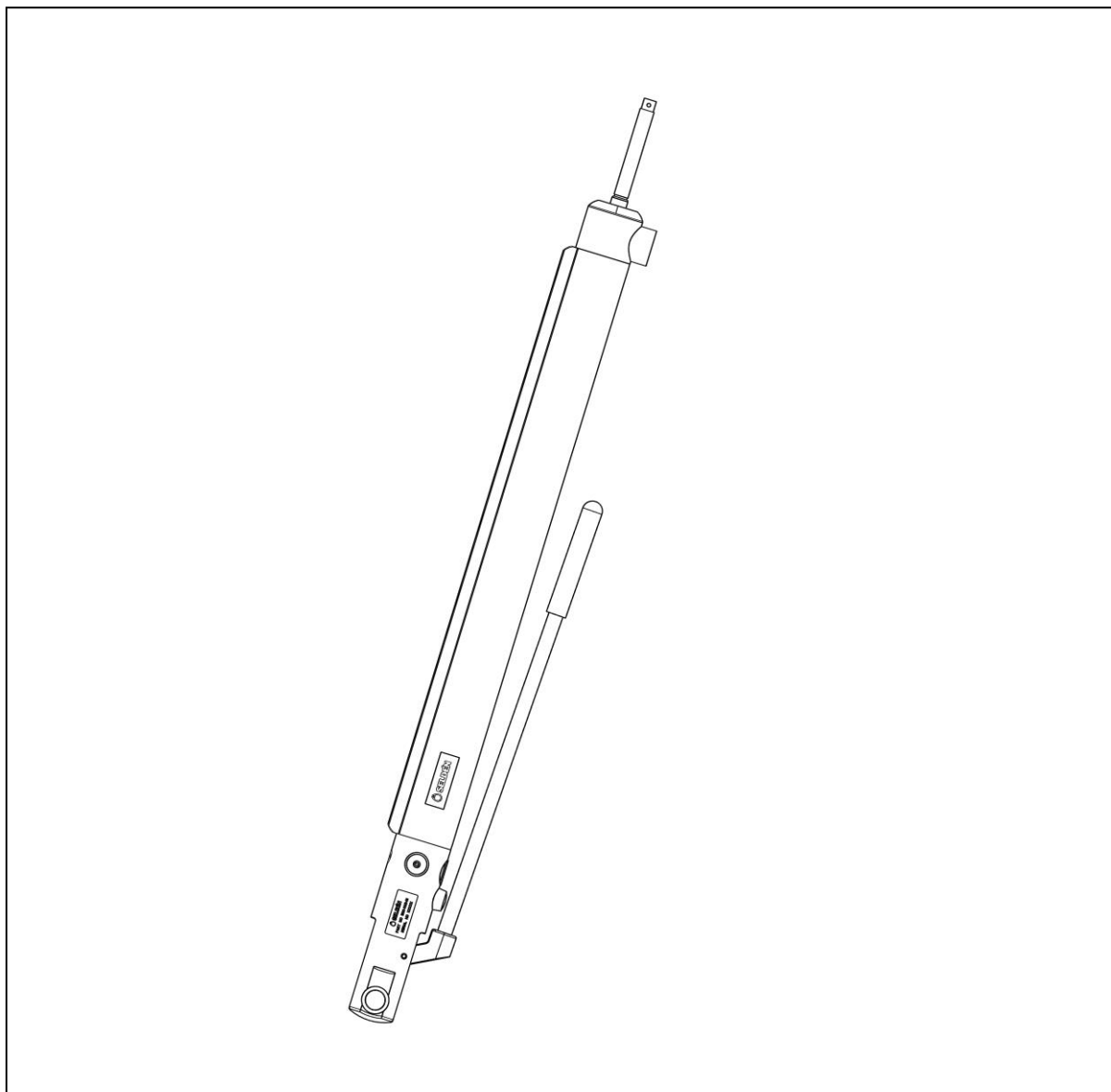


## Hydraulic backstay tensioner with integrated pump



## **General / The manual**

To derive the maximum benefit and enjoyment from your Seldén Hydraulic Backstay Tensioner, we recommend that you study this manual carefully.

Seldén limited warranty applies to this product. For full details please see our general conditions of sale.

The guarantee is only valid if the Tensioner is installed and operated in accordance with this manual.

If the Tensioner is repaired by anyone not authorized by Seldén Mast AB, the guarantee ceases to be valid.

Seldén Mast AB reserves the right to alter the content of the manual and design of the product without prior warning.

For latest update check [www.seldenmast.se](http://www.seldenmast.se) or contact Seldén for your own issue.

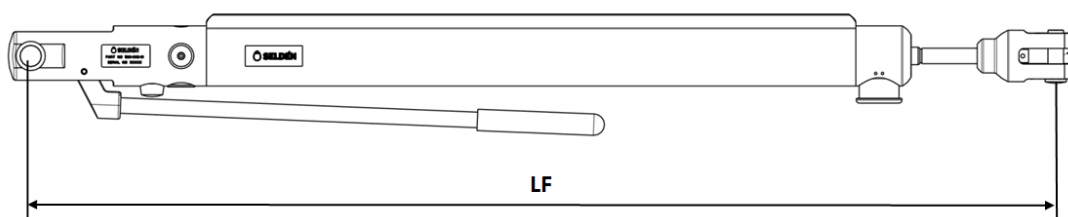
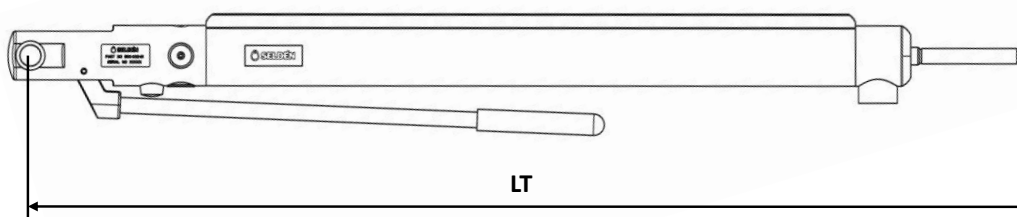
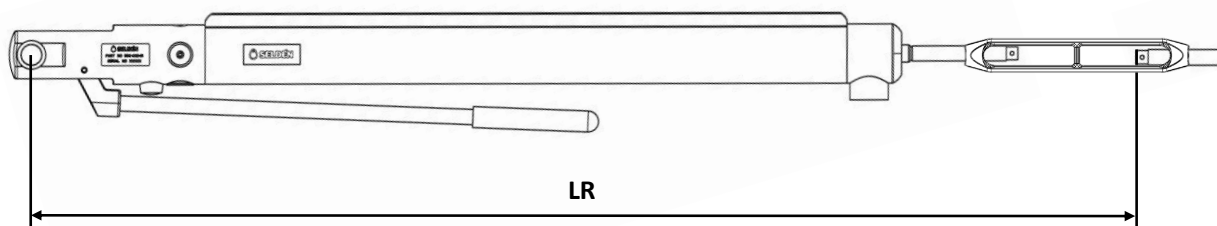
## **Product Description / Information**

The Seldén hydraulic backstay tensioner is intended for tensioning the backstay on sailing boats. The design has a lever which is connected to a hydraulic pump.

The pump pressurizes the hydraulic cylinder so that the rod is pulled into the cylinder.

The capacity of the tensioner is matched to the forces involved in tensioning and operating a 10 mm wire backstay. It is a two-speed design. The level of force where the switch from one speed to the other takes place is adjustable. The maximum level of force applied to the backstay by operating the lever can be adjusted. A pressure gauge shows the internal oil pressure.


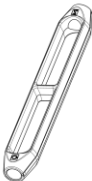

## Technical data



CYLINDER WITH INTEGRATED PUMP	580-002-01 (Black)
Corresponding Wire Dia, max [mm]	10 mm
Safe Working Load (p=345 bar) [kN]	44 kN
Thread on rod end	UNF 5/8"-18 Left Hand
Pin diameter	15,8 mm
Length, LR min (see picture)	1028-1448 mm
Length, LT min (see picture)	1038-1606 mm
Length, LF min (see picture)	1058-1478 mm
Stroke	420 mm
Oil volume [lit]	0.7 lit
Weight incl. hydraulic oil	9 kg
Oil viscosity	ISO VG 46
Oil Quality, standards to be met	DIN 51524 part 3 , HVLP 46
Oil in unit at delivery	Statoil Hydraway HVXA 46
Examples of alternative oils with comparable properties	Castrol Hyspin AWH-M 46, Shell Tellus S2 V 46

Internal oil pressure [bar]	Pulling force in rod [kN]
25	3.2
50	6.4
75	9.6
100	12.7
125	15.9
150	19.1
175	22.3
200	25.5
225	28.7
250	31.9
275	35
300	38.3
325	41.4
345	44.0

## Related Components / Spare Parts

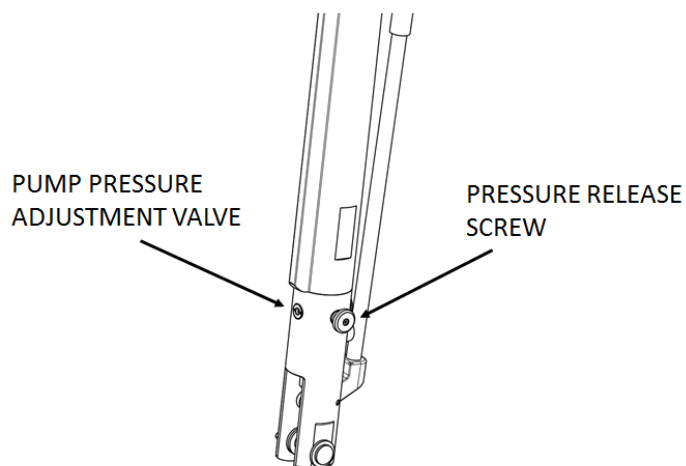
	<p>Stud on backstay 308-429 TERMINAL STUD <math>\varnothing</math>10-5/8(RH)90246</p>
	<p>Rigging screw body, bronze 174-326 BODY RIG.SCREW(Br) 5/8"-230</p>
	<p>Fork assembly Aluminium Anodized Nature/Black 581-400-01 FORK ASSY W8/10, ADJUSTER, NAT 581-401-01 FORK ASSY W8/10, ADJUSTER, BLK</p>

## Fitting Instructions / Installation

The tensioner shall be installed and operated with an angle maximum 45 degrees from vertical. If this angle is exceeded air may be introduced in the valves during operation. (See troubleshooting section)

In order to get the rod to its extended position during installation a halyard can be connected to the rod end. After opening the pressure release screw the rod can now be extended.

## Operation



**Increasing tensioning force in the stay:**

Tighten the pressure release screw by gently turning it clockwise until it reaches its end position. Tightening it too firmly may damage sensitive parts inside the tensioner. Operate the lever back and forth to increase oil pressure, increasing tension in the backstay.

**Lowering tensioning force:**

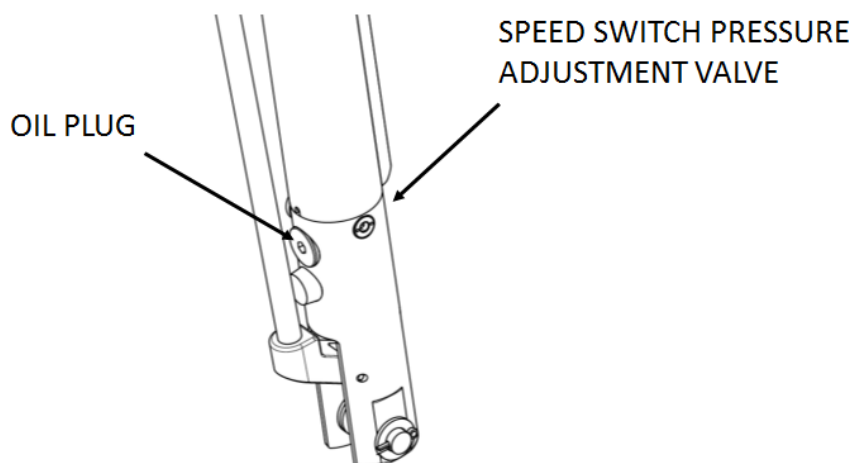
Open the pressure release screw by turning it anti-clockwise. A valve opens, letting oil escape from the pressurized side of the piston.

### Setting max pump pressure:

Max pump pressure is adjusted by turning the valve shown in figure above. Clockwise rotation increases the setting and anti-clockwise rotation decreases it. The valve is set at 345 bar at delivery.

Recommended procedure for adjustment:

- 1) Lower pressure in the adjuster by opening the release valve
- 2) Turn pump pressure adjustment valve gently clockwise using a 4mm hex key, until it is seated against its stop.
- 3) From this position, turn the adjustment screw three revolutions anti-clockwise.
- 4) Pump the lever while checking the pressure build-up on the gauge.
- 5) When pressure stops building up despite pumping action the valve has reached its set pressure level, letting oil past it.
- 6) Adjust the pump pressure adjustment valve until the desired pressure level is achieved. The more it is turned clockwise, the higher the pressure setting.



Pumping speed starts at high speed and as the load level rises when pumping is continued, an adjustable valve will automatically switch to low speed.

### Adjusting high speed / low speed switch pressure:

To increase the pressure level at which the valve switches: Using a 4 mm hex key, gently turn the speed switch pressure adjustment valve clockwise. Avoid tightening it firmly against its end position. Valves inside may otherwise be damaged.

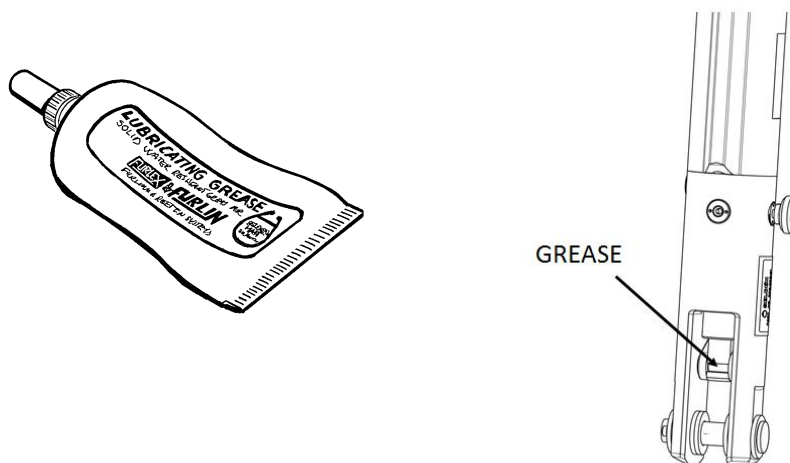
To decrease the pressure level at which the valve switches: turn the valve anti-clockwise. Take care not to unscrew it more than 3 revolutions from its innermost position, otherwise leakage may occur.

## Maintenance

### Cleaning

We recommend rinsing the unit with freshwater at regular intervals. If detergents are used for cleaning it is important to rinse all traces off with fresh water afterwards. Most detergents contain elements that can corrode aluminium. Silicone free wax can be used to protect the surfaces.

### Greasing



The linkage underneath the tensioner should be lubricated with grease annually. Use Seldén grease 312-501 or an equivalent high quality marine grade grease.

### Periodic Servicing

We recommend that you have the unit serviced at intervals of no more than five years in normal use. For boats used in charter operations or circumnavigation etc. the unit should be serviced on a more frequent basis.

### Storage

When stored please see to it that no stainless parts such as for example wire halyards or standing rigging is in contact with the aluminium surfaces, otherwise galvanic corrosion may occur.

See to it that during storage, the tensioner is kept dry and with access to air circulating around it. Do not wrap it in plastic or other impervious material.



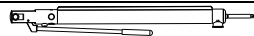




## Troubleshooting

**Problem:** Tension in stay not increasing as lever is pumped / irregular pumping action

**Info:** The action of the tensioner depends on the valves operating with oil that is free from air.

**Action:** Follow steps 1-5 in figure below.

Removal of trapped air in valves		
Order	Orientation of tensioner	Action
1		<ul style="list-style-type: none"> <li>● Close the release valve</li> <li>● Operate the pump lever until the rod is contracted to its inward end position</li> </ul>
2		<ul style="list-style-type: none"> <li>● Open the release valve</li> <li>● Operate the pump lever back and forth approximately 10 times slowly</li> </ul>
3		<ul style="list-style-type: none"> <li>● Pull the rod out</li> </ul>
4		<ul style="list-style-type: none"> <li>● Close the release valve</li> <li>● Operate the pump lever until the rod is contracted to its inward end position</li> </ul>
5		<ul style="list-style-type: none"> <li>● Open the release valve</li> <li>● Operate the pump lever back and forth approximately 10 times slowly</li> </ul>

**Problem:** Tension decreases quickly in the tensioner



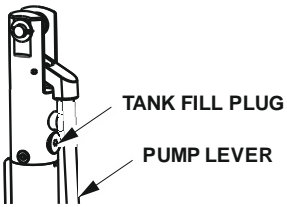
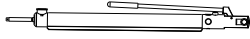
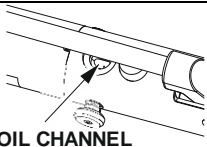


**Info:** The design of the tensioner is based on a piston on one end of the rod that gets different oil pressure on the two sides, generating force in the rod. If pressure decreases quickly there is a leakage of oil from the pressurized side of the piston, either past the piston seals, past the rod seals, or through the valves.

**Action:** Check that pressure release screw is closed (tightened gently clockwise)  
Remove any trapped air by following the steps describe in the manual  
Try operating the tensioner in its end positions to see if operation is OK apart from the loss of pressure.  
If the problem persists please contact a Seldén representative for instructions.

**Problem:** Tensioner does not reach its fully contracted position when pumping

**Info:** This problem can be caused by the wrong amount of oil in the tensioner.

**Action:** Check the amount of oil inside the tensioner by following the steps in the figure below.

Checking oil level		
Order	Orientation of tensioner	Action
1		<ul style="list-style-type: none"> <li>● Open the release valve</li> <li>● Pull the rod out</li> </ul>
2		<ul style="list-style-type: none"> <li>● Turn the tensioner with the rod downwards</li> </ul>
3	 <p>TANK FILL PLUG PUMP LEVER</p>	<ul style="list-style-type: none"> <li>● Carefully unscrew the tank fill plug. As soon as it starts to come loose move it slightly to let any trapped air escape.</li> <li>● <b>Important:</b> The pump lever needs to be pulled out slightly when the allen key is used to unscrew the tank fill plug. Do not pull the pump lever out any more than necessary, otherwise pressure will build up under the tank fill plug.</li> <li>● Remove the tank fill plug and place it on a clean surface.</li> <li>● Be careful not to get any dirt inside the hydraulic tensioner.</li> </ul>
4		<ul style="list-style-type: none"> <li>● Place the tensioner horizontally with the tank fill opening upwards.</li> </ul>
5	 <p>OIL CHANNEL</p>	<ul style="list-style-type: none"> <li>● Checking the oil level (tensioner horizontal)</li> <li>● There is a drilled channel underneath the oil fill plug.</li> <li>● The correct oil level is slightly above the bottom of this channel.</li> </ul>
6		<ul style="list-style-type: none"> <li>● When adding oil the lower end of the tensioner shall be raised slightly (see figure).</li> <li>● To remove oil place the tensioner horizontally and tilt it to the side, letting some oil escape through the tank fill hole.</li> <li>● Check the oil level according to 5)</li> </ul>
7		<ul style="list-style-type: none"> <li>● Replace the tank fill plug</li> </ul>
8		<ul style="list-style-type: none"> <li>● Remove any trapped air in the valves as described in manual</li> </ul>

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