

# Instruction

## 9597811 Cylinder repair guide

### Revisions and changes

Rev:	Prepared by	Summary of changes
00	<b>EJ</b>	New document
01	<b>KKF</b>	Add a new mounting spanner to Glual cylinder and to piston rod
02	<b>KKF</b>	Calculation of torque when used an extension on a torque wrench
03	<b>KKF</b>	The old section 2.2 has been converted to 2.2.2 Add a text in section 2.2.1 and change the order of images in section 2.2.1 Update the text in section 3.3.1 and 3.3.2
04	<b>OK</b>	New template, Spare Part List updated
05	<b>OK</b>	Spare Part List updated; new components added

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# 1 SCOPE

This instruction can be used for these toolkits / spare part repair kits:

<b>9597811</b>	<b>Toolkit for pitch cylinder Item 20012346</b>	<b>5066654;5066665;5066688;5067078;5067089;5066760</b>
5276097L	Repair kit Light	For 5066654/5066665/5066688/5067078/5067089
5276097H	Repair kit Heavy	For 5067078/5067089 (29079548)
5271885H	Repair kit Heavy	For 5066665/5066688 (29079610)
5520432H	Repair kit Heavy	For 5066654 (29079546)
5202599L	Repair kit Light	For 5066760 (29079612)
5202599H	Repair kit Heavy	For 5066760 (29079611)

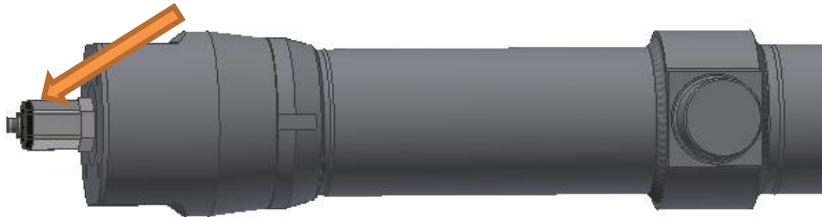
# 2 DISASSEMBLY

Before disassembly, the system must be in safe mode, pressureless and the cylinder drained for oil.

Prepare for oil collection when dismantling valve block, pipes, and cylinder enclosure. Loosen bolts and remove them, lift the valveblock up from cylinder.

## 2.1 POSITIONS SENSOR

Unscrew and pull the position sensor out of the cylinder. Mount the hose for draining the oil.



## 2.2 BEARING HEAD

### 2.2.1 Bearing head without pretension flange

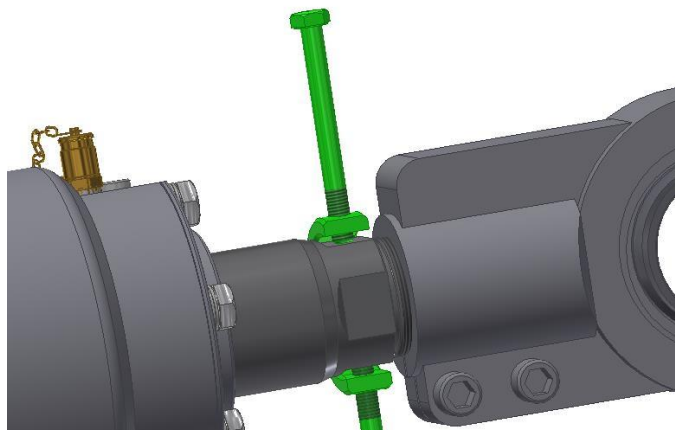
Measure the distance between the piston rod and bearing head.

Loosen all the bolts in the clamping bearing head:

Widen out the clamping by mounting plate chisels in the slots on each side until the rod can be turned easy.



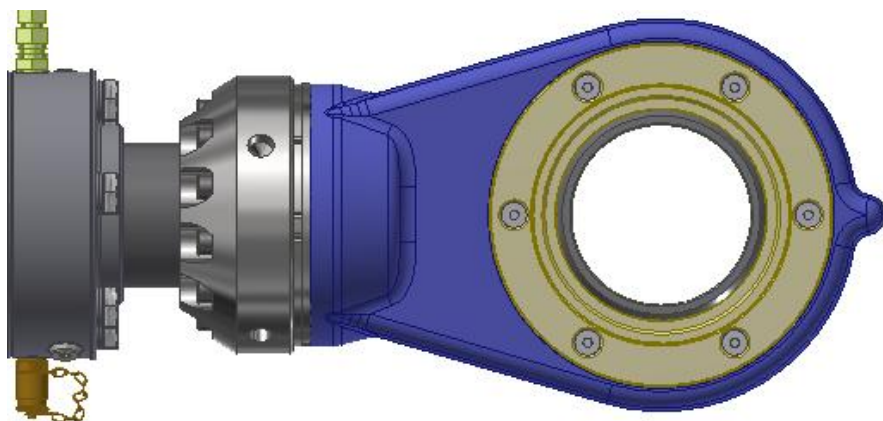
Use the special spanner to unscrew rod from bearing head:



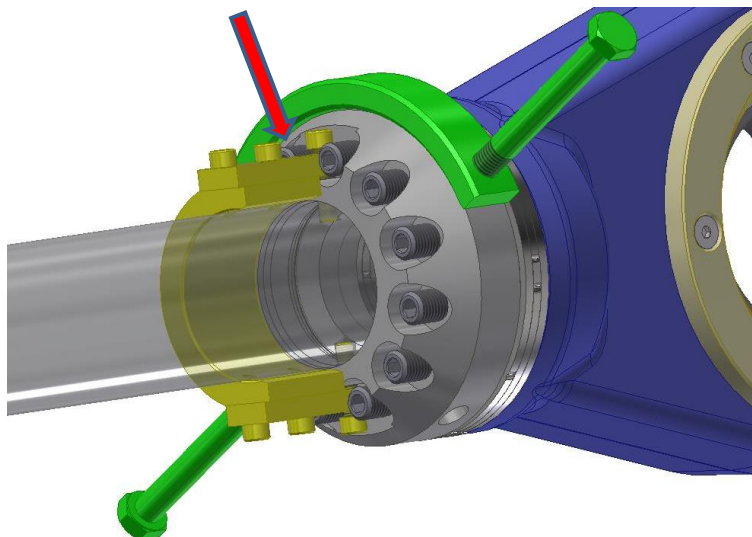
Unscrew rod from bearing head with the chisels still sitting in the slots.

### 2.2.2 Bearing head with pretension flange

Loosen all bolts in the pretension flange and rotate it to align holes in rod and flange. Then fix rod to flange with the “Flange lock” tool (yellow on illustration below).



Use the special spanner to unscrew rod from bearing head.



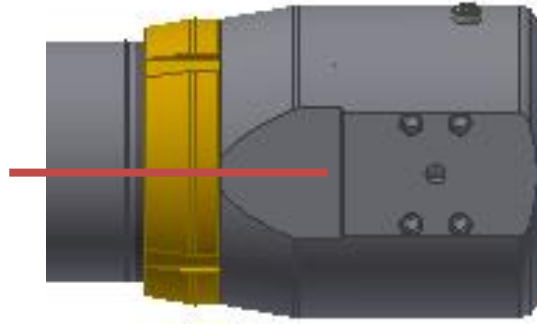
## 2.3 PRETENSIONED GLAND / STUFFING BOX

Loosen all 6 bolts in the stuffing box. Remove 4 of the bolts and let 2 stays in (green bolts shown on picture).

On cylinder 5066760 (29023077) this step is skipped.



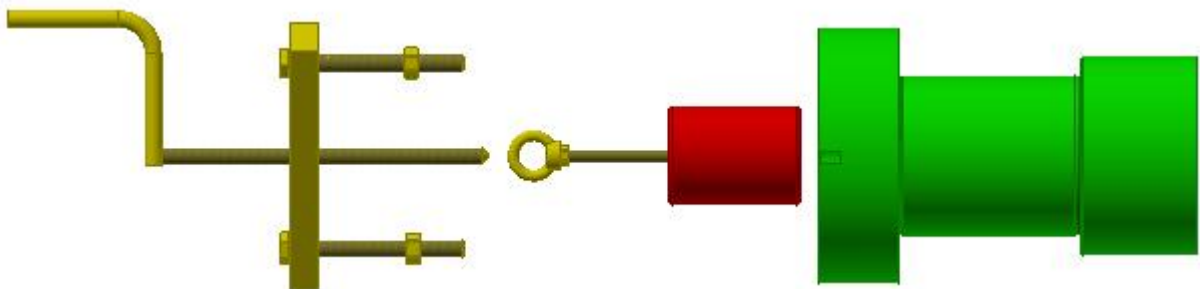
**MARK THE ANGULAR POSITION OF GLAND TO TUBE**



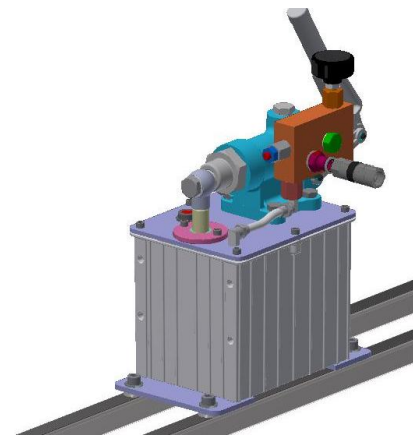
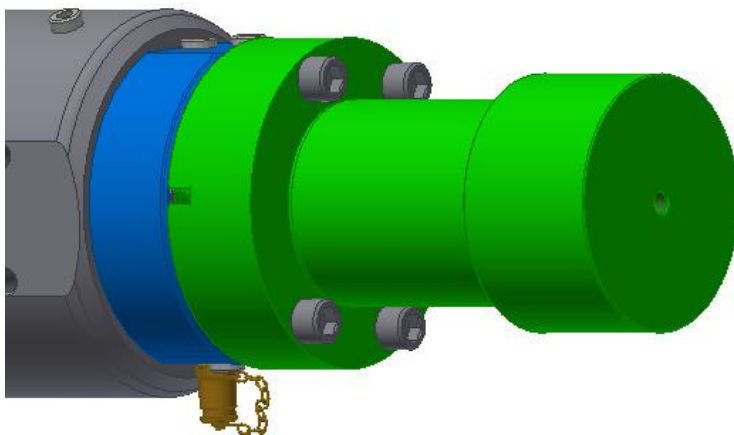
Prepare the pretension tool (green on picture below).

If the rod end is broken at the thread, the “rod-end dummy” (Red) must be placed in the tool.

(The yellow handle is used to pull out the “rod-end dummy” before pretensioning the repaired cylinder.)



Screw the pretension tool onto the gland with 4 pcs. M16 bolts and tighten with 50 Nm.



Connect the high-pressure (440bar) hydraulic handpump with the hoses.

Pump until the relief valve open (sound from valve block).

Remove the paint in the gap between the counter nut and tube.





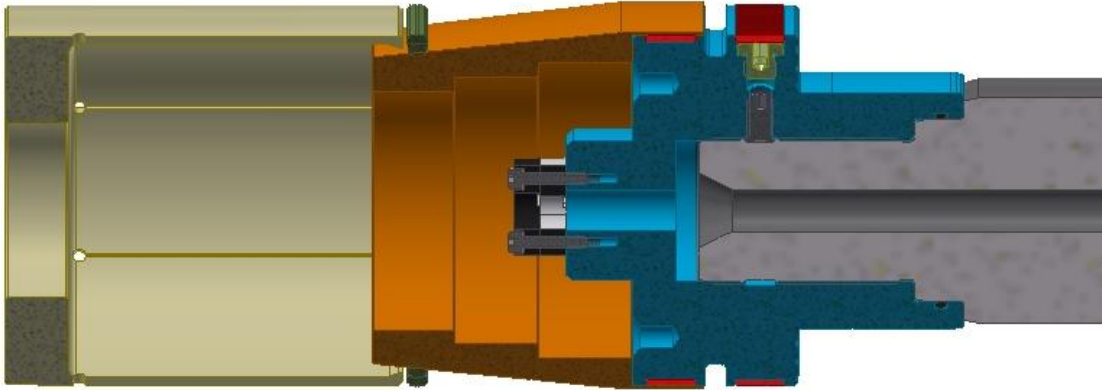




**If LIGHT repair kit:**

Mount new guide rings and piston seal. Use the piston assembly bush as shown below.

Mount alibration bushing o er piston seal and keep it there for more than min..

**3.2 GLAND PRETENSION/ STUFFING BOX**

Mount the distance bushing on the piston rod

Mount the new stuffing box (with premounted seals) onto the gland with two M16 bolts (as shown in section 2.3).

Slide the gland with premounted seals over the rod end assembly bush, insert the piston, rod and the gland into the tube and screw the gland on the tube all the way in.

Then loosen until the orientation of the oil port is right (marked before disassembly).

Mount the pretension tool, apply full pressure, use the special spanner to screw and tighten the counternut with approx. 200 Nm.

Release pressure, remove tools, and tighten all 6 M16 bolts with 200 Nm.

[All as shown in section 2.3, just in reverse order.]



## 3.3 BEARING HEAD

### 3.3.1 Bearing head without pretension flange

Grease on the thread before screw the bearing head on the rod end with the chisels still sitting in the slots.

Use tools shown in section 2.2.1.

Adjust it into position and remove the chisels.

Tighten all the clamping bolts.

### 3.3.2 Bearing head with pretension flange

Mount flange, screw and bearing head on the rod end.

Adjustment of bearing head (cylinder length at full stroke) to match blade lock, according to WTG manufacturer instruction.

Use tools show in section 2.2.2 and apply pretension according to WTG manufacturer instruction.

## 3.4 POSITIONS SENSOR

Reinstall position sensor in cylinder. Tighten with 80 Nm and connect cable.

## 3.5 END ASSEMBLY / INSPECTION

Mount valve block, pipes, and all other disconnected parts.

Drive the cylinder 5 times between 5-85 ° without load, to bleed air out of the system.

Test the cylinder under full pressure and check for leakages.



# 4 TOOL KIT No. 9597811 VESTAS VT 20012346

Reservedelsliste - Spare Part List - Ersatzteilliste						
Pos.	Stk. Pcs. Stück	Vare nr. Item. no. Warennr.	Beskrivelse	Description	Beschreibung	
10	1	9597802	Montagebøsning f. Ø125 mm M-sko	Assembly bush f. Ø125 mm piston	Montagebuchse f. Ø125 mm stempel	
20	1	9597806	Montagebøsning f. Ø125 dampningsbøsning	Assembly bush f. Ø125 Damping bushing	Montagebuchse f. Ø125 Dämpfungsbuchse	
30	1	9597803	Nylon Montagebøsning f. Ø125 mm M-sko	Nylon Assembly bush f. Ø125 mm Piston	Nylon Montagebuchse f. Ø125 mm Stempel	
40	1	9597807	Montagebøsning f. Ø125/80 pakningsholder	Assembly bush f. Ø125 Stuffing box	Montagebuchse f. Ø125 Dichtungshalter	
50	1	9597810	Montagenøgle overdel KPL	Mounting key Gland comp.	Montageschlüssel Dichtungsbuchse kpl.	
60	1	9597809	Montagenøgle kontramøtrik KPL	Mounting key Locking nut comp.	Montageschlüssel Gegenmutter komp.	
70	1	31725	O-ring 5,7x119,3	O-ring 5,7x119,3	O-ring 5,7x119,3	
80	1	34646	Nippel 1/4 BSP	Nipple 1/4 BSP	Nippel 1/4 BSP	
90	4	34101	Bonded seal PP45-B	Bonded seal PP45-B	Dichtring PP45-B	
100	1	5271818	Montagebøsning f. Ø80 mm Stang	Assembly bush f. Ø80 mm Rod	Montagebuchse f. Ø80 mm Stab	
110	1	35772	Hydraulik-håndpumpe GLDV20-4L	Hydraulic hand pump GLDV20-4L	Hydraulische Handpumpe GLDV20-4L	
120	1	9515101	Forspændingsværktøj til kontramøtrik	Pretension tool for locknut	Vorspannung Werkzeug til Gegenmutter	
130	1	34645	Nippel 3/8 BSP x 1/4 BSP	Nipple 3/8 BSP x 1/4 BSP	Nippel 3/8 BSP x 1/4 BSP	
140	1	9515165	Flangelås for (29082565) Ø90x50-PA6	Flange lock for (29082565) Ø90x50-PA6	Flanschsperr für (29082565) Ø90x50-PA6	
150	1	5271883	Kalibreringsbøsning Ø125	Calibration bushing Ø125	Kalibrering Buchse Ø125	
160	1	34103	Bonded seal PP45-C	Bonded seal PP45-C	Bonded seal PP45-C	
170	1	34642	Hydraulikslange komplet, A=2000 mm	Hydr. hose complete, A=2000 mm	Hydr. Schlauch komplett, A=2000 mm	
180	2	34643	Hunlynkobling 1/4"	Female Quick mount 1/4"	Weiblich Schnell Anschluss 1/4"	
190	2	34644	Hanlynkobling 1/4"	Male Quick mount 1/4"	Männlich Schnell Anschluss 1/4"	
200	1	34575	Vinkel stilbar 1/4 BSP med kontramøtrik	Adj.L-coupling 1/4 BSP w/ Locknut	Einstellb. L-verschraub. 1/4 m/ Gegenmut	
210	1	9515146	Montagenøgle kontramøtrik Glual 108613	Mounting key Locking nut Glual 108613	Montageschlüssel Gegenmutter Glual108613	
220	2	5272289	Beslag 30x30x600 til hydraulisk pumpe	Fitting 30x30x600 for hydraulic pump	Beschlag 30x30x600 für Hydraulikpumpe	
230	1	9515149	Montagenøgle for flange (29082565)	Mounting key for flange (29082565)	Montageschlüssel Flansch (29082565)	
240	1	9515166	Montagenøgle for AF=68	Mounting key for AF=68	Montageschlüssel für SW=68	
250	1	34762	Slangesæt for oiletømning	Oil drain hose kit	Ölablassschlauch-Kit	
260	2	63295	Mejsel 1	Chisel 1	Meißel 1	
270	2	63065	Mejsel 2	Chisel 2	Meißel 2	
280	1	9515133	Montage holder til kontramøtrik GLUAL	Mounting bracket for locknut GLUAL	Montagehalter für kontermutter GLUAL	

