

# Installation and start-up information Hydraulic Pumps Series F1/F2/T1

**F1**



**F2**



**T1**



## Important installation info.

Series F1/F2/T1  
(fixed displacement pumps)

## Use the correct size suction fitting

Flow

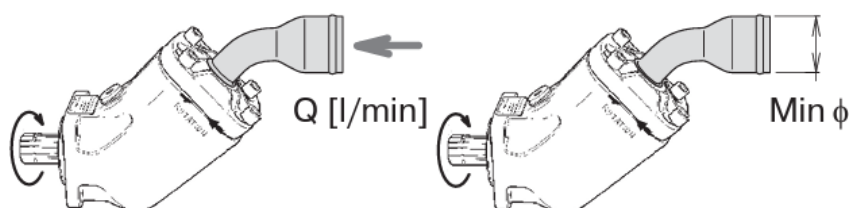
Flow speed [m/s] at indicated line size [mm/in]

[l/min]	25 / 1"	32 / 1 <sup>1</sup> / <sub>4</sub> "	38 / 1 <sup>1</sup> / <sub>2</sub> "	51 / 2"	64 / 2 <sup>1</sup> / <sub>2</sub> "	Inlet (suction) line
25	0.8	0.5	0.4	0.2	0.1	
50	1.7	1.0	0.7	0.4	0.3	
75	2.5	1.6	1.1	0.6	0.4	
100	3.4	2.1	1.5	0.8	0.5	
150	5.1	3.1	2.2	1.3	0.8	
200	-	4.1	2.9	1.6	1.1	
250	-	5.3	3.7	2.1	1.3	

Table 1.

Outlet (pressure) line

Max Q [l/min]		Min Ø	
Suction port Sauganschluss Orifice d'aspiration	60	38 mm	(1 <sup>1</sup> / <sub>2</sub> "
	120	50 mm	(2"
	150	63 mm	(2 <sup>1</sup> / <sub>2</sub> "
	185	75 mm	(3"



### Important installation info.

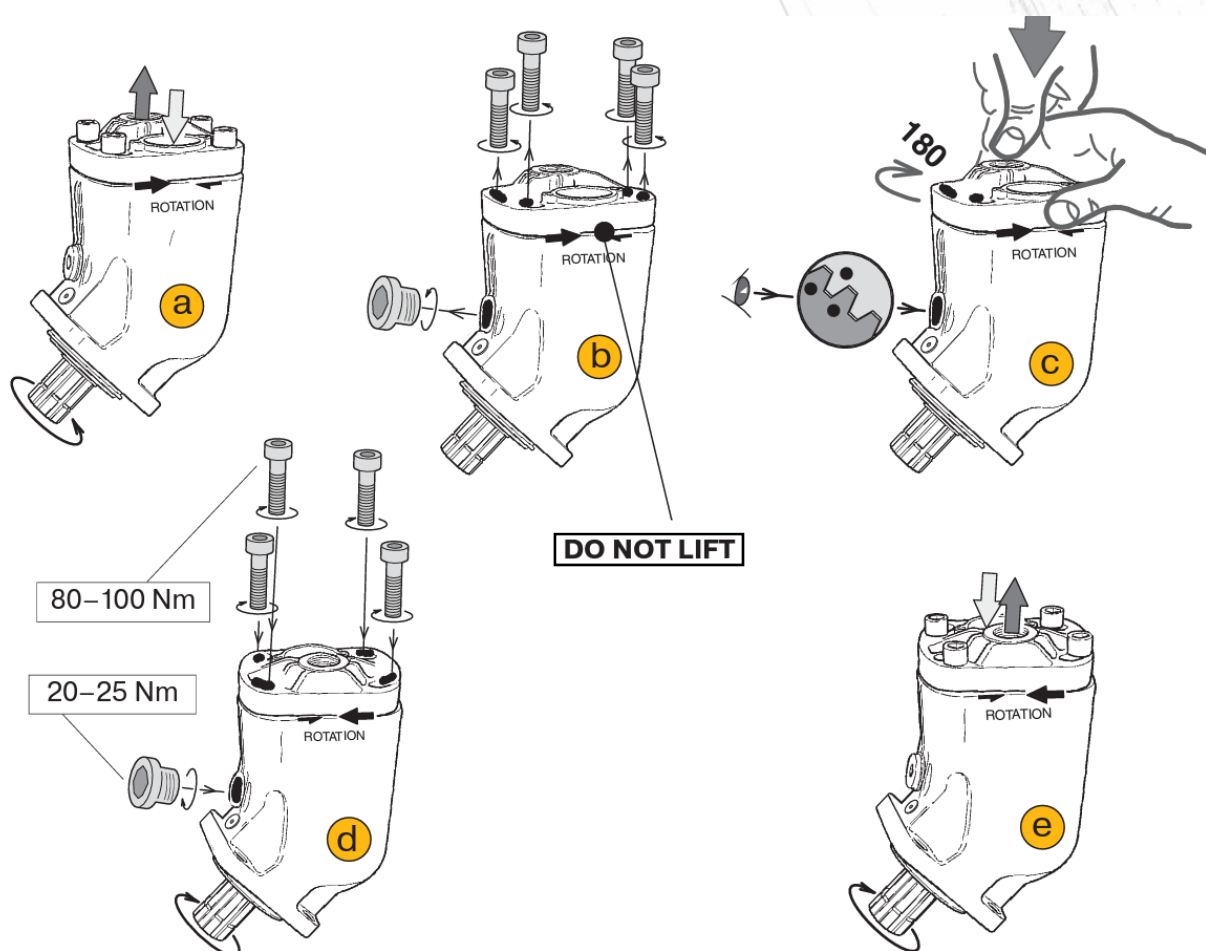
Series F1/F2/T1  
(fixed displacement pumps)

### Changing direction of rotation

**Note:** Valid for series F1 only.  
**On series F2, the end cap must be replaced!**

#### Example:

- A right hand (R.H.) rotating pump (a) should be changed to a left hand (L.H.) rotating pump (e).
- Follow illustrations (a) through (e).



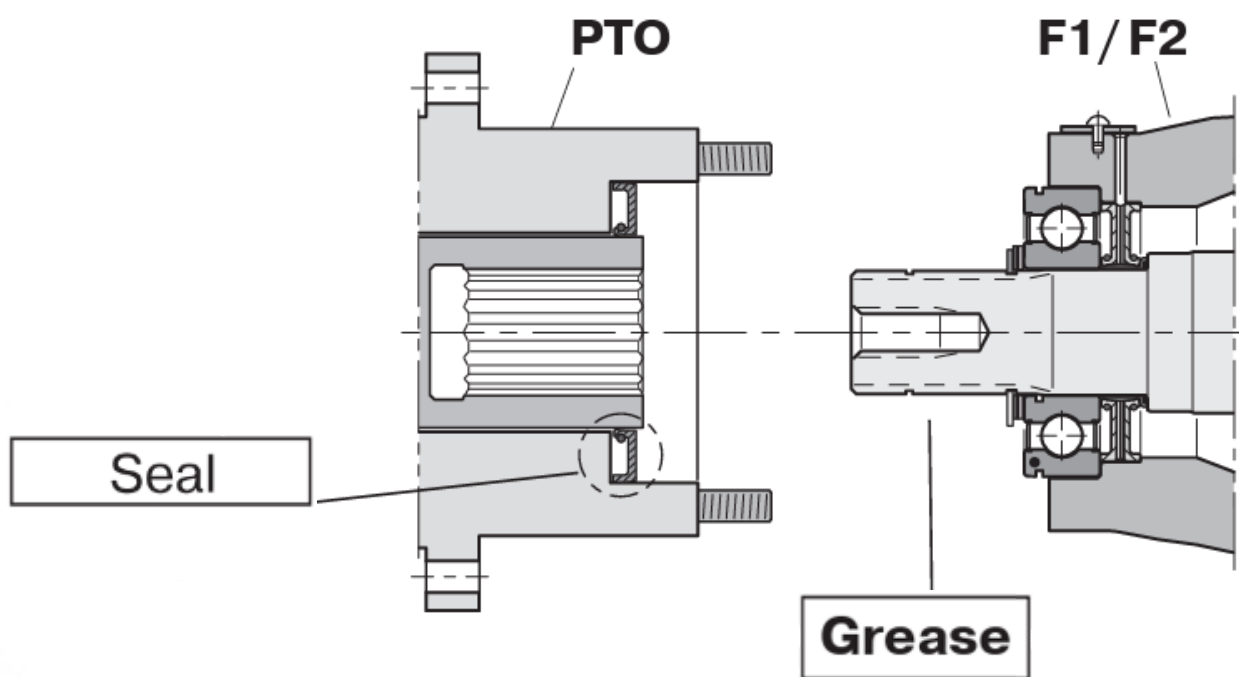
### Important installation info.

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### Lubricate the spline!

#### Please note!

When the PTO has a sealedoff output sleeve (as shown in the illustration), the F1 or F2 shaft spline **must be lubricated with a heat-resistant grease before start-up**; We recommend one to two times annually.





## Important installation info.

### Series F1/F2/T1 (fixed displacement pumps)

## Bearing life

The information is valid when the gear is mounted on the pump shaft.

- Shortest life: Pump mounted as in fig. 1.
- Highest life: Pump mounted as in fig. 3.

Parker Hannifin will assist in determining bearing life in a particular application.

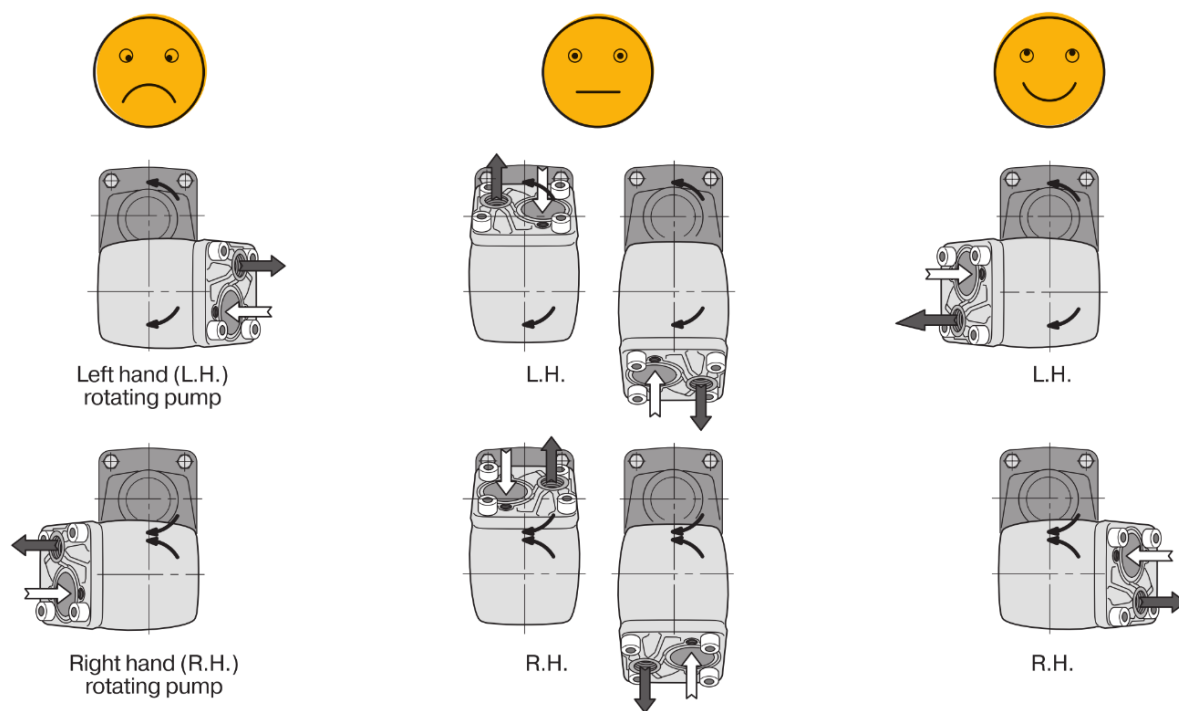


Fig. 1.

Fig. 2.

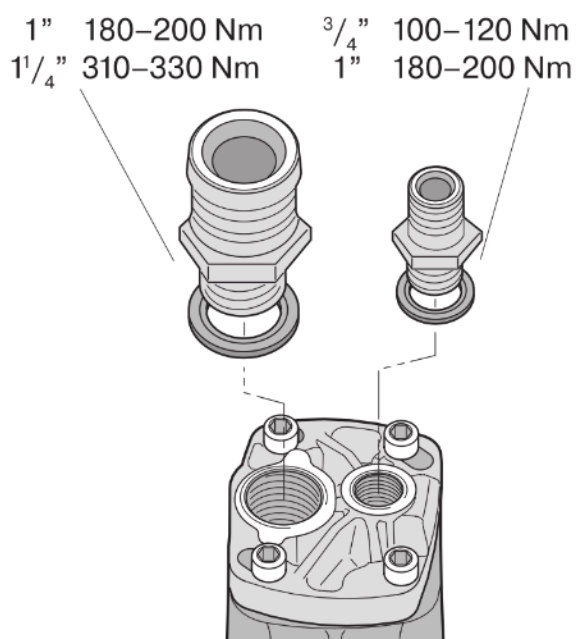
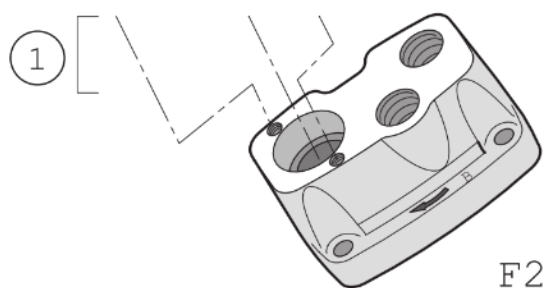
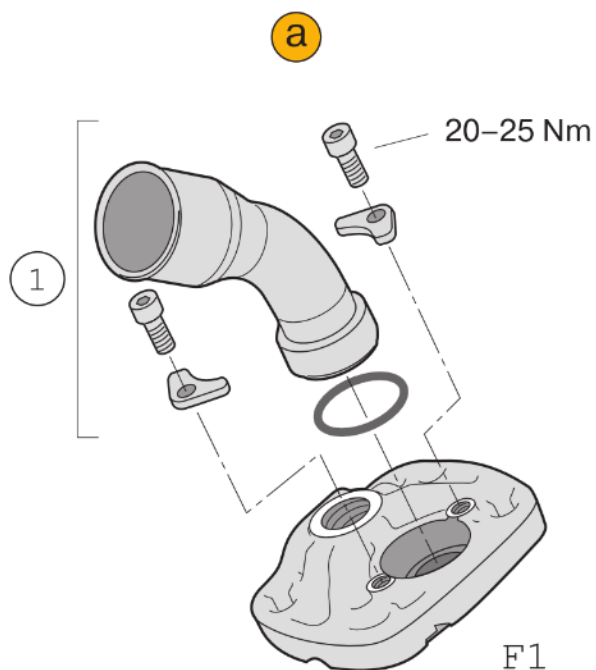
Fig. 3.

## Important installation info.

Series F1/F2/T1  
(fixed displacement pumps)

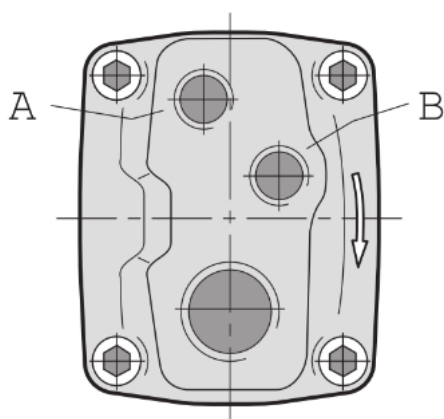
## Port installation notes

- a) Suction fitting fastener screw torque
- b) Port threads - **alternative on series F1 only!**



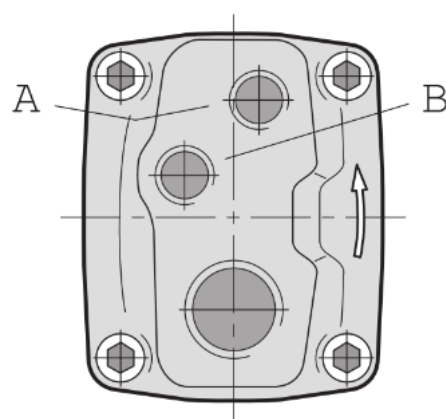
## Important installation info. Series F1/F2/T1 (fixed displacement pumps)

## Flow vs. shaft rotation (F2)



Left hand rotating pump

**F2**



Right hand rotating pump

	'A' [cm <sup>3</sup> /r]	'B' [cm <sup>3</sup> /r]
F2-42/42	43	41
F2-53/53	55	52
F2-55/28	55	28
F2-70/35	69	36
F2-70/70	68	68



## Important installation info. Series F1/F2/T1 (fixed displacement pumps)

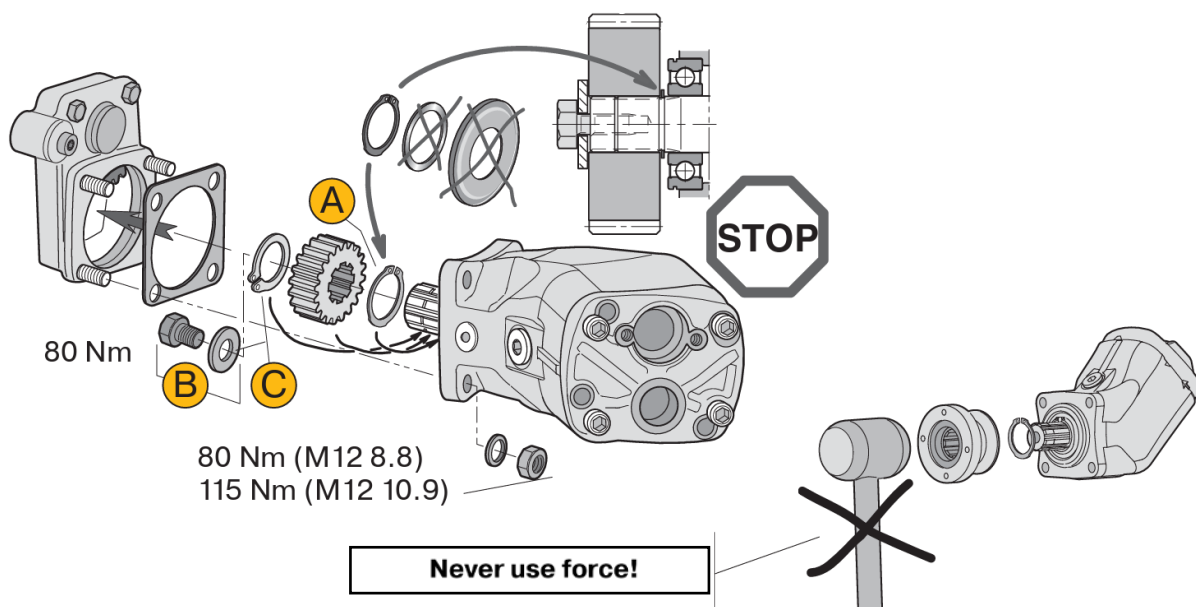
On a pump installed on a PTO with a separate gear and outer snapping or screw and washer, observe the following:

- **The inner snapping (A) must be installed first!**
- Then, install screw and washer (B) or outer snapping (C).

## Pump-to-PTO installation

**NOTE:** The above information is valid only when a gear is being installed on the pump shaft.

**A and C is not included with the pump.** If needed it can be ordered on part number assembly kit 3781725. Part B is included with Gear and PTO





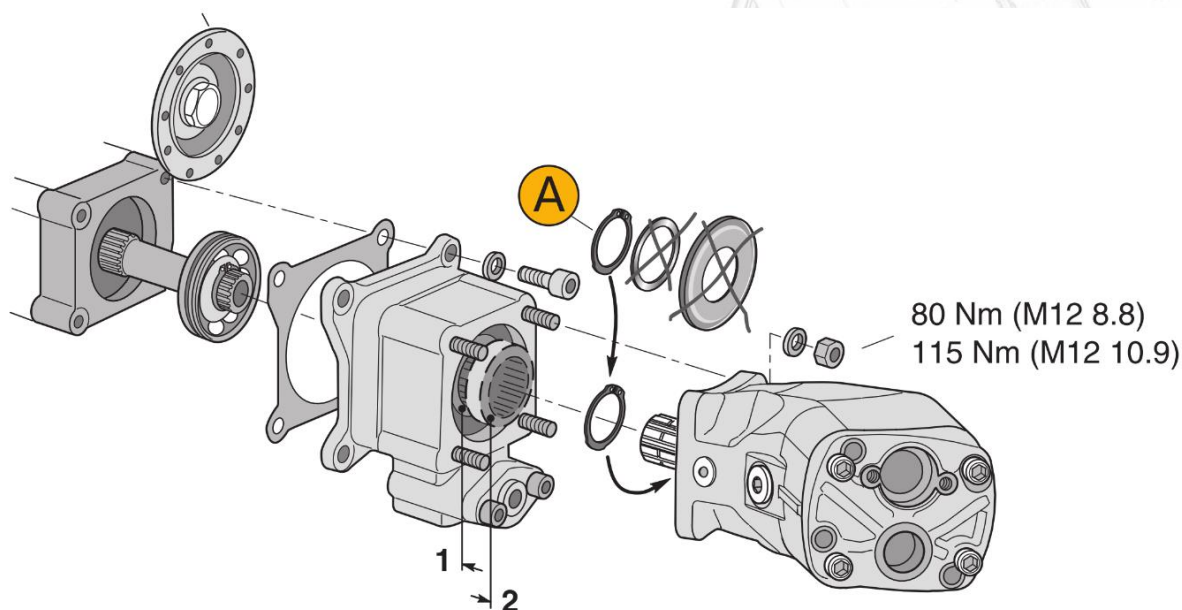
### Important installation info.

Series F1/F2/T1  
(fixed displacement pumps)

### Installation of a pump to a PTO with 'sliding sleeve'

If the pump is used on a PTO with a so called 'sliding sleeve', which can be moved axially on the pump shaft:

**The inner snapping, A, must be installed!**



Pos. 1: Pump disengaged

Pos. 2: Pump engaged

### Important installation info.

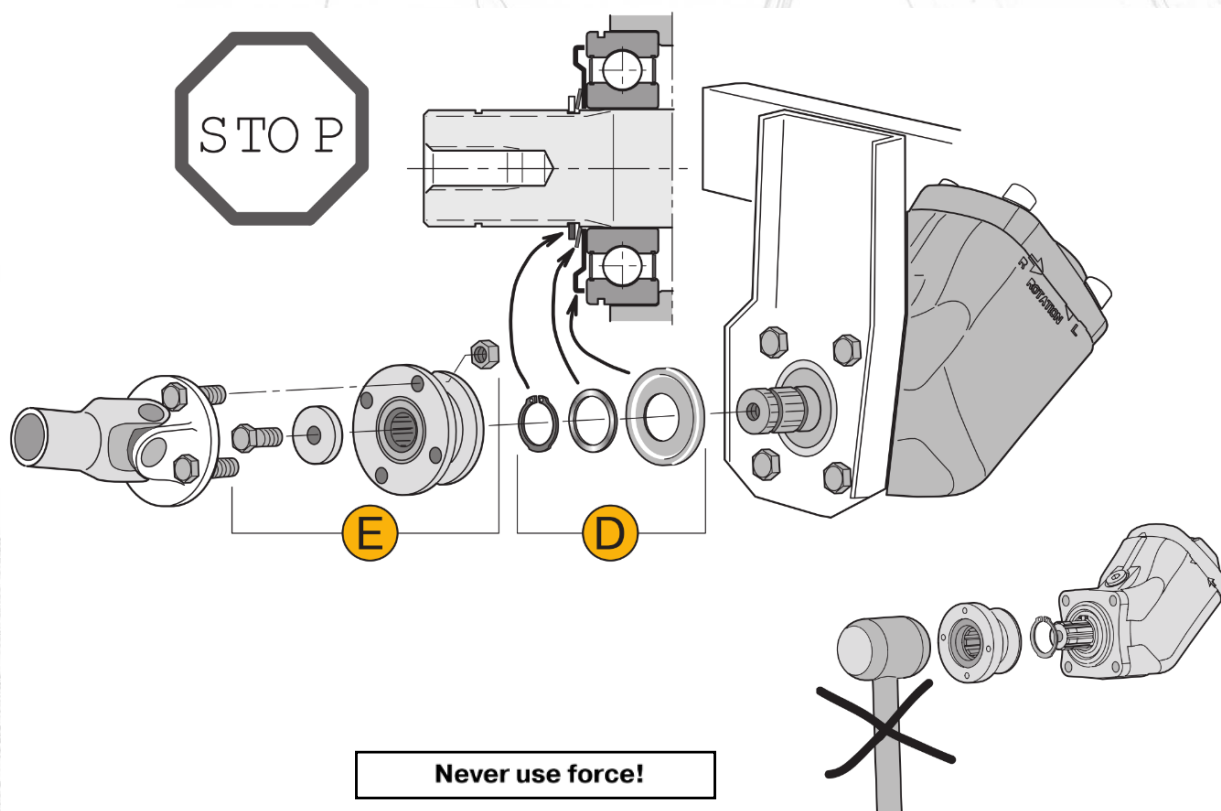
Series F1/F2/T1  
(fixed displacement pumps)

### Installation of a pump driven by a PTO through a cardan shaft

Please observe:

- **Bearing cover, shim and snap-ring (D) must be installed!**
- Shaft coupling with mounting screw and washer (E) should be ordered separately; available from Parker Hannifin.

**(D) Can be ordered on part number 3781725** (assembly kit).

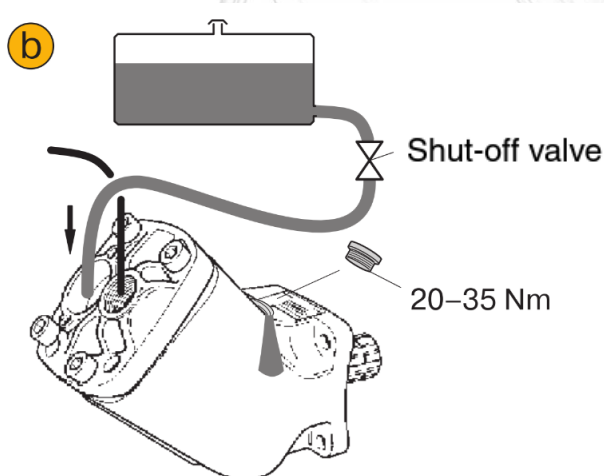
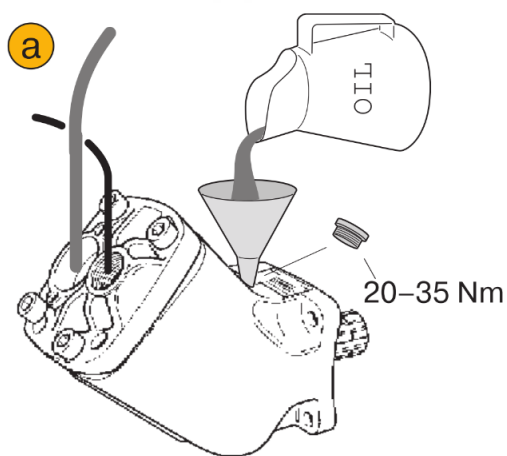


### Important installation info.

#### Series F1/F2/T1 (fixed displacement pumps)

### Before start-up

- Always fill the pump (and the entire hydraulic system) with a recommended oil before start-up.
- Fill the pump with oil by either:
  - a) Adding oil directly to the pump, or
  - b) Adding oil from the tank:
    - Open the shut-off valve between tank and pump (if applicable)
    - Open the pump drain plug; wait until oil pours out
    - Tighten the drain plug.





### Important installation info.

Series F1/F2/T1  
(fixed displacement pumps)



**If any oil should come out of the indicationhole on the pump;**

- **Stop the system immediately.**
- **Determine the cause of leakage.**
- **Replace damaged parts.**
- **Make sure you have corrected the source of the problem, not only the symptom.**

Parker can not be held responsible for damage to PTO, engine and gearbox caused by improper maintenance of the hydraulic system.

## **Important installation info.**

### **Series F1/F2/T1**

#### **(fixed displacement pumps)**



#### **Fluids**

Type HLP (according to DIN 51524) hydraulic oil is suitable as well as biologically degradable fluids like natural and synthetic esters and polyalphaolefins.

The utilised hydraulic fluid shall meet one of the following Swedish standards:

- SS 15 54 34 - SMR Hydraulic Oil Standard 1996-2.

Contact Parker Hannifin for further information.

#### **NOTE:**

- ATF (automatic transmission fluid) and API type CD engine oils may also be useable.
- Seals are made of nitrile rubber; make sure the utilised fluid is compatible with this material.

#### **Fluid temperature**

Main circuit: Max 75 °C.

#### **Drain line**

Fixed displacement pumps don't need an external drain line as they are internally drained. When the pump is mounted in a Engine-PTO we recommend a drain line from the bypass valve directly to oil tank.

#### **Filtration**

Filtration should follow ISO standard 4406, code 20/18/13.

To obtain the longest life of fixed displacement pumps, we recommend an oil cleanliness of 10 µm (absolute).

#### **Fluid viscosity**

Recommended viscosity: 20 to 30 mm<sup>2</sup>/s (cSt). Operating viscosity limits:

- Min 10 mm<sup>2</sup>/s;  
max 400 mm<sup>2</sup>/s.
- At start-up, max  
4000 mm<sup>2</sup>/s.

#### **Start-up**

Make sure the entire hydraulic system is clean before filling it with a recommended hydraulic fluid.

In particular, make sure the pump is filled (to at least 50 %) as the internal leakage does not provide sufficient lubrication at start-up.



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- ISO 13849-1:2015
- SS-EN ISO 4413:2010

so that the machines in which the products are incorporated meet the essential health and safety requirements.

Confirmations for components to be proven component, e.g. for validation of hydraulic systems, can only be provided after an analysis of the specific application, as the fact to be a proven component mainly depends on the specific application.

**Christian Jäger**

General Manager

Pump & Motor Division Europe

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