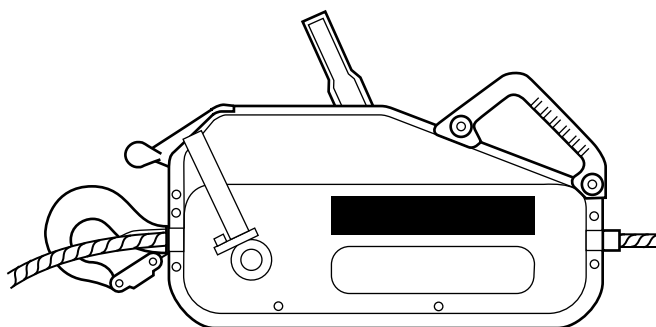


tirfor®

Wire rope hoist with safety device
for lifting personnel

Hoist models	TU6P	with BSA 15 301
	TU12P	with BSA 20 301
	TU24P	with BSA 35 30

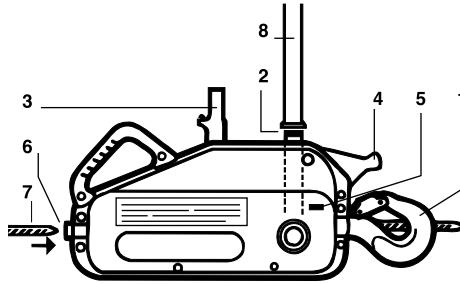


Operating
and
maintenance
instructions

CE equipment in
accordance with
CE directives

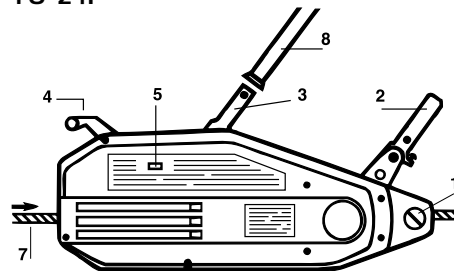
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**TU-6P
TU-12P**



* without carrying handle

TU-24P



- 1. Hook / anchor pin
- 2. Forward operating lever
- 3. Reverse operating lever
- 4. Rope release lever
- 5. Rope release safety catch
- 6. Rope guide
- 7. Wire rope
- 8. Telescopic operating handle

Always concerned to improve the quality of its products, the TRACTEL Group reserves the right to modify the specifications of the equipment described in this manual.

The companies of the TRACTEL Group and their agents or distributors will supply on request descriptive documentation on the full range of TRACTEL products : lifting and pulling machines, permanent and temporary access equipment, safety devices, electronic load indicators, accessories such as blocks, hooks, slings, ground anchors, etc...

The Tractel network is able to supply an after-sales and regular maintenance service. Should you have any queries or require technical assistance, please do not hesitate to contact TRACTEL S.A.S.



Wire rope on reeler



GENERAL WARNING



1. **Before using the TIRFOR hoist and its BLOCSTOP safety device on a temporary suspended platform**, it is essential that users **read this manual and the manual for the temporary suspended platform** and comply with their instructions, in order to ensure safe and efficient operation of the equipment. **This manual must be kept** and made available to all operators. Additional copies may be supplied on request.
2. The TIRFOR hoist and its BLOCSTOP safety device, fitted on a temporary suspended platform, enable the safe performance of operations which require a high level of safety. Consequently, it is important to ensure that any person to whom you assign the operation of this equipment is capable of fulfilling the safety requirements involved in these operations.
3. Never use equipment which is not in apparent good order. **Replace any damaged wire ropes**. Continuously monitor the condition of the equipment and the wire ropes.
4. TRACTEL SA accepts no responsibility for the consequences of dismantling the devices or any modification of the devices or wire ropes not performed under its control, in particular in the event of the replacement of original parts or wire ropes with parts or wire ropes from another source.
5. The models described in this manual **should only be used for lifting personnel on temporary suspended cradles**. The TIRFOR hoist should be used in parallel with and at the same time as the BLOCSTOP safety device.
6. Moreover, these models have been designed for manual operation and **should not be powered by a motor**. TRACTEL SAS has designed special motor-driven models (TU16H and TU32H).
7. The device must never be subjected to a load greater than the working load limit.
8. TIRFOR and BLOCSTOP devices must not be used in explosive atmospheres.
9. **IMPORTANT** : If you are responsible for assigning the equipment to an employee or similar person, ensure that you comply with the applicable health and safety at work regulations (see section 14).
10. The TIRFOR hoist and its BLOCSTOP must be part of a coherent personnel lifting system. Only devices for attaching wire ropes, the wire ropes themselves, cradles and other equipment described in this manual can be included. Any other equipment used with the lifting system must be subject to an CE type-examination by a competent body.

SPECIAL APPLICATIONS

For any special application, please do not hesitate to contact TRACTEL SAS.

For Belgium and Luxembourg, contact SECALT SA.



SPECIFICATIONS

Hoist model		TU6P	TU12P	TU24P
TSA Code		0084 995	0166 995	0323 995
BLOCSTOP model used		15 301	20 301	35 30
TSA Code		0251 912	0253 915	0256914
Working load limit	kg	600	1200	2400
Weight of hoist :				
machine	kg	8,4	18,0	27,0
telescopic handle	kg	1.0	2.4	2.4
Weight of BLOCSTOP :				
device	kg	4,0	6,0	9,7
Dimensions of hoist :				
length	mm	527	660	676
height	mm	265	330	330
width	mm	108	140	156
handle (closed/extended)	mm	51/77	68/119	68/119
Dimensions of BLOCSTOP :				
length	mm	173	22	313
height	mm	287	345	395
width	mm	75	75	90
Distance between wire ropes	mm	95	95	207
TIRFOR original wire rope :				
diameter	mm	8,3	11.5	16.3
guaranteed breaking load	daN	4800	9600	19600
number of strands		5 or 6	5 or 6	5 or 6

1. INTRODUCTION AND DESCRIPTION OF THE EQUIPMENT :

1.1. TIRFOR machine

The TIRFOR machine is a portable hoisting device, through which the wire rope passes. It performs all the functions of a hoist.

Its originality lies in the traction principle used on the wire rope. Instead of being wound round a reeler, as with conventional winches, the wire rope is in a straight line held by two jaws, which act like two hands, pulling it up or helping to lower it. The mechanism automatically grips the wire ropes.

The load is transferred to the operating levers (forward or reverse) via a removable telescopic operating handle.

The equipment is fitted with an anchoring device ie a hook or pin, depending on the model, for quick attachment to the anchorage point on the stirrup of the temporary suspended platform, which must be sufficiently strong.

The TIRFOR hoist complies with standard EN 1808 (08/99) and the amendment of the machinery directive concerning the lifting of personnel.

1.2. BLOCSTOP safety device

The BLOCSTOP safety device, for temporary suspended platforms, is a safety device specially designed for lightweight suspended platforms fitted with two manual hoists.

The BLOCSTOP safety device complies with standard EN 1808 (08/99) and the amendment of the machinery directive concerning the lifting of personnel.

To provide a coherent protection system which prevents the platform from falling, the BLOCSTOP safety device is fitted on the secondary rope, which is identical to, but separate from, the suspension rope.

The secondary rope does not take the load during normal operation. If the suspension rope breaks, the hoist fails or there is a significant incline, the BLOCSTOP and the secondary rope support the platform on the side where the fault has occurred.

The equipment delivered as standard consists of the hoist with its telescopic handle, a BLOCSTOP safety device and two 20 metre equipped wire ropes, fitted with safety hooks and wound on two reelers (any other length of wire ropes can be ordered).

This manual is enclosed with every device, together with the CE declaration of incorporation.

IMPORTANT : The wire ropes for TIRFOR TUxP devices are specially designed to be used with TIRFOR personnel lifting devices and BLOCSTOPs, in accordance with the

special design of this equipment. These wire ropes consist of five or six strands and are different from four-strand wire ropes which must only be used for lifting equipment. TRACTEL SAS cannot guarantee the operational safety of TIRFOR and BLOCSTOP devices used with wire ropes other than the recommended TIRFOR wire ropes. The suspension rope and the secondary rope must be identical.

2. ASSEMBLY LAYOUTS:

2.1. TIRFOR hoist:

For use on an ALTA L or TANGOR platform, the two TU6P hoists are attached to the end stirrups (see the manuals for the ALTA L and TANGOR platforms) using a fastener bolted on the lower bar of the stirrup.

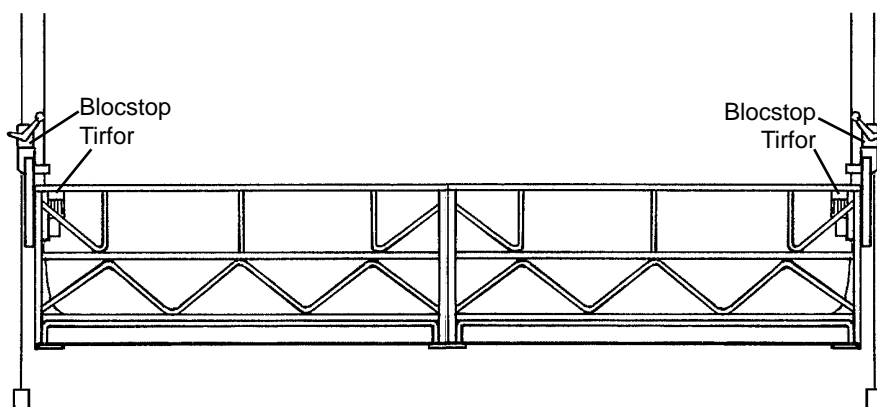
For use on special platforms, the TIRFOR TU6P, TU12P and TU24P hoists must be hooked onto a special support on the personnel lifting device. This support must be strong enough to comply with the working coefficient value recommended in the applicable standards, and at least 4. In Europe, a special platform must be subject to an CE type-approval by a notified body.

N. B.: Whatever the assembly layout, if the device is anchored directly to a fixed point, it must be possible for it to be aligned with the direction of the load or effort with no restriction. To ensure anti-tilt protection, the assembly instructions for the BLOCSTOP BSA 15 301, BSA 20 301 and BSA 35 30 device must be followed.

2.2. BLOCSTOP safety device:

The platform is fitted with two manual hoists, and with a maximum length of 12, 15 or 18 metres, depending on the platform and the stirrups used (see the ALTA L, S or TANGOR "temporary suspended platform" operating manual).

The end stirrups are specially designed for manual hoists. (See the temporary suspended platform manual for how to fit the stirrups). Fix the hoist on each of the stirrups. Fit the BLOCSTOP safety device using its two bolts (H M 12 for BS 15.301 and 20301, H M 22 for BS 35.30).



Fitting to other models of temporary suspended platform:

Fit the BLOCSTOP on its bracket using its two bolts (see previous paragraph). It is important to comply with the distance between the suspension rope and the secondary rope to ensure that the BLOCSTOP operates correctly. This distance ensures that the device operates correctly when the platform tilts and when the secondary rope takes over if the suspension rope breaks. **The two wire ropes must remain parallel.**

▲ WARNING ▲ : All layouts which require a special anchoring device should be inspected by a competent engineer

For any layout other than those described in this manual, please do not hesitate to contact TRACTEL S.A.S. For Belgium and Luxembourg, please contact SECALT SA, or a competent specialist before putting it into operation.

▲ WARNING ▲ : Any layout which requires a calculation of the forces applied must be inspected by a competent engineer, in particular as regards the necessary strength of the fixed points used.

Blocstop model BSA - automatic operation

	Values through axes	a mm
	BSA 15301	100
	BSA 20301	100
	BSA 3530	200

3. INSTALLATION:

N. B. : Wear work gloves to protect your hands when handling the wire ropes.

- Unwind the wire rope, avoiding twisting and forming loops
- Attach the end hooks on the wire ropes to the suspension point at the top

▲ **WARNING** ▲ When performing this operation, you should attach a personal fall arrest device at the top point to ensure that the operator is totally safe while carrying out the work.

To install the wire ropes:

Never let the wire ropes fall down the building from the top point, but

Place a rope down the length of the building

Attach the end hook on the first wire rope to the rope

Pull on the rope, to bring the hook on the wire rope to the height of the fixing point, while the second operator unwinds the wire rope on the storage reeler.

Attach the hook on the wire rope to the fixing point

Repeat this operation for the second wire rope

- Disengage the mechanism of the TIRFOR (see section "Releasing and closing the jaws").
- Place the suspension rope in the BLOCSTOP detection sling so that it is in contact with the detection roller inside the yoke of the sling.
- Insert the wire rope into the hole on the device at the end opposite the anchoring device (hook or pin).
- Push the wire rope through the device, if necessary helping it through by operating the forward lever.
- When the wire rope emerges from the hole on the anchoring device side, pull it through by hand up to the required point.
- Engage the mechanism by operating the clutch handle (see "Releasing and closing the jaws" section).
- Attach the TIRFOR hoist to the stirrup on the platform or to the fixing point provided (see "Anchoring" section), taking care to lock the anchoring device (hook or pin, depending on the model).
- Pull out the telescopic handle until the locking spring comes out of its hole. If necessary rotate the two sections of the handle on one another so that the spring is in line with its hole.

- Push the telescopic handle fully down on the forward lever and turn it to lock it (approximately - turn).

- Operate the handle to tension the suspension rope, the detection roller on the BLOCSTOP must allow the jaws on the safety device to open.

- Insert the secondary rope into the hole in the top of the BLOCSTOP.

- Push the wire rope through the BLOCSTOP.

- When the wire rope comes out of the other side of the device, pull it through by hand to the required point.

- Fit the counterweight on the secondary rope using the wire rope gripper.

- Rewind the wire ropes on their reelers. Wind them carefully without twisting them to avoid forming loops or kinks which would render them unusable.

When these operations have been completed, the device is ready to operate, provided the platform and wire ropes are correctly attached to the hoist (see sections "Anchoring" and "Assembly plan").

4. RELEASING AND CLOSING THE JAWS / INSERTING THE WIRE ROPES :

4.1. TIRFOR hoists:

Each TIRFOR hoist has a handle for releasing the clamping mechanism by an operation which must be only performed when there is no load.

The release lever therefore has two positions: released and engaged.

N.B. It is advisable to set the handle to the engaged position when the device is not in use. This will make the operator to release the device before inserting the wire rope.

4.1.2. TU6P and TU12P :

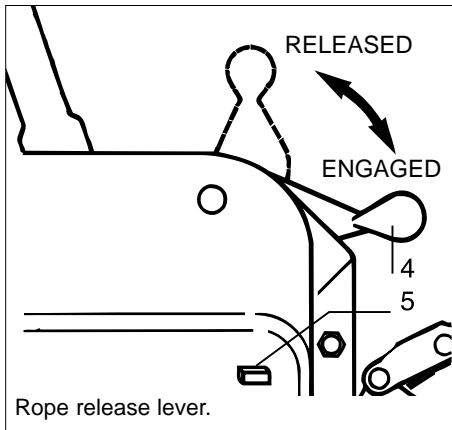
Releasing the jaws:

- Push in the rope release safety catch fully and start lifting the release lever upwards.

- Release the safety catch and continue lifting the release lever until it reaches its locked position. The mechanism is now leashed.

Closing the jaws :

- Lift the release lever as above for a short distance.
- Push in the safeu catch and hold it in while allowing the release lever to slowly travel back to the engaged position by the action of its spring.



4.1.3. TU24P :

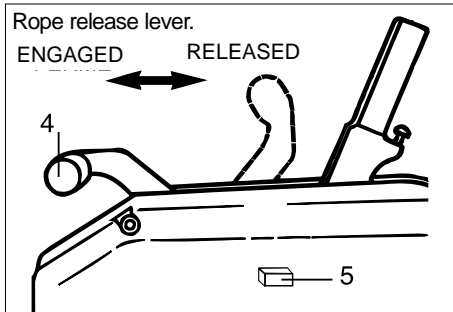
Place the anchorage end of the device against a support :

Releasing the jaws :

- Push in the rope release safety catch fully and start pushing the release lever towards the anchorage end of the device.
- Release the safety catch and continue to push the release lever until it reaches its locked position. The mechanism is now released.

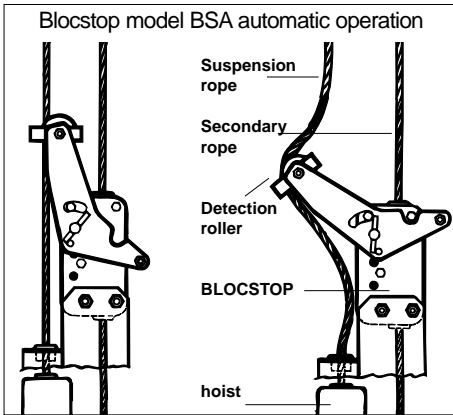
Closing the jaws :

- Push the closing the jaws towards the anchorage end.
- Push in the safety catch and hold it in while allowing the release lever to slowly travel back to the engaged position by the action of its spring.



4.2. BLOCSTOP safety devices

- Place the platform vertically beneath the suspension points.
- Insert the wire rope in the lever of the BLOCSTOP. Insert the wire rope in the hoist (see paragraph 4.1).
- Set the hoist to the "lift" position in order to lift the temporary suspended platform 0.1 to 0.2 m. The suspension rope is mechanically tensioned and the BLOCSTOP is in the open position.
- Manually insert the secondary rope in the BLOCSTOP through the hole in the top of the housing. Push the secondary rope through from one side of the device to the other. Pull on the free end of the wire rope, until it is tensioned. Weight the wire rope by attaching the counterweight (which is approximately 8 kg) using the wire rope gripper, 0.2 m from the ground.



5. ANCHORING:

5.1. TIRFOR machines:

Incorrect anchoring can lead to a serious risk. Before operating the hoist the user should always check that the anchorage point(s) for the device or the wire rope are strong enough to take the force to be applied.

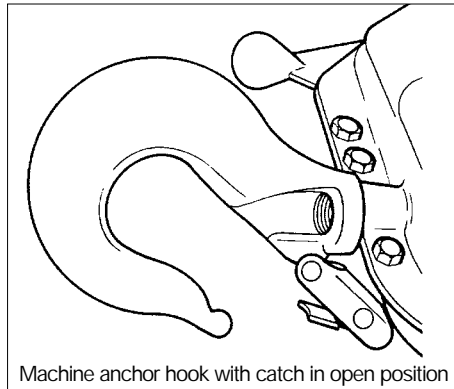
The anchoring device for models TU6P and TU12P is a hook fitted with a safety catch. In all cases, the anchorage must be performed in such a way that the safety catch is in the correct closed position, pressing on the tip of the hook. These recommendations for the hook on the device also apply to the hook on the wire rope.

The TU24P model is attached using a removable anchor pin, which passes through the two lugs on the housing and is locked by a lock pin with a two-position (locked or unlocked) spring clip.

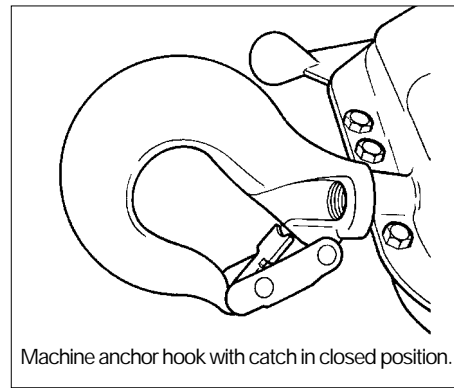
The following operations must be performed to anchor the device (fasten the anchor pin):

- Move the spring clip on the lock pin holding the anchor pin in the unlocked position.
- Remove the lock pin from the anchor pin.
- Pull the anchor pin to release it.
- Position the mounting clip on the platform stirrup between the lugs on the housing.
- Push the anchor pin back in, re-inserting it through the lug from which it was previously removed.
- Replace the lock pin in the hole in the anchor pin end, pushing it fully in.
- Lock the spring clip on the lock pin, ensuring that it is correctly locked on the anchor pin so that the lock pin cannot be removed.

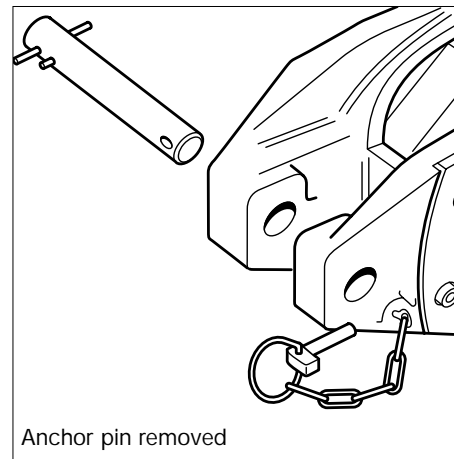
▲ WARNING ▲ : For safety reasons it is essential to check that the anchoring devices (hook or pin) are locked correctly before taking up a load



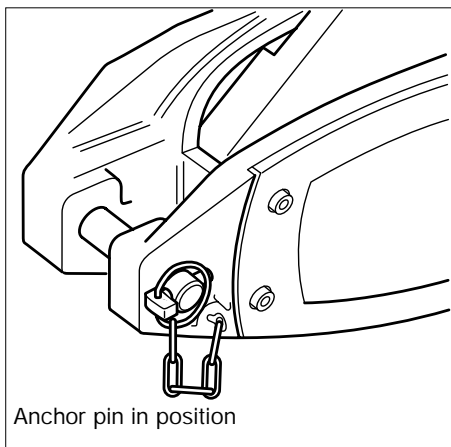
Machine anchor hook with catch in open position



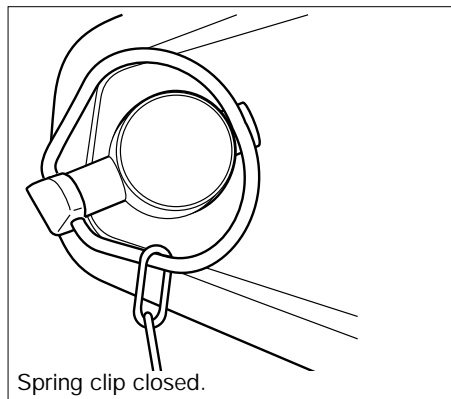
Machine anchor hook with catch in closed position.



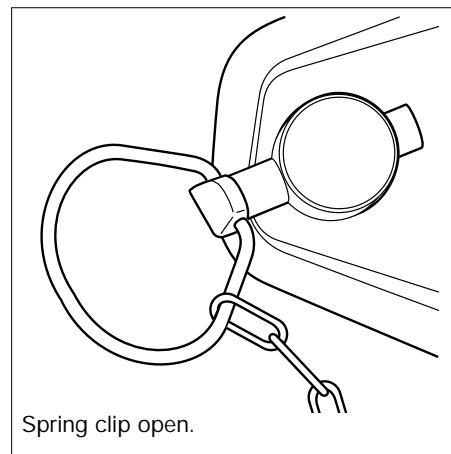
Anchor pin removed



Anchor pin in position



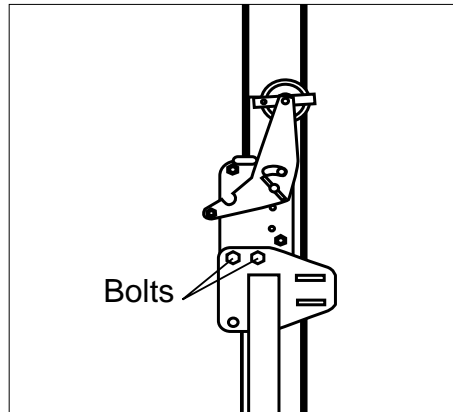
Spring clip closed.



Spring clip open.

5.2. BLOCSTOP safety devices

The BLOCSTOP safety device must be anchored by attaching it to the stirrup on the platform, or to the special device, using two H M 12 bolts for 15.301 and 20.301, and two H M 22 bolts for 35.30.



Wire ropes specially designed by TRACTEL for hoists and for the BLOCSTOP safety device must be used. These wire ropes are fitted with hooks.

The anchoring hooks are fitted with a safety catch. In all cases the equipment must be anchored in such a way that the flap freely returns to the correct closed position, pressing on the tip of the hook.

▲ WARNING ▲ : It is essential for safe operation of the equipment that a check is made to ensure that the anchoring hooks are correctly locked before a load is applied.

6. OPERATION:

6.1. TIRFOR hoists:

The TIRFOR is very simple to operate by moving the telescopic handle with a to and fro movement whose movement can vary according to the preference of the operator.

Any interruption in operation results in the auto-

matic self-clamping of the two jaws on the wire rope, with the load equally distributed and held continuously.

The movements of the forward and reverse levers are double acting, with the load moving each time the lever is moved in either direction.

6.2. BLOCSTOP safety devices:

Once the BLOCSTOP safety devices have been installed they require no action by the operator. They operate automatically during lifting and lowering operations.

▲ WARNING ▲ During lifting operations, always ensure that the secondary rope is sliding freely through the device. If it is not, the jaws must be opened. Tensioning the suspension rope automatically opens the jaws. If they do not open automatically, change the BLOCSTOP, replacing it with an equivalent device which operates correctly, and return the faulty device to TRACTEL S.A.S. for servicing and repair, or send it to an approved repairer.

▲ WARNING ▲ During lowering operations, an immediate check must be carried out to ensure that the secondary rope slides freely through the device. If it does not, a lifting movement must be performed until the suspension rope is tensioned, thus opening the jaws

▲ WARNING ▲ : Operation of the lever on the BLOCSTOP other than by the suspension rope is forbidden.

▲ WARNING ▲ : Keeping the lever on the BLOCSTOP in the "open jaws" position, by any means whatever, is forbidden.

7. TAKING OUT OF OPERATION AND STORAGE

- Bring the platform to a position approximately 0.1 m from the ground.

- Remove the counterweight from the secondary rope.

- Unwind the secondary rope from the storage reeler.

- Extract the secondary rope by hand by pulling it upwards.

- Totally remove the wire rope from the BLOCSTOP.

7.1. TIRFOR hoists:

- All loads must be removed from the device before it is released. Operate the reverse lever until the suspension rope is no longer tensioned (the cradle is resting on the ground).

- Remove the telescopic handle from the reverse lever, first turning it to unlock it.

- Return it to the telescoped position.

- Unwind the wire rope from the reeler.

- Release the device, then carry out the reverse of the procedure for setting the hoist into operation.

- Close the jaws of the device before storing it.

- Store the hoist in a dry area, away from adverse weather conditions.

7.2. BLOCSTOP safety devices:

- Unscrew the two fixing bolts and remove the BLOCSTOP from the stirrup on the platform.

- Place the BLOCSTOP in storage after cleaning and greasing it (see the "Maintenance" section), with the two bolts replaced in the holes in the housing

NOTE : It is advisable to change the brake nuts each time the device is assembled.

7.3. Wire ropes:

- Remove the hooks on the wire ropes from the upper attachment device.

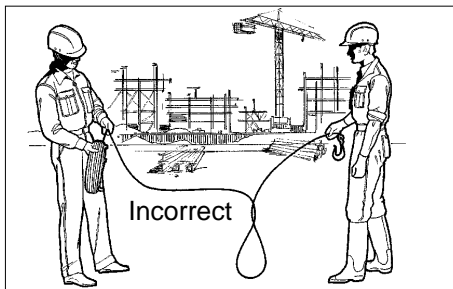
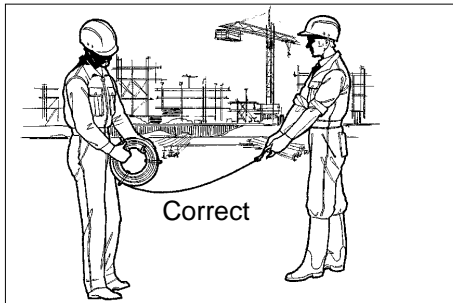
- Attach the hooks to a rope and carefully lower them down the building.

- An operator must receive the suspension and secondary ropes at the bottom and wind them on the wire rope reelers.

- The wire ropes must be totally removed from

the devices and stored on reels.

Before winding them on the reels, it is advisable to inspect them, clean them with a brush and grease them.



8. SAFETY DEVICES:

8.1. TIRFOR hoists:

8.1.1. Overload safety devices:

All models have a system of shear pins. In the event of excessive overload, one or more pins (depending on the model) on the forward lever shear, making it impossible for movement to continue. However it still remains possible to carry out lowering operations using the reverse lever.

8.1.2. Releasing safety device:

Models TU6P, TU12P and TU24P have a "two handed" release system which makes it necessary to perform a deliberate operation to release the device (see section "Releasing and closing the jaws").

8.2. BLOCSTOP safety devices:

Faults are detected by the lever equipped with the detection roller which runs on the suspension rope. When the lever drops downwards, the BLOCSTOP grips onto the secondary rope and prevents the platform from falling. There are four possible causes of faults or incidents which lead to the BLOCSTOP gripping:

- **Breaking** of the suspension rope
- **Failure** of the hoist
- The platform **meeting** an obstacle while being lowered, creating slack on the suspension rope.
- **Tilting** of the platform by more than 14 ° from horizontal.

For the first two faults (**breaking** of the suspension rope and **and hoist failure**), a rescue operation must be organised to evacuate the people on the platform.

For the third incident (**meeting an obstacle**), the operator must mechanically re-tension the suspension rope concerned by moving the hoist upwards and freeing the platform from the obstacle. The BLOCSTOP releases its hold on the secondary rope automatically.

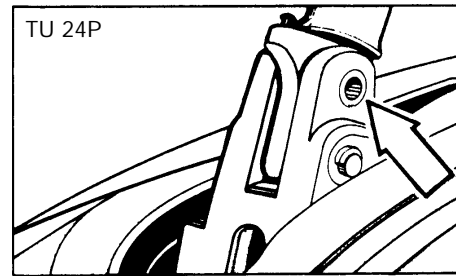
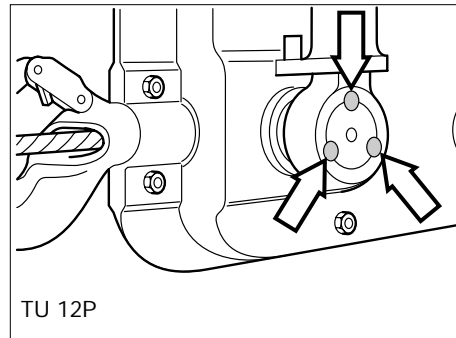
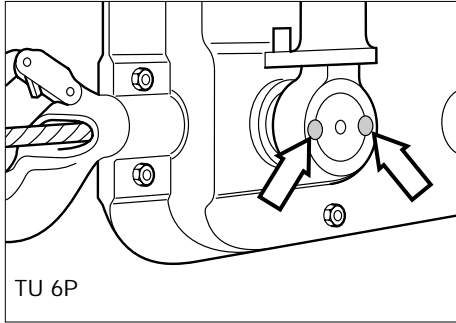
For the last incident (**tilting**), the operator must return the platform to horizontal by operating the hoist on the lower side, to move it upwards. The BLOCSTOP releases its hold on the secondary rope automatically.

9. REPLACING THE SHEAR PINS:

Diagrams xx, yy and zz show the location of the shear pins on the TU6P, TU12P and TU24P hoists. The replacement pins are in the forward lever for the TU6P and TU12P and in the release lever for the TU24P (the plastic plug must be removed).

On models TU6P and TU12P the forward lever must first be removed from its shaft. This requires the use of a hub extractor. Remove the sheared pins using a pin extractor.

Clean the pin housings. Replace the forward lever on its shaft, and in the case of a TU6P or TU12P ensure that the half-housings of the axis are lined up with those on the lever.



Push the new pins fully into their housings by tapping them in lightly with a hammer, after lining up the holes on the upper and lower parts of the lever (model TU24P).

▲ WARNING ▲ : Sheared pins should only be replaced with TIRFOR pins of the same type.

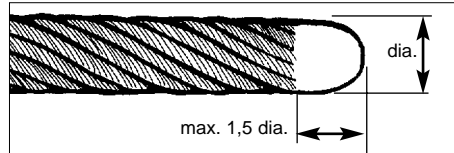
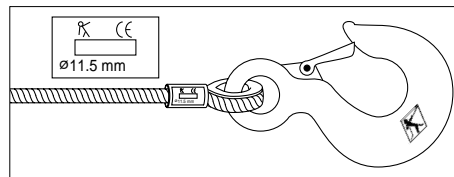
Before putting the equipment back into operation, ensure that the cause of the overload has been removed. If necessary the loads in the cradle must be redistributed. A supply of spare pins should be kept to avoid prolonged operating stoppages.

10. WIRE ROPES :

▲ WARNING ▲ To guarantee the safe operation of TIRFOR and BLOCSTOP devices it is essential that they are only used with TIRFOR wire ropes, which have been specially designed for this equipment and are of the correct strength, as specified in the European standards.

REMINDER: Using a wire rope other than the TIRFOR special wire rope in a mechanism in the TIRFOR hoist or the BLOCSTOP safety device constitutes a modification to the lifting system and removes the CE certification from the assembly.

One end of the wire rope has a safety hook attached to a loop of the wire rope. This loop is fitted with a thimble and crimped in a metal sleeve. The other end of the wire rope is fused and tapered.



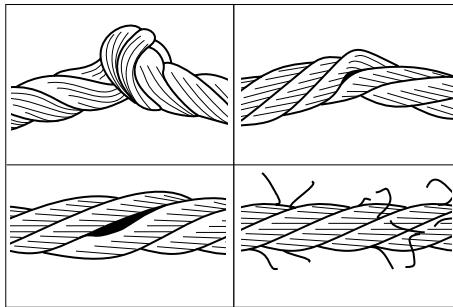
▲ WARNING ▲ Having wire rope which is in good condition is a guarantee of safety, just as much as having equipment which is in good condition.

It is therefore necessary to continuously monitor the condition of the wire rope and to clean and grease it with a cloth impregnated with oil or grease.

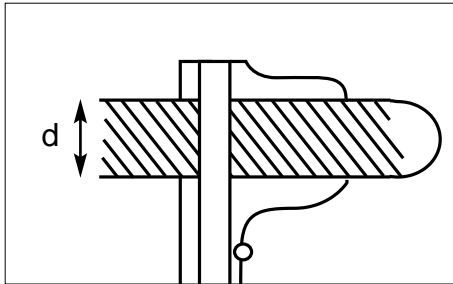
Greases and oils containing molybdenum bisulphide or additives containing graphite should be avoided.

Visual inspection of the wire ropes:

The wire ropes should be examined on a daily basis when the equipment is in use in order to detect any signs of damage (deformation, broken wires: see example fig.).



If there is any obvious damage, the wire rope should be checked by a competent person. Any wire rope whose nominal diameter has been reduced by 10 % as a result of wear must be removed (measure as shown in fig.).



IMPORTANT : A tensioned wire rope must never be allowed to rub on an obstacle. Wire ropes must never be exposed to temperatures above 100°, or to attack from mechanical or chemical agents.

It is vital to check that the length of the wire ropes is greater than the lifting distance. Allow for at least a metre of wire rope to remain on the winding reeler.

Storage: see section 7.

11. MAINTENANCE :

The TIRFOR machine and Blocstop device must be inspected, cleaned and lubricated at regular intervals, at least annually by an approved repairer.

To clean the devices, immerse them in a bath of solvent such as oil, petrol or white spirit (with the exception of acetone and its derivatives, and trichlorethylene and its derivatives) then shake them to remove sludge and any other foreign matter. Tip up the device so that the dirty liquid comes out of the lever apertures. Drain and leave to dry. It is then **essential to lubricate** the mechanism **thoroughly** by pouring oil (type SAE 90 or 120) into the holes in the housings as well as in the special aperture (oiler) on the TU6P and on the TU12P. Before pouring the oil in, release the device (which must not be supporting a load), and operate the levers to help the oil reach all parts of the mechanism.

N.B.: The device can never be overlubricated.

Any device whose housing shows traces of impact or deformation, or whose hook (model TU6P and TU12P) is deformed, must be returned to a TRACTEL group approved repairer.

12. WARNINGS AGAINST HAZARDOUS OPERATIONS

If used in accordance with the instructions in this manual, the TIRFOR and BLOCSTOP devices are totally safe. However it is helpful to warn the operator against incorrect operation as described below.

The following is prohibited:

- Never use the devices described in this manual for lifting equipment.
- Never attempt to motorise the devices described in this manual.
- Never use TIRFOR devices above their maximum working load.
- Never use TIRFOR devices for operations other than those for which they are intended.
- Never attempt to operate the release mechanism whilst the equipment is supporting a load.
- Never obstruct the free movement of the forward and reverse levers or the release lever.
- Never operate the forward and reverse levers at the same time.
- Never use any method of operation other than the original TRACTEL telescopic handle.
- Never replace the original safety pins with items other than TIRFOR pins of the same type.
- Never anchor the device by any other method than its anchoring device.
- Never lock the device in a fixed position or obstruct its self-alignment with the direction of the load.
- Never use the wire rope of the device as a lifting sling.
- Never apply a load to the wire rope which comes out on the anchorage side.
- Never hit the control devices.
- Never operate of the operating handle by more than one person.
- Never lift the platform so that the sleeve of the hook on the wire rope comes into contact with the housing.

- Never lower the platform so that the end of the wire rope comes close to the housing of the hoist.
- Never prevent the suspension rope from activating the BLOCSTOP detection roller.
- Never position the two wire ropes (suspension and secondary) at a distance other than that indicated in the BLOCSTOP manual.
- Never use a wire rope with more than 10 wires broken over a length of 30 times its diameter.
- Never use a wire rope whose diameter is reduced by more than 10% of its initial diameter.
- Never unwind the wire rope without leaving two complete turns on the reeler.
- Never position the wire ropes in a position other than vertical.

13. TROUBLESHOOTING :

- 1. If the forward (lift) lever rotates freely** on its shaft without driving the mechanism, this indicates that the safety pins have sheared as a result of an overload. They should be replaced as described in section 9.
- 2. Pumping.** Insufficient oil in the mechanism leads to a phenomenon known as "pumping" (not dangerous) occurring during forward operation (lifting): the device lifts and lowers a few centimetres, but goes no further. This phenomenon can be corrected by pouring oil into the housing. If necessary, move it in reverse (lowering) for a short distance to facilitate lubrication of the parts.
- 3. Jolts.** Jerky movement in reverse (lowering) is also caused by insufficient oil. Proceed as indicated above.
- 4. Jamming.** If the wire rope becomes jammed in the device, generally due to damage to the part of the wire rope inside the device, operation must be stopped. The load must be taken over by another device which provides the **statutory safety guarantees**, and the Tirfor freed by relasing it when there is no load.

In an extreme situation where this is impossible, the device and its wire rope must be returned to a TRACTEL approved repairer.

5. Blockage. A damaged wire rope may remain blocked in the BLOCSTOP safety device. The wire rope should be removed by a competent person. The BLOCSTOP safety device should be serviced by TRACTEL SAS or a company in the TRACTEL group, or an authorised company.

14. REGULAR INSPECTION:

The following safety devices must be inspected daily:

- **anti-tilt device** (on ALTA L, S or TANGOR platform with rigid stirrups) by tilting the platform until the safety system on the lower hoist is tripped. Return the platform to the horizontal. Repeat the inspection operation for the device on the other side. This inspection must be carried out at a maximum height of 0.5 metres.
- **no-load device – slack wire rope device** : by resting the platform on the ground and checking the tripping of the safety jaws. Lift the platform up (approx. 0.2 m).
- The TIRFOR hoist for lifting personnel and the BLOCSTOP safety device must be inspected regularly by a TRACTEL approved repairer. This is compulsory every three months (for France: Decree of 9 June 1993, Section 5 Regular General Inspection article R233-11 of the labour law, Article 23 Frequency, Paragraph c).
- Regular maintenance of the devices consists in cleaning and oiling.

15. EQUIPMENT WHICH MAY BE USED WITH THE TIRFOR

- DELTA/PORTAFIX suspension jibs
- TRACTEL parapet clamps
- RAILSCAF track
- ALTA L, S or TANGOR platform, with end stirrups.

Any other combination of equipment must be subject to an examination by a notified body

16. STATUTORY INSPECTION

Any company providing a TIRFOR hoist with its BLOCSTOP safety device for integration with a platform for lifting personnel to employed persons must ensure that the obligations under health and safety at work regulations are fulfilled as regards safety and the acceptance of the equipment by a notified body.

It is also the responsibility of every company to ensure that their employees have been fully and properly trained in the safe operation of the equipment.