

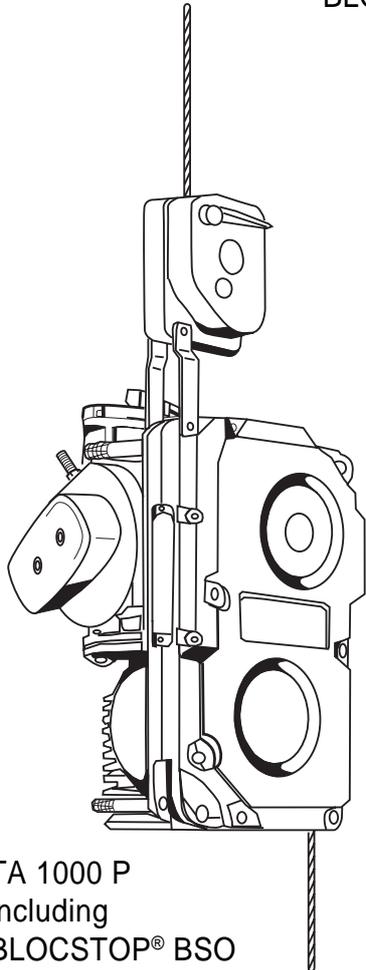
# tirak<sup>®</sup>

## Scaffolding Hoist

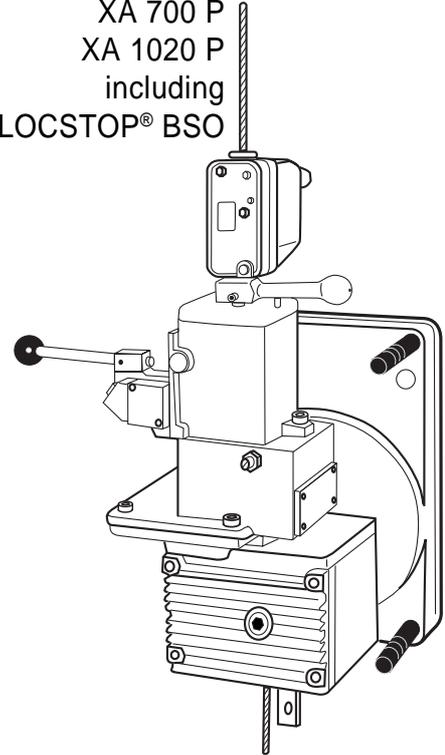
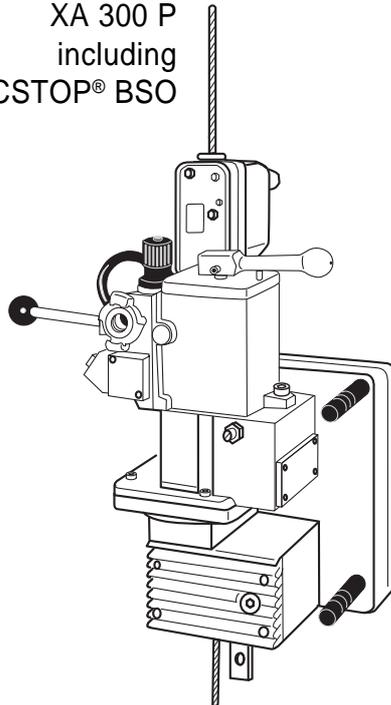
### Instruction Manual

XA 500 P  
XA 700 P  
XA 1020 P  
including  
BLOCSTOP<sup>®</sup> BSO

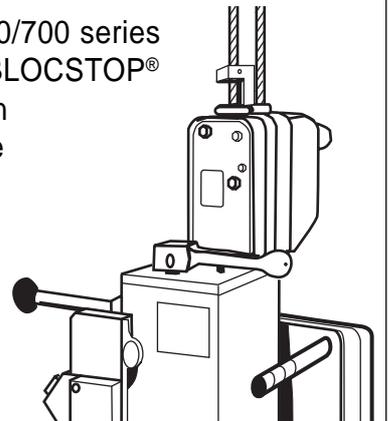
XA 300 P  
including  
BLOCSTOP<sup>®</sup> BSO



TA 1000 P  
including  
BLOCSTOP<sup>®</sup> BSO



XA 300/500/700 series  
including BLOCSTOP<sup>®</sup>  
BS/BSO on  
2 wire rope  
system



Griphoist<sup>®</sup> Division

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## Explanation of Symbols used in this manual

<u>Safety advice</u>			
Symbol	Code word	Meaning	Possible consequence of non-compliance
	<b>WARNING</b>	<b>IMMEDIATE or possibly imminent danger:</b>	<b>Fatal or serious injuries!</b>
	<b>CAUTION</b>	<b>possibly dangerous situation:</b>	<b>Injuries to persons or damage to property</b>
<u>Other advice</u>			
	<b>NOTE</b>	<b>possibly dangerous situation:</b>	<b>Damage to equipment or its surroundings</b>
	(none)	<b>Instruction to execution/ documentation in writing (i.e. record keeping)</b>	(none)

# INTRODUCTION

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



For that purpose they are UL 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
- D BLOCSTOP® BSO secondary brake, or
- E BLOCSTOP BS/BSO secondary brake
- F Air hose coupling
- G Control lever
- H Brake release lever

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.
- Mechanical emergency descent device.

The **secondary brake** (D) or (E), marked BLOCSTOP® BSO or BS/BSO **MUST ALWAYS BE ATTACHED AND USED.**

The original design requires, for safety and efficiency, that it be used with a **special TIRAK® wire rope** specified by the Manufacturer<sup>1)</sup>.

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.

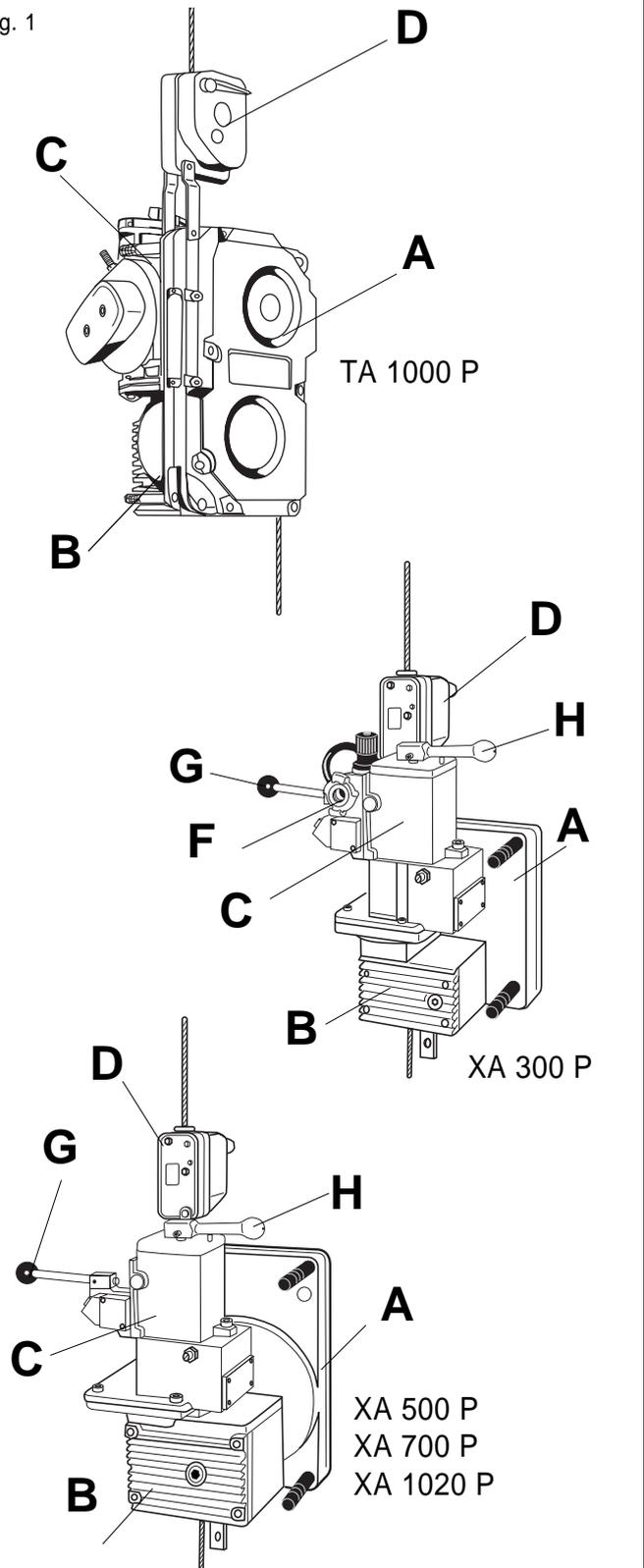
1) "Manufacturer" definition:  
**Greifzug Hebezeugbau GmbH**  
 Postfach 20 04 40  
 51434 Bergisch Gladbach Germany

"Supplier" definition regarding contact advice in this manual:

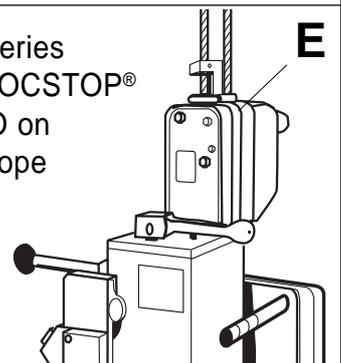
**TRACTEL Inc. Griphoist® Division**  
 110 Shawmut Rd. P.O. Box 68 • Canton, MA 02021  
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 Tel.: (800) 675-6727 • Fax: (626) 937-6730

Fig. 1



XA ... series  
 incl. BLOCSTOP®  
 BS/BSO on  
 2 wire rope  
 system





# 1. General Warning



## READ THIS GENERAL WARNING FIRST

**IN SUSPENDED SCAFFOLD 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 41 and 42).
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 scaffold system and any component of it.
5. Never use the TIRAK® hoist for any job other than lifting personnel on suspended scaffold 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 page 38 and 39). 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 scaffold 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 scaffold 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 scaffold 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 scaffold 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 scaffold 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 or BS/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 equipment: scaffold, workcage, bosun's chair or any other items or components.
24. Once the suspended scaffold, work-cage or bosun's chair 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 scaffold, work-cage or bosun's chair 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 scaffold, workcage or bosun's chair.
26. For any job to be performed on the suspended equipment, consider and control the specific risks related to the nature of the job.
27. 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.

### AN ULTIMATE RECOMMENDATION

Never neglect means to improve safety. Due to the risks inherent in the use of suspended scaffold systems, the supplier strongly recommends that every installation be equipped with secondary wire rope(s) fitted with a separate fall arrest system. Details about TIRAK® with BLOCSTOP® BS/BSO secondary brake on 2 wire rope systems at pages 24 to 37.

This manual is neither a regulations compliance manual nor a general training guide on suspended scaffold operations. You must refer to proper instructions delivered by manufacturers of the other pieces of equipment included in your suspended scaffold installation. 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 Motor and Primary Brake

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

### 2.2 Gear Reducer

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

### 2.3 Secondary Brakes

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

The BLOCSTOP® BS/BSO overspeed and slack wire rope locking device (E) – hereafter called BS/BSO secondary brake – additionally provides protection against slack wire rope or primary wire rope failure, when using secondary wire ropes.

**SECONDARY BRAKES MUST ALWAYS BE ATTACHED AND USED.**

### 2.4 Emergency Descent

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.

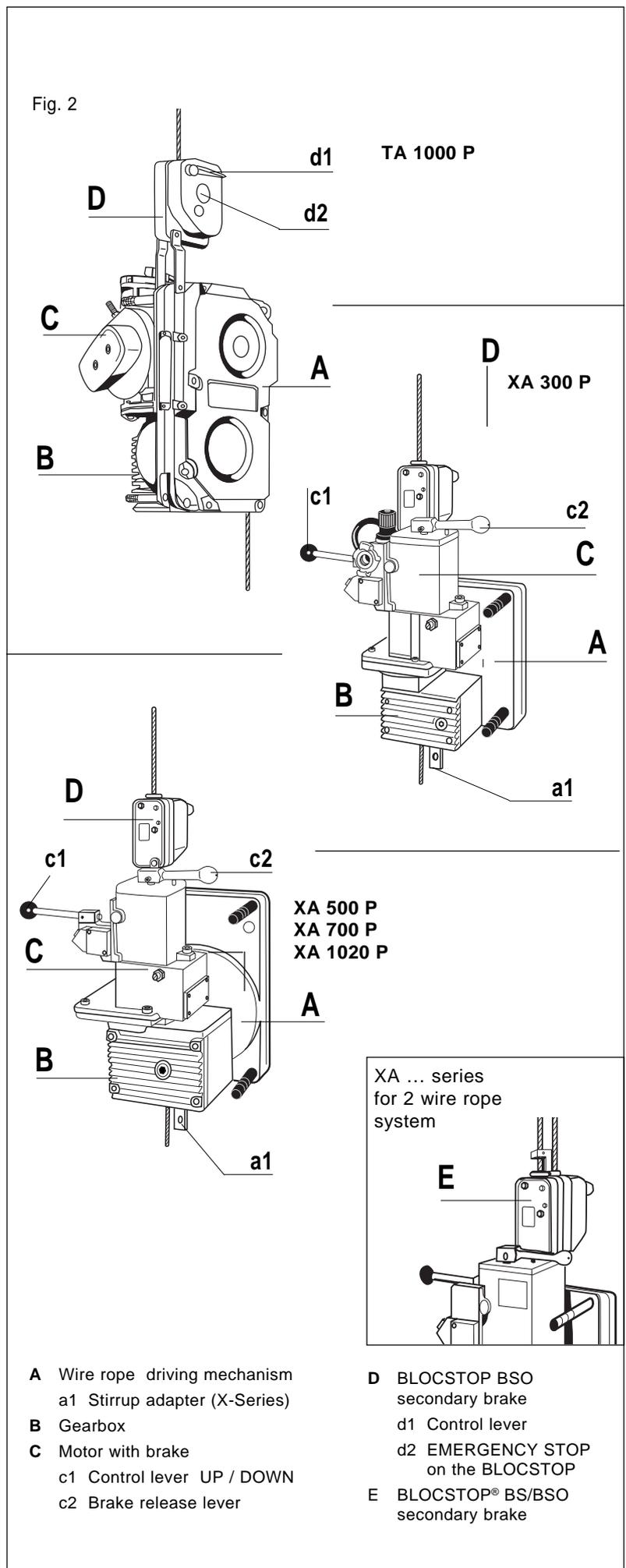
### 2.5 Wire Rope Driving Mechanism

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.

### 2.6 Wire Rope

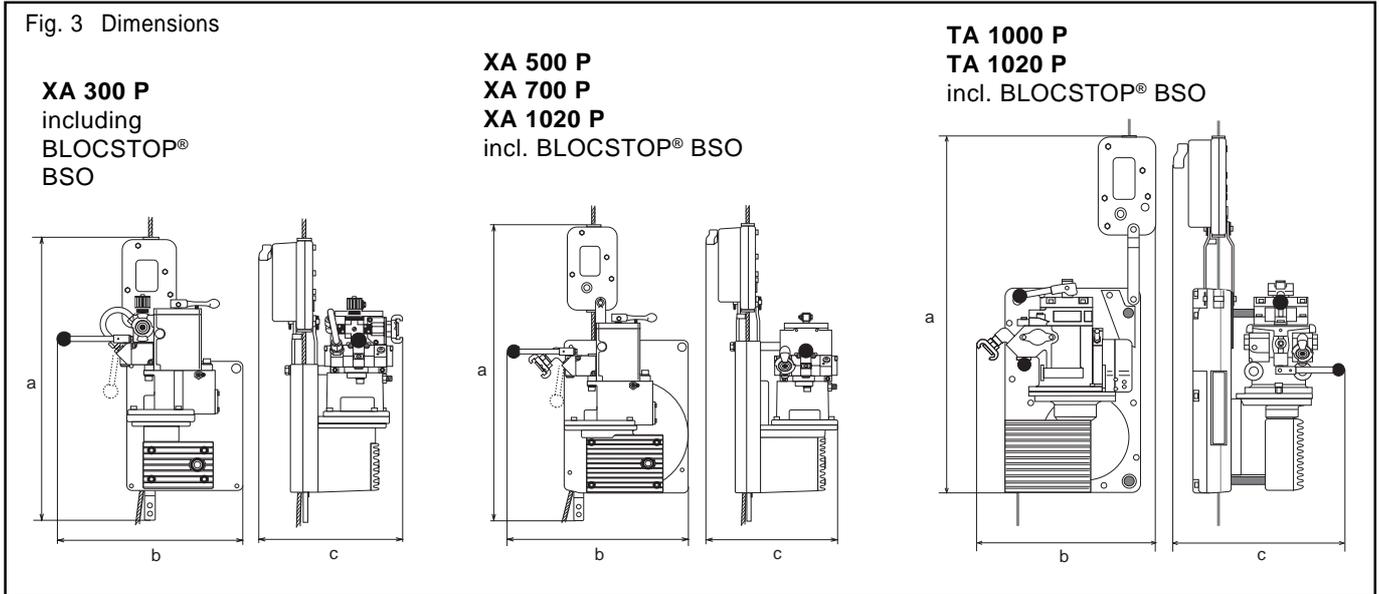
TIRAK® hoists use a Special TIRAK® Wire Rope (see chapter 4). Unless specifically specified in writing by the manufacturer, only this special TIRAK® wire rope may be used.

**NOTE:** The manufacturer declines all responsibility for machines used with a wire rope other than specified by them.



## 2.7 Technical Data

Fig. 3 Dimensions



TIRAK® Model	direct control	XA 300 P	XA 500 P	XA 700 P	XA 1020 P	TA 1020 P
	remote control	XA 300 PB	XA 500 PB	XA 700 PB	XA 1020 PB	TA 1020 PB
	including BLOCSTOP® Model	BSO 500		BSO 1000	BSO 1020	
<b>Rated load</b>	<b>lbs</b>	<b>700</b>	<b>1,000</b>	<b>1,500</b>	<b>2,000</b>	<b>2,000</b>
	<b>kg</b>	315	450	680	900	900
<b>Lifting speed</b>	<b>ft/min</b>	<b>33</b>	<b>35</b>	<b>30</b>	<b>23</b>	<b>35</b>
	<b>m/min</b>	10	11	9	7	11
<b>Weight (with BSO)</b>	<b>lbs</b>	<b>67</b>	<b>91</b>	<b>91</b>	<b>91</b>	<b>172</b>
	<b>kg</b>	30	41	41	41	78
<b>Dimensions over all</b>						
	<b>a in.</b>	<b>30.7</b>	<b>33.5</b>	<b>33.5</b>	<b>33.5</b>	<b>34.9</b>
	<b>mm</b>	779	858	858	858	886
	<b>b in.</b>	<b>15.9</b>	<b>16.9</b>	<b>16.9</b>	<b>16.9</b>	<b>16.5</b>
	<b>mm</b>	403	430	430	430	420
	<b>c in.</b>	<b>13</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>14.3</b>
	<b>mm</b>	330	354	354	354	362
<b>Motor specifications</b>		<b>air motor</b>				
<b>Maximum rated inlet pressure</b>	<b>psi</b>	<b>85</b>				
<b>Minimum quantity</b>	<b>cfm</b>	<b>46</b>	<b>64</b>		<b>100</b>	
<b>wire rope diameter</b>	<b>in.</b>	<b>5/16</b>			<b>3/8</b>	
	<b>mm</b>	8.4			9.5	

Table 1

<b>wire rope classification/ construction</b>		5 x 19, 4 x 26, 5 x 26, with fiber core, or 6 x 19 (min. 17 wires per strand), galvanized or black, lubricated, preformed, IPS or XIPS	
<b>nominal diameter</b>	<b>in./mm</b>	<b>5/16 in. / 8.4 mm</b>	
<b>allowable diam. range of new wire rope</b>	<b>in.</b>	<b>0.319 to 0.331</b>	
	<b>mm</b>	8.1 to 8.4	
<b>minimum actual breaking strength</b>	<b>lbs</b>	<b>10,000</b>	
	<b>kN</b>	44.5	
		<b>15,000</b>	
		66.8	

Table 2

### CAUTION:

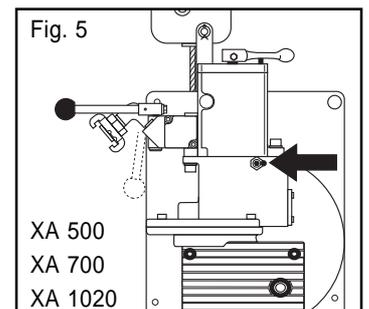
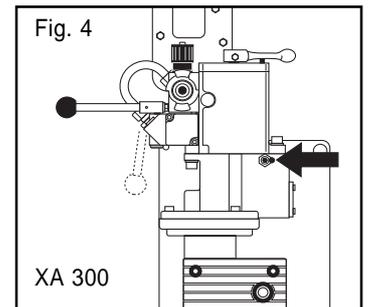


Correct wire rope diameter within the allowable diameter range is very important for the TIRAK® function!  
**UNDERSIZED** wire rope may cause slippage in the hoisting mechanism and in the BSO secondary brake.

**Note: DO NOT** alter the preset adjusting screw marked with red sealing wax (see Fig. 4 and 5).



**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 Scope

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

- TIRAK scaffold hoist with BLOCSTOP® BSO secondary brake or BS/BSO<sup>1)</sup> secondary brake;
- Special TIRAK wire rope;
- Air supply hose.

1) Instructions and advice for TIRAK® including BLOCSTOP® BS/BSO secondary brake for 2-wire-rope-systems see separate instructions on pages 24 to 37.

### 3.1.2 Checks before rigging

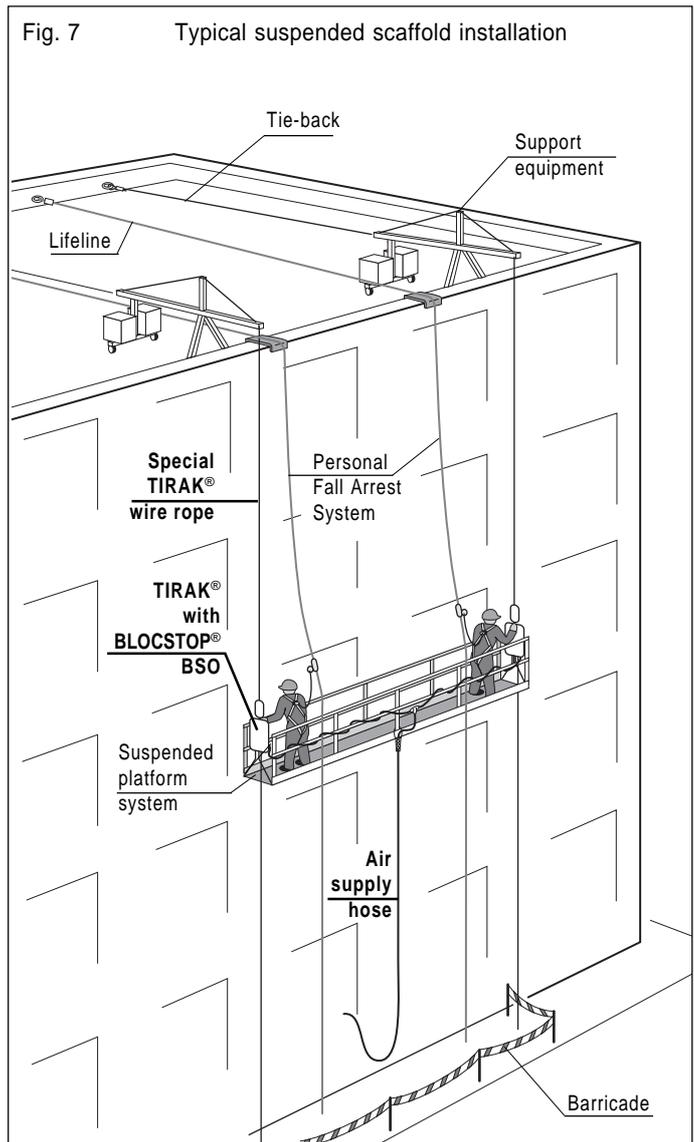
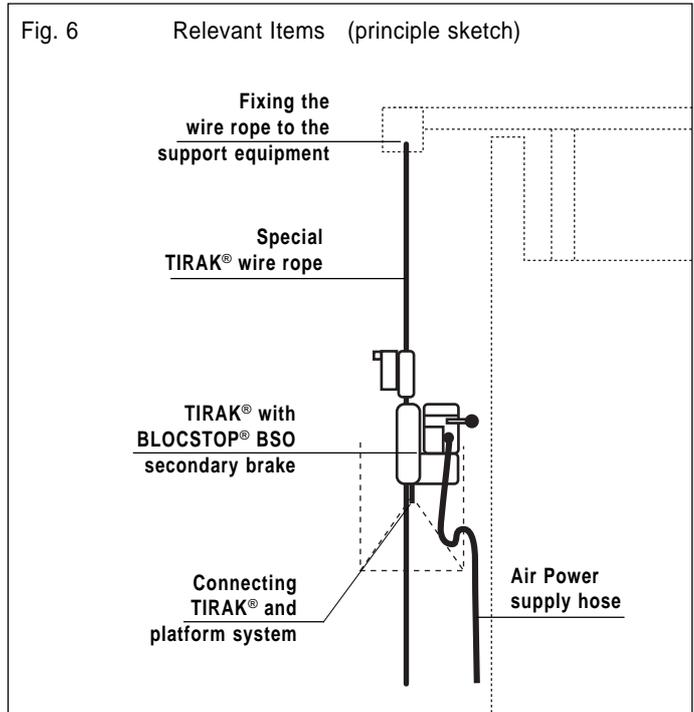
It is a qualified person's responsibility to check the whole installation to meet all safety requirements of:

- 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.

Some pieces are:

- Support equipment including tie-back;
- platform system, work-cage, or bosun's chair;
- safety equipments (personal fall arrest system);
- barricade below the drop of the platform/work-cage/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	
XA 300 P	46 cfm
XA 500 to 1020 P	64 cfm
TA 1000 P	100 cfm

Table 3

\*) The TIRAK® will lift capacity 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. 8).

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.

### 3.2.3 Air Hoses

1) Before starting the operation blow through the air supply hose leading from the air preparation unit to the TIRAK® to avoid impurities entering motor.

For trouble free working, the supply hoses must have the minimum rated cross sections:

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

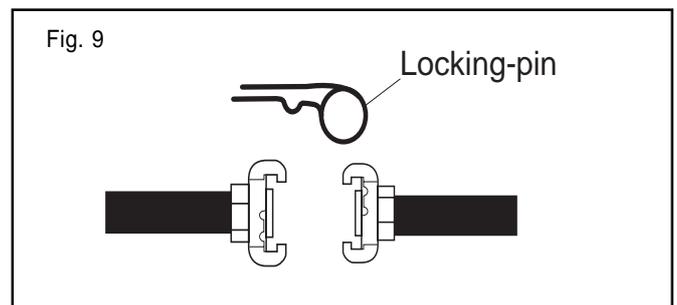
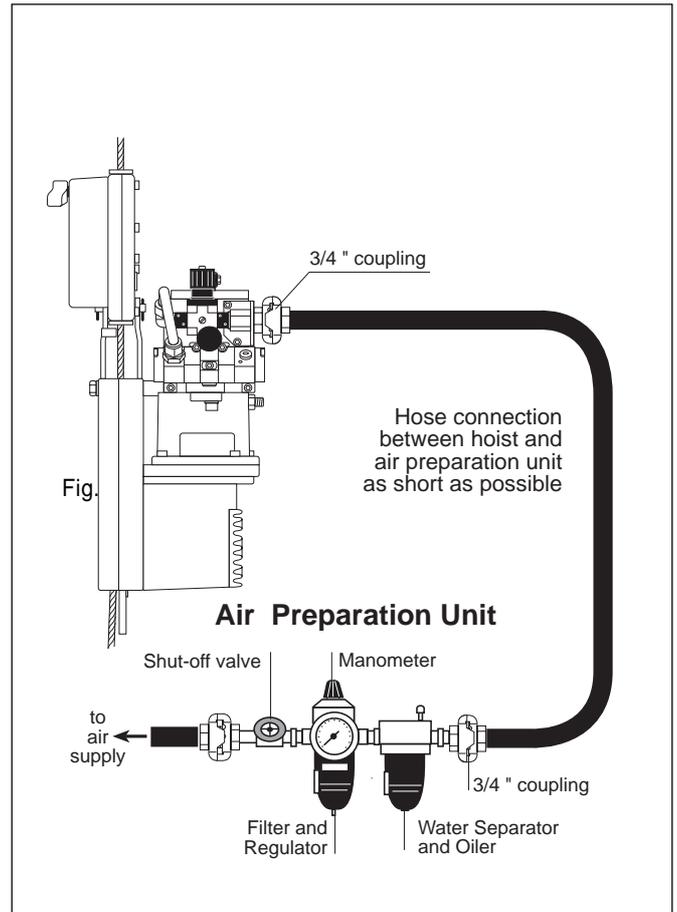
The TIRAK® is outfitted with a 3/4 " coupling .

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. 9).

2) Connect and lock all air lines from the air supply to the air preparation unit using a locking pin. Install 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) Inspect all air hoses to ensure that they are in good conditions and that connections are not leaking.
- d) By means of the regulator, adjust the supply system to the required 85 psi.



## 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 (Figs. 10 to 12), or
- by means of a remote control valve (Fig. 13), 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

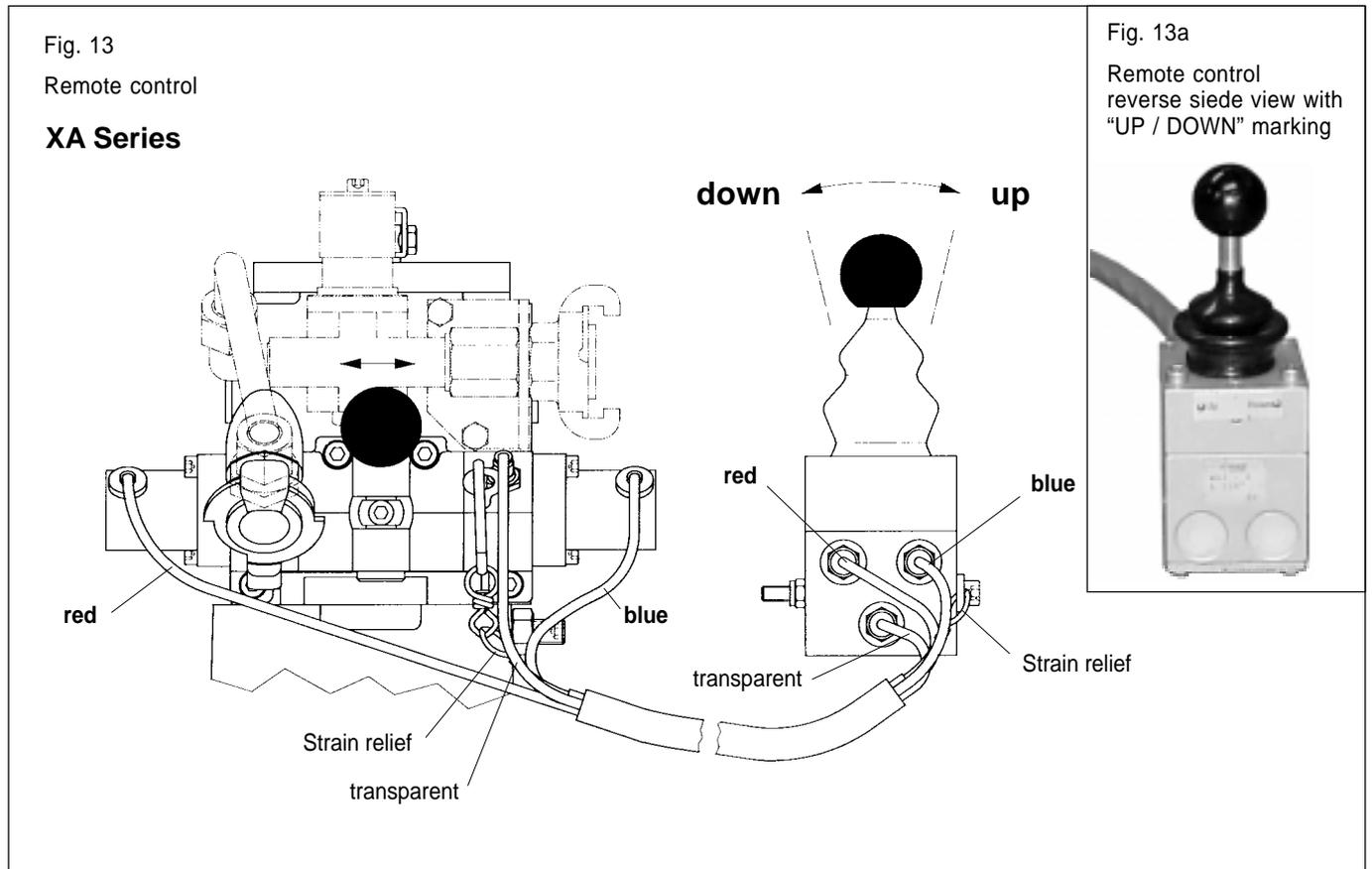
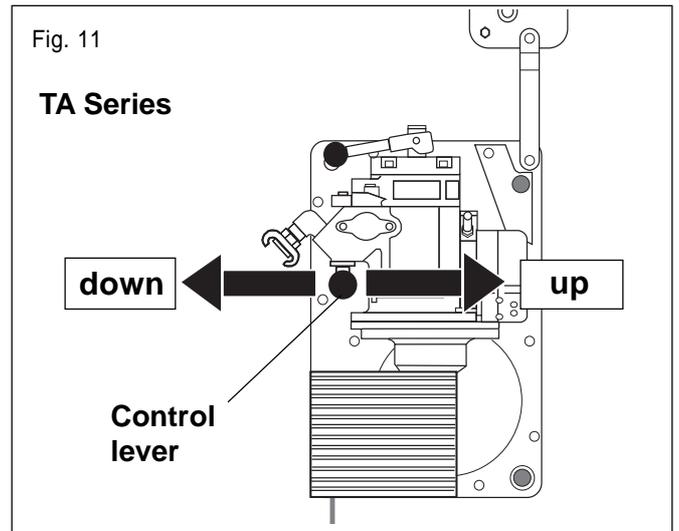
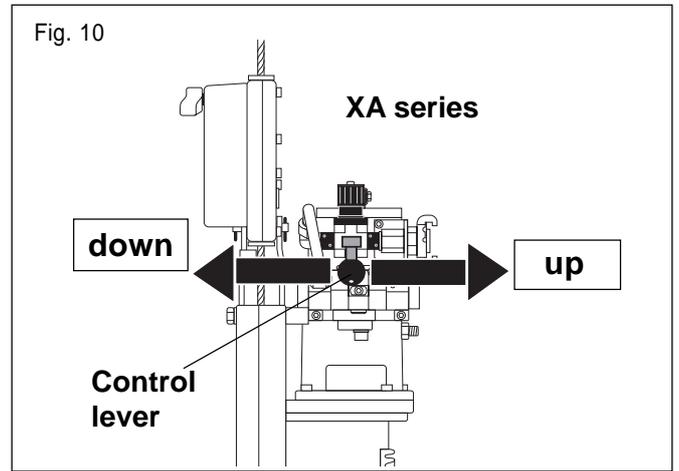
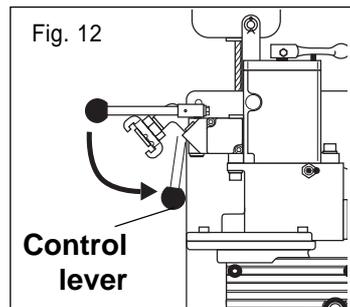


#### CAUTION!

**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.

See the example for the XA 500 P in (Fig. 12).



### 3.3 Hoist Mounting

#### 3.3.1 TIRAK® X-series

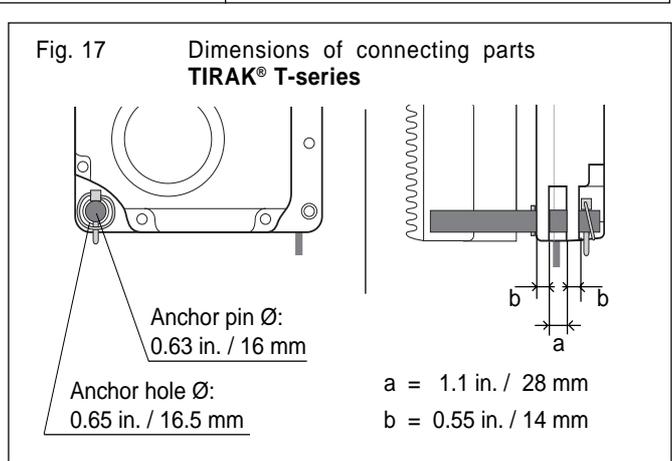
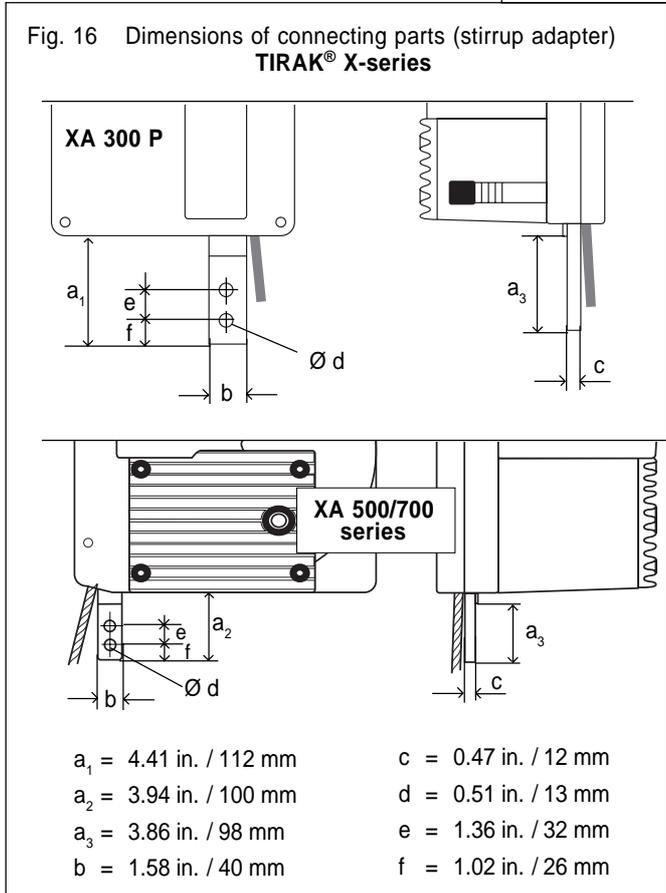
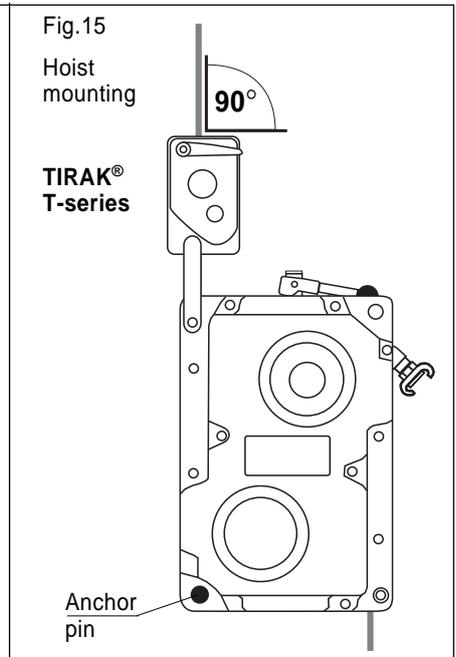
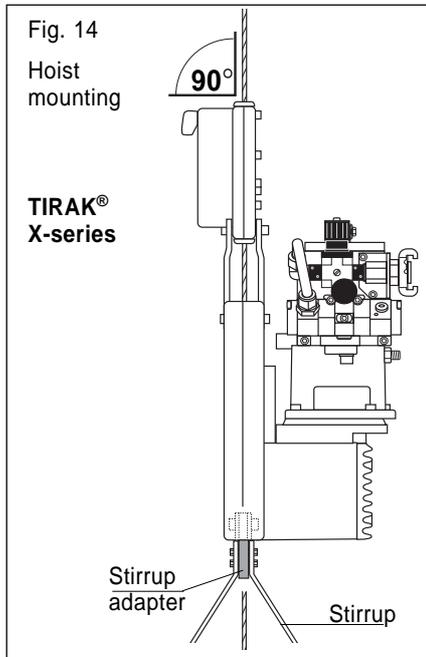
Bolt the hoist to platform stirrup using **stirrup adapter**, which also holds the hoist in its upright position (see Figs. 14 and 16).

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

**WARNING:**



**HOIST CONNECTION BOLTS MUST NOT BEAR ON THREADS.**



#### 3.3.2 TIRAK® T-series

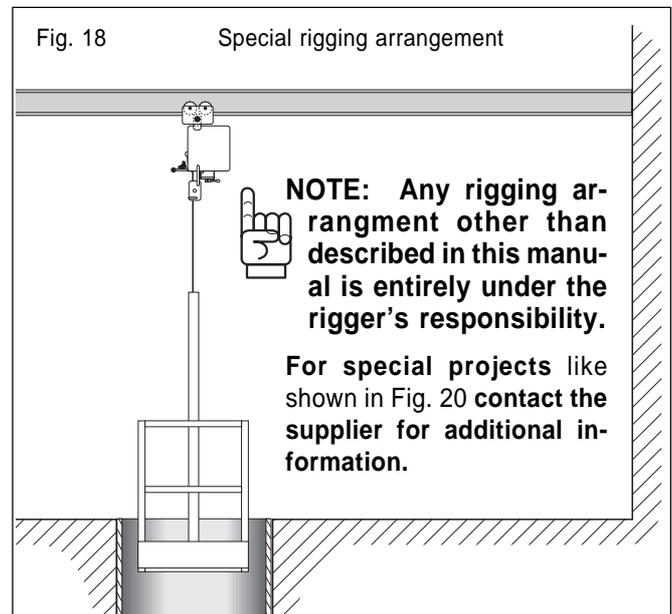
Fix the hoist using its **anchor pin** (see Fig. 15 and 17). Make sure that the hoist is held in its upright position by means of an appropriate support. The anchoring device must attach to the pin between the 2 cast ears "b" of Fig. 19.

**WARNING:**



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

(Figs. 14 and 15)



### 3.3.3 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 power 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.
- 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.

## 4. Wire Rope

### 4.1 Wire rope specification

Use only wire ropes specified by the manufacturer:

- (1) **Classification/Construction:**  
5x19, 4x26, 5x26, with fiber core, or 6x19 (min. 17 wires/strand), galvanized or black, lubricated, preformed IPS or XIPS.

wire rope diameter <sup>1)</sup>	min. actual breaking strength	for TIRAK® hoists with rated load up to
5/16 in. 8.4 mm	10,000 lbs 44.5 kN	1,500 lbs 680 kg
3/8 in. 9.5 mm	15,000 lbs 66.8 kN	2,000 lbs 900 kg

- 1) **Allowable diameter range of NEW wire rope:**  
 5/16 in. (8.4 mm) = 0.319 to 0.331 in. (8.1 to 8.4 mm)  
 3/8 in. (9.5 mm) = 0.362 to 0.374 in. (9.2 to 9.5 mm)

- (2) **Diameter:**

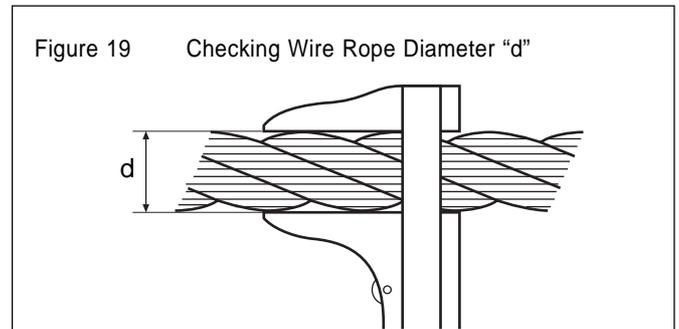
**CAUTION:** Correct wire rope diameter within the allowable diameter range is very important for the TIRAK® function!  
**UNDERSIZED** wire rope may cause slippage in the hoisting mechanism and in the BSO secondary brake.  
**OVERSIZED** wire rope may cause damage to the guide band and other internal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



**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. 19.



### 4.2 Wire rope rigging instructions



**WARNING :**  
 Be sure to use a wire rope with the diameter marked on the TIRAK® nameplate.

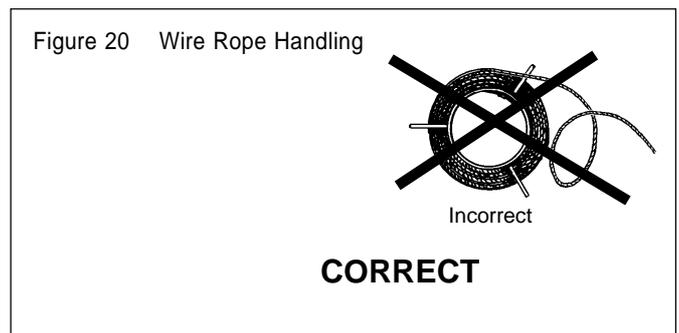
- (1) **RIG FROM TOP.**

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. 20) to prevent kinks, which make it unusable for the hoist.



## 4.2 Wire rope rigging instructions (continued)

- (2) If the wire rope is not equipped with a swaged fitting as shown in Fig. 21, proceed as follows:
- Install heavy duty thimble with a minimum of three (3) J-Type (Fist Grip) Clamps (Fig. 22).
  - 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. Retighten all "Fist Grip" nuts periodically.**
- (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 ropes are directly above the position of the hoists (Fig. 23).



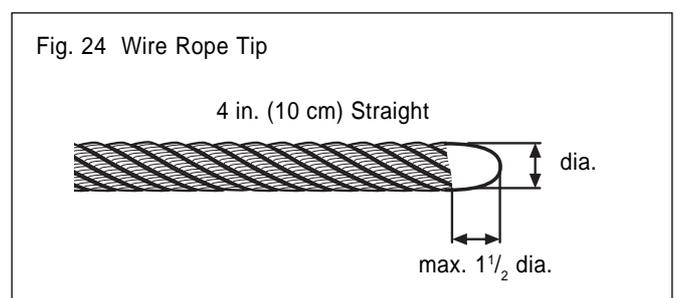
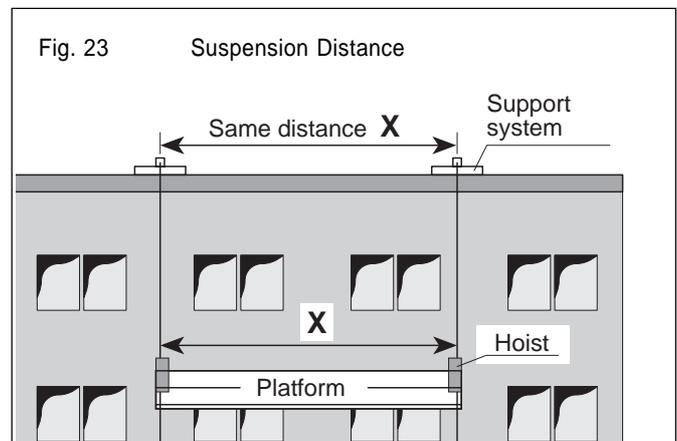
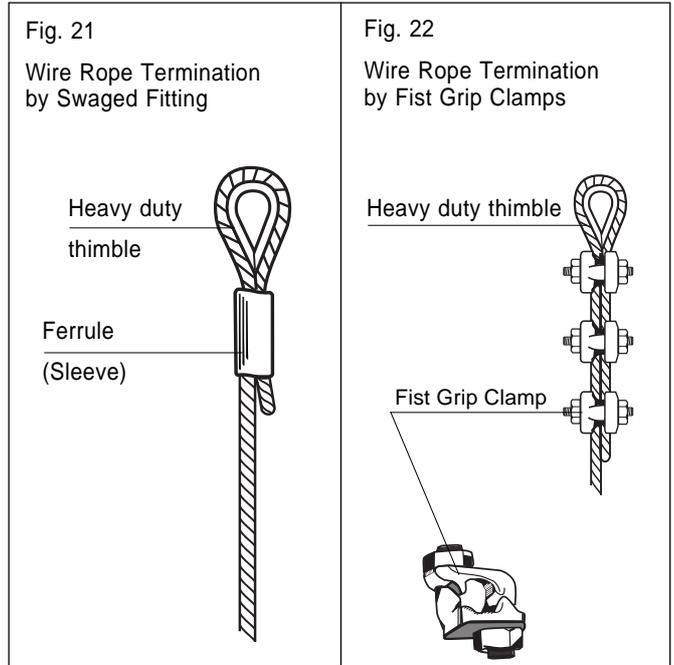
### WARNING:

**Improper spacing is dangerous, and could cause failure of the support system.**

- (5) Check that wire rope tip is welded round. (Fig. 24)

### IF NOT:

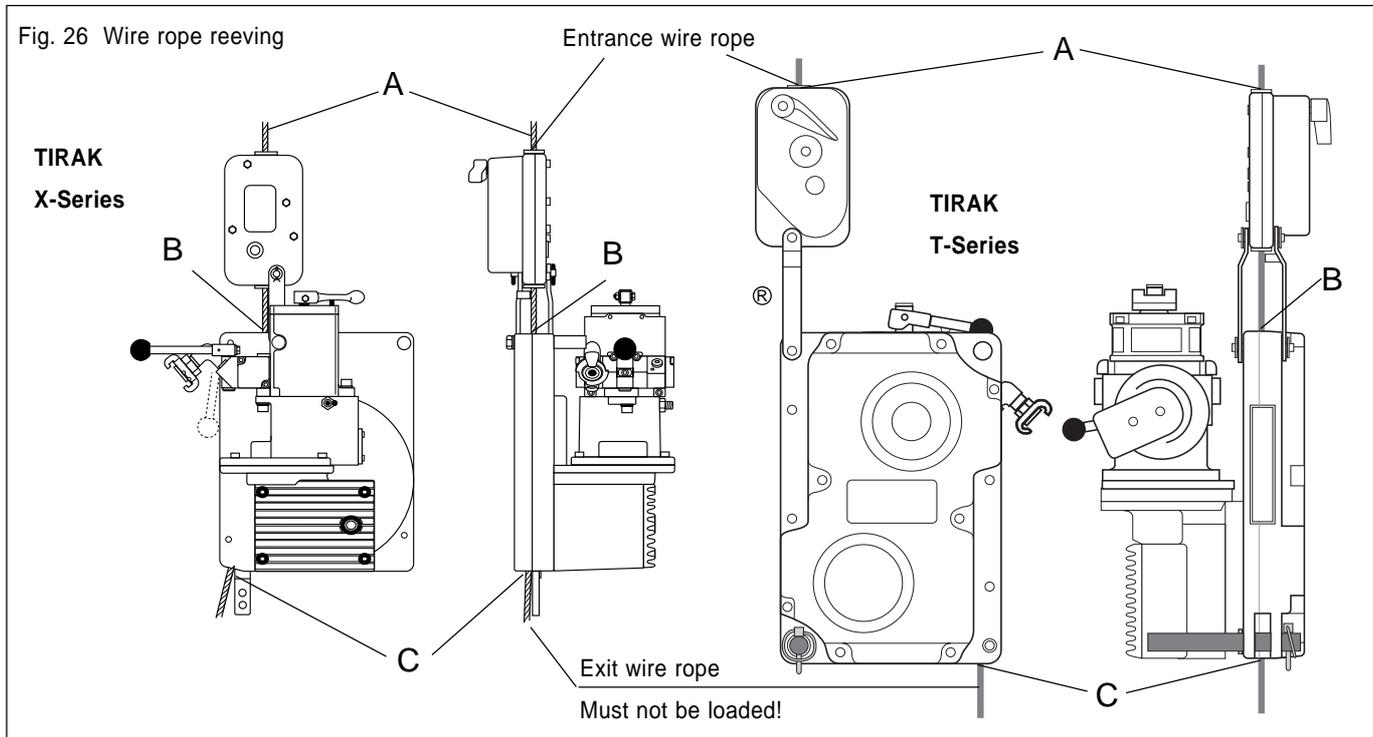
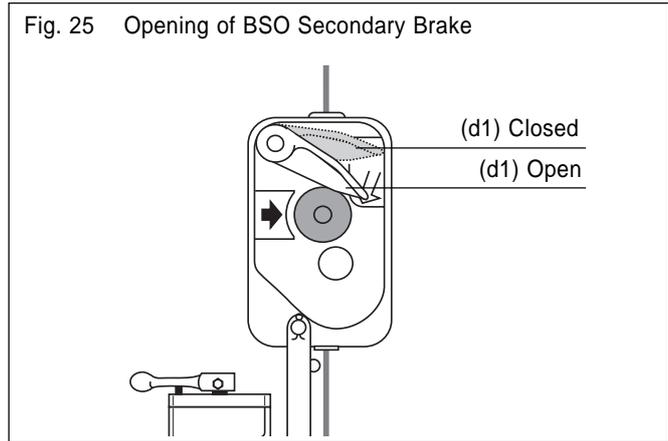
- a) Prepare ends by **brazing or welding** – **make sure all end wires are captured.**
- b) Grind end to approximately 1/4" diameter. **DO NOT** grind end flat or to a cone shape. **End must be rounded** (Fig. 24).
- c) The last 4 in (10 cm) of the wire rope must be straight for proper reeving.



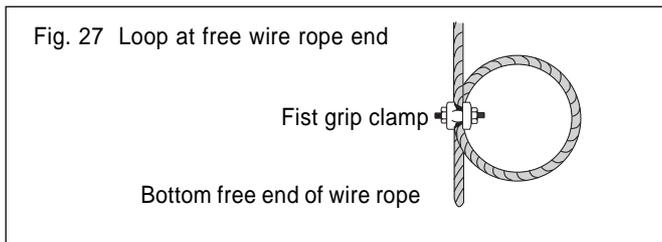
### 4.3 Wire rope reeving

- (1) Open the BSO secondary brake by pushing down the control lever (d1) until it locks (Fig. 25).
- (2) With gloved hands 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 UP-position, until the wire rope reeves itself automatically and exits at (C) on the other side (Fig. 26).

**CAUTION:** Check that wire rope exit (C) is not blocked in any manner. Never load the wire rope exiting from (C), by applying a load to it or tensioning.



- (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.27).



**WARNING:** AT EVERY SET-UP OR RERIGGING 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.



### 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) Push Control lever into DOWN-position 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, reel it (see Fig. 22, page 12), and store it in a clean and dry place.

# 5. Operating Instructions

## 5.1 GENERAL

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

DO NOT operate hoist, if adjustment or repairs are necessary, if any warning, operating or capacity label normally attached to the hoist is obscured, damaged, or missing.

(See labels' list on [page 37](#)).

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

**(2) WARNING:**



**SAFETY DEMANDS THAT YOU TEST THE SYSTEM BEFORE GOING ALOFT:**

- a) CHECK **PLATFORM** 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. 28). 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. 28) – the BSO secondary brake should close immediately. Reset BSO secondary brake by pulling down control lever (d1) until it locks in the open position.

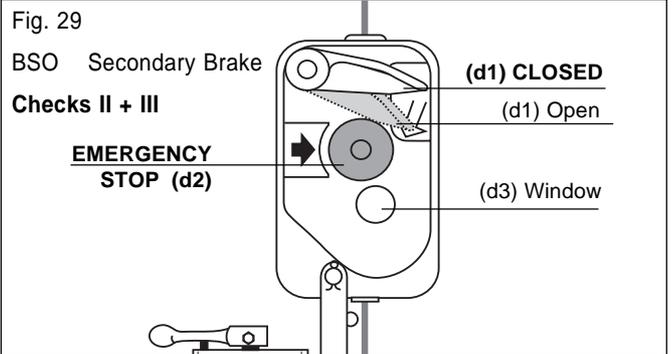
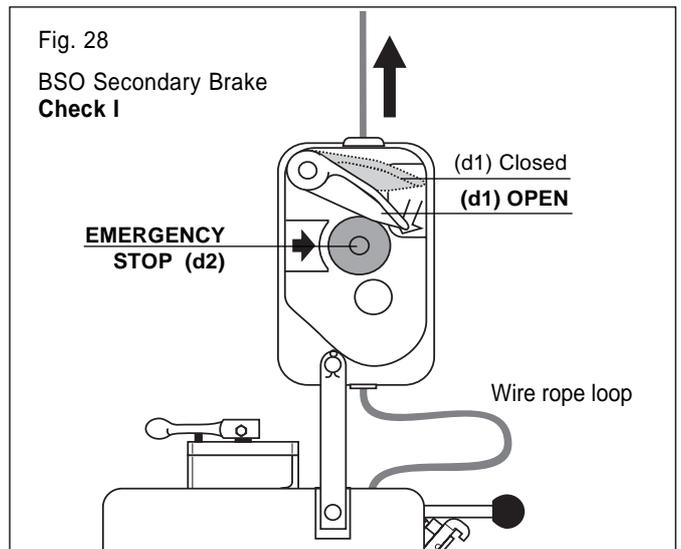
**II** Lift platform 3 ft. (1 m) above ground or safe surface, and push EMERGENCY STOP button (d2) of the BSO secondary brake (Fig. 29). Try to lower the platform to check that the BSO secondary brake holds the load.

A loop should form as shown in Fig. 28, 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. 30).

**WARNING: IF DURING ONE OF THE CHECKS THE BSO SECONDARY BRAKE MALFUNCTIONS, IT MUST BE REPLACED.**



- 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.

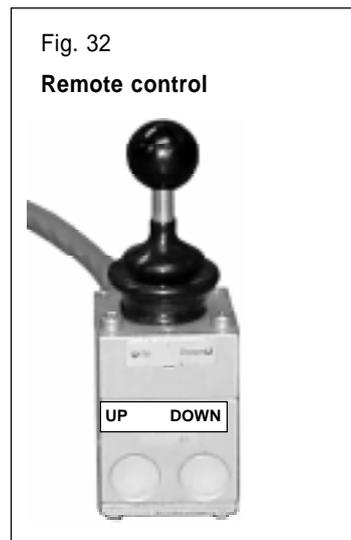
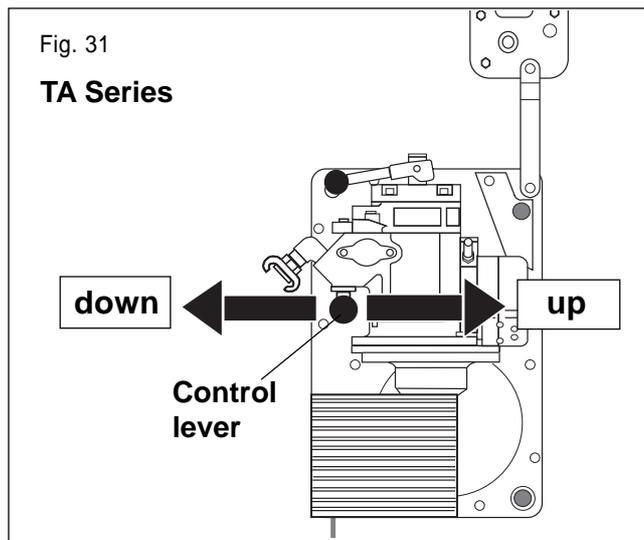
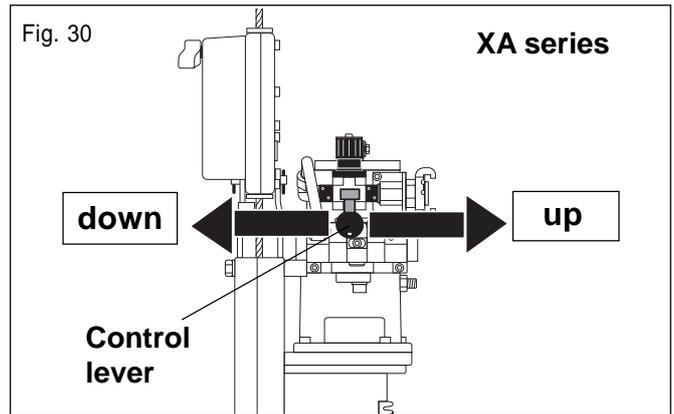
**WARNING: IF DURING ONE OF THE CHECKS THE CONTROL LEVER OR THE BRAKE RELEASE LEVER MALFUNCTIONS, THE TIRAK® HOIST MUST BE REPLACED.**



- 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. 30 to 32)
- (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 remote control valve:**
  - Always check the connections before using the control valve.
  - Take care of the connected air hoses, when moving the remote control on the platform.



### (3) 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.**

### 4) **Special Operating Notes for Welding or Arc scarring**

- 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

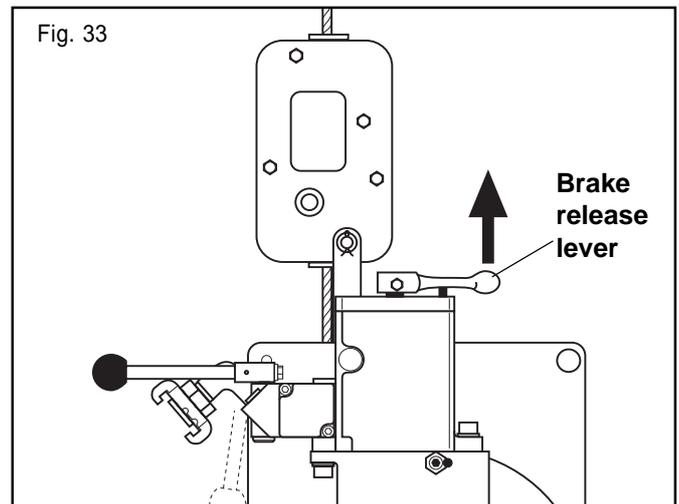
Should a failure in the air supply occur, you can descend with the platform proceeding as follows:

Pull **brake release lever** upwards in arrow direction (Fig. 33). The hoist will descend at moderate speed, which is controlled by the braking effect of the motor itself. **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.

If the BSO secondary brake is closed, raise the platform until the hoist supports the load. Push the control lever in the OPEN position (d1) (Fig. 34). **DO NOT** force it open.

**DO NOT** force it open.



### 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. 34). **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.

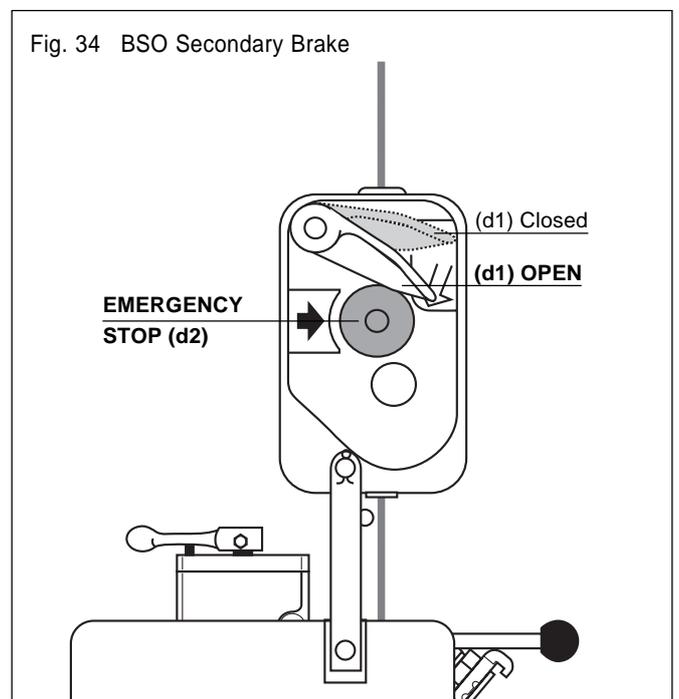
**CAUTION:** If the BSO secondary brake repeatedly stops downward travel, contact the supplier for advice. Check wire rope diameter (see Table 5, page 12).



**WARNING:**



**DURING USE OF THE HOIST NEVER DETACH BSO SECONDARY BRAKE!**



**NOTE :** If during emergency descent the BSO Secondary brake will close, you have to wait for air power. With a minimum pressure the hoist must move up to get the BSO free. Reset BSO by pushing down control lever (e1) in open position. **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!



## 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 TRACTEL Group Company or by a qualified person, 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.	 <p><b>WARNING: STOP OPERATIONS IMMEDIATELY!</b> Continued operation might cause wire rope failure. Contact the supplier.</p>

### 6.2 Mechanical Troubles

Problem	Cause	Remedy
1. Unit operates but rope will not reeve.	<ol style="list-style-type: none"> <li>a) Secondary brake is closed</li> <li>b) Wire rope improperly inserted.</li> <li>c) Wire rope improperly prepared</li> </ol>	<ol style="list-style-type: none"> <li>a) Depress secondary brake control lever to be sure it is open.</li> <li>b) Be sure wire rope has been passed through the secondary brake, into the traction box and is in full contact with the sheave.</li> <li>c) Ensure wire rope end is properly prepared, and has no weld berries on side and is straight for at least 4 inches.</li> </ol>
2. Unit operates and wire rope reeves but will not climb.	<ol style="list-style-type: none"> <li>a) Overload</li> <li>b) Pressure/flow drop</li> <li>c) Wire rope</li> </ol>	<ol style="list-style-type: none"> <li>a) Check and reduce load, if necessary.</li> <li>b) Check for adequate air supply.</li> <li>c) Check wire rope and replace if worn, or damaged.</li> </ol>
3. Unit will climb but will not descend.	Closed BSO secondary brake	Power up approximately 6 inches while depressing BLOCSTOP® control lever to open it.
4. Excessive wire rope wear.	<ol style="list-style-type: none"> <li>a) Worn guide bushing.</li> <li>b) Rigging</li> </ol>	<ol style="list-style-type: none"> <li>a) Replace inlet and outlet bushings if worn.</li> <li>b) Rigging alignment - wire rope must pass straight through hoist, not at an angle.</li> </ol>

### 6.3 Motor Troubles

Problem	Cause	Remedy
1. Motor does not run.	No air power.	<ol style="list-style-type: none"> <li>a) Check to ensure proper flow and air pressure are available at the compressor and the hoist. <b>CAUTION !</b> Always turn off air supply before tightening, loosening, or removing air fittings or connections. </li> <li>b) Check to ensure that the compressor outlet valves are fully opened.</li> <li>c) Check for air pressure at the hoist machine. All hoses will be firm when under pressure.</li> </ol>
2. Motor will not run, despite correct, power supply.	<ol style="list-style-type: none"> <li>a) Binding vanes</li> <li>b) Frozen vanes</li> <li>c) Brake not released</li> </ol>	<ol style="list-style-type: none"> <li>a) Clean and lubricate the motor (see 7.2.3 on page 22).</li> <li>b) Thaw the unit by blowing ducted dry heat on it. <b>DO NOT USE OPEN FLAME!</b> Use anti-freeze-lubricant (see 7.2.3 on page 22)</li> <li>c) Operate motor with brake released manually. If motor then starts: Return the unit for repair.</li> </ol>

Problem	Cause	Remedy
3. Unit will not lift the load	a) Overload b) Low pressure or flow  c) Excessive amount of hoses being used with a "Y" connector d) Vanes sticking	a) Check load and reduce if necessary. b1) Check air pressure and flow at the hoist and the compressor. b2) Use a separate air line for each unit. c) Use larger diameter hose. d) Lower a short distance, then try to lift.
4. Low power or low speed	a) Low pressure or flow  b) Excessive amount of hoses being used with a "Y" connector c) Oil shortage	a1) Check air pressure and flow at the hoist and the compressor.  <b>CAUTION !</b> Always turn off air supply before tightening, loosening, or removing air fittings or connections. 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. b1) Use larger diameter hose. b2) Use a separate air line for each unit. c) Check oiler on air preparation unit.
5. Unit stops while in operation and will not restart.	Power failure	Check according to No. 1.
6. Motor runs but unit is noisy.	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 loses 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. <b>DO NOT USE OPEN FLAME!</b> 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.	 <b>WARNING ! STOP DOWNWARD TRAVEL!</b> <b>Proceed according para. 5.4 (3) page 17</b>
2. BSO secondary brake automatically closes without apparent reason.	a) Mechanical defect. b) Oversized or damaged wire rope.	a) Contact 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 and Instruction Manual, and all pertinent Federal, State, Provincial and Local regulations.

**Unauthorized replacement parts:**  
Use only TRACTEL INC. replacement parts. The replacement of any part with anything other than a

TRACTEL INC. authorized replacement part may adversely affect the function and safety of this hoist and voids the warranty. TRACTEL INC. 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 for the life of the hoist and written inspection records kept as specified.

## 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 TROUBLESHOOTING page 19/20.
- (2) **Primary brake function:** Lift platform 3 ft (1 m) above ground or safe surface. Start and stop downwards travel – the platform be held immediately. 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. 35). 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. 35) – 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. 36). Try to lower the platform to check that the BSO secondary brake holds the load. A loop should form as shown in Fig. 35, 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. 36).

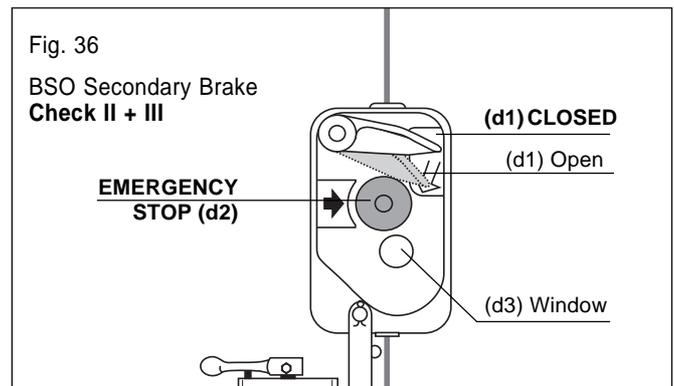
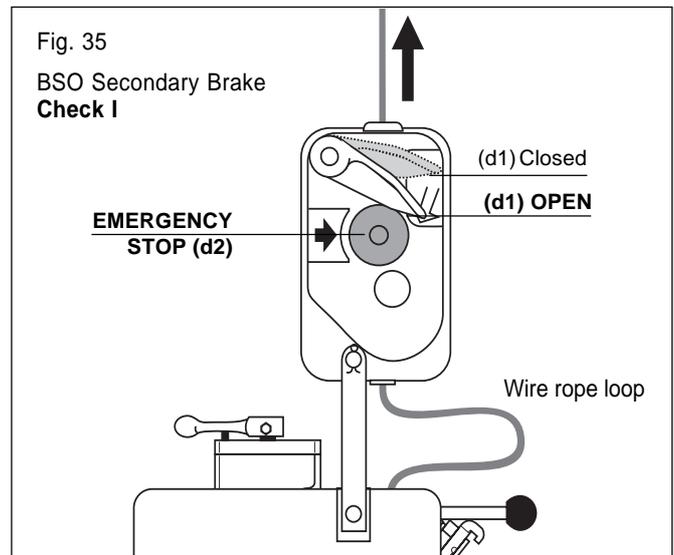
- (4) **Wire rope:** free of kinks, cuts, broken wires, birdcages, heat damage, contamination etc.
- (5) **Wire rope corrosion** due to acid or caustics. Replace wire rope if exposed to these contaminants.
- (6) **Wire rope lubrication:** The wire rope has to be clean and lightly lubricated.
- (7) **Rigging**  
Wire rope termination, connection to the suspension system. It must be aligned and secure.

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



**WARNING: If there is any: 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



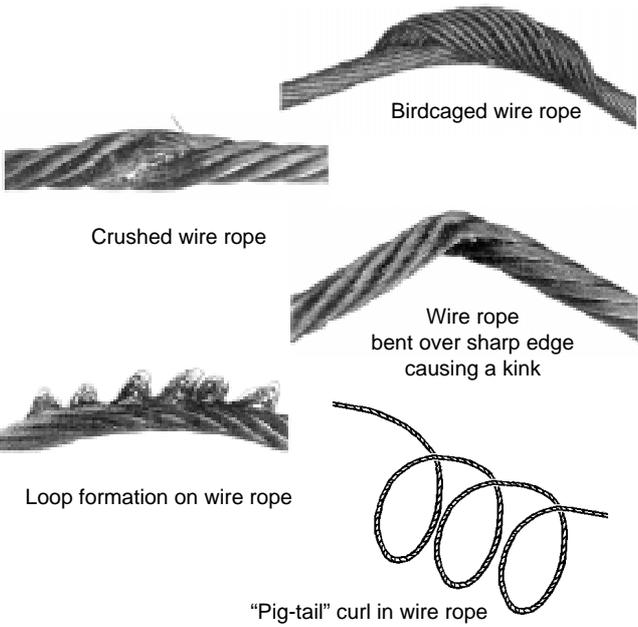
All wire rope should be inspected once a month, and a **signed and dated inspection record** maintained.

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

Conditions for replacing wire rope:

- 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. 37).

Fig. 37 Examples of wire rope damage



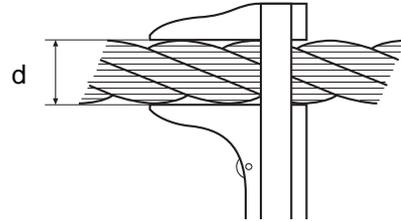
**NOTE: How to measure wire rope diameter:**



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. 38.

Fig. 38 Checking Wire Rope Diameter "d"



**WARNING: REPLACEMENT WIRE ROPE MUST BE THE SAME SIZE, GRADE, AND CONSTRUCTION AS THE WIRE ROPE SPECIFIED BY THE SUPPLIER! (See pages 7 and 12).**



**THE MANUFACTURER 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.**



If a **gearbox oil change** is necessary, take one of the below specified oils according to the temperature range, the hoist usually will be used in.

**Quantities required:**

XA 300 P-Series:	1.4 litres
XA 500/700/1020 P-Series:	2.0 litres
TA 1020 P-Series:	2.0 litres



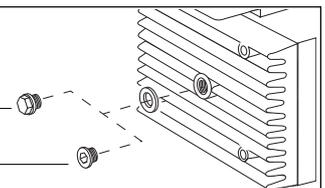
**A signed and dated inspection record should be maintained.**

Temperature range	14 to 122 degF -10 to +50 °C	-5 to 176 degF -15 to +80 °C	-31 to 104 degF -35 to +40 °C
API Specification	Mineral oils <sup>3)</sup> SAE85W-140 GL5 <sup>1)</sup>	Synthetic oils <sup>3)</sup> CLPPG or PGLP ISO VG 460 <sup>2)</sup>   CLPPG or PGLP ISO VG 100	
Sample oils	BP Hypogear EP 90 SHELL Spirax HD 90 TEXACO Multigear EP6 S80 W90	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

- 1) Standard charge for XE 300/500/700 P and TE 1020 P series (Marking: **Socket head cap** oil drain screw, Fig. 39)
- 2) Standard charge for XE 1020 P (Marking: **Yellow hexagon** oil drain screw, Fig. 39)
- 3) **Changing between mineral and synthetic oils requires complete cleaning of the gearbox parts.**

Figure 39

Synthetic oil  
Mineral oil



Oil drain screw as oil specification indicator

## 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.
- (4) Store the TIRAK hoist at safe and dry places.
- (5) If hoist will be rerigged from longer storage, clean it and oil up all parts.

### 7.2.2 Wire Ropes

- (1) Use only wire ropes, which meet the manufacturer's specifications. For details see pages 7 and 13.

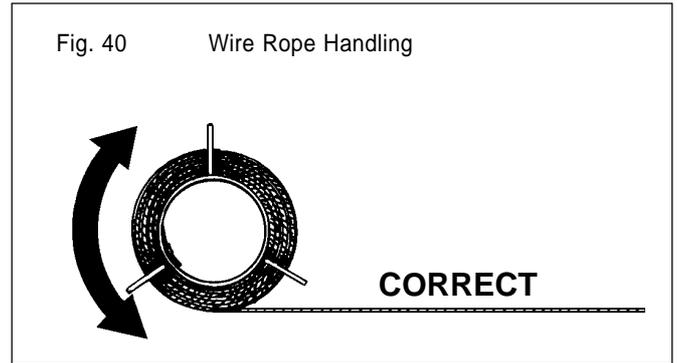
This will ensure the reliable function of the hoist.

- (2) To warrant maximum lifetime we recommend:
  - The wire rope must be unreeled and reeled in a straight line (Fig. 40).
  - 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 Motor

- a) **The air motor must be continuously greased 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 30 cm<sup>3</sup> of rock oil 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 10 cm<sup>3</sup> of oil into the hose and let the 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 losing 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 rope clean and lightly lubricated.

Continue with chapters  
**8. NAMEPLATE & LABELS** and  
**9. WARRANTY INFORMATION**

**10. ADDITIONAL SOURCES AND TRAINING**



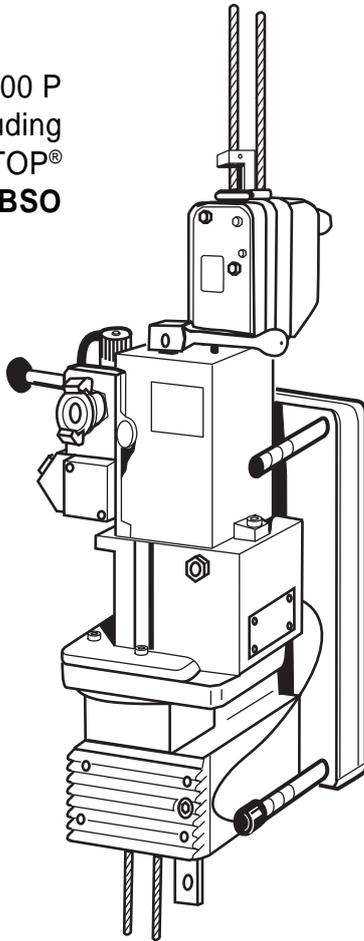
on pages 36 to 39

# tirak<sup>®</sup>

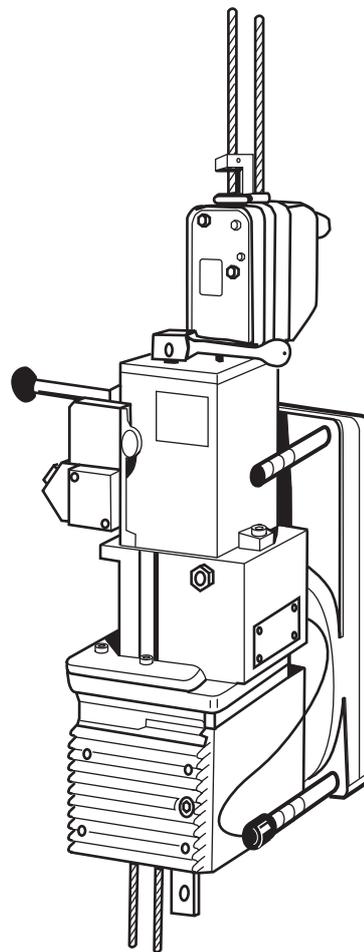
## Scaffolding Hoist

### Additional Instruction Manual for TIRAK<sup>®</sup> hoists with 2 wire rope systems

XA 300 P  
including  
BLOCSTOP<sup>®</sup>  
BS/BSO



XA 500 P  
XA 700 P  
including  
BLOCSTOP<sup>®</sup>  
BS/BSO



**NOTE:** The following part of this manual  
only contains instructions referring to  
the 2 wire rope system.



For all other instructions refer to pages  
2 to 22.

# TABLE OF CONTENTS of ADDITIONAL INSTRUCTIONS

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## INTRODUCTION

### 1. GENERAL WARNING

(See pages 3 to 5)

### A2. DESCRIPTION

#### A2.1 Two wire rope System

TIRAK® hoists (A) with BLOCSTOP® BS/BSO overspeed and slack wire rope locking device (E) – hereafter called BS/BSO secondary brake – are principally used with **two wire ropes** (see Fig. 41):

- The TIRAK® hoist goes up and down the **primary wire rope (P)**.
- The BS/BSO secondary brake works on both the **primary wire rope (P)** and the **secondary wire rope (S)** as described below.

#### A2.2 Secondary Brake

In case of accelerating overspeed the BLOCSTOP® BS/BSO secondary brake stops the descent immediately **on the primary wire rope (P)**.

In case of slack primary wire rope or primary wire rope failure BS/BSO secondary brake stops the descent by immediately locking **on the secondary wire rope (S)**.

**THE SECONDARY BRAKE MUST ALWAYS BE ATTACHED AND USED.**

**NOTE:** IF for any reason a **SECONDARY ROPE IS NOT RIGGED** and used, the BS/BSO secondary brake functions the same as a BSO secondary brake, and **THIS SECTION IS NO LONGER APPLICABLE.**



## A2.3 Wire Ropes



### CAUTION:

It is mandatory that both the **PRIMARY AND THE SECONDARY WIRE ROPE MEET THE MANUFACTURER'S SPECIFICATIONS!**

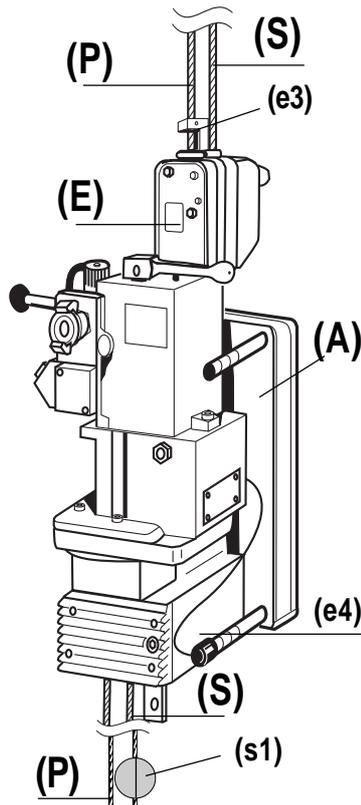
For details see pages 7 and 13.

Unless specifically specified in writing by the manufacturer, only this special TIRAK® wire rope may be used.

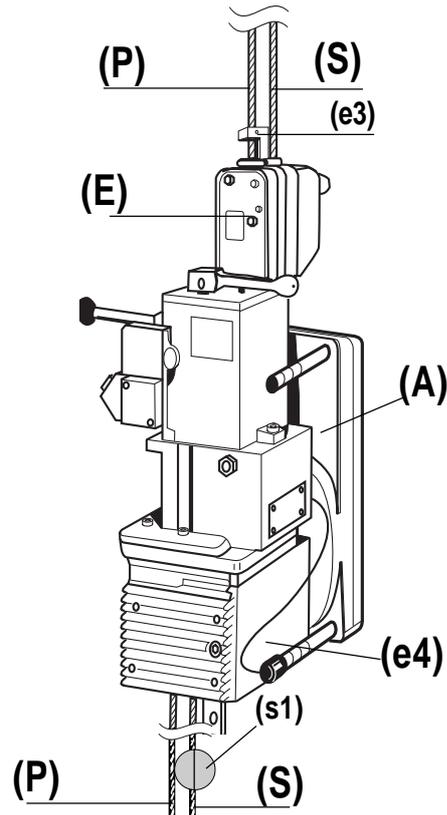
**NOTE:** The manufacturer declines all responsibility for machines used with a wire rope other than specified by them.



Fig. 41



**XA 300 P**  
incl. BLOCSTOP® BS/BSO



**XA 500/700 P series**  
incl. BLOCSTOP® BS/BSO

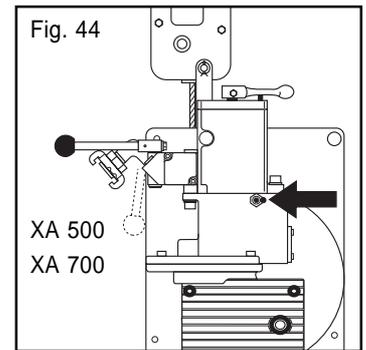
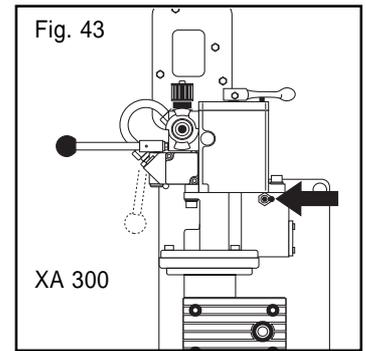
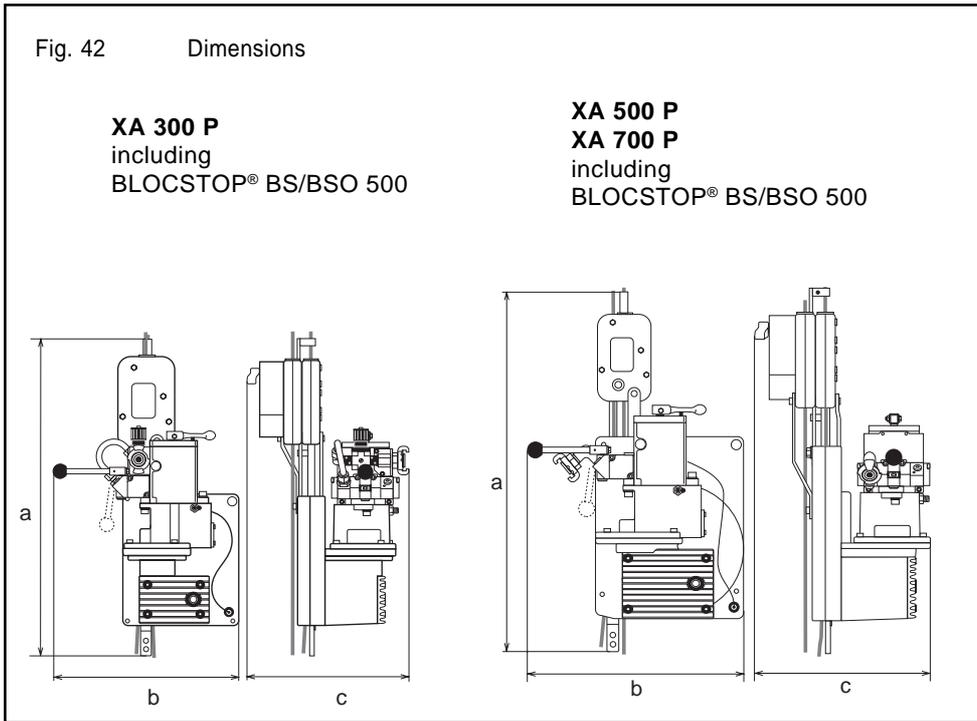
- A** TIRAK® Hoist
  - E** BLOCSTOP® BS/BSO secondary brake
    - e1 Control lever
    - e2 EMERGENCY STOP on the BLOCSTOP
    - e3 Release lever for slack wire rope locking device
    - e4 Handle for BS/BSO release lever for slack wire rope locking device
  - P** Primary wire rope
  - S** Secondary wire rope
    - s1 Tensioning weight for secondary wire rope
- (for more details see Fig. 2, page 6)

For detailed info about

- Air Motor and Primary Brake,
- Gear Reducer,
- Emergency Descent without power,
- and
- Wire Rope Driving Mechanism

see page 6/7.

## A2.7 Technical Data



Hoist Model	direct control	XA 300 P	XA 500 P	XA 700 P
	remote control	XA 300 PB	XA 500 PB	XA 700 PB
Rated load	lbs	700	1,000	1,500
	kg	315	450	680
Lifting speed	ft/min	33	35	30
	m/min	10	11	9
Weight (with BS/BSO)	lbs	67	91	91
	kg	30	41	41
Dimensions over all				
a	in.	30.7	33.5	33.5
	mm	779	858	858
b	in.	15.9	16.9	16.9
	mm	403	430	430
c	in.	13	14	14
	mm	330	354	354
Motor specifications		air motor		
Maximum rated inlet pressure	psi	85		
Minimum quantity	cfm	46	64	
wire rope diameter	in.	5/16		
	mm	8.4		

Table 5

### Note!



DO NOT alter the preset adjusting screw marked with red sealing wax (see Fig. 43 and 44).

Table 6

wire rope classification/construction		5 x 19, 4 x 26, or 5 x 26, with fiber core, or 6 x 19, (min. 17 wires per strand), galvanized or black, 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



### 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.

# A3. RIGGING INSTRUCTIONS

## A3.1 GENERAL

### A3.1.1 Scope

Instructions and advice of this part of the manual exclusively refer to the following items (see Fig. 45):

- **TIRAK® scaffold hoist with BLOCSTOP® BS/BSO secondary brake.**
- **PRIMARY and SECONDARY special TIRAK® wire ropes.**

### A3.1.2 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.

Some pieces are:

- Support equipment including **tie-backs** for both the **equipment itself and the secondary wire rope**;
- platform system, work-cage, or bosun's chair;
- safety equipment;
- barricade below the drop of the platform/work-cage/bosun's chair.

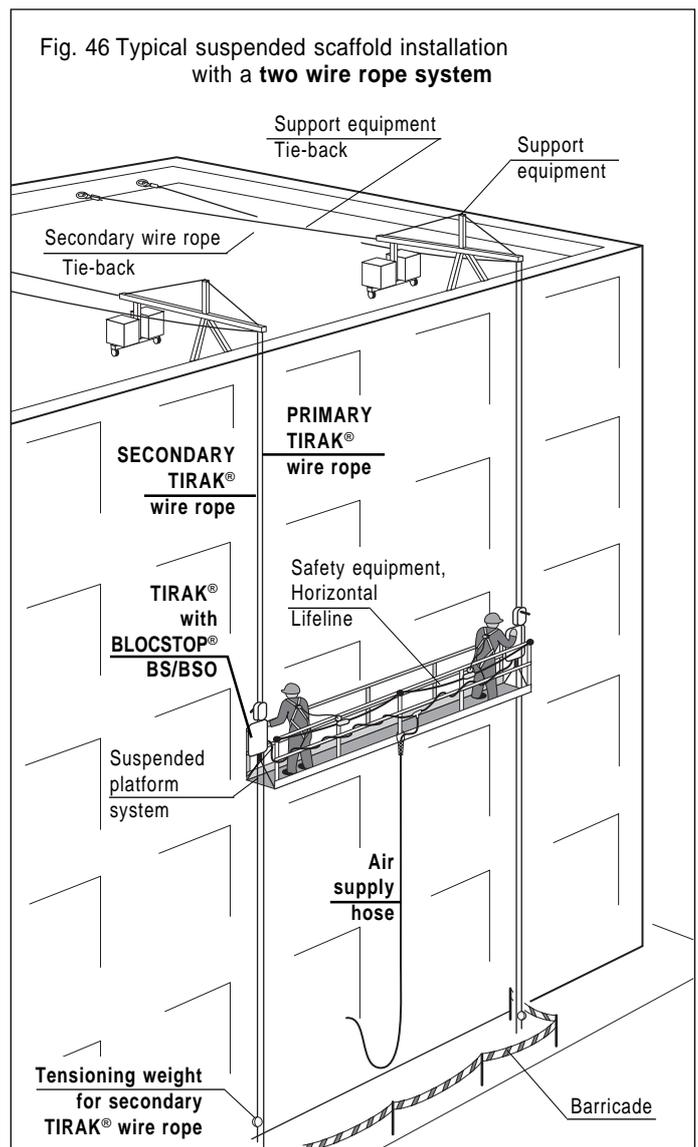
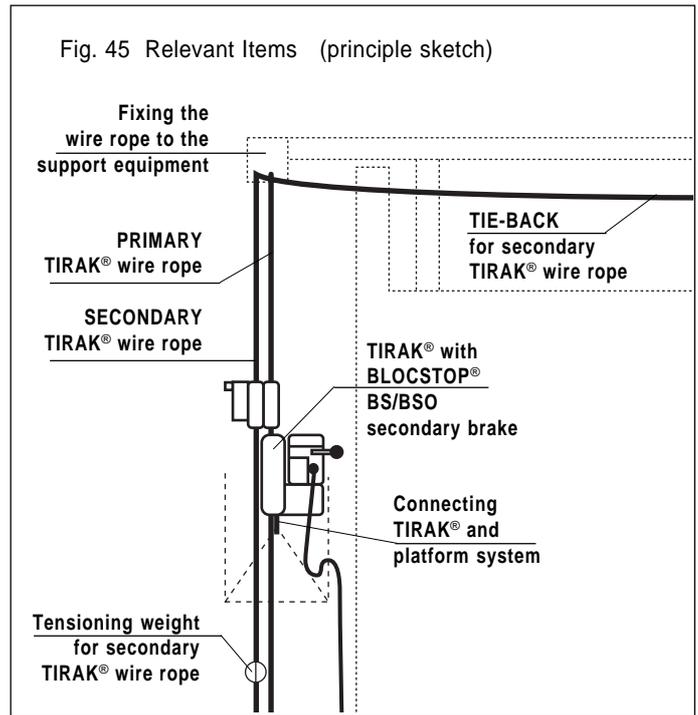
**NOTE:** This information is **NOT to be considered** as a complete checklist for your specific installation. It is only a sample list of some general components, which make part of a typical suspended scaffold installation with a **two wire rope system** (Fig. 46).



## 3.2 Air supply and hoist control and

## 3.3 Hoist Mounting

(see [pages 9 to 11](#))



# A4. Wire Rope

## 4.1 Wire rope specification

(see pages 7 and 12)

## A4.2 Wire rope rigging instructions



**CAUTION:** Be sure to use wire rope according to specification (see pages 7, 13), with the diameter (d) (Fig. 47) marked on the TIRAK® nameplate for both the PRIMARY and the SECONDARY wire rope.

### (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. 48) to prevent kinks, which make it unusable for the hoist.**

### (2) If the wire rope is not equipped with a swaged fitting as shown in Fig. 49, proceed as follows:

- Install heavy duty thimble with a minimum of three (3) J-Type (Fist Grip) Clamps (Fig. 50).
- 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 clips (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. Retighten all "Fist Grip" nuts periodically.**

### (3) Anchor the wire rope ends (Fig. 51) to a rigging device, which complies with all relevant safety requirements. Be sure to use compatible connecting devices, i.e. a 1/2 in. anchor shackle or similar with adequate strength and safety factor. Secure it.

Distance (a) between the wire ropes:

approx. 1½ in. / 40 mm.

Fig. 47 Checking Wire Rope Diameter "d"

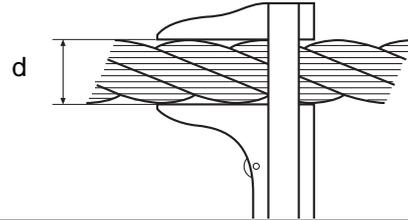


Fig. 48 Wire Rope Handling

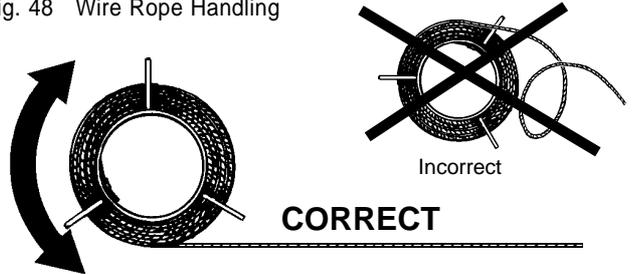


Fig. 49

Wire Rope Termination by Swaged Fitting

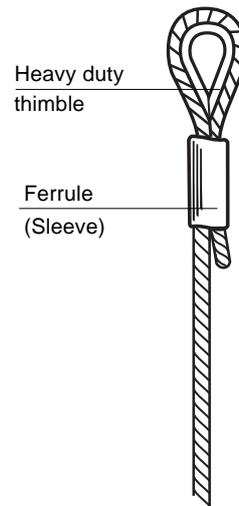


Fig. 50

Wire Rope Termination by Fist Grip Clamps

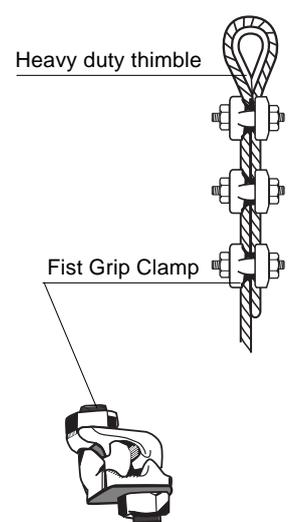
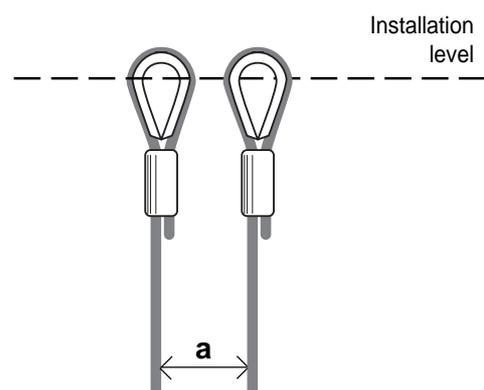


Fig. 51 Wire Rope Anchoring





**CAUTION:**  
Secondary wire rope anchoring must be connected to a tie back (Fig. 52).

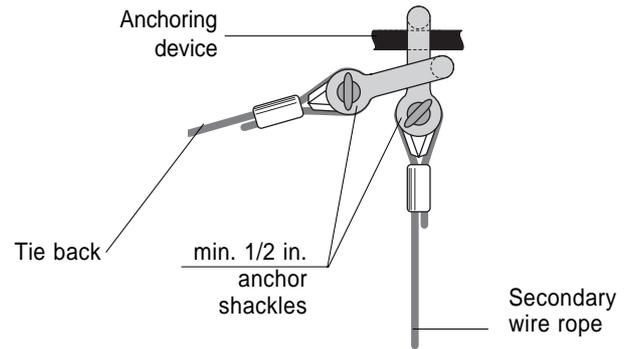
- (4) Insure that the anchor points of the wire rope are directly above the position of the hoists (Fig. 23 on page 13).



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

- (5) Check that wire rope tip is to be welded round (Fig. 24 on page 13).

Fig. 52 (principle drawg.)



### A4.3 Wire rope reeving

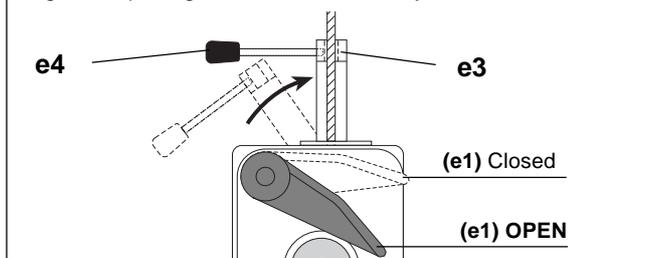


**NOTE:** Ensure both wire ropes hang parallel from the suspension point.

#### A4.3.1 Primary wire rope (P)

- (1) Open the BSO secondary brake by pushing down the control lever (e1) until it locks (Fig. 54). Push and hold release lever (e3) in its vertical position (use handle (e4) to ease the operation) to ease insertion of primary wire rope.

Fig. 54 Opening of BS/BSO secondary Brake

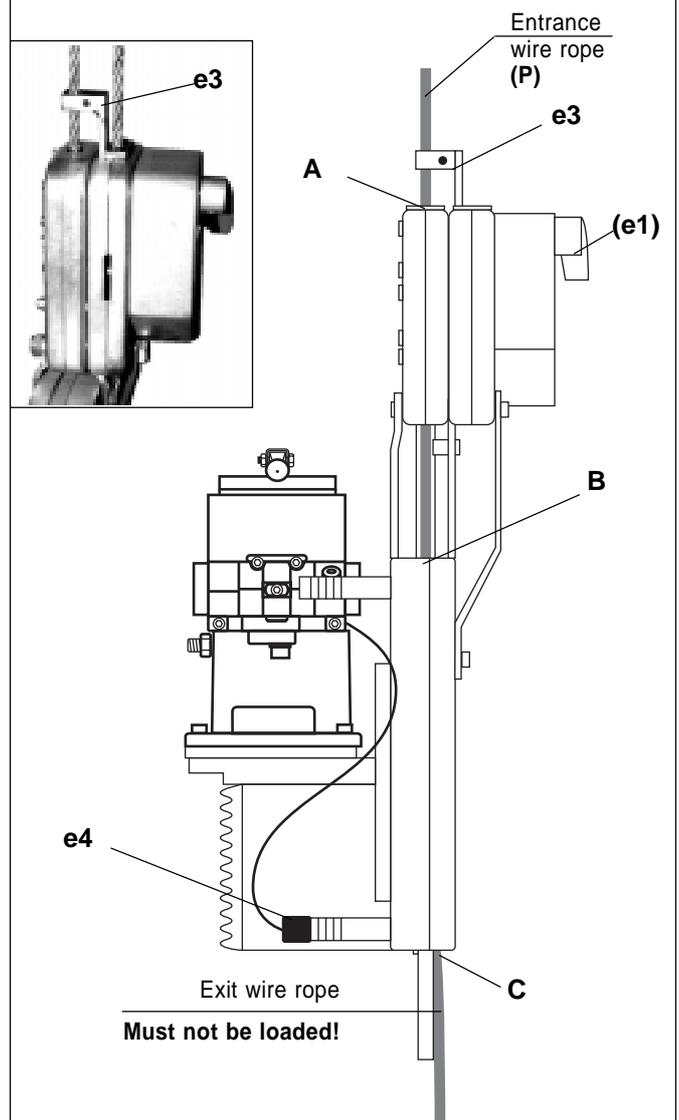


**CAUTION:**  
Check that wire rope exit (C) is not blocked in any manner.

**Never load the wire rope exiting from (C) by applying a weight to or by tensioning.**

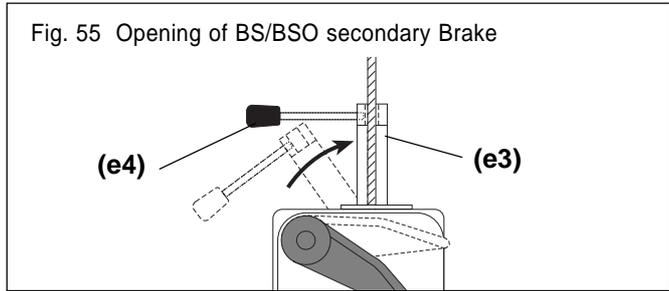
- (2) With gloved hands slide the rope through release lever hole and push it through the BSO secondary brake at (A) into the hoist rope inlet (B). Push it inside, and press control lever in UP position, until the wire rope reeves itself automatically and exits at (C) on the other side (Fig. 53).
- d) Let the primary wire rope run through until it is tensioned.

Fig. 53 Primary Wire Rope Reeving  
(Principle drawing valid for all TIRAK® seires)



### A4.3.2 Secondary wire rope (S)

- (1) BS/BSO secondary brake should be opened by the primary wire rope under load. Otherwise push and hold release lever (e3) in its vertical position (use handle (e4) to ease the operation) (Fig. 55).



- (2) Insert secondary wire rope at (D) and push through until it is tensioned (Fig. 56).
- (3) Above ground level fix a tensioning weight (s1) of approx. 25 lbs. (10 kgs) to the lower end of the secondary wire rope (Fig. 56). This weight will help to pull the secondary wire rope through the BS/BSO secondary brake and avoid slack wire rope above the hoist, which could be dangerous in the event of fall.
- (4) Take precautions to make sure tensioning weight (s1) will not damage property or create a hazard by swinging freely.

### A4.3.3 Primary Wire Rope End

After primary wire rope 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 (Fig. 57).

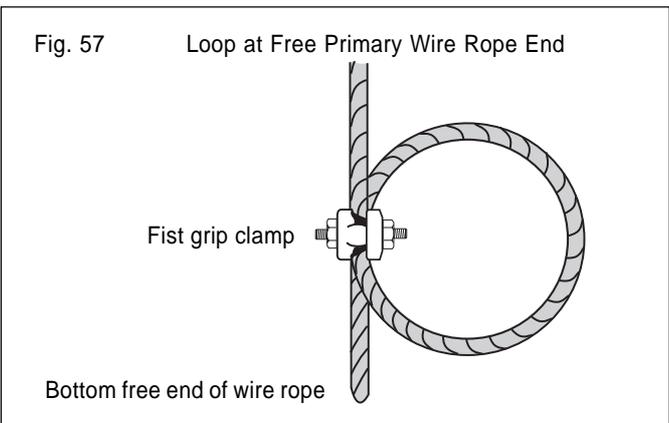
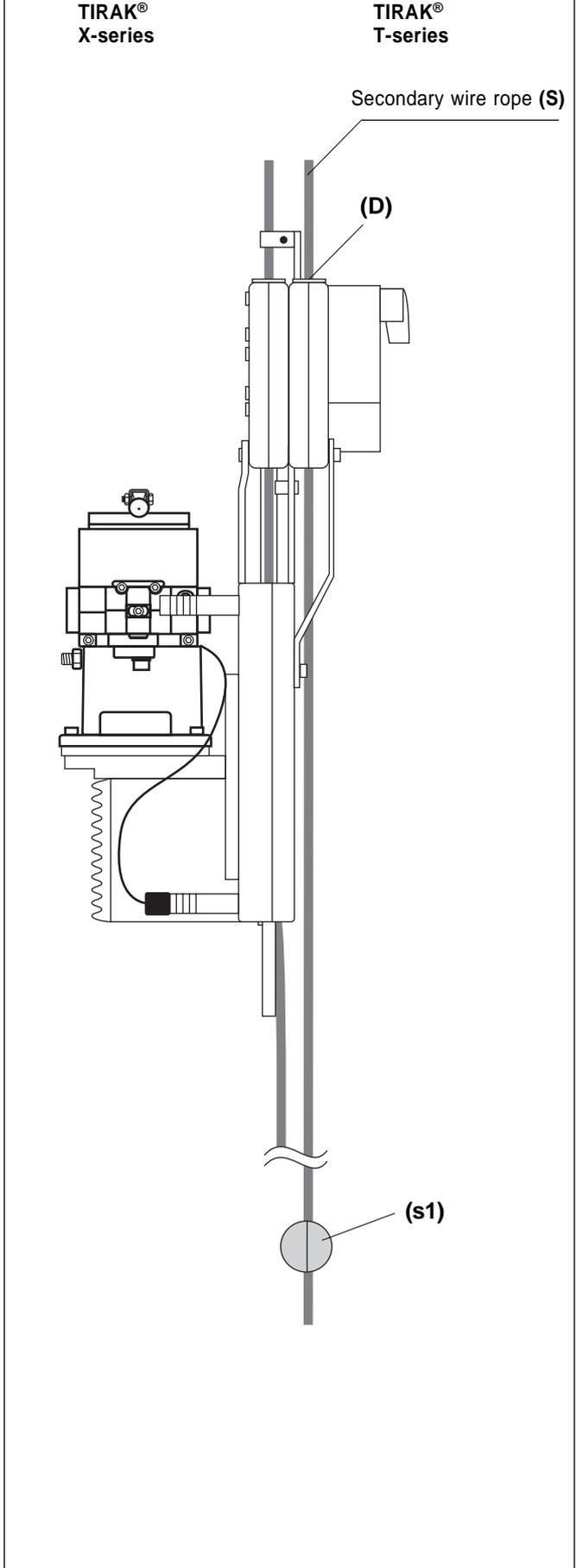


Fig. 56 Secondary Wire Rope Reeving



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

## A4.4 De-Rigging

### A4.4.1 Secondary wire rope

- (1) Lower the platform until it almost reaches its safe and stable support. Leave the primary wire rope tensioned so that the **release lever (e3)** of BS/BSO secondary brake is still upright.
- (2) Remove the tensioning weight (s1).
- (3) If **release lever (e3)** is not held in its **open** position by the tensioned primary wire rope, hold it in its open position by using the **handle (e4)** according to Fig. 53 to ease operation.
- (4) With gloved hands pull out the secondary wire rope.

### A4.4.2 Primary wire rope

- (1) Lower the platform to a safe and stable support until each TIRAK® hoist is unloaded.
- (2) Remove the loop at the free wire rope end.
- (3) Press control lever in DOWN position to let the wire rope run out. As soon as the suspension

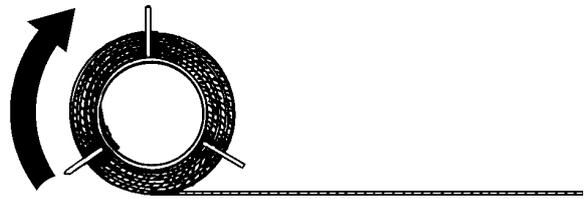
wire rope is not under load, hold **release lever (e3)** of BS/BSO secondary brake in its open position by using **handle (e4)** according to Fig. 55 to ease operation.

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

### A4.4.3 Wire Rope Storage

Clean the wire ropes, **reel** them (Fig. 58), and store them in a clean and dry place.

Fig. 58 Wire Rope Handling



## A5. Operating Instructions

### A5.1 GENERAL

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

DO NOT operate hoist, if adjustment or repairs are necessary, if any warning, operating or capacity instructions normally attached to the hoist are obscured, damaged, or missing. (See labels' list on pages 36 to 38).

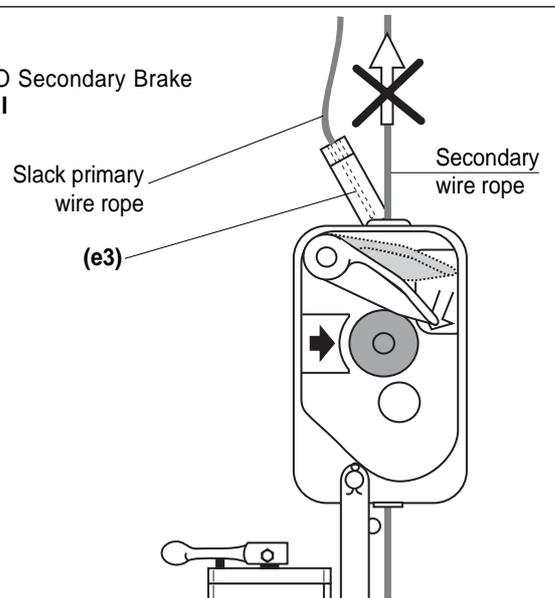
REPORT same promptly to your supervisor and also notify next operator, when changing shifts.

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

- a) CHECK **PLATFORM** 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.

Fig. 59

BS/BSO Secondary Brake  
**Check I**



c) CHECK BS/BSO SECONDARY BRAKE:

I At ground level push control lever in DOWN-position to get slack primary wire rope – release lever (e3) tilts to the side to close BS/BSO secondary brake for the secondary wire rope (Fig. 60).

With gloved hands try to pull the secondary wire rope upwards: it **must be impossible**.

II At ground level first close the BS/BSO secondary brake (e1). Then push control lever/valve in DOWN position and make the primary wire rope form a loop between TIRAK® casing and BS/BSO secondary brake (Fig. 60). Open BSO again.

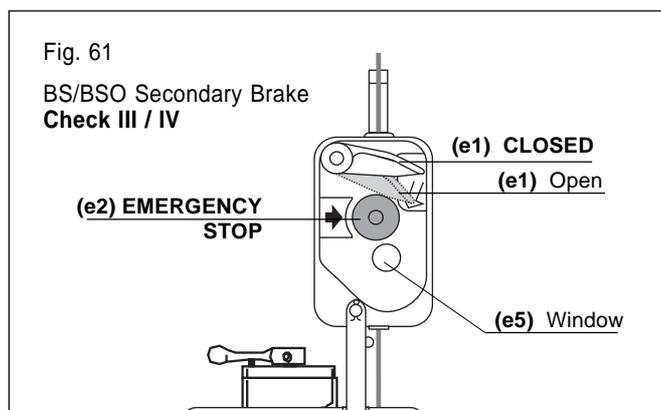
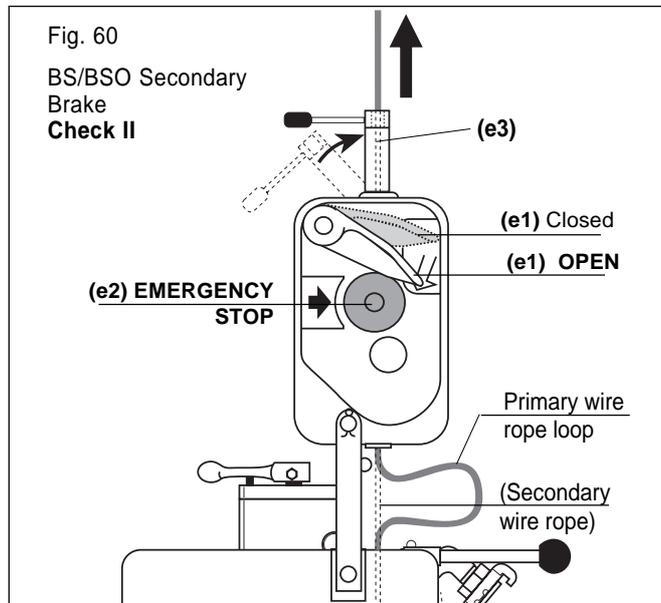
Push release lever (e3) in its upright position, and with gloved hands sharply pull primary wire rope in arrow direction (Fig. 53) – the BS/BSO secondary brake should close immediately.

Reset BS/BSO secondary brake by pushing down control lever (e1) until it locks in the open position.

III Lift platform 3 ft. (1 m) above ground or safe surface, and push EMERGENCY STOP button (e2) of the BS/BSO secondary brake (Fig. 61).

Try to lower the platform to check that the BS/BSO secondary brake holds the load. A loop should form as shown in Fig. 60, which means the BS/BSO is supporting the load. Raise the platform until the hoist supports the load. Reset (e1) to the open position.

IV During operation **regularly check** through the window (e5) that the centrifugal weights are rotating (Fig. 61).



- d) Check EMERGENCY STOP button, control lever/valve UP/DOWN and brake release lever according to page 15.
- e) CONTINUOUSLY CHECK rigging, lines, clearances, and all other elements throughout the entire time on the job.

**WARNING:**



**IF DURING ONE OF THE CHECKS THE BS/BSO SECONDARY BRAKE MALFUNCTIONS, IT MUST BE REPLACED.**

**A5.2 NORMAL OPERATION**

(see page 16)

**A5.3 EMERGENCY DESCENT** (see also page 17)



**NOTE:** The BS slack wire rope device has locked on the secondary wire rope during emergency descent (platform hits obstruction).

The BS will automatically open by the transfer of the load to the primary wire rope (see page 17)

**If cannot move up the hoist to transfer the load to the primary rope because of low air power, you need to require help or a rescue.**

**WARNING:**



**If the BS slack wire rope stops downward travel during emergency descent, DO NOT DETACH FROM HOIST!**

**NOTE:** If during emergency descent the BS/BSO secondary wire brake has been activated, it could be because:



**CASE (A):** The BSO overspeed device has locked on the primary wire rope.

**CASE (B):** The BSO slack wire rope device has locked on the secondary wire rope. (Platform hits obstruction during descent).

To unlock BS/BSO secondary brake you have to **wait for air power to go up**, until the hoist supports the load.

- **CASE (A):** Reset BSO overspeed device by pushing down control lever (e1) until it locks (Fig. 62). **DO NOT force it open!**

- **CASE (B):** The BS stack wire rope device is automatically opened by the transfer of the load to the primary wire rope.
- Continue with manual descent.

**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!**

### A5.4 BS/BSO Secondary Brake Action

(1) **EMERGENCY STOP**

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

(2) To reset BS/BSO secondary brake:

Raise the platform until the hoist supports the load. Push the control lever (e1) in the OPEN position (Fig. 60). **DO NOT force it open!**

(3) If the BS/BSO secondary brake has **automatically closed on the primary wire rope**, i. e. control lever (e1) has returned to **CLOSED** position (Fig. 61):

**CASE (A)**

**WARNING: STOP DOWNWARD TRAVEL! YOU MAY HAVE RUN OFF THE PRIMARY 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 BS/BSO secondary brake as described above.

**CASE (B)**

**WARNING: STOP DOWNWARD TRAVEL! THE PRIMARY WIRE ROPE HAS FAILED. RESCUE IS REQUIRED.**



(4) If the BS/BSO secondary brake has **automatically closed on the secondary wire rope**, i. e. release lever (e3) is tilted because of slack primary wire rope (Fig. 62):

**WARNING: STOP DOWNWARD TRAVEL! THE PLATFORM HAS HIT AN OBSTRUCTION PREVENTING DOWNWARD MOVEMENT.**

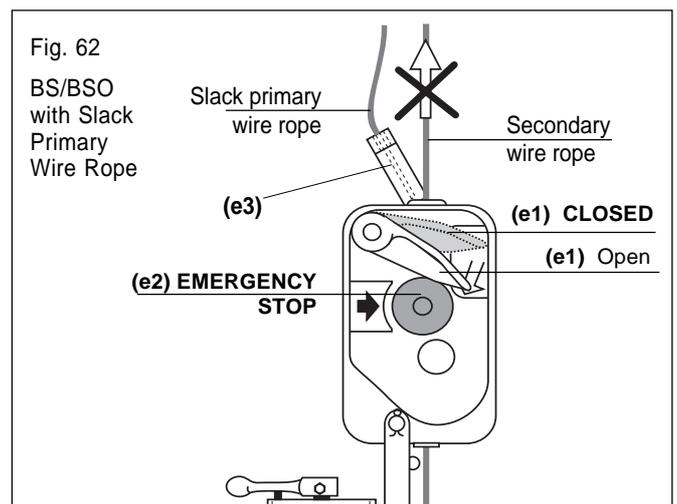


**GO UP UNTIL THE HOIST SUPPORTS THE LOAD** – the tensioned primary wire rope automatically re-opens the BS/BSO secondary brake for the secondary wire rope to move again freely through the device.

**CLEAR THE OBSTRUCTION and descend.**



**CAUTION:** If the BS/BSO secondary brake repeatedly stops downward travel, contact the supplier for advice.



**WARNING: DURING USE OF THE HOIST NEVER DETACH BS/BSO SECONDARY BRAKE!**



## A6. 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 TRACTEL Group Company or by a qualified person, and only original spare parts shall be used.

### 6.1 Wire Rope Drive Mechanism Troubles

### 6.2 Mechanical Troubles

### 6.3 Motor Troubles

### 6.4 BSO Secondary Brake Troubles

(see pages 18 to 19)

### A6.4 BS/BSO Secondary Brake Troubles

Problem	Cause	Remedy
1. Hoist goes up but not down	BS/BSO secondary brake is closed a) Primary wire rope has run out or has failed. b) Platform has hit an obstruction	a) <b>WARNING: STOP DOWNWARD TRAVEL! Proceed according para. A5.4, (3), page 33.</b> b) <b>WARNING: STOP DOWNWARD TRAVEL!</b>  Go up until the hoist supports the load, and clear the obstruction. Details in para A5.4, (4), page 33.
2. BS/BSO secondary brake automatically closes	a) Mechanical defect.	a) Contact the supplier.

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

## A7. INSPECTIONS and MAINTENANCE

### A7.1 Inspections

**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 and Instruction Manual, and all pertinent Federal, State, Provincial and Local regulations.

#### Unauthorized replacement parts:

Use only TRACTEL INC. replacement parts. The replacement of any part with anything other than a TRACTEL INC. authorized replacement part may adversely affect the function and safety of this hoist and voids the warranty. TRACTEL INC. 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 for the life of the hoist and written inspection records kept as specified.

#### A7.1.1 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) Control all air line connections for locking pins and strain relief. Be sure all relief devices are properly connected and air line is supported by workplatform, 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 pages 19/20.

##### (2) Primary brake function: (Test see page 20)

(3) **BLOCSTOP BS/BSO secondary brake function.**

I At ground level or on a safe surface push control lever/valve in DOWN position to get slack in the primary wire rope: release lever (e3) tilts to the side to close BS/BSO secondary brake on the secondary wire rope (Fig. 63).

With gloved hands try to pull the **secondary wire rope** upwards: it **must be impossible**.

II At ground level first close BSO secondary brake. Then push control lever/valve in DOWN position and make the wire rope form a loop between TIRAK® casing and BS/BSO secondary brake (Fig. 63). Open the BSO brake again (e1).

Push release lever (e3) in its upright position and with gloved hands sharply pull **primary wire rope** in arrow direction (Fig. 63) – the BS/BSO secondary brake should close immediately (Fig. 64).

Reset BS/BSO secondary brake by pushing down control lever (e1) until it locks in the open position.

III Lift platform 3 ft. (1 m) above ground or safe surface, and push EMERGENCY STOP button (e2) of the BS/BSO secondary brake (Fig. 65).

Lower the platform to check that the BS/BSO secondary brake holds the load: A loop should form as shown in Fig. 64, which means the BS/BSO is supporting the load.

Raise platform until the hoist supports the load. Reset (e1) to the open position.

IV During operation regularly check through the window (e5) that the centrifugal weights are rotating (Fig. 65).

(4) **Wire rope:** free of kinks, cuts, broken wires, bird-cages, heat damage, contamination etc.

(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.

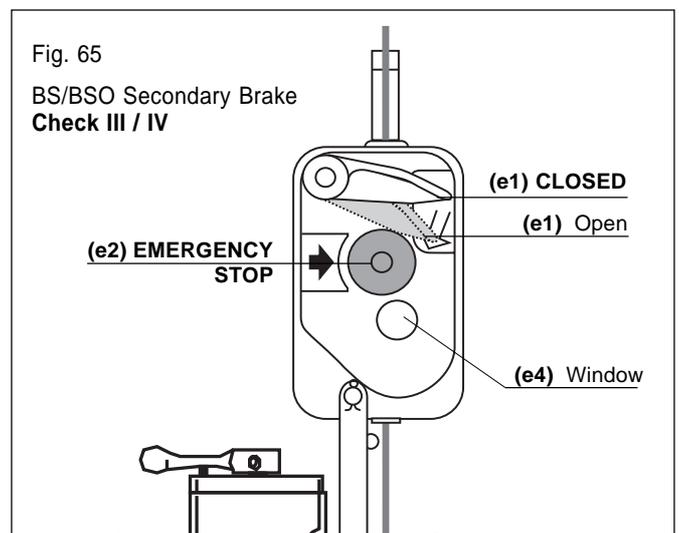
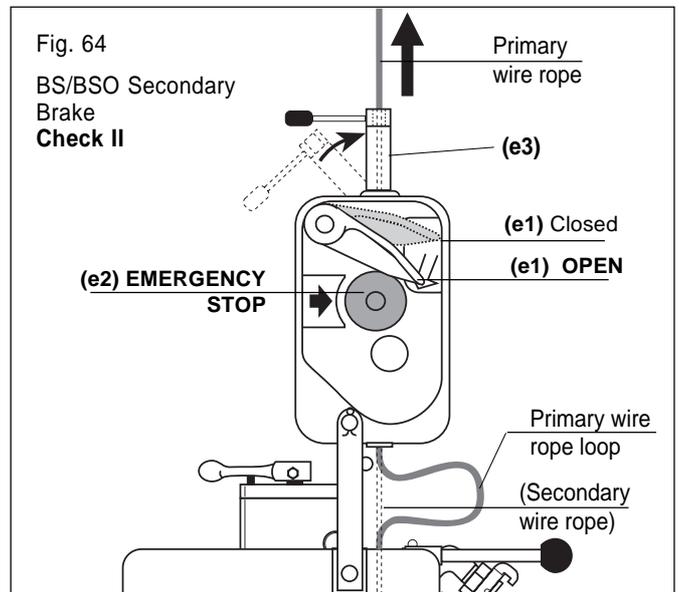
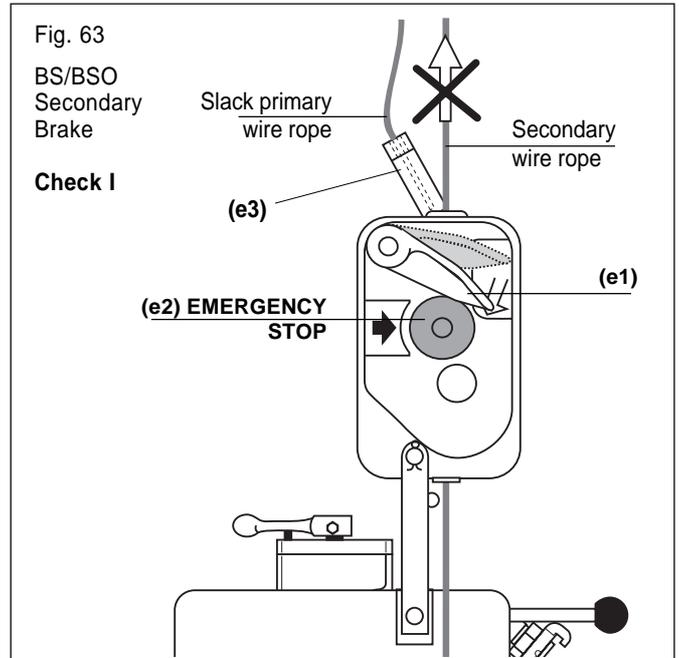
(7) **Rigging**  
Wire rope termination, connection to the suspension system. It must be aligned and secure.

(8) Check for **parts damage**



**WARNING! If there is any: 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

## 7.1.3 1/2-YEAR INSPECTION (see page 22)

## A7.2 Maintenance

### A7.2.1 TIRAK® Hoist

- (1) Daily check the primary and BS/BSO secondary brake.
- (2) Daily check for visible part damage.
- (3) Keep wire rope clean and lightly lubricated to prevent abnormal wear of the wire rope driving mechanism.

### A7.2.2 Wire Ropes

#### (1) CAUTION:

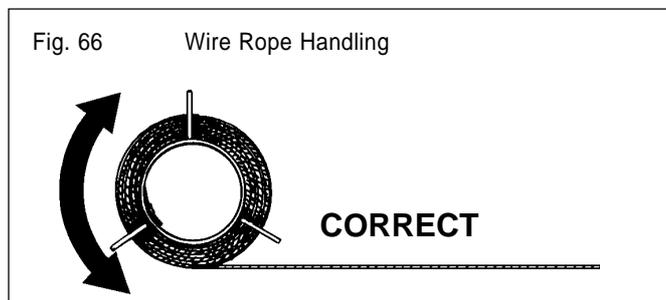


It is mandatory that both the **PRIMARY AND THE SECONDARY WIRE ROPE** meet the suppliers specifications!

For details see pages 7 and 13.

This will ensure the reliable function of the hoist.

- (2) To warrant maximum lifetime we recommend:
  - The wire rope must be unreel and reeled in a straight line (Fig. 66).



- 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 ends 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.

### A7.2.3 BLOCSTOP® BS/BSO Secondary Brake

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

## 8. NAMEPLATES & LABELS

### 8.1 Nameplates

- ① TIRAK® Nameplate
- ② BLOCSTOP® Secondary brake nameplates

### 8.2 Labels

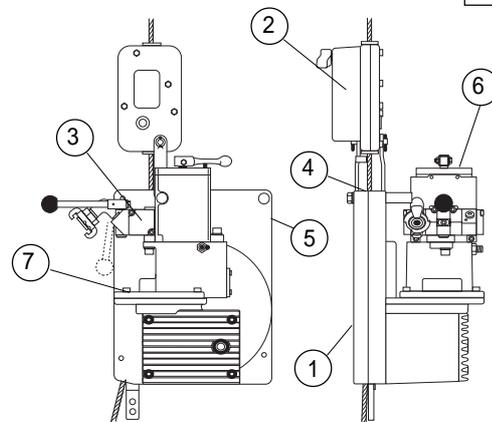
- ②a Advice label additional secondary brake check
- ③ Advice label for Air preparation unit (X-series)
- ③a Advice label for Air preparation unit (T-series)
- ④ Wire rope diameter
- ⑤ UL classification
- ⑥ Emergency Descent label
- ⑦ UP/DOWN Signs for control lever



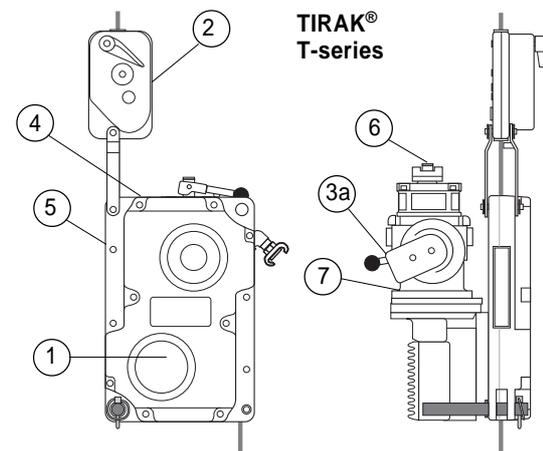
**NOTE: If any nameplate or label is missing or obscured, contact the supplier for replacement nameplates/labels.**

Fig. 67 Nameplates and Labels

TIRAK®  
X-series



TIRAK®  
T-series



1

# tirak® Model XA P

US. PATENTS:  
N° 3,965,767 / 4,193,311 / 4,345,741 / 4,706,940.  
Other US. PATENTS PENDING.  
Made in Germany G 449-05/01 Printed in Germany

Rated load:	lbs	kgs
Travel speed:	ft/min	m/min
Maximum rated inlet pressure:	85 psi	
Serial No.:	Year of manufacture:	
	200 /	
Wire rope diameter:	9/16 in.	14.2 mm
Wire rope classification/construction:	5x26 with fiber core, or 6x26 IWRC, galvanized or black, lubricated, preformed, IPS or XIPS.	

**CAUTION:** The TIRAK® can only be used in conjunction with the **BLOCSTOP OVERSPEED** device, which is an integral part of the equipment.  
Use of this equipment is unsafe and unlawful without proper fall protection equipment used in accordance with OSHA requirements.

**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.

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

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

Supplier's address

 **WARNING:**  
Only authorized, properly trained, and physically fit personnel shall operate this hoist in strict accordance with the instructions on the hoist and applicable codes! Copy of instructions must be kept with the hoist.

 **Operating WARNING:**  
**Immediately STOP RUNNING THE HOIST, if wire rope does not move through.**

3

Use only with **air preparation unit !**

3a

Use only with **air preparation unit !**  
N'utiliser qu'avec **unité de conditionnement de l'air !**  
Betrieb nur mit **Wartungseinheit !**

4

Wire rope  
Ø  
**5/16"**

Wire rope  
Ø  
**3/8"**

2

**BLOCSTOP<sup>®</sup>**  
secondary brake

Model		Serial number	
<b>BSO</b>			
Rated load	Wire rope Ø	Year of manuf.	
kg	mm	<b>199</b>	
lbs.	in.		

**CHECKING**

1) Before going aloft, daily check as follows:

- At ground level push control lever in DOWN position and allow the wire rope to form a bow between TIRAK<sup>®</sup> 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 brake 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

2a

**ADDITIONAL CHECKING**

At ground level push control lever in DOWN position to get slack primary wire rope – release lever tilts to the side to close BS/BSO secondary brake for the secondary wire rope.

With gloved hands try to **pull the secondary wire rope upwards: it must be impossible.**

5

CLASSIFIED

**UL**

SCAFFOLD EQUIPMENT

CLASSIFIED BY

UNDERWRITERS LABORATORIES INC

AS TO LOAD CAPACITY ONLY

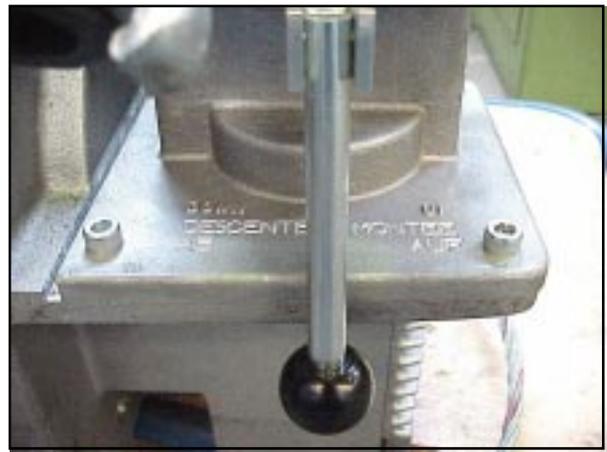
400 S

6

**EMERGENCY DESCENT**

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

7 XA 500 P



7 TA 1000 P

o DOWN o UP o

## **9. WARRANTY INFORMATION**

- (1) TRACTEL INC. or 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. or TRACTEL LTD. distributor, transportation prepaid, within one (1) year from the equipment is sold to the original purchaser<sup>1)</sup>. 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) TRACTEL INC.'s or TRACTEL LTD.'s obligation 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. or TRACTEL LTD. distributor, repaired with other than TRACTEL INC. or 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. authorized replacement part voids the warranty. TRACTEL INC. 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 Inc.  
offers a certificated training course for suspended scaffold users.

Information may be obtained from

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

Telephone: (818) 610-03 20

Fax: (818) 610-03 23

[www.scaffold.org](http://www.scaffold.org)

e-mail: [sia@scaffold.org](mailto:sia@scaffold.org)

# 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 scaffold 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** –Defined for **PNEUMATIC** under responsibility of **GREIFZUG 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.

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.

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 HARNESSSES 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:**

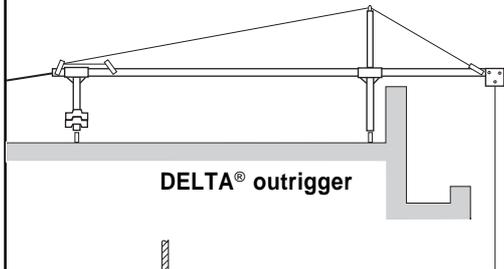
1. USE ALL EQUIPMENT AND ALL DEVICES in accordance with the manufacturer's instructions.
2. DO NOT OVERLOAD, MODIFY, OR SUBSTITUTE EQUIPMENT.
3. BEFORE COMMENCING WORK OPERATIONS preload wire rope and equipment with the maximum working load, then retighten wire rope rigging clamps and check rigging to 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 scaffold 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.



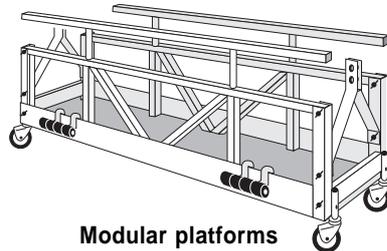




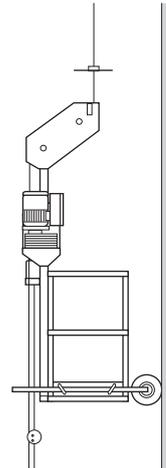
# More information about access equipment...



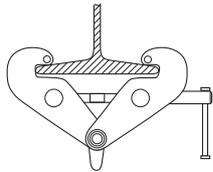
**DELTA® outrigger**



**Modular platforms**



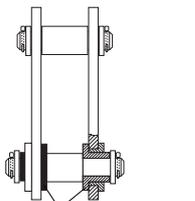
**Workcages**



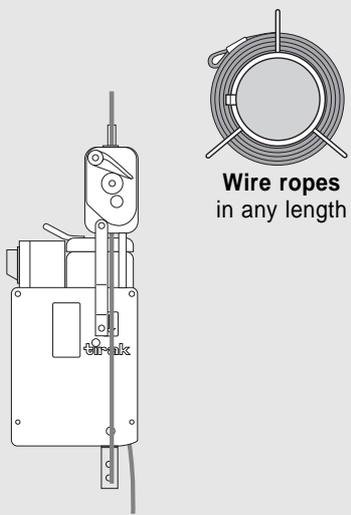
**Beam clamps**

### Electrical Accessories:

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



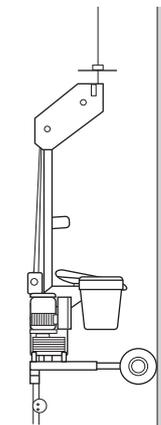
**Insulation bushing**



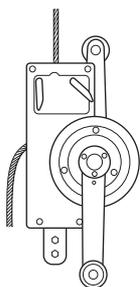
**Wire ropes  
in any length**

**4,400 lbs.  
rated  
capacity**

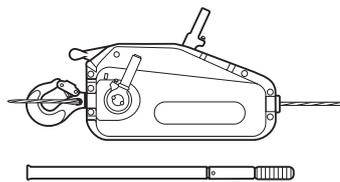
**TIRAK® electric powered hoists**  
**TIRAK® XE 2050 P**



**Bosun's chair**



**SCAFOR® manual hoist**



**GRIPHOIST® manual hoists**



**FALLSTOP®  
Personal fall arrest  
systems**

**... on request!**

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