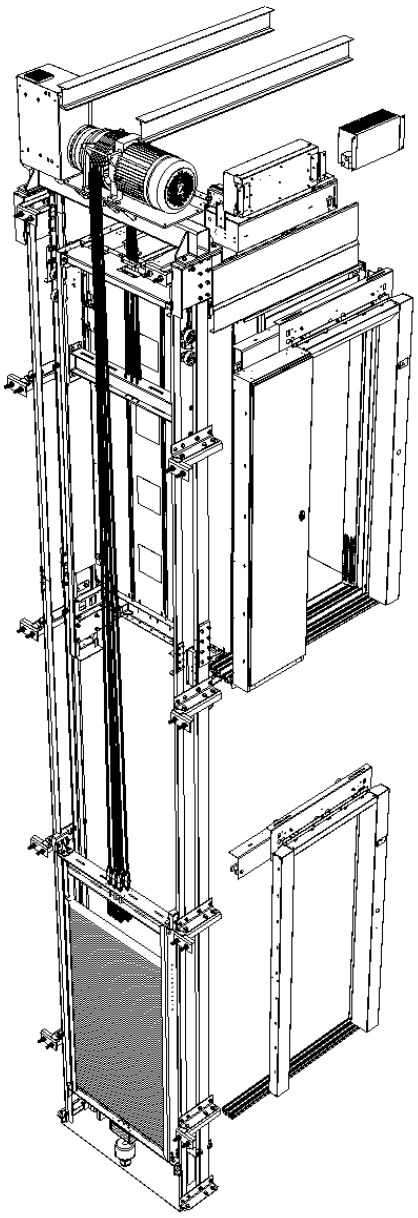
Stannah

Stannah Passenger Lift Mechanical Installation Guide

Traction



Issue 4

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Introduction

This guide has been prepared as a reference to assist Lift Engineers when installing a Stannah Traction Lift. It is assumed that the Lift Engineer has previously been trained and has developed a high level of skill and knowledge in lift engineering.

The intention has been to illustrate through diagrams, the various modules which comprise to form a Stannah Traction Lift. It is assumed that the Installer is already familiar with the installation practices and components associated with a Stannah Hydraulic Lift and therefore the manual focuses on those modules which differ.

Since there are often a number of ways of performing a particular operation satisfactorily and safely, instructions and procedures have been kept to a minimum, but attention has been given to emphasize key points and safety aspects.

This manual should be read in conjunction with the electrical wiring manual and the specific General Arrangement Drawing and Builders' Work Drawing for the installation.

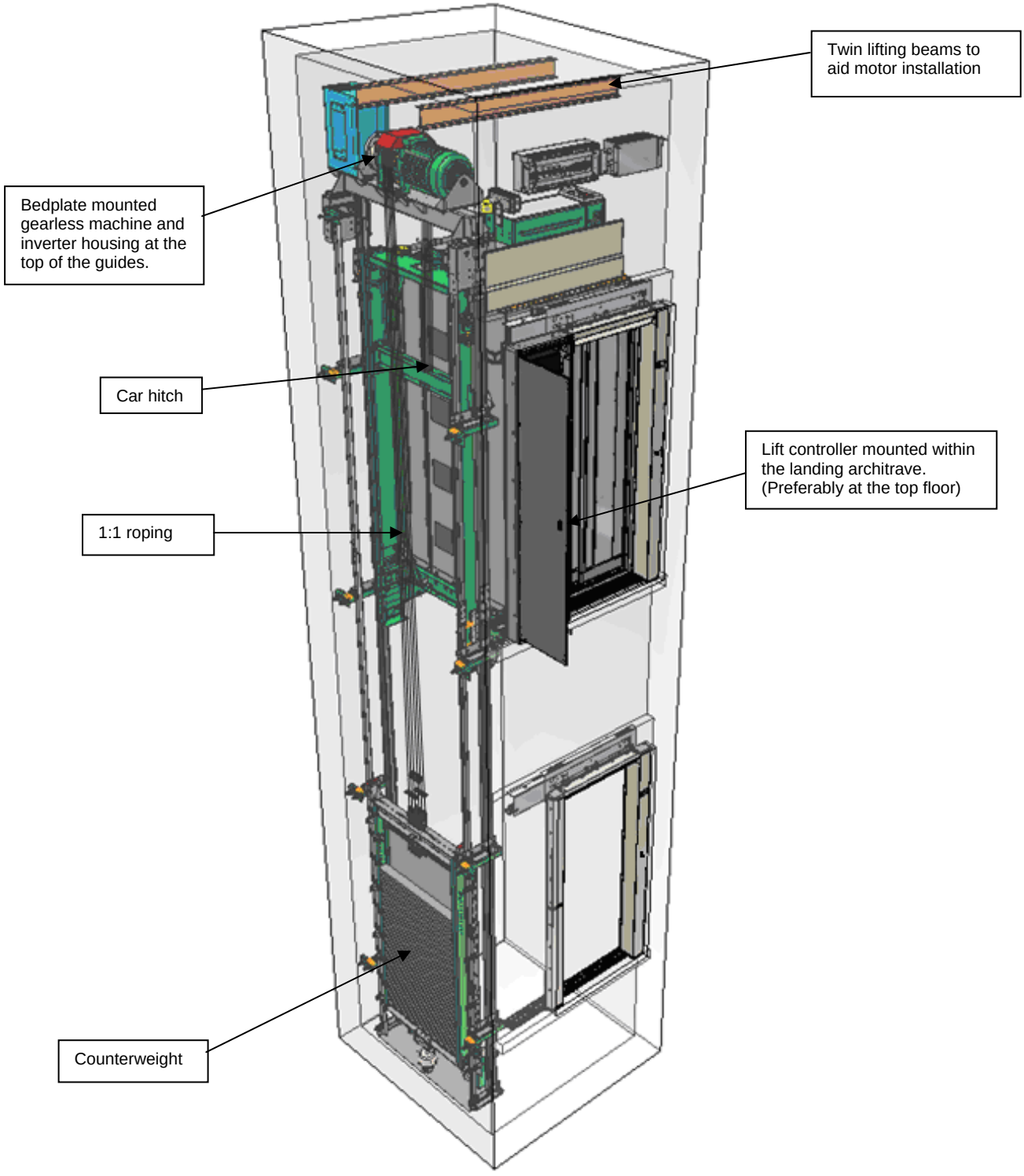
Safety

Working on lifts can be dangerous and therefore safe practices for all those working on lifts are essential. British Standard BS7255:2001 Code of Practice for Safe Working on Lifts; recommends safe practices for those working on all types of lifts and should be referenced for guidance.

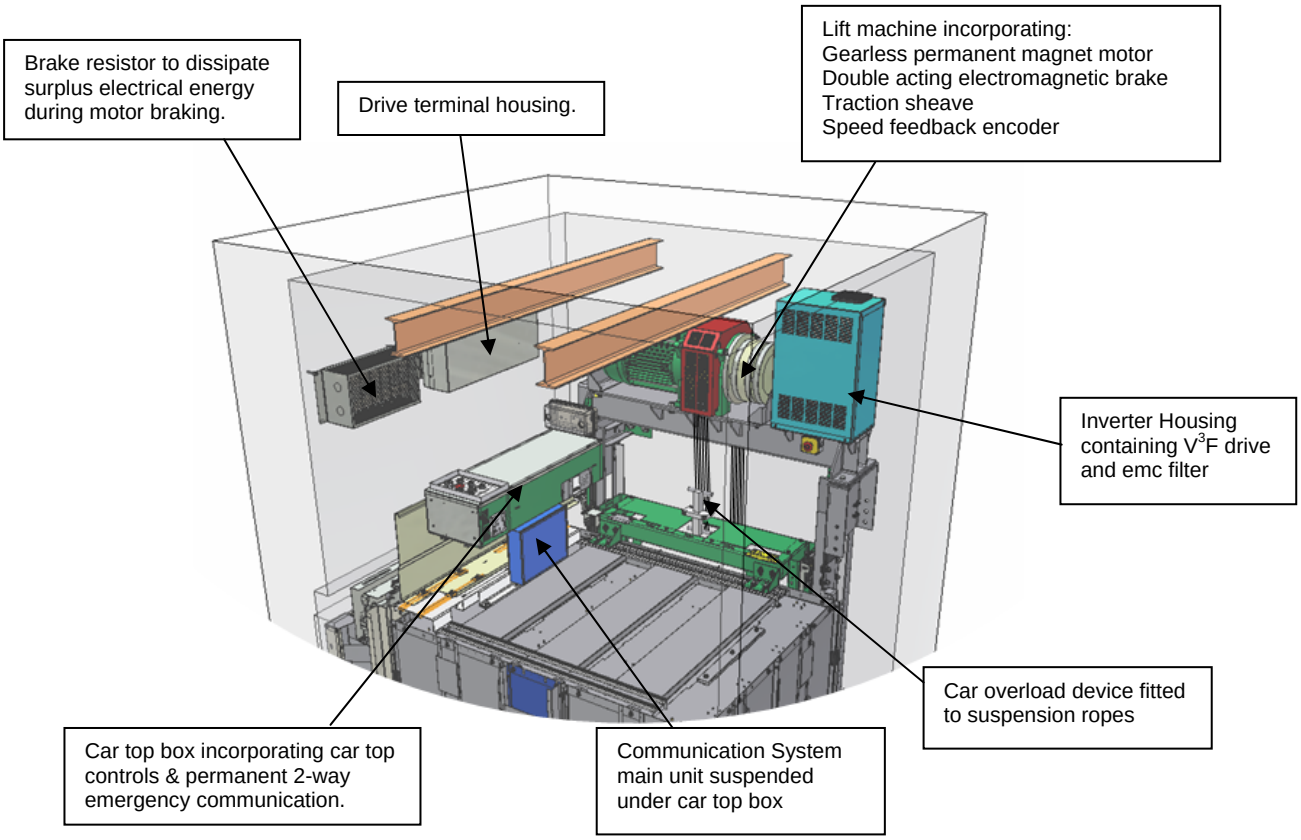
When arriving on site, the installer should make his presence known to the site manager. The installer must comply with any site safety procedures and regulations that are in force and wear appropriate personal protective equipment.

Traction Lift Overview

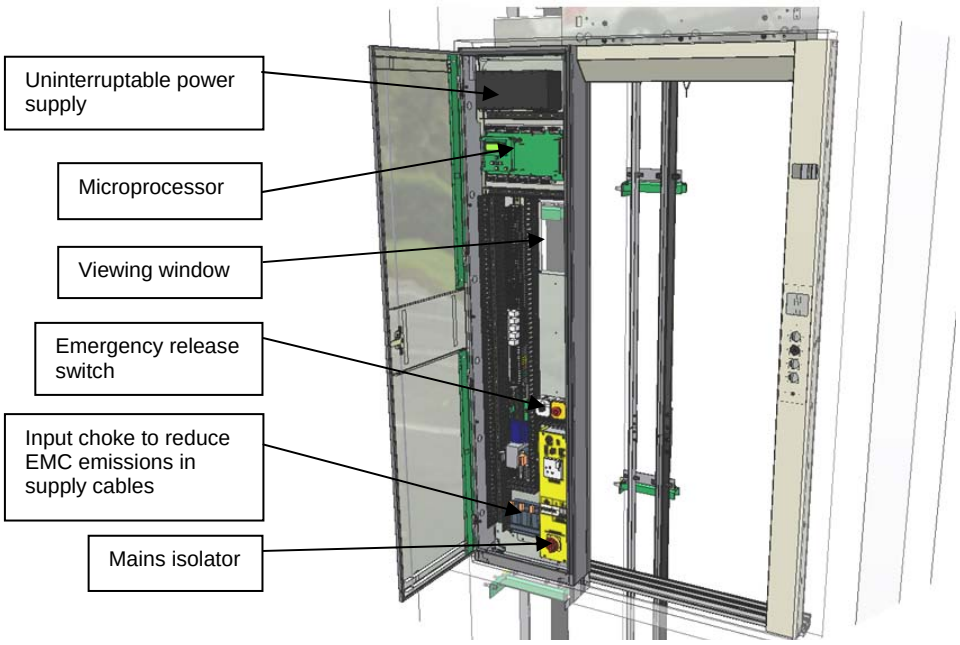
Typical Lift Installation



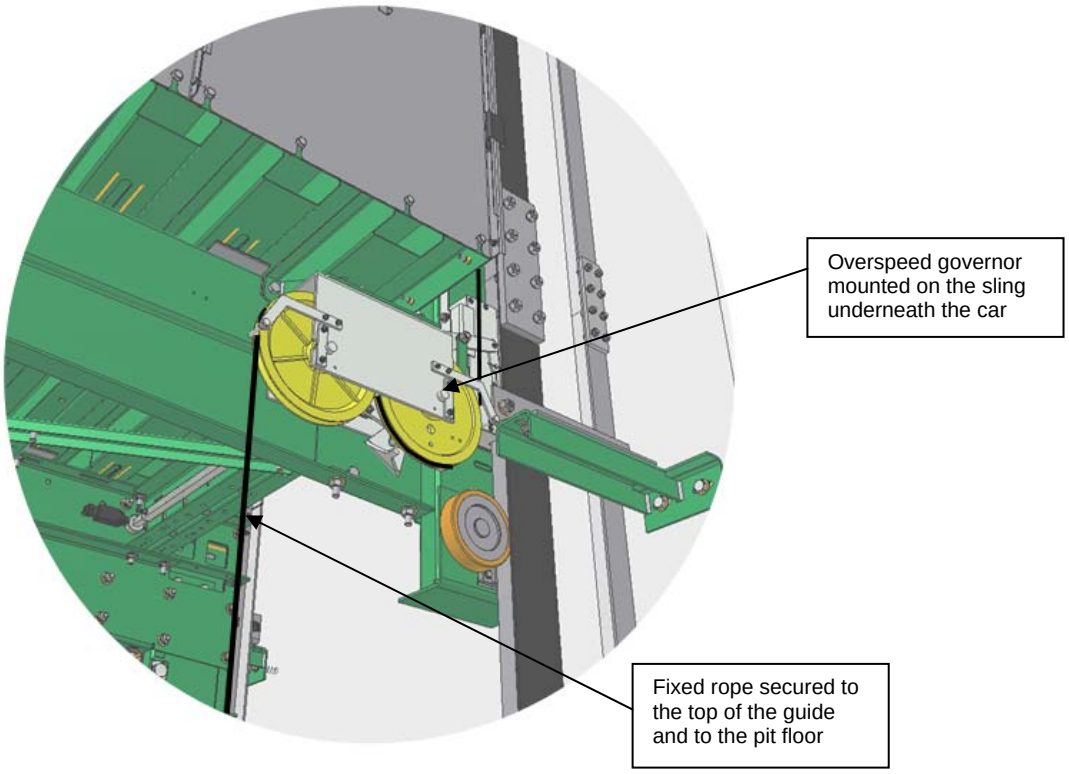
Headroom & Car Top Equipment



Landing Controller & Equipment



Overspeed Governor



Key Points!!!

In order to minimise the work required to address potential problems later on in the installation, it is advisable that the installer/s note the following points and bare them in mind throughout the installation and refer to the relevant section at the appropriate time.

1) Installing the guides.

In order to achieve a bedplate that is level and at the correct height above floor level, it is important to accurately cut the guides, taking into account the note relating to keying of the guides, and to ensure that the tops of the guides are level at the point of installing the first section.

2) Isolation Pads.

In order to reduce vibrations from the motor being transmitted to the building, isolation pads should be fitted between the bedplate and its supports.

3) Governor rope tension device.

In order to avoid access problems when preparing the working platform, it is important that the upper governor rope tension device is mounted on the guide and the rope secured, prior to the removal of scaffold boards/scaffolding.

4) Orientation of Safety Gear Blocks.

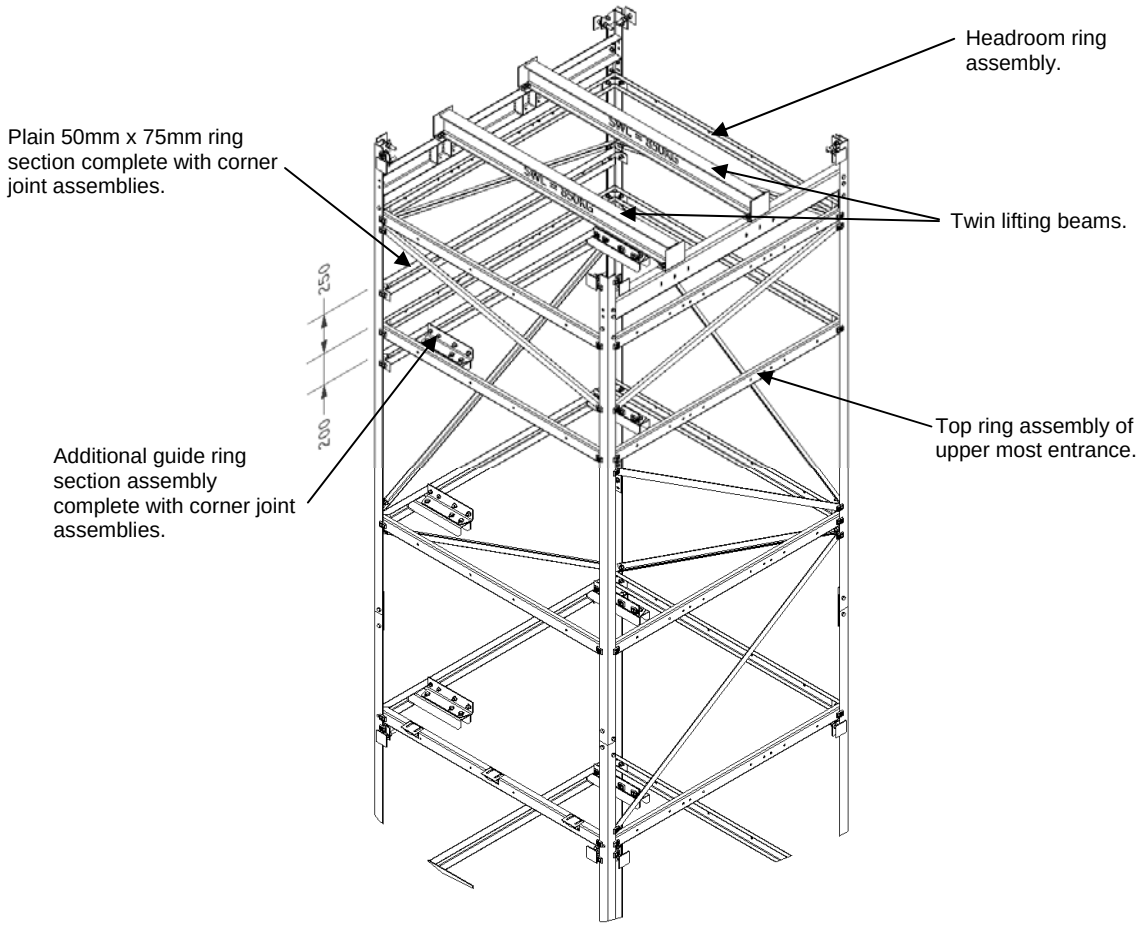
For correct operation of bi-directional safety gear, it is important that the blocks are fitted the right way up prior to fitting the sling uprights to the guides.

Section 1 - Supporting Structure (structure mounted lifts).

Install the supporting structure as per hydraulic lifts, noting the positions of guide and upright joints shown on the accompanying builder's work drawing. It is important to pay particular attention to the accompanying Structure General Assembly Drawing noting the correct positions of ring assemblies and cross braces.

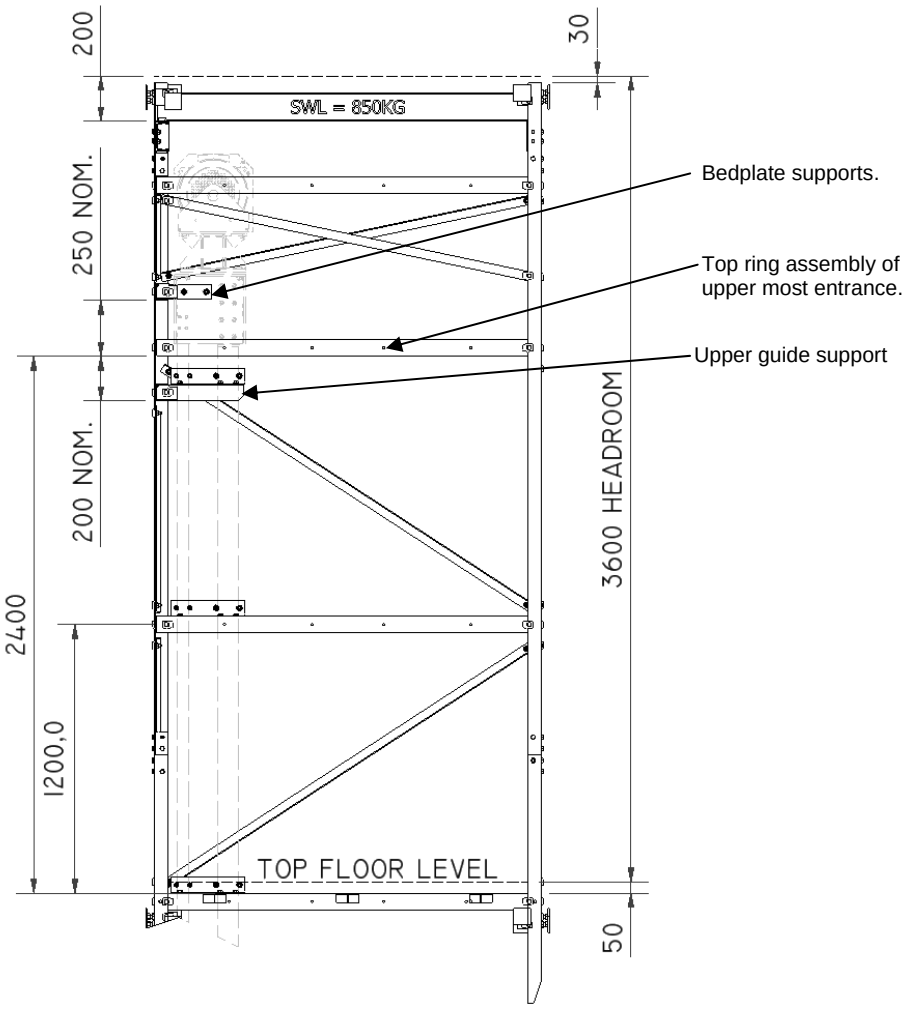
Fit a plain 50mm x 75mm ring section, complete with corner joints assemblies, on the guide side, above the top entrance ring assembly at a nominal pitch of 250mm.

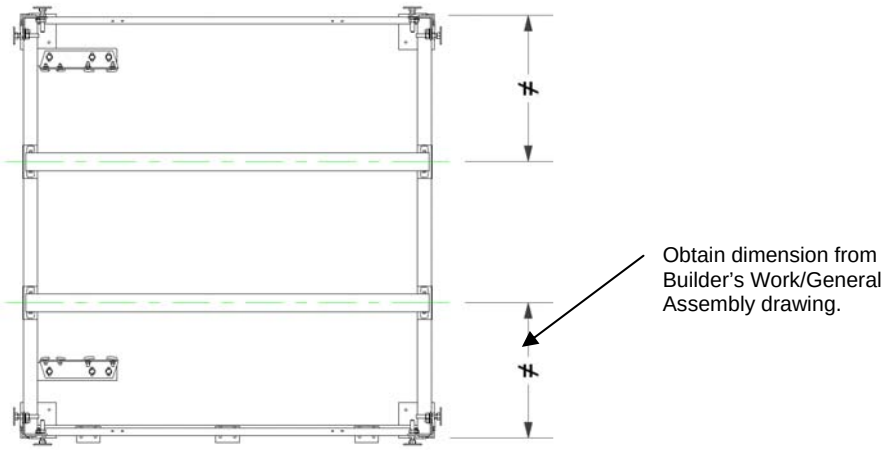
Fit a guide ring section assembly, complete with corner joints below the top entrance ring assembly at a nominal pitch of 200mm.



Notes:

1) **The guide side ring section on both the headroom ring assembly and the top entrance ring is a plain 30mm x 75mm channel and the guide bracket channels have been omitted. This is to clear the bedplate and motor assembly.**
2) **When fitting the lifting beam support channels, ensure the orientation of the channels positions the twin lifting beam centres as shown on the general arrangement drawing.**
3) **Cross braces are to be fitted to all 4 sides of the structure except where there is an entrance.**
4) **The twin lifting beams should be biased towards the top entrance to aid lifting the motor into the well at a later stage.**


200
30
SWL = 850KG
250 NOM.
Bedplate supports.
Top ring assembly of upper most entrance.
Upper guide support
200 NOM.
3600 HEADROOM
2400
1200,0
TOP FLOOR LEVEL
50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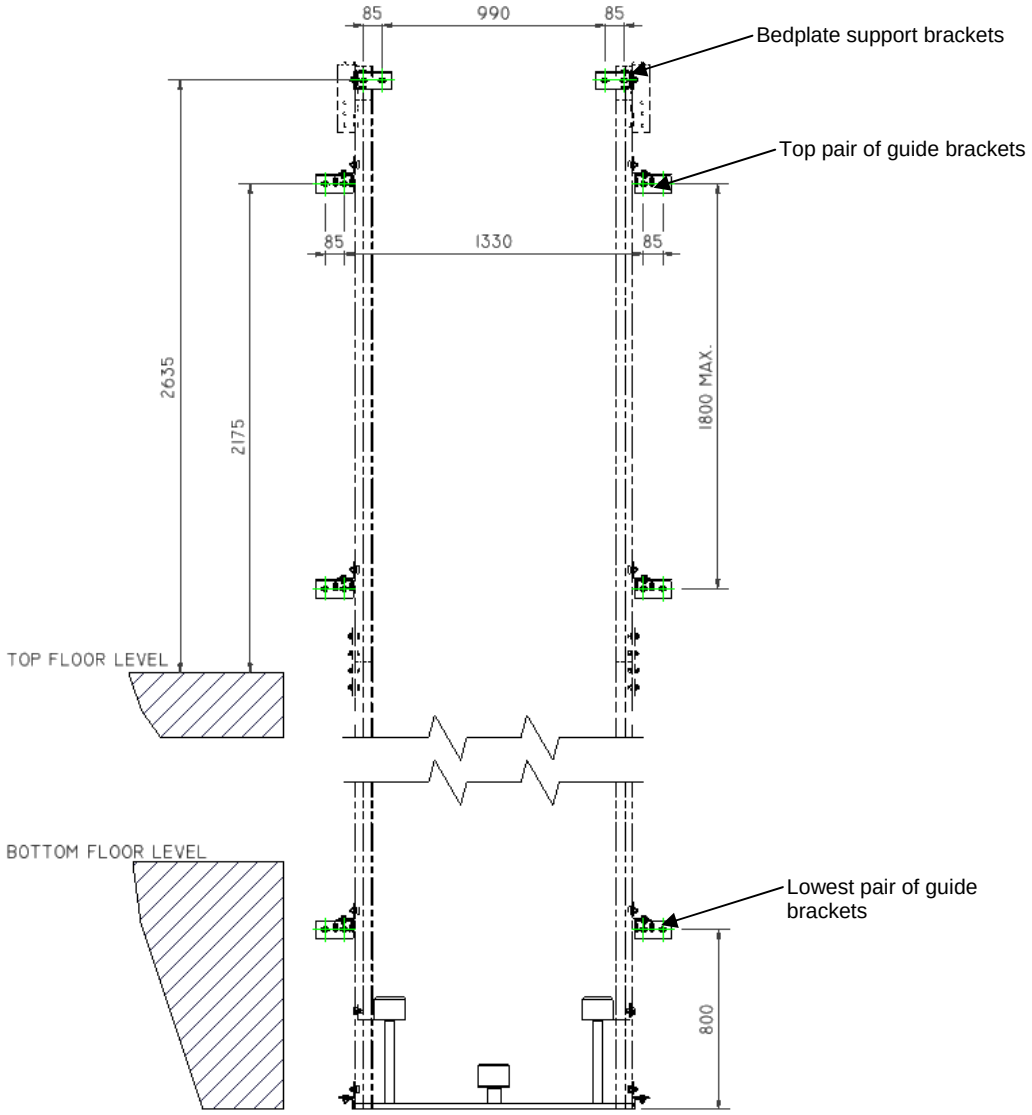
#
Obtain dimension from Builder's Work/General Assembly drawing.

Section 2 – Guide Brackets (wall mounted lifts).

As per hydraulic lifts, mark out and fit guide brackets according to the builders work drawing.



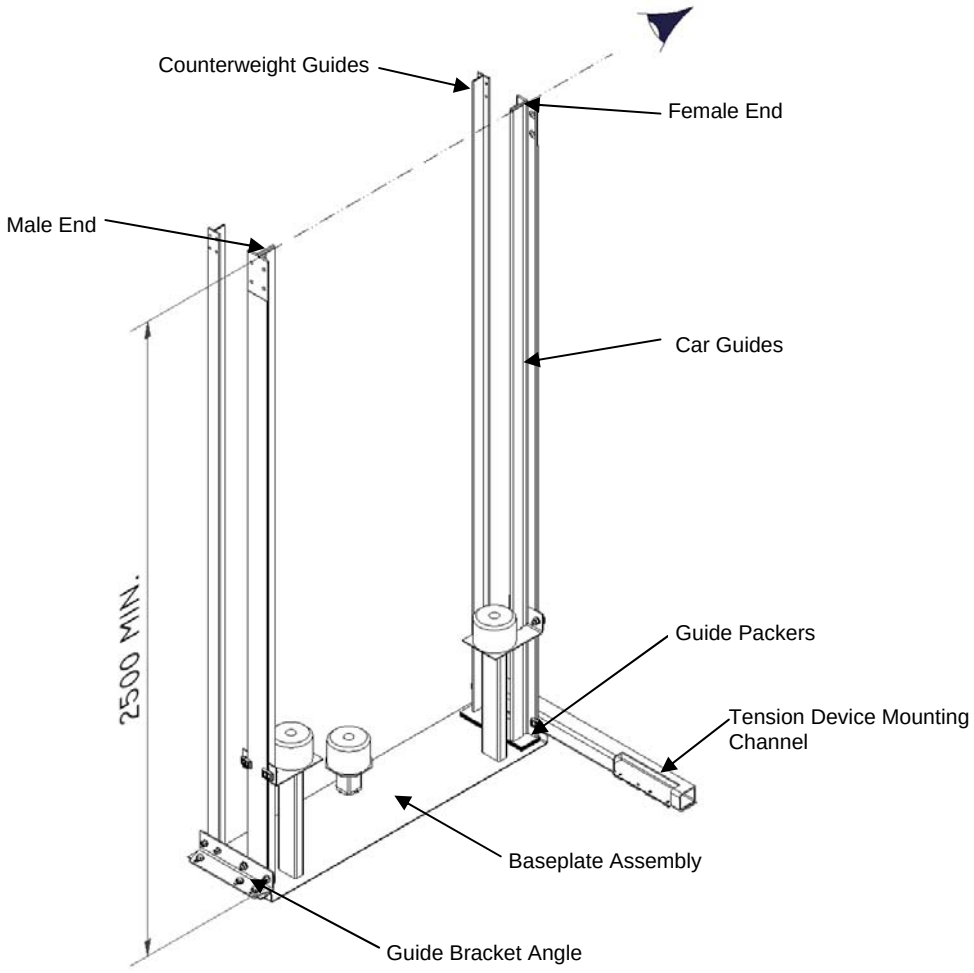
Notes:

1) **An additional set of guide brackets is positioned just below the bedplate to allow final adjustment of the guides and to offer additional support to the bedplate brackets.**
2) **The bedplate support fixing centres differ from those of the guide bracket assemblies.**
3) **The maximum pitch of subsequent guide bracket assemblies should not exceed 1800mm.**

Section 3 – Lift and Counterweight Guides

Position the baseplate in the pit complete with guide bracket angle and tension device mounting channel. The tension device mounting channel should be positioned on the guide corresponding with the position of the overspeed governor (see Section 7).

Cut and install the first section of the car guides, referring to the builder's work drawing for the correct length.



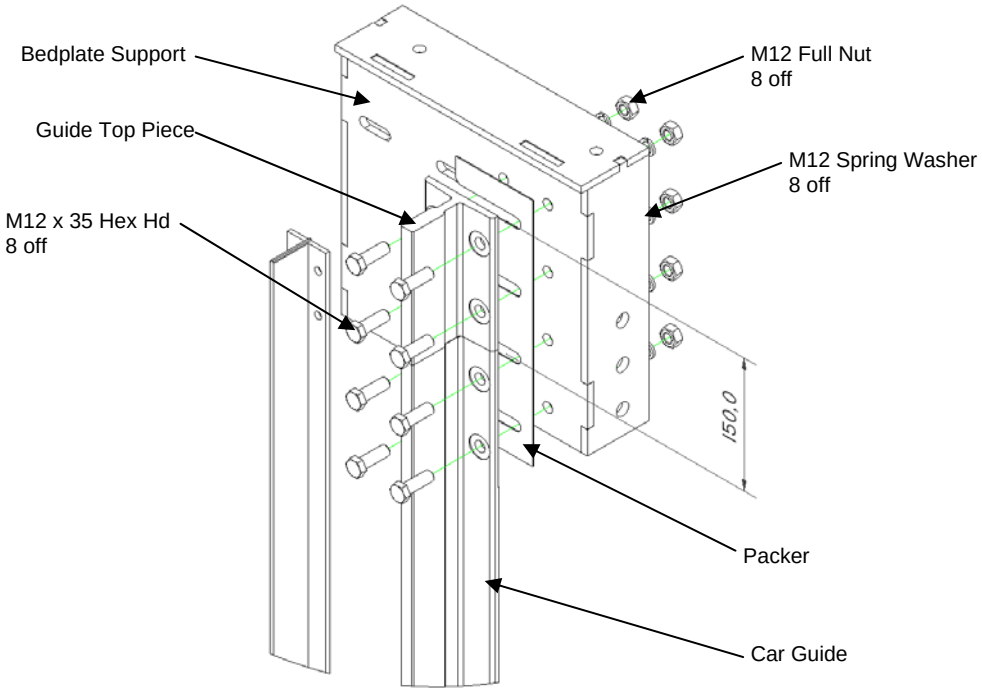
Notes:

1) **In order for the lift machine to be correctly positioned in the headroom, it is important to cut the guides accurately. The lift travel and pit depth should be checked against the drawings and any variation taken into account when cutting the first section of the guides.**
2) **The off cuts should be kept to provide the 150mm section at the top of the car guides.**
3) **For ease of plumbing and alignment, the minimum length of the first section of guide is 2500mm.**
4) **The tops of the first section of guide should be level (within 2mm of each other). If the pit floor is not level, this should be taken into account when cutting the guides. Up to 15mm of packers are included for fine adjustment of the first length of guides.**
5) **There should be one male and one female end uppermost.**

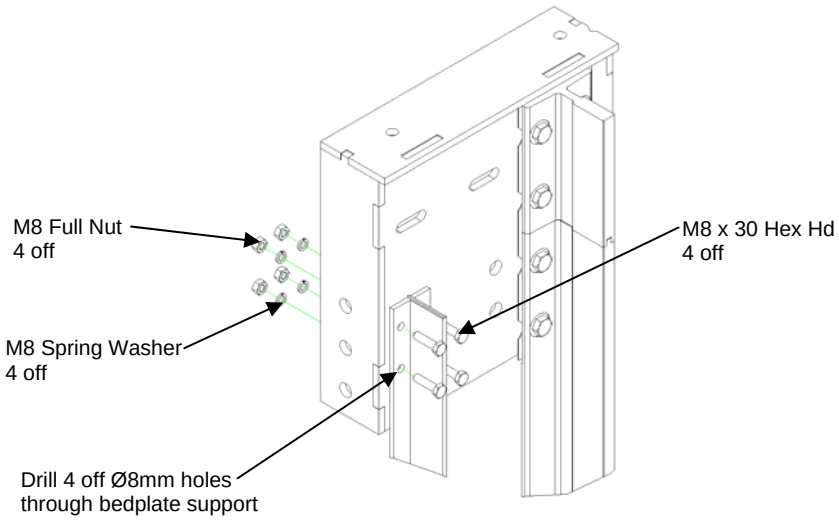
Continue installing the car guides in accordance with the builder's work drawing, noting the positions of fishplates and any ½ length (nominally 2.5m) guides.

Install the counterweight guides, cutting the first section to length, and ensuring all joints coincide with those of the car guides.

Assemble the bedplate supports to the tops of the car guides. A 150mm guide top piece should be cut from the length of guide removed when the first section was cut to length. The top piece should key with male/female end on the top of each guide.

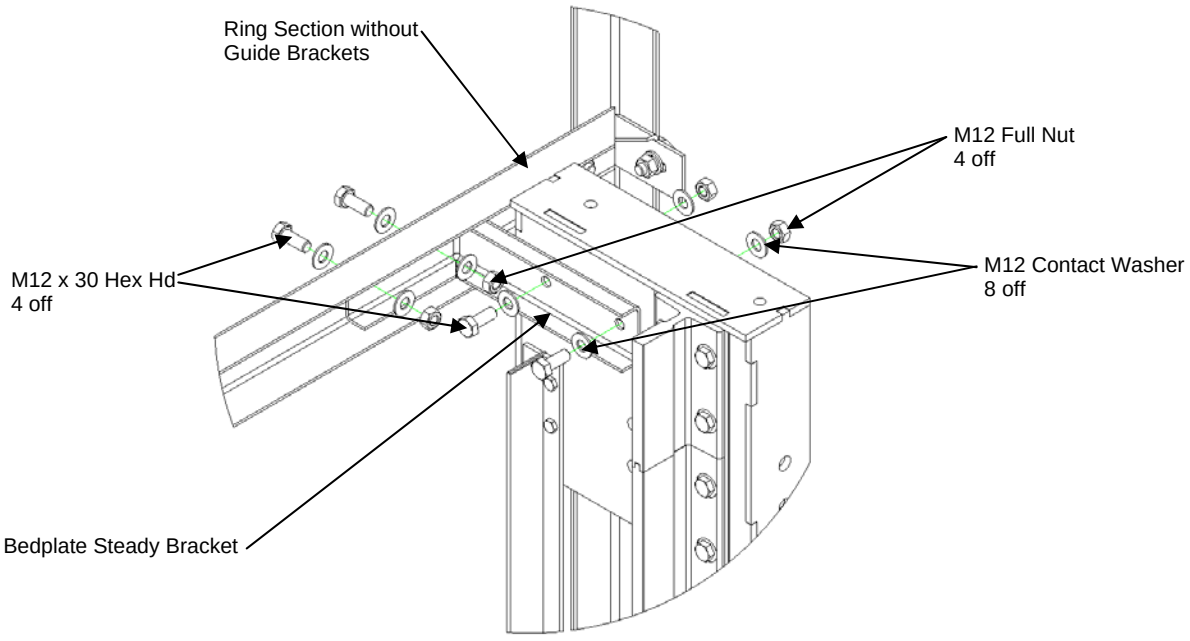


Drill through 4 off Ø8mm holes and secure the top of each counterweight guide to the bedplate support.

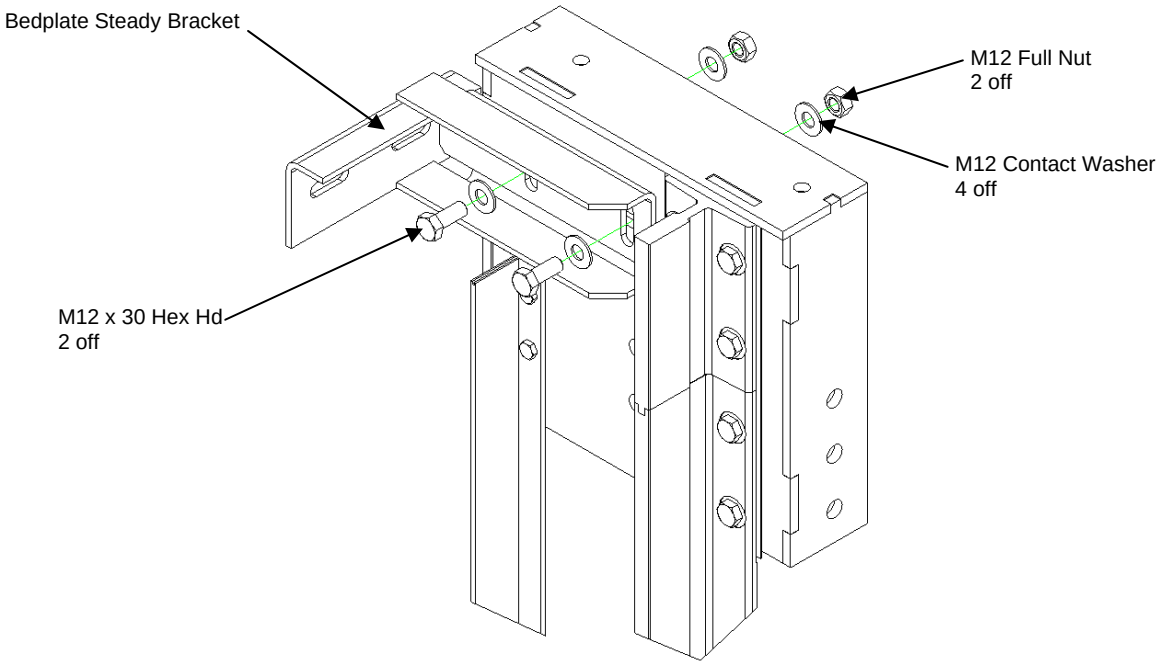


Install the bedplate steady brackets as shown below.

Structure Supported Arrangement



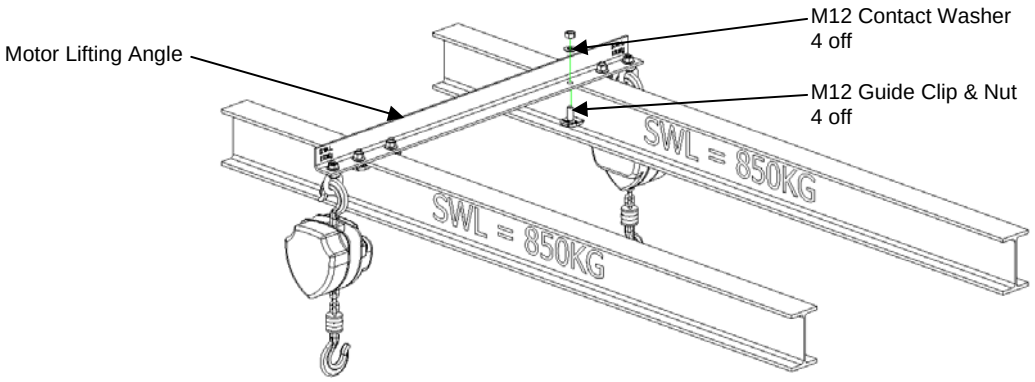
Wall Mounted Arrangement



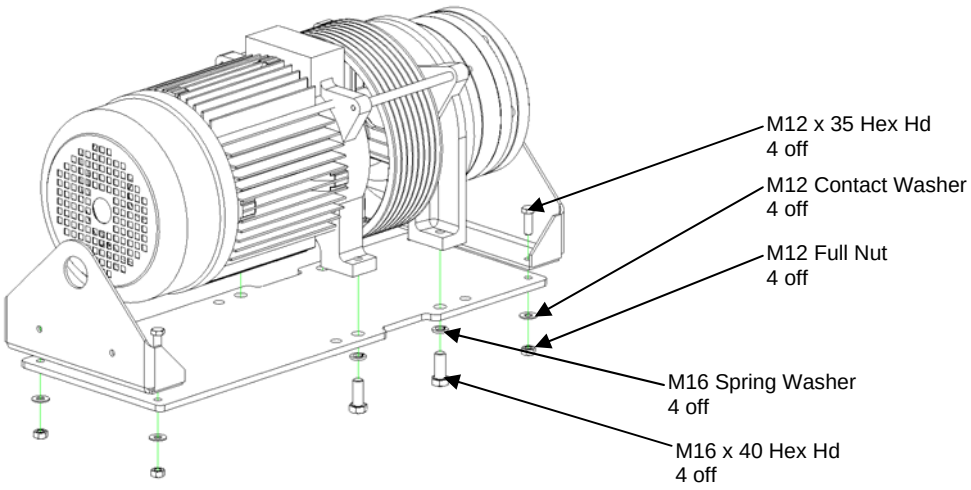
Section 4 – Bedplate and Motor

Position the motor lifting angle assembly across the twin lifting beams and inline the final position of the bedplate.

Suspend two ½ tonne chain hoists from the lifting eyes.



Working at the top entrance, assemble the motor lifting plate and brackets to the lift machine as shown.



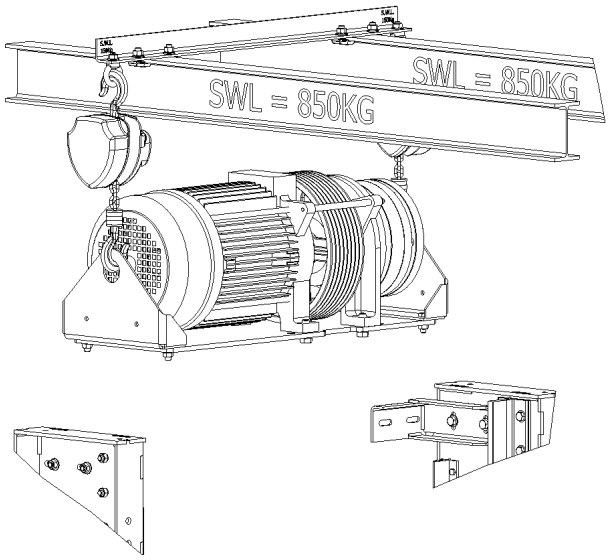
Using a chain hoist attached to the lifting beam nearest the entrance, lift the motor into the well and raise the assembly as far as possible.

Transfer the machine to the two chain hoists attached to the motor lifting angle.

Notes:

1) **The maximum permissible load on each lifting eye is 150kg**
2) **It is also advisable to pre-wire the motor at this stage due restricted access to the motor terminals once the motor has been installed.**
3) **With the motor and lifting beam positions biased towards the front of the lift well in relation to the top entrance, the motor should be orientated such that the brake end of the motor points towards the rear of the lift well.**

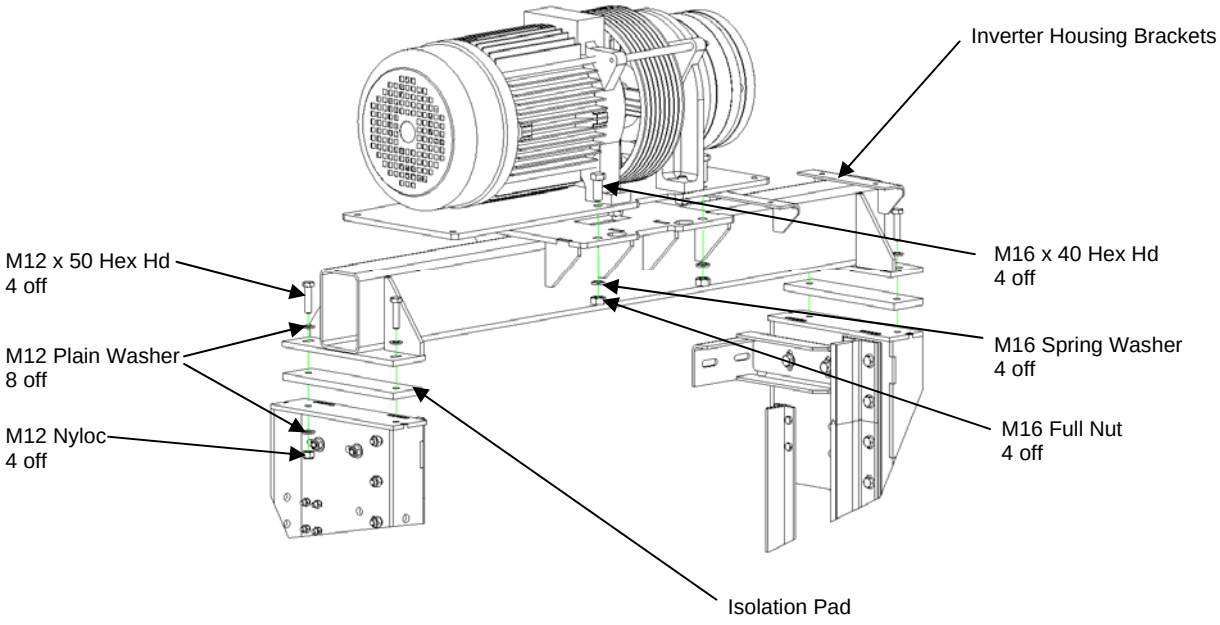
Raise the machine until there is sufficient space between it and the bedplate supports to position the bedplate.



Position and secure the bedplate (approx 45kg) and the isolation pads on top of the bedplate supports.

Lower the machine onto the bedplate and secure.

Remove the brackets from the motor lifting plate and the angle assembly from the I-Beams to avoid them interfering with other equipment yet to be installed, and store them in the pit for use throughout the life of the lift.



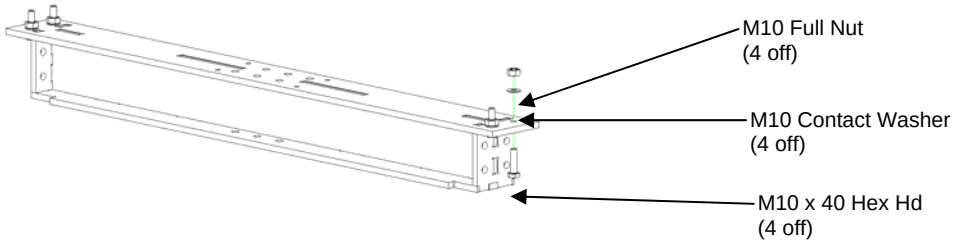
Notes:

1) **The brackets for the inverter housing should be positioned at the same end as the brake.**

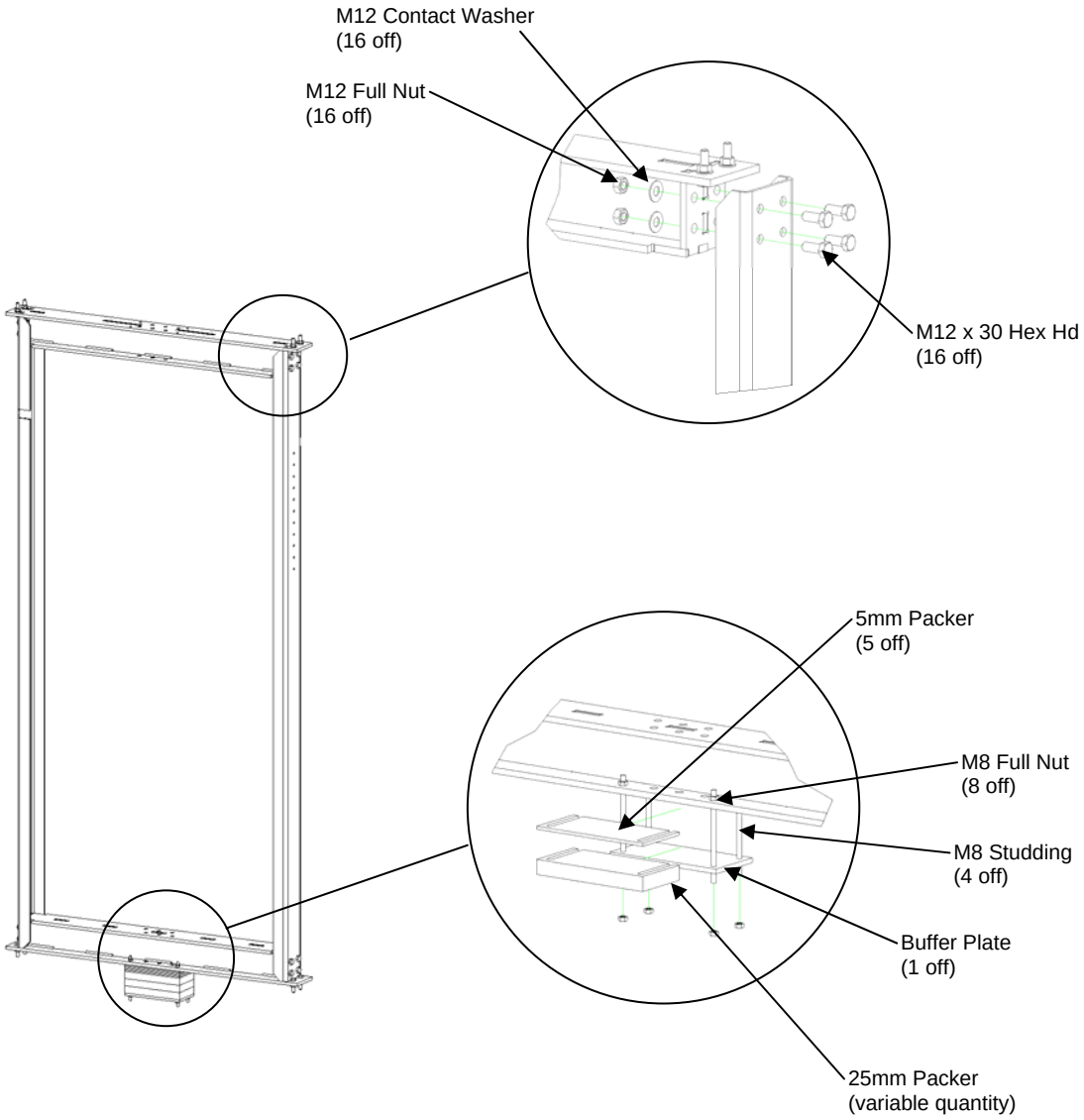
Section 5 – Counterweight

Loosely assemble the guide shoe fixings into the cross members (2 off).

Note: The head of the upright fixings prevent the guide shoe fixings from being fitted.

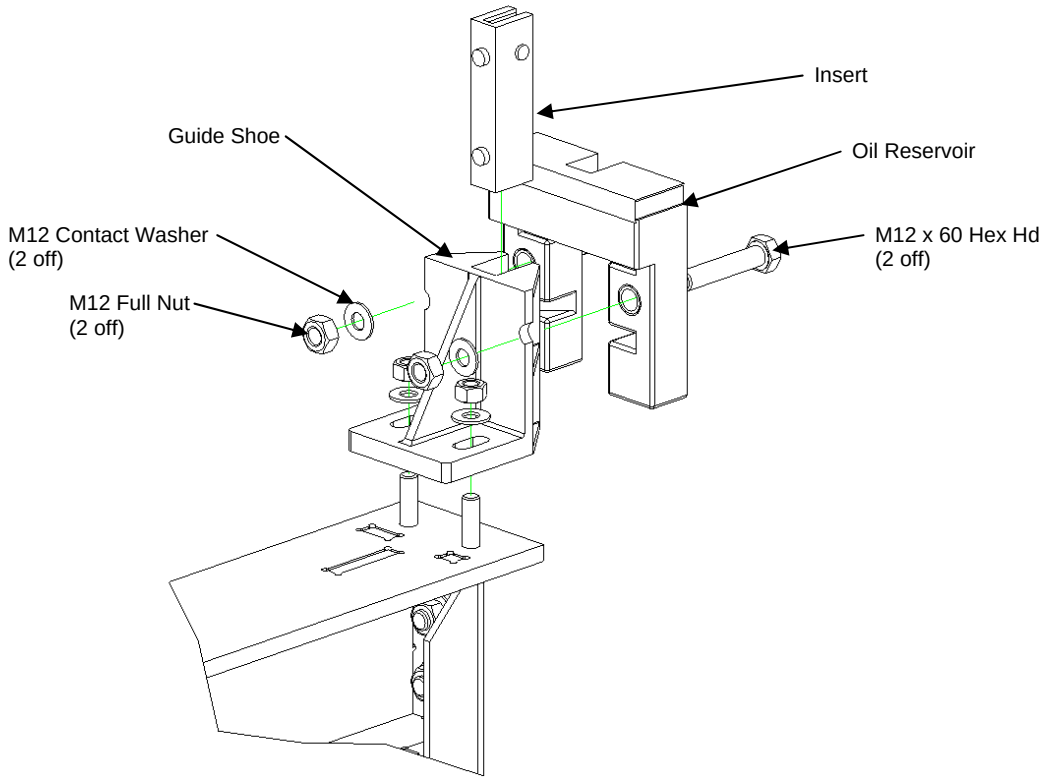


Assemble the counterweight frame as shown



Assemble all available packers to the bottom of the frame and cut off excess studding from below the buffer plate.

Rest the frame assembly on the buffer between the counterweight guides and fit the guide shoes as shown.

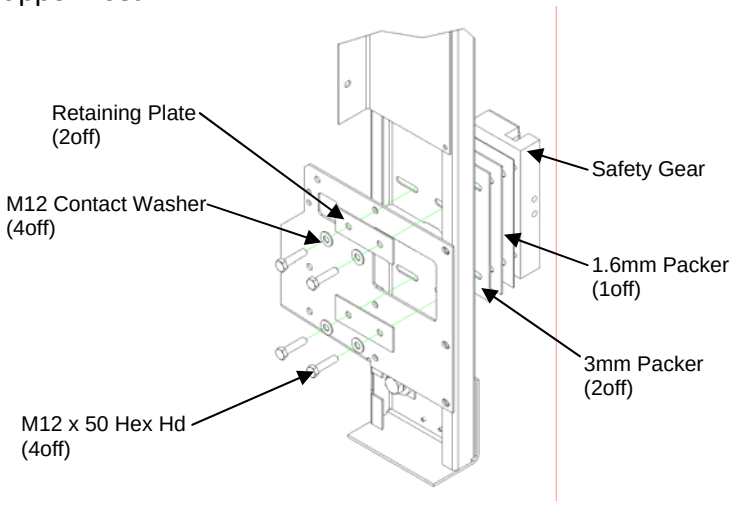


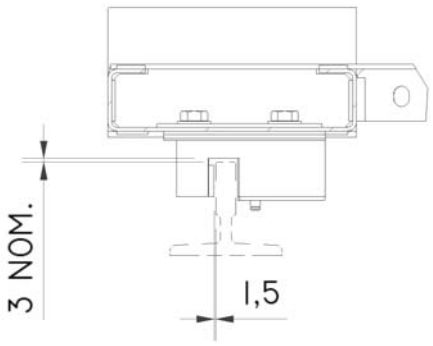
Notes:

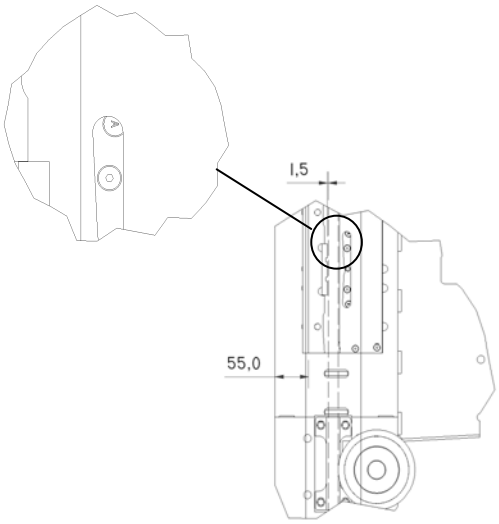
1) **In the case of the top guide shoes, the oil reservoir should be fitted to the shoe prior to fitting them to the counterweight. They cannot be fitted with the shoe in place.**

Section 6 – Car Sling & Safety Gear

Assemble the safety gear blocks to the sling uprights ensuring that the roller with the ‘A’ is uppermost.



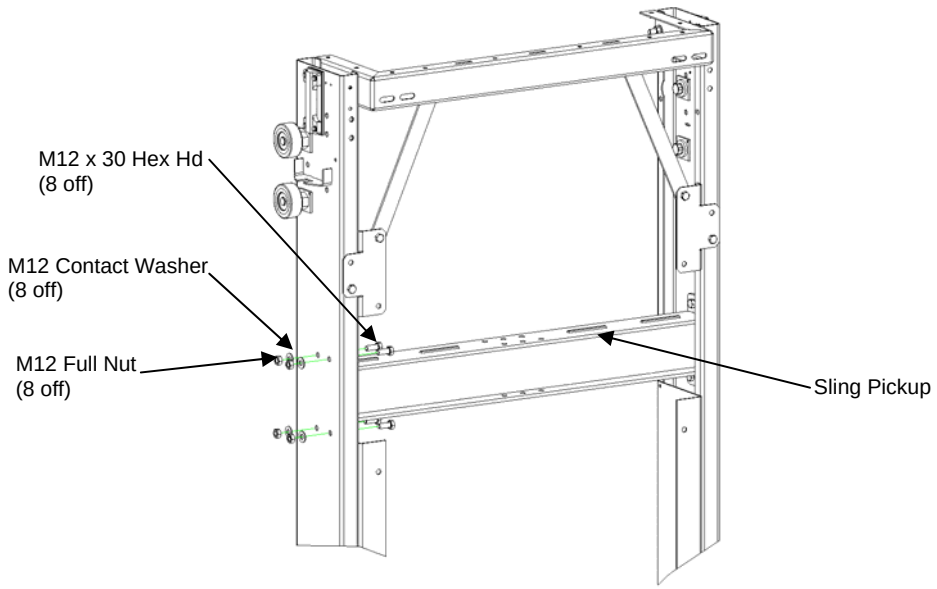




Notes:

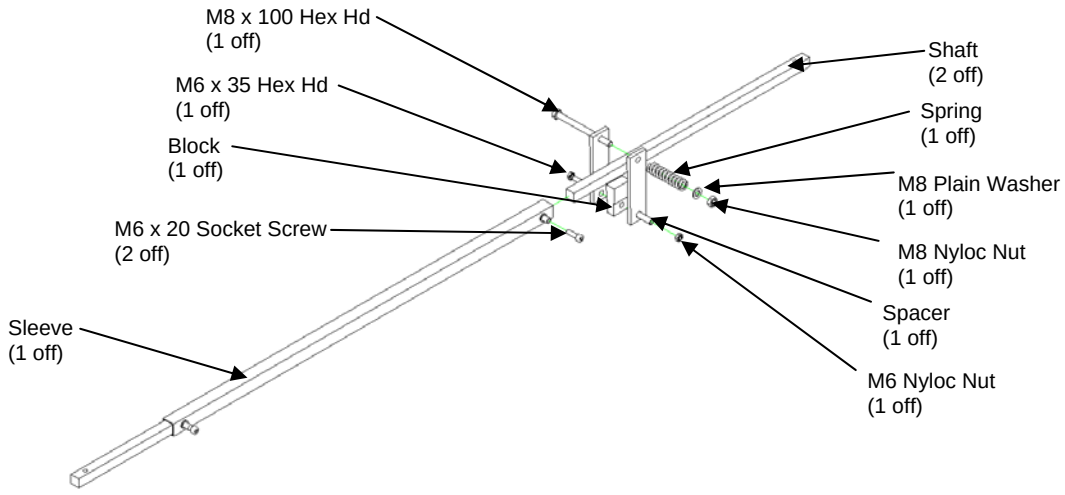
1) **To prevent the safety gear activating, it is necessary to complete installing the crossbar and safety gear arms prior to attempting to move the lift.**

Position the uprights on the buffers and fit the sling pickup by lowering it between the tops of the uprights prior to fitting the sling crosshead.

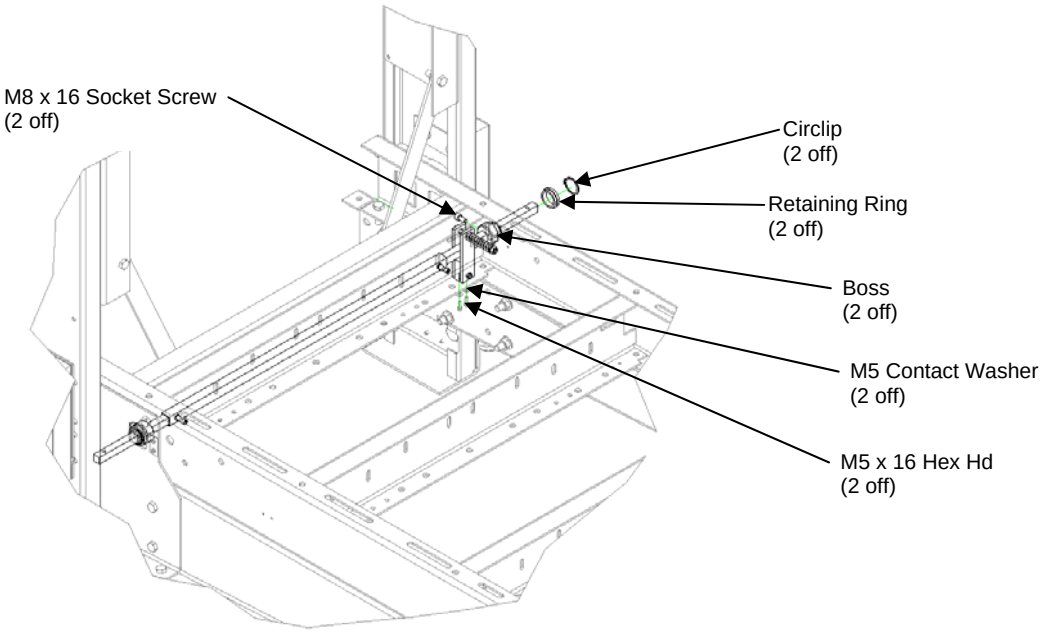


Continue installing the sling as per hydraulic lifts.

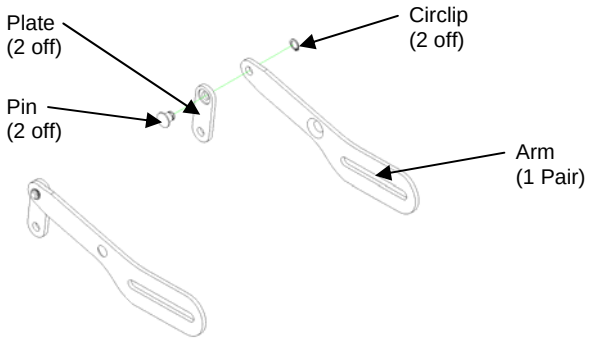
Pre-assemble the crossbar and return mechanism components.



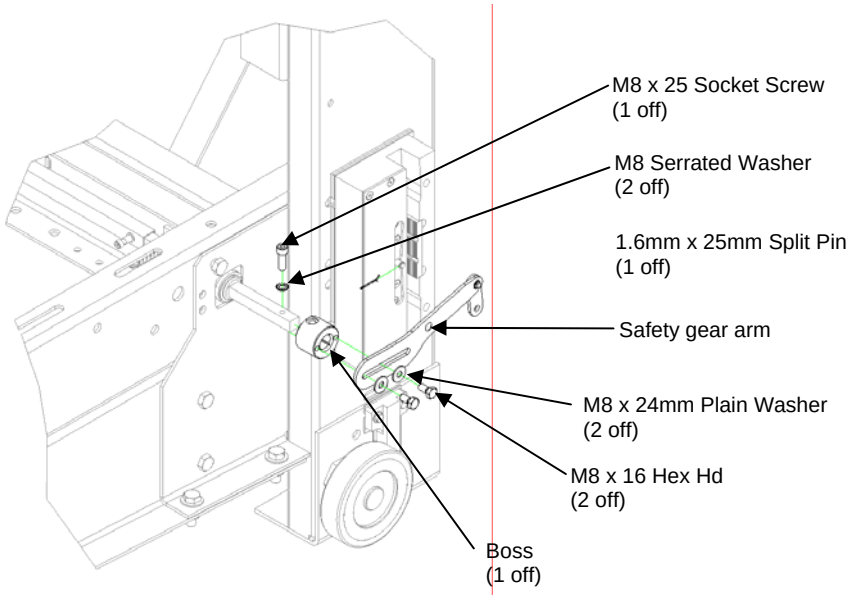
Thread the pre-assembled components into the sling base and secure with the items shown below.



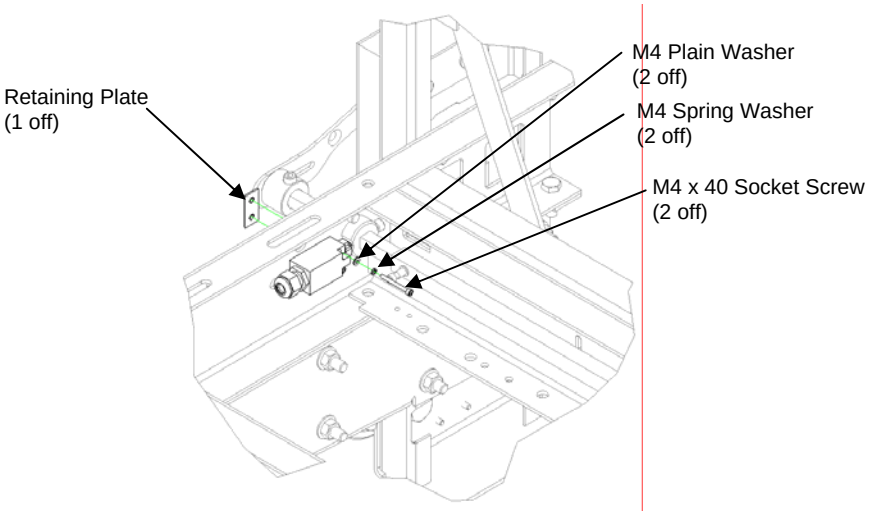
Assemble the safety gear arms (1 Pair).



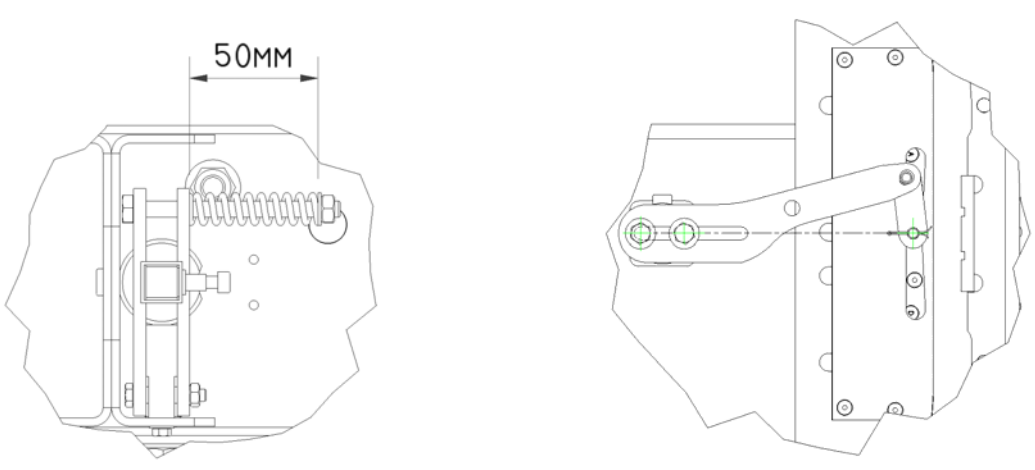
Assemble the arms to the crossbar and attach to the safety gear.



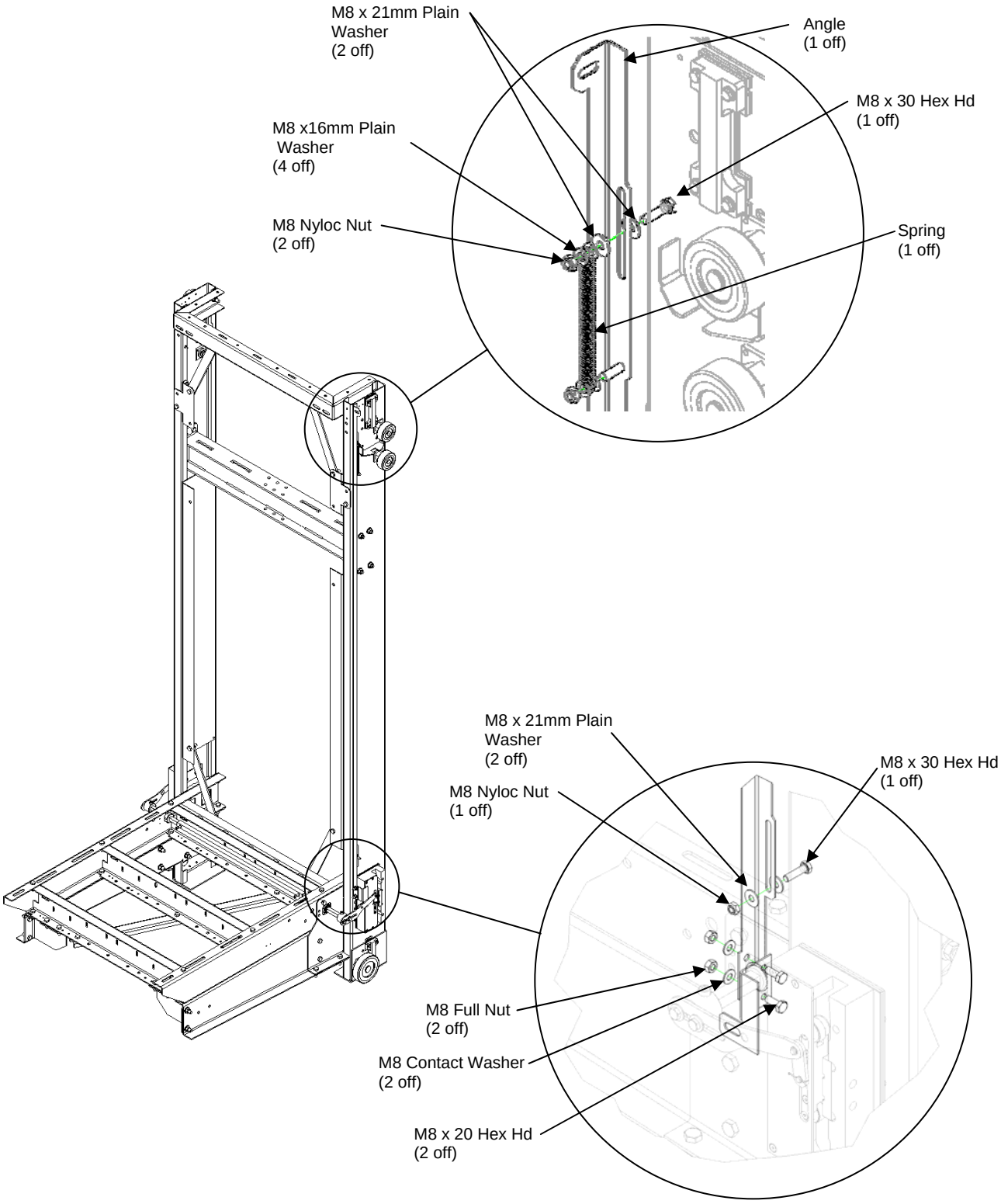
Fit the safety gear switch to the side opposite the overspeed governor.



The safety gear arm should be set to the end of the slot and set the return spring to the dimension shown.



Assemble the safety gear actuation angle to the sling upright as shown. It should be fitted to the side corresponding with the position of the overspeed governor (See Section 6).

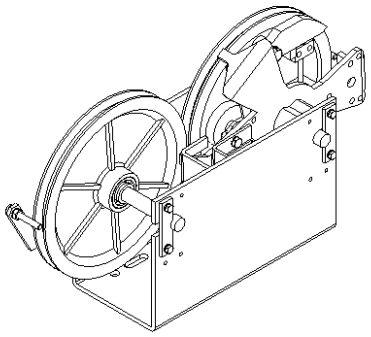


Notes:

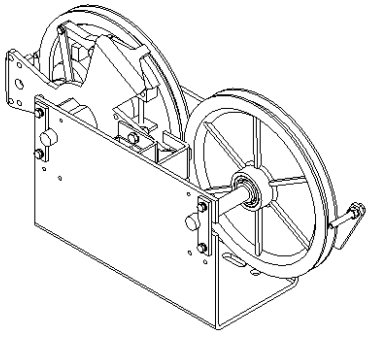
1) **The fixings securing the angle to the upright should not be tightened fully. There should be enough slack to allow the angle to slide freely otherwise the safety gear may be prevented from resetting following operation.**

Section 7 – Overspeed Governor & Rope

Overspeed Governor Identification

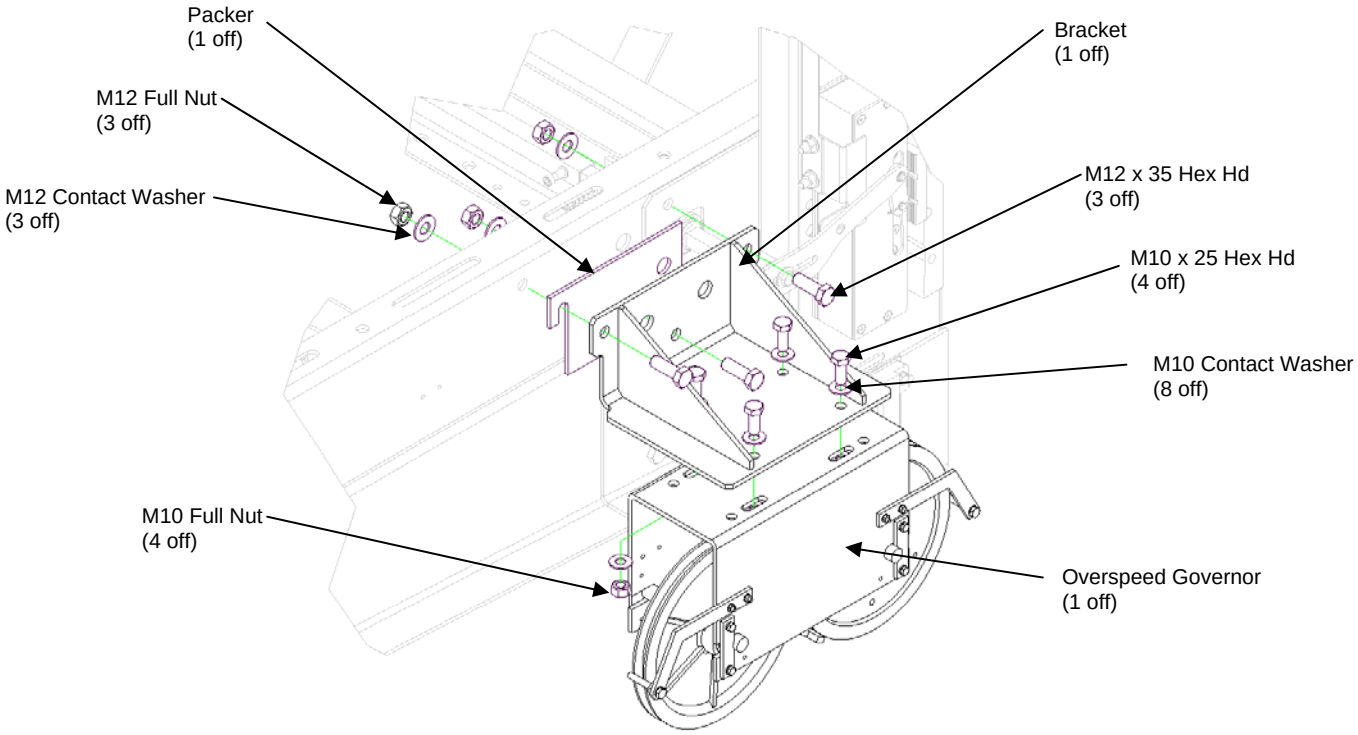


X-ENTRANCE - LEFT HAND SLUNG



Z-ENTRANCE - RIGHT HAND SLUNG

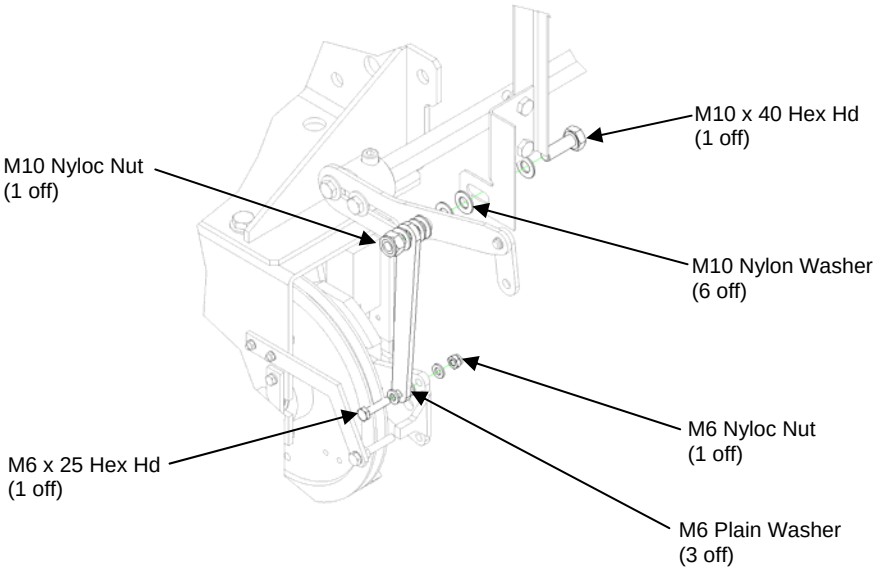
Assemble the overspeed governor and bracket to the sling. The governor should be located on the side, furthest from the entrance.



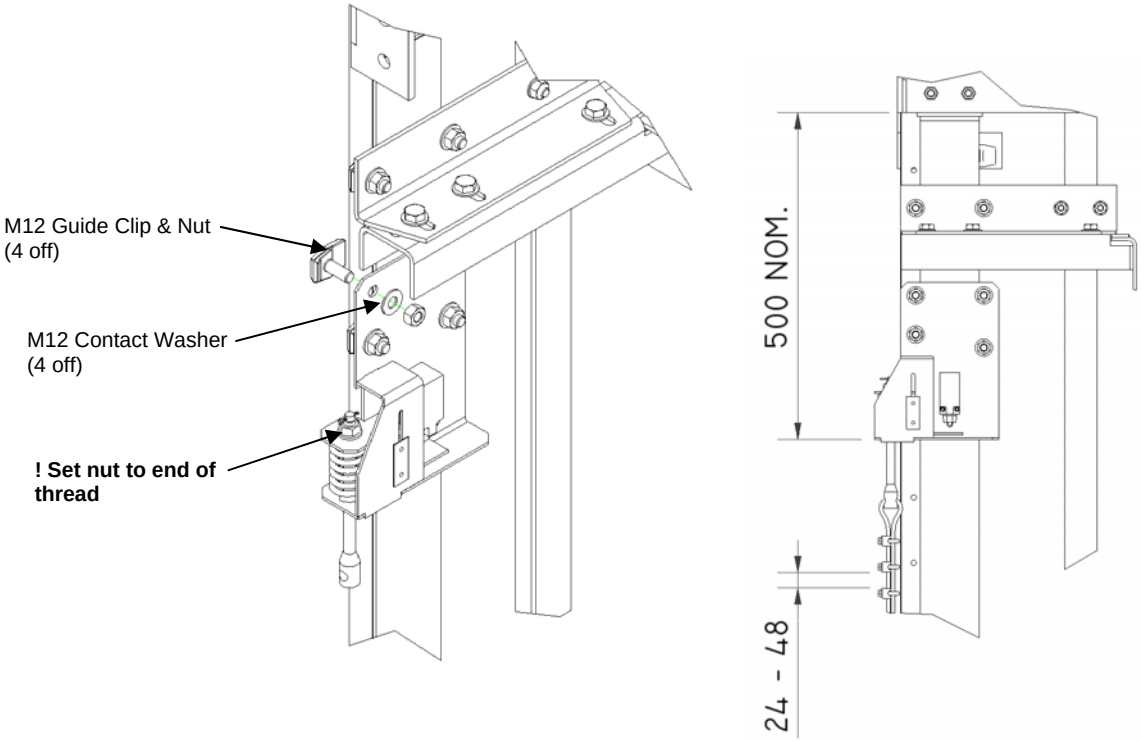
Notes:

1) **In the case of lifts with a through car, the governor should be positioned on the far side of the well when entering the pit at the lowest entrance.**

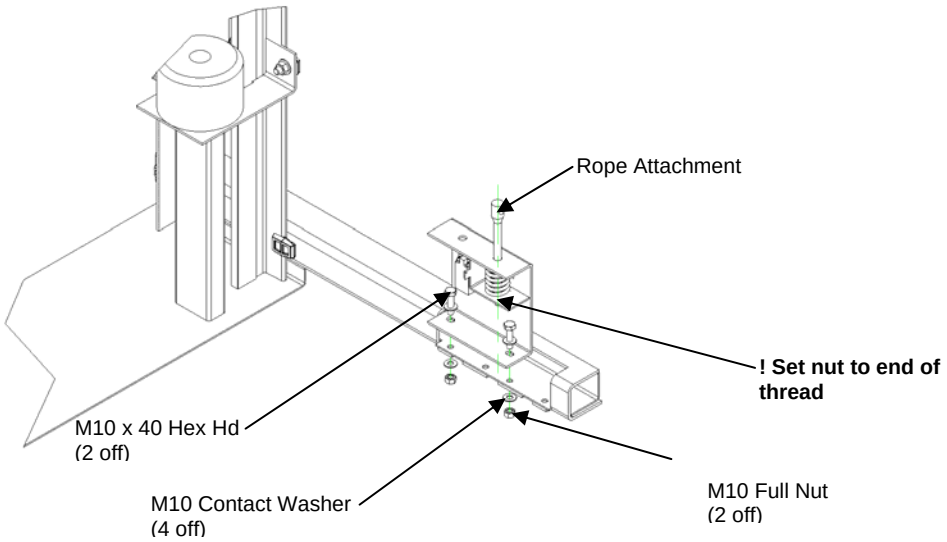
Install the link between the overspeed governor and the safety gear arm/safety gear actuation angle.



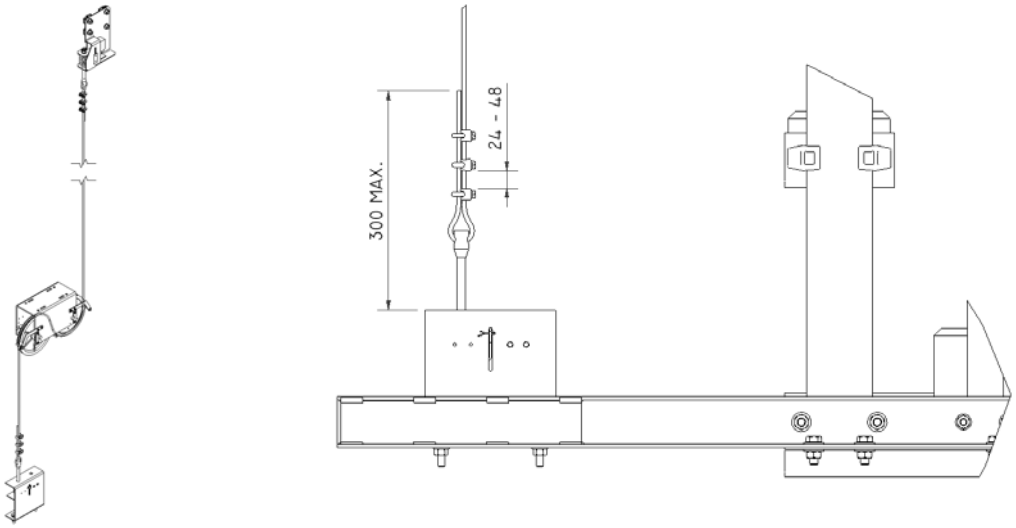
Install the upper rope tension device to the guide and secure the safety rope remembering to set the nut to the end of the thread.



Attach the lower tension device to the channel mounted in the pit (see Section 3), ensuring the rope attachment is central to the cut out in the mounting channel.



Thread the rope through the overspeed governor and secure it to the lower device, ensuring the nut is at the end of the thread and that there is sufficient tension on the rope to compress the springs and hold both plates clear of the switches. Also ensure that the end of the rope is not so high as to interfere with the overspeed governor pulleys when the lift is on compressed buffers.



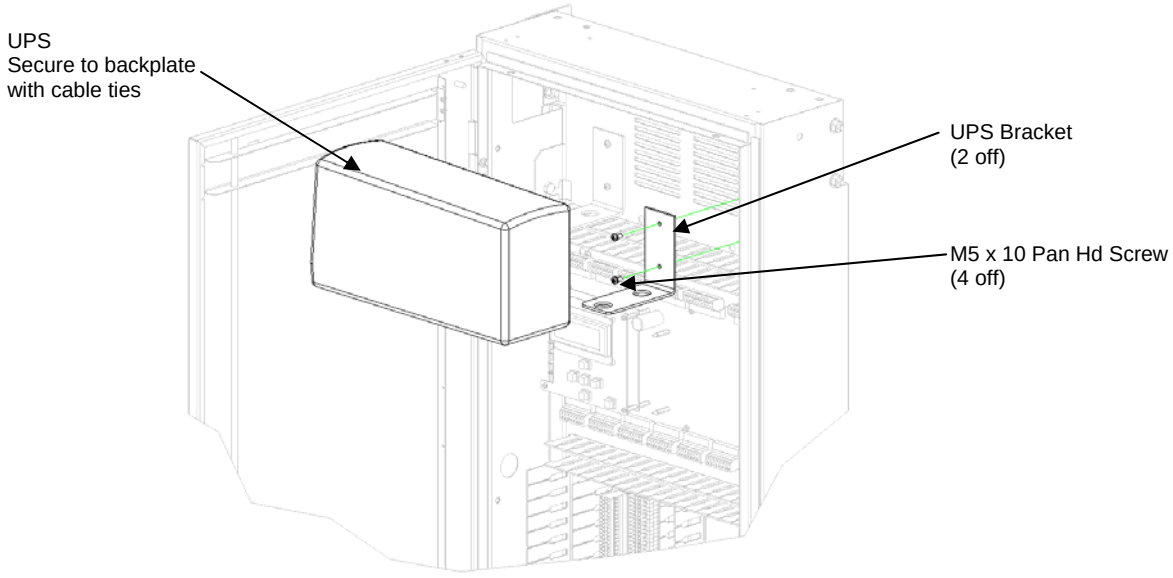
Notes:

1) **Ensure the top tension device and rope is fitted prior to removing any scaffolding required to access the headroom of the lift well.**
2) **Ensure the nuts are set towards the end of the thread on both tension devices to obtain maximum adjustment to accommodate rope stretch.**
3) **It may be necessary to use an aid such as a chain hoist to obtain the necessary tension to compress the springs as required.**

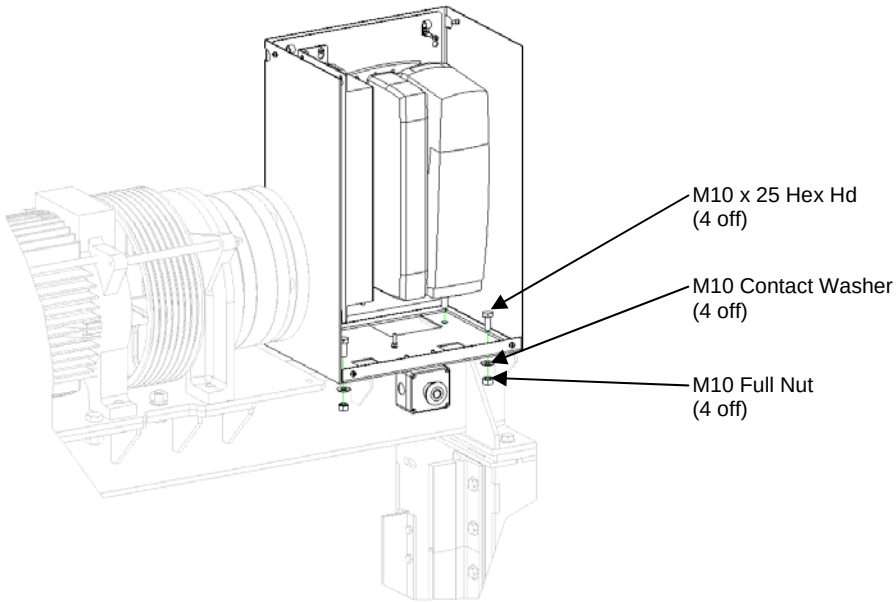
Section 8 – Drive Electrical Equipment

Install the entrance containing the lift controller and fit the control panel as per hydraulic lifts.

Mount the uninterruptable power supply (UPS) on the backplate as shown.

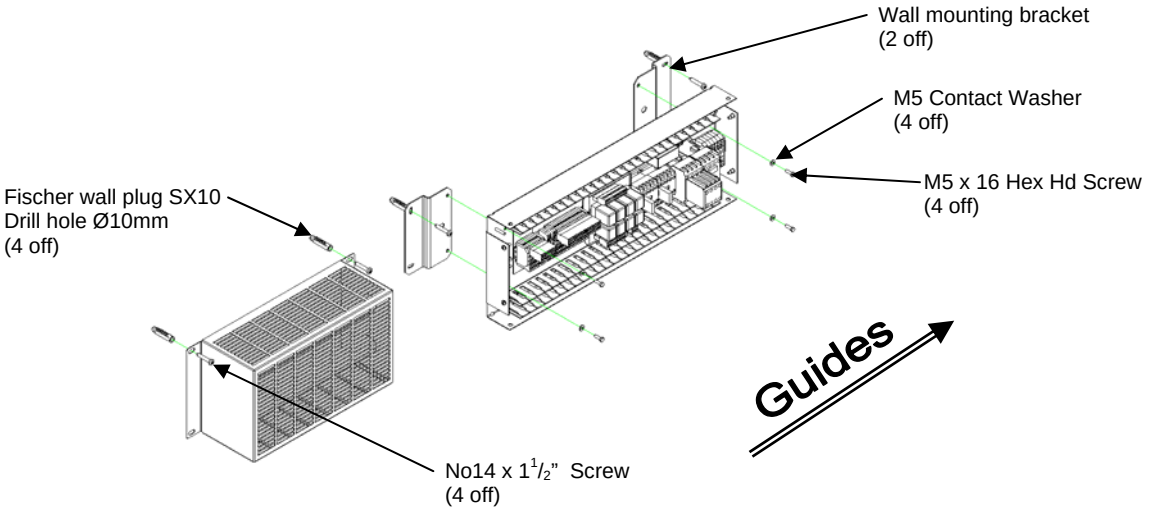


Install the inverter housing on the bedplate next to the motor.

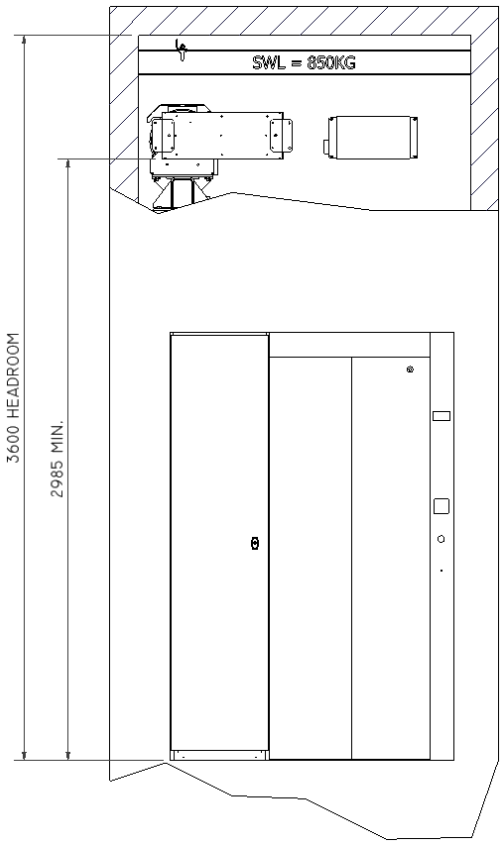


Install the terminal housing and brake resistor above the entrance checking that there is sufficient clearance between these components and the door operator/safety edge brackets to accommodate the necessary over travels. The terminal housing should be mounted nearest to the guides.

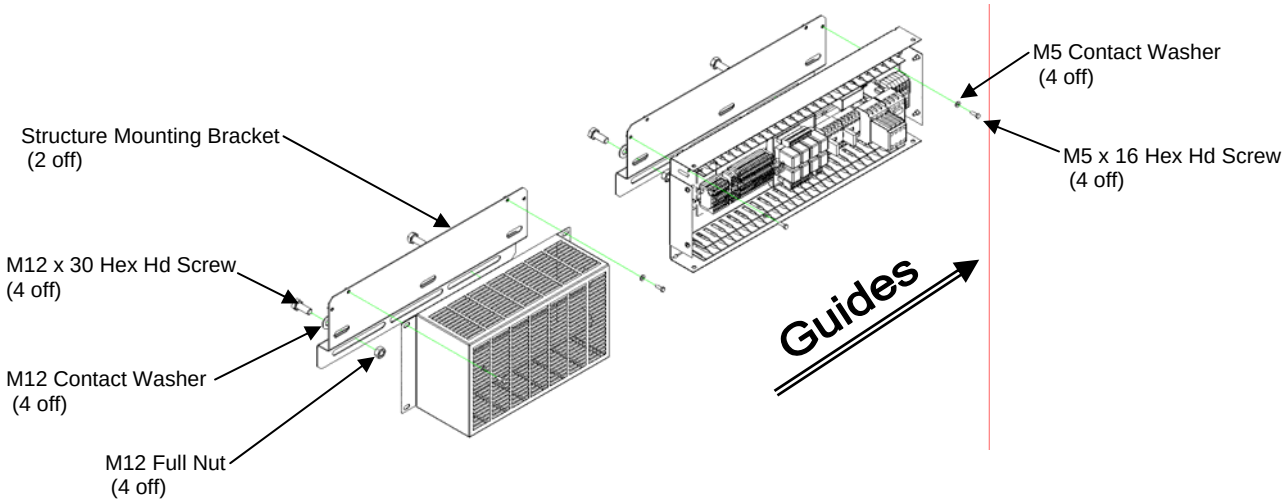
Wall Mounted



On wall mounted installations, the terminal housing and brake resistor should be mounted a minimum of 2985mm above finished floor level to ensure clearances are maintained.

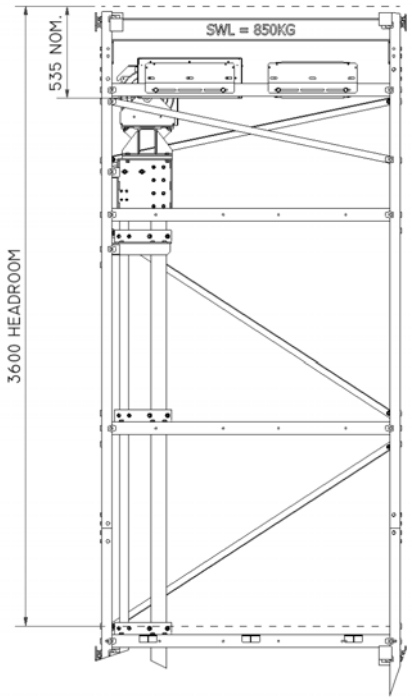


Structure Supported



On structure mounted installations, the terminal housing and brake resistor should be mounted on the headroom ring section. This is nominally 535mm from the top of the lift well.

In all cases it must not be less than 2985mm above floor level to ensure clearances are maintained.



Make the necessary connections and auto-tune the motor as detailed in a separate electrical installation manual.

Notes:

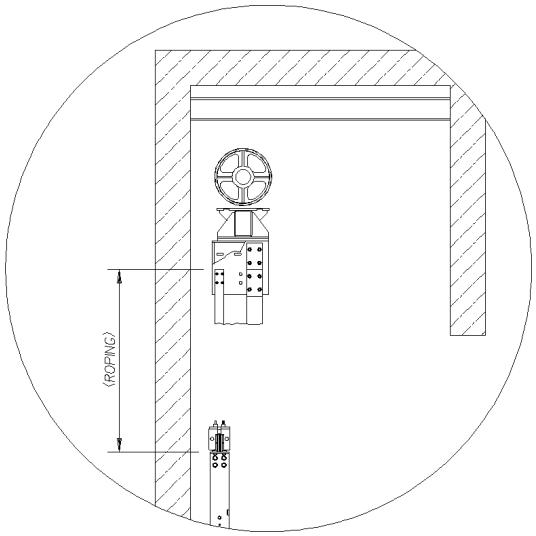
1) **Cable should be routed away from the sheave and suspension rope retaining bars to allow the sheave guard to be fitted at a later stage.**

Section 9 – Roping and Over-travels

Notes:

1) **The roping dimension shown on the GA takes into account rope stretch and assumes the lift is level with the lowest landing.**
2) **If the lift is to be roped sitting on the buffers, it should be ensured that they are at the correct height and level and any over-travels should be taken into account.**

Hoist the counterweight frame to the dimension shown on the GA. The dimension is from the top of the counterweight cross member to the top of the counterweight guides as shown.



Pass the ropes over the sheave, attaching the eyebolts to the sling and terminating the ropes with wedge clamps on the counterweight.

Replace the rope retaining bars and studding.

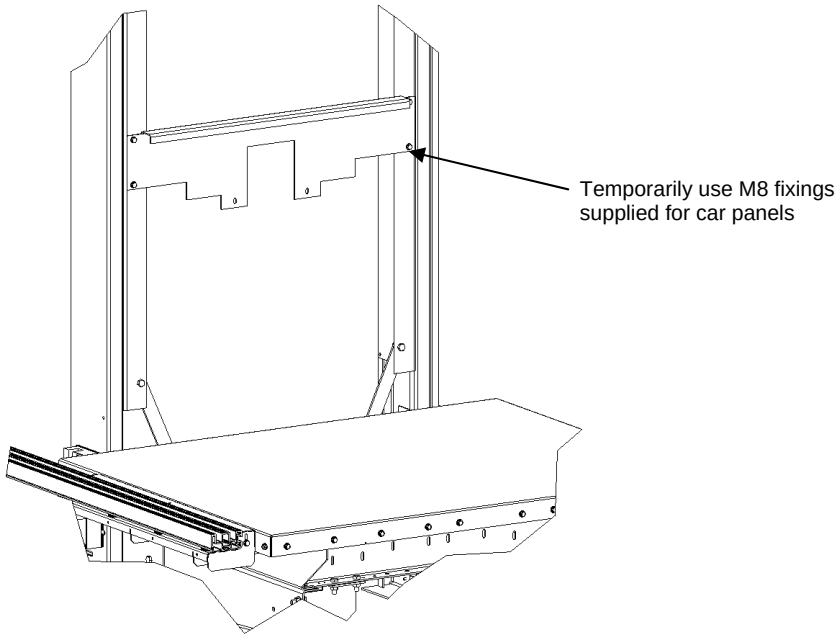
Notes:

1) **The clearance between the counterweight and its buffer should be maintained between 75-100mm. As weight is added to the counterweight it may be necessary to adjust the number of packers on the counterweight.**

Using the lift as a working platform.

Fit the car floor assembly on the sling and check the position of the treadplate on the floor against the GA. Note: If the treadplate is in the wrong position this may lead to entrances being incorrectly set.

Temporarily fit the sling infill plate to the sling uprights as shown. This will reduce the risk of falling between the sling uprights while using it as a working platform.



The lift may now be used as a working platform.

Notes:

1) **The overspeed governor and safety gear must be fitted and functioning correctly before using the lift as a working platform.**
2) **When using the lift as a working platform, care should be taken to avoid overloading the platform as slip (loss of traction) may occur. Adding filler weights to the counterweight frame as the lift is built will help balance the weight of the lift. A guide to the number of fillers required can be found at the back of this manual (see Appendix A).**

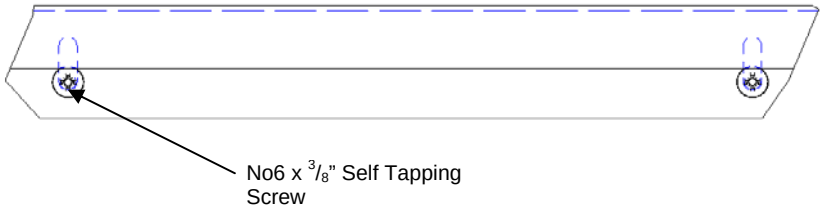
Section 10 – Lift Car & Finishes

Install the lift car as per hydraulic lifts.

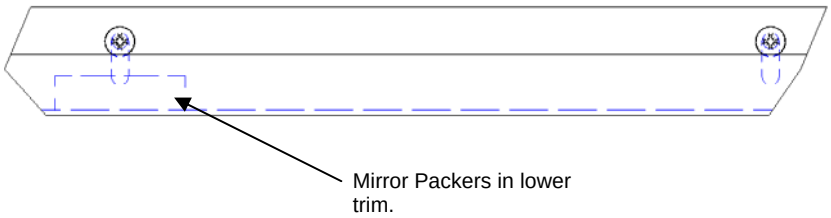
Mirror & Trims

Note: The top trim should be pulled down to prevent the mirror jumping out when the safety gear is operated.

Fit the upper trim with the screws positioned at the bottom of the slot. The screws should then be tightened while leaving them just loose enough to allow the trim to be pulled down when the mirror is fitted.



Fit the lower trim containing the packers with the screws positioned at the top of the slot and fasten the screws.



Fit the mirror in the trims and pull the top trim down.

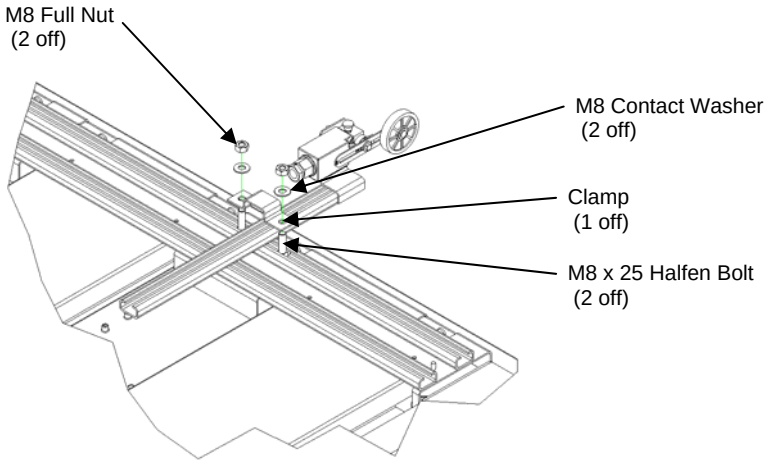
Section 11 – Floor Positioning and Limit Switches

Fit the optical proximity switch assembly to the car roof and mount the vane brackets and ropes in the well as per hydraulic lifts. See electrical manual for vane layouts applicable to traction lifts.

Fit the test limit switch and ramp as per hydraulic lifts, noting the following differences.

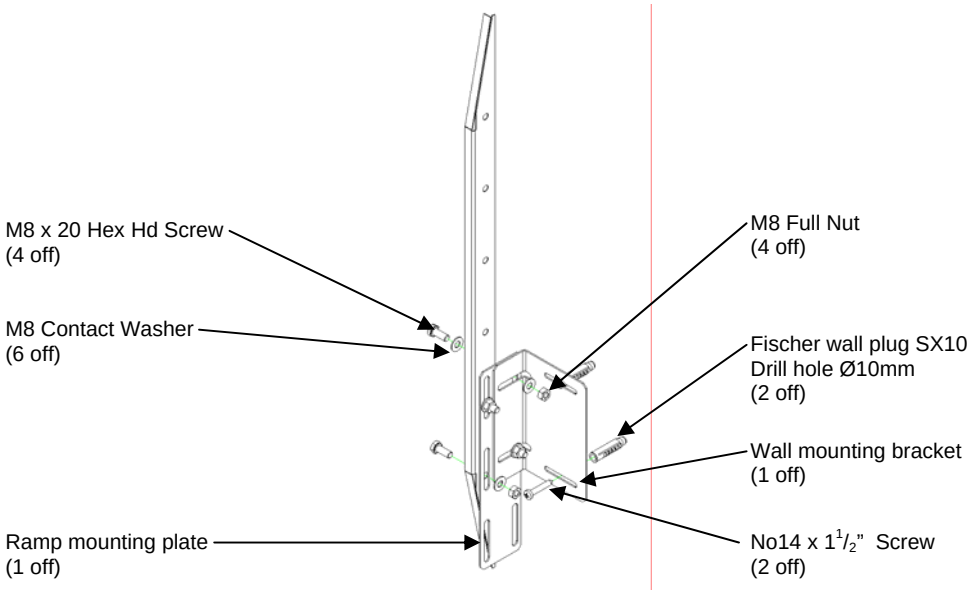
1) The test limit components should be fitted to the guide opposite the overspeed governor.
2) The test limit should be set to stop the lift 900mm below the top floor level.

Fit the ultimate limit switch to the car roof, opposite the guides.

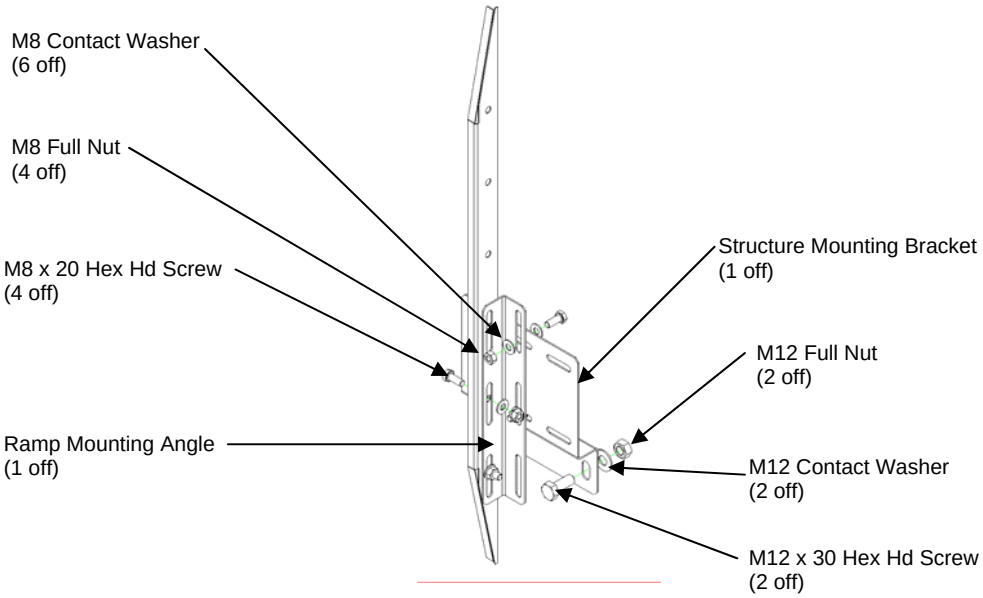


Fit the upper and lower limit ramps

Wall Mounted



Structure Supported

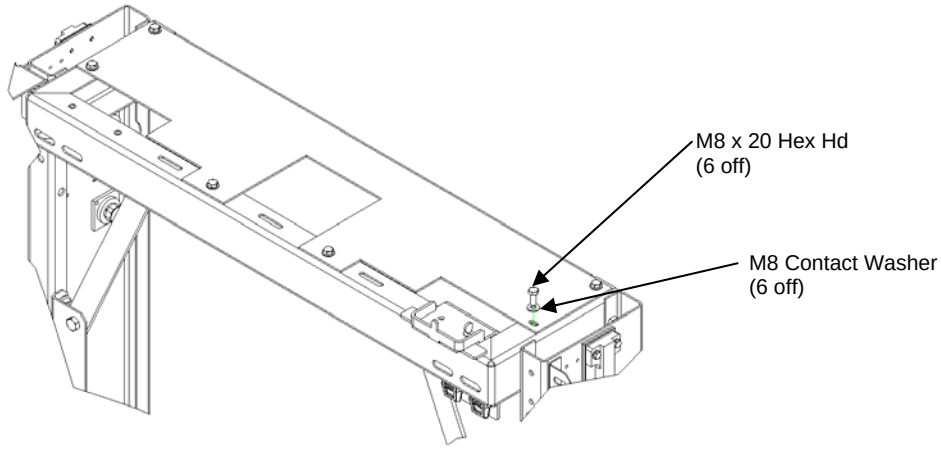


Set the down ultimate limit ramp at 20-30mm below the lowest floor level

Set the up ultimate limit ramp at 25-75mm above floor level.

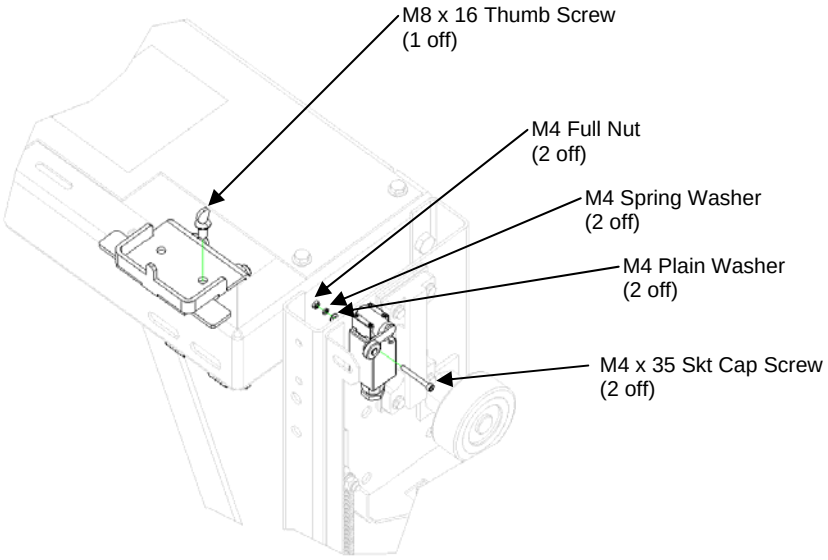
Section 12 – Miscellaneous

Fit the sling infill plate.

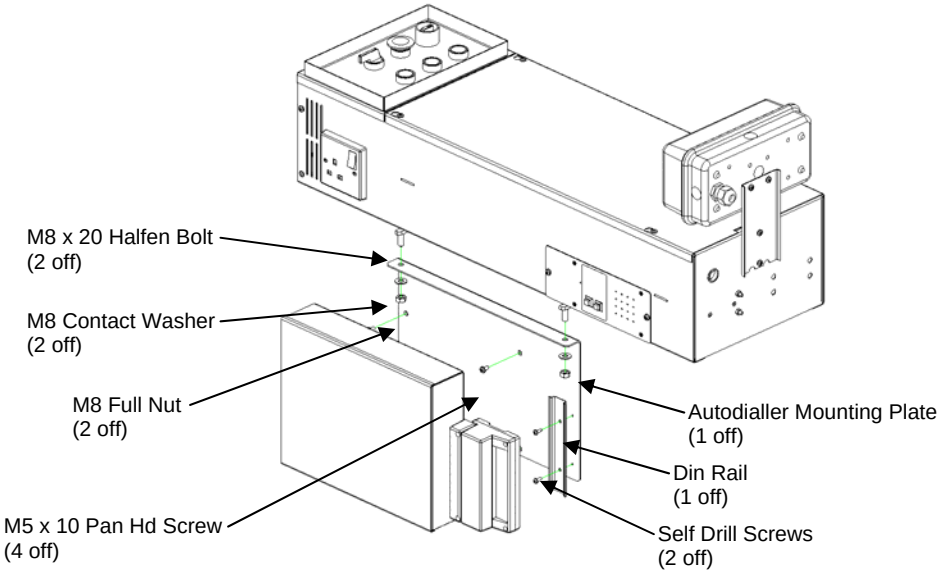


Fit the parking plate switch to the top of the sling on the side corresponding with the safety gear angle ensuring the switch activates when the parking plate is fitted to the guide.

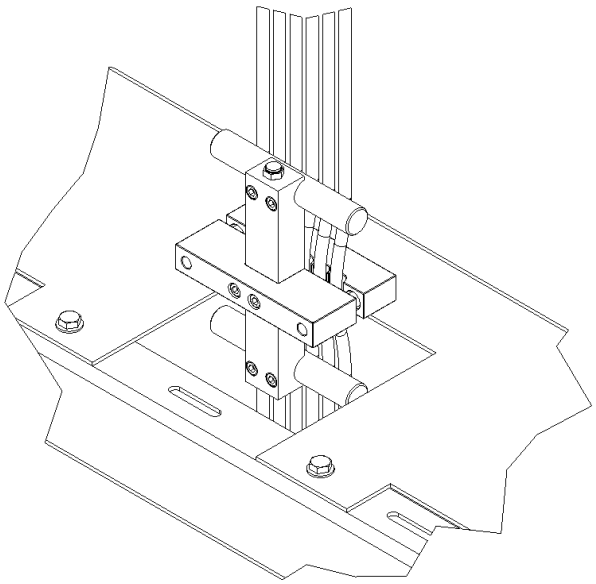
Store the parking plate on the sling cross head



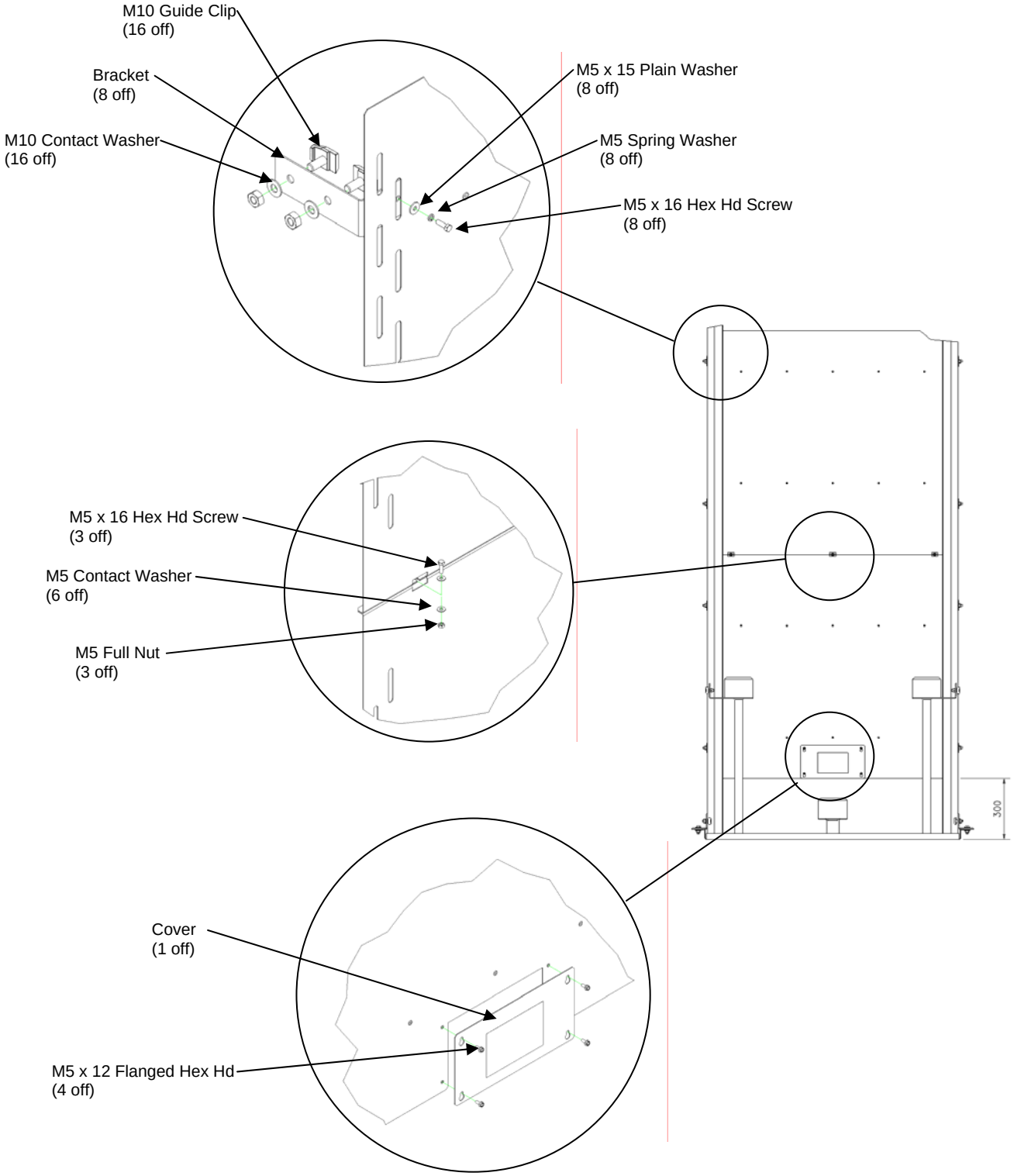
Mount the autodialler/intercom main unit and the control unit for the load weighing sensor beneath the car top box as shown.



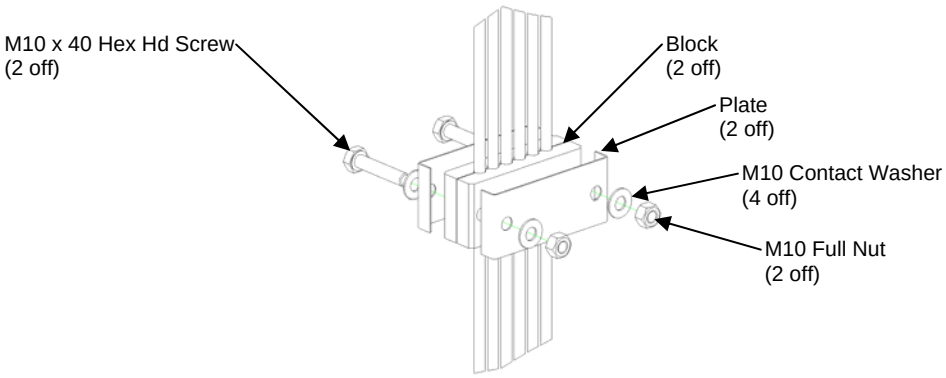
Fit the load weighing sensor to the car side of the suspension ropes.



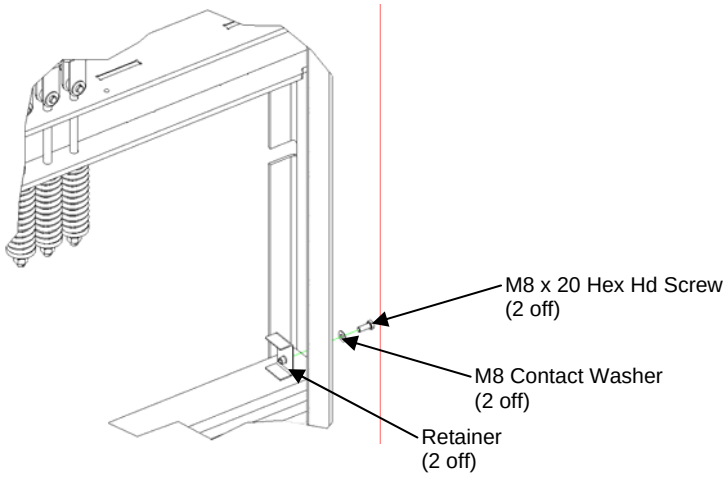
Fit the counterweight screen.



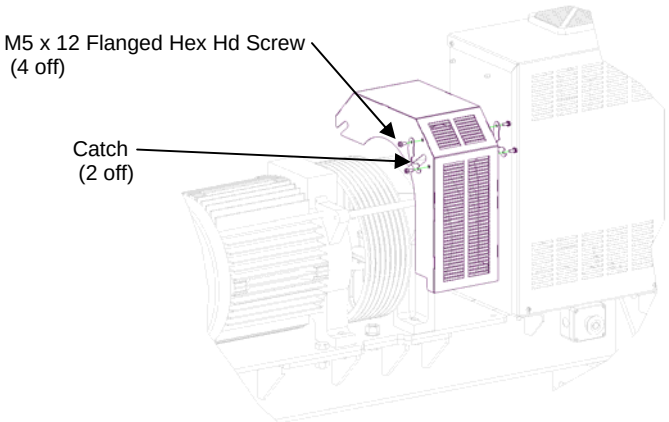
Fit the rope gatherer to the counterweight side of the suspension ropes.



Fit the filler weight retainers, orientating them for best fit.

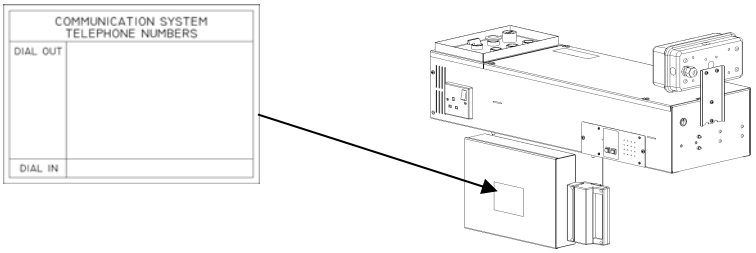


Ensure electrical cables have not been secured to the rope retaining bars and then fit the sheave guard.

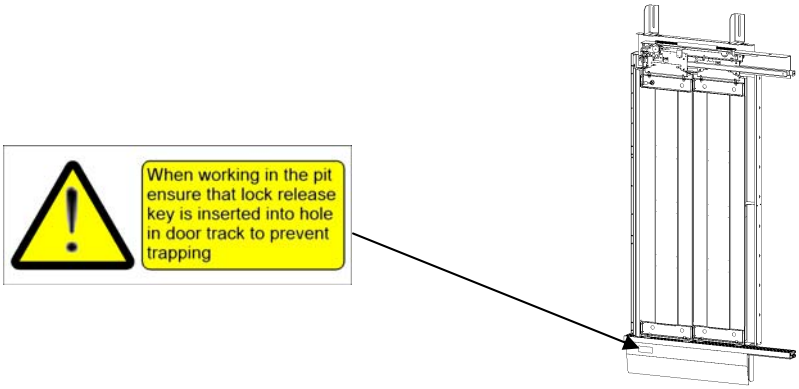


Section 13 – Labels and Notices

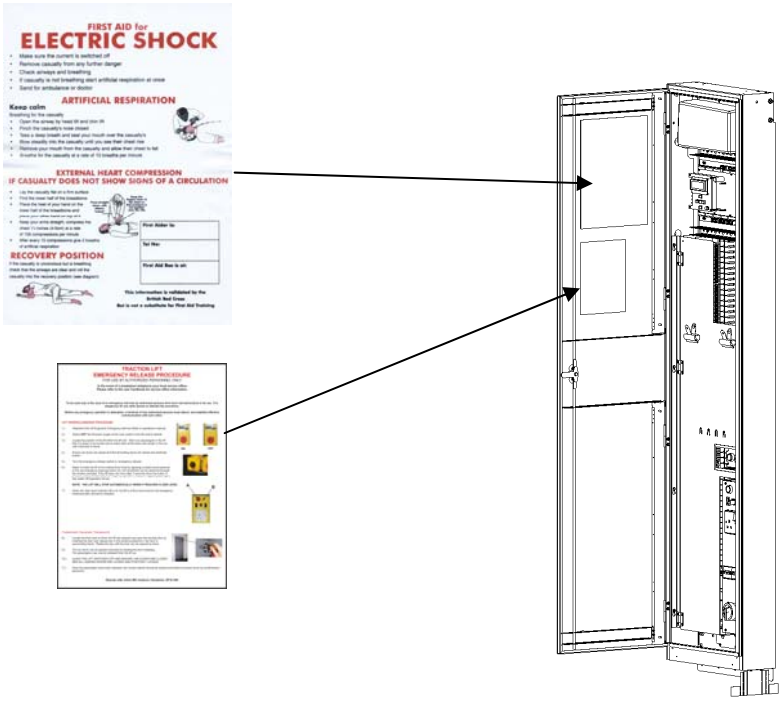
Autodialler telephone number label – located on the lid of the autodialler main unit.



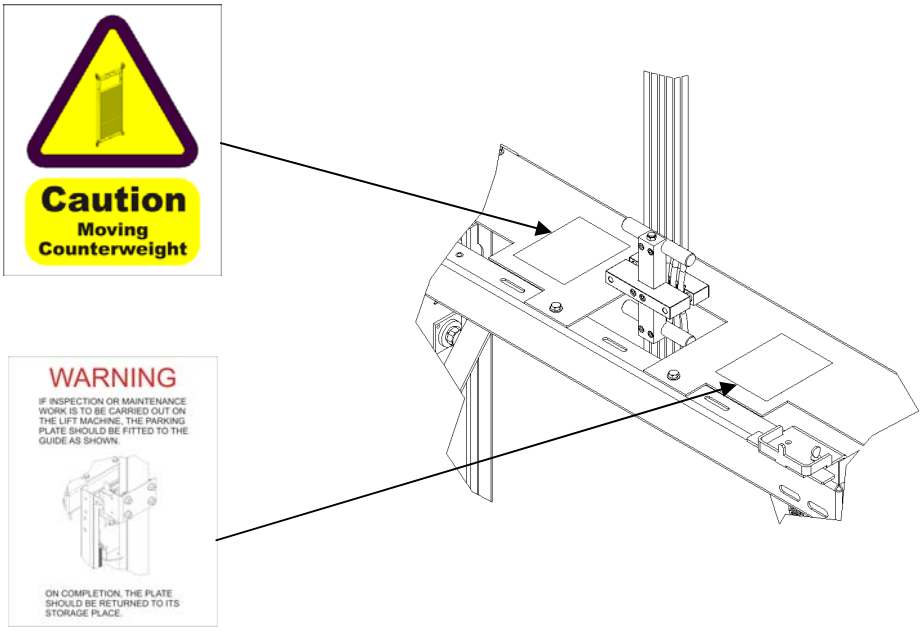
Trapping in the pit label – located on the toe guard of the lowest landing entrance.



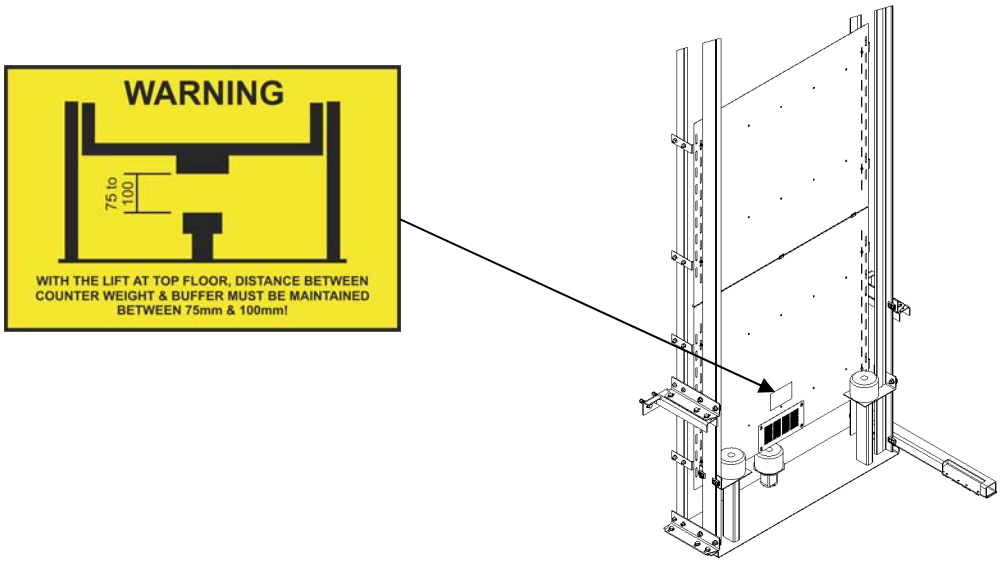
Electric shock and emergency release procedure notices – located on the inside landing controller main door.



Caution counterweight and parking plate notices – located on the sling infill plate.



Counterweight buffer clearance label – located on the bottom of the counterweight screen.



Appendices.

Appendix A – Installation Filler Weight Quantities

Notes:

1) The following table is a guide to the number of fillers required to balance the static weight of the lift assembly.
2) On completion of the installation, the lift should be, either statically or dynamically balanced. Then filler weights equating to half the rated load added to the counterweight.
3) Counterweight fillers may be either 20mm or 10mm thick weighing 12.5kg each and 6.25kg each respectively.

*Table 1 – Number of fillers to balance the weight of the lift.

Installation Stage	Components Installed	Quantity of 20mm thick Fillers
Stage 1	Sling + Car Floor	16
Stage 2	Stage 1 + wall & entrance panels	26
Stage 3	Stage 2 + car roof and ceiling	31
Stage 4	Stage 3 + PDO and car doors	40
Stage 5	Stage 4 + COP and car top equipment	44
Stage 6	Stage 5 + Finishes	See Table 2

*Table 2 – Number of fillers to balance an empty car.

Lift Model	Quantity of 20mm thick Fillers	
	Single Entry	Through Car
Maxi M	44	51
Maxi MX	46	53
Maxi MXL	54	58

*When 10mm thick filler weights are employed, quantities stated above should be doubled.

Document History

Issue	Name	Changes	Date
020409	Robert Lark	First Issue	02/04/09
Issue 2	Robert Lark	Tension device mounting details revised, additional details for mounting terminal housing, issue status added, Section 13 added.	15/10/09
Issue 3	Toby Cleeton	New branding added	26/07/10
Issue 4	Robert Lark	Appendix A amended to cater for 10mm thick filler weights.	05/09/13