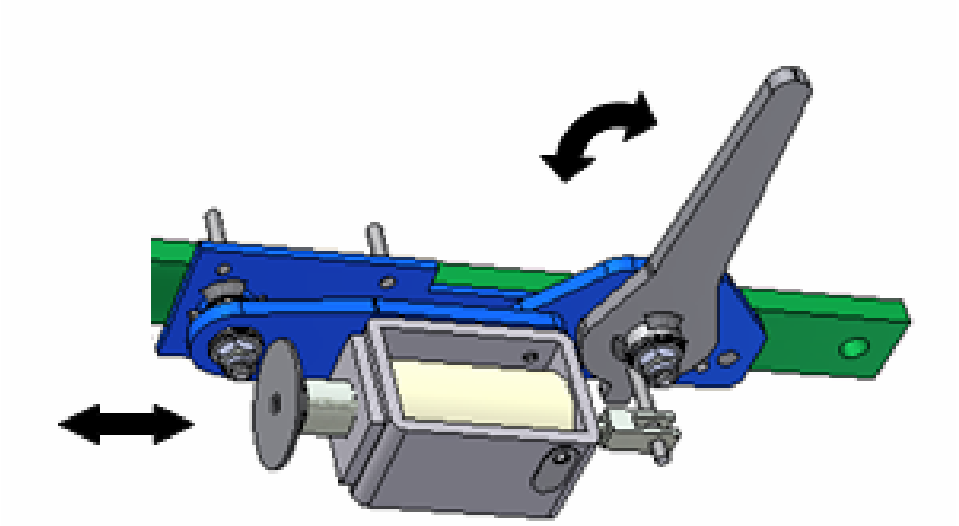
Stannah

Installation Guide

***** Production Version *****

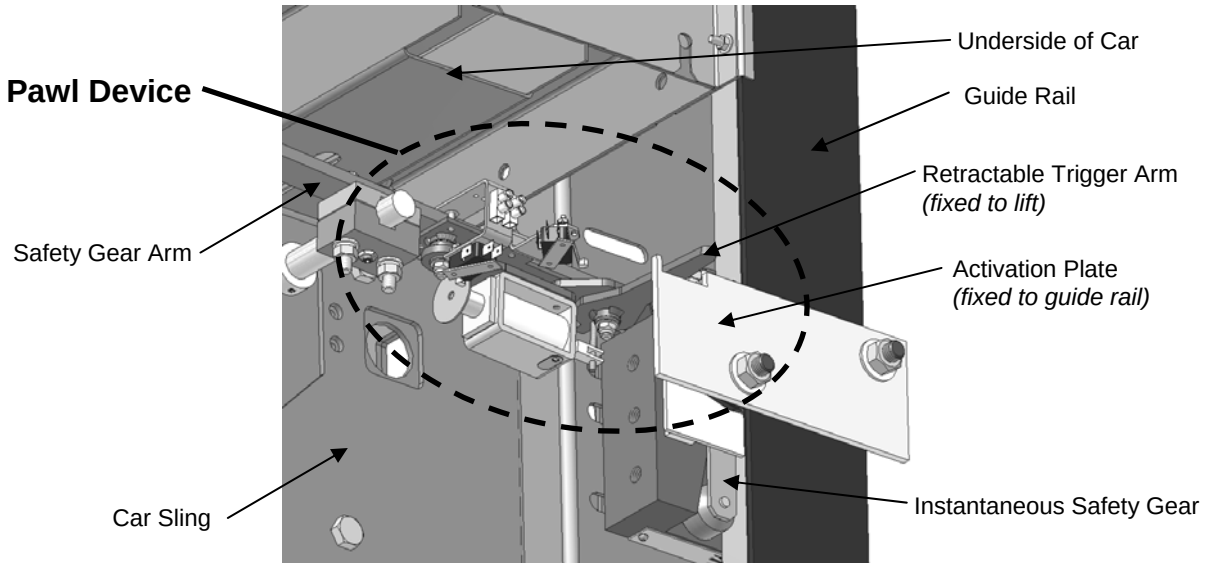
Pawl Device

for prevention of unintended descent

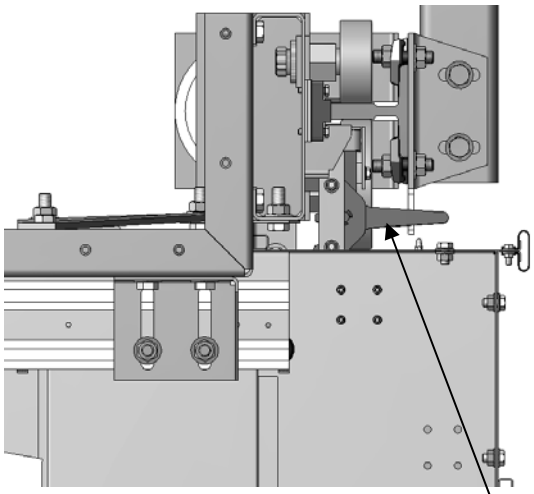
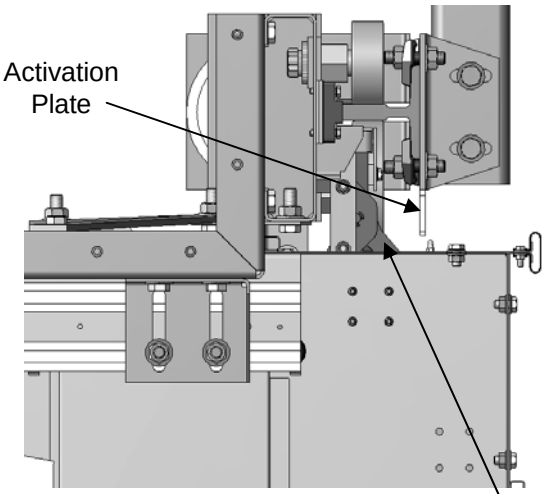


Contents

1. Location:
The pawl device is installed on the safety gear arm underneath the lift car. Fixed activating plates are attached to the guide rails. See arrangement below…..



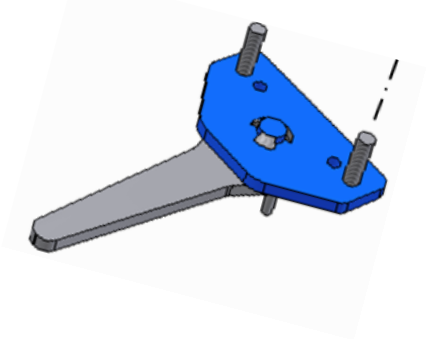
2. Basic operating principle:
The pawl device trigger arm retracts when the lift is in motion and extends above the fixed activation plates when it arrives at floor level. If the lift descends without a run signal (e.g. hydraulic circuit failure) the trigger arm catches on the plate and operates the instantaneous safety gear.

 Trigger arm “extended” when no run signal or when relevelling with doors open	 Trigger arm “retracted” when lift is travelling or relevelling with doors closed
Solenoid NOT energised = arm EXTENDED	Solenoid ENERGISED = arm RETRACTED

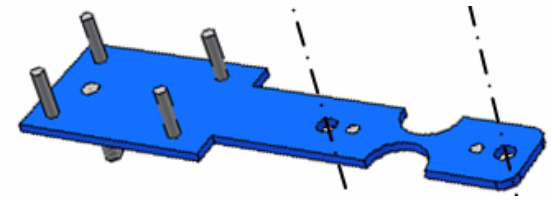
Views looking down the side of the car

3. Pawl Device – Component Parts

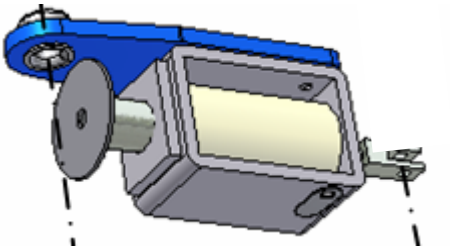
Trigger arm assembly = 1 off



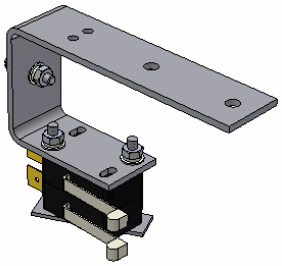
Main support plate = 1 off



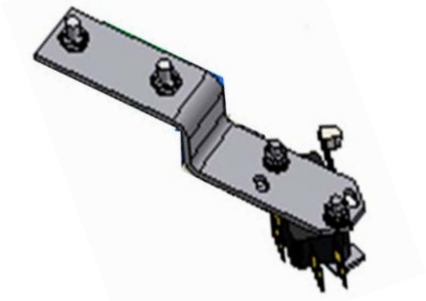
Solenoid assembly = 1 off



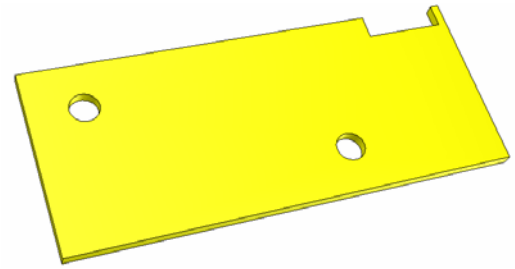
Rear switch assembly = 1 off



Front switch assembly = 1 off



Activation plate : (qty = number of floors)



Wiring Diagrams (in Issue 19 Wiring Manual)

- Site wiring of Pawl Device – 9333/730 (single entry) or 9333/750 (2 car entrances)
- Site schematic (for fault finding etc) – 1009238

4. Safe Working Procedures (Car Top and Pit):

All standard Safe Working Procedures are to be followed. Note that the installation of the pawl device on the underside of the car is best achieved using the lower section of the pit prop only. This negates the use of ladders etc, as it is possible to reach the necessary area of the sling whilst stood in the pit. The car toeguard can be easily removed, to permit safe and easy access to the pit.

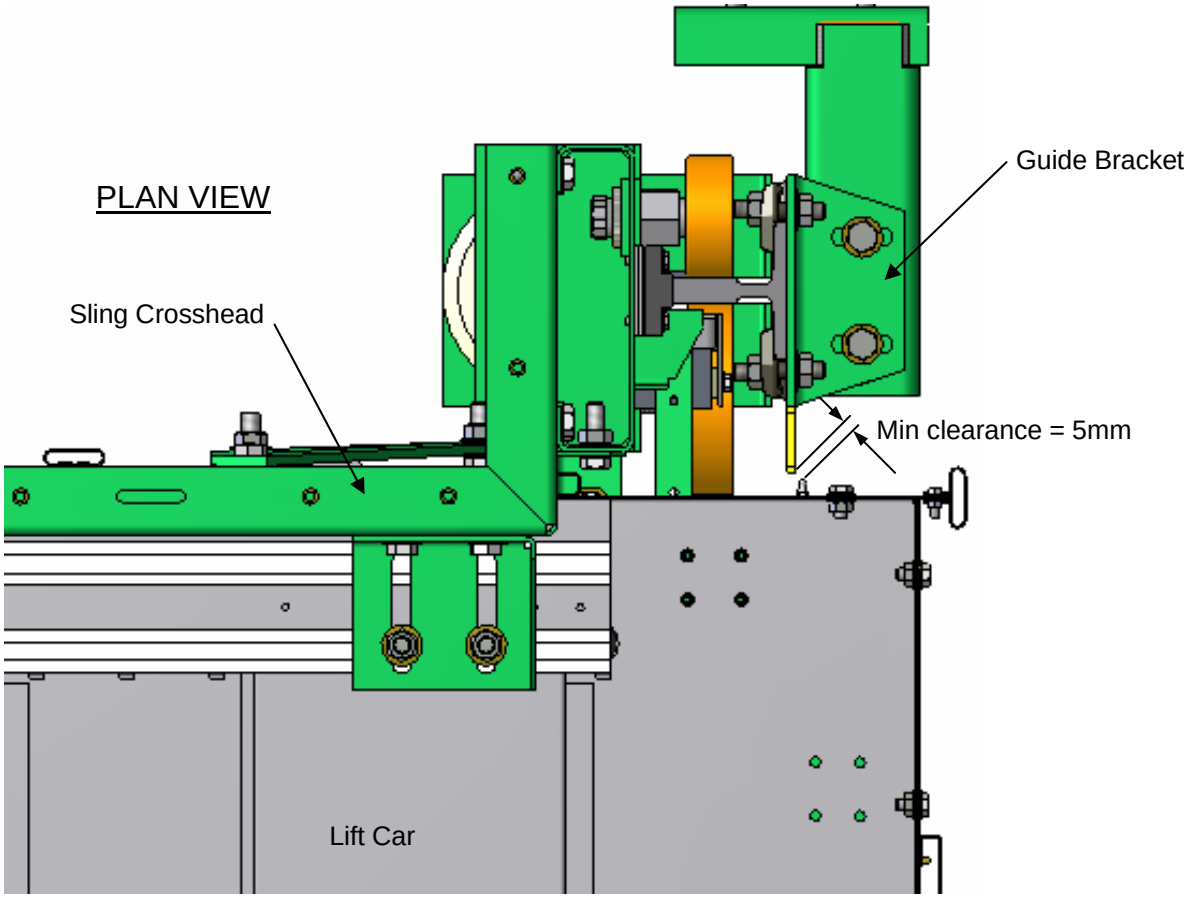
The pawl device should only be installed after the trailers & car top box have been connected! Attempting to move the platform with the trigger arm extended could result in damage to the pawl device, safety gear mechanism and/or fixed components in the lift well. The auxiliary Blain valve and pit prop are provided to offer protection prior to installation of the Pawl Device.

5. Pre-installation checks:

5.1 Establish which side of the car the pawl device will be fitted (on models with the control panel mounted in the pit the pawl device must be fitted on the opposite side to the kite switch)

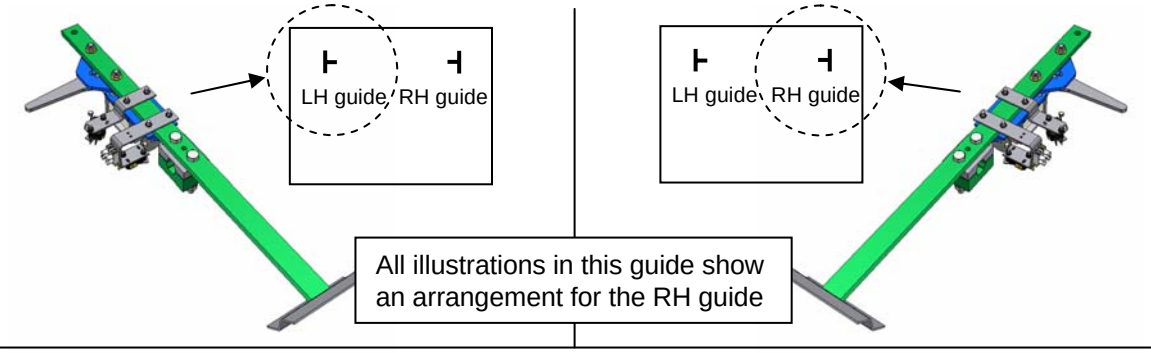
5.2 Temporarily fit one of the activation plates on to the guide and check that there is adequate running clearance between the plate and the lift car, throughout the entire height of the car (minimum running clearance = 5mm). Pay particular attention to items that project from the lift car side, for example car panel stiffeners, car skirting fixings etc.

5.3 Remove the activation plate

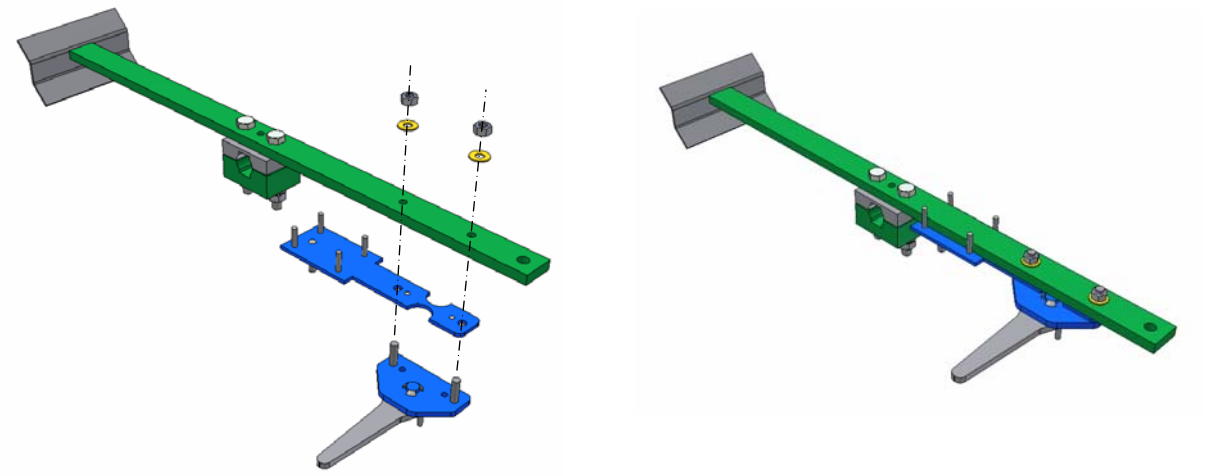


6. Installing the pawl device on to the safety gear arm:

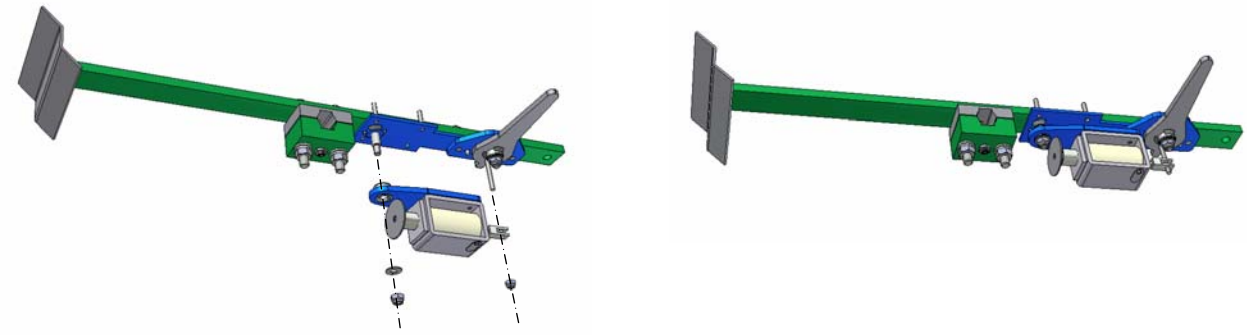
Note: The pawl device can be assembled as a left hand or right hand assembly……



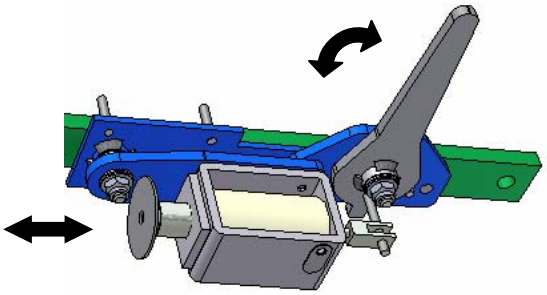
6.1 Pass the two M6 studs of the trigger arm assembly through the holes on the main support plate and then up through the two 6mm holes in the safety gear arm. Fasten to the safety gear arm using M6 contact washers and M6 full nuts. *Note: It will be necessary to raise the safety gear arm during this phase of installation (it is not necessary to undo any of the safety gear components!)*



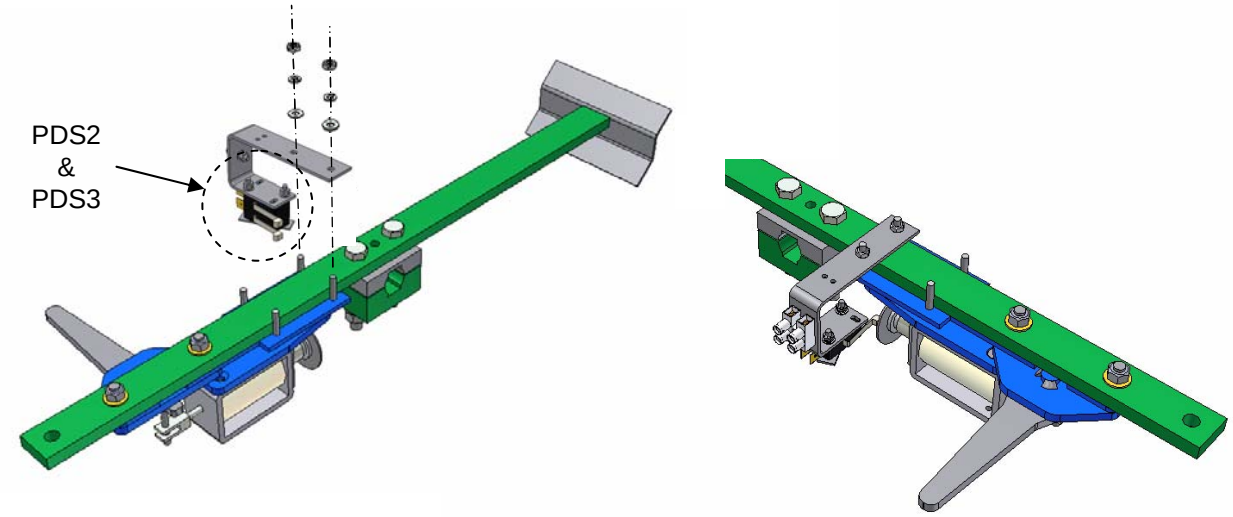
6.2 Fit the solenoid assembly on to the support plate pin, ensuring the clevis is also engaged on the 4mm stud of the trigger arm. Fasten the assembly with a plain M6 washer and nyloc nut.
6.3 Fasten an M4 nyloc nut on the 4mm stud. This helps to just support the weight of the solenoid. DO NOT over tighten this nut as it may make the mechanism bind.



6.4 Check that the assembly is free in operation by manually pressing on the rear of the solenoid plunger and then releasing. The trigger arm should return to its rest position under the force of the solenoid spring.

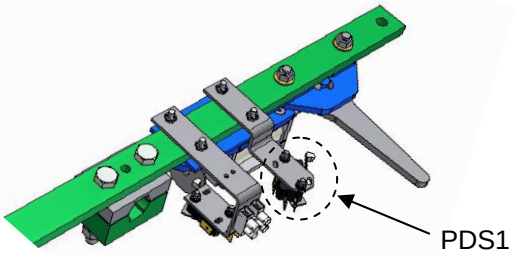


6.5 Fasten the rear switch assembly (PDS2 & PDS3) in position on the two rear studs of the support plate using M4 spring washers, flat washers and nuts. *This effectively clamps this end of the support plate to the safety gear arm.*

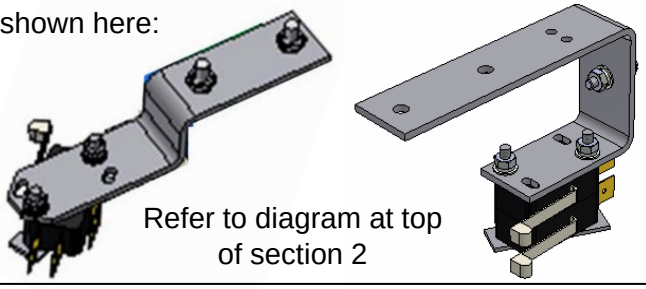


6.6 Similarly, fasten the front switch assembly (PDS1) with M4 fixings using the front two studs.

Note: Misalignment can sometimes occur between the trigger arm and the roller of the micro switch (due to bending of the switch bracket when "clamping" to the safety gear arm). In such cases, it is possible to align the arm and micro switch by bending the switch mounting bracket up or down slightly.



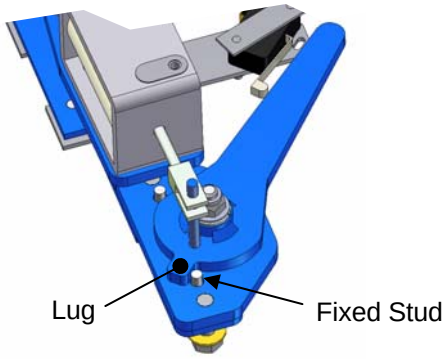
If the pawl device is to be mounted on a **"Left Hand Guide"** the switches should be re-handed as shown here:



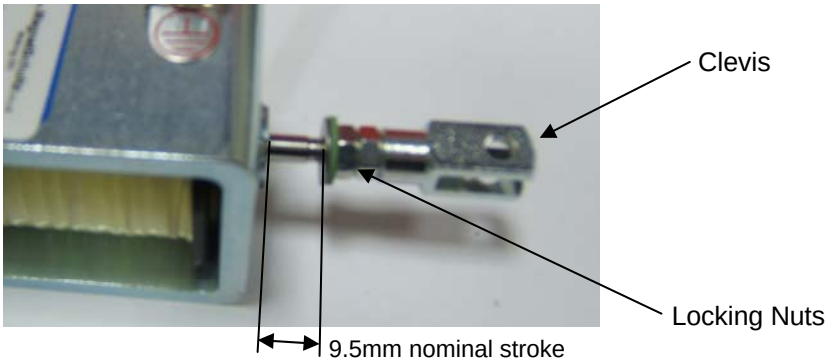
Refer to diagram at top of section 2

7. Adjusting the microswitches:
The micro switches are mounted on slots for adjustment. **DO NOT OVERTIGHTEN THE M3 FIXINGS AS IT CAN RESULT IN DAMAGE TO THE MICROSWITCH!!** Tightening torque is 4 to 6 kg.cm (0.39 to 0.59N.cm).
7.1 The rear switches (PDS2 & PDS3) confirm that the trigger arm has returned to its extended position. The switches should be positioned such that the electrical contacts are activated just before the trigger arm reaches its fully extended position. *Note: If the arm does not return to it's fully extended position, the lift is prevented from running (PDS2) and the doors are prevented from opening (PDS3).*
7.2 The front switch (PDS1) confirms that the trigger arm has fully retracted before allowing the lift to run. The switch should be positioned such that its electrical contacts are activated just before the trigger arm reaches its fully retracted position.

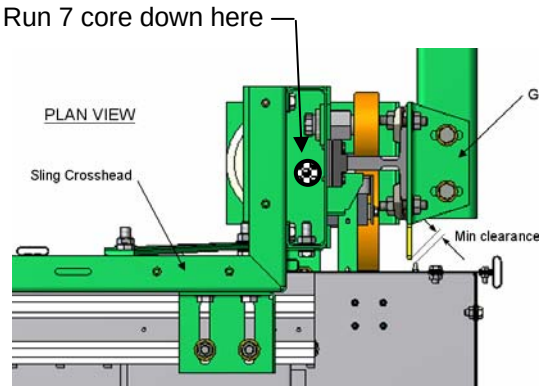
Note: the trigger arm has a "lug" which strikes a fixed stud and acts as a mechanical end stop. If the arm does not reach this end stop the solenoid stroke is insufficient and it must be adjusted to achieve the full stroke of the arm (refer to "solenoid stroke adjustment") before adjusting the front switch.



8. Solenoid Stroke Adjustment:
8.1 The stroke of the solenoid is factory set, so no adjustment should be necessary. However, if the trigger arm does not reach it's fully retracted position (the "lug" on the arm should strike a fixed stud) the stroke should be increased by loosening the locknuts next to the clevis and unscrewing the clevis. It is not necessary to remove the solenoid, as the adjustment can be made simply by rotating the moving part of the solenoid. When the correct stroke has been set, the locking nuts must be tightened up on to the back of the clevis. *Note: Whenever the stroke is adjusted you must check all microswitch positions and readjust if necessary.*

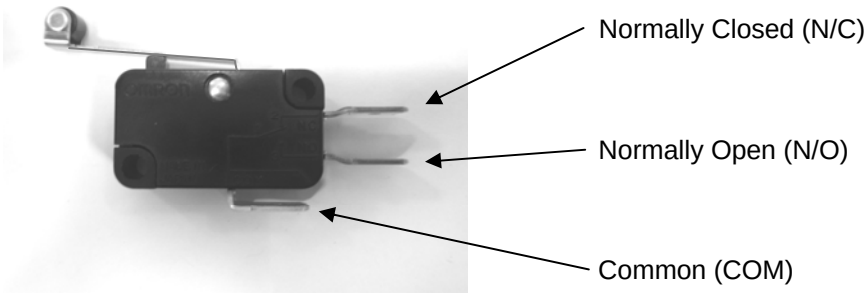


9. Electrical connections (Under Car):
Refer to wiring diagram 9333/730 (or 9333/750 for 2 car entrances)
9.1 Run the 7 core cable from the car top box, down the inside of the sling upright and cable tie the lower end to the rear switch bracket using the 2 small holes provided. *Ensure that the cable cannot get caught on any items in the lift well.*



9.2 Connect wires 1 to 6 and the link wire to the pawl device. The terminal block should be fastened to the rear switch bracket with an M3 screw and nut. **Ensure that wires 1 & 2 are connected in the correct polarity for the diode (the diode is pre-soldered to the solenoid wires) - refer to wiring diagram 9333/730.**
Note: The markings on the micro switch may not always be visible at this stage of the installation. Refer to the labelled photo below to identify the Common, Normally Open or Normally Closed contacts.

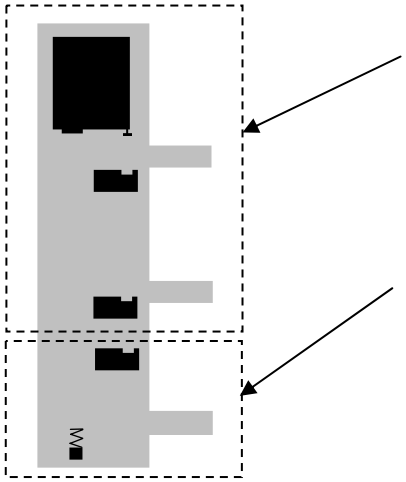
Contacts which are not used should be insulated by pushing a spare spade crimp on to the contact.



10. Electrical connections (Car Top Box):
Refer to wiring diagram 9333/730 (or 9333/750 for 2 car entrances)
10.1 Fasten the 7 core cable at the top of the car (e.g. cable tie it to a spare fixing hole on the sling header) and feed the end in to the car top box trunking.
10.4 Connect wires 1 to 6 from the 7 core cable in to the car top box terminals.
10.5 Modify the existing door open limit switch wiring in accordance with 9333/730.
10.6 Check that the trigger arm retracts fully when the lift is running up on test control.

If the arm fails to retract when the lift is running up **STOP THE LIFT IMMEDIATELY**. Failure to stop the lift may result in damage to the pawl device, activation plate and/or safety gear mechanism. This condition should be prevented by the electrical circuit of the pawl device - please check for faults in the wiring.

11. Installing the Activation Plates:



Protection to passengers is provided by the pawl device at all landings other than the lowest landing – **FOR POSITIONING OF PLATES AT ALL LEVELS OTHER THAN LOWEST LANDING SEE 11.3**

Protection to passengers is provided by the buffers at the lowest landing. The "Maintenance" plate provides safety to engineers working in the pit – **FOR POSITIONING OF "MAINTENANCE" PLATE AT THE LOWEST LANDING SEE 11.2**

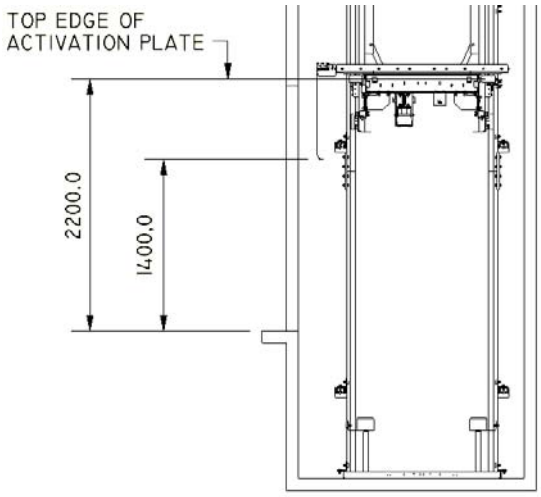
11.1 Mark the positions of the plates on the guides. The easiest way of measuring the plate positions is to work from the car top……

Extend a piece of string horizontally from the landing sill across to the guide rail and make a mark across the foot of the guide. Tip: a spirit level can be used to ensure the string is horizontal during marking out. Make a mark in this way at every landing level - this is your "floor level" mark. You now need to mark the plate positions relative to these floor level marks.

11.2 POSITIONING OF "MAINTENANCE" PLATE <u>AT THE LOWEST LANDING</u>

11.2.1 Make a mark 2200mm <u>above</u> the lowest "floor level" mark. *This mark represents the top edge of the "maintenance" plate.*

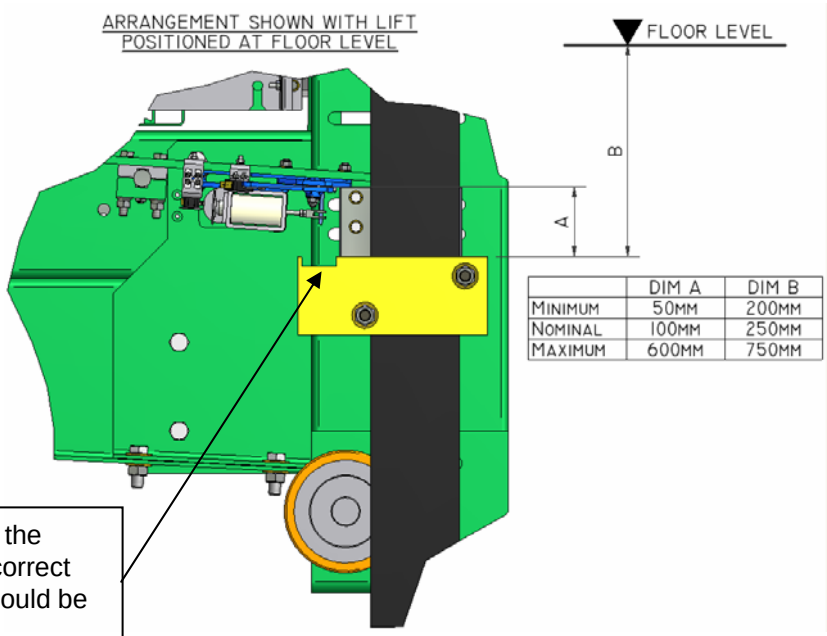
11.2.2 Secure an activation plate at this position. This "maintenance" plate ensures that the lift will be brought to rest with a clear opening height of 1400mm between the car toeguard and the lowest landing door sill (see diagram on right).



Note: The top edge of the plates must be horizontal (the guide clips are positioned such that the plate will be horizontal when a downwards load is exerted on the projecting end of the plate). *The plates can be positioned on to the guide with the guide clips etc already fitted loosely to the plate. The plate can then be slid up or down to the marked position and tightened once correctly aligned.*

11.3 POSITIONING OF PLATES AT ALL LEVELS OTHER THAN THE LOWEST LANDING

11.3.1 Make a mark 250mm below each of the “floor level” marks at all of the landing levels other than the lowest landing. *These marks represent the top edge of the plates and will provide 100mm clearance between the trigger arm and activation plate when the car is at floor level.*



	DIM A	DIM B
MINIMUM	50MM	200MM
NOMINAL	100MM	250MM
MAXIMUM	600MM	750MM

IMPORTANT Ensure the plate is installed the correct way up. The notch should be at the top.

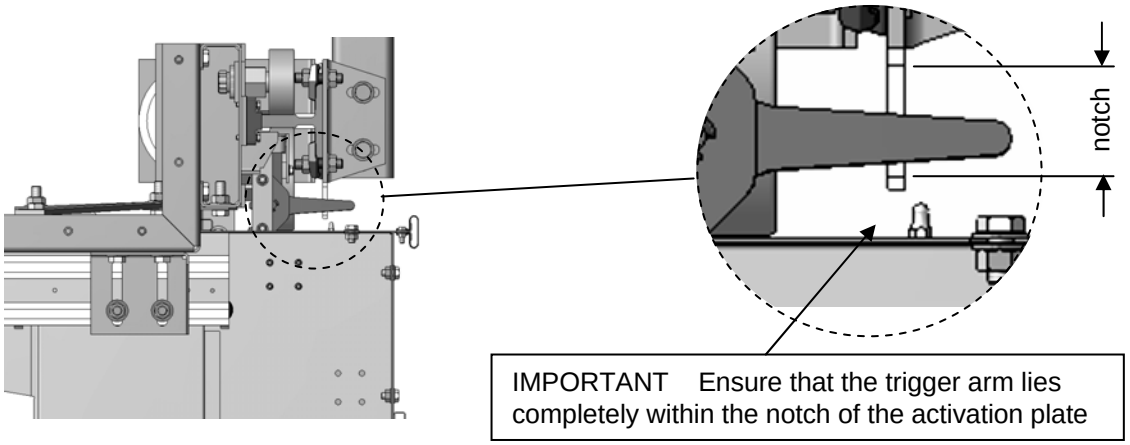
Whenever possible the plates should be positioned in accordance with the nominal dimensions shown in the table (i.e. Dim A = 100mm, Dim B = 250mm). Sometimes, however, the desired plate position may coincide with other items such as guide brackets or fishplates. In such circumstances, it is permissible to position the plate either higher (note minimum dimensions apply) or lower than the nominal dimension.

THE MAXIMUM DIMENSIONS SHOWN IN THE TABLE MUST NOT BE EXCEEDED.

12. Checking the engagement between the pawl device and the activation plates:

12.1 Position the lift such that the trigger arm is approx 50mm above one of the activation plates (i.e. lift at floor level)

12.2 Look down the side of the lift car and confirm that the trigger arm is in line with the notch in the activation plate (see diagram on next page)



12.3 Confirm that every plate is positioned at the correct height by positioning the lift at floor level and viewing from the top of the car. **The pawl device trigger arm should be ABOVE the activation plate when the lift is at floor level.** *Note: it is not possible to check the uppermost plate from the car top as the lift cannot, and must not, be positioned at top floor with persons on top of the car. Confirmation of the uppermost plate must therefore be confirmed by viewing from under the car from in the pit.*