

HALE TYPE QMAX-XS PUMP ASSEMBLY

FOR ADDITIONAL OPTIONS AND ACCESSORIES REFER TO THE FOLLOWING DRAWINGS.

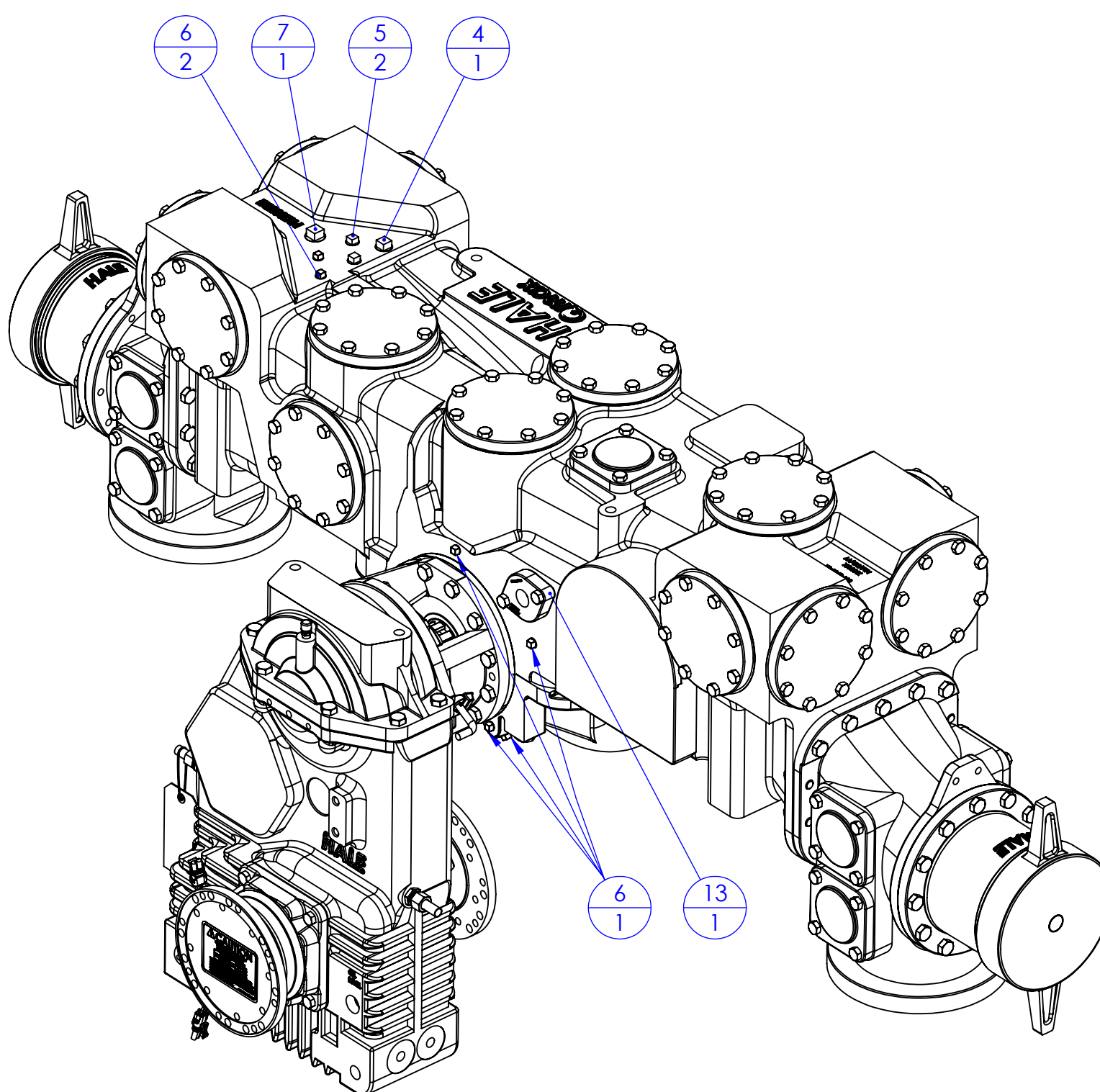
OPTION	DRAWING NUMBER
ESP PRIMING PUMP	PL821
PVG PRIMING VALVE	PL480
SPV PRIMING VALVE	PL819
SPEED COUNTER ADAPTER	PL910
PUMP SHIFT INDICATOR LIGHTS	PL748
SG/LG/XLG GEARBOX ASSEMBLY	PL914
SUCTION & DISCHARGE ADAPTERS	PL831

GEARBOX GASKET TABLE	
GEARBOX	GASKET PART NUMBER
LG GEARBOX	046-6020-00-0
XG GEARBOX	046-6020-00-0
SG GEARBOX	046-6460-00-0

SUCTION TUBE TABLE				
SIZE	SUCTION TUBE P/N	SUCTION TUBE STRAINER P/N	WASHER P/N	CHROME PLATED SUCTION CAP P/N
5 INCH	007-0020-00-0	010-0020-00-0	097-0040-00-0	008-0020-00-0
6 INCH	007-0030-00-0	010-0030-00-0	097-0050-00-0	008-0030-00-0

NOTES:

- SEE LIMIT CHART, HALE DOCUMENT F-72 FOR MAXIMUM ALLOWABLE PUMP PRESSURE, ENGINE HORSEPOWER AND TORQUE LIMITS FOR HALE CENTRIFUGAL PUMPS
- APPLY LOCTITE #246 HIGH TEMPERATURE THREAD LOCKER OR EQUIVALENT TO SCREW THREADS AND TORQUE SCREWS PER HALE ENGINEERING STANDARD ES018-002
- UNLESS OTHERWISE INDICATED FASTENERS ARE GRADE 5 ZINC PLATED STEEL



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	COMMENTS
1	QMAX-XS PUMP BODY	QMAX-XS PUMP BODY	1	
2	018-2016-02-0	SCREW-1/2-13 X 1-3/4 ZINC PLTD	27	
3	018-2012-02-0	SCREW-1/2-13 X 1-1/4 SEE L.170	52	
4	217-0401-00-0	PLUG, SQU. 1/2 NPT	2	
5	217-0301-00-0	PLUG-3/8 NPT SQUARE HEAD	3	
6	217-0201-00-0	1/4 NPT SQUARE HEAD STEEL PLUG	8	
7	217-0501-00-0	PLUG-3/4 NPT M.I.	2	
8	IMPELLER ASSEMBLY	IMPELLER ASSEMBLY	1	SEE SHEET (2)
9	AUTO LUBE ASSEMBLY	AUTO LUBE ASSEMBLY	1	SEE SHEET (3)
10	159-1200-02-0	AUTO LUBE SPACER	1	
11	GEARBOX ASSEMBLY	GEARBOX ASSEMBLY	1	
12	018-1812-02-0	SCREW, 7/16-14 X 1-1/4L	8	
13	505-0210-00-0	ZMQ MOUNTING PLATE AND STRAIN	1	SEE SHEET (3)
14	046-0030-00-0	GASKET, SUCTION TUBE EXTENSION	2	
15	178-0063-00-0	SUCTION TUBE EXTENSION	2	
16	046-0040-00-0	T-W292 GASKET	2	
17	SUCTION TUBE	SUCTION TUBE	2	SEE SUCTION TUBE TABLE
18	SUCTION TUBE STRAINER	SUCTION TUBE STRAINER	2	SEE SUCTION TUBE TABLE
19	SUCTION TUBE CAP WASHER	SUCTION TUBE CAP WASHER	2	SEE SUCTION TUBE TABLE
20	SUCTION TUBE CAP	SUCTION TUBE CAP	2	SEE SUCTION TUBE TABLE
21	142-0390-00-0	SEAL RING, SQUARE	9	
23	115-0050-00-0	115-B FLANGE-BLANK	9	
23	046-0060-00-0	GASKET	13	
24	115-0010-00-0	FLANGE, 2433 BLANK	13	
25	018-1812-25-0	SCREW, 7/16-14 X 1.25, GR8	140	
26	018-2020-02-0	SCREW-1/2-13 X 2 ZINC PLATED	12	
27	GEARBOX GASKET	GEARBOX GASKET	1	SEE GEAR BOX GASKET TABLE
28	046-0940-00-0	PUMP BODY GASKET	1	

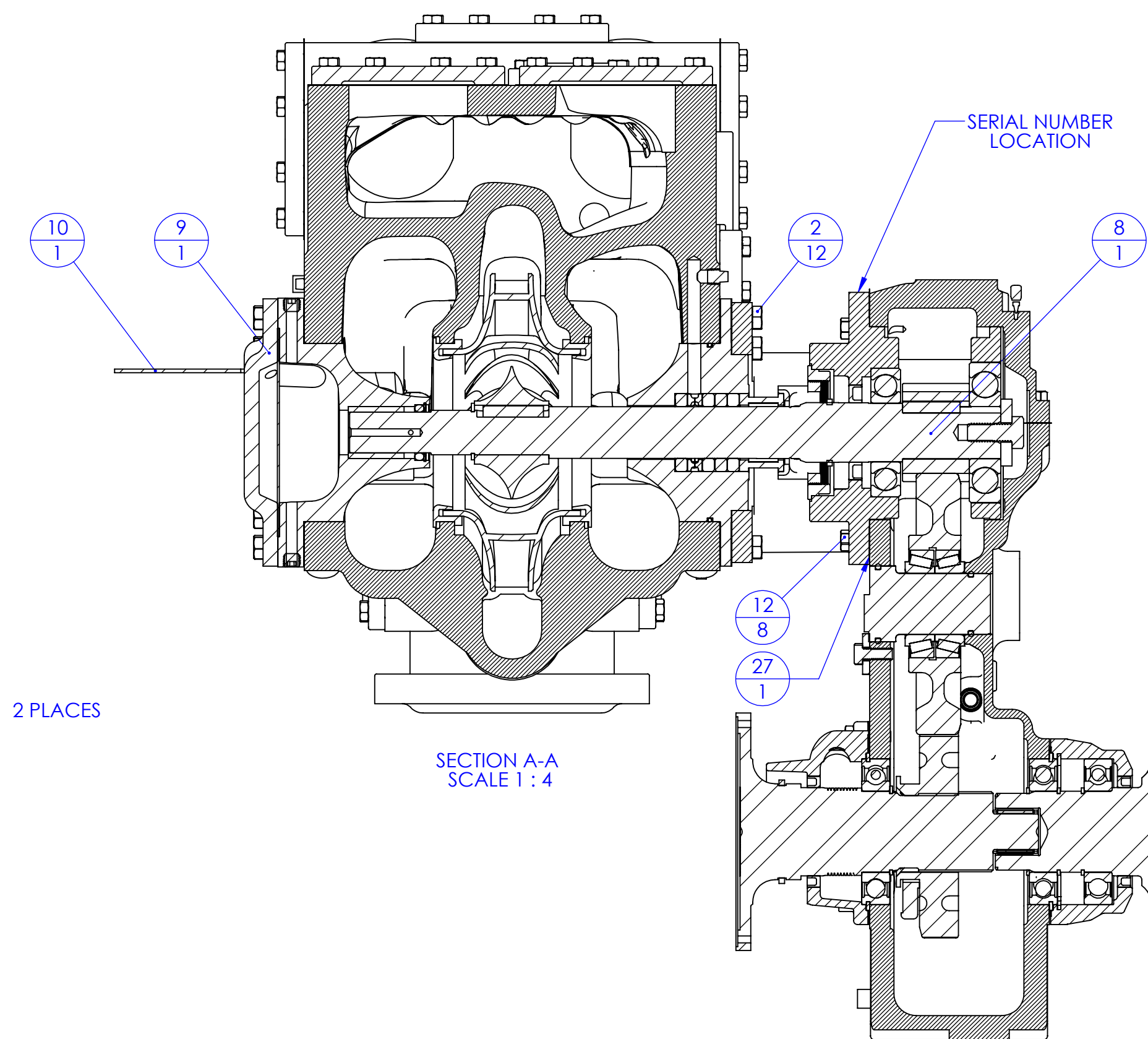
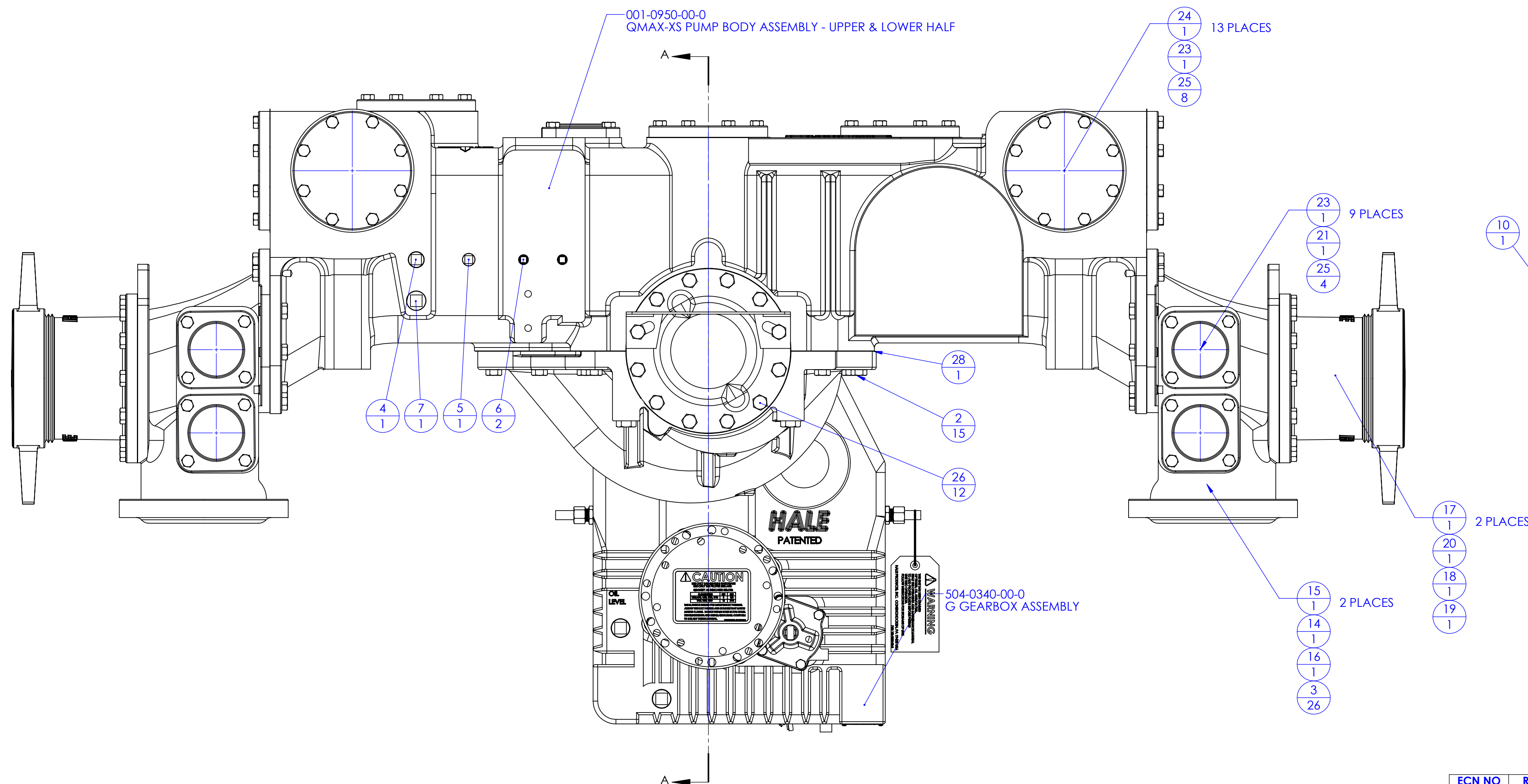
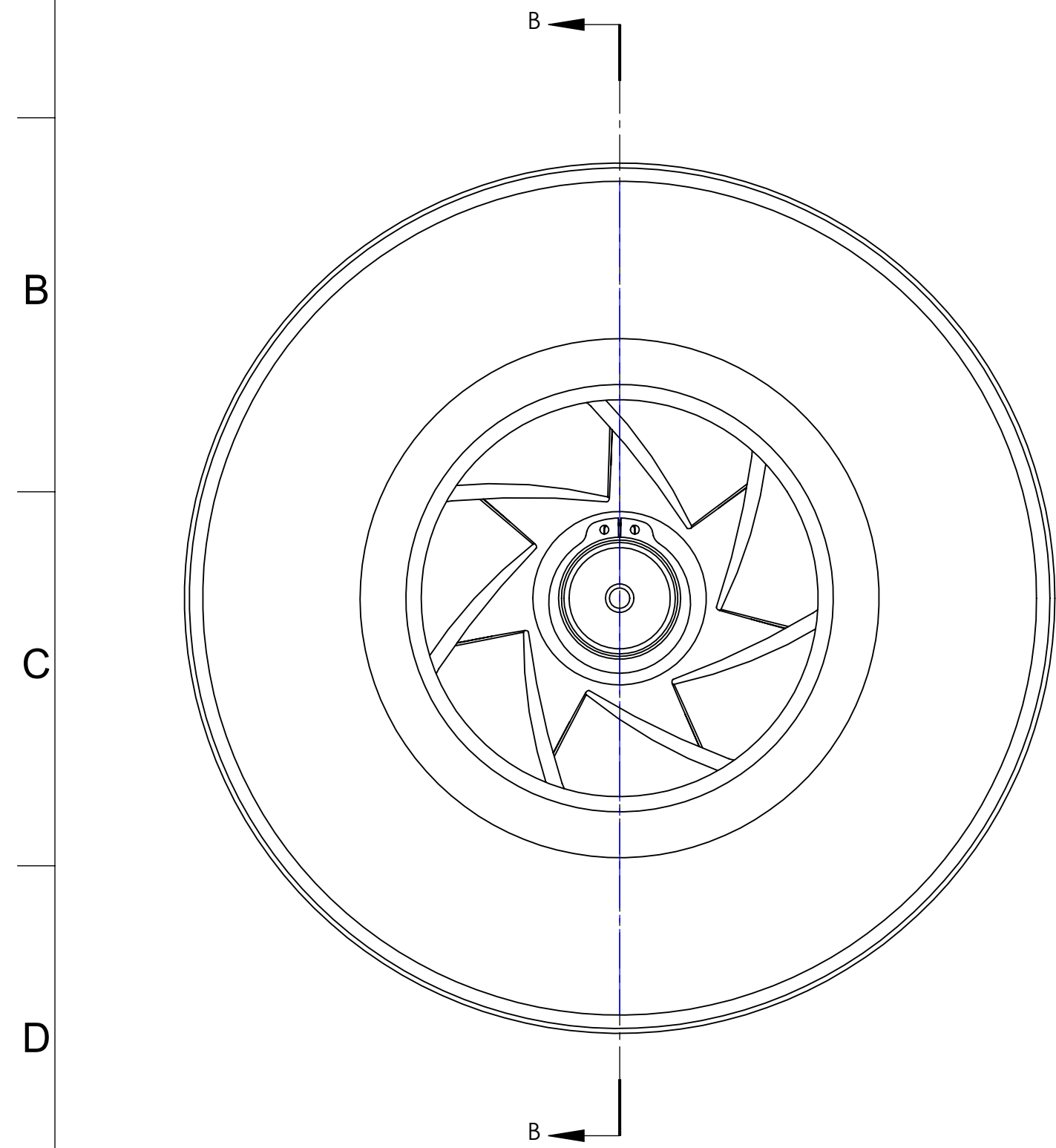


PLATE NO. 1206AB

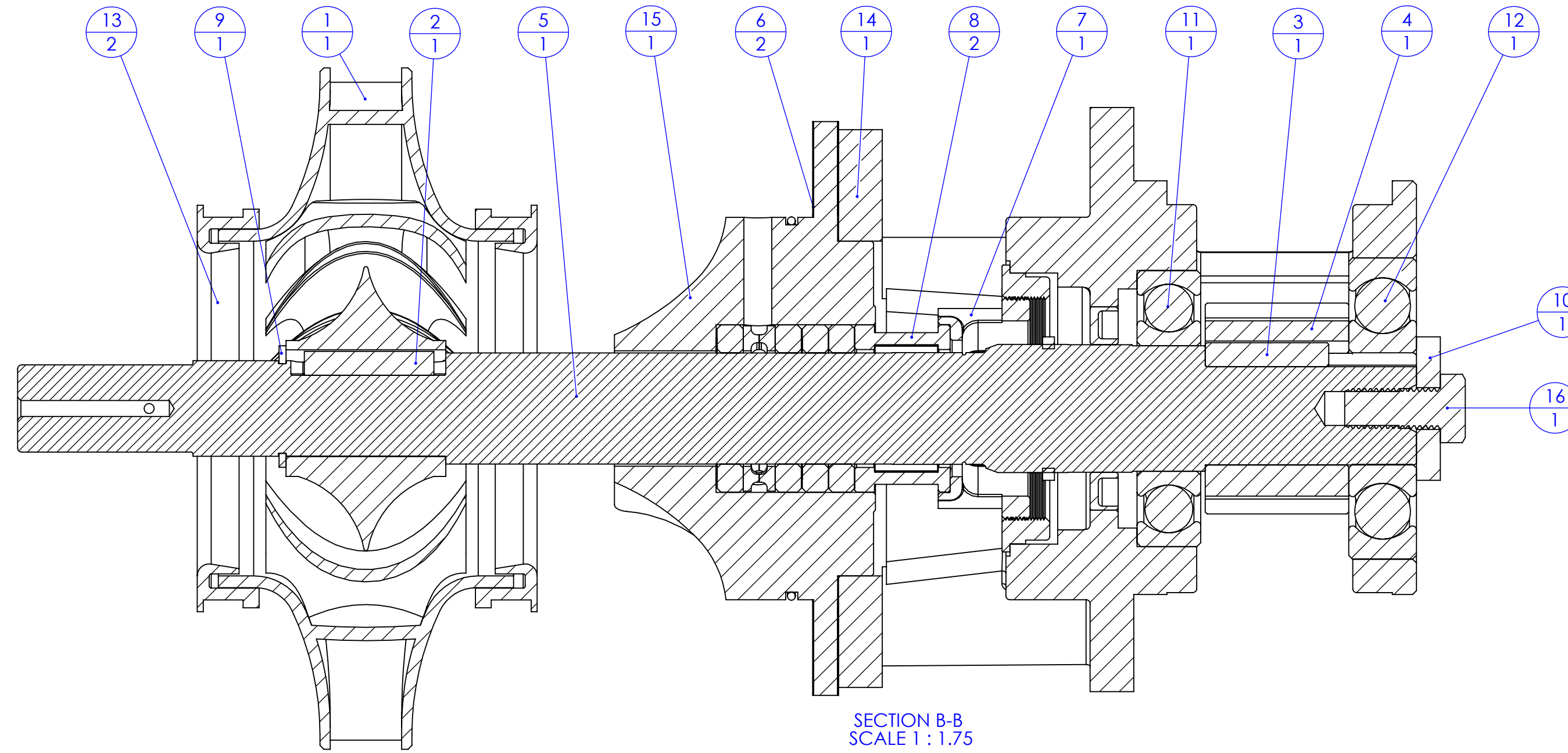
ECN NO	REV	CHANGED FROM	BY	DATE	APVD
CFL2997	A	RELEASE FOR PRODUCTION	JFB	06/04/2012	JRP
CFL3010	B	SEE SHEET 3 OF 3	JDF	08/14/2012	JRP

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN INCHES
 2. DIMENSIONS IN PARENTHESES ARE FOR REFERENCE ONLY
 3. DIMENSIONS IN SQUARE BRACKETS ARE FOR REFERENCE ONLY
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HALE TYPE QMAX-XS PUMP ASSEMBLY



QMAX-XS IMPELLER ASSEMBLY (PACKING SEAL)



SECTION B-B
SCALE 1 : 1.75

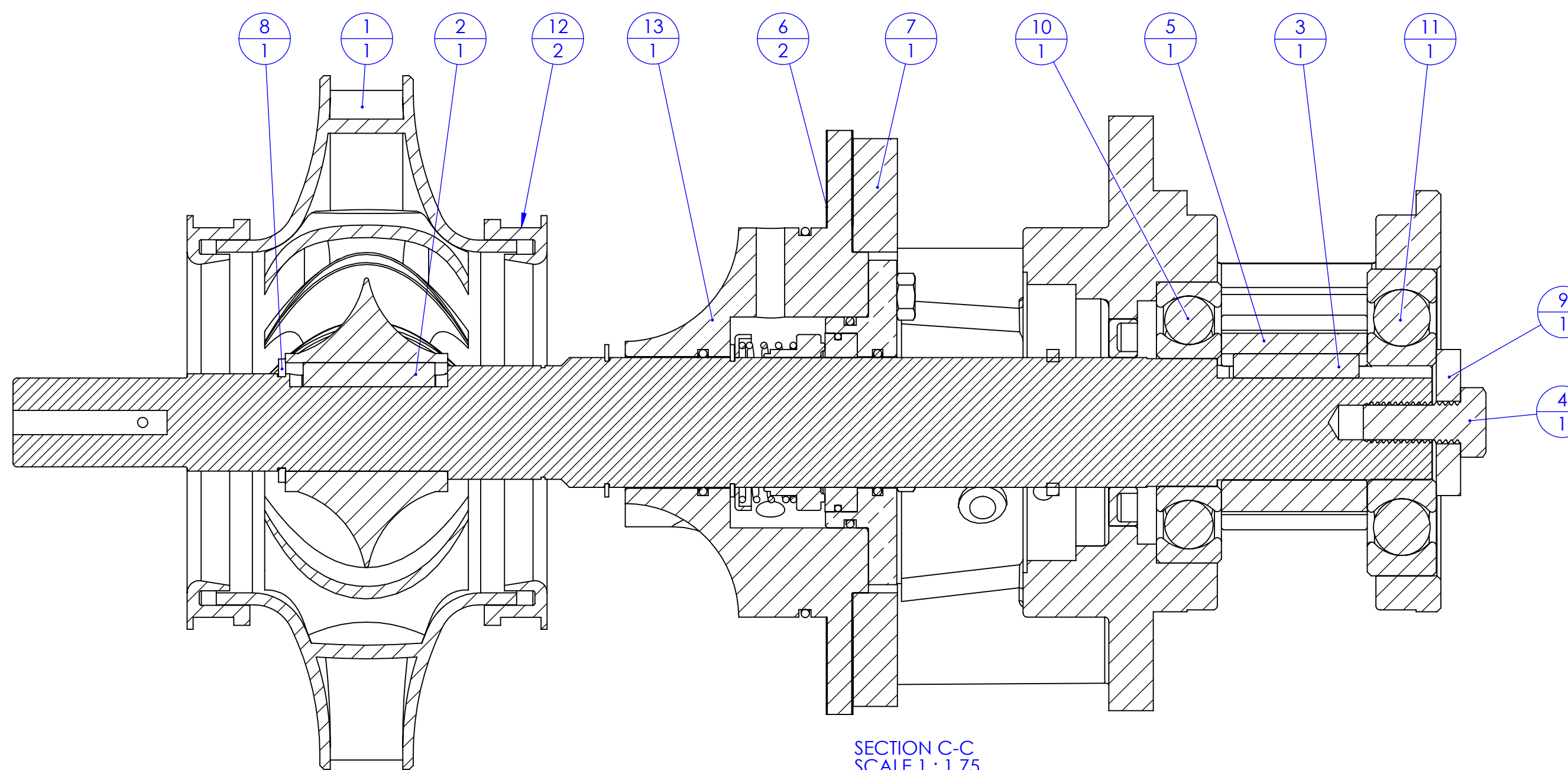
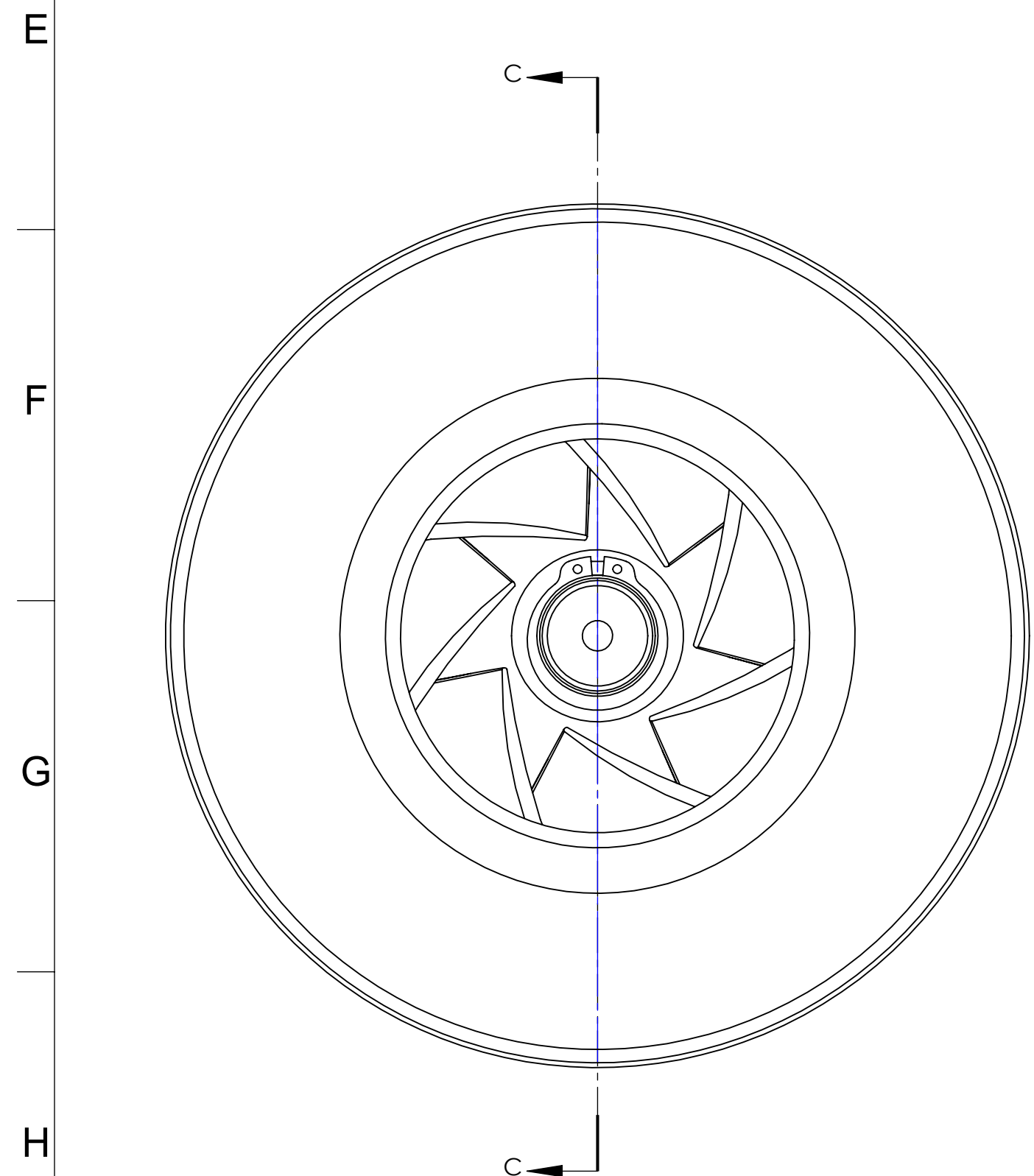
ITEM NO.	PART NUMBER	DESCRIPTION	Default/QTY.	COMMENTS
1	IMPELLER	IMPELLER	1	SEE IMPELLER/CLEARANCE RING TABLE
2	017-0120-00-0	IMPELLER KEY	1	
3	017-0300-00-0	DRIVEN SHAFT KEY	1	
4	PUMP SHAFT GEAR	PUMP SHAFT GEAR	1	SEE PACKING GEAR TABLE
5	037-1501-00-0	PUMP SHAFT (PACKING)	1	
6	046-0220-00-0	FRONT BRG. HOUSING GASKET	2	
7	048-0200-00-0	Q-57R GLAND REAR	1	
8	048-0210-00-0	FRONT PACKING GLAND	2	
9	077-1500-25-0	RETAINING RING	1	
10	097-0830-01-0	WASHER-IMP SHAFT	1	
11	250-0310-00-0	310K BEARING	1	
12	250-0409-00-0	409K BEARING	1	
13	CLEARANCE RING	CLEARANCE RING	2	SEE PACKING IMPELLER/CLEARANCE RING TABLE
14	REAR BEARING HOUSING ASSEMBLY	REAR BEARING HOUSING ASSEMBLY	1	SEE PACKING REAR BEARING HOUSING TABLE AND SHEET (3)
15	562-0140-00-0	QSM-G262H PACKING HOUSING	1	SEE SHEET (3)
16	018-2414-25-0	SCR 5/8-11X1-1/2 LG HEX,GR8	1	

PACKING GEAR TABLE			
NO. OF TEETH	GEAR PART NO.	PUMP MODEL	PUMP MODEL
18	031-0920-00-0	QMAX-XS*-23 L/S	QMAX-XS*-28X
20	031-0930-00-0	QMAX-XS*-21 L/S	QMAX-XS*-25X
22	031-0940-00-0	QMAX-XS*-19 L/S	QMAX-XS*-23X
24	031-0950-00-0	QMAX-XS*-17 L/S	QMAX-XS*-21X
26	031-0960-00-0	QMAX-XS*-15 L/S	QMAX-XS*-19X

PACKING REAR BEARING HOUSING TABLE		
HOUSING P/N	LG & SG GEARBOX	XG GEARBOX
062-0130-00-0	QMAX-XS*- 23 & QMAX-XS*- 15	QMAX-XS*- 28 & QMAX-XS*- 19
062-0140-00-0	QMAX-XS*- 21 & QMAX-XS*- 17	QMAX-XS*- 25 & QMAX-XS*- 21
062-0150-00-0	QMAX-XS*- 19	QMAX-XS*- 23

PACKING IMPELLER/CLEARANCE RING TABLE		
QMAX-XS PART NUMBER	IMPELLER PART NUMBER	CLEARANCE RING PART NUMBER
QMAX-XS 225/800M	016-0081-10-0	321-0371-01-0
ALL OTHERS	016-0081-00-0	321-0371-00-0

QMAX-XS IMPELLER ASSEMBLY (MECHANICAL SEAL)



SECTION C-C
SCALE 1 : 1.75

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	COMMENTS
1	IMPELLER	IMPELLER	1	SEE MECHANICAL SEAL IMPELLER/CLEARANCE RING TABLE
2	017-0120-00-0	IMPELLER KEY	1	
3	017-0300-00-0	DRIVEN SHAFT KEY	1	
4	018-2414-25-0	SCR 5/8-11X1-1/2 LG HEX,GR8	1	
5	PUMP SHAFT GEAR	PUMP SHAFT GEAR	1	SEE MECHANICAL SEAL GEAR TABLE
6	046-0220-00-0	FRONT BRG. HOUSING GASKET	2	
7	REAR BEARING HOUSING	REAR BEARING HOUSING	1	SEE MECHANICAL SEAL REAR BEARING HOUSING TABLE
8	077-1500-25-0	RETAINING RING	1	
9	097-0830-01-0	WASHER-IMP SHAFT	1	
10	250-0310-00-0	310K BEARING	1	
11	250-0409-00-0	409K BEARING	1	
12	CLEARANCE RING	CLEARANCE RING	2	SEE MECHANICAL SEAL IMPELLER/CLEARANCE RING TABLE
13	562-0310-02-0	MECH SEAL HSG ASSY	1	SEE SHEET (3)

MECHANICAL SEAL GEAR TABLE			
NO. OF TEETH	GEAR PART NO.	PUMP MODEL	PUMP MODEL
18	031-0920-00-0	QMAX-XS*-23 L/S	QMAX-XS*-28X
20	031-0930-00-0	QMAX-XS*-21 L/S	QMAX-XS*-25X
22	031-0940-00-0	QMAX-XS*-19 L/S	QMAX-XS*-23X
24	031-0950-00-0	QMAX-XS*-17 L/S	QMAX-XS*-21X
26	031-0960-00-0	QMAX-XS*-15 L/S	QMAX-XS*-19X

MECHANICAL SEAL REAR BEARING HOUSING TABLE		
HOUSING P/N	LG & SG GEARBOX	XG GEARBOX
062-0130-00-0	QMAX-XS*- 23 & QMAX-XS*- 15	QMAX-XS*- 28 & QMAX-XS*- 19
062-0140-00-0	QMAX-XS*- 21 & QMAX-XS*- 17	QMAX-XS*- 25 & QMAX-XS*- 21
062-0150-00-0	QMAX-XS*- 19	QMAX-XS*- 23

MECHANICAL SEAL IMPELLER/CLEARANCE RING TABLE		
QMAX-XS PART NUMBER	IMPELLER PART NUMBER	CLEARANCE RING PART NUMBER
QMAX-XS 225/800M	016-0081-10-0	321-0371-01-0
ALL OTHERS	016-0081-00-0	321-0371-00-0

PLATE NO. 1206AB

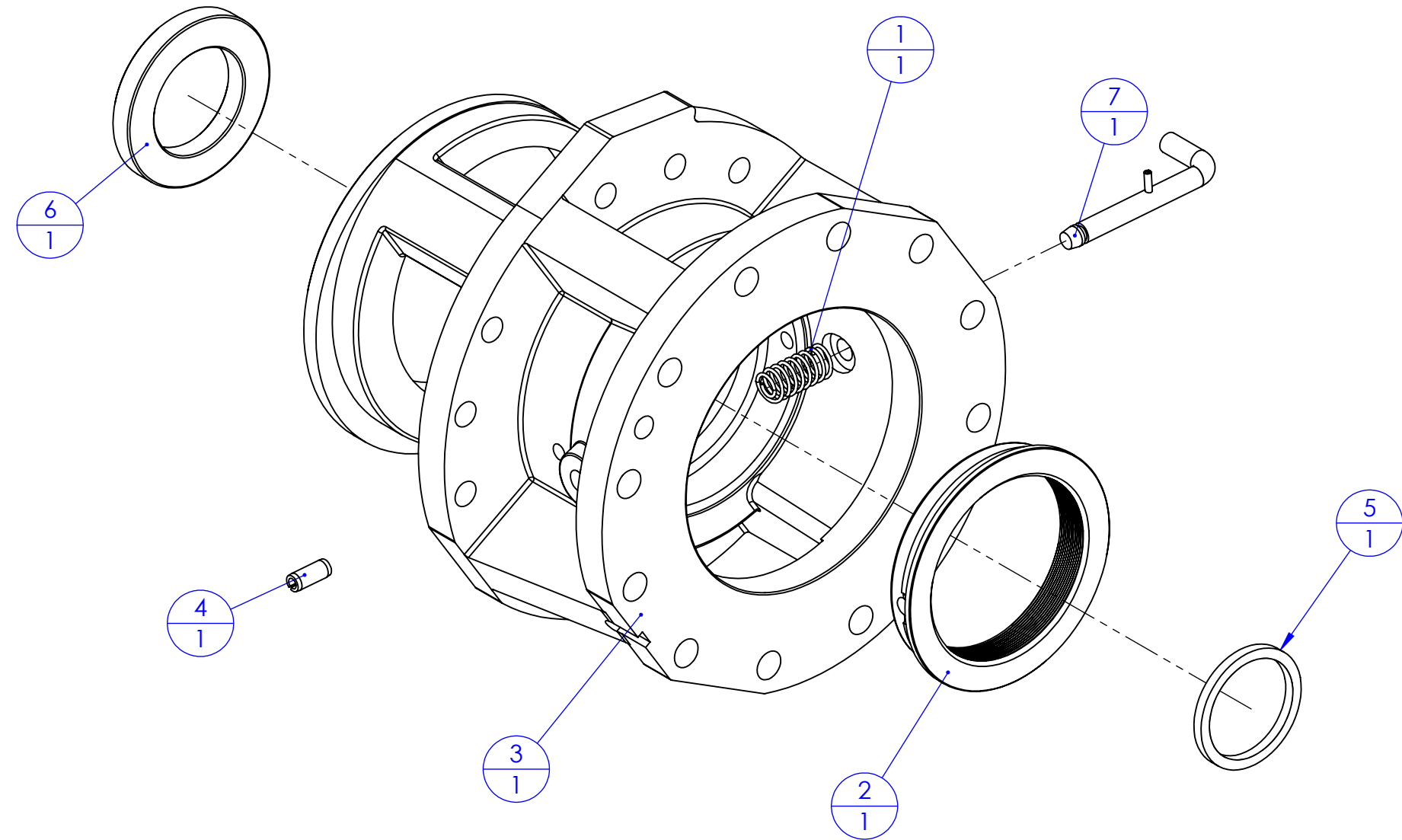
ECN NO	REV	CHANGED FROM	BY	DATE	APVD	UNLESS OTHERWISE SPECIFIED: 1. ALL DIMENSIONS ARE IN INCHES 2. DIMENSIONS MAY NOT BE TO SCALE 3. DIMENSIONS TO CENTER UNLESS NOTED 4. DIMENSIONS TO DIMENSION LINE UNLESS NOTED 5. DIMENSIONS TO SURFACE UNLESS NOTED 6. DIMENSIONS TO CENTER UNLESS NOTED 7. DIMENSIONS TO SURFACE UNLESS NOTED 8. DIMENSIONS TO CENTER UNLESS NOTED 9. DIMENSIONS TO SURFACE UNLESS NOTED 10. DIMENSIONS TO CENTER UNLESS NOTED 11. DIMENSIONS TO SURFACE UNLESS NOTED 12. DIMENSIONS TO CENTER UNLESS NOTED 13. DIMENSIONS TO SURFACE UNLESS NOTED 14. DIMENSIONS TO CENTER UNLESS NOTED 15. DIMENSIONS TO SURFACE UNLESS NOTED 16. DIMENSIONS TO CENTER UNLESS NOTED 17. DIMENSIONS TO SURFACE UNLESS NOTED 18. DIMENSIONS TO CENTER UNLESS NOTED 19. DIMENSIONS TO SURFACE UNLESS NOTED 20. DIMENSIONS TO CENTER UNLESS NOTED 21. DIMENSIONS TO SURFACE UNLESS NOTED 22. DIMENSIONS TO CENTER UNLESS NOTED 23. DIMENSIONS TO SURFACE UNLESS NOTED 24. DIMENSIONS TO CENTER UNLESS NOTED 25. DIMENSIONS TO SURFACE UNLESS NOTED 26. DIMENSIONS TO CENTER UNLESS NOTED 27. DIMENSIONS TO SURFACE UNLESS NOTED 28. DIMENSIONS TO CENTER UNLESS NOTED 29. DIMENSIONS TO SURFACE UNLESS NOTED 30. DIMENSIONS TO CENTER UNLESS NOTED 31. DIMENSIONS TO SURFACE UNLESS NOTED 32. DIMENSIONS TO CENTER UNLESS NOTED 33. DIMENSIONS TO SURFACE UNLESS NOTED 34. DIMENSIONS TO CENTER UNLESS NOTED 35. DIMENSIONS TO SURFACE UNLESS NOTED 36. DIMENSIONS TO CENTER UNLESS NOTED 37. DIMENSIONS TO SURFACE UNLESS NOTED 38. DIMENSIONS TO CENTER UNLESS NOTED 39. DIMENSIONS TO SURFACE UNLESS NOTED 40. DIMENSIONS TO CENTER UNLESS NOTED 41. DIMENSIONS TO SURFACE UNLESS NOTED 42. DIMENSIONS TO CENTER UNLESS NOTED 43. DIMENSIONS TO SURFACE UNLESS NOTED 44. DIMENSIONS TO CENTER UNLESS NOTED 45. DIMENSIONS TO SURFACE UNLESS NOTED 46. DIMENSIONS TO CENTER UNLESS NOTED 47. DIMENSIONS TO SURFACE UNLESS NOTED 48. DIMENSIONS TO CENTER UNLESS NOTED 49. DIMENSIONS TO SURFACE UNLESS NOTED 50. DIMENSIONS TO CENTER UNLESS NOTED 51. DIMENSIONS TO SURFACE UNLESS NOTED 52. DIMENSIONS TO CENTER UNLESS NOTED 53. DIMENSIONS TO SURFACE UNLESS NOTED 54. DIMENSIONS TO CENTER UNLESS NOTED 55. DIMENSIONS TO SURFACE UNLESS NOTED 56. DIMENSIONS TO CENTER UNLESS NOTED 57. DIMENSIONS TO SURFACE UNLESS NOTED 58. DIMENSIONS TO CENTER UNLESS NOTED 59. DIMENSIONS TO SURFACE UNLESS NOTED 60. DIMENSIONS TO CENTER UNLESS NOTED 61. DIMENSIONS TO SURFACE UNLESS NOTED 62. DIMENSIONS TO CENTER UNLESS NOTED 63. DIMENSIONS TO SURFACE UNLESS NOTED 64. DIMENSIONS TO CENTER UNLESS NOTED 65. DIMENSIONS TO SURFACE UNLESS NOTED 66. DIMENSIONS TO CENTER UNLESS NOTED 67. DIMENSIONS TO SURFACE UNLESS NOTED 68. DIMENSIONS TO CENTER UNLESS NOTED 69. DIMENSIONS TO SURFACE UNLESS NOTED 70. DIMENSIONS TO CENTER UNLESS NOTED 71. DIMENSIONS TO SURFACE UNLESS NOTED 72. DIMENSIONS TO CENTER UNLESS NOTED 73. DIMENSIONS TO SURFACE UNLESS NOTED 74. DIMENSIONS TO CENTER UNLESS NOTED 75. DIMENSIONS TO SURFACE UNLESS NOTED 76. DIMENSIONS TO CENTER UNLESS NOTED 77. DIMENSIONS TO SURFACE UNLESS NOTED 78. DIMENSIONS TO CENTER UNLESS NOTED 79. DIMENSIONS TO SURFACE UNLESS NOTED 80. DIMENSIONS TO CENTER UNLESS NOTED 81. DIMENSIONS TO SURFACE UNLESS NOTED 82. DIMENSIONS TO CENTER UNLESS NOTED 83. DIMENSIONS TO SURFACE UNLESS NOTED 84. DIMENSIONS TO CENTER UNLESS NOTED 85. DIMENSIONS TO SURFACE UNLESS NOTED 86. DIMENSIONS TO CENTER UNLESS NOTED 87. DIMENSIONS TO SURFACE UNLESS NOTED 88. DIMENSIONS TO CENTER UNLESS NOTED 89. DIMENSIONS TO SURFACE UNLESS NOTED 90. DIMENSIONS TO CENTER UNLESS NOTED 91. DIMENSIONS TO SURFACE UNLESS NOTED 92. DIMENSIONS TO CENTER UNLESS NOTED 93. DIMENSIONS TO SURFACE UNLESS NOTED 94. DIMENSIONS TO CENTER UNLESS NOTED 95. DIMENSIONS TO SURFACE UNLESS NOTED 96. DIMENSIONS TO CENTER UNLESS NOTED 97. DIMENSIONS TO SURFACE UNLESS NOTED 98. DIMENSIONS TO CENTER UNLESS NOTED 99. DIMENSIONS TO SURFACE UNLESS NOTED 100. DIMENSIONS TO CENTER UNLESS NOTED
CFL2997	A	RELEASE FOR PRODUCTION	JFB	06/04/2012	JRP	
CFL3010	B	SEE SHEET 3 OF 3	JDF	08/14/2012	JRP	

QMAX-XS PUMP ASSEMBLY

 CASE # _____ DRAWN _____ APPROVED _____ PROJECT / FIRST USED ON _____

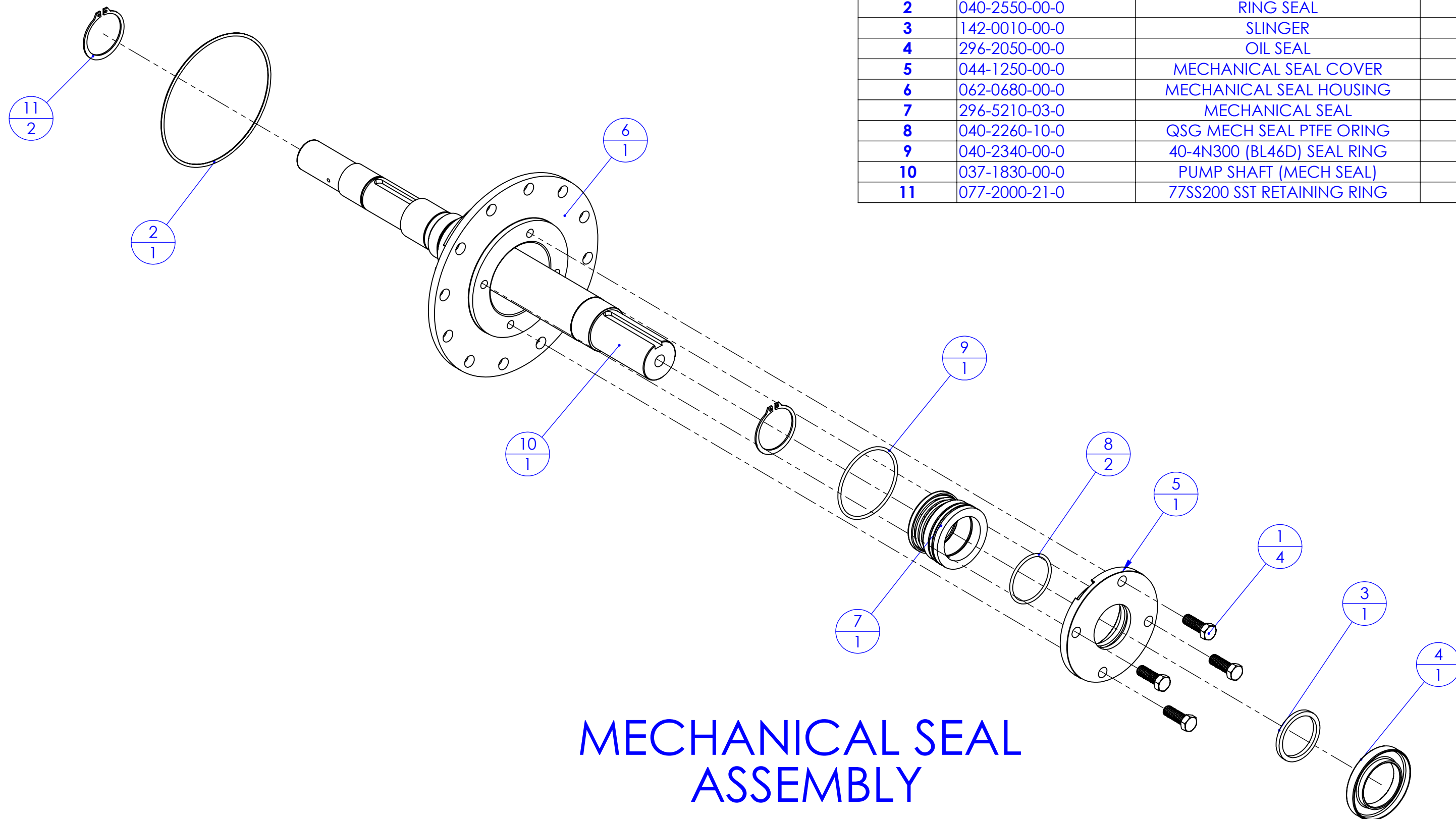
HALE TYPE QMAX-XS PUMP ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	COMMENTS
1	042-0010-00-0	SPRING	1	
2	048-0230-00-0	SLEEVE	1	
3	REAR BEARING HOUSING	REAR BEARING HOUSING	1	SEE REAR BEARING HOUSING TABLE
4	064-1016-01-0	05-64-08CS SPRING PIN	1	
5	142-0010-00-0	SLINGER	1	
6	296-2050-00-0	OIL SEAL	1	
7	564-0010-00-0	PACKING GLAND LOCKING PIN	1	



REAR BEARING HOUSING ASSEMBLY (PACKING)

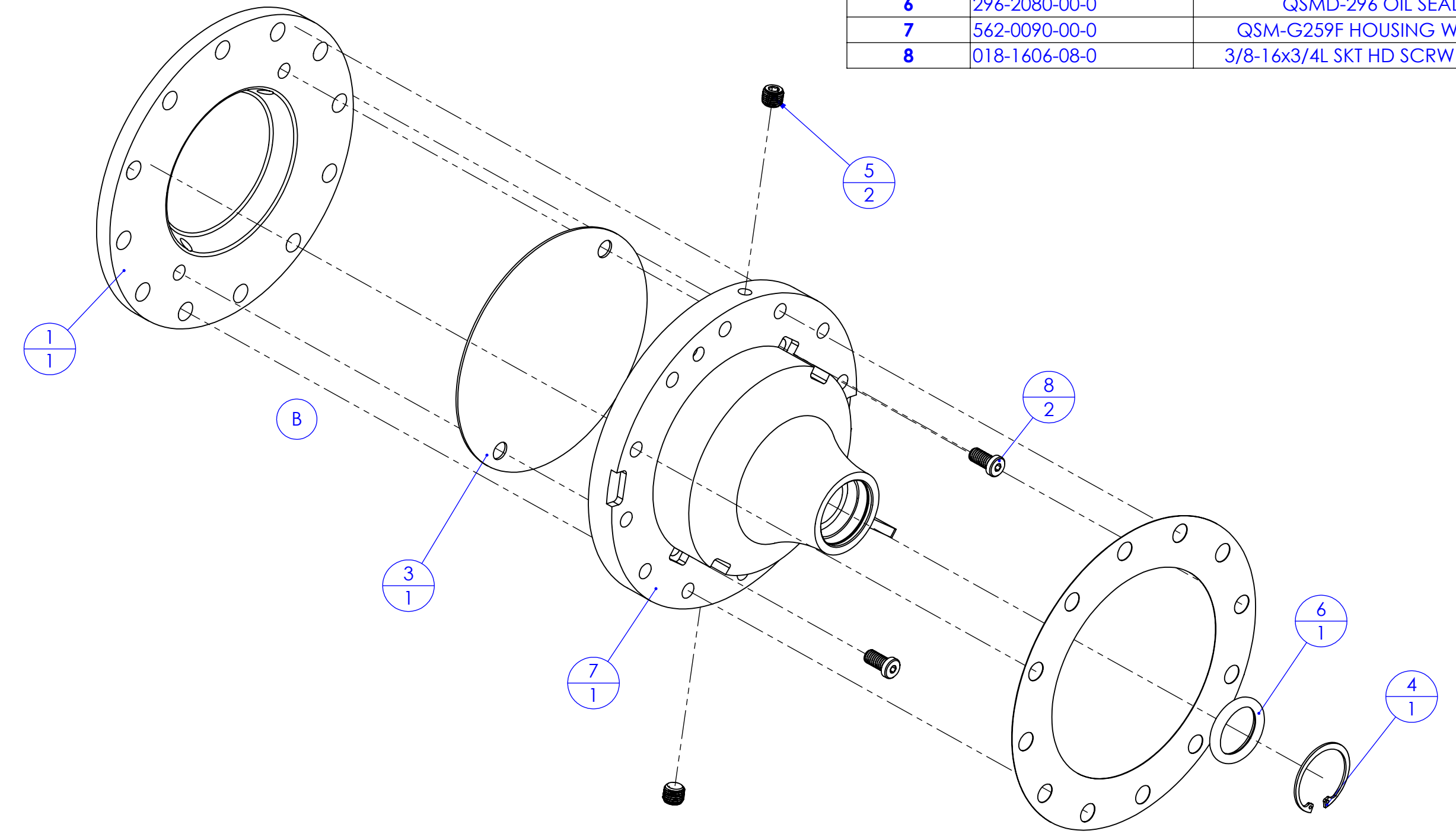
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	018-1812-25-0	SCREW, 7/16-14 X 1.25, GR8	4
2	040-2550-00-0	RING SEAL	1
3	142-0010-00-0	SLINGER	1
4	296-2050-00-0	OIL SEAL	1
5	044-1250-00-0	MECHANICAL SEAL COVER	1
6	062-0680-00-0	MECHANICAL SEAL HOUSING	1
7	296-5210-03-0	MECHANICAL SEAL	1
8	040-2260-10-0	QSG MECH SEAL PTFE ORING	2
9	040-2340-00-0	40-4N300 (BL46D) SEAL RING	1
10	037-1830-00-0	PUMP SHAFT (MECH SEAL)	1
11	077-2000-21-0	77SS200 SST RETAINING RING	2



MECHANICAL SEAL ASSEMBLY

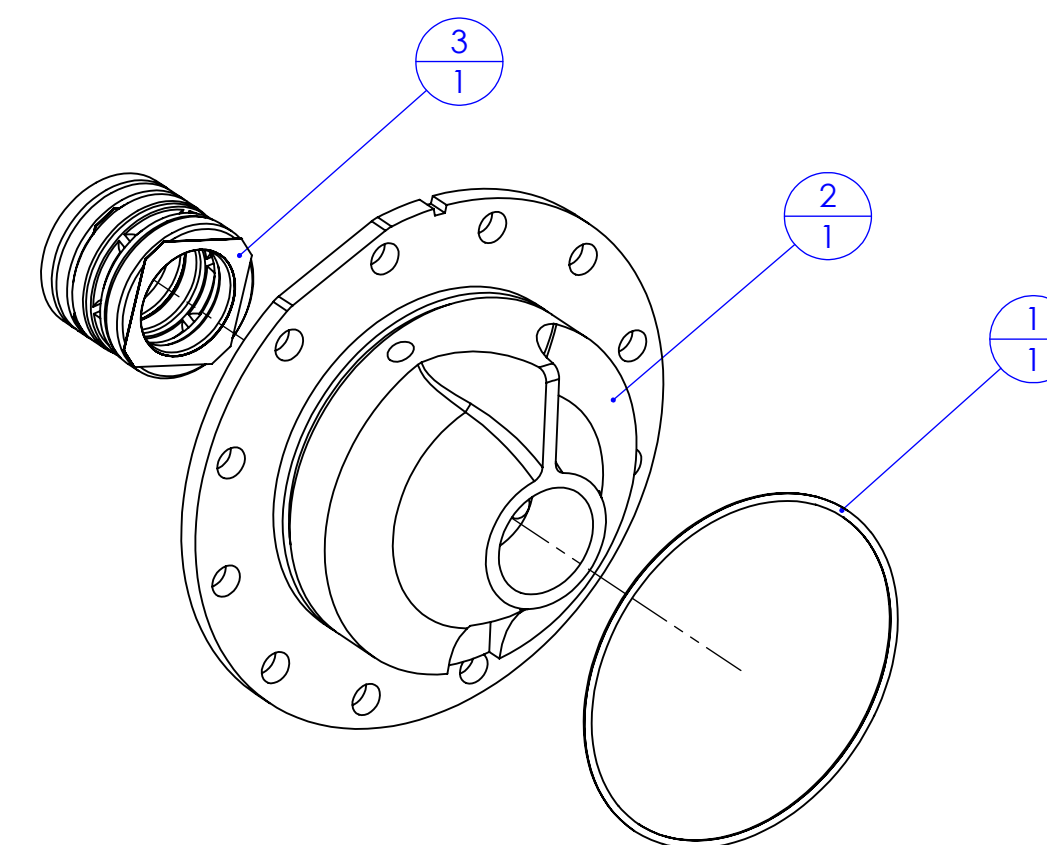
PLATE NO. 1206AB

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	044-0280-00-0	FRONT BEARING COVER	1
2	046-0220-00-0	FRONT BRG. HOUSING GASKET	1
3	046-5170-00-0	DIAPHRAM	1
4	077-1871-20-0	S79SS187 RETAINING RING	1
5	217-0201-04-0	PLUG-1/4 NPT HEX SOCKET HD BRG	2
6	296-2080-00-0	QSM-D296 OIL SEAL	1
7	562-0090-00-0	QSM-G259F HOUSING W/BRG	1
8	018-1606-08-0	3/8-16x3/4L SKT HD SCR W GRD 5	2



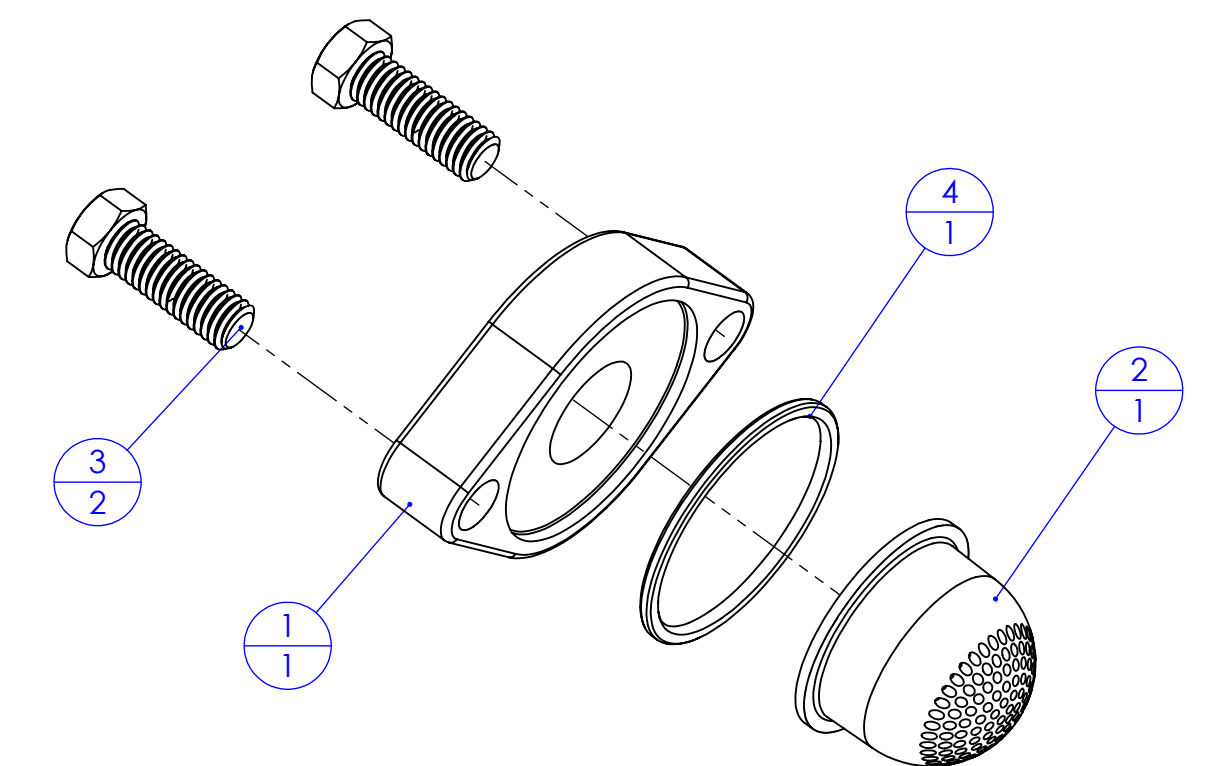
AUTOLUBE ASSEMBLY

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	040-2550-00-0	RING SEAL	1
2	062-0120-00-0	PACKING HOUSING MACHINED	1
3	296-0030-10-0	PACKING KIT	1



PACKING HOUSING

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	005-0010-00-0	PRIMING VALVE FLANGE	1
2	010-0040-00-0	Priming Valve Strainer (ZMQ-329H)	1
3	018-1812-25-0	SCREW, 7/16-14 X 1.25, GR8	2
4	040-2260-00-0	O-Ring (40-4N200)	1



PRIMER MOUNTING PLATE AND STRAINER

ECN NO	REV	CHANGED FROM	BY	DATE	APVD
CFL2997	A	RELEASE FOR PRODUCTION	JFB	06/04/2012	JRP
CFL3010	B	REMOVED GASKET	JDF	08/14/2012	JRP

UNLESS OTHERWISE SPECIFIED	SCALE	DATE	PROJECT	REV
1. DIMENSIONS ARE IN INCHES 2. DIMENSIONS ARE IN MILLIMETERS 3. DIMENSIONS ARE IN MILLIMETERS 4. DIMENSIONS ARE IN MILLIMETERS 5. DIMENSIONS ARE IN MILLIMETERS 6. DIMENSIONS ARE IN MILLIMETERS 7. DIMENSIONS ARE IN MILLIMETERS 8. DIMENSIONS ARE IN MILLIMETERS 9. DIMENSIONS ARE IN MILLIMETERS 10. DIMENSIONS ARE IN MILLIMETERS 11. DIMENSIONS ARE IN MILLIMETERS 12. DIMENSIONS ARE IN MILLIMETERS	1:2	08/14/2012	HALE TYPE QMAX-XS PUMP ASSEMBLY	B