



Vehicle Access Control
Pedestrian Access Control
Safety & Security Equipment

T: +61 7 3205 1123

www.rotech.com.au

e: info@rotech.com.au

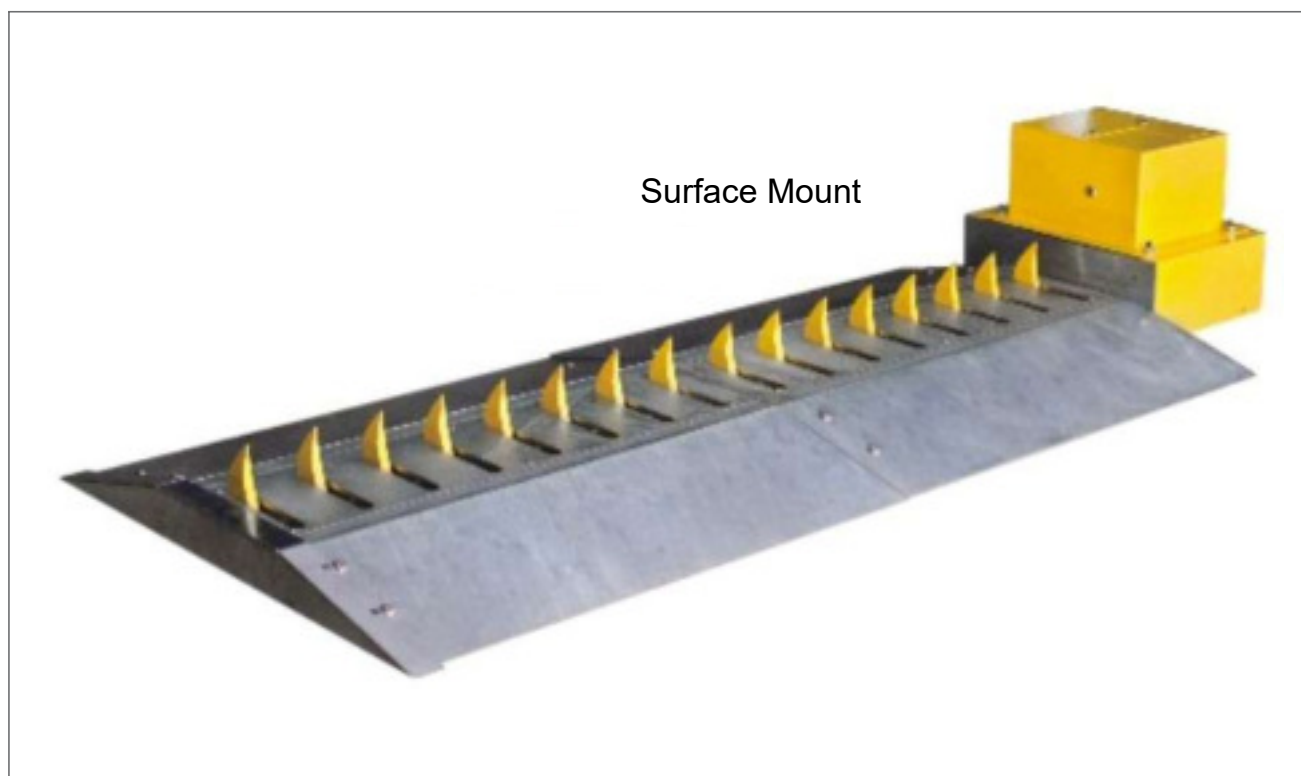
(V0518)

SENTINEL CW TYRE SPIKES

Installation Instructions

Right Hand Similar Impact Direction

Surface Mount



IMPORTANT

SAFETY INSTRUCTIONS

ATTENTION

To ensure the safety of people and possessions, it is important that you read all the following instructions.

Incorrect installation or incorrect use of the product may cause serious harm to people and / or property.

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 **Tyre Spikes** unless you can see them and can determine that the **Tyre Spikes** 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 **Tyre Spikes** controls in order to prevent unauthorised use
- 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
- 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
- Neither Centurion Systems (Pty) Ltd, nor its subsidiaries or authorised distributors, accepts any liability caused by improper 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



2. Product Identification

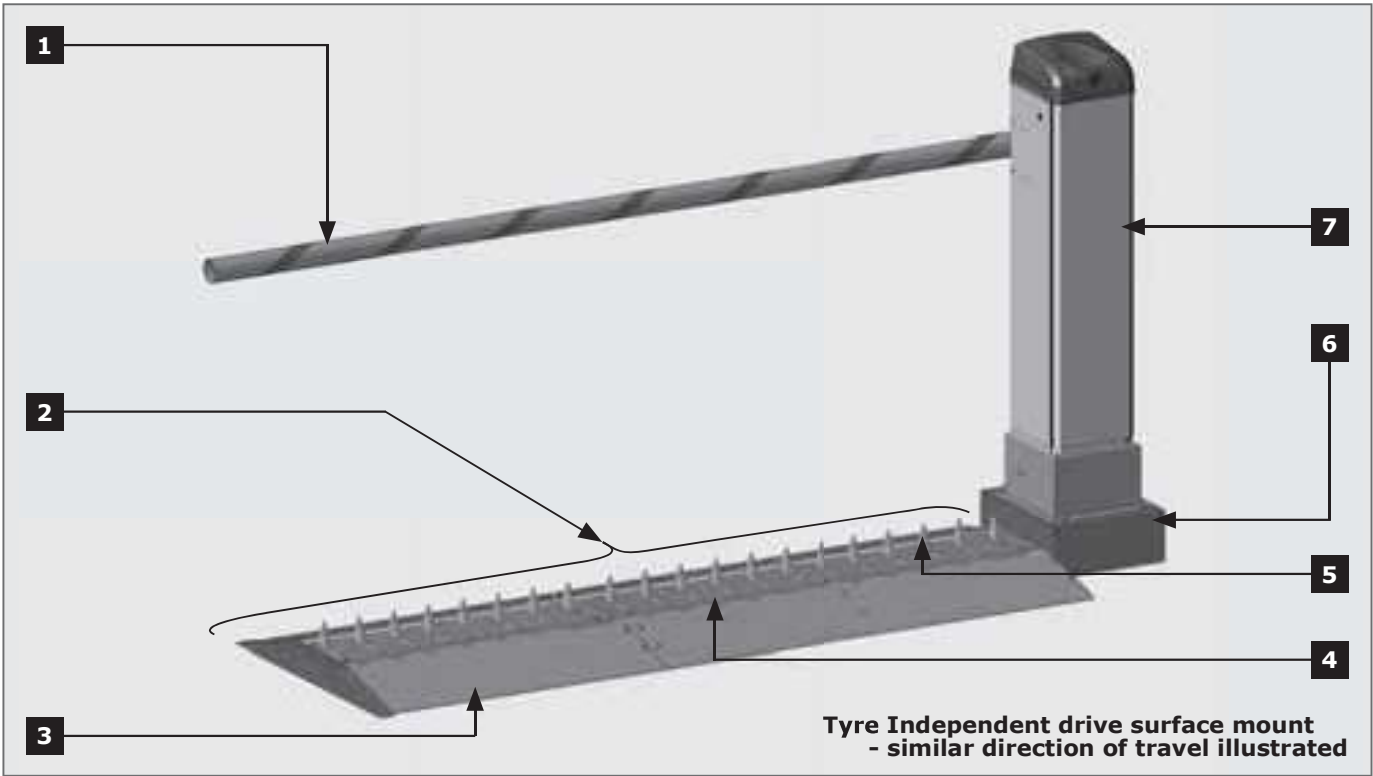











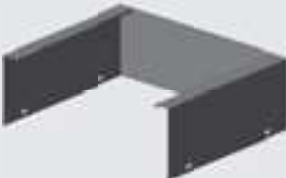





FIGURE 1. PRODUCT IDENTIFICATION

- 1. Boom pole
- 2. Spikes module assembly
- 3. Ramp plates
- 4. Trench cover plate
- 5. Spikes
- 6. Drive linkage assembly

	Module Frame
	Linkage Frame
	Sandwich Plate
	Top Coupler
	Bottom Coupler
	8x20 Dowel Pin

	Drive Linkage Arm
	Driven Linkage Arm
	Drive Link Pin
	Bearing Housing
	Hold Down Bracket
	Linkage End Cover
	Blanking Plate
	Gearbox Cover
	Module End Cover

3. Tools Required

- 13mm, 17mm, and 19mm Spanners
- Ratchet
- 19mm, and 24mm Sockets
- Allen Key Set
- Mallet
- Tape Measure
- Spirit Level
- Torque Wrench

4. Introduction

This document describes the basic steps to follow when installing the surface-mountable **Tyre Spikes** driven by an independently-powered gearbox. The installation described in this document is a 2.5 meter installation. For other installations, modules of 1.5 or 1.0 meters can be combined to achieve different widths.



The installation of the **Sentinel CW Tyre Spikes** requires a minimum of two persons.

4.1. Installation Configurations

The surface-mountable **Sentinel CW Tyre Spikes** can be installed in four different configurations. The configuration is dependent on two factors:

- Orientation of installation
- Direction of spike impact

4.1.1. Orientation of Installation

The orientation of installation is described as the side at which the drive linkage is installed when approaching the **Tyre Spikes**. In other words, when driving up to the **Tyre Spikes**, in the correct direction for traffic flow, 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 **Tyre Spikes**, in the correct direction for traffic flow, and the drive is installed on the left-hand side of the vehicle, it's deemed a left-hand installation.



FIGURE 2. RHS CONFIGURATION



FIGURE 3. LHS CONFIGURATION

4.1.2. Spike Impact Direction

The **Sentinel CW Tyre Spikes** are designed to take a much larger impact in one direction. Thus, the **Tyre Spikes** can be installed to take larger or more frequent impact in one direction. In other words, the spikes can be installed to face either towards oncoming traffic (similar) or face towards traffic (opposing) trying to enter from the wrong direction or lane (Section 2, Figure 1).

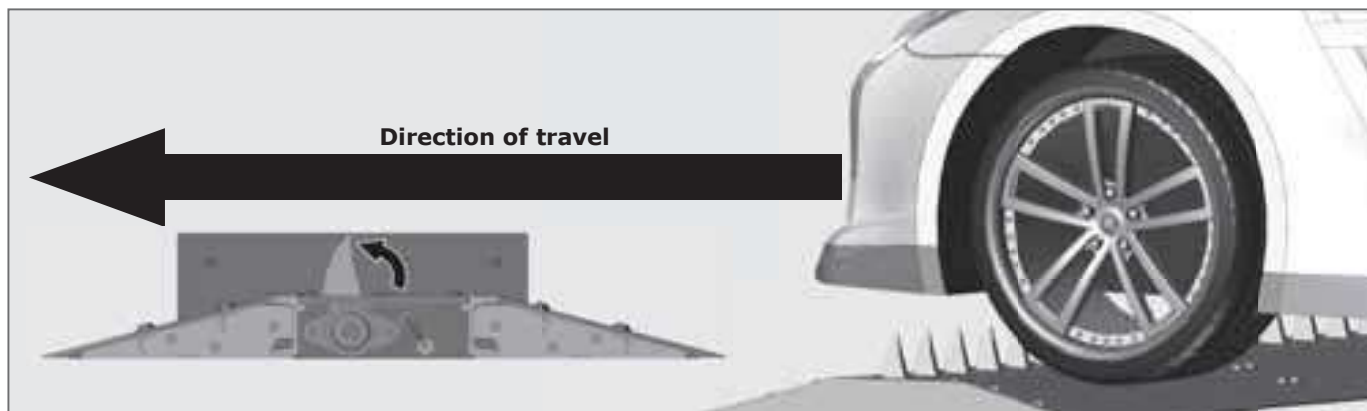


FIGURE 4. SPIKE IMPACT DIRECTION - SIMILAR



FIGURE 5. SPIKE IMPACT DIRECTION - OPPOSING

There are four types of typical installations. Refer to Section 4, Figures 2 and 3 to determine if the installation is left- or right-hand orientated.

Secondly; pay attention to the spike impact direction:

- **Similar direction of travel** prevents vehicles from exiting whilst the boom pole is still down (Normal direction of traffic)
- **Opposing direction of travel** prevents vehicles entering against the flow of traffic whilst the boom pole is down

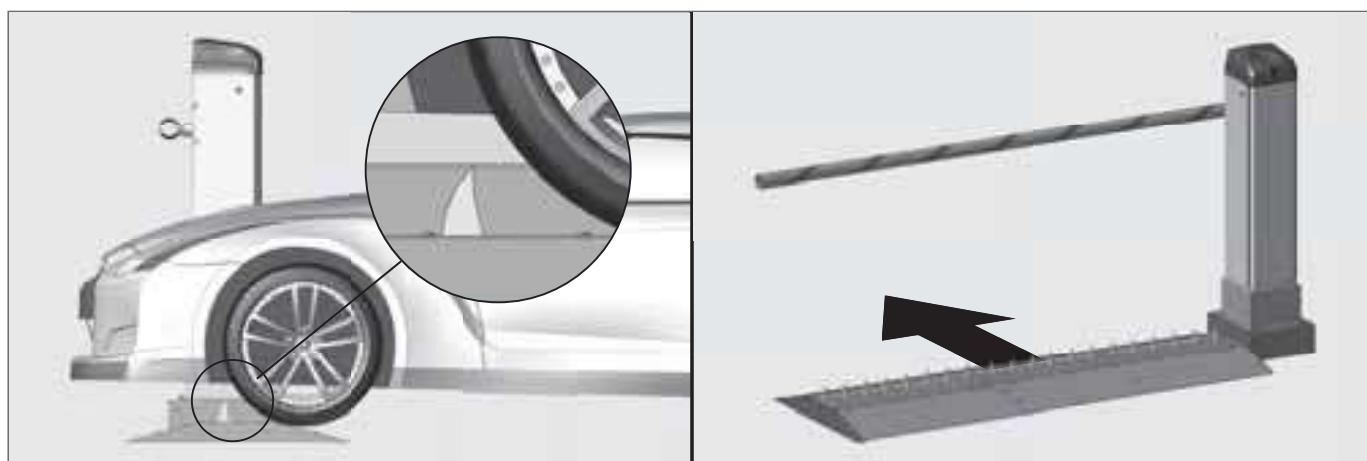


FIGURE 6. RHS SIMILAR DIRECTION OF TRAVEL

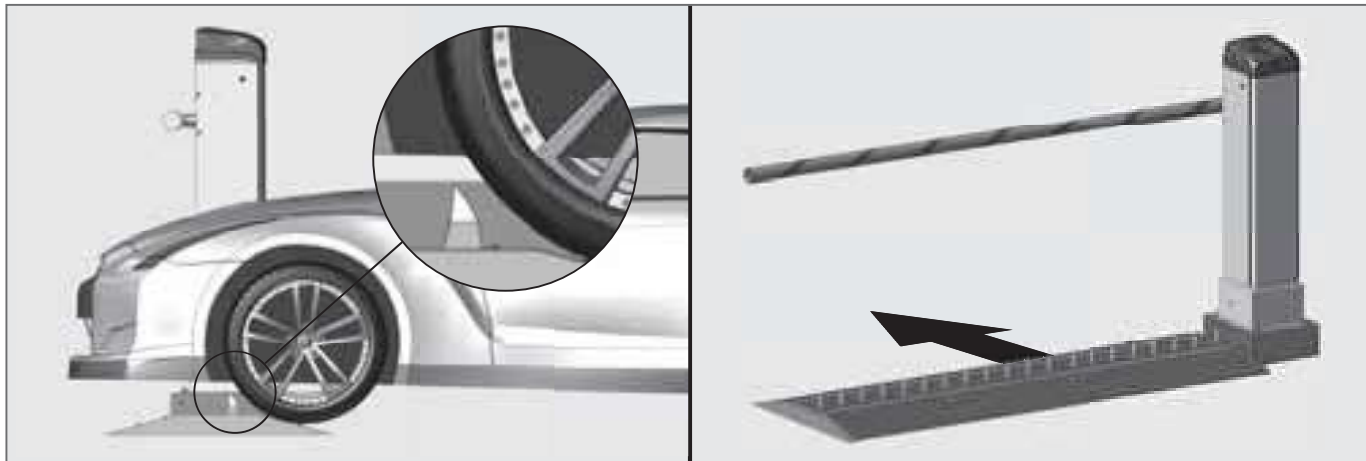


FIGURE 7. RHS OPPOSED DIRECTION OF TRAVEL

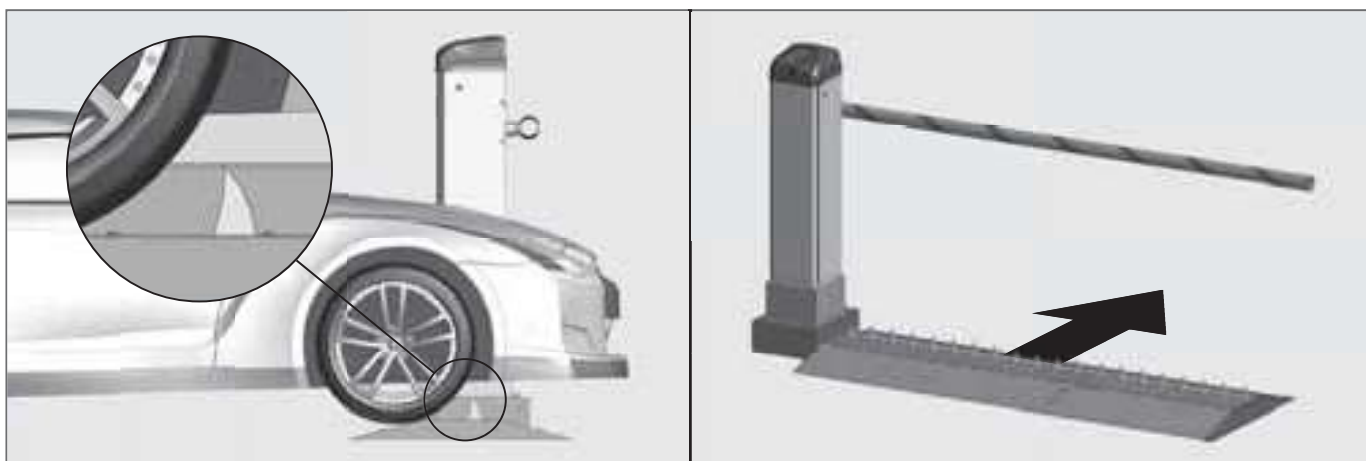


FIGURE 8. LHS SIMILAR DIRECTION OF TRAVEL

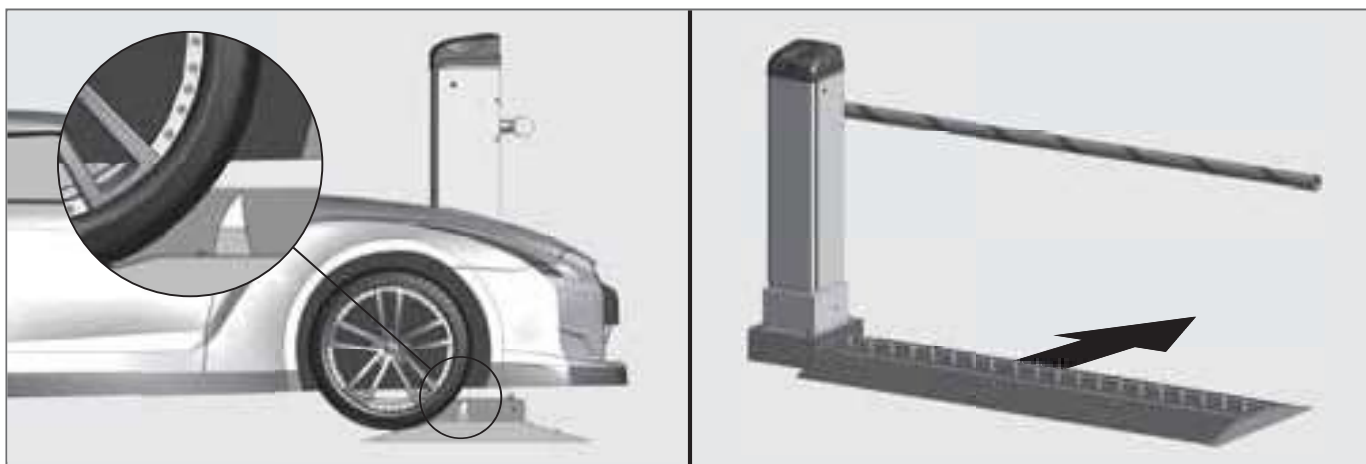
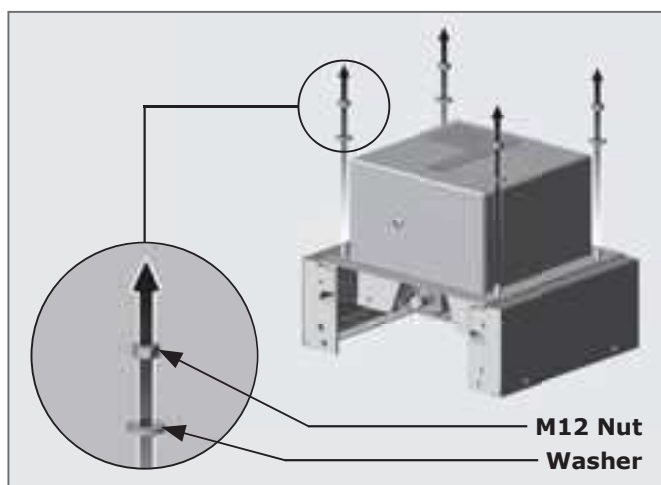


FIGURE 9. LHS OPPOSED DIRECTION OF TRAVEL

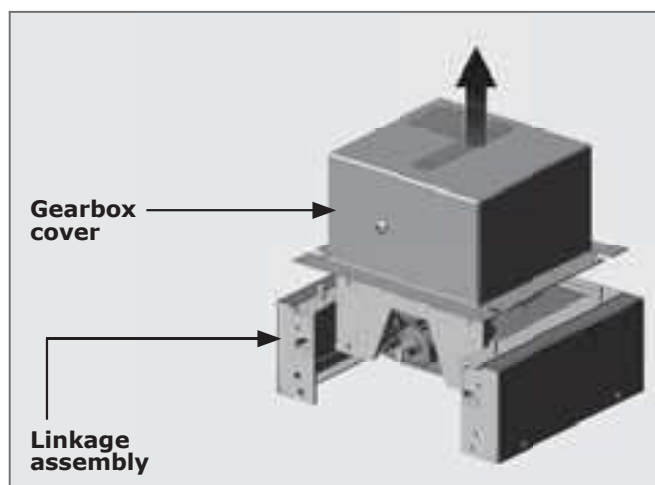
5. RHS Independent Drive Surface Mount - Similar Direction of Travel

5.1. Preparing the Drive Linkage Assembly



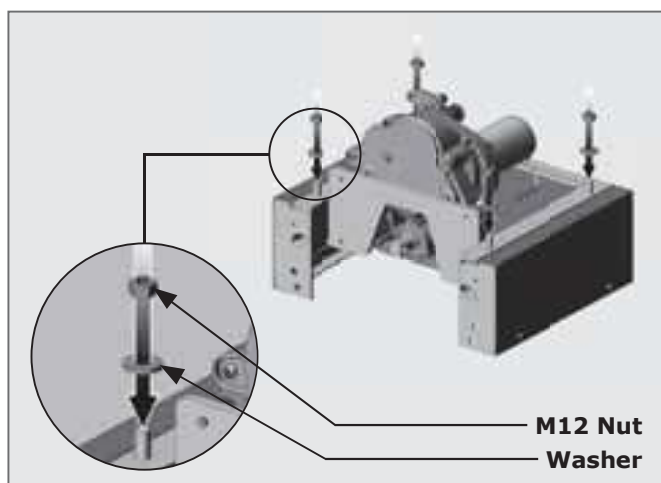
STEP 1

FIGURE 10



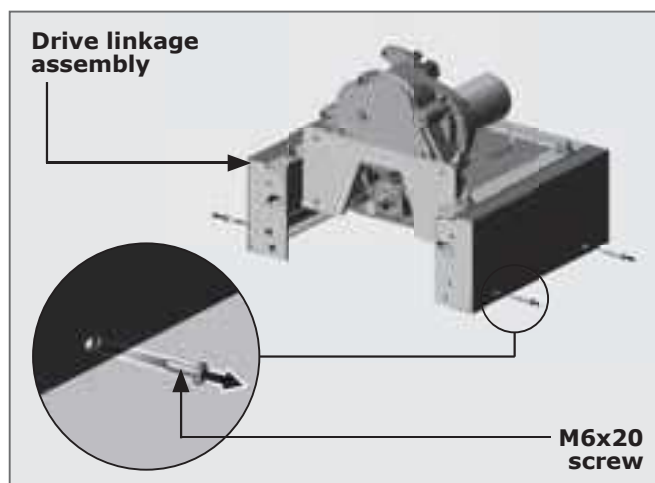
STEP 2

FIGURE 11



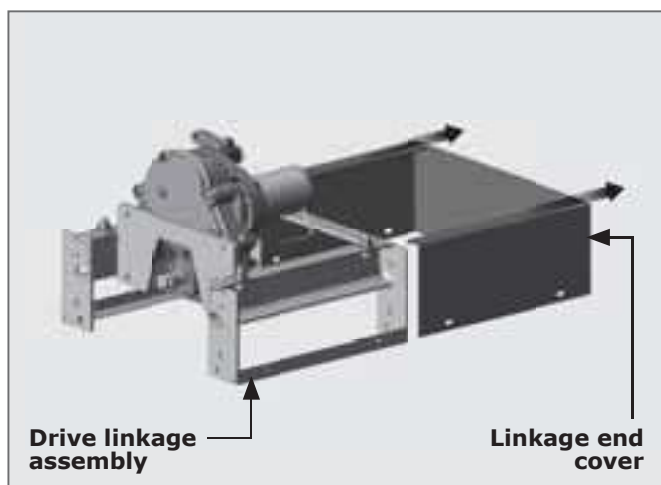
STEP 3

FIGURE 12



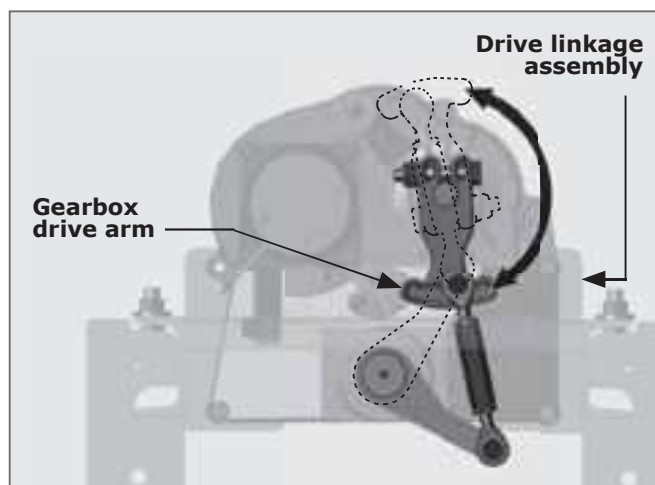
STEP 4

FIGURE 13



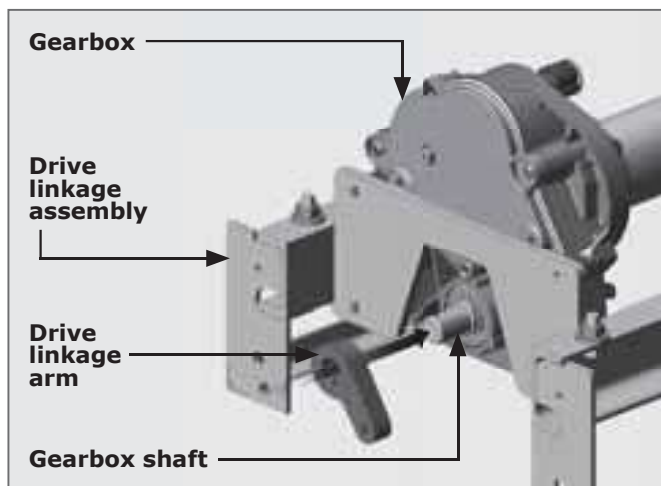
STEP 5

FIGURE 14



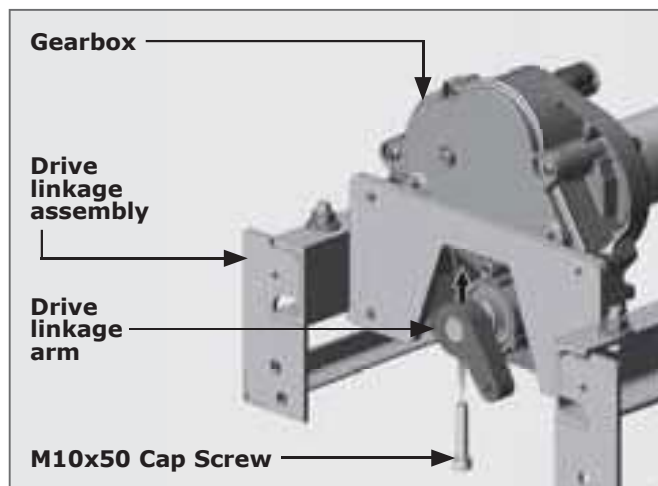
STEP 6

FIGURE 15



STEP 7

FIGURE 16

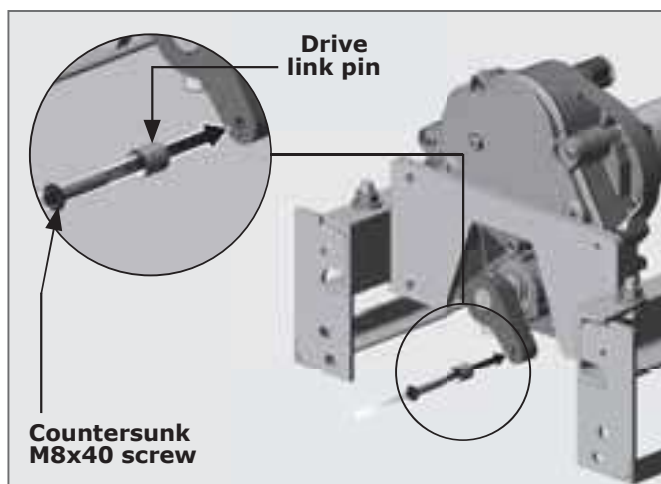


STEP 8

FIGURE 17



The drive linkage arm should point to a 5 o'clock position and the holes of the gearbox shaft and the linkage arm must line up as shown above.



STEP 9

FIGURE 18

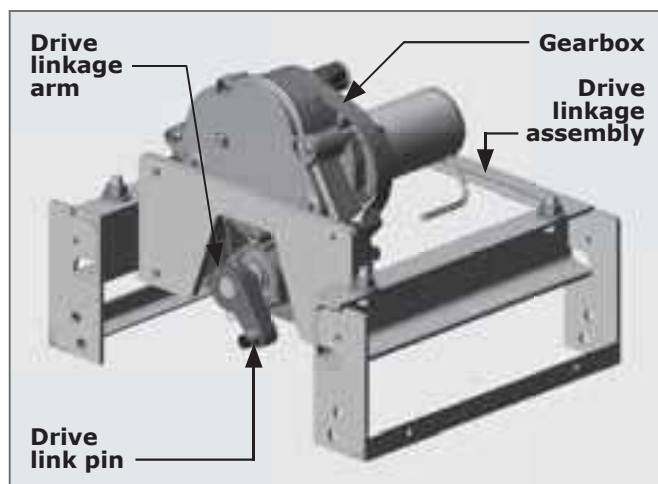


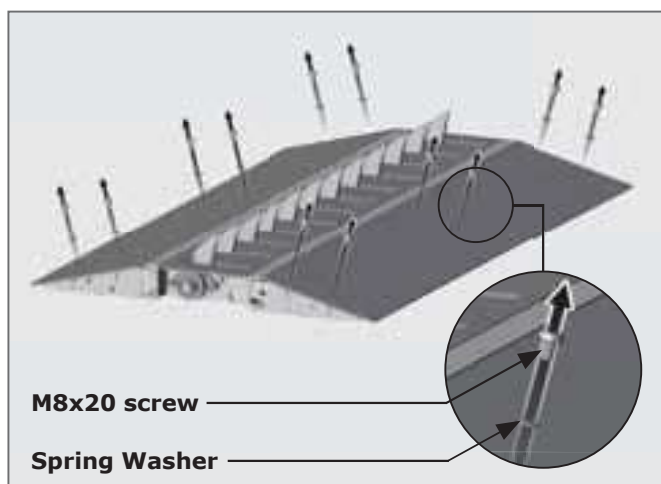
FIGURE 19



Tighten the Countersunk M8x40 screw to 20Nm (Section 5, Figure 18).

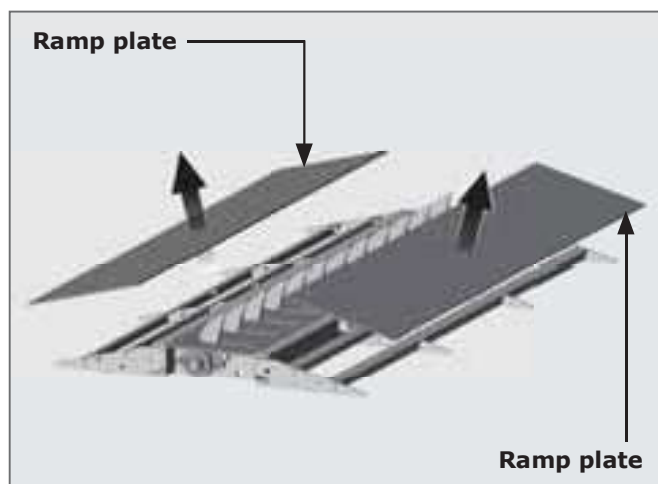
5.2. Spike Module Assembly

5.2.1. Preparing the Spike Model assembly(ies) for installation



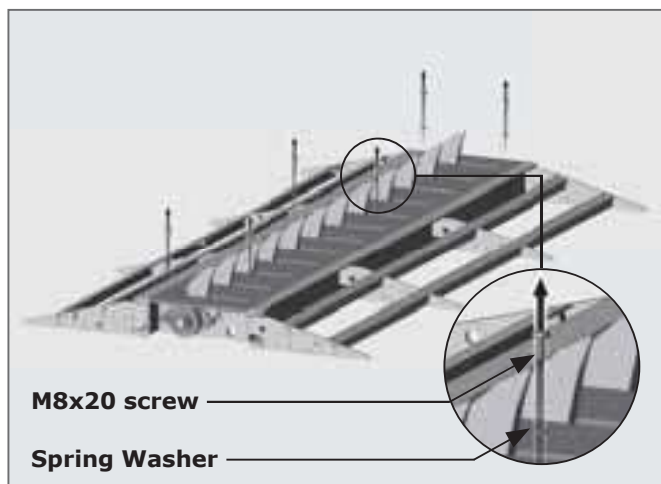
STEP 1

FIGURE 20



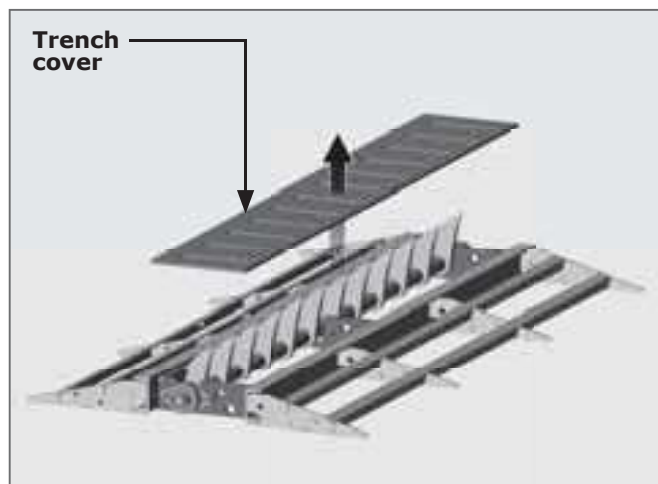
STEP 2

FIGURE 21



STEP 3

FIGURE 22



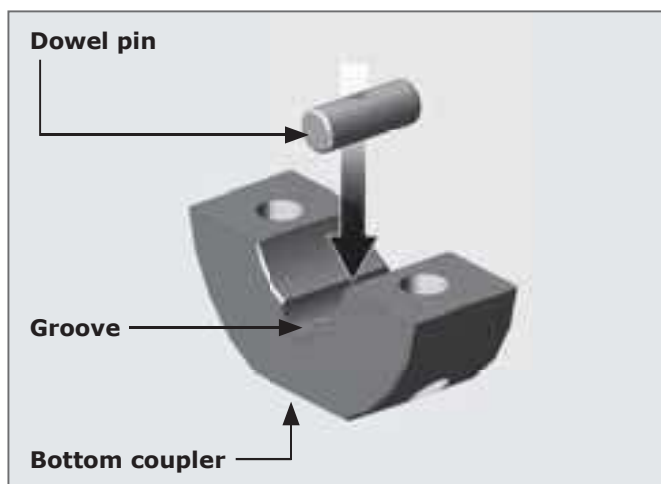
STEP 4

FIGURE 23

5.2.2. Attaching the Driven Link to the first spike module

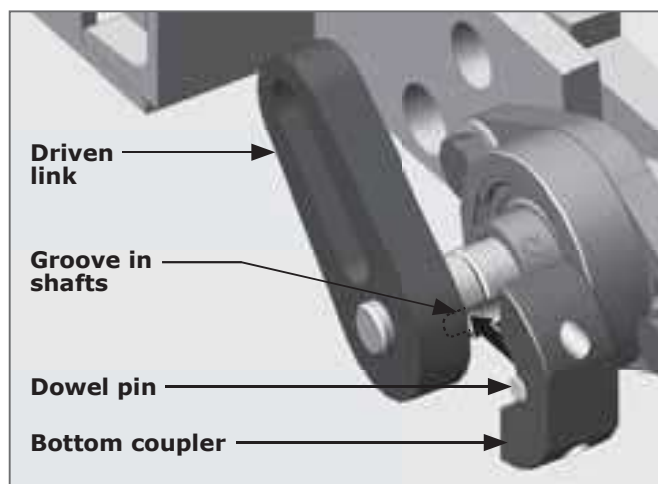


Place the spikes into the down position to aid in the fitment of all the shaft couplings.



STEP 1

FIGURE 24

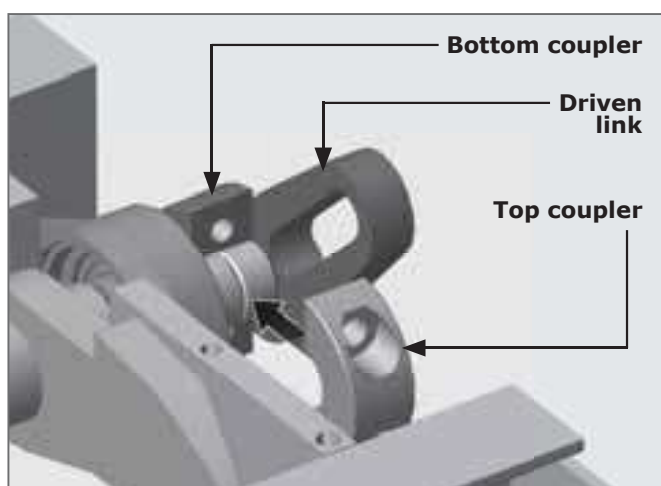


STEP 2

FIGURE 25

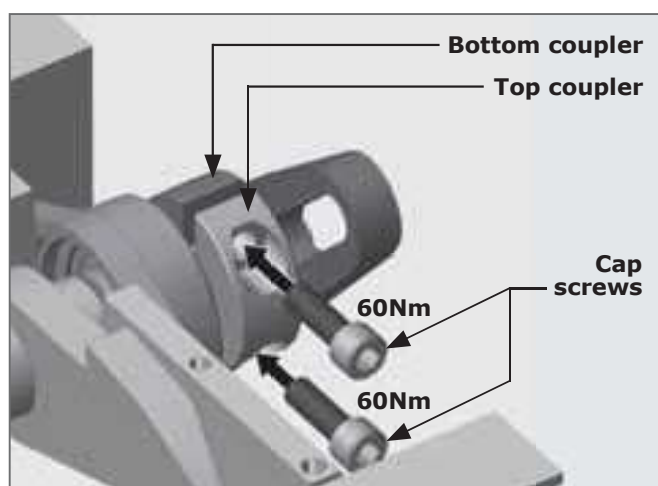


Ensure the Driven Link and the spikes are pointing in the same direction. (Section 5, Figures 25 to 28).



STEP 3

FIGURE 26



STEP 4

FIGURE 27

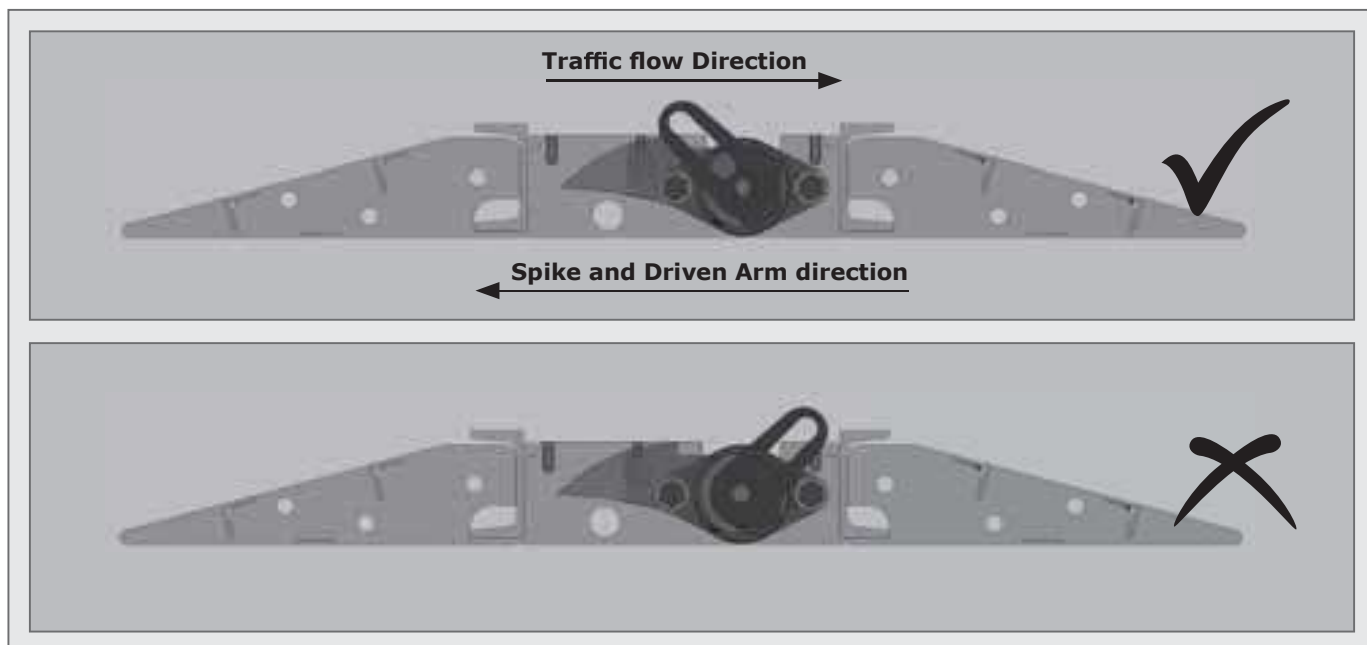


FIGURE 28

5.2.3. Aligning the Driven Linkage Arm to the Drive Linkage Arm.

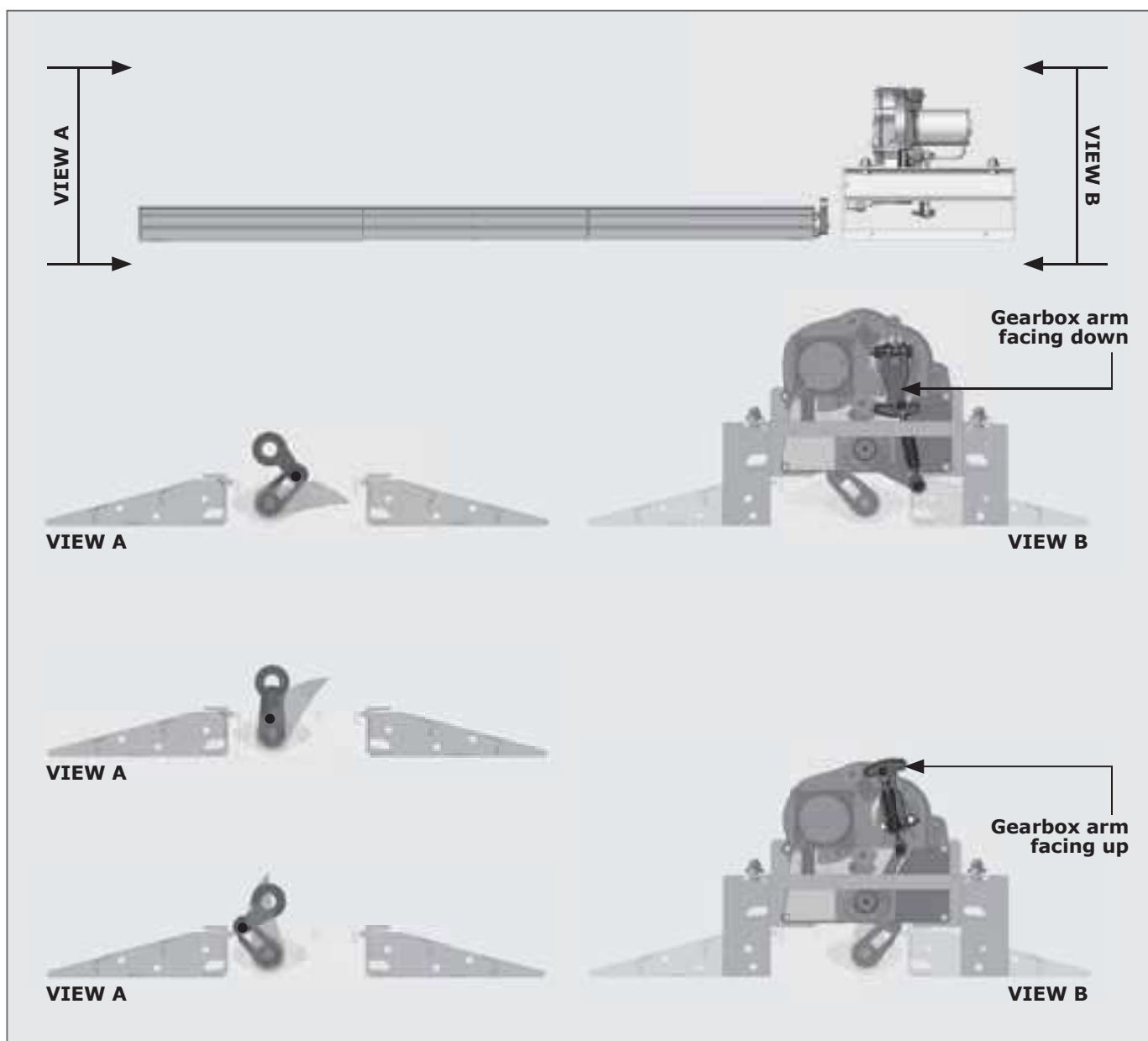
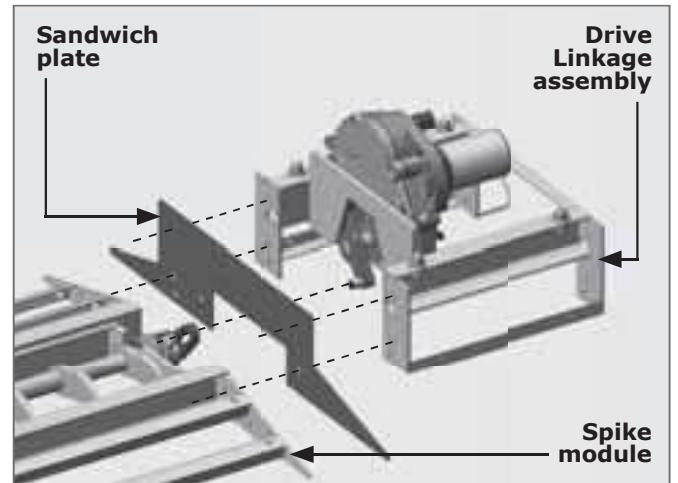


FIGURE 29

5.2.4. Attaching the drive linkage assembly to the spike module

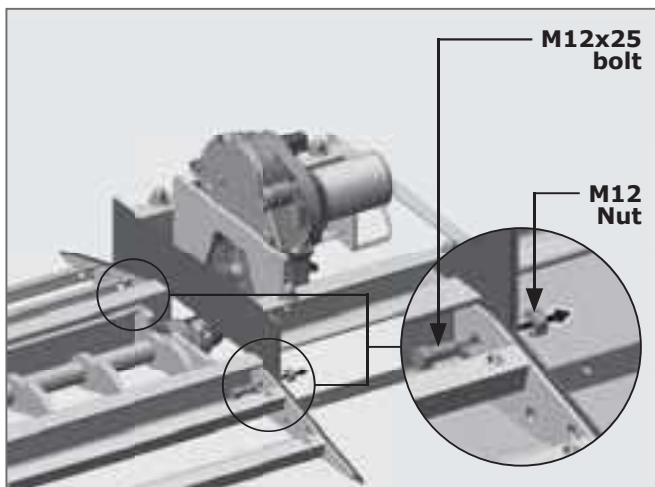


Take note of the orientation of the Sandwich Plate to the Linkage Assembly before fixing them to the spike module assembly. Ensure that the Sandwich Plate is lifted over the Driven Linkage Arm, so that the Driven Linkage Arm sits flush with the Drive Linkage Arm (Section 5, Figure 30).



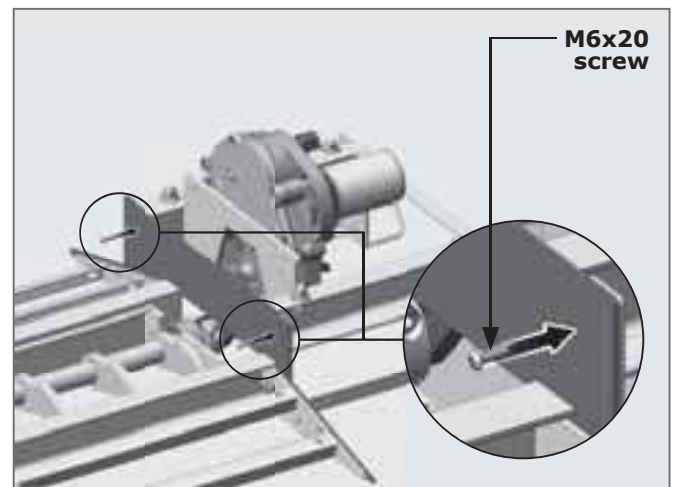
STEP 1

FIGURE 30



STEP 2

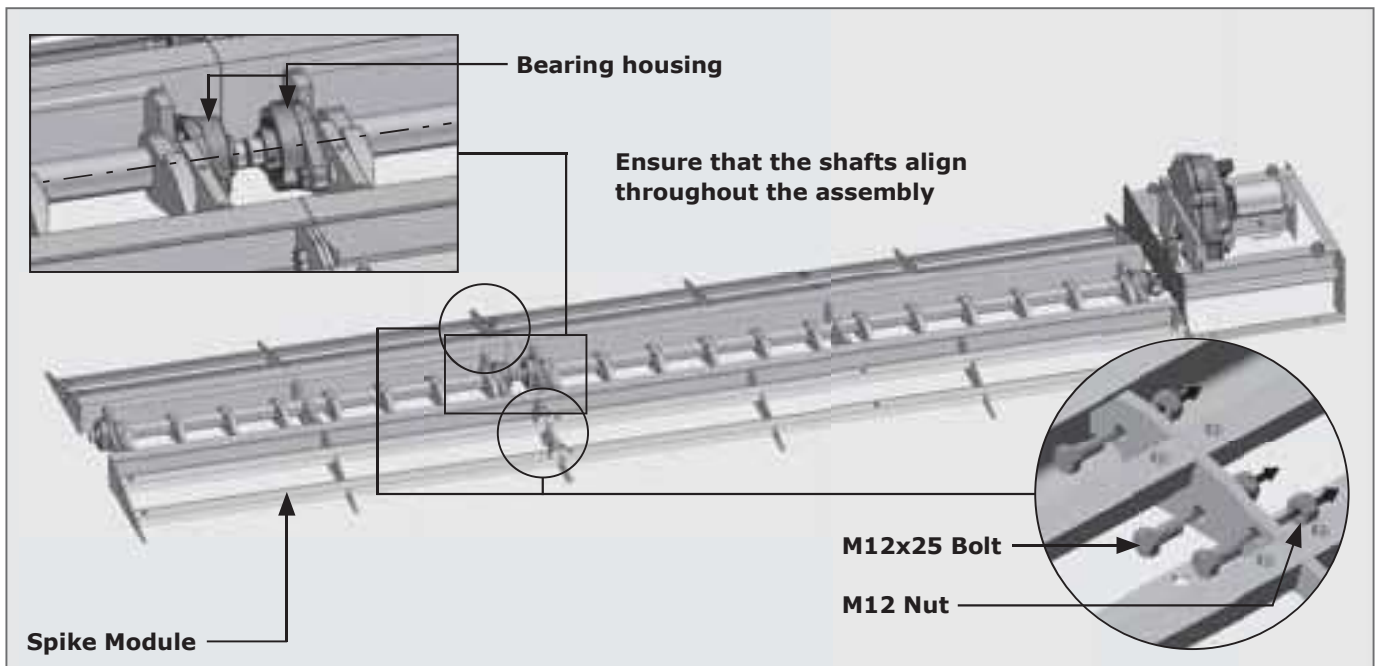
FIGURE 31



STEP 3

FIGURE 32

Using six M12x25 bolts, fix one spike module to another (Section 5, Figure 33).



STEP 4

FIGURE 33



To assist with the alignment and adjustment of the shafts, loosen (but do not remove) the bolts on all of the bearing.

5.2.5. Assembling the shaft couplings

The coupler is used to connect and align the shafts together.



It is essential that the coupler is assembled correctly; failing to do so will result in slipping of the spikes which is undesirable.

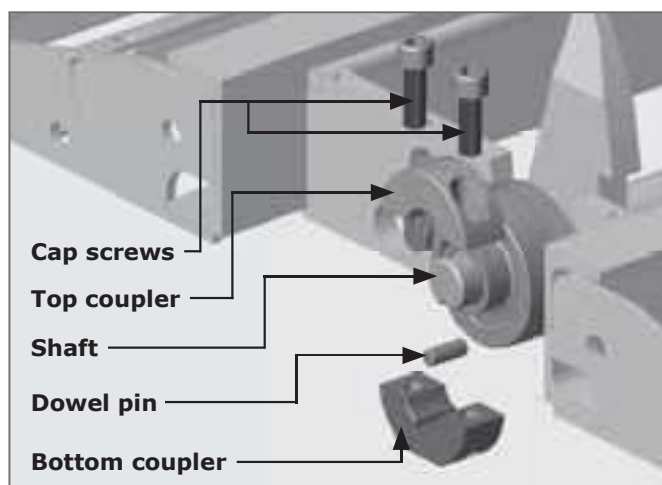


FIGURE 34. SHAFT COUPLER

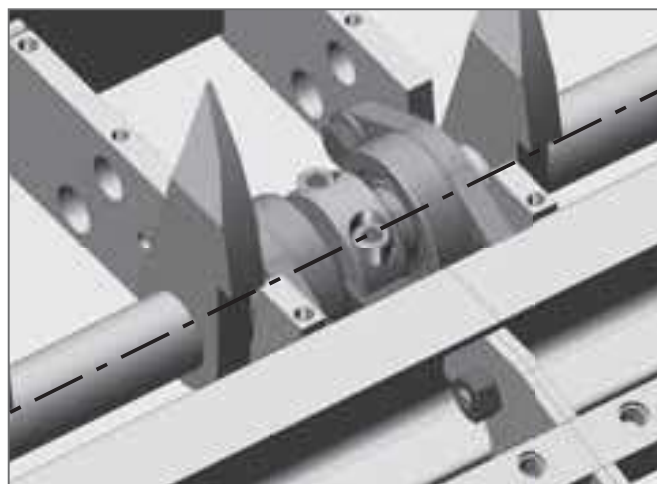
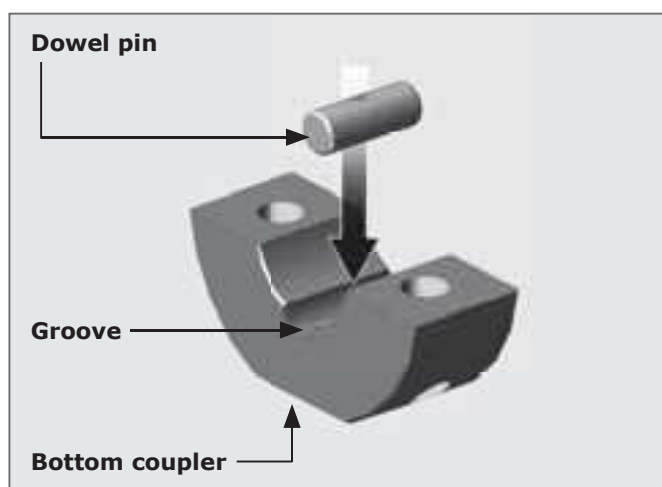


FIGURE 35

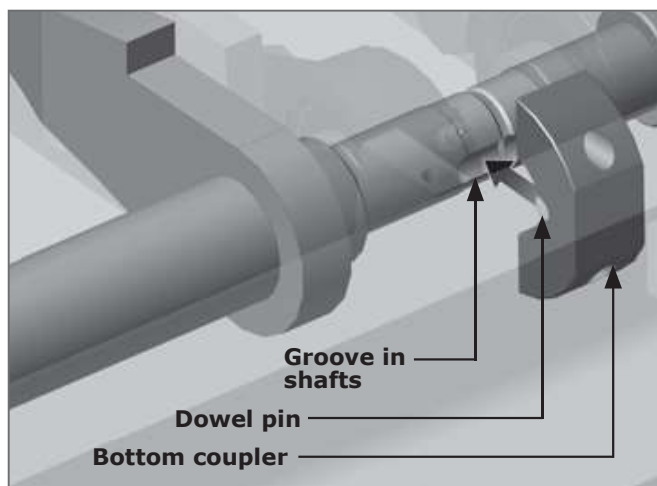


Place the spikes into the down position (and the drive arm pointing upwards) to aid in the fitment of all the shaft couplings.



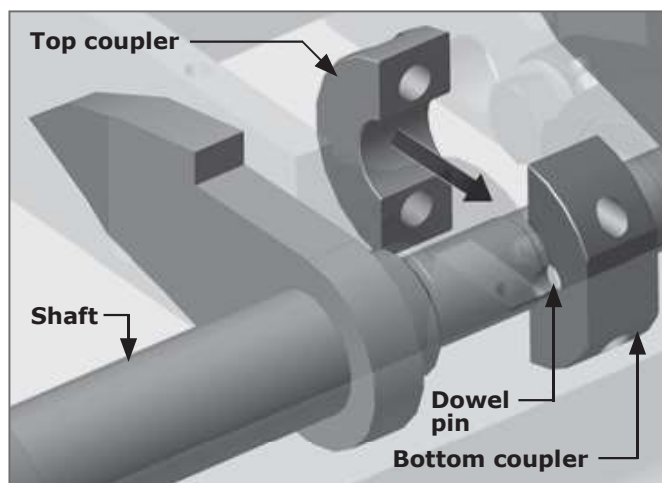
STEP 1

FIGURE 36



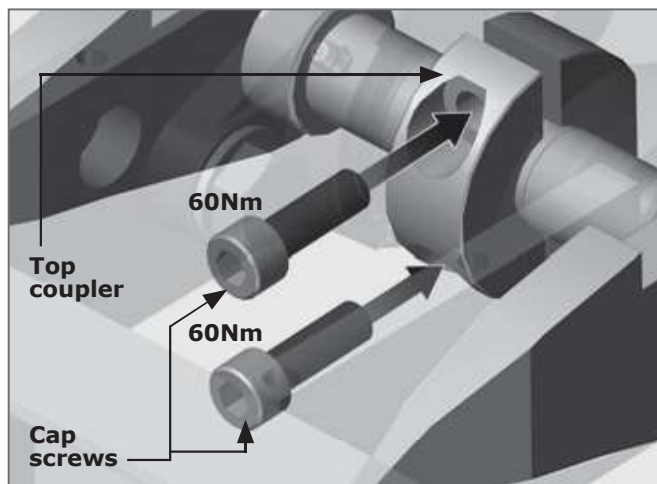
STEP 2

FIGURE 37



STEP 3

FIGURE 38

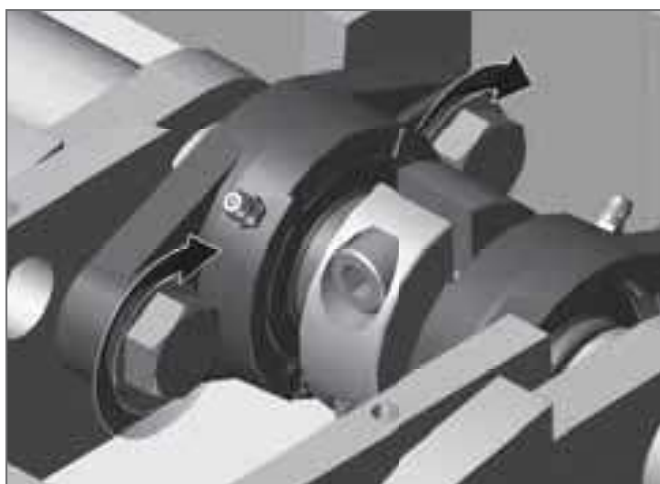
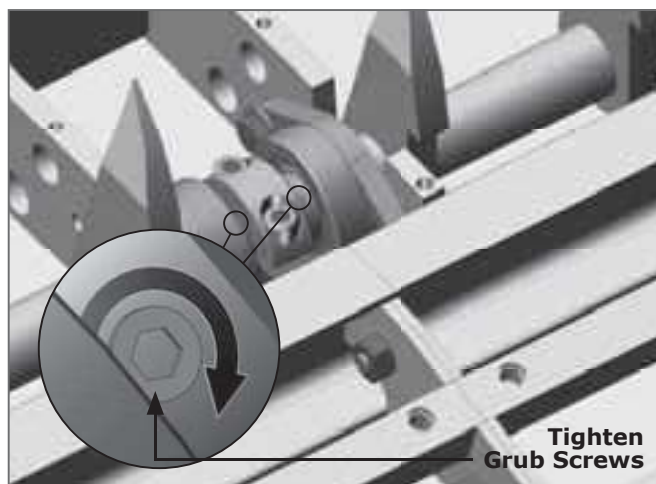


STEP 4

FIGURE 39

STEP 5

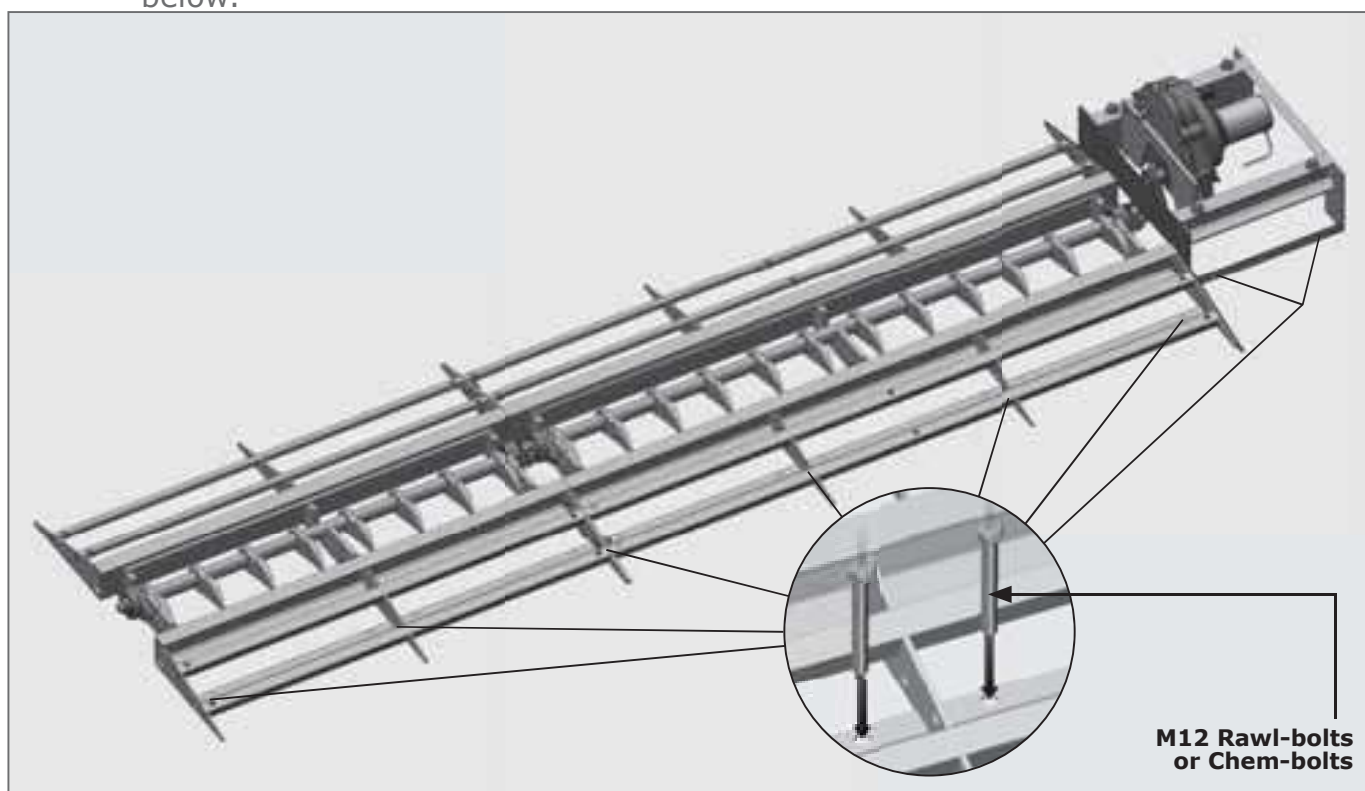
Repeat this coupling process for additional spike modules. Once all shafts have been coupled, check that they rotate freely.

**STEP 6****FIGURE 40****STEP 7****FIGURE 41**

5.2.6. Bolting down the assembly to the ground

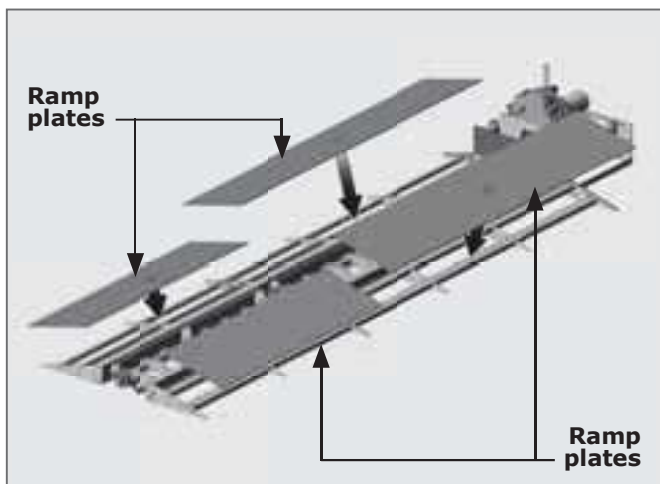


If the boom gates and tyre spikes are to be separated, a trench for the conduit and cables will need to be dug, and the wiring harnesses will need to be extended in relation to the distance between the gearbox and the boom gate. (Section 5.4.2.) These must be done before bolting the assembly to the ground. Once this preparation work has been completed, proceed with the installation below.

**FIGURE 42**

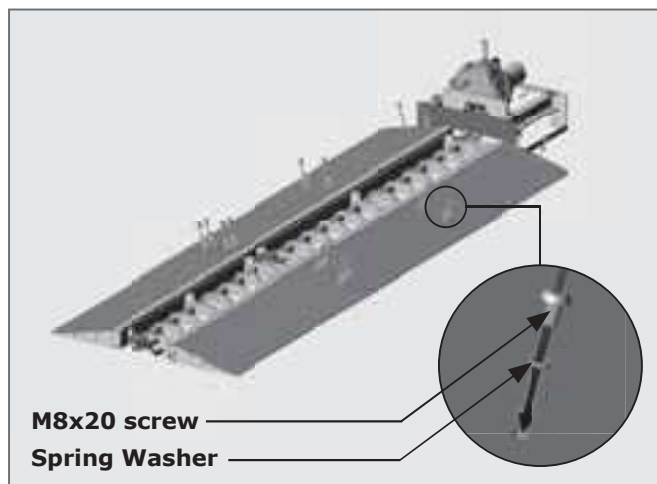
It is crucial that the surface it's mounted on is a reasonably even surface as an uneven surface could result in an uneven binding of the spike shafts. This will result in premature failure.

5.3. Re-assembling the ramp plates and linkage cover



STEP 1

FIGURE 58

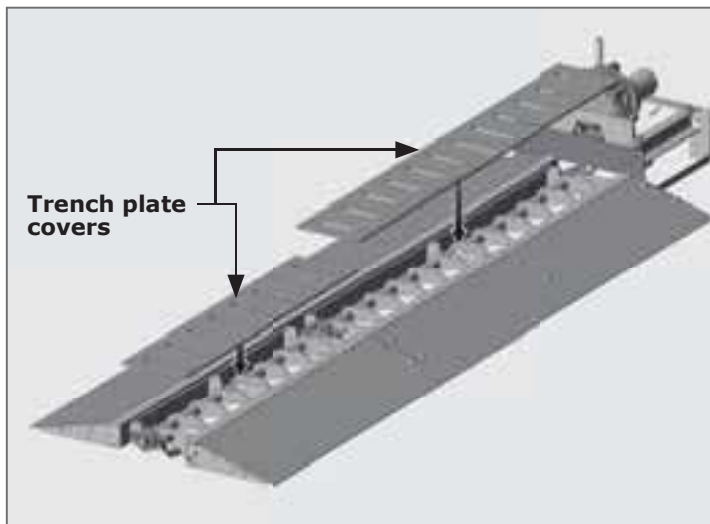


STEP 2

FIGURE 59



Leave out the four M8 screws and Spring Washers on the far end of the assembly as the module end cover will be assembled later.



STEP 3

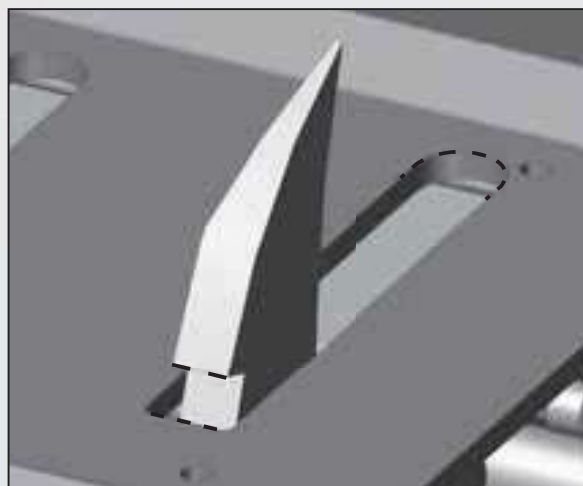
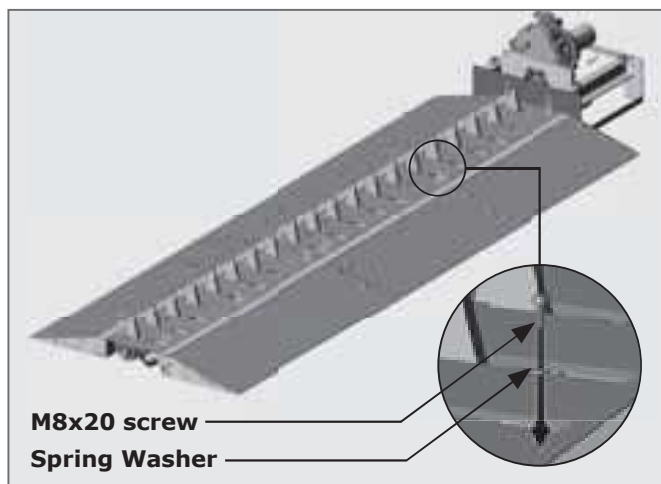


FIGURE 60

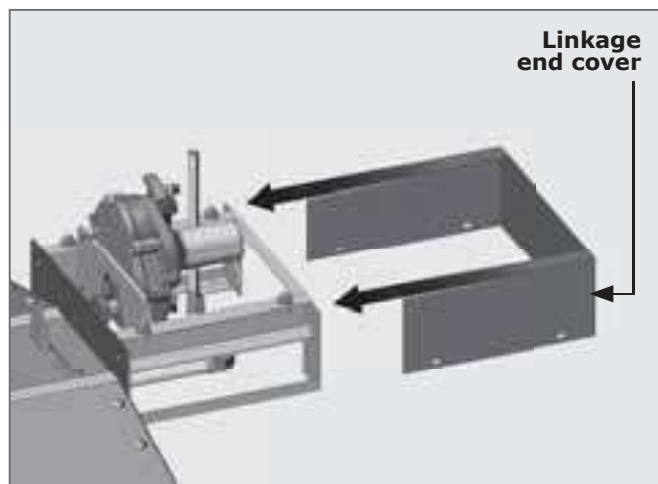


Take note of the slot orientation in the trench cover plates before it is placed back into position. The spike must rest on the straight edge of the slot when it is in its upright position.



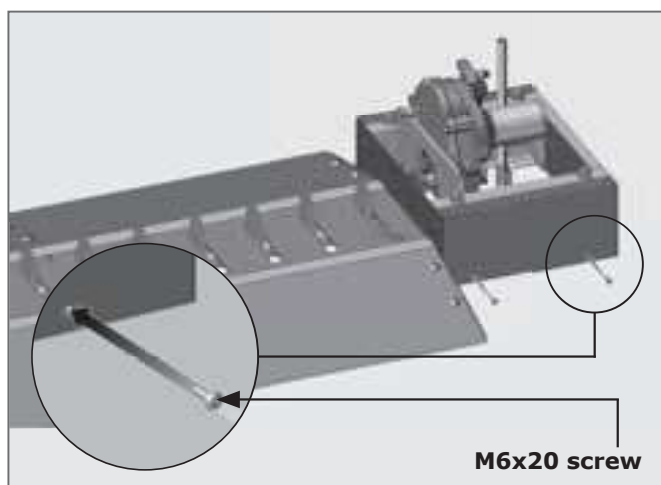
STEP 4

FIGURE 61



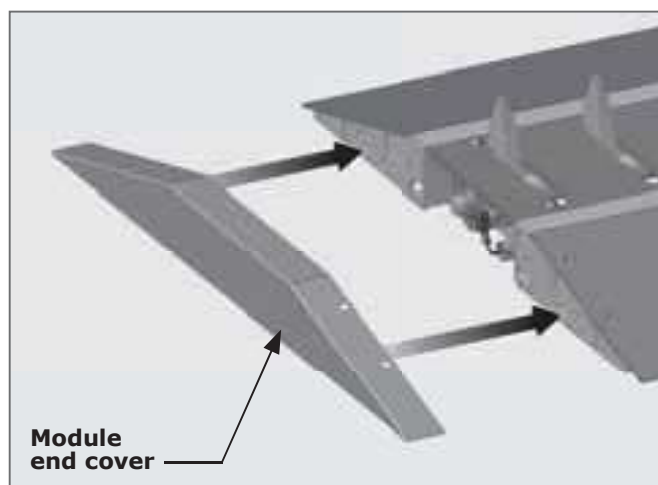
STEP 5

FIGURE 62



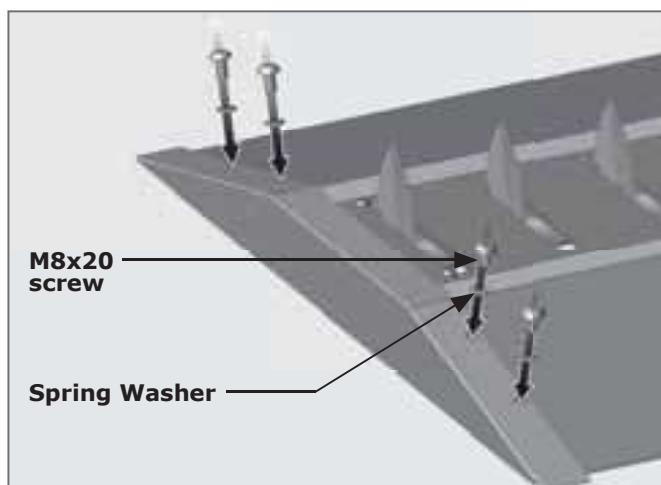
STEP 6

FIGURE 63



STEP 7

FIGURE 64



STEP 8

FIGURE 65