INSTALLATION MANUAL

COLUMN TAILIFTS

UK CA

CE

P/No. 73870 Issue S

DEL

Hiab UK Ltd

Cargotec Industrial Park

Ellesmere SY12 9JW

Tel. 01993 708811

EMAIL: sales@del-uk.com

Email: sales@del-uk.com
Website : del-uk.com

EC Declaration of conformity for machinery

We hereby declare that:

DEL Column Tailift Models: **DL, DO, FC, S, TL**

- are in conformity with the provisions of the **Machinery Directive (2006/42/EC)** and the **EMC Directive (2014/30/EU)**
- and furthermore declare that parts of the following European harmonised standards have been used:

BS EN 1756-1:2021
BS EN 50498:2010

Signed: 

Name: John Carnall

Position: VP, Sales and Services, UK & Ireland

Place, Date: Hiab UK Ltd , Ellesmere , 12/07/23

Important:
This declaration is null and void without a completed Lift Installation Test Certificate attached and all signatures completed, or if modifications are made to the machine without prior written approval from Hiab UK Ltd.

INTRODUCTION

This manual covers the installation of the column tailift range DL, DO, FC, S and TL. The correct installation and setting up of the lift is vital to your safety and the working life of the lift.

Safety must be regarded as of paramount importance during installation.

A risk assessment for the installation and commissioning of the tailift is required before starting work.

Read this manual before commencing work. The lift frame and platform are heavy and can crush. Never work under the lift unless it is securely supported and always disconnect the vehicle battery before starting work.

Do not make any design modification to the tailift unless written permission is first obtained from Hiab UK Ltd.

Please note that any unauthorised modification may: -

1. Be Unsafe
2. Invalidate the warranty
3. Lead to equipment failure
4. Create a hazard that is not immediately obvious at the time of installation.

If you are unsure about any aspect of the installation procedure please contact DEL service.

IMPORTANT

This manual forms part of the Inspection record for the tailift, and should be passed on to the end user, together with the operators manual.

The tail lift installer shall in consultation with their manufacturer and user, confirm the compatibility between the tail lift and the vehicle, taking into account the intended use.

NOTE

All vehicle rear structures need to be rigid enough to support the SWL plus factor of Safety of 25% to ensure the correct function of the tail lifts.

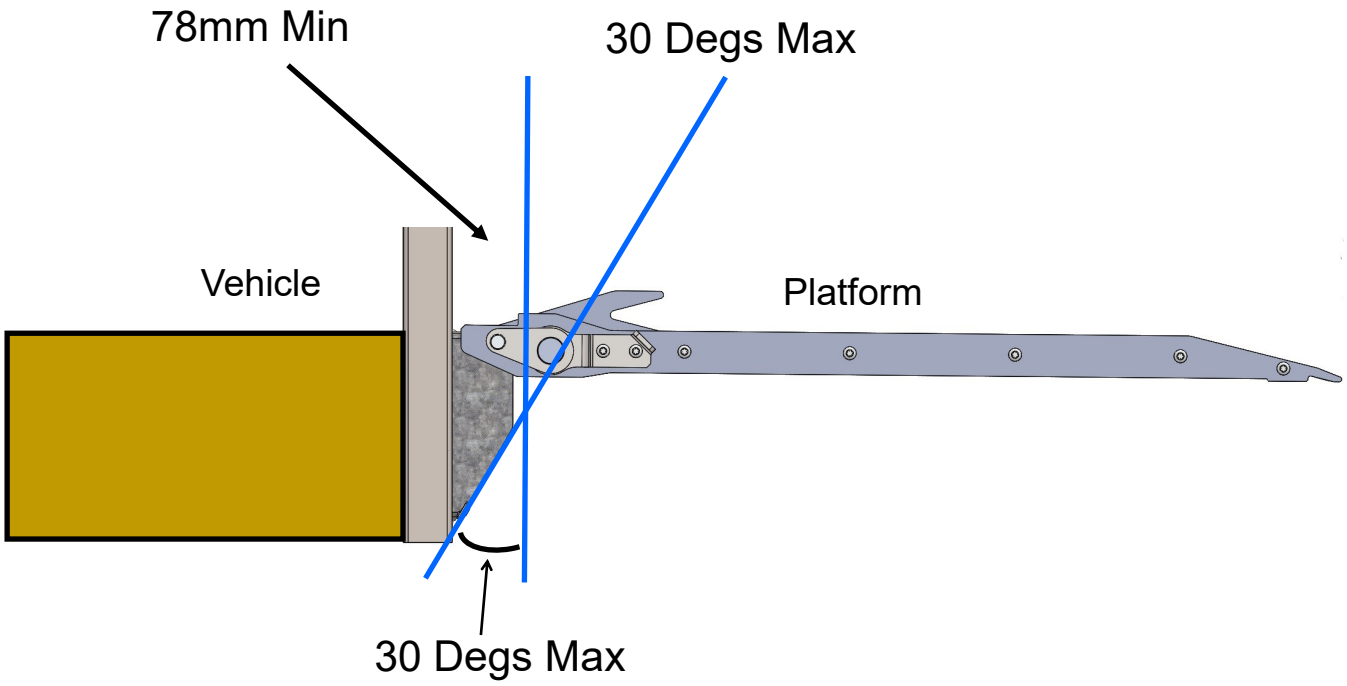
CONTENTS

1. INSTALLATION PROCEDURE

The following procedure covers a standard bolt-on installation, if the lift is to be welded to the vehicle body, please refer to the welding notes (Page 9)

Special precautions

When fitting the tail lift, a minimum horizontal gap of 78mm is required between the moving parts of the platform and the fixed parts of the vehicle, except at those points where adequate toe protection is provided by a guard whose rear sloping edge is at an angle of no greater than 30 degrees to the vertical (see diagram below).

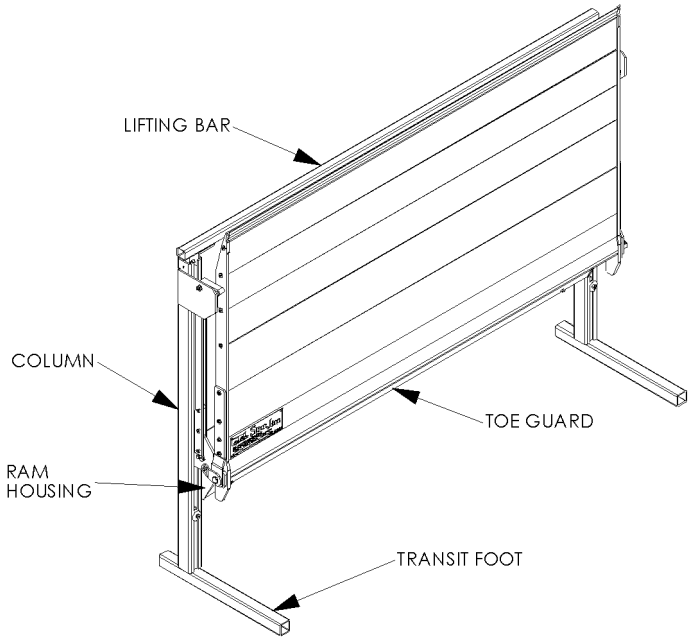


Safety

Make sure you fully understand the safe operation of the tail lift by reading the operator/maintenance handbook before attempting to install the lift.
Ensure all work is supervised by a competent engineer in a clear area with adequate lighting.
Check that any specific requirements as stated in the relevant chassis manufacturer's bodybuilder's handbook are adhered to.
Ensure that all movements of the tail lift are limited at end of travel by mechanical means.

If the platform is required to lift or lower wheeled load(s) then it must have a device(s) with a minimum height of 50mm to prevent the load(s) from rolling unintentionally off the edge.

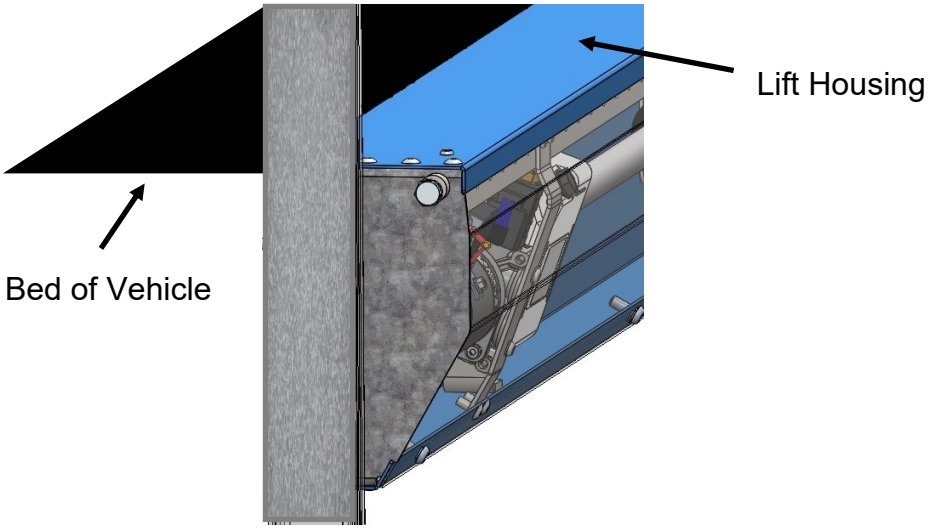
COLUMN LIFT INSTALLATION PROCEDURE



1. Disconnect Battery (Check it is fully charged) and ensure the mounting area of the body is free of fixing heads and other protruding objects before fitting the lift.

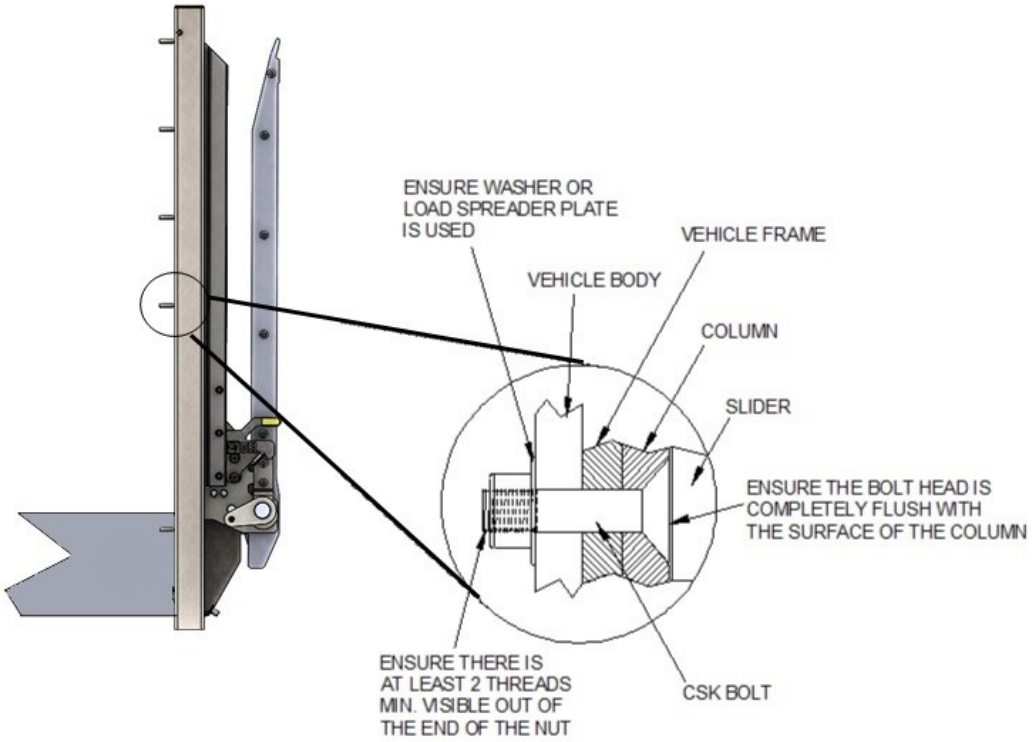
2. Remove the toe guard.

3. Position the lift close to the vehicle rear and raise the lift until the top of the lift housing is level with the vehicle floor, using a forklift truck or other suitable lifting device.



4. Using suitable G Clamps, clamp the H-Frame to the rear frame of the vehicle, ensuring that the lift is central to the rear of the body.

5. Check the lift is square to the Vehicle body and level with the vehicle floor.



6. Drill suitable clearance holes into the vehicle frame to correspond with the countersunk holes which are pre-drilled in the lift columns. Using the countersunk bolts provided, bolt the lift to the vehicle frame ensuring that the nut is tightened to the torque specified in the technical section (Page 11, M8). Ensure that the washers provided are used between the nut and the body.

7. Re-check the lift columns for squareness using square and diagonal measurements. Brace the columns as indicated in section 4.

8. Ensure that the face of all the countersunk bolts in the back of both columns are flush with the face of the column. Failure to do this may result in damage to the sliders.

9. Remove the lifting device and both transit feet from the Lift. Retain the transit feet to brace the tailift – if required (see section 4).

10. Remove the Lifting bar and retain ready to brace the tail lift back to the chassis/ body – if required (see section 5).

11. Fix the hand control(s) and shields into position and route the cable(s) . (see section 3). Connect the control(s), note that a control bracket may have to be welded to the frame to protect the control and allow its installation, (see wiring diagrams).

12. For vehicles with a chassis mounted power pack, mount the power pack with the brackets where provided in a suitable position on the vehicle chassis. Connect the power pack to the lift ram.

13. Route the power cables to the appropriate vehicle battery or CCP (Customer Connection Point), and the isolation cable to the cab or the plug in wanderlead position.

14. Drill a 12mm diameter hole in a suitable location, usually the dashboard and inline with other switchgear is required for the cab isolation switch. Connect the isolation switch following the wiring diagram on page 36.

15. Connect the power cables to the appropriate vehicle battery or CCP (Customer Connection Point); ensure that the in-line fuse is located as close to the power source as possible, and in a position where it is the least susceptible to the elements. For 12v chassis earth systems, connect the earth lead on the back of the lift housing to the vehicle chassis, and fit the additional earth cable from the battery negative terminal to the chassis.

16. Turn on the isolation switch in the cab and ensure that the red light on the switch is illuminated or connect the plug in wanderlead control. For lifts with chassis mounted power packs, press both of the hand control function buttons (Up and Down) simultaneously for 5 seconds to prime the pump.

17. Press the lower button to release the platform from its locks before releasing the safety catch and opening the platform. Stand to the side during this operation. Continue to lower platform to the ground.
18. Operate the lift function 3 – 4 times to ensure correct operation.

19. Carry out the post installation tests (section 12). The test sheets must remain in the installation handbook as part of the service/maintenance record for the lift.

20. Check and adjust if needed the fully raised position of the platform. The floor level adjustment is critical to the safe working and life of the lift. DO NOT adjust the platform more than 6mm above floor height (see section 7).

21. Activate the Load Safety Device (see section 5).

22. Refit the toe guard.

23. Before the lift is painted (If required) , run a bead of sealant between the vehicle bed and the top of the lift frame.

24. Once the vehicle has been painted, the Warning, Instruction and Safe Load working decals must be fitted (see section 8). Also fit the supplied caps to the top of each column.

25. Complete the final inspection checklist.

26. Complete the test certificate and forward a copy to DEL.

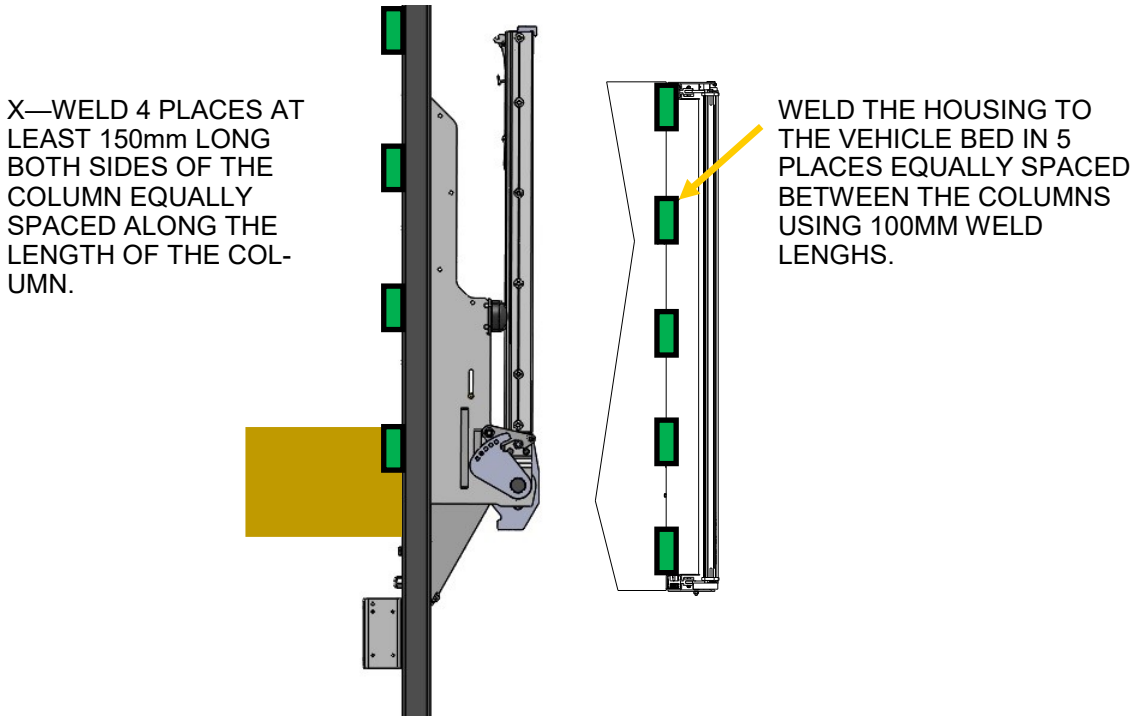
27. Ensure that the installation and operators handbooks are passed on to the end user of the lift.

WELD-ON LIFTS

IMPORTANT

When welding ensure: -

- The vehicle's battery is fully charged and disconnected before work commences.
- A good earth is achieved by clamping the earth cable onto the lift columns, but NEVER any lift fittings.
- All paint / Zinc is removed from the weld site before starting to weld.
- The power pack and all hydraulic hoses and electrical wires are protected from weld heat and splatter.
- Do not weld near the vehicle batteries.
- The weld area is painted after welding.



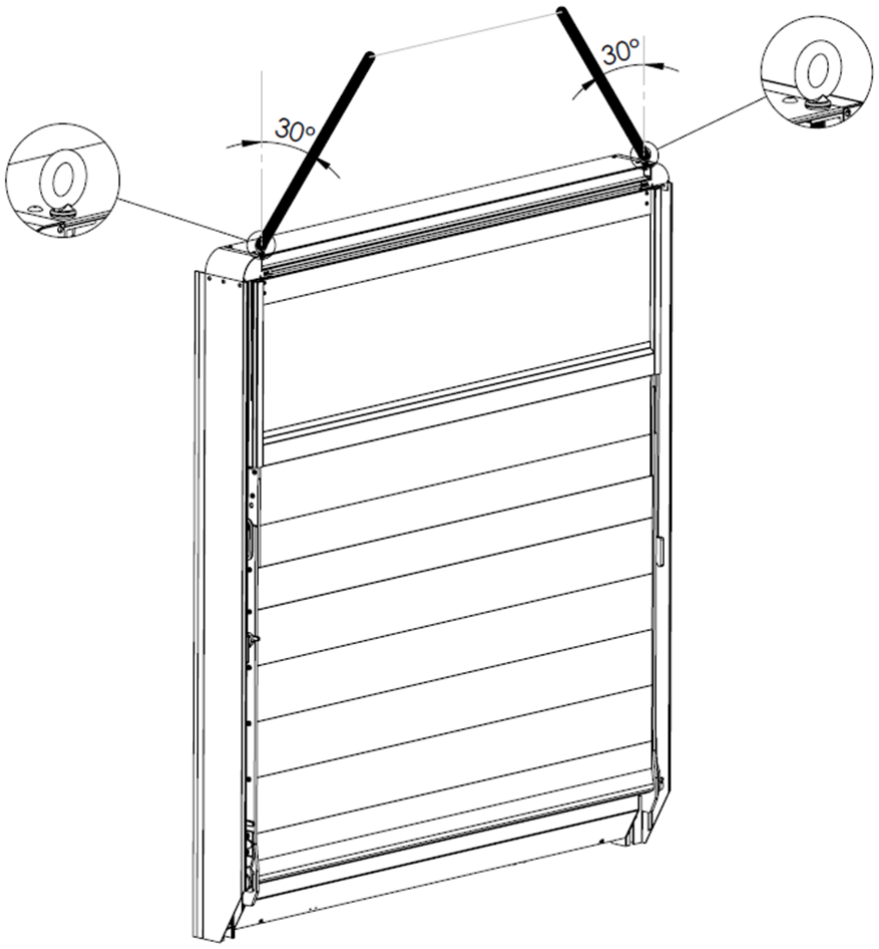
1. Ensure the vehicle battery is disconnected, and that all other vehicle electrical systems are disconnected as detailed in the chassis manufacturer's instructions.

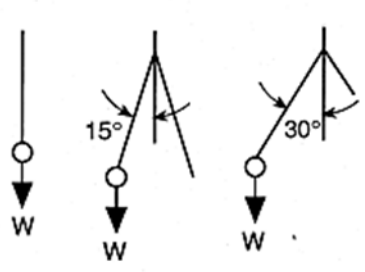
2. Stitch weld the ram housing at bed level and tack the top of the columns to the vehicle frame.

3. Ensure that the lift is level and square with the bed of the vehicle before fully welding the lift in position.

4. Continue fitting the lift following the procedure from section 9

FULL CLOSURE LIFT INSTALLATION PROCEDURE



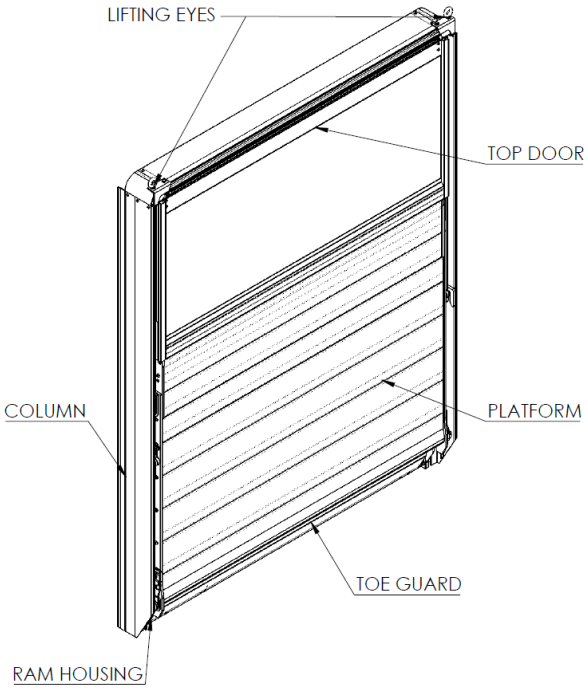


Safety chain angles for lifting and installation

NOTE

For correct lifting and installation of the FC500 lift, use both eyebolts and do not exceed a maximum chain angle of 30 deg.

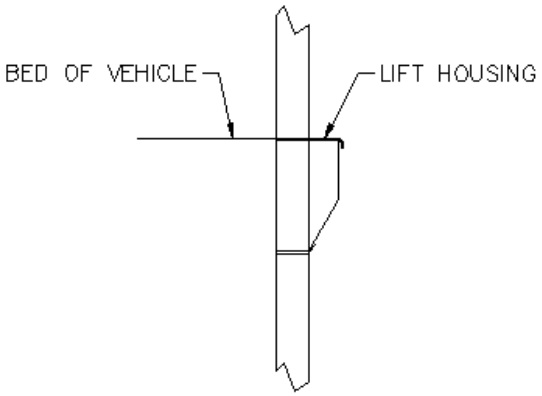
Remove eyebolts after completing the installation of the lift.



1. Disconnect Battery (Check it is fully charged) and ensure the mounting area of the body is free of fixing heads and other protruding objects before fitting the lift.

2. Remove the toe guard.

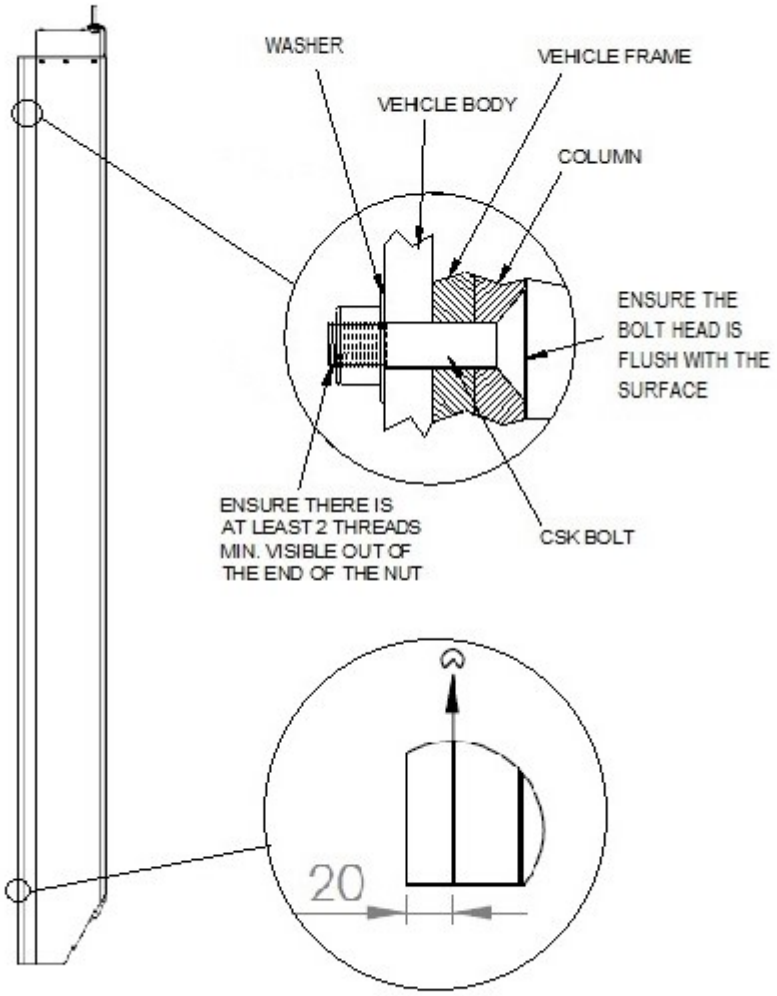
3. Position the lift close to the vehicle rear and raise the lift (Using lifting eyes) until the top of the lift housing is level with the vehicle floor, using a forklift truck or other suitable lifting device.



4. Using suitable G Clamps, clamp the columns and ram housing to the rear frame of the vehicle, ensuring that the lift is central to the rear of the body.

5. Level the lift with the vehicle floor and check the lift squareness by taking the measurement corner to corner (diagonal both sides). The maximum difference between dimensions shall not be greater than 5mm.

6. Drill countersunk holes or clearance holes on the side of the column and through the vehicle frame.



Use the ''V shape'' line to position the holes (20 mm from the edge). A minimum of 7 holes (per side) equally distributed should be drilled to attach the lift to the vehicle frame.

Coach Bolts (Or Equivalent) can be used. Ensure that they are equivalent to M8, 10.9 grade. Larger bolts may be used.

7. Re-check the lift columns for squareness using square and diagonal measurements.

8. Remove the lifting device. (Eye bolts brackets)

9. If factory fitted control option is not present, Fix the control in position and route the 3-core cable to the control. (see section 3). Connect the control, note that a control bracket may have to be welded to the frame to protect the control and allow its installation, (Only on Options without factory fitted control),
(see wiring diagrams).

10. For vehicles with a chassis mounted power pack, mount the power pack with the brackets provided in a suitable position on the vehicle chassis. Connect the power pack to the lift ram using ¼" bsp hoses.

11. Route the power cables to the appropriate vehicle battery or CCP (Customer Connection Point) and the isolation cable to the cab or the plug in wander lead position.

12. Drill a 12mm diameter hole in a suitable place in the dashboard to mount the in cab isolation switch. Connect the isolation switch following the wiring diagram.

13. Connect the power cables to the appropriate vehicle battery or CCP (Customer Connection Point) ; ensure that the in-line fuse is located as close to the battery as possible, and in a position where it is the least susceptible to the elements. For 12v chassis earth systems, connect the earth lead on the back of the lift housing to the vehicle chassis, and fit the additional earth cable from the battery negative terminal to the chassis.

14. Turn on the isolation switch in the cab and ensure that the red light on the switch is illuminated or connect the plug in wander lead control. For lifts with chassis mounted power packs, press the raise and lower buttons simultaneously for 5 seconds to prime the pump.

15. Press the lower button to release the platform from its locks before releasing the Safety catch and opening the platform (Stand to the side during this operation) and continuing to lower it to the ground.

16. Operate the lift up and down 3 – 4 times to ensure correct operation.

17. Carry out the post installation tests (section 12). The test sheets must remain in the installation handbook as part of the service/maintenance record for the lift.

18. Check and adjust if needed the fully raised position of the platform. The DEL design of tailift differs from all other lifts in operation and the floor level adjustment is critical to the safe working and life of the lift. DO NOT adjust the platform more than 6mm above floor height (see section 7).

19. Activate the Load Safety Device (see section 5).

20. Refit the toe guard.

21. Before the lift is painted, run a bead of sealant between the vehicle bed and the top of the lift housing.

22. Once the vehicle has been painted, the Warning, Instruction and Safe Load working decals must be fitted (see section 8). Also fit the caps to the top of each column.

23. Complete the final inspection checklist.

24. Complete the test certificate and forward a copy to DEL.

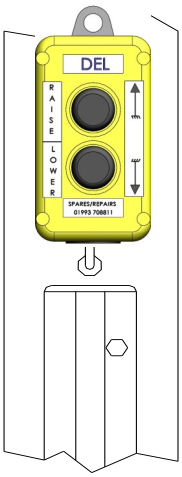
25. Ensure that the installation and operators handbooks are passed on to the end user of the lift.

2. LOCATION OF CONTROL POSITIONS

Please refer to the instructions for electrical installation regarding ancillary equipment from your supplier. Install control units at suitable places, but the position of the controls unit should ensure that the operator has a good view of the load, the working area and the loading area, whilst maintaining a safe distance from the risk zone between the platform, the body and passing traffic.

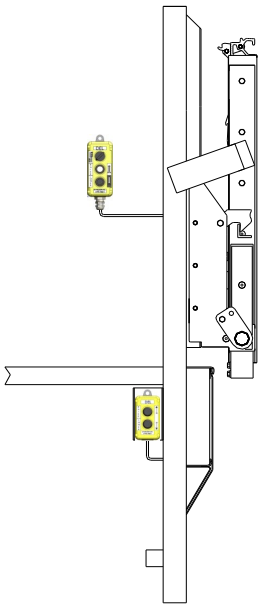
3.5T BOX/LUTON BODY

Position the hand control above the column. Route the cable inside the body using a grommet to support the cable through any holes made.



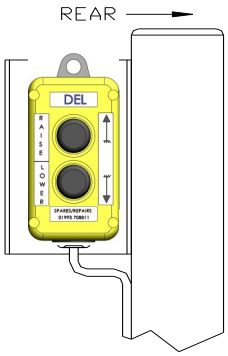
7.5T BOX/CURTAIN SIDE BODY

Position the 3 button hand control inside the vehicle with the cable exiting down-wards and using the supplied Cover. Attach the 2 button cover outside and mount the control again with the cable facing down-ward.



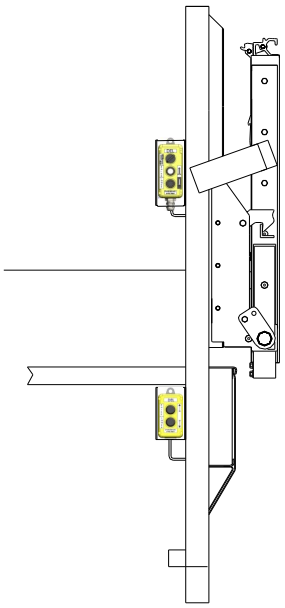
3.5T DROPSIDE BODY

Position control onto the rear of the column facing out or forward.
Care must be taken to protect the Controller cable from snagging other objects



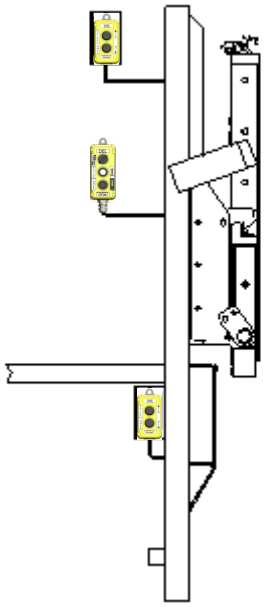
7.5T DROPSIDE BODY

Position the 3 button hand control to the column with the cable exiting downwards using the supplied Cover. Attach the 2 button cover outside and mount the 2-button control again with the cable facing downward.



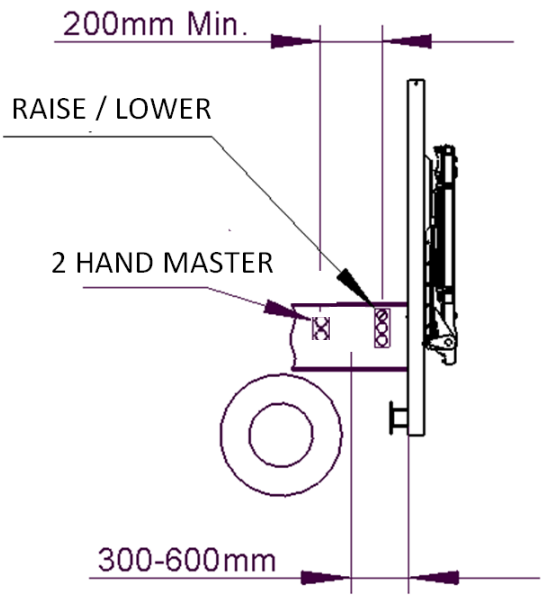
12T BOX/CURTAIN SIDE BODY

Position the 3 button hand control inside the vehicle with the cable exiting downwards and using the supplied Cover. Attach the 2 button cover outside and mount the control again with the cable facing downward.



2 HANDED CONTROLS

Position the hand controllers as indicated with the cables exiting the controllers from below. The controllers may be interchanged but must adhere to the dimensions below in all cases.

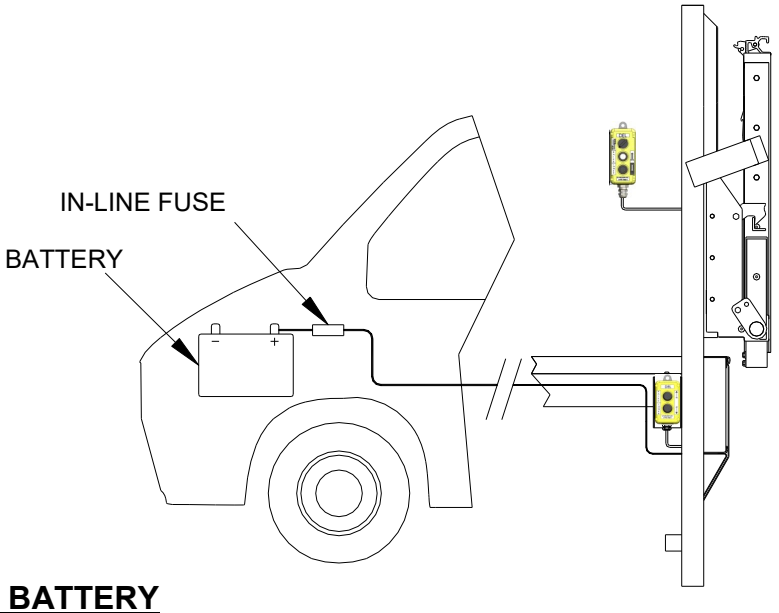


3. INSTALLATION OF IN-LINE FUSE & EARTH

The following instructions cover lifts fitted with an insulated earth cable, which cover all of the 24v systems supplied and some of the 12v systems. For 12v systems not fitted with an insulated earth cable i.e. the tail lift is earthed to the vehicle chassis; a separate earth to chassis lead must be fitted (supplied in the kit). DO NOT rely on the vehicle manufacturers earth cable, ***this is not adequate***. Refer to page 36 for wiring installation recommendations.

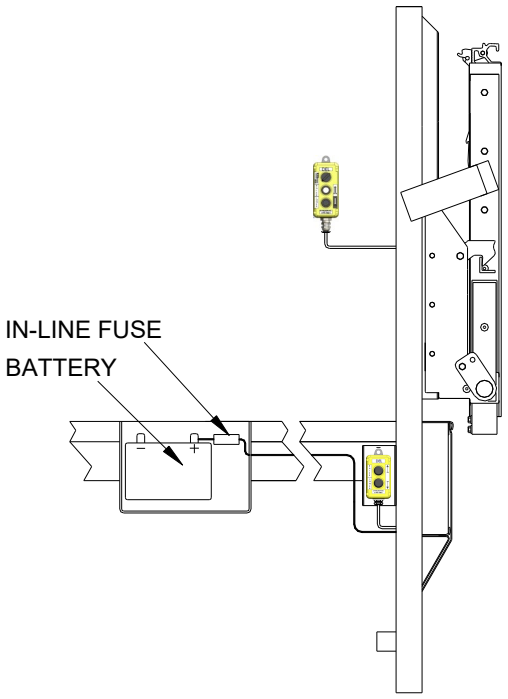
3.5T WITH THE BATTERY UNDER THE BONNET

Route main battery cable from tail lift to the battery along the chassis avoiding the exhaust, fuel pipes, brake lines and sharp edges.
Locate the fuse holder **as close to the battery as possible, inside the engine compartment** using the short cable to the battery +ve terminal

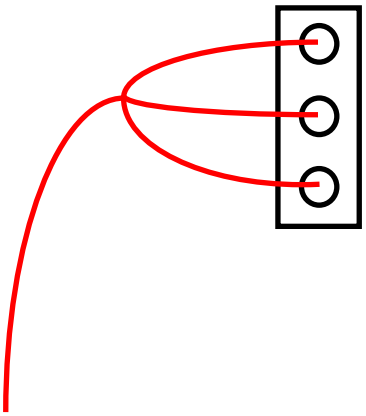


7.5T VEHICLE WITH CHASSIS BATTERY

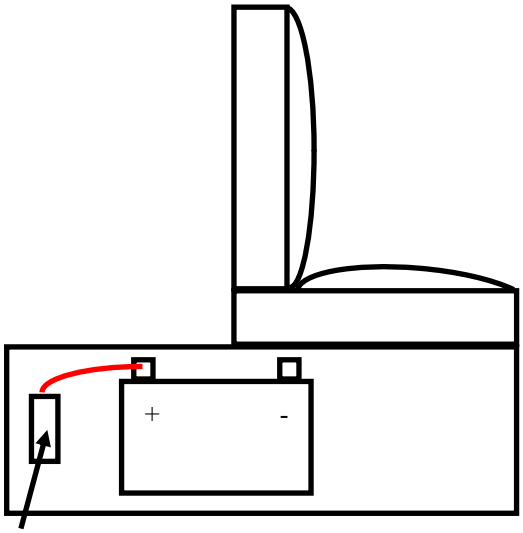
Route main battery cable from tail lift to the battery along the chassis avoiding the exhaust, fuel pipes, brake lines and sharp edges.
Locate **the fuse holder inside the battery case, using bolts, not self-tappers.** If insufficient space inside case, locate **as close to the battery as possible, in an area least susceptible to the elements.**



Some vehicle manufacturers have batteries located under the seat in the cab. Ford use a CCP 3 point connector which again is under the seat to the rear.



CCP connected vehicles will need a 3-way power lead adapter. Supplied with CCP spec lifts.



In line Fuse

Direct connection to batteries can be made on most vehicles. If in doubt please contact Del.

Route main battery cable from tailift to the battery along the chassis avoiding the exhaust, fuel pipes and sharp edges.
Locate **the fuse holder inside the battery case, using bolts, not self-tappers.** If insufficient space inside case, locate **as close to the battery as possible, in an area least susceptible to the elements.**

4. TAILIFT MOUNTING AND BRACING

N_1 VEHICLES (3.5T)

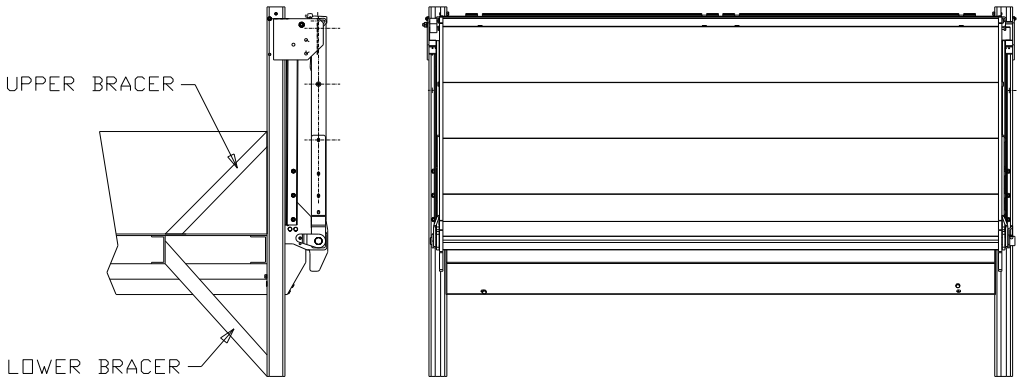
BOX BODY

Bracing is not normally required when mounting a lift to a Luton/box body vehicle.

DROPSIDE BODY

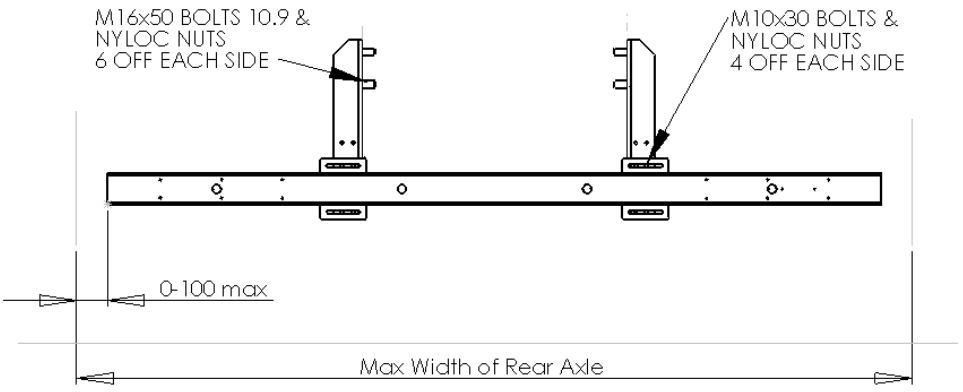
Both upper and lower bracing is required when mounting a lift to a dropside body vehicle. The body should be built with a box section rear frame, braced above and below bed as shown below. Specialized bracing kits are also available for certain body manufacturers, See Del Sales.

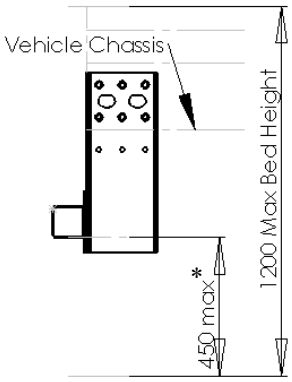
Hiab.com/en-gb/our-brands/del



N_2 & N_3 VEHICLES

Lifts which are supplied with an under run bar and need to comply with EC WVTA R58-03 must be fitted using the mid-bracing and fixings supplied. The mid-bracing



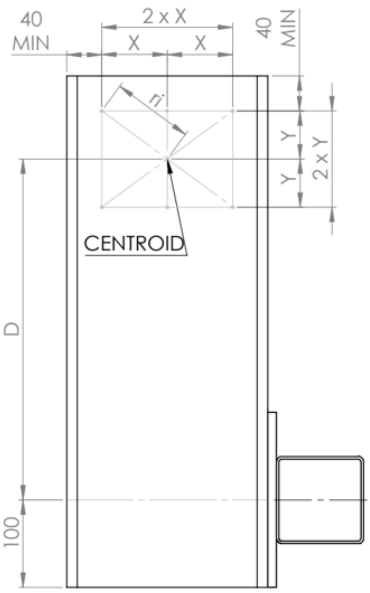


* 500 mm or a departure angle according to ISO 612:1978 of 8°, whichever is less, when fitted to vehicles other than those with hydro-pneumatic, hydraulic or pneumatic suspension or those which have a device for automatic levelling.
* 550 mm when fitted to vehicles with a departure angle up to 8° according to ISO 612:1978.
** Hole pattern should be drilled to suit chassis in accordance with the following criteria;

Determine the best hole pattern of 2 Rows x 3 holes to suit the chassis.

IMPORTANT - Ensure that that the required hole pattern conforms to the tailifts R58-03 Approval by either sending the 'x', 'y' and 'D' dimensions (see sketch below) to HIAB Sales OR by entering these dimensions into the 'Bolt hole pattern calculator.xls' (available from HIAB Sales). A Pass requires a Resultant Force on the bolts < 73kN. Failure to achieve a Pass means that the installation may not meet Vehicle Type Approval.

Calculation of new underrun bolt pattern



Side View

Horizontal distance between holes (*X*)	75	mm
Vertical distance between holes (*Y*)	52,5	mm
Distance from the load (centre of underrun (D)) to the centre of bolt pattern (CG)	392	mm

Fail

Horizontal distance between holes (*X*)	75	mm
Vertical distance between holes (*Y*)	75	mm
Distance from the load (centre of underrun (D)) to the centre of bolt pattern (CG)	392	mm

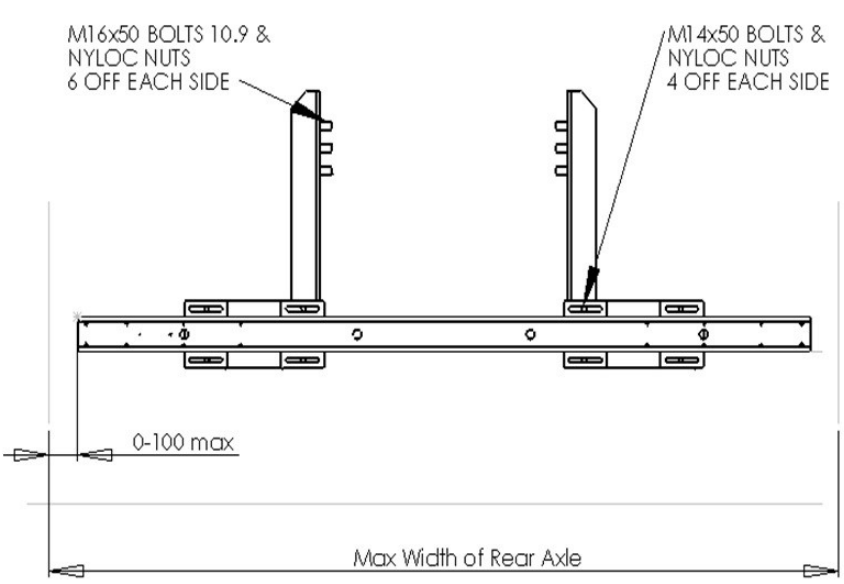
Pass

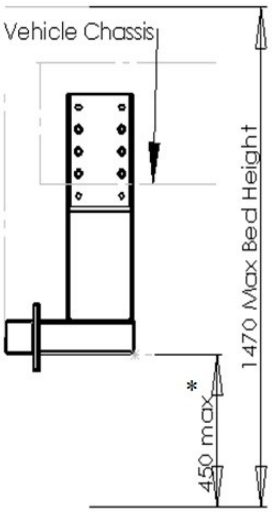
Notes:
Hole Diameter 16.5mm 6 x M16 (10.9) Bolts
Minimum Horizontal holes pitch 3 x Diameter.
Minimum Vertical holes 2 x 3 x Diameter.

Please consult the manual for more information

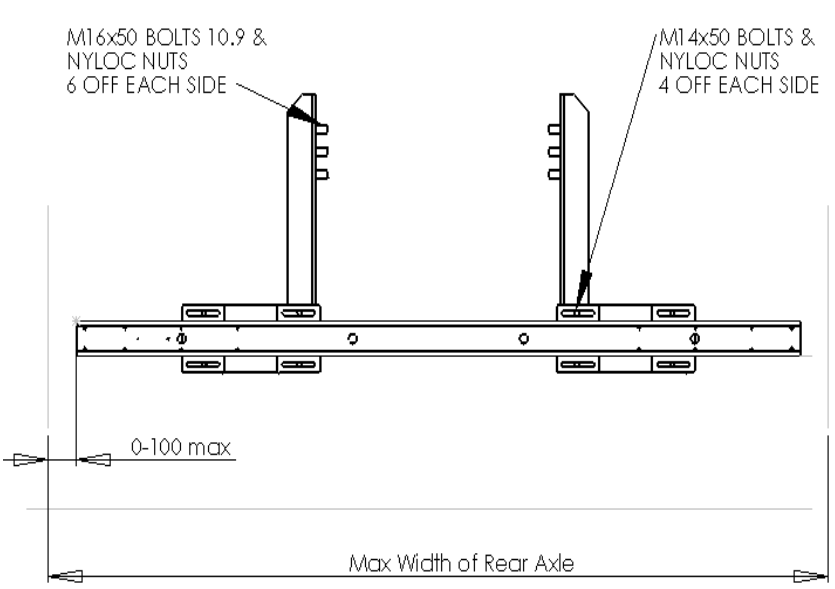
In case of any doubt please contact DEL

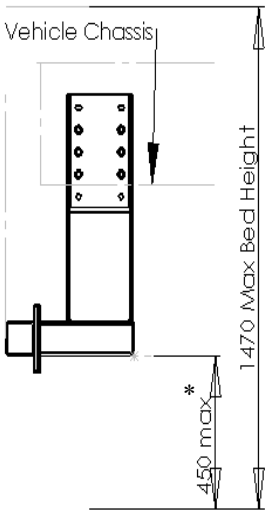
1500Kg & >15T





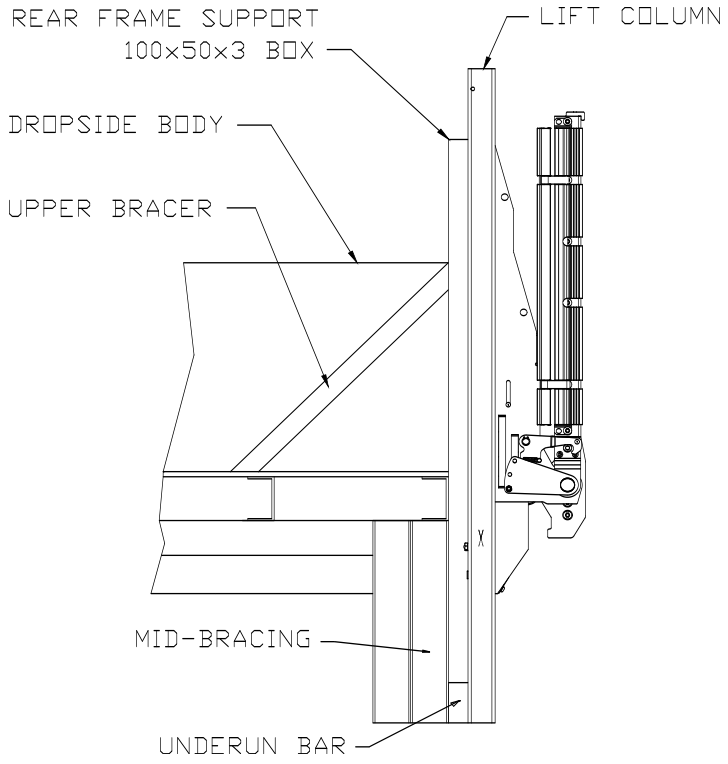
BOX BODY (1500kg LIFTS)





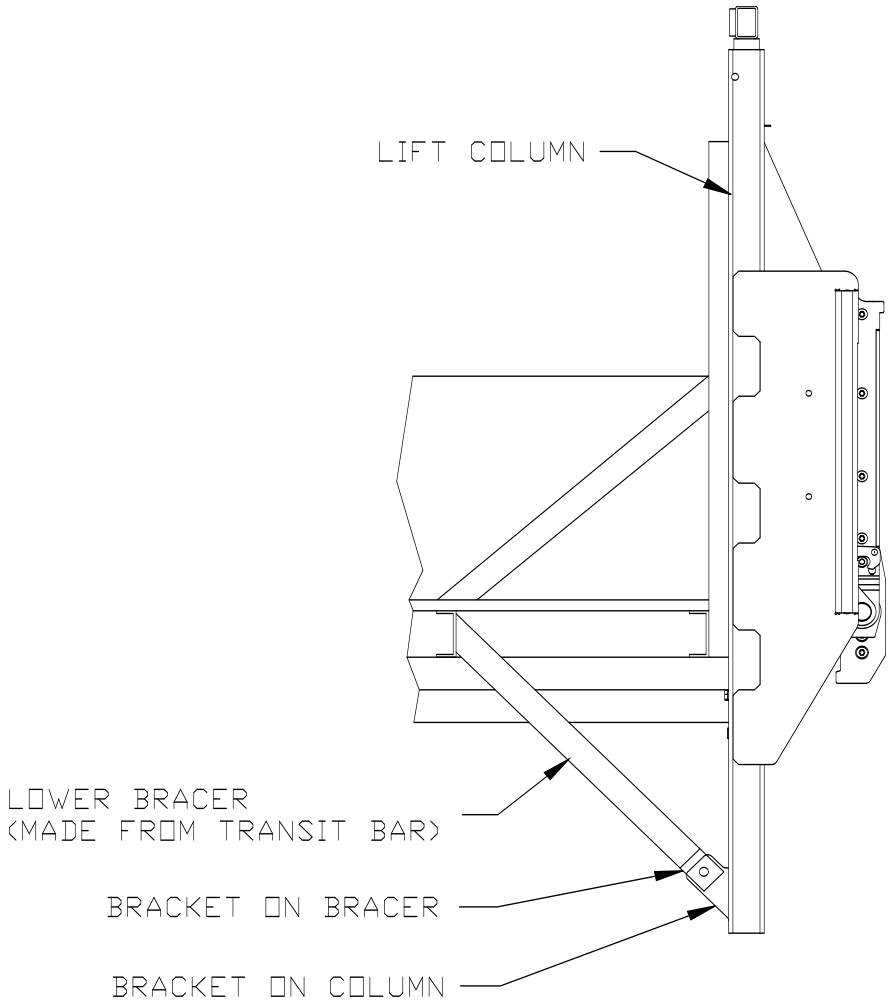
DROPSIDE BODY

In addition to the mid-bracing, upper bracing is also required when mounting a lift to a dropside body vehicle. The body should be built with a box section rear frame, braced above bed as shown below.



DROPSIDE WITH TIPPER BODY

Lifts which are not supplied with an under run bar require both upper and lower bracing. The body should be built with a box section rear frame, braced above and below bed as shown below.

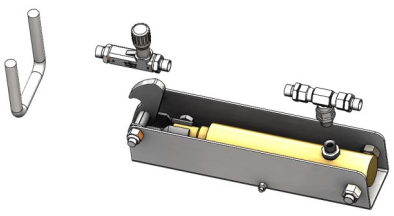


IMPORTANT

Please refer to page 9 for precautions to take when welding.

HYDRAULIC BODY LOCK

If a tipper lift is supplied with a Hydraulic Body Lock, please contact DEL Sales for installation instructions (ref. Part No. 61317)



5. LOAD SAFETY DEVICE (LSD)

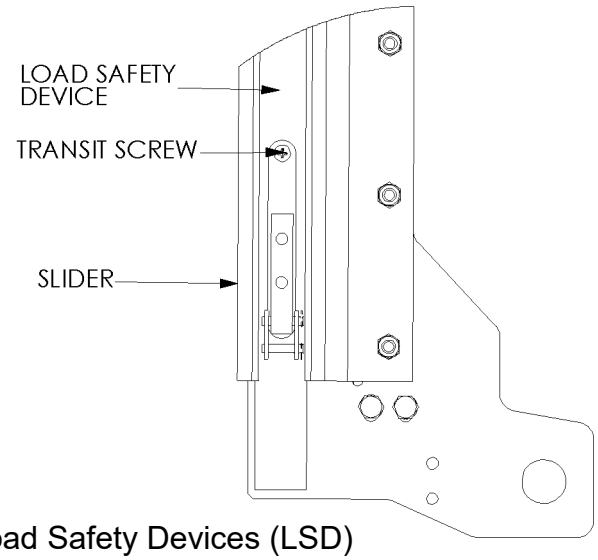
DEL Tailifts are fitted with a chain failure LSD. During transit and installation of the lift, the LSD is disengaged to prevent accidental operation.

TO ACTIVATE THE LSD

1. Lower the platform to within 300mm of the ground. Remove the LSD transit screw from both sliders.

2. The LSD will now be active

Please contact DEL Service if you are unsure or have any problems.



Testing of Load Safety Devices (LSD)
Warning: This may be a 2 persons operation, care must be taken when lowering platform over any object. Remain clear of platform when testing LSD.

Load Safety Device (LSD) Test Procedure

1. To test the nearside LSD with the platform closed, 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.

2. Raise the platform using the jack a minimum of 100mm.

3. 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.

4. 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.

5. 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. If in doubt please contact Del Service.

6. Repeat test 1 to 5 on the offside LSD.

6. POWER PACK RELIEF VALVE & GAUGE PORT

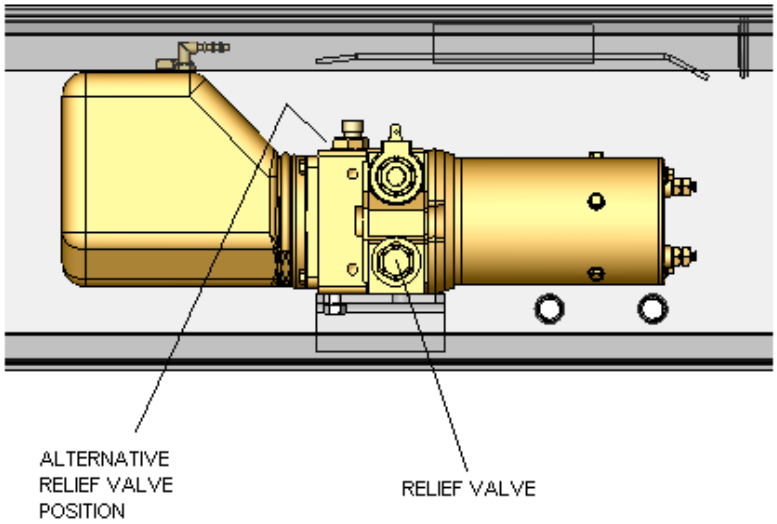
Identify gauge port on power pack and connect pressure test gauge suitable for pressure range. If gauge port is not present one can be created using a tee adaptor.

Turn the relief valve **CLOCKWISE** to **INCREASE** the load.

Turn the relief valve **ANTICLOCKWISE** to **DECREASE** the load.

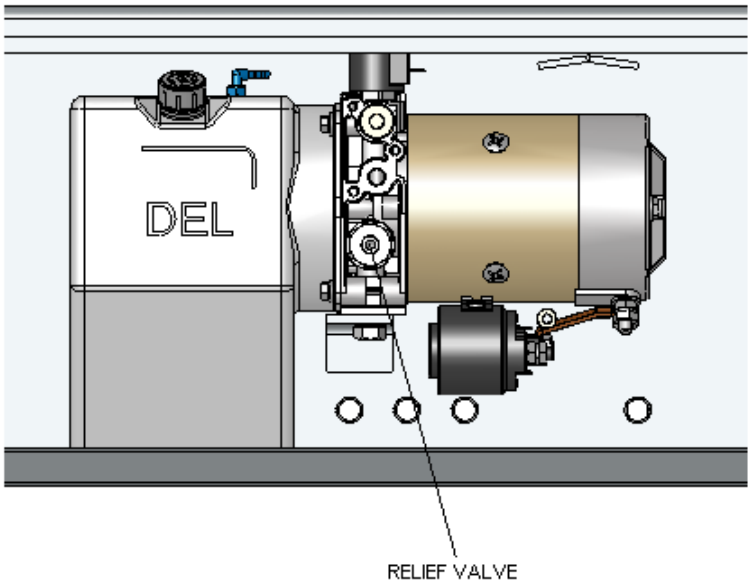
DL500 Lifts

- Remove the cover cap
- Adjust the valve
- Refit the cap
- Check the adjustment with the post-installation tests



DL1000 and DL1500 Lifts

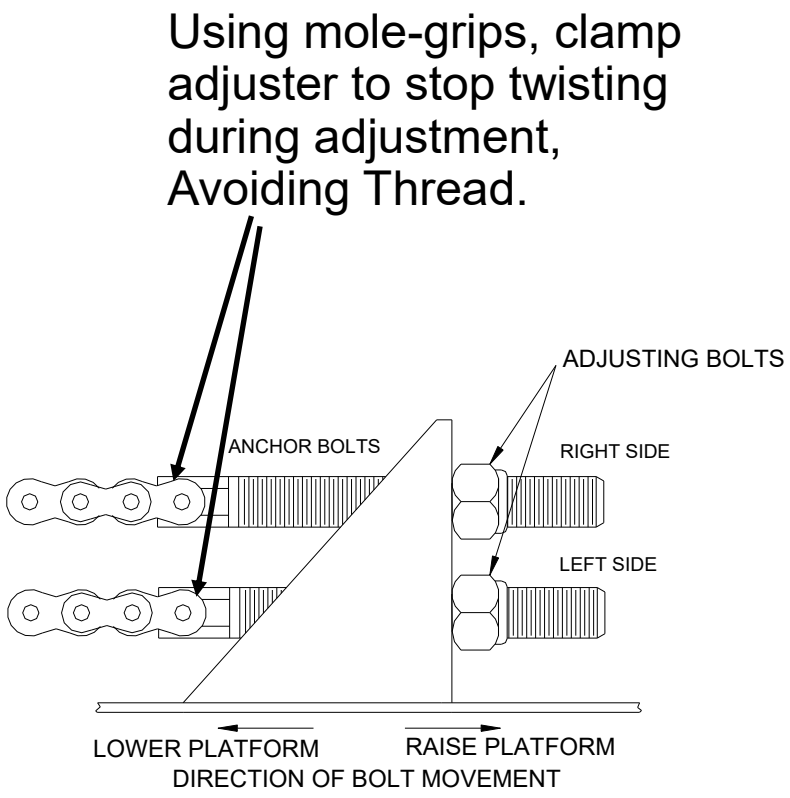
- Release the locknut
- Adjust the relief valve with an Allen key.
- After adjustment, tighten the locknut.
- Check the adjustment with the post-installation tests



7. CHAIN ADJUSTMENT

1. With the platform in the stowed position, Remove the main housing cover (Toe Guard).
2. Using the hand control, lower the platform to a suitable position and Open the platform.
3. Raise the tailift to the full height possible while in the horizontal position.
4. Check the adjustment required on each side.
5. Lower the platform to the ground.
6. Turn the NUT on the anchor bolt to either tighten or loosen the chain. Tightening will raise platform, loosening will lower it. Note that for every 5mm of adjustment, the platform will move 5mm.
7. Raise the platform to bed height and recheck the offset between bed and platform. (6mm above is the standard requirement) Repeat step 5 to 7 if required.
8. Replace the main housing cover.

The platform should now be level with the truck bed or up to **6mm** above floor level.



8. LOCATION OF 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.

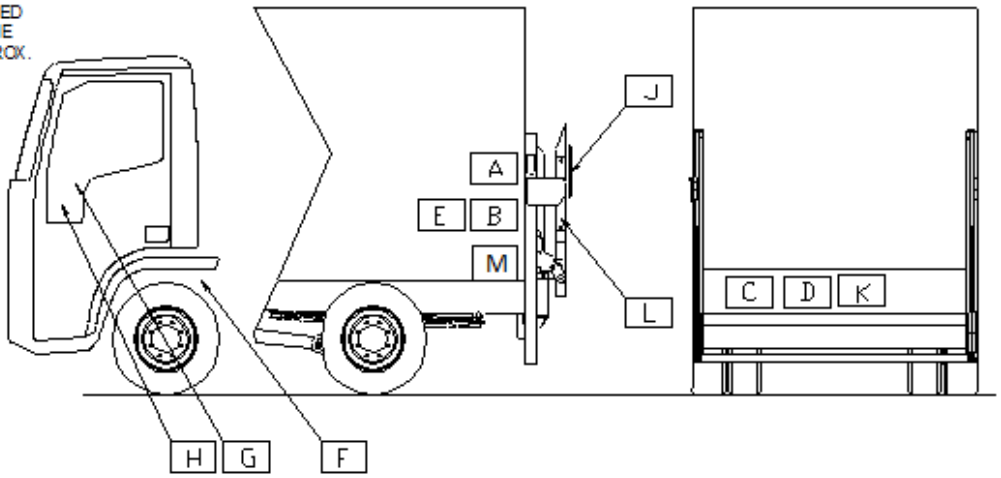
D - LOCATED ON THE MAIN HOUSING COVER ABOVE THE TOE GUARD OR TO THE RIGHT OF 'B'

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.



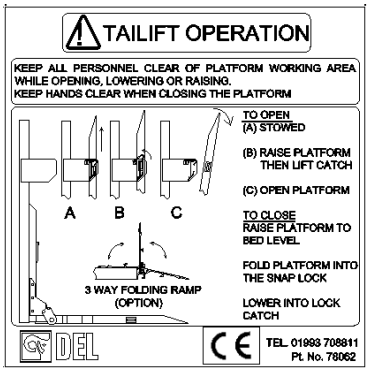
J - REFLECTIVE FLAGS LOCATED AT THE TOP OF THE PLATFORM ON BOTH SIDES

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

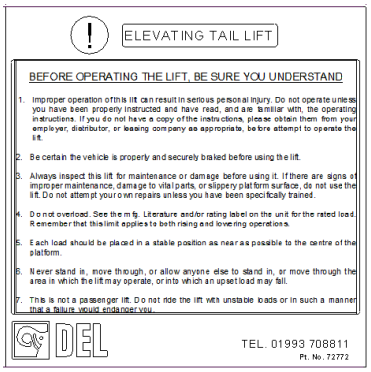
L - LOCATED ON THE EDGE OF BOTH SIDES OF THE PLATFORM

M - LOCATED ON OUTSIDE OF BODY

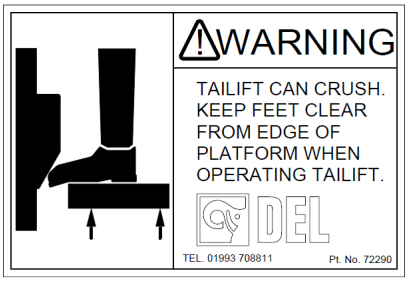
A) TAILIFT OPERATION



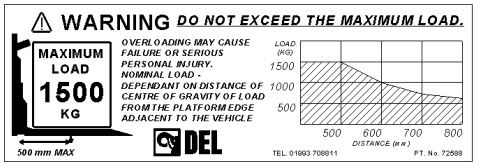
B) CAUTION



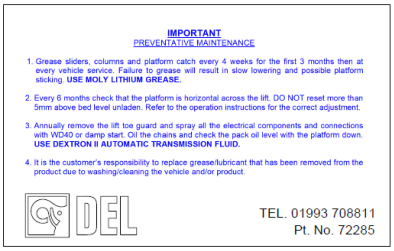
C) WARNING



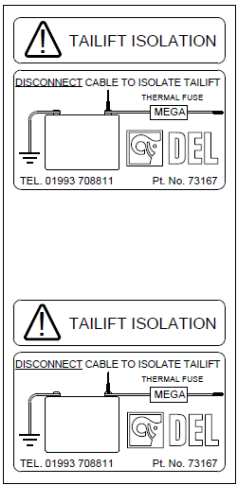
D) MAX LOAD



E) MAINTENANCE



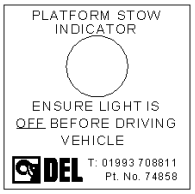
F) TAILIFT ISOLATION



FULL SURROUND GUARD OPERATION

SELF ERECT GUARD OPERATION (WHERE APPLICABLE)

G) STOW INDICATOR (ON DASHBOARD) IF FITTED



H) ISOLATION (ON DASHBOARD)

J - FLAGS

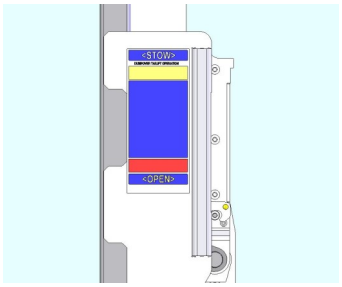
K) ISOLATE POWER SUPPLY

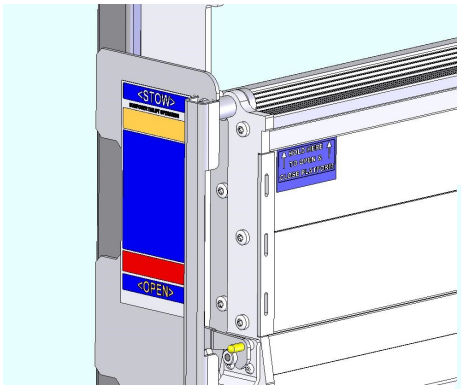
L) KEEP FEET CLEAR

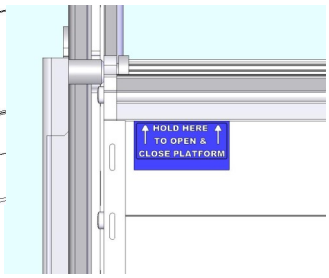
M) WARNING - KE EP HANDS CLEAR

LIFT OPERATION DECAL POSITIONS, DUMPOVER LIFTS

Affix the ‘TAILIFT OPERATION, and ‘HOLD HERE TO OPEN & CLOSE PLATFORM’ decals where shown.







DUMPOVER TAILIFT OPERATION

HOLD HERE TO OPEN & CLOSE PLATFORM

9. TESTS AFTER INSTALLATION

After the lift has been initially installed the following tests **MUST** be completed to ensure the lift has been installed and set up correctly in accordance with CE regulations. The results of the tests should be entered on the test certificate provided and a copy returned to DEL , the original should remain in this handbook as part of the inspection record for the tail lift. This handbook should be kept, together with the operators handbook, with the tail lift as part of the inspection record for the lift.

Do not leave a loaded platform unattended

IMPORTANT – CE REGULATIONS REQUIRE THE TEST CERTIFICATE TO BE COMPLETED AND RETURNED TO DEL (Hiab UK Ltd) The Zinc Building, Ventura Park, Carterton, OX18 1AD.

The lift shown for illustration purposes is the DL500. The same tests apply to all other column lift models.

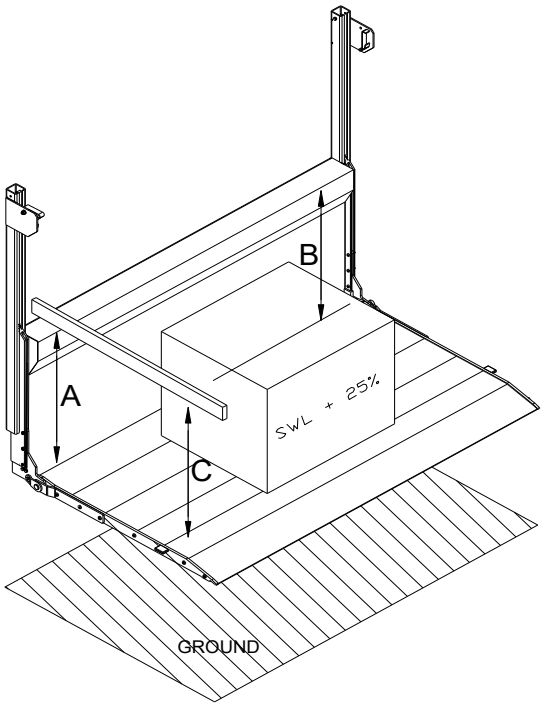
1) STATIC TESTS

a) Deformation

This test is to ensure that the lift attachment is secure.

- Lower the platform mid-way between vehicle floor level and ground level.
- Measure the height of the platform from the vehicle floor at each side of the plat form and at the front of the platform (measurements A, B and C below). Note that a straight edge resting flat on the lift housing will be needed to measure dimension C. Record the initial measurements in the table on page 27.

Dimensions A are taken from the back left hand side of the platform.



Dimension B is taken from the back right hand side of the platform.

Dimension C is taken from either the front left or front right of the platform.

- Apply a load equal to the safe working load +25% (e.g. 625 kgs for 500kg rated lift), at a distance of 500mm from the load centre to the back of the platform, leave it for 10 seconds before removing it.
- Re-measure the distances A, B and C and record under ‘measurement 1’ in the table below.
- If the new values of A, B and C recorded under measurement 1 are not the same as the previous values, repeat the test until they are, recording all subsequent tests in the spaces given.
- Check that no permanent deformation has occurred in the lift or its attachment to the vehicle, which would affect its function.

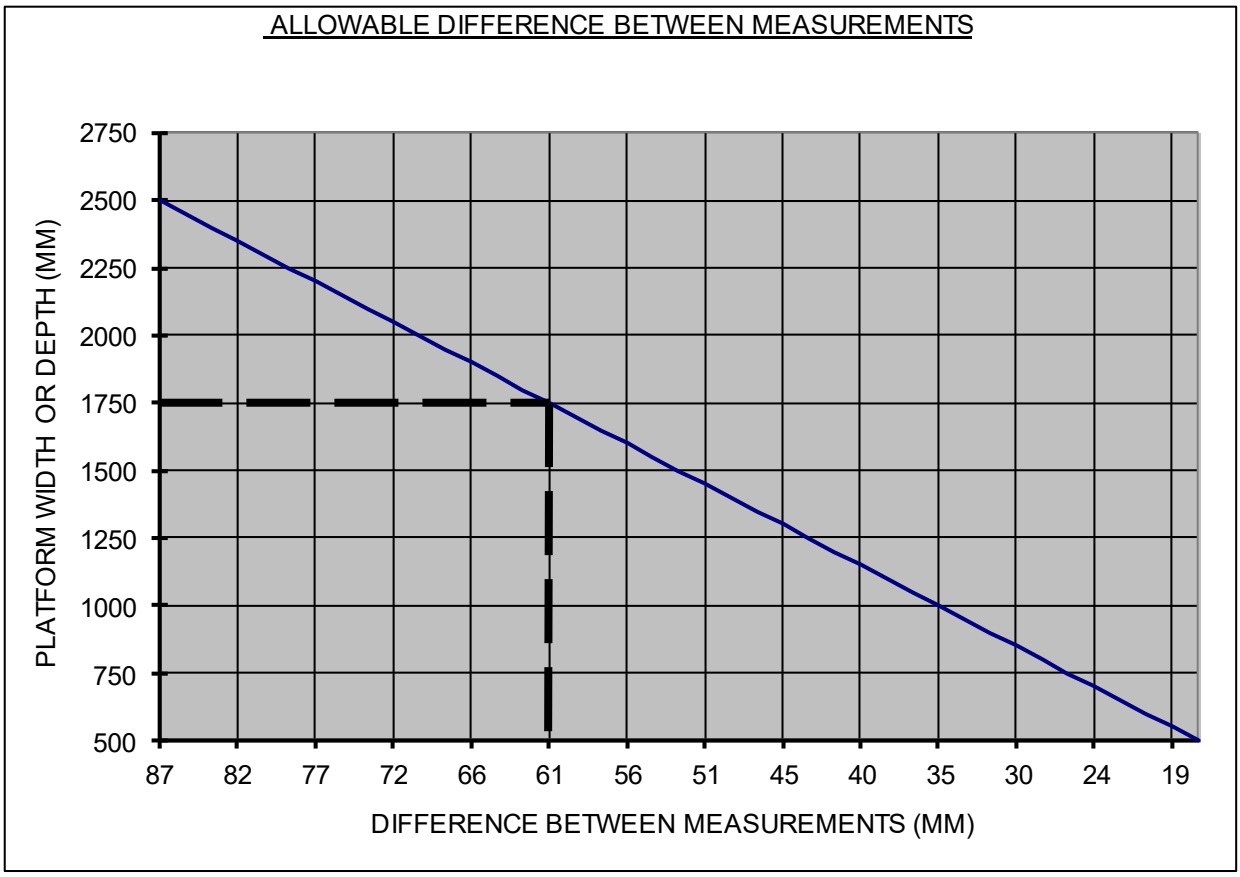
	INITIAL	MEASUREMENT 1	MEASUREMENT 2	MEASUREMENT 3
A				
B				
C				

b) Platform drift

This test is to ensure that the platform remains stationary within 15mm of its original position over a 15-minute test period.

- Raise the platform to vehicle bed height.
- Apply a load equal to the safe working load + 25% at a distance of 500mm from the load centre to the back of the platform. (note that the power pack relief setting prevents this load from being raised)
- Measure the distances A, B, and C and record them in the table below.
- Leave the platform loaded for 15 minutes.
- After the 15 minutes test period, re-measure the values A to C and record them in the table.
- Check that:

1. The difference between measurements A and A’ and B and B’ does not exceed 15mm
2. The angular drift of the platform does not exceed 2 degrees. This is checked using the graph below. The graph shows the allowable difference allowed between measurements A’ and B’ and A’ and C’ (angular drift, side to side and front to back). By plotting the platform depth / width on the vertical axis across to the diagonal line, the horizontal axis will indicate the maximum difference permitted between A’ and B’ / A’ and C. The example shown, the horizontal dotted line is for a platform width of 1750mm. This value translates to the vertical dotted line indicating a maximum difference between A’ and B’ of 61mm. If the difference between the measurements is greater than that shown by the graph, contact DEL After Sales for advice.



	Initial Measure-ment		After 15 minutes	Difference between Measurements
A		A'		A' & B'
B		B'		A' & C'
C		C'		

2) TEST TO VERIFY THAT THE LIFT CANNOT RAISE EXCESSIVE LOAD

- Lower the platform to Ground level.
- Apply the safe working load + 25% to the platform in the position shown in the deformation test.
- Verify that the load cannot be lifted.

Note If the load is lifted reset the power-pack relief valve by following the procedure given under the installation procedure section.

3) DYNAMIC TEST

- Apply the safe working load to the platform.
- Ensure that the lift operates through its full range of movements.
- With the load still on the platform go straight to the safety tests.

4) SAFETY FUNCTION TESTS

A) Platform Raise and Lower Speed

- With the **SAFE WORKING LOAD ONLY** on the platform measure the time taken for the platform to lower from bed height to the ground.
- With **No Load** on the platform, measure the time taken for the platform to raise from the ground to vehicle bed height.
- Record the values in the table below.
- Using the height 'A' measured in the platform drift section above calculate the speed for both the lowering and raising operations (speed = A/time), and record them in the table.
- Check that the speeds do not exceed 150 mm/second

	Laden (lowering)	Unladen (raising)	Measurement 'A'
Time			
Speed (A/Time)			

NOTE

- If the speeds exceed **150 mm/second** check that there is no damage to mechanical parts and that the correct oils/greases have been used.
- Check that if the hydraulic circuit leaks, the maximum speed of any movement does not exceed the usual operating speed by more than 50% and no part of the platform moves more than 100mm (>500kg lifts only)

B) Effort

- Test the effort required to open and close platform using suitable weighing scales. Measure the effort required to initiate movement at the mid point extremity of the platform section. This should not exceed 350N (35.7Kg.f).

10. TEST CHECK LIST

- Static test complete ☐
- Excessive load test complete ☐
- Dynamic test complete ☐
- Safety function test complete ☐

11. TECHNICAL INFORMATION

TORQUE SETTINGS –

	TIGHTENING TORQUES (N/M)	
	GRADE 8.8	GRADE 10.9
M6	8	12
M8	20	29
M10	40	57
M12	70	99
M14	112	158
M16	175	246
G 1/4	20	
G 3/8	34	

HYDRAULIC FLUID

Automatic Transmission Fluid – Viscosity - 39 Centi-strokes at 40°C
7.5 Centi-strokes at 100°C

Type ‘A’ automatic transmission fluid or Shell T22 or equivalent is recommended.

ELECTRICAL WIRES

Where not supplied with the tailift, the wires used on the lift should be of the following minimum CSA.
Power and Earth - 1500kg: 35mm2, 1000kg: 25mm2, 500kg: 20mm^2
Hand control and isolator - 1mm2

BOLTS

Where not supplied with the tailift, the minimum specification for the bolts to mount the tailift should be:
Grade 10.9, diameter 8mm, countersunk.
Note that the mounting bolts should have a minimum shank length of 5mm and screws should never be used.

MANUAL EFFORT WHEN OPERATING TAILIFT

Manual effort shall not exceed 250N, however, to initiate motion, the effort shall not exceed 350N. Note that these requirements do not apply to the effort used when handling loads.

Installed weights.

Lift Type	Model	Approx Installed Weight of Lift (Standard Spec)
Column	DL500G MK5	135KG
	DL500FG	140KG
	DL500GP MK5	150KG
	DL500GRP MK5	135KG
	FC500	195KG*
	TL750	260KG
	TL1000G	260KG
	S1000G	295KG
	S1500G MK5	375KG
* Depending on height of the vehicle (Dim L)		

Lift Type	Model	Approx Installed Weight of Lift
Tippers	DO500G MK5	155KG
	DO500G MK2	265KG
	DO500HG	310KG
	DO750LG	265KG
	DO750HG	310KG
	DO1000LG	265KG
	DO1000HG	310KG

Options (Extra Weight)

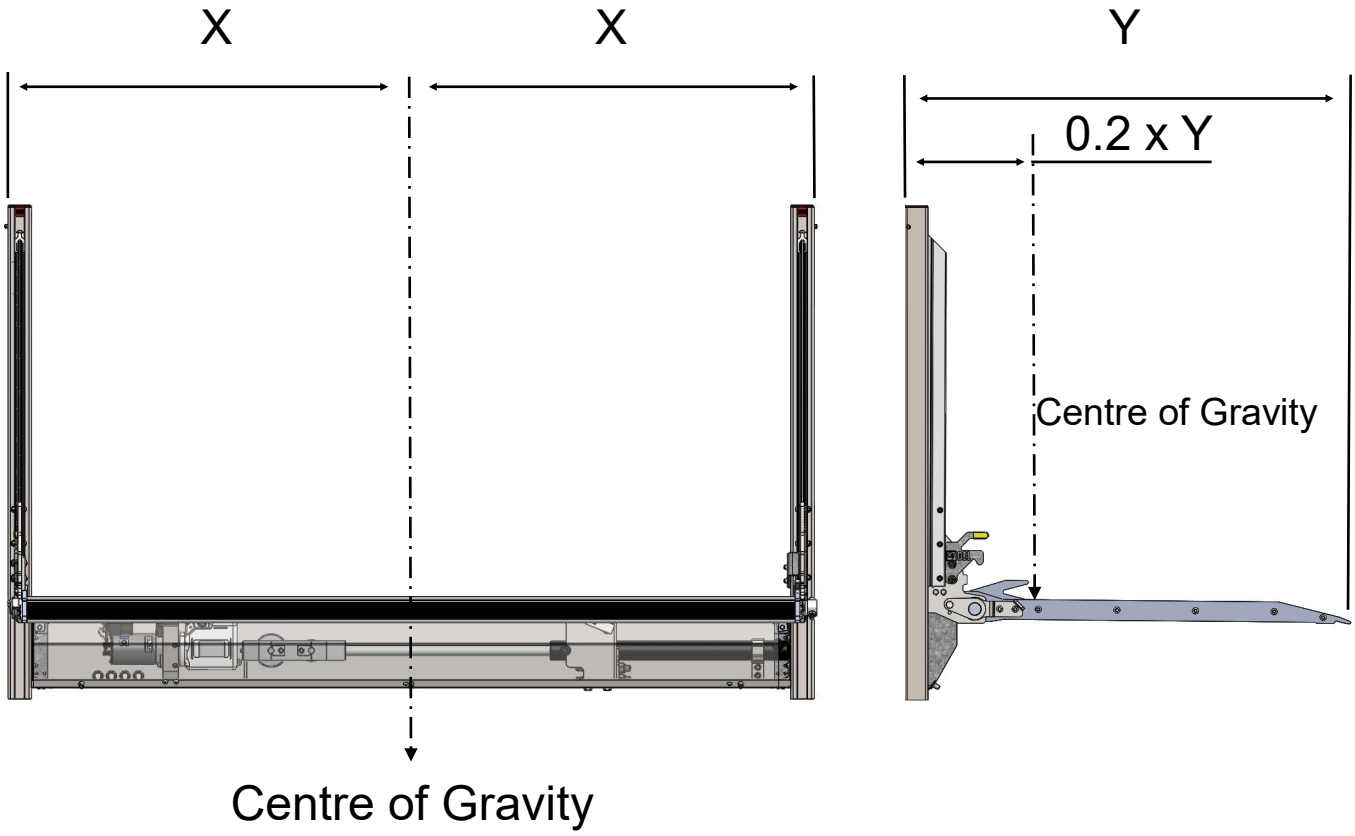
Option	Extra Weight
Extra Depth of	10KG per depth
Trolley Stops (if not	10KG
3 Way Folding Ramps	10KG
3 Way Folding Side	15KG
Short Columns	0KG
Auto Erect Guards	15KG
Drop in Guards	10KG
Dual Mode Guards	15KG
Wrap Around Guards	10KG
Detachable Side Ramp	5KG Per Ramp
Barn Door Application	25KG

NOTE:- Weights are approximate and are given as a guide only, and assume a standard width platform.

CENTRE OF GRAVITY –

The centre of gravity of a column tailift lies at approximately 0.2 times the distance from the back of the lift columns to the front edge of the platform and halfway between the lift columns.

NOTE when loading the platform; place the centre of the load as close to the centre of gravity of the platform as possible.



12. FINAL INSPECTION CHECKLIST

CAUTION: Do not use the tailift if any of the items below are not checked and verified. If you have any questions contact DEL sales. Failure to verify the following could result in severe damage to the tailift or personal injury.

☐ Installation is not fully complete until all the following items are checked and verified and the Installation Manual is passed on to the end user of the lift.

☐ Oil level meets fill mark in pump reservoir.

☐ All tack welds are now complete welds if applicable.

☐ Platform bed height set correctly.

☐ Hydraulic components checked for leakage.

☐ Battery cables attached and clamped tight.

☐ Lights wired properly, are operational, and comply with current lighting Regulations.

☐ On/off switch inside lockable drivers cab or other device to prevent unauthorised operation in the absence of the operator is fitted.

☐ Fuse is fitted as close to battery as is practical.

☐ Audible and visual warning signals operational (if fitted).

☐ Vehicle licence plate properly fitted.

☐ All decals in place and legible after painting. Reflective flags or alternative warning device fitted.

☐ Visual check to ensure any crushing or shearing risks are avoided and decals are in place warning of risks.

☐ Operators manual in vehicle.

☐ Earth strap properly installed.

☐ Columns greased if needed.

☐ Platform opens properly.

☐ Platform stow locks operating correctly.

☐ Control switch operates properly and the direction of the control operation is logically consistent with the direction of travel. Only one control is operational at any one time. The controls are installed to give the operator a secure working position and also good visibility of the load, the platform and working area.

☐ Platform torsion assistance is working and the manual effort does not exceed 250N or 350N to initiate motion.

☐ LSD transit screws have been removed and LSD tested ok.

☐ Tailift tested and test certificate completed.

☐ Minimum toe gap of 78mm or 30 degree slope.

☐ Wire protection fitted to all cable holes. Unshielded hydraulic pipes and electrical wires have been placed so as to avoid damage due to movements resulting from the operation of the tail lift or the vehicle.

Hiab UK Ltd

Cargotec Industrial Park,

Ellesmere SY12 9JW

Tel. 01691 623100

EMAIL: sales@del-uk.com

Lift Test Certificate

DATE: ……..

CUSTOMER NAME:……..…
INSTALLER/TESTER NAME:……...

ADDRESS…… ADDRESS: ……..
…… ……
…… ……
…… ……
…… ……

MODEL……. SERIAL NO:……FITTED TO: …..……

RATED CAPACITY:……..…KG VEHICLE REG: ……..
(TEST LOAD)

OVERLOAD SETTING: …… KG
(TEST LOAD + 25%)

INSTALLATION TESTS

1. STATIC TESTS.....PASS/FAIL?
2. EXCESSIVE LOAD TEST .....PASS/FAIL?
3. DYNAMIC TEST…….....PASS/FAIL?
4. SAFETY FUNCTION TESTS.....PASS/FAIL?

HAS THE LSD TRANSIT SCREW BEEN REMOVED……..YES/NO?

HAS THE FINAL INSPECTION CHECKLIST BEEN COMPLETED…YES/NO?

HAS THE OPERATORS MANUAL BEEN PASSED ON TO THE ENDUSER…YES/NO?

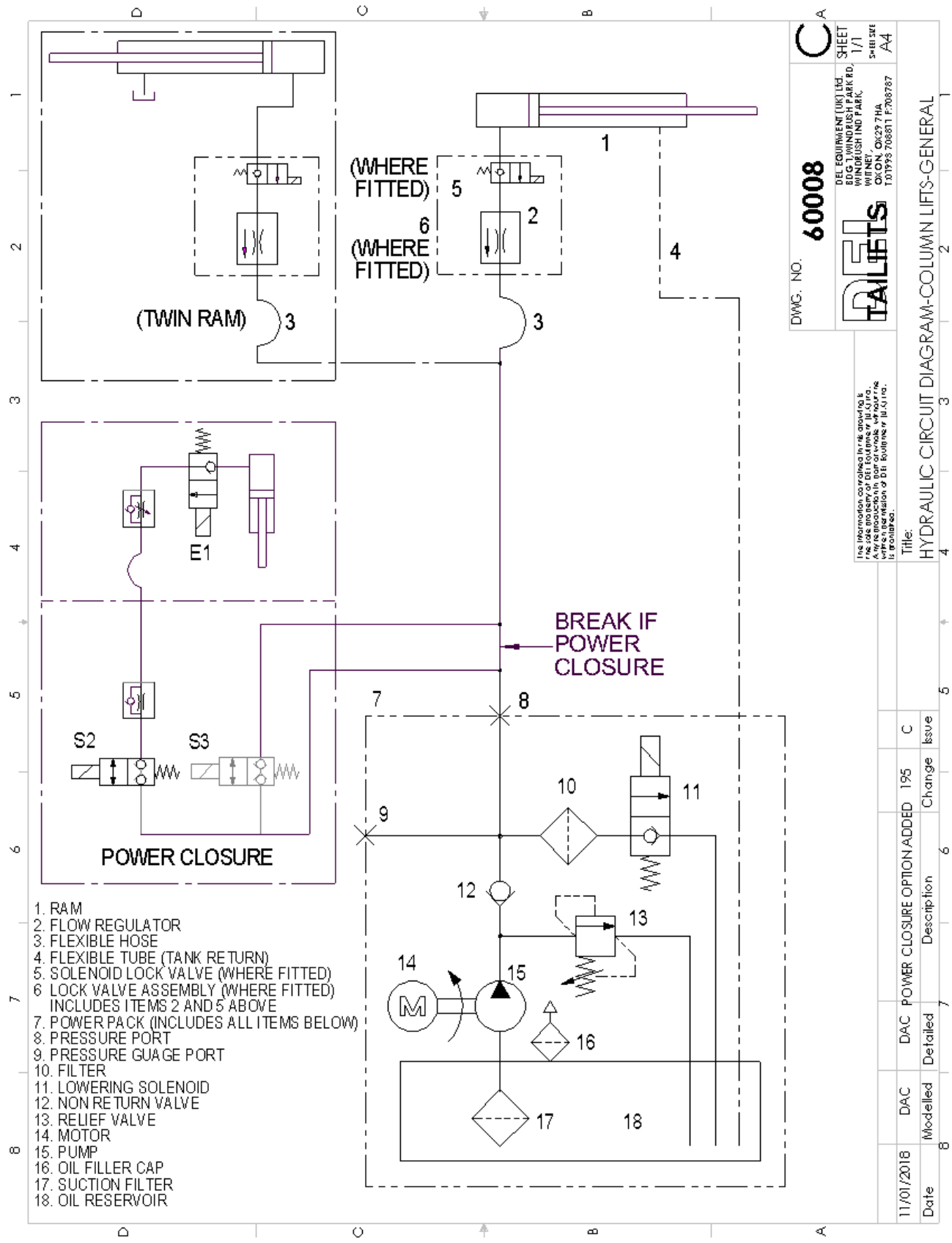
GENERAL.OBSERVATIONS.....
.....
.....
.....

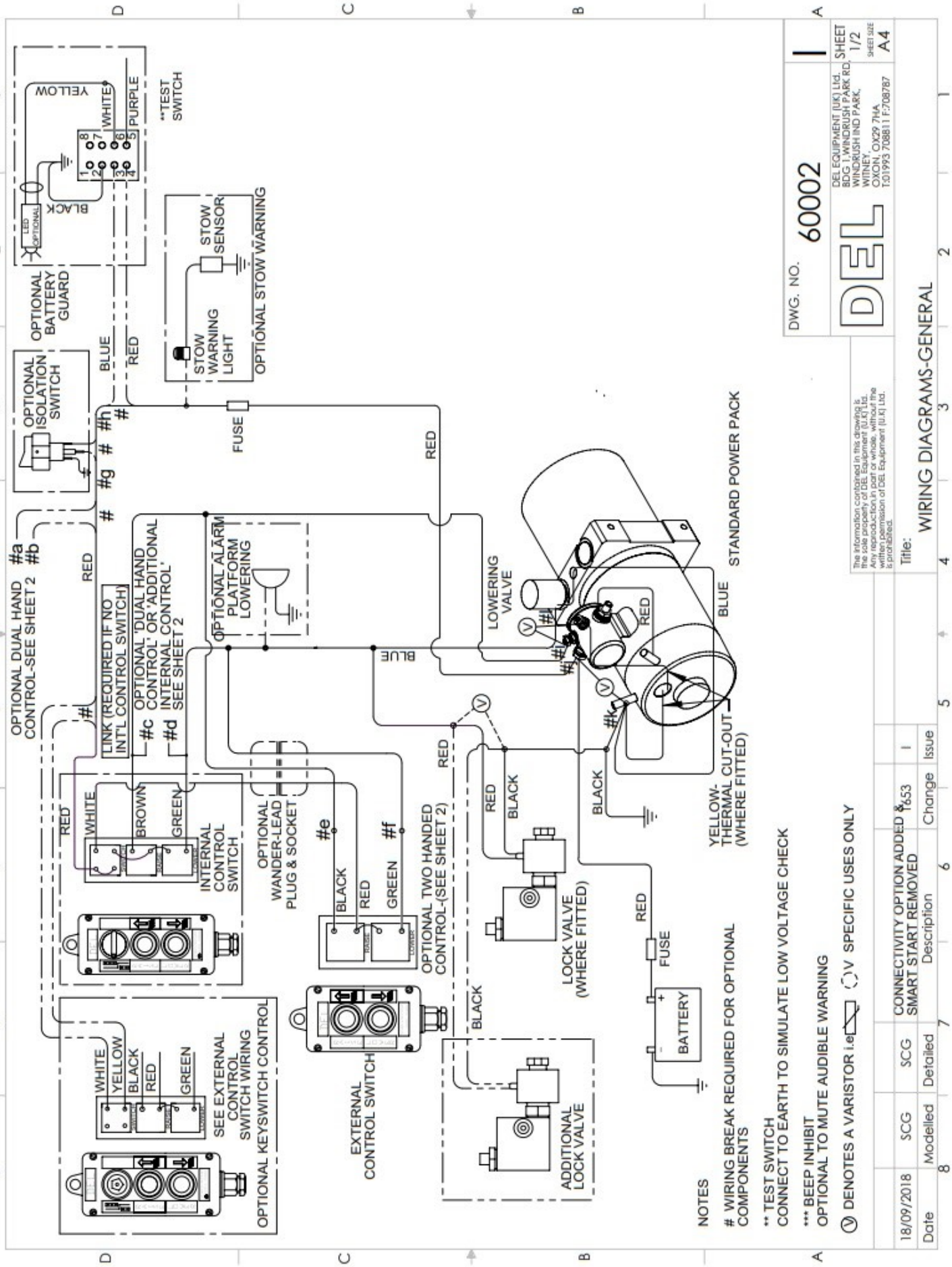
We certify that the product detailed above has been installed in accordance with the manufacturers instructions and that all post installation tests have been completed and passed. We confirm that the manufacturer and end user have been consulted with regard to the products compatibility with the vehicle taking into account the intended use.
The product has not been modified in any way. Any modifications have been approved in writing by the manufacturer.

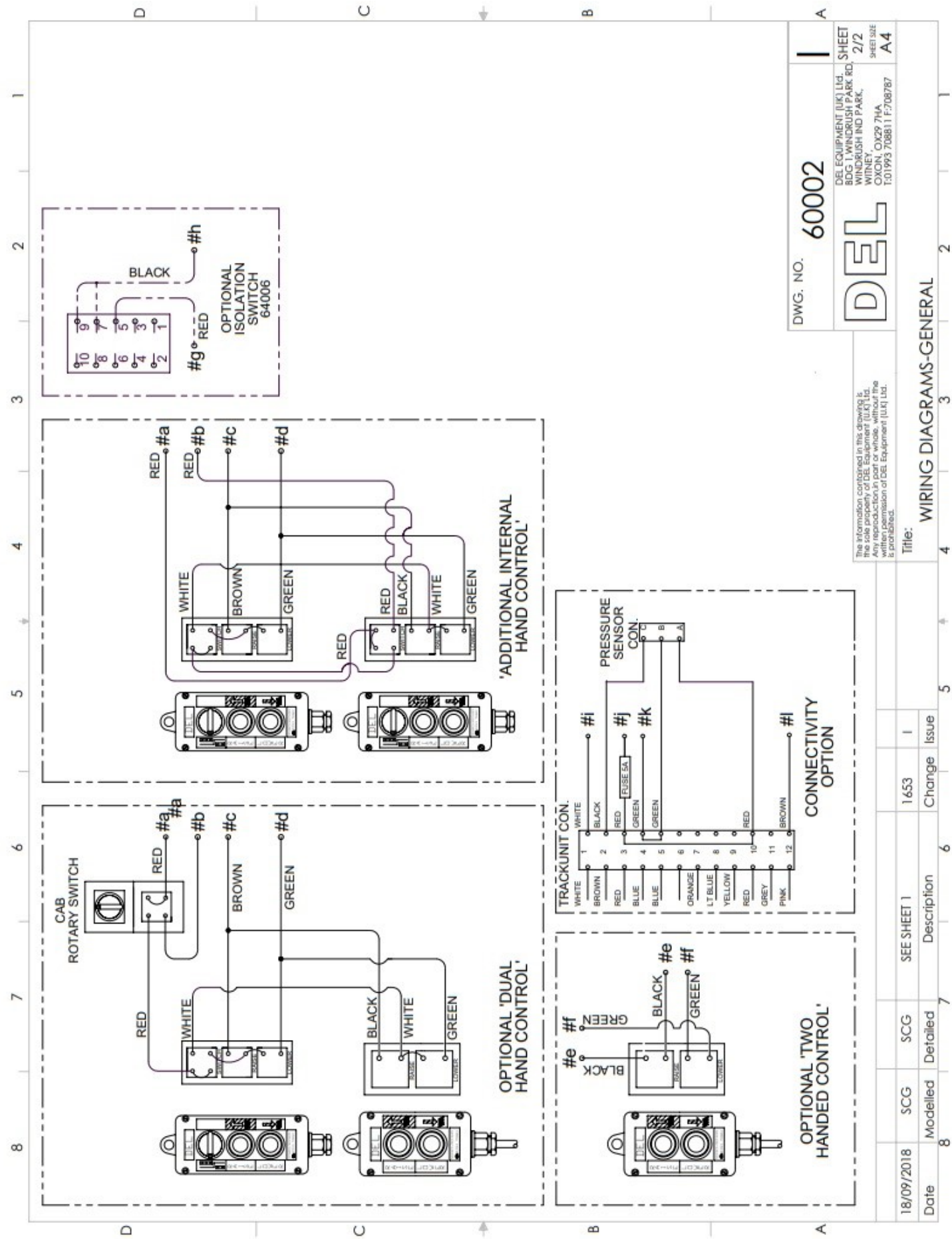
TESTED BY: …….. SIGNED……

COMPANY…….

THIS CERTIFICATE SHOULD REMAIN IN THE INSTALLATION HANDBOOK.


(WHERE FITTED)
5
6
(WHERE FITTED)
1
2
3
4
(TWIN RAM)
3
E1
BREAK IF POWER CLOSURE
7
8
S2
S3
9
10
11
12
13
14
15
16
17
18
M
POWER CLOSURE
1. RAM
2. FLOW REGULATOR
3. FLEXIBLE HOSE
4. FLEXIBLE TUBE (TANK RETURN)
5. SOLENOID LOCK VALVE (WHERE FITTED)
6. LOCK VALVE ASSEMBLY (WHERE FITTED) INCLUDES ITEMS 2 AND 5 ABOVE
7. POWER PACK (INCLUDES ALL ITEMS BELOW)
8. PRESSURE PORT
9. PRESSURE GUAGE PORT
10. FILTER
11. LOWERING SOLENOID
12. NON RETURN VALVE
13. RELIEF VALVE
14. MOTOR
15. PUMP
16. OIL FILLER CAP
17. SUCTION FILTER
18. OIL RESERVOIR
DWG. NO. 60008
DEL EQUIPMENT (UK) Ltd.
BDG 1,WINDRUSH PARK RD.
WINDRUSH IND PARK.
WITNEY,
OXON, OX29 7HA
T:01993 708811 F:708787
SHEET 1/1
SHEET SIZE A4
TAILIFTS
Title:
HYDRAULIC CIRCUIT DIAGRAM-COLUMN LIFTS-GENERAL
Date 11/01/2018 DAC DAC POWER CLOSURE OPTION ADDED 195 C
Modelled Detailed Description Change Issue


WIRING DIAGRAMS-GENERAL
DWG. NO. 60002
DEL EQUIPMENT (UK) Ltd.
BDG 1, WINDRUSH PARK RD,
WINDRUSH IND PARK,
WITNEY,
OXON, OX29 7HA
T:01993 708811 F:708787
SHEET 1/2
SHEET SIZE A4
OPTIONAL DUAL HAND CONTROL-SEE SHEET 2
OPTIONAL BATTERY GUARD
OPTIONAL ISOLATION SWITCH
LED (OPTIONAL)
**TEST SWITCH
STOW SENSOR
STOW WARNING LIGHT
OPTIONAL STOW WARNING
FUSE
LINK (REQUIRED IF NO INT'L CONTROL SWITCH)
OPTIONAL 'DUAL HAND CONTROL' OR 'ADDITIONAL INTERNAL CONTROL' SEE SHEET 2
OPTIONAL ALARM PLATFORM LOWERING
LOWERING VALVE
STANDARD POWER PACK
INTERNAL CONTROL SWITCH
OPTIONAL WANDER-LEAD PLUG & SOCKET
OPTIONAL TWO HANDED CONTROL-(SEE SHEET 2)
LOCK VALVE (WHERE FITTED)
YELLOW-THERMAL CUT-OUT (WHERE FITTED)
BATTERY
SEE EXTERNAL CONTROL SWITCH WIRING
OPTIONAL KEYSWITCH CONTROL
EXTERNAL CONTROL SWITCH
ADDITIONAL LOCK VALVE
NOTES
WIRING BREAK REQUIRED FOR OPTIONAL COMPONENTS
** TEST SWITCH CONNECT TO EARTH TO SIMULATE LOW VOLTAGE CHECK
*** BEEP INHIBIT OPTIONAL TO MUTE AUDIBLE WARNING
V DENOTES A VARISTOR i.e 24V SPECIFIC USES ONLY
18/09/2018 SCG SCG CONNECTIVITY OPTION ADDED & SMART START REMOVED 1653 I
Date Modelled Detailed Description Change Issue


OPTIONAL ISOLATION SWITCH 64006
BLACK
RED
#g
#h
'ADDITIONAL INTERNAL HAND CONTROL'
RED
#a
#b
#c
#d
WHITE
BROWN
GREEN
RED
BLACK
WHITE
GREEN
RED
OPTIONAL 'DUAL HAND CONTROL'
CAB ROTARY SWITCH
RED
#a
#a
#b
#c
#d
BROWN
GREEN
RED
WHITE
BLACK
WHITE
GREEN
OPTIONAL 'TWO HANDED CONTROL'
#e
#f
GREEN
BLACK
#e
#f
BLACK
GREEN
CONNECTIVITY OPTION
TRACKUNIT CON.
PRESSURE SENSOR CON.
FUSE 5A
#i
#j
#k
#l
WHITE
BROWN
RED
BLUE
BLUE
ORANGE
LT BLUE
YELLOW
RED
GREY
PINK
BROWN
RED
GREEN
GREEN
DWG. NO. 60002
DEL EQUIPMENT (UK) Ltd.
BDG 1, WINDRUSH PARK RD,
WINDRUSH IND PARK,
WITNEY, OXON, OX29 7HA
T:01993 708811 F:708787
SHEET 2/2
SHEET SIZE A4
The information contained in this drawing is the sole property of DEL Equipment (U.K) Ltd. Any reproduction in part or whole, without the written permission of DEL Equipment (UK) Ltd. is prohibited.
Title: WIRING DIAGRAMS-GENERAL
18/09/2018 SCG SCG SEE SHEET 1 1653 I
Date Modelled Detailed Description Change Issue

15. ELECTRICAL CABLE INSTALLATION NOTES

Power Cable Bend radius
A smaller bend radius than provided by the wire supplier will put extra stress on the installation as well as over time damage the internal copper strands. This will increase the electrical resistance and by that accelerate the turn of events that can lead up to that the wire breaks.
Power cables must be installed with a minimum bend radius of 100mm.

Power Cable Maximum distance between fixation points
A tight fixation is crucial for the power cables in order to avoid extra stress on the wires. The maximum
distance is set so that impact from vibrations are lowered to a minimum.
The recommended maximum clamping distance is 400 mm.

Clamping material
Wire installation should be made with, for the application, appropriate material.
Recommendation is to use rubber clamps as much as possible.
The use of cable ties should be avoided for fixating the power cables. If this can't be avoided the recommendation is to use them together with a specified clip solution.
The use of cable ties striping the wire together with other parts (such as pipes, hoses or brackets) is not recommended due to that chafing on either one or both parts will occur.

Bolting Torques
Battery Terminal Clamps
M6 Clamp Bolts: 5-6Nm

Fuse
Recommended tightening torque of M8 Fasteners: 12-18Nm

Motor and Start Switch Terminals
Recommended tightening torque of M6 Terminals: 4-5Nm
Recommended tightening torque of M8 Terminals: 8-10Nm

Contact Us:

Hiab UK Ltd

Cargotec Industrial Park

Ellesmere SY12 9JW

Tel. 01691 623100

EMAIL: sales@del-uk.com
Hiab.com