

TU AUTO TENSIONER

Operating Instructions

Doc.no AD00002 Eng

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ExTe

Securing cargo. We invented the Concept.

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IMPORTANT INFORMATION

Before you start using your ExTe product, it is important that you read and understand the content of these operating instructions, especially the sections that describe Safety.

The operating instructions are primarily intended to teach you about the product's functions and properties and how to best use them. They also contain important safety and maintenance information and describe any problems that may occur during use. Keep the operating instructions with the product, as important information regarding use, safety and maintenance may be required. It is also possible to obtain information about our products through our website on the internet. You can find us at www.exte.se.

All information, all images, illustrations and specifications are based on the product information that was available at the time of publication of these operating instructions. Images and illustrations found in the operating instructions are type examples and are not intended to be exact depictions of different parts of the product.

ExTe reserves the right to make changes in design without prior notice. We cannot be held responsible for misprints and changes.

Technical support

If you need support or service, please contact in the first place the ExTe dealer in your area. You can also contact ExTe's technical support at Tel +46 (0)651-175 30 or email support@exte.se
More information at www.exte.se/support


Spare parts

Only original ExTe spare parts should be used. The use of other parts could invalidate the product guarantee.

Scrapping

TU is manufactured from recyclable materials or materials that can be reused. Specialist companies handle worn out products, dismantle them and recycle materials that can be reused.

Modification

 **Warning!**
Modification is not permitted. If the equipment has been modified, the product guarantee will be void. Risk of injury!

Warranty

TU is supplied with a 1 year warranty or according to the actual agreement. The warranty covers functional faults, faulty material and manufacturing faults that may arise during the guarantee period during normal use.

The warranty does not cover:

- Normal wear.
- Faults caused by insufficient maintenance.
- Faults caused by improper or negligent operation.

Repairs under warranty shall be carried out by ExTe Fabriks AB or by ExTe Fabriks AB's contracted partner.

Please refer to our website www.exte.se for more information.

Accessories

TU has a number of accessories which make it adaptable to most needs. Accessories are constantly being developed; please see the current product catalogue.

Contact information

ExTe Fabriks AB
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Box 18
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Tel: +46 (0)651-175 00

sales@exte.se

support@exte.se

SAFETY RULES

It is important to read and follow the instructions and safety precautions contained in these operating instructions before using the product. Improper use may cause damage to persons, the product and other property. To reduce these risks, please read these operating instructions and the warning texts carefully. ExTe is not responsible for any damage to persons or property that may occur due to the user or another person not following the recommendations, warnings and instructions contained in these operating instructions. ExTe is not responsible for any accidents or injuries resulting from a lack of good judgement by anyone.

Selection of accessories

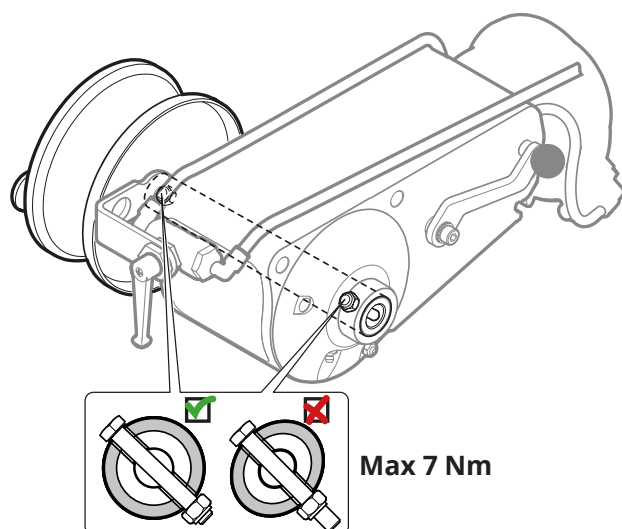
There is a wide range of accessories for TU

⚠ Choosing the right accessories is based on the conditions that apply to each application. Choosing the correct bracket, drum, strap, chain and other accessories should be done in consultation with your ExTe dealer.

Installation

⚠ The disengaging lever and drum should be fitted on opposite sides of the tensioner. This is to avoid a loose strap being caught in the lever, which can lead to unintended disengagement during operation.

⚠ The screws that hold the drum should be tightened gently. If the screws are too tight, the shaft may become oval and the tensioner will operate sluggishly.



Operation

⚠ Always wear gloves, a helmet and eye protection when handling the TU.



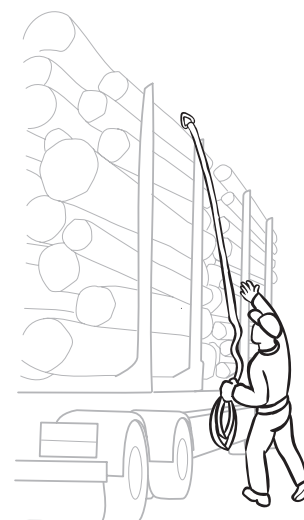
⚠ Be careful not to get your hands, fingers or clothing between the band/cable/chain and load when operating the air valve.

⚠ Ensure that no tools have been left on the tensioner when disengaging or operating the air valve.

⚠ TU may only be used for the purpose for which it is intended.

⚠ Never release the strap without first cutting the air supply as this can cause major damage to the TU.

⚠ When throwing or lifting a strap or chain sling, take care in case the sling misses and comes back. Ensure that only the person performing the lift/throw is within range of the strap.



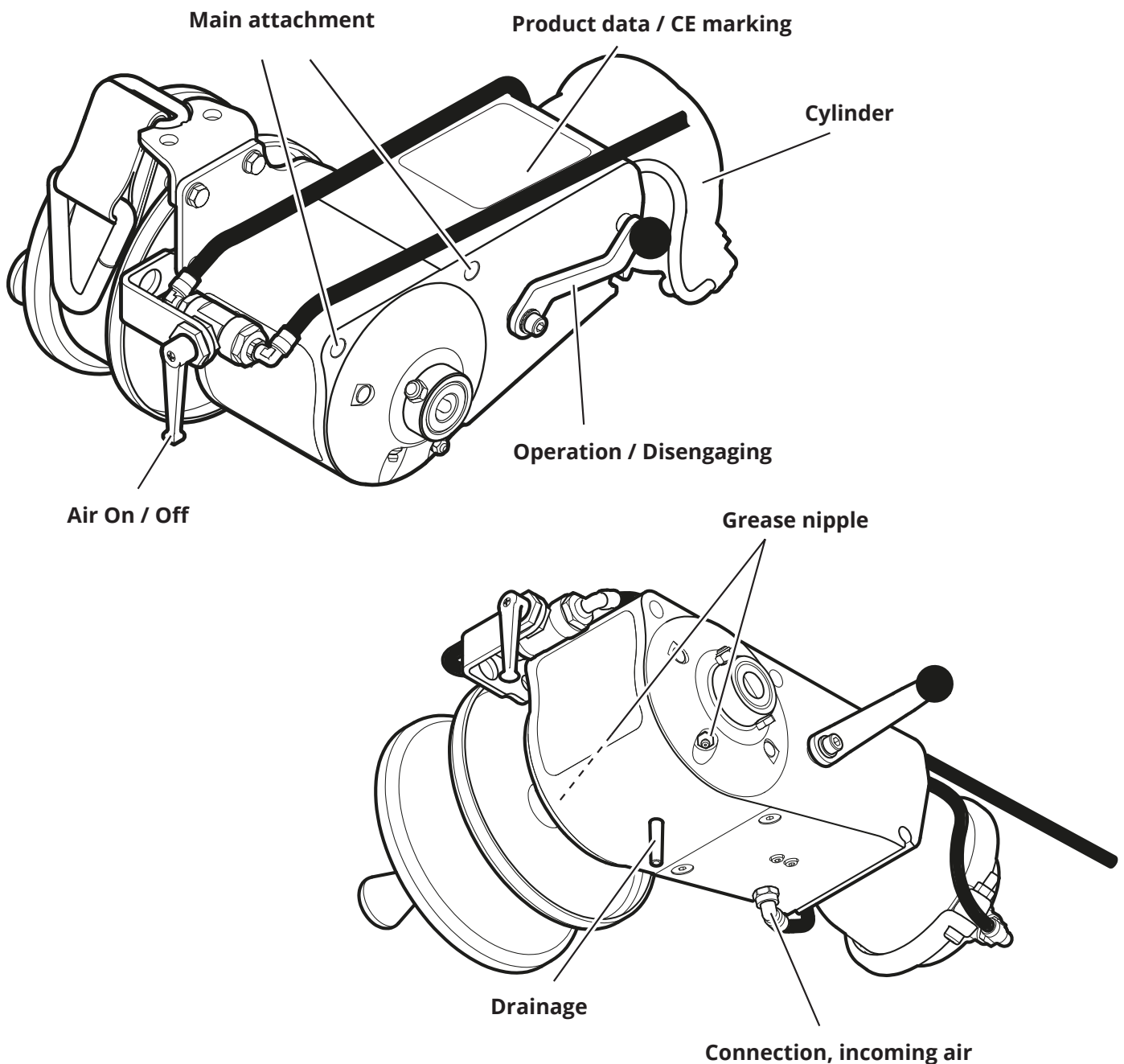
DESIGN AND FUNCTION

General

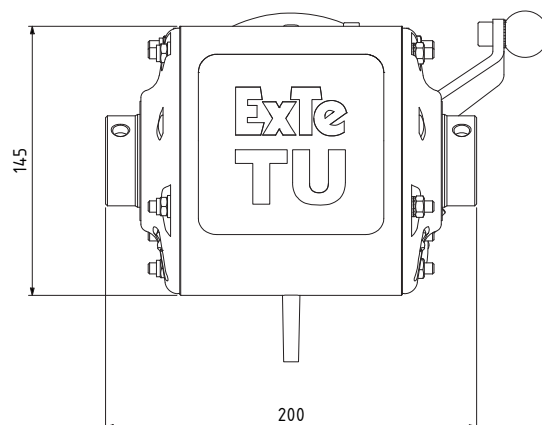
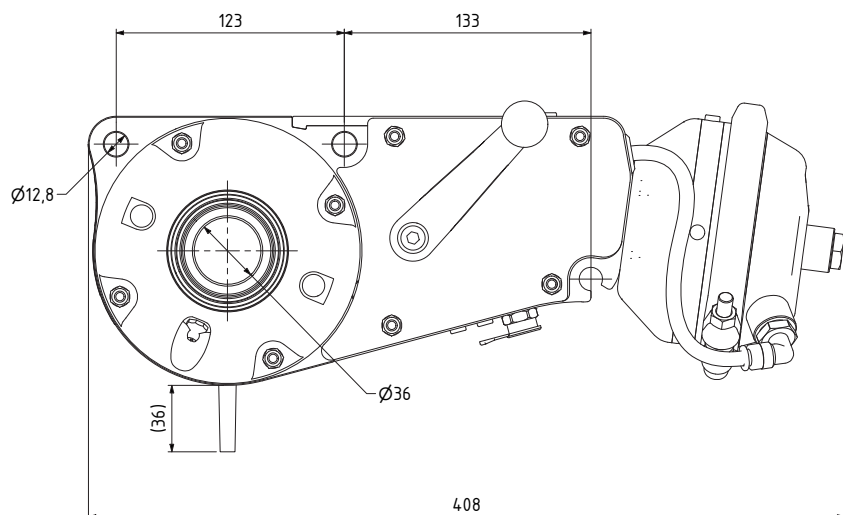
TU has been developed to secure cargo in different types of heavy goods transport, whether it is timber or other freight that is transported. The tensioner is driven by compressed air but can be operated manually if needed. Disengaging is done manually or in combination with TU remote control, which is available as an accessory. With remote control, disengaging is done with the push of a button on a remote control, which is especially suitable if the tensioner is difficult to access, under a flatbed/box or similar. TU continues to tension automatically and has unlimited tensioning length.

A chassis made of anodised aluminium and stainless steel plates is designed to withstand outside effects and ensure that the tensioner will maintain its high finish for many years.

TU has been developed for high operating reliability with few moving parts, as well as minimal and easy maintenance. It can be equipped with different drums and other accessories as well as being fitted with a variety of brackets. We have here chosen to show the tensioner with a large drum with room for a 10 metre long, 50 mm wide strap. But the handling of the tensioner and its functions is largely done in the same way regardless of the accessories selected.



Technical data



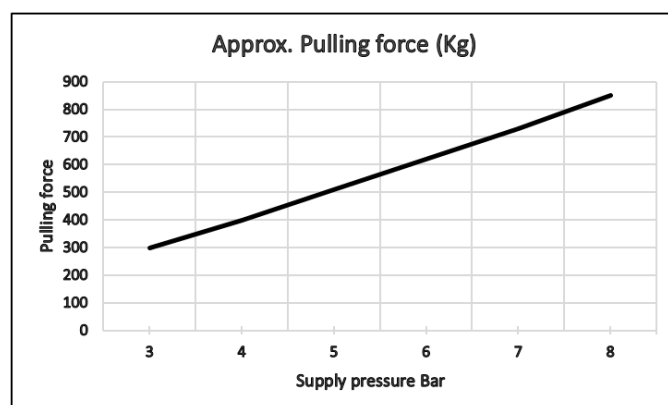
Dimensions and weight

Width 200 mm
 Length 408 mm
 Height 145 mm
 Weight Approx. 11 kg

Recommended working pressure

*Supply 4.5 bar.....approx. 450 kg on lashing

*Maximum 8.0 bar for guaranteed function

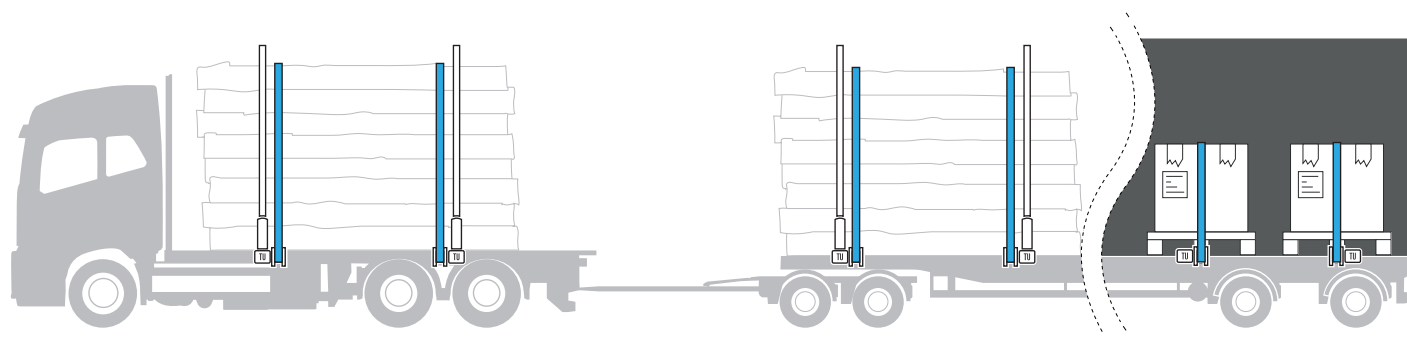


Placing of TU

When driving timber, it is recommended that TU is placed so that the sling ends up on the inside of the timber bunks.

Note

Different mounting brackets allow fixed or sliding adjustment of tensioner positions to suit goods being transported.



OPERATION

⚠ Always wear gloves, a helmet and eye protection when handling the TU.



Lashing of load

1. Close the air supply valve; the air chamber is relieved.
2. Disengage TU.
3. Pull out the sling. Place the sling over the load in an appropriate way.
4. Secure the sling in an appropriate way on the opposite side.

⚠ When throwing or lifting a strap or chain sling, take care in case the sling misses and comes back. Ensure that only the person performing the lift/throw is within range of the strap.

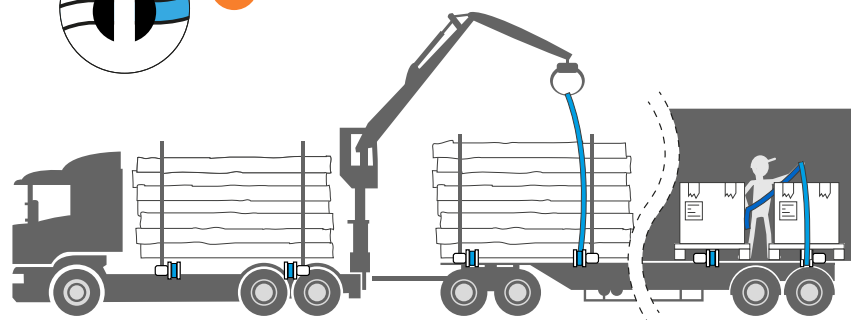
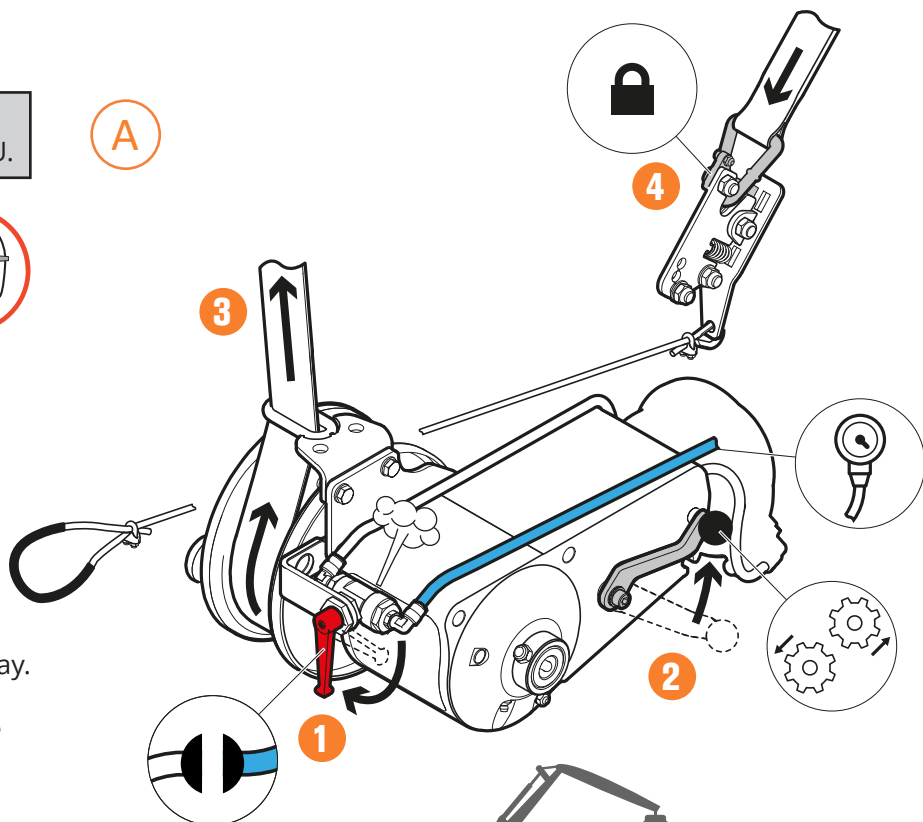
⚠ Be careful not to get your hands, fingers or clothing between the band/cable/chain and load when operating the air valve. Risk of injury.

5. Turn the lever to operating position.
6. Tension the sling manually using the turning handle on the drum.
7. Open the air supply valve.
8. The sling is rolled in and the load is anchored. Secure any loose sling.

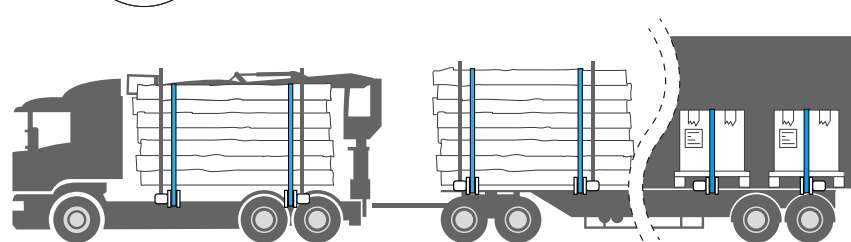
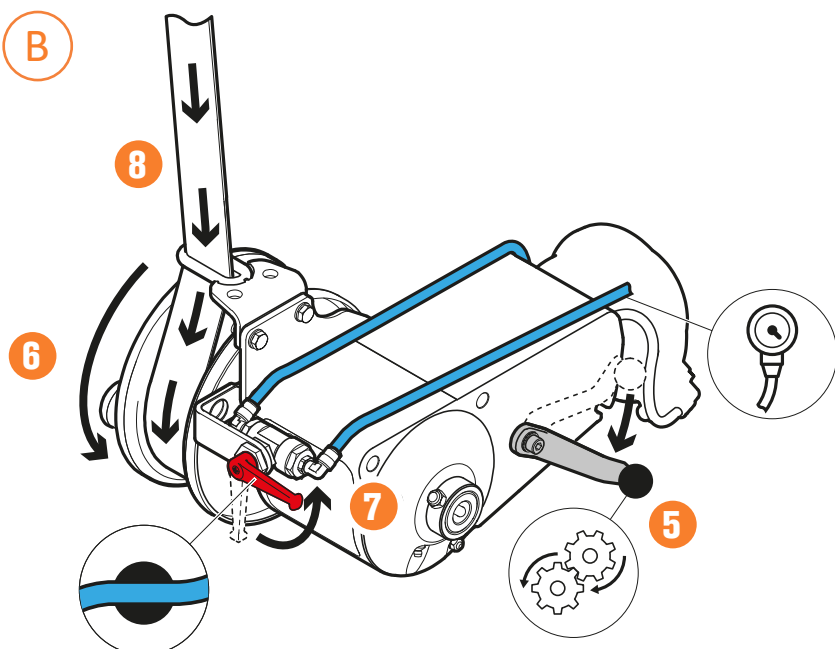
⚠ Ensure that no tools have been left on the tensioner when disengaging or operating the air valve. Risk of injury.

TU automatically continues to tighten the sling during transportation.

A

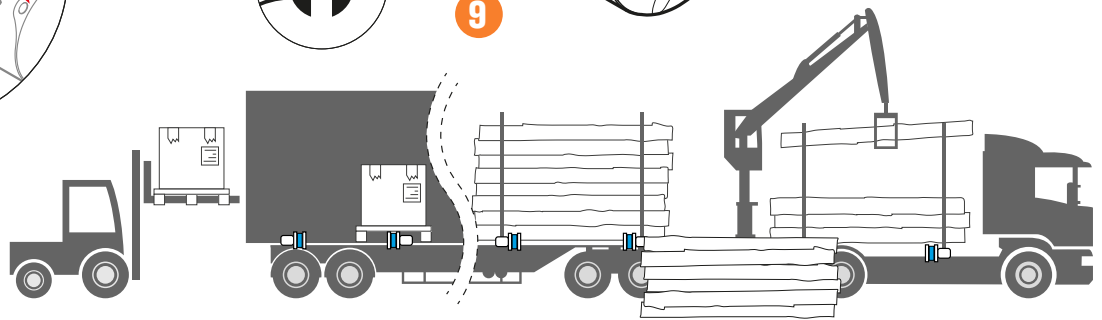


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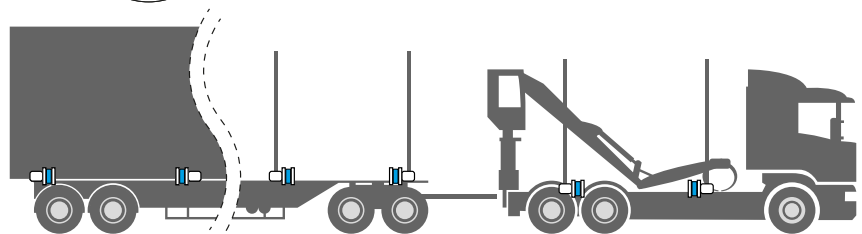
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MAINTENANCE

Regularly check that the product is in good working order and that all safety devices are intact. Any faults discovered must be rectified before the product is used.

TU has been developed for high operating reliability with few moving parts, as well as minimal and easy maintenance. Check regularly:

- that all hoses and couplings are airtight and in good condition. Replace if necessary.
- that straps and chains are in good condition. Replace if necessary.
- that drainage holes are open, to allow any condensation to drain. Clean out if necessary.

⚠ Prevent obstructions by operating the tensioner empty from time to time.

⚠ Keep TU well lubricated during operation.

The (2) grease nipples are located on each side under the drive shaft.

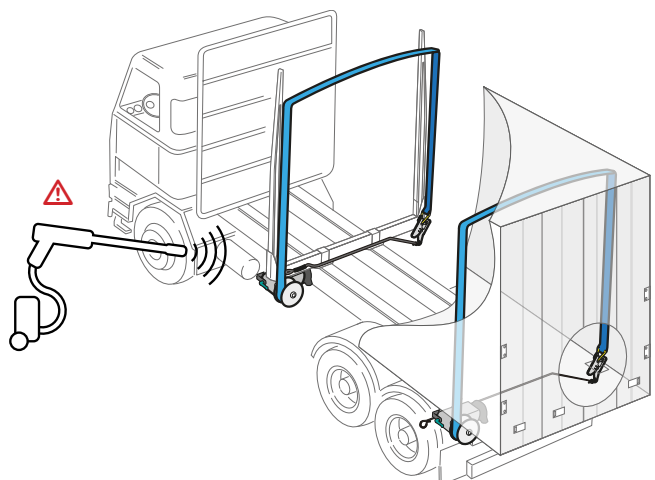
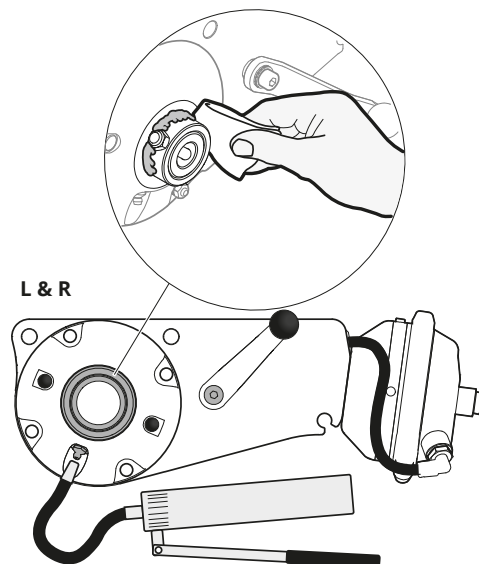
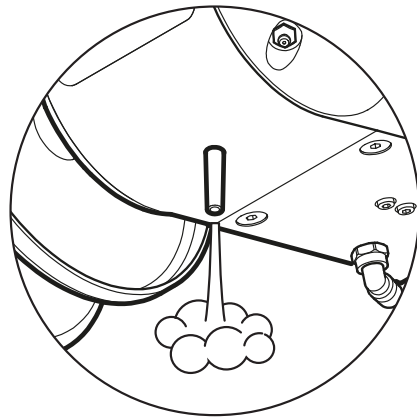
Regular visual inspections are recommended during operation. Spray grease into the nipples until clean grease comes out at the shaft. Wipe off excess grease.

Recommended grease

TU must be lubricated with CARGO ICE ExTe item no. 802149, or grease with equivalent properties.

Synthetic complex grease with EP additives, NLGI 2.
Drop > 150°C Working temperature range minimum
-50° C to +140° C

⚠ When washing, avoid using a high pressure washer directly on TU.



INSTALLATION

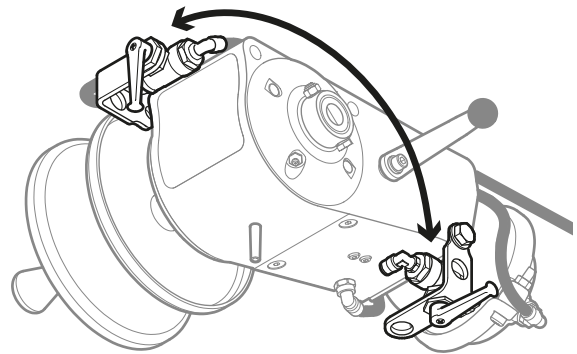
Connecting compressed air

TU has a valve kit. The vehicle's pneumatic system is connected to the valve and is used to shut off the air supply to ExTe TU before the tensioner is put into the disengaging position. The installation and placing of the valve kit can vary and can be adapted to the user's requirements. The main valve kit, item no. 802301 can be used to regulate the air supply to several TU tensioners at the same time.

⚠ Note!

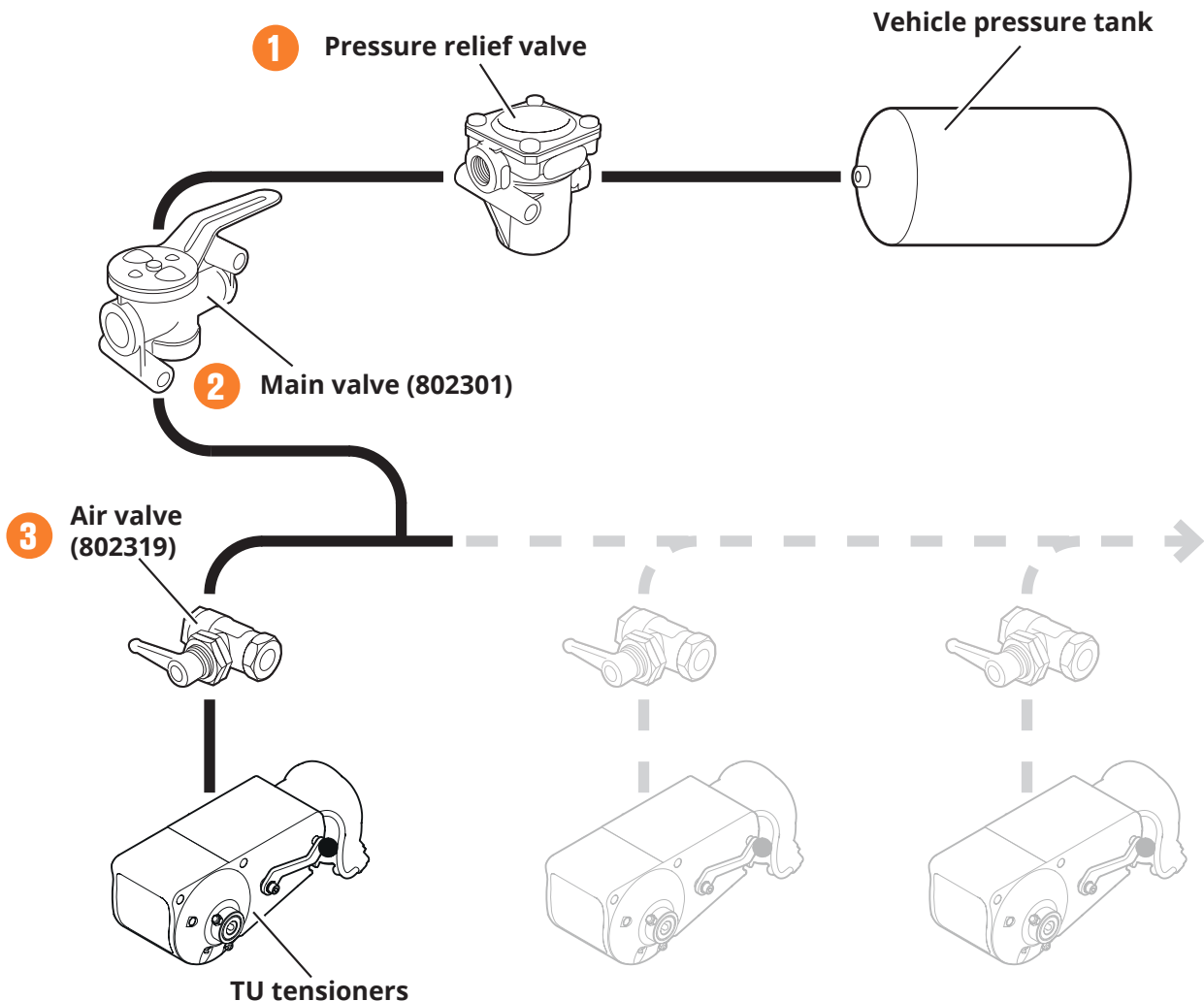
Plan the placing of the valve kit and air hoses carefully to avoid them getting too close to other moving parts, such as the disengaging lever. Secure hoses in an appropriate way. Valves should be easily accessible.

Different placing of the air valve



Airflow diagram

1. A pressure relief valve shall be placed well protected in the frame, before the first tensioner.
2. A main valve shall be used that can shut off the supply line to the tensioners. Can be fitted using a bulkhead opening in the frame.
3. For each TU, a separate air valve shall be fitted to the air line for operation of each tensioner.



Fastening TU

Brackets for installation of TU available for all ExTe's timber bunk series and in various designs depending on function. ExTe original brackets are well tested to withstand the forces and loads required. TU is designed so that the connections can be moved and turned according to your wishes.

For further information about each configuration, contact sales@exte.se

⚠ Always fit TU with original ExTe brackets for secure anchorage.

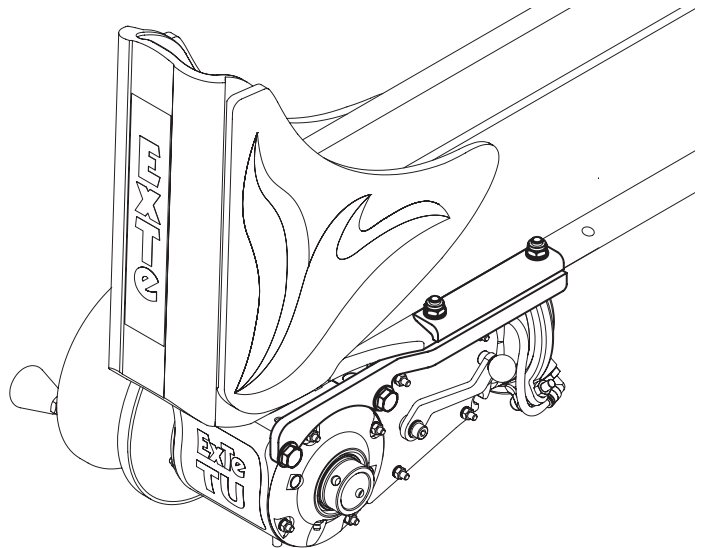
⚠ It is important is to follow the installation instructions for each bracket to ensure safety in operation.

Mounts for bunk fitting

TU is fitted directly onto the bunk frame. The drum holding the strap or the chain is placed alongside the bunk for the best possible securing of the load.

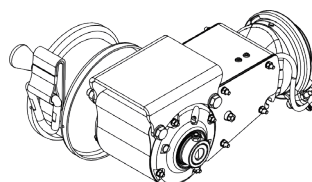
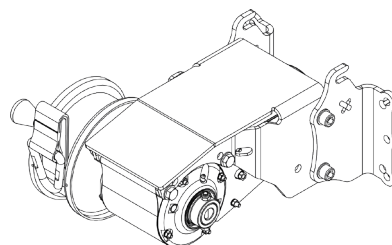
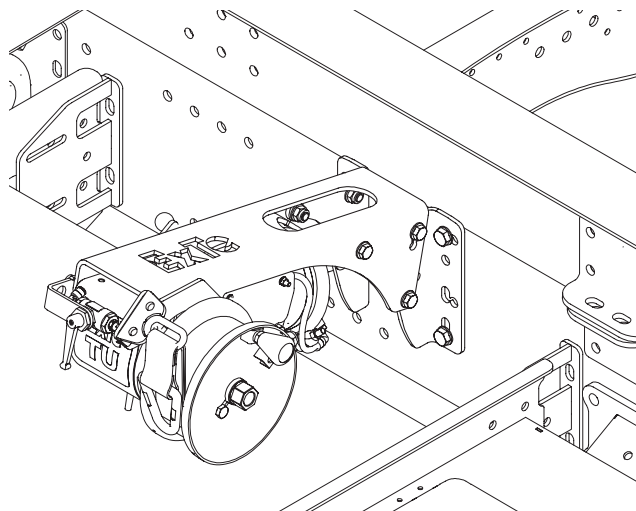
Brackets for bunk mounting are available in different versions depending on the series and the desired function.

Spiral hoses are recommended for the compressed air when mounting on moveable bunks.



Brackets for body mounted winches

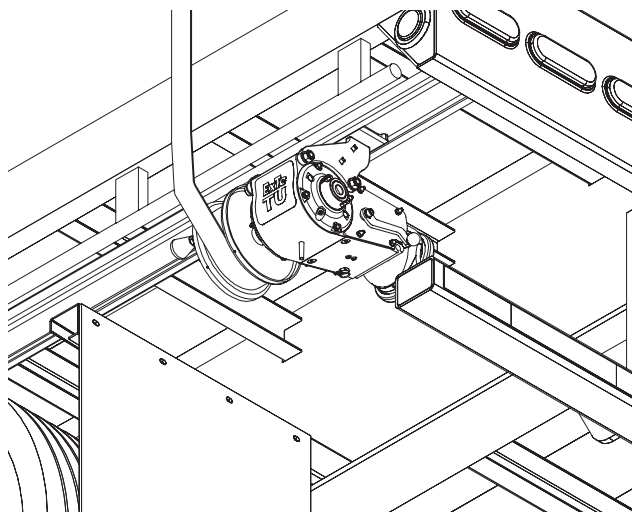
Brackets mounted in the body without flexibility to move.



Brackets for flatbed mounted winches

Bracket for fixed mounting in flatbed body

Sliding bracket for moveable winch in flatbed body



⚠ Make sure that existing or modified structures on the vehicle is engineered for sufficient strength for this form of mounting.

INSTALLATION

Installation of TU and strap guide

Always fit original ExTe brackets for secure anchorage.

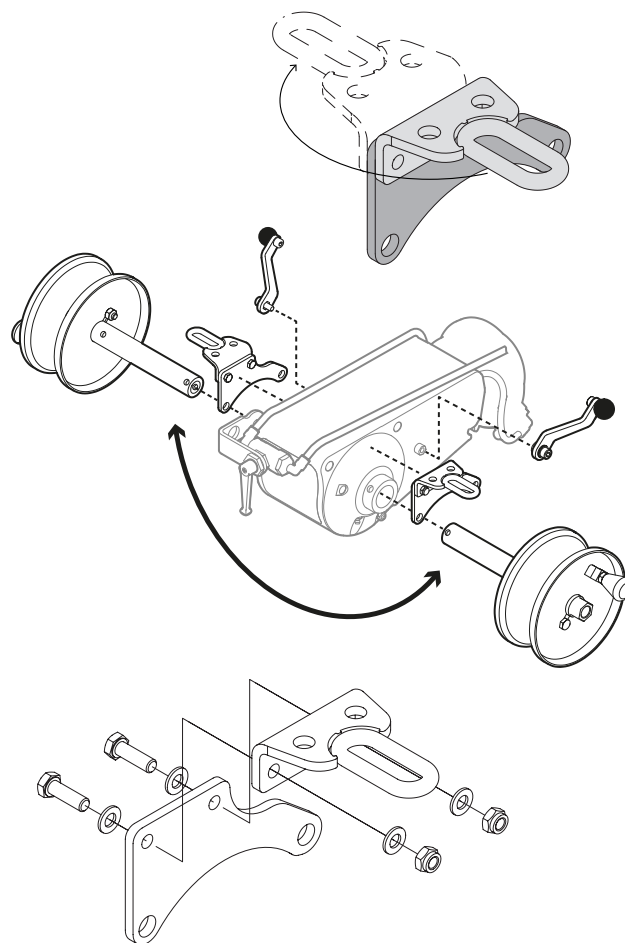
⚠ Follow the installation instructions supplied for each bracket. If there are no instructions available, these can be found at exte.se or contact ExTe.

Installation of any strap guide is done when installing the tensioner.

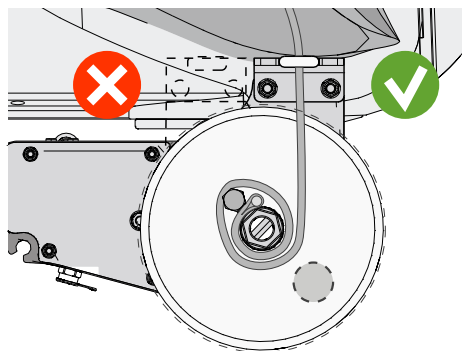
The strap guide bracket is reversible for mounting on the left or right side.

Fit the strap guide on its bracket. Tighten the screws with a torque wrench.

Tightening torque: 25 Nm.

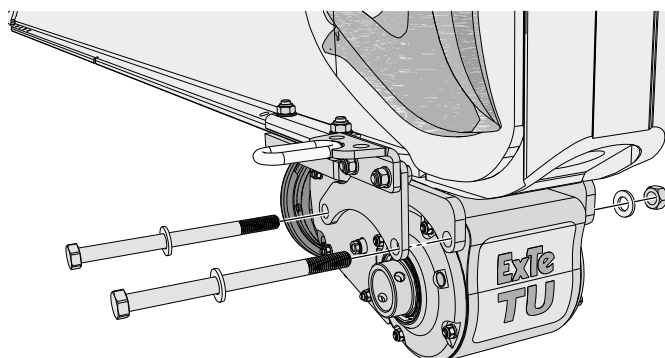


Ensure that the bracket is mounted so that the guide is as close as possible to the outer side of the vehicle.



Fit the strap guide using the screw kit supplied. Tighten the screws with a torque wrench.

Tightening torque: 80 Nm.



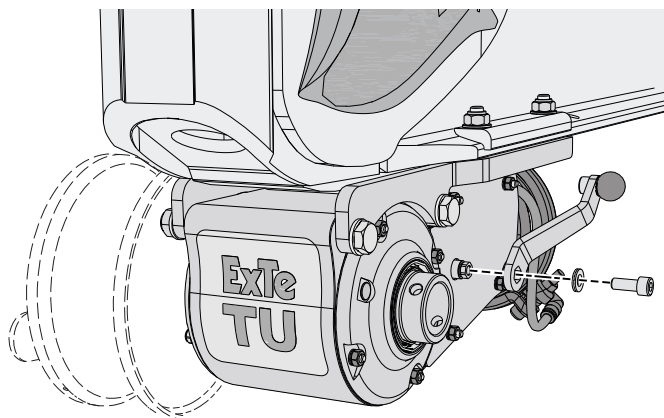
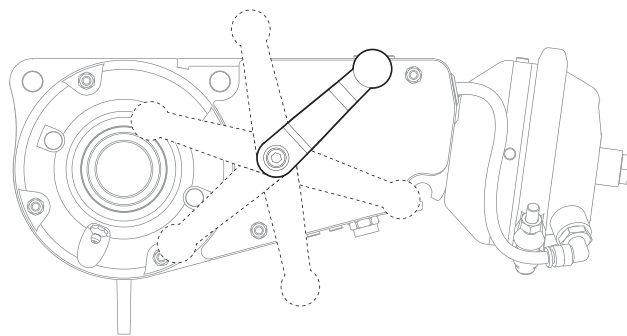
Fitting the disengaging lever.

The disengaging lever can be fitted in six different positions at intervals of 60 degrees to fit existing space. Tighten the screw with a torque wrench.

Tightening torque 25 Nm.

Warning!

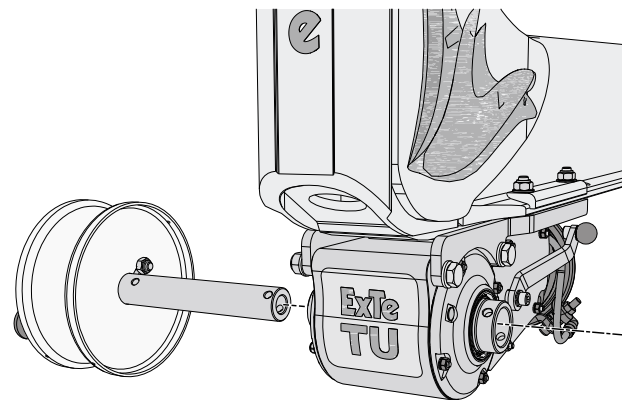
The disengaging lever and drum shall be fitted on opposite sides of the tensioner. This is to avoid a loose strap being caught in the lever, which can lead to unintended disengagement during operation.




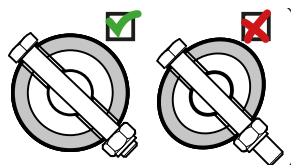
Installation of drum

In this example, a large 50 mm drum is being fitted. Other drums are fitted in a similar way.

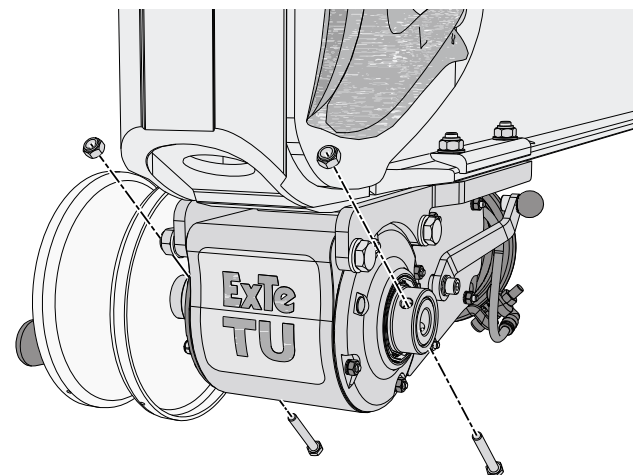
1. Run the drum shaft through the tensioner drive shaft.
2. Secure the drum with the screw kit supplied.
3. Tighten the screws so that there is an extremely small gap in the joint against the shaft.



 The screws that hold the drum should be tightened gently. If the screws are too tight, the shaft may become oval and the tensioner will operate sluggishly.



Max 7 Nm

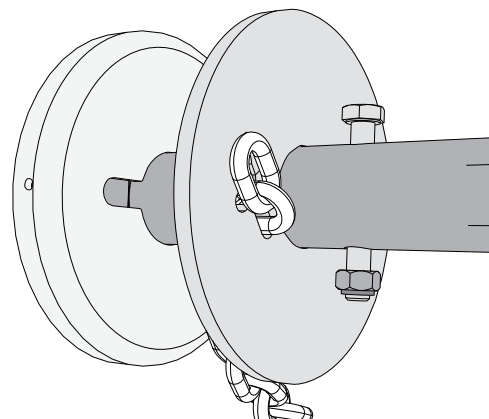
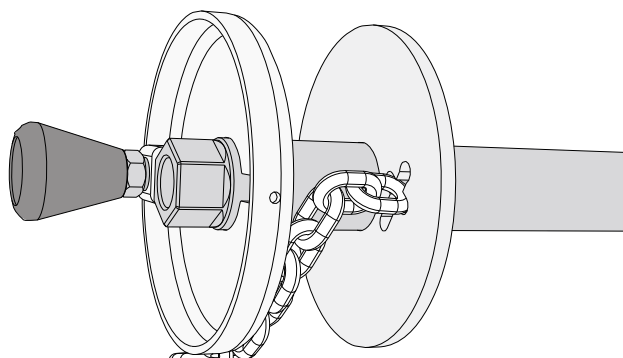


INSTALLATION

Installation of chain

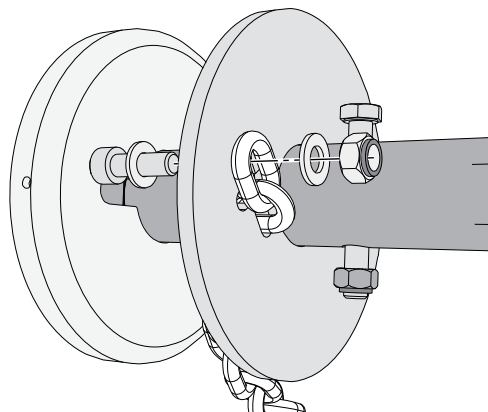
Installation of short-link 6mm chain on drum.

1. Run the chain's two outermost links through the drum's cross-shaped hole.
2. Turn the outermost link so it is flat against the drum, with one round of the link centred over an appropriate corner of the hole.



3. Install with the supplied bolts, washers and nuts through hole and link. Tighten with a torque wrench.

Tightening torque 25 Nm.



Installation of strap

In this example, a 50 mm strap is being fitted on a large drum. Fitting of other straps is done in a similar way.

1. Insert the strap between the shaft and the stop bolt. If the stop bolt is loose, tighten it with a torque wrench.

Tightening torque 50 Nm.

2. Place the locking pin in the strap loop.

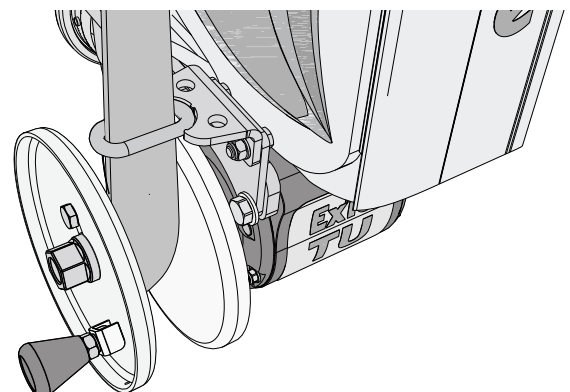
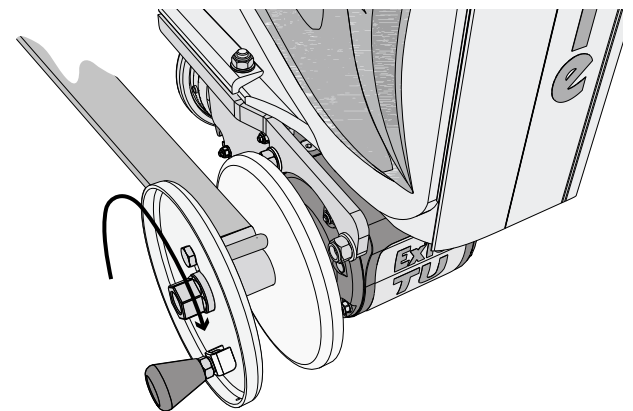
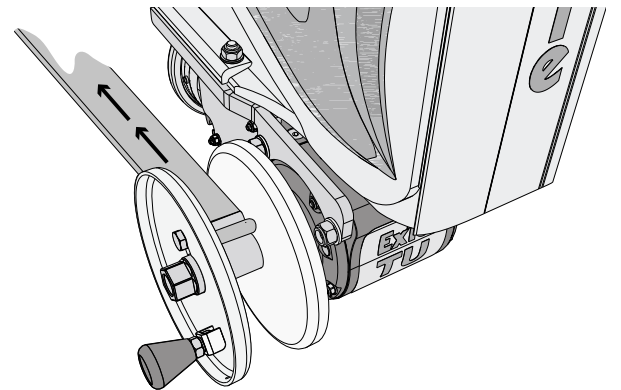
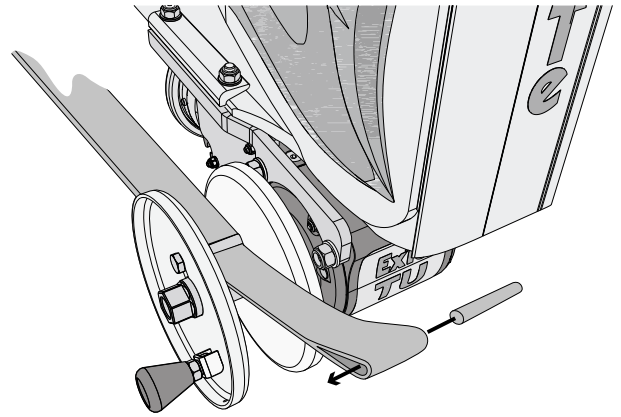
Note!

If the tensioner is equipped with strap guide, start by pulling the strap through this.

3. Pull the strap back until it stops the against the locking bolt.

4. Manually roll up all the strap on the drum using the turning handle on the drum.

5. Secure the loose end of the strap in the strap guide or, if there isn't one, in the vehicle's existing devices.

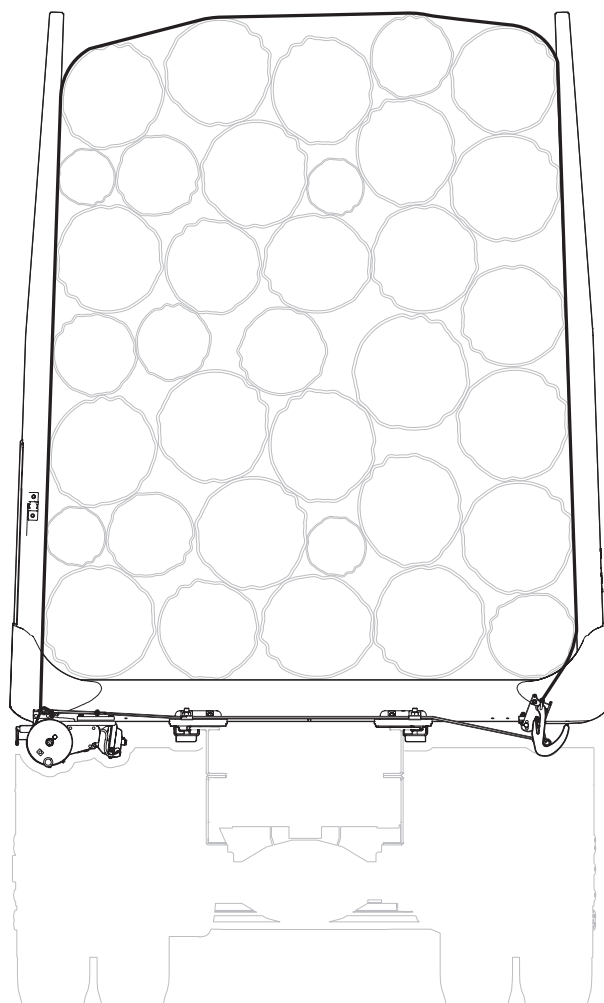
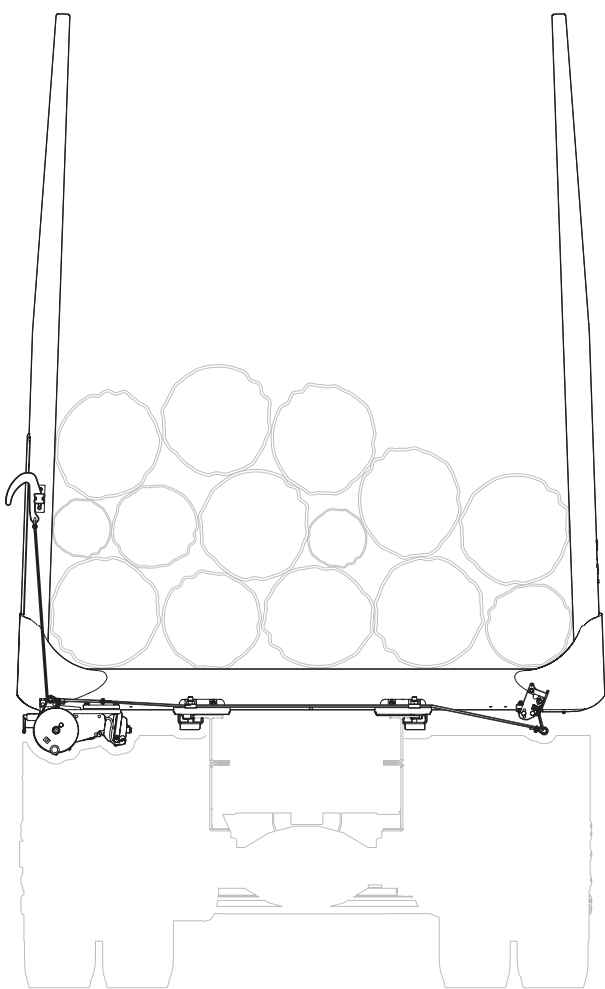
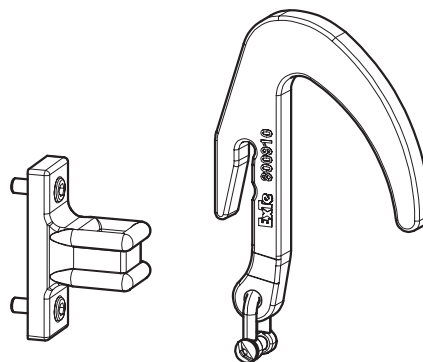


ANCHORING THE LASHING

Long-life hook and holder

The long-life hook is mounted on the stanchion. Using the crane grapple, the long-life hook is captured and the sling is easily lifted over the load for anchoring.

⚠ When throwing or lifting a strap or chain sling, take care in case the sling misses and comes back. Ensure that only the person performing the lift/throw is within range of the strap.



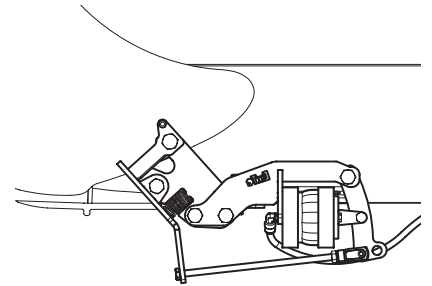
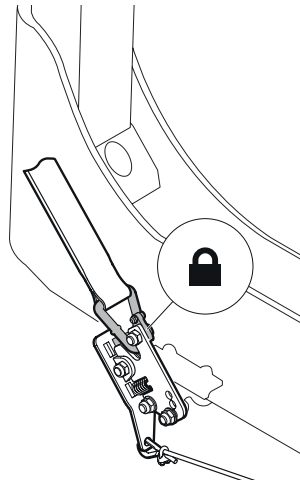
Anchoring the lashing

The sling is anchored most easily with ExTe quick-releases. These are available with both manual and automatic air-controlled function. With ExTe releases, the sling is released from the same side as TU, making the work easy.

TU automatically continues to tighten the sling during transportation.

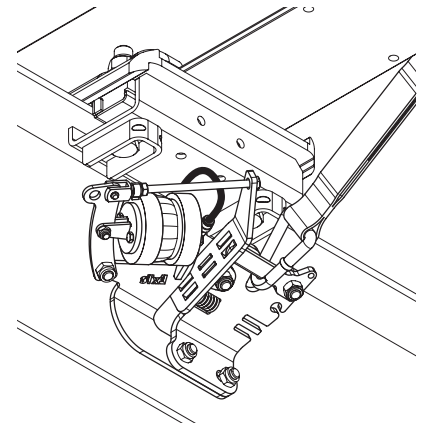
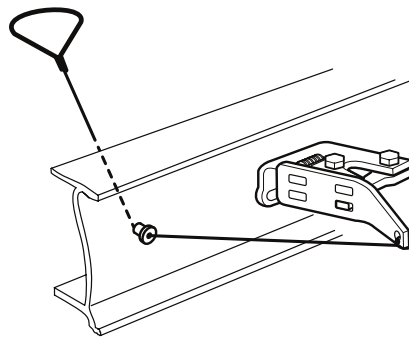
Bunk-mounted quick-release

Mounted in bracket for each bunk series. Manual disengagement with steel cable running along the side of the frame or automatic disengagement with compressed air.



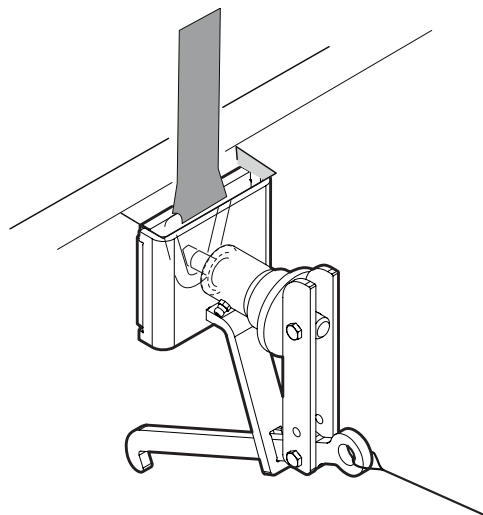
Frame-mounted quick-release

Mounted in the correct bracket in the frame of the vehicle or rig. Manual disengagement with steel cable via a bushing in the frame or automatic disengagement with compressed air.



Flatbed quick-release

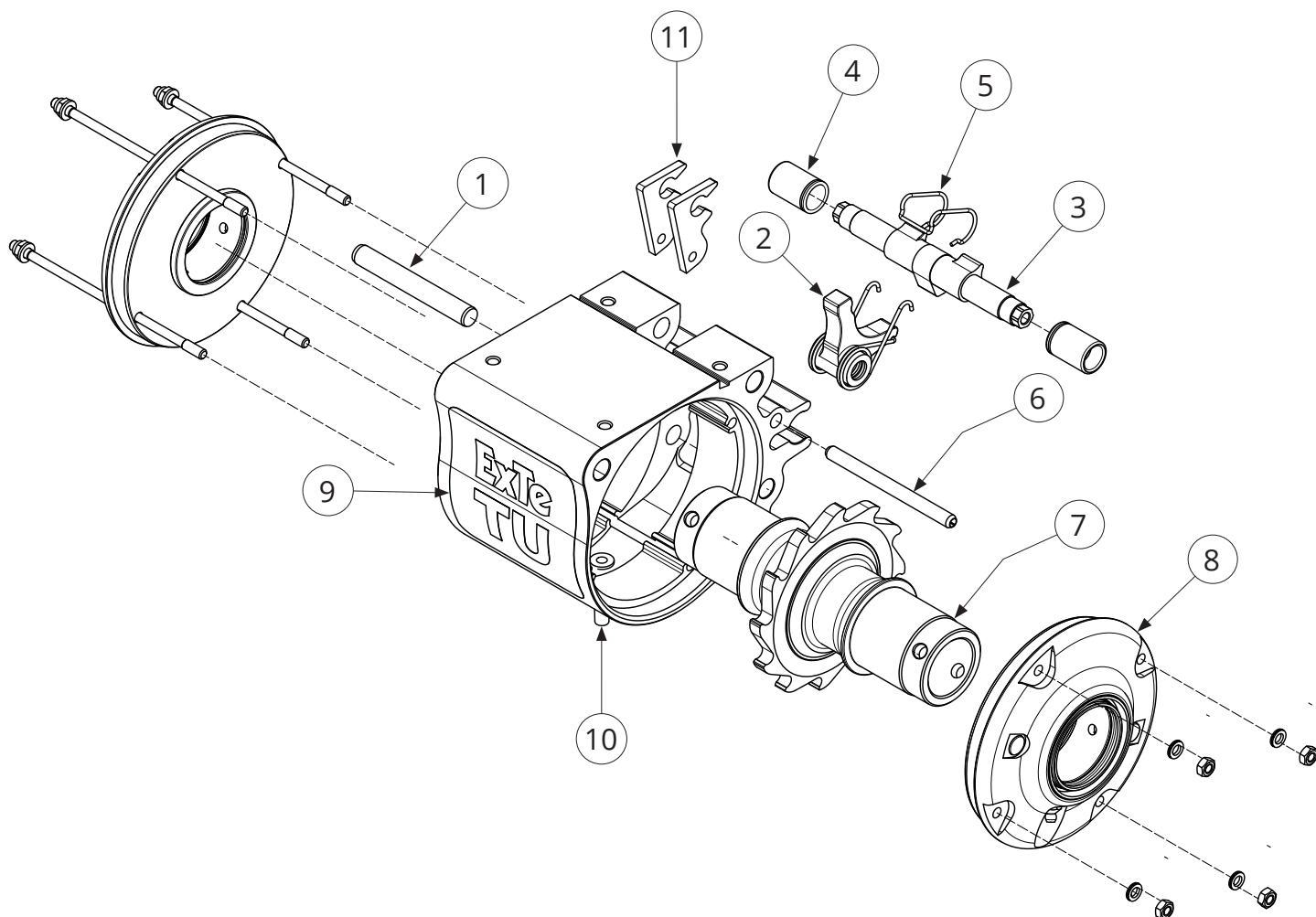
This release is welded into the frame structure of the flatbed. The sling is disengaged manually with a steel cable.



TROUBLESHOOTING

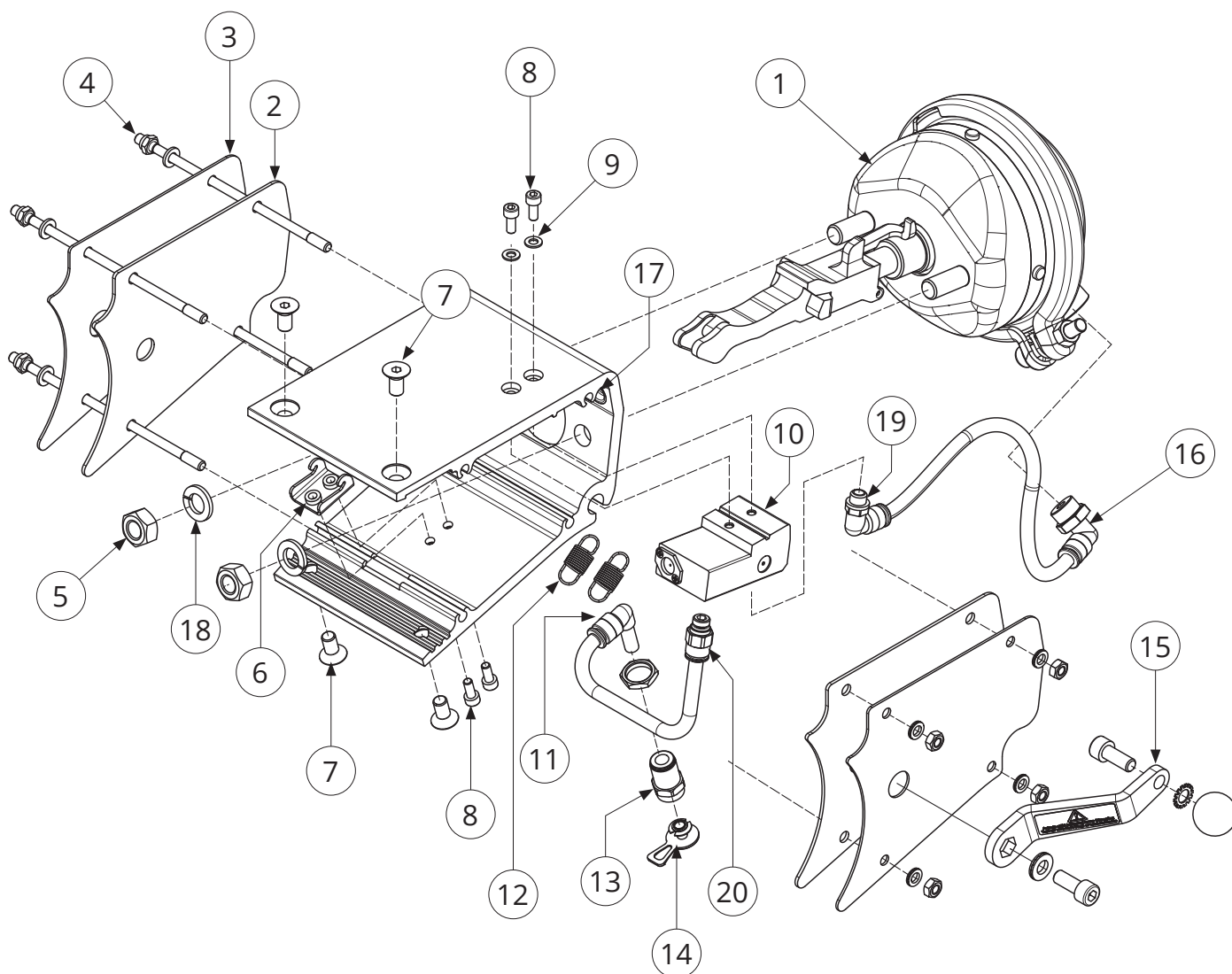
This section contains a troubleshooting guide that describes a number of errors and events that may arise when using your product as well as suggestions for corrective action. You should always contact your ExTe dealer or service contact in case of uncertainty.

Problem	Cause	Solution
Insufficient tensioning of lashing	<ul style="list-style-type: none"> • Low air pressure 	<ul style="list-style-type: none"> • Make sure that the correct pressure is supplied to TU. See “Recommended working pressure” on page 7. Adjust if necessary • Ensure that air hoses and valves are airtight. Fix any leaks
	<ul style="list-style-type: none"> • The tensioner jams 	<ul style="list-style-type: none"> • Ensure that nothing (snow, ice, mud etc.) is preventing the movement of the TU’s shaft • Ensure that drainage holes are not clogged. If this is the case, the inside of the tensioner may need to be checked, which must be done by a trained service technician • TU is not greased; see page. 10 • TU is lubricated with the wrong type of grease; see page 10
The tensioner is sluggish in some situations	<ul style="list-style-type: none"> • Screws of the drum tightened too hard 	<ul style="list-style-type: none"> • Check torque on M8 screws holding drum
Noise in tensioner (when valve shut off)	<ul style="list-style-type: none"> • Compressed air not drained through air valve 	<ul style="list-style-type: none"> • Check the drainage in the air valve
Tensioner jammed/silent (when valve shut off)	<ul style="list-style-type: none"> • Compressed air not drained (via valve) 	<ul style="list-style-type: none"> • Check the drainage in the air valve
Tensioner operating but ratchet does not get a hold or tighten	<ul style="list-style-type: none"> • Tensioner disengaged 	<ul style="list-style-type: none"> • Place disengaging lever in operating position
Tensioner runs slowly	<ul style="list-style-type: none"> • Low air flow to tensioner 	<ul style="list-style-type: none"> • Check the air hoses to the tensioner to make sure no hose is weighted/pressed together
Tensioning of sling too hard	<ul style="list-style-type: none"> • Air pressure too high 	<ul style="list-style-type: none"> • Make sure that the correct pressure is supplied to TU. See “Recommended working pressure” on page 7.
Tensioner sluggish (if bracket moved up)	<ul style="list-style-type: none"> • Bushing in bracket loose/worn 	<ul style="list-style-type: none"> • Replace bushing in bracket



Front housing

Pos	Item number	Name	Qty
1	800270	Locking shaft CPR12H9x090	1
2	802359	Locking mechanism	1
3	802367	Eccentric shaft	1
4	802368	Bushing eccentric shaft	2
5	220051	Spring eccentric shaft	1
6	220007	Fixing pin FRP M8x100 A2	1
7	802373	Driveshaft	1
8	402320	Bearing plate TU	2
9	250190	Decal reflective TU	1
10	220053	Drain	1
11	802349	Guide fork TU	2



Rear housing

Pos	Item number	Name	Qty
1	802376	Cylinder 12"	1
2	802374	Seal	2
3	802375	Cover plate	2
4	802356	Stud bolt set M6	1
5	211832	Nuts M6M M12 FZB	2
6	802358	Bracket tension spring	1
7	211968	Screw MF6S M8x16 A2 10.9	4
8	211240	Screw MC6S A4 M5x12 FZB Drilock 2045	4
9	211957	Washer BRB M5 A4	4
10	818200	Valve compl. TU	1
11	802058	Connector L Swivel 6555 8-8	1
12	240071	Tension spring	2
13	802158	Connector 6593 8-1/8"	1
14	240091	Protective plug 1/8"	1
15	802377	Disengaging lever complete	1
16	802057	Connector L Swivel BPL 08-M16x1.5	1
17	802059	Rubber bushing Ø8 mm	1
18	800156	Spring washer FBB M12 FZB	2
19	802061	Connector L swivel 6522 8-1/8"	1
20	802156	Connector 6512 8-1/8"	1

DECLARATION OF CONFORMITY

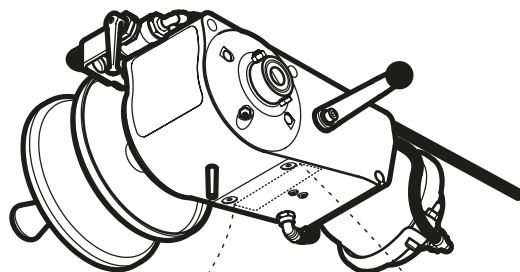
Declaration of incorporation of a partially completed machine, TU Tension Unlimited art. no. 802380 is made in accordance with:

- EN ISO 14121 Safety of machinery – Risk assessment, Principles
- EN ISO 12100-1 Safety of machinery – Basic terminology, methodology
- EN ISO 12100-2 Safety of machinery – Technical Principles

As well as in accordance with the following standards and directives:

- 2006/42/EC, Annex 2 B
- AS/NZS 4380:2001

Label, LC and CE



The CE-mark guarantees that our product TU meets the requirements that apply according to the machine directive of the European parliament and council.

Engraved under the TU



TU

ExTe
Fabriks AB
82762 FARILA
SWEDEN

Part NO: 802380
LC 2000daN EN12195-2
LC 4000kg AS/NZS 4380
SN: (år+ tillv.ord.nr)

LC 2000daN EN12195-2

LC = BF (braking force) x 0,5

For the European market we
guarantee LC >2000 daN

LC 4000kg AS/NZS 4380

LC = BF (braking force) x 0,5

For the Australian market we
guarantee LC >4000 kg



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