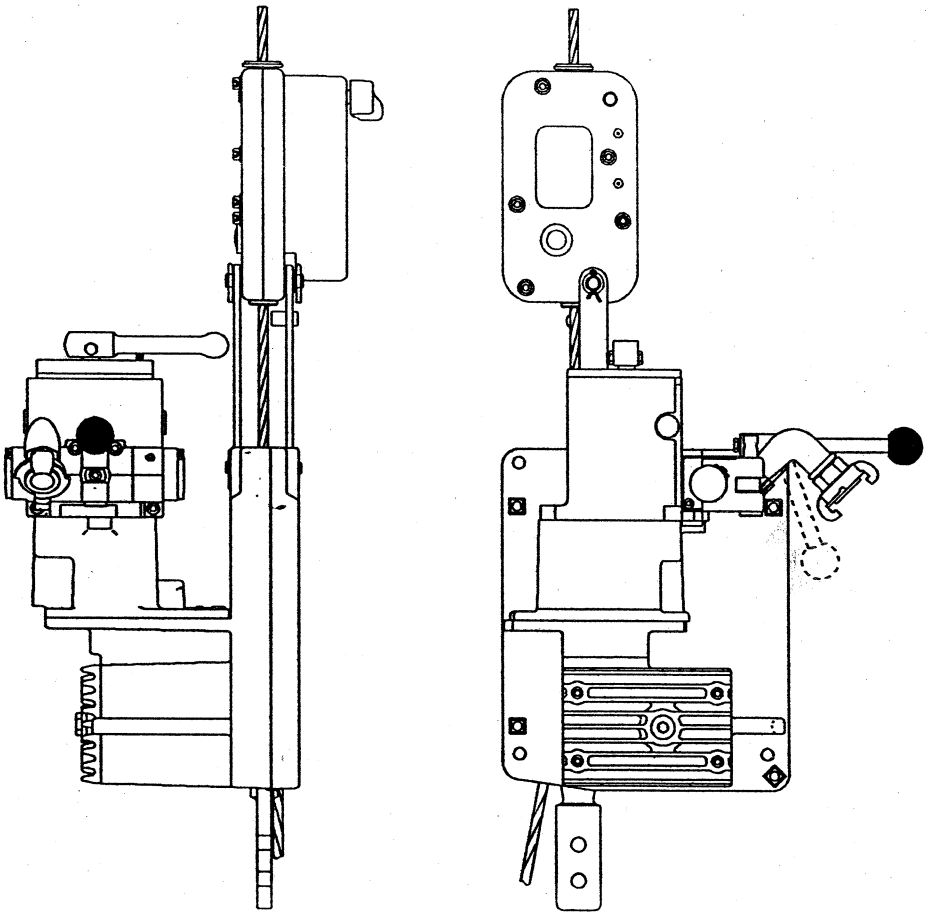
tirak®

Scaffolding Hoist for Single Wire Rope System

Operating and Maintenance Manual



TIRAK® model
LA 500 P1

TIRAK® model
LA 500 P1O

G 496-11/02

Tractel Group

www.tractel.com

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Specification of "manufacturer" and "supplier" referred to in this manual:

"Manufacturer" definition:

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51434 Bergisch Gladbach
GERMANY

"Supplier" definition regarding contact advice in this manual:

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Explanation of Symbols used in this manual

Safety advice

Symbol	Code word	Meaning	Possible consequence of non-compliance
	**WARNING**	**IMMEDIATE or possibly imminant danger:**	**Fatal or serious injuries!**
	**CAUTION**	**possibly dangerous situation:**	**Minor Injuries to persons!**
Other advice			
	**NOTE**	**possibly dangerous situation:**	**Damage to equipment** or its **surroundings**
	(none)	Instruction for **documentation in writing** (i.e. record keeping)	(none)

General Information on Load Limit Device

CAN/CSA-271-98, par. 7.3.12.6 Load Limit Device requires:

7.3.12.6.1 Ground-launched equipment shall have its capacity limited by one of the following means:

(a) the hoist shall not lift, when the load exceeds 150% of the rated capacity of the hoist; or

(b) an overload device shall be provided to prevent operation in the up direction, if the actual suspended load exceeds 150% of the maximum allowable suspended load.

This overload limit device may be especially needed for hoists with three phase motors or air motors, or in the case of using a booster transformer.

For installations without separate load limite device, **TIRAK® hoists with integrated overload limit device** are available – contact the supplier.

When using a TIRAK® hoist with integrated overload limit device, refer to the relevant instructions of this manual.

1. GENERAL WARNING

READ THIS GENERAL WARNING FIRST

IN SUSPENDED ELEVATING SYSTEMS OPERATIONS, SAFETY IS A MATTER OF LIFE OR DEATH FOR RIGGERS, OPERATORS AND BY-STANDERS.
THIS WARNING IS YOUR SHARE OF DUTIES FOR ACHIEVING SAFETY.

YOUR DUTY TO UNDERSTAND AND COMPLY

1. It is the rigger's and the operator's responsibility, and their employer's responsibility, if they operate under an employer's control, to strictly conform to the following warnings.
2. It is imperative for safety and efficiency of the operations that this manual be read and **fully understood** by the rigger and the operator before rigging or operating the TIRAK®. **ALL instructions** contained herein must be carefully and strictly **followed**, including applicable S.I.A. guidelines for safe practice (see pages 28 and 29).
3. Should you hand over a TIRAK®, under whatever conditions, to any party operating out of your control, you must join a clean copy of this manual and draw other party's attention that strictly following all the instructions therein is a matter of life or death.
4. Before rigging and operating this TIRAK® hoist, the rigger and the operator must become aware of all the requirements of federal, state, provincial and local safety regulations not only applicable to the TIRAK® hoist but also to the entire suspended elevating system, i. e. support system, suspended system incl. platform, workcage, or bosun's chair, fall protection system, and any component of it.
5. Never use the TIRAK® hoist for any job other than lifting personnel on suspended elevating system according to the instructions of this manual
6. Never load the TIRAK® hoist above its rated load.

YOUR DUTY TO INSPECT AND MAINTAIN

7. Keep this manual available at all times for easy reference whenever required. Extra copies are available from the supplier.
8. Carefully take notice of all the labels affixed to the TIRAK®. Never rig or operate the hoist if any label, normally fixed on the hoist is obscured or missing (see pages 24 and 25). The supplier will supply extra labels on customer's request.
9. Every time the hoist is to be rigged or used, check that the hoist, wire rope and other components of the suspended elevating system are complete and in good working condition, prior to proceeding.
10. A careful and regular inspection of the TIRAK® hoist, its wire rope and other components of the installation is part of the safety requirements. If you have any questions, call the supplier.
11. After each de-rigging and before re-rigging, the TIRAK® must be inspected by a competent person familiar with the TIRAK® hoist and professionally trained for the purpose.

YOUR DUTY TO TRAIN AND CONTROL PEOPLE

12. An operator must not be assigned to a suspended job or to rigging for a suspended job, or to de-rigging after the job, if that person is not:
    a) mentally and physically fit for the purpose, specially at heights,
    b) competent for the job to be performed,
    c) familiar with all applicable safety rules and requirements,
    d) familiar with the scaffold equipment as rigged,
    e) provisionally trained for working under the above requirements.
13. Never disassemble the TIRAK® by yourself or by your staff. People's life may be at risk. Except for the operations described in this manual, the maintenance of the TIRAK® hoists, as well as disassembly and repair, must be exclusively done by qualified repairers authorized in writing by the supplier. TIRAK® spare parts in accordance with the serial number of each machine must be exclusively utilized. No substitutions are allowed.
14. Never let the TIRAK® hoist and other equipment of a suspended elevating system be managed or operated by a person other than authorized and assigned to the job. Keep the equipment, either rigged or unrigged, out of reach of unauthorized persons, while out of operation.

15. Training operators and riggers includes setting up rescue procedure should a suspended elevating system be brought to a standstill during a job. Such procedure must be set up by a competent person of the user, or of its technical consultant, according to the working conditions, prior to putting the equipment into operation.

16. Every suspended job must be placed under the control of a person having the required competence and the authority for checking that all the instructions prescribed by this manual be regularly and efficiently carried out.

YOUR DUTY OF SAFETY BEYOND THE TIRAK

As being only one piece of the suspended elevating system, the TIRAK® hoist can contribute to the required safety only, if ...:

17. ... it is fitted on compatible scaffold equipment, including the wire rope used in the TIRAK® hoist.

18. ... other components meet the requirements of the applicable safety regulations and are of the proper quality, and assembled to form a safe suspended elevating system.

19. ... every upper support of the scaffold is stable, sufficiently strong and properly tied back to the structure, according to the load either static or dynamic.

20. ... supporting structure and tie-back provide the requested resistance to every load to be applied, either static or dynamic, during rigging or operating the scaffold equipment;

21. ... all the requirements in strength and resistance are obtained with the necessary safety factor (see regulations and professional standards);

22. ... all the calculations, design and subsequent work necessary to the above requirements have been made by a competent person on the basis of proper technical information regarding the site.

YOUR DUTY TO AVOID TAKING CHANCES

23. **The BLOCSTOP® BSO secondary brake located at the upper part of the unit is an integral piece of the TIRAK® hoist. It is strictly forbidden to detach it from the main body of the hoist for whatever reason. Doing so would be a misuse creating an extreme hazard and placing operators and by-standers in danger of death resulting from the possible fall of the suspended elevating system or any other items or components.**

24. **Once the suspended elevating system has been lifted off its initial support (ground or any other level), it is imperative not to release, remove, alter or obstruct any part of the equipment under load.**

25. **NEVER allow any condition which would result in a** suspension wire rope becoming SLACK during the operation, unless ...:

    a) ... the suspended elevating system is supported on a safe surface giving a safe access to the operator in compliance with safety regulations, or unless ...

    b) ... another suspension wire rope has been safely rigged to the suspended elevating system.

26. **Never operate the TIRAK® hoist and its accessories, especially electric ones, in a potentially explosive atmosphere.**

27. **For any job to be performed on the suspended scaffold system, consider and control the specific risks related to the nature of the job.**

28. **Should you decide that the TIRAK® hoist is no longer to be used, take precautions in disposing of it so that it cannot be used any more.**

29. For suspended elevating systems with load limit device, e. g. when required per CNA/CSA-271-98, never detach or modify the load limit device.

AN ULTIMATE RECOMMENDATION

30. Operators on the suspended elevating system should be equipped with an **emergency means of communication** such as radio device or telephone should rescue be necessary.

This manual is neither a regulations compliance manual nor a general training guide on suspended elevating system operations. You must refer to proper instructions delivered by manufacturers of the other pieces of equipment included in your suspended elevating system. Whenever calculations and specific rigging and handling are involved, the operator should be professionally trained to that end and secure relevant information prior to commencing such work.

2. DESCRIPTION

2.1 General

Based on an original design, TIRAK® wire rope scaffold hoists are specially manufactured for lifting personnel in a suspended platform system.

For that purpose the model **LA 500 P1** is UL classified.

The model LA 500 P1Q **with integrated load limit device** is equally UL-C classified.

TIRAK® hoists are composed of the following main assemblies (Fig. 1):

- **A** Wire rope driving mechanism
- **B** Gearbox
- **C** Air motor with primary brake
  - **c1** Control lever
  - **c2** Brake release lever
- **D** BLOCSTOP® BSO secondary brake.
- **E** Air hose coupling

The main advantages of TIRAK® hoists are:

- Powerful, fast, and lightweight.
- Simple, rugged, and reliable.
- Unlimited lifting height.
- Constant speed on any height.
- Gentle for its wire rope.
- Emergency descent with a mechanical emergency descent device.

NOTE:

TIRAK® hoists are intended to be used for work going up and down a vertical hanging wire rope.

TIRAK® hoists are designed to be rigged to a compatible platform, workcage or bosun's chair.

This manual gives the required information for rigging, operating and maintaining the TIRAK® hoists.
Responsibility for the complete suspended platform system lies upon the rigger of that system.

2.2 Motor and Primary Brake

TIRAK® hoists are driven by a air motor with a mechanically actuated brake.
Electric TIRAK® are available also.

2.3 Gear Reducer

The gear reducer consists of a worm gear drive in connection with a spur gear, synthetic oil bath lubricated in a sealed aluminum casing.

2.4 Secondary Brake

The BLOCSTOP® BSO overspeed locking device (D) – hereafter called BSO secondary brake – stops the descent immediately in case of accelerating overspeed.

BSO SECONDARY BRAKE is an integral part of the hoist and **MUST ALWAYS BE ATTACHED AND USED.**

2.5 Emergency Descent without power

In case of emergency manual descent is possible at moderate speed, which is controlled by the braking effect of the motor itself. No handcranking is needed.

2.6 Wire Rope Driving Mechanism

The wire rope enters the hoist from the top, is led through by the patented driving system, and exits opposite its entry. As the wire rope is not stored inside the hoist, its length (i. e. the possible rope travel) is unlimited on principle.

The driving system is independent of the load applied to the wire rope. The whole mechanism is housed in an aluminum casing.

2.7 Wire Rope

WARNING:
Wire rope other than specified may cause serious injury or fatality!

The original design requires, for safety and efficiency, that it be used with a **special TIRAK® wire rope** specified by the manufacturer. For details see chapter 4.

Unless specificly specified in writing by the manufacturer, only this special TIRAK® Wire Rope may be used.

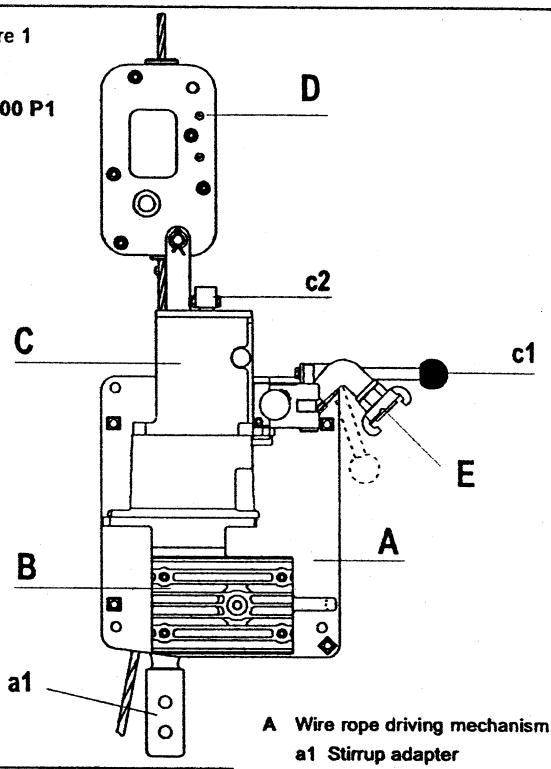
The manufacturer declines all responsibility for machines used with a wire rope other than specified by them in writing.

2.8 Load Limiting Device

On **TIRAK® hoist with integrated overload limit device**, i. e. model LA 500 P1Q, a **load limt valve** mounted on the motor (Fig. 1a) stops the UPWARD travel in the event of overload.

Figure 1

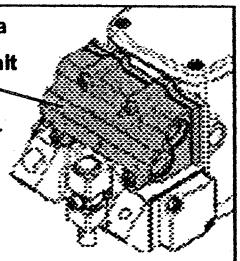
LA 500 P1



A Wire rope driving mechanism
a1 Stirrup adapter
B Gearbox
C Motor with brake
c1 Control lever UP / DOWN
c2 Brake release lever
D BLOCSTOP BSO secondary brake
d1 Control lever
d2 EMERGENCY STOP on the BLOCSTOP
E Air hose coupling

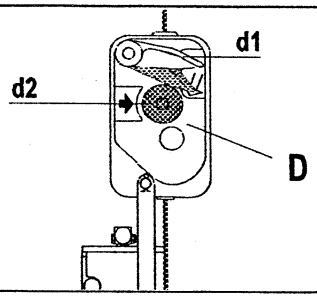
Figure 1a

Load limit valve on an air motor



for TIRAK® model LA 500 P1O

Figure 2



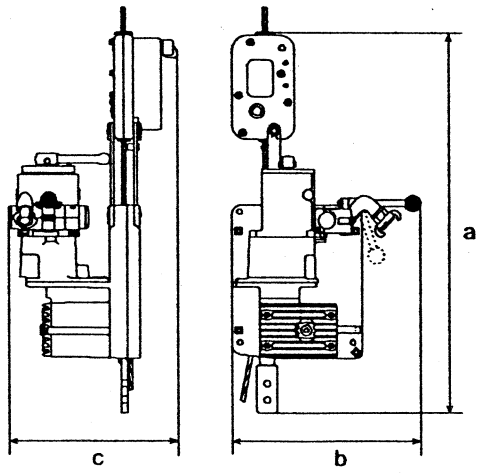
2.8 Technical Data

TIRAK® Hoist Model		LA 500 P1 or LA 500 P1O
including BLOCSTOP® Model		BSO 500
Rated load	lbs kg	1,000 450
Lifting speed	ft/min m/min	33 10
Weight (with BSO)	lbs kg	67 or 69 30 or 31
Dimensions over all		
a	in. mm	24.8 631
b	in. mm	10 254
c	in. mm	10[1] 253
Motor specifications		air motor
Maximum rated inlet pressure	psi	85
Minimum quantity	cfm	60
wire rope diameter	in. mm	5/16 8.4

1) 11.4" (289 mm) if equipped for remote control as shown in fig. 10.

Table 1

Figure 3 Dimensions **LA 500 P1**



wire rope classification/ construction		5 x 19, or 5 x 26, with fiber core, galvanized, lubricated, preformed, IPS or XIPS
nominal diameter	in. mm	5/16 in. 8.4 mm
allowable diameter range of new wire rope	in. mm	0.319 to 0.331 8.1 to 8.4
minimum actual breaking strength	lbs kN	10,000 44.5

Table 2

CAUTION:

Correct wire rope diameter within the allowable diameter range is very important for the TIRAK® function!

UNDERSIZED wire rope may cause slippage in the hoisting mechanism and in the BSO secondary brake.

OVERSIZED wire rope may cause damage to the guide band and other internal parts or jam in the hoist causing damage to the wire rope itself!

It also may cause the BSO secondary brake to malfunction.

3. RIGGING INSTRUCTIONS

3.1 GENERAL

3.1.1 Operational Safety

All rigging and testing operations must be carried out under safe conditions for the riggers and for the environment.

Risk on site must be evaluated by safety specialists before rigging, and performed according to applicable safety regulations.

Proper measures must be taken to ensure safety before starting rigging operations.

Operators must be equipped with individual fall arrest devices when required.

3.1.2 Scope

Instructions and advice in this manual exclusively refer to the following items (see Fig. 4):

- **TIRAK scaffold hoist** including **BLOCSTOP® BSO secondary brake;**
- **Special TIRAK wire rope;**
- **Air supply hose.**

This manual does not deal with support equipment and tie-backs, nor with support rigging and anchoring operations. Figs. 4 and 5 are shown only as reference to a general layout of the overall installation, in which the TIRAK® hoist is used.

Fig. 4 Relevant items (principle sketch)

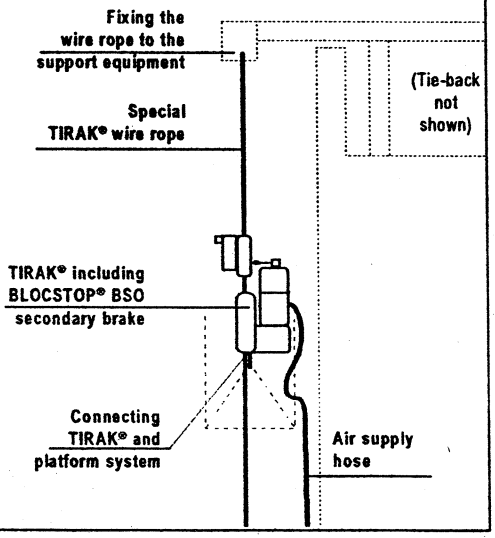
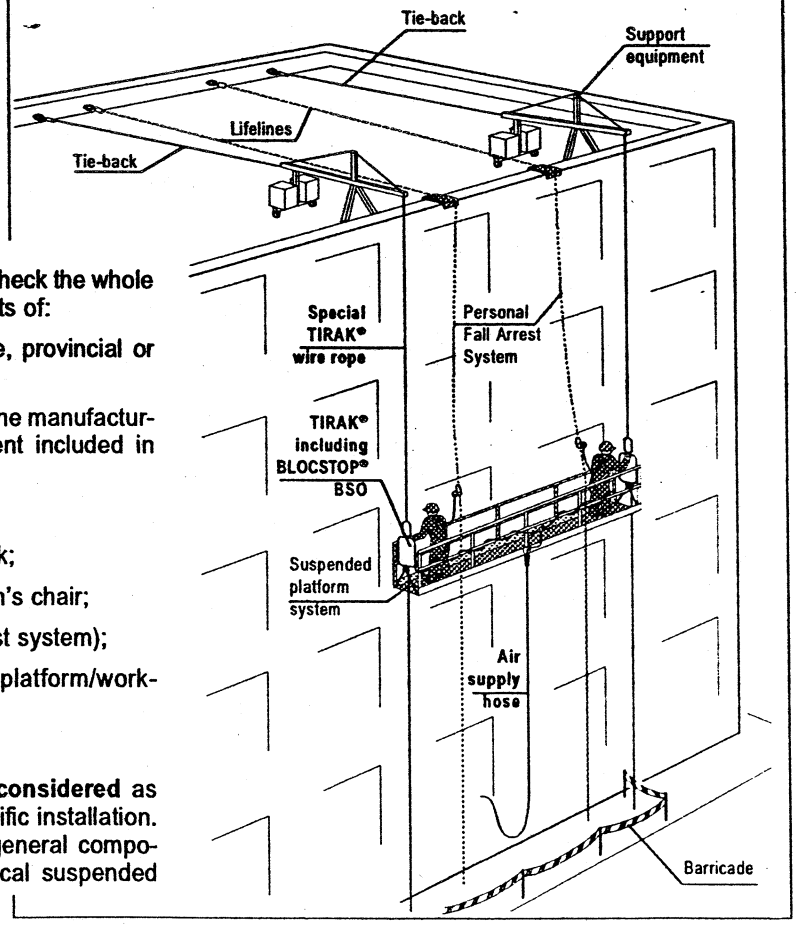


Fig. 5 Typical suspended scaffold installation



3.1.3 Checks before rigging

It is a qualified person's responsibility to check the whole installation to meet all safety requirements of:

- OSHA regulations and federal, state, provincial or local safety regulations,
- the proper instructions delivered by the manufacturers of the other pieces of equipment included in your suspended scaffold installation.

Main pieces are:

- Support equipment including tie-back;
- platform system, workcage, or bosun's chair;
- safety equipment (personal fall arrest system);
- barricade below the drop of the platform/workcage/bosun's chair.

NOTE: This information is **NOT to be considered** as a complete checklist for your specific installation. It is only a sample list of some general components, which make part of a typical suspended scaffold installation (Fig. 5).

3.2 Air supply and hoist control

3.2.1 Air Supply

Check that the compressed air supply meets the following requirements:

Maximum rated inlet pressure	85 psi *)
Minimum quantity LA 500 P1	60 cfm

Table 3

*) The TIRAK® will lift rated load at a reduced speed with a minimum pressure of 55 psi.

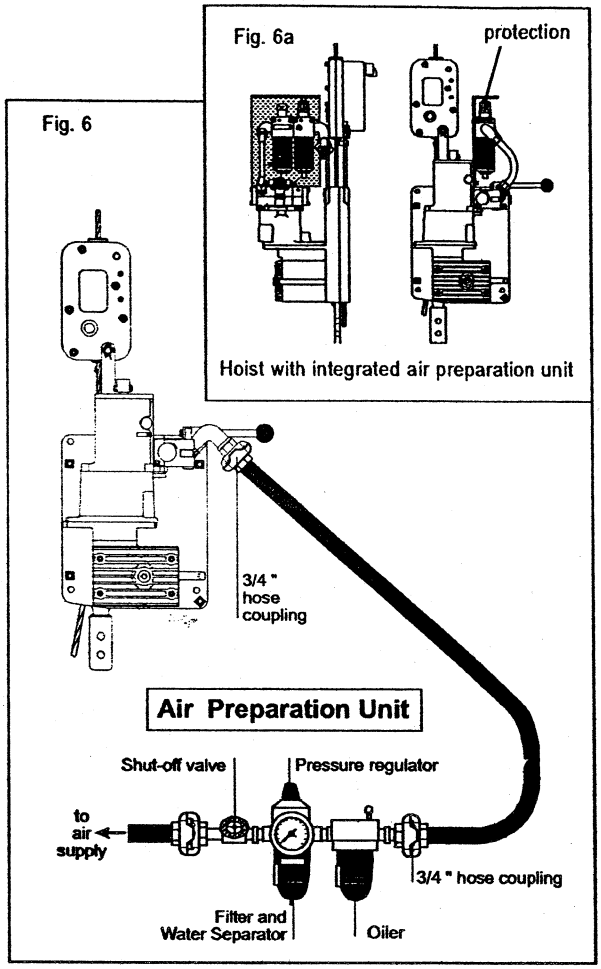
3.2.2 Air preparation unit

The compressed air must be dry and well oiled. To guarantee this install an air preparation unit with water separator/filter, pressure regulator and oiler directly before the TIRAK® (Fig. 6).

Adjust the oiler to provide approx. 10 drops/minute. This precaution ensures the longevity of the air motor.

NOTE: Higher pressure from the supply system (max. 230 psi) must be reduced to the required 85 psi by means of the pressure regulator.

Fig. 6



3.2.3 Air Hoses

1) For trouble free working, the supply hoses must have the minimum rated cross sections according to table 4.

   The TIRAK® is outfitted with a 3/4 " hose coupling.

   Be sure that all connectors, hoses and inline valves are rated for a minimum pressure of 200 psi.

   Couplings must be secured with hairpins (Fig. 7).

2) Connect and lock all air lines from the air supply to the air preparation unit using a locking pin. Install strain relief devices across them.

   a) Start the compressor and slowly apply air pressure to the hoses.

   b) Blow through the air supply hose leading from the air preparation unit to the hoist to avoid impurities entering the motor.

   c) Connect and lock the air hose to the TIRAK®.

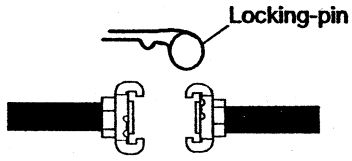
   d) Inspect all air hoses to ensure that they are in good condition and that connections are not leaking.

   e) By means of the regulator, adjust the supply system to the required 85 psi.

From air preparation unit to TIRAK®	3/4"
When running two TIRAK® from one compressed air supply, between air supply and air preparation unit	1"

Table 4

Fig. 7



WARNING

Never disconnect the air supply unless :

1) **The air compressor has been shut off or the connection to the supply system has been interrupted with a shut-off valve.**

2) **All air pressure has been bled from the supply lines.**

3.2.4 Hoist Control

The TIRAK® control is effected

- by means of a "two-way" hand lever on the motor (Fig. 8), or
- by means of a remote control valve (Fig. 10), connected to the motor with three flexible hoses inside a covering hose with steel wire rope for strain relief.

  Connection to the motor by self-gripping couplings;
  transparent hose = **air inlet,**
  blue hose = **UP control,**
  red hose = **DOWN control.**

To reeve or climb the TIRAK® move and hold the control lever/valve to the UP-position. To descend or unreeve move and hold the control lever/valve to the DOWN-position.

The control lever/valve is spring actuated so that, when released, it will return to the neutral position and the mechanical brake automatically stops travel

CAUTION!

DO NOT fix any hoist control lever in the UP or DOWN position.

To avoid damage during transport the Control lever of all TIRAK® hoists can be turned into a storage position (Fig. 9).

Fig. 8

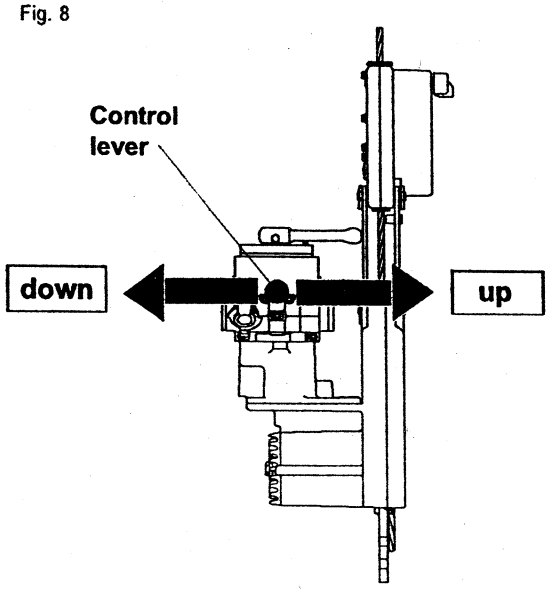


Fig. 9

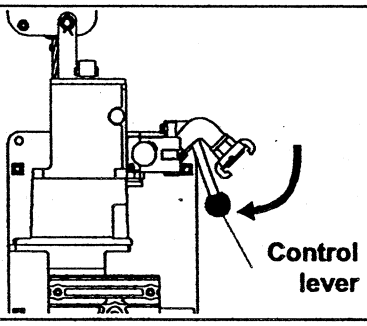


Fig. 10

Remote control

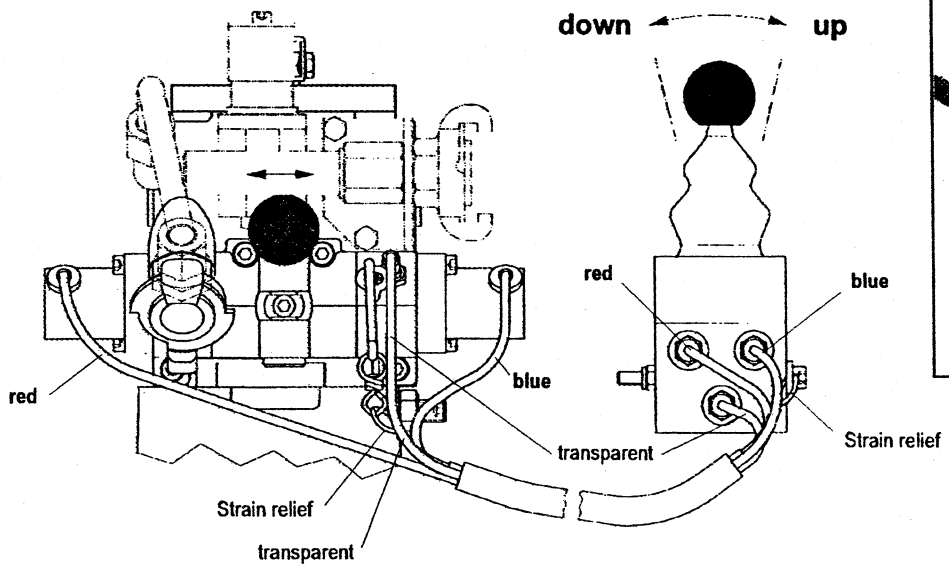
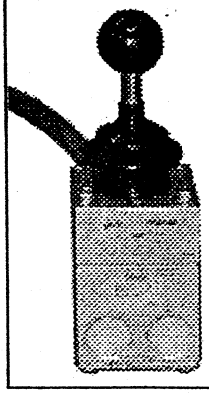


Fig. 10a

Remote control reverse siede view with "UP / DOWN" marking



3.3 Hoist Mounting

3.3.1 Connection to the platform

Bolt the hoist to the platform stirrup using **stirrup adapter**, which also holds the hoist in its upright position (see Figs. 11 and 12).

Use 1/2 inch diameter grade 5 or better bolts with locking nuts.

CAUTION:
HOIST CONNECTION BOLTS MUST NOT BEAR ON THREADS.
(Fig. 11a)

WARNING:
THE HOIST MUST BE MOUNTED SUCH THAT THE WIRE ROPE PERPENDICULARLY ENTERS THE HOIST.

90° (Fig. 11)

3.3.2 Connection to the air supply

1) Attach air hoses and air preparation unit to the work platform. It is important that all air line connections are locked and supported by a strain relief device. The weight of the air line must not be carried by the TIRAK® hoist air supply inlet connection.
2) Before connecting the hoist :
   a) Start the compressor and slowly apply air pressure to the hoses.
   b) Blow through the air supply hose leading from the air preparation unit to the hoist to avoid impurities entering the motor.
   c) Shut off the compressor and let all air pressure be bled from the supply lines.
   d) Pour a small amount of oil into the air hose.
   e) Connect air hoses to the hoist.
3) After all connections are made :
   a) Start the compressor and slowly apply air pressure to the hoses.
   b) Inspect all air hoses to ensure that they are in good condition and that connections are not leaking.
   c) By means of regulator, adjust the supply system to the required 85 psi
   d) Run the motor for approx. 2 seconds to let the oil completely distribute in the air motor. This means higher performance and an increase in service life.

Figure 11
Hoist mounting

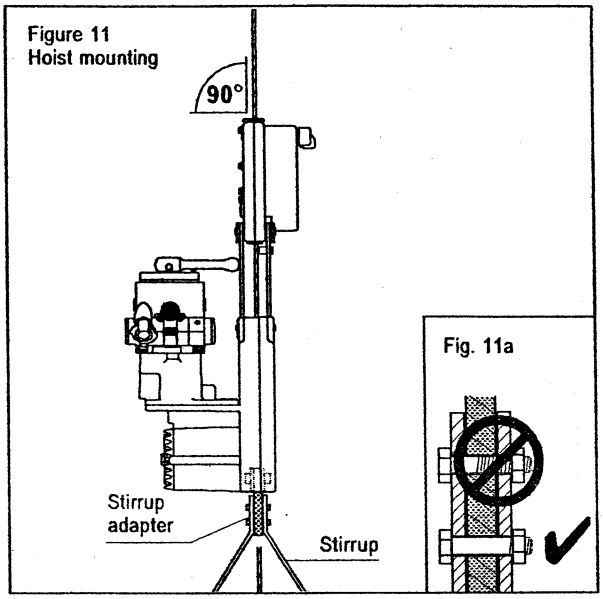
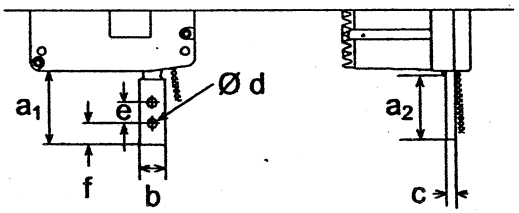


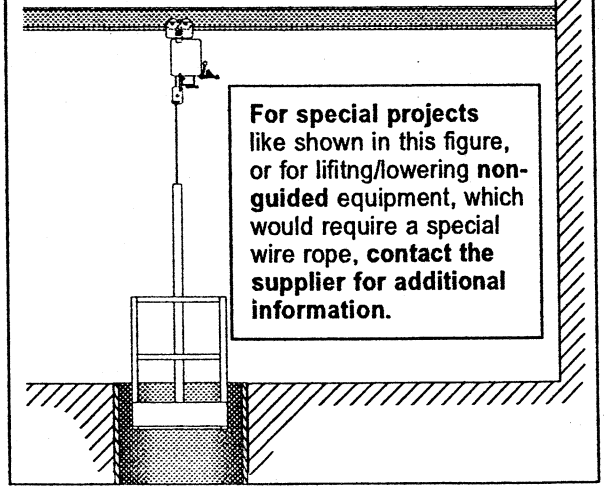
Figure 12 Dimensions of stirrup adapter



a_1 = 4.17 in. / 106 mm
a_2 = 3.94 in. / 100 mm
b = 1.58 in. / 40 mm
c = 0.47 in. / 12 mm
d = 0.51 in. / 13 mm
e = 1.36 in. / 32 mm
f = 1.02 in. / 26 mm

Figure 13 Special rigging arrangement

NOTE: Any rigging arrangement other than described in this manual is entirely under the rigger's responsibility.



4. Wire Rope

4.1 Wire rope specification

Use only TIRAK® wire ropes specified by the manufacturer:

(1) **Classification/Construction:**
5x19, or 5x26, with fiber core, galvanized, lubricated, preformed IPS or XIPS.

(2) **Diameter:**

Table 5: Wire Rope Diameter and min. actual Breaking Strength		
wire rope diameter[1]	**min. actual breaking strength**	**for TIRAK® hoist with rated load**
5/16 in. 8.4 mm	**10,000 lbs** 44.5 kN	1,000 lbs 450 kg

1) **Allowable diameter range of NEW wire rope:**
0.319 to 0.331 in. (8.1 to 8.4 mm)

CAUTION:
Correct wire rope diameter within the allowable diameter range is very important for the TIRAK® function!
UNDERSIZED wire rope may cause slippage in the hoisting mechanism and in the BSO secondary brake.
OVERSIZED wire rope may cause damage to the guide band and other internal parts or jam in the hoist causing damage to the wire rope itself!
It also may cause the BSO secondary brake to malfunction.

4.2 Wire rope rigging instructions

WARNING:
Be sure to use a wire rope with the diameter marked on the TIRAK® nameplate (see page 24).

(1) RIG FROM TOP.

You should have enough wire rope to reach to the ground or other safe level with about five feet (1.5 m) extra for ensuring safety.

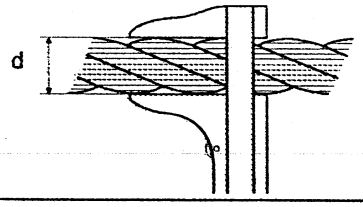
CAUTION:
Always unreel and reel the wire rope in a straight line (Fig. 15) **to prevent kinks, which make it unusable for the hoist.**

NOTE: How to measure wire rope diameter:

The correct diameter of the wire rope is the largest cross-sectional measurement across the strands (and not the valleys).

The measurement should be made carefully with calipers as shown in Fig. 14a.

Figure 14a Checking Wire Rope Diameter "d"



The maximum allowed diameter may also be measured with by means of a guage (Fig. 14b), available from TRACTEL.

Figure 14b **Maximum allowable Wire Rope Diameter "d", check with the TRACTEL guage**

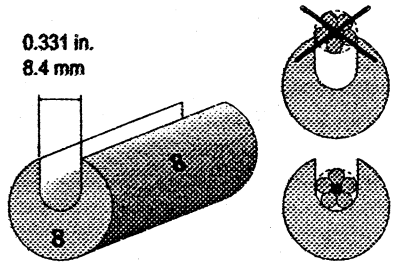
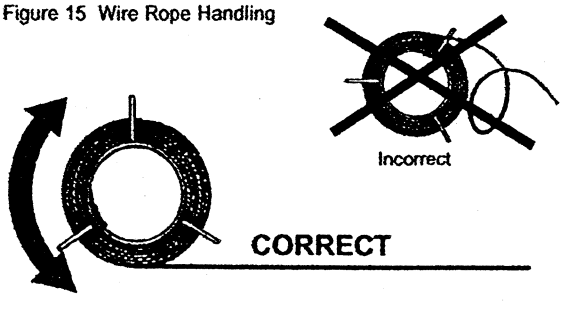


Figure 15 Wire Rope Handling



(2) If the wire rope is not equipped with a swaged fitting as shown in Fig. 16, proceed as follows:

– Install heavy duty thimble with a minimum of three (3) J-Type (Fist Grip) Clamps (Fig. 17).

Figure 16
Wire Rope Termination by Swaged Fitting

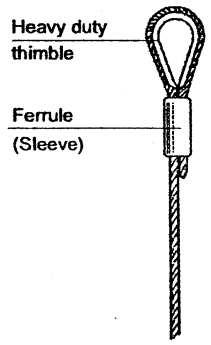
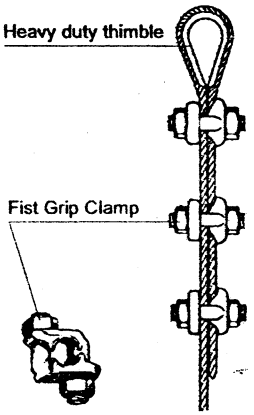


Figure 17
Wire Rope Termination by Fist Grip Clamps



– Apply first clamp approximately 7" (18 cm) from thimble. Tighten nuts moderately.

– Attach second clamp as close to thimble as possible. Leave nuts loose.

– Attach the third clamp half-way between first and second clamp, leaving the nuts loose. Take up wire rope slack.

– Tighten nuts evenly on all clamps (approx. 30 ft-lbs. torque) as specified by the clamp manufacturer.

WARNINGS:

a) Retighten after the wire rope is loaded for the first time.
b) Inspect fastening periodically.

In use, wire ropes will stretch and reduce in diameter.
In accordance with good rigging and maintenance practices, the wire rope end termination should be inspected periodically for wear, abuse, and general adequacy.

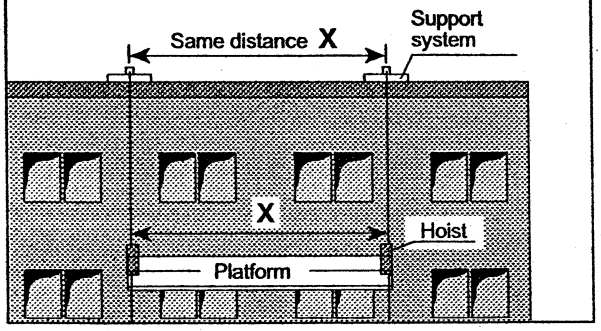
(3) Anchor the wire rope end to a rigging device, which complies with all relevant safety requirements.

Be sure to use compatible connecting devices, e. g. a 1/2 in. anchor shackle or similar with adequate strength and safety factor. Secure it.

(4) Insure that the anchor points of the wire rope are directly above the position of the hoists (Fig. 18).

WARNING:
Improper spacing is dangerous and could cause failure of the support system.

Figure 18 Suspension Distance



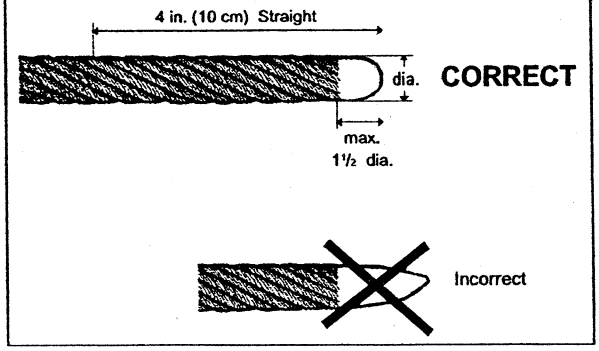
(5) Check that wire rope tip is welded round (Fig. 19). IF NOT:

a) Prepare ends by **brazing or welding – make sure all end wires are captured.**

b) Grind end to approximately 1/4" diameter. **DO NOT** grind end flat or to a cone shape. End **must be rounded** (Fig. 19).

c) The last 4 in. (10 cm) of wire rope must be straight for proper reeving.

Figure 19 Wire Rope Tip



4.3 Wire rope reeving

(1) Open the BSO secondary brake by pushing down the control lever (d1) until it locks (Fig. 20).

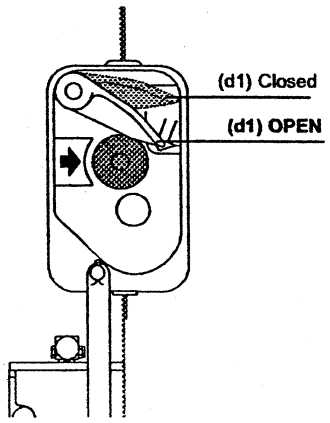
(2) Push the rope through the BSO secondary brake at (A) into the hoist rope inlet (B).

Push it inside, and push control lever/valve in the UP-position, until the wire rope reeves itself automatically and exits at (C) on the other side (Fig. 21).

CAUTION:
Check that wire rope exit (C) is not blocked in any manner.

Never load the wire rope exiting from (C).

Figure 20 Opening of BSO Secondary Brake



(3) After reeving through the hoist, be sure to loop and clamp the free end of the wire rope, to prevent the rope from inadvertently unreeving through the hoist.

Always tie this loop, using a fist grip clamp, when the platform is at ground level or other safe surface (Fig. 22).

WARNING: AT EVERY SET-UP OR RE-RIGGING check the wire rope length to ensure that it reaches the ground or other safe level with about five feet (1.5 m) extra for safety.

Figure 21 Wire Rope Reeving

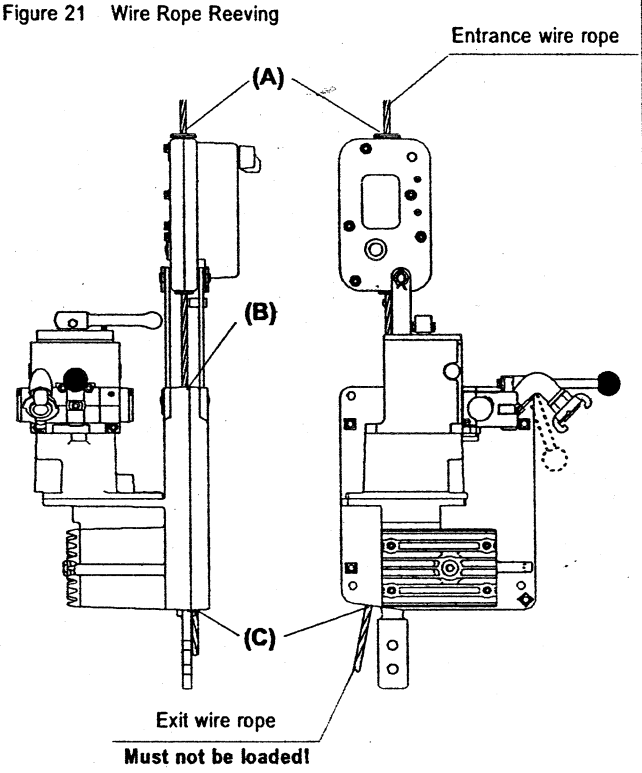
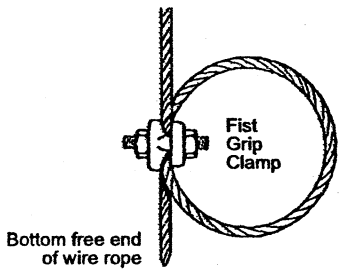


Figure 22 Loop at Free Wire Rope End



4.4 De-Rigging

(1) Before de-rigging each TIRAK® hoist must be unloaded by bringing down the platform to a safe and stable support.

(2) Remove the loop at the free wire rope end.

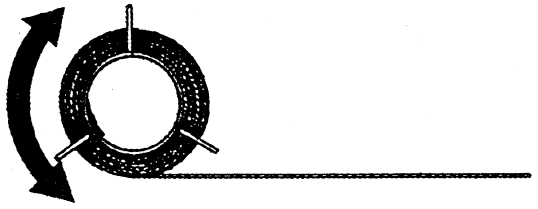
(3) Press DOWN button to let the wire rope run out.

(4) With gloved hands slowly pull the wire rope through BSO secondary brake.

(5) **Clean** the wire rope, **lubricate** it, **reel** it (Fig. 23), and store it in a clean and dry place.

(6) Unbolt the hoist from its stirrup or anchor device. Remove from site and store.

Figure 23 Wire Rope Handling



5. Operating Instructions

5.1 GENERAL

(1) BE FAMILIAR with the equipment and its proper care.

DO NOT operate hoist, if alterations on equipment are visible, if adjustment or repairs are found necessary, and if any warning, operating or capacity label normally attached to the hoist is obscured, damaged, or missing. (See labels' list on page 24).

REPORT same promptly to your supervisor for noting on record and also notify next operator, when changing shifts.

(2) **WARNING: SAFETY DEMANDS THAT YOU TEST THE SYSTEM BEFORE GOING ALOFT:**

a) CHECK **SUSPENDED ELEVATING SYSTEM** fully rigged and loaded by cycling UP and DOWN several times near ground level or safe surface.

b) CHECK **PRIMARY BRAKE** for mechanical function: When stopping the hoist the load must be held immediately.

c) CHECK **BSO SECONDARY BRAKE:**

I At ground level first close the BSO secondary brake by pushing EMERGENCY STOP button (d2). Then push the control lever/valve in DOWN-position and make the wire rope form a loop between TIRAK® casing and BSO secondary brake (Fig. 24). Open BSO secondary brake by pulling down control lever (d1) until it locks in the open position.

With gloved hands sharply pull wire rope in arrow direction (Fig. 24) – the BSO secondary brake should close immediately (Fig. 25). Reset BSO secondary brake by pushing down control lever (d1) until it locks in the open position.

II Lift platform 3 ft. (1 m) above ground or safe surface, and push EMERGENCY STOP button (d2) of the BSO secondary brake (Fig. 25).

Lower the platform to check that the BSO secondary brake holds the load. A loop should form as shown in Fig. 24, which means the BSO secondary brake is supporting the load.

Raise platform until the hoist supports the load. Reset (d1) to the open position.

III During operation regularly check through the window (d3) that the centrifugal weights are rotating (Fig. 25).

WARNING:
IF DURING ONE OF THE CHECKS THE BSO SECONDARY BRAKE MALFUNCTIONS, IT MUST BE REPLACED BEFORE FURTHER USE OF THE TIRAK.

Figure 24

BSO Secondary Brake
Check I

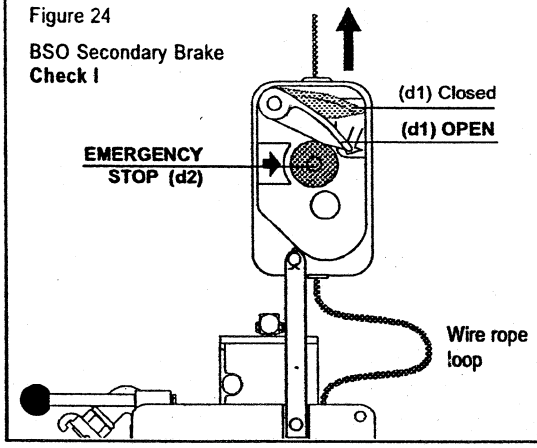
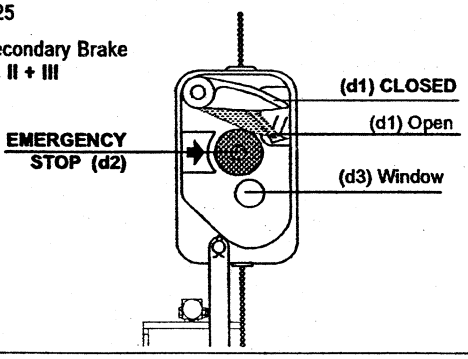


Figure 25

BSO Secondary Brake
Checks II + III



d) Check that the **Control lever** return to the normal position when released. It should move freely without sticking.

Check that the **Brake release lever** also returns back in normal position after pulling up.

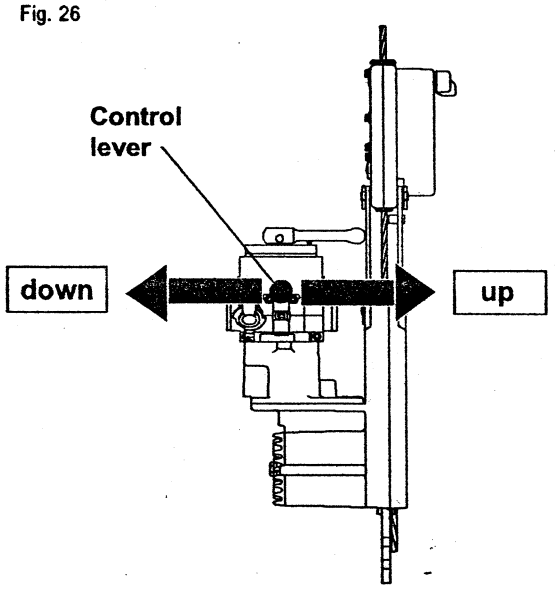
WARNING: IF DURING ONE OF THE CHECKS THE CONTROL LEVER OR THE BRAKE RELEASE LEVER MALFUNCTIONS, THE TIRAK® HOIST MUST BE REPLACED.

e) CONTINUOUSLY CHECK rigging, lines, clearances, and all other elements throughout the entire time on the job.

5.2 Normal operation

(1) For **UP** and **DOWNWARD MOTION** of the platform just push the **control lever** or **control valve lever** in the corresponding direction.
(Figs. 26 to 27)

Fig. 26

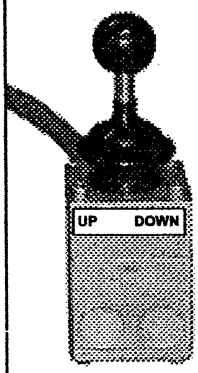


(2) When operating platform, take care to operate hoists so that the platform stays level without tilting one end more than the other.

(3) **When using the reomte control valve:**

- Alway check the connections before using the control valve.
- Take care of the connected air hoses, when moving the remote control on the platform.
- DO NOT kink the remote control lines.

Fig. 27
Remote control valve



(4) ⚠ **WARNINGS**

a) DO NOT fix control lever in run position.

b) DO NOT operate the hoist, if it is functioning improperly, or damage is noted.

c) NEVER pick up a load beyond the rated capacity appearing on the hoist.

d) STOP OPERATIONS IMMEDIATELY, if at any time, when the hoist operates, the wire rope does not move (i.e. no UP or DOWN travel).

It is likely that damaged wire rope is jamming the hoist. Continued operation might cause wire rope failure or damage to the hoist.
CONTACT the SUPPLIER!

e) IN CASE OF AN INCIDENT involving injury, or property damage, contact the supplier immediately.
DO NOT disturb, alter, or move any equipment at the scene of the incident.

(5) Special Operating Notes for Welding or Arc scarfing

- ALWAYS PROTECT your equipment and yourself from the danger of arcing.
- BE SURE supporting equipment is grounded to prevent arcing across wire rope to the structure.
- DO NOT use wire rope as a ground for welding.
- DO NOT allow your welding gun to contact wire rope, hoist, or any other metal equipment or structure.
- PROTECT work area above and below hoist with insulation.
  Split a section of air rubber hose, and wrap around wire ropes.
- Use an insulated thimble assembly to attach all wire rope(s) to the suspension system.

5.3 Emergency Descent

In case of emergency you can descend with the platform without power, proceeding as follows:

(1) Pull **brake release lever** upwards in arrow direction (Fig. 28). The hoist will descend at moderate speed, which is controlled by the braking effect of the motor itself.

(2) **TO STOP** release lever.

IMPORTANT: A minimum load of approximately 550 lbs/250 kg per hoist is required to initiate descent in that described way.

NOTE: If during emergency descent the BSO Secondary brake closes, you have to wait for air power to go up.
With a minimum pressure the hoist must move up to get the BSO free. Reset BSO by pushing down control lever (d1) in open position (fig. 29).
DO NOT force it open!

If air power is not available you have to require help or a rescue!

WARNING: If the BSO secondary brake stops downward travel during emergency descent, DO NOT DETACH BSO secondary brake FROM HOIST!

5.4 BSO Secondary Brake Action

(1) EMERGENCY STOP

Push **EMERGENCY STOP** button of the BSO Secondary brake, if – for whatever reason – you want to absolutely stop downward travel of the platform.

(2) To reset BSO secondary brake:

Raise the platform until the hoist supports the load.

Push the control lever in the OPEN position (d1) (Fig. 29). **DO NOT** force it open.

(3) If the BSO secondary brake has **automatically closed**:

WARNING: STOP DOWNWARD TRAVEL! YOU MAY HAVE RUN OFF THE WIRE ROPE CAUSING OVERSPEED. WITH EXTREME CAUTION TRY TO GO UP.

IF YOU CANNOT GO UP, A RESCUE IS REQUIRED.

When the hoist supports the load, reset the BSO secondary brake as described above.

Fig. 28

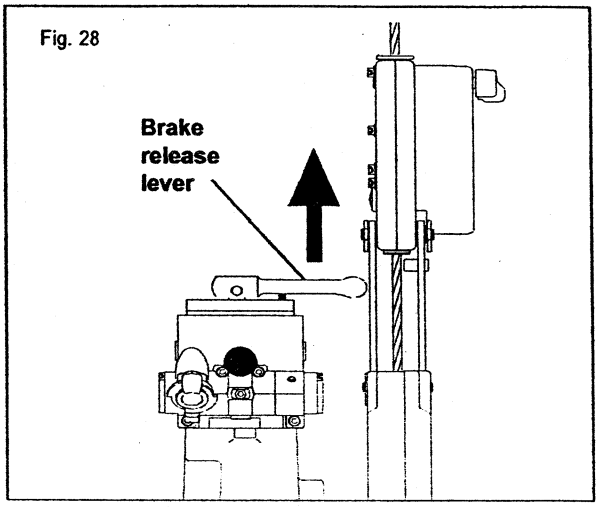
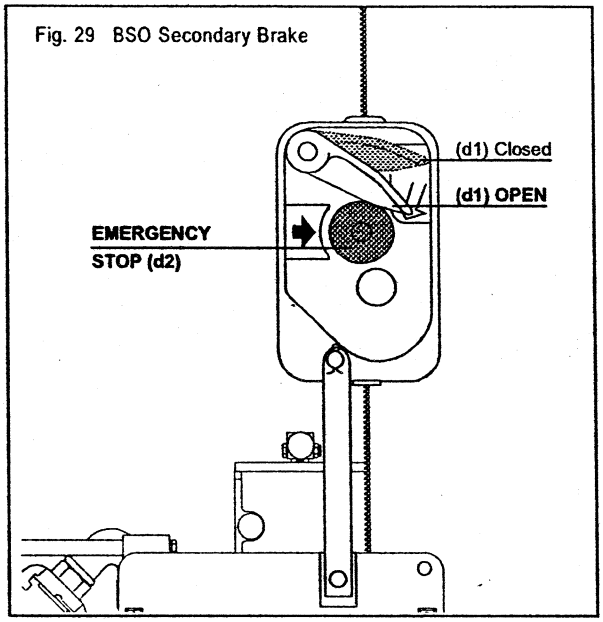


Fig. 29 BSO Secondary Brake



CAUTION: If the BSO secondary brake repeatedly stops downward travel, contact the supplier for advice.
Check wire rope diameter (see Table 5, page 12).

WARNING:

NEVER DETACH BSO SECONDARY BRAKE, WHEN THE HOIST IS RIGGED ON THE PLATFORM IN SUSPENDED CONDITION!

6. TROUBLE SHOOTING

WARNINGS!

Avoid injuries:

1. **Checks and repair of the pneumatic equipment must only be carried out by QUALIFIED persons!**
2. **Any other repair should only be carried out by a TRACTEL authorized technician, and only original spare parts shall be used.**

6.1 Wire Rope Drive Mechanism Troubles

Problem	Cause	Remedy
Wire rope does not move through, i. e. no UP nor DOWN movement.	It is likely that damaged wire rope is jamming the hoist.	**WARNING: STOP OPERATIONS IMMEDIATELY!** Continued operation might cause wire rope failure. Contact the supplier.

6.2 Mechanical Troubles

Problem	Cause	Remedy
1. Unit operates but rope will not reeve.	a) Secondary brake is closed	a) Depress secondary brake control lever to be sure it is open.
	b) Wire rope improperly inserted.	b) Be sure wire rope has been passed through the secondary brake, into the wire rope driving mechanism and is in full contact with the sheave.
	c) Wire rope improperly prepared.	c) Ensure wire rope end is properly prepared, has no weld berries on side and is straight for at least 4 inches (see 4.2 (5) on page 13).
2. Unit operates and wire rope reeves, but does not climb.	Defect wire rope	Check wire rope and replace if worn, or damaged.
3. Unit climbs, but does not descend.	Closed BSO secondary brake	Power up approximately 6 inches, and depress BLOCSTOP® control lever to open it.
4. Excessive wire rope wear.	Incorrect rigging	Rigging alignement – wire rope must pass straight through hoist, not at an angle (see 3.3, page 11).

6.3 Motor Troubles

CAUTION! Always turn off air supply before tightening, loosening, or removing air fittings or connections.

Problem	Cause	Remedy
1. Motor does not run at all.	No air power.	a) Check proper flow and air pressure at the compressor and the hoist. b) Check to ensure that the compressor outlet valves are fully opened. c) Check for air pressure at the hoist machine. All hoses will be firm when under pressure.
2. Motor does not run, despite correct power supply.	a) Binding vanes	a) Clean and lubricate the motor (see 7.2.3 on page 22).
	b) Frozen vanes	b) Thaw the unit by blowing ducted dry heat on it. DO NOT USE OPEN FLAME! Use anti-freeze-lubricant (see 7.2.3 on page 22)
	c) Brake not released	c) Operate motor with brake released manually. If motor then starts: Return the unit for repair.
3. Motor stalls under load (On model LA 500 P10 with integrated load limit device, there is a **short hissing**, before the overload valve shuts down the air flow.)	a) Overload	a) Check load and reduce if necessary.
	b) Low pressure or flow	b1) Check air pressure and flow at the hoist and the compressor. b2) Use a seperate air line for each unit.
	c) Excessive amount of hoses being used with a "Y" connector	c) Use larger diameter hose.
	d) Vanes sticking	d) Lower a short distance, then try to lift.

6.3 Motor Troubles (continued)

CAUTION! Always turn off air supply before tightening, loosening, or removing air fittings or connections.

Problem	Cause	Remedy
4. Low power or low speed	a) Low pressure or flow	a1) Check air pressure and flow at the hoist and the compressor. a2) Check for leaks at all hose connections and replace seals wherever necessary. a3) Check for tight kinks in air lines. Bends and tight kinks will restrict air flow.
	b) Excessive amount of hoses being used with a "Y" connector	b1) Use larger diameter hose. b2) Use a seperate air line for each unit.
	c) Oil shortage	c) Check oiler on air preparation unit, 10 drops/minute required.
5. Unit stops while in operation and will not restart.	Power failure	Check according to No. 1.
6. Abnormal motor noise.	a) Oil shortage b) Debris in traction	a) Check lubrication. b) Return the unit for repair to the supplier.
7. Lubricator will not function	a) Oil shortage b) Incorrect oil	a) Check oil level in reservoir bowl. b) Replace oil with Amoco Industrial No. 32 or equal.
8. Exhaust ices up and motor looses power.	Damp compressed air	Use an antifreezing lubricant (see 7.2.3 on page 22).
9. Motor ices up and will not run	a) Damp compressed air	a1) Thaw muffler with ducted heat. DO NOT USE OPEN FLAME! a2) Thaw entire unit with ducted heat.

6.4 BSO Secondary Brake Troubles

Problem	Cause	Remedy
1. Hoist goes up but not down.	BSO secondary brake is closed: Primary wire rope has run out or has failed.	**WARNING: STOP DOWNWARD TRAVEL! Proceed according para. 5.4, (3), page 17.**
2. BSO secondary brake automatically closes without apparent reason.	a) Mechanical defect. b) Oversized or damaged wire rope	a) Contact the supplier. b) Check wire rope and replace, if necessary.

If you cannot find a trouble's cause, contact the supplier.

7. INSPECTIONS and MAINTENANCE

NOTE: A maintenance program should start for each hoist immediately after it is entered into service.
This maintenance program should comply with recommendations in the applicable parts of the Instruction Manual, and all pertinant Federal, State, Provincial and Local regulations.

Unauthorized replacement parts:
Use only Tractel replacement parts. The replacement of any part with anything other than a Tractel authorized replacement part may adversely affect the function and safety of this hoist and voids the warranty. Tractel disclaims liability for any claims of damages, whether warranty, property damage, personal injury or death arising from the use of unauthorized parts.

Regular inspections should be followed along the life of the hoist and documented by written inspection records.

7.1 Inspections

7.1.1 DAILY INSPECTIONS

EACH DAY **PRIOR TO USE** AND DURING OPERATION CHECK:

(1) **Pneumatic:**

a) Check oil level in air preparation unit.

b) Check condition of all air hoses and connectors, if damaged DO NOT USE THEM.

c) Check all air line connections for locking pins and strain relief. Be sure all relief devices are properly connected and air line is supported by work platform and not the hoist.

d) Check motor function. If it makes unusual noises, starts sluggishly or will not start, before using refer to TROUBLE SHOOTING page 18/19.

(2) **Primary brake function:** Lift platform 3 ft (1 m) above ground or safe surface. Start and stop downwards travel – the platform must be immediately held. If not, STOP working and replace the hoist.

(3) **BLOCSTOP® BSO** secondary brake function.

I At ground level first close the BSO secondary brake by pushing EMERGENCY STOP button (d2). Then push control lever/valve in DOWN-position and make the wire rope form a loop between TIRAK® casing and BSO secondary brake (Fig. 30). Open BSO secondary brake by pulling down control lever (d1) until it locks in the open position.

With gloved hands sharply pull wire rope in arrow direction (Fig. 30) – the BSO secondary brake should close immediately. Reset BSO secondary brake by pulling down control lever (d1) until it locks in the open position.

II Lift platform 3 ft. (1 m) above ground or safe surface, and push EMERGENCY STOP button (d2) of the BSO secondary brake (Fig. 31). Try to lower the platform to check that the BSO secondary brake holds the load. A loop should form as shown in Fig. 30, which means the BSO secondary brake is supporting the load.

Raise platform until the hoist supports the load Reset (d1) to the open position.

III During operation regularly check through the window (d3) that the centrifugal weights are rotating (Fig. 31).

(4) **Wire rope damage:** kinks, cuts, broken wires, birdcages, heat damage, contamination etc. – replace if such damage is noticed.

(5) **Wire rope corrosion** due to acid or caustics. Replace wire rope if exposed to these contaminants.

(6) **Wire rope lubrication:** The wire rope has to be clean and lightly lubricated.

(7) **Rigging**
Wire rope termination, connection to the suspension system. It must be aligned and secure.

Fig. 30

BSO Secondary Brake
Check I

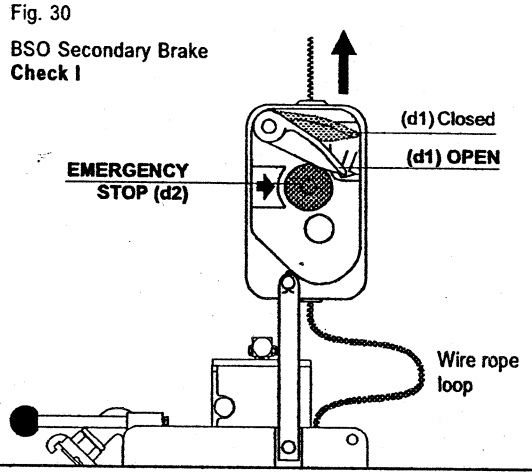
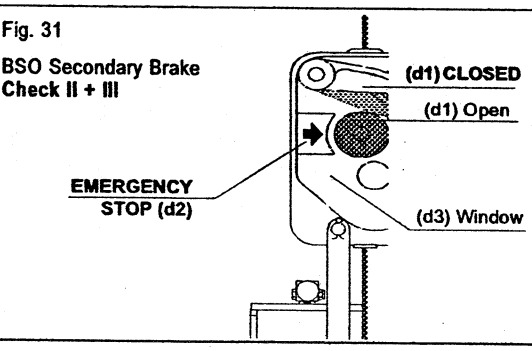


Fig. 31

BSO Secondary Brake
Check II + III



(8) Check for **parts damage.**

WARNING:
If there apparent damage on any part: STOP working, unless the damaged part(s) is (are) replaced.

(9) **Safety harness(es), lifeline(s), fall arrester(s) and lanyard(s) must be used at all times** in accordance with the requirements of OSHA regulations and state, provincial or local codes.

7.1.2 MONTHLY INSPECTIONS

(1) All items under daily inspection.

(2) Wire Rope Inspection

All wire rope should be inspected once a month, and a **signed and dated inspection record** maintained.

WIRE ROPE SHOULD BE REPLACED, IF ANY OF THE FOLLOWING CONDITIONS ARE NOTED:

Conditions that require immediate wire rope replacing:

- Broken wires or strands.
- Excessive corrosion.
- Heat damage, evident through discolored wires.
- Reduction from nominal diameter of more than 5 %.
- Kinking, crushing, birdcaging, or any other distortion of the wire rope structure (Fig. 32).

NOTE: How to measure wire rope diameter:

The correct diameter of the wire rope is the largest cross-sectional measurement across the strands (and not the valleys).

The measurement should be made carefully with calipers as shown in Figs. 33a and 33b.

WARNING: REPLACEMENT WIRE ROPE MUST BE SAME SIZE, GRADE, AND CONSTRUCTION AS THE WIRE ROPE SPECIFIED BY THE SUPPLIER! (See pages 7, 11)

THE SUPPLIER DECLINES ALL RESPONSIBILITY FOR MACHINES USED WITH A WIRE ROPE OTHER THAN SPECIFIED BY HIM.

7.1.3 1/2-YEAR INSPECTION

NOTE: The hoist should be examined every 6 months by the supplier or a repair shop agreed by him.

A signed and dated inspection record should be maintained.

If a **gearbox oil change** is necessary, a qualified person should take one of the **synthetic oils** specified below. The oil is selected according to the temperature range that the hoist usually will be used in.

Figure 32 Examples of wire rope damage

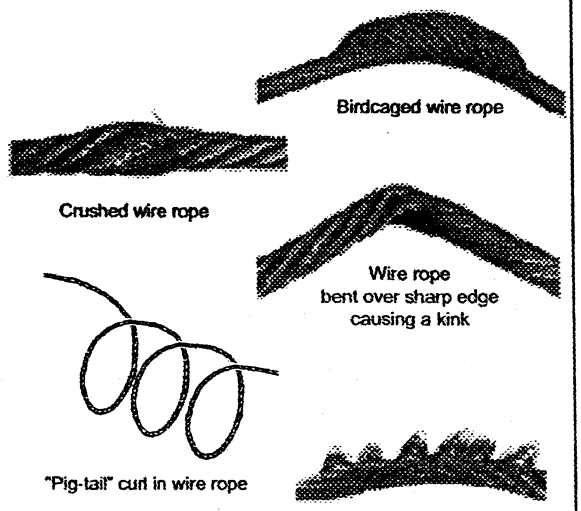


Figure 33a Checking Wire Rope Diameter "d"

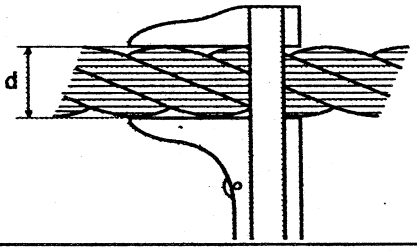
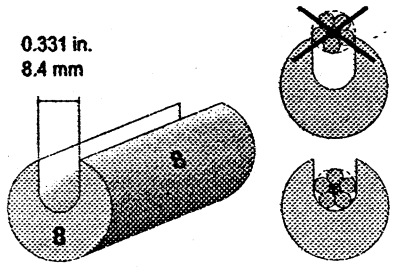


Figure 33b **Maximum allowable** Wire Rope Diameter "d", check with the TRACTEL guage



Quantity required:

LA 500 P1: **1.4 liters**

Temperature range	-5 to 176 degF -15 to +80 °C	-31 to 104 degF -35 to +40 °C
	Synthetic oils [2]	
API Specification	CLPPG or PGLP ISO VG 460 [1]	CLPPG or PGLP ISO VG 100
Sample oils	BP Enersyn SG-XP 460 SHELL Tivela Oil SD 460 TEXACO Synlube CLP 460	BP Enersyn SG-XP 100 SHELL Tivela Oil SD 100 TEXACO Synlube CLP 100

Table 6

1) Standard charge
2) Use only synthetic oils!

7.2 Maintenance

7.2.1 TIRAK® Hoist

(1) Daily check the primary and BSO secondary brake.

(2) Daily check for visible part damage.

(3) Keep wire ropes clean and lightly lubricated to prevent abnormal wear of the wire rope driving mechanism.

7.2.2 Wire Ropes

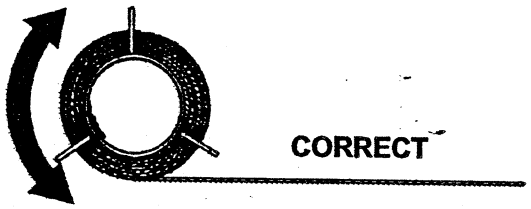
(1) Use only wire ropes, which meet the manufacturers specifications. For details see pages 7 and 12.

This will ensure the reliable function of the hoist.

(2) To warrant maximum lifetime we recommend:

- The wire rope must be unreeled and reeled in a straight line (Fig. 34).

Figure 34 Wire Rope Handling



- Keep wire ropes clean.
- Lubricate wire ropes regularly with a rag soaked with oil.
- Never let the wire ropes rub against sharp edges.
- Always see that the wire rope outlet is not obstructed.
- Let the free wire rope end untwist to prevent wire rope from making loops.
- If the wire rope changes direction, it should be guided by sheaves or rollers to avoid damage.

7.2.3 Air Motor

a) **The air motor must be continuously lubricated by an oiler.**

Adjust the oiler set screw so that the air is fed with approx. 10 drops of oil per minute.
Take care that the oiler is always well filled.

b) **After longer rest periods** pour some 1 oz. of air tool oil or kerosene into the supply hose and let the motor run for 10 to 15 seconds.

Shut off the air supply and bleed all air pressure from the supply line:

Then pour some 1 oz. (10 cm^3) of oil into the hose and let he motor run for two seconds to let the oil be well distributed in the motor, which guarantees for a better performance and the longevity of the motor.

c) **Before longer rest periods** prepare the motor the same way to prevent rust formation.

Important:

Use hydraulic oils, free of resin or acid, according to HLP/HVLP 32.

For damp compressed air, oilers are to be used that take up water without loosing the lubricant effect, and that contain anticorrosive additives.

At lower temperatures, especially for outside works, it may be necessary to use anti-freeze lubricant, according to ISO VG 32 (e. g. ARAL VITAN DE 32, BP Energol HLP 32, DEA Arcus DLP 32).

7.2.4 BLOCSTOP BSO Secondary Brake

Besides the daily checks, keep all wire ropes clean and lightly lubricated.

7.3 Storage

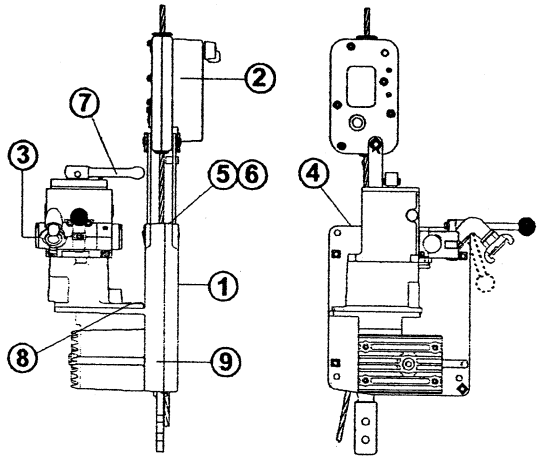
When not in service, store all equipment in a cool, clean and dry place.

7.4 Long Term Maintenance

If the hoist is not used for periods greater than 6 months, the hoist should be reinspected by the supplier or repair shop agreed by him prior to reuse.

8. NAMEPLATES & LABELS

Figure 35 Nameplates and Labels



8.1 Nameplates

(1) TIRAK® nameplate with General Warnings
(2) BLOCSTOP® secondary brake nameplate

8.2 Labels

(3) Advice label for Air preparation unit
(4) Wire rope diameter label
(5) Warning label (wire rope jam)
(6) Advice label (secondary brake operation)
(7) Emergency Descent label
(8) UP/DOWN Signs for control lever
(9) UP/DOWN label for remote control valve
(10) UL classification label
(11) UL-C classification label (only on hoists with incorporated load limit valve)

NOTE: If any nameplate or label is missing or obscured, contact the supplier for replacement nameplates/labels.

(1)

tirak® **Model LA 500 P1O**

Extension "O" on models **with Load Limit Valve**

tirak® **Model LA 500 P1**

US. PATENTS:
N° 3,965,767 / 4,193,311 / 4,345,741 / 4,706,940.
Other US. PATENTS PENDING.

Made in Germany Printed in Germany

Rated load: 1,000 lbs 450 kgs
Travel speed: 33 ft/min 10 m/min
Maximum rated inlet pressure: 85 psi
Serial No.: Year of manufacture: 200 /
Wire rope diameter: 5/16 in. 8.4 mm
Wire rope classification/construction: 5x19, or 5x26, with fiber core, galvanized, lubricated, preformed, IPS or XIPS.

⚠ WARNING:
FOR SAKE OF SAFETY:
Only authorized, properly trained, and physically fit personnel shall operate this hoist.
Prior to use, they must have read and fully understood the rigging, operating and maintenance instruction of the manual and on the hoist. A copy of the manual must be kept with the hoist.
Operation must be in strict accordance with these instructions on the hoist and applicable codes!

⚠ WARNING:
BLOCSTOP® OVERSPEED device is an integral part of the hoist and essential for safety. **NEVER DETACH!**
This equipment must be used with proper fall protection equipment in accordance with OSHA requirements.

EMERGENCY DESCENT:
Pull brake release lever upwards.
To STOP release lever.

SET-UP INSTRUCTIONS: Anchor the hoist, and connect to air supply. Start motor, and introduce wire rope, until it reeves itself automatically.
Ensure free rope exit.

Use only specified wire rope in good condition with short tapered end! **Daily check** for broken wires and kinks.

For spare parts or in case of inquiry please mention **Machine Type and Serial No.!**

Supplier's address

Code 22990

(2)

BLOCSTOP®
fall arrest device

Model	Serial number
BSO	

Rated load	Wire rope Ø	Year of manuf.
kg lbs.	mm in.	

CHECKING

1) Before going aloft, daily check as follows:
- At ground level push DOWN button and allow the wire rope to form a bow between TIRAK® casing and BSO secondary brake.
  With gloved hands **sharply pull wire rope upwards** – the BSO secondary **brake should close immediately.**
- Lift platform 3 ft. (1 m) above ground or safe surface, and **push EMERGENCY STOP** button of the BSO secondary brake.
  Lower the platform to **check that the BSO secondary brake holds the load.**
  Raise platform until the hoist supports the load. Reset BSO secondary bake by pushing down control lever until it locks.

2) During operation **centrifugal weights must rotate.**
Check regularly through the window.

WARNING: If during the above checks the BLOCSTOP malfunctions, replace it and return to the supplier for inspection. Address see TIRAK nameplate.

Made in Germany

Code 25920

(3)

Use only with **air preparation unit !**

Code 23030

(4)

Wire rope
Ø
5/16"

Code 27660

(5)

If the motor energizes but the wire rope does not move through the hoist:
STOP THE HOIST IMMEDIATELY!
Damaged wire rope may be jammed inside the hoist. Any attempt to move the hoist up or down could cause a dangerous situation and result in bodily injury.

Code 22080

(6)

NOTICE: **This hoist is equipped with a controlled descent device that will automatically engage in case of primary brake failure. Descent can be stopped with manual operation of the secondary brake.**

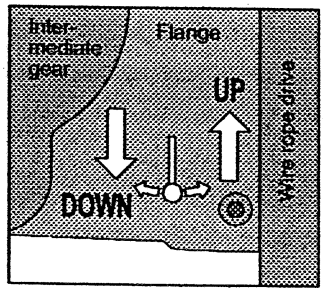
Code 22230

(7)

EMERGENCY DESCENT Raise and hold the lever. To STOP release the lever.

Code 23260

(8)

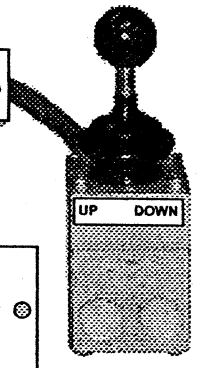


Molded intermediate gear flange
(top view)

(9)

o UP DOWN o

Code 23100



Remote control

(10)

CLASSIFIED UL 400 S

Scaffolding equipment classified by Underwriters Laboratories Inc.® as to load capacity only.

Code 23280

(11)

CLASSIFIED UL 400 S

Scaffolding equipment classified to U. S. and Canadian safety standards by Underwriters Laboratories Inc.® as to load capacity only.

CLASSIFIED c UL

Code

9. WARRANTY INFORMATION

(1) TRACTEL Inc. resp. TRACTEL Ltd. warrants its equipment to be free from defects in material and workmanship under normal use and service.

(2) Our obligation under this warranty is limited to repairing or replacing, at our option, any part of the unit, which proves examination to our satisfaction to be defective in material or workmanship, if the item in question is returned through a TRACTEL Inc. resp. TRACTEL Ltd. distributor, transportation prepaid, within one (1) year from the equipment is sold to the original purchaser[1]. Return shipment must be prepaid.

(3) Any parts proved to be defective upon our inspection will be repaired or replaced at no cost for the parts themselves.

(4) The obligation under this warranty does not include labor or travelling costs, or consequential damages of any kind.

(5) Any defect in this equipment must immediately be brought to attention of the distributor from whom the unit was purchased. The distributor will make arrangements with the factory for repairs or replacement of parts within the terms of this warranty.

(6) The obligation of TRACTEL Inc. resp. TRACTEL Ltd. is limited to replacing parts and does not include replacing the complete unit. This warranty is void on any unit that has been modified or tampered with, repaired by persons other than a factory representative or an authorized TRACTEL Inc. resp. TRACTEL Ltd. distributor, repaired with other than TRACTEL Inc. resp. TRACTEL Ltd. standard parts, or damaged by reasons of accident, alteration, misuse, or abuse.

(7) This warranty is in lieu of all other warranties, expressed or implied. We do not authorize any person or representative to make other guarantee or to assume for us any liability in connection with the sale of our appliances other than those contained herein. Any agreement outside of or contradictory to the foregoing shall be void and of no effect.

(8) Warranty is void, if wire rope does not comply with specifications found in this document.

(9) The replacement of anything other than a TRACTEL Inc. resp. TRACTEL Ltd. authorized replacement part voids the warranty. TRACTEL Inc. resp. TRACTEL Ltd. disclaims liability for any claims of damages, whether warranty, property, damage, personal injury, or death arising from the use of unauthorized parts.

1) "Original purchaser" definition:
for rental machines: Dealer,
~~for resale machines: First user.~~

10. ADDITIONAL SOURCES AND TRAINING

The Scaffold Industry Association
offers a certificated training course for suspended scaffold users.

Information may be obtained from

Scaffold Industry Association
20335 Ventura Blvd. Suite 310
Woodlands Hills, California 91364

Telephone: (818) 610-03 20
Fax: (818) 610-03 23
www.scaffold.org
e-mail: sia@scaffold.org

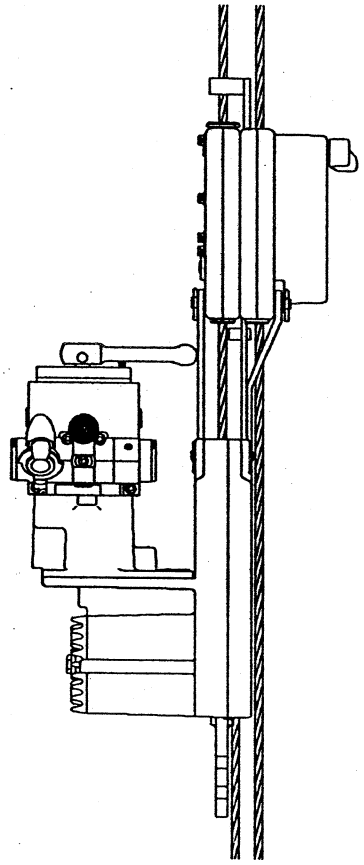
GENERAL RECOMMENDATION

Always consider ways to exceed minimum safety requirements of regulations and codes.
Due to the risks inherent in the use of suspended elevating systems,
the supplier strongly recommends that every installation
be equipped with support and suspended systems that include secondary wire rope(s).

Two-wire-rope-systems are MANDATORY for

- **multilevel platforms,**
- **platforms with overhead protection,**
- **platforms with obstructions above the worker.**

TIRAK® model LA 500 P2



This can be carried out by using
TIRAK® P2-models for 2-wire-rope-systems
including BLOCSTOP® BS/BSO secondary brake.

Ask TRACTEL Inc. resp. TRACTEL Ltd. for details.

GIVE TO SCAFFOLD ERECTOR & USER OR POST ON JOB

CODE OF SAFE PRACTICES FOR

SUSPENDED POWERED SCAFFOLDS

It shall be the responsibility of all employers and users to read and comply with the following common sense guidelines, which are designed to promote safety in the erection and use of suspended powered scaffolds. These guidelines do not purport to be all-inclusive nor to supplant or replace other additional safety and precautionary measures to cover usual or unusual conditions.

If these guidelines conflict in any way with any state, local or federal statute or governmental regulation, said statute or regulation shall supersede these guidelines. It is the responsibility of each user to comply with these guidelines.

I. GENERAL GUIDELINES

A. POST THESE SAFETY GUIDELINES in a conspicuous place and be sure that all persons who erect, use, locate, or dismantle suspended elevating systems are fully aware of them.

B. FOLLOW ALL EQUIPMENT MANUFACTURERS' RECOMMENDATIONS as well as all state, local and federal codes, ordinances and regulations relating to suspended powered scaffolding.

C. SURVEY THE JOBSITE.
A survey shall be made of the jobsite for hazards such as exposed electrical wires, obstructions that could overload or tip the suspended powered scaffold when it is raised or lowered, unguarded roof edges or openings, inadequate or missing tiebacks.
Those conditions should be corrected before installing or using suspended powered scaffold systems.

D. INSPECT ALL EQUIPMENT BEFORE EACH USE.
Never use any equipment that is damaged or defective in any way. Tag damaged or defective equipment and remove it from the jobsite.

E. ERECT AND DISMANTLE SUSPENDED POWERED SCAFFOLD EQUIPMENT in accordance with design and/or manufacturer's recommendations.

F. DO NOT ERECT, DISMANTLE, OR ALTER SUSPENDED POWERED SCAFFOLD SYSTEMS unless under the supervision of a competent person.

G. DO NOT ABUSE OR MISUSE SUSPENDED POWERED SCAFFOLD EQUIPMENT.
Never overload platforms or hoists.

H. ERECTED SUSPENDED POWERED SCAFFOLDS SHOULD BE CONTINUOUSLY INSPECTED by the user to ensure that they are maintained in a safe condition. Report any unsafe condition to your supervisor.

I. NEVER TAKE CHANCES! IF IN DOUBT REGARDING THE SAFETY OR USE OF SUSPENDED SCAFFOLDS, CONSULT YOUR SCAFFOLD SUPPLIER.

J. NEVER USE SUSPENDED SCAFFOLDS EQUIPMENT FOR PURPOSES OR IN WAYS FOR WHICH IT WAS NOT INTENDED.

K. CARE SHOULD BE TAKEN WHEN OPERATING AND STORING EQUIPMENT DURING WINDY CONDITIONS.

L. SUSPENDED POWERED SCAFFOLD SYSTEMS should be installed and used in accordance with the manufacturer's recommended procedures.
Do not alter components in the field.

M. SUSPENDED POWERED PLATFORMS MUST NEVER BE OPERATED NEAR LIVE POWER LINES, unless proper precautions are taken.
Consult the power service company for advice.

N. ALWAYS ATTACH FALL ARREST EQUIPMENT when working on suspended powered scaffolds.

O. DO NOT WORK ON OR INSTALL SUSPENDED POWERED SCAFFOLDS if your physical condition is such that you feel dizzy, or unsteady in any way.

P. DO NOT WORK ON SUSPENDED POWERED SCAFFOLDS when under influence of alcohol or illegal drugs.

II. GUIDELINES FOR ERECTION AND USE OF SUSPENDED SCAFFOLD SYSTEMS.

A. RIGGING:

1. WEAR FALL PREVENTION EQUIPMENT when rigging on exposed roofs or floors.
2. ROOF HOOKS, PARAPET CLAMPS, OUTRIGGER BEAMS, OR OTHER SUPPORTING DEVICES must be capable of supporting the hoist machine rated load with a factor of safety of 4.
3. VERIFY THAT THE BUILDING OR STRUCTURE WILL SUPPORT the suspended loads with a factor of safety of 4.
4. ALL OVERHEAD RIGGING must be secured from movement in any direction.
5. COUNTERWEIGHTS USED WITH OUTRIGGER BEAMS must be of a non-flowable material and must be secured to the beam to prevent accidental displacement.
6. OUTRIGGER BEAMS THAT DO NOT USE COUNTERWEIGHTS must be installed and secured on the roof structure with devices specifically designed for that purpose. Direct connections shall be evaluated by a competent person.
7. TIE BACK ALL TRANSPORTABLE RIGGING DEVICES. Tiebacks shall be equivalent in strength to suspension ropes.
8. INSTALL TIEBACKS AT RIGHT ANGLES TO THE FACE OF THE BUILDING and secure, without slack, to a structurally sound portion of the structure, capable of supporting the hoisting machine rated load with a safety factor of 4.
IN THE EVENT TIEBACKS CANNOT BE INSTALLED AT RIGHT ANGLES, two tiebacks at opposing angles must be used to prevent movement.
9. RIG AND USE HOISTING MACHINES DIRECTLY UNDER THEIR SUSPENSION POINTS.

B. WIRE ROPE AND HARDWARE:

1. USE ONLY WIRE ROPE AND ATTACHMENTS as specified by the hoisting machine manufacturer.
2. ASSURE THAT WIRE ROPE IS LONG ENOUGH to reach to the lowest possible landing.
3. CLEAN AND LUBRICATE WIRE ROPE in accordance with the wire rope manufacturer's instructions.
4. HANDLE WIRE ROPE WITH CARE.
5. COIL AND UNCOIL WIRE ROPE in accordance with the wire rope manufacturer's instructions in order to avoid kinks or damage.
6. TIGHTEN WIRE ROPE CLAMPS in accordance with the clamp manufacturer's instructions.
7. DO NOT USE WIRE ROPE THAT IS KINKED, BIRD-CAGED, CORRODED, UNDERSIZED, OR DAMAGED IN ANY WAY. Do not expose wire rope fire, undue heat, corrosive atmospheres, electricity, chemicals, or damage by tool handling.
8. USE THIMBLES AND SHACKLES AT ALL WIRE ROPE SUSPENSION TERMINATIONS.
9. USE J-TYPE CLAMPS OR SWEDGE FITTINGS.
   Do not use U-bolts.
   Retighten J-Clamps under load and retighten daily.
10. WIRE ROPES USED WITH TRACTION HOISTS MUST HAVE PREPARED ENDS. Follow manufacturer's recommendations.

*** C. AIR SUPPLY:**

* PARA. C. AIR SUPPLY has been added for Air Hoists by GREIFZUG Hebezugbau GmbH.

1. USE ONLY WITH AIR PREPARATION KIT (filter, regulator, lubricator) to adjust pressure.
2. USE AIR HOSES OF PROPER SIZE, LENGTH AND RATING for the job.
3. AIR HOSE CONNECTIONS MUST BE SECURED to prevent accidental separation.
4. The supply hose must have a STRAIN RELIEF DEVICES TO PREVENT IT FROM FALLING FROM THE SUSPENDED SCAFFOLD.
5. PROTECT AIR POWER HOSES FROM SHARP EDGES AND ABRASION.

D. FALL ARREST EQUIPMENT:

1. EACH PERSON ON A SUSPENDED POWERED SCAFFOLD must be attached to a separate fall arrest system unless the installation was specifically designed not to require one.
2. EACH LIFELINE MUST BE FASTENED to a separate anchorage capable of holding a minimum of 5000 pounds.
3. DO NOT WRAP LIFELINES AROUND STRUCTURAL MEMBERS unless lifelines are protected and a suitable anchorage connection is used.
4. PROTECT LIFELINES AT SHARP CORNERS to prevent chafing.
5. RIG FALL ARREST SYSTEMS to prevent free fall in excess of six feet.
6. SUSPEND LIFELINES FREELY without contact with structural members or building facade.
7. USE LIFELINES OF SIZE AND CONSTRUCTION that are compatible with the rope grab used.
8. ASSURE A PROPERLY ATTACHED ROPE GRAB IS INSTALLED ON EACH LIFELINE. Install in accordance with the manufacturer's recommendations.
9. KEEP FALL ARREST DEVICE POSITIONED ABOVE YOUR HEAD LEVEL.
10. USE ONLY FULL BODY HARNESSES of the proper size and that are tightly fastened.
11. ASSURE FULL BODY HARNESS HAS LANYARD attachment with D-ring at the center of your back.
12. CONSULT FALL PROTECTION SUPPLIER FOR INSPECTION PROCEDURE. INSPECT FALL PROTECTION ANCHORAGE EQUIPMENT BEFORE EACH USE.
13. WHEN A SECONDARY WIRE ROPE SYSTEM IS USED, a horizontal lifeline secured to two or more structural members of the scaffold may be used in lieu of vertical lifelines.

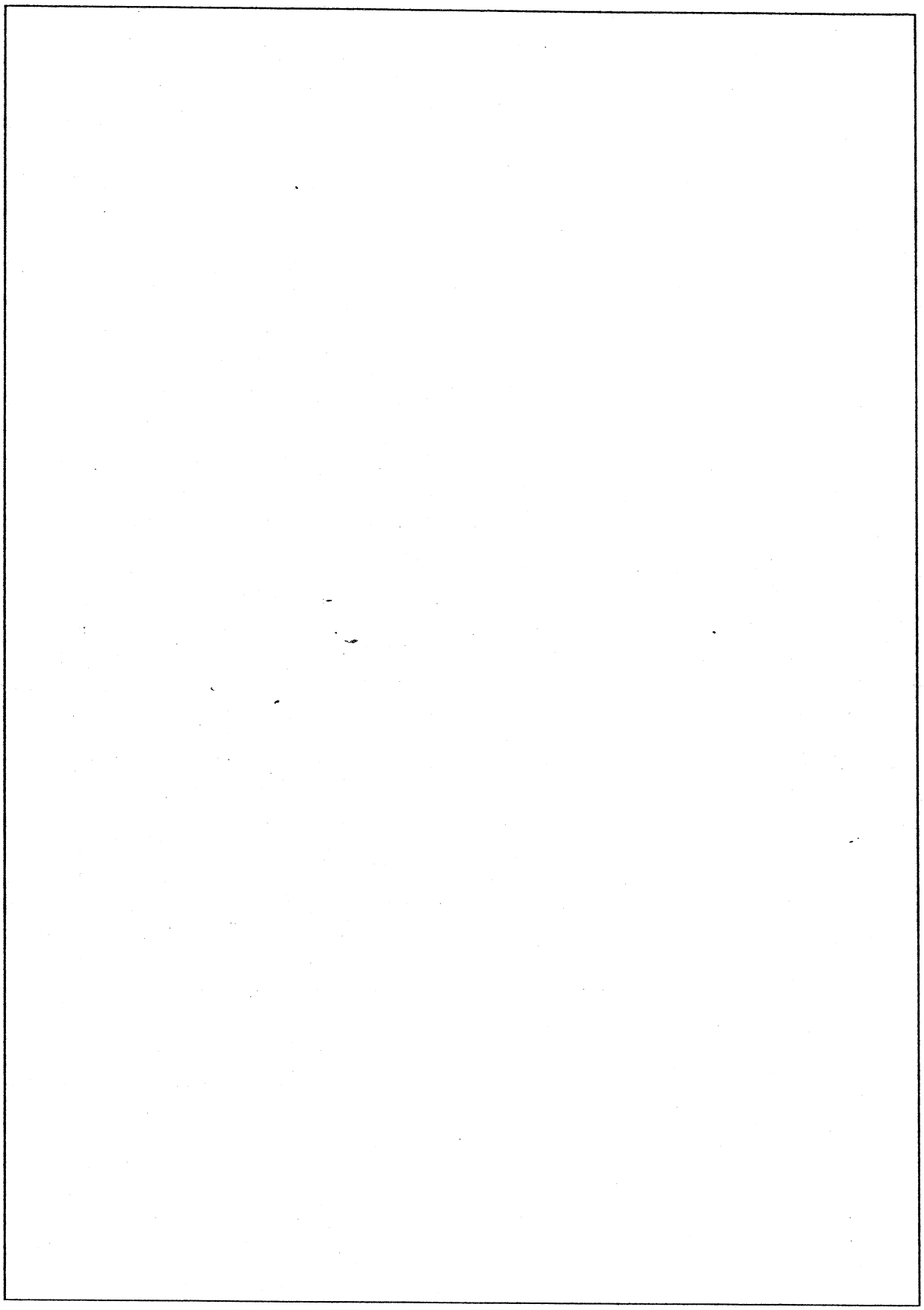
E. DURING USE:

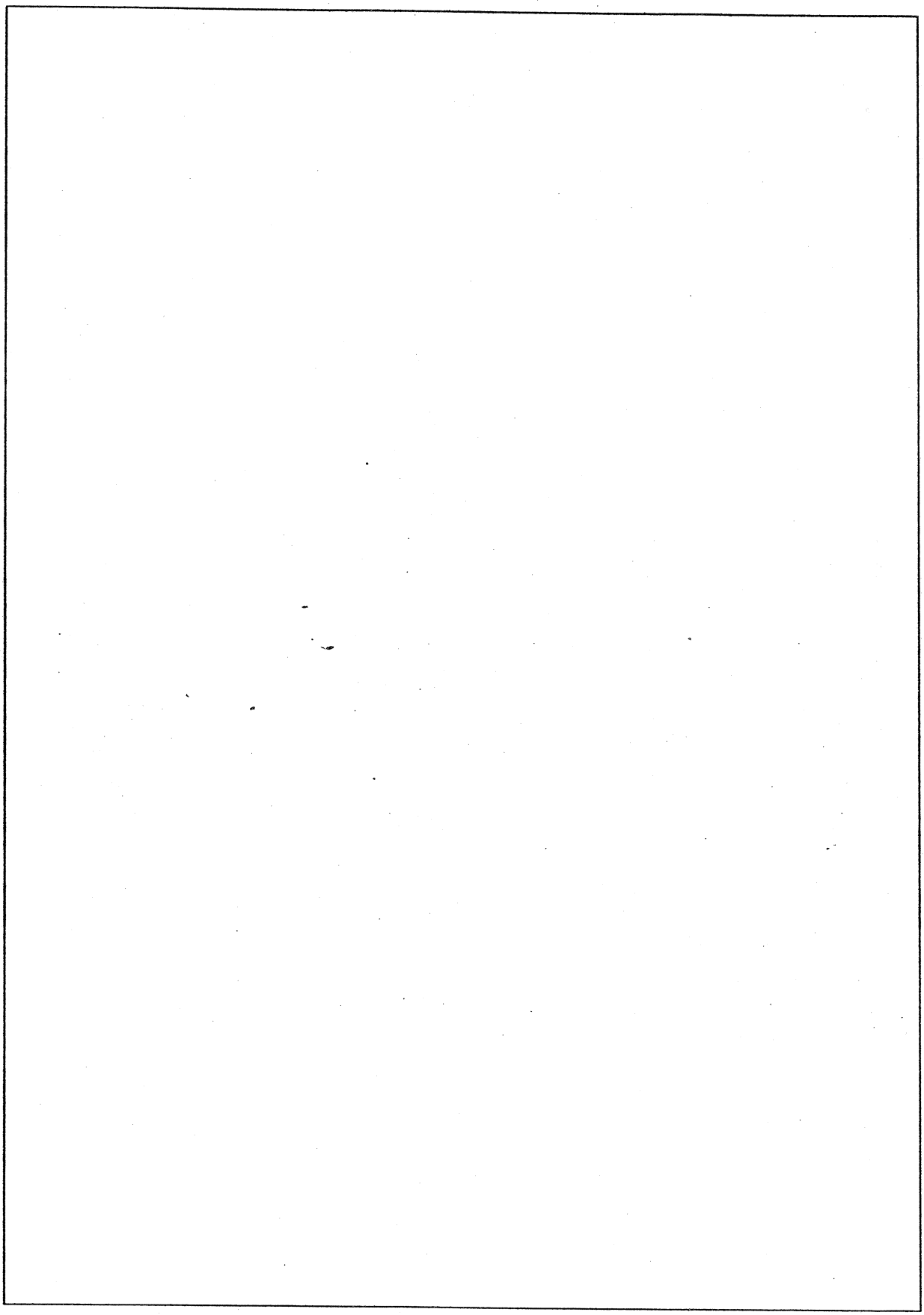
1. USE ALL EQUIPMENT AND ALL DEVICES in accordance with the manufacturer's instructions.
2. DO NOT OVERLOAD, MODIFY, OR SUBSTITUTE EQUIPMENT.
3. BEFORE COMMENCING WORK OPERATIONS preload wire rope and equipment with the maximum working load, then retighten wire rope rigging clamps and check rigging to manufacturer's recommendations.
4. INSPECT ALL RIGGING EQUIPMENT AND SUSPENDED POWERED SCAFFOLDS SYSTEMS DAILY.
5. INSPECT WIRE ROPE DURING EACH ASCENT OR DESCENT FOR DAMAGE.
6. USE CARE TO PREVENT DAMAGE TO EQUIPMENT by corrosive or other damaging substances.
7. CLEAN AND SERVICE EQUIPMENT REGULARLY.
8. ALWAYS MAINTAIN AT LEAST FOUR (4) WRAPS OF WIRE ROPE ON DRUM TYPE HOISTS.
9. DO NOT JOIN PLATFORMS unless the installation was designed for that purpose.
10. ONLY MOVE SUSPENDED SCAFFOLDS HORIZONTALLY WHEN NOT OCCUPIED.
11. WHEN RIGGING FOR ANOTHER DROP assure sufficient wire rope is available before moving the suspended elevating system horizontally.
12. WHEN WELDING FROM SUSPENDED POWERED SCAFFOLDS:
    a. Assure platform is grounded to structure.
    b. Insulate wire rope above and below the platform.
    c. Insulate wire rope at suspension point and assure wire rope does not contact structure along its entire length.
    d. Prevent the bitter end from touching the ground.

These safety guidelines set forth some common sense procedures for safely erecting, dismantling and using suspended powered scaffolding equipment. However, equipment and scaffolding systems differ, and accordingly, reference must always be made to the instructions and procedures of the supplier and/or manufacturer of the equipment.

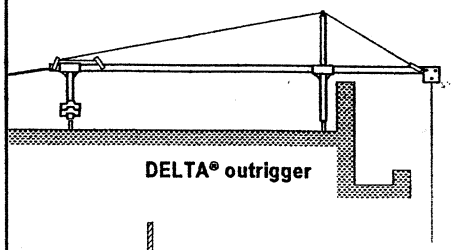
Since field conditions vary, and are beyond the control of the Scaffolding, Shoring and Forming Institute and Scaffold Industry Association, safe and proper use of scaffolding is the sole responsibility of the user.

Scaffold Industry Association Inc. & Scaffolding, Shoring and Forming Institute Inc., February 1998

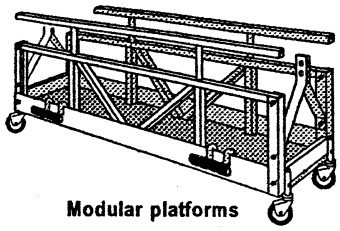




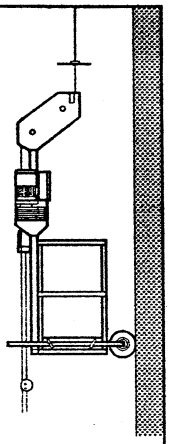
More information about access equipment ...



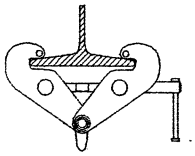
DELTA® outrigger



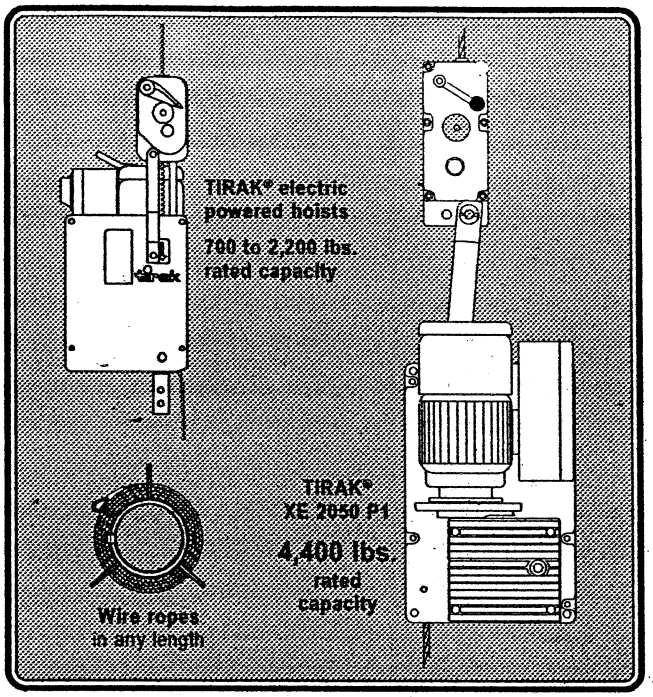
Modular platforms



Workcages

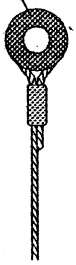


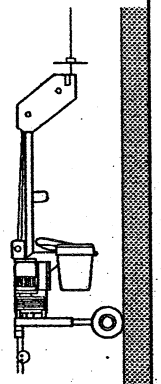
Beam clamps



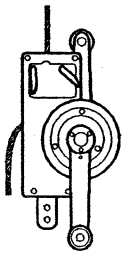
Electrical Accessories:

- Power cords
- Power yokes
- Booster transformer
- Insulated thimbles for welding:

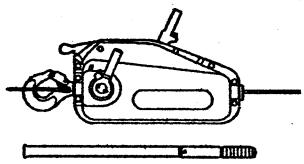




Bosun's chair



SCAFOR® manual hoist



GRIPHOIST® manual hoists

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