

User manual



Steel Climber Mk II

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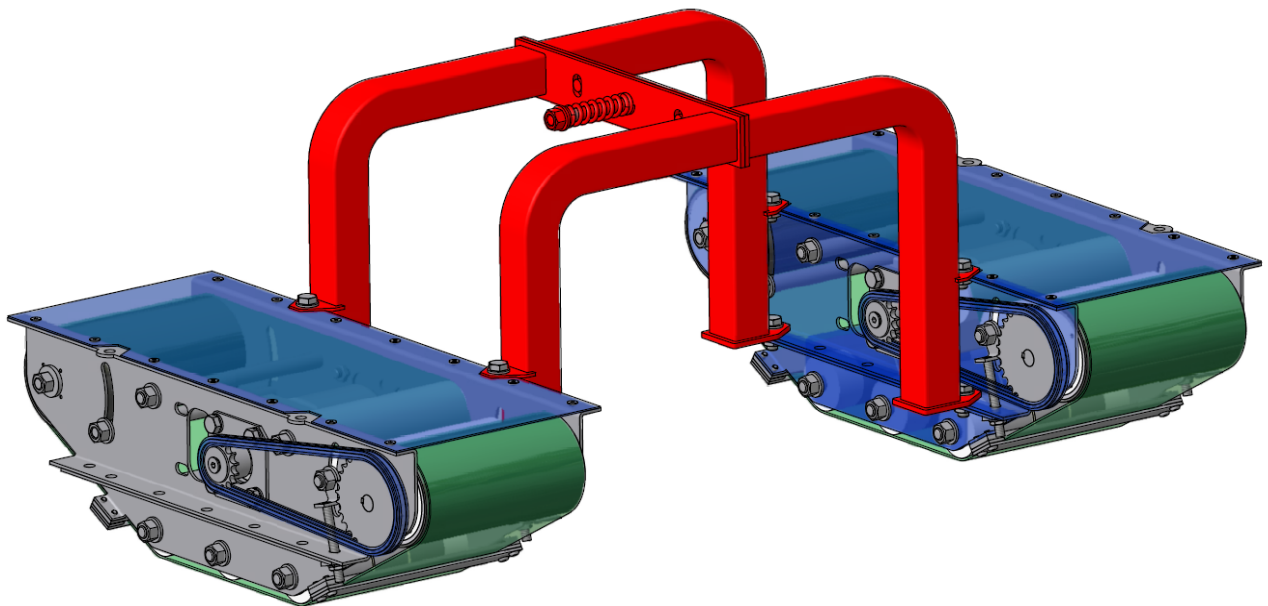
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Introduction

Congratulations on your purchase of the Miko Steel Climber! This user manual is aimed at giving you as a customer the necessary knowledge for making it a useful tool in your inventory and avoiding unnecessary breakdowns.

The Steel Climber consists of two equal belt units connected via a frame made of square tubes. This frame is made so that it to a certain extent will allow the two belt units to move independently. This can be useful for instance on double curvatures.

Inside the belt units three magnetic rollers are made from 3 off Miko MMW-001 magnets each. These rollers keep the Steel Climber connected to the steel plate. This principle is patented and ensures that rust particles or other debris that would otherwise form on the magnetic rollers is transported away from them ensuring the magnetic holding power. The belts are driven by one hydraulic motor each.

The Steel Climber is made to operate both over and under water, and for this reason stainless steel (generally AISI 316) is chosen wherever possible. The Miko MMW-001 magnets are coated, but as any other magnets they are corrosive. The hydraulic motors are also coated but corrosive and preventive maintenance should be in place to prolong their service life.

Components and data

Belts	Fiber belt HAR-12-E Length: 1420 mm Width: 180 mm Thickness: 2 mm (approximate) Note: Thinner belts in stainless steel are available if more holding power is required.
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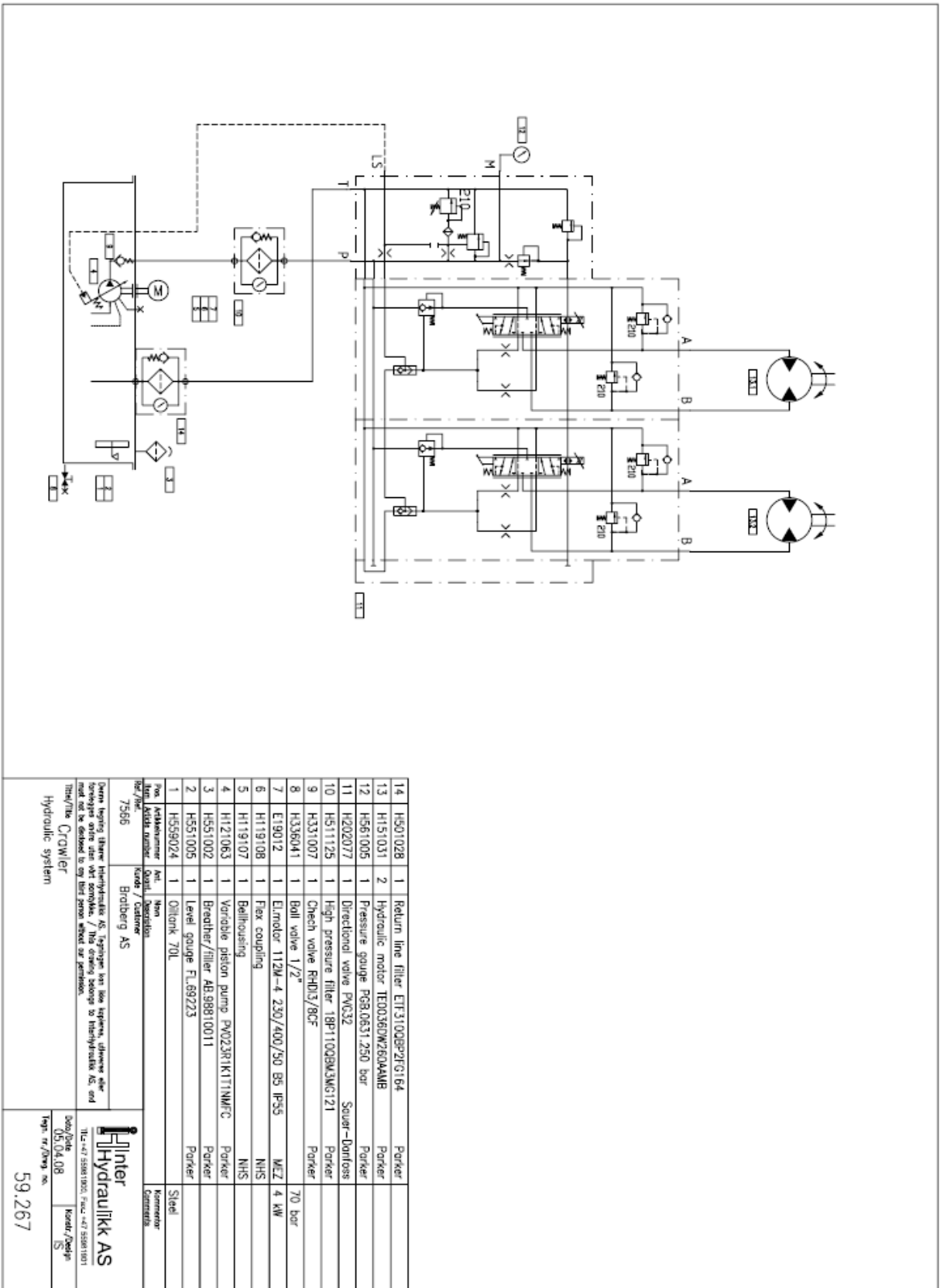
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Hydraulic motors:	Parker TE0036DW260AAMB Note: These motors are NOT stainless steel
Quick connectors:	Tema T2520RV (male) and T2510RV (female), both AISI316
Oil supply hoses:	1/4" - nominal max. flow 8-10 L/min
Drive chain:	3/8" x 30 S - stainless steel
Drive wheels:	1 off 3/8" x 30 S and 1 off 3/8" x 15 S for each belt unit, both wheels in stainless steel
Magnetic rollers:	3 off rollers per belt unit. Each roller is made from 3 off Miko MMW-001 magnets. Note: These magnets are NOT stainless steel
Maximum theoretical holding force:	1000 N perpendicular to the steel plate per belt unit with the supplied belt on clean mild steel of at least 10 mm thickness.
Working pressure oil supply:	140 bar 5 liters per minute
Maximum working pressure	200 bar 25 liters per minute
Total weight of Steel Climber	approximate 66 kg

Hydraulic system

The hydraulic motors supplied require both a high pressure oil-filter and a low-pressure return filter. A diagram of the complete hydraulic system used during Factory Acceptance Tests (FAT) is supplied in this user manual as a reference.

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Getting started

The Steel Climber is shipped in three pieces to minimize volume. Please note that the magnetic holding force is substantial. No watches, credit cards or similar objects that can be harmed by the magnetic field should be worn when assembling or disassembling the Steel Climber and the work should be conducted on a non-magnetic surface. A 3 mm thick aluminum plate is recommended.

Once the Steel Climber is assembled it is important to ensure that the belts are tight enough to prevent them from slipping always ensure that the two belts are equally tight.

The Steel Climber can either be driven from its non-magnetic assembly surface onto its magnetic work surface or it can be lifted by crane or optionally two operators. It is prudent to have a safety line to the Steel Climber in case it accidentally runs onto a non-magnetic surface or an air gap.

Maintenance

The service life of both the magnets and the hydraulic motors will increase many fold if the machine is cleaned in fresh water after each use. The magnets should also be thoroughly inspected at regular intervals to reveal build up of magnetic particles.

The belts should be regularly inspected and changed if there are holes in them or if they show signs of excessive wear and tear.

Disassembling and assembling

The cassette that holds the magnetic rollers can be taken out without dismantling the entire belt unit provided that the belts are removed first.

Belt removal

1. Remove the belt unit in question and remove the hydraulic hoses.

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2. Remove the top plate
3. Loosen the belt tensioner on both sides, loosen the bolt that holds the tensioning roller and pull it out, the roller with its axial tubing should now be free and can be removed.
4. Release the belt guides underneath the belt unit, don't lose the small spacers.
5. The belt is now loose and can be eased off.

For remounting the belt use the reverse procedure. Ensure that the belt is tensioned equally on both sides, measure from the top of the tightening bolt and down to the flange.

Removing the magnetic rollers

Great care should be taken when removing the magnetic rollers to avoid getting fingers or other body parts caught between the magnets. Use wedges or other physical barriers wherever possible to prevent uncontrolled movement of these powerful magnets.

Once the belt has been removed the cassette containing the magnetic rollers can be removed:

1. Remove the bolts keeping the cassette inside the belt unit.
2. The individual steel tubes keeping the magnets and plastic spacers in place can now be slid out. Do this carefully and remove one magnet at the time keeping a good distance between the magnets and any magnetic material.
3. Repeat step 1. and 2. until all magnets are removed..