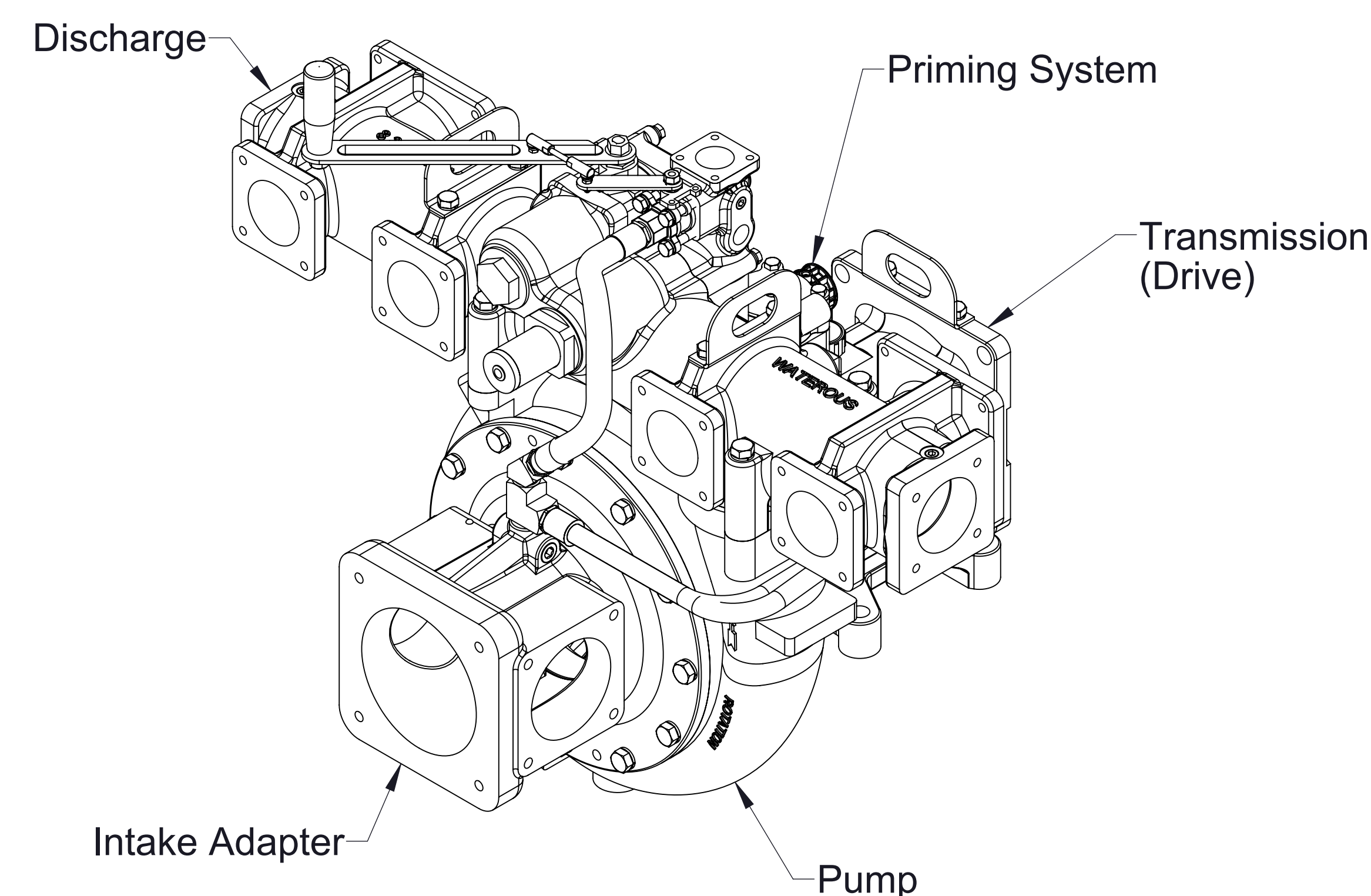


HLU Series Fire Pump Service Parts List

Index:

Component		See Pages				
		Complete Pump and Transmission Model (Located on Pump Serial Plate)				
		Direct Drive (D Series) HLU D		Gear Drive (K Series) HLU K		Chain Drive (PA Series) HLU PA
		Input Rotation		Input Rotation		Input Rotation
		CW	CCW	CW	CCW	CW
Determining Pump Model and Input Rotation		2, 3	2, 3	2, 3	2, 3	2, 3
Crossover Valve		4, 5	6, 7	6, 7	4, 5	6, 7
Pneumatic Crossover Valve Actuator		--	8, 9	8, 9	--	8, 9
Pneumatic Crossover Valve Actuator Sub-Assembly, Schematic		--	10, 11, 12	10, 11, 12	--	10, 11, 12
Priming System, VPOS and Mounted VAP		13, 14	13, 14	15, 16	15, 16	17, 18
Discharge Manifold		19, 20	21, 22	21, 22	19, 20	21, 22
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Pump	Body and Impellers	25, 26		25, 26		25, 26
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Transmission (Drive)		27, 28		See SPL83741		See SPL83490
Optional Items	Auxiliary Intake and Discharge	See SPL83156				
	RTP Foam System	See SPL83157				



Determining Pump Model and Input Rotation

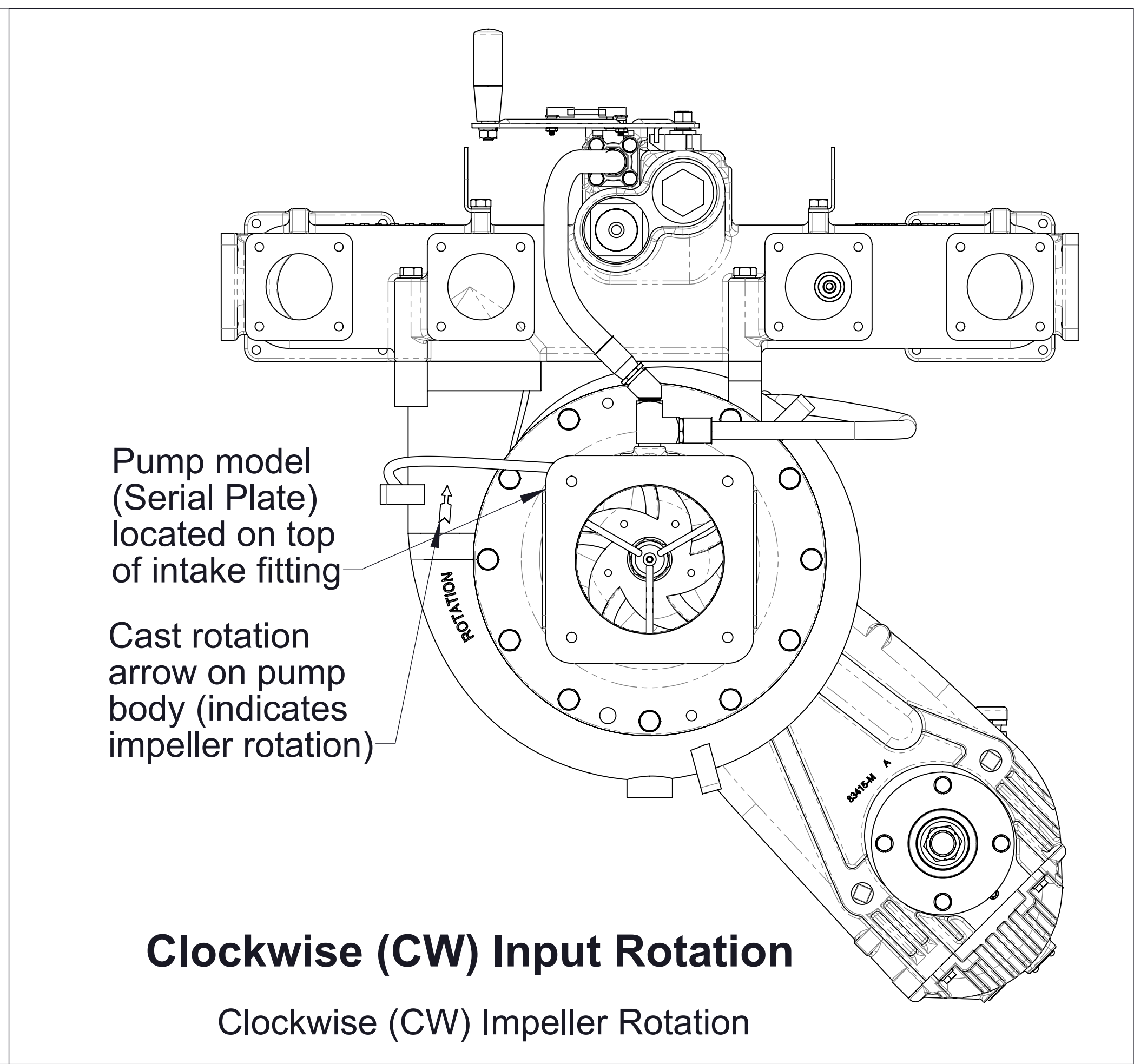
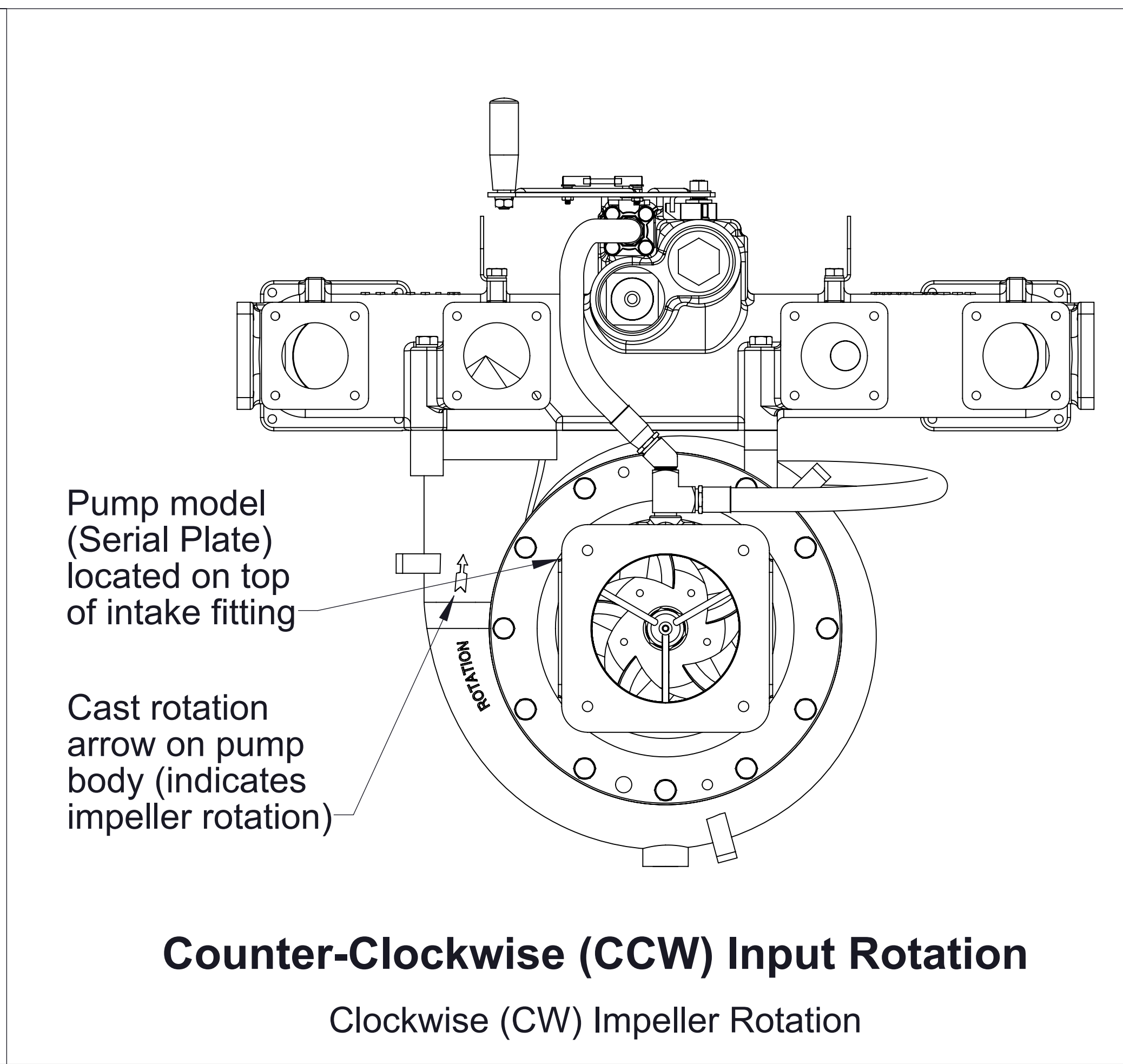
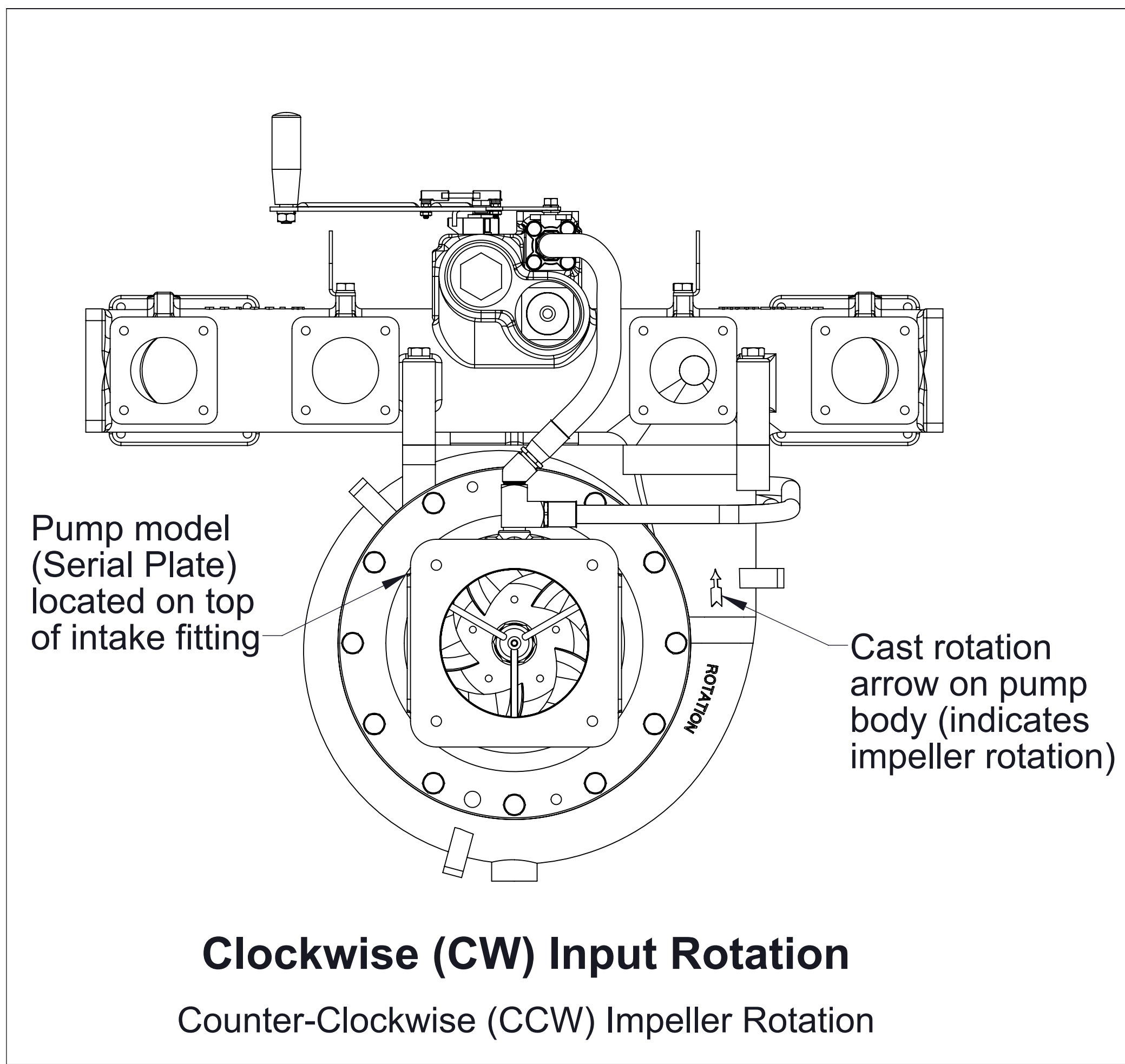
The pump configuration and components vary for each pump model and input rotation.

The input rotation of the drive end of the pump determines the direction the pump impeller rotates.

Use the pump model and input rotation when referring to pages listed in the index.

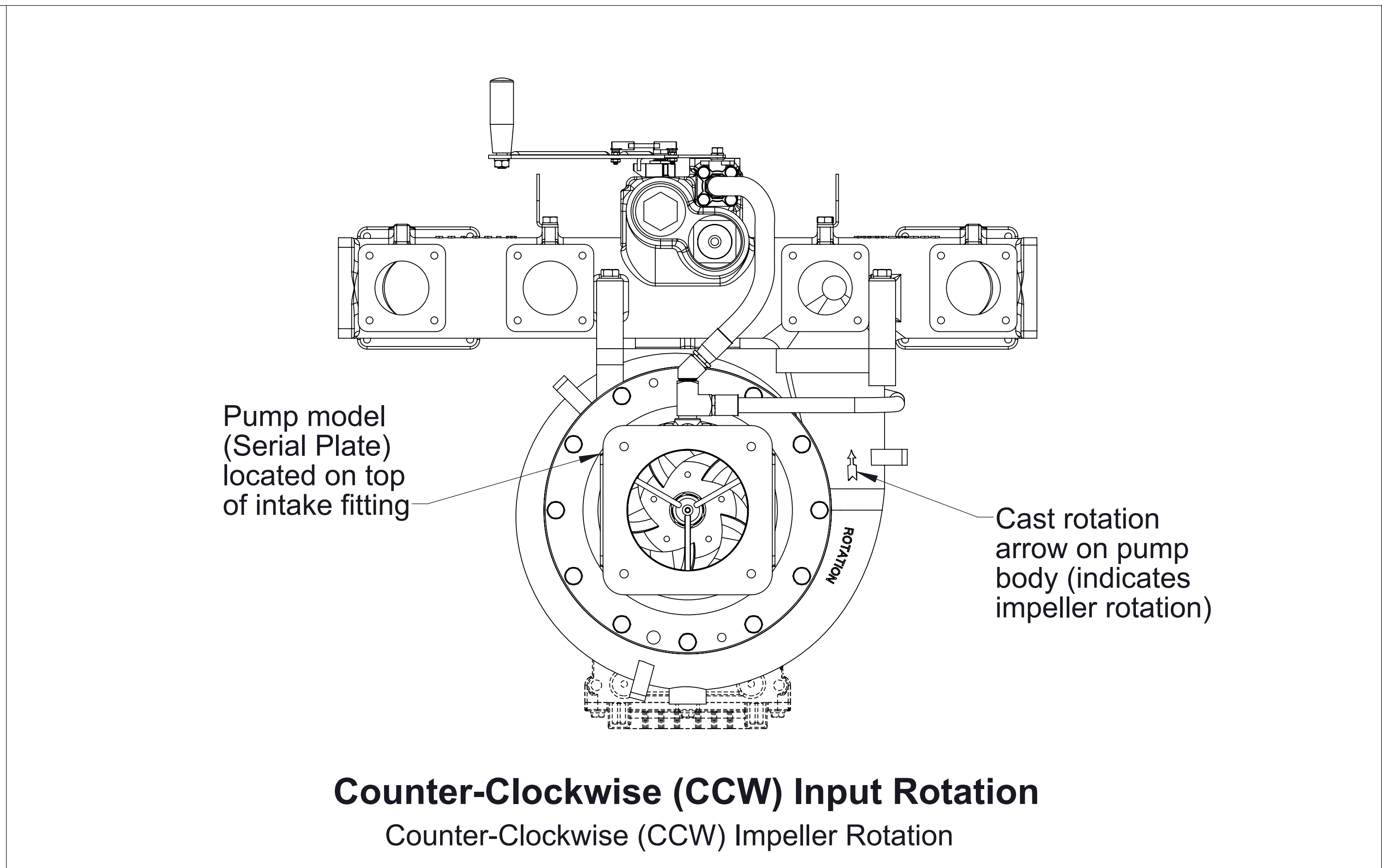
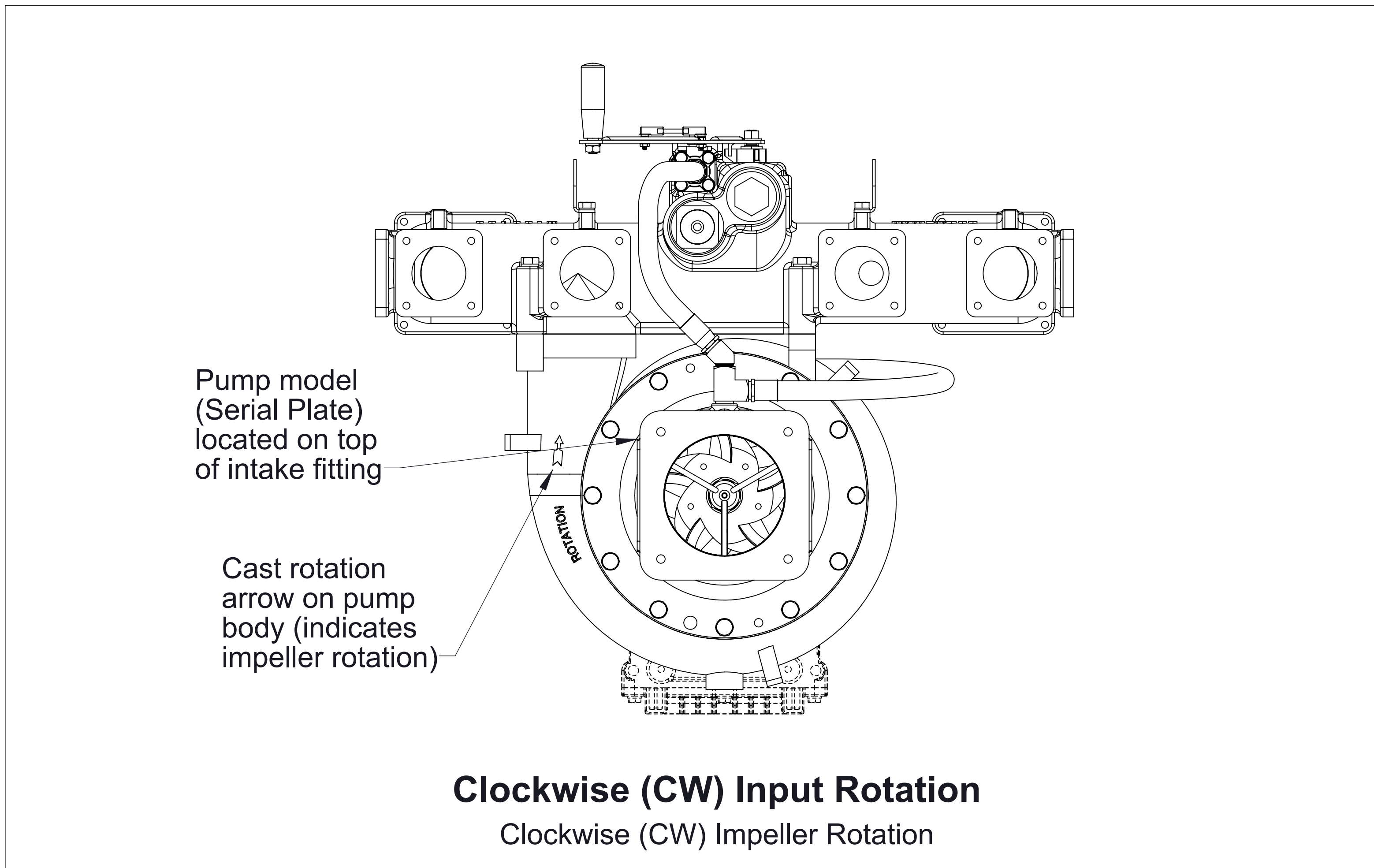
If you are unsure of the input rotation of your pump, the cast rotation arrow on the pump body can be used to determine which rotation configuration you have. The pump model can be obtained from the serial plate attached to the pump intake fitting.

Compare your pump to the diagrams on the following page.



Model HLUK

Model HLUPA



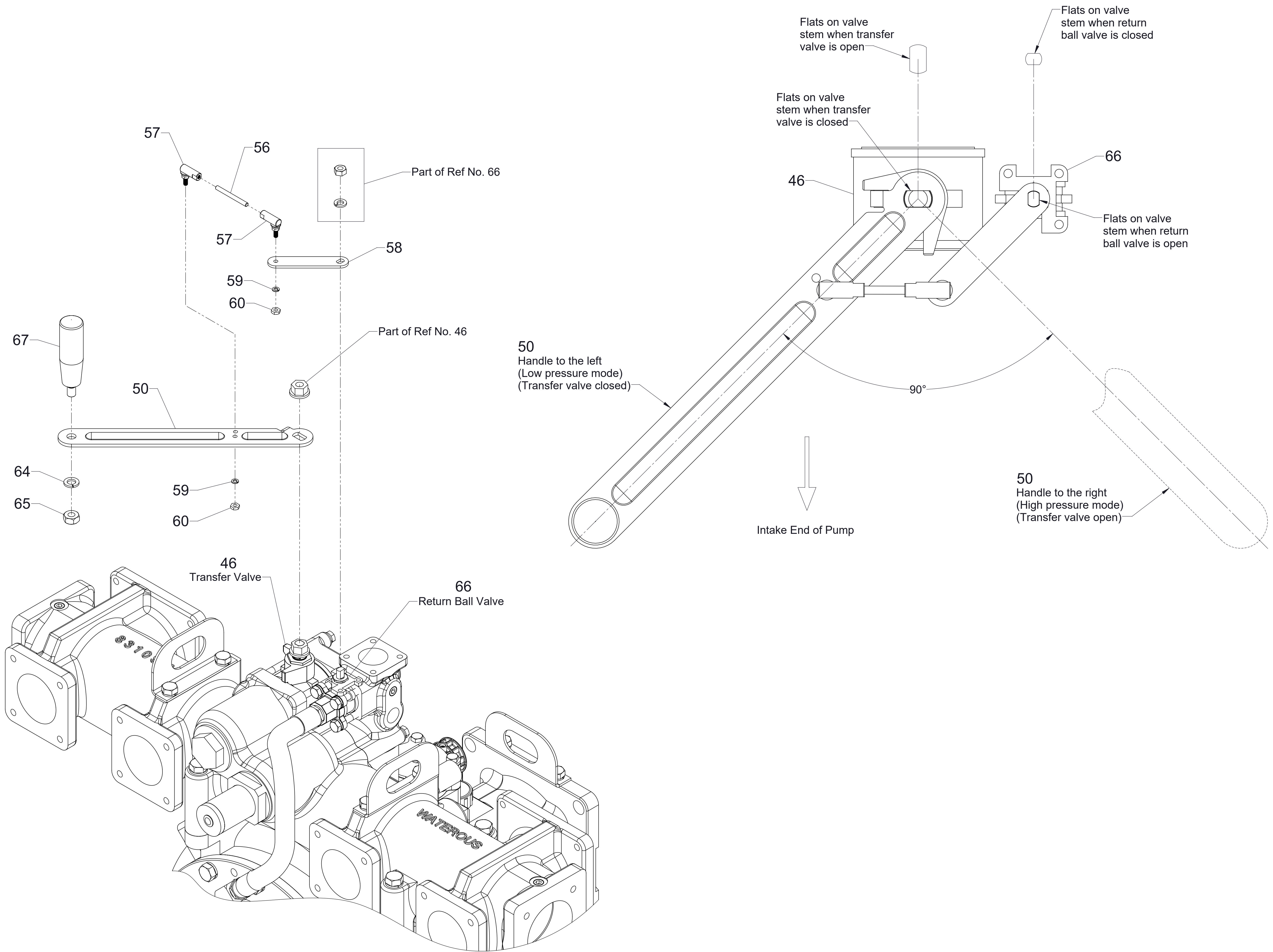
Model HLUK

Crossover Valve

HLUD - CW Input rotation (CCW impeller rotation)
HLUK - CCW Input rotation (CCW impeller rotation)

Ref No.	Description
46	Transfer Valve, 1-1/2 in. (Includes 7/16-14 UNC Hex Nut and Lockwasher)
50	Crossover Valve Handle
56	Threaded Stud, 10-32 x 2 in.
57	Ball Joint Linkage
58	Ball Valve Handle
59	Lock Washer, No. 10

Ref No.	Description
60	Hex Nut, 10-32
64	Lock Washer, 10 mm
65	Hex Nut, M10-1.5
66	Ball Valve, 1/2 in NPT (Includes 3/8-16 UNC Hex Nut and Lockwasher)
67	Handle



Crossover Valve

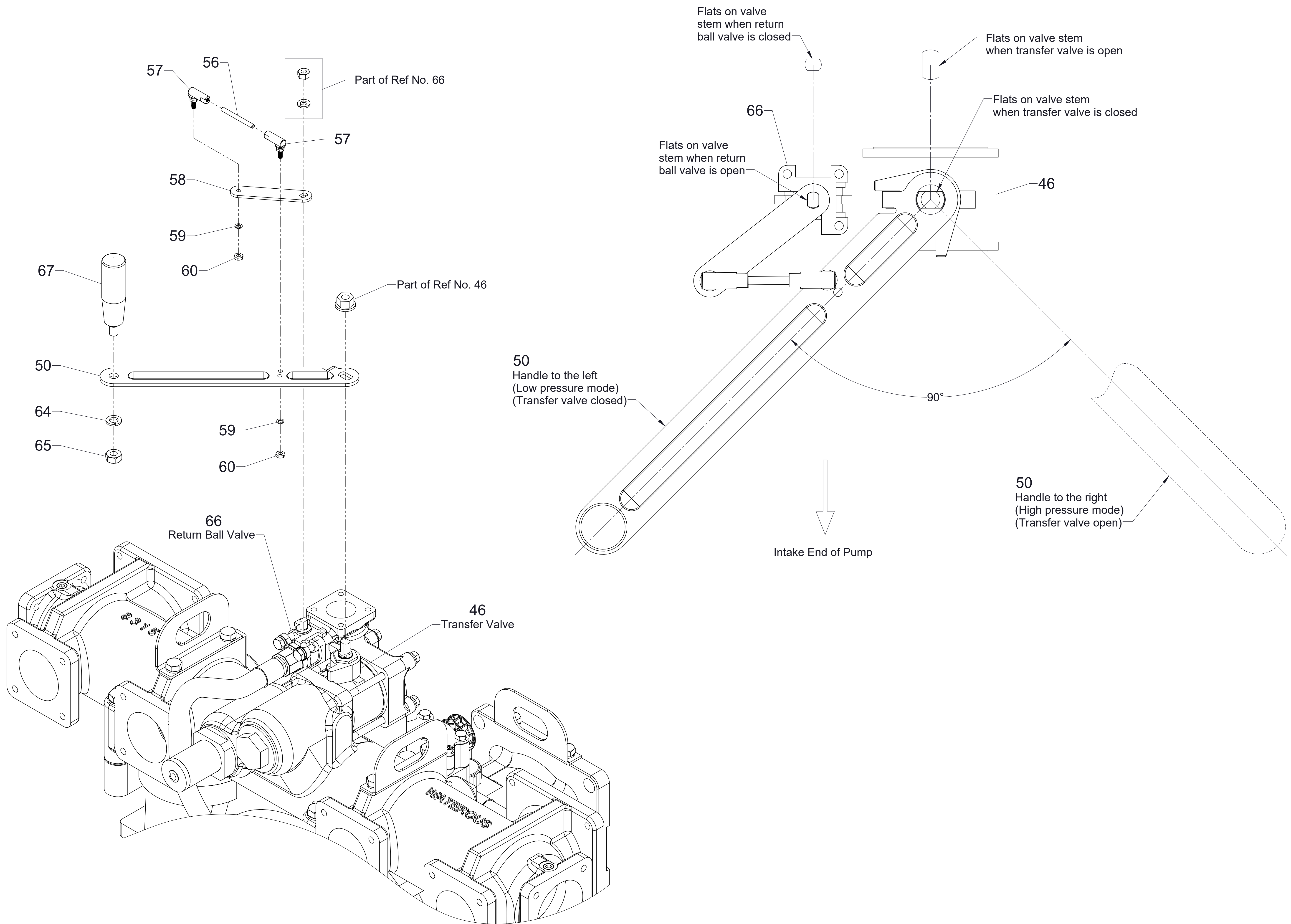
HLUD - CW Input rotation (CCW impeller rotation)
 HLUK - CCW Input rotation (CCW impeller rotation)

Crossover Valve

HLUD - CCW Input rotation (CW impeller rotation)
 HLUK - CW Input rotation (CW impeller rotation)
 HLUPA - CW Input rotation (CW impeller rotation)

Ref No.	Description
46	Transfer Valve, 1-1/2 in. (Includes 7/16-14 UNC Hex Nut and Lockwasher)
50	Crossover Valve Handle
56	Threaded Stud, 10-32 x 2 in.
57	Ball Joint Linkage
58	Ball Valve Handle
59	Lock Washer, No. 10

Ref No.	Description
60	Hex Nut, 10-32
64	Lock Washer, 10 mm
65	Hex Nut, M10-1.5
66	Ball Valve, 1/2 in NPT (Includes 3/8-16 UNC Hex Nut and Lockwasher)
67	Handle



Crossover Valve

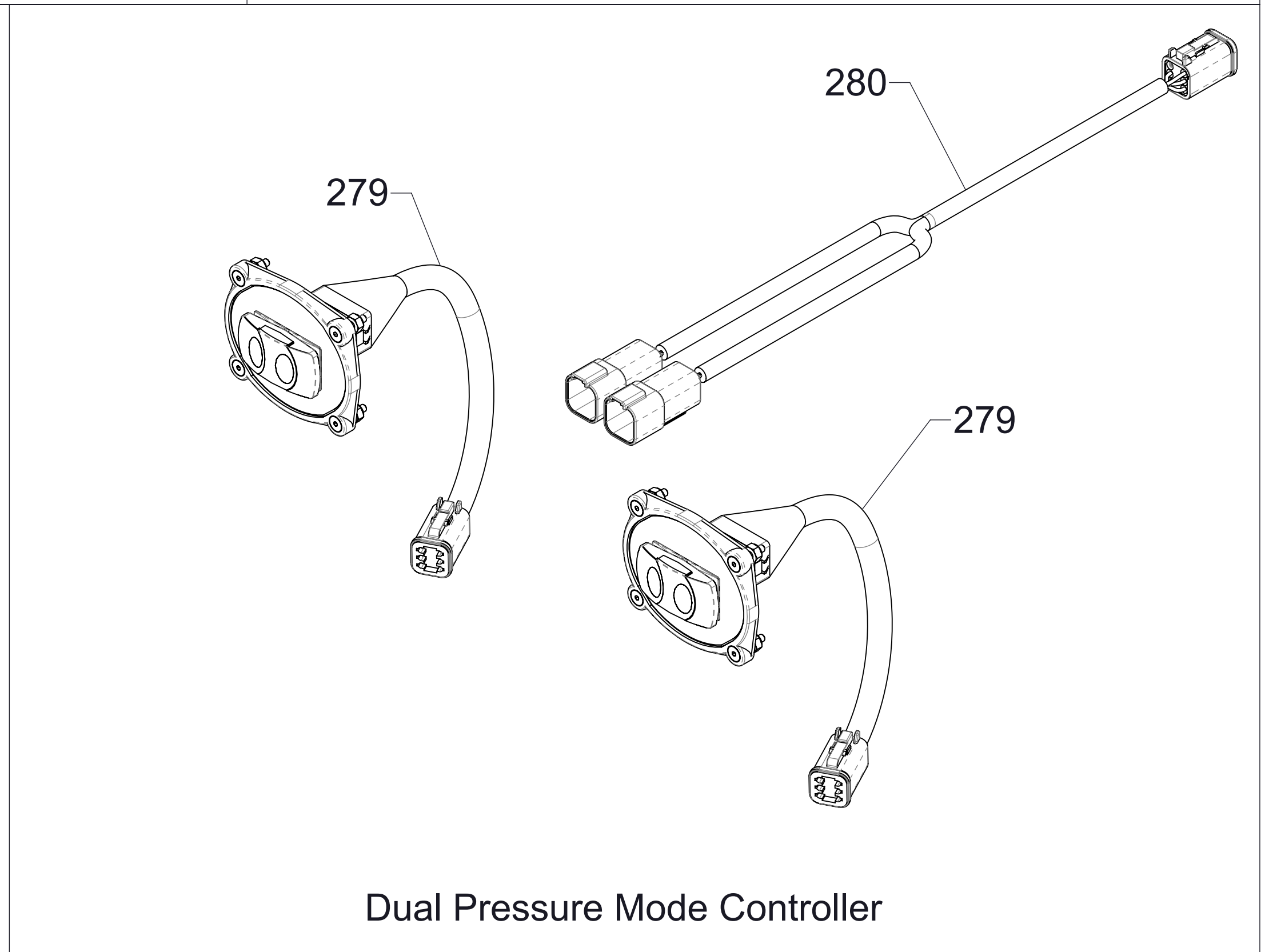
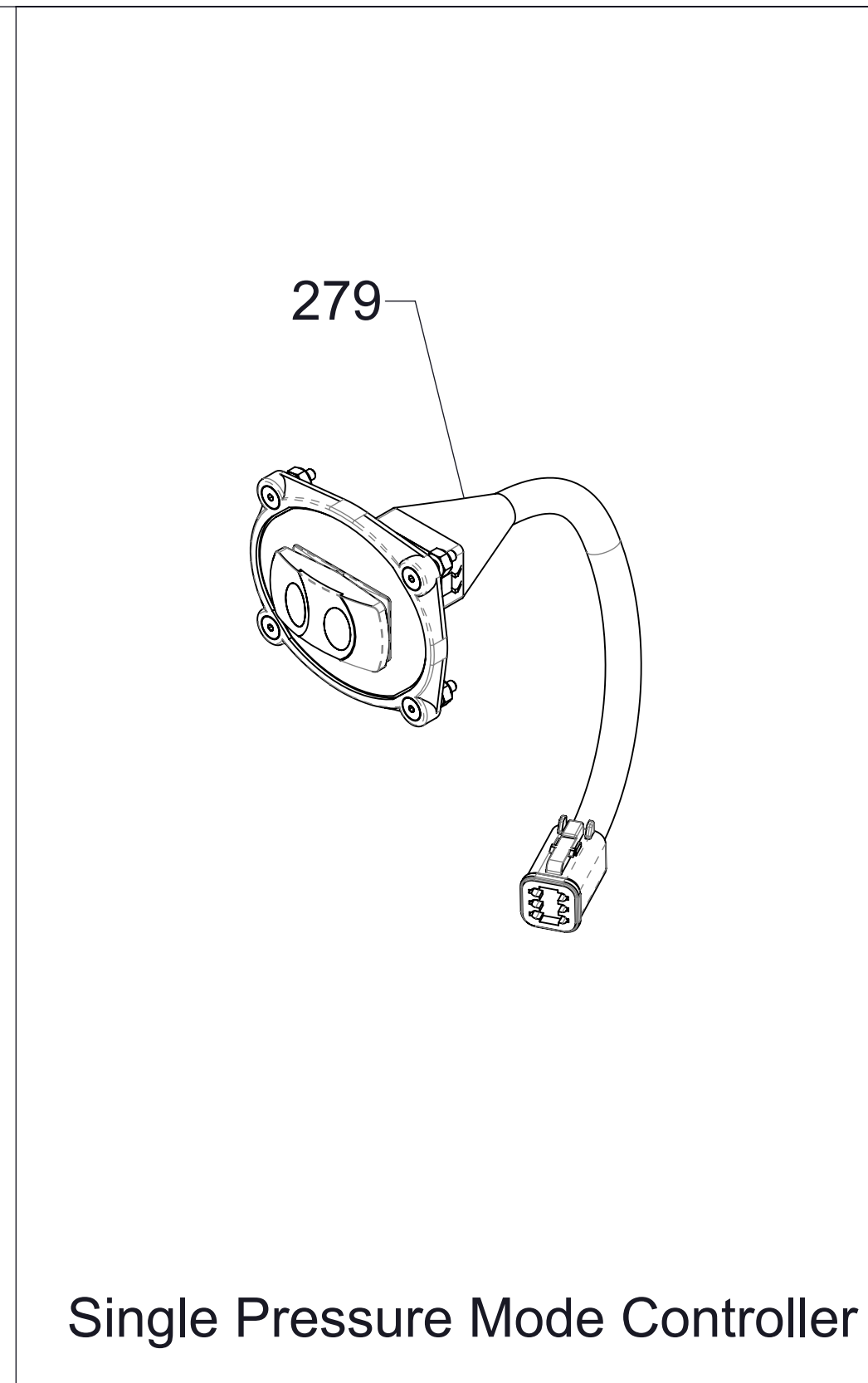
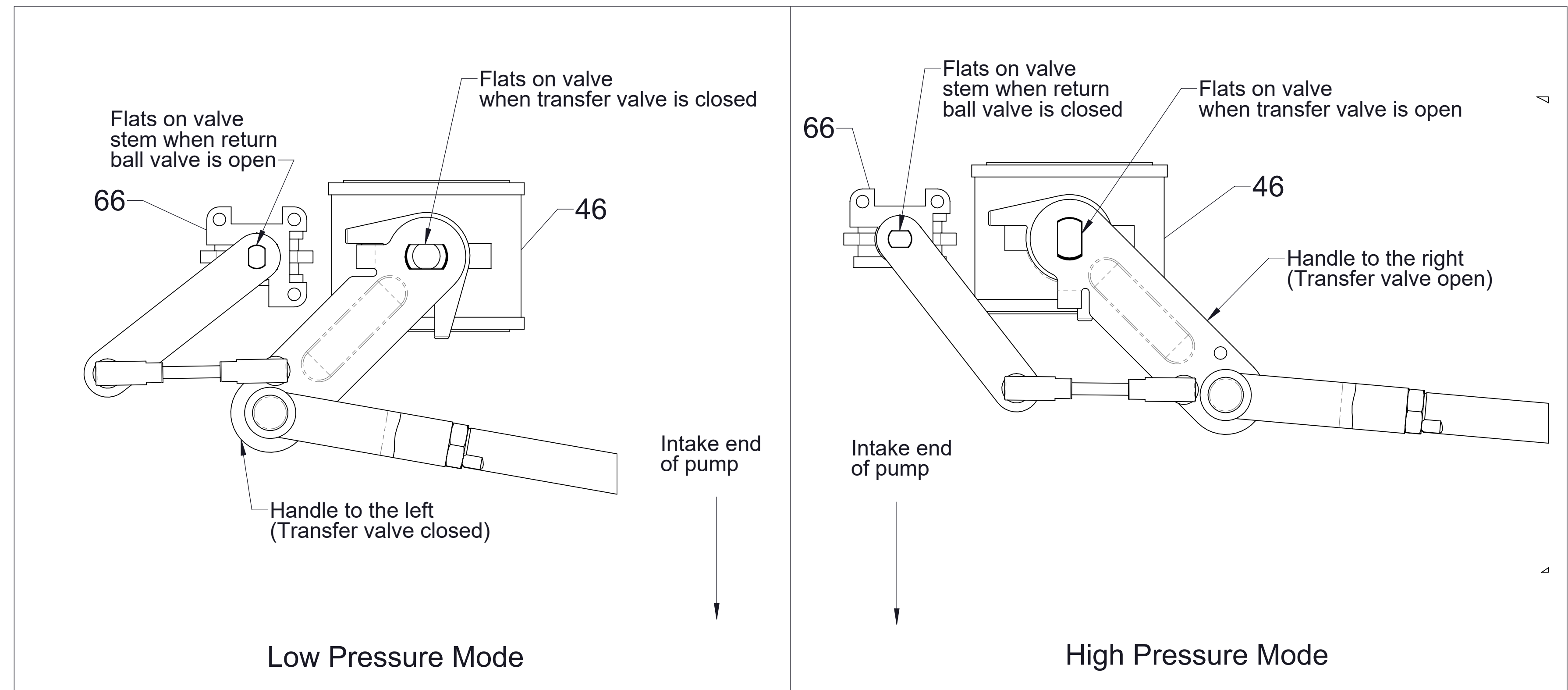
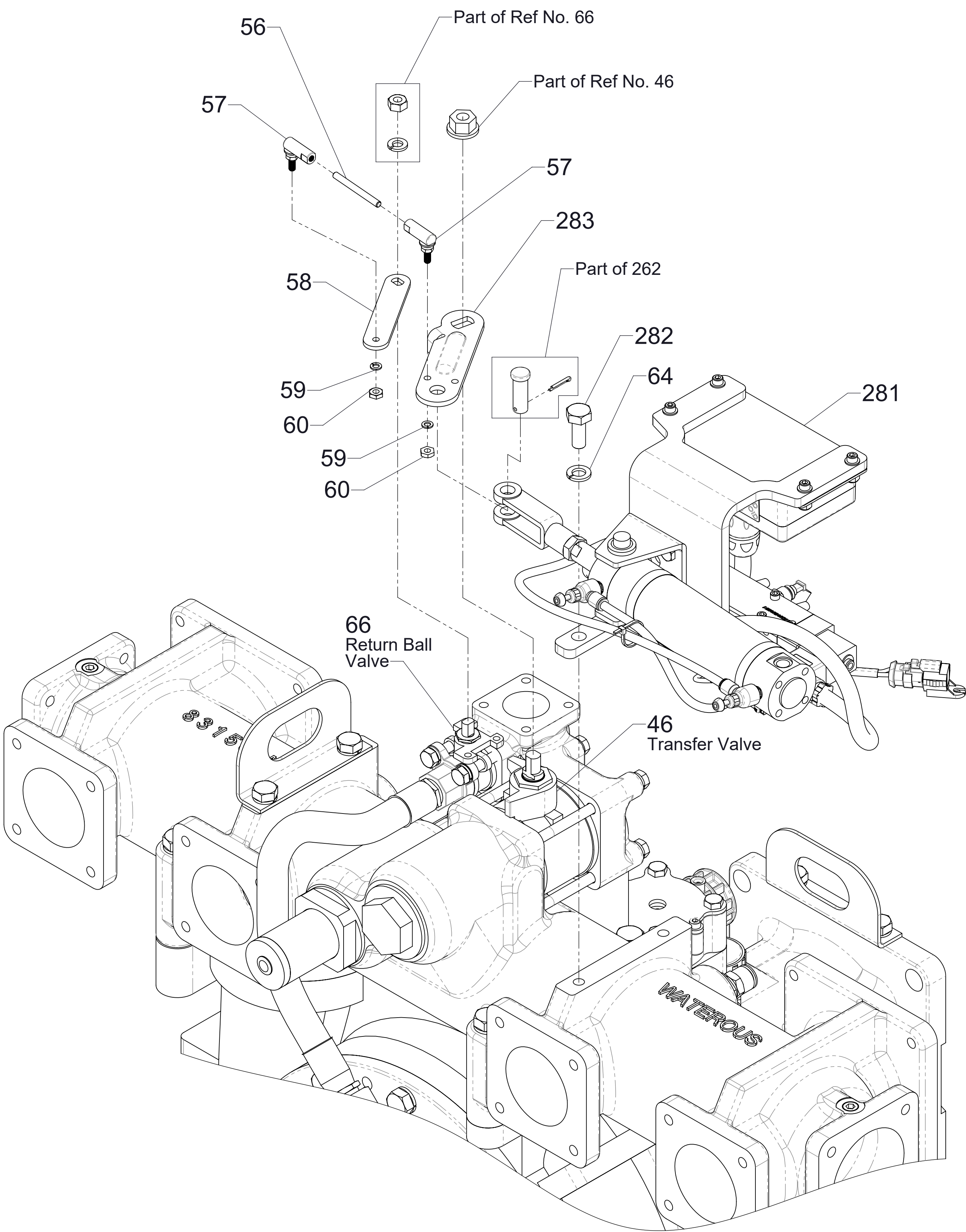
HLUD - CCW Input rotation (CW impeller rotation)
 HLUK - CW Input rotation (CW impeller rotation)
 HLUPA - CW Input rotation (CW impeller rotation)

Pneumatic Crossover Valve Actuator

HLUD - CCW Input rotation (CW impeller rotation)
 HLUK - CW Input rotation (CW impeller rotation)
 HLUPA - CW Input rotation (CW impeller rotation)

Ref No.	Description
46	Transfer Valve, 1-1/2 in. (Includes 7/16-14 UNC Hex Nut and Lockwasher)
56	Threaded Stud, 10-32 x 2 in.
57	Ball Joint Linkage
58	Ball Valve Handle
59	Lock Washer, No. 10
60	Hex Nut, 10-32

Ref No.	Description
64	Lock Washer, 10 mm
66	Ball Valve, 1/2 in NPT (Includes 3/8-16 UNC Hex Nut and Lockwasher)
279	Pressure Mode Control Panel
280	Y-Splitter Cable
281	Actuator Sub-Assembly
282	Screw Hex Head, M10-1.5 x 25 mm
283	Crossover Valve Handle Replacement Kit



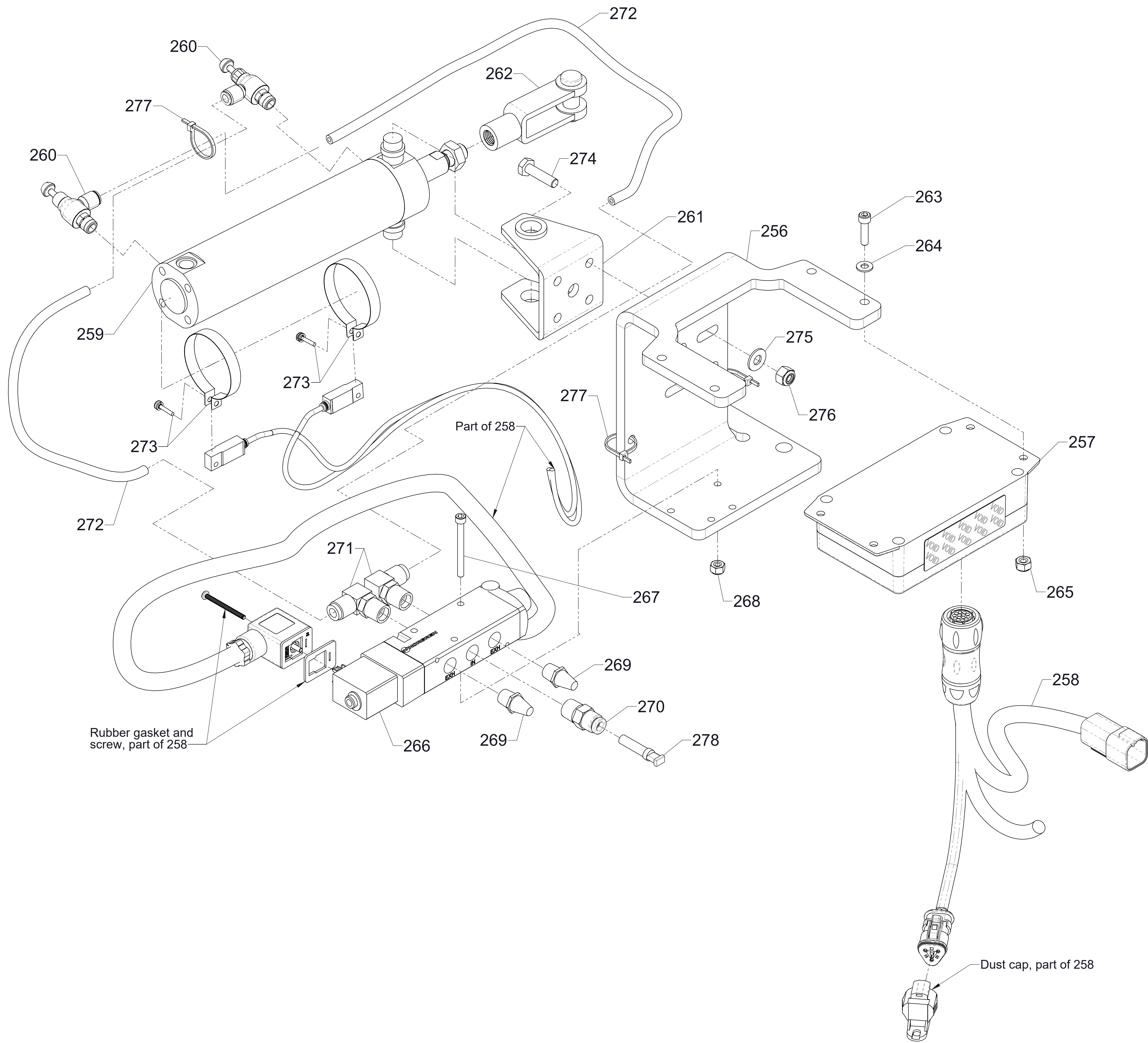
Pneumatic Crossover Valve Actuator
 HLUUD - CCW Input rotation (CW impeller rotation)
 HLUK - CW Input rotation (CW impeller rotation)
 HLUPA - CW Input rotation (CW impeller rotation)

Pneumatic Crossover Valve Actuator Sub-Assembly

HLUD - CCW Input rotation (CW impeller rotation)
 HLUK - CW Input rotation (CW impeller rotation)
 HLUPA - CW Input rotation (CW impeller rotation)

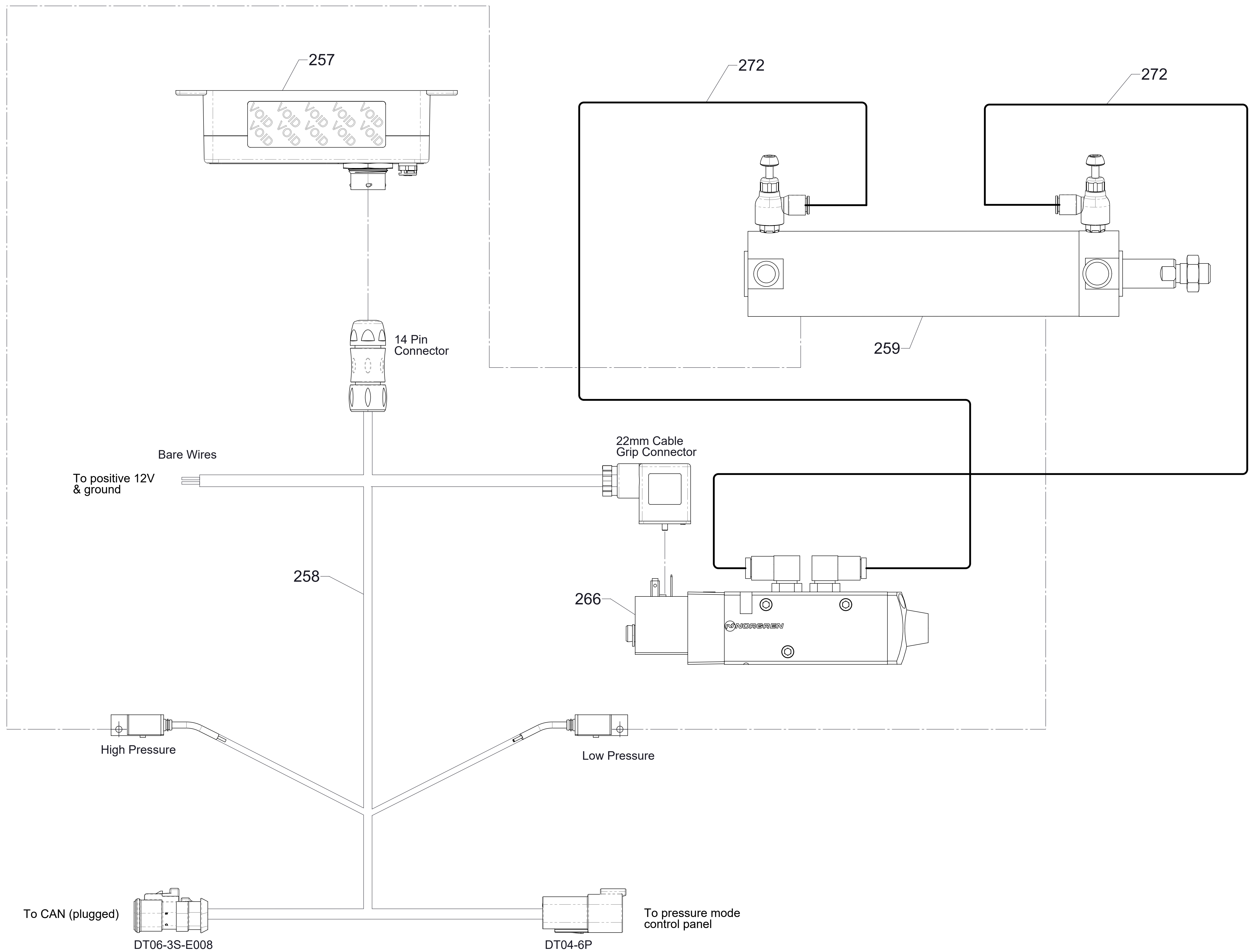
Ref No.	Description
256	Mounting Bracket Replacement Kit (Includes 64, 263, 264, 265, 267, 268, 274, 275, 276, 277, 282)
257	Pressure Mode Controller Replacement kit (Includes 263, 264, 265)
258	Wiring Harness Replacement Kit (Includes 273, 277)
259	Air Cylinder Replacement Kit (Includes 273)
260	Flow Control Valve Replacement Kit
261	Trunnion Bracket Replacement Kit (Includes 261, 274, 275, 276)
262	Clevis Replacement Kit
263	Soc Head Screw, 10-24 x 3/4 in.
264	Flat Washer No. 10
265	Nylok Hex Nut, 10-24
266	Solenoid Valve Replacement Kit (Includes 267, 268, 269, 270, 271, 272, 277)
267	Soc Head Screw, 8-32 x 1-3/4 in.

Ref No.	Description
268	Nylok Hex Nut, 8-32
269	Air Muffler, 1/4 in.
270	Straight Fitting, 1/4 PTC x 1/4 MNPT
271	90° Elbow, 1/4 PTC x 1/4 MNPT
272	Air Brake Tube
273	Mounting Band, 40mm
274	Hex Head Screw, 1/4-20 x 1 in.
275	Flat Washer, 1/4 in.
276	Nylok Hex Nut, 1/4-20
277	Cable Tie
278	1/4 Tubing PTC Plug



Pneumatic Crossover Valve Actuator Sub-Assembly
 HLU D - CCW Input rotation (CW impeller rotation)
 HLU K - CW Input rotation (CW impeller rotation)
 HLU PA - CW Input rotation (CW impeller rotation)

Note: See page 12 schematic for cable and air line connections.

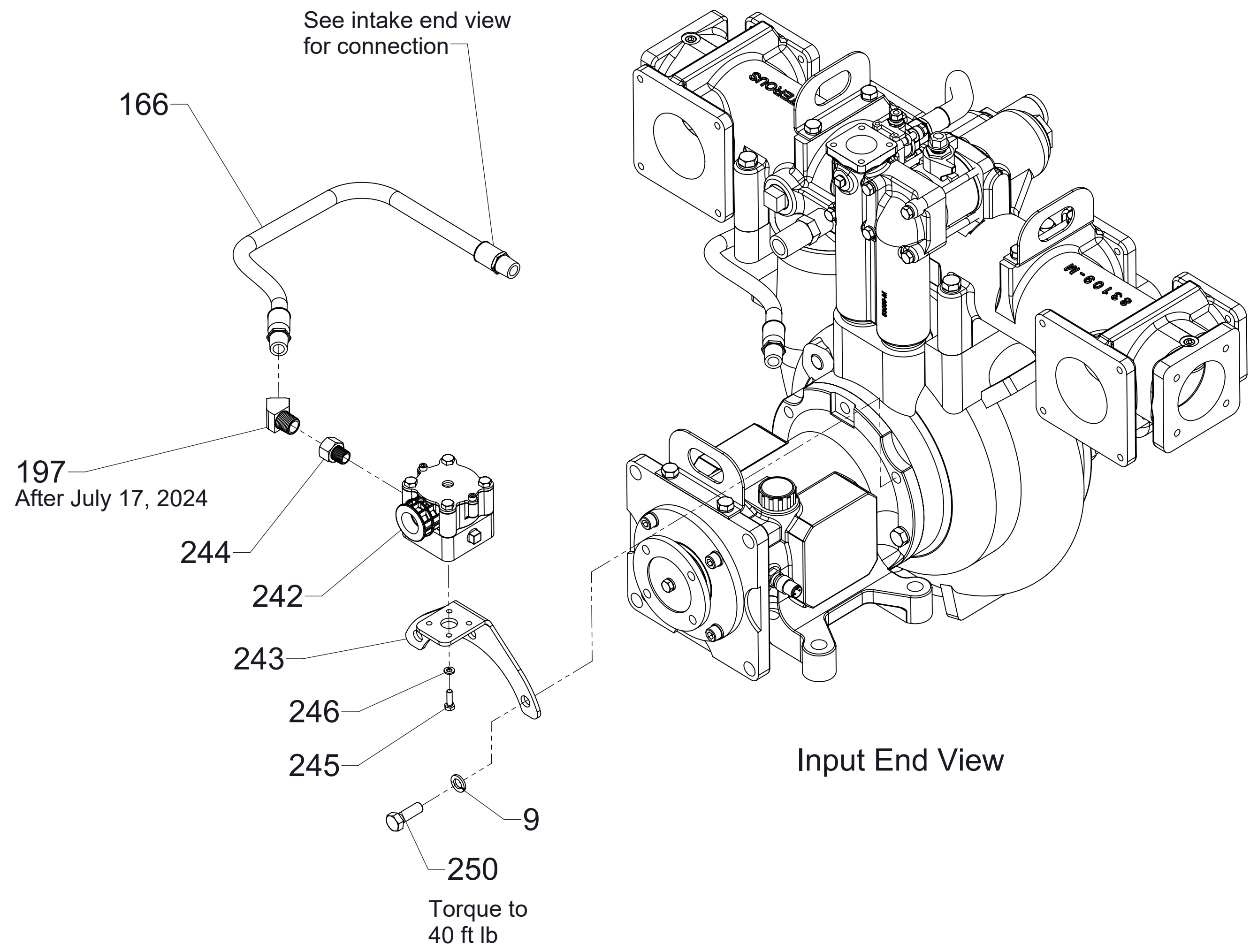


Pneumatic Crossover Valve Actuator Sub-Assembly Schematic
 HLUUD - CCW Input rotation (CW impeller rotation)
 HLUK - CW Input rotation (CW impeller rotation)
 HLUPA - CW Input rotation (CW impeller rotation)

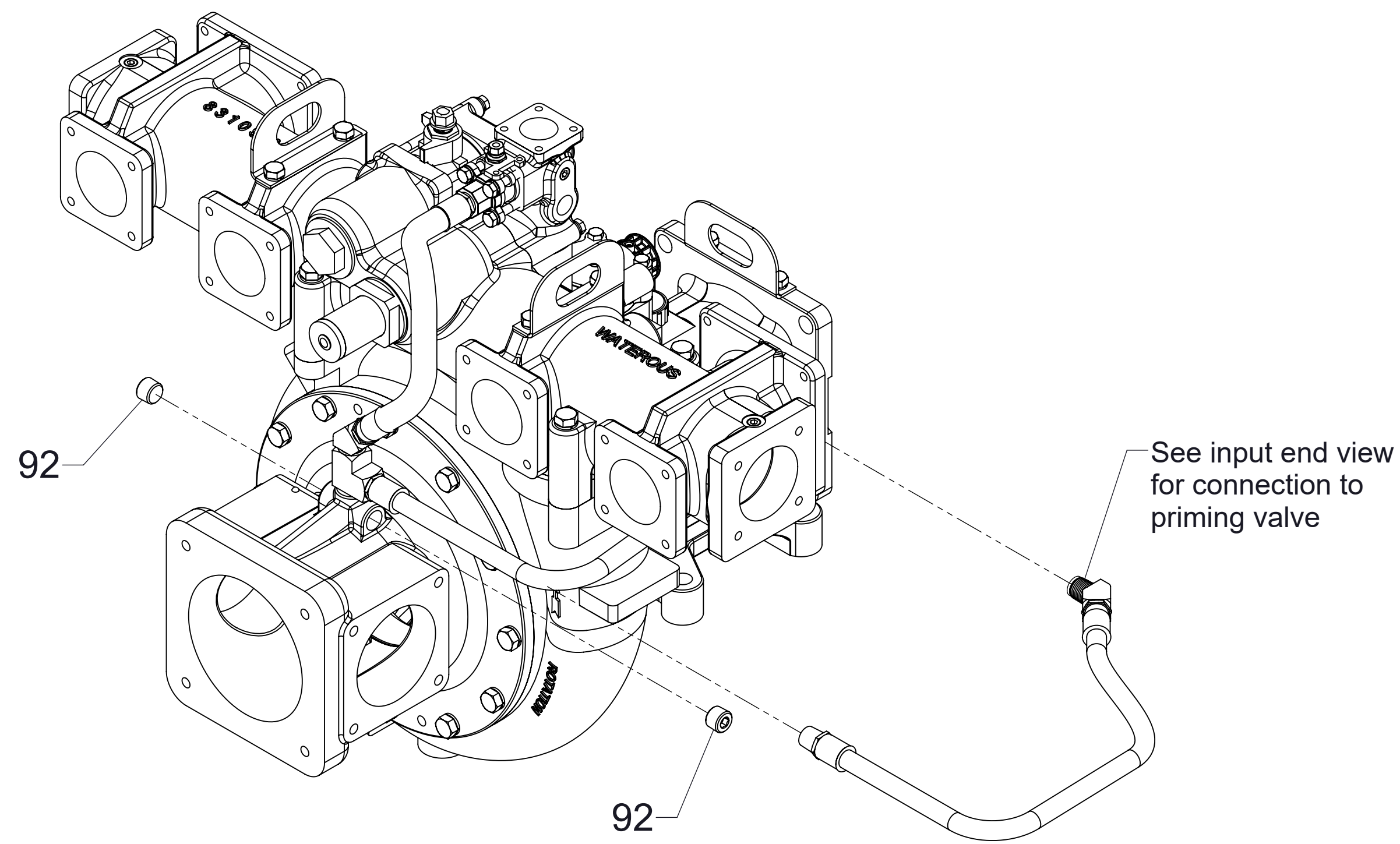
Priming System
VPOS and Mounted VAP
 Model HLU D

Ref No.	Description
9	Lock Washer, 12 mm
92	Headless Pipe Plug, 1/2 NPT
197	Elbow-Street, 45°, 1/2 NPT
166	Hose Assembly, 1/2 NPT x 18 in.
242	Priming Valve Subassembly
243	VAP Mounting Bracket

Ref No.	Description
244	Fitting, 1/2 NPTF x 3/8 NPTM
245	Hex Head Screw, M6-1 x 20 mm
246	Lock Washer, 6 mm
250	Hex Head Screw, M12-1.75 x 35 mm

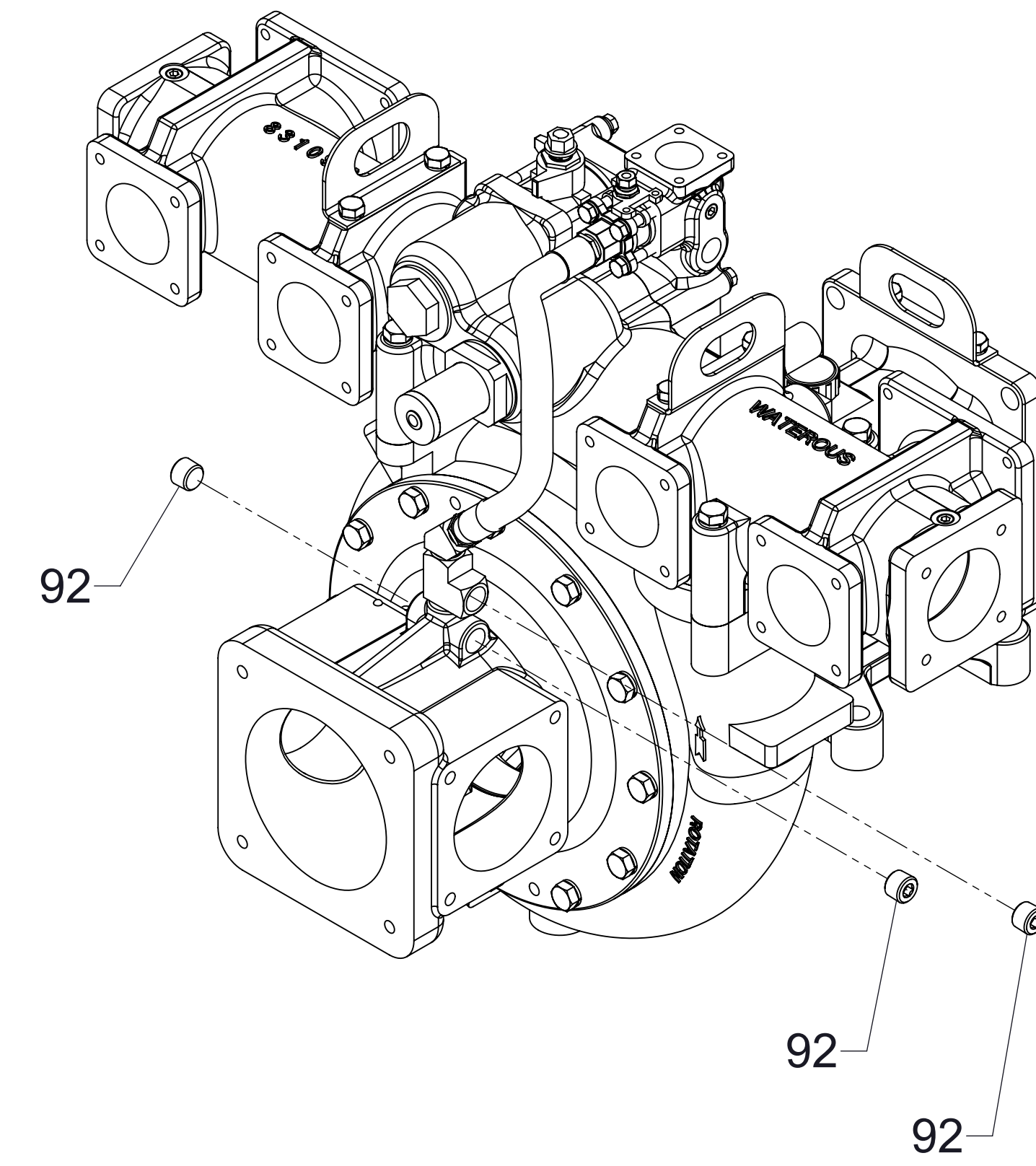


Input End View



Intake End View

VAP
(When VPOS is ordered)

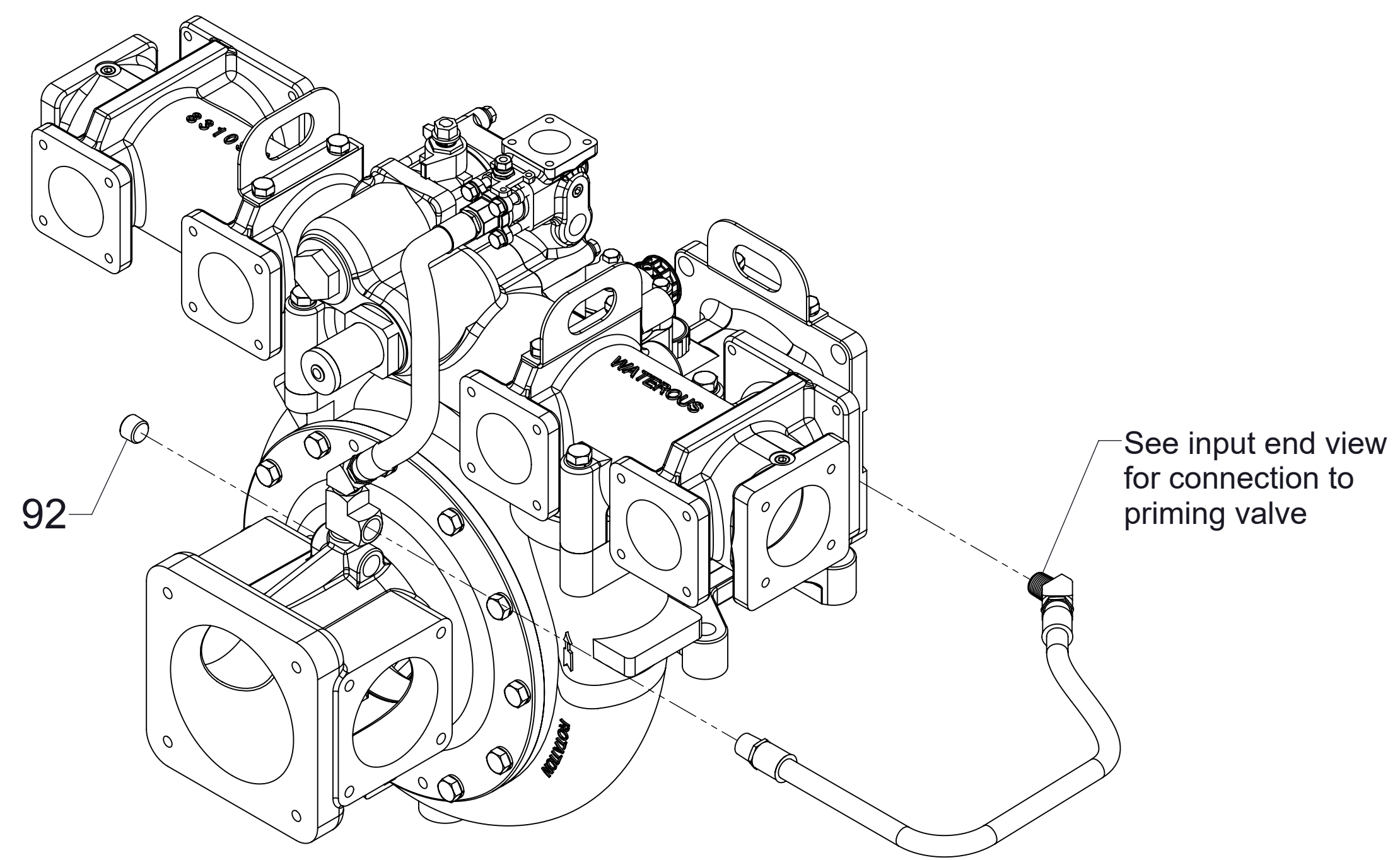
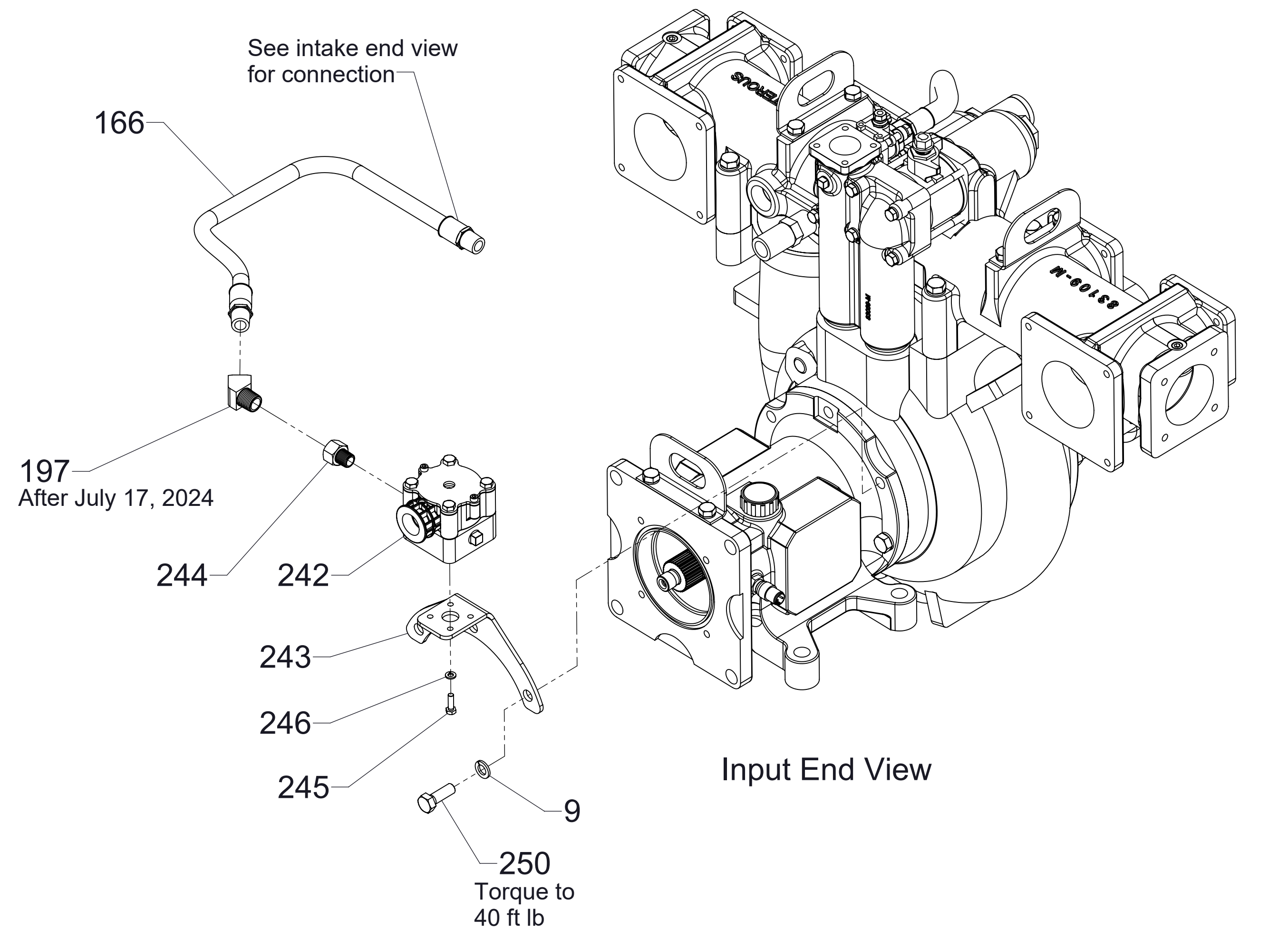


Without VAP
(No priming pump ordered)

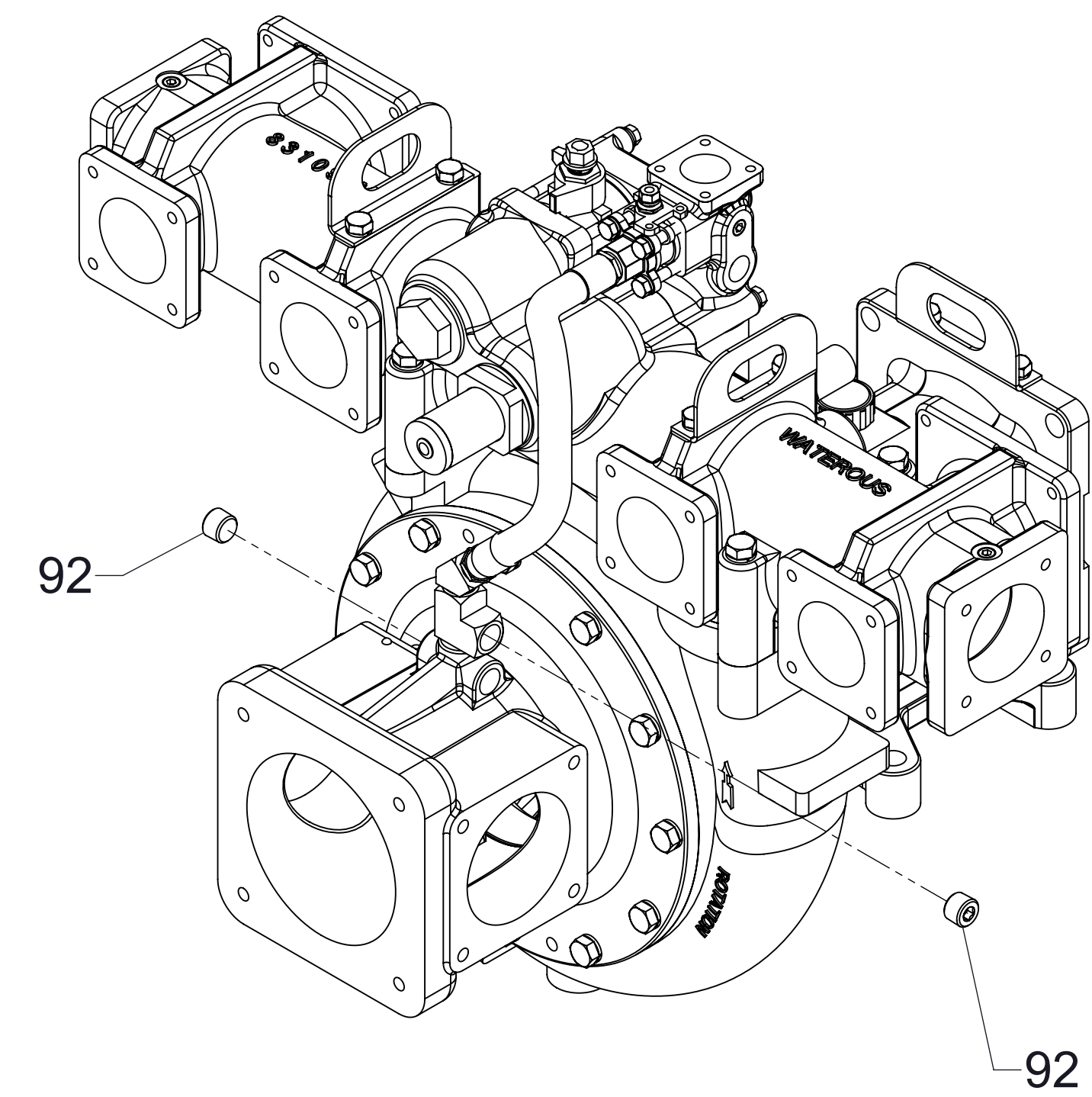
Priming System
VPOS and Mounted VAP
 Model HLUK

Ref No.	Description
9	Lock Washer, 12 mm
92	Headless Pipe Plug, 1/2 NPT
166	Hose Assembly, 1/2 NPT x 18 in.
197	Elbow-Street, 45°, 1/2 NPT
242	Priming Valve Subassembly
243	VAP Mounting Bracket

Ref No.	Description
244	Fitting, 1/2 NPTF x 3/8 NPTM
245	Hex Head Screw, M6-1 x 20 mm
246	Lock Washer, 6 mm
250	Hex Head Screw, M12-1.75 x 35 mm



VAP
(When VPOS is ordered)



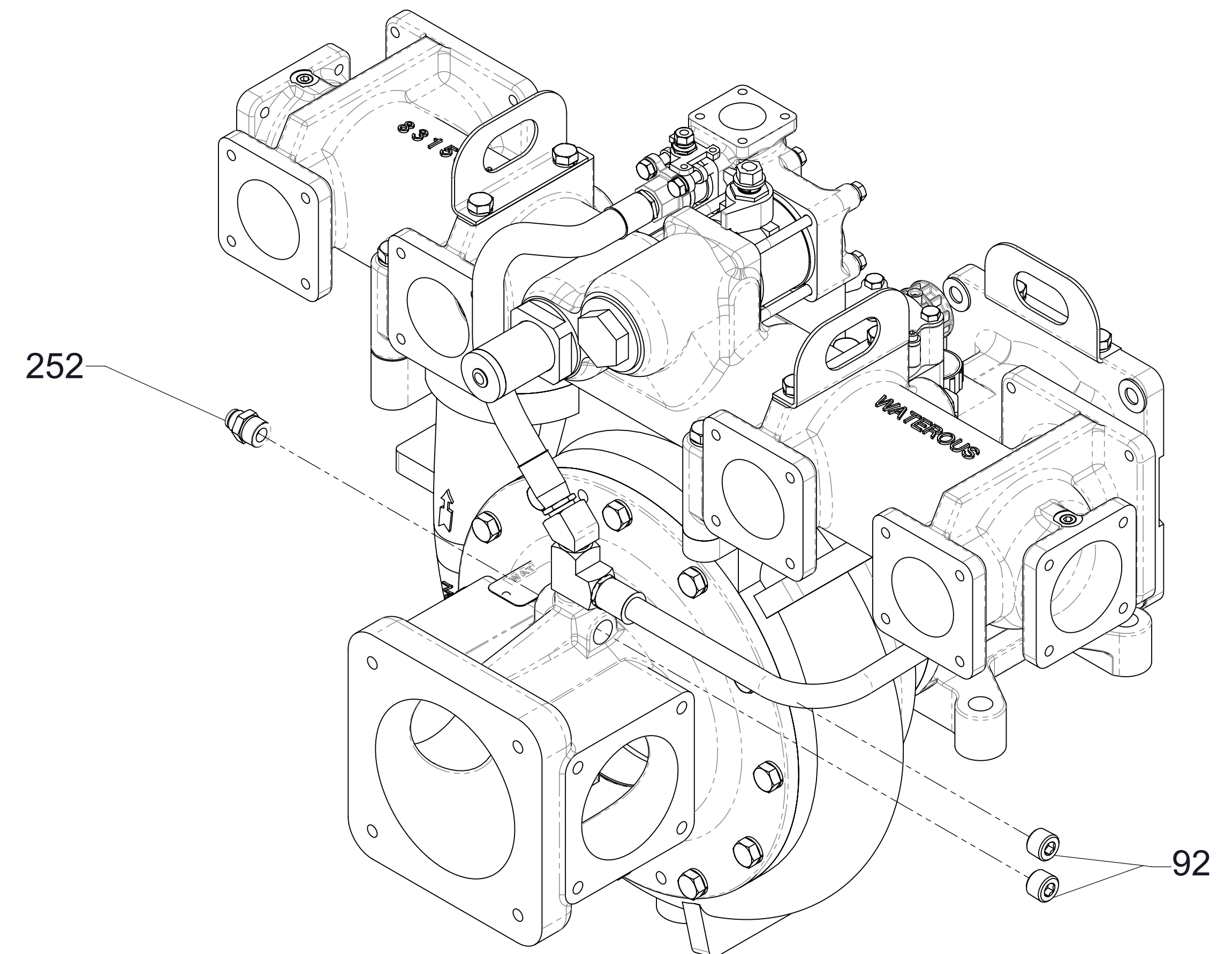
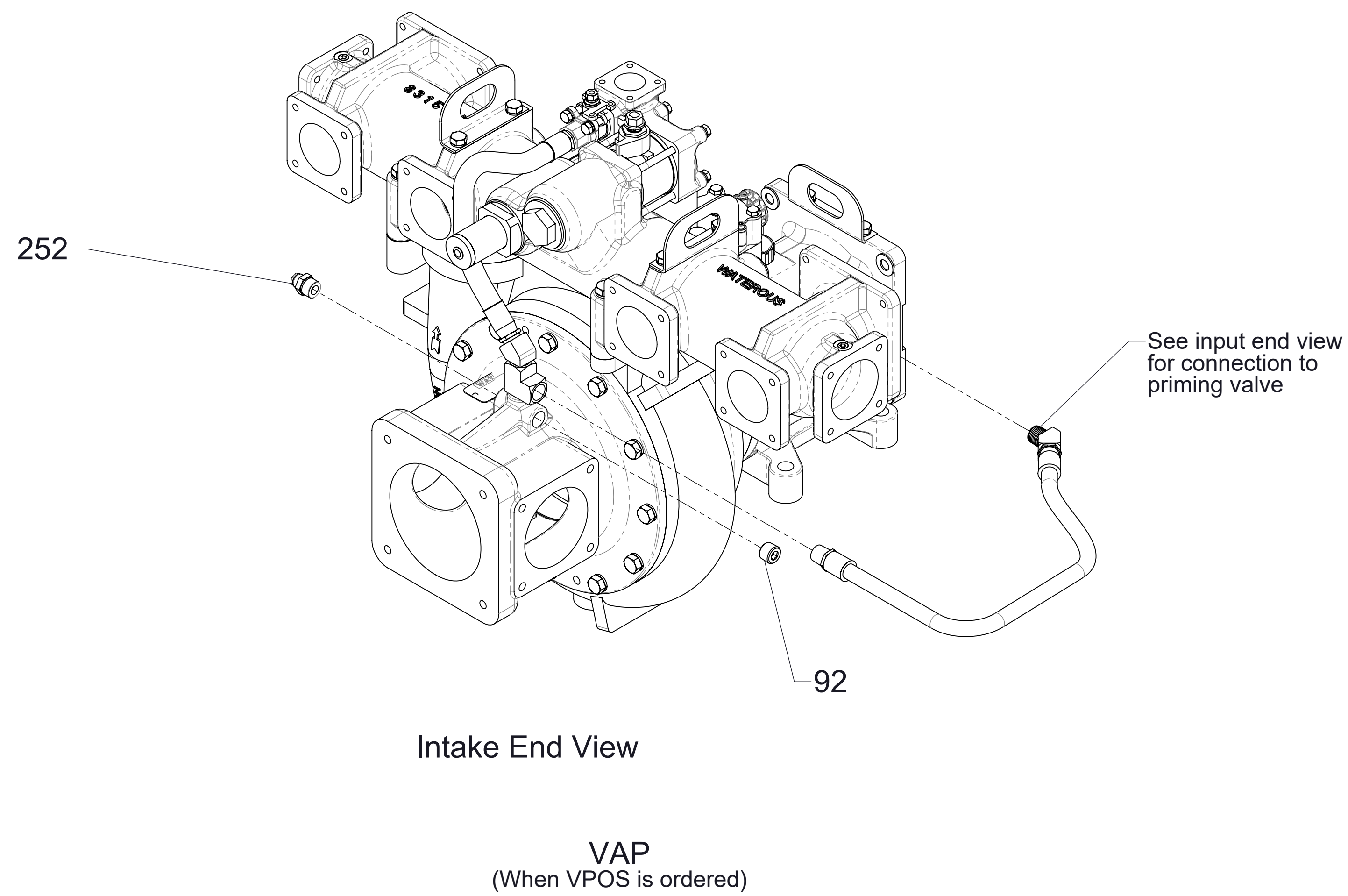
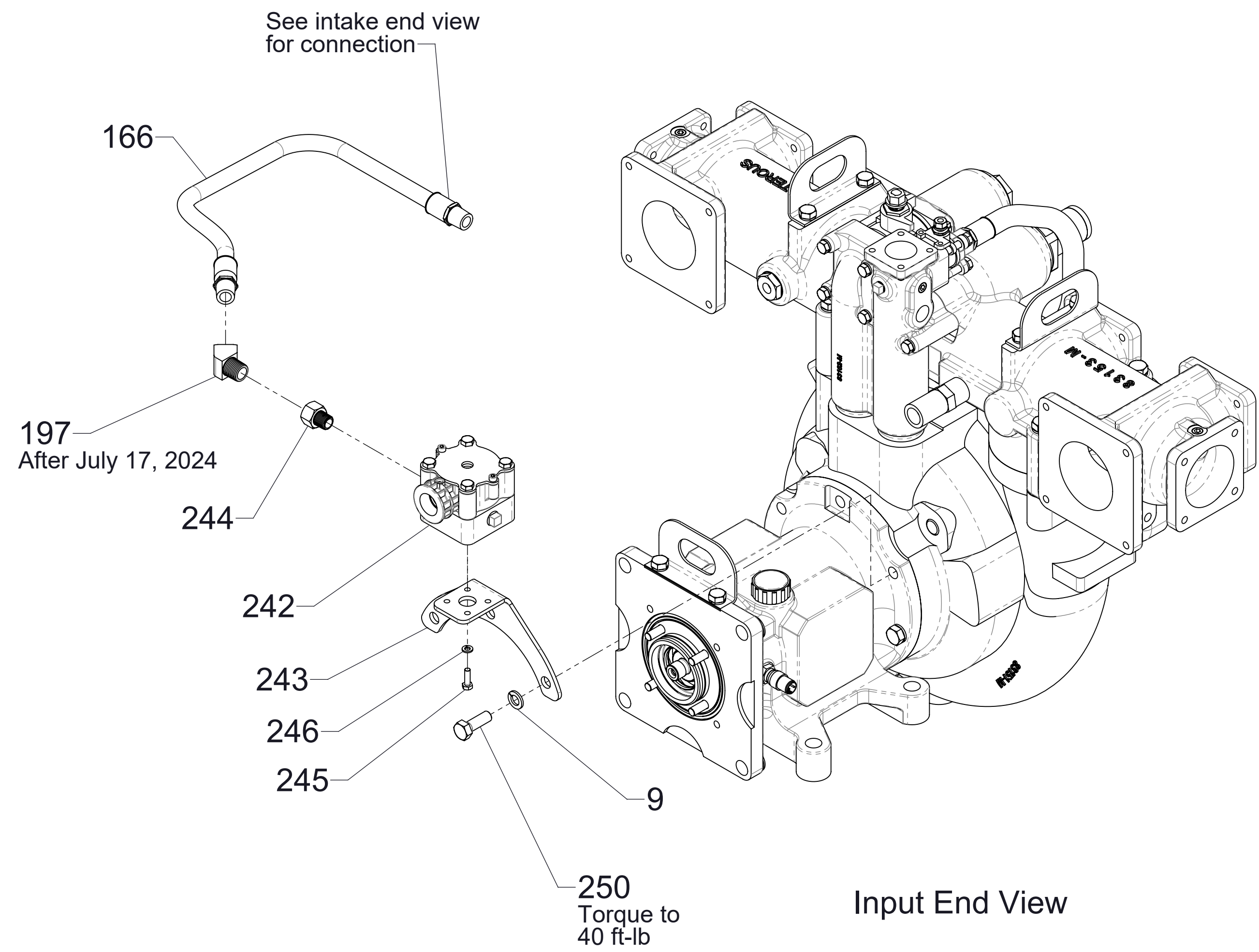
Without VAP
(No priming pump ordered)

Priming System VPOS and Mounted VAP

Model HLUPA

Ref No.	Description
9	Lock Washer, 12 mm
92	Headless Pipe Plug, 1/2 NPT
166	Hose Assembly, 1/2 NPT x 18 in.
197	Elbow-Street, 45°, 1/2 NPT
242	Priming Valve Subassembly
243	VAP Mounting Bracket

Ref No.	Description
244	Fitting, 1/2 NPTF x 3/8 NPTM
245	Hex Head Screw, M6-1 x 20 mm
246	Lock Washer, 6 mm
250	Hex Head Screw, M12-1.75 x 35 mm
252	Straight Adapter 3/8 PTC x 1/2 MNPT



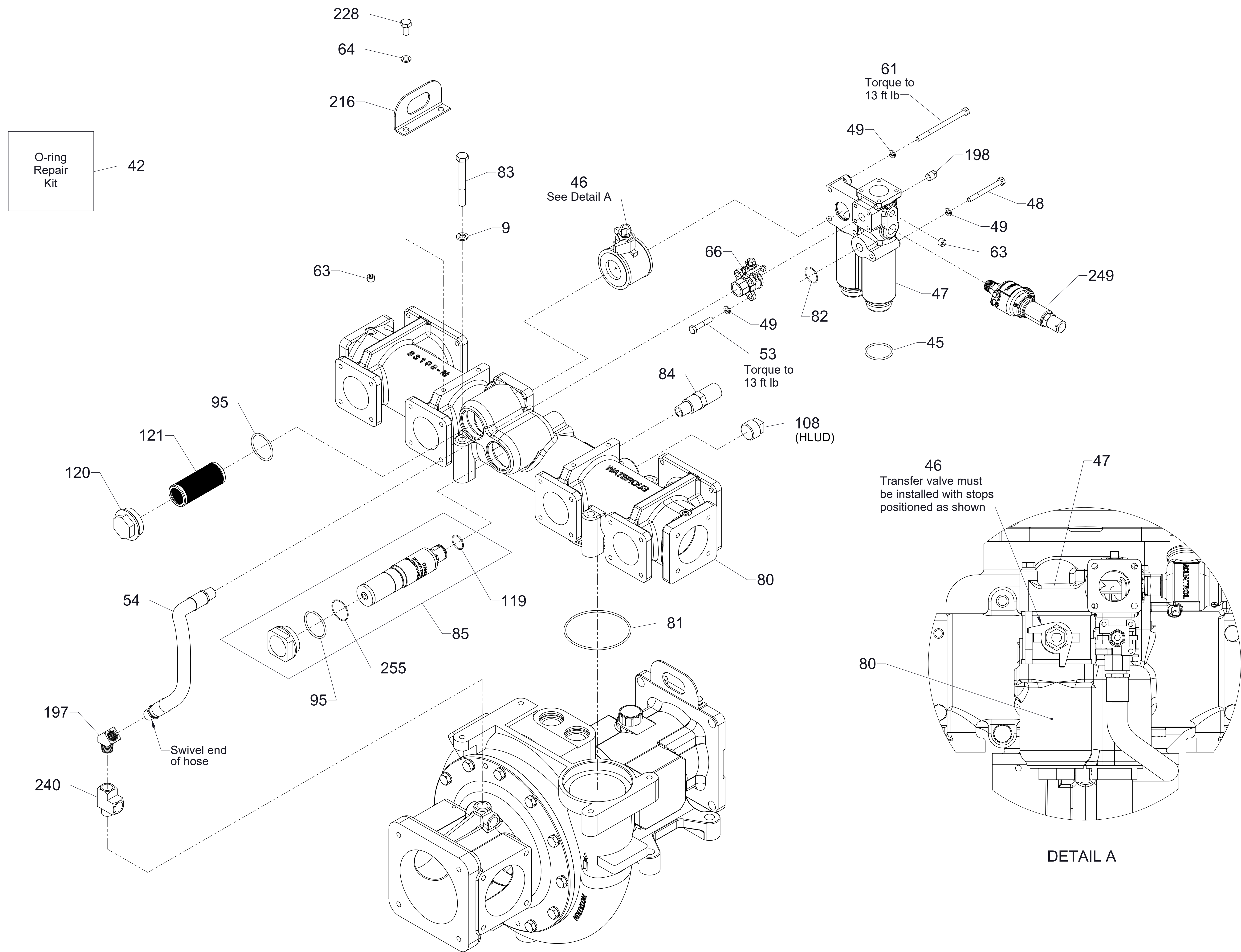
**Priming System
VPOS and Mounted VAP**
Model HLUPA

Discharge Manifold

HLUD - CW Input rotation (CCW impeller rotation)
HLUK - CCW Input rotation (CCW impeller rotation)

Ref No.	Description
9	Lock Washer, 12 mm
42	O-ring Repair Kit (Includes 44, 45, 81, 82, 89, 95, 119, 255 plus O-rings for Intake and Discharge Fittings, See Ref No. 42 on SPL83156 for additional O-rings furnished)
45	O-ring, 1-3/4 x 2 in.
46	Transfer Valve, 1-1/2 in. (Includes 7/16-14 UNC Hex Nut and Lockwasher)
47	Interstage Manifold
48	Hex Head Screw, M8-1.25 x 80 mm
49	Lock Washer, 8 mm
53	Hex Head Screw, M8-1.25 x 45 mm
54	Hose Assembly, 1/2 NPT x 14 in.
61	Hex Head Screw, M8-1.25 x 120 mm
63	Pipe Plug, 1/4 in. BSP
64	Lock Washer, 10 mm
66	Ball Valve, 1/2 in. NPT (Includes 3/8-16 UNC Hex Nut and Lockwasher)
80	Discharge Manifold
81	O-ring, 4-1/2 x 4-3/4 in.

Ref No.	Description
82	O-ring, 1-1/8 x 1-1/4 in.
83	Hex Head Screw, M12-1.75 x 100 mm
84	Thermal Relief Valve
85	Discharge Relief Valve Assembly (Includes 95, 119, 239)
95	O-ring, 1-7/8 x 2-1/8 in.
108	Pipe Plug, 1 in. NPT
119	O-ring, 1 x 1-1/8 in.
120	Strainer End Cap
121	Strainer
197	Street Elbow, 45°, 1/2 NPT
198	Square Head Pipe Plug, 1/4 in. NPT
216	Lifting Bracket
228	Hex Head Screw, M10 x 1.50 x 20 mm
240	Street Tee, 1/2 in. NPT
249	Discharge Relief Valve
255	O-ring, 1-1/2 x 1-5/8 in.



Discharge Manifold

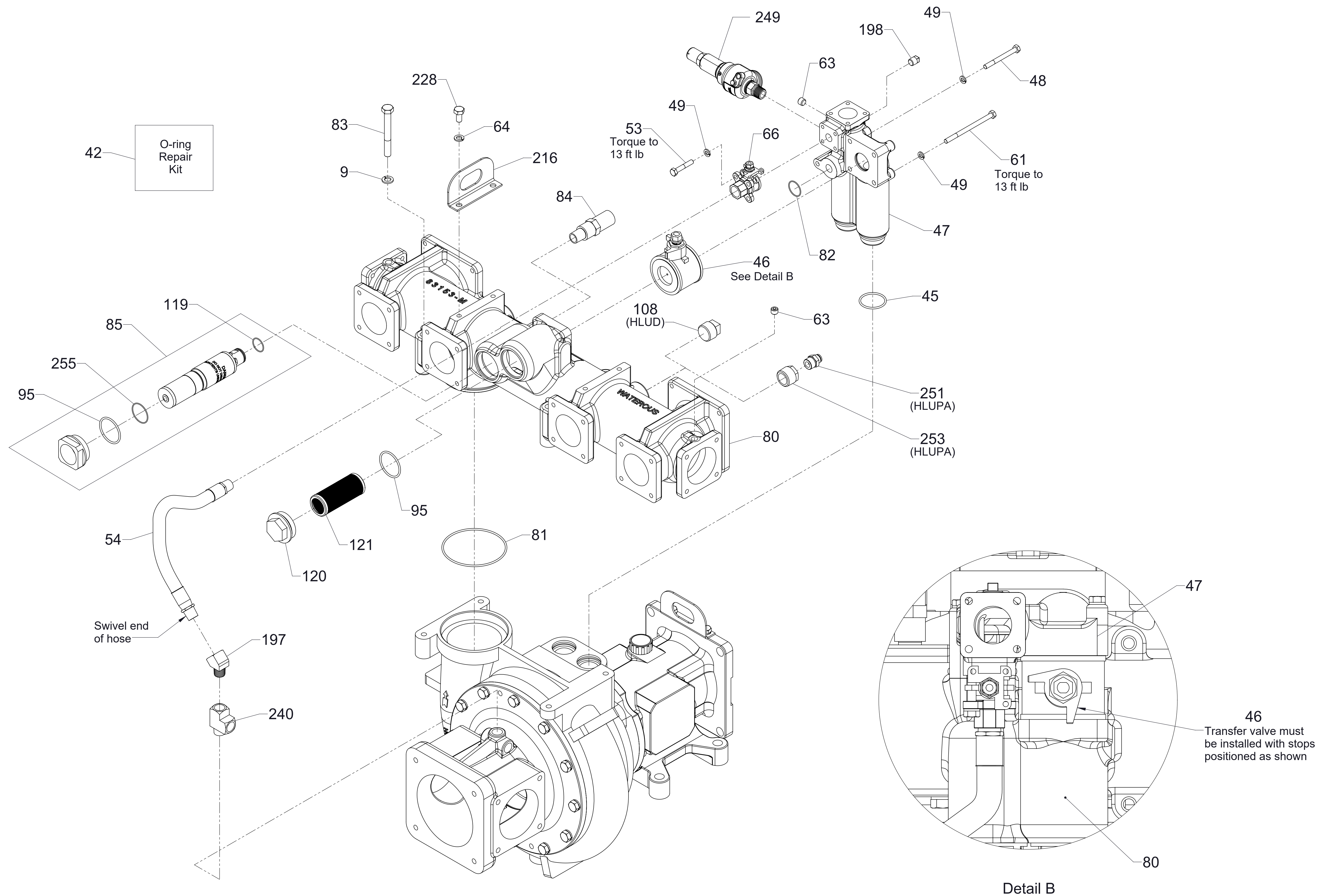
HLUD - CW Input rotation (CCW impeller rotation)
 HLUK - CCW Input rotation (CCW impeller rotation)

Discharge Manifold

HLUD - CCW Input rotation (CW impeller rotation)
 HLUK - CW Input rotation (CW impeller rotation)
 HLUPA - CW Input rotation (CW impeller rotation)

Ref No.	Description
9	Lock Washer, 12 mm
42	O-ring Repair Kit (Includes 44, 45, 81, 82, 89, 95, 119, 255 plus O-rings for Intake and Discharge Fittings, See Ref No. 42 on SPL83156 for additional O-rings furnished)
45	O-ring, 1-3/4 x 2 in.
46	Transfer Valve, 1-1/2 in. (Includes 7/16-14 UNC Hex Nut and Lockwasher)
47	Interstage Manifold
48	Hex Head Screw, M8-1.25 x 80 mm
49	Lock Washer, 8 mm
53	Hex Head Screw, M8-1.25 x 45 mm
54	Hose Assembly, 1/2 NPT x 14 in.
61	Hex Head Screw, M8-1.25 x 120 mm
63	Pipe Plug, 1/4 in. BSP
64	Lock Washer, 10 mm
66	Ball Valve, 1/2 in. NPT (Includes 3/8-16 UNC Hex Nut and Lockwasher)
80	Discharge Manifold
81	O-ring, 4-1/2 x 4-3/4 in.

Ref No.	Description
82	O-ring, 1-1/8 x 1-1/4 in.
83	Hex Head Screw, M12-1.75 x 100 mm
84	Thermal Relief Valve
85	Discharge Relief Valve Assembly (Includes 95, 119, 239)
95	O-ring, 1-7/8 x 2-1/8 in.
108	Pipe Plug, 1 in. NPT
119	O-ring, 1 x 1-1/8 in.
120	Strainer End Cap
121	Strainer
197	Street Elbow, 45°, 1/2 NPT
198	Square Head Pipe Plug, 1/4 in. NPT
216	Lifting Bracket
228	Hex Head Screw, M10 x 1.50 x 20 mm
240	Street Tee, 1/2 in. NPT
249	Discharge Relief Valve
251	Adapter, 3/8 PTC x 1/4 MNPT
253	Bushing-Reducing, 1 MNPT x 1/4 FNPT
255	O-ring, 1-1/2 x 1-5/8 in.



Discharge Manifold

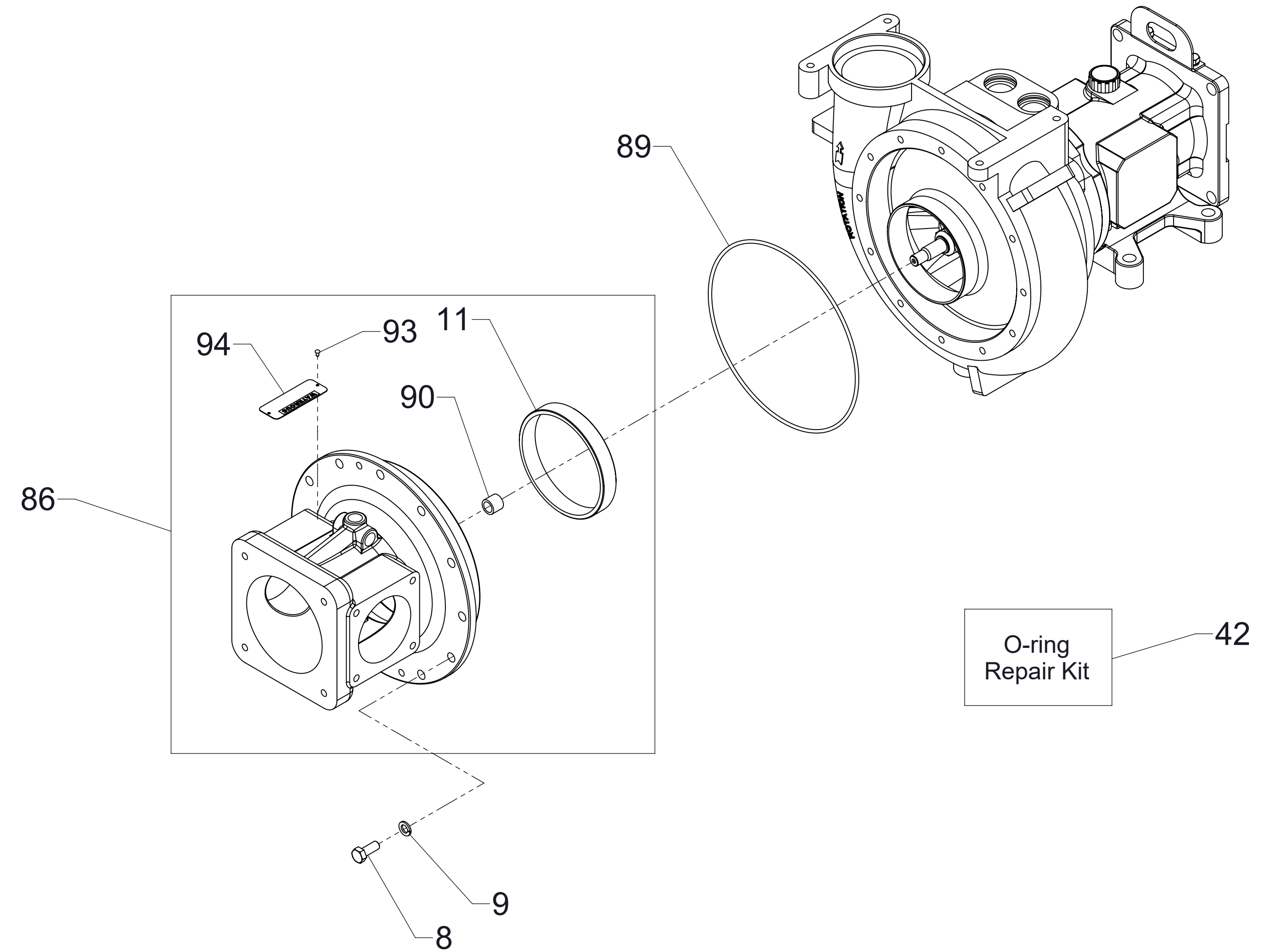
HLUD - CCW Input rotation (CW impeller rotation)
 HLUK - CW Input rotation (CW impeller rotation)
 HLUPA - CW Input rotation (CW impeller rotation)

Intake Adapter

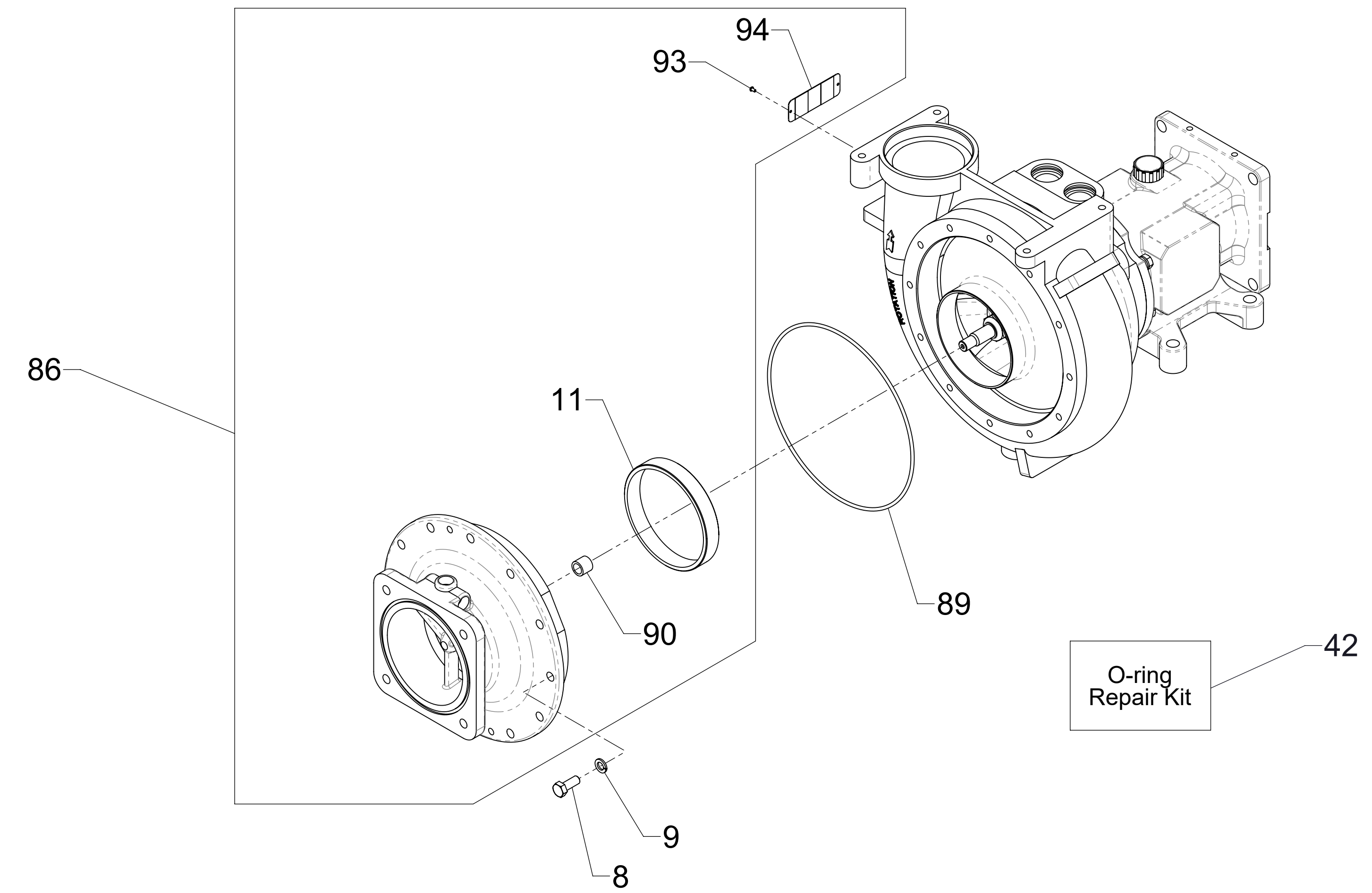
All Models

Ref No.	Description
8	Hex Head Screw, M12-1.75 x 30 mm
9	Lock Washer, 12 mm
11	Wear Ring
42	O-ring Repair Kit (Includes 44, 45, 81, 82, 89, 95, 119, 255 plus O-rings for Intake and Discharge Fittings, See Ref No. 42 on SPL83156 for additional O-rings furnished)
86	Intake Fitting Assembly (Includes 11, 90, 93, 94)

Ref. No.	Description
89	O-ring, 11 x 11-3/8 in.
90	Outboard Bearing
93	Drive Screw, No. 6 x 1/4 in.
94	Serial Plate



Standard Intake Fitting



Short Intake Fitting
(Used after April 11, 2023)

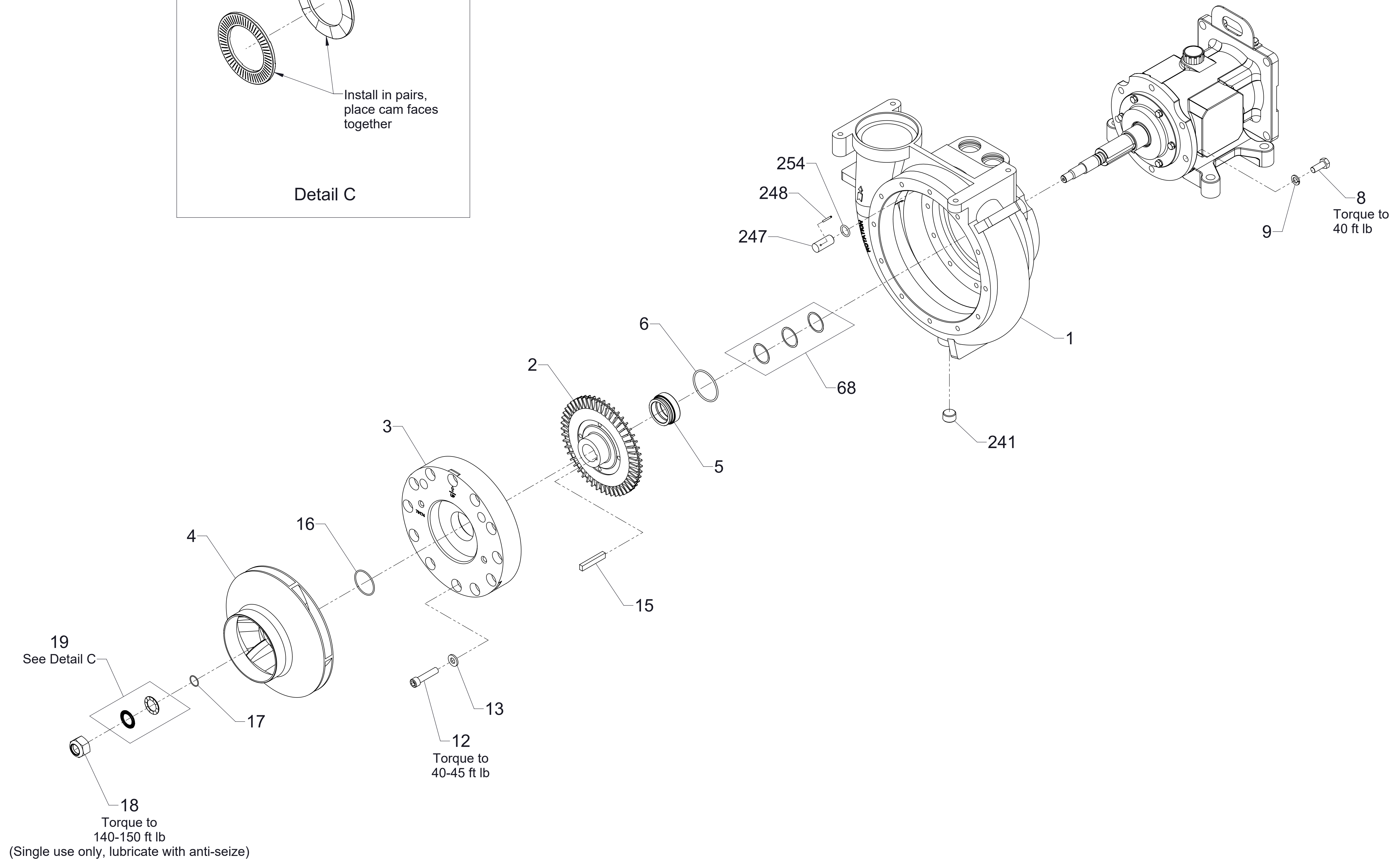
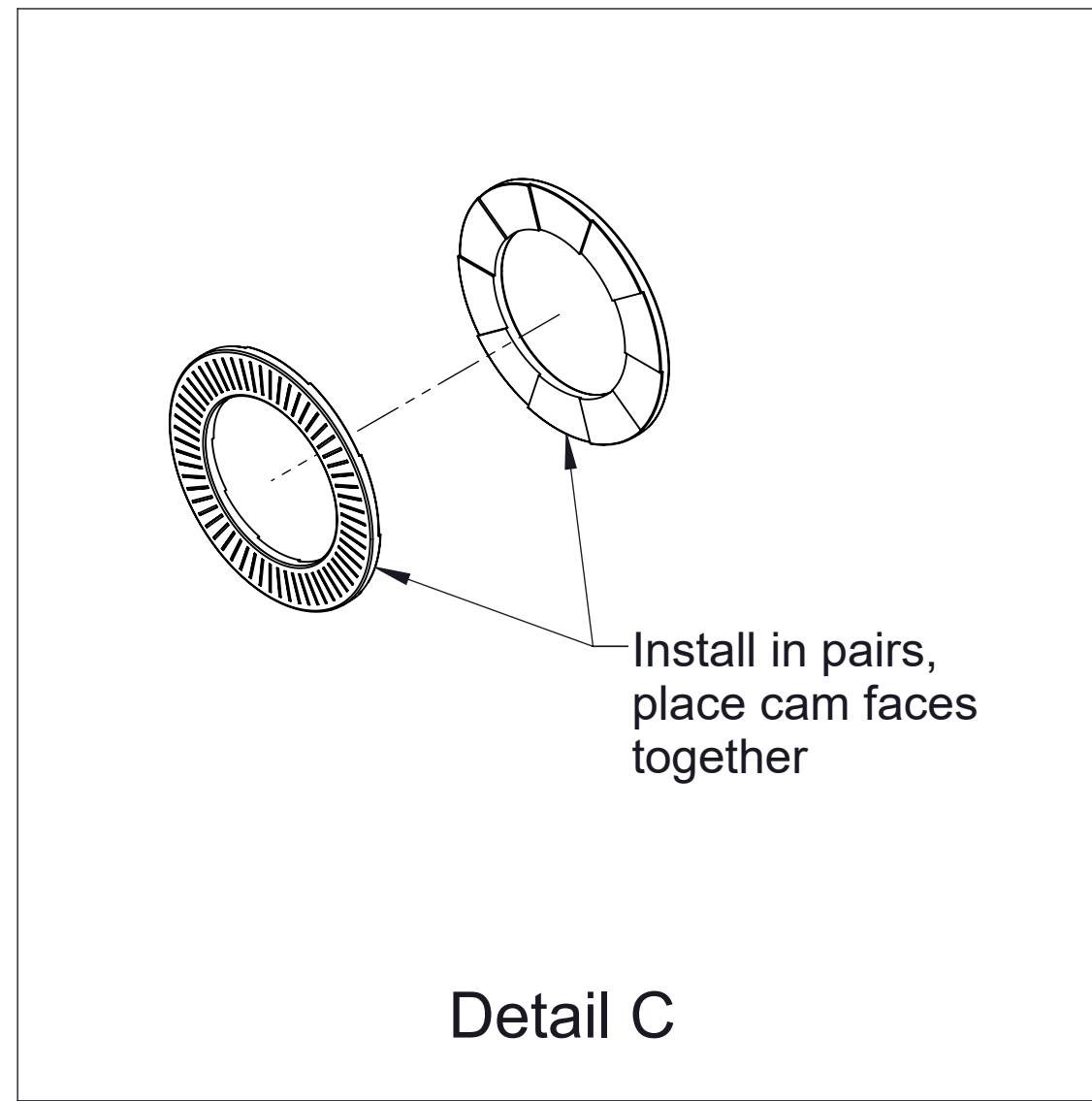
Intake Adapter
All Models
(HLUD, CCW Input Rotation Shown)

Pump - Body and Impellers

All Models

Ref No.	Description
1	Volute Body
2	High Pressure Stage Impeller
3	Separator Plate
4	Main Stage Impeller
5	Mechanical Seal Repair Kit (Includes 6, 16, 17, 18, 19, 68, 89)
6	O-ring, 2-1/2 x 2-3/4 in.
8	Hex Head Screw, M12-1.75 x 30 mm
9	Lock Washer, 12 mm
12	Socket Head Screw, M12-1.75 x 55 mm
13	Flat Washer, 12mm

Ref No.	Description
15	Rectangular Key, 8 mm x 12 mm x 65 mm
16	O-ring, 2 x 2-3/16 in.
17	O-ring, 13/16 x 15/16 in.
18	Lock Nut
19	Nord Lock Washer, 24 mm
68	High Pressure Impeller Shim Pack (Includes .002, .005, .010 Thick Shims) See Overhaul Instruction F-1031, Section 4321 for shimming Instructions
241	Headless Pipe Plug, 3/4 NPT
247	Primer Passageway Plug
248	Spirol Pin, 1/8 x 1-1/4 in.
254	O-Ring, 3/4 x 1 in.



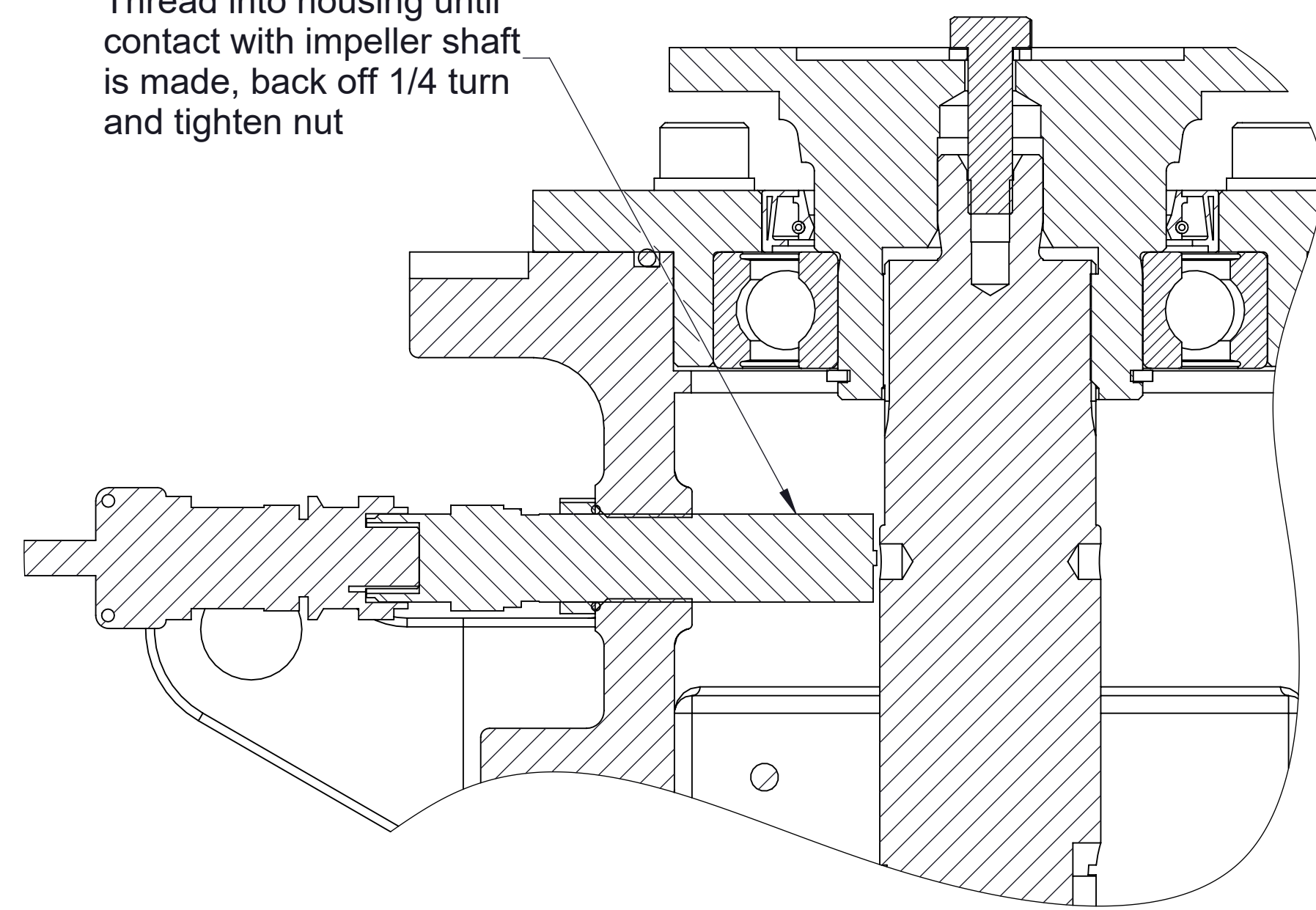
Pump - Impeller Shaft and Pedestal

Model HLU D

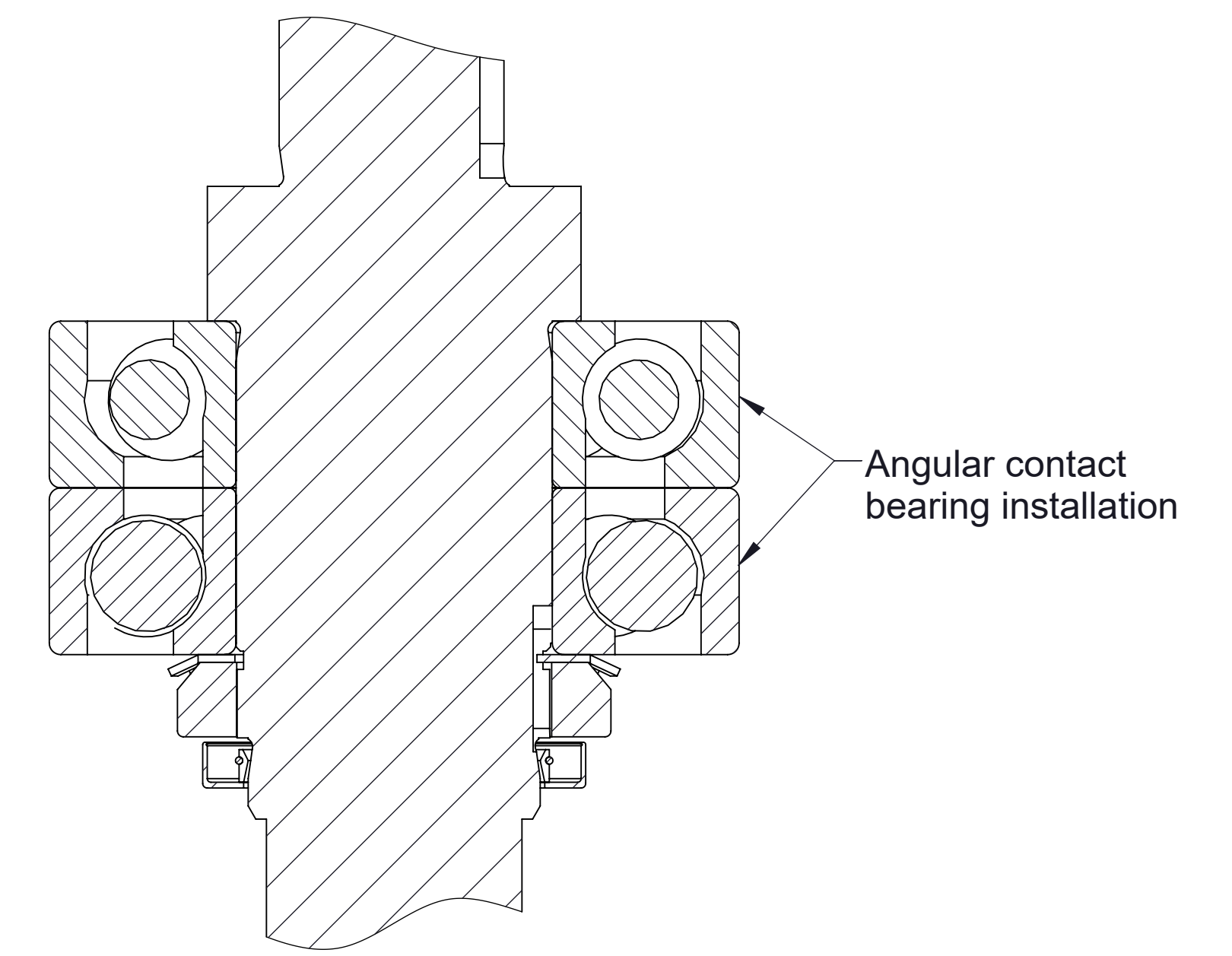
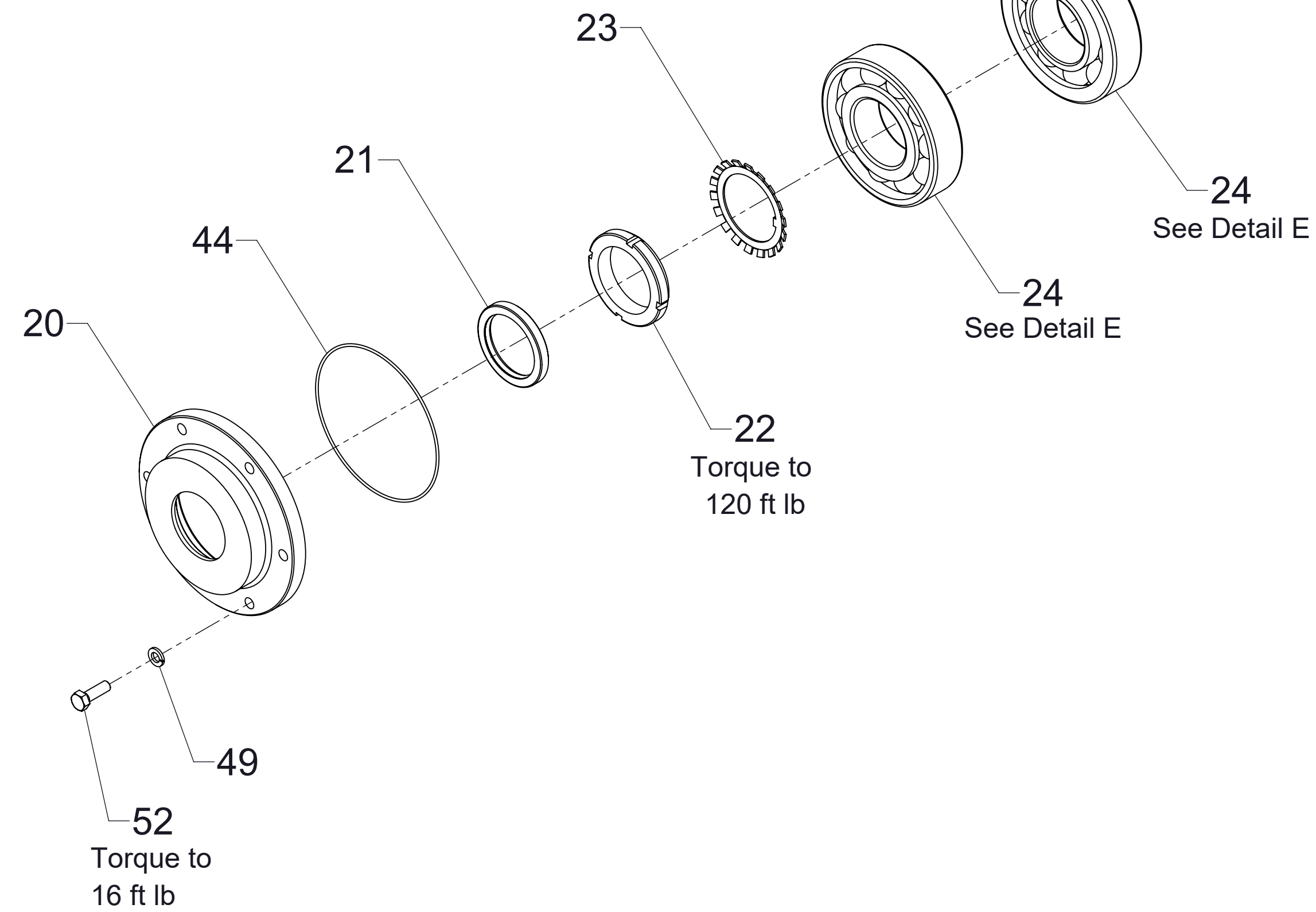
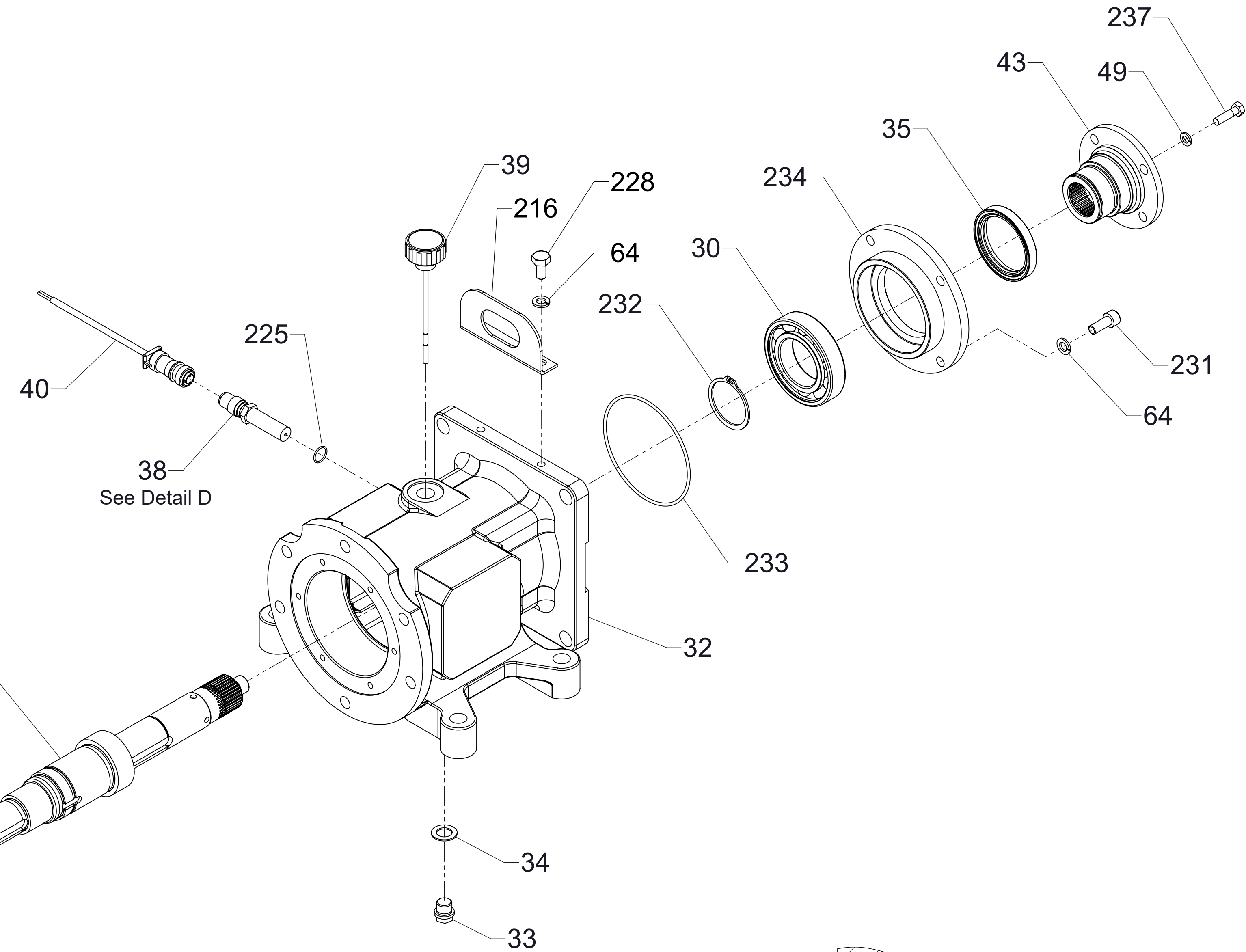
Ref No.	Description
20	Oil Seal Housing
21	Oil Seal, 2 x 2-5/8 x 5/16 in.
22	Bearing Lock Nut (N11)
23	Bearing Lock Washer (W11)
24	Ball Bearing, Angular Contact
25	Impeller Shaft
30	Single Row Ball Bearing
32	Pedestal Body
33	Hex Drain Plug, 16 mm
34	Copper Flat Washer, 5/8 in.
35	Oil Seal, 2-1/2 x 3-1/4 x 7/16 in.
38	Magnetic Tachometer Pick Up
39	Dip Stick

Ref No.	Description
40	Tachometer Cable
43	Companion Flange, 1410 Series
44	O-ring, 124 mm x 128 mm
49	Lock Washer, 8 mm
52	Hex Head Screw, M8-1.25 x 25 mm
64	Lock Washer, 10 mm
216	Bracket-Lifting
225	O-ring, 5/8 x 3/4 in.
228	Screw-Hex Hd, M10-1.5 x 20 mm
231	Socket Head Screw, M10-1.5 x 25 mm
232	Retaining Ring
233	O-ring, 4-3/4 x 5 in.
234	Bearing Housing
237	Hex Head Screw, M8-1.25 x 30 mm

Thread into housing until contact with impeller shaft is made, back off 1/4 turn and tighten nut



Detail D
Tachometer Pickup
Installation



Detail E

Pump - Impeller Shaft and Pedestal
Model HLUD

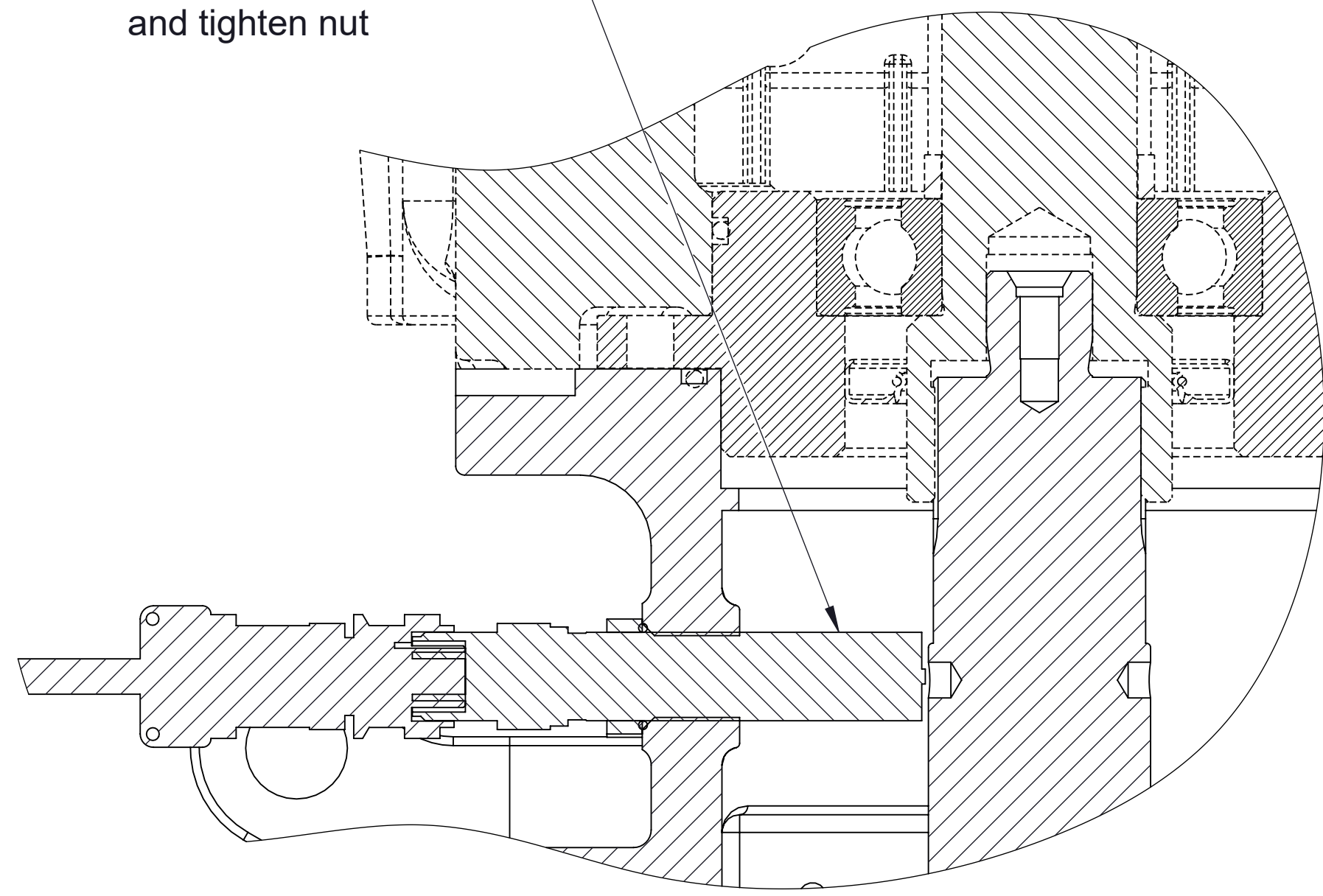
Pump - Impeller Shaft and Pedestal

Model HLUK

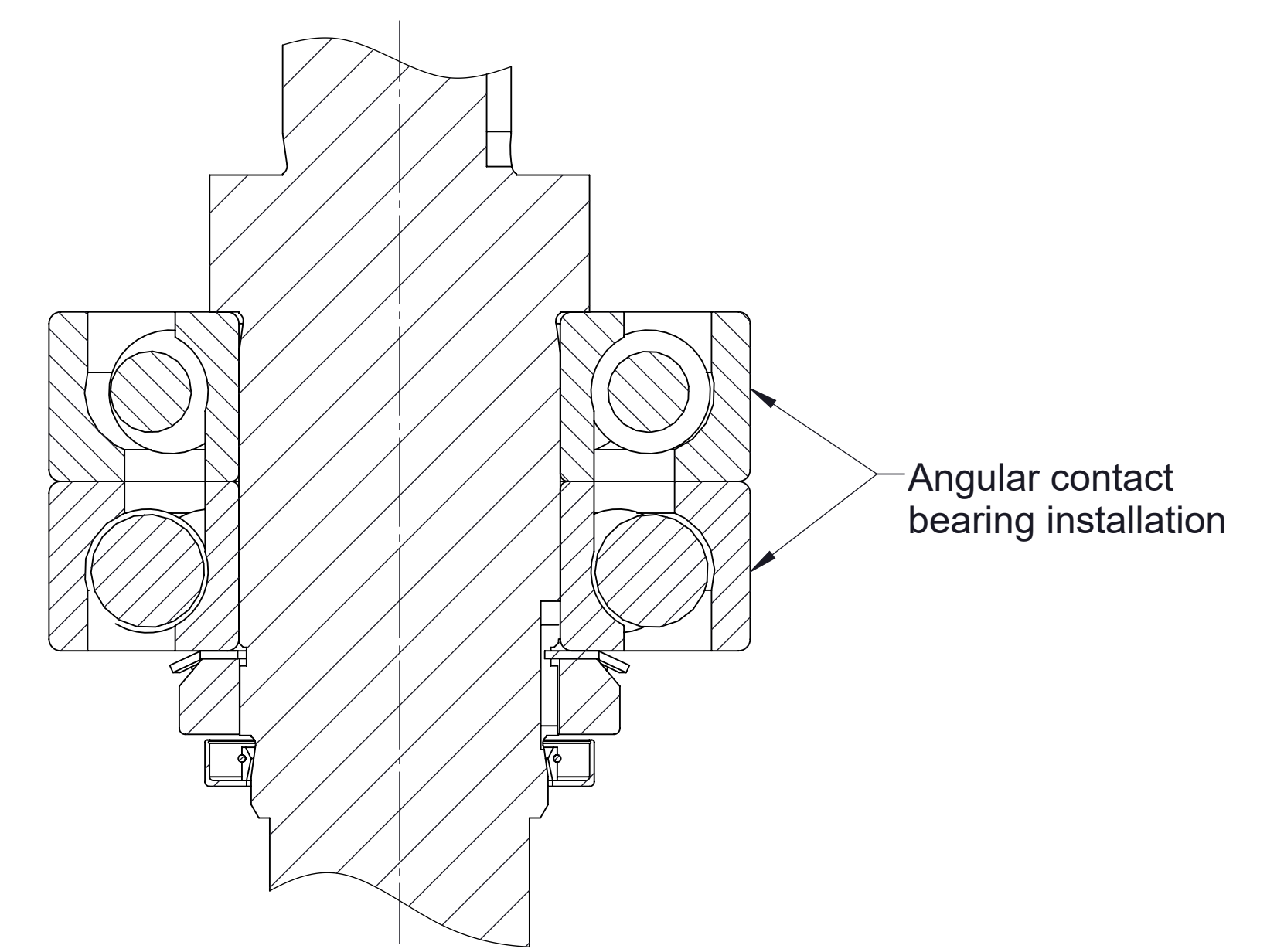
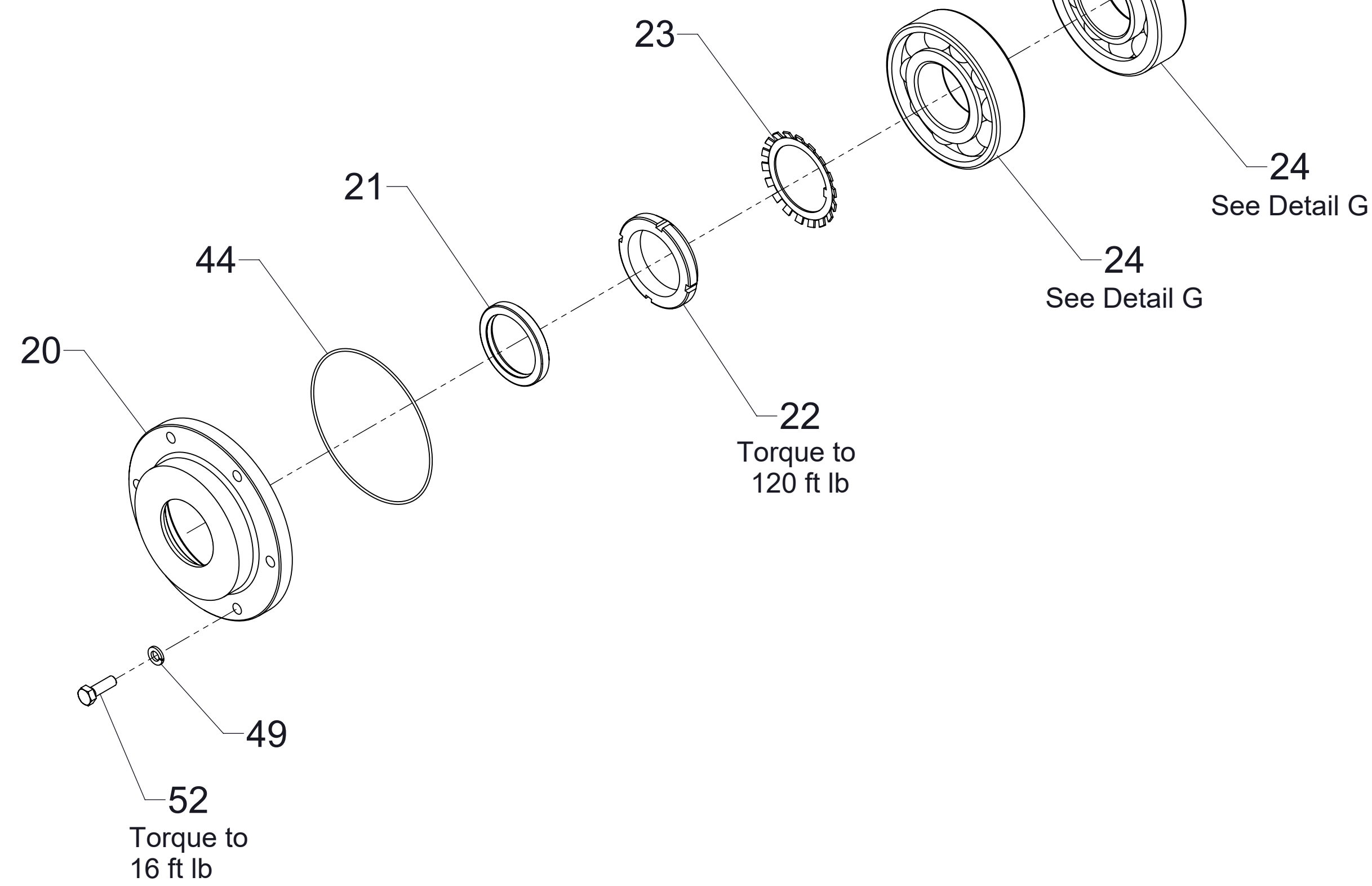
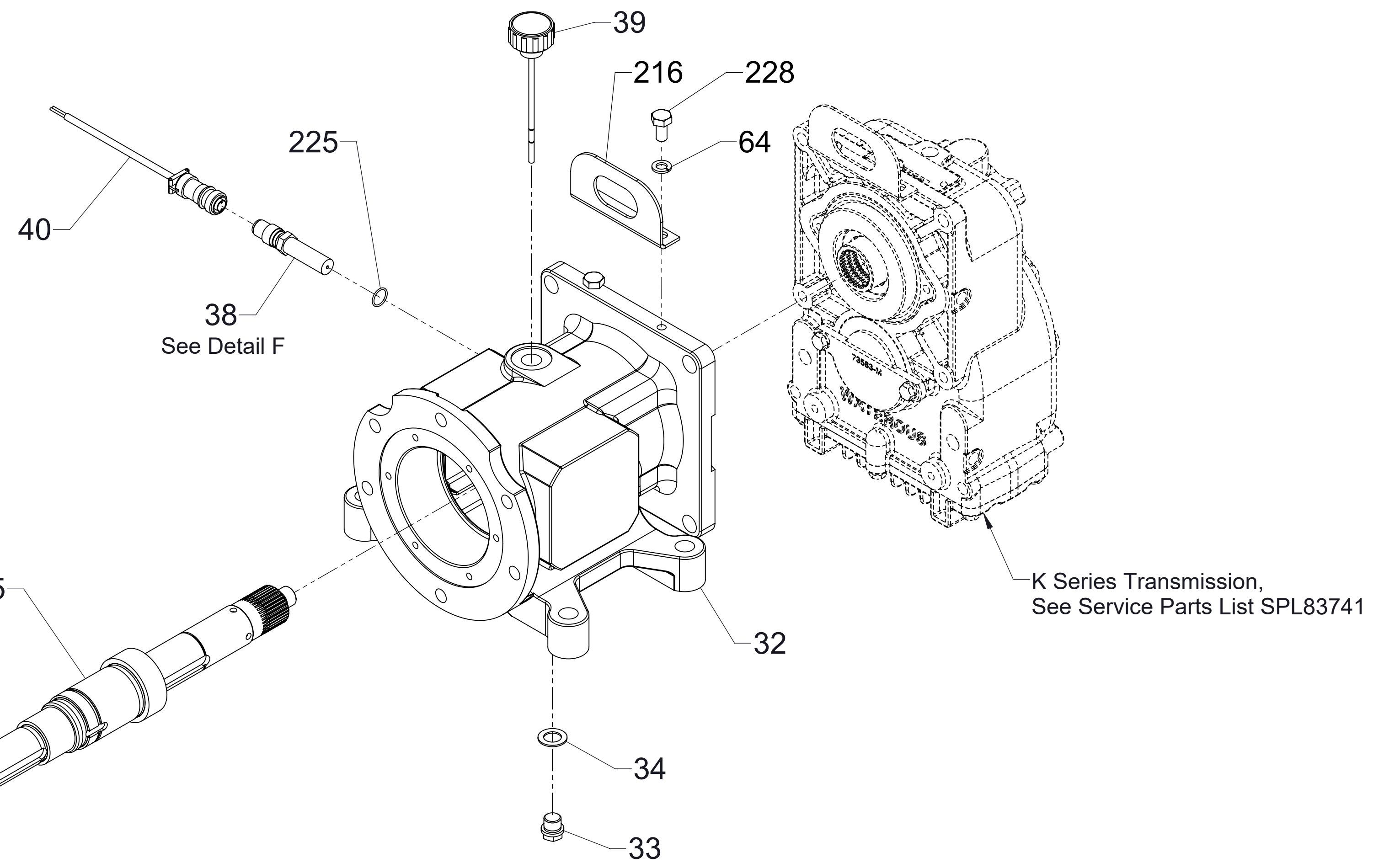
Ref No.	Description
20	Oil Seal Housing
21	Oil Seal, 2 x 2-5/8 x 5/16 in.
22	Bearing Lock Nut (N11)
23	Bearing Lock Washer (W11)
24	Ball Bearing, Angular Contact
25	Impeller Shaft
32	Pedestal Body
33	Hex Drain Plug, 16 mm

Ref No.	Description
34	Copper Flat Washer, 5/8 in.
38	Magnetic Tachometer Pick Up
39	Dip Stick
40	Tachometer Cable
44	O-ring, 124 mm x 128 mm
49	Lock Washer, 8 mm
52	Hex Head Screw, M8-1.25 x 25 mm
64	Washer-Lock, 10 mm
216	Bracket-Lifting
225	O-ring, 5/8 x 3/4 in.
228	Screw-Hex Hd, M10-1.5 x 20 mm

Thread into housing until contact with impeller shaft is made, back off 1/4 turn and tighten nut



Detail F
Tachometer Pickup
Installation



Detail G

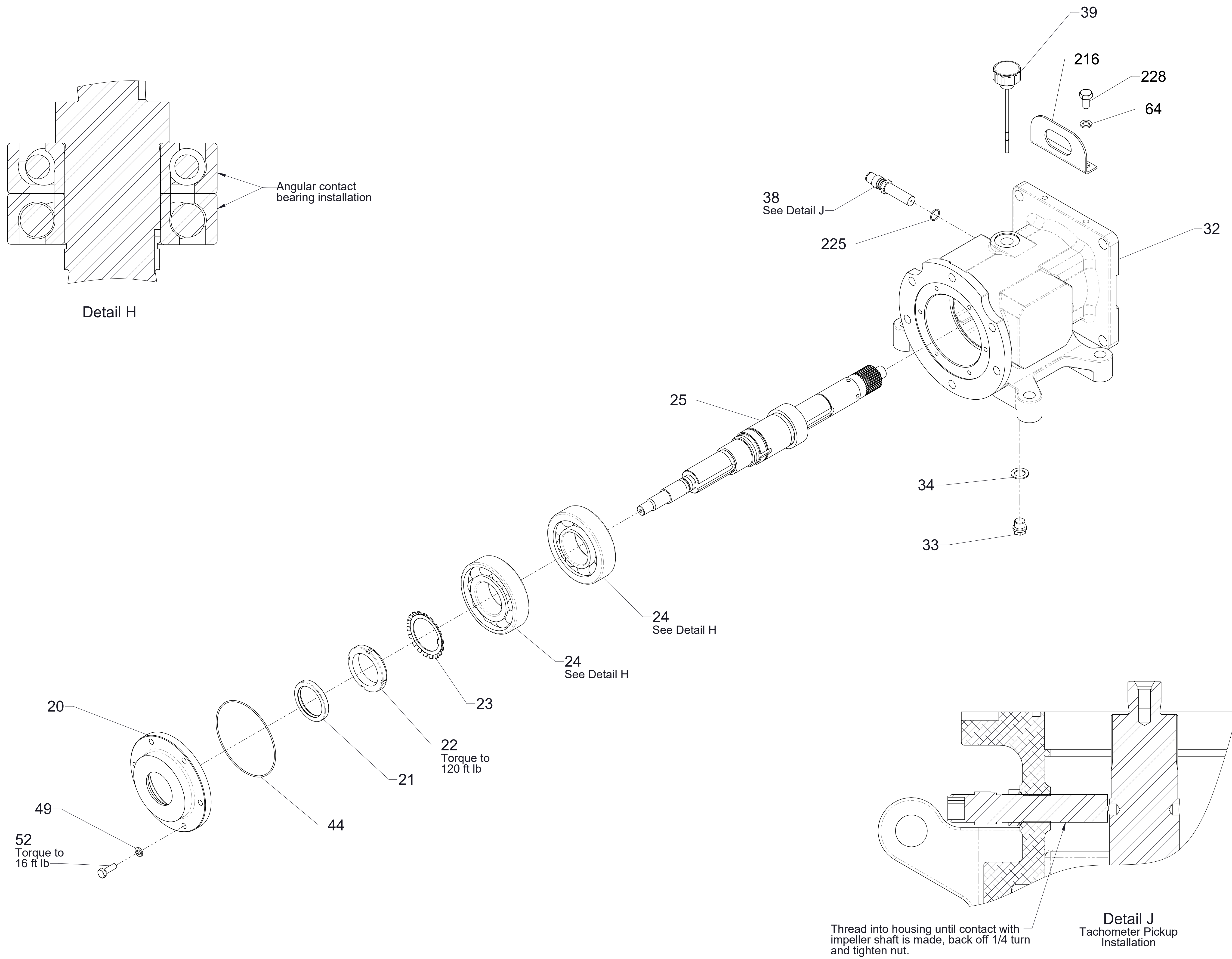
Pump - Impeller Shaft and Pedestal
Model HLUK

Pump - Impeller Shaft and Pedestal

Model HLUPA

Ref No.	Description
20	Oil Seal housing
21	Oil Seal, 2 x 2-5/8 x 5/16 in.
22	Bearing Lock Nut (N11)
23	Bearing Lock Washer (W11)
24	Ball Bearing, Angluar Contact
25	Impeller Shaft
32	Pedestal Body
33	Hex Drain Plug, 16 mm

Ref No.	Description
34	Copper Flat Washer, 5/8 in.
38	Magnetic Tachometer Pick up
39	Dip Stick
44	O-ring, 124 mm x 128 mm
49	Lock Washer, 8 mm
52	Hex Head Screw, M8-1.25 x 25 mm
64	Washer-Lock, 10 mm
216	Bracket-Lifting
225	O-ring, 5/8 x 3/4 in.
228	Screw-Hex Hd, M10-1.5 x 20 mm



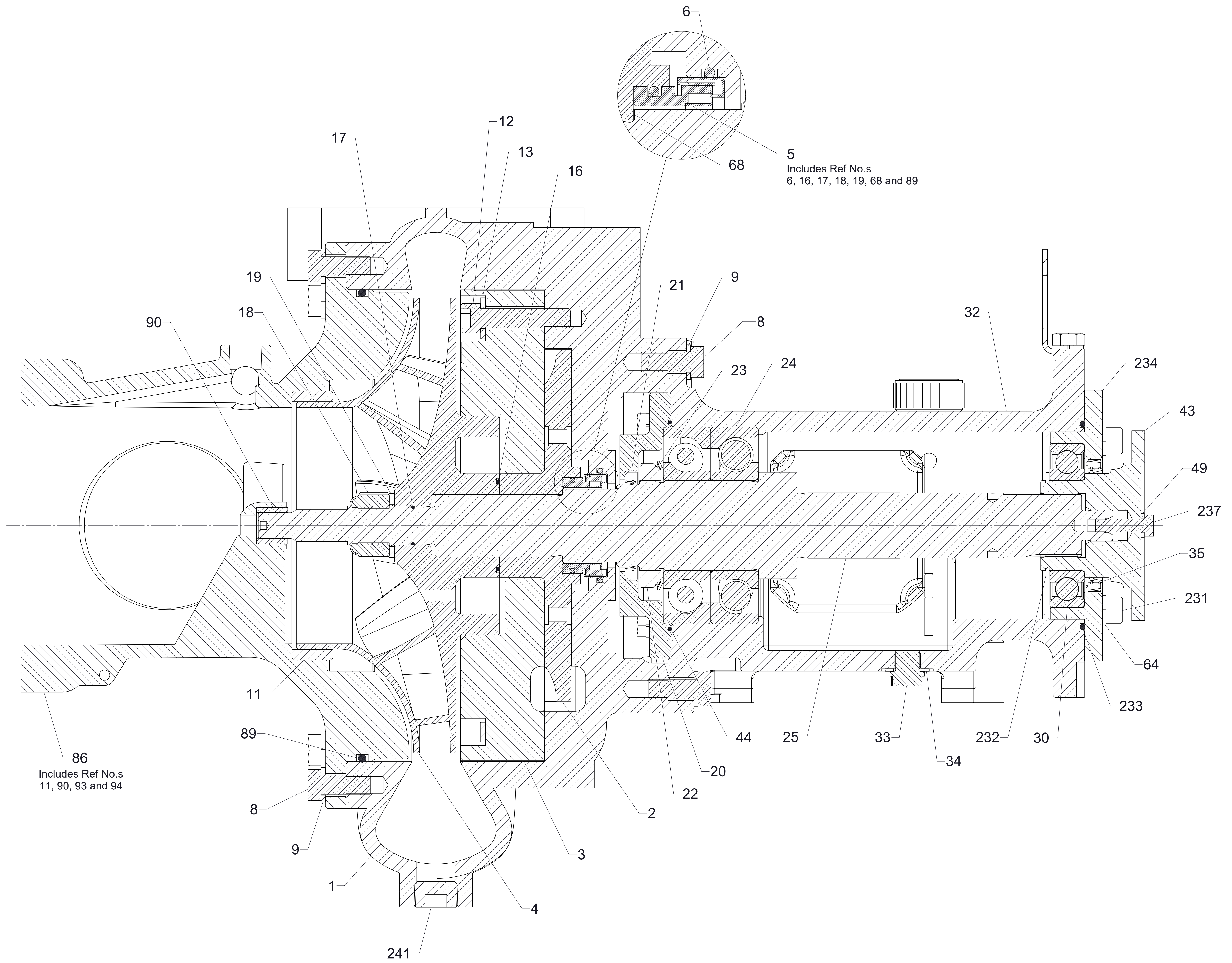
Pump - Impeller Shaft and Pedestal
Model HLUPA

Pump - Cross Section View

Model HLU D

Ref No.	Description
1	Volute Body
2	High Pressure Stage Impeller
3	Separator Plate
4	Main Stage Impeller
5	Mechanical Seal Repair Kit (Includes 6, 16, 17, 18, 19, 68, 89)
6	O-ring, 2-1/2 x 2-3/4 in.
8	Hex Head Screw, M12-1.75 x 30 mm
9	Lock Washer, 12 mm
11	Wear Ring
12	Socket Head Screw, M12-1.75 x 55 mm
13	Flat Washer, 12 mm
16	O-ring, 2 x 2-3/16 in.
17	O-ring, 13/16 x 15/16 in.
18	Lock Nut
19	Nord Lock Washer, 24 mm
20	Oil Seal Housing
21	Oil Seal, 2 x 2-5/8 x 5/16 in.
22	Bearing Lock Nut (N11)
23	Bearing Lock Washer (W11)
24	Ball Bearing, Angular Contact

Ref No.	Description
25	Impeller Shaft
30	Single Row Ball Bearing
32	Pedestal Body
33	Hex Drain Plug, 16 mm
34	Copper Flat Washer, 5/8 in.
35	Oil Seal, 2-1/2 x 3-1/4 x 7/16 in.
43	Companion Flange, 1410 Series
44	O-ring, 124 mm x 128 mm
49	Lock Washer, 8 mm
64	Lock Washer, 10 mm
68	High Pressure Impeller Shim Pack (Includes .002, .005, .010 Thick Shims) See Overhaul Instruction F-1031, Section 4321 for Shimming Instructions
86	Intake Fitting Assembly (Includes 11, 90, 93, 94)
89	O-ring, 11 x 11-3/8 in.
90	Outboard Bearing
231	Socket Head Screw, M10-1.5 x 25 mm
232	Retaining Ring
233	O-ring, 4-3/4 x 5 in.
234	Bearing Housing
237	Hex Head Screw, M8-1.25 x 30 mm
241	Headless Pipe Plug, 3/4 NPT



86
Includes Ref No.s
11, 90, 93 and 94

5
Includes Ref No.s
6, 16, 17, 18, 19, 68 and 89

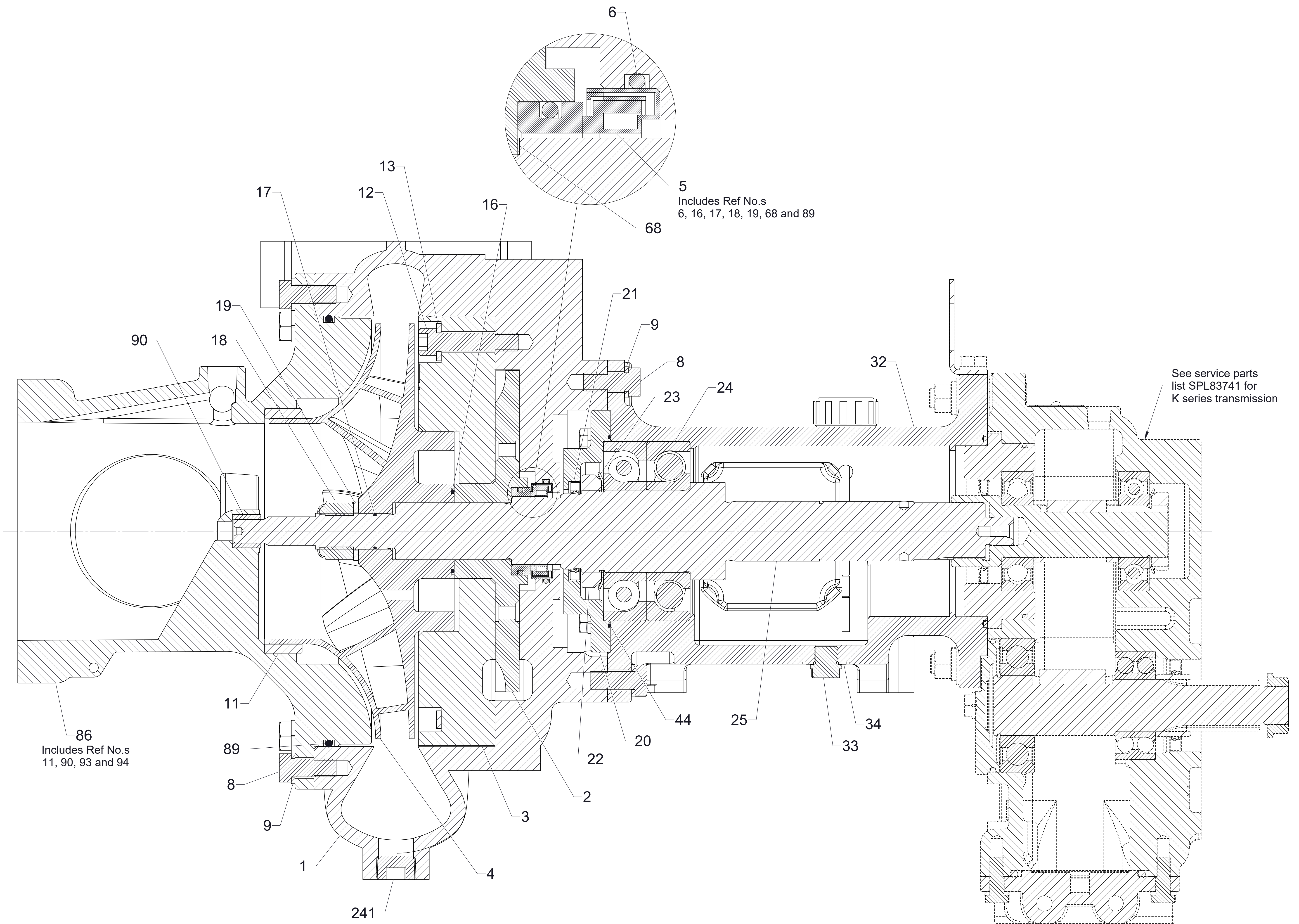
Pump - Cross-Section View
Model HLU D

Pump - Cross Section View

Model HLUK

Ref No.	Description
1	Volute Body
2	High Pressure Stage Impeller
3	Separator Plate
4	Main Stage Impeller
5	Mechanical Seal Repair Kit (Includes 6, 16, 17, 18, 19, 68, 89)
6	O-ring, 2-1/2 x 2-3/4 in.
8	Hex Head Screw, M12-1.75 x 30 mm
9	Lock Washer, 12 mm
11	Wear Ring
12	Socket Head Screw, M12-1.75 x 55 mm
13	Flat Washer, 12 mm
16	O-ring, 2 x 2-3/16 in.
17	O-ring, 13/16 x 15/16 in.
18	Lock Nut
19	Nord Lock Washer, 24 mm

Ref No.	Description
20	Oil Seal Housing
21	Oil Seal, 2 x 2-5/8 x 5/16 in.
22	Bearing Lock Nut (N11)
23	Bearing Lock Washer (W11)
24	Ball Bearing, Angular Contact
25	Impeller Shaft
32	Pedestal Body
33	Hex Drain Plug, 16 mm
34	Copper Flat Washer, 5/8 in.
44	O-ring, 124 mm x 128 mm
68	High Pressure Impeller Shim Pack (Includes .002, .005, .010 Thick Shims) See Overhaul Instruction F-1031, Section 4321 for Shimming Instructions
86	Intake Fitting Assembly (Includes 11, 90, 93, 94)
89	O-ring, 11 x 11-3/8 in.
90	Outboard Bearing
241	Headless Pipe Plug, 3/4 NPT



5
Includes Ref No.s
6, 16, 17, 18, 19, 68 and 89

86
Includes Ref No.s
11, 90, 93 and 94

See service parts
list SPL83741 for
K series transmission

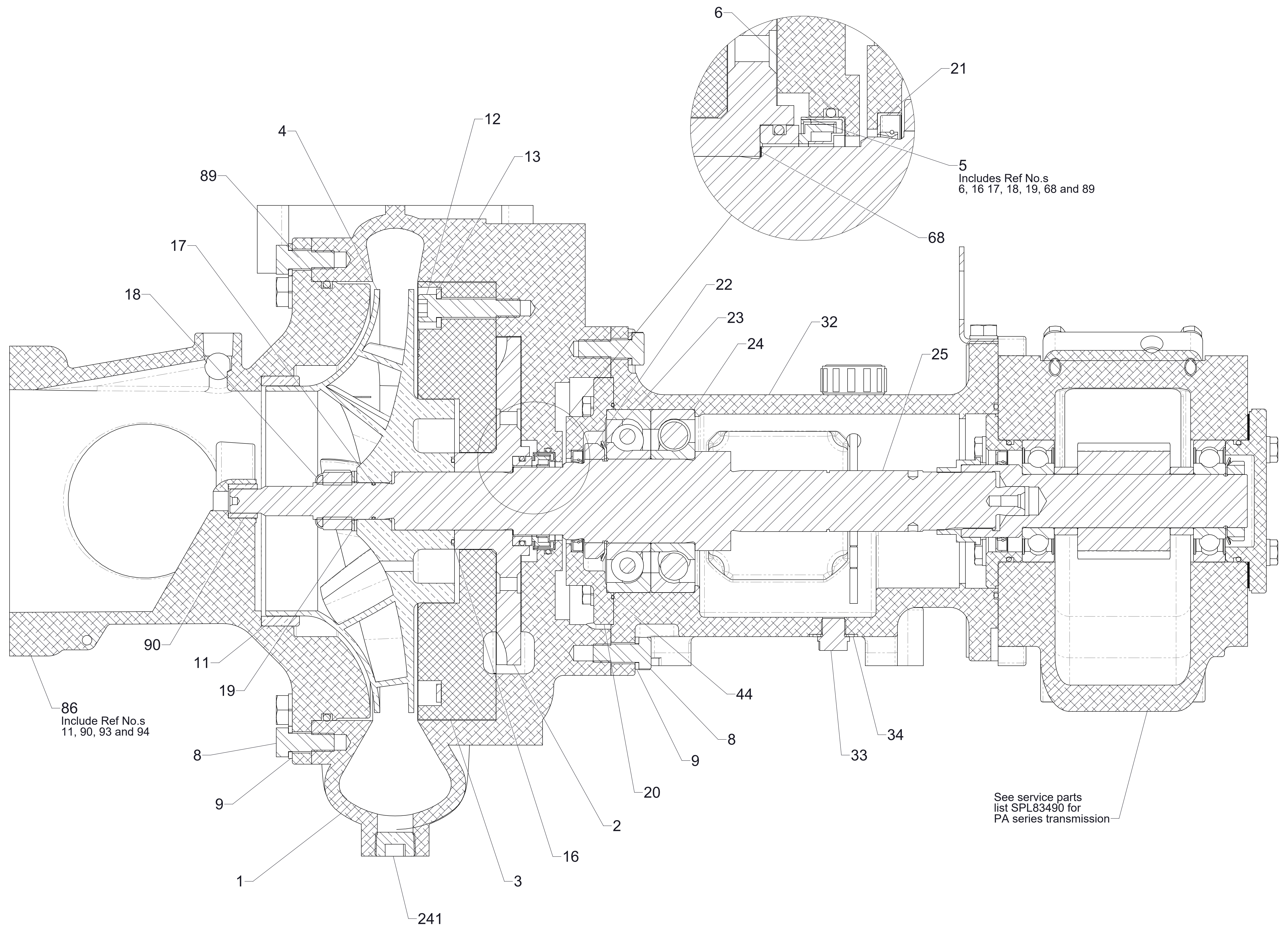
Pump - Cross-Section View
Model HLUK

Pump - Cross Section View

Model HLUPA

Ref No.	Description
1	Volute Body
2	High Pressure Stage Impeller
3	Separator Plate
4	Main Stage Impeller
5	Mechanical Seal Repair Kit (Includes 6, 16, 17, 18, 19, 68, 89)
6	O-ring, 2-1/2 x 2-3/4 in.
8	Hex Head Screw, M12-1.75 x 30 mm
9	Lock Washer, 12 mm
11	Wear Ring
12	Socket Head Screw, M12-1.75 x 55 mm
13	Flat Washer, 12 mm
16	O-ring, 2 x 2-3/16 in.
17	O-ring, 13/16 x 15/16 in.
18	Lock Nut
19	Nord Lock Washer, 24 mm
20	Oil Seal Housing

Ref No.	Description
21	Oil Seal, 2 x 2-5/8 x 5/16 in.
22	Bearing Lock Nut (N11)
23	Bearing Lock Washer (W11)
24	Ball Bearing, Angular Contact
25	Impeller Shaft
32	Pedestal Body
33	Hex Drain Plug, 16 mm
34	Copper Flat Washer, 5/8 in.
44	O-ring, 124 mm x 128 mm
68	High Pressure Impeller Shim Pack (Includes .002, .005, .010 Thick Shims) See Overhaul Instruction F-1031, Section 4321 for Shimming Instructions
86	Intake Fitting Assembly (Includes 11, 90, 93, 94)
89	O-ring, 11 x 11-3/8 in.
90	Outboard Bearing
241	Headless Pipe Plug, 3/4 NPT



Pump - Cross-Section View
 Model HLUPA
 (Without VAP Shown)