Service Data

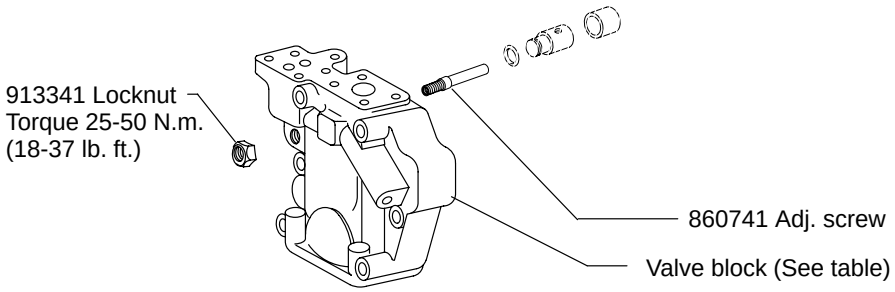
Vickers®

Piston Pumps

PVH74/81 Variable Displacement Piston Pump - 11 Design

Revised 11/01/97

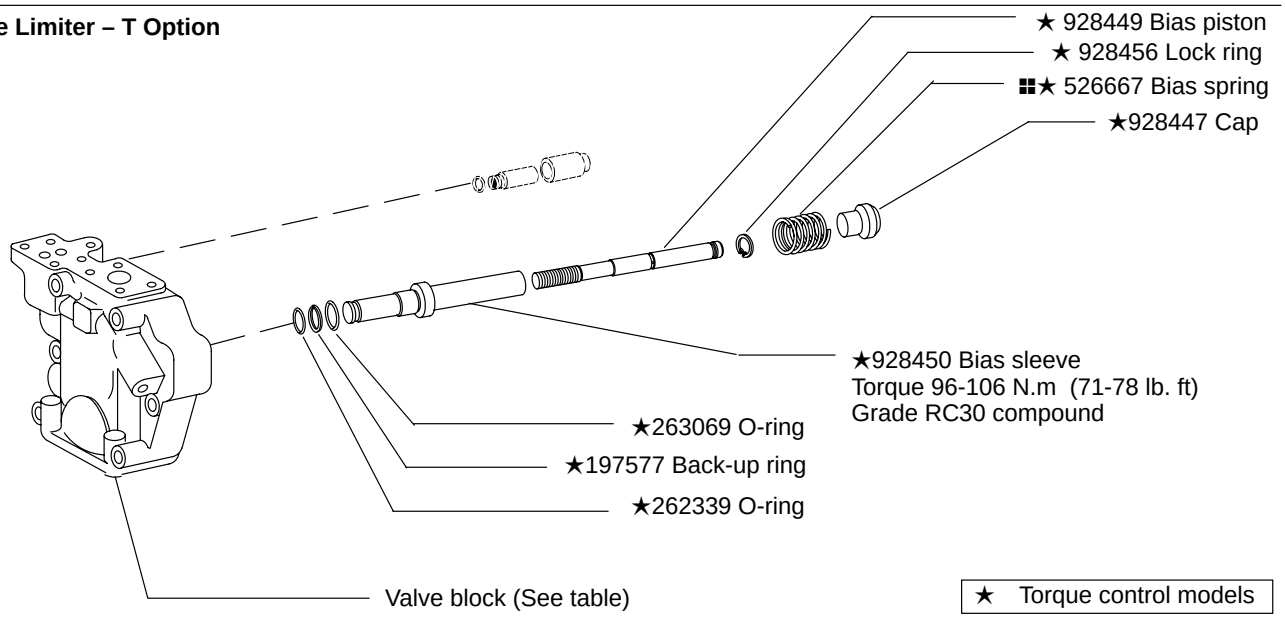
Maximum Adjustable Stop – S Option



Valve Block Table

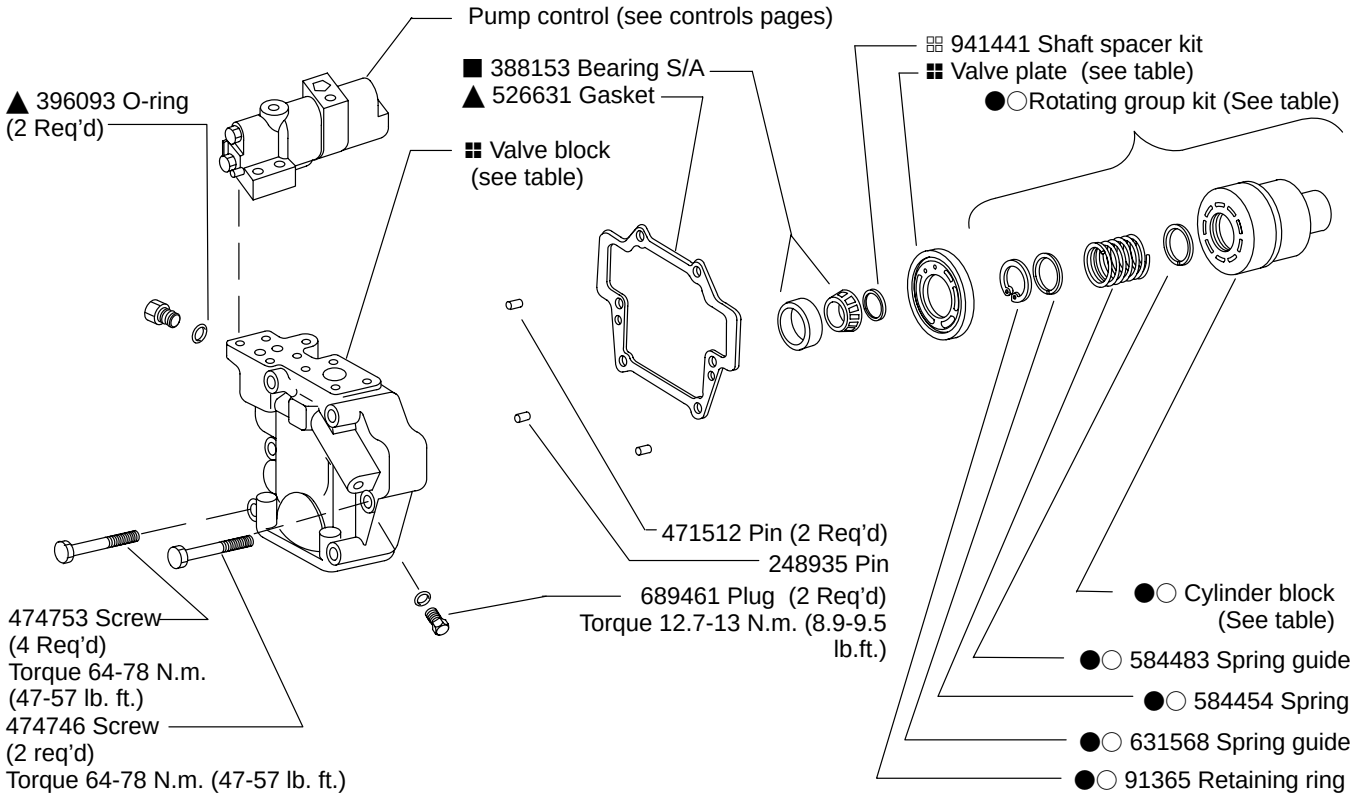
Pump Type	RH	LH
F–11–C	928633	928681
M–11–C	928634	928682
SF–11–C	928620	928669
SM–11–C	928621	928670
F–11–CT	860848	860857
M–11–CT	860849	860858

Torque Limiter – T Option



★ Torque control models

Standard – C/CM/CMV/CV/IC



© Eaton Hydraulics, Incorporated 2000
All Rights Reserved

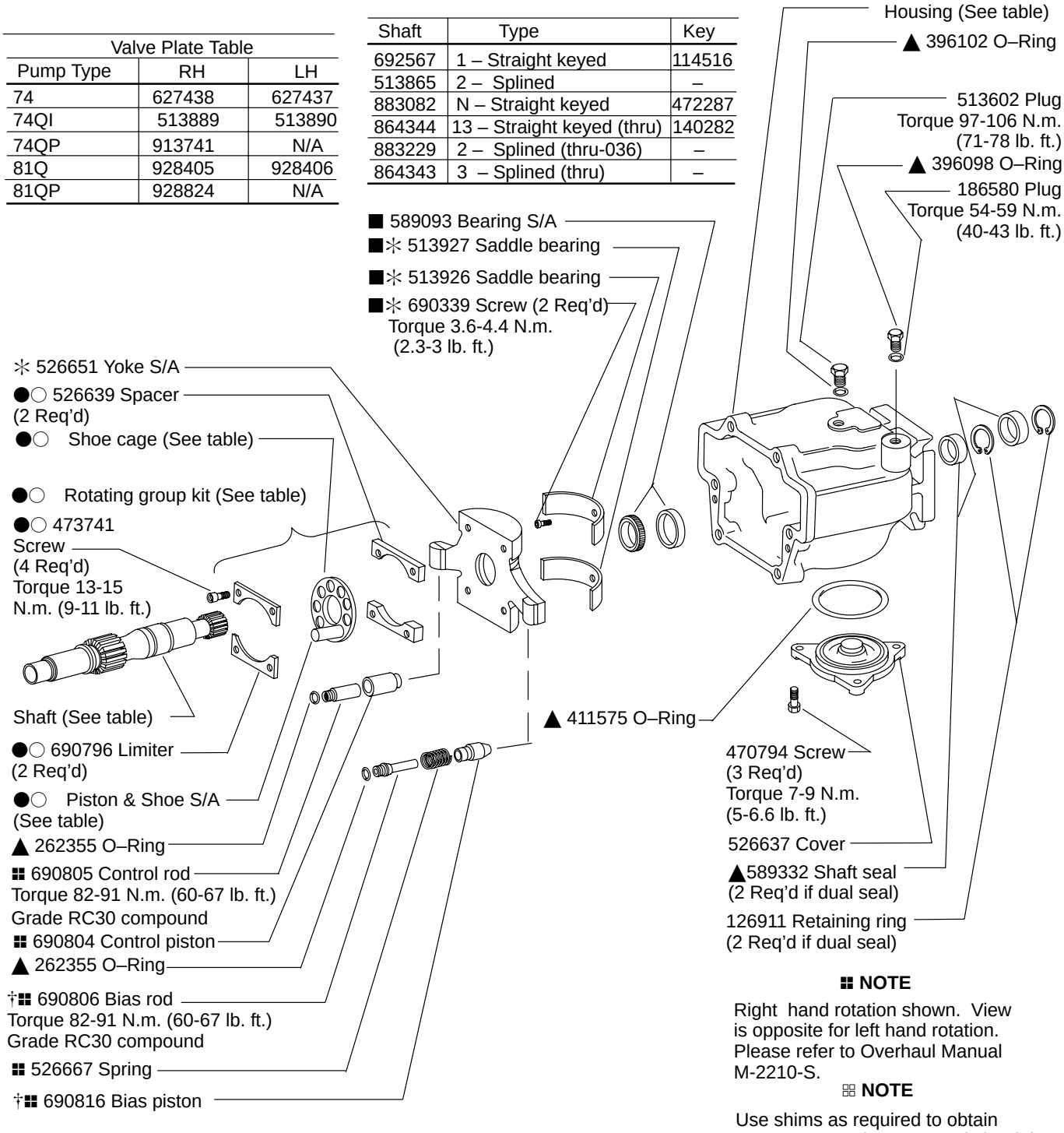
Housing	Flange/Seal
526649	-C-*S
864498	-C-*D
860564	-C2-*S
860814	-C2-*D
864312	-C3-*S
883085	-M-*S

Note
Complete replacement via rotating group kits is recommended.

Model Designation	Piston & Shoe S/A (9 req'd)	Cylinder Block	Shoe Cage	Rotating Group Kit
●74 Size	02-305857	937025	584774	●877421
○81 Size	02-306364	937026	913956	○02-314746

Valve Plate Table		
Pump Type	RH	LH
74	627438	627437
74QI	513889	513890
74QP	913741	N/A
81Q	928405	928406
81QP	928824	N/A

Shaft	Type	Key
692567	1 – Straight keyed	114516
513865	2 – Splined	–
883082	N – Straight keyed	472287
864344	13 – Straight keyed (thru)	140282
883229	2 – Splined (thru-036)	–
864343	3 – Splined (thru)	–



■ NOTE

Right hand rotation shown. View is opposite for 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.

† Non-torque control models

▲ Available in double shaft seal kit 02–102262

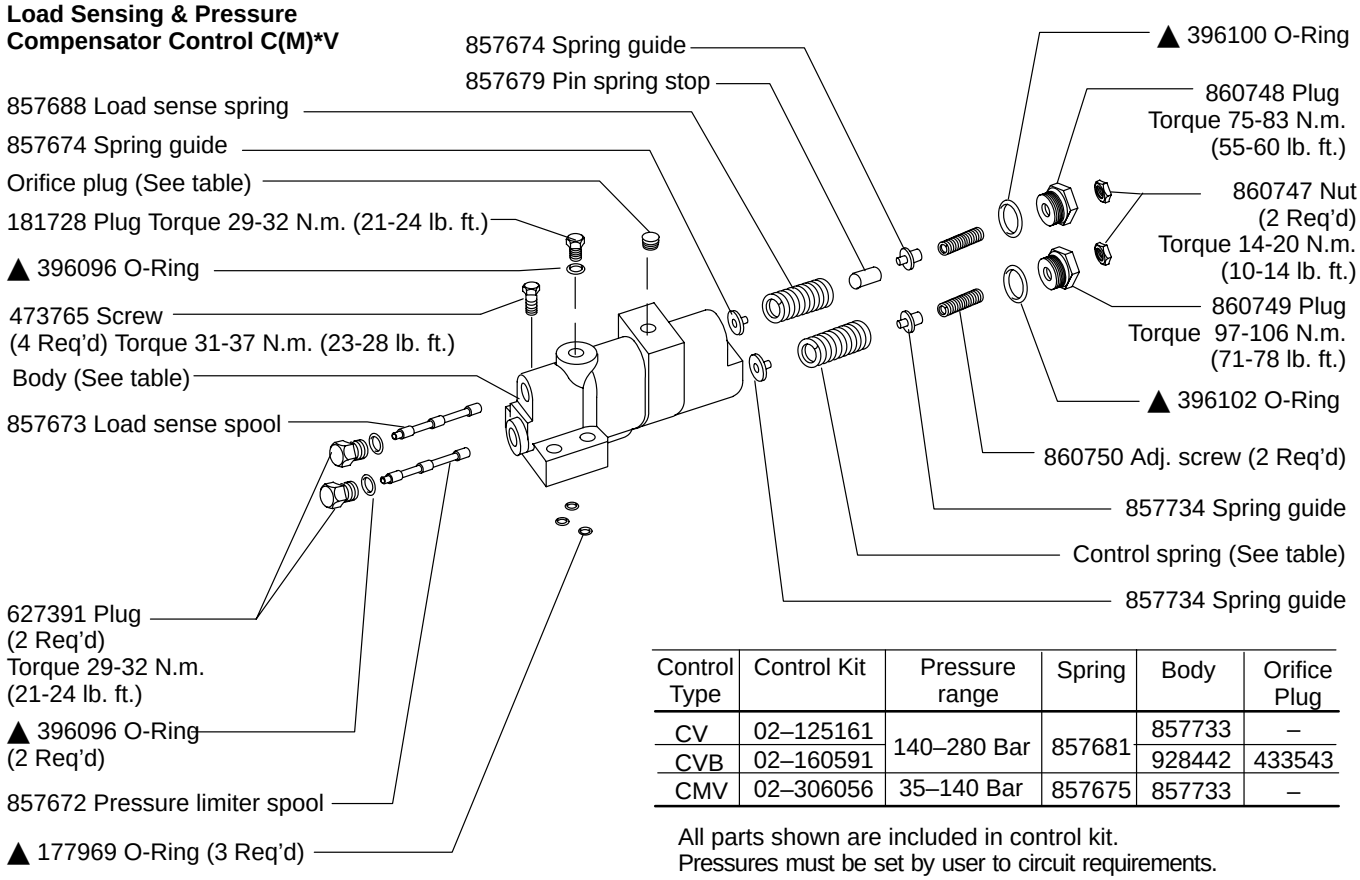
■ Available in bearing kit 877424

⁎ Available in bearing/yoke kit 02-334835

● Available in PVH74 rotating group kit.

○ Available in PVH81 rotating group kit.

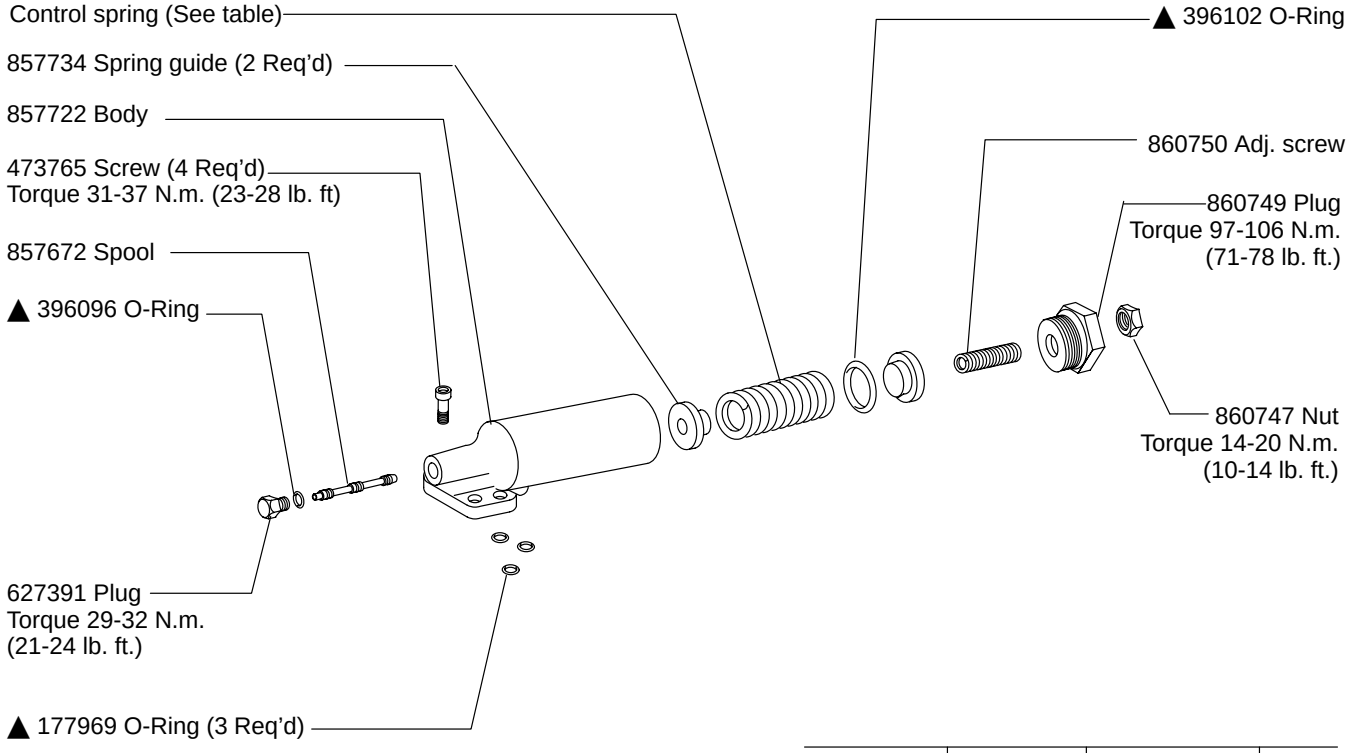
Load Sensing & Pressure Compensator Control C(M)*V



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

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

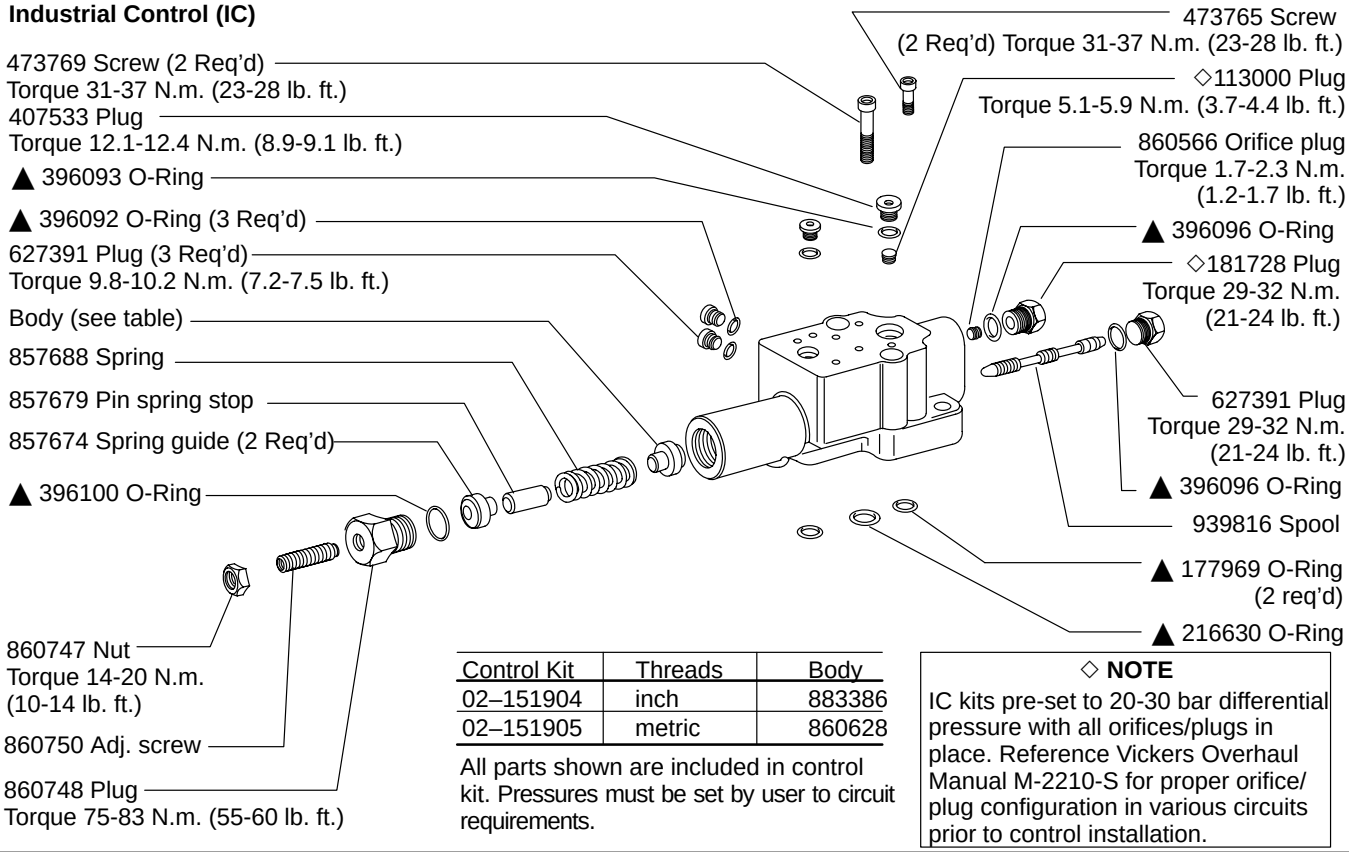
Pressure Compensator Control C & CM



Control Type	Control Kit	Pressure range	Spring
C	02–125160	140–280 Bar	857681
CM	02–125162	35–140 Bar	857675

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

Industrial Control (IC)



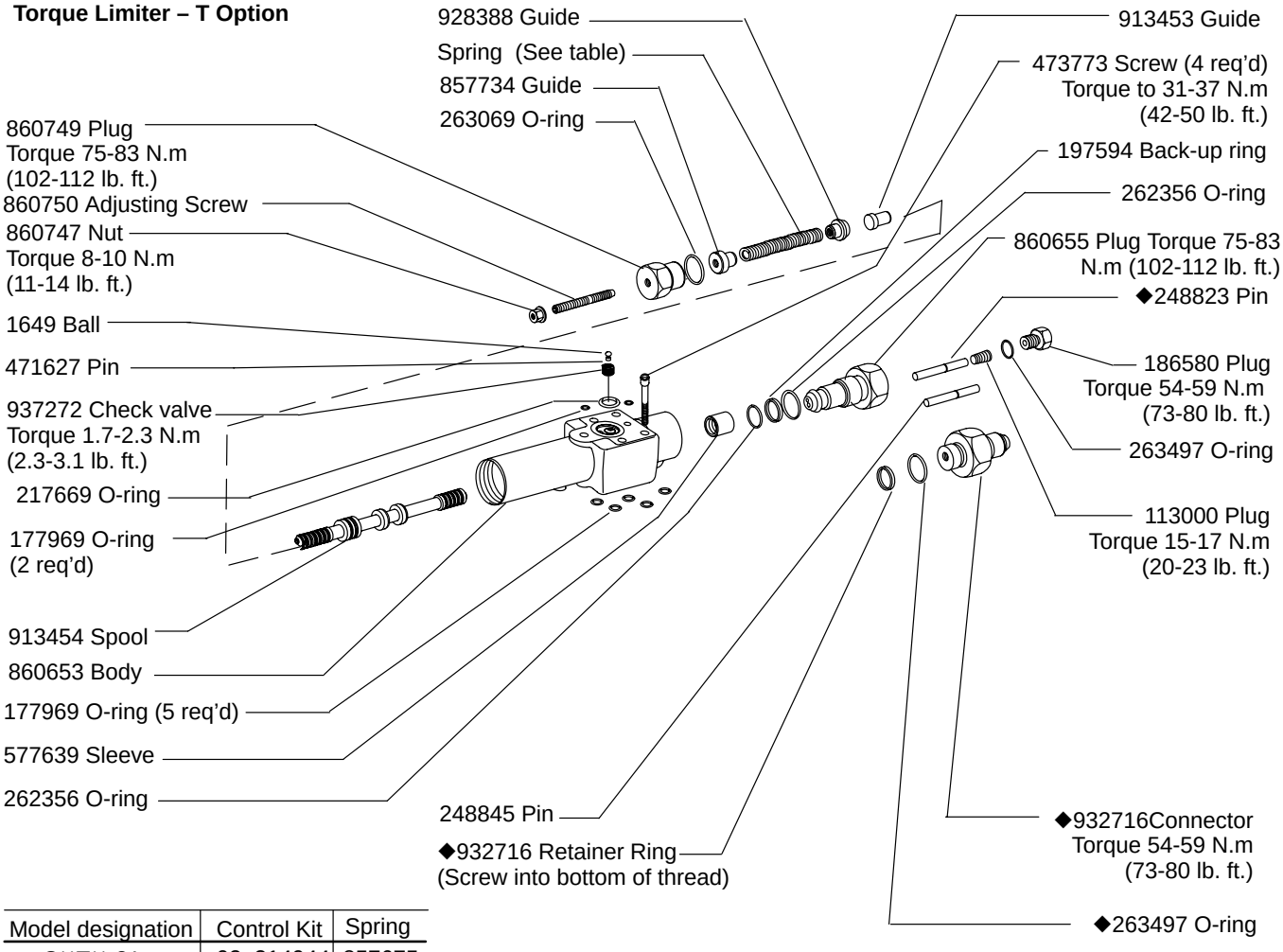
Control Kit	Threads	Body
02–151904	inch	883386
02–151905	metric	860628

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

◇ **NOTE**

IC kits pre-set to 20-30 bar differential pressure with all orifices/plugs in place. Reference Vickers Overhaul Manual M-2210-S for proper orifice/ plug configuration in various circuits prior to control installation.

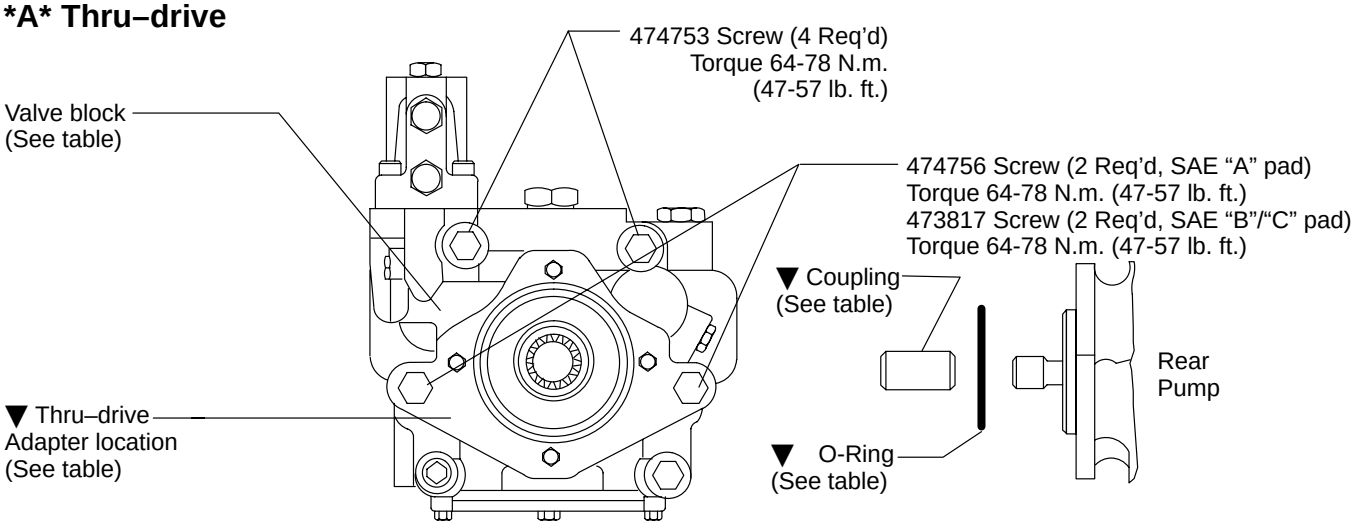
Torque Limiter – T Option



Model designation	Control Kit	Spring
C**T**-31	02–314944	857675
C**T**S-31	02–335254	857681

◆Torque summation parts

A Thru–drive

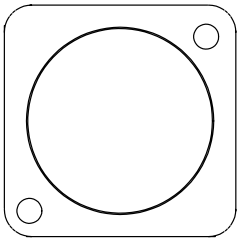


"A" Thru–drive

Model designation	Valve block w/ SAE "A" Pad	O-Ring	Coupling Type
LAF–11–C*	928707	576601	864460 9 tooth SAE-A
LAM–11–C*	928708		
RAF–11–C*	928732		
RAM–11–C*	928733		
LAF–11–CT	860839		
LAM–11–CT	860840		
RAF–11–CT	860830		
RAM–11–CT	860831		

SAE–A, 2–Bolt Cover Plate 939790

(Fits –031 Suffix Pumps)



*AF Units use Screw 170177 (2 req'd)

**AM Units use Screw 470837 (2 req'd)

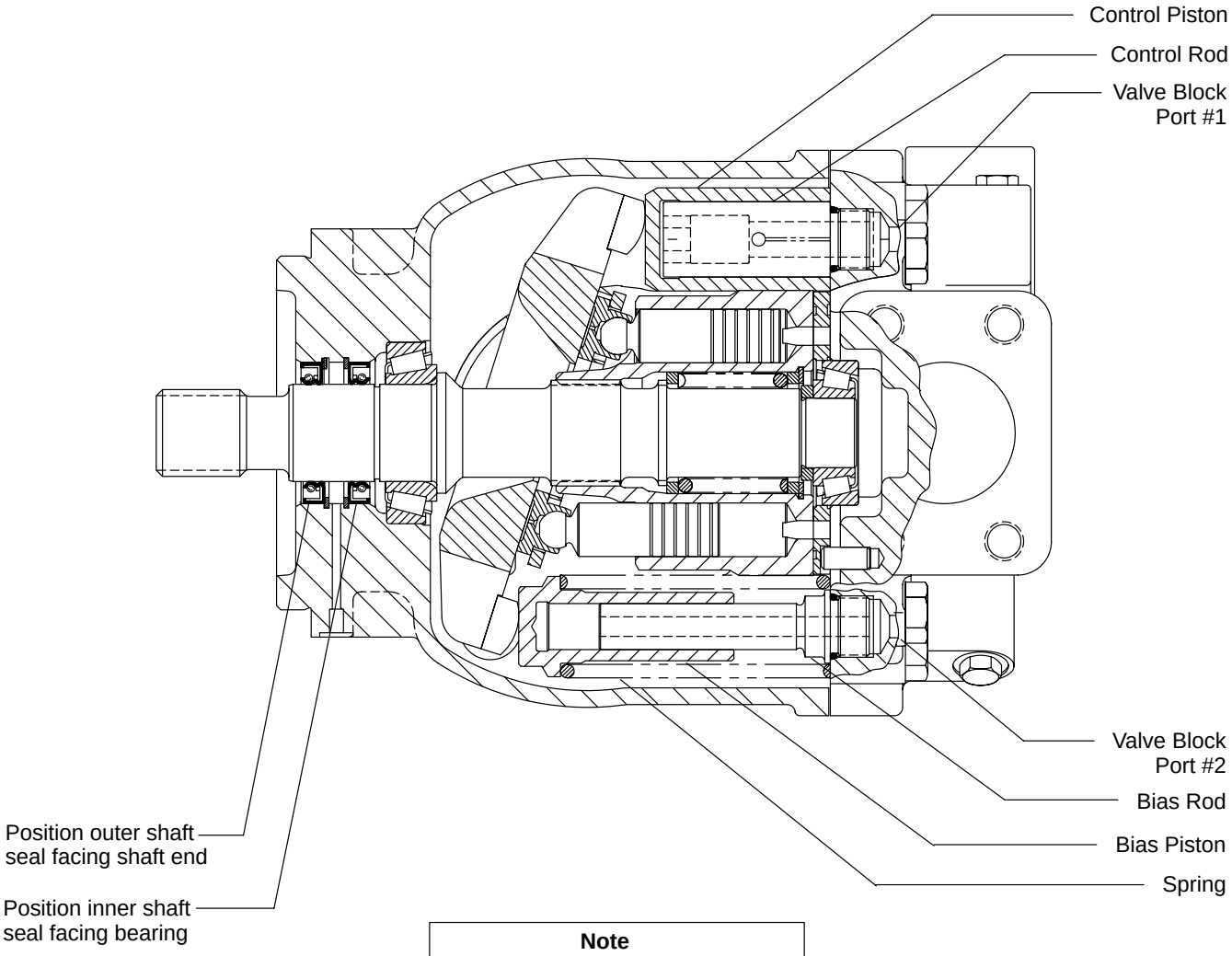
▼"B" & "C" Thru–drive Adapter

Model Designation	Adapter Pad Kit	Adapter Flange	O-Ring	CouplingTypes
*–*BF–11–*	876390	526670	401525	864457 SAE B - 13 tooth
*–*BM–11–*	876394	876393		864459 SAE BB - 15 tooth
*–*CF–11–*	876389	692934	353264	864458 SAE C - 14 tooth
*–*CM–11–*	876392	876391		864461 SAE CC - 17 tooth

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 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 particularly important if the pump is above the fluid level of the reservoir.

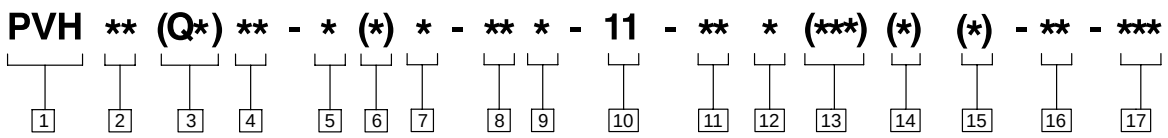
When initially starting the pump, remove all trapped air from the system. This can be accomplished by loosening the pump outlet fittings or connections before starting the pump, or by using an air bleed valve. All inlet connections must be tight to prevent air leaks.

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 remove 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

74 - 73.7 cm^3/r (4.5 in^3/r)
81 - 80.9 cm^3/r (4.94 in^3/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)
C2 - Optional combination 2- & 4-bolt SAE-C pilot
C3 - Optional 4-bolt SAE-C pilot for vertical pump mounting
M - Optional metric 4-bolt pilot ISO 3019/2-125B4HW (Must be used with 'N' shaft option.)

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

N - Metric ISO short straight key (ISO 3019/2-E32N for "M" pilot only)
1 - SAE-C straight key
2 - SAE-C 14 tooth spline
3 - SAE-CC 17 tooth spline
13 - SAE-CC straight key

9 Shaft seal, prime mover end

S - Single, one-way
D - Double, two-way

10 Pump design number

11 - (Subject to change. Installation dimensions unaltered for design numbers 10 to 19 inclusive.)

11 Pressure control type

C - Compensator, 140-280 bar (2080-4000 psi)
CM - Compensator, 35-140 bar (50-2000 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 14 and 15 .
VT - Load sensing with torque 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 torque limiting control 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
036 - #2 "C" spline shaft in thru-drive pumps***



***CAUTION**
Maximum shaft input torque must not exceed 5660 lb-in.

Printed in U.S.A.

Eaton
Fluid Power Group
Hydraulics Business USA
14615 Lone Oak Road
Eden Prairie, MN 55344
USA
Tel: 952-937-9800
Fax: 952-294-7722
www.eaton.com/hydraulics

Eaton
Fluid Power Group
Hydraulics Business Europe
Route de la Longeraie 7
1110 Morges
Switzerland
Tel: +41 (0) 21 811 4600
Fax: +41 (0) 21 811 4601

Eaton
Fluid Power Group
Hydraulics Business Asia Pacific
11th Floor Hong Kong New World Tower
300 Huaihai Zhong Road
Shanghai 200021
China
Tel: 86-21-6387-9988
Fax: 86-21-6335-3912

Powering Business Worldwide

© 2008 Eaton Corporation
All Rights Reserved
Printed in USA
Document No. V-PUPI-TP001-E
Supersedes M-2207-S
December 2008