Bulletin PM1624-10-M1/USA

Parker Pumps Parts & Service

Effective: May, 2000
Supersedes: Febuary, 1996

PVP Series Variable Volume Piston Pump Service Bulletin

Model
PVP41**** 10
PVP48**** 10

⚠ WARNING

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Pump Cut-A-Way 4-5

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Hi-Lo Control 8

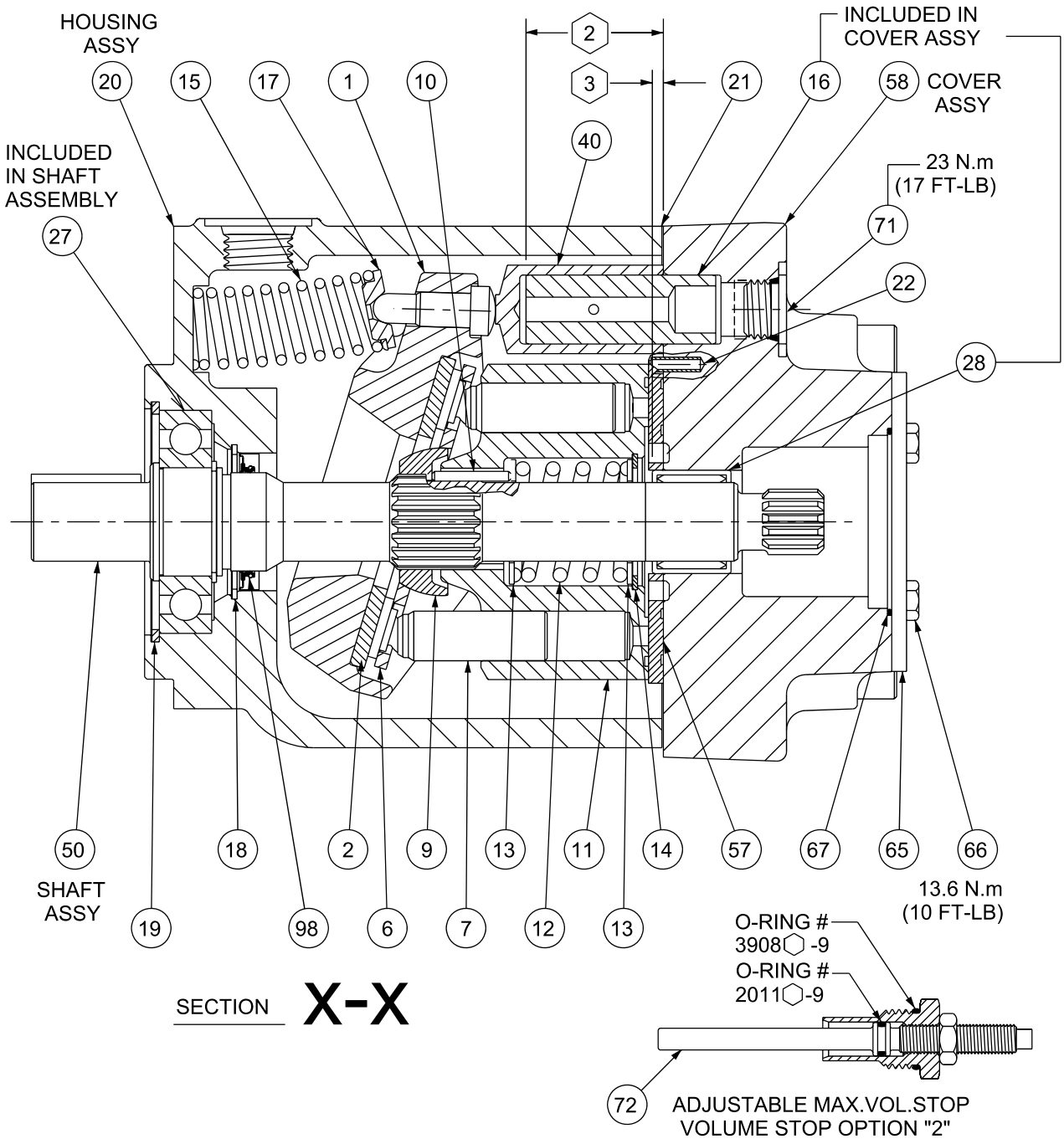
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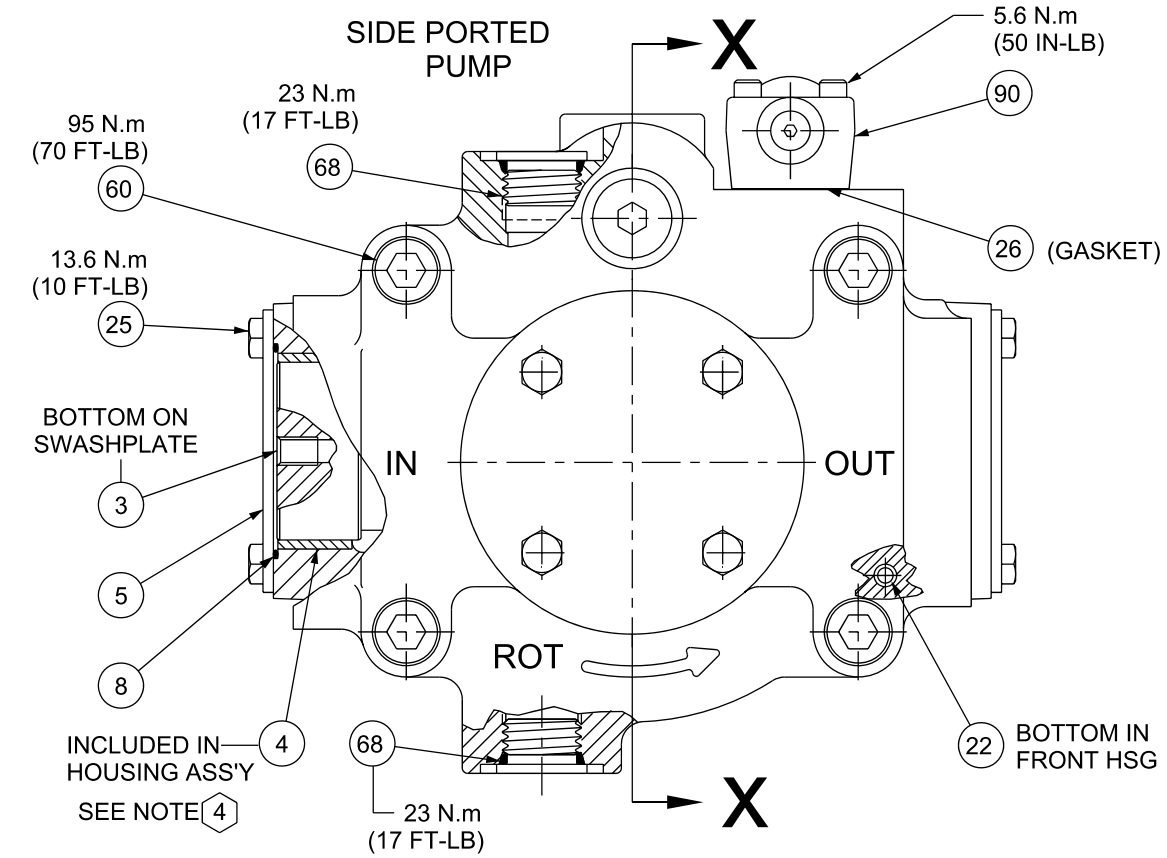
NOTE:

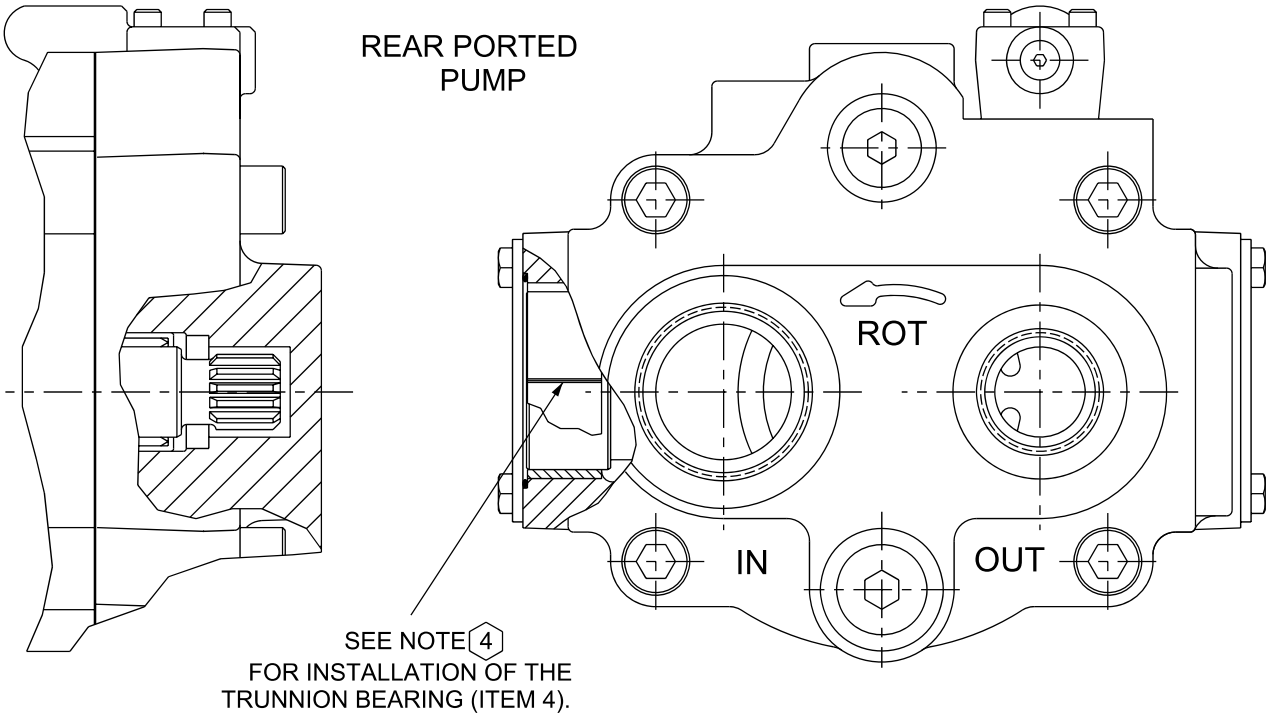
1 PUMP SHOWN IS A RIGHTHAND (CW) ROTATION PUMP. FOR A LEFTHAND (CCW) ROTATION PUMP THE INLET AND OUTLET PORTS WILL BE REVERSED.

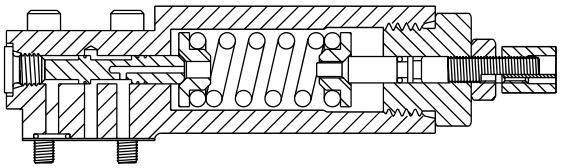
2 INSTALLED HEIGHT OF ITEM 16 (SERVO POST) ABOVE ITEM 58 (REAR COVER) TO BE 44.27/44.37mm (1.743/1.747").

3 INSTALLED HEIGHT OF ITEM 28 (NEEDLE BEARING) ABOVE ITEM 58 (REAR COVER) TO BE 3.30/3.81mm (.130/.150").

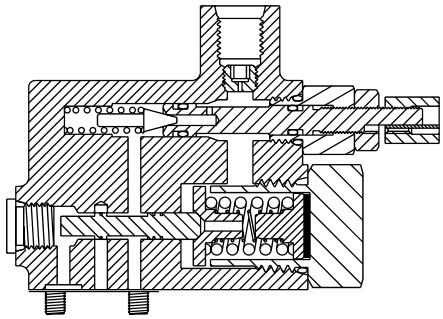
4 INSTALL ITEM 4 (TRUNNION BEARING) INTO HOUSING FLUSH WITH THE BOTTOM OF THE O-RING GROOVE.THE SEAM MUST BE ORIENTED TOWARDS THE REAR COVER WITHIN ±30˚.


SIDE PORTED PUMP
X
5.6 N.m (50 IN-LB)
90
23 N.m (17 FT-LB)
68
95 N.m (70 FT-LB)
60
26 (GASKET)
13.6 N.m (10 FT-LB)
25
BOTTOM ON SWASHPLATE
3
IN
OUT
5
ROT
8
INCLUDED IN HOUSING ASS'Y
SEE NOTE 4
4
68
22
BOTTOM IN FRONT HSG
23 N.m (17 FT-LB)
X

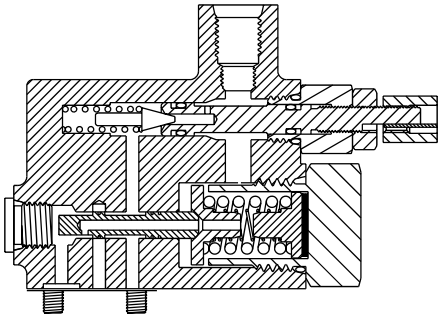

REAR PORTED PUMP
ROT
IN
OUT
SEE NOTE 4
FOR INSTALLATION OF THE TRUNNION BEARING (ITEM 4).



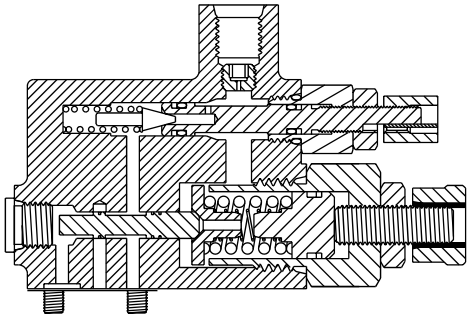
"OMIT" COMPENSATOR ITEM 90



"ME" COMPENSATOR ITEM 92

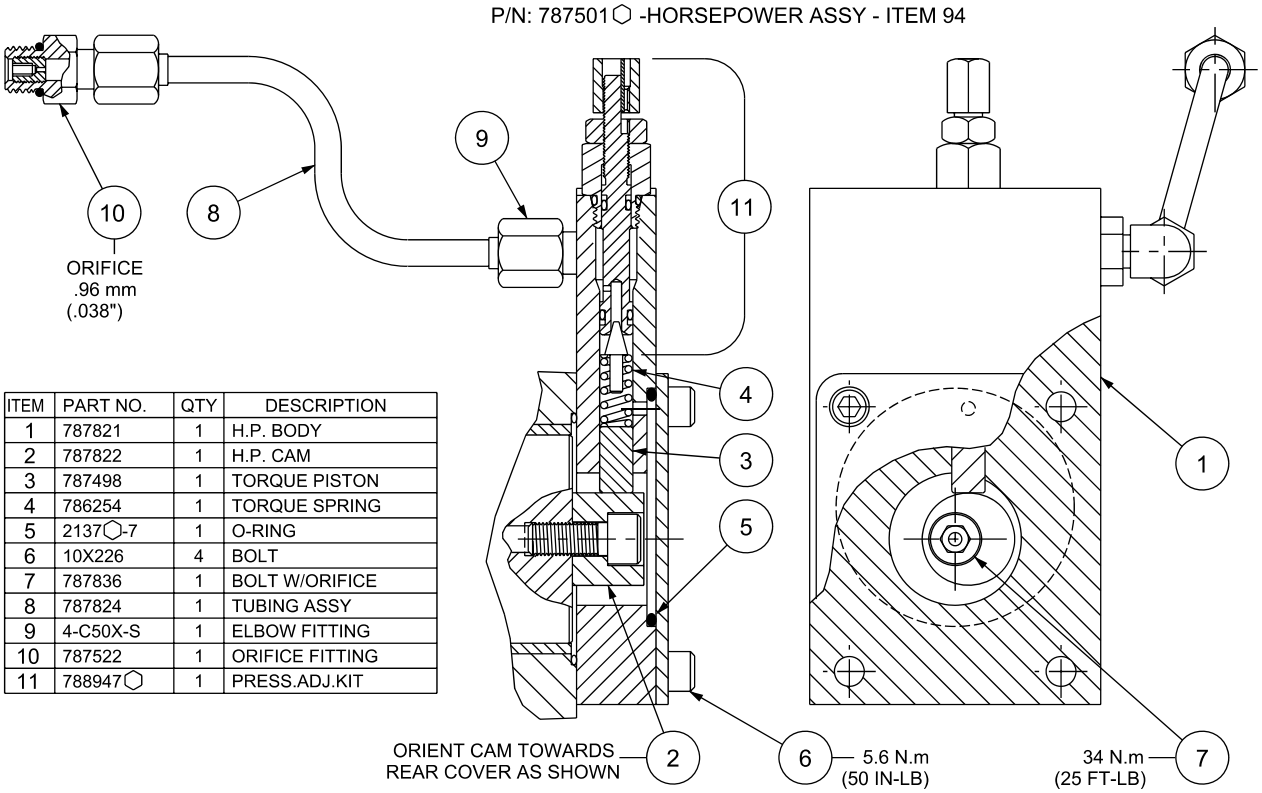


REMOTE CONTROL OPTION "M"
REQ'D W/POWER OPTION "H" OR "HLM"
ITEM 91

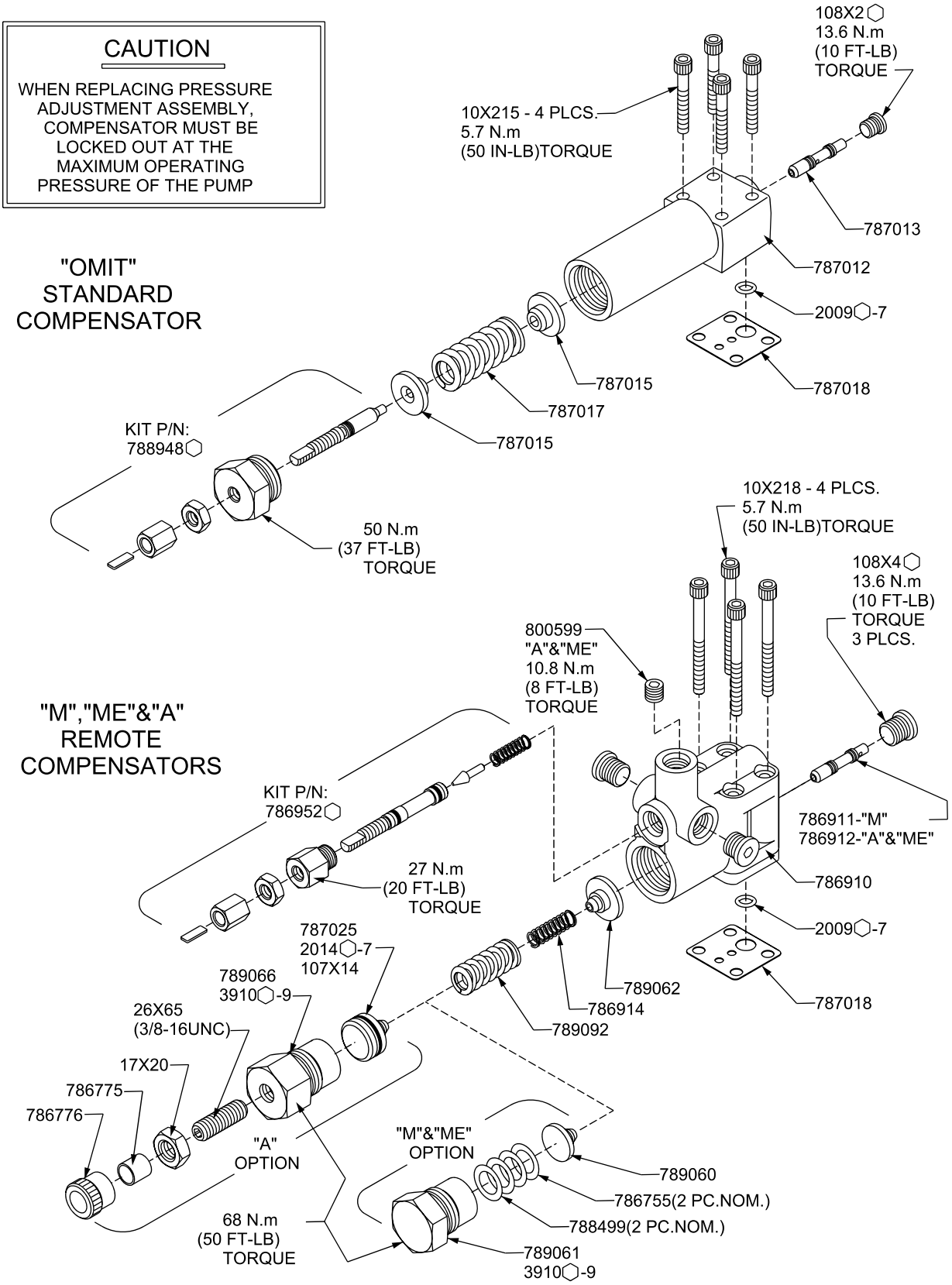


LOAD SENSE OPTION "A"
REQ'D W/POWER OPTION "C" OR "HLA"
ITEM 93

P/N: 787501⬡ -HORSEPOWER ASSY - ITEM 94



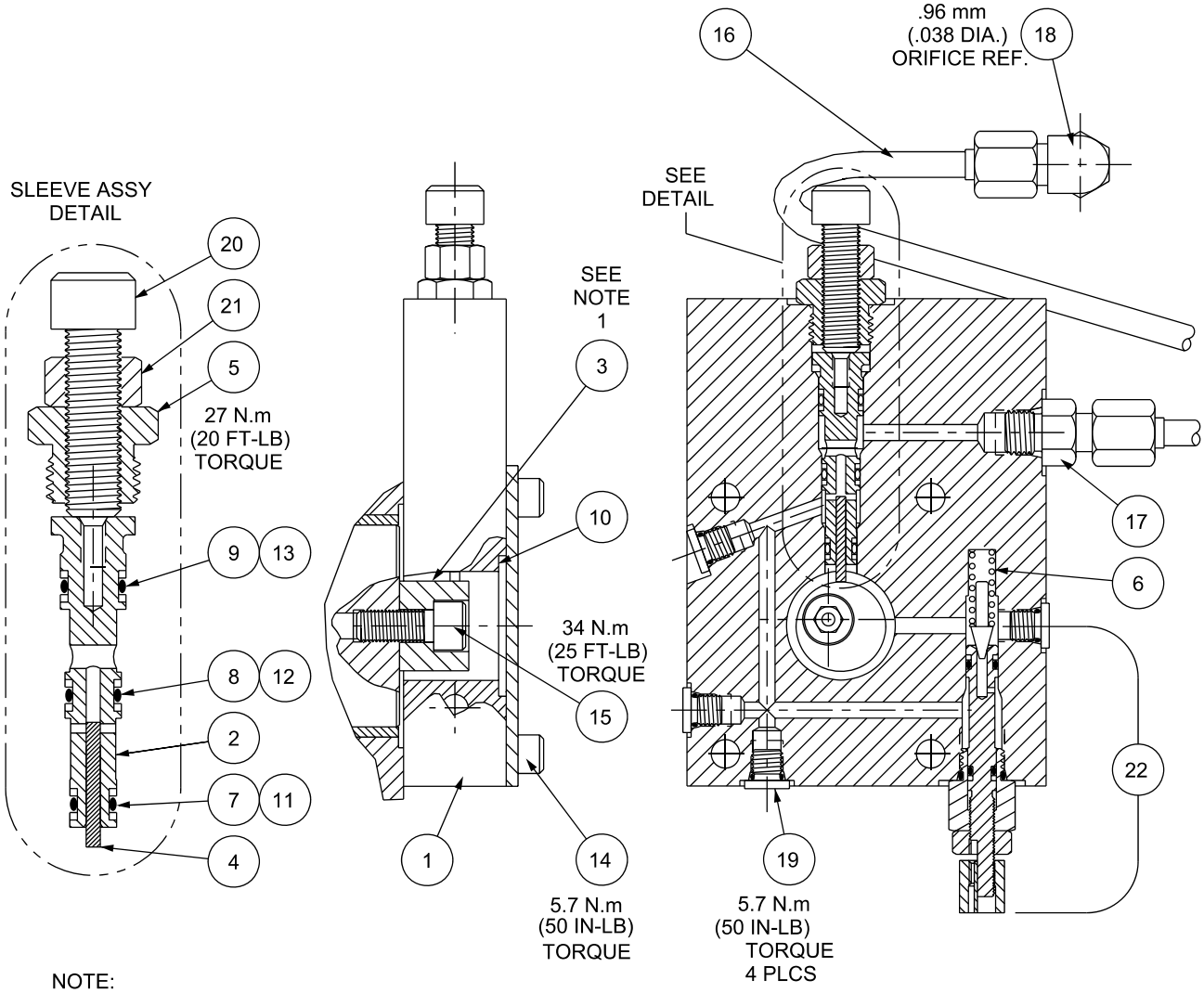
ITEM	PART NO.	QTY	DESCRIPTION
1	787821	1	H.P. BODY
2	787822	1	H.P. CAM
3	787498	1	TORQUE PISTON
4	786254	1	TORQUE SPRING
5	2137⬡-7	1	O-RING
6	10X226	4	BOLT
7	787836	1	BOLT W/ORIFICE
8	787824	1	TUBING ASSY
9	4-C50X-S	1	ELBOW FITTING
10	787522	1	ORIFICE FITTING
11	788947⬡	1	PRESS.ADJ.KIT


CAUTION
WHEN REPLACING PRESSURE ADJUSTMENT ASSEMBLY, COMPENSATOR MUST BE LOCKED OUT AT THE MAXIMUM OPERATING PRESSURE OF THE PUMP
"OMIT" STANDARD COMPENSATOR
108X2⬡ 13.6 N.m (10 FT-LB) TORQUE
10X215 - 4 PLCS. 5.7 N.m (50 IN-LB)TORQUE
787013
787012
2009⬡-7
787018
787015
787017
787015
KIT P/N: 788948⬡
50 N.m (37 FT-LB) TORQUE
"M","ME"&"A" REMOTE COMPENSATORS
10X218 - 4 PLCS. 5.7 N.m (50 IN-LB)TORQUE
108X4⬡ 13.6 N.m (10 FT-LB) TORQUE 3 PLCS.
800599 "A"&"ME" 10.8 N.m (8 FT-LB) TORQUE
786911-"M" 786912-"A"&"ME"
786910
2009⬡-7
787018
789062
786914
789092
KIT P/N: 786952⬡
27 N.m (20 FT-LB) TORQUE
787025 2014⬡-7 107X14
789066 3910⬡-9
26X65 (3/8-16UNC)
17X20
786775
786776
"A" OPTION
"M"&"ME" OPTION
789060
786755(2 PC.NOM.)
788499(2 PC.NOM.)
68 N.m (50 FT-LB) TORQUE
789061 3910⬡-9

P/N: 788017⬡ - HI-LO ASSEMBLY - ITEM 95

ITEM	PART NUMBER	QTY	DESCRIPTION
1	787976	1	HI-LO BODY
2	788713	1	HI-LO SLEEVE
3	787822	1	HP CONTROL CAM
4	787975	1	HI-LO SPOOL
5	787977	1	HI-LOW SLEEVE RET.
6	785170	1	SPRING
7	2008⬡ -7	1	O-RING
8	2010⬡ -7	1	O-RING
9	2011⬡ -7	1	O-RING
10	2123⬡ -7	1	O-RING
11	107X8	2	BACK-UP RING

ITEM	PART NUMBER	QTY	DESCRIPTION
12	107X10	2	BACK-UP RING
13	107X11	2	BACK-UP RING
14	10X227	4	1/4-20X1.5 CAP SCREW
15	787836	1	BOLT - SPECIAL
16	788490	1	TUBING ASSEMBLY
17	4F50X-S⬡	1	90·ELBOW FITTING
18	787523⬡	1	ORIFICE FITTING
19	108X2⬡	4	-2 PLUG W/3902 -9
20	10X89	1	3/8-24X1.25 CAP SCREW
21	16X42	1	JAM NUT
22	788947⬡	1	PRESS.ADJUST.KIT



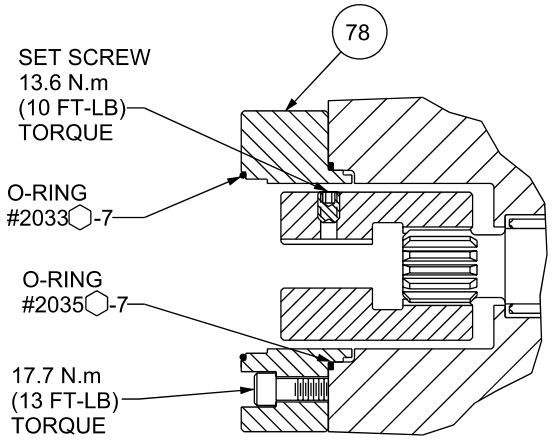
NOTE:

1. WITH THE PUMP AT FULL STROKE, INSTALL THE CAM (ITEM 3) CONCENTRIC WITH THE HOLE IN THE HI-LO BODY.
2. MUST BE USED WITH PROPER COMPENSATOR ASSEMBLY. HI-LOW (POWER) CONTROL ASS'Y DOES NOT INCLUDE PRESSURE COMPENSATOR ASS'Y. FOR "HLM" OPTION USE "M" COMPENSATOR, FOR "HLA" OPTION USE "A" COMPENSATOR.

THRU SHAFT VARIATION
"6A1"

REAR PUMP CONFIGURATION:
- SAE AA 2 BOLT
- 2.000 PILOT DIAMETER
- SHAFT SIZE:

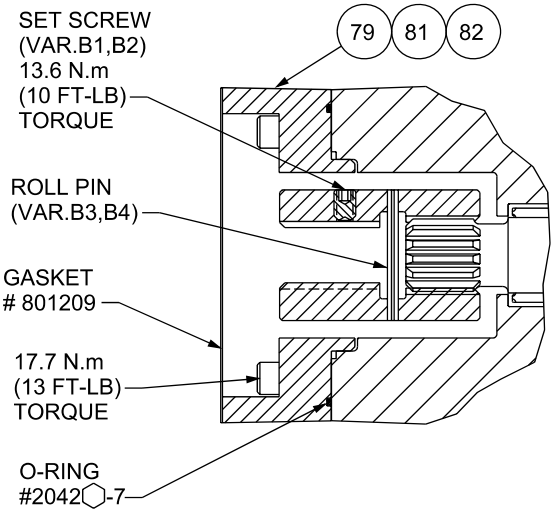
6A1 - 1/2"STR.KEYED - KIT # 787233 ⬡



THRU SHAFT VARIATIONS
"6A2","6A4","6A5","9A4",9A5"

REAR PUMP CONFIGURATION:
- SAE A 2 BOLT
- 3.250 PILOT DIAMETER
- SHAFT SIZES:

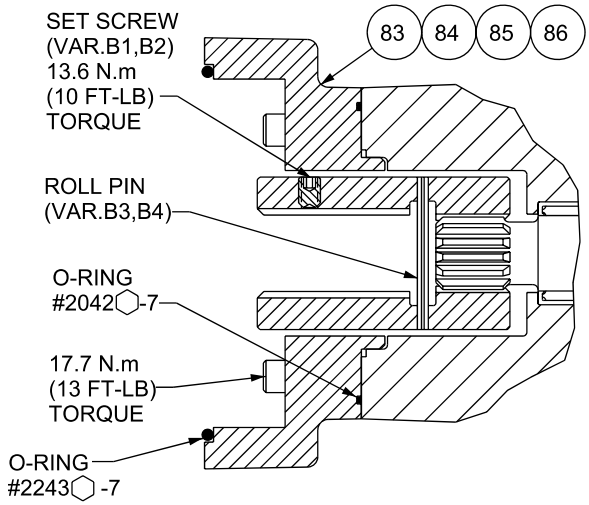
6A2 - 3/4"STR.KEYED - KIT # 787234⬡
6A4 - 9 T,16/32 D.P.- KIT # 787236⬡
6A5 - 11 T,16/32 D.P.- KIT # 787392⬡
9A4 - 9 T,16/32 D.P.- KIT # 788208⬡
9A5 - 11 T,16/32 D.P.- KIT # 788209⬡

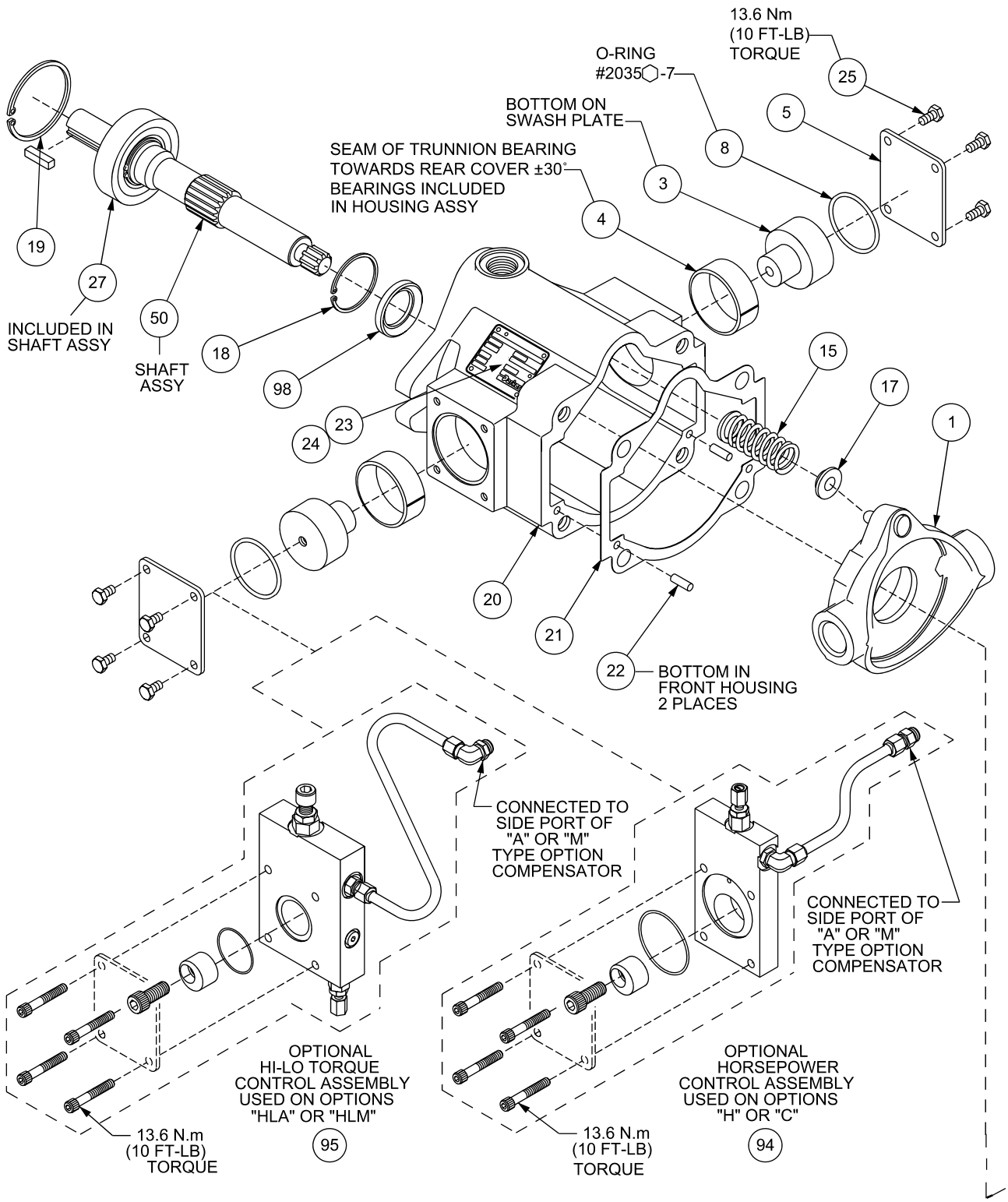


THRU SHAFT VARIATIONS
"6B1","6B2","6B3","6B4","9B3",9B4"

REAR PUMP CONFIGURATION:
- SAE B 2 BOLT
- 4.000 PILOT DIAMETER
- SHAFT SIZES:

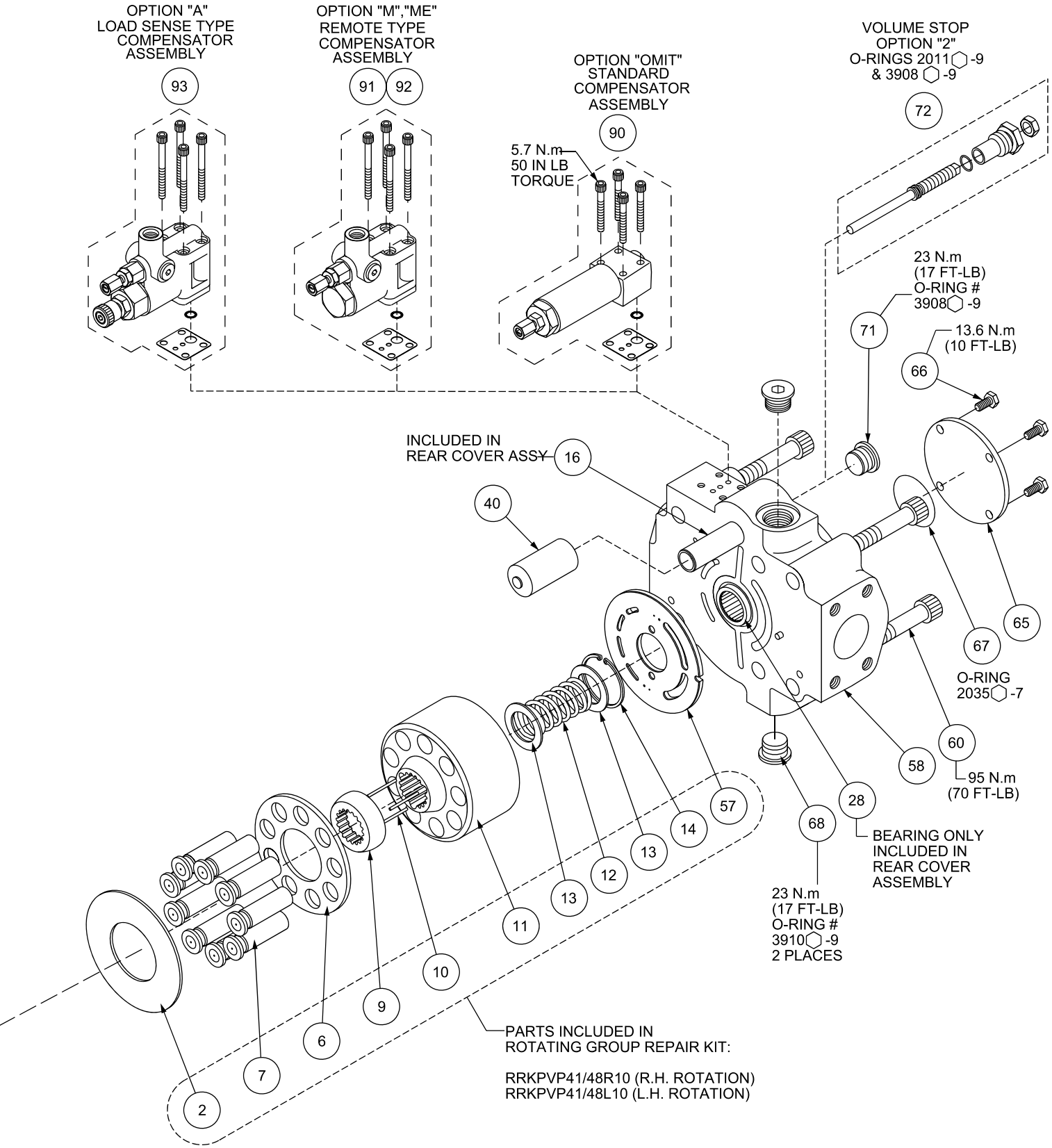
6B1 - 7/8" STR.KEYED - KIT # 787237⬡
6B3 - 1.0" STR.KEYED - KIT # 787238⬡
6B3 - 13 T,16/32 D.P.- KIT # 787239⬡
6B4 - 15 T,16/32 D.P.- KIT # 787240⬡
9B3 - 13 T,16/32 D.P.- KIT # 788210⬡
9B4 - 15 T,16/32 D.P.- KIT # 788211⬡

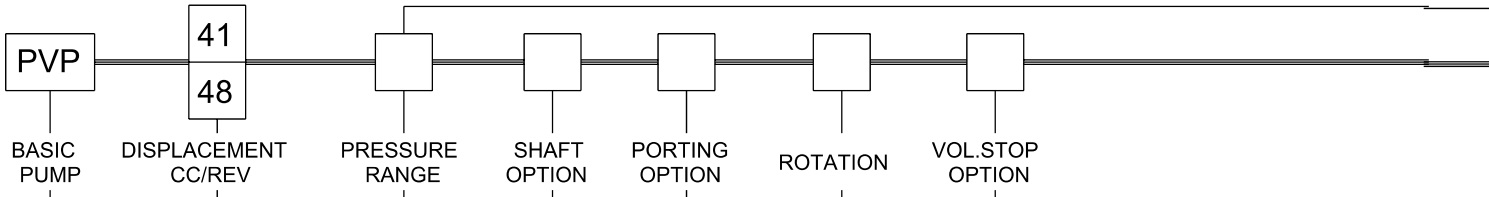




NOTE:

1. ILLUSTRATION SHOWS RIGHTHAND(CW) ROTATION PUMP.LEFTHAND(CCW) PUMPS WILL HAVE THE INLET AND OUTLET PORTS ON OPPOSITE SIDE AND PORT PLATE KIDNEYS REVERSED.
2. SEAL KIT(SKPVP41/48⬡10)CONSISTS OF: ALL O-RINGS,GASKETS,AND SHAFT SEAL.


OPTION "A"
LOAD SENSE TYPE
COMPENSATOR
ASSEMBLY
93
OPTION "M","ME"
REMOTE TYPE
COMPENSATOR
ASSEMBLY
91
92
OPTION "OMIT"
STANDARD
COMPENSATOR
ASSEMBLY
90
5.7 N.m
50 IN LB
TORQUE
VOLUME STOP
OPTION "2"
O-RINGS 2011 -9
& 3908 -9
72
23 N.m
(17 FT-LB)
O-RING #
3908 -9
71
13.6 N.m
(10 FT-LB)
66
INCLUDED IN
REAR COVER ASSY
16
40
65
67
O-RING
2035 -7
60
58
95 N.m
(70 FT-LB)
28
68
BEARING ONLY
INCLUDED IN
REAR COVER
ASSEMBLY
23 N.m
(17 FT-LB)
O-RING #
3910 -9
2 PLACES
57
14
13
12
13
11
10
9
6
7
2
PARTS INCLUDED IN
ROTATING GROUP REPAIR KIT:
RRKPVP41/48R10 (R.H. ROTATION)
RRKPVP41/48L10 (L.H. ROTATION)



10	1000 PSI MAX COMP.SETTING
20	2000 PSI MAX COMP.SETTING
30	3000 PSI MAX COMP.SETTING
36	3600 PSI MAX COMP.SETTING

	ITEM	PART NO	QTY	DESCRIPTION
41	40	787782	1	SERVO PISTON
48	40	787770	1	SERVO PISTON

P V P	1	787761	1	SWASHPLATE ASS'Y
	2	787766	1	SLIPPER PLATE
	3	787775	2	TRUNNION PIN
	4	788715	2	BEARING-TRUNNION
	5	787772	2	TRUNNION PLATE
	6	787765	1	SLIPPER RETAINER
	7	787115	11	PISTON ASSEMBLY
	8	2035 ⬡-7	2	O-RING
	9	787768	1	BALL SEAT
	10	23X68	3	BARREL PIN
	11	787759	1	BARREL
	12	787779	1	SPRING-BARREL
	13	787767	2	WASHER-SPRING
	14	56X321	1	RETAINING RING
	15	787780	1	SWASH PLT SPRING
	16	787771	1	SERVO POST
	17	787769	1	SPRING GUIDE
	18	56X352	1	RETAINING RING
	19	56X337	1	RETAINING RING
	21	787763	1	GASKET-COVER
	22	99X127	2	ROLL PIN
	23	800511	1	NAMEPLATE
	24	39X10	2	DRIVE SCREW
	25	12X221	8	HEX BOLT
	26	787018	1	GASKET
	27	787350	1	BALL BEARING
	28	787781	1	NEEDLE BEARING

OMIT	50	787747	1	SHAFT ASSY-B STR.
B	50	787748	1	SHAFT ASSY-B SPL.
C	50	787745	1	SHAFT ASSY-BB STR.
D	50	787746	1	SHAFT ASSY-BB SPL.
K	50	788894	1	SHAFT ASSY-25mm

(SHAFT ASSEMBLY)

	ITEM	PART NO.	QTY	DESCRIPTION
OMIT	71	108X8 ⬡	1	PLUG
2	72	787749 ⬡	1	VOL.STOP KIT

R	57	787789	1	PORT PLATE - CW
L	57	787790	1	PORT PLATE - CCW

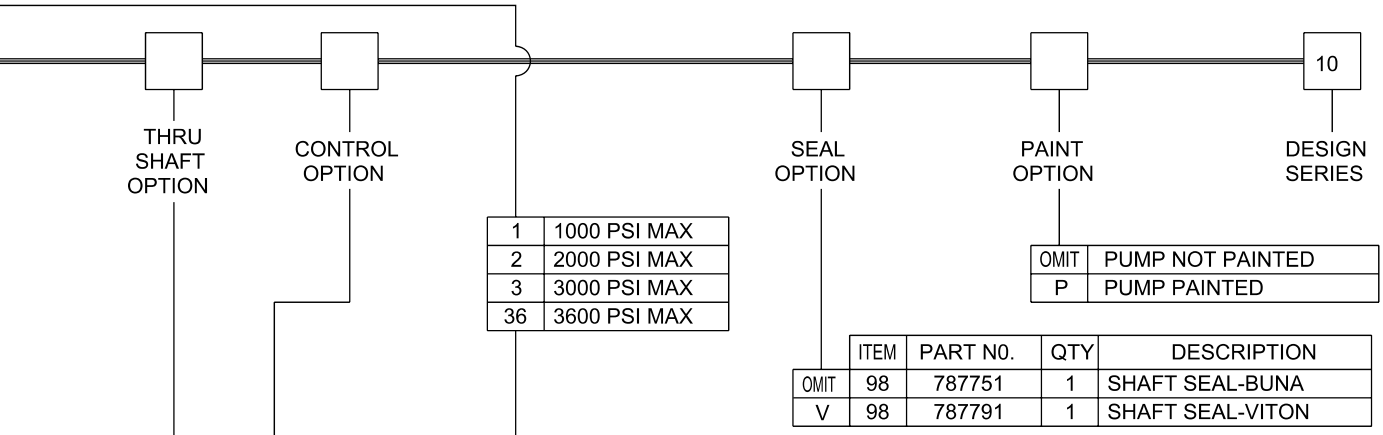
OMIT	R	58	787819 ⬡	1	CVR ASSY REAR PORT
	L	58	787820 ⬡	1	CVR ASSY REAR PORT
2	R	58	787815 ⬡	1	CVR ASSY SIDE FLNG
	L	58	787816 ⬡	1	CVR ASSY SIDE FLNG
3	R	58	787817 ⬡	1	CVR ASSY SIDE THRD
	L	58	787818 ⬡	1	CVR ASSY SIDE THRD
8	R	58	788889 ⬡	1	CVR ASSY SIDE FLNG 6149
	L	58	788890 ⬡	1	CVR ASSY SIDE FLNG 6149
9	R	58	788891 ⬡	1	CVR ASSY SIDE FLNG BSPP
	L	58	788892 ⬡	1	CVR ASSY SIDE FLNG BSPP

(COVER ASSEMBLY)

OMIT	60	10X296	4	CAP SCREW
2 & 3	60	10X300	4	CAP SCREW
	65	787232	1	COVER PLATE
	66	12X221	4	BOLTS
	67	2035 ⬡-7	1	O-RING
	68	108X10 ⬡	1	PLUG
8	60	10X300	4	CAP SCREW
	65	787232	1	COVER PLATE
	66	212X126	4	BOLTS
	67	2035 ⬡-7	1	O-RING
	68	788516-12 ⬡	1	PLUG - ISO 6149
9	60	10X300	4	CAP SCREW
	65	787232	1	COVER PLATE
	66	212X126	4	BOLTS
	67	2035 ⬡-7	1	O-RING
	68	788175 ⬡	1	PLUG - ISO 6149

OMIT B C D	OMIT 2 3	20	788069	1	HSG ASSY - INCH
	8	20	788535	1	HOUSING - 6149
	9	20	788171	1	HOUSING - INCH & METRIC
K	8	20	788817	1	HOUSING - METRIC
	9	20	788172	1	HOUSING - METRIC

(HOUSING ASSEMBLY)



1	1000 PSI MAX
2	2000 PSI MAX
3	3000 PSI MAX
36	3600 PSI MAX

OMIT	PUMP NOT PAINTED
P	PUMP PAINTED

	ITEM	PART N0.	QTY	DESCRIPTION
OMIT	98	787751	1	SHAFT SEAL-BUNA
V	98	787791	1	SHAFT SEAL-VITON

OMIT		90	787010⬡ -*	1	STANDARD COMP ASSY
M		91	787028⬡ -*	1	REMOTE COMP ASSY (INT)
ME		92	787029⬡ -*	1	REMOTE COMP ASSY (EXT)
A		93	787027⬡ -*	1	LOAD SENSE COMP ASSY
②	H	94	787501⬡	1	HORSEPOWER ASSEMBLY
		91	787028⬡ -*	1	REMOTE COMP ASSY (INT)
③	C	94	787501⬡	1	HORSEPOWER ASSEMBLY
		93	787027⬡ -*	1	LOAD SENSE COMP ASS'Y
②	HLM	95	788017⬡	1	HI-LO ASSEMBLY
		91	787028⬡ -*	1	REMOTE COMP ASSY
③	HLA	95	788017⬡	1	HI-LO ASSEMBLY
		93	787027⬡ -*	1	LOAD SENSE ASSY

NOTE:
WHEN ORDERING CONTROLS FOR METRIC VERSION PUMPS(OPTION 8) ADDITIONAL METRIC SCREWS ARE REQUIRED.

CONTROL	PART NUMBER	QTY	DESCRIPTION
OMIT	210X105	4	CAPSCREW-M5X35MM
ALL OTHER	210X108	4	CAPSCREW-M5X50MM

NOTE:
WHEN ORDERING CONTROLS M,ME,A,HLM,HLA FOR METRIC VERSION PUMPS(OPTION 8) ADDITIONAL ADAPTOR FITTING IS REQUIRED.

PORTING	PART NUMBER	QTY	DESCRIPTION
8	788517⬡	1	FITTING(ISO6149)

OMIT					NO THRU SHAFT OPTION
6	A1	78	787233⬡	1	"AA" PILOT,1/2 KEYED
	A2	79	787234⬡	1	"A" PILOT,3/4 KEYED
	A4	81	787236⬡	1	"A" PILOT,9T SPLINE
	A5	82	787392⬡	1	"A" PILOT,11T SPLINE
	B1	83	787237⬡	1	"B" PILOT,7/8 KEYED
	B2	84	787238⬡	1	"B" PILOT,1" KEYED
	B3	85	787239⬡	1	"B" PILOT,13T SPLINE
	B4	86	787240⬡	1	"B PILOT,15T SPLINE
9	A4	81	788208⬡	1	"A" PILOT,9T SPLINE
	A5	82	788209⬡	1	"A" PILOT,9T SPLINE
	B3	85	788210⬡	1	"B" PILOT,13T SPLINE
	B4	86	788211⬡	1	"B PILOT,15T SPLINE

CAUTION

THESE SERVICE PARTS ARE INTENDED FOR USE IN HYDRAULIC PUMPS. INCORRECT INSTALLATION OR ASSEMBLY OF THESE PARTS COULD CAUSE THE PUMP OR PUMPS BEING REPAIRED TO FAIL IN SUBSEQUENT USE, OR TO OPERATE INCORRECTLY.

THE FOLLOWING PRECAUTIONS SHOULD BE FOLLOWED:

1. ALL PARTS SHOULD BE CLEANED AND THEN LIGHTLY COATED WITH MINERAL OIL, OR ANOTHER LUBRICATING FLUID COMPATIBLE WITH THE SYSTEM FLUID BEING USED, PRIOR TO ASSEMBLY.
2. THE PUMP SHOULD BE DISASSEMBLED, REPAIRED, AND REASSEMBLED IN A CLEAN ENVIRONMENT.
3. USE PROPER TOOLS TO DISASSEMBLE AND REASSEMBLE THE PUMP.
4. IF YOU ARE UNCERTAIN HOW TO INSTALL THESE PARTS, YOU SHOULD OBTAIN ASSISTANCE EITHER FROM A PARKER HANNIFIN DISTRIBUTOR, OR FROM THE FLUIDPOWER PUMP DIVISION.

NOTES:

① O-RING COMPOUND DESIGNATION -⬡ (OMIT)= NITRILE, Ⓥ =VITON

② FOR PROPER OPERATION OF "HLM" CONTROL, IT MUST BE USED WITH A "M" OPTION COMPENSATOR.

③ FOR PROPER OPERATION OF "HLA" CONTROL, IT MUST BE USED WITH A "A" OPTION COMPENSATOR.

④ SEAL KIT P/N: SKPVP41/48⬡10

ROTATING GROUP KIT P/N: RRKPVP41/48R10 (R.H. ROTATION)
RRKPVP41/48L10 (L.H. ROTATION)

SERVICE NOTES:

- USE A CLEAN LUBRICANT(COMPATIBLE WITH THE WORKING FLUID)ON ALL PUMP COMPONENTS DURING ASSEMBLY.
- THOROUGHLY CLEAN THE RESERVOIR,SUCTION LINES,SUCTION STRAINER, DRAIN LINES,ETC.BEFORE RE-INSTALLING THE PUMP.

  MOST PREMATURE PUMP FAILURES OCCUR WHEN CONTAMINANTS FROM A PREVIOUS FAILURE HAVE NOT BEEN REMOVED FROM THE SYSTEM,OR CAUSE FOR PREVIOUS FAILURE IS STILL PRESENT(I.E.WATER IN OIL,FILTER BYPASSING,ETC.)
- ALWAYS FILL THE PUMP CASE WITH CLEAN FLUID BEFORE STARTING A NEW OR SERVICED PUMP.FOR FLOODED SUCTION,PURGE AIR FROM SUCTION LINES BY CRACKING THE INLET FITTING OR VENT PLUG ON PUMP.THIS SHOULD PREVENT AN AIRLOCK CONDITION AND ALLOW FOR FASTER PRIMING.
- STARTING THE PUMP SLOWLY BY JOGGING(OR TURNING OVER ENGINE WITHOUT ALLOWING IT TO START)WILL HELP THE PUMP PRIME AND MAKE IT EASIER TO DETERMINE WHEN PRIMING HAS OCCURED.
- START PUMP WITH AN OPEN CIRCUIT WHENEVER POSSIBLE.REDUCE THE COMPENSATOR TO ITS MINIMUM SETTING DURING START-UP.CYCLE THE PUMP ON AND OFF STROKE WHILE INCREASING THE COMPENSATOR TO ITS REQUIRED SETTING.

  THIS WILL ASSIST IN BREAK-IN OF NEW COMPONENTS AND HELP PURGE AIR FROM THE CASE.

BASIC TROUBLESHOOTING:

PUMP WILL NOT PRIME

- △ PUMP SHOULD PRIME WITHIN 30 SECONDS.IF IT DOES NOT, STOP
- △ CHECK FOR PROPER DRIVE ROTATION
- △ MAKE SURE PUMP SHAFT IS TURNING(I.E. KEY AT COUPLING HUBS IS ENGAGED)
- △ MAKE SURE RESERVOIR IS FULL
- △ CHECK FOR MAJOR SOURCES OF A SUCTION LEAK(VENT PLUG OPEN,SHAFT SEAL MISSING(PAVC),FLANGE NOT TIGHT,PINCHED O-RING AT FLANGE OR PUMP HOUSING)

CANNOT BUILD ANY PRESSURE

- △ MAKE SURE PUMP IS PRIMED
- △ CHECK ALIGNMENT,ESPECIALLY ON PAVC PUMPS WITHOUT"9"OPTION
- △ MAKE SURE SYSTEM IS NOT AN OPEN CIRCUIT.

  A PUMP PRODUCES FLOW,NOT PRESSURE.IT CAN ONLY LIMIT PRESSURE WHEN THE SYSTEM REQUIREMENT IS HIGHER THAN THE PUMP COMPENSATOR SETTING.

CAN ONLY BUILD A FEW HUNDRED PSI

- △ COMPENSATOR IS BACKED ALL THE WAY OUT
- △ THE REMOTE OR LOAD SENSE LINE IS VENTED
- △ CONTROL ORIFICE OR SPOOL IS PLUGGED
- △ INCORRECT COMPENSATOR SPOOL(PVP).
- △ PRESSURE CONTROL DART IS LODGED OPEN
- △ TORQUE CONTROL PLUG IS MISSING(PAVC)

PUMP WILL NOT COMPENSATE

- △ DIFFERENTIAL SPRING OVER-COMPRESSED(I.E. SPRING GUIDE DISLOCATED)
- △ CONTROL DRAIN LINE BLOCKED(PAVC)
- △ PRESSURE CONTROL STEM VENT HOLE IS PLUGGED
- △ CONTROL SPOOL TRAVEL IS HINDERED
- △ CONTROL ORIFICE IS MISSING(PAVC)
- △ SATURATION ORIFICE IS MISSING IN LOAD SENSE CIRCUIT

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9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity For Infringement of Intellectual Property Rights: Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. Patents, U.S. Trademarks, copyrights, trade dress and trade secrets (hereinafter 'Intellectual Property Rights'). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights. If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

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12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

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Parker
Hydraulics

Parker Hannifin Corporation
2745 Snapps Ferry Road
Greeneville, TN 37745 USA
Tel: (423) 639-8151
FAX: (423) 787-2418
Web site: http://www.parker.com