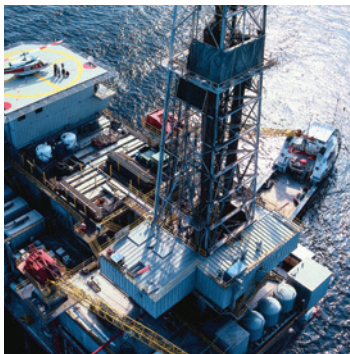




aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



Denison GOLD CUP® Product Catalog

For Open & Closed Circuits

HY28-2667-01/GC/NA,EU
Effective: August 2020



ENGINEERING YOUR SUCCESS.

The Hydraulic Pump Division of Parker Hannifin was formed in 2004 when our significant piston pump business was expanded through the acquisition of Denison Hydraulics. The addition of Denison allowed us to marry the wealth of knowledge that both companies have in the design, manufacture, and application of piston products in both open circuit and closed circuit system applications. Since before WWII, Denison products have been chosen for Military test stand applications and for shipboard hydraulic applications being recognized as technology leaders.

The heavy duty GOLD CUP® series of pumps and motors in this catalog represent a broadening of our product offering with hydrostatic transmission applications in marine, drilling, and shredding applications, among others. The tried and true design of the GOLD CUP® product line incorporates features such as integral servo and replenishing pump, hot oil shuttle, and a unique servo control system; all of which combine to provide a rugged self contained package which can withstand the harshest of conditions and continue to perform with trouble free long life.

The division is a leading worldwide manufacturer of hydraulic components and systems for earthmoving and construction vehicles; for mining equipment; for pulp and paper, chemical and other processing equipment; for ships and ordnance equipment; and for such in-plant machines as machine tools, plastic molding, die casters, and stamping presses.



The product information, specifications, and descriptions contained in this publication have been compiled for the use and convenience of our customers from information furnished by the manufacturer; and we can not, and do not, accept any responsibility for the accuracy or correctness of any description, calculation, specification, or information contained herein. No such description, calculation, specification, or information regarding the products being sold has been made part of the basis of the bargain, nor has same created or amounted to an express warranty that the products would conform thereto. We are selling the goods and merchandise illustrated and described on this publication on an "as is" basis, and disclaim any implied warranty, including any warranty of merchantability or warranty of fitness for any particular purpose whatsoever, with respect to the goods and merchandise sold. All manufacturer warranties shall be passed on to our customers, but we shall not be responsible for special, indirect, incidental, or consequential damages resulting from the use of any of the products or information contained or described on this publication. Further, we reserve the right to revise or otherwise make product improvements at any time without notification.



WARNING - USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is

OFFER OF SALE

The items described in this document are hereby offered for sale by Parker-Hannifin Corporation, its subsidiaries or its authorized distributor. This offer and its acceptance are governed by the provisions stated in the detailed "Offer of Sale" elsewhere in this document.



Series	Terms	P6	P7	P8	P11	P14	P24	P30		
Displacement	<i>Max. displacement</i>	in ³ /rev.	6.00	7.25	8.00	11.00	14.00	24.60	30.60	
		cm ³ /rev.	98,3	118,8	131,1	180,3	229,5	403,2	501,5	
Pressure	<i>Continuous</i>	psi	5000	5000	5000	5000	5000	5000 ¹⁾	5000 ¹⁾	
		bar	350	350	350	350	350	350 ¹⁾	350 ¹⁾	
	<i>Intermittent</i>	psi	6000 ⁷⁾	6000 ⁷⁾	5000	6000 ⁷⁾	6000 ⁷⁾	5500 ¹⁾⁷⁾	5500 ¹⁾⁷⁾	
		bar	420 ⁷⁾	420 ⁷⁾	350	420 ⁷⁾	420 ⁷⁾	370 ¹⁾⁷⁾	370 ¹⁾⁷⁾	
Speed (Pump)	<i>max. @ full stroke</i>	rpm	3000	3000	2700	2400	2400	2100 ²⁾	1800	
		<i>(Motor)</i>	rpm	3000	3000	2700	2400	2400	2100 ²⁾	1800
			<i>max. @ 50% stroke</i>	rpm	3600	3600	3000	2800	2800	2100 ²⁾
Mounting	<i>Flange -2 bolt</i>	SAE	127-2 (C)	127-2 (C)	127-2 (C)	-	-	-	-	
		SAE	152-4 (D)	152-4 (D)	152-4 (D)	165-4 (E)	165-4 (E)	177-4 (F)	177-4 (F)	
	<i>Shaft - keyed</i>	SAE	32-1 (C)	32-1 (C)	32-1 (C)	44-1 (E)	44-1 (E)	50-1 (F)	50-1 (F)	
		SAE	44-1 (D)	44-1 (D)	44-1 (D)	-	-	-	-	
	<i>Shaft - splined</i>	SAE	32-4 (C)	32-4 (C)	32-4 (C)	44-4 (E)	44-4 (E)	50-4(F)	50-4 (F)	
		SAE	44-4 (D)	44-4 (D)	44-4 (D)	-	-	-	-	
Weight (Pump) less controls		lbs	175-300	175-300	175-300	325-530	325-530	750-835	750-835	
	<i>Mass</i>	kg.	80-135	80-135	80-135	145-240	145-240	340-375	340-375	
Weight (Motor Fixed)		lbs	110	110	110	250	250	510	600	
	<i>Mass</i>	kg.	50	50	50	110	110	230	270	
Weight (Motor Variable) less controls		lbs	110	110	110	300	300	650	670	
	<i>Mass</i>	kg.	50	50	50	135	135	290	300	
Rotating inertia		lbs-in ²	92	92	92	290	290	821	977	
		kg.m ²	0,027	0,027	0,027	0,085	0,085	0,240	0,286	
Torque (Motor) theo. max.	<i>per 100 psi</i>	lbs-in	95.5	115.4	127	175	222	392	487	
		Nm	157	189	208	287	362	623	797	
	<i>at 5000 psi</i>	lbs-in	4774	5769	6366	8750	11100	19576	24351	
		Nm	539,5	651,9	717	990	1250	2158	2752	
Power (Motor) theo. max. at 5000 psi, 350 bar	<i>per 100 rpm</i>	hp	7.6	9.2	10	13.8	17.6	31.1	38.6	
		kW	5,7	6,8	7,5	10,3	13,1	23,1	28,8	
	<i>at 2000 rpm</i>	hp	151.5	183.1	201,5	277.8	353.5	621.3	695	
		kW	113,0	136,6	152	207,0	263,7	463,5	518,2	
Torque (Motor) efficiency - approx. stalled	<i>running</i>	% theo.	81	81	81	81	81	81	81	
	<i>running</i>	% theo.	93	93	93	93	93	93	93	
Case pressure: max. allowable	<i>continuous</i>	psi	75	75	75	75	75	75		
		bar	5,2	5,2	5,2	5,2	5,2	5,2	5,2	
	<i>intermittent</i>	psi	125	125	125	125	125	125	125	
		bar	8,6	8,6	8,6	8,6	8,6	8,6	8,6	
<i>(Not to exceed 25 psi, 1,7 bar above inlet in open circuit units)</i>										
Flow (Pump) theo. at max. displ. @ 1500 rpm		gpm	39	47	52	71	91	160	199	
		lpm	148	178	197	269	344	606	753	
	<i>@1800 rpm</i>	gpm	47	57	62	86	109	192	238	
		lpm	178	216	235	326	413	727	901	
Displacement	<i>(Internal aux. pump)</i>		P6,7,8P,S,V	P11,14P,S	P11,14V	P24P	P24S³⁾	P30P	P30S³⁾	
		in ³ /rev.	1.07	(2) 1.07 ⁴⁾	1.07 ⁵⁾	2.81 ⁶⁾	2.81 ⁶⁾	2.81 ⁶⁾	2.81 ⁶⁾	
		cm ³ /rev.	17,5	(2) 17,5	17,5	46,1	46,1	46,1	46,1	
Flow (Internal aux. pump)	<i>@1500 rpm</i>	gpm	6.9	(2) 6.9	6.9	18.2	6.5	18.2	6.5	
		lpm	26,1	(2) 26,1	26,1	68,9	24,6	69,1	24,6	
	<i>@1800 rpm</i>	gpm	8.3	(2) 8.3	8.3	21.9	7.8	21.9	7.8	
		lpm	31,4	(2) 31,4	31,4	82,9	29,5	82,9	29,5	

1) Max. pressure 5000 psi, (350 bar) for M24 and 30 series variable motors. Higher servo pressure may be required - consult Parker.

2) On HF-1 fluids, 1800 RPM Max. on HF-0 fluids.

3) Internal cartridge provides servo flow and must be supercharged from external replenishing flow, from external auxiliary pump.

4) One servo cartridge and one replenishing cartridge.

5) Servo cartridge only.

6) Standard, other sizes available, see ordering code.

7) 10% of operation time, not exceeding 6 successive seconds.



Replenishing pressure (Internal aux. pump)		P6,7,8,11,14,24P	P6,7,8,11,14,24S	P30P	P30S
Replenish pressure minus case pressure	psi	180-220	*180-220	180-220	*180-220
	bar	12,4-15,2	12,4-15,2	12,4-15,2	12,4-15,2
Servo pressure (Internal aux. pump)	psi	308-420	308-420	308-420	308-420
Servo pressure minus case pressure	bar	21,2-29,0	21,2-29,0	21,2-29,0	21,2-29,0
at 0 psi, 0 bar discharge pressure					
Servo pressure (Internal aux. pump) ^(Above repl.)	psi	500-650	500-650	500-650	500-650
for HI-IQ control units. Servo pressure minus case pressure at 5000 psi, 350 bar discharge pressure - at system pressure range 0 to 5000 psi, 350 bar.	bar	34,5-44,8	34,5-44,8	34,5-44,8	34,5-44,8

*Note: Nominal setting, may be increased if required.

Series	Terms	P6	P7	P8	P11	P14	P24	P30
Controls								
Compensator response (per SAE J497 @ 5000 psi, 350 bar)	off-stroke sec.	0.05	0.05	0.05	0.07	0.07	0.10	0.10
	on-stroke sec.	0.9	0.9	0.9	1.5	1.5	1.8	1.8
Compensator adjustment	psi/turn	2000	2000	2000	2000	2000	2000	2000
	bar/turn	138	138	138	138	138	138	138
Torque to turn rotary servo shaft	in.-lbs	20	20	20	20	20	20	20
	Nm	2,3	2,3	2,3	2,3	2,3	2,3	2,3

The maximum inlet at the auxiliary pump inlet is 200 psi. (13,8 bar)

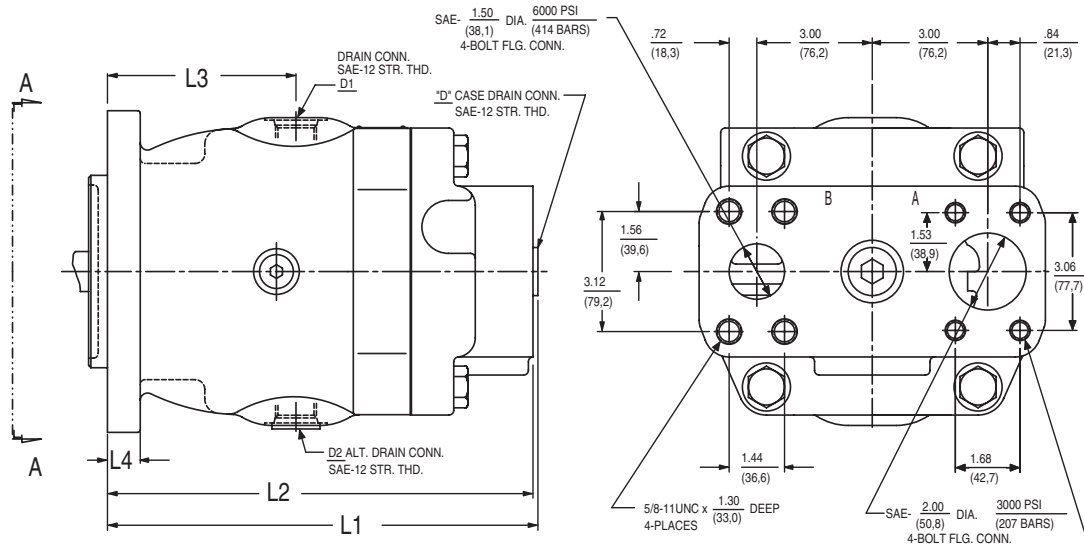
Minimum compensating pressure will always be 100-200 psi. (6,9-13,8 bar) over servo pressure.

Any inlet pressures above atmospheric will increase noise levels and decrease efficiencies noted in this literature. Exact measurements depend on each application and operating conditions. Please consult your nearest Parker Office for further details.

*Standard factory compensating pressure is 1,000 psi. (69,0 bar).

P6-P7-P8F, M Dimensions

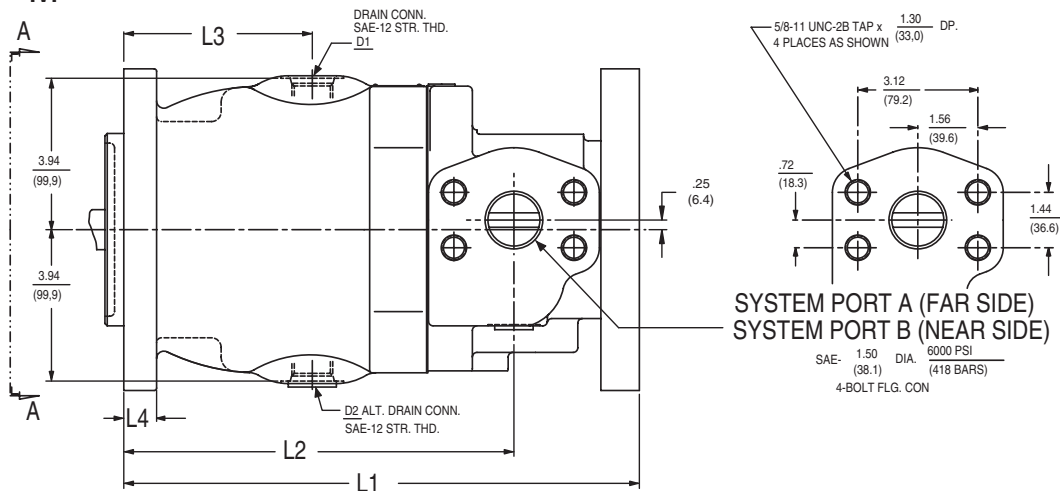
**Hydrostatic Transmission Piston Pumps
GOLD CUP® Series - Open & Closed Circuits**



P*F

MOUNTING	L1	L2	L3	L4
SAE 127-2 (SAE-C)	11.19 (284,2)	11.06 (280,9)	4.90 (124,5)	.85 (21,6)
SAE 152-4 (SAE-D)	11.59 (294,3)	11.46 (291,1)	5.30 (134,6)	.89 (22,6)

P*M

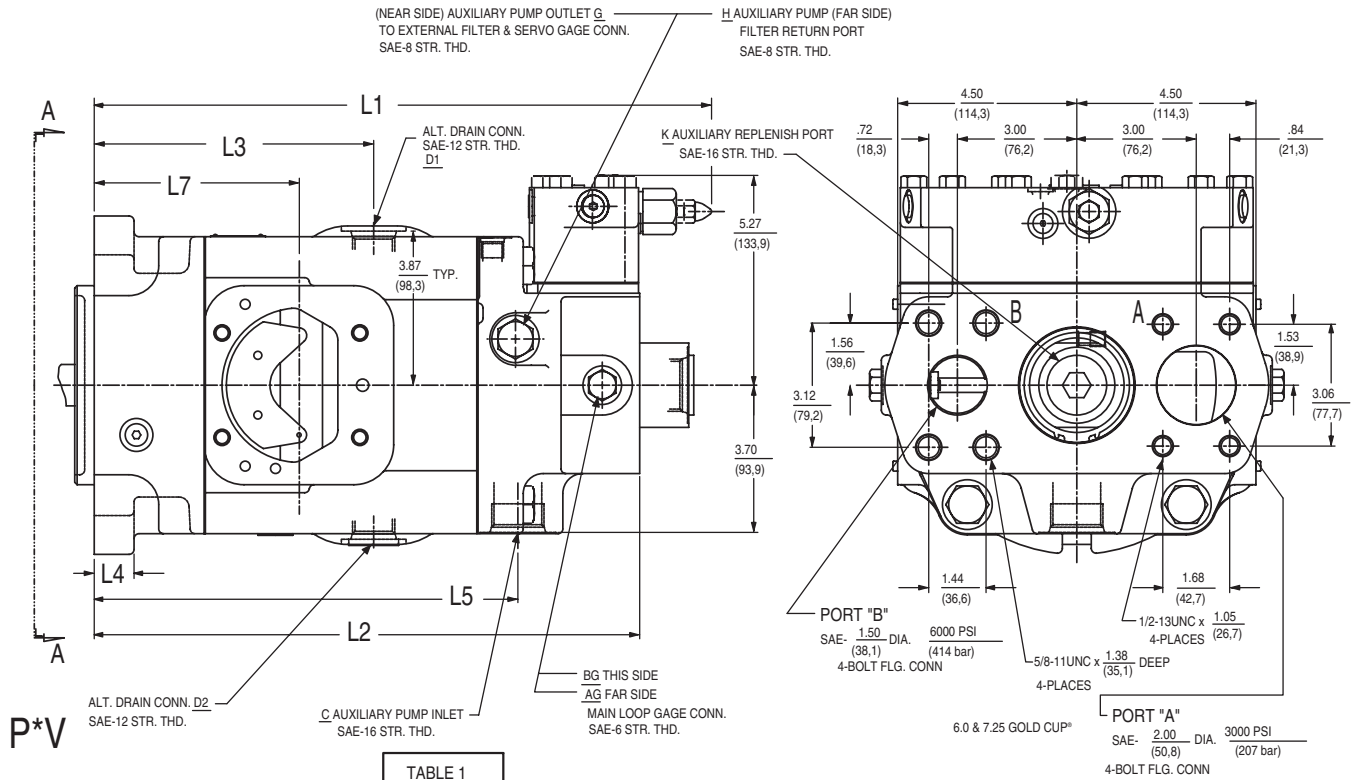


MOUNTING	L1	L2	L3	L4
SAE 127-2 (SAE-C)	13.40 (340,4)	10.14 (257,6)	4.90 (124,5)	.85 (21,6)
SAE 152-4 (SAE-D)	13.80 (350,5)	10.54 (267,7)	5.30 (134,6)	.89 (22,6)

NOTE: See page 17 for shaft information.
See pages 47-56 for rear drive information.

P6-P7-P8V, D, P Dimensions (Less Controls)

**Hydrostatic Transmission Piston Pumps
GOLD CUP® Series - Open & Closed Circuits**

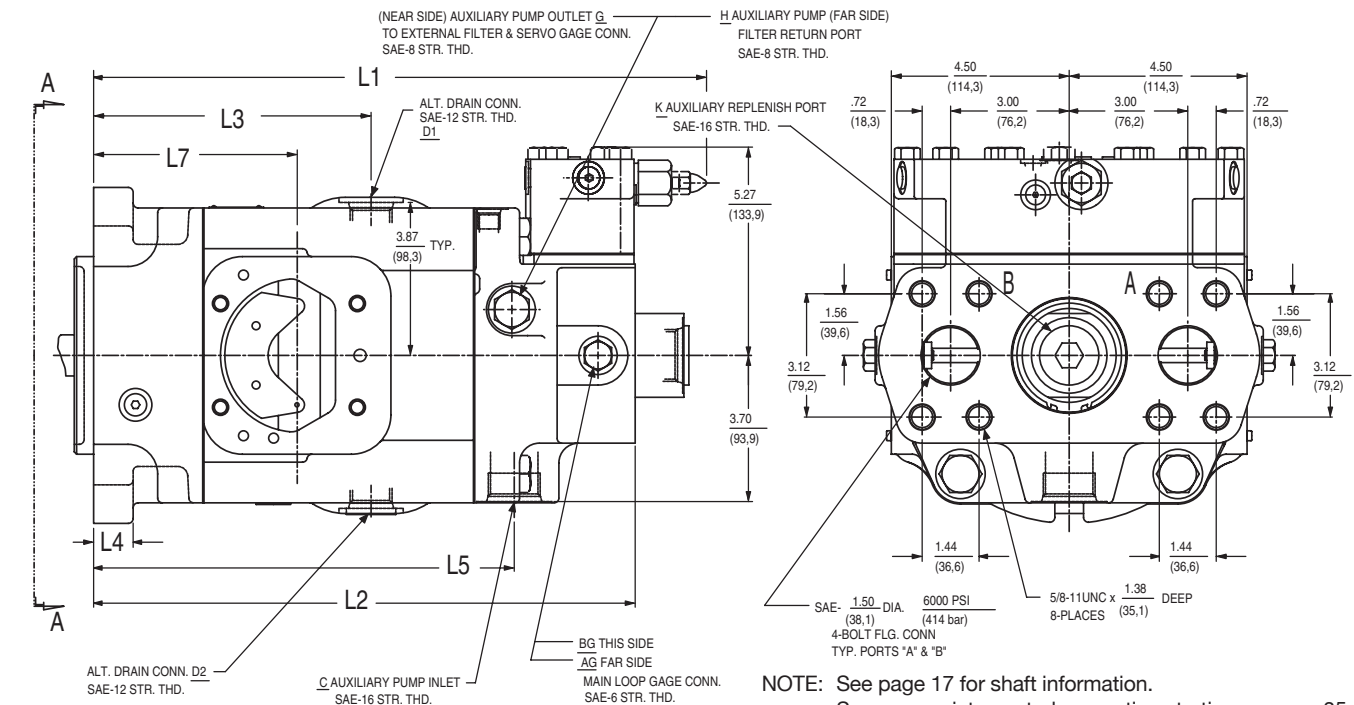


P*V

TABLE 1

MOUNTING	L1	L2	L3	L4	L5	L7
SAE 127-2 (SAE-C)	15.51 (393,9)	13.70 (348,0)	7.02 (178,3)	1.00 (25,4)	10.64 (270,3)	5.15 (130,9)
SAE 152-4 (SAE-D)	16.85 (427,9)	15.04 (382,1)	8.36 (212,3)	.86 (21,8)	11.98 (304,3)	6.49 (164,8)

P*D & P*P

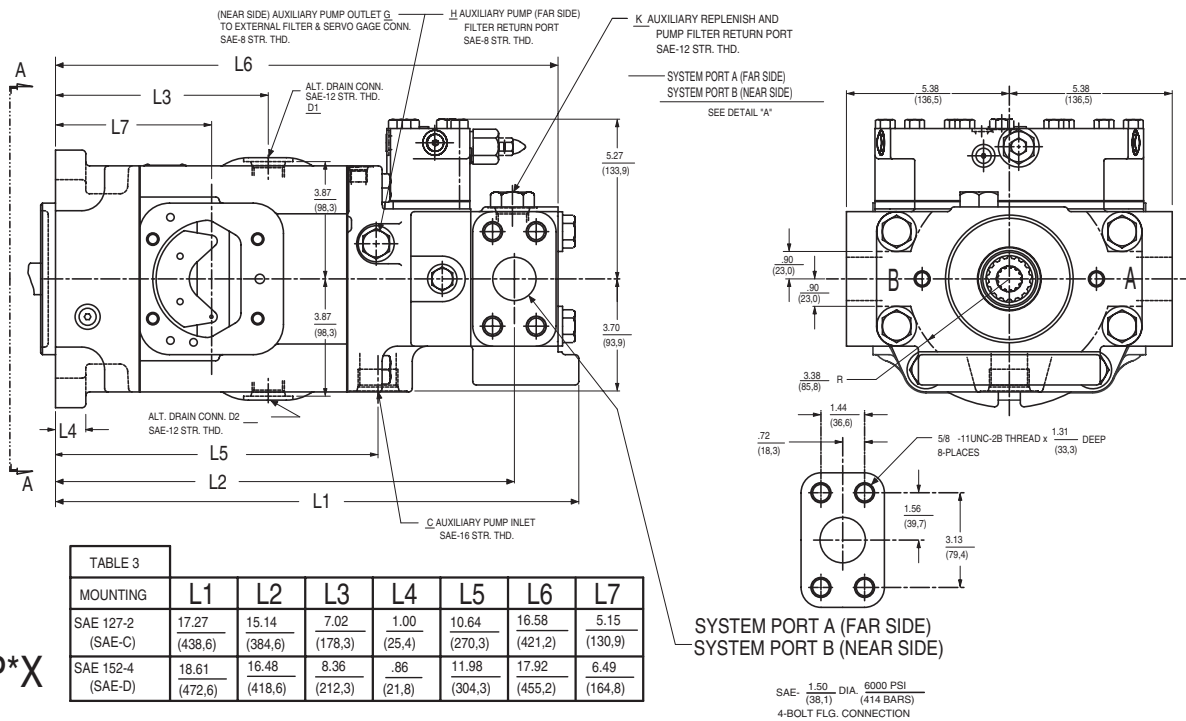


NOTE: See page 17 for shaft information.
See appropriate controls mounting starting on page 35.



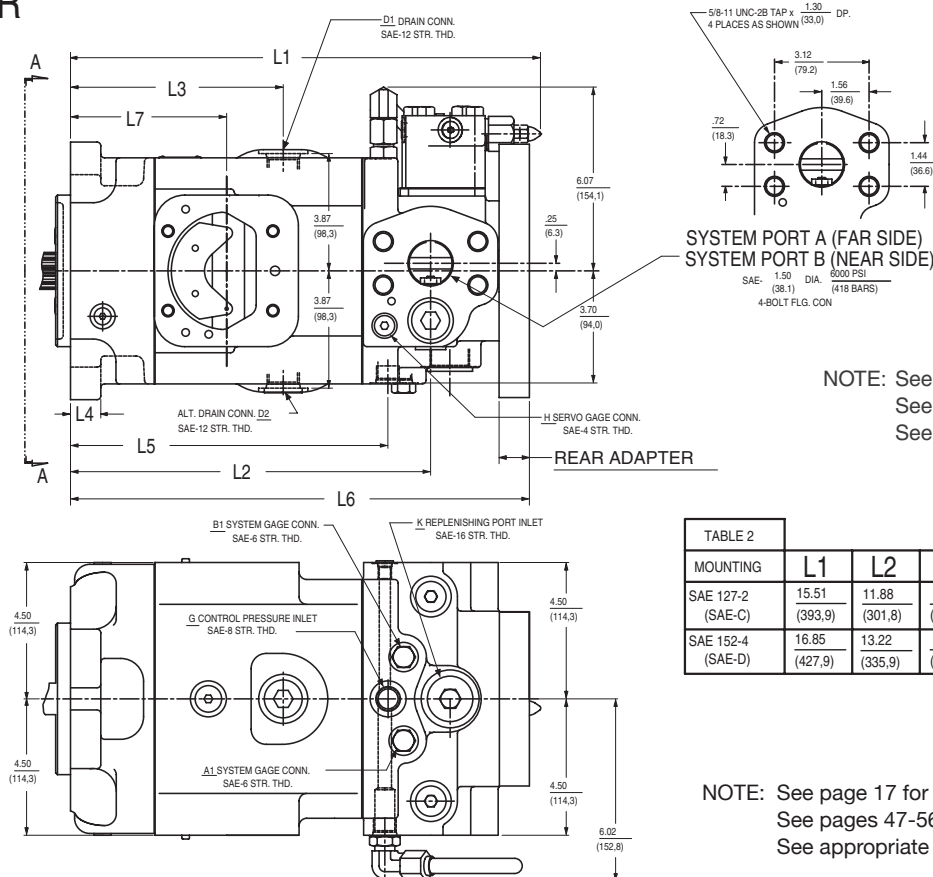
P6-P7-P8X, R Dimensions (Less Controls)

**Hydrostatic Transmission Piston Pumps
GOLD CUP® Series - Open & Closed Circuits**



P*X

P*R

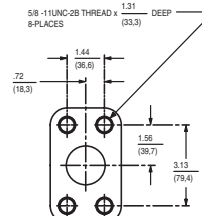
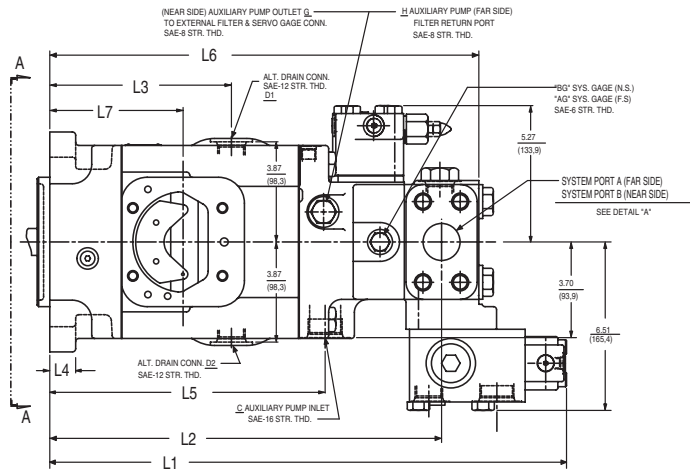


MOUNTING	L1	L2	L3	L4	L5	L6	L7
SAE 127-2 (SAE-C)	15.51 (393,9)	11.88 (301,8)	7.02 (178,3)	1.00 (25,4)	10.64 (270,3)	15.14 (384,6)	5.15 (130,9)
SAE 152-4 (SAE-D)	16.85 (427,9)	13.22 (335,9)	8.36 (212,3)	.86 (21,8)	11.98 (304,3)	16.48 (418,7)	6.49 (164,8)

NOTE: See page 17 for shaft information.
See pages 47-56 for rear drive information.
See appropriate controls mounting starting on page 35.

HY28-2667-01/GC/NA,EU
P6-P7-P8S, L Dimensions (Less Controls)

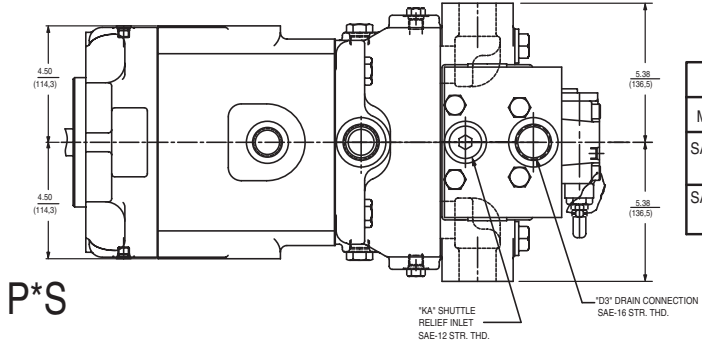
Hydrostatic Transmission Piston Pumps
GOLD CUP® Series - Open & Closed Circuits



DETAIL "A"
 SYSTEM PORTS A & B
 SAE: 1.50" DIA. 6000 PSI (38.1) (414 BARS)
 4-BOLT FLG. CONNECTION

TABLE 5

MOUNTING	L1	L2	L3	L4	L5	L6	L7
SAE 127-2 (SAE-C)	19.97 (507,3)	15.14 (384,6)	7.02 (178,3)	1.00 (25,4)	10.64 (270,3)	16.58 (421,2)	5.15 (130,9)
SAE 152-4 (SAE-D)	21.31 (541,3)	16.48 (418,6)	8.36 (212,3)	.86 (21,8)	11.98 (304,3)	17.92 (455,2)	6.49 (164,8)



P*S

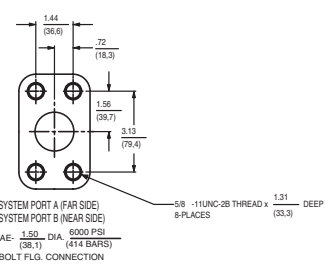
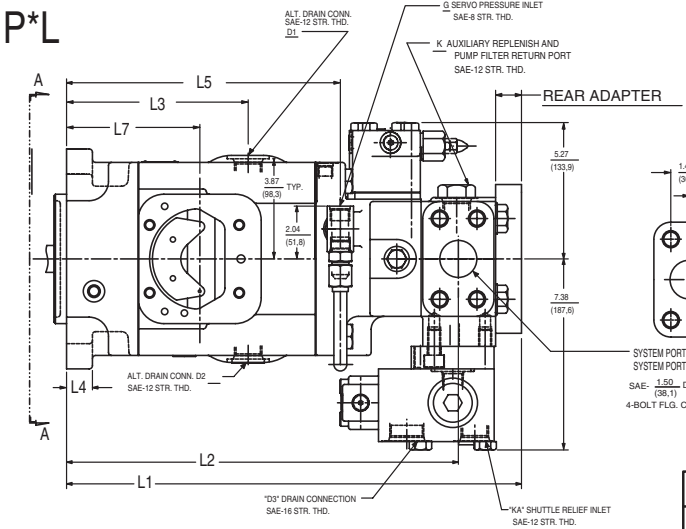
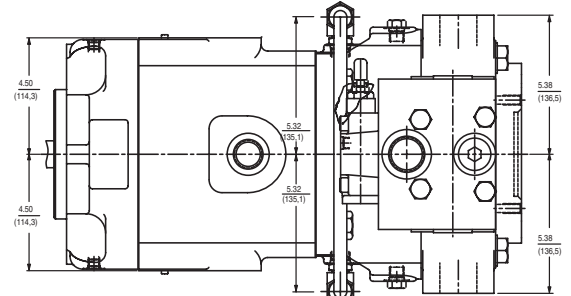


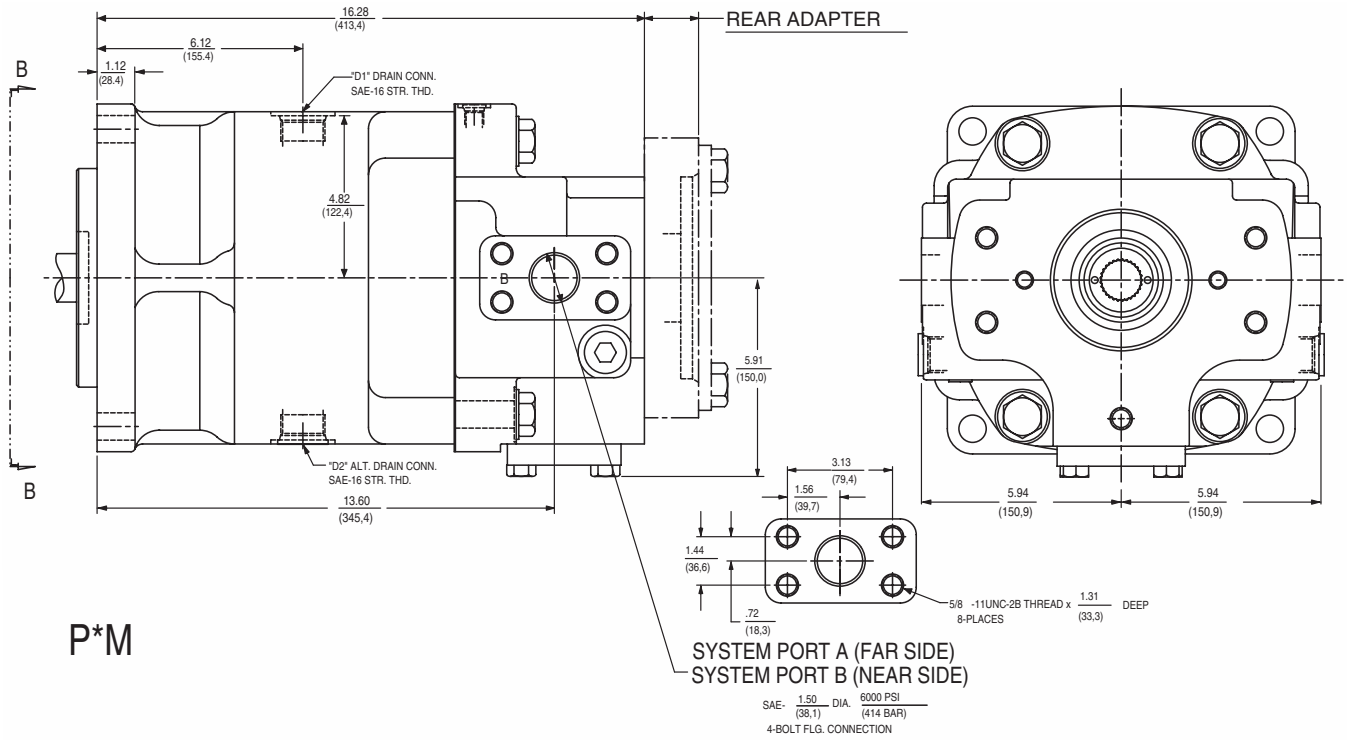
TABLE 4

MOUNTING	L1	L2	L3	L4	L5	L6	L7
SAE 127-2 (SAE-C)	17.58 (446,6)	15.14 (384,6)	7.02 (178,3)	1.00 (25,4)	10.58 (268,8)	16.58 (421,2)	5.15 (130,9)
SAE 152-4 (SAE-D)	18.92 (480,6)	16.48 (418,6)	8.36 (212,3)	.86 (21,8)	11.92 (302,8)	17.92 (455,2)	6.49 (164,8)

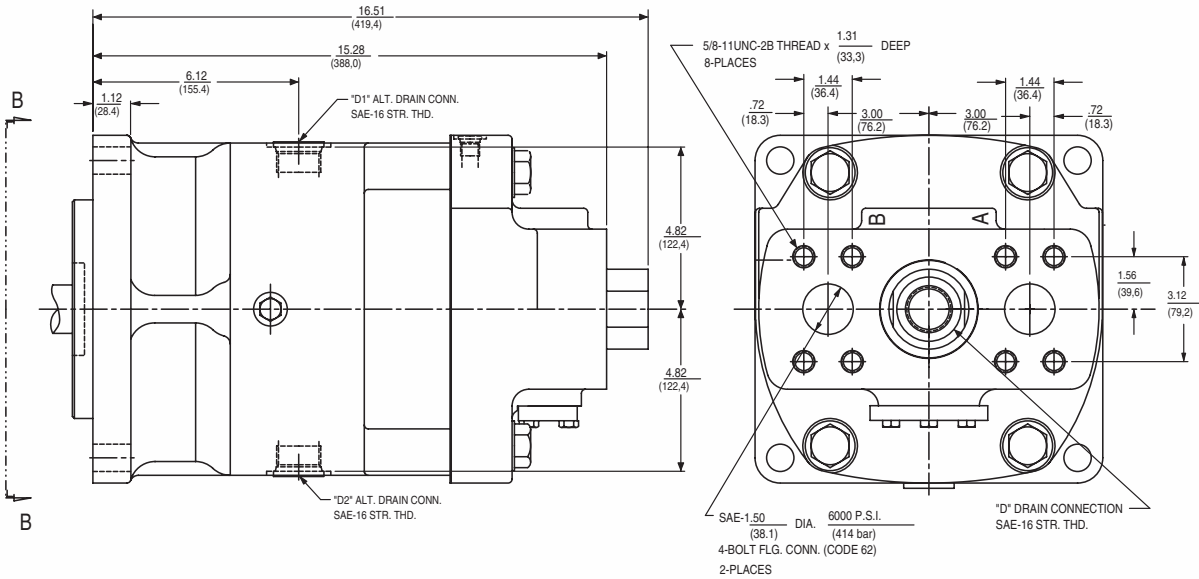


NOTE: See page 17 for shaft information.
 See pages 47-56 for rear drive information.
 See appropriate controls mounting starting on page 35.





P*F



NOTE: See page 24 for shaft information.
 See pages 47-56 for rear drive information.

P11-P14 P, V Dimensions (Less Controls)

**Hydrostatic Transmission Piston Pumps
GOLD CUP® Series - Open & Closed Circuits**

SAE-1.50 DIA. 6000 P.S.I.
(38.1) (415 bar)
4-BOLT FLG. CONN. (CODE 62)
TYPICAL 2-PLACES

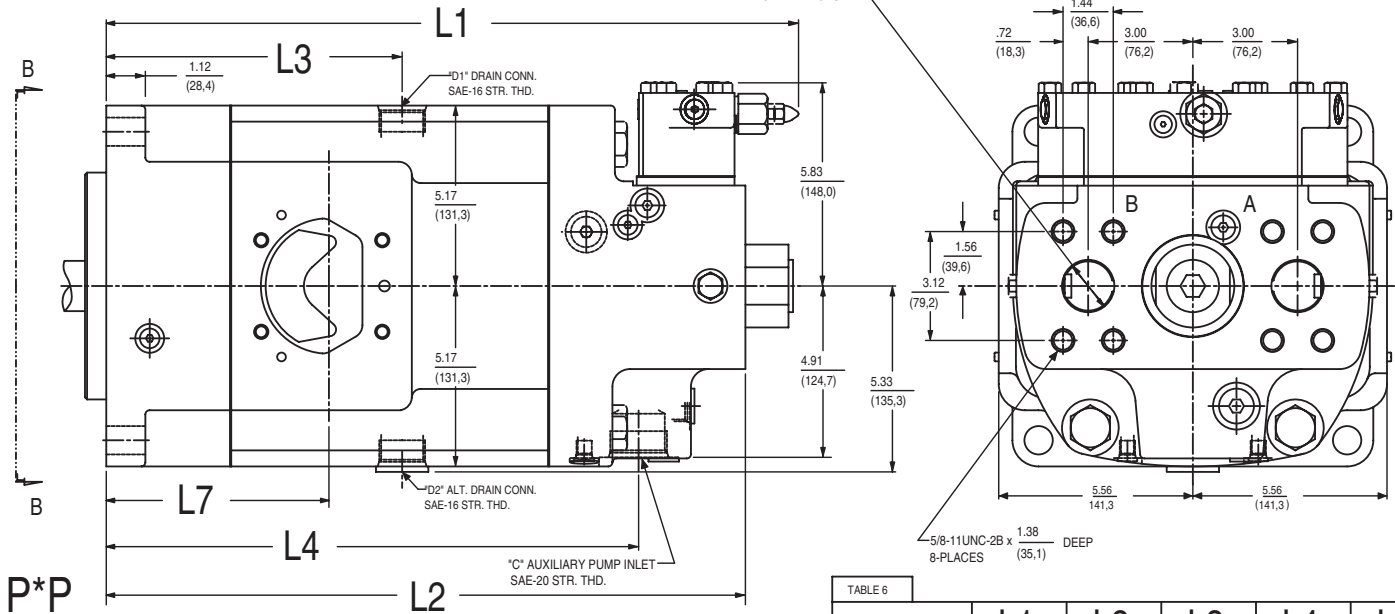
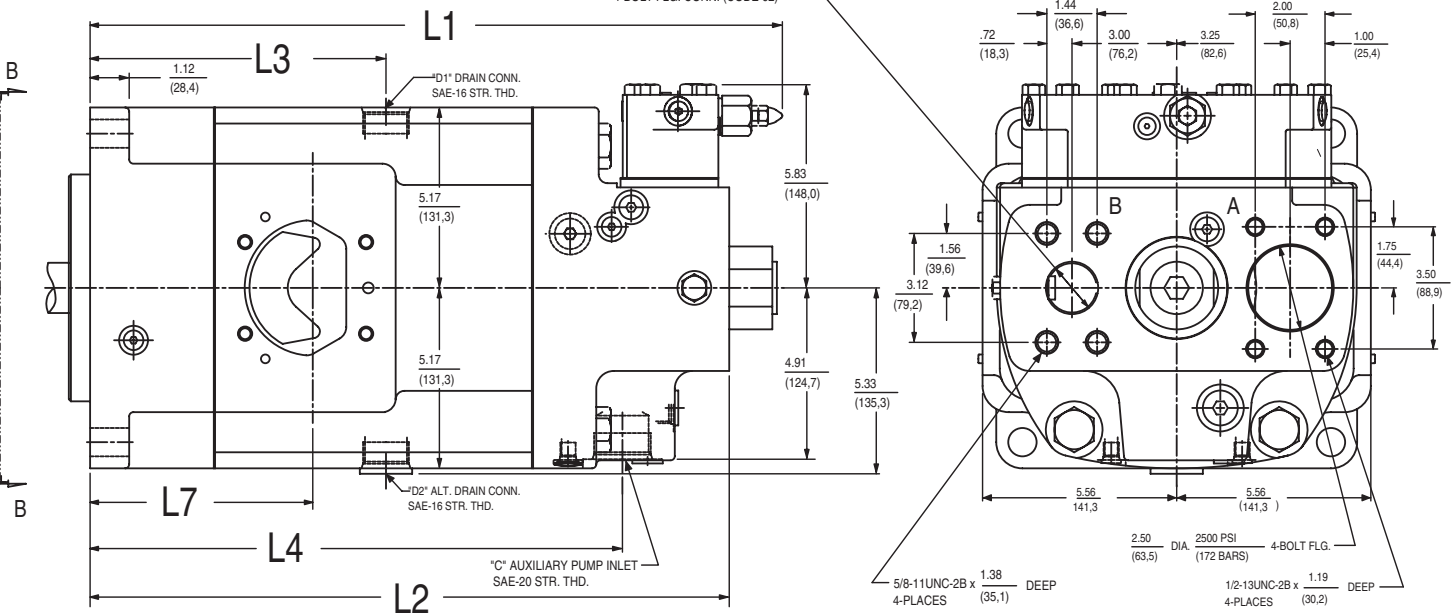


TABLE 6					
PUMP	L1	L2	L3	L4	L7
P11P, P14P & P11V, P14V	19.83 (503,8)	18.31 (465,2)	8.48 (215,3)	15.25 (387,4)	6.38 (162,0)

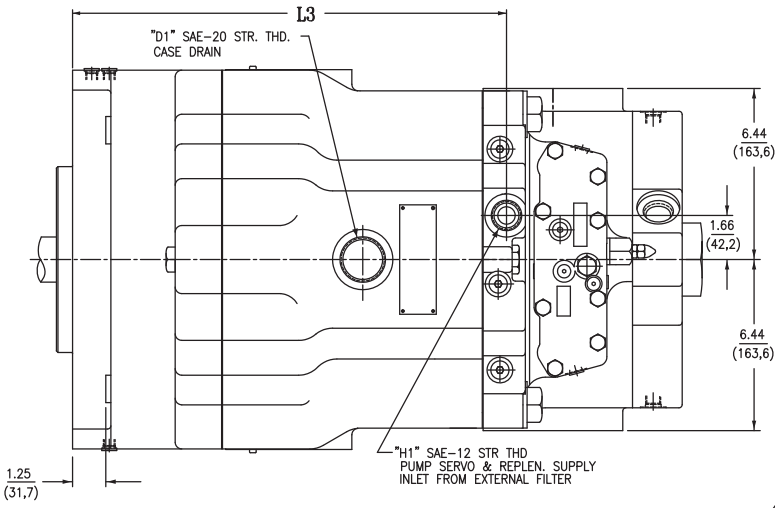
P*V

SAE-1.50 DIA. 6000 P.S.I.
(38.1) (415 bar)
4-BOLT FLG. CONN. (CODE 62)

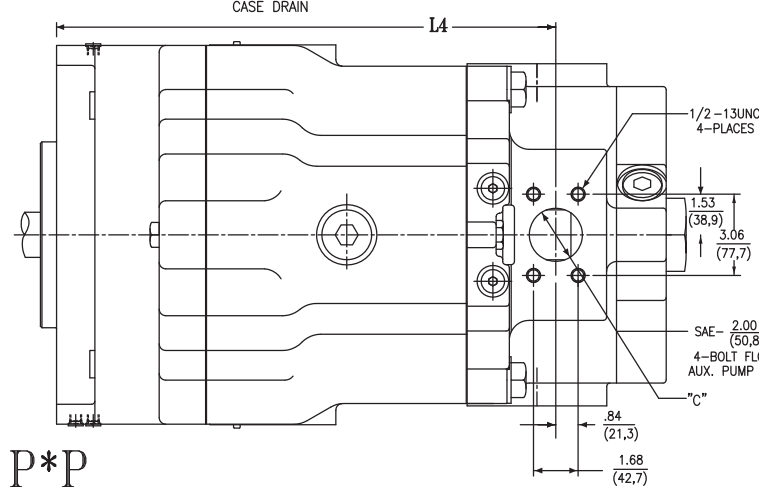
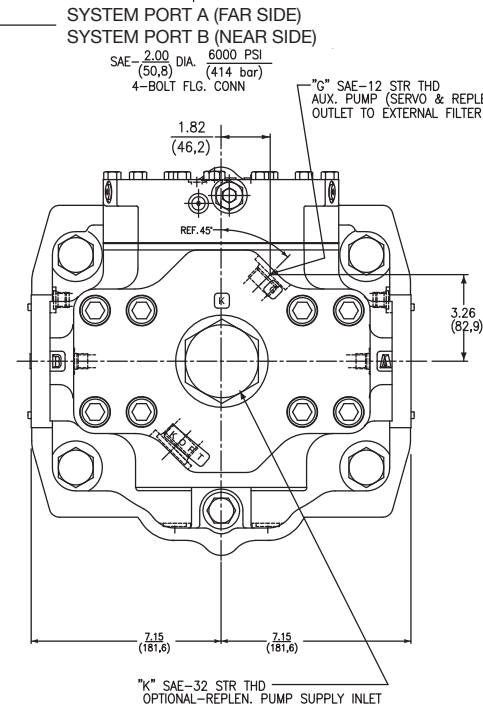
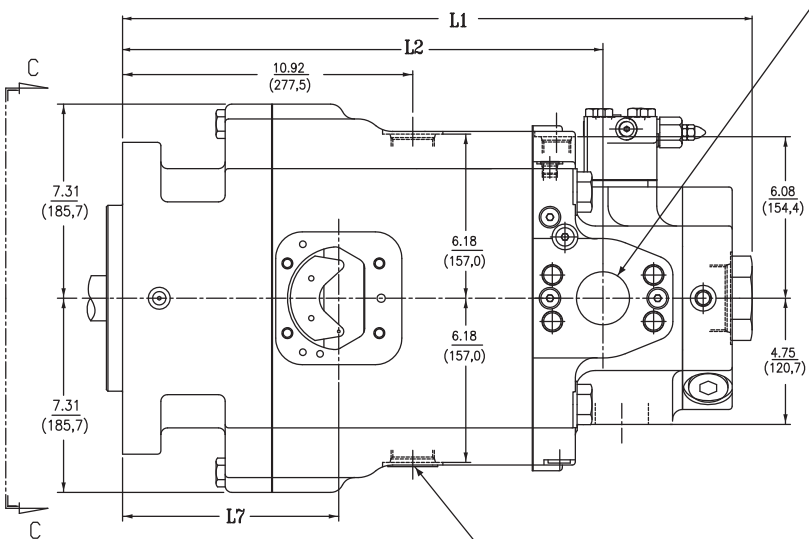
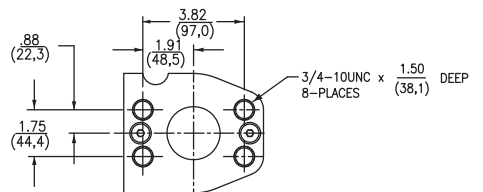


NOTE: See page 24 for shaft information.
See appropriate controls mounting starting on page 35.

24-30 PUMP DIMENSIONS
 (LESS CONTROLS)



PUMP	L1	L2	L3	L4	L7
P24P (SHOWN)	23.70 (602,1)	18.08 (459,4)	16.34 (414,9)	18.80 (477,4)	8.14 (206,7)
P30P	24.70 (627,5)	19.08 (484,7)	17.34 (440,3)	19.80 (502,8)	



P*P

NOTE: See page 33 for shaft information.
 See appropriate controls mounting starting on page 35.



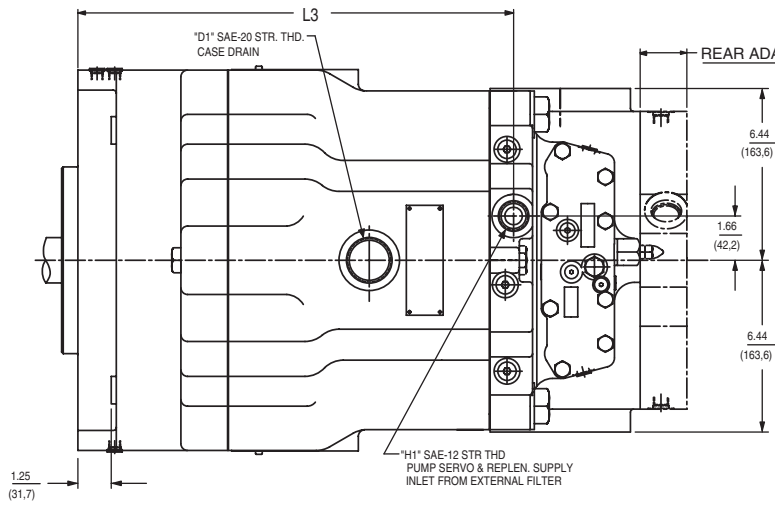
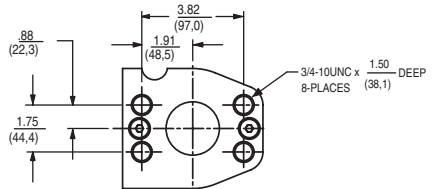
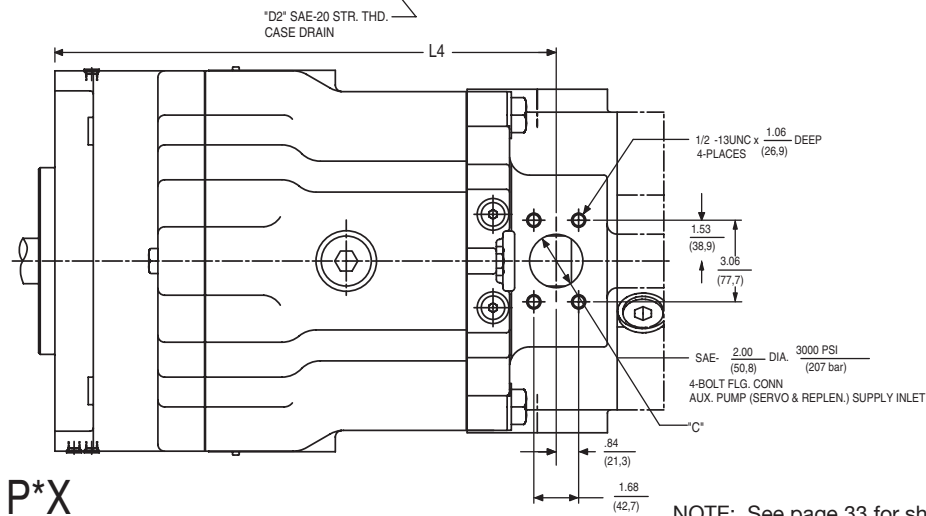
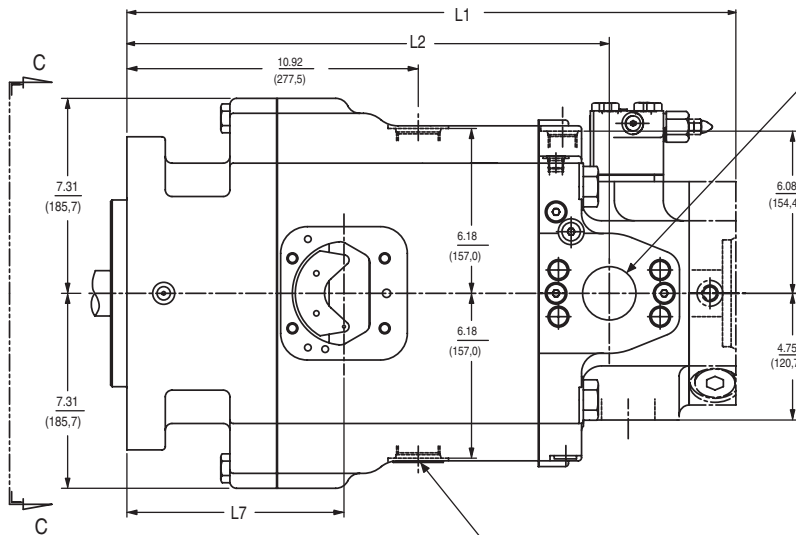
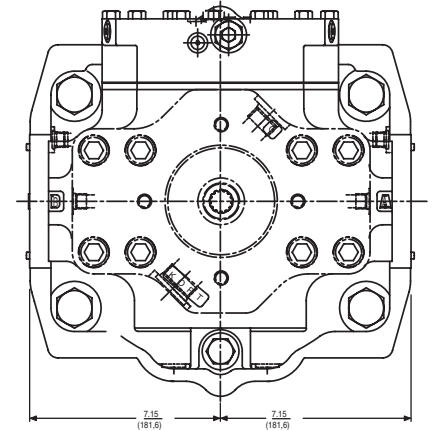


TABLE 11					
PUMP	L1	L2	L3	L4	L7
P24X (SHOWN)	22.83 (579.9)	18.08 (459.4)	16.34 (414.9)	18.80 (477.4)	8.14 (206.7)
P30X	23.83 (605.3)	19.08 (484.7)	17.34 (440.3)	19.80 (502.8)	



SYSTEM PORT A (FAR SIDE)
SYSTEM PORT B (NEAR SIDE)
SAE- 2.00 DIA. 6000 PSI
(50.8) (414 bar)
4-BOLT FLG. CONN



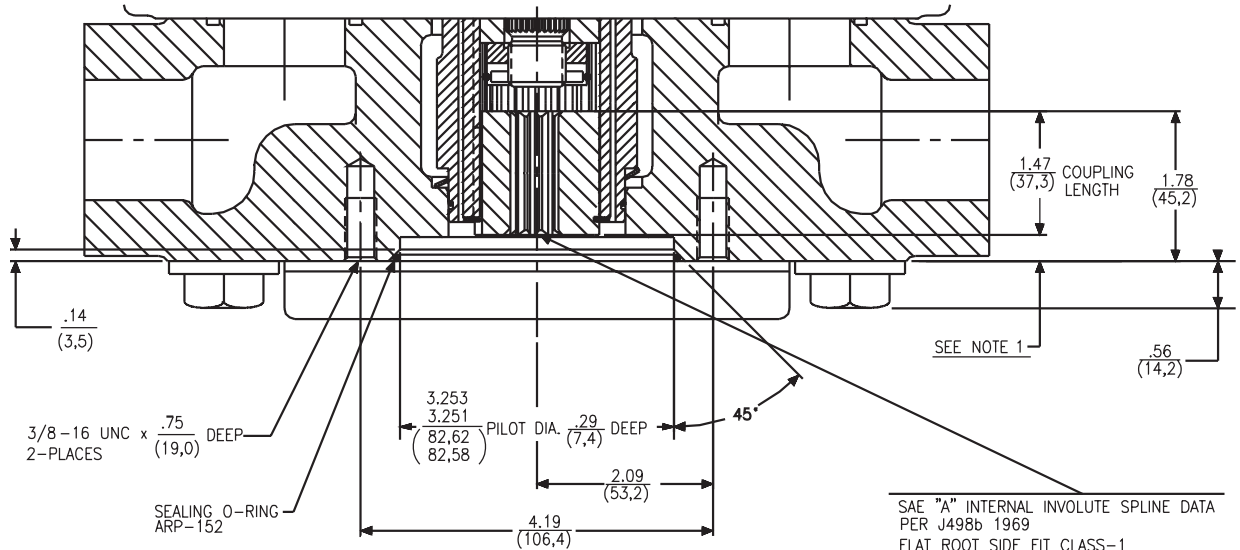
P*X

NOTE: See page 33 for shaft information.
See pages 47-56 for rear drive information.
See appropriate controls mounting starting on page 35.

		SAE Mounting and Coupling							
Mounting	Blanking Plate	82-2 (A)	101-2 (B)	101-4 (B)	127-2 (C)	127-4 (C)	152-4 (D)	165-4 (E)	177-4 (F)
Coupling	None	16-4 (A)	22-4 (B)	22-4 (B)	32-4 (C)	32-4 (C)	44-4 (D)	44-4 (E)	50-4 (F)
Pumps	P6/7/8 S, X	M	A	B	-	-	-	-	-
	P6/7/8 R, L, M	M	A	B	-	C	-	-	-
	P11/14 S, X	M	A	B	-	-	-	-	-
	P11/14 R, L, M	M	A	B	B	C	C	D	E
	P24/30 S, X	-	-	B	-	C	-	-	-
	P24/30 R, L, M	M	-	B	B	C	C	D	E

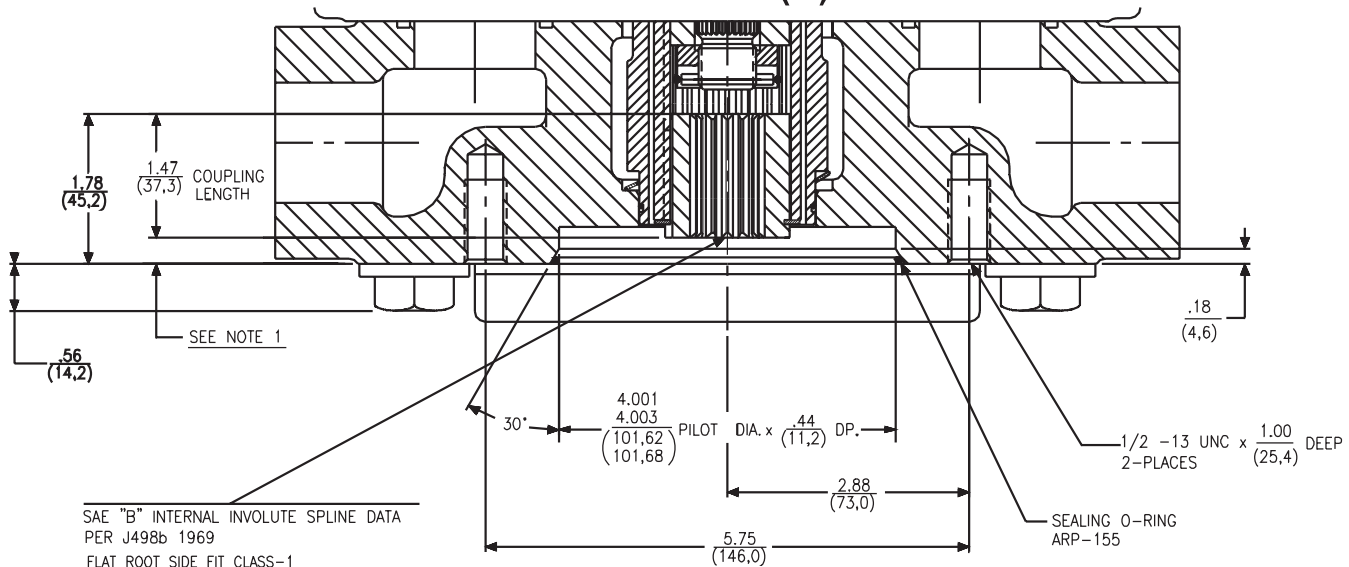
P6-14 S,X
SAE 82-2 (A) WITH COUPLING 16-4
SAE 101-2 (B) WITH COUPLING 22-4

NOTE:
 1. REAR AUXILIARY UNIT TO LIMIT COUPLING TRAVEL $\underline{.28(7.1)}$ MINIMUM FROM MOUNTING FACE (SAE STD. REF.)



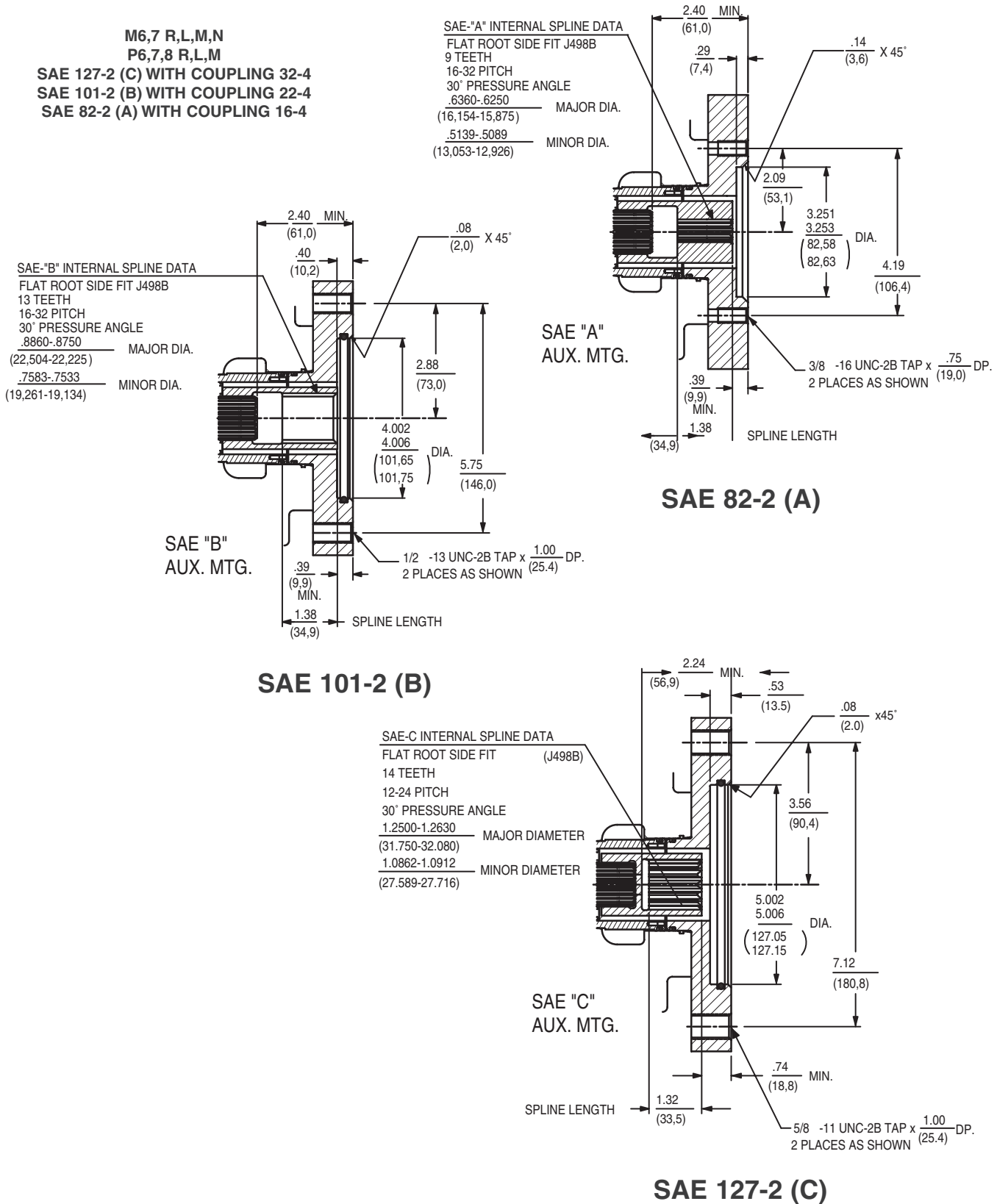
SAE "A" INTERNAL INVOLUTE SPLINE DATA
 PER J498b 1969
 FLAT ROOT SIDE FIT CLASS-1
 16/32 PITCH
 30° PRESSURE ANGLE
 9 TEETH
 .5139-.5089 (13,053-12,926) MINOR DIA.

SAE 82-2 (A)

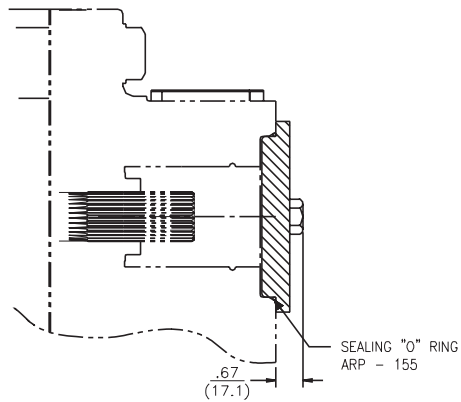


SAE "B" INTERNAL INVOLUTE SPLINE DATA
 PER J498b 1969
 FLAT ROOT SIDE FIT CLASS-1
 16/32 PITCH
 30° PRESSURE ANGLE
 13 TEETH
 .7583-.7533 (19,261-19,134) MINOR DIA.

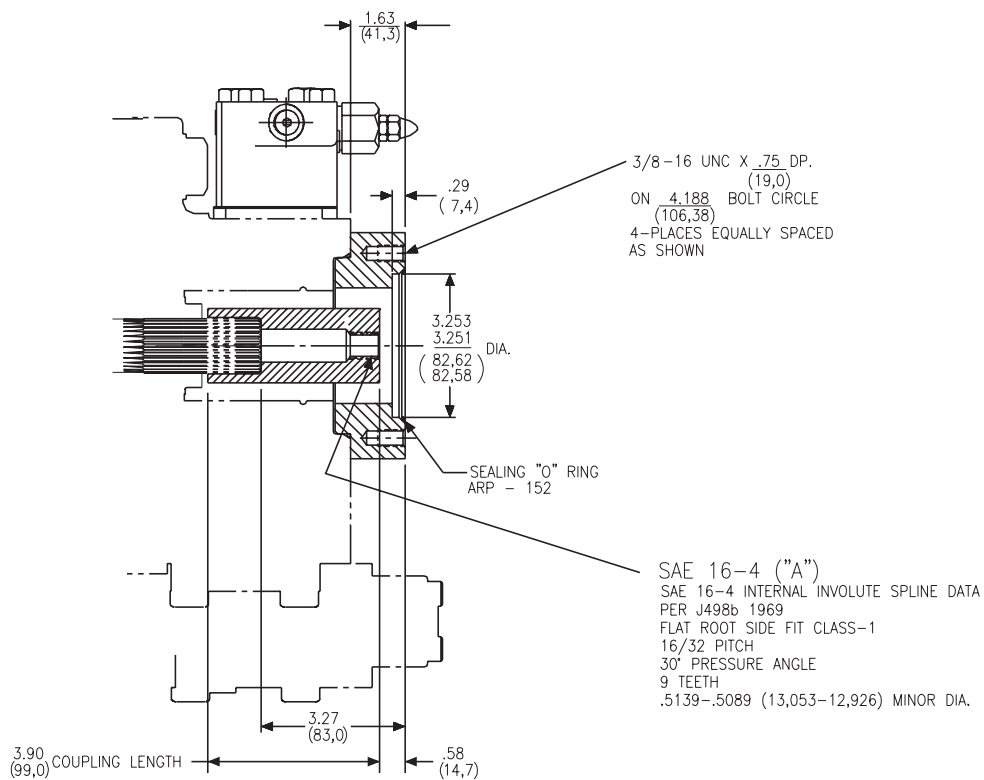
SAE 101-2 (B)



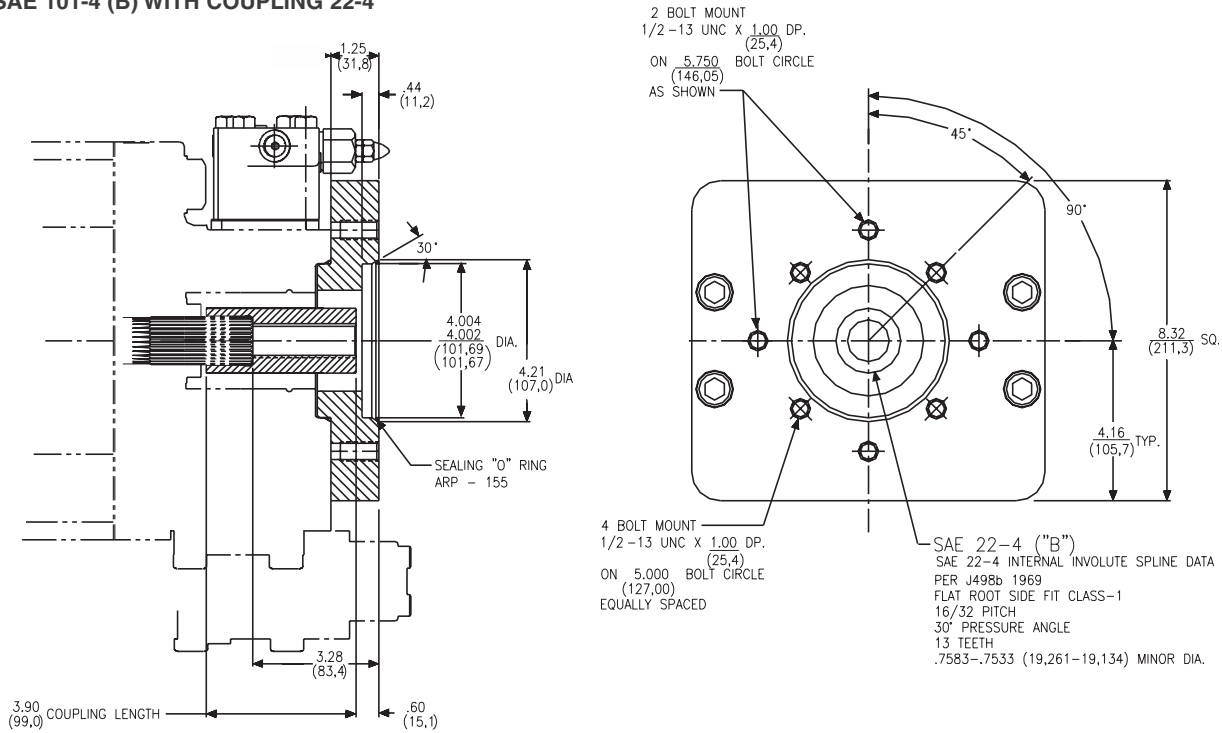
M11,14 R,L,M,N
 P11,14 R,L
BLANKING PLATE



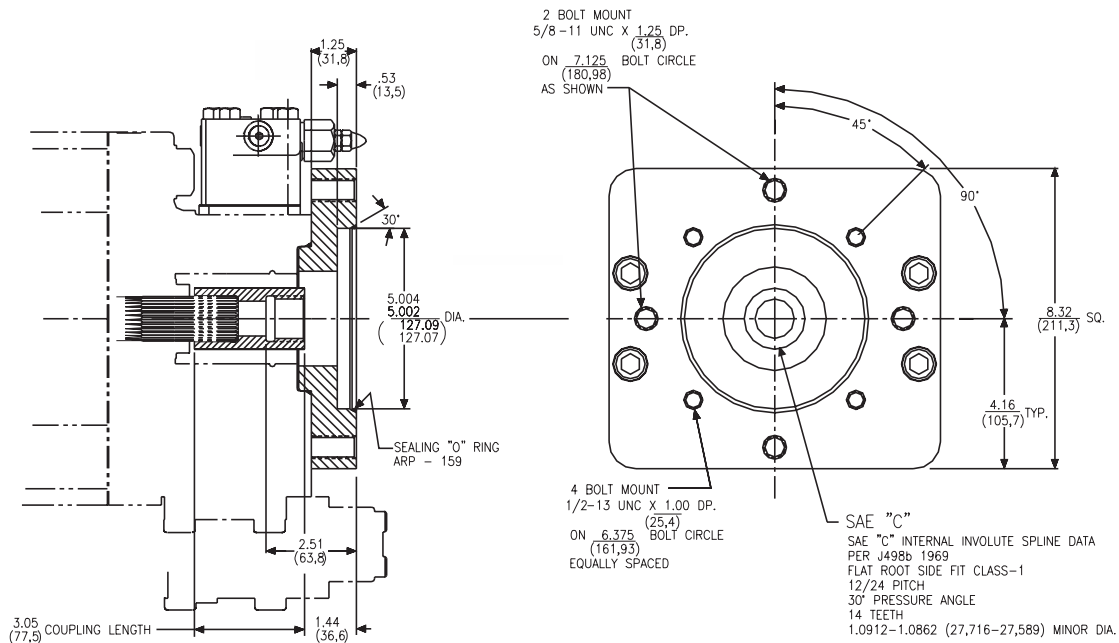
M11,14 R,L,M,N
 P11,14 R,L,M
SAE 82-2 (A) WITH COUPLING 16-4



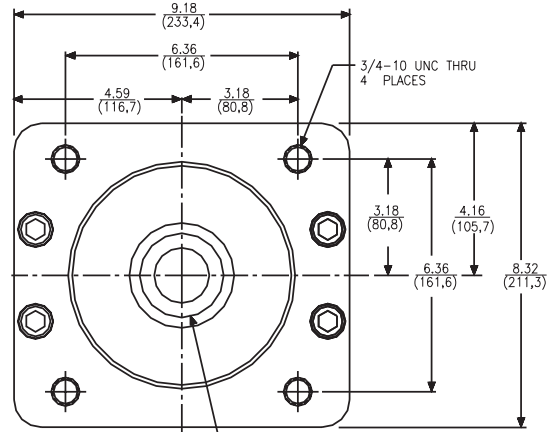
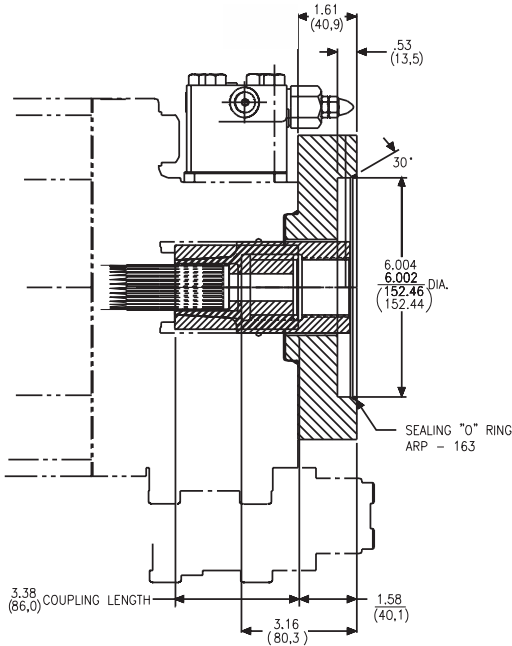
M11,14 R,L,M,N
P11,14 R,L,M
SAE 101-2 (B) WITH COUPLING 22-4
SAE 101-4 (B) WITH COUPLING 22-4



M11,14 R,L,M,N
P11,14 R,L,M
SAE 127-2 (C) WITH COUPLING 32-4
SAE 127-4 (C) WITH COUPLING 32-4

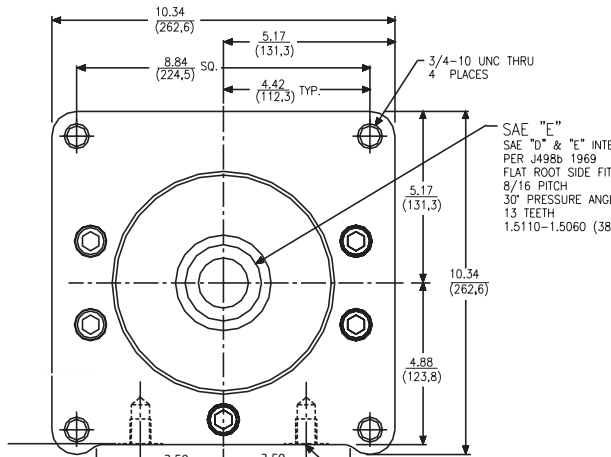
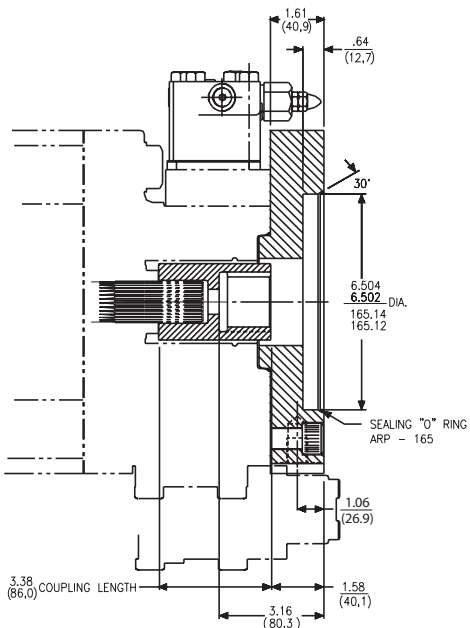


**M11,14 R,L,M,N
P11,14 R,L,M
SAE 152-4 (D) WITH COUPLING 44-4**



SAE "D"
 SAE "D" & "E" INTERNAL INVOLUTE SPLINE DATA
 PER J498b 1969
 FLAT ROOT SIDE FIT CLASS-1
 8/16 PITCH
 30° PRESSURE ANGLE
 13 TEETH
 1.5110-1.5060 (38,379-38,252) MINOR DIA.

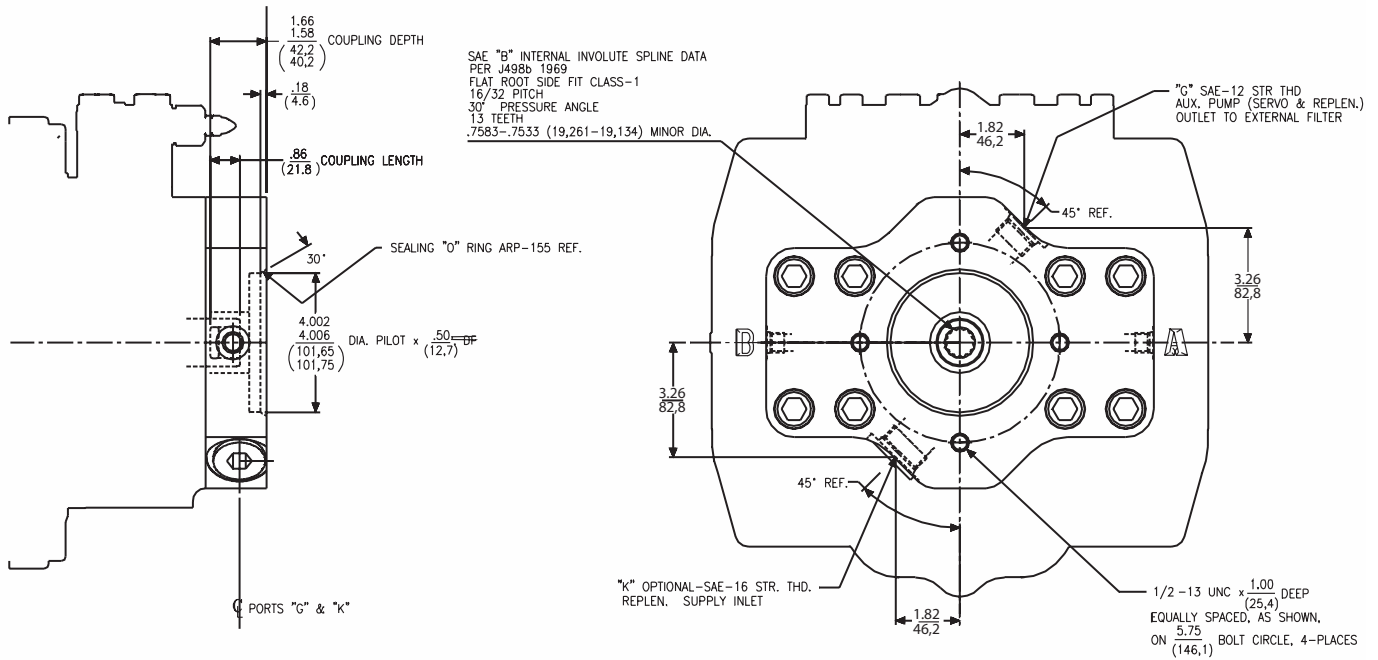
**M11,14 R,L,M,N
P11,14 R,L,M
SAE 165-4 (E) WITH COUPLING 44-4**



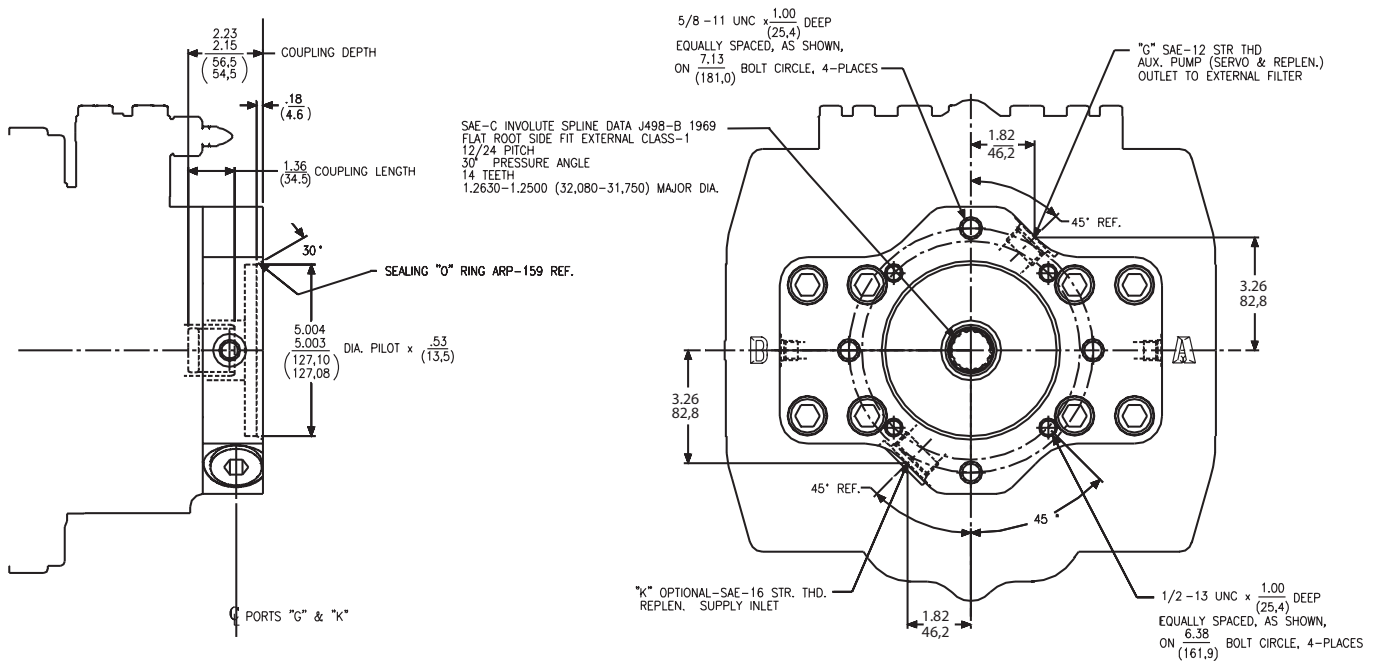
SAE "E"
 SAE "D" & "E" INTERNAL INVOLUTE SPLINE DATA
 PER J498b 1969
 FLAT ROOT SIDE FIT CLASS-1
 8/16 PITCH
 30° PRESSURE ANGLE
 13 TEETH
 1.5110-1.5060 (38,379-38,252) MINOR DIA.

OVERHUNG SUPPORT HOLES
 5/8-11 UNC x .75 DEEP
 SPOTFACE 1.34 (20.5) DIA. x DEPTH SHOWN
 2-PLACES

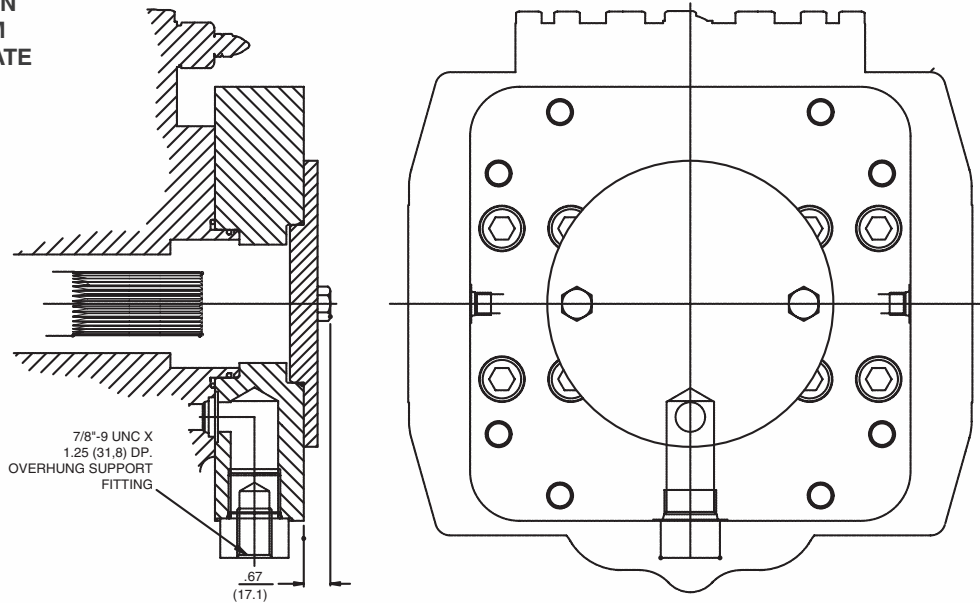
P24,30,S,X
SAE 101-2 (B) WITH COUPLING 22-4



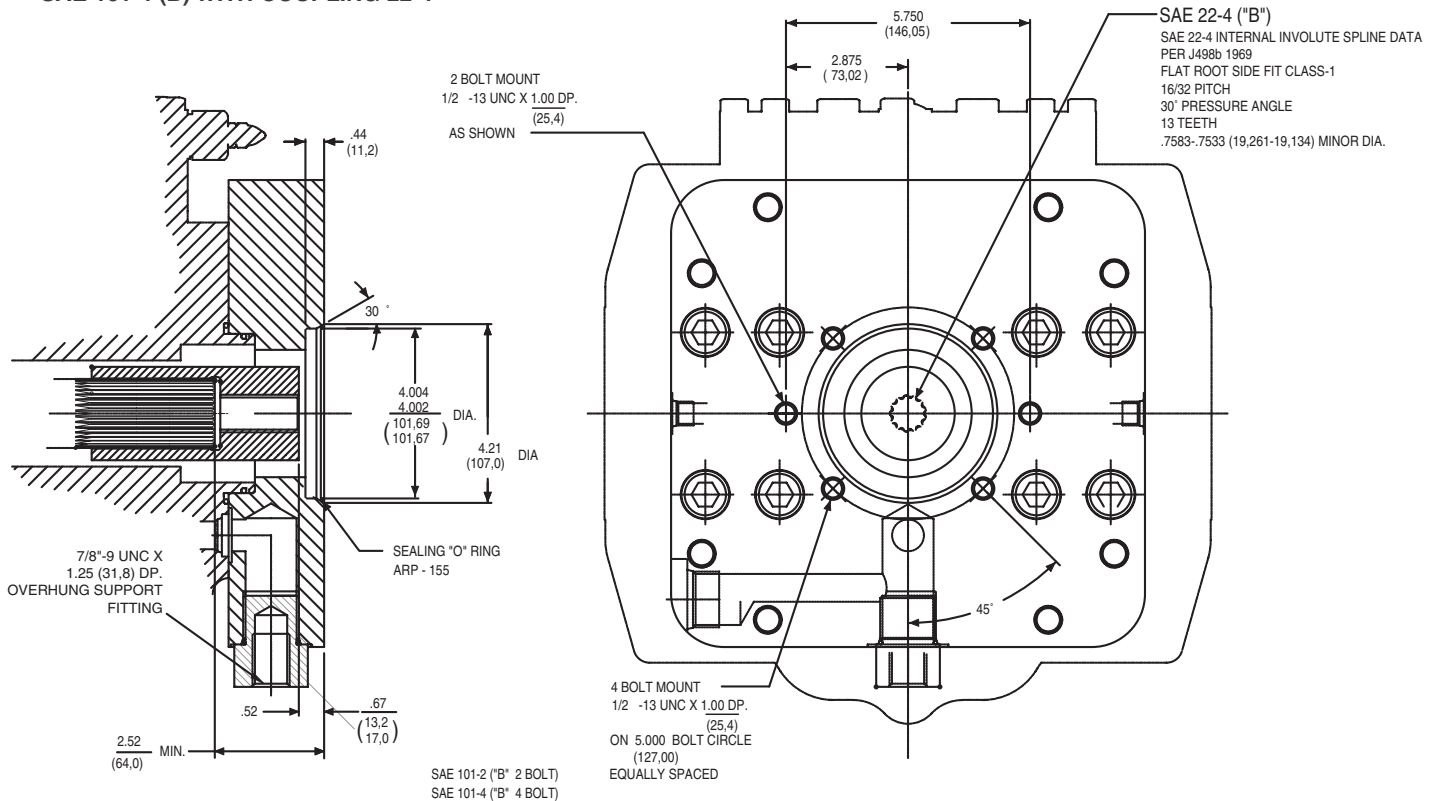
P24,30,S,X
SAE 127-2 (C) WITH COUPLING 32-4
SAE 127-4 (C) WITH COUPLING 32-4



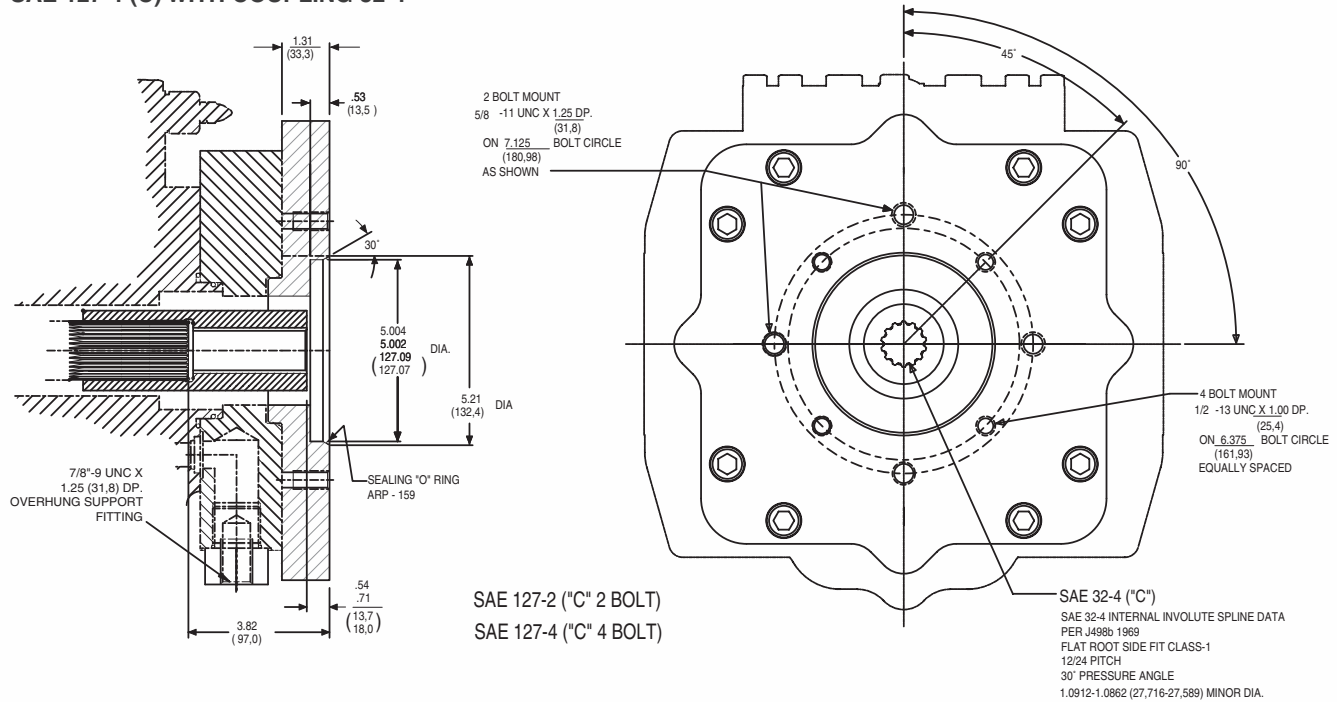
**M24,30 R,L,M,N
P24,30 R,L,M
BLANKING PLATE**



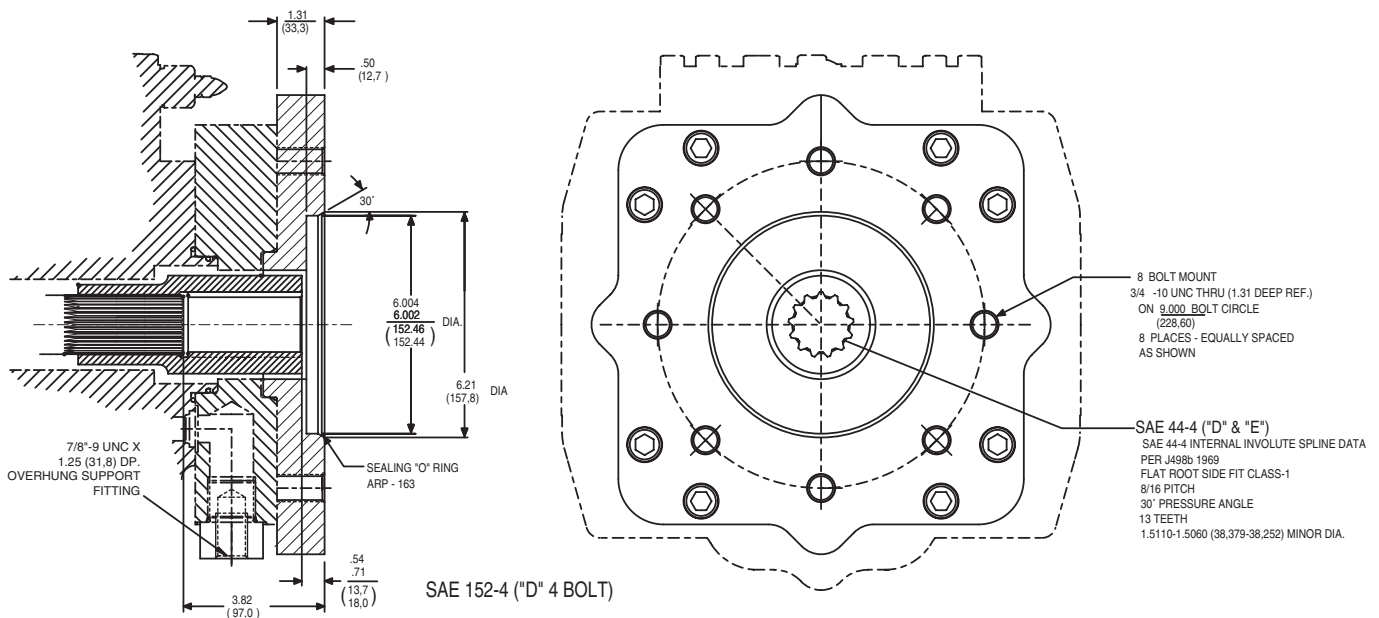
**M24,30 R,L,M,N
P24,30 R,L,M
SAE 101-2 (B) WITH COUPLING 22-4
SAE 101-4 (B) WITH COUPLING 22-4**



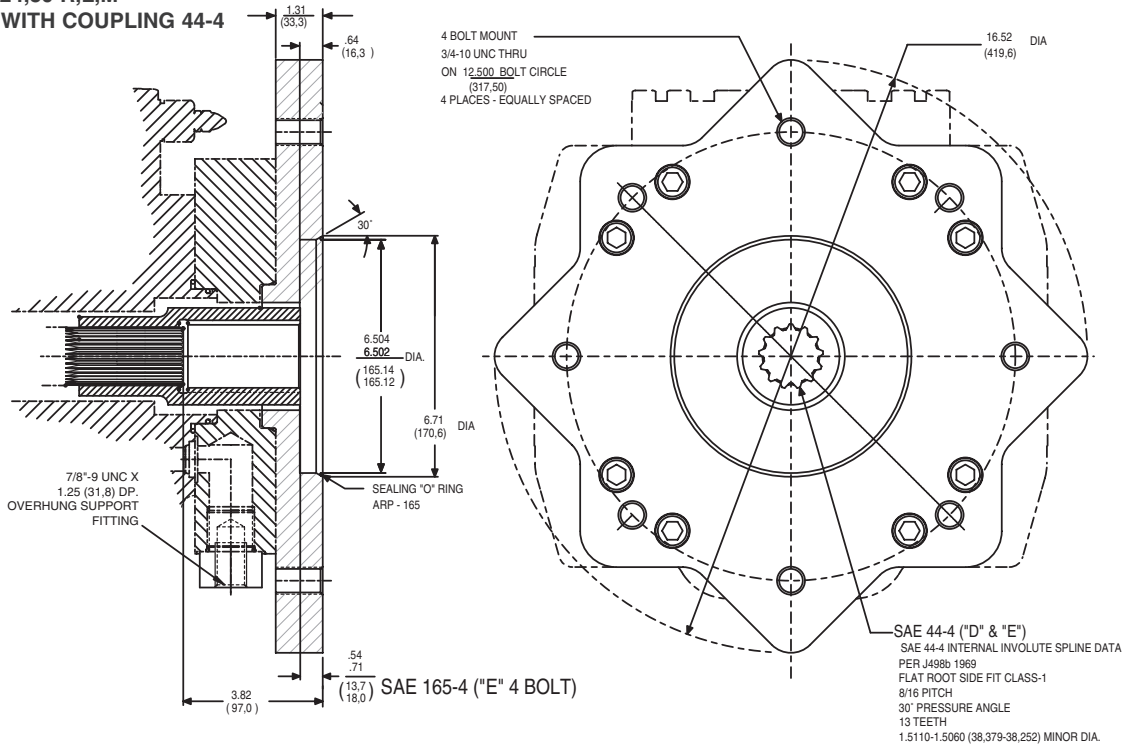
M24,30 R,L,M,N
P24,30 R,L,M
SAE 127-2 (C) WITH COUPLING 32-4
SAE 127-4 (C) WITH COUPLING 32-4



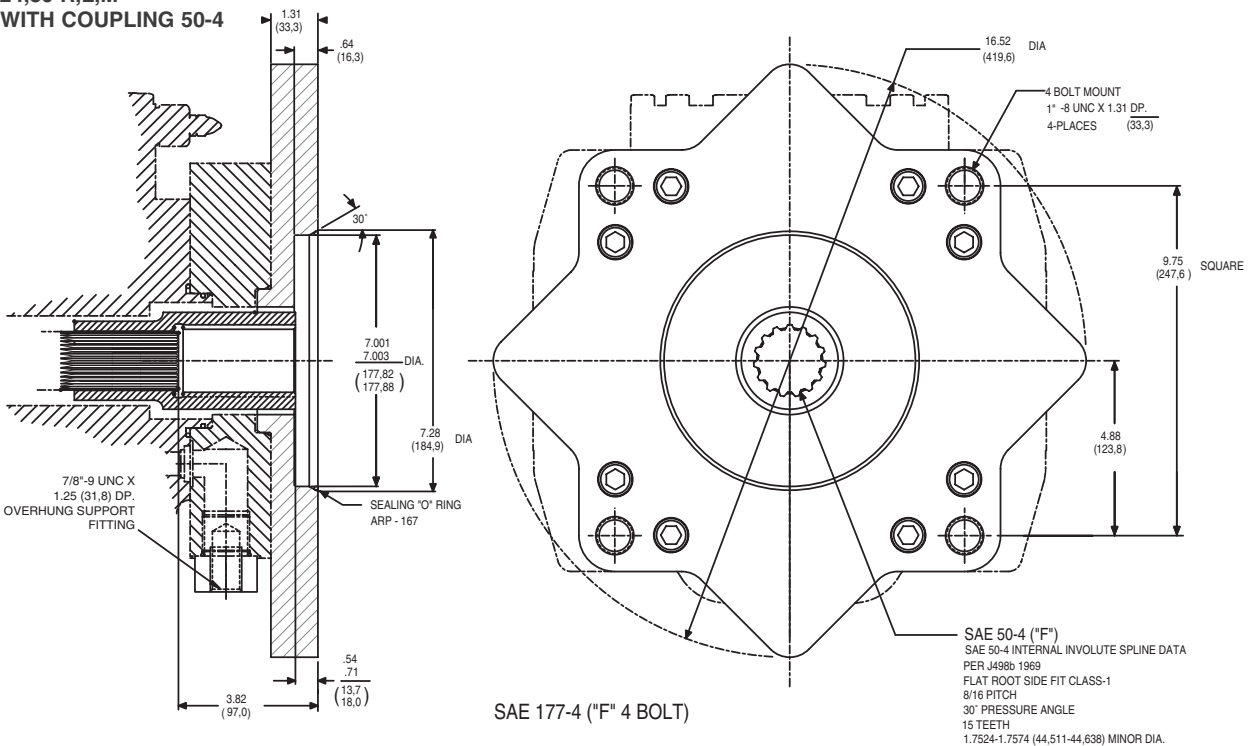
M24,30 R,L,M,N
P24,30 R,L,M
SAE 152-4 (D) WITH COUPLING 44-4



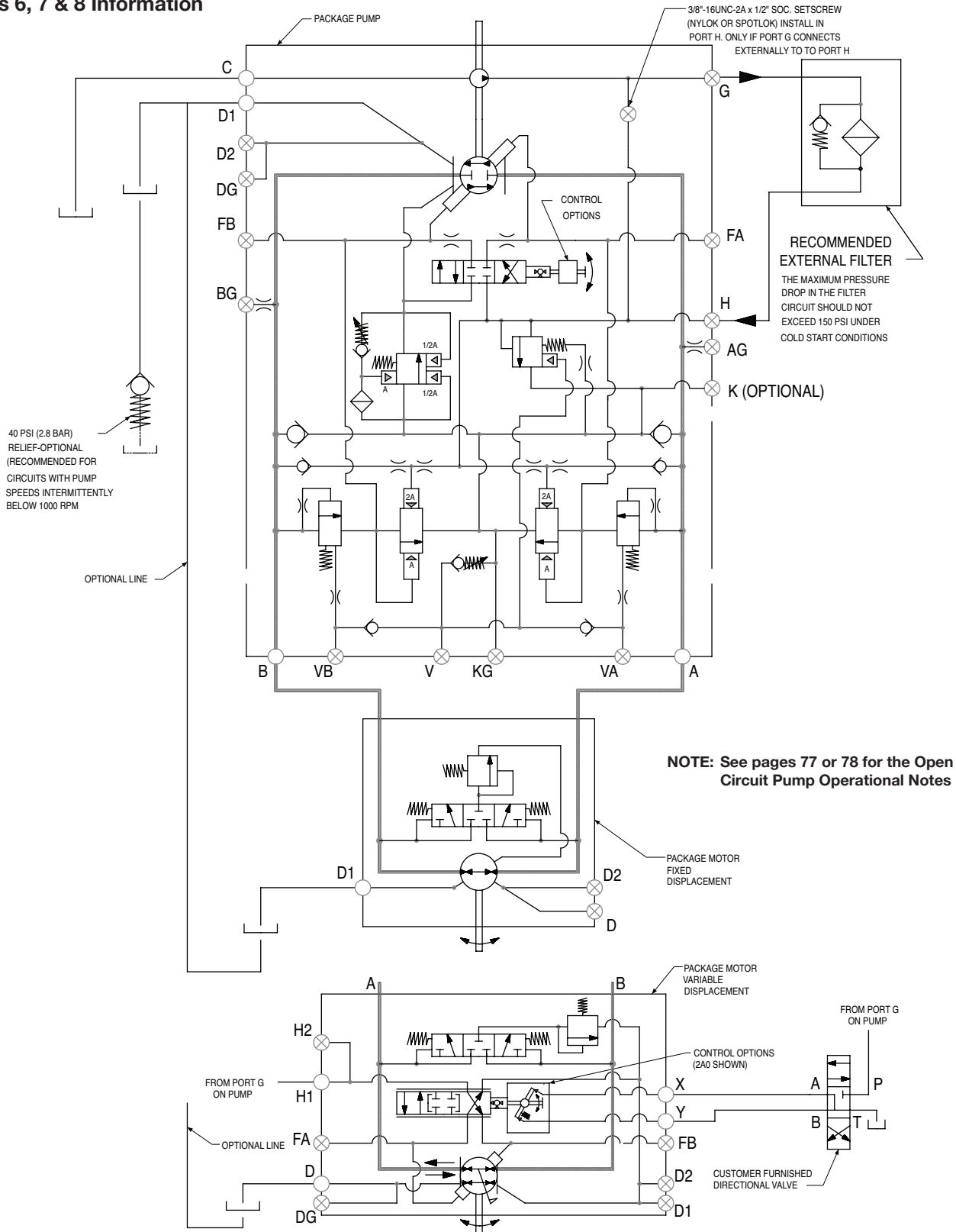
M24,30 R,L,M,N
P24,30 R,L,M
SAE 165-4 (E) WITH COUPLING 44-4



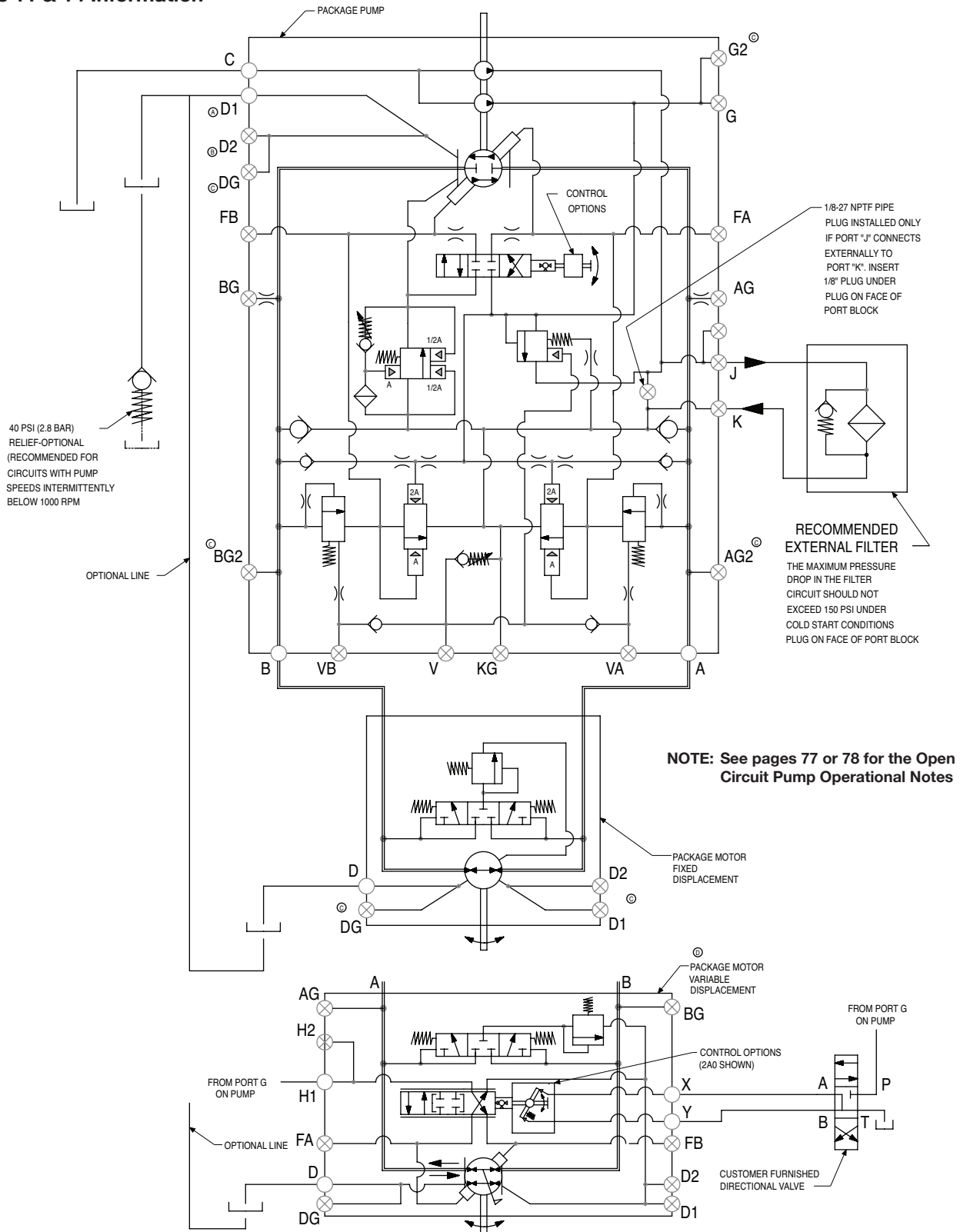
M24,30 R,L,M,N
P24,30 R,L,M
SAE 177-4 (F) WITH COUPLING 50-4



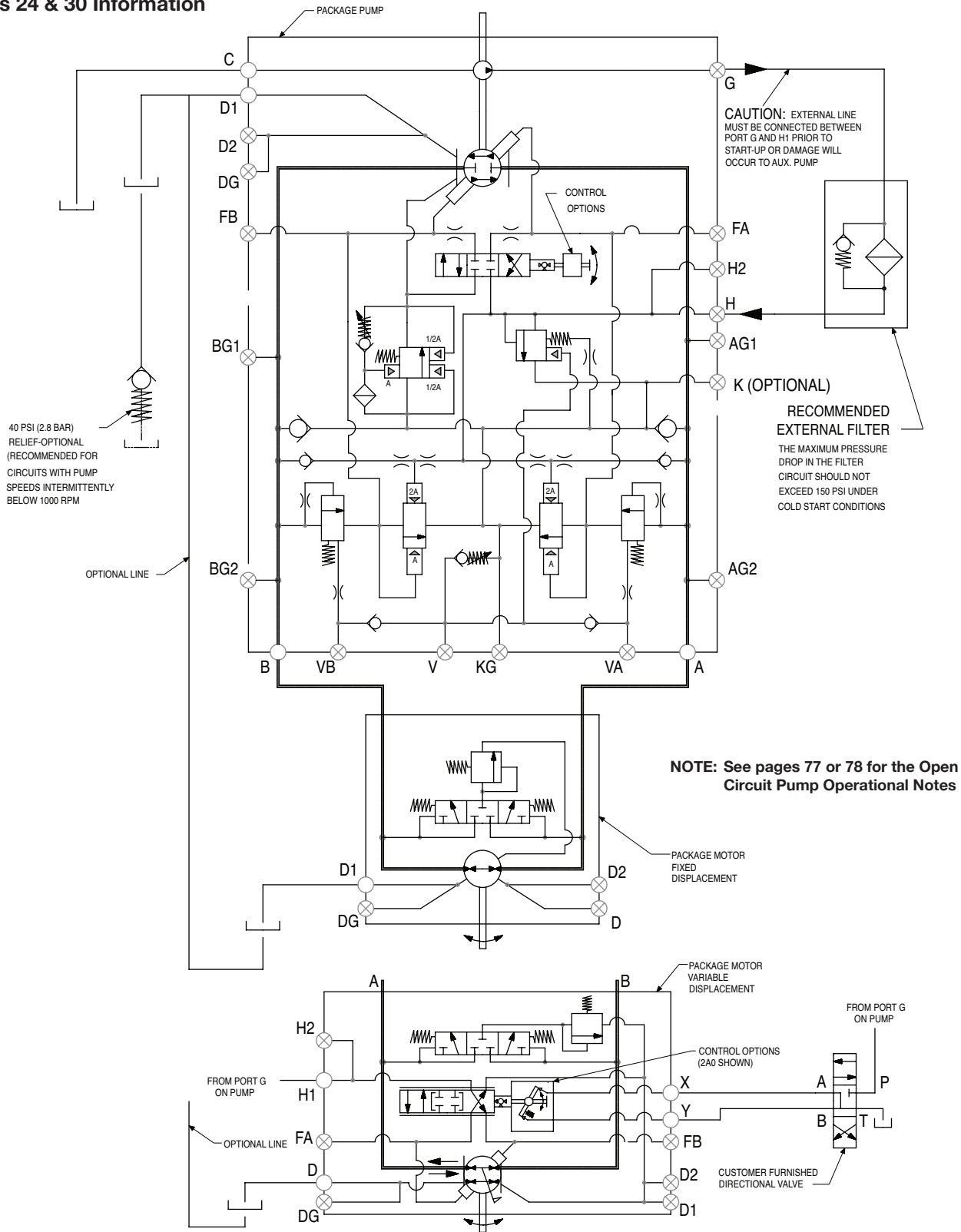
Series 6, 7 & 8 Information



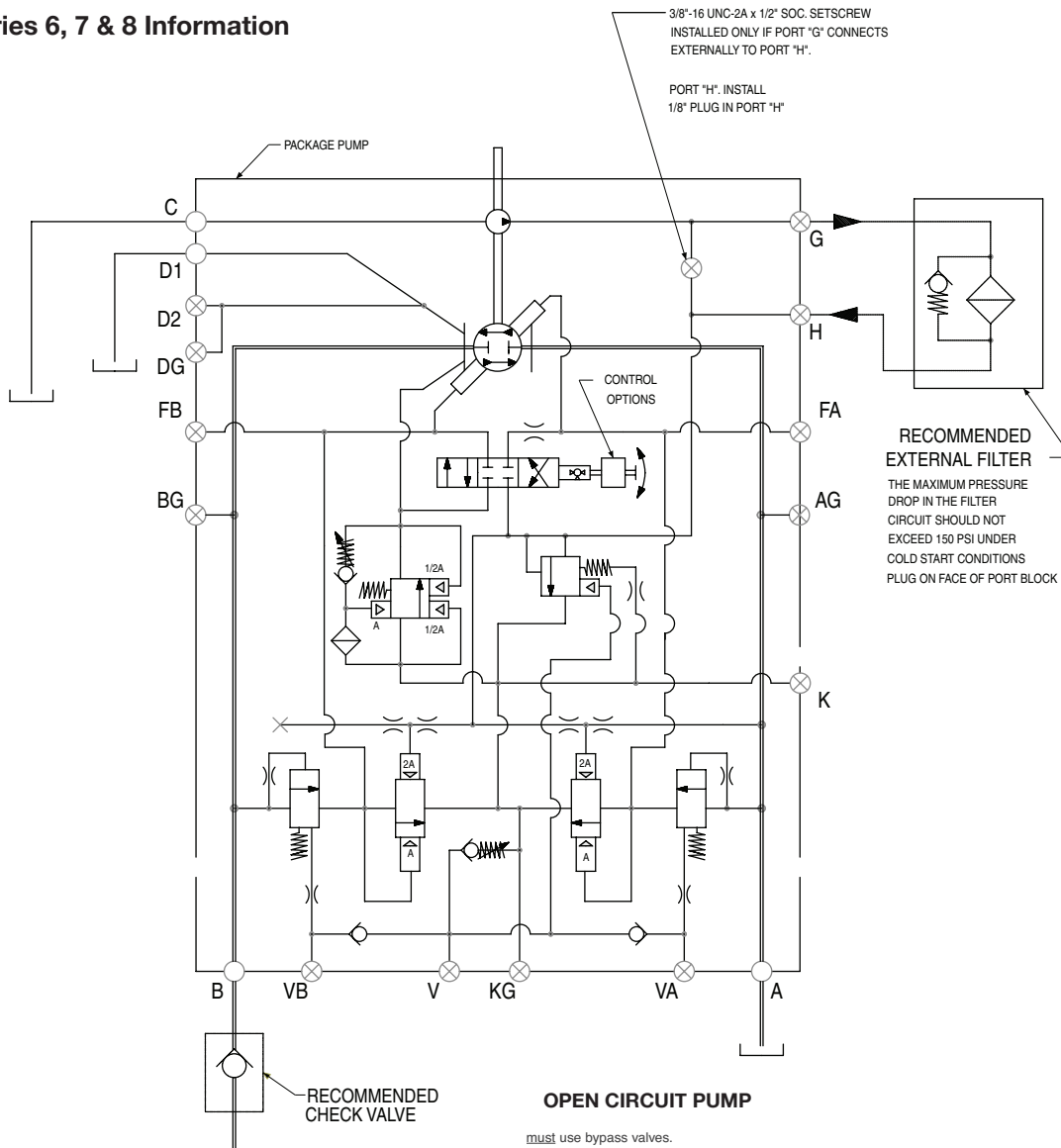
Series 11 & 14 Information



Series 24 & 30 Information



Series 6, 7 & 8 Information



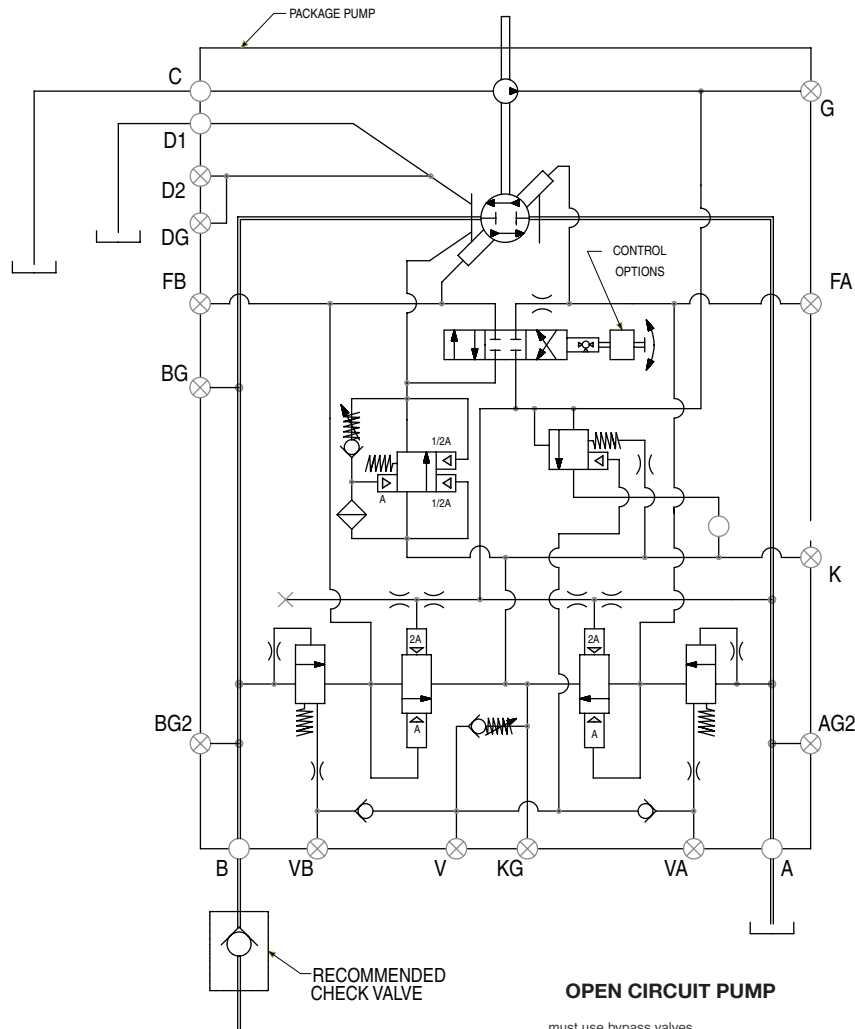
OPEN CIRCUIT PUMP

must use bypass valves.

inlet pressure must be increased for the following fluids:
 a. 25% for water glycols
 b. 35% for phosphate esters

* valve in the outlet line between the pump and load is highly recommended
 es, accumulators or other components may decompress when pump is the compensator.

Series 11 & 14 Information



OPEN CIRCUIT PUMP

must use bypass valves.

the inlet pressure must be increased for the following fluids:

- a. 25% for water glycols
- b. 35% for phosphate esters

*k valve in the outlet line between the pump and load is highly recommended. Accumulators or other components may decompress when pump is the compensator.

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