

Action code: AT FIRST OPPORTUNITY

**Accumulators – all makes, brands and types in the hydraulic system**

Safety information

SL2019-673/PRP  
July 2019

**Concerns**

Owners and operators of MAN B&W two-stroke marine diesel engines.  
Type: MC/MC-C, ME/ME-C and ME-B

**Summary**

MAN Energy Solutions emphasises the importance of checking the nitrogen pressure regularly, to prevent undesirable pressure peaks in the hydraulic oil system.

Dear Sir or Madam

MAN Energy Solutions has decided to change the recommendation for inspection of accumulators as follows:

- Check the nitrogen pressure minimum once a month.
- Replace the accumulator if it has been in operation without nitrogen pressure.

For MC engines equipped with Alpha Lubricator system, the inspection interval recommendation does not change, and will continue to be 8,000 hrs.

The recommended overhaul and replacement of the diaphragm is still every 5 years.

The reason for our new recommendation is that we have recently received reports of malfunctioning accumulators, subsequently leading to rupture of the accumulator in the hydraulic system.

Based on our preliminary findings in these cases, we find it necessary to emphasise the importance of checking the nitrogen pressure regularly to prevent undesirable pressure peaks in the hydraulic oil system, which may cause damage to the engine and its surroundings and even personal injuries and death.

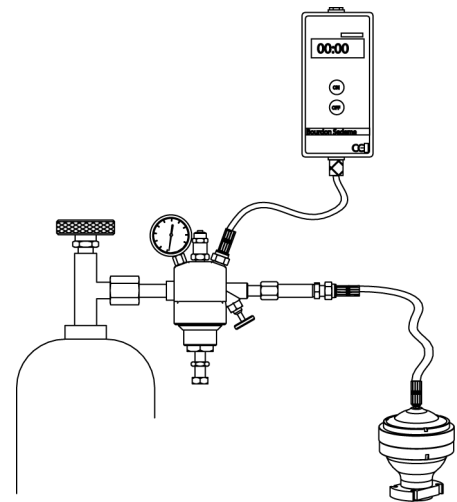
Yours faithfully



**Mikael C Jensen**  
Vice President, Engineering



**Per Pallisgaard**  
Manager, Product Safety



Enclosures:  
Data sheet 4565-0550-0014  
Data sheet 4565-0550-0028

**Head office (& po. address) PrimeServ**  
**MAN Energy Solutions**  
Tegholmsholmsgade 41  
2450 Copenhagen SV  
Denmark  
Phone: +45 33 85 11 00  
Fax: +45 33 85 10 30  
info-cph@man-es.com  
www.man-es.com

**Production**  
Tegholmsholmsgade 35  
2450 Copenhagen SV  
Denmark  
Phone: +45 33 85 11 00  
Fax: +45 33 85 10 17  
manufacturing-dk@man-es.com

**Forwarding & Receiving**  
Tegholmsholmsgade 35  
2450 Copenhagen SV  
Denmark  
Phone: +45 33 85 11 00  
Fax: +45 33 85 10 16  
shipping-cph@man-es.com

**MAN Energy Solutions**  
Branch of MAN Energy Solutions  
SE, Germany  
CVR No.: 31611792  
Head office: Tegholmsholmsgade 41  
2450 Copenhagen SV, Denmark  
German Reg.No.: HRB 22056  
Amtsgericht Augsburg

A pressure drop of up to 5 bar per month is regarded as normal. If a significantly higher pressure drop is measured, overhaul of the accumulator should be carried out at the first opportunity. It is important to remember to correct the measurement for temperature deviation from 20 deg.

All details on checking and overhauling of accumulators are described in the instruction manuals. However, the following safety related checks should be given special attention:

- Correct tightening of the screws fastening the accumulator
- Regular check of the nitrogen pressure
- Never open the inlet valve to the hydraulic cylinder unit if the hydraulic system is pressurised.

Please ensure that the checking procedure is carried out only when the engine is in the “Finished with Engine-mode” and the hydraulic system is without pressure. The nitrogen pressure must be kept within the limits specified below:

<b>Nominal hydraulic pressure</b>	200 bar	300 bar
<b>Nitrogen charge pressure at 20°C*</b>	95 bar	136 bar
<b>Minimum nitrogen pressure at 20°C*</b>	65 bar	106 bar

\*) at other temperatures, the correct charge pressure can be found in Data sheets 4565-0550-0014 and 4565-0550-0028

The information in this letter replaces the information given in our service letter SL06-469/JOF and SL2017-653/PRP.

For any further questions regarding this service letter, write to: [Operation2S@MAN-ES.com](mailto:Operation2S@MAN-ES.com)

**Safety Precautions**

For detailed sketch see 0545-0100

○	Stop the Engine
○	Shut off fuel gas supply to the engine (close valve 830 on FGVT)
○	Shut off control air supply to fuel gas valve train (FGVT)
○	Shut off hydraulic oil supply to control block (close valve 870 on HCU)
○	Drain off hydraulic oil from the control block (open valve 871 on HCU)
○	Shut off starting air supply - At starting air receiver
○	Block the main starting valve
○	Shut off control air supply
○	Engage turning gear
○	Stop lubricating oil supply
○	Shut down hydraulic power supply



**Data**

Ref.	Description	Value	Unit
T45-45	Pressure Adjustment Table		
-	Accumulator temperature t°C:		
T45-45	0° C	89	bar
T45-45	10° C	92	bar
T45-45	20° C	95	bar
T45-45	30° C	98	bar
T45-45	40° C	101	bar
T45-45	50° C	105	bar
T45-45	60° C	108	bar
T45-45	70° C	111	bar
T45-45	80° C	114	bar
T45-45	90° C	118	bar
T45-45	100° C	121	bar
-	Filling pressure must be as stated above		
-	Check pressure within ± 5 bar.		
T45-48	Nut, flange to gas block	50	Nm
T45-63	Hexagon head screw tightening torque	20	Nm

The task-specific tools used in this procedure are shown on the plates at the end of this chapter or in the chapters indicated by the first two digits in the plate number, e.g. **2570-0010** refers to chapter 25, Bearings.

## Tools

Plate	Item No.	Description
4570-0540	-	Test equipment for accumulators
4570-0550		Accumulator tools
7670-0200	-	Torque spanners

**Safety Precautions**

For detailed sketch see 0545-0100

●	Stop the Engine
●	Shut off starting air supply - At starting air receiver
●	Block the main starting valve
●	Shut off starting air distributor/distributing system supply
●	Shut off control air supply
●	Engage turning gear
●	Stop lubricating oil supply
●	Shut down hydraulic power supply



**Data**

Ref.	Description	Value	Unit
T45-38	Flange with accumulators, weight	200	kg
T45-42	Accumulator weight, 4 / 10 litre	30 / 60	kg
T45-43	N2 Charging pressure	136	bar at 20°
-	Accumulator temperature	t	°C
-	Check pressure within	± 5	bar
-	Filling pressure must be as stated above		
T45-45	Pressure Adjustment Table		
-	0° C	124	bar
-	10° C	130	bar
-	20° C	136	bar
-	30° C	142	bar
-	40° C	148	bar
-	50° C	154	bar
-	60° C	160	bar
-	70° C	166	bar
-	80° C	172	bar
-	90° C	178	bar
-	100° C	185	bar
T45-46	Assembly off-set 4-litre accumulator	9	mm
T45-47	Assembly off-set 10-litre accumulator	10	mm
T45-48	Screw, flange to accumulator	100	Nm
T45-49	Screw, flange to HCU. 3 step tightening	130	Nm
T45-53	Accumulator 0.75 litre, tightening torque	235	Nm
T45-82	Screw, flange to hydraulic power supply unit accumulator	100	Nm

Data

Accumulator  
Work Card

2019-04-24 - en

Ref.	Description	Value	Unit
T45-83	Screw, flange to hydraulic power supply unit (M10/M12/M14/M16)	34/56/85/158	Nm

The task-specific tools used in this procedure are shown on the plates at the end of this chapter or in the chapters indicated by the first two digits in the plate number, e.g. 2570-0010 refers to chapter 25, Bearings.

## Tools

Plate No.	Item No.	Description
4570-0540	-	Test equipment for accumulators
4570-0550	-	Tools for accumulator
7670-0200	-	Torque spanners
7670-0300	-	Lifting tools, etc
7670-0410	066	Slide caliper
1470-1400	276	Lifting attachment