# Edbro

CONFORMS WITH EUROPEAN REGULATIONS CE

# OPERATOR'S MANUAL

## CD SERIES
## DOUBLE ACTING CYLINDER

Edbro

# DECLARATION OF INCORPORATION

**JOST UK LTD**
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**DECLARATION OF INCORPORATION**
**Edbro ISO9001 Registration Number: 4978**

| **Description of Equipment** | | | | | |
|---|---|---|---|---|---|
| CD SERIES CYLINDERS FOR EJECTOR TRAILERS | | | | | |
| CD10 | CD13 | CD15 | CD17 | CD19 | CD22 |

**EQUIPMENT SUPPLY ONLY**

This is to certify that the above equipment complies with all the relevant essential safety requirements of the EC Machinery Directive 2006/42/EC and the national laws and regulations adopting this criteria.

Further information relating to conformity is available upon request.

This equipment must not be put into service until the machinery into which it is incorporated has been declared in conformity with the provisions of the above directive and all the relevant EC directives and appropriately CE marked.

To confirm the suitability of this equipment for the application proposed, email details to applications@jost-world.com.

The quality assurance arrangements adopted in respect of these products have been in accordance with the conditions of our ISO9001 registration.

For technical documentation refer to www.edbro.com or your local sales representative.

Conformity assessment procedure followed: Internal control of production.

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Name of person authorised to sign on behalf of the manufacturer: N Sandbrook

Position: R&D Manager Signature: 

Date: December 2018

**Registered Office: Nelson Street, Bolton, No 283933 United Kingdom**

Record your ejector cylinder details below:
(refer to serial plate)

Cylinder model code:

Cylinder serial number:

Date put into service:

# CONTENTS

# CORRECT USE

Double acting telescopic cylinders are frequently used for compactor or ejector trailers, and for other industrial uses. Their design is inherently prone to problems of pressure or flow intensification that necessitates careful consideration of circuit design, installation and correct use.

This manual is intended as a general guide for safe operation but more specific safety guidance should be supplied by the bodybuilder depending on the nature of the equipment. The bodybuilder can also advise on the maximum load capacity of the equipment, bearing in mind the cylinder capability and road traffic regulations.

***Please note: The machine builder is responsible for providing safe equipment for the intended use, Edbro does not take responsibility for the safe design or use of equipment incorporating these products. The application may demand more specific design or operation advice which we are unable to give.***

# IDENTIFICATION

The cylinder is identified by a serial number plate on the crosshead feed port (see following page)
The serial number and model code should be quoted in all correspondence.

# FAMILIARISATION & INSTALLATION

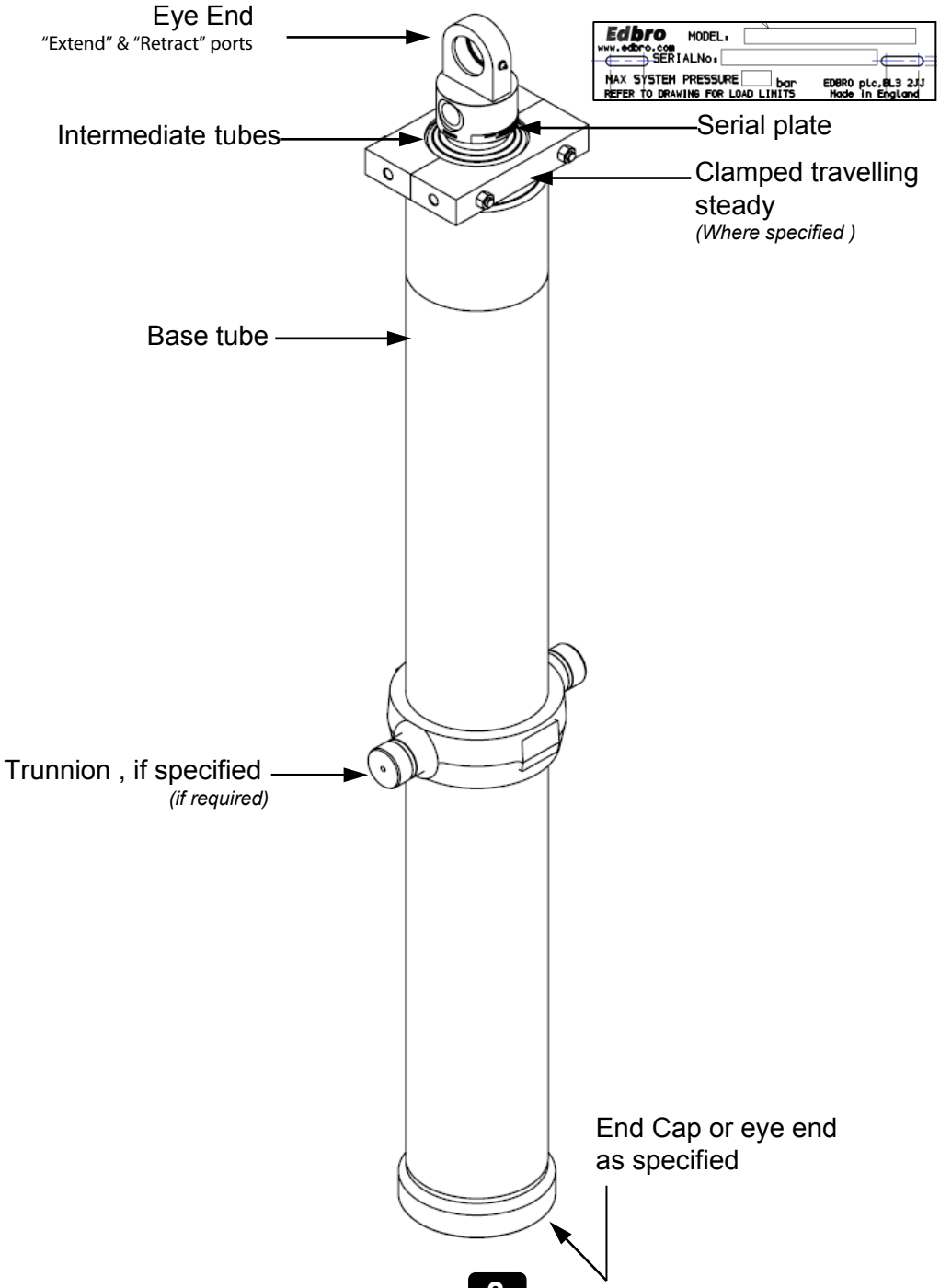
Before using this equipment, familiarize yourself with the key features on the following page. The position of the hydraulic parts may vary depending on specification.

Before putting into service, confirm that the equipment is in good working order check:

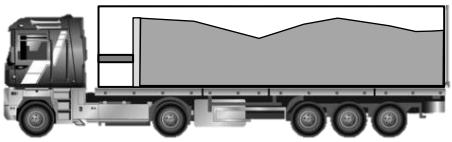
- Cylinders are marked “RETRACT” and “EXTEND” adjacent to their relevant ports.
- Pipes need to be carefully sized according to the expected flow rates. In general they should be as large as possible.
- If QD couplings are used these should be make or break types and should be as large as possible.
- Dirt in the system can cause seizure of the piston rings. A 25micron filter must be fitted. The user must be advised on the recommended filter replacement times.
- If manual handles are fitted to the main valve these should be spring return to centre to ensure that unmanned operation is not possible.
- If a travelling steady is supplied, a central cylinder support beam must be provided to support the cylinder. This must be designed adequately support the moving stage.
- All supports must be correctly aligned and the blade suitably guided so as not to cause any binding up of the cylinder.
- Clearance should be provided to allow side/side and rotational movement so that the cylinder mountings cannot lock up in the event of blade misalignment.

# FAMILIARISATION

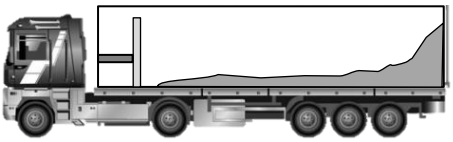
*Typical ejector cylinder shown*



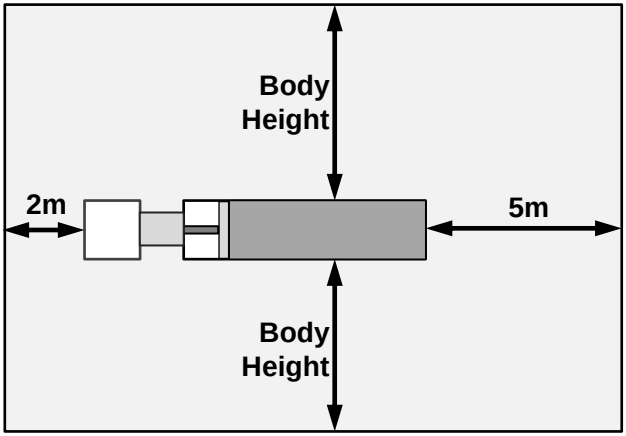
# SAFETY CODE



**Uniform loading**



**Avoid un-even loading**




**Always ensure that no person, animal or other equipment is within this area when operating**

Ejecting is always hazardous and sometimes dangerous, so;

- **D**o not eject until you have read and understood this manual
- **R**emember the cylinder is designed to push; however it is not a compactor
- **A**void accidents by following the safety code.
- **I**t is the responsibility of the operator to ensure that drivers are suitably trained in the use of this equipment.
- **N**ormally the cylinder must only be operated up to a maximum rated pressure shown on the identification plate, also refer to the customer drawing.

**Warning**, not using the appropriate equipment when lifting parts (such as the correct sling for a cylinder body) can cause serious injury and death.

# SAFETY CODE

## ALWAYS

- spread the load evenly in the body
- make sure the danger area is clear of people and obstructions (refer opposite)
- prevent the discharging load from piling up and fouling on the tail door by driving forward
- ensure blade is fully retracted before driving away after ejection is complete

## NEVER

- alter the pressure setting of the relief (overload) valve
- drive off with the blade or the PTO engage, this could damage the equipment
- leave the blade extended overnight
- leave the tractor with the ignition key in
- un-couple the trailer unless the cylinder is retracted and the PTO is 'out'
- compact against a closed cylinder
- load the cylinder in a fully retracted condition

**EXTRA CAUTION**

***Be particularly careful in frosty weather, frost can cause wet loads to stick and discharge unevenly***

# CONTROLS

Ejection and double acting cylinder circuits can be extremely complex. Edbro offer an application service to provide a complete hydraulic solution for use with CD cylinders.

Contact our applications and sales support department via applications@edbro.co.uk

# HOW TO EXTEND THE CYLINDER

Make sure the handbrake is on, the gear lever is in neutral, the control lever is in 'hold/neutral' and the PTO switch is 'out'. Ensure no one is in the danger area.

The major risk with this type of cylinder is out of sequence operation (i.e. tubes extending or retracting in the wrong order). In this case, it is possible to block transfer holes between tubes and cause pressure intensification which may damage one or more stages. The basic rule is **ALWAYS RETRACT BEFORE EXTENDING.**

Before extending the cylinder the operator should check if the blade has moved out of position. If it has, the cylinder should first be retracted before extending.

Then:

- Unlock & open the tail door or grain hatch (taking care to stand clear)
- Return to the cab, start the engine and make sure the air pressure is at the level recommended by the manufacturer
- Depress the clutch* and wait 8 seconds
- Press the safety latch and switch the PTO 'in' (the warning light will come on)
- Release the clutch
- Again make sure no-one is within the danger area (see page **4**)
- Move the control lever to 'eject' and hold in position. Releasing pressure on the lever will stop the blade travel
- Eject the load SMOOTHLY by varying the engine revs but **NEVER EXEED 1100rpm**
  - •Higher engine revs may be possible depending on the PTO / pump model & the gearbox model. Check with your supplier to be sure.
- Prevent the discharging load from piling up and fouling the tail door by driving forward **VERY SLOWLY BY NO MORE THAN A METRE AT A TIME**
- When the blade reaches its maximum distance, release the control lever to 'hold'
- If you need to spread the load, release the handbrake and drive forward VERY SLOWLY.
- SLOWLY move the control lever out of 'hold' towards 'retract'; when the blade is fully home, move the lever back to 'hold'
- Close and lock the tail door
- Engage blade locking clamps if they are not the automatic type
- If the cylinder judders in 'eject', or the tubes operate out of sequence when operating, there may be air in the system – see problem solving section at the rear of the booklet
- **DO NOT DRIVE OFF UNTIL THE BLADE IS FULLY HOME MAKE SURE THAT THE PTO IS DISENGAGED BEFORE DRIVING OFF.** *(If you have an automatic gearbox, the PTO operation will be different. Refer to the PTO installer for specific instructions.)*

⚠ **Warning :** Maximum engine revs therfore pump revs & flow should be limited by the application in the first instance & then by the limit of the pump & the suction line size used. Excess speed can cause damage to the pump & gearbox. Refer to edbro for support & advice on maximum pump speeds.

# HOW TO RETRACT THE CYLINDER

Make sure the handbrake is on, the gear lever is in neutral, the control lever is in ‘hold/neutral’ and the PTO switch is ‘out’.

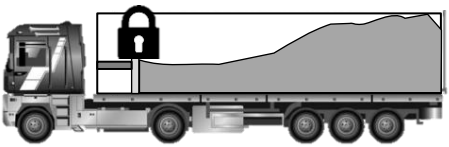
Your Edbro cylinder works best if the vehicle is fitted with matching Edbro hydraulics (PTO, pump, valves, oil tank, pipes and controls).

- The engine speed must be kept low particularly on retract. A faster speed may not improve cycle times and could damage the system. This can cause the cylinder to lock up between stages subsequently.

- Back packing against the blade either with a static compactor or with a digger to free a stuck load when the cylinder is partially extended is likely to generate high annulus pressures and could cause a pressure failure.

# WHEN DRIVING

***When UNLADEN ensure the blade is restrained by a blade lock mechanism***



***When LOADING the blade should be fully retracted and locked to prevent any drift of the blade.***

# MAINTENANCE

**Checks to the cylinder should be carried out at the same time as the trailer body and should include a series of checkpoints**

**WEEKLY**

Make sure the blade is fully retracted, the handbrake is on and the engine is switched off. Then top up the oil in the tank to dipstick level with clean hydraulic oil (refer page 17).

Use a grease gun to lubricate the points shown in the inset diagrams on pages 15 or 16 with a good quality, multipurpose grease.

**MONTHLY**

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Replace any worn or damaged flexible pipes.

Make sure all flexible pipes are secured to the chassis and are not hanging loose.

Check and tell your Edbro service dealer if:

- any ram tube is damaged
- the ram trunnion arms are showing high wear
- crosshead bearing(s) are loose and worn
- oil is leaking from the ram tubes, valves, PTO, pump or flexible pipes
- air is leaking from the air pipes
- air is leaking continuously from the controls

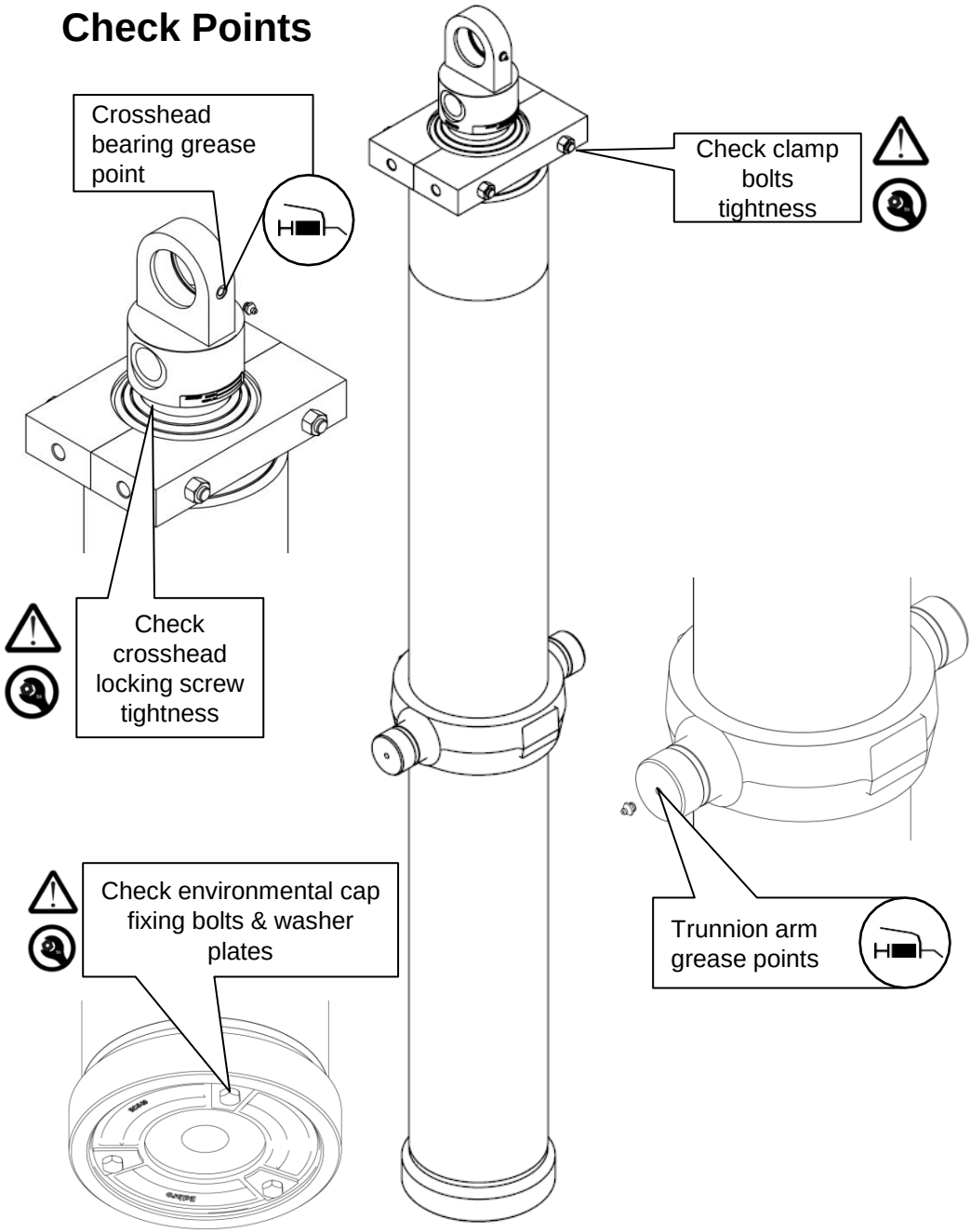
**THREE MONTHLY**

Use the relevant spanners to check the tightness of fixing

**YEARLY** (more often in dusty or dirty conditions)

Carry out a whole assembly inspection including the above items, but also include an oil change, replacement oil filters, and seals if necessary.

# Check Points



# OIL AND TANK FILLING

Dirty oil is the enemy of a hydraulic system. The cleaner the oil, the more efficient the cylinder's operation and the longer it's life. So always use clean hydraulic oil for topping up or changing the oil in the tank.

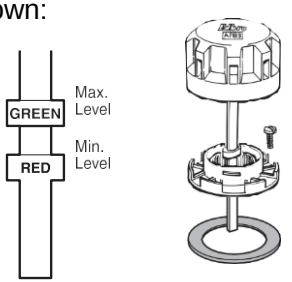
Use oil to specification ISO6734/4 HM32 for temperatures between -20°C to +30°C. Typical suitable trade names are:

| | |
|---|---|
| CASTROL | AWS32 |
| ESSO | VG32 |
| GULF | HYDRASIL32 |
| MOBIL | DTE24 |
| SHELL | TELLUS32 |

For other climates seek advice from your local distributor or direct from EDBRO.

Never put used oil in the tank. Never power wash near the breather – ALWAYS use a cloth when cleaning overspills.

To determine the oil level, remove the filler cap and check the level is within the max/min marks as shown:




Drain and refill the tank with clean hydraulic oil.

***Ensure any oil spilled during maintenance or installation is disposed of in an environmentally friendly way,*** **and old oil is disposed of correctly**.

## PROBLEM SOLVING

The following action can be taken without special tools. If unsuccessful, call your nearest Edbro service dealer
(refer to www.edbro.com).

### THE CYLNDER IS JERKY OR SLUGGISH

Air may be trapped in the system. Check oil level and then operate the cylinder to full stroke several times; any air will be dissipated back to the tank.

### THE BLADE WILL NOT EJECT OR RETRACT

Make sure:

- the vehicle air pressure has had enough time to build up (see vehicle operator's manual)
- the oil in the tank is filled to the correct level
- the PTO switch is 'in' and PTO is engaged (oil is circulating)
- the tipper lever is in the 'eject position‘
- The ball valve from the tank is open
- there are no kinks in the oil pipes
- the quickly detachable couplings of the tractor and trailer, where applicable, are clean and screwed together tightly
- no air is leaking from the air pipes
- the blade is not twisted and from any obstructions

# SPARE PARTS & SERVICE

Use only genuine Edbro parts from Edbro service dealers. Refer to the online Dealer Locator at www.edbro.com for a full list of service dealers and distributors.

Always quote the component part number and serial number when ordering parts or seeking advice.

**IT IS THE OPERATOR'S RESPONSIBILITY TO ENSURE THAT ONLY FULLY TRAINED PERSONNEL REPAIR OR SERVICE THIS EQUIPMENT. IF NECESSARY, CONTACT YOUR LOCAL SERVICE AGENT FOR ASSISTANCE**

| Category | Instructions | Weekly | Monthly | Quarterly | Annually |
|---|---|---|---|---|---|
| Oil | Check and re-fill hydraulic oil | ☒ | | | |
| | Replace tank filler breather filter | | ☒ | | ☒ |
| | Drain and refill oil tank with new hydraulic oil | | | | ☒ |
| | Replace oil filter if fitted | | ☒ | | ☒ |
| Hydraulic Couplings / Pipes | Check hose pipe condition, and replace when necessary | ☒ | | | |
| | Check pipes are secured and not hanging loose | ☒ | | | |
| | Check for oil leaks | ☒ | | | |
| | Re-Tighten pipe connections | | ☒ | | |
| Connecting bolts | Tighten fixing bolts for tipper valve, PTO and tank mounting brackets | | | ☒ | |
| | Check condition and re-tighten tank straps | | | ☒ | |

| Category | Instructions | Weekly | Monthly | Quarterly | Annually |
|---|---|---|---|---|---|
| Pneumatic Components | Check for leaks and correct operation | ☒ | | | |
| Pump | Check for leaks, damage and correct operation | ☒ | | | |
| | Check for noisy operation | ☒ | | | |
| PTO | Check for oil leaks, damage and correct operation | ☒ | | | |
| Brackets | Grease articulating joints | ☒ | | | |

☒ In very dusty environments replace the return line filter element and filler-breather elements monthly.

Dirty oil is the enemy of a hydraulic system. The cleaner the oil, the more efficiently the equipment will operate and the longer the life will be. Always use clean hydraulic oil for topping up or changing the oil in the tank.
Please dispose of oil according to local regulations and in an environmentally friendly manner.
Check and tell your Edbro service provider if:

- Oil is leaking from the hydraulic equipment
- Air is leaking from the air pipes
- Air is leaking continuously from the controls

**ADVICE!**
It is recommended that the oil is replaced after the first six months of operation, annually thereafter.

**Warning :**
To ensure the cylinder is adequately protected, the complete hydraulic system must be installed and maintained in accordance with the manufacturer's instruction. Refer to the Hydraulic Wet Kit installation and Operating instruction, online at http://technical.edbro.com

# NOTES

*Notes:*

# PLEASE PUT THIS OPERATOR'S MANUAL IN THE DRIVER'S CAB

Edbro

For a full list of Edbro Service Agents and Distributors, please refer to:
**www.edbro.com**

To view the JOST World network, please refer to:
**www.jost- world.com**

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*Edbro publication - Modified Sep 019. Ref. number E5561 rev 2*

E5561