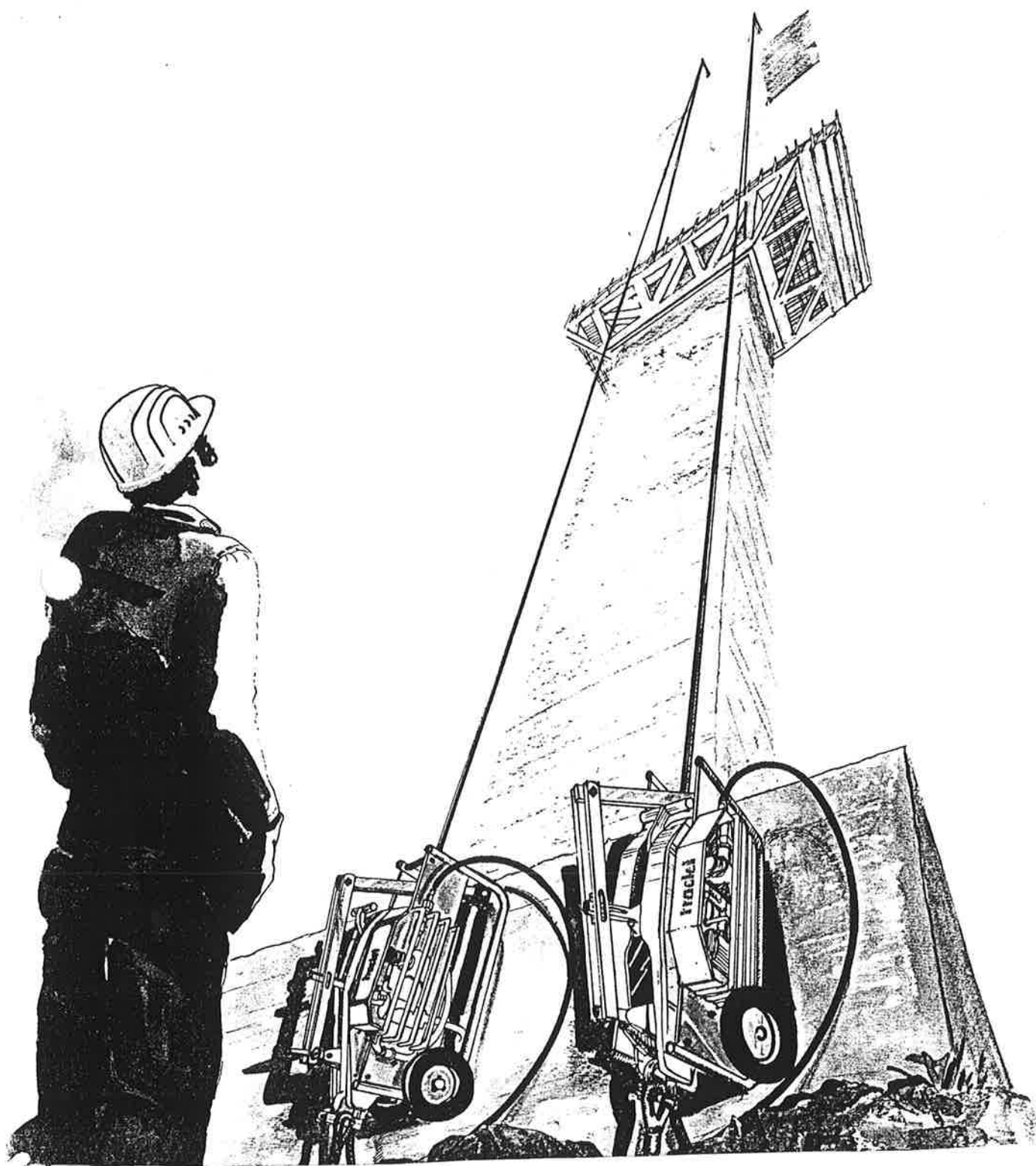


Pneumatically operated winch  
TIRFOR TU 32 P  
Operating and maintenance instructions



 **Tractel** Inc.  
Griphoist® Division

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## 1) General warning

**It is the rigger's and the operators responsibility, and their employer's responsibility, if they operate under an employer's control, to strictly conform to the following warnings.**

**This Tractel machine is a lifting machine from which a load can be suspended. Therefore, serious injury and even death of the operator and others may result from misuse or improper rigging or maintenance of the machine or of its rope and from not following the instructions contained in this manual.**

1. It is imperative, for safety and efficiency, that this manual be read and understood by the rigger and the operator before rigging or operating the TRACTEL machine and that all the instructions contained herein be carefully and strictly followed.
2. Always keep this manual ready for reference by the rigger or the operator at any time. Extra copies of this manual are available from TRACTEL. Should this manual not be available on site of operation in due time, do not fail to get another one BEFORE rigging and operating.
3. Never rig or operate the machine if any warning, operating or capacity instruction, normally attached to the hoist, is obscured or missing. TRACTEL will supply a new one.
4. Before rigging and operating this TRACTEL machine, the rigger and the operator must become aware of all the requirements of applicable federal, state and local safety regulations, specially those relating to the features of the equipment, to its use, maintenance, control and overhaul.
5. Every time the machine is to be rigged or used, check that the machine, wire rope and ancillary equipment are in good condition. Never operate the machine if damage is noted on it or on the wire rope.
6. A careful and regular inspection of the TRACTEL machine and its wire rope is part of the maintenance requirements for safe operation, specially under site conditions. Thorough overhaul servicing is available from the TRACTEL organization.
7. TRACTEL declines any responsibility for the consequences of dismantling or altering the machine or repairing its wire rope, by anyone who is not authorized by TRACTEL. Only TRACTEL parts must be used. Never substitute.
8. TRACTEL assumes no liability for the adequacy of particular installations incorporating one or several TRACTEL machines, beyond the informations given in this manual.
9. Do not hand over this machine for use or rigging to anybody who is not reasonably fit to operate in a responsible manner.
10. The model of TRACTEL machine described in this manuale is designed for power operation. Contact TRACTEL for instructions for manual operations.

**THIS MANUAL MUST NOT TAKEN AS AN OVERALL SURVEY ON PULLING, LIFTING AND PROFESSIONAL OPERATIONS IN WHICH THE TRACTEL MACHINE MAY BE USED. WHENEVER CALCULATIONS AND SPECIFIC RIGGING AND HANDLING OR PROFESSIONAL OPERATION ARE INVOLVED, THE OPERATOR SHOULD BE PROFESSIONALLY TRAINED TO THAT END, PRIOR TO SUCH OCCURENCES.**

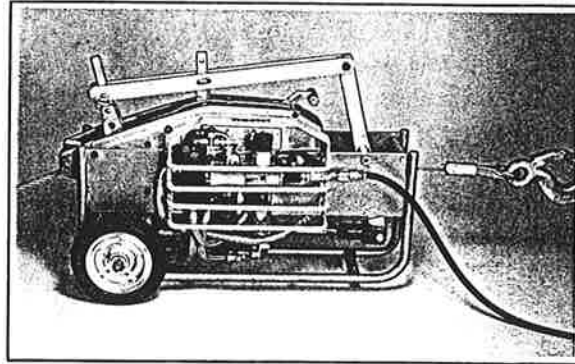
## 2) Description of the TU32 P

The TRACTEL TU 32 P is an air powered hoist for lifting and pulling operations that eliminates manual power.

Its total weight is 200 lbs (90 kg) and its lifting capacity is 7200 lbs (3200 kg).

The TU 32 P is powered by compressed air, a type of energy which is found on work sites. Its efficiency is as follows :

<i>Pressure PSI (bar)</i>	<i>Lifting speed ft (m)/min</i>	<i>Lowering speed ft (m)/mn</i>
85 PSI (6 bars)	2.7 (0.8)	6 (1.8)
100 PSI (7 bars)	3.2 (1.0)	6 (1.8)



The TU 32 P is operated by a pneumatic self-reciprocating ram, and works in two directions pulling or lifting and lowering or reverse without any manual effort. In case of loss of power, the hoist may be manually operated.

Important : for best operation, the TU 32 P requires use of a special TRACTEL wire rope diameter 5/8 " , 4x36 construction, galvanized.

The TU 32 P has been built taking into account a high level of quality, all load bearing pieces have a minimum safety coefficient of 4, hoses have a burst pressure of greater 4 times the maximum working pressure.

It is possible to operate the hoist manually even when the hoist is under full load. To help the user and to ease transport, the TU 32 P is provided with wheels.

The ram is self-reciprocating, the cylinder is in polished brass. The rod is chrome plated and grind finished.

The static and dynamic seals are resistant to mineral oils and other corrosive agents.

The compressed air must be clean and well oiled, to guarantee this a maintenance unit is part of the equipment. The oil is vaporised inside the TU 32 P to ensure lubrication and cooling.

### 3) *General characteristics of TU32 P*

◆ Ram	Diameter 5" (127 mm)
◆ Stroke	8" (200 mm)
◆ Working air pressure	Between 85 and 100 PSI (6 to 7 bars)
◆ Air temperature	-10°C +50°C
◆ Air flow	25 cfm (700 l/mn)
◆ Overall dimensions (940x406x610 mm)	37 x 16 x 24"
◆ Self weight	200 lbs (90 kg)
◆ Maximum working load at 6 bar	7200 lbs (3200 kg)
◆ Safety valve calibrated at	100 PSI (6 bars)

### 4) *How to install and connect the hoist*

4.1. - Fig. 1 : to anchor the hoist with its anchor pin to a fixed point using an appropriate capacity sling.

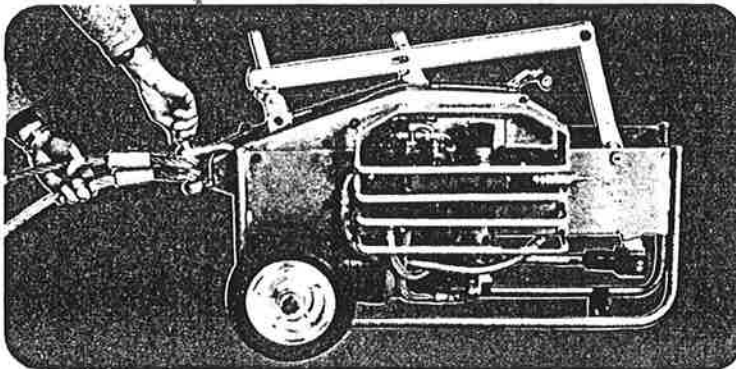


Fig. 1

4.2. - Fig. 2 : installing the wire rope using gloves to protect the hands. Uncoil the wire rope in a straight line between the hoist and the load.

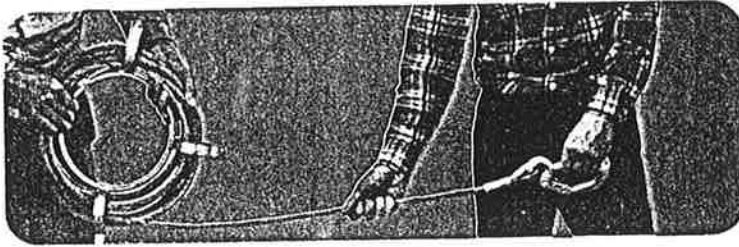


Fig.2

4.3. - Fig. 3 : releasing the jaws

4.3.1. : completely press rope release safety catch (5) and push the rope release lever (4) towards the anchor point.

4.3.2. : release the safety catch (I) and continue to push the rope release lever (II) until it locks into the open position. The jaws are now unlocked.

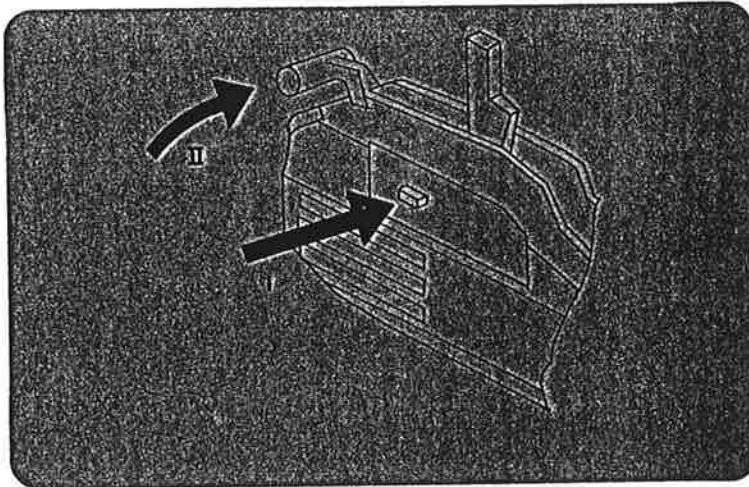


Fig. 3

4.4. insert the wire rope through the rope guide at the end opposite to the anchor pin. Push the wire rope through the machine and if necessary, helping it by manually operating the forward operating lever.

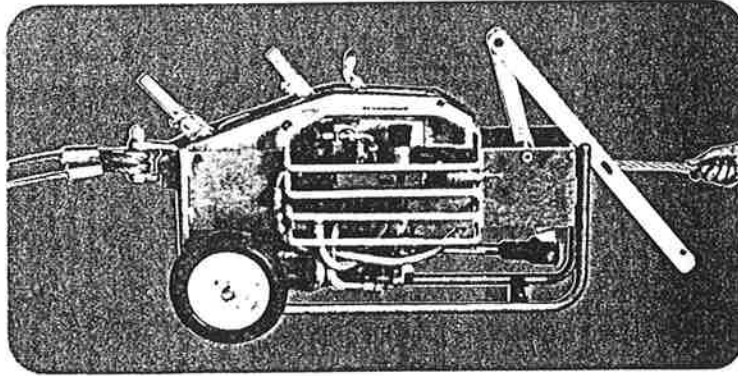


Fig.4

4.5. - Fig. 5 : pull the slack wire rope by gloved hand to the required position and make sure there are no obstructions which could interfere with the wire rope travel.

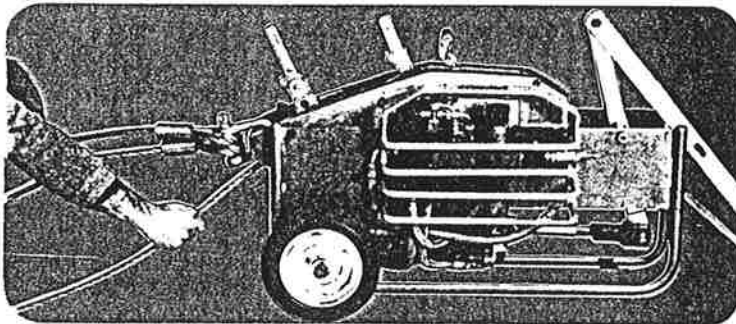


Fig.5

#### 4.6. - Fig. 6 : locking the jaws on the wire rope

4.6.1. : push the rope release lever (I) towards the anchor point.

4.6.2. : press and maintain pressure on the rope release safety catch (II), allowing the release lever to slowly travel back to its original position (III). Release the safety catch. The release lever locks in position under the effects of its spring.

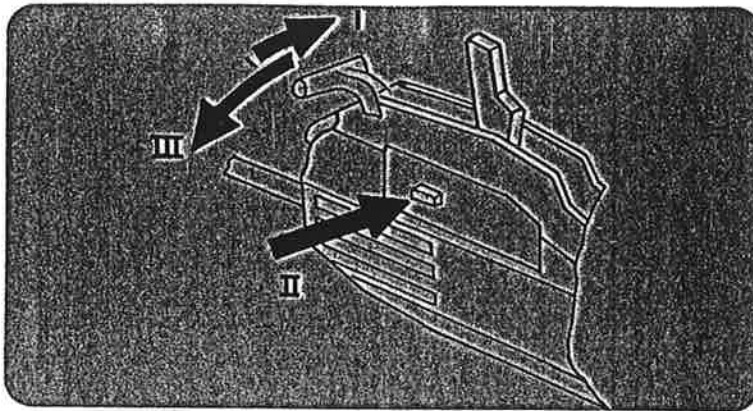
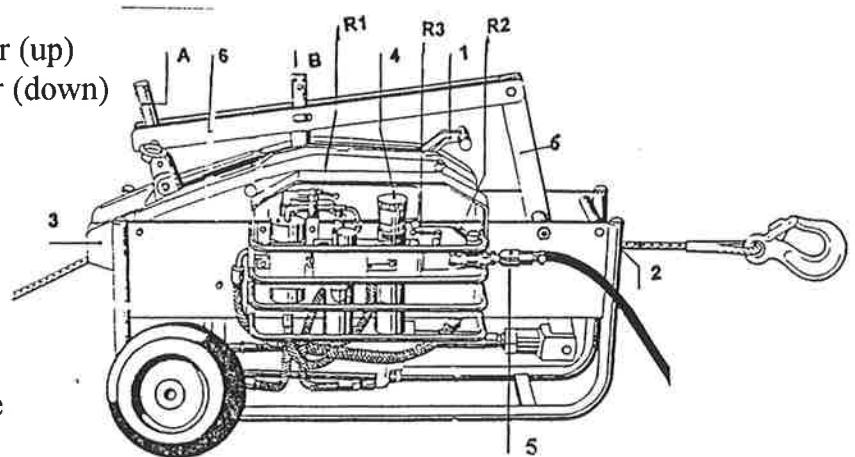


Fig. 6

- A Forward operating lever (up)
- B Reverse operating lever (down)
- R1 ON-OFF-Valve
- R2 Main valve
- R3 Air bleed valve
- 1 Rope release lever
- 2 Wire rope inlet
- 3 Anchor pin
- 4 Pressure release valve
- 5 Connection for air hose
- 6 Operating lever





### 5) *Forward or lifting operation (Up)*

Install the driving rod in working position and attach it with its pin in position A.  
Connect the air circuit.

- 1) Valves R1 - R2 - R3 closed
- 2) Connect air hose (5) and attach safety clips on all hose connection to make sure they do not come apart while under pressure or use
- 3) Open valve R2

The air circuit is now connected and the hoist is ready to operate. Open valve R1 to start the lifting, close valve R1 to stop the lifting.

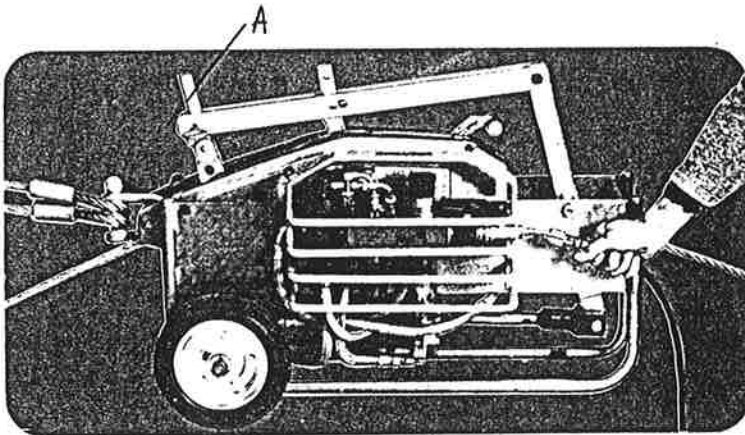
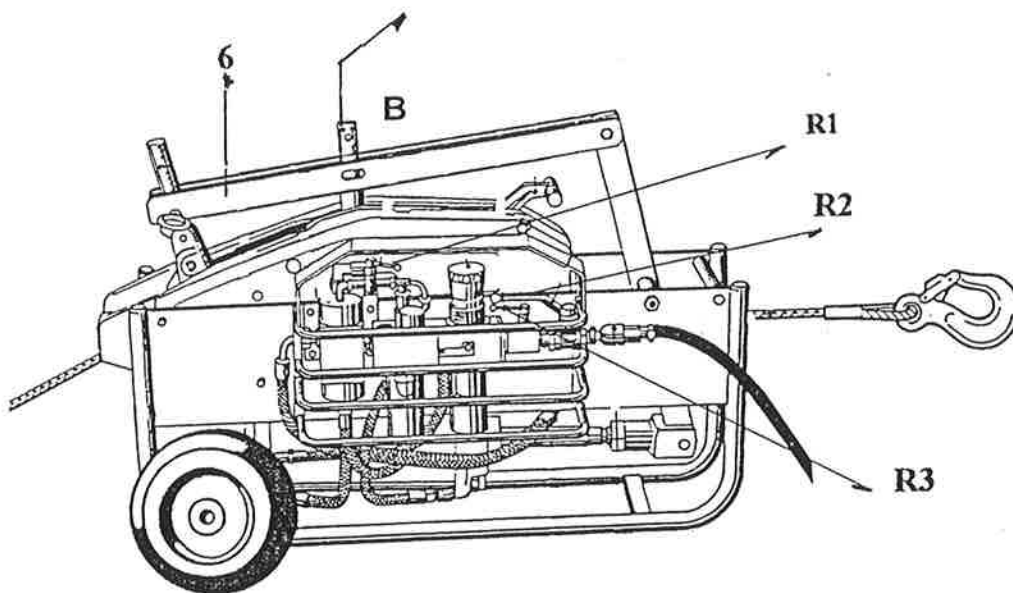



Fig. 7

## 6) *Reverse or lowering operation (Down)*

- 1) Close R2 valve
- 2) Open R3 valve to bleed the air from the circuit. The ram is now free to move and the driving rod (6) may be easily positioned in front of the hole B (3). Remove the pin of the driving rod from position (A) and attach it in position (B). During this operations, the TRACTEL/TIRFOR withstands the full load in a safe manner.
- 3) Close valve R3 and open again main valve R2. To start the lowering, open valve R1, to stop the lowering close valve R1.



**Warning**  **UP or DOWN operation**

The driving rod shall be attached to the « lifting forward » operating lever or to the « lowering-reverse » operating lever depending the direction of travel you want. The operating lever which is not pinned to the driving rod shall be free to move. It is absolutely forbidden to engage in one of the two operating levers the telescopic operating handle when the driving rod is pinned to one of these levers.

**Warning**



If for any reason you have to operate manually the hoist you have to detach the driving rod from the operating levers and swing it out of the way and only then you may engage the telescopic operating handle on one of the two operating levers.

**7) *Removing the wire rope and storage***

Always take the load off the hoist before attempting to release the jaws. To do this, operate the reverse operating lever until there is no tension in the wire rope.

Release the machine and follow the instructions for installing the wire rope in the reverse order. Re-engage the jaws of the machine before putting it into storage.

Store the machine and wire rope in a dry place, away from the effects of the weather. The wire rope should be completely removed from the machine and coiled.

Before reeling the wire rope, it is recommended to inspect it, clean it with a brush and then oil it.

**8) *Rigging arrangements***

Various ways of rigging are shown in Fig. 8.1 and 8.2

The hoist may be anchored to a fix point with the wire rope travelling towards the machine or travel along the wire rope with the load (suspended platform), the wire rope itself anchored to a fix point. Whatever the rigging arrangement, ensure that there are no obstructions around the hoist which could prevent the wire rope and the hoist from operating in a straight line. It is therefore recommended to use a sling of an appropriate capacity between the anchor point and the hoist.

Make sure that the hose follows a straight line and is not kinked which prevents a free air flow.

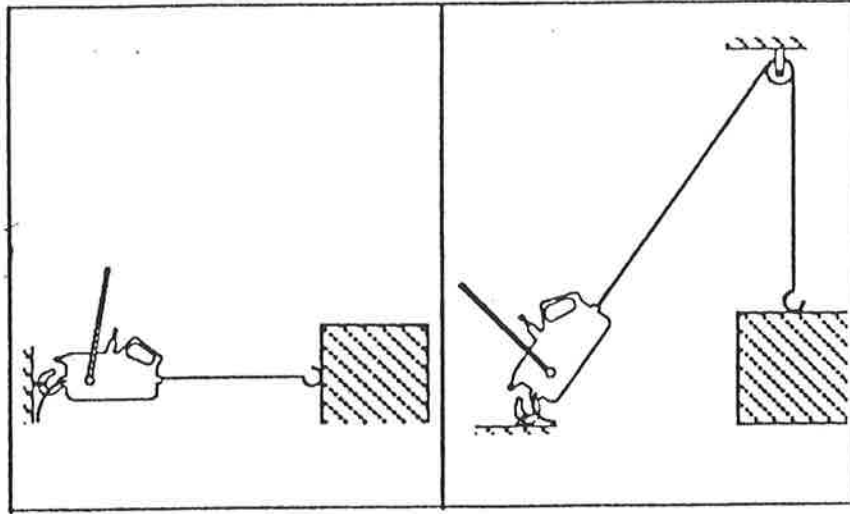
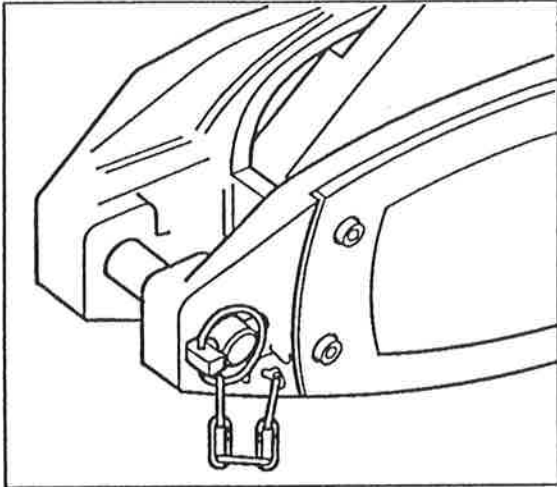
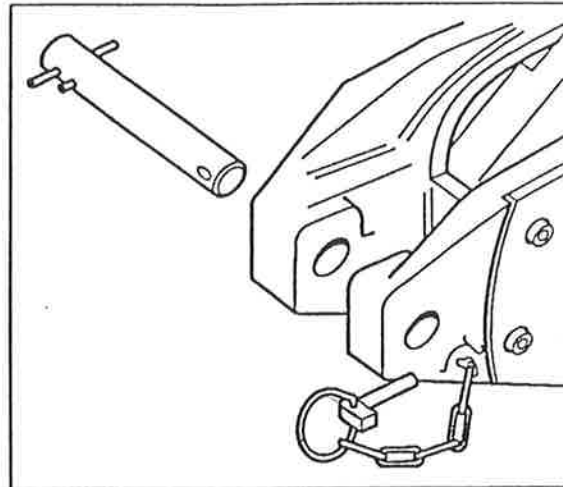


Fig. 8.1

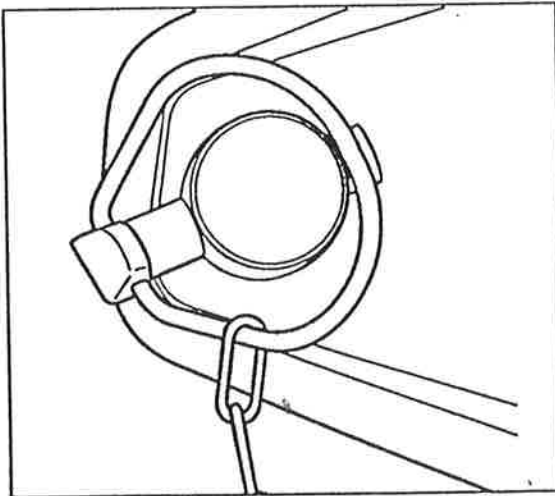
Fig. 8.2



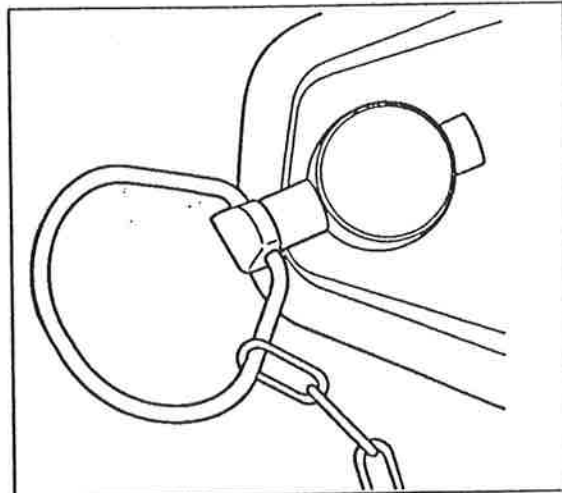
*Anchor pin in position.*



*Anchor pin removed.*



*Spring clip closed.*



*Spring clip open.*

## 9) *Safety devices*

### 9.1. : Rope release safety device

The TU32P is fitted with a « two hands » rope release system which requires deliberate operation by the user to release the wire rope from the hoist (see chapter 4 - Fig. 3 and 6).

### 9.2. : Overload limiting safety devices

When the TU32P is power operated a safety valve limit the pulling or lifting force to 7200 lbs (3300 kg). When the TU32P is manually operated, it incorporates a shear pin. In case of overload (around 12.000 lbs (5400 kg)), the pin fitted to the forward operating lever, shears and prevents further forward or lifting operation. Reverse or lowering operation is still possible to enable the load to be lowered on the ground or the wire rope to be slackened.

Replacing the shear pin : Fig. 9 shows the position of the shear pin. Spare shear pins are in the release lever behind a plastic cap.

Remove the shear pin with a suitable punch. Align the holes of the upper and lower sections of the forward operating lever. Position the spare shear pin and drive it in with a hammer.

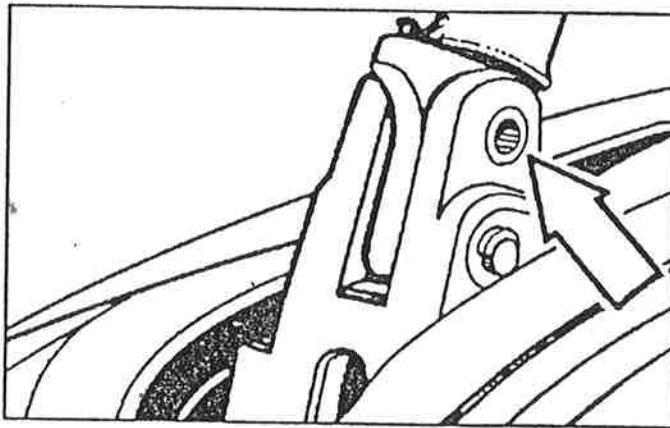


Fig. 9

**Warning**



It is forbidden to replace a pin by anything other than TRACTEL /TIRFOR shear pins for the TU32P model.

Before putting the hoist back into position, ensure that the cause of overloading is removed.

***10) Maintenance instructions***

The compressed air must be clean and well oiled. To guarantee this a maintenance unit is installed with water separator/filter, regulator and oiler directly before the TU32P This precaution protects the ram against malfunction.

By means of the regulator you may also reduce a higher pressure from the supply system (230 psi) from up to 15 bars to the required 85 psi (6 bars) .

Before starting the operation blow through the air supply hose leading from the maintenance unit to the TU32P to avoid impurities entering the ram.

For trouble free working, the supply hose must have a cross section of at least 1/2" ( 12 mm) from air supply.

The machine should be inspected, cleaned and lubricated at regular intervals. Once a year, the machine shall be inspected by an approved TRACTEL repairer.

## 11) WIRE ROPE

To guarantee the safe operation of TIRFOR machines, it is essential to use them exclusively with TIRFOR WIRE ROPE which has been specially designed to meet the requirements of the TIRFOR machine.

One end of the wire rope has an end fitting, such as a safety hook, fitted to a thimble fixed by a metal ferrule (see fig. 10). The other end of the wire rope is fused and tapered (see fig. 11).

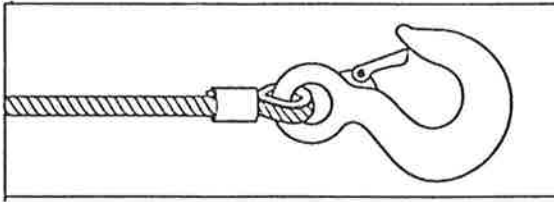


Fig. 10

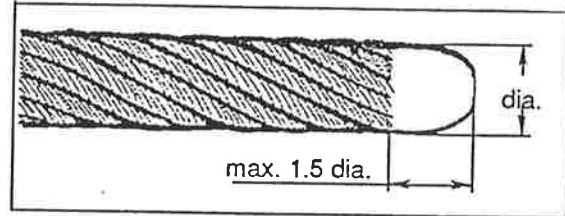


Fig. 11

A wire rope in good condition is a guarantee of safety, to the same extent as a machine in good condition. It is necessary to continuously monitor the state of the wire rope, to clean and oil it with a rag soaked with motor oil.

Oil containing graphite additives or molybdenum disulphide must not be used.

### Visual examination of the wire rope

The wire rope should be examined daily to detect any signs of wear (damage or broken wires, see examples in Fig. 12).

In case of any apparent wear, have the wire rope checked by a competent person. Any wire rope with a reduction from the nominal diameter by more than 10 % should be replaced (see Fig. 13 for the correct method of measuring the diameter of a wire rope).

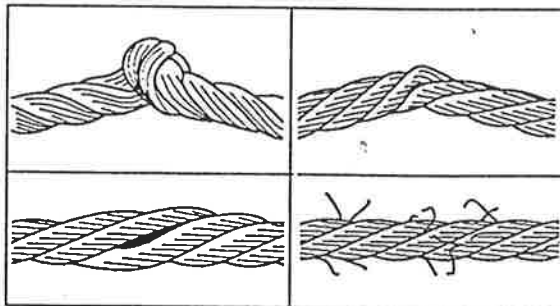


Fig. 12 – Examples of damaged wire rope



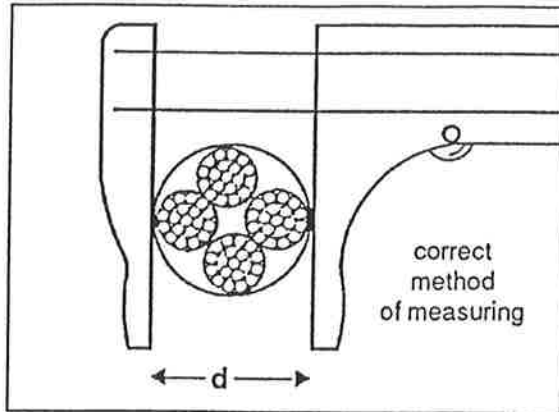


Fig. 13

**IMPORTANT** : It is recommended, specially for lifting applications, to ensure that the length of wire rope is greater than actually required . Allow an extra 3ft (1 m) approximately.

When lifting or lowering loads over long lengths of wire rope, steps should be taken to stop the load from rotating to prevent the wire rope from unlaying.

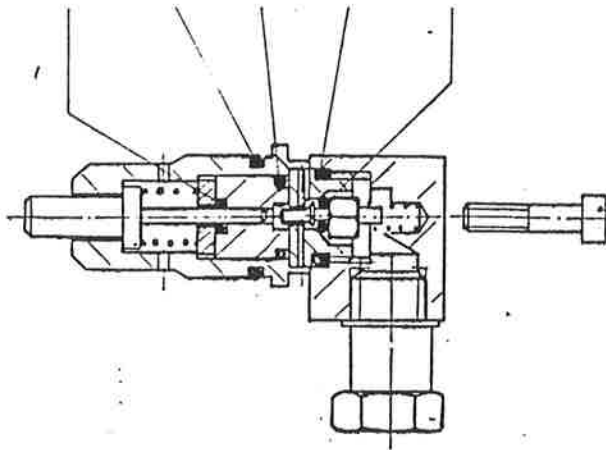
Never allow a tensioned wire rope to rub over sharp edges. The wire rope must only be used with pulleys of an appropriate diameter.

Never expose the wire rope to temperatures beyond 100 degrees C.

Never use wire rope that has been subject to damage such as fire, corrosive chemicals or atmosphere or exposed to electric current .

**12. PNEUMATIC CIRCUIT**

SEAL'S KIT  
Code A000000088



DENOMINAZ.  
COMPL. PARTIC.

BUTTON FITTED ON RAM 125/200 - codice 849735205

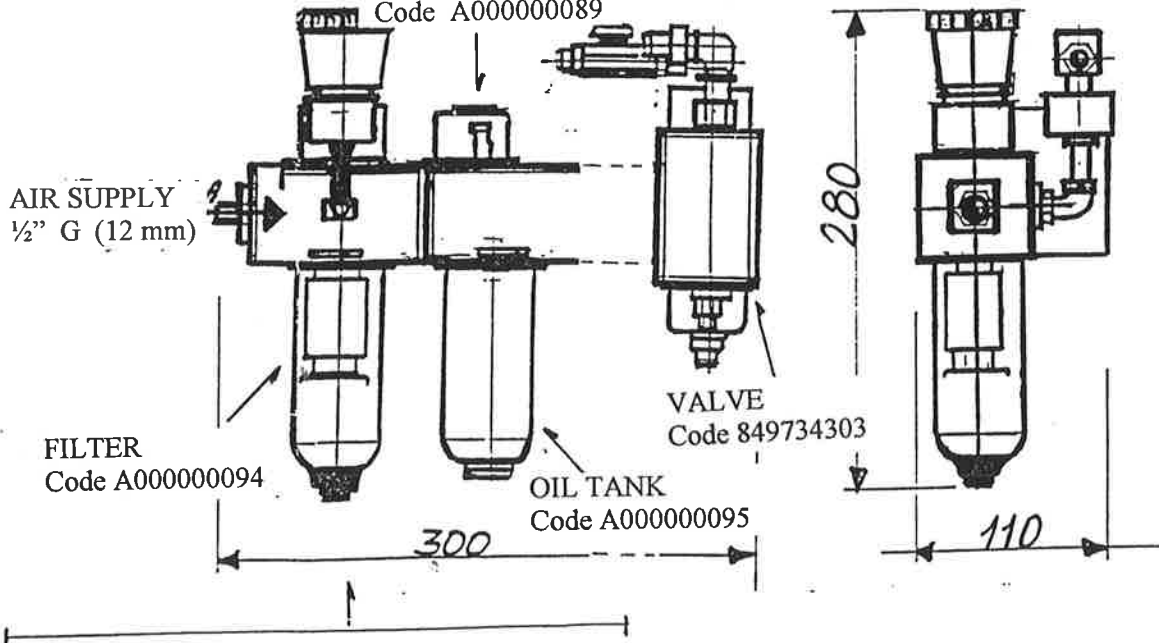
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**MAINTENANCE UNIT OILER, REGULATOR AND FILTER**