ECON

SPARGO CONTROL SYSTEM

OPERATING MANUAL

Contents

1.0 Introduction

1.1 THE ECON ZERO C RANGE

The Zero C range of bulk spreaders is the result of many years of research and development by Econ Engineering and is as comprehensive as any range of salt/sand spreaders that are available either in the United Kingdom or Western Europe.

This wide range of machines is manufactured from a limited number of standard components and it should be noted that the instruction book supplied with your machine contains information for use with that particular machine. All drivers / operators must read this manual before using the machine.

The standard components are basically alternative length and size of an all welded body to suit either a trailed, permanently mounted, semi-permanently mounted, removable or a demountable type of spreader. The hopper will range in capacity from 0.7 cubic metres to 12 cubic metres, and is available with basic manual control through to fully electronic control.

Computerised management systems are available with on-board weighing and also GPS equipment to record confirmation of spreading routes and individual control, settings.

All Zero C spreaders have belt conveyors driven by a hydraulic gearbox, this may be powered by a number of transmission systems ranging from a simple diesel engine drive to a sophisticated speed related hydraulic power take off drive. The conveyor discharges material to the rear of the hopper through either a manual or automatically operated door via a stainless chute, to a hydraulically powered distributor. The discharge chute is adjustable for both symmetric or asymmetric spreading.

Econ machines use standardised components and hydraulic parts, so wherever possible, only one type of pump and motor for the alternative drives is used throughout the whole range. This has the advantage that a customer is able to operate a range of spreaders for varying applications and enable the build up of a versatile fleet, without having the problems of expensive stocks of different service parts.

Due to the unique design of the standardised components, many alternative machines are available, together with an easy facility to produce hoppers of a special carrying capacity for a wide range of vehicles. Therefore, when reading this instruction book and Service Parts Section, care must be taken as to the exact machine specification.

A wide range of options can be fitted to the Zero C spreader to enable a complete and comprehensive range of machines to suit individual customer requirements. ECON stands for ECONOMY.

1.2 IDENTIFICATION PLATE – SERIAL NUMBER

An identification plate carrying a serial number is fitted to all major assemblies i.e. body, plough, chassis mounting conversion, and plough mounting frame, this number should be quoted when technical information or service parts are required.

2.0 Safety Systems at Work

2.1 INTRODUCTION

Almost all machinery can be classed as potentially hazardous in various ways. To enable the safe and efficient use under all operating conditions, operators must be aware of potential hazards from this type of machinery. Below are a number of potential hazard areas situated with this type of equipment.

2.2 SAFETY WARNINGS

Safety Warning

ALL DRIVERS AND OPERATORS MUST READ THIS INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE

- Do not adjust any part of the machine whilst it is running
- Do not climb into the hopper – use the access panels provided
- Do not use the access ladder without first stopping the vehicle engine and removing the ignition key
- Ensure all guards are in place before operating the spreader
- If carrying out tests or inspections always be aware of the rotating conveyor and salt distributor spinner
- Do not walk through the spread to make adjustments
- Always observe any warning lights or alarms
- Do not modify or disable any safety feature provided with the product

ALWAYS OBSERVE HEALTH AND SAFETY REGULATIONS

All Demountable Spreaders require experience and skill when mounting and demounting, always ensure the hopper is empty.

WARNING

SLAVE STARTING THE VEHICLE

TO AVOID DAMAGE TO THE ECON EQUIPMENT, ENSURE THE **ECON MAIN FUSE** HAS BEEN REMOVED PRIOR TO SLAVE STARTING THE VEHICLE.

The fuse box is normally situated adjacent to the battery box, shown in the pictures below.

Remove the four screws to the front of the fuse box to reveal the ECON Main Fuse

To isolate the Econ equipment, remove the Orange Fuse

IMPORTANT NOTES

Some vehicles now have the fuse located on the fuse box / board.

Please refer to the individual body guide or contact Econ for further information / guidance.

2.3 POTENTIAL HAZARDS

- Incorrect use of the machine by untrained or unauthorised personnel.
- Lack of awareness of rotating conveyor and distributing spinner.
- Investigating or removing an obstruction from the conveyor, without first stopping the engine and removing the ignition key.
- Misuse, or incorrect use of controls
- Operating the In-Cab Control Box with personnel working or standing to the front and rear of the vehicle.
- Starting the machine without carrying out safety checks.
- Personnel unaware of machinery in operation – areas not cordoned off for work when carrying out tests.
- Checks and servicing are carried out when the machinery is running.
- Entering the body of the vehicle without first stopping the engine and removing the ignition key.
- Operating the machinery with known faults.
- Machine poorly maintained or serviced by an unqualified engineer / technician.
- Warning labels damaged, removed or obstructed.
- If tyre pressure labels are fitted by Econ these are the maximum pressures suited for the vehicle fully laden. The driver / operator should check the pressures are suitable for the vehicle load.

2.4 SAFE WORKING GUIDELINES

To avoid the possibility of accidents occurring with this machinery, the following working guidelines should be adopted.

2.4.1 Potentially Hazardous Zones

- In the hopper of the spreader
- In close proximity to the conveyor belt or distributor spinner whilst the vehicle is in operation
- Standing within the spreading area of the distributor spinner

2.4.2 Action in the Event of a Blockage or Failure to Discharge the Material

- Switch off the engine and remove the ignition key to immobilise the vehicle – operator to retain the keys on person until action complete.
- Ascertain the fault by first inspecting the load in the body, ensure the conveyor is completely covered. If fully covered inspect the rear discharge door area for blocked material using a suitable implement (i.e. small bar or piece of hardwood). If the vehicle has a loading screen fitted it may have an access panel to assist in this procedure.

Do not enter the hopper – use the access panels provided on loading screen.

If servicing or inspection are required and it is found necessary to enter the body by the access panel within the loading screen, **this MUST be carried out in accordance with the local workshop Health and Safety instructions.**

3.0 Spreader Controls

3.1 INTRODUCTION

The complete range of Econ equipment is designed for easy control, and the Zero C range of spreaders is no exception. The basic system allows the adjusting of the following:

- Conveyor speed, to supply a specified amount of material onto the highway.
- Distributor spinner speed to control the width of spread.
- Height of the rear discharge door (used in conjunction with conveyor speed), to supply a specified amount of material onto the highway.
- Position of the rear discharge chute at the distributor to give the correct spread pattern across the highway.

3.2 LOADING THE SPREADER

Do not be tempted to overload the machine; it is also advisable to check the tyre pressures before leaving the depot.

If your machine is fitted with a loading screen, it is recommended that the screen be examined before leaving the depot to ensure that there are no foreign materials on the surface of the screen. If, for example, a stone was left on the screen this could cause a serious accident and be classified as an unsafe load.

The loading screen supplied with the spreader has been designed to reduce problems from large pieces of material entering the hopper, particularly at lower volume discharge rates. When loading the hopper, it is advisable to rock the loading shovel so as to feed the material out in a regular flow onto the screen to achieve the quickest loading time.

When loading your ECON spreader, we note that the following information may be relevant:

IMPORTANT: A swinging bridgeboard may be mounted inside the hopper and is suspended on chains. To avoid misalignment of the bridgeboard when loading, **please ensure the first load of salt is directed in the centre apex of the loading screen (as highlighted in the image below)**.

- Dig through the crust/thatch and discard, load salt from the centre of the salt pileas the should be dryer.
- If salt is stored outside, avoid using the loader bucket at the wet base of the salt. Once loading is complete lift the base salt to the top of the heap to dry.
- Always use some form of loading screen to help break up the salt and avoid foreign materials entering the hopper.
- Load the hopper from approximately 300mm (12in) above the loading screen.
- Load the hopper from the middle of the screen slowly, to allow the salt to break up as it enters the mesh.

3.2.1 Load Spill Deflectors

Optional high level load spill deflectors are available to deflect any spilt salt away from the sides of the vehicle helping reduce chassis corrosion. In addition PVC side sheets may be fitted to the deflectors to add further protection. For further information please contact our Service Parts department on 01765 605321.

Centre Apex of loading screen

SAFETY FIRST

Material falling off the spreader can be classified as an unsafe load.

3.3 SPARGO SPREADER CONTROL BOX

The Spargo Control Box becomes live when the vehicle ignition is switched on. Information on the control settings are displayed on the LCD Screen.

Spargo Touch controls are activated by touching the LCD screen – to turn the lights on / off select the required icon at the top centre of the LCD screen. Plough selection is activated from the top right icon. The spot blast function can be activated from the BLAST icon in the bottom right icon.

To activate the spreader, select the gritter icon in the centre of the screen.

3.3.1 Spargo Spreader Control Box

The **SPREAD RATE** is set by moving the joystick UP to increase the rate or DOWN to decrease the rate. The current setting is displayed on screen in gm/m².

The top rotary switch adjusts the **SPREAD PATTERN** and is displayed on the screen (asymmetric/symmetric) as a dark line under the rear of the spreader. As the spread width is altered the spread pattern adjusts accordingly.

The bottom rotary switch adjusts and sets the **SPREAD WIDTH** and is displayed on screen in meters.

The following symbols are the touch control buttons operated from the LCD Screen.

This icon is used to turn the spreading function ON and OFF and when pressed, **'SPREADING'** is displayed on the screen above of the spreader image.

Selecting the **SPREAD ICON** will turn the spreading lamp on / off highlighting the spinner assembly and salt spread.

Selecting the **AUX** icon will activate the auxiliary lights in the beacon bar i.e. illuminated spreading sign or spot lights.

Selecting the **Beacon / Lights** icon will activate the beacons located within the cab beacon bar and the hopper beacons.

Select the **Plough Lights** icon to turn on / off the plough lights mounted under the windscreen if fitted.

This button is for operating the **SNOWPLOUGH**. When pressed, the screen displays 'Use joystick to move plough. Press button for float. U/D/L/R'. Moving the joystick up will lift the snowplough and moving the joystick down will lower the snowplough. If a DIN plate is fitted, moving the joystick down will power down. Pressing the yellow button on the top of the joystick will select float. To come out of float flick the joystick up. When hydraulic angling is fitted to the snowplough, moving the joystick left and right will angle snowplough left/right.

This button is for turning on / off the Bi-Directional setting. When turned off this allows the driver to deviate from the predefined Auto Salting route and undertake manual adjustments to spreading. When turned back on the Auto Salting route settings are reenabled to continue on the predefined route.

Note: This button should only be used if the original prescribed route is deviated from.

This button turns the **Prewet** function ON and OFF. When ON, the word 'PREWET' is displayed in the status column.

Note: If vehicle is not prewet vairant and prewet is activated salt output will be 30% less.

This button is for operating the tipper body. When pressed, the screen displays **TIPPER**. Moving the joystick up will raise the tipper and moving the joystick down will lower the tipper.

This button is for operating the **blast (spot grit)** function. When pressed, the salt flow increases to maximum flow, (screen displays flashing 'max' in the 'Status' column. For off loading set rate to "0" by using joystick, set spread width to "0" by using bottom rotary switch then press the Spread ON/OFF & the BLAST symbol. This will set the belt to full speed and the discharge door will open to full height.

3.3.2 Route Guidance and Automated Spreader

If ordered Econ spreaders can incorporate the route guidance and automated spreading system from Exactrak to aid the driver when spreading routes. The operator guide for the system can be found at the following link - https://youtu.be/36mQ9ck8Zts

3.4 ROAD SPEED RELATION CONTROL

All 'J' specification Zero C salt spreaders are electronic road speed related with the speed impulse being generated from the vehicle speedometer or tachograph. The speed of the conveyor belt is proportional to the forward speed of the vehicle. Once the controls are set to give a specified coverage of material, this figure will be maintained throughout the varying speed range. If the machine is correctly calibrated and set, the machine will spread according to **British Standard BS1622 1989 Class A1.**

3.5 SPREAD RATE COVERAGE CONTROL

The **Spread Rate** is set by moving the control box joystick UP to increase or DOWN to decrease the rate. The current setting is displayed on screen in g/m².

Joystick up / down movement adjusts the spread rate in increments of 1g/m²

Joystick left / right movement adjusts the spread rate in increments of 10g/m²

For a spread coverage of 10g/m², set to position 10

3.6 SPREAD WIDTH CONTROL

The spread width controls the speed of the distributor, which is operated with the rotary switch marked **Spread Width**, giving a spread width ranging from 2 to 12 metres. The setting is displayed on the right side of the LCD screen. For a 4 metre spread width set to position 4.

3.7 REAR DISCHARGE DOOR

The rear door height is automatic and is determined by the **Spread Width** control knob to one of the pre-set positions (2 to 12). To close the rear door set the **Spread Width** controls to **Zero**.

3.8 SPREAD PATTERN

This is controlled with the rotary switch marked **Spread Pattern**, which will set the rear discharge chute in relation to the distributor spinner giving a spread pattern from asymmetric through to symmetric.

3.9 PRE-WET OPERATION

The spreader is fitted with polymer brine tanks, mounted along each side of the hopper, larger capacity bodies may have an additional brine tank in front of the hopper. An inlet valve is situated at the right hand rear of the chassis. As the brine level increases it is transferred to all tanks, the tanks have a shared vent terminating at the front and rear of the hopper. A brine pump situated at the rear of the hopper is fitted to allow the brine to combine with the dry salt via a dribble bar as it discharges from the hopper. An on/off valve situated between brine tanks and brine pump is provided to avoid loss of brine fluid when checking/cleaning the pump filter.

The spreader is designed to operate with either dry salt or pre-wetted salt. When working in the dry spreading mode, the controls are the same as a conventional Zero C spreader.

3.10 OFFLOADING

Please refer to section 6 for details of offloading for your distributor / body type.

3.11 WASHING DOWN

We recommend that after every period of operation where the stand down time is expected to be for more than a 24 hour period, the complete body and chassis be thoroughly hosed down. Ideally, the front wheels of the vehicle should be slightly raised; this allows water to run out of the rear of the body.

The use of a large volumn hose is recommended but a pressure wash/steam cleaner can be used if it is all that is available.

When a vehicle returns to reload and go back out spreading it needs the rear markings on the; hopper, the chutes, the distributor, and the rear lights all washing clean for safe visibility, and to remove build up of material in the chute interfering with the spread pattern.

If the vehicle returns to reload ready to go out spreading in a few hours it needs the rear markings on the; hopper, the chutes, the distributor, and the rear lights all washing clean for safe visibility, and to remove build up of material in the chute interfering with the spread pattern.

If the vehicle returns to not be used again until the next day it should be offloaded, the complete body and chassis should be thoroughly washed down (including inside the hopper). Ideally the front wheels should be slightly raised, this allows water to run out of the rear of the body.

If the salt, being used by the spreader, is treated with an A.B.P. (Agricultural by Product) i.e. Safecote then differing wash down procedures may be considered. These will be provided by the ABP supplier, however failure to clean the conveyor and distributor areas as per our instruction will affect the discharge rate and spread pattern.

Observe Health & Safety regulations when carrying out the above operation. Do not enter the body to wash it down when either the conveyor or distributor are moving.

Do not spray water with a high-pressure hose near the filler cap on the hydraulic tank, or any of the junction boxes for the electrical wiring.

Econ recommend that the conveyor and distributor bearings be lightly lubricated before and after washing down to eliminate the possibility of brine entering the bearings.

Commence washing down by starting at the hopper and washing down through the conveyor assembly, then onto the chassis and distributor. It is recommended that the auxiliary engine, (if fitted) is kept running during the hosing down operation.

Use high volumes of water rather than high pressure. If at all possible, we recommend the machine be washed down with a warm water wash, this will leave the machine in a drier condition than using a cold water wash.

3.12 SUMMER USE

When using the spreader in summer to apply sand on melting tar, it is recommended that a low distributor speed should be used.

4.0 Snowplough Operation

4.1 INTRODUCTION

Under the majority of circumstances, the plough will be fitted to a vehicle which has some form of salt spreader body attached, so control of the plough will be through the spreader control box.

4.2 SPARGO CONTROL BOX

This touch button is for operating the **SNOWPLOUGH**. When pressed, the screen displays 'Use joystick to move plough. Press button for float. U/D/L/R'. Moving the joystick up will lift the snowplough and moving the joystick down will lower the snowplough. Pressing the yellow button on the top of the joystick will select float, this FLOAT position should always be used when ploughing the highway. To come out of float flick the joystick up. If hydraulic angling is fitted to the snowplough, moving the joystick left and right will angle snowplough left / right.

Press the plough button on the touchscreen to activate plough control

Joystick with press button control

4.3 MOUNTING THE PLOUGH

Only mount and demount the plough on level ground, using the two support frames provided.

NOTE: Only competent personnel should mount or demount ploughs to vehicles.

SAFETY FIRST

All personnel to keep clear of the working area while operating plough hydraulics when mounting / demounting the plough.

Before connecting the hydraulic hoses to the vehicle, ensure the plough rear mounting plate is in the fully lower position as shown below. If not, a qualified person must carefully release the oil pressure in the hoses, allowing the rear plate to fall to the required position.

Ensure there are no personnel in the region of the plough frame.

1. Drive the vehicle carefully toward the rear plate of the plough, stop when the plates are parallel and approx. 150mm (6”) apart.

2. Ensure the plough controls are set to the FLOAT position.

Rear mounting plate in the lower position

3. Connect the self-sealing couplings to the vehicle frame.

   If plough has hydraulic angling there will be an additional 2 x self-sealing couplings.

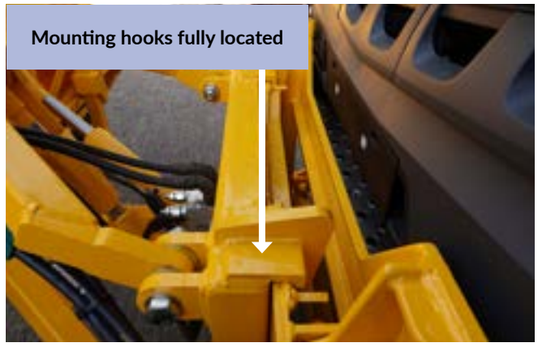
4. Ensure the transit bracket is in the raised position and locked with the pin and ‘R’ clip.

5. Ensure FLOAT control is switched OFF, and then operate the POWER DOWN, this should raise the plough frame so the upper mounting hooks just clear the vehicle frame.

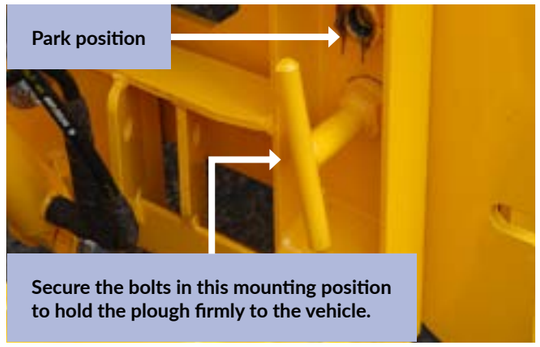
6. Move the plough frame on the castors up to the vehicle frame.

   (If on rough ground drive the vehicle slowly forward until the two plates are touching, stop the vehicle).

   Operate the switch to the RAISE position; this should lower the plough frame. Ensure the mounting hooks locate over the vehicle frame, the vee guides will assist in location.



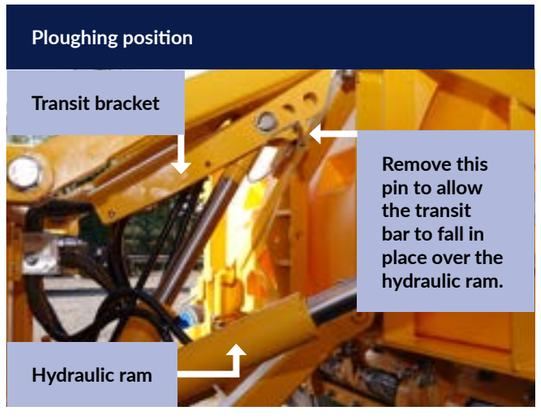
7. Remove the two securing bolts from the (upper) park position to the (lower) mounting position and tighten fully.



Transit Bracket

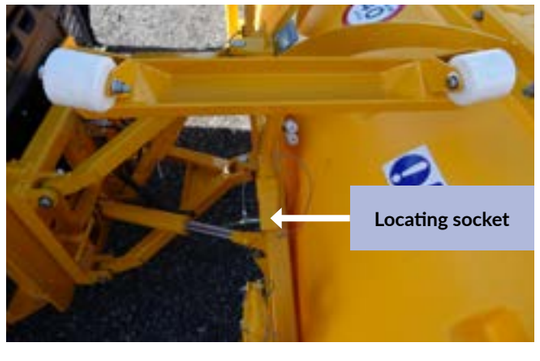
8. Now the plough is secured to the vehicle, it must be made safe for travelling.

   Using the controls, raise the plough fully up and remove the ‘R’ clip and locking pin from the transit bracket, allowing it to fall in place over the hydraulic ram.



9. Refit the lock pin and ‘R’ clip to hold the transit bracket in the travelling position as shown. The transit bracket will prevent the plough from accidentally lowering.

10. Remove the mobile support frames, and place in the sockets provided on the plough frame, as shown below. Insert locking pin and ‘R’ clip to hold in this position.



The plough is now ready to transporting safely along the highway.

When ploughing is required, stop the vehicle and reposition the transit bracket for ploughing operation.

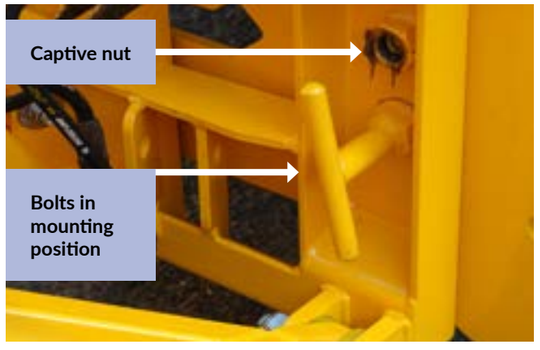
4.4 DEMOUNTING THE PLOUGH

Demounting the plough is the opposite procedure to mounting.

1. Ensure the transit bracket is in the ploughing position, (see part 8 on previous page).

2. Raise the plough, remove the two support frames from their storage position and fit them using the pins provided, to the sockets on the outer edges of the plough frame, (see section 10 on previous page).

3. Remove the two large mounting bolts, and stow in the adjacent captive nuts.



4. Operate the controls to slowly lower the plough to rest onto the support frames.

   Continue lowering, observing the plough frame moving upwards and releasing the mounting hooks from the vehicle frame. Stop lifting when in the position as shown.

5. Move the plough from on the casters slightly away from the vehicle (If on rough ground drive the vehicle back).

   Using the float position; **carefully lower the frame fully: this will release ALL hydraulic pressure** in the hoses.

   Do not operate the float control or the power angle with personnel close to the plough.

6. Disconnect the hydraulic hoses and fit the protective covers.

7. Finally, if applicable switch power to the control box off.

SAFETY FIRST

Lower the plough frame fully to release the pressure before disconnecting the hydraulic hoses.

4.5 OPERATING THE PLOUGH

The power down switch should only be used for mounting or demounting the plough

Always use the FLOAT position when ploughing; the weight of the plough will keep it in contact with the ground.

Always raise the plough when reversing the vehicle.

4.6 BLADE ANGLE

If specified, the operating angle of the plough blade may be hydraulic, with an adjustable RAM to enable left or right hand ploughing to be controlled from within the cab.

Alternatively, angling may be a manual operation by adjusting the length of the telescopic angle bar.

Angling can be 20°, 25° or 30°. Use the hole furthest from the cab for 30° ploughing.

SAFETY FIRST

Do not operate the FLOAT control with personnel close to the plough.

4.7 SCRAPER HEIGHT SETTING

To avoid undue stress on the height adjuster mechanism, first raise the plough hydraulically. Then raise the plough wheels by turning the adjusting handle a few turns anti-clockwise.

Using the hydraulics, lower the plough to the desired height from the road surface and hold in this position. Now lower the wheels until they are just in contact with the ground

After any adjustment of the wheel, always ensure the handle is placed to its lowered locked position.

The rate at which the scrapers erode greatly depends upon how close they were set to the road surface and the quality of the road surface. **As a guide** with the plough set at 5mm from the road surface it will require lowering 20mm for every 90kms covered.

4.8 HYDRAULIC ANGLING OPTION

It is essential that the immediate area around the plough is clear before operating the hydraulically angling.

A safety feature of the E-Plough is the built in pressure relief system. This is set at the factory and should not be adjusted.

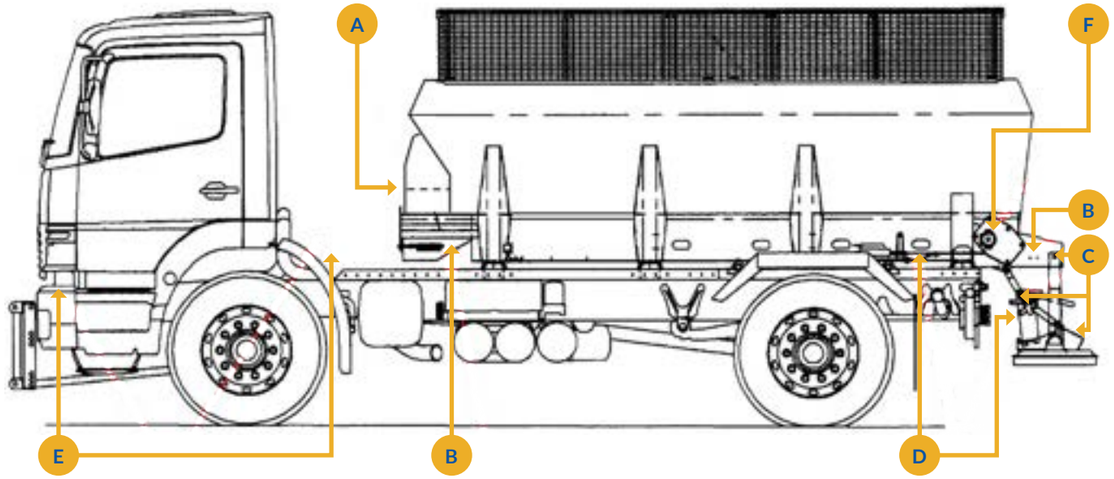
It is calibrated to allow the ram to compress or extend should the force exceed the settings.

Should the angling ram compress after contacting an object during use, it will require the operator to reset the angle of the blade frame using the normal controls.

It is important to note that this protection is only active when the plough is in float. During normal operation always ensure the plough is set to FLOAT, or damage will occur.

SAFETY FIRST
Do not operate the HYDRAULIC ANGLING with personnel close to the plough.

5.0 Lubrication



Ref	Description	Lubrication Period	Lubricant
A	Hydraulic Oil Tank	Check daily and top up as required. **Do not over fill.** Change pressure and return line filters after first 50 hours of use, there after every 500 hours, 12 months or when the indicator on the filter approaches the red zone. Change oil completely every 1000 hours or 12 month period.	A.T.F
B	Conveyor drive roller, idler roller and snub roller bearings. 6 x Points	2-3 shots daily when in use	EP2
C	Distributor shaft and pivots. Break-back arm pivot. 5 x Points	2-3 shots daily when in use	EP2
D	Both ends of Symmetric / Asymmetric cable (when fitted)	Smear in grease	EP2
E	Front of engine or rear of engine, hydraulic pump drive shaft joints (when fitted)	Weekly	EP2
F	Conveyor gearbox	Change lubricant every 36 months. NB: Fill in upright position to level plug on opposite side. Capacity - 2kg	EP004

SAFETY FIRST
Do not make changes to the machine whilst the vehicle is running.

6.0 Spreading Body Variations

6.1 SMOOTHFLOW

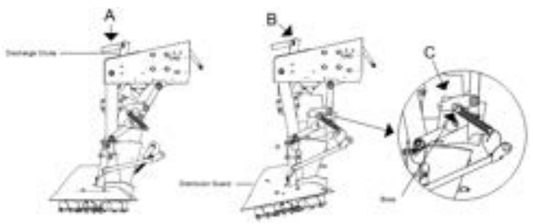
SAFETY FIRST

Under no circumstances should the operator attempt to adjust the discharge chute, or distributor while the conveyor belt is in operation. The rear of the machine must be kept clear while discharge operation is in progress.

6.1.1 Off Loading Using Discharge (Smoothflow)

All **Zero C** machines are fitted with a discharge facility, whereby the distributor can be moved forward and locked into position to enable the salt load to be discharged without having to pass through the distributor.

6.1.2 Positioning the Distributor and Discharge Chute



Using handle **A**, lift the discharge chute approximately 20mm and move it forward to rest on the conveyor belt in the discharge position **B**.

Rotate lever **C**, to rest on the boss. The leaver should be free moving, operate under its own weight, and engage automatically when the distributor is re-positioned. Ensure to keep hands well clear of the moving parts on either side of the distributor. Place one foot on the distributor guard and push the whole assembly forward until the slot in lever **C** engages on the boss and holds the distributor in the forward position.

To release the distributor from the folded lock position, repeat the processes above, additionally lever **C** must be manually released when pressure is applied to the distributor. When pressure is applied lift hook **C** clear of the boss by lifting the end of the hook, keeping hands well clear of the latching area and breakback arm movement and slowly release the pressure from the distributor until it returns to the standard spread position.

6.1.3 Off Loading Control Box Operation

Set the **SPREAD WIDTH (SWITCH)** and **SPREAD RATE (JOYSTICK)** controls to **ZERO**.

Press the **SPREADING**

and **BLAST** controls to **ON.**

This will fully open the discharge door and operate the conveyor at the maximum speed for off loading.

When off loading of the material is complete, switch the **BLAST** control to **OFF**, this will close the discharge door and stop the conveyor, then switch the **SPREADING** control to **OFF**.

Return the distributor to the operating position by pushing it forward using one foot, and release the lever **C** and allow the assembly to spring back to its normal working position.

Ensure lever **C** is repositioned to the hang downward.

Finally, return the discharge chute to the normal operating position.

6.2 LOW THROW

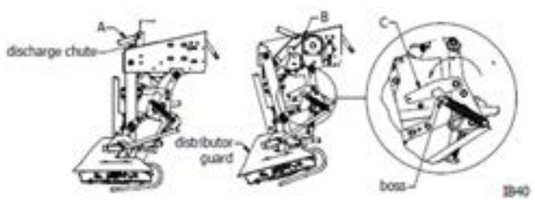
SAFETY FIRST

Under no circumstances should the operator attempt to adjust the discharge chute, or distributor while the conveyor belt is in operation. The rear of the machine must be kept clear while discharge operation is in progress.

6.2.1 Off Loading Using Discharge (Low Throw)

All Zero C machines are fitted with a discharge facility, whereby the distributor can be moved forward and locked into position to enable the salt load to be discharged without having to pass through the distributor.

6.2.2 Positioning the Distributor and Discharge Chute



Using handle **A**, lift the discharge chute approximately 20mm and move it forward to rest on the conveyor belt in the discharge position **B**.

Rotate lever **C**, to rest on the boss. The leaver should be free moving, operate under its own weight, and engage automatically when the distributor is re-positioned. Ensure to keep hands well clear of the moving parts on either side of the distributor. Place one foot on the distributor guard and push the whole assembly forward until the slot in lever **C** engages on the boss and holds the distributor in the forward position.

To release the distributor from the folded lock position, repeat the processes above, additionally lever **C** must be manually released when pressure is applied to the distributor. When pressure is applied lift hook **C** clear of the boss by lifting the end of the hook, keeping hands well clear of the latching area and breakback arm movement and slowly release the pressure from the distributor until it returns to the standard spread position.

6.2.3 Off Loading Control Box Operation

Set the **SPREAD WIDTH (SWITCH)** and **SPREAD RATE (JOYSTICK)** controls to **ZERO**.

Press the **SPREADING**

and **BLAST** controls to **ON.**

This will fully open the discharge door and operate the conveyor at the maximum speed for off loading.

When off loading of the material is complete, switch the **BLAST** control to **OFF**, this will close the discharge door and stop the conveyor, then switch the **SPREADING** control to **OFF**.

Return the distributor to the operating position by pushing it forward using one foot, and release the lever **C** and allow the assembly to spring back to its normal working position.

Ensure lever **C** is repositioned to the hang downward.

Finally, return the discharge chute to the normal operating position.

6.3 PRE-WET

SAFETY FIRST

Under no circumstances should the operator attempt to adjust the discharge chute, or distributor while the conveyor belt is in operation. The rear of the machine must be kept clear while discharge operation is in progress.

6.3.1 Loading the Prewet Tanks

Note: This section should be read in conjunction with the Manual for the Saturator.

1. The inlet flow into the tanks must not exceed 500 lt/min or damage to the tanks may result.
2. The spreader brine tanks are fitted with a vent situated at the top of the hopper front and rear panel. Ensure this is kept unobstructed, or damage to the tanks through excess pressure will result.
3. Connect the brine transfer hose and the electrical supply from the liquid pumping equipment to the main inlet valve and electrical socket normally situated at the R/H/R of the chassis, and lock in position. The electrical connection will automatically stop the transfer of fluid when the tanks are filled to the maximum level. Failure to connect this cable may result in damage to the brine tanks.
4. Ensure the valve/s on the saturator tank is/are open.
5. Open the tap mounted on the spreader inlet valve. All valves between the pumping equipment and spreader tanks must be opened before starting the transfer pump or damage to the pump will result.
6. Turn on the pumping supply to commence transferring the brine.
7. When the tanks are full the filling will stop automatically.
8. Close all valves on the spreader and pumping supply hose.
9. Disconnect the overflow protection sensor.
10. Disconnect the transfer hose and cable, store at saturator.

IMPORTANT NOTES

The brine tanks are manufactured from polyethylene and should not be allowed to come into contact with hot air.

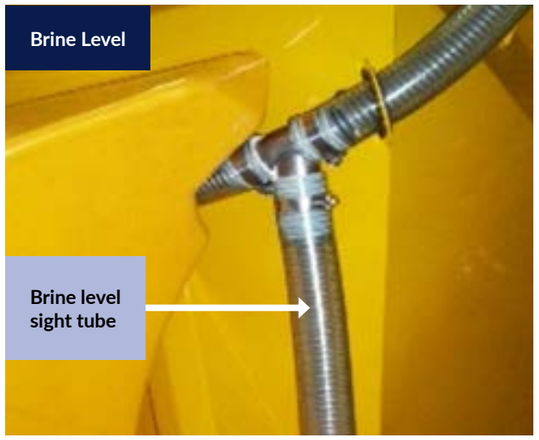
Never allow large quantities of liquid to remain in the tanks over the summer period or damage to the tanks will result due to distortion.

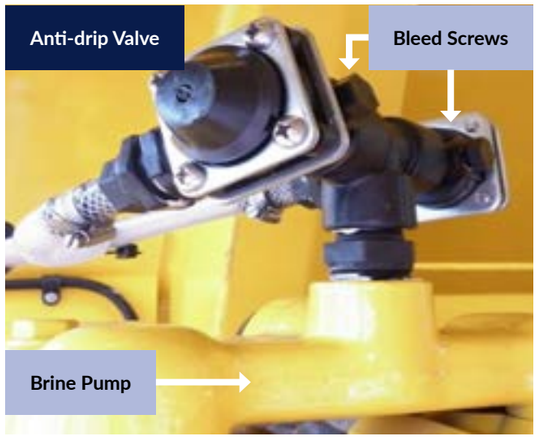
We have found through experience that the brine pump filter can become blocked under the following circumstances:

1. If solids are allowed to enter the tanks from the mixing equipment.
2. If brine is allowed to remain in the tanks for periods in excess of 24 hours, allowing the salt to separate from the liquid.

Check and clean the filter daily to ensure correct operation of the brine delivery, see section on maintenance.

The following images illustrate the different applications of the 20g/m² and 40g/m² installations.

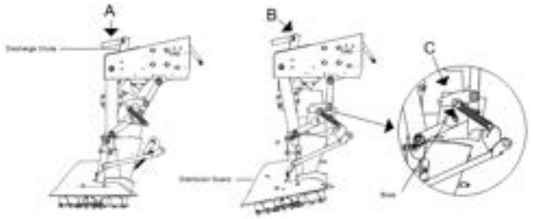




6.3.2 Off Loading Using Discharge (Pre-Wet)

All Zero C machines are fitted with a discharge facility, whereby the distributor can be moved forward and locked in this position to enable the load to be discharged without having to pass through the distributor. See below.

6.3.3 Positioning the Distributor and Discharge Chute



Using handle **A**, lift the discharge chute approximately 20mm and move it forward to rest on the conveyor belt in the discharge position **B**.

Rotate lever **C**, to rest on the boss. The leaver should be free moving, operate under its own weight, and engage automatically when the distributor is re-positioned. Ensure to keep hands well clear of the moving parts on either side of the distributor. Place one foot on the distributor guard and push the whole assembly forward until the slot in lever **C** engages on the boss and holds the distributor in the forward position.

To release the distributor from the folded lock position, repeat the processes above, additionally lever **C** must be manually released when pressure is applied to the distributor. When pressure is applied lift hook **C** clear of the boss by lifting the end of the hook, keeping hands well clear of the latching area and breakback arm movement and slowly release the pressure from the distributor until it returns to the standard spread position.

6.2.4 Off Loading Control Box Operation

Set the **SPREAD WIDTH (SWITCH)** and **SPREAD RATE (JOYSTICK)** controls to **ZERO**.

Press the **SPREADING**

and **BLAST** controls to **ON.**

This will fully open the discharge door and operate the conveyor at the maximum speed for off loading.

When off loading of the material is complete, switch the **BLAST** control to **OFF**, this will close the discharge door and stop the conveyor, then switch the **SPREADING** control to **OFF**.

Return the distributor to the operating position by pushing it forward using one foot, and release the lever **C** and allow the assembly to spring back to its normal working position.

Ensure lever **C** is repositioned to the hang downward.

Finally, return the discharge chute to the normal operating position.

6.3.4 Emptying of Brine Tanks

To empty the brine tanks after use open the inlet pipe to the rear of the spreader.

Turn the Brine inlet valve to the open position to allow the remainder of brine solution to be emptied from the tank/s.

Econ advise the excess brine solution to be disposed of in a manner that does not cause any adverse effects to the environment.

32 tonne QCB & ACB's have a 3000L brine tank permanently mounted to the chassis, this does not detach when demounting the body. When demounting a 32 Tonne QCB or ACB the mounted brine tank must be drained via the drain valve to rear offside and then disconnected via the water pipe coupling to the rear nearside of the tank.

6.3.5 Prewet – Scherzinger Brine Pump (where fitted).

Some Econ spreaders are now fitted with a larger capacity brine pump.

The loading of the tanks is as per section 6.3.1 using the inlet pictured. Securely connect the brine supply hose to the inlet pipe and rotate the green valve tap to the open position to allow brine to be loaded into the tank.

Unloading of the tanks is undertaken by opening the inlet pipe at the rear of the spreader. Econ advise that excess brine solution should be disposed of in a manner that does not cause any adverse effects to the environment.

When replacing the filter on the brine system close both valves shown in picture to the right before removing the filter.

The system incorporates an anti-syphon valve located at the rear of the hopper which does not require any regular servicing. The valve is designed to stop the tanks from draining when the pump is not in use. If the tanks continue to drain after the pump has stopped the valve may require attention or replacing.

The Prewet system design now releases the brine solution on to the salt via the chute and then distributed via the spreader spinning disc.

7.0 Body Mounting Variations

7.1 PMG (PERMANENTLY MOUNTED GRITTER)

No variations to the information provided within sections 1 to 6.

7.2 QCB (QUICK CHANGE BODY)

The Econ **Quick Change Body (QCB)** system was introduced to allow a single chassis to carry different types of bodies to suit varying applications.

The system comprises of a heavy duty chassis frame, which pivots at the rear for tipping by means of a forward mounted ram and hydraulic tank assembly.

In addition to the front ram, there are two small rams fitted to the inside rear of the chassis, which are also connected to the lift frame. The controls can be set to lift the frame parallel to the ground approximately 150mm (10") above chassis height using all three rams. This enables the body to be lifted, fitted with legs and then lowered to the ground clear of the chassis, the chassis driven away from the body and is then free to have another type of body fitted.

The Econ manufactured bodies comprise of steel insulated and non-insulated tippers to suit 7.5 to 26 Tonne GVW vehicles, and in addition, other body types include the Zero C Salt Spreader, Econ Hotbox and Econ Roadmender. The Econ QCB system can also be utilised with Whale Tankers.

The mounting and demounting procedures for all QCB bodies are similar, with the exception of fitted options i.e. different types of bodies will have different connections at the panel situated on the mid-left side of the chassis. These instructions must be followed accurately to ensure safe mounting and demounting of the bodies.

7.2.1 Additional Potential Hazards

- Mounting or demounting the body.
- Working / standing under a body without using body props.
- Incorrect, or no personal protective clothing.
- Possible contact with low overhead cables or other overhead obstruction when tipping.
- Hydraulic equipment working at high pressure and high temperature.
- Demount Body – Ensure the correct legs are used for the type of body to be supported, either heavy or light duty legs.

7.2.2 Additional Working Guidelines

To avoid the possibility of accidents occurring with this machinery, the following working guidelines should be adopted.

Only mount / demount empty bodies

Econ would insist that driver/operators ensure any persons in the vicinity of the vehicle are aware of the operator's intentions, and are away from the hazardous zones. (See following page).

7.2.3 Additional Potentially Hazardous Zones

- Inside of any body of the vehicle.
- Out of eyesight of the driver/operator in the cab, i.e. at the rear or offside of the vehicle.
- Tipper bodies when fitted.
- Standing or working under an unpropped body.
- Within an area where the load is to be tipped.

7.2.4 Demounting the Body

Important Information

FRONT BODY DEMOUNT LEGS

Due to new legislation requiring the fitting of side guards to all vehicles, care must be taken when **Lowering the Body** to avoid any damage to the side guards or other equipment.

The front body legs will require **removal, before the body is fully lowered onto the chassis** to avoid any damage to the side guards or chassis equipment.

To avoid any damage, ensure the front legs are removed before fully lowering the body.

IMPORTANT INSTRUCTION

Prior to Demounting or Mounting the Body

To aid stability with bodies having a high centre of gravity i.e. TANKERS, an extra locking device has been fitted to the rear of the chassis.

Prior to raising the QCB lift frame, when mounting or demounting the body, ensure the two rear locking pins have been released to the position shown below.

After the QCB lift frame has been lowered, and before moving the vehicle, ensure the two locking pins have been returned to the closed position, firmly locking the rear frame as shown below.

Important Note on Demount Legs

The upper section of the front demount legs have a longer reach than the rear legs to allow the chassis to be driven forward between the legs, when mounting/demounting the body.

The short reach legs, are intended for the rear of the body only.

To assist in handling, all legs incorporate a handle on the upper section and wheels on the lower section. Econ have introduced a new **FRONT** demount leg which **should only be used on the front of the lighter bodies**, please see table on following page for suitability. All other bodies must be supported by the **heavy duty legs**. It is the responsibility of the operator to use the correct leg, if uncertain, use the Heavy Duty legs or contact Econ Engineering for further advice.

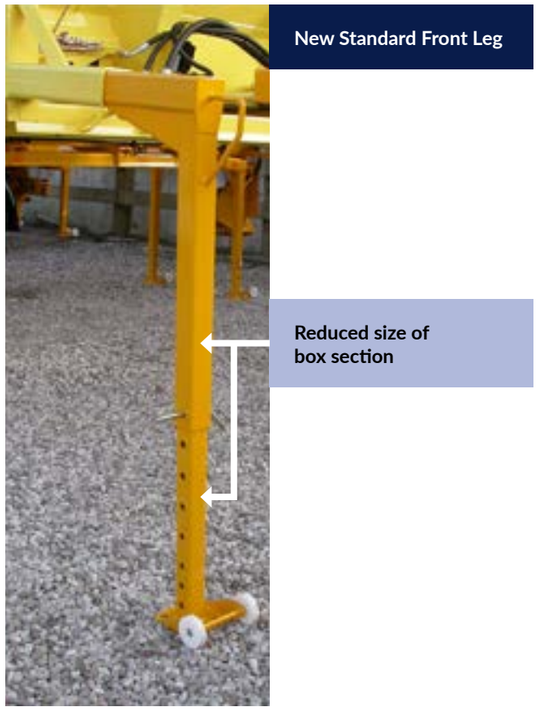
New Front Leg for lighter bodies - has a reduced size of box section in its main construction.

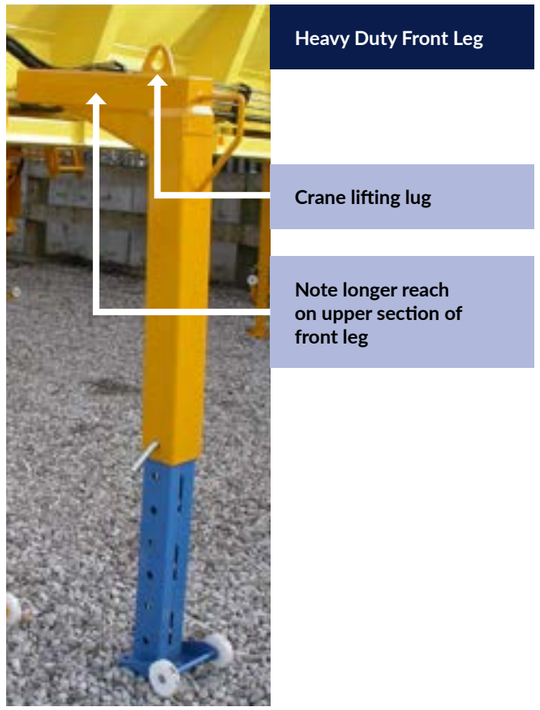
Total max body weight not to exceed 2500kg.

Heavy Duty Leg – now have the lower inner leg coloured blue for easy identification.

Total max body weight not to exceed 5000kg.

The image to the right illustrates the differences between the two types of front leg, new standard on the left, heavy duty on the right, which has a lifting lug for use with a crane if required.





The table below is a guide indicating which type of front or rear leg should be used with each type of body.

Note: Some of the illustrations in this manual were taken prior to colour coding the heavy duty leg.

Body Type	Body Length	3 Metre	4 Metre	5 Metre
Salt Spreader	Front Leg	Standard	Standard	Standard
	Rear Leg	Heavy Duty	Heavy Duty	Heavy Duty
Econ Tipper	Front Leg	Standard	Standard	Heavy Duty
	Rear Leg	Heavy Duty	Heavy Duty	Heavy Duty
Subcontract Tipper	Front Leg	Standard	Standard	Heavy Duty
	Rear Leg	Heavy Duty	Heavy Duty	Heavy Duty
Roadmender	Front Leg	Heavy Duty	Heavy Duty	Heavy Duty
	Rear Leg	Heavy Duty	Heavy Duty	Heavy Duty
Hotbox	Front Leg	Heavy Duty	Heavy Duty	Heavy Duty
	Rear Leg	Heavy Duty	Heavy Duty	Heavy Duty
Tanker	Front Leg	Heavy Duty	Heavy Duty	Heavy Duty
	Rear	Heavy Duty	Heavy Duty	Heavy Duty

Exceptionally High Bodies - GREEN coloured inner leg.

If the body installation is exceptionally high, i.e. QCB 4x4 or 6x6 chassis with On Board Weigh cells, all the body legs issued will have the lower inner leg coloured **GREEN** to identify the special application for the increased height.

This procedure is the same for all types of bodies and assumes that the operation is starting with an unladen body mounted on the chassis. Always choose firm level ground for mounting and demounting bodies.

7.2.5 Fitting Demount Legs

Choose the correct type of demount leg to suit the body, see table on previous page.

Slide the inner (lower) section of the demount legs fully inside the upper section, and lock in this position with the pins provided. Fit both pairs of demount legs into the four sockets mounted on the body, two to the front corners, two to the rear. The front two legs have a longer reach on the upper section. **Note:** If **side guards** are fitted, the body may require raising to give clearance to fit the front legs. Ensure all legs and locking pins are secure.

After fitting the legs in position, remove the locking pin from each leg, allowing the lower section to fall to the ground. Do not re-locate the pin at this point.

SAFETY FIRST
Only Mount / Demount Unladen Bodies

7.2.6 Removing the Body

Start the engine to operate the hydraulics.

Using the Demount Control Box, normally situated next to the driver's seat to allow operation from outside the cab, select the following:

1. Turn the rotary Selector Switch to the Demount position.
2. Turn the Power switch to On, the green light should illuminate.
3. To raise the body, carefully operate the spring-loaded Tipper switch to the Up position, the body will raise using all 3 hydraulic rams.

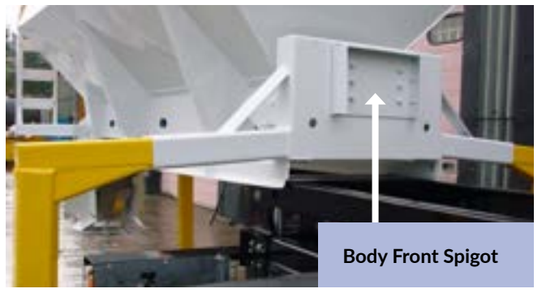
   Ensure the body is high enough to give sufficient clearance between top of rear mudguards and underside of the front demount legs as shown below.

4. All the leg extensions must now be locked in position to support the body, if required lift the inner leg to locate the pin, as shown below. Alternatively, to achieve adjustment between the holes, insert pin through lower section and rest upper section on top of pin.

5. The body can now be lowered onto the demount legs by carefully operating the spring-loaded **Tipper** switch to the **Down** position. Once the weight of the body is seen to be resting on the demount legs, lower the lift frame a further 50mm (2") at the rear then release the switch.

The following operations are carried out in the cab from the driving position.

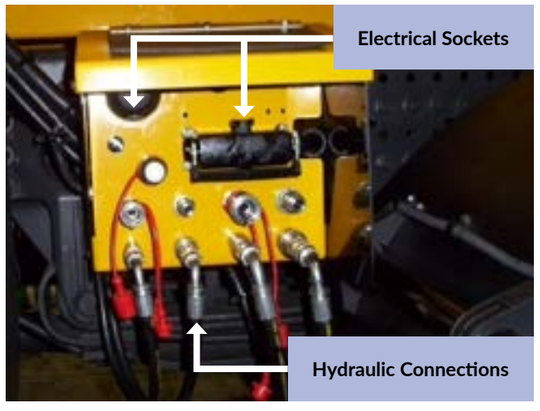
Drive the vehicle slowly forward, observing the upper front section of the lift frame leaving the body front spigot, carry on driving slowly forward checking the rear mudguards clear the underside of the demount legs.



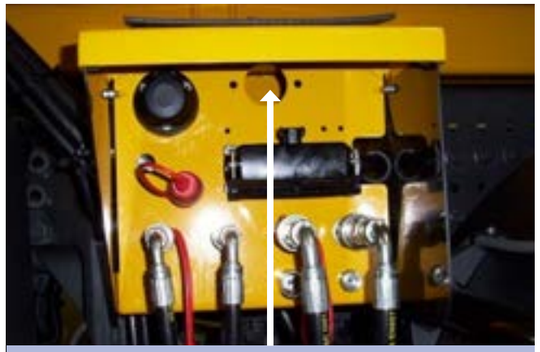
6. Finally, lower the lift frame to rest on the chassis

The remaining connections should now be as shown below.

Park Position



Demount Position



Note: If chassis is wired for use with a HOTBOX body, the socket is fitted in this position.

Remove the connections from the **Park** position to the **Demount** position as show above.

IMPORTANT NOTE

When the tipper body is demounted, the tip ram connections must always be connected to the park couplings to avoid the lift frame raising at the front when in use with other bodies.

This procedure is the same for all types of bodies and assumes that the operation is starting with an unladen body mounted on the chassis. Where possible, choose firm level ground for mounting and demounting bodies.

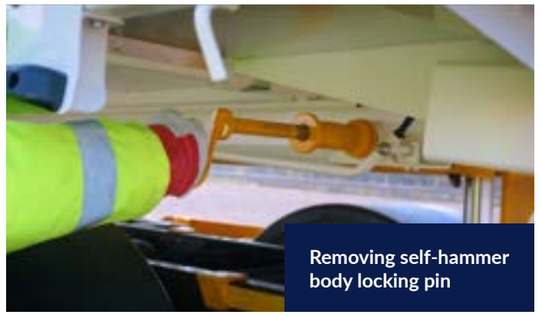
7.2.7 Electrical & Hydraulic Connections

The electrical and hydraulic quick release connections must now be disconnected at the panel situated on the left-hand side of the chassis, and stow in the body brackets provided.

The remaining connections should now be as shown below.

7.2.8 Body Locking Pin

Remove the securing "R" clip from the end of the hammer pin, then pull the hammer pin to remove it from the body completely. The body locking pin 'R' clip shouldn't be removed until the body has been raised to the correct height with the lift frame.



IMPORTANT NOTE

On 26 and 32 tonne chassis with tipper body, unlock both body securing pins on either side of lift frame ½ turn each.

7.2.9 Mounting the Body

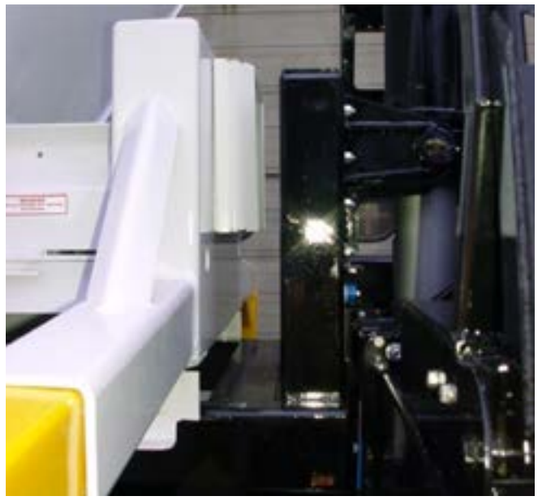
Mounting the body is the opposite procedure to demounting. Ensure no persons are in close proximity to the operation, and any hydraulic or electrical connections are stowed correctly.

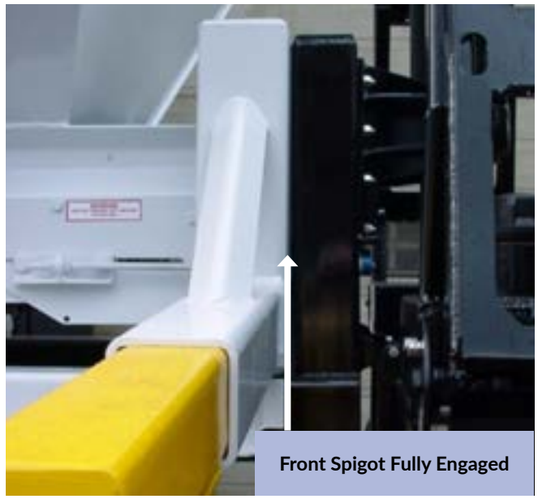
1. Carefully reverse the vehicle toward the front of the body as shown below.

2. If required, stop the vehicle and raise or lower the lift frame to just below the body guide rails, as shown below. See section 7.2.8 for control box operation.

   Continue reversing, raising or lowering the lift frame as necessary and keeping the vehicle in line with body.

3. Stop the vehicle just before the lift frame enters the body front spigot as shown below. Then line up the lift frame to the spigot before continuing to fully engage the body. Stop the vehicle and apply handbrake.





4. Raise the lift frame sufficiently to allow all demount legs to clear the ground. Slide each inner leg fully inside the outer and secure in position with the pin.

5. Carefully lower the lift frame to rest on the chassis
   NOTE: If side guards are fitted the **FRONT LEGS WILL REQUIRE REMOVAL BEFORE THE BODY IS FULLY LOWERED ONTO THE CHASSIS** see the relevant instruction at the front of this section. Switch off engine.

6. Fit body locking pin and secure with 'R' clip provided.

7. Remove all demount legs and store safely.

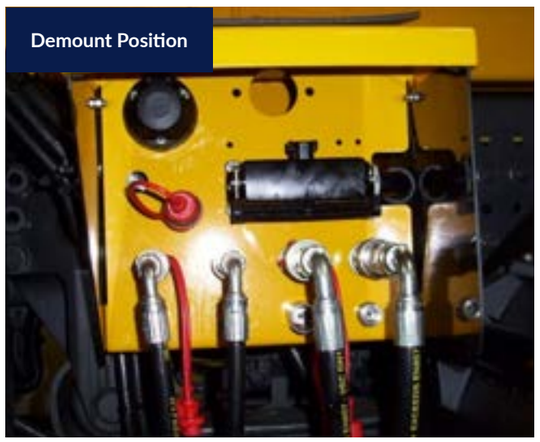
7.2.10 Electrical & Hydraulic Connections

Connections must be made to suit the required body i.e. Spreader, Tipper, Hotbox etc. refer to the following sections.

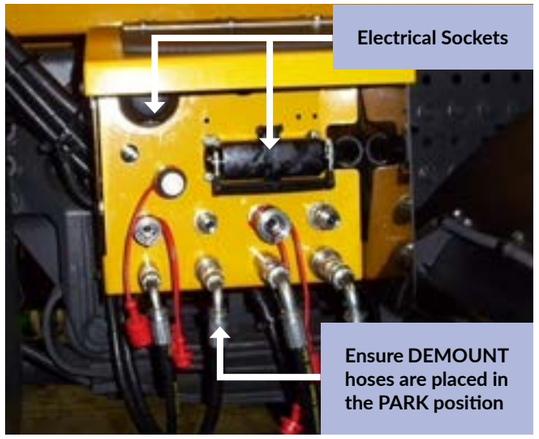
7.2.11 Connecting the Spreader Body

The electrical and hydraulic quick release connections must now be connected at the panel situated on the left-hand side of the chassis.

1. The connections should be as shown on the below.

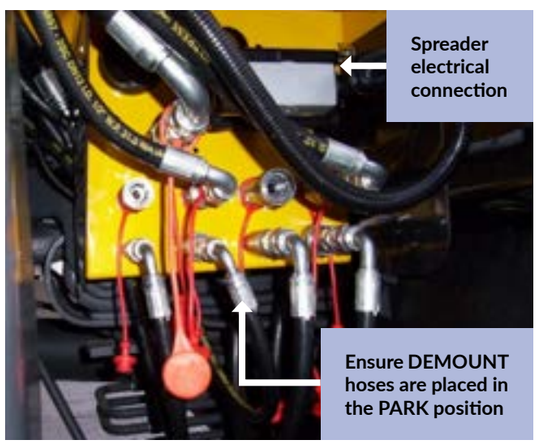


2. Re-connect in the **Park Position** as shown below.



3. Connect cables and hoses attached to spreader body as shown below.

   Spreader Body Position



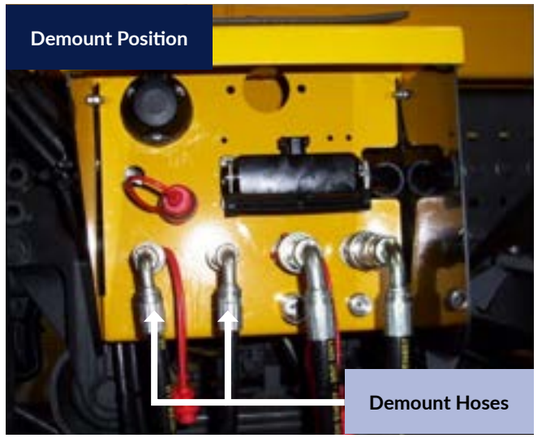
4. Turn the rotary selector switch on the demount control box to the Body position.

The spreader is now ready to use.

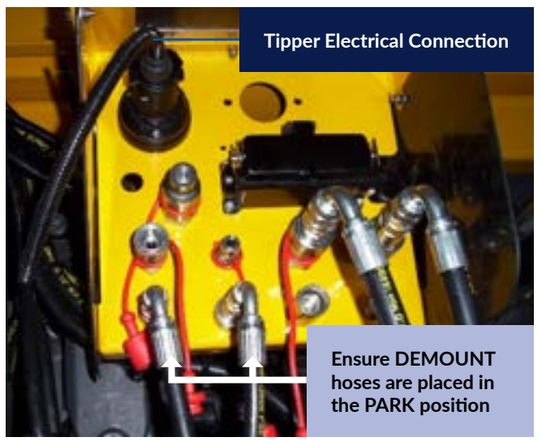
7.2.12 Connecting the Tipper Body

The electrical and hydraulic quick release connections must now be connected at the panel situated on the left-hand side of the chassis.

1. The connections should be as shown below.



2. If the tipper has an electrical connector, remove from park position (below top), to allow plug to be connected to the panel (below bottom).



3. After mounting the tipper body, ensure the **DEMOUNT** hoses are in the **PARK** position as above.

4. Optional Devices: If applicable, connect any air or hydraulic devices to the panel.

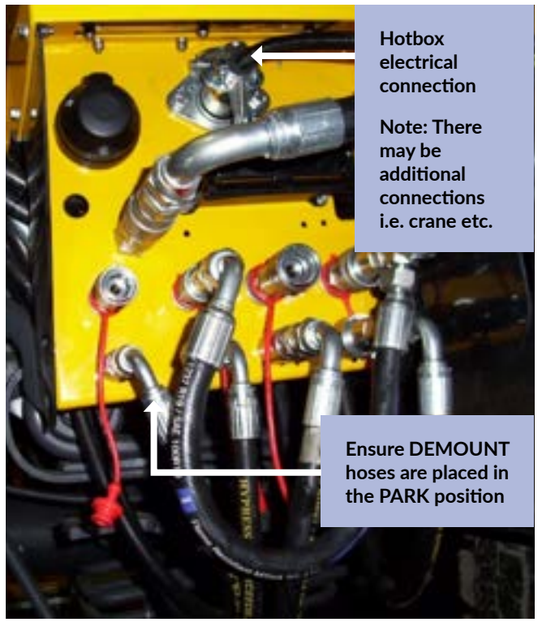
5. On 26 tonne chassis only, engage both body securing pins on either side of lift frame ½ turn each.

6. Turn the rotary selector switch on the demount control box to the **Tipper** position.

The Tipper is now ready to use.

7.2.13 Connecting the Hotbox / Roadmender Body

After mounting the body, the electrical and hydraulic quick release connections must now be connected at the panel situated on the left-hand side of the chassis.



1. After mounting the hotbox/roadmender body, ensure the **DEMOUNT** hoses are in the **PARK** position as above.

2. Turn the rotary selector switch on the demount control box to the **Body** position, then set the Spargo control box to **BLAST** and turn the **SPREAD WIDTH control to 11**, this will allow hydraulic power to the Hotbox.

The Hotbox / Roadmender is now ready to use.

7.3 ACB (ANNUAL CHANGE BODY)

The Econ ACB - Annual Change Body system was introduced to allow a single chassis to carry different types of bodies to suit varying applications.

The system comprises of 2 front mounting brackets bolted to the chassis side frame and 2 rear brackets built into the rear cross-member assembly; these brackets are design to accept 2 large steel self-hammer pins to hold the body in place on the chassis. An oil tank is mounted onto the chassis to provide a hydraulic operating system for powering the individual bodies.

The body is mounted or demounted by simply raising it clear of the chassis by the aid of 2 vehicle bottle jacks capable of carrying the weight of the empty body. Bottle jacks are not provided. This enables the body to be raised clear of the chassis for fitting the support legs, the body is then lowered to rest on the legs, enabling the chassis to be driven away and fitted with another body.

This instruction refers to the Econ Salt Spreader body, other Econ bodies available are Hotbox, Roadmender and rear tipping bodies.

SAFETY FIRST
Only Mount / Demount Unladen Bodies

7.3.1 Safety Systems of Work

Almost all machinery can be classed as potentially hazardous in some way or another. To enable the safe and efficient use under all operating conditions, operators must be aware of potential hazards from this type of machinery. Listed below are a number of known potential hazard areas situated with this particular type of equipment.

7.3.2 Additional Potential Hazards

- Mounting or demounting the body.
- Working/standing under a body without using body props.
- Checks and servicing carried out with the machinery running.
- Possible contact with low overhead cables or other overhead obstruction when tipping.
- Hydraulic equipment working at high pressure and high temperature.

7.3.3 Safety Working Guidelines

To avoid the possibility of accidents occurring with this machinery, the following working guidelines should be adopted.

Only mount/demount empty bodies - only operators competent in mounting/demounting this type of body must complete the operation.

Econ would insist that driver/operators ensure any persons in the vicinity of the vehicle are aware of the operators intentions, and are away from the hazardous zones. (See following page)

7.3.4 Potentially Hazardous Zones

- Inside any body of the vehicle.
- Out of eyesight of the driver/operator in the cab, i.e. at the rear or offside of the vehicle.
- Operating tipper bodies.
- Standing or working under an unpropped body.
- Within an area where the load is to be tipped.

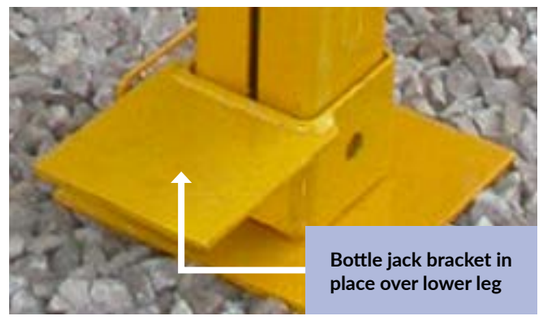
7.3.5 Demounting the Body

This procedure is the same for all types of bodies and assumes that the operation is starting with an **unladen body** mounted on the chassis. Always **choose firm level ground** for mounting and demounting bodies. Vehicle stationary, hand brake applied.

7.3.6 Fitting Demount Legs

If applicable, remove any side guards that may be fitted. Slide the bottle jack bracket over the inner (lower) leg sections; ensuring the flat face is uppermost. Slide the inner (lower) section of the demount legs fully inside the upper section, ensuring the jacking brackets are aligned, and lock in this position with the pins provided. Fit both pairs of demount legs into the four sockets mounted on the body, two to the front corners, two to the rear, **ensuring the jack brackets are on the outside**. The front two legs have a longer reach on the upper section. Ensure all legs and locking pins are secure.

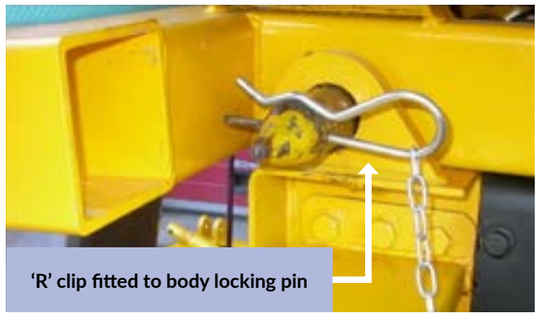
After fitting the legs in position, remove the locking pin from each leg, allowing the lower section to fall to the ground. **Beware of foot trap!** Do not re-locate the pin at this point.

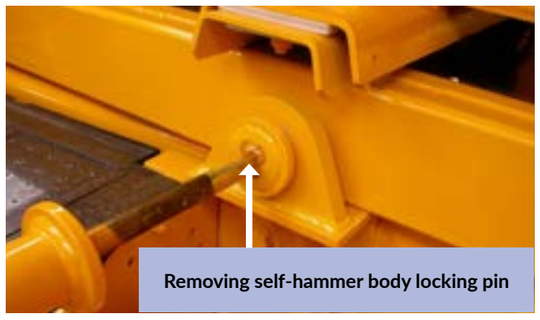


SAFETY FIRST
Only Mount / Demount Unladen Bodies

7.3.7 Body Locking Pins

Remove the 2 body self hammer locking pins, after first disconnecting the "R" securing clip from the opposite end.





7.3.8 Electrical & Hydraulic Connections

The electrical, hydraulic and air quick release connections were applicable, must now be disconnected at the coupling panel attached to the chassis mounted hydraulic oil tank. Fit all protective covers and stow in the body brackets provided.

7.3.9 Removing the Body

Working at the front of the body, using 2 bottle jacks (not provided), place one jack onto the lower jacking plate, slide the jacking plate up the leg until the top of the jack is as close as possible to the upper jacking plate, lock in this position with the pins provided. Repeat this operation for the other front leg.

As the body is raised, use this pin to take the weight of the body, moving up the inner leg as necessary until the desired height is achieved.

Using the jacks, carefully raise the front of the body just clear of the chassis by extending the jacks a small amount simultaneously; this will ensure the body remains as level as possible whilst lifting. Using a second set of pins, lock the inner and outer legs at the desired height.

Remove both jacks and carry out the above procedure to raise the rear of the body clear of the chassis.

Finally check clearance between body and chassis and when satisfied, carefully drive the vehicle from under the body.

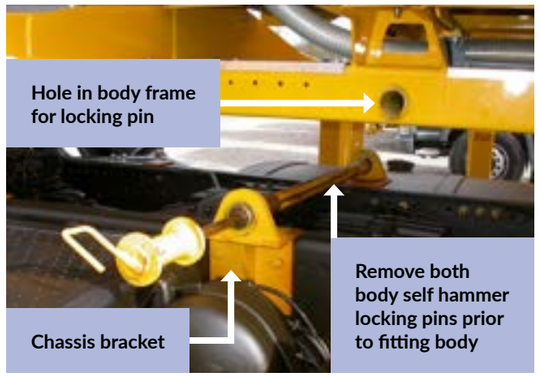
7.3.10 Mounting the Body

Mounting the body is the opposite procedure to demounting. Ensure no persons are in close proximity to the operation, and any hydraulic or electrical connections are stowed correctly. If fitted, remove both body mounting hammer pins from the chassis brackets.

Carefully reverse the vehicle toward the front of the body as shown below.

If required, stop the vehicle and raise or lower the body to clear the chassis using bottle jacks, (not provided). Continue reversing, keeping the vehicle in line with body.

Stop the vehicle as the chassis brackets line up with the holes in the body for the front and rear body locking pins. Apply handbrake. Stop the engine.



7.3.11 Fitting the Body

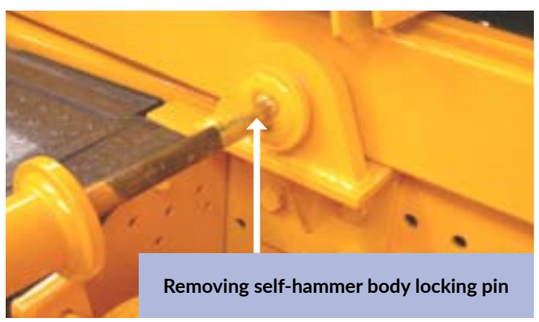
Working at the rear of the body, using 2 bottle jacks with the ram almost fully extended as shown.

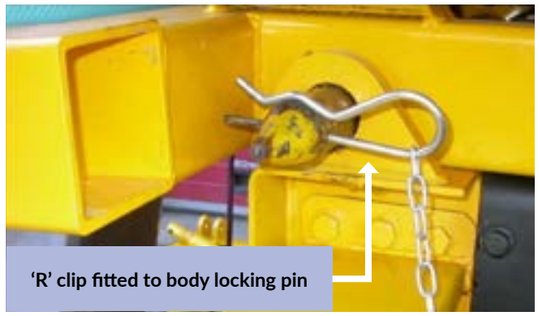
Place one jack onto the lower jacking plate, slide the jacking plate up the leg until the top of the jack is as close as possible to the upper jacking plate, lock in this position with the pins provided. Repeat this procedure for the other rear leg.

Using the jacks, carefully raise the rear of the body removing the weight from the leg locking pin, and then remove the pin and refit it in the hole below.

Using the jacks simultaneously, carefully lower the body onto the chassis a small amount at a time; this will ensure the body remains as level as possible when lowering.

Remove both jacks and carry out the above procedure to lower the front of the body onto the chassis.





Insert both hammer pins to firmly locate the body onto the chassis brackets. The taper on the pins will assist in alignment. Secure the hammer pins in position with the 2 **'R'** clips provided.

Remove all 4 demount legs from the body and store safely.

7.3.12 Electrical & Hydraulic Connections

The electrical, hydraulic and any other connections were applicable, must now be connected at the coupling panel attached to the chassis mounted hydraulic oil tank.

If applicable, fit the side guards to the body frame.

The vehicle is now ready for use.

7.4 HOOK LIFT BODY

Almost all machinery can be classed as potentially hazardous in some way or another. To enable the safe and efficient use under all operating conditions, operators must be aware of potential hazards from this type of machinery.

7.4.1 Mounting & Demounting the Hooklift Spreader (Econ chassis mounted oil tank)

SAFETY FIRST
Only Mount / Demount Unladen Bodies

IMPORTANT NOTE
There are several different types of Econ Hook-lift body installations, please ensure you are following the correct instruction.

This instruction refers to equipment with **Econ hydraulic oil tank fitted to the chassis**. The spreader body should be mounted and demounted in accordance with the Hook-lift manufacturer's instructions, together with the following instructions:

There are **three quick release hydraulic couplings and one electrical plug/socket** to drive the spreader body; **these must be disconnected before demounting the body**. Also if applicable, disconnect the plug for the additional body mounted rear lights at the rear of the chassis and one brine pump coupling on 32tonne chassis.

The salt distributor is fitted with a lift assister; **the distributor must be in the raised position before demounting the body**.

Under no circumstances should the vehicle be driven on the Highway with the distributor in the raised position.

7.4.2 Demounting the Spreader Body

Disconnect the spreader electrical plug from the socket on the hydraulic oil tank and fit the electrical plug in the dummy socket on the subframe. If additional rear lights are fitted to the rear of the spreader subframe, disconnect the cable from the towing electrics socket.

Disconnect the three hydraulic hoses connected to the hydraulic oil tank.

The distributor is fitted with **2 lift assisters** to aid raising it for demount purposes. First remove the retaining pins (see following page) then disconnect the two distributor sidebars between the spreader body and the distributor frame. The distributor can now be raised by hand to enable the **sidebars to be refitted to hold it safely in the raised position** as shown.

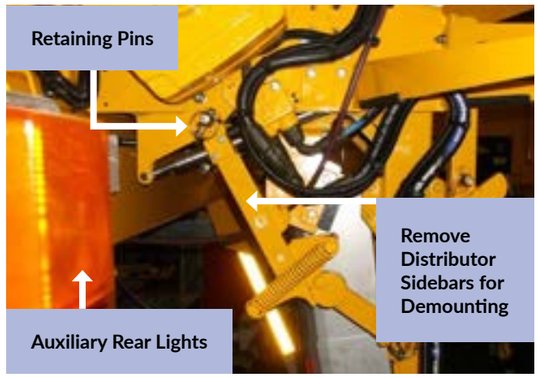
It is now safe to demount the spreader body.

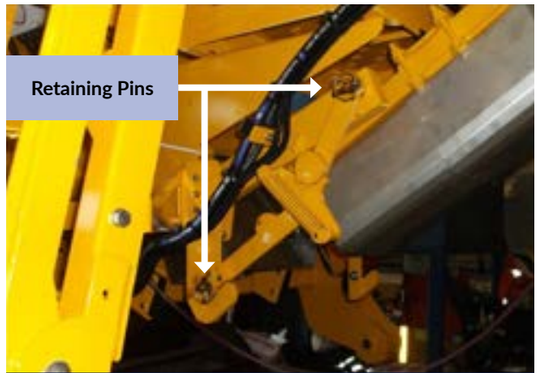
7.4.3 Mounting the Spreader Body

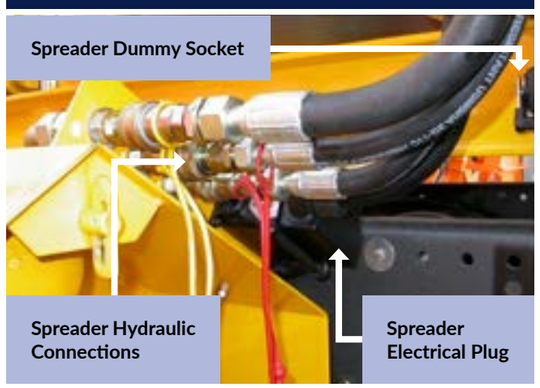
1. Mount the body onto the chassis in the reverse procedure to the above instructions ensuring the distributor is secured in the raised position prior to mounting.
2. After mounting the body, carefully remove the distributor retaining pins and sidebars, which will allow the distributor to be lowered; reconnect the sidebars to hold the distributor in the working position, and refit the retaining pins.
3. Connect the hydraulic hoses from the spreader body to the couplings on the hydraulic oil tank
4. Connect the electrical plug to provide power to the spreader adjacent to the hydraulic connections on the oil tank. (If auxiliary engine variant, connect the plug to the socket at the rear of the cab). Connect the plug for the additional rear lights to the tow electrics socket.

It is now safe to use the spreader.

Distributor in Position for Normal Operation







7.4.4 Mounting & Demounting the Spreader Body (Oil Supply from Hook-Lift Equipment

SAFETY FIRST

Only Mount / Demount Unladen Bodies

IMPORTANT NOTE

There are several different types of Econ Hook-lift body installations, please ensure you are following the correct instruction.

This instruction refers to equipment with **Spreader body hydraulic supply from Hook-lift equipment**. The spreader body should be mounted and demounted in accordance with the Hook-lift manufacturer's instructions, together with the following instructions:

There are **multiple quick release hydraulic couplings and one electrical plug/socket** to drive the spreader body; **these must be disconnected from the hook-lift subframe before demounting the body**. Also if applicable, disconnect the plug for the additional body mounted rear lights at the rear of the chassis.

The salt distributor is fitted with a lift assister; **the distributor must be in the raised position before demounting the body**.

Under no circumstances should the vehicle be driven on the Highway with the distributor in the raised position.

7.4.5 Demounting the Spreader Body

1. Disconnect the spreader electrical plug from the socket on the hook-lift subframe and fit it to the dummy socket on the subframe. If additional rear lights are fitted to the rear of the spreader subframe, disconnect the cable from the towing electrics socket.

2. Disconnect all the multiple hydraulic hoses connected to the hook-lift subframe and connect them to the dummy connectors on the chassis frame.

3. The distributor is fitted with **2 lift assisters** to aid raising it for demount purposes. First remove the retaining pins (see following page) then disconnect the two distributor sidebars between the spreader body and the distributor frame. The distributor can now be raised by hand to enable the **sidebars to be refitted to hold it safely in the raised position** as shown.

4. Locate the hydraulic supply change over valve and move to the DEMOUNT position.

It is now safe to demount the spreader body.

7.4.6 Safe Operation of the Gas Strut Assisted Distributor Lift

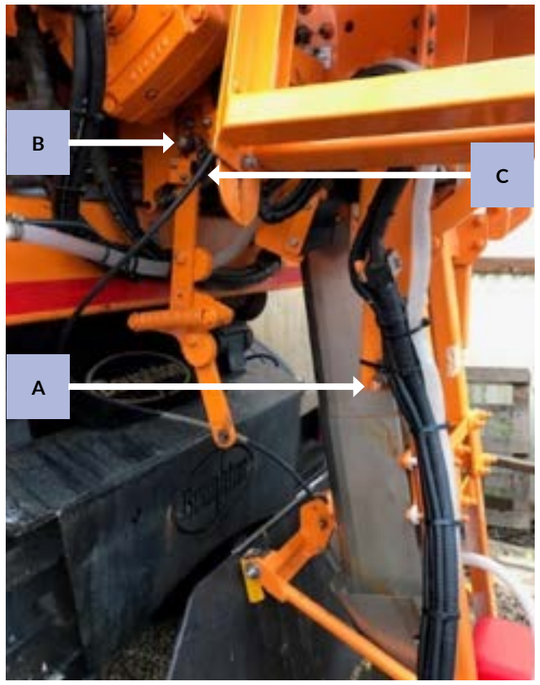
Before starting the procedure, ensure the vehicle is parked safely, engine turned off and the keys removed. Ensure there is enough space around the distributor to work, and that all relevant PPE is identified and used.

To Raise the Distributor

1. Remove both lynch pins from the LH distributor breakback arm and store close by, as these will be needed later. Care must be taken when using lynch pins so as not to present a finger trap.

   Disconnect the breakback arm from its lower pivot (A), and leave to hang on its upper pivot (B), as shown below.

   The safety plunger will extend on the hydraulic valve (C), cutting off hydraulic supply to the distributor.



IMPORTANT NOTE

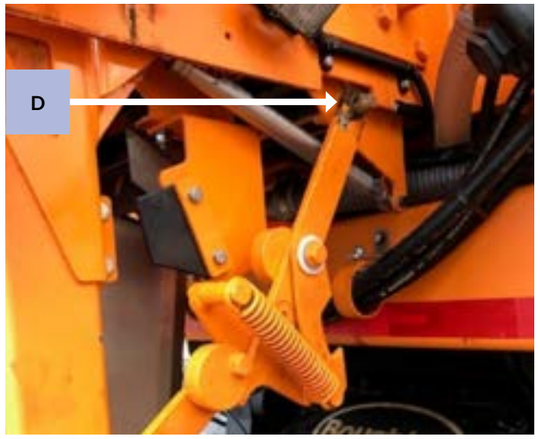
There are several different types of Econ Hook-lift body installations, please ensure you are following the correct instruction.

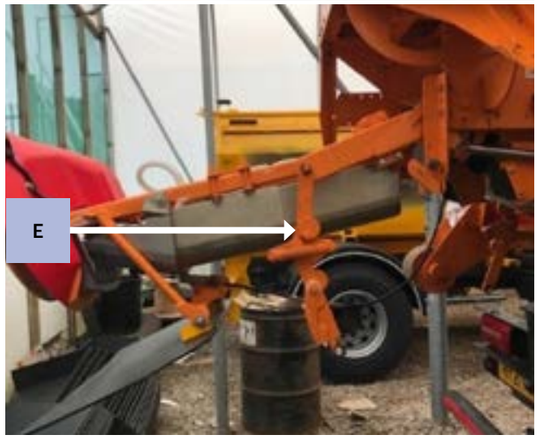
2. Remove the lynch pin from the RH upper distributor breakback arm (D).

   Using your left hand to slightly push forward on the distributor, remove the RH breakback arm from its upper pivot. CAUTION! The distributor assembly will start to rise. Use your left hand to control its speed until it comes to a rest, approx. horizontally.

   The breakback arm will be free to hang vertically.

   If the distributor doesn't reach the approx. position shown (E), this could be a sign of a worn gas strut that will need replacing.





3. Push the distributor upwards, with the assistance of the gas struts, until it almost contacts the rear platform. **DO NOT STAND UNDER THE DISTRIBUTOR!** Hold in place with your left hand, while locating the RH breakback arm onto its parked position (F) with your right hand.

   The distributor may have to be lowered slightly to ensure the hole in the breakback arm locates on its parked pin.

   Secure the breakback arm with the lynch pin that was removed in point 2).

4. Walk around the distributor to the LH side. Remove the LH breakback arm from its top pivot and locate it in a similar manor to the RH breakback arm in point 3). Secure the breakback arm with the two lynch pins that were removed in point 1). The final assembly should look like the image shown opposite.

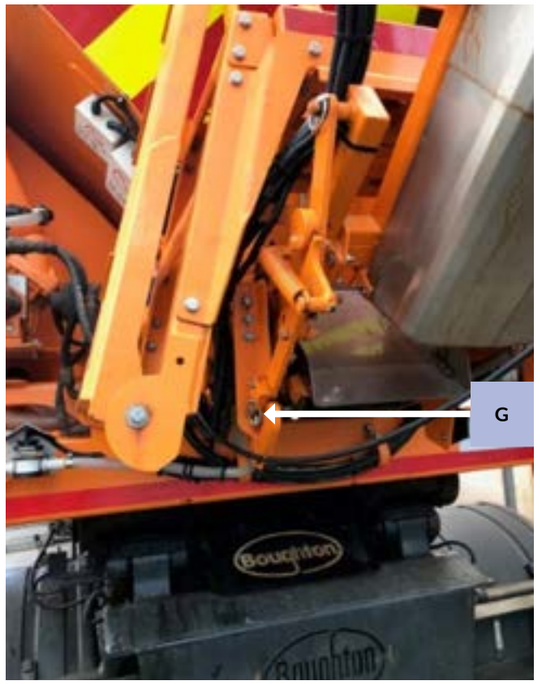
   Finally, check that the hydraulic hoses are not pinched and are free from damage.

To Lower the Distributor

1. Firstly, check that both breakback arms are in place before proceeding.

2. On the LH breakback arm, remove the lynch pin on the park position pin (G) and store nearby. Remove the breakback arm from its parked position and allow the assembly to hang vertically.

   The distributor may need raising slightly with your right hand for the breakback arm to become free.



3. Walk around the distributor and remove the lynch pin from the RH breakback arm assembly park position (H).

   DO NOT STAND UNDER THE DISTRIBUTOR!

   While stood to the RH side of the distributor, raise the distributor slightly with your left hand while removing the breakback arm from its lower park position (H). If excessive force is required to raise the distributor, STOP! This could be a sign of a faulty gas strut. In which case a different lowering procedure will be necessary.

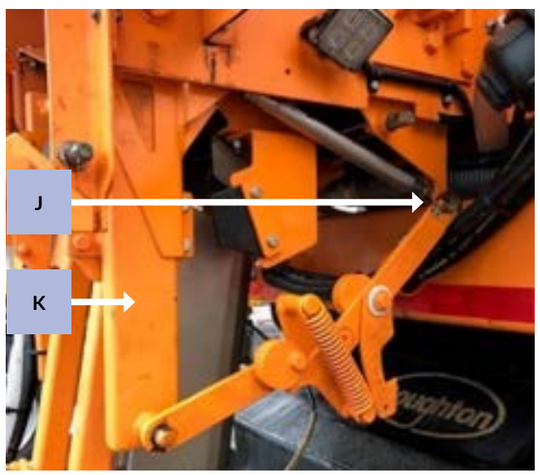
   Once the RH breakback arm is removed, **CAUTION!** The distributor will start to lower. The speed of lowering can easily be controlled until it reaches its neutral position, typically approx. horizontal.

   If the distributor lowers excessively past position shown in (I), this could be a sign of worn gas struts that will need replacing.

4. From the neutral position, the distributor will need to be pushed downwards and forward with your left hand. While raising the RH breakback arm with your right hand and guiding it toward the upper pivot position (J).

   The RH breakback arm will locate onto the upper pivot when the distributor legs (K) are vertical.

   Secure with the lynch pin removed in point 2.



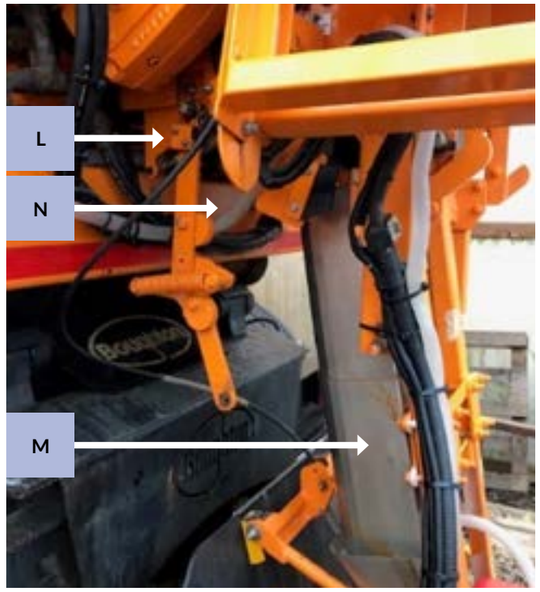
5. To locate the LH breakback arm firstly remove the lower lynch pin and completely remove the LH breakback arm assembly.

   Then reconnect it onto the upper pivot (L), securing it with the lynch pin that was removed in point 1.

   Then rotate the breakback arm and connect it onto the lower pivot (M), again securing with the lynch pin.

   The safety plunger will retract on the hydraulic valve (N), allowing hydraulic supply to the distributor.

   Finally, check the distributor for any signs of damage.



7.4.7 Mounting the Spreader Body

1. Mount the body onto the chassis in the reverse procedure to the above instructions ensuring the distributor is secured in the raised position prior to mounting.

2. After mounting the body, carefully remove the distributor retaining pins and sidebars, which will allow the distributor to be lowered; reconnect the sidebars to hold the distributor in the working position, and refit the retaining pins.

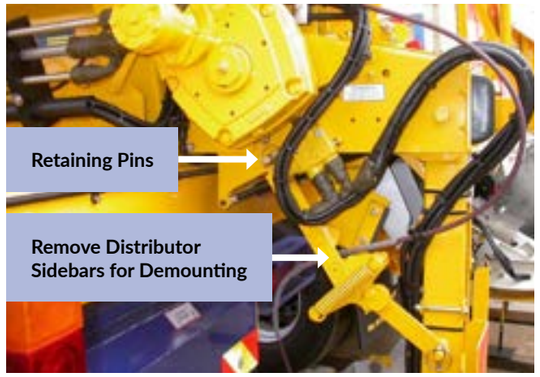
3. Connect the hydraulic hoses from the chassis dummy connectors to the couplings on the spreader hook-lift subframe.

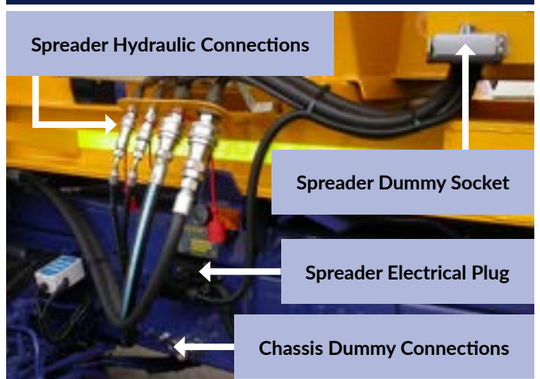
4. Connect the spreader electrical supply plug to the chassis socket. If applicable, connect the plug for the additional rear lights to the tow electrics socket.

5. Locate the hydraulic supply change over valve and move to the SPREADER position.

It is now safe to use the spreader.

Distributor in Position for Normal Operation





7.5 RO-RO (REMOVABLE GRITTER)

IMPORTANT NOTE

Only mount and demount bodies on firm level ground. Ensure bodies are unladen. Vehicle platform height must be within minimum and maximum specified for the body size/capacity.

7.5.1 Mounting Body (RoRo Model Only)

1. Reverse slowly towards the centre front of the Spreader. Raise the tipper platform at an angle of approximately 30°. Continue reversing carefully under the front edge of the demount frame, allowing the front rollers to roll up the tipper platform. The front legs will be lifted clear of the ground, stop the vehicle when it is felt to contact the front of the demount leg assembly. When the legs are clear of the ground and the body can be seen safely sat on the chassis, ensure the vehicle is in natural/park, the park brake is applied and the engine is turned off before proceeding to step 2.
2. Connect the safety strap to the tow bar. Remove the two pins on the demount frame which lock the front legs in the forward position. Fit pins in park position.
3. Continue driving back, the front legs will automatically be lifted up to a horizontal position along the side of the demount frame. (The guide rollers at the front of the spreader frame should assist to keep the spreader in the centre of the body). Continue driving back until the rear of the tipper platform is felt to touch the front edge of the rear stop assembly.
4. Lower the tipper body, removing the Spreader weight off the rear legs. The legs can now be lifted to a safe height and locked in position.

   Note: If rear legs obscure the rear lights, the legs must be removed.
5. Hook the ratchet strap end fittings under the rear cross member of the tipper platform and route the strap around the Ro-Ro frame in the slots provided. Tension the ratchet strap to retain body.

   Note: If the tipper rear cross member is box section, it will be necessary to weld on the ratchet locking brackets provided.
6. Connect the front chains and turn buckles to the eyes provided at the front of the tipper body (or use ratchet straps if supplied).
7. If using vehicle hydraulics - connect hydraulic pipes and electric connections to rear of the chassis.
8. If fitted with auxiliary engine – fit controls for in-cab operation as required.

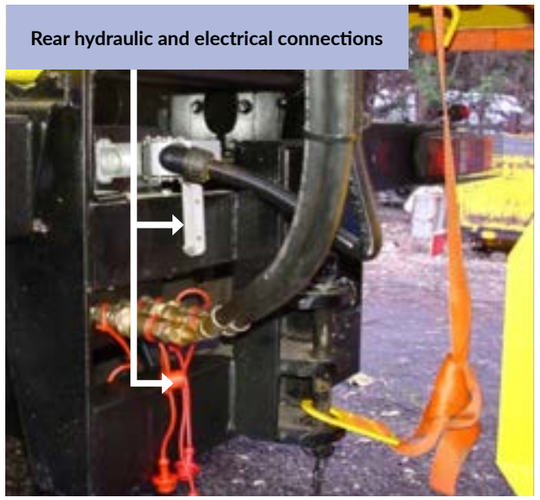
Mounting is now complete.

Pass Strap through Bracket using Wear Sleeve

Demounting the Body

1. Release the body rear retaining ratchet strap and remove.
2. Ensure the safety strap is still fastened to the tow bar.
3. If using vehicle hydraulics - remove hydraulic pipes and electric connections at rear of the chassis, replacing all dust covers.

Rear hydraulic and electrical connections



4. If fitted with auxiliary engine – remove all cab controls as required.
5. Disconnect the two turnbuckles and chains (or ratchet straps if fitted) at the front of the tipper body.
6. Lower the rear leg assemblies and lock in position as close to the ground as possible.
7. Raise the tipper body sufficiently enough to allow the weight of the Demount Body to bear fully on both rear legs. Continue raising the tipper body until the weight is taken on the front rollers of the demount frame.
8. Drive slowly forward watching carefully for the front legs to automatically fall to the vertical position. Stop the vehicle. The safety strap should prevent the spreader becoming detached from the vehicle. Position the front legs and lock in the forward position with pins. Ensure the vehicle is in neutral/park, the park brake is applied and the engine is turned off before proceeding to position the front legs or proceeding to step 8.
9. Release the safety strap, (vehicle may have to be reversed slightly).
10. Continue driving slowly forward until the front legs are resting firmly on the ground.

Demounting is now complete.

Safety Strap Attached to Towbar

8.0 Control Box Error Codes

8.1 CONTROL BOX ERROR CODES

Error S	Spinner feedback error. Check oil in sight glass. Check spinner connected properly hoses & plug to socket, ladder stowed.
Error C	Conveyor feedback error. Check oil in sight glass.
No Salt	No salt flow detected. Check salt sensor probe is clean. Ensure to turn off the vehicle and remove keys from ignition then check if the salt discharge gate/outlet is blocked or the salt is bridged in the body.
Error B	Brine motor feedback error – Turn off the Prewet Operation from the in cab control box.
Low Brine	Low brine
Error A	Auger feedback error. Check oil in sight glass. Check ladder stowed. Check sheet shut properly or nothing in front of body radar/sensors. Start driving, turn the spreader off & back on to reset the auger lockout.

9.0 Health and Safety

9.1 ESSENTIAL HEALTH AND SAFETY POINTS

The following potential hazards apply to any vehicle in the range of vehicles controlled by Spargo Controller.

Health and Safety Potential Hazard	Mitigation
Keep personnel clear of vehicles / bodies when mounting / demounting.	Always ensure the working area is clear and safe.
Ensure all hoses / connections have been removed from chassis prior to demounting.	Inspect the vehicle prior to demounting and check all hoses, electrical connections and brine couplings have been removed.
Ensure the correctly rated supporting legs are used when demounting QCB & ACB bodies.	Refer to section 7.2.4 and 7.3.6 of this manual prior to dismounting vehicle bodies.
Ensure only competent persons operate any vehicle in the Zero C Range.	
Ensure all safety pins and locking pins, catches and clips are engaged / disengaged where necessary.	
Ensure bodies are mounted / demounted on firm level ground.	Inspect ground prior to demounting the vehicle bodies.

10.0 Operation and Maintenance (hints and tips)

All Econ equipment is designed to require the minimum of maintenance, the following sections will help prolong the life of the equipment, whilst improving efficiency during use.

Only allow suitable qualified personnel to operate or maintain the equipment.

10.1 STARTING COLD ENGINES

When starting hydraulic spreading machines from cold, avoid running the vehicle engine above a fast idle speed until a period of approximately 3 minutes has elapsed. This will allow the hydraulic oil to warm up improving the fractional movement of the hydraulic spools, which are essential to accurate proportional control of the machine.

10.2 ENGINE DRIVEN HYDRAULIC PUMPS

If the hydraulically powered spreader is fitted with a vehicle engine driven front mounted pump, it is most likely to be a gear pump with a maximum running speed of 3000rpm. This is the maximum speed at which these pumps should run. Most diesel engines do not exceed this speed, but PETROL engines sometimes run at speeds very much in excess of 3000 rpm, therefore when the vehicle is receiving engine-tuning service, it is essential that the engine speeds are not increased.

DO NOT EXCEED THIS SPEED

10.3 PLOUGHING

Information on plough fitting and operation can be found in the Plough Operation Manual supplied through Econ Engineering.

All new ploughs are now supplied with a transit lock; this prevents the hydraulic ram lowering from the fully raised position due to oil leaking past the seals or loss of hydraulic pressure. When ploughing, the transit lock is held away from the ram by a locating pin and clip provided.

10.4 WASHING DOWN

We recommend that after every period of operation where the stand down time is expected to be for more than a 24 hour period, the complete body and chassis be thoroughly hosed down. Ideally, the front wheels of the vehicle should be slightly raised; this allows water to run out of the rear of the body from 3.11 washing down.

If the salt, being used by the spreader, is treated with an A.B.P. (Agricultural by Product) i.e. Safecote then differing wash down procedures may be considered. These will be provided by the ABP supplier, however failure to clean the conveyor and distributor areas as per our instruction will affect the discharge rate and spread pattern.

Observe Health & Safety regulations when carrying out the above operation. Do not enter the body to wash it down when either the conveyor or distributor are moving.

Do not spray water with a high-pressure hose near the filler cap on the hydraulic tank, or any of the junction boxes for the electrical wiring.

Econ recommend that the conveyor and distributor bearings be lightly lubricated before and after washing down to eliminate the possibility of brine entering the bearings.

Commence washing down by starting at the hopper and washing down through the conveyor assembly, then onto the chassis and distributor. It is recommended that the auxiliary engine, (if fitted) is kept running during the hosing down operation.

Use high volumes of water rather than high pressure. If at all possible, we recommend the machine be washed down with a warm water wash, this will leave the machine in a drier condition than using a cold water wash.

10.5 CARE AND REPAIR OF PAINTWORK

The life of your machine can be extended if these simple instructions in maintenance of paintwork are used. Damage to paintwork will only occur by abrasion, or accidental damage.

These areas should be cleaned down to bare metal and repainted with 2 coats of epoxy paint, an adhesive undercoat, plus the gloss finish, compatible with the original paint.

10.6 LAYING UP PROCEDURES

Ensure all bearings are greased; all gearboxes and hydraulic systems are topped up to the correct level.

Thoroughly wash the spreader down and ensure that no caked on salt is present, particularly on the idler rollers. Allow the spreader to dry off.

- Touch up all paint work.
- Slacken off the main conveyor belt, by reversing the adjustment procedure.
- Carry out a full service and inspection, checking all hydraulic connections for leaks, hydraulic hoses for deterioration or chafing, and all controls electrical or mechanical for correct operation. Repair or replace faults as necessary.
- If the machine will not be under cover, ensure that the conveyor belt is not exposed to direct sunlight.
- Under these circumstances we would recommend fitting an optional PVC loading screen cover for the top of the hopper, these are available from our service parts department.

If you require any further assistance in the maintenance of this machine please contact:

SERVICE DEPARTMENT
Econ Engineering Limited
Boroughbridge Road
RIPON
North Yorkshire
HG4 1UE

Telephone No: **01765 605321**

Facsimile No: **01765 607487**

Email: **sales@econeng.co.uk**

11.0 Hydraulic System

11.1 INTRODUCTION

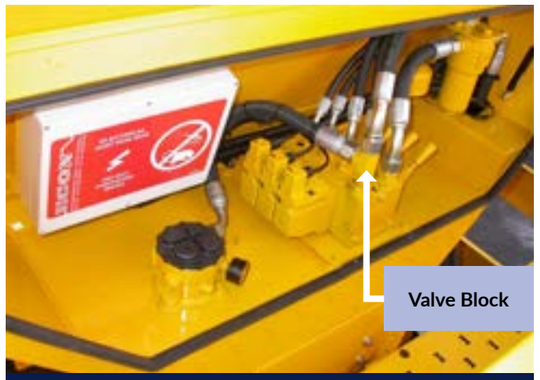
Zero C spreaders are fitted with a hydraulic drive system; this may be powered directly from a vehicle engine driven PTO or an auxiliary engine with close-coupled pump. All machines are fitted with an open circuit type hydraulic system.

The hydraulic system should be inspected regularly for correct operation and to locate any faults, paying particular attention to the hoses on older equipment, which may become cracked with age.

11.2 HYDRAULIC OIL

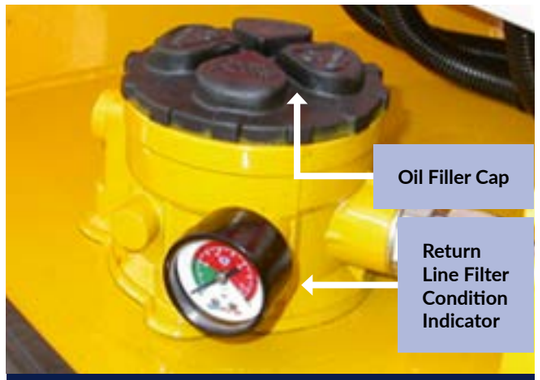
In production, the hydraulic system is flushed then filled with clean filtered hydraulic oil ATF grade.

The hydraulic oil should be changed annually. Correct oil level should be maintained no higher than in the centre of the sight gauge when cold as shown below. Exercise care when filling and, remove any spilt fluid. Hydraulic oil should be checked with the vehicle on level. Ground with snowplough lowered if fitted.

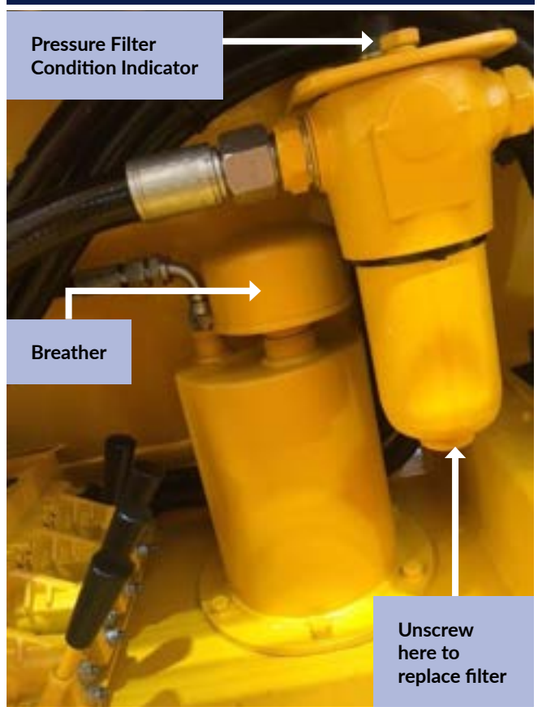


Hydraulic Oil Tank Compartment

Correct Oil Level when in Centre of Sight Gauge



Oil Filler Housing & Return Line Filter



Pressure Line Filter

11.3 RETURN LINE FILTER

The hydraulic oil tank is situated in the compartment at the front of the hopper, and the return line filter is fitted within the oil filler neck. The filter is of the disposal type, and should be changed after the first 50 hours use and thereafter every 500 hours, unless there is a component failure, oil contamination, or the filter condition indicator gauge is in the RED zone.

To change the filter, ensure the engine is not running. First remove the oil filler cap together with the spring. There are 2 plastic lugs moulded into the top of the filter to assist in removal. After refitting/replacing the filter, always ensure the spring is replaced between top of filter and underside of filler cap to prevent unfiltered oil returning to the tank.

11.4 PRESSURE LINE FILTER

The pressure line filter is fitted within the front compartment and should be changed at the same intervals as the return line filter. There is a built in indicator on top of the housing to assist in the condition of the filter.

To change the filter, unscrew the filter bowl using the hexagon moulded into the base.

11.5 BREATHER

The breather canister incorporates a filter. Under normal operation the filter should not require replacement. If the oil tank is over filled with oil, the filter may become contaminated and require renewal.

11.6 PRESSURE RELIEF VALVE

The main pressure relief valve is fitted to the inlet section of the valve block, situated on the hydraulic oil tank. This fully protects the system and is factory set and should not be adjusted under any circumstances except in accordance with the procedures listed below. Any adjustments other than by Econ Service Engineers will invalidate the warranty.

When fault finding on any hydraulic system it is essential that a pressure gauge is fitted as close as possible to the pump. The gauge should be 'teed' into the pressure line so that pressure readings can be taken for all the functions of the hydraulic system. The following table lists the normal operating and relief valve pressures of the system. On newer vehicles the test point is already located on the valve block inlet section.

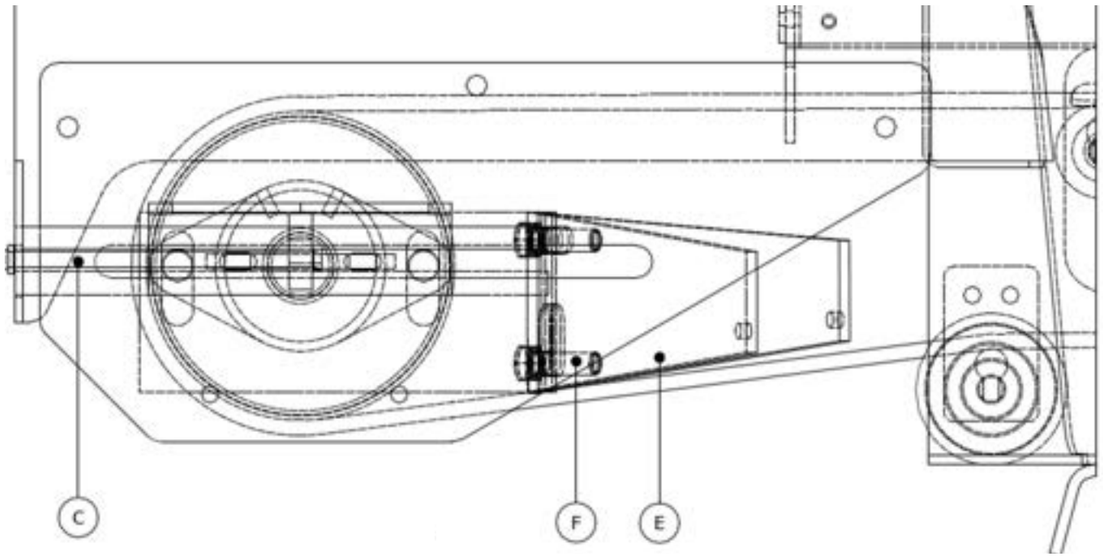
11.7 PRESSURE SETTINGS

No Load Running	40bar (600psi)
Normal Running	48bar (700psi)
Relief Valve Setting	121bar (1750psi)

12.0 Maintenance

12.1 CONVEYOR BELT – (TAKE UP END)

The tension of the conveyor belt can be adjusted by the steel adjuster screws C.



IMPORTANT NOTE
Both sides must be adjusted equally.

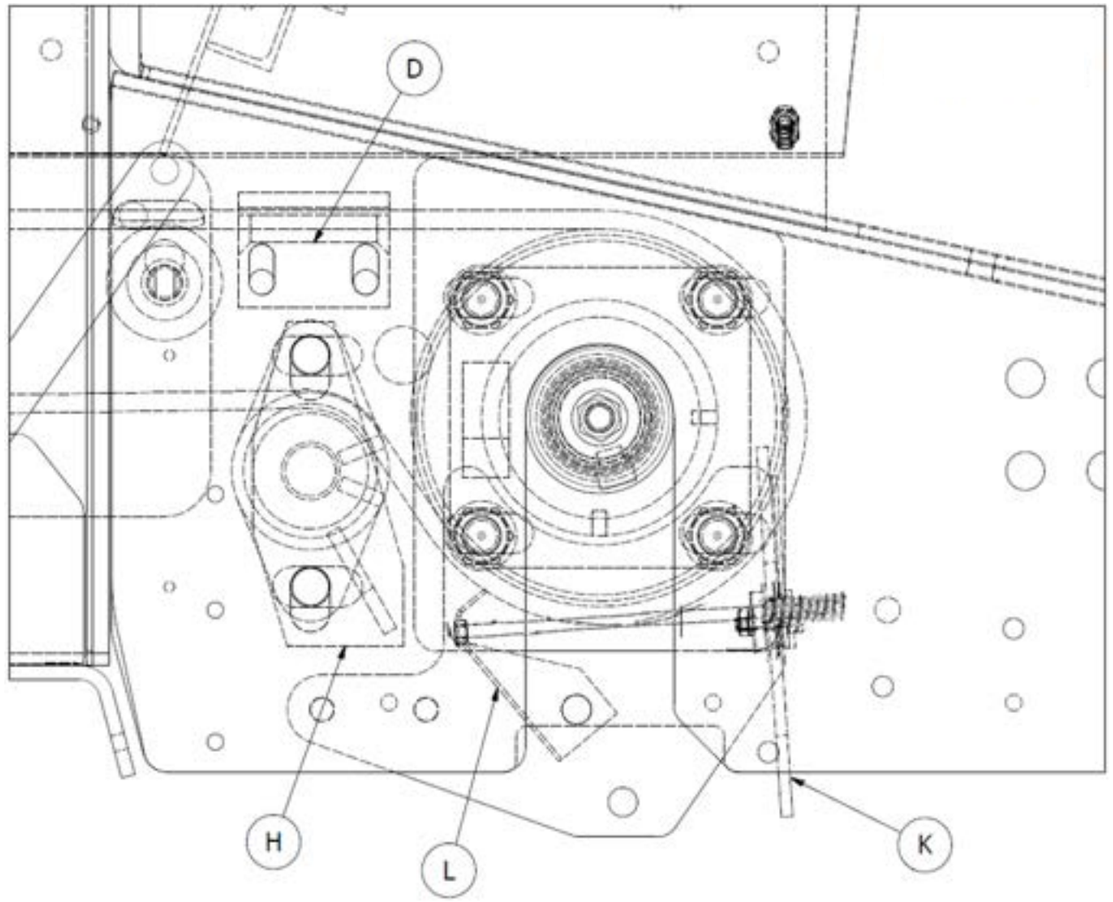
The tracking of the belt is by the crowned rollers, which are assisted by the guide blocks D (see below). The adjuster screws will affect the belt tracking, and after adjustment the tracking must be checked so that the belt is central in the groves of the guide blocks.

Belt scraper E should keep the inside of the belt clean. Adjust at nuts F according to the scraper type, do not adjust too hard as to cause over deflection.

12.2 OUTSIDE BELT SCRAPERS – (DRIVE END)

The snub roller H is adjustable upwards to scrape the roller clean.

Rubber scraper K cleans the outside face of the belt initially and the tension spring-loaded stainless steel scraper L further assists in cleaning the outer face of the belt.



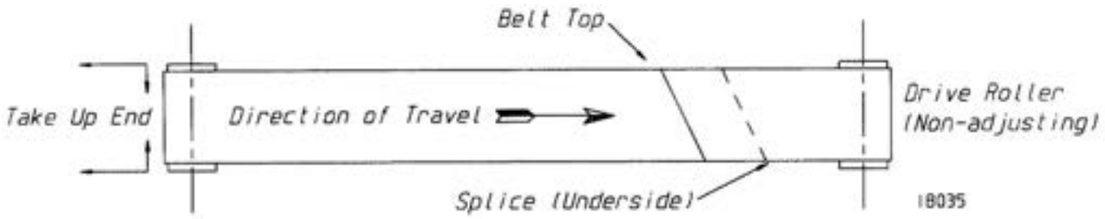
SAFETY FIRST
Do not make adjustments with the machine running

12.3 RE-TRACKING THE CONVEYOR BELT

Adjust the take up roller bearings to bring back to parallel running.

Adjusting one side of the take up roller backwards whilst keeping the other side fixed will cause the belt to move away from the side being adjusted.

Further adjustment to cut out sideways tracking of the belt can be made by moving the adjusting plate (and hence drive roller) at the right hand side drive end. This entails loosening the bearing bolts on this side only.



12.4 REMOVING THE CONVEYOR BELT

Econ was the first company to pioneer the detachable 'Cassette' type of conveyor assembly, which makes replacement of the conveyor belt simple and easy on Zero C machines. Econ have advanced even further in simplifying this procedure which should be carried out as follows:

12.4.1 Operation

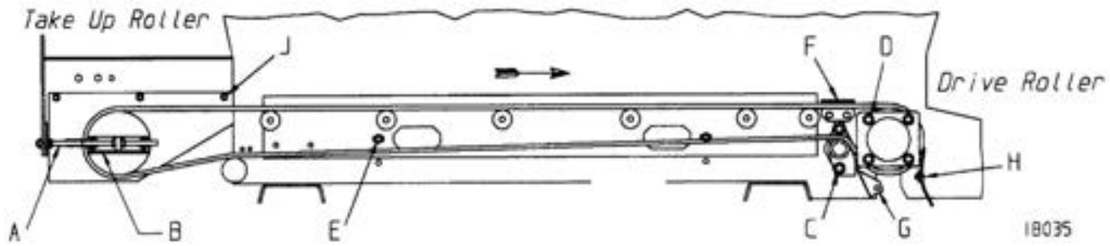
- First, disconnect the hydraulic hoses to the distributor, together with the distributor locking bars.
- Disconnect all wiring going to the distributor.
- Disconnect the remote spread operating cable from the lower chute.
- Remove the distributor by first supporting on a jack and removing the 2 bolts from the distributor locking bars.
- Remove the upper salt chute together with the mounting brackets from the rear of the hopper adjacent to the conveyor.
- Disconnect the hydraulic hoses to the drive in the primary gearbox mounted on the conveyor drive roller. Make sure that adequate clean plugs are placed on the motor fitting and on the hose ends.

Removing the Conveyor Belt Contd.

- Slacken off belt tension and remove adjuster screws A.
- Remove both brackets B, and bolts J (one side only). Lower, move towards rear and slide out sideways the complete take up roller assembly with the roller bearings. This will then give the required amount of slack belt.
- Remove the 4 bolts C, and lower out the snub roller and scraper with roller bearings.
- Draw the loose conveyor belt through to the drive end.
- Remove the 8 bolts D on the drive roller bearings, remove adjuster plate, spring loaded scraper G and the rubber end scraper H, then remove the complete gearbox assembly and roller bearings by lowering and drawing out sideways from the belt.
- Remove the wooden belts guides F.
- Remove bolts E from the intermediate roller frame and withdraw the belt and roller frame out from rear, ensuring the spacers from the bolts are retained for replacement.

Check all intermediate roller oil seals, shafts etc, before replacing the conveyor belt by reversing the above procedure.

Do not reverse the belt by turning inside outwards. The thinner rubber skin must be on the contact surface to the rollers and the direction of the belt travel set according to the splice.



Due to corrosion and depending on the age of the machine, it may be found necessary to remove the bolts by cutting them off with a gas cutter, or alternatively with a hammer and chisel. If using a gas cutter ensure that the epoxy paintwork is not damaged.

12.5 Machine Fails to Discharge

- If no power at control box, check fuse.
- Check rear door for blockage and correct operation of automatic door control.
- Check if drive roller is rotating but conveyor belt is stationary, if yes, carry out conveyor belt adjustment.

IMPORTANT NOTE

If the belt is running out of track, before attempting any adjustment, thoroughly clean all belt scrapers, roller scrapers and surfaces of the drive and take up rollers.

Consult Econ Service department for further advice.

ECON

ECON

If you require further information please contact:

ECON Engineering Ltd
Sales, Service and Parts
Boroughbridge Road
Ripon
North Yorkshire
HG4 1UE

T 01765 605321
E sales@econeng.co.uk

econ.uk.com

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