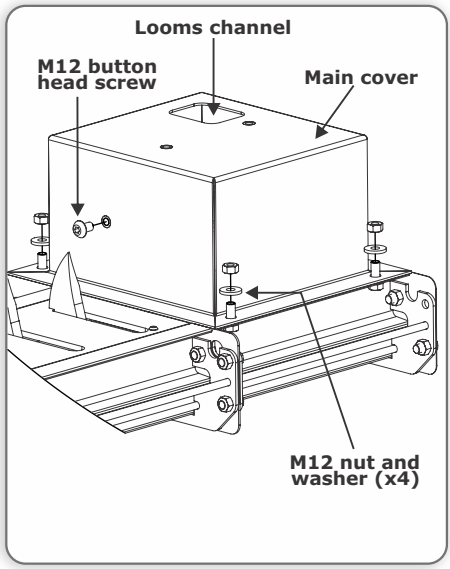



**FIGURE 47. ADJUSTING THE SPIKES – INDEPENDENT DRIVE**

When a SECTOR barrier is not installed with the **CLAWS** installation, then the Looms Cover has to be fitted on top of the main cover. The Looms Cover must be sealed with silicon sealant.

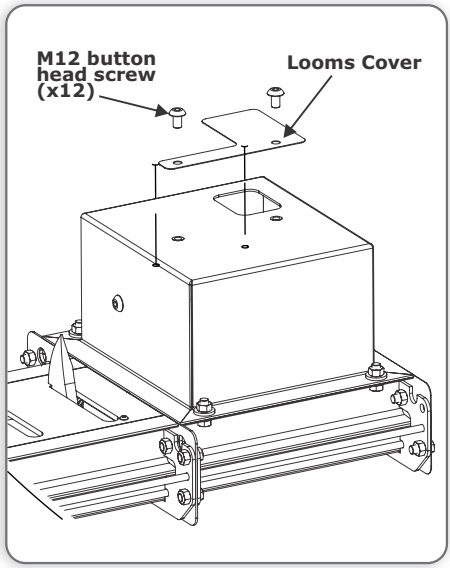



**FIGURE 48. ADJUSTING THE SPIKES – INDEPENDENT DRIVE**

# 13. Fitting a SECTOR barrier (Independent Drive)

1. Fit the SECTOR barrier on top of the main cover using two M12 x 65 bolts and washers.

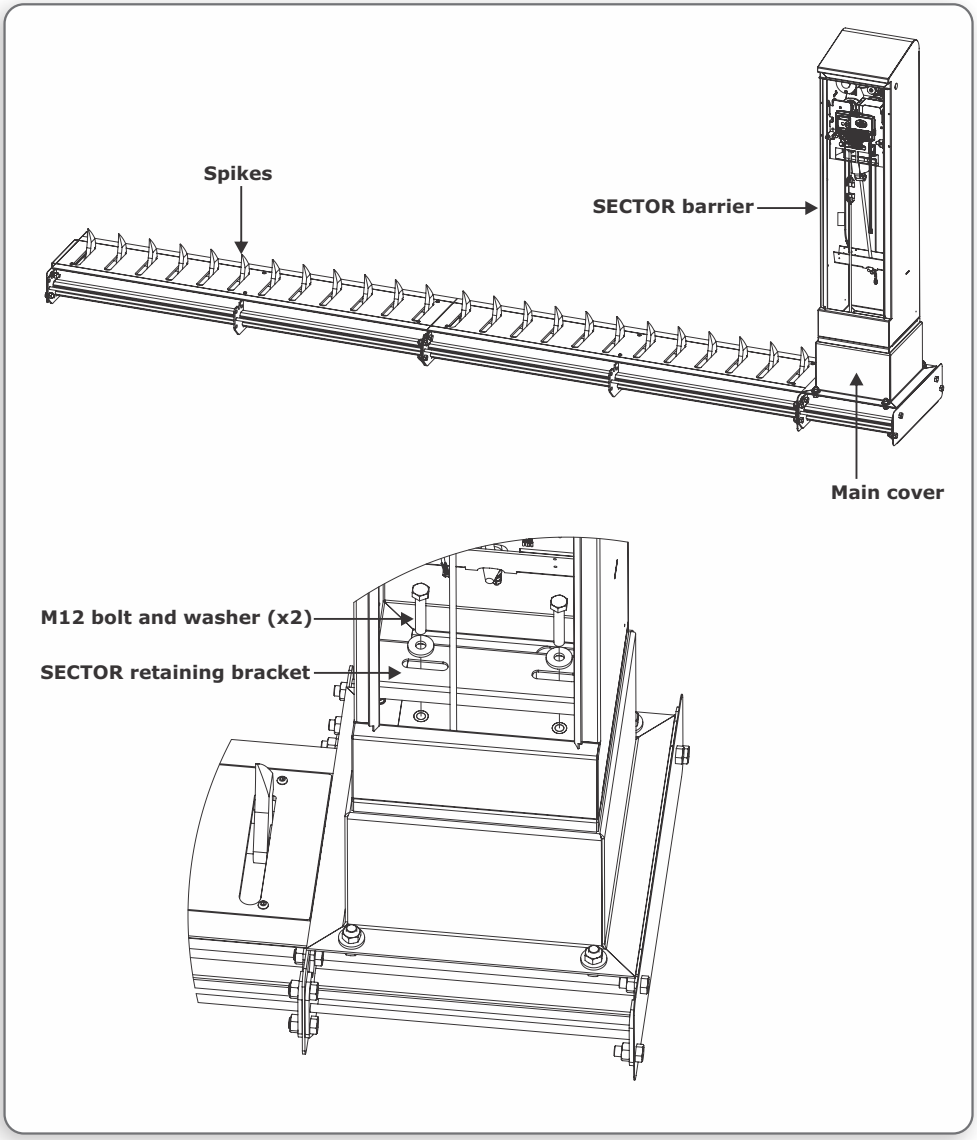



**FIGURE 49. FIT SECTOR BARRIER**

# 14. Electronics setup (Independent Drive)

## Fit CLAWS controller

1. Clip the control card onto the control card carrier.

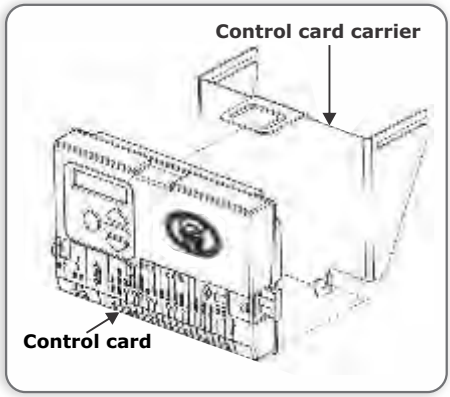



FIGURE 50. CONTROL CARD CARRIER ASSEMBLY

2. Clip the control card assembly onto the bottom beam in the SECTOR enclosure, where the spring's tension bar is attached.

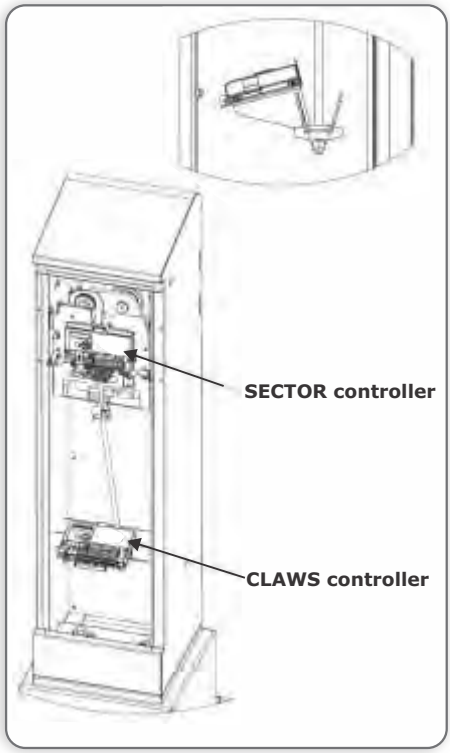



FIGURE 51. CONTROL CARD CARRIER ASSEMBLY

## Menu settings (Independent Drive)

Make sure the following settings on the control cards are set

**SECTOR controller**

| | | | |
|---|---|---|---|
| **Menu** | **4.** | **Modes of Operation** | |
| | 4.1. | Operating Mode | 4.1.1. Simplex (SMX) Mode |
| | | | 4.1.2. Complex (CMX) Mode |
| | | | 4.1.3. Programmable Logic Controller (PLC) Mode |

| | | |
|---|---|---|
| **Menu** | **5.** | **Run Profile** |
| | 5.3. | Spike interface (Set to ON) |

**CLAWS controller**

| | | | |
|---|---|---|---|
| **Menu** | **4** | **Modes of Operation** | |
| | 4.1. | Operating Mode | 4.1.1. Spike (SPK) Mode |

## Optional menu settings – when fitting traffic light

When fitting a traffic light, make sure the following settings on the control cards are set

**SECTOR controller**

| | | | |
|---|---|---|---|
| **Menu** | **2.** | **Safety** | |
| | 2.5. | External boom status indicator | 2.5.1. Indicator Output (set to TVI) |
| | | | 2.5.6. Raising indication (Set to ON) |
| | | | 2.5.7. Raised indication (Set to ON) |

| | | |
|---|---|---|
| **Menu** | **7** | **TVI output** |
| | 7.1 | TVI output function (Set to TVI) |

**CLAWS controller**

| | | | |
|---|---|---|---|
| **Menu** | **2.** | **Safety** | |
| | 2.5. | External boom status indicator | 2.5.1. Indicator Output (set to TVI) |
| | | | 2.5.2. Lowered indication (Set to ON) |

| | | |
|---|---|---|
| **Menu** | **7.** | **Safety** |
| | 7.1 | TVI output function (Set to ON) |

## Wiring connections

Other than the normal SECTOR barrier connections, the following wire connections also have to be made

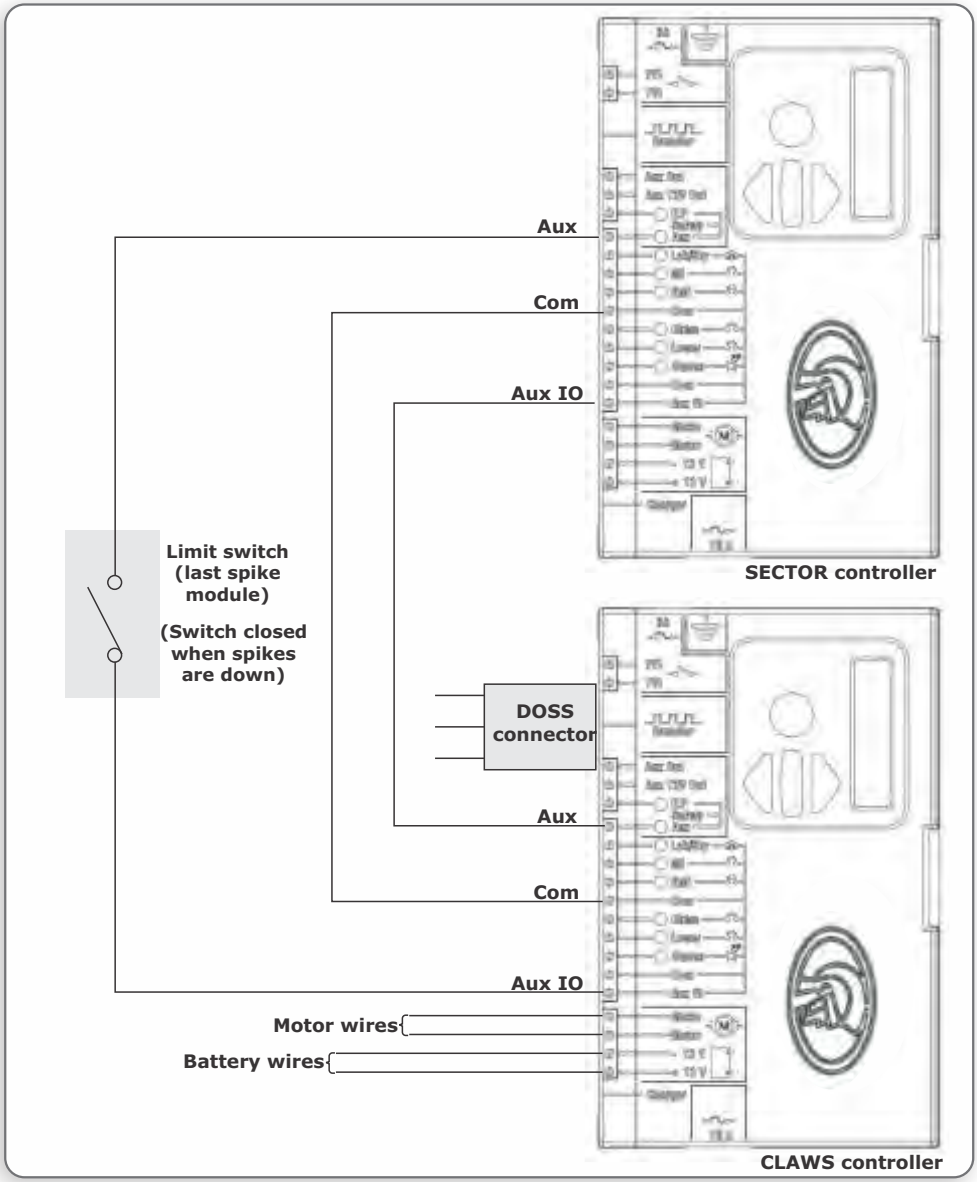



FIGURE 52. WIRING CONNECTIONS

## Wire connections when fitting a traffic light

When fitting a traffic light to the system, the following connections have to be made:

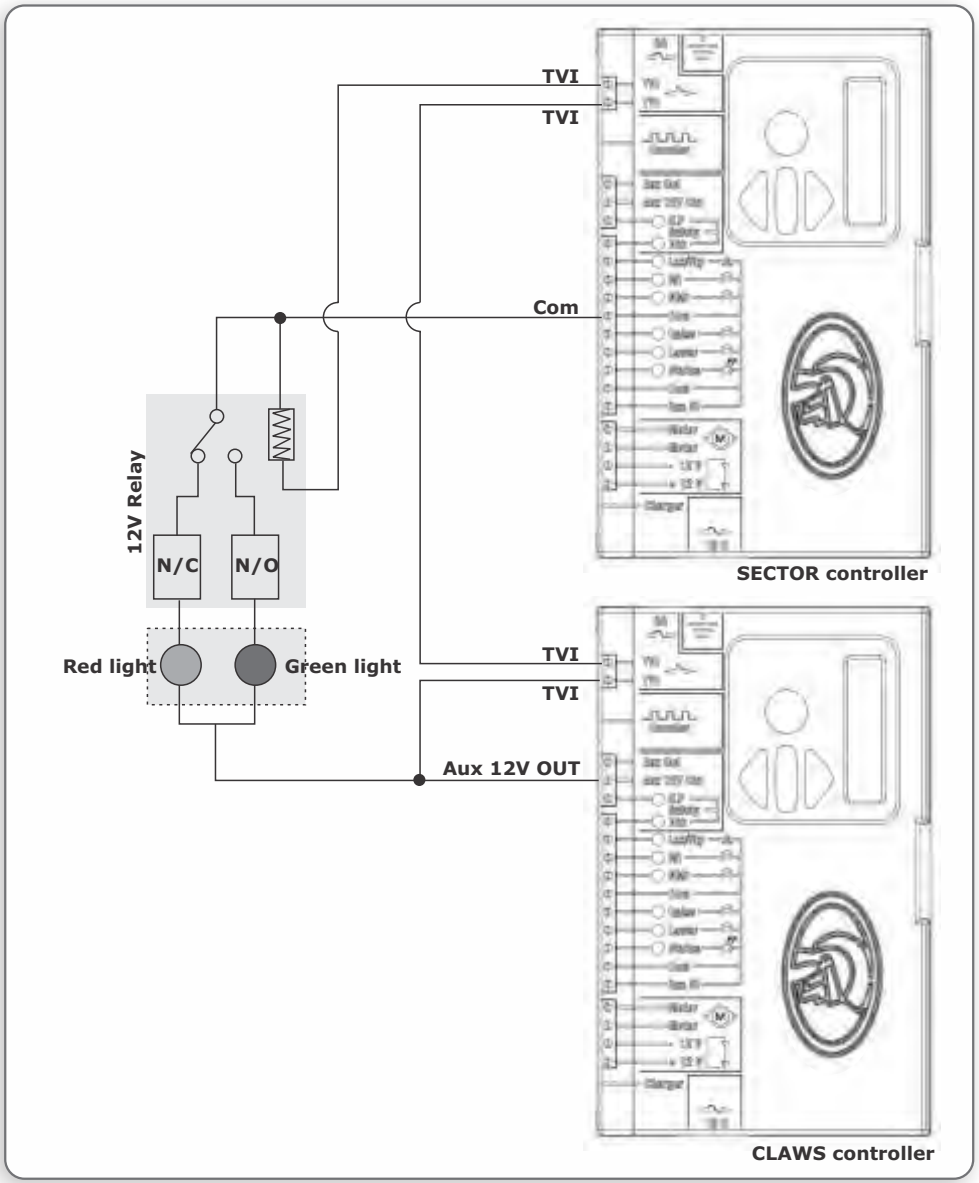



FIGURE 53. CLAWS WITH TRAFFIC LIGHTS

# 15. Maintenance

It is strongly recommended that routine maintenance is performed at least on a bi-monthly basis to ensure unhindered operation of the **CLAWS** modules.

For optimum performance, the following maintenance procedure should be carried out:

- Remove the trench covers from each individual module by loosening the M6 button head screws holding it in place
- Once exposed, clear the trenching of any dead leaves, gravel and other debris that may cause impeded movement of the drive arm
- Test the drainage of the modules - ensure that there are no blockages in the drain pipes
- Routinely tighten all nuts and bolts on the drive arm and driveshaft joints, ensuring that they are able to move freely

# 16. Installation handover

Once the installation has been successfully completed and tested, it is important for the installer to explain the operation and safety requirements of the system.

**NEVER ASSUME THE USER KNOWS HOW TO SAFELY OPERATE AN AUTOMATED GATE!**

Even if the user has used one before, it does not mean he knows how to SAFELY operate it. Make sure that the user fully understands the following safety requirements before finally handing over the site.

The following needs to be understood by the user:

- How to operate the manual release mechanism. (Show them how by demonstration)
- How the obstruction detection and all other safety features work. **(Show them how by demonstration)**
- All the features and benefits of the operator, i.e. Photocells, etc.
- All the safety considerations associated with operating an automated gate. The user

should be able to pass this knowledge on to all other users of the automated system and must be made aware of this responsibility.

- **Do not activate the gate operator unless you can see it and can determine that its area of travel is clear of people, pets, or other obstructions**
- **NO ONE MAY CROSS THE PATH OF A MOVING GATE. Always keep people and objects away from the gate and its area of travel**
- **NEVER LET CHILDREN OPERATE OR PLAY WITH THE GATE CONTROLS, and do not allow children or pets near the gate area**
- **Be careful with moving parts and avoid close proximity to areas where fingers or hands could be pinched**
- **Secure all easily-accessible gate operator controls in order to prevent unauthorised use of the gate**
- **Keep the automated gate system properly maintained, and ensure that all working areas are free of debris and other objects that could affect the gate operation and safety**
- **On a monthly basis, check the obstruction detection system and safety devices for correct operation**
- **All repair and service work to this product must be done by a suitably qualified person**
- **This product was designed and built strictly for the use indicated in this documentation. Any other use, not expressly indicated here, could compromise the good condition/operation of the product and/or be a source of danger!**

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