Danfoss PVH131 Variable Displacement Piston Pump Owner's Manual

Contents

PVH131 Variable Displacement Piston Pump

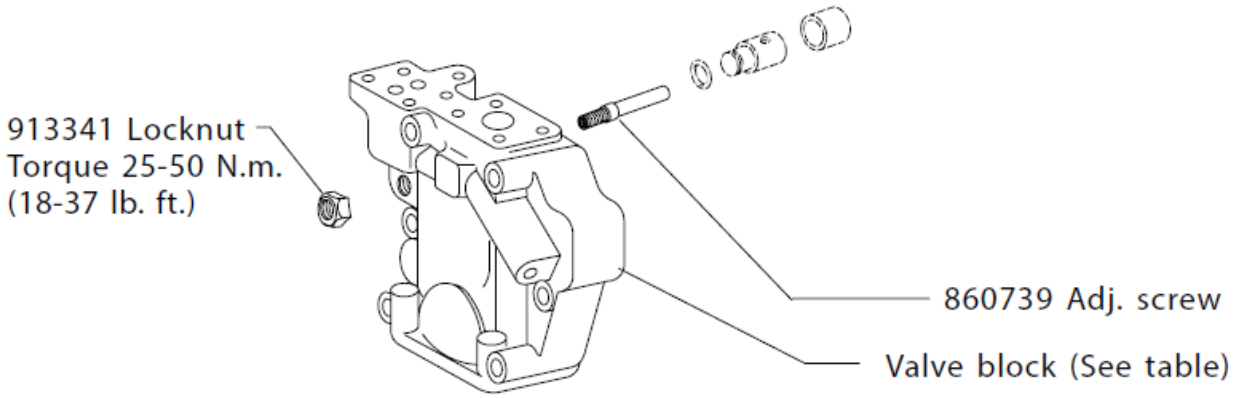
Specifications

- **Product Name**: PVH131/141 Variable Displacement Piston Pump
- **Model Number**: AX441461721772en-000102
- **Locknut Torque:** 25-50 N.m. (18-37 lb. ft.)
- **Valve Block Torque**: 129-142 N.m (95-105 lb. ft)
- Suitable for industrial applications

Product Usage Instructions

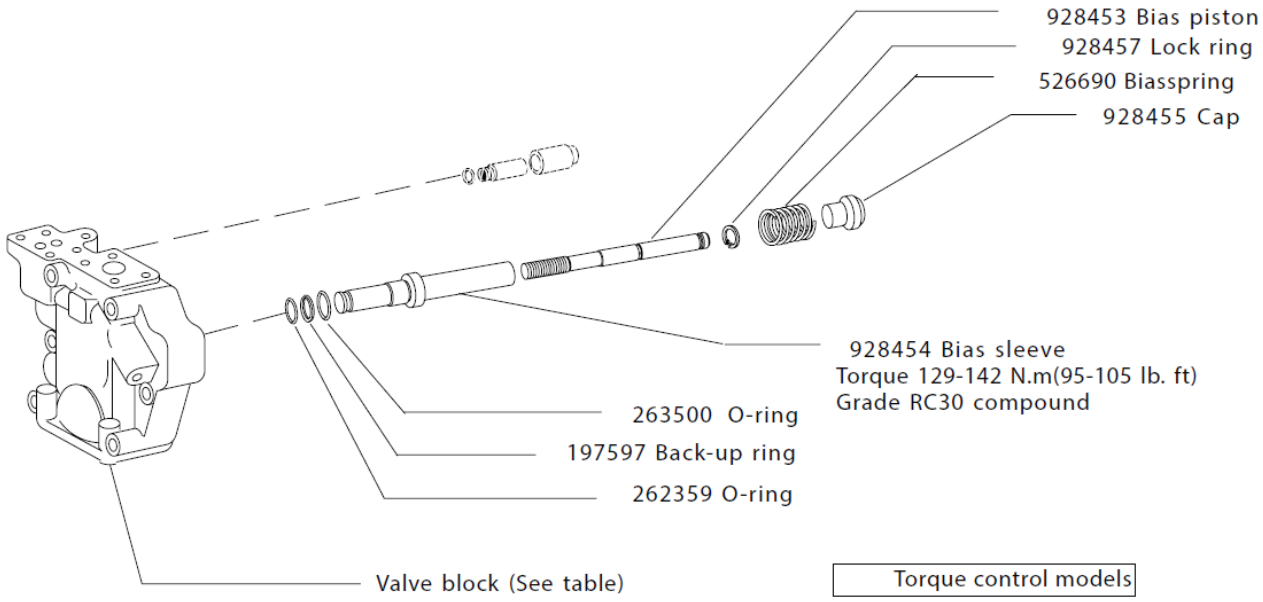
Product Design

Maximum Adjustable Stop –S Option

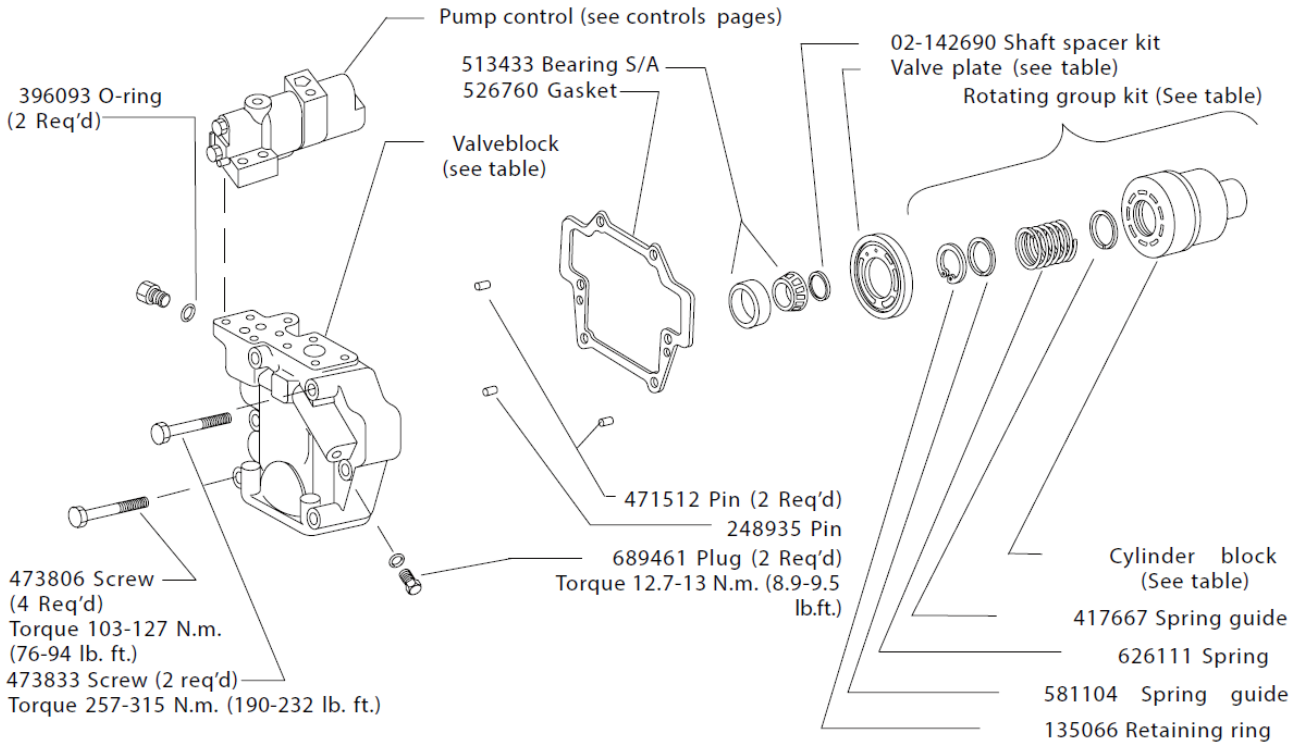


Pump Type	RH	LH
F–11–C	928637	928687
M–11–C	928638	928688
SF–11–C	928624	928673
SM–11–C	928625	928674
F–11–CT	860852	860861
M–11–CT	860853	860862

Torque Limiter T-Option



Standard –C/CM/CMV/CV/IC



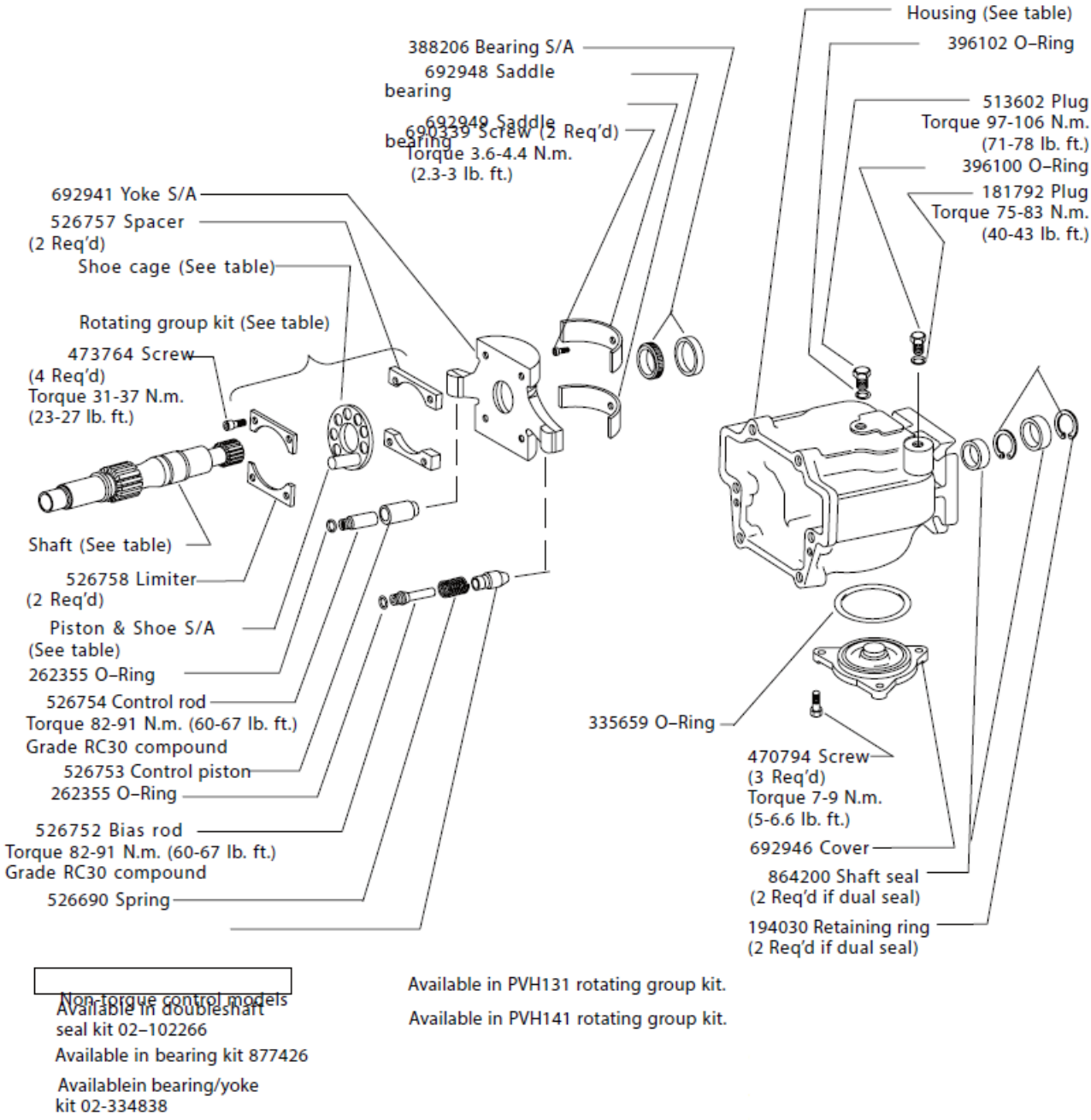
Housing	Flange/Seal
692944	-C-*S –
876277	C-*D –
864310	C3-*S

Note: Complete replacement via rotating group kits is recommended.

Pump Type	RH	LH
131	527164	527163
131QI	864381	876045
131QP	913578	N/A
141	928774	934240
141QI	934242	934243
141QP	934241	N/A

Model Designation	Piston & Shoe S/A (9 req ’d)	Cylinder Block	Shoe Cage	Rotating Group Kit
131 Size	02-159749	680628	683791	877419
141 Size	02-306332	928786	928776	02-322898

Shaft	Type	Key
876177	3 – Splined thru-drive	–
860594	12 – Splined thru-drive	–
876176	16 – Straight-keyed thru drive	633
860802	2 – Splined	–
877042	3 – Splined	–
860593	12 – Splined	–
876175	13 – Straight Keyed	140282



- **NOTE**

  Right hand rotation shown. The view is opposite to left-hand rotation. Please refer to Overhaul Manual M-2210-S.

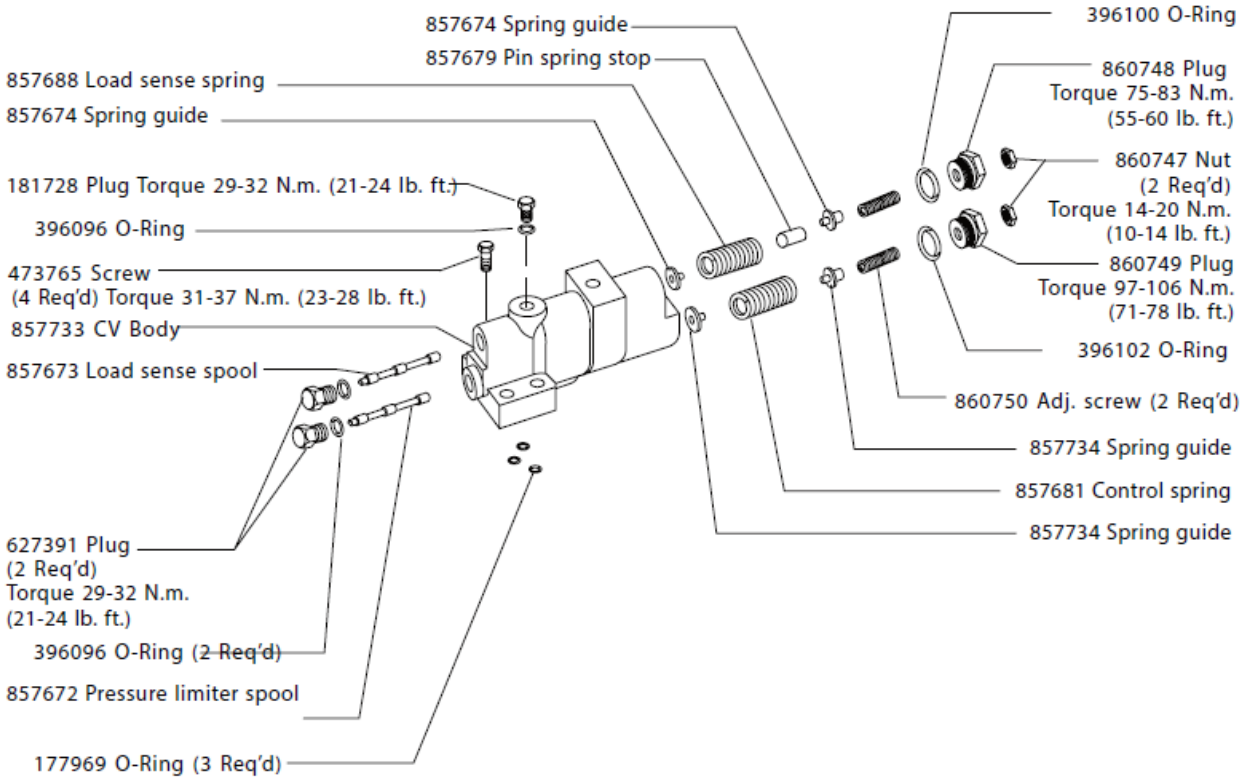
- **NOTE**

  Use shims as required to obtain 0.01–0.10 mm (.0004–.004 in.) axial shaft end play.

- **NOTE**

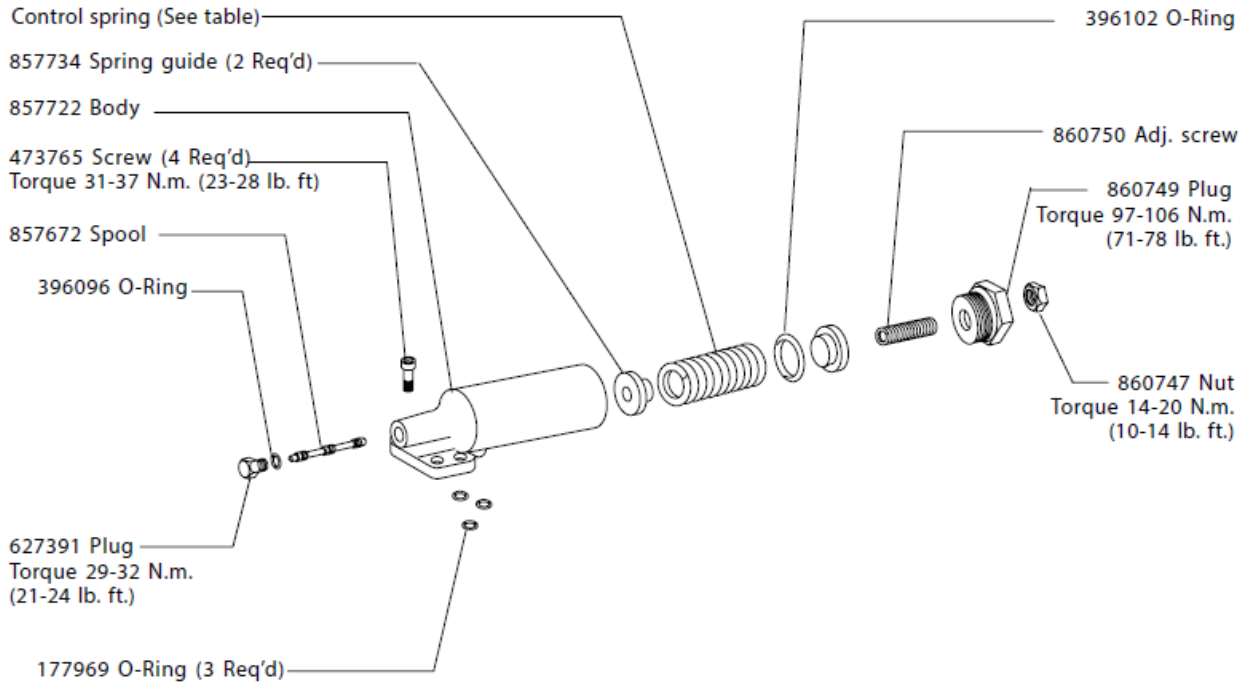
  For satisfactory service life of these components in industrial applications, use full flow filtration to provide fluid which meets cleanliness code 16/14/12 or cleaner.

Load Sensing & Pressure Compensator Control C(M)*V



Control Type	Control Kit	Pressure range	Spring	Body	Orifice Plug
C V	02–125161	140–280 Bar	857681	857733	–
CVB	02–160591			928442	433543
CMV	02–306056	35–140 Bar	857675	857733	–

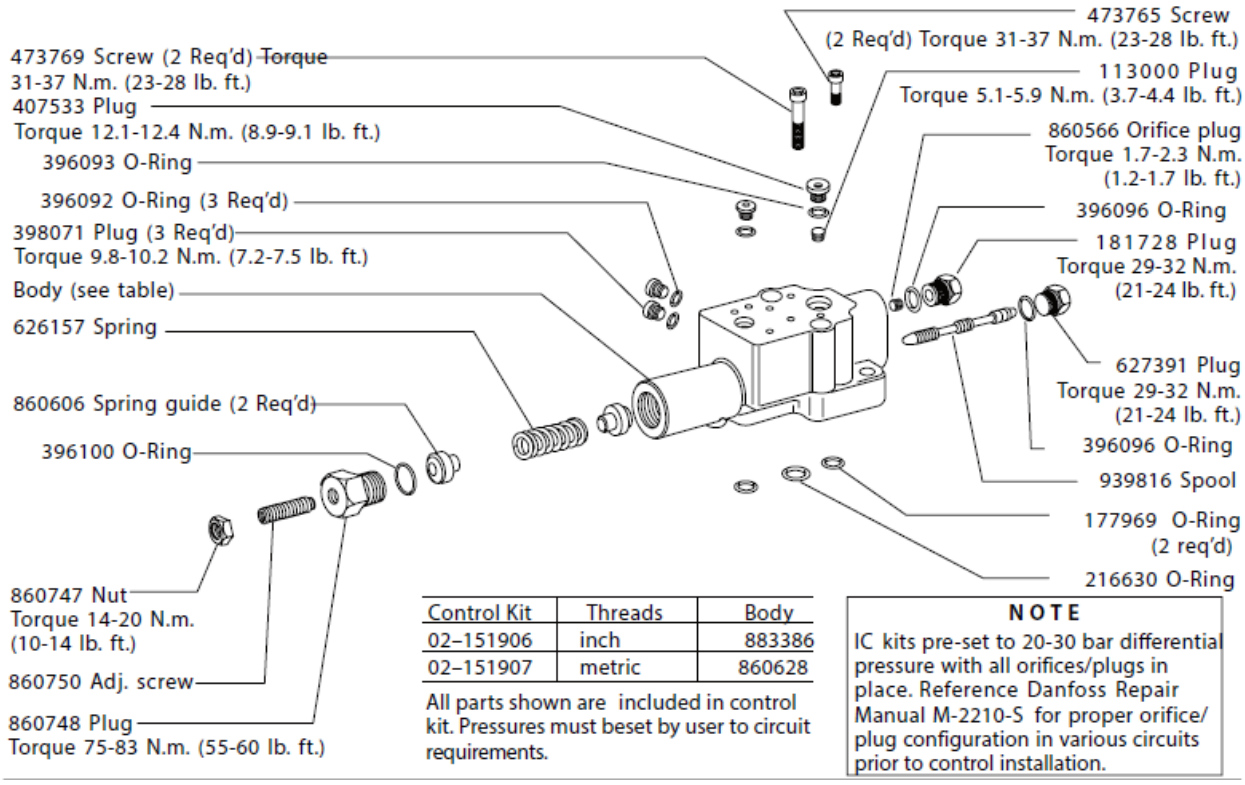
Pressure Compensator Control C & CM



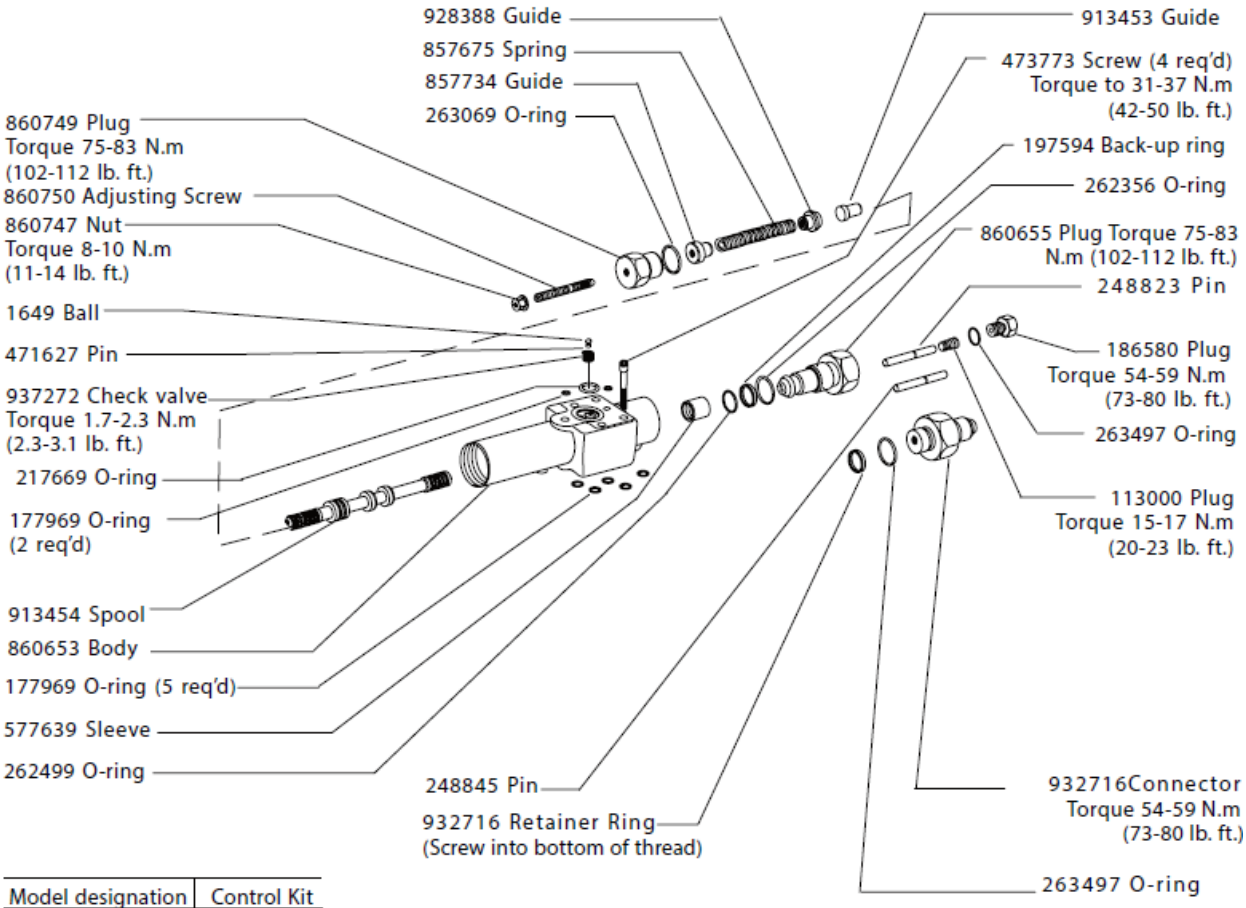
Control Type	Control Kit	Pressure range	Spring
C	02–125160	70-250 Bar	85768
C M	02–125162	40-130 Bar	85767

All parts shown are included in the control kit. Pressures must be set by the user to circuit requirements.

Industrial Control – IC

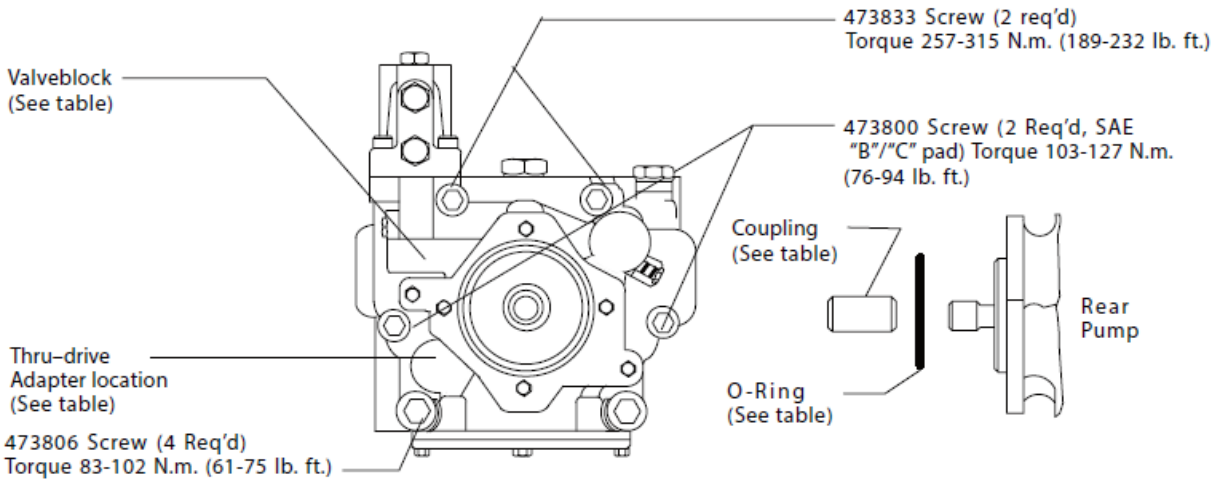


Torque Limitor T-option



Model designation	Control Kit
C**T**-31	02–314944
C**T**S-31	02–335254

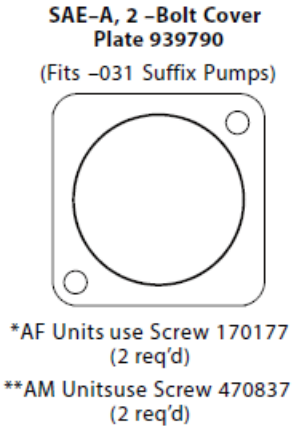
'A' Thru-Drive



Model designation	Valve block w/ SAE ‘‘A’’ Pad	O-Ring	Coupling Type
LAF–11 –C*	928713	576601	877039
LAM–11 –C*	928714		
RAF–11 –C*	928736		
RAM–11 –C*	928737		
LAF–11 –CT	860843		
LAM–11 –CT	860844		
RAF–11 –CT	860834		
RAM–11 –CT	860835		

‘‘B’’ & ‘‘C’’ Thru–drive Adapter

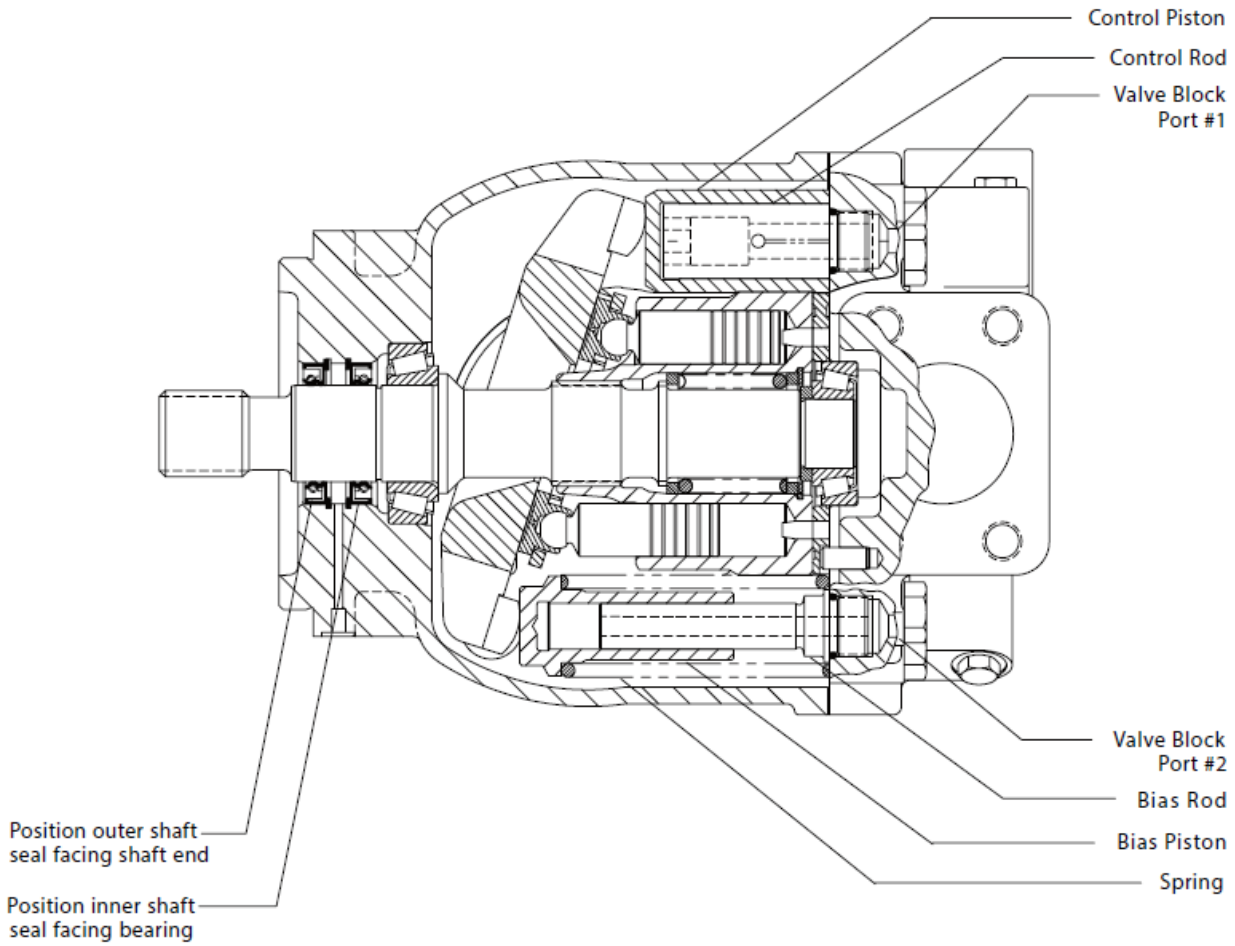
Model Designation	Adapter Pad Kit	Adapter Flange	O-Ring	CouplingTypes
*–*BF–11 –**–	876390	526670	401525	877040 SAE-B 13 tooth 877044 SAE-BB 15 tooth
*BM–11–**–	876394	876393		
*CF–11 –**–	876389	692934	353264	877045 SAE-C 14 tooth 877046 SAE-CC 17 tooth
CM–11–	876392	876391		



Notes:

1. ‘‘F’’ type equal SAE threads
2. ‘‘M’’ type equal metric threads
3. ‘‘B’’ and ‘‘C’’ thru-drives created from ‘‘A’’ thru-drive pump with ‘‘B’’ or ‘‘C’’ thru-drive adapter kit installed.
4. All screws/O-rings are included with each kit to convert from A to B or C thru-drive unit.

Typical Cross Section

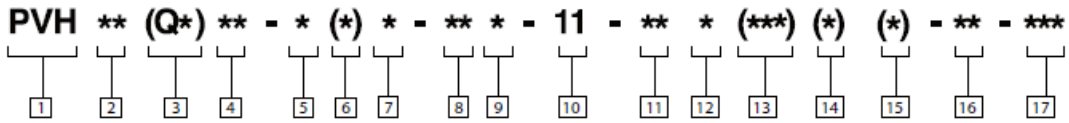


Note
Parts are shown as installed for right-hand rotation. For left-hand rotation, install the control rod and control piston in valve block port #2. Install bias rod, bias piston, and spring in valve block port #2.

Pump Startup

- Make sure the reservoir and circuit are clean and free of dirt and debris prior to filling with hydraulic fluid.
- Fill the reservoir with filtered oil to a level sufficient to prevent vortexing at suction connection to pump inlet. It is good practice to clean the system by flushing and filtering using an external slave pump.
- Before starting the pump, fill with fluid through one of the ports. This is par-ticularly important if the pump is above the fluid level of the reservoir.
- When starting the pump, remove all trapped air from the system. This can be accomplished by loosening the pump outlet fittings or connections before starting the pump or by using an air bleed valve. All inlet connections must be tight to prevent air leaks.
- Once the pump is started, it should prime within a few seconds. If the pump does not prime, check to make sure that there are no air leaks in the inlet line and connections. Also check to make sure that trapped air can escape at the pump outlet.
- After the pump is primed, tighten the loose outlet connections, then operate for five to ten minutes (unloaded) to re-move all trapped air from the circuit. If reservoir has a sight gage, make sure the fluid is clear—not milky.
- Add fluid to the reservoir up to the proper fill level.

Model Code



1. Piston pump, variable displacement
2. Maximum geometric displacement
   - 131 – 131.1 cm3/r (8.0 in3/r)
   - 141 -141.6 cm3/r (8.64 in3/r)
3. Application style
   - Blank – Mobile application (rated speed & 250/280 bar [3600-4000 psi] pressures)
   - QI – Quiet industrial application (1500 – 1800 rpm & 250/280 bar (3600-4000 psi) pressures)
   - QP – Quiet power unit application (1800 rpm & 140 bar (2000 psi) max. pressures –R.H. rotation only)
4. Mounting flange, prime mover end
   - C – SAE “C” 4–bolt type (SAE J744-127-4)
   - C3 – Optional 4-bolt SAE-C pilot for vertical pump mounting
5. Shaft rotation, viewed at prime mover end
   - R – Right hand, clockwise
   - L – Left hand, counterclockwise
6. Configuration
   - Blank – Non-thru-drive (single pump) A – SAE-A thru-drive pump, standard (SAE J744-82-2)
   - B – SAE-B thru-drive pump, optional (SAE J744-101-2/4)
   - C – SAE-C thru-drive pump, optional (SAE J744-127-2/4)
   - S – Adjustable maximum volume stop (‘‘S’’ option not available on thru-drive and torque control pump models.)
7. Main ports
   - F – SAE 4-bolt flange ports (standard)
   - M – SAE 4-bolt pads with metric mounting bolt threads
8. Shaft-end type, at prime mover end
   - 2 – SAE-C 14 tooth spline
   - 3 – SAE-CC 17 tooth spline
   - 12 – SAE-D 13 tooth spline
   - 13 – SAE-CC straight keyed
   - 16 – SAE-D straight keyed
9. Shaft seal, prime mover end
   - S – Single, one-way
   - D – Double, two-way
10. Pump design number
11. Pressure control type
    - C – Compensator, 140-280 bar (2000-4000 psi)
    - CM – Compensator, 35-140 bar (500-2000 psi)
    - IC – CETOP 3 interface compensator,20 bar factory ‘‘differential’’ pressure setting (QI and QP models only)
12. Factory compensator pressure setting
    - Blank – Leave blank for ‘‘IC’’ controls only

- 7-70 bar (1015 psi) normal ‘‘CM7 ’’ setting (all pump sizes)
- 23 – 230 bar (3335 psi) normal ‘‘C23 ’’ setting (63, 81, 106, 141 models)
- 25 – 250 bar (3625 psi) normal ‘‘C25 ’’ setting (57, 74, 98, 131 models)

13. Optional pressure control functions
    - Blank – Leave blank for basic compensator controls of IC models.
    - V – Load sensing, 20 bar (290 psi) factory ‘‘differential’’ pressure setting
    - T – Torque limiting control (Used with sections and.
    - VT – Load sensing14 with15torque limiting VB – Load sensing with internal bleed down (0.15” dia. orifice)
    - VBT- Load sensing with internal bleed down and torque limiting
14. Torque limiting control pressure setting
    - Blank – Leave blank if no ttorque-limitingcontrol is used
    - 4 – Standard minimum 40 bar setting of ‘‘T’’ torque control option
15. Torque limiting control summation
    - Blank – Standard torque control
    - S – Optional torque control with summation feature
16. Control design number
    - 31 – All control options
17. Special feature suffix
    - 031- Mounting with SAE-A, 2-bolt cover plate .

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Assembly Instructions

1. Refer to the Valve Block Table for correct component placement.
2. Ensure proper torque values are applied during assembly.
3. Use full-flow filtration to ensure fluid cleanliness for optimal performance.

Installation Steps

1. Mount the Piston Pump securely in the designated location.
2. Connect the necessary hydraulic lines according to the system requirements.
3. Adjust the valve block and torque control models as per specifications.

Maintenance Guidelines

- Regularly inspect O-rings, back-up rings, and seals for wear or damage.
- Replace components recommended in rotating group kits for extended product life.
- Follow the overhaul manual M-2210-S for proper maintenance procedures.

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- Danfoss Power Solutions (US) Company 2800 East 13th Street Ames, IA 50010, USA
  Phone: +1 515 239 6000
- Danfoss Power Solutions GmbH & Co. OHG Krokamp 35 D-24539 Neumünster, Germany
  Phone: +49 4321 871 0
- Danfoss Power Solutions ApS Nordborgvej 81 DK-6430 Nordborg, Denmark
  Phone: +45 7488 2222
- Danfoss Power Solutions Trading (Shanghai) Co., Ltd. Building #22, No. 1000 Jin Hai Rd Jin Qiao, Pudong New District Shanghai, China 201206
  Phone: +86 21 2080 6201

FAQs

Q: What is the recommended torque for the locknut?
The recommended torque for the locknut is 25-50 N.m. (18-37 lb. ft.).

Q: How should I ensure optimal performance in industrial applications?
To ensure optimal performance in industrial applications, use full-flow filtration to provide fluid meeting cleanliness code 16/14/12 or cleaner.

Documents / Resources

	Danfoss PVH131 Variable Displacement Piston Pump [pdf] Owner's Manual 131, 141, PVH131 Variable Displacement Piston Pump, PVH131, Variable Displacement Piston Pump, Displacement Piston Pump, Piston Pump

References

- Leading Drivetrain Manufacturer - Hydro-Gear
- User Manual