

# **GOLD CUP<sup>®</sup>** **P/M6-7-8 Variable Displacement** Spare Parts and Exploded Views

HY28-2667-03/GC/US

Effective: October 2023



ENGINEERING YOUR SUCCESS.

## Hydraulic Pump Division and Denison Hydraulics

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**<sup>®</sup> 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**<sup>®</sup> 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 responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

### **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.

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Notes:

1. Parts list and associated drawings shown in this bulletin are for standard variable volume model pump and motors only. All documentation for special "M2" modification model numbers must be verified with HPD Factory Representative prior to ordering parts for such products.
2. \* Indicates Special instructions or Considerations.
3. \*\* Indicates Common Parts
4. N/A Indicates Not Available or Not Applicable.
5. All documentation represented in this bulletin is for standard production models only, (as follows):
  - 5.1. P6 = Design Level "C" Model Pump
  - 5.2. P7 = Design Level "A" Model Pump
  - 5.3. P8 = Design Level "A" Model Pump
  - 5.4. M6 = Design Level "C" Model Motor
  - 5.5. M7 = Design Level "A" Model Motor
  - 5.6. M8 = Design Level "A" Model Motor
6. See ordering code for configuration options.
7. All orientation references are described when viewing unit from main drive shaft.
8. Assembly part numbers with -0 suffixes, indicate Buna N (Nitrile) seal compound. For Ethylene Propylene, (EPR), compound, use -4 suffix. For Fluorocarbon compound, use -5 suffixes.
9. Detail part numbers for O-rings with 671/691 prefix, indicates Buna N (Nitrile) seal compound. For Ethylene Propylene, (EPR), compound, use -4 suffix. For Fluorocarbon compound, use -5 suffixes.
10. Drawings with items marked with double balloons indicate assemblies





**Pump/Motor**



**Displacement**



**Type**



**Efficiency**



**Shaft**



**Rotation**



**Seals**



**Design**



**Primary Control**

Code	Pump/Motor
<b>P</b>	Pump
<b>M</b>	Motor

Code	Displacement
<b>6</b>	6.00 in <sup>3</sup> /rev (98 cc/rev)
<b>7</b>	7.25 in <sup>3</sup> /rev (119 cc/rev)
<b>8</b>	8.00 in <sup>3</sup> /rev (131 cc/rev)

Code	Type
<b>P</b>	Variable displacement, closed circuit (Pumps only)
<b>X</b>	Variable displacement with medium torque thru-drive, closed circuit (Pumps only)
<b>S</b>	Variable displacement with medium torque thru-drive & shuttle package, closed circuit (Pumps only)
<b>R</b>	Variable displacement with high torque thru-drive
<b>L</b>	Variable displacement with high torque thru-drive & shuttle package
<b>V</b>	Variable displacement, open circuit (Pumps only) Variable displacement (Motors only)
<b>D</b>	Variable displacement, open & closed circuit (Pumps only)
<b>H</b>	Variable displacement with medium torque thru-drive & shuttle package, closed circuit (Motors only)

Code	Efficiency
<b>Omit</b>	Extreme Duty Barrel Bearing (All Displacements)
<b>E</b>	Extreme Duty Barrel Bearing/Bronze Cage (All Displacements)

Code	Shaft
<b>1</b>	Splined SAE - floating shaft w/ mechanical seal
<b>2</b>	Keyed SAE - mechanical shaft
<b>3</b>	Splined SAE - mechanical shaft
<b>4</b>	Keyed SAE-D (mounting & shaft) - mechanical shaft seal
<b>5</b>	Splined SAE-D (mounting & shaft) - mechanical shaft seal
<b>7</b>	Keyed SAE - double lip shaft seal
<b>8</b>	Splined SAE - double lip shaft seal
<b>9</b>	Keyed (long) SAE - double lip shaft seal
<b>10</b>	Keyed (long) SAE - mechanical shaft seal

Code	Rotation
<b>R</b>	Clockwise (Pumps only)
<b>L</b>	Counterclockwise (Pumps only)
<b>N</b>	Bidirectional (Motors only)

Code	Seals
<b>1</b>	Nitrile (Buna N)
<b>4</b>	EPR (not available with "5A" or "5C" primary controls or "E" secondary control) (unpainted pump unless otherwise specified)
<b>5</b>	Flourocarbon (Viton)

**Design letter (assigned by manufacturer)**

Code	Primary Control
<b>10</b>	Screw adjustment (spring offset to maximum displacement) (Pumps only)
<b>2A</b>	Cylinder control w/ adjustable maximum volume stops
<b>2H</b>	Cylinder control - 3 position (spring centered with zero adjustment) (Pumps only)
<b>2M</b>	Cylinder control - 2 position electro-hydraulic w/ adjustable maximum volume stop (spring offset to minimum displacement)
<b>2N</b>	Cylinder control - 3 position (spring centered) electro-hydraulic (Pumps only)
<b>40</b>	Rotary servo - spring centered (Pumps only)
<b>4A</b>	Rotary servo - spring centered w/ adjustable maximum volume stops (Pumps only)
<b>4B</b>	Rotary servo - spring centered w/ automatic brake control (Pumps only)
<b>4C</b>	Rotary servo - spring centered w/ adjustable maximum volume stops & automatic brake control (Pumps only)
<b>5A</b>	Electro-hydraulic stroker w/ adjustable maximum volume stops
<b>5C</b>	Electro-hydraulic stroker w/ adjustable maximum volume stops & automatic brake control (Pumps only)
<b>7D</b>	High IQ with 10 gpm servovalve & volume indicator (Pumps only)
<b>7F</b>	High IQ with 10 gpm servovalve & 4A (rotary servo) control (Pumps only)
<b>7J</b>	High IQ with DF+ valve & volume indicator (Pumps only)
<b>7K</b>	High IQ with DF+ valve & 4A (rotary servo) control (Pumps only)
<b>7Q</b>	High IQ with digital DF+ valve & volume indicator (Only with "8" secondary control) (Pumps only)
<b>7R</b>	High IQ with digital DF+ valve & 4A (rotary servo) control (Only with "8" secondary control) (Pumps only)
<b>Code</b>	<b>Primary Control</b> <i>continued</i>

1 Not ATEX approved

*Continued on next page.*





**Secondary Control**



**Control Location**



**Control & Displacement Features**

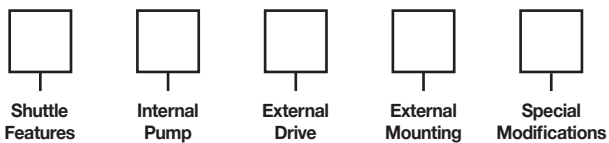
<b>8A</b>	Hydraulic stroker w/ adjustable maximum volume stops
<b>8C</b>	Hydraulic stroker w/ adjustable maximum volume stops & automatic brake control (Pumps only)
<b>9A</b>	Electro-hydraulic stroker w/ adjustable maximum volume stops 1
<b>9C</b>	Electro-hydraulic stroker w/ adjustable maximum volume stops & automatic brake control 1 (Pumps only)
<b>9D</b>	Electro-hydraulic stroker w/ adjustable maximum volume stops (Pumps only)

Code	Secondary Control
<b>0</b>	Volume indicator (Motors only)
<b>2</b>	Volume indicator (Pumps only)
<b>3</b>	Reverse Compensator (Spring Offset Max. + Volume Indicator (Motors only)
<b>4</b>	Torque limiter & volume indicator (Pumps only)
<b>5</b>	Reverse Compensator (Spring Offset Min. + Volume Indicator (Motors only)
<b>6</b>	Cam position feedback potentiometer
<b>7</b>	Cam position feedback RVDT (AC)
<b>8</b>	Cam position feedback RVDT (DC)
<b>9</b>	Hall Effect Cam position feedback
<b>E</b>	Intelligence Enable w/ sensors (only P,X,S,R,L,V Type and with only 9A Primary Control) (Pumps only)
<b>U</b>	Reverse compensator (3) + cam position feedback potentiometer (6) (Motors only)
<b>V</b>	Reverse compensator (3) + cam position feedback RVDT (7) (Motors only)
<b>W</b>	Reverse compensator (3) + cam position feedback RVDT (8) (Motors only)
<b>X</b>	Reverse compensator (5) + cam position feedback potentiometer (6) (Motors only)
<b>Y</b>	Reverse compensator (5) + cam position feedback RVDT (7) (Motors only)
<b>Z</b>	Reverse compensator (5) + cam position feedback RVDT (8) (Motors only)

Code	Control Location
<b>A</b>	Primary control on port A side
<b>B</b>	Primary control on port B side

Control	Code for Pumps	Code for Motors	Control & Displacement Features
<b>2M*</b>	00	0	4D01 valve, 110VAC/60Hz with Hirschmann connector
	01	1	4D01 valve, 12VDC with Hirschmann connector
	02	2	4D01 valve, 240VAC/50Hz with Hirschmann connector
	03	3	4D01 valve, 110VAC/60Hz, wiring box
	04	4	4D01 valve, 12VDC, wiring box
	05	5	Cetop3 (D03)(NG6) interface, no directional valve
	06	6	4D01 valve, 24VDC with Hirschmann connector
	07	7	4D01 valve, 110VAC/50Hz with Hirschmann connector
<b>2N*</b>	00	-	4D01 valve, 110VAC/60Hz with Hirschmann connector (Pumps only)
	01	-	4D01 valve, 12VDC with Hirschmann connector (Pumps only)
	02	-	4D01 valve, 240VAC/50Hz with Hirschmann connector (Pumps only)
	03	-	4D01 valve, 110VAC/60Hz, wiring box (Pumps only)
	04	-	4D01 valve, 12VDC, wiring box (Pumps only)
	05	-	Cetop3 (D03)(NG6) interface, no directional valve (Pumps only)
	06	-	4D01 valve, 24VDC with Hirschmann connector (Pumps only)
	07	-	4D01 valve, 110VAC/50Hz with Hirschmann connector (Pumps only)
<b>5**</b>	00	0	with deadband
	01	1	without deadband
<b>7**</b>	00	-	without manual override shutoff (Pumps only)
	01	-	with manual override shutoff (required for F, G, L, K & R primary options) (Pumps only)
<b>8**</b>	00	0	75 - 350 psi (5 - 24 bar)
	01	1	75 - 435 psi (5 - 30 bar)
	02	-	100 - 380 psi (7 - 26 bar) (Pumps only)
	03	-	150 - 400 psi (10 - 28 bar) (Pumps only)
	04	-	75 - 250 psi (5 - 17 bar) (Pumps only)
<b>9**</b>	00	0	24VDC
	01	1	12VDC
<b>All Other</b>	00	0	None





Code	Shuttle Features (Motors only)
<b>Omit</b>	(Pumps only)
<b>0</b>	Without Orifices
<b>1</b>	With Orifices

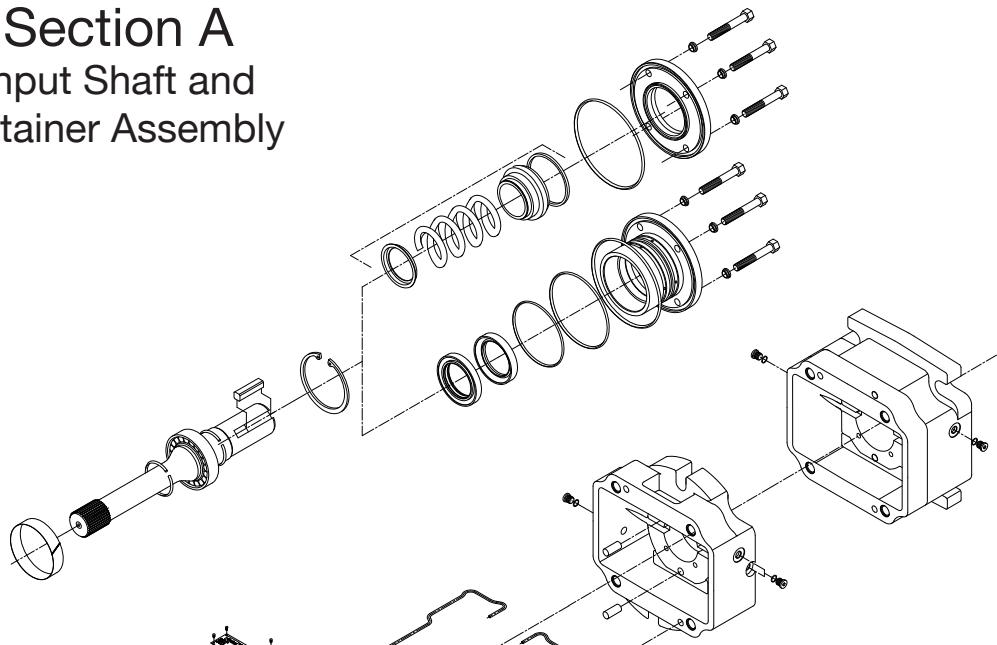
Code	Internal Pump
<b>Omit</b>	All Motors
<b>0</b>	1.07 cu.in./rev. (17.5 cc/rev.) (Pumps only)
<b>X</b>	No Internal Pump (Standard on R/L Pumps)

Code	External Drive
<b>Omit</b>	None
<b>M</b>	Steel Blanking Plate Less Coupling (S/X/R/L only)
<b>A</b>	SAE-A (SAE 82-2) (S/X/R/L only)
<b>B</b>	SAE-B (SAE 101-2) (S/X/R/L only)
<b>C</b>	SAE-C (SAE 127-2) (S/X/R/L only)

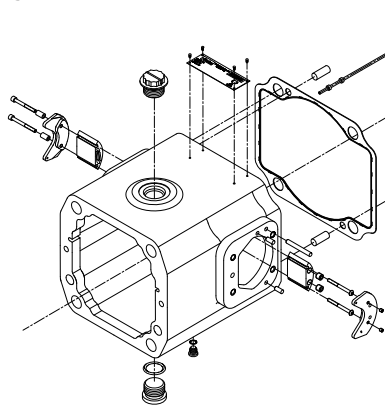
Code	External Mounting
<b>Omit</b>	No External Mount
<b>0</b>	No External Pump Mounted
<b>1</b>	External pump mounted (requires special modification "-M2") (must be separately specified)
<b>2</b>	External Explosion Proof pump mounted (requires special modification "-EX") (must be separately specified)

Code	Special Modifications
<b>Omit</b>	None (Unit Painted Black)
<b>NP</b>	No Paint
<b>EX</b>	ATEX APPROVED PUMPS without "E" secondary control (EX: Bronze Caged Barrel Bearing Pumps, etc.)
<b>M2</b>	Other special modification (example: bronze caged barrel bearing for low viscosity fluids, tandem pumps, etc.)

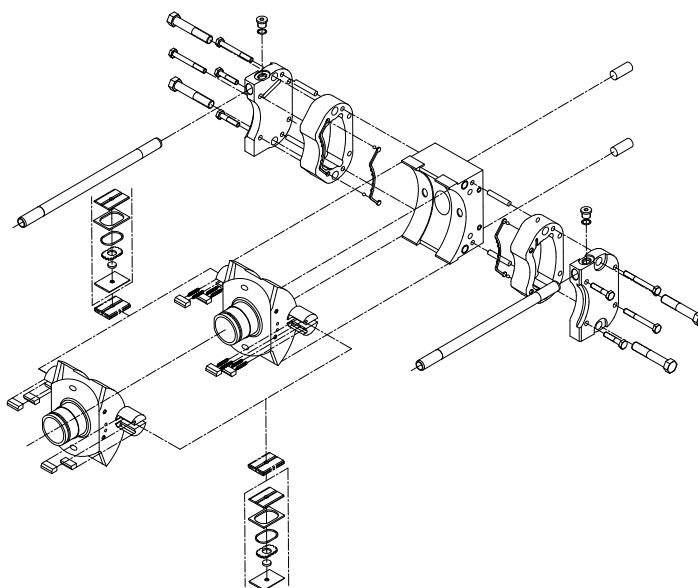
### Section A Input Shaft and Retainer Assembly



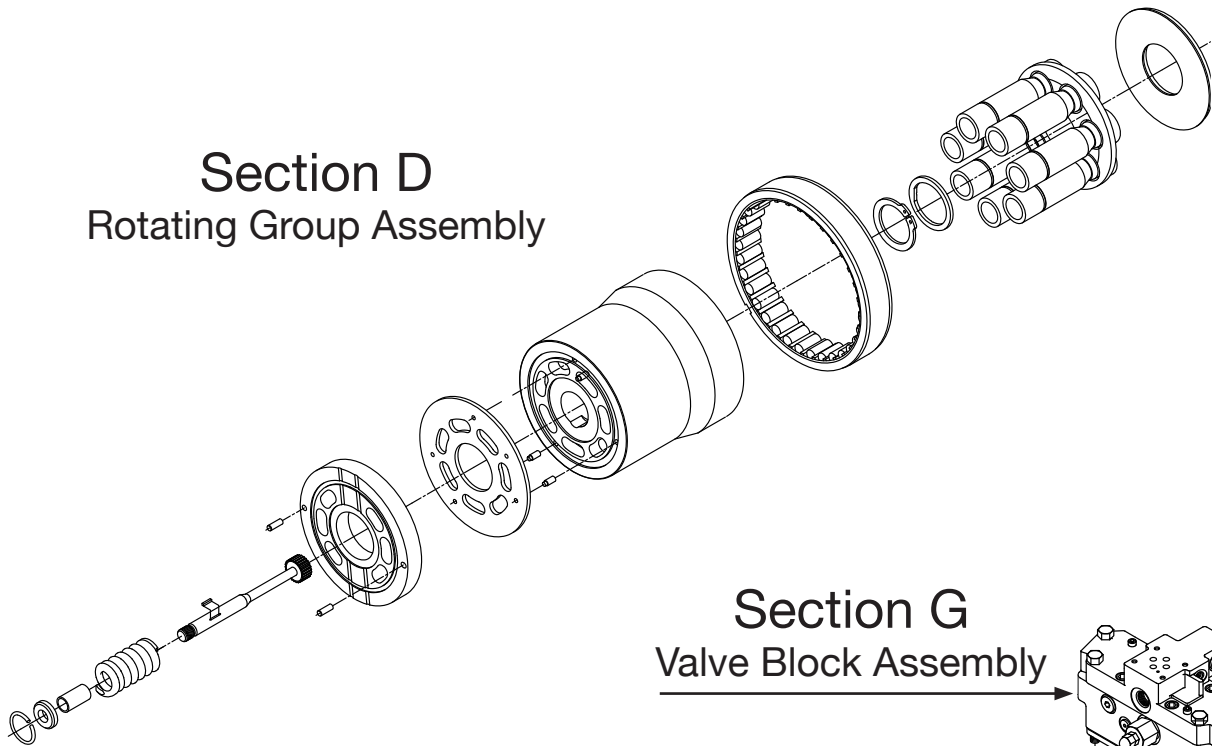
### Section B Housing, Mounting Flange and Stems Assembly



### Section C Cam and Cradle Assembly

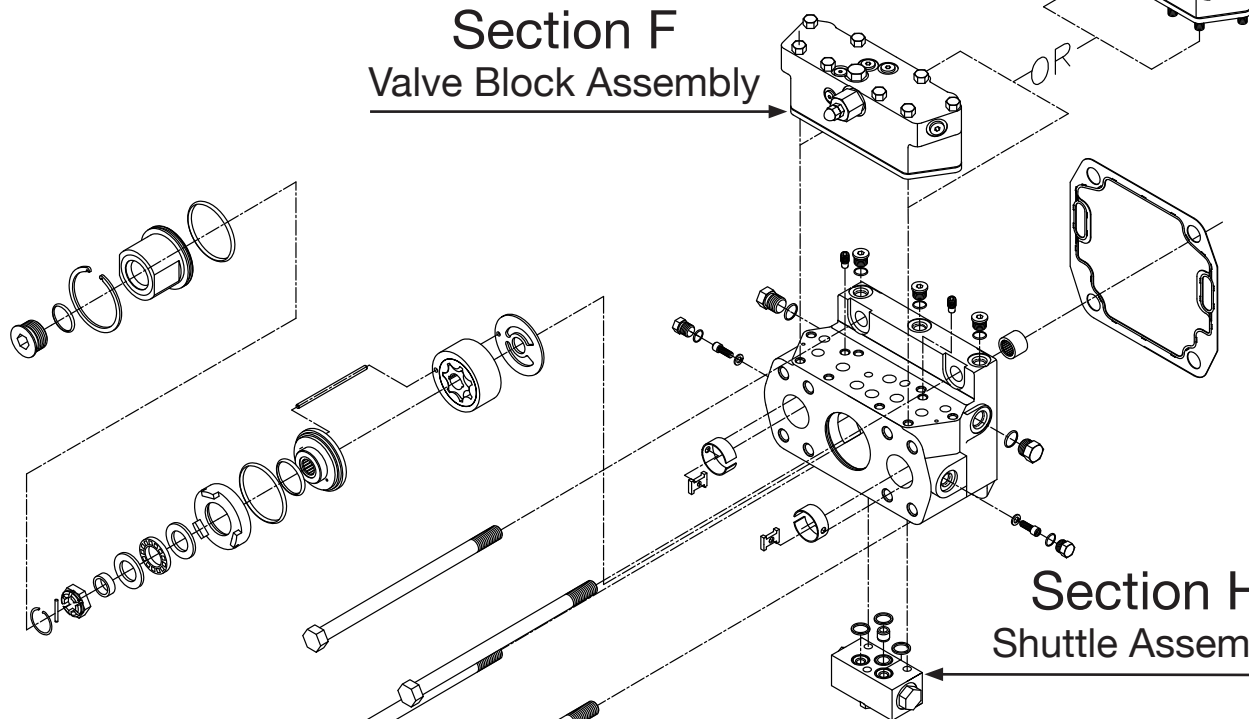


**Section D**  
Rotating Group Assembly



**Section G**  
Valve Block Assembly

**Section F**  
Valve Block Assembly



**Section H**  
Shuttle Assembly

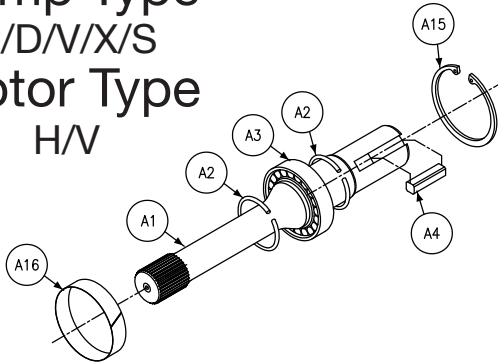
**Section E**  
Port Block Assembly

Seal Kits Contain All Seals for the Following: 1. Main Pump 2. Valve Block 3. Input/Output Controls 4. Shaft Seal				
Shaft Code	Pump/Motor	Type	Seal Code	Part Number
2/3/10	P	P/D/V	1	S23-17026-0
2/3/10	P	P/D/V	4	S23-17026-4
2/3/10	P	P/D/V	5	S23-17026-5
4/5	P	P/D/V	1	S23-17027-0
4/5	P	P/D/V	4	S23-17027-4
4/5	P	P/D/V	5	S23-17027-5
7/8/9	P	P/D/V	1	S23-17028-0
7/8/9	P	P/D/V	4	S23-17028-4
7/8/9	P	P/D/V	5	S23-17028-5
2/3/10	P	S/X/R/L	1	S23-17029-0
2/3/10	P	S/X/R/L	4	S23-17029-4
2/3/10	P	S/X/R/L	5	S23-17029-5
4/5	P	S/X/R/L	1	S23-17030-0
4/5	P	S/X/R/L	4	S23-17030-4
4/5	P	S/X/R/L	5	S23-17030-5
7/8/9	P	S/X/R/L	1	S23-17032-0
7/8/9	P	S/X/R/L	4	S23-17031-4
7/8/9	P	S/X/R/L	5	S23-17031-5

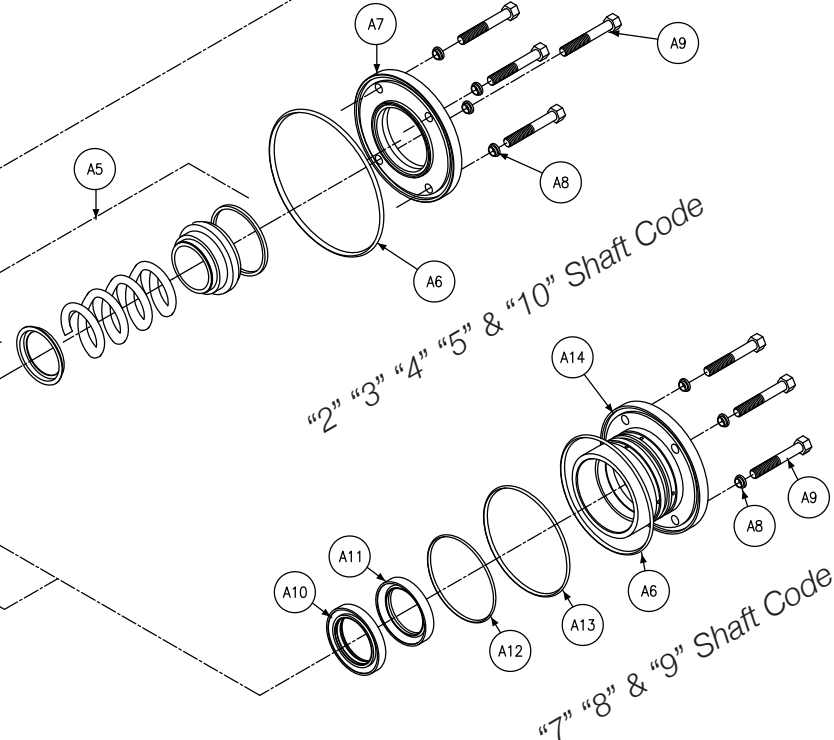
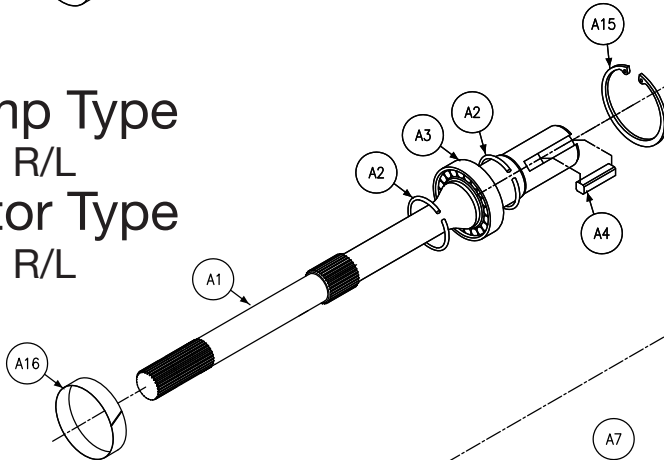
Shaft Assemblies Composed of Items: A1, A2, A3 and A4			
Shaft Code	Pump/Motor	Type	Part Number
2	P/M	P/D/V/X/S/H	S13-41806-0
3	P/M	P/D/V/X/S/H	S13-41805-0
4	P/M	P/D/V/X/S/H	S23-15832-0
5	P/M	P/D/V/X/S/H	S23-15831-0
7	P/M	P/D/V/X/S/H	S23-16539-0
8	P/M	P/D/V/X/S/H	S23-16514-0
9	P/M	P/D/V/X/S/H	S23-17486-0
10	P/M	P/D/V/X/S/H	S23-17487-0
2	P/M	R/L	S23-12093-0
3	P/M	R/L	S23-12044-0
4	P/M	R/L	S23-17222-0
5	P/M	R/L	S23-17167-0
7	P/M	R/L	S23-16944-0
8	P/M	R/L	S23-18302-0
9	P/M	R/L	S23-17492-0
10	P/M	R/L	S23-17493-0

Seal Kits Contain All Seals for the Following: 1. Main Motor Less Shuttle 2. Input/Output Controls 3. Shaft Seal				
Shaft Code	Pump/Motor	Type	Seal Code	Part Number
2/3/10	M	H/V	1	S23-17743-0
2/3/10	M	H/V	4	S23-17743-4
2/3/10	M	H/V	5	S23-17743-5
4/5	M	H/V	1	S23-17744-0
4/5	M	H/V	4	S23-17744-4
4/5	M	H/V	5	S23-17744-5
7/8/9	M	H/V	1	S23-17745-0
7/8/9	M	H/V	4	S23-17745-4
7/8/9	M	H/V	5	S23-17745-5

Pump Type  
P/D/V/X/S  
Motor Type  
H/V



Pump Type  
R/L  
Motor Type  
R/L



Section View - A - Input Shaft & Retainer Assembly

Section A P/M6-7-8 Input Shaft and Retainer Assembly								
Balloon #	Pump/Motor	Type	Shaft Code	Rotation	Seal Code	Item #	Description	Qty
A1	P	P/V/X/S	2	**	**	033-70579-0	SHAFT KEYED	1
	M	V/H						
	P	P/V/X/S	1/3	**	**	033-70567-0	SHAFT SPLINED	
	M	V/H						
	P	P/V/X/S	4	**	**	033-92283-0	SHAFT KEYED	
	M	V/H						
	P	P/V/X/S	5	**	**	033-92282-0	SHAFT SPLINED	
	M	V/H						
	P	P/V/X/S	7	**	**	033-92959-0	SHAFT KEYED	
	M	V/H						
	P	P/V/X/S	8	**	**	033-92943-0	SHAFT SPLINED	
	M	V/H						
	P	P/V/X/S	9	**	**	033-93605-0	SHAFT KEYED	
	M	V/H						
	P	P/V/X/S	10	**	**	033-93606-0	SHAFT KEYED	
	M	V/H						
	P/M	R/L	2	**	**	033-57862-0	SHAFT KEYED	
	P/M	R/L	1/3	**	**	033-57819-0	SHAFT SPLINED	
	P/M	R/L	4	**	**	033-93453-0	SHAFT KEYED	
	P/M	R/L	5	**	**	033-93418-0	SHAFT SPLINED	
P/M	R/L	7	**	**	033-93318-0	SHAFT KEYED		
P/M	R/L	8	**	**	033-94244-0	SHAFT SPLINED		
P/M	R/L	9	**	**	033-93611-0	SHAFT KEYED		
P/M	R/L	10	**	**	033-93612-0	SHAFT KEYED		
A2	P/M	**	1/2/3/7/8/9/10	**	**	033-70817-0	RETAINING RING	2
	P/M	**	4/5	**	**	033-70817-0	RETAINING RING	1
A3	P/M	**	1/2/3/7/8/9/10	**	**	230-82140-0	SHAFT BEARING	1
	P/M	**	4/5	**	**	230-00207-0	SHAFT BEARING	
A4	P/M	**	2/7	**	**	033-71348-0	KEY	1
	P/M	**	4	**	**	031-29899-0		
	P/M	**	9/10	**	**	033-93617-0		
A5	P/M	**	1/2/3/10	**	1	623-00006-0	SHAFT SEAL	1
					4	623-00006-4		
					5	623-00006-5		
			4/5	**	1	623-00016-0		
					4	623-00016-4		
5	623-00016-5							
A6	P/M	**	1/2/3/7/8/9/10	**	1	671-00043-0	O RING	1
					4	674-00043-0		
					5	675-00043-0		
			4/5	**	1	671-00249-0		
					4	674-00249-0		
					5	675-00249-0		
A7	P/M	**	1/2/3/10	**	**	033-57872-0	SEAL RETAINER	1
			4/5					
A8	P/M	**	1/2/3/7/8/9/10	**	**	631-45003-0	GASKET	4
			4/5			631-45007-0		

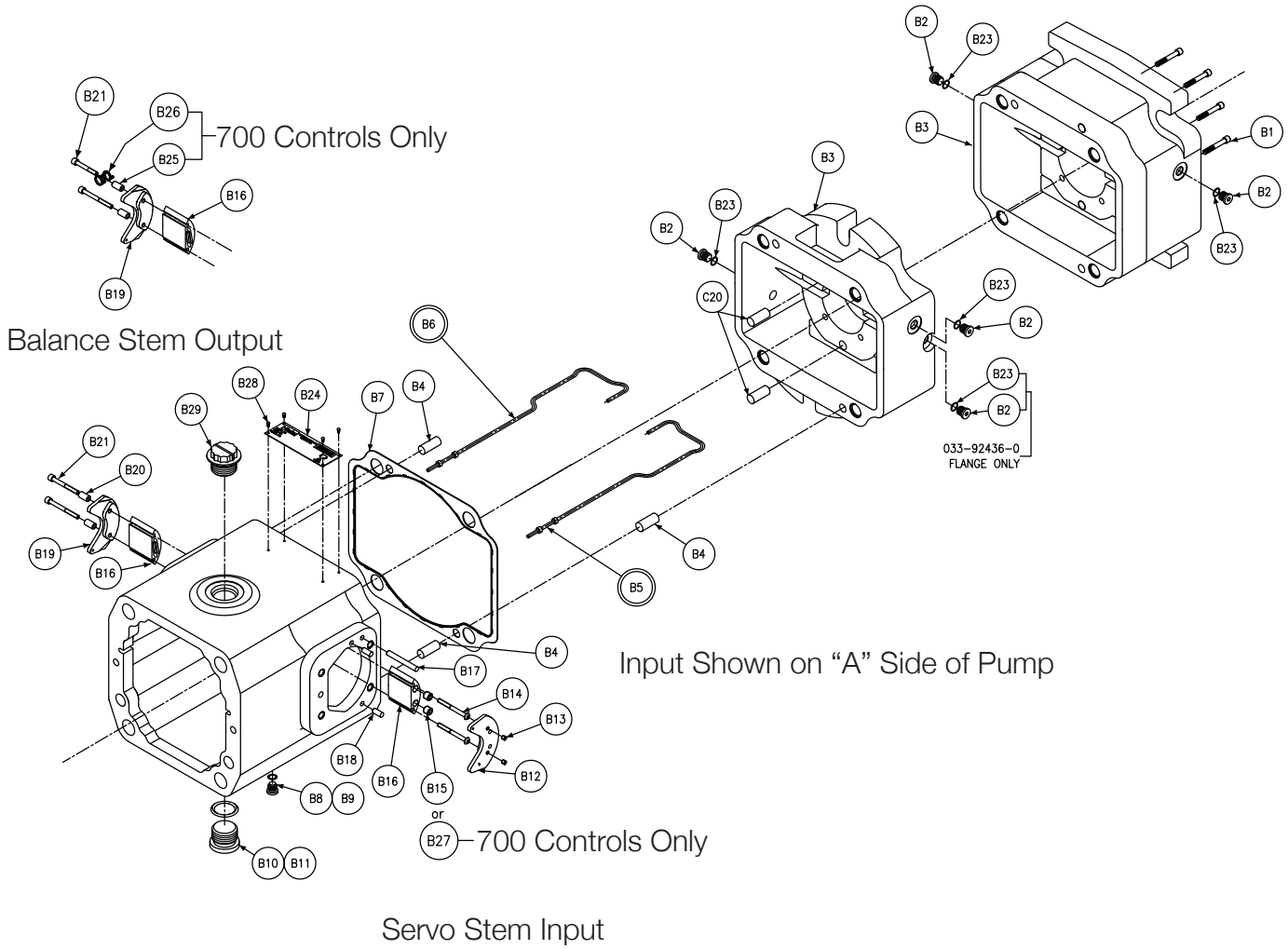


Section View - A - Input Shaft & Retainer Assembly

Section A P/M6-7-8 Input Shaft and Retainer Assembly								
Balloon #	Pump/Motor	Type	Shaft Code	Rotation	Seal Code	Item #	Description	Qty
A9	P/M	**	1/2/3/7/8/9/10	**	**	306-40144-0	HHCS 1/4-20 UNC X 1-3/4	4
			4/5			306-40016-0	HHCS 3/8-16 UNC X 1"	
A10	P	P/V/X/S/R/L	7/8/9	**	1	620-82066-0	INNER SHAFT SEAL	1
	M	V/H/R/L						
	P	P/V/X/S/R/L	7/8/9	**	4	Not available		
	M	V/H/R/L						
	P	P/V/X/S/R/L	7/8/9	**	5	Not available		
	M	V/H/R/L						
A11	P	P/V/X/S/R/L	7/8/9	**	1	620-82114-0	OUTER SHAFT SEAL	1
					4	Not available		
					5	Not available		
A12	P/M	**	7/8/9	**	1	671-00036-0	O RING	1
					4	674-00036-0		
					5	675-00036-0		
A13	P/M	**	7/8/9	**	1	671-00037-0	O RING	1
					4	674-00037-0		
					5	675-00037-0		
A14	P/M	**	7/8/9	**	**	033-92465-0	SEAL RETAINER	1
A15	P/M	**	1/2/3/7/8/9/10	**	**	033-53901-0	RET RING .066/.068 RED	Select Fit 1 Only
						033-53902-0	RET RING .070/.072 GREEN	
			033-53903-0			RET RING .074/.076 YELLOW		
			4/5			356-65139-0	RETAINING RING	1
A16	P	P/V/X/S/R/L	2/3/10	**	**	033-53948-0	SHIM .008"	Select Fit 1 Only
	M	V/H/R/L				033-53949-0	SHIM .007"	



Pump Type  
P/D/N/X/S/R/L  
Motor Type  
H/V/R/L



Section View - B - Housing, Mounting Flange & Stem Assembly

Section B P/M6/7/8 P/D/V/X/S/R/L/H							
Balloon #	Pump/Motor	Type	Shaft Code	Seal Code	Item #	Description	Qty
B1	P	P/D/V/S/X/R/L	4/5	**	358-12200-0	SHCS 1/4-20 UNC X 1 1/2	4
	M	V/H/R/L					
B2	P	P/D/V/S/X/R/L	2/3/10	**	033-71546-0	HEX SOC. PLUG	2
	M	V/H/R/L					
	P	P/D/V/S/X/R/L	4/5				2
	M	V/H/R/L					
	P	P/D/V/S/X/R/L	7/8/9				3
	M	V/H/R/L					
B3	P	P/D/V/S/X/R/L	2/3/10	**	033-70604-0	MOUNTING FLANGE	1
	M	V/H/R/L		**			
	P	P/D/V/S/X/R/L	4/5	**	033-92280-0		
	M	V/H/R/L		**			
	P	P/D/V/S/X/R/L	7/8/9	**	033-92436-0		
	M	V/H/R/L		**			
B4	P/M	**	**	**	324-22412-0	DOWEL PIN	4
B5	P/M	**	**	**	S13-42403-0	LEFT FEED TUBE	1
B6	P/M	**	**	**	S13-42402-0	RIGHT FEED TUBE	1
B7	P/M	**	**	**	033-91067-0	GASKET HSG/MTG FLG	1
B8	P/M	**	**	1	691-00908-0	O RING	1
				4	694-00908-0		
				5	695-00908-0		
B9	P/M	**	**	**	033-91106-0	RETAINER BEARING	1
B11	P/M	**	**	1	691-00908-0	O RING	1
				4	694-00908-0		
				5	695-00908-0		
B12	P/M	**	**	**	033-53874-0	SERVO INPUT PLATE	1
B13	P/M	**	**	**	312-09032-0	SCREW	2
B14	P/M	**	**	**	353-25041-0	BHSS 10-24 UNC X 2	2
B15	P	P/D/S/X/R/L	**	**	033-70819-0	ORFICE .062	2
	M	R/L					
	P	V					1
	M	H/V					
B16	P/M	**	**	**	033-71312-0	SERVO STEM	1
B17	P/M	**	**	**	325-16280-0	SPRING PIN	2
B18	P/M	**	**	**	324-21608-0	DOWEL PIN	2
B19	P/M	**	**	**	033-70546-0	BALANCE STEM	1
B20	P/M	**	**	**	033-71247-0	SPACER	2
B21	P/M	**	**	**	358-10300-0	SHCS 10-24 UNC X 2 3/4	2

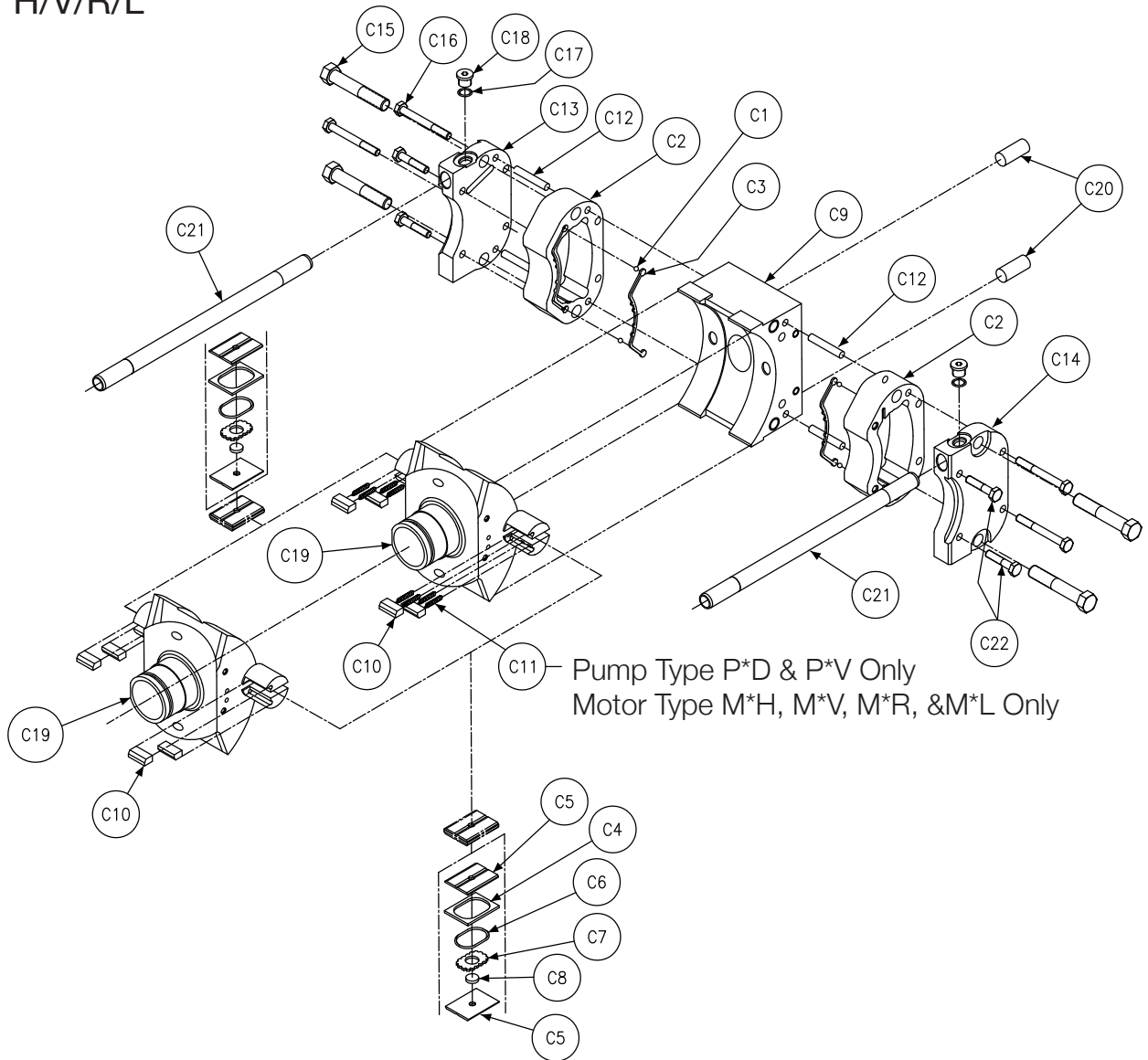


Section View - B - Housing, Mounting Flange & Stem Assembly

Section B P/M6/7/8 P/D/V/X/S/R/L/H							
Balloon #	Pump/Motor	Type	Shaft Code	Seal Code	Item #	Description	Qty
B22	P/M	**	**	**	033-91108-0	HOUSING VV	1
B23	P/M	**	1/2/3/ 4/5/10	1	691-00904-0	O RING	2
				4	694-00904-0		
				5	695-00904-0		
		**	7/8/9	1	691-00904-0		3
				4	694-00904-0		
				5	695-00904-0		
B24	P	**	**	**	033-71907-0	NAMEPLATE	1
	M				033-71908-0		
B25	P	**	**	**	033-57270-0	SPACER	2
B26	P	**	**	**	033-57271-0	FEEDBACK SPRING	1
B27	P	**	**	**	033-53824-0	ORIFICE .043	2
B28	P/M	**	**	**	320-10203-0	DRIVE SCREW	4
B29	P/M	**	**	**	449-00018-0	SHIPPING PLUG	1

Stem Kits	
Input Stem Kits Include the Following: B12, B13, B14, B15 and B16	
Input Stem Kits for 700 Control Include the Following: B12, B13, B14, B16 and B27	
Output Stem Kits Include the Following: B16, B19, B20 and B21	
Output Stem Kits for 700 Control Include the Following: B16, B19, B21, B25 and B26	
	Part Number
Motor and Pump 6/7/8 Input Stem Kit	S23-12681-0
Motor and Pump 6/7/8 Output Stem Kit	S23-03383-0
Pump 6/7/8 Input Stem Kit for 700 Control	S23-03382-0
Pump 6/7/8 **V** Input Stem Kit	S23-12468-0
Pump 6/7/8 Output Stem Kit for 700 Control	S23-03382-0

Pump Type  
P/D/V/X/S/R/L  
Motor Type  
H/V/R/L



Section View - C - Cam & Cradle Assembly

Section C 6/7/8 Cam and Cradle Assembly								
Balloon #	Pump/Motor	Type	Shaft Code	Rotation	Seal Code	Item #	Description	Qty
C1	P/M	P/D/V/X/S/L/R/H	**	**	**	201-06001-0	CHECK BALL	4
C2	P/M	P/D/V/X/S/L/R/H	**	**	**	033-72266-0	VANE CHAMBER	2
C3	P/M	P/D/V/X/S/L/R/H	**	**	1	606-25036-0	MOLDED SEAL	2
	P/M	P/D/V/X/S/L/R/H			4	606-25036-4		
	P/M	P/D/V/X/S/L/R/H			5	606-25036-5		
C4	P/M	P/D/V/X/S/L/R/H	**	**	**	033-70501-0	VANE SEAL	2
C5	P/M	P/D/V/X/S/L/R/H				033-70802-0	VANE SEAL BACKUP PLATE	4
C6	P/M	P/D/V/X/S/L/R/H	**	1	**	691-00120-0	O RING	2
	P/M	P/D/V/X/S/L/R/H	**	4	**	694-00120-0		
	P/M	P/D/V/X/S/L/R/H	**	5	**	695-00120-0		
C7	P/M	P/D/V/X/S/L/R/H	**	**	**	033-70519-0	VANE SPACER	2
C8	P/M	P/D/V/X/S/L/R/H	**	**	**	033-70803-0	CHECK VALVE	2
C9	P/M	P/D/V/X/S/L/R/H	2/3/7/ 8/9/10	**	**	033-53951-0	ROCKER CRADLE	1
	P/M	P/D/V/X/S/L/R/H	4/5			033-92281-0		
C10	P/M	P/X/S/L/R	**	**	**	033-70816-0	VANE HOLDDOWN	4
	P/M	D/V/H	**	**	**	033-72232-0		
C11	P/M	D/V/H	**	**	**	033-72233-0	SPRING HOLDDOWN	8
	P/M	P/X/S/L/R				**	NOT REQUIRED	
C12	P/M	P/D/V/X/S/L/R/H	**	**	**	324-21624-0	DOWEL PIN	4
C13	P	P/D/V/X/S/L/R	**	CCW	**	033-70612-0	RIGHT CONTROL COVER	1
	P	P/D/V/X/S/L/R		CW		033-70572-0		
	M	V/H		N				
C14	P	P/D/V/X/S/L/R	**	CCW	**	033-705740	LEFT CONTROL COVER	1
	P	P/D/V/X/S/L/R		CW		033-70571-0		
	M	V/H		N				
C15	P/M	P/D/V/X/S/L/R/H	**	**	**	306-40183-0	HEX HD CAP SCREW	4
C16	P/M	P/D/V/X/S/L/R/H	**	**	**	306-40187-0	HEX HD CAP SCREW	4
C17	P/M	P/D/V/X/S/L/R/H	**	1	**	691-00904-0	O RING	2
	P/M	P/D/V/X/S/L/R/H	**	4	**	694-00904-0		
	P/M	P/D/V/X/S/L/R/H	**	5	**	695-00904-0		
C18	P/M	P/D/V/X/S/L/R/H	**	**	**	488-35001-0	HEX SOCKET PLUG	2



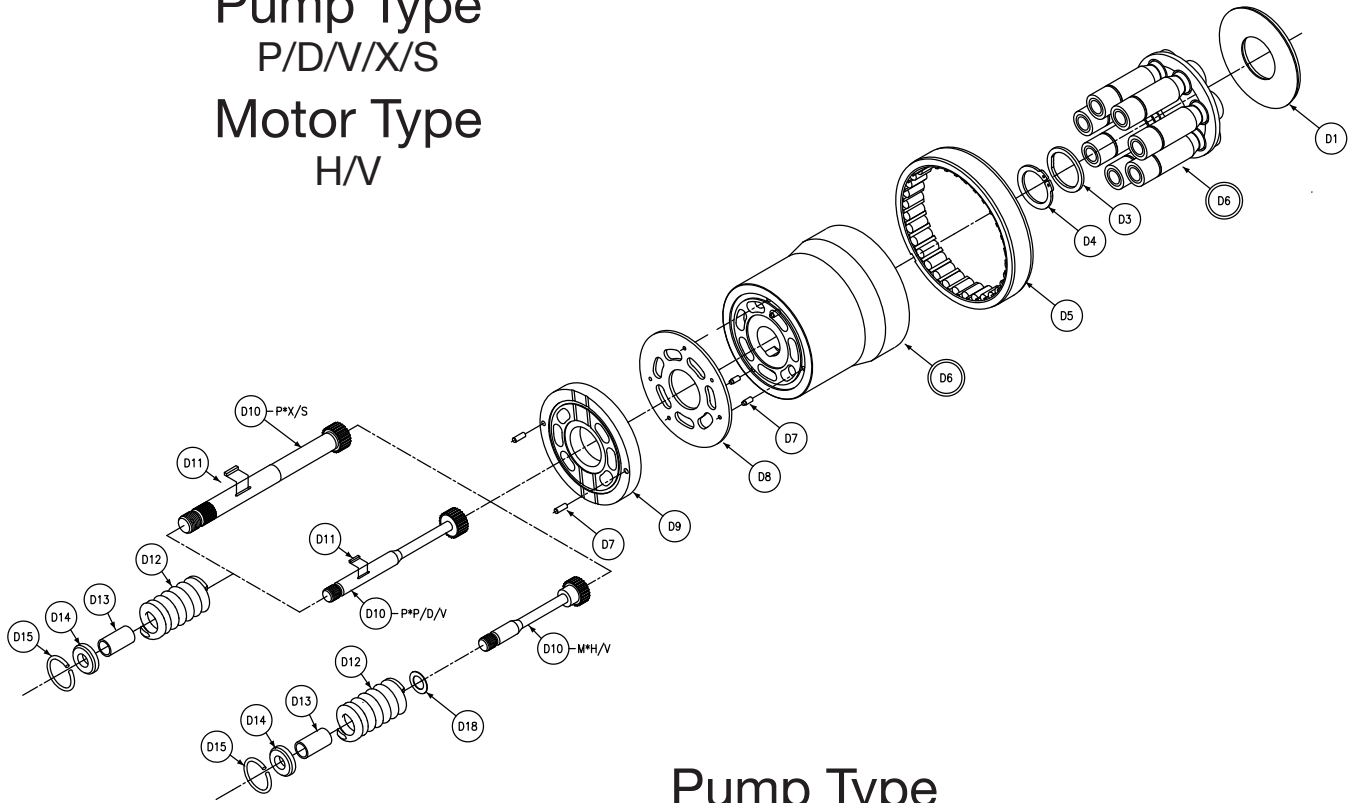
## Section View - C - Cam &amp; Cradle Assembly

Section C 6/7/8 Cam and Cradle Assembly								
Balloon #	Pump/Motor	Type	Shaft Code	Rotation	Seal Code	Item #	Description	Qty
C19	P/M	L/R	2/3/4/5/ 7/8/9/10	**	**	S23-12102-0	CAM ROCKER	1
	P/M	P/X/S	2/3/4/5/ 7/8/9/10	**	**	S23-12105-0		
	P/M	D/V/H	2/3/4/5/ 7/8/9/10	**	**	S23-12104-0		
C20	P/M	P/D/V/X/S/L/R/H	**	**	**	324-22412-0	DOWEL PIN	2
C21	P/M	P/D/V/X/S/L/R/H	**	**	**	033-70524-0	OVERRIDE TUBE	2
C22	P/M	P/D/V/X/S/L/R/H	**	**	**	306-40188-0	HEX HD CAP SCREW	4

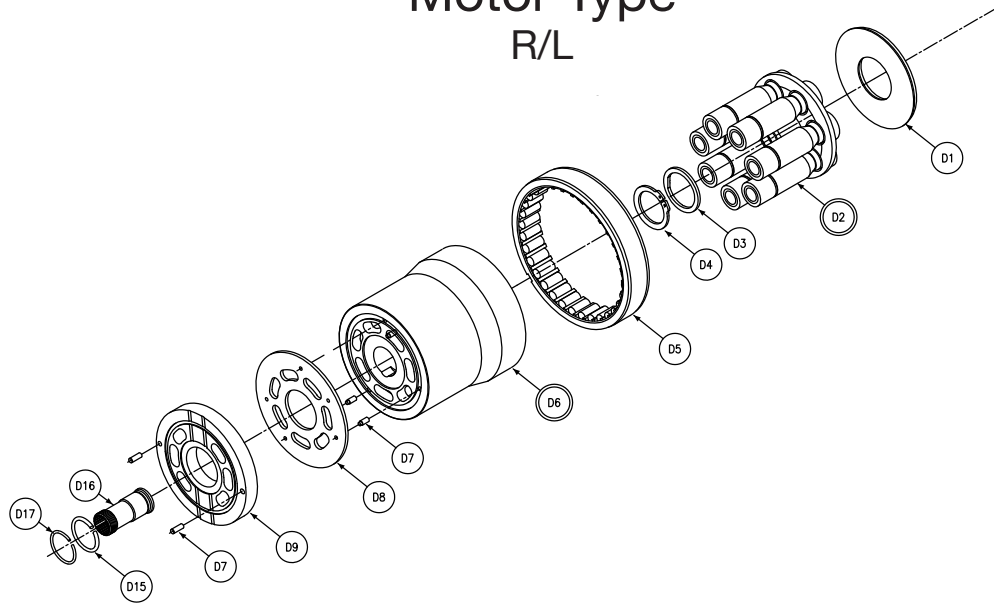
Cam & Cradle Assembly Kits Includes Items C1 Thru C22				
Part Number	Pump/Motor	Type	Shaft Code	Rotation
S23-17234-0*	P	P/X/S	2/3/7/8/9/10	CW
S23-17235-0*	P	P/X/S	2/3/7/8/9/10	CCW
S23-17236-0*	P/M	D/V/H	2/3/7/8/9/10	CW-N
S23-17237-0*	P	D/V	2/3/7/8/9/10	CCW
S23-17238-0*	P	R/L	2/3/7/8/9/10	CW
S23-17239-0*	P	R/L	2/3/7/8/9/10	CCW

\*NOTE: For Assembly Kits with Fluorocarbon Seals, order the Part Numbers with a -5 at the end instead of -0

Pump Type  
P/D/N/X/S  
Motor Type  
H/V



Pump Type  
R/L  
Motor Type  
R/L



## Section View - D - Rotating Group Assembly

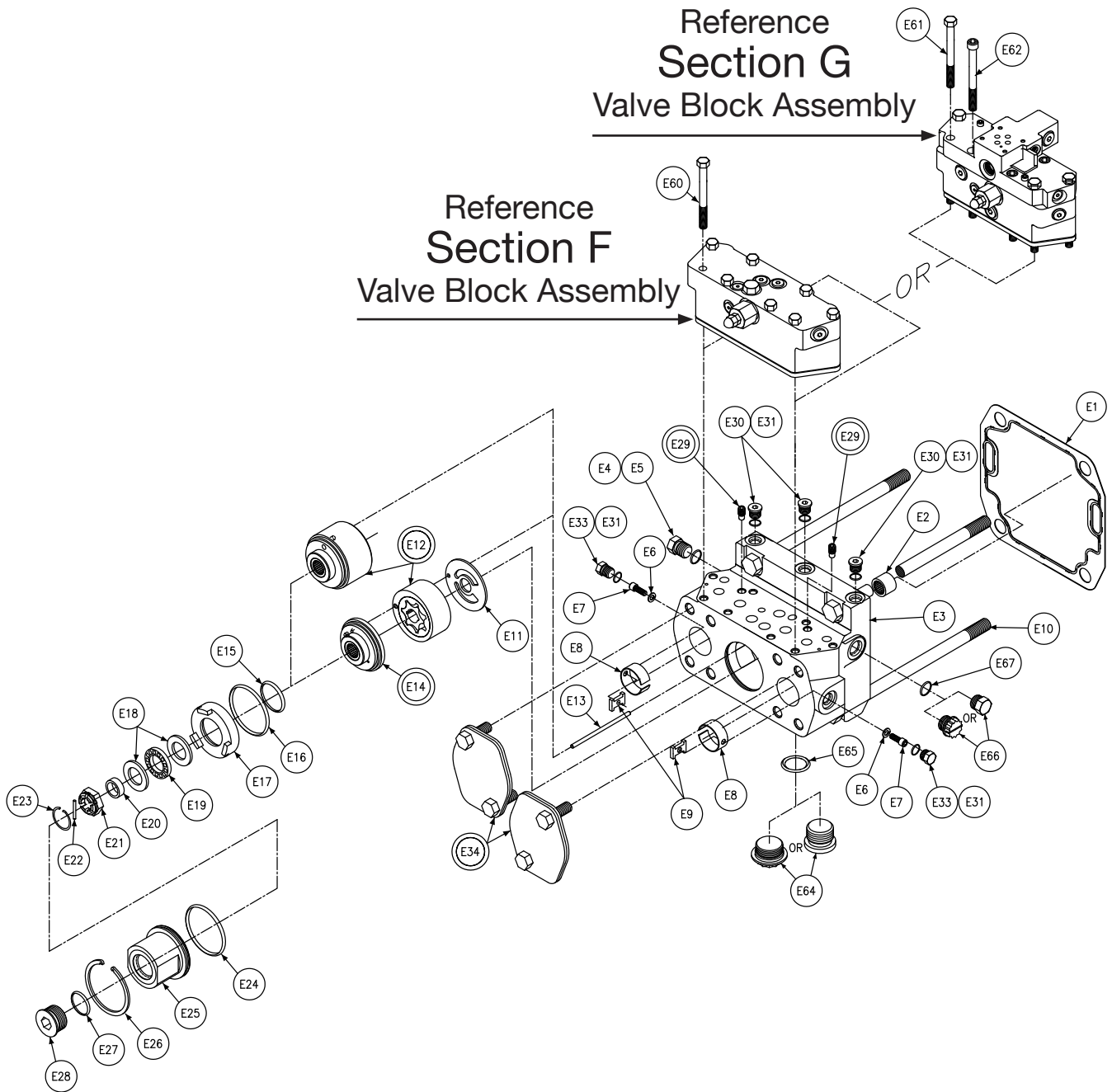
Section D 6/7/8 Rotating Group							
Balloon #	Displacement	Pump/Motor	Type	Rotation	Item #	Description	Qty
D1	**	P/M	P/D/V/X/S/L/R/H	**	033-71261-0	CREEP PLATE	1
D2	6	P	P/D/X/S/L/R	**	S13-43655-0	PISTON SHOE & RETAINER ASSEMBLY	1
		M	H/V	**			
	7	P/M	P/D/X/S/L/R/H	**	S13-42308-0		
		M	H/V	**			
	8	P/M	P/D/X/S/L/R/H	**	S21-11650-0		
		M	H/V	**			
	6	P	V	**	S13-45375-0		
	7	P	V	**	S13-47873-0		
	8	P	V	**	S21-11650-0		
	D3	**	P/M	P/D/V/X/S/L/R/H	**		
D4	**	P/M	P/D/V/X/S/L/R/H	**	033-54826-0	RET RING - .077 (1.96MM) THK BLACK	Select Fit One Only
	**	P/M	P/D/V/X/S/L/R/H	**	033-70490-0	RET RING - .079 (2.01MM) THK RED	
	**	P/M	P/D/V/X/S/L/R/H	**	033-70488-0	RET RING - .081 (2.06MM) THK GREEN	
	**	P/M	P/D/V/X/S/L/R/H	**	033-70484-0	RET RING - .083 (2.11MM) THK YELLOW	
	**	P/M	P/D/V/X/S/L/R/H	**	035-72176-0	RET RING - .085 (2.16MM) THK BLUE	
	**	P/M	P/D/V/X/S/L/R/H	**	035-72175-0	RET RING - .087 (2.21MM) THK WHITE	
	**	P/M	P/D/V/X/S/L/R/H	**	033-91232-0	RET RING - .075 (1.90MM) THK ORANGE	
D5	**	P/M	P/D/V/X/S/L/R/H	**	033-96167-0	BARREL BEARING	1
D6	6	P/M	P/D/V/X/S/L/R/H	**	S13-43657-0	CYLINDER BARREL	1
	7	P/M	P/D/V/X/S/L/R/H	**	S13-47511-0		
	8	P/M	P/D/V/X/S/L/R/H	**	S23-12718-0		
D7	**	P/M	P/D/V/X/S/L/R/H	**	033-49825-0	FACE PLATE PIN	5
D8	6	P/M	P/D/V/X/S/L/R/H	**	033-71530-0	FACE PLATE	1
	7/8	P/M	P/D/V/X/S/L/R/H	**	033-72532-0		

## Section View - D - Rotating Group Assembly

Section D 6/7/8 Rotating Group							
Balloon #	Displacement	Pump/Motor	Type	Rotation	Item #	Description	Qty
D9	6	P	P/D/X/S/L/R	CW	033-71526-0	PORT PLATE	1
	6	P	P/D/X/S/L/R	CCW	033-71525-0		
	7	P	P/D/X/S/L/R	CW	033-72811-0		
	7	P	P/D/X/S/L/R	CCW	033-53776-0		
	8	P	P/D/X/S/L/R	CW	033-91252-0		
	8	P	P/D/X/S/L/R	CCW	033-91553-0		
	6	P	V	CW	031-59368-0		
	6	P	V	CCW	031-59333-0		
	7	P	V	CW	031-54509-0		
	7	P	V	CCW	031-54508-0		
	8	P	V	CW	031-57379-0		
	8	P	V	CCW	031-57372-0		
	6	M	H/V/R/L	N	033-71531-0		
	7	M	H/V/R/L	N	033-53775-0		
	8	M	H/V/R/L	N	033-92267-0		
D10	**	P	P/D/V	**	033-53956-0	AUXILIARY SHAFT	1
	**	P	S/X	**	033-91050-0		
	**	M	H/V	**	033-70585-0		
D11	**	P/M	P/D/V/X/S/H	**	211-22034-0	SQUARE KEY	1
D12	**	P/M	P/D/V/X/S/H	**	033-70493-0	HOLDDOWN SPRING	1
D13	**	P/M	P/D/V/X/S/H	**	033-53944-0	HOLDDOWN STOP	1
D14	**	P/M	P/D/V/X/S/H	**	033-53945-0	SPRING RETAINER	1
D15	**	P/M	P/D/V/X/S/R/L/H	**	033-70494-0	RETAINING RING	1
D16	**	P/M	R/L	**	033-57397-0	HOLDDOWN SLEEVE	1
D17	**	P/M	R/L	**	033-57402-0	RETAINING RING	1
D18	**	P/M	H/V	**	350-10069-0	THRUST WASHER	1

Major Rotating Group Kits Composed of Items: D1,D2,D5,D6,D7,D8 and D9				
Displacement	Pump/ Motor	Type	Rotation	Part number
6	P	P/D/X/S/ R/L	CW	S23-17087-0
6	P	P/D/X/S/ R/L	CCW	S23-17088-0
6	P	V	CW	S23-17093-0
6	P	V	CCW	S23-17094-0
7	P	P/D/X/S/ R/L	CW	S23-17089-0
7	P	P/D/X/S/ R/L	CCW	S23-17090-0
7	P	V	CW	S23-17095-0
7	P	V	CCW	S23-17086-0
8	P	P/D/X/S/ R/L	CW	S23-17091-0
8	P	P/D/X/S/ R/L	CCW	S23-17092-0
8	P	V	CW	S23-17097-0
8	P	V	CCW	S23-17098-0
6	M	H/V/R/L	N	S23-17099-0
7	M	H/V/R/L	N	S23-17100-0
8	M	H/V/R/L	N	S23-19278-0

Barrel Holddown Kits Composed of Items: D10,D12,D13,D14 and D15 For P/D/V/X/S No Kit Available for R.L Versions			
Displacement	Pump/ Motor	Type	Part Number
6/7/8	P	P/D/V	S23-17246-0
6/7/8	P	X/S	S23-17247-0
6/7/8	M	H/V	S23-17248-0



## Section View - E - Pump Type - P &amp; D - Port Block Assembly

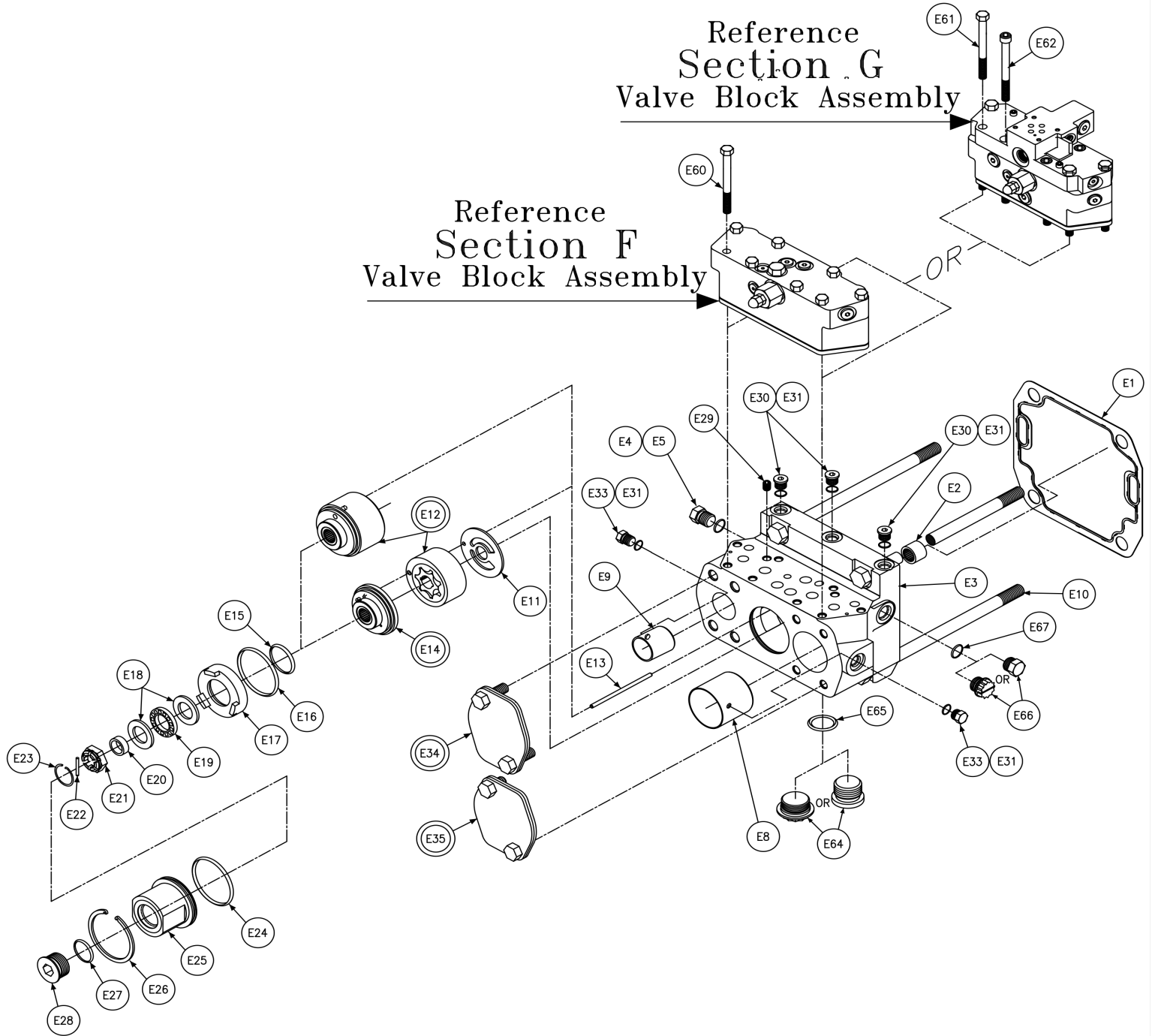
Section E P6/7/8 P & D Port Block							
Balloon #	Pump Type	Rotation	Seal Code	Internal Pump	Item #	Description	Qty
E1	P/D	**	**	0/X	033-91060-0	PORT BLOCK GASKET	
E2	P/D	**	**	0/X	230-82146-0	NEEDLE BEARING	1
E3	P/D	**	**	0/X	033-71296-0	PORT BLOCK	1
E4	P/D	**	**	0/X	488-35002-0	HEX HD PLUG	1
E5	P/D	**	1	0/X	691-00908-0	O RING	1
	P/D	**	4		694-00908-0		
	P/D	**	5		695-00908-0		
E6	P/D	**	**	0/X	348-10016-0	LOCKWASHER	2
E7	P/D	**	**	0/X	033-70908-0	SCREW SPECIAL	2
E8	P/D	**	**	0/X	033-70502-0	RING CHECK	2
E9	P/D	**	**	0/X	033-70489-0	CLAMP 6.0__	2
E10	P/D	**	**	0/X	306-40056-0	SCREW, HHC	4
E11	P/D	**	**	0	033-71492-0	SIDE PLATE	1
E12	P/D	**	**	0	S13-43334-0	ECCENTRIC RING & GEROTOR	1
	P/D	**	**	X	S13-47507-0	GEROTOR PLUG & BEARING	
E13	P/D	**	**	0/X	324-21225-0	DOWEL PIN	1
E14	P/D	CW	**	0	S13-46762-0	SIDE PLATE AND BEARING	1
	P/D	CCW	**		S13-46763-0		
E15	P/D	**	1	0/X	671-00129-0	O RING	1
	P/D	**	4		674-00129-0		
	P/D	**	5		675-00129-0		
E16	P/D	**	1	0/X	671-00144-0	O RING	1
	P/D	**	4		674-00144-0		
	P/D	**	5		675-00144-0		
E17	P/D	**	**	0/X	033-70531-0	PRESSURE PLATE	1
E18	P/D	**	**	0/X	350-10065-0	THRUST WASHER	2
E19	P/D	**	**	0/X	230-82131-0	THRUST BEARING	1
E20	P/D	**	**	0/X	033-71490-0	RING SEAL	1
E21	P/D	**	**	0/X	033-53922-0	HOLDDOWN NUT	1
E22	P/D	**	**	0/X	033-53921-0	RETAINING PIN	1
E23	P/D	**	**	0/X	033-53923-0	RETAING RING	1
E24	P/D	**	1	0/X	671-00147-0	O RING	1
	P/D	**	4		674-00147-0		
	P/D	**	5		675-00147-0		
E25	P/D	**	**	0/X	033-72100-0	AUXILIARY END COVER	1

Section View - E - Pump Type - P & D - Port Block Assembly

Section E P6/7/8 P & D Port Block							
Balloon #	Pump Type	Rotation	Seal Code	Internal Pump	Item #	Description	Qty
E26	P/D	**	**	0/X	356-65082-0	RETAINING RING	1
E27	P/D	**	1	0/X	691-00916-0	O RING	1
			4		694-00916-0		
			5		695-00916-0		
E28	P/D	**	**	0/X	488-35024-0	PLUG	1
E29	P/D	**	**	0/X	S13-40266-0	CHECK VALVE	2
E30	P/D	**	**	0/X	488-35041-0	PLUG	3
E31	P/D	**	1	0/X	691-00906-0	O RING	5
	P/D	**	4		694-00906-0		
	P/D	**	5		695-00906-0		
E33	P/D	**	**	0/X	488-35003-0	HEX HEAD PLUG	2
E34	P/D	**	**	0/X	S13-26133-0	SHIPPING COVER ASSY	2
E60	P/D	**	**	0/X	306-40242-0	HHCS 3/8-16UNC x 3-1/4	8
E61	P/D	**	**	0/X	306-40235-0	HHCS 3/8-16UNC x 5-1/2	4
E63	P/D	**	**	0/X	358-16360-0	SHCS 3/8-16 UNC x 4	4
E64	P/D	**	**	0	449-00019-0	SHIPPING PLUG	1
				X	488-35024-0	PLUG	
E65	P/D	**	1	0	691-00916-0	O RING	1
			4		694-00916-0		
			5		695-00916-0		
E66	P/D	**	**	X	449-00016-0	SHIPPING PLUG	1
				0	488-35002-0	PLUG	
E67	P/D	**	1	0	691-00908-0	O RING	1
			4		694-00908-0		
			5		695-00908-0		

Gerotor Assembly Kit				
Composed of Items: E11,E12 E13,E14,E15,E16,E18,E19 & E20 Less Item 12: S13-47507-0 N/A for R/L Versions	Pump Type	Rotation	Seal Code	Part Number
	P/V/D/S/X	CW	1	S13-47314-0
			4	S13-47314-4
			5	S13-47314-5
	PVDS/X	CCW	1	S13-47315-0
			4	S13-47315-4
			5	S13-47315-5





Section View - E - Pump Type - V - Port Block Assembly

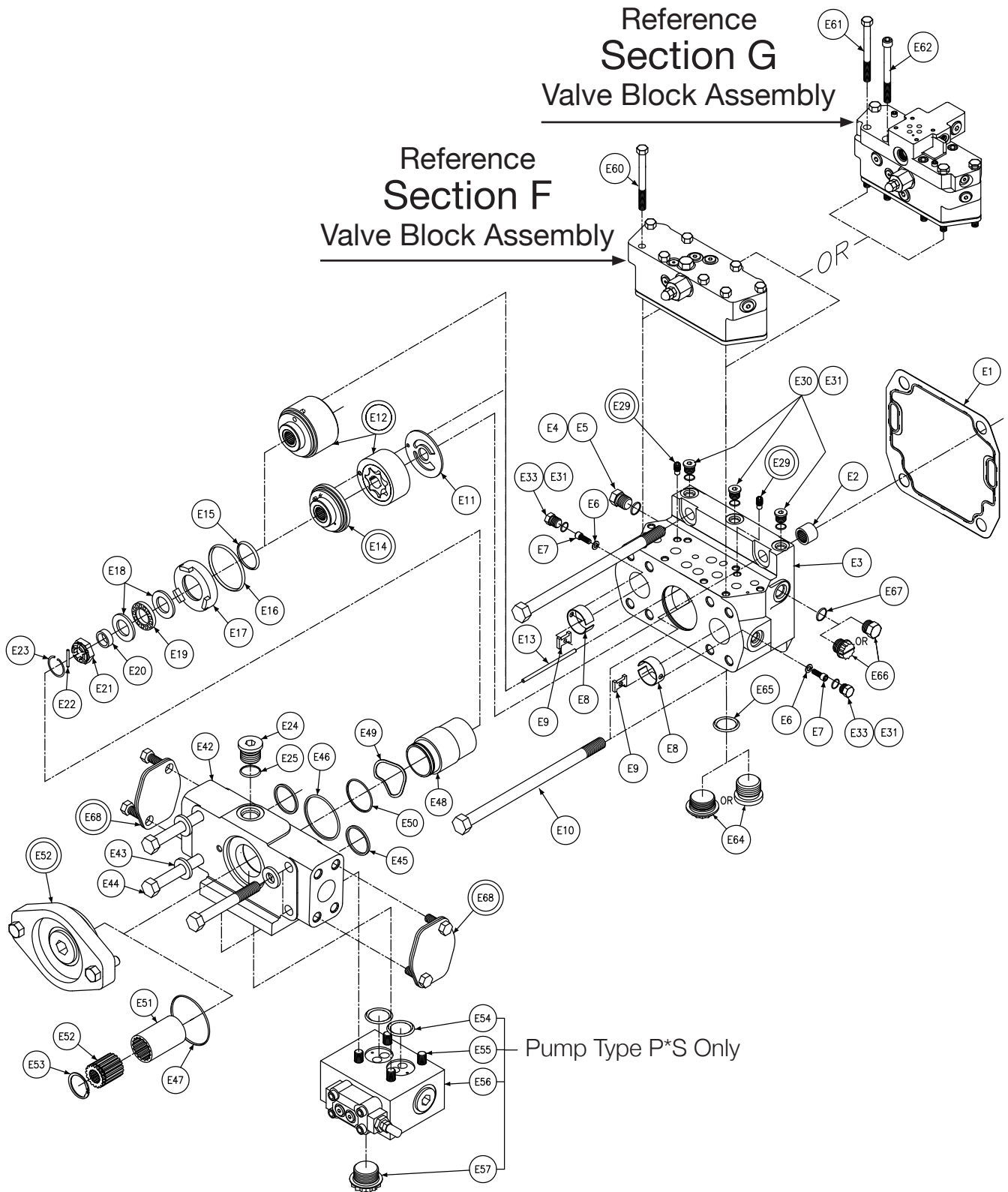
Section E P6/7/8 V Port Block							
Balloon #	Pump Type	Rotation	Seal Code	Internal Pump	Item #	Description	Qty
E1	V	**	**	0/X	033-91060-0	PORT BLOCK GASKET	
E2	V	**	**	0/X	230-82146-0	NEEDLE BEARING	1
E3	V	**	**	0/X	033-71911-0	PORT BLOCK	1
E4	V	**	**	0/X	488-35002-0	HEX HD PLUG	1
E5	V	**	1	0/X	691-00908-0	O RING	1
		**	4		694-00908-0		
		**	5		695-00908-0		
E8	V	**	**	0/X	033-91180-0	2** SOLID RING CHECK	1
E9	V	**	**	0/X	033-57893-0	1 1/2** SOLID RING CHECK	1
E10	V	**	**	0/X	306-40056-0	HHCS 5/8-11 UNC x 9	4
E11	V	**	**	0	033-71492-0	SIDE PLATE	1
E12	V	**	**	0	S13-43334-0	ECCENTRIC RING & GEROTOR	1
	V	**	**	X	S13-47507-0	GEROTOR PLUG & BEARING	
E13	V	**	**	0/X	324-21225-0	DOWEL PIN	1
E14	V	CW	**	0	S13-46762-0	SIDE PLATE AND BEARING	1
	V	CCW	**		S13-46763-0		
E15	V	**	1	0/X	671-00129-0	O RING	1
		**	4		674-00129-0		
		**	5		675-00129-0		
E16	V	**	1	0/X	671-00144-0	O RING	1
		**	4		674-00144-0		
		**	5		675-00144-0		
E17	V	**	**	0/X	033-70531-0	PRESSURE PLATE	1
E18	V	**	**	0/X	350-10065-0	THRUST WASHER	2
E19	V	**	**	0/X	230-82131-0	THRUST BEARING	1
E20	V	**	**	0/X	033-71490-0	RING SEAL	1
E21	V	**	**	0/X	033-53922-0	HOLDDOWN NUT	1
E22	V	**	**	0/X	033-53921-0	RETAINING PIN	1
E23	V	**	**	0/X	033-53923-0	RETAING RING	1
E24	V	**	1	0/X	671-00147-0	O RING	1
		**	4		674-00147-0		
		**	5		675-00147-0		
E25	V	**	**	0/X	033-72100-0	AUXILIARY END COVER	1
E26	V	**	**	0/X	356-65082-0	RETAINING RING	1



Section View - E - Pump Type - V - Port Block Assembly

Section E P6/7/8 V Port Block							
Balloon #	Pump Type	Rotation	Seal Code	Internal Pump	Item #	Description	Qty
E27	V	**	1	0/X	691-00916-0	O RING	1
	V	**	4		694-00916-0		
	V	**	5		695-00916-0		
E28	V	**	**	0/X	488-35024-0	PLUG	1
E29	V	**	**	0/X	353-25037-0	SOC. SET SCR. 3/8-24 UNF x 3/8	1
E30	V	**	**	0/X	488-35041-0	PLUG	3
E31	V	**	1	0/X	691-00906-0	O RING	5
		**	4		694-00906-0		
		**	5		695-00906-0		
E33	V	**	**	0/X	488-35003-0	HEX HEAD PLUG	2
E34	V	**	**	0/X	S13-26133-0	1 1/2" SHIPPING COVER ASSY	1
E35	V	**	**	0/X	S13-09338-0	2" SHIPPING COVER ASSY	1
E60	V	**	**	0/X	306-40242-0	HHCS 3/8-16UNC x 3-1/4	8
E61	V	**	**	0/X	306-40235-0	HHCS 3/8-16UNC x 5-1/2	4
E63	V	**	**	0/X	358-16360-0	SHCS 3/8-16 UNC x 4	4
E64	V	**	**	0	449-00019-0	SHIPPING PLUG	1
				X	488-35024-0	PLUG	
E65	V	**	1	0	691-00916-0	O RING	1
			4		694-00916-0		
			5		695-00916-0		
E66	V	**	**	0	449-00016-0	SHIPPING PLUG	1
				X	488-35002-0	PLUG	
E67	V	**	1	0	691-00908-0	O RING	1
			4		694-00908-0		
			5		695-00908-0		





## Section View - E - Pump Type - S &amp; X - Port Block Assembly

Section E P6/7/8 S & X Port Block								
Balloon #	Pump Type	Internal Pump	Rotation	Seal Code	Thru Drive	Item #	Description	Qty
E1	S/X	0/X	**	**	**	033-91060-0	PORT BLOCK GASKET	
E2	S/X	0/X	**	**	**	230-82146-0	NEEDLE BEARING	1
E3	S/X	0/X	**	**	**	033-71296-0	PORT BLOCK	1
E4	S/X	0/X	**	**	**	488-35002-0	HEX HD PLUG	1
E5	S/X	0/X	**	1	**	691-00908-0	O RING	1
				4	**	694-00908-0		
				5	**	695-00908-0		
E6	S/X	0/X	**	**	**	348-10016-0	LOCKWASHER	2
E7	S/X	0/X	**	**	**	033-70908-0	SCREW SPECIAL	2
E8	S/X	0/X	**	**	**	033-70502-0	RING CHECK	2
E9	S/X	0/X	**	**	**	033-70489-0	CLAMP 6.0__	2
E10	S/X	0/X	**	**	**	306-40056-0	SCREW, HHC	4
E11	S/X	0/X	**	**	**	033-71492-0	SIDE PLATE	1
E12	S/X	0	**	**	**	S13-43334-0	ECCENTRIC RING & GEROTOR	1
		X				S13-47507-0	GEROTOR PLUG & BEARING	
E13	S/X	0/X	**	**	**	324-21225-0	DOWEL PIN	1
E14	S/X	0	CW	**	**	S13-46762-0	SIDE PLATE AND BEARING	1
	S/X		CCW	**	**	S13-46763-0		
E15	S/X	0/X	**	1	**	671-00129-0	O RING	1
				4	**	674-00129-0		
				5	**	675-00129-0		
E16	S/X	0/X	**	1	**	671-00144-0	O RING	1
				4	**	674-00144-0		
				5	**	675-00144-0		
E17	S/X	0/X	**	**	**	033-70531-0	PRESSURE PLATE	1
E18	S/X	0/X	**	**	**	350-10081-0	THRUST WASHER	2
E19	S/X	0/X	**	**	**	230-82164-0	THRUST BEARING	1
E20	S/X	0/X	**	**	**	033-72101-0	RING SEAL	1
E22	S/X	0/X	**	**	**	033-53921-0	RETAINING PIN	1
E23	S/X	0/X	**	**	**	033-53923-0	RETAING RING	1
E24	S/X	0/X	**	**	**	488-35008-0	PLUG	1
E25	S/X	0/X	**	1	**	691-00912-0	O RING	1
				4		694-00912-0		
				5		605-00912-0		

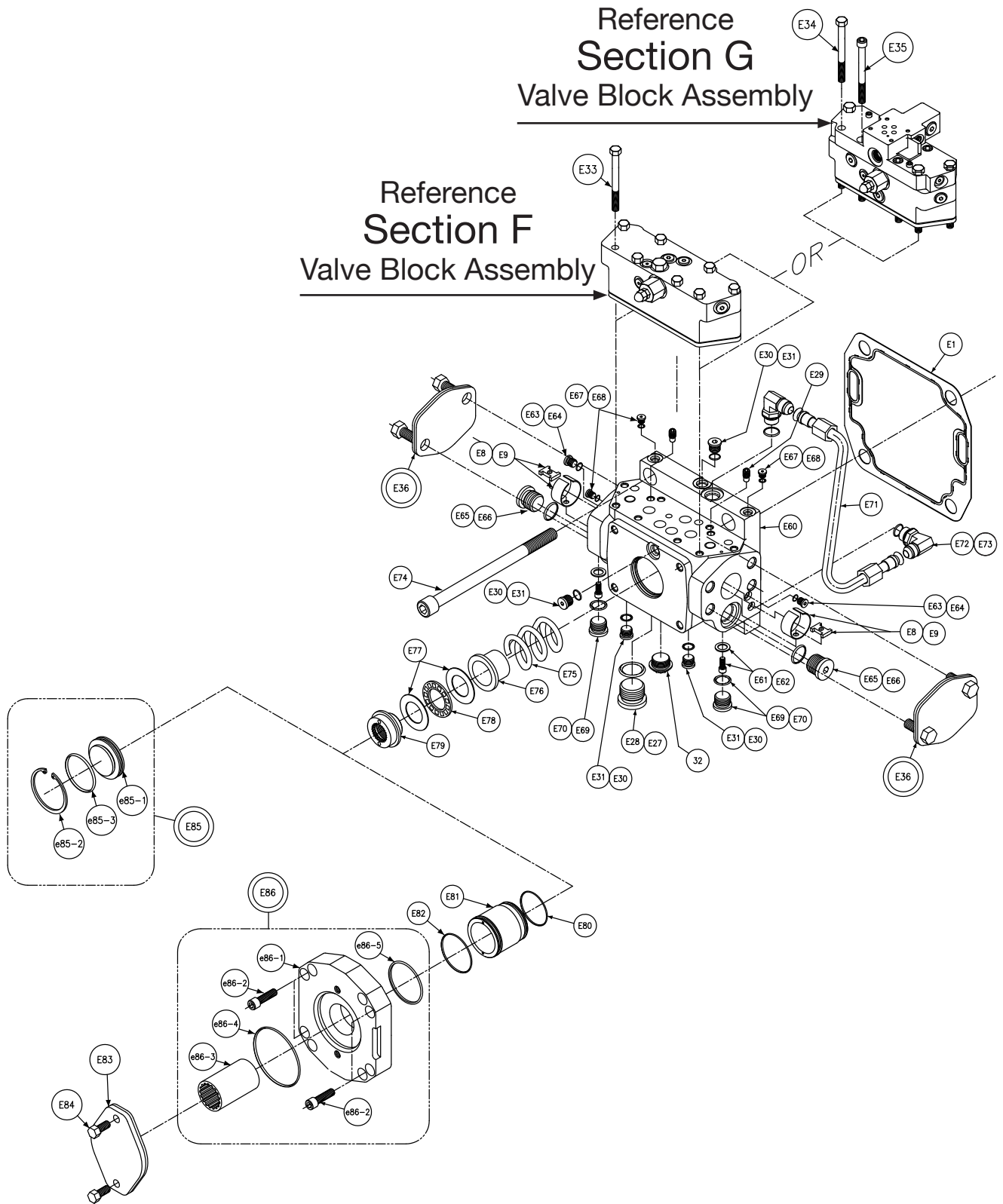
Section View - E - Pump Type - S & X - Port Block Assembly

Section E P6/7/8 S & X Port Block								
Balloon #	Pump Type	Internal Pump	Rotation	Seal Code	Thru Drive	Item #	Description	Qty
E29	S/X	0/X	**	**	**	S13-40266-0	CHECK VALVE	2
E30	S/X	0/X	**	**	**	488-35041-0	PLUG	3
E31	S/X	0/X	**	1	**	691-00906-0	O RING	5
				4	**	694-00906-0		
				5	**	695-00906-0		
E33	S/X	0/X	**	**	**	488-35003-0	HEX HEAD PLUG	2
E40	S/X	0/X	**	**	**	033-91051-0	INSERT	1
E41	S/X	0/X	**	**	**	033-91052-0	HOLDDOWN NUT	1
E42	S	0/X	**	**	A	033-91015-0	SAE-A RDR ADAPTER	1
					B/M	033-57967-0	SAE-B RDR ADAPTER	
					A	033-57958-0	SAE-A RDR ADAPTER	
					B/M	033-57957-0	SAE-B RDR ADAPTER	
E43	S/X	0/X	**	**	**	350-10136-0	WASHER	4
E44	S/X	0/X	**	**	**	306-40088-0	HEX HEAD CAP SCREW	4
E45	S/X	0/X	**	1	**	691-10131-0	O RING	2
				4	**	694-10131-0		
				5	**	695-10131-0		
E46	S/X	0/X	**	1	**	671-00147-0	O RING	1
				4	**	674-00147-0		
				5	**	675-00147-0		
E47	S/X	0/X	**	1	A/B	671-00155-0	O RING	1
				4		674-00155-0		
				5		675-00155-0		
E48	S/X	0/X	**	**	**	033-57966-0	REPLENISH ISOLATION TUBE	1
E49	S/X	0/X	**	**	**	225-92093-0	WAVE SPRING	1
E50	S/X	0/X	**	1	**	671-00033-0	O RING	1
				4	**	674-00033-0		
				5	**	675-00033-0		
E51	S/X	0/X	**	**	A/B	033-57963-0	COUPLING	1
E52	S/X	0/X	**	**	A	033-57965-0	SAE-A INSERT	1
				**	B	033-57964-0	SAE-B INSERT	
				**	M	S23-19371-0	BLANKING PLATE	
E53	S/X	0/X	**	**	A/B	356-65128-0	RETAINING RING	1



Section View - E - Pump Type - S & X - Port Block Assembly

Section E P6/7/8 S & X Port Block								
Balloon #	Pump Type	Internal Pump	Rotation	Seal Code	Thru Drive	Item #	Description	Qty
E54	S	0/X	**	1	**	691-10221-0	O RING	2
				4	**	694-10221-0		
				5	**	695-10221-0		
E55	S	0/X	**	**	**	306-40224-0	HEX HD CAP SCREW	4
E56	S	0/X	**	1	**	080030100003	HOT OIL SHUTTLE INT PILOT DRAIN	1
				5	**	S23-12007-5		
E57	S	0/X	**	**	**	449-00019-0	SHIPPING PLUG	1
E60	S/X	0/X	**	**	**	306-40242-0	HHCS 3/8-16UNC X 3-1/4	8
E61	S/X	0/X	**	**	**	306-40235-0	HHCS 3/8-16UNC X 5-1/2	4
E62	S/X	0/X	**	**	**	358-16360-0	SHCS 3/8-16 UNC X 4	4
E64	S/X	0	**	**	**	449-00019-0	SHIPPING PLUG	1
		X	**	**	**	488-35024-0	PLUG	
E65	S/X	0	**	1	**	691-00916-0	O RING	1
				4	**	694-00916-0		
				5	**	695-00916-0		
E66	S/X	0	**	**	**	449-00016-0	SHIPPING PLUG	1
		X	**	**	**	488-35002-0	PLUG	
E67	S/X	0	**	1	**	691-00908-0	O RING	1
				4	**	694-00908-0		
				5	**	695-00908-0		
E68	S/X	0/X	**	**	**	S13-26133-0	ASSEMBLY SHIPPING COVER	2



## Section View - E - Pump Type - R - Port Block Assembly

M Operating Cover				
Balloon #	Seal Code	Item #	Description	Qty
E85	1	S23-17638-0	OPERATING COVER ASSEMBLY	1
	4	S23-17638-4		
	5	S23-17638-5		
e85-1	**	033-71059-0	COVER	1
e85-2	**	356-65083-0	RETAINING RING	1
e85-3	1	671-00138-0	O RING	1
	4	674-00138-0		
	5	675-00138-0		

SAE-A Adaptor				
Balloon #	Seal Code	Item #	Description	Qty
E86	1	S23-15868-0	KIT REAR ADAPTOR SAE-A	1
	4	S23-15868-4		
	5	S23-15868-5		
e86-1	**	033-92412-0	SAE-A ADAPTOR	1
e86-2	**	358-18180-0	SHCS 7/16-14 UNC X 1 1/4	4
e86-3	**	033-92413-0	SAE-A COUPLING	1
e86-4	1	671-00152-0	O RING	1
	4	674-00152-0		
	5	675-00152-0		
e86-5	1	671-00138-0	O RING	1
	4	674-00138-0		
	5	675-00138-0		

SAE-B Adaptor				
Balloon #	Seal Code	Item #	Description	Qty.
E86	1	S23-16884-0	KIT REAR ADAPTOR SAE-B	1
	4	S23-16884-4		
	5	S23-16884-5		
e86-1	**	033-57535-0	SAE-B ADAPTOR	1
e86-2	**	358-18200-0	SHCS 7/16-14 UNC X 1 1/2	4
e86-3	**	033-57714-0	SAE-B COUPLING	1
e86-4	1	671-00155-0	O RING	1
	4	674-00155-0		
	5	675-00155-0		
e86-5	1	671-00138-0	O RING	1
	4	674-00138-0		
	5	675-00138-0		

Section View - E - Pump Type - R - Port Block Assembly

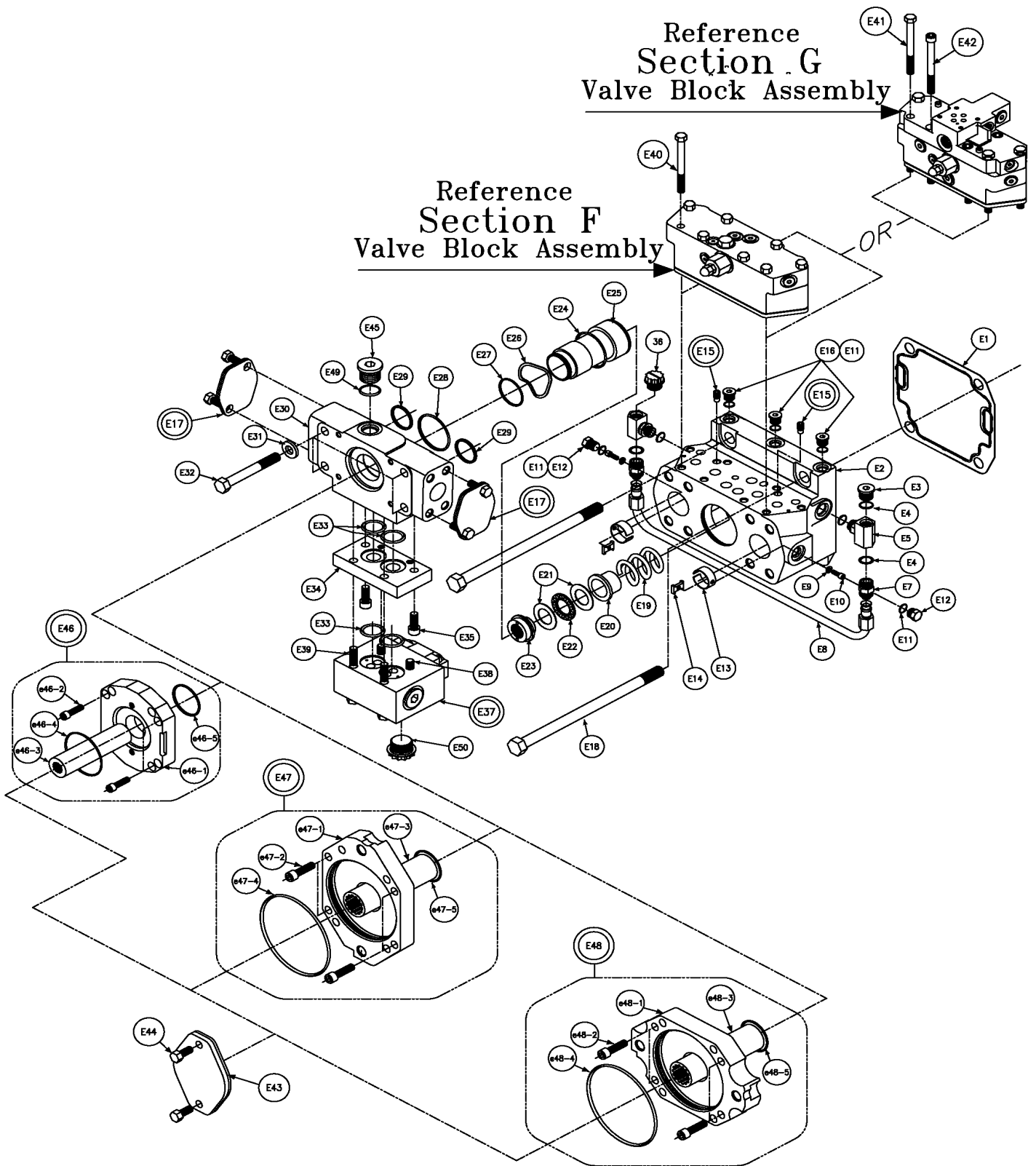
SAE-C ADAPTOR				
Balloon #	Seal Code	Item #	Description	Qty
E86	1	S23-16885-0	KIT REAR ADAPTOR SAE-C	1
	4	S23-16885-4		
	5	S23-16885-5		
e86-1	**	033-57395-0	SAE-C ADAPTOR	1
e86-2	**	358-18200-0	SHCS 7/16-14 UNC X 1 1/2	2
e86-3	**	033-57398-0	SAE-C COUPLING	1
e86-4	1	671-00250-0	O RING	1
	4	674-00250-0		
	5	675-00250-0		
e86-5	1	671-00138-0	O RING	1
	4	674-00138-0		
	5	675-00138-0		

Section E P6/7/8 R Port Block						
Balloon #	Pump Type	Seal Code	External Drive	Item #	Description	Qty
E1	R	**	**	033-91061-0	GASKET PORT BLOCK	1
E8	R	**	**	033-70502-0	RING CHECK	2
E9	R	**	**	033-70489-0	CLAMP	2
E27	R	1	**	691-00916-0	O RING	1
	R	4	**	694-00916-0		
	R	5	**	695-00916-0		
E28	R	**	**	488-35024-0	PLUG	1
E29	R	**	**	S13-40266-0	CHECK VALVE	2
E30	R	**	**	488-35041-0	PLUG	4
E31	R	1	**	691-00906-0	O RING	4
		4	**	694-00906-0		
		5	**	695-00906-0		
E32	R	**	**	449-00016-0	SHIPPING PLUG	1
E33	R	**	**	306-40242-0	HHCS 3/8-16UNC X 3-1/4	8
E34	R	**	**	306-40235-0	HHCS 3/8-16UNC X 5-1/2	4
E35	R	**	**	358-16360-0	SHCS 3/8-16 UNC X 4	4
E36	R	**	**	S13-26133-0	ASSY SHIPPING COVER 1 1/2	2
E60	R	**	**	033-57696-0	PORT BLOCK	1
E61	R	**	**	359-00001-0	SHCS 1/4-28 UNF X 7/8	2
E62	R	**	**	033-57450-0	WASHER GASKET	2
E63	R	**	**	488-35046-0	PLUG	2



## Section View - E - Pump Type - R - Port Block Assembly

Section E P6/7/8 R Port Block						
Balloon #	Pump Type	Seal Code	External Drive	Item #	Description	Qty
E64	R	1	**	691-00902-0	O RING	2
		4	**	694-00902-0		
		5	**	695-00902-0		
E65	R	**	**	033-57408-0	PLUG	2
E66	R	1	**	691-00912-0	O RING	2
		4	**	694-00912-0		
		5	**	695-00912-0		
E67	R	**	**	488-35001-0	PLUG	3
E68	R	1	**	691-00904-0	O RING	3
		4	**	694-00904-0		
		5	**	695-00904-0		
E69	R	**	**	488-35055-0	PLUG	2
E70	R	1	**	691-00910-0	O RING	2
		4	**	694-00910-0		
		5	**	695-00910-0		
E71	R	**	**	S23-17195-0	TUBE ASSEMBLY	1
E72	R	**	**	496-15001-0	ELBOW	2
E73	R	1	**	691-00908-0	O RING	2
		4	**	694-00908-0		
		5	**	695-00908-0		
E74	R	**	**	358-24540-0	SHCS 5/8-11 UNRC X 8-1/2	4
E75	R	**	**	033-57400-0	HOLDDOWN SPRING	1
E76	R	**	**	033-57401-0	HOLDDOWN STOP	1
E77	R	**	**	350-10114-0	WASHER	2
E78	R	**	**	230-82195-0	THRUST BEARING	1
E79	R	**	**	033-57396-0	HOLDDOWN NUT	1
E80	R	1	A/B/C	671-00136-0	O RING	1
		4		674-00136-0		
		5		675-00136-0		
E81	R	**	A/B/C	033-57407-0	REPLEN ISOLATION TUBE	1
E82	R	1	A/B/C	671-00138-0	O RING	1
		4		674-00138-0		
		5		675-00138-0		
E83	R	**	A	034-59555-0	SHIPPING COVER SAE-A 2 BOLT	1
			B	034-59556-0	SHIPPING COVER SAE-B 2 BOLT	
			C	034-59557-0	SHIPPING COVER SAE-C 2 BOLT	
E84	R	**	A	306-16120-0	HHCS 3/8-16UNC X 3/4	2
			B	306-20120-0	HHCS 1/2-13UNC X 3/4	2
			C	306-24160-0	HHCS 5/8-11 UNC X 1	2



## Section View - E - Pump Type - L - Port Block Assembly

SAE-A ADAPTOR KIT (Horizontal/Vertical Mtg.)				
Balloon #	Seal Code	Item #	Description	Qty
E46	1	S23-17223-0	KIT REAR ADAPTOR SAE-A	1
	4	S23-17223-4		
	5	S23-17223-5		
e46-1	**	033-92412-0	SAE-A ADAPTOR	1
e46-2	**	358-18180-0	SHCS 7/16-14 UNC X 1 1/4	4
e46-3	**	033-93454-0	SAE-A COUPLING	1
e46-4	1	671-00152-0	O RING	1
	4	674-00152-0		
	5	675-00152-0		
e46-5	1	671-00138-0	O RING	1
	4	674-00138-0		
	5	675-00138-0		

SAE-B ADAPTOR KIT (Horizontal/Vertical Mtg.)				
Balloon #	Seal Code	Item #	Description	Qty
E46	1	S23-18305-0	KIT REAR ADAPTOR SAE-B	1
	4	S23-18305-4		
	5	S23-18305-5		
e46-1	**	033-57535-0	SAE-B ADAPTOR	1
e46-2	**	358-18200-0	SHCS 7/16-14 UNC X 1 1/2	4
e46-3	**	033-94248-0	SAE-B COUPLING	1
e46-4	1	671-00155-0	O RING	1
	4	674-00155-0		
	5	675-00155-0		
e46-5	1	671-00138-0	O RING	1
	4	674-00138-0		
	5	675-00138-0		

## Section View - E - Pump Type - L - Port Block Assembly

SAE-C ADAPTOR KIT (Vertical Mtg.)				
Balloon #	Seal Code	Item #	Description	Qty
E47	1	S23-17224-0	KIT REAR ADAPTOR SAE-C	1
	4	S23-17224-4		
	5	S23-17224-5		
e47-1	**	033-57395-0	SAE-C ADAPTOR	1
e47-2	**	358-18200-0	SHCS 7/16-14 UNC X 1 1/2	4
e47-3	**	S23-18306-0	SAE-C COUPLING	1
e47-4	1	671-00250-0	O RING	1
	4	674-00250-0		
	5	675-00250-0		
e47-5	1	671-00138-0	O RING	1
	4	674-00138-0		
	5	675-00138-0		

SAE-C ADAPTOR KIT (Horizontal Mtg.)				
Balloon #	Seal Code	Item #	Description	Qty
E48	1	S23-19632-0	KIT REAR ADAPTOR SAE-C	1
	4	S23-19632-4		
	5	S23-19632-5		
e48-1	**	033-95839-0	SAE-C ADAPTOR	1
e48-2	**	358-18200-0	SHCS 7/16-14 UNC x 1 1/2	4
e48-3	**	S23-18306-0	SAE-C COUPLING	1
e48-4	1	671-00250-0	O RING	1
	4	674-00250-0		
	5	675-00250-0		
e48-5	1	671-00138-0	O RING	1
	4	674-00138-0		
	5	675-00138-0		

## Section View - E - Pump Type - L - Port Block Assembly

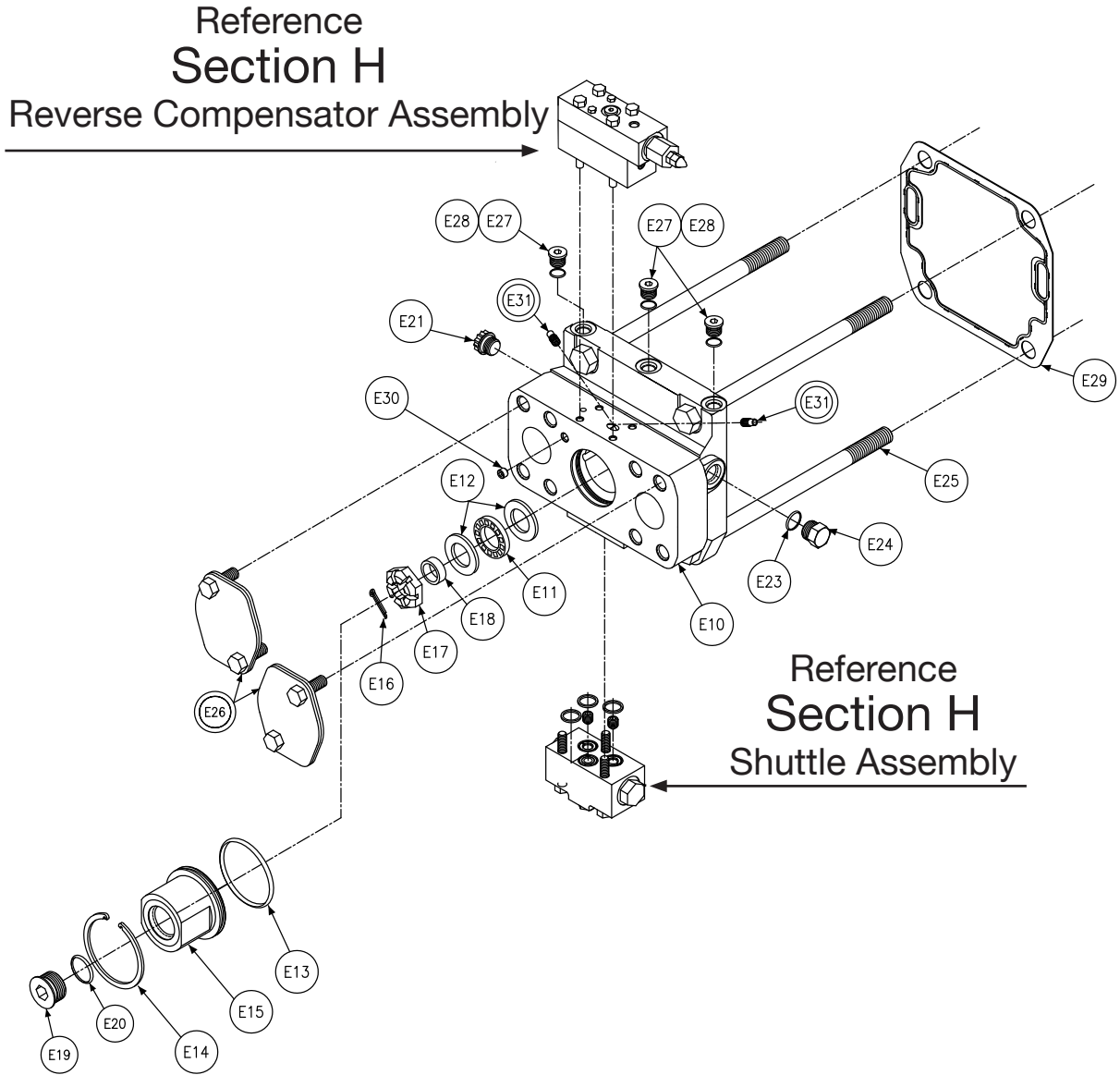
Section E P6/7/8 L Port Block						
Balloon #	Pump Type	Seal Code	External Drive	Item #	Description	Qty
E1	L	**	**	033-91060-0	GASKET PORT BLOCK	1
E2	L	**	**	033-92951-0	PORT BLOCK	1
E3	L	**	**	488-35055-0	PLUG	2
E4	L	1	**	691-00910-0	O RING	2
		4	**	694-00910-0		
		5	**	695-00910-0		
E5	L	**	**	492-15445-0	BRANCH TEE	2
E6	L	1	**	691-00908-0	O RING	4
		4	**	694-00908-0		
		5	**	695-00908-0		
E7	L	**	**	493-15015-0	CONNECTOR	2
E8	L	**	**	S23-16518-0	CROSSOVER TUBE	2
E9	L	**	**	348-10016-0	LOCK WASHER	2
E10	L	**	**	033-70908-0	SCREW	2
E11	L	1	**	691-00906-0	O RING	5
		4	**	694-00906-0		
		5	**	695-00906-0		
E12	L	**	**	488-35003-0	HEX HEAD PLUG	2
E13	L	**	**	033-70502-0	RING CHECK	2
E14	L	**	**	033-70489-0	CLAMP	2
E15	L	**	**	S13-40266-0	CHECK VALVE	2
E16	L	**	**	488-35041-0	PLUG	3
E17	L	**	**	S13-26133-0	ASSY SHIPPING COVER	2
E18	L		**	306-40056-0	HHCS 5/8-11 UNC X 9	4
E19	L	**	**	033-57400-0	HOLDDOWN SPRING	1
E20	L	**	**	033-57401-0	HOLDDOWN STOP	1
E21	L	**	**	350-10114-0	WASHER	2
E22	L	**	**	230-82195-0	THRUST BEARING	1
E23	L	**	**	033-57396-0	HOLDDOWN NUT	1
E24	L	1	**	671-00138-0	O RING	1
		4		674-00138-0		
		5		675-00138-0		
E25	L	**	**	033-57407-0	REPLEN ISOLATION TUBE	1
E26	L	**	**	225-92093-0	WAVE SPRING	1
E27	L	1	**	671-00033-0	O RING	1
		4	**	674-00033-0		
		5	**	675-00033-0		

Section View - E - Pump Type - L - Port Block Assembly

Section E P6/7/8 L Port Block						
Balloon #	Pump Type	Seal Code	External Drive	Item #	Description	Qty
E28	L	1	**	671-00147-0	O RING	1
		4	**	674-00147-0		
		5	**	675-00147-0		
E29	L	1	**	691-10131-0	SQUARE GASKET	2
		4	**	694-10131-0		
		5	**	695-10131-0		
E30	L	**	**	033-92952-0	ADAPTER	1
E31	L	**	**	350-10136-0	WASHER	4
E32	L	**	**	306-40088-0	HHCS 5/8-11 UNC X 4 1/4	4
E33	L	1	**	691-10221-0	SQUARE GASKET	4
		4	**	694-10221-0		
		5	**	695-10221-0		
E34	L	**	**	033-92954-0	SHUTTLE SPACER	1
E35	L	**	**	358-20160-0	SHCS 1/2-13 UNC X 1	2
E36	L	**	**	449-00016-0	SHIPPING PLUG	1
E37	L	1	**	080030100003	HOT OIL SHUTTLE INT PILOT DRAIN	1
		5	**	S23-12007-5		
E38	L	**	**	306-40224-0	HHCS 1/2-13 UNC X 3 1/2	2
E39	L	**	**	306-40175-0	HHCS 1/2-13 UNC X 4 1/2	2
E40	L	**	**	306-40242-0	HHCS 3/8-16UNC X 3-1/4	8
E41	L	**	**	306-40235-0	HHCS 3/8-16UNC X 5-1/2	4
E42	L	**	**	358-16360-0	SHCS 3/8-16 UNC X 4	4
E43	L	**	A	034-59555-0	*SHIPPING COVER SAE-A 2 BOLT	1
			B	034-59556-0	*SHIPPING COVER SAE B 2 BOLT	
			C	034-59557-0	*SHIPPING COVER SAE C 2 BOLT	
E44	L	**	A	306-16120-0	*HHCS 3/8-16UNC X 3/4	2
			B	306-20120-0	*HHCS 1/2-13UNC X 3/4	2
			C	306-24160-0	*HHCS 5/8-11 UNC X 1	2
E45	L	**	**	488-35008-0	PLUG	1
E49	L	1	**	691-00912-0	O RING	1
		4		694-00912-0		
		5		695-00912-0		
E50	L	**	**	449-00019-0	SHIPPING PLUG	1

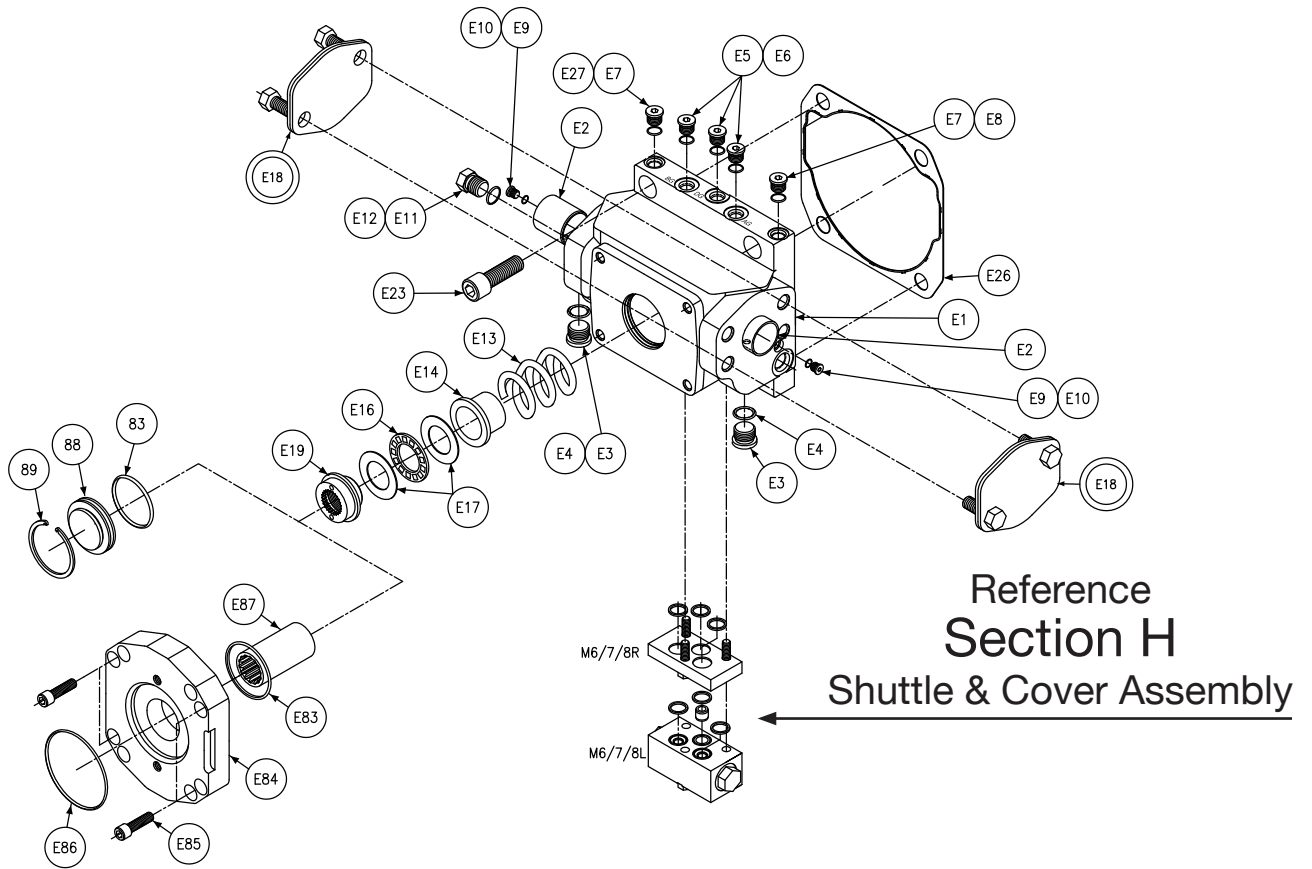
Note: Descriptions marked \* are also contained in mounting kits.





## Section View - E - Motor Type - H &amp; V - Port Block Assembly

Section E M6/7/8 H & V Port Block						
Balloon #	Motor Type	Secondary Control	Seal Code	Item #	Description	Qty
E10	H/V	0/6/7/8/U/V/W/X/Y/Z	**	033-71297-0	PORT BLOCK	1
	H/V	3/5	**	033-91105-0	REV COMP PORT BLK	
E11	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	230-82131-0	THRUST BEARING	1
E12	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	350-10065-0	THRUST WASHER	2
E13	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	1	671-00138-0	O RING	1
			4	674-00138-0		
			5	675-00138-0		
E14	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	356-65095-0	SNAP RING	1
E15	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	033-70537-0	END COVER	1
E16	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	322-03324-0	COTTER PIN	1
E17	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	033-53922-0	NUT	1
E18	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	033-70510-0	RING SEAL	1
E19	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	488-35014-0	PLUG	1
E20	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	1	691-00912-0	O RING	1
			4	674-00912-0		
			5	695-00912-0		
E21	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	449-00016-0	SHIPPING PLUG	1
E23	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	1	691-00908-0	O RING	1
			4	674-00908-0		
			5	695-00908-0		
E24	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	488-35002-0	PLUG	1
E25	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	306-40056-0	SCREW	4
E26	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	S13-26133-0	ASSY SHIPPING COVER	2
E27	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	488-35041-0		3
E28	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	1	691-00906-0	O RING	3
			4	674-00906-0		
			5	695-00906-0		
E29	H/V	0/3/5/6/7/8/U/V/W/X/Y/Z	**	033-91060-0	GASKET	1
E30	H/V	3/5	**	431-90204-0	PLUG	1
E31	H/V	3/5	**	S13-40266-0	CHECK VALVE	2



Section View - E - Motor Type - R & L - Port Block Assembly

Solid Cover Assembly				
Balloon	Seal Code	Part Number	Qty	Description
E83	1	671-00138-0	1	O RING
	4	674-00138-0		
	5	675-00138-0		
E88	**	033-71059-0	1	END COVER
E89	**	356-65083-0	1	RETAINING RING
	1	S23-17638-0	1	KIT CONTAIN ALL ABOVE SEAL CODE 1
	4	S23-17638-4	1	KIT CONTAIN ALL ABOVE SEAL CODE 4
	5	S23-17638-5	1	KIT CONTAIN ALL ABOVE SEAL CODE 5

SAE-A Adapter Assembly				
Balloon	Seal Code	Part Number	Qty	Description
E83	1	671-00138-0	1	O RING
	4	674-00138-0		
	5	675-00138-0		
E84	**	033-92412-0	1	ADAPTER PLATE
E85	**	358-18180-0	4	SCREW, SHC
E86	1	671-00152-0	1	O RING
	4	674-00152-0		
	5	675-00152-0		
E87	**	033-92413-0	1	SAE-A COUPLING
	1	S23-15868-0	1	KIT CONTAIN ALL ABOVE SEAL CODE 1
	4	S23-15868-4	1	KIT CONTAIN ALL ABOVE SEAL CODE 4
	5	S23-15868-5	1	KIT CONTAIN ALL ABOVE SEAL CODE 5

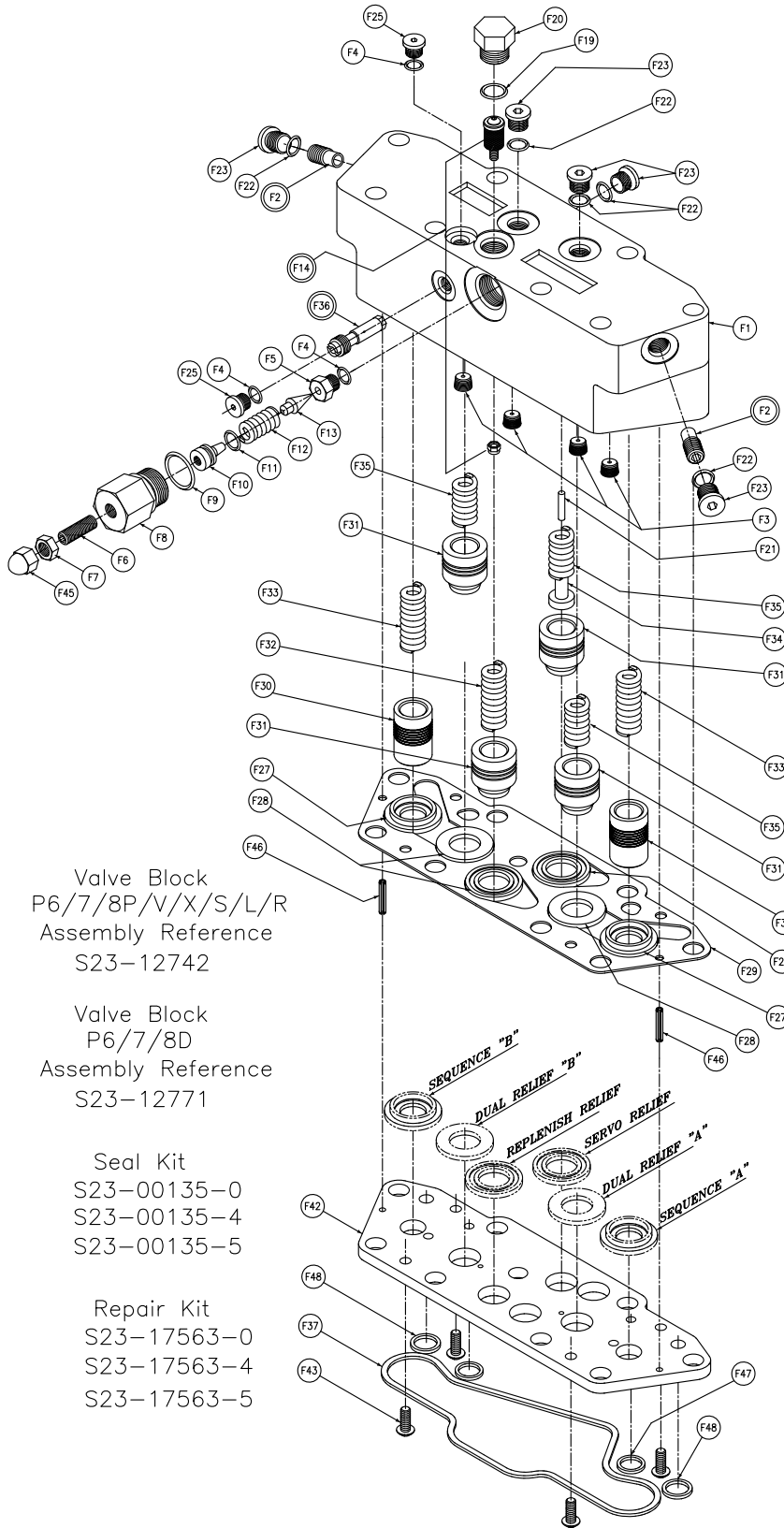
## Section View - E - Motor Type - R &amp; L - Port Block Assembly

SAE-B Adapter Assembly				
Balloon	Seal Code	Part Number	Qty	Description
E83	1	671-00138-0	1	O RING
	4	674-00138-0		
	5	675-00138-0		
E84	**	033-57535-0	1	ADAPTER PLATE
E85	**	358-18200-0	4	SCREW, SHC
E86	1	671-00155-0	1	O RING
	4	674-00155-0		
	5	675-00155-0		
E87	**	033-57714-0	1	SAE-B COUPLING
	1	S23-16884-0	1	KIT CONTAIN ALL ABOVE SEAL CODE 1
	4	S23-16884-4	1	KIT CONTAIN ALL ABOVE SEAL CODE 4
	5	S23-16884-5	1	KIT CONTAIN ALL ABOVE SEAL CODE 5

SAE-C Adapter Assembly				
Balloon	Seal Code	Part Number	Qty	Description
E83	1	671-00138-0	1	O RING
	4	674-00138-0		
	5	675-00138-0		
E84	**	033-57395-0	1	ADAPTER PLATE
E85	**	358-18200-0	4	SCREW, SHC
E86	1	671-00250-0	1	O RING
	4	674-00250-0		
	5	675-00250-0		
E87	**	033-57398-0	1	SAE-C COUPLING
	1	S23-16885-0	1	KIT CONTAIN ALL ABOVE SEAL CODE 1
	4	S23-16885-4	1	KIT CONTAIN ALL ABOVE SEAL CODE 4
	5	S23-16885-5	1	KIT CONTAIN ALL ABOVE SEAL CODE 5

## Section View - E - Motor Type - R &amp; L - Port Block Assembly

Section E M6/7/8 R & L Port Block					
Balloon #	Motor Type	Seal Code	Item #	Description	Qty
E1	R/L	**	033-93706-0	PORT BLOCK	1
E2	R/L	**	033-57893-0	SLEEVE SOLID	2
E3	R/L	**	488-35055-0	PLUG	2
E4	R/L	1	691-00910-0	O RING	2
	R/L	4	674-00910-0		
	R/L	5	695-00910-0		
E5	R/L	**	488-35041-0	PLUG	3
E6	R/L	1	691-00906-0	O RING	3
	R/L	4	674-00906-0		
	R/L	5	695-00906-0		
E7	R/L	**	488-35001-0	PLUG	2
E8	R/L	1	691-00904-0	O RING	2
	R/L	4	674-00904-0		
	R/L	5	695-00904-0		
E9	R/L	**	488-35046-0	PLUG	2
E10	R/L	1	691-00902-0	O RING	2
	R/L	4	674-00902-0		
	R/L	5	695-00902-0		
E11	R/L	**	488-35002-0	PLUG	1
E12	R/L	1	691-00908-0	O RING	1
	R/L	4	674-00908-0		
	R/L	5	695-00908-0		
E13	R/L	**	033-57400-0	HOLDDOWN SPRING	1
E14	R/L	**	033-57401-0	STOP	1
E16	R/L	**	230-82195-0	BEARING	1
E17	R/L	**	350-10114-0	WASHER	2
E18	R/L	**	S13-26133-0	ASSEMBLY SHIPPING COVER	2
E19	R/L	**	033-57396-0	HOLDDOWN NUT	1
E23	R/L	**	358-24540-0	SCREW	4
E26	R/L	**	033-91061-0	GASKET	1



Valve Block  
P6/7/8P/V/X/S/L/R  
Assembly Reference  
S23-12742

Valve Block  
P6/7/8D  
Assembly Reference  
S23-12771

Seal Kit  
S23-00135-0  
S23-00135-4  
S23-00135-5

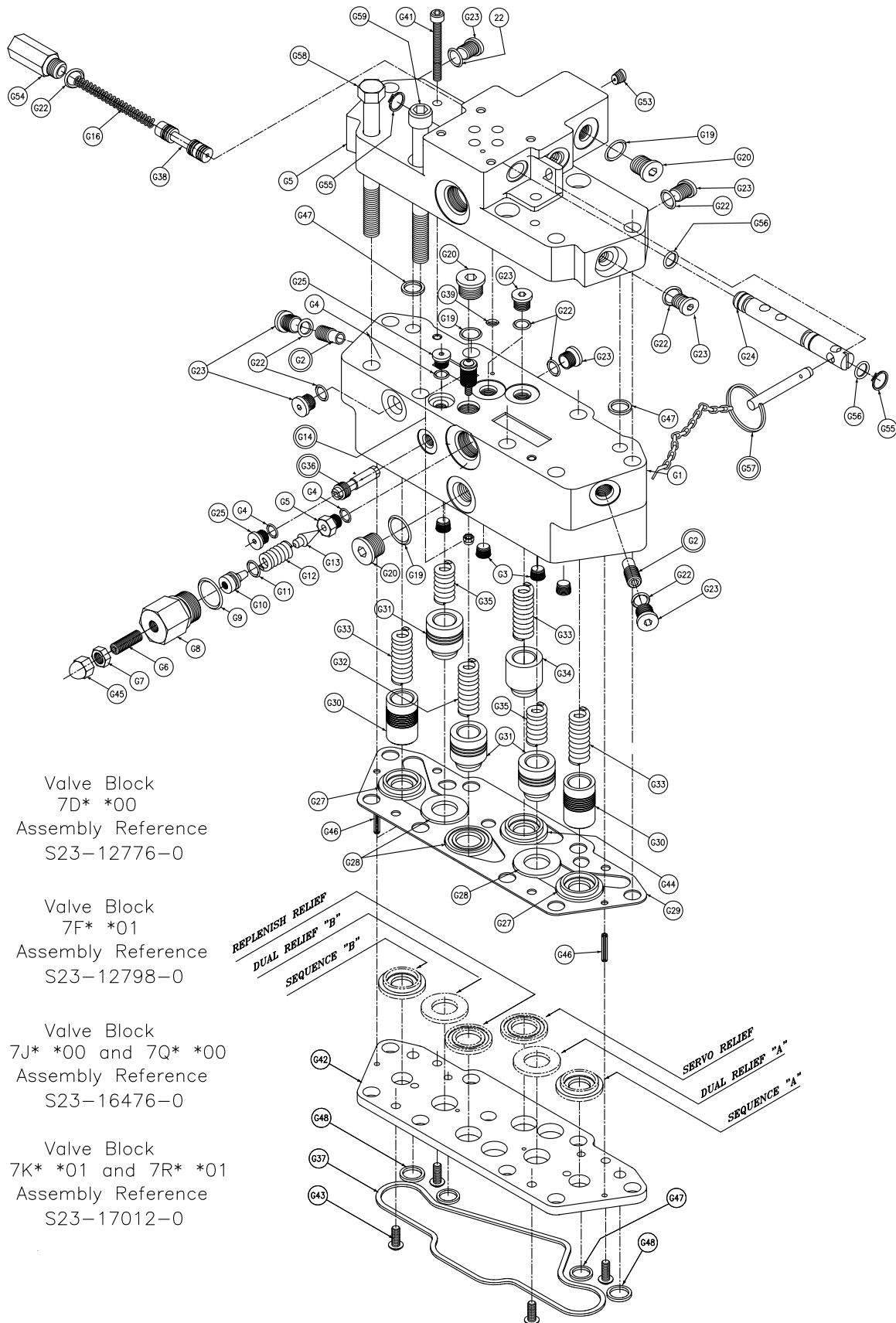
Repair Kit  
S23-17563-0  
S23-17563-4  
S23-17563-5

## Section View - F - Valve Block Assembly

Section F P6/7/8 Valve Blocks Assembly					
Balloon #	Pump Type	Seal Code	Item #	Description	Qty.
F1	P/V/X/S/L/R	**	033-91221-0	VALVE BLK	1
	D		033-91334-0	VALVE BLK OPEN LOOP	
F2	P/V/X/S/L/R	**	S13-40266-0	VALVE CHECK	2
F3	P/V/X/S/L/R	**	033-91249-0	ORIFICE (.0465 DIA.) PLUG	4
F4	P/V/X/S/L/R	1	691-00903-0	O RING	3
	P/V/X/S/L/R	4	674-00903-0		
	P/V/X/S/L/R	5	695-00903-0		
F5	P/V/X/S/L/R	**	033-70508-0	SEAT	1
F6	P/V/X/S/L/R	**	312-13160-0	SCREW, SOC HD	1
F7	P/V/X/S/L/R	**	335-13100-0	NUT, HEX JAM	1
F8	P/V/X/S/L/R	**	033-70545-0	GUIDE-HOUSING	1
F9	P/V/X/S/L/R	1	691-00910-0	O RING	1
	P/V/X/S/L/R	4	674-00910-0		
	P/V/X/S/L/R	5	695-00910-0		
F10	P/V/X/S/L/R	**	036-21767-0	PISTON SEAL	1
F11	P/V/X/S/L/R	1	671-00012-0	O RING	2
	P/V/X/S/L/R	4	674-00012-0		
	P/V/X/S/L/R	5	675-00012-0		
F12	P/V/X/S/L/R	**	032-91798-0	SPRING	1
F13	P/V/X/S/L/R	**	036-12288-0	CONE	1
F14	P/V/X/S/L/R	**	S13-43240-0	SERVO STRAINER	1
F19	P/V/X/S/L/R	1	691-00906-0	O RING	1
	P/V/X/S/L/R	4	674-00906-0		
	P/V/X/S/L/R	5	695-00906-0		
F20	P/V/X/S/L/R	**	488-35003-0	PLUG	1
F21	P/V/X/S/L/R	**	230-82226-0	PIN 1/8 X 4/8	1
	D		033-92868-0	PIN .156 X .61	
F22	P/V/X/S/L/R	1	691-00904-0	O RING	5
	P/V/X/S/L/R	4	674-00904-0		
	P/V/X/S/L/R	5	695-00904-0		
F23	P/V/X/S/L/R	**	488-35001-0	PLUG	5
F25	P/V/X/S/L/R	**	488-35049-0	PLUG	2
F27	P/V/X/S/L/R	**	033-70507-0	SEAT SEQ REL	2

## Section View - F - Valve Block Assembly

Section F P6/7/8 Valve Blocks Assembly					
Balloon #	Pump Type	Seal Code	Item #	Description	Qty.
F28	P/V/X/S/L/R	**	033-70500-0	REPL. + SERVO SEAT	4
F29	P/V/X/S/L/R	**	033-91193-0	GASKET	1
F30	P/V/X/S/L/R	**	033-72378-0	POPPET, SEQ.	2
F31	P/V/X/S/L/R	**	033-72379-0	POPPET, DUAL + REPL	4
F32	P/V/X/S/L/R	**	033-22141-0	SPRING, REPL	1
	D		033-72693-0	SPRING, REPL	
F33	P/V/X/S/L/R	**	033-70512-0	SPRING, SEQ./SERVO	2
F34	P/V/X/S/L/R	**	033-70482-0	SPRING RETAINER	1
F35	P/V/X/S/L/R	**	033-71086-0	SPRING, DUAL RELIEF	3
F36	P/V/X/S/L/R	**	S23-12814-0	VALVE, REPLEN PILOT	1
F37	P/V/X/S/L/R	1	671-00050-0	O RING	1
	P/V/X/S/L/R	4	674-00050-0		
	P/V/X/S/L/R	5	675-00050-0		
F42	P/V/X/S/L/R	**	033-91422-0	RETAINER PLATE	1
F43	P/V/X/S/L/R	**	353-25078-0	SCREW, BUTTON HD	4
F45	P/V/X/S/L/R	**	327-25006-0	NUT, ACORN	1
F46	P/V/X/S/L/R	**	325-08120-0	PIN, ROLL 1/8 X 3/4 LG	2
F47	P/V/X/S/L/R	1	671-00013-0	O RING	2
	P/V/X/S/L/R	4	674-00013-0		
	P/V/X/S/L/R	5	675-00013-0		
F48	P/V/X/S/L/R	1	671-00014-0	O RING	2
	P/V/X/S/L/R	4	674-00014-0		
	P/V/X/S/L/R	5	675-00014-0		
F49	P/V/X/S/L/R	**	306-40169-0	SCREW HHC	8



Valve Block  
7D\* \*00  
Assembly Reference  
S23-12776-0

Valve Block  
7F\* \*01  
Assembly Reference  
S23-12798-0

Valve Block  
7J\* \*00 and 7Q\* \*00  
Assembly Reference  
S23-16476-0

Valve Block  
7K\* \*01 and 7R\* \*01  
Assembly Reference  
S23-17012-0

REPLENISH RELIEF  
DUAL RELIEF "B"  
SEQUENCE "B"

SERVO RELIEF  
DUAL RELIEF "A"  
SEQUENCE "A"

## Section View - G - Valve Block Assembly for 700 Control

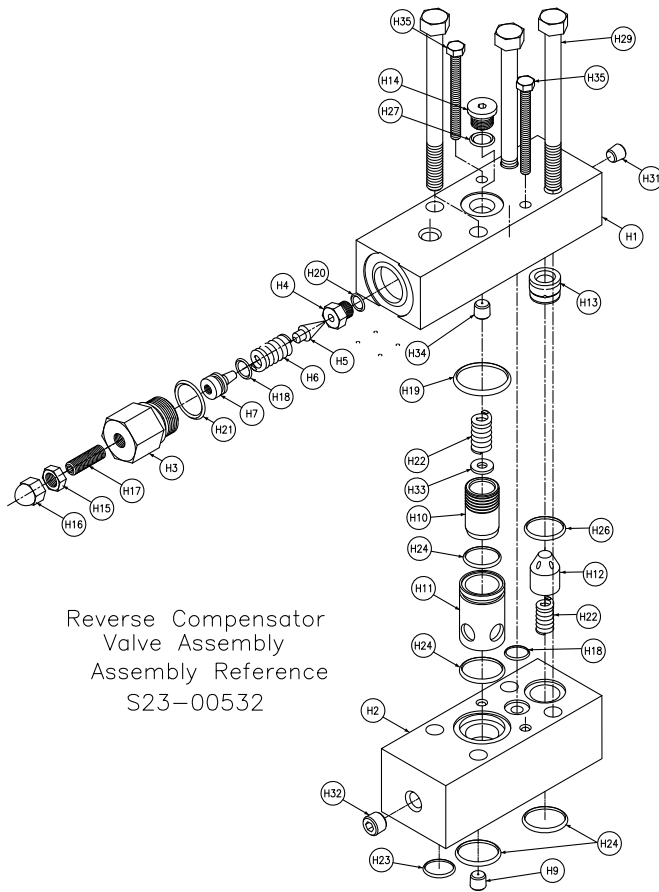
Section G P6/7/8 Valve Blocks Assemblies for 700 Control					
Balloon #	Primary 700 Control	Seal Code	Item #	Description	Qty
G1	ALL	**	033-91335-0	VALVE BLK	1
G2	ALL	**	S13-40266-0	VALVE CHECK	2
G3	ALL	**	033-91249-0	ORIFICE (.0465 DIA.) PLUG	4
G4	ALL	1	691-00903-0	O RING	3
	ALL	4	674-00903-0		
	ALL	5	695-00903-0		
G5	ALL	**	033-70508-0	SEAT	1
G6	ALL	**	312-13160-0	SCREW, SOC HD	1
G7	ALL	**	335-13100-0	NUT, HEX JAM	1
G8	ALL	**	033-70545-0	GUIDE-HOUSING	1
G9	ALL	1	691-00910-0	O RING	1
	ALL	4	674-00910-0		
	ALL	5	695-00910-0		
G10	ALL	**	036-21767-0	PISTON SEAL	1
G11	ALL	1	671-00012-0	O RING	2
	ALL	4	674-00012-0		
	ALL	5	675-00012-0		
G12	ALL	**	032-91798-0	SPRING	1
G13	ALL	**	036-12288-0	CONE	1
G14	ALL	**	S13-43240-0	SERVO STRAINER	1
G15	7F* **01	**	033-54446-0	MANIFOLD FOR SHUTOFF	1
	7D* **00	**	033-54389-0	MANIFOLD LESS SHUTOFF	
	7K* **01, 7R* **01	**	033-93376-0	MANIFOLD FOR SHUTOFF	
	7J* **00, 7Q* **00	**	033-92887-0	MANIFOLD LESS SHUTOFF	
G16	ALL	**	225-92083-0	SPRING	1
G19	ALL	1	691-00906-0	O RING	3
	ALL	4	674-00906-0		
	ALL	5	695-00906-0		
G20	ALL	**	488-35041-0	PLUG	3
G22	ALL	1	691-00904-0	O RING	11
	ALL	4	674-00904-0		
	ALL	5	695-00904-0		
G23	ALL	**	488-35001-0	PLUG	10
G24	ALL	**	033-93866-0	SERVO SPOOL	1
G25	ALL	**	488-35049-0	PLUG	2
G27	ALL	**	033-70507-0	SEAT SEQ REL	2

Section View - G - Valve Block Assembly for 700 Control

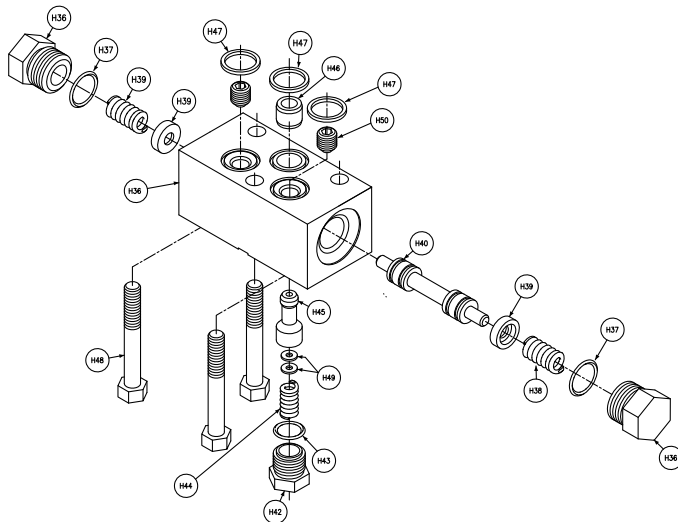
Section G P6/7/8 Valve Blocks Assemblies for 700 Control					
Balloon #	Primary 700 Control	Seal Code	Item #	Description	Qty
G28	ALL	**	033-70500-0	REPL. + SERVO SEAT	3
G29	ALL	**	033-91193-0	GASKET	1
G30	ALL	**	033-72378-0	POPPET, SEQ.	2
G31	ALL	**	033-72379-0	POPPET, DUAL + REPL	3
G32	ALL	**	033-22141-0	SPRING, REPL	1
G33	ALL	**	033-70512-0	SPRING, SEQ./SERVO	3
G34	ALL	**	033-54398-0	POPPET SERVO	1
G35	ALL	**	033-71086-0	SPRING, DUAL RELIEF	2
G36	ALL	**	S23-12814-0	VALVE, REPLEN PILOT	1
G37	ALL	1	671-00050-0	O RING	1
	ALL	4	674-00050-0		
	ALL	5	675-00050-0		
G38	ALL	**	033-54392-0	SPOOL	1
G39	ALL	1	671-00008-0	O RING	2
	ALL	4	674-00008-0		
	ALL	5	675-00008-0		
G41	ALL	**	358-10180-0	SCREW SHC	2
G42	ALL	**	033-91422-0	RETAINER PLATE	1
G43	ALL	**	353-25078-0	SCREW, BUTTON HD	4
G44	ALL	**	033-54399-0	SERVO SEAT	1
G45	ALL	**	327-25006-0	NUT, ACORN	1
G46	ALL	**	325-08120-0	PIN, ROLL 1/8 X 3/4 LG	2
G47	ALL	1	671-00013-0	O RING	2
	ALL	4	674-00013-0		
	ALL	5	675-00013-0		
G48	ALL	1	671-00014-0	O RING	2
	ALL	4	674-00014-0		
	ALL	5	675-00014-0		
G50	ALL	**	449-00013-0	PLUG SHIPPING	1
G53	ALL	**	033-25528-0	ORIFICE	1
G54	ALL	**	035-54400-0	PLUG	1
G55	7F* *01, 7K* *01, 7R* *01	**	356-31043-0	RING RETAINING	2
G56	7F* *01, 7K* *01, 7R* *01	1	671-00011-0	O RING	2
		4	674-00011-0		
		5	675-00011-0		
G57	7F* *01, 7K* *01, 7R* *01	**	S23-02208-0	PIN	1



Section View - H - Motor Shuttle and Reverse Compensator Assembly

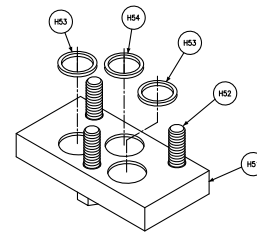


Reverse Compensator  
Valve Assembly  
Assembly Reference  
S23-00532



Shuttle Valve  
Assembly Reference  
S13-48776

Shuttle Valve Less H50  
Assembly Reference  
S13-48273



Cover Less Shuttle  
Assembly Reference  
S23-00181

Section View - H - Motor Shuttle and Reverse Compensator Assembly

Section H M6/7/8 H/V Shuttle & Reverse Compensator Assemblies					
Balloon #	Motor Type	Seal Code	Item #	Description	Qty
H1	H/V	**	033-53832-0	COVER	1
H2	H/V	**	033-53833-0	BODY REVERSE COMPENSATOR	1
H3	H/V	**	033-70545-0	GUIDE-HOUSING	1
H4	H/V	**	033-70508-0	SEAT	1
H5	H/V	**	036-12288-0	CONE	1
H6	H/V	**	032-91798-0	SPRING COMP	1
H7	H/V	**	036-21767-0	PISTON SEAL	1
H9	H/V	**	035-43275-0	ORIFICE #51(.067) 1/16 PT	1
H10	H/V	**	036-38466-0	PISTON	1
H11	H/V	**	036-38464-0	SLEEVE	1
H12	H/V	**	035-49407-0	POPPET	1
H13	H/V	**	035-49406-0	SEAT	1
H14	H/V	**	488-35001-0	PLUG	1
H15	H/V	**	335-13100-0	NUT, HEX JAM	1
H16	H/V	**	327-13005-0	NUT, ACORN	1
H17	H/V	**	312-13160-0	SCREW, SOCHD	1
H18	H/V	1	671-00012-0	O RING	2
	H/V	4	674-00012-0		
	H/V	5	675-00012-0		
H19	H/V	1	691-00022-0	O RING	1
	H/V	4	674-00022-0		
	H/V	5	675-00022-0		
H20	H/V	1	691-00903-0	O RING	1
	H/V	4	674-00903-0		
	H/V	5	695-00903-0		
H21	H/V	1	691-00910-0	O RING	1
	H/V	4	674-00910-0		
	H/V	5	695-00910-0		
H22	H/V	**	036-38449-0	SPRING	2
H23	H/V	1	691-10014-0	GASKET	1
	H/V	4	674-00014-0		
	H/V	5	695-10014-0		
H24	H/V	1	691-00018-0	O RING	4
	H/V	4	674-00018-0		
	H/V	5	695-00018-0		
H26	H/V	1	691-00017-0	O RING	1
	H/V	4	674-00017-0		
	H/V	5	675-00017-0		



Section H M6/7/8 H/V Shuttle & Reverse Compensator Assemblies					
Balloon #	Motor Type	Seal Code	Item #	Description	Qty
H27	H/V	1	691-00904-0	O RING	1
	H/V	4	674-00904-0		
	H/V	5	695-00904-0		
H29	H/V	*	306-40197-0	SCREW, HHC	4
H31	H/V	**	431-90104-0	1/16 PIPE PLUG	1
H32	H/V	**	431-90204-0	1/8 PIPE PLUG	1
H33	H/V	**	345-10008-0	WASHER	1
H34	H/V	**	800599	ORFICE .033/036 1/16 PIPE	1
H35	H/V	**	306-40167-0	SCREW, HHC	2
H36	H/L	**	033-93510-0	PLUG	2
H37	H/L	**	691-00908-0	O RING	2
	H/L	**	674-00908-0		
	H/L	**	695-00908-0		
H38	H/L	**	033-70515-0	SPRING	2
H39	H/L	**	033-70495-0	WASHER	2
H40	H/L	**	033-70529-0	SPOOL	1
H41	H/L	**	033-53117-0	SHUTTLE VALVE BODY	1
H42	H/L	**	033-72129-0	PLUG	1
H43	H/L	**	691-00906-0	O RING	1
	H/L	**	674-00906-0		
	H/L	**	695-00906-0		
H44	H/L	**	033-71923-0	SPRING	1
H45	H/L	**	033-71925-0	SPOOL	1
H46	H/L	**	033-53154-0	SEAT	1
H47	H/L	1	691-10016-0	GASKET	3
	H/L	4	674-10016-0		
	H/L	5	695-20016-0		
H48	H/L	**	306-40106-0	SCREW, HHC	3
H49	H/L	**	345-20004-0	WASHER BRASS	2
H50	H/L	**	033-53523-0	ORFICE .078	2
H51	V/R	**	033-71649-0	COVER PLATE	1
H52	V/R	**	306-40071-0	SCREW, HHC	3
H53	V/R	1	691-10014-0	GASKET	2
	V/R	4	674-00014-0		
	V/R	5	695-10014-0		
H54	V/R	1	691-10019-0	GASKET	1
	V/R	4	674-00019-0		
	V/R	5	695-10019-0		

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5. **Claims; Commencement of Actions.** Buyer shall promptly inspect all Products upon delivery. No claims for shortages will be allowed unless reported to the Seller within 10 days of delivery. No other claims against Seller will be allowed unless asserted in writing within 60 days after delivery or, in the case of an alleged breach of warranty, within 30 days after the date within the warranty period on which the defect is or should have been discovered by Buyer. Any action based upon breach of this agreement or upon any other claim arising out of this sale (other than an action by Seller for any amount due to Seller from Buyer) must be commenced within thirteen months from the date of tender of delivery by Seller or, for a cause of action based upon an alleged breach of warranty, within thirteen months from the date within the warranty period on which the defect is or should have been discovered by Buyer.
6. **LIMITATION OF LIABILITY. UPON NOTIFICATION, SELLER WILL, AT ITS OPTION, REPAIR OR REPLACE A DEFECTIVE PRODUCT, OR REFUND THE PURCHASE PRICE. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF, OR AS THE RESULT OF, THE SALE, DELIVERY, NON-DELIVERY, SERVICING, USE OR LOSS OF USE OF THE PRODUCTS OR ANY PART THEREOF, OR FOR ANY CHARGES OR EXPENSES OF ANY NATURE INCURRED WITHOUT SELLER'S WRITTEN CONSENT, EVEN IF SELLER HAS BEEN NEGLIGENT, WHETHER IN CONTRACT, TORT OR OTHER LEGAL THEORY. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CLAIM MADE BY BUYER EXCEED THE PURCHASE PRICE OF THE PRODUCTS.**
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12. **Improper Use and Indemnity.** Buyer shall indemnify, defend, and hold Seller harmless from any claim, liability, damages, lawsuits, and costs (including attorney fees), whether for personal injury, property damage, patent, trademark or copyright infringement or any other claim, brought by or incurred by Buyer, Buyer's employees, or any other person, arising out of: (a) improper selection, improper application or other misuse of Products purchased by Buyer from Seller; (b) any act or omission, negligent or otherwise, of Buyer; (c) Seller's use of patterns, plans, drawings, or specifications furnished by Buyer to manufacture Product; or (d) Buyer's failure to comply with these terms and conditions. Seller shall not indemnify Buyer under any circumstance except as otherwise provided.
13. **Cancellations and Changes.** Orders shall not be subject to cancellation or change by Buyer for any reason, except with Seller's written consent and upon terms that will indemnify, defend and hold Seller harmless against all direct, incidental and consequential loss or damage. Seller may change product features, specifications, designs and availability with notice to Buyer.
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15. **Entire Agreement.** This agreement contains the entire agreement between the Buyer and Seller and constitutes the final, complete and exclusive expression of the terms of the agreement. All prior or contemporaneous written or oral agreements or negotiations with respect to the subject matter are herein merged.
16. **Waiver and Severability.** Failure to enforce any provision of this agreement will not waive that provision nor will any such failure prejudice Seller's right to enforce that provision in the future. Invalidation of any provision of this agreement by legislation or other rule of law shall not invalidate any other provision herein. The remaining provisions of this agreement will remain in full force and effect.
17. **Termination.** This agreement may be terminated by Seller for any reason and at any time by giving Buyer thirty (30) days written notice of termination. In addition, Seller may by written notice immediately terminate this agreement for the following: (a) Buyer commits a breach of any provision of this agreement (b) the appointment of a trustee, receiver or custodian for all or any part of Buyer's property (c) the filing of a petition for relief in bankruptcy of the other Party on its own behalf, or by a third party (d) an assignment for the benefit of creditors, or (e) the dissolution or liquidation of the Buyer.
18. **Governing Law.** This agreement and the sale and delivery of all Products hereunder shall be deemed to have taken place in and shall be governed and construed in accordance with the laws of the State of Ohio, as applicable to contracts executed and wholly performed therein and without regard to conflicts of laws principles. Buyer irrevocably agrees and consents to the exclusive jurisdiction and venue of the courts of Cuyahoga County, Ohio with respect to any dispute, controversy or claim arising out of or relating to this agreement. Disputes between the parties shall not be settled by arbitration unless, after a dispute has arisen, both parties expressly agree in writing to arbitrate the dispute.
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20. **Taxes.** Unless otherwise indicated, 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 Products.
21. **Equal Opportunity Clause.** For the performance of government contracts and where dollar value of the Products exceed \$10,000, the equal employment opportunity clauses in Executive Order 11246, VEVRAA, and 41 C.F.R. §§ 60-1.4(a), 60-741.5(a), and 60-250.4, are hereby incorporated.



June 2023

First edition: Variable Displacement Pump options for P/M6-7-8 catalog  
HY28-2667-03/GC/US



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Parker Hannifin Corporation  
**Hydraulic Pump and Power Systems Division**  
14249 Industrial Pkwy  
Marysville, OH 43040 USA  
phone 937 644 4532  
fax 937 642 3639  
[www.parker.com/hps](http://www.parker.com/hps)

