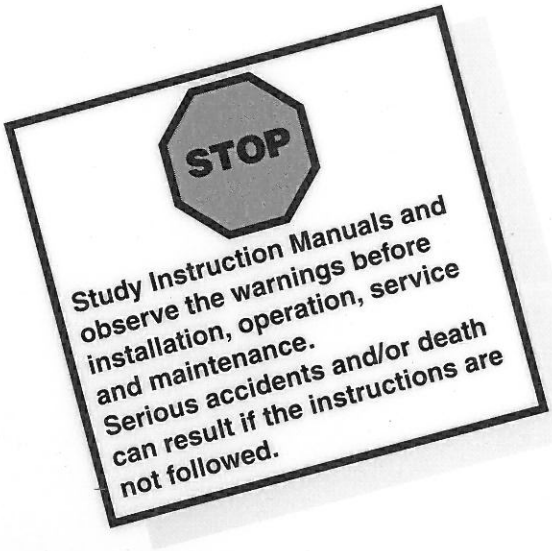
S and P Flex Separation



Only foreseeable conditions have been taken into consideration. No warnings are given for situations arising from unintended usage of the system components and tools.

Marine & Diesel Equipment

Printed Jun 2008

Document No. 587876-02

Configuration no.

Service Bulletin
SB 32273

S-separator and P625-636
2011-11-23

There are some important points to secure a good service quality and to simplify the work when performing Service on the S200-S800/S820-987 and P625-636 separators.

Inspection Service

1. When opening the bowl remove the centrilock and bowl hood as soon as possible after stop. If the bowl hood becomes cold then it can be hard to dismount. If the Service is being performed after stand still the separator could be run for fifteen minutes before service commence.
2. Do not lift bowl hood with chain block until it is free from the bowl body.
3. To remove the bowl body from spindle taper use the lifting tool included in Set of tools. Do not lift the bowl body from the spindle until you raised it from the spindle taper.

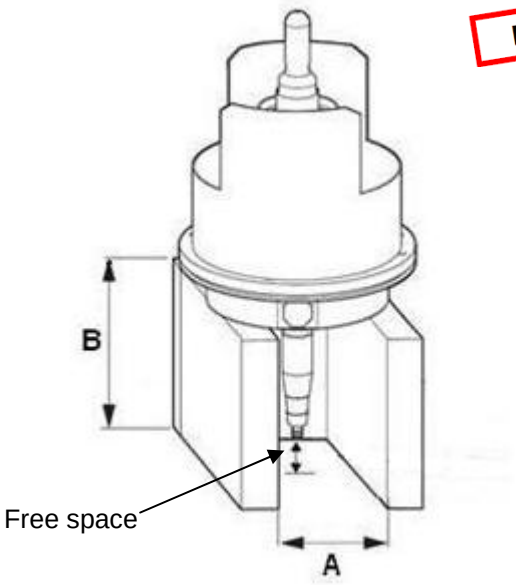
Following Lubricating oils types shall be used:

Separator	**Oil type**
S200/S820-S927/P625-P626	HM 68
S300/S830-S937/P635-P636	HM 68
S400/S840-S947	HM 68
S500/S850-S957	HM 100
S600/S860-S967	HM 100
S700/S870-S977	HM 100
S800/S880-S987	HM 100

NOTE Only check the oil level during standstill

Overhaul Service

Support for Vertical Driving Device



NOTE

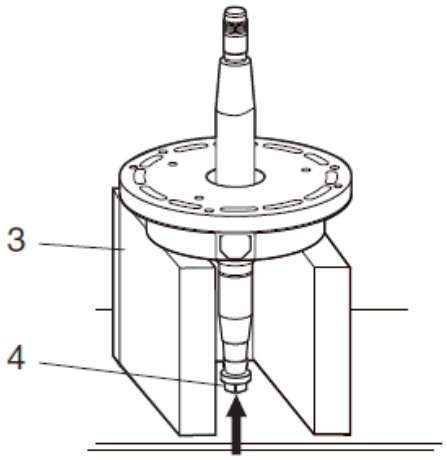
Always use a support as per this sketch when overhaul service is performed on vertical driving device (VDD). It is very important that the top of the spindle does not touch the ground.

Type of separator	A (mm)	B (mm)
S200/S820-S927/P625-P626	130	174
S300/S830-S937/P635-P636	130	174
S400/S840-S947	205	182
S500/S850-S957	205	195
S600/S860-S967	205	209
S700/S870-S977	205	230
S800/S880-S987	205	265

Top bearing installation instruction

1. Heat top bearing seat to minimum 110C and maximum 125C, either using hot clean oil or induction heater. (Induction heater is recommended.)
2. Lubricate the top bearing with clean oil and fit the bearing in the heated bearing seat
3. Cover the bearing seat with a clean cloth and let the assembled bearing cool for a while.
4. Fit snap ring
5. Heat the top bearing seat and bearing to minimum 110C and maximum 125C, either using hot clean oil or induction heater.
6. Install the top bearing seat on the spindle using the special tools
7. Cover the spindle and top bearing seat with a clean cloth and let it cool down

Bottom bearing (self-aligning roller bearing) installation instruction



3. Support
4. Cap nut

1. Screw on cap nut on spindle
2. Put vertical driving device on the support, cap nut facing downwards
3. Ensure the VDD stands on the spindle top!
4. Lubricate the bearing with clean oil
5. Install the bottom bearing using the special drift tool at a temperature between 30-50C

NOTE

It is of utmost importance to use cap nut and the support as the neck bearing may be forced out of its position and damage the neck bearing when the bottom bearing is mounted otherwise.

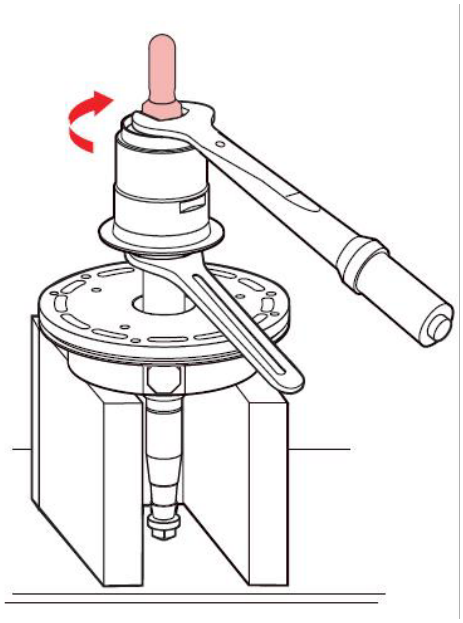
The cartridge has to stand on the spindle top with a clearance of minimum 1mm between top bearing housing and the support.

NOTE

Handle the bearings with care. Make sure the top bearing doesn't get any dirt particles inside

Mounting Oil Pump

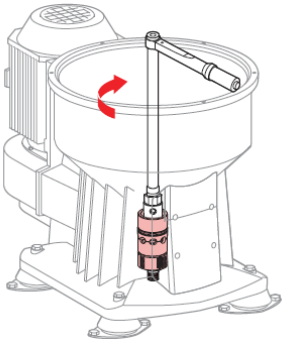
1. Make sure the oil pump hole is not blocked or partly blocked before mounting the VDD
2. Fit oil pump according to below
3. Ensure the bottom bearing and spindle has the same temperature before applying torque



Sep size	crow foot spanner (part number)	Torque [Nm]
S200/S820-S927/P625-P626	585810 01	150
S300/S830-S937/P635-P636	585810 01	150
S400/S840-S947	585810 01	150
S500/S850-S957	585810 02	260
S600/S860-S967	585810 02	260
S700/S870-S977	585810 03	260
S800/S880-S987	585810 04	260

Mounting Bottom Bearing Holder

Sep size	Key (p/n)	Torque
S200/S820-S927/P625-P626	569695 01	200 Nm
S300/S830-S937/P635-P636	589776 01	200 Nm
S400/S840-S947	589776 01	200 Nm
S500/S850-S957	564781 01	200 Nm
S600/S860-S967	564786 01	200 Nm
S700/S870-S977	564798 01	200 Nm
S800/S880-S987	566343 01	200 Nm



NOTE Check that the machine turns freely prior to starting after completing service

Other guidelines

If the separator has been out of operation for:

1 months or longer

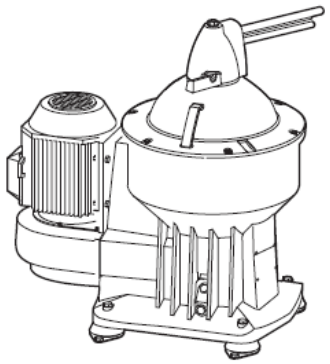
- Pre-lubricate the spindle bearings if the ambient temperature at start up is below 25 °C.

6 months or longer

- Perform an Inspection service and make sure to pre-lubricate the spindle bearings.
- Change the oil before starting.

18 months or longer

- Perform an Overhaul service and make sure to pre-lubricate the spindle bearings.
- Change the oil before starting.



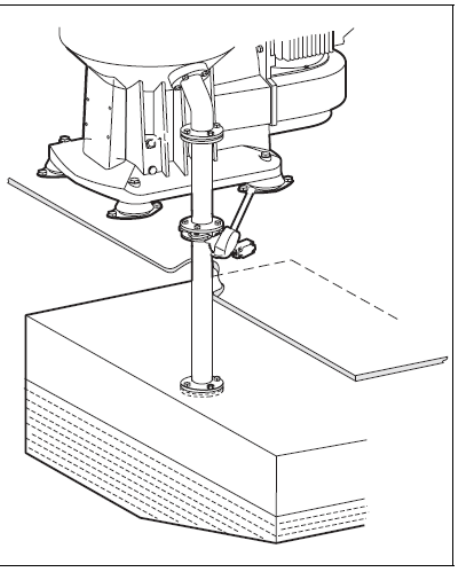
Hot vapors from the sludge tank can condense and contaminate the separator lubrication system when the separator is in standstill, if more than one separator is connected to the same sludge tank. A sludge valve is then required.

If more than one separator is connected to the same sludge tank, a butterfly valve should be installed in each sludge pipe.

NOTE

If a butterfly valve is not used, the bowl and the operating system may be affected.

- If a butterfly valve is used, it should be equipped with an interlocking switch (connected to the separator starter) to prevent the separator from being started when the valve is not fully open.



Discharge interval

Experience has shown that if intervals between sludge discharges are too long, a compact and hard sludge cake can accumulate. On discharge, this cake may break up and be discharged unevenly causing imbalance in the bowl. If imbalance is excessive, there is risk for serious mechanical damage.

Alfa Laval has a general recommendation of maximum 120 minutes discharge interval when separating heavy fuel oil or engine lubricating oil with an S-separator or P625-636.

S- SEPARATOR CHECKPOINTS

NOTE! This information does not exclude the importance of following the instructions in the Service Manual and Service bulletines!

Before start-up
If the separator has been out of operation for:

1 months or longer
Pre-lubricate the spindle bearings.

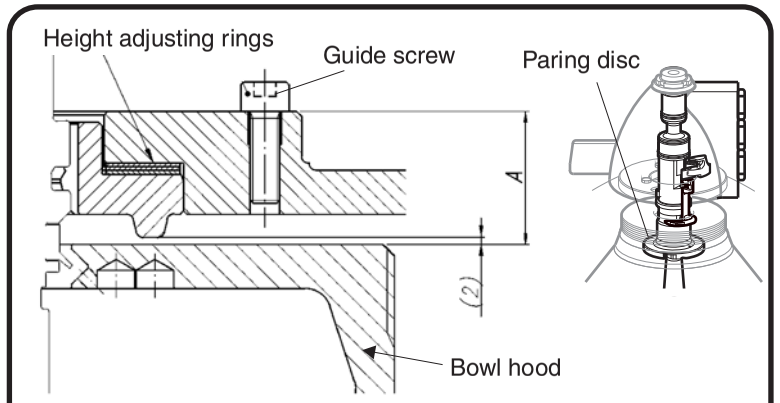
6 months or longer
Perform an Inspection service and make sure to pre-lubricate the spindle bearings.
Change the oil before starting.

18 months or longer
Perform an Overhaul service and make sure to pre-lubricate the spindle bearings.
Change the oil before starting.

After service always run the separator continuously for at least 1 hour to ensure proper lubrication.

If the separator is out of operation for more than 1 month:

- Lift out the bowl.
- Protect the spindle taper from corrosion by lubricating it with oil.
- Keep the separator and bowl well stored, dry and protected from mechanical damage.



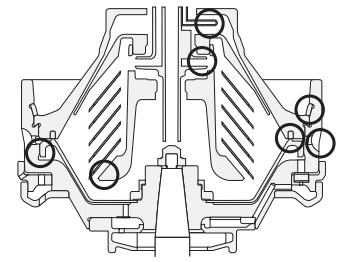
Measure the distance “A”. Add or remove height adjusting rings according to the table in the instruction book.

Always contact your Alfa Laval representative if you suspect that the depth of the corrosion damage exceeds 0,2 mm for bowl body and bowl hood (0,5 for other parts) or if cracks have been found.

Also Check for cracks. It is particulary important to inspect for cracks on rotating parts and especially between the discharge holes in the bowl wall.

Do not continue to use the separator until it has been inspected and given clearance for operation by Alfa Laval.

Check for erosion damages. Replace parts if erosion is suspected.
Contact your Alfa Laval representative if you suspect that the depth of the damage exceeds 0,2 mm bowl body, bowl hood. (0.5 mm for other parts).



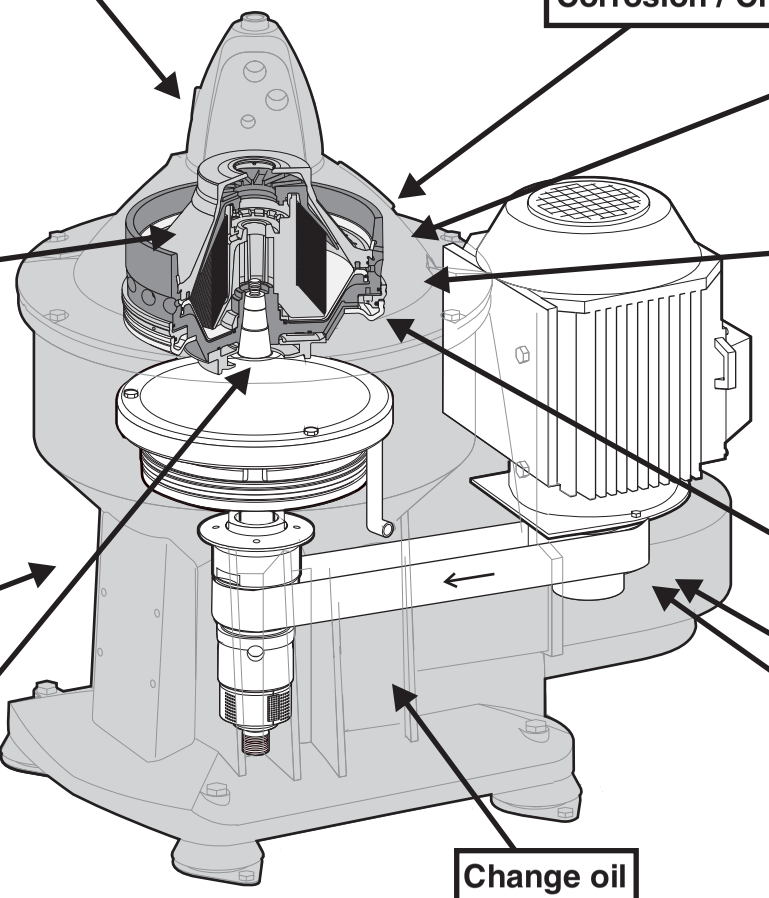
Paring disc height

Corrosion / Cracks

Erosion

Disc stack pressure

Lubricate bowl parts



Clean spindle assembly and check direction arrow on belt

Operating device and nozzles

Bowl spindle cone Bowl body nave

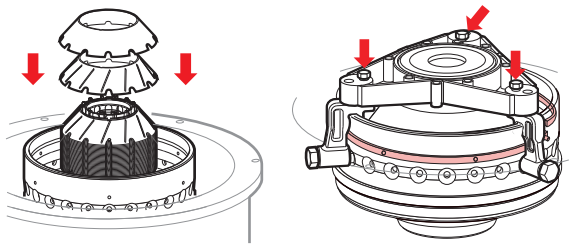
Clutch coupling Friction blocks

Change oil

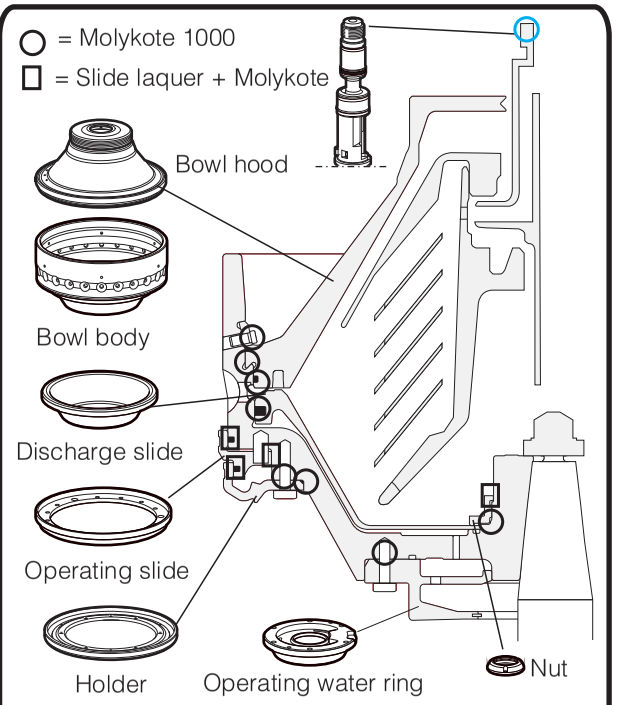
Check the disc stack as follows

1. Remove bowl hood, top disc and in- and outlet pipe.
2. Add one disc to the disc stack.
3. Fit the disc without caulks, top disc and bowl hood.
4. Fit lock ring and fully compress disc stack with the compression tool.
5. If the lock ring enters the groove, repeat 1-4.
6. If the lock ring does not enter the groove, this indicates correct stack pressure.
7. Dismantle the bowl and remove one disc.
8. Assemble the bowl with inlet and outlet pipe.

NOTE! The number of discs stated in the SPC is a nominal value that might vary.

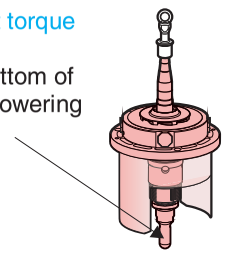


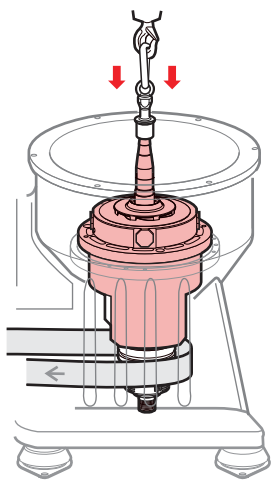
= Molykote 1000
= Slide laquer + Molykote



NOTE! **Replace screws and washers for holder with new ones** included in IS-kit. Replace screws (IS-kit) for operating water ring. Tighten **with correct torque:**
M8 = 30 Nm ± 2
M10 = 60 Nm ± 2

Check the manual for correct torque for the oil pump at assembly.
Check that the hole at the bottom of the oil pump is clean before lowering the assembly down.



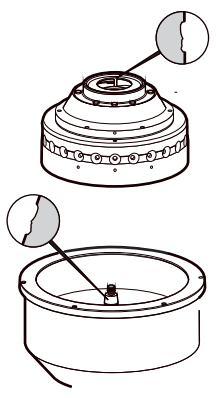


Position the flat belt so that the spindle assembly can pass through when lowering.

Check the direction arrows on the belt and the machine plate for correct position.

Make sure that the belt does not get smudged with oil or grease during handling.

Never use Molykote on any part on the spindle assembly.



Check for impact marks and corrosion on bowl body nave and spindle bore.
Remedy as follows;

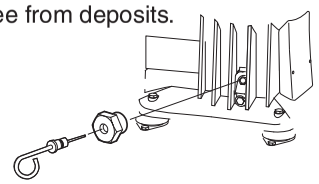
1. Remove any impact marks using a scraper and/or a whetstone.
2. Remove rust using a fine-grin emery cloth (e.g. No.320).
3. Finish with polishing paper (e.g. Number 600).

Check the oil level. Top up when necessary.

Don not overfill!
Always remove the oil pin and plug before filling.

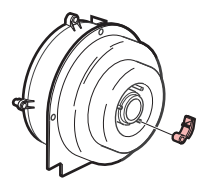
Make sure that correct oil type is being used!

Always follow the instructions in the Separator Manual and make sure that the oil bath is free from deposits.



If the blocks are worn;

1. Clean the inside of the belt pulley.
2. Fit new friction blocks. Make sure that it is mounted as illustrated.
   All friction blocks should be replaced at the same time.

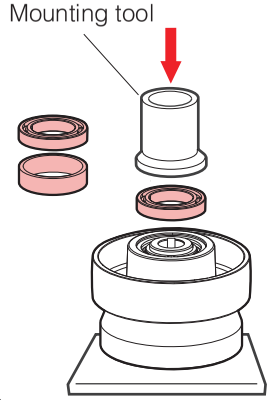


When handling friction blocks wear a dust mask to make sure not to inhalate dust.

Do not use compressed air for removal of any dust. Remove dust by vacuum or wet cloth.

Clean the nozzle on the operating slide using a soft iron wire or a similar object.

Mounting tool



Press the ball bearings down one at a time into the coupling hub, preferably using a hydraulic press. Place the spacing ring between them.
Never re-fit used ball bearings.

The ball bearings must not be heated as they are packed with grease and sealed with plastic membranes.

Approved / Date:	Department:	Revision:	Document No.
JJ / 2010-06-09	PCMI	5	575600

Customer Service Bulletin

Alfa Laval

Bulletin No.: 300-MSB-01-007

Subject: Treatment of bowl spindle taper

Ref.: SME/Annsofi Eriksson

Date: December 1996

Background

Some incidents in the field have given us the reason to believe that the treatment of the spindle taper is not always performed in the correct way.

Action

Whenever mounting the bowl body on to the bowl spindle:
Clean the spindle top and the nave bore in the bowl body. Apply oil (not Silicon grease, Molykote or similar paste) to the taper of the spindle, spread it over the surface carefully wipe off surplus oil with a clean cloth.

It is very important that grease, Molykote or similar paste is not used and that surplus oil is completely removed.
A layer of grease or too much oil on the surface between spindle and bowl body will reduce friction between the two parts. This may result in a relative rotation between the parts, at discharge or in the case of bearing break-down/malfunction. Such a rotation may result in seizure, scouring and possibly welding between spindle and bowl body. The consequences can be very severe, with damage to other components e.g. top disc, paring disc, paring chamber cover, flow control disc.

Anders Pallmar

Service Bulletin

Cap nut tightening torque

Background

For "S" and "P" separators **excl. P 605/P615 and SA 815** the tightening torques of the separator bowl Cap nut has been increased.
Please see table below for old and new tightening torques.

Note!

1. These changes are also valid for UVPX 206, PAPX 409, and N 285.
2. In the Service kits "Molycote grease" (dangerous goods) has been replaced by "Lubricating paste G-n plus"

For S separators the tightening torques of the separator bowl Cap nut has been increased.
Please see table below for old and new tightening torques.

Machine type	Tightening torque
	OldNew
S 200 **S 811/816** **S 820/821/825/826** **S 830/831/835/836** **P 625/635**	50 Nm50 Nm
S 400 **S 840/841/845/846** **UVPX 206**	50 Nm100 Nm
S 500 **S 850/851/855/856**	50 Nm100 Nm
S 600 **S 860/861/865/866** **PAPX 409**	50 Nm100 Nm
S 700 **S 870/871/875/876**	50 Nm100 Nm
S 800 **S 880/881/885/886** **N 285**	50 Nm100 Nm

Note!

Always use a torque wrench to ensure correct tightening torque of the Cap nut.
Following is an extract form the Instruction book.

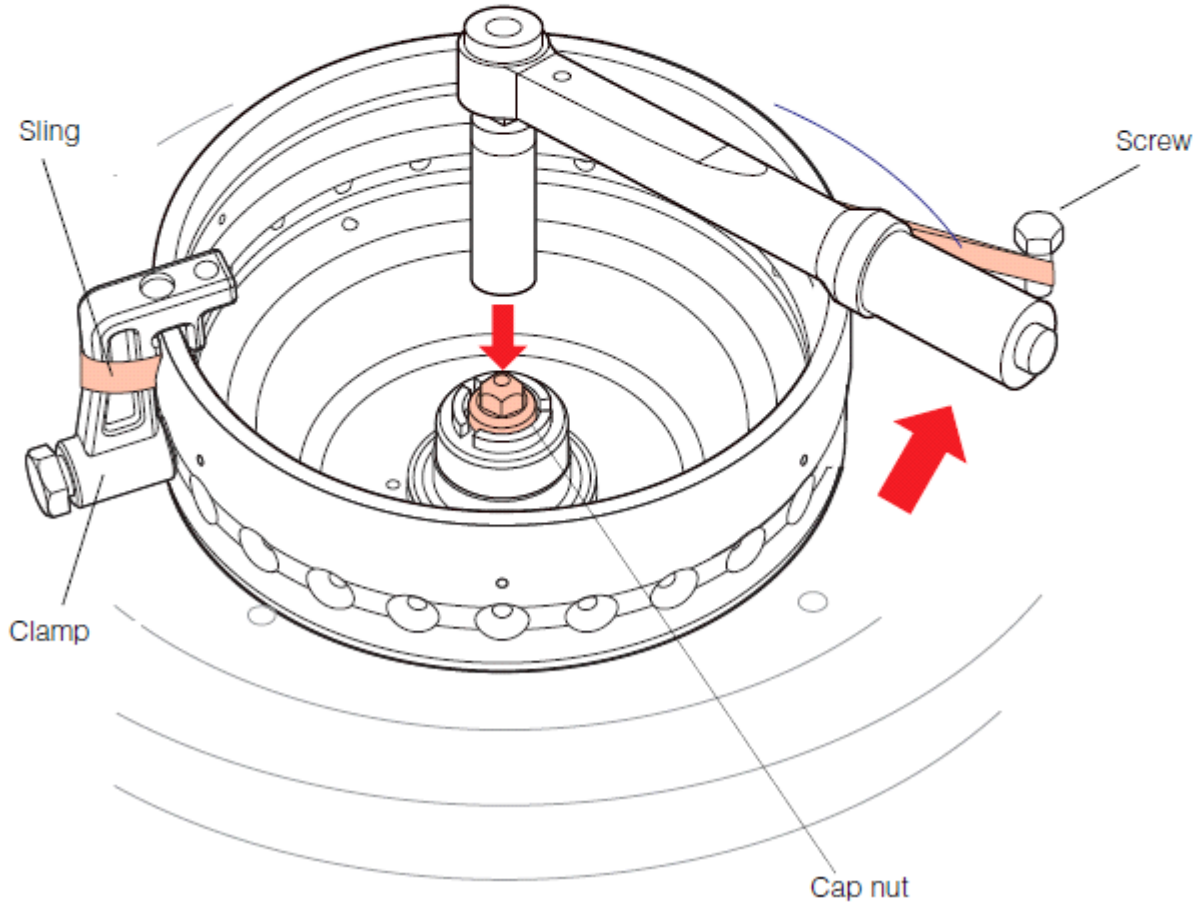
Same instruction is valid for all sizes, but for the two smallest S and P types the tightening torque must not exceed 50 Nm.

a To prevent the bowl body from rotating when fitting the cap nut; Fit one of the clamps (see page *53*) to the bowl body and one of the screws for the frame hood in the frame. Fasten a sling between the clamp and the screw around the bowl body.

b Apply a thin layer of molykote grease. Fit and tighten the cap nut to a torque of *100 Nm*.

NOTE

Left-hand thread!



High Speed Separator	
Service Bulletin:	32238
Issued/rev:	2009-11 /
Section:	6. Separator Bowl

Service Bulletin

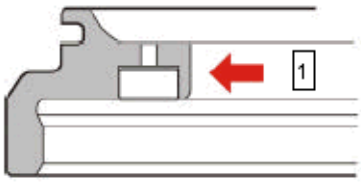
Galling between operating slide and bowl body - S-type separator

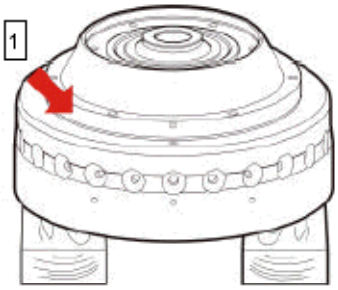
On some S separators of all sizes, galling can be noticed on the guiding surfaces between the operating slide and bowl body.This is typical on older separator models and the same treatment method is now recommended also for the S Separators.

The S Separator can still operate without problems even with the appearance of galling. However, to keep a good finish to the surfaces, the following procedure is recommended.

To reduce the galling it is important that at every Inspection service (4000 h), Molycote D321R is applied, followed by careful polishing at the guiding surface of the operating slide and the bowl body guide pin.

Check for galling on the guiding surface (1) of operating slide and bowl body.





If any friction marks are found, proceed as follows:

a. Clean the surface thoroughly with a degreasing agent, i.e. white spirit. This is important!
b. Use an emery cloth (e.g. No. 320) to smooth the metal edges.
c. Finish by polishing the damaged spots with polishing paper (e.g. No. 600).

NOTE!
To avoid the risk of galling, the guiding surface of the operating slide should be primed with a slide lacquer at every inspection service.

d. Apply Molykote D321R on surfaces.
e. Air-cure for 15 minutes.
f. Polish to an even, homogenous surface.
g. Apply a second layer.
h. Air-cure for 15 minutes.
i. Polish to a shiny surface, the surface should look like well-polished leather when properly done.
j. Finish the treatment by lubricating the guiding surfaces with Alfa Laval lubricating paste or Molycote 1000 paste. Use a well cleaned brush. Rub it into the surface, do not leave any excessive paste.

High Speed Separator	
Service Bulletin:	800-MSB-01-001
Issued/rev:	2002-09 /
Section:	6. Separator Bowl

Created by Borje Svensson on 2002-11-07 Modified by Daniel Ericsson on 2007-07-11

Paraffinic mineral lubricating oil, category (ISO-L-) **HM 68.**
Viscosity grade (ISO 3448/3104) VG 68.

The oil shall follow the requirements in one of the standards below.

Standard	**Designation**
DIN 51524 part 2 or 3* (German standard)	DIN 51524 – HLP or HVLP* 68
ISO 11158 (International standard)	ISO-L-HM or HV* 68 Viscosity index (ISO 2909) VI >95

The following is the list of recommended oil brands. Trade names and designations might vary from country to country. Other oil brands may be used as long as they follow the above standards, and have equivalent high quality as the recommended oil brands. For use of other oil brands, please contact the considered oil company for their advice of the correct choice of oil.

Manufacturer	**Designation**
Alfa Laval	567334-01 1 litre 567334-02 4 litres
BP	Bartran 68 Bartran HV 68 * Energol SHF-HV 68 *
Castrol	Hyspin AWS 68 Hyspin AWH(-M) 68 *
Chevron	Hydraulic oil AW 68 Rando HD 68 (H2) Rando HDZ 68 (H2) * Rykon Premium 68 (H2) *
ExxonMobil	Nuto H 68 Univis N 68 * Mobil DTE 26 (ISO VG 68) Mobil DTE 10 Excel 68 *
Q8/Kuwait Petroleum	Haydn 68 Handel 68 *
Shell	Tellus Oil 68 Tellus Oil S 68 Tellus Oil T 68 *
Statoil	HydraWay HMA 68 HydraWay HVXA 68 *
Total	Azolla AF 68 Azolla ZS 68 Equivis ZS 68 * Elf Lubmarine Visga 68 *

* These oils should be used at cold start, i.e. when the ambient temperature is below 20 °C.
Note! All oils can be used at ambient temperatures above 20 °

Paraffinic mineral lubricating oil, category (ISO-L-) **HM 100.**
Viscosity grade (ISO 3448/3104) VG 100.

The oil shall follow the requirements in one of the standards below.

Standard	**Designation**
DIN 51524 part 2 or 3* (German standard)	DIN 51524 – HLP or HVLP* 100
ISO 11158 (International standard)	ISO-L-HM or HV* 100 Viscosity index (ISO 2909) VI >95

The following is the list of recommended oil brands. Trade names and designations might vary from country to country. Other oil brands may be used as long as they follow the above standards, and have equivalent high quality as the recommended oil brands. For use of other oil brands, please contact the considered oil company for their advice of the correct choice of oil.

Manufacturer	**Designation**
Alfa Laval	567335-01 1 litre 567335-02 4 litres
BP	Bartran 100 Bartran HV 100 * Energol SHF-HV 100 *
Castrol	Hyspin AWS 100 Hyspin AWH(-M) 100 *
Chevron	Machine oil AW 100 (H2) Rando HD 100 (H2) Rando HDZ 100 (H2) * Rykon Premium Oil 100 (H2) *
ExxonMobil	Nuto H 100 Univis N 100 * Mobil DTE 27 Mobil DTE 10 Excel 100 *
Q8/Kuwait Petroleum	Haydn 100
Shell	Tellus Oil 100 Tellus Oil S 100 Tellus Oil T 100 *
Statoil	HydraWay HMA 100 HydraWay HVXA 100 *
Total	Azolla AF 100 Azolla ZS 100 Equivis ZS 100 * Elf Lubmarine Visga 100 *

* These oils should be used at cold start, i.e. when the ambient temperature is below 20 °C.
Note! All oils can be used at ambient temperatures above 20 °C.