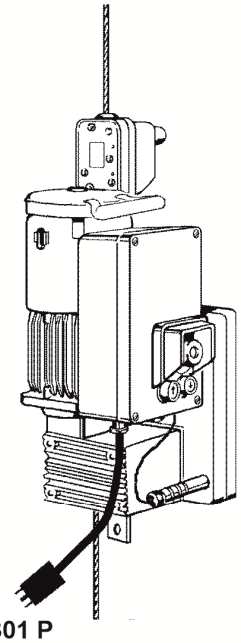
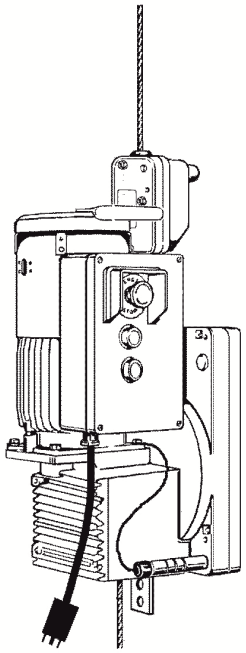
tirak®

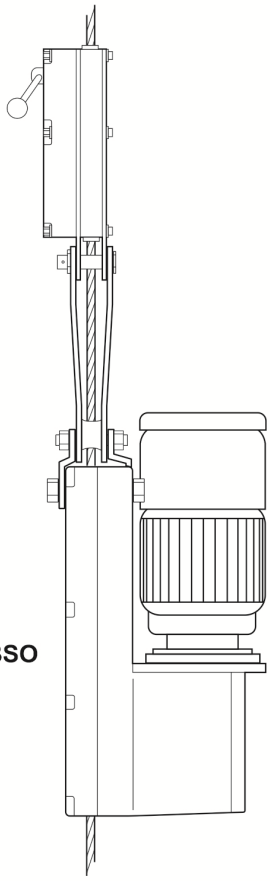
MANRIDING SCAFFOLD HOIST
OPERATING MANUAL



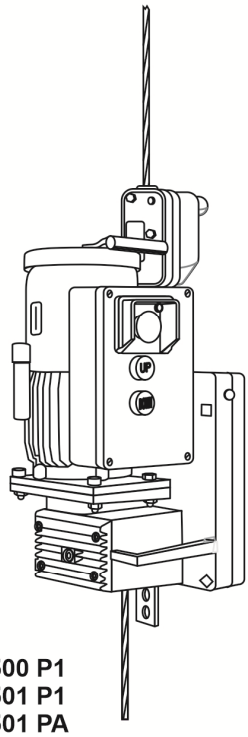
XE 301 P
with blocstop® BSO



XE 500 P
XE 500 P+
XE 501 P
XE 501 P+
XE 501 PA
XE 600 P
XE 700 P
XE 701 P
XE 702 P+
XE 720 P
XE 721 P
XE 1020 P
XE 1030 P
with blocstop® BSO

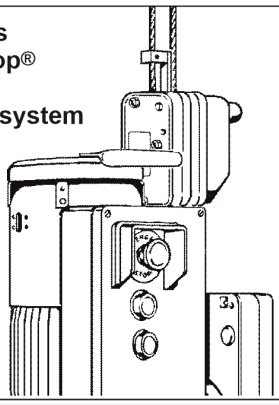


XE 2050 P
XE 2553 P+
with blocstop®BSO



LE 500 P1
LE 501 P1
LE 501 PA
with blocstop® BSO

tirak® hoists
with blocstop®
BS/BSO on
2 wire rope system



Tractel®

www.tractel.com

CONTENTS

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

"Manufacturer" definition:

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“Supplier” definition regarding contact advice in this manual:

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IMPORTANT

This manual contains information describing inspection and repair procedures for the equipment described herein and is made available for trained personnel only. To ensure proper safety, all persons involved in operation of this equipment must be properly trained and thoroughly familiar with the correct inspection and repair procedures. These persons shall also be familiar with all applicable standards and/or other federal, state, provincial and local standards which may apply.

Explanation of symbols used in this manual

Symbol	Code word	Meaning	Possible consequence of non-compliance
	DANGER	Hazardous situation which, if not avoided, will result in death or serious injury.	Will result in fatal or serious injuries!
	WARNING	IMMEDIATE or possibly imminent danger:	Could result in fatal or serious injuries!
	CAUTION	Possibly dangerous situation:	Minor injuries to persons!
NOTICE		Possibly dangerous situation:	Damage to equipment or its surroundings
	Instruction for (none)	Documentation in writing (i.e. record keeping)	(none)

1 GENERAL WARNING

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 SAIA guidelines for safe practice (see page 63).

(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

(1) Keep this manual available at all times for easy reference whenever required. Extra copies are available from the supplier.

(2) 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 59). The supplier will supply extra labels on customer's request.

(3) 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.

(4) 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.

(5) 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.

(6) Maintenance may only be carried out by personnel authorized by Tractel. A signed and dated inspection record should be maintained.

(7) Inspection by persons authorized by Tractel® is to be carried out once every year or every 250 hours. A signed and dated inspection record should be maintained.

(8) The manufacturer declines any responsibility for consequences of repairs or modifications brought out of its control to the product, specially by replacement of original parts or repair by another manufacturer.

YOUR DUTY TO TRAIN AND CONTROL PEOPLE

(1) 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.

(2) Never disassemble the tirak® by yourself or by your staff. People's lives 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.

(3) 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.

(4) 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.

(5) 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 …:

(1) … it is fitted on compatible scaffold equipment, including the wire rope used in the tirak® hoist.

(2) … 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.

(3) … 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.

(4) … 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;

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

(6) … 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

(1) The blocstop® BSO or blocstop® 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.

(2) 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.

(3) 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.

(4) Never operate the tirak® hoist and its accessories, especially electric ones, in a potentially explosive atmosphere.

(5) For any job to be performed on the suspended equipment, consider and control the specific risks related to the nature of the job.

(6) 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.

(7) Fall protection MUST be worn at all times.

AN ULTIMATE RECOMMENDATION

(1) 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 on page 41.

(2) Operators on the scaffold should be equipped with an emergency means of communication such as radio device or telephone should rescue be necessary. A rescue plan must be in place.

(3) 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.

(4) 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

The main advantages of tirak® hoists are:

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

2.1 GENERAL

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

For that purpose only they are UL classified, either for USA or Canada alone, or both countries.

tirak® hoists are composed of the following main assemblies (Fig. 1 on page 9):

A Wire rope driving mechanism

B Gearbox

C Electric motor with primary brake and electric controls

D blocstop® BSO secondary brake

or

E blocstop® BS/BSO secondary brake on 2 wire rope system (see page 41)

The original design requires, for safety and efficiency, that it be used with a special tirak® wire rope specified by the manufacturer.

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

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

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

2.2 MOTOR AND PRIMARY BRAKE

tirak® hoists are driven by a single phase motor three phase motor, totally enclosed fan cooled (TEFC) type with an electromagnetic brake. Pneumatic tirak® hoists are available also.

2.3 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.

2.4 SECONDARY BRAKE

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

WARNING!

Risk of falling!

Risk of falling and severe injuries!

– **THE SECONDARY BRAKE**, marked blocstop® BSO or blocstop® BS/BSO is an integral part of the hoist and **MUST ALWAYS BE ATTACHED AND USED**.

2.5 EMERGENCY DESCENT WITHOUT POWER

tirak® hoists are equipped with a mechanical centrifugal braking system, permitting a descent at moderate speed in case of emergency. No handcranking is needed.

2.6 WIRE ROPE DRIVING MECHANISM

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

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

2.7 WIRE ROPE

⚠ WARNING!

Incorrect wire rope!

Risk of falling and severe injuries!

The original design requires, for safety and efficiency, that it be used with a special tirak® wire rope specified by the manufacturer.

– Unless specificly specified in writing by the manufacturer, only this special tirak® wire rope may be used.

NOTICE

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

2.8 ASSEMBLIES

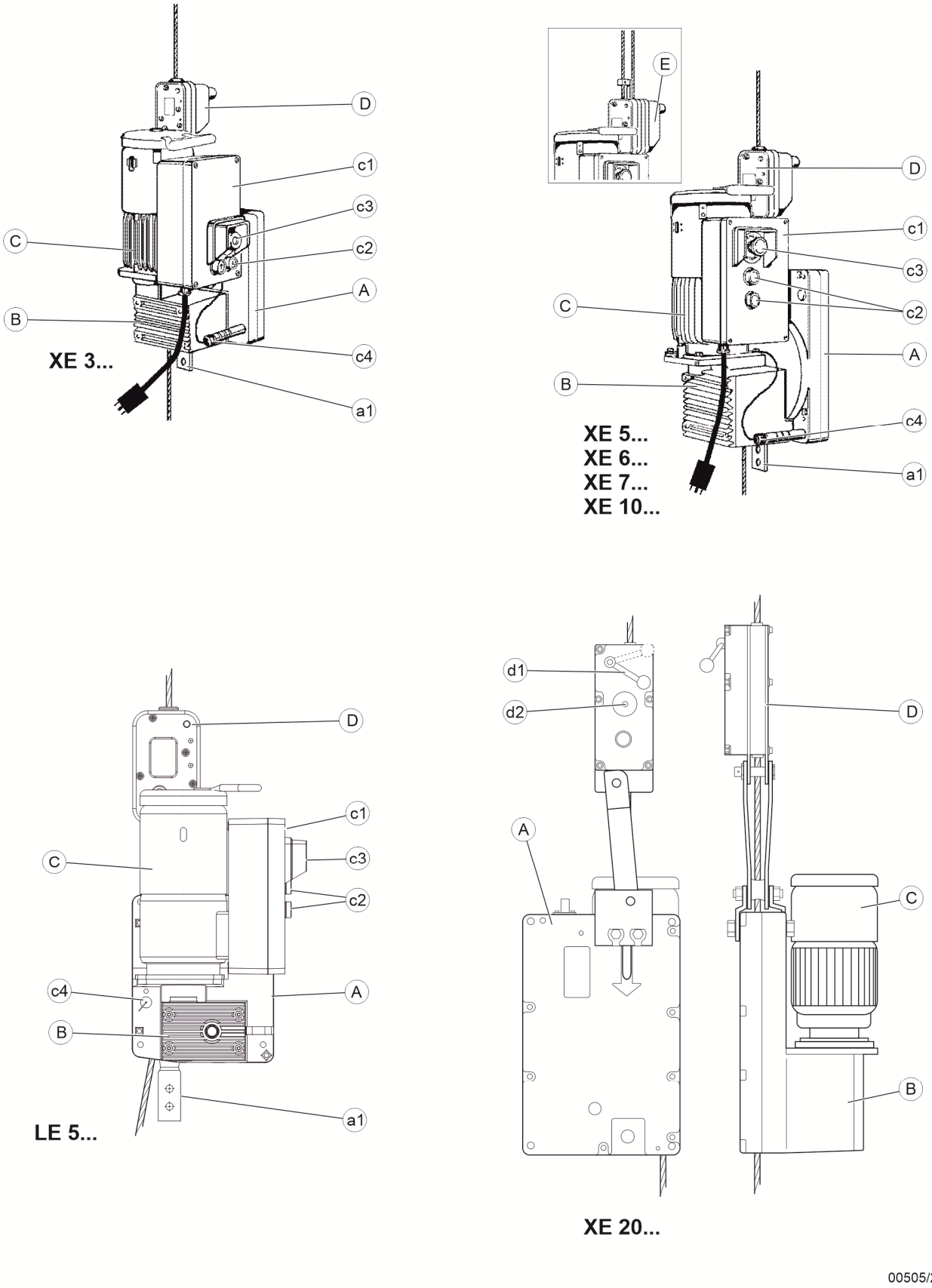


Fig. 1: Main assemblies

A Wire rope driving mechanism

a1 Stirrup adapter (X-/L-Series)

B Gearbox

C Electric motor with primary brake and electric controls

c1 Electric control box

c2 Push button control

c3 Electric EMERGENCY STOP

c4 Emergency descent brake release lever (stored position)

D blocstop® BSO secondary brake

d1 Control lever

d2 EMERGENCY STOP on the blocstop

E blocstop® BS/BSO secondary brake on 2 wire rope system (see page 41)

2.8.1 SAFETY EQUIPMENT

EMERGENCY Stop button

The hoist is stopped immediately in an emergency situation by pressing the EMERGENCY Stop button.

Mechanical load limiting device (if supplied)

The load limiting device will activate automatically when the overload setting is reached. The hoist will be stopped. The maximum overload that has to be set up can be found in the applicable directives and standards.

The system manufacturer / operator is therefore responsible for determining and releasing the proper implementation of the application.

Primary brake

The electromagnetic primary brake (spring-applied brake) automatically locks when the operating control for travelling UP or DOWN is released or when the power fails.

Centrifugal brake

A centrifugal brake on the motor shaft of the hoist ensures that the load is not lowered too fast when the spring-applied brake on the hoist's motor is released manually.

Operating limit switch / emergency limit switch – optional for temporary applications

During lifting processes the drive path must be limited by one or multiple limit switches, so that the upward and/or downward movement is stopped.

The operator or the system manufacturer must determine the design and the fitting position of the limit switches when taking their risk assessment into account.

The operator or system manufacturer must install an operational limit switch and, if necessary, an emergency limit switch and a floor limit switch and connect them to the hoist. The limit switches must have a positive opening.

Hour meter (optional)

The running hours can be read from the hour meter, in order to determine when the next hoist safety check must be carried out.

Phase sequence relay (hoists without frequency converters)

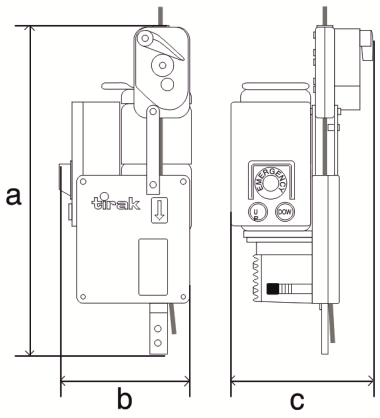
In control units operating by three-phase current, the phase sequence relay shuts down the system in the case of an incorrect phase sequence and this prevents an UP / DOWN travel direction mix-up.

EMERGENCY STOP button (BSO)

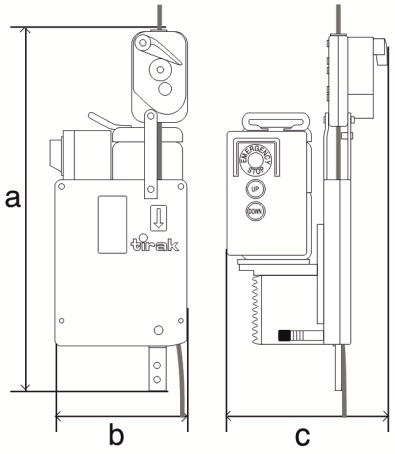
Press the EMERGENCY-STOP button to manually trigger the secondary brake in an emergency situation.

2.9 TECHNICAL DATA

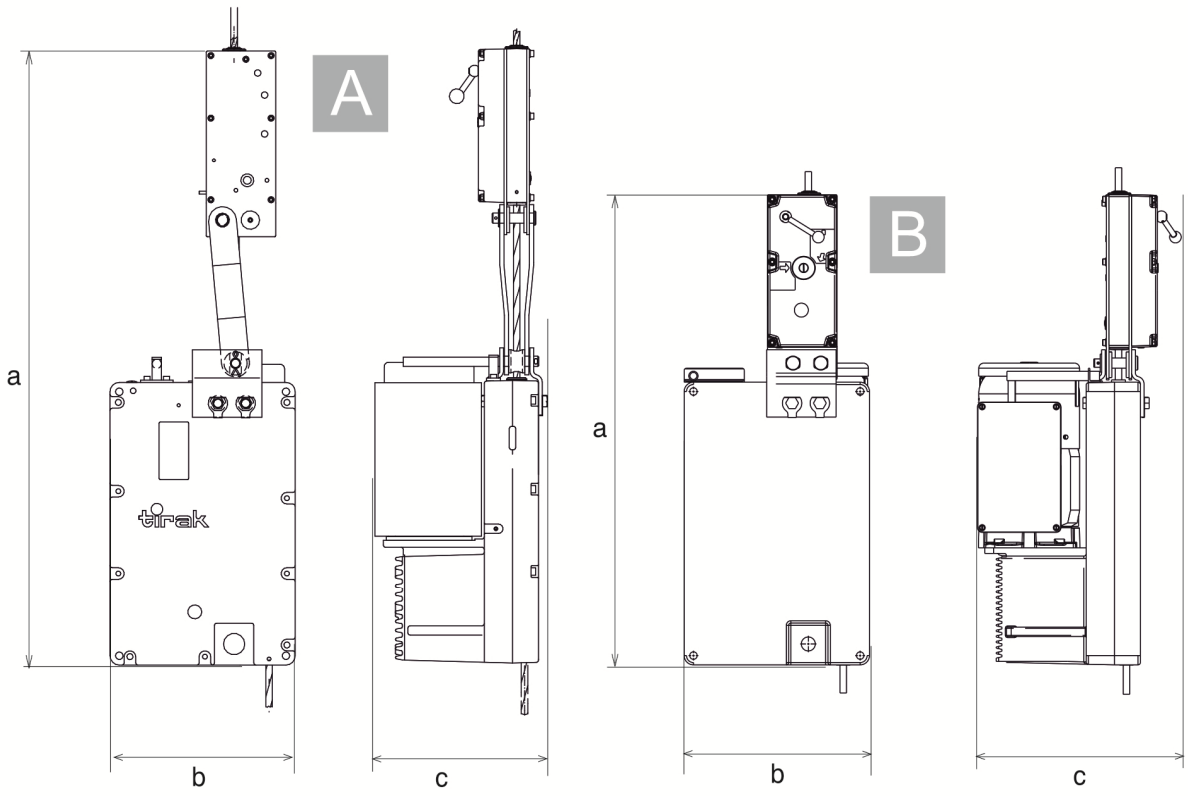
XE 3...
with blocstop™ BSO



XE 5...
XE 6...
XE 7...
XE 10...
with blocstop™ BSO



XE 20...
with blocstop™ BSO



00506/2

Fig. 2: Dimensions

LE 5...
with blocstop® BSO

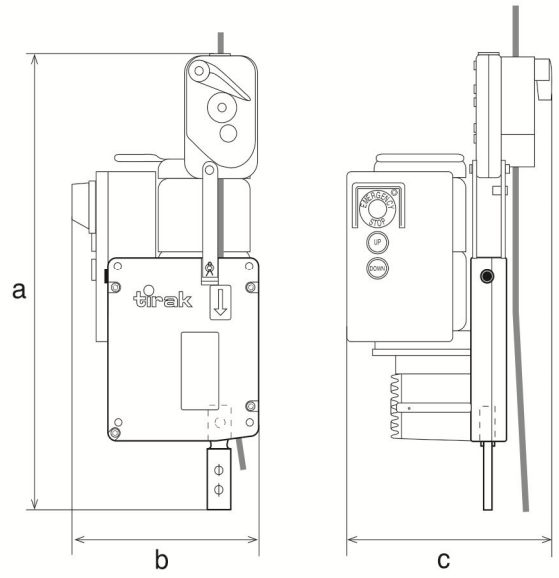


Fig. 3: Dimensions

Motor specifications: 1~ 110V (or 220V)/60 Hz																	
Hoist model		**Rated load**	**lifting speed**		**weight (with BSO)**		**Dimensions over all**						**Wire rope diameter**		**Motor**		
USA	**Canada**	**lbs**	**ft/min**	**m/min**	**lbs**	**kg**	**in.**			**mm**			**in.**	**mm**	**type**	**kW**	**A**
							a	**b**	**c**	**a**	**b**	**c**					
Secondary brake: blocstop® BSO 500																	
XE 301 P		700	35	11	82	37	28.9	11.8	12.8	735	299	326	5/16	8	UBE80/11-4F	0.55	10.5(5.2)
XE 501 P		1000	35	11	123	56	31.8	12.6	14.1	808	321	358	5/16	8	UCE90L/10-4F	1.1	19.5(9.5)
LE 501 PA		1000	20	6	84	38	29.3	12.3	13.5	743	313	342	5/16	8	UCE80L/11-4F	0.55	10.5
Motor specifications: 1~ 208V/60 Hz																	
Secondary brake: blocstop® BSO 500																	
XE 501 P+		1000	35	11	128	58	31.8	13.3	14.1	808	338	358	5/16	8	UM90L4	1.1	8.3
Motor specifications: 1~ 220V/60 Hz																	
Secondary brake: blocstop® BSO 500																	
XE 501 PA		1000	35	11	121	55	31.8	12.6	14.1	808	321	358	5/16	8	UCE90L/10-4F	1.1	9.5
LE 501 P		1000	35	11	84	38	29.3	12.3	13.5	743	313	342	5/16	8	UCE80/12-4F	0.9	6.8
XE 701 P		1500	35	11	123	56	31.8	13	14.1	808	331	358	5/16	8	UCE90L/11-4F or UCE100L/9-4F	1.5	12
Secondary brake: blocstop® BSO 520 or 1020																	
XE 721 P		1500	35	11	126	57	31.8	13	14.1	808	321	358	3/8	9	UCE100L/9-4F	1.5	12

Hoist model		Rated load	lifting speed		weight (with BSO)		Dimensions over all						Wire rope diameter		Motor		
USA	Canada	lbs	ft/min	m/min	lbs	kg	in.			mm			in.	mm	type	kW	A
							a	b	c	a	b	c					
Motor specifications: 3~ 208V/60 Hz																	
Secondary brake: blocstop® BSO 500																	
XE 500 P+		1000	35	11	106	48	31.8	13.3	14.1	808	338	358	5/16	8	G90L4/7,5-4F	1.5	6.3
	LE 502 P	1000	70	22	73	33	29.3	12.3	13.5	743	313	342	5/16	8	UC80/9-2F	1.8	4.8
XE 702 P+		1500	70	22	137	62	31.8	13.7	15.8	808	349	401	5/16	8	MT100LA2 OG F	3.2	14.5
	XE 702 P+	1200	70	22	137	62	31.8	13.7	15.8	808	349	401	5/16	8	MT100LA2 OG F	3.2	14.5
Motor specifications: 3~ 220V/60 Hz																	
Secondary brake: blocstop® BSO 500																	
XE 500 P		1000	35	11	106	48	31.8	12.6	14.1	808	321	358	5/16	8	UC80/8-4F	1.1	4.5
XE 600 P		1200	35	11	112	51	31.8	12.6	14.1	808	321	358	5/16	8	UC90S/7,5-4F	1.5	6.1
XE 700 P		1500	35	11	112	51	31.8	12.6	14.1	808	321	358	5/16	8	UC90S/7,5-4F	1.5	6.1
LE 500 P		1000	35	11	73	33	29.3	12.3	13.5	743	313	342	5/16	8	UC80/8-4F	0.9	4.8
Secondary brake: blocstop® BSO 520 or 1020																	
XE 720 P		1500	35	11	115	52	31.8	12.6	14.1	808	321	358	3/8	9	UC90S/7,5-4F	1.5	6.1
Secondary brake: blocstop® BSO 1020																	
XE 1020 P		2200	35	11	120	54	33.3	12.6	14.1	845	321	358	3/8	9	UC90L/11-4F	2.4	9.6
Secondary brake: blocstop® BSO 1030																	
XE 1030 P		2200	35	11	120	54	33.3	12.6	14.1	845	321	357	13/32	10	UC90L/11-4F	2.4	7.5
	XE 1030 P	1850	35	11	120	54	33.3	12.6	14.1	845	321	357	13/32	10	UC90L/11-4F	2.4	7.5
Secondary brake: blocstop® BSO 2050 or BSO 2050 S																	
A: long blocstop® straps																	
XE 2050 P		4400	22	7	185	84	52.6	15.7	16	1335	400	406	9/16	14	UF100L/12-4F	3.1	18
	XE 2050 P	3500	22	7	185	84	52.6	15.7	16	1335	400	406	9/16	14	UF100L/12-4F	3.1	18
B: short blocstop® straps																	
XE 2050 P		4400	22	7	185	84	40.3	15.7	17.3	1024	400	440	9/16	14	UF100L/12-4F	3.1	18
	XE 2050 P	3500	22	7	185	84	40.3	15.7	17.3	1024	400	440	9/16	14	UF100L/12-4F	3.1	18
Motor specifications: 3~ 230V/60 Hz																	
Secondary brake: blocstop® BSO 500																	
LE 500 P		1000	35	11	73	33	29.3	12.3	13.5	743	313	342	5/16	8	UC80/8-4F	0.9	4.6
	LE 502 P	1000	70	22	73	33	29.3	12.3	13.5	743	313	342	5/16	8	UC80/9-2F	1.8	7
Motor specifications: 3~ 380V/60 Hz																	
Secondary brake: blocstop® BSO 1020																	
XE 1020 P		2200	35	11	120	54	33.3	12.6	14.1	845	321	358	3/8	9	UC90L/11-4F	2.4	6.8
Secondary brake: blocstop® BSO 2050																	
A: long blocstop® straps																	
XE 2050 P		4400	22	7	185	84	52.6	15.7	16	1335	400	406	9/16	14	UF100L/12-4F	3.1	9.3
	XE 2050 P	3500	22	7	185	84	52.6	15.7	16	1335	400	406	9/16	14	UF100L/12-4F	3.1	9.3
B: short blocstop® straps																	
XE 2050 P		4400	22	7	185	84	40.3	15.7	17.3	1024	400	440	9/16	14	UF100L/12-4F	3.1	9.3
	XE 2050 P	3500	22	7	185	84	40.3	15.7	17.3	1024	400	440	9/16	14	UF100L/12-4F	3.1	9.3

Motor specifications: 3~ 400V/60 Hz																	
Hoist model		**Rated load**	**lifting speed**		**weight (with BSO)**		**Dimensions over all**						**Wire rope diameter**		**Motor**		
USA	**Canada**	**lbs**	**ft/min**	**m/min**	**lbs**	**kg**	**in.**			**mm**			**in.**	**mm**	**type**	**kW**	**A**
							a	b	c	a	b	c					
Secondary brake: blocstop® BSO 500																	
LE 500 P		1000	35	11	73	33	29.3	12.3	13.5	743	313	342	5/16	8	UC80/8-4F	0.9	3.5
	LE 502 P	1000	70	22	73	33	29.3	12.3	13.5	743	313	342	5/16	8	UC80/9-2F	1.8	4
Secondary brake: blocstop® BSO 520 or BSO 1020																	
	XE 522 P	1000	70	22	126	57	31.8	12.6	14.1	808	321	358	5/16	8	UC90L/10-2F	3	4.3
Secondary brake: blocstop® BSO 1030																	
XE 1030 P		2200	35	11	120	54	33.3	12.6	14.1	845	321	358	13/32	10	UC90L/11-4F	2.4	6
	XE 1030 P	1850	35	11	120	54	33.3	12.6	14.1	845	321	358	13/32	10	UC90L/11-4F	2.4	6
Motor specifications: 3~ 480V/60 Hz																	
Secondary brake: blocstop® BSO 500																	
LE 500 P		1000	35	11	73	33	29.3	12.3	13.5	743	313	342	5/16	8	UC80/8-4F	0.9	2.3
	LE 502 P	1000	70	22	73	33	29.3	12.3	13.5	743	313	342	5/16	8	UC80/9-2F	1.3	3.3
Secondary brake: blocstop® BSO 2500																	
A: long blocstop® straps																	
XE 2050 P		4400	22	7	185	84	52.6	15.7	16	1335	400	406	9/16	14	UF100L/12-4F	4.5	8
	XE 2050 P	3500	22	7	185	84	52.6	15.7	16	1335	400	406	9/16	14	UF100L/12-4F	4.5	8
B: short blocstop® straps																	
XE 2050 P		4400	22	7	185	84	40.3	15.7	17.3	1024	400	440	9/16	14	UF100L/12-4F	4.5	8
	XE 2050 P	3500	22	7	185	84	40.3	15.7	17.3	1024	400	440	9/16	14	UF100L/12-4F	4.5	8
XE 2553 P+		5500	22/44	7/14	330	150	40.3	17.3	21.3	1024	440	541	9/16	14	UF112M/16-4/2 OG	3.3/6.6	10.5/13.1
	XE 2553 P+	3500	22/44	7/14	330	150	40.3	17.3	21.3	1024	440	541	9/16	14	UF112M/16-4/2 OG	3.3/6.6	10.5/13.1

Use only wire ropes specified by the manufacturer:

See Chapter 4 on page 22.

2.9.1 APPLICATION AREA

The hoists are suitable for use under the following operating conditions:

- For permanent or temporary installations
- For short-term operation
- Permitted temperature range: refer to page 37: Table 7: Oil quantities and types

⚠ WARNING!

Risk of falling and severe injuries!

– 24-hour operation is prohibited.
– **NEVER** use in areas where there is a risk of explosion.
– **NEVER** use in a corrosive environment.
– **NEVER** use in close proximity to open fire or in an extremely hot environment.

3 RIGGING INSTRUCTIONS

NOTICE

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

For special projects like shown below contact the supplier for additional information.

Rigging instructions for hoists with BS/BSO: See page 47

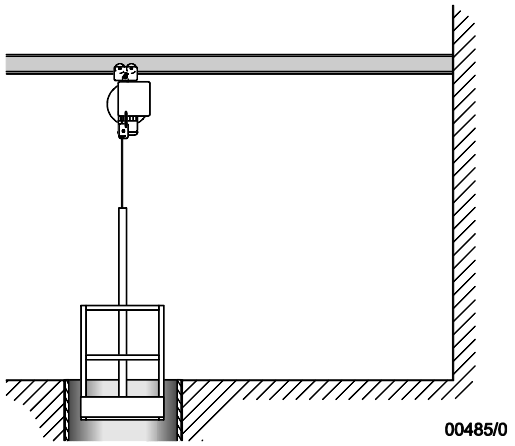


Fig. 4: Special rigging arrangement

3.1 GENERAL

3.1.1 OPERATIONAL SAFETY

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

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

Proper measures must be taken to set up operational safety before starting rigging operations.

Operators must be equipped with individual fall arrest devices.

3.1.2 SCOPE

Instructions and advice in this manual exclusively refer to the following items:

- tirak® scaffold hoist with blocstop® BSO secondary brake or blocstop® BS/BSO secondary brake (instructions and advice for tirak® with blocstop® BS/BSO secondary brake see separate instructions on page 41);
- Special tirak® wire rope;
- Power supply cord.

This manual does not deal with support equipment and tie-backs, nor with support rigging and anchoring operations. Figs. 5 and 6 are shown only as reference to a general layout of the overall installation, in which the tirak® hoist is used.

3.1.3 CHECKS BEFORE RIGGING

NOTICE

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. 6).

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

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

Main Pieces are:

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

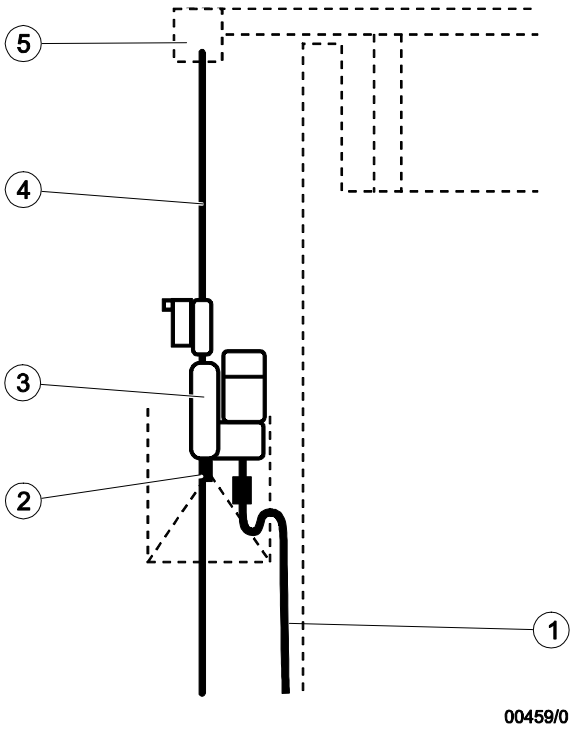


Fig. 5: Relevant items (principle sketch)

1 Power supply cord
2 Hoist to platform connection
3 tirak®
4 Special tirak® wire rope
5 Wire rope connection

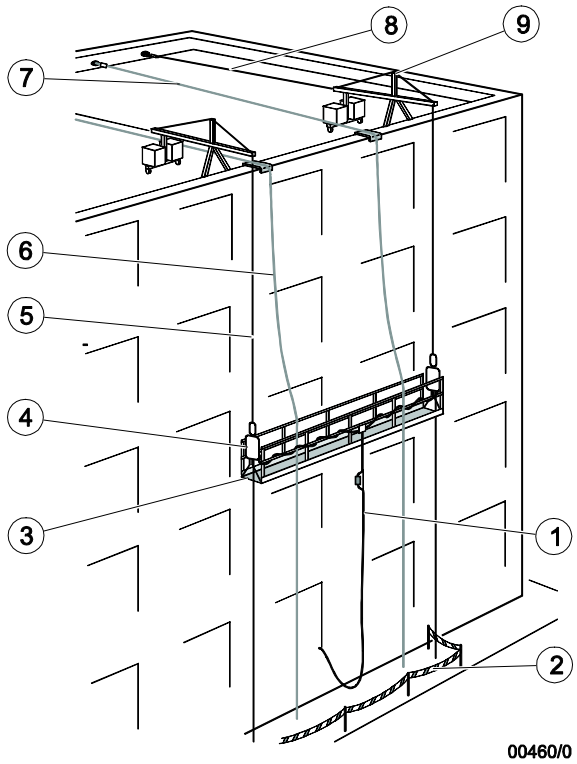


Fig. 6: Typical suspended scaffold installation with a single primary rope suspension system

1 Power supply cord
2 Barricade
3 Suspended platform system
4 tirak® with blocstop® BSO secondary brake
5 Special tirak® wire rope
6 Personal Fall Arrest System
7 Lifeline
8 Tie-back
9 Support equipment

3.2 POWER SUPPLY AND HOIST CONTROL

3.2.1 GENERAL

⚠ WARNING!

Explosion hazard!

The hoist is not constructed for use in explosive surroundings.

– NEVER OPERATE THE HOIST OR ANY OTHER ELECTRIC EQUIPMENT IN A POTENTIALLY EXPLOSIVE ATMOSPHERE: around distilleries, refineries, chemical plants, ship or silo interiors.
– Always obtain official approval before commencing operations at these or similar locations.

NOTICE

Voltage drop or insufficient voltage due to overloading.

Damage to the motor is possible.

SINGLE-PHASE motors are more sensitive to overloading and voltage drop than three phase motors, especially when starting to lift a load.

– Therefore never exceed maximum rated load, and see to it that the 110/220 VAC power supply is always available.

Single phase motors are factory connected for either 220 VAC or 110 VAC.

Three phase machines are factory connected for 220 VAC, 3 Ø.

(1) Check if voltage indicated on the hoist nameplate corresponds to the power supply rating.

(2) On dual voltage machines change plug and wiring according to drawing inside control box.

3.2.2 FUSES / CIRCUIT BREAKERS

In case of difficulties have an electrician or qualified person read voltage at motor terminal during lifting operation. Especially for high lifting operations, which require long cords, it is essential to use power cords of sufficient size (see par. 3.2.3) to avoid excessive voltage drop.

If connected to a circuit protected by a fuse, use **Time-Delay-Fuse**.

Check if specifications of fuses, which protect electrical equipment, match to the amperage indicated on the Hubbell plug connectors. The following fuses are recommended **per hoist**:

Single phase	Three phase	Amps
110 V / 208 V	220 V	30
220 V	220 V	20
–	380 V	20
–	400 V	20
–	480 V	20

Table 1: Amperage

3.2.3 POWER CORDS AND GROUNDING

NOTICE

Voltage drop or insufficient voltage.

Damage to the motor is possible.

– DO NOT OPERATE THE MOTOR FOR ANY REASONS, IF THE MEASURED RUN VOLTAGE IS LESS THAN THE MOTOR NAMEPLATE RATING.

(1) To prevent voltage drop exceeding the allowable 10% we recommend to use at least #10, STO type power cords, 600 VAC rating.

Type	AWG	Voltage		Amps	Length	
XE 501 P	10	1~	110 V	19.5	157 ft	48 m
XE 301 P LE 501 P	10	1~ 1~	110 V	10.5 10.5	295 ft	90 m
XE 501 P+	10	1~	208 V	8.3	820 ft	250 m
XE 701 P XE 721 P	10	1~ 1~	220 V	12 12	518 ft	158 m
XE 301 P LE 501 P XE 501 P	10	1~ 1~ 1~	220 V	5.2 6.8 9.5	656 ft	200 m
XE 500 P+	10	3~	208 V	6.3	820 ft	250 m
LE 500 P XE 500 P XE 600 P XE 700 P/ XE 720 P	10	3~ 3~ 3~ 3~	220 V	4.8 4.5 6.1 6.1	961 ft	293 m
XE 702 P+	10	3~	208 V	14.5	469 ft	143 m
XE 1020 P	10	3~	220 V	9.6	656 ft	200 m
XE 1030 P	10	3~	220 V	7.5	961 ft	293 m
XE 2050 P	10	3~	220 V	18	400 ft	122 m
XE 2050 P	10	3~	480 V	8	1968 ft	600 m
XE 2553 P+	10	3~	480 V	13.1	1200 ft	366 m

Table 2: Power cord lengths

(1) To minimize voltage drop due to power cord length on high lifts, select an outlet at the halfway point to reduce the total power cord length on the job.

(2) In some cases, a booster transformer will be needed to compensate for power cord losses or low-source voltage. If a booster transformer is needed, call supplier.

(3) Always secure the power cord to the platform with a strain relief fitting and shackle (Fig. 7), so the cord weight will be off the connector.

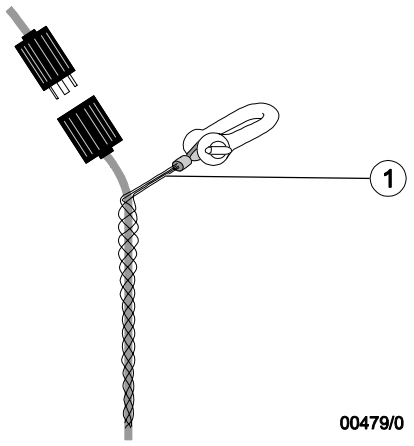


Fig. 7: Strain relief fiting

Where supplied, check the Voltmeter (2) or the Voltage Indicator Light (1) (see Fig. 8).

- If it is ON (a), the voltage is above minimum.
- If it is flashing (b), the voltage is minimum.
- If it is OFF (c), the power is off, or the voltage is too low and must be corrected before use of the hoist.

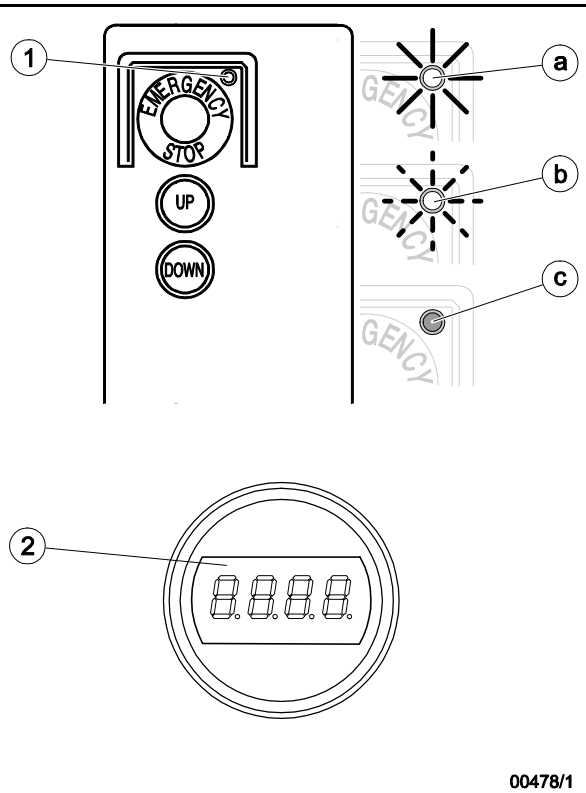


Fig. 8: Voltage indicator/Voltmeter

(1) When finished for the day, make certain the power cord is disconnected at the hoist pigtail as well as at the main outlet.

(2) Be sure to ground all electric equipment. Do not use wire rope as a ground!

3.2.4 HOIST CONTROL

Control (Fig. 9) is by

- push-buttons, which automatically return into STOP-position, when not activated, and an
- **EMERGENCY STOP** button.

DO NOT lock push-buttons in running position!

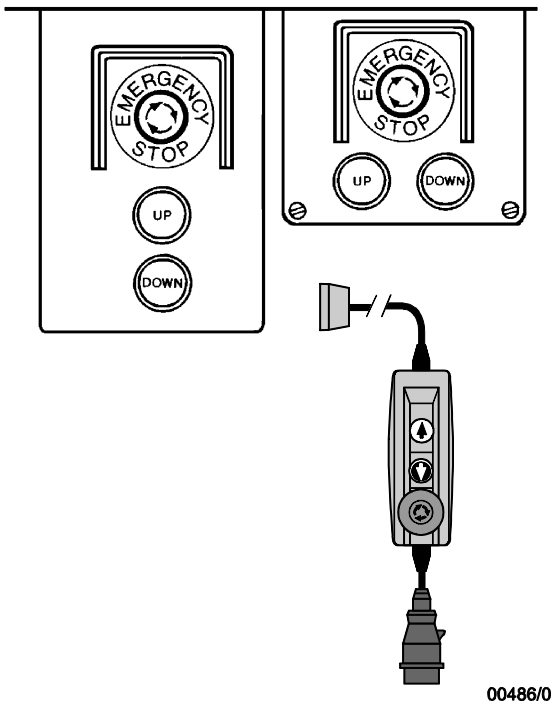


Fig. 9: Typical hoist control

3.3 HOIST MOUNTING

WARNING!

Danger of severe injuries caused by incorrect anchoring!

Malfunction of the hoist. Risk of falling and severe injuries!

– The hoist must be mounted such that the wire rope enters the hoist PERPENDICULARLY.

WARNING!

Danger of severe injuries caused by incorrect anchoring!

– Use 1/2 inch diameter grade 5 or better bolts with locking nuts.
– The stirrup bar must be inspected before every use. If the bar is bent or in any way damaged it must be replaced with a Manufacturer original replacement stirrup bar.

CAUTION!

The hoist will be damaged if incorrect or insufficient lubricant is used!

– The hoist must not be mounted horizontally on the flat side (see Fig. 10).
– Attach the hoist in such a way that the flat side only points to the side.

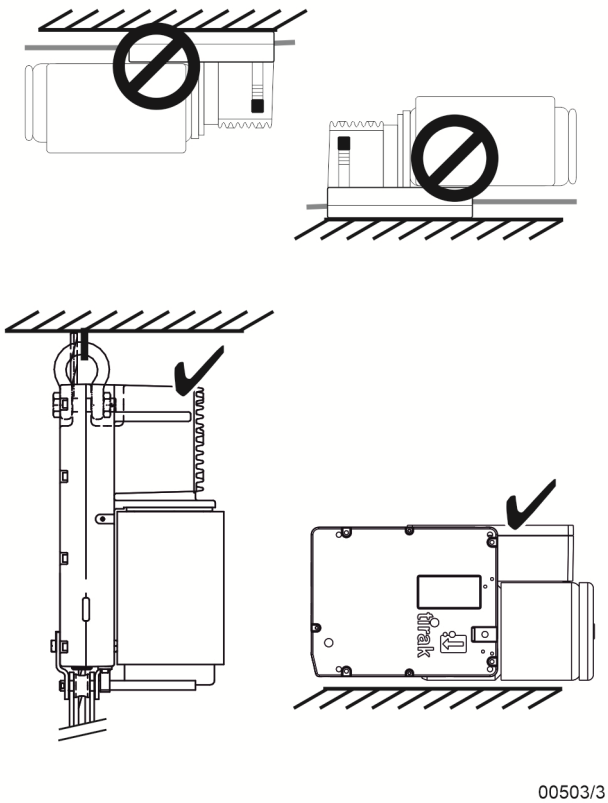


Fig. 10: Never mount hoist horizontally on the flat side

See Fig. 11 to 13.

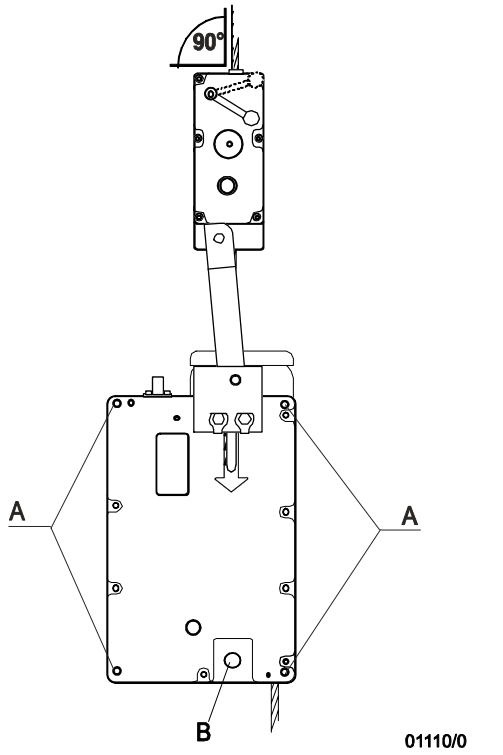


Fig. 11 Hoist mounting: Anchoring pin locations (X-series)

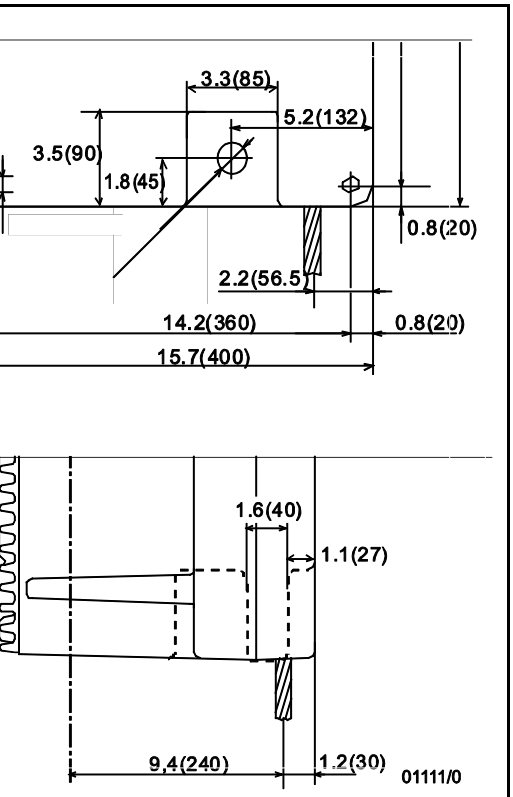


Fig. 12 Hoist mounting: Dimensions of anchoring holes (X-series)

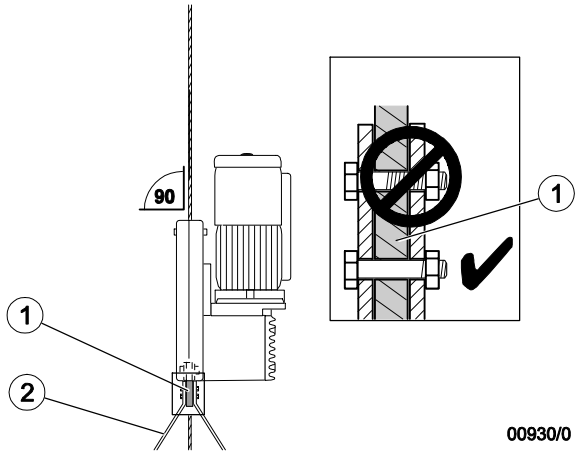


Fig. 13: Hoist mounting (L-series)

1 Stirrup adapter

2 Stirrup

3.3.1 TIRAK® X- AND L-SERIES

(1) Bolt the hoist to the platform stirrup using stirrup adapter, which also holds the hoist in its upright position (see Fig. 14).

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

⚠ WARNING!

Risk of falling and severe injuries!

Insufficient fastening!

– **Hoist connection bolts must not bear on threads** (Fig. 13).

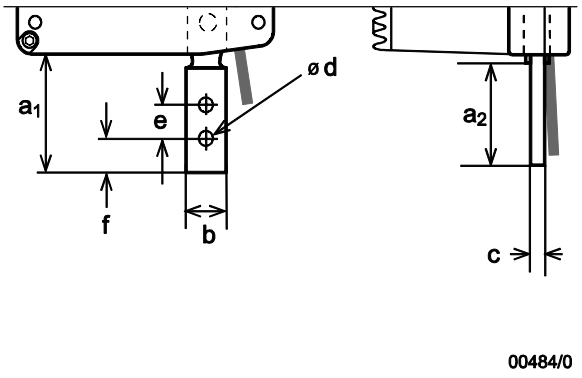


Fig. 14: Dimensions of connecting parts (stirrup adapter) tirak®

a_1 = 4.17 in. / 106 mm

a_2 = 3.94 in. / 100 mm

b = 1.58 in. / 40 mm

c = 0.47 in. / 12 mm

d = 0.51 in. / 13 mm

e = 1.36 in. / 32 mm

f = 1.02 in. / 26 mm

	XE 3...	XE 5... / 6... / 7... / 10...-series	LE-series
	in. / mm		
a1	4.31 / 112	3.94 / 100	4.17 / 106
a2	3.86 / 98	3.86 / 98	3.94 / 100
b	1.58 / 40		
c	0.47 / 12		
d	0.51 / 13		
e	1.36 / 32		
f	1.02 / 26		

Table 3: Dimensions of connecting parts

3.3.2 TIRAK® X 2000 SERIES

(1) Fix the hoist using for example a shackle (see Fig. 15). Make sure that the hoist is held in its upright position by means of an appropriate support.

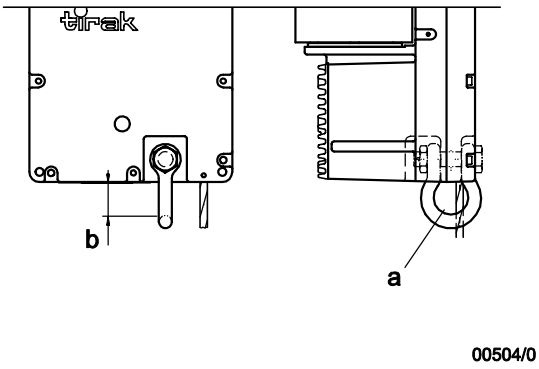


Fig. 15: Dimensions of connecting parts (shackle) tirak® X 2000-series

a (Ø shackle) = 2.7 in. / 68.5 mm

b = 2.6 in. / 66 mm

4 WIRE ROPE

4.1 WIRE ROPE SPECIFICATION

Use only wire ropes specified by the manufacturer:

(1) Classification/Construction:

- 5x19 or 5x26, with fiber core **(X 2000 series 5 x 26 only!)**,
- galvanized,
- lubricated,
- preformed XIPS

Wire rope diameter:	Min. actual breaking strength:	For tirak® hoists with rated load up to:	
		USA	Canada
5/16 in. 8 mm	10,000 lbs 55 kN	1500 lbs	1200 lbs
3/8 in. 9 mm	15,000 lbs 68 kN	2200 lbs	1500 lbs
13/32 in. 10 mm	18,660 lbs 83 kN	2200 lbs	1850 lbs
9/16 in. 14 mm	35,274 lbs 157 kN	5500 lbs	3500 lbs

Table 4: Wire rope diameter and min. breaking strength

CAUTION!

Oversized or undersized wire rope diameter!

Can cause malfunction of the secondary brake!

Can cause a wire rope jam inside the hoist!

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 or BS/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 or BS/BSO secondary brake to malfunction.

– tirak® hoists use a special tirak® wire rope (see above). Unless specificly specified in writing by the manufacturer, only this special tirak® wire rope may be used.
– Check wire rope diameter regularly, see below.

NEW wire rope diameter:	Maximum allowed tolerances:
5/16 in. 8 mm	0.319 to 0.331 in. 8.1 to 8.4 mm
3/8 in. 9 mm	0.362 to 0.374 in. 9.2 to 9.5 mm
13/32 in. 10 mm	0.390 to 0.400 in. 9.9 to 10.2 mm
9/16 in. 14 mm	0.551 to 0.563 in. 14 to 14.3 mm

Table 5: Maximum allowed tolerances of NEW wire rope diameter

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.

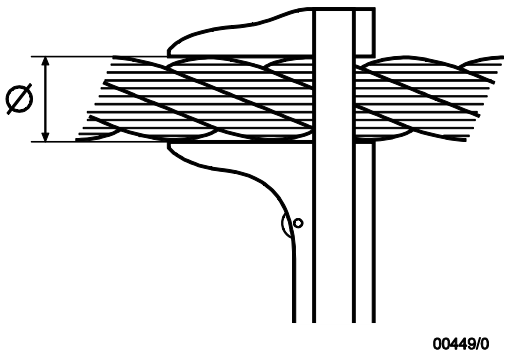


Fig. 16: Checking wire rope diameter Ø

Wire rope handling:

Always wear gloves when handling wire rope!

While handling the ropes (1) you must ensure that there are no loops (2), which would make the ropes unusable, see Fig. 17.

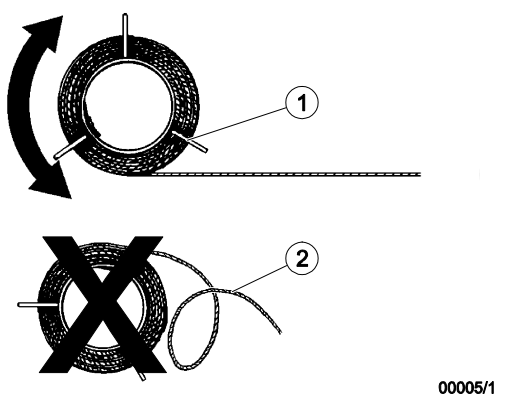


Fig. 17: Wire rope handling

4.2 WIRE ROPE RIGGING INSTRUCTIONS

⚠ WARNING!

Incorrect wire rope!

Risk of falling and severe injuries!

The original design requires, for safety and efficiency, that it be used with a special tirak® wire rope specified by the manufacturer.

– Unless specificly specified in writing by the manufacturer, only this special tirak® wire rope may be used.

Risk of falling and severe injuries!

When used with a swivel hook, the specified standard wire rope will untwist and be reduced in diameter.

– Never use a swivel hook with the specified wire rope.

⚠ CAUTION!

Risk of injury through stabs and cuts!

Broken wires in the wire rope can result in protruding wires!

Protruding wires can cut or stab through safety gloves!

– Wear suitable leather protective gloves when working with wire ropes.
– Never let the wire rope run through your hands.

(1) Be sure to use a wire rope with the diameter marked on the tirak® nameplate.

(2) 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.

NOTICE

Damage to the hoist by the use of damaged rope!

– Always unreel and reel the wire rope in a straight line (Fig. 17) to prevent kinks, which make it unusable for the hoist.

See Fig. 18.

Check the rope condition for damage:

- proper connections (thimble, ferrule);
- on wire ropes with hook: hook is not bent, latch is in place;
- the wire rope has no visible damage along its total length.

See page **Fehler! Textmarke nicht definiert.** fig. 36 for examples of wire rope damage.

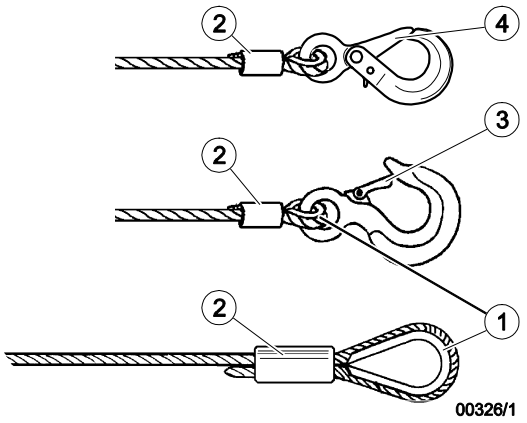


Fig. 18: Wire rope ends

1 thimble
2 ferrule
3 latch
4 safety hook

If the wire rope is not equipped with a swaged fitting as shown in Fig. 18, see chapter 4.2.1 Installing a heavy duty thimble.

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

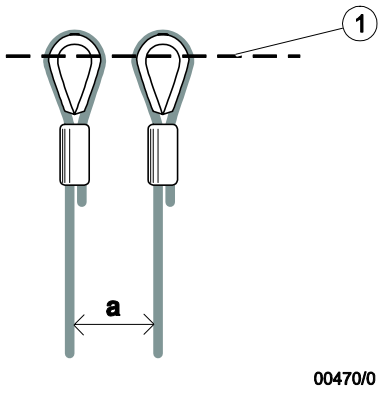


Fig. 19: Wire rope anchoring

1 installation level

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.

Distance (a) between the wire ropes: approx 1 1 /2 in. / 40 mm.

WARNING!

Failure of anchoring device!

Risk of falling and severe injuries!

– Secondary wire rope anchoring must be connected to a tie back (Fig. 20).

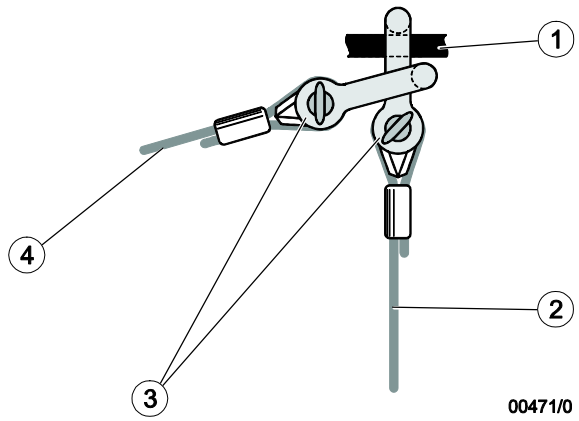


Fig. 20: Tie back (principle drawing)

1 anchoring device

2 secondary wire rope

3 min. 1/2 inch anchor shackles

4 tie back

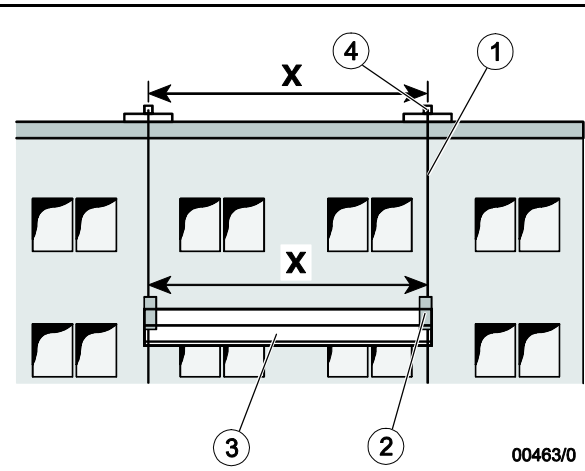


Fig. 21: Suspension distance

WARNING!

Improper spacing of anchoring points!

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

– Ensure that the anchor points of the wire rope are directly above the position of the hoists (Fig. 21).

(1) Check that wire rope tip is welded round.

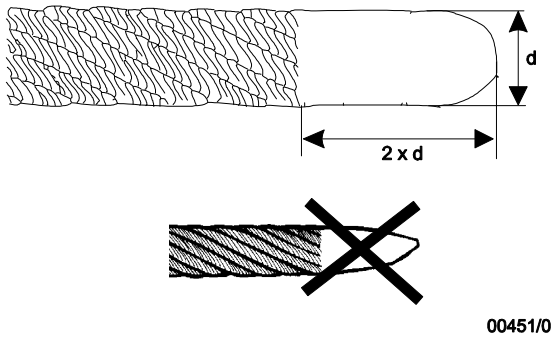


Fig. 22: Wire rope tip

IF NOT:

(1) Prepare ends by brazing or welding. Make sure all end wires are captured.

(2) Grind end to approximately 1/4“ diameter. DO NOT grind end flat or to a cone shape. End must be rounded.

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

4.2.1 INSTALLING A HEAVY DUTY THIMBLE

If the wire rope is not equipped with a swaged fitting as shown in Fig. 18, proceed as follows:

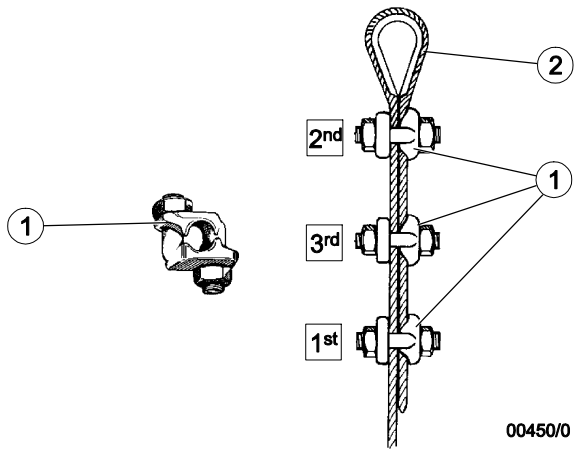


Fig. 23: Heavy duty thimble

1 fist grip clamp

2 heavy duty thimble

NOTICE

– Check with the manufacturer of the clamp on installation procedure. Installation may differ!

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

See Fig. 23.

(1) Apply first clamp approximately 7“ (18 cm) from thimble. Tighten nuts moderately.

(2) Attach second clamp as close to thimble as possible. Leave nuts loose.

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

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

WARNING!

Reduced diameter of wire rope!

In use, wire ropes will stretch and reduce in diameter. Malfunction of primary and secondary brake is possible.

– Retighten nuts after the wire rope is loaded for the first time.

– In accordance with good rigging and maintenance practices, the wire rope end termination **shall** be inspected **daily** for wear, abuse, and general adequacy.

4.3 WIRE ROPE INSTALLATION

tirak® hoists with BSO secondary brake see page 41.

(1) Open the BSO secondary brake by pushing down the control lever until it locks (4).

See Fig. 24.

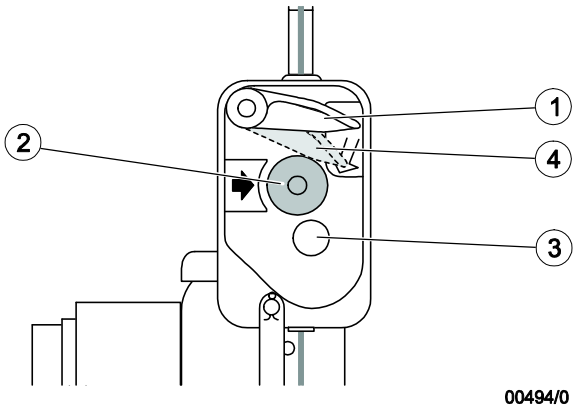


Fig. 24: Opening of BSO secondary brake

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

See Fig. 25 and 26.

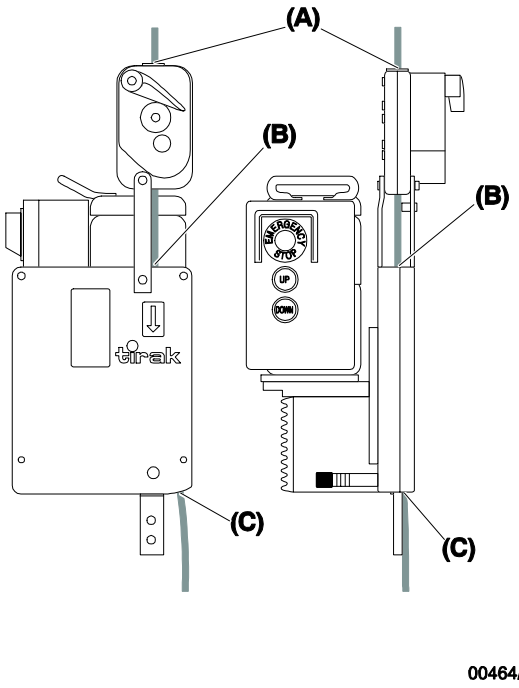


Fig. 25: Wire rope reeving X-series

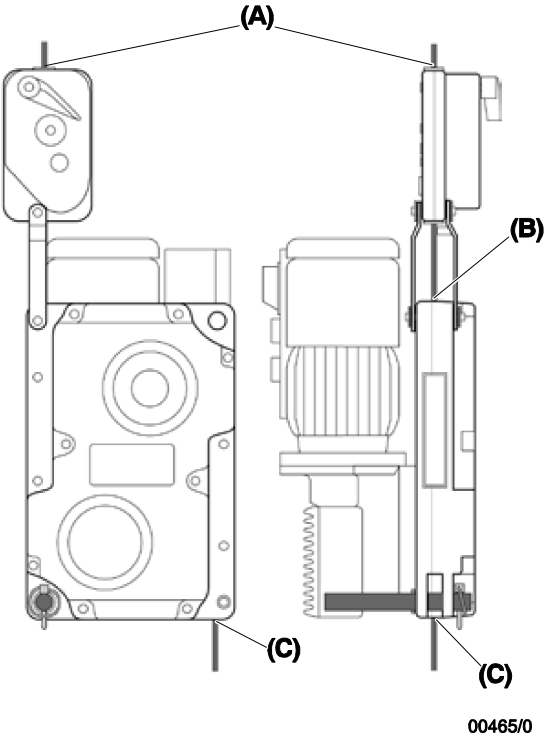


Fig. 26: Wire rope reeving L-series

NOTICE

If exit (C) on the hoist is blocked, the wire rope may jam and be damaged or cause damage to hoist.

– Check that wire rope exit (C) is not blocked in any manner.
– Never load the wire rope exiting from (C).
– The wire rope exiting from (C) may be pretensioned, for example by fastening to the ground or attaching a tensioning weight. X- and L-series: 220 lbs/100 kg max.

(1) Push it inside, and press UP-button, until the wire rope reeves itself automatically and exits at (C) on the other side.

After reeving through the hoist, we recommend to loop and clamp the free end of the wire rope, to prevent the rope from inadvertently unreeving through the hoist. See Fig. 27

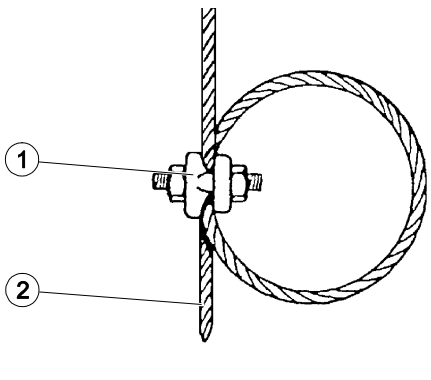


Fig. 27: Loop at free rope end

1 fist grip clamp

2 free rope end

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

⚠ WARNING!

Wire rope not long enough!

Risk of falling and severe injuries!

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

4.4 DE-RIGGING

(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 DOWN button to let the wire rope run out.

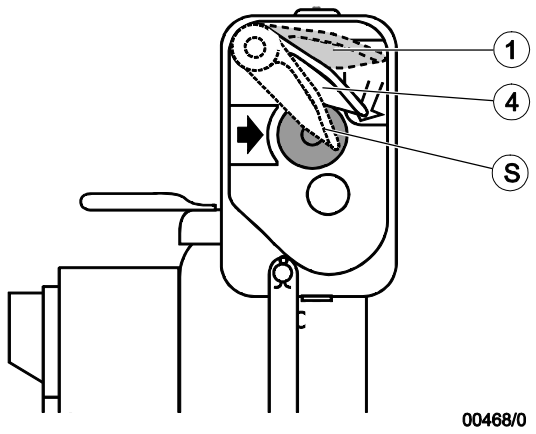


Fig. 28: Opening of BSO secondary brake

NOTICE

Increased wear or damage due to incorrectly opened secondary brake!

– Always press the lever of the secondary brake to the stop (S) and hold until the rope has been pulled out.

See Fig. 28.

(1) Open the BSO secondary brake by pushing down the control lever until it locks (4).

(2) Then press the lever further to the stop (S) and hold it there.

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

(4) Clean the wire rope, reel it, and store it in a clean and dry place.

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

5 OPERATING INSTRUCTIONS

5.1 GENERAL

BE FAMILIAR with the equipment and its proper care.

(1) DO NOT operate hoist, if adjustment or repairs are necessary,

(2) if any warning, operating or capacity label normally attached to the hoist is obscured, damaged, or missing (see labels' list on pages 60 and **Fehler! Textmarke nicht definiert.**).

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

WARNING!

Risk of falling and severe injuries!

– Safety demands that you test out the system as follows before going aloft.

5.2 CHECKS BEFORE STARTING WORK

(1) Check all rigging PRIOR to lifting the platform.

(2) CHECK **PLATFORM** fully rigged and loaded by cycling UP and DOWN several times near ground level or safe surface.

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

Check BSO secondary brake:

WARNING!

Malfunction of the secondary brake!

Risk of falling and severe injuries!

– If during one of the checks the BSO secondary brake malfunctions, it must be replaced.

Check I:

See Fig. 29.

(1) At ground level first close the BSO secondary brake by pushing EMERGENCY STOP button (2).
Then push control on the hoist in DOWN-position and make the wire rope form a loop (5) between tirak®-casing and BSO secondary brake.
Open BSO secondary brake by pulling down the control lever until it locks in the open position (4).

(2) With gloved hands sharply pull wire rope in arrow direction.
The BSO secondary brake should close immediately.
Reset BSO secondary brake by pushing down the control lever until it locks in the open position (4).

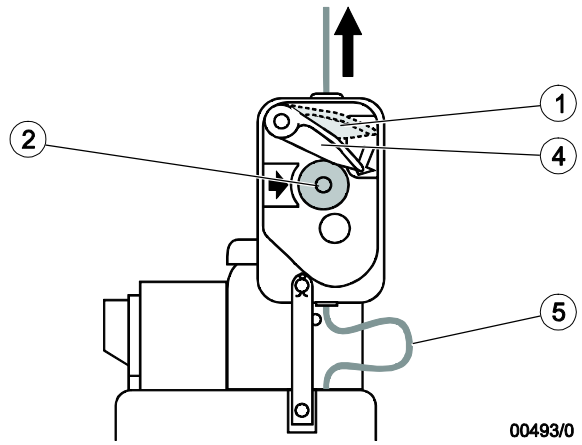


Fig. 29: BSO secondary brake Check I

Check II:

See Fig. 29 and 30.

(1) Lift platform 3 ft. (1 m) above ground or safe surface, and push EMERGENCY STOP button (2) of the BSO secondary brake.

(2) Lower the platform to check that the BSO secondary brake holds the load.
A loop (5) should form, which means the BSO secondary brake is supporting the load.

(3) Raise platform until the hoist supports the load.
Reset the control lever to the open position (4).

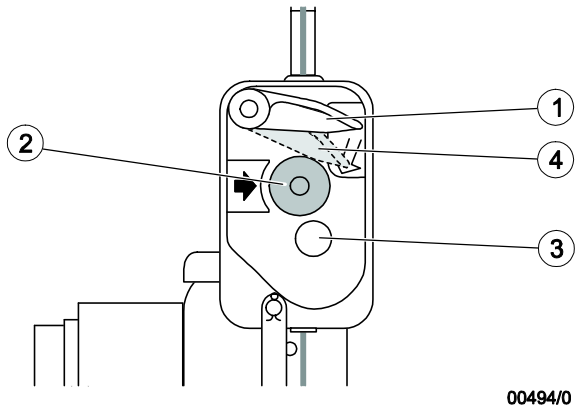


Fig. 30: BSO secondary brake

Check III:

See Fig. 30.

(1) During operation regularly check through the window (3) that the centrifugal weights are turning at all times.

(2) Do not operate the hoist if the centrifugal weights are not turning.

Check the hoist:

⚠ WARNING!

Hoist can not be operated!

Risk of falling and severe injuries!

– If the pushbuttons or EMERGENCY STOP button do not function properly, remove hoist from service until repaired by a qualified person.

Check EMERGENCY STOP button and pushbutton control:

(1) Check that the UP and DOWN pushbuttons return to their normal open position when released. They should move freely without sticking.

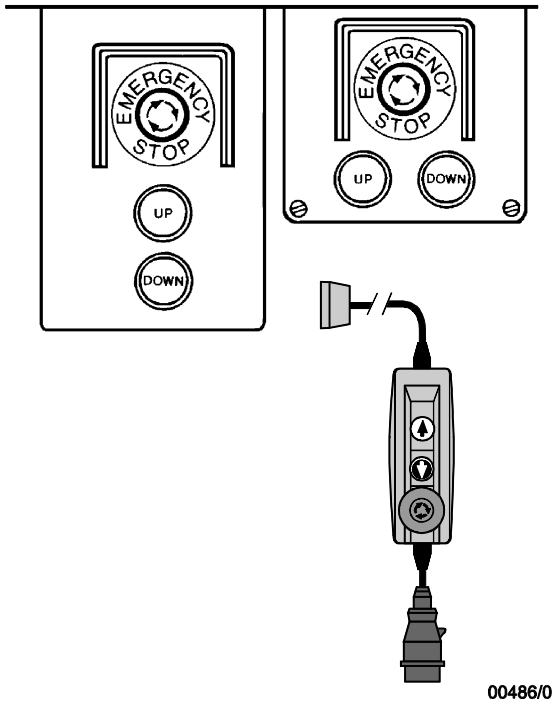


Fig. 31: Typical hoist control

(2) Push the red EMERGENCY STOP button. It should lock and remain depressed. Now try pushing the UP or DOWN pushbutton – the motor should not turn. Twist the EMERGENCY STOP button in the arrow direction to disengage it – it should pop out, and the hoist should now operate normally.
Do NOT use if Emergency stop pops out without twisting.

(3) For three phase model:
If the motor does not run, it could be caused by the phase control relay preventing reversed operation of the hoist.If so, apply to a qualified technician to change two phases inside the plug.

(4) Repeat this check a few times to check function of pushbuttons and the EMERGENCY STOP.

Check rigging:

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

5.3 NORMAL OPERATION

WARNING!

Danger of severe accidents!

- DO NOT fix pushbuttons in running position.
- DO NOT operate the hoist, if it is functioning improperly, or damage is noted.
- NEVER lift or pick up a load beyond the rated capacity appearing on the hoist.
- 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!
- 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.
- OPERATING IN EXPLOSIVE ATMOSPHERE: Never operate hoist or any other electric equipment in a potentially explosive atmosphere – such as around distilleries, refineries, chemical plants, ship or silo interiors. Always obtain official approval before commencing operations at these or similar locations.

(1) For UP and DOWNWARD MOTION of the platform just press the corresponding button.

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

NOTICE

If mechanical load limiting device is supplied:

- Moving / rocking during stops can result in the "overload" buzzer being activated or the warning light coming on. No overload is present if the buzzer or the warning light switches off as soon as the platform stops moving.

Special Operating Notes for Welding or Arc scarfing

See OSHA 1926.451 (f) (17) and provincial legislations for requirements.

(1) ALWAYS PROTECT your equipment and yourself from the danger of arcing.

(2) BE SURE supporting equipment is grounded to prevent arcing across wire rope to the structure.

(3) DO NOT use wire rope as a ground for welding.

(4) DO NOT allow your welding gun to contact wire rope, hoist, or any other metal equipment or structure. Use insulated thimbles.

(5) PROTECT work area above and below hoist with insulation. Use protective hoist covers. Split a section of air rubber hose, and wrap around wire ropes.

(6) Use an insulated thimble assembly to attach all wire rope(s) to the suspension system.

5.4 EMERGENCY DESCENT

WARNING!

Malfunction of the hoist due to damaged or worn parts!

Risk of falling and severe injuries!

You are only allowed to lower the hoist in manual mode in an emergency.

- After an emergency descent, the hoist must always be tested by the manufacturer or a Authorized Repair Facility.
- Any damaged or worn part found must always be replaced.

Risk of falling and severe injuries!

The centrifugal brake might not brake the load in case of overloading!

- In the event of overloading, never open the primary brake (spring-applied brake) manually.

Risk of falling and severe injuries!

The BSO secondary brake stops downward travel during descent in a overspeed:

- DO NOT DETACH BSO secondary brake FROM THE HOIST!

WARNING!

In a loss of electric power!

Risk of falling and severe injuries!

If during emergency descent the BSO secondary brake closes, you have to wait for electric power to go up. The hoist must move up to get the BSO free.

– Reset BSO by pushing down control lever in open position (4) (see Fig.29).
– DO NOT force it open!
– If electric power is not available you have to require help or a rescue!

NOTICE

Risk of damage to the brake and the hoist!

– DO NOT USE EMERGENCY DESCENT AS REGULAR TECHNIQUE TO LOWER.

The centrifugal brake prevents rope speeds that are too high when lowering the platform manually.

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

(1) Take the brake release lever (A) from its storage compartment, and insert it through the motor fan cover hole into the brake release bow. Lift in direction of arrow.

See Fig. 32.

The hoist begins to lower at moderate speed, which is regulated by a mechanical centrifugal brake.

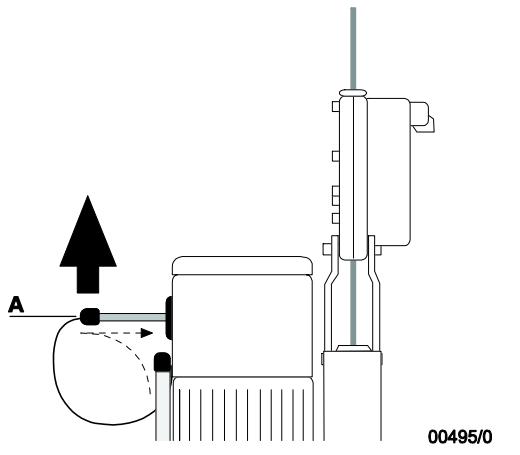


Fig. 32: Brake release

(2) To STOP just release the lever.

(3) After use: restore brake release lever (A) into its storage position.

(4) Send the hoist to the supplier for testing or repair or send it to a repair shop agreed by him.

5.5 BSO SECONDARY BRAKE ACTION

WARNING!

Risk of falling and severe injuries!

– If the BSO secondary brake has automatically closed:
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.
– During use of the hoist never detach BSO secondary brake!
– If the BSO secondary brake repeatedly stops downward travel, contact the supplier for advice. Check wire rope diameter (see page 23).

(1) EMERGENCY STOP
Push EMERGENCY STOP button (2) 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 (4) (Fig. 33).
DO NOT force it open.

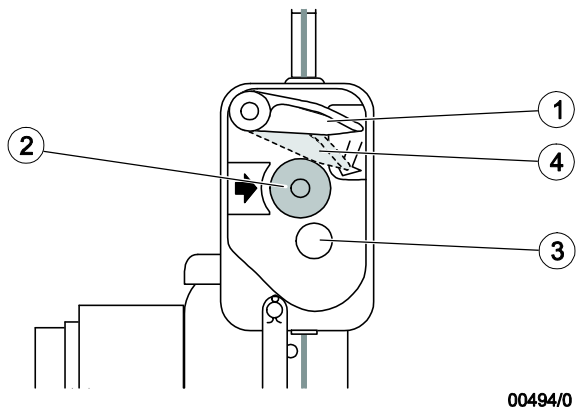


Fig. 33: BSO secondary brake

6 TROUBLE SHOOTING

⚠ WARNING!

Danger of severe accidents.

Avoid injuries:

- Checks and repair of the electric equipment must only be carried out by **qualified electricians**! Wiring diagrams are found in the control box of the motor.
- Do not open any control box or pendant control with power supply to hoist!
- Any other repair should only be carried out by the supplier (TRACTEL® Company) or by a qualified person, and only original spare parts shall be used.

NOTICE

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

6.1 WIRE ROPE DRIVING MECHANISM TROUBLE

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

6.2 MOTOR TROUBLES

Problem	Cause	Remedy
Motor does not run at all.	a) Power failure b) Incorrect wiring c) On 3 phase motor caused by the phase control relay.	a) Check voltage indicator light fuses, power cords; on single phase motor : starting capacitor b) Compare wiring with wiring diagram c) Change two phases on three phase hoist to reverse operation of the hoist.
Motor does not start with a load.	a) Overload b) Brake not released c) Voltage to low d) incorrect wiring	a) Check load and reduce, if necessary. b) Check motor with brake released by hand. Check brake according to para. 5.2 c) Check voltage when running the motor. Use power cord(s) with higher cross section. d) Compare wiring with wiring diagram.
Motor stalls under load.	a) Low voltage	a) Check voltage when running the motor. Use power cord(s) with higher cross section
Overheating when running without load.	a) Insufficient cooling b) Incorrect wiring c) Voltage too high d) Short circuit in the coil	a) Clean motor fan cover. b) Compare wiring with wiring diagram. c) Check voltage and no-load current. d) Contact the supplier.

Problem	Cause	Remedy
Overheating	a) Overload b) High or low voltage c) Starting capacitor still activated. Centrifugal switch defect. d) Crooked motor shaft. e) Brake not (correctly) released.	a) Check load and reduce if necessary. b) Check current consumption, and compare with motor label specifications. Check current and voltage. Check power cords c) Let competent technician check current at the auxiliary winding in the control box, when running the motor. For centrifugal switch repair contact the supplier. d) Contact the supplier. e) Check brake according para. 6.3.
Abnormal motor noise	a) Electric parts (noise disappearing immediately, when stopping motor) b) Mechanical parts (noise continuous until hoist stands still)	a) Causes/remedies see above 1. to 5. b) Contact the supplier.

6.3 PRIMARY BRAKE TROUBLE

Problem	Cause	Remedy
Brake does not open (lack of “click” switch noise, when starting/stopping the hoist)	a) Defective supply conductor, brake coil, rectifier. b) Worn brake rotor	a) Have supply conductor, current passage in brake coil rectifier checked by an electrician or qualified person b) Contact the supplier.

6.4 SECONDARY BRAKE TROUBLE

Problem	Cause	Remedy
Hoist goes up but not down	BSO secondary brake is closed: Primary wire rope has run out or has failed.	WARNING: STOP DOWNWARD TRAVEL! Proceed according page 31
BSO secondary brake automatically closes without apparent reason	a) Mechanical defect. b) Oversized or damaged wire rope	a) Contact the supplier. b) Check wire rope and replace, if necessary.
Secondary brake will not actuate manually	Frozen parts	DO NOT USE the unit until the brake has thawed, dried and is in proper condition. Thawing may be accomplished by blowing ducted dry heat (200 degrees F. max.) on the brake area. **DO NOT USE OPEN FLAME!**
Centrifugal weights do not turn or do not turn smoothly during operation.	Dirty, corroded, or worn parts.	Do not use if operating improperly. Return unit to TRACTEL.

7 INSPECTIONS AND MAINTENANCE

WARNING!

Danger of severe accidents.

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

– Use only Tractel® replacement parts.

NOTICE

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

Regular inspections should be followed for the life of the hoist and written inspection records kept as specified.

7.1 INSPECTIONS

7.1.1 READING THE HOUR METER (IF SUPPLIED)

The hour meter is located in the hoist's terminal box. The hour meter counts the time in which the hoist is in operation as running hours (UPWARD or DOWNWARD movement).

WARNING!

Risk of severe or fatal injuries due to electric shock!

– Disconnect the hoist from the power supply by pulling out the plug.
– Reading the hour meter is only to be carried out by a QUALIFIED person!

(1) Pull out the power plug.
(2) Open the terminal box.
(3) Read the hour meter.
(4) Note the running hours in the logbook.
(5) Close the terminal box.

7.1.2 DAILY INSPECTIONS

EACH DAY PRIOR TO USE AND DURING OPERATION CHECK:

(1) Primary brake function: “click” noise, when starting/stopping the hoist.
(2) Secondary brake function.

Check I:

See Fig. 34 and 35.

(1) At ground level first close the BSO secondary brake by pushing EMERGENCY STOP button (2).
Then push control on the hoist in DOWN-position and make the wire rope form a loop (5) between tirak®-casing and BSO secondary brake.
Open BSO secondary brake by pulling down the control lever until it locks in the open position (4).
(2) With gloved hands sharply pull wire rope in arrow direction.
The BSO secondary brake should close immediately.
Reset BSO secondary brake by pushing down the control lever until it locks in the open position (4).

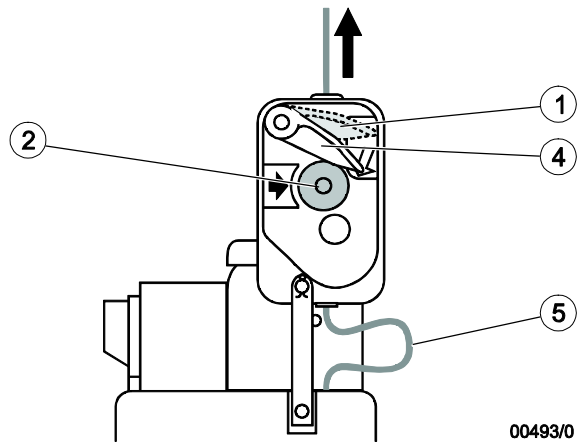


Fig. 34: BSO secondary brake Check I

Check II:

See Fig. 34 and 35.

(1) Lift platform 3 ft. (1 m) above ground or safe surface, and push EMERGENCY STOP button (2) of the BSO secondary brake.

(2) Lower the platform to check that the BSO secondary brake holds the load.
A loop (5) should form, which means the BSO secondary brake is supporting the load.

(3) Raise platform until the hoist supports the load.
Reset the control lever to the open position (4).

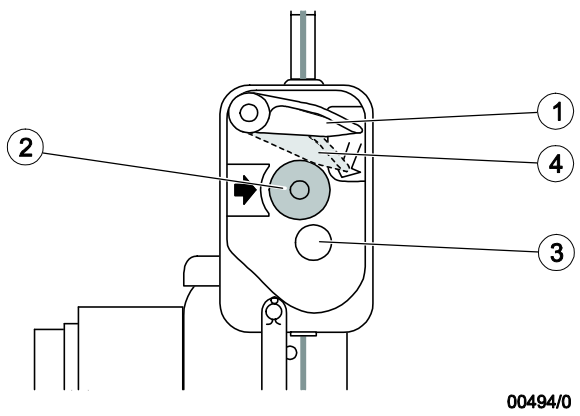


Fig. 35: BSO secondary brake

Check III:

(1) During operation regularly check through the window (3) that the centrifugal weights are turning at all times.

(2) Do not operate the hoist if the centrifugal weights are not turning.

Wire rope

CAUTION!

Risk of injury through stabs and cuts!

Broken wires in the wire rope can result in protruding wires!

Protruding wires can cut or stab through safety gloves!

– Wear suitable leather protective gloves when working with wire ropes.
– Never let the wire rope run through your hands.

(1) Replace if:

(1) kinks, cuts, broken wires, bird-cages, heat damage, contamination etc. is noticed.

(2) wire rope connections (thimble, ferrule) are damaged, and if provided: hook is bent, safety latch is missing.

(3) wire rope corrosion due to acid or caustics is noticed. Replace wire rope if exposed to these contaminants.

(2) Remedy if:

(1) the wire rope is soiled and not lubricated.

(2) wire rope termination, connection to the suspension system is not aligned and not secure.

(3) Check for parts damage.

WARNING!

Malfunction due to damaged parts!

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

(1) **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.

7.1.3 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.

CAUTION!

Risk of injury through stabs and cuts!

Broken wires in the wire rope can result in protruding wires!

Protruding wires can cut or stab through safety gloves!

– Wear suitable leather protective gloves when working with wire ropes.
– Never let the wire rope run through your hands.

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

Conditions that require immediate wire rope replacing:

- Broken wires or strands.
- Excessive corrosion.
- Heat, corrosion or acid damage, evident through discolored wires.
- Reduction from nominal diameter (see Table 6.
- Kinking, crushing, birdcaging, or any other distortion of the wire rope structure (Fig. 36).

Nominal diameter of the rope		Design of the rope		Minimum permitted rope diameter	
		5 x 19	5 x 26		
in.	mm	Number of visible broken wires in the outer strands over a length of 30 x rope's nominal diameter.		in.	mm
5/16	8	8	11	0.3	7.5
3/8	9	8		0.33	8.5
13/32	10		11	0.37	9.3
9/16	14		11	0.52	13.1

Table 6: Minimum permitted rope diameter

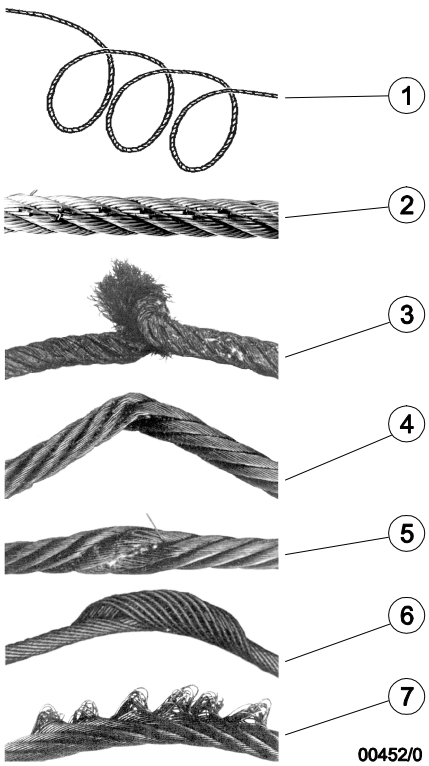


Fig. 36: Examples of wire rope damage

(1) Pig-tail curl in wire rope
(2) Fatigue wire breaks and external wear
(3) Knots
(4) Wire rope bent over sharp edge causing a kink
(5) Crushed wire rope
(6) Birdcaged wire rope
(7) Protrusion of wires from the outer strands

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.

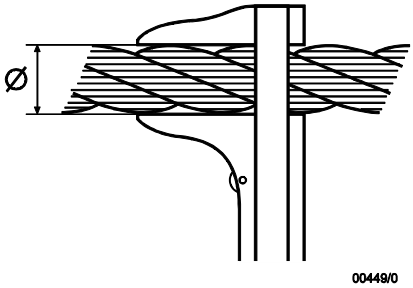


Fig. 37: Correct diameter of wire rope

WARNING!

Incorrect wire rope!

Risk of falling and severe injuries!

- Replacement wire rope must be same size, grade, and construction as the wire rope specified by the supplier (see pages 8 and 22).
- The supplier declines all responsibility for machines used with a wire rope other than specified by him.

7.1.4 INSPECTION, MAINTENANCE AND TESTING

tirak® hoists and blocstop® BSO secondary brake shall be returned to an Authorized Tractel Repair Center for periodic maintenance after every job and at least after 250 hours of operation.

In any case, periodic maintenance must occur every 12 months/1 year from date of being put into service or 12 months/1 year from the date of the prior inspection.

tirak® hoists and blocstop® BSO secondary brake must be inspected more frequently and at least every 6 months if subjected to harsh or dirty environments or freezing conditions, or immediately if they fail any operation or inspection on the job site.

In the event of an overspeed triggering of the blocstop® BSO secondary brake during operation, damages to anchoring devices, wire rope and blocstop® BSO secondary brake are possible, and the blocstop® BSO secondary brake must be immediately inspected by an Authorized Repair Center.

A signed and dated inspection record should be maintained for each tirak® hoist and each blocstop® BSO secondary brake device.

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, see Table 7.

Hoist	**Filling quantity (transmission oil)**	**Oil type**		
		Temperature range:		
		Mineral oils[2)]	**Synthetic oils[2)]**	
		14 to 122 degF -10 to +50 °C	-5 to 158 degF -15 to +70 °C	-31 to 104 degF -35 to +40 °C
XE 300 P	**1.4**	SAE85W-140-GL5 Aral HYP85W-140		Option: CLPPG or PGLP ISO VG 100 Klübersynth GH6 100
XE 500/600/700 P-series:	**2.0**			
LE 500 P-series[1)]	**1.4**		CLPPG or PGLP ISO VG 460 Klübersynth GH6 460	
XE 500 P+-series:[1)]	**2.0**			
XE 1020/1030 P-series:[1)]	**2.0**			
XE 2050 P-series:[1)]	**5.0**			

Table 7: Oil quantities and types

1) NOTE: Use only synthetic oils! **DO NOT** use other oils without written authorization from the manufacturer or the supplier.

2) Changing between mineral and synthetic oils requires complete cleaning of the gearbox parts.

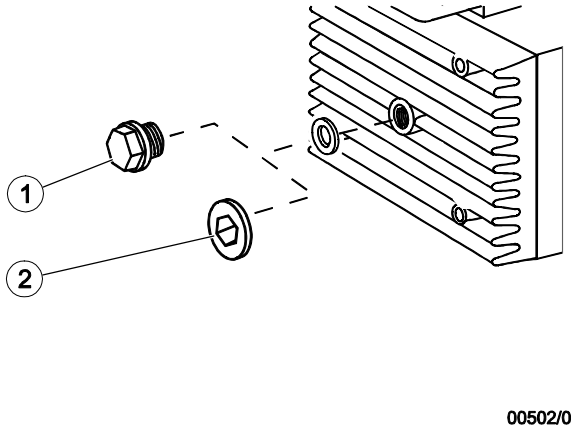


Fig. 38: Oil drain screw as oil specification indicator

1 Marking: Red hexagon oil drain screw Synthetic oil

2 Marking: Socket head cap oil drain screw Mineral oil

7.2 MAINTENANCE

7.2.1 TIRAK® HOIST

(1) Daily check the primary and 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.

The motor, gearbox and brake are maintenance-free between two inspections.

XE 20... series only: Lubrication of traction sheave external teeth

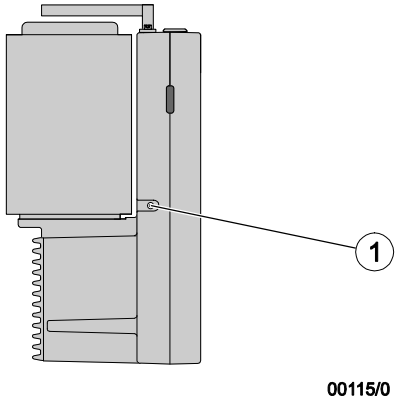


Fig. 39: Lubrication nipple of XE 20..-series

Lubricant: hebro-chemie VARILUB or Klüber Grafloscon C-SG 0 Ultra or Klüber C-SG 1000 Ultra Quantity (approx. 10 cm^3 per lubrication)

(1) Apply the grease gun to the lubrication nipple (1), see Fig. 39.

(2) Lubricate the lubrication nipple with 3–5 pumps (approx. 5 cm^3).

(3) Let the hoist run for approximately two seconds in the UPWARD and DOWNWARD directions.

(4) Lubricate the lubrication nipple with 3–5 pumps (approx. 5 cm^3).

7.2.2 WIRE ROPE

(1) Use only wire ropes, which meet the manufacturers specifications. For details see pages see pages 8 and 22. 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 (page 22, Fig. 17).
- 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 SECONDARY BRAKE

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

7.3 MECHANICAL LOAD LIMITING DEVICE

⚠ WARNING!

Malfunction of the load limiting device!

Risk of falling and severe injuries!

– The load limiting device may only be adjusted by personnel authorized by TRACTEL Greifzug GmbH.

Each hoisting machine fitted with a mechanical load limiter shall be capable of raising or lowering a maximum of 125 % of the rated load of the hoist.

7.4 STORAGE

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

Never transport the hoist assembled on the platform. Always unbolt the hoist from its stirrup or anchor device. Pack the hoist properly for transport.

7.5 LONG TERM MAINTENANCE

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

Continue with chapters

8 Nameplates and labels

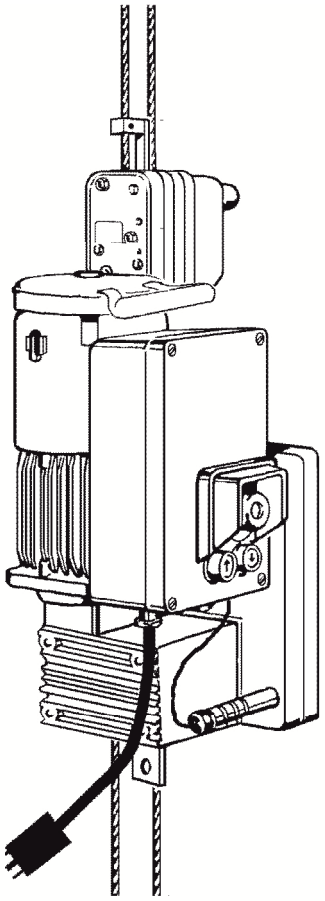
9 Warranty information

10 Additional sources and training

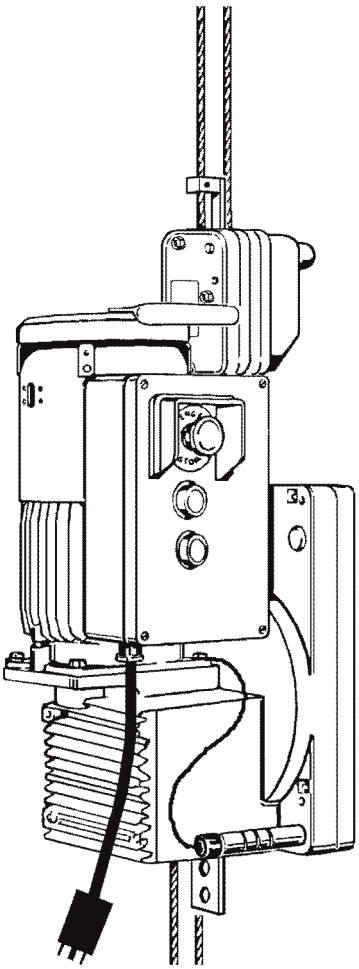
tirak®

MANRIDING SCAFFOLD HOIST

ADDITIONAL OPERATING MANUAL
FOR TIRAK® HOISTS WITH 2 WIRE ROPE SYSTEMS



XE 301 P
with blocstop® BS/ BSO



XE 500 P
XE 500 P+
XE 501 P
XE 501 P+
XE 501 PA
XE 600 P
XE 700 P
XE 701 P
XE 702 P+
XE 720 P
XE 721 P
XE 1020 P
XE 1030 P
with blocstop® BS/BSO

NOTICE

The following pages 42 to 58 of this manual only contain instructions referring to the 2 wire rope system.

For all other instructions refer to pages 4 to 39 and 59 to the last page.

Tractel®

www.tractel.com

CONTENTS

A1 GENERAL WARNING

See pages 4 to 6.

A2 DESCRIPTION

A2.1 Two wire rope system

tirak® hoists (A) with blocstop® BS/BSO overspeed and slack wire rope locking device (E) – here-after called BS/BSO secondary brake – are principally used with **two wire ropes** (see Fig. 39):

- 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.

NOTICE

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 rope

WARNING!

Incorrect wire rope!

Risk of falling and severe injuries!

The original design requires, for safety and efficiency, that it be used with a special tirak® wire rope specified by the manufacturer.

– Unless specificly specified in writing by the manufacturer, only this special tirak® wire rope may be used.

– It is mandatory that both the PRIMARY AND THE SECONDARY WIRE ROPE MEET THE MANUFACTURERS SPECIFICATIONS!

For details see pages 8 and 22.

NOTICE

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

For detailed information about

- motor and primary brake,
- gear reducer,
- emergency descent without power,
- and wire rope driving mechanism

see page 7.

A2.4 Assemblies

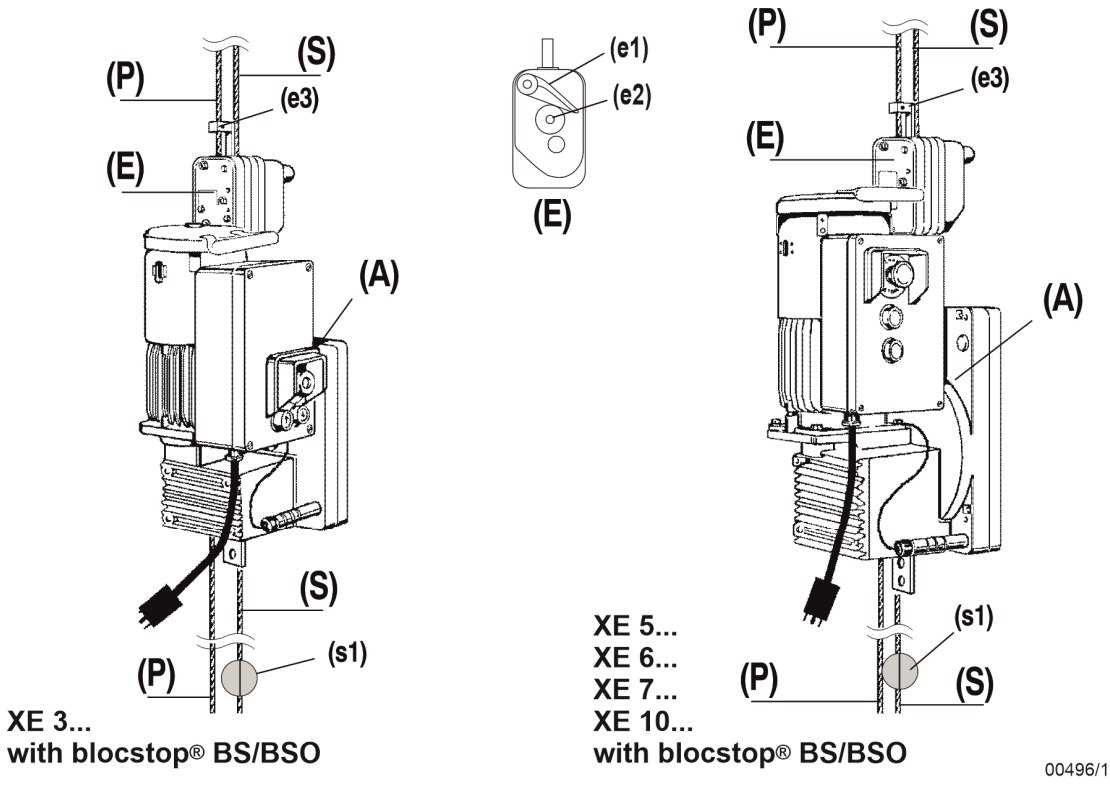


Fig. 40: Main assemblies, 2 wire rope system

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

P Primary wire rope

S Secondary wire rope
- s1 Tensioning weight for secondary wire rope

For more details see Fig. 1, page 9)

A2.5 Technical data

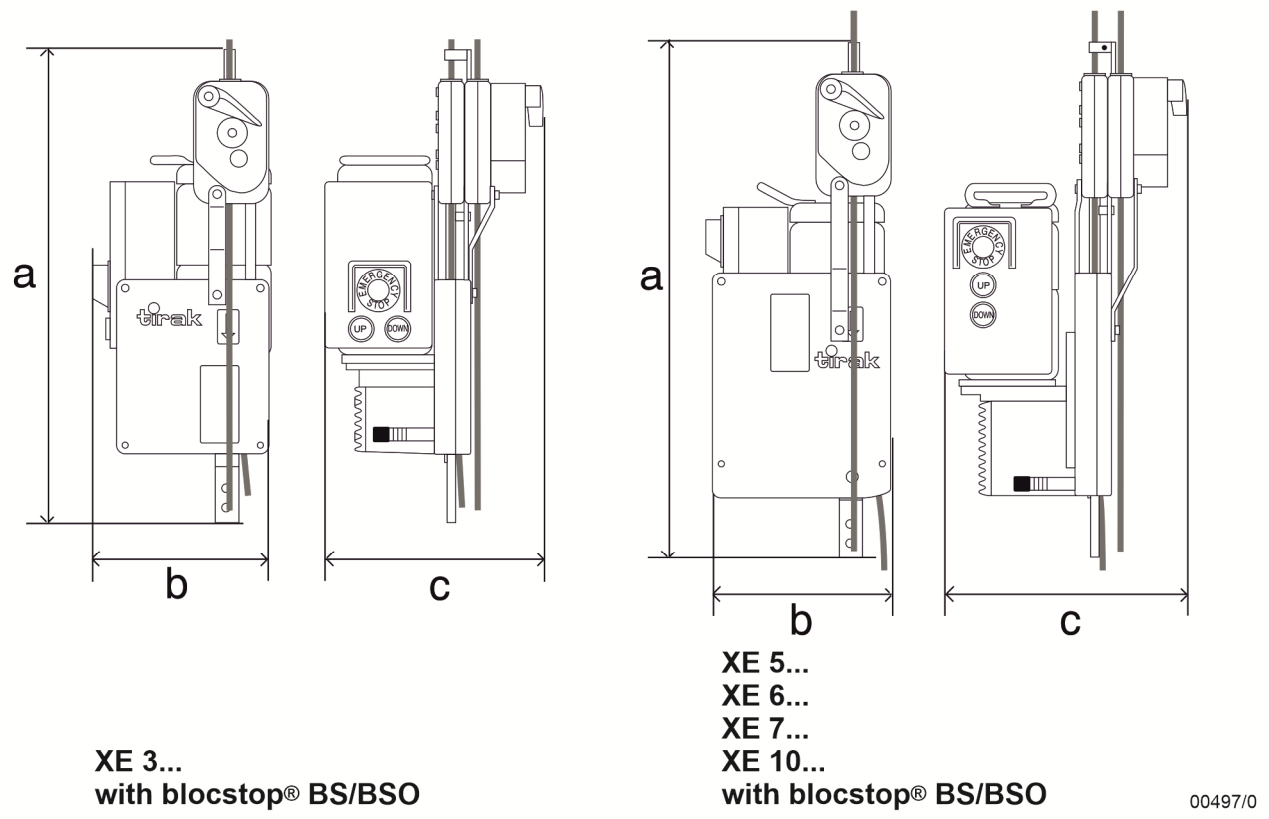


Fig. 41: Dimensions, 2 wire rope system

Hoist model		Rated load	lifting speed		weight (with BSO)		Dimensions over all						Wire rope diameter		Motor		
USA	Canada	lbs	ft/min	m/min	lbs	kg	in.			mm			in.	mm	type	kW	A
							a	b	c	a	b	c					
Motor specifications: 1~ 110V (or 220V)/60 Hz																	
Secondary brake: blocstop® BS/BSO 500																	
XE 301 P		700	35	11	88	40	30.6	11.8	14.2	777	299	360	5/16	8	UBE80/11-4F	0.55	10.5(5.2)
XE 501 P		1000	35	11	130	59	33.5	12.6	15.4	850	321	392	5/16	8	UCE90L/10-4F	1.1	19.5(9.5)
LE 501 PA		1000	20	6	90	41	30.9	12.3	14.8	785	313	376	5/16	8	UCE80L/11-4F	0.55	10.5
Motor specifications: 1~ 208V/60 Hz																	
Secondary brake: blocstop® BS/BSO 500																	
XE 501 P+		1000	35	11	137	62	33.5	13.3	15.4	850	338	392	5/16	8	UM90L4	1.1	8.3
Motor specifications: 1~ 220V/60 Hz																	
Secondary brake: blocstop® BS/BSO 500																	
XE 501 PA		1000	35	11	128	58	33.5	12.6	15.4	850	321	392	5/16	8	UCE90L/10-4F	1.1	9.5
LE 501 P		1000	35	11	90	41	30.9	12.3	14.8	785	313	376	5/16	8	UCE80/12-4F	0.9	6.8
XE 701 P		1500	35	11	130	59	33.5	13	15.4	850	331	392	5/16	8	UCE90L/11-4F or UCE100L/9-4F	1.5	12
Secondary brake: blocstop® BS/BSO 520 or 1020																	
XE 721 P		1500	35	11	132	60	33.5	13	15.4	850	331	392	3/8	9	UCE100L/9-4F	1.5	12

Hoist model		Rated load	lifting speed		weight (with BSO)		Dimensions over all						Wire rope diameter		Motor		
USA	Canada	lbs	ft/min	m/min	lbs	kg	in.			mm			in.	mm	type	kW	A
							a	b	c	a	b	c					
Motor specifications: 3~ 208V/60 Hz																	
Secondary brake: blocstop® BS/BSO 500																	
XE 500 P+		1000	35	11	112	51	33.5	13.3	15.4	850	338	392	5/16	8	G90L4/7,5-4F	1.5	6.3
	LE 502 P	1000	70	22	79	36	30.9	12.3	14.8	785	313	376	5/16	8	UC80/9-2F	1.8	4.8
XE 702 P+		1500	70	22	143	65	33.5	13.7	15.4	850	349	392	5/16	8	MT100LA2 OG F	3.2	14.5
	XE 702 P+	1200	70	22	143	65	33.5	13.7	15.4	850	349	392	5/16	8	MT100LA2 OG F	3.2	14.5
Motor specifications: 3~ 220V/60 Hz																	
Secondary brake: blocstop® BS/BSO 500																	
XE 500 P		1000	35	11	112	51	33.5	12.6	15.4	850	321	392	5/16	8	UC80/8-4F	1.1	4.5
XE 600 P		1200	35	11	119	54	33.5	12.6	15.4	850	321	392	5/16	8	UC90S/7,5-4F	1.5	6.1
XE 700 P		1500	35	11	119	54	33.5	12.6	15.4	850	321	392	5/16	8	UC90S/7,5-4F	1.5	6.1
LE 500 P		1000	35	11	79	36	30.9	12.3	14.8	785	313	376	5/16	8	UC80/8-4F	0.9	4.8
Secondary brake: blocstop® BS/BSO 520 or 1020																	
XE 720 P		1500	35	11	121	55	33.5	12.6	15.4	850	321	392	3/8	9	UC90S/7,5-4F	1.5	6.1
Secondary brake: blocstop® BS/BSO 1020																	
XE 1020 P		2200	35	11	128	58	34.8	12.6	15.4	885	321	392	3/8	9	UC90L/11-4F	2.4	9.6
Secondary brake: blocstop® BS/BSO 1030																	
XE 1030 P		2200	35	11	128	58	34.8	12.6	15.4	885	321	392	13/32	10	UC90L/11-4F	2.4	7.5
	XE 1030 P	1850	35	11	128	58	34.8	12.6	15.4	885	321	392	13/32	10	UC90L/11-4F	2.4	7.5
Motor specifications: 3~ 230V/60 Hz																	
Secondary brake: blocstop® BS/BSO 500																	
LE 500 P		1000	35	11	79	36	30.9	12.3	14.8	785	313	376	5/16	8	UC80/8-4F	0.9	4.6
	LE 502 P	1000	70	22	79	36	30.9	12.3	14.8	785	313	376	5/16	8	UC80/9-2F	1.8	7
Motor specifications: 3~ 380V/60 Hz																	
Secondary brake: blocstop® BS/BSO 1020																	
XE 1020 P		2200	35	11	128	58	34.8	12.6	15.4	885	321	392	3/8	9	UC90L/11-4F	2.4	6.8
Motor specifications: 3~ 400V/60 Hz																	
Secondary brake: blocstop® BS/BSO 500																	
LE 500 P		1000	35	11	79	36	30.9	12.3	14.8	785	313	376	5/16	8	UC80/8-4F	0.9	3.5
	LE 502 P	1000	70	22	79	36	30.9	12.3	14.8	785	313	376	5/16	8	UC80/9-2F	1.8	4
Secondary brake: blocstop® BS/BSO 520 or BS/BSO 1020																	
	XE 522 P	1000	70	22	132	60	33.5	12.6	15.4	850	321	392	5/16	8	UC90L/10-2F	3	4.3
Secondary brake: blocstop® BS/BSO 1030																	
XE 1030 P		2200	35	11	128	58	34.8	12.6	15.4	885	321	392	13/32	10	UC90L/11-4F	2.4	6
	XE 1030 P	1850	35	11	128	58	34.8	12.6	15.4	885	321	392	13/32	10	UC90L/11-4F	2.4	6
Motor specifications: 3~ 480V/60 Hz																	
Secondary brake: blocstop® BS/BSO 500																	
LE 500 P		1000	35	11	79	36	29.3	12.3	13.5	743	313	342	5/16	8	UC80/8-4F	0.9	2.3
	LE 502 P	1000	70	22	79	36	29.3	12.3	13.5	743	313	342	5/16	8	UC80/9-2F	1.8	3.3

Use only wire ropes specified by the manufacturer:

See Chapter 4 on page 22.

A2.5.1 Application area

The hoists are suitable for use under the following operating conditions:

- For permanent or temporary installations
- For short-term operation
- Permitted temperature range: refer to page 37: Table 7: Oil quantities and types

⚠ WARNING!

Risk of falling and severe injuries!

– 24-hour operation is prohibited.
– **NEVER** use in areas where there is a risk of explosion.
– **NEVER** use in a corrosive environment.
– **NEVER** use in close proximity to open fire or in an extremely hot environment.

A3 RIGGING INSTRUCTIONS FOR HOISTS WITH BS/BSO

NOTICE

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

For special projects like shown below contact the supplier for additional information.

A3.1 General

A3.1.1 Scope

Instructions and advice of this part of the manual exclusively refer to the following items (see Fig. 42):

- tirak® scaffold hoist with blocstop® BS/BSO secondary brake;
- PRIMARY and SECONDARY special tirak® wire ropes

A3.1.2 Checks before rigging

NOTICE

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. 42 and 43).

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

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

Main Pieces are:

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

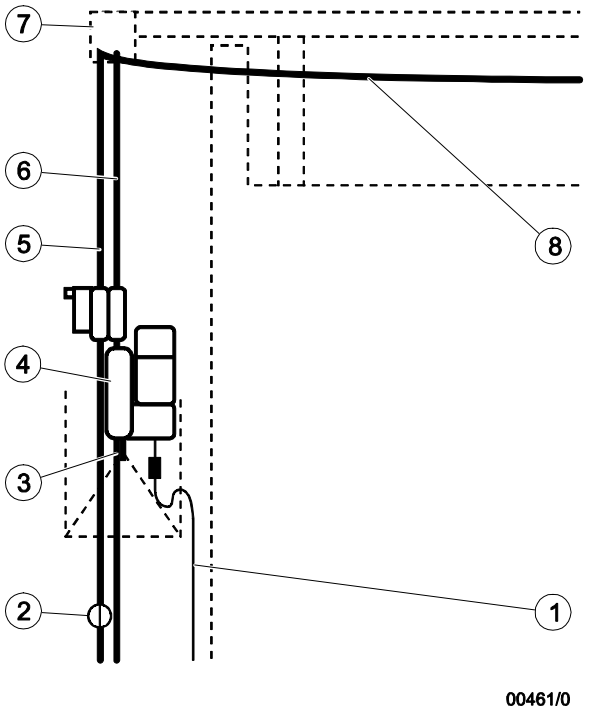


Fig. 42: Relevant items (principle sketch)

1 Power supply cord
2 Tensioning weight for secondary tirak® wire rope
3 Connecting hoist and platform system
4 tirak® with blocstop® BS/BSO secondary brake
5 SECONDARY tirak® wire rope
6 PRIMARY tirak® wire rope
7 Fixing the wire rope to the support equipment
8 TIE-BACK for secondary tirak® wire rope

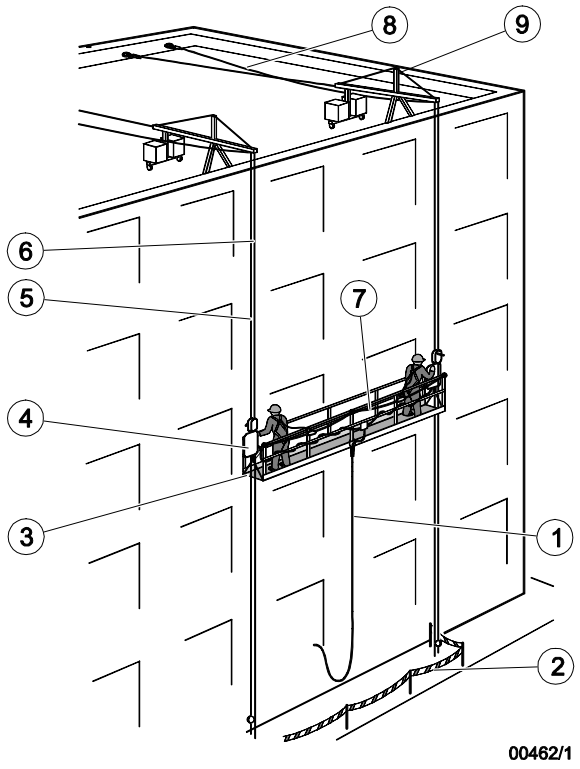


Fig. 43: Typical suspended scaffold installation with a dual suspension system (Primary and Secondary)

1 Power supply cord
2 Barricade
3 Suspended platform system
4 tirak® with blocstop® BS/BSO secondary brake
5 Special BSO® wire rope
6 Special tirak® wire rope
7 Lifeline
8 Tie-back
9 Support equipment

A3.2 Power supply and hoist control

See page 17.

A3.3 Hoist mounting

See page 19.

A4 WIRE ROPE

A4.1 Wire rope specification

See page 22.

A4.2 Wire rope rigging instructions

WARNING!

Wire rope other than specified may cause serious or fatal injuries!

The original design requires, for safety and efficiency, that it be used with a special tirak® wire rope specified by the manufacturer.

– Be sure to use wire rope according to specification (see page 22), with the diameter (Fig. 16) marked on the tirak® nameplate for both the PRIMARY and the SECONDARY wire rope.

Risk of falling and severe injuries!

When used with a swivel hook, the specified standard wire rope will untwist and be reduced in diameter.

– Never use a swivel hook with the specified wire rope.

CAUTION!

Risk of injury through stabs and cuts!

Broken wires in the wire rope can result in protruding wires!

Protruding wires can cut or stab through safety gloves!

– Wear suitable leather protective gloves when working with wire ropes.
– Never let the wire rope run through your hands.

(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.

NOTICE

Damage to the hoist by the use of damaged rope!

– Always unreel and reel the wire rope in a straight line (page **Fehler! Textmarke nicht definiert.**, Fig. 17) to prevent kinks, which make it unusable for the hoist.

Check the rope condition for damage:

- proper connections (thimble, ferrule);
- on wire ropes with hook: hook is not bent, latch is in place;
- the wire rope has no visible damage along its total length.

If the wire rope is not equipped with a swaged fitting as shown in Fig. 18 on page **Fehler! Textmarke nicht definiert.**, see chapter A4.2.1 Installing a heavy duty thimble.

(1) Anchor the wire rope ends (page **Fehler! Textmarke nicht definiert.**, Fig. 19) 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.

Distance (a) between the wire ropes: approx 1 1 /2 in. / 40 mm.

WARNING!

Failure of anchoring device!

Risk of falling and severe injuries!

– Secondary wire rope anchoring must be connected to a tie back (page **Fehler! Textmarke nicht definiert.**, Fig. 20).

Improper spacing of anchoring points!

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

– Ensure that the anchor points of the wire rope are directly above the position of the hoists (page **Fehler! Textmarke nicht definiert.**, Fig. 21).

(1) Check that wire rope tip is welded round.

See page **Fehler! Textmarke nicht definiert.**, Fig. 22.

IF NOT:

(1) Prepare ends by brazing or welding. Make sure all end wires are captured.
(2) Grind end to approximately 1/4“ diameter. DO NOT grind end flat or to a cone shape. End must be rounded.
(3) The last 4 in. (10 cm) of wire rope must be straight for proper reeving.

A4.2.1 Installing a heavy duty thimble

If the wire rope is not equipped with a swaged fitting as shown in Fig. 18, proceed as follows:

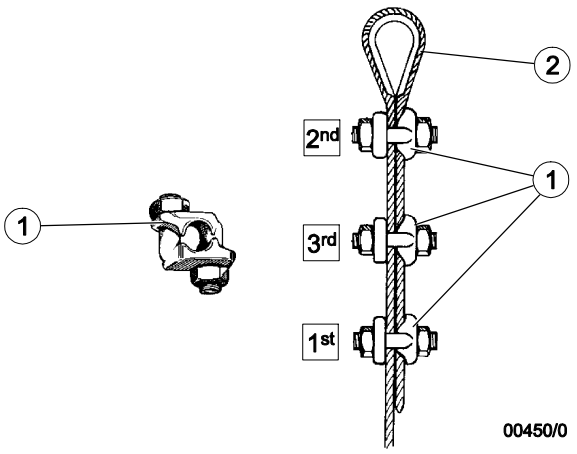


Fig. 44: Heavy duty thimble

1 fist grip clamp

2 heavy duty thimble

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

(2) Apply first clamp approximately 7“ (18 cm) from thimble. Tighten nuts moderately.

(3) Attach second clamp as close to thimble as possible. Leave nuts loose.

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

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

⚠ WARNINGS:

In use, wire ropes will stretch and reduce in diameter.

(6) Retighten nuts after the wire rope is loaded for the first time.

(7) In accordance with good rigging and maintenance practices, the wire rope end termination should be inspected periodically for wear, abuse, and general adequacy.

A4.3 Wire rope installation

A4.3.1 Primary wire rope P

NOTICE

Ensure both wire ropes hang parallel from the suspension point.

(1) Open the BS/BSO secondary brake by pushing down the control lever until it locks (2) (Fig. 45).

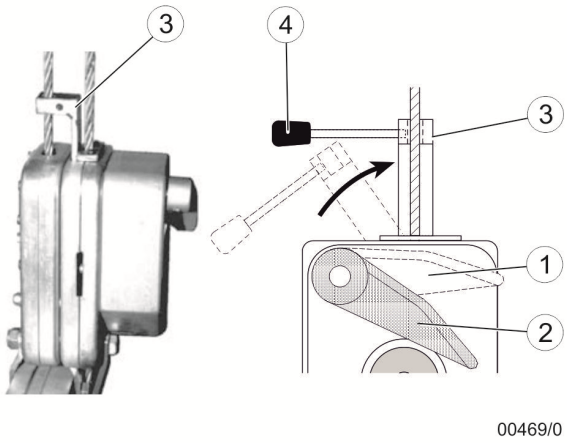


Fig. 45: Opening of BS/BSO secondary brake

1 control lever (closed)

2 control lever (open)

3 release lever

4 brake release lever

NOTICE

If exit (C) on the hoist is blocked, the wire rope may jam and be damaged or cause damage to hoist.

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

– Never load the wire rope exiting from (C).

(1) With gloved hands slide the rope through release lever hole and push it through the BS/BSO secondary brake at (A) into the hoist rope inlet (B). Push it inside, and press UP button, until the wire rope reeves itself automatically and exits at (C) on the other side (Fig. 46).

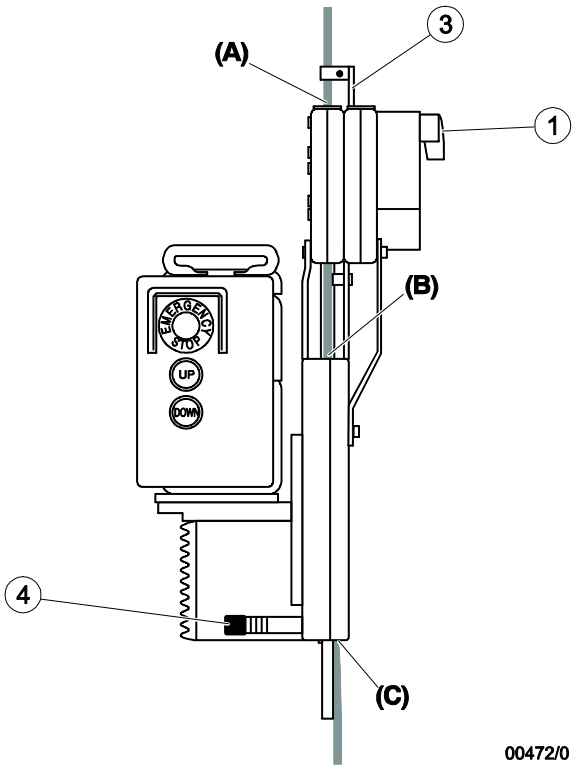


Fig. 46: Primary wire rope installation

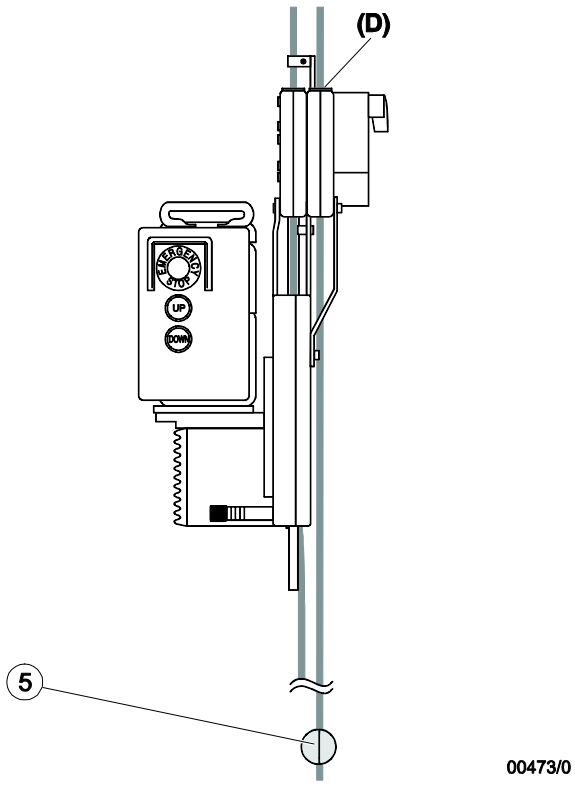


Fig. 47: Secondary wire rope installation

(1) Let the primary wire rope run through until it is tensioned.

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 (4) in its vertical position (Fig. 45).

(2) Insert secondary wire rope at (D) and push through until it is tensioned (Fig. 47).

(3) Above ground level fix a tensioning weight (5) of approx. 25 lbs. (10 kgs) to the lower end of the secondary wire rope (Fig. 47). This weight will help to pull the secondary wire rope through the BS/BSO secondary brake and avoid slack wire rope above the hoist.

(4) Make sure tensioning weight (5) will not damage property or create a hazard by swinging freely.

A4.3.3 Primary Wire Rope End

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.

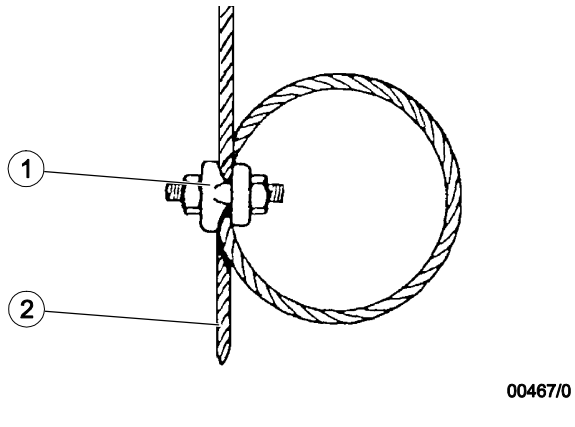


Fig. 48: Loop at free rope end

1 fist grip clamp

2 free rope end

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

WARNING!

Wire rope not long enough!

Risk of falling and severe injuries!

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

A4.3.4 Wire rope storage

(1) Clean the wire rope, reel it, and store it in a clean and dry place.

A4.4 De-rigging

A4.4.1 Secondary wire rope (S)

(1) Lower the platform until it almost reaches its safe and stable support. Leave the primary wire rope tensioned so that the release lever (3) of BS/BSO secondary brake is still upright.

(2) Remove the tensioning weight (5).

(3) If release lever (3) is not held in its open position by the tensioned primary wire rope, hold it in its open position by using brake release lever (4) according to Fig. 45 to ease operation.

(4) With gloved hands pull out the secondary wire rope.

A4.4.2 Primary wire rope (P)

(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 DOWN button to let the wire rope run out.

As soon as the suspension wire rope is not under load, hold release lever (3) of BS/BSO secondary brake in its open position by using brake release lever (4) according to Fig. 46 to ease operation.

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

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

A5 OPERATING INSTRUCTIONS

A5.1 General

BE FAMILIAR with the equipment and its proper care.

(1) DO NOT operate hoist, if adjustment or repairs are necessary,

(2) if any warning, operating or capacity label normally attached to the hoist is obscured, damaged, or missing (see labels' list on pages 60).

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

WARNING!

Risk of falling and severe injuries!

– Safety demands that you test out the system as follows before going aloft.

(4) CHECK **PLATFORM** fully rigged and loaded by cycling UP and DOWN several times near ground level or safe surface.

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

Check BS/BSO secondary brake:

WARNING!

Malfunction of the secondary brake!

Risk of falling and severe injuries!

– If during one of the checks the BS/BSO secondary brake malfunctions, it must be replaced.

Check I:

(1) At ground level push DOWN button to get slack primary wire rope (A) – release lever (6) tilts to the side to close BS/BSO secondary brake for the secondary wire rope (B) (Fig. 49).

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

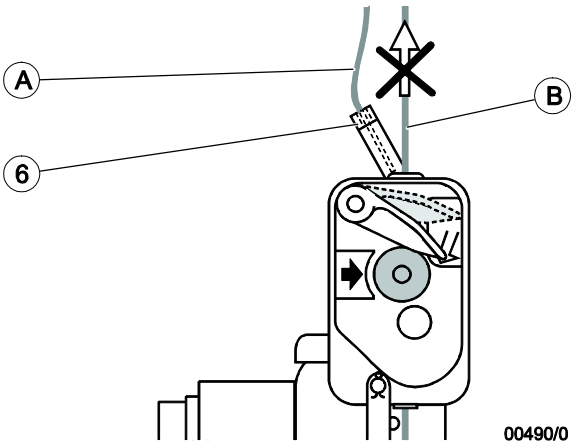


Fig. 49: BS/BSO secondary brake Check I

Check II:

(1) At ground level first close the BSO secondary brake by pushing EMERGENCY STOP button (2). Then push control lever in DOWN-position and make the wire rope form a loop between tirak® casing and BSO secondary brake (Fig. 50). Open BSO secondary brake by pulling down the control lever until it locks in the open position (4).

(2) Push release lever (6) in its upright position and with gloved hands sharply pull primary wire rope in arrow direction (Fig. 50) – the BS/BSO secondary brake should close immediately (Fig. 50). Reset BSO secondary brake by pushing down the control lever until it locks in the open position (4).

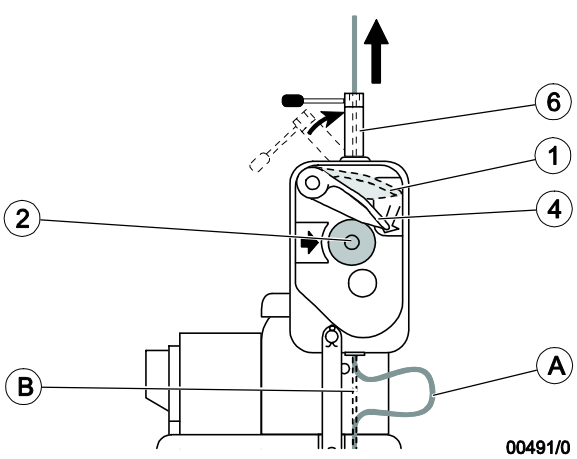


Fig. 50: BS/BSO secondary brake Check II

Check III:

(1) Lift platform 3 ft. (1 m) above ground or safe surface, and push EMERGENCY STOP button (2) of the BS/BSO secondary brake (Fig. 51).

(2) Lower the platform to check that the BS/BSO secondary brake holds the load. A loop should form as shown in (Fig. 50), which means the BS/BSO is supporting the load.

(3) Raise platform until the hoist supports the load. Reset the control lever to the open position (4).

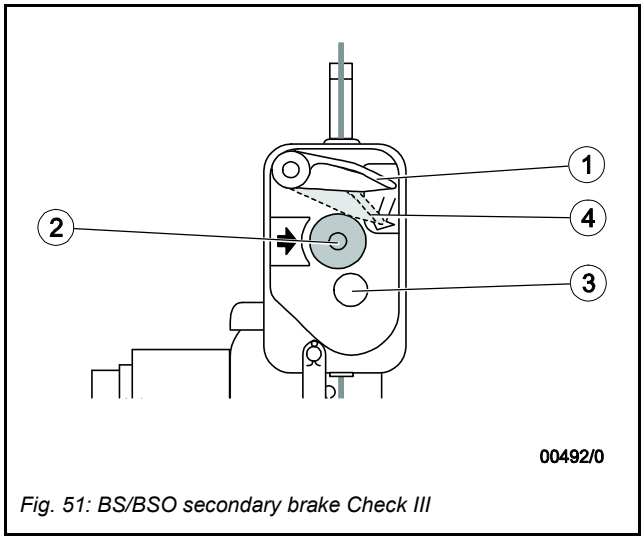


Fig. 51: BS/BSO secondary brake Check III

Check IV:

(4) During operation **regularly check** through the window (3) that the centrifugal weights are turning.

(5) Do not operate the hoist if the centrifugal weights are not turning

General check:

d) Check EMERGENCY STOP button and push-button control according to page 52.

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

A5.2 Normal operation

See page 30.

A5.3 Emergency descent

WARNING!

Malfunction of the hoist due to damaged or worn parts!

Risk of falling and severe injuries!

You are only allowed to lower the hoist in manual mode in an emergency.

- After an emergency descent, the hoist must always be tested by the manufacturer or a Authorized Repair Facility.
- Any damaged or worn part found must always be replaced.

Risk of falling and severe injuries!

The centrifugal brake might not brake the load in case of overloading!

- In the event of overloading, never open the primary brake (spring-applied brake) manually.

Risk of falling and severe injuries!

The BSO secondary brake stops downward travel during descent in a overspeed:

- DO NOT DETACH BSO secondary brake FROM THE HOIST!

In a loss of electric power!

Risk of falling and severe injuries!

If during emergency descent the BSO secondary brake closes, you have to wait for electric power to go up. The hoist must move up to get the BSO free.

- Reset BSO by pushing down control lever in open position (4) (see Fig. 51).
- DO NOT force it open!
- If electric power is not available you have to require help or a rescue!

NOTICE

Risk of damage to the brake and the hoist!

- DO NOT USE EMERGENCY DESCENT AS REGULAR TECHNIQUE TO LOWER.

The centrifugal brake prevents rope speeds that are too high when lowering the platform manually.

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

(1) Take the brake release lever (A) from its storage compartment, and insert it through the motor fan cover hole into the brake release bow. Lift in direction of arrow.

See Fig. 52.

The hoist begins to lower at moderate speed, which is regulated by a mechanical centrifugal brake.

(2) To STOP just release the lever.

(3) After use: restore brake release lever (A) into its storage position.

(4) Send the hoist to the supplier for testing or repair or send it to a repair shop agreed by him.

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

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

CASE (B): The BS slack wire rope device has locked on the secondary wire rope. (platform hits obstruction during de-scent).

To unlock BS/BSO secondary brake proceed as follows:

(1) Remove cap (B) from motor fan cover, take hand wheel (C) (if supplied) from its support on the hoist casing, and place it on the motor shaft (Fig. 52).

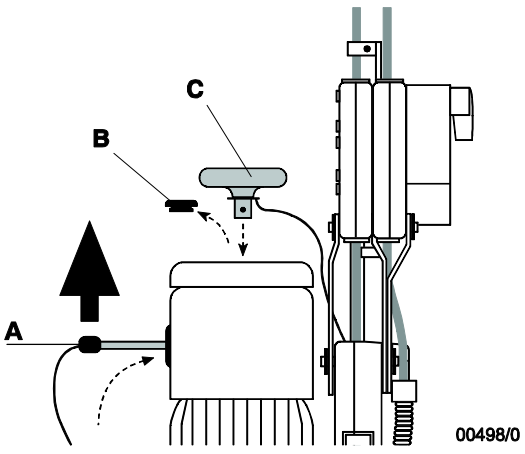


Fig. 52: Brake release

(1) With the brake opened (see above) turn the hand wheel counter-clockwise (X- and L-series) until the hoist supports the load.

(2) CASE (A): Reset BSO overspeed device by pushing down control lever (1) until it locks in the open position (4) (Fig. 51).

(3) CASE (B): The BS slack wire rope device is automatically opened by the transfer of the load to the primary wire rope.

(4) Restore hand wheel (C) into its storage position, and put back cap (B) on the motor fan cover.

(5) Continue with manual descent.

(6) Send the hoist to the supplier for testing or repair or send it to a repair shop agreed by him.

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 in the OPEN position (4) (Fig. 51).
DO NOT force it open.

(3) If the BS/BSO secondary brake has automatically closed on the primary wire rope, i. e. control lever (1) has returned to CLOSED position (see Fig. 51)

- 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.

(1) If the BS/BSO secondary brake has automatically closed on the secondary wire rope, i. e. release lever (6) is tilted because of slack primary wire rope (Fig. 53):

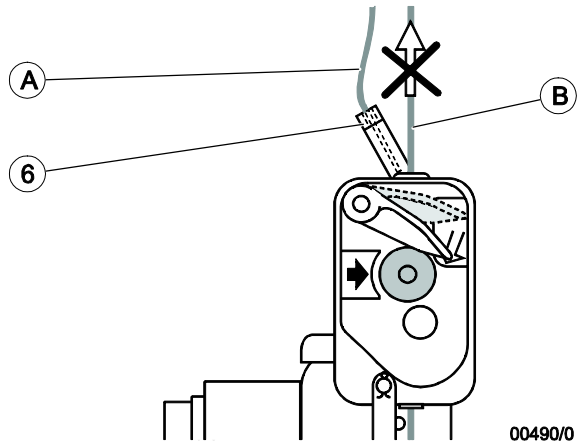


Fig. 53: Primary wire rope installation

- WARNING! STOP DOWNWARD TRAVEL! THE PLATFORM HAS HIT AN OBSTRUCTION PREVENTING DOWNWARD MOVEMENT.
- DURING USE OF THE HOIST NEVER DETACH BS/BSO SECONDARY BRAKE!

A6 TROUBLE SHOOTING

WARNING!

Danger of severe accidents.

Avoid injuries:

– Checks and repair of the electric equipment must only be carried out by **qualified electricians**! Wiring diagrams are found in the control box of the motor.

– Do not open any control box or pendant control with power supply to hoist!

– Any other repair should only be carried out by the supplier (TRACTEL® Company) or by a qualified person, and only original spare parts shall be used.

NOTICE

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

A6.1 BS/BSO Secondary brake trouble

Problem	**Cause**	**Remedy**
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) Observe WARNING: STOP DOWNWARD TRAVEL! Proceed according paragraph A5.4 (3), page 54 . b) Observe WARNING: STOP DOWNWARD TRAVEL! Go up until the hoist supports the load, and clear the obstruction. Details in paragraph A5.4 (4), page 54.
BS/BSO secondary brake automatically closes without apparent reason	a) Mechanical defect. b) Oversized or damaged wire rope	a) Contact the supplier. b) Check wire rope and replace, if necessary.
Unit will climb but will not descend.	Closed Secondary Brake	Power up approximately 6 inches while depressing **blocstop®**secondary brake control lever to open.
Excessive wire rope wear.	a) Worn Guide Bushing. b) Rigging	a) Replace inlet and outlet bushings if worn. b) Rigging alignement - wire rope must pass straight through hoist, not at an angle.

A7 INSPECTIONS AND MAINTENANCE

A7.1 Inspections

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) Primary brake function: “click” noise, when starting/stopping the hoist.

(2) BS/BSO secondary brake function.

Check I:

(1) At ground level push DOWN button to get slack primary wire rope (A) – release lever (6) tilts to the side to close BS/BSO secondary brake for the secondary wire rope (B) (Fig. 54).

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

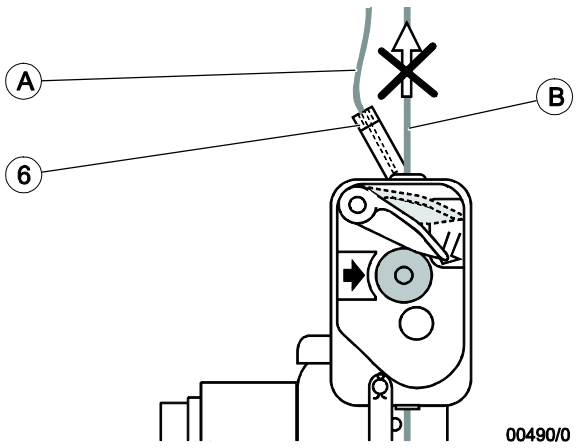


Fig. 54: BS/BSO secondary brake Check I

Check II:

(1) At ground level first close the BSO secondary brake by pushing EMERGENCY STOP button (2). Then push control lever in DOWN-position and make the wire rope form a loop between tirak® casing and BSO secondary brake (Fig. 55). Open BSO secondary brake by pulling down the control lever until it locks in the open position (4).

(2) Push release lever (6) in its upright position and with gloved hands sharply pull primary wire rope in arrow direction (Fig. 55) – the BS/BSO secondary brake should close immediately. Reset BSO secondary brake by pushing down the control lever until it locks in the open position (4) (Fig. 56).

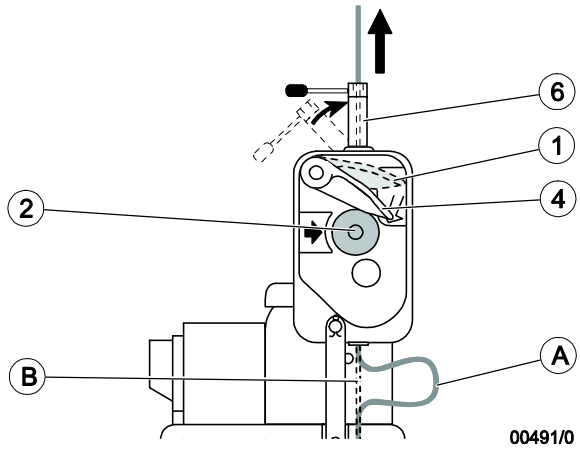


Fig. 55: BS/BSO secondary brake Check II

Check III:

(1) Lift platform 3 ft. (1 m) above ground or safe surface, and push EMERGENCY STOP button (2) of the BS/BSO secondary brake (Fig. 55).

(2) Lower the platform to check that the BS/BSO secondary brake holds the load. A loop should form as shown in (Fig. 55), which means the BS/BSO is supporting the load.

(3) Raise platform until the hoist supports the load. Reset the control lever to the open position (4).

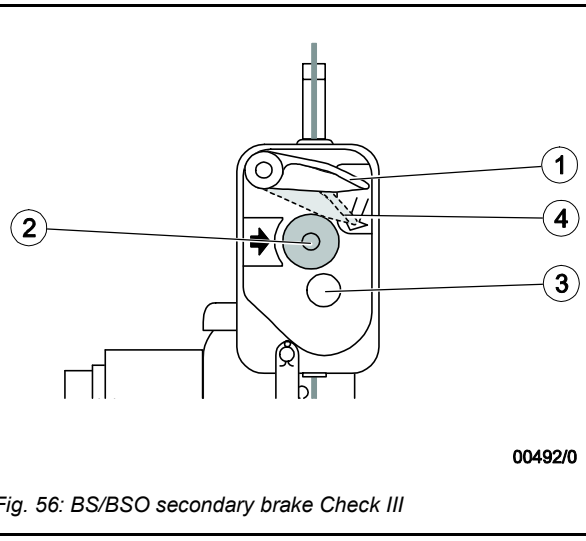


Fig. 56: BS/BSO secondary brake Check III

Check IV:

(1) During operation **regularly check** through the window (3) that the centrifugal weights are turning.

(2) Do not operate the hoist if the centrifugal weights are not turning

Wire rope

(1) Wire rope damage: free of kinks, cuts, broken wires, bird-cages, heat damage, contamination etc. – replace if such damage is noticed.

(2) Wire rope connections (thimble, ferrule), and if provided: hook is not bent, latch is in place.

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

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

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

(6) Check for parts damage.

WARNING!

Malfunction due to damaged parts!

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

(1) **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.

A7.1.2 Monthly inspections

See page 36.

7.5.1 INSPECTION, MAINTENANCE AND TESTING

tirak® hoists and blocstop® BS/BSO secondary brake shall be returned to an Authorized Tractel Repair Center for periodic maintenance after every job and at least after 250 hours of operation.

In any case, periodic maintenance must occur every 12 months/1 year from date of being put into service or 12 months/1 year from the date of the prior inspection.

tirak® hoists and blocstop® BS/BSO secondary brake must be inspected more frequently and at least every 6 months if subjected to harsh or dirty environments or freezing conditions, or immediately if they fail any operation or inspection on the job site.

In the event of an overspeed triggering of the blocstop® BS/BSO secondary brake during operation, damages to anchoring devices, wire rope and blocstop® BS/BSO secondary brake are possible, and the blocstop® BS/BSO secondary brake must be immediately inspected by an Authorized Repair Center.

A signed and dated inspection record should be maintained for each tirak® hoist and each blocstop® BS/BSO secondary brake device.

If a gearbox oil change is necessary, take one of the specified oils according to the temperature range, the hoist usually will be used in, see Table 7 on page 37.

Wire rope

WARNING!

Wire rope other than specified may cause severe injury or fatality!

– It is mandatory that both the PRIMARY AND THE SECONDARY WIRE ROPE meet the manufacturers specifications!

(1) Use only wire ropes, which meet the manufacturers specifications. For details see pages 45 and 22. This will ensure the reliable function of the hoist.

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

Secondary brake

A mechanical centrifugal brake regulates the speed if the hoist begins to lower without motor.

8 NAMEPLATES AND LABELS

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

8.1 NAMEPLATES

Item Name

1 tirak® nameplate

2 Motor nameplate

3 Primary brake nameplate

4 blocstop® BS/BSO secondary brake nameplate

4a Advice label (additional secondary brake check)

5 Wire rope diameter label

6 Warning label (wire rope jam)

7 Advice label (secondary brake operation)

8 Emergency Descent label

9 General Warning & Advice label

10 Motor nameplate

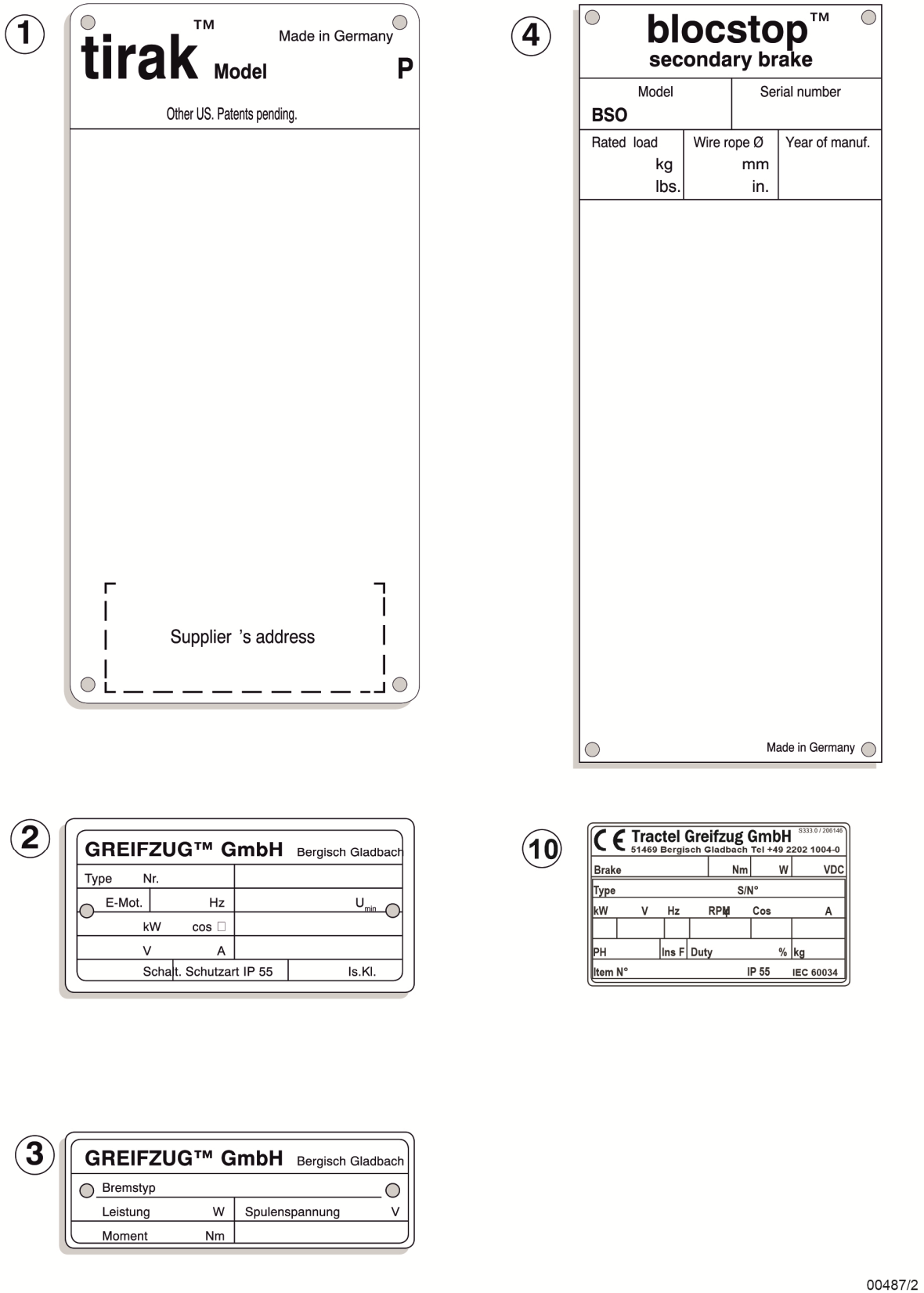


Fig. 57: Nameplates

4a Code 22050

ADDITIONAL CHECKING

At ground level push DOWN button 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.**

6 Code 22080

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

7 Code 22230

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

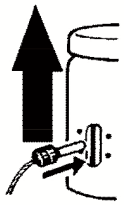
5

Wire rope
Ø
5/16"

Example

5/16" (8 mm) Code 27660
3/8" (9 mm) Code 27670
13/32" (10 mm) Code 109910
9/16" (14 mm) Code 52540

8 Code 23310



S 017-02/02

Emergency Descent
Brake release lever in lever support

Descente d'urgence
Manette de commande du frein dans son logement

Notablaß
Bremslüfterhebel in Halterung

9

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.

EMERGENCY DESCENT:
Take brake release lever out of its storage position, insert in motor cover hole, and push upwards.
To stop release lever.

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 electric supply. Red button must be out to start the motor. Start motor, and introduce wire rope, lightly push until it reeves itself automatically.
Ensure free rope exit.
Use only specified wire rope in good condition with short tapered end! **Daily check** for broken wires and kinks.
For spare parts or in case of inquiry please mention **Machine Type and Serial No.!**

S348-00 04/20 75030 Printed in Germany

Code 75030

00488/3

Fig. 58: Labels

9 WARRANTY INFORMATION

(1) Tractel® 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 under examination to our satisfaction to be defective in material or workmanship, if the item in question is returned through a Tractel® distributor, transportation prepaid, within one (1) year from the equipment is sold to the original purchaser[1]. Return shipment must be prepaid

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

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

(5) Any defect in this equipment must immediately be brought to the 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®'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® distributor, repaired with other than Tractel® 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 guarantees or to assume for us any liability in connection with the sale of our equipment other than those contained herein. Any agreement outside of or contradictory to the foregoing shall be void and of no effect.

The warranty does not cover:

(1) damage or loss caused by transportation

(2) damage or loss caused by misconduct, misapplication or accident

(3) damage or loss caused by the negligence of instructions, service, maintenance or storage

(4) deterioration of the equipment and damage resulting from wearing parts: and, material like rubber tires, electrical equipment etc.

(5) damage or loss caused by maintenance or repairs performed by a non-authorized service personnel

(6) damage or loss caused by purchaser's acts or omissions causing alternations to the quality or structure of the equipment

(7) any such indirect damage or loss as the loss of profit and downtime cost etc.

No claim will be accepted if non-original parts, not approved by the seller, have been used. Warranty claims should be submitted in writing describing the damage as completely as possible and sent to the address below within fourteen (14) days from the date of disclosure of the damage.

Tractel®
51 Morgan Drive, Norwood, MA 02062, USA
Tel. 781-401-3288

- Parts replaced under warranty expire at the expiration time of the warranty of the tirak®.
- The purchaser is obliged to send the damaged part(s) to the seller for inspection by a requesting a return authorization form.
- Replaced or refunded parts become the property of the seller.

[1] "Original purchaser" definition: for rental machines: Dealer, for resale machines: First user.

10 ADDITIONAL SOURCES AND TRAINING

The Scaffold and Access Industry Association, Inc. offers a certificated training course for suspended scaffold users.
Information may be obtained from

Scaffold and Access Industry Association, Inc.
400 Admiral Blvd.
Kansas City, MO 64106

Phone: (816) 595-4860
Fax: (816) 472-7765
www.saiaonline.org
e-mail: info@saiaonline.org

10.1 CODE OF SAFE PRACTICES FOR ADJUSTABLE SUSPENDED SCAFFOLDS

It shall be the responsibility of all users to read and comply with the following common sense guidelines which are designed to promote safety in the erecting, dismantling and use of adjustable suspended scaffolds. These guidelines do not purport to be all-inclusive nor to supplant or replace other additional safety and precautionary measures. If these guidelines conflict with any local, provincial, state, federal or other government regulations, the regulations shall supersede these guidelines and it shall be the responsibility of each user to comply therewith.

10.1.1 GENERAL GUIDELINES

(1) POST THESE SAFE PRACTICES in a conspicuous place. Be sure that all persons who erect, use, relocate or dismantle adjustable suspended scaffold systems are fully aware of them. Use them in tool box safety meetings.

(2) FOLLOW ALL EQUIPMENT MANUFACTURER'S RECOMMENDATIONS as well as all local, provincial, state and federal codes, ordinances and regulations relating to adjustable suspended scaffold systems.

(3) SURVEY THE JOB SITE. A competent person shall survey the job site for hazards such as exposed electrical wires, obstructions and unguarded roof edges or openings.

(4) INSPECT ALL EQUIPMENT BEFORE EACH USE. Never use any equipment that is damaged or defective in any way. Mark it or tag it as damaged or defective and remove it from the jobsite.

(5) ERECT AND DISMANTLE ADJUSTABLE SUSPENDED SCAFFOLD EQUIPMENT in accordance with the design and/or manufacturer's recommendations.

(6) DO NOT ERECT, DISMANTLE OR ALTER ADJUSTABLE SUSPENDED SCAFFOLD SYSTEMS except under the supervision of a competent person.

(7) DO NOT ABUSE OR MISUSE ADJUSTABLE SUSPENDED SCAFFOLD EQUIPMENT. Never overload any equipment.

(8) ERECTED ADJUSTABLE SUSPENDED SCAFFOLDS ARE TO BE INSPECTED REGULARLY by the user to be sure that they are maintained in a safe condition. Stop work and report any unsafe condition to your supervisor.

(9) NEVER TAKE CHANCES! IF IN DOUBT REGARDING THE SAFETY OR USE OF ADJUSTABLE SUSPENDED SCAFFOLDS, CONSULT A QUALIFIED PERSON.

(10) NEVER USE ADJUSTABLE SUSPENDED SCAFFOLD EQUIPMENT FOR PURPOSES FOR WHICH IT WAS NOT INTENDED.

(11) A COMPETENT PERSON SHALL CONSIDER STOPPING WORK WHEN WIND SPEED EXCEEDS 25 MPH FOR TWO-POINT ADJUSTABLE SUSPENDED SCAFFOLDS OR 20 MPH FOR SINGLE-POINT SUSPENSION. If materials on a platform create a sail effect, stopping work at lower wind speeds must be considered.

(12) ADJUSTABLE SUSPENDED SCAFFOLD SYSTEMS are to be installed and used in accordance with the manufacturer's recommended procedures.

(13) ADJUSTABLE SUSPENDED PLATFORMS MUST NEVER BE OPERATED NEAR LIVE POWER LINES unless proper precautions are taken. Contact the power service provider for advice.

(14) ALWAYS UTILIZE FALL ARREST EQUIPMENT when working on adjustable suspended scaffolds or when working near unguarded edges.

(15) DO NOT WORK FROM, INSTALL OR MOVE ADJUSTABLE SUSPENDED SCAFFOLDS if you are sick or impaired in any way.

(16) DO NOT WORK ON ADJUSTABLE SUSPENDED SCAFFOLDS when under the influence of alcohol or drugs.

(17) DEBRIS SHOULD NOT BE STORED OR ALLOWED TO ACCUMULATE ON A PLATFORM.

(18) INDEPENDENT ADJUSTABLE SUSPENDED SCAFFOLDS ARE TO BE POSITIONED SO AS TO AVOID OVERLAPPING OR POSSIBLE INTERFERENCE FROM ANOTHER SCAFFOLD.

10.1.2 GUIDELINES FOR ERECTION AND USE OF ADJUSTABLE SUSPENDED SCAFFOLD SYSTEMS

A. RIGGING

(1) UTILIZE FALL PROTECTION EQUIPMENT when rigging near unguarded edges.

(2) SUPPORTING DEVICES must be capable of supporting the hoist rated load with a safety factor of four.

(3) ALL OVERHEAD RIGGING must be secured from unwanted movement in any direction.

(4) COUNTERWEIGHTS USED WITH OUTRIGGER BEAMS must be of a non-flowable material and must be secured to the beam to prevent accidental displacement.

(5) OUTRIGGER BEAMS THAT DO NOT USE COUNTERWEIGHTS must be installed and secured to the roof structure with bolts or other direct connections. Direct connections shall be evaluated by a competent person.

(6) TIE BACK ALL TRANSPORTABLE RIGGING DEVICES. Tieback shall be equivalent in strength to the suspension ropes.

(7) INSTALL TIEBACKS AT RIGHT ANGLES TO THE FACE OF THE BUILDING and secure them without slack, to a suitable anchor capable of supporting the hoist rated load with a safety factor of four.

(8) IN THE EVENT THAT 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 to prevent movement or side loading.

B. WIRE ROPE AND HARDWARE:

(1) USE ONLY WIRE ROPE AND ATTACHMENTS specified by the hoisting machine manufacturer.

(2) HANDLE WIRE ROPE WITH CARE. Always use gloves.

(3) COIL AND UNCOIL WIRE ROPE in accordance with manufacturer's instructions in order to avoid kinking or damage.

(4) ASSURE THAT THE WIRE ROPE IS LONG ENOUGH to reach to the lowest possible landing.

(5) CLEAN AND LUBRICATE WIRE ROPE in accordance with the wire rope manufacturer's instructions.

(6) INSPECT WIRE ROPE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DO NOT USE WIRE ROPE THAT IS KINKED, BIRDCAGED, CORRODED, UNDERSIZED, OR DAMAGED IN ANY WAY. Do not expose wire rope to fire, undue heat, corrosive atmosphere, electricity, chemicals or damage.

(7) WIRE ROPES USED WITH TRACTION HOISTS MUST HAVE PREPARED ENDS. Follow hoist manufacturer's recommendations.

(8) USE THIMBLES AT ALL WIRE ROPE SUSPENSION TERMINATIONS.

(9) USE J-BOLT WIRE ROPE CLAMPS OR SWEDGE FITTINGS. DO NOT USE U-BOLT CLAMPS.

(10) TIGHTEN THE J-BOLT WIRE ROPE CLAMPS in accordance with the manufacturer's instructions.

C. POWER SUPPLY FOR MOTORIZED EQUIPMENT:

(1) USE PROPERLY GROUNDED ELECTRICAL POWER CORDS. Protect them with circuit breakers.

(2) USE POWER CORDS AND AIR HOSES OF THE PROPER SIZE THAT ARE LONG ENOUGH for the application.

(3) POWER CORD and AIR HOSE CONNECTIONS MUST BE RESTRAINED to prevent separation.

(4) USE STRAIN RELIEF DEVICES TO ATTACH POWER CORDS AND AIR SUPPLY HOSES TO THE PLATFORM, to prevent them from separation.

(5) PROTECT POWER CORDS AND AIR HOSES FROM SHARP EDGES.

(6) USE GROUND FAULT CIRCUIT INTERRUPTER (GFCI) WITH POWER TOOLS.

D. FALL ARREST EQUIPMENT:

(1) EACH PERSON ON AN ADJUSTABLE SUSPENDED SCAFFOLD must be attached to an independent fall arrest system.

(2) EACH VERTICAL LIFELINE SHALL BE ATTACHED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS to a separate anchorage capable of supporting a minimum of 5000 pounds (2267 kg) or an anchorage designed by a qualified person.

(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 AND EDGES to prevent chafing.

(5) RIG FALL ARREST SYSTEMS to minimize free fall.

(6) INSTALL VERTICAL LIFELINES SO THEY HANG FREELY.

(7) USE LIFELINES that are compatible with the rope grab.

(8) INSTALL ROPE GRAB IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. Rope grab must be properly oriented.

(9) KEEP ROPE GRAB POSITIONED ABOVE YOUR HEAD.

(10) UTILIZE FULL BODY HARNESSES of the proper size and fit.

(11) UTILIZE SHOCK ABSORBING LANYARD attached to the D-ring at the center of your back between the shoulder blades.

(12) INSPECT FALL PROTECTION ANCHORAGE/EQUIPMENT BEFORE EACH USE. Consult the fall protection supplier for inspection procedures.

(13) WHEN A SECONDARY WIRE ROPE SYSTEM IS USED instead of a vertical lifeline, attach the lanyard to a horizontal lifeline or an approved platform anchor.

E. DURING USE:

(1) USE ALL EQUIPMENT AND ALL DEVICES in accordance with the manufacturer's instructions.

(2) DO NOT OVERLOAD OR MODIFY EQUIPMENT.

(3) INSPECT ALL EQUIPMENT INCLUDING HOISTS, PLATFORM, AND RIGGING before each use.

(4) INSPECT WIRE ROPE BEFORE AND DURING USE.

(5) USE CARE TO PREVENT DAMAGE TO EQUIPMENT.

(6) CLEAN AND SERVICE EQUIPMENT REGULARLY. Follow manufacturers' recommendations.

(7) ALWAYS MAINTAIN AT LEAST (4) FOUR WRAPS OF WIRE ROPE ON DRUM TYPE HOISTS.

(8) DO NOT CONNECT PLATFORMS unless the installation was designed for that purpose.

(9) DO NOT MOVE ADJUSTABLE SUSPENDED SCAFFOLDS HORIZONTALLY unless safe work practices are followed.

(10) WHEN RIGGING FOR ANOTHER DROP assure sufficient wire rope is available before moving the suspended platform horizontally to the next location.

F. WELDING FROM SUSPENDED SCAFFOLDS REQUIRES SPECIAL TRAINING:

(1) ASSURE PLATFORM IS GROUNDED TO THE STRUCTURE using a grounding conductor.

(2) INSULATE WIRE ROPE ABOVE AND BELOW THE PLATFORM.

(3) INSULATE WIRE ROPE AT SUSPENSION POINT AND ASSURE WIRE ROPE DOES NOT CONTACT THE STRUCTURE ALONG ITS ENTIRE LENGTH.

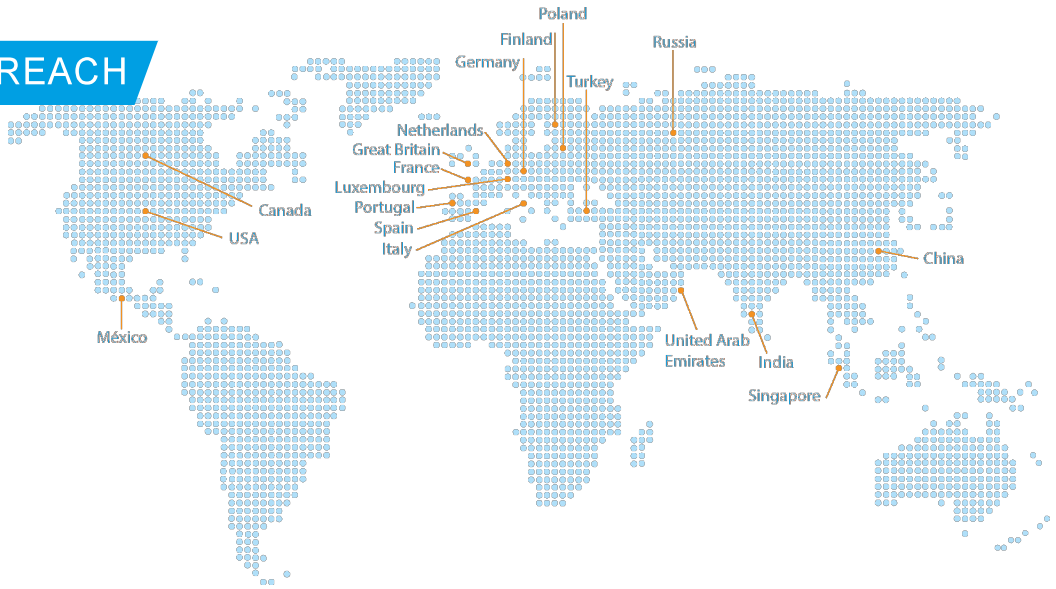
(4) PREVENT THE WIRE ROPE END FROM BECOMING GROUNDED.

(5) INSULATE EACH HOIST WITH A PROTECTIVE COVER.

(6) INSULATE TIE BACK WIRE ROPES AT THE CONNECTION POINTS.

Since field conditions vary and are beyond the control of the SSFI and the SAIA, safe and proper use of scaffolding is the sole responsibility of the user.

GLOBAL REACH



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