

# MECHlift 220R Bin Lifter

**THIS DOCUMENT IS NOT YET  
COMPLETE**



## Operating and Maintenance Instruction Manual



# Table of contents

## 1. GENERAL INFORMATION

General Description .....	1-1
Introduction and Important Notes.....	1-2

## 2. OPERATING INSTRUCTIONS

Safety Instructions .....	2-1
Controls and Components .....	2-3
Emptying 80 – 240 litre Containers .....	2-6

## 3. TECHNICAL INFORMATION

Mounting and Dismounting .....	3-1
Interface Requirements – Mechanical Interface.....	3-2
Interface Requirements – Hydraulic Interface .....	3-3
Mechanical Function .....	3-4
Hydraulic Systems Overview – Systems Breakdown.....	3-5
Hydraulic Systems Overview – Function & Operation.....	3-6
Hydraulic Systems Diagram.....	3-10
Hydraulic Set-up Procedure .....	3-12
Care and Maintenance.....	3-13
Fault Finding Procedure.....	3-15

# GENERAL DESCRIPTION



The Model 220 is a high-level lifter that achieves the highest productivity with the least stress, noise, mass and maintenance. This model has been designed to empty 80-240 litre two wheeled plastic containers and can empty over 1200 bins per 8 hour shift. A “high-level” lifter can only achieve such a high performance where the tipped position is above the compactor blade, allowing simultaneous bin emptying and compaction.

A single rotary actuator drives each sub-assembly of the lifter, which provides a smooth bin emptying cycle. Stubborn refuse is normally ejected on the first attempt due to the large tipping angle. This patented rotary lift action is more efficient and uses much less power from the vehicle’s engine. Therefore achieving cycle times of 7 to 8 seconds with bins weighing up to 180kg.

The Model 220 is readily interchangeable with the European high lifters as it complies with the DIN interface standard. Because of the lower mass of this model, this is often the only high-level lifter that can be fitted to single rear axle vehicles.

# INTRODUCTION & IMPORTANT INFORMATION

Thank you for purchasing a MECHLIFT Bin Lifter. MECHLIFT bin lifters have become popular since 1992 because they are economical, durable and efficient. Our lifters are continuously being improved therefore; it will be appreciated if you notify us of any problem (or suggestion), irrespective of how big or how small. Our factory and distributors are always at your disposal to provide full after sales service.

## Please read these notes carefully:

- All users of the lifter or persons carrying out maintenance and repair work should be trained for the appropriate operation of the lifter. Furthermore, they should be made aware of any dangers that might occur when operating the device.
- Please study the Operating Instructions closely before using the lifter or carrying out maintenance work or adjustments.
- Please read the Operating Manual of the vehicle and vehicle body manufacturer as well.
- If any person reading the Operating Instructions does not understand any aspect clearly, or believes that the instructions are inadequate, then do not operate the equipment until clarification has been obtained from MECHLIFT.
- Each MECHLIFT lifter is provided with an identification plate that is fitted on the LH side of the lifter when viewed in the direction of travel.
- The following details appear on the identification plate and should always be specified when making inquiries:



1. Type

2. Serial Number

# Operating Instructions

## SAFETY INSTRUCTIONS

MECHLIFT lifters are designed and tested to work safely when properly used. Anyone working with the lifter, maintaining or repairing it should read and follow these safety instructions.

## PROPER USE

- The lifter has been design to only be mounted to a refuse collection vehicle and to empty refuse containers.
- This specific type of lifter may empty only 80-240 litre containers. Emptying any other containers may lead to an accident.
- The design of the lifter is such that only bins with the lids in the closed position can be lifted. Operators must ensure that the lid is fully closed before bringing the bin to the comb. Bins with partial or fully opened lids must not be lifted.
- Lifting or towing of any other load is strictly forbidden.
- Only use the lifter for the purposes shown in the operating instructions. Any other use of the lifter may be dangerous.

## GENERAL SAFETY

- Untrained persons may not operate the lifter.
- Read the operating instructions carefully before you use the lifter. Make sure you are familiar with the lifter.
- Only operate the lifter when you know what the controls are for and what they do.
- ALWAYS make sure the bin is properly located on the comb before lifting. If it is not secure on the comb, it may fall and cause an accident.
- DO NOT reach into the bin lifter. Your hands could be crushed.
- DO NOT exceed the cycle speed of 7 sec.

## WORKING AREAS

- During the emptying process, the user must move out of the area behind the lifters and stand at the side of the lifter beside the operating lever.
- NOBODY is allowed to stand inside the operating area while the machinery is moving or while a bin is lifted.

## TRAVELING AND PARKING

- The lifters may only be lowered close to the ground when the vehicle is stationary.
- While travelling, the lifters must be raised to maintain an adequate ground clearance.
- Be particularly careful when reversing the vehicle.

## MAINTENANCE AND REPAIR

 <b>IMPORTANT!</b>
---

<b>A qualified person must check the lifter at least once a year to see if all safety devices are working properly.</b>
---

- Please observe the recommended maintenance intervals (see chapter on “Care and Maintenance”).
- Only trained and experienced persons may carry out maintenance and repair work.
- Only authorized persons are allowed near the lifter during maintenance and repair work.
- ALWAYS switch off the vehicle hydraulics when carrying out maintenance and repair work.
- For safety reasons, only authorized alterations or modifications are allowed.
- DO NOT remove, alter or prevent safety devices from working.
- DO NOT alter the sequence of operation of the lifter.
- Take proper safety precautions when fitting, removing or transporting the lifter.
- Only sling the lifter using the lifting eyes provided.

## MAINTENANCE AND REPAIR (Continued)

- Use only original MECHLIFT spares or spares approved by MECHLIFT. These spares will work properly and safely.
- The non-approved spares may change the way the lifter works and can affect safety.
- If you use non-approved spares, you may invalidate the manufacturer's liability.

## EXPLANATION OF THE WARNING LABELS

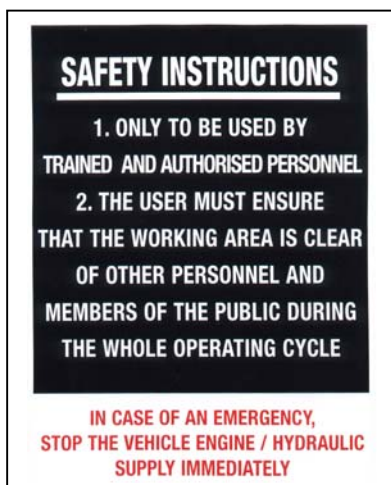


DO NOT reach into the bin lift operating area.

Moving machinery can generate very large forces that can cause severe permanent injury.



DO NOT enter the working area during the emptying process.



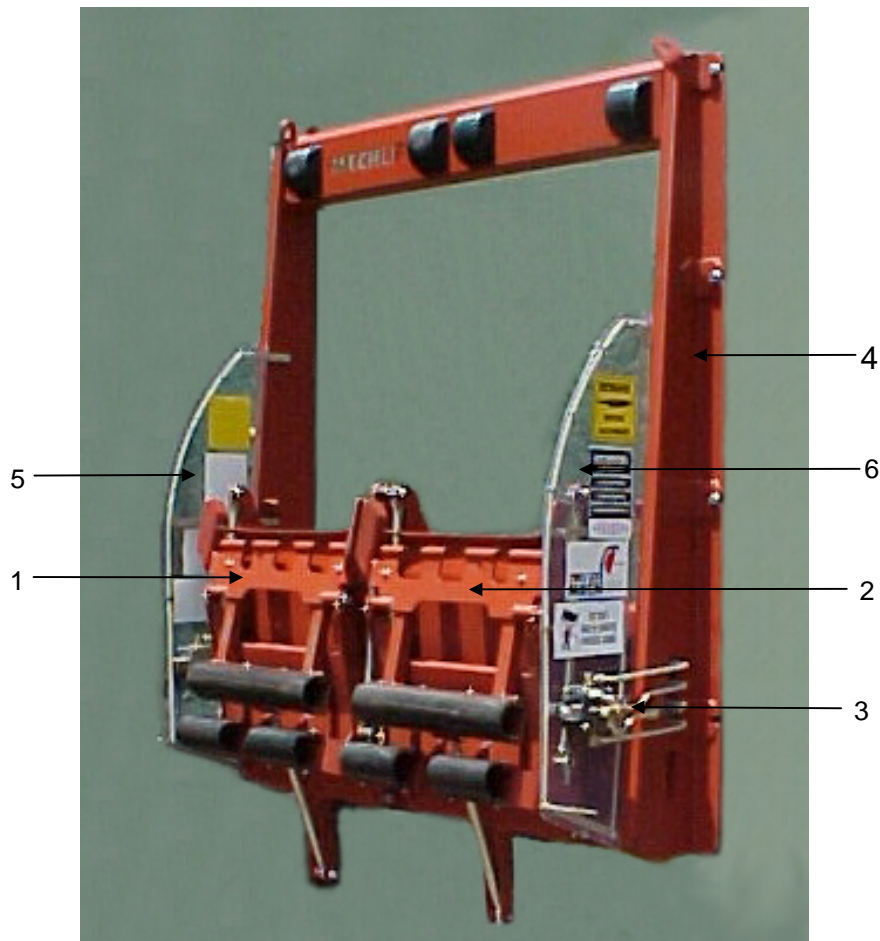
Follow these safety instructions.



# Controls and Components

The main controls and components of the MECHLIFT Model 220 are:

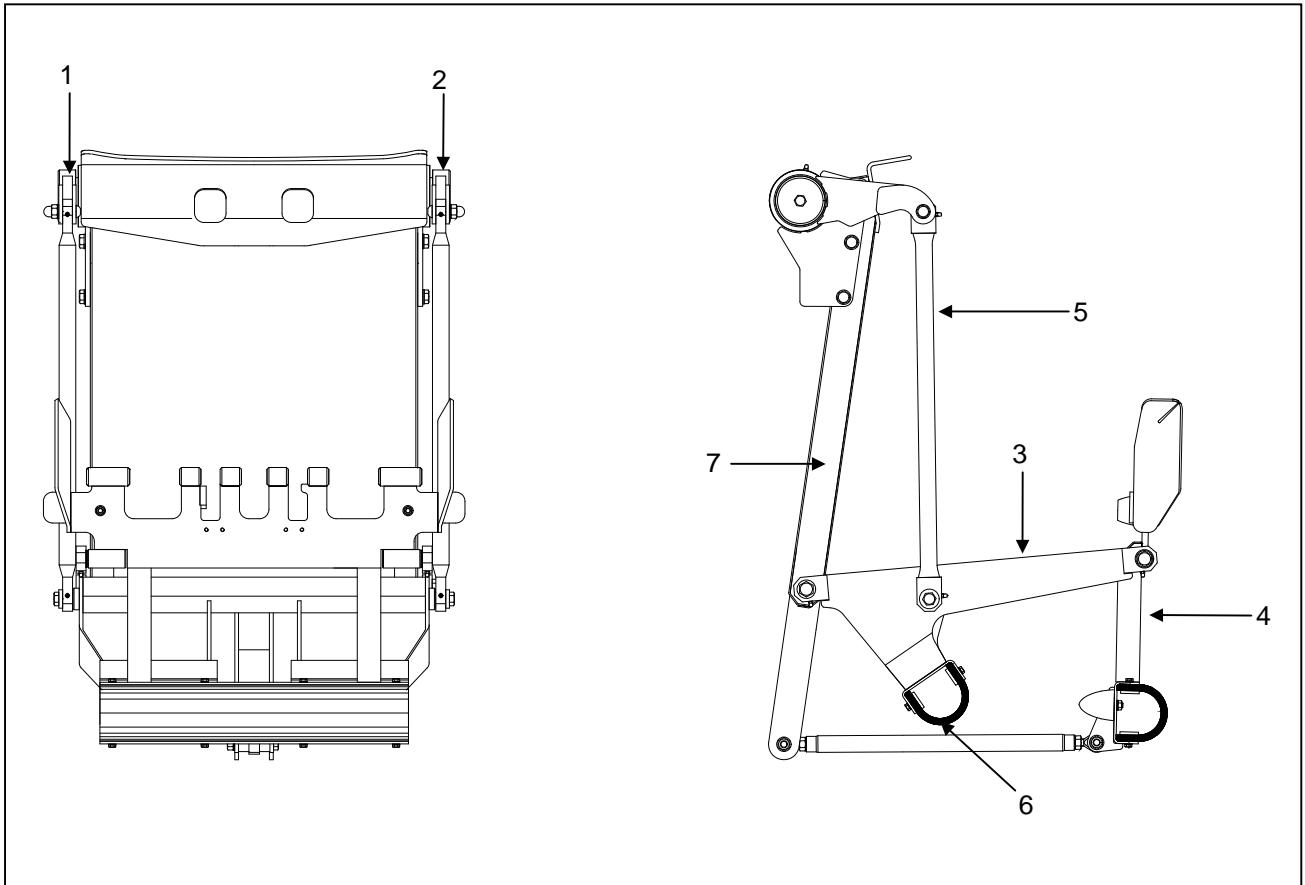
1. Lifter sub-assembly LH
2. Lifter sub-assembly RH
3. Hydraulic System
4. Frame Assembly
5. Plastic Screen And Guard Frame LH (With Decals)
6. Plastic Screen And Guard Frame RH (With Decals)





## The components of the Lifter sub-assemblies are:

- |   |                       |   |                |
|---|-----------------------|---|----------------|
| 1 | Fulcrum Arm LH        | 5 | Long Link Rod  |
| 2 | Fulcrum Arm RH        | 6 | Short Link Rod |
| 3 | H-Frame               | 7 | Swing Frame    |
| 4 | Comb Frame (LH or RH) |   |                |



### **IMPORTANT**

The ML220 Lifter is fitted with two anti-lowering hooks and these must be disengaged before trying to operate the lifting mechanism. If the hook will not move freely, use the control valve to raise the lifter slightly.

**These hooks must be engaged whenever the vehicle is moving and/or the lifter is not being used.**



## Lifter Operating Lever

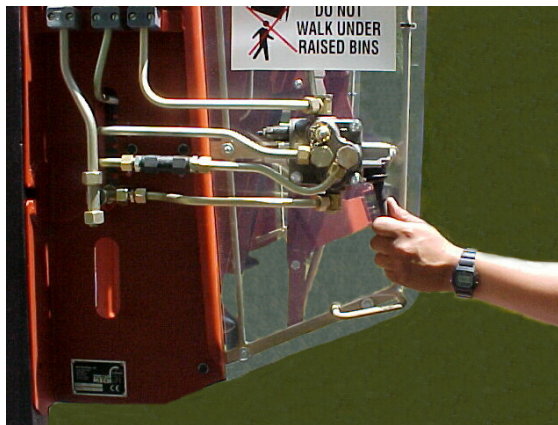
Your lifter is equipped with two directional control valves, one for each actuator, manipulated by an operating lever.

The operating levers are situated on the LH and RH side of the vehicle.

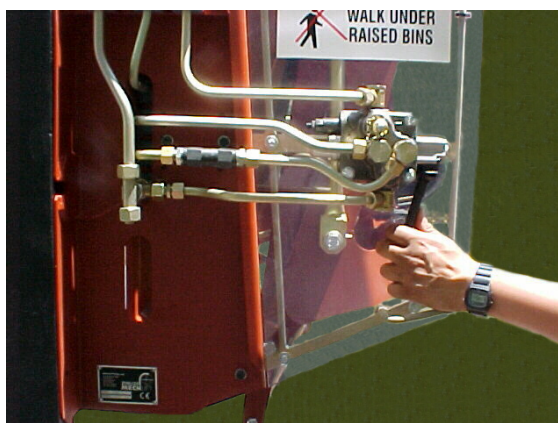
In order to use the UP function, pull the operating lever towards you as shown in the top right hand photo. The lifting carriage moves upward.

In order to use the DOWN function, push against the operating lever as shown in the bottom right hand photo. The lifter carriage moves downward.

When the lever is released, it automatically returns to the neutral position and the lifter stops immediately.



UP  
→



←  
DOWN

## **IMPORTANT**

- Your lifter has been designed to lift up only the 80-240 litre containers.
- The design of the lifter is such that only bins with the lids in the closed position can be lifted. Operators must ensure that the lid is fully closed before bringing the bin to the comb. Bins with partial or fully opened lids must not be lifted.
- Emptying any other container types may cause accidents and damage to the lifter.

## **WARNING**

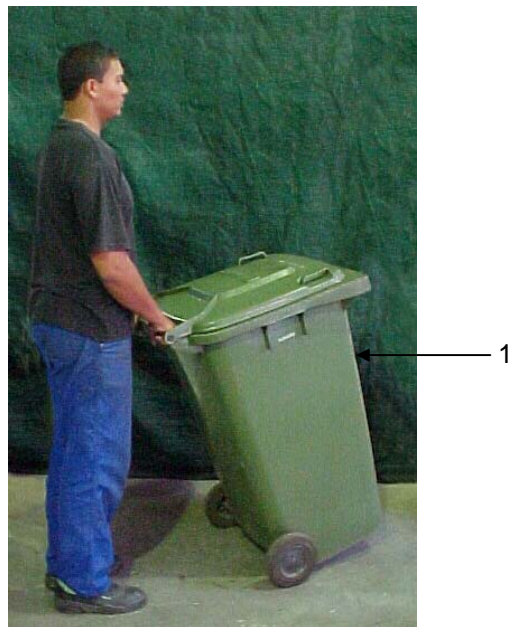
- There is a danger of sustaining injuries within the working area of the lifter.
- Make sure that there is nobody within the working area of the lifter during the emptying process.
- Stay outside the working area of the lifter and step to the side behind the plastic safety guards throughout the emptying process.
- In case of danger or defect, release the operating lever immediately. The lifter is made inoperative at once.

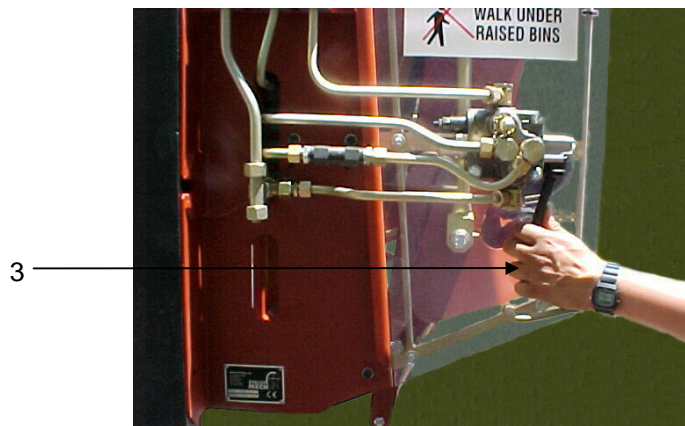


- Hold the container handles with both hands and move the container front (1) towards either the LH or RH sub-assembly of the lifter.
- Push the container against the lifting comb (2) of the lifter.
- Pull the operating lever slowly and evenly **–without jerking–** towards UP.

 **IMPORTANT**

- Make sure that the containers are securely located on the lifting comb frames (2).
- The entire comb receiver of each container must be placed correctly on the lifting comb.
- If the container is not square, stop the emptying process immediately by releasing the operating lever (3).
- If this is the case, push the operating lever (3) towards DOWN until the container has been deposited back on the ground.
- Start the new emptying cycle.





- Pull the operating lever until the container has reached the fully tipped position.
- Now release the operating lever. The lever returns automatically to the neutral position.



### **For your information!**

It is acceptable to “shake” the bin to dislodge stuck refuse while in full tipped position by actuating the operating lever. Shaking exerts more strain on the container and lifter so only shake when necessary.

The user must adapt the holding time and shaking amount to suit the type of refuse being handled. There are no particular recommendations or restrictions concerning this.





- Wait until the container has been emptied.
- Push the operating lever (1) towards DOWN until the container has been deposited on the ground.
- Remove the empty container from the lifting comb and move the next full container towards the lifter.



DOWN  
←

# Technical Information

## Mounting and Dismounting

MECHLIFT lifters are designed in accordance with the dimensions of the standard frames supplied by the vehicle body manufacturers. Thus, they can be fitted easily to any kind of vehicle body by means of such standard frame (DIN 30731). It is important to respect the specific installation heights.

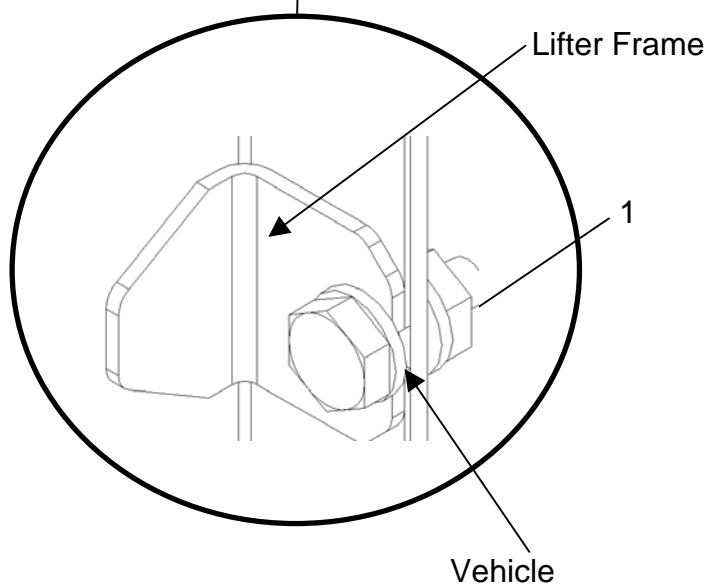
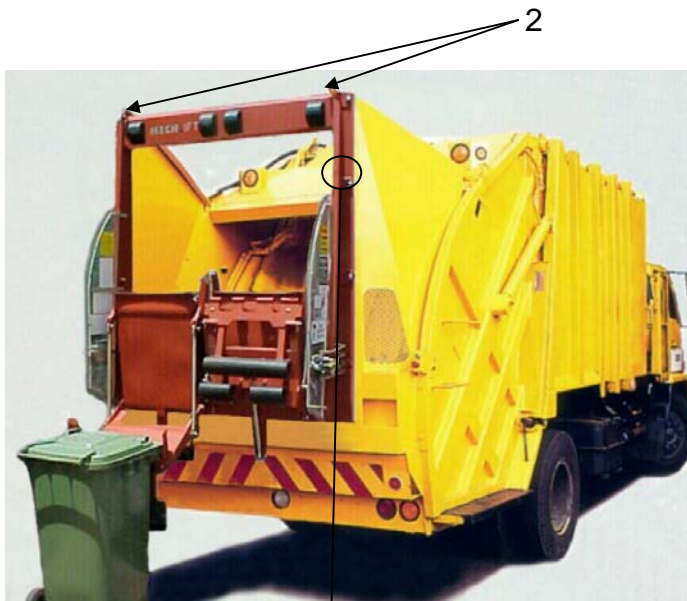


Illustration of a Mounting Bolt



## Mounting and Dismounting (continued)

The lifter can be mounted to and dismounted from the vehicle body quickly and easily by means of eight mounting bolts (1).

When mounting or dismounting the lifter please use the lifting eyes (2).

### **IMPORTANT**

- To avoid damage to the lifter the lifting device should be a crane or spreader beam.
- When the device is replaced, the relevant safety precautions must be observed.
- Make sure that over-tightening or misalignment does not distort the mounting bolts.

## INTERFACE REQUIREMENTS

### **Mechanical Interface**

The mounting space on the vehicle body must provide the following dimensions conforming to DIN 30731 (see top figure):

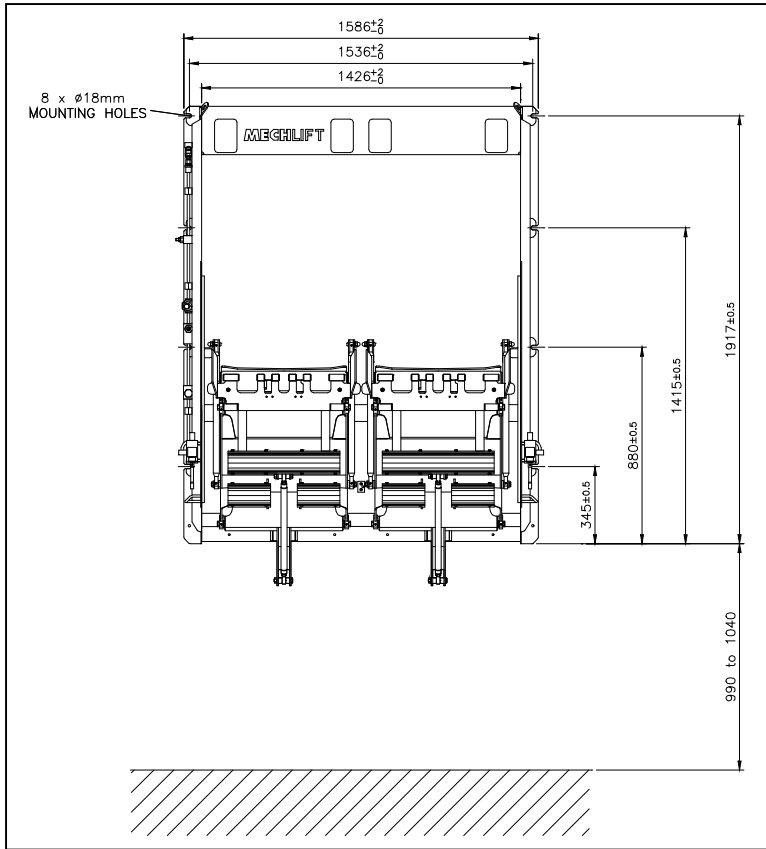
Width = 1426 <sup>+2</sup> mm

Aperture width = 1400 mm minimum

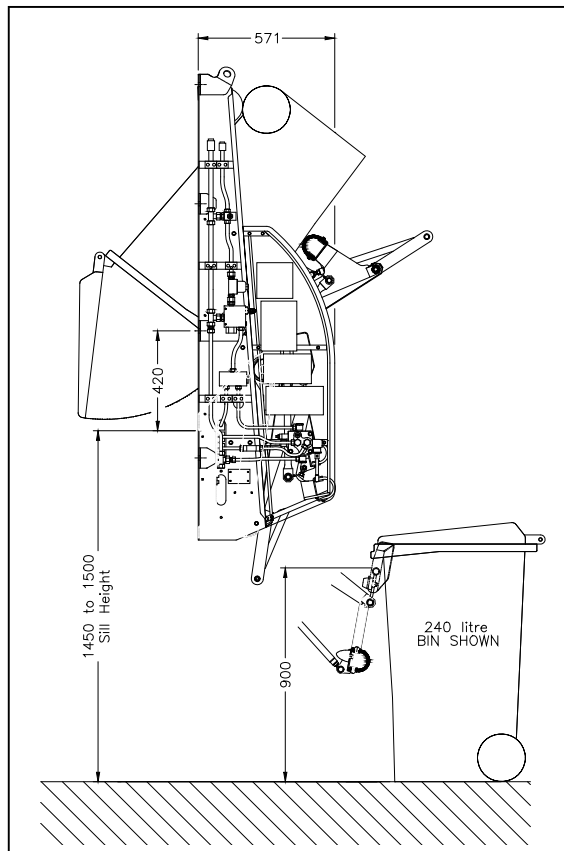
### **IMPORTANT**

- Make sure that the container cannot be trapped by the packing system during the tipping process.
- If there is any interference between the container and the packing system, an additional sub-frame will be compulsory.
- In such a situation, please contact Mechlifit for more information.

The given minimum dimensions regarding the safety clearances of the lifter must be respected (see bottom figure).



Mounting Position on the Refuse Collection Vehicle to DIN30731



Minimum Required Safety Clearance

## Hydraulic Interface (Suggested)

Two hydraulic hoses are required to operate the lifter. These pipes must be run up to the top LH side of the vehicle when viewed in the direction of travel. It is recommended that the inlet be a 12mm hose and the return be a 15mm hose.

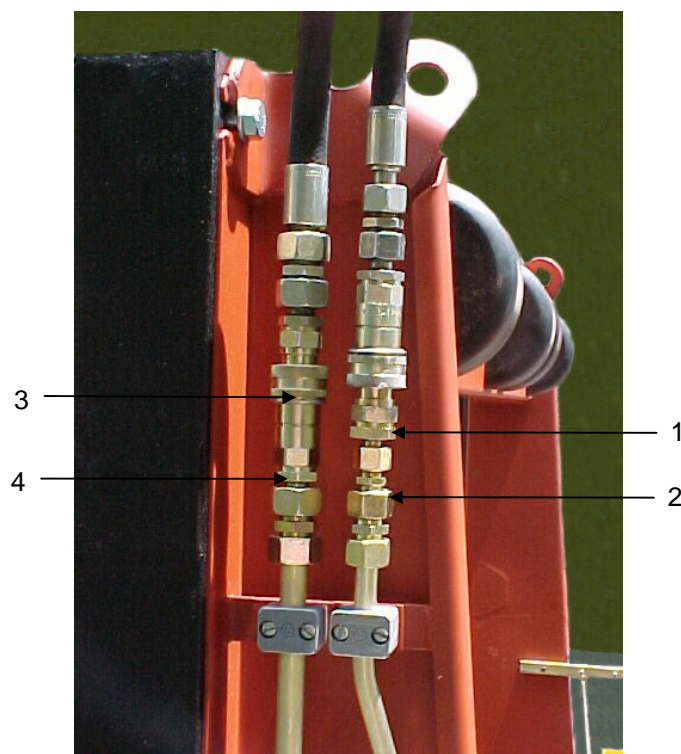
The lifter has been fitted with QR couplings, therefore it is suggested you fit the pressure line on the vehicle with a female QR coupling (1) as the inlet of the lifter has been fitted with a male QR coupling (2).

For the return line, it is suggested you fit the vehicle with a male QR coupling (3) as the return line of the lifter has been fitted with a female QR coupling (4).

## Hydraulic System Requirements

- **Flow rate:**  
Minimum of 18 litres per minute to achieve 8 second cycle times.
- **Supply pressure at coupling:**  
 $p = 140\text{bar}$  minimum
- **Oil requirements:**  
DIN51524 – HL32/ISO VG32  
Working temperature should not be greater than 80°C.  
The viscosity should range from 10 to 380mm /s.

The cleanliness should be NAS 1638 Class 9 (filter retention better than beta  $\geq 75$ ). Use a filter with a 25 $\mu\text{m}$  element.



## MECHANICAL FUNCTION

The emptying cycle consists of a lifting and tipping movement.

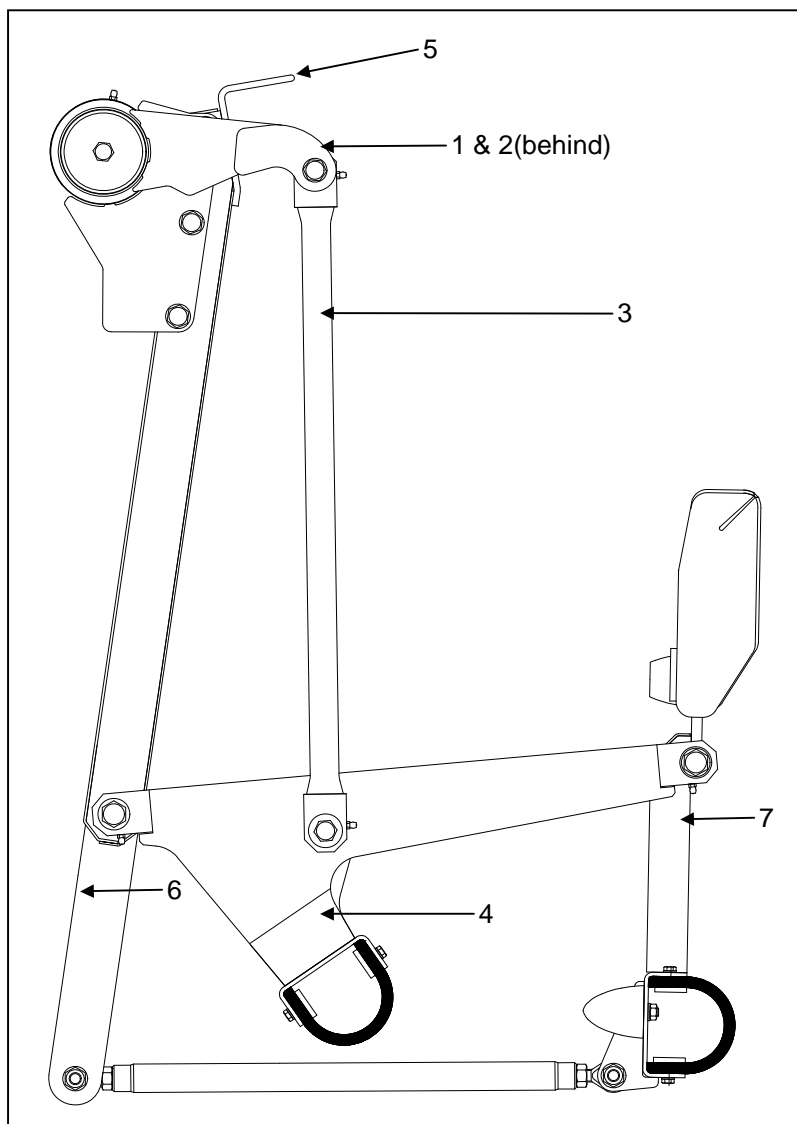
The refuse container is positioned over the comb tips of the frame (7). The lifting movement starts when the fulcrum arms (1 & 2) rotate, lifting the long link rods (3) that in turn are connected to the h-frame (4) lifting the comb frame (7).

At this point, the container edge is locked by means of the lip catch plate (5) at the top of the swing frame (6).

The rotational movement now continues including lifting the swing frame (6) until the actuator stops internally.

On completion of the emptying process, the lifter movement is carried out in reverse order.

The swing frame (6) swings back and the comb lowers, assisted by gravity. The comb frame (7) opens and deposits the container on the ground. Now the lifter is in the starting position again and can be loaded with a new refuse container.

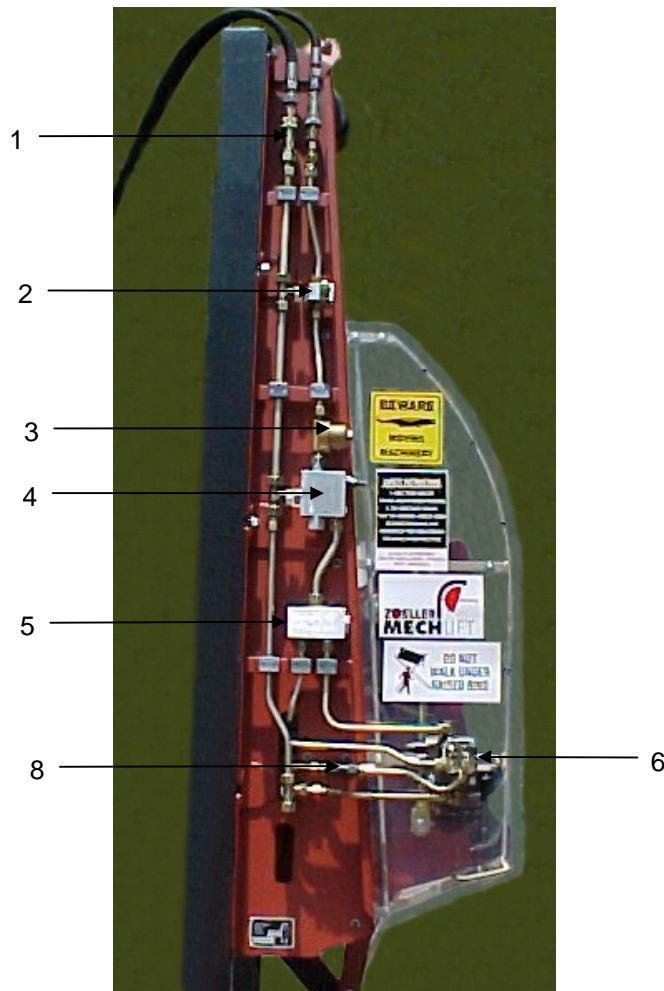


# Hydraulic Systems Overview

## Systems Breakdown

The lifters hydraulic system consists of actuators and the following components:

1. Pipes
2. 50/50 Flow Divider
3. Main Relief Valve
4. LH Directional Control Valve
5. Strainer
6. RH Directional Control Valve
7. Flow Regulator
8. Reverse Flow Restrictors

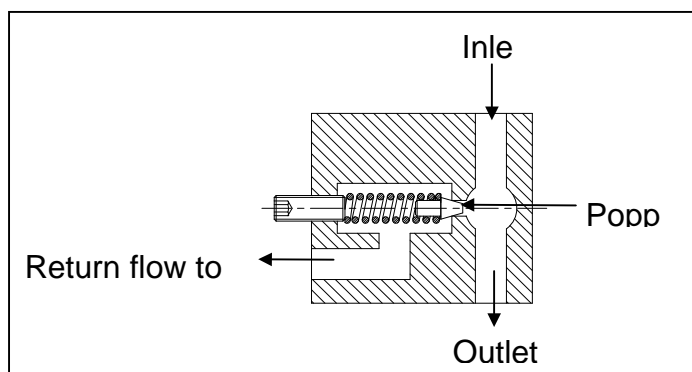


# Hydraulic Systems Overview

## Function & Operation

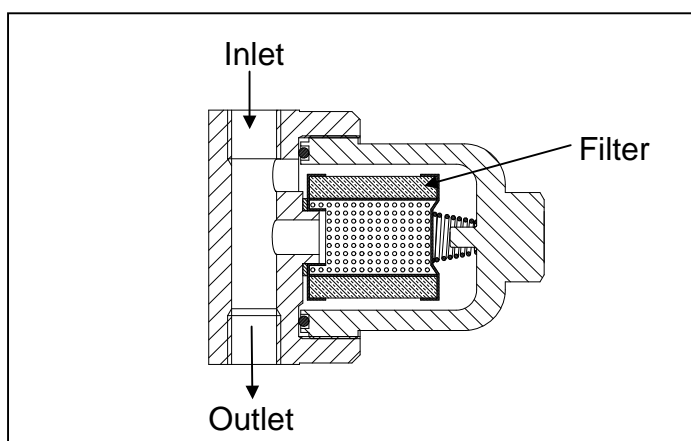
The flow of hydraulic oil provided by the vehicle system first flows through the main relief valve. This valve ensures that the lifter system is not over pressurized.

When the inlet pressure reaches the valve setting, the poppet is pushed back compressing the spring allowing relief flow to the tank. This valve is adjusted that the maximum system pressure is 150bar.



Schematic Diagram of the Main Relief Valve

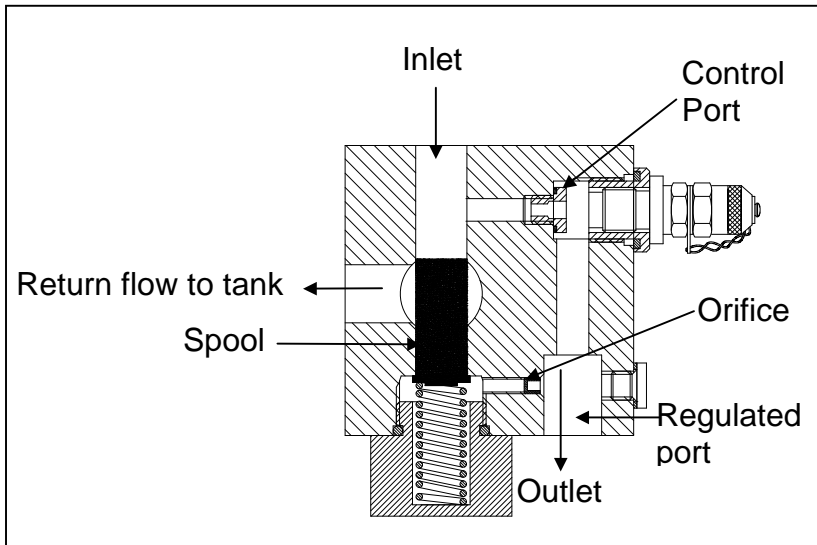
The oil is now strained before passing to the rest of the system. This full flow strainer is meant as a 'last chance' strainer only and protects the control valves from contamination during commissioning or after repair.



Schematic Diagram of the Strainer

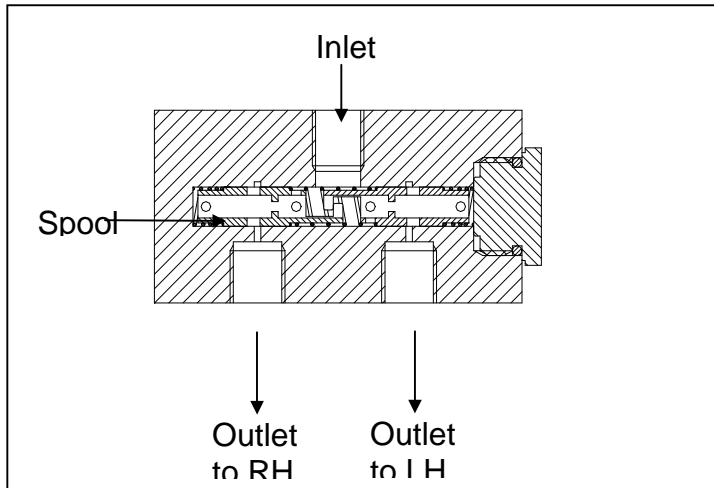
# Hydraulic Systems Overview

From the strainer the flow goes through the flow regulator. This valve's function is to limit the volume of oil to the lifter viz. 18 litre/minute. Inlet flow passes through a control port and an orifice. The pressure drop across the orifice is sensed at each end of the spool, producing a force that, at the required flow rate, overcomes the spring force. The resultant movement of the spool regulates the flow by opening the radial valve ports and dumping the excess flow.



Schematic Diagram of the Flow Regulator

Hereafter, the hydraulic flow goes to the flow divider. This valve divides the oil 50/50 to the left and right control valves i.e. 9 litre/min to each side. Inlet flow passes into the centre of the spools and out the radial holes in the spool. The matched spools and compensating springs ensure that the output flow is divided equally. Any imbalance in the output ports volume is immediately compensated. In effect, this means that if for any reason the volume of oil leaving the RH port is restricted, the LH ports volume will also decrease.



Schematic Diagram of the Flow Divider



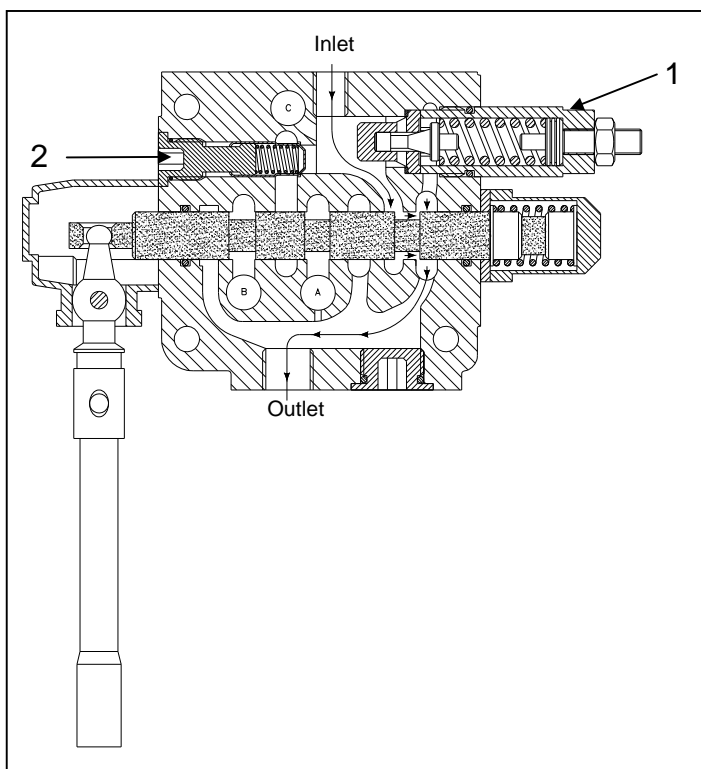
# Hydraulic Systems Overview

## Function & Operation (Continued)

The hydraulic oil now flows in two different pressure lines, one to the LH directional control valve and the other to the RH directional control valve.

The directional control valve has an adjustable pressure control valve (1) which opens when the working pressure is exceeded, relieving the excess oil into return line. This valve is set to 120bar. Also inside the valve body is an integrated non-return valve (2) which prevents a sudden lowering of the lifter in cases where the valves supply pressure may fail through for example the engine stalling or pump drive belt breaking.

The operating lever is used to move the directional control valve spool to the UP or DOWN position. When the lever is released, a spring serves to reset the directional control valve to the neutral position.

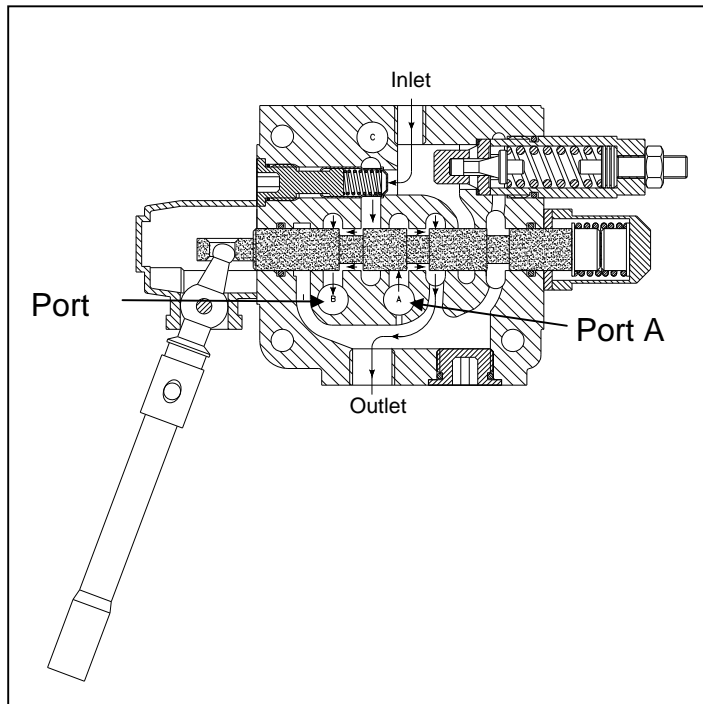


Schematic Diagram of the Directional Control Valve in the Neutral Position

# Hydraulic Systems Overview

## Function & Operation (Continued)

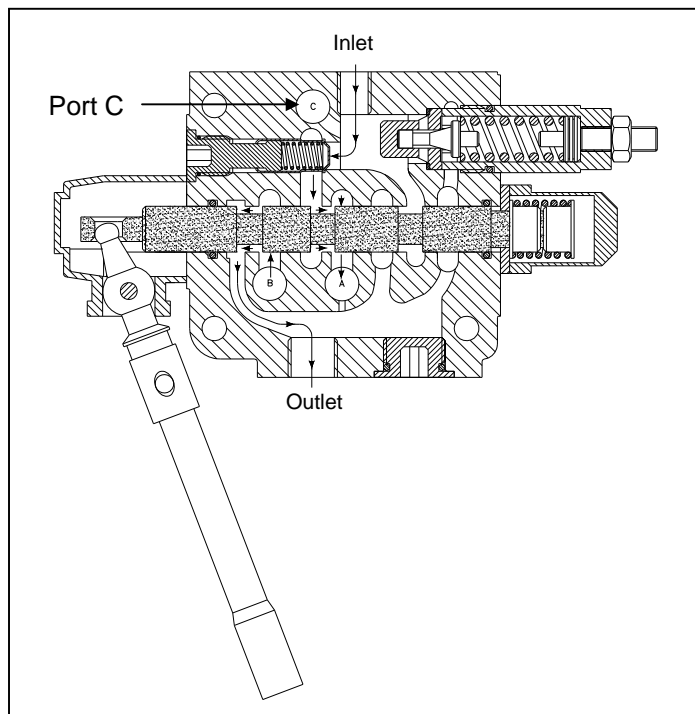
Pulling the lever moves the spool to the UP position, causing the spool to connect the inlet to port (B). In supplying the actuator, the actuator's return oil dumps to tank via port (A) and the valve outlet.



Schematic Diagram of the Directional Control Valve  
in the UP Position

# Hydraulic Systems Overview

When the container has emptied the operating lever should be pushed making the directional control valves spool move to the DOWN position, causing the spool to connect the inlet to port (A). The actuators return oil now dumps to tank via port (B) and the valve outlet. *NOTE* port (A) has a bleed hole to the outlet chamber. Since the lifter is able to lower itself by gravity, this bleed hole ensures that the lifter does not receive full pressure when lowering a bin so protecting the bin from excessive downward forces.



Schematic Diagram of the Directional Control Valve in the DOWN Position

Port (C) is the pressure test point.

# Hydraulic Systems Overview

## Function & Operation (Continued)

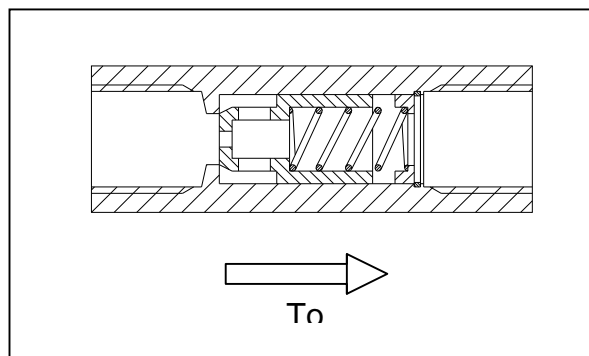
The speed when lowering each lifter is controlled by passing that oil returning from the actuator through a flow restrictor before entering the valve at port (A).

From the directional control valves, the hydraulic oil flows to the actuators each passing through its own one-way flow restrictor valve. This valve consists of a sliding poppet and a spring.

When the directional control valves spool is in a UP position, the oil flow unseats the poppet against light spring pressure and allows a free passage of oil to the actuators.

When the directional control valves spool is in a DOWN position, the oil returning from the actuator firmly pushes the poppet closed against its seat. This oil now passes through the small bleed hole in the poppet. By having the oil pass through a bleed hole the following is ensured:

1. The lifters lowering speed is controlled not to be too fast.
2. In the event of say a failure of pressure, the lifter will not drop its load but lower at a controlled speed.



Schematic Diagram of the Reverse Flow Restrictor

# Hydraulic Systems Overview

The Model 220 bin lifter has been designed to operate with a maximum oil supply of 30 litre/minute at 160bar pressure. ***Exceeding this requirement will damage the lifter, overstrain the refuse bins and possibly injure the operator.***

Setting up Lifter Pressures	
New lifters leave our works preset. Should they need adjusting after installation or repair, <b><i>follow this procedure while referring to the Hydraulic Systems Diagram:</i></b>	
1.	Turn the Main Relief Valves adjusting screw to the <i>fully out position</i> .
2.	Turn the LH and RH Directional Control Valves adjusting screws <i>fully in</i> .
3.	Connect a pressure gauge to the test point on the LH Directional Control Valve.
4.	Activate the vehicles hydraulic pump for <i>the rest of this procedure</i> .
5.	Pull and hold the LH Directional Control Valve lever in the up position.
6.	Screw <i>in</i> the adjusting screw of the Main Relief Valve until 150bar is achieved.
7.	Still holding the LH Directional Control Valve lever as in (6), turn this control valves screw <i>out</i> until a pressure of 120bar is achieved and <i>now only</i> let go of the lever.
8.	Connect a pressure gauge to the test point on the RH Directional Control Valve.
9.	<i>Holding</i> the RH Directional Control Valve lever in the up position, turn this control valves screw <i>out</i> until a pressure of 120bar is achieved and then only let go of the lever.
10.	Tighten all adjustment screw locknuts.

Note: The lifters up and down speed is preset by MECHLIFT.

# Care and Maintenance

Proper lifter maintenance ensures reliability and extends the life of vital components. Please observe the maintenance instructions and thus avoiding failures and damage to components.

## **IMPORTANT**

- When carrying out maintenance work ensure that the relevant safety precautions as well as the safety specifications as detailed in the chapter “Safety Instructions” are observed.
- Only trained and experienced persons are allowed to do maintenance and repair work.
- Switch off all hydraulic systems before carrying out any maintenance work.

## **Daily Maintenance**

- Visually inspect machinery for leaks, damage, missing guard frames, missing labels or missing bump rubbers etc.
- Clear away accumulated refuse such as plastic bags etc.
- Check for correct operation before leaving the depot.

## **Weekly Maintenance**

- Start by performing Daily Maintenance.
- Clean the lifter with high pressure washing equipment.
- Grease all nipples (when fitted).

## **IMPORTANT**

- Observe a minimum distance of 50cm when spraying the synthetic parts with the high pressure washing equipment.
- To prevent damage to the components of the high pressure washing device the temperature and pressure should not exceed 80 °C and 80bar respectively.
- A weekly wash protects the moving parts from “cementing” due to contamination, which could cause malfunctions.

# Care and Maintenance (continued)

## Monthly Maintenance

- Start by performing Weekly Maintenance.
- Check the tightness of bolts at hinge points.
- Check potential wear of bearing by pushing the comb from side to side and lifting the comb manually.
- Lift an empty bin for a number of cycles and check that the bin engages easily, is held securely, and that no part of the machinery can cause any damage to the bin.

## **IMPORTANT**

- The lifter can be operated with new dry bearing bushes, without lubrication. However, if you choose to grease the bearings, the grease must be refreshed every week, or else it will become an abrasive paste.
- The “dry” bearing points use PTFE type material running on special stainless steel bushes. Only fit the exact equivalents or replacements obtained from MECHLIFT.

## Maintenance Of Hydraulic Components

Cleanliness is of utmost importance when carrying out maintenance work on any hydraulic equipment. Even small dirt particles can damage valves or block oil ways.

- Ensure that no dirt or other contaminating substances can penetrate the system. Hydraulic fluids should be topped up only through a sieve.
- Check that the hydraulic fluid level in the vehicle tank is in accordance with the manufacturer’s instructions.
- If the level has dropped carry out a full hydraulics system check for leaks.
- Leaks that are found must be rectified immediately either by replacing the damaged seal or installing a new part. If necessary, direct any queries to the MECHLIFT Service Department.
- Observe the intervals for oil filter changes indicated in the vehicle manufacturer’s operating instructions.



# Care and Maintenance (continued)

## Operating Fluids

In the case of refilling or changing the hydraulic system, the fluid should conform to DIN51524. The working temperature should not be greater than 80 °C and the viscosity range must be from 10mm<sup>2</sup>/s to 380mm<sup>2</sup>/s. The cleanliness should be NAS 1638 Class 9 (filter retention better than beta<sub>10</sub> > = 75). The supply filtration should be 25µm.

**Normal good hydraulic maintenance practice applies equally to the bin lifter supply as it does to the rest of the vehicle's hydraulic systems.**

## Recommendation

- All wearing parts must be replaced annually
- The lifter must be checked annually by a maintenance workshop.
- The Strainer must be checked for dirt/damage annually. (Renew element if damaged)

# Fault Finding Procedure

<b>Troubleshooting</b>			
<p>For the lifter to operate correctly it needs two things from the truck mounted oil supply:</p> <ul style="list-style-type: none"> <li>• A sufficient volume of oil of 18 litres/minute for the lifter to achieve a cycle time of 8 seconds.</li> <li>• A sufficient pressure available from the vehicles pump. This is to be in the range 140 - 160bar.</li> </ul> <p><b>IF THIS IS NOT AVAILABLE, THE LIFTER WILL NOT PERFORM AS DESIGNED</b></p>			
<p><b>TOOLS:</b> To diagnose any lifter problem the serviceman needs to rely on a flow meter able to read more than 30 litre/minute and a screw on pressure gauge (200bar or 20 MPa) to attach to the test points fitted to the direction control valves (Servicemen remember 1bar = 100kPa = 0.1MPa so 120bar = 12MPa).</p>			
<p><b>THE FIRST STEP</b> to diagnosing any problem is to make a quick visual inspection of the lifter looking for major oil leaks, whether the pump is running, oil level, dented pipes, overheating hydraulics, accident damage, misalignment of moving parts, etc. and correct these.</p> <p><b>IMPORTANT:</b> Ensure the lifter is receiving filtered oil. A build up of dirt in valves will affect ANY hydraulic system</p>			
Task No.	Problem	Possible Cause	Remedy
1.	<p>One or both lifters are very weak OR do not tip fully .... ignoring their speed, they are unable to lift a fair load ....</p>	<p>Hydraulic pressures are too low</p> <p>OR actuators are partially seized. (Experience has shown this to be the least likely cause of complaint)</p> <p>OR there is a very high leakage across the piston seals.</p>	<p>Ensure 120bar minimum pressure is available on the control valves (see setup procedure in manual).</p> <p>If the lifter/s remain weak check for seized actuators. Do this by disconnecting the link rods; remove the two plugs on top of each actuator and you must be able to rotate the fulcrum arm by hand without using levers (action to be smooth NOT coarse). Where seizing or internal leakage is indicated, remove the actuators and have overhauled by MECHLIFT or other competent persons.</p>

### Troubleshooting (Continued)

Task No.	Problem	Possible Cause	Remedy
2.	BOTH lifters are slow up and down .... but <b>are able</b> to lift full bins....	Oil volume in the circuit preceding the flow divider is too low	(1) Check for dirt in the strainer, if any is found this indicates that the hydraulic oil supply is contaminated and needs to be inspected. (2) strip and clean the flow regulator checking for a seized plunger and <b>ENSURE</b> that the control orifice (in the internal grub screw) is clean – <b>IMPORTANT.</b>
3.	Any ONE lifter is slow up <b>and</b> down .... but is <b>able to</b> lift full bins.	Oil volume in the circuit after the flow divider is too low.	Strip and check the flow divider for damage. Ensure that the two spool port sizes match and that their interlocking lugs are not broken. Also ensure that the two outer springs are similar in tension and that springs are not damaged however slight.
4.	Any ONE lifter is quick up but slow down .... down time exceeds 5 seconds with empty bin on comb and <b>hot</b> oil.	Hydraulic oil when contaminated with water causes the actuator bearings to swell and the actuator to partially seize (Especially when oil is hot).  <b>OR</b> valves not conforming to MECHlift spec have been substituted during repairs.	Check for seizing as in Point 1 Remedy. Have actuator/s overhauled by MECHlift or other competent persons. Flow restrictor to have a 2,5mm -- 3mm hole. Direction control valve bypass to be 2.0mm --2,5mm.
5.	Any ONE lifter is slow up but has a normal down speed.	Flow restrictor on the faulty side is fitted the wrong way round. Arrow must point in direction of travel i.e. to the compactor.	Check that the restrictors spool is free and that it is installed with the arrow pointing forward.

### Troubleshooting (Continued)

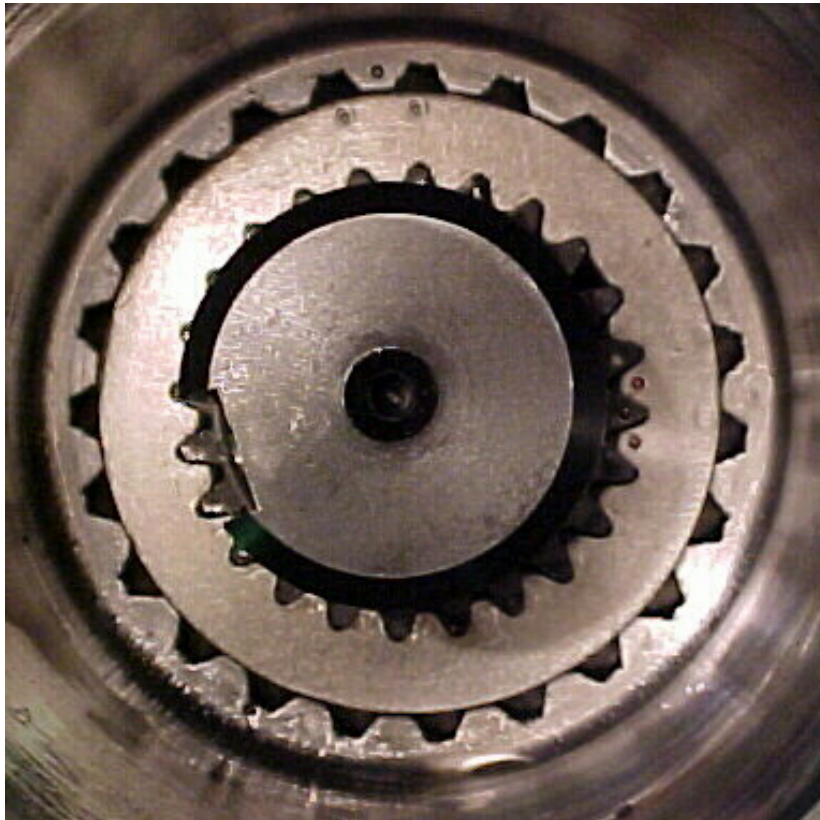
Task No.	Problem	Possible Cause	Remedy
6.	Part way through lift cycle actuator appears to 'seize'. More when system is hot and a number of lifts have been completed successfully without seizing.	The right hand side actuator port may be internally blocked by a swollen plastic buffer block. Hydraulic oil when contaminated with water causes this plastic buffer to swell.	The nose of this fitting must have two grooves cut across its face to reduce the possibility of blockage. With the actuator in the full up position, this plastic buffer can be observed through the top RH port. If it appears damaged, renew the buffer. Ensure oil is not contaminated with water.
7.	One or both lifters do not stay up when driving.	Hydraulic oil is leaking away either externally <b>OR</b> internally across the piston head seals or the Directional Control Valve spool.	<p>Eliminate external leaks. Disconnect and blank off the actuator ports. If overnight the lifter drops, piston head sealing is suspect. Strip and inspect actuator. If the lifter stays up the control valve spool is possibly worn. Worn valves are best replaced.</p> <p><b>OR</b> spool has been mismatched to the valve body during repair.</p> <p><b>OR</b> spool return springs have come loose and spool is not centralizing in body.</p> <p><b>OR</b> valves' end cap is loose, cracked or missing.</p>

### Troubleshooting (Continued)

Task No.	Problem	Possible Cause	Remedy
8.	One or both lifters do not stay up when stopped in the raised position.	Hydraulic oil is leaking away either externally <b>OR</b> internally across the piston head seals or the Directional Control Valve spool.	<p>Eliminate external leaks. Disconnect and blank off the actuator ports. If overnight the lifter drops, piston head sealing is suspect. Strip and inspect actuator. If the lifter stays up the control valve spool is possibly worn. Worn valves are best replaced.</p> <p><b>OR</b> spool has been mismatched to the valve body during repair.</p> <p><b>OR</b> spool return springs have come loose and spool is not centralizing in body.</p> <p><b>OR</b> valves' end cap is loose, cracked or missing.</p>
9.	Signs of overheating.	<p>Invariably the lifter is being supplied too much oil exceeding the lifters valve ratings resulting in the OIL OVERHEATING</p> <p><b>OR</b> the oil being supplied to the lifter has been heated by <b>OTHER USERS</b> of the oil e.g. the compactor system. The lifter cannot overheat unless there are <b>EXTERNAL</b> causes as outlined.</p>	Refer problem to installer of equipment.

 **IMPORTANT**

BE CAREFUL WHEN STRIPPING ACTUATORS. THEIR INTERNAL GEARING IS TIMED WITH PUNCH MARKS. ENSURE YOU LOCATE THESE **BEFORE** STRIPPING OUT THE PISTON OR SHAFT. FAILURE TO OBSERVE THIS RULE MAY RESULT IN THE ACTUATOR HAVING TO BE RETURNED TO MECHLIFT FOR CORRECT ASSEMBLY.



**If it is impossible to solve the problem, please contact Mechlift (Pty) Ltd.**