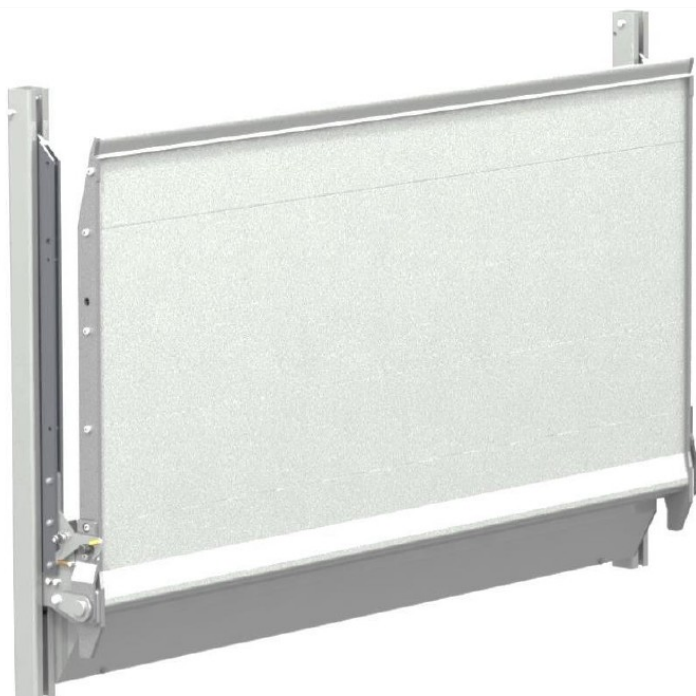


OPERATORS / MAINTENANCE MANUAL

COLUMN TAIL LIFTS



UK
CA
CE

INTRODUCTION

This manual covers the operation and maintenance of the column tail lift range DL,DO,FC,S and TL. The procedures detailed in this manual must be understood before the tail lift is used. The manual should be kept with the vehicle and records of regular maintenance must be entered in the spaces provided to form a service record for the lift.

IMPORTANT

This manual forms part of the Inspection record for the tail lift, and should be passed on to the end user, together with the installation handbook.

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You will notice certain recommendations are repeated in different categories. This is for clarification purposes and is intentional across

OPERATORS MANUAL

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1. WARRANTY

The lift you have purchased is one of the DEL Range of Tail lifts. We are pleased you have chosen DEL and would like to ensure that you have the best service and Experience throughout the life of the lift.

Our lifts are covered by a 12-month warranty against faulty parts or assembly, subject to our conditions below and our normal conditions of sale. To obtain details of your nearest service centre plus updated information of the DEL range please complete and return the enclosed registration form.

PRODUCT WARRANTY TERMS AND CONDITIONS

Date of Issue: April 2022.

Scope: This document replaces all previous documents issued and is effective from the date of issue. Unless otherwise agreed in writing the following terms and conditions will apply.

Hiab UK Ltd (herein referred to as DEL) withhold the right to revise these terms and conditions without prior notice at any time in the future.

General Terms and Conditions

1.1 DEL warrants its Customer and/or End User of its products, provided it has received payment in full for the goods, that it will repair/replace, either from factory or through one of its approved Service Agents, without charge, any original part of any DEL product found to be faulty within twelve months of installation or within fifteen months after the date of despatch from its factory, whichever is the shortest, which is proven to the satisfaction of DEL to be defective.

1.2 Warranty covers failure of DEL products and does not include installation (unless fitted by DEL or DEL approved agent) of the product or any part of the product associated with the installation. This is solely at DEL's discretion.

1.3 To substantiate the claim DEL will want clear product identification (the serial number), may require proof of purchase, may want to inspect the product on its Customer's premises and may insist that the defective product be returned to DEL, (at DEL's cost).

1.4 In the event repairs are required to a DEL product "in the field", DEL will authorise its own engineers or instruct (with a relevant authorisation number) one of its approved Service Agents to carry out the necessary work and will pay the Service Agent direct. In the event that the Customer or End User is willing and capable of carrying out the repair work themselves, costs must be agreed in advance and a pre-authorisation number must be obtained from DEL.

1.5 If during the warranty period, the DEL product is rejected by the Bodybuilder/DEL product fitter, as being not fit for purpose due to poor workmanship, sub-standard performance or other quality defects, DEL will replace or repair the DEL product either on site or at another Location. Costs covered by DEL would include any removal and re-fitting of the DEL product to the vehicle, additional transportation and labour plus materials to replace/repair.

1.6 In the event the DEL product is not accepted by the Customer because the wrong specification was ordered or because the End User changed their mind after DEL product build, DEL will endeavour to take the DEL product back into stock but reserve the right to apply a handling charge and to recover all of its transportation costs. In addition a product devaluation charge will be applicable, the value of which will be dependent on the condition and age of the DEL product and upon whether the DEL product is a "special" or a standard DEL product.

1.7 The warranty will be invalid if any of the following (but not limited to) is shown to have happened: accidental damage, product overload, operator error/abuse, product not installed properly, product not serviced (and greased) regularly.

1.8 The warranty will be invalid if the cause of the breakdown (or other problem) is found to be the result of a defect with another part of the vehicle e.g. a vehicle electrical fault.

1.9 The warranty will be invalid if it is established that DEL has not received payment in full for the DEL product, e.g. if the goods have been stolen or if DEL's customer has been unable or unwilling to pay for the goods.

1.10 The warranty will be invalid if it is shown that the problem/failure has been caused (or contributed to) by non-DEL parts, which were fitted during an earlier service.

1.11 The warranty will be invalid if the failure is shown to have been caused by any unauthorised modifications to the DEL product. DEL approved modifications must always be in writing.

1.12 On no account will DEL accept consequential losses of any description. These include but are not limited to: handling charges, replacement vehicle hire, delivery penalty clause, loss of business opportunity.

1.13 Because DEL's service network covers all of the UK, the warranty applies only to DEL products which have been purchased in the UK and which remain on the mainland.

1.14 If during the warranty period, DEL replacement parts have been fitted; these replacement parts will have a further 12 months warranty for both parts and labour.

1.15 Warranty consideration will only be given providing the customer and Service Agent follow the correct warranty procedure. The customer must contact DEL prior to carrying out any work for authorisation or contact DEL or a DEL approved Service Agent if they require breakdown assistance. DEL Service Agents must adhere to the Service Level Agreement they have signed with DEL (Service Agents see Service Agent SLA).

1.16 Any breakdown at any location found not to be covered by DEL warranty, regardless of fault, will be chargeable to the company that called the job in to DEL. Calling a breakdown in to DEL or a DEL Service Agent will be taken as acceptance of this condition.

1.17 No warranty will be given for any failure due to chemical corrosion and physical erosion.

1.18 No warranty will be given for any failure caused by Fire, Theft, Freezing, Riot or Explosion.

1.19 No warranty will be given for failure caused by Lightning, Earthquake, Windstorm, Hail, Water, or Flood.

1.20 No warranty will be given for any part of a Wanderlead Control Assembly.

1.21 Although DEL will always endeavour to repair/replace parts putting the product back to its original condition, this does not include repainting any part of the product that has been painted after leaving the factory. Galvanised/Plated parts will be replaced where ever possible, but DEL reserves the right to replace parts using non galvanised/plated parts on occasion, but with a minimum of a primer finish.

Customer Responsibility

2.1 The customer is responsible for the maintenance of the product as specified in the Operation and Maintenance Handbook issued with the product at point of sale. It is the customers responsibility to ensure that all operators have read, understood and adhere to the details given in this booklet. If this booklet is not available, a copy is available from DEL's website to download free of charge (visit: www.del-uk.com).

2.2 In addition to regularly greasing the product (see point 2.1); it is the customer's responsibility to replace grease/lubricant that has been removed from the product due to washing/cleaning the vehicle and/or product. This includes products that are on contract maintenance.

2.3 The customer must retain all service documentation, including weight tests and Statutory Thorough Examinations (STE), which must be available upon request to validate any warranty claim. Failure to maintain the product may invalidate the warranty. This is solely at DEL's discretion.

2.4 The customer is responsible for ensuring the product is being used for its intended purpose only, and has been operated in accordance with the issued instructions.

2.5 In the event of failure, the customer must:

- Use all reasonable means to protect the product from further damage.
- Notify DEL Service Department as soon as possible.
- Present where requested, proof of warranty coverage and Tail lift service history.
- Use only genuine DEL Parts.

3. Additional Specific Standard Warranty Exclusions

In addition to the above terms and conditions the following warranty exclusions will apply. Please note that some of these exclusions are product specific and therefore may not be relevant to all products.

3.1 First Year Exclusions:

- Minor adjustments such as (but not limited to) chain adjustment, pressure adjustment, flow adjustment.
- Any form of maintenance such as (but not limited to) lubrication, oil replacement.
- Pressure Filters – Filters are required to be replaced on all bin lifts, where applicable, after the first 3000 cycles (approximately 1 month of use for a typical user) and then every 6 months thereafter.
- The following parts are excluded after 12 weeks from the start of the warrantable period (see point 1.1): bulbs, fuses, electrical connections.

4. Additional Specific Extended Warranty Exclusions

In addition to the above terms and conditions the following warranty exclusions will apply to products purchased with extended warranty and/or put on Contract Maintenance with extended warranty. Please note that some of these exclusions are product specific and therefore may not be relevant to all products.

4.1 Second Year exclusions:

- Hydraulic hoses.
- All hydraulic fittings, including loose fittings.
- All electrical wiring, including loose connections.
- All maintenance replacement parts such as (but not limited to) bushes, bearings, rollers, pins.
- Wear and tear on any part.
- All non standard electrical lift options such as (but not limited to) flashing lights, warning buzzers.

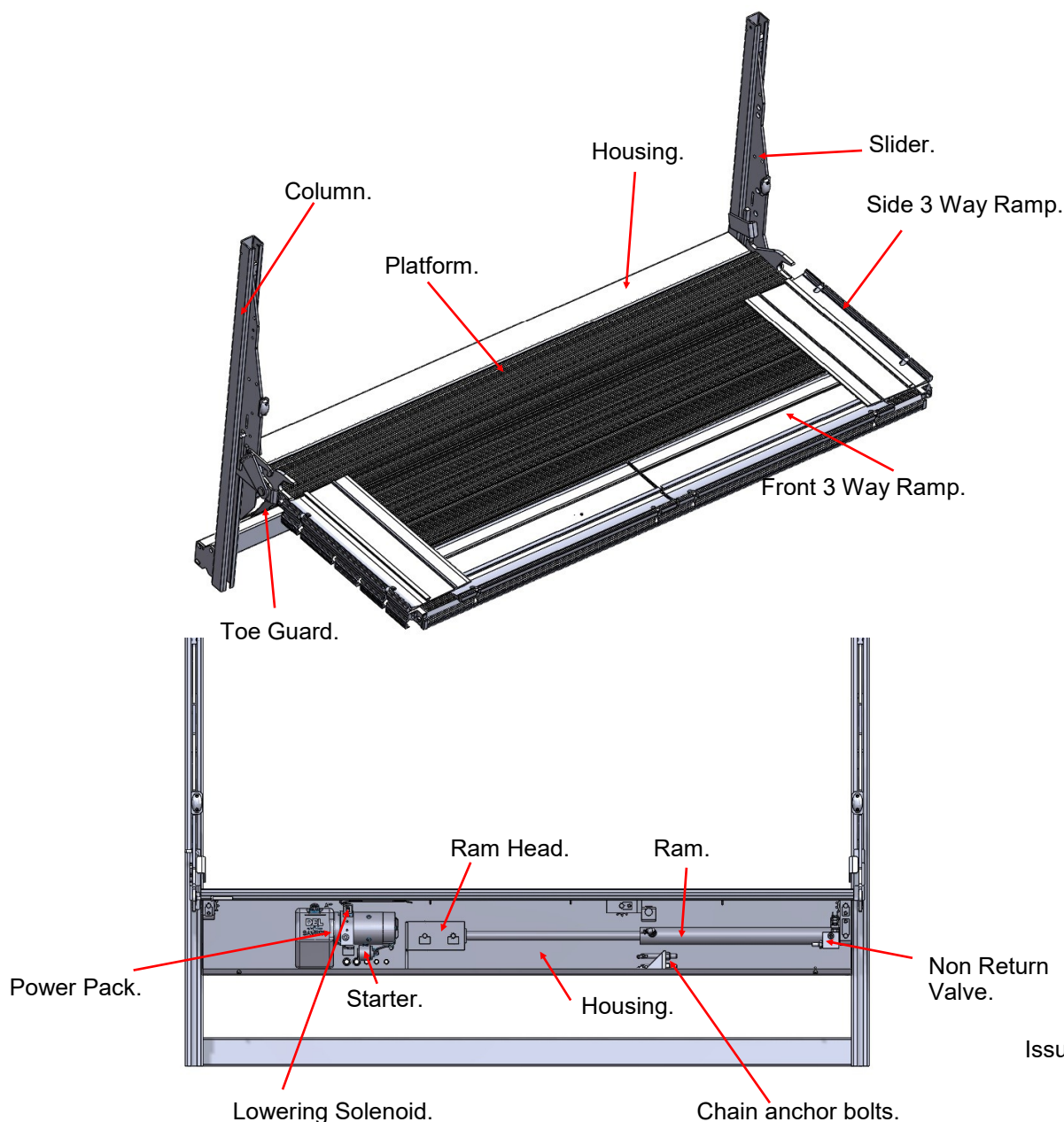
4.2 Third Year exclusions:

- Chain stretch/wear.
- Torsion Bar failure or loss of torsion.

2. OPERATING SYSTEMS

The tail lift is powered from the vehicle battery. A wire is taken from the battery positive to the power pack starter switch and the hand control. These circuits are protected by in-line fuses. The power to the hand control is isolated by a switch in the driver's cab. When the isolation switch is switched on, the up button on the hand control provides power to the starter switch, which operates the power pack motor. This pumps high-pressure hydraulic fluid to extend the ram. On release of the up button the fluid is held in the ram due to a non return valve which locks the ram in position therefore holding the platform stationary.

Pushing the down button powers the lowering solenoid, which allows the hydraulic fluid back from the ram to the power pack reservoir. The ram is connected to the power pack with two pipes, one is the high pressure feed hose the other is the low pressure return pipe to the reservoir. The ram pushes two chains, which, via a sprocket system, are connected to the sliders at each side of the platform that run inside the lift columns. When the down button is pressed the platform lowers by gravity. Each slider has a load safety device (LSD), which, in the unlikely event of a chain break, jams the slider in its column. The opening and closing of the platform is torsion bar assisted. The torsion bar is pre-set on manufacture and located inside the platform and is not a user serviceable part. The platform is stowed vertically when not in use and is held in place by the platform locks. Care must be taken when stowing the platform, that the locks are correctly engaged and the stow indicator (if fitted) in the drivers cab is not lit, also the Cab switch turned off.



3. SAFETY FEATURES

Before operating the tail lift be sure you understand the safety devices fitted, and ensure that they are in good working order by following the regular maintenance program.

CIRCUIT BREAKERS

Fuses protect the electrical circuits. In the case of any electrical fault they will protect the tail lift from any damage to its electrical systems. It is possible to disconnect the electrical supply by removing the fuse.

ISOLATION SWITCH

The isolation switch located in the drivers cab ensures that the lift cannot be operated whilst the vehicle is moving or whilst it is left unattended.

The lift must ALWAYS be isolated after use.

LIFTING LOADS – RELIEF VALVE

The power pack is equipped with a pressure relief valve which ensures that a gross overload of the lift cannot be lifted protecting the equipment from damage. This valve is set on installation to ensure that the lift cannot raise a load 25% more than the safe working load. Decal displayed in position illustrated on Page 10.

LOWERING LOADS – FLOW REGULATOR

The returning oil from the ram passes through a flow regulator valve, ensuring the platform lowers at a controlled speed irrespective of the load.

Note – The platform must not be overloaded on lowering, as this will cause permanent damage to the lift operation.

LOAD SAFETY DEVICE (LSD)

Each slider has its own LSD located inside the column. In the unlikely event of a chain failure the LSD will activate, jamming the slider in the column. The lift will not drop more than 100mm from its position at the time of failure.

3 WAY FOLDING RAMP/CART STOP

On platforms equipped with a 3 way folding ramp, the edge of the ramp can be fixed in a vertical position to ensure that loads cannot roll/fall from the loading edge of the platform whilst lifting or lowering. A platform fitted with 'cart stops' has a similar effect.

CONTROLS

The buttons are designed so they are just large enough to be operated by one finger. This prevents accidental operation by other objects hitting the control box. The control boxes themselves are mounted in a steel protective cover.

TOE GUARD

The toe guard is angled in such a way so to reduce the risk of feet being crushed while the lift is being raised.

PLATFORM

The platform has a rough, anti-skid surface, which ensures that the platform is not slippery in most weather conditions.

STOW INDICATOR (IF FITTED)

The stow indicator in the drivers cab activates when the platform is not in its stowed position. Ensure that it is not active before driving the vehicle. If it activates whilst driving, stop as soon as possible and check that the platform is stowed correctly.

HANDRAILS (IF PROVIDED)

Handrails are fitted wherever there is a risk of falling more than 2 metres.

AUDIBLE-VISUAL WARNING SIGNAL

Audible-Visual warning signals are provided wherever there is a risk of falling more than 2 metres.

4. WARNING DECALS

A - LOCATED NEXT TO THE CONTROL BOX. WITH REMOTE CONTROL OPERATION IT IS LOCATED ON THE PASSENGER SIDE, AS CLOSE TO THE LIFT AS POSSIBLE AND AT EYE LEVEL (APPROX. 5 FEET FROM THE GROUND)

B - LOCATED NEXT TO 'A'

C - LOCATED ON THE MAIN HOUSING COVER ABOVE THE TOE GUARD ON THE PASSENGER SIDE.

D - LOCATED ON THE MAIN HOUSING COVER ABOVE THE TOE GUARD OR TO THE RIGHT OF 'B'

E - LOCATED NEXT TO 'B'

F - LOCATED AROUND THE POSITIVE CABLE FROM THE LIFT TO THE BATTERY

G - LOCATED IN THE DRIVERS CAB AS CLOSE TO THE STOW INDICATOR AS POSSIBLE.

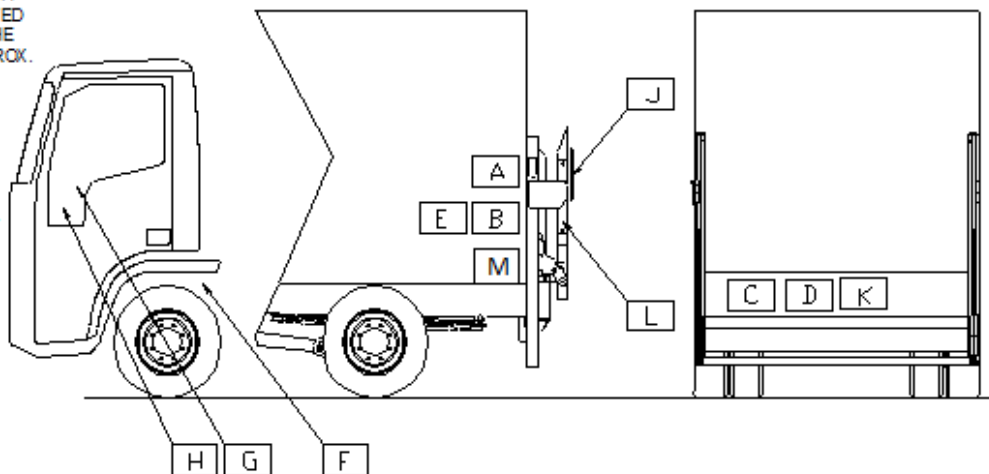
H - LOCATED IN THE DRIVERS CAB AS CLOSE TO THE ISOLATION SWITCH AS POSSIBLE.

J - REFLECTIVE FLAGS LOCATED AT THE TOP OF THE PLATFORM ON BOTH SIDES

K - LOCATED ON THE MAIN HOUSING OR ON THE POWER PACK BOX (CHASSIS PACKS)

L - LOCATED ON THE EDGE OF BOTH SIDES OF THE PLATFORM

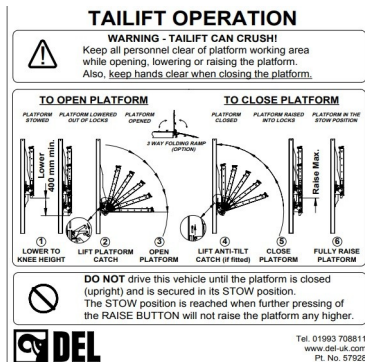
M - LOCATED ON OUTSIDE OF BODY



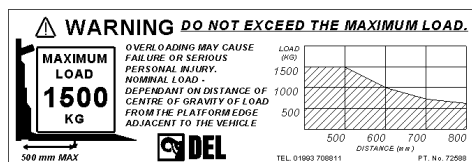
A) TAIL LIFT OPERATION

B) CAUTION

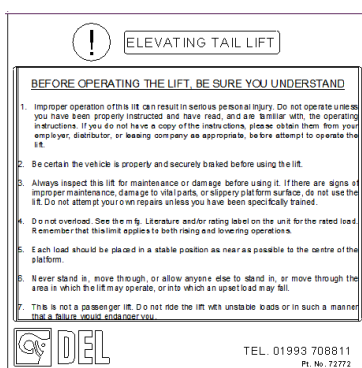
C) WARNING



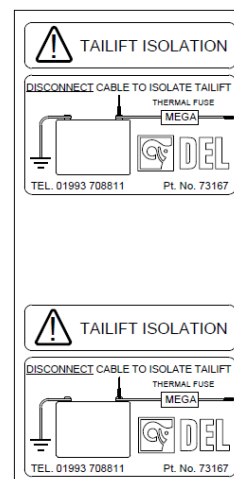
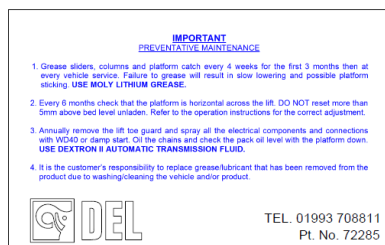
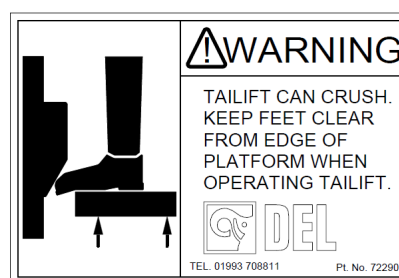
D) MAX LOAD



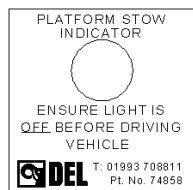
E) MAINTENANCE



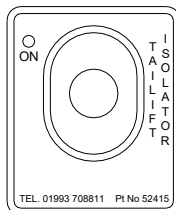
F) TAIL LIFT ISOLATION



G) STOW INDICATOR (ON DASHBOARD)



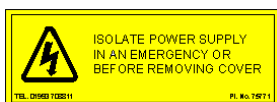
H) ISOLATION (ON DASHBOARD)



J) FLAGS



K) ISOLATE POWER SUPPLY



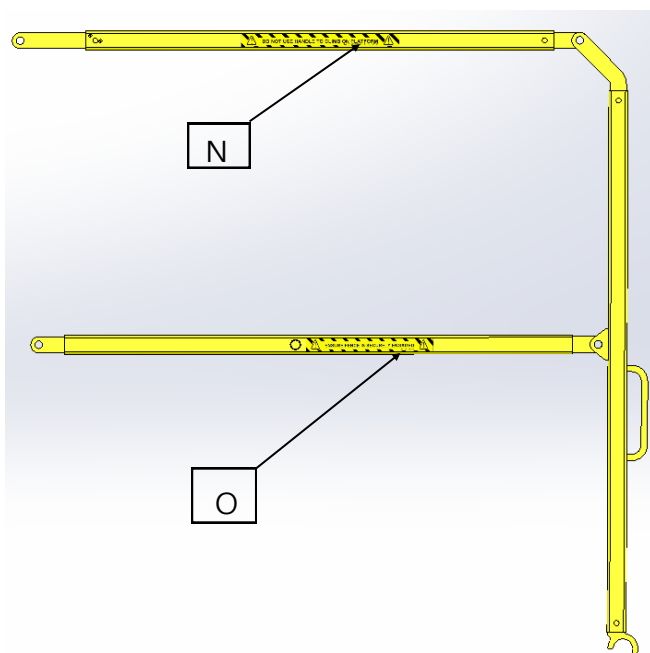
L) KEEP FEET CLEAR



M) WARNING - KEEP HANDS CLEAR



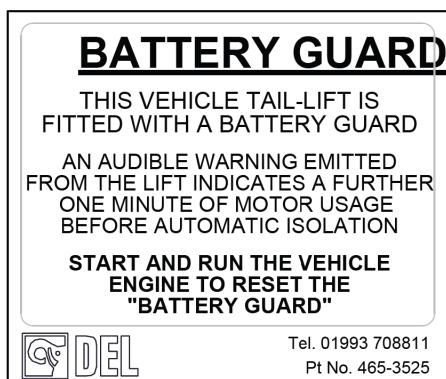
GUARDS WARNING DECALS



DROP DOWN GUARD OPERATION (WHERE APPLICABLE)



P) BATTERY GUARD OPERATION (WHERE APPLICABLE)



N) DUAL MODE GUARD OPERATION (WHERE APPLICABLE)



O) DUAL MODE GUARD OPERATION (WHERE APPLICABLE)

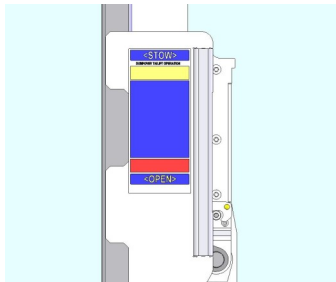
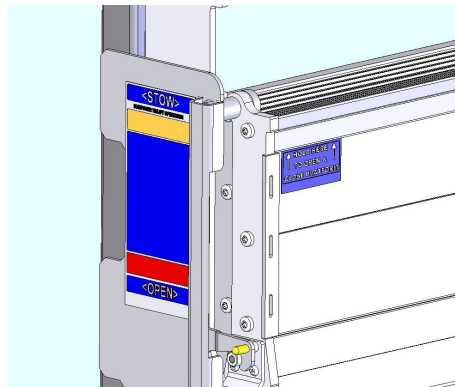


IMPORTANT

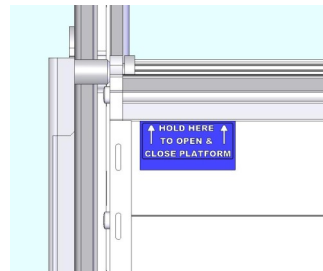
Before use, the lift should be inspected to check that all warning decals are present and legible, if not contact DEL Sales for replacements.

LIFT OPERATION DECAL POSITIONS, DUMPOVER LIFTS

Affix the 'TAIL LIFT OPERATION, and 'HOLD HERE TO OPEN & CLOSE PLATFORM' decals where shown.



DUMPOVER TAIL LIFT OPERATION



HOLD HERE TO OPEN & CLOSE
PLATFORM

5. INTENDED AND UNSAFE USES



INTENDED USES

The Column Lifts are intended for: -

- Lifting of loads vertically from the ground to vehicle bed height.
- Lowering of loads from the vehicle bed height to ground.
- Lifting of the load and the operator only, where the operator has been trained.
- Lifting and lowering of loads within the stated safe working load of the lift.
- DO type lifts are to be used on tipping vehicles and form the vehicle tailgate.



UNSAFE USES

The following are unsafe practices, which may damage the lift and cause risk of personal injury: -

- Driving a forklift onto the platform.
- Using the lift as a jack.
- Using the lift as a link bridge.
- Using the platform as a step to the truck bed.
- Lifting unstable/wheeled loads without special precautions.
- Use as a passenger lift.
- Driving the vehicle with the platform open.
- Overloading the platform.

6. SAFETY PROCEDURE

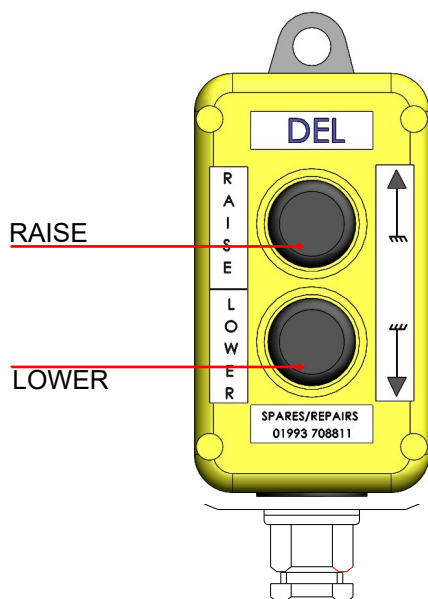
Before operating the lift be sure to understand the following instructions: -

1. Read and be familiar with the safety instructions and warning decals before operating the lift.
2. Be sure the vehicle is on level ground, securely braked and that there is adequate lighting in the working area.
3. Inspect the lift for maintenance needs or damage. If there are any signs of damage do not use the lift or attempt repairs unless you have been specifically trained to do so.
4. Clear the working area of any obstructions.
5. Do not overload the lift. Note that the safe working load of the lift applies to both lifting and lowering operations.
6. Make sure the centre of the load is placed as near to the centre of Gravity distance as shown on the SWL decal. If wheeled loads are lifted ensure these are securely braked and that available safety devices are used (3 way folding ramp/ cart stop).
7. Make sure that whenever you intend to ride the platform that you leave enough room to stand without risk of falling.
8. Make sure the platform is securely stowed in its locks and that the stow indicator (if fitted) is out before driving the vehicle.
9. Always isolate the lift (with the in-cab switch) after use.

7. HAND CONTROLS / BATTERY GUARD

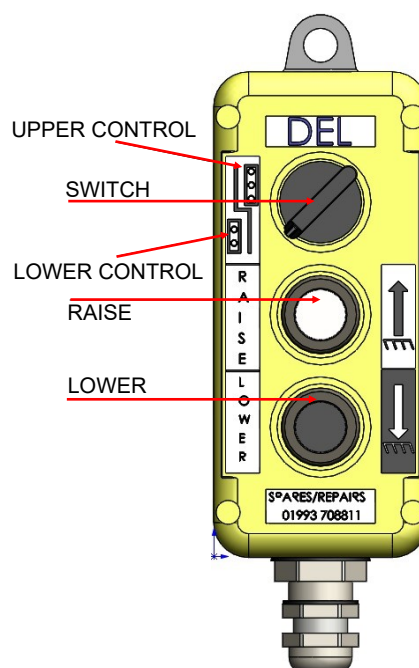
STANDARD CONTROL

Standard control mounted at the rear of the vehicle on the passenger side.



DUAL CONTROL

The 3-button control has a rotary switch which isolates the 2 button when the 3 button is in use. It is typically situated at the rear inside of the body at hand height.

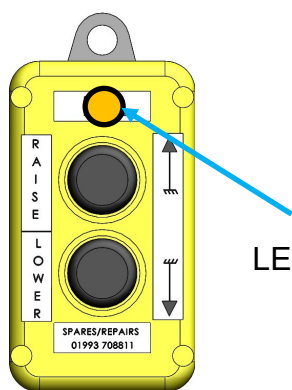


2 HANDED CONTROL

For 2 Handed Control operation, a secondary control is supplied positioned at a minimum of 200mm away from the primary control.

2 BUTTON WITH BATTERY GUARD INDICATOR

A 2 button control with a yellow LED indicator is supplied to indicate that the lift Battery guard system is about to disconnect power to the lift. It will emit a flashing yellow light for 1 minute before disabling the power, thus ensuring that the vehicle will be able to start. When sufficient power is restored to the Battery, the system will reconnect the power.



LED Indicator.

Alternatively, some lifts have a Battery Guard Alarm fitted inside the Ram Housing instead.

1) When the BATT+ voltage is above 13.0V (26.0V) for 10 seconds, the loads will automatically be connected to the battery.

2) When the BATT+ voltage drops below 12.1v (24.2v) for 60 seconds, the alarm will pulse for a further 60 seconds warning the user that the loads are about to be disconnected. The disconnect process will stop if the battery voltage returns to 12.v (24.2v) or above.

3) After 60 seconds of the alarm pulsing, the loads will disconnect and the alarm will turn off.

8. WORKING AREA

The push button controls are located in such a position to give: -

- A good view of the working and surrounding areas.
- A kerbside location for operation of the lift.
- Where two hand controls are used they provide protection for the hands from crushing.

The position of the controls should not be changed.

Always ensure that there is sufficient lighting to the working and surrounding area

NOTE

The Danger zone is the area in which the platform travels, and under no circumstances should this be entered while the platform is in its operating position.

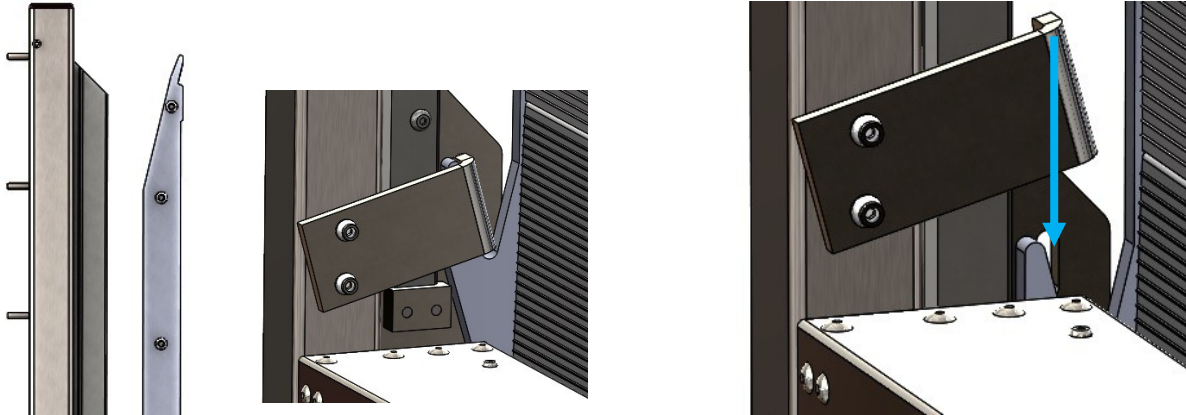
The Working area is the area around the platform in which the operator can stand while the platform is in its operating position. If anyone other than the operator enters this area while the lift is in use, any raising or lowering operation, which is being performed, must be stopped immediately.

Surrounding area is the area around the working area. The operator should be aware of the surrounding area and look for any potential hazards.



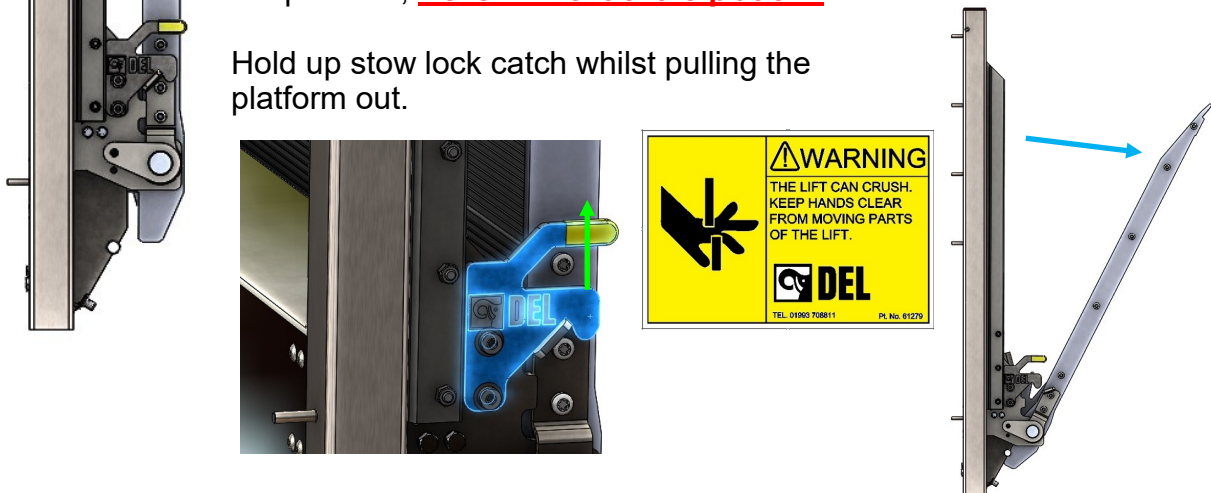
9. OPERATING INSTRUCTIONS – STOW LOCK LIFTS

1. Switch on the tail lift isolation switch in the driver's cab or plug in the Wanderlead control.
2. Ensure the working area is clear from obstructions
3. Press the lower button to ensure the lift is clear of the stow lock as shown.
4. Approaching the lift from the passenger side, hold the edge of the platform and lift the stow lock catch.

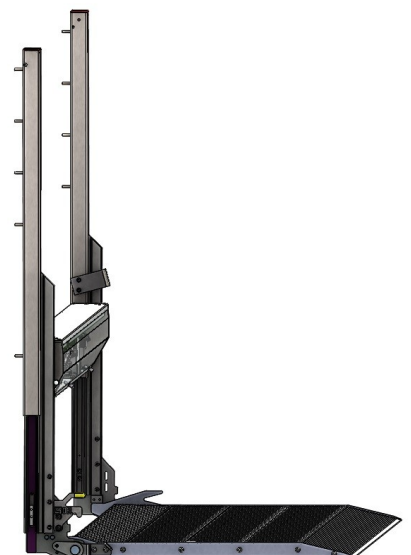
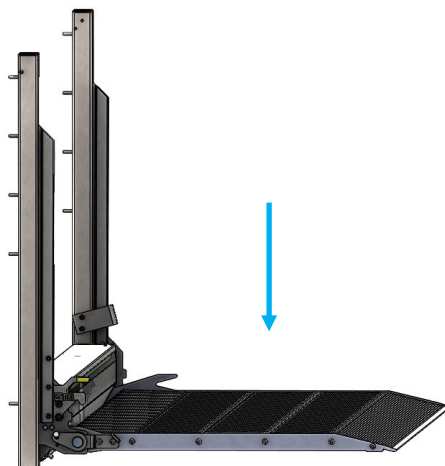


IMPORTANT – Always stand to one side of the lift when opening the platform, **Never in front of the platform**

Hold up stow lock catch whilst pulling the platform out.

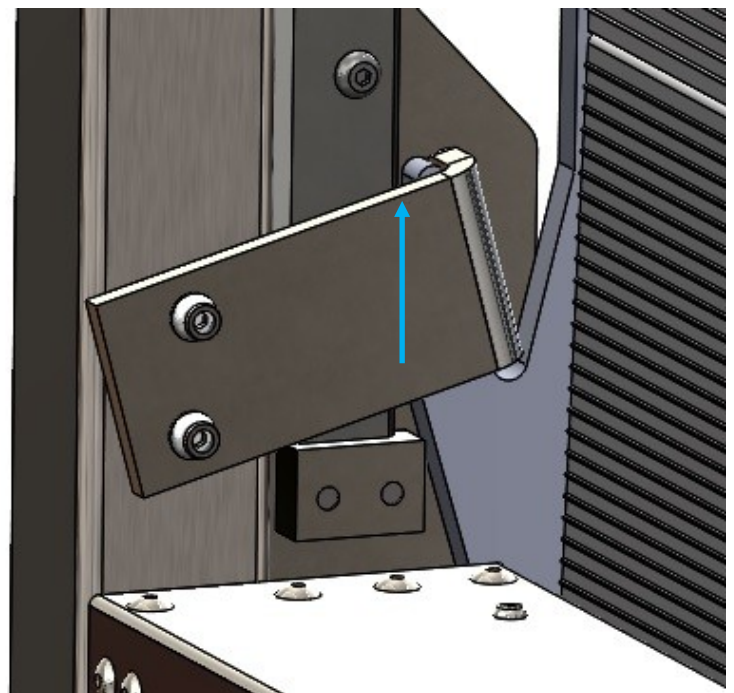
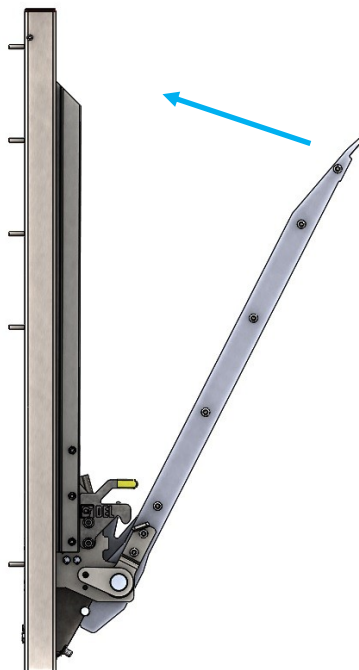
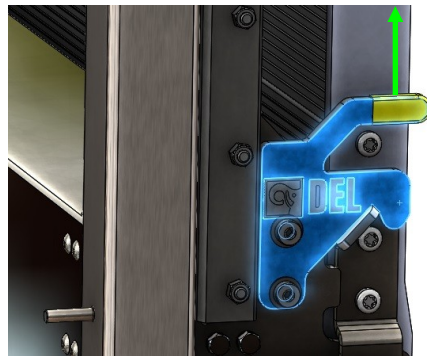
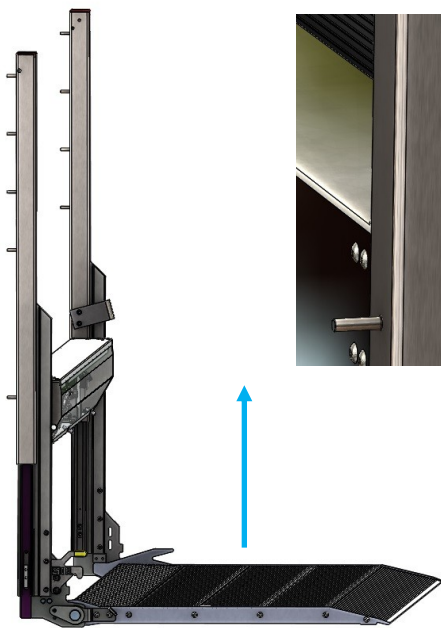


5. Lower the platform to the horizontal position before lowering the platform to the floor using the hand control.



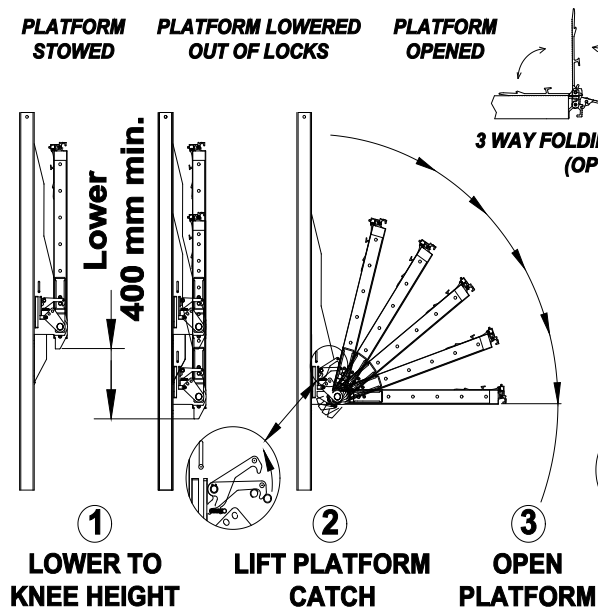
TO CLOSE

1. Using the up button, raise the platform to a position below the stow lock as previous.
2. Lift up safety catch and hold whilst folding up the platform slowly (Be aware of your hand / platform positions at all times until upright)
3. Using the hand control, Raise lift into Stow lock. (Keeping hands clear of lift)
4. Switch off the isolation switch or disconnect the Wanderlead control and ensure that the stow warning light (where fitted) is out before driving the vehicle.

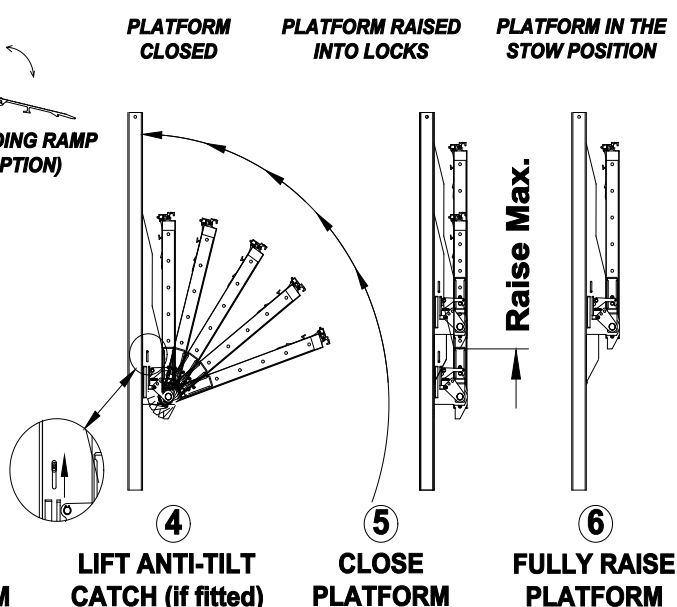


10. OPERATING INSTRUCTIONS – POWER LOCK LIFTS

TO OPEN PLATFORM



TO CLOSE PLATFORM



1. Switch on the isolation switch in the driver's cab or for some options, plug in the Wanderlead control.
2. Ensure the working area is clear from obstructions.
3. Stand to the left side of the platform (Caution: Do not stand in the path of the moving platform).
4. Push the 'LOWER' button, to lower the platform out of its lock to a convenient safe height for opening (see drawing 1).
5. Whilst standing to the side of the lift raise the safety catch (see drawing 2) and carefully open the platform to the horizontal position (see drawing 3)
6. Lower the platform to the ground.

TO CLOSE

1. Push the 'RAISE' button, to raise the platform to a convenient height for closing (Note that this must be at least 100mm below bed level for the stow ear to clear the power lock)
2. Release the anti-tilt catch if fitted (see drawing 4) and close the platform to the vertical position, ensuring that the safety catch engages (see drawing 5).
3. Raise the platform up into the 'stow' position, ensuring that the platform ear locates fully into the power lock (see drawing 6).
4. Switch off the isolation switch or disconnect the Wanderlead control and ensure that the stow warning light (where fitted) is out before driving the vehicle.

12. OPERATING INSTRUCTIONS - DUMP OVER

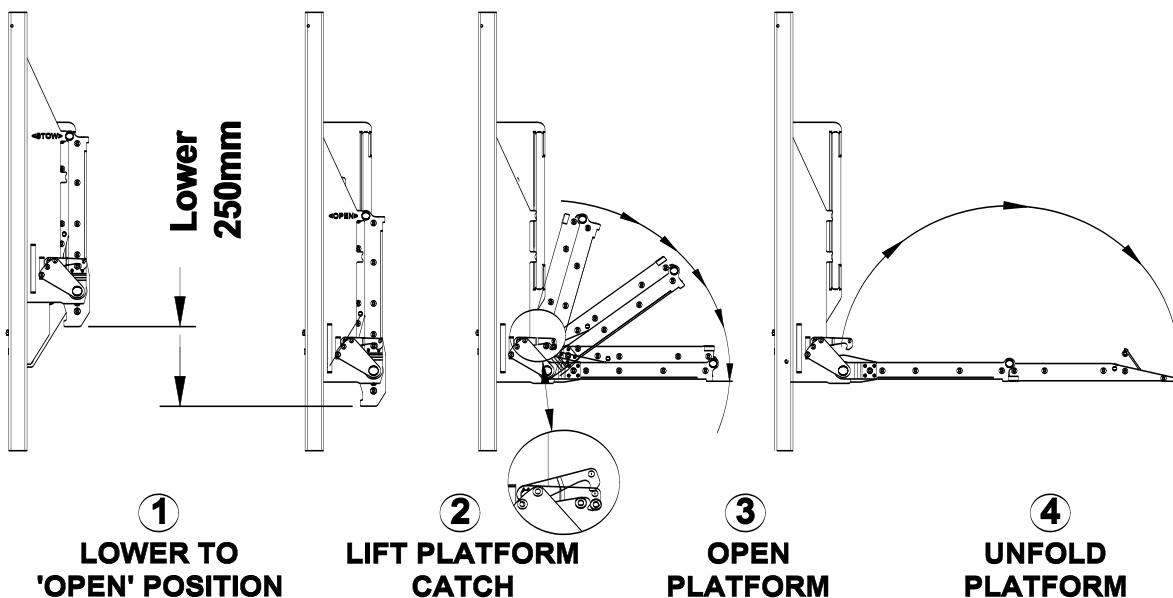
TO OPEN PLATFORM

**PLATFORM
STOWED**

**PLATFORM LOWERED
OUT OF LOCKS**

**PLATFORM
OPENED**

**PLATFORM
UNFOLDED**



1. Switch on the isolator switch in the driver's cab.
2. Lower the platform from the tailgate position to a midway position between the two locks (see drawing 1)
3. Standing to the side of the lift raise the safety catch (see drawing 2)
4. Open the platform to the horizontal position (see drawing 3).
5. Unfold platform and lower the lift to the ground (drawing 4).

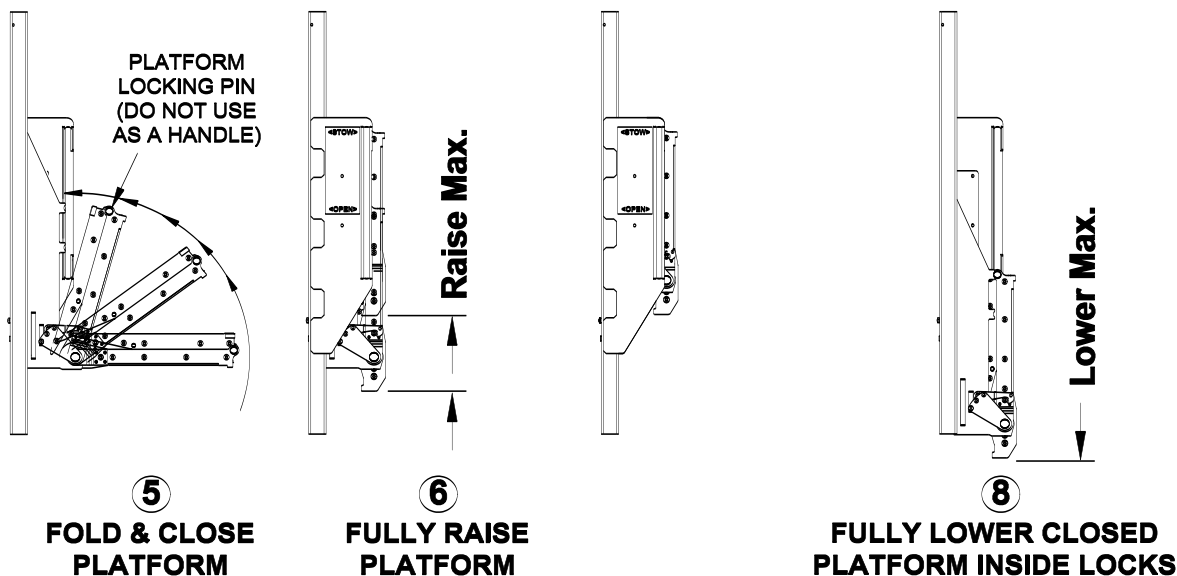
TO CLOSE PLATFORM

**PLATFORM
CLOSED**

**PLATFORM RAISED
INTO LOCKS**

**PLATFORM IN THE
'STOW' POSITION**

'TIPPING' POSITION



1. Fold and close platform at midway position (see drawing 5).
2. Power up platform fully into top lock position (see drawing 6)
3. Ensure platform is fully raised into the stow position.
4. Switch off the isolator switch in the drivers cab.

WARNING

Always raise the platform to the midway position before closing up the platform.

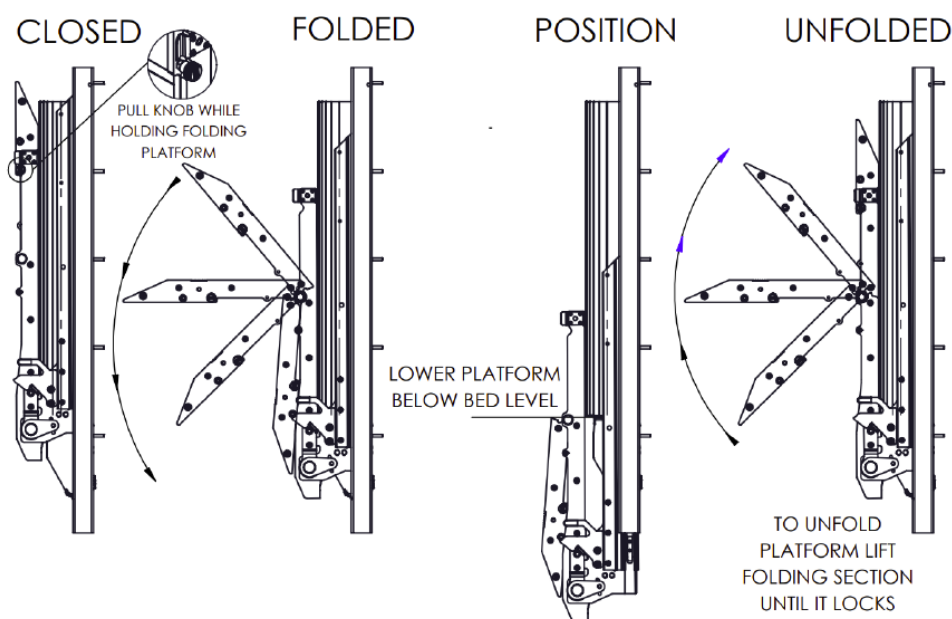
Failure to do this **will result in damage to the lift and possible injury.**

Ensure the lift is isolated after use and the platform stow indicator (where fitted) is out before driving the vehicle.

TIPPING POSITION

1. Switch on the isolator switch in the drivers cab
2. Lower the platform down out of the top lock and ensure that it is securely located in the lower slot lock (see drawing 8).
3. Please refer to Vehicle manufacturer's Tipping procedure.
4. Look for Height, and also ground hazards.
5. Proceed with the tipping operation as normal only if safe to do so.

DOS500



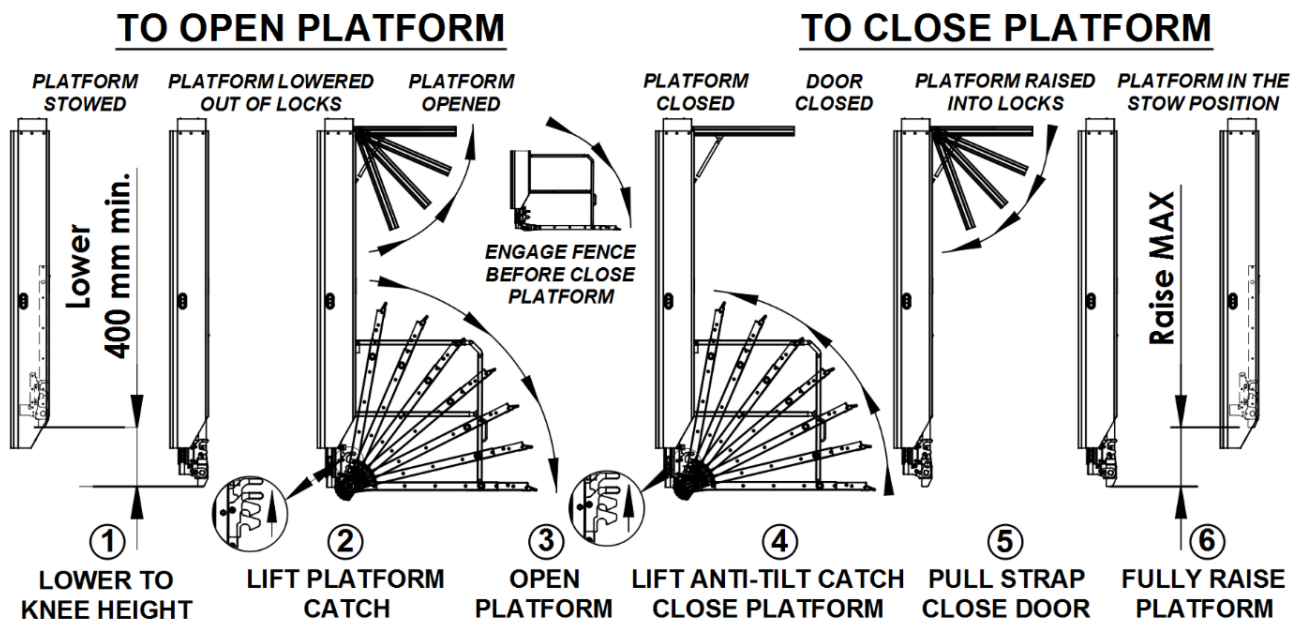
Unfold the Platform and Prepare for Tipping:

1. **Release the Platform:** While supporting the folding section of the platform, pull the side knob to unlock it.
2. **Unfold:** Carefully lower the folding section until it is fully extended and flush with the main platform.
3. **Position for Tipping:** Lower the entire platform until it is below the level of the vehicle bed.
4. **Tip the Body:** You can now tip the vehicle's body. **CAUTION:** Pay close attention to the clearance between the platform and the ground during the tipping process to prevent impact.

Fold and Stow the Platform:

1. **Fold the Section:** Lift and rotate the folding section upwards until it is vertical and the locking mechanism clicks into place.
2. **Stow the Platform:** Press the **Up** button, raising the platform until it is securely stored in the power lock.

13. OPERATING INSTRUCTIONS - FULL CLOSURE



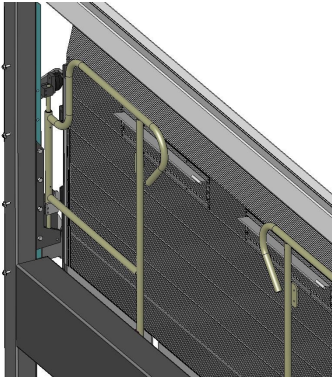
1. Switch on the tail lift isolation switch in the driver's cab or plug in the Wanderlead control.
2. Ensure the working area is clear from obstructions and there is space for the door to open.
3. Stand to the left side of the platform (**Caution: Do not stand in the path of the platform**).
4. Push the 'LOWER' button, to lower the platform out of its lock to a convenient safe height for opening (see drawing 1).
5. Open the door (see drawing 2)
6. Rotate / Lift the safety catch (see drawing 2) and open the platform to the horizontal position (see drawing 3).
Caution: In the event of torsion bar spring failure, the platform may deploy from its stowed position with greater force than usual.
DO NOT ATTEMPT TO CONTROL THE OPENING OF THE PLATFORM.
Release the platform and stand clear.
7. Lower the platform to the ground.

TO CLOSE

1. Push the 'RAISE' button, to raise the platform to a convenient height for closing (Note that this must be at least 150mm below bed level for the stow ear to clear the power lock)
2. Ensure that the drop down fence (if fitted) is securely engaged (in the deployed position) before closing the platform.
3. Rotate / Lift the platform catch (see drawing 4) and close the platform to the vertical position, ensuring that the safety catch engages (see drawing 5).
4. Pull the strap to close the door (see drawing 5)
5. Raise the platform up into the 'stow' position, ensuring that the platform locates fully into the door (see drawing 6).
6. Switch off the isolation switch or disconnect the Wanderlead control and ensure that the stow warning light (where fitted) is out before driving the vehicle.

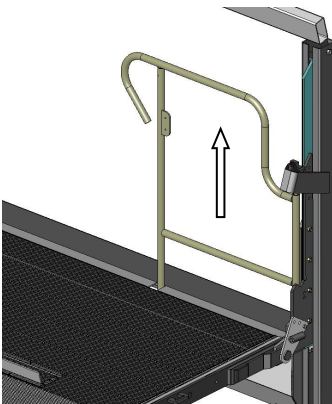
14. SAFETY GUARD OPERATION

WRAP AROUND GUARDS (Lift/Rotate Type)



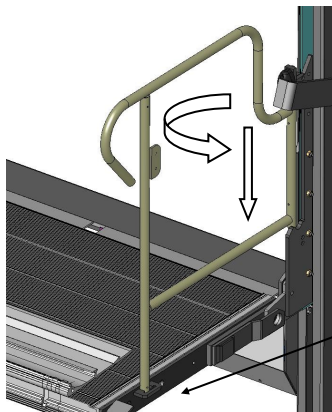
See relevant section for lift operation.

Safety guards shown in the closed position with the platform closed.



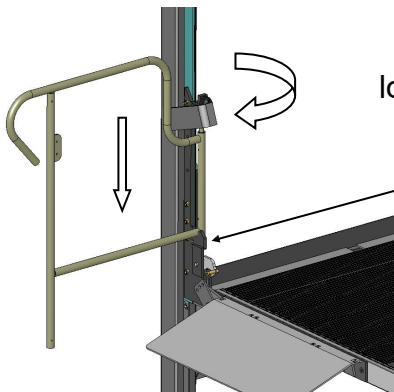
Safety guards shown in the closed position after opening the platform.

Lift guards vertically before rotating to the required operating position.



Safety guard shown rotated into the deployed position.

Lower guard and ensure vertical bar is fully engaged in retainer.

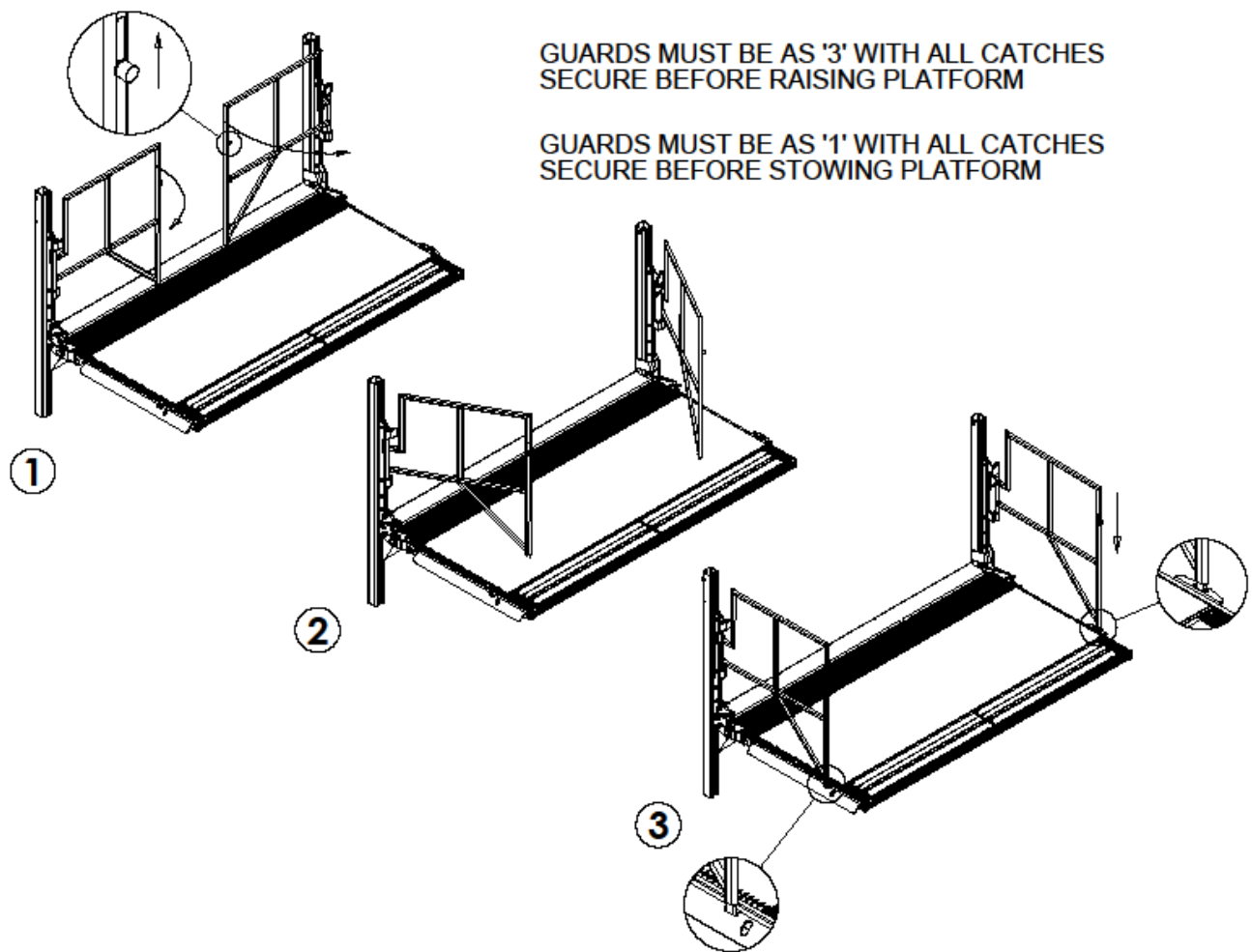


Safety guard shown rotated into the '180' degree position.

Ensure Guard horizontal bar is fully lowered into its profiled cup location.

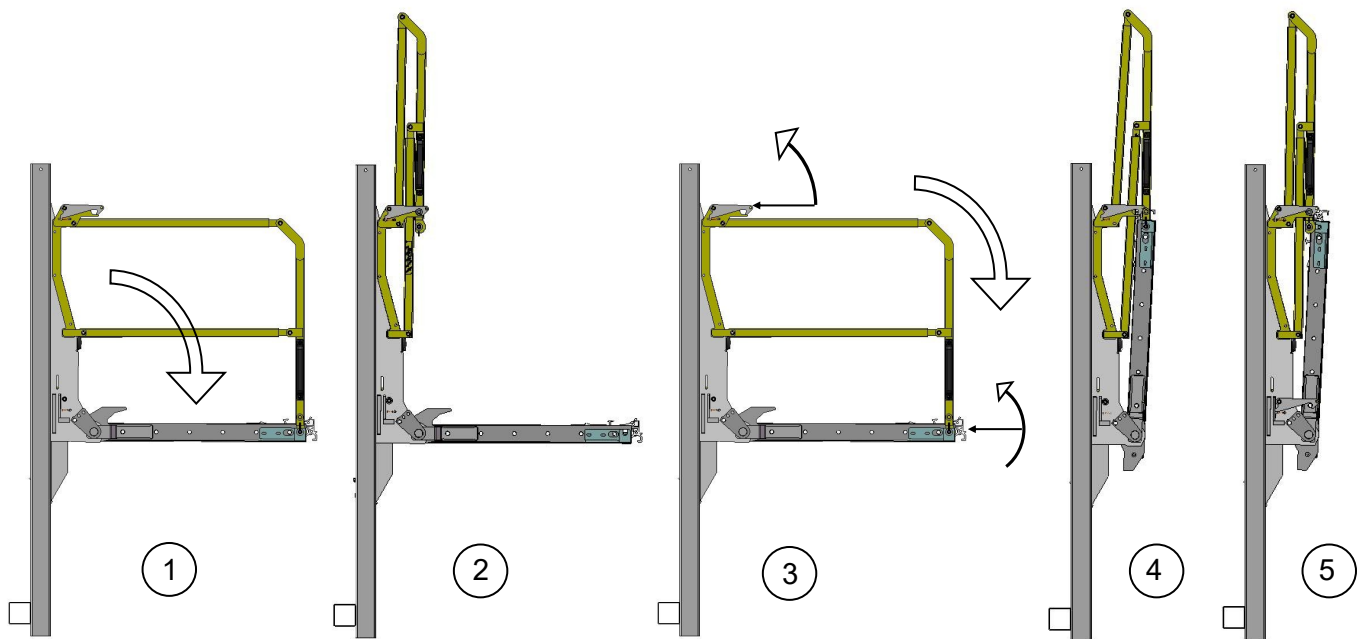
Guard stowing is a reverse of the above procedure before closing the platform.

WRAP AROUND GUARDS (Locking Bar Type)



1. See relevant section for lift operation.
2. Lower platform, unlock stowed guards by lifting locks (see drawing 1).
3. With locks lifted, open guards (see drawing 2).
4. Align guards with locking slots in platform and release locks into slots (see drawing 3).
5. Closing guards is the reverse of the above procedure.
6. Fences must be in securely stowed (see drawing 1) before stowing lift.

DUAL MODE GUARDS

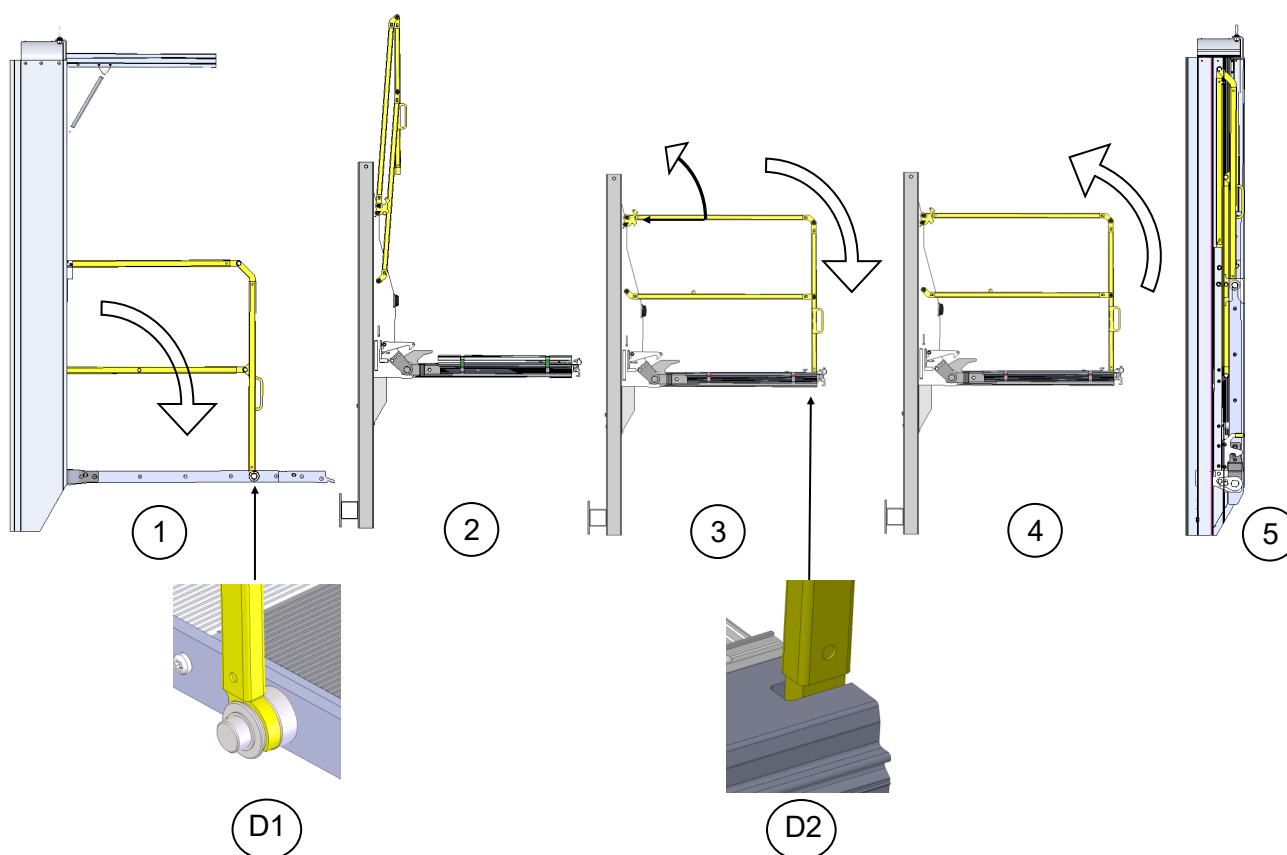


1. See relevant section for lift operation.
2. Lower platform, depending on how lift was last stowed; Dual mode guards will deploy (see drawing 1) OR dual mode guards will remain in stowed position (see drawing 2).
3. To deploy dual mode guards from stowed, lift safety catch, lower guard and lock securely to platform by rotating shoot bolt (see drawing 3).
4. To stow lift, raise platform (see drawing 4).

TO RAISE GUARDS FOR SIDE ACCESS

1. Rotate shoot-bolts and carry out the reverse of section 3 (see drawing 3).
2. Raise dual mode guard and stow securely ensuring safety catch is fully engaged (see drawing 2).
3. To stow the lift, either lower the dual mode guards (see drawing 3) and re-engage the shoot-bolts then raise platform (see drawing 4) OR if the guards are already stowed, raise the platform (see drawing 5).

DROP DOWN GUARDS

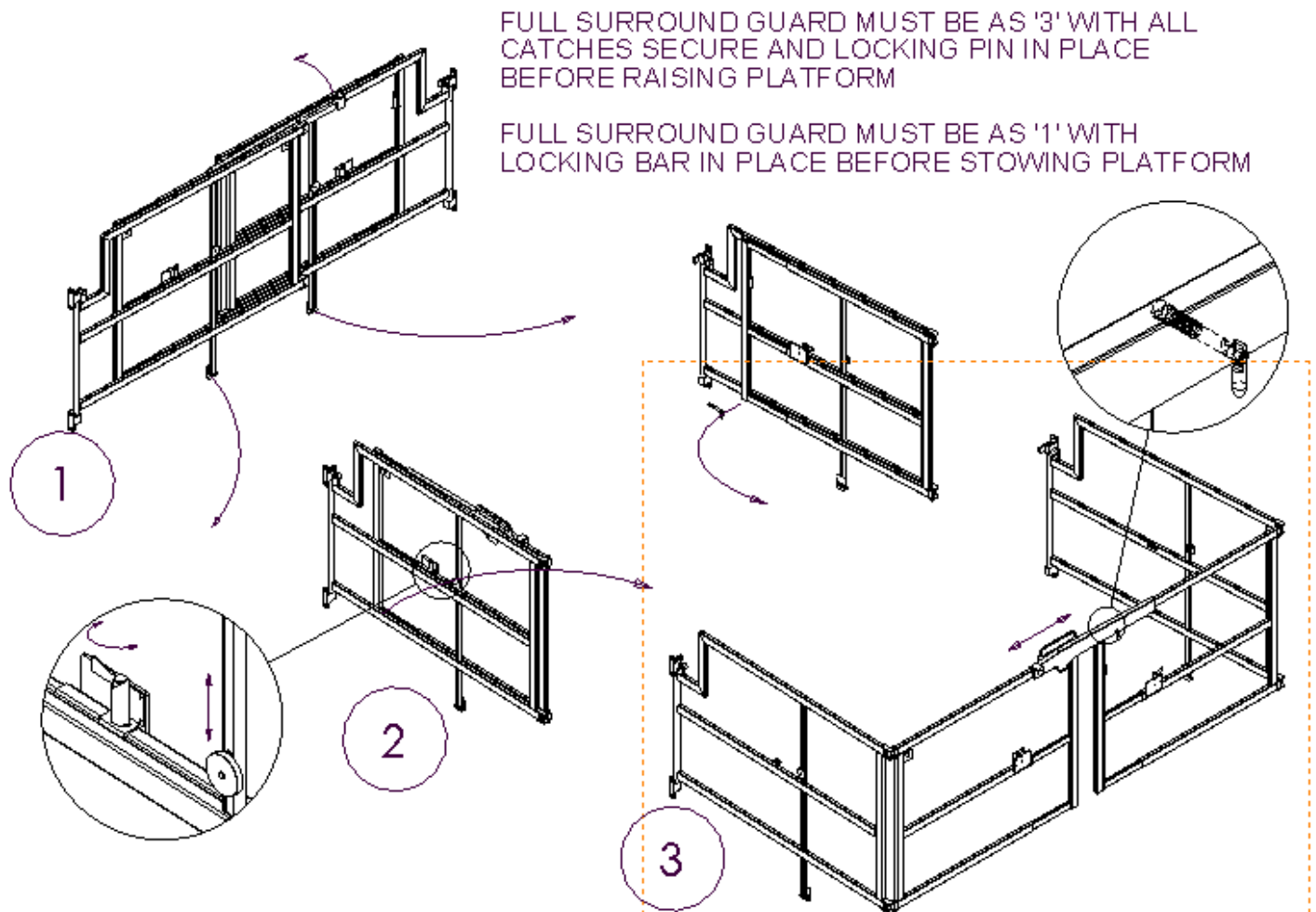


1. See relevant section for lift operation.
2. Lower platform, depending on model of the drop down guards; Drop down guards will deploy (only on fc lifts) (see drawing 1) OR Drop down guards will remain in stowed position (see drawing 2).
3. To deploy drop down guards from stowed, lift safety catch, lower guard and securely engaged on the platform (see detail 1 or detail 2).
4. To stow lift, raise platform (see drawing 5) (only on fc lifts), on other models stow the guard first, ensure that the guard is securely locked on the catch and then stow the platform. (see drawing 4)

TO RAISE GUARDS FOR SIDE ACCESS

1. Pull drop down guard to raise (see drawing 4).
2. Raise drop down guard and stow securely ensuring safety catch is fully engaged (see drawing 3).
3. To stow the lift, lower the drop down guards (see drawing 3) (only on fc lifts) and ensuring that the guard is securely re-engage on the platform before raising the platform (see drawing 5). On other models stow drop down guards, ensure that the guard is securely locked on the catch before raising the platform (see drawing 4).

FULL SURROUND GUARDS



1. See relevant section for lift operation.
2. Lower platform, unlock stowed guards and open sections (see drawing 1).
3. Lock guard sections securely onto platform in positions shown by depressing and releasing spring locks into locking plates (see drawing 2).
4. Release shoot bolts each side & open front guard sections (see drawing 2).
5. Pull back shoot bolt on front guard to allow lock arm to pass, then release shoot bolt to lock front guard securely (see drawing 3).
6. Closing guards is the reverse of the above procedure, ensuring sections are securely locked using shoot bolts (see drawing 2).
7. Fences must be in securely stowed (see drawing 1) before stowing lift.

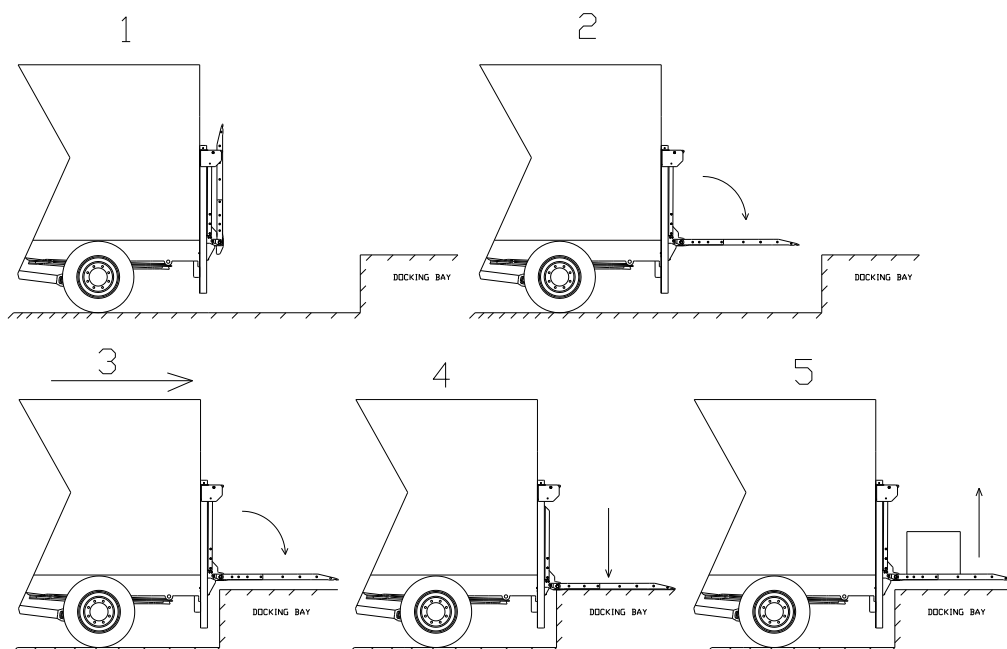
15. LOADING AND UNLOADING PROCEDURE

1. Open the platform following the operating instructions.
2. Evenly distribute the load on the platform, with the load centre as close to 0.5m from the vehicle edge of the platform as possible.
3. Make sure to leave enough room for the operator to stand when they intend to ride the platform and that wheeled loads are securely braked.
4. Power the lift up keeping feet away from the edge of the platform.
5. When the platform reaches bed height release the control button. Holding the control button on when the platform has reached its stop can damage the lift.
6. When loading from the vehicle onto the platform ensure that the safe working load of the lift is not exceeded as the overload may damage the unsupported platform.

When closing the platform ensure that it is securely stowed in its locks and that the stow warning (where fitted) light is out. Always isolate the lift with the in-cab switch after use.

DOCK LOWER THAN VEHICLE BED HEIGHT

1. Open the platform following the opening procedures for the lift fitted.
2. Raise the platform above dock height.
3. Reverse carefully back to the dock so that the entire platform is overlapping the dock.
4. Lower the platform until it rests on the dock.
5. Once the platform is loaded, raise to the bed off of the vehicle to unload.
6. Once the use of the lift is complete close the platform following the closing procedure for the lift fitted.



**DEL IS A CARGOTEC BRAND**

MAINTENANCE MANUAL

1. INTRODUCTION

Low maintenance requirements are an important benefit of the DEL tail lift. There is a minimum of moving parts and no cables to fray. However, low maintenance does not mean NO MAINTENANCE – Attention to the simple monthly, seasonal and yearly program should ensure years of safe, trouble free work from your DEL tail lift.

IMPORTANT

The “duty holder” (owner/user /operator) of the tail lift has a legal responsibility to ensure that the lift is safe to use at all times. These duties and responsibilities are documented in some detail in the LOLER 1998 and PUWER 1998 Regulations. Del has produced a document to provide advice to “duty holders” (tail lift owners and users) to assist them to comply with Government Health & Safety Regulations. It also provides useful information for service engineers. This document (guide No. 4001.1) is available on request.

2. KEY NOTES ABOUT LOLER AND PUWER REGULATIONS

RESPONSIBILITY

The DEL Column Tail lift has been built to offer trouble-free and safe service for many years provided it is properly cared for. The “duty holder” (owner/user /operator) of the tail lift has a legal responsibility to ensure that the lift is safe to use at all times. These duties and responsibilities are documented in some detail in the LOLER 1998 and PUWER 1998 Regulations. A copy of these Regulations and the relevant ANNEX 12: Thorough examination of a lorry tail lift are available from HSE Books.

LIFTING OF PERSONS

The DEL column lift has been designed primarily as a goods lift. We do not authorise its use as a passenger lift but it can be safely used to lift and lower the (properly trained) operator. There should never be more than one person (the operator) on the platform when it is being raised or lowered. When on the platform, the operator must have sole control of the upwards and downwards movements of the platform, this will minimise the risk of a fall or of trapping or crushing. Safety gates can be obtained, as an option, where the user believes there is a risk that the operator might fall from the raised platform. As an additional safety measure we recommend that the operator wears suitable safety shoes or boots, which are fitted with steel caps.

THE COMPETENT PERSON

The LOLER Regulations make several references to a competent person. This person or persons has two separate responsibilities. The first one is to devise an **examination scheme** in terms of scope and frequency of examination for the tail lift. The second is to carry out the recommended *Thorough Examinations* and inspections. This could be, but is not necessarily the same person, the skills and level of knowledge of the person is all-important. It is also very important that the competent person(s) who conducts the thorough examination is “independent” and free to report any faults without fear of recrimination.

EXAMINATION SCHEME

This documented procedure provides details of what should be inspected and at what intervals. The person(s) who prepares the scheme must have a very good working knowledge of our column lift. The Regulations provide a basic scheme for a *thorough examination* but if you are suitably qualified you may alter the frequency of inspections (within certain limits) and you may add other elements to the examination if you think it necessary. If you do not have easy access to a qualified person to prepare a suitable *examination scheme*, you may adopt this scheme, as detailed below. This scheme has been prepared by a “competent person” i.e. DEL’s own Engineer(s) and if followed properly, it will comply with the LOLER Regulations. You will still be responsible for ensuring the examinations are carried out per schedule and for ensuring that an “independent” competent person carries out the inspections.

3. SAFETY INFORMATION

TORSION BAR

Every platform is fitted with a torsion bar, which assists when opening and closing the platform. The torsion bar is pre-set on manufacture and is housed in the first section at the back of the platform. On short aluminium platforms only one bar is needed, which runs between the hinge pins, however on larger platforms there are often 2 bars, which run from either hinge pin to a bar retainer inside the platform. The tension in the bar **should only be adjusted by someone who has been specifically trained to do so.** It is NOT a user serviceable part. Note that the platform is heavy and is very difficult to close without torsion assistance, extreme care must be taken when opening a platform, which does not have any torsion assistance.

WARNING – Torsion bars are brittle and can shatter if not handled correctly. Even when the platform is closed there is still a significant force on the bar and other components attached to it, these components (i.e. locking tab and hinge pin) should not be altered while the bar is under torsion.

SPRINGS

There are springs located inside both columns, which are used to operate the Load Safety devices. To check the operation/condition of these springs follow the LSD test procedure. Springs are also present on certain Safety catch mechanisms.

HYDRAULIC SYSTEM

The hydraulic system uses high operating pressures and as such should be treated with caution. Never work on the lift while the system is under pressure, always lower the platform onto the ground before any maintenance of the system and use the correct PPE. (Personal Protective Equipment)

WARNING – High-pressure ejection of hydraulic fluid can cause serious injury. A ram in operation/under pressure has a large amount of stored energy.

4. MAINTENANCE PROCEDURE

1. On a daily and weekly basis perform the checks as described below.
2. Before carrying out the service the tail lift should be cleaned and inspected. We also recommend that it receive a Thorough Examination, just prior to the service. If the service engineer is shown a copy of a very recent *Thorough Examination Report* (within the last 7 days), and accepts that the *Thorough Examination* has been completed by a "competent person", he may decide not to repeat some or all of the checks in the service.
3. The service schedule gives details of regular service procedures. All of the procedures should be carried out at each service except the hydraulic oil change, which only needs to be done every 24 months. The appropriate part of the service record should be completed after each service.
4. Where major repairs are needed (see below); the additional service sheets should be completed. The post installation tests which refer to the replaced part need to be repeated i.e. if the power pack is replaced, the overload, drift and operating speed tests need to be repeated.

USAGE

The maintenance schedule for column lifts is given below. The time scale for the schedule is given below . (*May need to be increased if lift is regularly Pressure cleaned*).

Light use - An average of about 10 cycles per day at loads well below the safe working load of the lift - Service twice per year.

Normal use – An average of about 30 cycles per day at loads mostly below the safe working load – Service 3 times per year

Heavy use – An average of about 60 cycles or more per day at loads on or close to the safe working load – Service 4 times per year

The times given for the schedule are taken from the date of installation.

The need for regular, preventative maintenance is essential to the working life of the lift.

ACCIDENT OR BREAKDOWN

In the event of an accident or breakdown, if the tail lift cannot be repaired immediately it must be put out of operation and secured against unauthorised use. Contact DEL service for assistance.

MAJOR ALTERATIONS/REPAIRS

In the case of a major repair the service report (see page 44) should be completed. After such repair the tests after installation should be carried out to ensure the lift is set up and operating correctly and safely after the repair. A major repair is classed as one, which involves the replacement of parts due to failure or malfunction.

REPLACEMENT PARTS

A complete list of service replacement parts can be obtained by contacting DEL Service.

DAILY INSPECTIONS

At the beginning of each shift or working day that the equipment is in use the following routine inspections should be carried out, **by the trained and authorised person who will use the equipment (usually the Vehicle driver)**. There is no need to keep any records of the inspection but if any faults or defects are found they must be communicated to the business manager/owner immediately. This routine inspection, done at the depot, should normally take no more than a few minutes and could eliminate a lot of time and effort later in the day. If in any doubt the equipment should not be used until any serious defect has been dealt with. This may mean involving a "competent person" to inspect the lift.

- Ensure the columns are properly secured on the body, i.e. that the welds and or bolts are secure and to the correct Torque as Stated in the Installation Manual.
- Check that the two warning flags are in place on the platform, and in good condition, if not ask for them to be ordered immediately.
- Check that all the warning decals are still present and correctly located.
- Check that the DEL plate is visible indicating the SWL.
- Check that inside both columns are adequately greased.
- Check that the TOEGUARD is securely fastened and is not deformed.
- Look on the ground, under the toe guard and (if separate) under the power pack box, ensure there is no oil leaking from the system.
- Inspect the control buttons to ensure they work properly.
- Standing to the side, Carefully open the platform and ensure that any safety gates or fences are undamaged and that the platform surface is not slippery, Also check the action of any folding ramps which may be fitted.
- Lower the platform to the ground then immediately raise it back to bed level. Ensure the movement is smooth with no unusual lift, motor or pump noises.
- Close the platform ensuring the effort is within normal limits i.e. that the TORSION BAR(S) is still operational. (Limits are stated in the Installation Manual)
- Close the platform and ensure it is safely "captured" in the Stow Locks. .
- Check that visual and audible warning signals are operational when lowering the platform (provided only when there is a risk of falling more than 2m).

The user should inform the business manager/owner of any problems. The business manager is responsible for ensuring proper action is taken.

It is not essential to log the outcome of these inspections but it is sensible to note any faults found and later comment when the fault has been put right.

5. THOROUGH EXAMINATION

Who may conduct the Thorough Examination?

Only a “competent person” may conduct the *Thorough Examination*. This person can be an employee of the business or (s)he can be brought in from outside the company. It is the skill, knowledge and “independence” of the person that is all important. DEL recommend that you use a service agent who has been approved by us to service and/or repair DEL column lifts. This person will already have the necessary level of knowledge to service the lift and will be competent to go through our recommended *Thorough Examination* procedure (as detailed) and document the results. A comprehensive list of DEL approved agents is available on request.

When should the thorough examinations take place?

DEL authorise the tail lift operator (but only the operator) to stand on the tail lift in motion, and consequently the *Thorough Examination* must be done at least every six months. In exceptional circumstances the duty holder may be able to ensure that no person will ever stand on the tail lift in motion, and may therefore decide that an annual *Thorough Examination* will suffice. In practise we believe that this would be very difficult to enforce and consequently we strongly advise that the examinations take place a minimum of every six months. In those situations where a tail lift is subjected to arduous use (long periods of repeated usage with loads close to the rated capacity of the tail lift), it will require more frequent examination. A *Thorough Examination* and Weight test is also required after substantial or significant modification or repair.

Depending on the use of the lift, we recommend that the tail lift is serviced between two and four times per year. We further recommend that the *Thorough Examination* is done by one of our approved service agents, it makes sense to have them conduct the *Thorough Examination*, prior to the service. It is essential however to ensure that the agent first conducts the *Thorough Examination*, completes the necessary paperwork and then carries out the service. In the process the agent will put right any of the faults found, although more than one visit may be required if replacement components are necessary. The process might also involve making contact with DEL for advice and/or assistance. It is essential that the *Thorough Examination* report is written and filed prior to any service work being done. A competent person who fails to report a defect, simply because it has been remedied on the spot, is disguising a potentially dangerous situation.

Again, Since much of the work involved with a *Thorough Examination* is required during a service, we recommend that a *Thorough Examination* is done prior to each service, i.e. twice, three or four times per year as mentioned previously. If however you decide to separate the *Thorough Examinations* from the services you must ensure that a *Thorough Examination* is performed at least every six months.

Again, Since much of the work involved with a *Thorough Examination* is required during a service, we recommend that a *Thorough Examination* is done prior to each service, i.e. twice, three or four times per year as mentioned previously. If however you decide to separate the *Thorough Examinations* from the services you must ensure that a *Thorough Examination* is performed at least every six months.

What should be examined?

The next page contains a list of what we recommend should be examined. The examiner may decide to expand on this list if they suspect a fault might exist elsewhere. We can presume a good deal of knowledge and skill from our approved service agents and hence it is not necessary to explain in detail, in this procedure, exactly how to perform the examination, in fact we want to discourage the enthusiastic amateur from “having a go”.

Before commencing the examination the tail lift should be cleaned to ensure no faults are hidden by dirt.

Recommended Examination Points.

- Check that all decals and warning flags are present and in their proper place.
- Ensure the columns are properly secured on the body, i.e. that the welds and/ or bolts are secure and tight.
- Check columns for straightness and damage.
- Check the vehicle chassis is sound that all bracing is intact and secure.
- Check that the TOEGUARD is securely fastened and is not deformed.
- Check the condition of all switch controls. Are all buttons intact, the casing, control box (if fitted) and battery cables undamaged and that there are no loose wires.
- Carefully open the platform and ensure that any safety gates or fences are undamaged and that the platform surface is non-slip and damage free. Also check the action and condition of any folding ramps which may be fitted.
- Lower the platform to the ground then immediately raise it back to bed level. Ensure the movement is smooth with no unusual Lift, motor or pump noises.
- Check that the tail lift comes up to bed height (Factory set to 6mm above bed) and that the platform is level.
- Check the condition of the sliders; ensure they are not excessively worn.
- Check there is adequate and not excessive grease inside the columns where necessary. (Too much grease can cause LSD problems).
- If Wear Pads are fitted, check they are properly secured and not excessively worn.
- Check the operation of the Load Safety Devices (LSD's), per procedure.
- Lower the platform approximately half way to the ground, then release the button and confirm the lift stops immediately. Raise the platform and before it reaches bed height release the button and confirm the lift stops immediately and remains at that position. I.e. *Does not creep down*.
- Open and close the platform ensuring the effort is within normal limits i.e. that the TORSION BAR(S) (if fitted) is still operational and effective.
- Operate the controls to stow the platform, ensure it is safely retained in the lock(s).
- Remove the Toe guard and visually inspect the chains, chain mounting points, sprockets, bushes and sprocket boxes.
- Check all Housing, Column and Platform Lock fixings are secure and in place.
- Check Power Pack, solenoids etc. for loose wires. Check that the tamper proof cap is still intact on the Pressure Relief Valve, or that the valve may only be adjusted with a special tool. Nb the Power pack may be housed separately, if so remove the cover and carry out the inspection.
- Check all hoses and hose connections to the Hydraulic Cylinder(s). If fitted (not on 500kg or below) ensure that the Lock/Check Valve is secure.
- Check the oil level in the tank is correct and that there are no oil leaks or Bubbles present in the Oil.
- Check that visual and audible warning signals are operational when lowering the platform (fitted only where there is a risk of falling more than 2M).

The "standard" Thorough Examination is now complete. (see Weight Test point 1.5.3.4)

If a service is not to follow, the Toe guard should be re-fitted and the paperwork completed and distributed.

If, as we recommend, the service agent has already been authorised to conduct a service, the Toe guard can be left off and the paperwork completed and distributed. The service agent will then already know if any components need repair or replacing, and with the Toeguard off they can commence work straightaway. The time to service the tail lift is therefore minimised without compromising safety.

LOAD (OR WEIGHT) TEST

Provided the examiner can see that the tail lift is in good condition and that it, plus its bracing has not undergone any structural repair, and if there is evidence that the tail lift has been Load Tested at least once in the past (every tail lift should have been load tested just after installation), **there is no need to carry out any further Load Tests.**

If however the examiner has reason to believe the tail lift has deteriorated (or the lift has undergone substantial modification) since the last Load Test, they should inform the duty holder and request a Load Test be arranged immediately. In such instances we recommend the examiner should forbid the use of the tail lift until the tail lift has passed the Load Test.

It has been “custom and practise” to have tail lifts Load Tested annually (or in some cases every six months), for example this may be a condition of your insurance policy. In such circumstances you should comply with your insurer’s demands.

The DEL service agent will be trained and authorised carry out the Weight Test. Damage can be caused to the tail lift should the Load Test be performed by an untrained person.

PAPERWORK FLOW

The “competent person” will be fully conversant with the Regulations and will ensure that any faults are properly recorded and communicated to the relevant responsible people. They are responsible for determining the timing by when all faults need to be corrected and in extreme circumstances they must be given the authority to forbid the use of the tail lift until the necessary repairs are done.

The DEL agent will normally have their own company forms on which to record any faults and his comments, however a standard DEL form (D003), which meets the Regulations is available.

SERVICING THE TAIL LIFT

How often should it be serviced?

As mentioned previously, Although the servicing of a DEL column lift is straightforward, we strongly recommend it is done only by trained and authorised DEL service agents. The frequency of the services will depend on the how often the tail lift is used and how often it is required to lift loads close to the SWL.

We recommend that it be serviced either three or four times per year. This will be satisfactory in the vast majority of cases, but if in practise this proves to be insufficient, we recommend you contact the DEL Technical Department for advice (in case there is a fault). In exceptional circumstances the frequency of services could be increased.

If the tail lift sees only “light use” i.e. the load is usually well below the SWL and the tail lift is used only a few times per day, it may be sufficient to carry out the service every six months. In no circumstances would we recommend servicing the lift less than twice per year.

In all cases the tail lift will perform best and the life of components will be greatly enhanced if the columns are regularly greased if necessary. We recommend you use MO-LY-LITHIUM grease (LITHIUM MULTIPURPOSE on fc lifts) and because this is a straightforward operation (a service engineer is not required) it could be even be done weekly at the time of the weekly inspection. This may be especially beneficial if the tail lift is power washed regularly.

THE SCOPE OF THE TAIL LIFT SERVICE.

Before carrying out the service the tail lift should be cleaned and inspected.

We also recommend that it receive a Thorough Examination, just prior to the service.

The service agent should refer to his recent Thorough Examination report before starting work. If no report can be made available, and if he has not been contracted to carry out a Thorough Examination, the service engineer will have to carry out an inspection, as part of the service, to establish if any faults need correction. There are therefore two levels of service.

Service immediately following a Thorough Examination

- Replace any damaged or missing warning decals or flags.
- Tighten or replace any loose or missing nuts or bolts
- Open the platform and lower it to the ground. First clean out the columns of any hardened grease and debris then liberally apply MOLY-LITHIUM (LITHIUM MULTI-PURPOSE on fc lifts) grease to the inside of both steel columns, to the exposed areas of the chains and to each slider "face" which has contact with the inside of the column. Note; Tail lifts that have green slider wear pads and plated chains only require light oil spray.
- Raise the platform and grease the previously inaccessible areas within the columns.
- Apply light oil to the platform "hinge pin" and to any other hinges or joints on ramps or fences.
- Grease the platform hinge pin and sprocket pin grease nipples where provided.
- With the Toe guard removed apply MOLY-LITHIUM grease to the chain within the Housing (Beam). Note; Lifts with plated chains only require light oil spray.
- Add oil (ATF Dextron 2) to the tank if necessary.
- If necessary re-align the platform, (Adjust *Bed level.*)
- Replace the Toeguard, operate the lift a couple of times and ensure everything operates smoothly.
- Make a note of any further faults found which have come to light after the Thorough Examination has been documented, and list any work which has not been completed together with any replacement components, which may be required.
- Complete the standard paperwork and file your report.

The above list represents the "Standard DEL Recommended Service", ensure you ask your chosen DEL service agent to include for all of the above in his quoted price. The cost of any additional repair work, including that identified on the Thorough Examination, which needs to be done and any replacement components required will not normally be included in the price for the service. If the work is not being done under warranty or under a maintenance agreement the additional work will be charged for, either on a time and materials basis or for an agreed fixed price.

Service undertaken without the inclusion of a Thorough Examination.

The duty holder may decide to engage another qualified “competent person” to carry out the Thorough Examination and may want the DEL service engineer to only carry out the service. Del, however, do not recommend that a service be done “blind” and hence an inspection of the tail lift is essential in order to ensure the lift will operate properly and safely. Nor can we recommend that any of the checks, which are listed in the Thorough Examination, be omitted from this inspection. The service engineer will therefore need to go through the same checks as in the Thorough Examination (without the need to record his findings on the form) and then complete the service as described above.

If the service engineer is shown a copy of a very recent *Thorough Examination* Report (within the last 7 days), and if they accept that the *Thorough Examination* has been completed by a “competent person”, they may decide not to repeat some or all of the checks, and instead carry out the service as though they had completed the *Thorough Examination themselves*.

6. TAIL LIFT SERVICE RECORD

Vehicle reg. No..... Tail Lift Model.....

Lift Serial No..... Date of Manufacture.....

Service 1 (4 Months)

Date.....

Company.....

Address.....

Signed.....

Print Name.....

Comments.....

.....

.....

Service 2 (8 Months)

Date.....

Company.....

Address.....

Signed.....

Print Name.....

Comments.....

.....

.....

Service 3 (12 Months)

Date.....

Company.....

Address.....

Signed.....

Print Name.....

Comments.....

.....

.....

Service 4 (16 Months)

Date.....

Company.....

Address.....

Signed.....

Print Name.....

Comments.....

.....

.....

Service 5 (20 Months)

Date.....

Company.....

Address.....

Signed.....

Print Name.....

Comments.....

.....

.....

Service 6 (24 Months)

Date.....
Power pack hydraulic oil changed?.....Y/N
Company.....
Address.....
Signed.....
Print Name.....
Comments.....
.....
.....

Service 7 (28 Months)

Date.....
Company.....
Address.....
Signed.....
Print Name.....
Comments.....
.....
.....

Service 8 (32 Months)

Date.....
Company.....
Address.....
Signed.....
Print Name.....
Comments.....
.....
.....

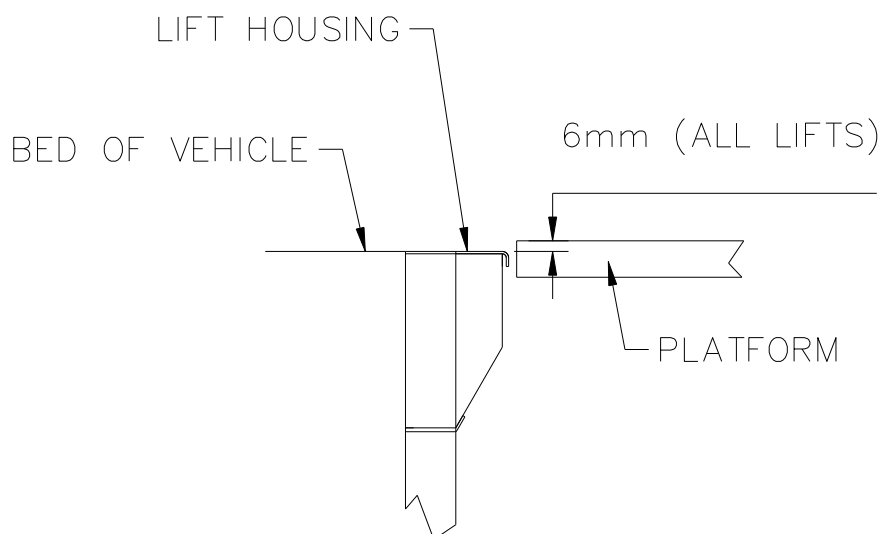
Service 9 (36 Months)

Date.....
Company.....
Address.....
Signed.....
Print Name.....
Comments.....
.....
.....

7. TAIL LIFT SERVICE SCHEDULE

The following points must be carried out at each service, with the exception of the hydraulic oil change, which must be done every 24 months.

1. Check that all decals and warning flags are in place (see installation and operators handbook for decal locations)
2. Ensure that the lift columns are securely mounted to the vehicle and that the welds/bolts are secure and tight. Torque Settings are in the Installation Manual.
3. Check the columns for straightness and damage. Pay particular attention to any exposed column below the lift housing, as this is the area most likely to be damaged.
4. Check that the vehicle chassis is sound and that all bracing is intact and secure.
5. Check that the TOEGUARD is securely fastened and is not deformed.
6. Check the condition of all switch controls. Are all buttons intact, the casing, control box (if fitted) and battery cables undamaged and that there are no loose wires.
7. Carefully open the platform and ensure that any safety gates or fences are undamaged and that the platform surface is non-slip and undamaged. Also check the action and condition of any folding ramps which may be fitted.
8. Lower the platform to the ground then immediately raise it back to bed level. Ensure the movement is smooth with no grinding noises or unusual motor or pump noises.
9. Check that the tail lift comes up to bed height and that the platform is level.
Note that a distance above bed of 6mm is acceptable. Adjust if necessary following the procedure detailed in the installation handbook.

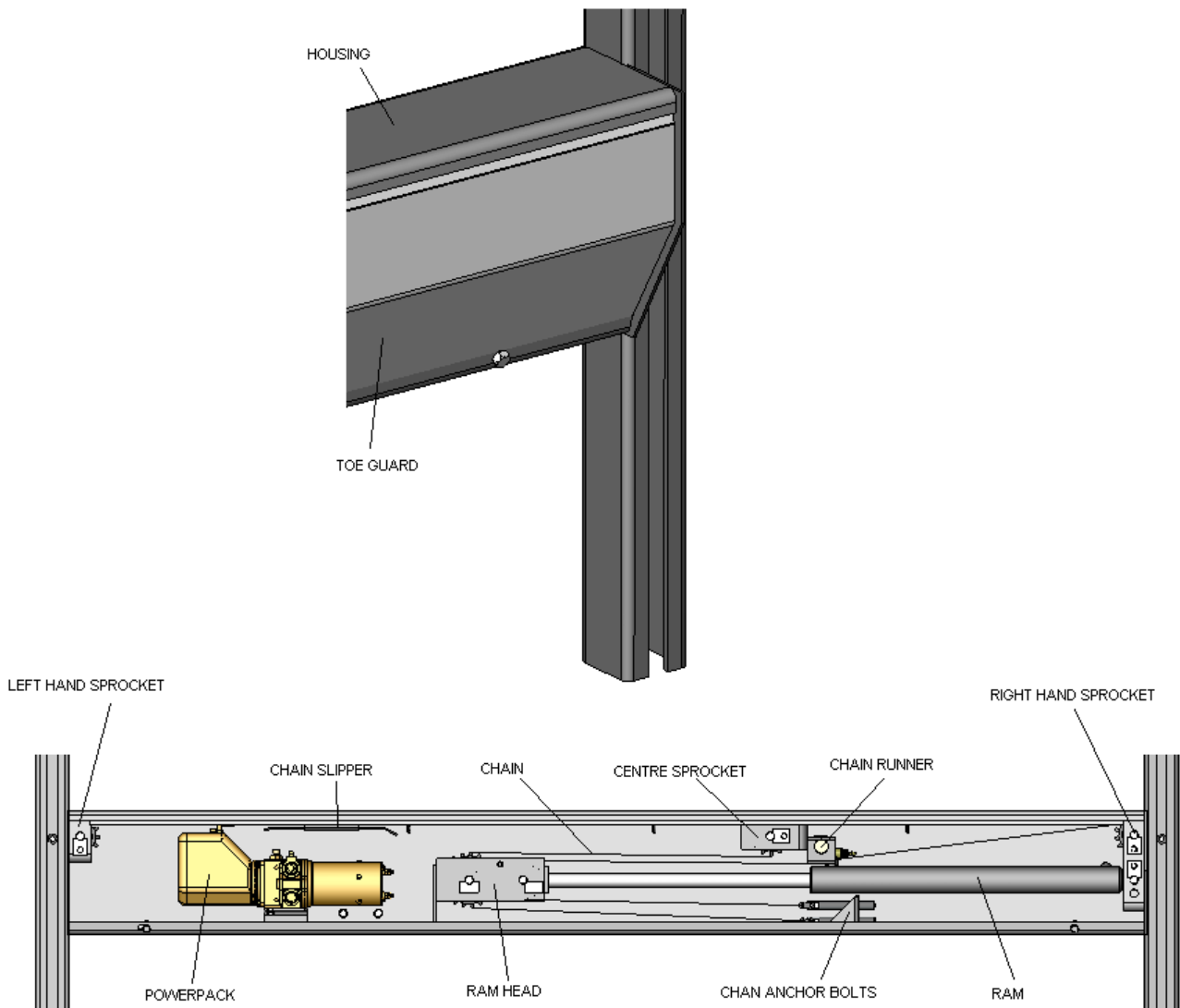


10. Check the condition of the sliders, ensure they are not excessively worn.
11. Check there is adequate grease inside the columns if necessary.
12. If Wear Pads are fitted, check they are properly secured and not excessively worn.
13. Check the operation of the Load Safety Devices (LSD's) following the procedure detailed below

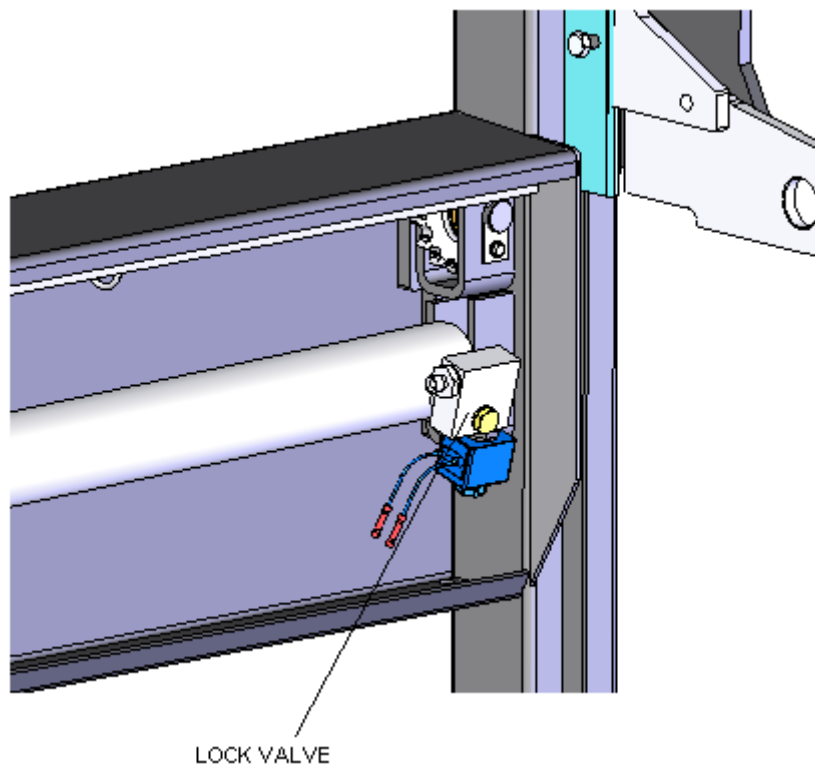
Load Safety Device (LSD) Test Procedure

- To test the nearside LSD lower the platform onto a jack with the jack positioned on the nearside of the platform and in line with the hinge pins. Please note that this LSD test should be carried out with the chain termination block fully out of the column.
 - Raise the platform using the jack a minimum of 100mm.
 - At this point if the chain does not appear, you will need to remove the beam cover/toe guard and whilst pressing the 'down' button push the ram into the closed position. This will create slack in the chain enabling the test to continue. Slack chain is ESSENTIAL otherwise the LSD test will prove negative.
 - Now manually drop (or remove) the jack allowing the platform to drop at least 100mm. You should find that the LSD will activate within the 100mm distance.
 - If the LSD has not activated, check the LSD rod is free to move up and down within the slider. Also ensure no foreign objects etc. are preventing the free movement of the slider.
 - Repeat test on the offside LSD.
14. Lower the platform approximately half way to the ground, then release the button and confirm the lift stops immediately. Raise the platform and before it reaches bed height release the button and confirm the lift stops immediately.
 15. Open and close the platform ensuring the effort is within normal limits i.e. that the TORSION BAR(S) (if fitted) is still operational, (see technical section of the installation handbook for details on the allowable manual effort).
 16. Operate the controls to stow the platform, ensure it is safely retained in the locks on both sides.

17. Remove the Toe guard and visually inspect the chains, chain mounting points, sprockets, bushes and sprocket boxes.



18. Check Power Pack for leakage. Oil the chain and grease the contact areas between the ram head and the housing. Note; lifts that have green wear pads and plated chains only require light oil spray. Check that the tamper proof cap is still intact on the Pressure Relief Valve, or that the valve may only be adjusted with a special tool. NB the Power pack may be housed separately, if so remove the cover and carry out the inspection.
19. Check all hoses and hose connections to the Hydraulic Cylinder(s). If fitted (not on 500kg or below) ensure that the Lock/Check Valve is secure.
20. Check all electrical joints and wiring for corrosion, damage or looseness and spray with WD40 or equivalent.



21. Check the oil level in the tank is correct and that there are no oil leaks.
22. Change the hydraulic fluid (every 24 months). With the platform on the ground, remove the toe guard. Disconnect the hose where it connects on to the ram/ram lock valve and place in a container to catch the hydraulic fluid. Press the up button to drain the tank, note that short sharp pushes will help empty the tank. It may not be possible to completely drain the oil from the tank as a small amount of oil will be below the suction pipe in the tank. Reconnect the hose onto the ram/ram lock valve before filling the tank with new oil (Automatic transmission fluid or Shell T22 is recommended). Prime the pump by pressing the raise and lower buttons simultaneously. Raise and lower the platform a couple of times and check for any oil leaks. With the platform on the ground check that the oil level is up to the max mark before refitting the toe guard.
23. Lower the platform and ensure that the audible and visual warning signals are present (only applicable to lifts where there is a risk of falling more than 2M).

8. RECORD OF MAJOR REPAIRS

DATE.....

FAULT.....

.....

.....

CLAIMED UNDER WARRANTY YES/NO?

PARTS PURCHASED.....

.....

.....

TESTS COMPLETED ON PARTS FITTED

.....

REPAIRED BY.....

COMPANY NAME & ADDRESS.....

.....

.....

DATE.....

FAULT.....

.....

.....

CLAIMED UNDER WARRANTY YES/NO?

PARTS PURCHASED.....

.....

.....

TESTS COMPLETED ON PARTS FITTED

.....

REPAIRED BY.....

COMPANY NAME & ADDRESS.....

.....

.....

9. FAULT FINDING CHART

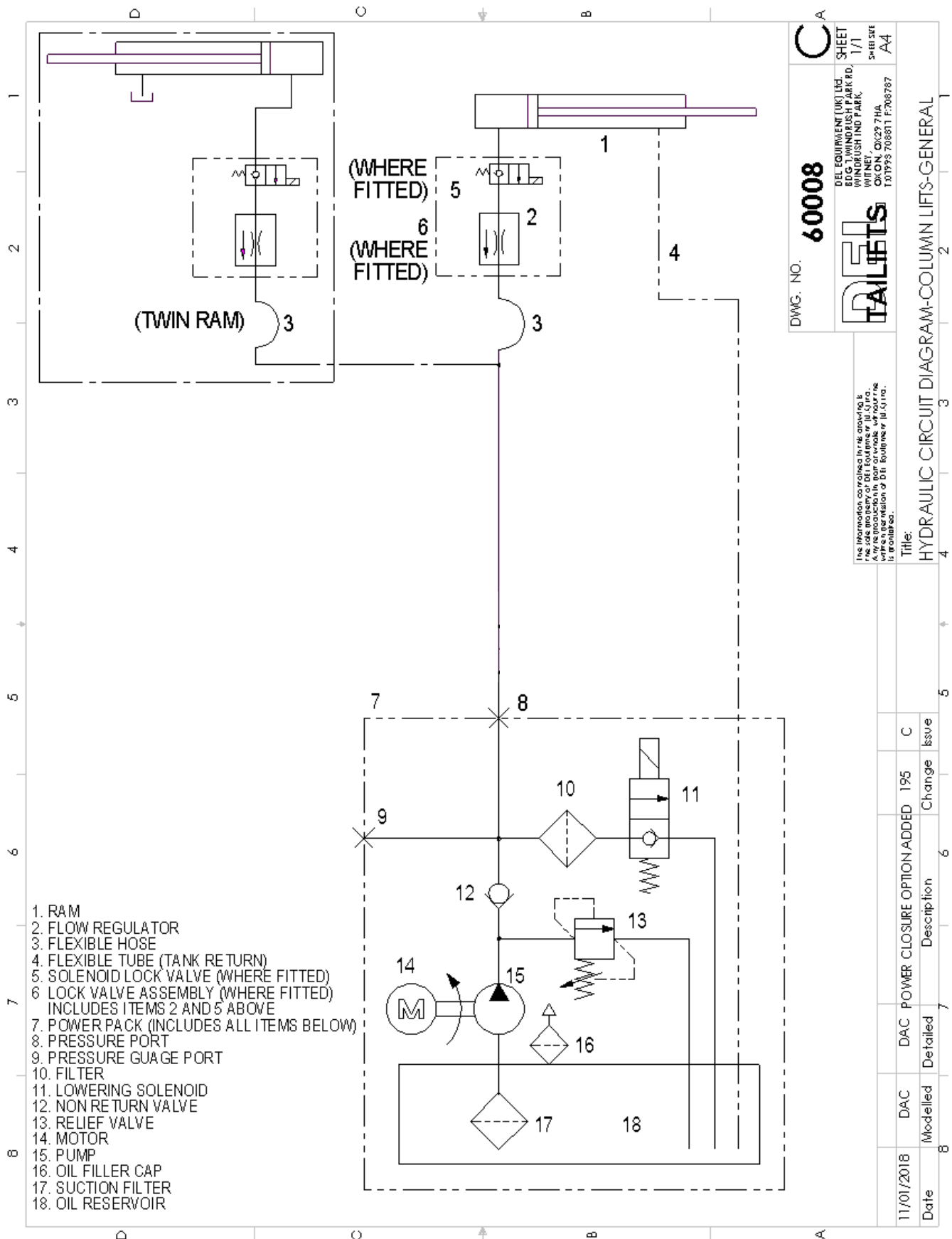
<u>FAULT</u>	<u>REASON</u>
Will not Lift No Function.	<u>Motor not running</u> <ul style="list-style-type: none"> - Fuse blown. - Battery Guard engagement (If fitted). - Check power to motor. - Check starter switch. - Check wiring to starter switch. - Faulty earth. - Faulty push button. - Seized pump.
	<u>Motor runs fast</u> <ul style="list-style-type: none"> - Pump scored and slipping. - Solenoid valve contaminated. - Relief valve contaminated or not set high enough. - Ram seal or rod scored. - Coupling between pump and motor broken. - No oil/low oil level.
	<u>Motor runs slowly</u> <ul style="list-style-type: none"> - Bad electrical connection to battery or earth. - Battery flat. - Motor bushes worn. - Hydraulic line blocked, hose collapsed, flow control closed or incorrectly fitted. - Wrong size of pump fitted. - Mechanical damage to tail lift. - Suction filter blocked.
Lift will not lift load or part load	<ul style="list-style-type: none"> - Relief valve setting too low or contaminated. - Pump scored. - Oil too thin. - Low oil level. - Solenoid valve contaminated . - Low Voltage.
Lift will not lower	<ul style="list-style-type: none"> - Solenoid wire or coil failure. - Electrical push button failure in switch or wiring. - Mechanical damage - Improper LSD engagement.
Lift lowers slowly	<ul style="list-style-type: none"> - Oil too thick. - Collapsed hose or blocked hydraulics line. - Solenoid valve jamming or incorrectly set by manufacturer. - Flow control blocked or incorrectly set or fitted.

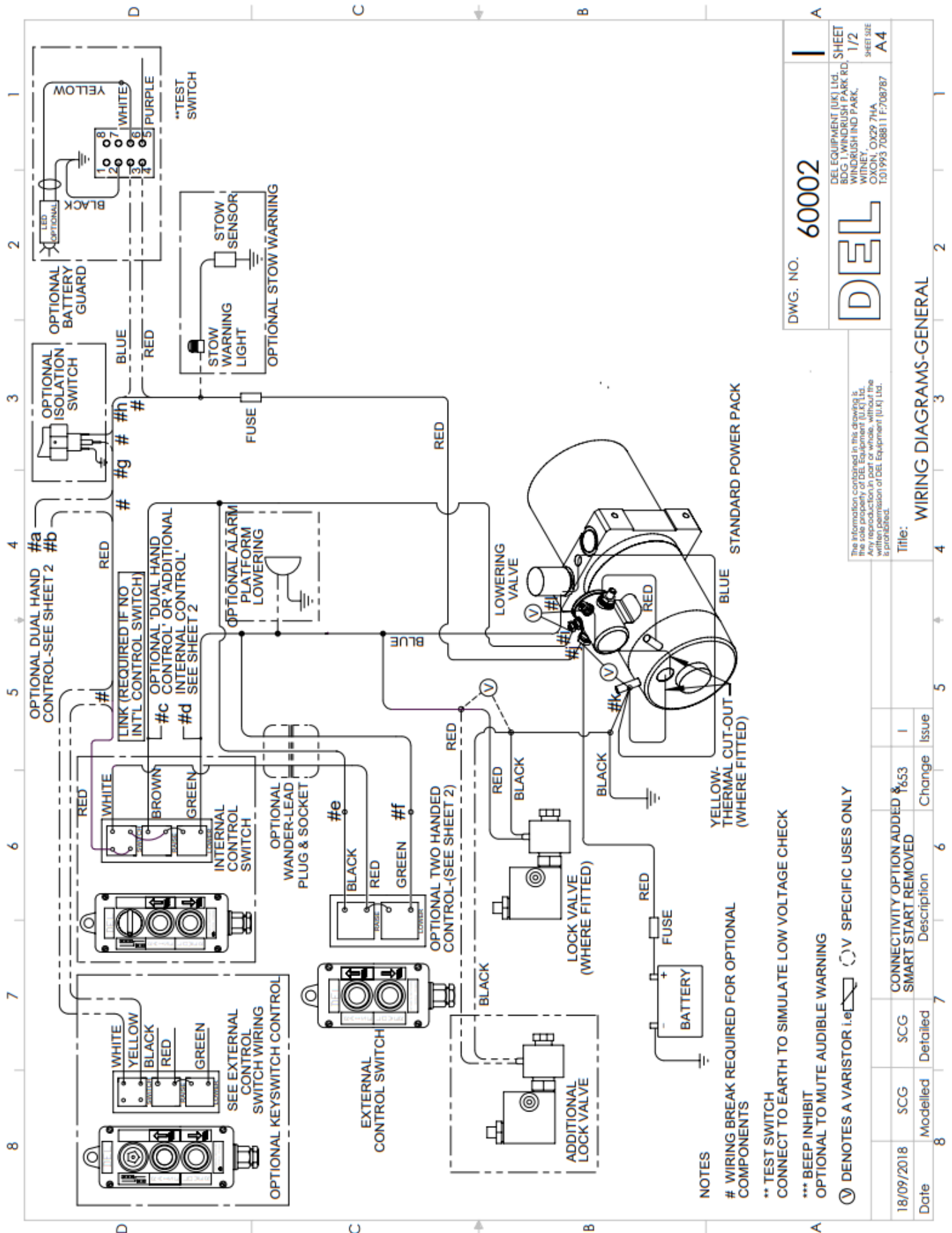
- | | |
|-----------------------------|---|
| Lift creeps down | <ul style="list-style-type: none"> - Solenoid valve leaking. - Check valve leaking. - Oil leak. - Pipe leaking. - Ram seal leaking. - Pump casting porous. |
| Lift only raising partially | <ul style="list-style-type: none"> - Not enough oil. - Suction filter blocked. - Tank filter breather blocked or shipping plug fitted. - Mechanical damage. - Relief valve set too low. |
| Pump unit noisy | <ul style="list-style-type: none"> - Oil too thick. - Not enough oil. - Air bubbles in Oil. - Suction filter blocked. - Relief valve not set high enough. - Motor bearing or bushes worn. |

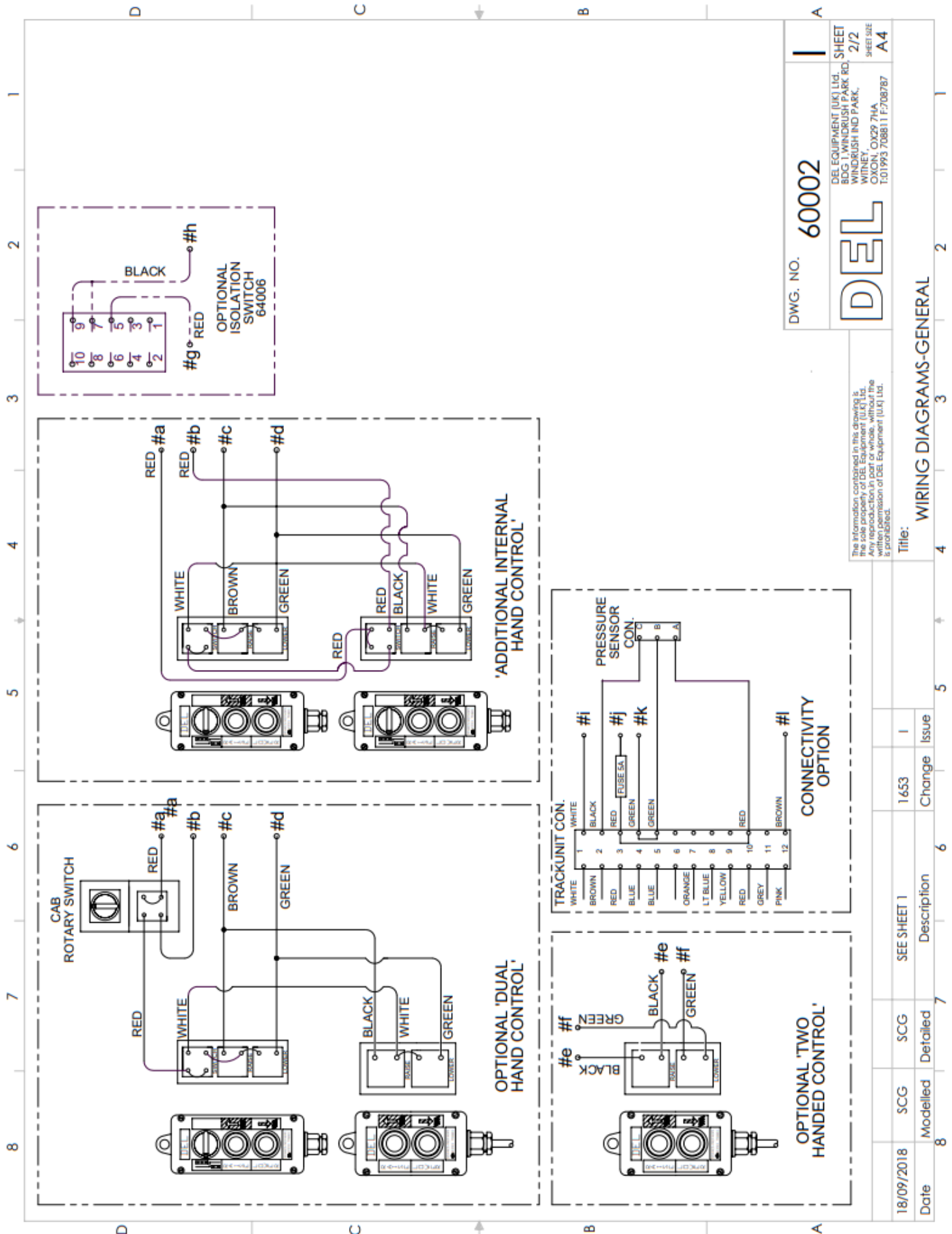
CHECK PROCEDURES

- | | |
|-------|---|
| Tools | <ul style="list-style-type: none"> - Pressure gauge. - Avo meter. - Earth strap. |
|-------|---|

1. Ensure a good electrical supply is reaching the motor and control switches, good earth is essential. Also check Battery Guard system (If fitted).
2. Check hydraulic pressure when lifting an empty load, full load and at relief valve setting. Relief pressure should be approximately 10% higher than maximum pressure when lifting Safe Working Load (SWL).









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E-mail: sales@del-uk.com | hiab.com

DEL WARRANTY REGISTRATION FORM

REGISTER YOUR DEL TAIL LIFT AND OBTAIN UPDATED
INFORMATION ON THE DEL RANGE

PLEASE PRINT CLEARLY.

1. Purchasers name:
2. Address:
Town:
County:
Postcode:
3. Form completed by:
4. Type of business:
5. Model purchased:
6. Truck make/model/reg.
7. Date purchased:
8. Purchased from:
9. Lift installed by:
10. Were you satisfied with the installation of this unit?
11. Were all warning decals affixed to the tail lift?
12. Number of tail lifts you now operate?
Of these, how many are DEL units?
What other makes of tail lift do you own?
13. Was this purchase a replacement?
14. Why did you select a DEL tail lift?
 - Owned a DEL unit previously
 - Dealer recommended it
 - Colleague recommended it
 - Advertisement (Name of magazine)
 - Received literature in post
 - Price
 - Other (Please specify)
15. Are you planning to buy additional lifts within the next six months?

Thank you for completing this registration form. Once completed please return the form to Hiab (U.K.) Ltd at the address above.

Dry running will result in rapid destruction of the chain requiring early replacement.



Correct relubrication reduces wear and prolongs chain service life.

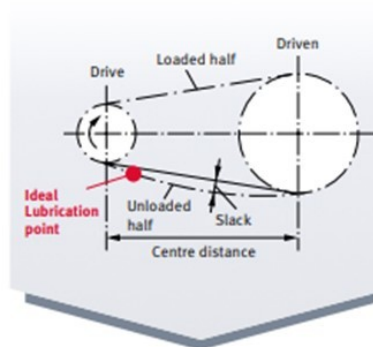
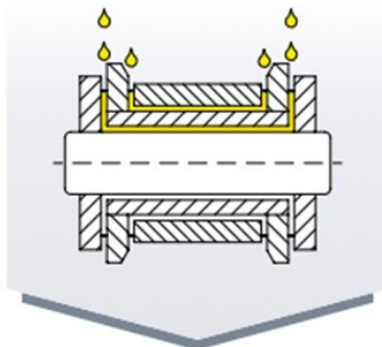
Regular maintenance and lubrication are essential to ensure low wear and longer chain drive service life. The operating conditions of the system determine maintenance and lubrication intervals. Scheduled maintenance and lubrication must be carried out regularly. Around two thirds of chain failures can be prevented by suitable relubrication, so the choice of a suitable (re)lubricant is the most important factor in ensuring long chain service life since the individual links of a chain act as bearings while the constantly oscillating chain is in operation. Inadequate lubrication and additional contamination can cause a reduction of chain performance by as much as 20%, thereby reducing service life more than any other influencing factors. That is why Del offer a superior quality chain lube as standard.

SUMMARY Adequate and effective lubrication of chain joints prolongs the service life of a chain many times over. Using Del chain lubricant and appropriate lubrication method guarantee reduced wear and additional corrosion protection.



PRACTICAL HINT. Continuous relubrication with a suitable quantity of lubricant is much more effective than long lubrication intervals with large quantities of lubricant. To determine the optimum quantity of lubricant, we recommend starting with 3 ml of lubricant per 1 m of chain ASA50 and gradually increasing the dosage until you have found the correct quantity. As a rule, the lubrication status in the chain joint can be checked by opening a connecting link. The surface of the pins must be covered by a clear, clean layer of lubricant.

Correct relubrication in practice



1. Preparation. Chain wear most frequently starts in the joint area, so it is essential to ensure that there is always sufficient lubricant around the pins and bushes. Ensure that the chain is thoroughly cleaned before relubrication to guarantee optimum penetration of the lubricant. The best cleaning technique is to use a brush and cleaning spray.

2. Lubricant application. Using Del lubricant in combination with the right application technique is the best way to guarantee maximum chain service life. Regardless of how the relubricant is applied, it must always penetrate the joint (the space between pin and bush). To ensure this, the lubricant is applied between the outer and inner plate.

3. Lubrication point. To ensure that the lubricant penetrates the chain joint, it should be applied directly to the gap between inner and outer plate and between roller and bush. The ideal application point is at the beginning of the slack strand, because this gives the lubricant plenty of time to reach the areas of the chain where it is required to act.

The following abnormalities could be signs of insufficient relubrication: • Formation of metal dust/rust • Unusual noise level, squeaking • Unusually high chain elongation • Twisted pins • Heavy wear of sprockets • Increased power consumption of drive motor • Heat discoloration/tarnishing



Chain Stretch

DEL 500kg -1000kg Safe Working Load (SWL) Column Tail Lifts use a chain which has a 5/8" pitch.

DEL 1500kg SWL Column Tail Lifts use a chain which has a 3/4" pitch.

For both types of chain the following should apply when inspecting:

1. If there are any issues with the chain from a visual inspection that relate to structural integrity, the chains should be replaced
2. The chains must be replaced by the time they reach 3% chain stretch. To measure for chain wear a measuring gauge should be used (can be purchased from DEL). The chain should be measured over a minimum of 12 pitches and should also factor in the acceptable manufacturing tolerance of 0.15%. As an example on 500-1000Kg Chain measuring across 12 pitches. At the latest, when the chain exceeds 196.51mm it should be replaced. This has been calculated as 190.5mm (12 pitches) + 0.15% manufacturing tolerance + 3% wear.
3. Measuring a chain for wear across less than 12 pitches should not be done.
4. If replacing a chain due to wear, chains should be replaced in pairs.



**For all Spare parts requirement
please contact : delspares@hiab.com
Or phone 01993 708811**



Lubrication.

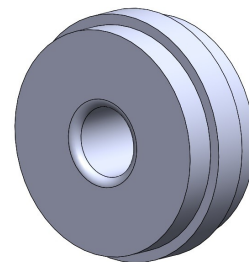
Regular maintenance and lubrication of any moving parts of a Tail lift are essential for product longevity and reliability. It is also essential to avoid warranty period claim rejection by Del.

If the moving parts are seen to be serviced or maintained improperly, it may lead to warranty invalidation.

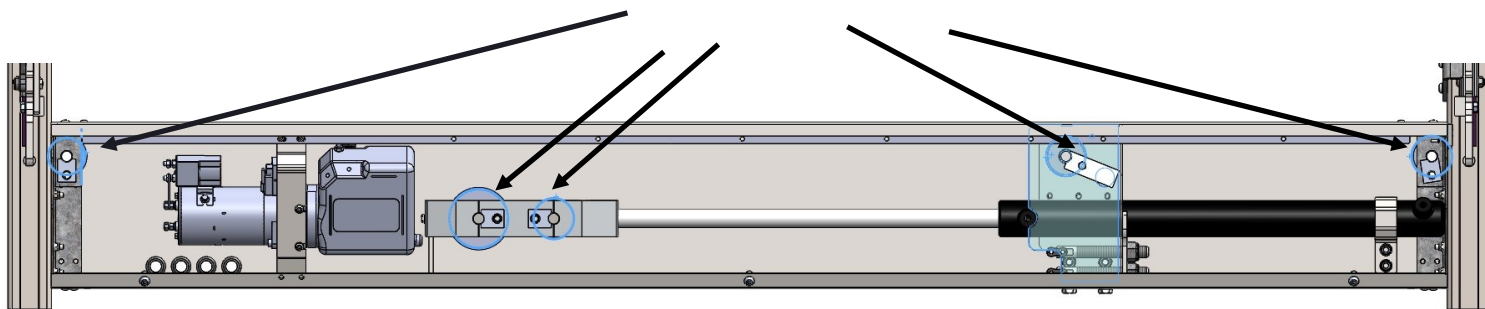
Tail lifts are required to have a LOLER examination at least every six months and at that point will be serviced. Or service every 3 months if you consider your application to be heavy use.

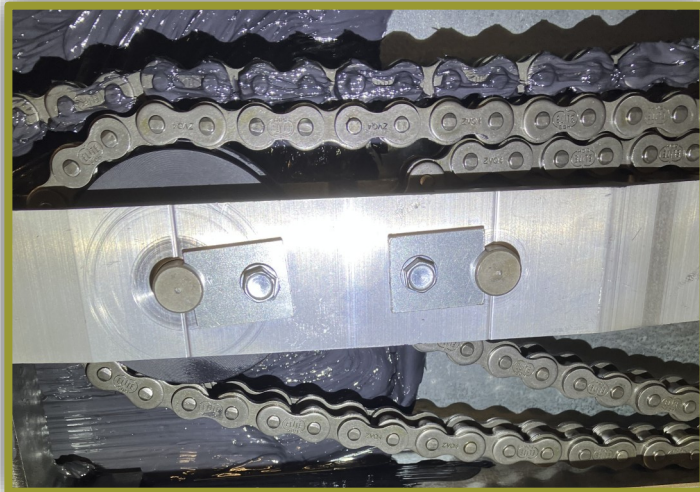
Sprockets, Rollers and chains are the most likely to wear, so Lubrication is essential.

Roller system.



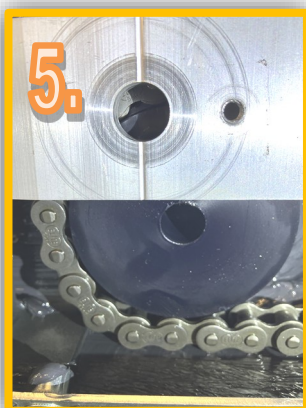
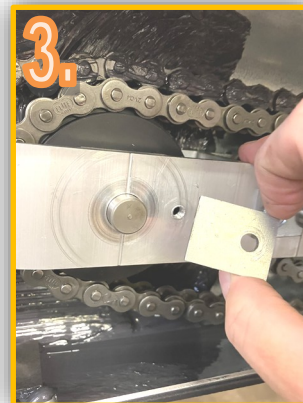
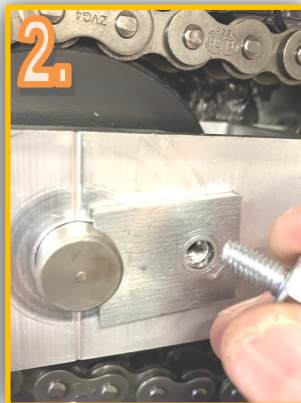
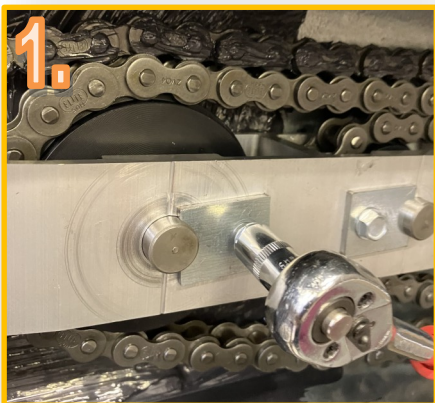
Rollers.





Lower the platform to the ground and allow chains to become slack as shown.

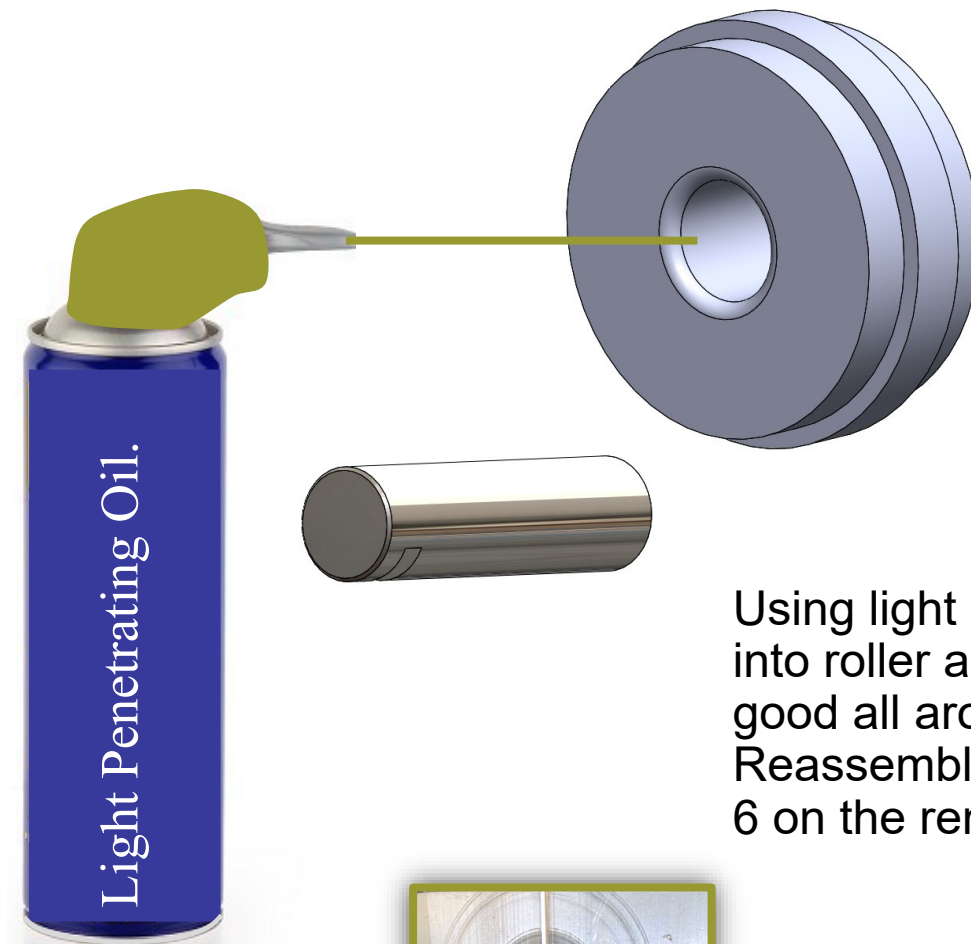
Taking care please follow the steps below to extract the pin and roller .



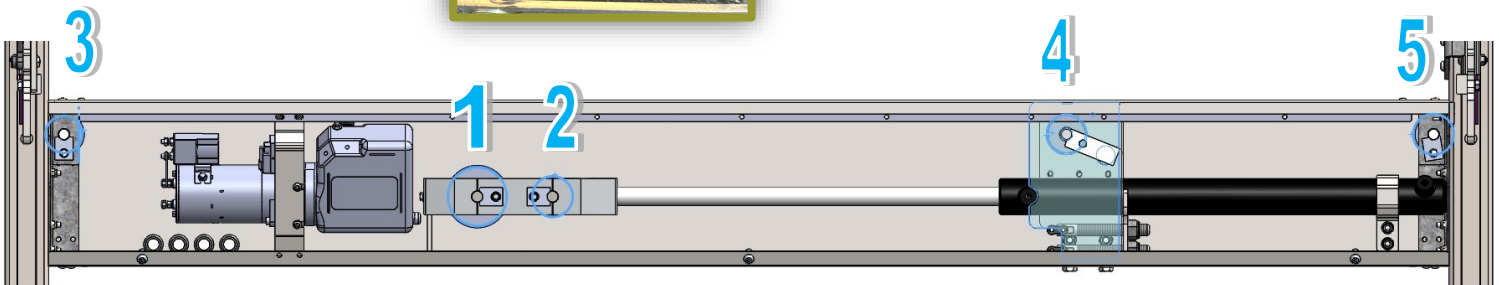
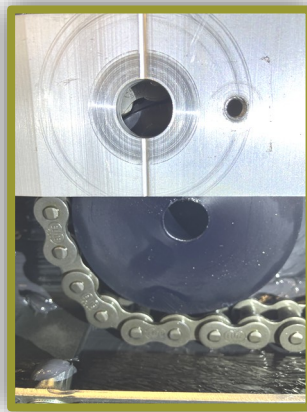
Upon reassembly please apply between 7.5—8.5 MN of torque to the screw.

**6.**

Applies to the 5 rollers listed below.

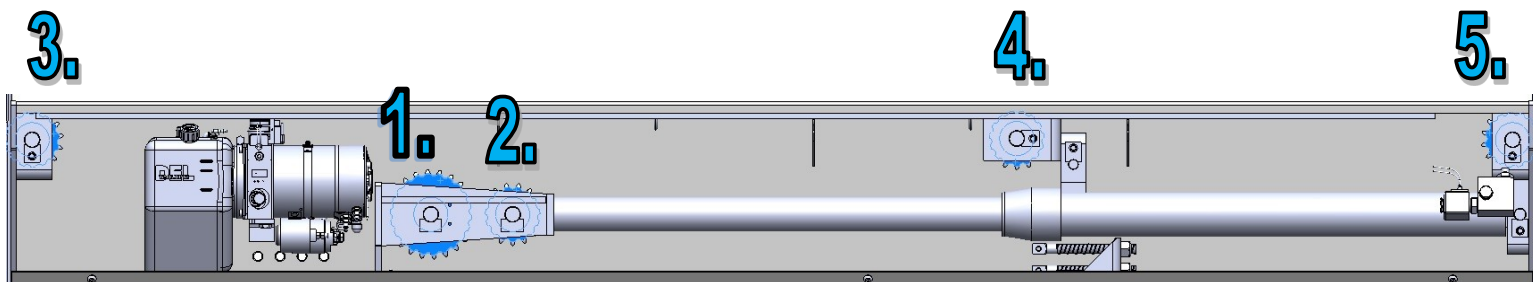


Using light penetrating oil, spray into roller and onto pin ensuring good all around coverage. Reassemble and repeat steps 1 – 6 on the remaining 4 x Rollers.





All sprocket and chain lifts manufactured after 2021 are fitted with the same removable tag system as the rollers for easy access to the pin and needle bearing. 5 per lift.

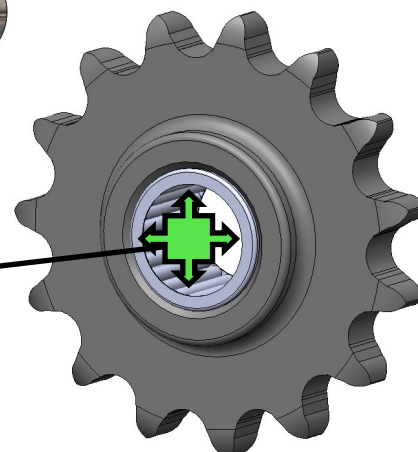


Using the same method as page 54 to gain access to the sprocket bearings.

Moly Lithium grease is specified for needle bearings. A sufficient amount of grease needs to be packed into the needle bearings all the way around and also onto the pin, then reassemble.

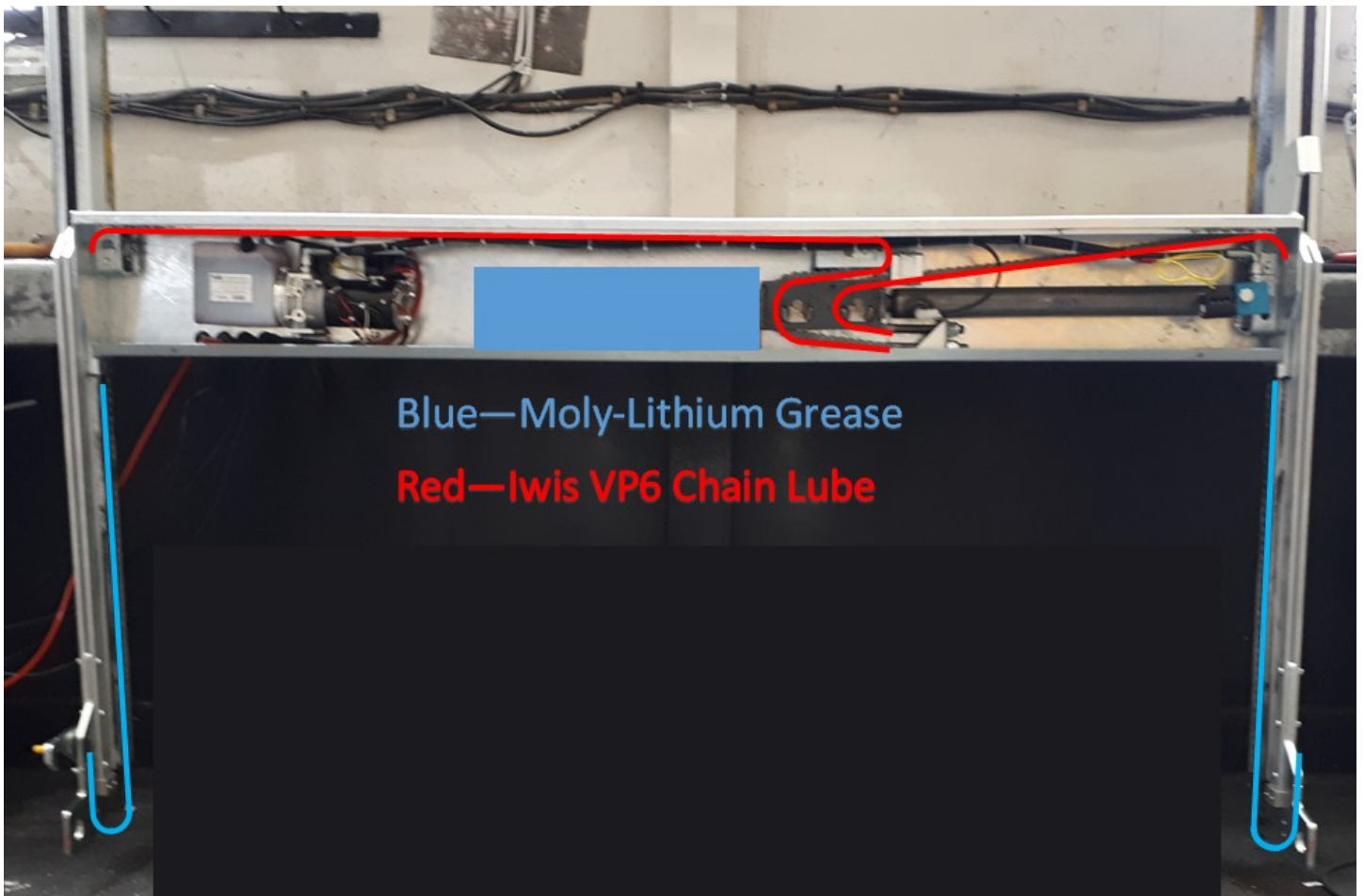
Nb - Some lifts now have pre-assembled grease nipples in the sprocket pins to simplify this and negate the need for removing the sprockets.

Repeat for all sprockets and pins.





All chains should be Lubricated as shown in the image below, using Moly lithium and Chain lube .



Below are links to Promotional Product Videos.



DL500



TL1000



DL500GP



DO500/1000



FC500



DA1000



WB150

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